```
 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                   COPYRIGHT IBM CORP 1976
                             3          COPY  LOG7861                ** MAP EC HISTORY **
                             4  ********************************************************************************
                             5  *                                                                              *
                             6  *                     ***       PREREQUISITES        ***                     *
                             7  *                                                                              *
                             8  *                                 NONE                                         *
                             9  *                                                                              *
                            10  ********************************************************************************
                            11  *                                                                              *
                            12  *                     ***       MODIFICATIONS        ***                     *
                            13  *                                                                              *
                            14  *                CHANGES MADE TO MEET PROGRAM REQUIREMENTS                     *
                            15  *                                                                              *
                            16  ********************************************************************************
                            17  *                                                                              *
                            18  *                     ***     REA'S INCORPORATED     ***                     *
                            19  *                                                                              *
                            20  *                                 NONE                                         *
                            21  *                                                                              *
                            22  ********************************************************************************
                            23  *                                                                              *
                            24  *                     ***    SPECIAL INSTRUCTIONS    ***                     *
                            25  *                                                                              *
                            26  *                                 NONE                                         *
                            27  *                                                                              *
                            28  ********************************************************************************
                            29  *                                                                              *
                            30  *                     ***       E. C. HISTORY        ***                     *
                            31  *                                                                              *
                            32  *          DATE 17DEC76  DATE 18JAN77  DATE 04MAR77  DATE 10JUN77              *
                            33  *          E.C. 578486   E.C. 578573   E.C. 578638   E.C. 578625               *
                            34  *                                                                              *
                            35  *          DATE 01MAR78  DATE          DATE          DATE                     *
                            36  *          E.C. 755285   E.C.          E.C.          E.C.                     *
                            37  *                                                                              *
                            38  ********************************************************************************
002500                      40  I7861    START X'2500'            START ADDRESS OF ALL 'I' TYPE PROG
000100                      41  @QUES    EQU   X'0100'            EQUATED VALUE FOR MDI STATEMENT
000101                      42  @FIXT    EQU   X'0101'            EQUATED VALUE FOR MDI STATEMENT
000102                      43  @STOP    EQU   X'0102'            EQUATED VALUE FOR MDI STATEMENT
000200                      44  @GOTO    EQU   X'0200'            EQUATED VALUE FOR MDI STATEMENT
000201                      45  @CALL    EQU   X'0201'            EQUATED VALUE FOR MDI STATEMENT
000300                      46  @INPT    EQU   X'0300'            EQUATED VALUE FOR MDI STATEMENT
000400                      47  @QUXX    EQU   X'0400'            EQUATED VALUE FOR MDI STATEMENT
000500                      48  @TUXX    EQU   X'0500'            EQUATED VALUE FOR MDI STATEMENT
000600                      49  @NVLD    EQU   X'0600'            EQUATED VALUE FOR MDI STATEMENT
000000                      50  EQ       EQU   X'0000'            EQUATE FOR EQUAL
000004                      51  NE       EQU   X'0004'            EQUATE FOR NOT EQUAL
000008                      52  HI       EQU   X'0008'            EQUATE FOR HIGH
00000C                      53  NH       EQU   X'000C'            EQUATE FOR NOT HIGH
000010                      54  LO       EQU   X'0010'            EQUATE FOR LOW
000014                      55  NL       EQU   X'0014'            EQUATE FOR NOT LOW
000010                      56  LT       EQU   X'0010'            EQUATE FOR LESS THAN
00000C                      57  LE       EQU   X'000C'            EQUATE FOR LESS THAN OR EQUAL TO
000008                      58  GT       EQU   X'0008'            EQUATE FOR GREATER THAN
000014                      59  GE       EQU   X'0014'            EQUATE FOR GREATER THAN OR EQUAL TO
000200                      60  ON       EQU   X'0200'            EQUATE FOR ON
000202                      61  OF       EQU   X'0202'            EQUATE FOR OFF
000204                      62  MX       EQU   X'0204'            EQUATE FOR MIXED
000000                      63  EBC      EQU   X'0000'            EQUATE FOR EBCDIC DATA TRANFER
000001                      64  HEX      EQU   X'0001'            EQUATE FOR HEX DATA TRANSFER
000001                      65  XTRNL    EQU   X'0001'            EQUATE FOR EXTERNAL REFERENCE
000000                      66  INTRNL   EQU   X'0000'            EQUATE FOR INTERNAL REFERENCE
000000                      67  PARM     EQU   X'0000'            EQUATE INDICATING PARAMETER
000001                      68  DA       EQU   X'0001'            EQUATE FOR DEVICE ADDRESS
000002                      69  UA       EQU   X'0002'            EQUATE FOR UNIT ADDRESS
000000                      70  DUMMY    EQU   X'0000'            DUMMY EQUATE
001800                      72  PID      EQU   *-X'0D00'          ADDRESS OF MDI HEADER
000232                      73  PTYPE    EQU   *-X'22CE'          ADDRESS OF PROCESSOR TYPE FIELD
00180C                      74  STEPNUM  EQU   PID+X'000C'        ADDRESS OF DECIMAL STEP NUMBER
00180E                      75  OPWD1    EQU   PID+X'000E'        ADDRESS OF OPTION WORD ONE
001810                      76  OPWD2    EQU   PID+X'0010'        ADDRESS OF OPTION WORD TWO
001818                      77  TUSTATUS EQU   PID+X'0018'        ADDRESS OF TU STATUS WORD
00181A                      78  TUWORK   EQU   PID+X'001A'        ADDRESS OF TU WORK AREA
00189A                      79  TUPARM1  EQU   PID+X'009A'        ADDRESS OF PARM 1 POINTER
00189C                      80  TUPARM2  EQU   PID+X'009C'        ADDRESS OF PARM 2 POINTER
00189E                      81  TUPARM3  EQU   PID+X'009E'        ADDRESS OF PARM 3 POINTER
0018A0                      82  TUPARM4  EQU   PID+X'00A0'        ADDRESS OF PARM 4 POINTER
0018A2                      83  TUPARM5  EQU   PID+X'00A2'        ADDRESS OF PARM 5 POINTER
0018A4                      84  TUPARM6  EQU   PID+X'00A4'        ADDRESS OF PARM 6 POINTER
0018A6                      85  TUPARM7  EQU   PID+X'00A6'        ADDRESS OF PARM 7 POINTER
0018A8                      86  TUPARM8  EQU   PID+X'00A8'        ADDRESS OF PARM 8 POINTER
0018AA                      87  TUPARM9  EQU   PID+X'00AA'        ADDRESS OF PARM 9 POINTER
0018AC                      88  TUPARM10 EQU   PID+X'00AC'        ADDRESS OF PARM 10 POINTER
0018AE                      89  TUPARM11 EQU   PID+X'00AE'        ADDRESS OF PARM 11 POINTER
0018B0                      90  TUPARM12 EQU   PID+X'00B0'        ADDRESS OF PARM 12 POINTER
0018B2                      91  TUPARM13 EQU   PID+X'00B2'        ADDRESS OF PARM 13 POINTER
0018B4                      92  TUPARM14 EQU   PID+X'00B4'        ADDRESS OF PARM 14 POINTER
0018B6                      93  TUPARM15 EQU   PID+X'00B6'        ADDRESS OF PARM 15 POINTER
0018B8                      94  TUPARM16 EQU   PID+X'00B8'        ADDRESS OF PARM 16 POINTER
0018BA                      95  TUMSGWTR EQU   PID+X'00BA'        ADDRESS OF -> TO COMMON MSG WRITER
0018BE                      96  TUUA     EQU   PID+X'00BE'        ADDRESS OF UNIT ADDRESS IN EBC
0018C0                      97  TUDA     EQU   PID+X'00C0'        ADDRESS OF DEVICE ADDRESS IN EBC
0018C2                      98  TUBUFF   EQU   PID+X'00C2'        ADDRESS OF LAST USED WORD IN MAP
0018C4                      99  TULAST   EQU   PID+X'00C4'        ADDRESS OF LAST ADDRESSABLE WORD
0018C6                     100  TURESULN EQU   PID+X'00C6'        ADDRESS OF LENGTH OF TU RESULTS
0018C8                     101  TURESUL  EQU   PID+X'00C8'        ADDRESS OF TU RESULTS FIELD
0018FC                     102  MAPNAME  EQU   PID+X'00FC'        ADDRESS OF MAP NAME FIELD IN HEX
001948                     103  TUINPT   EQU   PID+X'0148'        ADDRESS OF $INPT DATA
00196E                     104  PARMARA  EQU   PID+X'016E'        ADDRESS OF $INPT INPUT AREA
0019B8                     105  @DCADD1  EQU   PID+X'01B8'        MDI POINTER
0019BA                     106  @DCADD2  EQU   PID+X'01BA'        MDI POINTER
0019C4                     107  SUPSTAT  EQU   PID+X'01C4'        ADDRESS OF MDI STATUS
0019D0                     108  DEVADD   EQU   PID+X'01D0'        ADDRESS OF DEVICE ADDRESS TABLE 0
0019DA                     109  DEVADD1  EQU   PID+X'01DA'        ADDRESS OF DEVICE ADDRESS TABLE 1
0019E4                     110  DEVADD2  EQU   PID+X'01E4'        ADDRESS OF DEVICE ADDRESS TABLE 2
0019EE                     111  DEVADD3  EQU   PID+X'01EE'        ADDRESS OF DEVICE ADDRESS TABLE 3
0019F8                     112  DEVADD4  EQU   PID+X'01F8'        ADDRESS OF DEVICE ADDRESS TABLE 4
001A02                     113  DEVADD5  EQU   PID+X'0202'        ADDRESS OF DEVICE ADDRESS TABLE 5
001A0C                     114  DEVADD6  EQU   PID+X'020C'        ADDRESS IF DEVICE ADDRESS TABLE 6
001A16                     115  DEVADD7  EQU   PID+X'0216'        ADDRESS OF DEVICE ADDRESS TABLE 7
                           116          PRINT OFF
```



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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                   COPYRIGHT IBM CORP 1976
002500  270C              201          DC    A(ENTPT)              POINT TO MAP ENTRY POINT TABLE
                          202  ********************************************************************************
                          203  ********************************************************************************
                          204  **                                                                            **
                          205  **   THE FOLLOWING TABLES ARE USED BY THE MDI SUPERVISOR (D3C00)              **
                          206  **   TO LOCATE THE CORRECT RULE TO INVOKE, TO OBTAIN THE PROPER               **
                          207  **   PARAMETERS TO PASS TO THE TU'S AND TO PASS TO THE OPERATOR               **
                          208  **   THE INDICATED MESSAGE(S). THERE APE FOUR TABLES USED FOR THIS            **
                          209  **   PURPOSE THEY ARE:                                                        **
                          210  **                                                                            **
                          211  **   STEP AND RULE ADDRESS TABLE                                              **
                          212  **        THIS TABLE GIVES THE ADDRESS OF THE RULE TO INVOKE AND              **
                          213  **        THE ASSOCIATED STEP DECIMAL STEP NUMBER OF THAT RULE.               **
                          214  **        ENTRIES ARE AS FOLLOWES                                             **
                          215  **                  A)  AN ADDRESS OF THE RULE DC START AREA                  **
                          216  **                  B)  THE STEP NUMBER IN DECIMAL                            **
                          217  **                  C)  AN EQUATE FOR THE STEP NUMBER                         **
                          218  **                                                                            **
                          219  **   RULE INFOPMATION TABLE                                                   **
                          220  **        THIS TABLE CONTAINES THE REQUIRED INFORMATION TO EXECUTE             **
                          221  **        THE APPROPRIATE RULE UNDER MDI. EACH RULE HAS ITS OWN               **
                          222  **        UNIQUELY DEFINED AREA INDICATED BELOW. END OF TABLE IS              **
                          223  **        INDICATED WITH A X'0000' FOR THE RULE EQUATE.                       **
                          224  **                                                                            **
                          225  **        $QUES                                                               **
                          226  **                A) RULE EQUATE X'0100'                                      **
                          227  **                B) ADDRESS OF THE YES LEG RULE                              **
                          228  **                                                                            **
                          229  **        $FIXT                                                               **
                          230  **                A) RULE EQUATE X'0101'                                      **
                          231  **                B) ADDRESS OF MESSAGE TO PRINT                              **
                          232  **                                                                            **
                          233  **        $STOP                                                               **
                          234  **                A) RULE EQUATE X'0102'                                      **
                          235  **                B) ADDRESS OF MESSAGE                                       **
                          236  **                                                                            **
                          237  **        $GOTO                                                               **
                          238  **                A) RULE EQUATF X'0200'                                      **
                          239  **                B) ADDRESS OF MESSAGE                                       **
                          240  **                C) NAME OF MAP TO GO TO                                     **
                          241  **                D) ENTRY POINT WITHIN GO TO MAP TO USE                      **
                          242  **                E) INDICATOR FOR EXTERNAL OR INTERNAL REFERENCE             **
                          244  **                                                                            **
                          245  **        $CALL                                                               **
                          246  **                A) RULE EQUATE X'0201'                                      **
                          247  **                B) ADDRESS OF MESSAGE                                       **
                          248  **                C) NAME OF MAP TO CALL                                      **
                          249  **                D) ENTRY POINT WITHIN CALLED MAP TO USE                     **
                          250  **                E) INDICATOR FOR EXTERNAL OR INTERNAL REFEPENCE             **
                          251  **                                                                            **
                          252  **        $INPT                                                               **
                          253  **                A) RULE EQUATE X'0300'                                      **
                          254  **                B) INPUT TYPE (EBCDIC OR HEX)                               **
                          255  **                C) ADDRESS OF YES LEG RULE                                  **
                          256  **                D) DESTINATION LOCATION OF INPUT DATA                       **
                          257  **                E) LENGTH OF INPUT DATA                                     **
                          258  **                F) LOWER LIMIT OF GOOD DATA                                 **
                          259  **                G) HIGHER LIMIT OF GOOD DATA                                **
                          260  **                                                                            **
                          261  **        $QUXX                                                               **
                          262  **                A) PULE EQUATE X'0400'                                      **
                          263  **                B) ADDRESS OF YES LEG PULE                                  **
                          264  **                C) TU BRANCH TO ADDRESS (INITIAL)                           **
                          265  **                D) TU BRANCH TO ADDRESS (SECONDARY)                         **
                          266  **                E) LENGTH OF PARAMETER IN BYTES                             **
                          267  **                F) PARAMETER TO PASS TO TU                                  **
                          268  **                G) STORE ADDRESS FOR FIRST 8 WORDS OF PARAMETER             **
                          269  **                                                                            **
                          270  **        $TUXX                                                               **
                          271  **                A) RULE EQUATE X'0500'                                      **
                          272  **                B) ADDRESS OF YES LEG PULE                                  **
                          273  **                C) TU BRANCH TO ADDRESS                                     **
                          274  **                D) TYPE OF COMPARE TO MAKE ON RESULTS                       **
                          275  **                E) LENGTH OF COMPARED RESULTS                               **
                          276  **                F) MASK FIELD FOR COMPARE                                   **
                          277  **                G) LENGTH OF PARAMETER IN BYTES                             **
                          278  **                H) PARAMETER TO PASS TO THE TU                              **
                          279  **                I) STORE ADDRESS FOR FIRST 8 WORDS OF PARAMETEF             **
                          280  **                                                                            **
                          281  **        $NVLD                                                               **
                          282  **                A) RULE EQUATE X'0600'                                      **
                          284  **                                                                            **
                          285  **   ENTRY POINT TABLE                                                        **
                          286  **        THIS TABLE CONTAINS THE ENTRY POINTS WITHIN THE MAP THAT             **
                          287  **        THE MAP CAN BE ENTERED FROM THESE ENTRY POINTS ARE                   **
                          288  **        REFERENCED BY NAME AND ADDRESS. ENTRIES ARE AS FOLLOWES:            **
                          289  **                                                                            **
                          290  **            A) NAME OF ENTRY POINT                                          **
                          291  **            B) ADDRESS OF ENTRY POINT RULE TABLE                            **
                          292  **                                                                            **
                          293  **        THE ENTRY POINT TABLE END IS INDICATED BY A X'0000'                 **
                          294  **                                                                            **
                          295  **   MESSAGE TABLE                                                            **
                          296  **        THIS TABLE CONTAINES THE MESSAGE PASSED TO THE OPERATOR              **
                          297  **        VIA THE MDI SUPERVISOR. THE TABLE IS AS FOLLOWES:                   **
                          298  **                                                                            **
                          299  **            A) EQUATE FOR START OF MESSAGE BLOCK                            **
                          300  **            B) NUMBEP OF LINES OF MESSAGE                                   **
                          301  **            C) LENGTH OF FOLLOWING LINE                                     **
                          302  **            D) FIRST LINE OF MESSAGE                                        **
                          303  **            E) LENGTH OF FOLLOWING LINE                                     **
                          304  **            F) SECOND LINE OF MESSAGE                                       **
                          305  **            G) ETC.                                                         **
                          306  **                                                                            **
                          307  ********************************************************************************
                          308  ********************************************************************************
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                           311 ********************************************************************************
                           312 ********************************************************************************
                           313 **                                                                            **
                           314 **                      STEP AND RULE ADDRESS TABLE                           **
                           315 **                                                                            **
                           316 ********************************************************************************
                           317 ********************************************************************************
002502  25C0               318          DC    AL2(N00001)
002504  0001               319          DC    XL2'0001'
000001                     320 EQN00001 EQU       0001
002506  25C4               321          DC    AL2(N00002)
002508  0002               322          DC    XL2'0002'
000002                     323 EQN00002 EQU       0002
00250A  25C8               324          DC    AL2(N00003)
00250C  0003               325          DC    XL2'0003'
000003                     326 EQN00003 EQU       0003
00250E  25DA               327          DC    AL2(N00004)
002510  0004               328          DC    XL2'0004'
000004                     329 EQN00004 EQU       0004
002512  25EC               330          DC    AL2(N00005)
002514  0005               331          DC    XL2'0005'
000005                     332 EQN00005 EQU       0005
002516  25FA               333          DC    AL2(N00006)
002518  0006               334          DC    XL2'0006'
000006                     335 EQN00006 EQU       0006
00251A  25FC               336          DC    AL2(N00007)
00251C  0007               337          DC    XL2'0007'
000007                     338 EQN00007 EQU       0007
00251E  2600               339          DC    AL2(N00008)
002520  0008               340          DC    XL2'0008'
000008                     341 EQN00008 EQU       0008
002522  2604               342          DC    AL2(N00009)
002524  0009               343          DC    XL2'0009'
000009                     344 EQN00009 EQU       0009
002526  2608               345          DC    AL2(N00010)
002528  0010               346          DC    XL2'0010'
00000A                     347 EQN00010 EQU       0010
00252A  261A               348          DC    AL2(N00011)
00252C  0011               349          DC    XL2'0011'
00000B                     350 EQN00011 EQU       0011
00252E  262C               351          DC    AL2(N00012)
002530  0012               352          DC    XL2'0012'
00000C                     353 EQN00012 EQU       0012
002532  263E               354          DC    AL2(N00013)
002534  0013               355          DC    XL2'0013'
00000D                     356 EQN00013 EQU       0013
002536  264C               357          DC    AL2(N00014)
002538  0014               358          DC    XL2'0014'
00000E                     359 EQN00014 EQU       0014
00253A  2650               360          DC    AL2(N00015)
00253C  0015               361          DC    XL2'0015'
00000F                     362 EQN00015 EQU       0015
00253E  2654               363          DC    AI2(N00016)
002540  0016               364          DC    XL2'0016'
000010                     365 EQN00016 EQU       0016
002542  2662               366          DC    AL2(N00017)
002544  0017               367          DC    XL2'0017'
000011                     368 EQN00017 EQU       0017
002546  2664               369          DC    AL2(N00018)
002548  0018               370          DC    XL2'0018'
000012                     371 EQN00018 EQU       0018
00254A  2668               372          DC    AL2(N00019)
00254C  0019               373          DC    XL2'0019'
000013                     374 EQN00019 EQU       0019
00254E  266C               375          DC    AL2(N00020)
002550  0020               376          DC    XL2'0020'
000014                     377 EQN00020 EQU       0020
002552  2670               378          DC    AL2(N00021)
002554  0021               379          DC    XL2'0021'
000015                     380 EQN00021 EQU       0021
002556  2674               381          DC    AL2(N00022)
002558  0022               382          DC    XL2'0022'
000016                     383 EQN00022 EQU       0022
00255A  2682               384          DC    AL2(N00023)
00255C  0023               385          DC    XL2'0023'
000017                     386 EQN00023 EQU       0023
00255E  2684               387          DC    AL2(N00024)
002560  0024               388          DC    XL2'0024'
000018                     389 EQN00024 EQU       0024
002562  2690               390          DC    AL2(N00025)
002564  0025               391          DC    XL2'0025'
000019                     392 EQN00025 EQU       0025
002566  2694               393          DC    AL2(N00026)
002568  0026               394          DC    XL2'0026'
00001A                     395 EQN00026 EQU       0026
00256A  26A2               396          DC    AL2(N00027)
00256C  0027               397          DC    XL2'0027'
00001B                     398 EQN00027 EQU       0027
00256E  26A6               399          DC    AL2(N00028)
002570  0028               400          DC    XL2'0028'
00001C                     401 EQN00028 EQU       0028
002572  26B4               402          DC    AL2(N00029)
002574  0029               403          DC    XL2'0029'
00001D                     404 EQN00029 EQU       0029
002576  26B8               405          DC    AL2(N00030)
002578  0030               406          DC    XL2'0030'
00001E                     407 EQN00030 EQU       0030
00257A  26BC               408          DC    AL2(N00031)
00257C  0031               409          DC    XL2'0031'
00001F                     410 EQN00031 EQU       0031
00257E  26CA               411          DC    AL2(N00032)
002580  0032               412          DC    XL2'0032'
000020                     413 EQN00032 EQU       0032
002582  26CE               414          DC    AL2(N00033)
002584  0033               415          DC    XL2'0033'
000021                     416 EQN00033 EQU       0033
002586  26D2               417          DC    AL2(N00034)
002588  0034               418          DC    XL2'0034'
000022                     419 EQN00034 EQU       0034
00258A  26D6               420          DC    AL2(N00035)
00258C  0035               421          DC    XL2'0035'
000023                     422 EQN00035 EQU       0035
00258E  26DA               423          DC    AL2(N00036)
002590  0036               424          DC    XL2'0036'
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
000024                     425 EQN00036 EQU       0036
002592  26DE               426          DC    AL2(N00037)
002594  0037               427          DC    XL2'0037'
000025                     428 EQN00037 EQU       0037
002596  26E2               429          DC    AL2(N00038)
002598  0038               430          DC    XL2'0038'
000026                     431 EQN00038 EQU       0038
00259A  26E6               432          DC    AL2(N00039)
00259C  0039               433          DC    XL2'0039'
000027                     434 EQN00039 EQU       0039
00259E  26EA               435          DC    AL2(N00040)
0025A0  0040               436          DC    XL2'0040'
000028                     437 EQN00040 EQU       0040
0025A2  26EE               438          DC    AL2(N00041)
0025A4  0041               439          DC    XL2'0041'
000029                     440 EQN00041 EQU       0041
0025A6  26F2               441          DC    AL2(N00042)
0025A8  0042               442          DC    XL2'0042'
00002A                     443 EQN00042 EQU       0042
0025AA  26F6               444          DC    AL2(N00043)
0025AC  0043               445          DC    XL2'0043'
00002B                     446 EQN00043 EQU       0043
0025AE  26FA               447          DC    AL2(N00044)
0025B0  0044               448          DC    XL2'0044'
00002C                     449 EQN00044 EQU       0044
0025B2  26FE               450          DC    AL2(N00045)
0025B4  0045               451          DC    XL2'0045'
00002D                     452 EQN00045 EQU       0045
0025B6  2702               453          DC    AL2(N00046)
0025B8  0046               454          DC    XL2'0046'
00002E                     455 EQN00046 EQU       0046
0025BA  2706               456          DC    AL2(N00047)
0025BC  0047               457          DC    XL2'0047'
00002F                     458 EQN00047 EQU       0047
0025BE  0000               459          DC    AL2(DUMMY)
                           460 ********************************************************************************
                           461 ********************************************************************************
                           462 **                                                                            **
                           463 **                        PULE INFORMATION TABLE                              **
                           464 **                                                                            **
                           465 ********************************************************************************
                           466 ********************************************************************************
                           467 N00001   $QUES QT=(Q00032),YES=N00043,CT=(C00033),ST=(S00035)
0025C0  0100               468+N00001   DC    A(@QUES)
0025C2  26F6               469+         DC    AL2(N00043)
                           470 N00002   $QUES QT=(Q00038),YES=N00038,CT=(C00039)
0025C4  0100               471+N00002   DC    A(@QUES)
0025C6  26E2               472+         DC    AL2(N00038)
                           473 N00003   $TUXX T7870,02,0080,ON,QT=(Q00042),YES=N00037
0025C8  0500               474+N00003   DC    A(@TUXX)
0025CA  26DE               475+         DC    AL2(N00037)
0025CC  2D18               476+         DC    A(T7870)
0025CE  0200               477+         DC    AL2(ON)
0025D0  0002               478+         DC    AL2(02)
0025D2  0080               479+         DC    X'0080'
                           480+         ALIGN WORD
0025D4  0000               481+         DC    AL2(0)
0025D6  C1C1               482+         DC    C'AA'
                           483+         ALIGN WORD
0025D8  196E               484+         DC    AL2(PARMARA)
                           485 N00004   $TUXX T7823,02,4000,OF,QT=(Q00044),YES=N00010
0025DA  0500               486+N00004   DC    A(@TUXX)
0025DC  2608               487+         DC    AL2(N00010)
0025DE  2C4C               488+         DC    A(T7823)
0025E0  0202               489+         DC    AL2(OF)
0025E2  0002               490+         DC    AL2(02)
0025E4  4000               491+         DC    X'4000'
                           492+         ALIGN WORD
0025E6  0000               493+         DC    AL2(0)
0025E8  C1C1               494+         DC    C'AA'
                           495+         ALIGN WORD
0025EA  196E               496+         DC    AL2(PARMARA)
                           497 N00005   $QUXX T7872,REPT=T72A,QT=(Q00050),YES=N00007,CT=(C00046),      X
0025EC  0400               498+N00005   DC    A(@QUXX)
0025EE  25FC               499+         DC    AL2(N00007)
0025F0  2DE6               500+         DC    A(T7872)
0025F2  2DF8               501+         DC    AL2(T72A)
0025F4  0000               502+         DC    AL2(0)
0025F6  C1C1               503+         DC    C'AA'
                           504+         ALIGN WORD
0025F8  196E               505+         DC    AL2(PARMARA)
                           506 N00006   $NVLD FT=(F00007)
0025FA  0600               507+N00006   DC    A(@NVLD)
                           508 N00007   $QUES QT=(Q00059),YES=N00009,CT=(C00056)
0025FC  0100               509+N00007   DC    A(@QUES)
0025FE  2604               510+         DC    AL2(N00009)
                           511 N00008   $FIXT FT=(F00061),CT=(C00029),ST=(S00016)
002600  0101               512+N00008   DC    A(@FIXT)
002602  274A               513+         DC    A(F00061)
                           514 N00009   $FIXT FT=(F00065),CT=(C00029)
002604  0101               515+N00009   DC    A(@FIXT)
002606  2784               516+         DC    A(F00065)
                           517 N00010   $TUXX T7875,02,2000,ON,QT=(Q00068),YES=N00034
002608  0500               518+N00010   DC    A(@TUXX)
00260A  26D2               519+         DC    AL2(N00034)
00260C  2B00               520+         DC    A(T7875)
00260E  0200               521+         DC    AL2(ON)
002610  0002               522+         DC    AL2(02)
002612  2000               523+         DC    X'2000'
                           524+         ALIGN WORD
002614  0000               525+         DC    AL2(0)
002616  C1C1               526+         DC    C'AA'
                           527+         ALIGN WORD
002618  196E               528+         DC    AL2(PARMARA)
                           529 N00011   $TUXX T7875,02,C000,OF,QT=(Q00071),YES=N00031
00261A  0500               530+N00011   DC    A(@TUXX)
00261C  26BC               531+         DC    AL2(N00031)
00261E  2B00               532+         DC    A(T7875)
002620  0202               533+         DC    AL2(OF)
002622  0002               534+         DC    AL2(02)
002624  C000               535+         DC    X'C000'
                           536+         ALIGN WORD
002626  0000               537+         DC    AL2(0)
002628  C1C1               538+         DC    C'AA'
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                   COPYRIGHT IBM CORP 1976

                           539+         ALIGN WORD
00262A  196E               540+         DC    AL2(PARMARA)
                           541 N00012   $TUXX T7875,02,4000,ON,QT=(Q00073),YES=N00026
00262C  0500               542+N00012   DC    A(@TUXX)
00262E  2694               543+         DC    AL2(N00026)
002630  2B00               544+         DC    A(T7875)
002632  0200               545+         DC    AL2(ON)
002634  0002               546+         DC    AL2(02)
002636  4000               547+         DC    X'4000'
                           548+         ALIGN WORD
002638  0000               549+         DC    AL2(0)
00263A  C1C1               550+         DC    C'AA'
                           551+         ALIGN WORD
00263C  196E               552+         DC    AL2(PARMARA)
                           553 N00013   $QUXX T7837,QT=(Q00075),YES=N00025,CT=(C00077),ST=(S00021)
00263E  0400               554+N00013   DC    A(@QUXX)
002640  2690               555+         DC    AL2(N00025)
002642  30D8               556+         DC    A(T7837)
002644  0000               557+         DC    AL2(DUMMY)
002646  0000               558+         DC    AL2(0)
002648  C1C1               559+         DC    C'AA'
                           560+         ALIGN WORD
00264A  196E               561+         DC    AL2(PARMARA)
                           562 N00014   $QUES QT=(Q00080),YES=N00016,CT=(C00082)
00264C  0100               563+N00014   DC    A(@QUES)
00264E  2654               564+         DC    AL2(N00016)
                           565 N00015   $FIXT FT=(F00015),CT=(C00029),ST=(S00016)
002650  0101               566+N00015   DC    A(@FIXT)
002652  27B0               567+         DC    A(F00015)
                           568 N00016   $QUXX T7872,REPT=T72A,QT=(Q00094),YES=N00018,CT=(C00089),     X
002654  0400               569+N00016   DC    A(@QUXX)
002656  2664               570+         DC    AL2(N00018)
002658  2DE6               571+         DC    A(T7872)
00265A  2DF8               572+         DC    AL2(T72A)
00265C  0000               573+         DC    AL2(0)
00265E  C1C1               574+         DC    C'AA'
                           575+         ALIGN WORD
002660  196E               576+         DC    AL2(PARMARA)
                           577 N00017   $NVLD FT=(F00007)
002662  0600               578+N00017   DC    A(@NVLD)
                           579 N00018   $QUES QT=(Q00103),YES=N00020,CT=(C00100)
002664  0100               580+N00018   DC    A(@QUES)
002666  266C               581+         DC    AL2(N00020)
                           582 N00019   $FIXT FT=(F00105),CT=(C00029),ST=(S00016)
002668  0101               583+N00019   DC    A(@FIXT)
00266A  27D6               584+         DC    A(F00105)
                           585 N00020   $QUES QT=(Q00109),YES=N00022,CT=(C00111)
00266C  0100               586+N00020   DC    A(@QUES)
00266E  2674               587+         DC    AL2(N00022)
                           588 N00021   $FIXT FT=(F00117),CT=(C00029),ST=(S00016)
002670  0101               589+N00021   DC    A(@FIXT)
002672  2810               590+         DC    A(F00117)
                           591 N00022   $QUXX T7872,REPT=T72A,QT=(Q00124),YES=N00024,CT=(C00121),     X
002674  0400               592+N00022   DC    A(@QUXX)
002676  2684               593+         DC    AL2(N00024)
002678  2DE6               594+         DC    A(T7872)
00267A  2DF8               595+         DC    AL2(T72A)
00267C  0000               596+         DC    AL2(0)
00267E  C1C1               597+         DC    C'AA'
                           598+         ALIGN WORD
002680  196E               599+         DC    AL2(PARMARA)
                           600 N00023   $NVLD FT=(F00007)
002682  0600               601+N00023   DC    A(@NVLD)
                           602 N00024   $GOTO TYPE=XTRNL,MAP=7862,EP=A,FT=(F00130),GTO=((7862,A))
002684  0200               603+N00024   DC    A(@GOTO)
002686  284C               604+         DC    A(F00130)
002688  F7F8F6F2           605+         DC    CL4'7862'
00268C  C140               606+         DC    CL2'A'
00268E  0001               607+         DC    AL2(XTRNL)
                           608 N00025   $FIXT FT=(F00133),CT=(C00029),ST=(S00016)
002690  0101               609+N00025   DC    A(@FIXT)
002692  2852               610+         DC    A(F00133)
                           611 N00026   $QUXX T7833,QT=(Q00137),YES=N00028,CT=(C00138),ST=(S00021)
002694  0400               612+N00026   DC    A(@QUXX)
002696  26A6               613+         DC    AL2(N00028)
002698  314E               614+         DC    A(T7833)
00269A  0000               615+         DC    AL2(DUMMY)
00269C  0000               616+         DC    AL2(0)
00269E  C1C1               617+         DC    C'AA'
                           618+         ALIGN WORD
0026A0  196E               619+         DC    AL2(PARMARA)
                           620 N00027   $FIXT FT=(F00009),CT=(C00029)
0026A2  0101               621+N00027   DC    A(@FIXT)
0026A4  288E               622+         DC    A(F00009)
                           623 N00028   $QUXX T7833,QT=(Q00145),YES=N00030,CT=(C00146),ST=(S00021)
0026A6  0400               624+N00028   DC    A(@QUXX)
0026A8  26B8               625+         DC    AL2(N00030)
0026AA  314E               626+         DC    A(T7833)
0026AC  0000               627+         DC    AL2(DUMMY)
0026AE  0000               628+         DC    AL2(0)
0026B0  C1C1               629+         DC    C'AA'
                           630+         ALIGN WORD
0026B2  196E               631+         DC    AL2(PARMARA)
                           632 N00029   $FIXT FT=(F00150),CT=(C00029)
0026B4  0101               633+N00029   DC    A(@FIXT)
0026B6  28BA               634+         DC    A(F00150)
                           635 N00030   $FIXT FT=(F00012),CT=(C00029)
0026B8  0101               636+N00030   DC    A(@FIXT)
0026BA  28DC               637+         DC    A(F00012)
                           638 N00031   $QUXX T7833,QT=(Q00156),YES=N00033,CT=(C00157),ST=(S00021)
0026BC  0400               639+N00031   DC    A(@QUXX)
0026BE  26CE               640+         DC    AL2(N00033)
0026C0  314E               641+         DC    A(T7833)
0026C2  0000               642+         DC    AL2(DUMMY)
0026C4  0000               643+         DC    AL2(0)
0026C6  C1C1               644+         DC    C'AA'
                           645+         ALIGN WORD
0026C8  196E               646+         DC    AL2(PARMARA)
                           647 N00032   $FIXT FT=(F00160),CT=(C00029),ST=(S00016)
0026CA  0101               648+N00032   DC    A(@FIXT)
0026CC  28F4               649+         DC    A(F00160)
                           650 N00033   $FIXT FT=(F00164),CT=(C00029),ST=(S00016)
0026CE  0101               651+N00033   DC    A(@FIXT)
0026D0  2930               652+         DC    A(F00164)
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                   COPYRIGHT IBM CORP 1976

0026D2  0100               653 N00034   $QUES QT=(Q00176),YES=N00036,CT=(C00178)
0026D4  26DA               654+N00034   DC    A(@QUES)
                           655+         DC    AL2(N00036)
                           656 N00035   $FIXT FT=(F00015),CT=(C00029),ST=(S00016)
0026D6  0101               657+N00035   DC    A(@FIXT)
0026D8  27B0               658+         DC    A(F00015)
                           659 N00036   $FIXT FT=(F00185),CT=(C00029),ST=(S00016)
0026DA  0101               660+N00036   DC    A(@FIXT)
0026DC  2AC4               661+         DC    A(F00185)
                           662 N00037   $FIXT FT=(F00189),CT=(C00029),ST=(S00016)
0026DE  0101               663+N00037   DC    A(@FIXT)
0026E0  2B24               664+         DC    A(F00189)
                           665 N00038   $QUES QT=(Q00193),YES=N00042,CT=(C00194)
0026E2  0100               666+N00038   DC    A(@QUES)
0026E4  26F2               667+         DC    AL2(N00042)
                           668 N00039   $QUES QT=(Q00197),YES=N00041,CT=(C00198)
0026E6  0100               669+N00039   DC    A(@QUES)
0026E8  26EE               670+         DC    AL2(N00041)
                           671 N00040   $FIXT FT=(F00201),CT=(C00029),ST=(S00016)
0026EA  0101               672+N00040   DC    A(@FIXT)
0026EC  2B60               673+         DC    A(F00201)
                           674 N00041   $FIXT FT=(F00015),CT=(C00029),ST=(S00016)
0026EE  0101               675+N00041   DC    A(@FIXT)
0026F0  27B0               676+         DC    A(F00015)
                           677 N00042   $FIXT FT=(F00014),CT=(C00029),ST=(S00016)
0026F2  0101               678+N00042   DC    A(@FIXT)
0026F4  2B9C               679+         DC    A(F00014)
                           680 N00043   $QUES QT=(Q00213),YES=N00047,CT=(C00214)
0026F6  0100               681+N00043   DC    A(@QUES)
0026F8  2706               682+         DC    AL2(N00047)
                           683 N00044   $QUES QT=(Q00217),YES=N00046,CT=(C00218)
0026FA  0100               684+N00044   DC    A(@QUES)
0026FC  2702               685+         DC    AL2(N00046)
                           686 N00045   $FIXT FT=(F00221),CT=(C00029),ST=(S00016)
0026FE  0101               687+N00045   DC    A(@FIXT)
002700  2BC2               688+         DC    A(F00221)
                           689 N00046   $FIXT FT=(F00015),CT=(C00029),ST=(S00016)
002702  0101               690+N00046   DC    A(@FIXT)
002704  27B0               691+         DC    A(F00015)
                           692 N00047   $FIXT FT=(F00014),CT=(C00029),ST=(S00016)
002706  0101               693+N00047   DC    A(@FIXT)
002708  2B9C               694+         DC    A(F00014)
00270A  0000               695          DC    AL2(DUMMY)
00270C                     696 ENTPT    EQU   *
                           697 ********************************************************************
                           698 ********************************************************************
                           699 **                                                                **
                           700 **                      ENTRY POINT TABLE                         **
                           701 **                                                                **
                           702 ********************************************************************
                           703 ********************************************************************
                           704          ENTPT EP=A,STEP=00001
00270C  C140               705+         DC    CL2'A'
00270E  25C0               706+         DC    A(N00001)
002710  0000               707          DC    AL2(DUMMY)
                           708 ********************************************************************
                           709 ********************************************************************
                           710 **                                                                **
                           711 **                      MESSAGE TABLE                             **
                           712 **                                                                **
                           713 ********************************************************************
                           714 ********************************************************************
002712                     715 F00007   EQU   *
002712  0002               716          DC    AL2(0002)
002714  0028               717          DC    A(0040)
002716  7DD5D67D40C9E240D  718          DC    CL0040'''NO'' IS NOT VALID RESPONSE , CONTINUE AT'
00273E  000A               719          DC    A(0010)
002740  D5C5E7E340E2E3C5D  720          DC    CL0010'NEXT STEP.'
00274A                     721 F00061   EQU   *
00274A  0003               722          DC    AL2(0003)
00274C  000E               723          DC    A(0014)
00274E  D9C5D4D6E5C540D1E  724          DC    CL0014'REMOVE JUMPER.'
00275C  0002               725          DC    A(0002)
00275E  4040               726          DC    CL0002' '
002760  0022               727          DC    A(0034)
002762  D9C5D7D3C1C3C540C  728          DC    CL0034'REPLACE CARD A-A1K4. (SEE NOTE 1) '
002784                     729 F00065   EQU   *
002784  0003               730          DC    AL2(0003)
002786  000E               731          DC    A(0014)
002788  D9C5D4D6E5C540D1E  732          DC    CL0014'REMOVE JUMPER.'
002796  0002               733          DC    A(0002)
002798  4040               734          DC    CL0002' '
00279A  0014               735          DC    A(0020)
00279C  D9C5D7D3C1C3C540C  736          DC    CL0020'REPLACE CARD A-A1H2.'
0027B0                     737 F00015   EQU   *
0027B0  0001               738          DC    AL2(0001)
0027B2  0022               739          DC    A(0034)
0027B4  D9C5D7D3C1C3C540C  740          DC    CL0034'REPLACE CARD A-A1K4. (SEE NOTE 1) '
0027D6                     741 F00105   EQU   *
0027D6  0003               742          DC    AL2(0003)
0027D8  000E               743          DC    A(0014)
0027DA  D9C5D4D6E5C540D1E  744          DC    CL0014'REMOVE JUMPER.'
0027E8  0002               745          DC    A(0002)
0027EA  4040               746          DC    CL0002' '
0027EC  0022               747          DC    A(0034)
0027EE  D9C5D7D3C1C3C540C  748          DC    CL0034'REPLACE CARD A-A1K4. (SEE NOTE 1) '
002810                     749 F00117   EQU   *
002810  0003               750          DC    AL2(0003)
002812  0010               751          DC    A(0016)
002814  D9C5D4D6E5C540D1E  752          DC    CL0016'REMOVE JUMPERS. '
002824  0002               753          DC    A(0002)
002826  4040               754          DC    CL0002' '
002828  0022               755          DC    A(0034)
00282A  D9C5D7D3C1C3C540C  756          DC    CL0034'REPLACE CARD A-A1J4. (SEE NOTE 1) '
00284C                     757 F00130   EQU   *
00284C  0001               758          DC    AL2(0001)
00284E  0002               759          DC    A(0002)
002850  4040               760          DC    CL0002' '
002852                     761 F00133   EQU   *
002852  0002               762          DC    AL2(0002)
002854  0014               763          DC    A(0020)
002856  D9C5D7D3C1C3C540C  764          DC    CL0020'REPLACE CARD A-A1H2.'
00286A  0022               765          DC    A(0034)
00286C  D9C5D7D3C1C3C540C  766          DC    CL0034'REPLACE CARD A-A1G2. (SEE NOTE 1) '
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
00288E                     767 F00009   EQU   *
00288E  0001               768          DC    AL2(0001)
002890  0028               769          DC    A(0040)
002892  D9C5D7D3C1C3C5404  770          DC    CL0040'REPLACE (FCU) CARDS A-A1C2 AND A-A1D2 . '
0028BA                     771 F00150   EQU   *
0028BA  0001               772          DC    AL2(0001)
0028BC  001E               773          DC    A(0030)
0028BE  D9C5D7C1C9D940D6D  774          DC    CL0030'REPAIR OR REPLACE A-A1 BOARD. '
0028DC                     775 F00012   EQU   *
0028DC  0001               776          DC    AL2(0001)
0028DE  0014               777          DC    A(0020)
0028E0  D9C5D7D3C1C3C540C  778          DC    CL0020'REPLACE CARD A-A1H2.'
0028F4                     779 F00160   EQU   *
0028F4  0002               780          DC    AL2(0002)
0028F6  0014               781          DC    A(0020)
0028F8  D9C5D7D3C1C3C540C  782          DC    CL0020'REPLACE CARD A-A1H2.'
00290C  0022               783          DC    A(0034)
00290E  D9C5D7D3C1C3C540C  784          DC    CL0034'REPLACE CARD A-A1G2. (SEE NOTE 1) '
002930                     785 F00164   EQU   *
002930  000E               786          DC    AL2(0014)
002932  000A               787          DC    A(0010)
002934  D7D6E6C5D940D6C6C  788          DC    CL0010'POWER OFF.'
00293E  002A               789          DC    A(0042)
002940  C1C3E3E4C1E3D6D94  790          DC    CL0042'ACTUATOR ARM SHOULD BE AT THE INNER STOP. '
00296A  0020               791          DC    A(0032)
00296C  C9C640D6D26B40D9C  792          DC    CL0032'IF OK, RETURN 4962 TO CUSTOMER. '
00298C  0022               793          DC    A(0034)
00298E  C9C640D5D6E3406B4  794          DC    CL0034'IF NOT , FAILURE IS PROBABLY VERY '
0029B0  0026               795          DC    A(0038)
0029B2  C9D5E3C5D9D4C9E3E  796          DC    CL0038'INTERMITTENT.REPLACE FRU''''S IN THE ORDER'
0029D8  0006               797          DC    A(0006)
0029DA  E2C8D6E6D57A       798          DC    CL0006'SHOWN:'
0029E0  0014               799          DC    A(0020)
0029E2  D9C5D7D3C1C3C540C  800          DC    CL0020'REPLACE CARD A-A1H2.'
0029F6  0022               801          DC    A(0034)
0029F8  D9C5D7D3C1C3C540C  802          DC    CL0034'REPLACE CARD A-A1G2. (SEE NOTE 1) '
002A1A  0022               803          DC    A(0034)
002A1C  D9C5D7D3C1C3C540C  804          DC    CL0034'REPLACE CARD A-A1J4. (SEE NOTE 1) '
002A3E  0022               805          DC    A(0034)
002A40  D9C5D7D3C1C3C540C  806          DC    CL0034'REPLACE CARD A-A1K4. (SEE NOTE 1) '
002A62  0022               807          DC    A(0034)
002A64  D9C5D7D3C1C3C540C  808          DC    CL0034'REPLACE CARD A-A1K2. (SEE NOTE 1) '
002A86  0002               809          DC    A(0002)
002A88  4040               810          DC    CL0002' '
002A8A  002A               811          DC    A(0042)
002A8C  C4C540E4D5C9E3404  812          DC    CL0042'DE UNIT (SEE 4962 MIM , PARAGRAPH 3.5 FOR '
002AB6  000C               813          DC    A(0012)
002AB8  D7D9D6C3C5C4E4D9C  814          DC    CL0012'PROCEDURE). '
002AC4                     815 F00185   EQU   *
002AC4  0003               816          DC    AL2(0003)
002AC6  0014               817          DC    A(0020)
002AC8  D9C5D7D3C1C3C540C  818          DC    CL0020'REPLACE CARD A-A1H2.'
002ADC  0022               819          DC    A(0034)
002ADE  D9C5D7D3C1C3C540C  820          DC    CL0034'REPLACE CARD A-A1J4. (SEE NOTE 1) '
002B00  0022               821          DC    A(0034)
002B02  D9C5D7D3C1C3C540C  822          DC    CL0034'REPLACE CARD A-A1G2. (SEE NOTE 1) '
002B24                     823 F00189   EQU   *
002B24  0002               824          DC    AL2(0002)
002B26  0014               825          DC    A(0020)
002B28  D9C5D7D3C1C3C540C  826          DC    CL0020'REPLACE CARD A-A1H2.'
002B3C  0022               827          DC    A(0034)
002B3E  D9C5D7D3C1C3C540C  828          DC    CL0034'REPLACE CARD A-A1J4. (SEE NOTE 1) '
002B60                     829 F00201   EQU   *
002B60  0002               830          DC    AL2(0002)
002B62  0014               831          DC    A(0020)
002B64  D9C5D7D3C1C3C540C  832          DC    CL0020'REPLACE CARD A-A1H2.'
002B78  0022               833          DC    A(0034)
002B7A  D9C5D7D3C1C3C540C  834          DC    CL0034'REPLACE CARD A-A1J4. (SEE NOTE 1) '
002B9C                     835 F00014   EQU   *
002B9C  0001               836          DC    AL2(0001)
002B9E  0022               837          DC    A(0034)
002BA0  D9C5D7D3C1C3C540C  838          DC    CL0034'REPLACE CARD A-A1K2. (SEE NOTE 1) '
002BC2                     839 F00221   EQU   *
002BC2  0002               840          DC    AL2(0002)
002BC4  0014               841          DC    A(0020)
002BC6  D9C5D7D3C1C3C540C  842          DC    CL0020'REPLACE CARD A-A1H2.'
002BDA  0022               843          DC    A(0034)
002BDC  D9C5D7D3C1C3C540C  844          DC    CL0034'REPLACE CARD A-A1J4. (SEE NOTE 1) '
                           845       HDIT  00B2
002BFE  0000               847+OPTN1 DC    X'0000'              PROGRAM OPTION CONTROL WORD 1
                           848+*
002C00  0000               849+OPTN2 DC    X'0000'              PROGRAM OPTION CONTROL WORD 2
                           850+*                    BIT    HEX
000010                     851+B48   EQU   16      0      8     PROBLEM PROGRAM CONTROL BITS
000011                     852+B49   EQU   17      1      4     *
000012                     853+B50   EQU   18      2      2     * THESE BITS ARE USED WITH THE
000013                     854+B51   EQU   19      3      1     * SECOND OPTION WD   AND ARE TO
000014                     855+B52   EQU   20      4      8     * BE ASSIGNED BY EACH PROGRAMMER
000015                     856+B53   EQU   21      5      4     *
000016                     857+B54   EQU   22      6      2     *
000017                     858+B55   EQU   23      7      1     *
000018                     859+B56   EQU   24      8      8     *
000019                     860+B57   EQU   25      9      4     *
00001A                     861+B58   EQU   26      10     2     *
00001B                     862+B59   EQU   27      11     1     *
00001C                     863+B60   EQU   28      12     8     *
00001D                     864+B61   EQU   29      13     4     *
00001E                     865+B62   EQU   30      14     2     *
00001F                     866+B63   EQU   31      15     1     *
00001E                     867+CH    EQU   30      14     2     CHARACTER SUPPLIED
00001F                     868+CMP   EQU   31      15     1     COMPARE OPERATION
002C02  0000               870+OPTN3 DC    X'0000'              PROGRAM OPTION CONTROL WORD 3
                           871+*
                           872+*  0  MYSTERY INTERRUPT     MI        8  CS STATUS IN PROGRESS    CS
                           873+*  1  ERROR INTERRUPT       ER        9  CS AVAILABLE             CSA
                           874+*  2  EXPECTED INTERRUPT    XI       10  CS STATUS INTERRUPT ERR  CE
                           875+*  3  INTERRUPT RECEIVED    IN       11  ISB BITS ON (1-7)        ISBON
                           876+*
                           877+*  4  EXPECTED ERR/ATTENT   XE       12  TEST UNIT RESULTS VOID   NG
                           878+*  5  HARD ERROR FOUND      HE       13  OIO CC ERROR             IOCC
                           879+*  6  WRONG INTR LEVEL      $LE      14  NO INTERRUPT             NOIN
                           880+*  7  NO INTR EXPECTED      NI       15  INTERRUPT CC ERROR       INCC
                           881+*                    BIT    HEX
000020                     882+MI    EQU   32      0      8     MYSTERY INTERRUPT HAPPENED
```



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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
000021                     883+ER    EQU   33      1      4     ERROR RECEIVED ON INTERRUPT
000022                     884+XI    EQU   34      2      2     EXPECTED INTERRUPT CONTROI BIT
000023                     885+IN    EQU   35      3      1     INTERRUPT RECEIVED CONTROL BIT
000024                     886+XE    EQU   36      4      8     EXPECTED ERROR RESPONSE
000025                     887+HE    EQU   37      5      4     HARD ERROR, 8 RETRIES
000026                     888+$LE   EQU   38      6      2     INTERRUPT ON WRONG LEVEL ERROR
000027                     889+NI    EQU   39      7      1     NO INTERRUPT EXPECTED E
000028                     890+CS    EQU   40      8      8     CYCLE STATUS IN PROGRESS
000029                     891+CSA   EQU   41      9      4     CYCLE STEAL AVAILABLE
00002A                     892+CE    EQU   42      10     2     CYCLE STEAL STATUS INERRUPT ERROR
00002B                     893+ISBON EQU   43      11     1     ISB BITS ON (1-7)
00002C                     894+NG    EQU   44      12     8     TEST UNIT RESULTS NO GOOD
00002D                     895+IOCC  EQU   45      13     4     OIO CC ERROR
00002E                     896+NOIN  EQU   46      14     2     NO INTERRUPT
00002F                     897+INCC  EQU   47      15     1     INTERRUPT CC ERROR
                           898+*
                           899+*     COMMON BUFFER FOR PRINTING DATA
                           900+*
002C04  0000               902+$TUID DC    A(*-*)               TEST UNIT IDENTIFICATION
002C06  0000               903+$IOIN DC    A(*-*)               I/O AND INTR CONDITION CODES
002C08  0000               904+$ISB  DC    A(*-*)               R7, INTR STATUS BYTE & DEV ADRS
002C0A  0000               905+LSTIO DC    A(*-*)               ADRS OF LAST I/O + 4 BYTES
002C0C  0000               906+DEV1  DC    A(*-*)               DEVICE DEPENDENT DATA
002C0E  0000               907+DEV2  DC    A(*-*)               *
002C10  0000               908+DEV3  DC    A(*-*)               *
002C12  0000               909+DEV4  DC    A(*-*)               *
002C0C                     910+SCTID EQU   DEV1                 READ ID BUFFER FOR IBIS & TERN
002C14                     911+DCBUF EQU   *                    DCB BUFFER FOR LAST DCB USED
002C14  0000               912+DCB1  DC    A(*-*)               LAST DCB TABLE, CONTROL WORD
002C16  0000               913+DCB2  DC    A(*-*)               LAST DCB TABLE, DEV DEP WORD
002C18  0000               914+DCB3  DC    A(*-*)               LAST DCB TABLE, DEV DEP WORD
002C1A  0000               915+DCB4  DC    A(*-*)               LAST DCB TABLE, DEV DEP WORD
002C1C  0000               916+DCB5  DC    A(*-*)               LAST DCB TABLE, DEV DEP WORD
002C1E  0000               917+DCB6  DC    A(*-*)               LAST DCB TABLE, CHAIN ADRS
002C20  0000               918+DCB7  DC    A(*-*)               LAST DCB TABLE, BYTE COUNT
002C22  0000               919+DCB8  DC    A(*-*)               LAST DCB TABLE, BUFFER ADDRESS
                           920+*
002C24                     921+CSBUF EQU   *                    CYCLE STEAL DATA BUFFER
002C24  0000               922+CSTL1 DC    A(*-*)               CYCLE STEAL BUFFER, RESIDUAL ADRS
002C26  0000               923+CSTL2 DC    A(*-*)               CYCLE STEAL WD 2, DEVICE DEPEND
002C28  0000               924+CSTL3 DC    A(*-*)               CYCLE STEAL WD 3, DEVICE DEPEND
002C2A  0000               925+CSTL4 DC    A(*-*)               CYCLE STEAL WD 4, DEVICE DEPEND
002C2C  0000               926+CSTL5 DC    A(*-*)               CYCLE STEAL WD 5, DEVICE DEPEND
002C2E  0000               927+CSTL6 DC    A(*-*)               CYCLE STEAL WD 6, DEVICE DEPEND
002C30  0000               928+CSTL7 DC    A(*-*)               CYCLE STEAL WD 7, DEVICE DEPEND
002C32  0000               929+CSTL8 DC    A(*-*)               CYCLE STEAL WD 8, DEVICE DEPEND
                           930+*
002C34  0000               931+$SUBN DC    A(*-*)               LAST SUBROUTINE ADDRESS USED
002C36  00000000           932+$DATA DC    2A(*-*)              OPTIONAL DATA
002C3A  0021               933+$INTL DC    X'0021'              INTERRUPT LEVEL REQUESTED
002C3C  0000               934+TURTN DC    A(*-*)               TEST UNIT RETURN ADRS TO MDI
002C3E  00B2               935+$DVID DC    X'00B2'              DEVICE ID
002C40  19D0               936+$VCAL DC    A(DEVADD)            ADRS OF DEVICE ADDPESS
002C42  0000               937+      DC    A(*-*)               IBIS CYLINDER ADDRESS
                           938+*
                           939+*     THIS TEST UNIT WILL RETURN TO MDI WITHOUT DOING ANY PROGRAM
                           940+*     FUNCTION. THE RESULTS THAT WERE SET UP IN THE RESULTS AREA ARE
                           941+*     STILL VALID BUT A DIFFERENT TEST IS TO BE PERFORMED.
                           942+*
002C44  4020 2C04 3C02     943+T3C02 MVWI  X'3C02',$TUID          SET UP TEST UNIT ID
002C4A  5700               944+      BXS   (R7)                   RETURN TO MDI SUPVR
                           946       COPY  COMEQU
                           947 ********************************************************************
                           948 *                                                                  *
                           949 *              EQUATED NAMES FOR SUPPORTED SVC'S                   *
                           950 *                                                                  *
                           951 ********************************************************************
000000                     952 OUT   EQU   0                    OUT SVC
000001                     953 OUTIN EQU   1                    OUTIN SVC
000002                     954 IDLE  EQU   2                    IDLE SVC
000003                     955 ASCII EQU   3                    HEX TO ASCII SVC
000004                     956 CHNGE EQU   4                    CHANGE LEVEL SVC
000005                     957 PGMCK EQU   5                    ALLOW RETURN ON PROGRAM CHECK SVC
000006                     958 EXIT  EQU   6                    EXIT SVC
000007                     959 TERM  EQU   7                    TERMINATE SVC
000008                     960 RESET EQU   8                    RESET DEVICE SVC
000009                     961 RID   EQU   9                    READ ID SVC
00000A                     962 START EQU   10                   START CYCLE STEAL SVC
00000B                     963 STCSS EQU   11                   START CYCLE STEAL STATUS SVC
00000C                     964 PREP  EQU   12                   PREPARE DEVICE SVC
00000D                     965 READ0 EQU   13                   READ WITH FUNCTION BIT 3 OFF SVC
00000E                     966 READ1 EQU   14                   READ WITH FUNCTION BIT 3 ON SVC
00000F                     967 RSTAT EQU   15                   READ STATUS SVC
000010                     968 WRIT0 EQU   16                   WRITE WITH FUNCTION BIT 3 OFF SVC
000011                     969 WRIT1 EQU   17                   WRITE WITH FUNCTION BIT 3 ON SVC
000012                     970 CTRL  EQU   18                   CONTROL SVC
000013                     971 RICB  EQU   19                   RELEASE INTERUPT CONTROL BLOCK SVC
000014                     972 CICB  EQU   20                   CONNECT INTERUPT CONTROL BLOCK SVC
000015                     973 HIO   EQU   21                   HALT ALL I/O
000016                     974 REQSD EQU   22                   REQUEST USE OF DCP DISK SVC
000017                     975 RELSD EQU   23                   RELEASE USE OF DCP DISK SVC
000018                     976 HALT  EQU   24                   HALT SVC
000019                     977 ETOH  EQU   25                   EBCDIC TO HEX SVC (STRING)
00001A                     978 HTOE  EQU   26                   HEX TO EBCDIC SVC (STRING)
00001B                     979 ATOH  EQU   27                   ASCII TO HEX SVC (STRING)
00001C                     980 HTOA  EQU   28                   HEX TO ASCII SVC (STRING)
00001D                     981 ETOA  EQU   29                   EBCDIC TO ASCII SVC (STRING)
00001E                     982 ATOE  EQU   30                   ASCII TO EBCDIC SVC (STRING)
00001F                     983 READI EQU   31                   READ DATA SETS FOR MDI/UTIL
000020                     984 WRITI EQU   32                   WRITE DATA SETS FOR UTIL
                           986 ********************************************************************
                           987 *                                                                  *
                           988 *              EQUATES USED BY TU'S AS CONSTANTS                   *
                           989 *                                                                  *
                           990 ********************************************************************
00004E                     991 PLUS  EQU   C'+'                 PLUS CHAR
000060                     992 MINUS EQU   C'-'                 MINUS CHAR
000000                     994 ZERO  EQU   0
000001                     995 ONE   EQU   1
000002                     996 TWO   EQU   2
000003                     997 THREE EQU   3
000004                     998 FOUR  EQU   4
000005                     999 FIVE  EQU   5
000006                    1000 SIX   EQU   6
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976

000007                    1001 SEVEN  EQU   7
000008                    1002 EIGHT  EQU   8
000009                    1003 NINE   EQU   9
00000A                    1004 TEN    EQU   10
00000B                    1005 ELEVN  EQU   11                                   11
00000C                    1006 TWELV  EQU   12                                   12
00000D                    1007 THRTN  EQU   13                                   13
00000F                    1008 FIVTN  EQU   15                                   15
000010                    1009 SIXTN  EQU   16                                   16
000020                    1010 THRY2  EQU   32                                   32
000040                    1011 SIXT4  EQU   64                                   64
000080                    1012 ONE28  EQU   128                                  128
000100                    1013 TWO56  EQU   256                                  256
000400                    1014 ONEK   EQU   1024                                 1024
000800                    1015 TWOK   EQU   2048                                 2048
000C00                    1016 THREK  EQU   3072                                 3072
001000                    1017 FOURK  EQU   4096                                 4096
FFFFFF                    1019 M1     EQU   -1                                   -1
FFFFFE                    1020 M2     EQU   -2                                   -2
FFFFFD                    1021 M3     EQU   -3                                   -3
FFFFFC                    1022 M4     EQU   -4                                   -4
                          1024 ***************************************************************************
                          1025 *                                                                         *
                          1026 *     THE FOLLOWING ARE EQUATES FOR BIT DISPLACEMENTS FROM THE            *
                          1027 *     BEGINNING OF THE BYTE TO EACH BIT IN THE WORD OF SWITCHES.          *
                          1028 *                                                                         *
                          1029 ***************************************************************************
000000                    1030 BS0    EQU   0
000001                    1031 BS1    EQU   1
000002                    1032 BS2    EQU   2
000003                    1033 BS3    EQU   3
000004                    1034 BS4    EQU   4
000005                    1035 BS5    EQU   5
000006                    1036 BS6    EQU   6
000007                    1037 BS7    EQU   7
000008                    1038 BS8    EQU   8
000009                    1039 BS9    EQU   9
00000A                    1040 BS10   EQU   10
00000B                    1041 BS11   EQU   11
00000C                    1042 BS12   EQU   12
00000D                    1043 BS13   EQU   13
00000E                    1044 BS14   EQU   14
00000F                    1045 BS15   EQU   15
                          1047       COPY  T7823              01DEC76
                          1048 T7823 TUIT $ERR$                                                  06FEB76**
                          1049+***************************************************************************
                          1050+*
                          1051+* TEST UNIT
                          1052+*
                          1053+*      (TU23-TU71)          RECALIBRATE TEST #1                  12/01/76
                          1054+*
                          1055+* PURPOSE
                          1056+*
                          1057+*      FUNCTION: TO DETERMINE THE OPERATIONAL STATUS OF RECAL FUNCTION.
                          1058+*      .
                          1059+*      .    PROGRAM INITIALIZES ATTACHMENT.
                          1060+*      .    RECALIBRATE
                          1061+*      .    CHECK STATUS OF LINES IN ATTACHMENT AND 4962 RELATED TO THE
                          1062+*      .    RECALIBRATE OPERATION.
                          1063+*
                          1064+* CALLING SEQUENCE
                          1065+*
                          1066+*      PROGRAM PASSES STATUS OF ALL LINES IN FOLLOWING FORMAT:
                          1067+*      .       TURESUL BIT 0------------INTERRUPT ERROR
                          1068+*      .       TURESUL BIT 1------------HOME POSITION NOT ON
                          1069+*      .       TURESUL BIT 2------------NOT USED
                          1070+*      .       TURESUL BIT 3------------SEEK CHECK (SEEK COMPLETE TIME OUT
                          1071+*      .
                          1072+*      .       TURESUL BIT 4------------NOT USED
                          1073+*      .       TURESUL BIT 5------------ NOT USED
                          1074+*      .       TURESUL BIT 6------------NOT USED
                          1075+*      .       TURESUL BIT 7------------ NOT USED
                          1076+*      .
                          1077+*      .       TURESUL BIT 8------------RESEPVED (ALWAYS ZERO)
                          1078+*      .       TURESUL BIT 9------------ NOT USED
                          1079+*      .       TURESUL BIT 10---------- PLO OUT OF SYNC
                          1080+*      .       TURESUL BIT 11---------- BRAKE FAILURE
                          1081+*      .
                          1082+*      .       TURESUL BIT 12---------- UNSAFE
                          1083+*      .       TURESUL BIT 13---------- RECALIBRATE FAILURE
                          1084+*      .       TURESUL BIT 14---------- NOT READY
                          1085+*      .       TURESUL BIT 15---------- NOT USED
                          1086+*      .
                          1087+*      .       TURESUL BITS 16-31-----CYCLE STEAL STATUS FOR FAILING OP
                          1088+*
                          1089+*     EXITS NORMAL
                          1090+*      .       RETURNS TO MDI SUPERVISOR WHEN DONE.
                          1091+*      .
                          1092+*     EXITS ERROR
                          1093+*      .       RETURNS TO MDI SUPERVISOR.
                          1094+*
                          1095+* RETURN CONTROL
                          1096+*
                          1097+*       B      TURTN*                  RETURN TO MDI SUPERVISOR
                          1098+*
                          1099+***************************************************************************
002C4C  6F0D 2C3C         1100+T7823  MVW    R7,TURTN                SAVE RETURN ADDRESS
002C50  4020 2C04 7823    1101+       MVWI   X'7823',$TUID           SAVE TU ID FOR DISPLAY
002C56  4424 2BFE         1102+       MVA    OPTN1,R4                SET UP POINTER ADRS IN R4
002C5A  6E03 35D0         1103+       BAL    $CONC,R6                CLEAR DEV DEP STG AND CONNECT I/O BL
002C5E  3604              1104+       DC     A($ERR$)                ERROR ADRS FOR INVALID PREP
                          1105+*
002C60  C020 0232         1106        MVB    CPUID,R0                DETERMINE TYPE OF PROCESSOR
002C64  F025              1107        CBI    37,R0                   *
002C66  1804              1108        JNE    T23T                    JUMP IF NOT 4955
002C68  4020 2C84 254C    1109        MVWI   X'254C',T23T1+2         LOAD TIME CONSTANT FOR 2 SEC
002C6E  5003              1110        J      T23T2                   *
002C70  4020 2C84 0C0E    1111 T23T   MVWI   X'0C0E',T23T1+2         (4953) LOAD TIME CONS FOR 2 SEC
002C76  8028 19D0 3369    1112 T23T2  MVB    DEVADD,IDCB1+1          LOAD DEVICE ADDRESS IN IDCB
002C7C  4724 35BC         1113        MVA    IOBLK,R7                SETUP IOBLK
002C80  6008              1114        SVC    RESET                   ISSUE IO RESET
002C82  4024 0000         1115 T23T1  MVWI   X'0000',R0              TIMEOUT APPROX 2 SEC
002C86  6002              1116 T723   SVC    IDLE                    *
002C88  B8FE              1117        JCT    T723,R0                 *
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976

002C8A  CA25 18C8         1118        MVWZ   TURESUL,R2              CLEAR RESULTS WORD
002C8E  CA25 18CA         1119        MVWZ   TURESUL+2,R2            CLEAR RESULTS WORD2
002C92  4224 18C8         1120        MVA    TURESUL,R2              ADDRESS OF RESULTS
002C96  6E03 33F6         1121        BAL    $RECL,R6                RECALIBRATE
002C9A  2CE4              1122        DC     A(T23YY)                 ERROR
002C9C  4CA1              1123        TBTR   (R4,ER)                 INTERRUPT ERROR?
002C9E  1032              1124        JOFF   T710                    NO
002CA0  4CB9              1125        TBTR   (R4,CSA)                TST FOR CYCLE STEAL STATS
002CA2  6800 3604         1126        BOFF   $ERR$                   ERROR
002CA6  8828 2C26 32F0    1127        MVW    CSBUF+2,STATS           ADDRESS OF CYCLE STEAL STATS
002CAC  4524 32F0         1128        MVA    STATS,R5                *
002CB0  4D87              1129        TBTR   (R5,7)                  UNSAFE?
002CB2  1001              1130        JOFF   T23SS                   NO
002CB4  4A4C              1131        TBTS   (R2,12)                 SET- UNSAFE
002CB6  4D8A              1132 T23SS  TBTR   (R5,10)                 BRAKE FAILURE?
002CB8  1001              1133        JOFF   T23TT                   NO
002CBA  4A4B              1134        TBTS   (R2,11)                 SET- BRAKE FAILURE
002CBC  4D86              1135 T23TT  TBTR   (R5,6)                  PLO OUT OF SYNC CHECK?
002CBE  1001              1136        JOFF   T23UU                   NO
002CC0  4A4A              1137        TBTS   (R2,10)                 SET- PLO OUT OF SYNC
002CC2  4D89              1138 T23UU  TBTR   (R5,9)                  SEEK CHECK?
002CC4  1001              1139        JOFF   T23A                    NO
002CC6  4A43              1140        TBTS   (R2,3)                  SET- SEEK CHECK
002CC8  4D8B              1141 T23A   TBTR   (R5,11)                 RESET UNSAFE BITS
002CCA  4D8C              1142        TBTF   (R5,12)                 *
002CCC  4D8D              1143        TBTF   (R5,13)                 *
002CCE  402F 32F0 0000    1144        CWI    0,STATS                 OTHER ERROR BITS ON?
002CD4  6800 2D14         1145        BE     T23U                    NO-EXIT
002CD8  4A4D              1146 T23AA  TBTS   (R2,13)                 SET RECAL FAILURE
002CDA  4A40              1147        TBTS   (R2,0)                  SET- INTERPRUPT ERROR
002CDC  8828 2C26 18CA    1148        MVW    CSBUF+2,TURESUL+2       CS STATS
002CE2  5018              1149        J      T23U                    EXIT
002CE4  7B06 0003         1150 T23YY  CWI    X'0003',R3              CHECK FOR COMMAND REJECT
002CE8  6801 3604         1151        BNE    $ERR$                   ERROR-TU NG
002CEC  6E03 34C8         1152        BAL    XIOCS,R6                START CYCLE STEAL STATS
002CF0  3604              1153        DC     A($ERR$)                ERROR
002CF2  4CA1              1154        TBTF   (R4,ER)                 INTERRUPT ERROR?
002CF4  6A00 3604         1155        BON    $ERR$                   YES
002CF8  402B 2C26 0001    1156        TWI    X'0001',CSBUF+2         NOT READY?
002CFE  10EC              1157        JOFF   T23AA                   NO-ERROR
002D00  4A4E              1158        TBTS   (R2,14)                 SET NOT READY
002D02  50EA              1159        J      T23AA                   EXIT
002D04  6E03 332E         1160 T710   BAL    SENS1,R6                GET SENSE WORD ONE
002D08  3604              1161        DC     A($ERR$)                 ERROR
002D0A  402B 336A 0400    1162        TWI    X'0400',RDATA           TEST HOME POS
002D10  1201              1163        JON    T23U                    HOME IS ON
002D12  4A41              1164        TBTS   (R2,1)                   SET 'HOME OFF'
002D14  6802 3654         1165 T23U   TXIT
                          1166+T23U   B      $CONX                    RETURN TO MDI CONTROLLER
                          1167+***************************************************************************
                          1168 *
                          1170       COPY   T7870                01DEC76
                          1171 T7870 TUIT $ERR$                                                  06FEB76**
                          1172+***************************************************************************
                          1173+*
                          1174+* TEST UNIT
                          1175+*
                          1176+*                        FILE STATUS TEST                        6/13/77
                          1177+*
                          1178+* PURPOSE
                          1179+*
                          1180+*      FUNCTION: INITIAL RESET OF SEEK OPERATIONS.
                          1181+*      .
                          1182+*      .    PROGRAM INITIALIZES ATTACHMENT.
                          1183+*      .    CHECK STATUS OF LINES IN ATTACHMENT AND 4962 RELATED TO SEEKS
                          1184+*
                          1185+* CALLING SEQUENCE
                          1186+*
                          1187+*      PROGRAM PASSES STATUS OF ALL LINES IN FOLLOWING FORMAT:
                          1188+*      .       TURESUL BIT 0------------PLO OUT OF SYNC CHECK
                          1189+*      .       TURESUL BIT 1------------DATA UNSAFE
                          1190+*      .       TURESUL BIT 2------------INTERPUPT
                          1191+*      .       TURESUL BIT 3------------FILE NOT READY
                          1192+*      .
                          1193+*      .       TURESUL BIT 4------------RECAL
                          1194+*      .       TURESUL BIT 5------------ NOT USED
                          1195+*      .       TURESUL BIT 6------------NOT USED
                          1196+*      .       TURESUL BIT 7------------ NOT USED
                          1197+*      .
                          1198+*      .       TURESUL BIT 8------------BEHIND HOME
                          1199+*      .       TURESUL BIT 9------------ ACCESS HEAD NOT HOME
                          1200+*      .       TURESUL BIT 10---------- (NOT) EVEN TRACK INDICATED
                          1201+*      .       TURESUL BIT 11----------NOT USED
                          1202+*      .
                          1203+*      .       TURESUL BIT 12----------RECALIBRATE NOT RESFT
                          1204+*      .       TURESUL BIT 13---------- NOT USED
                          1205+*      .       TURESUL BIT 14---------- SEEK 1 & 2 NOT RESET
                          1206+*      .       TURESUL BIT 15----------(NOT) ON TRACK
                          1207+*      .
                          1208+*      .       TURESUL BITS 16-31 CS STATS FOP FAILING OP
                          1209+*
                          1210+*     EXITS NOPMAL
                          1211+*      .       RETURNS TO MDI SUPERVISOR WHEN DONE.
                          1212+*      .
                          1213+*     EXITS ERROR
                          1214+*      .       RETURNS TO MDI SUPERVISOR.
                          1215+*
                          1216+* RETURN CONTROL
                          1217+*
                          1218+*       B      TURTN*                  RETURN TO MDI SUPERVISOR
                          1219+*
                          1220+***************************************************************************
002D18  6F0D 2C3C         1221+T7870  MVW    R7,TURTN                SAVE RETURN ADDRESS
002D1C  4020 2C04 7870    1222+       MVWI   X'7870',$TUID           SAVE TU ID FOR DISPLAY
002D22  4424 2BFE         1223+       MVA    OPTN1,R4                SET UP POINTER ADRS IN R4
002D26  6E03 35D0         1224+       BAL    $CONC,R6                CLEAR DEV DEP STG AND CONNECT I/O BL
002D2A  3604              1225+       DC     A($ERR$)                ERROR ADRS FOR INVALID PREP
                          1226+*
002D2C  8028 19D0 3369    1227        MVB    DEVADD,IDCB1+1          LOAD DEVICE ADDRESS IN IDCB
002D32  8028 19D0 3365    1228        MVB    DEVADD,IDCB0+1          LOAD DEVICE ADDRESS IN IDCB
002D38  C020 0232         1229        MVB    CPUID,R0                DETERMINE CPU TYPE
002D3C  F025              1230        CBI    37,R0                   *
002D3E  1804              1231        JNE    TT70                    JUMP IF NOT 4955
002D40  4020 2D56 254C    1232        MVWI   X'254C',TT70A+2         LOAD TIME CONSTANT FOR 2 SEC
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 LOCTR  OBJECT TEXT   STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
002D46  5003          1233         J       TT70B
002D48  4020 2D56 0C0E 1234 TT70   MVWI    X'0C0E',TT70A+2          LOAD TIME CONSTANT FOR 2 SEC
002D4E  4724 35FC     1235 TT70B   MVA     IOBLK,R7                 SETUP IOBLK
002D52  6008          1236         SVC     RESET                    ISSUE IO RESET
002D54  4024 0000     1237 TT70A   MVWI    X'0000',R0               TIME OUT 2 SEC
002D58  6002          1238 TT70C   SVC     IDLE                     *
002D5A  B8FE          1239         JCT     TT70C,R0                 *
002D5C  CA25 18C8     1240         MVWZ    TURESUL,R2               CLEAR RESULTS WORD
002D60  CA25 18CA     1241         MVWZ    TURESUL+2,R2             CLEAR RESULTS WORD 2
002D64  4224 18C8     1242         MVA     TURESUL,R2               ADDRESS OF RESULTS
002D68  6E03 34C8     1243 T70Z    BAL     XIOCS,R6                 START CYCLE STEAL STATUS
002D6C  3604          1244         DC      A($ERR$)                  ERROR
002D6E  4CA1          1245         TBTR    (R4,ER)                  INTERRUPT ERROR
002D70  6A00 3604     1246         BON     $ERR$                    YES
002D74  8828 2C26 32F0 1247        MVW     CSBUF+2,STATS            ADDRESS OF CYCLE STEAL STATUS
002D7A  4524 32F0     1248         MVA     STATS,R5                 *
002D7E  4D87          1249         TBTR    (R5,7)                   TEST FOR UNSAFE
002D80  1001          1250         JOFF    T701                     *
002D82  4A41          1251         TBTS    (R2,1)                   TURN ON DATA UNSAFE
002D84  4D8F          1252 T701    TBTR    (R5,15)                  TEST NOT READY
002D86  1001          1253         JOFF    T702                     *
002D88  4A43          1254         TBTS    (R2,3)                   TURN ON NOT READY
002D8A  4D8B          1255 T702    TBTR    (R5,11)                  RESET UNSAFE BITS
002D8C  4D8C          1256         TBTR    (R5,12)                  *
002D8E  4D8D          1257         TBTR    (R5,13)                  *
002D90  402F 32F0 0000 1258        CWI     0,STATS                  ANY OTHEP EPROR BITS ON?
002D96  1006          1259         JE      T70B                     NO
002D98  4A44          1260         TBTS    (R2,4)                   RECAL ERROR
002D9A  4A42          1261         TBTS    (R2,2)                   INTERRUPT  ERROR
002D9C  8828 2C26 18CA 1262        MVW     CSBUF+2,TURESUL+2        CS STATS
002DA2  501F          1263         J       T70A                     EXIT
002DA4  6E03 332E     1264 T70B    BAL     SENS1,R6                 GET SENSE WORD ONE
002DA8  3604          1265         DC      A($ERR$)                  ERROR
002DAA  4124 336A     1266         MVA     RDATA,R1                 ADDRESS OF SENSE DATA
002DAE  4901          1267         TBT     (R1,1)                   TEST PLO OUT OF SYNC
002DB0  1001          1268         JOFF    T703                     *
002DB2  4A40          1269         TBTS    (R2,0)                   SET 'PLO OUT OF SYNC'
002DB4  4909          1270 T703    TBT     (R1,9)                   TEST NOT BEHIND HOME
002DB6  1201          1271         JON     T704                     *
002DB8  4A48          1272         TBTS    (R2,8)                   SET BEHIND HOME
002DBA  4905          1273 T704    TBT     (R1,5)                   TEST HOME POSITION
002DBC  1201          1274         JON     T705                     *
002DBE  4A49          1275         TBTS    (R2,9)                   SET ACCESS HEAD NOT HOME
002DC0  490F          1276 T705    TBT     (R1,15)                  TEST EVEN TRACK
002DC2  1201          1277         JON     T706                     *
002DC4  4A4A          1278         TBTS    (R2,10)                  SET NOT EVEN TRACK INDICATED
002DC6  490D          1279 T706    TBT     (R1,13)                  TEST NOT SEEK 1 AND 2
002DC8  1201          1280         JON     T708                     *
002DCA  4A4F          1281         TBTS    (R2,14)                  SET SEEK 1 AND 2 NOT RESET
002DCC  490A          1282 T708    TBT     (R1,10)                  TEST ON TRACK
002DCE  1201          1283         JON     T709                     *
002DD0  4A4F          1284         TBTS    (R2,15)                  SET NOT ON TRACK
002DD2  6E03 3342     1285 T709    BAL     SENS0,R6                 GET SENSE WORD ZERO
002DD6  3604          1286         DC      A($ERR$)                  ERROR
002DD8  4124 3366     1287         MVA     RDATA0,R1                ADDRESS OF SENSE DATA
002DDC  4903          1288         TBT     (R1,3)                   TEST RECALIBRATE TFIGGER
002DDE  1001          1289         JOFF    T704                     *
002DE0  4A4C          1290         TBTS    (R2,12)                  SET 'RECALIBRATE NOT RESET'
                      1291 T70A    TXIT
002DE2  6802 3654     1292+T70A    B       $CONX                     RETURN TO MDI CONTROLLER
                      1293+*************************************************************************
                      1294 *
                      1295 *
                      1297         COPY    T7872                01DEC76
                      1298 *************************************************************************
                      1299 *T7872                                                                 *
                      1300 *    THIS TU INHIBITS INTERRUPT                                  12/01/76*
                      1301 *    CALLING ROUTINE LOOPS ON T72A                                      *
                      1302 *************************************************************************
002DE6  6F0D 2C3C     1303 T7872   MVW     R7,TURTN                 SAVE RETURN ADDRESS
002DEA  4020 35C0 0020 1304        MVWI    X'0020',IODCB            PREP TO LEVEL 2 WITH THE 'I' BIT OFF
002DF0  4724 35BC     1305         MVA     IOBLK,R7                 *
002DF4  600C          1306         SVC     PREP                     *
002DF6  5002          1307         J       T72B
002DF8  6F0D 2C3C     1308 T72A    MVW     R7,TURTN                 SAVE RETURN ADDRESS
002DFC  6802 3654     1309 T72B    B       $CONX                    EXIT
                      1310 *
                      1312         COPY    T7875                01DEC76
                      1313 T7875 TUIT $ERR$
                      1314+*************************************************************************06FEB76**
                      1315+*
                      1316** TEST UNIT
                      1317+*
                      1318+*     (T7875)       RANDOM SEEK TEST                              12/01/76
                      1319+*
                      1320+* PUPPOSE
                      1321+*
                      1322+*     FUNCTION: THIS TEST DETERMINES WHETHER SEEK ERRORS ARE OCCURRING
                      1323+*     .RANDOMLY ALL OVER THE DISK SURFACE OR ARE ONLY IN CERTAIN AREAS.
                      1324+*     .
                      1325+*     .   PROGRAM INITIALIZES ATTACHMENT.
                      1326+*     .   RECALIBRATE AND ISSUE SEEKS OF FWD 1,FWD 5,FWD 101,BKWD 101,
                      1327+*     .   BKWD 5, BKWD 1 AND BKWD 1.
                      1328+*     .   THE STATUS OF 'HOME POSITION' IS TESTED AFTER EACH SEEK AND
                      1329+*     .   EACH SEEK  IS CHECKED FOR 'SEEK CHECK'.
                      1330+*     .   A FWD 1 SEEK AND RECAL  IS THEN ISSUED AND  HOME POSITION  TS
                      1331+*     .   AGAIN TESTED TO ESTABLISH THE RECAL OPERATIONAL STATUS.
                      1332+*     .
                      1333+*
                      1334+* CALLING SEQUENCE
                      1335+*
                      1336+*     PROGRAM PASSES STATUS OF ALL LINES IN FOLLOWING FORMAT:
                      1337+*     .      TURESUL BIT 0---------- SEEK FAILURE HAS OCCURRED
                      1338+*     .      TURESUL BIT 1---------- RECALIBRATE FAILUPE HAS OCCURRED
                      1339+*     .      TUPESUL BIT 2---------- A HANG-UP CONDITION HAS OCCURRED
                      1340+*     .      TURESUL BIT 3---------- INTERRUPT
                      1341+*     .
                      1342+*     .      TURESUL BIT 4---------- RECAL
                      1343+*     .      TUPESUL BIT 5---------- SEEK
                      1344+*     .      TUPESUL BIT 6---------- NOT USED
                      1345+*     .      TURESUL BIT 7---------- NOT USED
                      1346+*     .
                      1347+*     .      TUPESUL BIT 8---------- NOT USED
                      1348+*     .      TURESUL BIT 9---------- NOT USED
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 LOCTR  OBJECT TEXT   STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                      1349+*     .      TURESUL BIT 10---------- PLO OUT OF SYNC
                      1350+*     .      TURESUL BIT 11---------- BPAKE FAILURE
                      1351+*     .
                      1352+*     .      TURESUL BIT 12---------- UNSAFE
                      1353+*     .      TURESUL BIT 13---------- NOT USED
                      1354+*     .      TURESUL BIT 14---------- NOT READY
                      1355+*     .      TURESUL BIT 15---------- NOT USED
                      1356+*     .      TUPESUL BITS 16-31 CS STATS FOR FAILING OP
                      1357+*     .
                      1358+*    EXITS NORMAL
                      1359+*     .      RETURNS TO MDI SUPERVISOR WHEN DONE.
                      1360+*     .
                      1361+*    EXITS ERROR
                      1362+*     .      RETURNS TO MDI SUPERVISOR.
                      1363+*
                      1364+* RETURN CONTROL
                      1365+*
                      1366+*     R      TURTN*                  RETURN TO MDI SUPERVISOR
                      1367+*
                      1368+*************************************************************************
002E00  6F0D 2C3C     1369+T7875   MVW     R7,TURTN                 SAVE RETURN ADDRESS
002E04  4020 2C04 7875 1370+       MVWI    X'7875',$TUID            SAVE TU ID FOR DISPLAY
002E0A  4424          1371+        MVA     OPTN1,R4                 SET UP POINTER ADRS IN R4
002E0E  6E03 35D0     1372+        BAL     $CONC,R6                 CLEAR DEV DEP STG AND CONNECT I/O BL
002E12  3604          1373+        DC      A($ERR$)                 ERROP ADRS FOR INVALID PPEP
                      1374+*
002E14  C020 0232     1375         MVB     CPUID,R0                 DETERMINE TYPE OF PROCESSOR
002E18  F025          1376         CBI     37,R0                    *
002E1A  1804          1377         JNE     T75TC                    JUMP IF NOT 4955
002E1C  4020 2E4C 254C 1378        MVWI    X'254C',T75T1+2          LOAD TIME CONSTANT FOR 2 SEC
002E22  5003          1379         J       T75T2
002E24  4020 2E4C 0C0E 1380 T75TC  MVWI    X'0C0E',T75T1+2          (4953) LOAD TIME CONS FOR 2 SEC
002E2A  CA25 18C8     1381 T75T2   MVWZ    TURESUL,R2               CLEAR RESULTS WORD
002E2E  CA25 18CA     1382         MVWZ    TURESUL+2,R2             CLEAR RESULTS WORD
002E32  4224 18C8     1383         MVA     TURESUL,R2               ADDRESS OF RESULTS
002E36  6E03 33F6     1384         BAL     $RECL,R6                 RECALIBRATE
002E3A  2EAA          1385         DC      A(T75YY)                  ERROR
002E3C  4CA1          1386         TBTR    (R4,ER)
002E3E  8028 19D0 3369 1387        MVB     DEVADD,IDCB1+1           LOAD DEVICE ADDRESS IN IDCB
002E44  4724 35BC     1388         MVA     IOBLK,R7                 SETUP IOBLK
002E48  6008          1389         SVC     RESET                    ISSUE IO RESET
002E4A  4024 0000     1390 T75T1   MVWI    X'0000',R0               TIME OUT 2 SEC
002E4E  6002          1391 T775    SVC     IDLE                     *
002E50  B8FE          1392         JCT     T775,R0                  *
002E52  CA25 18C8     1393         MVWZ    TURESUL,R2               CLEAR RESULTS WORD
002E56  CA25 18CA     1394         MVWZ    TURESUL+2,R2             CLEAR RESULTS WORD
002E5A  4224 18C8     1395         MVA     TURESUL,R2               ADDRESS OF RESULTS
002E5E  6E03 33F6     1396         BAL     $RECL,R6                 RECALIBRATE
002E62  2EAA          1397         DC      A(T75YY)                  ERROR
002E64  4CA1          1398         TBTR    (R4,ER)
002E66  1036          1399         JOFF    T75A
002E68  4C19          1400         TBTR    (R4,CSA)                 TST FOR CYCLE STEAL STATS
002E6A  6804 3604     1401         BOFF    $ERR$                    OK-NO EPROR
002E6E  8828 2C26 32F0 1402        MVW     CSBUF+2,STATS            ADDRESS OF CYCLE STEAL STATS
002E74  4524 32F0     1403         MVA     STATS,R5                 *
002E78  4D87          1404         TBTR    (R5,7)                   UNSAFE?
002E7A  1001          1405         JOFF    T75SS                    NO
002E7C  4A4C          1406         TBTS    (R2,12)                  SET- UNSAFE
002E7E  4D8A          1407 T75SS   TBTR    (R5,10)                  BPAKE FAILURE?
002E80  1001          1408         JOFF    T75TT                    NO
002E82  4A4B          1409         TBTS    (R2,11)                  SET- BRAKE FAILURE
002E84  4D86          1410 T75TT   TBTR    (R5,6)                   PLO OUT OF SYNC CHECK?
002E86  1001          1411         JOFF    T750U                    NO
002E88  4A4A          1412         TBTS    (R2,10)                  SET- PLO OUT OF SYNC
002E8A  4D89          1413 T750U   TBTR    (R5,9)                   SEEK CHECK?
002E8C  121F          1414         JON     T75T                     SET- FLAGS AND EXIT
002E8E  4D8B          1415         TBTR    (R5,11)                  RESET UNSAFE BITS
002E90  4D8C          1416         TBTR    (R5,12)                  *
002E92  4D8D          1417         TBTR    (R5,13)                  *
002E94  402F 32F0 0000 1418        CWI     0,STATS                  OTHER CS BITS ON?
002E9A  6800 2ED0     1419         BE      T75U                      YES-TU ERROR
002E9E  4A44          1420 T75B    TBTS    (R2,4)                   RECAL
002EA0  4A43          1421         TBTS    (R2,3)                   INTERRUPT
002EA2  8828 2C26 18CA 1422        MVW     CSBUF+2,TURESUL+2
002EA8  5013          1423         J       T750                     EXIT
002EAA  7B06 0003     1424 T75YY   CWI     X'0003',R3               CHECK FOR COMMAND REJECT
002EAE  6801 3604     1425         BNE     $ERR$                    ERROR-TU NG
002EB2  6E03 34C8     1426         BAL     XIOCS,R6                 START CYCLE STEAL STATS
002EB6  3604          1427         DC      A($ERR$)                 ERROR
002EB8  4CA1          1428         TBTR    (R4,ER)                  INTERRUPT ERROR?
002EBA  6A00 3604     1429         BON     $ERR$                    YES
002EBE  402B 2C26 0001 1430        TWI     X'0001',CSBUF+2          NOT READY?
002EC4  10EC          1431         JOFF    T75B                     NO-ERROR
002EC6  4A4E          1432         TBTS    (R2,14)                  SET NOT READY
002EC8  6802 2E9E     1433         B       T75B                     EXIT
002ECC  4A42          1434 T75T    TBTS    (R2,2)                   SET HANG-UP
002ECE  4A40          1435         TBTS    (R2,0)                   SET SEEK FAILURE
                      1436 T75U    TXIT
002ED0  6802 3654     1437+T75U    B       $CONX                     RETURN TO MDI CONTROLLER
                      1438+*************************************************************************
                      1439 *
                      1440 *
002ED4  6E03 332E     1441 T75A    BAL     SENS1,R6                 READ SENSE WORD ONE
002ED8  3604          1442         DC      A($ERR$)                  ERROR
002EDA  402B 336A 0400 1443        TWI     X'0400',RDATA            HOME POSITION ON?
002EE0  120F          1444         JON     T75K                     YES
002EE2  4020 31F2 0005 1445        MVWI    X'0005',SKDCB            SEEK
002EE8  4020 31F4 0131 1446        MVWI    305,SKDCB+2              REVERSE DIRECTION 305 TRACKS
002EEE  402C 31F4 0800 1447        OWI     X'0800',SKDCB+2          SET REVERSE DIRECTION
002EF4  4C67          1448         TBTS    (R4,NI)                  TURN ON NO INTERRUPT EXPECTED
002EF6  6E03 33EE     1449         BAL     $SEEK,R6                 SEEK
002EFA  3604          1450         DC      A($ERR$)                  ERROR
002EFC  6E03 3064     1451         BAL     HON,R6                   GO TO HOME ON ROUTINE
002F00  4020 31F4 0001 1452 T75K   MVWI    1,SKDCB+2                SET FORWARD SEEK 1 TRACK
002F06  4C67          1453         TBTS    (R4,NI)                  TURN ON NO INTERRUPT EXPECTED
002F08  6E03 33EE     1454         BAL     $SEEK,R6                 SEEK
002F0C  3604          1455         DC      A($ERR$)                  ERROR
002F0E  6E03 2FF6     1456         BAL     HOFF,R6                  GO TO HOME OFF ROUTINE
002F12  4020 31F4 0005 1457         MVWI    5,SKDCB+2                SET FORWARD SEEK 5 TRACKS
002F18  4C67          1458         TBTS    (R4,NI)                  TURN ON NO INTERRUPT EXPECTED
002F1A  6E03 33EE     1459         BAL     $SEEK,R6                 SEEK
002F1E  3604          1460         DC      A($ERR$)                  ERROR
002F20  6E03 2FF6     1461         BAL     HOFF,R6                  GO TO HOME OFF ROUTINE
002F24  4020 31F4 0065 1462         MVWI    101,SKDCB+2              SET FORWARD SEEK 101 TRACKS
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976

002F2A  4C67               1463         TBTS  (R4,NI)              TURN ON NO INTERRUPT EXPECTED
002F2C  6E03 33EE          1464         BAL   $SEEK,R6             SEEK
002F30  3604               1465         DC    A($ERR$)             ERROR
002F32  6E03 2FF6          1466         BAL   HOFF,R6              GO TO HOME OFF ROUTINE
002F36  4020 31F4 0865     1467         MVWI  X'0865',SKDCB+2      SET REVERSE SEEK 101 TRACKS
002F3C  4C67               1468         TBTS  (R4,NI)              TURN ON NO INTERRUPT EXPECTED
002F3E  6E03 33EE          1469         BAL   $SEEK,R6             SEEK
002F42  3604               1470         DC    A($ERR$)             ERROR
002F44  6E03 2FF6          1471         BAL   HOFF,R6              GO TO HOME OFF ROUTINE
002F48  4020 31F4 0805     1472         MVWI  X'0805',SKDCB+2      SET REVERSE SEEK 5 TRACKS
002F4E  4C67               1473         TBTS  (R4,NI)              TURN ON NO INTERRUPT EXPECTED
002F50  6E03 33EE          1474         BAL   $SEEK,R6             SEEK
002F54  3604               1475         DC    A($ERR$)             ERROR
002F56  6E03 2FF6          1476         BAL   HOFF,R6              GO TO HOME OFF ROUTINE
002F5A  4020 31F4 0801     1477         MVWI  X'0801',SKDCB+2      SET REVERSE SEEK 1 TRACK
002F60  4C67               1478         TBTS  (R4,NI)              TURN ON NO INTERRUPT EXPECTED
002F62  6E03 33EE          1479         BAL   $SEEK,R6             SEEK
002F66  3604               1480         DC    A($ERR$)             ERROR
002F68  6E03 2FF6          1481         BAL   HOFF,R6              GO TO HOME OFF ROUTINE
002F6C  4020 31F4 0801     1482         MVWI  X'0801',SKDCB+2      SET REVERSE SEEK 1 TRACK
002F72  4C67               1483         TBTS  (R4,NI)              TURN ON NO INTERRUPT EXPECTED
002F74  6E03 33EE          1484         BAL   $SEEK,R6             SEEK
002F78  3604               1485         DC    A($ERR$)             ERROR
002F7A  6E03 3064          1486         BAL   HON,R6               GO TO HOME ON ROUTINE
002F7E  4020 31F4 0001     1487         MVWI  X'0001',SKDCB+2      SET FORWARD SEEK 1 TRACK
002F84  4C67               1488         TBTS  (R4,NI)              TURN ON NO INTERRUPT EXPECTED
002F86  6E03 33EE          1489         BAL   $SEEK,R6             SEEK
002F8A  3604               1490         DC    A($ERR$)             ERROR
002F8C  6E03 2FF6          1491         BAL   HOFF,R6              GO TO HOME OFF ROUTINE
002F90  6E03 33F6          1492         BAL   $RECL,R6             RECALIBRATE
002F94  3604               1493         DC    A($ERR$)             ERROR
002F96  4CA1               1494         TBTR  (R4,ER)
002F98  1023               1495         JOFF  T75AA
002F9A  4CA9               1496         TBTR  (R4,CSA)             CS STATS AVAILABLE?
002F9C  6800 3604          1497         BOFF  $ERR$                OK-NO ERROR
002FA0  8828 2C26 32F0     1498         MVW   CSBUF+2,STATS        ADDRESS OF CS STATS
002FA6  4524 32F0          1499         MVA   STATS,R5             *
002FAA  4D87               1500         TBTR  (R5,7)               UNSAFE?
002FAC  1001               1501         JOFF  T75BB                NO
002FAE  4A4C               1502         TBTS  (R2,12)              SET- UNSAFE
002FB0  4D8A               1503 T75BB   TBTR  (R5,10)              BRAKE FAILURE?
002FB2  1001               1504         JOFF  T75CC                NO
002FB4  4A4B               1505         TBTS  (R2,11)              SET- BRAKE FAILURE
002FB6  4D86               1506 T75CC   TBTR  (R5,6)               PLO OUT OF SYNC CHECK?
002FB8  1001               1507         JOFF  T75DD                NO
002FBA  4A4A               1508         TBTS  (R2,10)              SET- PLO OUT OF SYNC
002FBC  4D89               1509 T75DD   TBTR  (R5,9)               SEEK CHECK?
002FBE  6A00 2ECC          1510         BON   T75T                 SET- FLAGS AND EXIT
002FC2  4D8B               1511         TBTR  (R5,11)              RESET UNSAFE BITS
002FC4  4D8C               1512         TBTR  (R5,12)              *
002FC6  4D8D               1513         TBTR  (R5,13)              *
002FC8  402F 32F0 0000     1514         CWI   0,STATS              OTHER CS BITS ON?
002FCE  6800 2ED0          1515         BE    T75U                  YES-TU ERROR
002FD2  4A44               1516         TBTS  (R2,4)               RECAL
002FD4  4A43               1517         TBTS  (R2,3)               INTERRUPT
002FD6  8828 2C26 18CA     1518         MVW   CSBUF+2,TURESUL+2
002FDC  6802 2ED0          1519         B     T75U                 EXIT
002FE0  6E03 332E          1520 T75AA   BAL   SENS1,R6             READ SENSE WORD ONE
002FE4  3604               1521         DC    A($ERR$)             ERROR
002FE6  402B 336A 0400     1522         TWI   X'0400',RDATA        HOME POSITION ON?
002FEC  6A00 2ED0          1523         BON   T75U                 EXIT
002FF0  4A41               1524         TBTS  (R2,1)               SET RECAL FAILURE
002FF2  6802 2ED0          1525         B     T75U                 EXIT
002FF6  6E0D 3062          1526 HOFF    MVW   R6,T75TW+2           SET UP RETURN ADDRESS
002FFA  4524 0000          1527 T7535   MVWI  0,R5                 INIT INTERUPT TIME OUT COUNTER
002FFE  4CA3               1528         TBTR  (R4,IN)              INTERRUPT BEEN RECEIVED?
003000  1205               1529         JON   T7579                YES
003002  7DA1 0001          1530         AWI   1,R5                 INCREMENT NO INTERRUPT TIME OUT
003006  18F9               1531         JNZ   T7535
003008  6802 3604          1532         B     $ERR$                 NO INTERRUPT - TU RESULTS NG
00300C  6E03 3586          1533 T7579   BAL   XIOCK,R6             CHECK INTERRUPT STATS
003010  3604               1534         DC    A($ERR$)
003012  4CA9               1535         TBTR  (R4,CSA)             CS STATS AVAILABLE?
003014  101B               1536         JOFF  T75AC                OK-NO ERROR
003016  8828 2C26 32F0     1537         MVW   CSBUF+2,STATS        ADDRESS OF CS STATS
00301C  4524 32F0          1538         MVA   STATS,R5             *
003020  4D87               1539         TBTR  (R5,7)               UNSAFE?
003022  1001               1540         JOFF  T75EE                NO
003024  4A4C               1541         TBTS  (R2,12)              SET- UNSAFE
003026  4D8A               1542 T75EE   TBTR  (R5,10)              BRAKE FAILURE?
003028  1001               1543         JOFF  T75FF                NO
00302A  4A4B               1544         TBTS  (R2,11)              SET- BRAKE FAILURE
00302C  4D86               1545 T75FF   TBTR  (R5,6)               PLO OUT OF SYNC CHECK?
00302E  1001               1546         JOFF  T75GG                NO
003030  4A4A               1547         TBTS  (R2,10)              SET- PLO OUT OF SYNC
003032  4D89               1548 T75GG   TBTR  (R5,9)               SEEK CHECK?
003034  6A00 2ECC          1549         BON   T75T                 SET- FLAGS AND EXIT
003038  4D8B               1550         TBTR  (R5,11)              RESET UNSAFE BITS
00303A  4D8C               1551         TBTR  (R5,12)              *
00303C  4D8D               1552         TBTR  (R5,13)              *
00303E  402F 32F0 0000     1553         CWI   0,STATS              OTHER CS BITS ON?
003044  6801 3604          1554         BNE   $ERR$                 YES-TU EPPOP
003048  6802 2ED0          1555         B     T75U                 EXIT
00304C  6E03 332E          1556 T75AC   BAL   SENS1,R6             READ SENSE WORD ONE
003050  3604               1557         DC    A($ERR$)
003052  402B 336A 0400     1558         TWI   X'0400',RDATA        HOME POSITION ON?
003058  1003               1559         JOFF  T75TW                EXIT
00305A  4A40               1560         TBTS  (R2,0)               SET SEEK FAILURE
00305C  6802 2ED0          1561         B     T75U                 EXIT
003060  6802 0000          1562 T75TW   B     *-*                  RETURN
                           1563 *
                           1564 *
003064  6E0D 30D6          1565 HON     MVW   R6,T75TV+2           SET UP RETURN ADDRESS
003068  4524 0000          1566 T7534   MVWI  0,R5                 INIT INTERUPT TIME OUT COUNTER
00306C  4CA3               1567         TBTR  (R4,IN)              INTERRUPT BEEN RECEIVED?
00306E  1205               1568         JON   T7578                YES
003070  7DA1 0001          1569         AWI   1,R5                 INCREMENT NO INTERRUPT TIME OUT
003074  18F9               1570         JNZ   T7534
003076  6802 3604          1571         B     $ERR$                 NO INTERRUPT - TU RESULTS NG
00307A  6E03 3586          1572 T7578   BAL   XIOCK,R6             CHECK INTERRUPT STATS
00307E  3604               1573         DC    A($ERR$)              ERROR
003080  4CA9               1574         TBTR  (R4,CSA)             CS STATS AVAILABLE?
003082  101F               1575         JOFF  T75AB                OK-NO ERROR
003084  8828 2C26 32F0     1576         MVW   CSBUF+2,STATS        ADDRESS OF CS STATS
```



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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976

00308A  4524 32F0          1577         MVA   STATS,R5             *
00308E  4D87               1578         TBTR  (R5,7)               UNSAFE?
003090  1001               1579         JOFF  T75HH                NO
003092  4A4C               1580         TBTS  (R2,12)              SET- UNSAFE
003094  4D8A               1581 T75HH   TBTR  (R5,10)              BRAKE FAILURE?
003096  1001               1582         JOFF  T75JJ                NO
003098  4A4B               1583         TBTS  (R2,11)              SET- BRAKE FAILURE
00309A  4D86               1584 T75JJ   TBTR  (R5,6)               PLO OUT OF SYNC CHECK?
00309C  1001               1585         JOFF  T75KK                NO
00309E  4A4A               1586         TBTS  (R2,10)              SET- PLO OUT OF SYNC
0030A0  4D89               1587 T75KK   TBTR  (R5,9)               SEEK CHECK?
0030A2  6A00 2ECC          1588         BON   T75T                 SET- FLAGS AND EXIT
0030A6  4D8B               1589         TBTR  (R5,11)              RESET UNSAFE BITS
0030A8  4D8C               1590         TBTR  (R5,12)              *
0030AA  4D8D               1591         TBTR  (R5,13)              *
0030AC  402F 32F0 0000     1592         CWI   0,STATS              OTHER CS BITS ON?
0030B2  6800 2ED0          1593         BE    T75U                  YES-TU ERROR
0030B6  4A43               1594         TBTS  (R2,3)               INTERRUPT
0030B8  8828 2C26 18CA     1595         MVW   CSBUF+2,TURESUL+2
0030BE  6802 2ED0          1596         B     T75U                 EXIT
0030C2  6E03 332E          1597 T75AB   BAL   SENS1,R6             READ SENSE WORD ONE
0030C6  3604               1598         DC    A($ERR$)              ERROR
0030C8  402B 336A 0400     1599         TWI   X'0400',RDATA        HOME POSITION ON?
0030CE  6A00 2ED0          1600         BON   T75U                 EXIT
0030D2  4A40               1601         TBTS  (R2,0)               SET SEEK FAILURE
0030D4  6802 0000          1602 T75TV   B     *-*                  RETURN
                           1603 *
                           1604 *
                           1606         COPY  T7837                01DEC76
                           1607 T7837   TUIT S14E
                           1608+*********************************************************06FEB76**
                           1609+*
                           1610+* TEST UNIT
                           1611+*
                           1612+*      (QU14)  TRAVERSE ACCESS HEADS SCOPE LOOP                12/01/76
                           1613+*
                           1614+* PURPOSE
                           1615+*
                           1616+*      FUNCTION: SEEK OUT TO CE TRACK AND BACK IN 2-TRACK INCREMENTS
                           1617+*      .
                           1618+*      .    PROGRAM INITIALIZES ATTACHMENT.
                           1619+*      .    RECALIBRATE AND SEEK OUT TO CE TRACK AND BACK IN 2-TRACK INC.
                           1620+*      .    LOOP UNTIL CE INPUTS ANSWER TO MAP QUESTION.
                           1621+*
                           1622+* CALLING SEQUENCE
                           1623+*
                           1624+*      PROGRAM PASSES STATUS OF ALL LINES IN FOLLOWING FORMAT:
                           1625+*      .      NO STATUS PASSED BACK TO MDI
                           1626+*      .
                           1627+*    \ EXITS NORMAL
                           1628+*      .      MDI TERMINATES LOOP.
                           1629+*      .
                           1630+*      EXITS ERROR
                           1631+*      .      NONE
                           1632+*
                           1633+* RETURN CONTROL
                           1634+*
                           1635+*      B      TURTN*                  RETURN TO MDI SUPERVISOR
                           1636+*
                           1637+*************************************************************************
0030D8  6F0D 2C3C          1638+T7837   MVW   R7,TURTN               SAVE RETURN ADDRESS
0030DC  4020 2C04 7837     1639+        MVWI  X'7837',$TUID          SAVE TU ID FOR DISPLAY
0030E2  4424 2BFE          1640+        MVA   OPTN1,R4               SET UP POINTER ADRS IN R4
0030E6  6E03 35D0          1641+        BAL   $CONC,R6               CLEAR DEV DEP STG AND CONNECT I/O BL
0030EA  314A               1642+        DC    A(S14E)                ERROR ADRS FOR INVALID PREP
                           1643+*
0030EC  C020 0232          1644         MVB   CPUID,R0               DETERMINE TYPE OF PROCESSOP
0030F0  F025               1645         CBI   37,R0                  *
0030F2  1804               1646         JNE   T14TC                  JUMP IF NOT 4955
0030F4  4020 310A 254C     1647         MVWI  X'254C',T14T1+2        LOAD TIME CONSTANT FOR 2 SEC
0030FA  5003               1648         J     T14T2
0030FC  4020 310A 0C0E     1649 T14TC   MVWI  X'0C0E',T14T1+2        (4953) LOAD TIME CONS FOR 2 SEC
003102  4724 35BC          1650 T14T2   MVA   IOBLK,R7               SETUP IOBLK
003106  6008               1651         SVC   RESET                  ISSUE IO RESET
003108  4020 0000          1652 T14T1   MVWI  X'0000',R0             TIME OUT 2 SEC
00310C  6002               1653 T737    SVC   IDLE                   *
00310E  B8FE               1654         JCT   T737,R0                *
003110  6E03 33F6          1655         BAL   $RECL,R6               RECALIBRATE
003114  314A               1656         DC    A(S14E)                EPROR-EXIT
003116  4020 32D4 0000     1657         MVWI  0,CYLOC                INIT CYL LOC
00311C  4020 31F4 0002     1658 TS14C   MVWI  2,SKDCB+2              SETUP SEEK FORWARD 2 TRACKS
003122  6E03 33EE          1659 TS14A   BAL   $SEEK,R6               SEEK
003126  314A               1660         DC    A(S14E)                EPROR-EXIT
003128  4029 32D4 0001     1661         AWI   1,CYLOC                INC CYL LOC COUNTER
00312E  402F 32D4 0097     1662         CWI   151,CYLOC              CYL 302 REACHED?
003134  18F6               1663         JNE   TS14A                  NO-LOOP
003136  4020 31F4 0802     1664         MVWI  X'0802',SKDCB+2        SETUP SEEK REV 2 TPACKS
00313C  6E03 33EE          1665 TS14B   BAL   $SEEK,R6               SEEK REVERSE
003140  314A               1666         DC    A(S14E)                EPROR-EXIT
003142  402E 32D4 0001     1667         SWI   1,CYLOC                DECREMENT CYL COUNT
003148  18F9               1668         JNZ   TS14B                  KEEP SEEKING REVERSE
                           1669 S14E    TXIT                         EXIT
00314A  6802 3654          1670+S14E    B     $CONX                   RETURN TO MDI CONTROLLER
                           1671+*************************************************************************
                           1672 *
                           1673 *
                           1675         COPY  T7833                01DEC76
                           1676 T7833   TUIT S31E
                           1677+*********************************************************06FEB76**
                           1678+*
                           1679+* TEST UNIT
                           1680+*
                           1681+*      (QU31) SEEK LOOP TEST                                   12/01/76
                           1682+*
                           1683+* PURPOSE
                           1684+*
                           1685+*      FUNCTION: LOOP ON RECAL AND SEEK TO TRACK 1.
                           1686+*      .
                           1687+*      .    PROGPAM INITIALIZES ATTACHMENT.
                           1688+*      .    RECALIBRATE AND DO A ONE TRACK SEEK (FORWARD-OUT DIRECTION)
                           1689+*      .    LOOP UNTIL CE INPUTS ANSWER TO MAP QUESTION.
                           1690+*
                           1691+* CALLING SEQUENCE
                           1692+*
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                         1693+*     PPOGRAM PASSES STATUS OF ALL LINES IN FOLLOWING FORMAT:
                         1694+*       .     NO STATUS PASSED BACK TO MDI
                         1695+*       .
                         1696+*     EXITS NORMAL
                         1697+*       .     MDI TERMINATES LOOP.
                         1698+*       .
                         1699+*     EXITS EPROR
                         1700+*       .     NONE
                         1701+*
                         1702+* RETURN CONTROL
                         1703+*
                         1704+*       B     TURTN*                  RETURN TO MDI SUPERVISOR
                         1705+*
                         1706+*************************************************************************
 00314E  6F0D 2C3C       1707+T7833  MVW   R7,TURTN                  SAVE RETURN ADDRESS
 003152  4020 2C04 7833  1708+       MVWI  X'7833',$TUID             SAVE TU ID FOR DISPLAY
 003158  4424 2BFE       1709+       MVA   OPTN1,R4                  SET UP POINTER ADRS IN R4
 00315C  6E03 35D0       1710+       BAL   $CONC,R6                  CLEAP DEV DEP STG AND CONNECT I/O BL
 003160  319E            1711+       DC    A(S31E)                   ERROP ADPS FOP INVALID PPEP
                         1712+*
 003162  C020 0232       1713        MVB   CPUID,R0                  DETERMINE TYPE OF PROCESSOR
 003166  F025            1714        CBI   37,R0                     *
 003168  1804            1715        JNE   T33T                      JUMP IF NOT 4955
 00316A  4020 3180 254C  1716        MVWI  X'254C',T33T1+2           LOAD TIME CONSTANT FOR 2 SEC
 003170  5003            1717        J     T33T2
 003172  4020 3180 0C0E  1718 T33T   MVWI  X'0C0E',T33T1+2           (4953) LOAD TIME CONS FOR 2 SEC
 003178  4724 35BC       1719 T33T2  MVA   IOBLK,F7                  SETUP IO BLOCK
 00317C  6008            1720        SVC   RESET                     ISSUE IO PESET
 00317E  4024 0000       1721 T33T1  MVWI  X'0000',R0                TIME OUT 2 SEC
 003182  6002            1722 T733   SVC   IDLE                      *
 003184  B8FE            1723        JCT   T733,R0                   *
 003186  6E03 33F6       1724 TS31   BAL   $RECL,R6                  RECALIBRATE
 00318A  319E            1725        DC    A(S31E)                   ERROR-EXIT
 00318C  4020 31F2 0005  1726        MVWI  X'0005',SKDCB             SEEK
 003192  4020 31F4 0001  1727        MVWI  1,SKDCB+2                 FORWARD DIRECTION ONE TRACK
 003198  6E03 33EE       1728        BAL   $SEEK,R6                  SEEK
 00319C  319E            1729        DC    A(S31E)                   ERROR-EXIT
                         1730 S31E   TXIT                            EXITT
 00319E  6802 3654       1731+S31E   B     $CONX                     RETURN TO MDI CONTROLLER
                         1732+*************************************************************************
                         1733 *
                         1734 *
                         1736        COPY  T78DCB                01DEC76
                         1737 ** (T78DCB)
                         1738 ***************************************************12/1/76***********
                         1739 *
                         1740 *     DCB TABLES AND DC'S
                         1741 *
                         1742 *************************************************************************
                         1743 *
                         1744 ***** DIAGNOSTIC DCB   ********
                         1745 *
 0031A2  2008            1746 DGDCB DC     X'2008'                   DIAGNOSTIC DCB
 0031A4  0000            1747       DC     X'0000'                   NOT USED
 0031A6  0000            1748       DC     A(*-*)                    0-7 = PHYSICAL SECTOR # MINUS ONE
 0031A8  0000            1749       DC     X'0000'                   NOT USED
 0031AA  0000            1750       DC     X'0000'                   NOT USED
 0031AC  0000            1751       DC     A(*-*)                    CHAINING ADDRESS
 0031AE  0100            1752       DC     X'0100'                   BYTE COUNT
 0031B0  0000            1753       DC     A(*-*)                    DATA ADDRESS
                         1754 *
                         1755 *
                         1756 ***** RECALIBRATE DCB  ********
                         1757 *
 0031B2  0007            1758 CLDCB DC     X'0007'                   RECALIBRATE DCB
 0031B4  00000000000000000 1759     DC     7A(*-*)
                         1760 *
                         1761 ***** WRITE SECTOR ID  **
                         1762 *
 0031C2  0002            1763 WSDCB  DC     X'0002'                   WRITE SECTOP ID CONTROL WORD
 0031C4  0000            1764       DC     X'0000'                   NOT USED
 0031C6  0000            1765       DC     A(*-*)                    0-7 = PHYSICAL SECTOR # MINUS ONE
 0031C8  0000            1766       DC     A(*-*)                    NOT USED
 0031CA  0000            1767       DC     A(*-*)                    NOT USED
 0031CC  0000            1768       DC     A(*-*)                    CHAIN ADDRESS
 0031CE  0006            1769       DC     X'0006'                   BYTE COUNT
 0031D0  3288            1770       DC     A(WRSID)                  ADDR OF SECTOR ID DATA
                         1771 ***** READ SECTOR ID DCB  *******
                         1772 *
 0031D2  200A            1773 RSDCB DC     X'200A'                   READ SECTOR ID
 0031D4  0000            1774       DC     X'0000'                   NOT USED
 0031D6  0000            1775       DC     X'0000'                   0-7 = PHYSICAL SECTOP # MINUS ONE
 0031D8  0000            1776       DC     X'0000'                   NOT USED
 0031DA  0000            1777       DC     X'0000'                   NOT USED
 0031DC  0000            1778       DC     X'0000'                   CHAIN ADDRESS
 0031DE  0006            1779       DC     X'0006'                   BYTE COUNT FOR READ SECTOR ID
 0031E0  2C0C            1780       DC     A(SCTID)                  SECTOR ID DATA ADDRESS
                         1781 *
                         1782 *
                         1783 ***** READ SECTOR ID IMMEDIATE DCB  *******
                         1784 *
 0031E2  200E            1785 RIDCB DC     X'200E'                   READ SECTOR ID
 0031E4  0000            1786       DC     X'0000'                   NOT USED
 0031E6  0000            1787       DC     X'0000'                   NOT USED
 0031E8  0000            1788       DC     X'0000'                   NOT USED
 0031EA  0000            1789       DC     X'0000'                   NOT USED
 0031EC  0000            1790       DC     A(*-*)                    CHAIN ADDRESS
 0031EE  0006            1791       DC     X'0006'                   BYTE COUNT FOR READ SECTOR ID
 0031F0  2C0C            1792       DC     A(SCTID)                  SECTOR ID DATA ADDRESS
                         1793 *
                         1794 *
                         1795 ***** SEEK DCB  ********
                         1796 *
 0031F2  0005            1797 SKDCB DC     X'0005'                   SEEK DCB
 0031F4  0000            1798       DC     X'0000'                   BIT 0-3=0;BIT4=DIRECTION;5-15=DIFFER
 0031F6  0000            1799       DC     F'0'
 0031F8  0000            1800       DC     F'0'
 0031FA  0000            1801       DC     X'0000'                   0-7 = HEAD;8-15 NOT USED
 0031FC  0000            1802       DC     A(*-*)                    CHAIN ADDRESS
 0031FE  0000            1803       DC     F'0'                      NOT USED
 003200  0000            1804       DC     F'0'                      NOT USED
                         1805 *
                         1806 ***** CYCLE STEAL STATUS DCB  ********
                         1807 *
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
 003202  2000            1808 CSDCB DC     X'2000'                   CONTROL WORD
 003204  0000            1809       DC     F'0'                      NOT USED
 003206  0000            1810       DC     F'0'                      NOT USED
 003208  0000            1811       DC     F'0'                      NOT USED
 00320A  0000            1812       DC     F'0'                      NOT USED
 00320C  0000            1813       DC     F'0'                      NOT USED
 00320E  0008            1814       DC     X'0008'                   4 WORDS OF STATS
 003210  2C24            1815       DC     A(CSBUF)                  ADDRESS OF CYCLE STEAL STATUS DATA
                         1816 *
                         1817 ***** WPITE DCB  **********
                         1818 *
 003212  0001            1819 WRDCB DC     X'0001'                   WRITE CONTROL WORD
 003214  0000            1820       DC     F'0'                      NOT USED
 003216  0000            1821       DC     X'0000'                   0-7=0;8-15 = FLAG BYTE
 003218  0000            1822       DC     X'0000'                   SERCH ARGUMENT CYLINDER
 00321A  0000            1823       DC     X'0000'                   SEARCH ARGUMENT HEAD-SECTOR
 00321C  0000            1824       DC     A(*-*)                    CHAIN ADDRESS
 00321E  0000            1825       DC     F'0'                      BYTE COUNT
 003220  0000            1826       DC     A(*-*)                    WRITE DATA ADDRESS
                         1827 *
                         1828 ***** VERIFY DCB   *******
                         1829 *
 003222  200C            1830 VRDCB DC     X'200C'                   CONTROL WOPD
 003224  0000            1831       DC     F'0'                      NOT USED
 003226  0000            1832       DC     X'0000'                   0-7=0;8-15 = FLAG BYTE
 003228  0000            1833       DC     X'0000'                   CYLINDER
 00322A  0000            1834       DC     X'0000'                   HEAD - SECTOR
 00322C  0000            1835       DC     A(*-*)                    CHAIN ADDRESS
 00322E  0000            1836       DC     F'0'                      BYTE COUNT
 003230  0000            1837       DC     A(*-*)                    VERIFY DATA ADDRESS
                         1838 *
                         1839 ***** READ DCB   *******
                         1840 *
 003232  2009            1841 RDDCB DC     X'2009'                   READ DCB CONTROL WORD
 003234  0000            1842       DC     F'0'                      NOT USED
 003236  0000            1843       DC     X'0000'                   0-7=0,8-15 = FLAG BYTE
 003238  0000            1844       DC     X'0000'                   SEARCH ARGUMENT CYLINDER
 00323A  0101            1845       DC     X'0101'                   SEARCH ARGUMENT H-R
 00323C  0000            1846       DC     A(*-*)                    CHAIN ADDRESS
 00323E  0000            1847       DC     F'0'                      BYTE COUNT
 003240  0000            1848       DC     A(*-*)                    READ DATA ADDRESS
                         1849 *
                         1850 ****  WRITE SECTOR ID SKEWED   ****
                         1851 *
 003242  0003            1852 WKDCB DC     X'0003'                   CONTROL WORD
 003244  0000            1853       DC     X'0000'                   NOT USED
 003246  0000            1854       DC     A(*-*)                    0-7 = PHYSICAL SECTOR # MINUS ONE
 003248  0000            1855       DC     A(*-*)                    NOT USED
 00324A  0000            1856       DC     A(*-*)                    NOT USED
 00324C  0000            1857       DC     A(*-*)                    CHAIN ADDRESS
 00324E  0006            1858       DC     X'0006'                   BYTE COUNT
 003250  3288            1859       DC     A(WRSID)                  ADDP OF SECTOR ID DATA
                         1860 *
                         1861 ****  READ SECTOR ID SKEWED    ****
                         1862 *
 003252  200B            1863 RKDCB DC     X'200B'                   CONTROL WORD
 003254  0000            1864       DC     X'0000'                   NOT USED
 003256  0000            1865       DC     X'0000'                   0-7 = PHYSICAL SECTOR # MINUS ONE
 003258  0000            1866       DC     X'0000'                   NOT USED
 00325A  0000            1867       DC     X'0000'                   NOT USED
 00325C  0000            1868       DC     A(*-*)                    CHAIN ADDRESS
 00325E  0006            1869       DC     X'0006'                   BYTE COUNT FOR READ SECTOR ID
 003260  2C0C            1870       DC     A(SCTID)                  SECTOR ID DATA ADDRESS
                         1871 *
                         1872 *     CONSTANTS AND DEFINED STORAGE  LOCATIONS
 003262  0000            1873 ZERO0 DC     X'0000'                   CONSTANT ZERO
 003264  0001            1874 ONE1  DC     X'0001'                   CONSTANT ONE
 003266  00000000        1875 TIMEOUT DC   2A(*-*)                   TIMEOUT COUNTER
 00326A  0000            1876 TONE  DC     X'0000'                   CONSTANT FOR ADD DOUBLE
 00326C  0001            1877       DC     X'0001'                   *
 00326E  0500            1878 COUNT DC     F'1280'                   BYTE COUNT (1280)
 003270  0000            1879 DIFF  DC     A(*-*)                    SEEK DIFFERENCE
 003272  0000            1880 XXX   DC     A(*-*)                    WORK WORD INT TO ZERO
 003274  0000            1881 BCNT  DC     X'0000'                   BYTE COUNT
 003276  0000            1882 JOE   DC     A(*-*)                    WRITE PARAMETER POINTER
 003278  0000            1883 JOE1  DC     A(*-*)                    SAVE LOC FOP PARM LIST ADDRESS
 00327A  DEB6            1884 WDATA DC     X'DEB6'                   WPITE DATA
 00327C  6E8D            1885       DC     X'6E8D'                   *
 00327E  0000            1886 TABLE DC     A(*-*)                    ADDR OF WRT PAR LIST FOR FORMAT RTNS
 003280  0000            1887 LGSEC DC     X'0000'                   LOGICAL SECTOR #
 003282  0000            1888 PHYSC DC     X'0000'                   CONVERTED PHYSICAL SEC #
 003284  1D00            1889 CB29  DC     X'1D00'                   CONSTANT BYTE 29
 003286  3B00            1890 FIVE9 DC     X'3B00'                   CONSTANT BYTE 59
 003288  0000            1891 WRSID DC     X'0000'                   FLAG,CYLINDER (WRT SECTOR ID DATA)
 00328A  0000            1892       DC     X'0000'                   CYLINDER,HEAD
 00328C  0000            1893       DC     X'0000'                   LOG SECTOR,NOT USED
 00328E  00FF            1894 CDAT  DC     X'00FF'                   INVALID DATA CONSTANT
 003290  FF34            1895 WSIDT DC     X'FF34'                   WPITE SECTOR ID TEST DATA
 003292  5678            1896       DC     X'5678'                   *
 003294  9A00            1897       DC     X'9A00'                   *
 003296  0000            1898 SCTST DC     X'0000'                   READ SECTOR ID TEST DATA BUFFER
 003298  0000            1899       DC     X'0000'                   *
 00329A  0000            1900       DC     X'0000'                   *
 00329C  0000            1901 CTR01 DC     X'0000'                   COUNTER
 00329E  0000            1902 CTR02 DC     X'0000'                   COUNTEP
 0032A0  0000            1903 CTR03 DC     X'0000'                   COUNTER
 0032A2  0000            1904 CTR04 DC     X'0000'                   COUNTER
 0032A4  0000            1905 CTR05 DC     X'0000'                   COUNTER
 0032A6  0000            1906 CTR06 DC     X'0000'                   COUNTER
 0032A8  0000            1907 SAVR3 DC     X'0000'                   SAVE AREA
 0032AA  0000            1908 SAVR5 DC     X'0000'                   SAVE AREA
 0032AC  0000            1909 WR2   DC     X'0000'
 0032AE  0000            1910 SVSEK DC     X'0000'
 0032B0  0000            1911 LCT   DC     X'0000'
 0032B2  0000            1912 T56AA DC     X'0000'
 0032B4  0000            1913 T56BB DC     X'0000'
 0032B6  0000            1914 T56CC DC     X'0000'
 0032B8  0000            1915 T56DD DC     X'0000'
 0032BA  0000            1916 T56EE DC     X'0000'
 0032BC  0000            1917 T56FF DC     X'0000'
 0032BE  0000            1918 T56GG DC     X'0000'
 0032C0  0000            1919 T86AA DC     X'0000'
 0032C2  0000            1920 T86BB DC     X'0000'
 0032C4  0000            1921 T86CC DC     X'0000'
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976

0032C6  0000              1922 T86DD  DC    X'0000'
0032C8  0000              1923 T86EE  DC    X'0000'
0032CA  0000              1924 T86FF  DC    X'0000'
0032CC  0000              1925 T86GG  DC    X'0000'
0032CE  0000              1926 T41D   DC    X'0000'
0032D0  0000              1927 T41LP  DC    X'0000'
0032D2  0000              1928 WRLCT  DC    X'0000'
0032D4  0000              1929 CYLOC  DC    X'0000'
0032D6  0000              1930 PASS1  DC    A(*-*)
0032D8  0000              1931 HEAD0  DC    A(*-*)
0032DA  0000              1932 HEAD1  DC    A(*-*)
0032DC  0000              1933 GDSE0  DC    A(*-*)
0032DE  0000              1934 GDSE1  DC    A(*-*)
0032E0  0000              1935 ER00   DC    A(*-*)
0032E2  0000              1936 ER01   DC    A(*-*)
0032E4  0000              1937 HD0SV  DC    A(*-*)
0032E6  0000              1938 HD1SV  DC    A(*-*)
0032E8  0000              1939 ER0SV  DC    A(*-*)
0032EA  0000              1940 ER1SV  DC    A(*-*)
0032EC  0000              1941 PATTR  DC    A(*-*)
0032EE  0000              1942 CECYL  DC    A(*-*)
0032F0  0000              1943 STATS  DC    A(*-*)
                          1944 *
                          1946        COPY  T78DPCIO            01DEC76
                          1947 ** (T78DPCIO)
                          1948 *                                              2/07/77
                          1949 *      EXECUTE DPC INPUT/OUTPUT COMMANDS
                          1950 *      THIS ROUTINE HAS THE FOLLOWING ENTRIES:
                          1951 *
                          1952 * 1    BAL   CEOP1,R6              CE DIAGNOSTIC OP1(TURN ON DIAG MODE)
                          1953 *
                          1954 * 2    BAL   CEOP2,R6              WRITE DIAG CLOCK STEP DATA
                          1955 *
                          1956 * 3    BAL   SENS0,R6              CE READ SENSE WOPD ZERO
                          1957 *
                          1958 * 4    BAL   SENS1,R6              CE READ SENSE WORD ONE
                          1959 *
                          1960 * 5    BAL   WRAP,P6               READ DIAGNOSTIC WRAP
                          1961 *
                          1962 *      BXS   (R6,2)                RETURN
                          1963 *
                          1964 ************************************************************************
                          1965 *
                          1966 *      CE DIAGNOSTIC OP2 DATA WORD  (CLOCK STEP)
                          1967 *
                          1968 *      BIT 00  - SET READY
                          1969 *      BIT 01  - RESET READY
                          1970 *      BIT 02  - SET WRITE CLOCK
                          1971 *      BIT 03  - SET READ CLOCK
                          1972 *      BIT 04  - INDEX PULSE
                          1973 *      BIT 05  - SECTOR PULSE
                          1974 *      BIT 06  - STANDARD READ DATA
                          1975 *      BIT 07  - SPEED PULSE
                          1976 *      BIT 08  - BEHIND HOME
                          1977 *      BIT 09  - SET SEEK COMPLETE
                          1978 *      BIT 10  - RESET SEEK COMPLETE
                          1979 *      BIT 11  - PLO OUT OF SYNC
                          1980 *      BIT 12  - RST RD/WRT CLOCK
                          1981 *      BIT 13  -
                          1982 *      BIT 14  -
                          1983 *      BIT 15  - RESET DIAGNOSTIC MODE
                          1984 *
                          1985 ************************************************************************
                          1986 *
                          1987 *
0032F2  6E0D 2C0A         1988 WRAP   MVW   R6,LSTIO              SAVE ADDRESS OF LAST IO
0032F6  8028 19D0 3375    1989        MVB   DEVADD,IDCBRAP+1      LOAD DEVICE ADDRESS IN IDCB
0032FC  680C 3374         1990        IO    IDCBRAP               READ SENSE WORD 1
003300  6F05 3356         1991        BNCC  7,CCERR               CHECK COND CODE
003304  5601              1992        BXS   (R6,2)                RETURN TO CALLER
                          1993 *
003306  6E0D 2C0A         1994 CEOP1  MVW   R6,LSTIO              SAVE ADDRESS OF LAST IO
00330A  8028 19D0 336D    1995        MVB   DEVADD,IDCBCE1+1      LOAD DEVICE ADDRESS IN IDCB
003310  680C 336C         1996        IO    IDCBCE1               SET DIAGNOSTIC MODE
003314  6F05 3356         1997        BNCC  7,CCERR               CHECK COND CODE
003318  5601              1998        BXS   (R6,2)                RETURN TO CALLER
                          1999 *
00331A  6E0D 2C0A         2000 CEOP2  MVW   R6,LSTIO              SAVE ADDRESS OF LAST IO
00331E  8028 19D0 3371    2001        MVB   DEVADD,IDCBCE2+1      LOAD DEVICE ADDRESS IN IDCB
003324  680C 3370         2002        IO    IDCBCE2               WRITE DIAG CLOCK STEP
003328  6F05 3356         2003        BNCC  7,CCERR               CHECK COND CODE
00332C  5601              2004        BXS   (R6,2)                RETURN TO CALLER
                          2005 *
                          2006 *
00332E  6E0D 2C0A         2007 SENS1  MVW   R6,LSTIO              SAVE ADDRESS OF LAST IO
003332  8028 19D0 3369    2008        MVB   DEVADD,IDCB1+1        LOAD DEVICE ADDRESS IN IDCB
003338  680C 3368         2009        IO    IDCB1                 READ SENSE WORD 2
00333C  6F05 3356         2010        BNCC  7,CCERR               CHECK COND CODE
003340  5601              2011        BXS   (R6,2)                RETURN TO CALLER
                          2012 *
003342  6E0D 2C0A         2013 SENS0  MVW   R6,LSTIO              SAVE ADDRESS OF LAST IO
003346  8028 19D0 3365    2014        MVB   DEVADD,IDCB0+1        LOAD DEVICE ADDRESS IN IDCB
00334C  680C 3364         2015        IO    IDCB0                 READ SENSE WORD 1
003350  6F05 3356         2016        BNCC  7,CCERR               CHECK COND CODE
003354  5601              2017        BXS   (R6,2)                RETURN TO CALLER
                          2018 *
003356  706E              2019 CCERR  DC    X'706E'               COPY STATUS ANY LEVEL INTO R3
003358  336A              2020        SRL   13,R3                 POSITION CC CODE TO BITS 13-15
00335A  C328 2C06         2021        MVB   R3,$IOIN              * PUT IN LOG AREA
00335E  68D2 0000         2022        B     (R6)*                 RETURN TO USER
                          2023 *
003362  6F05              2024 IORST  DC    X'6F05'               RESET IO
003364  2205              2025 IDCB0  DC    X'2205'               SENSE WORD ZERO
003366  0000              2026 RDATA0 DC    A(*-*)                DATA WORD
003368  2105              2027 IDCB1  DC    X'2105'               SENSE WORD ONE
00336A  0000              2028 RDATA  DC    A(*-*)
00336C  4005              2029 IDCBCE1 DC   X'4005'               CE DIAG OP1
00336E  0000              2030 CEDAT  DC    A(*-*)                SENSE DATA
003370  4105              2031 IDCBCE2 DC   X'4105'               CE DIAG OP2
003372  0000              2032 CEDAT2 DC    A(*-*)                SENSE DATA
003374  2F05              2033 IDCBRAP DC   X'2F05'               READ DIAG WRAP
003376  0000              2034 RAPDAT DC    A(*-*)                SENSE DATA
000232                    2035 CPUID  EQU   X'0232'               CPU ID
                          2036 *
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976

                          2038        COPY  T78IO               01DEC76
                          2039 ** (T78IO)
                          2040 ****************************12/01/76**********************************
                          2041 *
                          2042 *  SUBROUTINE
                          2043 *
                          2044 *      PURPOSE
                          2045 *
                          2046 *           COMPARE READ SECTOR ID DATA TO WRITE SECTOR ID DATA
                          2047 *           NORMAL AND TEST DATA.
                          2048 *
                          2049 *      CALLING SEQUENCE
                          2050 *
                          2051 *           BAL  CMPRW,R6          (NORMAL)
                          2052 *           BAL  CMPRT,R6          (TEST)
                          2053 *
                          2054 *      RETURN
                          2055 *
                          2056 *           BXS (R6,2)     -   NORMAL
                          2057 *
                          2058 *
                          2059 ************************************************************************
                          2060 *
003378  4724 0005         2061 CMPRT  MVWI  5,R7                  BYTE COUNT
00337C  4324 3297         2062        MVA   SCTST+1,R3            ADDR OF RD SECT ID DATA (TEST)
003380  4524 3290         2063        MVA   WSIDT,R5              ADDR OF WR SECT ID DATA (TEST)
003384  5006              2064        J     TT4Y
003386  4724 0005         2065 CMPRW  MVWI  5,R7                  COMPARE BYTE COUNT
00338A  4324 2C0D         2066        MVA   SCTID+1,R3            ADDR OF RD SEC ID DATA
00338E  4524 3288         2067        MVA   WRSID,R5              ADDR OF WR SEC ID DATA
003392  2BA6              2068 TT4Y   CFNEN (R3),(R5)             COMPARE ID DATA
003394  68C0 0002         2069        BE    (R6,2)                BCH IF WRITE ID DATA OK
003398  68D2 0000         2070        B     (R6)*                 COMPARE ERROR
                          2071 *
                          2072 ************************************************************************
                          2073 *
                          2074 *  SUBROUTINE
                          2075 *
                          2076 *      PURPOSE
                          2077 *           CONVERT LOGICAL SECTOR NUMBER TO A PHYSICAL SECTOR MINUS
                          2078 *           ONE.
                          2079 *           SETUP LOGICAL SECTOR # IN LOCATION 'LGSEC'
                          2080 *           PHYSICAL SECTOR # WILL BE LOADED IN LOCATION 'PHYSC'
                          2081 *
                          2082 *      LOGICAL SECTOR# TO PHYSICAL SECTOR# CONVERSION
                          2083 * LOGICAL- X 00, 1E, 01, 1F, 02, 20, 03, 21, 04, 22, 05, 23, 06, 24,
                          2084 * PHYSICAL X 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B, 0C, 0D,
                          2085 *
                          2086 * LOGICAL-   07, 25, 08, 26, 09, 27, 0A, 28, 0B, 29, 0C, 2A, 0D, 2B,
                          2087 * PHYSICAL   0E, 0F, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 1A, 1B,
                          2088 *
                          2089 * LOGICAL-   0E, 2C, 0F, 2D, 10, 2E, 11, 2F, 12, 30, 13, 31, 14, 32,
                          2090 * PHYSICAL   1C, 1D, 1E, 1F, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29,
                          2091 *
                          2092 * LOGICAL-   15, 33, 16, 34, 17, 35, 18, 36, 19, 37, 1A, 38, 1B, 39,
                          2093 * PHYSICAL   2A, 2B, 2C, 2D, 2E, 2F, 30, 31, 32, 33, 34, 35, 36, 37,
                          2094 *
                          2095 * LOGICAL-   1C, 3A, 1D, 3B, X
                          2096 * PHYSICAL   38, 39, 3A, 3B, X
                          2097 *
                          2098 *
                          2099 *      CALLING SEQUENCE
                          2100 *
                          2101 *           BAL  CONVT,R6
                          2102 *
                          2103 *      RETURN
                          2104 *
                          2105 *           B    (TT304+2)
                          2106 *
                          2107 ************************************************************************
                          2108 *
003394  6E0D 33DC         2109 CONVT  MVW   R6,TT304+2            SETUP RETURN ADDR
003398  802B 3262 3281    2110        CB    ZERO0,LGSEC+1         CK FOR LOG # ZERO
00339E  100D              2111        JE    TT303                 BCH IF LOG # IS ZERO
0033A0  8028 3281 3284    2112        CB    LGSEC+1,CB29          COMP LOG TO 29
0033A6  1C0D              2113        JGE   RTT01                 BCH IF LGSEC EQ OR LESS THAN CB29
0033A8  4024 0002         2114        MVWI  2,R0                  SETUP MULTIPLIER
0033AC  E821 3281         2115        MB    LGSEC+1,R0            LOG SECTOR # TIMES 2
0033B0  7802 003C         2116        SWI   60,R0                 LOG SEC TIMES 2 MINUS 60
0033B4  C028 3283         2117        MVB   R0,PHYSC+1            PHYSICAL SECTOR NUMBER
0033B8  500C              2118        J     TT304                 RETURN TO CALLER
0033BA  8028 3286 3283    2119 TT303  MVB   FIVE59,PHYSC+1        PHYSICAL SECTOR # 59
0033C0  5008              2120        J     TT304                 RETURN TO CALLER
0033C2  4024 0002         2121 RTT01  MVWI  2,R0                  LOAD MULTIPLIER
0033C6  E821 3281         2122        MB    LGSEC+1,R0            LOG SECTOR # TIMES 2
0033CA  7802 0001         2123        SWI   1,R0                  SUBTRACT ONE
0033CE  C028 3283         2124        MVB   R0,PHYSC+1            LOAD PHYSICAL SECTOR #
0033D2  6802 0000         2125 TT304  B     *-*                   RETURN TO CALLER
                          2126 *
                          2127 ************************************************************************
                          2128 *
                          2129 *  SUBROUTINE
                          2130 *
                          2131 *      PURPOSE
                          2132 *
                          2133 *           LOAD WRITE SECTOR ID DATA BUFFER FROM RD SEC ID BUFFER
                          2134 *
                          2135 *      CALLING SEQUENCE
                          2136 *
                          2137 *           BAL  LWSID,R6
                          2138 *
                          2139 *      RETURN
                          2140 *
                          2141 *           BXS    (R6)
                          2142 *
                          2143 ************************************************************************
                          2144 *
                          2145 *
0033D6  4724 0005         2146 LWSID  MVWI  5,R7                  BYTE COUNT
0033DA  4324 2C0D         2147        MVA   SCTID+1,R3            ADDR OF RD SECT ID DATA BUFFER
0033DE  4524 3288         2148        MVA   WRSID,R5              ADDR OF WR SECT ID DATA BUFFER
0033E2  2BA4              2149        MVFN  (R3),(R5)             MOV DATA FROM RD TO WR BUFFER
0033E4  5600              2150        BXS   (R6)                  RETURN TO CALLER
                          2151 *
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                           2153 *
                           2154 *     EXECUTE INPUT & OUTPUT COMMANDS
                           2155 *     TO EXECUTE ALL I/O COMMANDS FROM A COMMON PLACE.
                           2156 *     EACH OF THESE ENTRIES SET R7 WITH THE ADRS OF ITS PARAMETER
                           2157 *     LIST AND ANY SPECIAL SWITCHES BEFORE BRANCHING TO THE
                           2158 *     SUPVR CALL.
                           2159 *
                           2160 *     THIS SUBROUTINE WILL CHECK FOR THE FOLLOWING:
                           2161 *
                           2162 *     1. LOST INTERRUPTS BY TIMING OUT A COUNTING LOOP
                           2163 *     2. ERROR INTERRUPTS RECEIVED FROM SUPVR
                           2164 *
                           2165 *     THIS ROUTINE HAS THE FOLLOWING ENTRIES:
                           2166 *
                           2167 * 1   BAL   $RKEW,R6              READ SECTOR ID SKEWED
                           2168 *
                           2169 * 2   BAL   $WKST,R6              WRITE SECTOR ID SKEWED (TEST)
                           2170 *
                           2171 * 3   BAL   $RWST,R6              READ SECTOR ID SKEWED (TEST)
                           2172 *
                           2173 * 4   BAL   $RIDS,R6              READ SECTOR ID (TEST)
                           2174 *
                           2175 * 5   BAL   $WKEW,R6              WRITE SECTOR ID SKEWED
                           2176 *
                           2177 * 6   BAL   $WSEC,R6              WRITE SECTOR ID
                           2178 *
                           2179 * 7   BAL   $WSTS,P6              WRITE SECTOR ID (TEST
                           2180 *
                           2181 * 8   BAL   $DIAG,P6              DIAGNOSTIC
                           2182 *
                           2183 * 9   BAL   XIOCS,R6              CYCLE STEAL STATUS
                           2184 *
                           2185 * 10  BAL   $SEEK,R6              SEEK
                           2186 *
                           2187 * 11  BAL   $RECL,R6              RECALIBRATE
                           2188 *
                           2189 * 12  BAL   $RDID,R6              READ SECTOR ID
                           2190 *
                           2191 * 13  BAL   $RD,R6                READ
                           2192 *
                           2193 * 14  BAL   $RDVY,R6              READ VERIFY
                           2194 *
                           2195 * 15  BAL   $WRT,R6               WRITE
                           2196 *
                           2197 *
0033EE  4020 35C0 31F2     2198 $SEEK MVA   SKDCB,IODCB           SET UP CONTROL BLOCK FOR SVC CALL
0033F4  5064               2199        J     XIO
                           2200 *
0033F6  4020 35C0 31B2     2201 $RECL MVA   CLDCB,IODCB           SET UP BLOCK FOR SVC CALL
0033FC  5060               2202        J     XIO
                           2203 *
0033FE  4020 35C0 31D2     2204 $RDID MVA   RSDCB,IODCB           SET UP BLOCK FOR SVC CALL
003404  0BFF               2205        MVBI  X'FF',R3             SET BUFFER TO F'S
003406  4524 2C0C          2206        MVA   SCTID,R5             SETUP READ SECTOR ID BUFFER ADRS
00340A  4724 0006          2207        MVWI  6,R7                 SETUP BUFFER LENGTH
00340E  2BAC               2208        FFN   R3,(R5)              INIT READ SECTOR ID BUFFER
003410  4020 31E0 2C0C     2209        MVA   SCTID,RSDCB+14       DATA ADDR
003416  5053               2210        J     XIO
                           2211 *
003418  0BFF               2212 $RD    MVBI  X'FF',R3             SETRD BUFFER TO ALL F'S
00341A  6D08 3240          2213        MVW   RDDCB+14,R5          SET UP READ BUFFER ADRS
00341E  4724 0100          2214        MVWI  X'0100',R7           SET UP BUFFER LENGTH
003422  2BAC               2215        FFN   R3,(R5)              CLEAR READ BUFFER
003424  4020 35C0 3232     2216 $RD$   MVA   RDDCB,IODCB          SET UP BLOCK FOR SVC CALL
00342A  5049               2217        J     XIO
                           2218 *
00342C  4020 35C0 3222     2219 $RDVY MVA   VRDCB,IODCB           SET UP CONTROL BLOCK FOR SVC CALL
003432  5045               2220        J     XIO
                           2221 *
003434  4020 35C0 3212     2222 $WRT  MVA   WRDCB,IODCB           SET UP CONTROL BLOCK FOR SVC CALL
00343A  5041               2223        J     XIO
                           2224 *
00343C  4020 35C0 3252     2225 $RKEW MVA   RKDCB,IODCB            SET UP CONTROL BLOCK FOR SVC CALL
003442  0BFF               2226        MVBI  X'FF',R3             SET BUFFER TO F'S
003444  4524 2C0C          2227        MVA   SCTID,R5             SETUP READ SECTOR ID BUFFER ADRS
003448  4724 0006          2228        MVWI  6,R7                 SETUP BUFFER LENGTH
00344C  2BAC               2229        FFN   R3,(R5)              INIT READ SECTOR ID BUFFER
00344E  4020 3260 2C0C     2230        MVA   SCTID,RKDCB+14        DATA ADDR
003454  5034               2231        J     XIO
                           2232 *
003456  4020 35C0 3242     2233 $WKST MVA   WKDCB,IODCB           SET UP CONTROL BLOCK FOR SVC CALL
00345C  4020 3250 3290     2234        MVA   WSIDT,WKDCB+14       DATA ADDR
003462  502D               2235        J     XIO
                           2236 *
003464  4020 35C0 3252     2237 $RWST MVA   RKDCB,IODCB           SET UP CONTROL BLOCK FOR SVC CALL
00346A  4020 3260 3296     2238        MVA   SCTST,RKDCB+14       DATA ADDR
003470  5026               2239        J     XIO
                           2240 *
003472  4020 35C0 31D2     2241 $RIDS MVA   RSDCB,IODCB           SET UP CONTROL BLOCK FOR SVC CALL
003478  0BFF               2242        MVBI  X'FF',R3             SET BUFFER TO F'S
00347A  4524 3296          2243        MVA   SCTST,R5             SETUP READ SECTOR ID BUFFER ADRS
00347E  4724 0006          2244        MVWI  6,R7                 SETUP BUFFER LENGTH
003482  2BAC               2245        FFN   R3,(R5)              INIT READ SECTOR ID BUFFER
003484  4020 31E0 3296     2246        MVA   SCTST,RSDCB+14       DATA ADDR
00348A  5019               2247        J     XIO
                           2248 *
00348C  4020 35C0 3242     2249 $WKEW MVA   WKDCB,IODCB            SET UP CONTROL BLOCK FOR SVC CALL
003492  4020 3250 3288     2250        MVA   WPSID,WKDCB+14       DATA ADDP
003498  5012               2251        J     XIO
                           2252 *
00349A  4020 35C0 31C2     2253 $WSEC MVA   WSDCB,IODCB            SET UP CONTROL BLOCK FOR SVC CALL
0034A0  4020 31D0 3288     2254        MVA   WRSID,WSDCB+14       DATA ADDR
0034A6  500B               2255        J     XIO
0034A8  4020 35C0 31C2     2256 $WSTS MVA   WSDCB,IODCB           SET UP CONTROL BLOCK FOR SVC CALL
0034AE  4020 31D0 3290     2257        MVA   WSIDT,WSDCB+14       DATA ADDR
0034B4  5004               2258        J     XIO
                           2259 *
0034B6  4020 35C0 31A2     2260 $DIAG MVA   DGDCB,IODCB           SET UP CONTROL BLOCK FOR SVC CALL
0034BC  5000               2261        J     XIO
                           2262        XEQIT
                           2263+*************************************************************29JUL76**
                           2264+*
                           2265+* SUB-ROUTINE
                           2266+*
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                           2267+*     EXECUTE INPUT AND OUTPUT COMMANDS
                           2268+*
                           2269+* PURPOSE
                           2270+*
                           2271+*     TO EXECUTE ALL I/O COMMANDS FROM A COMMON PLACE.
                           2272+*     THIS SUBROUTINE WILL DO THE FOLLOWING FUNCTIONS:
                           2273+*
                           2274+*     1. SAVE THE ADDRESS THAT POINTS TO THE INSTRUCTION THAT STARTED
                           2275+*        THE I/O COMMAND.
                           2276+*     2. SAVES THE DCB BLOCK USED UNLESS IT IS A START CYCLE STATUS
                           2277+*        ISSUED BY THIS SUBROUTINE.
                           2278+*     3. CLEAR OUT THE CYCLE STEAL STATUS STORAGE UNLESS THE
                           2279+*        START CYCLE STATUS WAS ISSUED BY THIS SUBROUTINE.
                           2280+*     4. RESETS THE INTERRUPT INDICATOR AND CHECKS FOR ANY INTERRUPT
                           2281+*        SINCE THE LAST EXPECTED INTERRUPT. IF AN INTERRUPT IS FOUND,
                           2282+*        MYSTERY INTERRUPT (MI) CONTROL BIT IS SET.
                           2283+*     5. MOVES THE ADDRESS OF THE I/O CONTROL BLOCK IN R7, SET THE
                           2284+*        EXPECTED INTERRUPT CONTROL BIT AND ISSUE THE 'SVC  START'.
                           2285+*     6. WHEN THE SUPVR RETURNS AFTER ISSUING THE I/O COMMAND, TIMING
                           2286+*        STARTS TO DETERMINE A LOST INTERRUPT.
                           2287+*     7. EXCEPT THE INTERRUPT AND GATHER INFORMATION TO DETERMINE IF IT
                           2288+*        WAS AN ERROR OR OKAY AND EXIT OFF THE INTERRUPT LEVEL.
                           2289+*     8. CHECK IF THERE WAS A WRONG INTERRUPT LEVEL.
                           2290+*     9. CHECK IF AN ERROR WAS EXPECTED AND IF THERE WAS RETURN.
                           2291+*    10. CHECK IF THERE WAS AN ERROR CONDITION, IF NOT RETURN.
                           2292+*    11. CHECK TO SEE IF THE EXERCISER IS TO BE TERMINATED.
                           2293+*    12. CHECK IF A CYCLE STEAL OPERATION WAS IN PROGPESS THAT WAS
                           2294+*        ISSUED BY THIS SUBROUTINE.
                           2295+*    13. CHECK THE ISB BITS THAT ARE ON. IF BIT 0 IS ON, ISSUE A
                           2296+*        CYCLE STEAL STATUS COMMAND. CHECK FOR ANY OTHER BIT BEING ON,
                           2297+*        COUNT IT AND SET UP THE PROPER ERROR MESSAGE TO BE PRINTED.
                           2298+*
                           2299+* CALLING SEQUENCE
                           2300+*
                           2301+*     THIS ROUTINE HAS THE FOLLOWING ENTRIES:
                           2302+*
                           2303+* --> BAL   XIO         OR          XEQ ANY CYCLE STEAL COMMAND, MOD=0
                           2304+* --> BAL   XIO1                   MOD PARM PRELOADED IN 'IOMOD'
                           2305+* --> BAL   XIOCS,R6    OR          XEQ START CYCLE STEAL STATUS, MOD=F
                           2306+* --> BAL   XIOCS-4,R6              AUTO CS STATUS (FOLLOWING OTHER XIO
                           2307+*       .                          AND DOES NOT POST INTERRUPT STATUS)
                           2308+*
                           2309+* RETURN CONTROL
                           2310+*
                           2311+*     BXS   (R6,2)                RETURN TO USER NO ERROR
                           2312+* OR  B     (R6)*                 RETURN AND RETRY ON ERROR
                           2313+*************************************************************************
0034BE  CB25 35C2          2315+XIO   MVWZ  IOMOD,R3              SET MOF OF 0 FOR CYCLE STEAL OP
0034C2  500A               2316+      J     XIO1                  CS I/O'S ARE NOT RETRIED
                           2317+*
0034C4  4CAA               2318+      TBTR  (R4,CE)               RESET CS STATUS INTER ERROR INDICAT.
0034C6  4C68               2319+      TBTS  (R4,CS)               SET 'CYCLE STEAL STATUS' IN PPOGRESS
0034C8  4020 35C0 3202     2320+XIOCS MVA   CSDCB,IODCB           SET UP CONTROL BLOCK FOR SVC CALL
0034CE  4020 35C2 000F     2321+      MVWI  X'000F',IOMOD         SET CYCLE STEAL MODIFIER
0034D4  4C28               2322+      TBT   (R4,CS)               IS CS IN PROGRESS, ERROR CONDITION
0034D6  1213               2323+      JON   XIO2                  * YES, BYPASS SAVING I/O ADRS
0034D8  6E0D 2C0A          2324+XIO1  MVW   R6,LSTIO              SAVE IAR FOR RETRY IF REQUESTED
0034DC  4324 2C14          2325+      MVA   DCBUF,R3              SET UP TO ADRS TO MOVE DCB TABLE
0034E0  6D08 35C0          2326+      MVW   IODCB,R5              * AND THE FROM ADRS, ALONG WITH
0034E4  0F10               2327+      MVBI  16,R7                 * THE NUMBER OF MOVES
0034E6  2D64               2328+      MVFN  (R5),(R3)             MOVE 1 STATUS WORD AND ADJUST
0034E8  0BFF               2329+      MVBI  255,R3                CLEAR CYCLE STATUS BUFFER
0034EA  4524 2C24          2330+      MVA   CSBUF,R5              *  TO ALL ONES  *
0034EE  0F10               2331+      MVBI  16,R7                 *
0034F0  2BAC               2332+      FFN   R3,(R5)               *
0034F2  4021 2C06 0708     2333+      MVWI  X'0708',$IOIN         OVERLAY OLD CONDITION CODES
0034F8  CB25 2C08          2334+      MVWZ  $ISB,R3               ZERO OUT OLD ISB VALUE
                           2335+*
0034FC  4CA1               2336+      TBTR  (R4,ER)               RESET ANY ERROR BEFORE I/O COMMAND
0034FE  4CA3               2337+XIO2  TBTR  (R4,IN)               CLEAR INTERPUPT RECEIVED CNTL BIT
003500  4724 35BC          2338+      MVA   IOBLK,R7              SET UP CONTROL BLOCK FOR SUPVR
003504  4CA6               2339+      TBTR  (R4,$LE)              RESET LEVEL ERROR INDICATOR
003506  4C62               2340+      TBTS  (R4,XI)               SET EXPECTED INTR CONTROL BIT
003508  600A               2341+      SVC   START                 CALL SUPVR FOP I/O COMMAND
                           2342+*
00350A  4CA7               2343+      TBTR  (R4,NI)               IS AN INTR EXPECTED
00350C  6AC0 0002          2344+      BN    (R6,2)                * NO, RETURN TO USER
                           2345+*
                           2346+*           THE INTR SHOULD OCCUR WHILE SPINNING IN THE NEXT SECTION
                           2347+*
003510  0D00               2348+      MVBI  X'00',R5              SET UP WORK REG FOR 'LOST INTR'
003512  4CA3               2349+XIO8  TBTF  (R4,IN)               HAS INTERRUPT BEEN RECEIVED
003514  1238               2350+      JON   XIOCK                 * YES, CHECK IF ALL WAS SATISFACTORY
003516  6002               2351+      SVC   IDLE                  ALLOW ANOTHER PROGRAM A CHANCE TO RUN
                           2352+*                                 SUPVR WILL RETURN HERE
003518  7DA1 0001          2353+      AWI   1,R5                  ADVANCE TIME OUT COUNT
00351C  18FA               2354+      JNZ   XIO8                  ECH IF TIME OUT NOT REACHED
00351E  4C61               2355+      TBTS  (R4,ER)               SET ON ERROR CONTROL BIT
003520  68D2 0000          2356+      B     (R6)*                 ERR 'NO INTERRUPT'
                           2358+*************************************************************03FEB76**
                           2359+*
                           2360+* SUBPOUTINE
                           2361+*
                           2362+*     I/O EXECUTE FRROR HANDLING ROUTINE
                           2363+*
                           2364+* PURPOSE
                           2365+*
                           2366+*     THIS ROUTINE WILL COLLECT INFORMATION TO HELP DETERMINE THE
                           2367+*     PROBLEM THAT WAS FOUND WHEN THE I/O COMMAND WAS ISSUED BY THE
                           2368+*     SUPERVISOR AND IT WAS NOT ACCEPTED.
                           2369+*
                           2370+* CALLING SEQUENCE
                           2371+*
                           2372+*     SUPVR WILL ENTEP WHEN AN ERROP OCCURS ON AN I/O COMMAND
                           2373+*
                           2374+* RETURN CONTROL
                           2375+*
                           2376+*     B     (R6)*                 RETURN TO USERS ERROR HANDLER
                           2377+*
                           2378+*************************************************************************
                           2379+*
                           2380+* CC        0= DEVICE NOT ATTACHED
                           2381+* FOR       1= DEVICE BUSY
                           2382+* I/O       2= DEVICE BUSY AFTER RESET
```

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976

                           2383+*          3= COMMAND REJECT
                           2384+*          4= INTERVENTION REQUIRED
                           2385+*          5= INTERFACE DATA CHECK
                           2386+*          6= CONTROLLER BUSY
                           2387+*          7= I/O COMMAND EXCEPTED
                           2388+*
003524  706E               2389+XIOER DC    X'706E'                 COPY STATUS ANY LEVEL INTO R3
003526  336A               2390+      SRL   13,R3                   POSITION CC CODE TO BITS 13-15
003528  C328 2C06          2391+      MVB   R3,$IOIN                * PUT IN LOG OUT AREA
00352C  68D2 0000          2392+      B     (R6)*                   RETURN TO USER ERROR HANDLER
                           2394+*************************************************************14APR76**
                           2395+*                                                                    IL
                           2396+* SUB-ROUTINE                                                       IL
                           2397+*                                                                    IL
                           2398+*     ERROR INTERRUPT             RUNS ON INTERRUPT LEVEL '$INTL'    IL
                           2399+*                                                                    IL
                           2400+* PURPOSE                                                           IL
                           2401+*                                                                    IL
                           2402+*     THIS ROUTINE WILL BE ENTERED WHEN THE SUPVR DETECTS AN ERROR   IL
                           2403+*     OR THE INTERRUPTING CONDITION CODE DOES NOT AGREE WITH THE     IL
                           2404+*     EXPECTED CODE.                                                 IL
                           2405+*                                                                    IL
                           2406+* CALLING SEQUENCE                                                  IL
                           2407+*                                                                    IL
                           2408+*     SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O INTERRUPT       IL
                           2409+*                                                                    IL
                           2410+* RETURN CONTROL                                                    IL
                           2411+*                                                                    IL
                           2412+*     SVC   EXIT                  RETURN TO USER VIA SUPVR           IL
                           2413+*                                                                    IL
                           2414+*************************************************************************IL
                           2415+*                                                                    IL
                           2416+* CC          0= CONTROLLER END                 ISB   0= ADD STATUS  IL
                           2417+* FOR         1= PROGRAM CONTROL INTERRUPT      BITS  1= COMD REJECT IL
                           2418+* INTR        2= EXCEPTION INTERRUPT            FOR   2= INCOR LENGTH IL
                           2419+*           3= DEVICE END INTERRUPT             INTR  3= DCB SPEC CK  IL
                           2420+*           4= ATTENTION INTERRUPT                    4= STG DATA CK  IL
                           2421+*           5= ATTENTION / PROGRAM CNTL INTR          5= INV STG ADRS IL
                           2422+*           6= ATTENTION / EXCEPTION INTR             6= PROTRCT CK   IL
                           2423+*           7= ATTENTION / DEVICE END INTR            7= I-FACE DATA  IL
                           2424+*                                                                    IL
003530  706E               2425+INTER DC    X'706E'                 COPY STATUS ANY LEVEL INTO R3      IL
003532  336A               2426+      SRL   13,R3                   POSITION INDICATORS IN R3          IL
003534  4424 2BFE          2427+      MVA   OPTN1,R4                SET UP BASE ADRS                   IL
003538  4C28               2428+      TBT   (R4,CS)                 IS CS IN PROGRESS                  IL
00353A  1006               2429+      JOFF  INTES                   * NO                               IL
00353C  4C6A               2430+      TBTS  (R4,CE)                 TURN ON CYCLE STEAL INTER ERROR    IL
00353E  6F0D 2C32          2431+      MVW   R7,CSTL8                SAVE CS EFR ISB VALUE, BITS 0-7    IL
003542  C328 2C33          2432+      MVB   R3,CSTL8+1              * AND THE COND CODE                IL
003546  500A               2433+      J     INTR1                                                    IL
003548  4C24               2434+INTES TBT   (R4,XE)                 TEST  EXPECTED ATTEN / ERROR IND   IL
00354A  1002               2435+      JOFF  INTET                   BCH IF NOT EXPECTED                IL
00354C  F304               2436+      CBI   4,R3                    IS THIS AN 'ATTENTION' INTR        IL
00354E  1006               2437+      JE    INTR1                   * YES, BCH TO END INTR SEQUENCE    IL
003550  4C61               2438+INTET TBTS  (R4,ER)                 SET ERROR ON I/O COMMAND CNTL BIT  IL
003552  5004               2439+      J     INTF1                                                    IL
                           2440+*                                   THE ERROR INTERRUPT USES THE SAME  IL
                           2441+*                                   ENDING SEQUENCE AS THE NORMAL INTR IL
                           2443+*************************************************************14APR76IL
                           2444+*                                                                    IL
                           2445+* SOUBROUTINE                                                       IL
                           2446+*                                                                    IL
                           2447+*     OKAY  INTERRUPT             RUNS ON INTERRUPT LEVEL '$INTL'    IL
                           2448+*                                                                    IL
                           2449+* PURPOSE                                                           IL
                           2450+*                                                                    IL
                           2451+*     TO CHECK THE INTERRUPT AND CONTINUE THE TEST                   IL
                           2452+*                                                                    IL
                           2453+* CALLING SEQUENCE                                                  IL
                           2454+*                                                                    IL
                           2455+*     SUPERVISOF WILL ENTER HERE  IF INTR CC IS AS REQUESTED         IL
                           2456+*     THE ERROR INTERRUPT HANDLER WILL BRANCH TO THIS ROUTINE        IL
                           2457+*     AFTER THE SPECIAL PART HAS BEEN COMPLETED  AND THE             IL
                           2458+*     COMMON SECTION IS HANDLED HERE.                                IL
                           2459+*                                                                    IL
                           2460+* RETURN CONTPOL                                                    IL
                           2461+*                                                                    IL
                           2462+*     SVC   EXIT                  RETURN TO USER VIA SUPVR           IL
                           2463+*                                                                    IL
                           2464+*************************************************************************IL
003554  706E               2465+INTOK DC    X'706E'                 COPY STATUS ANY LEVEL INTO R3      IL
003556  336A               2466+      SRL   13,R3                   POSITION INDICATORS IN R3          IL
003558  4424 2BFE          2467+      MVA   OPTN1,R4                SET UP BASE ADRS                   IL
00355C  4C63               2468+INTR1 TBTS  (R4,IN)                 SET   INTERRUPT RECEIVED           IL
00355E  4C28               2469+      TBT   (R4,CS)                 IS 'CS IN PROGPESS' ON             IL
003560  1204               2470+      JON   INTF2                   * YES, BCH AROUND UPDATE           IL
003562  C328 2C07          2471+      MVB   R3,$IOIN+1              SAVE INTERRUPTING CC CODE          IL
003566  6F0D 2C08          2472+      MVW   R7,$ISB                 SAVE INTR STATUS AND DEV ADRS      IL
00356A                     2473+INTR2 EQU   *                                                        IL
                           2474+*     CPCL  R5                      CURRENT LEVEL COPIED BY DCP        IL
00356A  3521               2475+      SLL   4,R5                    POSITION INTR LEVEL AND PUT        IL
00356C  0501               2476+      ABI   1,R5                    * IN 'I' BIT                       IL
00356E  CD24 2C3A          2477+      CW    $INTL,R5                IS THIS THE COFRECT INTR LEVEL     IL
003572  1002               2478+      JE    INTR3                   * YES, GO EXIT THIS LEVEL          IL
003574  4C66               2479+      TBTS  (R4,$LE)                SET INTR LEVEL ERFOR CONTROL BIT   IL
003576  4C61               2480+      TBTS  (R4,EF)                 SET ERROR ON I/O COMMAND CNTL BIT  IL
003578  4CA2               2481+INTR3 TBTR  (R4,XI)                 WAS INTERRUPT EXPECTED             IL
00357A  1204               2482+      JON   INTFX                   * YES, EXIT OFF THIS  INTR LEVEL   IL
00357C  4C60               2483+      TBTS  (R4,MI)                 * NO, SET MYSTERY INTR CONTROL BIT IL
00357E  F304               2484+      CBI   4,R3                    ATTENTION INTERRUPT?               IL
003580  1001               2485+      JE    INTFX                   YES                                IL
003582  4C6C               2486+      TBTS  (R4,NG)                 ERROR,UNEXPECTED INTERRUPT         IL
003584  6006               2487+INTRX SVC   EXIT                    EXIT THIS LEVEL VIA SUPVR TO PGM   IL
                           2489+*************************************************************03FEB76**
                           2490+*
                           2491+*     THIS IS THE CONTINUATION OF EXECUTE I/O AFTER THE INTERRUPT
                           2492+*     HAS BEEN SERVICED. THE EXEPCTSEP FINDS AN INTERRUPT HAS BEEN
                           2493+*     RECEIVED AND BRANCHES HERE TO CHECK FOR ANY ERROR CONDITIONS.
                           2494+*
                           2495+*
003586  4CA4               2496+XIOCK TBTR  (R4,XE)                 WAS AN ERROR EXPECTED
003588  6AC0 0002          2497+      BN    (R6,2)                  * YES, EXIT THIS ROUTINE
00358C  4CA8               2498+      TBTR  (R4,CS)                 WAS AUTO CS IN PROGRESS
00358E  1006               2499+      JOFF  XIOCV                   * NO, CONTINUE CHECKING
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976

003590  4C2A               2500+      TBT   (R4,CE)                 IS CS IN AN ERR CONDITION
003592  1002               2501+      JOFF  XIOCO                   * NO, BCH
003594  68D2 0000          2502+      B     (R6)*                   CS ERFOF
003598  4C69               2503+XIOCO TBTS  (R4,CSA)                TURN ON CS STATS AVAIL FLAG
00359A  5601               2504+      BXS   (R6,2)                  GO TO USER
00359C  4C21               2505+XIOCV TBT   (R4,ER)                 WAS ERROR INTR CONTROL BIT ON
00359E  100B               2506+      JOFF  XIOCX                   * NO, EXIT THIS POUTINE
                           2507+*
0035A0  C520 2C07          2508+      MVB   $IOIN+1,R5              GET LAST INTR CC CODE
0035A4  F502               2509+      CBI   2,R5                    IS THIS CC=2
0035A6  68D1 0000          2510+      BNE   (R6)*                   * NO, BCH TO ERROR HANDLER
0035AA  C520 2C08          2511+XIOCQ MVB   $ISB,R5                 GET LAST ISB DATA BYTE AND IF CS
0035AE  6A00 34C4          2512+      BN    XIOCS-4                 * AVAILABLE, GO AND GET IT
0035B2  68D2 0000          2513+      B     (R6)*                   ERROR
0035B6  CB25 2C02          2514+XIOCX MVWZ  OPTN3,R3                CLEAR OUT OPTION 3 CNTL BITS
0035BA  5601               2515+      BXS   (R6,2)                  RETURN TO USER VIA FEG 6
                           2516+*
                           2517+*           I/O   PARAMETER LIST
                           2518+*
0035BC  19D0               2519+IOBLK DC    A(DEVADD)               ADRS OF DEVICE ADRS
0035BE  3524               2520+      DC    A(XIOER)                ERROR ROUTINE ADRS
0035C0  0000               2521+IODCB DC    A(*-*)                  DCB ADRS OR LEVEL & INTR
0035C2  0000               2522+IOMOD DC    A(*-*)                  MODIFIER
0035C4  0000               2523+      DC    A(*-*)                  ADRS OF LAST SVC CALL
0035C6  0000               2524+IORSP DC    A(*-*)                  SECOND WORD OF LAST IDCB
                           2525+*
                           2526+*           INTEPRUPT CONTROL BLOCK FOR I/O COMMANDS
                           2527+*
0035C8  19D0               2528+INTBL DC    A(DEVADD)               ADRS OF DEVICE ADRS
0035CA  3554               2529+      DC    A(INTOK)                INTERRUPT OK RETURN ADRS
0035CC  3530               2530+      DC    A(INTER)                INTERRUPT ERROR ADRS
0035CE  0003               2531+INTCC DC    X'0003'                 INTERRUPT CODE EXPECTED
                           2533+*************************************************************11MAY76**
                           2534+*
                           2535+* SUBROUTINE
                           2536+*
                           2537+*     CONNECT INTERRUPT CONTROL BLOCK & PPEPARE DEVICE
                           2538+*
                           2539+* PURPOSE
                           2540+*
                           2541+*     TO CONNECT THE INTERRUPT CONTROL BLOCK TO THIS DEVICE AND
                           2542+*     PREPARE ON THE DESIRED INTERRUPT LEVEL AND TO ALLOW THE DEVICE
                           2543+*     TO INTERRUPT.
                           2544+*
                           2545+* CALLING SEQUENCE
                           2546+*
                           2547+*     THIS SUBROUTINE HAS THE FOLLOWING ENTRIES:
                           2548+*
                           2549+* --> BAL   $CONC,R6                CLEAR DEV DEP STG AND CONNECT I/O BLK
                           2550+* --> BAL   $CONP,R6                PREPARE DEVICE ONLY, AIREADY CONNECT
                           2551+*
                           2552+* RETURN CONTROL
                           2553+*
                           2554+*     BXS   (R6,2)                  RETURN TO USER VIA REG 6 IF OKAY
                           2555+* OR  B     (R6)*                   IF THE DEVICE COULD NOT BE CONNECTED
                           2556+*
                           2557+*************************************************************************
0035D0  0F06               2558+$CONC MVBI  6,R7                    NUMBER OF BYTE TO CLEAR
0035D2  0B00               2559+      MVBI  0,R3                    * AND THE DATA TO USE
0035D4  4524 2C0C          2560+      MVA   DEV1,R5                 * ALONG WITH THE ADRS TO USE
0035D8  2BAC               2561+      FFN   R3,(R5)                 *
0035DA  CB25 2C02          2562+      MVWZ  OPTN3,R3                CLEAR OLD CONTROLS FOR NEW ROUTINE
0035DE  4724 35C8          2563+      MVA   INTBL,R7                SET R7 TO CONTROL BLOCK AND
0035E2  6014               2564+      SVC   CICB                    * CONNECT IT TO THIS DEVICE
0035E4  6AD0 0000          2565+      BN    (R6)*                   ERROR RETURN TO USER
                           2566+*
0035E8  8828 2C3A 35C0     2567+$CONP MVW   $INTL,IODCB             PUT IN LEVEL & INTR PARAMETER
0035EE  4724 35BC          2568+      MVA   IOBLK,R7                SET R7 TO CONTROL BLOCK TO PREPARE
0035F2  4020 2C06 0708     2569+      MVWI  X'0708',$IOIN           INITIALIZE CONDITION CODE STORAGE
0035F8  CB25 2C08          2570+      MVWZ  $ISB,R3                 * AND CLEAR OLD ISB VALUE
0035FC  6F0D 2C0A          2571+      MVW   R6,LSTIO                SET UP ADDRESS THAT STARTED LAST I/O
003600  600C               2572+      SVC   PREP                    * AND CALL ON SUPVR
003602  5601               2573+      BXS   (R6,2)                  RETURN TO USER
                           2575+*************************************************************06APF76**
                           2576+*
                           2577+* SUBROUTINE
                           2578+*
                           2579+*     DISCONNECT THE INTERRUPT CONTROL BLOCK AND LOG ERRORS
                           2580+*
                           2581+* PURPOSE
                           2582+*
                           2583+*     DISCONNECT THE INTERRUPT CONTROL BLOCK TO THIS DEVICE AND
                           2584+*     SET THE 'NO GOOD' CONTROL BIT, THEN LOG THE DATA THAT HAS
                           2585+*     BEEN FOUND TO HELP THE OPERATOR DEFINE THE ERROR CONDITION.
                           2586+*
                           2587+* CALLING SEQUENCE
                           2588+*
                           2589+*     THIS SUBROUTINE HAS THE FOLLOWING ENTRIES:
                           2590+*
                           2591+* --> B     $ERR$                   SET 'NG' BIT AND CONVERT DATA TO LOG
                           2592+* --> B     $CONX                   RETURN TO MDI SUPERVISOR TO TEST STS
                           2593+*
                           2594+* RETURN CONTROL
                           2595+*
                           2596+*     B     TURTN*                  RETURN TO MDI
                           2597+* OR  B     (R6)*                   IF THE DEVICE COULD NOT BE CONNECTED
                           2598+*
                           2599+*************************************************************************
003604  4020 1818 8000     2600+$ERR$  MVWI   X'8000',TUSTATUS       SET ON 'NO GOOD' STATUS BIT
00360A  4724 376E          2601+       MVA    HEBLK,R7               GET ADRS OF CONTROL BLOCK
00360E  601A               2602+       SVC    HTOE                   CONVERT HEX TO EBC VIS DCP
003610  0D03               2603+$PRNT  MVBI   3,R5
003612  4324 181A          2604+       MVA    TUWORK,R3              SET UP BUFFER STORAGE
003616  6BD0 3766          2605+       MVW    R3,BUFPT
00361A  4124 3696          2606+       MVA    LINE1,R1
00361E  0F04               2607+       MVBI   4,R7
003620  0E08               2608+       MVBI   8,R6
003622  2B24               2609+MVBUF  MVFN   (R3),(R1)
003624  0F04               2610+       MVBI   4,R7
003626  0A40               2611+       MVBI   X'40',R2
003628  C259               2612+       MVB    R2,(R1)+
00362A  BEFB               2613+       JCT    MVBUF,R6
00362C  0E08               2614+       MVBI   8,R6
00362E  7921 002C          2615+       AWI    44,R1
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                   COPYRIGHT IBM CORP 1976

003632  BDF7              2616+        JCT   MVBUF,R5
003634  4020 1802 F1F0    2617+        MVWI  PIDMSG10,PID+2
00363A  4020 19B8 376C    2618+        MVA   FAKETU,@DCADD1
003640  4020 19BA 3768    2619+        MVA   DC2PT,@DCADD2
003646  402C 19C4 0080    2620+        OWI   BIT0080,SUPSTAT
00364C  4324 2C04         2621+        MVA   $TUID,R3              SET UP BUFFER STORAGE
003650  6F13 18BA         2622+        BAL   TUMSG#TR*,R7          GO TO MESSAGE WRITER
                          2623+*
003654                    2624+$CONX   EQU   *
003654  C720 19D0         2625+        MVB   DEVADD,R7             GET DEVICE ADDRESS FROM MDI
003658  6013              2626+        SVC   RICB                  RELEASE INTERPUPT CONTROL BLOCK
00365A  6812 2C3C         2627+        B     TURTN*                RETURN TO MDI SUPERVISOR
                          2628+*
00365E  0007              2629+BEGIN   DC    A(0007)               NUMBER OF LINES TO PRINT
003660  0008              2630+        DC    A(0008)               LINE LENGTH = 8 CHAR
003662  5C5C40C1C2D6D9E3  2631+        DC    C'** ABORT'
00366A  0028              2632+        DC    A(0040)               LINE LENGTH = 40 CHAR
00366C  E3E4C9C440C9D6C9D 2633+        DC    C'TUID IOIN ISB  INST DEV1 DEV2 DEV3 DEV4 '
003694  0028              2634+        DC    A(0040)               LINE LENGTH = 40 CHAR
003696  4040404040404040  2635+LINE1   DC    C'                                        '
0036BE  0028              2636+        DC    A(0040)               LINE LENGTH = 40 CHAR
0036C0  C3D5E3D340C4C3C2F 2637+        DC    C'CNTL DCB2 DCB3 DCB4 DCB5 CHAD BYCT ADRS '
0036E8  0028              2638+        DC    A(0040)               LINE LENGTH = 40 CHAR
0036EA  4040404040404040  2639+LINE2   DC    C'                                        '
003712  0028              2640+        DC    A(0040)               LINE LENGTH = 40 CHAR
003714  D9E2C9C440C3E260F 2641+        DC    C'RSID CS-2 CS-3 CS-4 CS-5 CS-6 CS-7 CS-8 '
00373C  0028              2642+        DC    A(0040)               LINE LENGTH = 40 CHAR
00373E  4040404040404040  2643+LINE3   DC    C'                                        '
                          2644+*
003766  0000              2645+BUFPT   DC    A(*-*)
003768  365E              2646+DC2PT   DC    A(BEGIN)
00376A  0101              2647+FIXTU   DC    X'0101'
00376C  0101              2648+FAKETU    DC  X'0101'
00F1F0                    2649+PIDMSG10  EQU   X'F1F0'
000080                    2650+BIT0080   EQU   X'0080'
                          2651+*
                          2652+*       DATA CONTROL BLOCK FOR CONVERTING HEX TO EBCDIC
                          2653+*
00376E  0030              2654+HEBLK   DC    A(48)                 NUMBER OF BYTES TO CONVERT
003770  2C04              2655+        DC    A($TUID)              FROM ADRS
003772  181A              2656+        DC    A(TUWORK)             AND THE TO ADRS
000000                    2657         END
```


CROSS-REFERENCE LISTING COPYRIGHT IBM CORP 1976

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DECLARED  NAME      ATTRIBUTES AND REFERENCES
       0  .R0.      ABSOLUTE. HEX VALUE(00000000)
                   1106  1107  1115  1117  1229  1230  1237  1239  1375
                   1377  1390  1392  1644  1645  1652  1654  1713  1714
                   1721  1723  2114  2115  2116  2117  2121  2122  2123
                   2124
       0  .R1.      ABSOLUTE. HEX VALUE(00000001)
                   1266  1267  1270  1273  1276  1279  1282  1287  1288
                   2606  2609  2612  2615
       0  .R2.      ABSOLUTE. HEX VALUE(00000002)
                   1118  1119  1120  1131  1134  1137  1140  1146  1147
                   1158  1164  1240  1241  1242  1251  1254  1260  1261
                   1269  1272  1275  1278  1281  1284  1290  1381  1382
                   1383  1393  1394  1395  1406  1409  1412  1420  1421
                   1432  1434  1435  1502  1505  1508  1516  1517  1524
                   1541  1544  1547  1560  1580  1583  1586  1594  1601
                   2611  2612
       0  .R3.      ABSOLUTE. HEX VALUE(00000003)
                   1150  1424  2020  2021  2062  2066  2068  2147  2149
                   2205  2208  2212  2215  2226  2229  2242  2245  2315
                   2325  2328  2329  2332  2334  2390  2391  2426  2432
                   2436  2466  2471  2484  2514  2559  2561  2562  2570
                   2604  2605  2609  2621
       0  .R4.      ABSOLUTE. HEX VALUE(00000004)
                   1102  1123  1125  1154  1223  1245  1371  1386  1398
                   1400  1428  1448  1463  1458  1463  1468  1473  1478
                   1483  1488  1494  1496  1528  1535  1567  1574  1640
                   1709  2318  2319  2322  2336  2337  2339  2340  2343
                   2349  2355  2427  2428  2430  2434  2438  2467  2468
                   2469  2479  2480  2481  2483  2486  2496  2498  2500
                   2503  2505
       0  .R5.      ABSOLUTE. HEX VALUE(00000005)
                   1128  1129  1132  1135  1138  1141  1142  1143  1248
                   1249  1252  1255  1256  1257  1403  1404  1407  1410
                   1413  1415  1416  1417  1499  1500  1503  1506  1509
                   1511  1512  1513  1527  1530  1538  1539  1542  1545
                   1548  1550  1551  1552  1566  1569  1577  1578  1581
                   1584  1587  1589  1590  1591  2063  2067  2068  2148
                   2149  2206  2208  2213  2215  2227  2229  2243  2245
                   2326  2328  2330  2332  2348  2353  2475  2476  2477
                   2508  2509  2511  2560  2561  2603  2616
       0  .R6.      ABSOLUTE. HEX VALUE(00000006)
                   1103  1121  1152  1160  1224  1243  1264  1285  1372
                   1384  1396  1426  1441  1449  1451  1454  1456  1459
                   1461  1464  1466  1469  1471  1474  1476  1479  1481
                   1484  1486  1489  1491  1492  1520  1526  1533  1556
                   1565  1572  1597  1641  1655  1659  1665  1710  1724
                   1728  1988  1992  1994  1998  2000  2004  2007  2011
                   2013  2017  2022  2069  2070  2109  2150  2324  2344
                   2356  2392  2497  2502  2504  2510  2513  2515  2565
                   2571  2573  2608  2613  2614
       0  .R7.      ABSOLUTE. HEX VALUE(00000007)
                    944  1100  1113  1221  1235  1303  1305  1308  1369
                   1388  1638  1650  1707  1719  2061  2065  2146  2207
                   2214  2228  2244  2327  2331  2338  2431  2472  2558
                   2563  2568  2601  2607  2610  2622  2625
    2558  $CONC     ADDRESS. HEX LOCATION(000035D0) IN CSECT(I7861   ) LENGTH(2)
                   1103  1224  1372  1641  1710
    2624  $CONX     ADDRESS. HEX LOCATION(00003654) IN CSECT(I7861   ) LENGTH(1)
                   1166  1292  1309  1437  1670  1731
    2600  $ERR$     ADDRESS. HEX LOCATION(00003604) IN CSECT(I7861   ) LENGTH(6)
                   1104  1126  1151  1153  1155  1161  1225  1244  1246
                   1265  1286  1373  1401  1425  1427  1429  1442  1450
                   1455  1460  1465  1470  1475  1480  1485  1490  1493
                   1497  1521  1532  1534  1554  1557  1571  1573  1598
     933  $INTL     ADDRESS. HEX LOCATION(00002C3A) IN CSECT(I7861   ) LENGTH(2)
                   2477  2567
     903  $IOIN     ADDRESS. HEX LOCATION(00002C06) IN CSECT(I7861   ) LENGTH(2)
                   2021  2333  2391  2471  2508  2569
     904  $ISB      ADDRESS. HEX LOCATION(00002C08) IN CSECT(I7861   ) LENGTH(2)
                   2334  2472  2511  2570
     888  $LE       ABSOLUTE. HEX VALUE(00000026)
                   2339  2479
    2201  $RECL     ADDRESS. HEX LOCATION(000033F6) IN CSECT(I7861   ) LENGTH(6)
                   1121  1384  1396  1492  1655  1724
    2198  $SEEK     ADDRESS. HEX LOCATION(000033EE) IN CSECT(I7861   ) LENGTH(6)
                   1449  1454  1459  1464  1469  1474  1479  1484  1489
                   1659  1665  1728
     902  $TUID     ADDRESS. HEX LOCATION(00002C04) IN CSECT(I7861   ) LENGTH(2)
                    943  1101  1222  1370  1639  1708  2621  2655
     105  @DCADD1   ADDRESS. HEX LOCATION(000019B8) IN CSECT(I7861   ) LENGTH(1)
                   2618
     106  @DCADD2   ADDRESS. HEX LOCATION(000019BA) IN CSECT(I7861   ) LENGTH(1)
                   2619
      42  @FIXT     ABSOLUTE. HEX VALUE(00000101)
                    512   515   566   583   589   609   621   633   636
                    648   651   657   660   663   672   675   678   687
                    690   693
      44  @GOTO     ABSOLUTE. HEX VALUE(00000200)
                    603
      49  @NVLD     ABSOLUTE. HEX VALUE(00000600)
                    507   578   601
      41  @QUES     ABSOLUTE. HEX VALUE(00000100)
                    468   471   509   563   580   586   654   666   669
                    681   684
      47  @QUXX     ABSOLUTE. HEX VALUE(00000400)
                    498   554   569   592   612   624   639
      48  @TUXX     ABSOLUTE. HEX VALUE(00000500)
                    474   486   518   530   542
    2629  BEGIN     ADDRESS. HEX LOCATION(0000365E) IN CSECT(I7861   ) LENGTH(2)
                   2646
    2650  BIT0080   ABSOLUTE. HEX VALUE(00000080)
                   2620
    2645  BUFPT     ADDRESS. HEX LOCATION(00003766) IN CSECT(I7861   ) LENGTH(2)
                   2605
    1889  CB29      ADDRESS. HEX LOCATION(00003284) IN CSECT(I7861   ) LENGTH(2)
                   2112
    2019  CCERR     ADDRESS. HEX LOCATION(00003356) IN CSECT(I7861   ) LENGTH(2)
                   1991  1997  2003  2010  2016
     892  CE        ABSOLUTE. HEX VALUE(0000002A)
                   2318  2430  2500
     972  CICB      ABSOLUTE. HEX VALUE(00000014)
```

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
		2564
1758	CLDCB	ADDRESS. HEX LOCATION(000031B2) IN CSECT(I7861) LENGTH(2)
		2201
2035	CPUID	ABSOLUTE. HEX VALUE(00000232)
		1106 1229 1375 1644 1713
890	CS	ABSOLUTE. HEX VALUE(00000028)
		2319 2322 2428 2469 2498
891	CSA	ABSOLUTE. HEX VALUE(00000029)
		1125 1400 1496 1535 1574 2503
921	CSBUF	ADDRESS. HEX LOCATION(00002C24) IN CSECT(I7861) LENGTH(1)
		1127 1148 1156 1247 1262 1402 1422 1430 1498
		1518 1537 1576 1595 1815 2330
1808	CSDCB	ADDRESS. HEX LOCATION(00003202) IN CSECT(I7861) LENGTH(2)
		2320
929	CSTL8	ADDRESS. HEX LOCATION(00002C32) IN CSECT(I7861) LENGTH(2)
		2431 2432
1929	CYLOC	ADDRESS. HEX LOCATION(000032D4) IN CSECT(I7861) LENGTH(2)
		1657 1661 1662 1667
911	DCBUF	ADDRESS. HEX LOCATION(00002C14) IN CSECT(I7861) LENGTH(1)
		2325
2646	DC2PT	ADDRESS. HEX LOCATION(00003768) IN CSECT(I7861) LENGTH(2)
		2619
108	DEVADD	ADDRESS. HEX LOCATION(000019D0) IN CSECT(I7861) LENGTH(1)
		936 1112 1227 1228 1387 1989 1995 2001 2008
		2014 2519 2528 2625
906	DEV1	ADDRESS. HEX LOCATION(00002C0C) IN CSECT(I7861) LENGTH(2)
		910 2560
1746	DGDCB	ADDRESS. HEX LOCATION(000031A2) IN CSECT(I7861) LENGTH(2)
		2260
70	DUMMY	ABSOLUTE. HEX VALUE(00000000)
		459 557 615 627 642 695 707
696	ENTPT	ADDRESS. HEX LOCATION(0000270C) IN CSECT(I7861) LENGTH(1)
		201
883	ER	ABSOLUTE. HEX VALUE(00000021)
		1123 1154 1245 1386 1398 1428 1494 2336 2355
		2438 2480 2505
958	EXIT	ABSOLUTE. HEX VALUE(00000006)
		2487
2648	FAKETU	ADDRESS. HEX LOCATION(0000376C) IN CSECT(I7861) LENGTH(2)
		2618
1890	FIVE9	ADDRESS. HEX LOCATION(00003286) IN CSECT(I7861) LENGTH(2)
		2119
767	F00009	ADDRESS. HEX LOCATION(0000288E) IN CSECT(I7861) LENGTH(1)
		622
775	F00012	ADDRESS. HEX LOCATION(000028DC) IN CSECT(I7861) LENGTH(1)
		637
835	F00014	ADDRESS. HEX LOCATION(00002B9C) IN CSECT(I7861) LENGTH(1)
		679 694
737	F00015	ADDRESS. HEX LOCATION(000027B0) IN CSECT(I7861) LENGTH(1)
		567 658 676 691
721	F00061	ADDRESS. HEX LOCATION(0000274A) IN CSECT(I7861) LENGTH(1)
		513
729	F00065	ADDRESS. HEX LOCATION(00002784) IN CSECT(I7861) LENGTH(1)
		516
741	F00105	ADDRESS. HEX LOCATION(000027D6) IN CSECT(I7861) LENGTH(1)
		584
749	F00117	ADDRESS. HEX LOCATION(00002810) IN CSECT(I7861) LENGTH(1)
		590
757	F00130	ADDRESS. HEX LOCATION(0000284C) IN CSECT(I7861) LENGTH(1)
		604
761	F00133	ADDRESS. HEX LOCATION(00002852) IN CSECT(I7861) LENGTH(1)
		610
771	F00150	ADDRESS. HEX LOCATION(000028BA) IN CSECT(I7861) LFNGTH(1)
		634
779	F00160	ADDRESS. HEX LOCATION(000028F4) IN CSECT(I7861) LENGTH(1)
		649
785	F00164	ADDRESS. HEX LOCATION(00002930) IN CSECT(I7861) LENGTH(1)
		652
815	F00185	ADDRESS. HEX LOCATION(00002AC4) IN CSECT(I7861) LENGTH(1)
		661
823	F00189	ADDRESS. HEX LOCATION(00002B24) IN CSECT(I7861) LENGTH(1)
		664
829	F00201	ADDRESS. HEX LOCATION(00002B60) IN CSECT(I7861) LENGTH(1)
		673
839	F00221	ADDRESS. HEX LOCATION(00002BC2) IN CSECT(I7861) LENGTH(1)
		688
2654	HEBLK	ADDRESS. HEX LOCATION(0000376E) IN CSECT(I7861) LENGTH(2)
		2601
1526	HOFF	ADDRESS. HEX LOCATION(00002FF6) IN CSECT(I7861) LENGTH(4)
		1456 1461 1466 1471 1476 1481 1491
1565	HON	ADDRESS. HEX LOCATION(00003064) IN CSECT(I7861) LENGTH(4)
		1451 1486
978	HTOE	ABSOLUTE. HEX VALUE(0000001A)
		2602
2029	IDCBCE1	ADDRESS. HEX LOCATION(0000336C) IN CSECT(I7861) LENGTH(2)
		1995 1996
2031	IDCBCE2	ADDRESS. HEX LOCATION(00003370) IN CSECT(I7861) LENGTH(2)
		2001 2002
2033	IDCBRAP	ADDRESS. HEX LOCATION(00003374) IN CSECT(I7861) LENGTH(2)
		1989 1990
2025	IDCB0	ADDRESS. HEX LOCATION(00003364) IN CSECT(I7861) LENGTH(2)
		1228 2014 2015
2027	IDCB1	ADDRESS. HEX LOCATION(00003368) IN CSECT(I7861) LENGTH(2)
		1112 1227 1387 2008 2009
954	IDLE	ABSOLUTE. HEX VALUE(00000002)
		1116 1238 1391 1653 1722 2351
885	IN	ABSOLUTE. HEX VALUE(00000023)
		1528 1567 2337 2349 2468
2528	INTBL	ADDRESS. HEX LOCATION(000035C8) IN CSECT(I7861) LENGTH(2)
		2563
2425	INTER	ADDRESS. HEX LOCATION(00003530) IN CSECT(I7861) LENGTH(2)
		2530
2434	INTES	ADDRESS. HEX LOCATION(00003548) IN CSECT(I7861) LENGTH(2)
		2429
2438	INTET	ADDRESS. HEX LOCATION(00003550) IN CSECT(I7861) LENGTH(2)
		2435
2465	INTOK	ADDRESS. HEX LOCATION(00003554) IN CSECT(I7861) LENGTH(2)
		2529
2487	INTRX	ADDRESS. HEX LOCATION(00003584) IN CSECT(I7861) LENGTH(2)
		2482 2485
2468	INTR1	ADDRESS. HEX LOCATION(0000355C) IN CSECT(I7861) LENGTH(2)

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
		2433 2437 2439
2473	INTR2	ADDRESS. HEX LOCATION(0000356A) IN CSECT(I7861) LENGTH(1)
		2470
2481	INTR3	ADDRESS. HEX LOCATION(00003578) IN CSECT(I7861) LENGTH(2)
		2478
2519	IOBLK	ADDRESS. HEX LOCATION(000035BC) IN CSECT(I7861) LENGTH(2)
		1113 1235 1305 1388 1650 1719 2338 2568
2521	IODCB	ADDRESS. HEX LOCATION(000035C0) IN CSECT(I7861) LENGTH(2)
		1304 2198 2201 2204 2216 2219 2222 2225 2233
		2237 2241 2249 2253 2256 2260 2320 2326 2567
2522	IOMOD	ADDRESS. HEX LOCATION(000035C2) IN CSECT(I7861) LENGTH(2)
		2315 2321
40	I7861	CSECT. START(00002500) LENGTH(4724) ESDID(0)
		40
1887	LGSEC	ADDRESS. HEX LOCATION(00003280) IN CSECT(I7861) LENGTH(2)
		2110 2112 2115 2122
2635	LINE1	ADDRESS. HEX LOCATION(00003696) IN CSECT(I7861) LENGTH(40)
		2606
905	LSTIO	ADDRESS. HEX LOCATION(00002C0A) IN CSECT(I7861) LENGTH(2)
		1988 1994 2000 2007 2013 2324 2571
882	MI	ABSOLUTE. HEX VALUE(00000020)
		2483
2609	MVBUF	ADDRESS. HEX LOCATION(00003622) IN CSECT(I7861) LENGTH(2)
		2613 2616
894	NG	ABSOLUTE. HEX VALUE(0000002C)
		2486
889	NI	ABSOLUTE. HEX VALUE(00000027)
		1448 1453 1458 1463 1468 1473 1478 1483 1488
		2343
468	N00001	ADDRESS. HEX LOCATION(000025C0) IN CSECT(I7861) LENGTH(2)
		318 706
471	N00002	ADDRESS. HEX LOCATION(000025C4) IN CSECT(I7861) LENGTH(2)
		321
474	N00003	ADDRESS. HEX LOCATION(000025C8) IN CSECT(I7861) LENGTH(2)
		324
486	N00004	ADDRESS. HEX LOCATION(000025DA) IN CSECT(I7861) LENGTH(2)
		327
498	N00005	ADDRESS. HEX LOCATION(000025EC) IN CSECT(I7861) LENGTH(2)
		330
507	N00006	ADDRESS. HEX LOCATION(000025FA) IN CSECT(I7861) LENGTH(2)
		33
509	N00007	ADDRESS. HEX LOCATION(000025FC) IN CSECT(I7861) LENGTH(2)
		336 499
512	N00008	ADDRESS. HEX LOCATION(00002600) IN CSECT(I7861) LENGTH(2)
		339
515	N00009	ADDRESS. HEX LOCATION(00002604) IN CSECT(I7861) LENGTH(2)
		342 510
518	N00010	ADDRESS. HEX LOCATION(00002608) IN CSECT(I7861) LENGTH(2)
		345 487
530	N00011	ADDRESS. HEX LOCATION(0000261A) IN CSECT(I7861) LENGTH(2)
		348
542	N00012	ADDRESS. HEX LOCATION(0000262C) IN CSECT(I7861) LENGTH(2)
		351
554	N00013	ADDRESS. HEX LOCATION(0000263E) IN CSECT(I7861) LENGTH(2)
		354
563	N00014	ADDRESS. HEX LOCATION(0000264C) IN CSECT(I7861) LENGTH(2)
		357
566	N00015	ADDRESS. HEX LOCATION(00002650) IN CSECT(I7861) LENGTH(2)
		360
569	N00016	ADDRESS. HEX LOCATION(00002654) IN CSECT(I7861) LENGTH(2)
		363 564
578	N00017	ADDRESS. HEX LOCATION(00002662) IN CSECT(I7861) LENGTH(2)
		366
580	N00018	ADDRESS. HEX LOCATION(00002664) IN CSECT(I7861) LENGTH(2)
		369 570
583	N00019	ADDRESS. HEX LOCATION(00002668) IN CSECT(I7861) LENGTH(2)
		372
586	N00020	ADDRESS. HEX LOCATION(0000266C) IN CSECT(I7861) LENGTH(2)
		375 581
589	N00021	ADDRESS. HEX LOCATION(00002670) IN CSECT(I7861) LENGTH(2)
		378
592	N00022	ADDRESS. HEX LOCATION(00002674) IN CSECT(I7861) LENGTH(2)
		381 587
601	N00023	ADDRESS. HEX LOCATION(00002682) IN CSECT(I7861) LENGTH(2)
		384
603	N00024	ADDRESS. HEX LOCATION(00002684) IN CSECT(I7861) LENGTH(2)
		387 593
609	N00025	ADDRESS. HEX LOCATION(00002690) IN CSECT(I7861) LENGTH(2)
		390 555
612	N00026	ADDRESS. HEX LOCATION(00002694) IN CSECT(I7861) LENGTH(2)
		393 543
621	N00027	ADDRESS. HEX LOCATION(000026A2) IN CSECT(I7861) LENGTH(2)
		396
624	N00028	ADDRESS. HEX LOCATION(000026A6) IN CSECT(I7861) LENGTH(2)
		399 613
633	N00029	ADDRESS. HEX LOCATION(000026B4) IN CSECT(I7861) LENGTH(2)
		402
636	N00030	ADDRESS. HEX LOCATION(000026B8) IN CSECT(I7861) LENGTH(2)
		405 625
639	N00031	ADDRESS. HEX LOCATION(000026BC) IN CSECT(I7861) LENGTH(2)
		408 531
648	N00032	ADDRESS. HEX LOCATION(000026CA) IN CSECT(I7861) LENGTH(2)
		411
651	N00033	ADDRESS. HEX LOCATION(000026CE) IN CSECT(I7861) LENGTH(2)
		414 640
654	N00034	ADDRESS. HEX LOCATION(000026D2) IN CSECT(I7861) LENGTH(2)
		417 519
657	N00035	ADDRESS. HEX LOCATION(000026D6) IN CSECT(I7861) LENGTH(2)
		420
660	N00036	ADDRESS. HEX LOCATION(000026DA) IN CSECT(I7861) LENGTH(2)
		423 655
663	N00037	ADDRESS. HEX LOCATION(000026DE) IN CSECT(I7861) LENGTH(2)
		426 475
666	N00038	ADDRESS. HEX LOCATION(000026E2) IN CSECT(I7861) LENGTH(2)
		429 472
669	N00039	ADDRESS. HEX LOCATION(000026E6) IN CSECT(I7861) LENGTH(2)
		432
672	N00040	ADDRESS. HEX LOCATION(000026EA) IN CSECT(I7861) LENGTH(2)
		435
675	N00041	ADDRESS. HEX LOCATION(000026EE) IN CSECT(I7861) LENGTH(2)
		438 670

CROSS-REFEPENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
678	N00042	ADDRESS. HEX LOCATION(000026F2) IN CSECT(I7861) LENGTH(2) 441 667
681	N00043	ADDRESS. HEX LOCATION(000026F6) IN CSECT(I7861) LENGTH(2) 444 469
684	N00044	ADDRESS. HEX LOCATION(000026FA) IN CSECT(I7861) LENGTH(2) 447
687	N00045	ADDRESS. HEX LOCATION(000026FE) IN CSECT(I7861) LENGTH(2) 450
690	N00046	ADDRESS. HEX LOCATION(00002702) IN CSECT(I7861) LENGTH(2) 453 685
693	N00047	ADDRESS. HEX LOCATION(00002706) IN CSECT(I7861) LENGTH(2) 456 682
61	OF	ABSOLUTE. HEX VALUE(00000202) 489 533
60	ON	ABSOLUTE. HEX VALUE(00000200) 477 521 545
847	OPTN1	ADDRESS. HEX LOCATION(00002BFE) IN CSECT(I7861) LFNGTH(2) 1102 1223 1371 1640 1709 2427 2467
870	OPTN3	ADDRESS. HEX LOCATION(00002C02) IN CSECT(I7861) LENGTH(2) 2514 2562
104	PARMARA	ADDRESS. HEX LOCATION(0000196E) IN CSECT(I7861) LENGTH(1) 484 496 505 528 540 552 561 576 599 619 631 646
1888	PHYSC	ADDRESS. HEX LOCATION(00003282) IN CSECT(I7861) LENGTH(2) 2117 2119 2124
72	PID	ADDRESS. HEX LOCATION(00001800) IN CSECT(I7861) LENGTH(1) 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 2617
2649	PIDMSG10	ABSOLUTE. HEX VALUE(0000F1F0) 2617
964	PREP	ABSOLUTE. HEX VALUE(0000000C) 1306 2572
2028	RDATA	ADDRESS. HEX LOCATION(0000336A) IN CSECT(I7861) LENGTH(2) 1162 1266 1443 1522 1558 1599
2026	RDATA0	ADDRESS. HEX LOCATION(00003366) IN CSECT(I7861) LENGTH(2) 1287
1841	RDDCB	ADDRESS. HEX LOCATION(00003232) IN CSECT(I7861) LENGTH(2) 2213 2216
960	RESET	ABSOLUTE. HEX VALUE(00000008) 1114 1236 1389 1651 1720
971	RICB	ABSOLUTE. HEX VALUE(00000013) 2626
1863	RKDCB	ADDRESS. HEX LOCATION(00003252) IN CSECT(I7861) LENGTH(2) 2225 2230 2237 2238
1773	RSDCB	ADDRESS. HEX LOCATION(000031D2) IN CSECT(I7861) LENGTH(2) 2204 2209 2241 2246
2121	RTT01	ADDRESS. HEX LOCATION(000033CA) IN CSECT(I7861) LENGTH(4) 2113
910	SCTID	ADDRESS. HEX LOCATION(00002C0C) IN CSECT(I7861) LENGTH(2) 1780 1792 1870 2066 2147 2206 2209 2227 2230
1898	SCTST	ADDRESS. HEX LOCATION(00003296) IN CSECT(I7861) LENGTH(2) 2062 2238 2243 2246
2013	SENS0	ADDRESS. HEX LOCATION(00003342) IN CSECT(I7861) LENGTH(4) 1285
2007	SENS1	ADDRESS. HEX LOCATION(0000332E) IN CSECT(I7861) LENGTH(4) 1160 1264 1441 1520 1556 1597
1797	SKDCB	ADDRESS. HEX LOCATION(000031F2) IN CSECT(I7861) LENGTH(2) 1445 1446 1447 1452 1457 1462 1467 1472 1477 1482 1487 1658 1664 1726 1727 2198
962	START	ABSOLUTE. HEX VALUE(0000000A) 2341
1943	STATS	ADDRESS. HEX LOCATION(000032F0) IN CSECT(I7861) LENGTH(2) 1127 1128 1144 1247 1248 1258 1402 1403 1418 1498 1499 1514 1537 1538 1553 1576 1577 1592
107	SUPSTAT	ADDRESS. HEX LOCATION(000019C4) IN CSECT(I7861) LENGTH(1) 2620
1670	S14E	ADDRESS. HEX LOCATION(0000314A) IN CSECT(I7861) LENGTH(4) 1642 1656 1660 1666
1731	S31E	ADDRESS. HEX LOCATION(0000319E) IN CSECT(I7861) LENGTH(4) 1711 1725 1729
1659	TS14A	ADDRESS. HEX LOCATION(00003122) IN CSECT(I7861) LENGTH(4) 1663
1665	TS14B	ADDRESS. HEX LOCATION(0000313C) IN CSECT(I7861) LENGTH(4) 1668
2119	TT303	ADDRESS. HEX LOCATION(000033C2) IN CSECT(I7861) LENGTH(6) 2111
2125	TT304	ADDRESS. HEX LOCATION(000033DA) IN CSECT(I7861) LENGTH(4) 2109 2118 2120
2068	TT4Y	ADDRESS. HEX LOCATION(00003392) IN CSECT(I7861) LENGTH(2) 2064
1234	TT70	ADDRESS. HEX LOCATION(00002D48) IN CSECT(I7861) LENGTH(6) 1231
1237	TT70A	ADDRESS. HEX LOCATION(00002D54) IN CSECT(I7861) LENGTH(4) 1232 1234
1235	TT70B	ADDRESS. HEX LOCATION(00002D4E) IN CSECT(I7861) LENGTH(4) 1233
1238	TT70C	ADDRESS. HEX LOCATION(00002D58) IN CSECT(I7861) LENGTH(2) 1239
95	TUMSGWTR	ADDRESS. HEX LOCATION(000018BA) IN CSECT(I7861) LENGTH(1) 2622
101	TURESUL	ADDRESS. HEX LOCATION(000018C8) IN CSECT(I7861) LENGTH(1) 1118 1119 1120 1148 1240 1241 1242 1262 1381 1382 1383 1393 1394 1395 1422 1518 1595
934	TURTN	ADDRESS. HEX LOCATION(00002C3C) IN CSECT(I7861) LENGTH(2) 1100 1221 1303 1308 1369 1638 1707 2627
77	TUSTATUS	ADDRESS. HEX LOCATION(00001818) IN CSECT(I7861) LENGTH(1) 2600
78	TUWORK	ADDRESS. HEX LOCATION(0000181A) IN CSECT(I7861) LENGTH(1) 2604 2656
1649	T14TC	ADDRESS. HEX LOCATION(000030FC) IN CSECT(I7861) LENGTH(6) 1646
1652	T14T1	ADDRESS. HEX LOCATION(00003108) IN CSECT(I7861) LENGTH(4) 1647 1649
1650	T14T2	ADDRESS. HEX LOCATION(00003102) IN CSECT(I7861) LENGTH(4) 1648
1141	T23A	ADDRESS. HEX LOCATION(00002CC8) IN CSECT(I7861) LENGTH(2) 1139
1146	T23AA	ADDRESS. HEX LOCATION(00002CD8) IN CSECT(I7861) LENGTH(2)

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
		1157 1159
1132	T23SS	ADDRESS. HEX LOCATION(00002CB6) IN CSECT(I7861) LENGTH(2) 1130
1111	T23T	ADDRESS. HEX LOCATION(00002C70) IN CSECT(I7861) LENGTH(6) 1108
1135	T23TT	ADDRESS. HEX LOCATION(00002CBC) IN CSECT(I7861) LENGTH(2) 1133
1115	T23T1	ADDRESS. HEX LOCATION(00002C82) IN CSECT(I7861) LENGTH(4) 1109 1111
1112	T23T2	ADDRESS. HEX LOCATION(00002C76) IN CSECT(I7861) LENGTH(6) 1110
1166	T23U	ADDRESS. HEX LOCATION(00002D14) IN CSECT(I7861) LENGTH(4) 1145 1149 1163
1138	T23UU	ADDRESS. HEX LOCATION(00002CC2) IN CSECT(I7861) LENGTH(2) 1136
1150	T23YY	ADDRESS. HEX LOCATION(00002CE4) IN CSECT(I7861) LENGTH(4) 1122
1718	T33T	ADDRESS. HEX LOCATION(00003172) IN CSECT(I7861) LENGTH(6) 1715
1721	T33T1	ADDRESS. HEX LOCATION(0000317E) IN CSECT(I7861) LENGTH(4) 1716 1718
1719	T33T2	ADDRESS. HEX LOCATION(00003178) IN CSECT(I7861) LENGTH(4) 1717
1292	T70A	ADDRESS. HEX LOCATION(00002DE2) IN CSECT(I7861) LENGTH(4) 1263 1289
1264	T70B	ADDRESS. HEX LOCATION(00002DA4) IN CSECT(I7861) LENGTH(4) 1259
1252	T701	ADDRESS. HEX LOCATION(00002D84) IN CSECT(I7861) LENGTH(2) 1250
1255	T702	ADDRESS. HEX LOCATION(00002D8A) IN CSECT(I7861) LENGTH(2) 1253
1270	T703	ADDRESS. HEX LOCATION(00002DB4) IN CSECT(I7861) LENGTH(2) 1268
1273	T704	ADDRESS. HEX LOCATION(00002DBA) IN CSECT(I7861) LENGTH(2) 1271
1276	T705	ADDRESS. HEX LOCATION(00002DC0) IN CSECT(I7861) LENGTH(2) 1274
1279	T706	ADDRESS. HEX LOCATION(00002DC6) IN CSECT(I7861) LENGTH(2) 1277
1282	T708	ADDRESS. HEX LOCATION(00002DCC) IN CSECT(I7861) LENGTH(2) 1280
1285	T709	ADDRESS. HEX LOCATION(00002DD2) IN CSECT(I7861) LENGTH(4) 1283
1160	T710	ADDRESS. HEX LOCATION(00002D04) IN CSECT(I7861) LENGTH(4) 1124
1308	T72A	ADDRESS. HEX LOCATION(00002DF8) IN CSECT(I7861) LENGTH(4) 501 572 595
1309	T72B	ADDRESS. HEX LOCATION(00002DFC) IN CSECT(I7861) LENGTH(4) 1307
1116	T723	ADDRESS. HEX LOCATION(00002C86) IN CSECT(I7861) LENGTH(2) 1117
1722	T733	ADDRESS. HEX LOCATION(00003182) IN CSECT(I7861) LENGTH(2) 1723
1653	T737	ADDRESS. HEX LOCATION(0000310C) IN CSECT(I7861) LENGTH(2) 1654
1441	T75A	ADDRESS. HEX LOCATION(00002ED4) IN CSECT(I7861) LENGTH(4) 1399
1520	T75AA	ADDRESS. HEX LOCATION(00002FE0) IN CSECT(I7861) LENGTH(4) 1495
1597	T75AB	ADDRESS. HEX LOCATION(000030C2) IN CSECT(I7861) LENGTH(4) 1575
1556	T75AC	ADDRESS. HEX LOCATION(0000304C) IN CSECT(I7861) LENGTH(4) 1536
1420	T75B	ADDRESS. HEX LOCATION(00002E9E) IN CSECT(I7861) LENGTH(2) 1431 1433
1503	T75BB	ADDRESS. HEX LOCATION(00002FB0) IN CSECT(I7861) LENGTH(2) 1501
1506	T75CC	ADDRESS. HEX LOCATION(00002FB6) IN CSECT(I7861) LENGTH(2) 1504
1509	T75DD	ADDRESS. HEX LOCATION(00002FBC) IN CSECT(I7861) LENGTH(2) 1507
1542	T75EE	ADDRESS. HEX LOCATION(00003026) IN CSECT(I7861) LENGTH(2) 1540
1545	T75FF	ADDRESS. HEX LOCATION(0000302C) IN CSECT(I7861) LENGTH(2) 1543
1548	T75GG	ADDRESS. HEX LOCATION(00003032) IN CSECT(I7861) LENGTH(2) 1546
1581	T75HH	ADDRESS. HEX LOCATION(00003094) IN CSECT(I7861) LENGTH(2) 1579
1584	T75JJ	ADDRESS. HEX LOCATION(0000309A) IN CSECT(I7861) LENGTH(2) 1582
1452	T75K	ADDRESS. HEX LOCATION(00002F00) IN CSECT(I7861) LENGTH(6) 1444
1587	T75KK	ADDRESS. HEX LOCATION(000030A0) IN CSECT(I7861) LENGTH(2) 1585
1407	T75SS	ADDRESS. HEX LOCATION(00002E7E) IN CSECT(I7861) LENGTH(2) 1405
1434	T75T	ADDRESS. HEX LOCATION(00002ECC) IN CSECT(I7861) LENGTH(2) 1414 1510 1549 1588
1380	T75TC	ADDRESS. HEX LOCATION(00002E24) IN CSECT(I7861) LENGTH(6) 1377
1410	T75TT	ADDRESS. HEX LOCATION(00002E84) IN CSECT(I7861) LENGTH(2) 1408
1602	T75TV	ADDRESS. HEX LOCATION(000030D4) IN CSECT(I7861) LENGTH(4) 1565
1562	T75TW	ADDRESS. HEX LOCATION(00003060) IN CSECT(I7861) LENGTH(4) 1526 1559
1390	T75T1	ADDRESS. HEX LOCATION(00002E4A) IN CSECT(I7861) LENGTH(4) 1378 1380
1381	T75T2	ADDRESS. HEX LOCATION(00002E2A) IN CSECT(I7861) LENGTH(4) 1379
1437	T75U	ADDRESS. HEX LOCATION(00002ED0) IN CSECT(I7861) LENGTH(4) 1419 1423 1515 1519 1523 1525 1555 1561 1593 1596 1600
1413	T75UU	ADDRESS. HEX LOCATION(00002E8A) IN CSECT(I7861) LENGTH(2) 1411
1424	T75YY	ADDRESS. HEX LOCATION(00002EAA) IN CSECT(I7861) LENGTH(4) 1385 1397
1566	T7534	ADDRESS. HEX LOCATION(00003068) IN CSECT(I7861) LENGTH(4) 1570
1527	T7535	ADDRESS. HEX LOCATION(00002FFA) IN CSECT(I7861) LENGTH(4)

CROSS-REFERENCE LISTING

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DECLARED  NAME     ATTRIBUTES AND REFERENCES

                    1531
  1572    T7578      ADDRESS. HEX LOCATION(0000307A) IN CSECT(I7861   ) LENGTH(4)
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  1533    T7579      ADDRESS. HEX LOCATION(0000300C) IN CSECT(I7861   ) LENGTH(4)
                    1529
  1391    T775       ADDRESS. HEX LOCATION(00002E4E) IN CSECT(I7861   ) LENGTH(2)
                    1392
  1100    T7823      ADDRESS. HEX LOCATION(00002C4C) IN CSECT(I7861   ) LENGTH(4)
                     488
  1707    T7833      ADDRESS. HEX LOCATION(0000314E) IN CSECT(I7861   ) LENGTH(4)
                     614   626   641
  1638    T7837      ADDRESS. HEX LOCATION(000030D8) IN CSECT(I7861   ) LENGTH(4)
                     556
  1221    T7870      ADDRESS. HEX LOCATION(00002D18) IN CSECT(I7861   ) LENGTH(4)
                     476
  1303    T7872      ADDRESS. HEX LOCATION(00002DE6) IN CSECT(I7861   ) LENGTH(4)
                     500   571   594
  1369    T7875      ADDRESS. HEX LOCATION(00002E00) IN CSECT(I7861   ) LENGTH(4)
                     520   532   544
  1830    VRDCB      ADDRESS. HEX LOCATION(00003222) IN CSECT(I7861   ) LENGTH(2)
                    2219
  1852    WKDCB      ADDRESS. HEX LOCATION(00003242) IN CSECT(I7861   ) LENGTH(2)
                    2233  2234  2249  2250
  1819    WRDCB      ADDRESS. HEX LOCATION(00003212) IN CSECT(I7861   ) LENGTH(2)
                    2222
  1891    WRSID      ADDRESS. HEX LOCATION(00003288) IN CSECT(I7861   ) LENGTH(2)
                    1770  1859  2067  2148  2250  2254
  1763    WSDCB      ADDRESS. HEX LOCATION(000031C2) IN CSECT(I7861   ) LENGTH(2)
                    2253  2254  2256  2257
  1895    WSIDT      ADDRESS. HEX LOCATION(00003290) IN CSECT(I7861   ) LENGTH(2)
                    2063  2234  2257
   886    XE         ABSOLUTE. HEX VALUE(00000024)
                    2434  2496
   884    XI         ABSOLUTE. HEX VALUE(00000022)
                    2340  2481
  2315    XIO        ADDRESS. HEX LOCATION(000034BE) IN CSECT(I7861   ) LENGTH(4)
                    2199  2202  2210  2217  2220  2223  2231  2235  2239
                    2247  2251  2255  2258  2261
  2496    XIOCK      ADDRESS. HEX LOCATION(00003586) IN CSECT(I7861   ) LENGTH(2)
                    1533  1572  2350
  2503    XIOCO      ADDRESS. HEX LOCATION(00003598) IN CSECT(I7861   ) LENGTH(2)
                    2501
  2320    XIOCS      ADDRESS. HEX LOCATION(000034C8) IN CSECT(I7861   ) LENGTH(6)
                    1152  1243  1426  2512
  2505    XIOCV      ADDRESS. HEX LOCATION(0000359C) IN CSECT(I7861   ) LENGTH(2)
                    2499
  2514    XIOCX      ADDRESS. HEX LOCATION(000035B6) IN CSECT(I7861   ) LENGTH(4)
                    2506
  2389    XIOER      ADDRESS. HEX LOCATION(00003524) IN CSECT(I7861   ) LENGTH(2)
                    2520
  2324    XIO1       ADDRESS. HEX LOCATION(000034D8) IN CSECT(I7861   ) LENGTH(4)
                    2316
  2337    XIO2       ADDRESS. HEX LOCATION(000034FE) IN CSECT(I7861   ) LENGTH(2)
                    2323
  2349    XIO8       ADDRESS. HEX LOCATION(00003512) IN CSECT(I7861   ) LENGTH(2)
                    2354
    65    XTRNL      ABSOLUTE. HEX VALUE(00000001)
                     607
  1873    ZERO0      ADDRESS. HEX LOCATION(00003262) IN CSECT(I7861   ) LENGTH(2)
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