PERKIN-ELMER

32-BIT
SELECTOR CHANNEL (SELCH)

Test Program

Consists of:

Program Description	06-161M95A15 R09
Program Listing	06-161M91A13 R09

06-161 R09

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PREFACE

This document describes the 32-Bit Selector Channel (SELCH) Test Program. It is intended for use by customer service engineers and service maintenance personnel.

Chapter 1 describes the purpose of the test, the minimum hardware requirements and the program's relationship to other software. Chapter 2 details program execution. Chapter 3 outlines error procedures.

Revision 09 includes revisions 08 and 09, which supply information about the Model 3205 System.

For information on the contents of all Perkin-Elmer 32-bit manuals, see the 32-Bit Systems User Documentation Summary.

CHAPTER 1
REQUIREMENTS

1.1 PURPOSE OF DIAGNOSTIC

This program is designed specifically to test the 32-bit selector channel (SELCH) and diagnose problems to determine the element that is most likely failing. The program is designed to be loaded using the Diagnostic Loader/Executive (06-145). The reader is encouraged to refer to the Diagnostic User's Guide for operating instructions for the Loader/Executive.

If an error is discovered, the program prints a message indicating which major field-replaceable unit (printed circuit (PC) board) contains the failing element. Messages identify the failing element and provide other clarifying information.

1.2 MINIMUM HARDWARE REQUIREMENTS

The following is a list of the minimum hardware required for executing this program:

- A Perkin-Elmer 32-bit processor
- A console input/output (I/O) device
- A program loading device
- A precision interval clock (PIC)
- A SELCH
- A direct memory access (DMA) test device - magnetic tape, disk, etc.

1.3 RELATIONSHIP TO OTHER SOFTWARE

It is assumed that the CPU has passed all of its own processor and memory system diagnostics. This program is designed to be loaded using the low version of the Loader/Executive and makes use of the Executive sections of that program. The Diagnostic User's Guide describes the basic operational characteristics of the Loader/Executive.

CHAPTER 2
PROGRAM EXECUTION

2.1 INTRODUCTION

The 32-Bit Selector Channel (SELCH) Test is loaded by the low version of the Diagnostic Loader/Executive. Operational instructions for loading and using the loader are in the Diagnostic User's Guide. This program uses the Executive sections of the Loader/Executive. Refer to the Diagnostic User's Guide for information on the general operation of the Loader/Executive and for programs designed to use it.

When the 32-Bit SELCH Test has been loaded, execution is begun by entering the START command. Observe that the following messages are output to the list device:

```
32 BIT SELECTOR CHANNEL TEST 06-161R09
COPYRIGHT   THE PERKIN-ELMER CORPORATION 1983
ALL RIGHTS RESERVED
LOW DIAGNOSTIC LOADER/EXECUTIVE 06-145F01R09.2
ENTER "RUN" COMMAND IF PRESENT OPTION VALUES ARE
ACCEPTABLE.  ENTER "HELP" COMMAND FOR ASSISTANCE.
 INDEX          0
SELCH          0F0
IODEV          0B6
DEVICE         03
DISFIL         0C6
CYLNUM         000
SECTOR         0000
BYTE           000100
IMAGE          A5A5
BUFFIL         4F80
OUTBUF         010000
INBUF          018000
PATTERN        1
MVIN           0
MVOUT          0
BACKGROUND     0
***PRESS (RETURN) TO EXIT, (+)(RETURN) FOR MORE.
```

Entering a carriage return (CR) causes the program to output an asterisk (*) operator prompt character, indicating that it is ready to receive operator input. Entering the plus sign (+) followed by a CR causes the rest of the menu to be output:

```
RELOCATION      0
MACADR          0300
STRBUF          00F280
TEST            0-4
LOOP            0
PROCEED         1
REPEAT          1
BIAS            000000
COMMAND         CON:
LIST            CON:
LOG             CON:
```

After these messages are output, an asterisk (*) operator prompt character is output to show that the program is ready to receive operator commands.

The program contains extensive HELP message support and the user is encouraged to use these messages for explanations of option entry and test execution. The command and option HELP messages specific to this test will not be elaborated upon here. Rather, examples of normal and optional testing will be shown.

2.2 NORMAL TESTING

Proper operation of this test assumes that the prerequisites shown in Chapter 1 have been met.

When the program is first loaded, or in response to the RESET command, all program options are set to their default values. Use of the OPTION command after initial start-up or after giving the RESET command causes the following to be output to the list device:

```
 INDEX          0
SELCH           0F0
IODEV           0B6
DEVICE          03
DISFIL          0C6
SECTOR          0000
BYTE            000100
IMAGE           A5A5
BUFFIL          4F80
OUTBUF          010000
INBUF           018000
PATTERN         1
```

```
MVIN            0
MVOUT           0
BACKGROUND      0
RELOCATION      0
MACADR          0300
STRBUF          00F280
TEST            0-4
LOOP            0
PROCEED         1
***PRESS (RETURN) TO EXIT, (+)(RETURN) FOR MORE.
```

Entering a CR causes the program to output an asterisk (*) operator prompt character, indicating that it is ready to receive operator input. Entering the plus sign (+), followed by a CR, causes the rest of the menu to be output:

```
REPEAT          1
BIAS            000000
COMMAND         CON:
LIST            CON:
LOG             CON:
```

The default test selection includes those tests that will result in the quickest determination of proper operation of the 32-bit SELCH. Where possible, the default test selection also includes those tests that do not require operator intervention. If the default test selection and other option values are acceptable, the user need only give the RUN command. As the test proceeds, advisory messages will be output if any option values are inappropriate for the particular configuration.

2.2.1 Option Setup

The user is encouraged to use the HELP messages for ready information on the commands and options.

The following basic option setup is for normal (default) testing using a magnetic tape:

IODEV 0/85	Select test device address.
DEVICE 0/1	Select test device type.
RUN	Begin default test execution.

Descriptions of the default tests follow. While individual tests can be selected, the most meaningful diagnosis is achieved by executing the tests in numeric order.

TEST 0

Exercises the SELCH start and final address registers using various "worst case" data patterns. For each start address written, the final address is read back and compared to the address written.

TEST 1

Transfers data with the test device through an "idle" SELCH.

TEST 2

Exercises the extended address read function of the SELCH.

TEST 3

Transfers data with the test device using the SELCH in sense status mode (no interrupts).

TEST 4

Transfers data with the test device using the SELCH in interrupt mode.

TEST 5

Outputs scope loop. Data is continuously transferred from memory to the test device through the SELCH.

TEST 6

Input scope loop. Data is continuously transferred from the test device to memory through the SELCH.

TEST 7

Exercises multiple concurrent SELCH transfers. Data is written to the test device, then read back and compared to the data written. Background testing is also performed.

TEST 8

Exercises the SELCH start and final address registers. An incrementing value is used that ranges from zero to the maximum allowable memory address.

TEST 9

Exercises "worst case" multiple concurrent SELCH transfers. Data is written to the test device, then read back, but not checked. Instead, the write/read sequence is immediately restarted. Background testing is also performed.

TEST 10

Is a cache invalidation exercise.

At the end of the entire test sequence, the following messages are output:

```
    END OF TEST
    TOTAL PASSES = XXXXXXXX
    NO ERRORS

 or END OF TEST
    TOTAL PASSES = XXXXXXXX
    TOTAL ERRORS = YYYYYYYY
```

Where:

XXXXXXXX	is the decimal tally of the number of test executions.
YYYYYYYY	is the decimal tally of errors detected.

After these messages are output, the asterisk (*) operator prompt is output to indicate that the program is again ready for operator input.

CHAPTER 3
ERROR PROCEDURES

3.1 INTRODUCTION

In any of the tests, the occurrence of an error condition causes the diagnostic to react as governed by the LOOP and PROCEED options.

3.2 RECOVERABLE ERRORS

In the case of a recoverable error, the program prints an error message on the output (list) device, and program execution continues.

3.3 IRRECOVERABLE ERRORS

Irrecoverable errors are those errors associated with central processing unit (CPU) interrupts that occur unexpectedly. Upon detection of such an error, one of the following error messages is output and the test terminates:

```
ARITHMETIC FAULT
PSW PPPPPP LOC LLLLLL
STATUS = SSSSSSSS

ILLEGAL INSTRUCTION
PSW PPPPPP LOC LLLLLL

MACHINE MALFUNCTION
PSW PPPPPP LOC LLLLLL
STATUS = SSSSSSSS
ADDRESS = AAAAAA

UNEXPECTED I/O INTERRUPT
DEV DDD STA SS
PSW PPPPPP LOC LLLLLL

INTERRUPT LEVEL ERROR
INTERRUPTED IN LEVEL X
DEV DDD STA SS
PSW PPPPPP LOC LLLLLL

RELOCATION/PROTECTION INTERRUPT
PSW PPPPPP LOC LLLLLL
```

```
DATA FORMAT FAULT
PSW PPPPPP LOC LLLLLL
STATUS = SSSSSSSS
ADDRESS = AAAAAA

ILLEGAL SVC
PSW PPPPPP LOC LLLLLL
```

Where:

PPPPPP	represents the program status word (PSW) value at the time of the interrupt.
LLLLLL	represents the location counter (LOC) value at the time of the interrupt.
SSSSSSSS	represents the interrupt reason code.
DDD	represents the device number.
SS	represents the device status.
X	represents the incorrect interrupt level.

PROG= 0616109 ASSEMBLED BY CAL/32 03-338R01-00

```
 1  0616109  PROG  32 BIT SELECTOR CHANNEL TEST 06-161M91R09
 2  * COPYRIGHT THE PERKIN-ELMER CORPORATION 1979
 3  * ALL RIGHTS RESERVED
 4  *
 5  * REVISION R09   DECEMBER, 1983     DMM
 6           WIDTH 132
 7           SQUEZ
 8           ERSQZ
 9  *        SQCHK
10  *        EXTRN EXEC                *                              *****
11  *
12  * PROGRAM USES BASIC MODEL 7/32 INSTRUCTION SET
13  *
14  * THIS PROGRAM TESTS THE 32  BIT  SELECTOR CHANNEL.
15  *
16  *            TEN TESTS ARE PROVIDED:
17  *
18  * TEST 0 - EXERCISES START/FINAL ADDRESS REGISTERS.
19  *
20  * TEST 1 - INSURES THAT DATA CAN BE TRANSFERRED
21  *          THROUGH AN IDLE SELCH.
22  *
23  * TEST 2 - CHECKS THE ADDRESS REGISTERS AND INSURES
24  *          THAT THE EXTENDED ADDRESS READ COMMAND IS
25  *          FUNCTIONING CORRECTLY.
26  *
27  * TEST 3 - CHECKS DATA TRANSMISSIONS, BETWEEN THE
28  *          SELECTOR CHANNEL AND THE DISC, MAG TAPE OR
29  *          SELCH TESTER, UNDER STATUS CONTROL.
30  *
31  * TEST 4 - CHECKS DATA TRANSMISSIONS, BETWEEN THE
32  *          SELECTOR CHANNEL AND THE DISC, MAG TAPE OR
33  *          SELCH TESTER, UNDER INTERRUPT CONTROL.
34  *
35  * TEST 5 - THIS IS A SCOPE LOOP WHICH TRANSFERS DATA
36  *          FROM MEMORY TO THE I/O DEVICE CONTINUOUSLY
37  *
38  * TEST 6 - THIS IS A SCOPE LOOP WHICH TRANSFERS DATA
39  *          FROM THE I/O DEVICE TO MEMORY CONTINUOUSLY.
40  *
41  * TEST 7 - CHECKS DATA TRANSMISSION,BETWEEN THE
42  *          SELECTOR CHANNEL AND THE DISC,MAG TAPE OR
43  *          SELCH TESTER ,CONCURRENTLY FOR ALL SELECTED
44  *          SELECTOR CHANNELS.
45  *
46  * TEST 8 - INSURES THAT EVERY ADDRESS FROM ZERO TO
47  *          X'FFFFFF' CAN BE WRITTEN INTO THE STARTING          *****
48  *          AND FINAL ADDRESS REGISTERS.
49  *
50  * TEST 9 - ATTEMPTS TO KEEP ALL SELCHES ACTIVE UNDER
51  *          INTERRUPT CONTROL.
52  *
53  * TEST 10 - CACHE/DMA WRITE TAG TEST. (CACHE INVALIDATION)
```

```
000000:I                   56          COPY  EQUATES            *                 R09
         0000 0000         56    R0    EQU   0
         0000 0001         56    R1    EQU   1
         0000 0002         56    R2    EQU   2
         0000 0003         56    R3    EQU   3
         0000 0004         56    R4    EQU   4
         0000 0005         56    R5    EQU   5
         0000 0006         56    R6    EQU   6
         0000 0007         56    R7    EQU   7
         0000 0008         56    R8    EQU   8
         0000 0009         56    R9    EQU   9
         0000 000A         56    R10   EQU   10
         0000 000B         56    R11   EQU   11
         0000 000C         56    R12   EQU   12
         0000 000D         56    R13   EQU   13
         0000 000E         56    R14   EQU   14
         0000 000F         56    R15   EQU   15
         0000 000D         56    CR    EQU   X'0D'              CARRIAGE RETURN
         0000 000A         56    LF    EQU   X'0A'              LINE FEED
```

```
                                56  * LOOK-UP TABLE ALPHA EQUATES
                                56  *
          0000 00C1             56  .A        EQU   X'C1'              *
          0000 00C2             56  .B        EQU   X'C2'              *
          0000 00C3             56  .C        EQU   X'C3'              *
          0000 00C4             56  .D        EQU   X'C4'              *
          0000 00C5             56  .E        EQU   X'C5'              *
          0000 00C6             56  .F        EQU   X'C6'              *
          0000 00C7             56  .G        EQU   X'C7'              *
          0000 00C8             56  .H        EQU   X'C8'              *
          0000 00C9             56  .I        EQU   X'C9'              *
          0000 00CA             56  .J        EQU   X'CA'              *
          0000 00CB             56  .K        EQU   X'CB'              *
          0000 00CC             56  .L        EQU   X'CC'              *
          0000 00CD             56  .M        EQU   X'CD'              *
          0000 00CE             56  .N        EQU   X'CE'              *
          0000 00CF             56  .O        EQU   X'CF'              *
          0000 00D0             56  .P        EQU   X'D0'              *
          0000 00D1             56  .Q        EQU   X'D1'              *
          0000 00D2             56  .R        EQU   X'D2'              *
          0000 00D3             56  .S        EQU   X'D3'              *
          0000 00D4             56  .T        EQU   X'D4'              *
          0000 00D5             56  .U        EQU   X'D5'              *
          0000 00D6             56  .V        EQU   X'D6'              *
          0000 00D7             56  .W        EQU   X'D7'              *
          0000 00D8             56  .X        EQU   X'D8'              *
          0000 00D9             56  .Y        EQU   X'D9'              *
          0000 00DA             56  .Z        EQU   X'DA'              *


                                56              STRUC                  SVC 14 PARAMETER BLOCK STRUCTURE
000000                          56  SVC14.FC    DS    1                FUNCTION CODE
000001                          56  SVC14.R1    DS    1                FIRST REGISTER NUMBER
000002                          56  SVC14VAL    DS    0                VALUE HALFWORD OR
000002                          56  SVC14.R2    DS    1                SECOND REGISTER NUMBER AND
000003                          56  SVC14.R3    DS    1                THIRD REGISTER NUMBER
000004                          56  SVC.DFIN    DAS   1                ADDRESS OF DIAGNOSTIC DFINAL AREA
000008                          56              ENDS                   *                                R06.7


                                56              STRUC                  I/O BLOCK STRUCTURE              R06.7
000000                          56  INTDEV      DS    2                IDDD
                                56  *                                  I = INTERRUPT LEVEL
                                56  *                                  DDD = DEVICE ADDRESS
000002                          56  INTSTA      DS    2                STATUS
000004                          56  HANDLE      DS    4                USER'S HANDLER ADDRESS
000008                          56              ENDS


                                56  DOPSTRUC    STRUC                  OPTION HEADER STRUCTURE
000000                          56  DOP.HRTN    DAS   1                ADDRESS OF HELP ROUTINE
000004                          56  DOP.DRTN    DAS   1                ADDRESS OF DEFAULT HANDLER
```

```
000008                          56  DOP.VAL  DAS   1              ADDRESS OF VALUE
00000C                          56  DOP.KEY  DS    1              VALUE KEY
00000D                          56  DOP.VSIZ DS    1              VALUE SIZE
00000E                          56  $ROUTINE DS    0              PROCESSOR ADDRESS
00000E                          56           ENDS                 *


                                56  * VALUE KEY DEFINITIONS:
                                56  *
          0000 0001             56  HEX.VAL  EQU   1              OPTION VALUE IS HEXADECIMAL
          0000 0002             56  DEC.VAL  EQU   2              OPTION VALUE IS DECIMAL
          0000 0003             56  ASCIIVAL EQU   3              OPTION VALUE IS ASCII
          0000 0004             56  DEVNAME  EQU   4              OPTION VALUE IS A DEVICE NAME
          0000 0008             56  EXCEPTN  EQU   8              USER HANDLES OPTION OUTPUT
          0000 0010             56  OFFSET   EQU   X'10'          OPTION VALUE IN DFINAL AREA  R06.5
          0000 0020             56  ADD.REM  EQU   X'20'          ALLOW ADD/REMOVE COMMAND     R08.2
```

```
                                56  * TESTS TABLE ENTRY FLAGS
                                56  *
          0000 0001             56  DEFAULT  EQU   1              IDENTIFIES DEFAULT SUBTEST
          0000 0002             56  SELECTED EQU   2              IDENTIFIES SELECTED SUBTEST


                                56  SUBTSTRC STRUC                SUBTEST HEADER STRUCTURE
000000                          56  SUBTHELP DAS   1              HELP MESSAGE ADDRESS
000004                          56  SUBTERRS DAS   1              ERROR TALLY, THIS SUBTEST
000008                          56  SUBTSTRT DS    0              SUBTEST CODE START ADDRESS
000008                          56           ENDS                 *
                                56  *
```

```
                        56  DFINSTRC STRUC          DIAGNOSTIC DATA STRUCTURE
000000                  56  $DOPTION DAS    1      DIAGNOSTIC OPTIONS TABLE
000004                  56  $DPTAB   DAS    1      DIAG OPTIONS PROCEDURES
000008                  56  $DINIT   DAS    1      ADRS OF INITIALIZE ROUTINE
00000C                  56  $BTESTNO DS     2      CURRENT SUBTEST NUMBER
00000E                  56  $MAXTST  DS     2      MAXIMUM SUBTEST NUMBER
000010                  56  $TESTS   DAS    1      START ADRS TESTS TABLE
000014                  56  $TESTSE  DAS    1      END ADRS, TESTS TABLE
000018                  56  $SYNOPS  DAS    1      ADRS OF SYNOPSIS ROUT.
00001C                  56  $TITLE   DAS    1      ADRS OF DIAG. TITLE
000020                  56  $TOTAL   DAS    1      TOTAL TEST EXECUTIONS
000024                  56  $TOTERR  DAS    1      TOTAL ERRORS
000028                  56  ERR.SAVE DAS   16      REGISTER SAVE
000068                  56  MSG.SAVE DAS   16      REGISTER SAVE
0000A8                  56  OPTPOINT DAS    1      OPTION HEADER ADDRESS
0000AC                  56  POINTER  DAS    1      ERROR MESSAGE ADDRESS
0000B0                  56  FRUMSG   DAS    1      SECOND ERROR MESSAGE ADRS    R06.5
0000B4                  56  ADRSSAVE DAS    1      GENERAL ADDRESS SAVE AREA    R07.4
0000B8                  56  ERR.FLAG DS     2      TEST SEQUENCE ERROR FLAG
0000BA                  56  LOOP.OPT DS     2      LOOP OPTION VALUE
0000BC                  56  PROCEED  DS     2      PROCEED OPTION VALUE
0000BE                  56  $LINCNT  DS     2      LISTING LINE COUNTER         R07.4
0000C0                  56  FLAGS    DS     3      EXECUTIVE FLAGS              R07.4
0000C3                  56  LEVEL    DS     1      EXECUTIVE LEVEL              R07.4
0000C4                  56  WPROCEED DAS    1      WORKING PROCEED LIMIT
0000C8                  56  REPEATV  DAS    1      REPEAT OPTION VALUE          R07
0000CC                  56  $CMDPTR  DAS    1      COMMAND LINE POINTER
0000D0                  56  $INTRCPT DAS    1      RETURN INTERCEPT POINTER     R06.5
0000D4                  56  $FADDRES DAS    1      FAULT ADDRESS FOR TRAPS      R06.6
0000D8                  56  $REASON  DAS    1      REASON CODE FOR TRAPS        R06.6
0000DC                  56  $OLDPSW  DAS    1      OLD PSW & LOC FOR TRAPS      R06.7
0000E0                  56  $OLDLOC  DAS    1      *                            R06.7
0000E4                  56  $CONTINU DAS    2      CONTINUATION PSW             R06.7
0000EC                  56  PROG.LU  DS     3      GLOBAL LOGICAL UNITS         R07
0000EF                  56  $INTCODE DS     1      INTERCEPT REASON CODE        R06.7
0000F0                  56  CMD.FD   DS    16      COMMAND DEVICE FILE DESCRIPTOR
000100                  56  LOG.FD   DS    16      LOG DEVICE FILE DESCRIPTOR
000110                  56  LST.FD   DS    16      LIST DEVICE FILE DESCRIPTOR
000120                  56  LST.ATTR DS     2      LIST DEVICE ATTRIBUTES
000122                  56  LOG.ATTR DS     2      LOG DEVICE ATTRIBUTES
000124                  56  CMD.ATTR DS     2      COMMAND DEVICE ATTRIBUTES
000126                  56  LST.LRCL DS     2      LIST DEVICE LOGICAL RECORD LENGTH
000128                  56  LOG.LRCL DS     2      LOG DEVICE LOGICAL RECORD LENGTH
00012A                  56  CMD.LRCL DS     2      COMMAND LOGICAL RECORD LENGTH
00012C                  56  IITRPLOC DS     4      ILLEGAL INSTRUCTION ROUTINE  R07.6
000130                  56  FMTRPLOC DS     4      FORMAT FAULT ROUTINE         R07.6
000134                  56  AFTRPLOC DS     4      ARITHMETIC FAULT ROUTINE     R07.6
000138                  56  MMTRPLOC DS     4      MACHINE MALF. ROUTINE        R07.6
00013C                  56  MATRPLOC DS     4      MEM ACCESS FAULT ROUTINE     R07.6
000140                  56  LOADBIAS DS     4      BIAS OPTION VALUE            R07.9
000144                  56           DS     4      SPARE                        R07.6
000148                  56           DS     4      SPARE                        R07.6
00014C                  56  TIME     DS     4      TIME VALUE                   R07.4
000150                  56  TIMETOP  DS     2      TIME QUEUE INDEX             R07.4
000152                  56           DS     2      FILLER                       R07.4
```

```
000154                          56  TIMQUEUE DAS   16*3            TIMEOUT QUEUE                R07.4
000214                          56  TASKQUE  DS    8               TASK QUEUE HEADER            R07.4
00021C                          56           DAS   3               TASK QUEUE ENTRIES (3)       R07.6
000228                          56  READLU5  DS    20              SVC 1, READ
00023C                          56  WRITELUX DS    20              SVC 1, WRITE
000250                          56  PEEK00   DS    4
000254                          56  OSID     DS    8
00025C                          56  TASKNAME DS    8
000264                          56  CTSW     DS    4
000268                          56  TOPT     DS    4
00026C                          56  PEEK01   DS    4
000270                          56           DS    8
000278                          56  OSUP     DS    2
00027A                          56  CPU      DS    2
00027C                          56  SOPT     DS    4
000280                          56  UACT     DS    2
000282                          56  GACT     DS    2
000284                          56           DS    4
000288                          56  SVC7     DS    28
0002A4                          56  SVC2     DS    12
0002B0                          56  $CMDBUF  DS    256             COMMAND INPUT BUFFER
0003B0                          56  $OUTBUF  DS    256             OUTPUT PRINT BUFFER
0004B0                          56           ENDS
                                56  * DFINAL EXECUTIVE FLAG HALFWORD DEFINITIONS:
                                56  *
          0000 0100             56  CMDEQLOG EQU   X'0100'         COMMAND DEVICE = LOG DEVICE
          0000 0200             56  LSTEQLOG EQU   X'0200'         LIST DEVICE = LOG DEVICE
          0000 0400             56  CMDEQLST EQU   X'0400'         COMMAND DEVICE = LIST DEVICE
          0000 0800             56  HELPFLAG EQU   X'0800'         HELP COMMAND FLAG
          0000 1000             56  RUNFLAG  EQU   X'1000'         RUN COMMAND FLAG
          0000 2000             56  RESETFLG EQU   X'2000'         RESET COMMAND FLAG
          0000 4000             56  AUTO     EQU   X'4000'         END OF TASK FLAG
          0000 8000             56  PRESENT  EQU   X'8000'         DIAGNOSTIC PRESENCE FLAG
          0000 0080             56  $INTCFLG EQU   X'0080'         USING INTERCEPTS
          0000 0040             56  ON.LINE  EQU   X'0040'         0=STAND-ALONE, 1=ON-LINE
          0000 0020             56  A.RUN    EQU   X'0020'         AUTO RUN
          0000 0010             56  A.SEQ    EQU   X'0010'         AUTO SEQUENCE
          0000 0008             56  STARTED  EQU   X'0008'         START COMMAND ISSUED         R07.8
          0000 0004             56  FIRSTEST EQU   X'0004'         0 = FIRST TEST               R07.9
                                56  *                              1 = NOT FIRST TEST           R07.9
          0000 0002             56  ADDFLAG  EQU   X'0002'         ADD COMMAND                  R08.2
          0000 0001             56  REMFLAG  EQU   X'0001'         REMOVE COMMAND               R08.2
```

DIAGNOSTIC SEGMENT START

```
                                      58  *       ORG   X'8000'             *                     R09
               0000 0000:I            59  START   EQU   *                   *                     ***
               0000 8000:I            60  BBIAS   EQU   PSTE-START+Y'000FFF'&Y'FFF000'+START *    ***
                                      61  *       LI    R14,Y'3F000200'     *                     *****
                                      62  *       LA    R15,EXEC            *                     *****
                                      63  *       STM   R14,X'68'           SET SVC 14 NEW TSW    *****
                                      64  *
000000:I       E610 40FF FFFF         65          LA    R1,Y'00FFFFFF'      TEST ADDRESS LENGTH
000006:I       5010 4000 5FF8:I       66          ST    R1,BUSMASK          SAVE RESULT
00000C:I       2400                   67          LIS   R0,0                TO FORCE
00000E:I       4000 4000 5FFC:I       68          STH   R0,CLRSTART         MEM MAP AND CLEAR ROUTINE ON LOAD
                                      69  *
000014:I       E1E0 4000 60B0:I       70          SVC   14,DIAGINIT         INITIAL EXEC CALL
                                      71  *                                 RETURN WILL BE TO ONE OF
                                      72  *                                 THE OPTION PROCESSORS,
                                      73  *                                 TO THE SUBTEST INITIALIZE
                                      74  *                                 ROUTINE, OR TO ONE OF THE
                                      75  *                                 SUBTESTS.
                                      76  *
00001A:I       4D45 4D4F 5259 2041    77  LIMMSG  DB    C'MEMORY AVAILABLE FOR TEST  ',CR,LF,0
000022:I       5641 494C 4142 4C45
00002A:I       2046 4F52 2054 4553
000032:I       5420 200D 0A00
000038:I       2A2A 2A2A 2A2A 2020    78  LOLIM   DB    C'******  TO  '
000040:I       544F 2020
000044:I       2A2A 2A2A 2A2A 0D0A    79  HILIM   DB    C'******',CR,LF,0
00004C:I       00
                                      80  *
00004D:I       3332 2042 4954 2053    81  TITLE   DB    C'32 BIT SELECTOR CHANNEL TEST 06-161R09  ',CR,LF
000055:I       454C 4543 544F 5220
00005D:I       4348 414E 4E45 4C20
000065:I       5445 5354 2030 362D
00006D:I       3136 3152 3039 2020
000075:I       0D0A
000077:I       434F 5059 5249 4748    82          DB    C'COPYRIGHT   THE PERKIN-ELMER CORPORATION '
00007F:I       5420 2020 5448 4520
000087:I       5045 524B 494E 2D45
00008F:I       4C4D 4552 2043 4F52
000097:I       504F 5241 5449 4F4E
00009F:I       20
0000A0:I       3139 3833 0D0A         83          DB    C'1983',CR,LF
0000A6:I       414C 4C20 5249 4748    84          DB    C'ALL RIGHTS RESERVED',CR,LF,0
0000AE:I       5453 2052 4553 4552
0000B6:I       5645 440D 0A00
```

DIAGNOSTIC MNEMONIC TABLE

```
        0000 00BC:I                86  DIAG.OPT EQU   *                  DIAGNOSTIC OPTIONS MNEMONIC TABLE
                                   87  *                                 EQUATE TO ZERO IF THERE ARE NONE
                                   88  *                                 ELSE, EQUATE *
                                   89  *                                 FOLLOWED BY THE MNEMONIC TABLE
                                   90  *
                                   91  *  MNEMONIC TABLE STRUCTURE:
                                   92  *  ONE ENTRY PER LINE
                                   93  *  EACH ENTRY IS A DEFINED BYTE STRING CONTAINING THE
                                   94  *  ASCII MNEMONIC FOLLOWED BY A SINGLE BYTE OF ZERO.
                                   95  *  EACH MNEMONIC CAN HAVE REQUIRED AS WELL AS OPTIONAL
                                   96  *  CHARACTERS.  THE REQUIRED CHARACTERS ARE THOSE
                                   97  *  ABBREVIATIONS NECESSARY FOR A MINIMUM MATCH.
                                   98  *  REQUIRED CHARACTERS HAVE BIT ZERO OF THE BYTE SET.
                                   99  *  ALL ALPHA CHARACTERS HAVE BEEN EQUATED SO THAT THE
                                  100  *  PROGRAMMER NEEDN'T ADD THE ZERO BIT TO REQUIRED BYTES.
                                  101  *  FOR EXAMPLE:
                                  102  *        DB    .M,.N,.E,C'MONIC',0 A MNEMONIC WHERE THE MINIMUM
                                  103  *                                  ABBREVIATION IS MNE.
                                  104  *
0000BC:I    D3C5 CCC3 C800        105  W.SELCH  DB    .S,.E,.L,.C,.H,0
0000C2:I    C9CF 4445 5600        106  W.IODEV  DB    .I,.O,C'DEV',0
0000C8:I    C4C5 D649 4345 00     107  W.DEVICE DB    .D,.E,.V,C'ICE',0
0000CF:I    C4C9 D3C6 494C 00     108  W.DISFIL DB    .D,.I,.S,.F,C'IL',0
0000D6:I    C3D9 CC4E 554D 00     109  W.CYLNUM DB    .C,.Y,.L,C'NUM',0
0000DD:I    D3C5 C354 4F52 00     110  W.SECTOR DB    .S,.E,.C,C'TOR',0
0000E4:I    C2D9 D445 00          111  W.BYTE   DB    .B,.Y,.T,C'E',0
0000E9:I    C9CD 4147 4500        112  W.IMAGE  DB    .I,.M,C'AGE',0
0000EF:I    C2D5 C6C6 494C 00     113  W.BUFFIL DB    .B,.U,.F,.F,C'IL',0
0000F6:I    CFD5 D442 5546 00     114  W.OUTBUF DB    .O,.U,.T,C'BUF',0
0000FD:I    C9CE 4255 4600        115  W.INBUF  DB    .I,.N,C'BUF',0
000103:I    D0C1 D454 4552 4E00   116  W.PATERN DB    .P,.A,.T,C'TERN',0
00010B:I    CDD6 C9CE 00          117           DB    .M,.V,.I,.N,0
000110:I    CDD6 CFD5 D400        118           DB    .M,.V,.O,.U,.T,0
000116:I    C2C1 C34B 4752 4F55   119           DB    .B,.A,.C,C'KGROUND',0
00011E:I    4E44 00
000121:I    D2C5 CC4F 4341 5449   120           DB    .R,.E,.L,C'OCATION',0
000129:I    4F4E 00
00012C:I    CDC1 C341 4452 00     121           DB    .M,.A,.C,C'ADR',0
000133:I    D3D4 D2C2 5546 00     122           DB    .S,.T,.R,.B,C'UF',0
                                  123  *
                                  124  *  THE END OF THE MNEMONIC TABLE IS INDICATED BY
                                  125  *
00013A:I    0000                  126           DB    0,0
```

OPTION AND TESTS TABLES

```
00013C:I                                128          ALIGN ADC
            0000 013C:I                 129  DIAGPTAB EQU   *                    ADDRESS OF PROCEDURE TABLE
                                        130  *
                                        131  *  FOR EVERY MNEMONIC ENTRY IN DIAG.OPT, THERE MUST
                                        132  *  BE A CORRESPONDING ENTRY IN DIAGPTAB.
                                        133  *  THAT ENTRY IS THE ADDRESS OF THE OPTION OR COMMAND
                                        134  *  PROCESSING ROUTINE.
                                        135  *
00013C:I    0000 0AE8:I                 136          DAC   SELCHOPT              SELCH
000140:I    0000 0D40:I                 137          DAC   IODEVOPT              IODEV
000144:I    0000 16F4:I                 138          DAC   DEVICOPT             DEVICE
000148:I    0000 19B4:I                 139          DAC   DISF.OPT             DISFIL
00014C:I    0000 1AA0:I                 140          DAC   CYLN.OPT             CYLNUM
000150:I    0000 1DA8:I                 141          DAC   SECT.OPT             SECTOR
000154:I    0000 0F28:I                 142          DAC   BYTE.OPT             BYTE
000158:I    0000 120C:I                 143          DAC   IMAGEOPT             IMAGE
00015C:I    0000 12D0:I                 144          DAC   BUFFILOP             BUFFIL
000160:I    0000 13A8:I                 145          DAC   OUTBUFOP             OUTBUF
000164:I    0000 145C:I                 146          DAC   INBUFOPT             INBUF
000168:I    0000 150C:I                 147          DAC   PATRNOPT             PATTERN
00016C:I    0000 03F8:I                 148          DAC   MVIN.OPT             MVIN
000170:I    0000 0510:I                 149          DAC   MVOUTOPT             MVOUT
000174:I    0000 0630:I                 150          DAC   BACK.OPT             BACKGROUND
000178:I    0000 079C:I                 151          DAC   RELOCOPT             RELOCATE
00017C:I    0000 08A8:I                 152          DAC   MACADOPT             MACADR
000180:I    0000 0A3C:I                 153          DAC   STRBUFOP             STRBUF
000184:I    0000 0000                   154          DAC   0                    END OF TABLE


000188:I                                156          ALIGN ADC
            0000 0188:I                 157  TESTS   EQU   *                    SUBTESTS START ADDRESS TABLE
000188:I    0000 3049:I                 158          DC    TEST0+DEFAULT        TEST 0
00018C:I    0000 33D9:I                 159          DC    TEST1+DEFAULT        TEST 1
000190:I    0000 3709:I                 160          DC    TEST2+DEFAULT        TEST 2
000194:I    0000 39DD:I                 161          DC    TEST3+DEFAULT        TEST 3
000198:I    0000 3B4D:I                 162          DC    TEST4+DEFAULT        TEST 4
00019C:I    0000 3DB8:I                 163          DC    TEST5                TEST 5
0001A0:I    0000 3E48:I                 164          DC    TEST6                TEST 6
0001A4:I    0000 3F1C:I                 165          DC    TEST7                TEST 7
0001A8:I    0000 3268:I                 166          DC    TEST8                TEST 8
0001AC:I    0000 4054:I                 167          DC    TEST9                TEST 9
0001B0:I    0000 42EC:I                 168          DC    TEST10               TEST 10
            0000 01B4:I                 169  TESTSEND EQU   *                    END ADDRESS OF TESTS TABLE


                                        171  * ADDITIONAL REGISTER EQUATES
                                        172  *
            0000 0003                   173  SELCH   EQU   3
            0000 0004                   174  IODEVS  EQU   4
            0000 0005                   175  DRIVER  EQU   5
            0000 000A                   176  WORK    EQU   10
```

OPTION AND TESTS TABLES

```
0000 000B                177  WORK1    EQU   11
0000 000C                178  STAT     EQU   12
```

OPTION VALUE STORAGE

```
0001B4:I    0000             MVIN     DCX   0                 MVIN OPTION VALUE
0001B6:I    0000             MVOUT    DCX   0                 MVOUT OPTION VALUE
0001B8:I    0000             BKGRND   DCX   0                 BACKGROUND OPTION VALUE
0001BA:I    0000             RELOC    DCX   0                 RELOCATE OPTION VALUE
0001BC:I    0300             MACADR   DCX   300               MACADR OPTION VALUE
0001BE:I    0024             MABUS    DCX   24                MABUS OPTION VALUE
0001C0:I                              ALIGN ADC
0001C0:I    0000 7280:I      STRBUF   DC    A(PSTE)           STRBUF OPTION VALUE
                             *
                             * SELTAB CONTAINS THE DEVICE ADDRESS OF
                             * EACH SELECTOR CHANNEL IN THE SYSTEM.
                             *
0001C4:I    00F0             SELTAB   DCX   0F0               SELCH 0
0001C6:I    0000                      DCX   000               SELCH 1
0001C8:I    0000                      DCX   000               SELCH 2
0001CA:I    0000                      DCX   000               SELCH 3
0001CC:I    0000                      DCX   000               SELCH 4
0001CE:I    0000                      DCX   000               SELCH 5
0001D0:I    0000                      DCX   000               SELCH 6
0001D2:I    0000                      DCX   000               SELCH 7
                             *
                             * IOTAB CONTAINS THE TEST DEVICE ADDRESS OR THE
                             * CONTROLLER ADDRESS ASSOCIATED WITH EACH SELCH
                             *
0001D4:I    00B6             IOTAB    DCX   0B6               SELCH 0
0001D6:I    0085                      DCX   085               SELCH 1
0001D8:I    00FB                      DCX   0FB               SELCH 2
0001DA:I    00EB                      DCX   0EB               SELCH 3
0001DC:I    00D0                      DCX   0D0               SELCH 4
0001DE:I    00D0                      DCX   0D0               SELCH 5
0001E0:I    00D0                      DCX   0D0               SELCH 6
0001E2:I    00D0                      DCX   0D0               SELCH 7
                             *
                             * DEVTABLE CONTAINS THE DEVICE TYPE IDENTIFIER
                             * ASSOCIATED WITH EACH SELECTOR CHANNEL.
                             *
0001E4:I    0001             DEVTABLE DCX   0001              SELCH 0
0001E6:I    0002                      DCX   0002              SELCH 1
0001E8:I    0004                      DCX   0004              SELCH 2
0001EA:I    0004                      DCX   0004              SELCH 3
0001EC:I    0000                      DCX   0000              SELCH 4
0001EE:I    0000                      DCX   0000              SELCH 5
0001F0:I    0000                      DCX   0000              SELCH 6
0001F2:I    0000                      DCX   0000              SELCH 7
                             *
                             * DISFTAB CONTAINS THE DISK FILE ADDRESS
                             * ASSOCIATED WITH EACH SELECTOR CHANNEL.
                             *
0001F4:I    00C6             DISFTAB  DCX   0C6               SELCH 0
0001F6:I    0000                      DCX   000               SELCH 1
0001F8:I    00FC                      DCX   0FC               SELCH 2
0001FA:I    00EC                      DCX   0EC               SELCH 3
0001FC:I    0000                      DCX   000               SELCH 4
```

OPTION VALUE STORAGE

```
0001FE:I     0000                  233           DCX   000                 SELCH 5
000200:I     0000                  234           DCX   000                 SELCH 6
000202:I     0000                  235           DCX   000                 SELCH 7
                                   236  *
                                   237  * CYLTAB CONTAINS THE CYLINDER OPTION VALUE
                                   238  * ASSOCIATED WITH EACH SELECTOR CHANNEL.
                                   239  *
000204:I     0000                  240  CYLTAB   DCX   0000                SELCH 0
000206:I     0000                  241           DCX   0000                SELCH 1
000208:I     0000                  242           DCX   0000                SELCH 2
00020A:I     0000                  243           DCX   0000                SELCH 3
00020C:I     0000                  244           DCX   0000                SELCH 4
00020E:I     0000                  245           DCX   0000                SELCH 5
000210:I     0000                  246           DCX   0000                SELCH 6
000212:I     0000                  247           DCX   0000                SELCH 7
                                   248  *
                                   249  * SECTAB CONTAINS THE SECTOR OPTION VALUE
                                   250  * ASSOCIATED WITH EACH SELECTOR CHANNEL.
                                   251  *
000214:I     0000                  252  SECTAB   DCX   0000                SELCH 0
000216:I     0000                  253           DCX   0000                SELCH 1
000218:I     0000                  254           DCX   0000                SELCH 2
00021A:I     0000                  255           DCX   0000                SELCH 3
00021C:I     0000                  256           DCX   0000                SELCH 4
00021E:I     0000                  257           DCX   0000                SELCH 5
000220:I     0000                  258           DCX   0000                SELCH 6
000222:I     0000                  259           DCX   0000                SELCH 7
                                   260  *
                                   261  * BYTETAB CONTAINS THE BYTE OPTION VALUE
                                   262  * ASSOCIATED WITH EACH SELECTOR CHANNEL.
                                   263  *
000224:I                           264           ALIGN ADC
000224:I     0000 0100             265  BYTETAB  DCY   00000100            SELCH 0
000228:I     0000 0100             266           DCY   00000100            SELCH 1
00022C:I     0000 0100             267           DCY   00000100            SELCH 2
000230:I     0000 0100             268           DCY   00000100            SELCH 3
000234:I     0000 0100             269           DCY   00000100            SELCH 4
000238:I     0000 0100             270           DCY   00000100            SELCH 5
00023C:I     0000 0100             271           DCY   00000100            SELCH 6
000240:I     0000 0100             272           DCY   00000100            SELCH 7
                                   273  *
                                   274  * IMAGTAB CONTAINS THE IMAGE OPTION VALUE
                                   275  * ASSOCIATED WITH EACH SELECTOR CHANNEL.
                                   276  *
000244:I     A5A5                  277  IMAGTAB  DCX   A5A5                SELCH 0
000246:I     A5A5                  278           DCX   A5A5                SELCH 1
000248:I     A5A5                  279           DCX   A5A5                SELCH 2
00024A:I     A5A5                  280           DCX   A5A5                SELCH 3
00024C:I     A5A5                  281           DCX   A5A5                SELCH 4
00024E:I     A5A5                  282           DCX   A5A5                SELCH 5
000250:I     A5A5                  283           DCX   A5A5                SELCH 6
000252:I     A5A5                  284           DCX   A5A5                SELCH 7
                                   285  *
```

OPTION VALUE STORAGE

```
                                  286  * BUFILTAB CONTAINS THE BACKGROUND (BUFFIL) OPTION
                                  287  * VALUE FOR EACH SELECTOR CHANNEL.
                                  288  *
000254:I     4F80                 289  BUFILTAB DCX   4F80              SELCH 0
000256:I     4F81                 290           DCX   4F81              SELCH 1
000258:I     4F82                 291           DCX   4F82              SELCH 2
00025A:I     4F83                 292           DCX   4F83              SELCH 3
00025C:I     4F84                 293           DCX   4F84              SELCH 4
00025E:I     4F85                 294           DCX   4F85              SELCH 5
000260:I     4F86                 295           DCX   4F86              SELCH 6
000262:I     4F87                 296           DCX   4F87              SELCH 7
                                  297  *
                                  298  * OUTBTAB1 CONTAINS THE INITIAL WRITE BUFFER
                                  299  * ADDRESS FOR EACH SELECTOR CHANNEL.
                                  300  *
000264:I                          301           ALIGN ADC
000264:I     0000 8000:I          302  OUTBTAB1 DC    BBIAS               SELCH 0
000268:I     0000 9000:I          303           DC    BBIAS+X'1000'       SELCH 1
00026C:I     0000 A000:I          304           DC    BBIAS+X'2000'       SELCH 2
000270:I     0000 B000:I          305           DC    BBIAS+X'3000'       SELCH 3
000274:I     0000 C000:I          306           DC    BBIAS+X'4000'       SELCH 4
000278:I     0000 D000:I          307           DC    BBIAS+X'5000'       SELCH 5
00027C:I     0000 E000:I          308           DC    BBIAS+X'6000'       SELCH 6
000280:I     0000 F000:I          309           DC    BBIAS+X'7000'       SELCH 7
                                  310  *
                                  311  * INBTAB1 CONTAINS THE INITIAL READ BUFFER
                                  312  * ADDRESS FOR EACH SELECTOR CHANNEL.
                                  313  *
000284:I                          314           ALIGN ADC
000284:I     0001 0000:I          315  INBTAB1  DC    BBIAS+X'8000'       SELCH 0
000288:I     0001 1000:I          316           DC    BBIAS+X'9000'       SELCH 1
00028C:I     0001 2000:I          317           DC    BBIAS+X'A000'       SELCH 2
000290:I     0001 3000:I          318           DC    BBIAS+X'B000'       SELCH 3
000294:I     0001 4000:I          319           DC    BBIAS+X'C000'       SELCH 4
000298:I     0001 5000:I          320           DC    BBIAS+X'D000'       SELCH 5
00029C:I     0001 6000:I          321           DC    BBIAS+X'E000'       SELCH 6
0002A0:I     0001 7000:I          322           DC    BBIAS+X'F000'       SELCH 7
                                  323  *
                                  324  * PATRNTAB CONTAINS THE PATTERN NUMBER TO
                                  325  * BE USED WITH EACH SELECTOR CHANNEL.
                                  326  *
0002A4:I     0001                 327  PATRNTAB DCX   0001              SELCH 0
0002A6:I     0001                 328           DCX   0001              SELCH 1
0002A8:I     0001                 329           DCX   0001              SELCH 2
0002AA:I     0001                 330           DCX   0001              SELCH 3
0002AC:I     0001                 331           DCX   0001              SELCH 4
0002AE:I     0001                 332           DCX   0001              SELCH 5
0002B0:I     0001                 333           DCX   0001              SELCH 6
0002B2:I     0001                 334           DCX   0001              SELCH 7
                                  335  *
                                  336  * DRIVSAV SAVES THE DRIVER ADDRESS ASSOCIATED
                                  337  * WITH EACH SELECTOR CHANNEL.
                                  338  *
```

OPTION VALUE STORAGE

```
0002B4:I                          339           ALIGN ADC
0002B4:I      0000 0000           340  DRIVSAV  DAC   0                  SELCH 0
0002B8:I      0000 0000           341           DAC   0                  SELCH 1
0002BC:I      0000 0000           342           DAC   0                  SELCH 2
0002C0:I      0000 0000           343           DAC   0                  SELCH 3
0002C4:I      0000 0000           344           DAC   0                  SELCH 4
0002C8:I      0000 0000           345           DAC   0                  SELCH 5
0002CC:I      0000 0000           346           DAC   0                  SELCH 6
0002D0:I      0000 0000           347           DAC   0                  SELCH 7


                                  349  * DEVICE DEPENDANT VARIABLES, KEYED TO INTERNAL DEVICE CODE
                                  350  *
                                  351  *                                CODE, DEVICE
0002D4:I      0000                352  MAXCYL   DC    H'0'               0     SELCH TESTER
0002D6:I      0000                353           DC    H'0'               1     800/1600 BPI MAG TAPE
0002D8:I      0000                354           DC    H'0'               2     6250 BPI MAG TAPE
0002DA:I      0198                355           DC    H'408'             3     2.5 OR 10MB DISK
0002DC:I      0196                356           DC    H'406'             4     40MB DISK
0002DE:I      0337                357           DC    H'823'             5     67 MB MSM
0002E0:I      0337                358           DC    H'823'             6     256 MB MSM
0002E2:I      0394                359           DC    H'916'             7     67.2 MB (HPT)
0002E4:I      0337                360           DC    H'823'             8     13.5 MB CDD REM
0002E6:I      0337                361           DC    H'823'             9     13.5 MB CDD FXD
0002E8:I      0337                362           DC    H'823'             A     40.4 MB CDD FXD
0002EA:I      0337                363           DC    H'823'             B     67.3 MB CDD FXD
0002EC:I      0400                364           DC    H'1024'            C     300 MB CAPRICORN
0002EE:I      0270                365           DC    H'624'             D     19.8 MB LARK REM
0002F0:I      0270                366           DC    H'624'             E     19.8 MB LARK FXD
0002F2:I      0000                367           DC    H'0'               F     SPARE
0002F4:I      0000                368           DC    H'0'               10    SELCH TESTER (HW)
                                  369  *
                                  370  *
                                  371  *
0002F6:I      0000                372  MAXSEC   DC    H'0'               0     SELCH TESTER
0002F8:I      0000                373           DC    H'0'               1     800/1600 BPI MAG TAPE
0002FA:I      0000                374           DC    H'0'               2     6250 BPI MAG TAPE
0002FC:I      0018                375           DC    H'24'              3     2.5 OR 10MB DISK
0002FE:I      0018                376           DC    H'24'              4     40MB DISK
000300:I      0040                377           DC    H'64'              5     67 MB MSM
000302:I      0040                378           DC    H'64'              6     256 MB MSM
000304:I      0040                379           DC    H'64'              7     67.2 MB (HPT)
000306:I      0040                380           DC    H'64'              8     13.5 MB CDD REM
000308:I      0040                381           DC    H'64'              9     13.5 MB CDD FXD
00030A:I      0040                382           DC    H'64'              A     40.4 MB CDD FXD
00030C:I      0040                383           DC    H'64'              B     67.3 MB CDD FXD
00030E:I      0040                384           DC    H'64'              C     300 MB CAPRICORN
000310:I      003E                385           DC    H'62'              D     19.8 MB LARK REM
000312:I      003E                386           DC    H'62'              E     19.8 MB LARK FXD
000314:I      0000                387           DC    H'0'               F     SPARE
000316:I      0000                388           DC    H'0'               10    SELCH TESTER (HW)
                                  389  *
```

OPTION VALUE STORAGE

```
                                    390  *
                                    391  *
000318:I     0000                   392  HEADS    DB    0,0              0     SELCH TESTER
00031A:I     0000                   393           DB    0,0              1     800/1600 BPI MAG TAPE
00031C:I     0000                   394           DB    0,0              2     6250 BPI MAG TAPE
00031E:I     0001                   395           DB    0,1              3     2.5 OR 10MB DISK
000320:I     0013                   396           DB    0,19             4     40MB DISK
000322:I     0005                   397           DB    0,5              5     67 MB MSM
000324:I     0013                   398           DB    0,19             6     256 MB MSM
000326:I     0005                   399           DB    0,5              7     67.2 MB (HPT)
000328:I     0000                   400           DB    0,0              8     13.5 MB CDD REM
00032A:I     1010                   401           DB    16,16            9     13.5 MB CDD FXD
00032C:I     1013                   402           DB    16,19            A     40.4 MB CDD FXD
00032E:I     1015                   403           DB    16,21            B     67.3 MB CDD FXD
000330:I     0010                   404           DB    0,16             C     300 MB CAPRICORN
000332:I     0001                   405           DB    0,1              D     19.8 MB LARK REM
000334:I     0203                   406           DB    2,3              E     19.8 MB LARK FXD
000336:I     0000                   407           DB    0,0              F     SPARE
000338:I     0000                   408           DB    0,0              10    SELCH TESTER (HW)
                                    409  *
                                    410  *
00033A:I     0000                   411  RWCMDS   DCX   0000             0     SELCH TESTER
00033C:I     6261                   412           DCX   6261             1     800/1600 BPI MAG TAPE
00033E:I     6040                   413           DCX   6040             2     6250 BPI MAG TAPE
000340:I     4241                   414           DCX   4241             3     2.5 OR 10MB DISK
000342:I     4241                   415           DCX   4241             4     40MB DISK
000344:I     4241                   416           DCX   4241             5     67 MB MSM
000346:I     4241                   417           DCX   4241             6     256 MB MSM
000348:I     4241                   418           DCX   4241             7     67.2 MB (HPT)
00034A:I     4241                   419           DCX   4241             8     13.5 MB CDD REM
00034C:I     4241                   420           DCX   4241             9     13.5 MB CDD FXD
00034E:I     4241                   421           DCX   4241             A     40.4 MB CDD FXD
000350:I     4241                   422           DCX   4241             B     67.3 MB CDD FXD
000352:I     4241                   423           DCX   4241             C     300 MB CAPRICORN
000354:I     4241                   424           DCX   4241             D     19.8 MB LARK REM
000356:I     4241                   425           DCX   4241             E     19.8 MB LARK FXD
000358:I     0000                   426           DCX   0000             F     SPARE
00035A:I     0000                   427           DCX   0000             10    SELCH TESTER (HW)


                                    429  * INTERRUPT DEVICE LIST
                                    430  *
00035C:I     0000                   431  INTLIST  DCX   0                INDEX 0
00035E:I     0000                   432           DCX   0                INDEX 1
000360:I     0000                   433           DCX   0                INDEX 2
000362:I     0000                   434           DCX   0                INDEX 3
000364:I     0000                   435           DCX   0                INDEX 4
000366:I     0000                   436           DCX   0                INDEX 5
000368:I     0000                   437           DCX   0                INDEX 6
00036A:I     0000                   438           DCX   0                INDEX 7
```

OPTION VALUE STORAGE

```
                                    * STATUS LIST
                                    *
00036C:I     0000                   STATLST  DCX   0                 INDEX 0
00036E:I     0000                            DCX   0                 INDEX 1
000370:I     0000                            DCX   0                 INDEX 2
000372:I     0000                            DCX   0                 INDEX 3
000374:I     0000                            DCX   0                 INDEX 4
000376:I     0000                            DCX   0                 INDEX 5
000378:I     0000                            DCX   0                 INDEX 6
00037A:I     0000                            DCX   0                 INDEX 7


                                    * DEVICE LIST
                                    *
00037C:I     0000                   DEVLIST  DCX   0                 INDEX 0
00037E:I     0000                            DCX   0                 INDEX 1
000380:I     0000                            DCX   0                 INDEX 2
000382:I     0000                            DCX   0                 INDEX 3
000384:I     0000                            DCX   0                 INDEX 4
000386:I     0000                            DCX   0                 INDEX 5
000388:I     0000                            DCX   0                 INDEX 6
00038A:I     0000                            DCX   0                 INDEX 7


                                    * DEVICE STATUS LIST
                                    *
00038C:I     0000                   DEVSTAT  DCX   0                 INDEX 0
00038E:I     0000                            DCX   0                 INDEX 1
000390:I     0000                            DCX   0                 INDEX 2
000392:I     0000                            DCX   0                 INDEX 3
000394:I     0000                            DCX   0                 INDEX 4
000396:I     0000                            DCX   0                 INDEX 5
000398:I     0000                            DCX   0                 INDEX 6
00039A:I     0000                            DCX   0                 INDEX 7


                                    * THIS TABLE CONTAINS THE CURRENT WRITE BUFFER
                                    * ADDRESS FOR EACH SELCH IN THE SYSTEM
                                    *
00039C:I                                    ALIGN ADC
00039C:I     0000 0000              OUTBTAB  DCY   0                 SELCH 0
0003A0:I     0000 0000                       DCY   0                 SELCH 1
0003A4:I     0000 0000                       DCY   0                 SELCH 2
0003A8:I     0000 0000                       DCY   0                 SELCH 3
0003AC:I     0000 0000                       DCY   0                 SELCH 4
0003B0:I     0000 0000                       DCY   0                 SELCH 5
0003B4:I     0000 0000                       DCY   0                 SELCH 6
0003B8:I     0000 0000                       DCY   0                 SELCH 7
```

OPTION VALUE STORAGE

```
                                    * THIS TABLE CONTAINS THE CURRENT READ BUFFER
                                    * ADDRESS FOR EACH SELCH IN THE SYSTEM
                                    *
0003BC:I    0000 0000               INBTAB   DCY   0                  SELCH 0
0003C0:I    0000 0000                        DCY   0                  SELCH 1
0003C4:I    0000 0000                        DCY   0                  SELCH 2
0003C8:I    0000 0000                        DCY   0                  SELCH 3
0003CC:I    0000 0000                        DCY   0                  SELCH 4
0003D0:I    0000 0000                        DCY   0                  SELCH 5
0003D4:I    0000 0000                        DCY   0                  SELCH 6
0003D8:I    0000 0000                        DCY   0                  SELCH 7


                                    * TABLE RWC CONTAINS THE READ AND WRITE COMMAND
                                    * ASSOCIATED WITH EACH KEYED DEVICE
                                    * THE FIRST BYTE IS THE WRITE COMMAND
                                    * THE SECOND BYTE IS THE READ COMMAND
                                    *
0003DC:I    6261                    RWC      DC    X'6261'            INDEX 0
0003DE:I    6261                             DC    X'6261'            INDEX 1
0003E0:I    6261                             DC    X'6261'            INDEX 2
0003E2:I    6261                             DC    X'6261'            INDEX 3
0003E4:I    6261                             DC    X'6261'            INDEX 4
0003E6:I    6261                             DC    X'6261'            INDEX 4
0003E8:I    6261                             DC    X'6261'            INDEX 6
0003EA:I    6261                             DC    X'6261'            INDEX 7
                                    *
                                    *
0003EC:I    0000                    ERRFLAG  DCX   0                  SEQUENCE ERROR FLAG
0003F0:I                            OLIMIT   ALIGN ADC
0003F0:I    0000 0000               OLIMIT   DCY   0                  OPTION LIMIT
0003F4:I    0000 0000               COUNTER  DCY   0
```

MVIN OPTION PROCESSOR

```
0003F8:I                                518          ALIGN ADC
0003F8:I     0000 041C:I                519  MVIN.OPT DAC   HMVINRTN          HELP ROUTINE ADDRESS
0003FC:I     0000 0414:I                520           DAC   DFLTMVIN          DEFAULT HANDLER ADDRESS
000400:I     0000 01B4:I                521           DAC   MVIN              ADDRESS OF VALUE
000404:I     0204                       522           DB    DEC.VAL,4         DECIMAL, 4 DIGITS
                                        523  *
000406:I     E1E0 4000 60C0:I           524           SVC   14,EVALUATE       COMMON PROCESSOR
00040C:I     E610 FDA4 =0001B4:I        525           LA    R1,MVIN           POINT TO OPTION VALUE
000410:I     4300 9D28 =00213C:I        526           B     ZERONE            COMMON 0 OR 1 OPTION PROCESSOR
                                        527  *
000414:I     E610 FD9C =0001B4:I        528  DFLTMVIN LA    R1,MVIN           VALUE ADDRESS
000418:I     4300 9D3C =002158:I        529           B     DFLTOHW           HALFWORD VALUE OF ZERO
                                        530  *
00041C:I     E650 8004 =000424:I        531  HMVINRTN LA    R5,HMVINMSG       HELP MESSAGE ADDRESS
000420:I     4300 9D3E =002162:I        532           B     MSGPRINT          PRINT IT
                                        533  *
000424:I     5448 4520 204D 5649        534  HMVINMSG DB    C'THE  MVIN  OPTION CONTROLS THE DYNAMIC MOVEMENT OF'
00042C:I     4E20 204F 5054 494F
000434:I     4E20 434F 4E54 524F
00043C:I     4C53 2054 4845 2044
000444:I     594E 414D 4943 204D
00044C:I     4F56 454D 454E 5420
000454:I     4F46
000456:I     0D0A                       535           DB    CR,LF
000458:I     5448 4520 494E 5055        536           DB    C'THE INPUT BUFFERS.  THE DEFAULT VALUE OF "0" MEANS'
000460:I     5420 4255 4646 4552
000468:I     532E 2020 5448 4520
000470:I     4445 4641 554C 5420
000478:I     5641 4C55 4520 4F46
000480:I     2022 3022 204D 4541
000488:I     4E53
00048A:I     0D0A                       537           DB    CR,LF
00048C:I     5448 4154 2054 4845        538           DB    C'THAT THE INPUT  BUFFERS  DO NOT MOVE.  WHEN SET TO'
000494:I     2049 4E50 5554 2020
00049C:I     4255 4646 4552 5320
0004A4:I     2044 4F20 4E4F 5420
0004AC:I     4D4F 5645 2E20 2057
0004B4:I     4845 4E20 5345 5420
0004BC:I     544F
0004BE:I     0D0A                       539           DB    CR,LF
0004C0:I     2231 222C 2041 4C4C        540           DB    C'"1", ALL INPUT  BUFFERS  MOVE  HIGHER  IN  MEMORY,'
0004C8:I     2049 4E50 5554 2020
0004D0:I     4255 4646 4552 5320
0004D8:I     204D 4F56 4520 2048
0004E0:I     4947 4845 5220 2049
0004E8:I     4E20 204D 454D 4F52
0004F0:I     592C
0004F2:I     0D0A                       541           DB    CR,LF
0004F4:I     5827 3130 3032 2720        542           DB    C'X''1002'' BYTES AT A TIME.',CR,LF,0
0004FC:I     4259 5445 5320 4154
000504:I     2041 2054 494D 452E
00050C:I     0D0A 00
```

MVOUT OPTION PROCESSOR

```
000510:I                                    544           ALIGN ADC
000510:I     0000 0534:I                    545  MVOUTOPT DAC   HMVOURTN            HELP ROUTINE ADDRESS
000514:I     0000 052C:I                    546           DAC   DFLTMVOU            DEFAULT HANDLER ADDRESS
000518:I     0000 01B6:I                    547           DAC   MVOUT               ADDRESS OF VALUE
00051C:I     0204                           548           DB    DEC.VAL,4           DECIMAL, 4 DIGITS
                                            549  *
00051E:I     E1E0 4000 60C0:I               550           SVC   14,EVALUATE         EVALUATE ARGUMENT
000524:I     E610 FC8E =0001B6:I            551           LA    R1,MVOUT            POINT TO OPTION VALUE
000528:I     4300 9C10 =00213C:I            552           B     ZERONE              COMMON 0 OR 1 HALFWORD PROCESSOR
                                            553  *
00052C:I     E610 FC86 =0001B6:I            554  DFLTMVOU LA    R1,MVOUT            VALUE ADDRESS
000530:I     4300 9C24 =002158:I            555           B     DFLTOHW             DEFAULT IT
                                            556  *
000534:I     E650 8004 =00053C:I            557  HMVOURTN LA    R5,HMVOUMSG         HELP MESSAGE ADDRESS
000538:I     4300 9C26 =002162:I            558           B     MSGPRINT            PRINT IT
                                            559  *
00053C:I     5448 4520 204D 564F            560  HMVOUMSG DB    C'THE  MVOUT OPTION CONTROLS THE DYNAMIC MOVEMENT OF'
000544:I     5554 204F 5054 494F
00054C:I     4E20 434F 4E54 524F
000554:I     4C53 2054 4845 2044
00055C:I     594E 414D 4943 204D
000564:I     4F56 454D 454E 5420
00056C:I     4F46
00056E:I     0D0A                           561           DB    CR,LF
000570:I     5448 4520 4F55 5450            562           DB    C'THE OUTPUT  BUFFERS.   THE  DEFAULT  VALUE  OF "0"'
000578:I     5554 2020 4255 4646
000580:I     4552 532E 2020 2054
000588:I     4845 2020 4445 4641
000590:I     554C 5420 2056 414C
000598:I     5545 2020 4F46 2022
0005A0:I     3022
0005A2:I     0D0A                           563           DB    CR,LF
0005A4:I     4D45 414E 5320 5448            564           DB    C'MEANS THAT THE OUTPUT BUFFERS DO NOT  MOVE.   WHEN'
0005AC:I     4154 2054 4845 204F
0005B4:I     5554 5055 5420 4255
0005BC:I     4646 4552 5320 444F
0005C4:I     204E 4F54 2020 4D4F
0005CC:I     5645 2E20 2020 5748
0005D4:I     454E
0005D6:I     0D0A                           565           DB    CR,LF
0005D8:I     5345 5420 544F 2020            566           DB    C'SET TO  "1",  ALL  OUTPUT  BUFFERS  MOVE HIGHER IN'
0005E0:I     2231 222C 2020 414C
0005E8:I     4C20 204F 5554 5055
0005F0:I     5420 2042 5546 4645
0005F8:I     5253 2020 4D4F 5645
000600:I     2048 4947 4845 5220
000608:I     494E
00060A:I     0D0A                           567           DB    CR,LF
00060C:I     4D45 4D4F 5259 2C20            568           DB    C'MEMORY, X''1002'' BYTES AT A TIME.',CR,LF,0
000614:I     5827 3130 3032 2720
00061C:I     4259 5445 5320 4154
000624:I     2041 2054 494D 452E
00062C:I     0D0A 00
```

BACKGROUND OPTION PROCESSOR

```
000630:I                                    570           ALIGN ADC
000630:I     0000 065C:I                    571  BACK.OPT DAC   HBKGRTN             HELP ROUTINE ADDRESS
000634:I     0000 0654:I                    572           DAC   DFLTBCKG            DEFAULT HANDLER ADDRESS
000638:I     0000 01B8:I                    573           DAC   BKGRND              VALUE ADDRESS
00063C:I     0204                           574           DB    DEC.VAL,4           DECIMAL, 4 DIGITS
                                            575  *
00063E:I     E1E0 4000 60C0:I               576           SVC   14,EVALUATE         COMMON PROCESSOR
000644:I     E610 FB70 =0001B8:I            577           LA    R1,BKGRND           POINT TO OPTION VALUE
000648:I     C560 0005                      578           CLHI  R6,5                LIMIT 4
00064C:I     4280 9AF6 =002146:I            579           BL    STORE.HW            OK IF LESS
000650:I     4300 9AEE =002142:I            580           B     GOOPERR             ELSE, OPERAND ERROR
                                            581  *
000654:I     E610 FB60 =0001B8:I            582  DFLTBCKG LA    R1,BKGRND           VALUE ADDRESS
000658:I     4300 9AFC =002158:I            583           B     DFLTOHW             DEFAULT TO ZERO
                                            584  *
00065C:I     E650 8004 =000664:I            585  HBKGRTN  LA    R5,HBKGMSG          HELP MESSAGE ADDRESS
000660:I     4300 9AFE =002162:I            586           B     MSGPRINT            PRINT IT
                                            587  *
000664:I     5448 4520 2042 4143            588  HBKGMSG  DB    C'THE  BACKGROUND  OPTION  SPECIFIES  THE BACKGROUND'
00066C:I     4B47 524F 554E 4420
000674:I     204F 5054 494F 4E20
00067C:I     2053 5045 4349 4649
000684:I     4553 2020 5448 4520
00068C:I     4241 434B 4752 4F55
000694:I     4E44
000696:I     0D0A                           589           DB    CR,LF
000698:I     524F 5554 494E 452E            590           DB    C'ROUTINE.  THE DEFAULT VALUE  IS  "0".   THE  TASKS'
0006A0:I     2020 5448 4520 4445
0006A8:I     4641 554C 5420 5641
0006B0:I     4C55 4520 2049 5320
0006B8:I     2022 3022 2E20 2020
0006C0:I     5448 4520 2054 4153
0006C8:I     4B53
0006CA:I     0D0A                           591           DB    CR,LF
0006CC:I     4153 534F 4349 4154            592           DB    C'ASSOCIATED WITH EACH OPTION VALUE ARE:'
0006D4:I     4544 2057 4954 4820
0006DC:I     4541 4348 204F 5054
0006E4:I     494F 4E20 5641 4C55
0006EC:I     4520 4152 453A
0006F2:I     0D0A                           593           DB    CR,LF
0006F4:I     3020 2020 5258 3320            594           DB    C'0   RX3 FULLWORD LOAD AND STORE',CR,LF
0006FC:I     4655 4C4C 574F 5244
000704:I     204C 4F41 4420 414E
00070C:I     4420 5354 4F52 450D
000714:I     0A
000715:I     3120 2020 464C 4F41            595           DB    C'1   FLOATING POINT OPERATIONS',CR,LF
00071D:I     5449 4E47 2050 4F49
000725:I     4E54 204F 5045 5241
00072D:I     5449 4F4E 530D 0A
000734:I     3220 2020 5354 4F52            596           DB    C'2   STORE MULTIPLE OPERATIONS',CR,LF
00073C:I     4520 4D55 4C54 4950
000744:I     4C45 204F 5045 5241
00074C:I     5449 4F4E 530D 0A
```

BACKGROUND OPTION PROCESSOR

```
000753:I     3320 2020 4E4F 2042       597          DB    C'3   NO BACKGROUND TESTING',CR,LF
00075B:I     4143 4B47 524F 554E
000763:I     4420 5445 5354 494E
00076B:I     470D 0A
00076E:I     3420 2020 5553 4552       598          DB    C'4   USER DEFINED BACKGROUND (128 BYTES).',CR,LF,0
000776:I     2044 4546 494E 4544
00077E:I     2042 4143 4B47 524F
000786:I     554E 4420 2831 3238
00078E:I     2042 5954 4553 292E
000796:I     0D0A 00
```

RELOCATION OPTION PROCESSOR

```
00079C:I                                    600           ALIGN ADC
00079C:I     0000 07C0:I                    601  RELOCOPT DAC   HRELORTN            HELP ROUTINE ADDRESS
0007A0:I     0000 07B8:I                    602           DAC   DFLTRELO            DEFAULT HANDLER ADDRESS
0007A4:I     0000 01BA:I                    603           DAC   RELOC               ADDRESS OF VALUE
0007A8:I     0204                           604           DB    DEC.VAL,4           DECIMAL, 4 DIGITS
                                            605  *
0007AA:I     E1E0 4000 60C0:I               606           SVC   14,EVALUATE         EVALUATE ARGUMENT
0007B0:I     E610 FA06 =0001BA:I            607           LA    R1,RELOC            POINT TO OPTION VAUE
0007B4:I     4300 9984 =00213C:I            608           B     ZERONE              COMMON 0 OR 1 VALUE PROCESSOR
                                            609  *        ADD CODE HERE TO DETERMINE MAC VS MAT AND
                                            610  *        THEN CAN ELIMINATE MACADR OPTION.
                                            611  *
0007B8:I     E610 F9FE =0001BA:I            612  DFLTRELO LA    R1,RELOC            ADDRESS OF VALUE
0007BC:I     4300 9998 =002158:I            613           B     DFLTOHW             DEFAULT TO ZERO
                                            614  *
0007C0:I     E650 8004 =0007C8:I            615  HRELORTN LA    R5,HRELOMSG         HELP MESSAGE ADDRESS
0007C4:I     4300 999A =002162:I            616           B     MSGPRINT            PRINT IT
                                            617  *
0007C8:I     5448 4520 2052 454C            618  HRELOMSG DB    C'THE  RELOC  OPTION  CONTROLS  PROGRAM  USE  OF THE'
0007D0:I     4F43 2020 4F50 5449
0007D8:I     4F4E 2020 434F 4E54
0007E0:I     524F 4C53 2020 5052
0007E8:I     4F47 5241 4D20 2055
0007F0:I     5345 2020 4F46 2054
0007F8:I     4845
0007FA:I     0D0A                           619           DB    CR,LF
0007FC:I     4D45 4D4F 5259 204D            620           DB    C'MEMORY MANAGEMENT HARDWARE (MAC OR MAT) WHILE  THE'
000804:I     414E 4147 454D 454E
00080C:I     5420 4841 5244 5741
000814:I     5245 2028 4D41 4320
00081C:I     4F52 204D 4154 2920
000824:I     5748 494C 4520 2054
00082C:I     4845
00082E:I     0D0A                           621           DB    CR,LF
000830:I     4241 434B 4752 4F55            622           DB    C'BACKGROUND TASK IS RUNNING.  THE DEFAULT  VALUE OF'
000838:I     4E44 2054 4153 4B20
000840:I     4953 2052 554E 4E49
000848:I     4E47 2E20 2054 4845
000850:I     2044 4546 4155 4C54
000858:I     2020 5641 4C55 4520
000860:I     4F46
000862:I     0D0A                           623           DB    CR,LF
000864:I     2230 2220 4D45 414E            624           DB    C'"0" MEANS NO RELOCATION.  A VALUE  OF  "1" ENABLES'
00086C:I     5320 4E4F 2052 454C
000874:I     4F43 4154 494F 4E2E
00087C:I     2020 4120 5641 4C55
000884:I     4520 204F 4620 2022
00088C:I     3122 2045 4E41 424C
000894:I     4553
000896:I     0D0A                           625           DB    CR,LF
000898:I     5245 4C4F 4341 5449            626           DB    C'RELOCATION.',CR,LF,0
0008A0:I     4F4E 2E0D 0A00
```

MACADR OPTION PROCESSOR

```
0008A8:I                                  628           ALIGN ADC
0008A8:I     0000 08EE:I                  629  MACADOPT DAC   HMACARTN            HELP ROUTINE ADDRESS
0008AC:I     0000 08E2:I                  630           DAC   DFLTMACA            DEFAULT HANDLER ADDRESS
0008B0:I     0000 01BC:I                  631           DAC   MACADR              VALUE ADDRESS
0008B4:I     0104                         632           DB    HEX.VAL,4           HEXADECIMAL, 4 DIGITS
                                          633  *
0008B6:I     E1E0 4000 60C0:I             634           SVC   14,EVALUATE         COMMON PROCESSOR
0008BC:I     E610 F8FC =0001BC:I          635           LA    R1,MACADR           POINT TO OPTION VALUE
0008C0:I     C560 0900                    636           CLHI  R6,X'900'           ACCEPT 900
0008C4:I     4330 987E =002146:I          637           BE    STORE.HW
0008C8:I     C560 0500                    638           CLHI  R6,X'500'           ACCEPT 500
0008CC:I     4330 9876 =002146:I          639           BE    STORE.HW
0008D0:I     C560 0300                    640           CLHI  R6,X'300'           ACCEPT 300
0008D4:I     4330 986E =002146:I          641           BE    STORE.HW
0008D8:I     0866                         642           LR    R6,R6               ACCEPT ZERO
0008DA:I     4330 9868 =002146:I          643           BZ    STORE.HW
0008DE:I     4300 9860 =002142:I          644           B     GOOPERR             ELSE, OPERAND ERROR
0008E2:I     C860 0300                    645  DFLTMACA LHI   R6,X'300'           DEFAULT IS 300
0008E6:I     E610 F8D2 =0001BC:I          646           LA    R1,MACADR           VALUE ADDRESS
0008EA:I     4300 986C =00215A:I          647           B     DFLT.HW             STORE HALFWORD RESULT
                                          648  *
0008EE:I     E650 8004 =0008F6:I          649  HMACARTN LA    R5,HMACAMSG         HELP MESSAGE ADDRESS
0008F2:I     4300 986C =002162:I          650           B     MSGPRINT            OUTPUT IT
                                          651  *
0008F6:I     5448 4520 204D 4143          652  HMACAMSG DB    C'THE  MACADR  OPTION SPECIFIES THE MAC SEGMENTATION'
0008FE:I     4144 5220 204F 5054
000906:I     494F 4E20 5350 4543
00090E:I     4946 4945 5320 5448
000916:I     4520 4D41 4320 5345
00091E:I     474D 454E 5441 5449
000926:I     4F4E
000928:I     0D0A                         653           DB    CR,LF
00092A:I     5245 4749 5354 4552          654           DB    C'REGISTER  ORIGIN  ADDRESS.   THE  POSSIBLE  ORIGIN'
000932:I     2020 4F52 4947 494E
00093A:I     2020 4144 4452 4553
000942:I     532E 2020 2054 4845
00094A:I     2020 504F 5353 4942
000952:I     4C45 2020 4F52 4947
00095A:I     494E
00095C:I     0D0A                         655           DB    CR,LF
00095E:I     4144 4452 4553 5345          656           DB    C'ADDRESSES  ARE  HEXADECIMAL  300, 500, OR 900.   A'
000966:I     5320 2041 5245 2020
00096E:I     4845 5841 4445 4349
000976:I     4D41 4C20 2033 3030
00097E:I     2C20 3530 302C 204F
000986:I     5220 3930 302E 2020
00098E:I     2041
000990:I     0D0A                         657           DB    CR,LF
000992:I     5641 4C55 4520 4F46          658           DB    C'VALUE OF "0" MEANS THAT THERE IS  NO  MAC.  IF THE'
00099A:I     2022 3022 204D 4541
0009A2:I     4E53 2054 4841 5420
0009AA:I     5448 4552 4520 4953
0009B2:I     2020 4E4F 2020 4D41
```

MACADR OPTION PROCESSOR

```
0009BA:I    432E 2020 4946 2054
0009C2:I    4845
0009C4:I    0D0A                        659         DB    CR,LF
0009C6:I    5245 4C4F 4341 5449         660         DB    C'RELOCATION OPTION IS SET TO  "1"  WHILE THE MACADR'
0009CE:I    4F4E 204F 5054 494F
0009D6:I    4E20 4953 2053 4554
0009DE:I    2054 4F20 2022 3122
0009E6:I    2020 5748 494C 4520
0009EE:I    5448 4520 4D41 4341
0009F6:I    4452
0009F8:I    0D0A                        661         DB    CR,LF
0009FA:I    4F50 5449 4F4E 2020         662         DB    C'OPTION  EQUALS  0,  THE  PROGRAM  ASSUMES MAT TYPE'
000A02:I    4551 5541 4C53 2020
000A0A:I    302C 2020 5448 4520
000A12:I    2050 524F 4752 414D
000A1A:I    2020 4153 5355 4D45
000A22:I    5320 4D41 5420 5459
000A2A:I    5045
000A2C:I    0D0A                        663         DB    CR,LF
000A2E:I    5245 4C4F 4341 5449         664         DB    C'RELOCATION.',CR,LF,0
000A36:I    4F4E 2E0D 0A00
```

STRBUF OPTION PROCESSOR

```
000A3C:I                                    666           ALIGN ADC
000A3C:I     0000 0A7A:I                    667  STRBUFOP DAC   HSTRBRTN            HELP ROUTINE ADDRESS
000A40:I     0000 0A6A:I                    668           DAC   DFLTSTRB            DEFAULT HANDLER ADDRESS
000A44:I     0000 01C0:I                    669           DAC   STRBUF              VALUE ADDRESS
000A48:I     0106                           670           DB    HEX.VAL,6           HEXADECIMAL FULLWORD
                                            671  *
000A4A:I     E1E0 4000 60C0:I               672           SVC   14,EVALUATE         COMMON PROCESSOR
000A50:I     5460 4000 5FF8:I               673           N     R6,BUSMASK          MASK ADDRESS
000A56:I     C460 FFFC                      674           NHI   R6,X'FFFC'          FORCE FULLWORD ALIGNMENT
000A5A:I     C540 000D                      675           CLHI  R4,CR               CARRIAGE RETURN FOLLOWS?
000A5E:I     4230 96EA =00214C:I            676           BNE   GOSYNERR           SYNTAX ERROR IF NO
000A62:I     5060 F75A =0001C0:I            677           ST    R6,STRBUF           SAVE RESULT
000A66:I     4300 96EA =002154:I            678           B     NEXT.CMD            NEXT COMMAND
000A6A:I     5660 4000 7280:I               679  DFLTSTRB LA    R6,PSTE             DEFAULT VALUE
000A70:I     5060 F74C =0001C0:I            680           ST    R6,STRBUF           STORE RESULT
000A74:I     E1E0 4000 60B8:I               681           SVC   14,COMMAND          NEXT COMMAND
                                            682  *
000A7A:I     E650 8004 =000A82:I            683  HSTRBRTN LA    R5,HSTRBMSG         HELP MESSAGE ADDRESS
000A7E:I     4300 96E0 =002162:I            684           B     MSGPRINT            PRINT IT
                                            685  *
000A82:I     5448 4520 2053 5452            686  HSTRBMSG DB    C'THE  STRBUF  OPTION SPECIFIES THE STARTING ADDRESS'
000A8A:I     4255 4620 204F 5054
000A92:I     494F 4E20 5350 4543
000A9A:I     4946 4945 5320 5448
000AA2:I     4520 5354 4152 5449
000AAA:I     4E47 2041 4444 5245
000AB2:I     5353
000AB4:I     0D0A                           687           DB    CR,LF
000AB6:I     4F46 2054 4845 2057            688           DB    C'OF THE WORKING BUFFER FOR THE BACKGROUND TASK.'
000ABE:I     4F52 4B49 4E47 2042
000AC6:I     5546 4645 5220 464F
000ACE:I     5220 5448 4520 4241
000AD6:I     434B 4752 4F55 4E44
000ADE:I     2054 4153 4B2E
000AE4:I     0D0A 00                        689           DB    CR,LF,0
```

SELCH OPTION PROCESSOR

```
000AE8:I                                691          ALIGN ADC
000AE8:I     0000 0BB2:I                692  SELCHOPT DAC   HSELRTN             HELP ROUTINE ADDRESS
000AEC:I     0000 0B02:I                693           DAC   DFLTSELC            DEFAULT HANDLER ADDRESS
000AF0:I     0000 0B1E:I                694           DAC   SELCHPRT            OPTION PRINT ROUTINE
000AF4:I     2903                       695           DB    ADD.REM+EXCEPTN+HEX.VAL,3
                                        696  *
000AF6:I     E6E0 F6CA =0001C4:I        697           LA    R14,SELTAB          POINT TO SELCH TABLE
000AFA:I     E6A0 FFEA =000AE8:I        698           LA    R10,SELCHOPT        OPTION HEADER ADDRESS
000AFE:I     4300 96B0 =0021B2:I        699           B     MULTIDEV            COMMON DEVICE OPTION PROCESSOR
                                        700  *
000B02:I     E6A0 8008 =000B0E:I        701  DFLTSELC LA    R10,DSELTAB         DEFAULT VALUES TABLE
000B06:I     E6E0 F6BA =0001C4:I        702           LA    R14,SELTAB          POINT TO SELCH TABLE
000B0A:I     4300 9726 =002234:I        703           B     DFLTHWS             DEFAULT HALFWORD VALUES
                                        704  *
000B0E:I     00F0                       705  DSELTAB  DCX   0F0                 SELCH 0
000B10:I     0000                       706           DCX   000                 SELCH 1
000B12:I     0000                       707           DCX   000                 SELCH 2
000B14:I     0000                       708           DCX   000                 SELCH 3
000B16:I     0000                       709           DCX   000                 SELCH 4
000B18:I     0000                       710           DCX   000                 SELCH 5
000B1A:I     0000                       711           DCX   000                 SELCH 6
000B1C:I     0000                       712           DCX   000                 SELCH 7
                                        713  *
                                        714  * THE EXCEPTION BIT BEING SET IN THE OPTION HEADER MEANS
                                        715  * THAT THE DIAGNOSTIC IS RESPONSIBLE FOR PRINTING OUT
                                        716  * THE OPTION VALUES FOR THE OPTION COMMAND.
                                        717  *
000B1E:I     41F0 979C =0022BE:I        718  SELCHPRT BAL   R15,SETPRES         SET PRESENCE TABLE
000B22:I     E1E0 4000 60E8:I           719           SVC   14,BLANK            CLEAR THE OUTPUT BUFFER
000B28:I     C8D0 0010                  720           LHI   R13,16              SET TAB TO COLUMN 16
000B2C:I     2480                       721           LIS   R8,0                PRESENCE TABLE INDEX
000B2E:I     7480 4000 5FF4:I           722  HEAD.001 TBT   R8,$PRESTAB         BUILD HEADER MESSAGE
*000B34:I    233A      =000B48:I        723           BZ    HEAD.002            SHOWING SELECTED INDEX VALUES
000B36:I     2401                       724           LIS   R0,1
000B38:I     0818                       725           LR    R1,R8               INDEX VALUE
000B3A:I     E62D 4000 6638:I           726           LA    R2,OUTBUF(R13)      EXEC DESTINATION ADDRESS
000B40:I     E1E0 4000 6128:I           727           SVC   14,DECASC           CONVERT INDEX TO ASCII
000B46:I     26D7                       728           AIS   R13,7               TAB OVER ONE COLUMN
000B48:I     2681                       729  HEAD.002 AIS   R8,1                BUMP INDEX
000B4A:I     C580 0008                  730           CLHI  R8,8                LIMIT 0 TO 7
000B4E:I     4280 FFDC =000B2E:I        731           BL    HEAD.001            LOOP
                                        732  *
000B52:I     E62D 4000 6639:I           733           LA    R2,OUTBUF+1(R13)    POINT TO END OF LINE
*000B58:I    C840 0A0D                  734           LI    R4,Y'000A0D'        APPEND CR,LF,0
000B5C:I     D242 0000                  735  HEAD.003 STB   R4,0(R2)
000B60:I     2621                       736           AIS   R2,1                BUMP ADDRESS
000B62:I     0844                       737           LR    R4,R4               STORED ZERO BYTE?
*000B64:I    2333      =000B6A:I        738           BZ    HEAD.010            SKIP IF YES
000B66:I     1048                       739           SRLS  R4,8                POSITION NEXT BYTE
*000B68:I    2206      =000B5C:I        740           B     HEAD.003            LOOP
000B6A:I     E650 4000 6638:I           741  HEAD.010 LA    R5,OUTBUF           OUTPUT HEADER MESSAGE
000B70:I     F840 2049 4E44             742           LI    R4,C' IND'          WORD "INDEX"
000B76:I     5045 0000                  743           ST    R4,0(R5)            TO EXEC OUTBUF
```

SELCH OPTION PROCESSOR

```
000B7A:I  F840 4558 2020          744          LI    R4,C'EX  '          *
000B80:I  5045 0004               745          ST    R4,4(R5)            *
000B84:I  E1E0 4000 60D0:I        746          SVC   14,MESSAGE
000B8A:I  E1E0 4000 60E8:I        747          SVC   14,BLANK            CLEAR EXEC OUTPUT BUFFER
000B90:I  F820 5345 4C43          748          LI    R2,C'SELC'          PUT WORD "SELCH" IN THE BUFFER
000B96:I  5020 4000 6638:I        749          ST    R2,OUTBUF
000B9C:I  C820 4820               750          LHI   R2,C'H '
000BA0:I  4020 4000 663C:I        751          STH   R2,OUTBUF+4
000BA6:I  E6E0 F61A =0001C4:I     752          LA    R14,SELTAB          TO DISPLAY SELTAB
000BAA:I  E6A0 FF3A =000AE8:I     753          LA    R10,SELCHOPT        OPTION HEADER ADDRESS
000BAE:I  4300 969C =00224E:I     754          B     MULTIVAL            COMMON OPTION PRINT ROUTINE
                                  755  *
000BB2:I  E650 8004 =000BBA:I     756  HSELRTN  LA    R5,HSELMSG          HELP MESSAGE ADDRESS
000BB6:I  4300 95A8 =002162:I     757          B     MSGPRINT            PRINT IT
                                  758  *
000BBA:I  5448 4520 2053 454C     759  HSELMSG  DB    C'THE  SELCH  OPTION  IS  USED TO SPECIFY THE DEVICE'
000BC2:I  4348 2020 4F50 5449
000BCA:I  4F4E 2020 4953 2020
000BD2:I  5553 4544 2054 4F20
000BDA:I  5350 4543 4946 5920
000BE2:I  5448 4520 4445 5649
000BEA:I  4345
000BEC:I  0D0A                    760          DB    CR,LF
000BEE:I  4144 4452 4553 5345     761          DB    C'ADDRESSES OF THE EIGHT POSSIBLE SELECTOR CHANNELS.'
000BF6:I  5320 4F46 2054 4845
000BFE:I  2045 4947 4854 2050
000C06:I  4F53 5349 424C 4520
000C0E:I  5345 4C45 4354 4F52
000C16:I  2043 4841 4E4E 454C
000C1E:I  532E
000C20:I  0D0A                    762          DB    CR,LF
000C22:I  5448 4953 204F 5054     763          DB    C'THIS OPTION TAKES THE FORM:',CR,LF
000C2A:I  494F 4E20 5441 4B45
000C32:I  5320 5448 4520 464F
000C3A:I  524D 3A0D 0A
000C3F:I  5345 4C43 4820 4E2F     764          DB    C'SELCH N/AAA[,N/AAA[,N/AAA..]] ',CR,LF
000C47:I  4141 415B 2C4E 2F41
000C4F:I  4141 5B2C 4E2F 4141
000C57:I  412E 2E5D 5D20 0D0A
000C5F:I  5748 4552 4520 4E20     765          DB    C'WHERE N IS AN INDEX FROM 0 TO 7  IDENTIFYING WHICH'
000C67:I  4953 2041 4E20 494E
000C6F:I  4445 5820 4652 4F4D
000C77:I  2030 2054 4F20 3720
000C7F:I  2049 4445 4E54 4946
000C87:I  5949 4E47 2057 4849
000C8F:I  4348
000C91:I  0D0A                    766          DB    CR,LF
000C93:I  4F46 2054 4845 2038     767          DB    C'OF THE 8 SELCHES IS BEING SPECIFIED,  AND  AAA  IS'
000C9B:I  2053 454C 4348 4553
000CA3:I  2049 5320 4245 494E
000CAB:I  4720 5350 4543 4946
000CB3:I  4945 442C 2020 414E
000CBB:I  4420 2041 4141 2020
```

SELCH OPTION PROCESSOR

```
000CC3:I     4953
000CC5:I     0D0A                        768             DB    CR,LF
000CC7:I     5448 4520 4845 5841         769             DB    C'THE HEXADECIMAL DEVICE ADDRESS.',CR,LF
000CCF:I     4445 4349 4D41 4C20
000CD7:I     4445 5649 4345 2041
000CDF:I     4444 5245 5353 2E0D
000CE7:I     0A
000CE8:I     5448 4520 4445 4641         770             DB    C'THE DEFAULT SETTING IS:',CR,LF
000CF0:I     554C 5420 5345 5454
000CF8:I     494E 4720 4953 3A0D
000D00:I     0A
000D01:I     302F 4630 2C31 2F30         771             DB    C'0/F0,1/0,2/0,3/0,4/0,5/0,6/0,7/0',CR,LF,0
000D09:I     2C32 2F30 2C33 2F30
000D11:I     2C34 2F30 2C35 2F30
000D19:I     2C36 2F30 2C37 2F30
000D21:I     0D0A 00
                                         772  *
000D24:I     4455 504C 4943 4154         773  DUPMSG   DB    C'DUPLICATE OPTION ENTRY!',CR,LF,0
000D2C:I     4520 4F50 5449 4F4E
000D34:I     2045 4E54 5259 210D
000D3C:I     0A00
```

IODEV OPTION PROCESSOR

```
000D40:I                                775           ALIGN ADC
000D40:I     0000 0D82:I                776  IODEVOPT DAC   HIODRTN             HELP ROUTINE ADDRESS
000D44:I     0000 0D5A:I                777           DAC   DFLTIOD             DEFAULT HANDLER ADDRESS
000D48:I     0000 0D76:I                778           DAC   IODEVPRT            OPTION PRINT ROUTINE
000D4C:I     2903                       779           DB    ADD.REM+EXCEPTN+HEX.VAL,3
                                        780  *
000D4E:I     E6E0 F482 =0001D4:I        781           LA    R14,IOTAB           POINT TO DEVICE TABLE
000D52:I     E6A0 FFEA =000D40:I        782           LA    R10,IODEVOPT        OPTION HEADER ADDRESS
000D56:I     4300 9458 =0021B2:I        783           B     MULTIDEV            COMMON ROUTINE
                                        784  *
000D5A:I     E6E0 F476 =0001D4:I        785  DFLTIOD  LA    R14,IOTAB           TABLE ADDRESS
000D5E:I     E6A0 8004 =000D66:I        786           LA    R10,DIOTAB          DEFAULT VALUES TABLE ADDRESS
000D62:I     4300 94CE =002234:I        787           B     DFLTHWS             COMMON DEFAULT SETTER
                                        788  *
000D66:I     00B6                       789  DIOTAB   DCX   0B6                 SELCH 0  COMMON 2.5,10MB ADDRESS
000D68:I     0085                       790           DCX   085                 SELCH 1  COMMON 800/1600 BPI MT ADR
000D6A:I     00FB                       791           DCX   0FB                 SELCH 2  COMMON 67MB DISK ADR
000D6C:I     00EB                       792           DCX   0EB                 SELCH 3  COMMON 67MB DISK ADR
000D6E:I     00FB                       793           DCX   0FB                 SELCH 4  COMMON 19.8MB DISK ADR
000D70:I     00EB                       794           DCX   0EB                 SELCH 5  COMMON 19.8MB DISK ADR
000D72:I     00D0                       795           DCX   0D0                 SELCH 6  COMMON SELCH TESTER ADR
000D74:I     00D0                       796           DCX   0D0                 SELCH 7  COMMON SELCH TESTER ADR
                                        797  *
000D76:I     E6E0 F45A =0001D4:I        798  IODEVPRT LA    R14,IOTAB           TABLE ADDRESS
000D7A:I     E6A0 FFC2 =000D40:I        799           LA    R10,IODEVOPT        OPTION HEADER ADDRESS
000D7E:I     4300 94CC =00224E:I        800           B     MULTIVAL            COMMON OPTION PRINTER
                                        801  *
000D82:I     E650 8004 =000D8A:I        802  HIODRTN  LA    R5,HIODMSG          HELP MESSAGE ADDRESS
000D86:I     4300 93D8 =002162:I        803           B     MSGPRINT            PRINT IT
                                        804  *
000D8A:I     5448 4520 494F 4445        805  HIODMSG  DB    C'THE IODEV OPTION SPECIFIES THE ADDRESS OF THE TEST'
000D92:I     5620 4F50 5449 4F4E
000D9A:I     2053 5045 4349 4649
000DA2:I     4553 2054 4845 2041
000DAA:I     4444 5245 5353 204F
000DB2:I     4620 5448 4520 5445
000DBA:I     5354
000DBC:I     0D0A                       806           DB    CR,LF
000DBE:I     4445 5649 4345 2020        807           DB    C'DEVICE  OR  ITS  CONTROLLER.  EACH SPECIFIED SELCH'
000DC6:I     4F52 2020 4954 5320
000DCE:I     2043 4F4E 5452 4F4C
000DD6:I     4C45 522E 2020 4541
000DDE:I     4348 2053 5045 4349
000DE6:I     4649 4544 2053 454C
000DEE:I     4348
000DF0:I     0D0A                       808           DB    CR,LF
000DF2:I     4D55 5354 2048 4156        809           DB    C'MUST HAVE AN ASSOCIATED IODEV.',CR,LF
000DFA:I     4520 414E 2041 5353
000E02:I     4F43 4941 5445 4420
000E0A:I     494F 4445 562E 0D0A
000E12:I     5448 4520 4F50 5449        810           DB    C'THE OPTION TAKES THE FORM:',CR,LF
000E1A:I     4F4E 2054 414B 4553
000E22:I     2054 4845 2046 4F52
```

IODEV OPTION PROCESSOR

```
000E2A:I     4D3A 0D0A
000E2E:I     494F 4445 5620 4E2F       811          DB    C'IODEV N/AAA[,N/AAA[,N/AAA..]] ',CR,LF
000E36:I     4141 415B 2C4E 2F41
000E3E:I     4141 5B2C 4E2F 4141
000E46:I     412E 2E5D 5D20 0D0A
000E4E:I     5748 4552 4520 204E       812          DB    C'WHERE  N IS AN INDEX FROM 0 TO 7 IDENTIFYING WHICH'
000E56:I     2049 5320 414E 2049
000E5E:I     4E44 4558 2046 524F
000E66:I     4D20 3020 544F 2037
000E6E:I     2049 4445 4E54 4946
000E76:I     5949 4E47 2057 4849
000E7E:I     4348
000E80:I     0D0A                      813          DB    CR,LF
000E82:I     5345 4C43 4820 4953       814          DB    C'SELCH IS ASSOCIATED  WITH  THE  SPECIFIED  DEVICE,'
000E8A:I     2041 5353 4F43 4941
000E92:I     5445 4420 2057 4954
000E9A:I     4820 2054 4845 2020
000EA2:I     5350 4543 4946 4945
000EAA:I     4420 2044 4556 4943
000EB2:I     452C
000EB4:I     0D0A                      815          DB    CR,LF
000EB6:I     414E 4420 4141 4120       816          DB    C'AND AAA IS THE HEXADECIMAL DEVICE ADDRESS.',CR,LF
000EBE:I     4953 2054 4845 2048
000EC6:I     4558 4144 4543 494D
000ECE:I     414C 2044 4556 4943
000ED6:I     4520 4144 4452 4553
000EDE:I     532E 0D0A
000EE2:I     5448 4520 4445 4641       817          DB    C'THE DEFAULT SETTING IS:',CR,LF '
000EEA:I     554C 5420 5345 5454
000EF2:I     494E 4720 4953 3A0D
000EFA:I     0A
000EFB:I     302F 4236 2C31 2F38       818          DB    C'0/B6,1/85,2/FB,3/EB,4/FB,5/EB,6/D0,7/D0',CR,LF,0
000F03:I     352C 322F 4642 2C33
000F0B:I     2F45 422C 342F 4642
000F13:I     2C35 2F45 422C 362F
000F1B:I     4430 2C37 2F44 300D
000F23:I     0A00
```

BYTE OPTION PROCESSOR

```
000F28:I                                  820           ALIGN ADC
000F28:I     0000 0F7C:I                  821 BYTE.OPT  DAC   HBYTERTN            HELP ROUTINE ADDRESS
000F2C:I     0000 0F42:I                  822           DAC   DFLTBYTE            DEFAULT ROUTINE ADDRESS
000F30:I     0000 0F70:I                  823           DAC   BYTEPRT             OPTION PRINT ROUTINE
000F34:I     2906                         824           DB    ADD.REM+EXCEPTN+HEX.VAL,6
                                          825 *
000F36:I     E6E0 F2EA =000224:I          826           LA    R14,BYTETAB         TABLE ADDRESS
000F3A:I     E6A0 FFEA =000F28:I          827           LA    R10,BYTE.OPT        OPTION HEADER ADDRESS
000F3E:I     4300 93B2 =0022F4:I          828           B     MULTIADR            COMMON OPTION PROCESSOR
                                          829 *
000F42:I     E6E0 F2DE =000224:I          830 DFLTBYTE  LA    R14,BYTETAB         TABLE ADDRESS
000F46:I     E6A0 8006 =000F50:I          831           LA    R10,DBYTETAB        DEFAULT VALUES TABLE
000F4A:I     4300 938C =0022DA:I          832           B     DFLTFWS             FULLWORD VALUES
                                          833 *
000F50:I                                  834           ALIGN ADC
000F50:I     0000 0100                    835 DBYTETAB  DCY   00000100            SELCH 0
000F54:I     0000 0100                    836           DCY   00000100            SELCH 1
000F58:I     0000 0100                    837           DCY   00000100            SELCH 2
000F5C:I     0000 0100                    838           DCY   00000100            SELCH 3
000F60:I     0000 0100                    839           DCY   00000100            SELCH 4
000F64:I     0000 0100                    840           DCY   00000100            SELCH 5
000F68:I     0000 0100                    841           DCY   00000100            SELCH 6
000F6C:I     0000 0100                    842           DCY   00000100            SELCH 7
                                          843 *
000F70:I     E6E0 F2B0 =000224:I          844 BYTEPRT   LA    R14,BYTETAB         TABLE ADDRESS
000F74:I     E6A0 FFB0 =000F28:I          845           LA    R10,BYTE.OPT        OPTION HEADER ADDRESS
000F78:I     4300 92D2 =00224E:I          846           B     MULTIVAL            COMMON PRINT ROUTINE
                                          847 *
000F7C:I     E650 8004 =000F84:I          848 HBYTERTN  LA    R5,HBYTEMSG         HELP MESSAGE ADDRESS
000F80:I     4300 91DE =002162:I          849           B     MSGPRINT            PRINT IT
                                          850 *
000F84:I     5448 4520 4259 5445          851 HBYTEMSG  DB    C'THE BYTE OPTION SPECIFIES THE NUMBER OF BYTES TO  '
000F8C:I     204F 5054 494F 4E20
000F94:I     5350 4543 4946 4945
000F9C:I     5320 5448 4520 4E55
000FA4:I     4D42 4552 204F 4620
000FAC:I     4259 5445 5320 544F
000FB4:I     2020
000FB6:I     0D0A                         852           DB    CR,LF
000FB8:I     4245 2054 5241 4E53          853           DB    C'BE TRANSFERRED WITH EACH SELCH.  THE OPTION VALUE '
000FC0:I     4645 5252 4544 2057
000FC8:I     4954 4820 4541 4348
000FD0:I     2053 454C 4348 2E20
000FD8:I     2054 4845 204F 5054
000FE0:I     494F 4E20 5641 4C55
000FE8:I     4520
000FEA:I     0D0A                         854           DB    CR,LF
000FEC:I     4D55 5354 2042 4520          855           DB    C'MUST BE SPECIFIED FOR EACH SELCH SELECTED.        '
000FF4:I     5350 4543 4946 4945
000FFC:I     4420 464F 5220 4541
001004:I     4348 2053 454C 4348
00100C:I     2053 454C 4543 5445
001014:I     442E 2020 2020 2020
```

BYTE OPTION PROCESSOR

```
00101C:I  2020
00101E:I  0D0A                        856          DB    CR,LF
001020:I  5448 4520 4F50 5449         857          DB    C'THE OPTION TAKES THE FORM:',CR,LF
001028:I  4F4E 2054 414B 4553
001030:I  2054 4845 2046 4F52
001038:I  4D3A 0D0A
00103C:I  2042 5954 4520 4E2F         858          DB    C' BYTE N/XXXXXX[,N/XXXXXX[,N/XXXXXX..]]',CR,LF
001044:I  5858 5858 5858 5B2C
00104C:I  4E2F 5858 5858 5858
001054:I  5B2C 4E2F 5858 5858
00105C:I  5858 2E2E 5D5D 0D0A
001064:I  5748 4552 4520 4E20         859          DB    C'WHERE N IS THE INDEX IDENTIFYING '
00106C:I  4953 2054 4845 2049
001074:I  4E44 4558 2049 4445
00107C:I  4E54 4946 5949 4E47
001084:I  20
001085:I  5748 4943 4820 4F46         860          DB    C'WHICH OF THE 8 SELCHES EACH',CR,LF
00108D:I  2054 4845 2038 2053
001095:I  454C 4348 4553 2045
00109D:I  4143 480D 0A
0010A2:I  4259 5445 204F 5054         861          DB    C'BYTE OPTION IS ASSOCIATED WITH, '
0010AA:I  494F 4E20 4953 2041
0010B2:I  5353 4F43 4941 5445
0010BA:I  4420 5749 5448 2C20
0010C2:I  414E 4420 5858 5858         862          DB    C'AND XXXXXX IS THE OPTION VALUE.',CR,LF
0010CA:I  5858 2049 5320 5448
0010D2:I  4520 4F50 5449 4F4E
0010DA:I  2056 414C 5545 2E0D
0010E2:I  0A
0010E3:I  5448 4520 4D41 5849         863          DB    C'THE MAXIMUM CAN NEVER BE MORE '
0010EB:I  4D55 4D20 4341 4E20
0010F3:I  4E45 5645 5220 4245
0010FB:I  204D 4F52 4520
001101:I  5448 414E 2054 4845         864          DB    C'THAN THE MEMORY ADDRESS SPACE',CR,LF
001109:I  204D 454D 4F52 5920
001111:I  4144 4452 4553 5320
001119:I  5350 4143 450D 0A
001120:I  4F46 2054 4845 2048         865          DB    C'OF THE HOST PROCESSOR, AND IS '
001128:I  4F53 5420 5052 4F43
001130:I  4553 534F 522C 2041
001138:I  4E44 2049 5320
00113E:I  4655 5254 4845 5220         866          DB    C'FURTHER LIMITED BY THE NATURE',CR,LF
001146:I  4C49 4D49 5445 4420
00114E:I  4259 2054 4845 204E
001156:I  4154 5552 450D 0A
00115D:I  4F46 2054 4845 2054         867          DB    C'OF THE TEST DEVICE.',CR,LF
001165:I  4553 5420 4445 5649
00116D:I  4345 2E0D 0A
001172:I  4946 2054 4845 2054         868          DB    C'IF THE TEST DEVICE IS A DISK, '
00117A:I  4553 5420 4445 5649
001182:I  4345 2049 5320 4120
00118A:I  4449 534B 2C20
001190:I  5452 414E 5346 4552         869          DB    C'TRANSFER SIZES CANNOT BE SO',CR,LF
```

BYTE OPTION PROCESSOR

```
001198:I     2053 495A 4553 2043
0011A0:I     414E 4E4F 5420 4245
0011A8:I     2053 4F0D 0A
0011AD:I     4C41 5247 4520 4153       870         DB    C'LARGE AS TO CAUSE A CYLINDER '
0011B5:I     2054 4F20 4341 5553
0011BD:I     4520 4120 4359 4C49
0011C5:I     4E44 4552 20
0011CA:I     4F56 4552 454C 4F57       871         DB    C'OVERFLOW.',CR,LF
0011D2:I     2E0D 0A
0011D5:I     5448 4520 4445 4641       872         DB    C'THE DEFAULT VALUE IS Y''00000100'' '
0011DD:I     554C 5420 5641 4C55
0011E5:I     4520 4953 2059 2730
0011ED:I     3030 3030 3130 3027
0011F5:I     20
0011F6:I     464F 5220 414C 4C20       873         DB    C'FOR ALL ENTRIES.',CR,LF,0
0011FE:I     454E 5452 4945 532E
001206:I     0D0A 00
```

IMAGE OPTION PROCESSOR

```
00120C:I                                    875           ALIGN ADC
00120C:I     0000 1258:I                    876  IMAGEOPT DAC   HIMAGRTN            HELP ROUTINE ADDRESS
001210:I     0000 1230:I                    877           DAC   DFLTIMAG            DEFAULT HANDLER ADDRESS
001214:I     0000 124C:I                    878           DAC   IMAGEPRT            OPTION PRINT ROUTINE
001218:I     2904                           879           DB    ADD.REM+EXCEPTN+HEX.VAL,4
                                            880  *
00121A:I     E6E0 F026 =000244:I            881           LA    R14,IMAGTAB         TABLE ADDRESS
00121E:I     E6A0 FFEA =00120C:I            882           LA    R10,IMAGEOPT        OPTION HEADER ADDRESS
001222:I     F860 0001 0000                 883           LI    R6,Y'10000'         16 BIT LIMIT
001228:I     5060 F1C4 =0003F0:I            884           ST    R6,OLIMIT
00122C:I     4300 8F8A =0021BA:I            885           B     MULTIOPT            COMMON ROUTINE
                                            886  *
001230:I     E6E0 F010 =000244:I            887  DFLTIMAG LA    R14,IMAGTAB         TABLE ADDRESS
001234:I     E6A0 8004 =00123C:I            888           LA    R10,DIMAGTAB        DEFAULT VALUES TABLE
001238:I     4300 8FF8 =002234:I            889           B     DFLTHWS             DEFAULT HALFWORD VALUES
                                            890  *
00123C:I     A5A5                           891  DIMAGTAB DCX   A5A5                SELCH 0
00123E:I     A5A5                           892           DCX   A5A5                SELCH 1
001240:I     A5A5                           893           DCX   A5A5                SELCH 2
001242:I     A5A5                           894           DCX   A5A5                SELCH 3
001244:I     A5A5                           895           DCX   A5A5                SELCH 4
001246:I     A5A5                           896           DCX   A5A5                SELCH 5
001248:I     A5A5                           897           DCX   A5A5                SELCH 6
00124A:I     A5A5                           898           DCX   A5A5                SELCH 7
                                            899  *
00124C:I     E6E0 EFF4 =000244:I            900  IMAGEPRT LA    R14,IMAGTAB         TABLE ADDRESS
001250:I     E6A0 FFB8 =00120C:I            901           LA    R10,IMAGEOPT        OPTION HEADER ADDRESS
001254:I     4300 8FF6 =00224E:I            902           B     MULTIVAL            COMMON OPTION PRINT ROUTINE
                                            903  *
001258:I     E650 8004 =001260:I            904  HIMAGRTN LA    R5,HIMAGMSG         HELP MESSAGE ADDRESS
00125C:I     4300 8F02 =002162:I            905           B     MSGPRINT            PRINT IT
                                            906  *
001260:I     5448 4520 494D 4147            907  HIMAGMSG DB    C'THE IMAGE OPTION IS USED TO '
001268:I     4520 4F50 5449 4F4E
001270:I     2049 5320 5553 4544
001278:I     2054 4F20
00127C:I     5350 4543 4946 5920            908           DB    C'SPECIFY THE DATA PATTERN',CR,LF
001284:I     5448 4520 4441 5441
00128C:I     2050 4154 5445 524E
001294:I     0D0A
001296:I     5448 4154 2057 494C            909           DB    C'THAT WILL BE TRANSFERRED WITH '
00129E:I     4C20 4245 2054 5241
0012A6:I     4E53 4645 5252 4544
0012AE:I     2057 4954 4820
0012B4:I     4541 4348 2053 454C            910           DB    C'EACH SELCH IN THE SYSTEM.',CR,LF,0
0012BC:I     4348 2049 4E20 5448
0012C4:I     4520 5359 5354 454D
0012CC:I     2E0D 0A00
```

BUFFIL OPTION PROCESSOR

```
0012D0:I                                    912           ALIGN ADC
0012D0:I     0000 131C:I                    913  BUFFILOP DAC   HBUFFRTN            HELP ROUTINE ADDRESS
0012D4:I     0000 12F4:I                    914           DAC   DFLTBUFF            DEFAULT HANDLER ADDRESS
0012D8:I     0000 1310:I                    915           DAC   BUFFPRT             OPTION PRINT ROUTINE
0012DC:I     2904                           916           DB    ADD.REM+EXCEPTN+HEX.VAL,4
                                            917  *
0012DE:I     E6E0 EF72 =000254:I            918           LA    R14,BUFILTAB        TABLE ADDRESS
0012E2:I     E6A0 FFEA =0012D0:I            919           LA    R10,BUFFILOP        OPTION HEADER ADDRESS
0012E6:I     F860 0001 0000                 920           LI    R6,Y'10000'         16 BIT LIMIT
0012EC:I     5060 F100 =0003F0:I            921           ST    R6,OLIMIT
0012F0:I     4300 8EC6 =0021BA:I            922           B     MULTIOPT            COMMON ROUTINE
                                            923  *
0012F4:I     E6E0 EF5C =000254:I            924  DFLTBUFF LA    R14,BUFILTAB        OPTION TABLE ADDRESS
0012F8:I     E6A0 8004 =0013C0:I            925           LA    R10,DBUFILTB        DEFAULT VALUES TABLE
0012FC:I     4300 8F34 =002234:I            926           B     DFLTHWS             DEFAULT HALFWORDS
                                            927  *
001300:I     4F80                           928  DBUFILTB DCX   4F80                SELCH 0
001302:I     4F81                           929           DCX   4F81                SELCH 1
001304:I     4F82                           930           DCX   4F82                SELCH 2
001306:I     4F83                           931           DCX   4F83                SELCH 3
001308:I     4F84                           932           DCX   4F84                SELCH 4
00130A:I     4F85                           933           DCX   4F85                SELCH 5
00130C:I     4F86                           934           DCX   4F86                SELCH 6
00130E:I     4F87                           935           DCX   4F87                SELCH 7
                                            936  *
001310:I     E6E0 EF40 =000254:I            937  BUFFPRT  LA    R14,BUFILTAB        TABLE ADDRESS
001314:I     E6A0 FFB8 =0012D0:I            938           LA    R10,BUFFILOP        OPTION HEADER ADDRESS
001318:I     4300 8F32 =00224E:I            939           B     MULTIVAL            COMMON OUTPUT ROUTINE
                                            940  *
00131C:I     E650 8004 =001324:I            941  HBUFFRTN LA    R5,HBUFFMSG         HELP MESSAGE ADDRESS
001320:I     4300 8E3E =002162:I            942           B     MSGPRINT            PRINT IT
                                            943  *
001324:I     5448 4520 4255 4646            944  HBUFFMSG DB    C'THE BUFFIL OPTION SPECIFIES THE '
00132C:I     494C 204F 5054 494F
001334:I     4E20 5350 4543 4946
00133C:I     4945 5320 5448 4520
001344:I     4241 434B 4752 4F55            945           DB    C'BACKGROUND DATA PATTERN',CR,LF
00134C:I     4E44 2044 4154 4120
001354:I     5041 5454 4552 4E0D
00135C:I     0A
00135D:I     544F 2042 4520 434F            946           DB    C'TO BE COPIED INTO THE INPUT '
001365:I     5049 4544 2049 4E54
00136D:I     4F20 5448 4520 494E
001375:I     5055 5420
001379:I     4441 5441 2042 5546            947           DB    C'DATA BUFFER PRIOR TO AN',CR,LF
001381:I     4645 5220 5052 494F
001389:I     5220 544F 2041 4E0D
001391:I     0A
001392:I     494E 5055 5420 4F50            948           DB    C'INPUT OPERATION.  ',CR,LF
00139A:I     4552 4154 494F 4E2E
0013A2:I     2020 0D0A
0013A6:I     00                             949           DB    0
```

OUTBUF OPTION PROCESSOR

```
0013A8:I                                    951           ALIGN ADC
0013A8:I     0000 13FC:I                    952  OUTBUFOP DAC   HOUTBRTN            HELP ROUTINE ADDRESS
0013AC:I     0000 13C2:I                    953           DAC   DFLTOUTB            DEFAULT HANDLER ADDRESS
0013B0:I     0000 13F0:I                    954           DAC   OUTBPRT             OPTION PRINT ROUTINE
0013B4:I     2906                           955           DB    ADD.REM+EXCEPTN+HEX.VAL,6
                                            956  *
0013B6:I     E6E0 EEAA =000264:I            957           LA    R14,OUTBTAB1        TABLE ADDRESS
0013BA:I     E6A0 FFEA =0013A8:I            958           LA    R10,OUTBUFOP        OPTION HEADER ADDRESS
0013BE:I     4300 8F32 =0022F4:I            959           B     MULTIADR            COMMON PROCESSING ROUTINE
                                            960  *
0013C2:I     E6A0 800A =0013D0:I            961  DFLTOUTB LA    R10,DOUTBTAB        DEFAULT VALUES TABLE
0013C6:I     E6E0 EE9A =000264:I            962           LA    R14,OUTBTAB1        OPTION VALUES TABLE
0013CA:I     4300 8F0C =0022DA:I            963           B     DFLTFWS             DEFAULT FULLWORDS
                                            964  *
0013D0:I                                    965           ALIGN ADC
0013D0:I     0000 8000:I                    966  DOUTBTAB DC    BBIAS               SELCH 0
0013D4:I     0000 9000:I                    967           DC    BBIAS+X'1000'       SELCH 1
0013D8:I     0000 A000:I                    968           DC    BBIAS+X'2000'       SELCH 2
0013DC:I     0000 B000:I                    969           DC    BBIAS+X'3000'       SELCH 3
0013E0:I     0000 C000:I                    970           DC    BBIAS+X'4000'       SELCH 4
0013E4:I     0000 D000:I                    971           DC    BBIAS+X'5000'       SELCH 5
0013E8:I     0000 E000:I                    972           DC    BBIAS+X'6000'       SELCH 6
0013EC:I     0000 F000:I                    973           DC    BBIAS+X'7000'       SELCH 7
                                            974  *
0013F0:I     E6E0 EE70 =000264:I            975  OUTBPRT  LA    R14,OUTBTAB1        OPTION TABLE ADDRESS
0013F4:I     E6A0 FFB0 =0013A8:I            976           LA    R10,OUTBUFOP        OPTION HEADER ADDRESS
0013F8:I     4300 8E52 =00224E:I            977           B     MULTIVAL            COMMON OPTION PRINT ROUTINE
                                            978  *
0013FC:I     E650 8004 =001404:I            979  HOUTBRTN LA    R5,HOUTBMSG         HELP MESSAGE ADDRESS
001400:I     4300 8D5E =002162:I            980           B     MSGPRINT            PRINT IT
                                            981  *
001404:I     5448 4520 4F55 5442            982  HOUTBMSG DB    C'THE OUTBUF OPTION SPECIFIES THE '
00140C:I     5546 204F 5054 494F
001414:I     4E20 5350 4543 4946
00141C:I     4945 5320 5448 4520
001424:I     5354 4152 5449 4E47            983           DB    C'STARTING ADDRESS OF THE',CR,LF
00142C:I     2041 4444 5245 5353
001434:I     204F 4620 5448 450D
00143C:I     0A
00143D:I     4F55 5450 5554 2028            984           DB    C'OUTPUT (WRITE) DATA BUFFER.',CR,LF,0
001445:I     5752 4954 4529 2044
00144D:I     4154 4120 4255 4646
001455:I     4552 2E0D 0A00
```

INBUF OPTION PROCESSOR

```
00145C:I                                    986           ALIGN ADC
00145C:I     0000 14B0:I                    987  INBUFOPT DAC   HINBRTN              HELP ROUTINE ADDRESS
001460:I     0000 1476:I                    988           DAC   DFLTINB              DEFAULT HANDLER ADDRESS
001464:I     0000 14A4:I                    989           DAC   INBPRT               OPTION PRINT ROUTINE
001468:I     2906                           990           DB    ADD.REM+EXCEPTN+HEX.VAL,6
                                            991  *
00146A:I     E6E0 EE16 =000284:I            992           LA    R14,INBTAB1          TABLE ADDRESS
00146E:I     E6A0 FFEA =00145C:I            993           LA    R10,INBUFOPT         OPTION HEADER ADDRESS
001472:I     4300 8E7E =0022F4:I            994           B     MULTIADR             COMMON PROCESSING ROUTINE
                                            995  *
001476:I     E6A0 800A =001484:I            996  DFLTINB  LA    R10,DINBTAB          DEFAULT VALUES TABLE
00147A:I     E6E0 EE06 =000284:I            997           LA    R14,INBTAB1          OPTION VALUES TABLE
00147E:I     4300 8E58 =0022DA:I            998           B     DFLTFWS              DEFAULT FULLWORDS
                                            999  *
001484:I                                   1000           ALIGN ADC
001484:I     0001 0000:I                   1001  DINBTAB  DC    BBIAS+X'8000'        SELCH 0
001488:I     0001 1000:I                   1002           DC    BBIAS+X'9000'        SELCH 1
00148C:I     0001 2000:I                   1003           DC    BBIAS+X'A000'        SELCH 2
001490:I     0001 3000:I                   1004           DC    BBIAS+X'B000'        SELCH 3
001494:I     0001 4000:I                   1005           DC    BBIAS+X'C000'        SELCH 4
001498:I     0001 5000:I                   1006           DC    BBIAS+X'D000'        SELCH 5
00149C:I     0001 6000:I                   1007           DC    BBIAS+X'E000'        SELCH 6
0014A0:I     0001 7000:I                   1008           DC    BBIAS+X'F000'        SELCH 7
                                           1009  *
0014A4:I     E6E0 EDDC =000284:I           1010  INBPRT   LA    R14,INBTAB1          OPTION TABLE ADDRESS
0014A8:I     E6A0 FFB0 =00145C:I           1011           LA    R10,INBUFOPT         OPTION HEADER ADDRESS
0014AC:I     4300 8D9E =00224E:I           1012           B     MULTIVAL             COMMON OPTION PRINT ROUTINE
                                           1013  *
0014B0:I     E650 8004 =0014B8:I           1014  HINBRTN  LA    R5,HINBMSG           HELP MESSAGE ADDRESS
0014B4:I     4300 8CAA =002162:I           1015           B     MSGPRINT             PRINT IT
                                           1016  *
0014B8:I     5448 4520 494E 4255           1017  HINBMSG  DB    C'THE INBUF OPTION SPECIFIES THE '
0014C0:I     4620 4F50 5449 4F4E
0014C8:I     2053 5045 4349 4649
0014D0:I     4553 2054 4845 20
0014D7:I     5354 4152 5449 4E47           1018           DB    C'STARTING ADDRESS OF THE',CR,LF
0014DF:I     2041 4444 5245 5353
0014E7:I     204F 4620 5448 450D
0014EF:I     0A
0014F0:I     494E 5055 5420 2852           1019           DB    C'INPUT (READ) DATA BUFFER.',CR,LF,0
0014F8:I     4541 4429 2044 4154
001500:I     4120 4255 4646 4552
001508:I     2E0D 0A00
```

PATTERN OPTION PROCESSOR

```
00150C:I                                1021            ALIGN ADC
00150C:I     0000 1554:I                1022  PATRNOPT  DAC   HPATRTN             HELP ROUTINE ADDRESS
001510:I     0000 152C:I                1023            DAC   DFLTPAT            DEFAULT HANDLER ADDRESS
001514:I     0000 1548:I                1024            DAC   PATRNPRT           OPTION PRINT ROUTINE
001518:I     2904                       1025            DB    ADD.REM+EXCEPTN+HEX.VAL,4
                                        1026  *
00151A:I     E6E0 ED86 =0002A4:I        1027            LA    R14,PATRNTAB       POINT TO DEVICE TABLE
00151E:I     E6A0 FFEA =00150C:I        1028            LA    R10,PATRNOPT       OPTION HEADER ADDRESS
*001522:I    2464                       1029            LHI   R6,4               ALLOW 0 TO 3
001524:I     5060 EEC8 =0003F0:I        1030            ST    R6,OLIMIT          SET LIMIT
001528:I     4300 8C8E =0021BA:I        1031            B     MULTIOPT           COMMON ROUTINE
                                        1032  *
00152C:I     E5E0 ED74 =0002A4:I        1033  DFLTPAT   LA    R14,PATRNTAB       TABLE ADDRESS
001530:I     E6A0 8004 =001538:I        1034            LA    R10,DPATTAB        DEFAULT VALUES TABLE ADDRESS
001534:I     4300 8CFC =002234:I        1035            B     DFLTHWS            COMMON DEFAULT SETTER
                                        1036  *
001538:I     0001                       1037  DPATTAB   DCX   0001               SELCH 0
00153A:I     0001                       1038            DCX   0001               SELCH 1
00153C:I     0001                       1039            DCX   0001               SELCH 2
00153E:I     0001                       1040            DCX   0001               SELCH 3
001540:I     0001                       1041            DCX   0001               SELCH 4
001542:I     0001                       1042            DCX   0001               SELCH 5
001544:I     0001                       1043            DCX   0001               SELCH 6
001546:I     0001                       1044            DCX   0001               SELCH 7
                                        1045  *
001548:I     E6E0 ED58 =0002A4:I        1046  PATRNPRT  LA    R14,PATRNTAB       TABLE ADDRESS
00154C:I     E6A0 FFBC =00150C:I        1047            LA    R10,PATRNOPT       OPTION HEADER ADDRESS
001550:I     4300 8CFA =00224E:I        1048            B     MULTIVAL           COMMON OPTION PRINTER
                                        1049  *
001554:I     E650 8004 =00155C:I        1050  HPATRTN   LA    R5,HPATMSG         HELP MESSAGE ADDRESS
001558:I     4300 8C06 =002162:I        1051            B     MSGPRINT           PRINT IT
                                        1052  *
00155C:I     5448 4520 5041 5454        1053  HPATMSG   DB    C'THE PATTERN OPTION SPECIFIES THE '
001564:I     4552 4E20 4F50 5449
00156C:I     4F4E 2053 5045 4349
001574:I     4649 4553 2054 4845
00157C:I     20
00157D:I     4241 434B 4752 4F55        1054            DB    C'BACKGROUND DATA PATTERN',CR,LF
001585:I     4E44 2044 4154 4120
00158D:I     5041 5454 4552 4E0D
001595:I     0A
001596:I     464F 5220 5448 4520        1055            DB    C'FOR THE OUTPUT BUFFER.  POSSIBLE '
00159E:I     4F55 5450 5554 2042
0015A6:I     5546 4645 522E 2020
0015AE:I     504F 5353 4942 4C45
0015B6:I     20
0015B7:I     5641 4C55 4553 2041        1056            DB    C'VALUES ARE:',CR,LF
0015BF:I     5245 3A0D 0A
0015C4:I     3020 2055 5345 2054        1057            DB    C'0  USE THE IMAGE DATA PATTERN',CR,LF
0015CC:I     4845 2049 4D41 4745
0015D4:I     2044 4154 4120 5041
0015DC:I     5454 4552 4E0D 0A
0015E3:I     3120 2055 5345 2041        1058            DB    C'1  USE AN INCREMENTING DATA PATTERN.',CR,LF
```

PATTERN OPTION PROCESSOR

```
0015EB:I     4E20 494E 4352 454D
0015F3:I     454E 5449 4E47 2044
0015FB:I     4154 4120 5041 5454
001603:I     4552 4E2E 0D0A
001609:I     2020 2046 4F52 2045      1059          DB    C'   FOR EXAMPLE: 0000',CR,LF
001611:I     5841 4D50 4C45 3A20
001619:I     3030 3030 0D0A
00161F:I     2020 2020 2020 2020      1060          DB    C'                0101',CR,LF
001627:I     2020 2020 2020 2020
00162F:I     3031 3031 0D0A
001635:I     2020 2020 2020 2020      1061          DB    C'                0202',CR,LF
00163D:I     2020 2020 2020 2020
001645:I     3032 3032 0D0A
00164B:I     2020 2020 2020 2020      1062          DB    C'                XXXX',CR,LF
001653:I     2020 2020 2020 2020
00165B:I     5858 5858 0D0A
001661:I     2020 2020 2020 2020      1063          DB    C'                FFFF',CR,LF
001669:I     2020 2020 2020 2020
001671:I     4646 4646 0D0A
001677:I     3220 2055 5345 2054      1064          DB    C'2  USE THE IMAGE PATTERN AND ITS',CR,LF
00167F:I     4845 2049 4D41 4745
001687:I     2050 4154 5445 524E
00168F:I     2041 4E44 2049 5453
001697:I     0D0A
001699:I     2020 2043 4F4D 504C      1065          DB    C'   COMPLEMENT ALTERNATELY.',CR,LF
0016A1:I     454D 454E 5420 414C
0016A9:I     5445 524E 4154 454C
0016B1:I     592E 0D0A
0016B5:I     3320 2055 5345 2054      1066          DB    C'3  USE THE BUFFER POSITION ADDRESS',CR,LF
0016BD:I     4845 2042 5546 4645
0016C5:I     5220 504F 5349 5449
0016CD:I     4F4E 2041 4444 5245
0016D5:I     5353 0D0A
0016D9:I     2020 2041 5320 5448      1067          DB    C'   AS THE DATA PATTERN.',CR,LF,0
0016E1:I     4520 4441 5441 2050
0016E9:I     4154 5445 524E 2E0D
0015F1:I     0A00
```

DEVICE OPTION PROCESSOR

```
0016F4:I                                1069            ALIGN ADC
            0000 0011                   1070  MAXDEV    EQU   17                ACCEPT 0 THROUGH 16
0016F4:I    0000 173E:I                 1071  DEVICOPT  DAC   HDEVRTN           HELP ROUTINE ADDRESS
0016F8:I    0000 1716:I                 1072            DAC   DFLTDEV           DEFAULT HANDLER ADDRESS
0016FC:I    0000 1732:I                 1073            DAC   DEVICPRT          OPTION PRINT ROUTINE
001700:I    2902                        1074            DB    ADD.REM+EXCEPTN+HEX.VAL,2
                                        1075  *
001702:I    E6E0 EADE =0001E4:I         1076            LA    R14,DEVTABLE      POINT TO DEVICE TABLE
001706:I    E6A0 FFEA =0016F4:I         1077            LA    R10,DEVICOPT      OPTION HEADER ADDRESS
00170A:I    C860 0011                   1078            LHI   R6,MAXDEV         ACCEPT 0 THROUGH 16
00170E:I    5060 ECDE =0003F0:I         1079            ST    R6,OLIMIT         SET LIMIT
001712:I    4300 8AA4 =0021BA:I         1080            B     MULTIOPT          COMMON ROUTINE
                                        1081  *
001716:I    E6E0 EACA =0001E4:I         1082  DFLTDEV   LA    R14,DEVTABLE      TABLE ADDRESS
00171A:I    E6A0 8004 =001722:I         1083            LA    R10,DDEVTAB       DEFAULT VALUES TABLE ADDRESS
00171E:I    4300 8B12 =002234:I         1084            B     DFLTHWS           COMMON DEFAULT SETTER
                                        1085  *
001722:I    0003                        1086  DDEVTAB   DCX   0003              SELCH 0 2.5 OR 10MB
001724:I    0001                        1087            DCX   0001              SELCH 1 800/1600BPI
001726:I    0005                        1088            DCX   0005              SELCH 2 67MB MSM
001728:I    0005                        1089            DCX   0005              SELCH 3 67MB MSM
00172A:I    000D                        1090            DCX   000D              SELCH 4  19.8MB REMOVABLE
00172C:I    000D                        1091            DCX   000D              SELCH 5  19.8MB REMOVABLE
00172E:I    0000                        1092            DCX   0000              SELCH 6  SELCH TESTER - BYTE MODE
001730:I    0010                        1093            DCX   0010              SELCH 7  SELCH TESTER - HW MODE
                                        1094  *
001732:I    E6E0 EAAE =0001E4:I         1095  DEVICPRT  LA    R14,DEVTABLE      TABLE ADDRESS
001736:I    E6A0 FFBA =0016F4:I         1096            LA    R10,DEVICOPT      OPTION HEADER ADDRESS
00173A:I    4300 8B10 =00224E:I         1097            B     MULTIVAL          COMMON OPTION PRINTER
                                        1098  *
00173E:I    E650 8004 =001746:I         1099  HDEVRTN   LA    R5,HDEVMSG        HELP MESSAGE ADDRESS
001742:I    4300 8A1C =002162:I         1100            B     MSGPRINT          PRINT IT
                                        1101  *
001746:I    5448 4520 4445 5649         1102  HDEVMSG   DB    C'THE DEVICE OPTION SPECIFIES THE TYPE OF DEVICE    '
00174E:I    4345 204F 5054 494F
001756:I    4E20 5350 4543 4946
00175E:I    4945 5320 5448 4520
001766:I    5459 5045 204F 4620
00176E:I    4445 5649 4345 2020
001776:I    2020
001778:I    0D0A                        1103            DB    CR,LF
00177A:I    4153 534F 4349 4154         1104            DB    C'ASSOCIATED WITH A SELCH.  POSSIBLE VALUES ARE:    '
001782:I    4544 2057 4954 4820
00178A:I    4120 5345 4C43 482E
001792:I    2020 504F 5353 4942
00179A:I    4C45 2056 414C 5545
0017A2:I    5320 4152 453A 2020
0017AA:I    2020
0017AC:I    0D0A                        1105            DB    CR,LF
0017AE:I    2030 202D 2053 454C         1106            DB    C' 0 - SELECTOR CHANNEL TESTER - BYTE MODE',CR,LF
0017B6:I    4543 544F 5220 4348
0017BE:I    414E 4E45 4C20 5445
0017C6:I    5354 4552 202D 2042
```

DEVICE OPTION PROCESSOR

```
0017CE:I     5954 4520 4D4F 4445
0017D6:I     0D0A
0017D8:I     2031 202D 2038 3030      1107          DB    C' 1 - 800/1600 BPI MAG TAPE',CR,LF
0017E0:I     2F31 3630 3020 4250
0017E8:I     4920 4D41 4720 5441
0017F0:I     5045 0D0A
0017F4:I     2032 202D 2036 3235      1108          DB    C' 2 - 6250 BPI MAG TAPE',CR,LF
0017FC:I     3020 4250 4920 4D41
001804:I     4720 5441 5045 0D0A
00180C:I     2033 202D 2032 2E35      1109          DB    C' 3 - 2.5 OR 10 MB DISK',CR,LF
001814:I     204F 5220 3130 204D
00181C:I     4220 4449 534B 0D0A
001824:I     2034 202D 2034 3020      1110          DB    C' 4 - 40 MB DISK',CR,LF
00182C:I     4D42 2044 4953 4B0D
001834:I     0A
001835:I     2035 202D 2036 3720      1111          DB    C' 5 - 67 MB MSM DISK',CR,LF
00183D:I     4D42 204D 534D 2044
001845:I     4953 4B0D 0A
00184A:I     2036 202D 2032 3536      1112          DB    C' 6 - 256 MB MSM DISK',CR,LF
001852:I     204D 4220 4D53 4D20
00185A:I     4449 534B 0D0A
001860:I     2037 202D 2036 372E      1113          DB    C' 7 - 67.2 MB WINCHESTER',CR,LF
001868:I     3220 4D42 2057 494E
001870:I     4348 4553 5445 520D
001878:I     0A
001879:I     2038 202D 2031 332E      1114          DB    C' 8 - 13.5 MB CDD REMOVABLE',CR,LF
001881:I     3520 4D42 2043 4444
001889:I     2052 454D 4F56 4142
001891:I     4C45 0D0A
001895:I     2039 202D 2031 332E      1115          DB    C' 9 - 13.5 MB CDD FIXED',CR,LF
00189D:I     3520 4D42 2043 4444
0018A5:I     2046 4958 4544 0D0A
0018AD:I     2041 202D 2034 302E      1116          DB    C' A - 40.4 MB CDD FIXED',CR,LF
0018B5:I     3420 4D42 2043 4444
0018BD:I     2046 4958 4544 0D0A
0018C5:I     2042 202D 2036 372E      1117          DB    C' B - 67.3 MB CDD FIXED',CR,LF
0018CD:I     3320 4D42 2043 4444
0018D5:I     2046 4958 4544 0D0A
0018DD:I     2043 202D 2033 3030      1118          DB    C' C - 300 MB WINCHESTER',CR,LF
0018E5:I     204D 4220 5749 4E43
0018ED:I     4845 5354 4552 0D0A
0018F5:I     2044 202D 2031 392E      1119          DB    C' D - 19.8 MB REMOVABLE',CR,LF
0018FD:I     3820 4D42 2052 454D
001905:I     4F56 4142 4C45 0D0A
00190D:I     2045 202D 2031 392E      1120          DB    C' E - 19.8 MB FIXED',CR,LF
001915:I     3820 4D42 2046 4958
00191D:I     4544 0D0A
001921:I     2046 202D 2053 5041      1121          DB    C' F - SPARE - NOT CURRENTLY USED',CR,LF
001929:I     5245 202D 204E 4F54
001931:I     2043 5552 5245 4E54
001939:I     4C59 2055 5345 440D
001941:I     0A
001942:I     3130 202D 2053 454C      1122          DB    C'10 - SELECTOR CHANNEL TESTER - HALFWORD MODE',CR,LF
```

DEVICE OPTION PROCESSOR

```
00194A:I    4543 544F 5220 4348
001952:I    414E 4E45 4C20 5445
00195A:I    5354 4552 202D 2048
001962:I    414C 4657 4F52 4420
00196A:I    4D4F 4445 0D0A
001970:I    5448 4520 4445 4641      1123        DB    C'THE DEFAULT SETTING IS:',CR,LF
001978:I    554C 5420 5345 5454
001980:I    494E 4720 4953 3A0D
001988:I    0A
001989:I    4445 5649 4345 2030      1124        DB    C'DEVICE 0/3,1/1,2/5,3/5,4/D,5/D,6/0,7/10',CR,LF
001991:I    2F33 2C31 2F31 2C32
001999:I    2F35 2C33 2F35 2C34
0019A1:I    2F44 2C35 2F44 2C36
0019A9:I    2F30 2C37 2F31 300D
0019B1:I    0A
0019B2:I    00                       1125        DB    0                    END OF MESSAGE
```

DISFIL OPTION PROCESSOR

```
0019B4:I                                1127          ALIGN ADC
0019B4:I     0000 19F6:I                1128  DISF.OPT DAC   HDISFRTN            HELP ROUTINE ADDRESS
0019B8:I     0000 19CE:I                1129           DAC   DFLTDISF            DEFAULT HANDLER ADDRESS
0019BC:I     0000 19EA:I                1130           DAC   DISFPRT             OPTION PRINT ROUTINE
0019C0:I     2903                       1131           DB    ADD.REM+EXCEPTN+HEX.VAL,3
                                        1132  *
0019C2:I     E6E0 E82E =0001F4:I        1133           LA    R14,DISFTAB         POINT TO DEVICE TABLE
0019C6:I     E6A0 FFEA =0019B4:I        1134           LA    R10,DISF.OPT        OPTION HEADER ADDRESS
0019CA:I     4300 87E4 =0021B2:I        1135           B     MULTIDEV            COMMON ROUTINE
                                        1136  *
0019CE:I     E6E0 E822 =0001F4:I        1137  DFLTDISF LA    R14,DISFTAB         TABLE ADDRESS
0019D2:I     E6A0 8004 =0019DA:I        1138           LA    R10,DDISFTAB        DEFAULT VALUES TABLE ADDRESS
0019D6:I     4300 885A =002234:I        1139           B     DFLTHWS             COMMON DEFAULT SETTER
                                        1140  *
0019DA:I     00C6                       1141  DDISFTAB DCX   0C6                 SELCH 0
0019DC:I     0000                       1142           DCX   000                 SELCH 1
0019DE:I     00FC                       1143           DCX   0FC                 SELCH 2
0019E0:I     00EC                       1144           DCX   0EC                 SELCH 3
0019E2:I     0000                       1145           DCX   000                 SELCH 4
0019E4:I     0000                       1146           DCX   000                 SELCH 5
0019E6:I     0000                       1147           DCX   000                 SELCH 6
0019E8:I     0000                       1148           DCX   000                 SELCH 7
                                        1149  *
0019EA:I     E6E0 E806 =0001F4:I        1150  DISFPRT  LA    R14,DISFTAB         TABLE ADDRESS
0019EE:I     E6A0 FFC2 =0019B4:I        1151           LA    R10,DISF.OPT        OPTION HEADER ADDRESS
0019F2:I     4300 8858 =00224E:I        1152           B     MULTIVAL            COMMON OPTION PRINTER
                                        1153  *
0019F6:I     E650 8004 =0019FE:I        1154  HDISFRTN LA    R5,HDISFMSG         HELP MESSAGE ADDRESS
0019FA:I     4300 8764 =002162:I        1155           B     MSGPRINT            PRINT IT
                                        1156  *
0019FE:I     5448 4520 2044 4953        1157  HDISFMSG DB    C'THE  DISFIL  OPTION  SPECIFIES  THE ADDRESS OF THE'
001A06:I     4649 4C20 204F 5054
001A0E:I     494F 4E20 2053 5045
001A16:I     4349 4649 4553 2020
001A1E:I     5448 4520 4144 4452
001A26:I     4553 5320 4F46 2054
001A2E:I     4845
001A30:I     0D0A                       1158           DB    CR,LF
001A32:I     4449 534B 2046 494C        1159           DB    C'DISK FILE IF THE TEST DEVICE IS A DISK.',CR,LF
001A3A:I     4520 4946 2054 4845
001A42:I     2054 4553 5420 4445
001A4A:I     5649 4345 2049 5320
001A52:I     4120 4449 534B 2E0D
001A5A:I     0A
001A5B:I     5448 4520 4445 4641        1160           DB    C'THE DEFAULT SETTING IS:',CR,LF
001A63:I     554C 5420 5345 5454
001A6B:I     494E 4720 4953 3A0D
001A73:I     0A
001A74:I     4449 5346 494C 2030        1161           DB    C'DISFIL 0/C6,1/0,2/FC,3/EC,4/0,5/0,6/0,7/0'
001A7C:I     2F43 362C 312F 302C
001A84:I     322F 4643 2C33 2F45
001A8C:I     432C 342F 302C 352F
001A94:I     302C 362F 302C 372F
```

DISFIL OPTION PROCESSOR

```
001A9C:I     30
001A9D:I     0D0A 00                 1162          DB    CR,LF,0
```

CYLNUM OPTION PROCESSOR

```
001AA0:I                                1164           ALIGN ADC
001AA0:I     0000 1AE2:I                1165  CYLN.OPT DAC   HCYLRTN              HELP ROUTINE ADDRESS
001AA4:I     0000 1ABA:I                1166           DAC   DFLTCYL              DEFAULT HANDLER ADDRESS
001AA8:I     0000 1AD6:I                1167           DAC   CYLPRT               OPTION PRINT ROUTINE
001AAC:I     2903                       1168           DB    ADD.REM+EXCEPTN+HEX.VAL,3
                                        1169  *
001AAE:I     E6E0 E752 =000204:I        1170           LA    R14,CYLTAB           POINT TO OPTION TABLE
001AB2:I     E6A0 FFEA =001AA0:I        1171           LA    R10,CYLN.OPT         OPTION HEADER ADDRESS
001AB6:I     4300 86F8 =0021B2:I        1172           B     MULTIDEV             COMMON ROUTINE
                                        1173  *
001ABA:I     E6E0 E746 =000204:I        1174  DFLTCYL  LA    R14,CYLTAB           TABLE ADDRESS
001ABE:I     E6A0 8004 =001AC6:I        1175           LA    R10,DCYLTAB          DEFAULT VALUES TABLE ADDRESS
001AC2:I     4300 876E =002234:I        1176           B     DFLTHWS              COMMON DEFAULT SETTER
                                        1177  *
001AC6:I     0000                       1178  DCYLTAB  DCX   0000                 SELCH 0
001AC8:I     0000                       1179           DCX   0000                 SELCH 1
001ACA:I     0000                       1180           DCX   0000                 SELCH 2
001ACC:I     0000                       1181           DCX   0000                 SELCH 3
001ACE:I     0000                       1182           DCX   0000                 SELCH 4
001AD0:I     0000                       1183           DCX   0000                 SELCH 5
001AD2:I     0000                       1184           DCX   0000                 SELCH 6
001AD4:I     0000                       1185           DCX   0000                 SELCH 7
                                        1186  *
001AD6:I     E6E0 E72A =000204:I        1187  CYLPRT   LA    R14,CYLTAB           TABLE ADDRESS
001ADA:I     E6A0 FFC2 =001AA0:I        1188           LA    R10,CYLN.OPT         OPTION HEADER ADDRESS
001ADE:I     4300 876C =00224E:I        1189           B     MULTIVAL             COMMON OPTION PRINTER
                                        1190  *
001AE2:I     E650 8004 =001AEA:I        1191  HCYLRTN  LA    R5,HCYLMSG           HELP MESSAGE ADDRESS
001AE6:I     4300 8678 =002162:I        1192           B     MSGPRINT             PRINT IT
                                        1193  *
001AEA:I     5448 4520 4359 4C4E        1194  HCYLMSG  DB    C'THE CYLNUM OPTION SPECIFIES THE STARTING CYLINDER'
001AF2:I     554D 204F 5054 494F
001AFA:I     4E20 5350 4543 4946
001B02:I     4945 5320 5448 4520
001B0A:I     5354 4152 5449 4E47
001B12:I     2043 594C 494E 4445
001B1A:I     52
001B1B:I     0D0A                       1195           DB    CR,LF
001B1D:I     4E55 4D42 4552 2046        1196           DB    C'NUMBER FOR DISK TRANSFERS.  THE DEFAULT IS ZERO.'
001B25:I     4F52 2044 4953 4B20
001B2D:I     5452 414E 5346 4552
001B35:I     532E 2020 5448 4520
001B3D:I     4445 4641 554C 5420
001B45:I     4953 205A 4552 4F2E
001B4D:I     0D0A                       1197           DB    CR,LF
001B4F:I     5448 4520 4D41 5849        1198           DB    C'THE MAXIMUM VALUE IS '
001B57:I     4D55 4D20 5641 4C55
001B5F:I     4520 4953 20
001B64:I     4445 5045 4E44 454E        1199           DB    C'DEPENDENT ON THE TYPE OF DEVICE.',CR,LF
001B6C:I     5420 4F4E 2054 4845
001B74:I     2054 5950 4520 4F46
001B7C:I     2044 4556 4943 452E
001B84:I     0D0A
```

```
CYLNUM OPTION PROCESSOR

001B86:I     4445 5649 4345 204B      1200          DB    C'DEVICE KEY    MINIMUM - MAXIMUM',CR,LF
001B8E:I     4559 2020 2020 4D49
001B96:I     4E49 4D55 4D20 2D20
001B9E:I     4D41 5849 4D55 4D0D
001BA6:I     0A
001BA7:I     2020 2020 3020 2020      1201          DB    C'    0           ----   ----',CR,LF
001BAF:I     2020 2020 2020 2020
001BB7:I     202D 2D2D 2D20 2020
001BBF:I     2D2D 2D2D 0D0A
001BC5:I     2020 2020 3120 2020      1202          DB    C'    1           ----   ----',CR,LF
001BCD:I     2020 2020 2020 2020
001BD5:I     202D 2D2D 2D20 2020
001BDD:I     2D2D 2D2D 0D0A
001BE3:I     2020 2020 3220 2020      1203          DB    C'    2           ----   ----',CR,LF
001BEB:I     2020 2020 2020 2020
001BF3:I     202D 2D2D 2D20 2020
001BFB:I     2D2D 2D2D 0D0A
001C01:I     2020 2020 3320 2020      1204          DB    C'    3           0000   0197',CR,LF
001C09:I     2020 2020 2020 2020
001C11:I     2030 3030 3020 2020
001C19:I     3031 3937 0D0A
001C1F:I     2020 2020 3420 2020      1205          DB    C'    4           0000   0195',CR,LF
001C27:I     2020 2020 2020 2020
001C2F:I     2030 3030 3020 2020
001C37:I     3031 3935 0D0A
001C3D:I     2020 2020 3520 2020      1206          DB    C'    5           0000   0336',CR,LF
001C45:I     2020 2020 2020 2020
001C4D:I     2030 3030 3020 2020
001C55:I     3033 3336 0D0A
001C5B:I     2020 2020 3620 2020      1207          DB    C'    6           0000   0336',CR,LF
001C63:I     2020 2020 2020 2020
001C6B:I     2030 3030 3020 2020
001C73:I     3033 3336 0D0A
001C79:I     2020 2020 3720 2020      1208          DB    C'    7           0000   0393',CR,LF
001C81:I     2020 2020 2020 2020
001C89:I     2030 3030 3020 2020
001C91:I     3033 3933 0D0A
001C97:I     2020 2020 3820 2020      1209          DB    C'    8           0000   0336',CR,LF
001C9F:I     2020 2020 2020 2020
001CA7:I     2030 3030 3020 2020
001CAF:I     3033 3336 0D0A
001CB5:I     2020 2020 3920 2020      1210          DB    C'    9           0000   0336',CR,LF
001CBD:I     2020 2020 2020 2020
001CC5:I     2030 3030 3020 2020
001CCD:I     3033 3336 0D0A
001CD3:I     2020 2020 4120 2020      1211          DB    C'    A           0000   0336',CR,LF
001CDB:I     2020 2020 2020 2020
001CE3:I     2030 3030 3020 2020
001CEB:I     3033 3336 0D0A
001CF1:I     2020 2020 4220 2020      1212          DB    C'    B           0000   0336',CR,LF
001CF9:I     2020 2020 2020 2020
001D01:I     2030 3030 3020 2020
001D09:I     3033 3336 0D0A
```

CYLNUM OPTION PROCESSOR

```
001D0F:I    2020 2020 4320 2020     1213        DB    C'    C          0000   03FF',CR,LF
001D17:I    2020 2020 2020 2020
001D1F:I    2030 3030 3020 2020
001D27:I    3033 4646 0D0A
001D2D:I    2020 2020 4420 2020     1214        DB    C'    D          0000   026F',CR,LF
001D35:I    2020 2020 2020 2020
001D3D:I    2030 3030 3020 2020
001D45:I    3032 3646 0D0A
001D4B:I    2020 2020 4520 2020     1215        DB    C'    E          0000   026F',CR,LF
001D53:I    2020 2020 2020 2020
001D5B:I    2030 3030 3020 2020
001D63:I    3032 3646 0D0A
001D69:I    2020 2020 4520 2020     1216        DB    C'    F          ----   ----',CR,LF
001D71:I    2020 2020 2020 2020
001D79:I    202D 2D2D 2D20 2020
001D81:I    2D2D 2D2D 0D0A
001D87:I    2020 2031 3020 2020     1217        DB    C'    10         ----   ----',CR,LF
001D8F:I    2020 2020 2020 2020
001D97:I    202D 2D2D 2D20 2020
001D9F:I    2D2D 2D2D 0D0A
001DA5:I    00                      1218        DB    0                       END OF MESSAGE
001DA6:I                            1219        DB    *                       FOR ALIGNMENT
```

SECTOR OPTION PROCESSOR

```
001DA8:I                                    1221            ALIGN ADC
001DA8:I     0000 1DF2:I                    1222  SECT.OPT  DAC   HSECTRTN            HELP ROUTINE ADDRESS
001DAC:I     0000 1DCA:I                    1223            DAC   DFLTSECT           DEFAULT HANDLER ADDRESS
001DB0:I     0000 1DE6:I                    1224            DAC   SECTPRT            OPTION PRINT ROUTINE
001DB4:I     2904                           1225            DB    ADD.REM+EXCEPTN+HEX.VAL,4
                                            1226  *
001DB6:I     E6E0 E45A =000214:I            1227            LA    R14,SECTAB          POINT TO OPTION TABLE
001DBA:I     E6A0 FFEA =001DA8:I            1228            LA    R10,SECT.OPT        OPTION HEADER ADDRESS
001DBE:I     C860 1600                      1229            LHI   R6,X'1600'          LIMIT
001DC2:I     5060 E62A =0003F0:I            1230            ST    R6,OLIMIT
001DC6:I     4300 83F0 =0021BA:I            1231            B     MULTIOPT            COMMON ROUTINE
                                            1232  *
001DCA:I     E6E0 E446 =000214:I            1233  DFLTSECT  LA    R14,SECTAB          TABLE ADDRESS
001DCE:I     E6A0 8004 =001DD6:I            1234            LA    R10,DSECTAB         DEFAULT VALUES TABLE ADDRESS
001DD2:I     4300 845E =002234:I            1235            B     DFLTHWS             COMMON DEFAULT SETTER
                                            1236  *
001DD6:I     0000                           1237  DSECTAB   DCX   0000              SELCH 0
001DD8:I     0000                           1238            DCX   0000              SELCH 1
001DDA:I     0000                           1239            DCX   0000              SELCH 2
001DDC:I     0000                           1240            DCX   0000              SELCH 3
001DDE:I     0000                           1241            DCX   0000              SELCH 4
001DE0:I     0000                           1242            DCX   0000              SELCH 5
001DE2:I     0000                           1243            DCX   0000              SELCH 6
001DE4:I     0000                           1244            DCX   0000              SELCH 7
                                            1245  *
001DE6:I     E6E0 E42A =000214:I            1246  SECTPRT   LA    R14,SECTAB          TABLE ADDRESS
001DEA:I     E6A0 FFBA =001DA8:I            1247            LA    R10,SECT.OPT        OPTION HEADER ADDRESS
001DEE:I     4300 845C =00224E:I            1248            B     MULTIVAL            COMMON OPTION PRINTER
                                            1249  *
001DF2:I     E650 8004 =001DFA:I            1250  HSECTRTN  LA    R5,HSECMSG          HELP MESSAGE ADDRESS
001DF6:I     4300 8368 =002162:I            1251            B     MSGPRINT            PRINT IT
                                            1252  *
001DFA:I     5448 4520 2053 4543            1253  HSECMSG   DB    C'THE  SECTOR  OPTION SPECIFIES THE INITIAL HEAD AND'
001E02:I     544F 5220 204F 5054
001E0A:I     494F 4E20 5350 4543
001E12:I     4946 4945 5320 5448
001E1A:I     4520 494E 4954 4941
001E22:I     4C20 4845 4144 2041
001E2A:I     4E44
001E2C:I     0D0A                           1254            DB    CR,LF
001E2E:I     5345 4354 4F52 204E            1255            DB    C'SECTOR NUMBER OF  THE  DISK DEVICE.  THE FIRST TWO'
001E36:I     554D 4245 5220 4F46
001E3E:I     2020 5448 4520 2044
001E46:I     4953 4B20 4445 5649
001E4E:I     4345 2E20 2054 4845
001E56:I     2046 4952 5354 2054
001E5E:I     574F
001E60:I     0D0A                           1256            DB    CR,LF
001E62:I     4845 5841 4445 4349            1257            DB    C'HEXADECIMAL DIGITS ARE THE  HEAD NUMBER.  THE LAST'
001E6A:I     4D41 4C20 4449 4749
001E72:I     5453 2041 5245 2054
001E7A:I     4845 2020 4845 4144
001E82:I     204E 554D 4245 522E
```

```
001E8A:I    2020 5448 4520 4C41
001E92:I    5354
001E94:I    0D0A                        1258        DB    CR,LF
001E96:I    5457 4F20 4845 5841         1259        DB    C'TWO HEXADECIMAL DIGITS ARE THE SECTOR NUMBER.'
001E9E:I    4445 4349 4D41 4C20
001EA6:I    4449 4749 5453 2041
001EAE:I    5245 2054 4845 2053
001EB6:I    4543 544F 5220 4E55
001EBE:I    4D42 4552 2E
001EC3:I    0D0A                        1260        DB    CR,LF
001EC5:I    5448 4520 4445 4641         1261        DB    C'THE DEFAULT VALUE IS ZERO.   THE  MAXIMUM VALUE IS'
001ECD:I    554C 5420 5641 4C55
001ED5:I    4520 4953 205A 4552
001EDD:I    4F2E 2020 2054 4845
001EE5:I    2020 4D41 5849 4D55
001EED:I    4D20 5641 4C55 4520
001EF5:I    4953
001EF7:I    0D0A                        1262        DB    CR,LF
001EF9:I    4445 5045 4E44 454E         1263        DB    C'DEPENDENT ON THE TYPE OF DEVICE.',CR,LF
001F01:I    5420 4F4E 2054 4845
001F09:I    2054 5950 4520 4F46
001F11:I    2044 4556 4943 452E
001F19:I    0D0A
001F1B:I    4445 5649 4345 204B         1264        DB    C'DEVICE KEY    MINIMUM - MAXIMUM',CR,LF
001F23:I    4559 2020 2020 4D49
001F2B:I    4E49 4D55 4D20 2D20
001F33:I    4D41 5849 4D55 4D0D
001F3B:I    0A
001F3C:I    2020 2020 3020 2020         1265        DB    C'    0            ----   ----',CR,LF
001F44:I    2020 2020 2020 2020
001F4C:I    202D 2D2D 2D20 2020
001F54:I    2D2D 2D2D 0D0A
001F5A:I    2020 2020 3120 2020         1266        DB    C'    1            ----   ----',CR,LF
001F62:I    2020 2020 2020 2020
001F6A:I    202D 2D2D 2D20 2020
001F72:I    2D2D 2D2D 0D0A
001F78:I    2020 2020 3220 2020         1267        DB    C'    2            ----   ----',CR,LF
001F80:I    2020 2020 2020 2020
001F88:I    202D 2D2D 2D20 2020
001F90:I    2D2D 2D2D 0D0A
001F96:I    2020 2020 3320 2020         1268        DB    C'    3            0000   0117',CR,LF
001F9E:I    2020 2020 2020 2020
001FA6:I    2030 3030 3020 2020
001FAE:I    3031 3137 0D0A
001FB4:I    2020 2020 3420 2020         1269        DB    C'    4            0000   1317',CR,LF
001FBC:I    2020 2020 2020 2020
001FC4:I    2030 3030 3020 2020
001FCC:I    3133 3137 0D0A
001FD2:I    2020 2020 3520 2020         1270        DB    C'    5            0000   053F',CR,LF
001FDA:I    2020 2020 2020 2020
001FE2:I    2030 3030 3020 2020
001FEA:I    3035 3346 0D0A
001FF0:I    2020 2020 3620 2020         1271        DB    C'    6            0000   133F',CR,LF
```

SECTOR OPTION PROCESSOR

```
001FF8:I     2020 2020 2020 2020
002000:I     2030 3030 3020 2020
002008:I     3133 3346 0D0A
00200E:I     2020 2020 3720 2020      1272          DB    C'    7           0000   053F',CR,LF
002016:I     2020 2020 2020 2020
00201E:I     2030 3030 3020 2020
002026:I     3035 3346 0D0A
00202C:I     2020 2020 3820 2020      1273          DB    C'    8           0000   003F',CR,LF
002034:I     2020 2020 2020 2020
00203C:I     2030 3030 3020 2020
002044:I     3030 3346 0D0A
00204A:I     2020 2020 3920 2020      1274          DB    C'    9           1000   103F',CR,LF
002052:I     2020 2020 2020 2020
00205A:I     2031 3030 3020 2020
002062:I     3130 3346 0D0A
002068:I     2020 2020 4120 2020      1275          DB    C'    A           1000   133F',CR,LF
002070:I     2020 2020 2020 2020
002078:I     2031 3030 3020 2020
002080:I     3133 3346 0D0A
002086:I     2020 2020 4220 2020      1276          DB    C'    B           1000   153F',CR,LF
00208E:I     2020 2020 2020 2020
002096:I     2031 3030 3020 2020
00209E:I     3135 3346 0D0A
0020A4:I     2020 2020 4320 2020      1277          DB    C'    C           0000   103F',CR,LF
0020AC:I     2020 2020 2020 2020
0020B4:I     2030 3030 3020 2020
0020BC:I     3130 3346 0D0A
0020C2:I     2020 2020 4420 2020      1278          DB    C'    D           0000   013D',CR,LF
0020CA:I     2020 2020 2020 2020
0020D2:I     2030 3030 3020 2020
0020DA:I     3031 3344 0D0A
0020E0:I     2020 2020 4520 2020      1279          DB    C'    E           0200   033D',CR,LF
0020E8:I     2020 2020 2020 2020
0020F0:I     2030 3230 3020 2020
0020F8:I     3033 3344 0D0A
0020FE:I     2020 2020 4620 2020      1280          DB    C'    F           ----   ----',CR,LF
002106:I     2020 2020 2020 2020
00210E:I     202D 2D2D 2D20 2020
002116:I     2D2D 2D2D 0D0A
00211C:I     2020 2031 3020 2020      1281          DB    C'   10           ----   ----',CR,LF
002124:I     2020 2020 2020 2020
00212C:I     202D 2D2D 2D20 2020
002134:I     2D2D 2D2D 0D0A
00213A:I     00                       1282          DB    0                    END OF MESSAGE
00213B:I     00                       1283          DB    *                    FOR ALIGNMENT
```

OPTION PROCESSOR SUBROUTINES

```
                                1285  *   R O U T I N E   Z E R O N E
                                1286  *
 00213C:I     C560 0002         1287  ZERONE   CLHI  R6,2              LIMIT 0 OR 1
*002140:I     2183      =002146:I 1288          BL    STORE.HW          OK IF LESS
                                1289  *
 002142:I     E1E0 BFC2 =006108:I 1290  GOOPERR  SVC   14,OPERERR        ELSE, OPERAND ERROR
                                1291  *
 002146:I     C540 000D         1292  STORE.HW CLHI  R4,CR              CARRIAGE RETURN FOLLOWS?
*00214A:I     2333      =002150:I 1293          BE    STOREHW1          OK IF YES
                                1294  *
 00214C:I     E1E0 BF58 =0060A8:I 1295  GOSYNERR SVC   14,SYNERR        ELSE SYNTAX ERROR
 002150:I     4061 0000         1296  STOREHW1 STH   R6,0(R1)          STORE HALFWORD RESULT
 002154:I     E1E0 BF60 =0060B8:I 1297  NEXT.CMD SVC   14,COMMAND       GET NEXT COMMAND


                                1299  *   R O U T I N E   D F L T O H W
                                1300  *
 002158:I     2460              1301  DFLTOHW  LIS   R6,0               DEFAULT VALUE IS 0


                                1303  *   R O U T I N E   D F L T . H W
                                1304  *
 00215A:I     4061 0000         1305  DFLT.HW  STH   R6,0(R1)           STORE HALFWORD RESULT
 00215E:I     E1E0 BF56 =0060B8:I 1306          SVC   14,COMMAND        NEXT COMMAND


                                1308  *   R O U T I N E   M S G P R I N T
                                1309  *
 002162:I     E1E0 BF6A =0060D0:I 1310  MSGPRINT SVC   14,MESSAGE       PRINT IT OUT
 002166:I     E1E0 BF4E =0060B8:I 1311          SVC   14,COMMAND        GET NEXT COMMAND


                                1313  *   S U B R O U T I N E   D E V I C E X
                                1314  *
 00216A:I     E1E0 BF72 =0060E0:I 1315  DEVICEX  SVC   14,NONSPACE      GET NEXT NON-SPACE CHARACTER
 00216E:I     C540 003D         1316          CLHI  R4,C'='             EQUALS SIGN?
*002172:I     2133      =002178:I 1317          BNE   DEVICEX1          SKIP IF NO
 002174:I     E1E0 BF88 =006100:I 1318          SVC   14,GETCHAR        ELSE, SKIP IT
 002178:I     E1E0 BF9C =006118:I 1319  DEVICEX1 SVC   14,GETDEC        COLLECT INDEX ARGUMENT
 00217C:I     0856              1320          LR    R5,R6               COPY TO INDEX
 00217E:I     C550 0008         1321          CLHI  R5,8                INDEX LIMIT CHECK
 002182:I     4380 FFBC =002142:I 1322          BNL   GOOPERR           OPERAND ERROR IF OVER
 002186:I     C540 002F         1323          CLHI  R4,C'/'             SLASH IS NEXT?
*00218A:I     2337      =002198:I 1324          BE    DEVICEX2          SKIP IF YES
 00218C:I     C3C0 0001         1325          THI   R12,REMFLAG         REMOVE COMMAND?
 002190:I     4330 FFB8 =00214C:I 1326          BZ    GOSYNERR          SYNTAX ERROR IF NO
 002194:I     2460              1327          LIS   R6,0                VALUE IS ZERO
 002196:I     030F              1328          BR    R15                 RETURN, ONLY NEED INDEX VALUE
 002198:I     E1E0 BF44 =0060E0:I 1329  DEVICEX2 SVC   14,NONSPACE      GET NEXT NON-SPACE CHARACTER
```

OPTION PROCESSOR SUBROUTINES

```
00219C:I  E1E0 BF70 =006110:I   1330          SVC   14,GETHEX          GET DEVICE ADDRESS
0021A0:I  5560 E24C =0003F0:I   1331          CL    R6,OLIMIT          WITHIN OPTION LIMITS?
0021A4:I  4380 FF9A =002142:I   1332          BNL   GOOPERR            OPERAND ERROR
0021A8:I  030F                  1333          BR    R15                RETURN


                                1335  *   R O U T I N E   D U P L I C A T
                                1336  *
          0000 21AA:I           1337  DUPLICAT EQU   *
0021AA:I  E650 EB76 =000D24:I   1338          LA    R5,DUPMSG          "DUPLICATE OPTION ENTRY"
0021AE:I  4300 FFB0 =002162:I   1339          B     MSGPRINT           PRINT IT


                                1341  *   R O U T I N E   M U L T I D E V
                                1342  *
          0000 21B2:I           1343  MULTIDEV EQU   *                  DEVICE CHECKING ENTRY POINT
0021B2:I  C860 0400             1344          LHI   R6,X'400'          SET 10 BIT LIMIT
0021B6:I  5060 E236 =0003F0:I   1345          ST    R6,OLIMIT          ON THE OPTION VALUE


                                1347  * R O U T I N E   M U L T I O P T
                                1348  *
          0000 21BA:I           1349  MULTIOPT EQU   *
0021BA:I  5890 4000 6354:I      1350          L     R9,CMDPTR          SAVE COMMAND BUFFER INDEX
0021C0:I  48C0 4000 6348:I      1351          LH    R12,FLAGS+DFINAL   GET EXECUTIVE FLAGS
0021C6:I  C4C0 0003             1352          NHI   R12,ADDFLAG+REMFLAG ISOLATE ADD/REMOVE COMMAND BITS
0021CA:I  C6C0 8000             1353          OHI   R12,X'8000'        SET FIRST PASS
0021CE:I  24F0                  1354          LIS   R15,0              *
0021D0:I  40F0 BE20 =005FF4:I   1355  MULTOPT0 STH   R15,$PRESTAB       CLEAR PRESENCE TABLE
0021D4:I  41F0 FF92 =00216A:I   1356  MULTOPT1 BAL   R15,DEVICEX        GET ARGUMENT SET
                                1357  *                                FORM OF EACH SET IS N/DDD
                                1358  *                                WHERE N IS THE DECIMAL INDEX
                                1359  *                                AND DDD IS THE HEX DEVICE NO.
0021D8:I  7450 BE18 =005FF4:I   1360          TBT   R5,$PRESTAB        TEST FOR DUPLICATE ENTRIES
0021DC:I  4230 FFCA =0021AA:I   1361          BNZ   DUPLICAT           WARNING IF YES
0021E0:I  08CC                  1362          LR    R12,R12            TEST PASS FLAG
0021E2:I  4210 8028 =00220E:I   1363          BM    MULTOPT3           SKIP IF FIRST PASS
0021E6:I  C3C0 0001             1364          THI   R12,REMFLAG        REMOVE COMMAND?
*0021EA:I 2332       =0021EE:I  1365          BZ    MULTOPT2           SKIP IF NO
0021EC:I  2460                  1366          LIS   R6,0               IF YES, VALUE IS ZERO
0021EE:I  7550 BE02 =005FF4:I   1367  MULTOPT2 SBT   R5,$PRESTAB        MARK THIS ENTRY
0021F2:I  D30A 000D             1368          LB    R0,DOP.VSIZ(R10)   GET VALUE SIZE
0021F6:I  C500 0005             1369          CLHI  R0,5               FOUR OR FEWER DIGITS?
*0021FA:I 2186       =002206:I  1370          BL    MULTOP2A           SKIP IF YES
0021FC:I  1152                  1371          SLLS  R5,2               4X INDEX VALUE
0021FE:I  5065 4E00 0000        1372          ST    R6,0(R5,R14)       STORE FULLWORD VALUE
*002204:I 2305       =00220E:I  1373          B     MULTOPT3           *
002206:I  0A55                  1374  MULTOP2A AR    R5,R5              FORM HALFWORD INDEX
002208:I  4065 4E00 0000        1375          STH   R6,0(R5,R14)       STORE VALUE IN TABLE
00220E:I  C540 000D             1376  MULTOPT3 CLHI  R4,CR              CARRIAGE RETURN?
```

OPTION PROCESSOR SUBROUTINES

```
*002212:I  2337      =002220:I   1377            BE    MULTOPT4          END OF PASS IF YES
 002214:I  C540 002C              1378            CLHI  R4,C','           NEXT CHARACTER IS COMMA?
 002218:I  4330 FFB8 =0021D4:I    1379            BE    MULTOPT1          LOOP IF YES
 00221C:I  4300 FF2C =00214C:I    1380            B     GOSYNERR          ELSE, SYNTAX ERROR
                                  1381  *
 002220:I  C7C0 8000              1382  MULTOPT4  XHI   R12,X'8000'       FLIP PASS FLAG
 002224:I  4210 FF2C =002154:I    1383            BM    NEXT.CMD          NEXT COMMAND IF END OF PASS 2
 002228:I  5090 4000 6354:I       1384  MULTOPT6  ST    R9,CMDPTR         RESTORE COMMAND LINE POINTER
 00222E:I  24F0                   1385            LIS   R15,0             TO CLEAR $PRESTAB
 002230:I  4300 FF9C =0021D0:I    1386            B     MULTOPT0          DO SECOND PASS


                                  1388  *   R O U T I N E   D F L T H W S
                                  1389  *
 002234:I  2450                   1390  DFLTHWS   LIS   R5,0              INDEX
 002236:I  486A 4500 0000         1391  DFLTHWS0  LH    R6,0(R10,R5)      GET DEFAULT VALUE
 00223C:I  406E 4500 0000         1392            STH   R6,0(R14,R5)      STORE IN OPTION TABLE
 002242:I  2652                   1393            AIS   R5,2              INCREMENT INDEX
 002244:I  C550 0010              1394            CLHI  R5,8*2            DONE ALL 8 ENTRIES?
*002248:I  2089      =002236:I   1395            BL    DFLTHWS0          LOOP IF NO
 00224A:I  4300 FF06 =002154:I    1396            B     NEXT.CMD          NEXT COMMAND


                                  1398  *  R O U T I N E   M U L T I V A L
                                  1399  *
                                  1400  * R10 = OPTION HEADER ADDRESS
                                  1401  * R14 = ADDRESS OF FIRST VALUE TO OUTPUT
                                  1402  *
                                  1403  * THE OPTION NAME IS IN OUTBUF AND THE
                                  1404  * REST OF OUTBUF IS SET TO BLANKS.
                                  1405  *
 00224E:I  D36A 000C              1406  MULTIVAL  LB    R6,DOP.KEY(R10)   GET OPTION KEY BYTE
 002252:I  41F0 8068 =0022BE:I    1407            BAL   R15,SETPRES       SET PRESENCE TABLE
                                  1408  *
 002256:I  24DF                   1409            LIS   R13,15            OUTBUF INDEX
 002258:I  2480                   1410            LIS   R8,0              PRESENCE TABLE INDEX
 00225A:I  D30A 000D              1411  MULTI.00  LB    R0,DOP.VSIZ(R10)  GET VALUE SIZE
 00225E:I  481E 0000              1412            LH    R1,0(R14)         GET A HALFWORD
 002262:I  C500 0005              1413            CLHI  R0,5              4 OR FEWER DIGITS TO OUTPUT?
*002266:I  2184      =00226E:I   1414            BL    MULTI.01          SKIP IF YES
 002268:I  581E 0000              1415            L     R1,0(R14)         ELSE, GET A FULLWORD
 00226C:I  26E2                   1416            AIS   R14,2             BUMP INDEX BY 4
 00226E:I  26E2                   1417  MULTI.01  AIS   R14,2             BUMP INDEX BY 2
 002270:I  7480 BD80 =005FF4:I    1418            TBT   R8,$PRESTAB       THIS COLUMN HAS A SELCH?
*002274:I  233D      =00228E:I   1419            BZ    MULTI.03          SKIP IF NO
 002276:I  E62D 4000 6638:I       1420            LA    R2,OUTBUF(R13)    DESTINATION ADDRESS
 00227C:I  C360 0001              1421            THI   R6,HEX.VAL        HEX OR DECIMAL?
*002280:I  2134      =002288:I   1422            BNZ   MULTIHEX          CONVERT HEX TO ASCII
 002282:I  E1E0 BEA2 =006128:I    1423            SVC   14,DECASC         CONVERT DECIMAL TO ASCII
*002286:I  2303      =00228C:I   1424            B     MULTI.02
 002288:I  E1E0 BE6C =0060F8:I    1425  MULTIHEX  SVC   14,HEXASC         DO HEX-ASCII CONVERSION
```

OPTION PROCESSOR SUBROUTINES

```
                                    1426  *
00228C:I  26D7                      1427  MULTI.02 AIS   R13,7              INCREMENT OUTBUF INDEX
00228E:I  2681                      1428  MULTI.03 AIS   R8,1               NEXT COLUMN IN $PRESTAB
002290:I  C580 0008                 1429           CLHI  R8,8               ALL 8 ENTRIES?
002294:I  4280 FFC2 =00225A:I       1430           BL    MULTI.00           LOOP IF NO
002298:I  E6DD 4000 6639:I          1431           LA    R13,OUTBUF+1(R13)
00229E:I  C4D0 FFFE                 1432           NHI   R13,-2             FORCE HALFWORD ALIGNMENT
0022A2:I  C840 0D0A                 1433           LHI   R4,X'0D0A'         CARRIAGE RETURN, LINE FEED
0022A6:I  404D 0000                 1434           STH   R4,0(R13)          STORE IN OUTBUF
0022AA:I  2440                      1435           LIS   R4,0
0022AC:I  D24D 0002                 1436           STB   R4,2(R13)          0 BYTE TO END MESSAGE
0022B0:I  E650 4000 6638:I          1437           LA    R5,OUTBUF          MESSAGE START ADDRESS
0022B6:I  E1E0 BE16 =0060D0:I       1438           SVC   14,MESSAGE         PRINT IT
0022BA:I  E1E0 BEFA =0061B8:I       1439           SVC   14,RETURN          RETURN TO EXECUTIVE


                                    1441  *   S U B R O U T I N E   S E T P R E S
                                    1442  *
          0000 22BE:I               1443  SETPRES  EQU   *
0022BE:I  24D0                      1444           LIS   R13,0
0022C0:I  40D0 BD30 =005FF4:I       1445           STH   R13,$PRESTAB       SELCH PRESENCE TABLE
0022C4:I  730D 4D00 01C4:I          1446  $PRESL0  LHL   R0,SELTAB(R13,R13) SCAN SELCH ADDRESS TABLE
*0022CA:I 2333       =0022D0:I      1447           BZ    $PRESL1            SKIP COLUMN IF NO SELCH ADRS
0022CC:I  75D0 BD24 =005FF4:I       1448           SBT   R13,$PRESTAB       ELSE SET BIT IN PRESENCE TABLE
0022D0:I  26D1                      1449  $PRESL1  AIS   R13,1              INCREMENT INDEX
0022D2:I  C5D0 0008                 1450           CLHI  R13,8              LIMIT 8
*0022D6:I 2089       =0022C4:I      1451           BL    $PRESL0            LOOP
0022D8:I  030F                      1452           BR    R15                RETURN


                                    1454  *   R O U T I N E   D F L T F W S
                                    1455  *
0022DA:I  2450                      1456  DFLTFWS  LIS   R5,0               INDEX
0022DC:I  586A 4500 0000            1457  DFLTFWS0 L     R6,0(R10,R5)       GET DEFAULT VALUE
0022E2:I  506E 4500 0000            1458           ST    R6,0(R14,R5)       STORE IN OPTION TABLE
0022E8:I  2654                      1459           AIS   R5,4               BUMP INDEX
0022EA:I  C550 0020                 1460           CLHI  R5,8*4             DONE ALL 8 ENTRIES?
*0022EE:I 2089       =0022DC:I      1461           BL    DFLTFWS0           LOOP IF NO
0022F0:I  4300 FE60 =002154:I       1462           B     NEXT.CMD           NEXT COMMAND


                                    1464  *   R O U T I N E   M U L T I A D R
                                    1465  *
0022F4:I  5860 BD00 =005FF8:I       1466  MULTIADR L     R6,BUSMASK         LIMIT IS BUS MASK PLUS 1
0022F8:I  2661                      1467           AIS   R6,1
0022FA:I  5060 E0F2 =0003F0:I       1468           ST    R6,OLIMIT
0022FE:I  4300 FEB8 =0021BA:I       1469           B     MULTIOPT
```

OPTION PROCESSOR SUBROUTINES

```
        0000 0000              1471  SYNOPSIS EQU   0                NO SYNOPSIS ROUTINE YET
```

SUBTEST INITIALIZE ROUTINE

```
                0000 2302:I                1473  SUB.INIT EQU   *                SUBTEST INITIALIZE ROUTINE
                                           1474  *                               CALLED JUST BEFORE ENTERING
                                           1475  *                               EACH SELECTED TEST.
 002302:I       4800 4000 6348:I          1476          LH    R0,DFINAL+FLAGS   GET FLAGS INFO
 002308:I       C300 0004                 1477          THI   R0,FIRSTEST       CHECK IF THIS IS THE FIRST SEL TEST
 00230C:I       4230 808A =00239A:I       1478          BNE   MAPSKIPD          NO,SKIP MEM MAP SEARCH / PRINTOUTS
 002310:I       2430                      1479          LIS   R3,0
 002312:I       E640 4000 6739:I          1480          LA    R4,KB0144         MAP START ADDRESS
 002318:I       2451                      1481          LIS   R5,1              INCREMENT
 00231A:I       E660 4000 67B7:I          1482          LA    R6,KB15904        MAP END ADDRESS
 002320:I       D234 0000                 1483  TOCSA   STB   R3,0(R4)          CLEAR LOCAL MEMORY MAP
 002324:I       C140 FFF8 =002320:I       1484          BXLE  R4,TOCSA          LOOP
 002328:I       E650 DCEE =00001A:I       1485          LA    R5,LIMMSG         LOAD HEADER LIMIT MSG
 00232C:I       E1E0 BDA0 =0060D0:I       1486          SVC   14,MESSAGE        PRINT IT
 002330:I       E610 4000 7280:I          1487          LA    R1,PSTE           INITIAL START ADR ABOVE TEST
 002336:I       5820 BCBE =005FF8:I       1488  MAPSET0 L     R2,BUSMASK        END ADDRESS = TOP OF MEMORY
 00233A:I       E1E0 BDE2 =006120:I       1489          SVC   14,RANGE          ASK ABOUT THIS RANGE
 00233E:I       4240 804E =002390:I       1490          BO    MAPSETX           NO MORE MEMORY
 002342:I       0861                      1491          LR    R6,R1             COPY LO ADR
 002344:I       0872                      1492          LR    R7,R2             COPY HI ADR
 002346:I       2621                      1493          AIS   R2,1              END ADDRESS RETURNED
*002348:I       101E                      1494          SRL   R1,14             DIVIDE BY 16KB
*00234A:I       102E                      1495          SRL   R2,14
 00234C:I       7510 4000 6738:I          1496  MAPSET1 SBT   R1,KB0016         SET BITS IN MEMORY MAP
 002352:I       4800 BCA6 =005FFC:I       1497          LH    R0,CLRSTART       CHECK IF MEM CLEAR NEEDED AT LOAD
*002356:I       2133      =00235C:I       1498          BNZ   MAPSET2           NOT FRESH LOAD, SKIP CLEAR
 002358:I       41F0 BC0C =005F68:I       1499          BAL   R15,CLR16KB       GO CLEAR THIS 16 KB OF MEMORY
 00235C:I       2611                      1500  MAPSET2 AIS   R1,1              NEXT 16KB
 00235E:I       0512                      1501          CLR   R1,R2             DONE?
*002360:I       208A      =00234C:I       1502          BL    MAPSET1           LOOP IF NO
                                           1503  *
 002362:I       0817                      1504  PRTLIMS LR    R1,R7             COPY BACK SAVED HI LIMIT
 002364:I       2406                      1505          LIS   R0,6              LOAD NUM OF DIGITS TO CONVERT
 002366:I       E620 DCDA =000044:I       1506          LA    R2,HILIM          LOAD CONV MSG ADR
 00236A:I       E1E0 BD8A =0060F8:I       1507          SVC   14,HEXASC         CONVERT
 00236E:I       0816                      1508          LR    R1,R6             COPY BACK SAVED LO LIMIT
 002370:I       E620 DCC4 =000038:I       1509          LA    R2,LOLIM          LOAD CONV MSG ADR
 002374:I       E1E0 BD80 =0060F8:I       1510          SVC   14,HEXASC         CONVERT
 002378:I       E650 DCBC =000038:I       1511          LA    R5,LOLIM          LOAD MSG START ADR
 00237C:I       E1E0 BD50 =0060D0:I       1512          SVC   14,MESSAGE        PRINT LIMIT MSG
 002380:I       0817                      1513          LR    R1,R7             COPY HI ADR
 002382:I       0827                      1514          LR    R2,R7             COPY HI ADR
 002384:I       2611                      1515          AIS   R1,1              GO TO NEXT BLOCK
 002386:I       F410 00FF FFFF            1516          NI    R1,Y'FFFFFF'      DONE FOR ALL MEMORY ?
 00238C:I       4230 FFA6 =002336:I       1517          BNZ   MAPSET0           LOOP FOR ALL MEMORY
                0000 2390:I               1518  MAPSETX EQU   *
 002390:I       5020 BBCC =005F60:I       1519          ST    R2,MEMTOP         SAVE TOP OF MEMORY
 002394:I       2501                      1520          LCS   R0,1              FORCE CLRSTART FLAG FOR SUBSEQUENT
 002396:I       4000 BC62 =005FFC:I       1521          STH   R0,CLRSTART       PASSES TO SKIP MEMORY CLEAR
                                           1522  *
 00239A:I       C870 001C                 1523  MAPSKIPD LHI  R7,8*4-4          SET UP TO CHECK TEST OPTIONS
 00239E:I       5847 DEC2 =000264:I       1524  SELTST0 L     R4,OUTBTAB1(R7)   COPY INITIAL VALUES TO
 0023A2:I       5047 DFF6 =00039C:I       1525          ST    R4,OUTBTAB(R7)    OUTBTAB AND INBTAB
```

SUBTEST INITIALIZE ROUTINE

```
0023A6:I  5867 DEDA =000284:I  1526           L     R6,INBTAB1(R7)
0023AA:I  5067 E00E =0003BC:I  1527           ST    R6,INBTAB(R7)
0023AE:I  E650 AD63 =005115:I  1528           LA    R5,TRSMSG          LOAD ADVISORY MSG ADR
0023B2:I  5887 DE6E =000224:I  1529           L     R8,BYTETAB(R7)     LOAD TRANSFER SIZE
0023B6:I  4330 8100 =0024BA:I  1530           BZ    PARMESS2           ERROR FOR ZERO LENGTH TRANSFER
0023BA:I  2781                 1531           SIS   R8,1               ADJ FOR END ADR
0023BC:I  0894                 1532           LR    R9,R4              COPY OUTBUF ADR
0023BE:I  08A6                 1533           LR    R10,R6             COPY INBUF ADR
0023C0:I  0A98                 1534           AAR   R9,R8              ADD IN SIZE
0023C2:I  0AA8                 1535           AAR   R10,R8             ADD IN SIZE
0023C4:I  E650 ABA7 =004F6F:I  1536           LA    R5,OBUFMSG1        LOAD ADVISORY MSG ADR
0023C8:I  F540 0000 7280:I     1537           CLI   R4,PSTE            CHECK IF ABOVE TEST
0023CE:I  4280 80E8 =0024BA:I  1538           BL    PARMESS2           ERROR IF BELOW
0023D2:I  E650 ABCE =004FA4:I  1539           LA    R5,IBUFMSG1        LOAD ADVISORY MSG ADR
0023D6:I  F560 0000 7280:I     1540           CLI   R6,PSTE            CHECK IF ABOVE TEST
0023DC:I  4280 80DA =0024BA:I  1541           BL    PARMESS2           ERROR IF BELOW
0023E0:I  0564                 1542           CLR   R6,R4              CHECK IF INBUF ABOVE OUTBUF
*0023E2:I 2187       =0023F0:I 1543           BTC   8,BUFSWTCH         NO, BUFFERS SWAPPED AROUND IN MEMORY
0023E4:I  E650 ABF0 =004FD8:I  1544           LA    R5,OBUFMSG2        LOAD ADVISORY MSG ADR
0023E8:I  0596                 1545           CLR   R9,R6              CHECK IF OVERWRITE POSSIBILITY
0023EA:I  4380 80CC =0024BA:I  1546           BNL   PARMESS2           ERROR IF BELOW
*0023EE:I 2306       =0023FA:I 1547           B     NEXTBUF            GO CHECK NEXT INDEX
0023F0:I  E650 AC2B =00501F:I  1548 BUFSWTCH  LA    R5,IBUFMSG2        LOAD ADVISORY MSG ADR
0023F4:I  05A4                 1549           CLR   R10,R4             CHECK IF OVERWRITE POSSIBILITY
0023F6:I  4380 80C0 =0024BA:I  1550           BNL   PARMESS2           ERROR IF BELOW
0023FA:I  2774                 1551 NEXTBUF  SIS   R7,4                ADJUST TO NEXT INDEX
0023FC:I  4380 FF9E =00239E:I  1552           BNL   SELTST0            LOOP
002400:I  2582                 1553           LCS   R8,2
002402:I  4080 BC1C =006022:I  1554           STH   R8,INDEX           RESET INDEX
002406:I  2480                 1555           LIS   R8,0
002408:I  4080 DFE0 =0003EC:I  1556           STH   R8,ERRFLAG         CLEAR ERROR FLAG
00240C:I  4080 BC14 =006024:I  1557           STH   R8,ACTIVE          CLEAR ACTIVE SELCH ARRAY
*002410:I 247E                 1558           LHI   R7,14              INDEX
002412:I  E690 80D6 =0024EC:I  1559           LA    R9,IGNORE          IGNORE INTERRUPTS HANDLER
002416:I  4887 DDAA =0001C4:I  1560 SELTST1   LH    R8,SELTAB(R7)      GET SELCH ADDRESS
00241A:I  4330 8092 =0024B0:I  1561           BZ    SELTST2            SKIP IF NOT SELECTED
00241E:I  1071                 1562           SRLS  R7,1               FORM BIT INDEX
002420:I  7570 BC00 =006024:I  1563           SBT   R7,ACTIVE          SET BIT IN ACTIVE ARRAY
002424:I  1171                 1564           SLLS  R7,1               BACK TO HALFWORD INDEX
002426:I  5817 4700 25A0:I     1565           L     R1,DEVINTT(R7,R7)  GET IOBLOCK ADDRESS
00242C:I  4847 DDA4 =0001D4:I  1566           LH    R4,IOTAB(R7)       GET DEVICE ADDRESS
002430:I  C640 F000            1567           OHI   R4,X'F000'         IGNORE LEVEL CHECK
002434:I  4041 0000            1568           STH   R4,INTDEV(R1)      COPY DEVICE ADRS TO BLOCK
002438:I  5091 0004            1569           ST    R9,HANDLE(R1)      HANDLER ADDRESS
00243C:I  E1E0 BD38 =006178:I  1570           SVC   14,CONNECT         CONNECT THIS DEVICE
002440:I  5817 4700 25C0:I     1571           L     R1,SELINTT(R7,R7)  IOBLOCK ADDRESS FOR SELCH
002446:I  C680 F000            1572           OHI   R8,X'F000'         IGNORE LEVEL CHECK
00244A:I  4081 0000            1573           STH   R8,INTDEV(R1)      COPY SELCH ADRS TO BLOCK
00244E:I  5091 0004            1574           ST    R9,HANDLE(R1)      HANDLER ADDRESS
002452:I  E1E0 BD22 =006178:I  1575           SVC   14,CONNECT         CONNECT THE SELCH
002456:I  48E7 DD8A =0001E4:I  1576           LH    R14,DEVTABLE(R7)   GET DEVICE TYPE
00245A:I  481E 4E00 033A:I     1577           LH    R1,RWCMDS(R14,R14) GET PROPER COMMANDS
002460:I  4017 DF78 =0003DC:I  1578           STH   R1,RWC(R7)         STORE IN TABLE
```

SUBTEST INITIALIZE ROUTINE

```
 002464:I     08EE                      1579            LR    R14,R14              TEST DEVICE TYPE
 002466:I     C3E0 000F                 1580            THI   R14,X'0F'            CHECK IF SELCH TESTER
 00246A:I     4330 8042 =0024B0:I       1581            BZ    SELTST2              SKIP IF SELCH TESTER
 00246E:I     C5E0 0003                 1582            CLHI  R14,3                MAG TAPE?
 002472:I     4280 803A =0024B0:I       1583            BL    SELTST2              NO CHECKS IF YES
 002476:I     0AEE                      1584            AR    R14,R14              2X DEVICE TYPE
 002478:I     E650 ABEA =005066:I       1585            LA    R5,HEADMSG1          LOAD ADVISORY MSG ADR
 00247C:I     D3C7 DD94 =000214:I       1586            LB    R12,SECTAB(R7)       USER'S HEAD OPTION
 002480:I     D4CE DE94 =000318:I       1587            CLB   R12,HEADS(R14)       COMPARE TO MINIMUM
 002484:I     4280 8034 =0024BC:I       1588            BL    PARMESS              ERROR IF BELOW
 002488:I     E650 AC05 =005091:I       1589            LA    R5,HEADMSG2          LOAD ADVISORY MSG ADR
 00248C:I     D4CE DE89 =000319:I       1590            CLB   R12,HEADS+1(R14)     COMPARE TO MAXIMUM
 002490:I     4220 8028 =0024BC:I       1591            BP    PARMESS              ERROR IF TOO BIG
 002494:I     E650 AC23 =0050BB:I       1592            LA    R5,SECTMSG1          LOAD ADVISORY MSG ADR
 002498:I     D3C7 DD79 =000215:I       1593            LB    R12,SECTAB+1(R7)     USER'S SECTOR OPTION
 00249C:I     45CE DE56 =0002F6:I       1594            CLH   R12,MAXSEC(R14)      COMPARE TO MAXIMUM
*0024A0:I     238E      =0024BC:I       1595            BNL   PARMESS              ERROR IF TOO BIG
 0024A2:I     E650 AC41 =0050E7:I       1596            LA    R5,CYLMSG1           LOAD ADVISORY MSG ADR
 0024A6:I     48C7 DD5A =000204:I       1597            LH    R12,CYLTAB(R7)       USER'S CYLINDER OPTION
 0024AA:I     45CE DE26 =0002D4:I       1598            CLH   R12,MAXCYL(R14)      COMPARE TO MAXIMUM
*0024AE:I     2387      =0024BC:I       1599            BNL   PARMESS              ERROR IF TOO BIG
 0024B0:I     2772                      1600  SELTST2   SIS   R7,2                 DECREMENT INDEX
 0024B2:I     4210 8020 =0024D6:I       1601            BM    SELTSTX              DONE CHECKING
 0024B6:I     4300 FF5C =002416:I       1602            B     SELTST1              LOOP
 0024BA:I     1071                      1603  PARMESS2  SRLS  R7,1                 RESTORE INDEX FROM FULLWORD
 0024BC:I     1071                      1604  PARMESS   SRLS  R7,1                 RESTORE INDEX FROM HALFWORD
 0024BE:I     CA70 0030                 1605            AHI   R7,C'0'              CONVERT TO ASCII
 0024C2:I     D270 BA22 =005EE8:I       1606            STB   R7,SIZERR@           STORE IN MESSAGE
 0024C6:I     E1E0 BC06 =0060D0:I       1607            SVC   14,MESSAGE           PRINT ADVISORY
 0024CA:I     E650 B9F5 =005EC3:I       1608            LA    R5,SIZERR            MESSAGE ADDRESS
 0024CE:I     E1E0 BBFE =0060D0:I       1609            SVC   14,MESSAGE           PRINT IT
 0024D2:I     E1E0 BBE2 =0060B8:I       1610            SVC   14,COMMAND           NEXT COMMAND
                                        1611  *
              0000 24D6:I               1612  SELTSTX   EQU   *
 0024D6:I     7340 BB4A =006024:I       1613            LHL   R4,ACTIVE            ANY BITS SET?
*0024DA:I     2333      =0024E0:I       1614            BZ    NOSELCH              ADVISORY MESSAGE IF NONE
                                        1615  *
 0024DC:I     E1E0 BCD8 =0061B8:I       1616            SVC   14,RETURN            ELSE, RETURN TO EXECUTIVE
                                        1617  *                                    EXEC TRANSFERS CONTROL TO TEST
 0024E0:I     E650 AA74 =004F58:I       1618  NOSELCH   LA    R5,NOSELCHM          'NO SELCHES SELECTED!'
 0024E4:I     E1E0 BBE8 =0060D0:I       1619            SVC   14,MESSAGE           PRINT MESSAGE
 0024E8:I     E1E0 BBCC =0060B8:I       1620            SVC   14,COMMAND           BACK TO COMMAND MODE
                                        1621  *
                                        1622  *
 0024EC:I     1800                      1623  IGNORE    LPSWR R0                   RETURN
```

COMMON SUBROUTINES

```
                                    1625  *   S U B R O U T I N E   S E T R E G
                                    1626  *
                                    1627  * CALL IS:      BAL   R15,SETREG
                                    1628  *               RETURN WITH ZERO CONDITION CODE WHEN NO MORE
                                    1629  *               SELCHES ARE TO BE SELECTED.  ELSE, CC NOT ZERO.
                                    1630  *
                                    1631  *                                          INDEX INITIALLY = -2
 0024EE:I    4810 BB30 =006022:I    1632  SETREG   LH     R1,INDEX                   LOAD CURRENT INDEX
 0024F2:I    2400                   1633           LIS    R0,0
 0024F4:I    4000 DEF4 =0003EC:I    1634           STH    R0,ERRFLAG                 CLEAR SEQUENCE ERROR FLAG
 0024F8:I    2612                   1635           AIS    R1,2                       INCREMENT INDEX
 0024FA:I    4010 BB24 =006022:I    1636           STH    R1,INDEX                   STORE CURRENT INDEX
 0024FE:I    C510 0010              1637           CLHI   R1,16                      HAVE WE LOOKED FOR 8 SELCHES ?
*002502:I    2186       =00250E:I   1638           BL     TSTACT                     NO, CHECK FOR NEXT SELCH
 002504:I    2512                   1639           LCS    R1,2                       YES, RESET INDEX TO MINUS 2
 002506:I    4010 BB18 =006022:I    1640           STH    R1,INDEX
 00250A:I    0511                   1641           CLR    R1,R1                      CLEAR CC
 00250C:I    030F                   1642           BR     R15                        RETURN


 00250E:I    1011                   1644  TSTACT   SRLS   R1,1                       FORM BIT INDEX
 002510:I    7410 BB10 =006024:I    1645           TBT    R1,ACTIVE                  TEST AGAINST ACTIVE SELCHES
 002514:I    4330 FFD6 =0024EE:I    1646           BZ     SETREG                     TRY NEXT IF NOT ACTIVE
 002518:I    C831 0030              1647           LHI    R3,C'0'(R1)                FORM ASCII 0 THROUGH 7
 00251C:I    D230 BA95 =005FB5:I    1648           STB    R3,INDEXM@                 STORE IN INDEX MESSAGE
 002520:I    D230 BABF =005FE3:I    1649           STB    R3,INDEXN@                 STORE IN INDEX MESSAGE
 002524:I    1111                   1650           SLLS   R1,1                       RESTORE TO HALFWORD INDEX
 002526:I    7331 DC9A =0001C4:I    1651           LHL    SELCH,SELTAB(R1)           IS THIS SELCH IN SYSTEM ?
                                    1652  *                                          R3 HOLDS THE CURRENT SELCH ADDRESS
 00252A:I    4330 FFC0 =0024EE:I    1653           BZ     SETREG                     TRY NEXT INDEX IF NOT ASSIGNED
 00252E:I    7341 DCA2 =0001D4:I    1654           LHL    R4,IOTAB(R1)               LOAD DEVICE ADDRESS
 002532:I    7351 DCAE =0001E4:I    1655           LHL    R5,DEVTABLE(R1)            LOAD DEVICE IDENTIFIER
 002536:I    1152                   1656           SLLS   R5,LADC                    FORM FULL WORD INDEX
 002538:I    5855 8020 =00255C:I    1657           L      DRIVER,DRIVETAB(R5)        LOAD DRIVER ADDRESS
 00253C:I    5051 4100 02B4:I       1658           ST     DRIVER,DRIVSAV(R1,R1)      SAVE DRIVER ADDRESS
 002542:I    C8D0 2020              1659           LHI    R13,X'2020'                SPACES BETWEEN ACTIVITY
 002546:I    D2D0 BA63 =005FAD:I    1660           STB    R13,INDEXM                 AND THE INDEX NUMBER
 00254A:I    D2D0 BA60 =005FAE:I    1661           STB    R13,INDEXM+1
 00254E:I    D2D0 BA89 =005FDB:I    1662           STB    R13,INDEXN
 002552:I    D2D0 BA86 =005FDC:I    1663           STB    R13,INDEXN+1
 002556:I    08FF                   1664           LR     R15,R15                    NON-ZERO CONDITION CODE
 002558:I    030F                   1665           BR     R15                        RETURN TO CALL
                                    1666  *
 00255C:I                           1667           ALIGN  ADC
             0000 255C:I            1668  DRIVETAB EQU   *
 00255C:I    0000 2D2A:I            1669           DAC    TESTDRIV                   0  SELCH TESTER - BYTE
 002560:I    0000 2D5C:I            1670           DAC    TAPEDRIV                   1  800/1600 BPI TAPE
 002564:I    0000 2D5C:I            1671           DAC    TAPEDRIV                   2  6250 BPI TAPE
 002568:I    0000 2E08:I            1672           DAC    DISKDRIV                   3  2.5 OR 10 MB DISK
 00256C:I    0000 2F74:I            1673           DAC    D40DRIV                    4  40MB DISK
 002570:I    0000 2E9C:I            1674           DAC    DMSMDRIV                   5  67 MB MSM
 002574:I    0000 2E9C:I            1675           DAC    DMSMDRIV                   6  256 MB MSM
```

COMMON SUBROUTINES

```
002578:I     0000 2E9C:I          1676            DAC   DMSMDRIV          7  67.2MB WINCHESTER
00257C:I     0000 2E9C:I          1677            DAC   DCDDDRIV          8  13.5MB CDD REM
002580:I     0000 2E9C:I          1678            DAC   DCDDDRIV          9  13.5MB CDD FXD
002584:I     0000 2E9C:I          1679            DAC   DCDDDRIV          A  40.4MB CDD FXD
002588:I     0000 2E9C:I          1680            DAC   DCDDDRIV          B  67.3MB CDD FXD
00258C:I     0000 2E9C:I          1681            DAC   D300DRIV          C  300MB CAPRICORN DISK
002590:I     0000 2E9C:I          1682            DAC   D198DRIV          D  19.8MB REMOVABLE
002594:I     0000 2E9C:I          1683            DAC   D198DRIV          E  19.8MB FIXED
002598:I     0000 0000            1684            DAC   0                 F  RESERVED
00259C:I     0000 2D2A:I          1685            DAC   TESTDRIV          10 SELCH TESTER - HW
                                  1686  *
                                  1687  *
0025A0:I     0000 6208:I          1688  DEVINTT   DAC   IOBLOCK0
0025A4:I     0000 6210:I          1689            DAC   IOBLOCK1
0025A8:I     0000 6218:I          1690            DAC   IOBLOCK2
0025AC:I     0000 6220:I          1691            DAC   IOBLOCK3
0025B0:I     0000 6228:I          1692            DAC   IOBLOCK4
0025B4:I     0000 6230:I          1693            DAC   IOBLOCK5
0025B8:I     0000 6238:I          1694            DAC   IOBLOCK6
0025BC:I     0000 6240:I          1695            DAC   IOBLOCK7
                                  1696  *
0025C0:I     0000 6248:I          1697  SELINTT   DAC   IOBLOCK8
0025C4:I     0000 6250:I          1698            DAC   IOBLOCK9
0025C8:I     0000 6258:I          1699            DAC   IOBLOCKA
0025CC:I     0000 6260:I          1700            DAC   IOBLOCKB
0025D0:I     0000 6268:I          1701            DAC   IOBLOCKC
0025D4:I     0000 6270:I          1702            DAC   IOBLOCKD
0025D8:I     0000 6278:I          1703            DAC   IOBLOCKE
0025DC:I     0000 6280:I          1704            DAC   IOBLOCKF
```

SUBROUTINES

```
                0000 25E0:I                1706  TSTEND    EQU   *
*0025E0:I       247E                       1707            LHI   R7,8*2-2
 0025E2:I       7317 DBDE =0001C4:I        1708  TSTEND0   LHL   R1,SELTAB(R7)       TEST PRESENCE OF SELCH
 0025E6:I       4330 8040 =00262A:I        1709            BZ    TSTEND1            NOT SELECTED
 0025EA:I       C800 00C0                  1710            LHI   R0,X'C0'           LOAD STANDARD DISARM COMMAND
 0025EE:I       7347 DBE2 =0001D4:I        1711            LHL   R4,IOTAB(R7)       LOAD DEVICE ADR
 0025F2:I       7357 DBEE =0001E4:I        1712            LHL   R5,DEVTABLE(R7)    LOAD DEVICE TYPE
 0025F6:I       C350 000F                  1713            THI   R5,X'0F'           CHECK IF SELCH TESTER
*0025FA:I       233E       =002616:I       1714            BZ    TESTEND4           YES, SKIP CMD
 0025FC:I       C550 0001                  1715            CLHI  R5,1               CHECK IF 800 1600 BPI TAPE
*002600:I       233A       =002614:I       1716            BE    TESTEND3           YES, CMD DISARM TO CONTROLER
 002602:I       C550 0002                  1717            CLHI  R5,2               6250 TAPE ??
 002606:I       2133       =00260C:I       1718            BNES  TESTEND2           NO,SKIP
 002608:I       2609                       1719            AIS   R0,9               MAKE 6250 TYPE  DISARM/CLEAR - 'C9'
*00260A:I       2305       =002614:I       1720            B     TESTEND3           ISSUE TO CONTROLLER
 00260C:I       7367 DBE4 =0001F4:I        1721  TESTEND2  LHL   R6,DISFTAB(R7)      LOAD FILE ADR
 002610:I       9E60                       1722            OCR   R6,R0              ISSUE DISARM TO FILE
 002612:I       2608                       1723            AIS   R0,8               MAKE DISARM / CLEAR FOR CONTROLLER
 002614:I       9E40                       1724  TESTEND3  OCR   IODEVS,R0          CLEAR ANY INTERRUPTS
 002616:I       5817 4700 25A0:I           1725  TESTEND4  L     R1,DEVINTT(R7,R7)  IOBLOCK ADDRESS
 00261C:I       E1E0 BB60 =006180:I        1726            SVC   14,RELEASE         RELEASE THE DEVICE
 002620:I       5817 4700 25C0:I           1727            L     R1,SELINTT(R7,R7)  IOBLOCK ADDRESS
 002626:I       E1E0 BB56 =006180:I        1728            SVC   14,RELEASE         RELEASE THE SELCH
 00262A:I       2772                       1729  TSTEND1   SIS   R7,2               DECREMENT INDEX
 00262C:I       4380 FFB2 =0025E2:I        1730            BNL   TSTEND0            LOOP
 002630:I       E6D0 B74B =005D7F:I        1731            LA    R13,BLANKMSG       DELETE ACTIVITY DISPLAY
 002634:I       E1E0 BBA0 =0061D8:I        1732            SVC   14,MESSAGEX
 002638:I       E1E0 BB1C =006158:I        1733            SVC   14,TESTEND         GO TO END OF TEST


 00263C:I       2410                       1735  GOWRT     LIS   R1,0
 00263E:I       41F0 8142 =002784:I        1736            BAL   R15,ISSUEGO        START ALL SELCHES
 002642:I       E6F0 8012 =002658:I        1737            LA    R15,GOWRTT         RETURN TABLE ADDRESS
 002646:I       50F0 B9E2 =00602C:I        1738            ST    R15,RTNSAV         SAVE RETURN ADDRESS
 00264A:I       E6F0 8004 =002652:I        1739            LA    R15,GOWRTT2        LOAD R15 IN CASE OF TIMEOUT
 00264E:I       C200 BA4E =0060A0:I        1740            LPSW  WAITPSW            WAIT FOR INTERRUPTS
                                           1741  *
 002652:I       4300 8172 =0027C8:I        1742  GOWRTT2   B     CHKINT             CHECK ALL INTS
                                           1743  *
 002658:I       0000 2676:I                1744  GOWRTT    DAC   READOP            CODE 0...NORMAL RETURN
 00265C:I       0000 2676:I                1745            DAC   READOP            CODE 1...BACKGROUND ERROR
 002660:I       0000 2668:I                1746            DAC   GOWE17             CODE 2...ERROR 17          ***
 002664:I       0000 2670:I                1747            DAC   GOWE42             CODE 3...ERROR 42          ***
                                           1748  *
 002668:I       41E0 A1CE =00483A:I        1749  GOWE17    BAL   R14,DOERROR        PRINT ERROR
 00266C:I       0011                       1750            DC    X'0011'            ERROR 17
*00266E:I       2304       =002676:I       1751            B     READOP
 002670:I       41E0 A1C6 =00483A:I        1752  GOWE42    BAL   R14,DOERROR        PRINT ERROR
 002674:I       002A                       1753            DC    X'002A'            ERROR 42
*002676:I                                  1754            B     READOP
 002676:I       41F0 FE74 =0024EE:I        1755  READOP    BAL   R15,SETREG         ADJUST REGISTERS FOR CURRENT SELCH
 00267A:I       4330 80C8 =002746:I        1756            BZ    GORD               ISSUE GO CMD IF ALL SELCHES SET
```

SUBROUTINES

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00267E:I  41F0 82CE =002950:I  1757          BAL   R15,SELCH3          CHECK SELCH TERMINATION
002682:I  41F0 9F1C =0045A2:I  1758          BAL   R15,BUFCHK          CHECK THAT OUTBUF WAS NOT MODIFIED
002686:I  41F0 81EC =002876:I  1759          BAL   R15,SELCH1          ENSURE SELCH IS IDLE
00268A:I  4810 B994 =006022:I  1760          LH    R1,INDEX            GET CURRENT
00268E:I  1111                 1761          SLLS  R1,1                MAKE FW
002690:I  5851 DC20 =0002B4:I  1762          L     DRIVER,DRIVSAV(R1)  GET DRIVER ADDRESS
002694:I  01F5                 1763          BALR  R15,DRIVER          SETUP I/O DEVICE FOR TRANSFER
002696:I  0001                 1764          DC    X'1'                FROM DEVICE TO MEMORY (READ)
002698:I  41F0 820E =0028AA:I  1765          BAL   R15,SELCH2          SETUP SELCH FOR TRANSFER
00269C:I  0000 03BC:I          1766          DAC   INBTAB              USING INPUT BUFFER TABLE
0026A0:I  4300 FFD2 =002676:I  1767          B     READOP              CHECK FOR NEXT SELCH
0026A4:I  41F0 FE46 =0024EE:I  1768  FINAL   BAL   R15,SETREG          AJUST REGISTERS FOR CURRENT SELCH
0026A8:I  4330 FF34 =0025E0:I  1769          BZ    TSTEND              CHECK FOR NEXT TEST
0026AC:I  4870 B972 =006022:I  1770          LH    R7,INDEX            CURRENT INDEX
0026B0:I  C800 00C0            1771          LHI   R0,X'C0'            LOAD STANDARD DISARM COMMAND
0026B4:I  7347 DB1C =0001D4:I  1772          LHL   R4,IOTAB(R7)        LOAD DEVICE ADR
0026B8:I  7357 DB28 =0001E4:I  1773          LHL   R5,DEVTABLE(R7)     LOAD DEVICE TYPE
0026BC:I  C350 000F            1774          THI   R5,X'0F'            CHECK IF SELCH TESTER
*0026C0:I 233E       =0026DC:I 1775          BZ    FINAL4              YES, SKIP CMD
0026C2:I  C550 0001            1776          CLHI  R5,1                CHECK IF 800 1600 BPI TAPE
*0026C6:I 233A       =0026DA:I 1777          BE    FINAL3              YES, CMD DISARM TO CONTROLER
0026C8:I  C550 0002            1778          CLHI  R5,2                6250 TAPE ??
0026CC:I  2133       =0026D2:I 1779          BNES  FINAL2              NO,SKIP
0026CE:I  2609                 1780          AIS   R0,9                MAKE 6250 TYPE  DISARM/CLEAR - 'C9'
*0026D0:I 2305       =0026DA:I 1781          B     FINAL3              ISSUE TO CONTROLLER
0026D2:I  7367 DB1E =0001F4:I  1782  FINAL2  LHL   R6,DISFTAB(R7)      LOAD FILE ADR
0026D6:I  9E60                 1783          OCR   R6,R0               ISSUE DISARM TO FILE
0026D8:I  2608                 1784          AIS   R0,8                MAKE DISARM / CLEAR FOR CONTROLLER
0026DA:I  9E40                 1785  FINAL3  OCR   IODEVS,R0           CLEAR ANY INTERRUPTS
0026DC:I  5817 4700 25C0:I     1786  FINAL4  L     R1,SELINTT(R7,R7)   POINT TO SELCH I/O BLOCK
0026E2:I  E1E0 BA9A =006180:I  1787          SVC   14,RELEASE          RELEASE THE SELCH
0026E6:I  5817 4700 25A0:I     1788          L     R1,DEVINTT(R7,R7)   POINT TO DEVICE I/O BLOCK
0026EC:I  E1E0 BA90 =006180:I  1789          SVC   14,RELEASE          RELEASE THE DEVICE
                               1790  *
0026F0:I  7320 B92E =006022:I  1791          LHL   R2,INDEX            GET CURRENT
0026F4:I  1121                 1792          SLLS  R2,1
0026F6:I  5812 DCA2 =00039C:I  1793          L     R1,OUTBTAB(R2)      LOAD ADRS OF OUTPUT BUFFER
0026FA:I  5892 DCBE =0003BC:I  1794          L     R9,INBTAB(R2)       LOAD ADRS OF INPUT BUFFER
0026FE:I  2460                 1795          LIS   R6,0
002700:I  2472                 1796          LIS   R7,2
002702:I  5882 DB1E =000224:I  1797          L     R8,BYTETAB(R2)      LOAD BYTE SIZE OF TRANSFER
002706:I  2781                 1798          SIS   R8,1                FOR END ADR
002708:I  1021                 1799          SRLS  R2,1                MAKE HW
00270A:I  73A1 4600 0000       1800  LOAD11  LHL   R10,0(R1,R6)        LOAD DATA FROM OUTPUT BUFFER
002710:I  73B6 4900 0000       1801          LHL   R11,0(R6,R9)        LOAD DATA FROM INPUT BUFFER
002716:I  05AB                 1802          CLR   R10,R11             OUTPUT BUFFER = INPUT BUFFER ?
002718:I  2135       =002722:I 1803          BNES  ODDCHK21            NO, CHECK FOR ODD BYTE TRANSFER
00271A:I  C160 FFEC =00270A:I  1804          BXLE  R6,LOAD11           YES, REPEAT UNTIL ALL OF BUFFER CHK
00271E:I  4300 FF82 =0026A4:I  1805          B     FINAL               CHECK FOR NEXT SELCH
002722:I  0568                 1806  ODDCHK21 CLR   R6,R8              WAS AN EVEN NUMBER OF BYTES TRANSFER
002724:I  2336       =002730:I 1807          BES   JUMP6               NO, CONTINUE
002726:I  41E0 A110 =00483A:I  1808          BAL   R14,DOERROR         YES, PRINT ERROR
00272A:I  0110                 1809          DC    X'0110'             ERROR 16
```

SUBROUTINES

```
00272C:I     4300 FF74 =0026A4:I      1810           B     FINAL              CHECK FOR NEXT SELCH
002730:I     08EA                     1811  JUMP6    LR    R14,R10            CHECK ONLY LAST BYTE TRANSFERRED
002732:I     07EB                     1812           XR    R14,R11            SEE IF SAME
002734:I     C3E0 FF00                1813           THI   R14,X'FF00'        AS EXPECTED
002738:I     4330 FF68 =0026A4:I      1814           BZ    FINAL              YES, CHECK FOR NEXT SELCH
00273C:I     41E0 A0FA =00483A:I      1815           BAL   R14,DOERROR        NO, PRINT ERROR
002740:I     0110                     1816           DC    X'0110'            ERROR 16
002742:I     4300 FF5E =0026A4:I      1817           B     FINAL              CHECK FOR NEXT SELCH
002746:I     2411                     1818  GORD     LIS   R1,1
002748:I     41F0 8038 =002784:I      1819           BAL   R15,ISSUEGO
00274C:I     E6F0 8010 =002760:I      1820           LA    R15,GORDT          RETURN TABLE ADDRESS
002750:I     50F0 B8D8 =00602C:I      1821           ST    R15,RTNSAV         SAVE RETURN ADDRESS
002754:I     E6F0 8004 =00275C:I      1822           LA    R15,GORDT2         LOAD R15 IN CASE OF TIMEOUT
002758:I     C200 B944 =0060A0:I      1823           LPSW  WAITPSW            WAIT FOR INTERRUPTS
                                      1824  *
00275C:I     4300 8068 =0027C8:I      1825  GORDT2   B     CHKINT             GO CHECK INTS
                                      1826  *
002760:I     0000 26A4:I              1827  GORDT    DAC   FINAL              CODE 0...NORMAL RETURN
002764:I     0000 26A4:I              1828           DAC   FINAL              CODE 1...BACKGROUND ERROR
002768:I     0000 2770:I              1829           DAC   GORE18             CODE 2...ERROR 18
00276C:I     0000 277A:I              1830           DAC   GORE43             CODE 3...ERROR 43
                                      1831  *
002770:I     41E0 A0C6 =00483A:I      1832  GORE18   BAL   R14,DOERROR        PRINT ERROR
002774:I     0012                     1833           DC    X'0012'            ERROR 18
002776:I     4300 FF2A =0026A4:I      1834           B     FINAL
00277A:I     41E0 A0BC =00483A:I      1835  GORE43   BAL   R14,DOERROR        PRINT ERROR
00277E:I     002B                     1836           DC    X'002B'            ERROR 43
002780:I     4300 FF20 =0026A4:I      1837           B     FINAL


                                      1839  *   S U B R O U T I N E   I S S U E G O
                                      1840  *
                                      1841  * START ALL SELECTED SELCHES
                                      1842  *
                                      1843  *
                                      1844  * CALL IS:     LIS   R1,0 FOR WRITE OR 1 FOR READ
                                      1845  *              BAL   R15,ISSUEGO
                                      1846  *
002784:I     2470                     1847  ISSUEGO  LIS   R7,0              SETUP BXLE REGISTERS
002786:I     2482                     1848           LIS   R8,2              INCREMENT VALUE
*002788:I    249E                     1849           LHI   R9,16-2           LIMIT
00278A:I     2460                     1850           LIS   R6,0
00278C:I     5060 B8E4 =006074:I      1851           ST    R6,SELBYTE        CLEAR SELCH AND DEVICE BYTE
                                      1852  *                                R6, INITIALLY ZERO, IS
                                      1853  *                                BIT INDEX TO ACTIVE LIST
002790:I     7460 B890 =006024:I      1854  SELADR   TBT   R6,ACTIVE
002794:I     4330 8028 =0027C0:I      1855           BZ    BXLE2             SKIP OUTPUT COMMAND IF NOT ACTIVE
002798:I     7337 DA28 =0001C4:I      1856           LHL   SELCH,SELTAB(R7)   LOAD SELCH ADRS
00279C:I     7347 DA34 =0001D4:I      1857           LHL   R4,IOTAB(R7)       LOAD I/O DEVICE ADRS FROM TABLE
0027A0:I     73C7 DA40 =0001E4:I      1858           LHL   R12,DEVTABLE(R7)   LOAD I/O DEVICE TYPE FROM TABLE
0027A4:I     C3C0 000F                1959           THI   R12,X'F'           CHECK FOR 10 OR 0
*0027A8:I    2339       =0027BA:I     1860           BZ    LAOB              IF SELCH TESTER SKIP OC
```

SUBROUTINES

```
 0027AA:I  C5C0 0002           1861          CLHI  R12,2             IS IT A 6250 TAPE ??          ***
*0027AE:I  2133      =0027B4:I 1862          BNE   DEVCMD            NO, SKIP THIS ADDED CMD       ***
 0027B0:I  DE41 819A =00294E:I 1863          OC    R4,ENA6250(R1)    ISSUE NORMAL COMMAND ENABLE
 0027B4:I  DE41 4700 03DC:I    1864  DEVCMD  OC    R4,RWC(R1,R7)     ISSUE READ OR WRITE COMMAND TO DEV
 0027BA:I  9D4C                1865  LAOB    SSR   R4,STAT           SENSE I/O DEVICE STATUS
 0027BC:I  DE31 B858 =006018:I 1866          OC    SELCH,GO(R1)      ISSUE OUTPUT COMMAND TO SELCH
 0027C0:I  2661                1867  BXLE2   AIS   R6,1              BUMP ACTIVE INDEX
 0027C2:I  C170 FFCA =002790:I 1868          BXLE  R7,SELADR         REPEAT UNTIL ALL SELCHES ARE STARTED
 0027C6:I  030F                1869          BR    R15


                               1871  * CHECK ALL SELCHES SELECTED CAUSED AN INTERRUPT AND DEVICE STATUS GOOD
 0027C8:I  D360 B8A8 =006074:I 1872  CHKINT  LB    R6,SELBYTE        LOAD INTERRUPTING SELCH LIST
 0027CC:I  D370 B854 =006024:I 1873          LB    R7,ACTIVE         LOAD ACTIVE SELCH LIST
 0027D0:I  0767                1874          XR    R6,R7             DID ALL ACTIVE SELCHES INTERRUPT ?
*0027D2:I  2336      =0027DE:I 1875          BZ    CHKDEV            YES, CHECK DEVICE INTERRUPTS
 0027D4:I  E680 B89C =006074:I 1876          LA    R8,SELBYTE        NO, CHECK FOR SELCH ERROR
 0027D8:I  2492                1877          LIS   R9,2              RETURN CODE 2
 0027DA:I  4300 8050 =00282E:I 1878          B     CHKERR@
 0027DE:I  D360 B894 =006076:I 1879  CHKDEV  LB    R6,DEVBYTE        LOAD INTERRUPTING DEVICE LIST
 0027E2:I  0767                1880          XR    R6,R7             DID ALL ACTIVE DEVICES INTERRUPT ?
*0027E4:I  2336      =0027F0:I 1881          BZ    TSTAT             YES,CHECK INTERRUPTING STATUS
 0027E6:I  E680 B88C =006076:I 1882          LA    R8,DEVBYTE        NO, CHECK FOR DEVICE ERROR
 0027EA:I  2493                1883          LIS   R9,3              RETURN CODE 3
 0027EC:I  4300 803E =00282E:I 1884          B     CHKERR@
 0027F0:I  2460                1885  TSTAT   LIS   R6,0              CLEAR LIST INDEX
 0027F2:I  7460 B82E =006024:I 1886  TSTAT1  TBT   R6,ACTIVE
 0027F6:I  4330 8024 =00281E:I 1887          BZ    TSTAT2            NO, CHECK NEXT I/O DEVICE STATUS
 0027FA:I  0A66                1888          AR    R6,R6
 0027FC:I  7376 DB6C =00036C:I 1889          LHL   R7,STATLST(R6)    LOAD SELCH STATUS
 002800:I  C370 00FF           1890          THI   R7,X'FF'          ARE ANY SELCH STATUS BITS SET ?
*002804:I  2334      =00280C:I 1891          BZ    JUMP7             NO, CONTINUE
 002806:I  41E0 A030 =00483A:I 1892          BAL   R14,DOERROR       YES, PRINT ERROR
 00280A:I  0226                1893          DC    X'0226'           ERROR 38
 00280C:I  7376 DB7C =00038C:I 1894  JUMP7   LHL   R7,DEVSTAT(R6)    LOAD I/O DEVICE STATUS
 002810:I  C370 00C1           1895          THI   R7,X'C1'          IS I/O DEVICE STATUS VALID ?
*002814:I  2334      =00281C:I 1896          BZ    JUMP8             YES, CONTINUE
 002816:I  41E0 A020 =00483A:I 1897          BAL   R14,DOERROR       NO, PRINT ERROR
 00281A:I  0028                1898          DC    X'0028'           ERROR 40
 00281C:I  1061                1899  JUMP8   SRLS  R6,1
 00281E:I  2661                1900  TSTAT2  AIS   R6,1              YES, INCREMENT LIST INDEX
 002820:I  C560 0008           1901          CLHI  R6,8              HAVE ALL STATUS BEEN CHECKED ?
 002824:I  4280 FFCA =0027F2:I 1902          BL    TSTAT1            NO, CHECK NEXT SELCH STATUS
 002828:I  2490                1903          LIS   R9,0              RETURN CODE 0...NORMAL RETURN
 00282A:I  4300 8034 =002862:I 1904          B     CHKRETRN          RETURN TO CALL
 00282E:I  2460                1905  CHKERR@ LIS   R6,0              CLEAR INDEX
 002830:I  2470                1906          LIS   R7,0
 002832:I  7460 B7EE =006024:I 1907  TSTIT1  TBT   R6,ACTIVE
*002836:I  233A      =00284A:I 1908          BZ    NOTSET
 002838:I  7468 0000           1909          TBT   R6,0(R8)
*00283C:I  213A      =002850:I 1910          BNZ   TSTNXT1
 00283E:I  48A7 D9A2 =0001E4:I 1911  STRINDEX LH    R10,DEVTABLE(R7)  GET DEVICE TYPE
```

SUBROUTINES

```
*002842:I  2337       =002850:I   1912            BZ    TSTNXT1          DEVICE 0 IS NOT ERROR
 002844:I  4070 B7DA  =006022:I   1913            STH   R7,INDEX
*002848:I  230D       =002862:I   1914            B     CHKRETRN         RETURN TO CALL
 00284A:I  7468 0000               1915  NOTSET    TBT   R6,0(R8)
*00284E:I  2038       =00283E:I   1916            BNZ   STRINDEX
 002850:I  2661                    1917  TSTNXT1   AIS   R6,1             INCREMENT INDEX
 002852:I  2672                    1918            AIS   R7,2
 002854:I  C570 0010               1919            CLHI  R7,16            ALL EIGHT SELCHES?
 002858:I  4280 FFD6  =002832:I    1920            BL    TSTIT1           LOOP
 00285C:I  2490                    1921            LIS   R9,0             RETURN CODE 0...NORMAL RETURN
*00285E:I  2302       =002862:I   1922            B     CHKRETRN         RETURN TO CALL
 002860:I  2490                    1923  INTRTN    LIS   R9,0             RETURN CODE 0...NORMAL RETURN
 002862:I  58F0 B7C6  =00602C:I    1924  CHKRETRN  L     R15,RTNSAV       RESTORE LINK
 002866:I  26F3                    1925            AIS   R15,3            ROUND RETURN ADDRESS
 002868:I  C4F0 FFFC               1926            NHI   R15,-4
 00286C:I  1192                    1927            SLLS  R9,2             4X RETURN CODE
 00286E:I  58FF 4900 0000          1928            L     R15,0(R15,R9)    FETCH RETURN ADDRESS
 002874:I  030F                    1929            BR    R15              RETURN TO ONE OF FOUR


                                   1931  *   S U B R O U T I N E   S E L C H 1
                                   1932  *
                                   1933  * RESET SELCH & INSURE IT IS IDLE
                                   1934  *
                                   1935  * CALL IS:     BAL   R15,SELCH1
                                   1936  *
 002876:I  2460                    1937  SELCH1    LIS   R6,0             INITIAL TIMER VALUE
 002878:I  7370 B7A6  =006022:I    1938            LHL   R7,INDEX         GET CURRENT INDEX
 00287C:I  7337 D944  =0001C4:I    1939            LHL   SELCH,SELTAB(R7) GET SELCH ADDRESS
 002880:I  2471                    1940            LIS   R7,1             TIMER INCREMENT VALUE
 002882:I  5880 B7F2  =006078:I    1941            L     R8,DELAYVAL      TIMER LIMIT
 002886:I  DE30 B780  =00600A:I    1942            OC    SELCH,STOP2      STOP, SELCH STATUS
*00288A:I  2346       =002896:I   1943            BNO   SENSE1           IF NO FALSE SYNC CONTINUE
 00288C:I  41E0 9FAA  =00483A:I    1944            BAL   R14,DOERROR      PRINT ERROR
 002890:I  001B                    1945            DC    X'001B'          ERROR 27
 002892:I  4300 A54C  =004DE2:I    1946            B     TSTERTN          GO TO TEST ERROR RETURN
 002896:I  9D3C                    1947  SENSE1    SSR   SELCH,STAT       TEST FOR SELCH BUSY
*002898:I  2182       =00289C:I   1948            BTC   8,XTIMEOUT       NO, GO TO XTIMEOUT
 00289A:I  030F                    1949            BR    R15              YES, RETURN
                                   1950  *
 00289C:I  C160 FFF6  =002896:I    1951  XTIMEOUT BXLE  R6,SENSE1          REPEAT UNTIL BXLE REACHES LIMIT
 0028A0:I  41E0 9F96  =00483A:I    1952            BAL   R14,DOERROR      PRINT ERROR
 0028A4:I  0205                    1953            DC    X'0205'          ERROR 05
 0028A6:I  4300 A538  =004DE2:I    1954            B     TSTERTN          GO TO TEST ERROR RETURN


                                   1956  *   S U B R O U T I N E   S E L C H 2
                                   1957  *
                                   1958  * SET UP SELCH FOR TRANSFER
                                   1959  *
 0028AA:I  26F3                    1960  SELCH2    AIS   R15,3            ROUND UP TO NEXT FW BOUNDARY
```

SUBROUTINES

```
0028AC:I  C4F0 FFFC              1961          NHI   R15,-4
0028B0:I  73B0 B76E =006022:I    1962          LHL   WORK1,INDEX          LOAD CURRENT INDEX
0028B4:I  733B D90C =0001C4:I    1963          LHL   SELCH,SELTAB(WORK1)
0028B8:I  10B1                   1964          SRLS  WORK1,1
0028BA:I  74B0 B766 =006024:I    1965          TBT   WORK1,ACTIVE         IS THIS SELCH ACTIVE ?
0028BE:I  433F 0004              1966          BZ    4(R15)               NO, RETURN TO TEST
0028C2:I  11B2                   1967          SLLS  WORK1,2              ADJUST FOR FULLWORD TABLE
0028C4:I  58AF 0000              1968          L     WORK,0(R15)          LOAD LOC OF BUFFER ADRS
0028C8:I  58AA 4B00 0000         1969          L     WORK,0(WORK,WORK1)   LOAD BUFFER ADRS
0028CE:I  50AB B62E =005F00:I    1970          ST    WORK,STARTADR(R11)   STORE START ADRS OF TRANSFER
0028D2:I  50A0 9F22 =0047F8:I    1971          ST    WORK,LOW             SAVE
0028D6:I  DA3B B627 =005F01:I    1972          WD    SELCH,ADRS1(R11)     SEND START ADRS TO SELCH
0028DA:I  DA3B B624 =005F02:I    1973          WD    SELCH,ADRS2(R11)
0028DE:I  DA3B B621 =005F03:I    1974          WD    SELCH,ADRS3(R11)
0028E2:I  586B D93E =000224:I    1975          L     R6,BYTETAB(WORK1)    LOAD TRANSFER SIZE FROM TABLE
0028E6:I  2761                   1976          SIS   R6,1                 ADJUST FOR END ADR
0028E8:I  0AA6                   1977          AR    WORK,R6              ADD TRANSFER SIZE TO START ADRS
0028EA:I  50AB B632 =005F20:I    1978          ST    WORK,ENDADRS(R11)    STORE END ADRS OF TRANSFER
0028EE:I  50A0 9F0A =0047FC:I    1979          ST    WORK,HIGH            SAVE
0028F2:I  DA3B B62B =005F21:I    1980          WD    SELCH,ADRS4(R11)     SEND END ADRS TO SELCH
0028F6:I  DA3B B628 =005F22:I    1981          WD    SELCH,ADRS5(R11)
0028FA:I  DA3B B625 =005F23:I    1982          WD    SELCH,ADRS6(R11)
0028FE:I  41E0 9EC2 =0047C4:I    1983          BAL   R14,BUFRM            MEMORY REAL??
*002902:I 2333      =002908:I    1984          BZ    ERR49                NO, ERROR
002904:I  430F 0004              1985          B     4(R15)
002908:I  41E0 9F2E =00483A:I    1986  ERR49     BAL   R14,DOERROR          FORM ERROR MESSAGE
00290C:I  0031                   1987          DC    X'0031'              ERROR 49 **
00290E:I  E1E0 B846 =006158:I    1988          SVC   14,TESTEND


                                 1990  *  S U B R O U T I N E  G O C M D
                                 1991  *
002912:I  73B0 B70C =006022:I    1992  GOCMD     LHL   R11,INDEX            INITIAL R11 FOR INDEX AGAIN
002916:I  734B D8BA =0001D4:I    1993          LHL   R4,IOTAB(R11)          LOAD IO ADDRESS AGAIN
00291A:I  733B D8A6 =0001C4:I    1994          LHL   SELCH,SELTAB(R11)      LOAD SELCH ADDRESS AGAIN
00291E:I  10B1                   1995          SRLS  R11,1                  ADJUST FOR ACTIVE BIT
002920:I  74B0 B700 =006024:I    1996          TBT   R11,ACTIVE             IS THIS SELCH ACTIVE ?
002924:I  4330 8022 =00294A:I    1997          BZ    GOCMDRS                NOT ACTIVE
002928:I  11B1                   1998          SLLS  R11,1
00292A:I  73CB D8B6 =0001E4:I    1999          LHL   R12,DEVTABLE(R11)      IS I/O DEVICE A SELCH TESTER ?
00292E:I  C3C0 000F              2000          THI   R12,X'0F'              CHECK IF SELCH TESTER
*002932:I 2339      =002944:I    2001          BZ    OCMD                   YES, SKIP DEVICE CONTROLLER CMD
002934:I  C5C0 0002              2002          CLHI  R12,2                  IS IT A 6250 TAPE ??          ***
*002938:I 2133      =00293E:I    2003          BNE   ISSUECMD               NO, SKIP THIS ADDED CMD       ***
00293A:I  DE41 8010 =00294E:I    2004  CMD6250  OC    R4,ENA6250(R1)         ISSUE NORMAL COMMAND ENABLE
00293E:I  DE41 4B00 03DC:I       2005  ISSUECMD OC    R4,RWC(R1,R11)         ISSUE READ OR WRITE COMMAND TO DEV
002944:I  DE31 B6D0 =006018:I    2006  OCMD      OC    SELCH,GO(R1)           ISSUE GO COMMAND TO SELCH
002948:I  030F                   2007          BR    R15
00294A:I  11B1                   2008  GOCMDRS  SLLS  R11,1                 ADJUST TO INDEX VALUE
00294C:I  030F                   2009          BR    R15                    RETURN TO TEST
                                 2010  *
00294E:I  4848                   2011  ENA6250  DC    X'4848'                6250 ENABLE   ***
```

SUBROUTINES

```
                                        2013  *   S U B R O U T I N E   S E L C H 3
                                        2014  *
                                        2015  * TEST SELCH TERMINATION
                                        2016  *
 002950:I     7310 B6CE =006022:I       2017  SELCH3   LHL   R1,INDEX            LOAD TABLE INDEX
 002954:I     1011                      2018          SRLS  R1,1
 002956:I     7410 B6CA =006024:I       2019          TBT   R1,ACTIVE           IS THIS SELCH ACTIVE?
 00295A:I     033F                      2020          BZR   R15                 NO, RETURN TO TEST
 00295C:I     1111                      2021          SLLS  R1,1
 00295E:I     7331 D862 =0001C4:I       2022          LHL   SELCH,SELTAB(R1)    LOAD SELCH ADDRESS AGAIN
 002962:I     7341 D86E =0001D4:I       2023          LHL   R4,IOTAB(R1)        LOAD IO ADDRESS AGAIN
 002966:I     7361 D88A =0001F4:I       2024          LHL   R6,DISFTAB(R1)      LOAD DISC FILE ADDRESS
 00296A:I     DE30 B69C =00600A:I       2025          OC    SELCH,STOP2         STOP2=X'4C'=EXT ADR RD-STOP-SEL STA
 00296E:I     9D3A                      2026          SSR   SELCH,WORK          IS SELCH BUSY ?
*002970:I     2386      =00297C:I       2027          BNC   JUMP9               NO, CONTINUE
 002972:I     41E0 9EC4 =00483A:I       2028          BAL   R14,DOERROR         YES, PRINT ERROR
 002976:I     0207                      2029          DC    X'0207'             ERROR 07
 002978:I     4300 8090 =002A0C:I       2030          B     SEL3RST
 00297C:I     C3A0 0030                 2031  JUMP9   THI   WORK,X'30'          IS MEM MAL OR MEM PAR STAT SET ?
*002980:I     2337      =00298E:I       2032          BZ    JUMP10              NO, CONTINUE
 002982:I     08CA                      2033          LR    STAT,WORK
 002984:I     41E0 9EB2 =00483A:I       2034          BAL   R14,DOERROR         YES, PRINT ERROR
 002988:I     0222                      2035          DC    X'0222'             ERROR 34
 00298A:I     4300 807E =002A0C:I       2036          B     SEL3RST
 00298E:I     DE30 B677 =006009:I       2037  JUMP10  OC    SELCH,STOP1         STOP1=X'48'=EXT ADRS RD - STOP
 002992:I     9D4C                      2038          SSR   IODEVS,STAT          SENSE I/O DEV STAT THROUGH SELCH
 002994:I     C3C0 00C1                 2039          THI   STAT,X'C1'          DID I/O DEV TERM ABNORMALLY ?
 002998:I     4230 8024 =0029C0:I       2040          BNZ   SELSTA              YES, COMPARE WITH SELCH STATUS
 00299C:I     7301 D844 =0001E4:I       2041          LHL   R0,DEVTABLE(R1)     NO, LOAD DEVICE OPT
 0029A0:I     C300 000F                 2042          THI   R0,X'0F'            *
 0029A4:I     4330 8040 =0029E8:I       2043          BZ    RDADRS              SKIP IF SELCH TESTER
 0029A8:I     C500 0003                 2044          CLHI  R0,3                IS IT A DISK?
 0029AC:I     4280 8038 =0029E8:I       2045          BL    RDADRS              CHECK END IF NOT
              0000 29B0:I               2046  DISCHK  EQU   *
 0029B0:I     9D4C                      2047  IDWT    SSR   R4,STAT             2.5 OR 10MB DISK
*0029B2:I     2149      =0029C4:I       2048          BO    SELSTA.4            SOMETHING WRONG
*0029B4:I     2222      =0029B0:I       2049          BFC   2,IDWT              NOT IDLE YET
 0029B6:I     9D4C                      2050          SSR   R4,STAT             STATUS OF CONTROL
 0029B8:I     C3C0 0001                 2051          THI   STAT,X'01'          DATA ERROR ?
 0029BC:I     4330 8028 =0029E8:I       2052          BZ    RDADRS              CHECK ADDRESS IF NO
*0029C0:I                               2053          B     SELSTA              ELSE, FORM ERROR MESSAGE
 0029C0:I     08AA                      2054  SELSTA  LR    WORK,WORK           YES, WAS SELCH STATUS = 0 ?
*0029C2:I     2136      =0029CE:I       2055          BNZ   JUMP11              NO, CONTINUE
 0029C4:I     41E0 9E72 =00483A:I       2056  SELSTA.4 BAL  R14,DOERROR         YES, PRINT ERROR
 0029C8:I     0206                      2057          DC    X'0206'             ERROR 06
 0029CA:I     4300 803E =002A0C:I       2058          B     SEL3RST
 0029CE:I     05CA                      2059  JUMP11  CLR   STAT,WORK           IS SELCH STAT = DEVICE STAT ?
*0029D0:I     2136      =0029DC:I       2060          BNE   JUMP12              NO, CONTINUE
 0029D2:I     41E0 9E64 =00483A:I       2061          BAL   R14,DOERROR         YES, PRINT ERROR
 0029D6:I     021C                      2062          DC    X'021C'             ERROR 28
 0029D8:I     4300 8030 =002A0C:I       2063          B     SEL3RST
 0029DC:I     08CA                      2064  JUMP12  LR    STAT,WORK
 0029DE:I     41E0 9E58 =00483A:I       2065          BAL   R14,DOERROR         PRINT ERROR
```

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 0029E2:I     021D                   2066          DC     X'021D'             ERROR 29
 0029E4:I     4300 8024 =002A0C:I    2067          B      SEL3RST
 0029E8:I     1111                   2068  RDADRS  SLLS   R1,1
 0029EA:I     DB31 B553 =005F41:I    2069          RD     SELCH,BYTE11(R1)    READ END ADDRESS
 0029EE:I     DB31 B550 =005F42:I    2070          RD     SELCH,BYTE21(R1)
 0029F2:I     DB31 B54D =005F43:I    2071          RD     SELCH,BYTE31(R1)
 0029F6:I     58A1 B526 =005F20:I    2072          L      WORK,ENDADRS(R1)    LOAD EXPECTED END ADRS
 0029FA:I     58B1 B542 =005F40:I    2073          L      WORK1,BYTE(R1)      LOAD END ADRS READ
 0029FE:I     1011                   2074          SRLS   R1,1
 002A00:I     05AB                   2075          CLR    WORK,WORK1          WAS ALL DATA TRANSFERED ?
*002A02:I     2335      =002A0C:I    2076          BE     SEL3RST
 002A04:I     2460                   2077          LIS    R6,0                CLEAR INDEX
 002A06:I     41E0 9E30 =00483A:I    2078          BAL    R14,DOERROR         NO, PRINT ERROR
 002A0A:I     0408                   2079          DC     X'0408'             ERROR 08
 002A0C:I     7310 B612 =006022:I    2080  SEL3RST LHL    R1,INDEX            LOAD INDEX                    ****
 002A10:I     C8C0 00C0              2081          LHI    STAT,X'C0'          LOAD CMD DISARM               ****
 002A14:I     7301 D7CC =0001E4:I    2082          LHL    R0,DEVTABLE(R1)     OBTAIN DEVICE TYPE            ****
 002A18:I     C300 000F              2083          THI    R0,X'F'             CHECK IF ONE OF THE SELCH TESTERS
 002A1C:I     033F                   2084          BZR    R15                 YES, RETURN                   ****
 002A1E:I     C500 0001              2085          CLHI   R0,1                800 OR 1600 BPI TAPE??        ****
*002A22:I     233A      =002A36:I    2086          BE     CNTLDIS             SKIP IF YES                 ****
 002A24:I     C500 0002              2087          CLHI   R0,2                CHECK IF A 6250 TAPE          ****
 002A28:I     2133      =002A2E:I    2088          BNES   FUTDIS              NO,SKIP                       ****
 002A2A:I     26C8                   2089          AIS    STAT,8              MAKE A 6250 CMD DISARM - 'C8'  ****
*002A2C:I     2305      =002A36:I    2090          B      CNTLDIS             SKIP, ISSUE TO CONTROLLER     ****
 002A2E:I     7361 D7C2 =0001F4:I    2091  FUTDIS  LHL    R6,DISFTAB(R1)      LOAD DISK FILE ADR            ****
 002A32:I     9E6C                   2092          OCR    R6,STAT             ISSUE CMD DISARM TO FILE      ****
 002A34:I     26C8                   2093          AIS    STAT,8              ADD IN CMD RESET              ****
 002A36:I     9E4C                   2094  CNTLDIS OCR    R4,STAT             CMD DISARM / RESET TO CONTROLLER
 002A38:I     030F                   2095          BR     R15
                                     2096  * WAIT SELCH NOT BUSY---DO BACKGROUND TEST WHILE WAITING
 002A3A:I     2460                   2097  SELCH5  LIS    R6,0                CLEAR FLAG
*002A3C:I     2306      =002A48:I    2098          B      SETFLAG
 002A3E:I     95EE                   2099  WAIT    EPSR   R14,R14             CAPTURE PSW
 002A40:I     C6E0 60F0              2100          OHI    R14,X'60F0'         ENABLE INTERRUPTS
 002A44:I     956E                   2101          EPSR   R6,R14
 002A46:I     2561                   2102          LCS    R6,1
 002A48:I     4060 B5D4 =006020:I    2103  SETFLAG STH    R6,INTFLG
 002A4C:I     2461                   2104          LIS    R6,1                YES, SET UP BXLE REGISTERS
 002A4E:I     2471                   2105          LIS    R7,1
 002A50:I     5880 B624 =006078:I    2106          L      R8,DELAYVAL
 002A54:I     5890 D768 =0001C0:I    2107          L      R9,STRBUF           LOAD LOC SPECIFIED BY STRBUF OPT
 002A58:I     95EE                   2108          EPSR   R14,R14             GET CURRENT PSW
 002A5A:I     C4E0 FBFF              2109          NHI    R14,X'FBFF'         CLEAR MAC BIT
 002A5E:I     95CE                   2110          EPSR   R12,R14             TURN MAC OFF
 002A60:I     48E0 B5BC =006020:I    2111  SENSE7  LH     R14,INTFLG
*002A64:I     213F      =002A82:I    2112          BNZ    JUMP13B
 002A66:I     9D3C                   2113          SSR    SELCH,STAT          SENSE SELCH STATUS
*002A68:I     2186      =002A74:I    2114          BTC    8,TIMEOUT1          IS BUSY = 0 ?
 002A6A:I     95EE                   2115  SENSE7A EPSR   R14,R14             GET CURRENT PSW
 002A6C:I     C4E0 FBFF              2116          NHI    R14,X'FBFF'         CLEAR MAC BIT
 002A70:I     95CE                   2117          EPSR   R12,R14             TURN MAC OFF
 002A72:I     030F                   2118          BR     R15                 RETURN
```

SUBROUTINES

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 002A74:I  C3C0 00F7                2119  TIMEOUT1 THI   STAT,X'F7'          NO, ARE ANY OTHER BITS SET ?
*002A78:I  2335      =002A82:I      2120           BZ    JUMP13B             NO, CONTINUE
 002A7A:I  41E0 A0DE =004B5C:I      2121           BAL   R14,ERRN            YES, PRINT ERROR
 002A7E:I  0219                     2122           DC    X'0219'             ERROR 25
*002A80:I  220B      =002A6A:I      2123           B     SENSE7A             EXIT
 002A82:I  95EE                     2124  JUMP13B  EPSR  R14,R14             CAPTURE PSW
 002A84:I  C3E0 0400                2125           THI   R14,X'400'          RELOCATION ACTIVE??
 002A88:I  4230 8084 =002B10:I      2126           BNZ   JUMP13A             YES, CONTINUE
 002A8C:I  73E0 D72A =0001BA:I      2127           LHL   R14,RELOC           GET OPTION
 002A90:I  4330 807C =002B10:I      2128           BZ    JUMP13A             NO RELOCATION
 002A94:I  73A0 D724 =0001BC:I      2129           LHL   R10,MACADR          GET ADDRESS
 002A98:I  4330 8028 =002AC4:I      2130           BZ    MAT                 VIRTUAL, NOT MAC
 002A9C:I  F8E0 0FF0 0010           2131           LI    R14,Y'0FF00010'     LOAD MAC CONSTANT
 002AA2:I  50EA 0000                2132           ST    R14,0(R10)          STORE TO SEGMENTATION REGISTER
 002AA6:I  26A4                     2133           AIS   R10,4               BUMP TO NEXT REGISTER
 002AA8:I  24B4                     2134           LIS   R11,4               SETUP INCREMENT
 002AAA:I  C8CA 003C                2135           LHI   R12,X'3C'(R10)      LOAD END POINTER
 002AAE:I  24E0                     2136           LIS   R14,0               LOAD MAC CONSTANT
 002AB0:I  50EA 0000                2137  JUMP13L  ST    R14,0(R10)          STORE TO SEGMENTATION REGISTER
 002AB4:I  C1A0 FFF8 =002AB0:I      2138           BXLE  R10,JUMP13L         LOOP
 002AB8:I  95EE                     2139  JUMP13C  EPSR  R14,R14             CAPTURE PSW
 002ABA:I  C6E0 0400                2140           OHI   R14,X'400'          SET MAC BIT
 002ABE:I  95CE                     2141           EPSR  R12,R14             TURN MAC ON
 002AC0:I  4300 804C =002B10:I      2142           B     JUMP13A             CONTINUE
           0000 2AC4:I              2143  MAT      EQU   *
 002AC4:I  41E0 8002 =002ACA:I      2144           BAL   R14,SETPST          SETUP PST
*002AC8:I  2208      =002AB6:I      2145           B     JUMP13C             TURN RELOCATION ON
           0000 2ACA:I              2146  SETPST   EQU   *
 002ACA:I  E6A0 BFB2 =006A80:I      2147           LA    R10,PST             GET PST ADDRESS
 002ACE:I  24B8                     2148           LIS   R11,8               LOAD BXLE INCREMENT
 002AD0:I  E6C0 4000 7280:I         2149           LA    R12,PSTE            GET PST END ADDRESS
 002AD6:I  F8D0 5C3E 0000           2150           LI    R13,Y'5C3E0000'     LOAD MAT CONSTANT
 002ADC:I  2400                     2151           LIS   R0,0                CLEAR
 002ADE:I  50DA 0000                2152           ST    R13,0(R10)          STORE TO TABLE
 002AE2:I  500A 0004                2153           ST    R0,4(R10)           CLEAR SOFTWARE ENTRY POINT
 002AE6:I  26A8                     2154           AIS   R10,8               INCREMENT
 002AE8:I  F8D0 583E 0200           2155           LI    R13,Y'583E0200'     LOAD MAT CONSTANT
 002AEE:I  50DA 0000                2156  SETPSTL  ST    R13,0(R10)          STORE TO TABLE
 002AF2:I  500A 0004                2157           ST    R0,4(R10)           CLEAR SOFTWARE ENTRY POINT
 002AF6:I  C1A0 FFF4 =002AEE:I      2158           BXLE  R10,SETPSTL         LOOP
 002AFA:I  E6A0 BF82 =006A80:I      2159           LA    R10,PST             GET PST START
 002AFE:I  10A7                     2160           SRLS  R10,7               SCALE
 002B00:I  40A0 800A =002B0E:I      2161           STH   R10,STRTMAT+2       STORE
 002B04:I  DF10 8004 =002B0C:I      2162           LPSTD STRTMAT             START MAT
 002B08:I  030E                     2163           BR    R14                 RETURN
 002B0C:I                           2164           ALIGN 4
           0000 2B0C:I              2165  STRTMAT  EQU   *
 002B0C:I  01FE                     2166           DC    X'1FE'
 002B0E:I  0000                     2167           DC    X'0'
 002B10:I  7300 D6A4 =0001B8:I      2168  JUMP13A  LHL   R0,BKGRND           IS BKGRND OPT = 0 ?
*002B14:I  233C      =002B2C:I      2169           BZ    STORE8              LOAD + STORE FULLWORD ,RX3 FORMAT
 002B16:I  2701                     2170           SIS   R0,1                NO, IS BKGRND OPT = 1 ?
 002B18:I  4330 8082 =002B9E:I      2171           BZ    FLTPT               YES, FLOATING POINT
```

SUBROUTINES

```
002B1C:I  2701                    2172           SIS   R0,1              OPTION=2??
002B1E:I  4330 80EA =002C0C:I     2173           BZ    STRMULT           OPTION=2,STORE MULTIPLE
002B22:I  2701                    2174           SIS   R0,1              OPTION=3??
002B24:I  4330 80E8 =002C10:I     2175           BZ    BXL0              YES, NO BACKGROUND TESTING
002B28:I  4300 80FA =002C26:I     2176           B     USERDEF           GO TO USER DEFINED BACKROUND AREA
          0000 2B2C:I             2177  STORE8   EQU   *
002B2C:I  24A4                    2178           LIS   R10,4
002B2E:I  5069 4A00 0000          2179           ST    R6,0(R9,R10)
002B34:I  08B6                    2180           LR    R11,R6              SAVE R6
002B36:I  F390 000F F000          2181           TI    R9,Y'FF000'         IS STRBUF IN LOW CORE
*002B3C:I 2337      =002B4A:I     2182           BZ    STORE8H             YES, SKIP COMPARE
002B3E:I  5809 4A00 0000          2183           L     R0,0(R9,R10)
002B44:I  0560                    2184           CLR   R6,R0               IS DATA READ = DATA STORED ?
002B46:I  4230 8040 =002B8A:I     2185           BNE   ERR35               ERROR
002B4A:I  4069 4A00 0000          2186  STORE8H  STH   R6,0(R9,R10)
002B50:I  F460 0000 FFFF          2187           NI    R6,Y'FFFF'          MAKE HW
002B56:I  F390 000F F000          2188           TI    R9,Y'FF000'         IS STRBUF IN LOW CORE
*002B5C:I 2339      =002B6E:I     2189           BZ    STORE8B             YES, SKIP COMPARE
002B5E:I  4809 4A00 C000          2190           LH    R0,0(R9,R10)
002B64:I  F400 0000 FFFF          2191           NI    R0,Y'FFFF'          MAKE HW
002B6A:I  0560                    2192           CLR   R6,R0               IS DATA READ = DATA STORED ?
*002B6C:I 213F      =002B8A:I     2193           BNE   ERR35               ERROR
002B6E:I  D269 4A00 0000          2194  STORE8B  STB   R6,0(R9,R10)
002B74:I  C460 00FF               2195           NHI   R6,X'FF'            MAKE BYTE
002B78:I  F390 000F F000          2196           TI    R9,Y'FF000'         IS STRBUF IN LOW CORE
*002B7E:I 233D      =002B98:I     2197           BZ    BXL0A               YES, SKIP COMPARE
002B80:I  D309 4A00 0000          2198           LB    R0,0(R9,R10)
002B86:I  0560                    2199           CLR   R6,R0               IS DATA READ = DATA STORED ?
*002B88:I 2338      =002B98:I     2200           BE    BXL0A               OK
002B8A:I  08A6                    2201  ERR35    LR    R10,R6              NO, ADJUST REGISTERS FOR MESSAGE
002B8C:I  08B0                    2202           LR    R11,R0
002B8E:I  41E0 9FCA =004B5C:I     2203           BAL   R14,ERRN            PRINT ERROR
002B92:I  0123                    2204           DC    X'0123'             ERROR 35
002B94:I  4300 FED2 =002A6A:I     2205           B     SENSE7A             EXIT
002B98:I  086B                    2206  BXL0A    LR    R6,R11              RESTORE R6
002B9A:I  4300 8072 =002C10:I     2207           B     BXL0                CONTINUE
002B9E:I  6800 B4DA =00607C:I     2208  FLTPT    LE    R0,FLTPVAL          SET UP FLOATING POINT REGS
002BA2:I  2820                    2209           LER   R2,R0
002BA4:I  2840                    2210           LER   R4,R0
002BA6:I  2A02                    2211           AER   R0,R2               ADD
002BA8:I  2B02                    2212           SER   R0,R2               SUBTRACT
002BAA:I  2904                    2213           CER   R0,R4               COMPARE
*002BAC:I 2336      =002BB8:I     2214           BE    FLPT1               YES GO TO NEXT PART
002BAE:I  41E0 9FAA =004B5C:I     2215           BAL   R14,ERRN            IF NOT EQUAL PRINT ERROR
002BB2:I  0024                    2216           DC    X'0024'             ERROR 36
002BB4:I  4300 FEB2 =002A6A:I     2217           B     SENSE7A             EXIT
002BB8:I  08E6                    2218  FLPT1    LR    R14,R6              COPY COUNT
002BBA:I  C4E0 0FFF               2219           NHI   R14,X'FFF'
002BBE:I  4330 804E =002C10:I     2220           BZ    BXL0                SKIP CASES WITH MASKED TO 0 OPERAND
002BC2:I  2FCE                    2221           FLR   R12,R14             FLOAT COUNT
002BC4:I  28EC                    2222           LER   R14,R12             MOVE TO WORK REGISTER
002BC6:I  2AEC                    2223           AER   R14,R12             DOUBLE IT
002BC8:I  71C9 0000               2224           STME  R12,0(R9)           SAVE OPERAND/RESULT - "STRBUF" LOC.
```

SUBROUTINES

```
002BCC:I  6BE9 0000              2225          SE    R14,0(R9)          HALVE IT
002BD0:I  29EC                   2226          CER   R14,R12            BACK WHERE STARTED
002BD2:I  2336      =002BDE:I    2227          BES   FLMULT             YES
002BD4:I  41E0 9F84 =004B5C:I    2228          BAL   R14,ERRN           NO - ERROR
002BD8:I  002C                   2229          DC    X'002C'            ERROR 44
002BDA:I  4300 FE8C =002A6A:I    2230          B     SENSE7A            EXIT
002BDE:I  6CE9 0000              2231  FLMULT  ME    R14,0(R9)          SQUARE IT
002BE2:I  2DEC                   2232          DER   R14,R12            SQUARE ROOT
002BE4:I  69E9 0000              2233          CE    R14,0(R9)          BACK WHERE STARTED  ?
002BE8:I  2336      =002BF4:I    2234          BES   FLNORM             YES
002BEA:I  41E0 9F6E =004B5C:I    2235          BAL   R14,ERRN
002BEE:I  002D                   2236          DC    X'002D'            ERROR 45
002BF0:I  4300 FE76 =002A6A:I    2237          B     SENSE7A            EXIT
002BF4:I  2E0E                   2238  FLNORM  FXR   R0,R14             SET TO INTEGER
002BF6:I  0706                   2239          XR    R0,R6              EXCLUSIVE OR INTEGERS
002BF8:I  C400 0FFF              2240          NHI   R0,X'FFF'          CHECK IF SAME
*002BFC:I 233A      =002C10:I    2241          BE    BXL0               IF EQUAL CONTINUE TEST
002BFE:I  C700 0FFF              2242          XHI   R0,X'FFF'          FLIP
002C02:I  41E0 9F56 =004B5C:I    2243          BAL   R14,ERRN           NO - ERROR
002C06:I  002E                   2244          DC    X'002E'            ERROR 46
002C08:I  4300 FE5E =002A6A:I    2245          B     SENSE7A            EXIT
002C0C:I  D009 0000              2246  STRMULT STM   R0,0(R9)          LOAD ALL REGISTERS
002C10:I  50F0 B414 =006028:I    2247  BXL0    ST    R15,TEMP           SAVE RETURN
002C14:I  58F0 B410 =006028:I    2248          L     R15,TEMP           RESTORE RETURN
002C18:I  C160 FE44 =002A60:I    2249          BXLE  R6,SENSE7          REPEAT UNTIL R6 > R8
002C1C:I  41E0 9F3C =004B5C:I    2250          BAL   R14,ERRN
002C20:I  0209                   2251          DC    X'0209'            ERROR 09
002C22:I  4300 FE44 =002A6A:I    2252          B     SENSE7A            EXIT
          0000 2C26:I            2253  USERDEF EQU   *                  USED WITH INTERRUPTS DISABLED ONLY
002C26:I                         2254          DO    128
002C26:I  0200                   2255          DC    X'200'             NOP
002C28:I  0200                   2255          DC    X'200'             NOP
002C2A:I  0200                   2255          DC    X'200'             NOP
002C2C:I  0200                   2255          DC    X'200'             NOP
002C2E:I  0200                   2255          DC    X'200'             NOP
002C30:I  0200                   2255          DC    X'200'             NOP
002C32:I  0200                   2255          DC    X'200'             NOP
002C34:I  0200                   2255          DC    X'200'             NOP
002C36:I  0200                   2255          DC    X'200'             NOP
002C38:I  0200                   2255          DC    X'200'             NOP
002C3A:I  0200                   2255          DC    X'200'             NOP
002C3C:I  0200                   2255          DC    X'200'             NOP
002C3E:I  0200                   2255          DC    X'200'             NOP
002C40:I  0200                   2255          DC    X'200'             NOP
002C42:I  0200                   2255          DC    X'200'             NOP
002C44:I  0200                   2255          DC    X'200'             NOP
002C46:I  0200                   2255          DC    X'200'             NOP
002C48:I  0200                   2255          DC    X'200'             NOP
002C4A:I  0200                   2255          DC    X'200'             NOP
002C4C:I  0200                   2255          DC    X'200'             NOP
002C4E:I  0200                   2255          DC    X'200'             NOP
002C50:I  0200                   2255          DC    X'200'             NOP
002C52:I  0200                   2255          DC    X'200'             NOP
```

SUBROUTINES

```
002C54:I    0200                2255        DC    X'200'          NOP
002C56:I    0200                2255        DC    X'200'          NOP
002C58:I    0200                2255        DC    X'200'          NOP
002C5A:I    0200                2255        DC    X'200'          NOP
002C5C:I    0200                2255        DC    X'200'          NOP
002C5E:I    0200                2255        DC    X'200'          NOP
002C60:I    0200                2255        DC    X'200'          NOP
002C62:I    0200                2255        DC    X'200'          NOP
002C64:I    0200                2255        DC    X'200'          NOP
002C66:I    0200                2255        DC    X'200'          NOP
002C68:I    0200                2255        DC    X'200'          NOP
002C6A:I    0200                2255        DC    X'200'          NOP
002C6C:I    0200                2255        DC    X'200'          NOP
002C6E:I    0200                2255        DC    X'200'          NOP
002C70:I    0200                2255        DC    X'200'          NOP
002C72:I    0200                2255        DC    X'200'          NOP
002C74:I    0200                2255        DC    X'200'          NOP
002C76:I    0200                2255        DC    X'200'          NOP
002C78:I    0200                2255        DC    X'200'          NOP
002C7A:I    0200                2255        DC    X'200'          NOP
002C7C:I    0200                2255        DC    X'200'          NOP
002C7E:I    0200                2255        DC    X'200'          NOP
002C80:I    0200                2255        DC    X'200'          NOP
002C82:I    0200                2255        DC    X'200'          NOP
002C84:I    0200                2255        DC    X'200'          NOP
002C86:I    0200                2255        DC    X'200'          NOP
002C88:I    0200                2255        DC    X'200'          NOP
002C8A:I    0200                2255        DC    X'200'          NOP
002C8C:I    0200                2255        DC    X'200'          NOP
002C8E:I    0200                2255        DC    X'200'          NOP
002C90:I    0200                2255        DC    X'200'          NOP
002C92:I    0200                2255        DC    X'200'          NOP
002C94:I    0200                2255        DC    X'200'          NOP
002C96:I    0200                2255        DC    X'200'          NOP
002C98:I    0200                2255        DC    X'200'          NOP
002C9A:I    0200                2255        DC    X'200'          NOP
002C9C:I    0200                2255        DC    X'200'          NOP
002C9E:I    0200                2255        DC    X'200'          NOP
002CA0:I    0200                2255        DC    X'200'          NOP
002CA2:I    0200                2255        DC    X'200'          NOP
002CA4:I    0200                2255        DC    X'200'          NOP
002CA6:I    0200                2255        DC    X'200'          NOP
002CA8:I    0200                2255        DC    X'200'          NOP
002CAA:I    0200                2255        DC    X'200'          NOP
002CAC:I    0200                2255        DC    X'200'          NOP
002CAE:I    0200                2255        DC    X'200'          NOP
002CB0:I    0200                2255        DC    X'200'          NOP
002CB2:I    0200                2255        DC    X'200'          NOP
002CB4:I    0200                2255        DC    X'200'          NOP
002CB6:I    0200                2255        DC    X'200'          NOP
002CB8:I    0200                2255        DC    X'200'          NOP
002CBA:I    0200                2255        DC    X'200'          NOP
002CBC:I    0200                2255        DC    X'200'          NOP
```

SUBROUTINES

```
002CBE:I  0200                    2255      DC    X'200'          NOP
002CC0:I  0200                    2255      DC    X'200'          NOP
002CC2:I  0200                    2255      DC    X'200'          NOP
002CC4:I  0200                    2255      DC    X'200'          NOP
002CC6:I  0200                    2255      DC    X'200'          NOP
002CC8:I  0200                    2255      DC    X'200'          NOP
002CCA:I  0200                    2255      DC    X'200'          NOP
002CCC:I  0200                    2255      DC    X'200'          NOP
002CCE:I  0200                    2255      DC    X'200'          NOP
002CD0:I  0200                    2255      DC    X'200'          NOP
002CD2:I  0200                    2255      DC    X'200'          NOP
002CD4:I  0200                    2255      DC    X'200'          NOP
002CD6:I  0200                    2255      DC    X'200'          NOP
002CD8:I  0200                    2255      DC    X'200'          NOP
002CDA:I  0200                    2255      DC    X'200'          NOP
002CDC:I  0200                    2255      DC    X'200'          NOP
002CDE:I  0200                    2255      DC    X'200'          NOP
002CE0:I  0200                    2255      DC    X'200'          NOP
002CE2:I  0200                    2255      DC    X'200'          NOP
002CE4:I  0200                    2255      DC    X'200'          NOP
002CE6:I  0200                    2255      DC    X'200'          NOP
002CE8:I  0200                    2255      DC    X'200'          NOP
002CEA:I  0200                    2255      DC    X'200'          NOP
002CEC:I  0200                    2255      DC    X'200'          NOP
002CEE:I  0200                    2255      DC    X'200'          NOP
002CF0:I  0200                    2255      DC    X'200'          NOP
002CF2:I  0200                    2255      DC    X'200'          NOP
002CF4:I  0200                    2255      DC    X'200'          NOP
002CF6:I  0200                    2255      DC    X'200'          NOP
002CF8:I  0200                    2255      DC    X'200'          NOP
002CFA:I  0200                    2255      DC    X'200'          NOP
002CFC:I  0200                    2255      DC    X'200'          NOP
002CFE:I  0200                    2255      DC    X'200'          NOP
002D00:I  0200                    2255      DC    X'200'          NOP
002D02:I  0200                    2255      DC    X'200'          NOP
002D04:I  0200                    2255      DC    X'200'          NOP
002D06:I  0200                    2255      DC    X'200'          NOP
002D08:I  0200                    2255      DC    X'200'          NOP
002D0A:I  0200                    2255      DC    X'200'          NOP
002D0C:I  0200                    2255      DC    X'200'          NOP
002D0E:I  0200                    2255      DC    X'200'          NOP
002D10:I  0200                    2255      DC    X'200'          NOP
002D12:I  0200                    2255      DC    X'200'          NOP
002D14:I  0200                    2255      DC    X'200'          NOP
002D16:I  0200                    2255      DC    X'200'          NOP
002D18:I  0200                    2255      DC    X'200'          NOP
002D1A:I  0200                    2255      DC    X'200'          NOP
002D1C:I  0200                    2255      DC    X'200'          NOP
002D1E:I  0200                    2255      DC    X'200'          NOP
002D20:I  0200                    2255      DC    X'200'          NOP
002D22:I  0200                    2255      DC    X'200'          NOP
002D24:I  0200                    2255      DC    X'200'          NOP
002D26:I  4300 FEE6 =002C10:I     2256      B     BXLO
```

DRIVERS

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                                2258  *  SELCH  TESTER DRIVER...CODE 0   BYTE MODE
                                2259  *  SELCH  TESTER DRIVER...CODE 10  HALFWORD MODE
                                2260  *
                                2261  *    FUNCTION CODE: 0 = WRITE OPERATION
                                2262  *                   1 = READ  OPERATION
                                2263  *
002D2A:I   731F 0000            2264  TESTDRIV LHL   R1,0(R15)          LOAD FUNCTION CODE
002D2E:I   DE40 B2D5 =006007:I  2265  CMD1     OC    IODEVS,CLEAR       CLEAR=X'02'
002D32:I   4240 A06E =004DA4:I  2266           BO    ERROR30            IF FALSE SYNC PRINT ERROR
002D36:I   D840 B2E2 =00601C:I  2267           WH    IODEVS,STZERO      START COUNTER WITH STZERO
002D3A:I   73A0 B2E4 =006022:I  2268           LHL   WORK,INDEX
002D3E:I   73AA D4A2 =0001E4:I  2269           LHL   WORK,DEVTABLE(WORK)
002D42:I   C5A0 0010            2270           CLHI  WORK,X'10'         CHECK IF HALFWORD MODE TESTER
002D46:I   2336      =002D52:I  2271           BES   HWCMDOUT           YES,SKIP
002D48:I   DE40 B2C8 =006014:I  2272           OC    IODEVS,BYTEMODE    BYTEMODE=X'04'
002D4C:I   9D4C                 2273           SSR   IODEVS,STAT        DUMMY SS FOR MODE LATCH **
002D4E:I   430F 0002            2274           B     2(R15)             RETURN TO TEST
002D52:I   DE40 B2BF =006015:I  2275  HWCMDOUT OC    IODEVS,HWMODE      HWMODE=X'01'
002D56:I   9D4C                 2276           SSR   IODEVS,STAT        DUMMY SS FOR MODE LATCH **
002D58:I   430F 0002            2277           B     2(R15)             RETURN TO TEST
                                2278  *


                                2280  * MAG TAPE DRIVER...CODES 1 AND 2
                                2281  *    FUNCTION CODE: 0= WEOF & WRT OPERATIONS
                                2282  *                   1= SKIP & READ OPERATIONS
                                2283  *                   2= READ ONLY OPERATIONS
002D5C:I   481F 0000            2284  TAPEDRIV LH    R1,0(R15)          LOAD FUNCTION CODE
002D60:I   4230 8028 =002D8C:I  2285           BNZ   DECODE             READ OPERATION, SKIP EOT CHECK
002D64:I   9D4C                 2286           SSR   IODEVS,STAT        SENSE MAG TAPE STATUS
002D66:I   4210 9FFE =004D68:I  2287           BM    ERROR10            IF DU TAKE ERROR RETURN
002D6A:I   C3C0 0020            2288           THI   STAT,X'20'         IS EOT SET?
*002D6E:I  233F      =002D8C:I  2289           BZ    DECODE             NO,DECODE FUNCTION
002D70:I   41A0 8068 =002DDC:I  2290           BAL   WORK,NMTNCHK       WAIT FOR NOMOTION = 1
002D74:I   48A0 B2AA =006022:I  2291           LH    WORK,INDEX         CURRENT INDEX
002D78:I   48AA D468 =0001E4:I  2292           LH    WORK,DEVTABLE(WORK) DEVICE TYPE
002D7C:I   DE4A B27D =005FFD:I  2293           OC    IODEVS,REWIND-1(WORK) REWIND TAPE
002D80:I   4240 A020 =004DA4:I  2294           BO    ERROR30            IF FALSE SYNC PRINT ERROR
*002D84:I  2591                 2295           LI    R9,Y'FFFFFFFF'     LOAD DELAY VALUE
002D86:I   41A0 8058 =002DE2:I  2296           BAL   WORK,NMTNCHK1      WAIT FOR NOMOTION TO=1
*002D8A:I  2303      =002D90:I  2297           B     DECODE1            SKIP CLEAR COMMAND
           0000 2D8C:I          2298  DECODE   EQU   *
002D8C:I   41A0 804C =002DDC:I  2299           BAL   WORK,NMTNCHK       WAIT FOR NOMOTION TO =1
002D90:I   0811                 2300  DECODE1  LR    R1,R1              IS FUNCTION = 0?
002D92:I   4330 802E =002DC4:I  2301           BZ    WEOF               YES,WRITE END OF FILE
002D96:I   1011                 2302           SRLS  R1,1               NO,IS FUNCTION =1?
*002D98:I  213C      =002DB0:I  2303           BNZ   RDCMD1             NO,READ ONLY
002D9A:I   2411                 2304           LIS   R1,1
002D9C:I   48A0 B282 =006022:I  2305           LH    WORK,INDEX
002DA0:I   48AA D440 =0001E4:I  2306           LH    WORK,DEVTABLE(WORK)
002DA4:I   DE4A B259 =006001:I  2307           OC    IODEVS,SKPFILR-1(WORK) BACKSPACE FILE MARK
002DA8:I   4240 9FF8 =004DA4:I  2308           BO    ERROR30            IF FALSE SYNC PRINT ERROR
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DRIVERS

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002DAC:I  41A0 802C =002DDC:I   2309          BAL   WORK,NMTNCHK        WAIT FOR NOMOTION=1
002DB0:I  48A0 B26E =006022:I   2310  RDCMD1  LH    WORK,INDEX
002DB4:I  48AA D42C =0001E4:I   2311          LH    WORK,DEVTABLE(WORK)
002DB8:I  DE4A B243 =005FFF:I   2312          OC    IODEVS,SKPFILF-1(WORK) FORWARD FILE MARK
002DBC:I  41A0 801C =002DDC:I   2313          BAL   WORK,NMTNCHK        WAIT FOR NOMOTION =1
002DC0:I  430F 0002             2314          B     2(R15)              RETURN TO TEST
002DC4:I  48A0 B25A =006022:I   2315  WEOF    LH    WORK,INDEX
002DC8:I  48AA D418 =0001E4:I   2316          LH    WORK,DEVTABLE(WORK)
002DCC:I  DE4A B233 =006003:I   2317          OC    IODEVS,WRTEOF-1(WORK) WRITE END OF FILE
002DD0:I  4240 9FD0 =004DA4:I   2318          BO    ERROR30             IF FALSE SYNC PRINT ERROR
002DD4:I  41A0 8004 =002DDC:I   2319          BAL   WORK,NMTNCHK        WAIT FOR NOMOTION =1
002DD8:I  430F 0002             2320          B     2(R15)              RETURN TO TEST
                                2321  * NO TAPE MOTION STATUS BIT WAIT AND CHECK
002DDC:I  F890 00FF FFFF        2322  NMTNCHK LI    R9,Y'FFFFFF'        LOAD DELAY VALUE
002DE2:I  2470                  2323  NMTNCHK1 LIS  R7,0
002DE4:I  2481                  2324          LIS   R8,1
002DE6:I  9D4C                  2325  SENSE8  SSR   IODEVS,STAT         IS MAG TAPE DU ?
002DE8:I  4210 9F7C =004D68:I   2326          BM    ERROR10             YES,PRINT ERROR.
002DEC:I  C5C0 0004             2327          CLHI  STAT,X'04'          FALSE SYNC??
002DF0:I  4330 9FB0 =004DA4:I   2328          BE    ERROR30             YES
002DF4:I  C3C0 0010             2329          THI   STAT,X'10'          NO,IS NOMOTION SET ?
002DF8:I  023A                  2330          BNZR  WORK                YES,RETURN TO DRIVER.
002DFA:I  C170 FFE8 =002DE6:I   2331          BXLE  R7,SENSE8           NO,REPEAT TIL XTIMEOUT
002DFE:I  41E0 9A38 =00483A:I   2332          BAL   R14,DOERROR         PRINT ERROR
002E02:I  021A                  2333          DC    X'021A'             ERROR 26
002E04:I  4300 9FDA =004DE2:I   2334          B     TSTERTN             GO TO TEST ERROR RETURN


                                2336  *  2.5 & 10 MEGABYTE DISC DRIVER...CODE 3
                                2337  *    FUNCTION CODE:  0 = WRITE OPERATION
                                2338  *                    1 = READ  OPERATION
002E08:I  731F 0000             2339  DISKDRIV LHL  R1,0(R15)           LOAD FUNCTION CODE
002E0C:I  73A0 B212 =006022:I   2340          LHL   R10,INDEX           LOAD TABLE INDEX
002E10:I  736A D3E0 =0001F4:I   2341          LHL   R6,DISFTAB(R10)     LOAD DISC FILE ADRS
002E14:I  739A D3EC =000204:I   2342          LHL   R9,CYLTAB(R10)      LOAD CYLINDER NUMBER
002E18:I  737A D3F8 =000214:I   2343          LHL   R7,SECTAB(R10)      LOAD HEAD & SECTOR NUMBER
002E1C:I  9489                  2344          EXBR  R8,R9
002E1E:I  9477                  2345          EXBR  R7,R7
002E20:I  1071                  2346          SRLS  R7,1
002E22:I  2383      =002E28:I   2347          BNCS  SHIFT7
002E24:I  C670 1000             2348          OHI   R7,X'1000'
002E28:I  1077                  2349  SHIFT7  SRLS  R7,7
002E2A:I  DE40 B1DA =006008:I   2350          OC    R4,RESETC
002E2E:I  9D4C                  2351  DSD5    SSR   R4,R12              CHECK DISC CONTROLLER STATUS
002E30:I  C5C0 0004             2352          CLHI  R12,X'04'           IS FALSE SYNC SET?
002E34:I  4330 9F6C =004DA4:I   2353          BE    ERROR30             YES,PRINT ERROR
002E38:I  C3C0 0002             2354          THI   R12,X'02'           IS CONTROLLER IDLE SET?
*002E3C:I 2237      =002E2E:I   2355          BZ    DSD5                NO,WAIT FOR CONTROLLER IDLE.
002E3E:I  DE40 B1C6 =006008:I   2356  RESET   OC    R4,RESETC           RESET EVERYTHING
002E42:I  9D6C                  2357  WFILE   SSR   R6,R12              SENSE DISC FILE STATUS
002E44:I  4210 9F3E =004D86:I   2358          BM    ERROR12             ABORT IF DISC NOT READY
*002E48:I 2348      =002E58:I   2359          BFC   4,CHKWRTD           IF EX SET,CHECK FUNCTION CODE
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DRIVERS

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002E4A:I  C3C0 0010            2360          THI   R12,X'10'          IS ADDRESS INTERLOCK SET?
002E4E:I  2036      =002F42:I  2361          BNZS  WFILE              YES,WAIT FOR ADRS INTERLOCK=0
002E50:I  C3C0 0040            2362          THI   R12,X'40'          NO,IS WRITE CHECK SET?
002E54:I  4230 9F24 =004D7C:I  2363          BNZ   ERROR11            YES,PRINT ERROR
002E58:I  0811                 2364  CHKWRTD LR    R1,R1              NO,IS THIS A WRITE OPERATION?
002E5A:I  2135      =002E64:I  2365          BNZS  WFILE2             NO,CHECK FILE STATUS.
002E5C:I  C3C0 0080            2366          THI   R12,X'80'          YES,IS WRITE PROTECT SET?
002E60:I  4230 9F36 =004D9A:I  2367          BNZ   ERROR14            YES,PRINT ERROR
002E64:I  9D6C                 2368  WFILE2  SSR   R6,R12             SENSE DISC FILE STATUS
002E66:I  2389      =002E78:I  2369          BNCS  SEEK               SEEK IF RSRW=0
002E68:I  4320 FFD6 =002E42:I  2370          BNP   WFILE              BRANCH IF SEEK INC=0
002E6C:I  9A68                 2371          WDR   R6,R8              WRITE CYLINDER NUMBER TO FILE.
002E6E:I  9A69                 2372          WDR   R6,R9
002E70:I  DE50 B199 =00600D:I  2373          OC    R6,RESTOREF        RESTORE DISC FILE TO ZERO
002E74:I  41E0 8016 =002E8E:I  2374          BAL   R14,WSEEKC         WAIT FOR SEEK TO COMPLETE
002E78:I  9A68                 2375  SEEK    WDR   R6,R8              WRITE CYLINDER NUMBER TO FILE
002E7A:I  9A69                 2376          WDR   R6,R9
002E7C:I  DE60 B18E =00600E:I  2377          OC    R6,SEEKC           SEEKC=X'C2'
002E80:I  41E0 800A =002E8E:I  2378          BAL   R14,WSEEKC         WAIT FOR SEEK TO COMPLETE
002E84:I  9A68                 2379          WDR   R6,R8              WRITE CYLINDER NUMBER
002E86:I  9A69                 2380          WDR   R6,R9
002E88:I  9A47                 2381          WDR   R4,R7              WRITE HEAD & SECTOR TO CONTROLLER
002E8A:I  430F 0002            2382          B     2(R15)             RETURN TO TEST
                               2383  *  WAIT FOR SEEK TO COMPLETE
002E8E:I  9D4C                 2384  WSEEKC  SSR   R4,R12             WAIT FOR CONTROLLER IDLE
002E90:I  2221      =002E8E:I  2385          BNPS  WSEEKC
002E92:I  9D6C                 2386  WSEEK1  SSR   R6,R12             CHECK DISC FILE STATUS
002E94:I  4270 9EF8 =004D90:I  2387          BTC   7,ERROR13
002E98:I  2083      =002E92:I  2388          BCS   WSEEK1             EXCEPT FOR NRSRW
002E9A:I  030E                 2389          BR    R14                RETURN TO DISC DRIVER


                               2391  *  MSM DISC DRIVER
                               2392  * FUNCTION CODE: 0 = WRITE OPERATION
                               2393  *                 1 = READ OPERATION
          0000 2E9C:I          2394  DMSMDRIV EQU  *
          0000 2E9C:I          2395  DCDDDRIV EQU  *
          0000 2E9C:I          2396  D300DRIV EQU  *
          0000 2E9C:I          2397  D198DRIV EQU  *
002E9C:I  731F 0000            2398          LHL   R1,0(R15)          LOAD FUNCTION CODE
002EA0:I  73A0 B17E =006022:I  2399          LHL   R10,INDEX          LOAD TABLE INDEX
002EA4:I  736A D34C =0001F4:I  2400          LHL   R6,DISFTAB(R10)    LOAD DISC FILE ADRS
002EA8:I  DE60 B163 =006C0F:I  2401          OC    R6,RESCTL          DISARM CONTROLLER                *
002EAC:I  738A D354 =000204:I  2402          LHL   R8,CYLTAB(R10)     LOAD CYLINDER NUMBER
002EB0:I  737A D360 =000214:I  2403          LHL   R7,SECTAB(R10)     LOAD HEAD & SECTOR NUMBER
002EB4:I  9477                 2404          EXBR  R7,R7              SWAP BYTES
002EB6:I  9397                 2405          LBR   R9,R7              COPY
002EB8:I  1078                 2406          SRLS  R7,8               ISOLATE SECTOR NUMBER
002EBA:I  73AA D326 =0001E4:I  2407          LHL   R10,DEVTABLE(R10)  LOAD DEVICE TYPE FOR DISK
002EBE:I  457A 4A00 02F6:I     2408          CLH   R7,MAXSEC(R10,R10) CHECK IF SECTOR > MAXIMUM ALLOWED
002EC4:I  2185      =002ECE:I  2409          BLS   DSD4X
002EC6:I  487A 4A00 02F6:I     2410          LH    R7,MAXSEC(R10,R10) LOAD MAXIMUM
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DRIVERS

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002ECC:I     2771                    2411            SIS   R7,1              FORCE TO MAXSEC-1
002ECE:I     DE40 B136 =006008:I     2412  DSD4X     OC    R4,RESETC         ISSUE CONTROLLER RESET
002ED2:I     9D4C                    2413  DSD4      SSR   R4,R12            CHECK DISC CONTROLLER STATUS
002ED4:I     C5C0 0004               2414            CLHI  R12,X'04'         IS FALSE SYNC SET ?
002ED8:I     4330 9EC8 =004DA4:I     2415            BE    ERROR30
002EDC:I     C3C0 0002               2416            THI   R12,X'02'         IS CONTROLLER IDLE SET ?
*002EE0:I    2237      =002ED2:I     2417            BZ    DSD4              NO, WAIT FOR CONTROLLER IDLE
002EE2:I     DE40 B122 =006008:I     2418            OC    R4,RESETC         RESET CONTROLLER
002EE6:I     9D4C                    2419            SSR   R4,R12            CHECK STATUS AGAIN
002EE8:I     2221      =000001:I     2420            BFBS  2,1               IDLE YET ?  (POSSIBLE HANG)
002EEA:I     DE60 B128 =006016:I     2421            OC    R6,NORMAL         RESET BYTE CNTR FOR IDC - '0'  ****
002EEE:I     9869                    2422            WHR   R6,R9             WRITE HEAD NUMBER TO FILE
002EF0:I     DE60 B117 =00600B:I     2423            OC    R6,SFHR           SET FILE HEAD REGISTER
002EF4:I     9D6C                    2424  FILSWTCH  SSR   R6,R12            CHECK FILE STATUS FOR HEAD SETUP **
*002EF6:I    2081      =002EF4:I     2425            BTC   8,FILSWTCH        WAIT FOR DRIVE READY            **
002EF8:I     9D6C                    2426  DSD8      SSR   R6,R12            SENSE FILE STATUS
002EFA:I     4210 9E88 =004D86:I     2427            BM    ERROR12           ABORT IF DISC NOT ON LINE
*002EFE:I    234D      =002F18:I     2428            BFC   4,DSDD            IF EX SET CHECK FUNCTION CODE
002F00:I     C3C0 0010               2429            THI   R12,X'10'         IS DRIVE UNSAFE SET ?
*002F04:I    2336      =002F10:I     2430            BZ    JUMP14            NO, CONTINUE
002F06:I     41E0 9930 =00483A:I     2431            BAL   R14,DOERROR       YES, PRINT ERROR
002F0A:I     0029                    2432            DC    X'0029'           ERROR 41
002F0C:I     4300 9ED2 =004DE2:I     2433            B     TSTERTN           GO TO TEST ERROR RETURN
002F10:I     C3C0 0040               2434  JUMP14    THI   R12,X'40'         IS WRITE CHECK SET ?
002F14:I     4230 9E64 =004D7C:I     2435            BNZ   ERROR11           YES, PRINT ERROR
002F18:I     0811                    2436  DSDD      LR    R1,R1             NO,WRITE OPERATION ??
002F1A:I     2135      =002F24:I     2437            BNZS  DSD7              NO, CHECK FOR DRIVE NOT READY
002F1C:I     C3C0 0080               2438            THI   R12,X'80'         YES, IS WRITE PROTECT SET ?
002F20:I     4230 9E76 =004D9A:I     2439            BNZ   ERROR14           YES, PRINT ERROR
002F24:I     9D6C                    2440  DSD7      SSR   R6,R12            NO, SENSE FILE STATUS
002F26:I     2389      =002F38:I     2441            BNCS  DSD9              IF DRIVE READY THEN SEEK
002F28:I     4320 FFCC =002EF8:I     2442            BNP   DSD8              IF SEEK INC = 0 CHECK STATUS AGAIN
002F2C:I     9D4C                    2443  DSD6      SSR   R4,R12            WAIT FOR CONTROLLER IDLE
002F2E:I     2221      =002F2C:I     2444            BNPS  DSD6
002F30:I     DE60 B0D9 =00600D:I     2445            OC    R6,RESTOREF       RESTORE FILE TO ZERO
002F34:I     41E0 80F8 =003030:I     2446            BAL   R14,WSEEKC1       WAIT FOR SEEK COMPLETE
002F38:I     9D4C                    2447  DSD9      SSR   R4,R12            WAIT FOR CONTROLLER IDLE
002F3A:I     2221      =002F38:I     2448            BNPS  DSD9
002F3C:I     DE60 B0D6 =006016:I     2449            OC    R6,NORMAL         RESET BYTE CNTR FOR IDC - '0'  ****
002F40:I     9869                    2450            WHR   R6,R9             WRITE HEAD NUMBER TO FILE
002F42:I     DE60 B0C5 =00600B:I     2451            OC    R6,SFHR           SET FILE HEAD REGISTER
002F46:I     41E0 80E6 =003030:I     2452  DSDA      BAL   R14,WSEEKC1       WAIT FOR DRIVE READY
002F4A:I     DE60 B0C8 =006016:I     2453            OC    R6,NORMAL         RESET BYTE CNTR FOR IDC - '0'  ****
002F4E:I     9868                    2454            WHR   R6,R8             WRITE CYLINDER NUMBER TO FILE
002F50:I     DE60 B0B8 =00600C:I     2455            OC    R6,SETCYL         GENERATE SET CYLINDER TAG
002F54:I     41E0 80D8 =003030:I     2456  DSDC      BAL   R14,WSEEKC1       WAIT FOR DRIVE READY
002F58:I     DE60 B0B2 =00600E:I     2457            OC    R6,SEEKC          SEEK TO CYLINDER
002F5C:I     41E0 80D0 =003030:I     2458            BAL   R14,WSEEKC1       WAIT FOR SEEK COMPLETE
002F60:I     C480 03FF               2459            NHI   R8,X'3FF'         CHOP THE CYLINDER NUMBER
002F64:I     119A                    2460            SLLS  R9,10             SHIFT HEAD NUMBER
002F66:I     0689                    2461            OR    R8,R9             HEADER+CYLINDER
002F68:I     DE40 B0AA =006016:I     2462            OC    R4,NORMAL         RESET BYTE CNTR FOR IDC - '0'  ****
002F6C:I     9A47                    2463            WDR   R4,R7             WRITE SECTOR NUMBER TO CONTROLLER
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DRIVERS

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002F6E:I  9848                    2464          WHR   R4,R8              WRITE HEAD & CYLINDER NUMBER TO CONT
002F70:I  430F 0002               2465          B     2(R15)             RETURN TO TEST


                                  2467  * 40 MB DISC DRIVER
                                  2468  * FUNCTION CODE: 0 = WRITE OPERATION
                                  2469  *                 1 = READ OPERATION
002F74:I  731F 0000               2470  D40DRIV LHL   R1,0(R15)          LOAD FUNCTION CODE
002F78:I  73A0 B0A6 =006022:I     2471          LHL   R10,INDEX          LOAD TABLE INDEX
002F7C:I  736A D274 =0001F4:I     2472          LHL   R6,DISFTAB(R10)    LOAD DISC FILE ADRS
002F80:I  738A D280 =000204:I     2473          LHL   R8,CYLTAB(R10)     LOAD CYLINDER NUMBER
002F84:I  737A D28C =000214:I     2474          LHL   R7,SECTAB(R10)     LOAD HEAD & SECTOR NUMBER
002F88:I  9477                    2475          EXBR  R7,R7
002F8A:I  9397                    2476          LBR   R9,R7
002F8C:I  1078                    2477          SRLS  R7,8               ISOLATE SECTOR NUMBER
002F8E:I  C570 0014               2478          CLHI  R7,X'14'           SECTOR > DECM. 19 ?
002F92:I  2183       =002F98:I    2479          BLS   DSE4X
002F94:I  C870 0013               2480          LHI   R7,X'13'           FORCE TO SECTOR 19
002F98:I  DE40 B06C =006008:I     2481  DSE4X   OC    R4,RESETC
002F9C:I  9D4C                    2482  DSE4    SSR   R4,R12             CHECK DISC CONTROLLER STATUS
002F9E:I  C5C0 0004               2483          CLHI  R12,X'04'          IS FALSE SYNC SET ?
002FA2:I  4330 9DFE =004DA4:I     2484          BE    ERROR30
002FA6:I  C3C0 0002               2485          THI   R12,X'02'          IS CONTROLLER IDLE SET ?
*002FAA:I 2237       =002F9C:I    2486          BZ    DSE4               NO, WAIT FOR CONTROLLER IDLE
002FAC:I  DE40 B058 =006008:I     2487          OC    R4,RESETC          RESET CONTROLLER
002FB0:I  9D4C                    2488          SSR   R4,R12
002FB2:I  2221       =000001:I    2489          BFBS  2,1
002FB4:I  DE60 B050 =006008:I     2490          OC    R6,STOP            RESET GATN
002FB8:I  9D4C                    2491          SSR   R4,R12             IDLE??
002FBA:I  2221       =000001:I    2492          BFBS  2,1                NO, LOOP
002FBC:I  9D6C                    2493  DSE8    SSR   R6,R12             SENSE FILE STATUS
002FBE:I  4210 9DC4 =004D86:I     2494          BM    ERROR12            ABORT IF DISC NOT ON LINE
*002FC2:I 234D       =002FDC:I    2495          BFC   4,DSED             IF EX SET CHECK FUNCTION CODE
002FC4:I  C3C0 0010               2496          THI   R12,X'10'          IS DRIVE UNSAFE SET ?
*002FC8:I 2336       =002FD4:I    2497          BZ    JUMP15             NO, CONTINUE
002FCA:I  41E0 986C =00483A:I     2498          BAL   R14,DOERROR        YES, PRINT ERROR
002FCE:I  0029                    2499          DC    X'0029'            ERROR 41
002FD0:I  4300 9E0E =004DE2:I     2500          B     TSTERTN            GO TO TEST ERROR RETURN
002FD4:I  C3C0 0040               2501  JUMP15  THI   R12,X'40'          IS WRITE CHECK SET ?
002FD8:I  4230 9DA0 =004D7C:I     2502          BNZ   ERROR11            YES, PRINT ERROR
002FDC:I  0811                    2503  DSED    LR    R1,R1              NO,WRITE OPERATION ??
002FDE:I  2135       =002FE8:I    2504          BNZS  DSE7               NO, CHECK FOR DRIVE NOT READY
002FE0:I  C3C0 0080               2505          THI   R12,X'80'          YES, IS WRITE PROTECT SET ?
002FE4:I  4230 9DB2 =004D9A:I     2506          BNZ   ERROR14            YES, PRINT ERROR
002FE8:I  9D6C                    2507  DSE7    SSR   R6,R12             NO, SENSE FILE STATUS
002FEA:I  2389       =002FFC:I    2508          BNCS  SEEK2              IF DRIVE READY THEN SEEK
002FEC:I  4320 FFCC =002FBC:I     2509          BNP   DSE8               IF SEEK INC = 0 CHECK STATUS AGAIN
002FF0:I  DE60 B014 =006008:I     2510          OC    R6,STOP            RESET GATN
002FF4:I  9D4C                    2511  DSE6    SSR   R4,R12             WAIT FOR CONTROLLER IDLE
002FF6:I  2221       =002FF4:I    2512          BNPS  DSE6
002FF8:I  DE60 B011 =00600D:I     2513          OC    R6,RESTOREF        RESTORE FILE TO ZERO
002FFC:I  41E0 8030 =003030:I     2514  SEEK2   BAL   R14,WSEEKC1         WAIT FOR SEEK COMPLETE
```

DRIVERS

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003000:I  9D4C                    2515 DSE9     SSR   R4,R12          WAIT FOR CONTROLLER IDLE
003002:I  2221      =003000:I     2516          BNPS  DSE9
003004:I  9868                    2517          WHR   R6,R8           WRITE CYLINDER NUMBER TO FILE
003006:I  DE60 B002 =00600C:I     2518          OC    R6,SETCYL       GENERATE SET CYLINDER TAG
00300A:I  9D4C                    2519 DSEA     SSR   R4,R12          WAIT FOR CONTROLLER IDLE
00300C:I  2221      =00300A:I     2520          BNPS  DSEA
00300E:I  9869                    2521          WHR   R6,R9           WRITE HEAD NUMBER TO FILE
003010:I  DE60 AFF7 =00600B:I     2522          OC    R6,SFHR         SET FILE HEAD REGISTER
003014:I  9D4C                    2523 DSEC     SSR   R4,R12          WAIT FOR CONTROLLER IDLE
003016:I  2221      =003014:I     2524          BNPS  DSEC
003018:I  DE60 AFF2 =00600E:I     2525          OC    R6,SEEKC        SEEK TO CYLINDER
00301C:I  41E0 8010 =003030:I     2526          BAL   R14,WSEEKC1     WAIT FOR SEEK COMPLETE
003020:I  C480 03FF               2527          NHI   R8,X'3FF'       CHOP THE CYLINDER NUMBER
003024:I  119A                    2528          SLLS  R9,10           SHIFT HEAD NUMBER
003026:I  0689                    2529          OR    R8,R9           HEADER+CYLINDER
003028:I  9A47                    2530          WDR   R4,R7           WRITE SECTOR NUMBER TO CONTROLLER
00302A:I  9848                    2531          WHR   R4,R8           WRITE HEAD & CYLINDER NUMBER TO CONT
00302C:I  430F 0002               2532          B     2(R15)          RETURN TO TEST
                                  2533 * WAIT FOR SEEK COMPLETE
003030:I  9D4C                    2534 WSEEKC1  SSR   R4,R12          WAIT FOR CONTROLLER IDLE
*003032:I 2221      =003030:I     2535          BFC   2,WSEEKC1       *
003034:I  9D6C                    2536 WSEEK11  SSR   R6,R12          CHECK DISC FILE STATUS
003036:I  C3C0 00D3               2537          THI   R12,X'D3'
00303A:I  4230 9D52 =004D90:I     2538          BNZ   ERROR13
00303E:I  C3C0 0008               2539          THI   R12,8           CHECK IF WE HAVE ARE READY
003042:I  2037      =003034:I     2540          BNZS  WSEEK11
003044:I  030E                    2541          BR    R14             RETURN TO DISC DRIVER
```

T E S T 0

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003048:I                                2543          ALIGN ADC
003048:I     0000 313C:I                2544  TEST0   DAC   HTSTOMSG          HELP MESSAGE ADDRESS
00304C:I     0000 0000                  2545          DC    0                 TEST 0 ERROR TALLY
                                        2546  *
003050:I     E600 8004 =003058:I        2547          LA    R0,ADJUST0        LOAD NEXT SELCH ROUTINE ADR
003054:I     5000 AFD8 =006030:I        2548          ST    R0,TSTERTNA       SAVE TO TEST ERROR RETURN ADR
003058:I     41F0 F492 =0024EE:I        2549  ADJUST0 BAL   R15,SETREG        ADJUST FOR CURRENT SELCH
00305C:I     4330 F580 =0025E0:I        2550          BZ    TSTEND            END OF TEST 0
003060:I     24A0                       2551          LIS   R10,0             FOR INITIAL MSG                ****
003062:I     24B0                       2552          LIS   R11,0             FOR INITIAL MSG                ****
003064:I     2470                       2553          LIS   R7,0              FOR INITIAL MSG                ****
003066:I     41E0 9C9E =004D08:I        2554          BAL   R14,DISPLAYA      DISPLAY ADDRESSES              ****
00306A:I     2450                       2555          LIS   R5,0              INITIALIZE POINTER
             0000 306C:I                2556  TEST0.01 EQU  *
00306C:I     5845 808C =0030FC:I        2557          L     R4,PATERN(R5)     LOAD DATA PATERN
003070:I     E1E0 B0BC =006130:I        2558  TEST0.02 SVC  14,LOOPTOP        ESTABLISH LOOP HEADER
003074:I     0000 3090:I                2559          DAC   TEST0.04          PASS ADDRESS
003078:I     0000 33D8:I                2560          DAC   TEST1             PROCEED LIMIT
00307C:I     DE30 AF8A =00600A:I        2561  TEST0.03 OC   SELCH,STOP2       STOP SELCH '4C'
003080:I     9D3E                       2562          SSR   SELCH,R14          SENSE STATUS
003082:I     4340 8070 =0030F6:I        2563          BNO   GO.PASS           NO FLASE SYNC, GO TO TEST0.04
003086:I     41E0 97B0 =00483A:I        2564          BAL   R14,DOERROR       FALSE SYNC, ERROR 27
00308A:I     001B                       2565          DC    X'001B'           ERROR 27
00308C:I     4300 FFC8 =003058:I        2566          B     ADJUST0           NEXT SELCH
003090:I     4800 D358 =0003EC:I        2567  TEST0.04 LH   R0,ERRFLAG        TEST ERROR FLAG
003094:I     4230 FFC0 =003058:I        2568          BNZ   ADJUST0           NEXT SELCH IF ERRORS
003098:I     E1E0 B094 =006130:I        2569          SVC   14,LOOPTOP        NEW LOOP HEADER
00309C:I     0000 30DA:I                2570          DAC   TEST0.05          PASS ADDRESS
0030A0:I     0000 33D8:I                2571          DAC   TEST1             PROCEED LIMIT
0030A4:I     F440 00FF FFFF             2572          NI    R4,Y'00FFFFFF'    MASK FOR MAX ADR RANGE         ****
0030AA:I     0894                       2573          LR    R9,R4             COPY DATA                      ****
0030AC:I     3499                       2574          EXHR  R9,R9             RIGHT 16
0030AE:I     9A39                       2575          WDR   SELCH,R9
0030B0:I     9834                       2576          WHR   SELCH,R4
0030B2:I     9A39                       2577          WDR   SELCH,R9
0030B4:I     9834                       2578          WHR   SELCH,R4          START ADDRESS = FINAL ADDRESS
0030B6:I     DE30 AF50 =00600A:I        2579          OC    SELCH,STOP2       STOP SELCH
0030BA:I     9B3B                       2580          RDR   SELCH,R11         READ BACK FINAL ADDRESS
0030BC:I     993A                       2581          RHR   SELCH,R10
0030BE:I     34BB                       2582          EXHR  R11,R11           LEFT 16
0030C0:I     06BA                       2583          OR    R11,R10           R11 = ACTUAL FINAL ADDRESS
0030C2:I     08A4                       2584          LR    R10,R4            R10 = EXPECTED FINAL ADDRESS
0030C4:I     F4A0 00FF FFFF             2585          NI    R10,Y'00FFFFFF'   MASK EXP ADR TO MAX RANGE     ****
0030CA:I     05AB                       2586          CLR   R10,R11           EQUAL??
0030CC:I     4330 8026 =0030F6:I        2587          BE    GO.PASS           YES
0030D0:I     41E0 9766 =00483A:I        2588          BAL   R14,DOERROR       ERROR 33
0030D4:I     0421                       2589          DC    X'0421'           ERROR 33
0030D6:I     4300 FF7E =003058:I        2590          B     ADJUST0           EXIT TEST
0030DA:I     4800 D30E =0003EC:I        2591  TEST0.05 LH   R0,ERRFLAG        TEST ERROR FLAG
0030DE:I     4230 FF76 =003058:I        2592          BNZ   ADJUST0           NEXT SELCH IF ERRORS
0030E2:I     087A                       2593          LR    R7,R10
0030E4:I     41E0 9C20 =004D08:I        2594          BAL   R14,DISPLAYA      DISPLAY
0030E8:I     2654                       2595          AIS   R5,4              INCREMENT PATERN POINTER
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T E S T 0

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*0030EA:I     C550 0040               2596           CLI   R5,PATERNXX         DONE??
 0030EE:I     4280 FF7A =00306C:I     2597           BL    TEST0.01            NO
 0030F2:I     4300 FF62 =003058:I     2598           B     ADJUST0             NEXT SELCH
 0030F6:I     E1E0 B046 =006140:I     2599  GO.PASS  SVC   14,PASS             *
 0030FC:I                             2600           ALIGN 4
 0030FC:I     0000 0000               2601  PATERN   DCY   00000000,11111111,22222222,33333333
 003100:I     1111 1111
 003104:I     2222 2222
 003108:I     3333 3333
 00310C:I     4444 4444               2602           DCY   44444444,55555555,66666666,77777777
 003110:I     5555 5555
 003114:I     6666 6666
 003118:I     7777 7777
 00311C:I     8888 8888               2603           DCY   88888888,99999999,AAAAAAAA,BBBBBBBB
 003120:I     9999 9999
 003124:I     AAAA AAAA
 003128:I     BBBB BBBB
 00312C:I     CCCC CCCC               2604           DCY   CCCCCCCC,DDDDDDDD,EEEEEEEE,FFFFFFFF
 003130:I     DDDD DDDD
 003134:I     EEEE EEEE
 003138:I     FFFF FFFF
              0000 0040               2605  PATERNXX EQU   *-PATERN            SIZE OF PATTERN LIST
                                      2606  *
                                      2607  *
 00313C:I     FF45 5845 5243 4953     2608  HTSTOMSG DB    -1,C'EXERCISING START & FINAL ADDRESS REGISTERS',CR,LF
 003144:I     494E 4720 5354 4152
 00314C:I     5420 2620 4649 4E41
 003154:I     4C20 4144 4452 4553
 00315C:I     5320 5245 4749 5354
 003164:I     4552 530D 0A
 003169:I     5445 5354 2030 2045     2609           DB    C'TEST 0 EXERCISES THE SELCH START AND FINAL ADDRESS'
 003171:I     5845 5243 4953 4553
 003179:I     2054 4845 2053 454C
 003181:I     4348 2053 5441 5254
 003189:I     2041 4E44 2046 494E
 003191:I     414C 2041 4444 5245
 003199:I     5353
 00319B:I     0D0A                    2610           DB    CR,LF
 00319D:I     5245 4749 5354 4552     2611           DB    C'REGISTERS.  VARIOUS "WORST CASE" DATA PATTERNS ARE'
 0031A5:I     532E 2020 5641 5249
 0031AD:I     4F55 5320 2257 4F52
 0031B5:I     5354 2043 4153 4522
 0031BD:I     2044 4154 4120 5041
 0031C5:I     5454 4552 4E53 2041
 0031CD:I     5245
 0031CF:I     0D0A                    2612           DB    CR,LF
 0031D1:I     5752 4954 5445 4E20     2613           DB    C'WRITTEN  TO  THE  STARTING  ADDRESS REGISTER.  THE'
 0031D9:I     2054 4F20 2054 4845
 0031E1:I     2020 5354 4152 5449
 0031E9:I     4E47 2020 4144 4452
 0031F1:I     4553 5320 5245 4749
 0031F9:I     5354 4552 2E20 2054
 003201:I     4845
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T E S T 0

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003203:I     0D0A                    2614          DB    CR,LF
003205:I     4649 4E41 4C20 4144     2615          DB    C'FINAL ADDRESS  REGISTER  IS  THEN  READ  BACK  AND'
00320D:I     4452 4553 5320 2052
003215:I     4547 4953 5445 5220
00321D:I     2049 5320 2054 4845
003225:I     4E20 2052 4541 4420
00322D:I     2042 4143 4B20 2041
003235:I     4E44
003237:I     0D0A                    2616          DB    CR,LF
003239:I     4348 4543 4B45 442E     2617          DB    C'CHECKED.  IF ANY ERROR OCCURS, RUN TEST 8.',CR,LF,0
003241:I     2020 4946 2041 4E59
003249:I     2045 5252 4F52 204F
003251:I     4343 5552 532C 2052
003259:I     554E 2054 4553 5420
003261:I     382E 0D0A 00
```

T E S T 8

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003268:I                                2619            ALIGN ADC
003268:I      0000 3308:I               2620  TEST8     DC    HTST8MSG          HELP MESSAGE ADDRESS
00326C:I      0000 0000                 2621            DC    0                 ERROR TALLY
                                        2622  *
003270:I      E600 8004 =003278:I       2623            LA    R0,ADJUST8        LOAD NEXT SELCH ROUTINE ADR
003274:I      5000 ADB8 =006030:I       2624            ST    R0,TSTERTNA       SAVE TO TEST ERROR RETURN ADR
003278:I      41F0 F272 =0024EE:I       2625  ADJUST8   BAL   R15,SETREG        ADJUST REGISTERS FOR CURRENT SELCH
00327C:I      4330 F360 =0025E0:I       2626            BZ    TSTEND            CHECK FOR NEXT TEST
003280:I      24A0                      2627            LIS   R10,0             FOR INITIAL MSG
003282:I      24B0                      2628            LIS   R11,0             FOR INITIAL MSG
003284:I      2470                      2629            LIS   R7,0              FOR INITIAL MSG
003286:I      41E0 9A7E =004D08:I       2630            BAL   R14,DISPLAYA      DISPLAY ADDRESSES
00328A:I      2490                      2631            LIS   R9,0
00328C:I      2440                      2632  ZRO       LIS   R4,0              SET-UP BXLE REGS
00328E:I      2451                      2633            LIS   R5,1
003290:I      F860 0000 FFFF            2634            LI    R6,Y'FFFF'
003296:I      E1E0 AE96 =006130:I       2635            SVC   14,LOOPTOP
00329C:I      0000 32E0:I               2636            DAC   JUMP1A            PASS ADDRESS
0032A0:I      0000 33D8:I               2637            DAC   TEST1             PROCEED LIMIT
0032A4:I      DE30 AD62 =00600A:I       2638  WRTDATA   OC    SELCH,STOP2       STOP2 = X'4C' = EXT ADR READ-STOP
*0032A8:I     2346      =0032B4:I       2639            BFC   4,JUMP1E          IF NO FALSE SYNC CONTINUE
0032AA:I      41E0 958C =00483A:I       2640            BAL   R14,DOERROR       PRINT ERROR
0032AE:I      001B                      2641            DC    X'001B'           ERROR 27
0032B0:I      4300 FFC4 =003278:I       2642            B     ADJUST8
0032B4:I      9D3E                      2643  JUMP1E    SSR   SELCH,R14         SENSE STATUS
0032B6:I      9A39                      2644            WDR   SELCH,R9          WRITE START ADRS TO SELCH
0032B8:I      9834                      2645            WHR   SELCH,R4
0032BA:I      9A39                      2646            WDR   SELCH,R9          WRITE END ADRS TO SELCH
0032BC:I      9834                      2647            WHR   SELCH,R4
0032BE:I      DE30 AD47 =006009:I       2648            OC    SELCH,STOP1       STOP SELCH
0032C2:I      9B3B                      2649            RDR   SELCH,R11         READ FINAL ADRS
0032C4:I      993A                      2650            RHR   SELCH,R10
0032C6:I      34BB                      2651            EXHR  R11,R11           LEFT 16
0032C8:I      06BA                      2652            OR    R11,R10
0032CA:I      34A9                      2653            EXHR  R10,R9
0032CC:I      06A4                      2654            OR    R10,R4
0032CE:I      05AB                      2655            CLR   R10,R11           IS FINAL ADRS=START ADRS ?
0032D0:I      4330 FE22 =0030F6:I       2656            BE    GO.PASS           YES, CONTINUE
0032D4:I      2460                      2657            LIS   R6,0              CLEAR INDEX
0032D6:I      41E0 9560 =00483A:I       2658            BAL   R14,DOERROR       NO,PRINT ERROR
0032DA:I      0421                      2659            DC    X'0421'           ERROR 33
0032DC:I      4300 FF98 =003278:I       2660            B     ADJUST8
0032E0:I      087A                      2661  JUMP1A    LR    R7,R10            MOVE TO ALLOW DISPLAY
0032E2:I      41E0 9A22 =004D08:I       2662            BAL   R14,DISPLAYA      TO DISPLAY
0032E6:I      2451                      2663            LIS   R5,1              RESTORE BXLE INCREMENT
0032E8:I      C140 FFB8 =0032A4:I       2664            BXLE  R4,WRTDATA        REPEAT UNTIL R4=X'FFFF'
0032EC:I      2691                      2665            AIS   R9,1              INCREMENT MSB(YTE) OF ADDRESS
0032EE:I      58F0 AD06 =005FF8:I       2666            L     R15,BUSMASK       GET MEMORY LENGTH           ****
0032F2:I      26F1                      2667            AIS   R15,1             INCREMENT FOR COMPARE       ****
0032F4:I      ECF0 0010                 2668            SRL   R15,16            SHIFT FOR 64K COUNT         ****
0032F8:I      059F                      2669            CLR   R9,R15            DONE WITH MEMORY ??         ****
0032FA:I      4280 FF8E =00328C:I       2670            BL    ZRO               REPEAT UNTIL R9 = R15
0032FE:I      2470                      2671  JUMP1B    LIS   R7,0
```

T E S T 8

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003300:I  41E0 9A04 =004D08:I   2672            BAL   R14,DISPLAYA        CLEAR DISPLAY
003304:I  4300 FF70 =003278:I   2673            B     ADJUST8             CHECK FOR NEXT SELCH
                                2674  *
003308:I  FF53 5441 5254 494E   2675  HTST8MSG  DB    -1,C'STARTING AND FINAL ADDRESS REGISTER CHECK',CR,LF
003310:I  4720 414E 4420 4649
003318:I  4E41 4C20 4144 4452
003320:I  4553 5320 5245 4749
003328:I  5354 4552 2043 4845
003330:I  434B 0D0A
003334:I  4556 4552 5920 4144   2676            DB    C'EVERY ADDRESS FROM 0 UP TO MAXIMUM MEMORY IS '
00333C:I  4452 4553 5320 4652
003344:I  4F4D 2030 2055 5020
00334C:I  544F 204D 4158 494D
003354:I  554D 204D 454D 4F52
00335C:I  5920 4953 20
003361:I  0D0A                  2677            DB    CR,LF
003363:I  5752 4954 5445 4E20   2678            DB    C'WRITTEN TO THE SELCH START ADDRESS REGISTER.'
00336B:I  544F 2054 4845 2053
003373:I  454C 4348 2053 5441
00337B:I  5254 2041 4444 5245
003383:I  5353 2052 4547 4953
00338B:I  5445 522E
00338F:I  0D0A                  2679            DB    CR,LF
003391:I  5448 4520 4649 4E41   2680            DB    C'THE FINAL ADDRESS IS READ BACK AND COMPARED'
003399:I  4C20 4144 4452 4553
0033A1:I  5320 4953 2052 4541
0033A9:I  4420 4241 434B 2041
0033B1:I  4E44 2043 4F4D 5041
0033B9:I  5245 44
0033BC:I  0D0A                  2681            DB    CR,LF
0033BE:I  544F 2054 4845 2044   2682            DB    C'TO THE DATA WRITTEN.',CR,LF,0
0033C6:I  4154 4120 5752 4954
0033CE:I  5445 4E2E 0D0A 00
```

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                                        2684  *
                                        2685  *
 0033D8:I                               2686          ALIGN ADC
 0033D8:I     0000 3632:I               2687  TEST1   DAC   HTST1MSG           HELP MESSAGE ADDRESS
 0033DC:I     0000 0000                 2688          DC    0                  ERROR TALLY
                                        2689  *
 0033E0:I     C800 20F0                 2690          LHI   R0,X'20F0'         TURN OFF                              ****
 0033E4:I     9510                      2691          EPSR  R1,R0              MACHINE INTERRUPTS                    ****
 0033E6:I     E600 8004 =0033EE:I       2692          LA    R0,ADJUST1         LOAD NEXT SELCH ROUTINE ADR
 0033EA:I     5000 AC42 =006030:I       2693          ST    R0,TSTERTNA        SAVE TO TEST ERROR RETURN ADR
 0033EE:I     41F0 F0FC =0024EE:I       2694  ADJUST1 BAL   R15,SETREG         ADJUST REGISTERS FOR CURRENT SELCH
 0033F2:I     4330 F1EA =0025E0:I       2695          BZ    TSTEND             CHECK FOR NEXT TEST
 0033F6:I     E1E0 AD36 =006130:I       2696  TEST1.1 SVC   14,LOOPTOP         ESTABLISH LOOP TOP
 0033FC:I     0000 349A:I               2697          DAC   TEST1.5            PASS ADDRESS
 003400:I     0000 3708:I               2698          DAC   TEST2              PROCEED LIMIT
 003404:I     41F0 90AE =0044B6:I       2699          BAL   R15,SETBUF          SET UP OUTPUT AND INPUT BUFFER
 003408:I     41F0 F46A =002876:I       2700          BAL   R15,SELCH1         ENSURE SELCH IS IDLE
 00340C:I     4810 AC12 =006022:I       2701          LH    R1,INDEX           GET CURRENT
 003410:I     1111                      2702          SLLS  R1,1               MAKE FW
 003412:I     5851 CE9E =0002B4:I       2703          L     DRIVER,DRIVSAV(R1) GET DRIVER ADDRESS
 003416:I     01F5                      2704          BALR  R15,DRIVER         SETUP I/O DEVICE FOR TRANSFER
 003418:I     0000                      2705          DC    X'0'               FROM MEMORY TO DEVICE (WRITE)
 00341A:I     7320 AC04 =006022:I       2706          LHL   R2,INDEX           LOAD CURRENT TABLE INDEX
 00341E:I     2490                      2707          LIS   R9,0               IN CASE 2.5 OR 10MB
 003420:I     73F2 CDC0 =0001F4:I       2708          LHL   R15,DEVTABLE(R2)   LOAD DEVICE OPTION
 003424:I     C3F0 000F                 2709          THI   R15,X'F'           FOR 0 OR 10
*003428:I     2337      =003436:I       2710          BZ    TEST1.2            SELCH TESTER
 00342A:I     C5F0 0002                 2711          CLHI  R15,2              800/1600 BPI TAPE ??
*00342E:I     2338      =00343E:I       2712          BE    TEST1.3            2.5 OR 10MB
*003430:I     2183      =003436:I       2713          BL    TEST1.2            MAG TAPE
 003432:I     2491                      2714          LIS   R9,1               MSM OR IDC
*003434:I     2305      =00343E:I       2715          B     TEST1.3
 003436:I     1121                      2716  TEST1.2 SLLS  R2,1               MAKE FW
 003438:I     5892 CDE8 =000224:I       2717          L     R9,BYTETAB(R2)     LOAD TRANFER SIZE IN BYTES
 00343C:I     1021                      2718          SRLS  R2,1               MAKE HW
 00343E:I     1121                      2719  TEST1.3 SLLS  R2,1               ADJUST INDEX FOR FULLWORD TABLE
 003440:I     5862 CF58 =00039C:I       2720          L     R6,OUTBTAB(R2)     LOAD START ADRS OF WRITE BLOCK
 003444:I     1021                      2721          SRLS  R2,1               ADJUST INDEX FOR HALFWORD TABLE
 003446:I     E676 4900 0000            2722  TEST1.4 LA    R7,0(R6,R9)        LOAD END ADRS OF WRITE BLOCK
 00344C:I     4842 CD84 =0001D4:I       2723          LH    R4,IOTAB(R2)       RESTORE DEVICE ADDRESS
 003450:I     73F2 CD90 =0001E4:I       2724          LHL   R15,DEVTABLE(R2)   IS I/O DEVICE A TESTER ?
 003454:I     C3F0 000F                 2725          THI   R15,X'F'           FOR 0 OR 10
*003458:I     2334      =003460:I       2726          BZ    WBLOCK             YES, SKIP OUTPUT COMMAND
 00345A:I     DE41 4200 03DC:I          2727          OC    R4,RWC(R1,R2)      ISSUE  WRITE TO DEVICE
              0000 3460:I               2728  WBLOCK  EQU   *
 003460:I     C3F0 0010                 2729          THI   R15,X'10'          CHECK IF HALFWORD MODE REQ'D
*003464:I     213C      =00347C:I       2730          BNZ   WHBLCK1            YES, SKIP
                                        2731  *
 003466:I     D3E6 0000                 2732  WDBLCK1 LB    R14,0(R6)          GET DATA BYTE
 00346A:I     9D4C                      2733  WDBLCK3 SSR   IODEVS,STAT        SENSE STATUS
 00346C:I     4270 801E =00348E:I       2734          BTC   7,WBLOCK2          BAD STATUS, EXIT
*003470:I     2083      =00346A:I       2735          BTC   8,WDBLCK3          WAIT FOR BUSY NOT
 003472:I     9A4E                      2736          WDR   R4,R14             WRITE DATA BYTE
```

T E S T 1

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 003474:I    2661                            AIS   R6,1                INCREMENT
 003476:I    0576                            CLR   R7,R6               DONE??
*003478:I    2289      =003466:I             BNL   WDBLCK1             LOOP
*00347A:I    230A      =00348E:I             B     WBLOCK2             GO CHECK TERMINATION
                                   *
 00347C:I    48E6 0000             WHBLCK1   LH    R14,0(R6)           GET DATA HALFWORD
 003480:I    9D4C                  WHBLCK3   SSR   IODEVS,STAT         SENSE STATUS
*003482:I    2176      =00348E:I             BTC   7,WBLOCK2           BAD STATUS, EXIT
*003484:I    2082      =003480:I             BTC   8,WHBLCK3           WAIT FOR BUSY NOT
 003486:I    984E                            WHR   R4,R14              WRITE DATA HALFWORD
 003488:I    2662                            AIS   R6,2                INCREMENT
 00348A:I    0576                            CLR   R7,R6               DONE??
*00348C:I    2288      =00347C:I             BNL   WHBLCK1             LOOP
                                   *
 00348E:I    41F0 816E =003600:I   WBLOCK2   BAL   R15,TERMCHK         CHECK FOR NORMAL TERM OF TRANSFER
 003492:I    41F0 910C =0045A2:I             BAL   R15,BUFCHK          CHECK THAT OUTBTAB WAS NOT MODIFIED
 003496:I    E1E0 ACA6 =006140:I             SVC   14,PASS             GO TO TEST1.5
 00349A:I    4800 CF4E =0003EC:I   TEST1.5   LH    R0,ERRFLAG          TEST ERROR FLAG
 00349E:I    4230 FF4C =0033EE:I             BNZ   ADJUST1             NEXT SELCH IF ERRORS HERE
 0034A2:I    E1E0 AC8A =006130:I             SVC   14,LOOPTOP          NEW LOOP TOP
 0034A8:I    0000 35BC:I                     DAC   TEST1.10            PASS ADDRESS
 0034AC:I    0000 3708:I                     DAC   TEST2               PROCEED LIMIT
 0034B0:I    4810 AB6E =006022:I             LH    R1,INDEX            GET CURRENT
 0034B4:I    1111                            SLLS  R1,1                MAKE FW
 0034B6:I    5851 CDFA =0002B4:I             L     DRIVER,DRIVSAV(R1)
 0034BA:I    01F5                            BALR  R15,DRIVER          SETUP I/O DEVICE FOR TRANSFER
 0034BC:I    0001                            DC    X'1'                FROM DEVICE TO MEMORY (READ)
 0034BE:I    7320 AB60 =006022:I             LHL   R2,INDEX            LOAD CURRENT TABLE INDEX
 0034C2:I    2490                            LIS   R9,0
 0034C4:I    73F2 CD1C =0001E4:I             LHL   R15,DEVTABLE(R2)    LOAD DEVICE OPTION
 0034C8:I    C3F0 000F                       THI   R15,X'F'            FOR 0 OR 10
*0034CC:I    2337      =0034DA:I             BZ    TEST1.6             SELCH TESTER
 0034CE:I    C5F0 0002                       CLHI  R15,2               800/1600 BPI TAPE ??
*0034D2:I    2338      =0034E2:I             BE    TEST1.7             2.5 OR 10MB
*0034D4:I    2183      =0034DA:I             BL    TEST1.6             MAG TAPE
 0034D6:I    2491                            LIS   R9,1                MSM OR IDC
*0034D8:I    2305      =0034E2:I             B     TEST1.7             *
 0034DA:I    1121                  TEST1.6   SLLS  R2,1                MAKE FULLWORD INDEX
 0034DC:I    5892 CD44 =000224:I             L     R9,BYTETAB(R2)      LOAD TRANSFER SIZE IN BYTES
 0034E0:I    1021                            SRLS  R2,1                MAKE HW
 0034E2:I    1121                  TEST1.7   SLLS  R2,1                ADJUST INDEX FOR FULLWORD TABLE
 0034E4:I    5862 CED4 =0003BC:I             L     R6,INBTAB(R2)       LOAD START ADRS OF READ BLOCK
 0034E8:I    1021                            SRLS  R2,1                ADJUST INDEX FOR HALFWORD TABLE
 0034EA:I    E676 4900 0000                  LA    R7,0(R6,R9)         LOAD END ADRS OF READ BLOCK
 0034F0:I    4842 CCE0 =0001D4:I             LH    R4,IOTAB(R2)        RESTORE DEVICE ADDRESS
 0034F4:I    73F2 CCEC =0001E4:I             LHL   R15,DEVTABLE(R2)    IS I/O DEVICE A TESTER ?
 0034F8:I    C3F0 000F                       THI   R15,X'F'            FOR 0 OR 10
*0034FC:I    2334      =003504:I             BZ    RBLOCK              YES, SKIP OUTPUT COMMAND
 0034FE:I    DE41 4200 03DC:I                OC    R4,RWC(R1,R2)       ISSUE READ  TO DEVICE
             0000 3504:I           RBLOCK    EQU   *
 003504:I    C3F0 0010                       THI   R15,X'10'           CHECK IF HALFWORD MODE REQ'D
*003508:I    213E      =003524:I             BNZ   RHBLCK1             YES, SKIP
                                   *
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T E S T 1

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 00350A:I  D3E6 0000              2790  RDBLCK1  LB    R14,0(R6)          GET DATA BYTE
 00350E:I  9D4C                   2791  RDBLCK3  SSR   IODEVS,STAT       SENSE STATUS
 003510:I  4270 8026 =00353A:I    2792           BTC   7,RBLOCK2          BAD STATUS EXIT
*003514:I  2083       =00350E:I   2793           BTC   8,RDBLCK3         WAIT FOR BUSY NOT
 003516:I  9B4E                   2794           RDR   R4,R14            READ DATA BYTE
 003518:I  D2E6 0000              2795           STB   R14,0(R6)         STORE DATA BYTE
 00351C:I  2661                   2796           AIS   R6,1              INCREMENT
 00351E:I  0576                   2797           CLR   R7,R6             DONE??
*003520:I  228B       =00350A:I   2798           BNL   RDBLCK1           LOOP
*003522:I  230C       =00353A:I   2799           B     RBLOCK2           GO CHECK TERMINATION
                                 2800  *
 003524:I  48E6 0000              2801  RHBLCK1  LH    R14,0(R6)          GET DATA HALFWORD
 003528:I  9D4C                   2802  RHBLCK3  SSR   IODEVS,STAT       SENSE STATUS
*00352A:I  2178       =00353A:I   2803           BTC   7,RBLOCK2          BAD STATUS EXIT
*00352C:I  2082       =003528:I   2804           BTC   8,RHBLCK3         WAIT FOR BUSY NOT
 00352E:I  994E                   2805           RHR   R4,R14            READ DATA HALFWORD
 003530:I  40E6 0000              2806           STH   R14,0(R6)         STORE DATA HALFWORD
 003534:I  2662                   2807           AIS   R6,2              INCREMENT
 003536:I  0576                   2808           CLR   R7,R6             DONE??
*003538:I  228A       =003524:I   2809           BNL   RHBLCK1           LOOP
                                 2810  *
 00353A:I  41F0 80C2 =003600:I    2811  RBLOCK2  BAL   R15,TERMCHK       CHECK FOR NORMAL TERM OF TRANSFER
 00353E:I  1121                   2812           SLLS  R2,1              ADJUST INDEX FOR FULLWROD TABLE
 003540:I  5812 CE58 =00039C:I    2813           L     R1,OUTBTAB(R2)    LOAD ADRS OF OUTPUT BUFFER
 003544:I  5892 CE74 =0003BC:I    2814           L     R9,INBTAB(R2)     LOAD ADRS OF INPUT BUFFER
 003548:I  2460                   2815           LIS   R6,0
 00354A:I  2472                   2916           LIS   R7,2
 00354C:I  5882 CCD4 =000224:I    2817           L     R8,BYTETAB(R2)    LOAD BXLE LIMIT
 003550:I  2781                   2818           SIS   R8,1              ADJ FOR END ADR
 003552:I  1021                   2819           SRLS  R2,1              MAKE HW
 003554:I  73A1 4600 0000         2820  LOAD2    LHL   R10,0(R1,R6)      LOAD DATA FROM OUTPUT BUFFER
 00355A:I  73B6 4900 0000         2821           LHL   R11,0(R6,R9)      LOAD DATA FROM INPUT BUFFER
 003560:I  73F2 CC80 =0001E4:I    2822           LHL   R15,DEVTABLE(R2)  LOAD DEVICE OPTION
 003564:I  C3F0 000F              2823           THI   R15,X'F'          FOR 0 OR 10
 003568:I  4330 8020 =00358C:I    2824           BZ    CLR               SELCH TESTER, CHECK WHOLE BUFFER
 00356C:I  C5F0 0001              2825           CLHI  R15,1             800/1600 BPI TAPE?
*003570:I  233E       =00358C:I   2826           BE    CLR               YES, CHECK WHOLE BUFFER
 003572:I  C5F0 0004              2827           CLHI  R15,X'4'          40 MB ??
*003576:I  2333       =00357C:I   2828           BE    L7A               CHECK 2 BYTES IF 40 MB
 003578:I  10A8                   2829  L7B      SRLS  R10,8             ELSE, CHECK 1 BYTE
 00357A:I  10B8                   2830           SRLS  R11,8
 00357C:I  05AB                   2831  L7A      CLR   R10,R11           WAS DATA WRITTEN = DATA READ ?
 00357E:I  4330 FB74 =0030F6:I    2832           BE    GO.PASS           YES, CHECK MOVE BUFFER OPTIONS
 003582:I  41E0 92B4 =00483A:I    2833           BAL   R14,DOERROR       NO, PRINT ERROR
 003586:I  0120                   2834           DC    X'0120'           ERROR 32
 003588:I  4300 FE62 =0033EE:I    2835           B     ADJUST1
 00358C:I  05AB                   2836  CLR      CLR   R10,R11           OUTPUT BUF = INPUT BUF ?
 00358E:I  2135       =003598:I   2837           BNES  ODDCHK            NO, CHECK FOR ODD BYTE TRANSFER
 003590:I  C160 FFC0 =003554:I    2838           BXLE  R6,LOAD2          YES, REPEAT UNTIL ALL BUF CHECKED
 003594:I  4300 FB5E =0030F6:I    2839           B     GO.PASS           CHECK FOR NEXT SELCH
 003598:I  0568                   2840  ODDCHK   CLR   R6,R8            WAS AN EVEN NUMBER OF BYTES TRANSF ?
 00359A:I  2336       =0035A6:I   2841           BES   JUMP2             NO, CONTINUE
 00359C:I  41E0 929A =00483A:I    2842           BAL   R14,DOERROR       YES, PRINT ERROR
```

T E S T 1

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 0035A0:I      0120                     DC    X'0120'            ERROR 32
 0035A2:I      4300 FE48 =0033EE:I            B     ADJUST1
 0035A6:I      08EA            JUMP2    LR    R14,R10            CHECK ONLY LAST BYTE TRANSFERRED
 0035A8:I      07EB                     XR    R14,R11            SEE IF SAME
 0035AA:I      C3E0 FF00                THI   R14,X'FF00'        AS EXPECTED
 0035AE:I      4330 FB44 =0030F6:I            BZ    GO.PASS            YES, CHECK MOVE BUFFER OPTIONS
 0035B2:I      41E0 9284 =00483A:I            BAL   R14,DOERROR        NO, PRINT ERROR
 0035B6:I      0120                     DC    X'0120'            ERROR 32
 0035B8:I      4300 FE32 =0033EE:I            B     ADJUST1
 0035BC:I      4800 CE2C =0003EC:I  TEST1.10 LH    R0,ERRFLAG         TEST ERROR FLAG
 0035C0:I      4230 FE2A =0033EE:I            BNZ   ADJUST1            NEXT SELCH IF ERRORS
 0035C4:I      D300 AA47 =00600F:I            LB    R0,RESCTL          LOAD DISARM COMMAND
 0035C8:I      7320 AA56 =006022:I            LHL   R2,INDEX           LOAD CURRENT TABLE INDEX
 0035CC:I      7342 CC04 =0001D4:I            LHL   IODEVS,IOTAB(R2)   LOAD IODEV ADR
 0035D0:I      73F2 CC10 =0001E4:I            LHL   R15,DEVTABLE(R2)   LOAD DEVICE OPTION
 0035D4:I      C3F0 000F                THI   R15,X'0F'          CHECK IF SELCH TESTER
*0035D8:I      233E      =0035F4:I            BZ    TEST1.13           YES, SKIP CMD
 0035DA:I      C5F0 0001                CLHI  R15,1              CHECK IF 800 1600 BPI TAPE
*0035DE:I      233A      =0035F2:I            BE    TEST1.12           YES, CMD DISARM TO CONTROLER
 0035E0:I      C5F0 0002                CLHI  R15,2              6250 TAPE ??
 0035E4:I      2133      =0035EA:I            BNES  TEST1.11           NO,SKIP
 0035E6:I      2608                     AIS   R0,8               MAKE 6250 TYPE CMD DISARM - 'C8'
*0035E8:I      2305      =0035F2:I            B     TEST1.12           ISSUE TO CONTROLLER
 0035EA:I      7362 CC06 =0001F4:I  TEST1.11 LHL   R6,DISFTAB(R2)     LOAD FILE ADR
 0035EE:I      9E60                     OCR   R6,R0              ISSUE DISARM TO FILE
 0035F0:I      2608                     AIS   R0,8               MAKE DISARM / CLEAR FOR CONTROLLER
 0035F2:I      9E40            TEST1.12 OCR   IODEVS,R0          CLEAR ANY INTERRUPTS
 0035F4:I      41F0 9084 =00467C:I  TEST1.13 BAL   R15,MVCHK          CHECK MOVE OPTION
 0035F8:I      4330 FDFA =0033F6:I            BZ    TEST1.1            REPEAT TEST WITH NEW BUFFER
 0035FC:I      4300 FDEE =0033EE:I            B     ADJUST1            ELSE, CHECK FOR NEXT SELCH


                               * NORMAL TERMINATION CHECK
 003600:I      9D4C            TERMCHK  SSR   IODEVS,STAT
 003602:I      C3C0 00C0                THI   STAT,X'C0'
 003606:I      4230 801E =003628:I            BNZ   ERR31              ERROR IF BAD STATUS
 00360A:I      4800 CDDE =0003EC:I            LH    R0,ERRFLAG
 00360E:I      4230 FDDC =0033EE:I            BNZ   ADJUST1            NEXT SELCH IF ERRORS
 003612:I      73A2 CBCE =0001E4:I            LHL   WORK,DEVTABLE(R2)
 003616:I      C3A0 000F                THI   WORK,X'F'          FOR 0 OR 10
*00361A:I      2334      =003622:I            BZ    DISCHK1            SELCH TESTER
 00361C:I      C5A0 0003                CLHI  WORK,X'3'          TAPE??
 003620:I      028F                     BLR   R15                RETURN IF YES
 003622:I      C3C0 0030       DISCHK1  THI   STAT,X'30'
 003626:I      033F                     BZR   R15
 003628:I      41E0 920E =00483A:I  ERR31    BAL   R14,DOERROR        PRINT ERROR
 00362C:I      021F                     DC    X'021F'            ERROR 31
 00362E:I      4300 FDBC =0033EE:I            B     ADJUST1
                               *
 003632:I      FF49 444C 4520 5345  HTST1MSG DB    -1,C'IDLE SELCH TRANSFERS',CR,LF
 00363A:I      4C43 4820 5452 414E
 003642:I      5346 4552 530D 0A
```

T E S T 1

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003649:I     5445 5354 2031 2045      2892          DB    C'TEST 1 ENSURES THAT DATA CAN BE '
003651:I     4E53 5552 4553 2054
003659:I     4841 5420 4441 5441
003661:I     2043 414E 2042 4520
003669:I     5452 414E 5346 4552      2893          DB    C'TRANSFERED THROUGH',CR,LF
003671:I     4544 2054 4852 4F55
003679:I     4748 0D0A
00367D:I     5448 4520 5345 4C45      2894          DB    C'THE SELECTOR CHANNEL WHEN IT IS IDLE.',CR,LF
003685:I     4354 4F52 2043 4841
00368D:I     4E4E 454C 2057 4845
003695:I     4E20 4954 2049 5320
00369D:I     4944 4C45 2E0D 0A
0036A4:I     2A2A 2A2A 2A2A 2020      2895          DB    C'******   CAUTIONARY NOTE   ******',CR,LF
0036AC:I     2043 4155 5449 4F4E
0036B4:I     4152 5920 4E4F 5445
0036BC:I     2020 202A 2A2A 2A2A
0036C4:I     2A0D 0A
0036C7:I     4849 4748 2054 5241      2896          DB    C'HIGH TRANSFER RATE DEVICES CANNOT SUCCESSFULLY '
0036CF:I     4E53 4645 5220 5241
0036D7:I     5445 2044 4556 4943
0036DF:I     4553 2043 414E 4E4F
0036E7:I     5420 5355 4343 4553
0036EF:I     5346 554C 4C59 20
0036F6:I     5255 4E20 5448 4953      2897          DB    C'RUN THIS TEST !',CR,LF,0
0036FE:I     2054 4553 5420 210D
003706:I     0A00
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T E S T 2

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003708:I                                2899          ALIGN ADC
003708:I     0000 384D:I                2900  TEST2   DC    HTST2MSG          HELP MESSAGE ADDRESS          R09
00370C:I     0000 0000                  2901          DC    0                 ERROR TALLY                   R09
                                        2902  *
003710:I     E600 8004 =003718:I        2903          LA    R0,ADJUST2        LOAD NEXT SELCH ROUTINE ADR
003714:I     5000 A918 =006030:I        2904          ST    R0,TSTERTNA       SAVE TO TEST ERROR RETURN ADR
003718:I     41F0 EDD2 =0024EE:I        2905  ADJUST2 BAL   R15,SETREG        ADJUST REGISTER FOR CURRENT SELCH
00371C:I     4330 EEC0 =0025E0:I        2906          BZ    TSTEND            END OF TEST
003720:I     DE30 A8E6 =00600A:I        2907          OC    SELCH,STOP2       STOP = X'48' = STOP
*003724:I    2345      =00372E:I        2908          BNO   ADJ2              IF NO FALSE SYNC CONTINUE
003726:I     41E0 9110 =00483A:I        2909          BAL   R14,DOERROR       PRINT ERROR
00372A:I     001B                       2910          DC    X'001B'           ERROR 27
*00372C:I    220A      =003718:I        2911          B     ADJUST2
00372E:I     9D3E                       2912  ADJ2    SSR   SELCH,R14         SENSE STATUS
003730:I     D300 8116 =00384A:I        2913          LB    R0,DATA1          DATA1 = X'0A'
003734:I     D320 8113 =00384B:I        2914          LB    R2,DATA2          DATA2 = X'BC'
003738:I     D360 8110 =00384C:I        2915          LB    R6,DATA3          DATA3 = X'DE'
00373C:I     9A30                       2916          WDR   SELCH,R0          WRITE START ADRS TO ESELCH
00373E:I     9A32                       2917          WDR   SELCH,R2
003740:I     9A36                       2918          WDR   SELCH,R6
003742:I     9A30                       2919          WDR   SELCH,R0          WRITE END ADRS TO ESELCH
003744:I     9A32                       2920          WDR   SELCH,R2
003746:I     9A36                       2921          WDR   SELCH,R6
003748:I     DE30 A8BC =006008:I        2922          OC    SELCH,STOP        STOP THE ESELCH
00374C:I     9B37                       2923          RDR   SELCH,R7          READ THE FINAL ADRS
00374E:I     9B38                       2924          RDR   SELCH,R8          ADRS SHOULD = BCDEXX
003750:I     9B39                       2925          RDR   SELCH,R9          XX = UNDEFINED
003752:I     0572                       2926          CLR   R7,R2             DOES R7 = BC ?
003754:I     4230 8034 =00378C:I        2927          BNE   CHK20BIT          NO, CHECK FOR 20 BIT ADRS
003758:I     0586                       2928          CLR   R8,R6             YES, DOES R8 = DE ?
00375A:I     4230 8094 =0037F2:I        2929          BNE   ERROR3            NO, PRINT ERROR
00375E:I     DE30 A8A7 =006009:I        2930  SETBIT  OC    SELCH,STOP1       STOP1=EXT ADRS READ - STOP
003762:I     9A30                       2931          WDR   SELCH,R0          WRITE START ADRS TO ESELCH
003764:I     9A32                       2932          WDR   SELCH,R2
003766:I     9A36                       2933          WDR   SELCH,R6
003768:I     9A30                       2934          WDR   SELCH,R0          WRITE END ADRS TO ESELCH
00376A:I     9A32                       2935          WDR   SELCH,R2
00376C:I     9A36                       2936          WDR   SELCH,R6
00376E:I     DE30 A897 =006009:I        2937          OC    SELCH,STOP1       STOP THE ESELCH
003772:I     9B37                       2938          RDR   SELCH,R7          READ THE FINAL ADRS
003774:I     9B38                       2939          RDR   SELCH,R8          ADRS SHOULD = 0ABCDE
003776:I     9B39                       2940          RDR   SELCH,R9
003778:I     0507                       2941          CLR   R0,R7             DOES R7 = 0A ?
*00377A:I    213D      =003794:I        2942          BNE   CHK16BIT          NO, CHECK FOR 16 BIT ADRS
00377C:I     0528                       2943          CLR   R2,R8             YES, DOES R8 = BC ?
00377E:I     4230 807A =0037FC:I        2944          BNE   ERROR4            NO, PRINT ERROR
003782:I     0569                       2945          CLR   R6,R9             YES, DOES R9 = DE ?
003784:I     4230 8074 =0037FC:I        2946          BNE   ERROR4            NO, PRINT ERROR
003788:I     4300 FF8C =003718:I        2947  TSTNXT  B     ADJUST2           YES, CHECK FOR NEXT SELCH
00378C:I     0507                       2948  CHK20BIT CLR  R0,R7             DOES R7 = 0A ?
00378E:I     4230 8060 =0037F2:I        2949          BNE   ERROR3            NO, PRINT ERROR 3
*003792:I    2309      =0037A4:I        2950          B     ERROR1            YES, PRINT ERROR 1
003794:I     0527                       2951  CHK16BIT CLR  R2,R7             DOES R7 = BC ?
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T E S T 2

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003796:I  4230 8062 =0037FC:I   2952            BNE   ERROR4              NO, PRINT ERROR 4
00379A:I  0568                  2953            CLR   R6,R8               YES, DOES R8 = DE ?
00379C:I  4230 805C =0037FC:I   2954            BNE   ERROR4              NO, PRINT ERROR 4
0037A0:I  4300 8028 =0037CC:I   2955            B     ERROR2              YES, PRINT ERROR 2
0037A4:I  24A0                  2956  ERROR1    LIS   R10,0
0037A6:I  D220 A74F =005EF9:I   2957            STB   R2,EXP1
0037AA:I  D260 A74C =005EFA:I   2958            STB   R6,EXP2
0037AE:I  D2A0 A749 =005EFB:I   2959            STB   R10,EXP3
0037B2:I  D270 A747 =005EFD:I   2960            STB   R7,READ4
0037B6:I  D280 A744 =005EFE:I   2961            STB   R8,READ5
0037BA:I  D290 A741 =005EFF:I   2962            STB   R9,READ6
0037BE:I  41E0 9078 =00483A:I   2963            BAL   R14,DOERROR
0037C2:I  0001                  2964  ERRNUM1   DC    X'0001'             ERROR 01
0037C4:I  41F0 803E =003806:I   2965            BAL   R15,XERROR
0037C8:I  4300 FF92 =00375E:I   2966            B     SETBIT
0037CC:I  D200 A729 =005EF9:I   2967  ERROR2    STB   R0,EXP1
0037D0:I  D220 A726 =005EFA:I   2968            STB   R2,EXP2
0037D4:I  D260 A723 =005EFB:I   2969            STB   R6,EXP3
0037D8:I  D270 A721 =005EFD:I   2970            STB   R7,READ4
0037DC:I  D280 A71E =005EFE:I   2971            STB   R8,READ5
0037E0:I  D290 A71B =005EFF:I   2972            STB   R9,READ6
0037E4:I  41E0 9052 =00483A:I   2973            BAL   R14,DOERROR
0037E8:I  0002                  2974  ERRNUM2   DC    X'0002'             ERROR 02
0037EA:I  41F0 8018 =003806:I   2975            BAL   R15,XERROR
0037EE:I  4300 FF96 =003788:I   2976            B     TSTNXT
*0037F2:I 24A3                  2977  ERROR3    LHI   R10,X'0003'         ERROR 03
0037F4:I  40A0 FFCA =0037C2:I   2978            STH   R10,ERRNUM1
0037F8:I  4300 FFA8 =0037A4:I   2979            B     ERROR1
*0037FC:I 24A4                  2980  ERROR4    LHI   R10,X'0004'         ERROR 04
0037FE:I  40A0 FFE6 =0037E8:I   2981            STH   R10,ERRNUM2
003802:I  4300 FFC6 =0037CC:I   2982            B     ERROR2
003806:I  73EF 0000             2983  XERROR    LHL   R14,0(R15)          LOAD CURRENT ERROR NUMBER
00380A:I  C4E0 00FF             2984            NHI   R14,X'FF'           MASK FOR ERROR NUMBER ONLY
00380E:I  E65E 967A =004E8C:I   2985            LA    R5,MSGTABLE(R14)    LOAD MSG ADR
003812:I  E1E0 A8BA =0060D0:I   2986            SVC   14,MESSAGE          PRINT MSG
003816:I  E620 A677 =005E91:I   2987            LA    R2,EXPBYTE          DESTINATION ADDRESS
00381A:I  5810 A6DA =005EF8:I   2988            L     R1,BYTEEXP          LOAD EXPECTED ADR
00381E:I  2406                  2989            LIS   R0,6                6 DIGITS
003820:I  E1E0 A8D4 =0060F8:I   2990            SVC   14,HEXASC           CONVERT TO ASCII
003824:I  E620 A680 =005EA8:I   2991            LA    R2,READBYTE         DESTINATION ADDRESS
003828:I  5810 A6D0 =005EFC:I   2992            L     R1,BYTEREAD         LOAD READ ADR
00382C:I  2406                  2993            LIS   R0,6                SIX DIGITS
00382E:I  E1E0 A8C6 =0060F8:I   2994            SVC   14,HEXASC           CONVERT TO ASCII
003832:I  E650 A649 =005E7F:I   2995            LA    R5,EXADRMSG         LOAD MSG ADR
003836:I  E1E0 A896 =0060D0:I   2996            SVC   14,MESSAGE          PRINT TOTAL MSG
00383A:I  E650 80A2 =0038E0:I   2997            LA    R5,ADVS2MSG         LOAD CM ADVISORY MSG ADR
00383E:I  E1E0 A88E =0060D0:I   2998            SVC   14,MESSAGE          PRINT ADVISORY MSG
003842:I  2451                  2999            LIS   R5,1
003844:I  5150 AA64 =0062AC:I   3000            AM    R5,TOTERR           INCREMENT TOTAL ERRORS
003848:I  030F                  3001            BR    R15                 RETURN TO CALL
                                3002  *
                                3003  *
                                3004  *
```

T E S T 2

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00384A:I  0A                        3005  DATA1     DB    X'0A'
00384B:I  BC                        3006  DATA2     DB    X'BC'
00384C:I  DE                        3007  DATA3     DB    X'DE'
                                    3008  *
00384D:I  FF45 5854 454E 4445       3009  HTST2MSG  DB    -1,C'EXTENDED ADDRESS READ COMMAND',CR,LF
003855:I  4420 4144 4452 4553
00385D:I  5320 5245 4144 2043
003865:I  4F4D 4D41 4E44 0D0A
00386D:I  5445 5354 2032 2043       3010            DB    C'TEST 2 CHECKS THE ADDRESS REGISTERS AND '
003875:I  4845 434B 5320 5448
00387D:I  4520 4144 4452 4553
003885:I  5320 5245 4749 5354
00388D:I  4552 5320 414E 4420
003895:I  494E 5355 5245 5320       3011            DB    C'INSURES THAT THE',CR,LF
00389D:I  5448 4154 2054 4845
0038A5:I  0D0A
0038A7:I  4558 5445 4E44 4544       3012            DB    C'EXTENDED ADDRESS READ COMMAND IS '
0038AF:I  2041 4444 5245 5353
0038B7:I  2052 4541 4420 434F
0038BF:I  4D4D 414E 4420 4953
0038C7:I  20
0038C8:I  4655 4E43 5449 4F4E       3013            DB    C'FUNCTIONING CORRECTLY.',CR,LF
0038D0:I  494E 4720 434F 5252
0038D8:I  4543 544C 592E 0D0A
0038E0:I  4946 2053 454C 4543       3014  ADVS2MSG  DB    C'IF SELECTOR CHANNEL UNDER TEST IS '
0038E8:I  544F 5220 4348 414E
0038F0:I  4E45 4C20 554E 4445
0038F8:I  5220 5445 5354 2049
003900:I  5320
003902:I  4143 5455 414C 4C59       3015            DB    C'ACTUALLY A CHANNEL MANAGER ',CR,LF
00390A:I  2041 2043 4841 4E4E
003912:I  454C 204D 414E 4147
00391A:I  4552 200D 0A
00391F:I  494E 2042 5345 4C43       3016            DB    C'IN BSELCH MODE, THE ADDRESS RETURNED '
003927:I  4820 4D4F 4445 2C20
00392F:I  5448 4520 4144 4452
003937:I  4553 5320 5245 5455
00393F:I  524E 4544 20
003944:I  5749 4C4C 2041 4C57       3017            DB    C'WILL ALWAYS BE AN ',CR,LF
00394C:I  4159 5320 4245 2041
003954:I  4E20 0D0A
003958:I  4558 5445 4E44 4544       3018            DB    C'EXTENDED (3 BYTE) ADDRESS. DISREGARD '
003960:I  2028 3320 4259 5445
003968:I  2920 4144 4452 4553
003970:I  532E 2044 4953 5245
003978:I  4741 5244 20
00397D:I  414E 5920 4552 524F       3019            DB    C'ANY ERROR PRINTED ',CR,LF
003985:I  5220 5052 494E 5445
00398D:I  4420 0D0A
003991:I  464F 5220 414E 2045       3020            DB    C'FOR AN EXPECTED 2 BYTE ADDRESS RETURN '
003999:I  5850 4543 5445 4420
0039A1:I  3220 4259 5445 2041
0039A9:I  4444 5245 5353 2052
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T E S T 2

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0039B1:I     4554 5552 4E20
0039B7:I     5748 454E 2054 4553      3021          DB    C'WHEN TESTING ',CR,LF
0039BF:I     5449 4E47 200D 0A
0039C6:I     4120 4348 414E 4E45      3022          DB    C'A CHANNEL MANAGER.',CR,LF,0
0039CE:I     4C20 4D41 4E41 4745
0039D6:I     522E 0D0A 00
```

T E S T 3

```
0039DC:I                                3024          ALIGN ADC
0039DC:I     0000 3ADC:I                3025  TEST3   DAC   HTST3MSG          HELP MESSAGE ADDRESS
0039E0:I     0000 0000                  3026          DAC   0                 TEST 3 ERROR TALLY
0039E4:I     C800 20F0                  3027          LHI   R0,X'20F0'        TURN OFF
0039E8:I     9510                       3028          EPSR  R1,R0             MACHINE INTERRUPTS
0039EA:I     E600 8004 =0039F2:I        3029          LA    R0,ADJUST3        LOAD NEXT SELCH ROUTINE ADR
0039EE:I     5000 A63E =006030:I        3030          ST    R0,TSTERTNA       SAVE TO TEST ERROR RETURN ADR
0039F2:I     41F0 EAF8 =0024EE:I        3031  ADJUST3 BAL   R15,SETREG        ADJUST REGISTERS FOR CURRENT SELCH
0039F6:I     4330 EBE6 =0025E0:I        3032          BZ    TSTEND            END OF TEST 3
0039FA:I     41F0 8AB8 =0044B6:I        3033  TEST3A  BAL   R15,SETBUF         SETUP OUTPUT AND INPUT BUFFER
0039FE:I     41F0 EE74 =002876:I        3034          BAL   R15,SELCH1          ENSURE SELCH IS IDLE
003A02:I     4810 A61C =006022:I        3035          LH    R1,INDEX          GET CURRENT
003A06:I     1111                       3036          SLLS  R1,1              MAKE FW
003A08:I     5851 C8A8 =0002B4:I        3037          L     DRIVER,DRIVSAV(R1)
003A0C:I     01F5                       3038          BALR  R15,DRIVER        SETUP I/O DEVICE FOR TRANSFER
003A0E:I     0000                       3039          DC    X'0'              FROM MEMORY TO DEVICE (WRITE)
003A10:I     41F0 EE96 =0028AA:I        3040          BAL   R15,SELCH2        SETUP SELCH FOR TRANSFER
003A14:I     0000 039C:I                3041          DAC   OUTBTAB
003A18:I     41F0 EEF6 =002912:I        3042          BAL   R15,GOCMD         START DEVICE AND SELCH
003A1C:I     41F0 F01A =002A3A:I        3043          BAL   R15,SELCH5        WAIT FOR SELCH TO TERMINATE
003A20:I     41F0 EF2C =002950:I        3044          BAL   R15,SELCH3        CHECK SELCH TERMINATION
003A24:I     0200                       3045          NOPR
003A26:I     7300 A5F8 =006022:I        3046          LHL   R0,INDEX          CHECK THE ACTIVE RESET OR NOT
003A2A:I     1001                       3047          SRLS  R0,1              ADJUST TEST BIT POSITION
003A2C:I     7400 A5F4 =006024:I        3048          TBT   R0,ACTIVE
003A30:I     4330 FFBE =0039F2:I        3049          BZ    ADJUST3           YES,ACTIVE RESET
003A34:I     41F0 8B6A =0045A2:I        3050          BAL   R15,BUFCHK        CHECK THAT OUTBUF WAS NOT MODIFIED
003A38:I     41F0 EE3A =002876:I        3051          BAL   R15,SELCH1        ENSURE SELCH IS IDLE
003A3C:I     4810 A5E2 =006022:I        3052          LH    R1,INDEX          GET CURRENT
003A40:I     1111                       3053          SLLS  R1,1              MAKE FW
003A42:I     5851 C86E =0002B4:I        3054          L     DRIVER,DRIVSAV(R1)
003A46:I     01F5                       3055          BALR  R15,DRIVER        SETUP I/O DEVICE FOR TRANSFER
003A48:I     0001                       3056          DC    X'1'              FROM DEVICE TO MEMORY (READ)
003A4A:I     41F0 EE5C =0028AA:I        3057          BAL   R15,SELCH2        SETUP SELCH FOR TRANSFER
003A50:I     0000 03BC:I                3058          DAC   INBTAB
003A54:I     41F0 EEBA =002912:I        3059          BAL   R15,GOCMD         START DEVICE AND SELCH
003A58:I     41F0 EFDE =002A3A:I        3060          BAL   R15,SELCH5        WAIT FOR SELCH TO TERMINATE
003A5C:I     41F0 EEF0 =002950:I        3061          BAL   R15,SELCH3        CHECK SELCH TERMINATION
003A60:I     0200                       3062          NOPR
003A62:I     7320 A5BC =006022:I        3063          LHL   R2,INDEX
003A66:I     1121                       3064          SLLS  R2,1              ADJUST INDEX FOR FULLWORD TABLE
003A68:I     5812 C930 =00039C:I        3065          L     R1,OUTBTAB(R2)    LOAD ADRS OF OUTPUT BUFFER
003A6C:I     5892 C94C =0003BC:I        3066          L     R9,INBTAB(R2)     LOAD ADRS OF INPUT BUFFER
003A70:I     2460                       3067          LIS   R6,0
003A72:I     2472                       3068          LIS   R7,2
003A74:I     5882 C7AC =000224:I        3069          L     R8,BYTETAB(R2)    LOAD BYTE SIZE OF TRANSFER
003A78:I     2781                       3070          SIS   R8,1              ADJ FOR END ADR
003A7A:I     1021                       3071          SRLS  R2,1              MAKE HW
003A7C:I     73A1 4600 0000             3072  LOAD    LHL   R10,0(R1,R6)     LOAD DATA FROM OUTPUT BUFFER
003A82:I     73B6 4900 0000             3073          LHL   R11,0(R6,R9)      LOAD DATA FROM INPUT BUFFER
003A88:I     05AB                       3074          CLR   R10,R11           OUTPUT BUFFER = INPUT BUFFER ?
003A8A:I     2135      =003A94:I        3075          BNES  ODDCHK1           NO, CHECK FOR ODD BYTE TRANSFER
003A8C:I     C160 FFEC =003A7C:I        3076          BXLE  R6,LOAD           YES, REPEAT UNTIL ALL OF BUF CHECKED
```

T E S T 3

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003A90:I  4300 8022 =003AB6:I      3077            B     MV3                 CHECK FOR NEXT SELCH
          0000 3A94:I              3078  ODDCHK1   EQU   *
003A94:I  0568                     3079            CLR   R6,R8               WAS AN EVEN NUMBER OF BYTES TRANSF
*003A96:I 2336      =003AA2:I      3080            BE    JUMP4               NO, CONTINUE
003A98:I  41E0 8D9E =00483A:I      3081            BAL   R14,DOERROR         YES, PRINT ERROR
003A9C:I  010F                     3082            DC    X'010F'             ERROR 15
003A9E:I  4300 FF50 =0039F2:I      3083            B     ADJUST3
003AA2:I  08EA                     3084  JUMP4     LR    R14,R10             CHECK ONLY LAST BYTE TRANSFERRED
003AA4:I  07EB                     3085            XR    R14,R11             SEE IF SAME
003AA6:I  C3E0 FF00                3086            THI   R14,X'FF00'         AS EXPECTED
*003AAA:I 2336      =003AB6:I      3087            BZ    MV3                 YES, CHECK MOVE BUFFER OPTIONS
003AAC:I  41E0 8D8A =00483A:I      3088            BAL   R14,DOERROR         NO, PRINT ERROR
003AB0:I  010F                     3089            DC    X'010F'             ERROR 15
003AB2:I  4300 FF3C =0039F2:I      3090            B     ADJUST3
003AB6:I  D300 A555 =00600F:I      3091  MV3       LB    R0,RESCTL           LOAD DISARM COMMAND
003ABA:I  7320 A564 =006022:I      3092            LHL   R2,INDEX            LOAD CURRENT TABLE INDEX
003ABE:I  7342 C712 =0001D4:I      3093            LHL   IODEVS,IOTAB(R2)    LOAD IODEV ADR
003AC2:I  73F2 C71E =0001E4:I      3094            LHL   R15,DEVTABLE(R2)    LOAD DEVICE OPTION
003AC6:I  C5F0 0002                3095            CLHI  R15,2               6250 TAPE ??
003ACA:I  2132      =003ACE:I      3096            BNES  MV3A                NO,SKIP
003ACC:I  2608                     3097            AIS   R0,8                MAKE 6250 TYPE CMD DISARM - 'C8'
003ACE:I  9E40                     3098  MV3A      OCR   IODEVS,R0           CLEAR ANY INTERRUPTS
003AD0:I  41F0 8BA8 =00467C:I      3099            BAL   R15,MVCHK           CHECK MOVE OPTION
003AD4:I  4330 FF22 =0039FA:I      3100            BZ    TEST3A              REPEAT TEST WITH NEW BUFFER
003AD8:I  4300 FF16 =0039F2:I      3101            B     ADJUST3             YES, CHECK FOR NEXT SELCH
                                   3102  *
003ADC:I  FF53 5441 5455 5320      3103  HTST3MSG  DB    -1,C'STATUS MODE DATA TRANSFERS',CR,LF
003AE4:I  4D4F 4445 2044 4154
003AEC:I  4120 5452 414E 5346
003AF4:I  4552 530D 0A
003AF9:I  4441 5441 2049 5320      3104            DB    C'DATA IS TRANSFERRED THROUGH THE SELECTOR '
003B01:I  5452 414E 5346 4552
003B09:I  5245 4420 5448 524F
003B11:I  5547 4820 5448 4520
003B19:I  5345 4C45 4354 4F52
003B21:I  20
003B22:I  0D0A                     3105            DB    CR,LF
003B24:I  4348 414E 4E45 4C20      3106            DB    C'CHANNEL UNDER SENSE STATUS CONTROL.',CR,LF,0
003B2C:I  554E 4445 5220 5345
003B34:I  4E53 4520 5354 4154
003B3C:I  5553 2043 4F4E 5452
003B44:I  4F4C 2E0D 0A00
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T E S T 4

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003B4C:I                                3108          ALIGN ADC
003B4C:I     0000 3D48:I                3109  TEST4   DC    HTST4MSG            HELP MESSAGE ADDRESS
003B50:I     0000 0000                  3110          DC    0                   ERROR TALLY
                                        3111  *
003B54:I     E600 8004 =003B5C:I        3112          LA    R0,ADJUST4          LOAD NEXT SELCH ROUTINE ADR
003B58:I     5000 A4D4 =006030:I        3113          ST    R0,TSTERTNA         SAVE TO TEST ERROR RETURN ADR
003B5C:I     41F0 E98E =0024EE:I        3114  ADJUST4 BAL   R15,SETREG          ADJUST REGISTERS FOR CURRENT SELCH
003B60:I     4330 EA7C =0025E0:I        3115          BZ    TSTEND              CHECK FOR NEXT TEST
003B64:I     41F0 894E =0044B6:I        3116  TEST4A  BAL   R15,SETBUF          SET UP OUTPUT AND INPUT BUFFER
003B68:I     4820 A4B6 =006022:I        3117          LH    R2,INDEX            CURRENT INDEX
003B6C:I     E680 813C =003CAC:I        3118          LA    R8,SELINT           LOAD SELCH SERVICE ADRS
003B70:I     5812 4200 25C0:I           3119          L     R1,SELINTT(R2,R2)   I/O BLOCK ADDRESS
003B76:I     5081 0004                  3120          ST    R8,HANDLE(R1)       STORE ISR ROUTINE ADDRESS
003B7A:I     E1E0 A5FA =006178:I        3121          SVC   14,CONNECT          RE-CONNECT THE SELCH
003B7E:I     E680 817A =003CFC:I        3122          LA    R8,DEVINT           LOAD I/O DEVICE SERVICE ADRS
003B82:I     5812 4200 25A0:I           3123          L     R1,DEVINTT(R2,R2)   I/O BLOCK ADDRESS
003B88:I     5081 0004                  3124          ST    R8,HANDLE(R1)       STORE ISR ROUTINE ADDRESS
003B8C:I     E1E0 A5E8 =006178:I        3125          SVC   14,CONNECT          RE-CONNECT THE DEVICE
003B90:I     41F0 ECE2 =002876:I        3126          BAL   R15,SELCH1          ENSURE SELCH IS IDLE
003B94:I     4810 A48A =006022:I        3127          LH    R1,INDEX            GET CURRENT
003B98:I     1111                       3128          SLLS  R1,1                MAKE FW
003B9A:I     5851 C716 =0002B4:I        3129          L     DRIVER,DRIVSAV(R1)
003B9E:I     01F5                       3130          BALR  R15,DRIVER          SETUP I/O DEVICE FOR TRANSFER
003BA0:I     0000                       3131          DC    X'0'                FROM MEMORY TO DEVICE (WRITE)
003BA2:I     41F0 ED04 =0028AA:I        3132          BAL   R15,SELCH2          SETUP SELCH FOR TRANSFER
003BA8:I     0000 039C:I                3133          DAC   OUTBTAB
003BAC:I     C8F0 20F0                  3134          LHI   R15,X'20F0'         DISABLE PROC INTS
003BB0:I     95EF                       3135          EPSR  R14,R15             SWAP BEFORE ENABLING DEV INTS
003BB2:I     41F0 ED5C =002912:I        3136          BAL   R15,GOCMD           START DEVICE AND SELCH
003BB6:I     E6F0 8012 =003BCC:I        3137          LA    R15,TEST4B          RETURN ADDRESS
003BBA:I     50F0 A4C6 =006084:I        3138          ST    R15,ENABLE1+ADC     SAVE RETURN ADDRESS
003BBE:I     41F0 EE7C =002A3E:I        3139          BAL   R15,WAIT            WAIT FOR SELCH INTERRUPTS
003BC2:I     41E0 8C74 =00483A:I        3140          BAL   R14,DOERROR         PRINT ERROR
003BC6:I     0011                       3141          DC    X'0011'             ERROR 17
003BC8:I     4300 8052 =003C1E:I        3142          B     RESET1
003BCC:I     41F0 ED80 =002950:I        3143  TEST4B  BAL   R15,SELCH3          CHECK SELCH TERMINATION
003BD0:I     7300 A44E =006022:I        3144          LHL   R0,INDEX            CHECK THE  ACTIVE RESET OR NOT
003BD4:I     1001                       3145          SRLS  R0,1                ADJUST FOR ACTIVE BIT
003BD6:I     7400 A44A =006024:I        3146          TBT   R0,ACTIVE
003BDA:I     4330 FF7E =003B5C:I        3147          BZ    ADJUST4             YES,ACTIVE RESET
003BDE:I     41F0 89C0 =0045A2:I        3148          BAL   R15,BUFCHK          CHECK THAT OUTBUF WAS NOT MODIFIED
003BE2:I     41F0 EC90 =002876:I        3149          BAL   R15,SELCH1          ENSURE SELCH IS IDLE
003BE6:I     4810 A438 =006022:I        3150          LH    R1,INDEX            GET CURRENT
003BEA:I     1111                       3151          SLLS  R1,1                MAKE FW
003BEC:I     5851 C6C4 =0002B4:I        3152          L     R5,DRIVSAV(R1)
003BF0:I     01F5                       3153          BALR  R15,DRIVER          SETUP I/O DEVICE FOR TRANSFER
003BF2:I     0001                       3154          DC    X'1'                FROM DEVICE TO MEMORY (READ)
003BF4:I     41F0 ECB2 =0028AA:I        3155          BAL   R15,SELCH2          SETUP SELCH FOR TRANSFER
003BF8:I     0000 03BC:I                3156          DAC   INBTAB
003BFC:I     C8F0 20F0                  3157          LHI   R15,X'20F0'         DISABLE PROC INTS
003C00:I     95EF                       3158          EPSR  R14,R15             SWAP BEFORE ENABLING DEV INTS
003C02:I     41F0 ED0C =002912:I        3159          BAL   R15,GOCMD           START DEVICE AND SELCH
003C06:I     E6F0 8010 =003C1A:I        3160          LA    R15,TEST4C          NEW RETURN
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T E S T 4

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 003C0A:I   50F0 A476 =006084:I    3161           ST    R15,ENABLE1+ADC     SAVE RETURN ADDRESS
 003C0E:I   41F0 EE2C =002A3E:I    3162           BAL   R15,WAIT            WAIT FOR SELCH INTERRUPTS
 003C12:I   41E0 8C24 =00483A:I    3163           BAL   R14,DOERROR         PRINT ERROR
 003C16:I   0012                   3164           DC    X'0012'             ERROR 18
*003C18:I   2303      =003C1E:I   3165           B     RESET1
 003C1A:I   41F0 ED32 =002950:I    3166 TEST4C    BAL   R15,SELCH3          CHECK SELCH TERMINATION
 003C1E:I   4820 A400 =006022:I    3167 RESET1    LH    R2,INDEX            CURRENT INDEX
 003C22:I   5812 4200 25C0:I       3168           L     R1,SELINTT(R2,R2)
 003C28:I   E1E0 A554 =006180:I    3169           SVC   14,RELEASE          RELEASE THE SELCH
 003C2C:I   5812 4200 25A0:I       3170           L     R1,DEVINTT(R2,R2)
 003C32:I   E1E0 A54A =006180:I    3171           SVC   14,RELEASE          RELEASE THE DEVICE
 003C36:I   1121                   3172           SLLS  R2,1                ADJUST INDEX FOR FULLWORD TABLE
 003C38:I   5812 C760 =00039C:I    3173           L     R1,OUTBTAB(R2)      LOAD ADRS OF OUTPUT BUFFER
 003C3C:I   5892 C77C =0003BC:I    3174           L     R9,INBTAB(R2)       LOAD ADRS OF INPUT BUFFER
 003C40:I   2460                   3175           LIS   R6,0
 003C42:I   2472                   3176           LIS   R7,2
 003C44:I   5882 C5DC =000224:I    3177           L     R8,BYTETAB(R2)      LOAD BYTE SIZE OF TRANSFER
 003C48:I   2781                   3178           SIS   R8,1                ADJ FOR END ADR
 003C4A:I   1021                   3179           SRLS  R2,1                MAKE HW
 003C4C:I   73A1 4600 0000         3180 LOAD1     LHL   R10,0(R1,R6)        LOAD DATA FROM OUTPUT BUFFER
 003C52:I   73B6 4900 0000         3181           LHL   R11,0(R6,R9)        LOAD DATA FROM INPUT BUFFER
 003C58:I   05AB                   3182           CLR   R10,R11             OUTPUT BUFFER = INPUT BUFFER ?
*003C5A:I   2135      =003C64:I   3183           BNE   ODDCHK2             NO, CHECK FOR ODD BYTE TRANSFER
 003C5C:I   C160 FFEC =003C4C:I    3184           BXLE  R6,LOAD1            YES, REPEAT UNTIL ALL OF BUFFER CHK
 003C60:I   4300 8022 =003C86:I    3185           B     MV4                 CHECK FOR NEXT SELCH
 003C64:I   0568                   3186 ODDCHK2   CLR   R6,R8               WAS AN EVEN NUMBER OF BYTES TRANSF
*003C66:I   2336      =003C72:I   3187           BE    JUMP5               NO, CONTINUE
 003C68:I   41E0 8BCE =00483A:I    3188           BAL   R14,DOERROR         YES, PRINT ERROR
 003C6C:I   0110                   3189           DC    X'0110'             ERROR 16
 003C6E:I   4300 FEEA =003B5C:I    3190           B     ADJUST4
 003C72:I   08EA                   3191 JUMP5     LR    R14,R10             CHECK ONLY LAST BYTE TRANSFERRED
 003C74:I   07EB                   3192           XR    R14,R11             SEE IF SAME
 003C76:I   C3E0 FF00              3193           THI   R14,X'FF00'         AS EXPECTED
*003C7A:I   2336      =003C86:I   3194           BZ    MV4                 YES, CHECK MOVE BUFFER OPTION
 003C7C:I   41E0 8BBA =00483A:I    3195           BAL   R14,DOERROR         NO, PRINT ERROR
 003C80:I   0110                   3196           DC    X'0110'             ERROR 16
 003C82:I   4300 FED6 =003B5C:I    3197           B     ADJUST4
 003C86:I   D300 A385 =00600F:I    3198 MV4       LB    R0,RESCTL           LOAD DISARM COMMAND
 003C8A:I   7320 A394 =006022:I    3199           LHL   R2,INDEX            LOAD CURRENT TABLE INDEX
 003C8E:I   7342 C542 =0001D4:I    3200           LHL   IODEVS,IOTAB(R2)    LOAD IODEV ADR
 003C92:I   73F2 C54E =0001E4:I    3201           LHL   R15,DEVTABLE(R2)    LOAD DEVICE OPTION
 003C96:I   C5F0 0002              3202           CLHI  R15,2               6250 TAPE ??
 003C9A:I   2132      =003C9E:I    3203           BNES  MV4A                NO,SKIP
 003C9C:I   2608                   3204           AIS   R0,8                MAKE 6250 TYPE CMD DISARM - 'C8'
 003C9E:I   9E40                   3205 MV4A      OCR   IODEVS,R0           CLEAR ANY INTERRUPTS
 003CA0:I   41F0 89D8 =00467C:I    3206           BAL   R15,MVCHK           CHECK MOVE OPTION
 003CA4:I   4330 FEBC =003B64:I    3207           BZ    TEST4A              REPEAT TEST WITH NEW BUFFER
 003CA8:I   4300 FEB0 =003B5C:I    3208           B     ADJUST4             YES, CHECK FOR NEXT SELCH
                                   3209 *
                                   3210 * SELCH INTERRUPT SERVICE ROUTINE
 003CAC:I   D000 AB0C =0067BC:I    3211 SELINT    STM   R0,INTSAVE          SAVE REGS OF SET N          ****
 003CB0:I   C800 20F0              3212           LHI   R0,X'20F0'          LOAD PSW                    ****
 003CB4:I   9510                   3213           EPSR  R1,R0               SWAP TO SET F               ****
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T E S T 4

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 003CB6:I     D000 AB82 =00683C:I     3214           STM   R0,RSAVEA           SAVE SET F REGS              ****
 003CBA:I     5820 AB06 =0067C4:I     3215           L     R2,R2*ADC+INTSAVE    RELOAD INT DEV ADR           ****
 003CBE:I     58C0 AB06 =0067C8:I     3216           L     R12,R3*ADC+INTSAVE   RELOAD INT DEV STAT          ****
 003CC2:I     7360 A35C =006022:I     3217           LHL   R6,INDEX
 003CC6:I     7336 C4FA =0001C4:I     3218           LHL   R3,SELTAB(R6)        LOAD ADRS OF SELCH
 003CCA:I     0532                    3219           CLR   R3,R2                DID SELCH INTERRUPT ?
*003CCC:I     2336      =003CD8:I     3220           BE    SEL1                 YES, CONTINUE
 003CCE:I     41E0 8B68 =00483A:I     3221           BAL   R14,DOERROR          NO, PRINT ERROR
 003CD2:I     0313                    3222           DC    X'0313'              ERROR 19
 003CD4:I     4300 8068 =003D40:I     3223           B     LPSW2
 003CD8:I     C3C0 00FF               3224 SEL1      THI   STAT,X'FF'           ARE SELCH STATUS BITS SET ?
*003CDC:I     2336      =003CE8:I     3225           BZ    SEL2                 NO, CONTINUE
 003CDE:I     41E0 8B58 =00483A:I     3226           BAL   R14,DOERROR          YES, PRINT ERROR
 003CE2:I     0226                    3227           DC    X'0226'              ERROR 38
 003CE4:I     4300 8058 =003D40:I     3228           B     LPSW2                CONTINUE
 003CE8:I     7356 C4F8 =0001E4:I     3229 SEL2      LHL   R5,DEVTABLE(R6)      IS I/O DEVICE A SELCH TESTER ?
 003CEC:I     C350 000F               3230           THI   R5,X'F'              FOR 0 OR 10
 003CF0:I     4330 804C =003D40:I     3231           BZ    LPSW2                YES, NO INTERRUPT EXPECTED
 003CF4:I     D100 AB44 =00683C:I     3232           LM    R0,RSAVEA            RELOAD  REGS OF SET F
 003CF8:I     C200 A668 =006364:I     3233           LPSW  OLDPSW               GO BACK PRIOR TO INT  - WAITING
                                      3234 *  DEVICE INTERRUPT SERVICE ROUTINE
 003CFC:I     D000 AABC =0067BC:I     3235 DEVINT    STM   R0,INTSAVE           SAVE REGS OF SET N           ****
 003D00:I     C800 20F0               3236           LHI   R0,X'20F0'           LOAD PSW                     ****
 003D04:I     9510                    3237           EPSR  R1,R0                SWAP TO SET F                ****
 003D06:I     D000 AB32 =00683C:I     3238           STM   R0,RSAVEA            SAVE SET F REGS              ****
 003D0A:I     5820 AAB6 =0067C4:I     3239           L     R2,R2*ADC+INTSAVE    RELOAD INT DEV ADR           ****
 003D0E:I     58C0 AAB6 =0067C8:I     3240           L     R12,R3*ADC+INTSAVE   RELOAD INT DEV STAT          ****
 003D12:I     7360 A30C =006022:I     3241           LHL   R6,INDEX
 003D16:I     7346 C4CA =0001E4:I     3242           LHL   R4,DEVTABLE(R6)      LOAD DEVICE TYPE
 003D1A:I     C540 0003               3243           CLHI  R4,3                 10MB DISC?
*003D1E:I     213A      =003D32:I     3244           BNE   DEVINT3              NO
 003D20:I     7346 C4B0 =0001D4:I     3245           LHL   R4,IOTAB(R6)         LOAD EXPECTED ADDRESS
 003D24:I     1041                    3246           SRLS  R4,1                 SEE IF EVEN ADDRESS
*003D26:I     2386      =003D32:I     3247           BFC   8,DEVINT3            YES
 003D28:I     C620 0001               3248           OHI   R2,X'1'              CORRECT RETURNED ADDRESS
 003D2C:I     1141                    3249           SLLS  R4,1                 RESTORE EXPECTED ADDRESS
 003D2E:I     2641                    3250           AIS   R4,1                 CORRECT EXPECTED ADDRESS
*003D30:I     2303      =003D36:I     3251           B     DEVINT2              SKIP
 003D32:I     7346 C49E =0001D4:I     3252 DEVINT3   LHL   R4,IOTAB(R6)
 003D36:I     0542                    3253 DEVINT2   CLR   R4,R2                RETURNED ADDRESS CORRECT?
*003D38:I     2334      =003D40:I     3254           BE    LPSW2                YES, CONTINUE
 003D3A:I     41E0 8AFC =00483A:I     3255           BAL   R14,DOERROR          PRINT ERROR
 003D3E:I     0327                    3256           DC    X'0327'              ERROR 39
 003D40:I     D100 AAF8 =00683C:I     3257 LPSW2     LM    R0,RSAVEA            RESTORE REGS OF SET F
 003D44:I     C200 A338 =006080:I     3258           LPSW  ENABLE1              RETURN TO TEST
 003D48:I     FF49 4E54 4552 5255     3259 HTST4MSG  DB    -1,C'INTERRUPT MODE DATA TRANSFERS',CR,LF
 003D50:I     5054 204D 4F44 4520
 003D58:I     4441 5441 2054 5241
 003D60:I     4E53 4645 5253 0D0A
 003D68:I     4441 5441 2049 5320     3260           DB    C'DATA IS TRANSFERRED THROUGH THE SELECTOR '
 003D70:I     5452 414E 5346 4552
 003D78:I     5245 4420 5448 524F
 003D80:I     5547 4820 5448 4520
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T E S T 4

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003D88:I     5345 4C45 4354 4F52
003D90:I     20
003D91:I     0D0A                    3261          DB    CR,LF
003D93:I     4348 414E 4E45 4C20     3262          DB    C'CHANNEL UNDER INTERRUPT CONTROL.',CR,LF,0
003D9B:I     554E 4445 5220 494E
003DA3:I     5445 5252 5550 5420
003DAB:I     434F 4E54 524F 4C2E
003DB3:I     0D0A 00
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T E S T 5

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003DB8:I                                3264            ALIGN ADC
003DB8:I     0000 3DF0:I                3265  TEST5     DC    HTST5MSG            HELP MESSAGE ADDRESS
003DBC:I     0000 0000                  3266            DC    0                   ERROR TALLY
                                        3267  *
003DC0:I     E600 80CC =003E90:I        3268            LA    R0,XR               LOAD SAME SELCH ROUTINE ADR
003DC4:I     5000 A268 =006030:I        3269            ST    R0,TSTERTNA         SAVE TO TEST ERROR RETURN ADR
003DC8:I     41F0 E722 =0024EE:I        3270            BAL   R15,SETREG
003DCC:I     4330 E810 =0025E0:I        3271            BZ    TSTEND
003DD0:I     24A0                       3272            LIS   WORK,0              ENSURE ZERO FUNCTION CODE
003DD2:I     E6B0 C5C6 =00039C:I        3273            LA    WORK1,OUTBTAB       LOAD BUFFER ADRS LOC
003DD6:I     40A0 80CA =003EA4:I        3274            STH   WORK,CMD            SET COMMAND
003DDA:I     50B0 80CE =003EAC:I        3275            ST    WORK1,BUFADRS       WORKING ADDRESS
003DDE:I     E1E0 A34E =006130:I        3276            SVC   14,LOOPTOP          ESTABLISH LOOP TOP
003DE4:I     0000 3E94:I                3277            DAC   CONT1              PASS ADDRESS
003DE8:I     0000 3E48:I                3278            DAC   TEST6              PROCEED LIMIT
003DEC:I     4300 80A0 =003E90:I        3279            B     XR                  COMMON LOOP
                                        3280  *
003DF0:I     FF44 4154 4120 4F55        3281  HTST5MSG  DB    -1,C'DATA OUTPUT SCOPE LOOP',CR,LF
003DF8:I     5450 5554 2053 434F
003E00:I     5045 204C 4F4F 500D
003E08:I     0A
003E09:I     434F 4E54 494E 554F        3282            DB    C'CONTINUOUS TRANSFER OF DATA FROM MEMORY TO '
003E11:I     5553 2054 5241 4E53
003E19:I     4645 5220 4F46 2044
003E21:I     4154 4120 4652 4F4D
003E29:I     204D 454D 4F52 5920
003E31:I     544F 20
003E34:I     414E 2049 2F4F 2044        3283            DB    C'AN I/O DEVICE.',CR,LF,0
003E3C:I     4556 4943 452E 0D0A
003E44:I     00
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T E S T 6

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003E48:I                                3285          ALIGN ADC
003E48:I     0000 3EC6:I                3286  TEST6   DC    HTST6MSG            HELP MESSAGE ADDRESS
003E4C:I     0000 0000                  3287          DC    0                   ERROR TALLY
                                        3288  *
003E50:I     E600 803C =003E90:I        3289          LA    R0,XR               LOAD SAME SELCH ROUTINE ADR
003E54:I     5000 A1D8 =006030:I        3290          ST    R0,TSTERTNA         SAVE TO TEST ERROR RETURN ADR
003E58:I     41F0 E692 =0024EE:I        3291          BAL   R15,SETREG
003E5C:I     4330 E780 =0025E0:I        3292          BZ    TSTEND
003E60:I     7320 A1BE =006022:I        3293          LHL   R2,INDEX
*003E64:I    24A2                       3294          LHI   WORK,2
003E66:I     73F2 C37A =0001E4:I        3295          LHL   R15,DEVTABLE(R2)    LOAD DEVICE OPTION
003E6A:I     C5F0 0001                  3296          CLHI  R15,1               IS I/O DEV A 800/1600 MAG TAPE ?
*003E6E:I    2335       =003E78:I       3297          BE    CONT2               YES, LET FUNCTION = 2
003E70:I     C5F0 0002                  3298          CLHI  R15,2               IS I/O DEV A 6250 MAG TAPE ?
*003E74:I    2332       =003E78:I       3299          BE    CONT2               YES, LET FUNCTION = 2
003E76:I     24A1                       3300          LIS   WORK,1              NO, LET FUNCTION = 1
003E78:I     E6B0 C540 =0003BC:I        3301  CONT2   LA    WORK1,INBTAB        LOAD BUFFER ADRS LOC
003E7C:I     40A0 8024 =003EA4:I        3302          STH   WORK,CMD            STORE FUNCTION CODE
003E80:I     50B0 8028 =003EAC:I        3303          ST    WORK1,BUFADRS       STORE BUFFER ADRS LOC
003E84:I     E1E0 A2A8 =006130:I        3304          SVC   14,LOOPTOP          ESTABLISH LOOP TOP
003E88:I     0000 3E94:I                3305          DAC   CONT1               PASS ADDRESS
003E8C:I     0000 3F1C:I                3306          DAC   TEST7               PROCEED LIMIT
                                        3307  *
003E90:I     41F0 8622 =0044B6:I        3308  XR      BAL   R15,SETBUF           SET BUFFERS AND DISPLAY ONCE
003E94:I     41F0 E9DE =002876:I        3309  CONT1   BAL   R15,SELCH1          ENSURE SELCH IS IDLE
003E98:I     4810 A186 =006022:I        3310          LH    R1,INDEX            GET CURRENT
003E9C:I     5851 4100 02B4:I           3311          L     DRIVER,DRIVSAV(R1,R1)
003EA2:I     01F5                       3312          BALR  R15,DRIVER          SETUP I/O DEVICE FOR TRANSFER
003EA4:I     0000                       3313  CMD     DC    X'0'
003EA6:I     41F0 EA00 =0028AA:I        3314          BAL   R15,SELCH2          SETUP SELCH FOR TRANSFER
003EAC:I     0000 0000                  3315  BUFADRS DAC   0
003EB0:I     41F0 EA5E =002912:I        3316          BAL   R15,GOCMD
003EB4:I     41F0 EB82 =002A3A:I        3317          BAL   R15,SELCH5
003EB8:I     DE30 A14E =00600A:I        3318          OC    SELCH,STOP2
003EBC:I     4240 E720 =0025E0:I        3319          BO    TSTEND
003EC0:I     9D3E                       3320          SSR   SELCH,R14           SENSE STATUS
003EC2:I     E1E0 A27A =006140:I        3321          SVC   14,PASS              CONTINUE LOOP
                                        3322  *
003EC6:I     FF44 4154 4120 494E        3323  HTST6MSG DB   -1,C'DATA INPUT SCOPE LOOP',CR,LF
003ECE:I     5055 5420 5343 4F50
003ED6:I     4520 4C4F 4F50 0D0A
003EDE:I     434F 4E54 494E 554F        3324          DB    C'CONTINUOUS TRANSFER OF DATA FROM AN I/O DEVICE '
003EE6:I     5553 2054 5241 4E53
003EEE:I     4645 5220 4F46 2044
003EF6:I     4154 4120 4652 4F4D
003EFE:I     2041 4E20 492F 4F20
003F06:I     4445 5649 4345 20
003F0D:I     544F 204D 454D 4F52        3325          DB    C'TO MEMORY.',CR,LF,0
003F15:I     592E 0D0A 00
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T E S T 7

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003F1C:I                                3327           ALIGN ADC
003F1C:I     0000 3F84:I                3328  TEST7    DC    HTST7MSG            HELP MESSAGE ADDRESS
003F20:I     0000 0000                  3329           DC    0                   ERROR TALLY
                                        3330  *
003F24:I     E600 8004 =003F2C:I        3331           LA    R0,ADJREG           LOAD NEXT SELCH ROUTINE ADR
003F28:I     5000 A104 =006030:I        3332           ST    R0,TSTERTNA         SAVE TO TEST ERROR RETURN ADR
003F2C:I     41F0 E5BE =0024EE:I        3333  ADJREG   BAL   R15,SETREG          ADJUST REGISTERS FOR CURRENT SELCH
003F30:I     4330 E708 =00263C:I        3334           BZ    GOWRT               ISSUE GO CMD IF ALL SELCHES SET
003F34:I     41F0 857E =0044B6:I        3335           BAL   R15,SETBUF          SET UP OUTPUT AND INPUT BUFFERS
003F38:I     4820 A0E6 =006022:I        3336           LH    R2,INDEX            CURRENT INDEX
003F3C:I     5812 4200 25C0:I           3337           L     R1,SELINTT(R2,R2)   ADDRESS OF I/O BLOCK
003F42:I     5882 4200 4014:I           3338           L     R8,SELISRS(R2,R2)   GET ISR ADDRESS
003F48:I     5081 0004                  3339           ST    R8,HANDLE(R1)       STORE IN I/O BLOCK
003F4C:I     E1E0 A228 =006178:I        3340           SVC   14,CONNECT
003F50:I     5812 4200 25A0:I           3341           L     R1,DEVINTT(R2,R2)   ADDRESS OF I/O BLOCK
003F56:I     5882 4200 4034:I           3342           L     R8,DEVISRS(R2,R2)   GET ISR ADDRESS
003F5C:I     5081 0004                  3343           ST    R8,HANDLE(R1)       STORE IN I/O BLOCK
003F60:I     E1E0 A214 =006178:I        3344           SVC   14,CONNECT
003F64:I     41F0 E90E =002876:I        3345           BAL   R15,SELCH1          ENSURE SELCH IS IDLE
003F68:I     4810 A0B6 =006022:I        3346           LH    R1,INDEX            GET CURRENT
003F6C:I     1111                       3347           SLLS  R1,1                MAKE FW
003F6E:I     5851 C342 =0002B4:I        3348           L     DRIVER,DRIVSAV(R1)  GET DRIVER ADDRESS
003F72:I     01F5                       3349           BALR  R15,DRIVER          SETUP I/O DEVICE FOR TRANSFER
003F74:I     0000                       3350           DC    X'0'                FROM MEMORY TO DEVICE (WRITE)
003F76:I     41F0 E930 =0028AA:I        3351           BAL   R15,SELCH2          SETUP SELCH FOR TRANSFER
003F7C:I     0000 039C:I                3352           DAC   OUTBTAB
003F80:I     4300 FFA8 =003F2C:I        3353           B     ADJREG              REPEAT UNTIL ALL SELCHES ARE READY
003F84:I     FF4D 554C 5449 504C        3354  HTST7MSG DB    -1,C'MULTIPLE SELCH OPERATION',CR,LF
003F8C:I     4520 5345 4C43 4820
003F94:I     4F50 4552 4154 494F
003F9C:I     4E0D 0A
003F9F:I     414C 4C20 5345 4C45        3355           DB    C'ALL SELECTED SELCHES ARE STARTED.',CR,LF
003FA7:I     4354 4544 2053 454C
003FAF:I     4348 4553 2041 5245
003FB7:I     2053 5441 5254 4544
003FBF:I     2E0D 0A
003FC2:I     5748 494C 4520 5448        3356           DB    C'WHILE THE PROGRAM WAITS FOR ALL TO TERMINATE,',CR,LF
003FCA:I     4520 5052 4F47 5241
003FD2:I     4D20 5741 4954 5320
003FDA:I     464F 5220 414C 4C20
003FE2:I     544F 2054 4552 4D49
003FEA:I     4E41 5445 2C0D 0A
003FF1:I     4241 434B 4752 4F55        3357           DB    C'BACKGROUND TESTING IS PERFORMED.',CR,LF,0
003FF9:I     4E44 2054 4553 5449
004001:I     4E47 2049 5320 5045
004009:I     5246 4F52 4D45 442E
004011:I     0D0A 00
004014:I                                3358           ALIGN ADC
004014:I     0000 4DE8:I                3359  SELISRS  DAC   SEL0INT
004018:I     0000 4DEC:I                3360           DAC   SEL1INT
00401C:I     0000 4DF0:I                3361           DAC   SEL2INT
004020:I     0000 4DF4:I                3362           DAC   SEL3INT
004024:I     0000 4DF8:I                3363           DAC   SEL4INT
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T E S T 7

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004028:I     0000 4DFC:I          3364           DAC   SEL5INT
00402C:I     0000 4E00:I          3365           DAC   SEL6INT
004030:I     0000 4E04:I          3366           DAC   SEL7INT
004034:I     0000 4E3C:I          3367  DEVISRS  DAC   DEV0INT
004038:I     0000 4E40:I          3368           DAC   DEV1INT
00403C:I     0000 4E44:I          3369           DAC   DEV2INT
004040:I     0000 4E48:I          3370           DAC   DEV3INT
004044:I     0000 4E4C:I          3371           DAC   DEV4INT
004048:I     0000 4E50:I          3372           DAC   DEV5INT
00404C:I     0000 4E54:I          3373           DAC   DEV6INT
004050:I     0000 4E58:I          3374           DAC   DEV7INT
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T E S T 9

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004054:I                                3376            ALIGN ADC
004054:I     0000 4266:I                3377  TEST9     DC    HTST9MSG            HELP MESSAGE ADDRESS
004058:I     0000 0000                  3378            DC    0                   ERROR TALLY
                                        3379  *
00405C:I     E600 FFFC =00405C:I        3380  T9RESTRT  LA    R0,T9RESTRT         LOAD THIS ADR FOR POSSIBLE RESTART
004060:I     5000 9FCC =006030:I        3381            ST    R0,TSTERTNA         SAVE TO TEST ERROR RETURN ADR
004064:I     2400                       3382            LIS   R0,0                CLEAR
004065:I     5000 C38A =0003F4:I        3383            ST    R0,COUNTER          COUNTER
00406A:I     242E                       3384            LIS   R2,14               SET INDEX
00406C:I     41F0 8790 =004800:I        3385  T9LOOP    BAL   R15,SETREG9         SET DRIVER LINKS
004070:I     4020 9FAE =006022:I        3386            STH   R2,INDEX            MAKE CURRENT
004074:I     4872 C14C =0001C4:I        3387            LH    R7,SELTAB(R2)       GET SELCH ADDRESS
004078:I     4330 805E =0040DA:I        3388            BZ    T9LOOP1             NOT PRESENT, SKIP
00407C:I     E680 8096 =004116:I        3389            LA    R8,SELINT9          GET INTERRUPT DRIVER ADDRESS
004080:I     5812 4200 25C0:I           3390            L     R1,SELINTT(R2,R2)   I:O BLOCK ADDRESS
004086:I     5081 0004                  3391            ST    R8,HANDLE(R1)       SAVE HANDLER ADDRESS
00408A:I     E1E0 A0EA =006178:I        3392            SVC   14,CONNECT
00408E:I     4820 9F90 =006022:I        3393            LH    R2,INDEX            GET INDEX BACK
004092:I     4872 C13E =0001D4:I        3394            LH    R7,IOTAB(R2)        GET DEVICE ADDRESS
004096:I     E680 80E4 =00417E:I        3395            LA    R8,DEVINT9          GET INTERRUPT DRIVER ADDRESS
00409A:I     5812 4200 25A0:I           3396            L     R1,DEVINTT(R2,R2)   I/O BLOCK ADDRESS
0040A0:I     5081 0004                  3397            ST    R8,HANDLE(R1)       SAVE ISR ADDRESS
0040A4:I     E1E0 A0D0 =006178:I        3398            SVC   14,CONNECT
0040A8:I     4810 9F76 =006022:I        3399            LH    R1,INDEX            GET INDEX BACK
0040AC:I     41F0 E7C6 =002876:I        3400            BAL   R15,SELCH1          IDLE CHECK
0040B0:I     1111                       3401            SLLS  R1,1                MAKE FW
0040B2:I     5851 C1FE =0002B4:I        3402            L     R5,DRIVSAV(R1)      GET DRIVER ADDRESS
0040B6:I     1011                       3403            SRLS  R1,1                MAKE HW
0040B8:I     5010 9F6C =006028:I        3404            ST    R1,TEMP             SAVE R1
0040BC:I     4841 C114 =0001D4:I        3405            LH    R4,IOTAB(R1)        LOAD I/O DEVICE ADDRESS
0040C0:I     01F5                       3406            BALR  R15,DRIVER          CALL DRIVER
0040C2:I     0000                       3407            DC    X'0'                WRITE MODE
0040C4:I     41F0 E7E2 =0028AA:I        3408            BAL   R15,SELCH2          SETUP SELCH
0040C8:I     0000 039C:I                3409            DAC   OUTBTAB             OUTPUT BUFFER
0040CC:I     C8F0 20F0                  3410            LHI   R15,X'20F0'          DISABLE PROC INTS
0040D0:I     95EF                       3411            EPSR  R14,R15             SWAP BEFORE ENABLING DEV INTS
0040D2:I     41F0 E83C =002912:I        3412            BAL   R15,GOCMD           START DMA & I/O
0040D6:I     5810 9F4E =006028:I        3413            L     R1,TEMP             RESTORE R1
0040DA:I     2722                       3414  T9LOOP1   SIS   R2,2                DECREMENT INDEX
0040DC:I     4310 FF8C =00406C:I        3415            BNM   T9LOOP              LOOP FOR ALL SELCHES
0040E0:I     2410                       3416            LIS   R1,0                CLEAR
0040E2:I     4010 817A =004260:I        3417            STH   R1,FUNCTION         SET ALL MODE BITS TO WRITE
0040E6:I     4010 8178 =004262:I        3418            STH   R1,SELINTS          CLEAR SELCH INTERRUPT STATUS
0040EA:I     4010 8176 =004264:I        3419            STH   R1,DEVINTS          CLEAR DEVICE INTERRUPT STATUS
0040EE:I     E6F0 8000 =0040F2:I        3420  T9INT     LA    R15,T9RET           SETUP RETURN
0040F2:I     50F0 9F36 =00602C:I        3421  T9RET     ST    R15,RTNSAV          STORE
0040F6:I                                3422            DO    6
0040F6:I     0200                       3423            DC    X'200'              DUMMY SPACE
0040F8:I     0200                       3423            DC    X'200'              DUMMY SPACE
0040FA:I     0200                       3423            DC    X'200'              DUMMY SPACE
0040FC:I     0200                       3423            DC    X'200'              DUMMY SPACE
0040FE:I     0200                       3423            DC    X'200'              DUMMY SPACE
004100:I     0200                       3423            DC    X'200'              DUMMY SPACE
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 004102:I     2401                    3424          LIS   R0,1                LOAD INCREMENT
 004104:I     5100 C2EC =0003F4:I     3425          AM    R0,COUNTER          ADD TO TOTAL
 004108:I     5870 C2E8 =0003F4:I     3426          L     R7,COUNTER          LOAD COUNT
 00410C:I     41E0 8B90 =004CA0:I     3427          BAL   R14,ACTIVDIS        WRITE TO DISPLAY
 004110:I     C200 9F8C =0060A0:I     3428          LPSW  WAITPSW             WAIT FOR INTERRUPTS
*004114:I     2200      =004114:I     3429          B     *                   SAFETY STOP
                                      3430  * SELCH INTERRUPT ROUTINE FOR TEST 9
              0000 4116:I             3431  SELINT9 EQU   *
 004116:I     D000 A6A2 =0067BC:I     3432          STM   R0,INTSAVE          SAVE REGS OF SET N          ****
 00411A:I     C800 20F0               3433          LHI   R0,X'20F0'          LOAD PSW                    ****
 00411E:I     9510                    3434          EPSR  R1,R0               SWAP TO SET F               ****
 004120:I     D000 A718 =00683C:I     3435          STM   R0,RSAVEA           SAVE SET F REGS             ****
 004124:I     5820 A69C =0067C4:I     3436          L     R2,R2*ADC+INTSAVE   RELOAD INT DEV ADR          ****
 004128:I     58C0 A69C =0067C8:I     3437          L     R12,R3*ADC+INTSAVE  RELOAD INT DEV STAT         ****
 00412C:I     245E                    3438          LIS   R5,14               SET INDEX
 00412E:I     4050 9EF0 =006022:I     3439  SEL59   STH   R5,INDEX           MAKE CURRENT
 004132:I     4845 C08E =0001C4:I     3440          LH    R4,SELTAB(R5)       GET SELCH ADDRESS
 004136:I     0542                    3441          CLR   R4,R2               ON TABLE??
*004138:I     2338      =004148:I     3442          BE    SEL19               YES, CHECK MORE
 00413A:I     2752                    3443          SIS   R5,2                DECREMENT
*00413C:I     2217      =00412E:I     3444          BNM   SEL59               LOOP
 00413E:I     41E0 86F8 =00483A:I     3445          BAL   R14,DOERROR         NOT ON TABLE
 004142:I     0313                    3446          DC    X'0313'             ERROR 19
 004144:I     4300 8026 =00416E:I     3447          B     SEL79
 004148:I     7450 8116 =004262:I     3448  SEL19   TBT   R5,SELINTS          CHECK SELCH INTERRUPT STATUS
 00414C:I     4230 8026 =004176:I     3449          BNZ   SEL29               SEQUENCE ERROR
 004150:I     7450 8110 =004264:I     3450          TBT   R5,DEVINTS          CHECK DEVICE INTERRUPT STATUS
 004154:I     4230 801E =004176:I     3451          BNZ   SEL29               SEQUENCE ERROR
 004158:I     48F5 C088 =0001E4:I     3452          LH    R15,DEVTABLE(R5)    GET DEVICE TYPE
 00415C:I     C3F0 000F               3453          THI   R15,X'F'            FOR 0 OR 10
*004160:I     2135      =00416A:I     3454          BNZ   SEL39               NOT SELCH TESTER
 004162:I     7650 80FC =004262:I     3455          RBT   R5,SELINTS          CLEAR STATUS, NO DEVICE INTERRUPT
 004166:I     4300 8098 =004202:I     3456          B     DEV59               SKIP
 00416A:I     7550 80F4 =004262:I     3457  SEL39   SBT   R5,SELINTS          SET STATUS
              0000 416E:I             3458  SEL79   EQU   *
 00416E:I     D100 A6CA =00683C:I     3459          LM    R0,RSAVEA           RESTORE REGS OF SET F
 004172:I     C200 A1EE =006364:I     3460          LPSW  OLDPSW              RETURN FROM INTERRUPT
 004176:I     41E0 86C0 =00483A:I     3461  SEL29   BAL   R14,DOERROR         SEQUENCE ERROR
 00417A:I     0030                    3462          DC    X'0030'             ERROR 48
*00417C:I     2207      =00416E:I     3463          B     SEL79               RESTART IO
                                      3464  * DEVICE INTERRUPT ROUTINE FOR TEST 9
              0000 417E:I             3465  DEVINT9 EQU   *
 00417E:I     D000 A63A =0067BC:I     3466          STM   R0,INTSAVE          SAVE REGS OF SET N          ****
 004182:I     C800 20F0               3467          LHI   R0,X'20F0'          LOAD PSW                    ****
 004186:I     9510                    3468          EPSR  R1,R0               SWAP TO SET F               ****
 004188:I     D000 A5B0 =00683C:I     3469          STM   R0,RSAVEA           SAVE SET F REGS             ****
 00418C:I     5820 A634 =0067C4:I     3470          L     R2,R2*ADC+INTSAVE   RELOAD INT DEV ADR          ****
 004190:I     58C0 A634 =0067C8:I     3471          L     R12,R3*ADC+INTSAVE  RELOAD INT DEV STAT         ****
 004194:I     0842                    3472          LR    R4,R2               SAVE INTERRUPT ADDRESS
 004196:I     245E                    3473          LIS   R5,14               SET INDEX
 004198:I     4050 9E86 =006022:I     3474  DEV29   STH   R5,INDEX           MAKE CURRENT
 00419C:I     4865 C024 =0001C4:I     3475          LH    R6,SELTAB(R5)       GET SELCH ADDRESS
*0041A0:I     2336      =0041AC:I     3476          BZ    DEVE9               NOT SELECTED
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 0041A2:I     4865 C02E =0001D4:I      3477            LH    R6,IOTAB(R5)        GET DEVICE ADDRESS
 0041A6:I     0564                     3478            CLR   R6,R4               ON TABLE??
 0041A8:I     4330 8032 =0041DE:I      3479            BE    DEV19               YES, CHECK MORE
 0041AC:I     2752                     3480  DEVE9     SIS   R5,2                DECREMENT
*0041AE:I     221B      =004198:I      3481            BNM   DEV29               LOOP
 0041B0:I     0842                     3482            LR    R4,R2               RELOAD
 0041B2:I     C640 0001                3483            OHI   R4,1                MAKE ODD
 0041B6:I     245E                     3484            LIS   R5,14               RELOAD INDEX
 0041B8:I     4050 9E66 =006022:I      3485  DEVD9     STH   R5,INDEX            MAKE CURRENT
 0041BC:I     4865 C014 =0001D4:I      3486            LH    R6,IOTAB(R5)        GET DEVICE ADDRESS
 0041C0:I     0564                     3487            CLR   R6,R4               ON TABLE??
*0041C2:I     2338      =0041D2:I      3488            BE    DEV49               SEE IF 10MB
 0041C4:I     2752                     3489            SIS   R5,2                DECREMENT
*0041C6:I     2217      =0041B8:I      3490            BNM   DEVD9               LOOP
 0041C8:I     41E0 866E =00483A:I      3491  DEV69     BAL   R14,DOERROR         INCORRECT ADDRESS
 0041CC:I     0327                     3492            DC    X'0327'             ERROR 39
 0041CE:I     4300 FF9C =00416E:I      3493            B     SEL79               RESTART I/O
              0000 41D2:I              3494  DEV49     EQU   *
 0041D2:I     4865 C00E =0001E4:I      3495            LH    R6,DEVTABLE(R5)     GET DEVICE TYPE
 0041D6:I     C560 0003                3496            CLHI  R6,3                2.5 OR 10MB?
*0041DA:I     2039      =0041C8:I      3497            BNE   DEV69               NO, ERROR
 0041DC:I     0842                     3498            LR    R4,R2               RESTORE
 0041DE:I     4865 C002 =0001E4:I      3499  DEV19     LH    R6,DEVTABLE(R5)     GET DEVICE TYPE
 0041E2:I     C560 0002                3500            CLHI  R6,2                6250 TAPE ??
*0041E6:I     2134      =0041EE:I      3501            BNE   DEV19A              NO, SKIP
 0041E8:I     DE40 9E26 =006012:I      3502            OC    IODEVS,DISA6250     DISABLE INTERRUPTS
 0041EC:I     2303      =0041F2:I      3503            BS    DEV19B
 0041EE:I     DE40 9E16 =006008:I      3504  DEV19A    OC    IODEVS,RESETC       DISABLE INTERRUPTS
 0041F2:I     7450 806C =004262:I      3505  DEV19B    TBT   R5,SELINTS          INTERRUPT PENDING??
 0041F6:I     4330 805C =004256:I      3506            BZ    DEV39               NO, ERROR
 0041FA:I     7450 8066 =004264:I      3507            TBT   R5,DEVINTS          INTERRUPT PENDING??
 0041FE:I     4230 8054 =004256:I      3508            BNZ   DEV39               YES, ERROR
 004202:I     7650 805C =004262:I      3509  DEV59     RBT   R5,SELINTS          CLEAR STATUS
 004206:I     7650 805A =004264:I      3510            RBT   R5,DEVINTS          CLEAR STATUS
 00420A:I     41F0 E742 =002950:I      3511            BAL   R15,SELCH3          CHECK TERMINATION
 00420E:I     41F0 E664 =002876:I      3512            BAL   R15,SELCH1          FORCE IDLE
 004212:I     7450 804A =004260:I      3513  DEV79     TBT   R5,FUNCTION         GET LAST FUNCTION
*004216:I     2335      =004220:I      3514            BZ    DEV89               WAS WRITE, MAKE READ
 004218:I     7650 8044 =004260:I      3515            RBT   R5,FUNCTION         TOGGLE BIT
 00421C:I     4300 8022 =004242:I      3516            B     DEV99               CALL DRIVER
 004220:I     7550 803C =004260:I      3517  DEV89     SBT   R5,FUNCTION         TOGGLE BIT
 004224:I     1151                     3518            SLLS  R5,1                MAKE FW
 004226:I     5855 C08A =0002B4:I      3519            L     R5,DRIVSAV(R5)      GET DRIVER ADDRESS
 00422A:I     01F5                     3520            BALR  R15,DRIVER          CALL DRIVER
 00422C:I     0001                     3521            DC    X'1'
 00422E:I     41F0 E678 =0028AA:I      3522            BAL   R15,SELCH2          SETUP SELCH FOR XFER
 004234:I     0000 03BC:I              3523            DAC   INBTAB
 004238:I     41F0 E6D6 =002912:I      3524  DEVA9     BAL   R15,GOCMD            START DMA & I/O
 00423C:I     D100 A5FC =00683C:I      3525            LM    R0,RSAVEA           RESTORE REGS
 004240:I     030F                     3526            BR    R15                 RETURN TO T9RET
 004242:I     1151                     3527  DEV99     SLLS  R5,1                MAKE FW
 004244:I     5855 C06C =0002B4:I      3528            L     R5,DRIVSAV(R5)      GET DRIVER ADDRESS
 004248:I     01F5                     3529            BALR  R15,DRIVER          CALL DRIVER
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00424A:I  0000                          3530            DC    X'0'
00424C:I  41F0 E65A =0028AA:I           3531            BAL   R15,SELCH2          SETUP SELCH FOR XFER
004250:I  0000 039C:I                   3532            DAC   OUTBTAB
*004254:I 220E      =004238:I           3533            B     DEVA9               GO TO COMMON
004256:I  41E0 85E0 =00483A:I           3534  DEV39     BAL   R14,DOERROR         PRINT ERROR
00425A:I  0030                          3535            DC    X'0030'             ERROR 48
00425C:I  4300 FFB2 =004212:I           3536            B     DEV79               CONTINUE
004260:I  0000                          3537  FUNCTION  DCX   0
004262:I  0000                          3538  SELINTS   DCX   0
004264:I  0000                          3539  DEVINTS   DCX   0
                                        3540  *                                 GOES TO INTRTN
                                        3541  *
004266:I  FF57 4F52 5354 2043           3542  HTST9MSG  DB    -1,C'WORST CASE MULTIPLE SELCH OPERATIONS',CR,LF
00426E:I  4153 4520 4D55 4C54
004276:I  4950 4C45 2053 454C
00427E:I  4348 204F 5045 5241
004286:I  5449 4F4E 530D 0A
00428D:I  414C 4C20 5345 4C45           3543            DB    C'ALL SELECTED SELCHES ARE STARTED.  AS EACH SELCH'
004295:I  4354 4544 2053 454C
00429D:I  4348 4553 2041 5245
0042A5:I  2053 5441 5254 4544
0042AD:I  2E20 2041 5320 4541
0042B5:I  4348 2053 454C 4348
0042BD:I  0D0A                          3544            DB    CR,LF
0042BF:I  5445 524D 494E 4154           3545            DB    C'TERMINATES, IT IS IMMEDIATELY RESTARTED.',CR,LF,0
0042C7:I  4553 2C20 4954 2049
0042CF:I  5320 494D 4D45 4449
0042D7:I  4154 454C 5920 5245
0042DF:I  5354 4152 5445 442E
0042E7:I  0D0A 00
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0042EC:I                                3547          ALIGN ADC
0042EC:I     0000 4496:I                3548 TEST10   DC    HTSTAMSG          HELP MESSAGE ADDRESS
0042F0:I     0000 0000                  3549          DC    0                 ERROR TALLY
                                        3550 *
0042F4:I     C800 20F0                  3551          LHI   R0,X'20F0'       TURN OFF
0042F8:I     9510                       3552          EPSR  R1,R0             MACHINE INTERRUPTS
0042FA:I     E600 8004 =004302:I        3553          LA    R0,ADJUSTA        LOAD NEXT SELCH ROUTINE ADR
0042FE:I     5000 9D2E =006030:I        3554          ST    R0,TSTERTNA       SAVE TO TEST ERROR RETURN ADR
004302:I     41F0 E1E8 =0024EE:I        3555 ADJUSTA  BAL   R15,SETREG        ADJUST REGISTERS FOR CURRENT SELCH
004306:I     4330 E2D6 =0025E0:I        3556          BZ    TSTEND            CHECK FOR NEXT TEST
00430A:I     41F0 61A8 =0044B6:I        3557 TESTAA   BAL   R15,SETBUF       USED FOR BUFFER ADR DISPLAY ONLY !
00430E:I     4820 9D10 =006022:I        3558          LH    R2,INDEX          GET CURRENT
004312:I     1121                       3559          SLLS  R2,1              MAKE FW
004314:I     5812 C084 =00039C:I        3560          L     R1,OUTBTAB(R2)    LOAD BUFFER START
004318:I     5882 4000 0224:I           3561          L     R8,BYTETAB(R2)    GET BYTE SIZE
00431E:I     2781                       3562          SIS   R8,1              ADJ FOR END ADR
004320:I     2472                       3563          LIS   R7,2              LOAD INCREMENT VALUE
004322:I     2460                       3564          LIS   R6,0              LOAD START
004324:I     24A0                       3565          LIS   R10,0             CLEAR
004326:I     40A1 4600 0000             3566 TASTLP   STH   R10,0(R1,R6)       STORE TO BUFFER
00432C:I     CAA0 0101                  3567          AHI   R10,X'101'        BUMP PATTERN
004330:I     F5A0 0001 0000             3568          CLI   R10,Y'10000'      PATTERN OVERFLOW??
004336:I     2182      =00433A:I        3569          BCS   TASTLP2           NO
004338:I     24A0                       3570          LIS   R10,0             CLEAR
00433A:I     C160 FFE8 =004326:I        3571 TASTLP2  BXLE  R6,TASTLP         LOOP
00433E:I     5892 C07A =0003BC:I        3572          L     R9,INBTAB(R2)     LOAD BUFFER START
004342:I     2472                       3573          LIS   R7,2              LOAD INCREMENT VALUE
004344:I     2460                       3574          LIS   R6,0              LOAD START
004346:I     C8A0 DEAD                  3575          LHI   R10,X'DEAD'       LOAD ID PATTERN
00434A:I     40A6 4900 0000             3576 TASTLP1  STH   R10,0(R6,R9)       STORE TO BUFFER
004350:I     C160 FFF6 =00434A:I        3577          BXLE  R6,TASTLP1        LOOP
004354:I     41F0 E51E =002876:I        3578          BAL   R15,SELCH1        MAKE SURE SELCH IS IDLE
004358:I     4810 9CC6 =006022:I        3579          LH    R1,INDEX          GET CURRENT
00435C:I     1111                       3580          SLLS  R1,1              MAKE FW
00435E:I     5851 4000 02B4:I           3581          L     R5,DRIVSAV(R1)
004364:I     01F5                       3582          BALR  R15,DRIVER        SETUP I/O DEVICE FOR TRANSFER
004366:I     0000                       3583          DC    X'0'              FROM MEMORY TO DEVICE (WRITE)
004368:I     41F0 E53E =0028AA:I        3584          BAL   R15,SELCH2        SETUP SELCH FOR TRANSFER
00436C:I     0000 039C:I                3585          DAC   OUTBTAB
004370:I     41F0 E59E =002912:I        3586          BAL   R15,GOCMD         START DEVICE AND SELCH
004374:I     41F0 E6C2 =002A3A:I        3587          BAL   R15,SELCH5        WAIT FOR SELCH TO TERMINATE
004378:I     41F0 E5D4 =002950:I        3588          BAL   R15,SELCH3        CHECK SELCH TERMINATION
00437C:I     7300 9CA2 =006022:I        3589          LHL   R0,INDEX          CHECK THE ACTIVE RESET OR NOT
004380:I     1001                       3590          SRLS  R0,1              ADJUST TEST BIT POSITION
004382:I     7400 9C9E =006024:I        3591          TBT   R0,ACTIVE
004386:I     4330 FF78 =004302:I        3592          BZ    ADJUSTA           YES,ACTIVE RESET
00438A:I     41F0 E4E8 =002876:I        3593          BAL   R15,SELCH1        ENSURE SELCH IS IDLE
00438E:I     4810 9C90 =006022:I        3594          LH    R1,INDEX          GET CURRENT
004392:I     1111                       3595          SLLS  R1,1              MAKE FW
004394:I     5851 4000 02B4:I           3596          L     R5,DRIVSAV(R1)
00439A:I     01F5                       3597          BALR  R15,DRIVER        SETUP I/O DEVICE FOR TRANSFER
00439C:I     0001                       3598          DC    X'1'              FROM DEVICE TO MEMORY (READ)
00439E:I     41F0 E508 =0028AA:I        3599          BAL   R15,SELCH2        SETUP SELCH FOR TRANSFER
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0043A4:I     0000 03BC:I              3600           DAC   INBTAB
0043A8:I     7320 9C76 =006022:I      3601           LHL   R2,INDEX             INITIAL R2 FOR INDEX AGAIN
0043AC:I     7342 4000 01D4:I         3602           LHL   R4,IOTAB(R2)        LOAD IO ADDRESS AGAIN
0043B2:I     7332 4000 01C4:I         3603           LHL   SELCH,SELTAB(R2)    LOAD SELCH ADDRESS AGAIN
0043B8:I     1121                     3604           SLLS  R2,1                MAKE FW
0043BA:I     5892 4000 03BC:I         3605           L     R9,INBTAB(R2)       LOAD BUFFER START
0043C0:I     588B 4000 0224:I         3606           L     R8,BYTETAB(WORK1)   GET BYTE SIZE
0043C6:I     2781                     3607           SIS   R8,1                ADJ FOR END ADR
0043C8:I     2472                     3608           LIS   R7,2                LOAD INCREMENT VALUE
0043CA:I     2460                     3609           LIS   R6,0                LOAD START
0043CC:I     48A6 4900 0000           3610 TADUMMY   LH    R10,0(R6,R9)        VALIDATE CACHE
0043D2:I     C160 FFF6 =0043CC:I      3611           BXLE  R6,TADUMMY          LOOP
0043D6:I     41F0 E538 =002912:I      3612           BAL   R15,GOCMD           START DEVICE AND SELCH
0043DA:I     9D3C                     3613           SSR   SELCH,STAT          SENSE STATUS
0043DC:I     2081      =000001:I      3614           BTBS  8,1                 WAIT FOR IDLE NOT
0043DE:I     DE30 9C27 =006009:I      3615           OC    SELCH,STOP1         ISSUE STOP
0043E2:I     DE30 9C23 =006009:I      3616           OC    SELCH,STOP1         ISSUE STOP
0043E6:I     41F0 E566 =002950:I      3617           BAL   R15,SELCH3           CHECK TERMINATION
0043EA:I     4820 9C34 =006022:I      3618           LH    R2,INDEX            GET CURRENT
0043EE:I     7342 4000 01D4:I         3619           LHL   R4,IOTAB(R2)        LOAD IO ADDRESS AGAIN
0043F4:I     7332 4000 01C4:I         3620           LHL   SELCH,SELTAB(R2)    LOAD SELCH ADDRESS AGAIN
0043FA:I     1121                     3621           SLLS  R2,1                MAKE FW
0043FC:I     2460                     3622           LIS   R6,0                CLEAR BUFFER INDEX
0043FE:I     5812 4000 039C:I         3623           L     R1,OUTBTAB(R2)      LOAD BUFFER START
004404:I     5892 4000 03BC:I         3624           L     R9,INBTAB(R2)       LOAD BUFFER START
00440A:I     2472                     3625           LIS   R7,2                LOAD INCREMENT VALUE
00440C:I     5882 4000 0224:I         3626           L     R8,BYTETAB(R2)      GET BYTE SIZE
004412:I     2781                     3627           SIS   R8,1                ADJ FOR END ADR
004414:I     1021                     3628           SRLS  R2,1                MAKE HW AGAIN
004416:I     24A0                     3629           LIS   R10,0               CLEAR
004418:I     73B6 4900 0000           3630 TACPLP1   LHL   R11,0(R6,R9)        GET DMA BUFFER
00441E:I     05AB                     3631           CLAR  R10,R11             COMPARE
*004420:I    213C      =004438:I      3632           BNE   ERR50               ERROR
004422:I     CAA0 0101                3633           AHI   R10,X'101'          BUMP
004426:I     F5A0 0001 0000           3634           CLI   R10,Y'10000'        BUFFER OVERFLOW??
00442C:I     2182      =004430:I      3635           BCS   TACPLP2             NO
00442E:I     24A0                     3636           LIS   R10,0               CLEAR
004430:I     C160 FFE4 =004418:I      3637 TACPLP2   BXLE  R6,TACPLP1          LOOP
004434:I     4300 8034 =00446C:I      3638           B     MVA                 CHECK FOR NEXT SELCH
             0000 4438:I              3639 ERR50     EQU   *
004438:I     F5B0 0000 DEAD           3640           CLI   R11,X'DEAD'         ID PATTERN??
*00443E:I    2136      =00444A:I      3641           BNE   ODDCHKA             NO, POSSIBLE DATA FAILURE
004440:I     41E0 83F6 =00483A:I      3642           BAL   R14,DOERROR         YES, PRINT ERROR
004444:I     0132                     3643           DC    X'0132'             ERROR 50
004446:I     4300 8022 =00446C:I      3644           B     MVA                 SKIP
00444A:I     0568                     3645 ODDCHKA   CLR   R6,R8                WAS AN EVEN NUMBER OF BYTES TRANSF
*00444C:I    2336      =004458:I      3646           BE    JUMPA               NO, CONTINUE
00444E:I     41E0 83E8 =00483A:I      3647           BAL   R14,DOERROR         YES, PRINT ERROR
004452:I     0110                     3648           DC    X'0110'             ERROR 16
004454:I     4300 FEAA =004302:I      3649           B     ADJUSTA
004458:I     08EA                     3650 JUMPA     LR    R14,R10             CHECK ONLY LAST BYTE TRANSFERRED
00445A:I     07EB                     3651           XR    R14,R11             SEE IF SAME
00445C:I     C3E0 FF00                3652           THI   R14,X'FF00'         AS EXPECTED
```

T E S T 1 0

```
*004460:I  2336      =00446C:I   3653           BZ    MVA                 YES, CHECK MOVE BUFFER OPTION
 004462:I  41E0 83D4 =00483A:I   3654           BAL   R14,DOERROR         NO, PRINT ERROR
 004466:I  0110                  3655           DC    X'0110'             ERROR 16
 004468:I  4300 FE96 =004302:I   3656           B     ADJUSTA
 00446C:I  D300 9B9F =00600F:I   3657  MVA      LB    R0,RESCTL           LOAD DISARM COMMAND
 004470:I  7320 9BAE =006022:I   3658           LHL   R2,INDEX            LOAD CURRENT TABLE INDEX
 004474:I  7342 4000 01D4:I      3659           LHL   IODEVS,IOTAB(R2)    LOAD IODEV ADR
 00447A:I  73F2 4000 01E4:I      3660           LHL   R15,DEVTABLE(R2)    LOAD DEVICE OPTION
 004480:I  C5F0 0002             3661           CLHI  R15,2               6250 TAPE ??
 004484:I  2132      =004488:I   3662           BNES  MVAA                NO,SKIP
 004486:I  2608                  3663           AIS   R0,8                MAKE 6250 TYPE CMD DISARM - 'C8'
 004488:I  9E40                  3664  MVAA     OCR   IODEVS,R0           CLEAR ANY INTERRUPTS
 00448A:I  41F0 81EE =00467C:I   3665           BAL   R15,MVCHK           CHECK MOVE OPTION
 00448E:I  4330 FE78 =00430A:I   3666           BZ    TESTAA              REPEAT TEST WITH NEW BUFFER
 004492:I  4300 FE5C =004302:I   3667           B     ADJUSTA             YES, CHECK FOR NEXT SELCH
                                 3668  *
                                 3669  *
 004496:I  FF43 4143 4845 2049   3670  HTSTAMSG DB    -1,C'CACHE INVALIDATION EXERCISE',CR,LF
 00449E:I  4E56 414C 4944 4154
 0044A6:I  494F 4E20 4558 4552
 0044AE:I  4349 5345 0D0A
 0044B4:I  00                    3671           DB    0
```

SUBROUTINES

```
0044B6:I                                3673            ALIGN 2
                                        3674    * LOAD BOTH DATA BUFFERS (INBUF=BACKGROUND PAT;OUTBUF=PATTERN)
          0000 44B6:I                   3675    SETBUF  EQU   *
0044B6:I  7320 9B68 =006022:I           3676            LHL   R2,INDEX          LOAD CURRENT INDEX
0044BA:I  1121                          3677            SLLS  R2,1              ADJUST INDEX FOR FULLWORD TABLE
0044BC:I  58B2 4000 039C:I              3678            L     R11,OUTBTAB(R2)   LOAD ADDRESS OF OUTPUT BUFFER
0044C2:I  58D2 4000 03BC:I              3679            L     R13,INBTAB(R2)    LOAD ADDRESS OF INPUT BUFFER
0044C8:I  2470                          3680            LIS   R7,0
0044CA:I  2482                          3681            LIS   R8,2
0044CC:I  5892 4000 0224:I              3682            L     R9,BYTETAB(R2)    LOAD BYTE SIZE OF TRANSFER
0044D2:I  2791                          3683            SIS   R9,1              ADJUST FOR END ADR
0044D4:I  2400                          3684            LIS   R0,0              CLEAR
0044D6:I  50B0 831E =0047F8:I           3685            ST    R11,LOW           SET TO START
0044DA:I  50B0 831E =0047FC:I           3686            ST    R11,HIGH          SET TO START
0044DE:I  5190 831A =0047FC:I           3687            AM    R9,HIGH           ADD LENGTH
0044E2:I  41E0 82DE =0047C4:I           3688            BAL   R14,BUFRM         MEMORY REAL??
0044E6:I  4330 E41E =002908:I           3689            BZ    ERR49             NO, ERROR
0044EA:I  50D0 830A =0047F8:I           3690            ST    R13,LOW           SET TO START
0044EE:I  50D0 830A =0047FC:I           3691            ST    R13,HIGH          SET TO START
0044F2:I  5190 8306 =0047FC:I           3692            AM    R9,HIGH           ADD LENGTH
0044F6:I  41E0 82CA =0047C4:I           3693            BAL   R14,BUFRM         MEMORY REAL??
0044FA:I  4330 E40A =002908:I           3694            BZ    ERR49             NO, ERROR
0044FE:I  1021                          3695            SRLS  R2,1              MAKE HW
004500:I  73A2 4000 0244:I              3696            LHL   R10,IMAGTAB(R2)   LOAD DATA IMAGE
004506:I  73C2 4000 01E4:I              3697            LHL   R12,DEVTABLE(R2)  IS I/O DEVICE A SELCH TESTER ?
00450C:I  C3C0 000F                     3698            THI   R12,X'F'          FOR 0 OR 10
004510:I  4330 8038 =00454C:I           3699            BZ    PATRN1            YES, USE INCREMENTING PATTERN
004514:I  73C2 4000 02A4:I              3700            LHL   R12,PATRNTAB(R2)  LOAD PATTERN OPTION
00451A:I  4330 804E =00456C:I           3701            BZ    STORE2            IF 0 USE IMAGE VALUE
00451E:I  10C1                          3702            SRLS  R12,1
004520:I  4330 8028 =00454C:I           3703            BZ    PATRN1            IF 1 USE INCREMENTING PATTERN
004524:I  4380 8040 =004568:I           3704            BNC   PATRN2            IF 2 USE IMAGE COMPLEMENT
004528:I  08AB                          3705    STORE1  LR    R10,R11           LOAD START ADDRS OF BUFFER
00452A:I  0AA7                          3706            AR    R10,R7            ADD DISPLACEMENT WITHIN BUFFER
00452C:I  C3A0 0002                     3707            THI   R10,X'0002'       HW BOUNDARY??
004530:I  2137      =00453E:I           3708            BNZS  STORE1A           YES
004532:I  34AA                          3709            EXHR  R10,R10           SWAP
004534:I  40AB 4700 0000                3710            STH   R10,0(R11,R7)     STORE MS HW
00453A:I  34AA                          3711            EXHR  R10,R10           SWAP
*00453C:I 2304      =004544:I           3712            B     STORE1B           SKIP
00453E:I  40AB 4700 0000                3713    STORE1A STH   R10,0(R11,R7)     STORE LS HW
004544:I  C170 FFE0 =004528:I           3714    STORE1B BXLE  R7,STORE1         REPEAT UNTIL BUFFER FULL
004548:I  4300 8034 =004580:I           3715            B     SKIP1             STORE BACKGROUND IN INPUT BUFFER
00454C:I  24A0                          3716    PATRN1  LIS   R10,0             START WITH ZERO PATTERN
00454E:I  40AB 4700 0000                3717    STORE   STH   R10,0(R11,R7)     STORE PATTERN IN BUFFER
004554:I  CAA0 0101                     3718            AHI   R10,X'101'        INCREMENT PATTERN
004558:I  F5A0 0001 0000                3719            CLI   R10,Y'10000'      PATTERN = FFFF?
00455E:I  2182      =004562:I           3720            BCS   BXLE
004560:I  24A0                          3721            LIS   R10,0             YES, RESET PATTERN TO ZERO
004562:I  C170 FFE8 =00454E:I           3722    BXLE    BXLE  R7,STORE           REPEAT UNTIL R7 = BYTE OPTION -1
*004566:I 230D      =004580:I           3723            B     SKIP1             STORE BACKGROUND IN INPUT BUFFER
004568:I  C7A0 FFFF                     3724    PATRN2  XHI   R10,X'FFFF'       COMPLEMENT IMAGE VALUE
00456C:I  40AB 4700 0000                3725    STORE2  STH   R10,0(R11,R7)     STORE PATTERN IN BUFFER
```

SUBROUTINES

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 004572:I     08CC                   3726            LR     R12,R12             IS PATTERN 0 SET ?
*004574:I     2334       =00457C:I   3727            BZ     BXLE4               YES, STORE IMAGE AGAIN
 004576:I     C170 FFEE =004568:I    3728            BXLE   R7,PATRN2           NO, COMPLEMENT IMAGE AND STORE
*00457A:I     2303       =004580:I   3729            B      SKIP1
 00457C:I     C170 FFEC =00456C:I    3730   BXLE4    BXLE   R7,STORE2           REPEAT UNTIL R7 = BYTE OPTION -1
 004580:I     2470                   3731   SKIP1    LIS    R7,0
 004582:I     73A2 4000 0254:I       3732            LHL    R10,BUFILTAB(R2)    LOAD BACKGROUND PATTERN
 004588:I     40AD 4700 0000         3733   STORE3   STH    R10,0(R13,R7)       STORE BACKGROUND PATRN IN INPUT BUF
 00458E:I     C170 FFF6 =004588:I    3734            BXLE   R7,STORE3           REPEAT UNTIL R7 = BYTE OPTION -1
 004592:I     41E0 872A =004CC0:I    3735            BAL    R14,DISPBUFS        DISPLAY BUFFERS         *****
 004596:I     73E0 9A88 =006022:I    3736            LHL    R14,INDEX           LOAD INDEX                 ****
 00459A:I     734E 4000 01D4:I       3737            LHL    R4,IOTAB(R14)       RELOAD DEVICE ADR          ****
 0045A0:I     030F                   3738            BR     R15                 RETURN TO TEST
                                     3739   * CHECK CONTENTS OF DATA BUFFER
 0045A2:I     73C0 9A7C =006022:I    3740   BUFCHK   LHL    R12,INDEX           LOAD CURRENT INDEX
 0045A6:I     11C1                   3741            SLLS   R12,1               ADJUST INDEX FOR FULLWORD TABLE
 0045A8:I     58BC 4000 039C:I       3742            L      R11,OUTBTAB(R12)    LOAD ADDRESS OF OUTPUT BUFFER
 0045AE:I     2470                   3743            LIS    R7,0
 0045B0:I     2482                   3744            LIS    R8,2
 0045B2:I     589C 4000 0224:I       3745            L      R9,BYTETAB(R12)     LOAD BYTE SIZE OF TRANSFER
 0045B8:I     2791                   3746            SIS    R9,1                ADJ FOR END ADR
 0045BA:I     10C1                   3747            SRLS   R12,1               MAKE HW
 0045BC:I     73AC 4000 0244:I       3748            LHL    R10,IMAGTAB(R12)    LOAD DATA IMAGE
 0045C2:I     73EC 4000 01E4:I       3749            LHL    R14,DEVTABLE(R12)   IS I/O DEVICE A SELCH TESTER ?
 0045C8:I     C3E0 000F              3750            THI    R14,X'F'            FOR 0 OR 10
 0045CC:I     4330 808A =00465A:I    3751            BZ     TSTPAT              YES, CHECK INCREMENTING PATTERN
 0045D0:I     73EC 4000 02A4:I       3752            LHL    R14,PATRNTAB(R12)   NO, CHECK PATTERN OPTION
 0045D6:I     4330 8064 =00463E:I    3753            BZ     BUFCHK4             IF 0 CHECK WITH IMAGE VALUE
 0045DA:I     10E1                   3754            SRLS   R14,1
 0045DC:I     4330 807A =00465A:I    3755            BZ     TSTPAT              IF 1 CHECK WITH INCREMENTING PATTERN
 0045E0:I     4380 8054 =004638:I    3756            BNC    BUFCHK3             IF 2 CHECK WITH IMAGE VALUE COMP.
 0045E4:I     08AB                   3757   BUFCHK0  LR     R10,R11             LOAD START ADRS OF BUFFER
 0045E6:I     0AA7                   3758            AR     R10,R7              ADD DISPLACEMENT WITHIN BUFFER
 0045E8:I     C3A0 0002              3759            THI    R10,X'0002'         HW BOUNDARY??
 0045EC:I     4230 8022 =004612:I    3760            BNZ    BUFCHK1D            YES
 0045F0:I     ECA0 0010              3761            SRL    R10,16              SCALE
 0045F4:I     F4A0 0000 FFFF         3762            NI     R10,Y'FFFF'         MASK
 0045FA:I     48DB 4700 0000         3763            LH     R13,0(R11,R7)       GET MEMORY DATA
 004600:I     F4D0 0000 FFFF         3764            NI     R13,Y'FFFF'         MASK
 004606:I     05DA                   3765            CLR    R13,R10             EQUAL??
 004608:I     4230 8024 =004630:I    3766            BNE    BUFCHK1B            NO, ERROR
 00460C:I     08AB                   3767            LR     R10,R11             RE-LOAD
 00460E:I     0AA7                   3768            AR     R10,R7              ADD DISPLACEMENT
*004610:I     230D       =00462A:I   3769            B      BUFCHK1C            SKIP
 004612:I     48DB 4700 0000         3770   BUFCHK1D LH     R13,0(R11,R7)       LOAD MEMORY DATA
 004618:I     F4D0 0000 FFFF         3771            NI     R13,Y'FFFF'         MASK
 00461E:I     F4A0 0000 FFFF         3772            NI     R10,Y'FFFF'         MASK
 004624:I     05DA                   3773            CLR    R13,R10             EQUAL??
 004626:I     4230 87A8 =004DD2:I    3774            BNE    ERROR37             NO, ERROR
 00462A:I     C170 FFB6 =0045E4:I    3775   BUFCHK1C BXLE   R7,BUFCHK0          NO, REPEAT UNTIL ALL OF BUFFER CHECK
 00462E:I     030F                   3776            BR     R15                 *
 004630:I     08AB                   3777   BUFCHK1B LR     R10,R11             RE-LOAD
 004632:I     0AA7                   3778            AR     R10,R7              ADD IN DISPLACEMENT
```

SUBROUTINES

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004634:I  4300 879A =004DD2:I   3779          B     ERROR37           ERROR
004638:I  F7A0 0000 FFFF        3780  BUFCHK3 XI    R10,Y'FFFF'       COMPLEMENT IMAGE VALUE
00463E:I  73DB 4700 0000        3781  BUFCHK4 LHL   R13,0(R11,R7)     LOAD BUFFER DATA
004644:I  05AD                  3782          CLR   R10,R13           IS DATA IN BUFFER CORRECT ?
004646:I  4230 8788 =004DD2:I   3783          BNE   ERROR37           NO, PRINT ERROR
00464A:I  08EE                  3784          LR    R14,R14           IS PATTERN 0 SET ?
*00464C:I 2334      =004654:I   3785          BZ    BXLE5             YES, REPEAT WITH IMAGE VALUE
00464E:I  C170 FFE6 =004638:I   3786          BXLE  R7,BUFCHK3        NO, REPEAT WITH IMAGE COMPLEMENT
004652:I  030F                  3787          BR    R15               *
004654:I  C170 FFE6 =00463E:I   3788  BXLE5    BXLE  R7,BUFCHK4        YES, REPEAT UNTIL ALL OF BUF CHECKED
004658:I  030F                  3789          BR    R15               *
00465A:I  24A0                  3790  TSTPAT  LIS   R10,0             START WITH ZERO PATTERN
00465C:I  73DB 4700 0000        3791  BUFCHK5 LHL   R13,0(R11,R7)     DATA IN OUTPUT BUFFER CHANGED ?
004662:I  05AD                  3792          CLR   R10,R13
004664:I  4230 876A =004DD2:I   3793          BNE   ERROR37           YES
004668:I  CAA0 0101             3794          AHI   R10,X'101'        NO, INCREMENT PATTERN
00466C:I  F5A0 0001 0000        3795          CLI   R10,Y'10000'      PATTERN = FFFF?
004672:I  2182      =004676:I   3796          BLS   BXLE1
004674:I  24A0                  3797          LIS   R10,0             YES, RESET PATTERN TO ZERO
004676:I  C170 FFE2 =00465C:I   3798  BXLE1   BXLE  R7,BUFCHK5        REPEAT UNTIL ALL OF BUF CHECKED
00467A:I  030F                  3799          BR    R15               RETURN TO TEST
                                3800  * MOVE IN/MOVE OUT OPTION CHECK AND PERFORM
00467C:I  50F0 A17C =0067FC:I   3801  MVCHK    ST    R15,RSAVE1        SAVE RETURN
                                3802  *         L     R15,RSAVE1        RESTORE RETURN
004680:I  7320 999E =006022:I   3803  MVCHK1   LHL   R2,INDEX          INDEX
004684:I  1121                  3804          SLLS  R2,1              MAKE FW
004686:I  5832 4000 0224:I      3805          L     R3,BYTETAB(R2)    BYTECOUNTER
00468C:I  2731                  3806          SIS   R3,1              ADJUST FOR END ADR
00468E:I  5842 4000 03BC:I      3807          L     R4,INBTAB(R2)     INPUT START
004694:I  0854                  3808          LR    R5,R4
004696:I  E662 4000 03BC:I      3809          LA    R6,INBTAB(R2)
00469C:I  5872 4000 039C:I      3810          L     R7,OUTBTAB(R2)
0046A2:I  0887                  3811          LR    R8,R7             MOVE WRITE BUFFER ADDRESS
0046A4:I  E692 4000 039C:I      3812          LA    R9,OUTBTAB(R2)
0046AA:I  C8B0 1002             3813          LHI   R11,X'1002'
0046AE:I  7310 4000 01B6:I      3814          LHL   R1,MVOUT          MOVE OUT OPTION SET
*0046B4:I 2338      =0046C4:I   3815          BZ    CHECKIN           NO,TEST NEXT
0046B6:I  7310 4000 01B4:I      3816          LHL   R1,MVIN           MOVE IN OPTION SET
0046BC:I  4230 8078 =004738:I   3817          BNZ   BOTH              YES,THEN BOTH
0046C0:I  4300 8040 =004704:I   3818          B     OUTONLY           NO,MOVE OUT ONLY
0046C4:I  7310 4000 01B4:I      3819  CHECKIN  LHL   R1,MVIN           MOVE IN OPTION SET
*0046CA:I 2133      =0046D0:I   3820          BNZ   INONLY
0046CC:I  08FF                  3821          LR    R15,R15           CC NOT ZERO
0046CE:I  030F                  3822          BR    R15
0046D0:I  0A53                  3823  INONLY   AR    R5,R3             ADD BYTE COUNT-IN
0046D2:I  0A83                  3824          AR    R8,R3             ADD BYTE COUNT-OUT
0046D4:I  0A4B                  3825  INLOOP   AR    R4,R11            ADD 258 - IN
0046D6:I  0A5B                  3826          AR    R5,R11
0046D8:I  5040 811C =0047F8:I   3827          ST    R4,LOW            SAVE
0046DC:I  5050 811C =0047FC:I   3828          ST    R5,HIGH           SAVE
0046E0:I  41E0 80E0 =0047C4:I   3829          BAL   R14,BUFRM         MEMORY REAL??
0046E4:I  4330 80BC =0047A4:I   3830          BZ    MVRETRY           NO, TRY AGAIN
0046E8:I  F540 0000 7280:I      3831          CLI   R4,PSTE           GREATER THAN PROGRAM SPACE
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SUBROUTINES

```
0046EE:I  028F                    3832          BLR   R15
0046F0:I  0557                    3833          CLR   R5,R7             END READ NOT IN WRITE SPACE
0046F2:I  2185      =0046FC:I     3834          BLS   INORET
0046F4:I  0584                    3835          CLR   R8,R4             WRITE END NOT IN READ SPACE
0046F6:I  2183      =0046FC:I     3836          BLS   INORET
0046F8:I  4300 FFD8 =0046D4:I     3837          B     INLOOP
0046FC:I  5046 0000               3838  INORET  ST    R4,0(R6)          SAVE NEW READ ESELCH START ADDRESS
004700:I  4300 8084 =004788:I     3839          B     ALLSET
004704:I  0A53                    3840  OUTONLY AR    R5,R3
004706:I  0A83                    3841          AR    R8,R3
004708:I  0A7B                    3842  OUTLOOP AR    R7,R11
00470A:I  0A8B                    3843          AR    R8,R11
00470C:I  5070 80E8 =0047F8:I     3844          ST    R7,LOW            SAVE
004710:I  5080 80E8 =0047FC:I     3845          ST    R8,HIGH           SAVE
004714:I  41E0 80AC =0047C4:I     3846          BAL   R14,BUFRM         MEMORY REAL??
004718:I  4330 8088 =0047A4:I     3847          BZ    MVRETRY           NO,TRY AGAIN
00471C:I  F570 0000 7280:I        3848          CLI   R7,PSTE
004722:I  028F                    3849          BLR   R15               RETURN, CC NOT ZERO
004724:I  0584                    3850          CLR   R8,R4
004726:I  2185      =004730:I     3851          BLS   OUTORET
004728:I  0557                    3852          CLR   R5,R7
00472A:I  2183      =004730:I     3853          BLS   OUTORET
00472C:I  4300 FFD8 =004708:I     3854          B     OUTLOOP
004730:I  5079 0000               3855  OUTORET ST    R7,0(R9)          SAVE NEW WRITE ESELCH START ADDRESS
004734:I  4300 8050 =004788:I     3856          B     ALLSET
004738:I  0A53                    3857  BOTH    AR    R5,R3
00473A:I  0A83                    3858          AR    R8,R3
00473C:I  F540 0000 7280:I        3859          CLI   R4,PSTE
004742:I  028F                    3860          BLR   R15
004744:I  F570 0000 7280:I        3861          CLI   R7,PSTE
00474A:I  028F                    3862          BLR   R15               CC NOT ZERO
00474C:I  0584                    3863          CLR   R8,R4
00474E:I  2185      =004758:I     3864          BLS   BOLOOP
004750:I  0557                    3865          CLR   R5,R7
004752:I  2183      =004758:I     3866          BLS   BOLOOP
004754:I  08FF                    3867          LR    R15,R15           CC NOT ZERO
004756:I  030F                    3868          BR    R15               RETURN
004758:I  0A4B                    3869  BOLOOP  AR    R4,R11
00475A:I  0A5B                    3870          AR    R5,R11
00475C:I  5040 8098 =0047F8:I     3871          ST    R4,LOW            SAVE
004760:I  5050 8098 =0047FC:I     3872          ST    R5,HIGH           SAVE
004764:I  41E0 805C =0047C4:I     3873          BAL   R14,BUFRM         MEMORY REAL??
004768:I  4330 8038 =0047A4:I     3874          BZ    MVRETRY           NO, TRY AGAIN
00476C:I  0A7B                    3875          AR    R7,R11
00476E:I  0A8B                    3876          AR    R8,R11
004770:I  5070 8084 =0047F8:I     3877          ST    R7,LOW            SAVE
004774:I  5080 8084 =0047FC:I     3878          ST    R8,HIGH           SAVE
004778:I  41E0 8048 =0047C4:I     3879          BAL   R14,BUFRM         MEMORY REAL??
00477C:I  4330 8024 =0047A4:I     3880          BZ    MVRETRY           NO, TRY AGAIN
004780:I  5046 0000               3881          ST    R4,0(R6)          SAVE NEW READ  ESELCH START ADDRESS
004784:I  5079 0000               3882          ST    R7,0(R9)          SAVE NEW WRITE ESELCH START ADDRESS
          0000 4788:I             3883  ALLSET  EQU   *
004788:I  7310 9896 =006022:I     3884          LHL   R1,INDEX
```

SUBROUTINES

```
 00478C:I     1011                    3885            SRLS  R1,1
 00478E:I     7410 9892 =006024:I     3886            TBT   R1,ACTIVE
*004792:I     2133      =004798:I     3887            BNZ   ALLSET1             SKIP IF SET
 004794:I     08FF                    3888            LR    R15,R15             CC NOT ZERO
 004796:I     030F                    3889            BR    R15                 RETURN
 004798:I     1111                    3890  ALLSET1   SLLS  R1,1                MAKE HW INDEX AGAIN       ****
 00479A:I     7341 4000 01D4:I        3891            LHL   R4,IOTAB(R1)        LOAD DEVICE ADDRESS         ****
 0047A0:I     05FF                    3892            CLR   R15,R15             CC = ZERO
 0047A2:I     030F                    3893            BR    R15
 0047A4:I     58B0 97BC =005F64:I     3894  MVRETRY   L     R11,CURTOP          GET LAST MEMORY TRY
 0047A8:I     55B0 97B4 =005F60:I     3895            CL    R11,MEMTOP          GET TOP OF MEMORY
 0047AC:I     5046 0000               3896            ST    R4,0(R6)            STORE
 0047B0:I     5079 0000               3897            ST    R7,0(R9)            STORE
*0047B4:I     2383      =0047BA:I     3898            BNL   MVEXIT1             END OF MEMORY
 0047B6:I     4300 FEC6 =004680:I     3899            B     MVCHK1              LOOP
 0047BA:I     2400                    3900  MVEXIT1   LIS   R0,0                CLEAR
 0047BC:I     5000 97A4 =005F64:I     3901            ST    R0,CURTOP           CLEAR
 0047C0:I     08FF                    3902            LR    R15,R15             CC NOT ZERO
 0047C2:I     030F                    3903            BR    R15                 RETURN
 0047C4:I     D000 A034 =0067FC:I     3904  BUFRM     STM   R0,RSAVE1           SAVE REGISTERS
 0047C8:I     58B0 802C =0047F8:I     3905            L     R11,LOW             GET LOW
 0047CC:I     24C1                    3906            LIS   R12,1               LOAD INCREMENT
 0047CE:I     58D0 802A =0047FC:I     3907            L     R13,HIGH            GET HIGH
 0047D2:I     10BE                    3908            SRLS  R11,14              SCALE TO 16KB BOUNDARY
 0047D4:I     10DE                    3909            SRLS  R13,14              SCALE TO 16KB BOUNDARY
 0047D6:I     74B0 9F5E =006738:I     3910  BUFRM1    TBT   R11,KB0016          TEST BIT MAP FOR PRESENCE
*0047DA:I     2337      =0047E8:I     3911            BZ    BUFRM2              NOT PRESENT
 0047DC:I     C1B0 FFF6 =0047D6:I     3912            BXLE  R11,BUFRM1          LOOP
 0047E0:I     11BE                    3913            SLLS  R11,14              SCALE
 0047E2:I     27B1                    3914            SIS   R11,1               COMPENSATE
 0047E4:I     240F                    3915            LIS   R0,15               SET CC NOT = 0
*0047E6:I     2304      =0047EE:I     3916            B     BUFRM3              SKIP
 0047E8:I     11BE                    3917  BUFRM2    SLLS  R11,14              SCALE
 0047EA:I     27B1                    3918            SIS   R11,1               COMPENSATE
 0047EC:I     2400                    3919            LIS   R0,0                SET CC = 0
 0047EE:I     50B0 9772 =005F64:I     3920  BUFRM3    ST    R11,CURTOP          SAVE AS LAST START POINT
 0047F2:I     D100 A006 =0067FC:I     3921            LM    R0,RSAVE1           RESTORE REGISTERS
 0047F6:I     030E                    3922            BR    R14                 RETURN
 0047F8:I                             3923            ALIGN ADC
 0047F8:I     0000 0000               3924  LOW       DCY   0
 0047FC:I     0000 0000               3925  HIGH      DCY   0
                                      3926  * SET DEVICE DRIVER ADDRESS
              0000 4800:I             3927  SETREG9   EQU   *
 004800:I     1021                    3928            SRLS  R2,1                MAKE BYTE
 004802:I     7420 981E =006024:I     3929            TBT   R2,ACTIVE
 004806:I     4330 802A =004834:I     3930            BZ    EXIT9A              EXIT
 00480A:I     1121                    3931            SLLS  R2,1                MAKE HW
 00480C:I     7332 4000 01C4:I        3932            LHL   SELCH,SELTAB(R2)    IS THIS SELCH IN SYSTEM ?
 004812:I     033F                    3933            BZR   R15                 EXIT
 004814:I     7342 4000 01D4:I        3934            LHL   R4,IOTAB(R2)        LOAD DEVICE ADDRESS
 00481A:I     7352 4000 01E4:I        3935            LHL   R5,DEVTABLE(R2)     LOAD DEVICE IDENTIFIER
 004820:I     1152                    3936            SLLS  R5,LADC
 004822:I     5855 DD36 =00255C:I     3937            L     DRIVER,DRIVETAB(R5) DRIVER ADDRESS
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SUBROUTINES

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004826:I  1121                        3938  EXIT9    SLLS  R2,1                MAKE FW
004828:I  5052 4000 02B4:I            3939           ST    R5,DRIVSAV(R2)
00482E:I  1021                        3940           SRLS  R2,1                MAKE HW
004830:I  08FF                        3941           LR    R15,R15             CC = NONZERO
004832:I  030F                        3942           BR    R15                 EXIT
004834:I  1121                        3943  EXIT9A   SLLS  R2,1                MAKE HW
004836:I  05FF                        3944           CLR   R15,R15             CC = ZERO
004838:I  030F                        3945           BR    R15                 EXIT
                                      3946  * ERROR ROUTINE
                                      3947  * CALL SEQUENCE:
                                      3948  *              BAL  R14,DOERROR
                                      3949  *              DCX  ERROR NUMBER
00483A:I  26E2                        3950  DOERROR  AIS   R14,2               ESTABLISH RETURN ADDRESS
00483C:I  D000 9FBC =0067FC:I         3951           STM   R0,RSAVE1           SAVE ALL REGISTERS
004840:I  2411                        3952           LIS   R1,1
004842:I  4010 4000 03EC:I            3953           STH   R1,ERRFLAG          SET ERROR FLAG
004848:I  4800 9A48 =006294:I         3954           LH    R0,BTESTNO
00484C:I  C500 0005                   3955           CLHI  R0,5
004850:I  4330 8112 =004966:I         3956           BE    INCERR@             DON'T REPORT ERRORS IN TEST 5
004854:I  C500 0006                   3957           CLHI  R0,6                OR TEST 6 (SCOPE LOOPS)
004858:I  4330 810A =004966:I         3958           BE    INCERR@
00485C:I  7300 97C2 =006022:I         3959           LHL   R0,INDEX            LOAD CURRENT SELCH INDEX
004860:I  0810                        3960           LR    R1,R0
004862:I  1001                        3961           SRLS  R0,1                ADJUST INDEX FOR ACTIVE WORD
004864:I  7400 97BC =006024:I         3962           TBT   R0,ACTIVE           IS THIS SELCH ACTIVE ?
004868:I  4330 80FA =004966:I         3963           BZ    INCERR@             IS THIS SELCH ACTIVE ?
00486C:I  DE30 979A =00600A:I         3964           OC    SELCH,STOP2         STOP SELCH
004870:I  4800 9A20 =006294:I         3965           LH    R0,BTESTNO
004874:I  4330 8086 =0048FE:I         3966           BZ    ERRX1               NO DEVICE USED
004878:I  C500 0008                   3967           CLHI  R0,8
00487C:I  4330 807E =0048FE:I         3968           BE    ERRX1               NO DEVICE USED
004880:I  73B1 4000 01E4:I            3969  ERR2     LHL   WORK1,DEVTABLE(R1)   SET DEVICE TYPE
004886:I  C3B0 000F                   3970           THI   WORK1,X'F'           FOR 0 OR 10
00488A:I  4330 8070 =0048FE:I         3971           BZ    ERRX1               SELCH TESTER
00488E:I  C5B0 0003                   3972           CLHI  WORK1,3             MAG TAPE?
004892:I  4280 8068 =0048FE:I         3973           BL    ERRX1               BRANCH IF YES
*004896:I 2333       =00489C:I        3974           BE    ERRXY               BRANCH IF 2.5 OR 10MB
004898:I  4300 8024 =0048C0:I         3975           B     ERRX                ELSE, MSM OR IDC
00489C:I  9D4B                        3976  ERRXY    SSR   R4,WORK1            TRY CONTROLLER IDLE
00489E:I  C5B0 0004                   3977           CLHI  WORK1,X'04'         FALSE SYNC??
0048A2:I  4330 8058 =0048FE:I         3978           BE    ERRX1               CAN'T DO ANY MORE TO CONTROLLER
0048A6:I  C3B0 0002                   3979           THI   WORK1,X'02'         IDLE??
*0048AA:I 2237       =00489C:I        3980           BZ    ERRXY               NO, WAIT
0048AC:I  73B1 4000 01F4:I            3981           LHL   WORK1,DISFTAB(R1)   LOAD DISC FILE ADDRESS
0048B2:I  C8A0 00C0                   3982           LHI   WORK,X'C0'          DISARM
0048B6:I  9EBA                        3983           OCR   WORK1,WORK
0048B8:I  DE40 974C =006008:I         3984           OC    R4,RESETC
0048BC:I  4300 803E =0048FE:I         3985           B     ERRX1
0048C0:I  9D4B                        3986  ERRX     SSR   R4,WORK1            TRY FOR CNTL IDLE
0048C2:I  C5B0 0004                   3987           CLHI  WORK1,X'04'         FALSE SYNC??
0048C6:I  4330 8034 =0048FE:I         3988           BE    ERRX1               CAN'T DO ANY MORE TO CONTROLLER
0048CA:I  C3B0 0002                   3989           THI   WORK1,X'02'         IDLE??
*0048CE:I 2237       =0048C0:I        3990           BZ    ERRX                NO, WAIT
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SUBROUTINES

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0048D0:I    73B1 4000 01F4:I        3991          LHL   WORK1,DISPTAB(R1)
0048D6:I    C8A0 00C0               3992          LHI   WORK,X'C0'
0048DA:I    9EBA                    3993          OCR   WORK1,WORK
0048DC:I    DE40 9730 =006010:I     3994          OC    R4,RESMSMC          RESET CONTROLLER
*0048E0:I   230F      =0048FE:I     3995          B     ERRX1               SKIP
0048E2:I    9D4B                    3996  ERRX2   SSR   R4,WORK1            TRY FOR CNTL IDLE
0048E4:I    C5B0 0004               3997          CLHI  WORK1,X'04'         FALSE SYNC??
*0048E8:I   233B      =0048FE:I     3998          BE    ERRX1               CAN'T DO ANY MORE TO CONTROLLER
0048EA:I    C3B0 0002               3999          THI   WORK1,X'02'         IDLE??
*0048EE:I   2236      =0048E2:I     4000          BZ    ERRX2               NO, WAIT
0048F0:I    73B1 4000 01F4:I        4001          LHL   WORK1,DISPTAB(R1)
0048F6:I    C8A0 00C0               4002          LHI   WORK,X'C0'
0048FA:I    9EBA                    4003          OCR   WORK1,WORK
0048FC:I    9E4A                    4004          OCR   R4,WORK             RESET CONTROLLER
0048FE:I    7300 9720 =006022:I     4005  ERRX1   LHL   R0,INDEX             RE-LOAD INDEX
004902:I    1001                    4006          SRLS  R0,1                ADJUST SELCH INDEX FOR MESSAGE
004904:I    7600 971C =006024:I     4007          RBT   R0,ACTIVE           RESET BIT IN ACTIVE WORD
004908:I    C600 0030               4008          OHI   R0,C'0'             ASCII INDEX NUMBER
00490C:I    D200 94DD =005DED:I     4009          STB   R0,INDEXNO          STORE INDEX
004910:I    E650 94BE =005DD2:I     4010          LA    R5,ERRMSG@          LOAD INDEXING MESSAGE ADR
004914:I    E1E0 97B8 =0060D0:I     4011          SVC   14,MESSAGE          PRINT INDEX
004918:I    731E 40FF FFFE          4012  ERR1@   LHL   R1,-2(R14)          LOAD ERROR CODE AND NUMBER
00491E:I    0801                    4013          LR    R0,R1               SAVE COPY
004920:I    C410 00FF               4014          NHI   R1,X'FF'            MASK OFF ERROR CODE
004924:I    1112                    4015          SLLS  R1,2                FORM FULLWORD INDEX
004926:I    5851 8562 =004E8C:I     4016          L     R5,MSGTABLE(R1)     LOAD MESSAGE ADR
00492A:I    E1E0 97A2 =0060D0:I     4017          SVC   14,MESSAGE          PRINT MESSAGE
00492E:I    1008                    4018          SRLS  R0,8                ISOLATE ERROR CODE
004930:I    4330 802C =004960:I     4019          BZ    PRTERR@             IF ERROR CODE = 00  GO TO PRTERR@
004934:I    C500 0001               4020          CLHI  R0,X'1'             IF ERROR CODE = 01  GO TO PRTDATA
004938:I    4330 8030 =00496C:I     4021          BE    PRTDATA             IF ERROR CODE = 02  GO TO PRTSTAT
00493C:I    C500 0003               4022          CLHI  R0,X'3'             IF ERROR CODE = 03  GO TO PRTDADRS
004940:I    4330 807C =0049C0:I     4023          BE    PRTDADRS
004944:I    C500 0004               4024          CLHI  R0,X'4'             IF ERROR CODE = 04  GO TO PRTSADRS
004948:I    4330 808C =0049D8:I     4025          BE    PRTSADRS
                                    4026  * PRINT STATUS TYPE ERROR
00494C:I    931C                    4027  PRTSTAT LBR   R1,STAT
00494E:I    2402                    4028          LIS   R0,2
004950:I    E620 956A =005EBE:I     4029          LA    R2,STATUS
004954:I    E1E0 97A0 =0060F8:I     4030          SVC   14,HEXASC
004958:I    E650 9558 =005EB4:I     4031          LA    R5,STATMSG
00495C:I    E1E0 9770 =0060D0:I     4032          SVC   14,MESSAGE
004960:I    2451                    4033  PRTERR@ LIS   R5,1
004962:I    5150 9946 =0062AC:I     4034          AM    R5,TOTERR
004966:I    D100 9E92 =0067FC:I     4035  INCERR@ LM    R0,RSAVE1
00496A:I    030E                    4036          BR    R14
                                    4037  * PRINT DATA TYPE ERROR
            0000 496C:I             4038  PRTDATA EQU   *
00496C:I    2404                    4039          LIS   R0,4                FOUR DIGITS
00496E:I    5810 9EB2 =006824:I     4040          L     R1,R10*ADC+RSAVE1   OUTPUT BUFFER DATA
004972:I    E620 9486 =005DFC:I     4041          LA    R2,BYTE1            DESTINATION ADDRESS
004976:I    E1E0 977E =0060F8:I     4042          SVC   14,HEXASC           CONVERT TO ASCII
00497A:I    2404                    4043          LIS   R0,4                FOUR DIGITS
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SUBROUTINES

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00497C:I  5810 9EA8 =006828:I   4044          L     R1,R11*ADC+RSAVE1   INPUT BUFFER DATA
004980:I  E620 94AD =005E31:I   4045          LA    R2,BYTE4            DESTINATION ADDRESS
004984:I  E1E0 9770 =0060F8:I   4046          SVC   14,HEXASC           CONVERT TO ASCII
004988:I  2406                  4047          LIS   R0,6                SIX DIGITS
00498A:I  0816                  4048          LR    R1,R6
00498C:I  E620 94E6 =005E76:I   4049          LA    R2,BYTE7            DESTINATION ADDRESS
004990:I  E1E0 9764 =0060F8:I   4050          SVC   14,HEXASC           CONVERT HEX TO ASCII
004994:I  2406                  4051          LIS   R0,6                SIX DIGITS
004996:I  5810 9E66 =006800:I   4052          L     R1,R1*ADC+RSAVE1    LOAD OUTBUF ADR OF DATA EXPECTED
00499A:I  0A16                  4053          AR    R1,R6               ADD OFFSET FOR ACTUAL ADR
00499C:I  E620 947D =005E1D:I   4054          LA    R2,ADROUT           DESTINATION ADDRESS
0049A0:I  E1E0 9754 =0060F8:I   4055          SVC   14,HEXASC           CONVERT HEX TO ASCII
0049A4:I  2406                  4056          LIS   R0,6                SIX DIGITS
0049A6:I  5810 9E76 =006820:I   4057          L     R1,R9*ADC+RSAVE1    LOAD INBUF ADR OF DATA READ
0049AA:I  0A16                  4058          AR    R1,R6               ADD OFFSET FOR ACTUAL ADR
0049AC:I  E620 94A2 =005E52:I   4059          LA    R2,ADRIN            DESTINATION ADDRESS
0049B0:I  E1E0 9744 =0060F8:I   4060          SVC   14,HEXASC           CONVERT HEX TO ASCII
0049B4:I  E650 943A =005DF2:I   4061          LA    R5,BYTEMSG          MESSAGE ADR
0049B8:I  E1E0 9714 =0060D0:I   4062          SVC   14,MESSAGE
0049BC:I  4300 FFA0 =004960:I   4063          B     PRTERR@
                                4064  * PRINT DEV ADDRESS
0049C0:I  0812                  4065  PRTDADRS LR     R1,R2               DATA TO CONVERT
0049C2:I  2403                  4066          LIS   R0,3                THREE DIGITS
0049C4:I  E620 9528 =005EF0:I   4067          LA    R2,DEVADRS          DESTINATION ADDRESS
0049C8:I  E1E0 972C =0060F8:I   4068          SVC   14,HEXASC           CONVERT TO ASCII
0049CC:I  E650 951E =005EEE:I   4069          LA    R5,INTMSG2          MESSAGE ADDRESS
0049D0:I  E1E0 96FC =0060D0:I   4070          SVC   14,MESSAGE
                                4071  *       LPSW  ENABLE2             !!!!!!!!!!!!!!!!!!!!
0049D4:I  4300 FF88 =004960:I   4072          B     PRTERR@
                                4073  * PRINT SELCH ADDRESSING ERROR
          0000 49D8:I           4074  PRTSADRS EQU  *
0049D8:I  2406                  4075          LIS   R0,6                SIX DIGITS
0049DA:I  5810 9E46 =006824:I   4076          L     R1,R10*ADC+RSAVE1   OUTPUT BUFFER DATA
0049DE:I  E620 94AF =005E91:I   4077          LA    R2,EXPBYTE          DESTINATION ADDRESS
0049E2:I  E1E0 9712 =0060F8:I   4078          SVC   14,HEXASC           CONVERT TO ASCII
0049E6:I  2406                  4079          LIS   R0,6                SIX DIGITS
0049E8:I  5810 9E3C =006828:I   4080          L     R1,R11*ADC+RSAVE1   INPUT BUFFER DATA
0049EC:I  E620 94B8 =005EA8:I   4081          LA    R2,READBYTE         DESTINATION ADDRESS
0049F0:I  E1E0 9704 =0060F8:I   4082          SVC   14,HEXASC           CONVERT TO ASCII
0049F4:I  E650 9487 =005E7F:I   4083          LA    R5,EXADRMSG         MESSAGE ADR
0049F8:I  E1E0 96D4 =0060D0:I   4084          SVC   14,MESSAGE
0049FC:I  4300 FF60 =004960:I   4085          B     PRTERR@
004A00:I  5880 9674 =006078:I   4086  DELAY    L     R8,DELAYVAL
004A04:I  2461                  4087  DELAY1   LIS   R6,1                SET UP BXLE REGISTERS
004A06:I  2471                  4088          LIS   R7,1
004A08:I  95EE                  4089          EPSR  R14,R14             GET CURRENT PSW
004A0A:I  C4E0 FBFF             4090          NHI   R14,X'FBFF'         CLEAR MAC BIT
004A0E:I  95CE                  4091          EPSR  R12,R14             TURN MAC OFF
004A10:I  73E0 4000 01BA:I      4092          LHL   R14,RELOC           GET OPTION
004A16:I  4330 8032 =004A4C:I   4093          BZ    DELAY2              NO RELOCATION
004A1A:I  73A0 4000 01BC:I      4094          LHL   R10,MACADR          GET ADDRESS
*004A20:I 2134       =004A28:I  4095          BNZ   MACI                MAC, NOT VIRTUAL
004A22:I  41E0 E0A4 =002ACA:I   4096  MATI     BAL   R14,SETPST          SETUP PST
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SUBROUTINES

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*004A26:I   230F       =004A44:I     4097               B     JUMP13IK          GO TURN RELOCATION ON
 004A28:I   F8E0 0FF0 0010           4098   MACI        LI    R14,Y'0FF00010'   LOAD MAC CONSTANT
 004A2E:I   50EA 0000                4099               ST    R14,0(R10)        STORE TO SEGMENTATION REG
 004A32:I   26A4                     4100               AIS   R10,4             BUMP TO NEXT REG
 004A34:I   24B4                     4101               LIS   R11,4             SET UP INCREMENT
 004A36:I   C8CA 003C                4102               LHI   R12,X'3C'(R10)    LOAD END POINTER
 004A3A:I   24E0                     4103               LIS   R14,0             LOAD MAC CONSTANT
 004A3C:I   50EA 0000                4104   JUMP13IL    ST    R14,0(R10)        STORE TO SEGMENTATION REG
 004A40:I   C1A0 FFF8 =004A3C:I      4105               BXLE  R10,JUMP13IL      LOOP
 004A44:I   95EE                     4106   JUMP13IK    EPSR  R14,R14           CAPTURE PSW
 004A46:I   C6E0 0400                4107               OHI   R14,X'400'        SET MAC BIT
 004A4A:I   95CE                     4108               EPSR  R12,R14           TURN MAC ON
                                     4109   *
 004A4C:I   5890 4000 01C0:I         4110   DELAY2      L     R9,STRBUF         LOAD STRBUF OPTION
 004A52:I   7300 4000 01B8:I         4111               LHL   R0,BKGRND         IS BKGRND OPTION = 0 ?
 004A58:I   4330 8020 =004A7C:I      4112               BZ    STORE9X
 004A5C:I   2701                     4113               SIS   R0,1              DECREMENT
 004A5E:I   4330 808E =004AF0:I      4114               BZ    FLTPT1            FLOATING POINT
 004A62:I   2701                     4115               SIS   R0,1              DECREMENT
 004A64:I   4330 80E8 =004B50:I      4116               BZ    STRMULT1
 004A68:I   2702                     4117               SIS   R0,2              DECREMENT TWICE
 004A6A:I   4330 812A =004B98:I      4118               BZ    USERDEFI          DO USER DEFINED AREA
 004A6E:I   C160 FFFC =004A6E:I      4119               BXLE  R6,*              NO BACKGROUND TESTING
 004A72:I   95EE                     4120   DELAY3      EPSR  R14,R14           CAPTURE CURRENT PSW
 004A74:I   C4E0 FBFF                4121               NHI   R14,X'FBFF'       CLEAR MAC BIT
 004A78:I   95CE                     4122               EPSR  R12,R14           TURN MAC OFF
 004A7A:I   030F                     4123               BR    R15               RETURN
            0000 4A7C:I              4124   STORE9X     EQU   *
 004A7C:I   24A4                     4125               LIS   R10,4
            0000 4A7E:I              4126   STORE9      EQU   *
 004A7E:I   5069 4A00 0000           4127               ST    R6,0(R9,R10)      RX3, STORE FULL WORD
 004A84:I   08B6                     4128               LR    R11,R6            SAVE R6
 004A86:I   F390 000F F000           4129               TI    R9,Y'FF000'       IS STRBUF IN LOW CORE ?
*004A8C:I   2337       =004A9A:I     4130               BZ    STORE9H           YES, SKIP COMPARE
 004A8E:I   5809 4A00 0000           4131               L     R0,0(R9,R10)      RX3, LOAD FULL WORD
 004A94:I   0560                     4132               CLR   R6,R0             IS DATA STORED = DATA READ
 004A96:I   4230 804A =004AE4:I      4133               BNE   ERRINT            ERROR
 004A9A:I   4069 4A00 0000           4134   STORE9H     STH   R6,0(R9,R10)      RX3, STORE HALFWORD
 004AA0:I   F460 0000 FFFF           4135               NI    R6,Y'FFFF'        MAKE HW
 004AA6:I   F390 000F F000           4136               TI    R9,Y'FF000'       IS STRBUF IN LOW CORE ?
*004AAC:I   233A       =004AC0:I     4137               BZ    STORE9B           YES, SKIP COMPARE
 004AAE:I   4809 4A00 0000           4138               LH    R0,0(R9,R10)      RX3, LOAD HALFWORD
 004AB4:I   F400 0000 FFFF           4139               NI    R0,Y'FFFF'        MAKE HW
 004ABA:I   0560                     4140               CLR   R6,R0             IS DATA STORED = DATA READ
 004ABC:I   4230 8024 =004AE4:I      4141               BNE   ERRINT            ERROR
 004AC0:I   D269 4A00 0000           4142   STORE9B     STB   R6,0(R9,R10)      RX3, STORE BYTE
 004AC6:I   C460 00FF                4143               NHI   R6,X'FF'          MAKE BYTE
 004ACA:I   F390 000F F000           4144               TI    R9,Y'FF000'       IS STRBUF IN LOW CORE ?
 004AD0:I   4330 8030 =004B04:I      4145               BZ    BXL1A             YES, SKIP COMPARE
 004AD4:I   D309 4A00 0000           4146               LB    R0,0(R9,R10)      RX3, LOAD BYTE
 004ADA:I   C400 00FF                4147               NHI   R0,X'FF'          MAKE BYTE
 004ADE:I   0560                     4148               CLR   R6,R0             IS DATA STORED = DATA READ
 004AE0:I   4330 8020 =004B04:I      4149               BE    BXL1A             YES CONTINUE
```

SUBROUTINES

```
004AE4:I  C200 95B0 =006098:I   4150 ERRINT  LPSW  STRERR@          NO, PRINT ERROR
004AE8:I  C160 FF92 =004A7E:I   4151 BXL1    BXLE  R6,STORE9         REPEAT UNTIL R6 > R8
004AEC:I  4300 FF82 =004A72:I   4152          B     DELAY3          TURN MAC OFF
          0000 4AF0:I           4153 FLTPT1  EQU   *
004AF0:I  6800 9588 =00607C:I   4154          LE    R0,FLTPVAL      SET UP FLOATING POINT REGS
004AF4:I  2820                  4155          LER   R2,R0
004AF6:I  2840                  4156          LER   R4,R0
004AF8:I  2A02                  4157          AER   R0,R2           ADD
004AFA:I  2B02                  4158          SER   R0,R2           SUBTRACT
004AFC:I  2904                  4159          CER   R0,R4           COMPARE
*004AFE:I 2335      =004B08:I   4160          BE    FLPT            NO ERROR CONTINUE
004B00:I  4300 8036 =004B3A:I   4161          B     ERFLT
004B04:I  086B                  4162 BXL1A   LR    R6,R11          RESTORE R6
*004B06:I 220F      =004AE8:I   4163          B     BXL1            CONTINUE
004B08:I  2FC6                  4164 FLPT    FLR   R12,R6          FLOAT COUNT
004B0A:I  28EC                  4165          LER   R14,R12         MOVE TO WORK REGISTER
004B0C:I  2AEC                  4166          AER   R14,R12         DOUBLE IT
004B0E:I  71C9 0000             4167          STME  R12,0(R9)       SAVE OPERAND/RESULT - "STRBUF" LOC.
004B12:I  6BE9 0000             4168          SE    R14,0(R9)       HALVE IT
004B16:I  C800 012F             4169          LHI   R0,X'012F'      SET ERROR 47
004B1A:I  29EC                  4170          CER   R14,R12         BACK WHERE STARTED ?
*004B1C:I 2332      =004B20:I   4171          BE    FLMULTI         YES,CONTINUE
*004B1E:I 230E      =004B3A:I   4172          B     ERFLT           NO  ERROR
004B20:I  6CE9 0000             4173 FLMULTI ME    R14,0(R9)       SQUARE IT
004B24:I  2DEC                  4174          DER   R14,R12         SQUARE ROOT IT
004B26:I  C800 0130             4175          LHI   R0,X'0130'      ERROR 48
004B2A:I  69E9 0000             4176          CE    R14,0(R9)       BACK WHERE STARTED ?
*004B2E:I 2136      =004B3A:I   4177          BNE   ERFLT           NO-ERROR
004B30:I  C800 0131             4178          LHI   R0,X'0131'      ERROR 49
004B34:I  2E1E                  4179          FXR   R1,R14          SET TO INTEGER
004B36:I  0516                  4180          CLR   R1,R6           COMPARE
*004B38:I 2338      =004B48:I   4181          BE    BXL2            OK CONTINUE TESTING
004B3A:I  4000 8004 =004B42:I   4182 ERFLT   STH   R0,ERNUM        WE HAVE AN ERROR
004B3E:I  C200 954E =006090:I   4183          LPSW  FLTERR@         TELL USER
                                4184 *                              GOES TO ERROR36                ***
004B42:I  0100                  4185 ERNUM   DCX   0100             ERROR 35,47,48,49
004B44:I  C200 9548 =006090:I   4186          LPSW  FLTERR@         PRINT ERROR IF FLPT R0 NOT = FLPT
004B48:I  C160 FFA4 =004AF0:I   4187 BXL2    BXLE  R6,FLTPT1       REPEAT UNTIL R6 > R8
004B4C:I  4300 FF22 =004A72:I   4188          B     DELAY3          TURN MAC OFF
004B50:I  D009 0000             4189 STRMULT1 STM   R0,0(R9)
004B54:I  C160 FFF8 =004B50:I   4190          BXLE  R6,STRMULT1
004B58:I  4300 FF16 =004A72:I   4191          B     DELAY3          TURN MAC OFF
                                4192 *
004B5C:I  95DD                  4193 ERRN    EPSR  R13,R13
004B5E:I  F4D0 0000 BBFF        4194          NI    R13,Y'BBFF'     KILL MAC AND EXT INTS
004B64:I  950D                  4195          EPSR  R0,R13
004B66:I  730E 0000             4196          LHL   R0,0(R14)
004B6A:I  4000 8006 =004B74:I   4197          STH   R0,ARG2         SAVE FOR ERROR RTN
*004B6E:I 2338      =004B7E:I   4198          BZ    ENDCHECK
004B70:I  41E0 FCC6 =00483A:I   4199          BAL   R14,DOERROR
004B74:I  0000                  4200 ARG2    DC    X'0000'
*004B76:I C6D0 4000             4201          OI    R13,Y'00004000' RE-ENABLE INTS               ****
004B7A:I  950D                  4202          EPSR  R0,R13          SWAP AND ALLOW INT             ****
```

SUBROUTINES

```
004B7C:I   030F                   4203          BR    R15           RETURN                  ****
004B7E:I   48E0 949E =006020:I    4204 ENDCHECK LH    R14,INTFLG
004B82:I   4330 DCDA =002860:I    4205          BZ    INTRTN        RETURN
004B86:I   58F0 94A2 =00602C:I    4206          L     R15,RTNSAV
004B8A:I   2491                   4207          LIS   R9,1          RETURN CODE 1 *****
004B8C:I   0B67                   4208          SR    R6,R7
004B8E:I   0968                   4209          CR    R6,R8
004B90:I   4330 DCCE =002862:I    4210          BE    CHKRETRN      RETURN
004B94:I   4300 DCC8 =002860:I    4211          B     INTRTN
                                  4212 *
           0000 4B98:I            4213 USERDEFI EQU   *             USED WITH INTERRUPTS ENABLED ONLY
004B98:I                          4214          DO    128
004B98:I   0200                   4215          DC    X'200'        NOP
004B9A:I   0200                   4215          DC    X'200'        NOP
004B9C:I   0200                   4215          DC    X'200'        NOP
004B9E:I   0200                   4215          DC    X'200'        NOP
004BA0:I   0200                   4215          DC    X'200'        NOP
004BA2:I   0200                   4215          DC    X'200'        NOP
004BA4:I   0200                   4215          DC    X'200'        NOP
004BA6:I   0200                   4215          DC    X'200'        NOP
004BA8:I   0200                   4215          DC    X'200'        NOP
004BAA:I   0200                   4215          DC    X'200'        NOP
004BAC:I   0200                   4215          DC    X'200'        NOP
004BAE:I   0200                   4215          DC    X'200'        NOP
004BB0:I   0200                   4215          DC    X'200'        NOP
004BB2:I   0200                   4215          DC    X'200'        NOP
004BB4:I   0200                   4215          DC    X'200'        NOP
004BB6:I   0200                   4215          DC    X'200'        NOP
004BB8:I   0200                   4215          DC    X'200'        NOP
004BBA:I   0200                   4215          DC    X'200'        NOP
004BBC:I   0200                   4215          DC    X'200'        NOP
004BBE:I   0200                   4215          DC    X'200'        NOP
004BC0:I   0200                   4215          DC    X'200'        NOP
004BC2:I   0200                   4215          DC    X'200'        NOP
004BC4:I   0200                   4215          DC    X'200'        NOP
004BC6:I   0200                   4215          DC    X'200'        NOP
004BC8:I   0200                   4215          DC    X'200'        NOP
004BCA:I   0200                   4215          DC    X'200'        NOP
004BCC:I   0200                   4215          DC    X'200'        NOP
004BCE:I   0200                   4215          DC    X'200'        NOP
004BD0:I   0200                   4215          DC    X'200'        NOP
004BD2:I   0200                   4215          DC    X'200'        NOP
004BD4:I   0200                   4215          DC    X'200'        NOP
004BD6:I   0200                   4215          DC    X'200'        NOP
004BD8:I   0200                   4215          DC    X'200'        NOP
004BDA:I   0200                   4215          DC    X'200'        NOP
004BDC:I   0200                   4215          DC    X'200'        NOP
004BDE:I   0200                   4215          DC    X'200'        NOP
004BE0:I   0200                   4215          DC    X'200'        NOP
004BE2:I   0200                   4215          DC    X'200'        NOP
004BE4:I   0200                   4215          DC    X'200'        NOP
004BE6:I   0200                   4215          DC    X'200'        NOP
004BE8:I   0200                   4215          DC    X'200'        NOP
```

SUBROUTINES

```
004BEA:I  0200  4215  DC  X'200'  NOP
004BEC:I  0200  4215  DC  X'200'  NOP
004BEE:I  0200  4215  DC  X'200'  NOP
004BF0:I  0200  4215  DC  X'200'  NOP
004BF2:I  0200  4215  DC  X'200'  NOP
004BF4:I  0200  4215  DC  X'200'  NOP
004BF6:I  0200  4215  DC  X'200'  NOP
004BF8:I  0200  4215  DC  X'200'  NOP
004BFA:I  0200  4215  DC  X'200'  NOP
004BFC:I  0200  4215  DC  X'200'  NOP
004BFE:I  0200  4215  DC  X'200'  NOP
004C00:I  0200  4215  DC  X'200'  NOP
004C02:I  0200  4215  DC  X'200'  NOP
004C04:I  0200  4215  DC  X'200'  NOP
004C06:I  0200  4215  DC  X'200'  NOP
004C08:I  0200  4215  DC  X'200'  NOP
004C0A:I  0200  4215  DC  X'200'  NOP
004C0C:I  0200  4215  DC  X'200'  NOP
004C0E:I  0200  4215  DC  X'200'  NOP
004C10:I  0200  4215  DC  X'200'  NOP
004C12:I  0200  4215  DC  X'200'  NOP
004C14:I  0200  4215  DC  X'200'  NOP
004C16:I  0200  4215  DC  X'200'  NOP
004C18:I  0200  4215  DC  X'200'  NOP
004C1A:I  0200  4215  DC  X'200'  NOP
004C1C:I  0200  4215  DC  X'200'  NOP
004C1E:I  0200  4215  DC  X'200'  NOP
004C20:I  0200  4215  DC  X'200'  NOP
004C22:I  0200  4215  DC  X'200'  NOP
004C24:I  0200  4215  DC  X'200'  NOP
004C26:I  0200  4215  DC  X'200'  NOP
004C28:I  0200  4215  DC  X'200'  NOP
004C2A:I  0200  4215  DC  X'200'  NOP
004C2C:I  0200  4215  DC  X'200'  NOP
004C2E:I  0200  4215  DC  X'200'  NOP
004C30:I  0200  4215  DC  X'200'  NOP
004C32:I  0200  4215  DC  X'200'  NOP
004C34:I  0200  4215  DC  X'200'  NOP
004C36:I  0200  4215  DC  X'200'  NOP
004C38:I  0200  4215  DC  X'200'  NOP
004C3A:I  0200  4215  DC  X'200'  NOP
004C3C:I  0200  4215  DC  X'200'  NOP
004C3E:I  0200  4215  DC  X'200'  NOP
004C40:I  0200  4215  DC  X'200'  NOP
004C42:I  0200  4215  DC  X'200'  NOP
004C44:I  0200  4215  DC  X'200'  NOP
004C46:I  0200  4215  DC  X'200'  NOP
004C48:I  0200  4215  DC  X'200'  NOP
004C4A:I  0200  4215  DC  X'200'  NOP
004C4C:I  0200  4215  DC  X'200'  NOP
004C4E:I  0200  4215  DC  X'200'  NOP
004C50:I  0200  4215  DC  X'200'  NOP
004C52:I  0200  4215  DC  X'200'  NOP
```

SUBROUTINES

```
004C54:I  0200                    4215          DC    X'200'            NOP
004C56:I  0200                    4215          DC    X'200'            NOP
004C58:I  0200                    4215          DC    X'200'            NOP
004C5A:I  0200                    4215          DC    X'200'            NOP
004C5C:I  0200                    4215          DC    X'200'            NOP
004C5E:I  0200                    4215          DC    X'200'            NOP
004C60:I  0200                    4215          DC    X'200'            NOP
004C62:I  0200                    4215          DC    X'200'            NOP
004C64:I  0200                    4215          DC    X'200'            NOP
004C66:I  0200                    4215          DC    X'200'            NOP
004C68:I  0200                    4215          DC    X'200'            NOP
004C6A:I  0200                    4215          DC    X'200'            NOP
004C6C:I  0200                    4215          DC    X'200'            NOP
004C6E:I  0200                    4215          DC    X'200'            NOP
004C70:I  0200                    4215          DC    X'200'            NOP
004C72:I  0200                    4215          DC    X'200'            NOP
004C74:I  0200                    4215          DC    X'200'            NOP
004C76:I  0200                    4215          DC    X'200'            NOP
004C78:I  0200                    4215          DC    X'200'            NOP
004C7A:I  0200                    4215          DC    X'200'            NOP
004C7C:I  0200                    4215          DC    X'200'            NOP
004C7E:I  0200                    4215          DC    X'200'            NOP
004C80:I  0200                    4215          DC    X'200'            NOP
004C82:I  0200                    4215          DC    X'200'            NOP
004C84:I  0200                    4215          DC    X'200'            NOP
004C86:I  0200                    4215          DC    X'200'            NOP
004C88:I  0200                    4215          DC    X'200'            NOP
004C8A:I  0200                    4215          DC    X'200'            NOP
004C8C:I  0200                    4215          DC    X'200'            NOP
004C8E:I  0200                    4215          DC    X'200'            NOP
004C90:I  0200                    4215          DC    X'200'            NOP
004C92:I  0200                    4215          DC    X'200'            NOP
004C94:I  0200                    4215          DC    X'200'            NOP
004C96:I  0200                    4215          DC    X'200'            NOP
004C98:I  C160 FEFC =004B98:I     4216          BXLE  R6,USERDEFI       LOOP
004C9C:I  4300 FDD2 =004A72:I     4217          B     DELAY3            TURN MAC OFF
```

```
                                  4219  *   D I S P L A Y   S U B R O U T I N E S
                                  4220  *
                                  4221  * OUTPUT CONTENTS OF R7, R4 TO HEX DISPLAY PANEL OR TO
                                  4222  * LIST DEVICE IF THERE IS NO DISPLAY PANEL.
                                  4223  *
                                  4224  * ACTIVDIS  -  DISPLAY R7 COUNT FOR ACTIVITY INDICATOR
                                  4225  * DISPBUFS  -  DISPLAY OUTBUF (R7) AND INBUF (R4)
                                  4226  * DISPLAYA  -  DISPLAY SELCH ADDRESS INFO
                                  4227  * REGISTERS USED: R0,R1,R2,R4,R7,R12,R13,R14
                                  4228  *
004CA0:I  4800 80C0 =004D64:I     4229  ACTIVDIS LH    R0,DISPFLAG        GET DISPLAY FLAG
*004CA4:I 2333      =004CAA:I     4230           BZ    DISPLAYE           NO DISPLAY, USE LIST DEV
004CA6:I  4110 8094 =004D3E:I     4231           BAL   R1,WRITEDSP        HEX DISPLAY PANEL IF NOT ZERO
004CAA:I  2408                    4232  DISPLAYE LIS   R0,8               LOAD DIGITS
```

SUBROUTINES

```
 004CAC:I     0817                          4233           LR    R1,R7              LOAD COUNT
 004CAE:I     E620 9337 =005FE9:I           4234           LA    R2,CRTCOUNT        LOAD MSG ADR DEST
 004CB2:I     E1E0 9442 =0060F8:I           4235           SVC   14,HEXASC          CONVERT
 004CB6:I     E6D0 932C =005FE6:I           4236           LA    R13,CRTACTIV       LOAD ACTIVE COUNT MSG ADR
 004CBA:I     E1E0 951A =0061D8:I           4237           SVC   14,MESSAGEX        OUTPUT TO LIST DEV
 004CBE:I     030E                          4238           BR    R14                RETURN
                                            4239  *
 004CC0:I     4810 935E =006022:I           4240  DISPBUFS LH    R1,INDEX           GET CURRENT INDEX
 004CC4:I     1111                          4241           SLLS  R1,1               MAKE FW INDEX
 004CC6:I     5871 4000 039C:I              4242           L     R7,OUTBTAB(R1)     LOAD OUTBUF ADR
 004CCA:I     5841 4000 03BC:I              4243           L     R4,INBTAB(R1)      LOAD INBUF ADR
 004CD2:I     4800 808E =004D64:I           4244  DISPLAY  LH    R0,DISPFLAG        GET DISPLAY FLAG
*004CD6:I     2333      =004CDC:I           4245           BZ    DISPLAYC           NO DISPLAY, USE LIST DEV
 004CD8:I     4110 8062 =004D3E:I           4246           BAL   R1,WRITEDSP        HEX DISPLAY PANEL IF NOT ZERO
 004CDC:I     2406                          4247  DISPLAYC LIS   R0,6               ELSE, USE LIST DEVICE
 004CDE:I     0817                          4248           LR    R1,R7              R0 = NUMBER OF DIGITS
                                            4249  *                                R1 = DATA TO CONVERT
 004CE0:I     E620 92B4 =005F98:I           4250           LA    R2,CRTMSG1         R2 = DESTINATION ADDRESS
 004CE4:I     E1E0 9410 =0060F8:I           4251           SVC   14,HEXASC          CONVERT TO ASCII
 004CE8:I     0814                          4252           LR    R1,R4              R0 = NUMBER OF DIGITS
                                            4253  *                                R1 = DATA TO CONVERT
 004CEA:I     E620 92B9 =005FA7:I           4254           LA    R2,CRTMSG2         R2 = DESTINATION ADDRESS
 004CEE:I     E1E0 9406 =0060F8:I           4255           SVC   14,HEXASC          CONVERT TO ASCII
 004CF2:I     E6D0 9298 =005F8E:I           4256           LA    R13,CRTMSG         MESSAGE ADDRESS
 004CF6:I     E1E0 94DE =0061D8:I           4257           SVC   14,MESSAGEX        OUTPUT TO LIST DEVICE
*004CFA:I     24DD                          4258           LHI   R13,X'000D'
 004CFC:I     D2D0 92AD =005FAD:I           4259           STB   R13,INDEXM         MARK END OF MESSAGE
 004D00:I     94DD                          4260           EXBR  R13,R13            FOR NEXT TIME
 004D02:I     D2D0 92A8 =005FAE:I           4261           STB   R13,INDEXM+1
 004D06:I     030E                          4262           BR    R14                RETURN TO CALL
 004D08:I     4800 8058 =004D64:I           4263  DISPLAYA LH    R0,DISPFLAG        GET DISPLAY FLAG
*004D0C:I     2333      =004D12:I           4264           BZ    DISPLAYD           NO DISPLAY, USE LIST DEV
 004D0E:I     4110 802C =004D3E:I           4265           BAL   R1,WRITEDSP        HEX DISPLAY PANEL IF NOT ZERO
 004D12:I     2406                          4266  DISPLAYD LIS   R0,6               ELSE, USE LIST DEVICE
 004D14:I     0817                          4267           LR    R1,R7              R0 = NUMBER OF DIGITS
                                            4268  *                                R1 = DATA TO CONVERT
 004D16:I     E620 92A9 =005FC3:I           4269           LA    R2,CRTMSG3         R2 = DESTINATION ADDRESS
 004D1A:I     E1E0 93DA =0060F8:I           4270           SVC   14,HEXASC          CONVERT TO ASCII
 004D1E:I     0814                          4271           LR    R1,R4              R0 = NUMBER OF DIGITS
                                            4272  *                                R1 = DATA TO CONVERT
 004D20:I     E620 92B1 =005FD5:I           4273           LA    R2,CRTMSG4         R2 = DESTINATION ADDRESS
 004D24:I     E1E0 93D0 =0060F8:I           4274           SVC   14,HEXASC          CONVERT TO ASCII
 004D28:I     E6D0 928C =005FB8:I           4275           LA    R13,CRTMSGA        MESSAGE ADDRESS
 004D2C:I     E1E0 94A8 =0061D8:I           4276           SVC   14,MESSAGEX        OUTPUT TO LIST DEVICE
*004D30:I     24DD                          4277           LHI   R13,X'000D'
 004D32:I     D2D0 92A5 =005FDB:I           4278           STB   R13,INDEXN         MARK END OF MESSAGE
 004D36:I     94DD                          4279           EXBR  R13,R13            FOR NEXT TIME
 004D38:I     D2D0 92A0 =005FDC:I           4280           STB   R13,INDEXN+1
 004D3C:I     030E                          4281           BR    R14                RETURN TO CALL
 004D3E:I     48D0 8022 =004D64:I           4282  WRITEDSP LH    R13,DISPFLAG       = 1 IF DISPLAY PRESENT
 004D42:I     DED0 8020 =004D66:I           4283           OC    R13,INCRMT         INCREMENTAL MODE
*004D46:I     214B      =004D5C:I           4284           BO    NODISPLA           NO DISPLAY IF FALSE SYNC
 004D48:I     94C7                          4285           EXBR  R12,R7             WRITE VALUE ON DISPLAY PANEL
```

SUBROUTINES

```
004D4A:I  98DC                    4286           WHR   R13,R12
004D4C:I  34C7                    4287           EXHR  R12,R7
004D4E:I  94CC                    4288           EXBR  R12,R12
004D50:I  98DC                    4289           WHR   R13,R12
004D52:I  DAD0 953F =006295:I     4290           WD    R13,SUBTST
004D56:I  DED0 800D =004D67:I     4291           OC    R13,NORM
004D5A:I  030E                    4292           BR    R14                 RETURN
004D5C:I  24D0                    4293  NODISPLA LIS   R13,0               KILL DISPLAY FLAG
004D5E:I  40D0 8002 =004D64:I     4294           STH   R13,DISPFLAG
004D62:I  0301                    4295           BR    R1                  RETURN TO LIST DEV ROUTINE
                                  4296  *
004D64:I  0001                    4297  DISPFLAG DCX   1                   *
004D66:I  40                      4298  INCRMT   DB    X'40'               *                              ***
004D67:I  80                      4299  NORM     DB    X'80'               *                              ***
          0000 6295:I             4300  SUBTST   EQU   BTESTNO+1          *                              ***
004D68:I                          4301           DB    *
004D68:I  41E0 FACE =00483A:I     4302  ERROR10  BAL   R14,DOERROR         PRINT ERROR
004D6C:I  020A                    4303           DC    X'020A'             ERROR 10
004D6E:I  4300 8070 =004DE2:I     4304           B     TSTERTN             GO TO TEST ERROR RETURN
004D72:I  41E0 FAC4 =00483A:I     4305  ERROR26  BAL   R14,DOERROR         PRINT ERROR
004D76:I  021A                    4306           DC    X'021A'             ERROR 26
004D78:I  4300 8066 =004DE2:I     4307           B     TSTERTN             GO TO TEST ERROR RETURN
004D7C:I  41E0 FABA =00483A:I     4308  ERROR11  BAL   R14,DOERROR         PRINT ERROR
004D80:I  020B                    4309           DC    X'020B'             ERROR 11
004D82:I  4300 805C =004DE2:I     4310           B     TSTERTN             GO TO TEST ERROR RETURN
004D86:I  41E0 FAB0 =00483A:I     4311  ERROR12  BAL   R14,DOERROR         PRINT ERROR
004D8A:I  020C                    4312           DC    X'020C'             ERROR 12
004D8C:I  4300 8052 =004DE2:I     4313           B     TSTERTN             GO TO TEST ERROR RETURN
004D90:I  41E0 FAA6 =00483A:I     4314  ERROR13  BAL   R14,DOERROR         PRINT ERROR
004D94:I  020D                    4315           DC    X'020D'             ERROR 13
004D96:I  4300 8048 =004DE2:I     4316           B     TSTERTN             GO TO TEST ERROR RETURN
004D9A:I  41E0 FA9C =00483A:I     4317  ERROR14  BAL   R14,DOERROR         PRINT ERROR
004D9E:I  020E                    4318           DC    X'020E'             ERROR 14
004DA0:I  4300 803E =004DE2:I     4319           B     TSTERTN             GO TO TEST ERROR RETURN
004DA4:I  41E0 FA92 =00483A:I     4320  ERROR30  BAL   R14,DOERROR         PRINT ERROR
004DA8:I  001E                    4321           DC    X'001E'             ERROR 30
004DAA:I  4300 8034 =004DE2:I     4322           B     TSTERTN             GO TO TEST ERROR RETURN
004DAE:I  08A6                    4323  ERROR35  LR    R10,R6              ADJUST REGISTERS FOR MESSAGE
004DB0:I  08B0                    4324           LR    R11,R0
004DB2:I  41E0 FA84 =00483A:I     4325           BAL   R14,DOERROR         PRINT ERROR
004DB6:I  0123                    4326           DC    X'0123'             ERROR 35
004DB8:I  58F0 9270 =00602C:I     4327           L     R15,RTNSAV
004DBC:I  2491                    4328           LIS   R9,1                RETURN CODE 1
004DBE:I  4300 DAA0 =002862:I     4329           B     CHKRETRN
004DC2:I  41E0 FA74 =00483A:I     4330  ERROR36  BAL   R14,DOERROR         PRINT ERROR
004DC6:I  0024                    4331           DC    X'0024'             ERROR 36
004DC8:I  58F0 9260 =00602C:I     4332           L     R15,RTNSAV
*004DCC:I 2491                    4333           LHI   R9,1                RETURN CODE 1
004DCE:I  4300 DA90 =002862:I     4334           B     CHKRETRN            RETURN
004DD2:I  0867                    4335  ERROR37  LR    R6,R7               COPY BUFFER INDEX
004DD4:I  73BB 4700 0000          4336           LHL   WORK1,0(WORK1,R7)   ADJUST REGISTER FOR MESSAGE
004DDA:I  41E0 FA5C =00483A:I     4337           BAL   R14,DOERROR         PRINT ERROR
004DDE:I  0125                    4338           DC    X'0125'             ERROR 37
```

```
 004DE0:I      030F                       4339            BR     R15                  RETURN TO TEST
                                          4340   *
                                          4341   *
               0000 4DE2:I                4342   TSTERTN  EQU    *                    TEST ERROR RETURN ROUTINE (NEXT INDEX)
 004DE2:I      58F0 924A =006030:I        4343            L      R15,TSTERTNA         LOAD SAVED ERROR RETURN ADDRESS
 004DE6:I      030F                       4344            BR     R15                  RETURN TO GO ON TO NEXT SELCH
                                          4345   *
                                          4346   *
                                          4347   * SUBROUTINES
 004DE8:I      2460                       4348   SEL0INT  LIS    R6,0
*004DEA:I      230E      =004E06:I        4349            B      INTSEL
 004DEC:I      2461                       4350   SEL1INT  LIS    R6,1
*004DEE:I      230C      =004E06:I        4351            B      INTSEL
 004DF0:I      2462                       4352   SEL2INT  LIS    R6,2
*004DF2:I      230A      =004E06:I        4353            B      INTSEL
 004DF4:I      2463                       4354   SEL3INT  LIS    R6,3
*004DF6:I      2308      =004E06:I        4355            B      INTSEL
 004DF8:I      2464                       4356   SEL4INT  LIS    R6,4
*004DFA:I      2306      =004E06:I        4357            B      INTSEL
 004DFC:I      2465                       4358   SEL5INT  LIS    R6,5
*004DFE:I      2304      =004E06:I        4359            B      INTSEL
 004E00:I      2466                       4360   SEL6INT  LIS    R6,6
*004E02:I      2302      =004E06:I        4361            B      INTSEL
 004E04:I      2467                       4362   SEL7INT  LIS    R6,7                 *
 004E06:I      7560 926A =006074:I        4363   INTSEL   SBT    R6,SELBYTE           SET BIT IN TABLE
 004E0A:I      1161                       4364            SLLS   R6,1
 004E0C:I      4026 4000 035C:I           4365            STH    R2,INTLIST(R6)       STORE INTERRUPTING SELCH ADRS
 004E12:I      4036 4000 036C:I           4366            STH    R3,STATLST(R6)       STORE DEVICE STATUS
 004E18:I      7356 4000 01E4:I           4367            LHL    R5,DEVTABLE(R6)      TESTER??
 004E1E:I      C350 000F                  4368            THI    R5,X'F'              FOR 0 OR 10
 004E22:I      2135      =004E2C:I        4369            BNZS   INTSELA              NO
 004E24:I      1061                       4370            SRLS   R6,1                 MAKE BYTE
 004E26:I      7560 924C =006076:I        4371            SBT    R6,DEVBYTE           FORCE INTERRUPT STATUS BIT
 004E2A:I      1161                       4372            SLLS   R6,1                 MAKE HW
 004E2C:I      D370 9244 =006074:I        4373   INTSELA  LB     R7,SELBYTE           GET EXP SELCH LIST
 004E30:I      D380 91F0 =006024:I        4374            LB     R8,ACTIVE            GET SELCH LIST
 004E34:I      0778                       4375            XR     R7,R8                DONE??
 004E36:I      4330 8032 =004E6C:I        4376            BZ     T7EXIT               YES
 004E3A:I      1800                       4377            LPSWR  R0                   LOAD OLD PSW
 004E3C:I      2460                       4378   DEV0INT  LIS    R6,0
*004E3E:I      230E      =004E5A:I        4379            B      INTDEV@
 004E40:I      2461                       4380   DEV1INT  LIS    R6,1
*004E42:I      230C      =004E5A:I        4381            B      INTDEV@
 004E44:I      2462                       4382   DEV2INT  LIS    R6,2
*004E46:I      230A      =004E5A:I        4383            B      INTDEV@
 004E48:I      2463                       4384   DEV3INT  LIS    R6,3
*004E4A:I      2308      =004E5A:I        4385            B      INTDEV@
 004E4C:I      2464                       4386   DEV4INT  LIS    R6,4
*004E4E:I      2306      =004E5A:I        4387            B      INTDEV@
 004E50:I      2465                       4388   DEV5INT  LIS    R6,5
*004E52:I      2304      =004E5A:I        4389            B      INTDEV@
 004E54:I      2466                       4390   DEV6INT  LIS    R6,6
*004E56:I      2302      =004E5A:I        4391            B      INTDEV@
```

SUBROUTINES

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004E58:I  2467                    4392  DEV7INT  LIS   R6,7
004E5A:I  7560 9218 =006076:I     4393  INTDEV@  SBT   R6,DEVBYTE          SET BIT IN TABLE
004E5E:I  1161                    4394           SLLS  R6,1
004E60:I  4026 4000 037C:I        4395           STH   R2,DEVLIST(R6)       STORE INTERRUPTING DEVICE ADRS
004E66:I  4036 4000 038C:I        4396           STH   R3,DEVSTAT(R6)       STORE INTERRUPTING DEVICE STATUS
004E6C:I  D370 9206 =006076:I     4397  T7EXIT   LB    R7,DEVBYTE          GET EXP DEVICE LIST
004E70:I  D380 91B0 =006024:I     4398           LB    R8,ACTIVE           GET DEVICE LIST
004E74:I  0778                    4399           XR    R7,R8               DONE??
*004E76:I 2332       =004E7A:I    4400           BZ    T7AEXIT             YES
004E78:I  1800                    4401           LPSWR R0                  LOAD OLD PSW                    *****
004E7A:I  C800 20F0               4402  T7AEXIT  LHI   R0,X'20F0'          SWITCH TO USER'S SET,
004E7E:I  9510                    4403           EPSR  R1,R0               WITH ONLY MMF ENABLED
004E80:I  2490                    4404           LIS   R9,0                RETURN CODE 0
004E82:I  58F0 91A6 =00602C:I     4405           L     R15,RTNSAV          RESTORE RETURN ADDRESS          ***
004E86:I  4300 D9D8 =002862:I     4406           B     CHKRETRN            RETURN TO CALLER                ***
                                  4407  *
004E8C:I                          4408           ALIGN ADC
          0000 4E8C:I             4409  MSGTABLE EQU   *
004E8C:I  0000 513F:I             4410  AMSG0    DAC   EMSG0              PROBLEM - NO ERROR 0
004E90:I  0000 5188:I             4411  AMSG1    DAC   EMSG1              ERROR 1 MESSAGE ADR
004E94:I  0000 51CC:I             4412  AMSG2    DAC   EMSG2              ERROR 2 MESSAGE ADR
004E98:I  0000 5210:I             4413  AMSG3    DAC   EMSG3              ERROR 3 MESSAGE ADR
004E9C:I  0000 524D:I             4414  AMSG4    DAC   EMSG4              ERROR 4 MESSAGE ADR
004EA0:I  0000 528A:I             4415  AMSG5    DAC   EMSG5              ERROR 5 MESSAGE ADR
004EA4:I  0000 52DA:I             4416  AMSG6    DAC   EMSG6              ERROR 6 MESSAGE ADR
004EA8:I  0000 5324:I             4417  AMSG7    DAC   EMSG7              ERROR 7 MESSAGE ADR
004EAC:I  0000 536F:I             4418  AMSG8    DAC   EMSG8              ERROR 8 MESSAGE ADR
004EB0:I  0000 53C7:I             4419  AMSG9    DAC   EMSG9              ERROR 9 MESSAGE ADR
004EB4:I  0000 5421:I             4420  AMSG10   DAC   EMSG10             ERROR 10 MESSAGE ADR
004EB8:I  0000 5445:I             4421  AMSG11   DAC   EMSG11             ERROR 11 MESSAGE ADR
004EBC:I  0000 546C:I             4422  AMSG12   DAC   EMSG12             ERROR 12 MESSAGE ADR
004EC0:I  0000 5492:I             4423  AMSG13   DAC   EMSG13             ERROR 13 MESSAGE ADR
004EC4:I  0000 54D4:I             4424  AMSG14   DAC   EMSG14             ERROR 14 MESSAGE ADR
004EC8:I  0000 54F8:I             4425  AMSG15   DAC   EMSG15             ERROR 15 MESSAGE ADR
004ECC:I  0000 5528:I             4426  AMSG16   DAC   EMSG16             ERROR 16 MESSAGE ADR
004ED0:I  0000 555B:I             4427  AMSG17   DAC   EMSG17             ERROR 17 MESSAGE ADR
004ED4:I  0000 55AC:I             4428  AMSG18   DAC   EMSG18             ERROR 18 MESSAGE ADR
004ED8:I  0000 55FC:I             4429  AMSG19   DAC   EMSG19             ERROR 19 MESSAGE ADR
004EDC:I  0000 5645:I             4430  AMSG20   DAC   EMSG20             ERROR 20 MESSAGE ADR
004EE0:I  0000 566C:I             4431  AMSG21   DAC   EMSG21             ERROR 21 MESSAGE ADR
004EE4:I  0000 56A3:I             4432  AMSG22   DAC   EMSG22             ERROR 22 MESSAGE ADR
004EE8:I  0000 56C7:I             4433  AMSG23   DAC   EMSG23             ERROR 23 MESSAGE ADR
004EEC:I  0000 56F7:I             4434  AMSG24   DAC   EMSG24             ERROR 24 MESSAGE ADR
004EF0:I  0000 5720:I             4435  AMSG25   DAC   EMSG25             ERROR 25 MESSAGE ADR
004EF4:I  0000 576B:I             4436  AMSG26   DAC   EMSG26             ERROR 26 MESSAGE ADR
004EF8:I  0000 579C:I             4437  AMSG27   DAC   EMSG27             ERROR 27 MESSAGE ADR
004EFC:I  0000 57D0:I             4438  AMSG28   DAC   EMSG28             ERROR 28 MESSAGE ADR
004F00:I  0000 5855:I             4439  AMSG29   DAC   EMSG29             ERROR 29 MESSAGE ADR
004F04:I  0000 58D1:I             4440  AMSG30   DAC   EMSG30             ERROR 30 MESSAGE ADR
004F08:I  0000 58F8:I             4441  AMSG31   DAC   EMSG31             ERROR 31 MESSAGE ADR
004F0C:I  0000 596E:I             4442  AMSG32   DAC   EMSG32             ERROR 32 MESSAGE ADR
004F10:I  0000 59B0:I             4443  AMSG33   DAC   EMSG33             ERROR 33 MESSAGE ADR
004F14:I  0000 5A25:I             4444  AMSG34   DAC   EMSG34             ERROR 34 MESSAGE ADR
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SUBROUTINES

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004F18:I     0000 5A48:I              4445  AMSG35   DAC   EMSG35              ERROR 35 MESSAGE ADR
004F1C:I     0000 5A8F:I              4446  AMSG36   DAC   EMSG36              ERROR 36 MESSAGE ADR
004F20:I     0000 5ACD:I              4447  AMSG37   DAC   EMSG37              ERROR 37 MESSAGE ADR
004F24:I     0000 5B14:I              4448  AMSG38   DAC   EMSG38              ERROR 38 MESSAGE ADR
004F28:I     0000 5B61:I              4449  AMSG39   DAC   EMSG39              ERROR 39 MESSAGE ADR
004F2C:I     0000 5B8D:I              4450  AMSG40   DAC   EMSG40              ERROR 40 MESSAGE ADR
004F30:I     0000 5BCD:I              4451  AMSG41   DAC   EMSG41              ERROR 41 MESSAGE ADR
004F34:I     0000 5BF3:I              4452  AMSG42   DAC   EMSG42              ERROR 42 MESSAGE ADR
004F38:I     0000 5C3D:I              4453  AMSG43   DAC   EMSG43              ERROR 43 MESSAGE ADR
004F3C:I     0000 5C86:I              4454  AMSG44   DAC   EMSG44              ERROR 44 MESSAGE ADR
004F40:I     0000 5CAD:I              4455  AMSG45   DAC   EMSG45              ERROR 45 MESSAGE ADR
004F44:I     0000 5CD7:I              4456  AMSG46   DAC   EMSG46              ERROR 46 MESSAGE ADR
004F48:I     0000 5CFE:I              4457  AMSG47   DAC   EMSG47              ERROR 47 MESSAGE ADR
004F4C:I     0000 5D1A:I              4458  AMSG48   DAC   EMSG48              ERROR 48 MESSAGE ADR
004F50:I     0000 5D3E:I              4459  AMSG49   DAC   EMSG49              ERROR 49 MESSAGE ADR
004F54:I     0000 5D66:I              4460  AMSG50   DAC   EMSG50              ERROR 50 MESSAGE ADR
004F58:I     4E4F 2053 454C 4348      4461  NOSELCHM DB    C'NO SELCHES SELECTED!',CR,LF,0
004F60:I     4553 2053 454C 4543
004F68:I     5445 4421 0D0A 00
004F6F:I     4F55 5442 5546 2053      4462  OBUFMSG1 DB    C'OUTBUF START ADR NOT ABOVE DIAGNOSTIC '
004F77:I     5441 5254 2041 4452
004F7F:I     204E 4F54 2041 424F
004F87:I     5645 2044 4941 474E
004F8F:I     4F53 5449 4320
004F95:I     434F 4445 2053 5041      4463           DB    C'CODE SPACE !',CR,LF,0
004F9D:I     4345 2021 0D0A 00
004FA4:I     494E 4255 4620 5354      4464  IBUFMSG1 DB    C'INBUF START ADR NOT ABOVE DIAGNOSTIC '
004FAC:I     4152 5420 4144 5220
004FB4:I     4E4F 5420 4142 4F56
004FBC:I     4520 4449 4147 4E4F
004FC4:I     5354 4943 20
004FC9:I     434F 4445 2053 5041      4465           DB    C'CODE SPACE !',CR,LF,0
004FD1:I     4345 2021 0D0A 00
004FD8:I     4F55 5442 5546 2045      4466  OBUFMSG2 DB    C'OUTBUF END ADR > INBUF START ADR !',CR,LF
004FE0:I     4E44 2041 4452 203E
004FE8:I     2049 4E42 5546 2053
004FF0:I     5441 5254 2041 4452
004FF8:I     2021 0D0A
004FFC:I     4255 4646 4552 2043      4467           DB    C'BUFFER CHECK FAILURES POSSIBLE !',CR,LF,0
005004:I     4845 434B 2046 4149
00500C:I     4C55 5245 5320 504F
005014:I     5353 4942 4C45 2021
00501C:I     0D0A 00
00501F:I     494E 4255 4620 454E      4468  IBUFMSG2 DB    C'INBUF END ADR > OUTBUF START ADR !',CR,LF
005027:I     4420 4144 5220 3E20
00502F:I     4F55 5442 5546 2053
005037:I     5441 5254 2041 4452
00503F:I     2021 0D0A
005043:I     4255 4646 4552 2043      4469           DB    C'BUFFER CHECK FAILURES POSSIBLE !',CR,LF,0
00504B:I     4845 434B 2046 4149
005053:I     4C55 5245 5320 504F
00505B:I     5353 4942 4C45 2021
005063:I     0D0A 00
```

SUBROUTINES

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005066:I  5345 4C45 4354 4544   4470  HEADMSG1 DB  C'SELECTED HEAD < MINIMUM VALUE REQUIRED !',CR,LF,0
00506E:I  2048 4541 4420 3C20
005076:I  4D49 4E49 4D55 4D20
00507E:I  5641 4C55 4520 5245
005086:I  5155 4952 4544 2021
00508E:I  0D0A 00
005091:I  5345 4C45 4354 4544   4471  HEADMSG2 DB  C'SELECTED HEAD > MAXIMUM VALUE ALLOWED !',CR,LF,0
005099:I  2048 4541 4420 3E20
0050A1:I  4D41 5849 4D55 4D20
0050A9:I  5641 4C55 4520 414C
0050B1:I  4C4F 5745 4420 210D
0050B9:I  0A00
0050BB:I  5345 4C45 4354 4544   4472  SECTMSG1 DB  C'SELECTED SECTOR > MAXIMUM VALUE ALLOWED !',CR,LF,0
0050C3:I  2053 4543 544F 5220
0050CB:I  3E20 4D41 5849 4D55
0050D3:I  4D20 5641 4C55 4520
0050DB:I  414C 4C4F 5745 4420
0050E3:I  210D 0A00
0050E7:I  5345 4C45 4354 4544   4473  CYLMSG1  DB  C'SELECTED CYLINDER > MAXIMUM VALUE ALLOWED !',CR,LF,0
0050EF:I  2043 594C 494E 4445
0050F7:I  5220 3E20 4D41 5849
0050FF:I  4D55 4D20 5641 4C55
005107:I  4520 414C 4C4F 5745
00510F:I  4420 210D 0A00
005115:I  5A45 524F 2042 5954   4474  TRSNSG   DB  C'ZERO BYTE LENGTH TRANSFER NOT ALLOWED !',CR,LF,0
00511D:I  4520 4C45 4E47 5448
005125:I  2054 5241 4E53 4645
00512D:I  5220 4E4F 5420 414C
005135:I  4C4F 5745 4420 210D
00513D:I  0A00
00513F:I  4552 524F 5220 524F   4475  EMSG0    DB  C'ERROR ROUTINE REPORTS AN ERROR WITH A ZERO '
005147:I  5554 494E 4520 5245
00514F:I  504F 5254 5320 414E
005157:I  2045 5252 4F52 2057
00515F:I  4954 4820 4120 5A45
005167:I  524F 20
00516A:I  434F 4445 2E20 4E4F   4476          DB  C'CODE. NO SUCH ERROR EXISTS.',CR,LF,0
005172:I  2053 5543 4820 4552
00517A:I  524F 5220 4558 4953
005182:I  5453 2E0D 0A00
005188:I  5245 4144 2041 2046   4477  EMSG1    DB  C'READ A FULLWORD ADDRESS WITH BIT 9 OF THE '
005190:I  554C 4C57 4F52 4420
005198:I  4144 4452 4553 5320
0051A0:I  5749 5448 2042 4954
0051A8:I  2039 204F 4620 5448
0051B0:I  4520
0051B2:I  5345 4C45 4354 4F52   4478          DB  C'SELECTOR CHANNEL RESET.',CR,LF,0
0051BA:I  2043 4841 4E4E 454C
0051C2:I  2052 4553 4554 2E0D
0051CA:I  0A00
0051CC:I  5245 4144 2041 2048   4479  EMSG2    DB  C'READ A HALFWORD ADDRESS WITH BIT 9 OF THE '
0051D4:I  414C 4657 4F52 4420
0051DC:I  4144 4452 4553 5320
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SUBROUTINES

```
0051E4:I     5749 5448 2042 4954
0051EC:I     2039 204F 4620 5448
0051F4:I     4520
0051F6:I     5345 4C45 4354 4F52      4480            DB    C'SELECTOR CHANNEL RESET.',CR,LF,0
0051FE:I     2043 4841 4E4E 454C
005206:I     2052 4553 4554 2E0D
00520E:I     0A00
005210:I     5245 4144 2057 524F      4481  EMSG3     DB    C'READ WRONG ADDRESS WITH BIT 9 OF THE '
005218:I     4E47 2041 4444 5245
005220:I     5353 2057 4954 4820
005228:I     4249 5420 3920 4F46
005230:I     2054 4845 20
005235:I     5345 4C45 4354 4F52      4482            DB    C'SELECTOR CHANNEL SET.',CR,LF,0
00523D:I     2043 4841 4E4E 454C
005245:I     2053 4554 2E0D 0A00
00524D:I     5245 4144 2057 524F      4483  EMSG4     DB    C'READ WRONG ADDRESS WITH BIT 9 OF THE '
005255:I     4E47 2041 4444 5245
00525D:I     5353 2057 4954 4820
005265:I     4249 5420 3920 4F46
00526D:I     2054 4845 20
005272:I     5345 4C45 4354 4F52      4484            DB    C'SELECTOR CHANNEL SET.',CR,LF,0
00527A:I     2043 4841 4E4E 454C
005282:I     2053 4554 2E0D 0A00
00528A:I     5345 4C45 4354 4F52      4485  EMSG5     DB    C'SELECTOR CHANNEL BUSY BIT FAILED TO GO LOW ',CR,LF
005292:I     2043 4841 4E4E 454C
00529A:I     2042 5553 5920 4249
0052A2:I     5420 4641 494C 4544
0052AA:I     2054 4F20 474F 204C
0052B2:I     4F57 200D 0A
0052B7:I     4146 5445 5220 4120      4486            DB    C'AFTER A STOP COMMAND WAS ISSUED.',CR,LF,0
0052BF:I     5354 4F50 2043 4F4D
0052C7:I     4D41 4E44 2057 4153
0052CF:I     2049 5353 5545 442E
0052D7:I     0D0A 00
0052DA:I     4142 4E4F 524D 414C      4487  EMSG6     DB    C'ABNORMAL TERMINATION OF A DATA TRANSFER '
0052E2:I     2054 4552 4D49 4E41
0052EA:I     5449 4F4E 204F 4620
0052F2:I     4120 4441 5441 2054
0052FA:I     5241 4E53 4645 5220
005302:I     494E 4449 4341 5445      4488            DB    C'INDICATED BY DEVICE CONTROLLER.',CR,LF,0
00530A:I     4420 4259 2044 4556
005312:I     4943 4520 434F 4E54
00531A:I     524F 4C4C 4552 2E0D
005322:I     0A00
005324:I     5345 4C45 4354 4F52      4489  EMSG7     DB    C'SELECTOR CHANNEL BUSY BIT WAS SET AT THE '
00532C:I     2043 4841 4E4E 454C
005334:I     2042 5553 5920 4249
00533C:I     5420 5741 5320 5345
005344:I     5420 4154 2054 4845
00534C:I     20
00534D:I     5445 524D 494E 4154      4490            DB    C'TERMINATION OF A DATA TRANSFER.',CR,LF,0
005355:I     494F 4E20 4F46 2041
00535D:I     2044 4154 4120 5452
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SUBROUTINES

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005365:I     414E 5346 4552 2E0D
00536D:I     0A00
00536F:I     4649 4E41 4C20 4144      4491  EMSG8    DB    C'FINAL ADDRESS READ FROM THE SELECTOR CHANNEL ',CR,LF
005377:I     4452 4553 5320 5245
00537F:I     4144 2046 524F 4D20
005387:I     5448 4520 5345 4C45
00538F:I     4354 4F52 2043 4841
005397:I     4E4E 454C 200D 0A
00539E:I     5741 5320 4E4F 5420      4492          DB    C'WAS NOT EQUAL TO THE EXPECTED ADDRESS.',CR,LF,0
0053A6:I     4551 5541 4C20 544F
0053AE:I     2054 4845 2045 5850
0053B6:I     4543 5445 4420 4144
0053BE:I     4452 4553 532E 0D0A
0053C6:I     00
0053C7:I     5345 4C45 4354 4F52      4493  EMSG9    DB    C'SELECTOR CHANNEL BUSY BIT FAILED TO GO LOW ',CR,LF
0053CF:I     2043 4841 4E4E 454C
0053D7:I     2042 5553 5920 4249
0053DF:I     5420 4641 494C 4544
0053E7:I     2054 4F20 474F 204C
0053EF:I     4F57 200D 0A
0053F4:I     494E 2054 4845 2054      4494          DB    C'IN THE TIME ALLOCATED FOR A DATA TRANSFER.',CR,LF,0
0053FC:I     494D 4520 414C 4C4F
005404:I     4341 5445 4420 464F
00540C:I     5220 4120 4441 5441
005414:I     2054 5241 4E53 4645
00541C:I     522E 0D0A 00
005421:I     4D41 474E 4554 4943      4495  EMSG10   DB    C'MAGNETIC TAPE DEVICE UNAVAILABLE.',CR,LF,0
005429:I     2054 4150 4520 4445
005431:I     5649 4345 2055 4E41
005439:I     5641 494C 4142 4C45
005441:I     2E0D 0A00
005445:I     4449 534B 2057 5249      4496  EMSG11   DB    C'DISK WRITE CHECK SET IN FILE STATUS.',CR,LF,0
00544D:I     5445 2043 4845 434B
005455:I     2053 4554 2049 4E20
00545D:I     4649 4C45 2053 5441
005465:I     5455 532E 0D0A 00
00546C:I     4452 4956 4520 4E4F      4497  EMSG12   DB    C'DRIVE NOT READY SET IN FILE STATUS.',CR,LF,0
005474:I     5420 5245 4144 5920
00547C:I     5345 5420 494E 2046
005484:I     494C 4520 5354 4154
00548C:I     5553 2E0D 0A00
005492:I     4558 414D 494E 452C      4498  EMSG13   DB    C'EXAMINE, SEEK INCOMPLETE OR DRIVE NOT READY '
00549A:I     2053 4545 4B20 494E
0054A2:I     434F 4D50 4C45 5445
0054AA:I     204F 5220 4452 4956
0054B2:I     4520 4E4F 5420 5245
0054BA:I     4144 5920
0054BE:I     5345 5420 494E 2046      4499          DB    C'SET IN FILE STATUS.',CR,LF,0
0054C6:I     494C 4520 5354 4154
0054CE:I     5553 2E0D 0A00
0054D4:I     5752 4954 4520 5052      4500  EMSG14   DB    C'WRITE PROTECT SET IN FILE STATUS.',CR,LF,0
0054DC:I     4F54 4543 5420 5345
0054E4:I     5420 494E 2046 494C
```

SUBROUTINES

```
0054EC:I    4520 5354 4154 5553
0054F4:I    2E0D 0A00
0054F8:I    4441 5441 2054 5241     4501  EMSG15   DB    C'DATA TRANSFER UNDER STATUS CONTROL INCORRECT.'
005500:I    4E53 4645 5220 554E
005508:I    4445 5220 5354 4154
005510:I    5553 2043 4F4E 5452
005518:I    4F4C 2049 4E43 4F52
005520:I    5245 4354 2E
005525:I    0D0A 00                 4502          DB    CR,LF,0
005528:I    4441 5441 2054 5241     4503  EMSG16   DB    C'DATA TRANSFER UNDER INTERRUPT CONTROL INCORRECT.'
005530:I    4E53 4645 5220 554E
005538:I    4445 5220 494E 5445
005540:I    5252 5550 5420 434F
005548:I    4E54 524F 4C20 494E
005550:I    434F 5252 4543 542E
005558:I    0D0A 00                 4504          DB    CR,LF,0
00555B:I    4641 494C 4544 2054     4505  EMSG17   DB    C'FAILED TO RECEIVE AN INTERRUPT FROM THE SELECTOR '
005563:I    4F20 5245 4345 4956
00556B:I    4520 414E 2049 4E54
005573:I    4552 5255 5054 2046
00557B:I    524F 4D20 5448 4520
005583:I    5345 4C45 4354 4F52
00558B:I    20
00558C:I    4348 414E 4E45 4C20     4506          DB    C'CHANNEL ON A WRITE OPERATION.',CR,LF,0
005594:I    4F4E 2041 2057 5249
00559C:I    5445 204F 5045 5241
0055A4:I    5449 4F4E 2E0D 0A00
0055AC:I    4641 494C 4544 2054     4507  EMSG18   DB    C'FAILED TO RECEIVE AN INTERRUPT FROM THE SELECTOR '
0055B4:I    4F20 5245 4345 4956
0055BC:I    4520 414E 2049 4E54
0055C4:I    4552 5255 5054 2046
0055CC:I    524F 4D20 5448 4520
0055D4:I    5345 4C45 4354 4F52
0055DC:I    20
0055DD:I    4348 414E 4E45 4C20     4508          DB    C'CHANNEL ON A READ OPERATION.',CR,LF,0
0055E5:I    4F4E 2041 2052 4541
0055ED:I    4420 4F50 4552 4154
0055F5:I    494F 4E2E 0D0A 00
0055FC:I    494E 5445 5252 5550     4509  EMSG19   DB    C'INTERRUPTING DEVICE ADDRESS NOT EQUAL TO THE '
005604:I    5449 4E47 2044 4556
00560C:I    4943 4520 4144 4452
005614:I    4553 5320 4E4F 5420
00561C:I    4551 5541 4C20 544F
005624:I    2054 4845 20
005629:I    5345 4C45 4354 4F52     4510          DB    C'SELECTOR CHANNEL ADDRESS.',CR,LF,0
005631:I    2043 4841 4E4F 454C
005639:I    2041 4444 5245 5353
005641:I    2E0D 0A00
005645:I    5355 5045 5256 4953     4511  EMSG20   DB    C'SUPERVISOR CALL INTERRUPT GENERATED.',CR,LF,0
00564D:I    4F52 2043 414C 4C20
005655:I    494E 5445 5252 5550
00565D:I    5420 4745 4E45 5241
005665:I    5445 442E 0D0A 00
```

SUBROUTINES

```
00566C:I  464C 4F41 5449 4E47    4512  EMSG21  DB  C'FLOATING POINT ARITHMETIC FAULT INTERRUPT GENERATED.'
005674:I  2050 4F49 4E54 2041
00567C:I  5249 5448 4D45 5449
005684:I  4320 4641 554C 5420
00568C:I  494E 5445 5252 5550
005694:I  5420 4745 4E45 5241
00569C:I  5445 442E
0056A0:I  0D0A 00                4513            DB  CR,LF,0
0056A3:I  5359 5354 454D 2051    4514  EMSG22  DB  C'SYSTEM QUEUE INTERRUPT GENERATED.',CR,LF,0
0056AB:I  5545 5545 2049 4E54
0056B3:I  4552 5255 5054 2047
0056BB:I  454E 4552 4154 4544
0056C3:I  2E0D 0A00
0056C7:I  4D45 4D4F 5259 2041    4515  EMSG23  DB  C'MEMORY ACCESS CONTROLLER INTERRUPT GENERATED.'
0056CF:I  4343 4553 5320 434F
0056D7:I  4E54 524F 4C4C 4552
0056DF:I  2049 4E54 4552 5255
0056E7:I  5054 2047 454E 4552
0056EF:I  4154 4544 2E
0056F4:I  0D0A 00                4516            DB  CR,LF,0
0056F7:I  5350 5552 494F 5553    4517  EMSG24  DB  C'SPURIOUS EXTERNAL INTERRUPT GENERATED.',CR,LF,0
0056FF:I  2045 5854 4552 4E41
005707:I  4C20 494E 5445 5252
00570F:I  5550 5420 4745 4E45
005717:I  5241 5445 442E 0D0A
00571F:I  00
005720:I  5345 4C45 4354 4F52    4518  EMSG25  DB  C'SELECTOR CHANNEL STATUS BITS OTHER THAN BUSY '
005728:I  2043 4841 4E4E 454C
005730:I  2053 5441 5455 5320
005738:I  4249 5453 204F 5448
005740:I  4552 2054 4841 4E20
005748:I  4255 5359 20
00574D:I  5345 5420 4455 5249    4519            DB  C'SET DURING A DATA TRANSFER.',CR,LF,0
005755:I  4E47 2041 2044 4154
00575D:I  4120 5452 414E 5346
005765:I  4552 2E0D 0A00
00576B:I  4E4F 2D4D 4F54 494F    4520  EMSG26  DB  C'NO-MOTION BIT FAILED TO SET FOR MAGNETIC TAPE.'
005773:I  4E20 4249 5420 4641
00577B:I  494C 4544 2054 4F20
005783:I  5345 5420 464F 5220
00578B:I  4D41 474E 4554 4943
005793:I  2054 4150 452E
005799:I  0D0A 00                4521            DB  CR,LF,0
00579C:I  4641 4C53 4520 5359    4522  EMSG27  DB  C'FALSE SYNC STATUS RETURNED FROM SELECTOR CHANNEL.'
0057A4:I  4E43 2053 5441 5455
0057AC:I  5320 5245 5455 524E
0057B4:I  4544 2046 524F 4D20
0057BC:I  5345 4C45 4354 4F52
0057C4:I  2043 4841 4E4E 454C
0057CC:I  2E
0057CD:I  0D0A 00                4523            DB  CR,LF,0
0057D0:I  5345 4C45 4354 4F52    4524  EMSG28  DB  C'SELECTOR CHANNEL STATUS WITH "SELCH STATUS" BIT SET '
0057D8:I  2043 4841 4E4E 454C
```

SUBROUTINES

```
0057E0:I     2053 5441 5455 5320
0057E8:I     5749 5448 2022 5345
0057F0:I     4C43 4820 5354 4154
0057F8:I     5553 2220 4249 5420
005800:I     5345 5420
005804:I     0D0A                        4525            DB    CR,LF
005806:I     4953 2045 5155 414C         4526            DB    C'IS EQUAL TO THE DEVICE STATUS ON AN ABNORMAL '
00580E:I     2054 4F20 5448 4520
005816:I     4445 5649 4345 2053
00581E:I     5441 5455 5320 4F4E
005826:I     2041 4E20 4142 4E4F
00582E:I     524D 414C 20
005833:I     5445 524D 494E 4154         4527            DB    C'TERMINATION OF A DATA TRANSFER.',CR,LF,0
00583B:I     494F 4E20 4F46 2041
005843:I     2044 4154 4120 5452
00584B:I     414E 5346 4552 2E0D
005853:I     0A00
005855:I     5345 4C45 4354 4F52         4528  EMSG29    DB    C'SELECTOR CHANNEL STATUS WITH "SELCH STATUS" BIT SET '
00585D:I     2043 4841 4E4E 454C
005865:I     2053 5441 5455 5320
00586D:I     5749 5448 2022 5345
005875:I     4C43 4820 5354 4154
00587D:I     5553 2220 4249 5420
005885:I     5345 5420
005889:I     0D0A                        4529            DB    CR,LF
00588B:I     4953 204E 4F54 2045         4530            DB    C'IS NOT EQUAL TO ZERO ON AN ABNORMAL '
005893:I     5155 414C 2054 4F20
00589B:I     5A45 524F 204F 4E20
0058A3:I     414E 2041 424E 4F52
0058AB:I     4D41 4C20
0058AF:I     5445 524D 494E 4154         4531            DB    C'TERMINATION OF A DATA TRANSFER.',CR,LF,0
0058B7:I     494F 4E20 4F46 2041
0058BF:I     2044 4154 4120 5452
0058C7:I     414E 5346 4552 2E0D
0058CF:I     0A00
0058D1:I     4641 4C53 4520 5359         4532  EMSG30    DB    C'FALSE SYNC RETURNED FROM I/O DEVICE.',CR,LF,0
0058D9:I     4E43 2052 4554 5552
0058E1:I     4E45 4420 4652 4F4D
0058E9:I     2049 2F4F 2044 4556
0058F1:I     4943 452E 0D0A 00
0058F8:I     4142 4E4F 524D 414C         4533  EMSG31    DB    C'ABNORMAL TERMINATION OF A DATA TRANSFER INDICATED '
005900:I     2054 4552 4D49 4E41
005908:I     5449 4F4E 204F 4620
005910:I     4120 4441 5441 2054
005918:I     5241 4E53 4645 5220
005920:I     494E 4449 4341 5445
005928:I     4420
00592A:I     4259 2044 4556 4943         4534            DB    C'BY DEVICE CONTROLLER.',CR,LF
005932:I     4520 434F 4E54 524F
00593A:I     4C4C 4552 2E0D 0A
005941:I     5452 414E 5346 4552         4535            DB    C'TRANSFER THROUGH AN IDLE SELECTOR CHANNEL.',CR,LF,0
005949:I     2054 4852 4F55 4748
005951:I     2041 4E20 4944 4C45
```

SUBROUTINES

```
005959:I     2053 454C 4543 544F
005961:I     5220 4348 414E 4E45
005969:I     4C2E 0D0A 00
00596E:I     4441 5441 2054 5241      4536  EMSG32   DB    C'DATA TRANSFERRED THROUGH AN IDLE SELECTOR '
005976:I     4E53 4645 5252 4544
00597E:I     2054 4852 4F55 4748
005986:I     2041 4E20 4944 4C45
00598E:I     2053 454C 4543 544F
005996:I     5220
005998:I     4348 414E 4E45 4C20      4537           DB    C'CHANNEL IS INCORRECT.',CR,LF,0
0059A0:I     4953 2049 4E43 4F52
0059A8:I     5245 4354 2E0D 0A00
0059B0:I     4649 4E41 4C20 4144      4538  EMSG33   DB    C'FINAL ADDRESS READ FROM THE SELECTOR CHANNEL ',CR,LF
0059B8:I     4452 4553 5320 5245
0059C0:I     4144 2046 524F 4D20
0059C8:I     5448 4520 5345 4C45
0059D0:I     4354 4F52 2043 4841
0059D8:I     4E4E 454C 200D 0A
0059DF:I     5741 5320 4E4F 5420      4539           DB    C'WAS NOT EQUAL TO THE FINAL ADDRESS '
0059E7:I     4551 5541 4C20 544F
0059EF:I     2054 4845 2046 494E
0059F7:I     414C 2041 4444 5245
0059FF:I     5353 20
005A02:I     5752 4954 5445 4E20      4540           DB    C'WRITTEN TO THE SELECTOR CHANNEL.',CR,LF,0
005A0A:I     544F 2054 4845 2053
005A12:I     454C 4543 544F 5220
005A1A:I     4348 414E 4E45 4C2E
005A22:I     0D0A 00
005A25:I     5345 4C45 4354 4F52      4541  EMSG34   DB    C'SELECTOR CHANNEL STATUS BIT SET.',CR,LF,0
005A2D:I     2043 4841 4E4E 454C
005A35:I     2053 5441 5455 5320
005A3D:I     4249 5420 5345 542E
005A45:I     0D0A 00
005A48:I     4241 434B 4752 4F55      4542  EMSG35   DB    C'BACKGROUND TESTING FAILED WITH '
005A50:I     4E44 2054 4553 5449
005A58:I     4E47 2046 4149 4C45
005A60:I     4420 5749 5448 20
005A67:I     5354 4F52 4520 414E      4543           DB    C'STORE AND LOAD FULLWORD INSTRUCTIONS.',CR,LF,0
005A6F:I     4420 4C4F 4144 2046
005A77:I     554C 4C57 4F52 4420
005A7F:I     494E 5354 5255 4354
005A87:I     494F 4E53 2E0D 0A00
005A8F:I     4241 434B 4752 4F55      4544  EMSG36   DB    C'BACKGROUND TESTING FAILED WITH '
005A97:I     4E44 2054 4553 5449
005A9F:I     4E47 2046 4149 4C45
005AA7:I     4420 5749 5448 20
005AAE:I     464C 4F41 5449 4E47      4545           DB    C'FLOATING POINT INSTRUCTIONS.',CR,LF,0
005AB6:I     2050 4F49 4E54 2049
005ABE:I     4E53 5452 5543 5449
005AC6:I     4F4E 532E 0D0A 00
005ACD:I     4F55 5442 5546 204D      4546  EMSG37   DB    C'OUTBUF MODIFIED AFTER A DATA TRANSFER FROM '
005AD5:I     4F44 4946 4945 4420
005ADD:I     4146 5445 5220 4120
```

SUBROUTINES

```
005AE5:I     4441 5441 2054 5241
005AED:I     4E53 4645 5220 4652
005AF5:I     4F4D 20
005AF8:I     4D45 4D4F 5259 2054      4547           DB    C'MEMORY TO THE I/O DEVICE.',CR,LF,0
005B00:I     4F20 5448 4520 492F
005B08:I     4F20 4445 5649 4345
005B10:I     2E0D 0A00
005B14:I     5345 4C45 4354 4F52      4548  EMSG38   DB    C'SELECTOR CHANNEL STATUS BIT SET WHEN '
005B1C:I     2043 4841 4E4E 454C
005B24:I     2053 5441 5455 5320
005B2C:I     4249 5420 5345 5420
005B34:I     5748 454E 20
005B39:I     5345 4C45 4354 4F52      4549           DB    C'SELECTOR CHANNEL INTERRUPT GENERATED.',CR,LF,0
005B41:I     2043 4841 4E4E 454C
005B49:I     2049 4E54 4552 5255
005B51:I     5054 2047 454E 4552
005B59:I     4154 4544 2E0D 0A00
005B61:I     494E 434F 5252 4543      4550  EMSG39   DB    C'INCORRECT I/O DEVICE INTERRUPT GENERATED.',CR,LF,0
005B69:I     5420 492F 4F20 4445
005B71:I     5649 4345 2049 4E54
005B79:I     4552 5255 5054 2047
005B81:I     454E 4552 4154 4544
005B89:I     2E0D 0A00
005B8D:I     494E 434F 5252 4543      4551  EMSG40   DB    C'INCORRECT STATUS BIT SET WHEN I/O DEVICE '
005B95:I     5420 5354 4154 5553
005B9D:I     2042 4954 2053 4554
005BA5:I     2057 4845 4E20 492F
005BAD:I     4F20 4445 5649 4345
005BB5:I     20
005BB6:I     494E 5445 5252 5550      4552           DB    C'INTERRUPT GENERATED.',CR,LF,0
005BBE:I     5420 4745 4E45 5241
005BC6:I     5445 442E 0D0A 00
005BCD:I     3430 204D 4220 4449      4553  EMSG41   DB    C'40 MB DISK DRIVE UNSAFE STATUS SET.',CR,LF,0
005BD5:I     534B 2044 5249 5645
005BDD:I     2055 4E53 4146 4520
005BE5:I     5354 4154 5553 2053
005BED:I     4554 2E0D 0A00
005BF3:I     4641 494C 4544 2054      4554  EMSG42   DB    C'FAILED TO RECEIVE AN INTERUPT FROM THE '
005BFB:I     4F20 5245 4345 4956
005C03:I     4520 414E 2049 4E54
005C0B:I     4552 5550 5420 4652
005C13:I     4F4D 2054 4845 20
005C1A:I     492F 4F20 4445 5649      4555           DB    C'I/O DEVICE ON A WRITE OPERATION.',CR,LF,0
005C22:I     4345 204F 4E20 4120
005C2A:I     5752 4954 4520 4F50
005C32:I     4552 4154 494F 4E2E
005C3A:I     0D0A 00
005C3D:I     4641 494C 4544 2054      4556  EMSG43   DB    C'FAILED TO RECEIVE AN INTERUPT FROM THE '
005C45:I     4F20 5245 4345 4956
005C4D:I     4520 414E 2049 4E54
005C55:I     4552 5550 5420 4652
005C5D:I     4F4D 2054 4845 20
005C64:I     492F 4F20 4445 5649      4557           DB    C'I/O DEVICE ON A READ OPERATION.',CR,LF,0
```

SUBROUTINES

```
005C6C:I  4345 204F 4E20 4120
005C74:I  5245 4144 204F 5045
005C7C:I  5241 5449 4F4E 2E0D
005C84:I  0A00
005C86:I  464C 4F41 5449 4E47      4558  EMSG44    DB    C'FLOATING POINT ERROR - ADD/SUBTRACT.',CR,LF,0
005C8E:I  2050 4F49 4E54 2045
005C96:I  5252 4F52 202D 2041
005C9E:I  4444 2F53 5542 5452
005CA6:I  4143 542E 0D0A 00
005CAD:I  464C 4F41 5449 4E47      4559  EMSG45    DB    C'FLOATING POINT ERROR - MULTIPLY/DIVIDE.',CR,LF,0
005CB5:I  2050 4F49 4E54 2045
005CBD:I  5252 4F52 202D 204D
005CC5:I  554C 5449 504C 592F
005CCD:I  4449 5649 4445 2E0D
005CD5:I  0A00
005CD7:I  464C 4F41 5449 4E47      4560  EMSG46    DB    C'FLOATING POINT TO FIXED POINT ERROR.',CR,LF,0
005CDF:I  2050 4F49 4E54 2054
005CE7:I  4F20 4649 5845 4420
005CEF:I  504F 494E 5420 4552
005CF7:I  524F 522E 0D0A 00
005CFE:I  424F 554E 4441 5259      4561  EMSG47    DB    C'BOUNDARY VIOLATION ERROR.',CR,LF,0
005D06:I  2056 494F 4C41 5449
005D0E:I  4F4E 2045 5252 4F52
005D16:I  2E0D 0A00
005D1A:I  494E 5445 5252 5550      4562  EMSG48    DB    C'INTERRUPT SEQUENCE ERROR - TEST 9',CR,LF,0
005D22:I  5420 5345 5155 454E
005D2A:I  4345 2045 5252 4F52
005D32:I  202D 2054 4553 5420
005D3A:I  390D 0A00
005D3E:I  4154 5445 4D50 5445      4563  EMSG49    DB    C'ATTEMPTED TO USE NON-EXISTENT MEMORY.',CR,LF,0
005D46:I  4420 544F 2055 5345
005D4E:I  204E 4F4E 2D45 5849
005D56:I  5354 454E 5420 4D45
005D5E:I  4D4F 5259 2E0D 0A00
005D66:I  4341 4348 4520 5752      4564  EMSG50    DB    C'CACHE WRITE TAG ERROR.',CR,LF,0
005D6E:I  4954 4520 5441 4720
005D76:I  4552 524F 522E 0D0A
005D7E:I  00
005D7F:I  F620 2020 2020 2020      4565  BLANKMSG  DB    -LF,C'                                '
005D87:I  2020 2020 2020 2020
005D8F:I  2020 2020 2020 2020
005D97:I  2020 2020 2020 2020
005D9F:I  20
005DA0:I  2020 2020 2020 2020      4566            DB    C'                                    '
005DA8:I  2020 2020 2020 2020
005DB0:I  2020 2020 2020 2020
005DB8:I  2020 2020 2020 2020
005DC0:I  20
005DC1:I  2020 2020 2020 2020      4567            DB    C'                ',CR,0
005DC9:I  2020 2020 2020 200D
005DD1:I  00
                                   4568  *
                                   4569  * XXXX = EXPECTED DATA  YYYY = DATA READ
```

SUBROUTINES

```
                                        4570  *
005DD2:I                                4571          ALIGN 2                   *
005DD2:I     0D0A 4552 524F 5220        4572  ERRMSG@ DB    CR,LF,C'ERROR DETECTED FOR INDEX '
005DDA:I     4445 5445 4354 4544
005DE2:I     2046 4F52 2049 4E44
005DEA:I     4558 20
005DED:I     2A2E 0D0A 00               4573  INDEXNO  DB    C'*.',CR,LF,0       CURRENT INDEX NUMBER
005DF2:I     4558 5045 4354 4544        4574  BYTEMSG  DB    C'EXPECTED  '
005DFA:I     2020
005DFC:I     2A2A                       4575  BYTE1    DB    C'**'
005DFE:I     2A2A                       4576  BYTE2    DB    C'**'
005E00:I     2020                       4577  BYTE3    DB    C'  '
005E02:I     2020 2028 2043 4F4E        4578           DB    C'   ( CONTENTS OF OUTBUF AT '
005E0A:I     5445 4E54 5320 4F46
005E12:I     204F 5554 4255 4620
005E1A:I     4154 20
005E1D:I     2A2A 2A2A 2A2A 2029        4579  ADROUT   DB    C'****** )'
005E25:I     0D0A                       4580           DB    CR,LF
005E27:I     5245 4144 2020 2020        4581           DB    C'READ      '
005E2F:I     2020
005E31:I     2A2A                       4582  BYTE4    DB    C'**'
005E33:I     2A2A                       4583  BYTE5    DB    C'**'
005E35:I     2020                       4584  BYTE6    DB    C'  '
005E37:I     2020 2028 2043 4F4E        4585           DB    C'   ( CONTENTS OF  INBUF AT '
005E3F:I     5445 4E54 5320 4F46
005E47:I     2020 494E 4255 4620
005E4F:I     4154 20
005E52:I     2A2A 2A2A 2A2A 2029        4586  ADRIN    DB    C'****** )'
005E5A:I     0D0A                       4587           DB    CR,LF
005E5C:I     4259 5445 204F 4646        4588           DB    C'BYTE OFFSET INTO BUFFER = '
005E64:I     5345 5420 494E 544F
005E6C:I     2042 5546 4645 5220
005E74:I     3D20
005E76:I     2A2A                       4589  BYTE7    DB    C'**'
005E78:I     2A2A                       4590  BYTE8    DB    C'**'
005E7A:I     2A2A                       4591  BYTE9    DB    C'**'
005E7C:I     0D0A 00                    4592           DB    CR,LF,0
                                        4593  *
005E7F:I     4558 5045 4354 4544        4594  EXADRMSG DB    C'EXPECTED ADDRESS  '
005E87:I     2041 4444 5245 5353
005E8F:I     2020
005E91:I     2A2A 2A2A 2A2A 2020        4595  EXPBYTE  DB    C'******    '
005E99:I     20
005E9A:I     5245 4144 2041 4444        4596           DB    C'READ ADDRESS  '
005EA2:I     5245 5353 2020
005EA8:I     2A2A 2A2A 2A2A 2020        4597  READBYTE DB    C'******    ',CR,LF,0
005EB0:I     200D 0A00
                                        4598  *
005EB4:I     0D0A 5354 4154 5553        4599  STATMSG  DB    CR,LF,C'STATUS  '
005EBC:I     2020
005EBE:I     2A2A                       4600  STATUS   DB    C'**'
005EC0:I     0D0A 00                    4601           DB    CR,LF,0
005EC3:I     0D0A                       4602  SIZERR   DB    CR,LF
```

SUBROUTINES

```
005EC5:I  5041 5241 4D45 5445    4603            DB    C'PARAMETER OUT OF RANGE FOR INDEX = '
005ECD:I  5220 4F55 5420 4F46
005ED5:I  2052 414E 4745 2046
005EDD:I  4F52 2049 4E44 4558
005EE5:I  203D 20
005EE8:I  4020 0D0A 00           4604  SIZERR@   DB    C'@ ',CR,LF,0
005EEE:I                         4605            ALIGN 2
005EEE:I  0D0A                   4606  INTMSG2   DB    CR,LF
005EF0:I  2A2A 2A20              4607  DEVADRS   DB    C'*** '
005EF4:I  0D0A 00                4608            DB    CR,LF,0
005EF7:I  00                     4609            DB    *                    FILL
005EF8:I                         4610            ALIGN 4
005EF8:I  00                     4611  BYTEEXP   DB    0
005EF9:I  00                     4612  EXP1      DB    0
005EFA:I  00                     4613  EXP2      DB    0
005EFB:I  00                     4614  EXP3      DB    0
005EFC:I  00                     4615  BYTEREAD  DB    0
005EFD:I  00                     4616  READ4     DB    0
005EFE:I  00                     4617  READ5     DB    0
005EFF:I  00                     4618  READ6     DB    0
005F00:I  00                     4619  STARTADR  DB    0
005F01:I  00                     4620  ADRS1     DB    0
005F02:I  00                     4621  ADRS2     DB    0
005F03:I  00                     4622  ADRS3     DB    0
005F04:I                         4623            DO    7
005F04:I  0000 0000              4624            DC    0
005F08:I  0000 0000              4624            DC    0
005F0C:I  0000 0000              4624            DC    0
005F10:I  0000 0000              4624            DC    0
005F14:I  0000 0000              4624            DC    0
005F18:I  0000 0000              4624            DC    0
005F1C:I  0000 0000              4624            DC    0
005F20:I  00                     4625  ENDADRS   DB    0
005F21:I  00                     4626  ADRS4     DB    0
005F22:I  00                     4627  ADRS5     DB    0
005F23:I  00                     4628  ADRS6     DB    0
005F24:I                         4629            DO    7
005F24:I  0000 0000              4630            DC    0
005F28:I  0000 0000              4630            DC    0
005F2C:I  0000 0000              4630            DC    0
005F30:I  0000 0000              4630            DC    0
005F34:I  0000 0000              4630            DC    0
005F38:I  0000 0000              4630            DC    0
005F3C:I  0000 0000              4630            DC    0
005F40:I  00                     4631  BYTE      DB    0
005F41:I  00                     4632  BYTE11    DB    0
005F42:I  00                     4633  BYTE21    DB    0
005F43:I  00                     4634  BYTE31    DB    0
005F44:I                         4635            DO    7
005F44:I  0000 0000              4636            DC    0
005F48:I  0000 0000              4636            DC    0
005F4C:I  0000 0000              4636            DC    0
005F50:I  0000 0000              4636            DC    0
```

SUBROUTINES

```
005F54:I     0000 0000                4636           DC    0
005F58:I     0000 0000                4636           DC    0
005F5C:I     0000 0000                4636           DC    0
005F60:I     0000 0000                4637  MEMTOP   DCY   0
005F64:I     0000 0000                4638  CURTOP   DCY   0
             0000 5F68:I              4639  CLR16KB  EQU   *
005F68:I     D000 80C8 =006034:I      4640           STM   R0,RSAVE          SAVE REGISTERS
005F6C:I     0871                     4641           LR    R7,R1            COPY 16 KB COUNT
005F6E:I     C570 0004                4642           CLHI  R7,4             64 KB OR GREATER??
*005F72:I    218B      =005F88:I      4643           BL    CLREXIT          NO, EXIT
005F74:I     2460                     4644           LIS   R6,0             CLEAR
005F76:I     117E                     4645           SLLS  R7,14            START 16 KB BOUNDARY
005F78:I     2484                     4646           LIS   R8,4             SET INCREMENT COUNT
005F7A:I     0897                     4647           LDAR  R9,R7            COPY START 16 KB
*005F7C:I    CA90 3FFC                4648           AAI   R9,X'3FFC'       SETUP END OF 16KB BLOCK
005F80:I     5067 0000                4649  CMLOOP   ST    R6,0(R7)         CLEAR MEMORY
005F84:I     C170 FFF8 =005F80:I      4650           BXLE  R7,CMLOOP        LOOP
005F88:I     D100 80A8 =006034:I      4651  CLREXIT  LM    R0,RSAVE         RESTORE REGISTERS
005F8C:I     030F                     4652           BR    R15              RETURN
                                      4653  *
005F8E:I     F6                       4654  CRTMSG   DB    -LF
005F8F:I     2020 4F55 5442 5546      4655           DB    C'  OUTBUF '
005F97:I     20
005F98:I     2A2A 2A2A 2A2A 2020      4656  CRTMSG1  DB    C'******   '
005FA0:I     20
005FA1:I     494E 4255 4520           4657           DB    C'INBUF '
005FA7:I     2A2A 2A2A 2A2A           4658  CRTMSG2  DB    C'******'
005FAD:I     2020 494E 4445 5820      4659  INDEXM   DB    C'  INDEX '
005FB5:I     2A0D 00                  4660  INDEXM@  DB    C'*',CR,0
005FB8:I                              4661           DB    *
                                      4662  *
005FB8:I     F6                       4663  CRTMSGA  DB    -LF
005FB9:I     2020 4558 5020 4144      4664           DB    C'  EXP ADR '
005FC1:I     5220
005FC3:I     2A2A 2A2A 2A2A 2020      4665  CRTMSG3  DB    C'******   '
005FCB:I     20
005FCC:I     5245 4144 2041 4452      4666           DB    C'READ ADR '
005FD4:I     20
005FD5:I     2A2A 2A2A 2A2A           4667  CRTMSG4  DB    C'******'
005FDB:I     2020 494E 4445 5820      4668  INDEXN   DB    C'  INDEX '
005FE3:I     2A0D 00                  4669  INDEXN@  DB    C'*',CR,0
005FE6:I                              4670           DB    *
005FE6:I     F6                       4671  CRTACTIV DB    -LF
005FE7:I     2020                     4672           DB    C'  '
005FE9:I     2A2A 2A2A 2A2A 2A2A      4673  CRTCOUNT DB    C'********',CR,0
005FF1:I     0D00
005FF3:I     00                       4674           DB    *
                                      4675  *
005FF4:I     0000                     4676  $PRESTAB DCX   0                FOR SELCH PRESENCE BITS
005FF8:I                              4677           ALIGN 4
005FF8:I     00FF FFFF                4678  BUSMASK  DCY   FFFFFF           ADDRESS BUS LENGTH MASK
005FFC:I     0000                     4679  CLRSTART DCX   0                MEMORY CLEAR ROUTINE FLAG
005FFE:I     F8E0                     4680  REWIND   DCX   F8E0             REWIND TAPE
```

SUBROUTINES

```
006000:I     E3A0                    4681  SKPFILF  DCX   E3A0              SKIP FILE FORWARD
006002:I     D380                    4682  SKPFILR  DCX   D380              SKIP FILE REVERSE
006004:I     F0C0                    4683  WRTEOF   DCX   F0C0              WRITE FILE MARK (EOF)
006006:I     20                      4684  CLEAR1   DB    X'20'
006007:I     02                      4685  CLEAR    DB    X'2'
006008:I     08                      4686  STOP     DB    X'08'
006009:I     48                      4687  STOP1    DB    X'48'
00600A:I     4C                      4688  STOP2    DB    X'4C'
00600B:I     20                      4689  SFHR     DB    X'20'             SET FILE HEAD REGISTER
00600C:I     10                      4690  SETCYL   DB    X'10'             SET CYLINDER TAG
00600D:I     C1                      4691  RESTOREF DB    X'C1'             RESTORE FILE TO ZERO
00600E:I     C2                      4692  SEEKC    DB    X'C2'
00600F:I     C0                      4693  RESCTL   DB    X'C0'             RESET MSM CONTROLLER
006010:I     C8                      4694  RESMSMC  DB    X'C8'             RESET MSM CONTROLLER
             0000 6008:I             4695  RESETC   EQU   STOP
006011:I     C9                      4696  RESC6250 DB    X'C9'             6250 DISARM AND CLEAR FCU
006012:I     C8                      4697  DISA6250 DB    X'C8'             6250 DISARM ONLY
006013:I     04                      4698  INC      DB    X'04'
006014:I     04                      4699  BYTEMODE DB    X'04'             TESTER BYTE MODE CMD
006015:I     01                      4700  HWMODE   DB    X'01'             TESTER HW MODE CMD
006016:I     00                      4701  NORMAL   DB    X'0'              IDC RESET BYTE COUNT CMD
006017:I     00                      4702           DB    *                 FILL
006018:I                             4703           ALIGN 2
006018:I     5474                    4704  GO       DC    X'5474'
00601A:I     0000                    4705  ZERO     DC    X'0'
00601C:I     0000                    4706  STZERO   DC    X'0'              SELCH TESTER COUNTER START
00601E:I     00D0                    4707  STBASEA  DC    X'D0'             SELCH TESTER DEVICE BASE ADR
006020:I     0000                    4708  INTFLG   DC    X'0'
005022:I     0000                    4709  INDEX    DC    X'0'
006024:I     0000                    4710  ACTIVE   DC    X'0'
006028:I     0000 0000               4711  TEMP     DCY   0
00602C:I     0000 0000               4712  RTNSAV   DCY   0                 SUBROUTINE RETURN ADR
006030:I     0000 0000               4713  TSTERTNA DCY   0                 TEST ERROR RETURN ADR
006034:I                             4714           ALIGN 4
006034:I                             4715  RSAVE    DS    64
006074:I     0000                    4716  SELBYTE  DC    X'0'
006076:I     0000                    4717  DEVBYTE  DC    X'0'
006078:I     0003 FFFF               4718  DELAYVAL DC    Y'03FFFF'
00607C:I     4110 0000               4719  FLTPVAL  DC    Y'41100000'       FLTP VAL
                                     4720  *  NEW  PSW'S
006080:I                             4721           ALIGN 4
006080:I     0000 20F0               4722  ENABLE1  DC    Y'20F0',Y'0000'   LOC WILL BE CONTENTS OF RTNSAV  ****
006084:I     0000 0000
006088:I     0000 20F0               4723  ENABLE2  DC    Y'20F0',PRTERR@
00608C:I     0000 4960:I
006090:I     0000 20F0               4724  FLTERR@  DC    Y'20F0',ERROR36
006094:I     0000 4DC2:I
006098:I     0000 20F0               4725  STRERR@  DC    Y'20F0',ERROR35
00609C:I     0000 4DAE:I
0060A0:I     0000 60F0               4726  WAITPSW  DC    Y'60F0',DELAY
0060A4:I     0000 4A00:I
                                     4727  *
0060A8:I                             4728           COPY  SVCMODEL
```

EXECUTIVE SERVICE SUPERVISOR CALLS

```
0060A8:I                                4728           ALIGN ADC
0060A8:I      0000 00                   4728 SYNERR    DB    0,0,0              CODE 0, SYNTAX ERROR MESSAGE
0060AC:I      0000 6288:I               4728           DAC   DFINAL
0060B0:I      0100 0000                 4728 DIAGINIT  DB    1,0,0,0            CODE 1, INITIALIZE
0060B4:I      0000 6288:I               4728           DAC   DFINAL
0060B8:I      0200 0000                 4728 COMMAND   DB    2,0,0,0            CODE 2, RETURN TO COMMAND PROCESSOR
0060BC:I      0000 6288:I               4728           DAC   DFINAL
0060C0:I      0306 0400                 4728 EVALUATE  DB    3,R6,R4,0          CODE 3, ARGUMENT EVALUATE
0060C4:I      0000 6288:I               4728           DAC   DFINAL
0060C8:I      0401 0604                 4728 MATCH     DB    4,R1,R6,R4         CODE 4, SCAN MNEMONIC TABLE
0060CC:I      0000 6288:I               4728           DAC   DFINAL
0060D0:I      0505 0000                 4728 MESSAGE   DB    5,R5,0,0           CODE 5, OUTPUT MESSAGE
0060D4:I      0000 6288:I               4728           DAC   DFINAL
0060D8:I      0600 0000                 4728 ACCEPT    DB    6,0,0,0            CODE 6, READ COMMAND LINE
0060DC:I      0000 6288:I               4728           DAC   DFINAL
0060E0:I      0704 0000                 4728 NONSPACE  DB    7,R4,0,0           CODE 7, FIND NEXT NON-SPACE
0060E4:I      0000 6288:I               4728           DAC   DFINAL
0060E8:I      0800 0000                 4728 BLANK     DB    8,0,0,0            CODE 8, CLEAR OUTBUF
0060EC:I      0000 6288:I               4728           DAC   DFINAL
0060F0:I      0901 0200                 4728 MOVE      DB    9,R1,R2,0          CODE 9, MOVE ASCII STRING
0060F4:I      0000 6288:I               4728           DAC   DFINAL
0060F8:I      0A01 0200                 4728 HEXASC    DB    10,R1,R2,R0        CODE 10, CONVERT HEX TO ASCII
0060FC:I      0000 6288:I               4728           DAC   DFINAL
006100:I      0B04 0000                 4728 GETCHAR   DB    11,R4,0,0          CODE 11, GET NEXT CMDBUF CHARACTER
006104:I      0000 6288:I               4728           DAC   DFINAL
006108:I      0C00 0000                 4728 OPERERR   DB    12,0,0,0           CODE 12, OPERAND ERROR MESSAGE
00610C:I      0000 6288:I               4728           DAC   DFINAL
006110:I      0D06 0400                 4728 GETHEX    DB    13,R6,R4,0         CODE 13, GET HEX ARGUMENT
006114:I      0000 6288:I               4728           DAC   DFINAL
006118:I      0E06 0400                 4728 GETDEC    DB    14,R6,R4,0         CODE 14, GET DECIMAL ARGUMENTR08.7
00611C:I      0000 6288:I               4728           DAC   DFINAL
006120:I      0F01 0200                 4728 RANGE     DB    15,R1,R2,0         CODE 15, CHECK ADDRESS RANGE R06.6
006124:I      0000 6288:I               4728           DAC   DFINAL             *                              R06.6
006128:I      1001 0200                 4728 DECASC    DB    16,R1,R2,0         CODE 16, CONVERT HEX TO DECIMAL
00612C:I      0000 6288:I               4728           DAC   DFINAL             ASCII STRING
006130:I      1100 0000                 4728 LOOPTOP   DB    17,0,0,0           CODE 17, ESTABLISH SEQUENCE TOP
006134:I      0000 6288:I               4728           DAC   DFINAL
006138:I      1204 0000                 4728 GET.CC    DB    18,R4,0,0          CODE 18, GET CONDITION CODE
00613C:I      0000 6288:I               4728           DAC   DFINAL
006140:I      1300 0000                 4728 PASS      DB    19,0,0,0           CODE 19, SEQUENCE PASS
006144:I      0000 6288:I               4728           DAC   DFINAL
006148:I      140F 0000                 4728 ERROR     DB    20,R15,0,0         CODE 20, SEQUENCE ERROR
00614C:I      0000 6288:I               4728           DAC   DFINAL
006150:I      150F 0E00                 4728 ERRORX    DB    21,R15,R14,0       CODE 21, ERROR & FRU MSG
006154:I      0000 6288:I               4728           DAC   DFINAL
006158:I      1600 0000                 4728 TESTEND   DB    22,0,0,0           CODE 22, END OF TEST
00615C:I      0000 6288:I               4728           DAC   DFINAL
006160:I      1701 0000                 4728 SVC1      DB    23,R1,0,0          CODE 23, SVC 1                 R07.4
006164:I      0000 6288:I               4728           DAC   DFINAL             *                              R07.4
006168:I      1801 0000                 4728 SVC1EXT   DB    24,R1,0,0          CODE 24, EXTENDED SVC 1        R07.4
00616C:I      0000 6288:I               4728           DAC   DFINAL             *                              R07.4
006170:I      1901 0000                 4728 ALLOCATE  DB    25,R1,0,0          CODE 25, ALLOCATE              R07.4
006174:I      0000 6288:I               4728           DAC   DFINAL             *                              R07.4
```

EXECUTIVE SERVICE SUPERVISOR CALLS

```
006178:I     1A01                4728  CONNECT  DB    26,R1           CODE 26, ESTABLISH DEVICE    R06.7
00617A:I     0000                4728           DCX   0               TIMEOUT VALUE                R06.4
00617C:I     0000 6288:I         4728           DAC   DFINAL
006180:I     1B01 0000           4728  RELEASE  DB    27,R1,0,0       CODE 27, RELEASE DEVICE      R06.4
006184:I     0000 6288:I         4728           DAC   DFINAL
006188:I     1C01                4728  INTWAIT  DB    28,R1           CODE 28, WAIT FOR INTERRUPT  R06.7
00618A:I     0000                4728           DCX   0               TIMEOUT VALUE                R06.4
00618C:I     0000 6288:I         4728           DAC   DFINAL
006190:I     1D01                4728  TIMEOUT  DB    29,R1           CODE 29, ESTABLISH TIMEOUT   R06.4
006192:I     0000                4728           DCX   0               TIMEOUT VALUE                R06.4
006194:I     0000 6288:I         4728           DAC   DFINAL
006198:I     1E0F 0000           4728  IITRAP   DB    30,R15,0,0      CODE 30, REQUEST ILLEGAL     R06.6
00619C:I     0000 6288:I         4728           DAC   DFINAL          INSTRUCTION TRAP
0061A0:I     1F0F 0000           4728  FMERTRAP DB    31,R15,0,0      CODE 31, REQUEST FORMAT FAULT TRAP
0061A4:I     0000 6288:I         4728           DAC   DFINAL
0061A8:I     200F 0000           4728  AFTRAP   DB    32,R15,0,0      CODE 32, REQUEST ARITHMETIC FAULT
0061AC:I     0000 6288:I         4728           DAC   DFINAL          TRAP
0061B0:I     210F 0000           4728  MMFTRAP  DB    33,R15,0,0      CODE 33, REQUEST MMF TRAP
0061B4:I     0000 6288:I         4728           DAC   DFINAL
0061B8:I     2200 0000           4728  RETURN   DB    34,0,0,0        CODE 34, EXEC CONTINUE
0061BC:I     0000 6288:I         4728           DAC   DFINAL
0061C0:I     2300 0000           4728  REPEAT   DB    35,0,0,0        CODE 35, REPEAT TEST         R07
0061C4:I     0000 6288:I         4728           DAC   DFINAL          *                            R07.2
0061C8:I     2400 0000           4728  RERUN    DB    36,0,0,0        CODE 36, RERUN TESTS         R07
0061CC:I     0000 6288:I         4728           DAC   DFINAL          *                            R07.2
0061D0:I     2500 0000           4728  ABORT    DB    37,0,0,0        CODE 37, ABORT TEST SEQUENCE R07.2
0061D4:I     0000 6288:I         4728           DAC   DFINAL          *                            R07.2
0061D8:I     260D 0000           4728  MESSAGEX DB    38,R13,0,0      CODE 38, FIRST ERROR MESSAGE R07.6
0061DC:I     0000 6288:I         4728           DAC   DFINAL          *                            R07.6
0061E0:I     270F 0000           4728  MAFTRAP  DB    39,R15,0,0      CODE 39, MEMORY ACCESS FAULT R07.9
0061E4:I     0000 6288:I         4728           DAC   DFINAL          *                            R07.9
0061E8:I     2801 0000           4728  SETSTAT  DB    40,R1,0,0       CODE 40, SET STATUS          R08
0061EC:I     0000 6288:I         4728           DAC   DFINAL          *                            R08
0061F0:I     2901 0000           4728  RESTSTAT DB    41,R1,0,0       CODE 41, RESET STATUS        R08
0061F4:I     0000 6288:I         4728           DAC   DFINAL          *                            R08
0061F8:I     2A00 0000           4728  OPTIONS  DB    42,0,0,0        CODE 42, SHOW OPTIONS        R08.3
0061FC:I     0000 6288:I         4728           DAC   DFINAL          *                            R08.3
006200:I     2B02 0304           4728  DEVCHK   DB    43,R2,R3,R4     CODE 43, CHECK DEVICE TYPE   R08.4
006204:I     0000 6288:I         4728           DAC   DFINAL          *                            R08.4
                                 4728  *
                                 4728  * I/O PARAMETER BLOCKS
                                 4728  *
006208:I     0000                4728  IOBLOCK0 DCX   0               DEVICE LEVEL & ADDRESS
00620A:I     0000                4728           DCX   0               DEVICE STATUS
00620C:I     0000 0000           4728           DAC   0               HANDLER ADDRESS
006210:I     0000                4729  IOBLOCK1 DCX   0
006212:I     0000                4730           DCX   0
006214:I     0000 0000           4731           DAC   0
006218:I     0000                4732  IOBLOCK2 DCX   0
00621A:I     0000                4733           DCX   0
00621C:I     0000 0000           4734           DAC   0
006220:I     0000                4735  IOBLOCK3 DCX   0
006222:I     0000                4736           DCX   0
```

EXECUTIVE SERVICE SUPERVISOR CALLS

```
006224:I     0000 0000              4737            DAC   0
006228:I     0000                   4738  IOBLOCK4  DCX   0
00622A:I     0000                   4739            DCX   0
00622C:I     0000 0000              4740            DAC   0
006230:I     0000                   4741  IOBLOCK5  DCX   0
006232:I     0000                   4742            DCX   0
006234:I     0000 0000              4743            DAC   0
006238:I     0000                   4744  IOBLOCK6  DCX   0
00623A:I     0000                   4745            DCX   0
00623C:I     0000 0000              4746            DAC   0
006240:I     0000                   4747  IOBLOCK7  DCX   0
006242:I     0000                   4748            DCX   0
006244:I     0000 0000              4749            DAC   0
006248:I     0000                   4750  IOBLOCK8  DCX   0
00624A:I     0000                   4751            DCX   0
00624C:I     0000 0000              4752            DAC   0
006250:I     0000                   4753  IOBLOCK9  DCX   0
006252:I     0000                   4754            DCX   0
006254:I     0000 0000              4755            DAC   0
006258:I     0000                   4756  IOBLOCKA  DCX   0
00625A:I     0000                   4757            DCX   0
00625C:I     0000 0000              4758            DAC   0
006260:I     0000                   4759  IOBLOCKB  DCX   0
006262:I     0000                   4760            DCX   0
006264:I     0000 0000              4761            DAC   0
006268:I     0000                   4762  IOBLOCKC  DCX   0
00626A:I     0000                   4763            DCX   0
00626C:I     0000 0000              4764            DAC   0
006270:I     0000                   4765  IOBLOCKD  DCX   0
006272:I     0000                   4766            DCX   0
006274:I     0000 0000              4767            DAC   0
006278:I     0000                   4768  IOBLOCKE  DCX   0
00627A:I     0000                   4769            DCX   0
00627C:I     0000 0000              4770            DAC   0
006280:I     0000                   4771  IOBLOCKF  DCX   0
006282:I     0000                   4772            DCX   0
006284:I     0000 0000              4773            DAC   0
```

```
                                4775  * THE DFINAL STRUCTURE MUST BE PLACED AT THE END OF
                                4776  * OF THE DIAGNOSTIC MODULE
                                4777  *
                                4778  *
006288:I                        4779          COPY  DFINAL
                                4779  * THE DFINAL STRUCTURE MUST BE PLACED AT THE END OF
                                4779  * OF THE DIAGNOSTIC MODULE
                                4779  *
                                4779  *
006288:I                        4779          ALIGN ADC
006288:I  0000 00BC:I           4779  DFINAL  DAC   DIAG.OPT            A(OPTION TABLE)
00628C:I  0000 013C:I           4779          DAC   DIAGPTAB            A(OPTION PROCESSORS)
006290:I  0000 2302:I           4779          DAC   SUB.INIT            A(SUBTEST INITIALIZE ROUTINE)
006294:I  0000                  4779  BTESTNO DCX   0                   CURRENT TEST NUMBET
006296:I  0000                  4779  MAXTST  DCX   0                   MAXIMUM TEST NUMBER
006298:I  0000 0188:I           4779          DAC   TESTS               A(TESTS TABLE)
00629C:I  0000 01B4:I           4779          DAC   TESTSEND            A(LAST TEST ENTRY)+4
0062A0:I  0000 0000             4779          DAC   SYNOPSIS            A(SUMMARY MESSAGE ROUTINE)
0062A4:I  0000 004D:I           4779          DAC   TITLE               A(DIAGNOSTIC TITLE)
0062A8:I  0000 0000             4779  TOTAL   DAC   0                   TOTAL SEQUENCE EXECUTIONS
0062AC:I  0000 0000             4779  TOTERR  DAC   0                   TOTAL ERRORS
0062B0:I                        4779          DAS   16                  (ERR.SAVE)
0062F0:I                        4779          DAS   16                  (MSG.SAVE)
006330:I  0000 0000             4779          DAC   0                   (OPTPOINT) OPTION ADDRESS
006334:I  0000 0000             4779          DAC   0                   (POINTER) ERROR MESSAGE ADDRESS
006338:I  0000 0000             4779          DAC   0                   (FRUMSG) 2ND MESSAGE ADDRESS R06.5
00633C:I  0000 0000             4779          DAC   0                   (ADRSSAVE) INTERMEDIATE POINTER R07.4
006340:I  0000                  4779          DCX   0                   (ERR.FLAG) SEQUENCE ERROR FLAG
006342:I  0000                  4779          DCX   0                   (LOOP.OPT) LOOP VALUE
006344:I  0001                  4779          DCX   1                   PROCEED OPTION VALUE
006346:I  0000                  4779          DCX   0                   LISTING LINE COUNTER          R07.4
006348:I  0700                  4779          DC    Z(CMDEQLOG+CMDEQLST+LSTEQLOG) FLAGS               R07.5
00634A:I  00                    4779          DB    0                   ADDITIONAL FLAGS              R07.5
00634B:I  00                    4779          DB    0                   EXECUTIVE LEVEL               R07.4
00634C:I  0000 0000             4779          DAC   0                   (WPROCEED) WORKING PROCEED VALUE
006350:I  0000 0001             4779          DAC   1                   REPEAT OPTION VALUE
006354:I  0000 0000             4779  CMDPTR  DAC   0                   COMMAND POINTER
006358:I  0000 0000             4779  INTERCPT DAC  0                   INTERCEPT ROUTINE ADDRESS     R06.5
00635C:I  0000 0000             4779  FADDRESS DAC  0                   FAULT ADDRESS FOR TRAPS       R06.6
006360:I  0000 0000             4779  REASON  DAC   0                   REASON CODE FOR TRAPS         R06.6
006364:I  0000 0000             4779  OLDPSW  DAC   0                   TRAP OLD PSW                  R07.6
006368:I  0000 0000             4779  OLDLOC  DAC   0                   TRAP OLD LOC                  R07.6
00636C:I  0000 0000             4779  CONTINUP DAC  0,0                 CONTINUATION PSW              R06.7
006370:I  0000 0000
006374:I  0000 00               4779          DB    0,0,0               GLOBAL LU ASSIGNMENT FLAGS    R07
006377:I  00                    4779  INT.CODE DB   0                   INTERCEPT REASON CODE         R06.7
006378:I  434F 4E20 2020 2020   4779          DB    C'CON     '         (CMD.FD)
006380:I  2020 2020 2020 2020   4779          DB    C'        '
006388:I  434F 4E20 2020 2020   4779          DB    C'CON     '         (LOG.FD)
006390:I  2020 2020 2020 2020   4779          DB    C'        '
006398:I  434F 4E20 2020 2020   4779          DB    C'CON     '         (LST.FD)
0063A0:I  2020 2020 2020 2020   4779          DB    C'        '         *
0063A8:I  0000                  4779          DCX   0                   (LST.ATTR)
0063AA:I  0000                  4779          DCX   0                   (LOG.ATTR)                    R07.4
0063AC:I  0000                  4779          DCX   0                   (CMD.ATTR)                    R07.4
```

```
0063AE:I      0000               4779          DCX    0                  (LST.LRCL)         R07.4
0063B0:I      0000               4779          DCX    0                  (LOG.LRCL)         R07.4
0063B2:I      0000               4779          DCX    0                  (CMD.LRCL)         R07.4
0063B4:I      0000 0000          4779          DCY    0                  (IITRPLOC)         R07.6
0063B8:I      0000 0000          4779          DCY    0                  (FMTRPLOC)         R07.6
0063BC:I      0000 0000          4779          DCY    0                  (AFTRPLOC)         R07.6
0063C0:I      0000 0000          4779          DCY    0                  (MMTRPLOC)         R07.6
0063C4:I      0000 0000          4779          DCY    0                  (MATRPLOC)         R07.6
0063C8:I      0000 0000          4779          DCY    0                  (LOADBIAS)         R07.9
0063CC:I      0000 0000          4779          DCY    0                  SPARE              R07.6
0063D0:I      0000 0000          4779          DCY    0                  SPARE              R07.6
0063D4:I      0000 0000          4779          DCY    0                  (TIME)             R07.4
0063D8:I      0000               4779          DCX    0                  (TIMETOP)          R07.4
0063DA:I      0000               4779          DCX    0                  *                  R07.4
0063DC:I                         4779          DAS    16*3               (TIMQUEUE)         R07.4
00649C:I                         4779          DS     8                  TASK QUEUE
0064A4:I                         4779          DAS    3                  *
0064B0:I      4805               4779          DCX    4805,0             (READLU5)
0064B2:I      0000
0064B4:I      0000 6538:I        4779          DC     INBUF,INBUF+255
0064B8:I      0000 6637:I
0064BC:I      0000 0000          4779          DC     0,0
0064C0:I      0000 0000
0064C4:I      2900               4779          DCX    2900,0000          (WRITELUX)
0064C6:I      0000
0064C8:I      0000 0000          4779          DCY    0,0
0064CC:I      0000 0000
0064D0:I      0000 0000          4779          DC     0,0
0064D4:I      0000 0000
0064D8:I      0013               4779          DB     0,19               (PEEK00)
0064DA:I                         4779          DS     2                  (NLU,MPRI)
0064DC:I                         4779          DS     8                  (OSID)
0064E4:I                         4779          DS     8                  (TASKNAME)
0064EC:I                         4779          DS     4                  (CTSW)
0064F0:I                         4779          DS     4                  (TOPT)
0064F4:I      0113               4779          DB     1,19               (PEEK01)
0064F6:I                         4779          DS     2
0064F8:I                         4779          DS     8                  (OSID)
006500:I                         4779          DS     2                  (OSUP)
006502:I                         4779          DS     2                  (CPU)
006504:I                         4779          DS     4                  (SOPT)
006508:I                         4779          DS     2                  (UACT)
00650A:I                         4779          DS     2                  (GACT)
00650C:I                         4779          DS     4
006510:I                         4779          DS     28                 (SVC7)
00652C:I                         4779          DS     12                 (SVC2)
006538:I                         4779  INBUF   DS     256                COMMAND INPUT BUFFER
006638:I                         4779  OUTBUF  DS     256                OUTPUT PRINT BUFFER
                                 4780  *
                                 4781  * ANY BUFFERS THE DIAGNOSTIC MODULE NEEDS SHOULD BE
                                 4782  * PLACED HERE
                                 4783  *
                                 4784  *
                                 4785  * 16KB RESOLUTION MEMORY MAP
                                 4786  * EACH BIT REPRESENTS 16KB
```

```
                                4787  * EACH BYTE REPRESENTS 128KB
                                4788  *
006738:I      00                4789  KB0016    DB     X'00'
              0000 6739:I       4790  KB0144    EQU    *                    ABOVE TEST
006739:I                        4791            DS     127
              0000 67B7:I       4792  KB15904   EQU    *-1
0067B8:I      00                4793            DB     0
              0000 67B9:I       4794  LNZB      EQU    *
0067BC:I                        4795            ALIGN  4
0067BC:I                        4796  INTSAVE   DS     64
0067FC:I                        4797  RSAVE1    DS     64
00683C:I                        4798  RSAVEA    DS     512
              0000 6A3C:I       4799  RSAVEND   EQU    *
              0000 6A80:I       4800  PST       EQU    RSAVEND-START+128&Y'FFFF80'+START
              0000 7280:I       4801  PSTE      EQU    PST+2048
006A3C:I                        4802            END
```

SYMBOL TABLE & CROSS REFERENCE LIST

ASSEMBLED BY CAL/32 03-338R01-00

START OPTIONS: T=32,ERLST

NO CAL ERRORS
NO CAL WARNINGS
9 PASSES

TABLE SPACE USED : 32K DISC SECTORS : 0

$BTESTNO	0000 000C	56*						
$CMDBUF	0000 02B0	56*						
$CMDPTR	0000 00CC	56*						
$CONTINU	0000 00E4	56*						
$DINIT	0000 0008	56*						
$DOPTION	0000 0000	56*						
$DPTAB	0000 0004	56*						
$FADDRES	0000 00D4	56*						
$INTCFLG	0000 0080	56*						
$INTCODE	0000 00EF	56*						
$INTRCPT	0000 00D0	56*						
$LINCNT	0000 00BE	56*						
$MAXTST	0000 000E	56*						
$OLDLOC	0000 00E0	56*						
$OLDPSW	0000 00DC	56*						
$OUTBUF	0000 03B0	56*						
$PRESL0	0000 22C4:I	1446*	1451					
$PRESL1	0000 22D0:I	1447	1449*					
$PRESTAB	0000 5FF4:I	722	1355	1360	1367	1418	1445	1448 4676*
$REASON	0000 00D8	56*						
$ROUTINE	0000 000E	56*						
$SYNOPS	0000 0018	56*						
$TESTS	0000 0010	56*						
$TESTSE	0000 0014	56*						
$TITLE	0000 001C	56*						
$TOTAL	0000 0020	56*						
$TOTERR	0000 0024	56*						
.A	0000 00C1	56*	116	119	121			
.B	0000 00C2	56*	111	113	119	122		
.C	0000 00C3	56*	105	109	110	119	121	
.D	0000 00C4	56*	107	108				
.E	0000 00C5	56*	105	107	110	120		
.F	0000 00C6	56*	108	113	113			
.G	0000 00C7	56*						
.H	0000 00C8	56*	105					
.I	0000 00C9	56*	106	108	112	115	117	
.J	0000 00CA	56*						
.K	0000 00CB	56*						
.L	0000 00CC	56*	105	109	120			
.M	0000 00CD	56*	112	117	118	121		
.N	0000 00CE	56*	115	117				
.O	0000 00CF	56*	106	114	118			
.P	0000 00D0	56*	116					

SYMBOL TABLE & CROSS RFFERENCE LIST

```
.Q          0000 00D1          56*
.R          0000 00D2          56*   120    122
.S          0000 00D3          56*   105    108    110    122
.T          0000 00D4          56*   111    114    116    118    122
.U          0000 00D5          56*   113    114    118
.V          0000 00D6          56*   107    117    118
.W          0000 00D7          56*
.X          0000 00D8          56*
.Y          0000 00D9          56*   109    111
.Z          0000 00DA          56*
A.RUN       0000 0020          56*
A.SEQ       0000 0010          56*
ABORT       0000 61D0:I       4728*
ABSTOP      0000 0000
ACCEPT      0000 60D8:I       4728*
ACTIVDIS    0000 4CA0:I       3427   4229*
ACTIVE      0000 6024:I       1557   1563   1613   1645   1854   1873   1886   1907   1965   1996   2019   3048   31
                              3886   3929   3962   4007   4374   4398   4710*
ADC         0000 0004          128    156    186    264    301    314    339    476    514    518    544    570    6
                               666    691    775    820    834    875    912    951    965    986   1000   1021   10
                              1164   1221   1667   2543   2619   2686   2899   3024   3108   3138   3161   3215   32
                              3240   3264   3285   3327   3358   3376   3436   3437   3470   3471   3547   3923   40
                              4052   4057   4076   4080   4408   4728   4779
ADD.REM     0000 0020          56*   695    779    824    879    916    955    990   1025   1074   1131   1168   12
ADDFLAG     0000 0002          56*  1352
ADJ2        0000 372E:I       2908   2912*
ADJREG      0000 3F2C:I       3331   3333*  3353
ADJUST0     0000 3058:I       2547   2549*  2566   2568   2590   2592   2598
ADJUST1     0000 33EE:I       2692   2694*  2755   2835   2844   2851   2853   2872   2879   2889
ADJUST2     0000 3718:I       2903   2905*  2911   2947
ADJUST3     0000 39F2:I       3029   3031*  3049   3083   3090   3101
ADJUST4     0000 3B5C:I       3112   3114*  3147   3190   3197   3208
ADJUST8     0000 3278:I       2623   2625*  2642   2660   2673
ADJUSTA     0000 4302:I       3553   3555*  3592   3649   3656   3667
ADRIN       0000 5E52:I       4059   4586*
ADROUT      0000 5E1D:I       4054   4579*
ADRS1       0000 5F01:I       1972   4620*
ADRS2       0000 5F02:I       1973   4621*
ADRS3       0000 5F03:I       1974   4622*
ADRS4       0000 5F21:I       1980   4626*
ADRS5       0000 5F22:I       1981   4627*
ADRS6       0000 5F23:I       1982   4628*
ADRSSAVE    0000 00B4          56*
ADVS2MSG    0000 38E0:I       2997   3014*
AFTRAP      0000 61A8:I       4728*
AFTRPLOC    0000 0134          56*
ALLOCATE    0000 6170:I       4728*
ALLSET      0000 4788:I       3839   3856   3883*
ALLSET1     0000 4798:I       3887   3890*
AMSG0       0000 4E8C:I       4410*
AMSG1       0000 4E90:I       4411*
AMSG10      0000 4EB4:I       4420*
AMSG11      0000 4EB8:I       4421*
```

SYMBOL TABLE & CROSS REFERENCE LIST

```
AMSG12    0000 4EBC:I        4422*
AMSG13    0000 4EC0:I        4423*
AMSG14    0000 4EC4:I        4424*
AMSG15    0000 4EC8:I        4425*
AMSG16    0000 4ECC:I        4426*
AMSG17    0000 4ED0:I        4427*
AMSG18    0000 4ED4:I        4428*
AMSG19    0000 4ED8:I        4429*
AMSG2     0000 4E94:I        4412*
AMSG20    0000 4EDC:I        4430*
AMSG21    0000 4EE0:I        4431*
AMSG22    0000 4EE4:I        4432*
AMSG23    0000 4EE8:I        4433*
AMSG24    0000 4EEC:I        4434*
AMSG25    0000 4EF0:I        4435*
AMSG26    0000 4EF4:I        4436*
AMSG27    0000 4EF8:I        4437*
AMSG28    0000 4EFC:I        4438*
AMSG29    0000 4F00:I        4439*
AMSG3     0000 4E98:I        4413*
AMSG30    0000 4F04:I        4440*
AMSG31    0000 4F08:I        4441*
AMSG32    0000 4F0C:I        4442*
AMSG33    0000 4F10:I        4443*
AMSG34    0000 4F14:I        4444*
AMSG35    0000 4F18:I        4445*
AMSG36    0000 4F1C:I        4446*
AMSG37    0000 4F20:I        4447*
AMSG38    0000 4F24:I        4448*
AMSG39    0000 4F28:I        4449*
AMSG4     0000 4E9C:I        4414*
AMSG40    0000 4F2C:I        4450*
AMSG41    0000 4F30:I        4451*
AMSG42    0000 4F34:I        4452*
AMSG43    0000 4F38:I        4453*
AMSG44    0000 4F3C:I        4454*
AMSG45    0000 4F40:I        4455*
AMSG46    0000 4F44:I        4456*
AMSG47    0000 4F48:I        4457*
AMSG48    0000 4F4C:I        4458*
AMSG49    0000 4F50:I        4459*
AMSG5     0000 4EA0:I        4415*
AMSG50    0000 4F54:I        4460*
AMSG6     0000 4EA4:I        4416*
AMSG7     0000 4EA8:I        4417*
AMSG8     0000 4EAC:I        4418*
AMSG9     0000 4EB0:I        4419*
ARG2      0000 4B74:I        4197   4200*
ASCIIVAL  0000 0003           56*
AUTO      0000 4000           56*
BACK.OPT  0000 0630:I        150    571*
BBIAS     0000 8000:I         60*   302    303    304    305    306    307    308    309    315    316    317    3
                             320    321    322    966    967    968    969    970    971    972    973   1001   10
```

SYMBOL TABLE & CROSS REFERENCE LIST

```
                                1004   1005   1006   1007   1008
BKGRND      0000 01B8:I          182*   573    577    582   2168   4111
BLANK       0000 60E8:I          719    747   4728*
BLANKMSG    0000 5D7F:I         1731   4565*
BOLOOP      0000 4758:I         3864   3866   3869*
BOTH        0000 4738:I         3817   3857*
BTESTNO     0000 6294:I         3954   3965   4300   4779*
BUFADRS     0000 3EAC:I         3275   3303   3315*
BUFCHK      0000 45A2:I         1758   2752   3050   3148   3740*
BUFCHK0     0000 45E4:I         3757*  3775
BUFCHK1B    0000 4630:I         3766   3777*
BUFCHK1C    0000 462A:I         3769   3775*
BUFCHK1D    0000 4612:I         3760   3770*
BUFCHK3     0000 4638:I         3756   3780*  3786
BUFCHK4     0000 463E:I         3753   3781*  3788
BUFCHK5     0000 465C:I         3791*  3798
BUFFILOP    0000 12D0:I          144    913*   919    938
BUFFPRT     0000 1310:I          915    937*
BUFILTAB    0000 0254:I          289*   918    924    937   3732
BUFRM       0000 47C4:I         1983   3688   3693   3829   3846   3873   3879   3904*
BUFRM1      0000 47D6:I         3910*  3912
BUFRM2      0000 47E8:I         3911   3917*
BUFRM3      0000 47EE:I         3916   3920*
BUFSWITCH   0000 23F0:I         1543   1548*
BUSMASK     0000 5FF8:I           66    673   1466   1488   2666   4678*
BXL0        0000 2C10:I         2175   2207   2220   2241   2247*  2256
BXL0A       0000 2B98:I         2197   2200   2206*
BXL1        0000 4AE8:I         4151*  4163
BXL1A       0000 4B04:I         4145   4149   4162*
BXL2        0000 4B48:I         4181   4187*
BXLE        0000 4562:I         3720   3722*
BXLE1       0000 4676:I         3796   3798*
BXLE2       0000 27C0:I         1855   1867*
BXLE4       0000 457C:I         3727   3730*
BXLE5       0000 4654:I         3785   3788*
BYTE        0000 5F40:I         2073   4631*
BYTE.OPT    0000 0F28:I          142    821*   827    845
BYTE1       0000 5DFC:I         4041   4575*
BYTE11      0000 5F41:I         2069   4632*
BYTE2       0000 5DFE:I         4576*
BYTE21      0000 5F42:I         2070   4633*
BYTE3       0000 5E00:I         4577*
BYTE31      0000 5F43:I         2071   4634*
BYTE4       0000 5E31:I         4045   4582*
BYTE5       0000 5E33:I         4583*
BYTE6       0000 5E35:I         4584*
BYTE7       0000 5E76:I         4049   4589*
BYTE8       0000 5E78:I         4590*
BYTE9       0000 5E7A:I         4591*
BYTEEXP     0000 5EF8:I         2988   4611*
BYTEMODE    0000 6014:I         2272   4699*
BYTEMSG     0000 5DF2:I         4061   4574*
BYTEPRT     0000 0F70:I          823    844*
```

SYMBOL TABLE & CROSS REFERENCE LIST

```
BYTEREAD  0000 5EFC:I   2992  4615*
BYTETAB   0000 0224:I    265*  826   830   844  1529  1797  1975  2717  2775  2817  3069  3177  35
                        3626  3682  3745  3805
CHECKIN   0000 46C4:I   3815  3819*
CHK16BIT  0000 3794:I   2942  2951*
CHK20BIT  0000 378C:I   2927  2948*
CHKDEV    0000 27DE:I   1875  1879*
CHKERR@   0000 282E:I   1878  1884  1905*
CHKINT    0000 27C8:I   1742  1825  1872*
CHKRETRN  0000 2862:I   1904  1914  1922  1924*  4210  4329  4334  4406
CHKWRTD   0000 2E58:I   2359  2364*
CLEAR     0000 6007:I   2265  4685*
CLEAR1    0000 6006:I   4684*
CLR       0000 358C:I   2824  2826  2836*
CLR16KB   0000 5F68:I   1499  4639*
CLREXIT   0000 5F88:I   4643  4651*
CLRSTART  0000 5FFC:I     68  1497  1521  4679*
CMD       0000 3EA4:I   3274  3302  3313*
CMD.ATTR  0000 0124      56*
CMD.FD    0000 00F0      56*
CMD.LRCL  0000 012A      56*
CMD1      0000 2D2E:I   2265*
CMD6250   0000 293A:I   2004*
CMDEQLOG  0000 0100      56*  4779
CMDEQLST  0000 0400      56*  4779
CMDPTR    0000 6354:I   1350  1384  4779*
CMLOOP    0000 5F80:I   4649*  4650
CNTLDIS   0000 2A36:I   2086  2090  2094*
COMMAND   0000 60B8:I    681  1297  1306  1311  1610  1620  4728*
CONNECT   0000 6178:I   1570  1575  3121  3125  3340  3344  3392  3398  4728*
CONT1     0000 3E94:I   3277  3305  3309*
CONT2     0000 3E78:I   3297  3299  3301*
CONTINUP  0000 636C:I   4779*
COUNTER   0000 03F4:I    516*  3383  3425  3426
CPU       0000 027A      56*
CR        0000 000D      56*    77    79    81    83    84   535   537   539   541   542   561   5
                        567   568   589   591   593   594   595   596   597   598   619   621   6
                        626   653   655   657   659   661   663   664   675   687   689   760   7
                        764   766   768   769   770   771   773   806   808   809   810   811   8
                        816   817   818   852   854   856   857   858   860   862   864   866   8
                        871   873   908   910   945   947   948   983   984  1018  1019  1054  10
                       1058  1059  1060  1061  1062  1063  1064  1065  1066  1067  1103  1105  11
                       1108  1109  1110  1111  1112  1113  1114  1115  1116  1117  1118  1119  11
                       1122  1123  1124  1158  1159  1160  1162  1195  1197  1199  1200  1201  12
                       1204  1205  1206  1207  1208  1209  1210  1211  1212  1213  1214  1215  12
                       1254  1256  1258  1260  1262  1263  1264  1265  1266  1267  1268  1269  12
                       1272  1273  1274  1275  1276  1277  1278  1279  1280  1281  1292  1376  26
                       2612  2614  2616  2617  2675  2677  2679  2681  2682  2891  2893  2894  28
                       3009  3011  3013  3015  3017  3019  3021  3022  3103  3105  3106  3259  32
                       3281  3283  3323  3325  3354  3355  3356  3357  3542  3544  3545  3670  44
                       4465  4466  4467  4468  4469  4470  4471  4472  4473  4474  4476  4478  44
                       4484  4485  4486  4488  4490  4491  4492  4493  4494  4495  4496  4497  44
                       4502  4504  4506  4508  4510  4511  4513  4514  4516  4517  4519  4521  45
```

SYMBOL TABLE & CROSS REFERENCE LIST

```
                                4527   4529   4531   4532   4534   4535   4537   4538   4540   4541   4543   4545   45
                                4550   4552   4553   4555   4557   4558   4559   4560   4561   4562   4563   4564   45
                                4573   4580   4587   4592   4597   4599   4601   4602   4604   4606   4608   4660   46
CRTACTIV  0000 5FE6:I           4236   4671*
CRTCOUNT  0000 5FE9:I           4234   4673*
CRTMSG    0000 5F8E:I           4256   4654*
CRTMSG1   0000 5F98:I           4250   4656*
CRTMSG2   0000 5FA7:I           4254   4658*
CRTMSG3   0000 5FC3:I           4269   4665*
CRTMSG4   0000 5FD5:I           4273   4667*
CRTMSGA   0000 5FB8:I           4275   4663*
CTSW      0000 0264              56*
CURTOP    0000 5F64:I           3894   3901   3920   4638*
CYLMSG1   0000 50E7:I           1596   4473*
CYLN.OPT  0000 1AA0:I            140   1165*  1171   1188
CYLPRT    0000 1AD6:I           1167   1187*
CYLTAB    0000 0204:I            240*  1170   1174   1187   1597   2342   2402   2473
D198DRIV  0000 2E9C:I           1682   1683   2397*
D300DRIV  0000 2E9C:I           1681   2396*
D40DRIV   0000 2F74:I           1673   2470*
DATA1     0000 384A:I           2913   3005*
DATA2     0000 384B:I           2914   3006*
DATA3     0000 384C:I           2915   3007*
DBUFILTB  0000 1300:I            925    928*
DBYTETAB  0000 0F50:I            831    835*
DCDDDRIV  0000 2E9C:I           1677   1678   1679   1680   2395*
DCYLTAB   0000 1AC6:I           1175   1178*
DDEVTAB   0000 1722:I           1083   1086*
DDISPTAB  0000 19DA:I           1138   1141*
DEC.VAL   0000 0002              56*    522    548    574    604
DECASC    0000 6128:I            727   1423   4728*
DECODE    0000 2D8C:I           2285   2289   2298*
DECODE1   0000 2D90:I           2297   2300*
DEFAULT   0000 0001              56*    158    159    160    161    162
DELAY     0000 4A00:I           4086*  4726
DELAY1    0000 4A04:I           4087*
DELAY2    0000 4A4C:I           4093   4110*
DELAY3    0000 4A72:I           4120*  4152   4188   4191   4217
DELAYVAL  0000 6078:I           1941   2106   4086   4718*
DEV0INT   0000 4E3C:I           3367   4378*
DEV19     0000 41DE:I           3479   3499*
DEV19A    0000 41EE:I           3501   3504*
DEV19B    0000 41F2:I           3503   3505*
DEV1INT   0000 4E40:I           3368   4380*
DEV29     0000 4198:I           3474*  3481
DEV2INT   0000 4E44:I           3369   4382*
DEV39     0000 4256:I           3506   3508   3534*
DEV3INT   0000 4E48:I           3370   4384*
DEV49     0000 41D2:I           3488   3494*
DEV4INT   0000 4E4C:I           3371   4386*
DEV59     0000 4202:I           3456   3509*
DEV5INT   0000 4E50:I           3372   4388*
DEV69     0000 41C8:I           3491*  3497
```

SYMBOL TABLE & CROSS REFERENCE LIST

```
DEV6INT   0000 4E54:I        3373   4390*
DEV79     0000 4212:I        3513*  3536
DEV7INT   0000 4E58:I        3374   4392*
DEV89     0000 4220:I        3514   3517*
DEV99     0000 4242:I        3516   3527*
DEVA9     0000 4238:I        3524*  3533
DEVADRS   0000 5EF0:I        4067   4607*
DEVBYTE   0000 6076:I        1879   1882   4371   4393   4397   4717*
DEVCHK    0000 6200:I        4728*
DEVCMD    0000 27B4:I        1862   1864*
DEVD9     0000 41B8:I        3485*  3490
DEVE9     0000 41AC:I        3476   3480*
DEVICEX   0000 216A:I        1315*  1356
DEVICEX1  0000 2178:I        1317   1319*
DEVICEX2  0000 2198:I        1324   1329*
DEVICOPT  0000 16F4:I         138   1071*  1077   1096
DEVICPRT  0000 1732:I        1073   1095*
DEVINT    0000 3CFC:I        3122   3235*
DEVINT2   0000 3D36:I        3251   3253*
DEVINT3   0000 3D32:I        3244   3247   3252*
DEVINT9   0000 417E:I        3395   3465*
DEVINTS   0000 4264:I        3419   3450   3507   3510   3539*
DEVINTT   0000 25A0:I        1565   1688*  1725   1788   3123   3170   3341   3396
DEVISRS   0000 4034:I        3342   3367*
DEVLIST   0000 037C:I         453*  4395
DEVNAME   0000 0004            56*
DEVSTAT   0000 038C:I         464*  1894   4396
DEVTABLE  0000 01E4:I         216*  1076   1082   1095   1576   1655   1712   1773   1858   1911   1999   2041   20
                             2292   2306   2311   2316   2407   2708   2724   2766   2782   2822   2857   2880   30
                             3229   3242   3295   3452   3495   3499   3660   3697   3749   3935   3969   4367
DFINAL    0000 6288:I        1351   1476   4728   4728   4728   4728   4728   4728   4728   4728   4728   4728   47
                             4728   4728   4728   4728   4728   4728   4728   4728   4728   4728   4728   4728   47
                             4728   4728   4728   4728   4728   4728   4728   4728   4728   4728   4728   4728   47
                             4728   4728   4728   4728   4779*
DFINSTRC  0000 04B0            56*    56
DFLT.HW   0000 215A:I         647   1305*
DFLTOHW   0000 2158:I         529    555    583    613   1301*
DFLTBCKG  0000 0654:I         572    582*
DFLTBUFF  0000 12F4:I         914    924*
DFLTBYTE  0000 0F42:I         822    830*
DFLTCYL   0000 1ABA:I        1166   1174*
DFLTDEV   0000 1716:I        1072   1082*
DFLTDISF  0000 19CE:I        1129   1137*
DFLTFWS   0000 22DA:I         832    963    998   1456*
DFLTFWSO  0000 22DC:I        1457*  1461
DFLTHWS   0000 2234:I         703    787    889    926   1035   1084   1139   1176   1235   1390*
DFLTHWSO  0000 2236:I        1391*  1395
DFLTIMAG  0000 1230:I         877    887*
DFLTINB   0000 1476:I         988    996*
DFLTIOD   0000 0D5A:I         777    785*
DFLTMACA  0000 08E2:I         630    645*
DFLTMVIN  0000 0414:I         520    528*
DFLTMVOU  0000 052C:I         546    554*
```

SYMBOL TABLE & CROSS REFERENCE LIST

```
DFLTOUTB  0000 13C2:I          953    961*
DFLTPAT   0000 152C:I         1023   1033*
DFLTRELO  0000 07B8:I          602    612*
DFLTSECT  0000 1DCA:I         1223   1233*
DFLTSELC  0000 0B02:I          693    701*
DFLTSTRB  0000 0A6A:I          668    679*
DIAG.OPT  0000 00BC:I           86*  4779
DIAGINIT  0000 60B0:I           70   4728*
DIAGPTAB  0000 013C:I          129*  4779
DIMAGTAB  0000 123C:I          888    891*
DINBTAB   0000 1484:I          996   1001*
DIOTAB    0000 0D66:I          786    789*
DISA6250  0000 6012:I         3502   4697*
DISCHK    0000 29B0:I         2046*
DISCHK1   0000 3622:I         2882   2885*
DISF.OPT  0000 19B4:I          139   1128*  1134   1151
DISFPRT   0000 19EA:I         1130   1150*
DISFTAB   0000 01F4:I          228*  1133   1137   1150   1721   1782   2024   2091   2341   2400   2472   2866   39
                              4001
DISKDRIV  0000 2E08:I         1672   2339*
DISPBUFS  0000 4CC0:I         3735   4240*
DISPFLAG  0000 4D64:I         4229   4244   4263   4282   4294   4297*
DISPLAY   0000 4CD2:I         4244*
DISPLAYA  0000 4D08:I         2554   2594   2630   2662   2672   4263*
DISPLAYC  0000 4CDC:I         4245   4247*
DISPLAYD  0000 4D12:I         4264   4266*
DISPLAYE  0000 4CAA:I         4230   4232*
DMSMDRIV  0000 2E9C:I         1674   1675   1676   2394*
DOERROR   0000 483A:I         1749   1752   1808   1815   1832   1835   1892   1897   1944   1952   1986   2028   20
                              2061   2065   2078   2332   2431   2498   2564   2588   2640   2658   2833   2842   28
                              2909   2963   2973   3081   3088   3140   3163   3188   3195   3221   3226   3255   34
                              3491   3534   3642   3647   3654   3950*  4199   4302   4305   4308   4311   4314   43
                              4325   4330   4337
DOP.DRTN  0000 0004             56*
DOP.HRTN  0000 0000             56*
DOP.KEY   0000 000C             56*  1406
DOP.VAL   0000 0008             56*
DOP.VSIZ  0000 000D             56*  1368   1411
DOPSTRUC  0000 000E             56*    56
DOUTBTAB  0000 13D0:I          961    966*
DPATTAB   0000 1538:I         1034   1037*
DRIVER    0000 0005            175*  1657   1658   1762   1763   2703   2704   2761   2762   3037   3038   3054   30
                              3130   3153   3311   3312   3348   3349   3406   3520   3529   3582   3597   3937
DRIVETAB  0000 255C:I         1657   1668*  3937
DRIVSAV   0000 02B4:I          340*  1658   1762   2703   2761   3037   3054   3129   3152   3311   3348   3402   35
                              3581   3596   3939
DSD4      0000 2ED2:I         2413*  2417
DSD4X     0000 2ECE:I         2409   2412*
DSD5      0000 2E2E:I         2351*  2355
DSD6      0000 2F2C:I         2443*  2444
DSD7      0000 2F24:I         2437   2440*
DSD8      0000 2EF8:I         2426*  2442
DSD9      0000 2F38:I         2441   2447*  2448
```

SYMBOL TABLE & CROSS REFERENCE LIST

DSDA	0000 2F46:I	2452*	
DSDC	0000 2F54:I	2456*	
DSDD	0000 2F18:I	2428	2436*
DSE4	0000 2F9C:I	2482*	2486
DSE4X	0000 2F98:I	2479	2481*
DSE6	0000 2FF4:I	2511*	2512
DSE7	0000 2FE8:I	2504	2507*
DSE8	0000 2FBC:I	2493*	2509
DSE9	0000 3000:I	2515*	2516
DSEA	0000 300A:I	2519*	2520
DSEC	0000 3014:I	2523*	2524
DSECTAB	0000 1DD6:I	1234	1237*
DSED	0000 2FDC:I	2495	2503*
DSELTAB	0000 0B0E:I	701	705*
DUPLICAT	0000 21AA:I	1337*	1361
DUPMSG	0000 0D24:I	773*	1338
EMSG0	0000 513F:I	4410	4475*
EMSG1	0000 5188:I	4411	4477*
EMSG10	0000 5421:I	4420	4495*
EMSG11	0000 5445:I	4421	4496*
EMSG12	0000 546C:I	4422	4497*
EMSG13	0000 5492:I	4423	4498*
EMSG14	0000 54D4:I	4424	4500*
EMSG15	0000 54F8:I	4425	4501*
EMSG16	0000 5528:I	4426	4503*
EMSG17	0000 555B:I	4427	4505*
EMSG18	0000 55AC:I	4428	4507*
EMSG19	0000 55FC:I	4429	4509*
EMSG2	0000 51CC:I	4412	4479*
EMSG20	0000 5645:I	4430	4511*
EMSG21	0000 566C:I	4431	4512*
EMSG22	0000 56A3:I	4432	4514*
EMSG23	0000 56C7:I	4433	4515*
EMSG24	0000 56F7:I	4434	4517*
EMSG25	0000 5720:I	4435	4518*
EMSG26	0000 576B:I	4436	4520*
EMSG27	0000 579C:I	4437	4522*
EMSG28	0000 57D0:I	4438	4524*
EMSG29	0000 5855:I	4439	4528*
EMSG3	0000 5210:I	4413	4481*
EMSG30	0000 58D1:I	4440	4532*
EMSG31	0000 58F8:I	4441	4533*
EMSG32	0000 596E:I	4442	4536*
EMSG33	0000 59B0:I	4443	4538*
EMSG34	0000 5A25:I	4444	4541*
EMSG35	0000 5A48:I	4445	4542*
EMSG36	0000 5A8F:I	4446	4544*
EMSG37	0000 5ACD:I	4447	4546*
EMSG38	0000 5B14:I	4448	4548*
EMSG39	0000 5B61:I	4449	4550*
EMSG4	0000 524D:I	4414	4483*
EMSG40	0000 5B8D:I	4450	4551*
EMSG41	0000 5BCD:I	4451	4553*

SYMBOL TABLE & CROSS REFERENCE LIST

```
EMSG42    0000 5BF3:I        4452   4554*
EMSG43    0000 5C3D:I        4453   4556*
EMSG44    0000 5C86:I        4454   4558*
EMSG45    0000 5CAD:I        4455   4559*
EMSG46    0000 5CD7:I        4456   4560*
EMSG47    0000 5CFE:I        4457   4561*
EMSG48    0000 5D1A:I        4458   4562*
EMSG49    0000 5D3E:I        4459   4563*
EMSG5     0000 528A:I        4415   4485*
EMSG50    0000 5D66:I        4460   4564*
EMSG6     0000 52DA:I        4416   4487*
EMSG7     0000 5324:I        4417   4489*
EMSG8     0000 536F:I        4418   4491*
EMSG9     0000 53C7:I        4419   4493*
ENA6250   0000 294E:I        1863   2004   2011*
ENABLE1   0000 6080:I        3138   3161   3258   4722*
ENABLE2   0000 6088:I        4723*
ENDADRS   0000 5F20:I        1978   2072   4625*
ENDCHECK  0000 4B7E:I        4198   4204*
ERFLT     0000 4B3A:I        4161   4172   4177   4182*
ERNUM     0000 4B42:I        4182   4185*
ERR.FLAG  0000 00B8          56*
ERR.SAVE  0000 0028          56*
ERR1@     0000 4918:I        4012*
ERR2      0000 4880:I        3969*
ERR31     0000 3628:I        2877   2887*
ERR35     0000 2B8A:I        2185   2193   2201*
ERR49     0000 2908:I        1984   1986*  3689   3694
ERR50     0000 4438:I        3632   3639*
ERRFLAG   0000 03EC:I         513*  1556   1634   2567   2591   2754   2852   2878   3953
ERRINT    0000 4AE4:I        4133   4141   4150*
ERRMSG@   0000 5DD2:I        4010   4572*
ERRN      0000 4B5C:I        2121   2203   2215   2228   2235   2243   2250   4193*
ERRNUM1   0000 37C2:I        2964*  2978
ERRNUM2   0000 37E8:I        2974*  2981
ERROR     0000 6148:I        4728*
ERROR1    0000 37A4:I        2950   2956*  2979
ERROR10   0000 4D68:I        2287   2326   4302*
ERROR11   0000 4D7C:I        2363   2435   2502   4308*
ERROR12   0000 4D86:I        2358   2427   2494   4311*
ERROR13   0000 4D90:I        2387   2538   4314*
ERROR14   0000 4D9A:I        2367   2439   2506   4317*
ERROR2    0000 37CC:I        2955   2967*  2982
ERROR26   0000 4D72:I        4305*
ERROR3    0000 37F2:I        2929   2949   2977*
ERROR30   0000 4DA4:I        2266   2294   2308   2318   2328   2353   2415   2484   4320*
ERROR35   0000 4DAE:I        4323*  4725
ERROR36   0000 4DC2:I        4330*  4724
ERROR37   0000 4DD2:I        3774   3779   3783   3793   4335*
ERROR4    0000 37FC:I        2944   2946   2952   2954   2980*
ERRORX    0000 6150:I        4728*
ERRX      0000 48C0:I        3975   3986*  3990
ERRX1     0000 48FE:I        3966   3968   3971   3973   3978   3985   3988   3995   3998   4005*
```

SYMBOL TABLE & CROSS REFERENCE LIST

```
ERRX2      0000 48E2:I        3996*  4000
ERRXY      0000 489C:I        3974   3976*  3980
EVALUATE   0000 60C0:I         524    550    576    606    634    672   4728*
EXADRMSG   0000 5E7F:I        2995   4083   4594*
EXCEPTN    0000 0008           56*    695    779    824    879    916    955    990   1025   1074   1131   1168   12
EXIT9      0000 4826:I        3938*
EXIT9A     0000 4834:I        3930   3943*
EXP1       0000 5EF9:I        2957   2967   4612*
EXP2       0000 5EFA:I        2958   2968   4613*
EXP3       0000 5EFB:I        2959   2969   4614*
EXPBYTE    0000 5E91:I        2987   4077   4595*
FADDRESS   0000 635C:I        4779*
FILSWTCH   0000 2EF4:I        2424*  2425
FINAL      0000 26A4:I        1768*  1805   1810   1814   1817   1827   1828   1834   1837
FINAL2     0000 26D2:I        1779   1782*
FINAL3     0000 26DA:I        1777   1781   1785*
FINAL4     0000 26DC:I        1775   1786*
FIRSTEST   0000 0004           56*   1477
FLAGS      0000 00C0           56*   1351   1476
FLMULT     0000 2BDE:I        2227   2231*
FLMULTI    0000 4B20:I        4171   4173*
FLNORM     0000 2BF4:I        2234   2238*
FLPT       0000 4B08:I        4160   4164*
FLPT1      0000 2BB8:I        2214   2218*
FLTERR@    0000 6090:I        4183   4186   4724*
FLTPT      0000 2B9E:I        2171   2208*
FLTPT1     0000 4AF0:I        4114   4153*  4187
FLTPVAL    0000 607C:I        2208   4154   4719*
FMERTRAP   0000 61A0:I        4728*
FMTRPLOC   0000 0130           56*
FRUMSG     0000 00B0           56*
FUNCTION   0000 4260:I        3417   3513   3515   3517   3537*
FUTDIS     0000 2A2E:I        2088   2091*
GACT       0000 0282           56*
GET.CC     0000 6138:I        4728*
GETCHAR    0000 6100:I        1318   4728*
GETDEC     0000 6118:I        1319   4728*
GETHEX     0000 6110:I        1330   4728*
GO         0000 6018:I        1866   2006   4704*
GO.PASS    0000 30F6:I        2563   2587   2599*  2656   2832   2839   2848
GOCMD      0000 2912:I        1992*  3042   3059   3136   3159   3316   3412   3524   3586   3612
GOCMDRS    0000 294A:I        1997   2008*
GOOPERR    0000 2142:I         580    644   1290*  1322   1332
GORD       0000 2746:I        1756   1818*
GORDT      0000 2760:I        1820   1827*
GORDT2     0000 275C:I        1822   1825*
GORE18     0000 2770:I        1829   1832*
GORE43     0000 277A:I        1830   1835*
GOSYNERR   0000 214C:I         676   1295*  1326   1380
GOWE17     0000 2668:I        1746   1749*
GOWE42     0000 2670:I        1747   1752*
GOWRT      0000 253C:I        1735*  3334
GOWRTT     0000 2658:I        1737   1744*
```

SYMBOL TABLE & CROSS REFERENCE LIST

```
GOWRTT2    0000 2652:I        1739   1742*
HANDLE     0000 0004           56*   1569   1574   3120   3124   3339   3343   3391   3397
HBKGMSG    0000 0664:I        585    588*
HBKGRTN    0000 065C:I        571    585*
HBUFFMSG   0000 1324:I        941    944*
HBUFFRTN   0000 131C:I        913    941*
HBYTEMSG   0000 0F84:I        848    851*
HBYTERTN   0000 0F7C:I        821    848*
HCYLMSG    0000 1AEA:I       1191   1194*
HCYLRTN    0000 1AE2:I       1165   1191*
HDEVMSG    0000 1746:I       1099   1102*
HDEVRTN    0000 173E:I       1071   1099*
HDISFMSG   0000 19FE:I       1154   1157*
HDISFRTN   0000 19F6:I       1128   1154*
HEAD.001   0000 0B2E:I        722*   731
HEAD.002   0000 0B48:I        723    729*
HEAD.003   0000 0B5C:I        735*   740
HEAD.010   0000 0B6A:I        738    741*
HEADMSG1   0000 5066:I       1585   4470*
HEADMSG2   0000 5091:I       1589   4471*
HEADS      0000 0318:I        392*  1587   1590
HELPFLAG   0000 0800           56*
HEX.VAL    0000 0001           56*   632    670    695    779    824    879    916    955    990   1025   1074   11
                              1225   1421
HEXASC     0000 60F8:I       1425   1507   1510   2990   2994   4030   4042   4046   4050   4055   4060   4068   40
                             4235   4251   4255   4270   4274   4728*
HIGH       0000 47FC:I       1979   3686   3687   3691   3692   3828   3845   3872   3878   3907   3925*
HILIM      0000 0044:I         79*  1506
HIMAGMSG   0000 1260:I        904    907*
HIMAGRTN   0000 1258:I        876    904*
HINBMSG    0000 14B8:I       1014   1017*
HINBRTN    0000 14B0:I        987   1014*
HIODMSG    0000 0D8A:I        802    805*
HIODRTN    0000 0D82:I        776    802*
HMACAMSG   0000 08F6:I        649    652*
HMACARTN   0000 08EE:I        629    649*
HMVINMSG   0000 0424:I        531    534*
HMVINRTN   0000 041C:I        519    531*
HMVOUMSG   0000 053C:I        557    560*
HMVOURTN   0000 0534:I        545    557*
HOUTBMSG   0000 1404:I        979    982*
HOUTBRTN   0000 13FC:I        952    979*
HPATMSG    0000 155C:I       1050   1053*
HPATRTN    0000 1554:I       1022   1050*
HRELOMSG   0000 07C8:I        615    618*
HRELORTN   0000 07C0:I        601    615*
HSECMSG    0000 1DFA:I       1250   1253*
HSECTRTN   0000 1DF2:I       1222   1250*
HSELMSG    0000 0BBA:I        756    759*
HSELRTN    0000 0BB2:I        692    756*
HSTRBMSG   0000 0A82:I        683    686*
HSTRBRTN   0000 0A7A:I        667    683*
HTSTOMSG   0000 313C:I       2544   2608*
```

SYMBOL TABLE & CROSS REFERENCE LIST

```
HTST1MSG  0000 3632:I        2687   2891*
HTST2MSG  0000 384D:I        2900   3009*
HTST3MSG  0000 3ADC:I        3025   3103*
HTST4MSG  0000 3D48:I        3109   3259*
HTST5MSG  0000 3DF0:I        3265   3281*
HTST6MSG  0000 3EC6:I        3286   3323*
HTST7MSG  0000 3F84:I        3328   3354*
HTST8MSG  0000 3308:I        2620   2675*
HTST9MSG  0000 4266:I        3377   3542*
HTSTAMSG  0000 4496:I        3548   3670*
HWCMDOUT  0000 2D52:I        2271   2275*
HWMODE    0000 6015:I        2275   4700*
IBUFMSG1  0000 4FA4:I        1539   4464*
IBUFMSG2  0000 501F:I        1548   4468*
IDWT      0000 29B0:I        2047*  2049
IGNORE    0000 24EC:I        1559   1623*
IITRAP    0000 6198:I        4728*
IITRPLOC  0000 012C           56*
IMAGEOPT  0000 120C:I         143    876*   882    901
IMAGEPRT  0000 124C:I         878    900*
IMAGTAB   0000 0244:I         277*   881    887    900    3696   3748
IMPTOP    0000 6A3C:I
INBPRT    0000 14A4:I         989    1010*
INBTAB    0000 03BC:I         489*   1527   1766   1794   2778   2814   3058   3066   3156   3174   3301   3523   35
                              3605   3624   3679   3807   3809   4243
INBTAB1   0000 0284:I         315*   992    997    1010   1526
INBUF     0000 6538:I        4779   4779   4779*
INBUFOPT  0000 145C:I         146    987*   993    1011
INC       0000 6013:I        4698*
INCERR@   0000 4966:I        3956   3958   3963   4035*
INCRMT    0000 4D66:I        4283   4298*
INDEX     0000 6022:I        1554   1632   1636   1640   1760   1770   1791   1913   1938   1962   1992   2017   20
                             2291   2305   2310   2315   2340   2399   2471   2701   2706   2759   2764   2855   30
                             3052   3063   3092   3117   3127   3144   3150   3167   3199   3217   3241   3293   33
                             3346   3386   3393   3399   3439   3474   3485   3558   3579   3589   3594   3601   36
                             3676   3736   3740   3803   3884   3959   4005   4240   4709*
INDEXM    0000 5FAD:I        1660   1661   4259   4261   4659*
INDEXM@   0000 5FB5:I        1648   4660*
INDEXN    0000 5FDB:I        1662   1663   4278   4280   4668*
INDEXN@   0000 5FE3:I        1649   4669*
INDEXNO   0000 5DED:I        4009   4573*
INLOOP    0000 46D4:I        3825*  3837
INONLY    0000 46D0:I        3820   3823*
INORET    0000 46FC:I        3834   3836   3838*
INT.CODE  0000 6377:I        4779*
INTDEV    0000 0000           56*   1568   1573
INTDEV@   0000 4E5A:I        4379   4381   4383   4385   4387   4389   4391   4393*
INTERCPT  0000 6358:I        4779*
INTFLG    0000 6020:I        2103   2111   4204   4708*
INTLIST   0000 035C:I         431*  4365
INTMSG2   0000 5EEE:I        4069   4606*
INTRTN    0000 2860:I        1923*  4205   4211
INTSAVE   0000 67BC:I        3211   3215   3216   3235   3239   3240   3432   3436   3437   3466   3470   3471   47
```

SYMBOL TABLE & CROSS REFERENCE LIST

```
INTSEL    0000 4E06:I      4349   4351   4353   4355   4357   4359   4361   4363*
INTSELA   0000 4E2C:I      4369   4373*
INTSTA    0000 0002          56*
INTWAIT   0000 6188:I      4728*
IOBLOCK0  0000 6208:I      1688   4728*
IOBLOCK1  0000 6210:I      1689   4729*
IOBLOCK2  0000 6218:I      1690   4732*
IOBLOCK3  0000 6220:I      1691   4735*
IOBLOCK4  0000 6228:I      1692   4738*
IOBLOCK5  0000 6230:I      1693   4741*
IOBLOCK6  0000 6238:I      1694   4744*
IOBLOCK7  0000 6240:I      1695   4747*
IOBLOCK8  0000 6248:I      1697   4750*
IOBLOCK9  0000 6250:I      1698   4753*
IOBLOCKA  0000 6258:I      1699   4756*
IOBLOCKB  0000 6260:I      1700   4759*
IOBLOCKC  0000 6268:I      1701   4762*
IOBLOCKD  0000 6270:I      1702   4765*
IOBLOCKE  0000 6278:I      1703   4768*
IOBLOCKF  0000 6280:I      1704   4771*
IODEVOPT  0000 0D40:I       137    776*   782    799
IODEVPRT  0000 0D76:I       778    798*
IODEVS    0000 0004         174*   1724   1785   2038   2265   2267   2272   2273   2275   2276   2286   2293   23
                           2317   2325   2733   2743   2791   2802   2856   2869   2875   3093   3098   3200   32
                           3504   3659   3664
IOTAB     0000 01D4:I       204*    781    785    798   1566   1654   1711   1772   1857   1993   2023   2723   27
                           3093   3200   3245   3252   3394   3405   3477   3486   3602   3619   3659   3737   38
ISSUECMD  0000 293E:I      2003   2005*
ISSUEGO   0000 2784:I      1736   1819   1847*
JUMP10    0000 298E:I      2032   2037*
JUMP11    0000 29CE:I      2055   2059*
JUMP12    0000 29DC:I      2060   2064*
JUMP13A   0000 2B10:I      2126   2128   2142   2168*
JUMP13B   0000 2A82:I      2112   2120   2124*
JUMP13C   0000 2AB8:I      2139*  2145
JUMP13IK  0000 4A44:I      4097   4106*
JUMP13IL  0000 4A3C:I      4104*  4105
JUMP13L   0000 2AB0:I      2137*  2138
JUMP14    0000 2F10:I      2430   2434*
JUMP15    0000 2FD4:I      2497   2501*
JUMP1A    0000 32E0:I      2636   2661*
JUMP1B    0000 32FE:I      2671*
JUMP1E    0000 32B4:I      2639   2643*
JUMP2     0000 35A6:I      2841   2845*
JUMP4     0000 3AA2:I      3080   3084*
JUMP5     0000 3C72:I      3187   3191*
JUMP6     0000 2730:I      1807   1811*
JUMP7     0000 280C:I      1891   1894*
JUMP8     0000 281C:I      1896   1899*
JUMP9     0000 297C:I      2027   2031*
JUMPA     0000 4458:I      3646   3650*
KB0015    0000 6738:I      1496   3910   4789*
KB0144    0000 6739:I      1480   4790*
```

SYMBOL TABLE & CROSS REFERENCE LIST

```
KB15904   0000 67B7:I    1482  4792*
L7A       0000 357C:I    2828  2831*
L7B       0000 3578:I    2829*
LADC      0000 0002      1656  3936
LAOB      0000 27BA:I    1860  1865*
LEVEL     0000 00C3       56*
LF        0000 000A       56*   77   79   81   83   84  535  537  539  541  542  561   5
                          567  568  589  591  593  594  595  596  597  598  619  621   6
                          626  653  655  657  659  661  663  664  687  689  760  762   7
                          766  768  769  770  771  773  806  808  809  810  811  813   8
                          817  818  852  854  856  857  858  860  862  864  866  867   8
                          873  908  910  945  947  948  983  984 1018 1019 1054 1056  10
                         1059 1060 1061 1062 1063 1064 1065 1066 1067 1103 1105 1106  11
                         1109 1110 1111 1112 1113 1114 1115 1116 1117 1118 1119 1120  11
                         1123 1124 1158 1159 1160 1162 1195 1197 1199 1200 1201 1202  12
                         1205 1206 1207 1208 1209 1210 1211 1212 1213 1214 1215 1216  12
                         1256 1258 1260 1262 1263 1264 1265 1266 1267 1268 1269 1270  12
                         1273 1274 1275 1276 1277 1278 1279 1280 1281 2608 2610 2612  26
                         2617 2675 2677 2679 2681 2682 2891 2893 2894 2895 2897 3009  30
                         3015 3017 3019 3021 3022 3103 3105 3106 3259 3261 3262 3281  32
                         3325 3354 3355 3356 3357 3542 3544 3545 3670 4461 4463 4465  44
                         4468 4469 4470 4471 4472 4473 4474 4476 4478 4480 4482 4484  44
                         4488 4490 4491 4492 4493 4494 4495 4496 4497 4499 4500 4502  45
                         4508 4510 4511 4513 4514 4516 4517 4519 4521 4523 4525 4527  45
                         4532 4534 4535 4537 4538 4540 4541 4543 4545 4547 4549 4550  45
                         4555 4557 4558 4559 4560 4561 4562 4563 4564 4565 4572 4573  45
                         4592 4597 4599 4601 4602 4604 4606 4608 4654 4663 4671
LIMMSG    0000 001A:I     77*  1485
LNZB      0000 67B9:I   4794*
LOAD      0000 3A7C:I   3072*  3076
LOAD1     0000 3C4C:I   3180*  3184
LOAD11    0000 270A:I   1800*  1804
LOAD2     0000 3554:I   2820*  2838
LOADBIAS  0000 0140      56*
LOG.ATTR  0000 0122      56*
LOG.FD    0000 0100      56*
LOG.LRCL  0000 0128      56*
LOLIM     0000 0038:I    78*  1509  1511
LOOP.OPT  0000 00BA      56*
LOOPTOP   0000 6130:I   2558  2569  2635  2696  2756  3276  3304  4728*
LOW       0000 47F8:I   1971  3685  3690  3827  3844  3871  3877  3905  3924*
LPSW2     0000 3D40:I   3223  3228  3231  3254  3257*
LST.ATTR  0000 0120      56*
LST.FD    0000 0110      56*
LST.LRCL  0000 0126      56*
LSTEQLOG  0000 0200      56*  4779
MABUS     0000 01BE:I   185*
MACADOPT  0000 08A8:I   152   629*
MACADR    0000 01BC:I   184*  631   635   646  2129  4094
MACI      0000 4A28:I   4095  4098*
MAFTRAP   0000 61E0:I   4728*
MAPSET0   0000 2336:I   1488*  1517
MAPSET1   0000 234C:I   1496*  1502
```

SYMBOL TABLE & CROSS REFERENCE LIST

```
MAPSET2    0000 235C:I        1498   1500*
MAPSETX    0000 2390:I        1490   1518*
MAPSKIPD   0000 239A:I        1478   1523*
MAT        0000 2AC4:I        2130   2143*
MATCH      0000 60C8:I        4728*
MATI       0000 4A22:I        4096*
MATRPLOC   0000 013C           56*
MAXCYL     0000 02D4:I         352*  1598
MAXDEV     0000 0011          1070*  1078
MAXSEC     0000 02F6:I         372*  1594   2408   2410
MAXTST     0000 6296:I        4779*
MEMTOP     0000 5F60:I        1519   3895   4637*
MESSAGE    0000 60D0:I         746   1310   1438   1486   1512   1607   1609   1619   2986   2996   2998   4011   40
                              4062   4070   4084   4728*
MESSAGEX   0000 61D8:I        1732   4237   4257   4276   4728*
MMFTRAP    0000 61B0:I        4728*
MMTRPLOC   0000 0138           56*
MOVE       0000 60F0:I        4728*
MSG.SAVE   0000 0068           56*
MSGPRINT   0000 2162:I         532    558    586    616    650    684    757    803    849    905    942    980   10
                              1100   1155   1192   1251   1310*  1339
MSGTABLE   0000 4E8C:I        2985   4016   4409*
MULTI.00   0000 225A:I        1411*  1430
MULTI.01   0000 226E:I        1414   1417*
MULTI.02   0000 228C:I        1424   1427*
MULTI.03   0000 228E:I        1419   1428*
MULTIADR   0000 22F4:I         828    959    994   1466*
MULTIDEV   0000 21B2:I         699    783   1135   1172   1343*
MULTIHEX   0000 2288:I        1422   1425*
MULTIOPT   0000 21BA:I         885    922   1031   1080   1231   1349*  1469
MULTIVAL   0000 224E:I         754    800    846    902    939    977   1012   1048   1097   1152   1189   1248   14
MULTOP2A   0000 2206:I        1370   1374*
MULTOPT0   0000 21D0:I        1355*  1386
MULTOPT1   0000 21D4:I        1356*  1379
MULTOPT2   0000 21EE:I        1365   1367*
MULTOPT3   0000 220E:I        1363   1373   1376*
MULTOPT4   0000 2220:I        1377   1382*
MULTOPT6   0000 2228:I        1384*
MV3        0000 3AB6:I        3077   3087   3091*
MV3A       0000 3ACE:I        3096   3098*
MV4        0000 3C86:I        3185   3194   3198*
MV4A       0000 3C9E:I        3203   3205*
MVA        0000 446C:I        3638   3644   3653   3657*
MVAA       0000 4488:I        3662   3664*
MVCHK      0000 467C:I        2870   3099   3206   3665   3801*
MVCHK1     0000 4680:I        3803*  3899
MVEXIT1    0000 47BA:I        3898   3900*
MVIN       0000 01B4:I         180*   521    525    528   3816   3819
MVIN.OPT   0000 03F8:I         148    519*
MVOUT      0000 01B6:I         181*   547    551    554   3814
MVOUTOPT   0000 0510:I         149    545*
MVRETRY    0000 47A4:I        3830   3847   3874   3880   3894*
NEXT.CMD   0000 2154:I         678   1297*  1383   1396   1462
```

SYMBOL TABLE & CROSS REFERENCE LIST

```
NEXTBUF   0000 23FA:I        1547  1551*
NMTNCHK   0000 2DDC:I        2290  2299  2309  2313  2319  2322*
NMTNCHK1  0000 2DE2:I        2296  2323*
NODISPLA  0000 4D5C:I        4284  4293*
NONSPACE  0000 60E0:I        1315  1329  4728*
NORM      0000 4D67:I        4291  4299*
NORMAL    0000 6016:I        2421  2449  2453  2462  4701*
NOSELCH   0000 24E0:I        1614  1618*
NOSELCHM  0000 4F58:I        1618  4461*
NOTSET    0000 284A:I        1908  1915*
OBUFMSG1  0000 4F6F:I        1536  4462*
OBUFMSG2  0000 4FD8:I        1544  4466*
OCMD      0000 2944:I        2001  2006*
ODDCHK    0000 3598:I        2837  2840*
ODDCHK1   0000 3A94:I        3075  3078*
ODDCHK2   0000 3C64:I        3183  3186*
ODDCHK21  0000 2722:I        1803  1806*
ODDCHKA   0000 444A:I        3641  3645*
OFFSET    0000 0010           56*
OLDLOC    0000 6368:I        4779*
OLDPSW    0000 6364:I        3233  3460  4779*
OLIMIT    0000 03F0:I         515*  884   921  1030  1079  1230  1331  1345  1468
ON.LINE   0000 0040           56*
OPERERR   0000 6108:I        1290  4728*
OPTIONS   0000 61F8:I        4728*
OPTPOINT  0000 00A8           56*
OSID      0000 0254           56*
OSUP      0000 0278           56*
OUTBPRT   0000 13F0:I         954   975*
OUTBTAB   0000 039C:I         477*  1525  1793  2720  2813  3041  3065  3133  3173  3273  3352  3409  35
                             3585  3623  3678  3742  3810  3812  4242
OUTBTAB1  0000 0264:I         302*  957   962   975  1524
OUTBUF    0000 6638:I         726   733   741   749   751  1420  1431  1437  4779*
OUTBUFOP  0000 13A8:I         145   952*  958   976
OUTLOOP   0000 4708:I        3842*  3854
OUTONLY   0000 4704:I        3818  3840*
OUTORET   0000 4730:I        3851  3853  3855*
PARMESS   0000 24BC:I        1588  1591  1595  1599  1604*
PARMESS2  0000 24BA:I        1530  1538  1541  1546  1550  1603*
PASS      0000 6140:I        2599  2753  3321  4728*
PATERN    0000 30FC:I        2557  2601* 2605
PATERNXX  0000 0040          2596  2605*
PATRN1    0000 454C:I        3699  3703  3716*
PATRN2    0000 4568:I        3704  3724* 3728
PATRNOPT  0000 150C:I         147  1022* 1028  1047
PATRNPRT  0000 1548:I        1024  1046*
PATRNTAB  0000 02A4:I         327* 1027  1033  1046  3700  3752
PEEK00    0000 0250           56*
PEEK01    0000 026C           56*
POINTER   0000 00AC           56*
PRESENT   0000 8000           56*
PROCEED   0000 00BC           56*
PROG.LU   0000 00EC           56*
```

SYMBOL TABLE & CROSS REFERENCE LIST

```
PRTDADRS  0000 49C0:I      4023  4065*
PRTDATA   0000 496C:I      4021  4038*
PRTERR@   0000 4960:I      4019  4033*  4053  4072  4085  4723
PRTLIMS   0000 2362:I      1504*
PRTSADRS  0000 49D8:I      4025  4074*
PRTSTAT   0000 494C:I      4027*
PST       0000 6A80:I      2147  2159  4800*  4801
PSTE      0000 7280:I        60   187   679  1487  1537  1540  2149  3831  3848  3859  3861  4801*
PURETOP   0000 0000:P
R0        0000 0000          56*    67    68   724  1368  1369  1411  1413  1446  1476  1477  1497  15
                           1521  1623  1633  1634  1710  1719  1722  1723  1724  1771  1780  1783  17
                           2041  2042  2044  2082  2083  2085  2087  2151  2153  2157  2168  2170  21
                           2183  2184  2190  2191  2192  2198  2199  2202  2208  2209  2210  2211  22
                           2238  2239  2240  2242  2246  2547  2548  2567  2591  2623  2624  2690  26
                           2693  2754  2852  2854  2864  2867  2868  2869  2878  2903  2904  2913  29
                           2931  2934  2941  2948  2967  2989  2993  3027  3028  3029  3030  3046  30
                           3091  3097  3098  3112  3113  3144  3145  3146  3198  3204  3205  3211  32
                           3214  3232  3235  3236  3237  3238  3257  3268  3269  3289  3290  3331  33
                           3381  3382  3383  3424  3425  3432  3433  3434  3435  3459  3466  3467  34
                           3525  3551  3552  3553  3554  3589  3590  3591  3657  3663  3664  3684  39
                           3904  3915  3919  3921  3951  3954  3955  3957  3959  3960  3961  3962  39
                           4005  4006  4007  4008  4009  4013  4018  4020  4022  4024  4028  4035  40
                           4047  4051  4056  4066  4075  4079  4111  4113  4115  4117  4131  4132  41
                           4140  4146  4147  4148  4154  4155  4156  4157  4158  4159  4169  4175  41
                           4189  4195  4196  4197  4202  4229  4232  4244  4247  4263  4266  4324  43
                           4402  4403  4640  4651  4728
R1        0000 0001          56*    65    66   525   528   551   554   577   582   607   612   635   6
                           1296  1305  1412  1415  1487  1491  1494  1496  1500  1501  1504  1508  15
                           1516  1565  1568  1569  1571  1573  1574  1577  1578  1632  1635  1636  16
                           1640  1641  1641  1644  1645  1647  1650  1651  1654  1655  1658  1658  17
                           1727  1735  1760  1761  1762  1786  1788  1793  1800  1818  1863  1864  18
                           2005  2006  2017  2018  2019  2021  2022  2023  2024  2041  2068  2069  20
                           2072  2073  2074  2080  2082  2091  2264  2284  2300  2300  2302  2304  23
                           2364  2398  2436  2436  2470  2503  2503  2691  2701  2702  2703  2727  27
                           2761  2785  2813  2820  2988  2992  3028  3035  3036  3037  3052  3053  30
                           3072  3119  3120  3123  3124  3127  3128  3129  3150  3151  3152  3168  31
                           3180  3213  3237  3310  3311  3311  3337  3339  3341  3343  3346  3347  33
                           3391  3396  3397  3399  3401  3402  3403  3404  3405  3413  3416  3417  34
                           3434  3468  3552  3560  3566  3579  3580  3581  3594  3595  3596  3623  38
                           3819  3884  3885  3886  3890  3891  3952  3953  3960  3969  3981  3991  40
                           4013  4014  4015  4016  4027  4040  4044  4048  4052  4052  4053  4057  40
                           4076  4080  4179  4180  4231  4233  4240  4241  4242  4243  4246  4248  42
                           4267  4271  4295  4403  4641  4728  4728  4728  4728  4728  4728  4728  47
                           4728  4728  4728  4728  4728
R10       0000 000A          56*   698   701   753   782   786   799   827   831   845   882   888   9
                            925   938   958   961   976   993   996  1011  1028  1034  1047  1077  10
                           1134  1138  1151  1171  1175  1188  1228  1234  1247  1368  1391  1406  14
                           1533  1535  1549  1800  1802  1811  1911  2129  2132  2133  2135  2137  21
                           2152  2153  2154  2156  2157  2158  2159  2160  2161  2178  2179  2183  21
                           2194  2198  2201  2340  2341  2342  2343  2399  2400  2402  2403  2407  24
                           2408  2410  2410  2471  2472  2473  2474  2551  2581  2583  2584  2585  25
                           2627  2650  2652  2653  2654  2655  2661  2820  2829  2831  2836  2845  29
                           2977  2978  2980  2981  3072  3074  3084  3180  3182  3191  3565  3566  35
```

SYMBOL TABLE & CROSS REFERENCE LIST

		3570	3575	3576	3610	3629	3631	3633	3634	3636	3650	3696	3705	37
		3709	3709	3710	3711	3711	3713	3716	3717	3718	3719	3721	3724	37
		3733	3748	3757	3758	3759	3761	3762	3765	3767	3768	3772	3773	37
		3780	3782	3790	3792	3794	3795	3797	4040	4076	4094	4099	4100	41
		4105	4125	4127	4131	4134	4138	4142	4146	4323				
R11	0000 000B	56*	1801	1802	1812	1970	1972	1973	1974	1978	1980	1981	1982	19
		1994	1995	1996	1998	1999	2005	2008	2134	2148	2180	2202	2206	25
		2582	2582	2583	2586	2628	2649	2651	2651	2652	2655	2821	2830	28
		2846	3073	3074	3085	3181	3182	3192	3630	3631	3640	3651	3678	36
		3705	3710	3713	3717	3725	3742	3757	3763	3767	3770	3777	3781	37
		3825	3826	3842	3843	3869	3870	3875	3876	3894	3895	3905	3908	39
		3913	3914	3917	3918	3920	4044	4080	4101	4128	4162	4324		
R12	0000 000C	56*	1325	1351	1352	1353	1362	1362	1364	1382	1586	1587	1590	15
		1597	1598	1858	1859	1861	1999	2000	2002	2110	2117	2135	2141	21
		2222	2223	2224	2226	2232	2351	2352	2354	2357	2360	2362	2366	23
		2386	2413	2414	2416	2419	2424	2426	2429	2434	2438	2440	2443	24
		2483	2485	2488	2491	2493	2496	2501	2505	2507	2511	2515	2519	25
		2536	2537	2539	3216	3240	3437	3471	3697	3698	3700	3702	3726	37
		3741	3742	3745	3747	3748	3749	3752	3906	4091	4102	4108	4122	41
		4166	4167	4170	4174	4285	4286	4287	4288	4288	4289			
R13	0000 000D	56*	720	726	728	733	1409	1420	1427	1431	1431	1432	1434	14
		1445	1446	1446	1448	1449	1450	1659	1660	1661	1662	1663	1731	21
		2155	2156	3679	3690	3691	3733	3763	3764	3765	3770	3771	3773	37
		3791	3792	3907	3909	4193	4193	4194	4195	4201	4202	4236	4256	42
		4260	4260	4261	4275	4277	4278	4279	4279	4280	4282	4283	4286	42
		4291	4293	4294	4728									
R14	0000 000E	56*	697	702	752	781	785	798	826	830	844	881	887	9
		924	937	957	962	975	992	997	1010	1027	1033	1046	1076	10
		1133	1137	1150	1170	1174	1187	1227	1233	1246	1372	1375	1392	14
		1416	1417	1458	1576	1577	1577	1579	1579	1580	1582	1584	1584	15
		1594	1598	1749	1752	1808	1811	1812	1813	1815	1832	1835	1892	18
		1952	1983	1986	2028	2034	2056	2061	2065	2078	2099	2099	2100	21
		2108	2109	2110	2111	2115	2115	2116	2117	2121	2124	2124	2125	21
		2132	2136	2137	2139	2139	2140	2141	2144	2163	2203	2215	2218	22
		2222	2223	2225	2226	2228	2231	2232	2233	2235	2238	2243	2250	23
		2378	2389	2431	2446	2452	2456	2458	2498	2514	2526	2541	2554	25
		2588	2594	2630	2640	2643	2658	2662	2672	2732	2736	2742	2746	27
		2795	2801	2805	2806	2833	2842	2845	2846	2847	2849	2887	2909	29
		2973	2983	2984	2985	3081	3084	3085	3086	3088	3135	3140	3158	31
		3191	3192	3193	3195	3221	3226	3255	3320	3411	3427	3445	3461	34
		3642	3647	3650	3651	3652	3654	3688	3693	3735	3736	3737	3749	37
		3754	3784	3784	3829	3846	3873	3879	3922	3950	4012	4036	4089	40
		4091	4092	4096	4098	4099	4103	4104	4106	4106	4107	4108	4120	41
		4122	4165	4166	4168	4170	4173	4174	4176	4179	4196	4199	4204	42
		4281	4292	4302	4305	4308	4311	4314	4317	4320	4325	4330	4337	47
R15	0000 000F	56*	718	1328	1333	1354	1355	1356	1385	1407	1452	1499	1642	16
		1665	1736	1737	1738	1739	1755	1757	1758	1759	1763	1765	1768	18
		1821	1822	1869	1924	1925	1926	1928	1928	1929	1949	1960	1961	19
		1985	2007	2009	2020	2084	2095	2118	2247	2248	2264	2274	2277	22
		2320	2339	2382	2398	2465	2470	2532	2549	2625	2666	2667	2668	26
		2699	2700	2704	2708	2709	2711	2724	2725	2729	2751	2752	2762	27
		2769	2782	2783	2787	2811	2822	2823	2825	2827	2857	2858	2860	28
		2884	2886	2905	2965	2975	2983	3001	3031	3033	3034	3038	3040	30

SYMBOL TABLE & CROSS REFERENCE LIST

			3044	3050	3051	3055	3057	3059	3060	3061	3094	3095	3099	3114	31
			3130	3132	3134	3135	3136	3137	3138	3139	3143	3148	3149	3153	31
			3158	3159	3160	3161	3162	3166	3201	3202	3206	3270	3291	3295	32
			3308	3309	3312	3314	3316	3317	3333	3335	3345	3349	3351	3385	34
			3408	3410	3411	3412	3420	3421	3452	3453	3511	3512	3520	3522	35
			3529	3531	3555	3557	3578	3582	3584	3586	3587	3588	3593	3597	35
			3617	3660	3661	3665	3738	3776	3787	3789	3799	3801	3821	3821	38
			3849	3860	3862	3867	3867	3868	3888	3888	3889	3892	3892	3893	39
			3903	3933	3941	3941	3942	3944	3944	3945	4123	4203	4206	4327	43
			4343	4344	4405	4652	4728	4728	4728	4728	4728	4728	4728		
R2		0000 0002		56*	726	733	735	736	748	749	750	751	1420	1488	1492	14
			1501	1506	1509	1514	1519	1791	1792	1793	1794	1797	1799	2209	22
			2706	2708	2716	2717	2718	2719	2720	2721	2723	2724	2727	2764	27
			2775	2776	2777	2778	2779	2781	2782	2785	2812	2813	2814	2817	28
			2855	2856	2857	2866	2880	2914	2917	2920	2926	2932	2935	2943	29
			2968	2987	2991	3063	3064	3065	3066	3069	3071	3092	3093	3094	31
			3119	3123	3123	3167	3168	3168	3170	3170	3172	3173	3174	3177	31
			3200	3201	3215	3215	3219	3239	3239	3248	3253	3293	3295	3336	33
			3338	3338	3341	3341	3342	3342	3384	3386	3387	3390	3390	3393	33
			3396	3414	3436	3436	3441	3470	3470	3472	3482	3498	3558	3559	35
			3572	3601	3602	3603	3604	3605	3618	3619	3620	3621	3623	3624	36
			3658	3659	3660	3676	3677	3678	3679	3682	3695	3696	3697	3700	37
			3804	3805	3807	3809	3810	3812	3928	3929	3931	3932	3934	3935	39
			3940	3943	4029	4041	4045	4049	4054	4059	4065	4067	4077	4081	41
			4158	4234	4250	4254	4269	4273	4365	4395	4728	4728	4728	4728	47
R3		0000 0003		56*	1479	1483	1647	1648	1649	3216	3218	3219	3240	3437	3471	38
			3823	3824	3840	3841	3857	3858	4366	4396	4728				
R4		0000 0004		56*	675	734	735	737	737	739	742	743	744	745	1292	13
			1376	1378	1433	1434	1435	1436	1480	1483	1484	1524	1525	1532	15
			1549	1566	1567	1568	1613	1654	1711	1772	1857	1863	1864	1865	19
			2005	2023	2047	2050	2094	2210	2213	2350	2351	2356	2381	2384	24
			2418	2419	2443	2447	2462	2463	2464	2481	2482	2487	2488	2491	25
			2519	2523	2530	2531	2534	2557	2572	2573	2576	2578	2584	2632	26
			2654	2664	2723	2727	2736	2746	2781	2785	2794	2805	3242	3243	32
			3249	3250	3252	3253	3405	3440	3441	3472	3478	3482	3483	3487	34
			3619	3737	3807	3808	3825	3827	3831	3835	3838	3850	3859	3863	38
			3881	3891	3896	3934	3976	3984	3986	3994	3996	4004	4156	4159	42
			4271	4728	4728	4728	4728	4728	4728	4728	4728				
R5		0000 0005		56*	531	557	585	615	649	683	741	743	745	756	802	8
			941	979	1014	1050	1099	1154	1191	1250	1320	1321	1338	1360	13
			1372	1374	1374	1375	1390	1391	1392	1393	1394	1437	1456	1457	14
			1460	1481	1485	1511	1528	1536	1539	1544	1548	1585	1589	1592	15
			1618	1655	1656	1657	1712	1713	1715	1717	1773	1774	1776	1778	25
			2595	2596	2633	2663	2985	2995	2997	2999	3000	3152	3229	3230	34
			3439	3440	3443	3448	3450	3452	3455	3457	3473	3474	3475	3477	34
			3485	3486	3489	3495	3499	3505	3507	3509	3510	3513	3515	3517	35
			3519	3527	3528	3528	3581	3596	3808	3823	3826	3828	3833	3840	38
			3865	3870	3872	3935	3936	3937	3939	4010	4016	4031	4033	4034	40
			4083	4367	4368	4728									
R6		0000 0006		56*	578	636	638	640	642	642	645	673	674	677	679	6
			884	920	921	1029	1030	1078	1079	1229	1230	1287	1296	1301	13
			1327	1331	1344	1345	1366	1372	1375	1391	1392	1406	1421	1457	14
			1467	1468	1482	1491	1508	1526	1527	1533	1540	1542	1545	1721	17

SYMBOL TABLE & CROSS REFERENCE LIST

		1783	1795	1800	1801	1804	1806	1850	1851	1854	1867	1872	1874	18
		1885	1886	1888	1888	1889	1894	1899	1900	1901	1905	1907	1909	19
		1937	1951	1975	1976	1977	2024	2077	2091	2092	2097	2101	2102	21
		2179	2180	2184	2186	2187	2192	2194	2195	2199	2201	2206	2218	22
		2341	2357	2368	2371	2372	2373	2375	2376	2377	2379	2380	2386	24
		2421	2422	2423	2424	2426	2440	2445	2449	2450	2451	2453	2454	24
		2472	2490	2493	2507	2510	2513	2517	2518	2521	2522	2525	2536	26
		2720	2722	2732	2737	2738	2742	2747	2748	2778	2780	2790	2795	27
		2801	2806	2807	2808	2815	2820	2821	2838	2840	2866	2867	2915	29
		2928	2933	2936	2945	2953	2958	2969	3067	3072	3073	3076	3079	31
		3181	3184	3186	3217	3218	3229	3241	3242	3245	3252	3475	3477	34
		3487	3495	3496	3499	3500	3564	3566	3571	3574	3576	3577	3609	36
		3622	3630	3637	3645	3809	3838	3881	3896	4048	4053	4058	4087	41
		4128	4132	4134	4135	4140	4142	4143	4148	4151	4162	4164	4180	41
		4208	4209	4216	4323	4335	4348	4350	4352	4354	4356	4358	4360	43
		4364	4365	4366	4367	4370	4371	4372	4378	4380	4382	4384	4386	43
		4392	4393	4394	4395	4396	4644	4649	4728	4728	4728	4728		
R7	0000 0007	56*	1492	1504	1513	1514	1523	1524	1525	1526	1527	1529	1551	15
		1562	1563	1564	1565	1565	1566	1571	1571	1576	1578	1586	1593	15
		1603	1604	1605	1606	1707	1708	1711	1712	1721	1725	1725	1727	17
		1770	1772	1773	1782	1786	1786	1788	1788	1796	1847	1856	1857	18
		1868	1873	1874	1880	1889	1890	1894	1895	1906	1911	1913	1918	19
		1939	1940	2105	2323	2331	2343	2345	2345	2346	2348	2349	2381	24
		2404	2405	2406	2408	2410	2411	2463	2474	2475	2475	2476	2477	24
		2530	2553	2593	2629	2661	2671	2722	2738	2748	2780	2797	2808	28
		2926	2938	2941	2948	2951	2960	2970	3068	3176	3387	3394	3426	35
		3608	3625	3680	3706	3710	3713	3714	3717	3722	3725	3728	3730	37
		3734	3743	3758	3763	3768	3770	3775	3778	3781	3786	3788	3791	37
		3811	3833	3842	3844	3848	3852	3855	3861	3865	3875	3877	3892	38
		4208	4233	4242	4248	4267	4285	4287	4335	4336	4373	4375	4397	43
		4642	4645	4647	4649	4650								
R8	0000 0008	56*	721	722	725	729	730	1410	1418	1428	1429	1529	1531	15
		1553	1554	1555	1556	1557	1560	1572	1573	1797	1798	1806	1848	18
		1909	1915	1941	2106	2324	2344	2371	2375	2379	2402	2454	2459	24
		2473	2517	2527	2529	2531	2817	2818	2840	2924	2928	2939	2943	29
		2971	3069	3070	3079	3118	3120	3122	3124	3177	3178	3186	3338	33
		3343	3389	3391	3395	3397	3561	3562	3606	3607	3626	3627	3645	36
		3811	3824	3835	3841	3843	3845	3850	3858	3863	3876	3878	4086	42
		4375	4398	4399	4646									
R9	0000 0009	56*	1350	1384	1532	1534	1545	1559	1569	1574	1794	1801	1849	18
		1903	1921	1923	1927	1928	2107	2179	2181	2183	2186	2188	2190	21
		2198	2224	2225	2231	2233	2246	2295	2322	2342	2344	2372	2376	23
		2422	2450	2460	2461	2476	2521	2528	2529	2573	2574	2574	2575	25
		2644	2646	2653	2665	2669	2707	2714	2717	2722	2765	2772	2775	27
		2821	2925	2940	2945	2962	2972	3066	3073	3174	3181	3572	3576	36
		3624	3630	3682	3683	3687	3692	3745	3746	3812	3855	3882	3897	40
		4127	4129	4131	4134	4136	4138	4142	4144	4146	4167	4168	4173	41
		4207	4328	4333	4404	4647	4648							
RANGE	0000 6120:I	1489	4728*											
RBLOCK	0000 3504:I	2784	2786*											
RBLOCK2	0000 353A:I	2792	2799	2803	2811*									
RDADRS	0000 29E8:I	2043	2045	2052	2068*									
RDBLCK1	0000 350A:I	2790*	2798											

SYMBOL TABLE & CROSS REFERENCE LIST

```
RDBLCK3    0000 350E:I        2791*  2793
RDCMD1     0000 2DB0:I        2303   2310*
READ4      0000 5EFD:I        2960   2970   4616*
READ5      0000 5EFE:I        2961   2971   4617*
READ6      0000 5EFF:I        2962   2972   4618*
READBYTE   0000 5EA8:I        2991   4081   4597*
READLU5    0000 0228           56*
READOP     0000 2676:I        1744   1745   1751   1754   1755*  1767
REASON     0000 6360:I        4779*
RELEASE    0000 6180:I        1726   1728   1787   1789   3169   3171   4728*
RELOC      0000 01BA:I         183*   603    607    612   2127   4092
RELOCOPT   0000 079C:I         151    601*
REMFLAG    0000 0001           56*   1325   1352   1364
REPEAT     0000 61C0:I        4728*
REPEATV    0000 00C8           56*
RERUN      0000 61C8:I        4728*
RESC6250   0000 6011:I        4696*
RESCTL     0000 600F:I        2401   2854   3091   3198   3657   4693*
RESET      0000 2E3E:I        2356*
RESET1     0000 3C1E:I        3142   3165   3167*
RESETC     0000 6008:I        2350   2356   2412   2418   2481   2487   3504   3984   4695*
RESETFLG   0000 2000           56*
RESMSMC    0000 6010:I        3994   4694*
RESTOREF   0000 600D:I        2373   2445   2513   4691*
RESTSTAT   0000 61F0:I        4728*
RETURN     0000 61B8:I        1439   1616   4728*
REWIND     0000 5FFE:I        2293   4680*
RHBLCK1    0000 3524:I        2788   2801*  2809
RHBLCK3    0000 3528:I        2802*  2804
RSAVE      0000 6034:I        4640   4651   4715*
RSAVE1     0000 67FC:I        3801   3904   3921   3951   4035   4040   4044   4052   4057   4076   4080   4797*
RSAVEA     0000 683C:I        3214   3232   3238   3257   3435   3459   3469   3525   4798*
RSAVEND    0000 6A3C:I        4799*  4800
RTNSAV     0000 602C:I        1738   1821   1924   3421   4206   4327   4332   4405   4712*
RUNFLAG    0000 1000           56*
RWC        0000 03DC:I         503*  1578   1864   2005   2727   2785
RWCMDS     0000 033A:I         411*  1577
SECT.OPT   0000 1DA8:I         141   1222*  1228   1247
SECTAB     0000 0214:I         252*  1227   1233   1246   1586   1593   2343   2403   2474
SECTMSG1   0000 50BB:I        1592   4472*
SECTPRT    0000 1DE6:I        1224   1246*
SEEK       0000 2E78:I        2369   2375*
SEEK2      0000 2FFC:I        2508   2514*
SEEKC      0000 600E:I        2377   2457   2525   4692*
SELOINT    0000 4DE8:I        3359   4348*
SEL1       0000 3CD8:I        3220   3224*
SEL19      0000 4148:I        3442   3448*
SEL1INT    0000 4DEC:I        3360   4350*
SEL2       0000 3CE8:I        3225   3229*
SEL29      0000 4176:I        3449   3451   3461*
SEL2INT    0000 4DF0:I        3361   4352*
SEL39      0000 416A:I        3454   3457*
SEL3INT    0000 4DF4:I        3362   4354*
```

SYMBOL TABLE & CROSS REFERENCE LIST

```
SEL3RST   0000 2A0C:I      2030   2036   2058   2063   2067   2076   2080*
SEL4INT   0000 4DF8:I      3363   4356*
SEL59     0000 412E:I      3439*  3444
SEL5INT   0000 4DFC:I      3364   4358*
SEL6INT   0000 4E00:I      3365   4360*
SEL79     0000 416E:I      3447   3458*  3463   3493
SEL7INT   0000 4E04:I      3366   4362*
SELADR    0000 2790:I      1854*  1868
SELBYTE   0000 6074:I      1851   1872   1876   4363   4373   4716*
SELCH     0000 0003         173*  1651   1856   1866   1939   1942   1947   1963   1972   1973   1974   1980   19
                           1994   2006   2022   2025   2026   2037   2069   2070   2071   2113   2561   2562   25
                           2577   2578   2579   2580   2581   2638   2643   2644   2645   2646   2647   2648   26
                           2907   2912   2916   2917   2918   2919   2920   2921   2922   2923   2924   2925   29
                           2932   2933   2934   2935   2936   2937   2938   2939   2940   3318   3320   3603   36
                           3616   3620   3932   3964
SELCH1    0000 2876:I      1759   1937*  2700   3034   3051   3126   3149   3309   3345   3400   3512   3578   35
SELCH2    0000 28AA:I      1765   1960*  3040   3057   3132   3155   3314   3351   3408   3522   3531   3584   35
SELCH3    0000 2950:I      1757   2017*  3044   3061   3143   3166   3511   3588   3617
SELCH5    0000 2A3A:I      2097*  3043   3060   3317   3587
SELCHOPT  0000 0AE8:I       136    692*   698    753
SELCHPRT  0000 0B1E:I       694    718*
SELECTED  0000 0002          56*
SELINT    0000 3CAC:I      3118   3211*
SELINT9   0000 4116:I      3389   3431*
SELINTS   0000 4262:I      3418   3448   3455   3457   3505   3509   3538*
SELINTT   0000 25C0:I      1571   1697*  1727   1786   3119   3168   3337   3390
SELISRS   0000 4014:I      3338   3359*
SELSTA    0000 29C0:I      2040   2053   2054*
SELSTA.4  0000 29C4:I      2048   2056*
SELTAB    0000 01C4:I       192*   697    702    752   1446   1560   1651   1708   1856   1939   1963   1994   20
                           3387   3440   3475   3603   3620   3932
SELTST0   0000 239E:I      1524*  1552
SELTST1   0000 2416:I      1560*  1602
SELTST2   0000 24B0:I      1561   1581   1583   1600*
SELTSTX   0000 24D6:I      1601   1612*
SENSE1    0000 2896:I      1943   1947*  1951
SENSE7    0000 2A60:I      2111*  2249
SENSE7A   0000 2A6A:I      2115*  2123   2205   2217   2230   2237   2245   2252
SENSE8    0000 2DE6:I      2325*  2331
SETBIT    0000 375E:I      2930*  2966
SETBUF    0000 44B6:I      2699   3033   3116   3308   3335   3557   3675*
SETCYL    0000 600C:I      2455   2518   4690*
SETFLAG   0000 2A48:I      2098   2103*
SETPRES   0000 22BE:I       718   1407   1443*
SETPST    0000 2ACA:I      2144   2146*  4096
SETPSTL   0000 2AEE:I      2156*  2158
SETREG    0000 24EE:I      1632*  1646   1653   1755   1768   2549   2625   2694   2905   3031   3114   3270   32
                           3555
SETREG9   0000 4800:I      3385   3927*
SETSTAT   0000 61E8:I      4728*
SFHR      0000 600B:I      2423   2451   2522   4689*
SHIFT7    0000 2E28:I      2347   2349*
SIZERR    0000 5EC3:I      1608   4602*
```

SYMBOL TABLE & CROSS REFERENCE LIST

```
SIZERR@   0000 5EE8:I    1606  4604*
SKIP1     0000 4580:I    3715  3723  3729  3731*
SKPFILF   0000 6000:I    2312  4681*
SKPFILR   0000 6002:I    2307  4682*
SOPT      0000 027C       56*
START     0000 0000:I     59*    60    60  4800  4800
STARTADR  0000 5F00:I    1970  4619*
STARTED   0000 0008       56*
STAT      0000 000C      178*  1865  1947  2033  2038  2039  2047  2050  2051  2059  2064  2081  20
                         2093  2094  2113  2119  2273  2276  2286  2288  2325  2327  2329  2733  27
                         2802  2875  2876  2885  3224  3613  4027
STATLST   0000 036C:I     442*  1889  4366
STATMSG   0000 5EB4:I    4031  4599*
STATUS    0000 5EBE:I    4029  4600*
STBASEA   0000 601E:I    4707*
STOP      0000 6008:I    2490  2510  2922  4686*  4695
STOP1     0000 6009:I    2037  2648  2930  2937  3615  3616  4687*
STOP2     0000 600A:I    1942  2025  2561  2579  2638  2907  3318  3964  4688*
STORE     0000 454E:I    3717* 3722
STORE.HW  0000 2146:I     579   637   639   641   643  1288  1292*
STORE1    0000 4528:I    3705* 3714
STORE1A   0000 453E:I    3708  3713*
STORE1B   0000 4544:I    3712  3714*
STORE2    0000 456C:I    3701  3725* 3730
STORE3    0000 4588:I    3733* 3734
STORE8    0000 2B2C:I    2169  2177*
STORE8B   0000 2B6E:I    2189  2194*
STORE8H   0000 2B4A:I    2182  2186*
STORE9    0000 4A7E:I    4126* 4151
STORE9B   0000 4AC0:I    4137  4142*
STORE9H   0000 4A9A:I    4130  4134*
STORE9X   0000 4A7C:I    4112  4124*
STOREHW1  0000 2150:I    1293  1296*
STRBUF    0000 01C0:I     187*   669   677   680  2107  4110
STRBUFOP  0000 0A3C:I     153   667*
STRERR@   0000 6098:I    4150  4725*
STRINDEX  0000 283E:I    1911* 1916
STRMULT   0000 2C0C:I    2173  2246*
STRMULT1  0000 4B50:I    4116  4189* 4190
STRTMAT   0000 2B0C:I    2161  2162  2165*
STZERO    0000 601C:I    2267  4706*
SUB.INIT  0000 2302:I    1473* 4779
SUBTERRS  0000 0004       56*
SUBTHELP  0000 0000       56*
SUBTST    0000 6295:I    4290  4300*
SUBTSTRC  0000 0008       56*    56
SUBTSTRT  0000 0008       56*
SVC.DFIN  0000 0004       56*
SVC1      0000 6160:I    4728*
SVC14.FC  0000 0000       56*
SVC14.R1  0000 0001       56*
SVC14.R2  0000 0002       56*
SVC14.R3  0000 0003       56*
```

SYMBOL TABLE & CROSS REFERENCE LIST

SVC14VAL	0000 0002	56*					
SVC1EXT	0000 6168:I	4728*					
SVC2	0000 02A4	56*					
SVC7	0000 0288	56*					
SYNERR	0000 60A8:I	1295	4728*				
SYNOPSIS	0000 0000	1471*	4779				
T7AEXIT	0000 4E7A:I	4400	4402*				
T7EXIT	0000 4E6C:I	4376	4397*				
T9INT	0000 40EE:I	3420*					
T9LOOP	0000 406C:I	3385*	3415				
T9LOOP1	0000 40DA:I	3388	3414*				
T9RESTRT	0000 405C:I	3380*	3380				
T9RET	0000 40F2:I	3420	3421*				
TACPLP1	0000 4418:I	3630*	3637				
TACPLP2	0000 4430:I	3635	3637*				
TADUMMY	0000 43CC:I	3610*	3611				
TAPEDRIV	0000 2D5C:I	1670	1671	2284*			
TASKNAME	0000 025C	56*					
TASKQUE	0000 0214	56*					
TASTLP	0000 4326:I	3566*	3571				
TASTLP1	0000 434A:I	3576*	3577				
TASTLP2	0000 433A:I	3569	3571*				
TEMP	0000 6028:I	2247	2248	3404	3413	4711*	
TERMCHK	0000 3600:I	2751	2811	2875*			
TEST0	0000 3048:I	158	2544*				
TEST0.01	0000 306C:I	2556*	2597				
TEST0.02	0000 3070:I	2558*					
TEST0.03	0000 307C:I	2561*					
TEST0.04	0000 3090:I	2559	2567*				
TEST0.05	0000 30DA:I	2570	2591*				
TEST1	0000 33D8:I	159	2560	2571	2637	2687*	
TEST1.1	0000 33F6:I	2696*	2871				
TEST1.10	0000 35BC:I	2757	2852*				
TEST1.11	0000 35EA:I	2863	2866*				
TEST1.12	0000 35F2:I	2861	2865	2869*			
TEST1.13	0000 35F4:I	2859	2870*				
TEST1.2	0000 3436:I	2710	2713	2716*			
TEST1.3	0000 343E:I	2712	2715	2719*			
TEST1.4	0000 3446:I	2722*					
TEST1.5	0000 349A:I	2697	2754*				
TEST1.6	0000 34DA:I	2768	2771	2774*			
TEST1.7	0000 34E2:I	2770	2773	2777*			
TEST10	0000 42EC:I	168	3548*				
TEST2	0000 3708:I	160	2698	2758	2900*		
TEST3	0000 39DC:I	161	3025*				
TEST3A	0000 39FA:I	3033*	3100				
TEST4	0000 3B4C:I	162	3109*				
TEST4A	0000 3B64:I	3116*	3207				
TEST4B	0000 3BCC:I	3137	3143*				
TEST4C	0000 3C1A:I	3160	3166*				
TEST5	0000 3DB8:I	163	3265*				
TEST6	0000 3E48:I	164	3278	3286*			
TEST7	0000 3F1C:I	165	3306	3328*			

SYMBOL TABLE & CROSS REFERENCE LIST

```
TEST8      0000 3268:I          166   2620*
TEST9      0000 4054:I          167   3377*
TESTAA     0000 430A:I         3557*  3666
TESTDRIV   0000 2D2A:I         1669   1685   2264*
TESTEND    0000 6158:I         1733   1988   4728*
TESTEND2   0000 260C:I         1718   1721*
TESTEND3   0000 2614:I         1716   1720   1724*
TESTEND4   0000 2616:I         1714   1725*
TESTS      0000 0188:I          157*  4779
TESTSEND   0000 01B4:I          169*  4779
TIME       0000 014C             56*
TIMEOUT    0000 6190:I         4728*
TIMEOUT1   0000 2A74:I         2114   2119*
TIMETOP    0000 0150             56*
TIMQUEUE   0000 0154             56*
TITLE      0000 004D:I           81*  4779
TOCSA      0000 2320:I         1483*  1484
TOPT       0000 0268             56*
TOTAL      0000 62A8:I         4779*
TOTERR     0000 62AC:I         3000   4034   4779*
TRSMSG     0000 5115:I         1528   4474*
TSTACT     0000 250E:I         1638   1644*
TSTAT      0000 27F0:I         1881   1885*
TSTAT1     0000 27F2:I         1886*  1902
TSTAT2     0000 281E:I         1887   1900*
TSTEND     0000 25E0:I         1706*  1769   2550   2626   2695   2906   3032   3115   3271   3292   3319   3556
TSTEND0    0000 25E2:I         1708*  1730
TSTEND1    0000 262A:I         1709   1729*
TSTERTN    0000 4DE2:I         1946   1954   2334   2433   2500   4304   4307   4310   4313   4316   4319   4322   43
TSTERTNA   0000 6030:I         2548   2624   2693   2904   3030   3113   3269   3290   3332   3381   3554   4343   47
TSTIT1     0000 2832:I         1907*  1920
TSTNXT     0000 3788:I         2947*  2976
TSTNXT1    0000 2850:I         1910   1912   1917*
TSTPAT     0000 465A:I         3751   3755   3790*
UACT       0000 0280             56*
USERDEF    0000 2C26:I         2176   2253*
USERDEFI   0000 4B98:I         4118   4213*  4216
W.BUFFIL   0000 00EF:I          113*
W.BYTE     0000 00E4:I          111*
W.CYLNUM   0000 00D6:I          109*
W.DEVICE   0000 00C8:I          107*
W.DISFIL   0000 00CF:I          108*
W.IMAGE    0000 00E9:I          112*
W.INBUF    0000 00FD:I          115*
W.IODEV    0000 00C2:I          106*
W.OUTBUF   0000 00F6:I          114*
W.PATERN   0000 0103:I          116*
W.SECTOR   0000 00DD:I          110*
W.SELCH    0000 00BC:I          105*
WAIT       0000 2A3E:I         2099*  3139   3162
WAITPSW    0000 60A0:I         1740   1823   3428   4726*
WBLOCK     0000 3460:I         2726   2728*
WBLOCK2    0000 348E:I         2734   2740   2744   2751*
```

SYMBOL TABLE & CROSS REFERENCE LIST

```
WDBLCK1   0000 3466:I    2732*  2739
WDBLCK3   0000 346A:I    2733*  2735
WEOF      0000 2DC4:I    2301   2315*
WFILE     0000 2E42:I    2357*  2361   2370
WFILE2    0000 2E64:I    2365   2368*
WHBLCK1   0000 347C:I    2730   2742*  2749
WHBLCK3   0000 3480:I    2743*  2745
WORK      0000 000A       176*  1968   1969   1969   1970   1971   1977   1978   1979   2026   2031   2033   20
                          2059  2064   2072   2075   2268   2269   2269   2270   2290   2291   2292   2292   22
                          2299  2305   2306   2306   2307   2309   2310   2311   2311   2312   2313   2315   23
                          2317  2319   2330   2880   2881   2883   3272   3274   3294   3300   3302   3982   39
                          3993  4002   4003   4004
WORK1     0000 000B       177*  1962   1963   1964   1965   1967   1969   1975   2073   2075   3273   3275   33
                          3606  3969   3970   3972   3976   3977   3979   3981   3983   3986   3987   3989   39
                          3996  3997   3999   4001   4003   4336   4336
WPROCEED  0000 00C4        56*
WRITEDSP  0000 4D3E:I    4231   4246   4265   4282*
WRITELUX  0000 023C        56*
WRTDATA   0000 32A4:I    2638*  2664
WRTEOF    0000 6004:I    2317   4683*
WSEEK1    0000 2E92:I    2386*  2388
WSEEK11   0000 3034:I    2536*  2540
WSEEKC    0000 2E8E:I    2374   2378   2384*  2385
WSEEKC1   0000 3030:I    2446   2452   2456   2458   2514   2526   2534*  2535
XERROR    0000 3806:I    2965   2975   2983*
XR        0000 3E90:I    3268   3279   3289   3308*
XTIMEOUT  0000 289C:I    1948   1951*
ZERO      0000 601A:I    4705*
ZERONE    0000 213C:I     526    552    608   1287*
ZRO       0000 328C:I    2632*  2670
```