PERKIN-ELMER

HIGH PERFORMANCE MAGNETIC TAPE SYSTEM 125 IPS (HPMTS 125)

Diagnostic

Consists of:

Program Description	06-263M95A15R00
Program Listing	06-263M95A13R01
R02 Patch Information	

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PREFACE

This manual is intended for use by customer service engineers. It contains information pertaining to the High Performance Magnetic Tape System 125 ips (HPMTS 125). This manual consists of a test program description and program listing.

Revision 01 reflects changes to the program listing. Revision 02 consists of program patch information.

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

HIGH PERFORMANCE
MAGNETIC TAPE SYSTEM 125 IPS (HPMTS 125)
DIAGNOSTIC

1 GENERAL

This program is designed to verify the functions of the magnetic tape drive and its interface. In the event of a detected failure, the program diagnoses problems with the system to identify the most likely failing element. The program prints a message indicating which major replaceable unit contains the failing element. English language messages, with additional clarifying information as necessary, are output to the console to aid the user in test operation and to identify failure modes and the suspected failing element.

2 SYSTEM REQUIREMENTS

This program is designed for stand-alone use on any Perkin-Elmer 3200 Series processor.

3 CONFIGURATION OPTIONS/REQUIREMENTS

This program requires the following system configuration to operate:

- Any Perkin-Elmer 3200 Series processor
- A Perkin-Elmer 3200 Series processor selector channel (SELCH) or equivalent
- At least 48kb of memory
- A console device
- 6250 bpi magnetic tape controller (Part Number 35-820)

4 LOADING PROCEDURES

The High Performance Magnetic Tape System 125 IPS (HPMTS 125) Diagnostic is only available on multimedia.

4.1 Loading from a Multimedia Magnetic Tape

Manually key the X'50' sequence shown below into memory:

LOCATION	CONTENTS			
0030	8800	ITPSW	DCX	8800,2000
0032	2000			
0034	0000		DC	A(ITPSW)
0036	0030			
0038	8800	MMPSW	DCX	8800,2000
003A	2000			
003C	0000		DC	A(MMPSW)
003E	0038			
0050	D500	LOAD	AL	X'CF'
0052	00CF			
0054	4300		B	X'80'
0056	0080			
0078	85A1	Magnetic tape device address output command		
0078	8540	6250 magnetic tape device address/output command		
007A	0000			
007C	0000	If no selector channel (SELCH)		
or 007C	00F0	SELCH address		

4.2 Loading from a Multimedia Disk

The multimedia disk pack is built in such a way as to be boot loadable using the loader storage unit (LSU).

1. Enable the IPL and depress initialize. Observe that the following is output to the system console:

```
3200 LSU LOADER  R00-00
DEVS
MG85
MGC5
DS5D
DS5F
DS67
D256
FLPY
OTHR
DEVICE=
```

2. If the system has default addresses, enter DS5R for the 10Mb removable; otherwise, enter OTHR and the applicable addresses. For example:

```
DEVICE = OTHR
DEV#   = C6
CODE   = 33
CTLR   = B6
SLCH   = F0
```

3. The following should be output:

```
VOL = MMD,FILF=
```

4. Enter:

```
OS32MDL2.111
```

5. The following should be output:

```
MMDL-INPUT SEQUENCE NUMBER
```

6. Memory locations X'7A' through X'7F' have been set up by the LSU loader with default values for the 10Mb removable platter. If necessary, modify these locations and re-execute from address X'6000'.

7. Type the sequence number on the system console followed by a carriage return (CR).

8. Select address X'50' and execute. The multimedia diagnostic (MMD) loader is loaded into memory. The magnetic tape automatically rewinds and the loader starts.

9. The MMD loader outputs an identifying message to the system console and requests sequence number input. Type this program's library sequence number on the system console, followed by a CR. Refer to document 06-176A15 for more details.

4.3 Loading from a Multimedia Diskette

1. Manually key the X'50' sequence shown below into memory:

LOCATION	CONTENTS			
0030	8800	IIPSW	DCX	8800,2000
0032	2000			
0034	0000		DC	A(IIPSW)
0036	0030			
0038	8800	MMPSW	DCX	8800,2000
003A	2000			
003C	0000		DC	A(MMPSW)
003E	0038			
0050	D500	LOAD	AL	X'CF'
0052	00CF			
0054	4300		B	X'80'
0056	0080			
0078	C186	Floppy device address/output command		
007A	0000			
007C	0000			

2. Put the diskette containing this program into the input floppy drive.

3. Select address X'50' and execute. The floppy media loader is loaded into memory.

4. The floppy loader outputs an identifying message to the system console and requests sequence number input. Type the sequence number on the system console, followed by a CR. Refer to document 06-225A15 for more details.

5 SUMMARY OF FEATURES

The High Performance Magnetic Tape System 125 IPS (HPMTS 125) Diagnostic subtests are described in the following sections. Option definitions are described in detail in Section 6.

5.1 Test 0 - Multiplexor (MUX) and System Status

Basic functions of the high performance magnetic tape controller are tested in relation to the MUX bus interface. The DRIVE option is checked for agreement with the address of the interface via a status check. Command, data available, and data request functions are also checked for continuity and operation.

The SELCH option is checked to determine if the address selected agrees with what is available.

A bit-by-bit check of the status byte is exercised. Local loop-back mode is tested by writing a data pattern determined by the DATA option to the interface, then reading it back and checking for data errors. The test ends with a check of the DRIVE option. If only one drive is specified, the test ends; otherwise, the above sequence is repeated for each subsequently specified drive.

5.2 Test 1 - Worst Case Data Patterns

The data paths and control logic are exercised with an extensive array of patterns. A check of the busy control logic of the two buffer first-in/first-out's (FIFO) within the controller is initiated, first in a completely loaded condition (write) and then in a completely empty condition (read).

Next, a check of the data paths is undertaken on the interface and to the drive, with the hexadecimal data patterns as determined by the DATA option. If DATA is set equal to 0, the following worst case data patterns are checked:

FF	11	22	44
88	55	EE	CC
33	77	A5	5A
99	66	DD	AA
01	23	45	67
89	AB	CD	FF
FE	DC	BA	98
76	54	32	10

Otherwise, a specific data pattern determined by the user is tested.

5.3 Test 2 - Device Status Halfword

Test 2 makes use of the DRVTYPE option in determining whether the drive is STC or TELEX. It then checks the ability of the interface to correctly send to the central processing unit (CPU) the device status bytes (9 bytes per drive) of the drives in the system, plus the port bus signals contained in the bus status (7 bits) which make up the device status halfword (16 bits). Bits 0 through 8 make up the device status bits, while bits 9 through 15 make up the bus status. The test checks to ensure that ONLINE=1; if it does not, the test aborts testing. Otherwise, the test then checks the drive itself; if the drive is unavailable, further testing is aborted.

The test ends with a check of all bus status error bits to ensure they are 0. The test flags the bad bits and lists the device status byte and bit(s) that are bad.

5.4 Test 3 - Interrecord Gaps, End of File Marks, Erased Record Gaps

Test 3 outputs a series of records and files to the drive. The size is determined by the options BYTES, RECORDS, and FILES. The method of transfer is determined by the TRMODE and SELCH options, with one exception: if TRMODE=0, BYTES is limited to X'FF' due to speed constraints of the system. If the user has specified a larger value, a message is output and X'FF' bytes are transferred. When the required number of records have been written to the tape, an end of file mark is written to the tape. This sequence is repeated until the required number of files have been written to the tape. The tape is rewound, the files are read back, and a count is kept of the bytes and records for interrecord gap and end of file mark recognition. The data is compared as the program reads each record. If TRMODE=0, the test ends.

If TRMODE does not equal 0, erased record gaps are attempted. The tape is rewound and data is written to the tape, using a record length that is shorter than the length to be erased. The tape is rewound and given the erase gap command. Everything that was written should be erased. Data is then written to the tape for a second time. The tape is rewound for a third time and a read is attempted. The erased record gap should be skipped over and the data from the following record read correctly. The test ends upon completion of the data comparisons.

5.5 Test 4 - Variable Length Records

Test 4 initializes the tape with a record of background data as specified by the BYTES option using the pattern X'FF'. It then proceeds to output a series of records. The records increase in length by one each time a write is executed. The starting length is two, and the record is incremented to a value determined by the BYTES option. Records decreasing in length by one are then written to the tape. A rewind command is given to the tape drive, and a read of each variable length record is attempted with data comparisons. If TRMODE=0, the maximum record length is limited to X'FF' because of speed constraints of the system, and a message is output to that effect.

5.6 Test 5 - Skip Functions

Test 5 exercises the SKIP FORWARD and SKIP BACKWARD commands. First, a pair of files are written to the tape. Each file has two records, with each record having a unique pattern associated with it. The tape is given the rewind command, and when back at beginning of tape (BOT), a SKIP FORWARD RECORD command is given. This positions the tape at INTERRECORD GAP (IRG) #1. To verify this, a check is made of the bit status. A read is done of the next record (with data compares). This positions the tape at IRG #3.

The tape is given a rewind command, and when it is back at BOT, a SKIP FORWARD FILE command is given. This positions the tape at IRG #3. After the tape is stopped, a check of the end of file status is made, and a read of the next record (followed by data comparisons) is made to verify the action taken. This positions the tape at IRG #4.

A check is made of the backward skip commands. The tape is positioned at file mark #2, and then two SKIP BACKWARD FILE commands are given. The tape should now be positioned at IRG #2. This leaves the tape on the wrong side of the tape mark to verify the operation, so a SKIP FORWARD FILE command is issued, which positions the tape on IRG #3. A read is done to verify positioning. At the end of this operation, the tape should be positioned at IRG #4.

A check of the SKIP BACKWARD RECORD command is made. The test outputs three SKIP BACKWARD RECORD commands, which positions the tape on IRG #1. A check of block status is performed as well as a read with data compares of record #2.

The test ends with a series of read and file FORWARD and BACKWARD skip commands, which should position the tape at BOT. This status is then checked.

5.7 Test 6 - Backward Read

Test 6 outputs a record of length determined by the BYTES option (limited to X'FF' if TRMODE=0). A message is output to that effect and bytes transferred are X'FF'. The record contains an incrementing pattern. The tape is given a BACKWARD READ command to read the record back to the CPU. The data is compared with the SELCH setup to verify the operation.

5.8 Test 7 - Interrupt Circuitry/Diagnostic Mode

Test 7 checks the three states (enable, disable, and disarm) of the interrupt circuitry, and the associated logic on the interface. This test then enables the interrupt logic, and exercises interrupts, untilizing basic magnetic tape commands (write, rewind, read, and skip) and their associated signals, BUSY and no motion (NMTN). This builds up the complexity of the operation until the program exercises the entire system by doing writes, rewinds, and data compares.

5.9 Test 8 - Read/Write Overruns

Test 8 checks some of the more common error conditions associated with the magnetic tape system: READ OVERRUN, FORMATTER OVERRUN, and WRITE UNDERFLOW. The test also checks the ODD-EVEN BYTE indicator of the bus status.

The program outputs a record to the tape, then rewinds the tape and tries reading the record using a smaller byte count. READ OVERRUN should set as SELCH BUSY drops and more data is loaded into the interface from the tape. Transfer error (TERR), bit 9 of the status byte, should set, as should READ OVERRUN (READ OVRN), bit 15 of the status halfword.

The tape is rewound to BOT, and an amount of data that is larger than the amount of FIFO available is written to the tape. Then a read command is given to the interface without the reading of any data, causing the FIFO to fill and overflow. This, in turn, should cause FORMATTER OVERRUN to occur, which sets TERR (bit 9) and ERR (bit 8) of the status byte.

WRITE UNDERFLOW is then exercised. A record is written to the tape, the tape drive stops, and another write is attempted via a WH instruction without outputting another write command. This action should set TERR, bit 9 of the status byte, as well as WRITE UNDERFLOW, bit 13 of the drive status halfwords.

The test ends with the setting and resetting of the ODD-BYTE status bit, bit 12 of the drive status halfword. The test issues a WRTODDBYTE command and outputs a record five bytes long. The record is then read back to the CPU. This should set ODD-BYTE status. The test then outputs a record four bytes long. After the record is read back, the ODD-BYTE status bit is checked to see that it is reset.

5.10 Test 9 - Gapless Mode

An attempt to write and read a gapless tape is undertaken in Test 9. A gapless tape is a tape with no interrecord gaps. Parity is not checked in the read mode.

Using the amount of available memory configured in the system, the test calculates the maximum number of buffers the system can handle. It then compares that number with the RECORDS option. If the maximum is less than the option value, a message is output to the console stating that the RECORDS option was modified. The test uses the RECORDS option to indicate how many buffers are to be written to the tape.

The tape is cleared by a series of erase commands. The test then outputs a number of buffers (with the SELCH) that are composed of incrementing data patterns.

The tape is given a series of backward record commands. When the tape is stopped at BOT, a read command is issued. The read buffers of the SELCH are sized to include both write buffers to make sure no record gaps were written out.

After the memory is filled and all buffers are read in, the test compares the data that was read back to verify the data transfers. These compares will take a short period of time to complete.

5.11 Test A - Autoload/REL Loader Test

Test A writes a data pattern to the tape, puts the interface in the byte mode, and does a series of read instructions, followed by a check of the data. It then executes an autoload instruction to read the same record into a buffer starting at location X'80' in memory. The data is checked again for validity. Since this test destroys the dedicated memory setup, the test reinitializes dedicated memory before terminating.

The BYTES option is applicable to Test A. Maximum byte specification is limited to X'7F' for this test. If a higher value is specified, the BYTES option is modified and the bytes transferred equal X'7F'. A message is output to that effect.

5.12 Test B - Rewind and Unload Check

Test B outputs a message instructing the user to set the drive offline. When the drive is manually set offline, an interrupt should occur. The driver's DU status bit should be set at the time of the interrupt. If either of these does not occur, an error message is output to the list device.

A message is then output instructing the user to set the drive online. Each specified tape drive is given a REWIND and UNLOAD command. A timeout is taken to give device unavailable (DU), bit 15 of the status byte (Section 9.2), time to set. If the bit does not set, an error is flagged.

This test is not a default test and must be selected through the TEST option. If this test is selected, no other test can be run until a manual reload of the tape into the drive(s) is undertaken.

5.13 Test C - SELCH Scope Loop

Test C puts the interface in the test mode. A data pattern determined by the DATA option is continually written to the interface, then read back and checked for data errors. The data should be unique hexadecimal digits. No message is output when looping. The test is terminated by depressing the BREAK key on the console.

Other options applicable to this test are BYTES and TRMODE.

Test C is not a default test and must be selected through the TEST option.

5.14 Test D - Write-Only Scope Loop

Test D executes continuous writes to the tape with the tape drive online. The test ends only upon depression of the BREAK key.

Options applicable to this test are DATA, BYTES, RECORDS, and TRMODE.

Test D is not a default test and must be selected through the TEST option.

5.15 Test E - Read-Only Scope Loop

Test E executes continuous reads from the tape. The test ends only upon depression of the BREAK key.

Options applicable to this test are DATA, BYTES, RECORDS, and TRMODE.

Test E is not a default test and must be selected through the TEST option. For proper results, Test D must be executed before Test E is executed.

5.16 Test F - Command and Clear Scope Loop

This test issues an output command to the tape as determined by the COMMAND option and waits for NMTN to set in a particular time limit specified by the TIMELIMT option. When the test receives NMTN status, a CLEAR command is issued. If the COMMAND option contains more than one output command, the above sequence repeats for each one.

Test F ends only upon depression of the BREAK key.

Test F is not a default test and must be selected through the TEST option.

6 SUMMARY OF OPTIONS

A description of the options used by the above subtests is contained in the paragraphs that follow.

Optional mnemonic characters, shown in brackets, need not be entered. The option mnemonic followed by a carriage return (CR) results in selection of the default value.

6.1 BY(TES)

The BYTES option is applicable to Tests 1, 3, 4, 5, 6, 7, A, C, D, and E. The default value is X'FF'. This option selects the total number of bytes per record. The maximum value is X'FFFF'. The minimum value is X'0002'.

NOTE

BYTES is limited to a maximum of X'FF' when TRMODE=0.

6.2 COM(MAND)

The COMMAND option is applicable to Test F. The default value is 0. This option specifies an output command to send to the interface for debugging purposes. Any output command that is applicable to the 6250 magnetic tape unit can be used here. Hexadecimal values 0 through FF are acceptable. This option accepts up to four entries separated by commas.

6.3 CO(NTIN)

The CONTIN option is applicable to all tests. The default value is 0. This option, when set to 1, causes continuous execution of all selected tests until the BREAK key is depressed.

6.4 DAT(A)

The DATA option is applicable to Tests 0, 1, 3, 4, 6, 7, 8, A, C, D, and E. The default value is X'0000'. This option specifies the halfword data that is to be written to and/or read from the tape. If the default value is chosen, worst-case data patterns are used.

6.5 DEN(SITY)

The DENSITY option is applicable to all tests. The default value is 6250, which selects a tape density of 6250 bpi (GCR). A value of 1600 selects a tape density of 1600 bpi (PE). A value of 800 selects a tape density of 800 bpi (NRZI).

6.6 DRI(VE)

The DRIVE option is applicable to all tests. The default value is X'85'. The DRIVE option accepts up to four entries separated by commas. This option corresponds to the drive addresses that are to be tested.

6.7 DRVT(YPE)

The DRVTYPE option is applicable to Test 2. The default value is 0. This option specifies which magnetic tape drive type is in use, STC or TELEX. The default value specifies STC. A value of 1 specifies TELEX.

6.8 FI(LES)

The FILES option is applicable to Test 3 and Test 7. The default value is X'02'. This option specifies the number of files to be written to the tape. The maximum value is X'FFFF'.

6.9 LOO(P)

The LOOP option is applicable to all tests. The default value is 0. It specifies whether the program is to loop on error or not loop on error. LOOP 0 specifies no loop on error. LOOP 1 specifies loop on error. LOOP 2 specifies loop on error without messages.

NOTE

Both LOOP 1 and LOOP 2 override PROCEED 1 and PROCEED 2.

6.10 ONL(INE)

The ONLINE option is applicable to Tests 1 through 7. The default value is 1. This option specifies whether to put the interface into the test mode, ONLINE=0, or to put the interface into the online mode, ONLINE=1.

6.11 OPT(ION)

This option is used to display all options, with their current values, on the CRT.

6.12 PRO(CEED)

The PROCEED option is applicable to all tests. The default value is 1. Other applicable values are 0 and 2. This option specifies whether or not to proceed on an error. PROCEED 0 specifies halt on error. PROCEED 1, the default value, specifies proceed on error as far as possible within a subtest. PROCEED 2 specifies execution of the entire subtest selection regardless of errors encountered.

NOTE

PROCEED 0 overrides LOOP options.

6.13 REC(ORDS)

The RECORDS option is applicable to Tests 3, 7, 9, D, and F. The default value is X'7F'. This option selects the number of records per file, as well as the number of buffers to be written to the gapless tape in Test 9. The maximum value is X'FFFF'.

6.14 RUN

The RUN option causes all currently selected tests in the TEST option to execute.

6.15 SEL(CH)

The SELCH option is applicable to all tests. The default value is X'F0'. This option specifies the address of the SELCH being used.

6.16 TE(ST)

The TEST option is used to select the test or tests to be executed. The default selections are Tests 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, F, and F. Tests B, C, D, and E are optional tests and must be chosen through this option. This option accepts any test numbers selected (0 through F). If more than one test is selected, the test numbers must be separated by commas.

6.17 TIME(LIMT)

The TIMELIMT option is applicable to Test F. The default value is Y'00007FFF'. This option specifies a time value for Test F to wait for NMTN after the output command is given. Fullword values are accepted.

6.18 TRM(ODE)

The TRMODE option is applicable to Tests 1 through 7, C, D, and E. This option selects the mode transfer of data. The default value, 1, selects SELCH transfers. A value of 0 selects read/write (programmed I/O instructions) transfers.

7 ERROR HANDLING

When an error is found, the conditions that led to the error are repeated. If the error still appears after the specified maximum number of retries, then the program performs some further isolating steps, and a message is output describing what caused

the error and what is suspected to be at fault. In some cases, additional clarifying information, such as expected device status and received device status, is output. For example:

```
   DID NOT ERASE GAP
   SUSPECTED ERROR WITH FORMATTER

     or

   INCORRECT STATUS FROM INTERFACE
   EXPECTED STATUS=0014
   ACTUAL STATUS=0022
   SUSPECTED ERROR WITH CONTROLLER
```

7.1 Error Messages

TEST 0

```
   INCORRECT DATA COMPARE AFTER WRITE TO CPU
   INCORRECT DATA COMPARE
   DRIVE=***                                    (Note 1)
   STATUS=****                                  (Note 2)
   BYTE ******                                  (Note 3)
   DATA WRITTEN=****                            (Note 2)
   DATA READ   =****                            (Note 2)
- - - - - - - - - - - - - - - - - - -

or FALSE SYNC FROM DRIVE ***                    (Note 1)
   EXECUTING RD
or EXECUTING WD
or EXECUTING OC
or EXECUTING SS
- - - - - - - - - - - - - - - - - - -

or FALSE SYNC FROM SELCH ***                    (Note 1)
- - - - - - - - - - - - - - - - - - -

or 'DRIVE UNAVAILABLE' SET
or 'EOF' IS ACTIVE UNJUSTLY
or 'BUSY' IS ACTIVE AFTER CLEAR
or 'NO MOTION' IS NOT ACTIVE
or 'BOT' MARK NOT FOUND AFTER REWIND
or 'TERR' IS ACTIVE UNJUSTLY
or 'ERR' IS ACTIVE UNJUSTLY
or INCORRECT STATUS FOR OFF LINE

   INCORRECT STATUS FROM INTERFACE
   DRIVE=***                                    (Note 1)
   EXPECTED STATUS=****                         (Note 2)
   ACTUAL STATUS  =****                         (Note 2)
```

- - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - -

SUSPECTED ERROR WITH FORMATTER
or SUSPECTED ERROR WITH CONTROLLER
or SUSPECTED ERROR WITH DRIVE
or SUSPECTED ERROR WITH SELCH

ADVISORY MESSAGES:
NO MATCH ON SELCH ADDRESS
BYTES TRANSFERED = Y'FF'

TEST 1

TESTMODE WRITE TO CHECK FIFO CONTROL ON BITS
or TESTMODE READ TO CHECK FIFO CONTROL ON BITS

INCORRECT STATUS RECEIVED FROM INTERFACE

DRIVE ***
EXPECTED STATUS=**** (Note 2)
ACTUAL STATUS =**** (Note 2)

or TESTMODE CHECK OF FIFO CONTROL ON BITS

INCORRECT DATA COMPARE
DRIVE *** (Note 1)
STATUS
BYTE ****** (Note 3)
DATA WRITTEN=**** (Note 2)
DATA READ =**** (Note 2)

or CHECK OF FIFO BUSY LOGIC
BUSY RESET DURING TIMEOUT IN TESTMODE WRITE
or BUSY RESET DURING TIMEOUT IN TESTMODE READ

INCORRECT STATUS RECEIVED FROM INTERFACE
DRIVE ***
EXPECTED STATUS
ACTUAL STATUS =**** (Note 2)

or SELCH WRITE TO THE INTERFACE
or SELCH READ FROM THE INTERFACE
or SELCH WRITE TO THE TAPE
or SELCH READ FROM THE TAPE

```
      TIMED OUT DURING SELCH *** WRITE          (Note 1)
   or TIMED OUT DURING SELCH *** READ           (Note 1)

   or INCORRECT STATUS FROM SELCH ***           (Note 1)
      SELCH STATUS=****                         (Note 2)
      DRIVE ***                                 (Note 1)
      STATUS=****                               (Note 2)

   or MISMATCH ON SELCH *** ENDING ADDRESS      (Note 1)

         NO READ OCCURRED
      or NO WRITE OCCURRED

      DRIVE ***                                 (Note 1)
      STATUS=****                               (Note 2)
      SELCH STATUS=****                         (Note 2)
      EXPECTED ADDRESS=******                   (Note 3)
      ACTUAL ADDRESS  =******                   (Note 3)


or WRITE/READ TRANSFERS TO THE TAPE
or SELCH TRANSFERS TO THE TAPE
or SELCH TRANFERS TO THE INTERFACE

   INCORRECT DATA COMPARE
   DRIVE ***                                    (Note 1)
   STATUS=****                                  (Note 2)
   BYTE ******                                  (Note 3)
   DATA WRITTEN=****                            (Note 2)
   DATA READ   =****                            (Note 2)


or WRITE TO THE TAPE
or READ FROM THE TAPE

   INCORRECT STATUS RECEIVED FROM INTERFACE
   DRIVE ***                                    (Note 1)
   EXPECTED STATUS=****                         (Note 2)
   ACTUAL STATUS  =****                         (Note 2)



TEST 3


INCORRECT STATUS ON READ  - "WRITE" SET

   DRIVE ***                                    (Note 1)
   DEVICE STATUS HALFWORD=****                  (Note 2)


or NO TAPE MARKS WRITTEN
   ON READ FROM TAPE - NO "EOF" STATUS

or NO TAPE MARKS WRITTEN
   ON SELCH READ - NO "EOF" STATUS
```

```
   DRIVE ***                                    (Note 1)
   EXPECTED STATUS=****                         (Note 2)
   ACTUAL STATUS  =****                         (Note 2)


or SELCH READ FILES-RECORDS-BYTES
or SELCH WRITE AFTER ERASE RECORD GAP
or ERASE RECORD GAP..WRITE
or ERASE RECORD GAP..READ

   TIMED OUT DURING SELCH *** WRITE             (Note 1)

or INCORRECT STATUS FROM SELCH ***              (Note 1)
   SELCH STATUS=****                            (Note 2)
   DRIVE ***                                    (Note 1)
   STATUS=****                                  (Note 2)

or MISMATCH ON SELCH *** ENDING ADDRESS         (Note 1)
      NO READ OCCURRED
   or NO WRITE OCCURRED

   DRIVE ***                                    (Note 1)
   STATUS=****                                  (Note 2)
   SELCH STATUS=****                            (Note 2)
   EXPECTED ADDRESS=******                      (Note 3)
   ACTUAL ADDRESS  =******                      (Note 3)


or INCORRECT DATA FROM SELCH TRANSFER
or "ERASE GAP" DID NOT ERASE RECORD

   INCORRECT DATA COMPARE
   DRIVE ***                                    (Note 1)
   STATUS=****                                  (Note 2)
   BYTE ******                                  (Note 3)
   DATA WRITTEN=****                            (Note 2)
   DATA READ   =****                            (Note 2)

ADVISORY MESSAGES:
   WILL NOT DO ERASE GAPS WITH NON-SELCH TRANSFERS


TEST 4


   INCREMENTING RECORDS
or DECREMENTING RECORDS

   INCORRECT DATA COMPARE
   DRIVE ***                                    (Note 1)
   STATUS=****                                  (Note 2)
   BYTE ******                                  (Note 3)
   DATA WRITTEN=****                            (Note 2)
   DATA READ   =****                            (Note 2)
```

```
or SELCH WRITE INCREMENTING RECORDS
or SELCH READ INCREMENTING RECORDS
or SELCH WRITE DECREMENTING RECORDS
or SELCH READ DECREMENTING RECORDS

     TIMED OUT ON SELCH *** WRITE              (Note 1)
  or TIMED OUT ON SELCH *** READ               (Note 1)

  or INCORRECT STATUS ON SELCH ***             (Note 1)
     SELCH STATUS=****                         (Note 2)
     DRIVE ***                                 (Note 1)
     STATUS=****                               (Note 2)

  or MISMATCH ON SELCH *** ENDING ADDRESS      (Note 1)
        NO READ OCCURRED
     or NO WRITE OCCURRED

     DRIVE ***                                 (Note 1)
     STATUS=****                               (Note 2)
     SELCH STATUS=****                         (Note 2)
     EXPECTED ADDRESS=******                   (Note 3)
     ACTUAL ADDRESS  =******                   (Note 3)

or INCORRECT DATA COMPARE
   LENGTH=****                                 (Note 2)
   DRIVE ***                                   (Note 1)
   STATUS=****                                 (Note 2)
   BYTE ******                                 (Note 3)
   DATA WRITTEN=****                           (Note 2)
   DATA READ   =****                           (Note 2)
```

TEST 5

```
   SKIP BACKWARD FILE
   POSITIONED ON WRONG RECORD
or SKIP BACKWARD RECORD
   POSITIONED ON WRONG RECORD
or NO SKIP FORWARD RECORD OCCURRED
   POSITIONED ON WRONG RECORD
or SKIP FORWARD RECORD
   POSITIONED ON WRONG RECORD
or NO SKIP FORWARD FILE OCCURRED
   POSITIONED ON WRONG FILE
or SKIP FORWARD FILE
   POSITIONED ON WRONG RECORD
or TAPE HAS EXCEEDED WRITTEN RECORDS

   DRIVE ***                                   (Note 1)
   EXPECTED RECORD=****                        (Note 2)
   ACTUAL RECORD  =****                        (Note 2)
   DATA WRITTEN=****                           (Note 2)
   DATA READ   =****                           (Note 2)
```

```
or NO "BOT" STATUS AFTER SKIP COMMANDS

   DRIVE ***                                        (Note 1)
   EXPECTED STATUS=****                             (Note 2)
   ACTUAL STATUS  =****                             (Note 2)


or IRG WAS NOT WRITTEN
   DRIVE ***                                        (Note 1)
   DEVICE STATUS HALFWORD=****                      (Note 2)


or SELCH SKIP COMMANDS

      TIMED OUT ON SELCH *** WRITE                  (Note 1)

   or INCORRECT STATUS FROM SELCH ***               (Note 1)
      SELCH STATUS=****                             (Note 2)
      DRIVE ****                                    (Note 2)
      STATUS=****                                   (Note 2)

   or MISMATCH ON SELCH *** ENDING ADDRESS          (Note 1)

      DRIVE ***                                     (Note 1)
      STATUS=****                                   (Note 2)
      SELCH STATUS=****                             (Note 2)
      EXPECTED ADDRESS=******                       (Note 3)
      ACTUAL ADDRESS  =******                       (Note 3)
ADVISORY MESSAGES:

   NO MATCH ON SELCH ADDRESS



TEST 6


   READ BACKWARD
or SELCH READ BACKWARD

   INCORRECT DATA COMPARE
   DRIVE ***                                        (Note 1)
   STATUS=****                                      (Note 2)
   BYTE ******                                      (Note 3)
   DATA WRITTEN=****                                (Note 2)
   DATA READ   =****                                (Note 2)


or READ BACKWARD..(SELCH WRITE)
or SELCH READ BACKWARD

      TIMED OUT ON SELCH *** READ                   (Note 1)
   or TIMED OUT ON SELCH *** WRITE                  (Note 1)
```

```
   or INCORRECT STATUS ON SELCH ***                    (Note 1)
      SELCH STATUS=****                                (Note 2)
      DRIVE ***                                        (Note 1)
      STATUS=****                                      (Note 2)

   or MISMATCH ON SELCH *** ENDING ADDRESS             (Note 1)
          NO READ OCCURRED
       or NO WRITE OCCURRED

      DRIVE ***                                        (Note 1)
      STATUS=****                                      (Note 2)
      SELCH STATUS=****                                (Note 2)
      EXPECTED ADDRESS=******                          (Note 3)
      ACTUAL ADDRESS  =******                          (Note 3)
```

TEST 7

```
      INTERRUPT GENERATED WHILE DISARMED
or INTERRUPT QUEUED WHILE DISARMED
or INTERRUPT QUEUED WHILE DISABLED
or NO INTERRUPT QUEUED WHILE DISABLED
or NO INTERRUPT GENERATED WHILE ENABLED
or NO INTERRUPT GENERATED ON "BUSY" AFTER COMMAND WRITE
or NO INTERRUPT GENERATED ON "BUSY" AFTER COMMAND READ
or NO INTERRUPT GENERATED ON "NMTN" AFTER COMMAND REWIND
or NO INTERRUPT GENERATED ON "BUSY" AFTER A WRITE
or NO INTERRUPT GENERATED ON "NMTN" AFTER WRITE
or NO INTERRUPT GENERATED ON "BUSY" AFTER READ
or NO INTERRUPT GENERATED ON "NMTN" AFTER READ
or NO INTERRUPT GENERATED ON "NMTN" AFTER SKIP BACKWARD
   RECORD
or NO INTERRUPT GENERATED ON "NMTN" AFTER SKIP FORWARD
   RECORD
or NO INTERRUPT GENERATED ON "BUSY" AFTER WRITE "EOF"
or NO INTERRUPT GENERATED ON "BUSY" AFTER READ "EOF"
or TIMED OUT ON SELCH *** WRITE TO MEMORY     (Note 1)
   UNDER INTERRUPTS
or TIMED OUT ON SELCH *** READ FROM MEMORY    (Note 1)
   UNDER INTERRUPTS

   DRIVE ***                                  (Note 1)
   STATUS=****                                (Note 2)

or NO INTERRUPT GENERATED ON "NMTN" AFTER COMMAND READ(SELCH)
or NO INTERRUPT GENERATED ON "BUSY" AFTER COMMAND WRITE(SELCH)
or NO INTERRUPT GENERATED ON "NMTN" AFTER REWIND(SELCH)
or NO INTERRUPT GENERATED ON "NMTN" AFTER SELCH WRITE EOF
or NO INTERRUPT GENERATED ON "NMTN" AFTER SELCH READ EOF
or TROUBLE WITH SELCH WRITE TO MEMORY UNDER INTERRUPTS
```

```
   SELCH ***                                          (Note 1)
   DRIVE ***                                          (Note 1)
   STATUS=****                                        (Note 2)
or COMPARES UNDER WRITE/READ INTERRUPTS
or SELCH COMPARES UNDER INTERRUPTS

   DRIVE ***                                          (Note 1)
   STATUS=****                                        (Note 2)
   BYTE ******                                        (Note 3)
   DATA WRITTEN=****                                  (Note 2)
   DATA READ   =****                                  (Note 2)


or NO TAPE MARK STATUS AFTER READ UNDER INTERRUPTS
or NO TAPE MARK STATUS AFTER SELCH READ UNDER
   INTERRUPTS

   DRIVE ***                                          (Note 1)
   EXPECTED STATUS=****                               (Note 2)
   ACTUAL STATUS  =****                               (Note 2)

ADVISORY MESSAGES:
   NO MATCH ON SELCH ADDRESS
```

TEST 8

```
   LONG RECORD WRITES
or SHORT RECORD READS

      TIMED OUT ON SELCH *** READ                     (Note 1)
   or TIMED OUT ON SELCH *** WRITE                    (Note 1)

   or INCORRECT STATUS ON SELCH ***                   (Note 1)
      SELCH STATUS=****                               (Note 2)
      DRIVE ***                                       (Note 1)
      STATUS=****                                     (Note 2)

   or MISMATCH ON SELCH *** ENDING ADDRESS            (Note 1)

      DRIVE ***                                       (Note 1)
      STATUS=****                                     (Note 2)
      SELCH STATUS=****                               (Note 2)
      EXPECTED ADDRESS=******                         (Note 3)
      ACTUAL ADDRESS  =******                         (Note 3)


   READ OVRN DID NOT SET "TERR"
or FORMATTER OVRN DID NOT SET "TERR" & "ERR"
or WRITE UNDERFLOW DID NOT SET "TERR"

   DRIVE ***                                          (Note 2)
   EXPECTED STATUS=****                               (Note 2)
   ACTUAL STATUS  =****                               (Note 2)
```

```
or READ OVRN (DSB BIT 15) DID NOT SET
or WRITE UNDERFLOW (DSB BIT 13) DID NOT SET
or ODD-BYTE STATUS (DSB BIT 12) DID NOT SET
or ODD-BYTE STATUS (DSB BIT 12) DID NOT RESET

   DRIVE ***                                    (Note 1)
   DEVICE STATUS HALFWORD=****                  (Note 2)

ADVISORY MESSAGES:
   SELCH TRANSFERS NOT SELECTED
   NO MATCH ON SELCH ADDRESS



TEST 9


   GAPLESS WRITE
or GAPLESS READ

       TIMED OUT ON SELCH *** WRITE             (Note 1)
    or TIMED OUT ON SELCH *** READ              (Note 1)

    or INCORRECT STATUS ON SELCH ***            (Note 1)
       SELCH STATUS=****                        (Note 2)
       DRIVE ***                                (Note 1)
       STATUS=****                              (Note 2)

    or MISMATCH ON SELCH *** ENDING ADDRESS     (Note 1)

       DRIVE ***                                (Note 1)
       STATUS=****                              (Note 2)
       SELCH STATUS=****                        (Note 2)
       EXPECTED ADDRESS=******                  (Note 3)
       ACTUAL ADDRESS  =******                  (Note 3)


or GAPLESS COMPARE ERROR

   INCORRECT DATA COMPARE
   DRIVE ***                                    (Note 1)
   STATUS=****                                  (Note 2)
   BYTE ******                                  (Note 3)
   DATA WRITTEN=****                            (Note 2)
   DATA READ   =****                            (Note 2)

or IRG FOUND IN GAPLESS TAPE

   DRIVE ***                                    (Note 1)
   EXPECTED STATUS=****                         (Note 2)
   ACTUAL STATUS  =****                         (Note 2)


ADVISORY MESSAGES:
RECORDS OPTION HAS BEEN MODIFIED
SELCH TRANSFERS NOT SELECTED
```

TEST A

```
   BYTE MODE READ
or AUTOLOAD

   INCORRECT DATA COMPARE
   DRIVE ***                                  (Note 1)
   STATUS=****                                (Note 2)
   BYTE ******                                (Note 3)
   DATA WRITTEN=****                          (Note 2)
   DATA READ   =****                          (Note 2)


or
or AUTOLOAD
      CC INDICATES DRIVE UNAVAILABLE
   or CC INDICATES END OF MEDIUM
   or CC INDICATES EXAMINE OR TIMEOUT
   or INCORRECT CC

   CC EXPECTED=*
   CC RECEIVED=*


or AUTOLOAD
   INCORRECT STATUS FROM INTERFACE
   DRIVE ***                                  (Note 1)
   EXPECTED STATUS=****                       (Note 2)
   ACTUAL STATUS  =****                       (Note 2)

ADVISORY MESSAGES:
BYTES OPTION HAS BEEN MODIFIED
```

TEST B

```
   NO INTERRUPT OCCURRED ON MANUAL DU
or INCORRECT STATUS AFTER DU INTERRUPT
or TAPE DID NOT UNLOAD

    INCORRECT STATUS FROM INTERFACE
    DRIVE ***                                 (Note 1)
    EXPECTED STATUS=****                      (Note 2)
    ACTUAL STATUS  =****                      (Note 2)

or TIMED OUT WAITING FOR ON LINE STATUS
or TIMED OUT WAITING FOR OFF LINE STATUS

ADVISORY MESSAGES:
   TURN DRIVE OFF LINE
or TURN DRIVE ON LINE
```

TEST C

SELCH SCOPE
or WRITE/READ SCOPE LOOP

INCORRECT DATA COMPARE
DRIVE ***
STATUS=**** (Note 2)
BYTE ****** (Note 3)
DATA WRITTEN=**** (Note 2)
DATA READ =**** (Note 2)

ADVISORY MESSAGES:
BYTES OPTION HAS BEEN MODIFIED

ERROR MESSAGES COMMON TO TESTS 1-9

ERROR BITS ARE SET

INCORRECT DEVICE STATUS HALFWORD RETURNED

BUS PARITY ERROR
or FORMATTER OVERRUN
or REJECT OR DATA CHECK
or WRITE UNDERFLOW
or READ OVERRUN
or FORMATTER WENT OFF LINE
or REASON FOR FAILURE UNKNOWN

DEVICE STATUS HALFWORDS:
DSB0=**** (Note 2)
DSB1=**** (Note 2)
DSB2=**** (Note 2)
DSB3=**** (Note 2)
DSB4=**** (Note 2)

SUSPECTED ERROR WITH FORMATTER

ERROR MESSAGES COMMON TO ALL TESTS

"FILE PROTECT" IS ACTIVE ON DRIVE *** (Note 1)
or DRIVE *** IS OFF LINE (Note 1)
or FALSE SYNC FROM DRIVE *** (Note 1)
or "NMTN" DID NOT SET AFTER REWIND
or "BOT" DID NOT SET AFTER REWIND
or TIMED OUT WAITING FOR "NMTN"
or TIMED OUT WAITING FOR "BUSY"

DRIVE *** (Note 1)
EXPECTED STATUS=**** (Note 2)
ACTUAL STATUS=**** (Note 2)

- - - - - - - - - - - - - - - - - - -

SUSPECTED ERROR WITH TAPE DRIVE
or SUSPECTED ERROR WITH CONTROLLER

```
   TAPE WILL NOT REWIND
   DRIVE ***                                        (Note 1)
   STATUS=****                                      (Note 2)

   SUSPECTED ERROR WITH CONTROLLER
or SUSPECTED ERROR WITH DRIVE
```

NOTES:

1. *** = Drive or SELCH address in hex
2. **** = Halfword of data
3. ****** = 24-bit hex address on number

8 USER INTERFACE DEFINITION

Upon the completion of load, program execution is started at location X'A00' on startup; the title 'HIGH PERFORMANCE (6250 BPI) MAGNETIC TAPE DIAGNOSTIC 06-263R00' is output. An asterisk operator prompt is output to the console device to indicate the program is waiting for user input. The user can type OPTION (CR) to cause the options with their current values to be displayed on the console device. If all are acceptable, the user can type RUN by entering a CR.

The commercial at (@) sign causes a system breakpoint, giving control of the system to the user at the system console. Any invalid command/option input results in a question mark (?) and a new asterisk operator prompt being output. Refer to Appendix A.

9 I/O DEFINITION

Information relative to command bytes, status bytes, and drive status halfwords can be found in the following sections.

9.1 Command Bytes

The interface has two command bytes selected by command bit 12:

```
    COMMAND 0

    BIT 8 - CMD0
        9 - CMD1
       10 - CMD2
       11 - CMD3
       12 - 0
       13 - MUX2
       14 - MUX1
       15 - MUX0
```

The various combinations for bits 8:11 (command select) result in different meanings of the command.

The various combinations for bits 13:15 (MUX error) result in different meanings of error MUX byte (EMB).

COMMAND 1

BIT 8 - DISABLE
9 - ENABLE
10 - DENSITY SELECT (DS1)
11 - DENSITY SELECT (DS0)
12 - 1
13 - TEST MODE
14 - GAPLESS MODE
15 - CLR

WRTODDBYTE command is set when bits 14 and 15 are both set to 1.

BYTE READ command is set when bits 13 and 15 are both set to 1.

9.2 Status Byte Information

BIT 8 - ERR (Data error)
9 - TEPR (Transfer error)
10 - EOT (End of tape)
11 - NMTN (No motion)
12 - BSY (Busy)
13 - EX (Examine)
14 - TMS (Tape mark status)
15 - DU (Device unavailable)

9.3 Drive Status Halfwords

When a read halfword is given to the magnetic tape interface, a halfword of status consisting of EMBs and magnetic tape interface status is transferred to the user software. Depending upon which EMB has been requested, the halfword is as shown. Refer to Tables 1 and 2 for STC and TELEX magnetic tape drives, respectively. Note that bits 0 through 8 reflect the EMBs from the controller, while bits 9 through 15 are a combination of controller status and magnetic tape interface status. Bit definitions are listed after Tables 1 and 2.

TABLE 1 STC MAGNETIC TAPE DRIVE STATUS HALFWORD

	ERROR MUX STATUS BITS									UPPER STATUS BITS						
DATA BUS	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
ERROR MUX BYTE 0 (EMB 0) DEAD TRACKS	D T 7	D T 6	D T 5	D T 4	D T 3	D T 2	D T 1	D T 0	D T P	NRZI	SSC	BLOCK	ODD BYTE	WRITE UNDER FLOW	BUS PARITY	READ OVRN
EMB 1 READ/WRITE ERRORS	WTM CHK	UCE	PART REC	MTE	NOT USED	END DATA CHECK	VEL ERR	DIAG. MODE LTCH	CRC ERR	Same as above						
EMB 2 DIAGNOSTIC AID BITS	D A 7	D A 6	D A 5	D A 4	D A 3	D A 2	D A 1	D A 0	TACH	Same as above						
EMB 3 DRIVE SENSE BYTE 0	EOT STAT	BOT STAT	WRT INHB	FILE PROT	BKWD STAT	HI DEN	RDY STAT	ON-LINE STAT	WRT STAT	Same as above						
EMB 4 CRC-F BYTE	CRC 7	CRC 6	CRC 5	CRC 4	CRC 3	CRC 2	CRC 1	CRC 0	CRC P	Same as above						
EMB 5	Reserved									Same as above						
EMB 6	Reserved															
EMB 7	Reserved															

TABLE 2 TELEX MAGNETIC TAPE DRIVE STATUS HALFWORD

	ERROR MUX STATUS BITS								UPPER STATUS BITS							
DATA BUS	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EMB 0	EQUIP FAIL TU	EQUIP FAII FCU	NOISE	FILE MARK ERR	SAGC	MULTI TRACK	VRC	NOT CMPT	0	NRZI	DDSO	BLOCK	ODD BYTE	WRITE UNFLW	BUS PARITY	READ OVRN
EMB 1	CRC	SKEW	LOST BOB	PART REC	POST ERR	PREMB ERR	ENVLP CHECK	LRC	0	Same as above						
EMB 2	DEAD TRACK P	IBG OVFLW	NO DATA	LOOP OUT	ERASE WRITE FAIL	TACH FAIL	VELOC CHECK	ID CHECK	0	Same as above						
EMB 3	DEAD TRACK 7	DEAD TRACK 6	DEAD TRACK 5	DEAD TRACK 4	DEAD TRACK 3	DEAD TRACK 2	DEAD TRACK 1	DEAD TRACK 0	0	Same as above						

For a complete definition of the status halfword bits, refer to the High Performance Magnetic Tape System (HPMTS) 125 Installation and Maintenance Manual, Publication Number 47-028.

MNEMONIC	DEFINITION
BKWD STAT	Backward status
BLOCK	Block status
BOT STAT	Beginning of tape status
CRC	Cyclic redundancy character
CRC ERR	Cyclic redundancy character error
DA	Diagnostic aids
DDS	Data density
DIAG MODE LTCH	Diagnostic mode latch
DT	Dead track
END DATA CHK	End of data check
ENVLP CHECK	Envelope check
EOT STAT	End of tape status
EQUIP FAIL FCU	Equipment fail formatter
EQUIP FAIL TU	Equipment fail tape drive
ERASE/WRITE FAIL	Current erase or write failure
FILE MARK	File mark error
FILE PROT	File protect
HI DEN	High density
IBG OVFLW	Interblock gap overflow
ID CHECK	Identification burst check
LOST BOB	Lost beginning of block
LRC	Longitudinal redundancy check
MTE	Multiple track error
MULTI-TRACK	Multi-track error

MNEMONIC	DEFINITION
NOT COMPT	Not compatible
ODD BYTE	Sets on odd byte boundary
ON LINE STAT	Online status
PART REC	Partial record
POST ERR	Postamble error
PREMB ERR	Preamble error
READ OVRN	Read overrun
RDY STAT	Ready status
SAGC	Set auto gain control
SKEW	Excessive skewing
SSC	Slave status change
TACH	Digital tachometer
TACH FAIL	Tachometer pulses not received
UCE	Uncorrectable error
VEL ERR	Velocity error
VELOC CHECK	Velocity check
VRC	Vertical redundancy check
WRT INHB	Write inhibit
WRT STAT	Write status
WTM CHK	Write tape mark check

APPENDIX A
USER DEVICE DEFINITION

ASCII I/O DEVICE SUPPORT

The R05 executive (ETPE R05) of the program uses the concept of console I/O device and list device. The console I/O device is an interactive device capable of logging messages and accepting commands and other user input. When the executive is accepting input from the user or sending messages to the user, the console device is used. When the test program is running, the list device is used for logging messages.

IO HALFWORD CONTROL OF I/O DEVICE SELECTION

The list device and console device are specified to the executive by the contents of the halfword IO at ORIGIN1+X'10' (normally X'0A10'). The interpretation of this data is detailed in Table A-1. The executive allows only the identifiers shown and changes illegal identifiers to X'01'.

TABLE A-1 I/O IDENTIFIERS

CONSOLE DEVICE IDENTIFIER BITS 0-7	LIST DEVICE IDENTIFIER BITS 8-15
X'01' - CRT on PASLA/PALM or COMM MUX interface	X'01' - CRT on PASLA/PALM or COMM MUX interface
X'02' - Device on current loop interface (CLI)	X'02' - Device on CLI
X'03' - Reserved; changed to X'01'	X'03' - Line printer on line printer interface
X'04' - Carousel on PASLA/ PALM or COMM MUX interface	X'04' - Carousel on PASLA/ PALM or COMM MUX interface
X'05' - CRT on micro-I/O bus interface	X'05' - CRT on micro-I/O bus interface

I/O DEVICE ADDRESSES AND CHARACTERISTICS

The device types implied by the values contained in the IO halfword are described in the following paragraphs. For each of the devices, including device type X'03', termination of an output line results in a CR, line feed, and null character being output by the executive (X'0D', X'0A', X'00').

Devices identified by X'01' are assumed to be on a full duplex asynchronous RS232C-type interface with addresses X'010' and X'011' for read and write sides, respectively. Examples of such interfaces are PASLA, PALM, and COMM MUX. The executive programs these devices for highest clock rate, seven data bits, two stop bits, and even parity. If the terminal is set up differently, location CRT2ND must be modified accordingly. Line break status is assumed to be indicated by framing-error status, with BUSY not active, and a 0 character in the receive buffer. Offline status is assumed to be X'0C' (BUSY+EXAMINE STATUS).

Devices identified by X'02' are assumed to be on a teletype-compatible CLI with address X'002'. The executive programs these devices for unblocked mode (echoplex). Line break status is assumed to be indicated by framing-error status. Offline status is assumed to be X'01' (DU). If this bit is set, other status bits are "don't cares".

The list device identified by X'03' is assumed to be a line printer on a line printer interface with address X'062'. Offline status is assumed to be X'01' (DU). If this bit is set, other status bits are "don't cares".

Devices indicated by X'04' are assumed to be attached as described for device type X'01', having the capability of transmitting DC4 and DC2 transmission pause and resume requests. An example of such a device is the Perkin-Elmer Carousel 300 terminal.

Devices indicated by X'05' are assumed to be on a micro-I/O bus interface with address X'0C0'. These devices are programmed for blocked mode (full duplex). Line break is assumed to be indicated by framing-error status, which is not testable if a character is in the interface read buffer. Offline status is assumed to be X'01' (DU). If this bit is set, other status bits are "don't cares".

SELECTING DEVICES BEFORE STARTING EXECUTION

The IO halfword controls which device identifiers are used when the program is started. The default data in this halfword is X'0101'. If this value does not indicate the desired type of I/O device of the types supported, the data in the IO halfword might be modified before starting program execution.

If the default device addresses are not the addresses of the devices configured in the system, the table of device addresses found in the source program adjacent to the IO halfword might be modified. There are two halfword entries used for each type device. The first is the read-side address, and the second is the write-side address. Both these halfwords must be modified for any change required. If the device type has only one address; i.e., a line printer, the device address must be placed in each of the two appropriate halfwords. The R05 executive always uses the read-side address to test offline status.

PROG= HPMT263   ASSEMBLED BY CAL/32 03-338R00-00

```
                SCRAT                                                                   MTD00010
HPMT263         PROG  HIGH PERFORMANCE(6250)MAGTAPE DIAGNOSTIC 06-263R01M95A13          MTD00020
                TARGT 32                    CODE EXPECTS TARGET 32                      MTD00030
                FRLST                                                                   MTD00040
                WIDTH 132                                                               MTD00050
                CROSS                                                                   MTD00060
                SQUEZ 9                                                                 MTD00070
                ERSQZ                                                                   MTD00080
* ********************************************************************                  MTD00090
* COPYRIGHT PERKIN-ELMER, INC., JULY 1981                                               MTD00100
*                                                                                       MTD00110
*                                                                                       MTD00120
* THIS PROGRAM PROVIDES A COMPREHENSIVE TEST OF THE STC AND TELEX                       MTD00130
* HIGH PERFORMANCE MAGNETIC TAPE INTERFACE, DRIVE AND FORMATTER.                        MTD00140
*                                                                                       MTD00150
* THERE ARE NUMEROUS OPTIONS AVAILABLE TO THE USER, AND                                 MTD00160
* DETAILED ERROR MESSAGES TO AID IN THE ISOLATION OF A FAULT                            MTD00170
* AT THE HARDWARE LEVEL.                                                                MTD00180
*                                                                                       MTD00190
* THE PROGRAM CAN BE RUN ON ANY STANDARD PERKIN-ELMER                                   MTD00200
* 3200 FAMILY PROCESSOR.                                                                MTD00210
* OPTIONS AND RUN COMMAND ARE TO BE ENTERED VIA A CONSOLE                               MTD00220
* TERMINAL. UP TO  4 TAPE DRIVES MAY BE TESTED AT ONE TIME.                             MTD00230
*                                                                                       MTD00240
*   TEST 0      MULTIPLEXOR AND SYSTEM STATUS CHECK                                     MTD00250
*                                                                                       MTD00260
*   TEST 1      WORST CASE DATA PATTERNS                                                MTD00270
*                                                                                       MTD00280
*   TEST 2      DEVICE STATUS BYTES                                                     MTD00290
*                                                                                       MTD00300
*   TEST 3      RECORD GAPS,TAPE MARKS AND ERASE GAPS                                   MTD00310
*                                                                                       MTD00320
*   TEST 4      VARIABLE LENGTH RECORD AND FILES TEST                                   MTD00330
*                                                                                       MTD00340
*   TEST 5      REWIND AND SKIP FUNCTIONS                                               MTD00350
*                                                                                       MTD00360
*   TEST 6      BACKWARDS READ                                                          MTD00370
*                                                                                       MTD00380
*   TEST 7      INTERRUPT CIRCUITRY                                                     MTD00390
*                                                                                       MTD00400
*   TEST 8      WRITE AND READ OVERRUNS                                                 MTD00410
*                                                                                       MTD00420
*   TEST 9      GAPLESS MODE TEST                                                       MTD00430
*                                                                                       MTD00440
*   TEST A      AUTOLOAD/REL LOADER TEST                                                MTD00450
*                                                                                       MTD00460
*   TEST B      REWIND AND UNLOAD CHECK                                                 MTD00470
*                                                                                       MTD00480
*   TEST C      SCOPE LOOP TEST                                                         MTD00490
*                                                                                       MTD00500
*   TEST D      WRITE-ONLY SCOPE LOOP                                                   MTD00510
*                                                                                       MTD00520
*   TEST E      READ-ONLY SCOPE LOOP                                                    MTD00530
```

```
*                                                                         MTD00540
*   TEST F     COMMAND-CLEAR SCOPE LOOP                                   MTD00550
*                                                                         MTD00560
*                                                                         MTD00570
* *************************************************************           MTD00580
**ETPE                                                                    MTD00590
```

```
                             NLSTC                                                MTD00610
                   *                                                              MTD00620
                   $STRUC1   STRUC                   OPTION TABLE STRUCTURE       MTD00630
000000             $OPTNAME  DS     8                ASCII OPTION NAME            MTD00640
000008             $CKROUT   DS     2                Z(CHECK ROUTINE)             MTD00650
00000A             $VALU1    DS     2                16-BIT VALUE                 MTD00660
00000C             $VALU2    DS     2                SPARE                        MTD00670
00000E                       ENDS                                                 MTD00680
                   *                                                              MTD00690
       0000 0050   $BUFLEN   EQU    80               I/O BUFFER LENGTH            MTD00700
                   *                                                              MTD00710
                   *                                                              MTD00720
                   *         CONDITIONAL ASSEMBLY PARAMETERS TO FOLLOW            MTD00730
                   *               IN ALL CASES, 0 EQUALS DELETE                  MTD00740
                   *                              1 EQUALS INCLUDE                MTD00750
                   *               TIMER LABEL IS "TIMER" FOR SOFTWARE AND        MTD00760
                   *               HARDWARE, EXCEPT WHEN BOTH ARE INCLUDED.       MTD00770
                   *               THEN LABELS ARE "STIMER" AND "HTIMER"          MTD00780
                   *               RESPECTIVELY.                                  MTD00790
                   *                                                              MTD00800
       0000 0001   $R5BIN    EQU    1                OUTPUT (R5) IN BINARY        MTD00810
       0000 0001   $DECTAB   EQU    1                TABLE OF DECIMAL VALUES      MTD00820
       0000 0001   $DECHEX   EQU    1                CONVERT DECIMAL TO HEX VALUE MTD00830
       0000 0001   $DECASC   EQU    1                CONVERT DECIMAL TO ASCII CHARS MTD00840
       0000 0001   $KBINT    EQU    1                RECOGNIZE INTERRUPTS FROM KEYBOARD MTD00850
       0000 0001   $CLOCK    EQU    1                INCLUDE TIMER FUNCTIONS      MTD00860
       0000 0001   $DISPLAY  EQU    1                HEX DISPLAY PANEL SUPPORT    MTD00870
       0000 0001   $ACTIND   EQU    1                VDU ACTIVITY INDICATOR SUPPORT MTD00880
       0000 0001   $BUFIO    EQU    1                BUFFER ORIENTED I/O          MTD00890
                   *                                                              MTD00900
       0000 0000   R0        EQU    0                                             MTD00910
       0000 0001   R1        EQU    1                                             MTD00920
       0000 0002   R2        EQU    2                                             MTD00930
       0000 0003   R3        EQU    3                                             MTD00940
       0000 0004   R4        EQU    4                                             MTD00950
       0000 0005   R5        EQU    5                                             MTD00960
       0000 0006   R6        EQU    6                                             MTD00970
       0000 0007   R7        EQU    7                                             MTD00980
       0000 0008   R8        EQU    8                                             MTD00990
       0000 0009   R9        EQU    9                                             MTD01000
       0000 000A   R10       EQU    10                                            MTD01010
       0000 000B   R11       EQU    11                                            MTD01020
       0000 000C   R12       EQU    12                                            MTD01030
       0000 000D   R13       EQU    13                                            MTD01040
       0000 000E   R14       EQU    14                                            MTD01050
       0000 000F   R15       EQU    15                                            MTD01060
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EXEC - ETPE R05P7

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             0000 0A00      108 ORIGIN    EQU   Y'00A00'              *** CHANGE AS APPLICABLE *** P6 11/80  MTD01080
00000E                      109           IFNZ  ORIGIN1&Y'00FF0000' .                            P6 11/80  MTD01090
                            113           ELSE                      .                            P6 11/8
             0000 1D7E      114 $ERRF9CH  EQU   $ERRF9              .                            P6 11/80  MTD01140
             0000 1C9E      115 $XI32CH   EQU   $XI32               .                            P6 11/80  MTD01150
                            116           ENDC                      .                            P6 11/80  MTD01160
000000:I                    117           ORG   ORIGIN              .                            P6 11/80  MTD01170
000A00       4300 0A5E      118 ORIGIN1   B     START               START HERE FOR 32-BIT PROCESSOR          MTD01180
000A00                      119           IFZ   ADC-2                                                      MTD01190
                            123           ELSE
000A04       4300 0A72      124 ORIGIN2   B     START3              SPECIAL START(S) - 32 BIT PROCESSO       MTD01240
000A08       4300 0A72      125           B     START3                                                     MTD01250
000A0C       4300 0A72      126           B     START3                                                     MTD01260
                            127           ENDC                                                             MTD01270
                            128 *                                                                          MTD01280
                            129 *----------------------------                                              MTD01290
                            130 *   TEST CONSTANTS                           *                             MTD01300
                            131 *                                                                          MTD01310
             0000 0006      132 $MAXIO    EQU   6                   > MAX VALID IDENTIFIER                   MTD01320
000A10       0101           133 IO        DC    X'0101'             I/O DEVICE(S) IDENTIFIER                 MTD01330
                            134 *                                                                          MTD01340
000A12       0010           135 PASLADR   DC    X'0010'             PALSA/PALM READ ADDRESS                  MTD01350
000A14       0011           136           DC    X'0011'             PASLA/PALM WRITE ADDRESS                 MTD01360
000A16       0002           137 CLIFADR   DC    X'0002'             CURRENT LOOP INTERFACE READ ADDRES       MTD01370
000A18       0002           138           DC    X'0002'             CURRENT LOOP INTERFACE WRITE ADDRE       MTD01380
000A1A       0062           139 LPADR     DC    X'0062'             DUMMY FOR LINE PRINTER                   MTD01390
000A1C       0062           140           DC    X'0062'             WRITE ADDRESS                            MTD01400
000A1E       0010           141 C300ADR   DC    X'0010'             CAROUSEL/PASLA READ ADDRESS              MTD01410
000A20       0011           142           DC    X'0011'             CAROUSEL/PASLA WRITE ADDRESS             MTD01420
000A22       00C0           143 MICROBUS  DC    X'00C0'             MICROBUS READ ADDRESS                    MTD01430
000A24       00C0           144           DC    X'00C0'             MICROBUS WRITE ADDRESS                   MTD01440
000A26       0000           145           DCX   0                   PROVISION FOR SPECIAL DEVICE (READ       MTD01450
000A28       0000           146           DCX   0                   WRITE ADDRESS                            MTD01460
                            147 *                                                                          MTD01470
                            148 * IO =    0101  FOR CRT ON PASLA                                           MTD01480
                            149 *         0202  FOR TELETYPE, CAROUSEL 15/30                               MTD01490
                            150 *         XX03  FOR LINE PRINTER                                           MTD01500
                            151 *         0404  FOR CAROUSEL 300                                           MTD01510
                            152 *         0505  FOR MICROBUS                                               MTD01520
                            153 *                                                                          MTD01530
                            154 *--------------------------------------------------------------            MTD01540
                            155 *  ETPE IO COMMANDS                                                        MTD01550
                            156 *                                                                          MTD01560
000A2A       0000           157 CONRADR   DCX   0                   CONSOLE DEVICE READ ADDRESS              MTD01570
000A2C       0000           158 CONWADR   DCX   0                   CONSOLE DEVICE WRITE ADDRESS             MTD01580
                            159 *                                                                          MTD01590
000A2E       0000           160 CONRD     DCX   0                   CONSOLE READ/WRITE COMMANDS              MTD01600
             0000 0A2F      161 CONWRT    EQU   CONRD+1                                                    MTD01610
000A30       0000           162 CON2ND    DCX   0                                                          MTD01620
             0000 0A31      163 CONENRD   EQU   CON2ND+1                                                   MTD01630
000A32       0000           164 CONCMD    DCX   0                   DUMMY HW AS POINTER                      MTD01640
000A34       A1A3           165 CRTRD     DCX   A1A3                FOR CRT                                  MTD01650
000A36       EE61           166 CRT2ND    DCX   EE61                                                       MTD01660
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 000A38      E4E8                      167  CLIFRD    DCX   E4E8              *   CURRENT LOOP INTERFACE   P3 3/80   MTD01670
 000A3A      0064                      168  CLIF2ND   DCX   0064              .                          P3 3/80   MTD01680
 000A3C      0080                      169  LPWRT     DCX   0080              *   LINE PRINTER                       MTD01690
 000A3E      0000                      170            DCX   0                 DUMMY FOR LP                           MTD01700
 000A40      A1A3                      171  CARRD     DCX   A1A3              *   CAROUSEL 300                       MTD01710
 000A42      F061                      172  CAR2ND    DCX   F061                                                     MTD01720
 000A44      8202                      173  MREADC    DCX   8202              *   MICROBUS                           MTD01730
 000A46      0082                      174            DCX   0082              .                          P2 1/80   MTD01740
                                       175  *                                                                      MTD01750
                                       176  *-------------------------------------------------------------------     MTD01760
 000A48      00                        177  CONRQ2S   DB    0                 CONSOLE REQUEST TO SEND CMD            MTD01770
 000A49      23                        178  CRTRQ2S   DB    X'23'             FOR CRT                                MTD01780
 000A4A      00                        179            DB    0                 DUMMY BYTE FOR CLI                     MTD01790
 000A4B      00                        180            DB    0                 *   DUMMY BYTE FOR LP                  MTD01800
 000A4C      23                        181  CARRQ2S   DB    X'23'             *   CAROUSEL 300                       MTD01810
 000A4D      00                        182            DB    0                 *   DUMMY BYTE FOR MICROBUS            MTD01820
 000A4E                                183            DB    *                 (ALIGN ON HW BOUNDARY)                 MTD01830
 000A4E      0000                      184            DCX   0                 RESERVED                               MTD01840
 000A50      70F0                      185  PSW       DCX   70F0              PSW USED IN PROGRAM                    MTD01850
 000A52      30F0                      186  PSW2      DCX   30F0              PSW USED IN EXEC                       MTD01860
 000A54      70F0                      187  PSW3      DCX   70F0              PSW USED IN INTERRUPT TESTS            MTD01870
 000A56      0000                      188            DCX   0                 RESERVED                               MTD01880
 000A58      0001                      189  $NLFDEV   DCX   1                 VIDEO DISPLAY UNIT DEV TYPE  P6 11/80  MTD01890
 000A5A      7FFF                      190  $TIMVAL   DCX   7FFF              TIMEOUT CONSTANT                       MTD01900
 000A5C      8800                      191  $CON      DCX   8800              BREAKPOINT INSTRUCTION                 MTD01910
                                       192  *-----------------------------                                         MTD01920
                                       193  *                                                                      MTD01930
 000A5E      48E0 0A52                 194  START     LH    R14,PSW2          NEW PSW FOR ILLEGAL INTERRUPT          MTD01940
 000A62      E6F0 0A72                 195            LDAI  R15,STARTA        AND NEW LOC                            MTD01950
 000A66      D0E0 0034                 196            STM   R14,X'34'         FOR SERIES 16                          MTD01960
 000A6A      D0E0 0030                 197            STM   R14,X'30'         FOR SERIES 32                          MTD01970
 000A6E      0000                      198            DCX   0                 TAKE AN ILLEGAL INSTRUCTION INT        MTD01980
 000A70      2200        =000A70       199            BS    *                 HALT IF II NOT TAKEN                   MTD01990
                                       200  *                                                                      MTD02000
*000A72                                201  START3    B     STARTA            INSERT SPECIAL ROUTINE HERE            MTD02010
 000A72      C800 8000                 205  STARTA    LHI   R0,X'8000'                                               MTD02050
 000A76      4000 1E4E                 206            STH   R0,ISITERR        FORCE TITLE PRINT                      MTD02060
 000A7A      EC00 0010                 207            SRL   R0,16             REGISTER PAIR SHIFTED, SERIES 16       MTD02070
 000A7E      4000 1E30                 208            STH   R0,MOD32          SIGN EXTENSION, SERIES 32.             MTD02080
                                       209  *                                                                      MTD02090
 000A82      41E0 19F8                 210            BAL   R14,STCON         SET UP CONSOLE                         MTD02100
 000A86      41F0 1BD0                 211            BAL   R15,LCORE         SET UP LOW CORE                        MTD02110
 000A8A      2400                      212            LIS   R0,0                                                     MTD02120
 000A8C      4000 1E4A                 213            STH   R0,$BRKFLG        NO BREAK KEY YET                       MTD02130
 000A90      41F0 1782                 214            BAL   R15,CRLF                                                 MTD02140
 000A94      41F0 17E6                 215            BAL   R15,SPRINT        PRINT TEST PROGRAM TITLE               MTD02150
 000A98      0000 2236                 216            DAC   TITLE                                                    MTD02160
 000A9C      48F0 1E58                 217            LH    R15,$WASDU        WAS DEVICE SEEN DU ?                   MTD02170
 000AA0      4230 1394                 218            BNZ   HALT9             PRINT TOTAL, TOTERR                    MTD02180
 000AA4      2401                      219            LIS   R0,1                                                     MTD02190
 000AA6      4000 4000 840C            220            STH   R0,DENSFLAG                                              MTD02200
 000AAC      C800 6250                 221            LHI   R0,X'6250'        DENSITY                                MTD02210
 000AB0      4000 2044                 222            STH   R0,DENSITY+$VALU1                                        MTD02220
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                               *                                                                         MTD02230
                               *                                                                         MTD02240
                               *  KEYBOARD INPUT ROUTINE                                                 MTD02250
                               *                                                                         MTD02260
        0000 0AB4              OPTIN     EQU   *                                                         MTD02270
000AB4  41F0 1B5E                        BAL   R15,SETKB           ESTABLISH CONSOLE                     MTD02280
000AB8  41F0 1782                        BAL   R15,CRLF                                                  MTD02290
000ABC  4820 0A52              OPTIN1    LH    R2,PSW2             SPEC'D AS X'30F0'                     MTD02300
000AC0  4020 1E4E                        STH   R2,ISITERR          FORCE EXEC MESSAGE PRINT              MTD02310
000AC4  9512                             EPSR  R1,R2               NO INT. REG SET 15                    MTD02320
000AC6  2400                             LIS   R0,0                NO BRK TERM QUEUE, NOMSG>0   P1 10/79 MTD02330
000AC8  4000 1E4A                        STH   R0,$BRKFLG          .                            P1 10/79 MTD02340
000ACC  4000 1E40                        STH   R0,$NLFFLAG         DISABLE ACTIVITY INDICATOR   P6 11/80 MTD02350
000AD0  41F0 1B5E                        BAL   R15,SETKB           ESTABLISH CONSOLE                     MTD02360
000AD4  7300 4000 8404                   LHL   R0,BYSAV            GET ORIGINAL VALUE                    MTD02370
000ADA  4000 200C                        STH   R0,BYTES+$VALU1     RESTORE BYTES OPTION                  MTD02380
000ADE  D340 1F40                        LB    R4,AMSG             OUTPUT AN * TO INDICATE               MTD02390
000AE2  41F0 18C4                        BAL   R15,OUTCHR          COMMAND MODE ESTABLISHED              MTD02400
000AE6  2541                             LCS   R4,1                X'FF'                                 MTD02410
000AE8  41F0 18C4                        BAL   R15,OUTCHR                                                MTD02420
000AEC  41F0 1964                        BAL   R15,$READ           GET INPUT RECORD                      MTD02430
                               *                                                                         MTD02440
                               * ----------------------------------------                                MTD02450
                               *                                                                         MTD02460
                               * COMMAND DECODE                                                          MTD02470
                               *                                                                         MTD02480
                               *                                                                         MTD02490
000AF0  E6C0 1A7C              MATCH     LDAI  R12,QUESTN          GLOBAL ERROR ROUTINE         ****     MTD02500
000AF4  C810 2146                        LHI   R1,OPT.TAB          ADDRESS OF OPTION TABLE IN R1****     MTD02510
000AF8  2460                             LIS   R6,0                BACK TO START OF INBUF       ****     MTD02520
000AFA  2430                   MATCH.01  LIS   R3,0                CLEAR R3                     ****     MTD02530
000AFC  D351 0000                        LB    R5,0(R1)            LOAD BYTE FROM TABLE         ****     MTD02540
000B00  0855                             LR    R5,R5               *                            ****     MTD02550
000B02  033C                             BZR   R12                 END OF TABLE, NO MATCH       ****     MTD02560
000B04  D343 4000 88FC         MATCH.02  LB    R4,$INBUF(R3)       LOAD CONTENTS OF INBUF INTO ****      MTD02570
000B0A  D351 0000                        LB    R5,0(R1)            LOAD A BYTE FROM OPTION TAB  ****     MTD02580
000B0E  2631                             AIS   R3,1                INCREMENT R3                 ****     MTD02590
000B10  2611                             AIS   R1,1                INCREMENT R1                 ****     MTD02600
000B12  C350 0080                        THI   R5,X'80'            MATCH REQUIRED?              ****     MTD02610
*000B16 233D       =000B30               BZ    MATCH.05            SKIP IF NO                   ****     MTD02620
000B18  C450 007F                        NHI   R5,X'7F'            MASK TO 7-BIT ASCII          ****     MTD02630
000B1C  0545                             CLR   R4,R5               COMPARE R4 TO R5             ****     MTD02640
*000B1E 223D       =000B04               BE    MATCH.02            IF EQUAL, TRY NEXT BYTE      ****     MTD02650
000B20  2661                   MATCH.03  AIS   R6,1                INCREMENT R6                 ****     MTD02660
000B22  0855                   MATCH.04  LR    R5,R5               SKIP TO NEXT TABLE ENTRY     ****     MTD02670
000B24  4330 0AFA                        BZ    MATCH.01            *                            ****     MTD02680
000B28  D351 0000                        LB    R5,0(R1)            LOAD THE NEXT BYTE           ****     MTD02690
000B2C  2611                             AIS   R1,1                INCREMENT R1 BY 1            ****     MTD02700
*000B2E 2206       =000B22               B     MATCH.04            *                            ****     MTD02710
                               *                                   MATCH NOT REQUIRED           ****     MTD02720
000B30  0545                   MATCH.05  CLR   R4,R5               COMPARE TABLE AND BUFFER ANY ****     MTD02730
000B32  4330 0B04                        BE    MATCH.02            IF EQUAL, SEE IF NEXT BYTE MA****     MTD02740
000B36  0855                   MATCH.06  LR    R5,R5               NO MATCH,DONE WITH TABLE ENTR****     MTD02750
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*000B38    2335       =000B42      276              BZ    MATCH.07             BRANCH IF YES                  ****       MTD02760
 000B3A    D351 0000               277              LB    R5,0(R1)             ELSE, SKIP REST OF THIS ENTRY****        MTD02770
 000B3E    2611                    278              AIS   R1,1                 *                              ****       MTD02780
 000B40    2205       =000B36      279              BS    MATCH.06             *                              ****       MTD02790
 000B42    C540 000D               280    MATCH.07  CLHI  R4,X'0D'             TEST INBUF TERMINATOR          ****       MTD02800
*000B46    233C       =000B5F      281              BE    MATCH.09             IF [CR], RETURN                ****       MTD02810
 000B48    C540 0020               282              CLHI  R4,X'20'             IS R4(TERMINATING CHAR) = SPA****        MTD02820
 000B4C    4230 0B20               283              BNE   MATCH.03             IF NO, TRY TO MATCH NEXT       ****       MTD02830
 000B50    D353 0000               284    MATCH.08  LB    R5,0(R3)             YES, SKIP EXTRA SPACES         ****       MTD02840
 000B54    C550 0020               285              CLHI  R5,X'20'             IS R5= SPACE                   ****       MTD02850
*000B58    2133       =000B5F      286              BNE   MATCH.09             NO,RETURN                      ****       MTD02860
 000B5A    2631                    287              AIS   R3,1                 INCREMENT TABLE POINTER        ****       MTD02870
 000B5C    2206       =000B50      288              BS    MATCH.08             *                              ****       MTD02880
                                   289    *                                                                   ****       MTD02890
 000B5E    1162                    290    MATCH.09  SLLS  R6,2                 POSITION INDEX                            MTD02900
 000B60    48F6 0B70               291              LH    R15,OPT.PROC(R6)     *                              ****       MTD02910
 000B64    C540 000D               292              CLHI  R4,X'0D'             CARRIAGE RETURN FOLLOWING OPT             MTD02920
 000B68    033F                    293              BER   R15                  YES, DEFAULT VALUE                        MTD02930
 000B6A    48F6 0B72               294              LH    R15,OPT.PROC+2(R6)   ELSE OTHER VALUE                          MTD02940
 000B6E    030F                    295              BR    R15                  *                              ****       MTD02950
                                   296    *                                    *                              ****       MTD02960
 000B70    0BCC                    297    OPT.PROC  DC    Z($TESTOP),Z($TESTOP) *                             ****       MTD02970
 000B72    0BCC
 000B74    0C1A                    298              DC    Z(LOOP.DEF),Z(LOOP.CMD) *                           ****       MTD02980
 000B76    0C1E
 000B78    0C36                    299              DC    Z(CONT.DEF),Z(CONT.CMD) *                           ****       MTD02990
 000B7A    0C3A
 000B7C    0C4C                    300              DC    Z(BYTE.DEF),Z(BYTE.CMD) *                           ****       MTD03000
 000B7E    0C52
 000B80    0C64                    301              DC    Z(COM.DEF),Z(COM.CMD) *                           ****         MTD03010
 000B82    0C68
 000B84    0CD2                    302              DC    Z(DATA.DEF),Z(DATA.CMD) *                           ****       MTD03020
 000B86    0CD6
 000B88    0CE2                    303              DC    Z(DENS.DEF),Z(DENS.CMD) *                           ****       MTD03030
 000B8A    0CEC
 000B8C    106E                    304              DC    Z(DRIV.DEF),Z(DRIV.CMD) *                           ****       MTD03040
 000B8E    1074
 000B90    0EE0                    305              DC    Z(DRVS.DEF),Z(DRVS.CMD) *                           ****       MTD03050
 000B92    0EE6
 000B94    0ECA                    306              DC    Z(DRVT.DEF),Z(DRVT.CMD) *                           ****       MTD03060
 000B96    0ECE
 000B98    0D1A                    307              DC    Z(DUMP.DEF),Z(DUMP.CMD) *                           ****       MTD03070
 000B9A    0D7E
 000B9C    0DE2                    308              DC    Z(EXTD.DEF),Z(EXTD.CMD) *                           ****       MTD03080
 000B9E    0DEC
 000BA0    0EBA                    309              DC    Z(FILE.DEF),Z(FILE.CMD) *                           ****       MTD03090
 000BA2    0EBE
 000BA4    0F9E                    310              DC    Z(FIF.DEF),Z(FIF.CMD) *                             ****       MTD03100
 000BA6    0FA2
 000BA8    0FB4                    311              DC    Z(INT.DEF),Z(INT.CMD) *                             R01        MTD03110
 000BAA    0FB8
 000BAC    0FCE                    312              DC    Z(ONL.DEF),Z(ONL.CMD) *                             ****       MTD03120
 000BAE    0FD2
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000BB0     1128                             DC    Z($OPTPRT),Z($OPTPRT) *                             ****     MTD03130
000BB2     1128
000BB4     0FE4                             DC    Z(PRO.DEF),Z(PRO.CMD) *                             ****     MTD03140
000BB6     0FE8
000BB8     1000                             DC    Z(REC.DEF),Z(REC.CMD) *                             ****     MTD03150
000BBA     1006
000BBC     1280                             DC    Z($RUNIT),Z($RUNIT) *                               ****     MTD03160
000BBE     1280
000BC0     1012                             DC    Z(SELC.DEF),Z(SELC.CMD) *                           ****     MTD03170
000BC2     1018
000BC4     1024                             DC    Z(TIM.DEF),Z(TIM.CMD) *                             ****     MTD03180
000BC6     102A
000BC8     103C                             DC    Z(TRM.DEF),Z(TRM.CMD) *                             ****     MTD03190
000BCA     1040
                                     *                                                                         MTD03200
000BCC     4890 21EE                 $TESTOP LH    R9,DEFTESTS        ASSUME DEFAULT REQUIRED                  MTD03210
000BD0     4880 21F0                         LH    R8,DEFTESTS+2                                               MTD03220
000BD4     274D                              SIS   R4,X'0D'           CARRIAGE RETURN ?                        MTD03230
000BD6     4330 0C0E                         BZ    $TSTOP.5           BRANCH: YES.                             MTD03240
000BDA     CB40 0013                         SHI   R4,C' '-X'0D'      WAS SPACE ?                              MTD03250
000BDE     023C                              BNZR  R12                BRANCH: INPUT ERROR.                     MTD03260
000BE0     2490                              LIS   R9,0               CLEAR ACCUMULATORS                       MTD03270
000BE2     2480                              LIS   R8,0                                                        MTD03280
                                     *                                                                         MTD03290
000BE4     41E0 15EC                 $TSTOP.1 BAL  R14,OPTVAL         GET OPTION VALUE IN R6                   MTD03300
000BE8     4960 2234                         CH    R6,MAXTST          VALID TEST NUMBER ?                      MTD03310
000BEC     022C                              BPR   R12                ERROR: INVALID TEST NUMBER               MTD03320
000BEE     24E8                              LIS   R14,8                                                       MTD03330
000BF0     11EC                              SLLS  R14,12             (R14) = '8000'                           MTD03340
000BF2     CCE6 0000                         SRHL  R14,0(R6)          UNARY OPERAND                            MTD03350
000BF6     276F                              SIS   R6,15              TEST 16:31 ?                             MTD03360
000BF8     2123       =000BFE                BPS   $TSTOP.3           BRANCH: YES.                             MTD03370
000BFA     069E                              OAR   R9,R14             SET CURRENT BIT                          MTD03380
000BFC     2302       =000C00                BS    $TSTOP.4                                                    MTD03390
000BFE     068E                      $TSTOP.3 OAR  R8,R14             SET CURRENT BIT                          MTD03400
000C00     274D                      $TSTOP.4 SIS  R4,X'0D'           CMD TERMINATED BY CR ?                   MTD03410
000C02     2336       =000C0E                BZS   $TSTOP.5           BRANCH: YES.                             MTD03420
000C04     CB40 001F                         SHI   R4,C','-X'0D'      WAS COMMA ?                              MTD03430
000C08     4330 0BE4                         BZ    $TSTOP.1           BRANCH: YES. TRY AGAIN.                  MTD03440
000C0C     030C                              BR    R12                INPUT ERROR.                             MTD03450
000C0E     4090 1FE2                 $TSTOP.5 STH  R9,TEST+$VALU1     STORE VALID SELECTED TESTS               MTD03460
000C12     4080 1FE4                         STH   R8,TEST+$VALU2     .                                        MTD03470
000C16     4300 0ABC                         B     OPTIN1             TO ACCEPT NEXT COMMAND                   MTD03480
                                     *                                                                         MTD03490
                                     * ---------------------------------------                                 MTD03500
                                     * OPTION CHECK ROUTINES                                                   MTD03510
                                     *                                                                         MTD03520
000C1A     2460                      LOOP.DEF LIS  R6,0               DEFAULT VALUE                   ****     MTD03530
*000C1C    2306       =000C28                B     LOOP.1             SAVE IT                         ****     MTD03540
000C1E     41F0 1052                 LOOP.CMD BAL  R15,SPACHK         CHECK FOR SPACES            ****         MTD03550
000C22     C560 0003                         CLHI  R6,3               COMPARE TO MAXIMUM ALLOWED VA****         MTD03560
000C26     038C                              BNLR  R12                ERROR IF >                      ****     MTD03570
000C28     4060 1FF0                 LOOP.1   STH  R6,LOOP+$VALU1     SAVE VALUE                      ****     MTD03580
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 000C2C       4060 4000 8402                       STH   R6,LOOP.OPT        *                                ****      MTD03590
 000C32       4300 0ABC                            B     OPTIN1             *                                ****      MTD03600
                                         *                                                                   ****      MTD03610
 000C36       2460                       CONT.DEF  LIS   R6,0               DEFAULT VALUE                    ****      MTD03620
*000C38       2306        =000C44                  B     CONT.1             SAVE IT                          ****      MTD03630
 000C3A       41F0 1052                  CONT.CMD  BAL   R15,SPACHK         CHECK FOR SPACE FOLLOWING OPT****          MTD03640
 000C3E       C360 FFFE                            THI   R6,X'FFFE'         IGNORE LSB                       ****      MTD03650
 000C42       023C                                 BNZR  R12                ERROR RETURN                     ****      MTD03660
 000C44       4060 1FFE                  CONT.1    STH   R6,CONTIN+$VALU1   SAVE VALUE                       ****      MTD03670
 000C48       4300 0ABC                            B     OPTIN1             *  ##                            ****      MTD03680
                                         *                                                                   ****      MTD03690
 000C4C       C860 007F                  BYTE.DEF  LHI   R6,X'7F'           DEFAULT VALUE                    ****      MTD03700
*000C50       2303        =000C56                  B     BYTE.1             SAVE IT                          ****      MTD03710
 000C52       41F0 1052                  BYTE.CMD  BAL   R15,SPACHK         CHECK FOR SPACES                 ****      MTD03720
 000C56       4060 200C                  BYTE.1    STH   R6,BYTES+$VALU1    SAVE VALUE                       ****      MTD03730
 000C5A       4060 4000 8404                       STH   R6,BYSAV           STORE INTO SAVE AREA TOO!                  MTD03740
 000C60       4300 0ABC                            B     OPTIN1             *                                ****      MTD03750
                                         *                                                                   ****      MTD03760
 000C64       2460                       COM.DEF   LIS   R6,0               DEFAULT VALUE                    ****      MTD03770
*000C66       2309        =000C78                  B     COM.0              SAVE IT                          ****      MTD03780
 000C68       C540 0020                  COM.CMD   CLHI  R4,C' '            CHECK FOR SPACE                  ****      MTD03790
 000C6C       023C                                 BNER  R12                ERROR RETURN (?)                 ****      MTD03800
 000C6E       41E0 15EC                            BAL   R14,OPTVAL         GET VALUE INTO R6                ****      MTD03810
 000C72       C360 FF00                            THI   R6,X'FF00'         0-FF ACCEPTABLE                  ****      MTD03820
 000C76       023C                                 BNZR  R12                ERROR RETURN                     ****      MTD03830
 000C78       24E0                       COM.0     LIS   R14,0              *                                ****      MTD03840
 000C7A       4060 201A                            STH   R6,COMMAND+$VALU1  *                               *****      MTD03850
 000C7E       40E0 201C                            STH   R14,COMMAND+$VALU2 *                              ******      MTD03860
 000C82       40E0 2028                            STH   R14,COMMAND+$VALU1+$STRUC1 ******                             MTD03870
 000C86       40E0 202A                            STH   R14,COMMAND+$VALU2+$STRUC1 ******                             MTD03880
 000C8A       C540 002C                            CLHI  R4,C','            *                                ****      MTD03890
 000C8E       4230 0CCA                            BNE   COM.1              1 INPUT                        ******      MTD03900
 000C92       41E0 15EC                            BAL   R14,OPTVAL         *                              ******      MTD03910
 000C96       C360 FF00                            THI   R6,X'FF00'         *                                ****      MTD03920
 000C9A       023C                                 BNZR  R12                ERROR RETURN                     ****      MTD03930
 000C9C       4060 201C                            STH   R6,COMMAND+$VALU2  SAVE 2ND VALUE INTO TABLE  ****            MTD03940
 000CA0       C540 002C                            CLHI  R4,C','            *                                ****      MTD03950
 000CA4       4230 0CCA                            BNE   COM.1              *                              ******      MTD03960
 000CA8       41E0 15EC                            BAL   R14,OPTVAL         *                                ****      MTD03970
 000CAC       C360 FF00                            THI   R6,X'FF00'         *                                ****      MTD03980
 000CB0       023C                                 BNZR  R12                ERROR RETURN                     ****      MTD03990
 000CB2       4060 2028                            STH   R6,COMMAND+$VALU1+$STRUC1 ******                              MTD04000
 000CB6       C540 002C                            CLHI  R4,C','            CHECK FOR 4TH INPUT              ****      MTD04010
*000CBA       2138        =000CCA                  BNE   COM.1              *                              ******      MTD04020
 000CBC       41E0 15EC                            BAL   R14,OPTVAL         *                                ****      MTD04030
 000CC0       C360 FF00                            THI   R6,X'FF00'         *                                ****      MTD04040
 000CC4       023C                                 BNZR  R12                ERROR RETURN                     ****      MTD04050
 000CC6       4060 202A                            STH   R6,COMMAND+$VALU2+$STRUC1 SAVE INTO TABLE           ****      MTD04060
 000CCA       274D                       COM.1     SIS   R4,X'0D'           CARRIAGE RETURN ENTERED?   ****            MTD04070
 000CCC       023C                                 BNZR  R12                NO, ERROR RETURN                 ****      MTD04080
 000CCE       4300 0ABC                            B     OPTIN1             OUTPUT *                         ****      MTD04090
                                         *                                                                   ****      MTD04100
 000CD2       2460                       DATA.DEF  LIS   R6,0               DEFAULT VALUE                    ****      MTD04110
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*000CD4   2303      =000CDA               B     DATA.1             *                              ****   MTD04120
 000CD6   41F0 1052            DATA.CMD   BAL   R15,SPACHK         CHECK FOR SPACE                ****   MTD04130
 000CDA   4060 2036            DATA.1     STH   R6,DATA+$VALU1     SAVE VALUE                     ****   MTD04140
 000CDE   4300 0ABC                       B     OPTIN1             *                              ****   MTD04150
                               *                                                                  ****   MTD04160
 000CE2   C860 6250            DENS.DEF   LHI   R6,X'6250'         DEFAULT VALUE                  ****   MTD04170
 000CE6   2401                            LIS   R0,1               6250 FLAG NUMBER                      MTD04180
 000CE8   4300 0D0C                       B     LEVELA.1           GO SAVE                        ****   MTD04190
 000CEC   41F0 1052            DENS.CMD   BAL   R15,SPACHK         CHECK FOR SPACE FOLLOWING OPT****     MTD04200
 000CF0   C560 6250                       CLHI  R6,X'6250'         IS IT A 6250 DENSITY?          ****   MTD04210
*000CF4   2133      =000CFA               BNE   DENS.0             IF NO, CHECK OTHER DENSITY     ****   MTD04220
 000CF6   2401                            LIS   R0,1               6250 FLAG INDICATION           ****   MTD04230
*000CF8   230A      =000D0C               B     LEVELA.1           STORE VALUES                   ****   MTD04240
 000CFA   C560 1600            DENS.0     CLHI  R6,X'1600'         IS IT A 1600 DENSITY?          ****   MTD04250
*000CFE   2133      =000D04               BNE   DENS.1             IF NOT, CHECK 800              ****   MTD04260
 000D00   2400                            LIS   R0,0               1600 FLAG INDICATION           ****   MTD04270
*000D02   2305      =000D0C               B     LEVELA.1           STORE VALUES                   ****   MTD04280
 000D04   C560 0800            DENS.1     CLHI  R6,X'800'          IS IT A 800 DENSITY?           ****   MTD04290
 000D08   023C                            BNER  R12                ELSE ERROR RETURN              ****   MTD04300
 000D0A   2402                            LIS   R0,2               800 FLAG INDICATION            ****   MTD04310
 000D0C   4000 4000 840C       LEVELA.1   STH   R0,DENSFLAG        SET DENSITY FLAG               ****   MTD04320
 000D12   4060 2044                       STH   R6,DENSITY+$VALU1  SAVE VALUE                     ****   MTD04330
 000D16   4300 0ABC                       B     OPTIN1             *                              ****   MTD04340
                               *                                                                  ****   MTD04350
 000D1A   41F0 4000 838C       DUMP.DEF   BAL   R15,LOOPTOP        ADDRESS SET UP                 R01    MTD04360
 000D20   0000 0DDE                       DAC   DUMP.END           PASS ADDR                      R01    MTD04370
 000D24   0000 0DDE                       DAC   DUMP.END           PROC ADDR                      R01    MTD04380
 000D28   4810 4000 8408                  LH    R1,DRIVSAV         GET DRIVE ADDRESS              R01    MTD04390
 000D2E   4300 0DB8                       B     DUMP.2             FILL READBUF                   R01    MTD04400
 000D32   2420                 D0         LIS   R2,0               SET UPT INDEX REGISTER         R01    MTD04410
 000D34   2450                 D0.0       LIS   R5,0               CLEAR A CHAR COUNT REGISTER    ****   MTD04420
 000D36   41F0 1A8C            D1         BAL   R15,TSTBRK         CHECK FOR BREAK DEPRESSION     ****   MTD04430
 000D3A   0832                            LR    R3,R2              *                              ****   MTD04440
 000D3C   1031                            SRLS  R3,1               ADJUST FOR BIT                 ****   MTD04450
 000D3E   D343 4001 89D0                  LB    R4,READBUF(R3)     *                              ****   MTD04460
 000D44   2182      =000D48               BCS   D2                 *                              ****   MTD04470
 000D46   1044                            SRLS  R4,4               *                              ****   MTD04480
 000D48   4530 200C            D2         CLH   R3,BYTES+$VALU1    INCREMENT BYTES OUTPUT         R01    MTD04490
*000D4C   2135      =000D56               BNE   D2.1               REACHED LIMIT                  R01    MTD04500
 000D4E   41F0 1782                       BAL   R15,CRLF           *                              ****   MTD04510
 000D52   4300 0ABC                       B     OPTIN1             *                              ****   MTD04520
 000D56   C440 000F            D2.1       NHI   R4,X'F'            *                              ****   MTD04530
 000D5A   CA40 0030                       AHI   R4,C'0'            ASCII CONVERSION               ****   MTD04540
 000D5E   C540 003A                       CLHI  R4,X'3A'           LETTER A OR >                  ****   MTD04550
*000D62   2182      =000D66               BL    D3                 NO                             ****   MTD04560
 000D64   2647                            AIS   R4,7               ELSE SET UP FOR LETTERS        ****   MTD04570
 000D66   41F0 18C4            D3         BAL   R15,OUTCHR         OUTPUT THE CHARACTER TO CONSO****     MTD04580
 000D6A   2621                            AIS   R2,1               INCREMENT BYTE LOC             ****   MTD04590
 000D6C   2651                            AIS   R5,1               INCREMENT CHARACTER P/L COUNT****     MTD04600
 000D6E   C550 0033                       CLHI  R5,51              COMPARE TO MAX                 ****   MTD04610
 000D72   4280 0D36                       BL    D1                 CONTINUE IF LESS THAN          ****   MTD04620
 000D76   41F0 1782                       BAL   R15,CRLF           OTHERWISE, ISSUE (CR) - (LF)   ****   MTD04630
 000D7A   4300 0D34                       B     D0.0               RE-INIT CHAR PER LINE          ****   MTD04640
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                                     *                                                          MTD04650
 000D7E     41F0 4000 838C           DUMP.CMD BAL   R15,LOOPTOP         SET UP ADDR                   R01     MTD04660
 000D84     0000 0DDE                         DAC   DUMP.END            PASS ADDR                     R01     MTD04670
 000D88     0000 0DDE                         DAC   DUMP.END            PROC ADDR                     R01     MTD04680
 000D8C     41F0 1052                         BAL   R15,SPACHK          CHECK FOR SPACE               ****    MTD04690
 000D90     4060 2098                         STH   R6,DUMP+$VALU1      *                             ****    MTD04700
 000D94     4810 4000 8408                    LH    R1,DRIVSAV          DRIVE WORKING WITH CURRENTLY  ****    MTD04710
 000D9A     41E0 4000 7B9A                    BAL   R14,CCLEAR          CLEAR INTERFACE               R01     MTD04720
 000DA0     41F0 4000 80D2                    BAL   R15,REWMT           REWIND TAPE                   ****    MTD04730
 000DA6     0866                              LR    R6,R6               LOOK AT R6                    R01     MTD04740
*000DA8     2338       =000DB8                BZ    DUMP.2              TREAT ZERO ENTRY AS ONE       R01     MTD04750
 000DAA     2761                              SIS   R6,1                DECREMENT RECORD VALUE        ****    MTD04760
*000DAC     2336       =000DB8                BZ    DUMP.2              *                             ****    MTD04770
 000DAE     41E0 4000 7C66           DUMPC1   BAL   R14,CSKFB           SKIP FORWARD RECORD           ****    MTD04780
 000DB4     2761                              SIS   R6,1                *                             ****    MTD04790
*000DB6     2034       =000DAE                BNZ   DUMPC1              *                             ****    MTD04800
 000DB8     2420                     DUMP.2   LIS   R2,0                *                             ****    MTD04810
 000DBA     7350 200C                         LHL   R5,BYTES+$VALU1     GET BYTES VALUE                       MTD04820
 000DBE     2751                              SIS   R5,1                ADJUST FOR HALFWORD READS             MTD04830
 000DC0     41E0 4000 7C5A                    BAL   R14,CREAD           PUT INTO READ MODE            ****    MTD04840
 000DC6     41E0 4000 7C22           DUMP.2A  BAL   R14,SENSTA3         SENSE STATUS OF DRIVE INTFACE****     MTD04850
 000DCC     D912 4001 89D0                    RH    R1,READBUF(R2)      READ OFF TAPE INTO BUFFER     ****    MTD04860
 000DD2     2622                              AIS   R2,2                *                             ****    MTD04870
 000DD4     2752                              SIS   R5,2                DECREMENT BYTES VALUE                 MTD04880
*000DD6     2288       =000DC6                BNL   DUMP.2A             CONTINUE READS                        MTD04890
 000DD8     41E0 4000 7BE4                    BAL   R14,SENSTA1         WAIT FOR NO MOTION            ****    MTD04900
 000DDE     4300 0D32                DUMP.END B     DO                  DISPLAY ON LIST DEVICE        R01*    MTD04910
                                     *                                                            ****    MTD04920
 000DE2     C860 0085                EXTD.DEF LHI   R6,X'85'            DEFAULT IS DRIVE ADDR 85      R01     MTD04930
 000DE6     4060 20A6                         STH   R6,EXTDRVS+$VALU1   SAVE VALUE                    ****    MTD04940
*000DEA     230B       =000E00                B     EXTD.00             GO PROCESS                    R01     MTD04950
 000DEC     C540 0020                EXTD.CMD CLHI  R4,C' '             FOLLOWED BY SPACE             ****    MTD04960
 000DF0     023C                              BNER  R12                 IF NOT, ERROR.                    **** MTD04970
 000DF2     41E0 15EC                         BAL   R14,OPTVAL          GET VALUE                     ****    MTD04980
 000DF6     C360 FC00                         THI   R6,X'FC00'          IS IT LEGAL ADDRESS           ****    MTD04990
 000DFA     023C                              BNZR  R12                 IF NOT, ERROR                 ****    MTD05000
 000DFC     4060 20A6                         STH   R6,EXTDRVS+$VALU1   ELSE SAVE IT                  ****    MTD05010
 000E00     0816                     EXTD.00  LR    R1,R6               GET DRIVE ADDRESS             R01     MTD05020
 000E02     41E0 4000 7BDC                    BAL   R14,SENSTA          CHECK STATUS OF DRIVE         ****    MTD05030
 000E08     C330 0001                         THI   R3,X'01'            IS DRIVE DU?                  ****    MTD05040
*000E0C     233F       =000F2A                BZ    EXTD.0              NO                            ****    MTD05050
 000E0E     2403                              LIS   R0,3                3 DIGITS                      ****    MTD05060
 000E10     0811                              LR    R1,R1               DRIVE ADDRESS                 ****    MTD05070
 000E12     E620 4000 8880                    LA    R2,DEVOFF+6         DRIVE *** IS OFF LINE         ****    MTD05080
 000E18     41F0 1680                         BAL   R15,HEXASC          *                             ****    MTD05090
 000E1C     E650 4000 887A                    LA    R5,DEVOFF           *                             ****  M MTD05100
 000E22     41F0 1802                         BAL   R15,PRINT           OUTPUT OFF LINE MESG          ****  M MTD05110
 000E26     4300 0ABC                         B     OPTIN1              STOP AND OUTPUT *             ****    MTD05120
 000E2A     41F0 4000 8216           EXTD.0   BAL   R15,SNS.COM1        GET DEVICE STAT HALFWORDS     ****    MTD05130
 000E30     4800 208A                         LH    R0,DRVTYPE+$VALU1   LOOK IF STC OR TELEX          ****    MTD05140
*000E34     213E       =000E50                BNZ   EXTD.0A             TELEX IF NON ZERO             ****    MTD05150
 000E36     E650 4000 875A                    LA    R5,DSBMSG           LOAD 0-3 DSH                  ****    MTD05160
 000E3C     41F0 1802                         BAL   R15,PRINT           OUTPUT IF POSSIBLE            ****  M MTD05170
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000E40       E650 4000 87A4          518           LA    R5,DSB4MSG       LOAD 4TH DSH                          ****      MTD05180
000E46       41F0 4000 836E          519           BAL   R15,LOOP2        OUTPUT IF POSSIBLE                    ****    M MTD05190
000E4C       4300 0ABC               520           B     OPTIN1           OUTPUT *                              ****      MTD05200
000E50       E650 4000 875A          521  EXTD.0A  LA    R5,DSBMSG        ADDRESS OF MESSAGE                     ****     MTD05210
000E56       41F0 1802               522           BAL   R15,PRINT        PRINT THEM IF POSSIBLE                ****    M MTD05220
000E5A       E650 1F8A               523           LA    R5,EXTDMSG2      TAPE UNIT STATUS(OF TELEX)            ****      MTD05230
000E5E       41F0 4000 836F          524           BAL   R15,LOOP2        PRINT OUT IF POSSIBLE                 ****    M MTD05240
000E64       E650 4000 84F0          525           LA    R5,TSTBUF        LOAD A BUFFER ADDRESS                 ****      MTD05250
000E6A       2472                    526           LIS   R7,2             *                                     ****      MTD05260
000E6C       4810 20A6               527           LH    R1,EXTDRVS+$VALU1  GET DRIVE TALKING ABT               ****      MTD05270
000E70       DE10 4000 83E7          528           OC    R1,TTUS          GIVE TAPE UNIT STATUS COMMAND ****      MTD05280
000E76       41E0 4000 7C22          529  EXTD.1   BAL   R14,SENSTA3       GET STATUS                            ****      MTD05290
000E7C       D915 0000               530           RH    R1,0(R5)         AND READ INTO BUFFER                  ****      MTD05300
000E80       2652                    531           AIS   R5,2             INCREMENT BUFFER ADDRESS              ****      MTD05310
000E82       2771                    532           SIS   R7,1             DECREMENT STATUS BYTES                ****      MTD05320
000E84       2287       =000E76      533           BNLS  EXTD.1           CONTINUE TIL COMPLETE                 ****      MTD05330
000E86       E630 1F9C               534           LA    R3,BYMSG0        *                                     ****      MTD05340
000E8A       E650 4000 84F0          535           LA    R5,TSTBUF        *                                     ****      MTD05350
000E90       2402                    536           LIS   R0,2             NUMBER OF DIGITS TO CONVERT           ****      MTD05360
000E92       2440                    537           LIS   R4,0             *                                     ****      MTD05370
000E94       D315 0000               538  TUS.OUT  LB    R1,0(R5)         GET FIRST BYTE                        ****      MTD05380
000E98       E623 0007               539           LA    R2,7(R3)         WHERE DATA IS STORED UPON CON****ION    MTD05390
000E9C       41F0 1680               540           BAL   R15,HEXASC       CONVERT                               ****      MTD05400
000EA0       263C                    541           AIS   R3,12            INCREMENT ADDRESS FOR MESSAG****        MTD05410
000EA2       2651                    542           AIS   R5,1             INCREMENT BUFFER ADDRESS              ****      MTD05420
000EA4       2641                    543           AIS   R4,1             *                                     ****      MTD05430
000EA6       C540 0005               544           CLHI  R4,5             MAXIMUM DESIRED                       ****      MTD05440
*000EAA      203B       =000F94      545           BNE   TUS.OUT          *                                     ****      MTD05450
000EAC       E650 1F9C               546           LA    R5,BYMSG0        *                                     ****      MTD05460
000EB0       41F0 4000 836E          547           BAL   R15,LOOP2        OUTPUT IF POSSILBE                    ****    M MTD05470
000EB6       4300 0ABC               548           B     OPTIN1           *                                     ****      MTD05480
                                     549  *                                                                     ****      MTD05490
000EBA       2462                    550  FILE.DEF LIS   R6,2             DEFAULT VALUE                         ****      MTD05500
*000EBC      2303       =000EC2      551           B     FILE.1           GO SAVE                               ****      MTD05510
000EBE       41F0 1052               552  FILE.CMD BAL   R15,SPACHK       CHECK FOR SPACE                       ****      MTD05520
000EC2       4060 20B4               553  FILE.1   STH   R6,FILES+$VALU1  *                                     ****      MTD05530
000EC6       4300 0ABC               554           B     OPTIN1           *                                     ****      MTD05540
                                     555  *                                                                     ****      MTD05550
000ECA       2460                    556  DRVT.DEF LIS   R6,0             DEFAULT VALUE                         ****      MTD05560
*000ECC      2306       =000FD8      557           B     DRVT.1           SAVE                                  ****      MTD05570
000ECE       41F0 1052               558  DRVT.CMD BAL   R15,SPACHK       CHECK FOR SPACE                       ****      MTD05580
000ED2       C360 FFFE               559           THI   R6,X'FFFE'       VALID ENTRY                           ****      MTD05590
000ED6       023C                    560           BNZR  R12              ERROR RETURN                          ****      MTD05600
000ED8       4060 208A               561  DRVT.1   STH   R6,DRVTYPE+$VALU1  SAVE VALUE                        ******      MTD05610
000EDC       4300 0ABC               562           B     OPTIN1           *                                     ****      MTD05620
                                     563  *                                                                     ****      MTD05630
000EE0       C860 0085               564  DRVS.DEF LHI   R6,X'85'         DEFAULT VALUE                         ****      MTD05640
*000EE4      2309       =000FF6      565           B     DRVS.00          *                                     ****      MTD05650
000EE6       C540 0020               566  DRVS.CMD CLHI  R4,C' '          CHECK FOR SPACE                       ****      MTD05660
000EEA       023C                    567           BNER  R12              ERROR RETURN (?)                      ****      MTD05670
000EEC       41E0 15EC               568           BAL   R14,OPTVAL       GET VALUE INTO R6                     ****      MTD05680
000EF0       C360 FC00               569           THI   R6,X'FC00'       10 BIT DEVICE ADDRESS                 ****      MTD05690
000EF4       023C                    570           BNZR  R12              ERROR RETURN                          ****      MTD05700
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 000EF6      24E0                    571  DRVS.00  LIS   R14,0                   *                              ****      MTD05710
 000EF8      4060 206E               572           STH   R6,DRVSTAT+$VALU1       *                             *****      MTD05720
 000EFC      40E0 2070               573           STH   R14,DRVSTAT+$VALU2      *                            ******      MTD05730
 000F00      40E0 207C               574           STH   R14,DRVSTAT+$VALU1+$STRUC1 ******                                MTD05740
 000F04      40E0 207E               575           STH   R14,DRVSTAT+$VALU2+$STRUC1 ******                                MTD05750
 000F08      C540 002C               576           CLHI  R4,C','                 *                              ****      MTD05760
 000F0C      4230 0F48               577           BNE   DRVS.1                  1 INPUT                      ******      MTD05770
 000F10      41E0 15EC               578           BAL   R14,OPTVAL              *                            ******      MTD05780
 000F14      C360 FC00               579           THI   R6,X'FC00'              *                              ****      MTD05790
 000F18      023C                    580           BNZR  R12                     ERROR RETURN                   ****      MTD05800
 000F1A      4060 2070               581           STH   R6,DRVSTAT+$VALU2       SAVE 2ND VALUE INTO TABLE    ****        MTD05810
 000F1E      C540 002C               582           CLHI  R4,C','                 *                              ****      MTD05820
 000F22      4230 0F48               583           BNE   DRVS.1                  *                            ******      MTD05830
 000F26      41E0 15EC               584           BAL   R14,OPTVAL              *                              ****      MTD05840
 000F2A      C360 FC00               585           THI   R6,X'FC00'              *                              ****      MTD05850
 000F2E      023C                    586           BNZR  R12                     ERROR RETURN                   ****      MTD05860
 000F30      4060 207C               587           STH   R6,DRVSTAT+$VALU1+$STRUC1 ******                                 MTD05870
 000F34      C540 002C               588           CLHI  R4,C','                 CHECK FOR 4TH INPUT            ****      MTD05880
*000F38      2138        =000F48     589           BNE   DRVS.1                  *                            ******      MTD05890
 000F3A      41E0 15EC               590           BAL   R14,OPTVAL              *                              ****      MTD05900
 000F3E      C360 FC00               591           THI   R6,X'FC00'              *                              ****      MTD05910
 000F42      023C                    592           BNZR  R12                     ERROR RETURN                   ****      MTD05920
 000F44      4060 207E               593           STH   R6,DRVSTAT+$VALU2+$STRUC1 SAVE INTO TABLE              ****      MTD05930
 000F48      2460                    594  DRVS.1   LIS   R6,0                    SET INDEX REGISTER TO ZERO     ****      MTD05940
 000F4A      4816 206E               595  DRVS.1A  LH    R1,DRVSTAT+$VALU1(R6) ****                                       MTD05950
 000F4E      4330 0ABC               596           BZ    OPTIN1                  NO DRIVE STATUS'S REQUESTED    ****      MTD05960
 000F52      41E0 4000 7BDC          597           BAL   R14,SENSTA              GET CURRENT STATUS OF DRIVE S****FIED    MTD05970
 000F58      2403                    598           LIS   R0,3                    CONVERT 3 DIGITS               ****      MTD05980
 000F5A      E620 1F7E               599           LA    R2,DRVSMSG+28           STORE IT HERE                  ****      MTD05990
 000F5E      41F0 1680               600           BAL   R15,HEXASC              CONVERT DRIVE NUMBER           ****      MTD06000
 000F62      4810 4000 83C4          601           LH    R1,STATUS               LOAD STATUS                    ****      MTD06010
 000F68      C410 00FF               602           NHI   R1,X'00FF'              CLEAR TOP ORDER BITS           ****      MTD06020
 000F6C      E620 1F85               603           LA    R2,DRVSMSG+35           STORED HERE                    ****      MTD06030
 000F70      41F0 1680               604           BAL   R15,HEXASC              AFTER CONVERSION               ****      MTD06040
 000F74      E650 1F62               605           LA    R5,DRVSMSG              *                              ****      MTD06050
 000F78      41F0 4000 836E          606           BAL   R15,LOOP2               *                              ****    M MTD06060
 000F7E      2662                    607           AIS   R6,2                    *                              ****      MTD06070
 000F80      C560 0004               608           CLHI  R6,4                    *                              ****      MTD06080
 000F84      4280 0F4A               609           BL    DRVS.1A                 CONTINUE WITH DRIVES           ****      MTD06090
 000F88      C560 000C               610  DRVS.1AA CLHI  R6,12                   COMPARE TO WHERE ADDR ARE      ****      MTD06100
*000F8C      2123        =000F92     611           BP    DRVS.1B                 *                              ****      MTD06110
 000F8E      2662                    612           AIS   R6,2                    INCREMENT TILL REACHED         ****      MTD06120
*000F90      2204        =000F88     613           B     DRVS.1AA                *                              ****      MTD06130
 000F92      C560 0012               614  DRVS.1B  CLHI  R6,18                   CHECKED ALL DRIVES           ****        MTD06140
 000F96      4280 0F4A               615           BL    DRVS.1A                 NOT YET                        ****      MTD06150
 000F9A      4300 0ABC               616           B     OPTIN1                  YES, OUTPUT *                  ****      MTD06160
                                     617  *                                                                 ****      MTD06170
 000F9E      2460                    618  FIF.DEF  LIS   R6,0                    DEFAULT 0                      ****      MTD06180
*000FA0      2306        =000FAC     619           B     FIF.1                   SAVE IT                        ****      MTD06190
 000FA2      41F0 1052               620  FIF.CMD  BAL   R15,SPACHK              CHECK FOR A SPACE              ****      MTD06200
 000FA6      C360 FFFE               621           THI   R6,X'FFFE'              IS IT VALID?                   ****      MTD06210
 000FAA      023C                    622           BNZR  R12                     ? IF NOT                       ****      MTD06220
 000FAC      4060 20C2               623  FIF.1    STH   R6,FIFO+$VALU1          STORAGE LOC                        ****  MTD06230
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 000FB0    4300 0ABC                      B     OPTIN1           OUTPUT *                 ****   MTD06240
                                    *                                                     ****   MTD06250
 000FB4    2460                 INT.DEF   LIS   R6,0             DEFAULT VALUE            R01    MTD06260
 000FB6    2306      =000FC2              BS    INT.1            R01                             MTD06270
 000FB8    41F0 1052            INT.CMD   BAL   R15,SPACHK       CHECK FOR SPACE          R01    MTD06280
 000FBC    C360 FFFC                      THI   R6,X'FFFC'       0-4                      R01    MTD06290
 000FC0    023C                           BNZR  R12              ERROR IF NOT             R01    MTD06300
 000FC2    D250 21EC            INT.1     STB   R6,INTLVL        STORE FFOR EXEC USE      R01    MTD06310
 000FC6    4060 20D0                      STH   R6,INTLEVEL+$VALU1 STORE INTO OPTION TABLE R01   MTD06320
 000FCA    4300 0ABC                      B     OPTIN1           * OUTPUT                 R01    MTD06330
                                    *                                                            MTD06340
 000FCE    2461                 ONL.DEF   LIS   R6,1             DEFAULT VALUE            ****   MTD06350
*000FD0    2306      =000FDC              B     ONL.1            *                        ****   MTD06360
 000FD2    41F0 1052            ONL.CMD   BAL   R15,SPACHK       CHECK FOR SPACES         ****   MTD06370
 000FD6    C360 FFFE                      THI   R6,X'FFFE'       VALID ENTRY              ****   MTD06380
 000FDA    023C                           BNZR  R12              *                        ****   MTD06390
 000FDC    4060 20DE            ONL.1     STH   R6,ONLINE+$VALU1 *                        ****   MTD06400
 000FE0    4300 0ABC                      B     OPTIN1           *                        ****   MTD06410
                                    *                                                     ****   MTD06420
 000FE4    2461                 PRO.DEF   LIS   R6,1             DEFAULT VALUE            ****   MTD06430
*000FE6    2309      =000FF8              B     PRO.1            SAVE                     ****   MTD06440
 000FE8    41F0 1052            PRO.CMD   BAL   R15,SPACHK       CHECK FOR SPACE          ****   MTD06450
 000FEC    C360 FFFE                      THI   R6,X'FFFE'       0,1, OR 2                ****   MTD06460
*000FF0    2334      =000FF8              BE    PRO.1            *                        ****   MTD06470
 000FF2    C360 FFFD                      THI   R6,X'FFFD'       2                        ****   MTD06480
 000FF6    023C                           BNZR  R12              ERROR RETURN             ****   MTD06490
 000FF8    4060 20EC            PRO.1     STH   R6,PROCEED+$VALU1 *                       ****   MTD06500
 000FFC    4300 0ABC                      B     OPTIN1           *                        ****   MTD06510
                                    *                                                     ****   MTD06520
 001000    C860 007F            REC.DEF   LHI   R6,X'7F'         DEFAULT VALUE            ****   MTD06530
*001004    2303      =00100A              B     REC.1            SAVE                     ****   MTD06540
 001006    41F0 1052            REC.CMD   BAL   R15,SPACHK       CHECK FOR SPACE          ****   MTD06550
 00100A    4060 20FA            REC.1     STH   R6,RECORDS+$VALU1 SAVE VALUE              ****   MTD06560
 00100E    4300 0ABC                      B     OPTIN1           *                        ****   MTD06570
                                    *                                                     ****   MTD06580
 001012    C860 00F0            SELC.DEF  LHI   R6,X'F0'         DEFAULT VALUE            ****   MTD06590
*001016    2303      =00101C              B     SELC.1           *                        ****   MTD06600
 001018    41F0 1052            SELC.CMD  BAL   R15,SPACHK       CHECK FOR SPACE          ****   MTD06610
 00101C    4060 2108            SELC.1    STH   R6,SELCH+$VALU1  *                        ****   MTD06620
 001020    4300 0ABC                      B     OPTIN1           *                        ****   MTD06630
                                    *                                                     ****   MTD06640
*001024    C860 7FFF            TIM.DEF   LI    R6,X'7FFF'       *                        ****   MTD06650
*001028    2303      =00102E              B     TIM.1            *                        ****   MTD06660
 00102A    41F0 1052            TIM.CMD   BAL   R15,SPACHK       CHECK FOR SPACE          ****   MTD06670
 00102E    4060 2118            TIM.1     STH   R6,TIMELIMT+$VALU2 SAVE VALUE             ****   MTD06680
 001032    3466                           EXHR  R6,R6            *                        ****   MTD06690
 001034    4060 2116                      STH   R6,TIMELIMT+$VALU1 *                      ****   MTD06700
 001038    4300 0ABC                      B     OPTIN1           *                        ****   MTD06710
                                    *                                                     ****   MTD06720
 00103C    2461                 TRM.DEF   LIS   R6,1             DEFAULT VALUE            ****   MTD06730
*00103E    2306      =00104A              B     TRM.1            SAVE                     ****   MTD06740
 001040    41F0 1052            TRM.CMD   BAL   R15,SPACHK       CHECK FOR SPACE          ****   MTD06750
 001044    C360 FFFE                      THI   R6,X'FFFE'       VALID ENTRY              ****   MTD06760
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 001048      023C                       BNZR  R12                 ERROR RETURN              ****     MTD06770
 00104A      4060 2124        TRM.1     STH   R6,TRMODE+$VALU1    *                         ****     MTD06780
 00104E      4300 0ABC                  B     OPTIN1              *                         ****     MTD06790
                              *                                                             ****     MTD06800
 001052      40F0 4000 894C   SPACHK    STH   R15,R15SAVE         SAVE R15                  ****     MTD06810
 001058      C540 0020                  CLHI  R4,C' '             CHECK FOR A SPACE         ****     MTD06820
 00105C      023C                       BNER  R12                 ERROR RETURN              ****     MTD06830
 00105E      41E0 15EC                  BAL   R14,OPTVAL          *                         ****     MTD06840
 001062      274D                       SIS   R4,X'0D'            *                         ****     MTD06850
 001064      023C                       BNZR  R12                 *                         ****     MTD06860
 001066      48F0 4000 894C             LH    R15,R15SAVE         RESTORE R15              ****      MTD06870
 00106C      030F                       BR    R15                 RETURN TO CALLER          ****     MTD06880
                              *                                                             ****     MTD06890
 00106E      C860 0085        DRIV.DEF  LHI   R6,X'85'            DEFAULT VALUE             ****     MTD06900
*001072      2309      =001084          B     DRIV.0              *                         ****     MTD06910
 001074      C540 0020        DRIV.CMD  CLHI  R4,C' '             CHECK FOR SPACE           ****     MTD06920
 001078      023C                       BNER  R12                 ERROR RETURN (?)          ****     MTD06930
 00107A      41E0 15EC                  BAL   R14,OPTVAL          GET VALUE INTO R6         ****     MTD06940
 00107E      C360 FC00                  THI   R6,X'FC00'          10 BIT DEVICE ADDRESS     ****     MTD06950
 001082      023C                       BNZR  R12                 ERROR RETURN              ****     MTD06960
 001084      24E0             DRIV.0    LIS   R14,0               *                         ****     MTD06970
 001086      4060 2052                  STH   R6,DRIVE+$VALU1     *                         *****    MTD06980
 00108A      40E0 2054                  STH   R14,DRIVE+$VALU2    *                         ****     MTD06990
 00108E      40E0 2060                  STH   R14,DRIVE+$VALU1+$STRUC1 ****                          MTD07000
 001092      40E0 2062                  STH   R14,DRIVE+$VALU2+$STRUC1 ****                          MTD07010
 001096      C540 002C                  CLHI  R4,C','             *                         ****     MTD07020
 00109A      4230 10D6                  BNE   DRIVE.1             1 INPUT                   ****     MTD07030
 00109E      41E0 15EC                  BAL   R14,OPTVAL          *                         ****     MTD07040
 0010A2      C360 FC00                  THI   R6,X'FC00'          *                         ****     MTD07050
 0010A6      023C                       BNZR  R12                 ERROR RETURN              ****     MTD07060
 0010A8      4060 2054                  STH   R6,DRIVE+$VALU2     SAVE 2ND VALUE INTO TABLE ****     MTD07070
 0010AC      C540 002C                  CLHI  R4,C','             *                         ****     MTD07080
 0010B0      4230 10D6                  BNE   DRIVE.1             *                         ****     MTD07090
 0010B4      41E0 15EC                  BAL   R14,OPTVAL          *                         ****     MTD07100
 0010B8      C360 FC00                  THI   R6,X'FC00'          *                         ****     MTD07110
 0010BC      023C                       BNZR  R12                 ERROR RETURN              ****     MTD07120
 0010BE      4060 2060                  STH   R6,DRIVE+$VALU1+$STRUC1 ****                           MTD07130
 0010C2      C540 002C                  CLHI  R4,C','             CHECK FOR 4TH INPUT       ****     MTD07140
*0010C6      2138      =0010D6          BNE   DRIVE.1             *                         ****     MTD07150
 0010C8      41E0 15EC                  BAL   R14,OPTVAL          *                         ****     MTD07160
 0010CC      C360 FC00                  THI   R6,X'FC00'          *                         ****     MTD07170
 0010D0      023C                       BNZR  R12                 ERROR RETURN              ****     MTD07180
 0010D2      4060 2062                  STH   R6,DRIVE+$VALU2+$STRUC1 SAVE INTO TABLE       ****     MTD07190
 0010D6      274D             DRIVE.1   SIS   R4,X'0D'            CARRIAGE RETURN ENTERED?  ****     MTD07200
 0010D8      023C                       BNZR  R12                 NO, ERROR RETURN          ****     MTD07210
 0010DA      4300 0ABC                  B     OPTIN1              OUTPUT *                  ****     MTD07220
                              *                                                             ****     MTD07230
 0010DE                                 IFZ   $DECHEX-1                                              MTD07240
                              *---------------------------------                                     MTD07250
                              * TO CHECK THAT OPTION ENTRY IN R6 IS IN DECIMAL DIGITS.               MTD07260
                              * TO CONVERT DECIMAL ENTRY IN R6 TO HEX VALUE AND                      MTD07270
                              * STORE IT @ 0(R5).                                                    MTD07280
                              *                                                                      MTD07290
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0010DE       D000 4000 8950            730  DECHEX   STM   R0,RSAVE              .                                  P5 9/80   MTD07300
0010E4       2400                      731           LIS   R0,0                 ACCUMULATOR                        P5 9/80   MTD07310
0010E6       2410                      732           LIS   R1,0                 TABLE INDEX                        P5 9/80   MTD07320
0010E8       2420                      733  $DEC.0   LIS   R2,0                 SHIFT COUNTER                      P5 9/80   MTD07330
0010EA       0836                      734  $DEC.1   LDAR  R3,R6                COPY INPUT VALUE                   P5 9/80   MTD07340
0010EC       CC32 0000                 735           SRHL  R3,0(R2)             .                                  P5 9/80   MTD07350
0010F0       C430 000F                 736           NHI   R3,15                EXTRACT LS DIGIT                   P5 9/80   MTD07360
0010F4       C530 000A                 737           CLHI  R3,10                VALID DECIMAL DIGIT ?              P5 9/80   MTD07370
0010F8       038C                      738           BNLR  R12                  IF NOT, ERROR.                     P5 9/80   MTD07380
0010FA       5881 1E74                 739           LDA   R8,DECTAB(R1)        1,10,...,10000                     P5 9/80   MTD07390
0010FE       2731                      740  $DEC.2   SIS   R3,1                 .                                  P5 9/80   MTD07400
001100       2113       =001106        741           BMS   $DEC.3               .                                  P5 9/80   MTD07410
001102       0A08                      742           AAR   R0,R8                ADD IN CURRENT VALUE               P5 9/80   MTD07420
001104       2203       =0010FE        743           BS    $DEC.2               .                                  P5 9/80   MTD07430
001106       2614                      744  $DEC.3   AIS   R1,ADC               INCREMENT POINTER                  P5 9/80   MTD07440
001108       2624                      745           AIS   R2,4                 INCREMENT SHIFTER                  P5 9/80   MTD07450
00110A       C520 0010                 746           CLHI  R2,16                DONE WITH LS HALFWORD ?            P5 9/80   MTD07460
00110E       4280 10EA                 747           BL    $DEC.1               BRANCH: NO. LOOP.                  P5 9/80   MTD07470
001112       9068                      748           SRHLS R6,8                 SHIFT RIGHT 16 PLACES              P5 9/80   MTD07480
001114       9068                      749           SRHLS R6,8                 . TO CLEAR R6 (16BIT) OR LS HW (32BIT MTD07490
001116       EB60 0010                 750           RLL   R6,16                ROTATE R6 (R6:R7 16 BIT)           P5 9/80   MTD07500
00111A       0866                      751           LDAR  R6,R6                (R6) ZERO ?                        P5 9/80   MTD07510
00111C       4230 10E8                 752           BNZ   $DEC.0               BRANCH: NO. NOT DONE YET.          P5 9/80   MTD07520
001120       4005 0000                 753  DECHEX1  STH   R0,0(R5)             STORE HEX OPTION VALUE             P5 9/80   MTD07530
001124       4300 1648                 754           B     $RSAVRET             RESTORE REGISTERS, RETURN (R15)                MTD07540
                                       755           ENDC                                                                        MTD07550
                                       756  *-----------------------------                                                        MTD07560
                                       757  *  TO PROCESS INPUT COMMAND 'OPTION'                                                 MTD07570
                                       758  *                                                                                     MTD07580
001128       C540 000D                 759  $OPTPRT  CLHI  R4,X'0D'             OPTION (CR) ?                                  MTD07590
00112C       233A       =001140        760           BES   $OPT.0               BRANCH: YES.                                   MTD07600
00112E       41E0 15EC                 761           BAL   R14,OPTVAL           NO, GET OPTION DEV. PRINTOUT NUM.              MTD07610
001132       C560 0006                 762           CLHI  R6,$MAXIO            DEVICE NUMBER VALID ?                          MTD07620
001136       038C                      763           BNLR  R12                  BRANCH: NO.                                    MTD07630
001138       0866                      764           LDAR  R6,R6                OPTION ZERO ?                                  MTD07640
00113A       033C                      765           BZR   R12                  BRANCH: YES. INVALID INPUT.                    MTD07650
00113C       D260 1E4D                 766           STB   R6,IOSAVE+1          CHANGE THE LIST DEVICE                         MTD07660
001140       4820 2130                 767  $OPT.0   LH    R2,OPTION+$CKROUT     SPECIAL PRINTOUT ROUTINE ?                     MTD07670
*001144      2335       =00114F        768           BZ    OPTRTN               BRANCH: NO.                                    MTD07680
001146                                 769           IFZ   ADC-4                .                                  P6 11/80  MTD07690
001146       7320 2130                 770           LHL   R2,OPTION+$CKROUT     DISALLOW SIGN EXTENSION            P6 11/80  MTD07700
                                       771           ELSE                       .                                  P6 11/80  MTD07710
                                       775           ENDC                       .                                  P6 11/80  MTD07750
00114A       41F2 0000                 776  $OPT.0A  BAL   R15,*&Y'00FF0000'(R2) LINK USER ROUTINE                  P6 11/80  MTD07760
00114E       E630 1FD8                 777  OPTRTN   LDAI  R3,OPT               START OF OPTION TABLE                          MTD07770
001152       C840 0014                 778  $OPT.A   LHI   R4,20                .                                  P5 9/80   MTD07780
001156       4040 2134                 779           STH   R4,$LINCNT           20 LINES PER PRINTOUT PAGE         P5 9/80   MTD07790
00115A       2410                      780  $OPT.B   LIS   R1,0                                                               MTD07800
00115C       0823                      781           LDAR  R2,R3                START OF OPTION ENTRY                          MTD07810
00115E       D302 0000                 782  $OPT.2   LB    R0,0(R2)             GET OPTION NAME BYTE                           MTD07820
001162       D201 4000 88AC            783           STB   R0,$OUTBUF(R1)       MOVE TO OUTPUT BUFFER                          MTD07830
001168       2611                      784           AIS   R1,1                                                                  MTD07840
00116A       2621                      785           AIS   R2,1                                                                  MTD07850
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 00116C      C510 0008              786          CLHI  R1,$CKROUT          WHOLE NAME MOVED ?                      MTD07860
 001170      2089       =00115E     787          BLS   $OPT.2             BRANCH: NO.                             MTD07870
 001172      C840 2020              788          LHI   R4,C' '            SPACES                                  MTD07880
 001176      4040 4000 88B4         789          STH   R4,$OUTBUF+$CKROUT                                         MTD07890
*00117C      C530 1FD8              790          CLAI  R3,TEST            PROCESSING 'TEST' OPTION ?              MTD07900
 001180      2137       =00118E     791          BNES  OPT.2A             BRANCH: NO.                             MTD07910
 001182      E650 1FE2              792          LDAI  R5,TEST+$VALU1     A(OPTION BITS)                          MTD07920
 001186      41F0 16E0              793          BAL   R15,$LSTBIT        OUTPUT BIT NUMBERS (E.G.,1,2...)        MTD07930
 00118A      4300 1246              794          B     $OPT.5             ADVANCE TO NEXT OPTION                  MTD07940
                                    795  *                                                                       MTD07950
 00118E      2403                   796  OPT.2A  LIS   R0,3               CONVERT 3 DIGITS                        MTD07960
*001190      C530 2048              797          CLAI  R3,DRIVE           PROCESSING 'DRIVE' OPTION?              MTD07970
*001194      2338       =0011A4     798          BE    OPT.2BB            SPECIAL OUTPUT RTN                      MTD07980
*001196      C530 2064              799          CLAI  R3,DRVSTAT         DRVSTAT OPTION ENTERED?       R01       MTD07990
*00119A      2335       =0011A4     800          BE    OPT.2BB            SPECIAL OUTPUT ROUTINE THEN   R01       MTD08000
*00119C      C530 2010              801          CLAI  R3,COMMAND         PROCESSING 'COMMAND' OPTION?            MTD08010
 0011A0      4230 1200              802          BNE   OPT.2C             NO,CHECK OTHERS                         MTD08020
 0011A4      4813 000A              803  OPT.2BB LH    R1,$VALU1(R3)      1ST VALUE                               MTD08030
 0011A8      E620 4000 88B5         804          LA    R2,$OUTBUF+$CKROUT+1                                      MTD08040
 0011AE      41F0 1680              805          BAL   R15,HEXASC         CONVERT                                 MTD08050
 0011B2      C840 0020              806          LHI   R4,C' '            LOAD A SPACE                            MTD08060
 0011B6      D240 4000 88B8         807          STB   R4,$OUTBUF+$CKROUT+4 STORE INTO BUFFER                     MTD08070
 0011BC      4813 000C              808          LH    R1,$VALU2(R3)      2ND VALUE                               MTD08080
 0011C0      E620 4000 88B9         809          LA    R2,$OUTBUF+$CKROUT+5 STORAGE                              MTD08090
 0011C6      41F0 1680              810          BAL   R15,HEXASC                                                MTD08100
 0011CA      D240 4000 88BC         811          STB   R4,$OUTBUF+$CKROUT+8 STUFF A SPACE INTO OUTBUF            MTD08110
 0011D0      4813 0018              812          LH    R1,$VALU1+$STRUC1(R3)                                     MTD08120
 0011D4      E620 4000 88BD         813          LA    R2,$OUTBUF+$CKROUT+9 STORAGE LOC                          MTD08130
 0011DA      41F0 1680              814          BAL   R15,HEXASC         CONVERT                                 MTD08140
 0011DE      D240 4000 88C0         815          STB   R4,$OUTBUF+$CKROUT+12 STUFF INTO BUFFER                   MTD08150
 0011E4      4813 001A              816          LH    R1,$VALU2+$STRUC1(R3)                                     MTD08160
 0011E8      E620 4000 88C1         817          LA    R2,$OUTBUF+$CKROUT+13                                     MTD08170
 0011EE      41F0 1680              818          BAL   R15,HEXASC                                                MTD08180
 0011F2      240D                   819          LIS   R0,X'0D'           CARRIAGE RETURN                         MTD08190
 0011F4      D200 4000 88C4         820          STB   R0,$OUTBUF+$CKROUT+16 INSERT INTO BUFFER                   MTD08200
*0011FA      263E                   821          AHI   R3,$STRUC1         INCREMENT R3                            MTD08210
 0011FC      4300 1242              822          B     OPT.3B             PRINT OUTBUF                            MTD08220
*001200      C530 210C              823  OPT.2C  CLAI  R3,TIMELIMT        'TIMELIMT' OPTION                       MTD08230
 001204      4230 122A              824          BNE   $OPT.3                                                     MTD08240
 001208      4813 000A              825          LH    R1,$VALU1(R3)                                             MTD08250
 00120C      3411                   826          EXHR  R1,R1                                                     MTD08260
 00120E      7303 000C              827          LHL   R0,$VALU2(R3)                                             MTD08270
 001212      0610                   828          OR    R1,R0                                                     MTD08280
 001214      2408                   829          LIS   R0,8               8 DIGIT CONVERSION                      MTD08290
 001216      E620 4000 88B5         830          LDAI  R2,$OUTBUF+$CKROUT+1 STORE HERE                           MTD08300
 00121C      41F0 1680              831          BAL   R15,HEXASC         AFTER CONVERSION                        MTD08310
 001220      240D                   832          LIS   R0,X'0D'           CARRIAGE RETURN                         MTD08320
 001222      D200 4000 88BD         833          STB   R0,$OUTBUF+$CKROUT+9 STUFF CR                             MTD08330
*001228      280D       =001242     834          B     OPT.3B                                                    MTD08340
                                    835  *                                                                       MTD08350
                                    836  * PROCESSING OPTIONS WITH 4-DIGIT HEX VALUES.                          MTD08360
                                    837  * OPTION NAME ALREADY IN OUTPUT BUFFER.                                 MTD08370
                                    838  *                                                                       MTD08380
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 00122A       4813 000A                 839  $OPT.3   LH    R1,$VALU1(R3)        OPTION VALUE HALFWORD                    MTD08390
 00122E       2404                      840           LIS   R0,4                                                          MTD08400
 001230       E620 4000 88B5            841  OPT.3A   LDAI  R2,$OUTBUF+$CKROUT+1 BUFFER OFFSET                ****      MTD08410
 001236       41F0 1680                 842           BAL   R15,HEXASC           WRITE OPTION VALUE IN HEX (4 DIGITS      MTD08420
 00123A       240D                      843           LIS   R0,X'0D'             CARRIAGE RETURN                          MTD08430
 00123C       D200 4000 88B9            844           STB   R0,$OUTBUF+$CKROUT+5 INSERT TO BUFFER                         MTD08440
 001242       41F0 17F4                 845  OPT.3B   BAL   R15,@PRINT          OUTPUT PRINT BUFFER           ****       MTD08450
*001246       263E                      846  $OPT.5   AHI   P3,$STRUC1          LENGTH OF TABLE ENTRY                    MTD08460
*001248       C530 2128                 847           CLAI  R3,OPTEND2           DONE ALL PRINTING OPTIONS ?              MTD08470
 00124C       4380 0ABC                 848           BNL   OPTIN1               BRANCH: YES.                             MTD08480
 001250       D300 1E4D                 849           LB    R0,IOSAVE+1          CURRENT LIST ID                          MTD08490
 001254       D400 0A10                 850           CLB   R0,IO                SAME AS CONSOLE ?                        MTD08500
 001258       4230 1152                 851           BNE   $OPT.A               BRANCH: YES. NO LINE CNT TEST.           MTD08510
 00125C       2501                      852           LCS   R0,1                                                          MTD08520
 00125E       6100 2134                 853           AHM   R0,$LINCNT          DECREMENT COUNTER                        MTD08530
 001262       4230 115A                 854           BNZ   $OPT.B               BRANCH: SCREEN NOT FULL                  MTD08540
 001266       41F0 1964                 855           BAL   R15,$READ           GET (CR) OR (LF) TO CONTINUE             MTD08550
 00126A       D340 4000 88FC            856           LB    R4,$INBUF            FIRST CHARACTER                          MTD08560
 001270       274D                      857           SIS   R4,X'0D'             CARRIAGE RETURN ?                        MTD08570
 001272       4330 0ABC                 858           BZ    OPTIN1               BRANCH: YES. DONE.                       MTD08580
 001276       2643                      859           AIS   R4,X'03'            LINE FEED (X'0A') ?                      MTD08590
 001278       4230 0AF0                 860           BNZ   MATCH               BRANCH: NO. ATTEMPT DECODE.  ****        MTD08600
 00127C       4300 1152                 861  $OPT.6   B     $OPT.A               BRANCH: CONTINUE.                        MTD08610
                                        862  *-----------------------------                                              MTD08620
                                        863  * 'RUN' COMMAND HAS BEEN ENTERED                                            MTD08630
                                        864  *                                                                           MTD08640
                                        865  * FIND HIGHEST SELECTED TEST NUMBER                                         MTD08650
 001280       C8F0 001F                 866  $RUNIT   LHI   R15,31              INITIAL OFFSET FROM 0                    MTD08660
 001284       4800 1FE4                 867           LH    R0,TEST+$VALU2       BITS FOR TESTS 16:31                     MTD08670
 001288       2135       =001292        868           BNZS  $KEEP.1              BRANCH: BIT(S) SET.                      MTD08680
 00128A       24FF                      869           LIS   R15,15               OFFSET FROM 0                            MTD08690
 00128C       4800 1FE2                 870           LH    R0,TEST+$VALU1       BITS FOR TESTS 0:15                      MTD08700
 001290       033C                      871           BZR   R12                  BRANCH: NO TESTS SELECTED.               MTD08710
 001292       1001                      872  $KEEP.1  SRLS  R0,1                 SHIFT UNTIL BIT SEEN                     MTD08720
 001294       2183       =00129A        873           BCS   $KEEP.2              BRANCH: GOT IT.                          MTD08730
 001296       27F1                      874           SIS   R15,1               DECREMENT INDEX                          MTD08740
 001298       2203       =001292        875           BS    $KEEP.1              AND LOOP.                                MTD08750
 00129A       40F0 1E52                 876  $KEEP.2  STH   R15,SELTST          HIGHEST SELECTED TEST NUMBER.            MTD08760
 00129E       41F0 1BD0                 877           BAL   R15,LCORE           SET UP LOW CORE                          MTD08770
                                        878  *                                                                           MTD08780
 0012A2       41F0 1782                 879           BAL   R15,CRLF            LINE FEED TO LIST DEVICE                 MTD08790
 0012A6       2400                      880           LIS   R0,0                                                          MTD08800
 0012A8       4000 1E5A                 881           STH   R0,TOTAL            RESET TOTAL                              MTD08810
 0012AC       4000 1E5C                 882           STH   R0,TOTERR           RESET TOTERR                             MTD08820
 0012B0       4000 4000 8400            883           STH   R0,ERR.FLG          CLEAR FLAG                               MTD08830
 0012B6       4000 4000 83C4            884           STH   R0,STATUS           CLEAR STATUS                             MTD08840
 0012BC       F800 0002 89D0            885           LI    R0,ABSTOP           USE VALUE OF ABSTOP                      MTD08850
 0012C2       5000 4000 83FC            886           ST    R0,WPROCEED         R01                                      MTD08860
 0012C8       41F0 2276                 887           BAL   R15,INIT            LINK USER INITIALIZATION ROUTINE         MTD08870
 0012CC       41F0 1B6E                 888  INITRET  BAL   R15,SETLST          SELECT LIST DEVICE                       MTD08880
                                        889  *-------------------------------------------------                          MTD08890
                                        890  * TO PROCEED TO NEXT SEQUENTIAL TEST (STARTS WITH TEST 0)                   MTD08900
                                        891  *                                                                           MTD08910
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0012D0   2501               $KEEP1   LCS   R0,1                                                        MTD08920
0012D2   4000 1E5E                   STH   R0,BTESTNO          RESET BINARY TEST NUMBER                MTD08930
0012D6   4810 1E5E          $KEEP2   LH    R1,BTESTNO          BINARY TEST NUMBER                      MTD08940
0012DA   2611                        AIS   R1,1                                                        MTD08950
0012DC   4910 1E52                   CH    R1,SELTST           STILL VALID ?                           MTD08960
0012E0   4220 1358                   BP    $KEEP5              BRANCH: NO.                             MTD08970
0012E4   4010 1E5F                   STH   R1,BTESTNO          INCREMENTED TO CURRENT TEST             MTD08980
0012E8   2480                        LIS   R8,0                OFFSET TO LOW-ORDER HALFWORD            MTD08990
0012EA   4080 1E60                   STH   R8,COUNT            ZERO LOOP COUNT                         MTD09000
0012EE   4080 1E4E                   STH   R8,ISITERR          RESET ERROR FLAG                        MTD09010
0012F2   C510 0010                   CLHI  R1,16               TEST 0 TO 15 ?                          MTD09020
0012F6   2182      =0012FA           BLS   $KEEP2.1            BRANCH: NO.                             MTD09030
0012F8   2482                        LIS   R8,2                OFFSET TO HIGH-ORDER HALFWORD           MTD09040
0012FA   0861               $KEEP2.1 LDAR  R6,R1                                                       MTD09050
0012FC   41E0 1620                   BAL   R14,UNARY           CONVERT (R6) TO BIT IN R3               MTD09060
001300   4438 1FE2                   NH    R3,TEST+$VALU1(R8)  TEST SELECTED ?                         MTD09070
001304   4330 12D6                   BZ    $KEEP2              BRANCH: NO. FIND ONE THAT IS.           MTD09080
001308   2402                        LIS   R0,2                SET DIGITS TO PRINT = 2                 MTD09090
00130A   E620 1E9E                   LDAI  R2,MTESTNO          R2 = A(MTESTNO)                         MTD09100
00130E   41F0 1680                   BAL   R15,HEXASC          STORE TEST # IN ASCII @ MTESTNO         MTD09110
001312   41F0 17E6                   BAL   R15,$PRINT                                                  MTD09120
001318   0000 1E98                   DAC   TSTMSG              'TEST NN'                               MTD09130
                            *                                                                          MTD09140
                            * ------------------------------                                           MTD09150
                            *  TO RUN CURRENT SELECTED TEST                                            MTD09160
                            *                                                                          MTD09170
00131C   41F0 1A8C          $KEEP3   BAL   R15,TSTBRK          CHECK BREAK KEY                         MTD09180
001320   2400                        LIS   R0,0                                                        MTD09190
001322   4000 1E4E                   STH   R0,ISITERR          RESET ERROR FLAG                        MTD09200
001326   48E0 0A54                   LH    R14,PSW3            SPEC'D AS X'70F0'                       MTD09210
00132A   48F0 1E5E                   LH    R15,BTESTNO         BINARY TEST NUMBER                      MTD09220
00132E   11F2                        SLLS  R15,LADC            CONVERT TO OFFSET                       MTD09230
001330   58FF 21F4                   LDA   R15,TESTS(R15)      POINTER TO TEST MODULE                  MTD09240
001334   D0E0 1E20                   STM   R14,NEWPSW                                                  MTD09250
001338   C200 1E20                   LPSW  NEWPSW              GO TO TEST, WITH INTERRUPTS ENABLED     MTD09260
                            *----------------------------                                              MTD09270
                            *  THE SUBTEST HAS BEEN RUN                                                MTD09280
                            *                                                                          MTD09290
00133C   4810 0A52          TSTEND   LH    R1,PSW2             SPEC'D AS X'30F0'                       MTD09300
001340   9501                        EPSR  R0,R1               DISABLE INTERRUPTS                      MTD09310
001342   4820 1E60                   LH    R2,COUNT            NUMBER OF TIMES MODULE RAN              MTD09320
001346   2621                        AIS   R2,1                                                        MTD09330
001348   4020 1E60                   STH   R2,COUNT                                                    MTD09340
00134C                               IFZ   $DISPLAY-1          IF DISPLAY INCLUDED:                    MTD09350
00134C   41F0 13F8                   BAL   R15,DISPLAY         DISPLAY:                                MTD09360
001350   1E5A                        DC    Z(TOTAL),Z(TOTERR)                                          MTD09370
001352   1E5C
                                     ENDC                                                              MTD09380
                            *        CLH   R2,LOOP+$VALU1      REACHED LIMIT ?                         MTD09390
                            *        BL    $KEEP3              BRANCH: NO. RUN AGAIN.                  MTD09400
001354   4300 12D6                   B     $KEEP2              SELECT NEXT TEST.                       MTD09410
                            * -------------------------------------                                    MTD09420
                            *  ENTIRE TEST SEQUENCE HAS RUN                                            MTD09430
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                                  *                                                            MTD09440
           0000 1358              ABORT     EQU    *                 BRANCH HERE TO HALT TESTING     MTD09450
           0000 1358              $KEEP5    EQU    *                                                 MTD09460
001358     2401                             LIS    R0,1                                              MTD09470
00135A     6100 1E5A                        AHM    R0,TOTAL          GET TOTAL+1 (MODULO 2**16)      MTD09480
00135E     41F0 1B20                        BAL    R15,TSTDU         R1 <> 0 IF LIST OFFLINE         MTD09490
001362     4610 1FFE                        OH     R1,CONTIN+$VALU1  R1 <> 0 IF CONTIN = 1           MTD09500
001366     4230 12D0                        BNZ    $KEEP1            BRANCH: START NEW SERIES.       MTD09510
00136A     58E0 1E64                        LDA    R14,SSHUTDWN      ANY USER-SPEC'D POST-TEST ROUTINE ?  MTD09520
00136E     2332        =001372              BZS    $KEEP5.1          BRANCH: NO.                     MTD09530
001370     01FE                             BALR   R15,R14           GO TO SPECIFIED ROUTINE.        MTD09540
001372     41F0 17E6              $KEEP5.1  BAL    R15,$PRINT                                        MTD09550
001378     0000 1F2F                        DAC    EOTMSG            'END OF TEST'                   MTD09560
00137C     4800 1E5C                        LH     R0,TOTERR         ANY ERRORS LOGGED ?             MTD09570
001380     2136        =00138C              BNZS   $KEEP5.2          BRANCH: YES.                    MTD09580
001382     41F0 17E6                        BAL    R15,$PRINT        ELSE, PRINT                     MTD09590
001388     0000 1EBE                        DAC    NOERMSG           'NO ERROR'                      MTD09600
00138C     4800 1E58              $KEEP5.2  LH     R0,$WASDU         WAS LIST DEVICE OFFLINE ?       MTD09610
001390     4330 0ABC                        BZ     OPTIN1            BRANCH: NO. GET NEXT COMMAND    MTD09620
                                  *                                                                  MTD09630
           0000 1394              HALT9     EQU    *                 STOP MACHINE FOR ERROR PRINT    MTD09640
001394     41F0 1B20                        BAL    R15,TSTDU         CHECK IF LIST DEVICE OFF-LINE   MTD09650
001398     2336        =0013A4              BZS    $KEEP7            BRANCH: ON-LINE NOW.            MTD09660
00139A     C810 080F                        LHI    R1,X'080F'                                        MTD09670
00139E     9114                             SLHLS  R1,4              R1 = X'80F0'                    MTD09680
0013A0     9501                             EPSR   R0,R1             STOP PROCESSOR. WHEN 'EXE/RUN' DEP  MTD09690
0013A2     2207        =001394              BS     HALT9             CHECK IF LIST DEVICE ON-LINE.   MTD09700
                                  *                                                                  MTD09710
                                  * LIST DEVICE WAS OFF-LINE. PRINT TOTAL, TOTERR                    MTD09720
                                  *                                                                  MTD09730
           0000 13A4              $KEEP7    EQU    *                                                 MTD09740
0013A4     2400                             LIS    R0,0                                              MTD09750
0013A6     4000 1E58                        STH    R0,$WASDU         RESET DU FLAG                   MTD09760
0013AA     4000 1E40                        STH    R0,$NLFFLAG       DISABLE ACTIVITY INDICATOR   P6 11/80  MTD09770
0013AE     41F0 17E6                        BAL    R15,$PRINT                                        MTD09780
0013B4     0000 1F5C                        DAC    NULLMSG           OUTPUT NULL STRING, CRLF        MTD09790
0013B8     41F0 17E6                        BAL    R15,$PRINT                                        MTD09800
0013BC     0000 1EAF                        DAC    TOTMSG            'TOTAL   TOTERR'                MTD09810
0013C0     C840 2020                        LHI    R4,C'  '          SPACES                          MTD09820
0013C4     4040 4000 88B0                   STH    R4,$OUTBUF+4                                      MTD09830
0013CA     4040 4000 88B2                   STH    R4,$OUTBUF+6                                      MTD09840
0013D0     2404                             LIS    R0,4                                              MTD09850
0013D2     E620 4000 88AC                   LDAI   R2,$OUTBUF        DESTINATION                     MTD09860
0013D8     4810 1E5A                        LH     R1,TOTAL                                          MTD09870
0013DC     41F0 1680                        BAL    R15,HEXASC        CONVERT TOTAL                   MTD09880
0013E0     4810 1E5C                        LH     R1,TOTERR                                         MTD09890
0013E4     2628                             AIS    R2,8              DESTINATION                     MTD09900
0013E6     41F0 1680                        BAL    R15,HEXASC        CONVERT TOTERR                  MTD09910
0013EA     240D                             LIS    R0,X'0D'          CARRIAGE RETURN                 MTD09920
0013EC     D202 0004                        STB    R0,4(R2)          TO TERMINATE MESSAGE.           MTD09930
0013F0     41F0 17F4                        BAL    R15,@PRINT        PRINT CONTENTS OF BUFFER:       MTD09940
                                  *                                  TOTAL    TOTERR                 MTD09950
                                  *                                  XXXX     YYYY                   MTD09960
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0013F4  4300 0A72          997          B     STARTA              PRINT TITLE, ACCEPT COMMAND.          MTD09970
                           998  * ************************************                                   MTD09980
0013F8                     999          IFZ   SDISPLAY-1                                                MTD09990
                           1000 *                                                                       MTD10000
0013F8  4800 1432          1001 DISPLAY LH    R0,SDISPADR         HEX CONSOLE DISPLAY ADRS    P6 11/80  MTD10010
0013FC  433F 0004          1002         BZ    4(R15)              BRANCH: NO ACTIVITY.        P6 11/80  MTD10020
001400  DE00 1F36          1003         OC    R0,INCR             INCREMENTAL MODE                      MTD10030
001404  4240 1428          1004         BTC   4,SNODISP           BRANCH: TIMEOUT.            P6 11/80  MTD10040
001408  481F 0002          1005         LH    R1,2(R15)           GET 2ND PARAMETER ADDRESS             MTD10050
00140C  4811 0000          1006         LH    R1,0(R1)            GET DATA                              MTD10060
001410  9411              1007         EXBR  R1,R1                                                      MTD10070
001412  9801              1008         WHR   R0,R1               WRITE DATA                            MTD10080
001414  481F 0000          1009         LH    R1,0(R15)           GET 1ST PARAMETER ADDRESS             MTD10090
001418  4811 0000          1010         LH    R1,0(R1)            GET DATA                              MTD10100
00141C  9411              1011         EXBR  R1,R1                                                      MTD10110
00141E  9801              1012         WHR   R0,R1               WRITE DATA TO D1,D2                   MTD10120
001420  DE00 1F35          1013         OC    R0,NORM             NORMAL MODE                           MTD10130
001424  430F 0004          1014         B     4(R15)              RETURN                                MTD10140
001428  2400              1015 $NODISP LIS   R0,0                DISPLAY TIMED OUT           P6 11/80  MTD10150
00142A  4000 1432          1016         STH   R0,SDISPADR         SIGNAL 'NO DISPLAY'         P6 11/80  MTD10160
00142E  430F 0004          1017         B     4(R15)              RETURN TO CALLER            P6 11/80  MTD10170
001432  0001              1018 $DISPADR DCX   1                   HEXADECIMAL DISPLAY ADDRESS P6 11/80  MTD10180
                           1019 *                                                                       MTD10190
                           1020 * ************************************                                   MTD10200
                           1021         ENDC                                                            MTD10210
                           1022 *                                                                       MTD10220
                           1023 * ERROR ROUTINES                    (OVERRIDE NOMSG OPTION)            MTD10230
                           1024 * RETURN LINK R15; NO REGISTERS MODIFIED.                              MTD10240
                           1025 *                                                                       MTD10250
001434  D0F0 4000 88A0     1026 ERR     STM   R15,$R15SAV         SAVE LINK                             MTD10260
00143A  41F0 14B4          1027         BAL   R15,ERRCOM          'ERROR TTNN'                          MTD10270
001440  0000 14E2          1028         DAC   ERRCOM1             EXIT                                  MTD10280
                           1029 *                                                                       MTD10290
001444  D0F0 4000 88A0     1030 ERRD    STM   R15,$R15SAV         SAVE LINK                             MTD10300
00144A  41F0 14B4          1031         BAL   R15,ERRCOM          'ERROR TTNN'                          MTD10310
001450  0000 1520          1032         DAC   ERRD1               'DEV DDD'                             MTD10320
001454  0000 14E2          1033         DAC   ERRCOM1             EXIT                                  MTD10330
                           1034 *                                                                       MTD10340
001458  D0F0 4000 88A0     1035 ERRS    STM   R15,$R15SAV         SAVE LINK                             MTD10350
00145E  41F0 14B4          1036         BAL   R15,ERRCOM          'ERROR TTNN'                          MTD10360
001464  0000 1538          1037         DAC   ERRS1               'STA SS'                              MTD10370
001468  0000 14E2          1038         DAC   ERRCOM1             EXIT                                  MTD10380
                           1039 *                                                                       MTD10390
00146C  D0F0 4000 88A0     1040 ERRDS   STM   R15,$R15SAV         SAVE LINK                             MTD10400
001472  41F0 14B4          1041         BAL   R15,ERRCOM          'ERROR TTNN'                          MTD10410
001478  0000 1520          1042         DAC   ERRD1               'DEV DDD'                             MTD10420
00147C  0000 1538          1043         DAC   ERRS1               'STA SS'                              MTD10430
001480  0000 14E2          1044         DAC   ERRCOM1             EXIT                                  MTD10440
                           1045 *                                                                       MTD10450
001484  D0F0 4000 88A0     1046 ERRL    STM   R15,$R15SAV         SAVE LINK                             MTD10460
00148A  D0E0 1E18          1047         STM   R14,OLDPSW          STORE CALLER'S PSW, LOC               MTD10470
00148E  41F0 14B4          1048         BAL   R15,ERRCOM          'ERROR TTNN'                          MTD10480
001494  0000 1594          1049         DAC   ERRL1               'LOC LLLL'                            MTD10490
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001498    0000 14E2                       DAC   ERRCOM1            EXIT                                  MTD10500
                                 *                                                                       MTD10510
00149C    D0F0 4000 88A0         ERRALL   STM   R15,$R15SAV        SAVE LINK                             MTD10520
0014A2    41F0 14B4                       BAL   R15,ERRCOM         'ERROR TTNN'                          MTD10530
0014A8    0000 1550                       DAC   ERRDS1             'DEV DDD STA SS'                      MTD10540
0014AC    0000 1578                       DAC   ERRPL1             'PSW PPPP  LOC LLLL'                  MTD10550
0014B0    0000 14E2                       DAC   ERRCOM1            EXIT                                  MTD10560
                                 *                                                                       MTD10570
                                 *  COMMON ERROR ROUTINE                                                 MTD10580
                                 *                                                                       MTD10590
0014B4    D000 4000 8990         ERRCOM   STM   R0,ERRSAVE         STORE USER REGISTER SET               MTD10600
0014BA    4810 0A52                       LH    R1,PSW2            SPEC'D AS X'30F0'                     MTD10610
0014BE    9501                            EPSR  R0,R1              DISABLE INT. @ PROCESSOR LEVEL        MTD10620
0014C0    4800 1E9E                       LH    R0,MTESTNO         MASTER TEST NUMBER                    MTD10630
0014C4    4000 1EA8                       STH   R0,ETESTNO         MOVE TO MESSAGE                       MTD10640
0014C8    4000 1E4E                       STH   R0,ISITERR         TO FORCE ERROR PRINT                  MTD10650
0014CC    26F3                            AIS   R15,ADC-1                                                MTD10660
0014CE    C4F0 FFFC                       NHI   R15,0-ADC                                                MTD10670
0014D2    58CF 0000                       LDA   R12,0(R15)         FIRST PARAMETER                       MTD10680
0014D6    58DF 0004                       LDA   R13,ADC(R15)       SECOND PARAMETER                      MTD10690
0014DA    41E0 1510                       BAL   R14,ERR1           'ERROR TTNN'                          MTD10700
0014DE    01EC                            BALR  R14,R12            GO TO FIRST ROUTINE,                  MTD10710
0014E0    01ED                            BALR  R14,R13            SECOND ROUTINE.                       MTD10720
                                 *                                                                       MTD10730
0014E2    2400                   ERRCOM1  LIS   R0,0                                                     MTD10740
0014E4    4000 1E4E                       STH   R0,ISITERR         RESET ERROR PRINT FLAG                MTD10750
0014E8    4000 1E40                       STH   R0,$NLFFLAG        DISABLE ACTIVITY INDICATOR   P6 11/80 MTD10760
0014EC    2411                            LIS   R1,1                                                     MTD10770
0014EE    6110 1E5C                       AHM   R1,TOTERR          INCREMENT TOTERR                      MTD10780
0014F2    2138        =001502             BNZS  ERRCOM2            BRANCH: STILL COUNTING.               MTD10790
0014F4    2511                            LCS   R1,1               65,535 ERRORS REPORTED                MTD10800
0014F6    4010 1E5C                       STH   R1,TOTERR                                                MTD10810
0014FA    41F0 1B20                       BAL   R15,TSTDU          LIST DEVICE OFF-LINE ?                MTD10820
0014FE    4230 1394                       BNZ   HALT9              BRANCH: YES.                          MTD10830
001502    D100 4000 8990         ERRCOM2  LM    R0,ERRSAVE         RESTORE REGISTERS                     MTD10840
001508    D1F0 4000 88A0                  LM    R15,$R15SAV        RESTORE LINK                          MTD10850
00150E    030F                            BR    R15                RETURN TO CALLER.                     MTD10860
                                 *---------------------------                                            MTD10870
                                 * MESSAGE PRINT ROUTINES          (DO NOT OVERRIDE NOMSG OPTION)        MTD10880
                                 * RETURN LINK R14; REGISTERS MODIFIED R0,R1,R2,R5.                      MTD10890
                                 *                                                                       MTD10900
                                 *  TO PRINT 'ERROR TTNN'                                                MTD10910
                                 *                                                                       MTD10920
001510                                    CNOP  ADC                ALIGN PARAMETER                       MTD10930
001510    D0E0 4000 88A4         ERR1     STM   R14,$R14SAV        SAVE LINK                             MTD10940
001516    41E0 15D0                       BAL   R14,$MSGPRT1       PRINT MESSAGE                         MTD10950
00151C    0000 1EA2                       DAC   ERRMSG             'ERROR TTNN'                          MTD10960
                                 *                                 TT FROM MTESTNO, NN FROM ERRNO        MTD10970
                                 *                                                                       MTD10980
                                 *  TO PRINT 'DEV DDD'                                                   MTD10990
                                 *                                                                       MTD11000
001520    D0E0 4000 88A4         ERRD1    STM   R14,$R14SAV        SAVE LINK                             MTD11010
001526    2403                            LIS   R0,3               SET UP DIGITS = 3                     MTD11020
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001528  4810 1F32            1103          LH    R1,ERRDEV          R1 = ERROR DEV # IN BINARY                MTD11030
00152C  41E0 15C0            1104          BAL   R14,SMSGPRT        PRINT 'DEV DDD'                           MTD11040
001530  0000 1EDA            1105          DAC   ASCIDEV2           HEXASC DESTINATION                        MTD11050
001534  0000 1ED6            1106          DAC   DEVMSG2            A(MESSAGE)                                MTD11060
                             1107  *                                                                          MTD11070
                             1108  *  TO PRINT 'STA SS'                                                       MTD11080
                             1109  *                                                                          MTD11090
001538  D0E0 4000 88A4       1110  ERRS1   STM   R14,SR14SAV        SAVE LINK                                 MTD11100
00153E  2402                 1111          LIS   R0,2               SET UP DIGITS = 2                         MTD11110
001540  D310 1F34            1112          LB    R1,ERRSTA          R1 = ERROR STATUS                         MTD11120
001544  41E0 15C0            1113          BAL   R14,SMSGPRT        PRINT 'STA SS'                            MTD11130
001548  0000 1ED3            1114          DAC   ASCISTA            HEXASC DESTINATION                        MTD11140
00154C  0000 1ECF            1115          DAC   STAMSG             A(MESSAGE)                                MTD11150
                             1116  *                                                                          MTD11160
                             1117  *  TO PRINT 'DEV DDD STA SS'                                               MTD11170
                             1118  *                                                                          MTD11180
001550  D0E0 4000 88A4       1119  ERRDS1  STM   R14,SR14SAV        SAVE LINK                                 MTD11190
001556  2403                 1120          LIS   R0,3               SET UP DIGITS = 3                         MTD11200
001558  4810 1F32            1121          LH    R1,ERRDEV          R1 = ERROR DEV #                          MTD11210
00155C  E620 1ECB            1122          LDAI  R2,ASCIDEV         HEXASC DESTINATION                        MTD11220
001560  41F0 1680            1123          BAL   R15,HEXASC         CONVERT IT TO ASCII                       MTD11230
001564  2402                 1124          LIS   R0,2               SET UP DIGITS = 2                         MTD11240
001566  D310 1E34            1125          LB    R1,ERRSTA          R1 = ERROR STATUS                         MTD11250
00156A  41E0 15C0            1126          BAL   R14,SMSGPRT        PRINT 'DEV DDD STA SS'                    MTD11260
001570  0000 1ED3            1127          DAC   ASCISTA            HEXASC DESTINATION                        MTD11270
001574  0000 1EC7            1128          DAC   DEVMSG             A(MESSAGE)                                MTD11280
                             1129  *                                                                          MTD11290
                             1130  *  TO PRINT 'PSW PPPP  LOC LLLL'                                           MTD11300
                             1131  *                                                                          MTD11310
001578  D0E0 4000 88A4       1132  ERRPL1  STM   R14,SR14SAV        SAVE REGISTERS                            MTD11320
00157E  D1E0 1F18            1133          LM    R14,OLDPSW         R14 = PSW, R15 = LOC                      MTD11330
001582  081E                 1134          LDAR  R1,R14             PSW TO PRINT REGISTER                     MTD11340
001584  2406                 1140          LIS   R0,6               SERIES 32                                 MTD11400
001586  E620 1F05            1141  ERRPL1A LDAI  R2,ASCIPSW         DESTINATION                               MTD11410
00158A  E650 1F01            1142          LDAI  R5,PSWMSG                                                    MTD11420
00158E  41F0 1680            1143          BAL   R15,HEXASC         CONVERT PSW                               MTD11430
001592  2306       =00159E   1144          BS    ERRPL1B            GO CONVERT LOC                            MTD11440
                             1145  *                                                                          MTD11450
                             1146  *  TO PRINT 'LOC LLLL'                                                     MTD11460
                             1147  *                                                          ##              MTD11470
001594  D0E0 4000 88A4       1148  ERRL1   STM   R14,SR14SAV        SAVE REGISTERS                            MTD11480
00159A  E650 1F0D            1149          LDAI  R5,LOCMSG          A(MESSAGE)                                MTD11490
00159E  D1F0 1F18            1150  ERRPL1B LM    R14,OLDPSW         R15 = OLD LOC TO PRINT                    MTD11500
0015A2  081F                 1151          LDAR  R1,R15             DATA TO PRINT REGISTER                    MTD11510
0015A4  2406                 1157          LIS   R0,6               SERIES 32                                 MTD11570
0015A6  E620 1F11            1158  ERRL1A  LDAI  R2,ASCILOC         DESTINATION                               MTD11580
0015AA  41F0 1680            1159          BAL   R15,HEXASC         CONVERT                                   MTD11590
0015AE  24F0                 1160          LIS   R15,0              .                          P6 11/80       MTD11600
0015B0  40F0 1E40            1161          STH   R15,SNLFFLAG       DISABLE ACTIVITY INDICATOR P6 11/80       MTD11610
0015B4  41F0 1802            1162          BAL   R15,PRINT          PRINT                                     MTD11620
0015B8  D1E0 4000 88A4       1163          LM    R14,SR14SAV        RESTORE LINK                              MTD11630
0015BE  030E                 1164          BR    R14                RETURN                                    MTD11640
                             1165  *                                                                          MTD11650
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                                1166  * ROUTINE IS CALLED BY MESSAGE PRINT ROUTINES                                  MTD11660
                                1167  *                                                                              MTD11670
0015C0      26E3                1168  $MSGPRT  AIS   R14,ADC-1                                                       MTD11680
0015C2      C4E0 FFFC           1169           NHI   R14,0-ADC                                                       MTD11690
0015C6      582E 0000           1170           LDA   R2,0(R14)          HEXASC DESTINATION                           MTD11700
0015CA      41F0 1680           1171           BAL   R15,HEXASC         CONVERT DATA TO HEXADECIMAL                  MTD11710
0015CE      26E4                1172           AIS   R14,ADC                                                         MTD11720
0015D0      2450                1173  $MSGPRT1 LIS   R5,0                .                          P6 11/80       MTD11730
0015D2      4050 1E40           1174           STH   R5,$NLFFLAG        DISABLE ACTIVITY INDICATOR   P6 11/80       MTD11740
0015D6      26F3                1175           AIS   R14,ADC-1          **     10-23-81                            MTD11750
0015D8      C4E0 FFFC           1176           NHI   R14,0-ADC          **     10-23-81                            MTD11760
0015DC      585E 0000           1177           LDA   R5,0(R14)          A(MESSAGE TO PRINT)                          MTD11770
0015E0      41F0 1802           1178           BAL   R15,PRINT          PRINT SPECIFIED MESSAGE                      MTD11780
0015E4      D1E0 4000 88A4      1179           LM    R14,$R14SAV                                                     MTD11790
0015EA      030E                1180           BR    R14                RETURN TO ORIGINAL CALLER                    MTD11800
                                1181  * ------------------------------                                             MTD11810
                                1182  *                                                                            MTD11820
                                1183  * TO OBTAIN OPTION VALUE IN R6    (R7:R6, S16)                               MTD11830
                                1184  * RETURNS WHEN SPECIAL CHARACTER FOUND. IGNORES SPACES.                      MTD11840
                                1185  *                                                                            MTD11850
0015EC      2460                1186  OPTVAL   LIS   R6,0                INITIALIZE ACCUMULATOR                     MTD11860
0015EE      D343 4000 88FC      1190  $OPTV.0  LB    R4,$INBUF(R3)        GET NEXT INPUT CHARACTER                   MTD11900
0015F4      C530 0050           1191           CLHI  R3,$BUFLEN           AT END OF INPUT BUFFER ?                   MTD11910
0015F8      038E                1192           RNLR  R14                  RETURN IF YES.                             MTD11920
0015FA      2631                1193           AIS   R3,1                 ADVANCE BUFFER POINTER                     MTD11930
0015FC      C540 0020           1194           CLHI  R4,C' '              SPACE ?                                    MTD11940
001600      2239       =0015EE  1195           BES   $OPTV.0              BRANCH: YES. IGNORE.                       MTD11950
001602      C540 0030           1196           CLHI  R4,C'0'              LESS THAN ZERO ?                           MTD11960
001606      028E                1197           BLR   R14                  RETURN IF SPECIAL CHARACTER                MTD11970
001608      24FF                1198           LIS   R15,15                                                          MTD11980
00160A      D44F 1E88           1199  $OPTV.2  CLB   R4,HEXTAB(R15)      SCAN TABLE                                 MTD11990
00160E      2334       =001616  1200           BES   $OPTV.3              MATCH                                      MTD12000
001610      27F1                1201           SIS   R15,1                                                           MTD12010
001612      2214       =00160A  1202           BNMS  $OPTV.2                                                         MTD12020
001614      030C                1203           BR    R12                  ERROR; VALUE NOT IN TABLE.                 MTD12030
001616      EB60 0004           1204  $OPTV.3  RLL   R6,4                 (R6:R7), SERIES 16                         MTD12040
00161A      066F                1205           OAR   R6,R15               OR IN CURRENT DIGIT                        MTD12050
00161C      4300 15EE           1206           B     $OPTV.0                                                         MTD12060
                                1207  *-----------------------------------                                        MTD12070
                                1208  * TO CONVERT (R6) FROM BINARY TO UNARY PATTERN, IN R3                        MTD12080
                                1209  *                                                                            MTD12090
001620      2438                1210  UNARY    LIS   R3,8                 BIT TO SHIFT                               MTD12100
001622      913C                1211           SLHLS R3,12                R3 = '8000'                                MTD12110
001624      CC36 0000           1212           SRHL  R3,0(R6)             SHIFT TO DESIRED POSITION                  MTD12120
001628      030E                1213           BR    R14                  AND RETURN.                                MTD12130
                                1214  *                                                                            MTD12140
                                1215  *------------------------------                                            MTD12150
                                1216  *                                                                            MTD12160
00162A                          1217           IFNZ  $CLOCK               0 = INCLUDE NO TIMERS                      MTD12170
            0000 162A           1218  $TIMER   EQU   *                                                            MTD12180
00162A                          1219           IFZ   $CLOCK-3             3 = INCLUDE BOTH                           MTD12190
                                1221           ELSE
            0000 162A           1222  TIMER    EQU   *                                                            MTD12220
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                                1223            ENDC                                                    MTD12230
                                1224    *  TO PROVIDE # OF MILLISECONDS DELAY SPECIFIED BY P0           MTD12240
                                1225    *                                                               MTD12250
00162A      0000 4000 8950      1226            STM   R0,RSAVE          SAVE REGISTERS                  MTD12260
001630      2410                1227    $STIM1  LIS   R1,0                                              MTD12270
001632      2421                1228            LIS   R2,1                                              MTD12280
001634      4830 0A5A           1229            LH    R3,STIMVAL        (R3) = CONSTANT FOR 1 MSEC DELAY MTD12290
001638      C110 1638           1230            BXLE  R1,*                                              MTD12300
00163C      2701                1231            SIS   R0,1                                              MTD12310
00163E      2037      =001630   1232            BNZS  $STIM1            LOOP TILL SPECIFIED DELAY       MTD12320
*001640                         1233            B     STIMRET           RELOAD REGISTERS, RETURN (R15)  MTD12330
                                1234    *                                                               MTD12340
                                1235    *------------------------------                   ##  ##        MTD12350
                                1236    *                                                               MTD12360
001640      D100 4000 8950      1258    $TIMRET LM    R0,RSAVE          RESTORE USER'S REGISTERS        MTD12580
001646      030F                1259    STIMXT  BR    R15               AND RETURN.                     MTD12590
                                1261    * --------------------------                                   MTD12610
                                1262    * ROUTINE RESTORES REGISTERS SAVED ON ENTRY TO CALLING ROUTINE  MTD12620
                                1263    * AND RETURNS BY R15                                           MTD12630
                                1264    *                                                               MTD12640
001648      D100 4000 8950      1265    $RSAVRET LM   R0,RSAVE                                          MTD12650
00164E      030F                1266            BR    R15               RETURN TO ORIGINAL CALLER       MTD12660
                                1267    * ***** THIS IS WHERE TO IMPLEMENT STACK                        MTD12670
                                1268    *                                                               MTD12680
001650                          1269            IFZ   $R5BIN-1                                          MTD12690
                                1270    *------------------------------                               MTD12700
                                1271    *  R5BIN PRINTS CONTENTS OF R5 IN BINARY                        MTD12710
                                1272    *        PRINTS UPTO 16 DIGITS                                  MTD12720
                                1273    *                                                               MTD12730
001650      D000 4000 8950      1274    R5BIN   STM   R0,RSAVE          STORE REGISTERS                 MTD12740
001656      C800 0010           1275            LHI   R0,4*ADC          NUMBER OF BITS TO OUTPUT        MTD12750
00165A      2701                1276    $R5B.1  SIS   R0,1                                              MTD12760
*00165C     201A      =001648   1277            BM    $RSAVRET          BRANCH: ALL DONE.               MTD12770
00165E      C840 0030           1278            LHI   R4,C'0'           ASCII ZERO                      MTD12780
001662      1151                1279            SLLS  R5,1              SHIFT MS BIT TO C-FLAG      P2 1/80 MTD12790
001664      2382      =001668   1280            BNCS  $R5B.2            BRANCH: WAS A ZERO              MTD12800
001666      2641                1281            AIS   R4,1               ASCII ONE                      MTD12810
001668      D242 0000           1282    $R5B.2  STB   R4,0(R2)          DATA TO BUFFER                  MTD12820
00166C      2621                1283            AIS   R2,1              ADVANCE BUFFER POINTER          MTD12830
00166E      C300 0003           1284            THI   R0,X'03'          FOUR-BIT BLOCK OUTPUT ?         MTD12840
001672      203C      =00165A   1285            BNZS  $R5B.1            BRANCH: NOT YET.                MTD12850
001674      C840 0020           1286            LHI   R4,C' '           BLANK                           MTD12860
001678      D242 0001           1287            STB   R4,1(R2)          BLANK TO BUFFER                 MTD12870
00167C      4300 165A           1288            B     $R5B.1            CONTINUE                        MTD12880
                                1289            ENDC                                                  MTD12890
                                1290    *------------------------------                               MTD12900
                                1291    *  TO CONVERT HEXADECIMAL DATA IN R1 TO ASCII CHAR & STORE @ 0(R2) MTD12910
                                1292    * OUTPUTS UP TO 4 DIGITS (8 DIGITS, SERIES 32)                 MTD12920
                                1293    *                                                               MTD12930
001680      D000 4000 8950      1294    HEXASC  STM   R0,RSAVE          STORE REGISTERS                 MTD12940
001686      0830                1295            LDAR  R3,R0             R3 = DIGITS                     MTD12950
001688      1132                1296            SLLS  R3,2                                              MTD12960
00168A      2734                1297            SIS   R3,4              R3 = 4(DIGITS)-4                MTD12970
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00168C       0841                    1298  $HEXA.1  LDAR  R4,R1              R4 = HEX DATA                          MTD12980
00168E       EC43 0000               1299           SRL   R4,0(R3)                                                   MTD12990
001692       C440 000F               1300           NHI   R4,15              R4 = HEX DIGIT TO BE CONVERTED         MTD13000
001696       D344 1E88               1301           LB    R4,HEXTAB(R4)                                              MTD13010
00169A       D242 0000               1302           STB   R4,0(R2)           STORE ASCII CHAR                       MTD13020
00169E       2621                    1303           AIS   R2,1                                                       MTD13030
0016A0       2734                    1304           SIS   R3,4                                                       MTD13040
0016A2       221B       =00168C      1305           BNMS  $HEXA.1            LOOP TILL ALL DIGITS                   MTD13050
0016A4       4300 1648               1306           B     $RSAVRET           RESTORE REGISTERS, RETURN (R15)        MTD13060
0016A8                               1307           IFZ   $DECASC-1                                                  MTD13070
                                     1308  *------------------------------                                          MTD13080
                                     1309  *  TO CONVERT BINARY DATA IN R1 INTO DECIMAL DIGITS                       MTD13090
                                     1310  *     AND STORE THEM IN ASCII @ 0(R2)                                     MTD13100
                                     1311  *                                                                         MTD13110
0016A8       D000 4000 8950          1312  DECASC   STM   R0,RSAVE                                                  MTD13120
0016AE       0830                    1313           LDAR  R3,R0              COPY DIGIT COUNT                       MTD13130
0016B0       1132                    1314           SLLS  R3,LADC            &ESTABLISH DECTAB INDEX.               MTD13140
0016B2       2734                    1315           SIS   R3,ADC                                                     MTD13150
0016B4       2440                    1316  $DEC1    LIS   R4,0               CLEAR MODULUS COUNTER                  MTD13160
0016B6       5853 1E74               1317           LDA   R5,DECTAB(R3)      LOAD LARGEST REQ. POWER OF 10.         MTD13170
0016BA       0515                    1318  $DEC2    CLAR  R1,R5              EXCEEDS TEST VALUE ?                   MTD13180
0016BC       2188       =0016CC      1319           BLS   $DEC3              BRANCH IF YES.                         MTD13190
0016BE       0B15                    1320           SAR   R1,R5              DECREMENT TEST VALUE                   MTD13200
0016C0       2641                    1321           AIS   R4,1               INCREMENT MODULUS COUNTER              MTD13210
0016C2       C540 000A               1322           CLHI  R4,10              VALID DECIMAL DIGIT ?                  MTD13220
0016C6       2086       =0016BA      1323           BLS   $DEC2              BRANCH IF YES; ELSE                    MTD13230
0016C8       274A                    1324           SIS   R4,10              FORCE VALID DIGIT,                     MTD13240
0016CA       2208       =0016BA      1325           BS    $DEC2              REPEAT DECREMENT.                      MTD13250
0016CC       D344 1E88               1326  $DEC3    LB    R4,HEXTAB(R4)      CONVERT MODULUS COUNT TO ASCII         MTD13260
0016D0       D242 0000               1327           STB   R4,0(R2)           AND STORE AT DESTINATION MSB.          MTD13270
0016D4       2621                    1328           AIS   R2,1               INCREMENT DESTINATION POINTER          MTD13280
0016D6       2734                    1329           SIS   R3,ADC             DECREMENT DECTAB POINTER               MTD13290
0016D8       4310 16B4               1330           BNM   $DEC1              FALL THROUGH ON DECTAB UNDERFLOW.      MTD13300
0016DC       4300 1648               1331           B     $RSAVRET           RESTORE REGISTERS, RETURN (R15)        MTD13310
                                     1332           ENDC                                                             MTD13320
                                     1333  * -------------------------------                                        MTD13330
                                     1334  * TO OUTPUT LIST OF BITS IN ASCENDING NUMERIC ORDER,                     MTD13340
                                     1335  * STARTING FROM HIGH-ORDER BIT AS BIT 0                                  MTD13350
                                     1336  * DOES NOT OVERLAY OPTION NAME IN $OUTBUF.                               MTD13360
                                     1337  * DOES NOT DISABLE ACTIVITY INDICATOR                          P6 11/80  MTD13370
                                     1338  *                                                                        MTD13380
             0000 16E0               1339  $LSTBIT  EQU   *                                                         MTD13390
0016E0       D000 4000 8990          1340           STM   R0,ERRSAVE         SAVE REGISTERS                         MTD13400
0016E6       2401                    1341           LIS   R0,1               DIGITS TO OUTPUT                       MTD13410
0016E8       2410                    1342           LIS   R1,0               STARTING WITH NUMBER 0                 MTD13420
0016EA       2470                    1343           LIS   R7,0               PRINT FLAG                             MTD13430
0016EC       4835 0000               1344           LH    R3,0(R5)           LOW-NUMBERED PARAMETER BITS            MTD13440
0016F0       2136       =0016FC      1345           BNZS  $LSTB.B            BRANCH: ONE SET                        MTD13450
0016F2       4835 0002               1346  $LSTB.A  LH    R3,2(R5)           HIGH-NUMBERED PARAMETER BITS           MTD13460
0016F6       2402                    1347           LIS   R0,2               2 DIGITS NEEDED FOR HEXASC             MTD13470
0016F8       C810 0010               1348           LHI   R1,X'10'           BIT NUMBER BASE                        MTD13480
0016FC       242A                    1349  $LSTB.B  LIS   R2,$CKROUT+2       NO OVERLAY OF OPTION NAME              MTD13490
0016FE       9131                    1350  $LSTB.0  SLHLS R3,1               TEST LEFTMOST HALFWORD BIT             MTD13500
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001700       4380 1726                1351           BNC   SLSTB.2A          BRANCH: ZERO.                                  MTD13510
001704       C520 000A                1352           CLHI  R2,SCKROUT+2      ANY OUTPUT YET ?                               MTD13520
001708       2337       =001716       1353           BES   SLSTB.1           BRANCH: NO                                     MTD13530
00170A       C840 002C                1354           LHI   R4,C','          COMMA                                          MTD13540
00170E       D242 4000 88AC           1355           STB   R4,SOUTBUF(R2)    INSERT IN BUFFER                               MTD13550
001714       2621                     1356           AIS   R2,1                                                             MTD13560
001716       08D2                     1357 SLSTB.1   LDAR  R13,R2            SAVE BUFFER OFFSET                             MTD13570
001718       FA20 0000 88AC           1358           AAI   R2,SOUTBUF         HEXASC DESTINATION             P6 11/80        MTD13580
00171E       41F0 1680                1359           BAL   R15,HEXASC        CONVERT BIT NUMBER                             MTD13590
001722       082D                     1360           LDAR  R2,R13            GET OFFSET                                     MTD13600
001724       0A20                     1361 SLSTB.2   AAR   R2,R0             INCREMENT BUFFER POINTER                       MTD13610
001726       2611                     1362 SLSTB.2A  AIS   R1,1              INCREMENT BIT NUMBER                           MTD13620
001728       C310 000F                1363           THI   R1,15             HALFWORD COMPLETED ?                           MTD13630
00172C       4230 16FE                1364           BNZ   SLSTB.0           BRANCH: NO.                                    MTD13640
001730       244D                     1365           LIS   R4,X'0D'          CARRIAGE RETURN                                MTD13650
001732       D242 4000 88AC           1366           STB   R4,SOUTBUF(R2)    INSERT IN BUFFER                               MTD13660
001738       0672                     1367           OAR   R7,R2             ACCUMULATE HIGHEST BYTE COUNT                  MTD13670
00173A       C520 000A                1368           CLHI  R2,SCKROUT+2      ANY OUTPUT THIS TIME ?                         MTD13680
00173E       2333       =001744       1369           BES   SLSTB.2B          BRANCH: NO.                                    MTD13690
001740       41F0 17F4                1370           BAL   R15,@PRINT         PRINT THE BUFFER.                              MTD13700
001744       C510 0020                1371 SLSTB.2B  CLHI  R1,32             FULLWORD COMPLETED ?                           MTD13710
001748       4280 16F2                1372           BL    SLSTB.A           BRANCH: NO.                                    MTD13720
00174C       277A                     1373           SIS   R7,SCKROUT+2      ANY OUTPUT DONE ?                              MTD13730
00174E       2133       =001754       1374           BNZS  SLSTB.2C          BRANCH: YES.                                   MTD13740
001750       41F0 17F4                1375           BAL   R15,@PRINT         PRINT OPTION NAME IN BUFFER.                   MTD13750
001754       D100 4000 8990           1376 SLSTB.2C  LM    R0,ERRSAVE                                                       MTD13760
00175A       030F                     1377           BR    R15               RETURN                                         MTD13770
                                      1378 * ------------------------------                                                 MTD13780
00175C                                1379           IFZ   SBUFIO-1                                                       MTD13790
                                      1380 * TO PLACE (R4) CHARACTER IN NEXT SOUTBUF POSITION                              MTD13800
                                      1381 *                                                                               MTD13810
00175C       D0F0 4000 88A0           1382 PUTCHR    STM   R15,SR15SAV       SAVE LINK                                      MTD13820
001762       48F0 1E54                1383           LH    R15,SLINEPOS      CURRENT BYTE ADDRESS                           MTD13830
001766       C5F0 0050                1384           CLHI  R15,SBUFLEN                                                    MTD13840
00176A       2182       =00176E       1385           BLS   SPUTC.1                                                        MTD13850
00176C       24F0                     1386           LIS   R15,0             FORCE WRAP-AROUND                              MTD13860
00176E       D24F 4000 88AC           1387 SPUTC.1   STB   R4,SOUTBUF(R15)   CHARACTER TO BUFFER                          MTD13870
001774       26F1                     1388           AIS   R15,1                                                            MTD13880
001776       40F0 1E54                1389           STH   R15,SLINEPOS      UPDATE BUFFER POINTER                          MTD13890
00177A       D1F0 4000 88A0           1390           LM    R15,SR15SAV                                                    MTD13900
001780       030F                     1391           BR    R15               RETURN                                         MTD13910
                                      1392 *----------------------------                                                   MTD13920
                                      1393           ENDC                                                                 MTD13930
                                      1394 *  TO OUTPUT CR,LF TO LIST DEVICE                                               MTD13940
                                      1395 *                                                                               MTD13950
001782       D000 4000 8950           1396 CRLF      STM   R0,RSAVE          SAVE REGISTERS                                 MTD13960
001788       B550 1F5C                1397           LDAI  R5,NULLMSG        CR, LF                         P6 11/80        MTD13970
00178C       4300 1808                1398           B     SP1               GO PRINT LINE.                                 MTD13980
                                      1399 *----------------------------                                                   MTD13990
                                      1400 * PRINT ROUTINES                  .                              P6 11/80        MTD14000
                                      1401 *                                 .                              P6 11/80        MTD14010
001790                                1402           IFZ   SACTIND-1         .                              P6 11/80        MTD14020
001790       26F3                     1403 SPRTNLF   AIS   R15,ADC-1         POINT TO ARGUMENT              P6 11/80        MTD14030
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001792   C4F0 FFFC                            NHI   R15,0-ADC           .                              P6 11/80  MTD14040
001796   D000 4000 8990                       STM   R0,ERRSAVE          .                              P6 11/80  MTD14050
00179C   58EF 0000                            LDA   R14,0(R15)          A(MESSAGE TO PRINT)            P6 11/80  MTD14060
0017A0   4810 1E44                            LH    R1,SNLFCNTR         GET ACTIVITY COUNT             P6 11/80  MTD14070
0017A4   2611                                 AIS   R1,1                INCREMENT IT                   P6 11/80  MTD14080
0017A6   4010 1E44                            STH   R1,SNLFCNTR         AND STORE FOR NEXT TIME        P6 11/80  MTD14090
0017AA   C820 2020                            LHI   R2,C'  '            2 SPACES                       P6 11/80  MTD14100
0017AE   4020 4000 88AC                       STH   R2,$OUTBUF          TO OUTPUT BUFFER               P6 11/80  MTD14110
0017B4   E620 4000 88AE                       LDAI  R2,$OUTBUF+2        DESTINATION                    P6 11/80  MTD14120
0017BA   2404                                 LIS   R0,4                DIGITS                         P6 11/80  MTD14130
0017BC   41F0 1680                            BAL   R15,HEXASC          CONVERT                        P6 11/80  MTD14140
0017C0   C800 209E                            LHI   R0,X'209E'          TERMINATOR FOR NO (CR,LF)      P6 11/80  MTD14150
0017C4   4002 0004                            STH   R0,4(R2)            TO SOUTBUF                     P6 11/80  MTD14160
0017C8   4000 1E40                            STH   R0,$NLFFLAG         ENABLE ACTIVITY INDICATOR      P6 11/80  MTD14170
0017CC   41F0 17F4                            BAL   R15,@PRINT          '  NNNN '                      P6 11/80  MTD14180
0017D0   085E                                 LDAR  R5,R14              A(SPECIFIED MESSAGE)           P6 11/80  MTD14190
0017D2   41F0 1802                            BAL   R15,PRINT           PRINT SPECIFIED MESSAGE        P6 11/80  MTD14200
0017D6   2400                                 LIS   R0,0                DISABLE ACTIVITY INDICATOR     P6 11/80  MTD14210
0017D8   4000 1E40                            STH   R0,$NLFFLAG         .                              P6 11/80  MTD14220
0017DC   D100 4000 8990                       LM    R0,ERRSAVE          RESTORE REGISTERS              P6 11/80  MTD14230
0017E2   430F 0004                            B     ADC(R15)            AND RETURN TO CALLER.          P6 11/80  MTD14240
                                              ENDC                      .                              P6 11/80  MTD14250
                                    *                                                                            MTD14260
0017E6   26F3                       $PRINT    AIS   R15,ADC-1                                                    MTD14270
0017E8   C4F0 FFFC                            NHI   R15,0-ADC                                                    MTD14280
0017EC   585F 0000                            LDA   R5,0(R15)           A(MESSAGE TO PRINT)                      MTD14290
0017F0   25F4                                 AIS   R15,ADC                                                      MTD14300
0017F2   2308          =001802                BS    $P0                                                          MTD14310
                                    *                                                                            MTD14320
0017F4   D000 4000 8950             @PRINT    STM   R0,RSAVE            SAVE REGISTERS                           MTD14330
0017FA   E650 4000 88AC                       LDAI  R5,$OUTBUF          TO PRINT OUTPUT BUFFER                   MTD14340
001800   2304          =001808                BS    $P1                                                          MTD14350
                                    *                                                                            MTD14360
         0000 1802                  PRINT     EQU   *                   TO PRINT THE ASCII MESSAGE               MTD14370
001802   D000 4000 8950             $P0       STM   R0,RSAVE            STORE REGISTERS                          MTD14380
001808   2400                       $P1       LIS   R0,0                                                         MTD14390
00180A   4000 1E54                            STH   R0,$LINEPOS         RESET BUFFER                             MTD14400
00180E   41F0 1B20                            BAL   R15,TSTDU           IS DEVICE UNAVAILABLE ?                  MTD14410
001812   4230 1648                            BNZ   $RSAVRET            IF YES, RELOAD REGISTERS, RETURN.        MTD14420
                                    *                                                                            MTD14430
001816   4810 1E58                            LH    R1,$WASDU           WAS DEVICE EVER SEEN DU ?                MTD14440
00181A   4230 1394                            BNZ   HALT9               OUTPUT TOTAL, TOTERR.                    MTD14450
                                    *                                                                            MTD14460
00181E   4800 1E4E                            LH    R0,ISITERR          AN ERROR MESSAGE ?                       MTD14470
                                    *                                                                            MTD14480
001822                                        IFZ   $ACTIND-1           .                              P6 11/80  MTD14490
001822   4840 1E40                  $PRT.2    LH    R4,$NLFFLAG         ZERO IF ACTIVITY DISABLED      P6 11/80  MTD14500
*001826  213F          =001844                BNZ   $PRT.2A             BRANCH: INDICATOR ENABLED      P6 11/80  MTD14510
001828   4840 1E42                            LH    R4,$NLFHIST         WAS ENABLED LAST PRINT ?       P6 11/80  MTD14520
00182C   4330 1854                            BZ    $PRT.2B             BRANCH: NO. PRINT NORMAL.      P6 11/80  MTD14530
001830   244A                                 LIS   R4,X'0A'            LF                             P6 11/80  MTD14540
001832   41F0 18C4                            BAL   R15,OUTCHR          OUTPUT LINE FEED               P6 11/80  MTD14550
001836   244D                                 LIS   R4,X'0D'            CR                             P6 11/80  MTD14560
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 001838       41F0 18C4                1457            BAL   R15,OUTCHR          OUTPUT CARRIAGE RETURN       P6 11/80  MTD14570
 00183C       2440                     1458            LIS   R4,0                ZERO HISTORY                 P6 11/80  MTD14580
 00183E       4040 1E42                1459            STH   R4,$NLFHIST         .                            P6 11/80  MTD14590
*001842       2309       =001854       1460            B     $PRT.2B             PRINT NORMAL.                P6 11/80  MTD14600

 001844       C840 009E                1462  $PRT.2A   LHI   R4,X'9E'            .                            P6 11/80  MTD14620
 001848       4040 1F42                1463            STH   R4,$NLFHIST         SET HISTORY                  P6 11/80  MTD14630
 00184C       0445 0000                1464            CLB   R4,0(R5)            TERMINATOR FOR NO (CR,LF) ?  P6 11/80  MTD14640
 001850       4330 188C                1465            BE    $PRT.3C             BRANCH: YES. OUTPUT NUL.     P6 11/80  MTD14650
              0000 1854                1466  $PRT.2B   EQU   *                   .                            P6 11/80  MTD14660
                                       1467            ELSE                      .                            P6 11/80  MTD14670
                                       1469            ENDC                      .                            P6 11/80  MTD14690
 001854       D345 0000                1470            LB    R4,0(R5)            GET A MESSAGE BYTE                     MTD14700
 001858       41F0 18C4                1471            BAL   R15,OUTCHR          OUTPUT CHARACTER                       MTD14710
 00185C       274D                     1472            SIS   R4,X'0D'            CR ?                                   MTD14720
*00185E       233C       =001876       1473            BZ    $PRT.3              MSG OVER                               MTD14730
 001860       2651                     1474            AIS   R5,1                                                       MTD14740
 001862       C350 0002                1475            THI   R5,2                TIME TO CHECK BREAK ?                  MTD14750
 001866       4330 1822                1476            BZ    $PRT.2              BRANCH: NO.                            MTD14760
 00186A       4050 1E56                1477            STH   R5,$PRTFLG          TO DEFER BREAK ACKNOWLEDGE             MTD14770
 00186E       41F0 1A8C                1478            BAL   R15,TSTBRK                                               MTD14780
 001872       4300 1822                1479            B     $PRT.2              LOOP FOR NEXT CHAR                     MTD14790
                                       1480  *                                                                        MTD14800
 001876                                1481            IFZ   $ACTIND-1           .                            P6 11/80  MTD14810
 001876       4840 1E40                1482  $PRT.3    LH    R4,$NLFFLAG         ACTIVITY INDICATOR ENABLED ? P6 11/80  MTD14820
*00187A       2336       =001886       1483            BZ    $PRT.3B             BRANCH: NO. OUTPUT (LF).     P6 11/80  MTD14830
 00187C       D340 1E4D                1484            LB    R4,IOSAVE+1         LIST DEVICE IDENTIFIER       P6 11/80  MTD14840
 001880       4540 0A58                1485            CLH   R4,$NLFDEV          ACTIVITY INDICATOR ALLOWED ? P6 11/80  MTD14850
*001884       2334       =00188C       1486            BE    $PRT.3C             BRANCH: YES. OUTPUT NULL.    P6 11/80  MTD14860
              0000 1886                1487  $PRT.3B   EQU   *                   .                            P6 11/80  MTD14870
 001886       244A                     1488            LIS   R4,X'0A'            LF                           P6 11/80  MTD14880
                                       1489            ELSE                      .                            P6 11/80  MTD14890
                                       1491            ENDC                      .                            P6 11/80  MTD14910
 001888       41F0 18C4                1492            BAL   R15,OUTCHR          LF                                     MTD14920
 00188C       2440                     1493  $PRT.3C   LIS   R4,0                ASCII 'NUL'                  P6 11/80  MTD14930
 00188E       41F0 18C4                1494            BAL   R15,OUTCHR          TERMINAL CHARACTER                     MTD14940
 001892       41F0 1A8C                1495            BAL   R15,TSTBRK                                               MTD14950
 001896       4040 1E56                1496            STH   R4,$PRTFLG          RE-ENABLE BREAK ACKNOWLEDGE            MTD14960
 00189A       48F0 1E4A                1497            LH    R15,$BRKFLG         WAS BREAK DETECTED ?                   MTD14970
 00189E       4040 1E4A                1498            STH   R4,$BRKFLG          BREAK BEING ACKNOWLEDGED               MTD14980
 0018A2       4330 1648                1499            BZ    $RSAVRET            RESTORE REGISTERS, RETURN (R15)        MTD14990
 0018A6       40F0 1E4E                1500            STH   R15,ISITERR         FORCE MESSAGE PRINT                    MTD15000
*0018AA       C550 1F5B                1501            CLHI  R5,$BRKEND          PRINTING 'BRK TERM' MESSAGE ?          MTD15010
*0018AE       2339       =0018C0       1502            BE    $PRT.4              BRANCH: YES.                           MTD15020
 0018B0       24F0                     1503  $PRT.3A   LIS   R15,0               .                            P6 11/80  MTD15030
 0018B2       40F0 1F40                1504            STH   R15,$NLFFLAG        DISABLE ACTIVITY INDICATOR   P6 11/80  MTD15040
 0018B6       41F0 17E6                1505            BAL   R15,$PRINT          'RECURSIVE' CALL             P6 11/80  MTD15050
 0018BC       0000 1F42                1506            DAC   BRKMSG              'BREAK TERMINATION'                    MTD15060
 0018C0       4300 0ABC                1507  $PRT.4    B     OPTIN1              TO CMD PROCESSOR                       MTD15070
                                       1508  *-------------------------------                                         MTD15080
                                       1509  *  TO OUTPUT A CHARACTER TO THE LIST DEVICE                              MTD15090
                                       1510  *                                                                        MTD15100
 0018C4       50F0 1E68                1511  OUTCHR    STA   R15,OUT.SAV          SAVE RETURN ADDRESS                    MTD15110
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 0018C8     D310 1E4D              1512          LB    R1,IOSAVE+1                                              MTD15120
 0018CC     2714                   1513          SIS   R1,4                                                     MTD15130
 0018CE     4230 18FE              1514          BNZ   $OTC.4           BRANCH IF NOT CAROUSEL                  MTD15140
 0018D2     4010 1E62              1515  $OTC.0  STH   R1,$PAUSE        ZERO $PAUSE FLAG                        MTD15150
 0018D6     41F0 1B20              1516  $OTC.1  BAL   R15,TSTDU        ON LINE ?                               MTD15160
 0018DA     4230 1932              1517          BNZ   $OTC.7           BRANCH: OFFLINE. EXIT.                  MTD15170
 0018DE     9D21                   1518          SSR   R2,R1            GET CAROUSEL STATUS                     MTD15180
 0018E0     2385       =0018EA     1519          BFFS  8,$OTC.3         BRANCH IF CHAR. IS TO BE READ           MTD15190
 0018E2     4810 1E62              1520  $OTC.2  LH    R1,$PAUSE        PAUSED NOW ?                            MTD15200
 0018E6     2038       =0018D6     1521          BNZS  $OTC.1           YES, LOOP                               MTD15210
 0018E8     230B       =0018FE     1522          BS    $OTC.4           NO, GO OUTPUT CHARACTER                 MTD15220
 0018EA     9321                   1523  $OTC.3  RDR   R2,R1            GET CAROUSEL CHARACTER                  MTD15230
 0018EC     C410 007F              1524          NHI   R1,X'7F'                                                 MTD15240
 0018F0     C510 0014              1525          CLHI  R1,X'14'         DC4 ?                                   MTD15250
 0018F4     4330 18D2              1526          BE    $OTC.0           DC4. SET $PAUSE FLAG.                   MTD15260
 0018F8     CB10 0012              1527          SHI   R1,X'12'         DC2 ?                                   MTD15270
 0018FC     203D       =0018E2     1528          BNZS  $OTC.2           BRANCH: NO. CHECK IF PAUSED NOW.        MTD15280
                                   1529  *                                                                      MTD15290
 0018FE     4010 1E62              1530  $OTC.4  STH   R1,$PAUSE        RESET FLAG                              MTD15300
 001902     4110 1BB8              1531          BAL   R1,SSETUP        SET UP FOR OUTPUT                       MTD15310
 001906     9D01                   1532  $OTC.5  SSR   R0,R1            WAIT FOR NOT BUSY                       MTD15320
 001908     4230 1932              1533          BTC   3,$OTC.7         BRANCH IF OFF-LINE                      MTD15330
 00190C     C510 0048              1534          CLHI  R1,X'48'         (NOT) CL2S OR PF ?           P4 4/80    MTD15340
 001910     4330 1932              1535          BE    $OTC.7           BRANCH: ASSUME OFF-LINE      P4 4/80    MTD15350
 001914     C410 00FC              1536          NHI   R1,X'FC'                                                 MTD15360
 001918     C510 000C              1537          CLHI  R1,X'0C'         HDX PASLA OFF-LINE ?                    MTD15370
*00191C     233B       =001932     1538          BE    $OTC.7           BRANCH: YES.                 P4 4/80    MTD15380
 00191E     9014                   1539          SRHLS R1,4             BUSY ?                       P4 4/80    MTD15390
*001920     208D       =001906     1540          BC    $OTC.5           BRANCH: YES.                 P4 4/80    MTD15400
 001922     9A04                   1541          WDR   R0,R4            OUTPUT DATA BYTE                        MTD15410
 001924     9D01                   1542  $OTC.6  SSR   R0,R1            WAIT FOR NOT BUSY                       MTD15420
 001926     2176       =001932     1543          BTFS  7,$OTC.7         BRANCH IF OFF-LINE                      MTD15430
 001928     C510 0048              1544          CLHI  R1,X'48'         (NOT) CL2S OR PF ?           P4 4/80    MTD15440
 00192C     2333       =001932     1545          BES   $OTC.7           BRANCH: ASSUME OFF-LINE      P4 4/80    MTD15450
 00192E     9014                   1546          SRHLS R1,4             BUSY ?                       P4 4/80    MTD15460
 001930     2086       =001924     1547          BCS   $OTC.6           BRANCH: YES.                 P4 4/80    MTD15470
 001932     58F0 1E68              1548  $OTC.7  LDA   R15,OUT.SAV                                              MTD15480
 001936     030F                   1549          BR    R15              RETURN                                  MTD15490
                                   1550  * ----------------------------------                                   MTD15500
 001938                            1551          IFZ   $BUFIO-1                                                 MTD15510
                                   1552  * ROUTINE GETS NEXT BYTE FROM INPUT BUFFER TO R4                       MTD15520
                                   1553  * IF BUFFER EXHAUSTED, READS NEXT RECORD.                              MTD15530
                                   1554  *                                                                      MTD15540
 001938     D0F0 4000 88A0         1555  GETCHR  STM   R15,$R15SAV      SAVE LINK                               MTD15550
 00193E     48F0 1E54              1556          LH    R15,$LINEPOS     OFFSET TO CURRENT BYTE                  MTD15560
 001942     C5F0 0050              1557          CLHI  R15,$BUFLEN      BUFFER EXHAUSTED ?                      MTD15570
 001946     2185       =001950     1558          BLS   $GTCH.1          BRANCH: NOT YET.                        MTD15580
 001948     41F0 1964              1559          BAL   R15,$READ        FETCH INPUT RECORD                      MTD15590
 00194C     48F0 1E54              1560          LH    R15,$LINEPOS     WILL BE ZERO                            MTD15600
 001950     D34F 4000 88FC         1561  $GTCH.1 LB    R4,$INBUF(R15)   CURRENT DATA BYTE                       MTD15610
 001956     26F1                   1562          AIS   R15,1                                                    MTD15620
 001958     40F0 1E54              1563          STH   R15,$LINEPOS     UPDATE BUFFER POINTER                   MTD15630
 00195C     D1F0 4000 88A0         1564          LM    R15,$R15SAV      RESTORE LINK                            MTD15640
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001962    030F                              BR    R15               RETURN                                   MTD15650
                             *-----------------------------                                                MTD15660
                                     ENDC                                                                  MTD15670
                             * ROUTINE GETS INPUT RECORD                                                   MTD15680
                             *                                                                             MTD15690
001964    D000 4000 8950     $READ   STM   R0,RSAVE          SAVE REGISTERS                                 MTD15700
00196A    25D1               $RD.1   LCS   R13,1             INITIALIZE                                     MTD15710
00196C    26D1               $RD.2   AIS   R13,1             INCREMENT BUFFER POINTER                       MTD15720
00196E    40D0 1E54                  STH   R13,$LINEPOS      ADDRESS OF CURRENT BYTE                        MTD15730
001972    4140 1B7F          $RD.3   BAL   R4,KBREAD         PUT DEVICE IN READ MODE                        MTD15740
001976    9D04                       SSR   R0,R4                                                            MTD15750
001978    2081      =000001          BTBS  8,1               IF BUSY, LOOP (POSSIBLE HANG)                  MTD15760
00197A    9B04                       RDR   R0,R4             READ A CHAR IN R4                              MTD15770
00197C    D390 0A10                  LB    R9,IO             WHAT TYPE DEVICE ?              P1 10/79       MTD15780
001980    2792                       SIS   R9,2              TYPE 2 ?                        P1 10/79       MTD15790
001982    2338      =001992          BZS   $RD.3A            BRANCH: YES. E-PLEX ON.         P1 10/79       MTD15800
001984    4890 0A2C                  LH    R9,CONWADR        GET WRITE ADDRESS                              MTD15810
001988    DE90 0A2F                  OC    R9,CONWRT         TURN DEVICE AROUND                             MTD15820
00198C    9D93                       SSR   R9,R3                                                            MTD15830
00198E    2081      =000001          BTBS  8,1               WAIT FOR BUSY NOT                              MTD15840
001990    9A94                       WDR   R9,R4             ECHO RECEIVED BYTE                             MTD15850
001992    C440 007F          $RD.3A  NHI   R4,X'7F'          REMOVE PARITY BIT               P1 10/79       MTD15860
001996    C540 0060                  CLHI  R4,X'60'          UPPER-CASE CHARACTER ?                         MTD15870
00199A    2183      =0019A0          BLS   $RD.4             BRANCH: NO.                                    MTD15880
00199C    CB40 0020                  SHI   R4,X'20'          CONVERT TO LOWER-CASE                          MTD15890
0019A0    C540 0023          $RD.4   CLHI  R4,X'23'          HASH-MARK ?                                    MTD15900
0019A4    4330 0AB4                  BE    OPTIN             BRANCH: YES. GO TO CMD PROC.                   MTD15910
0019A8    C540 0018                  CLHI  R4,X'18'          ASCII 'CANCEL' CHARACTER ?                     MTD15920
0019AC    4330 0AB4                  BE    OPTIN             BRANCH: YES.                                   MTD15930
0019B0    C540 005F                  CLHI  R4,X'5F'          BACKARROW, UNDERLINE, DELETE ?                 MTD15940
0019B4    2337      =0019C2          BES   $RD.5             BRANCH: DELETE LAST CHARACTER                  MTD15950
0019B6    C540 0000                  CLHI  R4,0              R01                                            MTD15960
0019BA    2334      =0019C2          BES   $RD.5             R01                                            MTD15970
0019BC    C540 0008                  CLHI  R4,X'08'          BACKSPACE ?                                    MTD15980
0019C0    2136      =0019CC          BNES  $RD.6             BRANCH: NO.                                    MTD15990
0019C2    27D2               $RD.5   SIS   R13,2             TO DELETE LAST CHARACTER                       MTD16000
0019C4    4210 196A                  BM    $RD.1             BRANCH: NO UNDERFLOW ALLOWED.                  MTD16010
0019C8    4300 196C                  B     $RD.2             GET ANOTHER CHARACTER                          MTD16020
0019CC    D24D 4000 88FC     $RD.6   STB   R4,$INBUF(R13)    STORE CURRENT INPUT BYTE                       MTD16030
0019D2    C540 000D                  CLHI  R4,X'0D'          CARRIAGE RETURN ?                              MTD16040
0019D6    2135      =0019E0          BNES  $RD.7             BRANCH: NOT YET.                               MTD16050
0019D8    E650 1F60                  LDAI  R5,CRLFMSG                                                       MTD16060
0019DC    4300 1808                  B     SP1               OUTPUT (CR),(LF) TO CONSOLE, RETURN.           MTD16070
0019E0    C540 0040          $RD.7   CLHI  R4,C'@'           BREAKPOINT DIRECTIVE ?          P7 2/81        MTD16080
0019E4    2134      =0019EC          BNES  $RD.8             BRANCH: NO.                     P7 2/81        MTD16090
0019E6    08DD                       LDAR  R13,R13           @ FIRST CHAR IN BUFFER ?        P7 2/81        MTD16100
0019E8    4330 0A5C                  BZ    SCON              BRANCH: YES. BREAKPOINT.        P7 2/81        MTD16110
0019EC    C5D0 004F          $RD.8   CLHI  R13,$BUFLEN-1     BUFFER AT MAX ?                 P7 2/81        MTD16120
0019F0    4280 196C                  BL    $RD.2             BRANCH: NOT YET.                               MTD16130
0019F4    4300 1972                  B     $RD.3             BRANCH: FORCE OVERLAY OF LAST CHARACT          MTD16140
                             *                                                                             MTD16150
                             * ---------------------------------                                           MTD16160
                             * SET UP FOR CONSOLE, LIST I/O DEVICES                                        MTD16170
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0019F8   D310 0A10                 STCON    LB     R1,IO              GET I/O IDENTIFIERS
0019FC   D320 0A11                          LB     R2,IO+1
001A00   2436                               LIS    R3,SMAXIO          IDENTIFIER CAN BE 1,2,3,4,5
001A02   0513                               CLAR   R1,R3
001A04   2182        =001A08                BLS    $STC.1             BRANCH IF KB IDENTIFIER OK
001A06   2411                               LIS    R1,1               ELSE FORCE CRT
001A08   0523                      $STC.1   CLAR   R2,R3
001A0A   2182        =001A0F                BLS    $STC.2             SAME TEST FOR LIST DEVICE
001A0C   2421                               LIS    R2,1
001A0E   D210 0A10                 $STC.2   STB    R1,IO              REESTABLISH VALUES
001A12   D220 0A11                          STB    R2,IO+1
001A16   D362 0A48                          LB     R6,CONRQ2S(R2)
001A1A   4060 1E3E                          STH    R6,$LSTPAS         SET PASLA FLAG (LIST DEVICE)
001A1E   0866                               LDAR   R6,R6
001A20   2336        =001A2C                BZS    $STC.3             SKIP IF NOT PASLA
001A22   9122                               SLHLS  R2,2
001A24   4802 0A10                          LH     R0,IO(R2)
001A28   DE02 0A32                          OC     R0,CONCMD(R2)      ISSUE 2ND COMMAND (TO LIST DEVICE***
                                   *
001A2C   41F0 1B5E                 $STC.3   BAL    R15,SETKB          ESTABLISH KEYBOARD DEVICE (& IOSAVE)
001A30   9310                               LBR    R1,R0              (R1) = 1,2,4,5 ; (R0 = KBIDENT)
001A32   9112                               SLHLS  R1,2               (R1)=4,8,16,20
001A34   2712                               SIS    R1,2
001A36   4831 0A10                          LH     R3,IO(R1)
001A3A   4030 0A2A                          STH    R3,CONRADR         SET UP CONSOLE DEVICE READ ADDRESS
001A3E   4831 0A12                          LH     R3,IO+2(R1)
001A42   4030 0A2C                          STH    R3,CONWADR         SET UP CONSOLE WRITE ADDRESS
001A46   4821 0A32                          LH     R2,CONCMD(R1)
001A4A   4020 0A2E                          STH    R2,CONRD           SET UP R/W COMMANDS
001A4E   4821 0A34                          LH     R2,CONCMD+2(R1)
001A52   4020 0A30                          STH    R2,CON2ND          2ND CMD; ENABLE READ CMD
001A56   9310                               LBR    R1,R0
001A58   D341 0A48                          LB     R4,CONRQ2S(R1)
001A5C   D240 0A48                          STB    R4,CONRQ2S         CONSOLE REQUEST TO SEND
001A60   4040 1E3C                          STH    R4,$CONPAS         SET PASLA FLAG (CONSOLE)
001A64   0844                               LDAR   R4,R4
001A66   2333        =001A6C                BZS    $STC.4             SKIP 2ND OC IF NOT PASLA DEVICE
001A68   9422                               EXBR   R2,R2
001A6A   9E32                               OCR    R3,R2              ISSUE 2ND COMMAND (TO CONSOLE)
001A6C   DE30 0A2F                 $STC.4   OC     R3,CONRD           PUT CONSOLE IN READ MODE
001A70   9B32                               RDR    R3,R2              READ A DUMMY CHARACTER (SET BUSY)
001A72   0844                               LDAR   R4,R4              CONSOLE PASLA DEVICE ?
001A74   2333        =001A7A                BZS    $STC.5             BRANCH: NO.
001A76   DE30 0A48                          OC     R3,CONRQ2S         REQUEST TO SEND (KEEP ON-LINE)
         0000 1A7A                 $STC.5   EQU    *
001A7A   030E                               BR     R14                RETURN
                                   *-----------------------------
                                   *  TO OUTPUT '?' TO CONSOLE
                                   *
001A7C   41F0 1B5E                 QUESTN   BAL    R15,SETKB          SELECT KEYBOARD DEVICE
001A80   41F0 17E6                          BAL    R15,SPRINT
001A84   0000 1F3C                          DAC    QMSG               QUESTION MARK, CRLF
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001A88       4300 0ABC                1671          B     OPTIN1              ACCEPT NEXT COMMAND                          MTD16710
                                      1672  *-----------------------------                                               MTD16720
                                      1673  * IF BREAK KEY DEPRESSED, GO TO 'OPTIN' OP (BRKVECT); ELSE RETURN.          MTD16730
                                      1674  *                                                                           MTD16740
             0000 1A8C                1675  TSTBRK  EQU   *                                                             MTD16750
001A8C       D0F0 4000 8898           1676          STM   R14,$TBRKSV         SAVE REGISTERS                           MTD16760
                                      1677  *       LH    R15,LOOP+$VALU1     (R15) = 15 IF IGNORING I/O   ****       MTD16770
001A92       48F0 1E4A                1678          LH    R15,$BRKFLG         (R15) = 15 IF BRK ALREADY SEE R01        MTD16780
001A96       27F2                     1679          SIS   R15,2               LOOK FOR BREAK ?             ****        MTD16790
001A98       2138       =001AA8       1680          BNZS  STSTB.2             BRANCH: YES.                             MTD16800
                                      1681  *                                                                           MTD16810
001A9A       24F0                     1682  STSTB.1 LIS   R15,0                                                        MTD16820
001A9C       40F0 1E48                1683          STH   R15,BRKVECT         CANCEL BREAK VECTOR                      MTD16830
001AA0       D1E0 4000 8898           1684  $TSTB.1A LM   R14,STBRKSV         RELOAD REGISTERS,                        MTD16840
001AA6       030F                     1685          BR    R15                 RETURN TO CALLER.                        MTD16850
                                      1686  *                                                                           MTD16860
001AA8       48E0 0A2A                1687  STSTB.2 LH    R14,CONRADR         READ SIDE ADDRESS FOR TERMINAL           MTD16870
001AAC       D3F0 0A10                1688          LB    R15,IO              CONSOLE ID CODE                          MTD16880
001AB0       C5F0 0002                1689          CLHI  R15,2                                                        MTD16890
001AB4       2333       =001ABA       1690          BES   $TSTB.3             BRANCH: TTY                              MTD16900
001AB6       C5F0 0005                1691          CLHI  R15,5                                                        MTD16910
001ABA       4330 1AFC                1692  $TSTB.3 BE    $TSTB.5             BRANCH: MICRO-I/O BUS                    MTD16920
001ABE       9DEF                     1693          SSR   R14,R15                                                      MTD16930
001AC0       4280 1A9A                1694          BTC   8,$TSTB.1          BRANCH: BSY = NO BRK                     MTD16940
001AC4       C3F0 0020                1695          THI   R15,X'20'                                                    MTD16950
001AC8       4330 1A9A                1696          BZ    $TSTB.1             BRANCH: NO FRERR = NO BRK                MTD16960
001ACC       93EF                     1697          RDR   R14,R15                                                      MTD16970
001ACE       08FF                     1698          LDAR  R15,R15                                                      MTD16980
001AD0       4230 1A9A                1699          BNZ   $TSTB.1             BRANCH: NONZERO CHAR = NO BRK            MTD16990
                                      1700  *                                                                           MTD17000
             0000 1AD4                1701  $TSTB.4 EQU   *                   IT IS BREAK                              MTD17010
001AD4       24F2                     1702          LIS   R15,2               ****                                     MTD17020
001AD6       40F0 1E4A                1703          STH   R15,$BRKFLG         SET FLAG                                 MTD17030
001ADA       48F0 1E56                1704          LH    R15,$PRTFLG         PRINTING NOW ?                           MTD17040
001ADE       4230 1AA0                1705          BNZ   $TSTB.1A            BRANCH: YES.                             MTD17050
001AE2       24E0                     1706          LIS   R14,0                                                        MTD17060
001AE4       40E0 1E40                1707          STH   R14,$NLFFLAG        DISABLE ACTIVITY INDICATOR   P6 11/80    MTD17070
001AE8                                1708          IFZ   ADC-4               .                            P6 11/80    MTD17080
001AE8       73F0 1E48                1709          LHL   R15,BRKVECT         SPECIFIED VECTOR             P6 11/80    MTD17090
001AEC       40E0 1E48                1710          STH   R14,BRKVECT         CANCEL VECTOR                P6 11/80    MTD17100
*001AF0      023F                     1711          BNZ   *&Y'00FF0000'(R15)  BUT TAKE IMMEDIATELY IF NOT ZERO.        MTD17110
                                      1712          ELSE                      .                            P6 11/80    MTD17120
                                      1720          ENDC                      .                            P6 11/80    MTD17200
001AF2       25F1                     1721  STSTB.4B LCS  R15,1               FORCE MESSAGE PRINT          P2 1/80     MTD17210
001AF4       40F0 1E45                1722          STH   R15,ISITERP         .                            P2 1/80     MTD17220
001AF8       4300 18B0                1723          B     $PRT.3A             'BREAK TERMINATION'          P2 1/80     MTD17230
                                      1724  *                                                                           MTD17240
001AFC       9DEF                     1725  STSTB.5 SSR   R14,R15                                                      MTD17250
001AFE       C3F0 0020                1726          THI   R15,X'20'                                                    MTD17260
001B02       2134       =001B0A       1727          BNZS  $TSTB.6             BRANCH: BRK.                             MTD17270
001B04       93EF                     1728          RDR   R14,R15             IF BRK QUEUED, SEE IT NEXT TIME.         MTD17280
001B06       4300 1A9A                1729          B     $TSTB.1             BRANCH: NO FRERR = NO BRK                MTD17290
001B0A       93FF                     1730  STSTB.6 RDR   R14,R15             READ BREAK CHAR                          MTD17300
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001B0C   C8F0 8000                         LHI    R15,X'8000'                                        MTD17310
001B10   26F1                     $TSTB.7  AIS    R15,1                                              MTD17320
001B12   2031       =001B10                BNZS   $TSTB.7                                            MTD17330
001B14   9DEF                              SSR    R14,R15                                            MTD17340
001B16   C3F0 0020                         THI    R15,X'20'          BRK KEY STILL DOWN ?            MTD17350
001B1A   2038       =001B0A                BNZS   $TSTB.6            BRANCH: YES.                    MTD17360
001B1C   4300 1AD4                         B      $TSTB.4            GO SERVICE BREAK                MTD17370
                                  *----------------------------                                      MTD17380
                                  * SEE IF CURRENT LIST DEVICE IS OFF-LINE (R1 & CC NON-ZERO IF OFF) MTD17390
                                  *                                                                  MTD17400
001B20   4800 1E3C                TSTDU    LH     R0,$CONPAS         ****                            MTD17410
001B24   D310 1E4D                         LB     R1,IOSAVE+1        LIST DEVICE ID                  MTD17420
001B28   D410 0A10                         CLB    R1,IO              SAME AS CONSOLE DEVICE ?        MTD17430
001B2C   2333       =001B32                BES    $TSTDU.1           BRANCH: YES.                    MTD17440
001B2E   4800 1E3E                         LH     R0,$LSTPAS         NON-ZERO IF LIST DEVICE ON PASLA. MTD17450
001B32   1112                     $TSTDU.1 SLLS   R1,2                                               MTD17460
001B34   4821 0A0E                         LH     R2,PASLADR-4(R1)   'READ SIDE' ADDRESS             MTD17470
001B38   9D21                              SSR    R2,R1              GET DEVICE STATUS               MTD17480
001B3A   211A       =001B4E                BTFS   1,$IS.DU                                           MTD17490
001B3C   0800                              LDAR   R0,R0              DEVICE ON PASLA ?               MTD17500
001B3E   2336       =001B4A                BZS    $NOT.DU                                            MTD17510
001B40   C410 00FC                         NHI    R1,X'FC'                                           MTD17520
001B44   C510 000C                         CLHI   R1,X'0C'           PASLA DU IF BSY+EX SET HERE     MTD17530
001B48   2333       =001B4E                BES    $IS.DU             BRANCH: DU.                     MTD17540
001B4A   2410                     $NOT.DU  LIS    R1,0                                               MTD17550
001B4C   2302       =001B50                BS     $DU.X                                              MTD17560
001B4E   2511                     $IS.DU   LCS    R1,1                                               MTD17570
001B50   4800 1E58                $DU.X    LH     R0,$WASDU          GET OLD FLAG                    MTD17580
001B54   0601                              OAR    R0,R1                                              MTD17590
001B56   4000 1E58                         STH    R0,$WASDU          ACCUMULATE                      MTD17600
001B5A   0811                              LDAR   R1,R1              SET CC <> 0 IF DU               MTD17610
                                  *                                  OR CC = 0 IF NOT DU             MTD17620
001B5C   030F                              BR     R15                RETURN                          MTD17630
                                  * ---------------------------------                                MTD17640
                                  * TO DIRECT INPUT AND OUTPUT TO CONSOLE DEVICE                     MTD17650
                                  *                                                                  MTD17660
001B5E   2400                     SETKB    LIS    R0,0               .                    P6 11/80   MTD17670
001B60   4000 1E40                         STH    R0,$NLFFLAG        DISABLE ACTIVITY INDICATOR P6 11/80 MTD17680
001B64   D300 0A10                         LB     R0,IO              GET KEYBOARD DEVICE             MTD17690
001B68   D200 1E4D                         STB    R0,IOSAVE+1        SET LIST TO KEYBOARD            MTD17700
001B6C   030F                              BR     R15                RETURN                          MTD17710
                                  * -----------------------------                                    MTD17720
                                  * TO RESELECT USER'S I/O CHOICE                                    MTD17730
                                  *                                                                  MTD17740
001B6E   2400                     SETLST   LIS    R0,0               .                    P6 11/80   MTD17750
001B70   4000 1E40                         STH    R0,$NLFFLAG        DISABLE ACTIVITY INDICATOR P6 11/80 MTD17760
001B74   4800 0A10                         LH     R0,IO                                              MTD17770
001B78   4000 1E4C                         STH    R0,IOSAVE                                          MTD17780
001B7C   030F                              BR     R15                RETURN                          MTD17790
                                  *-----------------------------                                     MTD17800
                                  *  TO PUT KEYBOARD DEVICE IN READ MODE                             MTD17810
                                  *                                                                  MTD17820
001B7E   4800 0A2A                KBREAD   LH     R0,CONRADR                                         MTD17830
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EXEC - ETPF R05P7

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001B82  DE00 0A2E              1784          OC    R0,CONRD          OC CONSOLE - READ COMMAND                MTD17840
001B86  DB00 1E38              1785          RD    R0,SINK           READ A DUMMY CHARACTER (SET BUSY)        MTD17850
001B8A  4890 1E3C              1786          LH    R9,SCONPAS        PASLA ?                                  MTD17860
001B8E  4200 188F              1787          NOP   *                 FOR SPECIAL KB DEVICE                    MTD17870
001B92  2333       =001B98     1788          BZS   $KBR.1            NO, BRANCH TO EXIT                       MTD17880
001B94  DE00 0A48              1789          OC    R0,CONRQ2S        YES, OC (REQUEST TO SEND)                MTD17890
001B98  0304                   1790  $KBR.1  BR    R4                RETURN                                   MTD17900
001B9A                         1791          IFZ   $KBINT-1                                                   MTD17910
                               1792  *-------------------------                                               MTD17920
                               1793  *  TO SET UP KEYBOARD DEV TO READ WITH INT ENABLED                       MTD17930
                               1794  *                                                                        MTD17940
001B9A  D000 4000 8950         1795  KBRD    STM   R0,RSAVE           SAVE REGISTERS                           MTD17950
001BA0  4800 0A2A              1796          LH    R0,CONRADR        GET KB DEV ADR                           MTD17960
001BA4  DE00 0A31              1797          OC    R0,CONENRD        CONSOLE : ENABLE, READ      P5 9/80      MTD17970
001BA8  4810 1E3C              1798          LH    R1,SCONPAS        CONSOLE ON PASLA ?           P2 1/80     MTD17980
001BAC  2333       =001BB2     1799          BZS   KBRD1             .                            P5 9/80     MTD17990
001BAE  DE00 0A48              1800          OC    R0,CONRQ2S        .                            P5 9/80     MTD18000
001BB2  9301                   1801  KBRD1   RDR   R0,R1             DUMMY READ TO SET BUSY       P5 9/80     MTD18010
001BB4  4300 1648              1802          B     $RSAVRET          RESTORE REGISTERS, RETURN (R15)          MTD18020
                               1803          ENDC                                                             MTD18030
                               1804  *-------------------------                                               MTD18040
                               1805  *  LIST DEVICE SET UP ROUTINE                                            MTD18050
                               1806  *                                                                        MTD18060
001BB8  5010 1E70              1807  $SETUP  STA   R1,SET.RTN                                                 MTD18070
001BBC  D310 1E4D              1808          LB    R1,IOSAVE+1       GET LIST DEVICE IDENTIFIER               MTD18080
001BC0  9112                   1809          SLHLS R1,2              HW INDEX                                 MTD18090
001BC2  4801 0A10              1810          LH    R0,IO(R1)         GET LIST DEVICE WRITE ADDRESS            MTD18100
001BC5  DE01 0A31              1811          OC    R0,CONCMD-1(R1)                                            MTD18110
001BCA  5810 1E70              1812          LDA   R1,SET.RTN                                                 MTD18120
001BCE  0301                   1813          BR    R1                RETURN                                   MTD18130
                               1814  * ***************************                                           MTD18140
                               1815  *  LOW CORE SET UP ROUTINE                                               MTD18150
                               1816  *                                                                        MTD18160
001BD0  D0E0 4000 88A4         1817  LCORE   STM   R14,$R14SAV       SAVE REGISTERS                           MTD18170
001BD6  2400                   1818          LIS   R0,0                                                       MTD18180
001BD8  C810 004E              1819          LHI   R1,X'4F'                                                   MTD18190
001BDC  4001 0000              1820  $LCOR1  STH   R0,0(R1)          ZERO MEMORY FROM X'0000'-X'004F'         MTD18200
001BE0  4001 0080              1821          STH   R0,X'80'(R1)        ZERO MEMORY FROM X'0080'-X'00CF'       MTD18210
001BE4  2712                   1822          SIS   R1,2                                                       MTD18220
001BE6  2215       =001BDC     1823          BNMS  $LCOR1                                                     MTD18230
                               1824  *                                                                        MTD18240
001BE8  C800 1C9E              1829          LHI   R0,$XI32CH        32-BIT I/O HANDLER          P6 11/80     MTD18290
001BEC  C810 07FE              1830  $LCOR2  LHI   R1,1023*2         FOR MAX I/O SERVICE TABLE                MTD18300
001BF0  4001 00D0              1831  $LCOR3  STH   R0,X'D0'(R1)      VECTORS TO MEMORY X'00D0'-X'08CE'        MTD18310
001BF4  2712                   1832          SIS   R1,2                ARE ZERO FOR SERIES 16                 MTD18320
001BF6  2213       =001BF0     1833          BNMS  $LCOR3                                                     MTD18330
                               1834  *                                                                        MTD18340
001BF8  C8F0 3000              1835          LHI   R14,X'3000'       ARITH FAULT, MALFUNCTION, ONLY.          MTD18350
001BFC  36F0 1D86              1836          LDAI  R15,$ERRF2        ILLEGAL INSTRUCTION HANDLER              MTD18360
001C00  D0E0 0030              1840          STM   R14,X'30'         FOR SERIES 32                            MTD18400
                               1841  *                                                                        MTD18410
001C04  24F0                   1842          LIS   R14,0             TO ZERO MMF BIT IN NEW PSW               MTD18420
001C06  36F0 1D38              1843          LDAI  R15,$ERRF3        MACHINE MALFUNCTION NEW LOC              MTD18430
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001C0A  D0E0 0038              1847          STM   R14,X'38'          FOR SERIES 32                              MTD18470
                               1848  *                                                                            MTD18480
001C0E  C8F0 3000              1849          LHI   R14,X'3000'        ARITH FAULT, MALFUNCTION, ONLY.            MTD18490
001C12  E6F0 1D8E              1850          LDAI  R15,$ERRF1                                                    MTD18500
001C16  D0E0 0048              1857          STM   R14,X'48'          ARITHMETIC FAULT HDLR, S32                 MTD18570
                               1858  *                                                                            MTD18580
001C1A  40E0 009A              1859          STH   R14,X'9A'          SVC NEW PSW                                MTD18590
001C1E  241E                   1860          LIS   R1,14                                                         MTD18600
001C20  C800 1D7E              1861          LHI   R0,$ERRF9CH        SVC INTERRUPT HDLR          P6 11/80       MTD18610
001C24  4001 009C              1862  SLCOR4  STH   R0,X'9C'(R1)       SVC INTPT NEW LOC'S                        MTD18620
001C28  2712                   1863          SIS   R1,2                                                          MTD18630
001C2A  2213       =001C24     1864          BNMS  $LCOR4             DO ALL 16                                  MTD18640
                               1865  *                                                                            MTD18650
001C2C  C800 8908              1866          LHI   R0,PSWSAVE+X'FF'&X'FF00'+8 PPF REG SAVE AREA                  MTD18660
001C30  24F0                   1884  SLCOR5  LIS   R15,0                                                         MTD18840
001C32  D0F0 0040              1885          STM   R15,X'40'          ZERO MALFUNCTION STATUS WORD, S3200        MTD18850
                               1886  *                                                                            MTD18860
001C36  4000 0086              1887          STH   R0,X'86'           S32 PPF REG SAVE POINTER                   MTD18870
001C3A  2708                   1888          SIS   R0,8                                                          MTD18880
001C3C  4000 0084              1889          STH   R0,X'84'           S32 PPF PSW SAVE POINTER                   MTD18890
                               1890  *                                FOR S3200, IS ONE 24-BIT ADDRESS.          MTD18900
                               1891  *                                                                            MTD18910
001C40  E6F0 1D7A              1892          LDAI  R15,$ERRF8                                                    MTD18920
001C44  D0E0 0088              1893          STM   R14,X'88'          SYSTEM QUEUE INTPT NEW PSW                 MTD18930
                               1894  *                                                                            MTD18940
001C48  E6F0 1D8A              1895          LDAI  R15,$ERRF5                                                    MTD18950
001C4C  D0E0 0090              1896          STM   R14,X'90'          RELOC/PROTECT INTPT NEW PSW                MTD18960
                               1897  *                                                                            MTD18970
001C50  E6F0 1D76              1898          LDAI  R15,$ERRF7                                                    MTD18980
001C54  D0E0 00C8              1899          STM   R14,X'C8'          DATA FORMAT FAULT NEW PSW                  MTD18990
                               1900  *                                                                            MTD19000
001C58  D1E0 4000 88A4         1901  $LCORXIT LM   R14,$R14SAV        RESTORE REGISTERS                          MTD19010
001C5E  030F                   1902          BR    R15                AND RETURN.                                MTD19020
                               1903  *                                                                            MTD19030
001C60                         1904          IFZ   $KBINT-1                                                      MTD19040
                               1905  *----------------------------------                                         MTD19050
                               1906  *  KEYBOARD INTERRUPT HANDLER                                               MTD19060
                               1907  *                                                                            MTD19070
        0000 1C60              1908  KBINT0  EQU   *                  .                                          MTD19080
001C60  41F0 1A8C              1909          BAL   R15,TSTBRK         CHECK IF BREAK KEY                         MTD19090
                               1910  *                                IF BREAK KEY DEPRESSED, WILL GO            MTD19100
                               1911  *                                TO 'OPTIN' OR (BRKVECT); ELSE RETURN.      MTD19110
001C64  D300 0A10              1912          LB    R0,IO              .                                          MTD19120
001C68  C500 0005              1913          CLHI  R0,5               IS IT MICROBUS ?                           MTD19130
001C6C  2137       =001C7A     1914          BNES  KBINT2             NO, BRANCH                                 MTD19140
001C6E  DE20 0A44              1915          OC    R2,MREADC          READ COMMAND TO MICROBUS                   MTD19150
001C72  9D23                   1916          SSR   R2,R3              .                                          MTD19160
001C74  2081       =000001     1917          BTBS  8,1                .                                          MTD19170
001C76  9B24                   1918          RDR   R2,R4              KNOCK DOWN INTERRUPT                       MTD19180
001C78  230E       =001C94     1919          BS    KBINT3                                                        MTD19190
001C7A  9B24                   1920  KBINT2  RDR   R2,R4              .                                          MTD19200
001C7C  4890 0A2C              1921          LH    R9,CONWADR         CONSOLE WRITE ADDRESS                      MTD19210
001C80  C500 0002              1922          CLHI  R0,2               IO TO TTY ?                P3 3/80         MTD19220
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001C84     2133        =001C8A     1923          BNES   KBINT2B           BRANCH: NO.                   P3 3/80   MTD19230
001C86     DE90 0A2F               1924 KBINT2A  OC     R9,CONWRT         SET WRITE MODE                P3 3/80   MTD19240
001C8A     9D93                    1925 KBINT2B  SSR    R9,3              BUSY ?                        P3 3/80   MTD19250
001C8C     2083        =001C86     1926          BTBS   8,KBINT2A         BRANCH: YES (MAY HANG)        P3 3/80   MTD19260
001C8E     9D93                    1927          SSR    R9,R3             .                                       MTD19270
001C90     2081        =000001     1928          BTBS   8,1               (MAY HANG)                              MTD19280
001C92     9A94                    1929          WDR    R9,R4             ECHO CHARACTER                          MTD19290
001C94     4890 1F46               1930 KBINT3   LH     R9,KBINT          INTERRUPT EXPECTED ?                    MTD19300
001C98     0239                    1931          BNZR   R9                IF YES, SERVICE IT. ELSE, IGNORE        MTD19310
001C9A     4300 1CF8               1932          B      RETOPSW           RETURN TO INTERRUPTED PROGRAM           MTD19320
                                   1933          ENDC                                                             MTD19330
                                   1934 *                                                                         MTD19340
                                   1935 * ***********************************************                         MTD19350
                                   1936 *  EXTERNAL INTERRUPT HANDLER                                             MTD19360
001C9E                             1937          IFZ    ADC-2                                                     MTD19370
                                   1950          ELSE
001C9E     95AA                    1951 SXI32    EPSR   R10,R10           PSW AFTER INTERRUPT                     MTD19510
001CA0     50A0 1E28               1952          ST     R10,INTPSW                                                MTD19520
001CA4     08E0                    1953          LDAR   R14,R0            OLD PSW                                 MTD19530
001CA6     08F1                    1954          LDAR   R15,R1            OLD LOC                                 MTD19540
                                   1955          ENDC                                                             MTD19550
001CA8     4020 1E32               1956          STH    R2,INTDEV         INTERRUPTING DEVICE ADDRESS             MTD19560
001CAC     D230 1E34               1957          STB    R3,INTSTA         INTERRUPTING DEVICE STATUS              MTD19570
001CB0     D0E0 1E18               1958          STM    R14,OLDPSW        ##                                      MTD19580
001CB4     4520 0A2A               1959          CLH    R2,CONRADR        CONSOLE READ-SIDE INTERRUPT ?           MTD19590
001CB8                             1960          IFZ    $KBINT-1                                                  MTD19600
001CB8     4330 1C60               1961          BE     KBINT0            BRANCH: YES.                            MTD19610
                                   1962          ELSE                                                             MTD19620
                                   1964          ENDC                                                             MTD19640
                                   1965 *                                                                         MTD19650
001CBC     2450                    1966          LIS    R5,0                                                      MTD19660
001CBE     4865 21E0               1967 SXI1     LH     R6,DEVSADR(R5)    GET DEV ADRS FROM TABLE                 MTD19670
001CC2     4210 1CFC               1968          BM     $ERRF4            TABLE OVERFLOW.                         MTD19680
001CC6     0562                    1969          CLAR   R6,R2             COMPARE INTERRUPTING DEVICE ADDRES      MTD19690
001CC8     2333        =001CCF     1970          BES    $XI2                                                      MTD19700
001CCA     2652                    1971          AIS    R5,2                                                      MTD19710
001CCC     2207        =001CBE     1972          BS     SXI1                                                      MTD19720
001CCE     4865 21E6               1973 SXI2     LH     R6,DEVINT(R5)     GET INTERRUPT HANDLER ADDRESS           MTD19730
001CD2     4330 1CFC               1974          BZ     $ERRF4            INTERRUPT NOT EXPECTED                  MTD19740
001CD6     1051                    1975          SRLS   R5,1              IF SERIES 32,                           MTD19750
001CD8     10A4                    1976          SRLS   R10,4             INTERRUPT LEVEL MUST BE CORRECT         MTD19760
001CDA     C4A0 000F               1977          NHI    R10,15                                                    MTD19770
001CDE     D4A5 21EC               1978          CLB    R10,INTLVL(R5)    CHECK PROPER INTERRUPT LEVEL            MTD19780
*001CE2    213F        =001D00     1979          BNE    $ERRF6            SERIES 16 ZERO ALWAYS MATCHES.          MTD19790
                                   1980 *                                                                         MTD19800
001CE4     081F                    1981          LDAR   R1,R15            OLD LOC AT INTERRUPT                    MTD19810
001CE6     48E0 0A52               1982          LH     R14,PSW2          SPEC'D AS X'30F0'                       MTD19820
001CEA     08F6                    1983          LDAR   R15,R6            INTERRUPT VECTOR                        MTD19830
001CEA                             1984          IFZ    ADC-2                                                     MTD19840
                                   1996          ELSE
001CEC     F4F0 0000 FFFF          1997          NI     R15,Y'0000FFFF'   DISALLOW SIGN EXTENSION       P6 11/80  MTD19970
*001CF2    C6F0 0000               1998          OI     R15,*&Y'00FF0000' LOCAL 64 KB MEMORY BLOCK      P6 11/80  MTD19980
001CF6     180E                    1999          LPSWR  R14               GO TO INTERRUPT SERVICE ROUTINE.        MTD19990
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                                     2000          ENDC                                                         MTD20000
                                     2001   *                                                                   MTD20010
                                     2002   * ---------------------------------------------                    MTD20020
                                     2003   * TO RETURN ON OLD PSW FOLLOWING I/O INTERRUPT                      MTD20030
                                     2004   *                                                                   MTD20040
              0000 1CF8              2005   RETOPSW  EQU   *                                                    MTD20050
              0000 1CF8              2011   RETOPSW1 EQU   *                                                    MTD20110
001CF8        C200 1E18              2012            LPSW  OLDPSW                                               MTD20120
                                     2013   * ---------------------------------                                 MTD20130
                                     2014   *  EXTERNAL INTERRUPT ERROR ROUTINE                                 MTD20140
                                     2015   *                                                                   MTD20150
001CFC        2464                   2016   $ERRF4   LIS   R6,4                ERROR TTF4                       MTD20160
001CFE        2302       =001D02     2017            BS    XIERR1                                               MTD20170
                                     2018   *---------------------------------                                  MTD20180
                                     2019   * DEVICE INTERRUPTED IN WRONG INTERRUPT LEVEL                       MTD20190
                                     2020   *                                                                   MTD20200
001D00        2466                   2021   $ERRF6   LIS   R6,6                ERROR TTF6                       MTD20210
001D02        C660 4630              2022   XIERR1   OHI   R6,C'F0'            CONVERT TO ASCII                 MTD20220
001D06        4060 1EAA              2023            STH   R6,ERRNO                                             MTD20230
001D0A        D3AA 1E88              2024            LB    R10,HEXTAB(R10)     CONVERT LEVEL TO ASCII    P3 3/80 MTD20240
001D0E        D2A0 1F2D              2025            STB   R10,ERRLVL          AND STORE IN MESSAGE      P3 3/80 MTD20250
001D12        4810 0A52              2026            LH    R1,PSW2             SPEC'D AS X'30F0'                MTD20260
001D16        9501                   2027            EPSR  R0,R1               ENSURE USER REGISTER SET         MTD20270
001D18        41F0 149C              2028            BAL   R15,ERRALL          'ERROR TTFN', 'DEV DDD STA SS'   MTD20280
                                     2029   *                                  'PSW PPPP  LOC LLLL'             MTD20290
001D1C        4860 1EAA              2030            LH    R6,ERRNO                                             MTD20300
001D20        C560 4636              2031            CLHI  R6,C'F6'            WRONG INTERRUPT LEVEL ?          MTD20310
001D24        2138       =001D34     2032            BNES  XIERR2              BRANCH: NO.                      MTD20320
001D26        4060 1E4E              2033            STH   R6,ISITERR          FORCE PRINT                      MTD20330
001D2A        41F0 17E6              2034            BAL   R15,$PRINT                                           MTD20340
001D30        0000 1F18              2035            DAC   INTLVLM             'INTERRUPTED IN LEVEL N'         MTD20350
001D34        4300 0ABC              2036   XIERR2   B     OPTIN1              ENTER COMMAND MODE.              MTD20360
                                     2037   *-----------------------------                                      MTD20370
                                     2038   *  SPURIOUS INTERRUPT HANDLERS                                      MTD20380
                                     2039   *                                                                   MTD20390
                                     2040   *  MACHINE MALFUNCTION INTERRUPT TRAP                               MTD20400
                                     2041   *                                                                   MTD20410
001D38        95DD                   2042   $ERRF3   EPSR  R13,R13             PSW AT ENTRY TO HANDLER & SAME CC MTD20420
001D3A        D1E0 0020              2043            LM    R14,X'20'           S32 MALFUNCTION OLD PSW          MTD20430
001D3A                               2044            IFZ   ADC-2                                                MTD20440
                                     2062            ELSE
001D3E        50D0 1E2C              2063            ST    R13,MMSW            PSW STATUS AT INTERRUPT          MTD20630
001D42        5800 0040              2064            L     R0,X'40'            SERIES 3200 ?                    MTD20640
001D46        2335       =001D50     2065            BZS   $MM.1               BRANCH: NO.                      MTD20650
001D48        5000 1E2C              2066            ST    R0,MMSW             S3200 MALFUNCTION STATUS         MTD20660
*001D4C       2117       =001D5A     2067            BM    $MM.2               BRANCH: POWER FAIL (MMSW BIT 0)  MTD20670
*001D4E       230E       =001D6A     2068            B     $MM.3               NOT POWER FAIL.                  MTD20680
                                     2069   *                                                                   MTD20690
001D50        50D0 1E2C              2070   $MM.1    ST    R13,MMSW            PSW STATUS AT INTERRUPT          MTD20700
001D54        C3D0 0001              2071            THI   R13,X'0001'         POWER FAIL ?                     MTD20710
001D58        2339       =001D6A     2072            BZS   $MM.3               BRANCH: NO.                      MTD20720
001D5A        E600 1D6A              2073   $MM.2    LDAI  R0,$MM.3                                             MTD20730
001D5E        5000 003C              2074            ST    R0,X'3C'            CHANGE INTERRUPT NEW LOC         MTD20740
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                                           2075           ENDC                                                                   MTD20750
001D62       4810 0A52                     2076           LH    R1,PSW2              SPEC'D AS Y'30F0'                           MTD20760
001D66       9501                          2077           EPSR  R0,R1                RE-ENABLE MALFUNCTION                       MTD20770
001D68       2200        =001D68           2078           BS    *                    AND WAIT FOR POWER RESTORE.                 MTD20780
                                           2079  *                                                                               MTD20790
                                           2080  * AT THIS POINT, WE KNOW IT IS NOT A POWER FAIL.                                 MTD20800
                                           2081  * POWER RESTORE REPORTS 'POWER FAIL' AS REASON FOR INTERRUPT.                    MTD20810
                                           2082  *                                                                               MTD20820
001D6A       E610 1D38                     2083  $MM.3      LDAI  R1,$ERRF3            RESTORE INTERRUPT VECTOR                    MTD20830
001D6A                                     2084           IFZ   ADC-2                                                            MTD20840
                                           2090           ELSE
001D6E       5010 003C                     2091           ST    R1,X'3C'             NEW LOC                                     MTD20910
                                           2092           ENDC                                                                   MTD20920
                                           2093  *                                                                               MTD20930
001D72       2463                          2094           LIS   R6,3                 ERROR TTF3                                  MTD20940
001D74       2308        =001D84           2095           BS    $BS.COMM                                                         MTD20950
                                           2096  * -------------------------                                                     MTD20960
                                           2097  * DATA FORMAT FAULT INTERRUPT                                                   MTD20970
                                           2098  *                                                                               MTD20980
001D76       2467                          2099  $ERRF7     LIS   R6,7                 ERROR TTF7                                  MTD20990
001D78       2306        =001D84           2100           BS    $BS.COMM                                                         MTD21000
                                           2101  * -------------------------                                                     MTD21010
                                           2102  * SYSTEM QUEUE SERVICE INTERRUPT                                                MTD21020
                                           2103  *                                                                               MTD21030
001D7A       2468                          2104  $ERRF8     LIS   R6,8                 ERROR TTF8                                  MTD21040
001D7C       2304        =001D84           2105           BS    $BS.COMM             .                             P2 1/80   MTD21050
                                           2106  * -------------------------                                                     MTD21060
                                           2107  * SUPERVISOR CALL INTERRUPT                                                     MTD21070
                                           2108  *                                                                               MTD21080
001D7E       2469                          2109  $ERRF9     LIS   R6,9                 ERROR TTF9                                  MTD21090
001D80       C820 0096                     2110           LHI   R2,X'96'             WHERE TO FIND OLD PSW, S16    P2 1/80   MTD21100
001D84       2306        =001D90           2111  $BS.COMM BS    COMM                 .                             P2 1/80   MTD21110
                                           2112  * -------------------------                                                     MTD21120
                                           2113  *  ILLEGAL INSTRUCTION INTERRUPT TRAP                                           MTD21130
                                           2114  *                                                                               MTD21140
001D86       2462                          2115  $ERRF2     LIS   R6,2                 ERROR TTF2                                  MTD21150
001D88       2304        =001D90           2119           BS    COMM                                                             MTD21190
                                           2120  * -------------------------                                                     MTD21200
                                           2127  *  RELOCATION/PROTECTION INT TRAP                                               MTD21270
                                           2128  *                                                                               MTD21280
001D8A       2465                          2129  $ERRF5     LIS   R6,5                 ERROR TTF5                                  MTD21290
001D8C       2302        =001D90           2130           BS    COMM                                                             MTD21300
                                           2131  * -------------------------                                                     MTD21310
                                           2132  *  ARITHMETIC FAULT INT (32-BIT PROCESSOR) TRAP                                 MTD21320
                                           2136  *                                                                               MTD21360
001D8E       2461                          2137  $ERRF1     LIS   R6,1                 ERROR TTF1                                  MTD21370
                                           2141  *                                                                               MTD21410
                                           2142  * ERROR TTFN PRINTOUT ROUTINE. EXPECTS USER REGISTER SET SELECTED.               MTD21420
                                           2143  *                                                                               MTD21430
             0000 1D90                     2144  COMM       EQU   *                                                                MTD21440
001D90       D0E0 1E18                     2152  $COMM1     STM   R14,OLDPSW           OLD PSW, OLD LOC                            MTD21520
001D94       C660 4630                     2153           OHI   R6,C'F0'             CONVERT ERROR NUMBER TO ASCII               MTD21530
001D98       4060 1EAA                     2154           STH   R6,ERRNO             ERROR NUMBER                                MTD21540
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001D9C  4060 1E4E            2155          STH   R6,ISITERR          FORCE ERROR MESSAGE PRINT                MTD21550
001DA0  4810 0A52            2156          LH    R1,PSW2             SPEC'D AS X'30F0'                        MTD21560
001DA4  9501                 2157          EPSR  R0,R1               ENSURE USER REGISTER SET                 MTD21570
001DA6  41E0 19F8            2158  $COMM2  BAL   R14,STCON           SET UP & SELECT KEYBOARD DEVICE          MTD21580
001DAA  41F0 1320            2159          BAL   R15,TSTDU           TEST IF KEYBOARD OFF-LINE                MTD21590
001DAE  2034      =001DA6    2160          BNZS  $COMM2              WAIT FOR ON-LINE.                        MTD21600
001DB0  4010 1E58            2161          STH   R1,$WASDU           ZERO FLAG,                  P6 11/80     MTD21610
001DB4  4010 1E40            2162          STH   R1,$NLFFLAG         DISABLE ACTIVITY INDICATOR  P6 11/80     MTD21620
001DB8  41F0 1782            2163          BAL   R15,CRLF            SEND LINE FEED                           MTD21630
001DBC  41F0 1434            2164          BAL   R15,ERR             PRINT 'ERROR XXFN'                       MTD21640
001DC0  4860 1EAA            2165          LH    R6,ERRNO            GET ERROR NUMBER                         MTD21650
001DC4  4060 1E4E            2166          STH   R6,ISITERR          FORCE PRINT                              MTD21660
001DC8  41E0 1578            2167          BAL   R14,ERRPL1          PRINT 'PSW PPPP  LOC LLLL'               MTD21670
001DCC  C560 4633            2168          CLHI  R6,C'F3'            MACHINE MALFUNCTION ?                    MTD21680
001DD0  4230 0ABC            2169          BNE   OPTIN1              BRANCH: NO.                              MTD21690
                             2170  *                                                                          MTD21700
001DD0                       2171          IFZ   ADC-2                                                        MTD21710
                             2177          ELSE
001DD4  5810 1E2C            2178          L     R1,MMSW             REASON FOR MALFUNCTION                   MTD21780
                             2179          ENDC                                                               MTD21790
001DD8  2408                 2180          LIS   R0,8                DIGIT COUNT                              MTD21800
001DDA  E620 1EE7            2181          LDAI  R2,ASCIMSW          DESTINATION                              MTD21810
001DDE  41F0 1680            2182          BAL   R15,HEXASC          CONVERT 3200 MMSW FOR PRINT              MTD21820
001DE2  41F0 17E6            2183          BAL   R15,$PRINT          .                                   0    MTD21830
001DE8  0000 1EDE            2184          DAC   MMSWMSG             'STATUS = XXXXXXXX'         P6 11/80     MTD21840
001DEC                       2189          IFZ   ADC-4               .                           P6 11/80     MTD21890
001DEC  5810 0040            2190          L     R1,X'40'            MALFUNCTION STATUS WORD     P6 11/80     MTD21900
001DF0  F310 3F00 0000       2191          TI    R1,Y'3F000000'      ADDRESS WORD VALID ?        P6 11/80     MTD21910
001DF6  4330 0AB4            2192          BZ    OPTIN               BRANCH: NOT VALID           P6 11/80     MTD21920
001DFA  5810 0044            2193          L     R1,X'44'            .                           P6 11/80     MTD21930
                             2194          ELSE                      .                           P6 11/80     MTD21940
                             2199          ENDC                      .                           P6 11/80     MTD21990
001DFE  E620 1EFA            2200          LDAI  R2,ASCIMAW          DESTINATION                 P6 11/80     MTD22000
001E02  2406                 2201          LIS   R0,6                .                           P6 11/80     MTD22010
001E04  41F0 1680            2202          BAL   R15,HEXASC          .                           P6 11/80     MTD22020
001E08  41F0 17E6            2203          BAL   R15,$PRINT          .                           P6 11/80     MTD22030
001E0C  0000 1EF0            2204          DAC   MMAWMSG             'ADDRESS = XXXXXX'          P6 11/80     MTD22040
001E10  4300 0AB4            2205          B     OPTIN               GET COMMAND INPUT                        MTD22050
                             2206  * ****************************                                             MTD22060
                             2207  *  ETPE CONSTANTS & TABLES                                                 MTD22070
001E18                       2208          ALIGN 8                                                            MTD22080
                             2209  *------------------------                                                 MTD22090
001E18  0000                 2210  OLDPSW  DCX   0000,0000,0000,0000                                          MTD22100
001E1A  0000
001E1C  0000
001E1E  0000
001E20  0000                 2211  NEWPSW  DCX   0000,0000,0000,0000                                          MTD22110
001E22  0000
001E24  0000
001E26  0000
001E28  0000 0000            2212  INTPSW  DCY   0                   (SERIES 32 ONLY)                         MTD22120
001E2C  0000                 2213  MMSW    DCX   0000,0000           MACHINE MALFUNCTION STATUS               MTD22130
001E2E  0000
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                                  2214 *------------------------                                  MTD22140
001E30    0000                    2215 MOD32    DCX   0                NON-ZERO, SERIES 32        MTD22150
001E32    0000                    2216 INTDEV   DCX   0                INTERRUPTING DEV ADR       MTD22160
          0000 1E32               2217 ERRDEV   EQU   INTDEV           ERROR DEVICE #             MTD22170
001E34    00                      2218 INTSTA   DB    0                INTERRUPTING DEV STATUS    MTD22180
          0000 1E34               2219 ERRSTA   EQU   INTSTA           ERRONEOUS STATUS           MTD22190
001E35    80                      2220 NORM     DB    X'80'            CONSOLE NORMAL MODE        MTD22200
001E36    40                      2221 INCR     DB    X'40'            CONSOLE INCREMENTAL MODE   MTD22210
001E37    E0                      2222 $CLKSTRT DB    X'E0'            PIC CMD DISARM+START       MTD22220
001E38                            2223          DS    *                (ALIGN ON HW BOUNDARY)     MTD22230
001E38    0000 0000               2224 SINK     DC    0                BIT BUCKET                 MTD22240
001E3C    0000                    2225 $CONPAS  DCX   0                SET WHEN CONSOLE ON PASLA/PALM MTD22250
001E3E    0000                    2226 $LSTPAS  DCX   0                SET WHEN LIST DEVICE ON PASLA MTD22260
001E40    0000                    2227 $NLFFLAG DCX   0                0 = NO ACTIVITY INDICATOR    P6 11/80 MTD22270
001E42    0000                    2228 $NLFHIST DCX   0                ACTIVITY INDICATOR HISTORY   P6 11/80 MTD22280
001E44    0000                    2229 $NLFCNTR DCX   0                ACTIVITY COUNT               P6 11/80 MTD22290
                                  2230 * --------------------                                     MTD22300
001E46                            2231          IFZ   $KBINT-1                                    MTD22310
001E46    1CF8                    2232 KBINT    DC    Z(RETOPSW)       KEYBOARD INT RETURN ADR    MTD22320
                                  2233          ENDC                                              MTD22330
001E48    0000                    2234 BRKVECT  DC    Z(0)             BREAK KEY VECTOR           MTD22340
001E4A    0000                    2235 $BRKFLG  DCX   0                SET IF BREAK KEY DETECTED  MTD22350
001E4C    0000                    2236 IOSAVE   DCX   0                CURRENT I/O IDENTIFIERS    MTD22360
001E4E    0000                    2237 ISITERR  DCX   0                MESSAGE LEVEL              MTD22370
001E50    0000                    2238 NOERR    DCX   0                ZERO = 'NO ERROR'          MTD22380
001E52    0000                    2239 SELTST   DCX   0                HIGHEST SELECTED TEST #    MTD22390
001E54    0000                    2240 $LINEPOS DCX   0                CURRENT SOUTBUF POSITION   MTD22400
001E56    0000                    2241 $PRTFLG  DCX   0                FLAG USED FOR DEFERRING BRK ACKNOWLED MTD22410
001E58    0000                    2242 $WASDU   DCX   0                ZERO IF I/O DEVICE ON-LINE MTD22420
001E5A    0000                    2243 TOTAL    DCX   0                TIMES WHOLE TEST RAN       MTD22430
001E5C    0000                    2244 TOTERR   DCX   0                TOTAL ERRORS DETECTED      MTD22440
001E5E    0000                    2245 BTESTNO  DCX   0                CURRENT TEST # IN BINARY   MTD22450
001E60    0000                    2246 COUNT    DCX   0                TIMES CURRENT TEST RAN     MTD22460
001E62    0000                    2247 $PAUSE   DCX   0                SET DURING TRANSMISSION PAUSE MTD22470
001E64    0000 0000               2248 $SHUTDWN DAC   0                A(USER-DEFINED SHUTDOWN ROUTINE) MTD22480
001E68    0000 0000               2249 OUT.SAV  DAC   0                OUTCHR RETURN ADDRESS SAVE MTD22490
001E6C    0000 0000               2250 BRK.SAV  DAC   0                TSTBRK RETURN ADDRESS SAVE MTD22500
001E70    0000 0000               2251 SET.RTN  DAC   0                SSETUP RETURN ADDRESS SAVE MTD22510
                                  2252 *                                                          MTD22520
001E74                            2253          IFZ   $DECTAB-1                                   MTD22530
001E74    0000 0001               2254 DECTAB   DC    1,10,100,1000,10000 DECIMAL VALUES          MTD22540
001E78    0000 000A
001E7C    0000 0064
001E80    0000 03E8
001E84    0000 2710
                                  2255          ENDC                                              MTD22550
001E88    3031 3233 3435 3637     2256 HEXTAB   DB    C'0123456789ABCDEF' HEXADECIMAL DIGITS      MTD22560
001E90    3839 4142 4344 4546
                                  2257 *--------------------------------                          MTD22570
                                  2258 *  ETPE MESSAGES                                           MTD22580
                                  2259 *                                                          MTD22590
001E98    5445 5354 2020 2A2A     2260 TSTMSG   DB    C'TEST  **',X'0D'                           MTD22600
001EA0    0D
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                0000 1E9E                2261  MTESTNO  EQU   TSTMSG+6            MASTER TEST NUMBER (ASCII)                MTD22610
001EA2                                   2262           ALIGN 2                                                              MTD22620
001EA2          4552 524F 5220 2A2A      2263  ERRMSG   DB    C'ERROR ****  ',X'0D'                                        MTD22630
001EAA          2A2A 2020 0D
                0000 1EA8                2264  ETESTNO  EQU   ERRMSG+6             STORED BY ETPE                           MTD22640
                0000 1EAA                2265  ERRNO    EQU   ERRMSG+8             STORE ERRNO AS CHAR CONSTANT             MTD22650
001EAF          544F 5441 4C20 2020      2266  TOTMSG   DB    C'TOTAL   TOTERR',X'0D'                                      MTD22660
001EB7          544F 5445 5252 0D
001EBE          4E4F 2045 5252 4F52      2267  NOERMSG  DB    C'NO ERROR',X'0D'                                            MTD22670
001EC6          0D
001EC7          4445 5620 2A2A 2A20      2268  DEVMSG   DB    C'DEV *** STA **',X'0D'                                      MTD22680
001ECF          5354 4120 2A2A 0D
                0000 1ECB                2269  ASCIDEV  EQU   DEVMSG+4                                                     MTD22690
                0000 1ECF                2270  STAMSG   EQU   DEVMSG+8                                                     MTD22700
                0000 1ED3                2271  ASCISTA  EQU   DEVMSG+12                                                    MTD22710
001ED6          4445 5620 2A2A 2A0D      2272  DEVMSG2  DB    C'DEV ***',X'0D'                                             MTD22720
                0000 1EDA                2273  ASCIDEV2 EQU   DEVMSG2+4                                                    MTD22730
001EDE          5354 4154 5553 203D      2274  MMSWMSG  DB    C'STATUS = ********',X'0D'                                   MTD22740
001EE6          2A2A 2A2A 2A2A 2A2A
001EEE          2A0D
                0000 1EE7                2275  ASCIMSW  EQU   MMSWMSG+9                                                   MTD22750
001EF0          4144 4452 4553 5320      2276  MMAWMSG  DB    C'ADDRESS = ******',X'0D' .                    P6 11/80   MTD22760
001EF8          3D20 2A2A 2A2A 2A2A
001F00          0D
                0000 1EFA                2277  ASCIMAW  EQU   MMAWMSG+10            .                      P6 11/80   MTD22770
001F01          5053 5720 2020 2020      2278  PSWMSG   DB    C'PSW         LOC       ',X'0D'                          MTD22780
001F09          2020 2020 4C4F 4320
001F11          2020 2020 2020 0D
                0000 1F05                2279  ASCIPSW  EQU   PSWMSG+4                                                   MTD22790
                0000 1F0D                2280  LOCMSG   EQU   PSWMSG+12                                                  MTD22800
                0000 1F11                2281  ASCILOC  EQU   PSWMSG+16                                                  MTD22810
001F18          494E 5445 5252 5550      2282  INTLVLM  DB    C'INTERRUPTED IN LEVEL *',X'0D'                           MTD22820
001F20          5445 4420 494E 204C
001F28          4556 454C 202A 0D
                0000 1F2D                2283  ERRLVL   EQU   INTLVLM+21                                                 MTD22830
001F2F          454E 4420 4F46 2054      2284  EOTMSG   DB    C'END OF TEST',X'0D'                                      MTD22840
001F37          4553 540D
001F3C                                   2285           ALIGN 4                                                          MTD22850
001F3C          8D0A 3F0D                2286  QMSG     DB    X'8D',X'0A',C'?',X'0D' CR,LF,?,CR                        MTD22860
001F40          2A0D                     2287  AMSG     DB    C'*',X'0D'            *,CR                               MTD22870
001F42          FFFF FFFF FFFF FFFF      2288  BRKMSG   DB    -1,-1,-1,-1,-1,-1,-1,-1                                  MTD22880
001F4A          4252 4541 4B20 5445      2289           DB    C'BREAK TERMINATION',X'0D'                               MTD22890
001F52          524D 494E 4154 494F
001F5A          4E0D
                0000 1F5B                2290  SBRKEND  EQU   *-1                                                        MTD22900
001F5C          FFFF FFFF 0D             2291  NULLMSG  DB    -1,-1,-1,-1,X'0D'                                        MTD22910
                0000 1F60                2292  CRLFMSG  EQU   NULLMSG+4                                                  MTD22920
001F61          00                       2293           DB    *                   HALFWORD ALIGN                       MTD22930
001F62          5448 4520 4355 5252      2294  DRVSMSG  DC    C'THE CURRENT STATUS OF DRIVE *** IS ***',X'0D0A' ****    MTD22940
001F6A          454E 5420 5354 4154
001F72          5553 204F 4620 4452
001F7A          4956 4520 2A2A 2A20
001F82          4953 202A 2A2A
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001F88       0D0A
001F8A       5441 5045 2055 4F49      2295  EXTDMSG2 DC    C'TAPE UNIT STATUS',X'0D0A' *                    ****      MTD22950
001F92       5420 5354 4154 5553
001F9A       0D0A
001F9C       4259 5445 3020 202A      2296  BYMSG0   DC    C'BYTE0  **',X'8D0A' *                  ****           MTD22960
001FA4       2A20
001FA6       8D0A
001FA8       4259 5445 3120 202A      2297           DC    C'BYTE1  **',X'8D0A' *                   ****           MTD22970
001FB0       2A20
001FB2       8D0A
001FB4       4259 5445 3220 202A      2298           DC    C'BYTE2  **',X'8D0A' *                   ****           MTD22980
001FBC       2A20
001FBE       8D0A
001FC0       4259 5445 3320 202A      2299           DC    C'BYTE3  **',X'8D0A' *                   ****           MTD22990
001FC8       2A20
001FCA       8D0A
001FCC       4259 5445 3420 202A      2300           DC    C'BYTE4  **',X'0D0A' *                   ****           MTD23000
001FD4       2A20
001FD6       0D0A
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                                        2302  *----------------------------                          MTD23020
                                        2303  *  OPTION/COMMAND TABLE                                 MTD23030
                                        2304  *  STRUCTURE DEFINED BY '$STRUC1' AT TOP OF LISTING     MTD23040
001FD8                                  2305        ALIGN 4                                          MTD23050
                                        2306  * ** COPY ETPE FILE ONLY TO HERE                        MTD23060
          0000 1FD8                     2307  OPT     EQU    *                OPTION TABLE           MTD23070
001FD8    5445 5354 2020 2020           2308  TEST    DC     C'TEST    ',X'0000',X'FFE0',X'0000'     MTD23080
001FE0    0000
001FE2    FFE0
001FE4    0000
001FE6    4C4F 4F50 2020 2020           2309  LOOP    DC     C'LOOP    ',X'0000',X'0000',X'0000'     MTD23090
001FEE    0000
001FF0    0000
001FF2    0000
001FF4    434F 4E54 494E 2020           2310  CONTIN  DC     C'CONTIN  ',X'0000',X'0000',X'0000'     MTD23100
001FFC    0000
001FFE    0000
002000    0000
002002    4259 5445 5320 2020           2311  BYTES   DC     C'BYTES   ',X'0000',X'00FF',X'0000'     MTD23110
00200A    0000
00200C    00FF
00200E    0000
002010    434F 4D4D 414E 4420           2312  COMMAND DC     C'COMMAND ',X'0000',X'0000',X'0000'     MTD23120
002018    0000
00201A    0000
00201C    0000
00201E    2020 2020 2020 2020           2313          DC     C'        ',X'0000',X'0000',X'0000'     MTD23130
002026    0000
002028    0000
00202A    0000
00202C    4441 5441 2020 2020           2314  DATA    DC     C'DATA    ',X'0000',X'0000',X'0000'     MTD23140
002034    0000
002036    0000
002038    0000
00203A    4445 4E53 4954 5920           2315  DENSITY DC     C'DENSITY ',X'0000',X'6250',X'0000'     MTD23150
002042    0000
002044    6250
002046    0000
002048    4452 4956 4520 2020           2316  DRIVE   DC     C'DRIVE   ',X'0000',X'0085',X'0000'     MTD23160
002050    0000
002052    0085
002054    0000
002056    2020 2020 2020 2020           2317          DC     C'        ',X'0000',X'0000',X'0000'     MTD23170
00205E    0000
002060    0000
002062    0000
002064    4452 5653 5441 5420           2318  DRVSTAT DC     C'DRVSTAT ',X'0000',X'0085',X'0000'     MTD23180
00206C    0000
00206E    0085
002070    0000
002072    2020 2020 2020 2020           2319          DC     C'        ',X'0000',X'0000',X'0000'     MTD23190
00207A    0000
00207C    0000
```

DATA CONSTANTS & CHECK ROUTINES

```
002078       0000
002080       4452 5654 5950 4520      2320  DRVTYPE  DC    C'DRVTYPE',X'0000',X'0000',X'0000'                    MTD23200
002088       0000
00208A       0000
00208C       0000
00208E       4455 4D50 2020 2020      2321  DUMP     DC    C'DUMP    ',X'0000',X'0000',X'0000'                   MTD23210
002096       0000
002098       0000
00209A       0000
00209C       4558 5444 5256 5320      2322  EXTDRVS  DC    C'EXTDRVS ',X'0000',X'0085',X'0000'                   MTD23220
0020A4       0000
0020A6       0085
0020A8       0000
0020AA       4649 4C45 5320 2020      2323  FILES    DC    C'FILES   ',X'0000',X'0002',X'0000'                   MTD23230
0020B2       0000
0020B4       0002
0020B6       0000
0020B8       4649 464F 2020 2020      2324  FIFO     DC    C'FIFO    ',X'0000',X'0000',X'0000'                   MTD23240
0020C0       0000
0020C2       0000
0020C4       0000
0020C6       494E 544C 4556 454C      2325  INTLEVEL DC    C'INTLEVEL',X'0000',X'0000',X'0000'                   MTD23250
0020CE       0000
0020D0       0000
0020D2       0000
0020D4       4F4E 4C49 4E45 2020      2326  ONLINE   DC    C'ONLINE  ',X'0000',X'0001',X'0000'                   MTD23260
0020DC       0000
0020DE       0001
0020E0       0000
0020E2       5052 4F43 4545 4420      2327  PROCEED  DC    C'PROCEED ',X'0000',X'0001',X'0000'                   MTD23270
0020EA       0000
0020EC       0001
0020EE       0000
0020F0       5245 434F 5244 5320      2328  RECORDS  DC    C'RECORDS ',X'0000',X'007F',X'0000'                   MTD23280
0020F8       0000
0020FA       007F
0020FC       0000
0020FE       5345 4C43 4820 2020      2329  SELCH    DC    C'SELCH   ',X'0000',X'00F0',X'0000'                   MTD23290
002106       0000
002108       00F0
00210A       0000
00210C       5449 4D45 4C49 4D54      2330  TIMELIMT DC    C'TIMELIMT',X'0000',X'0000',X'7FFF'                   MTD23300
002114       0000
002116       0000
002118       7FFF
00211A       5452 4D4F 4445 2020      2331  TRMODE   DC    C'TRMODE  ',X'0000',X'0001',X'0000'                   MTD23310
002122       0000
002124       0001
002126       0000
             0000 2128                2332  OPTEND2  EQU   *                  END OF PRINTING OPTIONS             MTD23320
             0000 2128                2333  OPTEND   EQU   *                  END OF OPTIONS WITH VALUES          MTD23330
002128       4F50 5449 4F4E 2020      2334  OPTION   DC    C'OPTION  ',Z(0),X'0000',X'0000'                      MTD23340
002130       0000
```

DATA CONSTANTS & CHECK ROUTINES

```
002132       0000
002134       0000
             0000 2134                2335  $LINCNT  EQU   OPTION+$VALU2       PRINTOUT LINE COUNTER                    MTD23350
002136       5255 4E20 2020 2020      2336  RUN      DC    C'RUN     ',X'0000',X'0000',X'0000'                          MTD23360
00213E       0000
002140       0000
002142       0000
002144       FFFF                     2337           DCX   FFFF                                                       MTD23370
002146       D4C5 5354 00             2338  OPT.TAB  DB    .T,.E,C'ST',0       *                        ****        MTD23380
00214B       CCCF CF50 00             2339           DB    .L,.O,.O,C'P',0     *                        ****        MTD23390
002150       C3CF 4E54 494E 00        2340           DB    .C,.O,C'NTIN',0     *                        ****        MTD23400
002157       C2D9 5445 5300           2341           DB    .B,.Y,C'TES',0      *                        ****        MTD23410
00215D       C3CF CD4D 414E 4400      2342           DB    .C,.O,.M,C'MAND',0  *                        ****        MTD23420
002165       C4C1 D441 00             2343           DB    .D,.A,.T,C'A',0     *                        ****        MTD23430
00216A       C4C5 CE53 4954 5900      2344           DB    .D,.E,.N,C'SITY',0  *                        ****        MTD23440
002172       C4D2 C956 4500           2345           DB    .D,.R,.I,C'VE',0    *                        ****        MTD23450
002178       C4D2 D6D3 5441 5400      2346           DB    .D,.R,.V,.S,C'TAT',0 *                       ****        MTD23460
002180       C4D2 D6D4 5950 4500      2347           DB    .D,.R,.V,.T,C'YPE',0 *                       ****        MTD23470
002188       C4D5 CDD0 00             2348           DB    .D,.U,.M,.P,0       *                        ****        MTD23480
00218D       C5D8 D4C4 5256 5300      2349           DB    .E,.X,.T,.D,C'RVS',0 *                       ****        MTD23490
002195       C6C9 CC45 5300           2350           DB    .F,.I,.L,C'ES',0    *                        R01*        MTD23500
00219B       C6C9 C64F 00             2351           DB    .F,.I,.F,C'O',0     *                        ****        MTD23510
0021A0       C9CE D44C 4556 454C      2352           DB    .I,.N,.T,C'LEVEL',0 *                        R01         MTD23520
0021A8       00
0021A9       CFCE CC49 4E45 00        2353           DB    .O,.N,.L,C'INE',0   *                        ****        MTD23530
0021B0       CFD0 D449 4F4E 00        2354           DB    .O,.P,.T,C'ION',0   *                        ****        MTD23540
0021B7       D0D2 CF43 4545 4400      2355           DB    .P,.R,.O,C'CEED',0  *                        ****        MTD23550
0021BF       D2C5 C34F 5244 5300      2356           DB    .R,.E,.C,C'ORDS',0  *                        ****        MTD23560
0021C7       D2D5 4E00                2357           DB    .R,.U,C'N',0        *                        R01         MTD23570
0021CB       D3C5 4C43 4800           2358           DB    .S,.E,C'LCH',0      *                        ****        MTD23580
0021D1       D4C9 CD45 5200           2359           DB    .T,.I,.M,C'ER',0    *                        ****        MTD23590
0021D7       D4D2 4D4F 4445 00        2360           DB    .T,.R,C'MODE',0     *                        ****        MTD23600
0021DE       0000                     2361           DB    0,0                 *                        ****        MTD23610
                                      2362  *                                                             ****        MTD23620
             0000 00C1                2363  .A       EQU   X'C1'               .A+X'80'                 ****        MTD23630
             0000 00C2                2364  .B       EQU   X'C2'               .B+X'80'                 ****        MTD23640
             0000 00C3                2365  .C       EQU   X'C3'               .C+X'80'                 ****        MTD23650
             0000 00C4                2366  .D       EQU   X'C4'               .D+X'80'                 ****        MTD23660
             0000 00C5                2367  .E       EQU   X'C5'               .E+X'80'                 ****        MTD23670
             0000 00C6                2368  .F       EQU   X'C6'               .F+X'80'                 ****        MTD23680
             0000 00C9                2369  .I       EQU   X'C9'               .I+X'80'                 ****        MTD23690
             0000 00CC                2370  .L       EQU   X'CC'               .L+X'80'                      ****   MTD23700
             0000 00CD                2371  .M       EQU   X'CD'               .M+'80'                  ****        MTD23710
             0000 00CE                2372  .N       EQU   X'CE'               .N+X'80'                 ****        MTD23720
             0000 00CF                2373  .O       EQU   X'CF'               .O+X'80'                 ****        MTD23730
             0000 00D0                2374  .P       EQU   X'D0'               .P+X'80'                 ****        MTD23740
             0000 00D2                2375  .R       EQU   X'D2'               .R+X'80'                 ****        MTD23750
             0000 00D3                2376  .S       EQU   X'D3'               .S+X'80'                 ****        MTD23760
             0000 00D4                2377  .T       EQU   X'D4'               .T+X'80'                 ****        MTD23770
             0000 00D5                2378  .U       EQU   X'D5'               .U+X'80'                 ****        MTD23780
             0000 00D6                2379  .V       EQU   X'D6'               .V+X'80'                 ****        MTD23790
             0000 00D8                2380  .X       EQU   X'D8'               .X+X'80'                 ****        MTD23800
             0000 00D9                2381  .Y       EQU   X'D9'               .Y+X'80'                 ****        MTD23810
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DATA CONSTANTS & CHECK ROUTINES

```
                                    2382  *                                                      ****      MTD23820
0021E0                              2383           ALIGN 4                 *                     ****      MTD23830
           0000 21E0                2384  DEVSADR  EQU   *                 INTERRUPTING DEVICE TABLE       MTD23840
0021E0     0000                     2385           DCX   0,0,8000                                          MTD23850
0021E2     0000
0021E4     8000

           0000 21E6                2387  DEVINT   EQU   *                 INTERRUPTING DEVICES            MTD23870
0021E6     0000                     2388           DCX   0,0,8000                                          MTD23880
0021E8     0000
0021EA     8000

           0000 21EC                2390  INTLVL   EQU   *                                                 MTD23900
                                    2391  *        USE ONE BYTE PER INTERRUPTING DEVICE                    MTD23910
0021EC     0000                     2392           DB    0,0                                               MTD23920

0021EE     FFE0                     2394  DEFTESTS DCX   FFE0,0000         DEFAULT TESTS                   MTD23940
0021F0     0000
0021F4     0000 24BC                2395  TESTS    DAC   TEST0,TEST1,TEST2,TEST3,TEST4,TEST5,TEST6,TEST7   MTD23950
0021F8     0000 2ADA
0021FC     0000 3644
002200     0000 43BA
002204     0000 4A24
002208     0000 506A
00220C     0000 55D8
002210     0000 5856
002214     0000 689A                2396           DAC   TEST8,TEST9,TESTA,TESTB,TESTC,TESTD,TESTE,TESTF   MTD23960
002218     0000 6C78
00221C     0000 713C
002220     0000 744C
002224     0000 760C
002228     0000 789A
00222C     0000 79CC
002230     0000 7B02
002234     000F                     2397  MAXTST   DCX   000F              MAX VALID TEST NUMBER           MTD23970
                                    2398  *                                                                MTD23980
002236     4849 4748 2050 4552      2399  TITLE    DB    C'HIGH PERFORMANCE (6250 BPI) MAGNETIC TAPE DIAGNOSTIC'  MTD23990
00223E     454F 524D 414F 4345
002246     2028 3632 3530 2042
00224E     5049 2920 4D41 474E
002256     4554 4943 2054 4150
00225E     4520 4449 4147 4E4F
002266     5354 4943
00226A     2030 362D 3236 3352      2400           DB    C' 06-263R01'                                     MTD24000
002272     3031
002274     0D                       2401           DB    X'0D'                                             MTD24010
002275     00                       2402           DB    *                                                 MTD24020
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                                  * INITIALIZATION                                                    MTD24040
 002276     50F0 4000 84D0        INIT      ST    R15,SAVR15          SAVE R15                        MTD24050
 00227C     2400                            LIS   R0,0                                                MTD24060
 00227E     4000 4000 8414                  STH   R0,INDEX            ZERO LOCATIONS                  MTD24070
 002284     4810 2052                       LH    R1,DRIVE+$VALU1     LOAD DRIVE ADDRESS              MTD24080
 002288     4010 4000 8408                  STH   R1,DRIVSAV          SAVE VALUE                      MTD24090
 00228E     2401                            LIS   R0,1                                                MTD24100
 002290     4000 4000 840A                  STH   R0,DRIVSAV1         SET FLAG                        MTD24110
 002296     7320 2108                       LHL   R2,SELCH+$VALU1     GET SELCH ADDR                  MTD24120
 00229A     41E0 4000 7C9F                  BAL   R14,CSTOP           STOP IT                         MTD24130
 0022A0     41E0 4000 7C9E                  BAL   R14,CSTOP           FOR SURE                        MTD24140
 0022A6     41F0 4000 838C        INIT.00A  BAL   R15,LOOPTOP         SET UP ADDRESSES                MTD24150
 0022AC     0000 243E                       DAC   INIT.20             PROCEED LIMIT                   MTD24160
 0022B0     0000 243E                       DAC   INIT.20                                             MTD24170
 0022B4     4820 0A52                       LH    R2,PSW2             30F0                            MTD24180
 0022B8     95E2                            EPSR  R14,R2              DISABLE CONSOLE INTERRUPTS      MTD24190
 0022BA     C840 00C9                       LHI   R4,X'C9'            DISARM AND CLEAR                MTD24200
 0022BE     41E0 4000 7B96                  BAL   R14,OCR             OUTPUT COMMAND REGISTER         MTD24210
 0022C4     7300 200C                       LHL   R0,BYTES+$VALU1                                     MTD24220
 0022C8     4830 2124                       LH    R3,TRMODE+$VALU1    LOOK IF TRMODE=1                MTD24230
*0022CC     213E       =0022E8              BNZ   INIT.01A            CHECK ONLINE OPT FIRST          MTD24240
 0022CE     4830 20DE                       LH    R3,ONLINE+$VALU1    LOOK AT ONLINE                  MTD24250
*0022D2     233F       =0022F0              BZ    INIT.02A            GO CHECK FIFO IF ZERO           MTD24260
 0022D4     C500 00FF                       CLHI  R0,X'FF'            CHECK FOR PROPER BYTES          MTD24270
 0022D8     4280 2320                       BL    INIT.0B             BYTES SPECIFIED IS VALID        MTD24280
 0022DC     C830 0100                       LHI   R3,X'100'           OTHERWISE LOAD MAXIMUM BYTES    MTD24290
 0022E0     E650 247E                       LA    R5,MESSAGAA         BYTES TRANSFERRED =FF           MTD24300
 0022E4     4300 2316                       B     INIT.0A1            PRINT MESSAGE AND SAVE          MTD24310
 0022E8     4830 20DE             INIT.01A  LH    R3,ONLINE+$VALU1    LOOK AT ONLINE OPT              MTD24320
 0022EC     4230 2320                       BNZ   INIT.0B             EVERYTHING OK, GET OUT          MTD24330
 0022F0     4830 20C2             INIT.02A  LH    R3,FIFO+$VALU1      GAPLESS INTERFACE               MTD24340
*0022F4     213A       =002308              BNZ   INIT.0AA            YES, EXPANDED MEMORY.           MTD24350
 0022F6     C500 00FF                       CLHI  R0,X'FF'            CHECK FOR MAXIMUM BYTES         MTD24360
 0022FA     4280 2320                       BL    INIT.0B             EVERYTHING OK.                  MTD24370
 0022FE     C830 0100                       LHI   R3,X'100'           LOAD MAXIMUM THEN               MTD24380
 002302     E650 247E                       LA    R5,MESSAGAA         BYTES TO BE TRANSFERRED = X'FF' MTD24390
*002306     2308       =002316              B     INIT.0A1            OUTPUT AND SAVE                 MTD24400
 002308     C500 03FF             INIT.0AA  CLHI  R0,X'3FF'           MAXIMUM BYTES FOR GAPLESS       MTD24410
*00230C     218A       =002320              BL    INIT.0B             OK                              MTD24420
 00230E     C830 0400                       LHI   R3,X'400'           SET MAXIMUM FOR GAPLESS         MTD24430
 002312     E650 245C                       LA    R5,MESSAGA          BYTES TRANSFERRED = X'3FF'      MTD24440
 002316     41F0 4000 836E        INIT.0A1  BAL   R15,LOOP2           OUTPUT IF POSSIBLE              MTD24450
 00231C     4030 200C                       STH   R3,BYTES+$VALU1     SET NEW VALUE TO BE USED        MTD24460
 002320     7300 200C             INIT.0B   LHL   R0,BYTES+$VALU1                                     MTD24470
 002324     C500 0002                       CLHI  R0,2                IS BYTES AT MINIMUM?            MTD24480
*002328     2389       =00233A              BNL   INIT.0B1            VALUE IS OK                     MTD24490
 00232A     2402                            LIS   R0,2                ELSE SET TO MINIMUM             MTD24500
 00232C     4000 200C                       STH   R0,BYTES+$VALU1     MODIFY BYTES OPTION             MTD24510
 002330     E650 249E                       LA    R5,MESSAGAB         BYTES OPTION HAS BEEN MODIFIED  MTD24520
 002334     41F0 4000 836E                  BAL   R15,LOOP2           TELL USER                       MTD24530
 00233A     7330 1FFE             INIT.0B1  LHL   R3,CONTIN+$VALU1    LOAD CONTINUE OPTION            MTD24540
 00233E     213A       =002352              BNZS  INIT.10A            AND BRANCH OUT IF SET           MTD24550
 002340     7300 1FE2                       LHL   R0,TEST+$VALU1                                      MTD24560
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DATA CONSTANTS & CHECK ROUTINES

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 002344       C300 FFF0                2457            THI   R0,X'FFF0'          IS TEST 0-B SPECIFIED                    MTD24570
*002348       2335       =002352       2458            BZ    INIT.10A            IF NOT, DO NOT RUN TEST 0                MTD24580
 00234A       C600 8000                2459            OHI   R0,X'8000'          OTHERWISE FORCE TEST 0                   MTD24590
 00234E       4000 1FE2                2460            STH   R0,TEST+SVALU1      RESTORE TEST OPTIONS                     MTD24600
 002352       41E0 4000 7BDC           2461  INIT.10A  BAL   R14,SENSTA          SENSE STATUS OF DRIVE                    MTD24610
 002358       C330 0004                2462            THI   R3,X'04'           IS DRIVE FALSE SYNC?                     MTD24620
 00235C       4330 2388                2463            BZ    INIT.00B            NO                                       MTD24630
 002360       C330 00FB                2464            THI   R3,X'FB'           SEE IF NMTN,BOT,ERR,TERR,DU,FOM,BSY S    MTD24640
 002364       4230 2388                2465            BNZ   INIT.00B            IF YES, THEN NO FALSE SYNC.              MTD24650
 002368       2403                     2466            LIS   R0,3                                                         MTD24660
 00236A       4810 4000 8408           2467            LH    R1,DRIVSAV          DRIVE ADDRESS                            MTD24670
 002370       E620 2A94                2468            LA    R2,TOERMSG1+20      STORED HERE                              MTD24680
 002374       41F0 1680                2469            BAL   R15,HEXASC          CONVERT                                  MTD24690
 002378       E6F0 2A80                2470            LA    R15,TOERMSG1                                                 MTD24700
 00237C       E6E0 4000 8596           2471            LA    R14,CONTMSG         SUSPECTED ERROR W/ CONTE                 MTD24710
 002382       4300 4000 82CC           2472            B     ERRORX                                                       MTD24720
 002388       4800 20DE                2473  INIT.00B  LH    R0,ONLINE+SVALU1    LOOK AT ONLINE OPTION                    MTD24730
 00238C       4330 2410                2474            BZ    INIT.1A             CONTINUE WITH INIT IF ZERO               MTD24740
 002390       C330 0001                2475            THI   R3,X'01'           DRIVE DU?                                MTD24750
*002394       2334       =00239C       2476            BZ    INIT.00C            NO                                       MTD24760
 002396       4300 4000 7D88           2477            B     IT.C                DRIVE UNAVAILBLE ROUTINE                 MTD24770
 00239C       41E0 4000 7B9A           2478  INIT.00C  BAL   R14,CCLEAR          CLEAR INTERFACE OF ANY REMAINING ERRR    MTD24780
 0023A2       41E0 4000 7BA0           2479            BAL   R14,CDRCLR          CLEAR DRIVER                             MTD24790
 0023A8       41E0 4000 7BDC           2480            BAL   R14,SENSTA          CHECK STATUS                             MTD24800
 0023AE       C330 00CA                2481            THI   R3,X'CA'           IF ERR,TERR,BSY OR EOM SET               MTD24810
*0023B2       233E       =0023CE       2482            BZ    INIT.00D            IF ZERO, NO ERROR                        MTD24820
 0023B4       E650 2A9A                2483            LA    R5,TOERMSG2         INCORRECT STATUS FROM INTERFACE          MTD24830
 0023B8       41E0 B98C =005D48        2484            BAL   R14,T7ERROPA        DRIVE AND STATUS                         MTD24840
 0023BC       E6F0 4000 6882           2485            LA    R15,T7ERMSG1                                                 MTD24850
 0023C2       E6E0 4000 8596           2486            LA    R14,CONTMSG         SUSPECTED ERROR W/ CONTROLLER            MTD24860
 0023C8       4300 4000 82CC           2487            B     ERRORX                                                       MTD24870
 0023CE       41F0 4000 80D2           2488  INIT.00D  BAL   R15,REWMT           REWIND TAPE AFTER RUN                    MTD24880
 0023D4       C330 0010                2489            THI   R3,X'10'           IS NMTN SET                              MTD24890
 0023D8       4230 2400                2490            BNZ   INIT.0A                                                      MTD24900
 0023DC       E650 4000 85F0           2491            LA    R5,ERMSGA           'NMTN' DID NOT SET AFTER REWIND          MTD24910
 0023E2       C800 0030                2492            LHI   R0,X'30'            EXPECTED STATUS                          MTD24920
 0023E6       4000 4000 83C8           2493            STH   R0,STATGD           SAVE IT                                  MTD24930
 0023EC       41E0 28AE                2494  INITER1   BAL   R14,TOERRORB       DRIVE AND STATUS                         MTD24940
 0023F0       E6F0 2A4C                2495            LA    R15,MESSAGF1                                                 MTD24950
 0023F4       E6E0 4000 8596           2496            LA    R14,CONTMSG         SUSPECTED ERROR WITH CONTROLLER          MTD24960
 0023FA       4300 4000 82CC           2497            B     ERRORX              ERROR PRINT OUT                          MTD24970
 002400       C330 0020                2498  INIT.0A   THI   R3,X'20'           'BOT' SET?                               MTD24980
*002404       2136       =002410       2499            BNZ   INIT.1A             YES, OK                                  MTD24990
 002406       E650 4000 8612           2500            LA    R5,ERMSGB           BOT DID NOT SET AFTER REWIND             MTD25000
 00240C       4300 23EC                2501            B     INITER1             MESSAGE OUT                              MTD25010
 002410       2450                     2502  INIT.1A   LIS   R5,0                                                         MTD25020
 002412       4820 4000 840C           2503            LH    R2,DENSFLAG         GET DENSITY FLAG                         MTD25030
 002418       D322 4000 83E4           2504            LB    R2,DENSITY(R2)      GET PROPER OC FOR DENS                   MTD25040
 00241E       D335 4000 83DE           2505  INIT.1AA  LB    R3,WRODDBY(R5)      START WITH 1ST CMD                       MTD25050
 002424       C430 00CF                2506            NHI   R3,X'CF'           CLEAR ITS TOP BITS                       MTD25060
 002428       0632                     2507            OR    R3,R2               OR IN DENSITY COMMAND                    MTD25070
 00242A       D235 4000 83DE           2508            STB   R3,WRODDBY(R5)      STORE IT INTO COMMAND BYTE               MTD25080
 002430       2651                     2509            AIS   R5,1                INCREMENT COMMAND LOC                    MTD25090
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DATA CONSTANTS & CHECK ROUTINES

```
 002432     C550 0004              2510           CLHI  R5,4             COMPLETED 4 POSSIBILTIES        MTD25100
*002436     208C      =00241E      2511           BL    INIT.1AA                                         MTD25110
 002438     4300 4000 834E         2512           B     PASS                                             MTD25120
                                   2513  *                                                               MTD25130
 00243E     41F0 2836              2514  INIT.20  BAL   R15,TST.DRIV     OTHER DRIVES TO BE INIT         MTD25140
 002442     4800 4000 840A         2515           LH    R0,DRIVSAV1      LOOK AT DRIVE FLAG              MTD25150
 002448     C300 000E              2516           THI   R0,X'E'          OTHER DRIVES AVAILABLE          MTD25160
 00244C     4230 22A6              2517           BNZ   INIT.00A         YES                             MTD25170
 002450     41F0 1B9A              2518           BAL   R15,KBRD         ENABLE CONSOLE INT              MTD25180
 002454     58F0 4000 84D0         2519           L     R15,SAVR15       RESTORE R15                     MTD25190
 00245A     030F                   2520           BR    R15              RETURN                          MTD25200

 00245C     4259 5445 5320 544F    2522  MESSAGA  DC    C'BYTES TO BE TRANSFERRED = X"3FF"',X'0D0A'      MTD25220
 002464     2042 4520 5452 414E
 00246C     5346 4552 5245 4420
 002474     3D20 5822 3346 4622
 00247C     0D0A
 00247E     4259 5445 5320 544F    2523  MESSAGAA DC    C'BYTES TO BE TRANSFERRED=X"FF"',X'0D0A'         MTD25230
 002486     2042 4520 5452 414E
 00248E     5346 4552 5245 443D
 002496     5822 4646 2220
 00249C     0D0A
 00249E     4259 5445 5320 544F    2524  MESSAGAB DC    C'BYTES TO BE TRANSFERRED = 2',X'0D0A'           MTD25240
 0024A6     2042 4520 5452 414E
 0024AE     5346 4552 5245 4420
 0024B6     3D20 3220
 0024BA     0D0A
```

```
                                        2526  ************************************************************     MTD25260
                                        2527  *             T E S T    0                                 *     MTD25270
                                        2528  *    MULTIPLEXOR AND SYSTEM STATUS CHECK                   *     MTD25280
                                        2529  *                                                          *     MTD25290
                                        2530  * PURPOSE:                                                 *     MTD25300
                                        2531  * THIS SUBTEST WILL CHECK OUT THE INTERFACE MULTIPLEXO*          MTD25310
                                        2532  * BUS IN A STATIC STATE. IT WILL INDICATE A GO-NO*O CO*DITION    MTD25320
                                        2533  * FOR THE FORMATTER AND DRIVES.                            *     MTD25330
                                        2534  *                                                          *     MTD25340
                                        2535  * ASSUMPTIONS:                                             *     MTD25350
                                        2536  * THIS TEST ASSUMES THAT THERE IS AT LEAST AN INTERFAC*          MTD25360
                                        2537  * CONFIGURATED IN THE SYSTEM.                              *     MTD25370
                                        2538  *                                                          *     MTD25380
                                        2539  * DESIGN SPEC.:                                            *     MTD25390
                                        2540  * THE TEST STARTS WITH A CHECKOUT TO SEE IF THE INTERF*CE        MTD25400
                                        2541  * IS INSTALLED AND ADDRESSED ACCORDING TO THE OPTION. *          MTD25410
                                        2542  * IT FOLLOWS THIS WITH A CHECKOUT OF THE INTERFACE'S  *          MTD25420
                                        2543  * CAPABILITY TO RESPONSE TO IO COMMANDS.                   *     MTD25430
                                        2544  * IT THEN CHECKS TO SEE IF THE SELCH IS INSTALLED          *     MTD25440
                                        2545  * AND THE ADDRESS IS ALSO CORRECT.                         *     MTD25450
                                        2546  * THE TEST ENDS WITH A CHECK OF THE INTERFACE STATUS  *          MTD25460
                                        2547  * BYTE AND CHECKS EACH BIT TO SEE IF THE SYSTEM IS IN *          MTD25470
                                        2548  * A GO-NOGO STATUS FOR FURTHER TESTING.                    *     MTD25480
                                        2549  *                                                          *     MTD25490
                                        2550  * ERRORS:                                                  *     MTD25500
                                        2551  *                                                          *     MTD25510
                                        2552  * OPTIONS APPLICABLE TO THIS TEST:                         *     MTD25520
                                        2553  * DRIVE - DRIVE ADDRESS                                    *     MTD25530
                                        2554  * SELCH  - SELCH ADDRESS X'00'= NO SELCH                   *     MTD25540
                                        2555  * ONLINE - DRIVE IS CONNECTED - X'01'= ONLINE              *     MTD25550
                                        2556  *                                                          *     MTD25560
                                        2557  * HOW TO RUN THE TEST:                                     *     MTD25570
                                        2558  * THE TEST WILL EXECUTE EVER TIME "RUN" IS GIVEN           *     MTD25580
                                        2559  * !IF CONTIN=1 TEST 0 WILL RUN ONLY IF SELECTED!           *     MTD25590
                                        2560  *                                                          *     MTD25600
                                        2561  ************************************************************     MTD25610


0024BC        4810 2052                 2563  TEST0    LH    R1,DRIVE+$VALU1     GET DEVICE ONE ADDRESS        MTD25630
0024C0        4010 4000 8408            2564           STH   R1,DRIVSAV          SAVE ADDRESS                  MTD25640
0024C6        2401                      2565           LIS   R0,1                SET DRIVE FLAG                MTD25650
0024C8        4000 4000 840A            2566           STH   R0,DRIVSAV1                                       MTD25660

                                        2568  * FALSE SYNC ON ADDRESS AND STATUS REQUEST?                      MTD25680
0024CE        41F0 4000 838C            2569  TEST0.1  BAL   R15,LOOPTOP         SET UP ADDRESSES              MTD25690
0024D4        0000 2588                 2570           DAC   TEST0.5             NEXT TEST SEQUENCE            MTD25700
0024D8        0000 2588                 2571           DAC   TEST0.5             PROCEED LIMIT                 MTD25710
0024DC        41E0 4000 7BDC            2572           BAL   R14,SENSTA          DO A SENSE STATUS:            MTD25720
0024E2        C430 00D4                 2573           NHI   R3,X'D4'            DELETE ANY UNWANTED BITS      MTD25730
0024E6        C530 0004                 2574           CLHI  R3,X'04'            IS IT FALSE SYNC              MTD25740
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```
*0024EA  213D       =002504            BNE   TESTO.2A          NO! CONTINUE TESTING               MTD25750
 0024EC  E650 2A80                     LA    R5,TOERMSG1       FALSE SYNC ON DRIVE ***            MTD25760
 0024F0  41E0 2564                     BAL   R14,TOERRORA                                         MTD25770
 0024F4  E6F0 28FA                     LA    R15,TO.E000                                          MTD25780
 0024F8  E6E0 4000 8596                LA    R14,CONTMSG       SUSPECTED ERROR WITH CONTROLLER    MTD25790
 0024FE  4300 4000 82CC                B     ERRORX                                               MTD25800
                              * FALSE SYNC ON COMMAND?                                            MTD25810
 002504  41E0 4000 7BCA       TESTO.2A BAL   R14,TMCLEAR       OUTPUT CLEAR                       MTD25820
*00250A  234D       =002524            BNO   TESTO.3A          NO! NEXT TEST                      MTD25830
 00250C  E650 2A80                     LA    R5,TOERMSG1       FALSE SYNC ON DRIVE ***            MTD25840
 002510  41E0 2564                     BAL   R14,TOERRORA                                         MTD25850
 002514  E6F0 2908                     LA    R15,TO.E001       EXECUTING OC                       MTD25860
 002518  E6E0 4000 8596                LA    R14,CONTMSG       SUSPECTED ERROR WITH CONTROLLER    MTD25870
 00251E  4300 4000 82CC                B     ERRORX                                               MTD25880
                              * FALSE SYNC ON DATA AVAILABLE?                                     MTD25890
 002524  41E0 289E            TESTO.3A BAL   R14,RITEDATA      WRITE DATA TO INTERFACE            MTD25900
*002528  234D       =002542            BNO   TESTO.4A          NO! NEXT TEST                      MTD25910
 00252A  E650 2A80                     LA    R5,TOERMSG1       FALSE SYNC ON DRIVE ***            MTD25920
 00252E  41E0 2564                     BAL   R14,TOERRORA                                         MTD25930
 002532  E6F0 2916                     LA    R15,TO.E002       EXECUTING WRITE DATA               MTD25940
 002536  E6E0 4000 8596                LA    R14,CONTMSG       SUSPECTED ERROR WITH CONTROLLER    MTD25950
 00253C  4300 4000 82CC                B     ERRORX                                               MTD25960
                              * FALSE SYNC ON DATA REQUEST?                                       MTD25970
 002542  41E0 28A6            TESTO.4A BAL   R14,RDDATA        READ DATA                          MTD25980
 002546  4340 4000 834E                BNO   PASS              NO! NEXT TEST                      MTD25990
 00254C  E650 2A80                     LA    R5,TOERMSG1       FALSE SYNC ON DRIVE ***            MTD26000
 002550  41E0 2564                     BAL   R14,TOERRORA                                         MTD26010
 002554  E6F0 2924                     LA    R15,TO.E003       EXECUTING RD                       MTD26020
 002558  E6E0 4000 8596                LA    R14,CONTMSG       SUSPECTED ERROR WITH CONTROLLER    MTD26030
 00255E  4300 4000 82CC                B     ERRORX            OUTPUT MESSAGES                    MTD26040
                              *                                                                   MTD26050
                              * THIS ERROR ROUTINE IS TAILORED TO ANY ERROR MESSAGE               MTD26060
                              * THAT CAN OCCUR FROM 'TESTO' TO THIS POINT                         MTD26070
                              *                                                                   MTD26080
 002564  D000 4000 8990       TOERRORA STM   R0,ERRSAVE        SAVE REGISTERS                     MTD26090
 00256A  4810 4000 8408                LH    R1,DRIVSAV        DRIVE ADDRESS                      MTD26100
 002570  2403                          LIS   R0,3              DIGIT CONVERSION                   MTD26110
 002572  E620 2A94                     LA    R2,TOERMSG1+20    STORED HERE                        MTD26120
 002576  41F0 1680                     BAL   R15,HEXASC        AFTER CONVERSION                   MTD26130
 00257A  41F0 4000 836E                BAL   R15,LOOP2         OUTPUT FIRST MESSAGE               MTD26140
 002580  D100 4000 8990                LM    R0,ERRSAVE        RESTORE REGISTERS                  MTD26150
 002586  030E                          BR    R14               RETURN                             MTD26160

                              ***************************************************************     MTD26180
                              *                                                             *     MTD26190
                              * CHECK ONLINE OPTION AND SELCH ADDRESS                       *     MTD26200
                              *                                                             *     MTD26210
                              ***************************************************************     MTD26220

 002588  41F0 4000 838C       TESTO.5  BAL   R15,LOOPTOP       CALCULATE SEQUENCE ADDRESS         MTD26240
 002590  0000 25D2                     DAC   TESTO.6                                              MTD26250
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002594     0000 25D2                    DAC   TEST0.6                                            MTD26260
002598     7320 2108                    LHL   R2,SELCH+SVALU1     GET SELCH ADDRESS              MTD26270
00259C     C520 0000                    CLHI  R2,X'0000'          IS THERE A SELCH?              MTD26280
0025A0     4330 4000 834E               BE    PASS                NO! SO SKIP THIS TEST          MTD26290
                              * FALSE SYNC ON SELCH?                                             MTD26300
0025A6     41E0 4000 7C4C               BAL   R14,SENSTA2         DO A STATUS CHECK ON SELCH     MTD26310
0025AC     C530 0004                    CLHI  R3,X'04'            FALSE SYNC?                    MTD26320
0025B0     4230 4000 834E               BNE   PASS                NO! GO TO NEXT TEST            MTD26330
0025B6     2403                         LIS   R0,3                DIGITS TO CONVERT              MTD26340
0025B8     0812                         LR    R1,R2               SELCH ADDRESS                  MTD26350
0025BA     E620 2946                    LA    R2,T0.E003A+20      STORED HERE                    MTD26360
0025BE     41F0 1680                    BAL   R15,HEXASC          AFTER CONVERSION               MTD26370
0025C2     E6F0 2932                    LA    R15,T0.E003A                                       MTD26380
0025C6     E6E0 4000 85B8               LA    R14,SELMSG          SUSPECTED ERROR WITH SELCH     MTD26390
0025CC     4300 4000 82CC               B     ERRORX                                             MTD26400

0025D2     41F0 4000 838C     TEST0.6   BAL   R15,LOOPTOP         CALCULATE ADDRESSES            MTD26420
0025D8     0000 26F4                    DAC   TEST0.7             NEXT SEQUENCE                  MTD26430
0025DC     0000 280C                    DAC   TST0.END            PROCEED LIMIT                  MTD26440
0025E0     4800 20DE                    LH    R0,ONLINE+SVALU1    IS THIS TESTMODE OR ONLINE?    MTD26450
0025E4     4330 4000 834E               BZ    PASS                IF TESTMODE, JUMP OUT          MTD26460
0025EA     4810 4000 8408               LH    R1,DRIVSAV          GET DRIVE ADDRESS              MTD26470
0025F0     C800 0030                    LHI   R0,X'30'            LOAD EXP. STATUS               MTD26480
0025F4     4000 4000 83C8               STH   R0,STATGD           STORE FOR POSSIBLE USE         MTD26490
                              ******************************************************             MTD26500
                              *                                                    *             MTD26510
                              *         STATUS BYTE CHECK-ONLINE                   *             MTD26520
                              *                                                    *             MTD26530
                              ******************************************************             MTD26540

                              * DU BIT SET?                                                      MTD26560
0025FA     41E0 4000 7B9A               BAL   R14,CCLEAR          CLEAR INTERFACE AGAIN          MTD26570
002600     41E0 4000 7BDC               BAL   R14,SENSTA          TAKE A STATUS READING          MTD26580
002606     C430 0001                    NHI   R3,X'01'            ISOLATE DU BIT                 MTD26590
00260A     4330 2644                    BZ    TEST0.6B            NO! CONTINUE ON                MTD26600
00260E     E650 294C                    LA    R5,T0.E004          DRIVE UNAVAILABLE              MTD26610
002612     C800 0034          TOR00     LHI   R0,X'34'            EXPECTED STATUS                MTD26620
002616     4000 4000 83C8               STH   R0,STATGD                                          MTD26630
00261C     41E0 28AE                    BAL   R14,TOERRORB        MESSAGE SETUP                  MTD26640
002620     E6F0 2A4C                    LA    R15,MESSAGE1        DRIVE,STATUS EXP & STATUS REC  MTD26650
002624     4800 4000 83C4               LH    R0,STATUS           LOOK AT STATUS AGAIN           MTD26660
00262A     C300 000A                    THI   R0,X'A'             IS IT 'EOF' OR 'BSY'           MTD26670
*00262E    2137       =00263C           BNZ   TOR00B              YES, THEN CONTROLLER           MTD26680
002630     E6E0 4000 852A               LA    R14,DRIVMSG         SUSPECTED ERROR WITH DRIVE     MTD26690
002636     4300 4000 82CC     TOR00A    B     ERRORX              OUTPUT MESSAGES                MTD26700
00263C     E6E0 4000 8596     TOR00B    LA    R14,CONTMSG         SUSPECTED ERROR WITH CONTROLLER MTD26710
002642     2206       =002636           BS    TOR00A                                             MTD26720
                              * EOF BIT SET?                                                     MTD26730
002644     4830 4000 83C4     TEST0.6B  LH    R3,STATUS           TRY NEXT STATUS BIT            MTD26740
00264A     C430 0002                    NHI   R3,X'02'            THIS ONES TO BE EOF            MTD26750
00264E     C530 0002                    CLHI  R3,X'02'                                           MTD26760
*002652    2135       =00265C           BNE   TEST0.6C                                           MTD26770
002654     E650 2960                    LA    R5,T0.E005          'EOF'SET UNJUSTLY              MTD26780
```

TEST 0

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 002658    4300 2612                         B     TOR00
                              * BUSY BIT SET?
 00265C    4830 4000 83C4     TEST0.6C LH    R3,STATUS          LET'S LOOK AT BUSY
 002662    C430 0008                   NHI   R3,X'08'           MASK EVERYTHING ELSE
 002666    C530 0008                   CLHI  R3,X'08'           IS BUSY ACTIVE?
*00266A    2135       =002674          BNE   TEST0.6D           NO! CONTINUE ON
 00266C    E650 2980                   LA    R5,T0.E006         'BUSY' STATUS SET UNJUSTLY
 002670    4300 2612                   B     TOR00
                              * NO-MOTION BIT SET?
 002674    4830 4000 83C4     TEST0.6D LH    R3,STATUS          HOW ABOUT NO-MOTION AT
 00267A    C430 0010                   NHI   R3,X'10'           THIS TIME?
 00267E    C530 0010                   CLHI  R3,X'10'           IS NO-MOTION ACTIVE?
*002682    2335       =00268C          BE    TEST0.6E           YES! CONTINUE TESTING
 002684    E650 29A0                   LA    R5,T0.E007         'NO MOTION' STATUS IS NOT SET
 002688    4300 2612                   B     TOR00
                              * ET(BOT) BIT SET?
 00268C    2440               TEST0.6E LIS   R4,0               ZERO OUT FLAG
 00268E    4830 4000 83C4     ET.1     LH    R3,STATUS          NOW LET'S SEE IF WE HAVE
 002694    C430 0020                   NHI   R3,X'20'           LOAD POINT INDICATION
 002698    C530 0020                   CLHI  R3,X'20'           IS BOT ACTIVE?
 00269C    4330 26C0                   BE    TEST0.6F           YES! CONTINUE TESTING
 0026A0    C540 0001                   CLHI  R4,X'01'           WAS A REWIND GIVEN?
 0026A4    233A       =0026B8          BES   ET.3               YES! BUT STILL WE HAVE AN ERROR
 0026A6    41F0 4000 80D2              BAL   R15,REWMT          REWIND MAG TAPE
 0026AC    2441                        LIS   R4,1               FLAG THE REWIND TRY
 0026AE    41E0 4000 7BDC              BAL   R14,SENSTA         LOAD STATUS
 0026B4    4300 268E                   B     ET.1               AND TRY AGAIN
 0026B8    E650 29C0          ET.3     LA    R5,T0.E008         'EOT' DID NOT SET AFTER REWIND
 0026BC    4300 2612                   B     TOR00
                              * TERR STATUS BIT SET?
 0026C0    4830 4000 83C4     TEST0.6F LH    R3,STATUS          HOW ABOUT TERR STAT?
 0026C6    C430 0040                   NHI   R3,X'40'           ZERO IN ON BIT
 0026CA    C530 0040                   CLHI  R3,X'40'           IS IT SET?
*0026CE    2135       =0026D8          BNE   TEST0.6G           NO! CONTINUE TEST
 0026D0    E650 29E0                   LA    R5,T0.E009         'TERR' STATUS BIT SET UNJUSTLY
 0026D4    4300 2612                   B     TOR00
                              * ERR STATUS BIT SET?
 0026D8    4830 4000 83C4     TEST0.6G LH    R3,STATUS          LAST BUT NOT LEAST-ERR
 0026DE    C430 0080                   NHI   R3,X'80'           ZERO IN ON THIS BIT
 0026E2    C530 0080                   CLHI  R3,X'80'           IS IT SET
 0026E6    4230 4000 834F              BNE   PASS               NO! CONTINUE TESTING
 0026EC    E650 2A00                   LA    R5,T0.E00A         'ERR' STATUS BIT SET UNJUSTLY
 0026F0    4300 2612                   B     TOR00
                              *
                              * CHECK LOCAL LOOP BACK
                              *
                              *
 0026F4    41F0 4000 838C     TEST0.7  BAL   R15,LOOPTOP
 0026FC    0000 280C                   DAC   TST0.END
 002700    0000 280C                   DAC   TST0.END           PROCEED LIMIT
 002704    73A0 200C                   LHL   R10,BYTES+$VALU1   GET BYTES VALUE
 002708    4800 20C2                   LH    R0,FIFO+$VALU1     CHECK FIFO OPTION
*00270C    213A       =002720          BNZ   T0.7A              IF LARGER FIFO
```

TEST 0

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 00270E   C5A0 0101                CLHI  R10,X'101'       DOES BYTES EXCEED MAXIMUM?          MTD27320
 002712   4280 2734                BL    T0.000A          IF NOT, CONTINUE                    MTD27330
 002716   C8A0 0100                LHI   R10,X'100'       OTHERWISE, SET TO MAXIMUM           MTD27340
 00271A   E650 247E                LA    R5,MESSAGAA      BYTES TRANSFERRED=X'FF'             MTD27350
*00271E   2308      =00272E        B     T0.MSGA          OUTPUT AND CONTINUE                 MTD27360
 002720   C5A0 0401      T0.7A     CLHI  R10,X'401'       EXCEED MAXIMUM FOR LARGE FIFO       MTD27370
*002724   2188      =002734        BL    T0.000A          OK IF NOT                           MTD27380
 002726   C8A0 0400                LHI   R10,X'400'       SET BYTE TO MAXIMUM ALLOWED         MTD27390
 00272A   E650 245C                LA    R5,MESSAGA       AND TELL USER                       MTD27400
 00272E   41F0 4000 836F T0.MSGA   BAL   R15,LOOP2        OUTPUT IF POSSIBLE                  MTD27410
 002734   27A1           T0.000A   SIS   R10,1            ADJUST FOR ZEROITH BYTE             MTD27420
 002736   085A                     LR    R5,R10           LOAD INTO ANOTHER REGISTER          MTD27430
 002738   4840 2036                LH    R4,DATA+SVALU1   IS DATA PATTERN USER SPECIFIED?     MTD27440
*00273C   2134      =002744        BNZ   T0.000           YES                                 MTD27450
 00273E   4840 4000 8430           LH    R4,TESTPAT+10    USE TEST PATTERN                    MTD27460
 002744   4040 4000 8424 T0.000    STH   R4,DATAPAT       SAVE IT                             MTD27470
 00274A   41E0 4000 7BCA           BAL   R14,TMCLEAR      CLEAR INTERFACE                     MTD27480
 002750   41E0 4000 7C8C           BAL   R14,CTESTMDE                                         MTD27490
 002756   41E0 4000 7C80           BAL   R14,CWRITE                                           MTD27500
 00275C   9814           T0.102    WHR   R1,R4            WRITE DATA TO INTERFACE             MTD27510
 00275E   27A2                     SIS   R10,2            DECREMENT BYTE COUNT                MTD27520
*002760   2282      =00275C        BNL   T0.102           CONTINUE                            MTD27530
 002762   08A5                     LR    R10,R5           RESTORE R10                         MTD27540
                         *                                                                    MTD27550
 002764   E690 4001 89D0           LA    R9,READBUF       ADDRESS OF READ BUFFER              MTD27560
 00276A   5090 4000 84DC           STA   R9,RDBUF         STORE IT                            MTD27570
 002770   0A95                     AAR   R9,R5            ADD BYTE AMOUNT                     MTD27580
 002772   5090 4000 84D8           STA   R9,ENDBUF        ADDRESS SET UP                      MTD27590
 002778   41F0 4000 7E18           BAL   R15,CLRBUF       CLEAR READ BUFFER                   MTD27600
 00277E   41E0 4000 7C5A           BAL   R14,CREAD        ISSUE READ COMMAND                  MTD27610
 002784   E690 4001 89D0           LA    R9,READBUF       READBUF ADDRESS                     MTD27620
 00278A   C800 07FF                LHI   R0,X'7FF'        TIME LIMIT                     R01  MTD27630
 00278E   41E0 4000 7BDC T0.104    BAL   R14,SENSTA       CHECK STATUS                   R01  MTD27640
 002794   C330 0008                THI   R3,X'08'         IS BSY SET                     R01  MTD27650
*002798   233A      =0027AC        BZ    T0.105           CONTINUE WHEN RESET            R01  MTD27660
 00279A   2701                     SIS   R0,1             DECREMENT TIMER                R01  MTD27670
*00279C   2037      =00278E        BNZ   T0.104           CHECK STATUS AGAIN             R01  MTD27680
 00279E   E650 4000 87E8           LA    R5,TSTERRB       TIMED OUT WAITING FOR NONBUSYR01    MTD27690
 0027A4   2400                     LIS   R0,0             EXPECTED STATUS                R01  MTD27700
 0027A6   4300 4000 7C0E           B     TR00             ERROR SETUP AND OUT            R01  MTD27710
 0027AC   D919 0000      T0.105    RH    R1,0(R9)         READ INTO READ BUFFER               MTD27720
 0027B0   2692                     AIS   R9,2             INCREMENT ADDRESS                   MTD27730
 0027B2   27A2                     SIS   R10,2            DECREMENT BYTE COUNT                MTD27740
 0027B4   4380 278E                BNL   T0.104           CONTINUE TIL COMPLETE               MTD27750
 0027B8   2420                     LIS   R2,0             ZERO OUT TOGGLE INDEX REGISTER      MTD27760
 0027BA   E630 4000 8424           LA    R3,DATAPAT       GET ADDRESS OF WHERE DATA IS        MTD27770
 0027C0   2470                     LIS   R7,0             CLEAR INDEX REGISTER                MTD27780
 0027C2   D363 4200 0000 T0.COMP   LB    R6,0(R3,R2)      DATA EXPECTED                       MTD27790
 0027C8   D387 4001 89D0           LB    R8,READBUF(R7)   DATA READ                           MTD27800
 0027CE   0568                     CLR   R6,R8            COMPARE FOR EQUALITY                MTD27810
*0027D0   2139      =0027E2        BNE   T0.ERR                                               MTD27820
 0027D2   2671                     AIS   R7,1             INCREMENT INDEX REGISTER            MTD27830
 0027D4   C720 0001                XHI   R2,1             REVERSE R2                          MTD27840
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TEST 0

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 0027D8   0557                         CLR   R5,R7               COMPARE TO BYTES                    MTD27850
*0027DA   208C       =0027C2           BL    T0.COMP             CONTINUE UNTIL FINISHED             MTD27860
 0027DC   4300 4000 834E               B     PASS                NEXT SEQUENCE                       MTD27870
                                 * DATA ERRORS !!                                                    MTD27880
 0027E2   4060 4000 84FC       T0.ERR  STH   R6,WSTORE           STORE WRITE WORD                    MTD27890
 0027E8   4080 4000 84FE               STH   R8,RSTORE           AND STORE IT                        MTD27900
 0027EE   4070 4000 8414               STH   R7,INDEX            SET INDEX                           MTD27910
 0027F4   E650 2A20                    LA    R5,T0.E00D          INCOR DATA COMP AFTER WRITE TO CPU  MTD27920
 0027F8   41E0 2CC4                    BAL   R14,T1ERRORA        DR, DATA WR & DATA RD               MTD27930
 0027FC   E6F0 35F6                    LA    R15,MESSG3A                                             MTD27940
 002800   E6E0 4000 8596               LA    R14,CONTMSG         SUSPECTED ERROR WITH CONTROLLER     MTD27950
 002806   4300 4000 82CC               B     ERRORX                                                  MTD27960
                                 *****************************************************               MTD27970
                                 *                                                                   MTD27980
 00280C   41F0 2836            TST0.END BAL  R15,TST.DRIV        CHECK FOR OTHER DRIVES              MTD27990
 002810   4800 4000 840A               LH    R0,DRIVSAV1         CHECK FLAG IF SET                   MTD28000
 002816   C300 000E                    THI   R0,X'E'                                                 MTD28010
*00281A   2336       =002826           BZ    T0.ENDA             NO OTHER DRIVES TO BE TESTED.       MTD28020
 00281C   41F0 4000 7D58               BAL   R15,IT.B1           INIT TEST FOR NEXT DRIVE            MTD28030
 002822   4300 24CE                    B     TEST0.1             BEGIN TEST 0                        MTD28040
 002826   4810 4000 8408       T0.ENDA LH    R1,DRIVSAV          RESTORE DRIVE ADDR                  MTD28050
 00282C   41E0 4000 7BCA               BAL   R14,TMCLEAR         CLEAR INTERFACE                     MTD28060
 002832   4300 133C                    B     TSTEND              NO, END TEST                        MTD28070


                                 *****************************************************               MTD28090
                                 *  THIS ROUTINE IS USED BY ALL THE SUBTESTS TO        *             MTD28100
                                 *  DETERMINE IF ANOTHER DRIVE IS SPECIFIED TO BE      *             MTD28110
                                 *  TESTED.                                            *             MTD28120
                                 *****************************************************               MTD28130
 002836   4800 4000 840A       TST.DRIV LH   R0,DRIVSAV1         LOOK AT FLAG                        MTD28140
 00283C   C400 000E                    NHI   R0,X'E'             CHECK FOR X'E'ND DRIVE ADDRESS      MTD28150
*002840   213D       =00285A           BNZ   TD.DR3                                                  MTD28160
 002842   4810 2054                    LH    R1,DRIVE+$VALU2     ## LOAD ADDRESS OF 2ND DRIVE        MTD28170
 002846   4330 2894                    BZ    TSTDRV.0            NONE SPECIFIED                      MTD28180
 00284A   4010 4000 8408               STH   R1,DRIVSAV          SAVE DRIVE ADDRESS                  MTD28190
 002850   2402                         LIS   R0,2                SET UP FLAG                         MTD28200
 002852   4000 4000 840A               STH   R0,DRIVSAV1                                             MTD28210
 002858   030F                         BR    R15                 TRY THIS TEST FOR THIS DRIVE        MTD28220
 00285A   C400 000C            TD.DR3  NHI   R0,X'C'             IS A THIRD DRIVE NEXT               MTD28230
*00285E   213D       =002878           BNZ   TD.DR4                                                  MTD28240
 002860   4810 2060                    LH    R1,DRIVE+$VALU1+$STRUC1 LOAD THIRD DRIVE ADDR           MTD28250
 002864   4330 2894                    BZ    TSTDRV.0                                                MTD28260
 002868   4010 4000 8408               STH   R1,DRIVSAV          SAV DRIVE ADDR                      MTD28270
 00286E   2404                         LIS   R0,4                SET UP FLAG                         MTD28280
 002870   4000 4000 840A               STH   R0,DRIVSAV1         TO SAY THIRD TESTED                 MTD28290
 002876   030F                         BR    R15                 RETURN                              MTD28300
 002878   C400 0008            TD.DR4  NHI   R0,8                CHECK FLAG                          MTD28310
*00287C   213C       =002894           BNZ   TSTDRV.0                                                MTD28320
 00287E   4810 2062                    LH    R1,DRIVE+$VALU2+$STRUC1                                 MTD28330
*002882   2339       =002894           BZ    TSTDRV.0            NO FOURTH SPECIFIED                 MTD28340
 002884   4010 4000 8408               STH   R1,DRIVSAV          SAVE DRIVE ADDR                     MTD28350
```

TEST 0

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00288A     2408                2836          LIS   R0,8              SET UP FLAG                          MTD28360
00288C     4000 4000 840A      2837          STH   R0,DRIVSAV1       TO INDICATE 4TH IN USE               MTD28370
002892     030F                2838          BR    R15               EXECUTE TEST                         MTD28380
                               2839 *                                                                   MTD28390
002894     2400                2840 TSTDRV.0 LIS   R0,0                                                 MTD28400
002896     4000 4000 840A      2841          STH   R0,DRIVSAV1       CLEAR FLAG                           MTD28410
00289C     030F                2842          BR    R15               RETURN                               MTD28420
                               2843 *                                                                   MTD28430
                               2844 *    R I T E D A T A                                                MTD28440
                               2845 *                                                                   MTD28450
00289E     D810 4000 8416      2846 RITEDATA WH    R1,ZEROS          ZERO DATA PATTERN                    MTD28460
0028A4     030E                2847          BR    R14               RETURN                               MTD28470

                               2849 *                                                                   MTD28490
                               2850 *    R D D A T A                                                    MTD28500
                               2851 *                                                                   MTD28510
0028A6     D910 4000 8446      2852 RDDATA   RH    R1,BUFFZ                                             MTD28520
0028AC     030E                2853          BR    R14               RETURN                               MTD28530

                               2855 *                                                                   MTD28550
                               2856 * THIS ERROR ROUTINE IS DESIGNED TO OUTPUT:                         MTD28560
                               2857 *  1) WHAT THE TEST WAS TRYING TO DO.                               MTD28570
                               2858 *  2) WHAT HAPPENED THAT WAS INCORRECT(STATUS INCORRECT HERE)       MTD28580
                               2859 *  3) HELPFUL INFORMATION, DRIVE, STAT EXP                          MTD28590
                               2860 *     AND ACT STAT                                                  MTD28600
                               2861 *                                                                   MTD28610
0028AE     D000 4000 8990      2862 TOERRORB STM   R0,ERRSAVE        SAVE REGISTERS                       MTD28620
0028B4     41F0 4000 836E      2863          BAL   R15,LOOP2         OUTPUT MESSAGES?                     MTD28630
0028BA     E650 2A9A           2864          LA    R5,TOERMSG2       INCORRECT STATUS FROM INTERFACE      MTD28640
0028BE     41F0 4000 836E      2865          BAL   R15,LOOP2         OUTPUT MESSAGE?                      MTD28650
0028C4     4810 4000 8408      2866          LH    R1,DRIVSAV        DRIVE ADDRESS                        MTD28660
0028CA     2403                2867          LIS   R0,3              DIGITS TO CONVERT                    MTD28670
0028CC     E620 2A52           2868          LA    R2,MESSAGE1+6     DRIVE=***                            MTD28680
0028D0     41F0 1680           2869          BAL   R15,HEXASC                                             MTD28690
0028D4     4810 4000 83C8      2870          LH    R1,STATGD         EXPECTED STATUS                      MTD28700
0028DA     2402                2871          LIS   R0,2              DIGITS TO CONVERT           R01      MTD28710
0028DC     E620 2A68           2872          LA    R2,MESSAGE2+16    EXPECTED STATUS=****                 MTD28720
0028E0     41F0 1680           2873          BAL   R15,HEXASC        CONVERT STATUS                       MTD28730
0028E4     4810 4000 83C4      2874          LH    R1,STATUS         ACTUAL STATUS                        MTD28740
0028EA     E620 2A7C           2875          LA    R2,MESSAGE3+16    ACTUAL STATUS=   ****                MTD28750
0028EE     41F0 1680           2876          BAL   R15,HEXASC        CONVERT STATUS                       MTD28760
0028F2     D100 4000 8990      2877          LM    R0,ERRSAVE        RESTORE REGISTERS                    MTD28770
0028F8     030F                2878          BR    R14               RETURN                               MTD28780


0028FA     4558 4543 5554 494E 2880 TO.E000  DC    C'EXECUTING SS',X'0D0A'                                MTD28800
002902     4720 5353
002906     0D0A
002908     4558 4543 5554 494E 2881 TO.E001  DC    C'EXECUTING OC',X'0D0A'                                MTD28810
002910     4720 4F43
```

TEST 0

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002914       0D0A
002916       4558 4543 5554 494E      2882  T0.E002  DC    C'EXECUTING WD',X'0D0A'                                  MTD28820
00291E       4720 5744
002922       0D0A
002924       4558 4543 5554 494E      2883  T0.E003  DC    C'EXECUTING RD',X'0D0A'                                  MTD28830
00292C       4720 5244
002930       0D0A
002932       4641 4C53 4520 5359      2884  T0.E003A DC    C'FALSE SYNC ON SELCH ***',X'0D0A'                       MTD28840
00293A       4E43 204F 4F20 5345
002942       4C43 4820 2A2A 2A20
00294A       0D0A
00294C       4452 4956 4520 554F      2885  T0.E004  DC    C'DRIVE UNAVAILABLE',X'0D0A'                             MTD28850
002954       4156 4149 4C41 424C
00295C       4520
00295E       0D0A
002960       2245 4F46 2220 5354      2886  T0.E005  DC    C'"EOF" STATUS BIT SET UNJUSTLY',X'0D0A'                 MTD28860
002968       4154 5553 2042 4954
002970       2053 4554 2055 4E4A
002978       5553 544C 5920
00297E       0D0A
002980       2242 5553 5922 2053      2887  T0.E006  DC    C'"BUSY" STATUS BIT SET UNJUSTLY',X'0D0A'                MTD28870
002988       5441 5455 5320 4249
002990       5420 5345 5420 554E
002998       4A55 5354 4C59
00299E       0D0A
0029A0       224E 4F2D 4D4F 5449      2888  T0.E007  DC    C'"NO-MOTION" STATUS IS NOT SET',X'0D0A'                 MTD28880
0029A8       4F4E 2220 5354 4154
0029B0       5553 2049 5320 4E4F
0029B8       5420 5345 5420
0029BE       0D0A
0029C0       2242 4F54 2220 4449      2889  T0.E008  DC    C'"BOT" DID NOT SET AFTER REWIND',X'0D0A'                MTD28890
0029C8       4420 4E4F 5420 5345
0029D0       5420 4146 5445 5220
0029D8       5245 5749 4E44
0029DE       0D0A
0029E0       2254 4552 5222 2053      2890  T0.E009  DC    C'"TERR" STATUS BIT SET UNJUSTLY',X'0D0A'                MTD28900
0029E8       5441 5455 5320 4249
0029F0       5420 5345 5420 554E
0029F8       4A55 5354 4C59
0029FE       0D0A
002A00       2245 5252 2220 5354      2891  T0.E00A  DC    C'"ERR" STATUS BIT SET UNJUSTLY',X'0D0A'                 MTD28910
002A08       4154 5553 2042 4954
002A10       2053 4554 2055 4E4A
002A18       5553 544C 5920
002A1E       0D0A
002A20       494E 434F 5252 4543      2892  T0.E00D  DC    C'INCORRECT DATA COMPARE AFTER WRITE TO CPU',X'0D0A'     MTD28920
002A28       5420 4441 5441 2043
002A30       4F4D 5041 5245 2041
002A38       4654 4552 2057 5249
002A40       5445 2054 4F20 4350
002A48       5520
002A4A       0D0A
002A4C       4452 4956 4520 2A2A      2893  MESSAGE1 DC    C'DRIVE ***',X'8D0A'                                     MTD28930
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002A54        2A20
002A56        8D0A
002A58        4558 5045 4354 4544      2894  MESSAGE2 DC    C'EXPECTED STATUS=***',X'8D0A' R01                MTD28940
002A60        2053 5441 5455 533D
002A68        2A2A
002A6A        8D0A
002A6C        4143 5455 414C 2053      2895  MESSAGE3 DC    C'ACTUAL STATUS  =***',X'0D0A' R01                MTD28950
002A74        5441 5455 5320 203D
002A7C        2A2A
002A7E        0D0A
002A80        4641 4C53 4520 5359      2896  TOERMSG1 DC    C'FALSE SYNC ON DRIVE ***',X'0D0A'                MTD28960
002A88        4E43 204F 4F20 4452
002A90        4956 4520 2A2A 2A20
002A98        0D0A
002A9A        494E 434F 5252 4543      2897  TOERMSG2 DC    C'INCORRECT STATUS FROM INTERFACE',X'0D0A'        MTD28970
002AA2        5420 5354 4154 5553
002AAA        2046 524F 4D20 494E
002AB2        5445 5246 4143 4520
002ABA        0D0A

                                       2898  ************************************************************
                                       2899  *                                                          *  MTD28980
                                       2900  *        COME HERE TO CONVERT EITHER RECORD OR FILE        *  MTD28990
                                       2901  *        LENGTH TO ASCII                                   *  MTD29000
                                       2902  *                                                          *  MTD29010
                                       2903  ************************************************************  MTD29020
                                                                                                             MTD29030
                                                                                                             MTD29040
              0000 2ABC                2905  LENASC   EQU   *                                                MTD29050
002ABC        D000 4000 8490           2906           STM   R0,REGSAVE       STORE WORKING REGISTERS          MTD29060
002AC2        2404                     2907           LIS   P0,4             LOAD CHARACTER COUNT             MTD29070
002AC4        7310 4000 844A           2908           LHL   P1,LENSAV        LOAD LENGTH DATA                 MTD29080
002ACA        5620 35EF                2909           LA    R2,MESS3.0+7     LOAD ADDRESS OF STORAGE          MTD29090
002ACE        41F0 1680                2910           BAL   P15,HEXASC       GO AND CONVERT                   MTD29100
002AD2        D100 4000 8490           2911           LM    R0,REGSAVE       RESTORE REGISTERS                MTD29110
002AD8        030F                     2912           BR    P15              RETURN TO CALLER                 MTD29120
```

TEST 1

```
                               ***********************************************************  MTD29140
                               * TEST 1   WORST CASE DATA PATTERNS                       *  MTD29150
                               * PURPOSE: THIS TEST WILL CHECK OUT THE DATA PATH  ON     *  MTD29160
                               * THE INTERFACE AND THRU THE FCU TO THE DRIVES            *  MTD29170
                               * IF CONNECTED.THIS TEST WILL UTILIZE THE SELCH           *  MTD29180
                               * OR DO READ-WRITE DATA TRANSFERS IF SO SELECTED.         *  MTD29190
                               * ASSUMPTIONS: THIS TEST ASSUMES THAT THERE IS AT LEAS*      MTD29200
                               * AN INTERFACE CONFIGURED IN THE SYSTEM.                  *  MTD29210
                               *                                                         *  MTD29220
                               * DESIGN  PEC.: THIS TEST DOES A CHECKOUT OF THE DATA     *  MTD29230
                               * PATHS USING WORST CASE DATA PATTERNS:                   *  MTD29240
                               *                                                         *  MTD29250
                               * FF 88 33 99 01 89 FE 76                                 *  MTD29260
                               * 11 55 77 66 23 AB DC 54                                 *  MTD29270
                               * 22 EE A5 DD 45 CD BA 32                                 *  MTD29280
                               * 44 CC 5A AA 67 EF 98 10                                 *  MTD29290
                               *                                                         *  MTD29300
                               *                                                         *  MTD29310
                               * ERRORS:                                                 *  MTD29320
                               *                                                         *  MTD29330
                               * OPTIONS: DRIVE-DEVICE ONE ADDRESS               *       *  MTD29340
                               *  SELCH- SELCH ADDRESS                                   *  MTD29350
                               *  ONLINE-FCU CONNECTED AND ONLINE X'01'=ONLINE           *  MTD29360
                               *  TRMODE-SELCH OR READ-WRITE DATA                        *  MTD29370
                               *  BYTES-NUMBER OF BYTES PER RECORD TRANSFER              *  MTD29380
                               *  RECORDS-NUMBER OF RECORDS PER FILE TRANSFER    *       *  MTD29390
                               *  FILE-NUMBER OF FILES TO TRANSFER                       *  MTD29400
                               *  DENSITY = 6250 OR 1600 OR 800                          *  MTD29410
                               *                                                         *  MTD29420
                               * HOW TO RUN THE TEST:                                    *  MTD29430
                               * SELECT TEST #1 AND ENTER 'RUN'                          *  MTD29440
                               * NO-ERROR WILL PRINT OUT UPON NORMAL COMPLETION          *  MTD29450
                               * OF THE TEST.                                            *  MTD29460
                               *                                                         *  MTD29470
                               ***********************************************************  MTD29480

                               *                                                            MTD29500
          0000 2ADA            TEST1    EQU   *                                             MTD29510
 002ADA   41F0 4000 7D4A                BAL   R15,TESTINIT         INITIALIZE TEST          MTD29520
          0000 2AE0            TEST1.1  EQU   *                                             MTD29530
 002AE0   4840 2036                     LH    R4,DATA+SVALU1       LOOK AT DATA PATTERN SELECTED  MTD29540
*002AE4   2135       =002AEE            BNZ   TST1.01              USER SPECIFIED           MTD29550
 002AE6   E640 4000 8426                LA    R4,TESTPAT           LOAD ADDRESS OF TEST PATTERNS  MTD29560
*002AEC   2309       =002AFE            B     TST1.1                                        MTD29570
 002AEE   C870 0040            TST1.01  LHI   R7,64                ALLOW 64 BYTES MAXIMUM   MTD29580
 002AF2   4040 4000 8424                STH   R4,DATAPAT           STORE DATA               MTD29590
 002AF8   E640 4000 8424                LA    R4,DATAPAT           ##     LOAD AN ADDRESS   MTD29600
          0000 2AFE            TST1.1   EQU   *                    ##                       MTD29610
                               ***********************************************************  MTD29620
```

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                                2963  *                                                     *          MTD29630
                                2964  * THIS WILL CHECK OUT FIFO CONTROL ON BITS           *          MTD29640
                                2965  *                                                     *          MTD29650
                                2966  *******************************************************          MTD29660

002AFE      41F0 4000 838C      2968  TEST1.1B BAL   R15,LOOPTOP        CALCULATE LOOP ADDRESSES      MTD29680
002B04      0000 2BF4           2969           DAC   TEST1.04           NEXT SEQUENCE                 MTD29690
002B08      0000 2BF4           2970           DAC   TEST1.04           PROCEED LIMIT                 MTD29700
002B0C      41E0 4000 7BCA      2971           BAL   R14,TMCLFAR        CLEAR FIFO'S                  MTD29710
002B12      41E0 4000 7C8C      2972           BAL   R14,CTESTMDE       PUT INF. IN TESTMODE          MTD29720
002B18      41E0 4000 7C80      2973           BAL   R14,CWRITE         PUT INF. IN WRITE MODE        MTD29730
                                2974  * WRITE TWO BYTES                                             MTD29740
002B1E      D814 0000           2975           WH    R1,0(R4)           WRITE A HALFWORD              MTD29750
002B22      41E0 4000 7C22      2976           BAL   R14,SENSTA3        DO A STATUS CHECK             MTD29760
                                2977  * WRITE OK?                                                   MTD29770
002B28      C430 00C0           2978           NHI   R3,X'C0'           CLEAR ALL BUT ERR STATUS      MTD29780
002B2C      C530 0000           2979           CLHI  R3,X'00'           IS IT GOOD STATUS?            MTD29790
002B30      4330 2B54           2980           BE    TEST1.01           YES! CONTINUE ON              MTD29800
*002B34     2400                2981           LHI   R0,X'00'           LOAD DRIVE CONNECTED STAT     MTD29810
002B36      4000 4000 83C8      2982           STH   R0,STATGD          STORE IT                      MTD29820
002B3C      E650 330F           2983           LA    R5,T1.E000         WRITE HALFWORD TO CHECK FIFO CONTROL MTD29830
002B40      41E0 28AE           2984           BAL   R14,TOERRORB       DRIVE, STATUS'S               MTD29840
002B44      E6F0 2A4C           2985           LA    R15,MESSAGE1                                     MTD29850
002B48      E6E0 4000 8596      2986           LA    R14,CONTMSG        SUSPECTED ERROR WITH CONTROLLER MTD29860
002B4E      4300 4000 82CC      2987           B     ERRORX                                           MTD29870
                                2988  * READ TWO BYTES                                              MTD29880
002B54      41E0 4000 7C5A      2989  TEST1.01 BAL   R14,CREAD          PUT INF IN READ MODE          MTD29890
002B5A      41E0 4000 7C22      2990           BAL   R14,SENSTA3        DO A SENSE STATUS             MTD29900
002B60      9916                2991           RHR   R1,R6              READ THE HALFWORD OF DATA     MTD29910
002B62      41E0 4000 7BDC      2992           BAL   R14,SENSTA         CHECK STATUS                  MTD29920
002B68      C430 00C8           2993           NHI   R3,X'C8'           DISABLE ALL BUT ERRS + BUSY   MTD29930
                                2994  * BUSY STILL ACTIVE?                                          MTD29940
002B6C      C530 0008           2995           CLHI  R3,X'08'           STATUS OK?                    MTD29950
002B70      4330 2B94           2996           BE    TEST1.02           YES! CONTINUE                 MTD29960
*002B74     2408                2997           LHI   R0,X'08'           LOAD EXP. STATUS              MTD29970
002B76      4000 4000 83C8      2998           STH   R0,STATGD          STORE IT                      MTD29980
002B7C      E650 333C           2999           LA    R5,T1.E0C1         READ HALFW TO CHECK FIFO CONT BITS MTD29990
002B80      41E0 28AE           3000           BAL   R14,TOERRORB       DRIVE, STATUS'                MTD30000
002B84      E6F0 2A4C           3001           LA    R15,MESSAGE1                                     MTD30010
002B88      E6E0 4000 8596      3002           LA    R14,CONTMSG        SUSPECTED ERROR WITH CONTPOLLER MTD30020
002B8E      4300 4000 82CC      3003           B     ERRORX                                           MTD30030
                                3004  * LET'S CHECK THE TWO BYTES                                   MTD30040
002B94      7334 0000           3005  TEST1.02 LHL   R3,0(R4)           LOAD COMPARE DATA             MTD30050
002B98      0563                3006           CLR   R6,R3              COMPARE READ AND WRITE DATA   MTD30060
002B9A      4330 2BCA           3007           BE    TEST1.03           IF EQUAL CONTINUE ON          MTD30070
002B9E      4030 4000 84FC      3008           STH   R3,WSTORE          STORE IT                      MTD30080
002BA4      4060 4000 84FE      3009           STH   R6,RSTORE          STORE BAD DATA                MTD30090
002BAA      2400                3010           LIS   R0,0                                             MTD30100
002BAC      4000 4000 8414      3011           STH   R0,INDEX           SET INDEX                     MTD30110
002BB2      E650 336A           3012           LA    R5,T1.E002         FIFO CONTROL ON BITS IN TESTMODE MTD30120
002BB6      41E0 2CC4           3013           BAL   R14,T1ERROPA                                     MTD30130
002BBA      E6F0 35F6           3014           LA    R15,MESSG3A        DATA MESSAGES                 MTD30140
002BBE      E6E0 4000 8596      3015           LA    R14,CONTMSG        SUSPECTED ERROR WITH CONTROLLER MTD30150
```

TEST 1

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 002BC4    4300 4000 82CC          3016          B     ERRORX                                          MTD30160
                                   3017  * LET'S TRY DIFFERENT PATTERNS                                    MTD30170
 002BCA    4800 2036               3018  TEST1.03 LH    R0,DATA+SVALU1                                  MTD30180
*002BCE    213D       =002BE8      3019          BNZ   TST1.03           DATA IS USER SPECIFIED        MTD30190
 002BD0    2642                    3020          AIS   R4,2              INCREMENT DATA PAT.INDEX      MTD30200
 002BD2    E680 4000 8426          3021          LA    R8,TESTPAT        LOAD END OF PAT ADDR          MTD30210
 002BD8    CA80 0020               3022          AHI   R8,32                                           MTD30220
 002BDC    0948                    3023          CAR   R4,R8             HAVE WE DONE ALL PATTERNS     MTD30230
 002BDE    4230 2AFE               3024          BNE   TEST1.1B          NO! CONTINUE THIS TEST        MTD30240
 002BE2    4300 4000 834E          3025          B     PASS              OK FINISHED                   MTD30250
 002BE8    41F0 1A8C               3026  TST1.03  BAL   R15,TSTBRK        CHECK FOR BREAK TERMINATION   MTD30260
 002BEC    2771                    3027          SIS   R7,1              DECREMENT BYTE COUNTER        MTD30270
*002BEE    2333       =002BF4      3028          BZ    TEST1.04          IF FINISHED, PASS ON          MTD30280
 002BF0    4300 2AFE               3029          B     TEST1.1B          ELSE CONTINUE                 MTD30290
                                   3030  *******************************************************       MTD30300
                                   3031  *                                                     *       MTD30310
                                   3032  * THIS WILL CHECK OUT FIFO BUSY LOGIC                 *       MTD30320
                                   3033  *                                                     *       MTD30330
                                   3034  *******************************************************       MTD30340
 002BF4    41F0 4000 838C          3035  TEST1.04 BAL   R15,LOOPTOP                                     MTD30350
 002BFC    0000 2D36               3036          DAC   TEST1.06                                        MTD30360
 002C00    0000 2D36               3037          DAC   TEST1.06                                        MTD30370
 002C04    41E0 4000 7BCA          3038          BAL   R14,TMCLEAR       CLEAR INTERFACE               MTD30380
 002C0A    41E0 4000 7C8C          3039          BAL   R14,CTESTMDE      PUT INF IN TEST MODE          MTD30390
 002C10    E640 4000 842E          3040          LA    R4,TESTPAT+8      LOAD ADDR OF SOME DATA        MTD30400
                                   3041  * MAXIMUM COUNT = FIFO(256) + READ LATCHES(2) BYTES            MTD30410
 002C16    4800 20C2               3042          LH    R0,FIFO+SVALU1    GAPLESS VERSION?              MTD30420
*002C1A    2134       =002C22      3043          BNZ   T1.4A             YES IF NON ZERO               MTD30430
 002C1C    C860 0100               3044          LHI   R6,X'100'         LOAD A COUNT FOR 256 HW       MTD30440
*002C20    2303       =002C26      3045          B     T1.04A                                          MTD30450
 002C22    C860 0400               3046  T1.4A    LHI   R6,X'400'         LOAD GAPLESS MAXIMUM TO FILL FIFO MTD30460
 002C26    E680 4000 84F0          3047  T1.04A   LA    R8,TSTBUF         LOAD ADDRESS OF TEMP STORE    MTD30470
 002C2C    41E0 4000 7C80          3048          BAL   R14,CWRITE        PUT INTERFACE INTO WRITE MODE MTD30480
 002C32    D814 0000               3049  TST1.2A  WH    R1,0(R4)          WRITE PATTERN TO INF.         MTD30490
 002C36    2761                    3050          SIS   R6,1              DECREMENT HW COUNTER          MTD30500
 002C38    2213       =002C32      3051          BNMS  TST1.2A           KEEP OUTPUTTING               MTD30510
                                   3052  * FIFO SHOULD BE FULL NOW                                         MTD30520
                                   3053  * BUSY SHOULD LET US TIME OUT                                     MTD30530
 002C3A    246A                    3054          LIS   R6,10             LOAD TIMER                    MTD30540
 002C3C    41E0 4000 7BDC          3055  TST1.2B  BAL   R14,SENSTA        TAKE STATUS CHECK AND         MTD30550
 002C42    2385       =002C4C      3056          BNCS  T1R01             ERROR IF NO CARRY             MTD30560
 002C44    2761                    3057          SIS   R6,1                                            MTD30570
*002C46    2035       =002C3C      3058          BNZ   TST1.2B                                         MTD30580
 002C48    4300 2C78               3059          B     TEST1.05                                        MTD30590
 002C4C    C830 0038               3060  T1R01    LHI   R3,X'38'          LOAD GOOD STATUS              MTD30600
 002C50    4030 4000 83C8          3061          STH   R3,STATGD         STORE IT                      MTD30610
 002C56    E650 35CE               3062          LA    R5,T1ERMSG2       CHECK OF FIFO BUSY LOGIC      MTD30620
 002C5A    41F0 4000 836F          3063          BAL   R15,LOOP2         OUTPUT MESSAGES?              MTD30630
 002C60    E650 339C               3064          LA    R5,T1.E003        BUSY RESET DURING TIMEOUT AFTER TESTM MTD30640
 002C64    41E0 28AE               3065  T1R01.2  BAL   R14,TOERRORB                                    MTD30650
 002C68    E6F0 2A4C               3066          LA    R15,MESSAGE1                                    MTD30660
 002C6C    E6E0 4000 8596          3067          LA    R14,CONTMSG       SUSPECTED ERROR WITH CONTROLLER MTD30670
 002C72    4300 4000 82CC          3068          B     ERRORX                                          MTD30680
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TEST 1

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                                3069  * BUSY IS STILL UP SO LET'S TRY READ NOW                                    MTD30690
                                3070  * SAME MAXIMUM COUNT                                                       MTD30700
002C78      4800 20C2           3071  TEST1.05 LH    R0,FIFO+SVALU1      GAPLESS VERSION                       MTD30710
*002C7C     2134       =002C84  3072           BNZ   T1.5A               YES                                   MTD30720
002C7E      C860 0100           3073           LHI   R6,X'100'           LOAD COUNT FOR 256 HW                 MTD30730
*002C82     2303       =002C88  3074           B     T1.05A                                                    MTD30740
002C84      C860 0400           3075  T1.5A    LHI   R6,X'400'           BYTES VALUE FOR GAPLESS               MTD30750
002C88      41F0 4000 7C5A      3076  T1.05A   BAL   R14,CREAD           PUT INTERFACE IN READ MODE            MTD30760
002C8E      D918 0000           3077  TST1.3A  RH    R1,0(R8)            AND START TO EMPTY FIFO               MTD30770
002C92      2761                3078           SIS   R6,1                DECREMENT COUNTER                     MTD30780
002C94      2213       =002C8E  3079           BNMS  TST1.3A             KEEP OUTPUTTING                       MTD30790
                                3080  * FIFO SHOULD BE EMPTY NOW                                                 MTD30800
                                3081  * BUSY SHOULD TIME OUT AGAIN                                               MTD30810
002C96      246A                3082           LIS   R6,10               LOAD TIMER                            MTD30820
002C98      41E0 4000 7BDC      3083  TST1.3B  BAL   R14,SENSTA           TAKE STATUS CHECK AND                 MTD30830
002C9E      2386       =002CAA  3084           BNCS  T1R02                                                     MTD30840
002CA0      2761                3085           SIS   R6,1                DECREMENT TIMER                       MTD30850
*002CA2     2035       =002C98  3086           BNZ   TST1.3B                                                   MTD30860
002CA4      4300 4000 834E      3087           B     PASS                                                      MTD30870
                                3088  * OTHERWISE ERROR                                                          MTD30880
*002CAA     243C                3089  T1R02    LHI   R3,X'0C'            LOAD GOOD STATUS                      MTD30890
002CAC      4030 4000 83C8      3090           STH   R3,STATGD           STORE IT                              MTD30900
002CB2      E650 35CE           3091           LA    R5,T1ERMSG2         CHECK OF FIFO BUSY LOGIC              MTD30910
002CB6      41F0 4000 836F      3092           BAL   R15,LOOP2           OUTPUT MESSAGES?                      MTD30920
002CBC      E650 33CC           3093           LA    R5,T1.E004          BUSY RESET DURING TIMEOUT AFTER TM RE MTD30930
002CC0      4300 2C64           3094           B     T1R01.2                                                   MTD30940

                                3096  *                                                                          MTD30960
                                3097  * THIS ERROR ROUTINE IS DESIGNED SPECIFICALLY                             MTD30970
                                3098  * FOR DATA COMPARE ERRORS.  IT OUTPUTS:                                   MTD30980
                                3099  * 1)  WHAT THE TEST WAS TRYING TO DO,                                     MTD30990
                                3100  * 2)  WHAT WENT WRONG(DATA COMPARE ERRORS HERE)                          MTD31000
                                3101  * 3)  HELPFUL INFORMATION- DRIVE, DATA READ AND                          MTD31010
                                3102  *     DATA WRITTEN.                                                      MTD31020
                                3103  *                                                                        MTD31030
002CC4      D000 4000 8990      3104  T1ERRORA STM   R0,ERRSAVE          SAVE REGISTERS                        MTD31040
002CCA      41F0 4000 836E      3105           BAL   R15,LOOP2           OUTPUT MESSAGE?                       MTD31050
002CD0      E650 35B6           3106           LA    R5,T1ERMSG1         INCORRECT DATA COMPARE                MTD31060
002CD4      41F0 4000 836E      3107           BAL   R15,LOOP2                                                  MTD31070
002CDA      2406                3108           LIS   R0,6                SIX DIGIT CONVERSION                  MTD31080
002CDC      4810 4000 8414      3109           LH    R1,INDEX            GET BYTE VALUE AT TIME OF ERROR       MTD31090
002CE2      E620 3613           3110           LA    R2,MESSG3C+5        STORE IT HERE                         MTD31100
002CE6      41F0 1680           3111           BAL   R15,HEXASC          CONVERT                               MTD31110
002CEA      4810 4000 8408      3112           LH    R1,DRIVSAV          DRIVE ADDRESS                         MTD31120
002CF0      2403                3113           LIS   R0,3                DIGITS #                              MTD31130
002CF2      E620 35FC           3114           LA    R2,MESSG3A+6        STORED HERE                           MTD31140
002CF6      41F0 1680           3115           BAL   R15,HEXASC          AFTER CONVERSION                      MTD31150
002CFA      2402                3116           LIS   R0,2                2 DIGITS                    R01       MTD31160
002CFC      41E0 4000 7BDC      3117           BAL   R14,SENSTA          GET STATUS                            MTD31170
002D02      4810 4000 83C4      3118           LH    R1,STATUS           ACTUAL STATUS                         MTD31180
002D08      E620 3609           3119           LA    R2,MESSG3B+7        STORED HERE                           MTD31190
002D0C      41F0 1680           3120           BAL   R15,HEXASC          AFTER CONVERSION                      MTD31200
002D10      2404                3121           LIS   R0,4                4 DIGITS                    R01       MTD31210
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TEST 1

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 002D12   4810 4000 84FC                  LH    R1,WSTORE           DATA WRITTEN                     MTD31220
 002D18   E620 3629                       LA    R2,MESSAGE4+13      STORED HERE                      MTD31230
 002D1C   41F0 1680                       BAL   R15,HEXASC          AFTER CONVERSION                 MTD31240
 002D20   4810 4000 84FE                  LH    R1,RSTORE           DATA READ                        MTD31250
 002D26   E620 363D                       LA    R2,MESSAGE5+13      STORED HERE                      MTD31260
 002D2A   41F0 1680                       BAL   R15,HEXASC          AFTER CONVERSION                 MTD31270
 002D2E   D100 4000 8990                  LM    R0,ERRSAVE          RESTORE REGISTERS                MTD31280
 002D34   030E                            BR    R14                 RETURN                           MTD31290
                              * IF TIMEOUT GO TO NEXT TEST                                           MTD31300
                              *                                                                      MTD31310
                              ****************************************************                   MTD31320
                              *                                                  *                   MTD31330
                              * THIS IS A CHECK OF OPTIONS                       *                   MTD31340
                              *                                                  *                   MTD31350
                              ****************************************************                   MTD31360
 002D36   41E0 4000 7BCA      TEST1.06 BAL   R14,TMCLEAR         CLEAR INTERFACE                     MTD31370
 002D3C   4800 20DE                    LH    R0,ONLINE+$VALU1    IN TESTMODE OR ONLINE?              MTD31380
 002D40   4230 2D62                    BNZ   TST1.06A            ONLINE IF NON ZERO                  MTD31390
 002D44   4800 2124                    LH    R0,TRMODE+$VALU1    WRITE/READS OR SELCH TRANSFERS      MTD31400
 002D48   4330 31E8                    BZ    T1.6000             WRITE/READS IF  ZERO                MTD31410
 002D4C   4820 2108                    LH    R2,SELCH+$VALU1     GET SELCH ADDRESS                   MTD31420
 002D50   4230 2F36                    BNZ   TEST1.5             SELCH TRANSFERS                     MTD31430
 002D54   E650 BDC8 =006B20   T1R06    LA    R5,NOSEL            NO MATCH ON SELCH ADDRESS           MTD31440
 002D58   41F0 4000 836F               BAL   R15,LOOP2                                               MTD31450
 002D5E   4300 1358                    B     ABORT               END TESTING                         MTD31460
 002D62   41E0 4000 7B9A      TST1.06A BAL   R14,CCLEAR          CLEAR INTERFACE                     MTD31470
 002D68   4800 2124                    LH    R0,TRMODE+$VALU1    TYPE OF TRANSFER                    MTD31480
 002D6C   4330 309C                    BZ    TEST1.6             WRITE/READS TO TAPE                 MTD31490
 002D70   4820 2108                    LH    R2,SELCH+$VALU1     GET SELCH ADDRESS                   MTD31500
*002D74   2133      =002D7A            BNZ   TEST1.4             SELCH TRANSFERS TO TAPE             MTD31510
 002D76   4300 2D54                    B     T1R06               NO MATCH ON SELCH ADDRESS           MTD31520
                              *                                                   *                  MTD31530
                              * IF WE GET HERE:SELCH=1,ONLINE=1,TRMODE=1          *                  MTD31540
                              * SELCH IS PRESENT, DRIVES ARE ON LINE AND MODE     *                  MTD31550
                              * OF TRANSFER IS SELCH TRANSFERS                    *                  MTD31560
                              *                                                   *                  MTD31570
                              *****************************************************                  MTD31580
 002D7A   41F0 4000 838C      TEST1.4  BAL   R15,LOOPTOP         CALCULATE ADDRESSES                 MTD31590
 002D80   0000 32F2                    DAC   TST1.END                                                MTD31600
 002D84   0000 32F2                    DAC   TST1.END                                                MTD31610
 002D88   41E0 4000 7C9E               BAL   R14,CSTOP           STOP SELCH INITIALLY                MTD31620
 002D8E   41E0 4000 7C9E               BAL   R14,CSTOP                                               MTD31630
 002D94   41F0 4000 80D2               BAL   R15,REWMT           REWIND TAPE                         MTD31640
 002D9A   41F0 4000 7E10               BAL   R15,RESTORE1        ENABLE INT                          MTD31650
 002DA0   4840 2036                    LH    R4,DATA+$VALU1      LOOK AT DATA PATTERN CHOSEN         MTD31660
*002DA4   2135      =002DAE            BNZ   TST1.40A            USER SPECIFIED                      MTD31670
 002DA6   E640 4000 8426               LA    R4,TESTPAT          LOAD ADDRESS OF TESTPATTERNS        MTD31680
*002DAC   2309      =002DBF            B     TST1.4A             START                               MTD31690
 002DAE   C870 0020           TST1.40A LHI   R7,32               MAXIMUM BYTE OUTPUT                 MTD31700
 002DB2   4040 4000 8424               STH   R4,DATAPAT                                              MTD31710
 002DB8   E640 4000 8424               LA    R4,DATAPAT          GET AN ADDR IN R4                   MTD31720
 002DBE   41E0 4000 7B9A      TST1.4A  BAL   R14,CCLEAR          CLEAR INTERFACE                     MTD31730
 002DC4   41F0 4000 7E38               BAL   R15,SELSETW         SET UP SELCH                        MTD31740
```

TEST 1

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002DCA       41E0 4000 7CFA          3175             BAL   R14,WRBUF          SSET UP SELCH WRITE ADDRESSES          MTD31750
002DD0       41E0 4000 7BD2          3176             BAL   R14,CDENS          OUTPUT DENSITY COMMAND                 MTD31760
002DD6       7300 200C               3177             LHL   R0,BYTES+$VALU1    LOAD TIMER                             MTD31770
002DDA       C3A0 0001               3178             THI   R0,X'0001'                                            MTD31780
*002DDE      2334       =002DF6      3179             BZ    ET.006A            TRANSFER EVEN # BYTES                  MTD31790
002DE0       41E0 4000 7CF8          3180             BAL   R14,CWRODBY        ISSUE WRITE ODD BYTE COMMAND           MTD31800
002DE6       41E0 4000 7C80          3181   ET.006A   BAL   R14,CWRITE         PUT INTERFACE IN WRITE MODE            MTD31810
002DEC       E650 3564               3182             LA    R5,T1.E00H         SELCH WRITE TO THE TAPE                MTD31820
002DF0       E600 2E34               3183             LA    R0,T1.40A          ON INTERRUPT , GO HERE                 MTD31830
002DF4       4000 21E8               3184             STH   R0,DEVINT+2                                           MTD31840
002DF8       080A                    3185             LR    R0,R10             TIMVAL                                 MTD31850
002DFA       260F                    3186             AIS   R0,15              INCREASE SLIGHTLY              R01     MTD31860
002DFC       41E0 4000 7C86          3187             BAL   R14,CGO            GIVE SELCH THE GO                      MTD31870
002E02       41F0 162A               3188             BAL   R15,TIMER          *                              R01     MTD31880
002F06       D000 4000 8990          3189   T1R09     STM   R0,ERRSAVE         SAVE REGISTERS                         MTD31890
002F0C       41F0 4000 836E          3190             BAL   R15,LOOP2          OUTPUT MESSAGE                         MTD31900
002E12       2403                    3191             LIS   R0,3               3 DIGITS                               MTD31910
002E14       0812                    3192             LR    R1,R2              SELCH ADDRESS                          MTD31920
002E16       E620 34F9               3193             LA    R2,T1.E00D+23                                         MTD31930
002E1A       41F0 1680               3194             BAL   R15,HEXASC         CONVERT                                MTD31940
002E1E       D100 4000 8990          3195             LM    R0,ERRSAVE         RESTORE REGISTERS                      MTD31950
002E24       E6F0 34E2               3196             LA    R15,T1.E00D        TIMED OUT DURING SELCH *** WRITE       MTD31960
002E28       E6E0 4000 85B8          3197             LA    R14,SELMSG         SUSPECTED ERROR WITH SELCH             MTD31970
002E2E       4300 4000 82CC          3198             B     ERRORX                                                MTD31980
002E34       41F0 4000 7E08          3199   T1.40A    BAL   R15,RESTORF        RESTORE R1,R2 AND PSW 70F0             MTD31990
002E3A       41F0 4000 7E78          3200             BAL   R15,SELCHK        CHECK SELCH ENDING STATUS              MTD32000
002E40       41F0 4000 7F02          3201             BAL   R15,SELEND        CHECK SELCH ENDED OK                   MTD32010
002E46       41F0 4000 8112          3202             BAL   R15,STATCHK       CHECK INTERFACE STATUS                 MTD32020
002E4C       C430 0020               3203             NHI   R3,X'20'           EOT SET                                MTD32030
*002E50      2334       =002E58      3204             BZ    TEST1.4D           NO                                     MTD32040
002E52       41F0 4000 80D2          3205             BAL   R15,REWMT          ELSE REWIND MAG TAPE                   MTD32050
                                     3206   *                                                                       MTD32060
             0000 2E58               3207   TEST1.4D  EQU   *                                                       MTD32070
002E58       41F0 4000 8040          3208             BAL   R15,SELSETR        SET UP SELCH                           MTD32080
002E5E       41E0 4000 7D2A          3209             BAL   R14,REBUF          SET UP SELCH READ ADDRESSES            MTD32090
002E64       41F0 4000 80D2          3210             BAL   R15,REWMT          REWIND MAG TAPE                        MTD32100
002E6A       41E0 4000 7C5A          3211             BAL   R14,CREAD          PUT INF IN READ MODE                   MTD32110
002E70       E650 357E               3212             LA    R5,T1.E00I         SELCH READ FROM TAPE                   MTD32120
002E74       E600 2EBA               3213             LA    R0,T1.4C0          ON INTERRUPT, GO HERE                  MTD32130
002E78       4000 21E8               3214             STH   R0,DEVINT+2                                           MTD32140
002E7C       7300 200C               3215             LHL   R0,BYTES+$VALU1    TIMVAL                                 MTD32150
002E80       260F                    3216             AIS   R0,15              INCREASE SLIGHTLY              R01     MTD32160
002E82       41E0 4000 7C98          3217             BAL   R14,CGOREAD        GIVE SELCH THE GO                      MTD32170
002E88       41F0 162A               3218             BAL   R15,TIMER          WAIT FOR INTERRUPT             R01     MTD32180
002F8C       D000 4000 8990          3219   T1R10     STM   R0,ERRSAVE         SAVE REGISTERS                         MTD32190
002E92       41F0 4000 836E          3220             BAL   R15,LOOP2          OUTPUT MESSAGE?                        MTD32200
002E98       2403                    3221             LIS   R0,3               3 DIGITS                               MTD32210
002E9A       0812                    3222             LR    R1,R2              SELCH ADDRESS                          MTD32220
002E9C       E620 351E               3223             LA    R2,T1.E00E+23                                         MTD32230
002EA0       41F0 1680               3224             BAL   R15,HEXASC         CONVERT                                MTD32240
002EA4       D100 4000 8990          3225             LM    R0,ERRSAVE                                            MTD32250
002EA8       E6E0 4000 85B8          3226             LA    R14,SELMSG         SUSPECTED ERROR WITH SELCH             MTD32260
002EB0       E6F0 3504               3227             LA    R15,T1.E00F        TIMED OUT DURING SELCH *** READ        MTD32270
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TEST 1

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 002EB4    4300 4000 82CC                     B     ERRORX               ERROR                          MTD32280
 002EBA    41F0 4000 7E08          T1.4C0     BAL   R15,RESTORE          RESTORE R1,R2, PSW             MTD32290
 002EC0    41F0 4000 7E78                     BAL   R15,SELCHK           CHECK SELCH STATUS             MTD32300
 002EC6    41F0 4000 7F02                     BAL   R15,SELEND           CHECK ENDED OK                 MTD32310
 002ECC    41F0 4000 8112                     BAL   R15,STATCHK          CHECK INTERFACE ALSO           MTD32320
 002ED2    C430 0020                          NHI   R3,X'20'             IS 'EOT' SET                   MTD32330
*002ED6    2334         =002EDE               BZ    TEST1.4E             CONTINUE IF NOT                MTD32340
 002ED8    41F0 4000 80D2                     BAL   R15,REWMT            ELSE REWIND MAG TAPE           MTD32350
                                   *                                                                    MTD32360
           0000 2EDE               TEST1.4E EQU     *                                                   MTD32370
 002EDE    7350 200C                          LHL   R5,BYTES+$VALU1      LOAD RECORD SIZE               MTD32380
 002EE2    2430                               LIS   R3,X'0'              ZERO OUT INDEX                 MTD32390
 002EE4    D383 4000 89D0          ET.D       LB    R8,WRTBUF(R3)        LOAD WRITE WORD                MTD32400
 002EEA    D393 4001 89D0                     LB    R9,READBUF(R3)       LOAD READ WORD                 MTD32410
 002EF0    0589                               CLAR  R8,R9                COMPARE WORDS                  MTD32420
 002EF2    2136         =002EFE               BNES  MISSED               NOT EQUAL IS AN ERROR          MTD32430
 002EF4    2631                               AIS   R3,1                 DECREMENT COUNT                MTD32440
 002EF6    0553                               CLR   R5,R3                                               MTD32450
 002EF8    4320 2F28                          BNP   PAT.1                                               MTD32460
 002EFC    220C         =002EF4               BS    ET.D                 AND DO ANOTHER COMPARE         MTD32470
 002EFE    4080 4000 84FC          MISSED     STH   R8,WSTORE            STORE WRITE WORD               MTD32480
 002F04    4090 4000 84FE                     STH   R9,RSTORE            STORE READ WORD                MTD32490
 002F0A    4030 4000 8414                     STH   R3,INDEX             BYTE LOCATION                  MTD32500
 002F10    E650 33FC                          LA    R5,T1.E008           SELCH TRANSFERS                MTD32510
 002F14    41E0 2CC4                          BAL   R14,T1ERRORA                                        MTD32520
 002F18    E6F0 35F6                          LA    R15,MESSG3A          MT                             MTD32530
 002F1C    E6E0 4000 8596                     LA    R14,CONTMSG          SUSPECTED ERROR WITH CONTROLLER MTD32540
 002F22    4300 4000 82CC                     B     ERRORX                                              MTD32550
 002F28    41F0 32C0               PAT.1      BAL   R15,PATCHK           CHECK PATTERNS ALL USED        MTD32560
 002F2C    41F0 4000 80D2                     BAL   R15,REWMT            REWIND MAG TAPE FIRST          MTD32570
 002F32    4300 2DBE                          B     TST1.4A              NEW PATTERN TO TESTED          MTD32580
                                   ****************************************************************** MTD32590
                                   *                                                                * MTD32600
                                   * COME HERE FOR SELCH=1,ONLINE=0,TRMODE=1                        * MTD32610
                                   * SELCH IS PRESENT, INTERFACE IS IN TEST MODE AND                * MTD32620
                                   * SELCH TRANSFERS                                                * MTD32630
                                   *                                                                * MTD32640
                                   ****************************************************************** MTD32650
 002F36    41F0 4000 838C          TEST1.5    BAL   R15,LOOPTOP                                         MTD32660
 002F3C    0000 32F2                          DAC   TST1.END                                            MTD32670
 002F40    0000 32F2                          DAC   TST1.END                                            MTD32680
 002F44    41E0 4000 7C9E                     BAL   R14,CSTOP            STOP SELCH FIRST               MTD32690
 002F4A    41E0 4000 7C9E                     BAL   R14,CSTOP                                           MTD32700
 002F50    4840 2036                          LH    R4,DATA+$VALU1       LOOK AT DATA PATTERN CHOSEN    MTD32710
*002F54    2135         =002F5E               BNZ   TST1.5A              USER SPECIFIED                 MTD32720
 002F56    E640 4000 8426                     LA    R4,TESTPAT           LOAD TEST PATTERN ADDRESS      MTD32730
*002F5C    2309         =002F6E               B     T.4                  START                          MTD32740
 002F5E    C870 0020               TST1.5A    LHI   R7,32                MAXIMUM BYTE OUTPUT            MTD32750
 002F62    4040 4000 8424                     STH   R4,DATAPAT                                          MTD32760
 002F68    E640 4000 8424                     LA    R4,DATAPAT           GET AN ADDRESS IN R4           MTD32770
 002F6E    7300 200C               T.4        LHL   R0,BYTES+$VALU1      LOOK AT BYTES OPTION           MTD32780
 002F72    41F0 4000 7E10                     BAL   R15,RESTORE1         ENABLE INT                     MTD32790
 002F78    41F0 4000 7F38          T1.005     BAL   R15,SELSETW          SET UP SELCH FOR WRITE         MTD32800
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TEST 1

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002F7E       41F0 4000 7BCA          3281           BAL   R14,TMCLEAR         CLEAR INTERFACE                          MTD32810
002F84       41E0 4000 7CF8          3282           BAL   R14,WRBUF           SET UP SELCH WRITE ADDRESSES             MTD32820
002F8A       73A0 200C               3283           LHL   R10,BYTES+$VALU1   LOAD TIMER COUNT                         MTD32830
002F8E       27A1                    3284           SIS   R10,1               DECREMENT BY 1 FOR BYTES                 MTD32840
002F90       088A                    3285           LR    R8,10               LOAD INTO TEMP REGISTER                  MTD32850
002F92       41E0 4000 7C8C          3286           BAL   R14,CTESTMDE        PUT INTERFACE INTO TEST MODE             MTD32860
002F98       41E0 4000 7C80          3287           BAL   R14,CWRITE          AND WRITE MODE                           MTD32870
002F9E       E650 3526               3288           LA    R5,T1.E00F          SELCH WRITE TO INTERFACE                 MTD32880
002FA2       E600 2FDE               3289           LA    R0,TR.3             INTERRUPT ADDRESS                        MTD32890
002FA6       4000 21E8               3290           STH   R0,DEVINT+2         INTO TABLE                               MTD32900
002FAA       080A                    3291           LR    R0,R10              TIMVAL                                   MTD32910
002FAC       260F                    3292           AIS   R0,15               INCREASE SLIGHTLY              R01       MTD32920
002FAE       41E0 4000 7C86          3293           BAL   R14,CGO             GIVE SELCH THE GO                        MTD32930
002FB4       41F0 162A               3294           BAL   R15,TIMER                                                    MTD32940
002FB8       2438                    3295           LIS   R3,8                LOAD GOOD STATUS                         MTD32950
002FBA       4030 4000 83C8          3296           STH   R3,STATGD           STORE IT                                 MTD32960
002FC0       2403                    3297           LIS   R0,3                DIGITS                                   MTD32970
002FC2       0812                    3298           LR    R1,R2               SELCH ADDRESS                            MTD32980
002FC4       E620 3453               3299           LA    R2,T1.E009+23       TIMED OUT DURING SELCH *** WRITE TM      MTD32990
002FC8       41F0 1680               3300           BAL   R15,HEXASC          CONVERT                                  MTD33000
002FCC       E650 343C               3301           LA    R5,T1.E009          TIMED OUT IN SELCH WRITE IN TESTMODE     MTD33010
002FD0       41E0 AD74 =005D48       3302           BAL   R14,T7ERRORA         DRIVE,SELCH, STATUS'                     MTD33020
002FD4       E6F0 B8AA =006882       3303           LA    R15,T7ERMSG1                                                 MTD33030
002FD8       4300 4000 82CC          3304           B     ERRORX                                                       MTD33040
002FDE       41F0 4000 7E08          3305  TR.3     BAL   R15,RESTORE          RESTORE R1,R2,PSW                        MTD33050
002FE4       41E0 4000 7C4C          3306           BAL   R14,SENSTA2          LOAD SELCH STATUS                        MTD33060
002FEA       41E0 4000 7C9E          3307           BAL   R14,CSTOP           INIT SELCH                               MTD33070
002FF0       41E0 4000 7C9E          3308           BAL   R14,CSTOP           CLEAR IT TO                              MTD33080
                                     3309  * LET'S READ BACK AND TIMEOUT ON BUSY AGAIN                                  MTD33090
002FF6       41F0 4000 8040          3310           BAL   R15,SELSETR         SET UP SELCH FOR READ                    MTD33100
002FFC       41F0 4000 7D2A          3311           BAL   R14,REBUF           SET UP SELCH READ ADDRESSES              MTD33110
003002       41E0 4000 7C5A          3312           BAL   R14,CREAD           PUT INF. INTO READ MODE                  MTD33120
003008       E650 3544               3313           LA    R5,T1.E00G          SELCH READ FROM INTERFACE                MTD33130
00300C       E600 3046               3314           LA    R0,TR.4             INTERRUPT ADDRESS                        MTD33140
003010       4000 21E8               3315           STH   R0,DEVINT+2                                                  MTD33150
003014       7300 200C               3316           LHL   R0,BYTES+$VALU1     LOAD COUNTER                         M MTD33160
003018       260F                    3317           AIS   R0,15               INCREASE SOME                  R01       MTD33170
00301A       41E0 4000 7C98          3318           BAL   R14,CGOREAD         GIVE SELCH THE GO                        MTD33180
003020       41F0 162A               3319           BAL   R15,TIMER           WAIT FOR SELCH INTERRUPT       R01       MTD33190
003024       41F0 4000 836E          3320           BAL   R15,LOOP2           OUTPUT MESSAGE?                          MTD33200
00302A       2403                    3321           LIS   R0,3                DIGITS                                   MTD33210
00302C       0812                    3322           LR    R1,R2               SELCH ADDRESS                            MTD33220
00302E       E620 3481               3323           LA    R2,T1.E00A+23                                                MTD33230
003032       41F0 1680               3324           BAL   R15,HEXASC          CONVERT                                  MTD33240
003036       E6F0 345A               3325           LA    R15,T1.E00A         TIMED OUT DURING SELCH READ              MTD33250
00303A       E6F0 4000 8596          3326           LA    R14,CONTMSG         SUSPECTED ERROR WITH CONTROLLER          MTD33260
003040       4300 4000 82CC          3327           B     ERRORX              ERROR ROUTINE                            MTD33270
003046       41F0 4000 7E08          3328  TR.4     BAL   R15,RESTORE          RESTORE R1,R2,PSW                        MTD33280
00304C       41E0 4000 7C4C          3329           BAL   R14,SENSTA2          LOAD STATUS                              MTD33290
003052       41E0 4000 7C9E          3330           BAL   R14,CSTOP           INIT SELCH                               MTD33300
003058       41E0 4000 7C9E          3331           BAL   R14,CSTOP           CLEAR IT TOO                             MTD33310
00305E       41F0 4000 7F02          3332           BAL   R15,SELEND          CHECK SELCH ENDING ADDRESS               MTD33320
                                     3333  * LET'S CHECK DATA FOR VALIDITY                                              MTD33330
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 003064     2430                      LIS   R3,0               ZERO OUT TEST INDEX REG              MTD33340
 003066     D363 4000 89D0   T.3      LB    R6,WRTBUF(R3)      LOAD WRITE DATA                      MTD33350
 00306C     D453 4001 89D0            CLB   R6,READBUF(R3)     COMPARE WITH READ DATA               MTD33360
*003072     2138      =003082         BNE   T.2                ERROR IF NOT EQUAL                   MTD33370
 003074     2531                      AIS   R3,X'1'            INCREMENT POINTER                    MTD33380
 003076     0538                      CLR   R3,R8              COMPARE COUNT WITH END COUNT         MTD33390
 003078     2039      =003066         BNES  T.3                CONTINUE IF COUNT NOT THRU           MTD33400
 00307A     41F0 32C0                 BAL   R15,PATCHK         CHECK PATTERN USAGE                  MTD33410
 00307E     4300 2F6E                 B     T.4                AND IF NOT DONE RETURN TO TEST       MTD33420
                             * DATA ERRORS !!                                                       MTD33430
 003082     4060 4000 84FC   T.2      STH   R6,WSTORE          STORE WRITE WORD                     MTD33440
 003088     4030 4000 8414            STH   R3,INDEX           BYTE LOCATION                        MTD33450
 00308E     E650 341A                 LA    R5,T1.E008A        SELCH TRANSFERS TO INTERFACE         MTD33460
 003092     D383 4001 89D0            LB    R8,READBUF(R3)     LOAD READ WORD                       MTD33470
 003098     4300 31CE                 B     T1R003                                                  MTD33480

                             ************************************************************           MTD33500
                             *                                                          *           MTD33510
                             * COME HERE IF TRMODE=0 OR SELCH=0                         *           MTD33520
                             * READ-WRITE TRANSFERS AND NO SELCH                        *           MTD33530
                             *                                                          *           MTD33540
                             ************************************************************           MTD33550
 00309C     4840 2036        TEST1.6  LH    R4,DATA+$VALU1     LOOK AT DATA CHOSEN                  MTD33560
*0030A0     2135      =0030AA         BNZ   TEST1.60           USER SPECIFIED                       MTD33570
 0030A2     E640 4000 8426            LA    R4,TESTPAT         LOAD TESTPAT LOC                     MTD33580
*0030A8     2309      =0030BA         B     TEST1.6A                                                MTD33590
 0030AA     C870 0020        TEST1.60 LHI   R7,32              BYTE OUTPUT                          MTD33600
 0030AE     4040 4000 8424            STH   R4,DATAPAT         STORE DATA                           MTD33610
 0030B4     E640 4000 8424            LA    R4,DATAPAT         GET AN ADDRESS IN R4                 MTD33620
 0030BA     41F0 4000 838C   TEST1.6A BAL   R15,LOOPTOP                                             MTD33630
 0030C0     0000 32F2                 DAC   TST1.END                                                MTD33640
 0030C4     0000 32F2                 DAC   TST1.END                                                MTD33650
 0030C8     41F0 4000 80D2            BAL   R15,REWMT          REWIND TAPE                          MTD33660
 0030CE     41E0 4000 7B9A            BAL   R14,CCLEAR         CLEAR INTERFACE                      MTD33670
 0030D4     41E0 4000 7BD2            BAL   R14,CDENS          OUTPUT DENSITY COMMAND               MTD33680
 0030DA     41E0 4000 7C80            BAL   R14,CWRITE         PUT INTERFACE IN WRITE MODE          MTD33690
 0030E0     4834 0000                 LH    R3,0(R4)           LOAD DATA PATTERN                    MTD33700
 0030E4     7360 200C                 LHL   R6,BYTES+$VALU1    LIMIT RECORD TO 256 BYTES            MTD33710
 0030E8     2761                      SIS   R6,1                                                    MTD33720
 0030EA     C360 0001                 THI   R6,X'0001'         IS BYTE ALLOCATION ODD?              MTD33730
*0030EE     2134      =0030F6         BNZ   T1.006A            NO                                   MTD33740
 0030F0     41E0 4000 7CE8            BAL   R14,CWRODBY        ISSUE ODD BYTE COMMAND               MTD33750
 0030F6     9813             T1.006A  WHR   R1,R3              WRITE DATA TO INTERFACE              MTD33760
 0030F8     2762                      SIS   R6,2               SUBTRACT COUNT                       MTD33770
 0030FA     2282      =0030F6         BNLS  T1.006A            KEEP WRITING IF NOT ZERO             MTD33780
 0030FC     41E0 4000 7BE4            BAL   R14,SENSTA1        CHECK ENDING STATUS                  MTD33790
 003102     41F0 4000 8112            BAL   R15,STATCHK        IS THIS AN ERROR STATUS?       R01   MTD33800
 003108     C330 0020                 THI   R3,X'20'           IS TAPE AT END                 R01   MTD33810
*00310C     2334      =003114         BZ    L.5A               CONTINUE IF NOT                R01   MTD33820
 00310E     41F0 4000 80D2            BAL   R15,REWMT          ELSE REWIND MAG TAPE           R01   MTD33830
 003114     C330 0014        L.5A     THI   R3,X'14'           WAS IT EXPECTED?               R01   MTD33840
 003118     4230 313E                 BNZ   T.6                YES BRANCH TO READ             R01   MTD33850
 00311C     E650 3498                 LA    R5,T1.E00B         READ WRITE TRANSFERS..(WRITE)        MTD33860
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 003120     C800 0034                        LHI   R0,X'34'         EXPECTED STATUS                         MTD33870
 003124     4000 4000 83C8                   STH   R0,STATGD                                                MTD33880
 00312A     41E0 28AE                T1R0A   BAL   R14,TOERRORB     DRIVE, STATUS'                          MTD33890
 00312E     E6F0 2A4C                        LA    R15,MESSAGE1                                             MTD33900
 003132     E6E0 4000 8596                   LA    R14,CONTMSG      SUSPECTED ERROR WITH CONTROLLER         MTD33910
 003138     4300 4000 82CC                   B     ERRORX                                                   MTD33920
                                     *                                                                  MTD33930
 00313E     41E0 4000 7C92           T.6     BAL   R14,CREW         REWIND MAG TAPE                         MTD33940
 003144     41F0 4000 8064                   BAL   R15,PWTMOUT      TIME OUT ON REWIND CMD?                 MTD33950
 00314A     41E0 4000 7BE4                   BAL   R14,SENSTA1      CHECK STATUS FOR NMTN                   MTD33960
 003150     7380 200C                        LHL   R8,BYTES+$VALU1  LOAD BYTE COUNT                         MTD33970
 003154     2460                             LIS   R6,0             ZERO OUT INDEX REGISTER                 MTD33980
 003156     41E0 4000 7C5A                   BAL   R14,CREAD        PUT INTERFACE INTO READ MODE            MTD33990
 00315C     41E0 4000 7C22           LP.3    BAL   R14,SENSTA3      CHECK STATUS FOR NON BUSY               MTD34000
 003162     D916 4001 89D0                   RH    R1,READBUF(R6)   LOAD BUFFER FROM TAPE                   MTD34010
 003168     2662                             AIS   R6,2             SUBTRACT A BYTE                         MTD34020
 00316A     0586                             CLR   R8,R6            SEE IF COMPLETED READ                   MTD34030
*00316C     2028        =00315C              BP    LP.3             CONTINUE UNTIL BUFFER IS FULL           MTD34040
 00316E     41E0 4000 7BE4                   BAL   R14,SENSTA1      CHECK ENDING STATUS                     MTD34050
 003174     C330 001C                        THI   R3,X'1C'         EXPECTED?                    R01        MTD34060
*003178     213A        =00318C              BNZ   TEST1.6C         YES! NEXT TEST               R01        MTD34070
 00317A     C830 001C                        LHI   R3,X'1C'         LOAD GOOD STATUS                        MTD34080
 00317E     4030 4000 83C8                   STH   R3,STATGD        STORE IT                                MTD34090
 003184     E650 34AC                        LA    R5,T1.E00C       READ WRITE TRANSFERS..(READ)      REA   MTD34100
 003188     4300 312A                        B     T1R0A                                                    MTD34110
                                     *                                                                  MTD34120
 00318C     2460                     TEST1.6C LIS  R6,0             ZERO INDEX REGISTER                     MTD34130
 00318E     2420                             LIS   R2,0             INDEX REGISTER TO ZERO                  MTD34140
 003190     D334 4200 0000           T.7A    LB    R3,0(R4,R2)      LOAD A BYTE FROM EXPCTD PATTERN         MTD34150
 003196     D356 4001 89D0                   LB    R5,READBUF(R6)   LOAD READ DATA                          MTD34160
 00319C     0553                             CLR   R5,R3            COMPARE THE READ AND THE WRITE          MTD34170
*00319E     213D        =0031B8              BNE   T1R0B            BRANCH  ON NOT EQUAL                    MTD34180
 0031A0     2661                             AIS   R6,1             OTHERWISE DECREMENT  LIMIT              MTD34190
 0031A2     C720 0001                        XHI   R2,1             0*1=1 AND 1*1=0                         MTD34200
 0031A6     7380 200C                        LHL   R8,BYTES+$VALU1                                          MTD34210
 0031AA     2781                             SIS   R8,1                                                     MTD34220
 0031AC     0586                             CLR   R8,R6                                                    MTD34230
*0031AE     202F        =003190              BP    T.7A             BRANCH ON LESS THAN BYTES               MTD34240
 0031B0     41F0 32C0                        BAL   R15,PATCHK       DONE ALL PATTERNS?                      MTD34250
 0031B4     4300 30BA                        B     TEST1.6A         TRY ANOTHER PATTERN                     MTD34260
                                     *                                                                  MTD34270
 0031B8     4060 4000 8414           T1R0B   STH   R6,INDEX         BYTE LOCATION                           MTD34280
 0031BE     E650 34C0                        LA    R5,T1.E00C1      READ WRITE TRANSFERS                    MTD34290
 0031C2     4030 4000 84FC                   STH   R3,WSTORE        STORE WRITE WORD                        MTD34300
 0031C8     4050 4000 84FE                   STH   R5,RSTORE                                                MTD34310
 0031CE     4080 4000 84FE           T1R003  STH   R8,RSTORE        AND STORE IT ALSO                       MTD34320
 0031D4     41E0 2CC4                        BAL   R14,T1ERRORA     DRIVE, DATA                             MTD34330
 0031D8     E6F0 35F6                        LA    R15,MESSG3A                                              MTD34340
 0031DC     E6E0 4000 8596                   LA    R14,CONTMSG      SUSPECTED ERROR WITH CONTROLLER         MTD34350
 0031E2     4300 4000 82CC                   B     ERRORX                                                   MTD34360
                                     *                                                                  MTD34370
                                     * THIS MODULE DOES WRITE/READS IN THE TESTMODE  *                  MTD34380
                                     * ONLINE=0 AND TRMODE=0 IF HERE                 *                  MTD34390
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TEST 1

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                                     *                                                     MTD34400
 0031E8     41F0 4000 838C           T1.6000  BAL   R15,LOOPTOP                            MTD34410
 0031F0     0000 32F2                         DAC   TST1.END                               MTD34420
 0031F4     0000 32F2                         DAC   TST1.END                               MTD34430
 0031F8     4840 2036                         LH    R4,DATA+$VALU1     LOOK AT DATA OPTION                MTD34440
*0031FC     2135       =003206                BNZ   T1.601             USER SPECIFIED DATA PATTERN        MTD34450
 0031FE     E640 4000 8426                    LA    R4,TESTPAT         ADDRESS OF DATA PATTERN            MTD34460
*003204     2309       =003216                B     T1.601A                                               MTD34470
 003206     C870 0020                T1.601   LHI   R7,32                                                 MTD34480
 00320A     4040 4000 8424                    STH   R4,DATAPAT         SAVE DATA PATTERN                  MTD34490
 003210     E640 4000 8424                    LA    R4,DATAPAT         RELOAD FROM DATAPAT                MTD34500
 003216     7350 200C                T1.601A  LHL   R5,BYTES+$VALU1    GET BYTES AMOUNT                   MTD34510
 00321A     2751                              SIS   R5,1               ADJUST FOR ADDRESSING              MTD34520
 00321C     08A5                     T1.600   LR    R10,R5             PUT INTO ANOTHER REGISTER          MTD34530
 00321E     41E0 4000 7BCA                    BAL   R14,TMCLEAR                                           MTD34540
 003224     41E0 4000 7C8C                    BAL   R14,CTESTMDE       ISSUE COMMAND                      MTD34550
 00322A     41E0 4000 7C80                    BAL   R14,CWRITE         WRITE COMMAND                      MTD34560
 003230     D814 0000                T1.602   WH    R1,0(R4)           WRITE DATA TO TAPE                 MTD34570
 003234     27A2                              SIS   R10,2              DECREMENT BYTE COUNT               MTD34580
*003236     2283       =003230                BNL   T1.602             CONTINUE                           MTD34590
 003238     08A5                              LR    R10,R5             RESTORE R10                        MTD34600
                                     *                                                                    MTD34610
 00323A     E690 4001 89D0                    LA    R9,READBUF         READBUF ADDR                       MTD34620
 003240     5090 4000 84DC                    STA   R9,RDBUF           SAVE IT                            MTD34630
 003246     0A95                              AAR   R9,R5              ADD IN BYTES AMT                   MTD34640
 003248     5090 4000 84D8                    STA   R9,ENDBUF          ADDRESS SET UP                     MTD34650
 00324E     41F0 4000 7E18                    BAL   R15,CLRBUF         CLEAR READBUF                      MTD34660
 003254     41E0 4000 7C5A                    BAL   R14,CREAD          ISSUE READ COMMAND                 MTD34670
 00325A     E690 4001 89D0                    LA    R9,READBUF         READBUF ADDR                       MTD34680
 003260     41E0 4000 7C22           T1.604   BAL   R14,SENSTA3        CHECK STATUS FOR NON BUSY          MTD34690
 003266     D919 0000                         RH    R1,0(R9)           READ INTO READ BUFFER              MTD34700
 00326A     2692                              AIS   R9,2               INCREMENT ADDRESS                  MTD34710
 00326C     27A2                              SIS   R10,2              DECREMENT BYTE COUNT               MTD34720
 00326E     2287       =003260                BNLS  T1.604             CONTINUE TIL COMPLETE              MTD34730
 003270     2420                              LIS   R2,0               ZERO OUT TOGGLE INDEX REGISTER     MTD34740
 003272     2470                              LIS   R7,0               CLEAR INDEX REGISTER               MTD34750
 003274     D364 4200 0000           T1.COMP  LB    R6,0(R4,R2)        DATA EXPECTED                      MTD34760
 00327A     D387 4001 89D0                    LB    R8,READBUF(R7)     DATA READ                          MTD34770
 003280     0568                              CLR   R6,R8              COMPARE FOR EQUALITY               MTD34780
*003282     213A       =003296                BNE   T1.ERR                                                MTD34790
 003284     2671                              AIS   R7,1               INCREMENT INDEX REGISTER           MTD34800
 003286     C720 0001                         XHI   R2,1               REVERSE R2                         MTD34810
 00328A     0557                              CLR   R5,R7              COMPARE TO BYTES                   MTD34820
*00328C     208C       =003274                BL    T1.COMP            CONTINUE UNTIL FINISHED            MTD34830
 00328E     41F0 32C0                         BAL   R15,PATCHK         CHECK FOR OTHER PATTERNS           MTD34840
 003292     4300 321C                         B     T1.600                                                MTD34850
 003296     4060 4000 84FC           T1.ERR   STH   R6,WSTORE          STORE WRITE WORD                   MTD34860
 00329C     4080 4000 84FE                    STH   R8,RSTORE          AND STORE IT                       MTD34870
 0032A2     4070 4000 8414                    STH   R7,INDEX           BYTE LOCATION                      MTD34880
 0032A8     E650 3598                         LA    R5,T1.E00J         WRITE-READ TO THE INTERFACE        MTD34890
 0032AC     41E0 2CC4                         BAL   R14,T1ERRORA       DR, DATA WR & DATA RD              MTD34900
 0032B0     E6F0 35F6                         LA    R15,MESSG3A                                           MTD34910
 0032B4     E6E0 4000 8596                    LA    R14,CONTMSG        SUSPECTED ERROR WITH CONTROLLER    MTD34920
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TEST 1

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 0032BA      4300 4000 82CC        3493             B       ERRORX                                                    MTD34930
             0000 32C0             3494   PATCHK    EQU     *                                                         MTD34940
 0032C0      4830 2036             3495             LH      R14,DATA+SVALU1       LOOK AT DATA OPTION                 MTD34950
*0032C4      213A      =0032D8     3496             BNZ     PATCHK.1                                                  MTD34960
 0032C6      E630 4000 8446        3497             LA      R3,TESTPAT+32         LOAD ADDR. OF TEST PAT. END         MTD34970
 0032CC      0543                  3498             CLAR    R4,R3                 HAVE WE FINISHED?                   MTD34980
 0032CE      4330 4000 834F        3499             BE      PASS                  YES! END TEST                       MTD34990
 0032D4      2642                  3500             AIS     R4,X'2'               INCREMENT PATTERN                   MTD35000
 0032D6      03CF                  3501             BR      R15                   BRANCH BACK TO TEST                 MTD35010
 0032D8      40F0 4000 84D0        3502   PATCHK.1  STH     R15,SAVR15            SAVE R15                            MTD35020
 0032DE      41F0 1A8C             3503             BAL     R15,TSTBRK            TEST FOR BREAK TERMINATION          MTD35030
 0032E2      48F0 4000 84D0        3504             LH      R15,SAVR15            RESTORE R15                         MTD35040
 0032E8      2771                  3505             SIS     R7,1                  DECREMENT COUNTER                   MTD35050
 0032EA      4330 4000 834F        3506             BZ      PASS                  CONTINUE ON IF DONE                 MTD35060
 0032F0      030F                  3507             BR      R15                   ELSE, RETURN                        MTD35070

 0032F2      41F0 2836             3509   TST1.END  BAL     R15,TST.DRIV          CHECK FOR OTHER DRIVES              MTD35090
 0032F6      4800 4000 840A        3510             LH      R0,DRIVSAV1           LOK AT FLAG INDICATION              MTD35100
 0032FC      C300 000E             3511             THI     R0,X'E'               IS IT SET?                          MTD35110
 003300      4330 133C             3512             BZ      TSTEND                NO, END TEST                        MTD35120
 003304      41F0 4000 7D58        3513             BAL     R15,IT.B1             INIT TEST FOR NEXT DRIVE            MTD35130
 00330A      4300 2AE0             3514             B       TEST1.1               BEGIN TEST 1                        MTD35140

 00330E      5445 5354 4D4F 4445   3516   T1.E000   DC      C'TESTMODE WRITE TO CHECK FIFO'                           MTD35160
 003316      2057 5249 5445 2054
 00331E      4F20 4348 4543 4B20
 003326      4649 464F
 00332A      2043 4F4E 5452 4F4C   3517             DC      C' CONTROL ON BITS',X'0D0A'                               MTD35170
 003332      204F 4E20 4249 5453
 00333A      0D0A
 00333C      5445 5354 4D4F 4445   3518   T1.E001   DC      C'TESTMODE READ TO CHECK FIFO'                            MTD35180
 003344      2052 4541 4420 544F
 00334C      2043 4845 434B 2046
 003354      4946 4F20
 003358      434F 4E54 524F 4C20   3519             DC      C'CONTROL ON BITS',X'0D0A'                                MTD35190
 003360      4F4E 2042 4954 5320
 003368      0D0A
 00336A      4348 4543 4B20 4F46   3520   T1.E002   DC      C'CHECK OF FIFO BUSY ON SIMPLE HALFWORD OPERATION'        MTD35200
 003372      2046 4946 4F20 4255
 00337A      5359 204F 4E20 5349
 003382      4D50 4C45 2048 414C
 00338A      4657 4F52 4420 4F50
 003392      4552 4154 494F 4E20
 00339A      0D0A                  3521             DCX     0D0A                                                      MTD35210
 00339C      4255 5359 2052 4553   3522   T1.E003   DC      C'BUSY RESET DURING TIMEOUT AFTER '                       MTD35220
 0033A4      4554 2044 5552 494E
 0033AC      4720 5449 4D45 4F55
 0033B4      5420 4146 5445 5220
 0033BC      5445 5354 4D4F 4445   3523             DC      C'TESTMODE WRITE',X'0D0A'                                 MTD35230
 0033C4      2057 5249 5445
 0033CA      0D0A
 0033CC      4255 5359 2052 4553   3524   T1.E004   DC      C'BUSY RESET DURING TIMEOUT AFTER '                       MTD35240
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TEST 1

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0033D4       4554 2044 5552 494E
0033DC       4720 5449 4D45 4F55
0033E4       5420 4146 5445 5220
0033EC       5445 5354 204D 4F44      3525            DC    C'TEST MODE READ',X'0D0A'                                  MTD35250
0033F4       4520 5245 4144
0033FA       0D0A
0033FC       5345 4C43 4820 5452      3526  T1.E008   DC    C'SELCH TRANSFERS TO THE TAPE',X'0D0A'                     MTD35260
003404       414E 5346 4552 5320
00340C       544F 2054 4845 2054
003414       4150 4520
003418       0D0A
00341A       5345 4C43 4820 5452      3527  T1.E008A  DC    C'SELCH TRANFERS TO THE INTERFACE',X'0D0A'                 MTD35270
003422       414E 4645 5253 2054
00342A       4F20 5448 4520 494E
003432       5445 5246 4143 4520
00343A       0D0A
00343C       5449 4D45 4420 4F55      3528  T1.E009   DC    C'TIMED OUT DURING SELCH *** WRITE IN TESTMODE',X'0D0A'    MTD35280
003444       5420 4455 5249 4E47
00344C       2053 454C 4348 202A
003454       2A2A 2057 5249 5445
00345C       2049 4E20 5445 5354
003464       4D4F 4445
003468       0D0A
00346A       5449 4D45 4420 4F55      3529  T1.E00A   DC    C'TIMED OUT DURING SELCH *** READ IN TESTMODE',X'0D0A'     MTD35290
003472       5420 4455 5249 4E47
00347A       2053 454C 4348 202A
003482       2A2A 2052 4541 4420
00348A       494E 2054 4553 544D
003492       4F44 4520
003496       0D0A
003498       5752 4954 4520 544F      3530  T1.E00B   DC    C'WRITE TO THE TAPE',X'0D0A'                               MTD35300
0034A0       2054 4845 2054 4150
0034A8       4520
0034AA       0D0A
0034AC       5245 4144 2046 524F      3531  T1.E00C   DC    C'READ FROM THE TAPE',X'0D0A'                              MTD35310
0034B4       4D20 5448 4520 5441
0034BC       5045
0034BE       0D0A
0034C0       5752 4954 452F 5245      3532  T1.E00C1  DC    C'WRITE/READ TRANSFERS TO THE TAPE',X'0D0A'                 MTD35320
0034C8       4144 2054 5241 4F53
0034D0       4545 5253 2054 4F20
0034D8       5448 4520 5441 5045
0034E0       0D0A
0034E2       5449 4D45 4420 4F55      3533  T1.E00D   DC    C'TIMED OUT DURING SELCH *** WRITE',X'0D0A'                MTD35330
0034EA       5420 4455 5249 4E47
0034F2       2053 454C 4348 202A
0034FA       2A2A 2057 5249 5445
003502       0D0A
003504       5449 4D45 4420 4F55      3534  T1.E00E   DC    C'TIMED OUT DURING SELCH *** READ',X'0D0A'                 MTD35340
00350C       5420 4455 5249 4F47
003514       2053 454C 4348 202A
00351C       2A2A 2052 4541 4420
003524       0D0A
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TEST 1

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003526      5345 4C43 4820 5752      3535  T1.E00F  DC    C'SELCH WRITE TO THE INTERFACE',X'0D0A'                MTD35350
00352E      4954 4520 544F 2054
003536      4845 2049 4E54 4552
00353E      4641 4345
003542      0D0A
003544      5345 4C43 4820 5245      3536  T1.E00G  DC    C'SELCH READ FROM THE INTERFACE',X'0D0A'               MTD35360
00354C      4144 2046 524F 4D20
003554      5448 4520 494E 5445
00355C      5246 4143 4520
003562      0D0A
003564      5345 4C43 4820 5752      3537  T1.E00H  DC    C'SELCH WRITE TO THE TAPE',X'0D0A'                     MTD35370
00356C      4954 4520 544F 2054
003574      4845 2054 4150 4520
00357C      0D0A
00357E      5345 4C43 4820 5245      3538  T1.E00I  DC    C'SELCH READ FROM THE TAPE',X'0D0A'                    MTD35380
003586      4144 2046 524F 4D20
00358E      5448 4520 5441 5045
003596      0D0A
003598      5752 4954 452F 5245      3539  T1.E00J  DC    C'WRITE/READ TO THE INTERFACE',X'0D0A'                 MTD35390
0035A0      4144 2054 4F20 5448
0035A8      4520 494E 5445 5246
0035B0      4143 4520
0035B4      0D0A
0035B6      494E 434F 5252 4543      3540  T1ERMSG1 DC    C'INCORRECT DATA COMPARE',X'0D0A'                      MTD35400
0035BE      5420 4441 5441 2043
0035C6      4F4D 5041 5245
0035CC      0D0A
0035CE      4348 4543 4B20 4F46      3541  T1ERMSG2 DC    C'CHECK OF FIFO BUSY LOGIC',X'0D0A'                    MTD35410
0035D6      2046 4946 4F20 4255
0035DE      5359 204C 4F47 4943
0035E6      0D0A
0035E8      4C45 4E47 5448 3D2A      3542  MESS3.0  DC    C'LENGTH=****',X'8D0A'                                 MTD35420
0035F0      2A2A 2A20
0035F4      8D0A
0035F6      4452 4956 4520 2A2A      3543  MESSG3A  DC    C'DRIVE ***',X'8D0A'                                   MTD35430
0035FE      2A20
003600      8D0A
003602      5354 4154 5553 3D2A      3544  MESSG3B  DC    C'STATUS=**',X'8D0A' R01                               MTD35440
00360A      2A20
00360C      8D0A
00360E      4259 5445 202A 2A2A      3545  MESSG3C  DC    C'BYTE ******',X'8D0A'                                 MTD35450
003616      2A2A 2A20
00361A      8D0A
00361C      4441 5441 2057 5249      3546  MESSAGE4 DC    C'DATA WRITTEN=****',X'8D0A'                           MTD35460
003624      5454 454E 3D2A 2A2A
00362C      2A20
00362E      8D0A
003630      4441 5441 2052 4541      3547  MESSAGE5 DC    C'DATA READ   =****',X'0D0A'                           MTD35470
003638      4420 2020 3D2A 2A2A
003640      2A20
003642      0D0A
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                         ******************************************************      MTD35490
                         *        TEST 2  DEVICE STATUS HALFWORDS                *   MTD35500
                         *                                                        *   MTD35510
                         * PURPOSE: THIS TEST WILL CHECK OUT THE FORMATTER       *   MTD35520
                         *  STATUS BYTES AND THE BUS STATUS BITS OF               *   MTD35530
                         *  THE DEVICE STATUS HALFWORD.                           *   MTD35540
                         *                                                        *   MTD35550
                         * ASUMPTIONS: THIS TEST ASSUMES THAT THERE IS AN        *   MTD35560
                         * INTERFACE AND FORMATTER CONNECTED TO                   *   MTD35570
                         * THE SYSTEM.                                            *   MTD35580
                         *                                                        *   MTD35590
                         * DESIGN SPEC.: THIS TEST WILL CHECK OUT THE STATUS     *   MTD35600
                         * BYTES(9 BITS) OF THE ASSOCIATED FOR-                   *   MTD35610
                         * MATTER PLUS THE 7 EXTRA STATUS BITS                    *   MTD35620
                         * PASSED THRU THE INTERFACE TO FORM THE                  *   MTD35630
                         * DEVICE STATUS HALFWORDS OF THE MAG TAPE                *   MTD35640
                         * DRIVE SYSTEM.                                          *   MTD35650
                         *                                                        *   MTD35660
                         *     DEVICE STATUS HALFWORDS                            *   MTD35670
                         * DEVICE STATUS BYTE            BUS STATUS               *   MTD35680
                         * 0  1  2  3  4  5  6  7  8  9  10 11 12 13 14 15        *   MTD35690
                         * -------------------------------------------------     *   MTD35700
                         * |                       :                       :     *   MTD35710
                         * |                       :                       :     *   MTD35720
                         * -------------------------------------------------     *   MTD35730
                         *                                                        *   MTD35740
                         * ERRORS:                                                *   MTD35750
                         * APPROPRIATE ERROR INFO ABOUT WHICH INCORRECT           *   MTD35760
                         * BIT IS SET IN DSB                                      *   MTD35770
                         *                                                        *   MTD35780
                         * DRIVE ***                                              *   MTD35790
                         * DEVICE STATUS HALFWORD=****                            *   MTD35800
                         *                                                        *   MTD35810
                         * OPTIONS:                                               *   MTD35820
                         * DRIVE - DEVICE ADDRESS(ES)                             *   MTD35830
                         * ONLINE - FCU CONNECTED AND ONLINE X'01'=ONLINE         *   MTD35840
                         *                                                        *   MTD35850
                         ******************************************************      MTD35860


003644   41F0 4000 7D4A  TEST2  BAL  R15,TESTINIT     INITALIZE TEST                 MTD35880
00364A   41F0 B96A =006FB8      BAL  R15,SEL.5        CHECK IF ONLINE?         R01   MTD35890
                         ******************************************************      MTD35900
                         *                                                        *   MTD35910
                         * CHECK OUT INTERFACE STATUS BYTE                        *   MTD35920
                         *                                                        *   MTD35930
                         ******************************************************      MTD35940
00364E   41F0 4000 838C         BAL  R15,LOOPTOP      CALCULATE ADDRESSES            MTD35950
003654   0000 36A6              DAC  TEST2.01         NEXT SEQUENCE                  MTD35960
003658   0000 3C02              DAC  TST2.END         PROCEED LIMIT                  MTD35970
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 00365C   41E0 4000 7BE4               BAL   R14,SENSTA1         CHECK STATUS                         MTD35980
 003662   C330 0034                    THI   R3,X'34'            COMPARE WITH GOOD DEFAULT            MTD35990
*003666   233A      =00367A            BZ    T2.0000             INCORRECT STATUS THEN!          R01  MTD36000
 003668   41E0 4000 7BD2               BAL   R14,CDENS           ISSUE DENSITY COMMAND           R01  MTD36010
 00366E   41E0 4000 7C6C               BAL   R14,CWREOF          WRITE EOF TO ESTABLISH DENSITY  R01  MTD36020
 003674   4300 4000 834E               B     PASS                BRANCH IF GOOD                  R01  MTD36030
 00367A   C330 0001           T2.0000  THI   R3,X'01'            IS DRIVE DU?                    R01  MTD36040
 00367E   4230 4000 7D88               BNZ   IT.C                BRANCH TO MESSAGE IF DU              MTD36050
 003684   C800 0034                    LHI   R0,X'34'            EXPECTED STATUS                      MTD36060
 003688   4000 4000 83C8      T2R00.1  STH   R0,STATGD                                                MTD36070
 00368E   E650 2A9A                    LA    R5,TOERMSG2         INCORRECT STATUS FROM INTERFACE      MTD36080
 003692   41E0 28AE                    BAL   R14,TOERRORB        DRIVE, STATUS'S                      MTD36090
 003696   E6F0 2A4C                    LA    R15,MESSAGE1                                             MTD36100
 00369A   E6E0 4000 8596               LA    R14,CONTMSG         SUSPECTED ERROR WITH CONTROLLER      MTD36110
 0036A0   4300 4000 82CC               B     ERRORX                                                   MTD36120
                              *****************************************************                   MTD36130
                              *                                                   *                   MTD36140
                              * LET'S CHECK OUT THE DEVICE STATUS HALFWORDS       *                   MTD36150
                              *                                                   *                   MTD36160
                              *****************************************************                   MTD36170
 0036A6   41F0 4000 838C      TEST2.01 BAL   R15,LOOPTOP         CALCULATE ADDRESSES                  MTD36180
 0036AC   0000 37AE                    DAC   TEST2.02                                                 MTD36190
 0036B0   0000 3C02                    DAC   TST2.END            PROCEED LIMIT                        MTD36200
                              *****************************************************                   MTD36210
                              *                                                   *                   MTD36220
                              * DSB0 DEAD TRACKS                                  *                   MTD36230
                              *                                                   *                   MTD36240
                              *****************************************************                   MTD36250
 0036B4   4800 208A                    LH    R0,DRVTYPE+$VALU1   LOOK AT DRIVE TYPE OPT               MTD36260
 0036B8   4230 3708                    BNZ   TST2.01A            TELEX DRIVE - CHECK BITS             MTD36270
 0036BC   41E0 4000 7CAA               BAL   R14,CNOP0           SENSE DRIVE STATUS,ADDR=0            MTD36280
 0036C2   41E0 4000 7CF2               BAL   R14,RED E           READ STATUS HALFWORD                 MTD36290
 0036C8   C330 FF80                    THI   R3,X'FF80'          ZERO IN ON DEAD TRACK BITS           MTD36300
*0036CC   233D      =0036E6            BZ    T2.4                BRANCH IF  ZERO                      MTD36310
 0036CE   E650 3D5A                    LA    R5,T2.E001          DSB0 DEAD TRACKS SET                 MTD36320
 0036D2   41E0 3BCE           T2R01    BAL   R14,T2ERRORA        DEVICE STATUS HALFWORD               MTD36330
 0036D6   E6F0 8CB6 =004390            LA    R15,T2ERMSG0                                             MTD36340
 0036DA   E6E0 4000 8596               LA    R14,CONTMSG         SUSPECTED ERROR WITH CONTROLLER      MTD36350
 0036E0   4300 4000 82CC               B     ERRORX                                                   MTD36360
 0036E6   C430 007F           T2.4     NHI   R3,X'7F'            ISOLATE DU STATUS BITS               MTD36370
 0036EA   4330 4000 834E               BZ    PASS                BRANCH IF ZERO TO NEXT TEST          MTD36380
 0036F0   41E0 4000 7CF2      T2.5     BAL   R14,REDE            RELOAD STATUS AGAIN                  MTD36390
 0036F6   C430 003F                    NHI   R3,X'3F'            FORGET NRZI BIT-STILL NOT ZERO?      MTD36400
 0036FA   4330 4000 834E               BZ    PASS                NO! CONTINUE TESTING                 MTD36410
 003700   E650 3D70                    LA    R5,T2.E002          STATUS BUS BIT SET                   MTD36420
 003704   4300 36D2                    B     T2R01               ERROR MESSAGE SET UP                 MTD36430
 003708   2440                TST2.01A LIS   R4,0                                                     MTD36440
 00370A   7440 4000 8448               TBT   R4,SNSHW                                                 MTD36450
*003710   2335      =00371A            BZ    T2.000              OK                                   MTD36460
 003712   E650 3D16                    LA    R5,T2.E0010         DSB0 BIT0 "EQUIPMENT FAIL:           MTD36470
                              *                            TAPE DRIVE SET                             MTD36480
 003716   4300 36D2                    B     T2R01                                                    MTD36490
 00371A   2441                T2.000   LIS   R4,1                                                     MTD36500
```

TEST 2

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 00371C       7440 4000 8448          3651           TBT   R4,SNSHW                                                  MTD36510
*003722       2335      =00372C       3652           BZ    T2.001                                                      MTD36520
 003724       E650 3CEC               3653           LA    R5,T2.F000F         DSB0 BIT1 'EQUIPMENT FAIL:              MTD36530
                                      3654  *                                  FORMATTER' SET                          MTD36540
 003728       4300 36D2               3655           B     T2R01                                                       MTD36550
 00372C       2442                    3656  T2.001   LIS   R4,2                                                       MTD36560
 00372E       7440 4000 8448          3657           TBT   R4,SNSHW                                                  MTD36570
*003734       2335      =00373E       3658           BZ    T2.002                                                      MTD36580
 003736       E650 3CD4               3659           LA    R5,T2.E000E         DSB0 BIT2 'NOISE' SET                   MTD36590
 00373A       4300 36D2               3660           B     T2R01               ERROR MESSAGE SET UP                    MTD36600
 00373E       2443                    3661  T2.002   LIS   R4,3                                                       MTD36610
 003740       7440 4000 8448          3662           TBT   R4,SNSHW                                                  MTD36620
*003746       2335      =003750       3663           BZ    T2.003                                                      MTD36630
 003748       E650 3CB2               3664           LA    R5,T2.E000D         DSB0 BIT3 'FILE MARK ERROR' SET         MTD36640
 00374C       4300 36D2               3665           B     T2R01                                                       MTD36650
 003750       2444                    3666  T2.003   LIS   R4,4                                                       MTD36660
 003752       7440 4000 8448          3667           TBT   R4,SNSHW                                                  MTD36670
*003758       2335      =003762       3668           BZ    T2.004              THIS BIT IS OK                          MTD36680
 00375A       E650 3C8A               3669           LA    R5,T2.E000C         DSB0 BIT4 'SET AUTO GAIN CONTROL' SET   MTD36690
 00375E       4300 36D2               3670           B     T2R01                                                       MTD36700
 003762       2445                    3671  T2.004   LIS   R4,5                                                       MTD36710
 003764       7440 4000 8448          3672           TBT   R4,SNSHW                                                  MTD36720
*00376A       2335      =003774       3673           BZ    T2.005                                                      MTD36730
 00376C       E650 3C64               3674           LA    R5,T2.E000B         DSB0 BIT5 'MULTIPLE TRACK ERROR' SET    MTD36740
 003770       4300 36D2               3675           B     T2R01                                                       MTD36750
 003774       2445                    3676  T2.005   LIS   R4,6                                                       MTD36760
 003776       7440 4000 8448          3677           TBT   R4,SNSHW                                                  MTD36770
*00377C       2335      =003786       3678           BZ    T2.006                                                      MTD36780
 00377E       E650 3C3E               3679           LA    R5,T2.E000A         DSB0 BIT6 'VERTICAL REDUNDANCY' SET     MTD36790
 003782       4300 36D2               3680           B     T2R01                                                       MTD36800
 003786       2447                    3681  T2.006   LIS   R4,7                                                       MTD36810
 003788       7440 4000 8448          3682           TBT   R4,SNSHW                                                  MTD36820
*00378E       2335      =003798       3683           BZ    T2.007                                                      MTD36830
 003790       E650 3C1E               3684           LA    R5,T2.E000          DSB0 BIT7 'NOT COMPATIBLE' SET          MTD36840
                                      3685  *                                  TAPE DRIVE' SET                         MTD36850
 003794       4300 36D2               3686           B     T2R01                                                       MTD36860
 003798       2448                    3687  T2.007   LIS   R4,8                                                       MTD36870
 00379A       7440 4000 8448          3688           TBT   R4,SNSHW                                                  MTD36880
 0037A0       4330 4000 834E          3689           BZ    PASS                                                        MTD36890
 0037A6       E650 3D42               3690           LA    R5,T2.E0011         DSB0 BIT8 IS NOT ZERO                   MTD36900
 0037AA       4300 36D2               3691           B     T2R01                                                       MTD36910

                                      3693  ********************************************************                  MTD36930
                                      3694  *                                                      *                  MTD36940
                                      3695  * DSB1 READ-WRITE ERRORS                               *                  MTD36950
                                      3696  *                                                      *                  MTD36960
                                      3697  ********************************************************                  MTD36970
 0037AE       41F0 4000 838C          3698  TEST2.02 BAL   R15,LOOPTOP         CALCULATE ADDRESSES                     MTD36980
 0037B4       0000 38F6               3699           DAC   TEST2.03            NEXT SEQUENCE                           MTD36990
 0037B8       0000 3C02               3700           DAC   TST2.END            PROCEED LIMIT                           MTD37000
 0037BC       41E0 4000 7CB2          3701           BAL   R14,CNOP1           SENSE DRIVE STATUS,ADDR=1               MTD37010
 0037C2       4150 4000 7CF2          3702           BAL   R14,REDE            READ STATUS H-W                         MTD37020
 0037C8       C430 FF80               3703           NHI   R3,X'FF80'          CHECK OUT ALL BUT BUS BITS              MTD37030
```

TEST 2

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 0037CC      4330 4000 834E          3704            BZ    PASS              OK IF ZERO! CONTINUE TESTING              MTD37040
 0037D2      2440                    3705            LIS   R4,0              ZERO OUT TEST BIT INDICATOR               MTD37050
 0037D4      7440 4000 8448          3706            TBT   R4,SNSHW           TEST BIT IN STATUS H-W                    MTD37060
*0037DA      233C      =0037F2       3707            BZ    T2.009            BRANCH IF SET TO ERROR                    MTD37070
 0037DC      4800 208A               3708            LH    R0,DRVTYPE+$VALU1 CHECK OPTION                          MTD37080
*0037E0      2135      =0037EA       3709            BNZ   T2R02             TELEX ERROR MESSAGE                       MTD37090
 0037E2      E650 3D84               3710            LA    R5,T2.E003        DSB0 BIT0 'WRITE TAPE MARK' SET           MTD37100
 0037E6      4300 36D2               3711            B     T2R01             ERROR SET UP                              MTD37110
 0037EA      E650 3F5C               3712  T2R02     LA    R5,T2.E00AA       DSB1 BIT 0 'CYCLICAL REDUNDANCY CHECK     MTD37120
 0037EE      4300 36D2               3713            B     T2R01                                                       MTD37130
 0037F2      2441                    3714  T2.009    LIS   R4,1                                                       MTD37140
 0037F4      7440 4000 8448          3715            TBT   R4,SNSHW                                                  MTD37150
*0037FA      233C      =003812       3716            BZ    T2.00A            OK                                        MTD37160
 0037FC      4800 208A               3717            LH    R0,DRVTYPE+$VALU1 LOOK AT OPTION                        MTD37170
*003800      2135      =00380A       3718            BNZ   T2R02A            TELEX ERROR MESSAGE                       MTD37180
 003802      E650 3DBC               3719            LA    R5,T2.E004        DSB1 BIT1 INCORRECT ERROR SET             MTD37190
 003806      4300 36D2               3720            B     T2R01             ERROR SET UP                              MTD37200
 00380A      E650 3F24               3721  T2R02A    LA    R5,T2.E009A       DSB1 BIT 1 'SKEW' SET                     MTD37210
 00380E      4300 36D2               3722            B     T2R01                                                       MTD37220
 003812      2442                    3723  T2.00A    LIS   R4,2                                                       MTD37230
 003814      7440 4000 8448          3724            TBT   R4,SNSHW                                                  MTD37240
*00381A      233C      =003832       3725            BZ    T2.00B            OK                                        MTD37250
 00381C      4800 208A               3726            LH    R0,DRVTYPE+$VALU1 LOOK AT OPTION                        MTD37260
*003820      2135      =00382A       3727            BNZ   T2R02B            TELEX ERROR MESSAGE                       MTD37270
 003822      E650 3DFC               3728            LA    R5,T2.E005        DSB1 BIT2 'PARTIAL RECORD' SET            MTD37280
 003826      4300 36D2               3729            B     T2R01             ERROR ROUTINE                             MTD37290
 00382A      E650 3EDA               3730  T2R02B    LA    R5,T2.E008A       DSB2 BIT 2 'LOST BOB' SET                 MTD37300
 00382E      4300 36D2               3731            B     T2R01                                                       MTD37310
 003832      2443                    3732  T2.00B    LIS   R4,3                                                       MTD37320
 003834      7440 4000 8448          3733            TBT   R4,SNSHW                                                  MTD37330
*00383A      233C      =003852       3734            BZ    T2.00C            OK                                        MTD37340
 00383C      4800 208A               3735            LH    R0,DRVTYPE+$VALU1                                         MTD37350
*003840      2135      =00384A       3736            BNZ   T2R02C            TELEX ERROR MESSAGE                       MTD37360
 003842      E650 3E3C               3737            LA    R5,T2.E006        DSB1 BIT3 'MULTIPLE TRACK' SET            MTD37370
 003846      4300 36D2               3738            B     T2R01             ERROR ROUTINE                             MTD37380
 00384A      E650 3E98               3739  T2R02C    LA    R5,T2.E007A       DSB1 BIT 3 'PARTIAL RECORD' SET           MTD37390
 00384E      4300 36D2               3740            B     T2R01                                                       MTD37400
 003852      2444                    3741  T2.00C    LIS   R4,4                                                       MTD37410
 003854      7440 4000 8448          3742            TBT   R4,SNSHW                                                  MTD37420
*00385A      233C      =003872       3743            BZ    T2.00D            OK                                        MTD37430
 00385C      4800 208A               3744            LH    R0,DRVTYPE+$VALU1 LOOK AT OPTION                        MTD37440
*003860      2135      =00386A       3745            BNZ   T2R02D            TELEX MESSAGE                             MTD37450
 003862      E650 3E7E               3746            LA    R5,T2.E007        DSB1 BIT4 UNUSED BIT SET                  MTD37460
 003866      4300 36D2               3747            B     T2R01             ERROR ROUTINE                             MTD37470
 00386A      E650 3E5C               3748  T2R02D    LA    R5,T2.E006A       DSB1 BIT 4 POSTAMBLE ERROR' SET           MTD37480
 00386E      4300 36D2               3749            B     T2R01                                                       MTD37490
 003872      2445                    3750  T2.00D    LIS   R4,5                                                       MTD37500
 003874      7440 4000 8448          3751            TBT   R4,SNSHW                                                  MTD37510
*00387A      233C      =003892       3752            BZ    T2.00E                                                    MTD37520
 00387C      4800 208A               3753            LH    R0,DRVTYPE+$VALU1 LOOK AT OPTION                        MTD37530
*003880      2135      =00388A       3754            BNZ   T2R02E            TELEX MESSAGE                             MTD37540
 003882      E650 3EBA               3755            LA    R5,T2.E008        DSB1 BIT5 'END DATA CHECK' SET            MTD37550
 003886      4300 36D2               3756            B     T2R01             ERROR ROUTINE                             MTD37560
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TEST 2

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 00388A       E650 3E1C                3757  T2R02E   LA    R5,T2.E005A          DSB1 BIT 5 'PREAM ERROR' SET          MTD37570
 00388E       4300 36D2                3758           B     T2R01                                                      MTD37580
 003892       2446                     3759  T2.00E   LIS   R4,6                                                     MTD37590
 003894       7440 4000 8448           3760           TBT   R4,SNSHW                                                 MTD37600
*00389A       233C       =0038B2       3761           BZ    T2.00F               OK                                    MTD37610
 00389C       4800 208A                3762           LH    R0,DRVTYPE+$VALU1    LOOK AT OPTION                        MTD37620
*0038A0       2135       =0038AA       3763           BNZ   T2R02F               TELEX MESSAGE                         MTD37630
 0038A2       E650 3F04                3764           LA    R5,T2.E0C9           DAB1 BIT6 'VELOCITY ERROR' SET        MTD37640
 0038A6       4300 36D2                3765           B     T2R01                ERROR ROUTINE                         MTD37650
 0038AA       E650 3DDC                3766  T2R02F   LA    R5,T2.E004A          DSB1 BIT 6 'ENVELOPE CHECK' SET       MTD37660
 0038AE       4300 36D2                3767           B     T2R01                                                      MTD37670
 0038B2       2447                     3768  T2.00F   LIS   R4,7                                                     MTD37680
 0038B4       7440 4000 8448           3769           TBT   R4,SNSHW                                                 MTD37690
*0038BA       233C       =0038D2       3770           BZ    T2.010               OK                                    MTD37700
 0038BC       4800 208A                3771           LH    R0,DRVTYPE+$VALU1                                          MTD37710
*0038C0       2135       =0038CA       3772           BNZ   T2R0210                                                  MTD37720
 0038C2       E650 3F3A                3773           LA    R5,T2.E00A           DSB1 BIT7 'DIAG MODE LATCH' SET       MTD37730
 0038C6       4300 36D2                3774           B     T2R01                                                      MTD37740
 0038CA       E650 3DA6                3775  T2R0210  LA    R5,T2.E003A          DSB1 BIT 7 'LRC' SET                  MTD37750
 0038CE       4300 36D2                3776           B     T2R01                MESSAGE SET UP                        MTD37760
 0038D2       2448                     3777  T2.010   LIS   R4,8                                                     MTD37770
 0038D4       7440 4000 8448           3778           TBT   R4,SNSHW                                                 MTD37780
 0038DA       4330 4000 834E           3779           BZ    PASS                                                     MTD37790
 0038E0       4800 208A                3780           LH    R0,DRVTYPE+$VALU1    LOOK AT OPTION                        MTD37800
*0038E4       2135       =0038EE       3781           BNZ   T2R0211              TELEX                                 MTD37810
 0038E6       E650 3F88                3782           LA    R5,T2.E00B           DSB1 BIT8 'CRC ERROR' IS SET          MTD37820
 0038EA       4300 36D2                3783           B     T2R01                                                      MTD37830
 0038EE       E650 3FA4                3784  T2R0211  LA    R5,T2.E00BA          DSB1 BIT 8 IS NOT ZERO                MTD37840
 0038F2       4300 36D2                3785           B     T2R01                                                      MTD37850
                                       3786  ********************************************************              MTD37860
                                       3787  *                                                      *              MTD37870
                                       3788  * DSB2 DIAGNOSTIC A-D BITS                            *              MTD37880
                                       3789  *                                                      *              MTD37890
                                       3790  ********************************************************              MTD37900
 0038F6       41F0 4000 838C           3791  TEST2.03 BAL   R15,LOOPTOP                                            MTD37910
 0038FC       0000 3A3E                3792           DAC   TEST2.04                                                 MTD37920
 003900       0000 3C02                3793           DAC   TST2.END             PROCEED LIMIT                         MTD37930
 003904       41E0 4000 7CB8           3794           BAL   R14,CNOP2           STATUS HALFWORD ADDR=2                MTD37940
 00390A       41E0 4000 7CF2           3795           BAL   R14,REDE            READ STATUS H-W                       MTD37950
 003910       C430 FF00                3796           NHI   R3,X'FF00'           DELETE BUS BITS                     MTD37960
 003914       4330 4000 834F           3797           BZ    PASS                 BRANCH IF ZERO TO NEXT TEST           MTD37970
 00391A       2440                     3798           LIS   R4,0                 ZERO OUT TEST BIT INDICATOR           MTD37980
 00391C       7440 4000 8448           3799           TBT   R4,SNSHW             TEST BIT                              MTD37990
*003922       233C       =00393A       3800           BZ    T2.011               BRANCH IF ERROR BIT SET               MTD38000
 003924       4800 208A                3801           LH    R0,DRVTYPE+$VALU1    LOOK AT DRIVE TYPE OPTION             MTD38010
*003928       2135       =003932       3802           BNZ   T2R03A               TELEX                                 MTD38020
 00392A       E650 3FBC                3803           LA    R5,T2.E00C           DSB2 BIT0 DIAGNOSTIC AID 7 SET        MTD38030
 00392E       4300 36D2                3804           B     T2R01                ERROR ROUTINE                         MTD38040
 003932       E650 886C =0041A2        3805  T2R03A   LA    R5,T2.E013A          DSB2 BIT 0 'DEAD TRACK P' SET         MTD38050
 003936       4300 36D2                3806           B     T2R01                                                      MTD38060
 00393A       2441                     3807  T2.011   LIS   R4,1                                                     MTD38070
 00393C       7440 4000 8448           3808           TBT   R4,SNSHW                                                 MTD38080
*003942       233C       =00395A       3809           BZ    T2.012               OK                                    MTD38090
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TEST 2

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 003944       4800 208A              3810           LH    R0,DRVTYPE+SVALU1   LOOK AT OPTION                          MTD38100
*003948       2135       =003952     3811           BNZ   T2R03B              TELEX                                  MTD38110
 00394A       E650 3FF8              3812           LA    R5,T2.E00D          DSB0 BIT1 DIAGNOSTIC AID 6 SET         MTD38120
 00394E       4300 36D2              3813           B     T2R01               ERROR ROUTINE                          MTD38130
 003952       E650 880C =004162      3814  T2R03B   LA    R5,T2.F012A         DSB2 BIT 1 'IBG OVERFLOW' SET          MTD38140
 003956       4300 36D2              3815           B     T2R01               MESSAGE SET UP                         MTD38150
 00395A       2442                   3816  T2.012   LIS   R4,2                                                      MTD38160
 00395C       7440 4000 8448         3817           TBT   R4,SNSHW                                                 MTD38170
*003962       233C       =00397A     3818           BZ    T2.013              OK                                     MTD38180
 003964       4800 208A              3819           LH    R0,DRVTYPE+SVALU1   LOOK AT OPTION                         MTD38190
*003968       2135       =003972     3820           BNZ   T2R03C              TELEX                                  MTD38200
 00396A       E650 86CC =00403A      3821           LA    R5,T2.E00E          DSB1 BIT2 'DIAGNOSTIC AID 5' SET       MTD38210
 00396E       4300 36D2              3822           B     T2R01               ERROR ROUTINE                          MTD38220
 003972       E650 87B0 =004126      3823  T2R03C   LA    R5,T2.E011A         DSB2 BIT 2 'NO DATA' SET               MTD38230
 003976       4300 36D2              3824           B     T2R01               ERROR ROUTINE                          MTD38240
 00397A       2443                   3825  T2.013   LIS   R4,3                                                      MTD38250
 00397C       7440 4000 8448         3826           TBT   R4,SNSHW                                                 MTD38260
*003982       233C       =00399A     3827           BZ    T2.014              OK                                     MTD38270
 003984       4800 208A              3828           LH    R0,DRVTYPE+SVALU1   LOOK AT OPTION                         MTD38280
*003988       2135       =003992     3829           BNZ   T2R03D              TELEX                                  MTD38290
 00398A       E650 86EA =004078      3830           LA    R5,T2.E00F          DSB1 BIT3 'DIAGNOSTIC AID 4' SET       MTD38300
 00398E       4300 36D2              3831           B     T2R01               ERROR ROUTINE                          MTD38310
 003992       E650 8754 =0040FA      3832  T2R03D   LA    R5,T2.E010A         DSB2 BIT 3 'LOOPOUT' SET           SE  MTD38320
 003996       4300 36D2              3833           B     T2R01               ERROR ROUTINE                          MTD38330
 00399A       2444                   3834  T2.014   LIS   R4,4                                                      MTD38340
 00399C       7440 4000 8448         3835           TBT   R4,SNSHW                                                 MTD38350
*0039A2       233C       =0039BA     3836           BZ    T2.015              OK                                     MTD38360
 0039A4       4800 208A              3837           LH    R0,DRVTYPE+SVALU1   LOOK AT OPTION                         MTD38370
*0039A8       2135       =0039B2     3838           BNZ   T2R03E              TELEX                                  MTD38380
 0039AA       E650 871A =0040C8      3839           LA    R5,T2.E010          DSB2 BIT4 'DIAGNOSTIC AID 3' SET       MTD38390
 0039AE       4300 36D2              3840           B     T2R01               ERROR ROUTINE                          MTD38400
 0039B2       E650 86E4 =00409A      3841  T2R03E   LA    R5,T2.E00FA         DSB2 BIT 4 'ERASE WR CURR FAILURE' SE  MTD38410
 0039B6       4300 36D2              3842           B     T2R01               ERROR ROUTINE                          MTD38420
 0039BA       2445                   3843  T2.015   LIS   R4,5                                                      MTD38430
 0039BC       7440 4000 8448         3844           TBT   R4,SNSHW                                                 MTD38440
*0039C2       233C       =0039DA     3845           BZ    T2.016              OK                                     MTD38450
 0039C4       4800 208A              3846           LH    R0,DRVTYPE+SVALU1   LOOK AT OPTION                         MTD38460
*0039C8       2135       =0039D2     3847           BNZ   T2R03F              TELEX                                  MTD38470
 0039CA       E650 8736 =004104      3848           LA    R5,T2.E011          DSB2 BIT5 'DIAGNOSTIC AID 2' SET       MTD38480
 0039CE       4300 36D2              3849           B     T2R01               ERROR ROUTINE                          MTD38490
 0039D2       E650 8686 =00405C      3850  T2R03F   LA    R5,T2.E00EA         DSB2 BIT 5 'TACH FAIL' SET             MTD38500
 0039D6       4300 36D2              3851           B     T2R01               ERROR ROUTINE                          MTD38510
 0039DA       2446                   3852  T2.016   LIS   R4,6                                                      MTD38520
 0039DC       7440 4000 8448         3853           TBT   R4,SNSHW                                                 MTD38530
*0039E2       233C       =0039FA     3854           BZ    T2.017              OK                                     MTD38540
 0039E4       4800 208A              3855           LH    R0,DRVTYPE+SVALU1   LOOK AT OPTION                         MTD38550
*0039E8       2135       =0039F2     3856           BNZ   T2R0310             TELEX                                  MTD38560
 0039EA       E650 8752 =004140      3857           LA    R5,T2.E012          DSB2 BIT6 'DIAGNOSTIC AID 1' SET       MTD38570
 0039EE       4300 36D2              3858           B     T2R01               ERROR ROUTINE                          MTD38580
 0039F2       E650 8624 =00401A      3859  T2R0310  LA    R5,T2.E00DA         DSB2 BIT 6 'VELOCITY CHECK' SET        MTD38590
 0039F6       4300 36D2              3860           B     T2R01               ERROR ROUTINE                          MTD38600
 0039FA       2447                   3861  T2.017   LIS   R4,7                                                      MTD38610
 0039FC       7440 4000 8448         3862           TBT   R4,SNSHW                                                 MTD38620
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*003A02   233C      =003A1A              BZ    T2.018               OK                                      MTD38630
 003A04   4800 208A                      LH    R0,DRVTYPE+$VALU1    LOOK AT OPTION                          MTD38640
*003A08   2135      =003A12              BNZ   T2R0311              TELEX                                   MTD38650
 003A0A   E650 8772 =004180              LA    R5,T2.E013           DSB2 BIT7 'DIAGNOSTIC AID 0' SET        MTD38660
 003A0E   4300 36D2                      B     T2R01                                                        MTD38670
 003A12   E650 3FDE            T2R0311   LA    R5,T2.E00CA          DSB2 BIT 7 'ID BURST' SET               MTD38680
 003A16   4300 36D2                      B     T2R01                MESSAGE SET UP                          MTD38690
 003A1A   2448                 T2.018    LIS   R4,8                                                         MTD38700
 003A1C   7440 4000 8448                 TBT   R4,SNSHW                                                     MTD38710
 003A22   4330 4000 834F                 BZ    PASS                 OK FOR DSB2                             MTD38720
 003A28   4800 208A                      LH    R0,DRVTYPE+$VALU1    LOOK AT OPTION                          MTD38730
*003A2C   2135      =003A36              BNZ   T2R0312              TELEX                                   MTD38740
 003A2E   E650 878E =0041C0              LA    R5,T2.E014           DSB2 BIT8 'TACH' SET                    MTD38750
 003A32   4300 36D2                      B     T2R01                ERROR ROUTINE                           MTD38760
 003A36   E650 879C =0041D6    T2R0312   LA    R5,T2.E014A          DSB2 BIT 8 IS NOT ZERO                  MTD38770
 003A3A   4300 36D2                      B     T2R01                                                        MTD38780
                               ****************************************************                          MTD38790
                               *                                                  *                          MTD38800
                               * DSB3 DRIVE SENSE STATUS BYTE                     *                          MTD38810
                               *                                                  *                          MTD38820
                               ****************************************************                          MTD38830
 003A3E   41F0 4000 838C       TEST2.04  BAL   R15,LOOPTOP          CALCULATE ADDRESSES                     MTD38840
 003A44   0000 3B9E                      DAC   TST2.30B                                                     MTD38850
 003A48   0000 3C02                      DAC   TST2.END                                                     MTD38860
 003A4C   41F0 4000 80D2                 BAL   R15,REWMT            REWIND TAPE                             MTD38870
 003A52   41E0 4000 7C66                 BAL   R14,CSKFB            SKIP FORWARD TO PROCESS I.D. AREA       MTD38880
 003A58   41E0 4000 7BE4       T2.CA     BAL   R14,SENSTA1          WAIT FOR NMTN                           MTD38890
 003A5E   41E0 4000 7CBF                 BAL   R14,CNOP3            ADDRESS DSB3                            MTD38900
 003A64   41E0 4000 7CF2                 BAL   R14,REDE                                                     MTD38910
 003A6A   4800 208A                      LH    R0,DRVTYPE+$VALU1    LOOK AT OPTION                          MTD38920
*003A6E   233B      =003A84              BZ    TEST2.4A             STC                                     MTD38930
 003A70   2440                           LIS   R4,0                                                         MTD38940
 003A72   7440 4000 8448                 TBT   R4,SNSHW                                                     MTD38950
 003A78   4330 3B1C                      BZ    T2.01D               TELEX DSB3 IS OK             R01        MTD38960
 003A7C   E650 88A0 =004320              LA    R5,T2.E01E           DSB3 DEAD TRACKS SET                    MTD38970
 003A80   4300 36D2                      B     T2R01                                                        MTD38980
 003A84   2440                 TEST2.4A  LIS   R4,0                 LOAD TEST OFFSET                        MTD38990
 003A86   7440 4000 8448                 TBT   R4,SNSHW             TEST FOR EOT STATUS                     MTD39000
*003A8C   2335      =003A96              BZ    T2.019               OK                                      MTD39010
 003A8E   E650 875C =0041EE              LA    R5,T2.E015           DSB3 BIT0 'EOT' STATUS BIT SET          MTD39020
 003A92   4300 36D2                      B     T2R01                ERROR ROUTINE                           MTD39030
 003A96   2641                 T2.019    AIS   R4,1                 INCREMENT TEST BIT                      MTD39040
 003A98   7440 4000 8448                 TBT   R4,SNSHW             TEST FOR BOT STATUS                     MTD39050
*003A9E   2335      =003AA8              BZ    T2.01A               OK                                      MTD39060
 003AA0   E650 8766 =00420A              LA    R5,T2.E016           DSB3 BIT1 'BOT STATUS' NOT SET          MTD39070
 003AA4   4300 36D2                      B     T2R01                ERROR ROUTINE                           MTD39080
 003AA8   2442                 T2.01A    LIS   R4,2                 INCREMENT TEST BIT                      MTD39090
 003AAA   7440 4000 8448                 TBT   R4,SNSHW             TEST FOR WRITE INHIBIT                  MTD39100
*003AB0   2135      =003ABA              BNZ   T2.01B               OK                                      MTD39110
 003AB2   E650 8774 =00422A              LA    R5,T2.E017           DSB3 BIT2 'WRITE INHIBIT' NOT SET       MTD39120
 003AB6   4300 36D2                      B     T2R01                                                        MTD39130
 003ABA   2443                 T2.01B    LIS   R4,3                 INCREMENT TEST BIT                      MTD39140
 003ABC   7440 4000 8448                 TBT   R4,SNSHW             TEST FOR FILE PROTECT                   MTD39150
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*003AC2    2335        =003ACC     3916            BZ    T2.01C               BRANCH IF NOT SET                      MTD39160
 003AC4    E650 8786 =00424E       3917            LA    R5,T2.E018           DSB3 BIT3 SET 'FILE PROTECT' IS ON     MTD39170
 003AC8    4300 36D2               3918            B     T2R01                                                       MTD39180
 003ACC    2444                    3919  T2.01C    LIS   R4,4                 INCREMENT TEST BIT                     MTD39190
 003ACE    7440 4000 8448          3920            TBT   R4,SNSHW             TEST FOR BACKWARDS STATUS              MTD39200
*003AD4    2335        =003ADE     3921            BZ    T2.F                 OK                          R01        MTD39210
 003AD6    E650 879A =004274       3922            LA    R5,T2.E019           DSB3 BIT4 'BACKWARD STATUS' SET        MTD39220
 003ADA    4300 36D2               3923            B     T2R01                                                       MTD39230
 003ADE    4800 208A               3924  T2.F      LH    R0,DRVTYPE+SVALU1    LOOK IF TELEX                          MTD39240
 003AE2    4230 3B1C               3925            BNZ   T2.01D               DETERMINE DENSITY                      MTD39250
                                   3926  *                                                                           MTD39260
 003AE6    2446                    3927            LIS   R4,6                 INCREMENT TEST BIT                     MTD39270
 003AE8    7440 4000 8448          3928            TBT   R4,SNSHW             TEST FOR READY STATUS                  MTD39280
*003AEE    2135        =003AF8     3929            BNZ   T2.01F               OK IF SET                              MTD39290
 003AF0    E650 87C8 =0042BC       3930            LA    R5,T2.E01B           DSB3 BIT6 'READY STATUS' NOT SET       MTD39300
 003AF4    4300 36D2               3931            B     T2R01                                                       MTD39310
 003AF8    2447                    3932  T2.01F    LIS   R4,7                 INCREMENT TEST BIT                     MTD39320
 003AFA    7440 4000 8448          3933            TBT   R4,SNSHW             TEST FOR ONLINE STATUS                 MTD39330
*003B00    2135        =003B0A     3934            BNZ   T2.020               OK IF SET                              MTD39340
 003B02    E650 87D8 =0042DE       3935            LA    R5,T2.E01C           DSB3 BIT7 'ONLINE STATUS' NOT SET      MTD39350
 003B06    4300 36D2               3936            B     T2R01                                                       MTD39360
 003B0A    2448                    3937  T2.020    LIS   R4,8                 INCREMENT TEST BIT                     MTD39370
 003B0C    7440 4000 8448          3938            TBT   R4,SNSHW             TEST FOR WRITE STATUS                  MTD39380
*003B12    2335        =003B1C     3939            BZ    T2.01D               DETERMINE DENSITY           R01        MTD39390
 003B14    E650 87EA =004302       3940            LA    R5,T2.E01D           DSB3 BIT8 'WRITE STATUS' SET           MTD39400
 003B18    4300 36D2               3941            B     T2R01                                                       MTD39410
                                   3942  *                                                                           MTD39420
 003B1C    4800 208A               3943  T2.01D    LH    R0,DRVTYPE+SVALU1    STC OR TELEX                           MTD39430
 003B20    4230 3B58               3944            BNZ   T2.01E               TELEX?                                 MTD39440
 003B24    2445                    3945            LIS   R4,5                 INCREMENT TEST BIT                     MTD39450
 003B26    7440 4000 8448          3946            TBT   R4,SNSHW             TEST FOR HI DENSITY                    MTD39460
*003B2C    2334        =003B34     3947            BZ    T2.D0                BRANCH TO ANOTHER TEST IF NOT SET      MTD39470
 003B2E    E650 8806 =004338       3948            LA    R5,T2MSG1            TAPE IS IN GCR DENSITY MODE            MTD39480
 003B32    2309        =003B44     3949            BS    T2.MSG2A             OUTPUT AND CONTINUE                    MTD39490
 003B34    2469                    3950  T2.D0     LIS   R6,9                 SEE IF NRZI BIT SET                    MTD39500
 003B36    7460 4000 8448          3951            TBT   R6,SNSHW                                                    MTD39510
 003B3C    4230 3B8E               3952            BNZ   T2.G                 NRZI MESSAGE                           MTD39520
 003B40    E650 8812 =004356       3953  T2.MSG2   LA    R5,T2MSG2            TAPE DRIVE IS IN PE DENSITY MODE       MTD39530
 003B44    41F0 4000 836E          3954  T2.MSG2A  BAL   R15,LOOP2            OUTPUT MESSAGE?                        MTD39540
 003B4A    4300 4000 834E          3955            B     PASS                 ONTO NEXT SEQUENCE          R01        MTD39550
 003B50    E650 8742 =004296       3956  T2.MSG3   LA    R5,T2.E01A           BOTH HI DEN AND NRZI SET.              MTD39560
 003B54    4300 36D2               3957            B     T2R01                ERROR ROUTINE                          MTD39570
                                   3958  *                                                                           MTD39580
 003B58    2469                    3959  T2.01E    LIS   R6,9                 LOAD TEST OFFSET                       MTD39590
 003B5A    7460 4000 8448          3960            TBT   R6,SNSHW             TEST FOR NRZI SET                      MTD39600
 003B60    4230 3B8E               3961            BNZ   T2.G                 BRANCH IF SET                          MTD39610
 003B64    2468                    3962            LIS   R6,10                                                       MTD39620
 003B66    7460 4000 8448          3963            TBT   R6,SNSHW             TEST FOR GCR SET                       MTD39630
*003B6C    2339        =003B7E     3964            BZ    T2.G0                NO                                     MTD39640
 003B6E    E650 87C6 =004338       3965            LA    R5,T2MSG1            TAPE IS IN GCR MODE                    MTD39650
 003B72    41F0 4000 836E          3966            BAL   R15,LOOP2            PRINT OUT                              MTD39660
 003B78    4300 4000 834E          3967            B     PASS                 NEXT SEQUENCE                          MTD39670
 003B7E    E650 87D4 =004356       3968  T2.G0     LA    R5,T2MSG2            TAPE DRIVE IS IN PE DENSITY MODE       MTD39680
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TEST 2

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003B82  41F0 4000 836E          3969           BAL   R15,LOOP2          OUTPUT MESSAGES                          MTD39690
003B88  4300 4000 834E          3970           B     PASS               NEXT SEQUENCE                            MTD39700
                                3971  *                                                                         MTD39710
003B8E  E650 87E0 =004372       3972  T2.G     LA    R5,T2MSG3          TAPE DRIVE IS IN NRZI DENSITY MODE       MTD39720
003B92  41F0 4000 836E          3973           BAL   R15,LOOP2          OUTPUT MESSAGE                           MTD39730
003B98  4300 4000 834E          3974           B     PASS               NEXT SEQUENCE                            MTD39740
                                3975  *                                                                         MTD39750
003B9E  41F0 4000 838C          3976  TST2.30B BAL   R15,LOOPTOP                                                MTD39760
003BA4  0000 3C02               3977           DAC   TST2.END                                                   MTD39770
003BA8  0000 3C02               3978           DAC   TST2.END                                                   MTD39780
003BAC  4800 208A               3979           LH    R0,DRVTYPE+$VALU1                                          MTD39790
003BB0  4230 4000 834E          3980           BNZ   PASS               SKIP IF TELEX                            MTD39800
003BB6  7330 4000 8448          3981           LHL   R3,SNSHW           LOAD STATUS HALFWORD                     MTD39810
003BBC  C430 002F               3982           NHI   R3,X'2F'           ZERO IN ON BUS BITS                      MTD39820
003BC0  4330 4000 834E          3983           BZ    PASS               STATUS BUS BITS SHOULD = 0               MTD39830
003BC6  E650 3D70               3984           LA    R5,T2.E002                                                 MTD39840
003BCA  4300 36D2               3985           B     T2R01                                                      MTD39850
                                3986  *                                                                         MTD39860
003BCE  D000 4000 8990          3987  T2ERRORA STM   R0,ERRSAVE          SAVE REGISTERS                           MTD39870
003BD4  41F0 4000 836E          3988           BAL   R15,LOOP2          OUTPUT FIRST MESSAGE?                    MTD39880
003BDA  2403                    3989           LIS   R0,3               DIGITS TO CONVERT                        MTD39890
003BDC  4810 4000 8408          3990           LH    R1,DRIVSAV         CURRENT DRIVE ADDRESS                    MTD39900
003BE2  E620 87B0 =004396       3991           LA    R2,T2ERMSG0+6                                              MTD39910
003BE6  41F0 1680               3992           BAL   R15,HEXASC                                                 MTD39920
003BEA  4810 4000 8448          3993           LH    R1,SNSHW           LOAD SEVICE STATUS HALWORD               MTD39930
003BF0  2404                    3994           LIS   R0,4               DIGITS TO CONVERT                        MTD39940
003BF2  E620 87BD =0043B3       3995           LA    R2,T2ERMSG1+23     STORED HERE                              MTD39950
003BF6  41F0 1680               3996           BAL   R15,HEXASC         CONVERT                                  MTD39960
003BFA  D100 4000 8990          3997           LM    R0,ERRSAVE                                                 MTD39970
003C00  030E                    3998           BR    R14                RETURN                                   MTD39980
                                3999  *                                                                         MTD39990
003C02  41F0 2836               4000  TST2.END BAL   R15,TST.DRIV       CHECK FOR OTHER DRIVES                   MTD40000
003C06  4800 4000 840A          4001           LH    R0,DRIVSAV1        CHECK FLAG                               MTD40010
003C0C  C300 000E               4002           THI   R0,X'E'            IS IT SET                                MTD40020
003C10  4330 133C               4003           BZ    TSTEND             NO, END TEST                             MTD40030
003C14  41F0 4000 7D58          4004           BAL   R15,IT.B1          INIT TEST FOR OTHER DRIVES               MTD40040
003C1A  4300 36A6               4005           B     TEST2.01           BEGIN TEST 2                             MTD40050


003C1E  4453 4230 2042 4954     4007  T2.E000  DC    C'DSB0 BIT7 "NOT COMPATIBLE" SET',X'0D0A'                  MTD40070
003C26  3720 224E 4F54 2043
003C2E  4F4D 5041 5449 424C
003C36  4522 2053 4554
003C3C  0D0A
003C3E  4453 4230 2042 4954     4008  T2.E000A DC    C'DSB0 BIT6 "VERTICAL REDUNDANCY" SET',X'0D0A'             MTD40080
003C46  3620 2256 4552 5449
003C4E  4341 4C20 5245 4455
003C56  4E44 414E 4359 2220
003C5E  5345 5420
003C62  0D0A
003C64  4453 4230 2042 4954     4009  T2.E000B DC    C'DSB0 BIT5 "MULTIPLE TRACK ERROR" SET',X'0D0A'            MTD40090
003C6C  3520 224D 554C 5449
003C74  504C 4520 5452 4143
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TEST 2

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003C7C       4820 4552 524F 5222
003C84       2053 4554
003C88       0D0A
003C8A       4453 4230 2042 4954      4010  T2.E000C DC    C'DSB0 BIT4 "SET AUTO GAIN CONTROL" SET',X'0D0A'          MTD40100
003C92       3420 2253 4554 2041
003C9A       5554 4F20 4741 494E
003CA2       2043 4F4E 5452 4F4C
003CAA       2220 5345 5420
003CB0       0D0A
003CB2       4453 4230 2042 4954      4011  T2.E000D DC    C'DSB0 BIT3 "FILE MARK ERROR" SET',X'0D0A'               MTD40110
003CBA       3320 2246 494C 4520
003CC2       4D41 524B 2045 5252
003CCA       4F52 2220 5345 5420
003CD2       0D0A
003CD4       4453 4230 2042 4954      4012  T2.E000E DC    C'DSB0 BIT2 "NOISE" SET',X'0D0A'                         MTD40120
003CDC       3220 224E 4F49 5345
003CE4       2220 5345 5420
003CEA       0D0A
003CEC       4453 4230 2042 4954      4013  T2.E000F DC    C'DSB0 BIT1 "EQUIPMENT FAIL:FORMATTER" SET',X'0D0A'      MTD40130
003CF4       3120 2245 5155 4950
003CFC       4D45 4E54 2046 4149
003D04       4C3A 464F 524D 4154
003D0C       5445 5222 2053 4554
003D14       0D0A
003D16       4453 4230 2042 4954      4014  T2.E0010 DC    C'DSB0 BIT0 "EQUIPMENT FAIL:TAPE DRIVE" SET',X'0D0A'     MTD40140
003D1E       3020 2245 5155 4950
003D26       4D45 4E54 2046 4149
003D2E       4C3A 5441 5045 2044
003D36       5249 5645 2220 5345
003D3E       5420
003D40       0D0A
003D42       4453 4230 2042 4954      4015  T2.E0011 DC    C'DSB0 BIT8 IS NOT ZERO',X'0D0A'                         MTD40150
003D4A       3820 4953 204E 4F54
003D52       205A 4552 4F20
003D58       0D0A
003D5A       4453 4230 2044 4541      4016  T2.E001  DC    C'DSB0 DEAD TRACKS SET',X'0D0A'                          MTD40160
003D62       4420 5452 4143 4B53
003D6A       2053 4554
003D6E       0D0A
003D70       5354 4154 5553 2042      4017  T2.E002  DC    C'STATUS BUS BIT SET',X'0D0A'                            MTD40170
003D78       5553 2042 4954 2053
003D80       4554
003D82       0D0A
003D84       4453 4231 2042 4954      4018  T2.E003  DC    C'DSB1 BIT0 "WRITE TAPE MARK" SET',X'0D0A'               MTD40180
003D8C       3020 2257 5249 5445
003D94       2054 4150 4520 4D41
003D9C       524B 2220 5345 5420
003DA4       0D0A
003DA6       4453 4231 2042 4954      4019  T2.E003A DC    C'DSB1 BIT7 "LRC" SET',X'0D0A'                           MTD40190
003DAE       3720 224C 5243 2220
003DB6       5345 5420
003DBA       0D0A
003DBC       4453 4231 2042 4954      4020  T2.E004  DC    C'DSB1 BIT1 INCORRECT ERROR SET',X'0D0A'                 MTD40200
```

TEST 2

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003DC4      3120 494E 434F 5252
003DCC      4543 5420 4552 524F
003DD4      5220 5345 5420
003DDA      0D0A
003DDC      4453 4231 2042 4954      4021  T2.E004A DC    C'DSB1 BIT6 "ENVELOPE CHECK" SET',X'0D0A'                MTD40210
003DE4      3620 2245 4E56 454C
003DEC      4F50 4520 4348 4543
003DF4      4B22 2053 4554
003DFA      0D0A
003DFC      4453 4231 2042 4954      4022  T2.E005  DC    C'DSB1 BIT2 "PARTIAL RECORD" SET',X'0D0A'                MTD40220
003E04      3220 2250 4152 5449
003E0C      414C 2052 4543 4F52
003E14      4422 2053 4554
003E1A      0D0A
003E1C      4453 4231 2042 4954      4023  T2.E005A DC    C'DSB1 BIT5 "PREAMBLE ERROR" SET',X'0D0A'                MTD40230
003E24      3520 2250 5245 414D
003E2C      424C 4520 4552 524F
003E34      5222 2053 4554
003E3A      0D0A
003E3C      4453 4231 2042 4954      4024  T2.E006  DC    C'DSB1 BIT3 "MULTIPLE TRACK" SET',X'0D0A'                MTD40240
003E44      3320 224D 554C 5449
003E4C      504C 4520 5452 4143
003E54      4B22 2053 4554
003E5A      0D0A
003E5C      4453 4231 2042 4954      4025  T2.E006A DC    C'DSB1 BIT4 "POSTAMBLE ERROR" SET',X'0D0A'               MTD40250
003E64      3420 2250 4F53 5441
003E6C      4D42 4C45 2045 5252
003E74      4F52 2220 5345 5420
003E7C      0D0A
003E7E      4453 4231 2042 4954      4026  T2.E007  DC    C'DSB1 BIT4 UNUSED BIT SET',X'0D0A'                      MTD40260
003E86      3420 554E 5553 4544
003E8E      2042 4954 2053 4554
003E96      0D0A
003E98      4453 4231 2042 4954      4027  T2.E007A DC    C'DSB1 BIT3 "PARTIAL RECORDS" SET',X'0D0A'               MTD40270
003EA0      3320 2250 4152 5449
003EA8      414C 2052 4543 4F52
003EB0      4453 2220 5345 5420
003EB8      0D0A
003EBA      4453 4231 2042 4954      4028  T2.E008  DC    C'DSB1 BIT5 "END DATA CHECK" SET',X'0D0A'                MTD40280
003EC2      3520 2245 4E44 2044
003ECA      4154 4120 4348 4543
003ED2      4B22 2053 4554
003ED8      0D0A
003EDA      4453 4231 2042 4954      4029  T2.E008A DC    C'DSB1 BIT2 "LOST BEGINNING OF BLOCK" SET',X'0D0A'       MTD40290
003EE2      3220 224C 4F53 5420
003EEA      4245 4749 4E4E 494E
003EF2      4720 4F46 2042 4C4F
003FFA      434B 2220 5345 5420
003F02      0D0A
003F04      4453 4231 2042 4954      4030  T2.E009  DC    C'DSB1 BIT6 "VELOCITY ERROR" SET',X'0D0A' #              MTD40300
003F0C      3620 2256 454C 4F43
003F14      4954 5920 4552 524F
003F1C      5222 2053 4554
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TEST 2

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003F22       0D0A
003F24       4453 4231 2042 4954      4031  T2.E009A DC    C'DSB1 BIT1 "SKEW" SET',X'0D0A'                          MTD40310
003F2C       3120 2253 4845 5722
003F34       2053 4554
003F38       0D0A
003F3A       4453 4231 2042 4954      4032  T2.E00A  DC    C'DSB1 BIT7 "DIAG MODE LATCH" SET',X'0D0A'               MTD40320
003F42       3720 2244 4941 4720
003F4A       4D4F 4445 204C 4154
003F52       4348 2220 5345 5420
003F5A       0D0A
003F5C       4453 4231 2042 4954      4033  T2.E00AA DC    C'DSB1 BIT0 "CYCLICAL REDUNDANCY CHECK" SET',X'0D0A'     MTD40330
003F64       3020 2243 5943 4C49
003F6C       4341 4C20 5245 4455
003F74       4E44 414E 4359 2043
003F7C       4845 434B 2220 5345
003F84       5420
003F86       0D0A
003F88       4453 4231 2042 4954      4034  T2.E00B  DC    C'DSB1 BIT8 "CRC ERROR" SET',X'0D0A'                     MTD40340
003F90       3820 2243 5243 2045
003F98       5252 4F52 2220 5345
003FA0       5420
003FA2       0D0A
003FA4       4453 4231 2042 4954      4035  T2.E00BA DC    C'DSB1 BIT8 IS NOT ZERO',X'0D0A'                         MTD40350
003FAC       3820 4953 204E 4F54
003FB4       205A 4552 4F20
003FBA       0D0A
003FBC       4453 4232 2042 4954      4036  T2.E00C  DC    C'DSB2 BIT0 "DIAGNOSTIC AID 7" SET',X'0D0A'              MTD40360
003FC4       3020 2244 4941 474E
003FCC       4F53 5449 4320 4149
003FD4       4420 3722 2053 4554
003FDC       0D0A
003FDE       4453 4232 2042 4954      4037  T2.E00CA DC    C'DSB2 BIT7 "ID CHECK" SET',X'0D0A'                      MTD40370
003FE6       3720 2249 4420 4348
003FEE       4543 4B22 2053 4554
003FF6       0D0A
003FF8       4453 4232 2042 4954      4038  T2.E00D  DC    C'DSB2 BIT1 "DIAGNOSTIC AID 6" SET',X'0D0A'              MTD40380
004000       3120 2244 4941 474E
004008       4F53 5449 4320 4149
004010       4420 3622 2053 4554
004018       0D0A
00401A       4453 4232 2042 4954      4039  T2.E00DA DC    C'DSB2 BIT6 "VELOCITY CHECK" SET',X'0D0A'                MTD40390
004022       3620 2256 454C 4F43
00402A       4954 5920 4348 4543
004032       4B22 2053 4554
004038       0D0A
00403A       4453 4232 2042 4954      4040  T2.E00E  DC    C'DSB2 BIT2 "DIAGNOSTIC AIS 5" SET',X'0D0A'              MTD40400
004042       3220 2244 4941 474E
00404A       4F53 5449 4320 4149
004052       5320 3522 2053 4554
00405A       0D0A
00405C       4453 4232 2042 4954      4041  T2.E00EA DC    C'DSB2 BIT5 "TACH FAIL" SET',X'0D0A'                     MTD40410
004064       3520 2254 4143 4820
00406C       4641 494C 2220 5345
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TEST 2

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004074       5420
004076       0D0A
004078       4453 4232 2042 4954      4042  T2.E00F  DC    C'DSB2 BIT3 "DIAGNOSTIC AID 4" SET',X'0D0A'                MTD40420
004080       3320 2244 4941 474E
004088       4F53 5449 4320 4149
004090       4420 3422 2053 4554
004098       0D0A
00409A       4453 4232 2042 4954      4043  T2.E00FA DC    C'DSB2 BIT4 "ERASE WRITE CURRENT FAILURE" SET',X'0D0A'     MTD40430
0040A2       3420 2245 5241 5345
0040AA       2057 5249 5445 2043
0040B2       5552 5245 4E54 2046
0040BA       4149 4C55 5245 2220
0040C2       5345 5420
0040C6       0D0A
0040C8       4453 4232 2042 4954      4044  T2.E010  DC    C'DSB2 BIT4 "DIAGNOSTIC AID 3" SET',X'0D0A'                MTD40440
0040D0       3420 2244 4941 474E
0040D8       4F53 5449 4320 4149
0040E0       4420 3322 2053 4554
0040E8       0D0A
0040EA       4453 4232 2042 4954      4045  T2.E010A DC    C'DSB2 BIT3 "LOOPOUT" SET',X'0D0A'                         MTD40450
0040F2       3320 224C 4F4F 504F
0040FA       5554 2220 5345 5420
004102       0D0A
004104       4453 4232 2042 4954      4046  T2.E011  DC    C'DSB2 BIT5 "DIAGNOSTIC AID 2" SET',X'0D0A'                MTD40460
00410C       3520 2244 4941 474E
004114       4F53 5449 4320 4149
00411C       4420 3222 2053 4554
004124       0D0A
004126       4453 4232 2042 4954      4047  T2.E011A DC    C'DSB2 BIT2 "NO DATA" SET',X'0D0A'                         MTD40470
00412E       3220 224E 4F20 4441
004136       5441 2220 5345 5420
00413E       0D0A
004140       4453 4232 2042 4954      4048  T2.E012  DC    C'DSB2 BIT4 "DIAGNOSTIC AID 1" SET',X'0D0A'                MTD40480
004148       3420 2244 4941 474E
004150       4F53 5449 4320 4149
004158       4420 3122 2053 4554
004160       0D0A
004162       4453 4232 2042 4954      4049  T2.E012A DC    C'DSB2 BIT1 "IBG OVERFLOW" SET',X'0D0A'                    MTD40490
00416A       3120 2249 4247 204F
004172       5645 5246 4C4F 5722
00417A       2053 4554
00417E       0D0A
004180       4453 4232 2042 4954      4050  T2.E013  DC    C'DSB2 BIT7 "DIAGNOSTIC AID 0" SET',X'0D0A'                MTD40500
004188       3720 2244 4941 474E
004190       4F53 5449 4320 4149
004198       4420 3022 2053 4554
0041A0       0D0A
0041A2       4453 4232 2042 4954      4051  T2.E013A DC    C'DSB2 BIT0 "DEAD TRACK P" SET',X'0D0A'                    MTD40510
0041AA       3020 2244 4541 4420
0041B2       5452 4143 4B20 5022
0041BA       2053 4554
0041BE       0D0A
0041C0       4453 4232 2042 4954      4052  T2.E014  DC    C'DSB2 BIT8 "TACH" SET',X'0D0A'                            MTD40520
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0041C8      3820 2254 4143 4822
0041D0      2053 4554
0041D4      0D0A
0041D6      4453 4232 2042 4954      4053  T2.E014A DC    C'DSB2 BIT8 IS NOT ZERO',X'0D0A'                    MTD40530
0041DE      3820 4953 204E 4F54
0041E6      205A 4552 4F20
0041EC      0D0A
0041EE      4453 4233 2042 4954      4054  T2.E015  DC    C'DSB3 BIT0 "EOT" STATUS SET',X'0D0A'               MTD40540
0041F6      3020 2245 4F54 2220
0041FE      5354 4154 5553 2053
004206      4554
004208      0D0A
00420A      4453 4233 2042 4954      4055  T2.E016  DC    C'DSB3 BIT1 "BOT" STATUS NOT SET',X'0D0A'           MTD40550
004212      3120 2242 4F54 2220
00421A      5354 4154 5553 204E
004222      4F54 2053 4554
004228      0D0A
00422A      4453 4233 2042 4954      4056  T2.E017  DC    C'DSB3 BIT2 "WRITE INHIBIT" NOT SET',X'0D0A'        MTD40560
004232      3220 2257 5249 5445
00423A      2049 4E48 4942 4954
004242      2220 4E4F 5420 5345
00424A      5420
00424C      0D0A
00424E      4453 4233 2042 4954      4057  T2.E018  DC    C'DSB3 BIT3 SET, "FILE PROTECT" IS ON',X'0D0A'      MTD40570
004256      3320 5345 542C 2022
00425E      4649 4C45 2050 524F
004266      5445 4354 2220 4953
00426E      204F 4E20
004272      0D0A
004274      4453 4233 2042 4954      4058  T2.E019  DC    C'DSB3 BIT4 "BACKWARD STATUS" SET',X'0D0A'          MTD40580
00427C      3420 2242 4143 4B57
004284      4152 4420 5354 4154
00428C      5553 2220 5345 5420
004294      0D0A
004296      4453 4233 2022 4849      4059  T2.E01A  DC    C'DSB3 "HI DENSITY" & "NRZI" BOTH SET',X'0D0A'      MTD40590
00429E      2044 454E 5349 5459
0042A6      2220 2620 224E 525A
0042AE      4922 2042 4F54 4820
0042B6      5345 5420
0042BA      0D0A
0042BC      4453 4233 2042 4954      4060  T2.E01B  DC    C'DSB3 BIT6 "READY STATUS" NOT SET',X'0D0A'         MTD40600
0042C4      3620 2252 4541 4459
0042CC      2053 5441 5455 5322
0042D4      204E 4F54 2053 4554
0042DC      0D0A
0042DE      4453 4233 2042 4954      4061  T2.E01C  DC    C'DSB3 BIT7 "ONLINE STATUS" NOT SET',X'0D0A'        MTD40610
0042E6      3720 224F 4E4C 494E
0042EE      4520 5354 4154 5553
0042F6      2220 4E4F 5420 5345
0042FE      5420
004300      0D0A
004302      4453 4233 2042 4954      4062  T2.E01D  DC    C'DSB3 BIT8 "WRITE STATUS" SET',X'0D0A'             MTD40620
00430A      3820 2257 5249 5445
```

TEST 2

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004312      2053 5441 5455 5322
00431A      2053 4554
00431E      0D0A
004320      4453 4233 2022 4445      4063  T2.E01E  DC    C'DSB3 "DEAD TRACKS" SET',X'0D0A'                    MTD40630
004328      4144 2054 5241 434B
004330      5322 2053 4554
004336      0D0A
004338      5441 5045 2049 5320      4064  T2MSG1   DC    C'TAPE IS IN GCR DENSITY MODE',X'0D0A'               MTD40640
004340      494E 2047 4352 2044
004348      454E 5349 5459 204D
004350      4F44 4520
004354      0D0A
004356      5441 5045 2049 5320      4065  T2MSG2   DC    C'TAPE IS IN PE DENSITY MODE',X'0D0A'                MTD40650
00435E      494E 2050 4520 4445
004366      4E53 4954 5920 4D4F
00436E      4445
004370      0D0A
004372      5441 5045 2049 5320      4066  T2MSG3   DC    C'TAPE IS IN NRZI DENSITY MODE',X'0D0A'              MTD40660
00437A      494E 204E 525A 4920
004382      4445 4E53 4954 5920
00438A      4D4F 4445
00438E      0D0A
004390      4452 4956 4520 2A2A      4067  T2ERMSG0 DC    C'DRIVE ***',X'8D0A'                                 MTD40670
004398      2A20
00439A      8D0A
00439C      4445 5649 4345 2053      4068  T2ERMSG1 DC    C'DEVICE STATUS HALFWORD=****',X'0D0A'               MTD40680
0043A4      5441 5455 5320 4841
0043AC      4C46 574F 5244 3D2A
0043B4      2A2A 2A20
0043B8      0D0A
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                                    ******************************************************          MTD40700
                                    * TEST 3  INTERECORD GAPS,TAPE MARKS AND ERASE RECORD *          MTD40710
                                    *          GAPS.                                      *          MTD40720
                                    *                                                     *          MTD40730
                                    * PURPOSE: THIS TEST IS TO EXERCISE THE DRIVE AND THE *          MTD40740
                                    * FORMATTER AS WELL AS THE INTERFACE  ITSELF IN       *          MTD40750
                                    * RECOGNITION OF INTERRECORD GAPS AND END-OF FILE.    *          MTD40760
                                    * IT WILL ALSO CHECK OUT THE ERASE RECORD GAP         *          MTD40770
                                    * COMMAND.                                            *          MTD40780
                                    *                                                     *          MTD40790
                                    * TEST SPEC.: THE TEST STARTS WITH AN OUTPUT OF A     *          MTD40800
                                    * NUMBER OF RECORDS AND FILES AS DETERMINED BY THE    *          MTD40810
                                    * OPTIONS WITH THE RECORD SIZE ALSO AS DETERMINED     *          MTD40820
                                    * THE TAPE IS THEN REWINDED AND READS DATA            *          MTD40830
                                    * COMPARES ARE PERFORMED. DURING THESE READS          *          MTD40840
                                    * RECOGNITION OF INTERRECORD GAPS AND TAPE MARKS      *          MTD40850
                                    * ARE MADE.                                           *          MTD40860
                                    *                                                     *          MTD40870
                                    * ERRORS:                                             *          MTD40880
                                    *                                                     *          MTD40890
                                    * OPTIONS:                                            *          MTD40900
                                    * TRMODE, DRIVE, SELCH, FILES, RECORDS, BYTES, AND    *          MTD40910
                                    * DRVTYPE.                                            *          MTD40920
                                    ******************************************************          MTD40930


0043BA   41F0 B98C =007D4A          TEST3    BAL   R15,TESTINIT        INITIALIZE TEST               MTD40950
0043BE   41F0 ABF6 =006FB8                   BAL   R15,SEL.5           CHECK ONLINE OPTION           MTD40960
                                    *                                                                MTD40970
                                    ******************************************************          MTD40980
                                    *                                                     *          MTD40990
                                    *        CHECK MODE OF TRANSFER                       *          MTD41000
                                    *                                                     *          MTD41010
                                    ******************************************************          MTD41020
0043C2   7330 2124                  TST3.1   LHL   R3,TRMODE+SVALU1    WHAT KIND OF TRANSFERS?       MTD41030
0043C6   4230 82BA =004684                   BNZ   TST3.S              BRANCH TO SELCH TRANS. IF ONE MTD41040
                                    ******************************************************          MTD41050
                                    *                                                     *          MTD41060
                                    * OTHERWISE READ-WRITE DATA TRANSFERS                 *          MTD41070
                                    *                                                     *          MTD41080
                                    ******************************************************          MTD41090
0043CA   41F0 BFBE =00838C                   BAL   R15,LOOPTOP                                       MTD41100
0043D0   0000 487A                           DAC   TST3.END            NEXT SEQUENCE                 MTD41110
0043D4   0000 487A                           DAC   TST3.END            PROCEED LIMIT                 MTD41120
0043D8   41F0 BCF6 =0080D2                   BAL   R15,REWMT           REWIND THE TAPE          R01  MTD41130
0043DC   41F0 BCC4 =0080A4                   BAL   R15,WRTENB          IS WRITE ENABLED ON MAG TAPE  MTD41140
0043E0   7340 4000 8430                      LHL   R4,TESTPAT+10       LOAD 5AA5 DATA                MTD41150
0043E6   7350 20B4                           LHL   R5,FILES+SVALU1     LOAD FILE COUNT               MTD41160
0043EA   7360 20FA                  T3.2C    LHL   R6,RECORDS+SVALU1   LOAD RECORD COUNT             MTD41170
0043EE   41F0 B7A8 =007B9A          T3.2B    BAL   R14,CCLEAR          CLEAR INTERFACE               MTD41180
```

TEST 3

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0043F2      41E0 B7DC =007BD2      4119           BAL   R14,CDENS          OUTPUT DENSITY COMMAND              MTD41190
0043F6      7370 200C             4120           LHL   R7,BYTES+$VALU1    LOAD RECORD LENGTH                  MTD41200
0043FA      2771                  4121           SIS   R7,1                                                   MTD41210
0043FC      C370 0001             4122           THI   R7,X'0001'         IS BYTES AN ODD VALUE?              MTD41220
*004400     2133       =004406    4123           BNZ   T3.02A             IF NOT, CONTINUE AS NORMAL          MTD41230
004402      41E0 B8E2 =007CE8     4124           BAL   R14,CWRODBY        ISSUE A WRT ODD BYTE COMMAND        MTD41240
004406      41E0 B876 =007C80     4125  T3.02A   BAL   R14,CWRITE         PUT INTERFACE IN WRITE MODE         MTD41250
00440A      9814                  4126  T3.2A    WHR   R1,R4              WRITE A HALFWORD                    MTD41260
00440C      2772                  4127           SIS   R7,2               DECREMENT HALFWORD COUNT            MTD41270
00440E      2282       =00440A    4128           BNLS  T3.2A              CONTINUE WRITING IF NOT LESS THAN   MTD41280
004410      41E0 B7D0 =007BF4     4129           BAL   R14,SENSTA1        CHECK STATUS OF INTERFACE           MTD41290
004414      41E0 B7C4 =007BDC     4130           BAL   R14,SENSTA         YES! SENSE STATUS AGAIN             MTD41300
004418      C430 00C0             4131           NHI   R3,X'C0'           ZERO IN ON ERROR BITS               MTD41310
00441C      4230 BD1E =00813E     4132           BNZ   SNS.ERR            ERROR ROUTINE IF UP                 MTD41320
                                  4133  *                                                                    MTD41330
                                  4134  *        OUTPUT ANOTHER RECORD?                                      MTD41340
                                  4135  *                                                                    MTD41350
004420      2761                  4136  T3.2DA   SIS   R6,1               DECREMENT RECORD COUNT              MTD41360
004422      4220 FFC8 =0043FF     4137           BP    T3.2B              IF POSITIVE OUTPUT ANOTHER RECORD   MTD41370
004426      41E0 B842 =007C6C     4138           BAL   R14,CWREOF         OTHERWISE WRITE AN END OF FILE      MTD41380
00442A      41E0 B7B6 =007BE4     4139           BAL   R14,SENSTA1        WAIT FOR NO MOTION TO               MTD41390
                                  4140  *                                                                    MTD41400
                                  4141  *        OUTPUT ANOTHER FILE?                                        MTD41410
                                  4142  *                                                                    MTD41420
00442E      2751                  4143           SIS   R5,1               DECREMENT FILE COUNT                MTD41430
004430      4220 FFB6 =0043EA     4144           BP    T3.2C              IF POSITIVE OUTPUT ANOTHER FILE     MTD41440
004434      41E0 B7A4 =007BDC     4145           BAL   R14,SENSTA         OTHERWISE ONE LAST STATUS CHECK     MTD41450
004438      C430 00C0             4146           NHI   R3,X'C0'           ZERO IN ON ERROR BITS AGAIN         MTD41460
00443C      4230 BCFE =00813F     4147           BNZ   SNS.ERR            ERROR ROUTINE IF SET                MTD41470
                                  4148  *                                                                    MTD41480
                                  4149  *        LET'S NOW READ IT BACK                                      MTD41490
                                  4150  *                                                                    MTD41500
004440      41F0 BC8E =0080D2     4151           BAL   R15,REWMT          REWIND MAG TAPE                     MTD41510
004444      7340 20B4             4152           LHL   R4,FILES+$VALU1    LOAD FILE COUNT                     MTD41520
004448      7360 20FA             4153  T3.3G    LHL   R6,RECORDS+$VALU1  LOAD RECORD COUNT                   MTD41530
00444C      7390 200C             4154  T3.3F    LHL   R9,BYTES+$VALU1    GET BYTES VALUE                     MTD41540
004450      2470                  4155           LIS   R7,0               ZERO OUT INDEX                      MTD41550
004452      41E0 B744 =007B9A     4156           BAL   R14,CCLEAR         CLEAR INTERFACE                     MTD41560
004456      41E0 B800 =007C5A     4157           BAL   R14,CREAD          PUT INTO READ MODE                  MTD41570
00445A      41E0 B7C4 =007C22     4158  T3.3J    BAL   R14,SENSTA3        WAIT FOR BUSY TO                    MTD41580
00445E      D917 4001 89D0        4159           RH    R1,READBUF(R7)     READ HALFWORD                       MTD41590
004464      2672                  4160           AIS   R7,2               DECREMENT BYTE COUNT                MTD41600
004466      0597                  4161           CLR   R9,R7              COMPARE TO SPECIFIED VALUE + 4      MTD41610
*004468     2027       =00445A    4162           BP    T3.3J              CONTINUE IF LESS THAN               MTD41620
00446A      41E0 B776 =007BE4     4163           BAL   R14,SENSTA1        CHECK STATUS FOR                    MTD41630
00446E      41E0 B76A =007EDC     4164           BAL   R14,SENSTA         CHECK STATUS AGAIN                  MTD41640
004472      C430 00C0             4165           NHI   R3,X'C0'           CHECK FOR ERRORS                    MTD41650
004476      4230 BCC4 =00813E     4166           BNZ   SNS.ERR            BRANCH IF ERROR SET                 MTD41660
00447A      4800 208A             4167           LH    R0,DRVTYPE+$VALU1  LOOK IF STC OR TELEX                MTD41670
00447E      4230 8026 =0044A8     4168           BNZ   T3.3E                                                  MTD41680
004482      41E0 B838 =007CBE     4169           BAL   R14,CNOP3          ADDRESS DSB3                        MTD41690
004486      41E0 B868 =007CF2     4170           BAL   R14,REDE                                               MTD41700
00448A      2438                  4171           LIS   R3,8               LOAD TEST OFFSET                    MTD41710
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TEST 3

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00448C      7430 BFB8 =008448      4172            TBT   R3,SNSHW          CHECK FOR WRT STA INACTIVE                MTD41720
*004490     233C      =0044A8      4173            BZ    T3.3E             BRANCH IF ZERO                            MTD41730
004492      E650 8428 =0048BE      4174            LA    R5,T3.E002        INCORRECT STATUS ON READ-"WRITE" SET       MTD41740
004496      41F0 3BCE              4175            BAL   R14,T2ERRORA       DRIVE AND STATUS HALFWORD                 MTD41750
00449A      E6F0 2A4C              4176            LA    R15,MESSAGE1                                                MTD41760
00449E      E6E0 4000 8596         4177            LA    R14,CONTMSG       SUSPECTED ERROR CONTROLLER                MTD41770
0044A4      4300 BE24 =0082CC      4178            B     ERRORX                                                      MTD41780
0044A8      2761                   4179  T3.3E     SIS   R6,1              DECREMENT RECORD COUNT                    MTD41790
0044AA      4220 FF9E =00444C      4180            BP    T3.3F             INPUT ANOTHER RECORD IF +                 MTD41800
0044AE      41E0 B7A8 =007C5A      4181            BAL   R14,CREAD         GIVE READ COMMAND AGAIN                   MTD41810
0044B2      41E0 B72E =007BF4      4182            BAL   R14,SENSTA1       WAIT FOR BUSY                             MTD41820
0044B6      41E0 B722 =007BDC      4183            BAL   R14,SENSTA        CHECK STATUS FOR EOF                      MTD41830
0044BA      C430 0002              4184            NHI   R3,X'02'          ZERO IN ON EOM STAT                       MTD41840
0044BE      4230 8026 =0044E8      4185            BNZ   T3.3H             BRANCH ON IF SET                          MTD41850
0044C2      C800 001F              4186            LHI   R0,X'1E'          EXPECTED STATUS(EOF)                      MTD41860
0044C6      4000 BEFE =0083C8      4187            STH   R0,STATGD         STORE IT                                  MTD41870
0044CA      E650 853E =004A0C      4188            LA    R5,T3.E012        TAPE MARKS WERE NOT WRITTEN               MTD41880
0044CE      41F0 BE9C =00836E      4189            BAL   R15,LOOP2                                                   MTD41890
0044D2      E650 840E =0048E4      4190            LA    R5,T3.E004        READ DATA-"EOF" DID NOT SET               MTD41900
0044D6      41E0 28AE              4191            BAL   R14,TOERRORB                                                MTD41910
0044DA      E6F0 2A4C              4192            LA    R15,MESSAGE1                                                MTD41920
0044DE      E6E0 4000 8596         4193            LA    R14,CONTMSG       SUSPECTED ERROR WITH CONTROLLER           MTD41930
0044E4      4300 BDE4 =0082CC      4194            B     ERRORX                                                      MTD41940
0044E8      2741                   4195  T3.3H     SIS   R4,1              DECREMENT FILE COUNT                      MTD41950
0044EA      4220 FF5A =004448      4196            BP    T3.3G             READ ANOTHER FILE IF POSITIVE             MTD41960
0044EE      4300 BE5C =00834E      4197            B     PASS                                                        MTD41970

                                   4199  ********************************************************                  MTD41990
                                   4200  *                                                      *                  MTD42000
                                   4201  * ERASE RECORD GAPS                                    *                  MTD42010
                                   4202  *                                                      *                  MTD42020
                                   4203  * ******************************************************                  MTD42030
                                   4204  *                                                                         MTD42040
0044F2      41F0 BE96 =00838C      4205  TEST3.4  BAL   R15,LOOPTOP                                                MTD42050
0044F8      0000 487A              4206            DAC   TST3.END                                                    MTD42060
0044FC      0000 487A              4207            DAC   TST3.END                                                    MTD42070
004500      41E0 B79A =007C9E      4208            BAL   R14,CSTOP           CLEAR SELCH FIRST                       MTD42080
004504      41E0 B796 =007C9E      4209            BAL   R14,CSTOP                                                   MTD42090
004508      41F0 BBC6 =0080D2      4210            BAL   R15,REWMT           REWIND MAG TAPE FIRST                   MTD42100
00450C      7330 2124              4211            LHL   R3,TRMODE+SVALU1    LOAD TYPE OF TRANSFER                   MTD42110
004510      4330 8320 =004834      4212            BZ    TST3.NST            WILL NOT DO IF ZERO                     MTD42120
                                   4213  *LET'S WRITE A RECORD FIRST                                               MTD42130
004514      41F0 B8F8 =007F10      4214            BAL   R15,RESTORE1        ENABLE INT                              MTD42140
004518      7360 BEF0 =00840C      4215            LHL   R6,DENSFLAG         LOAD DENSITY FLAG                       MTD42150
00451C      9161                   4216            SLHLS R6,1                PUT ON HALFWORD BOUNDARY                MTD42160
00451E      7366 BEF6 =008418      4217            LHL   R6,GAPLEN(R6)       LOAD RECORD LENGTH                      MTD42170
004522      E640 BF08 =00842F      4218            LA    R4,TESTPAT+8        LOAD PATTERN ADDR.                      MTD42180
004526      41F0 B91A =007F44      4219            BAL   R15,SEL.3           SET UP WRITE BUFFER                     MTD42190
00452A      41E0 B7CC =007CFA      4220            BAL   R14,WRBUF           SET UP SELCH WRITE ADDRESSES            MTD42200
00452E      41F0 B6A0 =007FD2      4221            BAL   R14,CDENS           OUTPUT DENSITY COMMAND                  MTD42210
004532      4150 B74A =007C80      4222            BAL   R14,CWRITE          PUT INTERFACE INTO WRITE MODE           MTD42220
004536      E650 83EA =004924      4223            LA    R5,T3.E007          ERASE RECORD GAP..                      MTD42230
00453A      E600 8014 =004552      4224            LA    R0,T3.4DA           INTERRUPT ADDRESS                       MTD42240
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TEST 3

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 00453E    4000 21E8            4225          STH    R0,DEVINT+2        TABLE                            MTD42250
 004542    C800 0FFF            4226          LHI    R0,X'FFF'          TIMVALUE                         MTD42260
 004546    41E0 B73C =007C86    4227          BAL    R14,CGO            GIVE SELCH THE GO                MTD42270
 00454A    41F0 162A            4228          BAL    R15,TIMER          WAIT HERE FOR INTERRUPT          MTD42280
 00454E    4300 2E06            4229          B      T1R09              ELSE ERROR                       MTD42290
 004552    41F0 B8B2 =007F08    4230  T3.4DA  BAL    R15,RESTORE        RESTORE R1,R2,PSW                MTD42300
 004556    41F0 B91E =007E78    4231          BAL    R15,SELCHK         AND CHECK SELCH ENDING STAT      MTD42310
 00455A    41F0 B9A4 =007F02    4232          BAL    R15,SELEND         AND CHECK ENDING ADDR.           MTD42320
 00455E    41F0 BBB0 =008112    4233          BAL    R15,STATCHK        AND CHECK INTERFACE STATUS       MTD42330
 004562    C430 0020            4234          NHI    R3,X'20'           IS 'EOT' SET                     MTD42340
*004566    2333      =00456C    4235          BZ     T3.4E              CONTINUE IF NO                   MTD42350
 004568    41F0 BB66 =0080D2    4236          BAL    R15,REWMT          REWIND MAG TAPE                  MTD42360
                                4237  *LET'S ERASE THE RECORD NOW                                        MTD42370
 00456C    41F0 BB62 =0080D2    4238  T3.4E   BAL    R15,REWMT          REWIND MAG TAPE                  MTD42380
 004570    41E0 831E =004892    4239          BAL    R14,CERGAP         GIVE ERASE GAP COMMAND           MTD42390
 004574    41E0 B66C =007BE4    4240          BAL    R14,SENSTA1        CHECK INF. STATUS                MTD42400
 004578    C430 00C0            4241          NHI    R3,X'C0'           LOOK AT ERROR BITS               MTD42410
*00457C    2333      =004582    4242          BZ     T3.4G              AND BRANCH ON IF ZERO            MTD42420
 00457E    4300 BB90 =008112    4243          B      STATCHK            CHECK IT OUT                     MTD42430
                                4244  *LET'S OUTPUT ANOTHER RECORD                                       MTD42440
 004582    41E0 B655 =007BDC    4245  T3.4G   BAL    R14,SENSTA         CHECK STATUS                     MTD42450
 004586    C430 0020            4246          NHI    R3,X'20'           FOR BOT                          MTD42460
 00458A    4230 80D6 =004664    4247          BNZ    T3.ERER            OUTPUT ERROR?                    MTD42470
 00458E    7360 BE7A =00840C    4248          LHL    R6,DENSFLAG        LOAD DENSITY FLAG                MTD42480
 004592    9161                 4249          SLHLS  R6,1               OFFSET TO HALFWORD               MTD42490
 004594    7366 BE80 =008418    4250          LHL    R6,GAPLEN(R6)      LOAD RECORD LENGTH               MTD42500
 004598    E640 BE9A =008436    4251          LA     R4,TESTPAT+16      LOAD PATTERN ADDR.               MTD42510
 00459C    41F0 B8A4 =007E44    4252          BAL    R15,SEL.3          SET UP WRITE BUFFER              MTD42520
 0045A0    41E0 B756 =007CFA    4253          BAL    R14,WRBUF          SET UP SELCH WRITE ADDRESSES     MTD42530
 0045A4    41E0 B62A =007BD2    4254          BAL    R14,CDENS          OUTPUT DENSITY COMMAND           MTD42540
 0045A8    41E0 B6D4 =007C80    4255          BAL    R14,CWRITE         PUT INTERFACE INTO WRITE MODE    MTD42550
 0045AC    E650 8390 =004940    4256          LA     R5,T3.E00A         SELCH WRITE AFTER ERASE GAP      MTD42560
 0045B0    E600 8014 =0045C8    4257          LA     R0,T3.4J           INTERRUPT ADDRESS                MTD42570
 0045B4    4000 21E8            4258          STH    R0,DEVINT+2        STORE INTO TABLE                 MTD42580
 0045B8    C800 0FFF            4259          LHI    R0,X'FFF'          TIMVAL                           MTD42590
 0045BC    41E0 B6C6 =007C86    4260          BAL    R14,CGO            GIVE SELCH THE GO                MTD42600
 0045C0    41F0 162A            4261          BAL    R15,TIMER          WAIT FRO SELCH INTERRUPT         MTD42610
 0045C4    4300 2E06            4262          B      T1R09              ELSE ERROR                       MTD42620
 0045C8    41F0 B83C =007F08    4263  T3.4J   BAL    R15,RESTORE        RESTORE R1,R2,PSW                MTD42630
 0045CC    5820 4000 8958       4264          L      R2,RSAVE+8         RESTORE R2                       MTD42640
 0045D2    41F0 B8A2 =007E78    4265          BAL    R15,SELCHK         AND CHECK ENDING STAT            MTD42650
 0045D6    41F0 B928 =007F02    4266          BAL    R15,SELEND         AND ENDING ADDRESS               MTD42660
 0045DA    41F0 BB34 =008112    4267          BAL    R15,STATCHK        AND INTERFACE STATUS             MTD42670
                                4268  *LET'S DETERMINE WHAT WE HAVE NOW                                  MTD42680
 0045DE    41F0 BAF0 =0080D2    4269          BAL    R15,REWMT          REWIND MAG TAPE FIRST            MTD42690
 0045E2    7350 BE26 =00840C    4270          LHL    R5,DENSFLAG        LOAD DENSITY FLAG                MTD42700
 0045E6    9151                 4271          SLHLS  R5,1               PUT ON HW BOUNDARY               MTD42710
 0045E8    7355 BE2C =008418    4272          LHL    R5,GAPLEN(R5)      LOAD RECORD LENGTH               MTD42720
 0045EC    E630 4001 89D0       4273          LA     R3,READBUF         LOAD ADDR OF READ BUFFER         MTD42730
 0045F2    5030 BEE6 =0084DC    4274          STA    R3,RDBUF           STORE IT                         MTD42740
 0045F6    0A35                 4275          AAR    R3,R5              CALCULATE BUFFER SIZE            MTD42750
 0045F8    5030 BEDC =0084D8    4276          STA    R3,ENDBUF          STORE ENDING ADDR.               MTD42760
 0045FC    41F0 B818 =007F18    4277          BAL    R15,CLRBUF         CLEAR READBUF                    MTD42770
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TEST 3

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004600       41F0 B726 =007D2A        4278            BAL   R15,PEBUF           SET UP SELCH READ ADDRESSES          MTD42780
004604       41F0 B652 =007C5A        4279            BAL   R14,CREAD           GIVE THE READ COMMAND                MTD42790
004608       E650 8352 =00495F        4280            LA    R5,T3.F00R          SELCH READ OVER ERASE GAP            MTD42800
00460C       E600 8014 =004624        4281            LA    R0,T3.4L            INTERRUPT ADDRESS                    MTD42810
004610       4000 21E8                4282            STH   R0,DEVINT+2         INTO TABLE                           MTD42820
004614       C800 0FFF                4283            IHI   R0,X'FFF'           TIMVAL                               MTD42830
004618       41F0 B67C =007C98        4284            BAL   R14,CGOREAD         GIVE THE SELCH THE GO                MTD42840
00461C       41F0 162A                4285            BAL   R15,TIMER           WAIT                                 MTD42850
004620       4300 2E8C                4286            B     T1R10               ERROR                                MTD42860
004624       41F0 B7E0 =007F08        4287  T3.4L     BAL   R15,RESTORE         RESTORE R1,R2, PSW                   MTD42870
004628       41F0 B84C =007E78        4288            BAL   R15,SELCHK          CHECK SELCH ENDING STAT              MTD42880
00462C       41F0 B8D2 =007F02        4289            BAL   R15,SELEND          CHECK ENDING ADDRESS                 MTD42890
004630       41F0 BADE =008112        4290            BAL   R15,STATCHK         CHECK INF. STATUS                    MTD42900
                                      4291  *LET'S SEE IF WE SKIPPED THE ERASED GAP                                  MTD42910
004634       2430                     4292            LIS   R3,0                ZERO OUT POINTER                     MTD42920
004636       E640 BDFC =008436        4293            LA    R4,TESTPAT+16       LOAD TEST PATTERN                    MTD42930
00463A       2420                     4294            LIS   R2,0                SET UP INDEX REGISTER                MTD42940
00463C       7350 BDCC =00840C        4295            LHL   R5,DENSFLAG         LOAD DENSITY                         MTD42950
004640       9151                     4296            SLHLS R5,1                PUT ON 4W BOUNDARY                   MTD42960
004642       7355 BDD2 =008418        4297            LHL   R5,GAPLEN(R5)       LOAD RECORD LENGTH                   MTD42970
004646       D354 4200 0000           4298  T3.4M     LB    R5,0(R4,R2)                                            MTD42980
00464C       D363 4001 89D0           4299            LB    R6,READBUF(R3)      DATA THAT WAS ON TAPE                MTD42990
004652       0565                     4300            CLR   R6,R5               COMPARE THE TWO                      MTD43000
*004654      2138       =004664       4301            BNE   T3.DER              NOT EQUAL-ERROR!                     MTD43010
004656       2631                     4302            AIS   R3,1                INCREMENT POINTER                    MTD43020
004658       C720 0001                4303            XHI   R2,1                0^1 & 1^1                            MTD43030
00465C       0535                     4304            CLAR  R3,R5               COMPARE WITH MAX                     MTD43040
00465E       4330 BCEC =00834F        4305            BE    PASS                END TEST IF EQUAL                    MTD43050
*004662      220E       =004646       4306            B     T3.4M               OTHERWISE MORE DATA COMPARE          MTD43060
                                      4307  *                                                                        MTD43070
             0000 4664                4308  T3.ERER   EQU   *                                                      MTD43080
             0000 4664                4309  T3.DER    EQU   *                                                      MTD43090
004664       4050 BE94 =0084FC        4310            STH   R5,WSTORE           STORE EXP                            MTD43100
004668       4060 BE92 =0084FE        4311            STH   R6,RSTORE           AND STORE IT                         MTD43110
00466C       4030 BDA4 =008414        4312            STH   R3,INDEX                                                 MTD43120
004670       E650 8304 =004978        4313            LA    R5,T3.E00C          'ERASE GAP' DID NOT ERASE RECORD     MTD43130
004674       41E0 2CC4                4314            BAL   R14,T1ERRORA        DRIVE AND DATA                       MTD43140
004678       E6F0 35F6                4315            LA    R15,MESSG3A                                            MTD43150
00467C       E6E0 BF16 =008596        4316            LA    R14,CONTMSG         SUSPECTED ERROR WITH CONTROLLER      MTD43160
004680       4300 BC48 =0082CC        4317            B     ERRORX                                                 MTD43170
                                      4318  ********************************************************               MTD43180
                                      4319  *                                                      *               MTD43190
                                      4320  * WE COME HERE IF TRMODE=1                             *               MTD43200
                                      4321  *                                                      *               MTD43210
                                      4322  ********************************************************               MTD43220
004684       41F0 BD04 =00838C        4323  TST3.S    BAL   R15,LOOPTOP                                           MTD43230
004688       0000 46A4                4324            DAC   T3.5                NEXT SEQUENCE                        MTD43240
00468C       0000 46A4                4325            DAC   T3.5                PROCEED LIMIT                        MTD43250
004690       7320 2108                4326            LHL   R2,SELCH+$VALU1     LOAD SELCH ADDRESS                   MTD43260
004694       4230 BCB6 =00834E        4327            BNZ   PASS                BRANCH ON IF ADRESSED                MTD43270
004698       E6F0 BF38 =0085D4        4328            LA    R15,NOSELCH                                            MTD43280
00469C       E6F0 BF18 =0085B8        4329            LA    R14,SELMSG          SUSPECTED ERROR WITH SELCH           MTD43290
0046A0       4300 BC28 =0082CC        4330            B     ERRORX              ABORT TESTING                        MTD43300
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TEST 3

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                                   *                                                        MTD43310
 0046A4   41F0 BCE4 =00838C        T3.5    BAL  R15,LOOPTOP                                 MTD43320
 0046A8   00C0 44F2                        DAC  TEST3.4          ERASE RECORD GAPS          MTD43330
 0046AC   0000 487A                        DAC  TST3.END         PROCEED LIMIT              MTD43340
 0046B0   41E0 B5EA =007C9E                BAL  R14,CSTOP        STOP SELCH FIRST           MTD43350
 0046B4   41E0 B5E6 =007C9E                BAL  R14,CSTOP                                   MTD43360
 0046B8   41F0 BA16 =008CD2                BAL  R15,REWMT        REWIND THE TAPE        R01 MTD43370
 0046BC   73C0 20B4                        LHL  R12,FILES+$VALU1 LOAD FILE COUNT            MTD43380
 0046C0   E640 BD6A =00842E                LA   R4,TESTPAT+8     LOAD TEST PATTERN ADRESS   MTD43390
 0046C4   41F0 B748 =007F10                BAL  R15,RESTORE1     ENABLE INT                 MTD43400
 0046C8   7360 20FA                T3.5C   LHL  R6,RECORDS+$VALU1 LOAD RECORD COUNT         MTD43410
 0046CC   41F0 B768 =007F38                BAL  R15,SELSETW      SETUP SELCH FOR WRITE      MTD43420
 0046D0   41E0 B4C6 =007B9A        T3.5A   BAL  R14,CCLEAR       CLEAR INTERFACE            MTD43430
 0046D4   41E0 B4FA =007BD2                BAL  R14,CDENS        OUTPUT DENSITY COMMAND     MTD43440
 0046D8   73A0 200C                        LHL  R10,BYTES+$VALU1 GET BYTES VALUE            MTD43450
 0046DC   C3A0 0001                        THI  R10,X'0001'      ODD BYTE AMOUNT            MTD43460
*0046E0   2333      =0046E6                BZ   T3.5A1                                      MTD43470
 0046E2   41E0 B602 =007CF8                BAL  R14,CWRODBY      ISSUE WRIT EODD BYTE COMMAND MTD43480
 0046E6   41E0 B610 =007CFA        T3.5A1  BAL  R14,WRBUF        SET UP SELCH WRITE ADDRESSES MTD43490
 0046EA   41E0 B592 =007C80                BAL  R14,CWRITE       PUT INTERFACE INTO WRITE MODE MTD43500
 0046EE   E650 82A8 =00499A                LA   R5,T3.E00D       FILES, RECORDS, BYTES..(SELCH WRITE) MTD43510
 0046F2   E600 8014 =00470A                LA   R0,T3.5BA        INTERRUPT ADDRESS          MTD43520
 0046F6   4000 21E8                        STH  R0,DEVINT+2                                 MTD43530
 0046FA   080A                             LR   R0,R10           TIM VAL                    MTD43540
 0046FC   260F                             AIS  R0,15            INCREASE SOME          R01 MTD43550
 0046FE   41E0 B584 =007C86                BAL  R14,CGO          GIVE SELCH THE GO          MTD43560
 004702   41F0 162A                        BAL  R15,TIMER        WAIT                       MTD43570
 004706   4300 2E06                        B    T1R09            ELSE ERROR                 MTD43580
 00470A   41F0 B6FA =007E08        T3.5BA  BAL  R15,RESTORE      RESTORE R1,R2,PSW          MTD43590
 00470E   41F0 B766 =007F78                BAL  R15,SELCHK       CHECK ENDING STATUS        MTD43600
 004712   41F0 B7EC =007F02                BAL  R15,SELEND       CHECK ENDING ADDRESS       MTD43610
 004716   41F0 B9F8 =008112                BAL  R15,STATCHK      CHECK INTERFACE STAT       MTD43620
 00471A   C430 0020                        NHI  R3,X'20'         IS EOT SET                 MTD43630
*00471E   2334      =004726                BZ   T3.5DB           NO, CONTINUE               MTD43640
 004720   41F0 B9AE =0080D2                BAL  R15,REWMT        ELSE REWIND MAG TAPE       MTD43650
*004724   230B      =00473A                B    TST3.6           OTHERWISE SOMETHING DIFFERENT MTD43660
 004726   2761                     T3.5DB  SIS  R6,1             DECREMENT RECORD COUNT     MTD43670
 004728   4220 FFA4 =0046D0                BP   T3.5A            CONTINUE IF POSITIVE       MTD43680
 00472C   41E0 B53C =007C6C                BAL  R14,CWREOF       OTHERWISE WRITE A FILE MARK MTD43690
 004730   41E0 B4B0 =007BE4                BAL  R14,SENSTA1      CHECK STATUS FOR           MTD43700
 004734   27C1                             SIS  R12,1            DECREMENT FILE COUNT       MTD43710
 004736   4220 FF8E =0046C8                BP   T3.5C            OUTPUT MORE FILES          MTD43720
                                   *                                                        MTD43730
                                   *       LET'S CHECK WHAT WE DID NOW                      MTD43740
                                   *                                                        MTD43750
 00473A   41F0 B994 =0080D2        TST3.6  BAL  R15,REWMT        REWIND MAG TAPE            MTD43760
 00473E   41F0 B8FE =008040                BAL  R15,SELSETR      SETUP SELCH FOR READ       MTD43770
 004742   73C0 20B4                        LHL  R12,FILES+$VALU1 LOAD FILE COUNT            MTD43780
 004746   7360 20FA                T3.6B   LHL  R6,RECORDS+$VALU1 LOAD RECORD COUNT         MTD43790
 00474A   41E0 B5DC =007D2A        T3.6A   BAL  R14,REBUF        SET UP SELCH READ ADDRESSES MTD43800
 00474E   41F0 B508 =007C5A                BAL  R14,CREAD        PUT INTERFACE IN READ MODE MTD43810
 004752   E650 826C =0049C2                LA   R5,T3.E00F       SELCH READ ENDED INCORRECTLY MTD43820
 004756   E600 8016 =004770                LA   R0,T3.6C1        INTERRUPT ADDRESS          MTD43830
```

TEST 3

```
 00475A    4000 21E8                       STH   R0,DEVINT+2                                            MTD43840
 00475E    7300 200C                       LHL   R0,BYTES+$VALU1    TIMVAL                              MTD43850
 004762    260F                            AIS   R0,15              INCREASE SLIGHTLY             R01   MTD43860
 004764    41F0 B530 =007C98               BAL   R14,CGOREAD        GIVE SELCH THE GO                   MTD43870
 004768    41F0 162A                       BAL   R15,TIMER          R01                                 MTD43880
 00476C    4300 2E8C                       B     T1R10              ELSE ERROR                          MTD43890
 004770    41F0 B694 =007F08     T3.6C1    BAL   R15,RESTORE        RESTORE R1,R2, PSW                  MTD43900
 004774    41F0 B700 =007E78               BAL   R15,SELCHK         CHECK ENDING STATUS                 MTD43910
 004778    41F0 B786 =007F02               BAL   R15,SELEND         CHECK ENDING ADDRESS                MTD43920
 00477C    41F0 B992 =008112               BAL   R15,STATCHK        CHECK INTERFACE STATUS              MTD43930
 004780    C430 0020                       NHI   R3,X'20'           IS EOT SET                          MTD43940
*004784    2335       =00478E              BZ    T3.6DB             CONTINUE IF NOT                     MTD43950
 004786    41F0 B948 =0080D2               BAL   R15,REWMT                                              MTD43960
 00478A    4300 BBC0 =00834E               B     PASS               OTHERWISE SOMTHIG ELSE              MTD43970
 00478E    E640 BC9C =00842E     T3.6DB    LA    R4,TESTPAT+8       LOAD TEST PATTERN ADDRESS           MTD43980
 004792    E650 8252 =0049E8               LA    R5,T3.E011         INCORRECT DATA ON SELCH TRANSFER    MTD43990
 004796    41F0 8048 =0047E2               BAL   R15,DATCOMP        COMPARE DATA                        MTD44000
 00479A    2761                            SIS   R6,1               DECREMENT RECORD COUNT              MTD44010
 00479C    4220 FFAA =00474A               BP    T3.6A              CONTINUE ON IF POSITIVE             MTD44020
 0047A0    41E0 B4B6 =007C5A               BAL   R14,CREAD          ONE MORE READ                       MTD44030
 0047A4    41E0 B43C =007BE4               BAL   R14,SENSTA1        CHECK INF. STATUS FOR               MTD44040
 0047A8    41E0 B430 =007BDC               BAL   R14,SENSTA         GET STATUS AGAIN                    MTD44050
 0047AC    C330 0002                       THI   R3,X'02'           AND EOF IS SET                      MTD44060
 0047B0    4230 8024 =0047D8               BNZ   T3.6DC             OK                                  MTD44070
 0047B4    E650 8254 =004A0C               LA    R5,T3.E012         NO TAPE MARKS WRITTEN               MTD44080
 0047B8    41F0 BBB2 =00836F               BAL   R15,LOOP2                                              MTD44090
 0047BC    E650 8146 =004906               LA    R5,T3.E004A        SELCH READ - NO 'EOF'               MTD44100
 0047C0    C800 001E                       LHI   R0,X'1E'           EXPECTED STATUS                     MTD44110
 0047C4    4000 BC00 =0083C8               STH   R0,STATGD          SAVE STATUS                         MTD44120
 0047C8    41E0 28AE                       BAL   R14,TOERRORB       ERROR MESSAGE SET UP                MTD44130
 0047CC    E6F0 2A4C                       LA    R15,MESSAGE1       MESSAGE ADDR                        MTD44140
 0047D0    E6E0 BDC2 =008596               LA    R14,CONTMSG        SUSPECTED ERROR WITH CONTROLLER     MTD44150
 0047D4    4300 BAF4 =0082CC               B     ERRORX             OUTPUT IT                           MTD44160
 0047D8    27C1                  T3.6DC    SIS   R12,1              OTHERWISE DECREMENT FILE COUNT      MTD44170
 0047DA    4220 FF68 =004746               BP    T3.6B              BRANCH IF POSITIVE                  MTD44180
 0047DE    4300 BB6C =00834F               B     PASS               CHECK ERASE GAP MODE                MTD44190

                                 ***************************************************************        MTD44210
                                 *                                                             *        MTD44220
                                 *                                                             *        MTD44230
                                 * COME HERE FOR A BYTE BY BYTE COMPARE                        *        MTD44240
                                 * OF DATA READ  R4=PATTERN ADDRESS                            *        MTD44250
                                 *                                                             *        MTD44260
                                 ***************************************************************        MTD44270

 0047E2    D000 BCAA =008490     DATCOMP   STM   R0,REGSAVE         SAVE REGISTERS                      MTD44290
 0047E6    E650 4001 89D0                  LA    R5,READBUF         LOAD READ DATA ADDRESS              MTD44300
 0047EC    2460                            LIS   R6,0               LOAD RECORD LENGTH                  MTD44310
 0047EE    2420                            LIS   R2,0               SET UP AN INDEX REGISTER            MTD44320
 0047F0    7330 200C                       LHL   R3,BYTES+$VALU1    LOAD BYTES VALUE                    MTD44330
 0047F4    D375 0000             DAT.1     LB    R7,0(R5)           LOAD READ DATA BYTE                 MTD44340
 0047F8    D384 4200 0000                  LB    R8,0(R4,R2)                                            MTD44350
 0047FE    0578                            CLB   R7,R8              COMPARE THE TWO                     MTD44360
```

TEST 3

```
*004800   213A      =004814   4437            BNE   D.ERR            BRANCH ON ERROR                      MTD44370
 004802   2551                4438            AIS   R5,1             INCREMENT BUFFER ADDRESS             MTD44380
 004804   C720 0001           4439            XHI   R2,1             0^1 & 1^1                            MTD44390
 004808   2661                4440            AIS   R6,1             DECREMENT BYTE COUNT                 MTD44400
 00480A   0563                4441            CLR   R6,R3            COMPARE TO BYTES VALU                MTD44410
 00480C   208C      =0047F4   4442            BLS   DAT.1            CONTINUE UNTIL DONE                  MTD44420
 00480E   D100 BC7E =008490   4443            LM    R0,REGSAVE       RESTORE REGISTERS                    MTD44430
 004812   030F                4444            BR    R15              RETURN TO CALLER                     MTD44440
                              4445  *                                                                     MTD44450
 004814   4060 BBFC =008414   4446  D.ERR     STH   R6,INDEX         BYTE VALUE                           MTD44460
 004818   4070 BCE2 =0084FE   4447            STH   R7,RSTORE        STORE READ DATA                      MTD44470
 00481C   4080 BCDC =0084FC   4448            STH   R8,WSTORE        AND STORE IT                         MTD44480
 004820   E650 81C4 =0049E8   4449            LA    R5,T3.E011       INCORRECT DATA FROM SELCH TRANSFER   MTD44490
 004824   41E0 2CC4           4450            BAL   R14,T1ERRORA     DATAS AND DRIVE                      MTD44500
 004828   E6F0 35F6           4451            LA    R15,MESSG3A                                           MTD44510
 00482C   E6E0 BD66 =008596   4452            LA    R14,CONTMSG      SUSPECTED ERROR WITH CONTROLLER      MTD44520
 004830   4300 BA98 =0082CC   4453            B     ERRORX                                                MTD44530
          0000 4834           4454  TST3.NST  EQU   *                                                     MTD44540
 004834   41F0 17E6           4455            BAL   R15,SPRINT       OUTPUT MESSAGE                       MTD44550
 004838   0000 4840           4456            DAC   NST              "NO ERASE GAPS"                      MTD44560
 00483C   4300 803A =00487A   4457            B     TST3.END         AND END TEST?                        MTD44570
 004840   5749 4C4C 204E 4F54 4458  NST       DC    C'WILL NOT DO ERASE GAPS WITHOUT SELCH',X'8D0A'       MTD44580
 004848   2044 4F20 4552 4153
 004850   4520 4741 5053 2057
 004858   4954 484F 5554 2053
 004860   454C 4348
 004864   8D0A
 004866   5452 414E 4645 5253 4459            DC    C'TRANFERS SELECTED',X'0D0A'                          MTD44590
 00486E   2053 454C 4543 5445
 004876   4420
 004878   0D0A
                              4460  *                                                                     MTD44600
 00487A   41F0 2836           4461  TST3.END  BAL   R15,TST.DRIV     CHECK FOR OTHER DRIVES               MTD44610
 00487E   4800 BB88 =00840A   4462            LH    R0,DRIVSAV1      CHECK FLAG                           MTD44620
 004882   C300 000E           4463            THI   R0,X'E'          IS IT SET                            MTD44630
 004886   4330 133C           4464            BZ    TSTEND           NO, END TEST                         MTD44640
 00488A   41F0 B4CA =007D58   4465            BAL   R15,IT.B1        INIT TEST FOR OTHER DRIVES           MTD44650
 00488E   4300 FB30 =0043C2   4466            B     TST3.1           BEGIN TEST 3                         MTD44660

                              4468  *  S U B R O U T I N E   C E R G A P                                  MTD44680
                              4469  *                                                                     MTD44690

 004892   DE10 BB41 =0083D7   4471  CERGAP    OC    R1,EGAP          ERASE GAP COMMAND                    MTD44710
 004896   030E                4472            BR    R14              RETURN                               MTD44720

 004898   494E 5445 5246 4143 4474  T3.E000   DC    C'INTERFACE DID NOT GO INTO WRITE MODE',X'0D0A'       MTD44740
 0048A0   4520 4449 4420 4E4F
 0048A8   5420 474F 2049 4E54
 0048B0   4F20 5752 4954 4520
 0048B8   4D4F 4445
 0048BC   0D0A
```

```
0048BE  494E 434F 5252 4543      4475  T3.E002  DC    C'INCORRECT STATUS ON READ-"WRITE" SET',X'0D0A'          MTD44750
0048C6  5420 5354 4154 5553
0048CE  204F 4E20 5245 4144
0048D6  2D22 5752 4954 4522
0048DE  2053 4554
0048E2  0D0A
0048E4  5245 4144 2046 524F      4476  T3.E004  DC    C'READ FROM TAPE - NO "EOF" STATUS',X'0D0A'              MTD44760
0048EC  4D20 5441 5045 202D
0048F4  204E 4F20 2245 4F46
0048FC  2220 5354 4154 5553
004904  0D0A
004906  5345 4C43 4820 5245      4477  T3.E004A DC    C'SELCH READ - NO "EOF" STATUS',X'0D0A'                 MTD44770
00490E  4144 202D 204E 4F20
004916  2245 4F46 2220 5354
00491E  4154 5553
004922  0D0A
004924  4552 4153 4520 5245      4478  T3.E007  DC    C'ERASE RECORD GAPS..(WRITE)',X'0D0A'                   MTD44780
00492C  434F 5244 2047 4150
004934  532E 2E28 5752 4954
00493C  4529
00493E  0D0A
004940  5345 4C43 4820 5752      4479  T3.E00A  DC    C'SELCH WRITE AFTER ERASE GAP',X'0D0A'                  MTD44790
004948  4954 4520 4146 5445
004950  5220 4552 4153 4520
004958  4741 5020
00495C  0D0A
00495E  4552 4153 4520 5245      4480  T3.E00B  DC    C'ERASE RECORD GAPS..READ',X'0D0A'                      MTD44800
004966  434F 5244 2047 4150
00496E  532E 2E52 4541 4420
004976  0D0A
004978  2245 5241 5345 2047      4481  T3.E00C  DC    C'"ERASE GAP" DID NOT ERASE RECORD',X'0D0A'             MTD44810
004980  4150 2220 4449 4420
004988  4E4F 5420 4552 4153
004990  4520 5245 434F 5244
004998  0D0A
00499A  4649 4C45 5320 2D20      4482  T3.E00D  DC    C'FILES - RECORDS - BYTES..(SELCH WRITE)',X'0D0A'       MTD44820
0049A2  5245 434F 5244 5320
0049AA  2D20 4259 5445 532E
0049B2  2E28 5345 4C43 4820
0049BA  5752 4954 4529
0049C0  0D0A
0049C2  4649 4C45 5320 2D52      4483  T3.E00F  DC    C'FILES, RECORDS, BYTES..(SELCH READ)',X'0D0A'          MTD44830
0049CA  4543 4F52 4453 2C20
0049D2  4259 5445 532E 2F28
0049DA  5345 4C43 4820 5245
0049E2  4144 2920
0049E6  0D0A
0049E8  494E 434F 5252 4543      4484  T3.E011  DC    C'INCORRECT DATA FROM SELCH TRANSFER',X'0D0A'           MTD44840
0049F0  5420 4441 5441 2046
0049F8  524F 4D20 5345 4C43
004A00  4820 5452 414E 5346
004A08  4552
004A0A  0D0A
```

TEST 3

```
004A0C       4E4F 2054 4150 4520      4485  T3.E012  DC    C'NO TAPE MARKS WRITTEN',X'0D0A'                    MTD44850
004A14       4D41 524B 5320 5752
004A1C       4954 5445 4E20
004A22       0D0A
```

```
                                     ***************************************************      MTD44870
                                     *         TEST 4 VARIABLE LENGTH RECORDS AND FILES    *  MTD44880
                                     *                                                     *  MTD44890
                                     *                                                     *  MTD44900
                                     * PURPOSE: TO CHECK OUT THE FORMATTER'S ABILITY       *  MTD44910
                                     *  TO WRITE VARIABLE LENGTH RECORDS                   *  MTD44920
                                     *                                                     *  MTD44930
                                     * TEST SPEC: THE TEST STARTS WITH AN OUTPUT OF        *  MTD44940
                                     * INCREMENTING LENGTH RECORDS.STARING                 *  MTD44950
                                     * WITH A LENGTH OF 2 AND ENDING WITH                  *  MTD44960
                                     * EITHER 'EOT' ON TAPE OR RECORD LENGTH               *  MTD44970
                                     * AS CONTAIN IN THE OPTION 'BYTES'. THE               *  MTD44980
                                     * TAPE THEN REWINDS AND READS ARE PERFORMED           *  MTD44990
                                     * WITH THE DATA CHECKED FOR VALIDITY.                 *  MTD45000
                                     * DECREMENTING RECORDS ARE THEN VALIDATED FROM        *  MTD45010
                                     * THE BYTES OPTION DECREASING BY 1 UNTIL THE          *  MTD45020
                                     * MINIMUM OF 2.                                       *  MTD45030
                                     *                                                     *  MTD45040
                                     * ERRORS:                                             *  MTD45050
                                     *                                                     *  MTD45060
                                     * OPTIONS:                                            *  MTD45070
                                     * TRMODE, DRIVE, SELCH, DATA, AND BYTES.              *  MTD45080
                                     *                                                     *  MTD45090
                                     ***************************************************      MTD45100

004A24   41F0 B322 =007D4A     TEST4    BAL   R15,TESTINIT        INITIALIZE TEST                  MTD45120
004A28   41F0 A58C =006FB8              BAL   R15,SEL.5           CHECK ONLINE OPTION              MTD45130
                               *                                                                   MTD45140
004A2C   7330 2124             TST4.2   LHL   R3,TRMODE+SVALU1    LOAD TYPE OF TRANSFER OPTION     MTD45150
004A30   4230 81E6 =004C1A              BNZ   TST4.1              BRANCH TO SELCH TRANSFER IF 1    MTD45160
                               ***************************************************                 MTD45170
                               *                                                 *                 MTD45180
                               * READ DATA,WRITE DATA TRANSFERS                  *                 MTD45190
                               *                                                 *                 MTD45200
                               ***************************************************                 MTD45210
004A34   41F0 B954 =00838C              BAL   R15,LOOPTOP                                          MTD45220
004A38   0000 4ACF                      DAC   T4.9A               NEXT SEQUENCE                    MTD45230
004A3C   0000 4ACE                      DAC   T4.9A               PROCEED LIMIT                    MTD45240
004A40   41F0 B68E =0080D2              BAL   R15,REWMT           REWIND THE TAPE            R01   MTD45250
004A44   2400                           LIS   R0,0                                                 MTD45260
004A46   4000 B9C4 =00840E              STH   R0,DECFLG           CLEAR DECREMENTING RECORDS FLG   MTD45270
*004A4A  2541                           LHI   R4,X'FFFF'          DATA PATTERN TO INITIALIZE TAPE  MTD45280
004A4C   41F0 B654 =0080A4              BAL   R15,WRTENB          CHECK FOR WRITES INHIBITED       MTD45290
004A50   C8A0 03FF                      LHI   R10,X'03FF'         LOAD RECORD LENGTH               MTD45300
004A54   41E0 B290 =007CE8              BAL   R14,CWRODBY         ISSUE WRT ODD BYTE COMMAND       MTD45310
004A58   41E0 B224 =007C80              BAL   R14,CWRITE          PUT IN WRITE MODE                MTD45320
004A5C   9814                  TST4.02  WHR   R1,R4                                                MTD45330
004A5E   27A2                           SIS   R10,2                                                MTD45340
004A60   2282      =004A5C              BNLS  TST4.02             CONTINUE UNTIL NEGATIVE          MTD45350
```

TEST 4

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 004A62       41E0 B17E =007EE4        4536           BAL   R14,SENSTA1         SENSE STATUS                                MTD45360
 004A66       41F0 B6A8 =008112        4537           BAL   R15,STATCHK                                               MTD45370
                                       4538  * TAPE HAS BEEN INITIALIZED WITH LONG RECORD OF DATA FFFF                   MTD45380
                                       4539  *                                                                           MTD45390
 004A6A       41F0 B664 =0080D2        4540           BAL   R15,REWMT                                                 MTD45400
 004A6E       4840 2036                4541           LH    R4,DATA+SVALU1        USER SPECIFIED DATA PATTERN           MTD45410
*004A72       2334      =004A7A        4542           BZ    T4.0000               NO, TEST PATTERN                      MTD45420
 004A74       E640 2036                4543           LA    R4,DATA+SVALU1        LOAD THE ADDRESS                      MTD45430
*004A78       2303      =004A7E        4544           B     T4.0000A              BEGIN                                 MTD45440
 004A7A       E640 B9B2 =008430        4545  T4.0000  LA    R4,TESTPAT+10                                               MTD45450
 004A7E       41F0 B622 =0080A4        4546  T4.0000A BAL   R15,WRTENB           CHECK FOR WRITES INHIBITED            MTD45460
 004A82       24B2                     4547           LIS   R11,2                                                     MTD45470
 004A84       73A0 200C                4548           LHL   R10,BYTES+SVALU1      LOAD RECORD LENGTH                    MTD45480
 004A88       05AB                     4549           CLR   R10,R11               IS BYTES LESS THAN INITIAL VALUE OF 2 MTD45490
*004A8A       2383      =004A90        4550           BNL   T4099                 BRANCH IF BYTES IS .GT. OR .EQ. TO 2. MTD45500
 004A8C       C8A0 00FF                4551           LHI   R10,X'FF'             SET BYTES TO MAX OF 256               MTD45510
 004A90       083B                     4552  T4099    LR    R3,R11                GET BYTE COUNT FOR THIS RECORD        MTD45520
 004A92       2731                     4553           SIS   R3,1                                                      MTD45530
 004A94       C330 0001                4554           THI   R3,X'0001'            IS THIS BYTE COUNT ODD ?              MTD45540
*004A98       2133      =004A9E        4555           BNZ   T4.000                BRANCH IF EVEN NUMBER OF BYTES.       MTD45550
 004A9A       41E0 B24A =007CE8        4556           BAL   R14,CWRODBY           ISSUE WRT ODD BYTE COMMAND            MTD45560
 004A9E       088B                     4557  T4.000   LR    R8,R11                MINIMUM OF 4 BYTES                    MTD45570
 004AA0       2781                     4558           SIS   R8,1                                                      MTD45580
 004AA2       41E0 B12C =007BD2        4559           BAL   R14,CDENS             OUTPUT DENSITY COMMAND                MTD45590
 004AA6       41E0 B1D6 =007C80        4560           BAL   R14,CWRITE            PUT IN WRITE MODE                     MTD45600
 004AAA       D814 0000                4561  T4.001   WH    R1,0(R4)                                                    MTD45610
 004AAE       2782                     4562           SIS   R8,2                                                      MTD45620
 004AB0       2283      =004AAA        4563           BNLS  T4.001                CONTINUE UNTIL NEGATIVE               MTD45630
 004AB2       41E0 B12E =007BE4        4564           BAL   R14,SENSTA1           SENSE STATUS                          MTD45640
 004AB6       41F0 B658 =008112        4565           BAL   R15,STATCHK                                               MTD45650
 004ABA       C430 0020                4566           NHI   R3,X'20'              EOT SET                               MTD45660
 004ABE       4230 806A =004F2C        4567           BNZ   T4.NEXT               IF YES, REWIND AND NEXT SEQUENCE      MTD45670
 004AC2       05BA                     4568           CLR   R11,R10               DONE WITH PATTERNS                    MTD45680
 004AC4       4330 B886 =00834F        4569           BE    PASS                  PASS                                  MTD45690
 004AC8       26B1                     4570           AIS   R11,1                 INCREMENT RECORD LENGTH               MTD45700
 004ACA       4300 FFC2 =004A90        4571           B     T4099                                                       MTD45710
                                       4572  *                                                                           MTD45720
                                       4573  * WE HAVE COMPLETED WRITES NOW LET'S DO SOME READS                        MTD45730
                                       4574  *                                                                           MTD45740
 004ACE       41F0 B8BA =00838C        4575  T4.9A    BAL   R15,LOOPTOP                                                MTD45750
 004AD4       0000 4B48                4576           DAC   T4.003                NEXT SEQUENCE                         MTD45760
 004AD8       0000 4F9A                4577           DAC   TST4.END             PROCEED LIMIT                         MTD45770
 004ADC       41F0 B5F2 =0080D2        4578           BAL   R15,REWMT             REWIND THE MAG TAPE                   MTD45780
 004AE0       24B2                     4579           LIS   R11,2                 LOAD MINIMUM RECORD LENGTH            MTD45790
 004AE2       73A0 200C                4580           LHL   R10,BYTES+SVALU1      BYTES VALUE                           MTD45800
 004AE6       05AB                     4581           CLR   R10,R11                                                   MTD45810
*004AE8       2383      =004AEE        4582           BNL   T4.5                  BRANCH IF BYTES IS .GT. OR .EQ. 4     MTD45820
 004AEA       C8A0 00FF                4583           LHI   R10,X'FF'             SET BYTE COUNT TO 256                 MTD45830
 004AEE       0883                     4584  T4.5     LR    R8,R11                LOAD COUNTER FOR RECORD LENGTH        MTD45840
 004AF0       2470                     4585           LIS   R7,0                  ZERO OUT POINTER                      MTD45850
 004AF2       2430                     4586           LIS   R3,0                  INITIALIZE READ BUFFER                MTD45860
 004AF4       4037 4001 89D0           4587  T4CLR    STH   R3,READBUF(R7)        *                                     MTD45870
 004AFA       2672                     4588           AIS   R7,2                  *                                     MTD45880
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 004AFC   C570 00FF          4589           CLHI  R7,X'FF'          *                                 MTD45890
*004B00   2226      =004AF4  4590           BNP   T4CLR             *                                 MTD45900
 004B02   2781               4591           SIS   R8,1              ADJUST BYTES                      MTD45910
 004B04   2470               4592           LIS   R7,0              INITIALIZE BUFFER INDEX..         MTD45920
 004B06   41E0 B150 =007C5A  4593           BAL   R14,CREAD         PUT INTERFACE IN READ MODE        MTD45930
 004B0A   41E0 B114 =007C22  4594  T4.6     BAL   R14,SENSTA3       CHECK STATUS FOR BUSY             MTD45940
 004B0E   D917 4001 89D0     4595           RH    R1,READBUF(R7)    READ A HALFWORD                   MTD45950
 004B14   2572               4596           AIS   R7,2              INCREMENT POINTER                 MTD45960
 004B16   2782               4597           SIS   R8,2              DECREMENT BYTE COUNT              MTD45970
 004B18   2287      =004B0A  4598           BNLS  T4.6              INPUT MORE DATA                   MTD45980
 004B1A   41E0 B0C6 =007BE4  4599           BAL   R14,SENSTA1                                         MTD45990
 004B1E   40B0 B928 =00844A  4600           STH   R11,LENSAV        SAVE RECORD LENGTH                MTD46000
 004B22   41F0 B5EC =008112  4601           BAL   R15,STATCHK       CHECK INF. STATUS                 MTD46010
 004B26   C430 0020          4602           NHI   R3,X'20'          IS EOT SET                        MTD46020
*004B2A   2335      =004B34  4603           BZ    T4.7A             NO CONTINUE ON                    MTD46030
 004B2C   41F0 B5A2 =0080D2  4604  T4.NEXT  BAL   R15,REWMT         REWIND MAG TAPE                   MTD46040
 004B30   4300 B81A =00834E  4605           B     PASS              OTHERWISE END TEST                MTD46050
 004B34   E650 849C =004FD4  4606  T4.7A    LA    R5,T4.E005        INCREMENTING RECORDS..            MTD46060
 004B38   41F0 83D6 =004F12  4607           BAL   R15,T4.CHK        CHECK DATA READ                   MTD46070
                             4608  *                                                                  MTD46080
 004B3C   05BA               4609           CLR   R11,R10           COMPARE BYTE COUNT                MTD46090
 004B3E   4330 B80C =00834F  4610           BE    PASS              BRANCH TO NEXT SEQUENCE           MTD46100
 004B42   26B1               4611           AIS   R11,1             OTHERWISE INCREMENT COUNT AND     MTD46110
 004B44   4300 FFA6 =004AEE  4612           B     T4.5              INPUT SOME MORE                   MTD46120
                             4613  *                                                                  MTD46130
                             4614  *                                                                  MTD46140

                             4616  *  WRITE AND READ DECREMENTING RECORDS   *                         MTD46160
                             4617  *                                                                  MTD46170
 004B48   41F0 B840 =00838C  4618  T4.003   BAL   R15,LOOPTOP                                         MTD46180
 004B4C   0000 4BBC          4619           DAC   T4.004            NEXT SEQUENCE                     MTD46190
 004B50   0000 4F9A          4620           DAC   TST4.END          PROCEED LIMIT                     MTD46200
 004B54   41F0 B57A =0080D2  4621           BAL   R15,REWMT         REWIND MAG TAPE..                 MTD46210
 004B58   4840 2036          4622           LH    R4,DATA+$VALU1    USER SPECIFIED DATA PATTERN?      MTD46220
*004B5C   2134      =004B64  4623           BNZ   T4.003EE          YES                               MTD46230
 004B5E   E640 B8CE =008430  4624           LA    R4,TESTPAT+10     ELSE USE TEST PATTERN             MTD46240
*004B62   2303      =004B68  4625           B     T4.003EF                                            MTD46250
 004B64   E640 2036          4626  T4.003EE LA    R4,DATA+$VALU1    LOAD ADDRESS OF DATA DESIRED      MTD46260
 004B68   2401               4627  T4.003EF LIS   R0,1              SET DECFLG                        MTD46270
 004B6A   4000 B8A0 =00840E  4628           STH   R0,DECFLG         TO INDICATE DECREMENTING REC      MTD46280
 004B6E   73A0 200C          4629           LHL   R10,BYTES+$VALU1                                    MTD46290
 004B72   24B2               4630           LIS   R11,2             INITIALIZE FINAL BYTE COUNT...    MTD46300
 004B74   05AB               4631           CLR   R10,R11           IS THE BYTE COUNT LESS THAN 4 ?   MTD46310
*004B76   2382      =004B7A  4632           BNL   T4066             IF 'NO' THEN BRANCH..             MTD46320
*004B78   24A2               4633           LHI   R10,2             SET INITIAL COUNT TO THE MINIMUM...  MTD46330
 004B7A   27A1               4634  T4066    SIS   R10,1             *                                 MTD46340
 004B7C   C3A0 0001          4635  T4067    THI   R10,X'0001'       IS THE BYTE COUNT ODD ?           MTD46350
*004B80   2333      =004B86  4636           BZ    T4.003A                                             MTD46360
 004B82   41E0 B162 =007CF8  4637           BAL   R14,CWRODBY       ISSUE ODD BYTE COMMAND            MTD46370
 004B86   E640 B8A6 =008430  4638  T4.003A  LA    R4,TESTPAT+10     DATA PATTERN                      MTD46380
 004B8A   088A               4639           LR    R8,R10            RECORD LENGTH                     MTD46390
 004B8C   41E0 B042 =007BD2  4640           BAL   R14,CDENS         OUTPUT DENSITY COMMAND            MTD46400
 004B90   41E0 B0EC =007C80  4641           BAL   R14,CWRITE        PUT IN WRITE MODE                 MTD46410
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TEST 4

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004B94  0814 0000              4642  T4.003B  WH    R1,0(R4)                                  MTD46420
004B98  2782                   4643           SIS   R8,2                 DECREMENT LENGTH     MTD46430
004B9A  2283       =004B94     4644           BNLS  T4.003B                                   MTD46440
004B9C  41E0 B044  =007BE4     4645           BAL   R14,SENSTA1          SENSE STATUS         MTD46450
004BA0  40A0 B8A6  =00844A     4646           STH   R10,LENSAV          SAVE RECORD LENGTH   MTD46460
004BA4  41F0 B56A  =008112     4647           BAL   R15,STATCHK                              MTD46470
004BA8  C430 0020              4648           NHI   R3,X'20'             TAPE MARK            MTD46480
004BAC  4230 FF7C  =004B2C     4649           BNZ   T4.NEXT                                   MTD46490
004BB0  05BA                   4650           CLR   R11,R10              REACHED THE MINIMUM  MTD46500
004BB2  4220 B798  =00834E     4651           BP    PASS                 YES, NEXT SEQUENCE   MTD46510
004BB6  27A1                   4652           SIS   R10,1                ELSE DECREMENT       MTD46520
004BB8  4300 FFC0  =004B7C     4653           B     T4067                CONTINUE             MTD46530
                               4654  *                                                       MTD46540
                               4655  *                                                       MTD46550
                               4656  *                                                       MTD46560
004BBC  41F0 B7CC  =00838C     4657  T4.004   BAL   R15,LOOPTOP           SET UP ADDRESSES     MTD46570
004BC0  0000 4F9A              4658           DAC   TST4.END                                  MTD46580
004BC4  0000 4F9A              4659           DAC   TST4.END                                  MTD46590
004BC8  41F0 B506  =0080D2     4660           BAL   R15,REWMT            REWIND TAPE TO READ  MTD46600
004BCC  73A0 200C              4661           LHL   R10,BYTES+SVALU1                          MTD46610
004BD0  24B2                   4662           LIS   R11,2                                     MTD46620
004BD2  05AB                   4663           CLR   R10,R11              IS THE BYTES OPT LESS THAN 2 ?  MTD46630
*004BD4  2382       =004BD8    4664           BNL   T4.004A              NO, THEN BRANCH      MTD46640
*004BD6  24A2                  4665           LHI   R10,2                OTHERWISE,LOAD THE MINIMUM...  MTD46650
004BD8  27A1                   4666  T4.004A  SIS   R10,1                                    MTD46660
004BDA  088A                   4667  T4044A   LR    R8,R10                                   MTD46670
004BDC  2470                   4668           LIS   R7,0                                    MTD46680
004BDE  41E0 B078  =007C5A     4669           BAL   R14,CREAD            PUT IN READ MODE     MTD46690
004BE2  41E0 B03C  =007C22     4670  T4.004B  BAL   R14,SENSTA3           SENSE STATUS         MTD46700
004BE6  D917 4001 89D0         4671           RH    R1,READBUF(R7)       READ DATA INTO BUFFER  MTD46710
004BEC  2672                   4672           AIS   R7,2                 INCREMENT INDEX      MTD46720
004BEE  2782                   4673           SIS   R8,2                 DECREMENT LENGTH:    MTD46730
004BF0  2287       =004BE2     4674           BNLS  T4.004B                                   MTD46740
004BF2  41E0 AFEE  =007BE4     4675           BAL   R14,SENSTA1                               MTD46750
004BF6  40A0 B850  =00844A     4676           STH   R10,LENSAV           SAVE LENGTH          MTD46760
004BFA  41F0 B514  =008112     4677           BAL   R15,STATCHK                               MTD46770
004BFE  C430 0020              4678           NHI   R3,X'20'             CHECK FO END OF TAPE  MTD46780
004C02  4230 FF26  =004B2C     4679           BNZ   T4.NEXT                                   MTD46790
004C06  E650 8404  =00500E     4680           LA    R5,T4.E006           DECREMENTING RECORDS..  MTD46800
004C0A  41F0 8304  =004F12     4681           BAL   R15,T4.CHK           CHECK DATA FOR CORRECTNESS  MTD46810
004C0E  05BA                   4682           CLR   R11,R10                                   MTD46820
004C10  4220 B73A  =00834E     4683           BP    PASS                                      MTD46830
004C14  27A1                   4684           SIS   R10,1                DECREMENT LENGTH     MTD46840
004C16  4300 FFC0  =004BDA     4685           B     T4044A                                    MTD46850

                               4687  ********************************************************  MTD46870
                               4688  *                                                    *  MTD46880
                               4689  * COME HERE FOR SELCH TRANSFERS                      *  MTD46890
                               4690  *                                                    *  MTD46900
                               4691  ********************************************************  MTD46910
004C1A  41F0 B76E  =00838C     4692  TST4.1   BAL   R15,LOOPTOP                            MTD46920
004C20  0000 4C3A              4693           DAC   T4.1A                NEXT SEQUENCE        MTD46930
004C24  0000 4C3A              4694           DAC   T4.1A                PROCEED LIMIT        MTD46940
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TEST 4

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 004C28       7320 2108                4695           LHL   R2,SELCH+$VALU1     LOAD SELCH ADDRESS                          MTD46950
*004C2C       2137       =004C3A       4696           BNZ   T4.1A               CONTINUE ON IF ADDRESSED                    MTD46960
 004C2E       E650 B9A2 =0085D4        4697           LA    R5,NOSELCH                                                      MTD46970
 004C32       41F0 B738 =00836E        4698           BAL   R15,LOOP2           OTHERWISE PRINT                             MTD46980
 004C36       4300 1358                4699           B     ABORT               AND ABORT TEST                              MTD46990
                                       4700  *                                                                              MTD47000
 004C3A       41F0 B74E =00838C        4701  T4.1A    BAL   R15,LOOPTOP                                                     MTD47010
 004C40       0000 4D2E                4702           DAC   T4.2AA              NEXT SEQUENCE                               MTD47020
 004C44       0000 4F9A                4703           DAC   TST4.END           PROCEED LIMIT                               MTD47030
 004C48       41F0 B486 =0080D2        4704           BAL   R15,REWMT           REWIND MAG TAPE                 R01         MTD47040
 004C4C       41E0 B04E =007C9F        4705           BAL   R14,CSTOP           STOP SELCH                                  MTD47050
 004C50       41E0 B04A =007C9E        4706           BAL   R14,CSTOP                                                       MTD47060
 004C54       41F0 B1B8 =007E10        4707           BAL   R15,RESTORE1        ENABLE INT                                  MTD47070
 004C58       2400                     4708           LIS   R0,0                CLEAR DECREMENTING RECORDS FLAG             MTD47080
 004C5A       4000 B7B0 =00840E        4709           STH   R0,DECFLG                                                       MTD47090
*004C5E       2541                     4710           LHI   R4,X'FFFF'          DATA PATTERN TO INIT TAPE                   MTD47100
 004C60       4040 B7C0 =008424        4711           STH   R4,DATAPAT                                                      MTD47110
 004C64       E640 B7BC =008424        4712           LA    R4,DATAPAT                                                      MTD47120
 004C68       C860 03FF                4713           LHI   R6,X'03FF'          RECORD LENGTH                               MTD47130
 004C6C       41F0 B078 =007CE8        4714           BAL   R14,CWRODBY                                                     MTD47140
 004C70       41F0 B1D0 =007E44        4715           BAL   R15,SEL.3           SET UP WRITE BUFFER                         MTD47150
 004C74       41E0 B082 =007CFA        4716           BAL   R14,WRBUF           SET UP WRITE BUFFER ADDRESSES               MTD47160
 004C78       41E0 AF56 =007BD2        4717           BAL   R14,CDENS           DENSITY COMMAND                             MTD47170
 004C7C       41E0 B000 =007C80        4718           BAL   R14,CWRITE                                                      MTD47180
 004C80       E650 83A2 =005026        4719           LA    R5,T4.E008          SELCH WRITE INCREMENTING RECORDS            MTD47190
 004C84       E600 8014 =004C9C        4720           LA    R0,T4.0002          INTERRUPT ADDRESS                           MTD47200
 004C88       4000 21E8                4721           STH   R0,DEVINT+2                                                     MTD47210
 004C8C       080A                     4722           LR    R0,R10              TIMVAL                                      MTD47220
 004C8E       260F                     4723           AIS   R0,15               INCREASE SOME                   R01         MTD47230
 004C90       41E0 AFF2 =007C86        4724           BAL   R14,CGO                                                         MTD47240
 004C94       41F0 162A                4725           BAL   R15,TIMER           WAIT FOR SELCH INTERRUPT                    MTD47250
 004C98       4300 2E06                4726           B     T1R09               TIMED OUT ON SELCH *** WRITE                MTD47260
 004C9C       41F0 B168 =007E08        4727  T4.0002  BAL   R15,RESTORE         RESTORE R1,R2,PSW                           MTD47270
 004CA0       41F0 B1D4 =007E78        4728           BAL   R15,SELCHK           CHECK SELCH STATUS                          MTD47280
 004CA4       41F0 B25A =007F02        4729           BAL   R15,SELEND           CHECK SELCH ENDING ADDRESS                  MTD47290
 004CA8       41E0 AF38 =007BE4        4730           BAL   R14,SENSTA1         CHECK STATUS                                MTD47300
 004CAC       C330 0040                4731           THI   R3,X'40'            TERR SET?                                   MTD47310
 004CB0       4230 B486 =00813A        4732           BNZ   STAT.ER             IF YES, ERROR                               MTD47320
                                       4733  *                                                                              MTD47330
                                       4734  * TAPE SHOULD BE INITIALIZED WITH LONG REC OF DATA FFFF                       MTD47340
                                       4735  *                                                                              MTD47350
 004CB4       41F0 B41A =0080D2        4736           BAL   R15,REWMT           REWIND AND BEGIN                            MTD47360
 004CB8       7340 200C                4737           LHL   R4,BYTES+$VALU1     LOAD MAX RECORD LENGTH                      MTD47370
 004CBC       24B2                     4738           LIS   R11,2               LOAD MINIMUM RECORD LENGTH                  MTD47380
 004CBE       054B                     4739           CLR   R4,R11                                                          MTD47390
*004CC0       2383       =004CC6       4740           BNL   T4100                                                           MTD47400
 004CC2       C840 00FF                4741           LHI   R4,X'FF'            MODIFY BYTE OUTPUT                          MTD47410
 004CC6       089B                     4742  T4100    LR    R9,R11              GET BYTE MINIMUM                            MTD47420
 004CC8       2791                     4743           SIS   R9,1                DECREMENT                                   MTD47430
 004CCA       C390 0001                4744           THI   R9,X'0001'          IS BYTE OUTPUT ODD?                         MTD47440
*004CCE       2133       =004CD4       4745           BNZ   T4.1D               NO                                          MTD47450
 004CD0       41E0 B014 =007CE8        4746           BAL   R14,CWRODBY         ISS ODD BYTE COMMAND                        MTD47460
 004CD4       41F0 81E8 =004FC0        4747  T4.1D    BAL   R15,SELVWRT         GO SET UP SELCH FOR WRT                     MTD47470
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004CD8       41E0 B01E =007CFA        4748           BAL   R14,WRBUF          SET UP WRITE ADDRESSES                  MTD47480
004CDC       41E0 AEF2 =007BD2        4749           BAL   R14,CDENS          OUTPUT DENSITY COMMAND                  MTD47490
004CE0       41E0 AF9C =007C80        4750           BAL   R14,CWRITE         PUT INTERFACE IN WRITE MODE             MTD47500
004CE4       40B0 B762 =00844A        4751           STH   R11,LENSAV                                               MTD47510
004CE8       8600 8018 =004D04        4752           LA    R0,T4.1E1          INTERRUPT ADDRESS                       MTD47520
004CEC       4000 21E8                4753           STH   R0,DEVINT+2                                             MTD47530
004CF0       0804                     4754           LR    R0,R4              TIME VALUE                              MTD47540
004CF2       260F                     4755           AIS   R0,15              INCREASE                         R01    MTD47550
004CF4       41E0 AF8E =007C86        4756           BAL   R14,CGO            GIVE SELCH THE GO                       MTD47560
004CF8       41F0 162A                4757           BAL   R15,TIMEP          WAIT FOR SELCH INTERRUPT         R01    MTD47570
004CFC       E650 8326 =005026        4758           LA    R5,T4.E008         SELCH WRITE INCREMENTING RECORDS        MTD47580
004D00       4300 2E06                4759           B     T1R09              TIMED OUT DUTING SELCH *** WRITE        MTD47590
004D04       41F0 B100 =007F08        4760  T4.1E1   BAL   R15,RESTOPE        RESTORE R1,R2,PSW                       MTD47600
004D08       41F0 B16C =007F78        4761           BAL   R15,SELCHK          CHECK ENDING STATUS                     MTD47610
004D0C       41F0 B1F2 =007F02        4762           BAL   R15,SELEND          CHECK ENDING ADDRESS                    MTD47620
004D10       41E0 AED0 =007BF4        4763           BAL   R14,SENSTA1         NO MOTION STATUS?                       MTD47630
004D14       C330 0040                4764           THI   R3,X'40'                                                 MTD47640
004D18       4230 B41E =00813A        4765           BNZ   STAT.ER                                                 MTD47650
004D1C       C430 0020                4766           NHI   R3,X'20'             EOT SET                             MTD47660
*004D20      2137       =004D2E       4767           BNZ   T4.2AA             PASS TO NEXT SEQUENCE                   MTD47670
004D22       05B4                     4768           CLR   R11,R4             COMPARE WITH MAX                        MTD47680
004D24       4330 B626 =00834E        4769           BE    PASS               IF NOT EQUAL RESTART OUTPUT             MTD47690
004D28       26B1                     4770           AIS   R11,1              INCREMENT BYTE COUNT                    MTD47700
004D2A       4300 FF98 =004CC6        4771           B     T4100                                                    MTD47710
                                      4772  *                                                                       MTD47720
                                      4773  * NOW THAT WE HAVE DONE WRITES LET'S NOW DO READS                       MTD47730
                                      4774  *                                                                       MTD47740
004D2E       41F0 B65A =00838C        4775  T4.2AA   BAL   R15,LOOPTOP                                             MTD47750
004D34       0000 4DB4                4776           DAC   T4.002                                                  MTD47760
004D38       0000 4F9A                4777           DAC   TST4.END           PROCEED LIMIT                           MTD47770
004D3C       41E0 AF5E =007C9E        4778           BAL   R14,CSTOP           STOP SELCH                              MTD47780
004D40       41E0 AF5A =007C9E        4779           BAL   R14,CSTOP                                               MTD47790
004D44       41F0 B38A =0080D2        4780           BAL   R15,REWMT          REWID MAG TAPE FIRST                    MTD47800
004D48       24B2                     4781           LIS   R11,2              LOAD MINIMUM RECORD LENGTH              MTD47810
004D4A       7340 200C                4782           LHL   R4,BYTES+SVALU1    GET BYTES VALUE                         MTD47820
004D4E       054B                     4783           CLR   R4,R11                                                  MTD47830
*004D50      2383       =004D56       4784           BNL   T4.02C                                                  MTD47840
004D52       C840 00FF                4785           LHI   R4,X'FF'           SET BYTE OUTPUT TO MAXIMUM              MTD47850
004D56       089B                     4786  T4.02C   LR    R9,R11                                                  MTD47860
004D58       2791                     4787           SIS   R9,1               ADJUST FOR SELCH ADDRESS                MTD47870
004D5A       41F0 8196 =004EF4        4788           BAL   R15,SELVRD         SET UP SELCH FOR READ                   MTD47880
004D5E       41E0 AFC8 =007D2A        4789           BAL   R14,REBUF          SSET UP SELCH READ ADDRESSES            MTD47890
004D62       41E0 AEF4 =007C5A        4790           BAL   R14,CREAD          PUT INTERFACE INTO READ MODE            MTD47900
004D66       E650 8248 =004FB2        4791           LA    R5,T4.E004         SELCH READ INCREMENTING RECORDS         MTD47910
004D6A       E600 801A =004D88        4792           LA    R0,T4.2D1          INTERRUPT ADDRESS                       MTD47920
004D6E       4000 21E8                4793           STH   R0,DEVINT+2                                             MTD47930
004D72       7300 200C                4794           LHL   R0,BYTES+SVALU1    TIMVAL                                  MTD47940
004D76       260F                     4795           AIS   R0,15              INCREASE                         R01    MTD47950
004D78       41F0 AF1C =007C98        4796           BAL   R14,CGOREAD        GIVE SELCH THE GO                       MTD47960
004D7C       41F0 162A                4797           BAL   R15,TIMEP          WAIT FOR SELCH INTERRUPT         R01    MTD47970
004D80       E650 822E =004FB2        4798           LA    R5,T4.E004         SELCH READ INCREMENTIN RECORDR01        MTD47980
004D84       4300 2F8C                4799           B     T1R10              TIMED OUT DURING SELCH *** READ         MTD47990
004D88       40B0 B6BE =00844A        4800  T4.2D1   STH   R11,LENSAV          SAVE RECORD LENGTH                      MTD48000
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TEST 4

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004D8C  41F0 B078 =007F08   4801          BAL   R15,RESTORE        RESTORE R1,R2, PSW                    MTD48010
004D90  41F0 B0E4 =007E78   4802          BAL   R15,SELCHK         CHECK ENDING STATUS                   MTD48020
004D94  41F0 B16A =007F02   4803          BAL   R15,SELEND         CHECK ENDING ADDRESS                  MTD48030
004D98  41F0 B376 =008112   4804          BAL   R15,STATCHK        CHECK INTERFACE STATUS                MTD48040
004D9C  C430 0020           4805          NHI   R3,X'20'           IS EOT SET                            MTD48050
004DA0  4230 FD88 =004B2C   4806          BNZ   T4.NEXT            PASS TO NEXT SEQUENCE                 MTD48060
004DA4  41F0 81B6 =004F5F   4807          BAL   R15,T4.SCHK        CHECK DATA READ WITH SELCH            MTD48070
                            4808  *                                                                     MTD48080
004DA8  0534                4809          CLR   R11,R4             COMPARE WITH MAX                      MTD48090
004DAA  4330 85A0 =00834F   4810          BE    PASS               OTHERWISE END TEST                    MTD48100
004DAE  26B1                4811          AIS   R11,1              INCREMENT END OF  BYTE                MTD48110
004DB0  4300 FFA2 =004D56   4812          B     T4.02C             IF NOT EQUAL RESTART OUTPUT           MTD48120

                            4814  *  WRITE AND READ DECREMENTING LENGTHS USING SELCH                     MTD48140
                            4815  *                                                                     MTD48150
004DB4  41F0 B5D4 =00838C   4816  T4.002   BAL   R15,LOOPTOP                                            MTD48160
004DB8  0000 4E42           4817          DAC   T4.005                                                  MTD48170
004DBC  0000 4F9A           4818          DAC   TST4.END                                                MTD48180
004DC0  41E0 AEDA =007C9E   4819          BAL   R14,CSTOP          CLEAR SELCH FIRST OFF                 MTD48190
004DC4  41E0 AED6 =007C9F   4820          BAL   R14,CSTOP                                               MTD48200
004DC8  41F0 B306 =0080D2   4821          BAL   R15,REWMT          REWIND TAPE                           MTD48210
004DCC  7340 200C           4822          LHL   R4,BYTES+$VALU1                                         MTD48220
004DD0  24B2                4823          LIS   R11,2              MINIMUM RECORD LENGTH                 MTD48230
004DD2  054B                4824          CLR   R4,R11             CHECK                                 MTD48240
*004DD4 2382        =004DD8 4825          BNL   T4.002A                                                 MTD48250
004DD6  2442                4826          LIS   R4,2               MODIFY BYTE OUTPUT                    MTD48260
004DD8  0894                4827  T4.002A LR    R9,R4              GET BYTE VALUE                        MTD48270
004DDA  2791                4828          SIS   R9,1               ADJUST FOR SELCH ADDRESSES            MTD48280
004DDC  C390 0001           4829          THI   R9,X'0001'         IS ID AN ODD BYTE                     MTD48290
*004DE0 2133        =004DE6 4830          BNZ   T4.002AA           NO                                    MTD48300
004DE2  41E0 AF02 =007CE8   4831          BAL   R14,CWRODBY        ISSUE OD BYTE CMD                     MTD48310
004DE6  41F0 80D6 =004EC0   4832  T4.002AA BAL  R15,SELVWRT                                              MTD48320
004DEA  41E0 AF0C =007CFA   4833          BAL   R14,WRBUF          SET UP WRITE BUFFER                   MTD48330
004DEE  41E0 ADE0 =007BD2   4834          BAL   R14,CDENS          DENSITY COMMAND                       MTD48340
004DF2  41F0 AE8A =007C80   4835          BAL   R14,CWRITE                                              MTD48350
004DF6  B650 81F2 =004FEC   4836          LA    R5,T4.E002         DECREMENTING RECORDS...(SELCH)        MTD48360
004DFA  B600 8018 =004E16   4837          LA    R0,T4.002C         INTERRUPT ADDRESS                     MTD48370
004DFE  4000 21E8           4838          STH   R0,DEVINT+2                                             MTD48380
004E02  0804                4839          LR    R0,R4              TIMVAL                                MTD48390
004E04  260F                4840          AIS   R0,15              INCREASE                    R01       MTD48400
004E06  41E0 AE7C =007C86   4841          BAL   R14,CGO                                                 MTD48410
004E0A  41F0 162A           4842          BAL   R15,TIMER          WAIT FOR INTERRUPT                    MTD48420
004E0E  B650 81DA =004FEC   4843          LA    R5,T4.E002         SELCH WRITE DECREMENTING RECORDS..    MTD48430
004E12  4300 2E06           4844          B     T1R09              TIMED OUT DURING SELCH *** WRITE      MTD48440
004E16  41F0 AFEE =007F08   4845  T4.002C BAL   R15,RESTORE        RESTORE R1,R2,PSW                     MTD48450
004E1A  41F0 B05A =007E78   4846          BAL   R15,SELCHK                                              MTD48460
004E1E  41F0 B0E0 =007F02   4847          BAL   R15,SELEND                                              MTD48470
004E22  41E0 ADBE =007BE4   4848          BAL   R14,SENSTA1        SENSE STATUS                          MTD48480
004E26  C330 0040           4849          THI   R3,X'40'           IS TERR STATUS SET?                   MTD48490
004E2A  4230 B30C =00813A   4850          BNZ   STAT.ER            DETERMINE ERROR                       MTD48500
004E2E  C430 0020           4851          NHI   R3,X'20'           END OF TAPE                           MTD48510
004E32  4230 FCF6 =004B2C   4852          BNZ   T4.NEXT            REWIND MAG TAPE                       MTD48520
004E36  05B4                4853          CLR   R11,R4             FINISHED                              MTD48530
```

TEST 4

```
004E38       4220 B512 =00834E        4854           BP    PASS               NO, CONTINUE                                MTD48540
004E3C       2741                     4855           SIS   R4,1               DECREMENT RECORD LENGTH                     MTD48550
004E3E       4300 FF96 =004DD8        4856           B     T4.002A                                                        MTD48560
                                      4857  *                                                                            MTD48570
                                      4858  * COMPLETED WRITES, NOW TRY READS                                            MTD48580
                                      4859  *                                                                            MTD48590
004E42       41F0 B546 =00838C        4860  T4.005   BAL   R15,LOOPTOP                                                  MTD48600
004E48       0000 4F9A                4861           DAC   TST4.END                                                     MTD48610
004E4C       0000 4F9A                4862           DAC   TST4.END                                                     MTD48620
004E50       41E0 AF4A =007C9E        4863           BAL   R14,CSTOP          STOP SELCH                                MTD48630
004E54       41E0 AE46 =007C9F        4864           BAL   R14,CSTOP                                                    MTD48640
004E58       41F0 B276 =008CD2        4865           BAL   R15,REWMT          REWIND TAPE                               MTD48650
004E5C       7340 200C                4866           LHL   R4,BYTES+SVALU1                                              MTD48660
004E60       24B2                     4867           LIS   R11,2              MINIMUM                                   MTD48670
004E62       054B                     4868           CLR   R4,R11             IS BYTES VALUE OK                         MTD48680
*004E64      2382       =004F68       4869           BNL   T4.005A            YES                                       MTD48690
004E66       2442                     4870           LIS   R4,2               SET IT TO THE MINIMUM                     MTD48700
004E68       0894                     4871  T4.005A  LR    R9,R4                                                        MTD48710
004E6A       2791                     4872           SIS   R9,1               ADJUST FOR SELCH ADDR                     MTD48720
004E6C       41F0 8084 =004EF4        4873           BAL   R15,SELVRD         SET UP FOR READ                           MTD48730
004E70       41E0 AEB6 =007D2A        4874           BAL   R14,REBUF          SET SELCH ADDRESSES                       MTD48740
004E74       41E0 ADE2 =007C5A        4875           BAL   R14,CREAD          ISSUE COMMAND                             MTD48750
004E78       B650 81CC =005048        4876           LA    R5,T4.E009         SELCH READ DECREMENTING RECORDS           MTD48760
004E7C       B600 8014 =004F94        4877           LA    R0,T4.005C         INTERRUPT ADDRESS                         MTD48770
004E80       4000 21E8                4878           STH   R0,DEVINT+2        SAVE INTO TABLE                           MTD48780
004E84       0804                     4879           LR    R0,R4              TIMVAL                                    MTD48790
004E86       28DF                     4880           AIS   R0,15              INCREASE SOME                  R01        MTD48800
004E88       41E0 AE0C =007C98        4881           BAL   R14,CGOREAD        COMMAND TO READ                           MTD48810
004E8C       41F0 162A                4882           BAL   R15,TIMER          ALLOW TIME                                MTD48820
004E90       4300 2E8C                4883           P     T1R10              TIMED OUT DURING SELCH *** READ           MTD48830
004E94       4040 B5B2 =00844A        4884  T4.005C  STH   R4,LENSAV                                                   MTD48840
004E98       41F0 AF6C =007E08        4885           BAL   R15,RESTORE        RESTORE R1,R2,PSW                         MTD48850
004E9C       41F0 AFD8 =007E78        4886           BAL   R15,SELCHK         CHECK SELCH STATUS                        MTD48860
004EA0       41F0 B05E =007F02        4887           BAL   R15,SELEND         CHECK SELCH ENDING ADDRESS                MTD48870
004EA4       41F0 B26A =008112        4888           BAL   R15,STATCHK        CHECK DRIVE STATUS                        MTD48880
004EA8       C430 0020                4889           NHI   R3,X'20'           END OF TAPE                               MTD48890
004EAC       4230 FC7C =004E2C        4890           BNZ   T4.NEXT                                                      MTD48900
004EB0       41F0 80AA =004F5E        4891           BAL   R15,T4.SCHK        CHECK LENGTH                              MTD48910
004EB4       05B4                     4892           CLR   R11,R4             FINISHED                                  MTD48920
004EB6       4220 B494 =00834E        4893           BP    PASS               NEXT MODULE                               MTD48930
004EBA       2741                     4894           SIS   R4,1               DECREASE LENGTH                           MTD48940
004EBC       4300 FFA8 =004F68        4895           B     T4.005A            CONTINUE                                  MTD48950
                                      4896  ********************************************************                     MTD48960
                                      4897  *                                                      *                     MTD48970
                                      4898  * HERE WE ARE TO SETUP VARIABLE LENGTH SELCH RECORDS  *                     MTD48980
                                      4899  *     R4 = ADDRESS OF PATTERN   R11 = BYTE COUNT       *                     MTD48990
                                      4900  *                                                      *                     MTD49000
                                      4901  ********************************************************                     MTD49010

                 0000 4EC0            4903  SELVWRT  EQU   *                                                            MTD49030
004EC0       D000 B5CC =008490        4904           STM   R0,REGSAVE         SAVE WORKING REGISTERS                    MTD49040
004EC4       E660 BB08 =0089D0        4905           LA    R6,WRTBUF          LOAD ADDRESS OF WRITE BUFFER              MTD49050
004EC8       5060 B608 =0084D4        4906           STA   R6,WBUF            STORE THE ADDRESS                         MTD49060
```

TEST 4

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 004ECC   2460                 4907          LIS   R6,0             LOAD TEST PATTERN              MTD49070
 004ECE   2470                 4908          LIS   R7,X'0'          ZERO OUT INDEX COUNTER         MTD49080
 004ED0   D267 BAFC =0089D0    4909 SELV.2   STB   R6,WRTBUF(R7)    STORE THIS PATTERN             MTD49090
 004ED4   2671                 4910          AIS   R7,1             INCREMENT WRITE BUFFER LLBAL   MTD49100
 004ED6   2661                 4911          AIS   R6,1             INCREMENT PATTERN              MTD49110
 004ED8   0579                 4912          CLAR  R7,R9            WRITE BUFFER FULL?             MTD49120
*004EDA   2225      =004ED0    4913          BNP   SELV.2           NO! STORE SOME MORE            MTD49130
 004EDC   E660 BAF0 =0089D0    4914          LA    R6,WRTBUF        LOAD BEGINNING ADDR AGAIN      MTD49140
 004EE0   0A69                 4915          AAR   R6,R9            CALCULATE ENDING ADDRESS       MTD49150
 004EE2   5060 B5F2 =0084D8    4916          STA   R6,ENDBUF        STORE IT                       MTD49160
 004EE6   4070 B560 =00844A    4917          STH   R7,LENSAV        STORE RECORD LENGTH TOO        MTD49170
 004EEA   D100 B5A2 =008490    4918          LM    R0,REGSAVE       RESTORE REGISTERS              MTD49180
 004EEE   41E0 ADAC =007C9E    4919          BAL   R14,CSTOP        PUT SELCH IN KNOW STATE        MTD49190
 004EF2   030F                 4920          BR    R15              RETURN TO CALLER               MTD49200
                               4921 ****************************************************           MTD49210
                               4922 *                                                  *           MTD49220
                               4923 *  WE COME HERE TO SET UP READ BUFFER FOR          *           MTD49230
                               4924 *  VARIABLE LENGTH RECORDS R11 = RECORD LENGTH     *           MTD49240
                               4925 *                                                  *           MTD49250
                               4925 ****************************************************           MTD49260

          0000 4EF4            4928 SELVRD   EQU   *                                                MTD49280
 004EF4   D000 B598 =008490    4929          STM   R0,REGSAVE       SAVE WORKING  REGISTERS        MTD49290
 004EF8   E610 4001 89D0       4930          LA    R1,READBUF       LOAD ADDRESS OF READ BUFFER    MTD49300
 004EFE   5010 B5DA =0084DC    4931          STA   R1,RDBUF         STORE IT                       MTD49310
 004F02   0A19                 4932          AAR   R1,R9            CALCULATE BUFFER SIZE          MTD49320
 004F04   5010 B5D0 =0084D8    4933          STA   R1,ENDBUF        STORE ENDING ADDRESS           MTD49330
 004F08   41F0 AF0C =007E18    4934          BAL   R15,CLRBUF       CLEAR OUT BUFFER               MTD49340
 004F0C   D100 B580 =008490    4935          LM    R0,REGSAVE       RESTORE REGISTERS              MTD49350
 004F10   030F                 4936          BR    R15              RETURN TO CALLER               MTD49360
                               4937 *                                                               MTD49370
                               4938 ****************************************************           MTD49380
                               4939 *                                                               MTD49390
          0000 4F12            4940 T4.CHK   EQU   *                                                MTD49400
 004F12   2470                 4941          LIS   R7,0             INITIALIZE BUFFER INDEX.       MTD49410
 004F14   2420                 4942          LIS   R2,0                                            MTD49420
 004F16   D367 4001 89D0       4943 T4.CHKA  LB    R6,READBUF(R7)                                  MTD49430
 004F1C   D384 4200 0000       4944          LB    R8,0(R4,R2)      EXPECTED DATA                  MTD49440
 004F22   0568                 4945          CLR   R6,R8            COMPARE THE TWO                MTD49450
*004F24   213D      =004F3F    4946          BNE   T4.ERR                                          MTD49460
 004F26   2671                 4947          AIS   R7,1                                            MTD49470
 004F28   C720 0001            4948          XHI   R2,1             TOGGLE R2                      MTD49480
 004F2C   4800 B4DE =00840E    4949          LH    R0,DECFLG        LOOK IF DECREMENTING RECS      MTD49490
*004F30   2133      =004F36    4950          BNZ   T4.CHKB                                         MTD49500
 004F32   057B                 4951          CLAR  R7,R11           INCREMENTING COMPARE           MTD49510
*004F34   2302      =004F38    4952          B     T4.CHKC                                         MTD49520
 004F36   057A                 4953 T4.CHKB  CLAR  R7,R10           DECREMENTING COMPARE           MTD49530
 004F38   4230 FFDA =004F16    4954 T4.CHKC  BNE   T4.CHKA                                         MTD49540
 004F3C   030F                 4955          BR    R15              BRANCH TO CALLER               MTD49550
                               4956 *                                                               MTD49560
 004F3E   4060 B5BA =0084FC    4957 T4.ERR   STH   R6,WSTORE                                       MTD49570
 004F42   4080 B5B8 =0084FE    4958          STH   R8,RSTORE                                       MTD49580
 004F46   4070 B4CA =008414    4959          STH   R7,INDEX                                        MTD49590
```

TEST 4

```
004F4A      41F0 2ABC              4960          BAL   R15,LENASC          CONVERT                                          MTD49600
004F4E      41E0 2CC4              4961          BAL   R14,T1ERRORA        DATA                                             MTD49610
004F52      E6F0 35E8              4962          LA    R15,MESS3.0                                                          MTD49620
004F56      E6E0 B63C =008596      4963          LA    R14,CONTMSG         SUSPECTED ERROR WITH CONTROLLER                  MTD49630
004F5A      4300 B36E =0082CC      4964          B     ERRORX                                                               MTD49640
                                   4965  *                                                                                  MTD49650
                                   4966  ***************************************************                              MTD49660
            0000 4F5E              4967  T4.SCHK EQU   *                                                                    MTD49670
004F5E      2470                   4968          LIS   R7,0                ZERO OUT POINTER                                 MTD49680
004F60      2430                   4969          LIS   R3,0                ZERO PATTERN                                     MTD49690
004F62      D367 4001 89D0         4970  T4.SCHKA LB   R6,READBUF(R7)      COMPARE DATA                                     MTD49700
004F68      C430 00FF              4971          NHI   R3,X'FF'            CLEAR UPPER HALF                                 MTD49710
004F6C      0536                   4972          CLR   R3,R6                                                                MTD49720
*004F6E     2136       =004F7A     4973          BNE   T4.SERR             BRANCH IF ERROR                                  MTD49730
004F70      2631                   4974          AIS   R3,1                INCREMENT PATTERN                                MTD49740
004F72      0579                   4975          CLAR  R7,R9               COMPARE LENGTH COUNT                             MTD49750
004F74      033F                   4976          BER   R15                 RETURN TO CALLER                                 MTD49760
004F76      2671                   4977          AIS   R7,1                INCREMENT POINTER                                MTD49770
004F78      220B       =004F62     4978          BS    T4.SCHKA            AND CONTINUE COMPARES                            MTD49780
                                   4979  *                                                                                  MTD49790
004F7A      4030 B57E =0084FC      4980  T4.SERR STH   R3,WSTORE           STORE DATA WRITTEN                               MTD49800
004F7E      4060 B57C =0084FE      4981          STH   R6,RSTORE           AND STORE IT TOO                                 MTD49810
004F82      4070 B48E =008414      4982          STH   R7,INDEX            BYTE LOCATION                                    MTD49820
004F86      41F0 2ABC              4983          BAL   R15,LENASC                                                           MTD49830
004F8A      41E0 2CC4              4984          BAL   R14,T1ERRORA        DATAS AND DRIVE                                  MTD49840
004F8E      E6F0 35E8              4985          LA    R15,MESS3.0                                                          MTD49850
004F92      E6E0 B622 =0085B8      4986          LA    R14,SELMSG          SUSPECTED ERROR WITH SELCH                       MTD49860
004F96      4300 B332 =0082CC      4987          B     ERRORX              OUTPUT MESSAGE                                   MTD49870
                                   4988  *                                                                                  MTD49880
004F9A      41F0 2836              4989  TST4.END BAL  R15,TST.DRIV        CHECK FOR OTHER DRIVES                           MTD49890
004F9E      4800 B468 =00840A      4990          LH    R0,DRIVSAV1         CHECK FLAG                                       MTD49900
004FA2      C300 000E              4991          THI   R0,X'E'             IS IT SET                                        MTD49910
004FA6      4330 133C              4992          BZ    TSTEND              NO, END TEST                                     MTD49920
004FAA      41F0 ADAA =007D58      4993          BAL   R15,IT.B1           INIT TEST FOR OTHER DRIVE                        MTD49930
004FAE      4300 FA7A =004A2C      4994          B     TST4.2              BEGIN TEST 4                                     MTD49940

004FB2      5345 4C43 4820 5245    4996  T4.E004 DC    C'SELCH READ INCREMENTING RECORDS',X'0D0A'                         MTD49960
004FBA      4144 2049 4E43 5245
004FC2      4D45 4E54 494E 4720
004FCA      5245 434F 5244 5320
004FD2      0D0A
004FD4      494E 4352 454D 454E    4997  T4.E005 DC    C'INCREMENTING RECORDS..',X'0D0A'                                  MTD49970
004FDC      5449 4E47 2052 4543
004FE4      4F52 4453 2E2E
004FEA      0D0A
004FEC      5345 4C43 4820 5752    4998  T4.E002 DC    C'SELCH WRITE DECREMENTING RECORDS',X'0D0A'                        MTD49980
004FF4      4954 4520 4445 4352
004FFC      454D 454E 5449 4E47
005004      2052 4543 4F52 4453
00500C      0D0A
00500E      4445 4352 454D 454E    4999  T4.E006 DC    C'DECREMENTING RECORDS..',X'0D0A'                                  MTD49990
005016      5449 4E47 2052 4543
00501E      4F52 4453 2E2F
```

TEST 4

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005024        0D0A
005026        5345 4C43 4820 5752       5000  T4.E008  DC    C'SELCH WRITE INCREMENTING RECORDS',X'0D0A'                MTD50000
00502E        4954 4520 494E 4352
005036        454D 454E 5449 4E47
00503E        2052 4543 4F52 4453
005046        0D0A
005048        5345 4C43 4820 5245       5001  T4.E009  DC    C'SELCH READ DECREMENTING RECORDS',X'0D0A'                 MTD50010
005050        4144 2044 4543 5245
005058        4D45 4E54 494E 4720
005060        5245 434F 5244 5320
005068        0D0A
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                             ****************************************************           MTD50030
                             *        TEST 5   SKIP FUNCTIONS                      *           MTD50040
                             *                                                     *           MTD50050
                             *                                                     *           MTD50060
                             * PURPOSE: TO CHECK OUT THE DRIVES ABILITY TO POSITION*           MTD50070
                             * TAPE AND THE FORMATTERS ABILITY TO RECOGNIZE        *           MTD50080
                             * 'EOF' AND 'IBG'.                                    *           MTD50090
                             *                                                     *           MTD50100
                             * TEST SPEC: THE TEST OUTPUTS TWO FILES, EACH WITH TWO*           MTD50110
                             * RECORDS OF DIFFERENT DATA PATTERNS. THE TEST        *           MTD50120
                             * THEN REWINDS THE TAPE AND STARTS ISSUING THE        *           MTD50130
                             * FOLLOWING COMMANDS:                                 *           MTD50140
                             * SKIP FORWARD BLOCK                                  *           MTD50150
                             * SKIP FORWARD FILE                                   *           MTD50160
                             * SKIP BACKWARD BLOCK                                 *           MTD50170
                             * SKIP BACKWARD FILE                                  *           MTD50180
                             * CHECKING THE DATA AND STATUS BYTE FOR CORRECT       *           MTD50190
                             * POSITIONING.                                        *           MTD50200
                             *                                                     *           MTD50210
                             * ERRORS:                                             *           MTD50220
                             *                                                     *           MTD50230
                             * OPTIONS:                                            *           MTD50240
                             * DRIVE, TRMODE, SELCH, AND BYTES.                    *           MTD50250
                             *                                                     *           MTD50260
                             ****************************************************           MTD50270


        0000 506A            TEST5    EQU   *                                                  MTD50290
00506A  41F0 ACDC =007D4A             BAL   R15,TESTINIT       INIT TESTING                    MTD50300
00506E  41F0 9F46 =006FB8             BAL   R15,SEL.5          CHECK ONLINE OPTION             MTD50310
                             *                                                                 MTD50320
                             * HERE WE SETUP TAPE FOR CHECKOUTS                                MTD50330
                             *                                                                 MTD50340
005072  41F0 B316 =00838C    TST5.1   BAL   R15,LOOPTOP                                        MTD50350
005078  0000 53B0                     DAC   TST5.END                                           MTD50360
00507C  0000 53B0                     DAC   TST5.END           PROCEED LIMIT                   MTD50370
005080  41E0 AC1A =007C9E             BAL   R14,CSTOP          STOP SELCH                      MTD50380
005084  41E0 AC16 =007C9E             BAL   R14,CSTOP          STOP SELCH                      MTD50390
005088  41F0 B046 =0080D2             BAL   R15,REWMT          REWIND TAPE IF NEEDED           MTD50400
00508C  41F0 B014 =0080A4             BAL   R15,WRTENB         CHECK FOR WRITES ENABLED        MTD50410
005090  41E0 AB3E =007BD2             BAL   R14,CDENS          OUTPUT DENSITY COMMAND          MTD50420
005094  7330 2124                     LHL   R3,TRMODE+$VALU1   WHAT IS THE TRANSFER MODE?      MTD50430
005098  4230 8268 =005304             BNZ   TST5.5             BRANCH IF SELCH                 MTD50440
                             *                                                                 MTD50450
                             * OTHERWISE SETUP THRU DATA WRITES                                MTD50460
                             *                                                                 MTD50470
00509C  7360 200C                     LHL   R6,BYTES+$VALU1    LOAD RECORD COUNT               MTD50480
0050A0  2761                          SIS   R6,1               ADJUST FOR ADDRESSES            MTD50490
0050A2  0856                          LDAR  R5,R6              LOAD REC LENGTH INTO WORK REG   MTD50500
0050A4  4840 B382 =00842A             LH    R4,TESTPAT+4       LOAD TEST PATTERN               MTD50510
```

TEST 5

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0050A8       41F0 B1E2 =00828E        5052            BAL   R15,DWRITE          WRITE RECORD 1 (OF FILE 1)              MTD50520
0050AC       0856                     5053            LDAR  R5,R6               RELOAD LENGTH OF REC.                   MTD50530
0050AE       4840 B37C =00842E        5054            LH    R4,TESTPAT+8        LOAD ANOTHER TEST PATTERN               MTD50540
0050B2       41F0 B1D8 =00828F        5055            BAL   R15,DWRITE          WRITE RECORD 2 (OF FILE 1)              MTD50550
0050B6       41E0 ABB2 =007C6C        5056            BAL   R14,CWREOF          WRITE FILE MARK 1                       MTD50560
0050BA       4840 B372 =008430        5057            LH    R4,TESTPAT+10       LOAD DIFFERENT PATTERN                  MTD50570
0050BE       0856                     5058            LDAR  R5,R6               RELOAD REC LENGTH                       MTD50580
0050C0       41F0 B1CA =00828E        5059            BAL   R15,DWRITE          WRITE RECORD 1 (OF FILE 2)              MTD50590
0050C4       4840 B35E =008426        5060            LH    R4,TESTPAT          LOAD LAST PATTERN                       MTD50600
0050C8       0856                     5061            LDAR  R5,R6               LOAD AGAIN REC LENGTH                   MTD50610
0050CA       41F0 B1C0 =00828F        5062            BAL   R15,DWRITE          WRITE RECORD 2 (OF FILE 2)              MTD50620
0050CE       41E0 AB9A =007C6C        5063            BAL   R14,CWREOF          WRITE FILE MARK 2                       MTD50630
0050D2       41E0 AB06 =007BDC        5064            BAL   R14,SENSTA          TAKE A STATUS CHECK                     MTD50640
0050D6       C430 0020                5065            NHI   R3,X'20'             AND ZERO IN ON EOT                      MTD50650
*0050DA      2333       =0050E0       5066            BZ    T5.1B               IF ZERO CONTINUE ON                     MTD50660
0050DC       41F0 AFF2 =0080D2        5067            BAL   R15,REWMT           OTHERWISE REWIND M.T.                   MTD50670
0050E0       41F0 B02E =008112        5068  T5.1B     BAL   R15,STATCHK         CHECK FOR ERRORS                        MTD50680
0050E4       41F0 AFEA =0080D2        5069  T5.1A     BAL   R15,REWMT           REWIND MAG TAPE                         MTD50690
                                      5070  *                                                                           MTD50700
                                      5071  * LET'S CHECK FORWARD SPACE RECORD COMMAND                                   MTD50710
                                      5072  *                                                                           MTD50720
0050E8       41E0 AB7A =007C66        5073            BAL   R14,CSKFB           COMMAND SKIP FORWARD BLOCK              MTD50730
0050EC       41F0 8134 =005224        5074            BAL   R15,T5.CHK1         CHECK OUT BLOCK STATUS                  MTD50740
0050F0       41E0 AB66 =007C5A        5075            BAL   R14,CREAD           OUTPUT A READ COMMAND                   MTD50750
0050F4       41E0 AB2A =007C22        5076            BAL   R14,SENSTA3         WAIT FOR BUSY TO DROP                   MTD50760
0050F8       9913                     5077            RHR   R1,R3               AND READ A BYTE OF DATA                 MTD50770
0050FA       4530 B330 =00842E        5078            CLH   R3,TESTPAT+8        COMPARE DATA FOR 2ND RECORD(33)         MTD50780
0050FE       4330 80C4 =0051C6        5079            BE    T5.2F               CONTINUE IF GOOD                        MTD50790
005102       4030 B3F8 =0084FE        5080            STH   R3,RSTORE           STORE BAD DATA                          MTD50800
005106       4800 B324 =00842E        5081            LH    R0,TESTPAT+8        LOAD TEST DATA                          MTD50810
00510A       4000 B3EE =0084FC        5082            STH   R0,WSTORE           AND STORE FOR ERROR                     MTD50820
00510E       2402                     5083            LIS   R0,2                RECORD NUMBER2                          MTD50830
005110       4000 B2FE =008412        5084            STH   R0,RECFLG2          EXPECTED RECORD                         MTD50840
005114       41E0 AAC4 =007BDC        5085            BAL   R14,SENSTA          GET STATUS                              MTD50850
005118       C330 0020                5086            THI   R3,X'20'            SITUATED AT BOT#                        MTD50860
*00511C      2334       =005124       5087            BZ    T5R02                                                       MTD50870
00511E       E650 82A6 =0053C8        5088            LA    R5,T5.E000          NO SKIP FORWARD RECORD OCCURRED          MTD50880
*005122      2303       =005128       5089            B     T5R02.1                                                     MTD50890
005124       E650 82DE =005406        5090  T5R02     LA    R5,T5.E000A         SKIP FORWARD REC, POSITON ON WRONG      MTD50900
                                      5091  *                                 POSITIONED ON WRONG RECORD              MTD50910
005128       41E0 800C =005138        5092  T5R02.1   BAL   R14,T5ERRORA        RECORDS, AND DATA                       MTD50920
00512C       E6F0 8448 =005578        5093            LA    R15,T5ERMSG0                                                MTD50930
005130       E6E0 B462 =008596        5094            LA    R14,CONTMSG         SUSPECTED ERROR WITH CONTROLLER         MTD50940
005134       4300 B194 =0082CC        5095            B     ERRORX                                                      MTD50950
                                      5096  *                                                                           MTD50960
005138       D000 B854 =008990        5097  T5ERRORA  STM   R0,ERRSAVE         SAVE REGISTERS                          MTD50970
00513C       41F0 B22E =00836E        5098            BAL   R15,LOOP2           OUTPUT DESCRIPTION MSG                  MTD50980
005140       41E0 804A =00518E        5099            BAL   R14,RECNUM          DETERMINE EXPECTED RECORD               MTD50990
005144       41F0 B226 =00836E        5100            BAL   R15,LOOP2           OUTPUT PENDING MESSAGES                 MTD51000
005148       2403                     5101            LIS   R0,3                3DIGITS                                 MTD51010
00514A       4810 B2BA =008408        5102            LH    R1,DRIVSAV          DRIVE ADDRESS                           MTD51020
00514E       E620 842C =00557E        5103            LA    R2,T5ERMSG0+6                                               MTD51030
005152       41F0 1680                5104            BAL   R15,HEXASC                                                  MTD51040
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TEST 5

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 005156     2404             5105          LIS   R0,4               DIGITS TO CONVERT                MTD51050
 005158     4810 B2B6 =008412 5106         LH    R1,RECFLG2         EXPECTED RECORD                  MTD51060
 00515C     E620 8434 =005594 5107         LA    R2,T5ERMSG1+16                                      MTD51070
 005160     41F0 1680        5108          BAL   R15,HEXASC                                          MTD51080
 005164     4810 B2A8 =008410 5109         LH    R1,RECFLG1                                          MTD51090
 005168     E620 843E =0055AA 5110         LA    R2,T5ERMSG2+16     ACTUAL RECORD                    MTD51100
 00516C     41F0 1680        5111          BAL   R15,HEXASC                                          MTD51110
 005170     4810 B388 =0084FC 5112         LH    R1,WSTORE          DATA WRITTEN                     MTD51120
 005174     E620 8445 =0055BD 5113         LA    R2,T5ERMSG3+13                                      MTD51130
 005178     41F0 1680        5114          BAL   R15,HEXASC                                          MTD51140
 00517C     4810 B37E =0084FE 5115         LH    R1,RSTORE                                           MTD51150
 005180     E620 844D =0055D1 5116         LA    R2,T5ERMSG4+13                                      MTD51160
 005184     41F0 1680        5117          BAL   R15,HEXASC                                          MTD51170
 005188     D100 B804 =008990 5118         LM    R0,ERRSAVE                                          MTD51180
 00518C     030E             5119          BR    R14                                                 MTD51190
                             5120   *                                                                MTD51200
 00518E     4830 B36C =0084FE 5121  RECNUM LH    R3,RSTORE                                           MTD51210
 005192     4530 B294 =00842A 5122         CLH   R3,TESTPAT+4       RECORD 1?                        MTD51220
*005196     233E      =0051B2 5123         BE    REC1               YES                              MTD51230
 005198     4530 B292 =00842E 5124         CLH   R3,TESTPAT+8       RECORD 2?                        MTD51240
*00519C     233D      =0051B6 5125         BE    REC2               YES                              MTD51250
 00519E     4530 B28E =008430 5126         CLH   R3,TESTPAT+10      RECORD 3?                        MTD51260
*0051A2     233C      =0051BA 5127         BE    REC3                                                MTD51270
 0051A4     4530 B27E =008426 5128         CLH   R3,TESTPAT         RECORD 4?                        MTD51280
*0051A8     213B      =0051BE 5129         BNE   REC5               TAPE IS OUT OF LIMITS            MTD51290
 0051AA     2404             5130          LIS   R0,4               RECORD4                          MTD51300
 0051AC     4000 B260 =008410 5131  RECOUT STH   R0,RECFLG1                                          MTD51310
 0051B0     030E             5132          BR    R14                RETURN                           MTD51320
 0051B2     2401             5133   REC1   LIS   R0,1               RECORD 1.                        MTD51330
 0051B4     2204      =0051AC 5134         BS    RECOUT                                              MTD51340
 0051B6     2402             5135   REC2   LIS   R0,2               RECORD 2.                        MTD51350
 0051B8     2206      =0051AC 5136         BS    RECOUT                                              MTD51360
 0051BA     2403             5137   REC3   LIS   R0,3               RECORD 3.                        MTD51370
*0051BC     2208      =0051AC 5138         B     RECOUT                                              MTD51380
 0051BE     E650 8392 =005554 5139  REC5   LA    R5,T5.E007         TAPE IS OUT OF SPECIFIED RECORDS MTD51390
 0051C2     2405             5140          LIS   R0,5                                                MTD51400
*0051C4     220C      =0051AC 5141         B     RECOUT                                              MTD51410
                             5142   * LET'S CHECK FORWARD SPACE FILE MARK                            MTD51420
                             5143   *                                                                MTD51430
 0051C6     41E0 A9D0 =007B9A 5144  T5.2F  BAL   R14,CCLEAR         CLEAR INTERFACE                  MTD51440
 0051CA     41F0 AF04 =0080D2 5145         BAL   R15,REWMT          WAIT FOR IT                      MTD51450
 0051CE     41E0 AA82 =007C54 5146         BAL   R14,CSKFF          SKIP FORWARD A FILE              MTD51460
 0051D2     C330 0002        5147          THI   R3,X'02'           IS EOF SET?                      MTD51470
 0051D6     4230 802A =005204 5148         BNZ   T5.2E              YES! CONTINUE ON                 MTD51480
 0051DA     2402             5149          LIS   R0,2               EXPECTED STATUS                  MTD51490
 0051DC     4000 B1E8 =0083C8 5150         STH   R0,STATGD                                           MTD51500
 0051E0     41E0 A9F8 =007BDC 5151         BAL   R14,SENSTA                                          MTD51510
 0051E4     C330 0020        5152          THI   R3,X'20'                                            MTD51520
*0051E8     2134      =0051F0 5153         BNZ   T5R01                                               MTD51530
 0051EA     E650 8284 =005472 5154         LA    R5,T5.E001A        SKIP FORW REC, POSTION WRONG     MTD51540
*0051EE     2303      =0051F4 5155         B     T5R01.5                                             MTD51550
 0051F0     E650 8244 =005438 5156  T5R01  LA    R5,T5.E001         NO SKIP FORWARD FILE OCCURRED    MTD51560
                             5157   *                           POSITIONED ON WRONG FILE             MTD51570
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TEST 5

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0051F4   41E0 8B50 =005D48   5158  T5R01.5  BAL   R14,T7ERROPA        DRIVE AND STATUS                          MTD51580
0051F8   E6F0 9686 =006882   5159           LA    R15,T7ERMSG1                                                  MTD51590
0051FC   E6E0 B396 =008596   5160           LA    R14,CONTMSG         SUSPECTED ERROR WITH CONT                 MTD51600
005200   4300 B0C8 =0082CC   5161           B     ERRORX                                                        MTD51610
                             5162  *                                                                           MTD51620
005204   41F0 AA52 =007C5A   5163  T5.2E    BAL   R14,CREAD           LET'S READ A HW TO CHECK                  MTD51630
005208   41E0 AA16 =007C22   5164           BAL   R14,SENSTA3         WAIT FOR BUSY                             MTD51640
00520C   7350 B220 =008430   5165           LHL   R5,TESTPAT+10       LOAD THIRD PATTERN(A5)                    MTD51650
005210   4050 B2E8 =0084FC   5166           STH   R5,WSTORE           STORE TEST PATTERN FOR USE                MTD51660
005214   9913                5167           RHR   R1,R3               READ IN A HALFWORD                        MTD51670
005216   4030 B2E4 =0084FE   5168           STH   R3,RSTORE           STORE FOR ERROR(?)                        MTD51680
00521A   0535                5169           CLR   R3,R5               COMPARE DATA FOR 3RD RECORD               MTD51690
00521C   4330 8028 =005248   5170           BE    T5.3A                                                         MTD51700
005220   4300 FFCC =0051F0   5171           B     T5R01               IF NOT EQUAL OUTPUT ERROR                 MTD51710
                             5172  *                                                                           MTD51720
                             5173  *                                                                           MTD51730
                             5174  * THIS ROUTINE CHECKS THAT BLOCK STATUS SETS                                MTD51740
                             5175  * WHEN THE TAPE IS POSITIONED ON AN IRG                                     MTD51750
                             5176  *                                                                           MTD51760

         0000 5224           5178  T5.CHK1  EQU   *                                                           MTD51780
005224   41E0 AA96 =007CBE   5179           BAL   R14,CNOP3           HALFWORD STATUS =3                        MTD51790
005228   41E0 AAC6 =007CF2   5180           BAL   R14,REDE            READ AND STORE HALWORD                    MTD51800
00522C   243B                5181           LIS   R3,X'B'             LOAD OFFSET FOR TEST                      MTD51810
00522E   7430 B216 =008448   5182           TBT   R3,SNSHW            TEST FOR BLOCK FLAG                       MTD51820
005232   023F                5183           BNZR  R15                 BRANCH BACK TO CALLER IF SET              MTD51830
005234   E650 8306 =00553E   5184           LA    R5,T5.E006          NO IRG WAS WRITTEN                        MTD51840
005238   41E0 3BCE           5185           BAL   R14,T2ERRORA        DRIVE AND STATUS HALFWORD                 MTD51850
00523C   E6F0 F150 =004390   5186           LA    R15,T2ERMSG0                                                  MTD51860
005240   E6E0 B352 =008596   5187           LA    R14,CONTMSG         SUSPECTED ERROR WITH CONTROLLER           MTD51870
005244   4300 B084 =0082CC   5188           B     ERRORX              ERROR MESSAGE OUTPUT                      MTD51880
                             5189  *                                                                           MTD51890
                             5190  * HERE WE ARE GOING TO SET UP FOR BACKSPACE OPERATION                       MTD51900
                             5191  *                                                                           MTD51910
005248   41E0 A94E =007B9A   5192  T5.3A    BAL   R14,CCLEAR          CLEAR INTERFACE                           MTD51920
00524C   41F0 AE82 =0080D2   5193           BAL   R15,REWMT           REWIND MAG TAPE AND WAIT                  MTD51930
005250   41E0 AA00 =007C54   5194           BAL   R14,CSKFF           SKIP FORWARD A FILE                       MTD51940
005254   41E0 A9FC =007C54   5195           BAL   R14,CSKFF           AND ANOTHER SKIP                          MTD51950
                             5196  *                                                                           MTD51960
                             5197  * LET'S CHECK BACKSPACE A FILE                                             MTD51970
                             5198  *                                                                           MTD51980
005258   41E0 AA18 =007C74   5199           BAL   R14,CSKBF           SKIP BACKWARDS A FILE                     MTD51990
00525C   41E0 AA14 =007C74   5200           BAL   R14,CSKBF           OUTPUT ANOTHER COMMAND                    MTD52000
005260   41E0 AA02 =007C66   5201           BAL   R14,CSKFB           LET'S POSITION THE TAPE                   MTD52010
005264   41F0 A9F2 =007C5A   5202           BAL   R14,CREAD           OUTPUT READ COMMAND                       MTD52020
005268   41E0 A9B6 =007C22   5203           BAL   R14,SENSTA3         WAIT FOR DATA TO FILTER                   MTD52030
00526C   9913                5204           RHR   R1,R3               DATA THAT IS WRITTEN ON TAPE              MTD52040
00526E   7350 B1BE =008430   5205           LHL   R5,TESTPAT+10       EXPECTED DATA                             MTD52050
005272   0535                5206           CLR   R3,R5               COMPARE DATA                              MTD52060
*005274  233C       =00528C  5207           BE    T5.3E               AND IF EQUAL BRANCH ON                    MTD52070
005276   4030 B284 =0084FE   5208           STH   R3,RSTORE           OTHERWISE STORE DATA                      MTD52080
00527A   4050 B27E =0084FC   5209           STH   R5,WSTORE           AND STORE IT FOR POS. ERROR               MTD52090
00527E   E650 8220 =0054A2   5210           LA    R5,T5.E002          NO SKIP BACKWARD FILE OCCURRED            MTD52100
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TEST 5

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                                *                               POSITIONED ON WRONG RECORD         MTD52110
 005282   2403                            LIS    R0,3                                              MTD52120
 005284   4000 B18A =008412               STH    R0,RECFLG2      EXPECTED REC 2                    MTD52130
                                *                                                                  MTD52140
 005288   4300 FE9C =005128               B      T5R02.1                                           MTD52150
                                * LET'S CHECK OUT BACKSPACE A RECORD                               MTD52160
                                *                                                                  MTD52170
 00528C   41E0 A90A =007E9A     T5.3E     BAL    R14,CCLEAR      CLEAR TO ENABLE NMTN              MTD52180
 005290   41E0 A9E6 =007C7A               BAL    R14,CSKBB       SKIP BACKWARDS A BLOCK            MTD52190
 005294   41E0 A9E2 =007C7A               BAL    R14,CSKBB       POSITION TAPE AGAIN               MTD52200
 005298   41E0 A9DE =007C7A               BAL    R14,CSKBB       BACKSPACE ONE MORE TIME           MTD52210
 00529C   41F0 AE72 =008112               BAL    R15,STATCHK     CHECK FOR ERRORS                  MTD52220
 0052A0   41F0 FF80 =005224               BAL    R15,T5.CHK1     CHECK BLOCK STATUS                MTD52230
 0052A4   41E0 A9B2 =007C5A               BAL    R14,CREAD       LET'S READ AGAIN                  MTD52240
 0052A8   41E0 A976 =007C22               BAL    R14,SENSTA3     WAIT FOR DATA TO                  MTD52250
 0052AC   9913                            RHR    R1,R3           READ IT                           MTD52260
 0052AE   7350 B17C =00842E               LHL    R5,TESTPAT+8    EXPECTED DATA                     MTD52270
 0052B2   0535                            CLR    R3,R5           COMPARE DATA AND                  MTD52280
*0052B4   233C      =0052CC               BE     T5.4            IF EQUAL NEXT SEQUENCE            MTD52290
 0052B6   4030 B244 =0084FE               STH    R3,RSTORE       IF NOT STORE THE DATA             MTD52300
 0052BA   4050 B23E =0084FC               STH    R5,WSTORE       AND STORE                         MTD52310
                                *                                                                  MTD52320
 0052BE   E650 8210 =0054D2               LA     R5,T5.E003      NO SKIP BACKWARD RECORD OCCURRED  MTD52330
 0052C2   2402                            LIS    R0,2                                              MTD52340
 0052C4   4000 B14A =008412               STH    R0,RECFLG2      EXPECTED RECORD 2                 MTD52350
 0052C8   4300 FE5C =005128               B      T5R02.1                                           MTD52360
                                * LET'S COMPLICATE THINGS A BIT                                    MTD52370
                                *                                                                  MTD52380
 0052CC   41E0 A984 =007C54     T5.4      BAL    R14,CSKFF       SKIP FORWARD A FILE               MTD52390
 0052D0   41E0 A980 =007C54               BAL    R14,CSKFF       SKIP FORWARD ANOTHER FILE         MTD52400
 0052D4   41E0 A9A2 =007C7A               BAL    R14,CSKBB       SKIP BACKWARDS A RECORD           MTD52410
 0052D8   41E0 A998 =007C74               BAL    R14,CSKBF       SKIP BACKWARDS A FILE             MTD52420
 0052DC   41E0 A994 =007C74               BAL    R14,CSKBF       SKIP BACKWARDS ANOTHER FILE       MTD52430
 0052E0   C430 0020                       NHI    R3,X'20'        LET'S CHECK TO SEE IF WE          MTD52440
 0052E4   4230 B066 =00834E               BNZ    PASS            ARE AT BOT AND IF SO END TEST     MTD52450
 0052E8   E650 821A =005506               LA     R5,T5.E004      NO 'BOT' FOUND AFTER BACKWARD COMMAND MTD52460
 0052EC   C800 0020                       LHI    R0,X'20'        EXPECTED BOT STATUS               MTD52470
 0052F0   4000 B0D4 =0083C8               STH    R0,STATGD                                         MTD52480
 0052F4   41E0 28AE                       BAL    R14,TOERRORB    DRIVE AND STATUS                  MTD52490
 0052F8   E6F0 2A4C                       LA     R15,MESSAGE1                                      MTD52500
 0052FC   E6E0 B296 =008596               LA     R14,CONTMSG     SUSPECTED ERROR WITH CONTROLLER   MTD52510
 005300   4300 AFC8 =0082CC               B      ERRORX                                            MTD52520
                                * COME HERE FOR A SELCH SETUP                                      MTD52530
                                *                                                                  MTD52540
 005304   7330 2108             TST5.5    LHL    R3,SELCH+$VALU1 LOAD SELCH ADDRESS                MTD52550
*005308   2137      =005316               BNZ    T5.S000         CONTINUE IF ADDRESSED             MTD52560
 00530A   E650 B2C6 =0085D4               LA     R5,NOSELCH                                        MTD52570
 00530E   41F0 B05C =00836E               BAL    R15,LOOP2       OTHERWISE OUTPUT MSG.            *MTD52580
 005312   4300 1358                       B      ABORT           AND ABORT TESTING                 MTD52590
                                *                                                                  MTD52600
 005316   E640 B110 =00842A     T5.S000   LA     R4,TESTPAT+4    LOAD DATA PATTERN                 MTD52610
 00531A   41E0 8028 =005346               BAL    R14,T5.SWRT     GO AND WRITE A RECORD             MTD52620
 00531E   E640 B10C =00842E               LA     R4,TESTPAT+8    LOAD 2ND PATTERN                  MTD52630
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TEST 5

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005322       41E0 8020 =005346      5264             BAL   R14,T5.SWRT       OUTPUT RECORD                          MTD52640
005326       41E0 A942 =007C6C      5265             BAL   R14,CWREOF        WRITE AN END OF FILE     ##            MTD52650
00532A       E640 B102 =008430      5266             LA    R4,TESTPAT+10     LOAD 3RD PATTERN                       MTD52660
00532E       41E0 8014 =005346      5267             BAL   R14,T5.SWRT       OUTPUT RECORD                          MTD52670
005332       E640 B0F0 =008426      5268             LA    R4,TESTPAT        LOAD LAST PATTERN                      MTD52680
005336       41E0 800C =005346      5269             BAL   R14,T5.SWRT       OUTPUT LAST RECORD                     MTD52690
00533A       41E0 A92E =007C6C      5270             BAL   R14,CWREOF        OUTPUT END OF FILE                     MTD52700
00533E       41F0 ADD0 =008112      5271             BAL   R15,STATCHK       CHECK INTERFACE STATUS                 MTD52710
005342       4300 FD9E =0050E4      5272             B     T5.1A             GO AND CHECK SKIP FUNCTIONS            MTD52720
                                    5273  *                                                                       MTD52730
             0000 5346              5274  T5.SWRT    EQU   *                                                       MTD52740
005346       40F0 B556 =0088A0      5275             STH   R14,SR15SAV       SAVE R14                               MTD52750
00534A       41F0 AAEA =007F38      5276             BAL   R15,SELSETW       GO AND SET UP SELCH                    MTD52760
00534E       41E0 A848 =007B9A      5277             BAL   R14,CCLEAR        INITIALIZE INTERFACE                   MTD52770
005352       41E0 A87C =007BD2      5278             BAL   R14,CDENS         OUTPUT DENSITY COMMAND                 MTD52780
005356       41E0 A9A0 =007CFA      5279             BAL   R14,WRBUF         LOAD WRITE ADDRESSES                   MTD52790
00535A       73A0 200C              5280             LHL   R10,BYTES+SVALU1                                       MTD52800
00535E       C3A0 0001              5281             THI   R10,X'0001'       IS IT ODD VALUE?                       MTD52810
*005362      2333       =005368     5282             BZ    T5.SW1            NO                                     MTD52820
005364       41E0 A980 =007CE8      5283             BAL   R14,CWRODBY       ISSUE ODD BYTE COMMAND                 MTD52830
005368       41E0 A914 =007C80      5284  T5.SW1     BAL   R14,CWRITE        PUT INTERFACE IN WRITE MODE            MTD52840
00536C       41F0 AAA0 =007F10      5285             BAL   R15,RESTORE1                                            MTD52850
005370       E650 81B4 =005528      5286             LA    R5,T5.E005        SKIP COMMANDS...                       MTD52860
005374       E600 8014 =00538C      5287             LA    R0,T5.5B1         INTERRUPT ADDRESS                      MTD52870
005378       4000 21E8              5288             STH   R0,DEVINT+2                                             MTD52880
00537C       080A                   5289             LR    R0,R10            TIMVAL                               MTD52890
00537E       260F                   5290             AIS   R0,15             INCREASE SLIGHTLY              R01   MTD52900
005380       41E0 A902 =007C86      5291             BAL   R14,CGO           GIVE SELCH THE GO                      MTD52910
005384       41F0 162A              5292             BAL   R15,TIMER          WAIT FOR SELCH INTERRUPT               MTD52920
005388       4300 2F06              5293             B     T1R09             TIMED OUT DURING SELCH *** WRITE       MTD52930
00538C       41F0 AA78 =007F08      5294  T5.5B1     BAL   R15,RESTORE       RESTORE R1,R2,PSW                      MTD52940
005390       41E0 A8B8 =007C4C      5295             BAL   R14,SENSTA2        GET SELCH STATUS                       MTD52950
005394       C430 0020              5296             NHI   R3,X'20'          ZERO IN ON EOT                         MTD52960
*005398      2333       =00539E     5297             BZ    T5.5C             BYPASS IF NOT SET                      MTD52970
00539A       41F0 AD34 =0080D2      5298             BAL   R15,REWMT         OTHERWISE REWIND TAPE                  MTD52980
00539E       41F0 AAD6 =007F78      5299  T5.5C      BAL   R15,SELCHK        CHECK ENDING STATUS                    MTD52990
0053A2       41F0 AB5C =007F02      5300             BAL   R15,SELEND        CHECK ENDING ADDRESS                   MTD53000
0053A6       41E0 A83A =007BE4      5301             BAL   R14,SENSTA1        MAKE SURE TAPE                         MTD53010
0053AA       48E0 B4F2 =0088A0      5302             LH    R14,SR15SAV       RESTORE R14                            MTD53020
0053AE       030E                   5303             BR    R14               RETURN TO CALLER                       MTD53030
                                    5304  *                                                                       MTD53040
                                    5305  *                                                                       MTD53050
0053B0       41F0 2836              5306  TST5.END   BAL   R15,TST.DRIV       CHECK FOR OTHER DRIVES                 MTD53060
0053B4       4800 B052 =00840A      5307             LH    R0,DRIVSAV1       CHECK FLAG                             MTD53070
0053B8       C300 000E              5308             THI   R0,X'E'           IS IT SET                              MTD53080
0053BC       4330 133C              5309             BZ    TSTEND            NO, END TEST                           MTD53090
0053C0       41F0 A994 =007D58      5310             BAL   R15,IT.B1         INIT TEST FOR OTHER DRIVES             MTD53100
0053C4       4300 FCAA =005072      5311             B     TST5.1            TEST 5                                 MTD53110
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TEST 5

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0053C6      4E4F 2053 4B49 5020      5313  T5.E000   DC    C'NO SKIP FORWARD RECORD OCCURRED',X'8D0A'      MTD53130
0053D0      464F 5257 4152 4420
0053D8      5245 434F 5244 204F
0053E0      4343 5552 5245 4420
0053E8      8D0A
0053EA      504F 5349 5449 4F4E      5314            DC    C'POSITIONED ON WRONG RECORD',X'0D0A'           MTD53140
0053F2      4544 204F 4E20 5752
0053FA      4F4E 4720 5245 434F
005402      5244
005404      0D0A
005406      534B 4950 2046 4F52      5315  T5.E000A  DC    C'SKIP FORWARD RECORD',X'8D0A'                  MTD53150
00540E      5741 5244 2052 4543
005416      4F52 4420
00541A      8D0A
00541C      504F 5349 5449 4F4E      5316            DC    C'POSITIONED ON WRONG RECORD',X'0D0A'           MTD53160
005424      4544 204F 4E20 5752
00542C      4F4E 4720 5245 434F
005434      5244
005436      0D0A
005438      4E4F 2053 4B49 5020      5317  T5.E001   DC    C'NO SKIP FORWARD FILE OCCURRED',X'8D0A'        MTD53170
005440      464F 5257 4152 4420
005448      4649 4C45 204F 4343
005450      5552 5245 4420
005456      8D0A
005458      504F 5349 5449 4F4E      5318            DC    C'POSITIONED ON WRONG FILE',X'0D0A'             MTD53180
005460      4544 204F 4E20 5752
005468      4F4E 4720 4649 4C45
005470      0D0A
005472      534B 4950 2046 4F52      5319  T5.E001A  DC    C'SKIP FORWARD FILE',X'8D0A'                    MTD53190
00547A      5741 5244 2046 494C
005482      4520
005484      8D0A
005486      504F 5349 5449 4F4E      5320            DC    C'POSITIONED ON WRONG RECORD',X'0D0A'           MTD53200
00548E      4544 204F 4E20 5752
005496      4F4E 4720 5245 434F
00549E      5244
0054A0      0D0A
0054A2      534B 4950 2042 4143      5321  T5.E002   DC    C'SKIP BACKWARD FILE',X'8D0A'                   MTD53210
0054AA      4B57 4152 4420 4649
0054B2      4C45
0054B4      8D0A
0054B6      504F 5349 5449 4F4E      5322            DC    C'POSITIONED ON WRONG RECORD',X'0D0A'           MTD53220
0054BE      4544 204F 4E20 5752
0054C6      4F4E 4720 5245 434F
0054CE      5244
0054D0      0D0A
0054D2      534B 4950 2042 4143      5323  T5.E003   DC    C'SKIP BACKWARD RECORD',X'8D0A'                 MTD53230
0054DA      4B57 4152 4420 5245
0054E2      434F 5244
0054E6      8D0A
0054E8      504F 5349 5449 4F4F      5324            DC    C'POSITIONED ON WRONG RRECORD',X'0D0A'          MTD53240
0054F0      4544 204F 4E20 5752
0054F8      4F4E 4720 5252 4543
```

TEST 5

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005500       4F52 4420
005504       0D0A
005506       494E 434F 5252 4543      5325  T5.E004  DC    C'INCORRECT STATUS-NO "BOT" FOUND',X'0D0A'                MTD53250
00550E       5420 5354 4154 5553
005516       2D4E 4F20 2242 4F54
00551E       2220 464F 554F 4420
005526       0D0A
005528       5345 4C43 4820 534B      5326  T5.E005  DC    C'SELCH SKIP COMMANDS',X'0D0A'                            MTD53260
005530       4950 2043 4F4D 4D41
005538       4E44 5320
00553C       0D0A
00553E       4952 4720 5741 5320      5327  T5.E006  DC    C'IRG WAS NOT WRITTEN',X'0D0A'                            MTD53270
005546       4E4F 5420 5752 4954
00554E       5445 4E20
005552       0D0A
005554       5441 5045 2048 4153      5328  T5.E007  DC    C'TAPE HAS EXCEEDED WRITTEN RECORDS',X'0D0A'              MTD53280
00555C       2045 5843 4545 4445
005564       4420 5752 4954 5445
00556C       4E20 5245 434F 5244
005574       5320
005576       0D0A
005578       4452 4956 4520 2A2A      5329  T5ERMSG0 DC    C'DRIVE ***',X'8D0A'                                      MTD53290
005580       2A20
005582       8D0A
005584       4558 5045 4354 4544      5330  T5ERMSG1 DC    C'EXPECTED RECORD=****',X'8D0A'                           MTD53300
00558C       2052 4543 4F52 443D
005594       2A2A 2A2A
005598       8D0A
00559A       4143 5455 414C 2052      5331  T5ERMSG2 DC    C'ACTUAL RECORD  =****',X'8D0A'                           MTD53310
0055A2       4543 4F52 4420 203D
0055AA       2A2A 2A2A
0055AE       8D0A
0055B0       4441 5441 2057 5249      5332  T5ERMSG3 DC    C'DATA WRITTEN=****',X'8D0A'                              MTD53320
0055B8       5454 454E 3D2A 2A2A
0055C0       2A20
0055C2       8D0A
0055C4       4441 5441 2052 4541      5333  T5ERMSG4 DC    C'DATA READ   =****',X'0D0A'                              MTD53330
0055CC       4420 2020 3D2A 2A2A
0055D4       2A20
0055D6       0D0A
```

```
                                 *****************************************************
                                 *        TEST 6 BACKWARDS READ                      *
                                 *                                                   *
                                 * PURPOSE: TO CHECK OUT THE TAPE'S ABILITY TO READ  *
                                 *  A TAPE WHILE THE TAPE IS MOVING BACKWARDS.       *
                                 *                                                   *
                                 * TEST SPEC: THE TEST OUTPUTS A RECORD TO THE TAPE. *
                                 *  INSTEAD OF REWINDING THE TAPE AND THEN           *
                                 *  READING IT, THE TEST ISSUES A READ               *
                                 *  BACKWARDS COMMAND AND READS IN THE DATA          *
                                 *  ON THE TAPE. THE TEST VERIFIES THE ACTION        *
                                 *  WITH A DATA COMPARE AND STATUS CHECK.            *
                                 *                                                   *
                                 * ERRORS:                                           *
                                 *                                                   *
                                 * OPTIONS:                                          *
                                 * DRIVE, TRMODE, SELCH, DATA, AND BYTES.            *
                                 *                                                   *
                                 *****************************************************


0055D8   41F0 A76E =007D4A       TEST6    BAL   R15,TESTINIT       INIT TESTING
0055DC   41F0 99D8 =006FB8                BAL   R15,SEL.5          CHECK ONLINE OPTION
                                 *****************************************************
                                 *                                                   *
                                 * LET'S FIND OUT WHAT KIND OF TRANSFER MODE         *
                                 *                                                   *
                                 *****************************************************
0055E0   41F0 ADA8 =00838C       TST6.1   BAL   R15,LOOPTOP
0055E4   0000 57F0                        DAC   TST6.END
0055E8   0000 57F0                        DAC   TST6.END           PROCEED LIMIT
0055EC   41E0 A6AE =007C9E                BAL   R14,CSTOP
0055F0   41E0 A6AA =007C9E                BAL   R14,CSTOP          STOP SELCH
0055F4   41F0 AADA =0080D2                BAL   R15,REWMT          REWIND TAPE IF NECESSARY
0055F8   41F0 AAA8 =0080A4                BAL   R15,WRTENB         CHECK FOR WRITE ENABLED
0055FC   7330 2124                        LHL   R3,TRMODE+$VALU1   LOAD FLAG FOR SELCH TRANSFER
005600   4230 80B8 =0056BC                BNZ   TST6.3             BRANCH IF ONE TO SELCH MODE
                                 *****************************************************
                                 *                                                   *
                                 * OTHERWISE THIS IS GOING TO BE DONE WITH DATA WRITES *
                                 * ##                                                *
                                 *****************************************************
005604   4840 2036                        LH    R4,DATA+$VALU1     USER SPECIFIED DATA PATTERN
005608   4040 AE18 =008424                STH   R4,DATAPAT         STORE IT
*00560C  2135      =005616                BNZ   T601A              YES, SO USE IT
00560E   4840 AE1C =00842E                LH    R4,TESTPAT+8       LOAD PATTERN
005612   4040 AE0E =008424                STH   R4,DATAPAT
005616   7350 200C               T601A    LHL   R5,BYTES+$VALU1    LOAD RECORD LENGTH
00561A   2751                             SIS   R5,1
00561C   41F0 AC6E =00828E                BAL   R15,DWRITE         OUTPUT RECORD
```

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 005620   41F0 AAEE =008112             BAL  R15,STATCHK       CHECK INTERFACE STATUS                  MTD53840
 005624   E660 4001 89D0                LA   R6,READBUF        LOAD ADDRESS OF READ BUFFER             MTD53850
 00562A   5060 AEAE =0084DC             STA  R6,RDBUF          STORE ADDRESS                           MTD53860
 00562E   7350 200C                     LHL  R5,BYTES+$VALU1   LOAD RECORD LENGTH AGAIN                MTD53870
 005632   2751                          SIS  R5,1              ADJUST FOR SELCH ADDRESSES              MTD53880
 005634   0875                          LR   R7,R5             LOAD INTO R7                            MTD53890
 005636   0A56                          AAR  R5,R6             CALCULATE ENDING ADDRESS                MTD53900
 005638   5050 AE9C =0084D8             STA  R5,ENDBUF         STORE THIS ADDRESS                      MTD53910
 00563C   41F0 A7D8 =007E18             BAL  R15,CLRBUF        CLEAR BUFFER                            MTD53920
                                 *                                                                     MTD53930
 005640   41E0 81C4 =005808             BAL  R14,CRDBACK       PUT INF. INTO READ BACKWARDS MODE       MTD53940
 005644   41E0 A5DA =007C22             BAL  R14,SENSTA3       WAIT FOR BUSY TO DROP                   MTD53950
 005648   41E0 A5D6 =007C22      T6.1DB BAL  R14,SENSTA3       CHECK STATUS                            MTD53960
 00564C   D916 0000                     RH   R1,0(R6)          READ INTO READBUF                       MTD53970
 005650   2662                          AIS  R6,2              DECREMENT BUFFER ADDRESS                MTD53980
 005652   2772                          SIS  R7,2              DECREMENT BYTE COUNT                    MTD53990
*005654   2286      =005648             BNL  T6.1DB            CONTINUE UNTIL FINISHED                 MTD54000
 005656   41E0 A58A =007BE4             BAL  R14,SENSTA1       LOOK FOR NMTN OF                        MTD54010
                                 *                                                                     MTD54020
                                 * LET'S SEE WHAT WE READ                                              MTD54030
                                 *                                                                     MTD54040
 00565A   E640 ADC6 =008424             LA   R4,DATAPAT                                                MTD54050
 00565E   5880 AE76 =0084D8             LDA  R8,ENDBUF         LOAD ENDING BUF ADDRESS                 MTD54060
 005662   E660 4001 89D0                LA   R6,READBUF        LOAD ADDRESS OF READ DATA               MTD54070
 005668   7350 200C                     LHL  R5,BYTES+$VALU1   SEE IF BYTES IS ODD                     MTD54080
 00566C   C350 0001                     THI  R5,X'0001'                                                MTD54090
*005670   2333      =005676             BZ   T6.002A           BYTE ALLOCATION IS EVEN                 MTD54100
 005672   2420                          LIS  R2,0              CLEAR INDEX R2 FOR ODD BYTE COMPARES    MTD54110
*005674   2302      =005678             B    T6.2B                                                     MTD54120
 005676   2421                   T6.002A LIS R2,1              SET TOGGLE INDEX R2 FOR EVEN BYTES      MTD54130
 005678   D376 0000              T6.2B  LB   R7,0(R6)          LOAD DATA                               MTD54140
 00567C   D334 4200 0000                LB   R3,0(R4,R2)       DATA WRITTEN                            MTD54150
 005682   0573                          CLR  R7,R3             COMPARE THE TWO                         MTD54160
*005684   2138      =005694             BNE  T6.2C             INCORRECT DATA COMPARE ON READ BACKWA   MTD54170
 005686   0568                          CLR  R6,R8             HAVE WE COMPLETED SPECIFIED BUFFER      MTD54180
 005688   4330 ACC2 =00834E             BE   PASS              YES, GO ON                              MTD54190
 00568C   2661                          AIS  R6,1              INCREMENT BUFFER ADDRESS                MTD54200
 00568E   C720 0001                     XHI  R2,1              TOGGLE R2 FOR CORRECT BYTE              MTD54210
*005692   220D      =005678             B    T6.2B             CONTINUE COMPARE IF NOT EQUAL           MTD54220
                                 *                                                                     MTD54230
 005694   E650 4001 89D0         T6.2C  LA   R5,READBUF        GET ADDRESS OF REABUF                   MTD54240
 00569A   0B65                          SR   R6,R5             FIGURE BYTE LOCATION                    MTD54250
 00569C   4060 AD74 =008414             STH  R6,INDEX          SAVE IT                                 MTD54260
 0056A0   E650 816A =00580E             LA   R5,T6.E002        READ BACKWARD..                         MTD54270
 0056A4   4030 AE54 =0084FC             STH  R3,WSTORE         STORE WRITE DATA                        MTD54280
 0056A8   4070 AE52 =0084FE             STH  R7,RSTORE         STORE READ DATA                         MTD54290
 0056AC   41E0 2CC4                     BAL  R14,T1ERRORA      DATA                                    MTD54300
 0056B0   E6F0 35F6                     LA   R15,MESSG3A       BEGINNING OF MESSAGE                    MTD54310
 0056B4   E6E0 AEDE =008596             LA   R14,CONTMSG       SUSPECTED ERROR WITH CONTROLLER         MTD54320
 0056B8   4300 AC10 =0082CC             B    ERRORX                                                    MTD54330
                                 *                                                                     MTD54340
                                 ***************************************************************      MTD54350
                                 *                                                             *      MTD54360
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                                5437  * COME HERE IF TRMODE=1 FOR SELCH TRANSFERS          *                MTD54370
                                5438  *                                                    *                MTD54380
                                5439  ****************************************************                MTD54390
 0056BC      41F0 80FA =0057BA  5440  TST6.3    BAL   R15,SELINCW         GO SET UP SELCH                  MTD54400
 0056C0      41E0 A5DA =007C9E  5441            BAL   R14,CSTOP                                          MTD54410
 0056C4      41E0 A5D6 =007C9E  5442            BAL   R14,CSTOP                                          MTD54420
 0056C8      41E0 A4CE =007B9A  5443            BAL   R14,CCLEAR         ISSUE COMMAND CLEAR              MTD54430
 0056CC      41E0 A502 =007BD2  5444            BAL   R14,CDENS          OUTPUT DENSITY COMMAND           MTD54440
 0056D0      41E0 A626 =007CFA  5445            BAL   R14,WRBUF                                          MTD54450
 0056D4      41F0 A738 =007F10  5446            BAL   R15,RESTORE1       ENABLE INT                       MTD54460
 0056D8      73A0 200C          5447            LHL   R10,BYTES+$VALU1   GET BYTES VALUE                  MTD54470
 0056DC      C3A0 0001          5448            THI   R10,X'0001'                                         MTD54480
*0056E0      2333       =0056E6 5449            BZ    T6.3B                                               MTD54490
 0056E2      41E0 A602 =007CF8  5450            BAL   R14,CWRODBY                                         MTD54500
 0056E6      41E0 A596 =007C80  5451  T6.3B     BAL   R14,CWRITE         PUT INTERFACE IN WRITE MODE      MTD54510
 0056EA      E650 8132 =005820  5452            LA    R5,T6.E003         READ BACKWARD..(SELCH WRITE)     MTD54520
 0056EE      E600 8014 =005706  5453            LA    R0,T6.3A1          INTERRUPT ADDRESS                MTD54530
 0056F2      4000 21E8          5454            STH   R0,DEVINT+2                                         MTD54540
 0056F6      080A               5455            LR    R0,R10             TIMVAL                           MTD54550
 0056F8      260F               5456            AIS   R0,15              INCREASE SOME              R01   MTD54560
 0056FA      41E0 A588 =007C86  5457            BAL   R14,CGO            GIVE SELCH THE GO                MTD54570
 0056FE      41F0 162A          5458            BAL   R15,TIMER          WAIT                       R01   MTD54580
 005702      4300 2E06          5459            B     T1R09              TIMED OUT DURING SELCH *** WRITE MTD54590
 005706      41F0 A6FE =007F08  5460  T6.3A1    BAL   R15,RESTORE        RESTORE R1R2,PSW                 MTD54600
 00570A      41F0 A76A =007E78  5461            BAL   R15,SELCHK         CHECK ENDING STATUS              MTD54610
 00570E      41F0 A7F0 =007F02  5462            BAL   R15,SELEND         CHECK ENDING ADDRESS             MTD54620
 005712      41F0 A9FC =008112  5463            BAL   R15,STATCHK        CHECK INTERFACE STATUS           MTD54630
 005716      C430 0020          5464            NHI   R3,X'20'           IS EOT SET                       MTD54640
*00571A      2333       =005720 5465            BZ    T6.3AA                                              MTD54650
 00571C      41E0 A554 =007C74  5466            BAL   R14,CSKBF          REWIND MAG TAPE TO FILE MARK     MTD54660
                                5467  *                                                                   MTD54670
                                5468  * LET'S READ IT BACK VIA SELCH                                       MTD54680
                                5469  *                                                                   MTD54690
 005720      73A0 200C          5470  T6.3AA    LHL   R10,BYTES+$VALU1   LOAD COUNTER                     MTD54700
 005724      41F0 A918 =008040  5471            BAL   R15,SELSETR        GO SET UP READ BUFFER            MTD54710
 005728      41E0 A46E =007B9A  5472            BAL   R14,CCLEAR         CLEAR INTERFACE                  MTD54720
 00572C      41F0 A5FA =007D2A  5473            BAL   R14,REBUF          SET UP READ ADDRESSES            MTD54730
 005730      41E0 80D4 =005808  5474            BAL   R14,CRDBACK        PUT INF INTO READ BACKWARDS      MTD54740
 005734      E650 8106 =00583E  5475            LA    R5,T6.E004         READ BACKWARD..(SELCH READ)      MTD54750
 005738      E600 8014 =005750  5476            LA    R0,T6.3C1          INTERRUPT ADDRESS                MTD54760
 00573C      4000 21E8          5477            STH   R0,DEVINT+2        STORED HERE                      MTD54770
 005740      080A               5478            LR    R0,R10             TIMVAL                           MTD54780
 005742      260F               5479            AIS   R0,15              INCREASE                   R01   MTD54790
 005744      41E0 A550 =007C98  5480            BAL   R14,CGOREAD        GIVE SELCH THE GO                MTD54800
 005748      41F0 162A          5481            BAL   R15,TIMER          WAIT FOR INTERRUPT         R01   MTD54810
 00574C      4300 2E8C          5482            B     T1R10              TIMED OUT DURING SELCH *** READ  MTD54820
 005750      41F0 A6B4 =007F08  5483  T6.3C1    BAL   R15,RESTORE        RESTORE R1,R2,PSW                MTD54830
 005754      41F0 A720 =007E78  5484            BAL   R15,SELCHK         CHECK ENDING STATUS              MTD54840
 005758      41F0 A7A6 =007F02  5485            BAL   R15,SELEND         CHECK ENDING ADDRESS             MTD54850
 00575C      41F0 A9B2 =008112  5486            BAL   R15,STATCHK        CHECK INF. STATUS                MTD54860
 005760      C430 0020          5487            NHI   R3,X'20'           IS EOT SET                       MTD54870
*005764      2333       =00576A 5488            BZ    T6.3CA             NO, CONTINUE                     MTD54880
 005766      41E0 A50A =007C74  5489            BAL   R14,CSKBF          ELSE REWIND MAG TAPE TO FILE MARK MTD54890
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                                    5490  *                                                                      MTD54900
                                    5491  * LET'S CHECK THE DATA NOW (BUFFER IS BACKWARDS)                       MTD54910
                                    5492  *                                                                      MTD54920
 00576A       41F0 A530 =007C9E     5493  T6.3CA   BAL   R14,CSTOP          STOP SELCH                          MTD54930
 00576E       41E0 A52C =007C9E     5494           BAL   R14,CSTOP                                              MTD54940
 005772       E650 AD62 =0084D8     5495           LA    R5,ENDBUF          LOAD ENDING ADDRESS OF READ BUF     MTD54950
 005776       7360 200C             5496           LHL   R6,BYTES+$VALU1    LOAD RECORD LENGTH                  MTD54960
 00577A       2761                  5497           SIS   R6,1                                                   MTD54970
 00577C       2470                  5498           LIS   R7,0               ZERO=START PATTERN                  MTD54980
 00577E       D387 4001 89D0        5499  T6.3E    LB    R8,READBUF(R7)     LOAD A BYTE TO COMPARE              MTD54990
 005784       C480 00FF             5500           NHI   R8,X'FF'           CLEAR UPPER HALF                    MTD55000
 005788       D336 B244 =0089D0     5501           LB    R3,WRTBUF(R6)                                          MTD55010
 00578C       0538                  5502           CLR   R3,R8              COMPARE WITH DATA                   MTD55020
*00578E       2136      =00579A     5503           BNE   T6R04              ERROR IF NOT EQUAL                  MTD55030
 005790       2671                  5504           AIS   R7,1               INCREMENT PATTERN                   MTD55040
 005792       2761                  5505           SIS   R6,1               DECREMENT BUFFER                    MTD55050
*005794       228B      =00577E     5506           BNL   T6.3E              KEEP COMPARING UNTIL ZERO           MTD55060
 005796       4300 ABB4 =00834E     5507           B     PASS               BRANCH TO END OF TEST               MTD55070
                                    5508  *                                                                      MTD55080
 00579A       4030 AD5E =0084FC     5509  T6R04    STH   R3,WSTORE          STORE WRITE DATA                    MTD55090
 00579E       4080 AD5C =0084FE     5510           STH   R8,RSTORE          STORE READ DATA                     MTD55100
 0057A2       4070 AC6E =008414     5511           STH   R7,INDEX                                               MTD55110
 0057A6       E650 8094 =00583F     5512           LA    R5,T6.E004         READ BACKWARD..(SELCH READ)         MTD55120
 0057AA       41E0 2CC4             5513           BAL   R14,T1ERRORA       DATAS                               MTD55130
 0057AE       E6F0 35F6             5514           LA    R15,MESSG3A        BEGGINING OF MESSAGE BODY           MTD55140
 0057B2       E6E0 ADE0 =008596     5515           LA    R14,CONTMSG                                            MTD55150
 0057B6       4300 AB12 =0082CC     5516           B     ERROPX                                                 MTD55160
                                    5517  *                                                                      MTD55170
                                    5518  ********************************************************             MTD55180
                                    5519  *                                                      *             MTD55190
                                    5520  *  COME HERE TO SET UP WRITE BUFFER                    *             MTD55200
                                    5521  *  WITH INCREMENTAL DATA                               *             MTD55210
                                    5522  *                                                      *             MTD55220
                                    5523  ********************************************************             MTD55230

          0000 57BA                 5525  SELINCW  EQU   *                                                      MTD55250
 0057BA       7320 2108             5526           LHL   R2,SELCH+$VALU1    LOAD SELCH ADDRESS                  MTD55260
 0057BE       D000 ACCE =008490     5527           STM   R0,REGSAVE         STORE WORKING REGISTERS             MTD55270
 0057C2       E610 B20A =0089D0     5528           LA    R1,WRTBUF          LOAD ADDRESS OF WRITE BUFFER        MTD55280
 0057C6       7350 200C             5529           LHL   R5,BYTES+$VALU1    LOAD BYTE COUNT                     MTD55290
 0057CA       2751                  5530           SIS   R5,1               ADJUST FOR SELCH ADDRESS            MTD55300
 0057CC       5010 AD04 =0084D4     5531           STA   R1,WBUF            STORE START  ADDRESS                MTD55310
 0057D0       0821                  5532           LR    R2,R1              LET'S FIND ENDING                   MTD55320
 0057D2       0A25                  5533           AAR   R2,R5              ADDRESS OF BUFFER                   MTD55330
 0057D4       5020 AD00 =0084D8     5534           STA   R2,ENDBUF          AND STORE IT                        MTD55340
 0057D8       2430                  5535           LIS   R3,0               PATTERN WILL START WITH             MTD55350
 0057DA       D231 0000             5536  SELI.1   STB   R3,0(R1)           ZEROS. STORE IT                     MTD55360
 0057DE       2631                  5537           AIS   R3,1               INCREMENT PATTERN                   MTD55370
 0057E0       2611                  5538           AIS   R1,1               INCREMENT LBAL                      MTD55380
 0057E2       0535                  5539           CLR   R3,R5              HAVE WE STORE ALL?                  MTD55390
*0057E4       2225      =0057DA     5540           BNP   SELI.1             NO! CONTINUE STUFFING               MTD55400
 0057E6       D100 ACA6 =008490     5541           LM    R0,REGSAVE         RESTORE REGISTERS                   MTD55410
 0057EA       41E0 A430 =007C9E     5542           BAL   R14,CSTOP          PUT SELCH IN KNOW STATE             MTD55420
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0057EE      030F                5543           BR   R15               RETURN TO CALLER              MTD55430
                                5544  *                                                             MTD55440
0057F0      41F0 2836           5545  TST6.END BAL  R15,TST.DRIV      CHECK FOR OTHER DRIVES        MTD55450
0057F4      4800 AC12 =00840A   5546           LH   R0,DRIVSAV1       CHECK FLAG                    MTD55460
0057F8      C300 000E           5547           THI  R0,X'E'           IS IT SET                     MTD55470
0057FC      4330 133C           5548           BZ   TSTEND            NO, END TEST                  MTD55480
005800      41F0 A554 =007D58   5549           BAL  R15,IT.B1         INIT TEST FOR OTHER DRIVES    MTD55490
005804      4300 FDD8 =0055E0   5550           B    TST6.1                                          MTD55500
                                5551  *                                                             MTD55510
                                5552  *  S U B R O U T I N E   C R D B A C K                        MTD55520
                                5553  *                                                             MTD55530
005808      DE10 ABD0 =0083DC   5554  CRDBACK  OC   R1,RDBACK         READ BACKWARDS                MTD55540
00580C      030E                5555           BR   R14               RETURN                        MTD55550



00580E      5245 4144 2042 4143 5557  T6.E002  DC   C'READ BACKWARD..',X'0D0A'                      MTD55570
005816      4B57 4152 442E 2E20
00581E      0D0A
005820      5245 4144 2042 4143 5558  T6.E003  DC   C'READ BACKWARD..(SELCH WRITE)',X'0D0A'         MTD55580
005828      4B57 4152 442E 2E28
005830      5345 4C43 4820 5752
005838      4954 4529
00583C      0D0A
00583E      5345 4C43 4820 5245 5559  T6.E004  DC   C'SELCH READ BACKWARD..',X'0D0A'                MTD55590
005846      4144 2042 4143 4B57
00584E      4152 442E 2E20
005854      0D0A
```

```
                         ******************************************************   MTD55610
                         *         TEST 7 INTERRRUPT CIRCUITRY                *   MTD55620
                         *                                                    *   MTD55630
                         * PURPOSE: TO EXERCISE THE TAPE SYSTEM UNDER INTERRUPT*  MTD55640
                         * CONTROL UTILIZING THE ALREADY TESTED OPERATIONS.    *   MTD55650
                         *                                                    *   MTD55660
                         * TEST SPEC: THIS TEST STARTS OUTPUT WITH A CHECK OUT *  MTD55670
                         * OF THE THREE STATES OR MODES OF THE INTERRUPT      *   MTD55680
                         * CIRCUITRY (DISARM,DISABLE AND ENABLE) AND THE      *   MTD55690
                         * ASSOCIATED LOGIC ON THE INTERFACE. IT THEN         *   MTD55700
                         * ENABLES THE LOGIC AND EXERCISES INTERRUPTS         *   MTD55710
                         * UTILIZING BASIC MAG TAPE COMMANDS (WRITE,          *   MTD55720
                         * READ, REWIND AND SKIP) AND THEIR ASSOCIATED        *   MTD55730
                         * SIGNALS (BUSY AND NMTN), BUILDING UP THE           *   MTD55740
                         * COMPLEXITY OF THE OPERATION UNTIL THE PROGRAM      *   MTD55750
                         * EXERCISES THE ENTIRE SYSTEM.                       *   MTD55760
                         *                                                    *   MTD55770
                         * ERRORS:                                            *   MTD55780
                         *                                                    *   MTD55790
                         * OPTIONS:                                           *   MTD55800
                         * DRIVE, TRMODE, SELCH, FILES, RECORDS, BYTES, AND   *   MTD55810
                         * DATA.                                              *   MTD55820
                         *                                                    *   MTD55830
                         ******************************************************   MTD55840


         0000 5856       TEST7    EQU   *                                         MTD55860
005856   41F0 A4F0 =007D4A        BAL   R15,TESTINIT        INIT TEST             MTD55870
00585A   41F0 975A =006FB8        BAL   R15,SEL.5           CHECK ONLINE OPTION   MTD55880
                         *                                                        MTD55890
00585E   41F0 AB2A =00838C TST7.1 BAL   R15,LOOPTOP                               MTD55900
005864   0000 58AC                DAC   T7.002              NEXT SEQUENCE         MTD55910
005868   0000 62D4                DAC   TST7.END                                  MTD55920
00586C   41F0 A834 =0080A4        BAL   R15,WRTENB          ARE WRITES ENABLED?   MTD55930
                         *                                                        MTD55940
005870   41F0 8A3A =0062AE        BAL   R15,INTRSET         SET INTERRUPT TABLES  MTD55950
005874   08C1                     LDAR  R12,R1              RELOCATE DEVICE ADDRESS MTD55960
005876   91C1                     SLHLS R12,1               DOUBLE IT             MTD55970
005878   CAC0 00D0                AHI   R12,X'D0'           ADD IN OFFSET         MTD55980
                         * R12 CONTAINS INTERRUPT TABLE LOC                       MTD55990
00587C   7330 0A54                LHL   R3,PSW3             PSW=70F0              MTD56000
005880   95E3                     EPSR  R14,R3              SET UP FOR IO INTERRRUPTS MTD56010
                         *                                                        MTD56020
                         *        FIRST CHECK IS FOR AN INTERRUPT WHILE DISARMED  MTD56030
                         *                                                        MTD56040
005882   E650 8A70 =0062F6        LA    R5,T7.E000          INTERRUPT WAS GENERATED WHILE DISARME MTD56050
005886   4050 AB9A =008424        STH   R5,DATAPAT          SAVE ERROR MSG ADDRESS MTD56060
00588A   41E0 A30C =007B9A        BAL   R14,CCLEAR          CLEAR INTERFACE BEFORE C WRITE MTD56070
00588E   41E0 A340 =007BD2        BAL   R14,CDENS           DENSITY COMMAND       MTD56080
005892   41E0 A434 =007CCA        BAL   R14,CDISARM         MAKE SURE INTERFACE DISARMED MTD56090
```

TEST 7

```
005896  E630 8076 =005910   5610           LA    R3,TST7.0ER         LOAD ERROR ADDRESS IF INTR.          MTD56100
00589A  4030 21E6           5611           STH   R3,DEVINT           STORE IT                             MTD56110
00589E  4840 AB8C =00842F   5612           LH    R4,TESTPAT+8        LOAD A PATTERN                       MTD56120
0058A2  245A                5613           LIS   R5,10                                                    MTD56130
0058A4  41F0 A9F8 =0082A0   5614           BAL   R15,DW.0            OUTPUT A RECORD                      MTD56140
0058A8  4300 AAA2 =00834F   5615           B     PASS                                                     MTD56150
                            5616  *                                                                      MTD56160
                            5617  *        WE GOT HERE IF NO INTERRUPTS OCCURRED LET'S                   MTD56170
                            5618  *        SEE IF AN INTERRUPT WAS QUEUED THO!                           MTD56180
                            5619  *                                                                      MTD56190
0058AC  41F0 AADC =00838C   5620  T7.002   BAL   R15,LOOPTOP                                             MTD56200
0058B0  0000 58C4           5621           DAC   T7.003              NEXT SEQUENCE                        MTD56210
0058B4  0000 62D4           5622           DAC   TST7.END                                                 MTD56220
0058B8  E650 8A5E =00631A   5623           LA    R5,T7.E001          INTERRUPT WAS QUEUED WHILE DISARMED  MTD56230
0058BC  41E0 A410 =007CD0   5624           BAL   R14,CENBLE          WE'LL ENABLE INTERRUPTS              MTD56240
0058C0  4300 AA8A =00834E   5625           B     PASS                                                     MTD56250
                            5626  *                                 AND SEE WHAT HAPPENS                 MTD56260
                            5627  *                                                                      MTD56270
                            5628  *        NOTHING HAPPENS SO LET'S CHECK OUT                            MTD56280
                            5629  *        INTERRUPTS JUST DISABLED                                      MTD56290
                            5630  *                                                                      MTD56300
0058C4  41F0 AAC4 =00838C   5631  T7.003   BAL   R15,LOOPTOP                                             MTD56310
0058C8  0000 592A           5632           DAC   TST7.2                                                   MTD56320
0058CC  0000 62D4           5633           DAC   TST7.END            PROCEED LIMIT                        MTD56330
0058D0  E650 8A68 =00633C   5634           LA    R5,T7.E002          INTERRUPT WAS GENERATED WHILE DISABLE MTD56340
0058D4  4050 AB4C =008424   5635           STH   R5,DATAPAT          SAVE ERROR MSG ADDRESS               MTD56350
0058D8  2430                5636           LIS   R3,0                LOAD ZEROS                           MTD56360
0058DA  4030 21E6           5637           STH   R3,DEVINT           AND ZERO OUT HANDLER                 MTD56370
                            5638  *                                                                      MTD56380
                            5639  *        YOU WILL RECEIVE A F4 ERROR IF AN INTERRUPT                   MTD56390
                            5640  *        HAPPENS AS I OUTPUT A DISABLE COMMAND                         MTD56400
                            5641  *                                                                      MTD56410
0058DE  41E0 A2B8 =007B9A   5642           BAL   R14,CCLEAR          CLEAR INTERFACE BEFORE C WRITE       MTD56420
0058E2  41E0 A2EC =007BD2   5643           BAL   R14,CDENS           DENSITY COMMAND                      MTD56430
0058E6  41E0 A3EC =007CD6   5644           BAL   R14,CDISBLE         OUTPUT DISABLE COMMAND               MTD56440
0058EA  E630 8022 =005910   5645           LA    R3,TST7.0ER         LOAD ERROR LOC.                      MTD56450
0058EE  4030 21E6           5646           STH   R3,DEVINT           AND STORE INTO TABLE                 MTD56460
0058F2  245A                5647           LIS   R5,10                                                    MTD56470
0058F4  41F0 A9A8 =0082A0   5648           BAL   R15,DW.0            OUTPUT A RECORD                      MTD56480
                            5649  *                                                                      MTD56490
                            5650  *        NOTHINGS HAPPENED SO LET'S SEE IF IT QUEUED                   MTD56500
                            5651  *        AN INTERRUPT WHEN WE ENABLED LOGIC                            MTD56510
                            5652  *                                                                      MTD56520
0058F8  E650 8A64 =006360   5653           LA    R5,T7.E003          NO INTERRUPT WAS QUEUED WHILE DISABLE MTD56530
0058FC  E630 AA4E =00834F   5654           LA    R3,PASS             LOAD CONTINUE ADDRESS                MTD56540
005900  4030 21E6           5655           STH   R3,DEVINT           FOR INTERRUPT INTO TABLE             MTD56550
005904  41E0 A3C8 =007CD0   5656           BAL   R14,CENBLE          ENABLE INTERRUPTS                    MTD56560
005908  C830 7FFF           5657           LHI   R3,X'7FFF'          LOAD COUNTER                         MTD56570
00590C  41E0 839E =005CAE   5658           BAL   R14,TIMOUT          WAIT FOR INTERRUPT                   MTD56580
                            5659  *                                                                      MTD56590
005910  4850 AB10 =008424   5660  TST7.0ER LH    R5,DATAPAT          GET ERROR MSG ADDR                   MTD56600
005914  7330 0A52           5661  TST7.1ER LHL   R3,PSW2             PSW = 30F0                           MTD56610
005918  95E3                5662           EPSR  R14,P3              DISABLE IO INTERRUPTS                MTD56620
```

TEST 7

```
00591A  41E0 842A =005D48  5663          BAL   R14,T7ERRORA       DRIVE AND STATUS                        MTD56630
00591E  E6F0 8F60 =006882  5664          LA    R15,T7ERMSG1                                              MTD56640
005922  E6E0 AC70 =008596  5665          LA    R14,CONTMSG        SUSPECTED ERROR ON CONTROLLER          MTD56650
005926  4300 A9A2 =0082CC  5666          B     ERRORX                                                    MTD56660
                           5667  *                                                                       MTD56670
                           5668  *       WE COME HERE VIA INTERRUPT THAT WAS QUEUED,NOW                   MTD56680
                           5669  *       WE WILL CHECK OUT INTERRUPTS WHILE LOGIC IS ENABLED              MTD56690
                           5670  *      ##                                                               MTD56700
00592A  41F0 AA5E =00838C  5671  TST7.2  BAL   R15,LOOPTOP                                               MTD56710
005930  0000 597E          5672          DAC   T7.005                                                    MTD56720
005934  0000 62D4          5673          DAC   TST7.END           PROCEED LIMIT                          MTD56730
005938  41E0 A25E =007B9A  5674          BAL   R14,CCLEAR          CLEAR INTERFACE                        MTD56740
00593C  41E0 A292 =007BD2  5675          BAL   R14,CDENS           DENSITY COMMAND                        MTD56750
005940  7330 0A54          5676          LHL   R3,PSW3             PSW = 70F0                             MTD56760
005944  95E3               5677          EPSR  R14,R3              ENABLE PROCESSOR INTERRUPTS            MTD56770
005946  E630 8022 =00596C  5678          LA    R3,DW.1A            LOAD ADDRESS FOR INTERRUPT             MTD56780
00594A  4030 21E6          5679          STH   R3,DEVINT           STORE IN TABLE                         MTD56790
00594E  245A               5680          LIS   R5,10                                                     MTD56800
005950  4840 AADC =008430  5681          LH    R4,TESTPAT+10       LOAD TEST PATTERN                      MTD56810
005954  41E0 A378 =007CD0  5682          BAL   R14,CENBLE          ENABLE INTERRUPTS                      MTD56820
005958  41E0 A324 =007C80  5683          BAL   R14,CWRITE          PUT INTERFACE IN WRITE MODE            MTD56830
00595C  C830 7FFF          5684          LHI   R3,X'7FFF'          LOAD COUNTER                           MTD56840
005960  41E0 834A =005CAF  5685          BAL   R14,TIMOUT          WAIT FOR INTERRUPT                     MTD56850
005964  E650 8A1C =006384  5686          LA    R5,T7.E004          NO INTERRUPT WAS GENERATED WHILE ENAB  MTD56860
005968  4300 FFA8 =005914  5687          B     TST7.1ER            AND BRANCH TO ERROR                    MTD56870
                           5688  *                                                                       MTD56880
                           5689  *       SOMTHING INTERRUPTED TO GET HERE                                MTD56890
                           5690  *                                                                       MTD56900
00596C  7330 0A52          5691  DW.1A   LHL   R3,PSW2                                                   MTD56910
005970  95E3               5692          EPSR  R14,R3              RESTORE USER SET                       MTD56920
005972  41E0 A354 =007CCA  5693          BAL   R14,CDISARM         DISARM ANY INTRPT.                     MTD56930
005976  41F0 A92E =0082A8  5694          BAL   R15,DW.1            AND OUTPUT A RECORD                    MTD56940
00597A  4300 A9D0 =00834E  5695          B     PASS                                                      MTD56950
                           5696  *                                                                       MTD56960
                           5697  *       AT THIS POINT THE MAG TAPE HAS THREE                            MTD56970
                           5698  *       RECORDS.LET'S NOW CHECKOUT EACH SIGNAL                          MTD56980
                           5699  *       CAPABLE OF TRIGGERING AN INTERRUPT                              MTD56990
                           5700  *                                                                       MTD57000
                           5701  *       LET'S EXERCISE BUSY FIRST ON WRITE COMMAND                      MTD57010
                           5702  *                                                                       MTD57020
00597E  41F0 AA0A =00838C  5703  T7.005   BAL   R15,LOOPTOP                                               MTD57030
005984  0000 59CA          5704          DAC   T7.3B                                                     MTD57040
005988  0000 59CA          5705          DAC   T7.3B               PROCEED LIMIT                         MTD57050
00598C  41E0 A20A =007B9A  5706          BAL   R14,CCLEAR          CLEAR INTERFACE BEFORE WRITE           MTD57060
005990  41E0 A23E =007BD2  5707          BAL   R14,CDENS           DENSITY COMMAND                        MTD57070
005994  7330 0A54          5708          LHL   R3,PSW3             SET UP ENABLE FOR                      MTD57080
005998  95E3               5709          EPSR  R14,R3              PROC. INTERRUPTS                       MTD57090
*00599A 245A               5710          LHI   R5,10               LOAD RECORD LENGTH                     MTD57100
00599C  E630 801C =0059BC  5711          LA    R3,T7.3A            LOAD ADDRESS OF NEXT PART              MTD57110
0059A0  4030 21E6          5712          STH   R3,DEVINT           STORE IT IN TABLE                      MTD57120
0059A4  41E0 A328 =007CD0  5713          BAL   R14,CENBLE          ENABLE INTERFACE INTERRUPTS            MTD57130
0059A8  41E0 A2D4 =007C80  5714          BAL   R14,CWRITE          PUT INF. IN WRITE MODE                 MTD57140
0059AC  C830 7FFF          5715          LHI   R3,X'7FFF'          LOAD COUNTER                           MTD57150
```

TEST 7

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0059B0  41E0 82FA =005CAE   5716          BAL   R14,TIMOUT          WAIT FOR INTERRUPT                          MTD57160
0059B4  E650 8A60 =006418   5717          LA    R5,T7.E008         NO INTERRUPT GENERATED ON 'BUSY'/WRIT       MTD57170
0059B8  4300 FF58 =005914   5718          B     TST7.1ER           BRANCH TO ERROR IF WE GET HERE              MTD57180
                            5719  *                                                                           MTD57190
0059BC  7330 0A52           5720  T7.3A   LHL   R3,PSW2           RESTORE USER PSW                            MTD57200
0059C0  95E3                5721          EPSR  R14,R3             AND REGISTERS                               MTD57210
0059C2  41E0 A304 =007CCA   5722          BAL   R14,CDISARM        DISARM INF. INTS.                           MTD57220
0059C6  41F0 A8DE =0082A8   5723          BAL   R15,DW.1           OUTPUT A RECORD                             MTD57230
                            5724  *                                                                           MTD57240
                            5725  *       LET'S CHECK NMTN ON A REWIND COMMAND                                MTD57250
                            5726  *                                                                           MTD57260
                            5727  T7.3B   BAL   R15,LOOPTOP                                                   MTD57270
0059CA  41F0 A9BE =00838C   5728          DAC   TST7.3B            NEXT SEQUENCE ON PASS                       MTD57280
0059D0  0000 5A34           5729          DAC   TST7.4             PROCEED LIMIT                               MTD57290
0059D4  0000 5A62           5730          LA    R3,T7.3C           SET UP NMTN INTERRUPT                       MTD57300
0059D8  E630 8022 =0059FE   5731          STH   R3,DEVINT          HANDLER TABLE                               MTD57310
0059DC  4030 21E6           5732          LHL   R3,PSW3            PSW = 70F0                                  MTD57320
0059E0  7330 0A54           5733          EPSR  R14,R3             IO INTERRUPTS ENABLED                       MTD57330
0059E4  95E3                5734          BAL   R14,CENBLE         ENABLE INF. INTERRUPTS                      MTD57340
0059E6  41E0 A2E6 =007CD0   5735          LHI   R0,X'3C'           LOAD TIMER                                  MTD57350
0059EA  C800 003C           5736          BAL   R14,CREW           GIVE REWIND COMMAND                         MTD57360
0059EE  41E0 A2A0 =007C92   5737          BAL   R15,TIMER          WAIT FOR NMTN TO SET                        MTD57370
0059F2  41F0 162A           5738          LA    R5,T7.E006         NO INTERRUPT GENERATED ON 'NMTN'/RW C        MTD57380
0059F6  E650 89B0 =0063AA   5739          B     TST7.1ER           BRANCH TO ERROR IF TIMEOUT                  MTD57390
0059FA  4300 FF16 =005914   5740  *                                                                           MTD57400
0059FE  7330 0A52           5741  T7.3C   LHL   R3,PSW2            PSW = 30F0                                  MTD57410
005A02  95E3                5742          EPSR  R14,R3             DISABLE INTR.                               MTD57420
005A04  D100 AF48 =008950   5743          LM    R0,RSAVE           RESTORE REGISTERS                           MTD57430
                            5744  *                                                                           MTD57440
                            5745  *       LET'S CHECK BUSY ON A READ COMMAND                                  MTD57450
                            5746  *                                                                           MTD57460
005A08  E630 A942 =00834F   5747          LA    R3,PASS            LOAD ADDRESS OF NEXT ROUTINE                MTD57470
005A0C  4030 21E6           5748          STH   R3,DEVINT          STORE IT FOR HANDLER                        MTD57480
005A10  41E0 A2BC =007CD0   5749          BAL   R14,CENBLE         ENABLE INF. INTERRUPTS                      MTD57490
005A14  7330 0A54           5750          LHL   R3,PSW3            PSW = 70F0                                  MTD57500
005A18  95E3                5751          EPSR  R14,R3             ENABLE IO INTERRUPTS                        MTD57510
005A1A  C800 0100           5752          LHI   R0,X'100'          LOAD TIMER                                  MTD57520
*005A1E 245A                5753          LHI   R5,10              LOAD RECORD LENGTH                          MTD57530
005A20  41E0 A236 =007C5A   5754          BAL   R14,CREAD          PUT INTERFACE IN READ                       MTD57540
005A24  41F0 162A           5755          BAL   R15,TIMER          WAIT FOR INTERRUPT                          MTD57550
005A28  41F0 A1B0 =007BDC   5756          BAL   R14,SENSTA         CHECK STATUS                                MTD57560
005A2C  E650 89B2 =0063E2   5757          LA    R5,T7.E007         NO INTERRUPT GENERATED ON BUSY AFTER        MTD57570
005A30  4300 FEE0 =005914   5758          B     TST7.1ER           AND BRANCH TO ERROR                         MTD57580
                            5759  *                                                                           MTD57590
                            5760  *       OTHERWISE WE HAD AN INTERRUPT TO COME HERE                           MTD57600
                            5761  *                                                                           MTD57610
                            5762  TST7.3B BAL   R15,LOOPTOP                                                   MTD57620
005A34  41F0 A954 =00838C   5763          DAC   TST7.4             NEXT SEQUENCE                               MTD57630
005A38  0000 5A62           5764          DAC   TST7.END                                                      MTD57640
005A3C  0000 62D4           5765          LHL   R3,PSW2            RESET PSW TO 30F0                           MTD57650
005A40  7330 0A52           5766          EPSR  R14,R3                                                       MTD57660
005A44  95E3                5767          LM    R0,RSAVE           RESTORE REGISTERS                           MTD57670
005A46  D100 AF06 =008950   5768          BAL   R14,CDISARM        DISARM INTERRUPTS                           MTD57680
005A4A  41E0 A27C =007CCA
```

TEST 7

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005A4E      41E0 A1D0 =007C22      5769  T7.3BC   BAL   R14,SENSTA3         SENSE INTERFACE STATUS                MTD57690
005A52      D910 AA9A =0084F0      5770           RH    R1,TSTBUF                                                 MTD57700
005A56      2752                   5771           SIS   R5,2                DECREMENT BYTE COUNT                  MTD57710
005A58      2285       =005A4E     5772           BNLS  T7.3BC              CONTINUE UNTIL FINISHED               MTD57720
005A5A      41F0 A6B4 =008112      5773           BAL   R15,STATCHK         CHECK INTERFACE STATUS                MTD57730
005A5E      4300 A8EC =00834F      5774           B     PASS                AND CONTINUE ON                       MTD57740
                                   5775  *                                                                        MTD57750
                                   5776  *        THE WRITE,READ AND REWIND COMMANDS ARE                          MTD57760
                                   5777  *        WORKING TO GET HERE.LET'S TRY THE ACTUAL                        MTD57770
                                   5778  *        WRITES AND READS NOW                                            MTD57780
                                   5779  *                                                                        MTD57790
005A62      41F0 A926 =00838C      5780  TST7.4   BAL   R15,LOOPTOP                                              MTD57800
005A66      0000 5B38              5781           DAC   TST7.5              NEXT SEQUENCE                         MTD57810
005A6C      0000 62D4              5782           DAC   TST7.END                                                   MTD57820
005A70      41E0 A126 =007B9A      5783           BAL   R14,CCLEAR          CLEAR INTERFACE BEFORE WRITE          MTD57830
005A74      41E0 A15A =007BD2      5784           BAL   R14,CDENS            DENSITY COMMAND                       MTD57840
005A78      41F0 A656 =0080D2      5785           BAL   R15,REWMT           REWIND MAG TAPE TO FILE MARK          MTD57850
                                   5786  *WE'LL WRITE FIRST                                                       MTD57860
005A7C      7330 0A54              5787           LHL   R3,PSW3             ENABLE IO INTERRUPTS                  MTD57870
005A80      95E3                   5788           EPSR  R14,R3              WITH PSW = 70F0                       MTD57880
005A82      41E0 A24A =007CD0      5789           BAL   R14,CENBLE          ENABLE INF INTERRUPTS                 MTD57890
005A86      E630 8020 =005AAA      5790           LA    R3,TST7.4A          LOAD ADDRESS OF NEXT STEP             MTD57900
005A8A      4030 21E6              5791           STH   R3,DEVINT           STORE IN HANDLER                      MTD57910
*005A8E     2456                   5792           LHI   R5,6                LOAD RECORD LENGTH                    MTD57920
005A90      41E0 A1EC =007C80      5793           BAL   R14,CWRITE          GIVE THE WRITE COMMAND                MTD57930
005A94      C830 7FFF              5794           LHI   R3,X'7FFF'          LOAD COUNTER                          MTD57940
005A98      41E0 8212 =005CAE      5795           BAL   R14,TIMOUT          WAIT FOR INTERRUPT                    MTD57950
005A9C      7330 0A52              5796           LHL   R3,PSW2             LOAD DISABLE PSW                      MTD57960
005AA0      95E3                   5797           EPSR  R14,R3              AND REGISTER SET F                    MTD57970
005AA2      E650 8972 =006418      5798           LA    R5,T7.E008          NO INTRPT GENRT AFTER C WRITE         MTD57980
005AA6      4300 FE6A =005914      5799           B     TST7.1ER                                                  MTD57990
                                   5800  *                                                                        MTD58000
005AAA      7330 0A54              5801  TST7.4A  LHL   R3,PSW3             RESTORE USER'S PSW                    MTD58010
005AAE      95E3                   5802           EPSR  R14,R3              AND REGISTERS                         MTD58020
005AB0      E630 8034 =005AE8      5803           LA    R3,T7.4C            LOAD LOC TEST                         MTD58030
005AB4      403C 0000              5804           STH   R3,0(R12)           STORE IN HANDLER                      MTD58040
005AB8      2464                   5805           LIS   R6,4                LOAD COUNT FOR FIRST BYTES            MTD58050
005ABA      41E0 A20C =007CCA      5806           BAL   R14,CDISARM         MUST BE DONE DISARMED                 MTD58060
005ABE      D810 A96E =008430      5807  T7.4G    WH    R1,TESTPAT+10       OUTPUT BYTES                          MTD58070
005AC2      2762                   5808           SIS   R6,2                DECREMENT COUNT                       MTD58080
005AC4      2334       =005ACC     5809           BZS   T7.4H               BRANCH IF DONE                        MTD58090
005AC6      41E0 A158 =007C22      5810           BAL   R14,SENSTA3         OTHERWISE CHECK FOR BUSY              MTD58100
005ACA      2206       =005ABE     5811           BS    T7.4G               AND OUTPUT SOME MORE                  MTD58110
005ACC      41F0 A200 =007CD0      5812  T7.4H    BAL   R14,CENBLE          REENABLE INTERRUPTS                   MTD58120
005AD0      D810 A95C =008430      5813  T7.4D    WH    R1,TESTPAT+10       OUTPUT DATA                           MTD58130
005AD4      C830 7FFF              5814           LHI   R3,X'7FFF'          LOAD COUNTER                          MTD58140
005AD8      41E0 81D2 =005CAE      5815           BAL   R14,TIMOUT          WAIT FOR INTERRUPT                    MTD58150
005ADC      41F0 A0FC =007BDC      5816           BAL   R14,SENSTA          CHECK STATUS                          MTD58160
005AE0      E650 8AA8 =00658C      5817           LA    R5,T7.E012          NO INTERRUPT OCCURRED ON WRITE        MTD58170
005AE4      4300 FE2C =005914      5818           B     TST7.1ER                                                  MTD58180
                                   5819  *                                                                        MTD58190
            0000 5AE8              5820  T7.4C    EQU   *                                                         MTD58200
005AE8      7330 0A54              5821           LHL   R3,PSW3             RESET PSW WITH                        MTD58210
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TEST 7

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 005AEC   95E3                          EPSR  R14,R3         USER REGISTERS                      MTD58220
 005AEE   2751                          SIS   R5,1           DECREMENT RECORD COUNT              MTD58230
 005AF0   4230 FFDC =005AD0             BNZ   T7.4D          CONTINUE OUTPUT UNTIL LESS THEN     MTD58240
 005AF4   E630 801A =005B12             LA    R3,T7.4E       LOAD NMTN INT. TEST LOC             MTD58250
 005AF8   403C 0000                     STH   R3,0(R12)      STORE IT                            MTD58260
 005AFC   C800 007F                     LHI   R0,X'7F'       TIME VALUE                          MTD58270
 005B00   41F0 162A                     BAL   R15,TIMER      WAIT FOR NMTN INTRPT.               MTD58280
 005B04   7330 0A52                     LHL   R3,PSW2        OTHERWISE DISARM PROC.              MTD58290
 005B08   95E3                          EPSR  R14,R3         INTERRUPTS                          MTD58300
 005B0A   E650 8940 =00644F      T7.4F  LA    R5,T7.E00A     NO INTERRUPT GENRT ON NMTN/WD       MTD58310
 005B0E   4300 FE02 =005914             B     TST7.1ER                                           MTD58320
                                 *                                                               MTD58330
          0000 5B12              T7.4E  EQU   *                                                  MTD58340
 005B12   7330 0A54                     LHL   R3,PSW3        RESET PSW AND                       MTD58350
 005B16   95E3                          EPSR  R14,R3         USER SET                            MTD58360
 005B18   D100 AF34 =008950             LM    R0,RSAVE       RESTORE REGISTERS                   MTD58370
 005B1C   41E0 A0BC =007BDC             BAL   R14,SENSTA     LOAD STATUS                         MTD58380
 005B20   C430 0010                     NHI   R3,X'10'       ZERO IN ON NMTN BIT                 MTD58390
*005B24   223D      =005B0A             BZ    T7.4F          OTHERWISE ERROR                     MTD58400
 005B26   C430 00C0                     NHI   R3,X'C0'       WAS IT AN ERROR?                    MTD58410
 005B2A   4330 A820 =00834E             BZ    PASS           NO! CONTINUE TESTING                MTD58420
 005B2E   7330 0A52                     LHL   R3,PSW2        RESTORE WORKING PSW                 MTD58430
 005B32   95E3                          EPSR  R14,R3         AND REGISTERS AND                   MTD58440
 005B34   4300 A606 =00813E             B     SNS.ERR        GO AND CHECKOUT WHY                 MTD58450
                                 *                                                               MTD58460
                                 *      LET'S CHECKOUT BUSY AND NMTN WITH A                      MTD58470
                                 *      REWIND AND READ  OPERATION                               MTD58480
                                 *                                                               MTD58490
 005B38   41F0 A850 =00838C      TST7.5 BAL   R15,LOOPTOP                                        MTD58500
 005B3C   0000 5CC0                     DAC   TST7.7         NEXT SEQUENCE ON PASS               MTD58510
 005B40   0000 62D4                     DAC   TST7.END       PROCEED LIMIT                       MTD58520
 005B44   E630 8020 =005B68             LA    R3,TST7.5A     LOAD ADDR OF NEXT STEP              MTD58530
 005B48   4030 21E6                     STH   R3,DEVINT      AND STORE INTO INTR. TABLE          MTD58540
 005B4C   E630 1C9F                     LA    R3,SXI32       LOAD INTERRUPT HANDLER ADDR.        MTD58550
 005B50   403C 0000                     STH   R3,0(R12)      STORE IN TABLE                      MTD58560
 005B54   C800 003C                     LHI   R0,X'3C'       LOAD TIMER                          MTD58570
 005B58   41E0 A136 =007C92             BAL   R14,CREW       GIVE REWIND COMMAND                 MTD58580
 005B5C   41F0 162A                     BAL   R15,TIMER      WAIT FOR NMTN INTERRUPT             MTD58590
 005B60   E650 8846 =0063AA             LA    R5,T7.E006     NO INRTPT GENRT FROM NTMN/C REW     MTD58600
 005B64   4300 FDAC =005914             B     TST7.1ER                                           MTD58610
                                 *NMTN ON REWIND BROUGHT US HERE                                 MTD58620
 005B68   7330 0A54              TST7.5A LHL  R3,PSW3        RESTORE PSW AND                     MTD58630
 005B6C   95E3                          EPSR  R14,R3         WORKING REGISTERS                   MTD58640
 005B6E   D100 ADDE =008950             LM    R0,RSAVE       RESTORE REGISTERS                   MTD58650
 005B72   41E0 A066 =007BDC             BAL   R14,SENSTA     LOAD INTERFACE STATUS               MTD58660
 005B76   C430 00C0                     NHI   R3,X'C0'       ZERO IN ON ERR BITS                 MTD58670
 005B7A   4230 A594 =008112             BNZ   STATCHK        CHECK IT OUT IF ERRORS              MTD58680
 005B7E   E630 8020 =005BA2             LA    R3,TST7.5B     LOAD ADDR OF NEXT STEP              MTD58690
 005B82   4030 21E6                     STH   R3,DEVINT      STORE IT IN TABLE                   MTD58700
 005B86   E660 4001 89D0                LA    R6,READBUF     LOAD ADDRESS OF STORAGE             MTD58710
 005B8C   2450                          LIS   R5,0                                               MTD58720
 005B8E   C800 07FF                     LHI   R0,X'7FF'      LOAD TIMER                          MTD58730
 005B92   41E0 A0C4 =007C5A             BAL   R14,CREAD      PUT INF IN READ MODE                MTD58740
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                                  *                                                              MTD58750
                                  *        SHOULD GET A BUSY INTERRUPT WHEN FIFO HAS             MTD58760
                                  *        PASSED DATA THRU                                      MTD58770
                                  *                                                              MTD58780
005B96   41F0 162A                         BAL   R15,TIMER        WAIT FOR INTERRUPT             MTD58790
005B9A   E650 8844 =0063E2                 LA    R5,T7.E007       NO BUSY INTRPT ON C READ       MTD58800
005B9E   4300 FD72 =005914        TST7.5AB B     TST7.1ER         ERROR IF WE GET                MTD58810
                                  *                                                              MTD58820
005BA2   5810 ADAE =008954        TST7.5B  L     R1,RSAVE+4       RESTORE R1                     MTD58830
005BA6   5820 ADAE =008958                 L     R2,RSAVE+8       RESTORE R2                     MTD58840
005BAA   7330 0A54                         LHL   R3,PSW3          SET UP PSW FOR                 MTD58850
005BAE   95E3                              EPSR  R14,R3           NEXT INTERRUPT                 MTD58860
005BB0   E630 8018 =005BCC                 LA    R3,T7.5C         LOAD ADDR. OF NEXT STEP        MTD58870
005BB4   403C 0000                         STH   R3,0(R12)        STORE INTO TABLE               MTD58880
005BB8   D916 0000                T7.5     RH    R1,0(R6)         START READS                    MTD58890
005BBC   C830 7FFF                         LHI   R3,X'7FFF'       LOAD COUNTER                   MTD58900
005BC0   41E0 80EA =005CAF                 BAL   R14,TIMOUT       WAIT FOR INTERRUPT             MTD58910
005BC4   E650 88EE =0064B6                 LA    R5,T7.E00D       NO INTRPT GENRT ON BUSY AFTER RD MTD58920
005BC8   4300 FFD2 =005B9F                 B     TST7.5AB         ERROR IF NO INTERRUPT          MTD58930
                                  *        BUSY SHOULD INTERRUPT EVERY TIME DURING READS         MTD58940
         0000 5BCC                T7.5C    EQU   *                                               MTD58950
005BCC   7330 0A54                         LHL   R3,PSW3          RESTORE REGISTER SET AND PROC INTERRU MTD58960
005BD0   95E3                              EPSR  R14,R3                                          MTD58970
005BD2   41E0 A006 =007BDC                 BAL   R14,SENSTA       CHECK STATUS                   MTD58980
005BD6   C330 0014                         THI   R3,X'14'         NMTN INTERRUPT?                MTD58990
005BDA   4230 802C =005C0A                 BNZ   T7.5E            YES! GO AND FLAG IT            MTD59000
005BDE   2662                              AIS   R6,2             INCREMENT STORAGE LOC          MTD59010
005BE0   2652                              AIS   R5,2             DECREMENT BYTES COUNT          MTD59020
005BE2   C550 0010                         CLHI  R5,X'10'         IS R5 AT TOTAL?                MTD59030
005BE6   4230 FFCE =005BB8                 BNE   T7.5             AND READ                       MTD59040
                                  * CHECK FOR NMTN INTERRUPT                                     MTD59050
005BEA   E630 8014 =005C02                 LA    R3,T7.5EE        LOAD INTERRUPT LOC             MTD59060
005BEE   403C 0000                         STH   R3,0(R12)        STORE IN TABLE                 MTD59070
005BF2   5800 A82A =008420                 L     R0,BASE          LOAD TIMER COUNT               MTD59080
005BF6   41F0 162A                         BAL   R15,TIMER        AND WAIT FOR IT                MTD59090
005BFA   E650 88E6 =0064F4        T7.5CA   LA    R5,T7.E00E       NO INTRPT GENRT ON NMTN AFTER RD MTD59100
005BFE   4300 FF9C =005B9E                 B     TST7.5AB         ERROR OUTPUT                   MTD59110
                                  *COME HERE ON NMTN INTRPT. AFTER READS                         MTD59120
005C02   5810 AD4E =008954        T7.5EE   L     R1,RSAVE+4       RESTORE R1                     MTD59130
005C06   5820 AD4E =008958                 L     R2,RSAVE+8       RESTORE R2                     MTD59140
         0000 5C0A                T7.5E    EQU   *                                               MTD59150
005C0A   7330 0A54                         LHL   R3,PSW3          RESET PSW AND                  MTD59160
005C0E   95E3                              EPSR  R14,R3           USER SET                       MTD59170
005C10   41E0 9FC8 =007BDC                 BAL   R14,SENSTA       LOAD STATUS                    MTD59180
005C14   C430 0010                         NHI   R3,X'10'         WAS IT NMTN?                   MTD59190
*005C18  2133      =005C1E                 BNZ   T7.5DAT          YES! CONTINUE ON               MTD59200
005C1A   4300 FFDC =005BFA                 B     T7.5CA           NO! ERROR!                     MTD59210
                                  *COME HERE TO VERIFY DATA                                      MTD59220
         0000 5C1E                T7.5DAT  EQU   *                                               MTD59230
005C1E   41F0 A4F0 =008112                 BAL   R15,STATCHK      CHECK STATUS FIRST             MTD59240
005C22   E630 1C9E                         LA    R3,$XI32         LOAD INT. HANDLER ADDR         MTD59250
005C26   403C 0000                         STH   R3,0(R12)        STORE IN TABLE                 MTD59260
005C2A   2470                              LIS   R7,0             ZERO INDEX REGISTER            MTD59270
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 005C2C      E640 A800 =008430          LA    R4,TESTPAT+10                                MTD59280
 005C30      7364 0000          T7.5DA  LHL   R6,0(R4)                                     MTD59290
 005C34      7387 4001 89DC             LHL   R8,READBUF(R7)                               MTD59300
 005C3A      0568                       CLR   R6,R8            COMPARE THE TWO             MTD59310
*005C3C      2138      =005C4C          BNE   T7.5ERR                                      MTD59320
 005C3E      0575                       CLR   R7,R5            COMPLETED ALL BYTES         MTD59330
 005C40      4330 8028 =005C6C          BE    TST7.6           JUMP OUT IF EQUIVALENT      MTD59340
 005C44      2672                       AIS   R7,2             INCREMENT ADDRESS INDEX     MTD59350
*005C46      220B      =005C30          B     T7.5DA           CONTINUE                    MTD59360
 005C48      4300 8020 =005C6C          B     TST7.6                                       MTD59370
                                *                                                          MTD59380
             0000 5C4C          T7.5ERR EQU   *                                            MTD59390
 005C4C      4060 A8AC =0084FC          STH   R6,WSTORE        SAVE WRITE DATA             MTD59400
 005C50      4080 A8AA =0084FE          STH   R8,RSTORE        AND SAVE IT                 MTD59410
 005C54      4070 A7BC =008414          STH   R7,INDEX         BYTE LOCATION               MTD59420
 005C58      E650 8966 =0065C2          LA    R5,T7.E012A      COMPARES UNDER WRITE-READ INT MTD59430
 005C5C      41E0 2CC4                  BAL   R14,T1ERRORA     DATA                        MTD59440
 005C60      E6F0 35F6                  LA    R15,MESSG3A                                  MTD59450
 005C64      E6E0 A92E =008596          LA    R14,CONTMSG      SUSPECTED ERROR WITH CONTROLLER MTD59460
 005C68      4300 A660 =0082CC          B     ERRORX                                       MTD59470
                                *                                                          MTD59480
                                *                                                          MTD59490
                                *                                                          MTD59500
                                *       LET'S CHECK OUT INTERRUPTS WITH SKIP COMMANDS      MTD59510
                                *                                                          MTD59520
 005C6C      E630 8018 =005C88  TST7.6  LA    R3,TST7.6A                                   MTD59530
 005C70      4030 21E6                  STH   R3,DEVINT        AND STORE IT                MTD59540
 005C74      C800 003C                  LHI   R0,X'3C'         LOAD TIMER                  MTD59550
                                *                                                          MTD59560
                                *       LET'S SKIP BACKWARDS FIRST                         MTD59570
                                *                                                          MTD59580
 005C78      41E0 9FFE =007C7A          BAL   R14,CSKBB        OUTPUT COMMAND FOR SKIP     MTD59590
 005C7C      41F0 162A                  BAL   R15,TIMER        TIME OUT ON SKIP            MTD59600
 005C80      E650 888E =006512          LA    R5,T7.E010       NO INTRPT GENR ON NMTN FR SKIP BACK MTD59610
 005C84      4300 FC8C =005914          B     TST7.1ER         OUTPUT ERROR IF NO INTR.    MTD59620
                                *                                                          MTD59630
                                *       LET'S SKIP FORWARD NOW                             MTD59640
                                *                                                          MTD59650
 005C88      7330 0A54          TST7.6A LHL   R3,PSW3          RESTORE PSW AND             MTD59660
 005C8C      95E3                       EPSR  R14,R3           REGISTERS                   MTD59670
 005C8E      D100 ACBE =008950          LM    R0,RSAVE         RESTORE REGISTERS           MTD59680
 005C92      E630 A6B8 =00834E          LA    R3,PASS          LOAD ADDR OF NEXT TEST      MTD59690
 005C96      4030 21E6                  STH   R3,DEVINT        STORE IN HANDLER            MTD59700
 005C9A      C800 003C                  LHI   R0,X'3C'         LOAD TIMER                  MTD59710
 005C9E      41E0 9FC4 =007C66          BAL   R14,CSKFB        GIVE SKIP COMMAND           MTD59720
 005CA2      41F0 162A                  BAL   R15,TIMER        WAIT FOR INTERRUPT          MTD59730
 005CA6      E650 88A6 =006550          LA    R5,T7.E011       NO INTRPT GENRT ON NMTN FROM SKIP FOR MTD59740
 005CAA      4300 FC66 =005914          B     TST7.1ER                                     MTD59750
                                *                                                          MTD59760
                                *                                                          MTD59770
 005CAE      40E0 AC9A =00894C  TIMOUT  STH   R14,R15SAVE      SAVE R14                    MTD59780
 005CB2      41F0 1A8C                  BAL   R15,TSTBRK       CHECK FOR BREAK DEPRESSION  MTD59790
 005CB6      48E0 AC92 =00894C          LH    R14,R15SAVE      RESTORE R14                 MTD59800
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TEST 7

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 005CBA     2731                       SIS   R3,1               DECREMENT TIME VALUE               MTD59810
*005CBC     2037        =005CAE        BNZ   TIMOUT             WAIT FOR INTERRUPT                 MTD59820
 005CBE     030E                       BR    R14                RETURN TO ERROR                    MTD59830
                              *                                                                    MTD59840
                              *                                                                    MTD59850
                              *        LET'S PUT IT ALL TOGETHER NOW AND                           MTD59860
                              *        EXERCISE THE INTERRUPTS OF THE INF.                         MTD59870
                              *                                                                    MTD59880
            0000 5CC0         TST7.7   EQU   *                                                     MTD59890
 005CC0     7330 0A52                  LHL   R3,PSW2            LET'S CLEAR EVERYTHING             MTD59900
 005CC4     95E3                       EPSR  R14,R3             FIRST                              MTD59910
 005CC6     4810 A73E =008408          LH    R1,DRIVSAV         RESTORE R1                         MTD59920
 005CCA     4840 2036                  LH    R4,DATA+$VALU1     SEE IF USER SPECIFIED DATA PATTERN MTD59930
*005CCE     2133        =005CD4        BNZ   TST7.70                                               MTD59940
 005CD0     4840 A75C =008430          LH    R4,TESTPAT+10      ELSE USE TEST PATTERN              MTD59950
 005CD4     4040 A74C =008424 TST7.70  STH   R4,DATAPAT                                            MTD59960
 005CD8     7300 2124                  LHL   R0,TRMODE+$VALU1   LOOK AT TRANSFER TYPE              MTD59970
 005CDC     4230 82E6 =005FC6          BNZ   TST7.S             SELCH TRANSFERS                    MTD59980
 005CE0     41F0 A6A8 =00838C          BAL   R15,LOOPTOP        ADDRESS CALCULATION                MTD59990
 005CE4     0000 5E3A                  DAC   TST7.7B                                               MTD60000
 005CE8     0000 62D4                  DAC   TST7.END                                              MTD60010
 005CEC     41E0 9FDA =007CCA          BAL   R14,CDISARM        DISARM INTERRUPTS FIRST            MTD60020
 005CF0     41F0 A3DE =0080D2          BAL   R15,REWMT          REWIND MAG TAPE                    MTD60030
 005CF4     7370 20B4                  LHL   R7,FILES+$VALU1    LOAD FILE COUNT                    MTD60040
 005CF8     7360 20FA         T7.7D    LHL   R6,RECORDS+$VALU1  LOAD RECORD COUNT                  MTD60050
 005CFC     41E0 9E9A =007E9A T7.7A    BAL   R14,CCLEAR         CLEAR INTERFACE                    MTD60060
 005D00     7380 200C                  LHL   R8,BYTES+$VALU1    LOAD RECORD LENGTH                 MTD60070
 005D04     2781                       SIS   R8,1                                                  MTD60080
 005D06     C380 0001                  THI   R8,X'0001'         IS BYTES AN ODD VALUE?             MTD60090
*005D0A     2133        =005D10        BNZ   T7.007             IF NOT, NO COMMAND IS NECESSARY    MTD60100
 005D0C     41E0 9FD8 =007CE8          BAL   R14,CWRODBY        ISSUE WRT ODD BYTE COMMAND         MTD60110
 005D10     0858              T7.007   LR    R5,R8              LOAD INTO TEMPORARY REGISTER       MTD60120
 005D12     7330 0A54                  LHL   R3,PSW3            PSW = 70F0                         MTD60130
 005D16     95E3                       EPSR  R14,R3             ENABLE PROC. IO INTR.              MTD60140
 005D18     E630 805A =005D76          LA    R3,T7.DWRT         LOAD ADDR OF WRITE ROUTINE         MTD60150
 005D1C     4030 21E6                  STH   R3,DEVINT          STORE IT IN HANDLER                MTD60160
 005D20     41E0 9FAC =007CD0          BAL   R14,CENBLE         ENABLE INF. INTERRUPTS             MTD60170
 005D24     41E0 9EAA =007BD2          BAL   R14,CDENS          DENSITY COMMAND                    MTD60180
 005D28     41E0 9F54 =007C80          BAL   R14,CWRITE         GIVE INF.WRITE COMMAND             MTD60190
 005D2C     C830 7FFF                  LHI   R3,X'7FFF'         LOAD COUNTER                       MTD60200
 005D30     41E0 FF7A =005CAF          BAL   R14,TIMOUT         WAIT FOR INTERRUPT                 MTD60210
                              *                                                                    MTD60220
 005D34     E650 86E0 =006418          LA    R5,T7.E008         IN INTRPT GENRT AFTER C WRITE      MTD60230
 005D38     41E0 800C =005D48 T7R04    BAL   R14,T7ERRORA       DRIVE AND STATUS                   MTD60240
 005D3C     E6F0 8B42 =006882          LA    R15,T7ERMSG1                                          MTD60250
 005D40     E6E0 A852 =008596          LA    R14,CONTMSG        SUSPECTED ERROR WITH CONTROLLER    MTD60260
 005D44     4300 A584 =0082CC          B     ERRORX                                                MTD60270
                              *                                                                    MTD60280
 005D48     D000 AC44 =008990 T7ERRORA STM   R0,ERRSAVE         SAVE R0 AND UP                     MTD60290
 005D4C     41F0 A61E =00836F          BAL   R15,LOOP2          OUTPUT 1ST MSG?                    MTD60300
 005D50     4810 A6B4 =008408          LH    R1,DRIVSAV         R1 = DRIVE ADDRESS                 MTD60310
 005D54     41E0 9E84 =007BDC          BAL   R14,SENSTA         GET CURRENT STATUS                 MTD60320
 005D58     2403                       LIS   R0,3               CONVERT 3 DIGITS                   MTD60330
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005D5A       E620 8B2A =006888          6034           LA    R2,T7ERMSG1+6                                    MTD60340
005D5E       41F0 1680                  6035           BAL   R15,HEXASC                                      MTD60350
005D62       2402                       6036           IIS   R0,2                 CONVERT 2 DIGITS           MTD60360
005D64       4810 A65C =0083C4          6037           LH    R1,STATUS                                        MTD60370
005D68       E620 8B29 =006895          6038           LA    R2,T7ERMSG2+7                                    MTD60380
005D6C       41F0 1680                  6039           BAL   R15,HEXASC                                      MTD60390
005D70       D100 AC1C =008990          6040           LM    R0,ERRSAVE            RESTORE R0 AND UP          MTD60400
005D74       030E                       6041           BR    R14                   RETURN                     MTD60410
                                        6042  *                                                               MTD60420
                                        6043  *        COME HERE FOR WRITE BUSY INTERRUPT                     MTD60430
                                        6044  *                                                               MTD60440
             0000 5D76                  6045  T7.DWRT  EQU   *                                                MTD60450
005D76       7330 0A54                  6046           LHL   R3,PSW3               RESTORE PSW AND            MTD60460
005D7A       95E3                       6047           EPSR  R14,R3                REGISTERS                  MTD60470
005D7C       E630 803C =005DBC          6048           LA    R3,T7.DWB             LOAD ADDR. OF REC END STEP MTD60480
005D80       403C 0000                  6049           STH   R3,0(R12)             STORE IN HANDLER           MTD60490
005D84       7300 200C                  6050           LHL   R0,BYTES+$VALU1                                  MTD60500
005D88       C500 0004                  6051           CLHI  R0,4                  COMPARE TO BYTES IN DISARM  MTD60510
*005D8C      218D       =005DA6         6052           BL    T7.DW2A               IF <,NO DISARM ONLY ENABLE MTD60520
005D8E       24A4                       6053           LIS   R10,4                 LOAD BEGINNING COUNT       MTD60530
005D90       41E0 9F36 =007CCA          6054           BAL   R14,CDISARM           DISABLES ANY INTERRUPTS FOR NOW MTD60540
005D94       9814                       6055  T7.DW1   WHR   R1,R4                 OUTPUT HALFWORDS           MTD60550
005D96       27A2                       6056           SIS   R10,2                 DECREMENT COUNT            MTD60560
005D98       2334       =005DA0         6057           BZS   T7.DW2               OUT IF ZERO                MTD60570
005D9A       41E0 9E84 =007C22          6058           BAL   R14,SENSTA3           WAIT FOR BUSY              MTD60580
005D9E       2205       =005D94         6059           BS    T7.DW1                AND OUTPUT SOME MORE       MTD60590
005DA0       41E0 9E7E =007C22          6060  T7.DW2   BAL   R14,SENSTA3           SENSE STATUS FOR NON BUSY  MTD60600
005DA4       2754                       6061           SIS   R5,4                 ADJUST BYTES COUNT FOR THE 4 BY WRITT MTD60610
005DA6       41E0 9F26 =007CD0          6062  T7.DW2A  BAL   R14,CENBLE           RE-ENABLE INTERRUPTS       MTD60620
005DAA       9814                       6063  T7.DWA   WHR   R1,R4                 WRITE OUT DATA             MTD60630
*005DAC      C830 7FFF                  6064           LI    R3,Y'0007FFF'         LOAD COUNTER               MTD60640
005DB0       41E0 FEFA =005CAE          6065           BAL   R14,TIMOUT            WAIT FOR INTERRUPT         MTD60650
005DB4       E650 87D4 =00658C          6066           LA    R5,T7.E012            NO INTRPT GENRT ON ON BSY AFTER WH MTD60660
005DB8       4300 FF7C =005D38          6067           B     T7R04                 ERROR SETUP                MTD60670
                                        6068  *                                                               MTD60680
             0000 5DBC                  6069  T7.DWB   EQU   *                                                MTD60690
005DBC       7330 0A54                  6070           LHL   R3,PSW3               RESET PSW                  MTD60700
005DC0       95E3                       6071           EPSR  R14,R3                USER SET                   MTD60710
005DC2       2752                       6072           SIS   R5,2                 DECREMENT BYTE COUNT       MTD60720
*005DC4      228D       =005DAA         6073           BNL   T7.DWA               AND OUPUT SOME MORE?       MTD60730
005DC6       E630 8014 =005DDE          6074           LA    R3,T7.DWC             LOAD LOC FOR NMTN INTR.    MTD60740
005DCA       403C 0000                  6075           STH   R3,0(R12)             AND STORE IN TABLE         MTD60750
005DCE       5800 A64E =008420          6076           L     R0,BASE               LOAD TIMER COUNT           MTD60760
005DD2       41F0 162A                  6077           BAL   R15,TIMER             AND WAIT FOR NMTN INTR.    MTD60770
005DD6       E650 8674 =00644E          6078           LA    R5,T7.E00A            NO INTRPT GEN ON NMTN AFTER WR DATA MTD60780
005DDA       4300 FF5A =005D38          6079           B     T7R04                 ERROR SETUP                MTD60790
                                        6080  *                                                               MTD60800
                                        6081  *        COME HERE FOR FINISH WRITE NMTN INTERRUPT               MTD60810
                                        6082  *                                                               MTD60820
             0000 5DDE                  6083  T7.DWC   EQU   *                                                MTD60830
005DDE       7330 0A54                  6084           LHL   R3,PSW3               RESTORE PSW AND            MTD60840
005DE2       95E3                       6085           EPSR  R14,R3                REGISTERS                  MTD60850
005DE4       D100 AB68 =008950          6086           LM    R0,RSAVE              RESTORE REGISTERS          MTD60860
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TEST 7

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005DE8  E630 1C9E              6087           LA    R3,SXI32           LOAD ADDRESS OF INTR. HANDLER          MTD60870
005DEC  403C 0000              6088           STH   R3,0(R12)          AND STORE IN TABLE                     MTD60880
005DF0  41F0 A31E =008112      6089           BAL   R15,STATCHK        CHECK FOR ERRORS                       MTD60890
005DF4  C430 0020              6090           NHI   R3,X'20'           IS EOT SET                             MTD60900
005DF8  4230 A552 =00834E      6091           BNZ   PASS               IF SO, REWIND AND READS                MTD60910
        0000 5DFC              6092  T7.DWTA  EQU   *                                                         MTD60920
005DFC  2761                   6093           SIS   R6,1               DECREMENT RECORD COUNT                 MTD60930
005DFE  4230 FEFA =005CFC      6094           BNZ   T7.7A              IF NOT! OUTPUT ANOTHER RECORD          MTD60940
                               6095  *                                                                        MTD60950
                               6096  *        COME HERE TO OUTPUT A TAPE MARK                                 MTD60960
                               6097  *        AND TO CHECK FILE COUNT                                         MTD60970
                               6098  *                                                                        MTD60980
005E02  E630 8018 =005E1F      6099           LA    R3,T7.TM           LOAD ADDR. OF NEXT CHECK               MTD60990
005E06  4030 21E6              6100           STH   R3,DEVINT          STORE IN HANDLER                       MTD61000
005E0A  C800 003C              6101           LHI   R0,X'3C'           LOAD TIMER                             MTD61010
005E0E  41E0 9E5A =007C6C      6102           BAL   R14,CWREOF         WRITE EOF                              MTD61020
005E12  41F0 162A              6103           BAL   R15,TIMER          WAIT FOR INTERRUPT                     MTD61030
005E16  E650 87CE =0065E8      6104           LA    R5,T7.E013         NO INTRPT GEN ON WRITE EOF              MTD61040
005E1A  4300 FF1A =005D38      6105           B     T7R04              ERROR SETUP                            MTD61050
                               6106  *                                                                        MTD61060
        0000 5E1E              6107  T7.TM    EQU   *                                                         MTD61070
005E1E  7330 0A54              6108           LHL   R3,PSW3            RESTORE PSW AND                        MTD61080
005E22  95E3                   6109           EPSR  R14,R3             REGISTERS                              MTD61090
005E24  D100 AB28 =008950      6110           LM    R0,RSAVE           RESTORE REGISTERS                      MTD61100
005E28  41F0 A2E6 =008112      6111           BAL   R15,STATCHK        CHECK FOR ERRORS                       MTD61110
005E2C  C430 0020              6112           NHI   R3,X'20'           IS TAPE AT EOT                         MTD61120
005E30  4230 A51A =00834F      6113           BNZ   PASS                                                      MTD61130
005E34  2771                   6114           SIS   R7,1               DECREMENT FILE COUNT                   MTD61140
005E36  4230 FEBE =005CF8      6115           BNZ   T7.7D              OTHERWISE OUTPUT ANOTHER FILE          MTD61150
                               6116  *                                                                        MTD61160
                               6117  *        NOW THAT WE HAVE WRITTEN UNDER INTERRUPTS                       MTD61170
                               6118  *        LET US NOW READ UNDER INTERRUPTS                                MTD61180
                               6119  *                                                                        MTD61190
005E3A  41F0 A54E =00838C      6120  TST7.7B  BAL   R15,LOOPTOP                                              MTD61200
005E40  0000 62D4              6121           DAC   TST7.END           NEXT SEQUENCE                          MTD61210
005E44  0000 62D4              6122           DAC   TST7.END                                                  MTD61220
005E48  E630 8020 =005F6C      6123           LA    R3,T7.DRD          SET UP INTERRUPT POINTER               MTD61230
005E4C  4030 21E6              6124           STH   R3,DEVINT          AND STORE IT                           MTD61240
005E50  41E0 9E7C =007CD0      6125           BAL   R14,CENBLE                                                MTD61250
005E54  C800 003C              6126           LHI   R0,X'3C'           LOAD TIMER                             MTD61260
005E58  5A00 A5C4 =008420      6127           A     R0,BASE            ADD IN BASE                            MTD61270
005E5C  41E0 9E32 =007C92      6128           BAL   R14,CREW           REWIND MAG TAPE                        MTD61280
005E60  41F0 162A              6129           BAL   R15,TIMER          WAIT FOR NMTN INTR.                    MTD61290
005E64  E650 8616 =00647E      6130           LA    R5,T7.E00B         NO INTRPT GENRT ON NMTN AF REW          MTD61300
005E68  4300 FECC =005D38      6131           B     T7R04              DRIVE AND STATUS                       MTD61310
                               6132  *                                                                        MTD61320
                               6133  *        OTHERWISE WE COME HERE AND START READS                          MTD61330
                               6134  *                                                                        MTD61340
        0000 5F6C              6135  T7.DRD   EQU   *                                                         MTD61350
005F6C  7330 0A54              6136           LHL   R3,PSW3            RESTORE PSW                            MTD61360
005F70  95E3                   6137           EPSR  R14,R3             AND REGISTERS                          MTD61370
005F72  5810 AADE =008954      6138           L     R1,RSAVE+4         RESTORE R1                             MTD61380
005F76  5820 AADE =008958      6139           L     R2,RSAVE+8         RESTORE R2                             MTD61390
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 005E7A   4840 45B2 =008430            LH    R4,TESTPAT+10       LOAD PATTERN FOR COMPARE              MTD61400
 005E7E   7370 20B4                    LHL   R7,FILES+$VALU1     LOAD FILE COUNT                       MTD61410
 005E82   7360 20FA           T7.7G    LHL   R6,RECORDS+$VALU1   LOAD RECORD COUNT                     MTD61420
 005E86   7380 200C           T7.7I    LHL   R8,BYTES+$VALU1     LOAD RECORD LENGTH                    MTD61430
 005E8A   2781                         SIS   R8,1                                                      MTD61440
 005E8C   E630 801A =005EAA            LA    R3,T7.DRD1          LOAD ADDR OF READ                     MTD61450
 005E90   403C 0000                    STH   R3,0(R12)           STORE IN HANDLER                      MTD61460
 005E94   0858                         LDAR  R5,R8               LOAD RECORD LENGTH                    MTD61470
 005E96   C800 07FF                    LHI   R0,X'7FF'           LOAD TIMER                            MTD61480
 005E9A   41E0 9DBC =007C5A            BAL   R14,CREAD           GIVE READ COMMAND                     MTD61490
 005E9E   41F0 162A                    BAL   R15,TIMER           WAIT FOR BUSY TO DROP                 MTD61500
 005EA2   E650 8610 =0064B6            LA    R5,T7.E00D          NO INTRPT GEN ON BUSY AFTER RD        MTD61510
 005EA6   4300 FE8E =005D38            B     T7R04               DRIVE AND STATUS                      MTD61520
                              *                                                                        MTD61530
                              *        COME HERE ON READ BUSY INTERRUPT                                MTD61540
                              *                                                                        MTD61550
          0000 5EAA           T7.DRD1  EQU   *                                                         MTD61560
 005EAA   7330 0A54                    LHL   R3,PSW3             RESTORE PSW                           MTD61570
 005EAE   95E3                         EPSR  R14,R3              AND REGISTERS                         MTD61580
 005EB0   5810 AAA0 =008954            L     R1,RSAVE+4          RESTORE R1                            MTD61590
 005EB4   5820 AAA0 =008958            L     R2,RSAVE+8          RESTORE R2                            MTD61600
 005EB8   41E0 9E1A =007CD6            BAL   R14,CDISBLE         DISABLE INTR. RIGHT AWAY              MTD61610
 005EBC   E630 1C9E                    LA    R3,SXI32            LOAD ITR. HADLER LOC                  MTD61620
 005EC0   403C 0000                    STH   R3,0(R12)           STORE IT                              MTD61630
 005EC4   E630 8032 =005EFA            LA    R3,T7.DRD2          LOAD ADDR. OF FINISH                  MTD61640
 005EC8   4030 21E6                    STH   R3,DEVINT           READ ROUTINE                          MTD61650
 005ECC   E690 4001 89D0               LA    R9,READBUF          LOAD ADDRESS                          MTD61660
 005ED2   D919 0000           T7.7H    RH    R1,0(R9)            READ DATA                             MTD61670
 005ED6   2692                         AIS   R9,2                INCREMENT BUFFER                      MTD61680
 005ED8   2752                         SIS   R5,2                DECREMENT BYTE COUNT                  MTD61690
*005EDA   2184      =005EE2            BL    T7.7L               CONTINUE IF NOT ZERO                  MTD61700
 005EDC   41E0 9D42 =007C22            BAL   R14,SENSTA3         LOOK AT BUSY                          MTD61710
 005EE0   2207      =005ED2            BS    T7.7H               OTHERWISE INPUT SOME MORE             MTD61720
 005EE2   41E0 9CFE =007BE4   T7.7L    BAL   R14,SENSTA1         LOOK AT NMTN                          MTD61730
 005EE6   41E0 9DE6 =007CD0            BAL   R14,CENBLE          ENABLE INTERFACE INTERRUPTS           MTD61740
          0000 5EEA           T7.7K    EQU   *                                                         MTD61750
 005EEA   C830 7FFF                    LHI   R3,X'7FFF'          LOAD COUNTER                          MTD61760
 005EEE   41E0 FDBC =005CAE            BAL   R14,TIMOUT          WAIT FOR INTERRUPT                    MTD61770
 005EF2   E650 85EE =0064E4            LA    R5,T7.E00E          NO INTRPT GEN ON NMTN AFTER RD        MTD61780
 005EF6   4300 FE3E =005D38            B     T7R04               DRIVE AND STATUS                      MTD61790
                              *                                                                        MTD61800
                              *        COME HERE FOR QUEUED NMTN INTERRUPT                             MTD61810
                              *        ON READ                                                         MTD61820
                              *                                                                        MTD61830
          0000 5EFA           T7.DRD2  EQU   *                                                         MTD61840
 005EFA   C430 0010                    NHI   R3,X'10'            WAS IT NMTN?                          MTD61850
*005EFE   223A      =005EEA            BZ    T7.7K               NO! LET'S GIVE IT ANOTHER TRY         MTD61860
                              *                                                                        MTD61870
 005F00   7330 0A54                    LHL   R3,PSW3             RESTORE THIS AND                      MTD61880
 005F04   95E3                         EPSR  R14,R3              THAT                                  MTD61890
 005F06   41E0 9DC0 =007CCA            BAL   R14,CDISARM         DISARM INTR. JUST INCASE              MTD61900
 005F0A   41F0 A204 =008112            BAL   R15,STATCHK         CHECK STATUS FOR ERRORS               MTD61910
 005F0E   41E0 9DBE =007CD0            BAL   R14,CENBLE          RE-ENABLE INTERRUPTS                  MTD61920
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TEST 7

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 005F12    C330 0020            6193           THI   R3,X'20'          IS TAPE AT BOT?                   MTD61930
 005F16    4230 A434 =00834E    6194           BNZ   PASS              YES, END TEST                     MTD61940
 005F1A    0858                 6195           LDAR  R5,R8             LOAD BYTE COUNT INTO WORK REG.    MTD61950
 005F1C    2420                 6196           LIS   R2,0              INITIALIZE INDEX                  MTD61960
 005F1E    E640 A502 =008424    6197           LA    R4,DATAPAT        ADDRESS WHERE DATA IS             MTD61970
 005F22    24A0                 6198           LIS   R10,0             BYTE INDEX                        MTD61980
 005F24    D334 4200 0000       6199  DATCOMP2 LB    R3,0(R4,R2)       EXPECTED                          MTD61990
 005F2A    D39A 4001 89D0       6200           LB    R9,READBUF(R10)   ACTUAL                            MTD62000
 005F30    0539                 6201           CLR   R3,R9             COMPARE THE TWO                   MTD62010
*005F32    2138      =005F42    6202           BNE   DAT.MISS          ERROR IF .NE.                     MTD62020
 005F34    26A1                 6203           AIS   R10,1             INCREMENT BYTE INDEX              MTD62030
 005F36    C720 0001            6204           XHI   R2,1              TOGGLE DATA INDEX                 MTD62040
 005F3A    2751                 6205           SIS   R5,1              DECREMENT BYTE COUNT              MTD62050
*005F3C    228C      =005F24    6206           BNL   DATCOMP2          CONTINUE COMPARE TIL DONE         MTD62060
 005F3E    4300 8020 =005F62    6207           B     T7.0008                                             MTD62070
 005F42    4030 A5B6 =0084FC    6208  DAT.MISS STH   R3,WSTORE         STORE WRITE DATA                  MTD62080
 005F46    4090 A5B4 =0084FE    6209           STH   R9,RSTORE         AND STORE IT                      MTD62090
 005F4A    40A0 A4C6 =008414    6210           STH   R10,INDEX         BYTE LOCATION                     MTD62100
 005F4E    E650 8670 =0065C2    6211           LA    R5,T7.E012A       COMPARES UNDER WRITE/READ INTERRUPTS MTD62110
 005F52    41E0 2CC4            6212           BAL   R14,T1ERRORA                                        MTD62120
 005F56    E6F0 35F6            6213           LA    R15,MESSG3A                                         MTD62130
 005F5A    E6E0 A638 =008596    6214           LA    R14,CONTMSG       SUSPECTED ERROR WITH CONTROLLER   MTD62140
 005F5E    4300 A36A =0082CC    6215           B     ERRORX                                              MTD62150
                                6216  *                                                                  MTD62160
 005F62    2761                 6217  T7.0008  SIS   R6,1              DECREMENT RECORD COUNT            MTD62170
 005F64    4220 FF1E =005E86    6218           BP    T7.7I             INPUT ANOTHER RECORD?             MTD62180
                                6219  *                                                                  MTD62190
                                6220  *        OTHERWISE READ FOR FILE MARK                              MTD62200
                                6221  *                                                                  MTD62210
 005F68    E630 1C9E            6222           LA    R3,SXI32          LOAD ADDR. OF INTR. HANDLER       MTD62220
 005F6C    403C 0000            6223           STH   R3,0(R12)         STORE IN EXP INTR. LOC            MTD62230
 005F70    E630 8018 =005F8C    6224           LA    R3,T7.DRD3        SET UP INTERRUPT POINTER          MTD62240
 005F74    4030 21E6            6225           STH   R3,DEVINT         AND STORE IT                      MTD62250
 005F78    C800 003C            6226           LHI   R0,X'3C'          LOAD TIMER                        MTD62260
 005F7C    41E0 9CDA =007C5A    6227           BAL   R14,CREAD         OUTPUT A READ COMMAND             MTD62270
 005F80    41F0 162A            6228           BAL   R15,TIMER         WAIT FOR INTERRUPT                MTD62280
 005F84    E650 8692 =00661A    6229           LA    R5,T7.E014        NO INTRPT GEN ON BUSY AFT READ EOF MTD62290
 005F88    4300 FDAC =005D38    6230           B     T7R04             DRIVE AND STATUS                  MTD62300
                                6231  *                                                                  MTD62310
                                6232  *        COME HERE FOR EOF CHECK AND END OF                        MTD62320
                                6233  *        TEST CHECK                                                MTD62330
                                6234  *                                                                  MTD62340
           0000 5F8C            6235  T7.DRD3  EQU   *                                                   MTD62350
 005F8C    7330 0A54            6236           LHL   R3,PSW3           RESTORE PSW                       MTD62360
 005F90    95F3                 6237           EPSR  R14,R3            AND REGISTERS                     MTD62370
 005F92    D100 A9BA =008950    6238           LM    R0,RSAVE          RESTORE REGISTERS                 MTD62380
 005F96    41E0 9C42 =007BDC    6239           BAL   R14,SENSTA        CHECK INTERFACE STATUS            MTD62390
 005F9A    C430 0002            6240           NHI   R3,X'02'          ZERO IN ON EOF                    MTD62400
*005F9E    213F      =005FBC    6241           BNZ   T7.DRD4           CONTINUE ON IF SET                MTD62410
 005FA0    E650 86A8 =00664C    6242           LA    R5,T7.E015        NO TAPE MARK STATUS AFTER READ    MTD62420
 005FA4    C800 001E            6243  T7R06    LHI   R0,X'1E'          EXP STATUS                        MTD62430
 005FA8    4000 A41C =0083C8    6244           STH   R0,STATGD                                           MTD62440
 005FAC    41E0 28AE            6245           BAL   R14,T0ERRORB                                        MTD62450
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005FB0     E6F0 2A4C          6246          LA    R15,MESSAGE1                                      MTD62460
005FB4     E6E0 A5DE =008596  6247          LA    R14,CONTMSG                                       MTD62470
005FB8     4300 A310 =0082CC  6248          B     ERRORX                                            MTD62480
                              6249  *                                                               MTD62490
           0000 5FBC          6250  T7.DRD4 EQU   *                                                 MTD62500
005FBC     2771               6251          SIS   R7,1               DECREMENT FILE COUNT           MTD62510
005FBE     4230 FEC0 =005F82  6252          BNZ   T7.7G              CONTINUE OUTPUT OF FILES       MTD62520
005FC2     4300 A388 =00834E  6253          B     PASS               OR END TEST?                   MTD62530
                              6254  *************************************************************   MTD62540
                              6255  *                                                           *   MTD62550
                              6256  *       COME HERE FOR SELCH TRANSFERS                       *   MTD62560
                              6257  *       UNDER INTERRUPT CONTROL                             *   MTD62570
                              6258  *************************************************************   MTD62580
005FC6     41F0 A3C2 =00838C  6259  TST7.S  BAL   R15,LOOPTOP        ADDRESS CALCULATION            MTD62590
005FCC     0000 611C          6260          DAC   T7.S3B                                            MTD62600
005FD0     0000 62D4          6261          DAC   TST7.END                                          MTD62610
005FD4     41E0 9CF2 =007CCA  6262          BAL   R14,CDISARM        DISARM INTERRUPTS FIRST        MTD62620
005FD8     7320 2108          6263          LHL   R2,SELCH+$VALU1    LOAD SELCH ADDRESS             MTD62630
005FDC     4330 82E2 =0062C2  6264          BZ    T7.NOS             BRANCH TO MSG. IF NO           MTD62640
005FE0     41F0 9CBA =007C9F  6265          BAL   R14,CSTOP          STOP SELCH FIRST               MTD62650
005FE4     41E0 9CB6 =007C9E  6266          BAL   R14,CSTOP                                         MTD62660
005FE8     41F0 A0E6 =0080D2  6267          BAL   R15,REWMT          REWIND MAG TAPE                MTD62670
005FEC     7330 0A54          6268          LHL   R3,PSW3            SET UP FOR PROC.               MTD62680
005FF0     95E3               6269          EPSR  R14,R3             INTERRUPTS                     MTD62690
005FF2     7370 20B4          6270          LHL   R7,FILES+$VALU1    LOAD FILE COUNT                MTD62700
005FF6     E640 A42A =008424  6271          LA    R4,DATAPAT         LOAD ADDR OF TEST PATTERN      MTD62710
005FFA     7380 20FA          6272  T7.SB   LHL   R8,RECORDS+$VALU1  LOAD RECORD COUNT              MTD62720
           0000 5FFE          6273  T7.SA   EQU   *                                                 MTD62730
005FFE     41E0 9B98 =007B9A  6274          BAL   R14,CCLEAR         ISSUE CLEAR COMMAND BEFOR WRITE MTD62740
006002     E630 8066 =00606C  6275          LA    R3,TST7.S1         SET UP INTERRUPT               MTD62750
006006     4030 21E6          6276          STH   R3,DEVINT          HANDLER                        MTD62760
00600A     41E0 9CC2 =007CD0  6277          BAL   R14,CENBLE         ENABLE INF. INTERRUPTS         MTD62770
00600E     4070 A43A =00844C  6278          STH   R7,FILSAV          SAVE FILE COUNT                MTD62780
006012     41F0 9E22 =007F38  6279          BAL   R15,SELSETW        GO AND SETUP WRITE BUF.        MTD62790
006016     41E0 9CE0 =007CFA  6280          BAL   R14,WRBUF          GO AND SET UP SELCH            MTD62800
00601A     7370 A42E =00844C  6281          LHL   R7,FILSAV          RESTORE FILE COUNT             MTD62810
00601E     41E0 9BB0 =007BD2  6282          BAL   R14,CDENS          DENSITY COMMAND                MTD62820
006022     7330 200C          6283          LHL   R3,BYTES+$VALU1    LOOK AT BYTES OPTION           MTD62830
006026     C330 0001          6284          THI   R3,X'0001'         IS IT ODD VALUE                MTD62840
*00602A    2333      =006030  6285          BZ    T7.SA1             NO                             MTD62850
00602C     41E0 9CB8 =007CE8  6286          BAL   R14,CWRODBY        WRITE ODD BYTE COMMAND         MTD62860
006030     41E0 9C4C =007C80  6287  T7.SA1  BAL   R14,CWRITE         PUT INTERFACE INTO WRITE       MTD62870
006034     C830 7FFF          6288          LHI   R3,X'7FFF'         LOAD COUNTER                   MTD62880
006038     2731               6289  T7.SC   SIS   R3,1               DECREMENT COUNTER              MTD62890
00603A     2031      =006038  6290          BNZS  T7.SC              WAIT FOR INTERRUPT             MTD62900
00603C     E650 863E =00667E  6291          LA    R5,T7.E016         NO INTRPT GEN ON BUSY AFTER C WR W/SF MTD62910
006040     D000 A94C =008990  6292  T7R05   STM   R0,ERRSAVE                                        MTD62920
006044     41F0 A326 =00836E  6293          BAL   R15,LOOP2          OUTPUT ANY PENDING MESSAGES    MTD62930
006048     2403               6294          LIS   R0,3               3 DIGIT CONVERSION             MTD62940
00604A     0812               6295          LR    R1,R2              SELCH ADDRESS                  MTD62950
00604C     E620 882C =00687C  6296          LA    R2,T7MSG3+6                                       MTD62960
006050     41F0 1680          6297          BAL   R15,HEXASC         CONVERT                        MTD62970
006054     D100 A938 =008990  6298          LM    R0,ERRSAVE         RESTORE REGISTERS              MTD62980
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TEST 7

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006058    E650 881A =006876              LA    R5,T7MSG3          SELCH ***                        MTD62990
00605C    41E0 FCE8 =005D48    T7R05.5   BAL   R14,T7ERRORA       MESSAGE SET UP                   MTD63000
006060    E6F0 881E =006882              LA    R15,T7ERMSG1       DRIVE AND STATUS                 MTD63010
006064    E6E0 A52E =008596              LA    R14,CONTMSG        SUSPECTED ERROR W CONTROLLER     MTD63020
006068    4300 A260 =0082CC              B     ERRORX                                              MTD63030
                               *                                                                   MTD63040
                               *         COME HERE ON WRITE BUSY INTERRUPT(SELCH)                  MTD63050
                               *                                                                   MTD63060
          0000 606C            TST7.S1   EQU   *                                                   MTD63070
00606C    7330 0A54                      LHL   R3,PSW3            RESTORE PSW=70F0                 MTD63080
006070    95E3                           EPSR  R14,R3                                              MTD63090
006072    41E0 9C54 =007CCA              BAL   R14,CDISARM        ENARM  ONLY SELCH INTR.          MTD63100
006076    E630 802C =0060A6              LA    R3,TST7.S2         LOAD POINTER FOR                 MTD63110
00607A    4030 21E8                      STH   R3,DEVINT+2        NEXT EXPECTED INTR.              MTD63120
00607E    41E0 9C04 =007C86              BAL   R14,CGO            GIVE SELCH THE GO                MTD63130
006082    C800 7FFF                      LHI   R0,X'7FFF'                                          MTD63140
006086    41F0 162A                      BAL   R15,TIMER          WAIT FOR SELCH TO FINISH         MTD63150
00608A    D000 A902 =008990              STM   R0,ERRSAVE                                          MTD63160
00608E    2403                           LIS   R0,3               DIGITS TO CONVERT                MTD63170
006090    0812                           LR    R1,R2              SELCH ADDR                       MTD63180
006092    E620 8631 =0066C7              LA    R2,T7.E017+9                                        MTD63190
006096    41F0 1680                      BAL   R15,HEXASC         CONVERT                          MTD63200
00609A    D100 A8F2 =008990              LM    R0,ERRSAVE         RESTORE REGISTERS                MTD63210
00609E    E650 861C =0066BE              LA    R5,T7.E017                                          MTD63220
0060A2    4300 FFB6 =00605C              B     T7R05.5                                             MTD63230
                               *                                                                   MTD63240
                               *         COME HERE ON WRITE BUSY INTERRUPT(SELCH)                  MTD63250
                               *                                                                   MTD63260
          0000 60A6            TST7.S2   EQU   *                                                   MTD63270
0060A6    7330 0A54                      LHL   R3,PSW3            RESTORE PSW=70F0                 MTD63280
0060AA    95E3                           EPSR  R14,R3             AND USER'S REGISTERS             MTD63290
0060AC    5810 A8A4 =008954              L     R1,RSAVE+4         RESTORE R1                       MTD63300
0060B0    5820 A8A4 =008958              L     R2,RSAVE+8         RESTORE R2                       MTD63310
0060B4    E650 862E =0066E6              LA    R5,T7.E018         TROUBLE W/ SELCH  WR TO MEM      MTD63320
0060B8    41F0 9DBC =007E78              BAL   R15,SELCHK         CHECK SELCH STATUS               MTD63330
0060BC    41F0 9E42 =007F02              BAL   R15,SELEND         CHECK SELCH ENDING ADDR.         MTD63340
0060C0    41F0 A04E =008112              BAL   R15,STATCHK        CHECK INF. STATUS                MTD63350
0060C4    C430 0020                      NHI   R3,X'20'           IS EOT SET                       MTD63360
0060C8    4230 A282 =00834E              BNZ   PASS               IF SO, REWIND AND READS          MTD63370
          0000 60CC            T7.S2A    EQU   *                                                   MTD63380
0060CC    2781                           SIS   R8,1               DECREMENT RECORD COUNT           MTD63390
0060CE    4230 FF2C =005FFE              BNZ   T7.SA              OUTPUT ANOTHER IF NOT ZERO       MTD63400
0060D2    E630 801C =0060F2              LA    R3,TST7.S3         OTHERWISE SET UP FOR             MTD63410
0060D6    4030 21E6                      STH   R3,DEVINT          EOF WRITTING                     MTD63420
0060DA    C800 003C                      LHI   R0,X'3C'           LOAD TIMER                       MTD63430
0060DE    41E0 9BEE =007CD0              BAL   R14,CENBLE         ENABLE INTERRUPTS                MTD63440
0060E2    41E0 9B86 =007C6C              BAL   R14,CWREOF         OUTPUT AN WEOF CMD.              MTD63450
0060E6    41F0 162A                      BAL   R15,TIMER          WAIT FOR NMTN INTR.              MTD63460
0060EA    E650 861C =00670A              LA    R5,T7.E019         NO INTRPT GEN ON NMTN AFTER WR EOF/SF MTD63470
0060EE    4300 FF4E =006040              B     T7R05                                               MTD63480
                               *                                                                   MTD63490
                               *         COME HERE ON WEOF INTERRUPT                               MTD63500
                               *                                                                   MTD63510
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TEST 7

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               0000 60F2              6352  TST7.S3   EQU    *                                        MTD63520
 0060F2        7330 0A54              6353            LHL    R3,PSW3           RESTORE PSW            MTD63530
 0060F6        95E3                   6354            EPSR   R14,R3            AND REGISTERS          MTD63540
 0060F8        5810 A858 =008954      6355            L      R1,RSAVE+4        RESTOR R1              MTD63550
 0060FC        5820 A858 =008958      6356            L      R2,RSAVE+8        RESTORE R2             MTD63560
 006100        41E0 9AD8 =007BDC      6357            BAL    R14,SENSTA        CHECK STATUS           MTD63570
 006104        C430 0020              6358            NHI    R3,X'20'          FOR END OF TAPE        MTD63580
*006108        213A      =00611C      6359            BNZ    T7.S3B            CONTINUE IF ZERO       MTD63590
 00610A        41F0 A004 =008112      6360            BAL    R15,STATCHK       CHECK FOR ERRORS       MTD63600
 00610E        C430 0020              6361            NHI    R3,X'20'          IS EOT SET             MTD63610
 006112        4230 A238 =00834E      6362            BNZ    PASS              IF SO, REWIND AND READS MTD63620
               0000 6116              6363  T7.S3C    EQU    *                                        MTD63630
 006116        2771                   6364            SIS    R7,1              DECREMENT FILE COUNT   MTD63640
 006118        4230 FEDE =005FFA      6365            BNZ    T7.SB             OUTPUT ANOTHER FILE    MTD63650
                                      6366  *                                                         MTD63660
                                      6367  *         OTHERWISE WE REWIND AND DO READS WITH SELCH     MTD63670
                                      6368  *                                                         MTD63680
 00611C        41F0 A26C =00838C      6369  T7.S3B    BAL    R15,LOOPTOP                              MTD63690
 006120        0000 62D4              6370            DAC    TST7.END                                 MTD63700
 006124        0000 62D4              6371            DAC    TST7.END                                 MTD63710
 006128        41E0 9B72 =007C9E      6372            BAL    R14,CSTOP         STOP SELCH FIRST       MTD63720
 00612C        41E0 9B6E =007C9E      6373            BAL    R14,CSTOP                                MTD63730
 006130        E630 801E =006152      6374            LA     R3,TST7.S4        SET UP POINTER FOR     MTD63740
 006134        4030 21E6              6375            STH    R3,DEVINT         REWIND INTERRUPT       MTD63750
 006138        C800 0FFF              6376            LHI    R0,X'FFF'         LOAD TIMER             MTD63760
 00613C        41E0 9B52 =007C92      6377            BAL    R14,CREW          GIVE REWIND CMD.       MTD63770
 006140        41F0 162A              6378            BAL    R15,TIMER         WAIT FOR INTERRUPT     MTD63780
 006144        7330 0A52              6379            LHL    R3,PSW2           ERROR IF TIMED OUT     MTD63790
 006148        95E3                   6380            EPSR   R14,R3            SO DISABLE PROC. AND   MTD63800
 00614A        E650 85F6 =006744      6381            LA     R5,T7.E020        NO INTRPT GEN ON NMTN REW/SELCH MTD63810
 00614E        4300 FEEE =006040      6382            B      T7R05                                    MTD63820
                                      6383  *                                                         MTD63830
                                      6384  *         WE HAD REWIND NMTN INTERRUPT TO                 MTD63840
                                      6385  *         GET HERE, LET'S READ NOW                        MTD63850
                                      6386  *                                                         MTD63860
               0000 6152              6387  TST7.S4   EQU    *                                        MTD63870
 006152        7330 0A54              6388            LHL    R3,PSW3           RELOAD PSW             MTD63880
 006156        95E3                   6389            EPSR   R14,R3            AND RESTORE IT         MTD63890
 006158        5810 A7F8 =008954      6390            L      R1,RSAVE+4        RESTORE R1             MTD63900
 00615C        5820 A7F8 =008958      6391            L      R2,RSAVE+8        RESTORE R2             MTD63910
 006160        7370 20B4              6392            LHL    R7,FILES+$VALU1   LOAD FILE COUNT        MTD63920
               0000 6164              6393  T7.S4C    EQU    *                                        MTD63930
 006164        7380 20FA              6394            LHL    R8,RECORDS+$VALU1 LOAD RECORD COUNT      MTD63940
 006168        41F0 9FD4 =008040      6395  T7.S4B    BAL    R15,SELSETR       GO SET UP READ BUF.    MTD63950
 00616C        41E0 9BBA =007D2A      6396            BAL    R14,REBUF         GSET UP READ ADDRESSES MTD63960
 006170        E630 801C =006190      6397            LA     R3,TST7.S5        LOAD POINTER ADDR.     MTD63970
 006174        4030 21E6              6398            STH    R3,DEVINT         AND STORE              MTD63980
 006178        C800 07FF              6399            LHI    R0,X'7FF'         LOAD TIMER             MTD63990
 00617C        41E0 9B50 =007CD0      6400            BAL    R14,CENBLE        RE-ENABLE INTERRUPTS   MTD64000
 006180        41E0 9AD6 =007C5A      6401            BAL    R14,CREAD         GIVE READ COMMAND      MTD64010
 006184        41F0 162A              6402            BAL    R15,TIMER         WAIT FOR BUSY TO DROP  MTD64020
 006188        E650 85F0 =00677C      6403            LA     R5,T7.E021        NO INTRPT GEN ON C RD/SELCH MTD64030
 00618C        4300 FEB0 =006040      6404            B      T7R05                                    MTD64040
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                                 6405  *                                                                      MTD64050
                                 6406  *        READ BUSY INTERRUPT BRINGS US HERE                            MTD64060
                                 6407  *                                                                      MTD64070
          0000 6190              6408  TST7.S5  EQU   *                                                       MTD64080
 006190   7330 0A54              6409           LHL   R3,PSW3             RESTORE PSW                         MTD64090
 006194   95F3                   6410           EPSR  R14,R3              AND REGISTERS                       MTD64100
 006196   5810 A7BA =008954      6411           L     R1,RSAVE+4          RESTORE R1                          MTD64110
 00619A   5820 A7BA =008958      6412           L     R2,RSAVE+8          RESTORE R2                          MTD64120
 00619E   E630 802A =0061CC      6413           LA    R3,TST7.S6          LOAD POINTER ADDR.                  MTD64130
 0061A2   4030 21E8              6414           STH   R3,DEVINT+2         STORE IT       ##                   MTD64140
 0061A6   41E0 9B20 =007CCA      6415           BAL   R14,CDISARM         DISARM  INTERRUPT ON INF.           MTD64150
 0061AA   41E0 9AEA =007C98      6416           BAL   R14,CGOREAD          GIVE SELCH THE GO                   MTD64160
 0061AE   41F0 162A              6417           BAL   R15,TIMER           WAIT FOR SELCH TO READ              MTD64170
 0061B2   7330 0A52              6418           LHL   R3,PSW2             LOAD DISABLE PSW                    MTD64180
 0061B6   95E3                   6419           EPSR  R14,R3              FOR PROC                            MTD64190
 0061B8   2403                   6420           LIS   R0,3                DIGITS TO CONVERT                   MTD64200
 0061BA   0812                   6421           LR    R1,R2               ELCH ADR                            MTD64210
 0061BC   E620 860D =0067CD      6422           LA    R2,T7.E022+19                                           MTD64220
 0061C0   41F0 1680              6423           BAL   R15,HEXASC          CONVERT                             MTD64230
 0061C4   E650 85F2 =0067BA      6424           LA    R5,T7.E022          TIMED OUT ON SELCH*** RD FROM MEM   MTD64240
 0061C8   4300 FE90 =00605C      6425           B     T7R05.5                                                 MTD64250
                                 6426  *                                                                      MTD64260
                                 6427  *        WE HAVE READ A RECORD NOW LET'S CHECK IT                       MTD64270
                                 6428  *                                                                      MTD64280
          0000 61CC              6429  TST7.S6  EQU   *                                                       MTD64290
 0061CC   7330 0A54              6430           LHL   R3,PSW3             RESTORE REGISTERS                   MTD64300
 0061D0   95E3                   6431           EPSR  R14,R3              AND PSW                             MTD64310
 0061D2   5810 A77E =008954      6432           L     R1,RSAVE+4          RESTORE R1                          MTD64320
 0061D6   5820 A77E =008958      6433           L     R2,RSAVE+8          RESTORE R2                          MTD64330
 0061DA   E650 8606 =0067E4      6434           LA    R5,T7.E022A         SELCH COMPARE UNDER INTERRUPTS      MTD64340
 0061DE   41F0 9C96 =007E78      6435           BAL   R15,SELCHK          CHECK SELCH STATUS                  MTD64350
 0061E2   41F0 9D1C =007F02      6436           BAL   R15,SELEND          CHECK SELCH ENDING ADDR.            MTD64360
 0061E6   41F0 9F28 =008112      6437           BAL   R15,STATCHK         CHECK INF. STATUS                   MTD64370
 0061EA   C430 0020              6438           NHI   R3,X'20'            IS EOT SET                          MTD64380
*0061EE   2335      =0061F8      6439           BZ    T7.S6                                                   MTD64390
 0061F0   41F0 9EDE =0080D2      6440           BAL   R15,REWMT           REWIND MAG TAPE                     MTD64400
 0061F4   4300 80DC =0062D4      6441           B     TST7.END            OTHERWISE END TEST                  MTD64410
          0000 61F8              6442  T7.S6    EQU   *                                                       MTD64420
 0061F8   D000 A754 =008950      6443           STM   R0,RSAVE            SAVE REGISTERS BEFORE DATA COMPARE  MTD64430
 0061FC   E640 A224 =008424      6444           LA    R4,DATAPAT                                              MTD64440
 006200   2420                   6445           LIS   R2,0                INDEX REGISTER                      MTD64450
 006202   7350 200C              6446           LHL   R5,BYTES+$VALU1     LOAD BYTE COUNT                     MTD64460
 006206   C550 0002              6447           CLHI  R5,2                                                    MTD64470
*00620A   2382      =00620E      6448           BNL   SCHK1                                                   MTD64480
 00620C   2453                   6449           LIS   R5,3                LOAD MINIMUM AMOUNT                 MTD64490
 00620E   2751                   6450  SCHK1    SIS   R5,1                ADJUST                              MTD64500
 006210   2490                   6451           LIS   R9,0                LOAD ADDRESS OF READ BUF.           MTD64510
 006212   D334 4200 0000         6452  SDAT.1   LB    R3,0(R4,R2)         GET DATA WRITTEN                    MTD64520
 006218   D3A9 4001 8900         6453           LB    R10,READBUF(R9)     DATA READ                           MTD64530
 00621E   053A                   6454           CLR   R3,R10              SHOULD BE EQUAL                     MTD64540
*006220   213A      =006234      6455           BNE   SDAT.ERR                                                MTD64550
 006222   2691                   6456           AIS   R9,1                                                    MTD64560
 006224   C720 0001              6457           XHI   R2,1                                                    MTD64570
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006228  2752                    6456            SIS   R5,2                DECREMENT BYTE COUNT                MTD64580
*00622A 228C      =006212       6459            BNL   SDAT.1                                                 MTD64590
00622C  D100 A720 =008950       6460            LM    R0,RSAVE            RESTORE REGISTERS                   MTD64600
006230  4300 8020 =006254       6461            B     T7.S77                                                  MTD64610
                                6462  *                                                                       MTD64620
006234  4030 A2C4 =0084FC       6463  SDAT.ERR  STH   R3,WSTORE                                              MTD64630
006238  40A0 A2C2 =0084FE       6464            STH   R10,RSTORE          SAVE DATA READ                      MTD64640
00623C  4090 A1D4 =008414       6465            STH   R9,INDEX            SAVE BYTE NO                        MTD64650
006240  E650 85A0 =0067E4       6466            LA    R5,T7.E022A                                             MTD64660
006244  41E0 2CC4               6467            BAL   R14,T1ERRORA        MESSAGE SET UP                      MTD64670
006248  E6F0 35F6               6468            LA    R15,MESSG3A                                             MTD64680
00624C  E6E0 A368 =0085B8       6469            LA    R14,SELMSG          SUSPECTED ERROR W SELCH             MTD64690
006250  4300 A078 =0082CC       6470            B     ERRORX              ERROR HANDLER                       MTD64700
006254  2781                    6471  T7.S77    SIS   R8,1                DECREMENT RECORD COUNT              MTD64710
006256  4230 FF0E =006168       6472            BNZ   T7.S4B              INPUT ANOTHER RECORD?               MTD64720
00625A  E630 8022 =006280       6473            LA    R3,T7.S6A           LOAD EXT LOC                        MTD64730
00625E  4030 21E6               6474            STH   R3,DEVINT           AND STORE FOR INTERRUPT             MTD64740
006262  41E0 9A6A =007CDC       6475            BAL   R14,CENBLE          ENABLE INTERFACE                    MTD64750
006266  C800 00FF               6476            LHI   R0,X'FF'            LOAD TIMER                          MTD64760
00626A  41E0 99EC =007C5A       6477            BAL   R14,CREAD           READ EOF?                           MTD64770
00626E  41F0 162A               6478            BAL   R15,TIMER           AND WAIT FOR INTERRUPT              MTD64780
006272  7330 0A52               6479            LHL   R3,PSW2             LOAD DISABLE PSW                    MTD64790
006276  95E3                    6480            EPSR  R14,R3              AND DISABLE INTERRUPTS              MTD64800
006278  E650 858A =006806       6481            LA    R5,T7.E024          NO INTRPT GEN ON RD EOF/SELCH       MTD64810
                                6482  *                                   STATUS                              MTD64820
00627C  4300 FDC0 =006040       6483            B     T7R05                                                   MTD64830
                                6484  *                                                                       MTD64840
        0000 6280               6485  T7.S6A    EQU   *                                                       MTD64850
006280  7330 0A54               6486            LHL   R3,PSW3             RESTORE PSW                         MTD64860
006284  95E3                    6487            EPSR  R14,R3              AND USER REGISTER SET               MTD64870
006286  5810 A6CA =008954       6488            L     R1,RSAVE+4          RESTORE R1                          MTD64880
00628A  5820 A6CA =008958       6489            L     R2,RSAVE+8          RESTORE R2                          MTD64890
00628E  41E0 9A38 =007CCA       6490            BAL   R14,CDISARM         NO OTHER INTERRUPTS PLEASE          MTD64900
006292  41E0 9946 =007BDC       6491            BAL   R14,SENSTA          LOAD INTERFACE STATUS               MTD64910
006296  C430 0002               6492            NHI   R3,X'02'            EOF SET?                            MTD64920
*00629A 2135      =0062A4       6493            BNZ   TST7.S7             YES! CONTINUE ON                    MTD64930
00629C  E650 859E =00683E       6494            LA    R5,T7.E025          NO TAPE MARK FOUND AFTER RD/SELCH   MTD64940
0062A0  4300 FD00 =005FA4       6495            B     T7R06                                                   MTD64950
                                6496  *                                                                       MTD64960
                                6497  *         LET'S CHECK FOR ANYMORE READING                               MTD64970
                                6498  *                                                                       MTD64980
        0000 62A4               6499  TST7.S7   EQU   *                                                       MTD64990
0062A4  2771                    6500            SIS   R7,1                DECREMENT FILE COUNT                MTD65000
0062A6  4230 FEBA =006164       6501            BNZ   T7.S4C              INPUT ANOTHER FILE IF NOT ZERO      MTD65010
0062AA  4300 A0A0 =00834E       6502            B     PASS                OTHERWISE END TEST?                 MTD65020
                                6503  *                                                                       MTD65030
                                6504  *         COME HERE TO SET UP INTERRUPT HANDLER                         MTD65040
                                6505  *                                                                       MTD65050
        0000 62AE               6506  INTRSET   EQU   *                                                       MTD65060
0062AE  4010 21E0               6507            STH   R1,DEVSADR          STORE DEVICE ADDRESS                MTD65070
0062B2  7320 2108               6508            LHL   R2,SELCH+SVALU1     LOAD SELCH ADDRESS                  MTD65080
0062B6  4020 21E2               6509            STH   R2,DEVSADR+2        AND STORE IT                        MTD65090
0062BA  2430                    6510            LIS   R3,0                LOAD ZEROS                          MTD65100
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TEST 7

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0062BC      4030 21E6              6511          STH   R3,DEVINT          AND ZERO OUT                          MTD65110
0062C0      030F                   6512          BR    R15                RETURN TO CALLER                      MTD65120
                                   6513  *                                                                      MTD65130
            0000 62C2              6514  T7.NOS  EQU   *                                                       MTD65140
0062C2      7330 0A52              6515          LHL   R3,PSW2             LOAD A DISABLE FOR                    MTD65150
0062C6      95E3                   6516          EPSR  R14,R3             THE PROCESSOR INTR.                   MTD65160
0062C8      41F0 17E6              6517          BAL   R15,SPRINT         OUTPUT MESSAGE OF                     MTD65170
0062CC      0000 85D4              6518          DAC   NOSELCH            "NO SELCH"                            MTD65180
0062D0      4300 133C              6519          B     TSTEND                                                   MTD65190
                                   6520  *                                                                      MTD65200
0062D4      41E0 99F2 =007CCA      6521  TST7.END BAL  R14,CDISARM        DISARM INTERRUPTS                     MTD65210
0062D8      4830 0A54              6522          LH    R3,PSW3                                                  MTD65220
0062DC      95E3                   6523          EPSR  R14,R3                                                   MTD65230
0062DE      41F0 2836              6524          BAL   R15,TST.DRIV       CHECK FOR OTHER DRIVES                MTD65240
0062E2      4800 A124 =00840A      6525          LH    R0,DRIVSAV1        CHECK FLAG                            MTD65250
0062E6      C300 000E              6526          THI   R0,X'E'            IS IT SET                             MTD65260
0062EA      4330 133C              6527          BZ    TSTEND             NO, END TEST                          MTD65270
0062EE      41F0 9A66 =007D58      6528          BAL   R15,IT.B1          INIT TEST FOR OTHER DRIVES            MTD65280
0062F2      4300 F568 =00585E      6529          B     TST7.1             BEGIN TEST 7                          MTD65290



0062F6      494E 5445 5252 5550    6531  T7.E000 DC    C'INTERRUPT GENERATED WHILE DISARMED',X'0D0A'          MTD65310
0062FE      5420 4745 4E45 5241
006306      5445 4420 5748 494C
00630E      4520 4449 5341 524D
006316      4544
006318      0D0A
00631A      494E 5445 5252 5550    6532  T7.E001 DC    C'INTERRUPT QUEUED WHILE DISARMED',X'0D0A'            MTD65320
006322      5420 5155 4555 4544
00632A      2057 4849 4C45 2044
006332      4953 4152 4D45 4420
00633A      0D0A
00633C      494E 5445 5252 5550    6533  T7.E002 DC    C'INTERRUPT GENERATED WHILE DISABLED',X'0D0A'         MTD65330
006344      5420 4745 4E45 5241
00634C      5445 4420 5748 494C
006354      4520 4449 5341 424C
00635C      4544
00635E      0D0A
006360      4E4F 2049 4E54 4552    6534  T7.E003 DC    C'NO INTERRUPT QUEUED WHILE DISABLED',X'0D0A'         MTD65340
006368      5255 5054 2051 5545
006370      5545 4420 5748 494C
006378      4520 4449 5341 424C
006380      4544
006382      0D0A
006384      4E4F 2049 4E54 4552    6535  T7.E004 DC    C'NO INTERRUPT GENERATED WHILE ENABLED',X'0D0A'       MTD65350
00638C      5255 5054 2047 454E
006394      4552 4154 4544 2057
00639C      4849 4C45 2045 4E41
0063A4      424C 4544
0063A8      0D0A
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TEST 7

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0063AA  4E4F 2049 4E54 4552    6536  T7.E006  DC   C'NO INTERRUPT GENERATED ON "NMTN" '                    MTD65360
0063B2  5255 5054 2047 454E
0063BA  4552 4154 4544 204F
0063C2  4E20 224E 4D54 4E22
0063CA  2020
0063CC  4146 5445 5220 434F    6537           DC   C'AFTER COMMAND REWIND',X'0D0A'                         MTD65370
0063D4  4D4D 414E 4420 5245
0063DC  5749 4E44
0063E0  0D0A
0063E2  4E4F 2049 4F54 4552    6538  T7.E007  DC   C'NO INTERRUPT GENERATED ON "BUSY" AFTER '               MTD65380
0063EA  5255 5054 2047 454E
0063F2  4552 4154 4544 204F
0063FA  4E20 2242 5553 5922
006402  2041 4654 4552 2020
00640A  434F 4D4D 414E 4420    6539           DC   C'COMMAND READ',X'0D0A'                                 MTD65390
006412  5245 4144
006416  0D0A
006418  4E4F 2049 4E54 4552    6540  T7.E008  DC   C'NO INTERRUPT GENERATED ON "BUSY" AFTER COMMAND WRITE'  MTD65400
006420  5255 5054 2047 454F
006428  4552 4154 4544 204F
006430  4E20 2242 5553 5922
006438  2041 4654 4552 2043
006440  4F4D 4D41 4E44 2057
006448  5249 5445
00644C  0D0A           6541           DCX  0D0A                                                            MTD65410
00644E  4E4F 2049 4E54 4552    6542  T7.E00A  DC   C'NO INTERRUPT GENERATED ON "NMTN" AFTER '               MTD65420
006456  5255 5054 2047 454E
00645E  4552 4154 4544 204F
006466  4E20 224E 4D54 4E22
00646E  2041 4654 4552 2020
006476  5752 4954 4520           6543           DC   C'WRITE',X'0D0A'                                     MTD65430
00647C  0D0A
00647E  4E4F 2049 4F54 4552    6544  T7.E00B  DC   C'NO INTERRUPT GENERATED ON "NMTN" AFTER '               MTD65440
006486  5255 5054 2047 454E
00648E  4552 4154 4544 204F
006496  4E20 224E 4D54 4E22
00649F  2041 4654 4552 2020
0064A6  434F 4D4D 414E 4420    6545           DC   C'COMMAND REWIND',X'0D0A'                              MTD65450
0064AE  5245 5749 4E44
0064B4  0D0A
0064B6  4E4F 2049 4E54 4552    6546  T7.E00D  DC   C'NO INTERRUPT GENERATED ON "BUSY" AFTER '               MTD65460
0064BE  5255 5054 2047 454F
0064C6  4552 4154 4544 204F
0064CE  4E20 2242 5553 5922
0064D6  2041 4654 4552 2020
0064DE  5245 4144              6547           DC   C'READ',X'0D0A'                                       MTD65470
0064E2  0D0A
0064E4  4E4F 2049 4E54 4552    6548  T7.E00E  DC   C'NO INTERRUPT GENERATED ON "NMTN" AFTER '               MTD65480
0064EC  5255 5054 2047 454E
0064F4  4552 4154 4544 204F
0064FC  4E20 224E 4D54 4E22
006504  2041 4654 4552 2020
00650C  5245 4144              6549           DC   C'READ',X'0D0A'                                       MTD65490
```

TEST 7

```
006510       0D0A
006512       4E4F 2049 4E54 4552      6550  T7.E010  DC    C'NO INTERRUPT GENERATED ON "NMTN" AFTER '                MTD65500
00651A       5255 5054 2047 454E
006522       4552 4154 4544 204F
00652A       4E20 224E 4D54 4F22
006532       2041 4654 4552 2020
00653A       534B 4950 2042 4143      6551           DC    C'SKIP BACKWARD RECORD',X'0D0A'                           MTD65510
006542       4B57 4152 4420 5245
00654A       434F 5244
00654E       0D0A
006550       4E4F 2049 4E54 4552      6552  T7.E011  DC    C'NO INTERRUPT GENERATED ON "NMTN" AFTER'                 MTD65520
006558       5255 5054 2047 454E
006560       4552 4154 4544 204F
006568       4E20 224E 4D54 4F22
006570       2041 4654 4552
006576       534B 4950 2046 4F52      6553           DC    C'SKIP FORWARD RECORD',X'0D0A'                            MTD65530
00657E       5741 5244 2052 4543
006586       4F52 4420
00658A       0D0A
00658C       4E4F 2049 4F54 4552      6554  T7.E012  DC    C'NO INTERRUPT GENERATED ON BUSY AFTER ' X'8D'            MTD65540
006594       5255 5054 2047 454E
00659C       4552 4154 4544 204F
0065A4       4E20 4255 5359 2041
0065AC       4654 4552 2020
0065B2       5752 4954 4520 4841      6555           DC    C'WRITE HALFWORD',X'0D0A'                                 MTD65550
0065BA       4C46 574F 5244
0065C0       0D0A
0065C2       434F 4D50 4152 4553      6556  T7.E012A DC    C'COMPARES UNDER WRITE/READ INTERRUPTS',X'0D0A'           MTD65560
0065CA       2055 4E44 4552 2057
0065D2       5249 5445 2F52 4541
0065DA       4420 494E 5445 5252
0065E2       5550 5453
0065E6       0D0A
0065E8       4E4F 2049 4E54 4552      6557  T7.E013  DC    C'NO INTERRUPT GENERATED ON "BUSY" AFTER WRITE EOF'       MTD65570
0065F0       5255 5054 2047 454E
0065F8       4552 4154 4544 204F
006600       4E20 2242 5553 5922
006608       2041 4654 4552 2057
006610       5249 5445 2045 4F46
006618       0D0A                     6558           DCX   0D0A                                                      MTD65580
00661A       4E4F 2049 4E54 4552      6559  T7.E014  DC    C'NO INTERRUPT GENERATED ON "BUSY" AFTER'                 MTD65590
006622       5255 5054 2047 454E
00662A       4552 4154 4544 204F
006632       4E20 2242 5553 5922
00663A       2041 4654 4552
006640       2052 4541 4420 454F      6560           DC    C' READ EOF',X'0D0A'                                      MTD65600
006648       4620
00664A       0D0A
00664C       4E4F 2054 4150 4520      6561  T7.E015  DC    C'NO TAPE MARK STATUS AFTER READ UNDER '                  MTD65610
006654       4D41 524B 2053 5441
00665C       5455 5320 4146 5445
006664       5220 5245 4144 2055
00666C       4E44 4552 2020
```

TEST 7

```
006672  494E 5445 5252 5550    6562          DC   C'INTERRUPTS',X'0D0A'                          MTD65620
00667A  5453
00667C  0D0A
00667E  4E4F 2049 4E54 4552    6563  T7.E015 DC   C'NO INTERRUPT GENRERATED ON "BUSY" AFTER'     MTD65630
006686  5255 5054 2047 454F
00668E  5245 5241 5445 4420
006696  4F4E 2022 4255 5359
00669E  2220 4146 5445 5220
0066A6  2043 4F4D 4D41 4E44    6564          DC   C' COMMAND WRITE(SELCH)',X'0D0A'               MTD65640
0066AE  2057 5249 5445 2853
0066B6  454C 4348 2920
0066BC  0D0A
0066BE  5449 4D45 4420 4F55    6565  T7.E017 DC   C'TIMED OUT ON SELCH *** WRITE TO MEMORY',X'0D0A' MTD65650
0066C6  5420 4F4E 2053 454C
0066CE  4348 202A 2A2A 2057
0066D6  5249 5445 2054 4F20
0066DE  4D45 4D4F 5259
0066E4  0D0A
0066E6  5452 4F55 424C 4520    6566  T7.E018 DC   C'TROUBLE WITH SELCH WRITE TO MEMORY',X'0D0A'  MTD65660
0066EE  5749 5448 2053 454C
0066F6  4348 2057 5249 5445
0066FE  2054 4F20 4D45 4D4F
006706  5259
006708  0D0A
00670A  4E4F 2049 4E54 4552    6567  T7.E019 DC   C'NO INTERRUPT GENERATED ON "NMTN" AFTER '     MTD65670
006712  5255 5054 2047 454E
00671A  4552 4154 4544 204F
006722  4E20 224E 4D54 4E22
00672A  2041 4654 4552 2020
006732  5345 4C43 4820 5752    6568          DC   C'SELCH WRITE EOF',X'0D0A'                    MTD65680
00673A  4954 4520 454F 4620
006742  0D0A
006744  4E4F 2049 4E54 4552    6569  T7.E020 DC   C'NO INTERRUPT GENERATED ON "NMTN" AFTER '     MTD65690
00674C  5255 5054 2047 454E
006754  4552 4154 4544 204F
00675C  4E20 224E 4D54 4E22
006764  2041 4654 4552 2020
00676C  5245 5749 4E44 2853    6570          DC   C'REWIND(SELCH)',X'0D0A'                    MTD65700
006774  454C 4348 2920
00677A  0D0A
00677C  4E4F 2049 4E54 4552    6571  T7.E021 DC   C'NO INTERRUPT GENERATED ON "NMTN" AFTER COMMAND ' MTD65710
006784  5255 5054 2047 454E
00678C  4552 4154 4544 204F
006794  4E20 224E 4D54 4F22
00679C  2041 4654 4552 2043
0067A4  4F4D 4D41 4E44 2020
0067AC  5245 4144 2853 454C    6572          DC   C'READ(SELCH)',X'0D0A'                     MTD65720
0067B4  4348 2920
0067B8  0D0A
0067BA  5449 4D45 4420 4F55    6573  T7.E022 DC   C'TIMED OUT ON SELCH *** READ FROM MEMORY',X'0D0A' MTD65730
0067C2  5420 4F4E 2053 454C
0067CA  4348 202A 2A2A 2052
0067D2  4541 4420 4652 4F4D
```

TEST 7

```
0067DA       204D 454D 4F52 5920
0067E2       0D0A
0067E4       5345 4C43 4820 434F      6574  T7.F022A DC    C'SELCH COMPARES UNDER INTERRUPTS',X'0D0A'                MTD65740
0067EC       4D50 4152 4553 2055
0067F4       4E44 4552 2049 4F54
0067FC       4552 5255 5054 5320
006804       0D0A
006806       4E4F 2049 4E54 4552      6575  T7.E024  DC    C'NO INTERRUPT GENERATED ON "NMTN" AFTER READ '           MTD65750
00680E       5255 5054 2047 454E
006816       4552 4154 4544 204F
00681E       4E20 224E 4D54 4E22
006826       2041 4654 4552 2052
00682E       4541 4420
006832       454F 4628 5345 4C43      6576           DC    C'EOF(SELCH)',X'0D0A'                                     MTD65760
00683A       4829
00683C       0D0A
00683E       4E4F 2054 4150 4520      6577  T7.E025  DC    C'NO TAPE MARK STATUS AFTER SELCH READ '                  MTD65770
006846       4D41 524B 2053 5441
00684E       5455 5320 4146 5445
006856       5220 5345 4C43 4820
00685E       5245 4144 2020
006864       554E 4445 5220 494E      6578           DC    C'UNDER INTERRUPTS',X'0D0A'                               MTD65780
00686C       5445 5252 5550 5453
006874       0D0A
006876       5345 4C43 483D 2A2A      6579  T7MSG3   DC    C'SELCH=***',X'0D0A'                                      MTD65790
00687E       2A20
006880       0D0A
006882       4452 4956 4520 2A2A      6580  T7ERMSG1 DC    C'DRIVE ***',X'8D0A'                                      MTD65800
00688A       2A20
00688C       8D0A
00688E       5354 4154 5553 3D2A      6581  T7ERMSG2 DC    C'STATUS=**',X'0D0A'                                      MTD65810
006896       2A20
006898       0D0A
```

```
                                 ********************************************************   MTD65830
                                 *         TEST 8 READ-WRITE OVERRUNS                   *   MTD65840
                                 *                                                      *   MTD65850
                                 * PURPOSE: THE TEST EXERCISES THE STATUS BYTE ERROR    *   MTD65860
                                 * BITS 8 (ERR) AND 9 (TERR).                           *   MTD65870
                                 *                                                      *   MTD65880
                                 * TEST SPEC: THE TEST OUTPUTS A RECORD, REWINDS THE TAPE   MTD65890
                                 * AND TRIES TO READ THE TAPE USING A SMALLER           *   MTD65900
                                 * RECORD LENGTH (READ OVERRUN SHOULD SET). THE         *   MTD65910
                                 * IS REWINDED AGAIN AND A READ COMMAND IS GIVEN        *   MTD65920
                                 * AGAIN BUT WITHOUT ANY READS (FORMATTER               *   MTD65930
                                 * OVERRUN SHOULD SET). THE TAPE IS REWINDED A          *   MTD65940
                                 * THIRD TIME, A RECORD IS WRITTEN TO THE TAPE,         *   MTD65950
                                 * THE TAPE STOPS AND ANOTHER WRITE IS OUTPUTED         *   MTD65960
                                 * TO THE TAPE WITHOUT ANOTHER WRITE COMMAND            *   MTD65970
                                 * (WRITE UNDERFLOW SHOULD SET). THE TEST ENDS          *   MTD65980
                                 * UP WRITING TWO RECORDS (ONE ODD LENGTH,ONE           *   MTD65990
                                 * EVEN LENGTH) TO CHECK OUT THE ODD EVEN BIT OF        *   MTD66000
                                 * THE DEVICE STATUS HALFWORD.                          *   MTD66010
                                 *                                                      *   MTD66020
                                 * ERRORS:                                              *   MTD66030
                                 *                                                      *   MTD66040
                                 * OPTIONS:                                             *   MTD66050
                                 * 'TRMODE' MUST = 1                                    *   MTD66060
                                 * DRIVE, SELCH, AND DATA.                              *   MTD66070
                                 *                                                      *   MTD66080
                                 ********************************************************   MTD66090


         0000 689A               TEST8    EQU   *                                           MTD66110
00689A   41F0 94AC =007D4A                BAL   R15,TESTINIT        INIT TEST               MTD66120
00689E   41F0 8702 =006FA4                BAL   R15,SELADR          CHECK OPTIONS           MTD66130
                                 *                                                          MTD66140
                                 *                                                          MTD66150
         0000 68A2               T8.1B    EQU   *                                           MTD66160
0068A2   41F0 9AE6 =00838C                BAL   R15,LOOPTOP         CALCULATE ADDRESSES     MTD66170
0068A8   0000 693A                        DAC   T8.2                NEXT SEQUENCE           MTD66180
0068AC   0000 693A                        DAC   T8.2                PROCEED LIMIT           MTD66190
0068B0   7320 2108                        LHL   R2,SELCH+$VALU1     GET SELCH ADDRESS       MTD66200
0068B4   41E0 93E6 =007C9E                BAL   R14,CSTOP           STOP IT                 MTD66210
0068B8   41E0 93E2 =007C9E                BAL   R14,CSTOP                                   MTD66220
0068BC   41F0 9812 =0080D2                BAL   R15,REWMT           REWIND TAPE IF NECESSARY MTD66230
0068C0   41F0 F9EA =0062AE                BAL   R15,INTRSET         SET UP INTR. TABLES     MTD66240
0068C4   41F0 97DC =0080A4                BAL   R15,WRTENB          ARE WRITES ENABLED?     MTD66250
0068C8   4840 2036                        LH    R4,DATA+$VALU1      USER SPECIFIED DATA     MTD66260
*0068CC  2133      =0068D2                BNZ   T8.1BB              YES                     MTD66270
0068CE   4340 9B5E =008430                LH    R4,TESTPAT+10       USE A TESTPAT           MTD66280
0068D2   4040 9B4E =008424       T8.1BB   STH   R4,DATAPAT                                  MTD66290
0068D6   E640 9B4A =008424                LA    R4,DATAPAT          GET ADDRESS OF THAT PATTERN MTD66300
0068DA   C860 0FFE                        LHI   R6,X'FFE'           LOAD RECORD COUNT       MTD66310
```

TEST 8

```
0068DE       41F0 9562 =007F44          6632           BAL   R15,SEL.3          GO SET UP WRITE BUFFER                MTD66320
0068E2       41E0 9414 =007CFA          6633           BAL   R14,WRBUF          GSET UP SELCH WRITE ADDRESSES         MTD66330
0068E6       41F0 92E8 =007BD2          6634           BAL   R14,CDENS          DENSITY COMMAND                       MTD66340
0068EA       41E0 9392 =007C80          6635           BAL   R14,CWRITE         PUT INF. INTO WRITE MODE              MTD66350
0068EE       E630 8024 =006916          6636           LA    R3,T8.1D           LOAD INTR. LOC                        MTD66360
0068F2       4030 21E8                  6637           STH   R3,DEVINT+2        AND STORE                             MTD66370
0068F6       7330 0A54                  6638           LHL   R3,PSW3            ENABLE PROCESSOR                      MTD66380
0068FA       95E3                       6639           EPSR  R14,R3             INTERRUPTS                            MTD66390
0068FC       C800 1FFF                  6640           LHI   R0,X'1FFF'         LOAD COUNTER                          MTD66400
006900       E650 823A =006B3E          6641           LA    R5,T8.E000         LONG RECORD WRITES                    MTD66410
006904       41E0 937E =007C86          6642           BAL   R14,CGO            GIVE SELCH THE GO                     MTD66420
006908       41F0 162A                  6643           BAL   R15,TIMER          WAIT FOR SELCH TO FINISH              MTD66430
00690C       7330 0A52                  6644           LHL   R3,PSW2            LOAD PSW TO DISABLE                   MTD66440
006910       95E3                       6645           EPSR  R14,R3             PROC. INTR.                           MTD66450
006912       4300 2E06                  6646           B     T1R09              TIMED OUT DURING SELCH *** WRITE      MTD66460
             0000 6916                  6647  T8.1D    EQU   *                                                        MTD66470
006916       7330 0A52                  6648           LHL   R3,PSW2            DISABLE PROCESSOR                     MTD66480
00691A       95E3                       6649           EPSR  R14,R3             INTERRUPTS                            MTD66490
00691C       5810 A034 =008954          6650           L     R1,RSAVE+4         RESTORE R1                            MTD66500
006920       5820 A034 =008958          6651           L     R2,RSAVE+8         RESTORE R2                            MTD66510
006924       41F0 9550 =007F78          6652           BAL   R15,SELCHK          CHECK SELCH STATUS                    MTD66520
006928       41F0 95D6 =007F02          6653           BAL   R15,SELEND         CHECK ENDING ADDRESS                  MTD66530
00692C       41F0 97E2 =008112          6654           BAL   R15,STATCHK        CHECK INF. STATUS                     MTD66540
006930       C430 0020                  6655           NHI   R3,X'20'           IS EOT SET                            MTD66550
*006934      2333       =00693A         6656           BZ    T8.2                                                     MTD66560
005936       41E0 933A =007C74          6657           BAL   R14,CSKBF          REWIND MAG TAPE TO FILE MARK          MTD66570
                                        6658  * LET'S SEE IF READ OVERRUN CAN SET                                      MTD66580
00693A       41F0 9A4E =00838C          6659  T8.2     BAL   R15,LOOPTOP                                             MTD66590
006940       0000 6A24                  6660           DAC   T8.4                                                     MTD66600
006944       0000 6B08                  6661           DAC   TST8.END                                                 MTD66610
006948       41E0 9352 =007C9E          6662           BAL   R14,CSTOP           STOP SELCH                            MTD66620
00694C       41E0 934E =007C9E          6663           BAL   R14,CSTOP                                               MTD66630
006950       41F0 977E =0080D2          6664           BAL   R15,REWMT          REWIND MAG TAPE FIRST                 MTD66640
006954       E630 4001 89D0             6665           LA    R3,READBUF         LOAD ADDRESS OF READ BUFFER           MTD66650
00695A       5030 9B7E =0084DC          6666           STA   R3,RDBUF           STORE IT                              MTD66660
00695E       CA30 01FF                  6667           AHI   R3,X'1FF'          ADD IN BUFFER SIZE                    MTD66670
006962       5030 9B72 =0084D8          6668           STA   R3,ENDBUF          AND STORE IT                          MTD66680
006966       41F0 94AE =007F18          6669           BAL   R15,CLRBUF         CLEAR OUT READ BUFFER                 MTD66690
00696A       41E0 93BC =007D2A          6670           BAL   R14,REBUF          GSET UP SELCH READ ADDRESSES          MTD66700
00696E       E630 8028 =00699A          6671           LA    R3,T8.2A           LOAD INTRPT. ADDR.                    MTD66710
006972       4030 21F8                  6672           STH   R3,DEVINT+2        STORE IN HANDLER                      MTD66720
006976       41E0 92E0 =007C5A          6673           BAL   R14,CREAD          PUT INF. IN READ MODE                 MTD66730
00697A       7330 0A54                  6674           LHL   R3,PSW3            ENABLE PROCESSOR                      MTD66740
00697E       95E3                       6675           EPSR  R14,R3             INTERRUPTS                            MTD66750
006980       C800 1FFF                  6676           LHI   R0,X'1FFF'         LOAD TIMER                            MTD66760
006984       E650 81CA =006B52          6677           LA    R5,T8.E001         TIMED OUT ON SELCH READ DOING         MTD66770
006988       41E0 930C =007C98          6678           BAL   R14,CGOREAD        GIVE SELCH THE GO                     MTD66780
00698C       41F0 162A                  6679           BAL   R15,TIMER          WAIT FOR SELCH TO END                 MTD66790
006990       7330 0A52                  6680           LHL   R3,PSW2            OTHERWISE DISABLE                     MTD66800
006994       95E3                       6681           EPSR  R14,R3             PROC. INTERRUPTS                      MTD66810
                                        6682  *                                 SHORT RECORD READS                    MTD66820
006996       4300 2E8C                  6683           B     T1R10              OUTPUT MESSAGE                        MTD66830
                                        6684  *                                                                       MTD66840
```

TEST 8

```
          0000 699A                T8.2A    EQU   *                                             MTD66850
 00699A   7330 0A52                         LHL   R3,PSW2             DISABLE PROC.             MTD66860
 00699E   95E3                              EPSR  R14,R3              INTERRUPTS                MTD66870
 0069A0   5810 9FB0 =008954                 L     R1,RSAVE+4          RESTORE R1                MTD66880
 0069A4   5820 9FB0 =008958                 L     R2,RSAVE+8          RESTORE R2                MTD66890
 0069A8   41F0 94CC =007E78                 BAL   R15,SELCHK          CHECK SELCH STATUS        MTD66900
 0069AC   41F0 9552 =007F02                 BAL   R15,SELEND          CHECK ENDING ADDRESS      MTD66910
 0069B0   41E0 9230 =007BE4                 BAL   R14,SENSTA1         LOAD INTERFACE STATUS     MTD66920
 0069B4   C430 0044                         NHI   R3,X'44'            ZERO IN ON EXP. STATUS    MTD66930
*0069B8   213F      =0069D6                 BNZ   T8.2C               CONTINUE ON IF SET        MTD66940
 0069BA   C830 0044                         LHI   R3,X'44'            OTHERWISE LOAD EXP.       MTD66950
 0069BE   4030 9A06 =0083C8                 STH   R3,STATGD           AND STORE IT              MTD66960
 0069C2   E650 81A0 =006B66                 LA    R5,T8.E002          READ OVRN DID NOT SET "ERR"  MTD66970
          0000 69C6                T8R02    EQU   *                                             MTD66980
 0069C6   41E0 28AE                         BAL   R14,TOERRORB        STATUS AND DRIVE          MTD66990
 0069CA   E6F0 2A4C                         LA    R15,MESSAGE1                                  MTD67000
 0069CE   E6E0 9BC4 =008596                 LA    R14,CONTMSG         SUSPECTED ERROR WITH CONTROLLER  MTD67010
 0069D2   4300 98F6 =0082CC                 B     ERRORX                                        MTD67020
                                   *                                                            MTD67030
          0000 69D6                T8.2C    EQU   *                                             MTD67040
 0069D6   41E0 92D0 =007CAA                 BAL   R14,CNOPO           ADDRESS DSB0              MTD67050
 0069DA   D910 9A6A =008448                 RH    R1,SNSHW            LOAD STATUS HW            MTD67060
 0069DE   243F                              LIS   R3,15               LOAD OFFSET FOR TEST      MTD67070
 0069E0   7430 9A64 =008448                 TBT   R3,SNSHW            TEST FOR READ OVERRUN SET MTD67080
*0069E4   213D      =0069FE                 BNZ   T8.3                CONTINUE TEST IF SET      MTD67090
 0069E6   E650 819A =006B84                 LA    R5,T8.E003          READ OVRN(DSB BIT 15) DID NOT SET  MTD67100
 0069EA   41E0 92BC =007CAA        T8R03    BAL   R14,CNOPO           GET DSB0                  MTD67110
 0069EE   41E0 3BCE                         BAL   R14,T2ERRORA        DEVICE STATUS HALFWORD    MTD67120
 0069F2   E6F0 D99A =004390                 LA    R15,T2ERMSG0                                  MTD67130
 0069F6   E6E0 9B9C =008596                 LA    R14,CONTMSG         SUSPECTED ERROR WITH CONTROLLER  MTD67140
 0069FA   4300 98CE =0082CC                 B     ERRORX                                        MTD67150
                                   *                                                            MTD67160
                                   * LET'S EXERCISE FORMATTER OVERRUN THEN                      MTD67170
                                   *                                                            MTD67180
 0069FE   41F0 9356 =007D58        T8.3     BAL   R15,IT.B1           INIT DRIVE FIRST          MTD67190
 006A02   41E0 9254 =007C5A                 BAL   R14,CREAD           PUT INF. IN READ MODE     MTD67200
 006A06   41E0 9218 =007C22                 BAL   R14,SENSTA3         WAIT FOR NON BUSY         MTD67210
 006A0A   41E0 91D6 =007BE4                 BAL   R14,SENSTA1         WAIT FOR NO MOTION        MTD67220
                                   * FORMATTER OVERRUN SHOULD HAPPEN TOO                        MTD67230
 006A0E   C430 0084                         NHI   R3,X'84'            OTHERWISE ONLY ERR WILL SET  MTD67240
*006A12   2139      =006A24                 BNZ   T8.4                IF EQUAL CONTINUE         MTD67250
 006A14   C830 00C4                         LHI   R3,X'C4'            OTHERWISE LOAD EXP STATUS MTD67260
 006A18   4030 99AC =0083C8                 STH   R3,STATGD           AND STORE IT              MTD67270
 006A1C   E650 8188 =006BA8                 LA    R5,T8.E004          FORMATTER OVRN DID NOT SET "TERR" & "  MTD67280
 006A20   4300 FFA2 =0069C6                 B     T8R02               DRIVE AND STATUS'         MTD67290
                                   *                                                            MTD67300
                                   * LET'S EXERCISE WRITE UNDERFLOW NOW                         MTD67310
                                   *                                                            MTD67320
          0000 6A24                T8.4     EQU   *                                             MTD67330
 006A24   41F0 9964 =00838C                 BAL   R15,LOOPTOP                                   MTD67340
 006A28   0000 6A84                         DAC   T8.5                                          MTD67350
 006A2C   0000 6B08                         DAC   TST8.END                                      MTD67360
 006A30   41F0 9324 =007D58                 BAL   R15,IT.B1           INIT DRIVE FIRST          MTD67370
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 006A34      2454                  6738            LIS    R5,4              LOAD BYTE COUNT                     MTD67380
 006A36      41E0 9198 =007BD2     6739            BAL    R14,CDENS         DENSITY COMMAND                     MTD67390
 006A3A      41E0 9242 =007C80     6740            BAL    R14,CWRITE        PUT INF. IN WRITE MODE              MTD67400
 006A3E      9814                  6741  T8.4C     WHR    R1,R4             OUTPUT BYTE                         MTD67410
 006A40      2752                  6742            SIS    R5,2              DECREMENT COUNT                     MTD67420
 006A42      2184      =006A4A     6743            BLS    T8.4B             BRANCH OUT IF DONE                  MTD67430
 006A44      41E0 91DA =007C22     6744            BAL    R14,SENSTA3       CHECK STATUS                        MTD67440
 006A48      2205      =006A3E     6745            BS     T8.4C             AND OUTPUT SOME MORE                MTD67450
 006A4A      41E0 9196 =007BE4     6746  T8.4B     BAL    R14,SENSTA1       CHECK STATUS                        MTD67460
 006A4E      9814                  6747            WHR    R1,R4             WRITE ONE MORE BYTE                 MTD67470
 006A50      41E0 9190 =007BE4     6748            BAL    R14,SENSTA1       CHECK STATUS                        MTD67480
 006A54      C430 0044             6749            NHI    R3,X'44'          ZERO IN ON TERR BIT                 MTD67490
*006A58      2139      =006A6A     6750            BNZ    T8.4E             CONTINUE ON IF EXP.                 MTD67500
 006A5A      C830 0054             6751            LHI    R3,X'54'          LOAD EXP. STATUS                    MTD67510
 006A5E      4030 9966 =0083C8     6752            STH    R3,STATGD         STORE IT                            MTD67520
 006A62      E650 816E =006BD4     6753            LA     R5,T8.E005        WRITE UNDERFLOW DID NOT SET "TERR"  MTD67530
 006A66      4300 FF5C =0069C6     6754            B      T8R02                                                 MTD67540
                                   6755  * LET'S CHECK SNS HW TOO!                                              MTD67550
             0000 6A6A             6756  T8.4E     EQU    *                                                     MTD67560
 006A6A      41E0 923C =007CAA     6757            BAL    R14,CNOP0         ADDRESS DSB0                        MTD67570
 006A6E      D910 99D6 =008448     6758            RH     R1,SNSHW          LOAD DSB0                           MTD67580
 006A72      243D                  6759            LIS    R3,13             LOAD OFFSET FOR TEST                MTD67590
 006A74      7430 99D0 =008448     6760            TBT    R3,SNSHW          TEST FOR WRITE UNDERFLOW            MTD67600
 006A78      4230 98D2 =00834E     6761            BNZ    PASS              CONTINUE TEST IF SET                MTD67610
 006A7C      E650 8178 =006BF8     6762            LA     R5,T8.E006        WRITE UNDERFL (DSB BIT 13) DIDNOT SET MTD67620
 006A80      4300 FF66 =0069FA     6763            B      T8R03                                                 MTD67630
                                   6764  *                                                                      MTD67640
                                   6765  * LET'S CHECK EVEN-ODD BYTE STATUS                                     MTD67650
                                   6766  *                                                                      MTD67660
 006A84      41F0 9904 =00838C     6767  T8.5      BAL    R15,LOOPTOP                                           MTD67670
 006A88      0000 6AC8             6768            DAC    T8.6              NEXT SEQUENCE                       MTD67680
 006A8C      0000 6B08             6769            DAC    TST8.END                                              MTD67690
 006A90      41F0 92C4 =007D58     6770            BAL    R15,IT.B1         INIT DRIVE FIRST                    MTD67700
 006A94      2455                  6771            LIS    R5,5              LOAD ODD BYTE COUNT                 MTD67710
 006A96      41E0 924E =007CE8     6772            BAL    R14,CWRODBY       ISSUE A WRT ODD BYTE COMMAND        MTD67720
 006A9A      41E0 91E2 =007C80     6773            BAL    R14,CWRITE        PUT INF. INTO WRITE                 MTD67730
 006A9E      9814                  6774  T8.5A     WHR    R1,R4             OUTPUT DATA                         MTD67740
 006AA0      2752                  6775            SIS    R5,2              DECREMENT COUNT                     MTD67750
 006AA2      2184      =006AAA     6776            BLS    T8.5C             BRANCH OUT IF DONE                  MTD67760
 006AA4      41E0 917A =007C22     6777            BAL    R14,SENSTA3       CHECK FOR BUSY                      MTD67770
 006AA8      2205      =006A9E     6778            BS     T8.5A             OUTPUT REST                         MTD67780
 006AAA      41E0 9136 =007BE4     6779  T8.5C     BAL    R14,SENSTA1       CHECK FOR NMTN                      MTD67790
                                   6780  * ODD BYTE SHOULD BE SET NOW                                           MTD67800
 006AAE      41E0 91F8 =007CAA     6781            BAL    R14,CNOP0         ADDRESS DSB0                        MTD67810
 006AB2      D910 9992 =008448     6782            RH     R1,SNSHW          LOAD DSB0                           MTD67820
 006AB6      243C                  6783            LIS    R3,12             LOAD OFFSET FOR TEST                MTD67830
 006AB8      7430 998C =008448     6784            TBT    R3,SNSHW          TEST FOR ODD BYTE SET               MTD67840
 006ABC      4230 988E =00834E     6785            BNZ    PASS              CONTINUE TEST IF SET                MTD67850
 006AC0      E650 815E =006C22     6786            LA     R5,T8.E007        ODD-BYTE STATUS(DSB BIT 12) DID NOT S MTD67860
                                   6787  * DEVICE STATUS HALFWORD                                               MTD67870
 006AC4      4300 FF22 =0069FA     6788            B      T8R03                                                 MTD67880
                                   6789  * LET'S CHECK ODD-BYTE STATUS RESET                                    MTD67890
 006AC8      41F0 98C0 =00838C     6790  T8.6      BAL    R15,LOOPTOP                                           MTD67900
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006ACC     0000 6B08              6791           DAC   TST8.END                                         MTD67910
006AD0     0000 6B08              6792           DAC   TST8.END                                         MTD67920
006AD4     41F0 9280 =007D58      6793           BAL   R15,IT.B1          INIT FIRST                    MTD67930
006AD8     2454                   6794           LIS   R5,4               LOAD EVEN COUNT               MTD67940
006ADA     41E0 91A2 =007C80      6795           BAL   R14,CWRITE         PUT INTO WRITE MODE           MTD67950
006ADE     9814                   6796  T8.6A    WHR   R1,R4              OUTPUT DATA                   MTD67960
006AE0     2752                   6797           SIS   R5,2               DECREMENT COUNT               MTD67970
006AE2     2184      =006AEA      6798           BLS   T8.6C              BRANCH OUT IF ZERO            MTD67980
006AE4     41E0 913A =007C22      6799           BAL   R14,SENSTA3        CHECK FOR BUSY                MTD67990
006AE8     2205      =006ADE      6800           BS    T8.6A              OUTPUT MORE DATA              MTD68000
006AEA     41E0 90F6 =007BE4      6801  T8.6C    BAL   R14,SENSTA1        CHECK STATUS FOR NMTN         MTD68010
                                  6802  * ODD-BYTE STATUS SHOULD BE RESET NOW                           MTD68020
006AEE     41E0 91B8 =007CAA      6803           BAL   R14,CNOPO          ADDRESS DSBO                  MTD68030
006AF2     D910 9952 =008448      6804           RH    R1,SNSHW           READ IN DSBO                  MTD68040
006AF6     243C                   6805           LIS   R3,12              LOAD OFFSET FOR TEST          MTD68050
006AF8     7430 994C =008448      6806           TBT   R3,SNSHW           TEST FOR EVEN BYTE            MTD68060
006AFC     4330 984E =00834E      6807           BZ    PASS               END TEST IF RESET             MTD68070
006B00     E650 8148 =006C4C      6808           LA    R5,T8.F008         ODD-BYTE STATUS (DSB BIT 12) NO RESET MTD68080
006B04     4300 FEE2 =0069EA      6809           B     T8R03              DEVICE STATUS HALFWORD        MTD68090
                                  6810  *                                                               MTD68100
006B08     41F0 2836              6811  TST8.END BAL   R15,TST.DRIV       CHECK FOR OTHER DRIVES        MTD68110
006B0C     4800 98FA =00840A      6812           LH    R0,DPIVSAV1        CHECK FLAG                    MTD68120
006B10     C300 000E              6813           THI   R0,X'E'            IS IT SET                     MTD68130
006B14     4330 133C              6814           BZ    TSTEND             NO, END TEST                  MTD68140
006B18     41F0 923C =007D58      6815           BAL   R15,IT.B1          INIT TEST FOR OTHER DRIVES    MTD68150
006B1C     4300 FD82 =0068A2      6816           B     T8.1B                                            MTD68160
                                  6817  *                                                               MTD68170
006B20     5345 4C43 4820 5452    6818  NOSEL    DC    C'SELCH TRANSFERS NOT SELECTED',X'0D0A'          MTD68180
006B28     414E 5346 4552 5320
006B30     4E4F 5420 5345 4C45
006B38     4354 4544
006B3C     0D0A
006B3E     4C4F 4E47 2052 4543    6819  T8.E000  DC    C'LONG RECORD WRITES',X'0D0A'                    MTD68190
006B46     4F52 4420 5752 4954
006B4E     4553
006B50     0D0A
006B52     5348 4F52 5420 5245    6820  T8.E001  DC    C'SHORT RECORD READS',X'0D0A'                    MTD68200
006B5A     434F 5244 2052 4541
006B62     4453
006B64     0D0A
006B66     5245 4144 204F 5652    6821  T8.E002  DC    C'READ OVRN DID NOT SET "TERR"',X'0D0A'          MTD68210
006B6E     4E20 4449 4420 4E4F
006B76     5420 5345 5420 2254
006B7E     4552 5222
006B82     0D0A
006B84     5245 4144 204F 5652    6822  T8.E003  DC    C'READ OVRN (DSB BIT 15) DID NOT SET',X'0D0A'    MTD68220
006B8C     4E20 2844 5342 2042
006B94     4954 2031 3529 2044
006B9C     4944 204E 4F54 2053
006BA4     4554
006BA6     0D0A
006BA8     464F 524D 4154 5445    6823  T8.E004  DC    C'FORMATTER OVRN DID NOT SET "TERR" & "ERR"',X'0D0A'  MTD68230
006BB0     5220 4F56 524E 2044
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TEST 8

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006BB8       4944 204E 4F54 2053
006BC0       4554 2022 5445 5252
006BC8       2220 2620 2245 5252
006BD0       2220
006BD2       0D0A
006BD4       5752 4954 4520 554E      6824  T8.E005  DC    C'WRITE UNDERFLOW DID NOT SET "TERR"',X'0D0A'              MTD68240
006BDC       4445 5246 4C4F 5720
006BE4       4449 4420 4E4F 5420
006BEC       5345 5420 2254 4552
006BF4       5222
006BF6       0D0A
006BF8       5752 4954 4520 554E      6825  T8.E006  DC    C'WRITE UNDERFLOW (DSB BIT 13) DID NOT SET',X'0D0A'        MTD68250
006C00       4445 5246 4C4F 5720
006C08       2844 5342 2042 4954
006C10       2031 3329 2044 4944
006C18       204E 4F54 2053 4554
006C20       0D0A
006C22       4F44 442D 4259 5445      6826  T8.E007  DC    C'ODD-BYTE STATUS (DSB BIT 12) DID NOT SET',X'0D0A'        MTD68260
006C2A       2053 5441 5455 5320
006C32       2844 5342 2042 4954
006C3A       2031 3229 2044 4944
006C42       204E 4F54 2053 4554
006C4A       0D0A
006C4C       4F44 4420 4259 5445      6827  T8.E008  DC    C'ODD BYTE STATUS (DSB BIT 12) DID NOT RESET',X'0D0A'      MTD68270
006C54       2053 5441 5455 5320
006C5C       2844 5342 2042 4954
006C64       2031 3229 2044 4944
006C6C       204E 4F54 2052 4553
006C74       4554
006C76       0D0A
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                                    6829 *******************************************************          MTD68290
                                    6830 *         TEST 9 GAPLESS MODE TEST                    *          MTD68300
                                    6831 *                                                     *          MTD68310
                                    6832 * PURPOSE: TO ATTEMPT TO WRITE AND READ GAPLESS TAPE  *          MTD68320
                                    6833 *                                                     *          MTD68330
                                    6834 * TEST SPEC: THE TEST FIRST DOES A TOP OF CORE SEARCH *          MTD68340
                                    6835 * TO CALCULATE HOW BIG A GAPLESS TAPE TO              *          MTD68350
                                    6836 * PRODUCE. IT THEN OUTPUTS A GAPLESS TAPE,            *          MTD68360
                                    6837 * REWINDS THE TAPE AND THENS TRIES TO READ            *          MTD68370
                                    6838 * THE TAPE. THE TEST VERIFIES THE OPERATION           *          MTD68380
                                    6839 * WITH DATA COMPARISIONS AND STATUS CHECKS.           *          MTD68390
                                    6840 *                                                     *          MTD68400
                                    6841 * ERRORS:                                             *          MTD68410
                                    6842 *                                                     *          MTD68420
                                    6843 * OPTIONS:                                            *          MTD68430
                                    6844 * 'TRMODE' MUST = 1                                   *          MTD68440
                                    6845 * DRIVE AND SELCH AND RECORDS.                        *          MTD68450
                                    6846 *                                                     *          MTD68460
                                    6847 *******************************************************          MTD68470


             0000 6C78              6849 TEST9    EQU   *                                                 MTD68490
 006C78      41F0 90CE =007D4A      6850          BAL   R15,TESTINIT        INIT TESTING                  MTD68500
             0000 6C7C              6851 T9.1     EQU   *                                                 MTD68510
 006C7C      41F0 8324 =006FA4      6852          BAL   R15,SELADR          IS SELCH SELECTED?            MTD68520
 006C80      4300 8368 =006FEC      6853          B     MEMCHK              CHECK TOP OF MEMORY           MTD68530
                                    5854 *                                                                MTD68540
             0000 6C84              6855 TST9.1   EQU   *                                                 MTD68550
 006C84      41F0 F626 =0062AE      6856          BAL   R15,INTRSET         SET UP INTERRUPT TABLES       MTD68560
 006C88      41F0 9418 =0080A4      6857          BAL   R15,WRTENB          CHECK FOR WRITES ENABLED      MTD68570
 006C8C      7390 2108              6858          LHL   R9,SELCH+$VALU1     LOAD SELCH ADDRESS            MTD68580
 006C90      9191                   6859          SLHLS R9,1                DOUBLE IT                     MTD68590
 006C92      CA90 00D0              6860          AHI   R9,X'D0'            AND ADD FOR INT. TABLE LOC    MTD68600
                                    6861 *SET UP WRITE BUFFERS                                            MTD68610
 006C96      7360 976C =008406      6862          LHL   R6,RECSAV           LOAD GAPLESS BLOCK SIZE    MTDMTD68620
 006C9A      C560 0001              6863          CLHI  R6,1                CHECK FOR RECORD 1 - NOT VALIR01 MTD68630
*006C9E      2138      =006CAE      6864          BNE   T9.1AA              INPUT MUST BE OK         R01  MTD68640
 006CA0      2661                   6865          AIS   R6,1                INCREMENT IT TO 2        R01  MTD68650
 006CA2      4060 9760 =008406      6866          STH   R6,RECSAV           R01                           MTD68660
 006CA6      E650 8420 =0070CA      6867          LA    R5,T9.MSG2          RECORDS TRANSFERRED = 2  R01  MTD68670
 006CAA      41F0 1802              6868          BAL   R15,PRINT           PRINT IT OUT             R01  MTD68680
 006CAE      C460 FFFE              6869 T9.1AA   NHI   R6,X'FFFE'          FORCE TO AN EVEN COUNT        MTD68690
 006CB2      41E0 8F1C =007BD2      6870          BAL   R14,CDENS           GIVE DENSITY COMMAND          MTD68700
 006CB6      41E0 DBD8 =004892      6871 T9.1A    BAL   R14,CERGAP          ISSUE ERASE GAP COMMAND       MTD68710
 006CBA      41E0 8F26 =007BF4      6872          BAL   R14,SENSTA1         SENSE STATUS                  MTD68720
 006CBE      2761                   6873          SIS   R6,1                DECREMENT RECORD COUNT        MTD68730
*006CC0      2035      =006CB6      6874          BNZ   T9.1A               UNTIL ZERO                    MTD68740
 006CC2      4860 9740 =008406      6875          LH    R6,RECSAV           RESTORE RECORD COUNT       MTMTD68750
 006CC6      7330 9766 =008430      6876          LHL   R3,TESTPAT+10       LOAD FIRST TEST PATTERN       MTD68760
 006CCA      C850 1FFE              6877          LHI   R5,X'1FFE'          ##       LOAD TRANSFER COUNT  MTD68770
```

TEST 9 GAPLESS MODE TEST

```
006CCE   2470                     LIS   R7,0           ZERO OUT COUNTER FOR SETUP        MTD68780
006CD0   41F0 8308 =006FDC        BAL   R15,SEL.2      GO AND SET UP SELCH BUFFER        MTD68790
006CD4   7330 975A =008432        LHL   R3,TESTPAT+12  LOAD 2ND PATTERN                  MTD68800
006CD8   C850 2FFE                LHI   R5,X'2FFE'     LOAD 2ND COUNT                    MTD68810
006CDC   C870 2000                LHI   R7,X'2000'     PICK UP WHERE PREVIOUS FINISH     MTD68820
006CE0   41F0 82F8 =006FDC        BAL   R15,SEL.2      SETUP 2ND WRITE BUFFER            MTD68830
                          *SET UP SELCH PARAMETERS                                       MTD68840
006CE4   E630 9CE8 =0089D0        LA    R3,WRTBUF      LOAD ADDR. OF 1ST BUFFER          MTD68850
006CE8   5030 97E8 =0084D4        STA   R3,WBUF        STORE IT                          MTD68860
006CEC   CA30 1FFE                AHI   R3,X'1FFE'     CALCULATE ENDING ADDRESS          MTD68870
006CF0   5030 97E4 =0084D8        STA   R3,ENDBUF      AND STORE IT                      MTD68880
006CF4   2632                     AIS   R3,2           FIND 2ND BUF START LOC.           MTD68890
006CF6   5030 97EE =0084E8        STA   R3,WBUF2       AND STORE IT                      MTD68900
006CFA   CA30 2FFE                AHI   R3,X'2FFE'     CALCULATE ITS ENDING ADDR         MTD68910
006CFE   5030 97EA =0084EC        STA   R3,ENDBUF2     AND STORE IT                      MTD68920
006D02   D330 96D9 =0083DF        LB    R3,GAPLSS      LOAD GAPLESS COMMAND              MTD68930
006D06   C630 00C0                OHI   R3,X'C0'       ALSO INCLUDE DISARM COMMAND       MTD68940
006D0A   41E0 8FE0 =007CEE        BAL   R14,CGAPLS     OUTPUT GAPLESS+DENSITY COMMAND    MTD MTD68950
006D0E   41F0 967A =00838C        BAL   R15,LOOPTOP                                      MTD68960
006D14   0000 6DEC                DAC   TST9.5         NEXT SEQUENCE                     MTD68970
006D18   0000 7092                DAC   TST9.END       PROCEED LIMIT                     MTD68980
006D1C   41E0 8F7E =007C9E        BAL   R14,CSTOP      STOP SELCH FIRST OFF              MTD68990
006D20   41E0 8F7A =007C9E        BAL   R14,CSTOP                                        MTD69000
006D24   41F0 93AA =0080D2        BAL   R15,REWMT      REWIND TAPE                       MTD69010
006D28   41E0 8F54 =007C80        BAL   R14,CWRITE     PUT INTERFACE INTO WRITE MODE     MTD69020
006D2C   7330 0A54                LHL   R3,PSW3        SET PSW FOR PROC.                 MTD69030
006D30   95E3                     EPSR  R14,R3         INTERRUPTS                        MTD69040
         0000 6D32        TST9.2A EQU   *                                                MTD69050
006D32   41E0 8F68 =007C9E        BAL   R14,CSTOP      INIT SELCH                        MTD69060
006D36   41E0 8F64 =007C9E        BAL   R14,CSTOP      FOR SURE                          MTD69070
006D3A   41E0 8FBC =007CFA        BAL   R14,WRBUF                                        MTD69080
006D3E   E630 801E =006D60        LA    R3,TST9.3      LOAD ADDRESS FOR INIT.            MTD69090
006D42   4039 0000                STH   R3,0(R9)       STORE IT                          MTD69100
006D46   41E0 8F3C =007C86        BAL   R14,CGO        OTHERWISE GIVE SELCH THE GO       MTD69110
006D4A   C800 0FFF        TST9.WT LHI   R0,X'FFF'      LOAD TIMER COUNT                  MTD69120
006D4E   41F0 152A                BAL   R15,TIMER      AND WAIT FOR SELCH TO END         MTD69130
006D52   7330 0A52                LHL   R3,PSW2        OTHERWISE RESET PSW               MTD69140
006D56   95E3                     EPSR  R14,R3         TO NO-INT. AND                    MTD69150
006D58   E650 8388 =0070E4        LA    R5,T9.E000     GAPLESS WRITE                     MTD69160
006D5C   4300 2E06                B     T1R09                                            MTD69170
                          *                                                              MTD69180
         0000 6D60        TST9.3  EQU   *                                                MTD69190
006D60   7330 0A54                LHL   R3,PSW3        RESET PSW FOR INT. AND            MTD69200
006D64   95E3                     EPSR  R14,R3         REGISTERS TO SET F                MTD69210
006D66   5810 9BEA =008954        L     R1,RSAVE+4     RESTORE R1                        MTD69220
006D6A   5820 9BEA =008958        L     R2,RSAVE+8     RESTORE R2                        MTD69230
006D6E   41E0 8F2C =007C9E        BAL   R14,CSTOP      INIT SELCH                        MTD69240
006D72   41E0 8F28 =007C9E        BAL   R14,CSTOP      FOR SURE                          MTD69250
006D76   2761                     SIS   R6,1           DECREMENT COUNT                   MTD69260
006D78   4330 802A =006DA6        BZ    TST9.4         BRANCH OUT IF ZERO                MTD69270
006D7C   41E0 8F94 =007D14        BAL   R14,WRBUF2                                       MTD69280
006D80   E630 800C =006D90        LA    R3,TST9.2AA    LOAD ADDR FOR INT.                MTD69290
006D84   4039 0000                STH   R3,0(R9)       AND STORE IT                      MTD69300
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TEST 9 GAPLESS MODE TEST

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006D88       41E0 8EFA =007C86      6931            BAL   R14,CGO             OTHERWISE GIVE SELCH THE GO                MTD69310
006D8C       4300 FFBA =006D4A      6932            B     TST9.WT             AND BRANCH TO TIMEOUT                      MTD69320
                                    6933  *                                                                              MTD69330
             0000 6D90              6934  TST9.2AA  EQU   *                                                            MTD69340
006D90       7330 0A54              6935            LHL   R3,PSW3             RESET PSW                                  MTD69350
006D94       95E3                   6936            EPSR  R14,R3              FOR USER REGISTER SET                      MTD69360
006D96       5810 98BA =008954      6937            L     R1,RSAVE+4          RESTORE R1                                 MTD69370
006D9A       5820 98BA =008958      6938            L     R2,RSAVE+8          RESTORE R2                                 MTD69380
006D9E       2761                   6939            SIS   R6,1                DECREMENT COUNT                            MTD69390
*006DA0      2383         =006DA6   6940            BZ    TST9.4              BRANCH OUT IF ZERO                         MTD69400
006DA2       4300 FF8C =006D32      6941            B     TST9.2A             CONTINUE OUTPUT                            MTD69410
             0000 6DA6              6942  TST9.4    EQU   *                                                            MTD69420
006DA6       7330 0A52              6943            LHL   R3,PSW2             RESET PSW AND                              MTD69430
006DAA       95E3                   6944            EPSR  R14,R3              REGISTERS                                  MTD69440
006DAC       B650 8334 =0070E4      6945            LA    R5,T9.E000          GAPLESS WRITE                              MTD69450
006DB0       41F0 90C4 =007F78      6946            BAL   R15,SELCHK           CHECK SELCH ENDING STAT                    MTD69460
006DB4       41E0 8F24 =007CDC      6947            BAL   R14,CEXTD           SET EX.ADDR. BIT                           MTD69470
006DB8       41E0 8F88 =007D44      6948            BAL   R14,REEND           GET SELCH ENDING ADDRESSES                 MTD69480
006DBC       3433                   6949            EXHR  R3,R3               REARRANGE UPPER HALF                       MTD69490
006DBE       063D                   6950            OAR   R3,R13              AND OR IT WITH LOWER                       MTD69500
006DC0       5030 971C =0084E0      6951            STA   R3,STOPADR          SAVE IT                                    MTD69510
006DC4       41E0 8ED6 =007C9F      6952            BAL   R14,CSTOP           INIT SELCH                                 MTD69520
006DC8       41E0 8E10 =007EDC      6953            BAL   R14,SENSTA          LOAD INF. STATUS                           MTD69530
006DCC       58A0 9710 =0084F0      6954            LDA   R10,STOPADR         RELOAD END ADDRESS                         MTD69540
006DD0       55A0 9704 =0084D8      6955            CLA   R10,ENDBUF          COMPARE WITH 1ST END                       MTD69550
006DD4       4330 9576 =00834E      6956            BE    PASS                BRANCH TO READS IF GOOD                    MTD69560
006DD8       55A0 9710 =0084EC      6957            CLA   R10,ENDBUF2         COMPARE WITH 2ND END                       MTD69570
006DDC       4330 956E =00834E      6958            BE    PASS                BRANCH IF GOOD                             MTD69580
006DE0       5800 9708 =0084EC      6959            L     R0,ENDBUF2          GET FINAL ENDING ADDRESS             M     MTD69590
006DE4       5000 96F0 =0084D8      6960            ST    R0,ENDBUF           M                                          MTD69600
006DE8       4300 9138 =007F24      6961  T9R02     B     SELEND.1            OUTPUT ERR MESSAGE                         MTD69610
                                    6962  *                                                                              MTD69620
                                    6963  *         LET'S TRY READING GAPLESS TAPES                                    MTD69630
                                    6964  *                                                                              MTD69640
006DEC       41F0 959C =00838C      6965  TST9.5    BAL   R15,LOOPTOP                                                  MTD69650
006DF0       0000 7092              6966            DAC   TST9.END                                                     MTD69660
006DF4       0000 7092              6967            DAC   TST9.END                                                     MTD69670
006DF8       41E0 8EA2 =007C9E      6968            BAL   R14,CSTOP           STOP SELCH FIRST                           MTD69680
006DFC       41E0 8E9E =007C9F      6969            BAL   R14,CSTOP           STOP SELCH                                 MTD69690
006E00       7330 0A54              6970            LHL   R3,PSW3             ENABLE PROC. INT.                          MTD69700
006E04       95E3                   6971            EPSR  R14,R3              OR NOTHING WILL HAPPEN                     MTD69710
006E06       41E0 8DDA =007BE4      6972            BAL   R14,SENSTA1         CHECK INTERFACE STATUS                     MTD69720
006E0A       41F0 9304 =008112      6973            BAL   R15,STATCHK         FIRST CHECK INTERFACE STAT                 MTD69730
006E0E       7360 95F4 =008406      6974            LHL   R6,RECSAV           LOAD BUFFER COUNT                  R01MTD69740
006E12       9061                   6975            SRHLS R6,1                DIVIDE BY 2                                MTD69750
006E14       E650 4001 89D0         6976            LA    R5,READBUF          LOAD ADDR OF READ BUFFER                   MTD69760
006E1A       5050 96BE =0084DC      6977            STA   R5,RDBUF            STORE IT FOR SELCH                         MTD69770
006E1E       CA50 4FFE              6978            AHI   R5,X'4FFE'          ADD IN COUNT FOR ENDING                    MTD69780
006E22       5050 96B2 =0084D8      6979            STA   R5,ENDBUF           AND SAVE IT                                MTD69790
006E26       E630 8072 =006E9C      6980            LA    R3,TST9.6           LOAD INT. LOC                              MTD69800
006E2A       4039 0000              6981            STH   R3,0(R9)            AND STORE IT                               MTD69810
006E2E       E630 80DA =006F0C      6982            LA    R3,TST9.8           LOAD ADDRESS FOR MM INT.                   MTD69820
006F32       4030 003E              6983            STH   R3,X'3E'            ALSO STORE FOR NON-CONF. MEM. INT.         MTD69830
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TEST 9 GAPLESS MODE TEST

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 006E36     2430                6984              LIS   R3,0               LOAD ZEROS                               MTD69840
 006E38     4030 0040           6985              STH   R3,X'40'           AND ZERO OUT MM STAT. HOLD               MTD69850
 006E3C     F870 07FF FFFF      6986              LI    R7,Y'7FFFFFF'      LOAD A TIMEOUT VALUE                     MTD69860
 006E42     41E0 8E34 =007C7A   6987              BAL   R14,CSKBB          USE SKIP BACK RECORDS                    MTD69870
 006E46     41E0 8E30 =007C7A   6988              BAL   R14,CSKBB          ONE MORE TO COVER ID FIELD               MTD69880
 006E4A     41E0 8D8E =007BDC   6989  T9.005      BAL   R14,SENSTA         SENSE STATUS                             MTD69890
 006E4E     C430 0020           6990              NHI   R3,X'20'           CHECK FOR BOT                            MTD69900
 006E52     4230 8020 =006E76   6991              BNZ   T9.50A             OK 'BOT' FOUND                           MTD69910
 006E56     2771                6992              SIS   R7,1               DECREMENT TIMER                          MTD69920
*006E58     2027      =006E4A   6993              BP    T9.005             CONTINUE, UNLESS TIME OUT                MTD69930
 006E5A     C800 0034           6994              LHI   R0,X'34'           EXPECTED STATUS                          MTD69940
 006E5E     4000 9566 =0083C8   6995              STH   R0,STATGD          STORE IT                                 MTD69950
 006E62     E650 82A0 =007106   6996              LA    R5,T9.E005         IRG FOUND IN GAPLESS TAPE,               MTD69960
 006E66     41E0 28AE           6997              BAL   R14,TOERRORB       DRIVE AND STATUS                         MTD69970
 006E6A     E6F0 2A4C           6998              LA    R15,MESSAGE1       BODY MESSAGE ADDRESS                     MTD69980
 006E6E     E6E0 9724 =008596   6999              LA    R14,CONTMSG        SUSPECTED ERROR W CONTROLLER             MTD69990
 006E72     4300 9456 =0082CC   7000              B     ERROPX             OUTPUT IT                                MTD70000
 006E76     41E0 8D6A =007BE4   7001  T9.50A      BAL   R14,SENSTA1        GET STATUS                               MTD70010
 006E7A     41E0 8DDC =007C5A   7002              BAL   R14,CREAD          GIVE READ COMMAND                        MTD70020
                                7003  *                                                                             MTD70030
            0000 6E7E           7004  TST9.51     EQU   *                                                           MTD70040
 006E7E     41E0 8EA8 =007D2A   7005              BAL   R14,REBUF          WRITE START AND END ADDR TO SELCH        MTD70050
 006E82     41E0 8E12 =007C98   7006              BAL   R14,CGOREAD        GIVE SELCH THE GO                        MTD70060
 006E86     C800 0FFF           7007              LHI   R0,X'FFF'          LOAD TIMER                               MTD70070
 006E8A     41F0 162A           7008              BAL   R15,TIMER          WAIT FOR SELCH TO FINISH                 MTD70080
 006E8E     7330 0A52           7009              LHL   R3,PSW2            OTHERWISE RESET PSW                      MTD70090
 006E92     95F3                7010              EPSR  R14,R3             FOR NO-INT.                              MTD70100
 006E94     E650 825E =0070F6   7011              LA    R5,T9.E002         GAPLESS READ                             MTD70110
 006E98     4300 2E8C           7012              B     T1R10              TIMED OUT DURING SELCH READ              MTD70120
                                7013  *                                                                             MTD70130
                                7014  *           COME HERE ON READ INTERRUPTS                                      MTD70140
                                7015  *                                                                             MTD70150
            0000 6E9C           7016  TST9.6      EQU   *                                                           MTD70160
 006E9C     7330 0A54           7017              LHL   R3,PSW3            RESET PSW                                MTD70170
 006EA0     95E3                7018              EPSR  R14,R3                                                      MTD70180
 006EA2     5810 9AAE =008954   7019              L     R1,RSAVE+4         RESTORE R1                               MTD70190
 006EA6     5820 9AAE =008958   7020              L     R2,RSAVE+8         RESTORE R2                               MTD70200
 006EAA     41E0 8DF0 =007C9E   7021              BAL   R14,CSTOP          NO! INIT SELCH                           MTD70210
 006EAE     41E0 8DEC =007C9E   7022              BAL   R14,CSTOP          FOR SURE!                                MTD70220
 006EB2     41E0 8D26 =007BDC   7023              BAL   R14,SENSTA         LOAD INTERFACE STATUS                    MTD70230
 006EB6     2761                7024              SIS   R6,1               DECREMENT COUNTER                        MTD70240
*006EB8     233C      =006ED0   7025              BZ    TST9.61            CONTINUE READING?                        MTD70250
 006EBA     5830 961A =0084D8   7026              LDA   R3,ENDBUF          LOAD ENDING ADDRESS                      MTD70260
 006EBE     2632                7027              AIS   R3,2               INCREMENT BY 2                           MTD70270
 006EC0     5030 9618 =0084DC   7028              STA   R3,RDBUF           AND STORE AS START LOC                   MTD70280
 006EC4     CA30 4FFE           7029              AHI   R3,X'4FFE'         INCREMENT ENDING ADDR.                   MTD70290
 006EC8     5030 960C =0084D8   7030              STA   R3,ENDBUF          AND STORE IT                             MTD70300
 006ECC     4300 FFAE =006E7E   7031              B     TST9.51            CONTINUE READING                         MTD70310
                                7032  *                                                                             MTD70320
                                7033  *           COME HERE FOR ENDING CHECKS                                       MTD70330
                                7034  *                                                                             MTD70340
 006ED0     7330 0A52           7035  TST9.61     LHL   R3,PSW2            RESET PROCESSOR                          MTD70350
 006ED4     95F3                7036              EPSR  R14,R3             INTERRUPTS                               MTD70360
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TEST 9 GAPLESS MODE TEST

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006ED6     E650 821C =0070F6     7037            LA    R5,T9.E002         GAPLESS READ                          MTD70370
006EDA     41E0 8DC0 =007C9E     7038            BAL   R14,CSTOP          STOP SELCH                            MTD70380
006EDE     41E0 8DFA =007CDC     7039            BAL   R14,CEXTD          PUT IN EXTEND ADDRESS MODE            MTD70390
006EE2     41E0 8E5F =007D44     7040            BAL   R14,EEEND          GET SELCH ENDING ADDRS                MTD70400
006EE6     3433                  7041            EXHR  R3,R3              SET UP UPPER HALF TO OR               MTD70410
006EE8     063D                  7042            OAR   R3,R13             AND OR TOGETHER                       MTD70420
006EEA     5030 95F2 =0084EC     7043            STA   R3,STOPADR         SAVE IT AND                           MTD70430
006EEE     41E0 8DAC =007C9E     7044            BAL   R14,CSTOP          INIT SELCH                            MTD70440
006EF2     41F0 8F82 =007E78     7045            BAL   R15,SELCHK         AND CHECK SELCH STATUS                MTD70450
006EF6     58A0 95E6 =0084E0     7046            LDA   R10,STOPADR        RELOAD ACT ENDING ADDR.               MTD70460
006EFA     5840 95DA =0084D8     7047            LDA   R4,ENDBUF          LOAD EXP. ENDING ADDR.                MTD70470
006EFE     05A4                  7048            CLAR  R10,R4             COMPARE THE TWO                       MTD70480
006F00     4330 8022 =006F26     7049            BE    TST9.8A            AND BRANCH OUT IF EQUAL               MTD70490
006F04     E650 81EE =0070F6     7050            LA    R5,T9.E002         GAPLESS READ                          MTD70500
006F08     4300 FEDC =006DE8     7051            B     T9R02              SELCH INFORMATION                     MTD70510
                                 7052  *                                                                        MTD70520
           0000 6F0C             7053  TST9.8    EQU   *                                                        MTD70530
006F0C     7330 0A52             7054            LHL   R3,PSW2            RESET PROC. INT.                      MTD70540
006F10     95E3                  7055            EPSR  R14,R3             AND WHAT EVER!                        MTD70550
006F12     5810 9A3E =008954     7056            L     R1,RSAVE+4         RESTORE R1                            MTD70560
006F16     5820 9A3E =008958     7057            L     R2,RSAVE+8         RESTORE R2                            MTD70570
006F1A     41E0 8D80 =007C9E     7058            BAL   R14,CSTOP          MAKE SURE SELCH IS STOPPED            MTD70580
006F1E     41E0 8D7C =007C9E     7059            BAL   R14,CSTOP          STOP SELCH                            MTD70590
006F22     41E0 8CB6 =007BDC     7060            BAL   R14,SENSTA         LOAD ENDING STATUS OF INF.            MTD70600
                                 7061  *                                                                        MTD70610
                                 7062  *         COME HERE FOR ACTUAL COMPARISONS                               MTD70620
                                 7063  *                                                                        MTD70630
           0000 6F26             7064  TST9.8A   EQU   *                  ##                                    MTD70640
006F26     E650 4001 89D0        7065            LA    R5,READBUF         LOAD ADDRESS OF READ BUFFER           MTD70650
006F2C     7380 94D6 =008406     7066            LHL   R8,RECSAV          LOAD BUFFER COUNT                  R01MTD70660
006F30     E640 94FC =008430     7067  TST9.8A1  LA    R4,TESTPAT+10      LOAD 1ST PATTERN                      MTD70670
006F34     C870 1FFF             7068            LHI   R7,X'1FFF'         LOAD COUNT                            MTD70680
006F38     41E0 801C =006F58     7069            BAL   R14,T9.COMP        BRANCH TO COMPARE ROUTINE             MTD70690
006F3C     2781                  7070            SIS   R8,1               DECREMENT BUF. COUNT                  MTD70700
006F3E     4330 940C =00834F     7071            BZ    PASS               OTHERWISE END OF TEST                 MTD70710
006F42     E640 94EC =008432     7072            LA    R4,TESTPAT+12      LOAD 2ND PATTERN                      MTD70720
006F46     C870 2FFF             7073            LHI   R7,X'2FFF'         LOAD 2ND COUNT                        MTD70730
006F4A     41E0 800A =006F58     7074            BAL   R14,T9.COMP        COMPARE ROUTINE                       MTD70740
006F4E     2781                  7075            SIS   R8,1               DECREMENT BUF. COUNT                  MTD70750
006F50     4330 93FA =00834F     7076            BZ    PASS               END TEST?                             MTD70760
006F54     4300 FFD8 =006F30     7077            B     TST9.8A1           OTHERWISE 1ST PATTERN AGAIN           MTD70770

006F58     5020 99FC =008958     7079  T9.COMP   ST    R2,RSAVE+8                                               MTD70790
006F5C     2420                  7080            LIS   R2,0               CLEAR TOGGLE REGISTER                 MTD70800
006F5E     D334 4200 0000        7081  T9.COMP1  LB    R3,0(R4,R2)        LOAD BYTE WRITTEN                     MTD70810
006F64     D395 0000             7082            LB    R9,0(R5)           BYTE READ                             MTD70820
006F68     0539                  7083            CLR   R3,R9              COMPARE THE TWO                       MTD70830
*006F6A    2139      =006F7C     7084            BNE   T9.CERR            ERROR ROUTINE                         MTD70840
006F6C     2651                  7085            AIS   R5,1               INCREMENT READBUF ADDRESS             MTD70850
006F6E     C720 0001             7086            XHI   R2,1               TOGGLE R2                             MTD70860
006F72     2771                  7087            SIS   R7,1               DECREMENT BYTE AMOUNT                 MTD70870
006F74     228B      =006F5E     7088            BNLS  T9.COMP1           CONTINUE TIL FINISHED                 MTD70880
006F76     5820 99DE =008958     7089            L     R2,RSAVE+8                                               MTD70890
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TEST 9 GAPLESS MODE TEST

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006F7A    030E                           BR     R14                  RETURN                            MTD70900
                                 *                                                                     MTD70910
006F7C    4030 957C =0084FC      T9.CERR STH    R3,WSTORE            DATA WRITTEN                      MTD70920
006F80    4090 957A =0084FE              STH    R9,RSTORE            DATA READ                         MTD70930
006F84    E560 4001 89D0                 LA     R6,READBUF                                             MTD70940
006F8A    0B56                           SR     R5,R6                BYTE LOCATION AT FAULT            MTD70950
006F8C    4050 9484 =008414              STH    R5,INDEX                                               MTD70960
006F90    E650 818E =007122              LA     R5,T9.E007           GAPLESS COMPARE..                 MTD70970
006F94    41E0 2CC4                      BAL    R14,T1ERRORA         DATA AND DRIVE                    MTD70980
006F98    E6F0 35F6                      LA     R15,MESSG3A                                            MTD70990
006F9C    E6E0 95F6 =008596              LA     R14,CONTMSG          SUSPECTED ERROR WITH CONTROLLER   MTD71000
006FA0    4300 9328 =0082CC              B      ERRORX                                                 MTD71010

          0000 6FA4              SELADR  EQU    *                                                      MTD71030
006FA4    7320 2108                      LHL    R2,SELCH+$VALU1      LOAD SELCH ADDRESS                MTD71040
006FA8    4230 801E =006FCA              BNZ    SEL.6                CHECK TRMODE STAT TO              MTD71050
006FAC    E650 9624 =0085D4              LA     R5,NOSELCH                                             MTD71060
006FB0    41F0 93BA =00836E              BAL    R15,LOOP2            OTHERWISE OUTPUT                **MTD71070
006FB4    4300 133C                      B      TSTEND               AND END TEST                      MTD71080
                                 *                                                                     MTD71090
006FB8    7330 20DE              SEL.5   LHL    R3,ONLINE+$VALU1     LOAD ONLINE OPTION                MTD71100
006FBC    023F                           BNZR   R15                  RETURN TO CALLER                  MTD71110
006FBE    E650 98A6 =008868              LA     R5,ONLINO                                              MTD71120
006FC2    41F0 93A8 =00836E              BAL    R15,LOOP2            OTHERWISE PRINT                 **MTD71130
006FC6    4300 133C                      B      TSTEND               AND END TEST                      MTD71140
                                 *                                                                     MTD71150
006FCA    7330 2124              SEL.6   LHL    R3,TRMODE+$VALU1     LOAD TRANSFER MODE                MTD71160
006FCE    203B      =006FB8              BNZS   SEL.5                FOR ONE LAST CHECK                MTD71170
006FD0    E650 FB4C =006B20              LA     R5,NOSEL                                               MTD71180
006FD4    41F0 9396 =00836E              BAL    R15,LOOP2            OTHERWISE ##INT                 **MTD71190
006FD8    4300 133C                      B      TSTEND               AND ABORT TESTING                 MTD71200
                                 *                                                                     MTD71210
          0000 6FDC              SEL.2   EQU    *                                                      MTD71220
006FDC    4037 99F0 =0089D0              STH    R3,WRTBUF(R7)        STORE PATTERN                     MTD71230
006FE0    2672                           AIS    R7,2                 INCREMENT POINTER                 MTD71240
006FE2    2752                           SIS    R5,2                 DECREMENT COUNTER                 MTD71250
006FE4    2284      =006FDC              BNLS   SEL.2                BRANCH IF MORE                    MTD71260
006FE6    41E0 8CB4 =007C9E              BAL    R14,CSTOP            INIT SELCH                        MTD71270
006FEA    030F                           BR     R15                  RETURN                            MTD71280
                                 *                                                                     MTD71290
          0000 6FEC              MEMCHK  EQU    *                                                      MTD71300
006FEC    E630 804C =00703C              LA     R3,MEM.INT           LOAD LOC FOR MM HANDLING          MTD71310
006FF0    4030 003E                      STH    R3,X'3E'             STORE FOR MM INTERRUPT            MTD71320
006FF4    E640 4001 89D0                 LA     R4,READBUF           LOAD ADDRESS OF READ BUFFER       MTD71330
006FFA    CA40 0FFF                      AHI    R4,X'FFF'            ROUND UP ADDRESS                  MTD71340
006FFE    C440 F000                      NHI    R4,X'F000'           PUT ON A 4K BOUNDARY              MTD71350
007002    F850 000F F000                 LI     R5,Y'FF000'          LOAD 1MB LIMIT                    MTD71360
007008    5864 0000              M.CHK1  L      R6,0(R4)             STORE PATTERN                     MTD71370
00700C    CA40 1000                      AHI    R4,X'1000'           IF NO INT. INC. LOC               MTD71380
007010    0545                           CLHR   R4,R5                AND COMPARE WITH 1MB BOUNDARY     MTD71390
007012    2225      =007008              BNPS   M.CHK1               AND IF LESS STORE SOME MORE       MTD71400
007014    C860 A5A5                      LHI    R6,X'A5A5'           LOAD TEST PATTERN                 MTD71410
*007018   2531                           LHI    R3,X'FFFF'           OTHERWISE LOAD ANOTHER PAT.       MTD71420
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 00701A     2470                7143            LIS   R7,0                 LOAD LOC ZERO                        MTD71430
 00701C     4037 0000           7144            STH   R3,0(R7)             AND STORE 2ND PAT. AT LOC ZERO       MTD71440
 007020     4064 0000           7145            STH   R6,0(R4)             STORE 1ST PAT. AT 1*MB+1             MTD71450
 007024     4837 0000           7146            LH    R3,0(R7)             RELOAD LOC ZERO                      MTD71460
 007028     C530 FFFF           7147            CLHI  R3,X'FFFF'           COMPARE WITH 2ND PATTERN             MTD71470
*00702C     213B      =007042   7148            BNE   M.CHK2               MUST BE AN 8-32 THEN                 MTD71480
 00702E     4064 0000           7149  M.CHK3    STH   R6,0(R4)             OTHERWISE CONTINUE OUTPUT            MTD71490
 007032     4534 0000           7150            CLH   R3,X'0'(R4)                                               MTD71500
 007036     CA40 1000           7151            AHI   R4,X'1000'           UNTIL AN INT. IS RECEIVED            MTD71510
 00703A     2206      =00702E   7152            BS    M.CHK3               WHICH WILL BE 2MB OR 16MB + 4K       MTD71520
                                7153  *                                                                         MTD71530
            0000 703C           7154  MEM.INT   EQU   *                                                         MTD71540
 00703C     7330 0A52           7155            LHL   R3,PSW2              RESET PSW AND                        MTD71550
 007040     95E3                7156            EPSR  R14,R3               USER REGISTER SET                    MTD71560
 007042     CB40 1000           7157  M.CHK2    SHI   R4,X'1000'           CALCULATE LAST GOOD LOC              MTD71570
 007046     E630 4001 89D0      7158            LA    R3,READBUF           LOAD IN READBUF ADDRESS              MTD71580
 00704C     0B43                7159            SR    R4,R3                SUBTRACT PROGRAM SPACE               MTD71590
 00704E     2480                7160            LIS   R8,0                 ZERO OUT REG 8                       MTD71600
 007050     0894                7161            LDAR  R9,R4                LOAD ADDRESS VALUE                   MTD71610
 007052     5D80 8036 =00708C   7162            D     R8,DBASE             DIVIDE BY NEEDED BUF SIZE            MTD71620
 007056     9191                7163            SLHLS R9,1                 MULTIPLY BY 2                        MTD71630
 007058     7330 20FA           7164            LHL   R3,RECORDS+$VALU1    LOAD SELECTED BUFFER SIZE            MTD71640
 00705C     4030 93A6 =008406   7165            STH   R3,RECSAV            SAVE IT INTO AREA            R01     MTD71650
 007060     0539                7166            CLAR  R3,R9                COMPARE WITH MAX VALUE ALLOWED       MTD71660
 007062     4320 FC1E =006C84   7167            BNP   TST9.1               BRANCH BACK TO TEST IF LESS          MTD71670
 007066     4090 939C =008406   7168            STH   R9,RECSAV            TRANSFER RECORDS                     MTD71680
 00706A     2404                7169            LIS   R0,4                 DIGITS TO CONVERT            R01     MTD71690
 00706C     0819                7170            LR    R1,R9                VALUE                        R01     MTD71700
 00706E     E620 8050 =0070C2   7171            LA    R2,T9MSG1+24         STORED HERE                  R01     MTD71710
 007072     41F0 1680           7172            BAL   R15,HEXASC           AFTER CONVERTED              R01     MTD71720
 007076     E650 8030 =007CAA   7173            LA    R5,T9MSG1            RECORDS OPTION HAS BEEN MODIFIED     MTD71730
 00707A     41F0 92F0 =00836E   7174            BAL   R15,LOOP2                                                 MTD71740
 00707E     4810 9386 =008408   7175            LH    R1,DRIVSAV           RESTORE DRIVE ADDRESS        R01     MTD71750
 007082     4820 2108           7176            LH    R2,SELCH+$VALU1      RESTORE SELCH ADDRESS        R01     MTD71760
 007086     4300 FBFA =006C84   7177            B     TST9.1               INTO BUFFER SELECT AND BACK TO TEST  MTD71770
                                7178  *                                                                         MTD71780
 00708C                         7179            ALIGN 4                                                         MTD71790
 00708C     0000 4FFE           7180  DBASE     DC    Y'4FFE'                                                   MTD71800
 007090                         7181  BUFSAV    DS    2                                                         MTD71810
                                7182  *                                                                         MTD71820
 007092     41F0 2836           7183  TST9.END  BAL   R15,TST.DRIV         CHECK FOR OTHER DRIVES               MTD71830
 007096     4800 9370 =00840A   7184            LH    R0,DRIVSAV1          CHECK FLAG                           MTD71840
 00709A     C300 000E           7185            THI   R0,X'E'              IS IT SET                            MTD71850
 00709E     4330 133C           7186            BZ    TSTEND               NO, END TEST                         MTD71860
 0070A2     41F0 8CB2 =007D58   7187            BAL   R15,IT.B1            INIT TEST FOR OTHER DRIVES           MTD71870
 0070A6     4300 FBD2 =006C7C   7188            B     T9.1                                                      MTD71880

 0070AA     5245 434F 5244 5320 7190  T9MSG1    DC    C'RECORDS TRANSFERRED = X"****"',X'0D0A' MTD              MTD71900
 0070B2     5452 414E 5346 4552
 0070BA     5245 4420 3D20 5822
 0070C2     2A2A 2A2A 2220
 0070C8     0D0A
 0070CA     5245 434F 5244 5320 7191  T9.MSG2   DC    C'RECORDS TRANSFERRED = 2',X'0D0A'                        MTD71910
```

TEST 9 GAPLESS MODE TEST

```
0070D2       5452 414E 5346 4552
0070DA       5245 4420 3D20 3220
0070E2       0D0A
0070E4       4741 504C 4553 5320      7192  T9.E000  DC    C'GAPLESS WRITE..',X'0D0A'                    MTD71920
0070EC       5752 4954 452E 2E20
0070F4       0D0A
0070F6       4741 504C 4553 5320      7193  T9.E002  DC    C'GAPLESS READ..',X'0D0A'                     MTD71930
0070FE       5245 4144 2E2E
007104       0D0A
007106       4952 4720 464F 554E      7194  T9.E005  DC    C'IRG FOUND IN GAPLESS TAPE',X'0D0A'          MTD71940
00710E       4420 494E 2047 4150
007116       4C45 5353 2054 4150
00711E       4520
007120       0D0A
007122       4741 504C 4553 5320      7195  T9.E007  DC    C'GAPLESS COMPARE ERROR..',X'0D0A'            MTD71950
00712A       434F 4D50 4152 4520
007132       4552 524F 522E 2E20
00713A       0D0A
```

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                                   *************************************************               MTD71970
                                   *                                               *               MTD71980
                                   *                 T E S T     A                 *               MTD71990
                                   * AUTOLOAD TEST                                 *               MTD72000
                                   *                                               *               MTD72010
                                   * OPTIONS:                                      *               MTD72020
                                   * DRIVE, DATA, AND BYTES.                       *               MTD72030
                                   *                                               *               MTD72040
                                   *************************************************               MTD72050
              0000 713C            TESTA    EQU   *                                                MTD72060
 00713C       41F0 8C0A =007D4A             BAL   R15,TESTINIT                                     MTD72070
 007140       41F0 FE74 =006FB8             BAL   R15,SEL.5           CHECK IF ONLINE?             MTD72080
 007144       4840 2036            TA.000   LH    R4,DATA+$VALU1      IS DATA PATTERN USER SPECIFIED   MTD72090
*007148       2133      =00714E             BNZ   TA.001                                           MTD72100
 00714A       4840 92E2 =008430             LH    R4,TESTPAT+10       OTHERWISE, LOAD THIS PATTERN MTD72110
 00714E       4040 92D2 =008424    TA.001   STH   R4,DATAPAT                                       MTD72120
                                   *                                                               MTD72130
 007152       41F0 9236 =00838C             BAL   R15,LOOPTOP                                      MTD72140
 007158       0000 71A4                     DAC   TA.100              PASS                         MTD72150
 00715C       0000 736A                     DAC   TSTA.END            PROCEED                      MTD72160
 007160       41F0 8F6E =0080D2             BAL   R15,REWMT           REWIND MAG TAPE        R01   MTD72170
 007164       41E0 8A32 =007B9A             BAL   R14,CCLEAR                                       MTD72180
 007168       73A0 200C                     LHL   R10,BYTES+$VALU1    BYTE VALUE             R01   MTD72190
 00716C       C5A0 007F                     CLHI  R10,X'7F'           7F IS THE MAX TO BE SPECIFIED R01 MTD72200
*007170       2187      =00717E             BL    TA.001A             OK                           MTD72210
 007172       C8A0 007F                     LHI   R10,X'7F'           ELSE FORCE X'7F' BYTES R01   MTD72220
 007176       E650 8214 =00738F             LA    R5,TA.MSG1          TELL USER                    MTD72230
 00717A       41F0 91F0 =00836E             BAL   R15,LOOP2           BYTES OPTION HAS BEEN MODIFIED MTD72240
 00717E       085A                 TA.001A  LR    R5,R10              LOAD BYTES VALUE       R01   MTD72250
 007180       2751                          SIS   R5,1                DECREMENT              R01   MTD72260
 007182       41F0 8A4C =007BD2             BAL   R14,CDENS           DENSITY COMMAND              MTD72270
 007186       0895                          LR    R9,R5                                            MTD72280
 007188       C350 0001                     THI   R5,X'0001'          SEE IF ODD VALUE             MTD72290
*00718C       2133      =007192             BNZ   TA.002              NO                           MTD72300
 00718E       41E0 8B56 =007CE8             BAL   R14,CWRODBY         ISSUE WRITE ODD BYTE COMMAND MTD72310
 007192       41E0 8AEA =007C80    TA.002   BAL   R14,CWRITE                                       MTD72320
 007196       9814                 TA.002A  WHR   R1,R4               WRITE PATTERN TO TAPE        MTD72330
 007198       2752                          SIS   R5,2                                             MTD72340
*00719A       2282      =007196             BNL   TA.002A             CONTINUE TILL COMPLETE       MTD72350
 00719C       41E0 8A44 =007BF4             BAL   R14,SENSTA1                                      MTD72360
 0071A0       4300 91AA =00834F             B     PASS                                             MTD72370
                                   *                                                               MTD72380
 0071A4       41F0 91E4 =00838C    TA.100   BAL   R15,LOOPTOP                                      MTD72390
 0071A8       0000 7232                     DAC   TA.300              PASS ADDRESS           R01   MTD72400
 0071AC       0000 736A                     DAC   TSTA.END            PROCEED                      MTD72410
 0071B0       0859                          LR    R5,R9               RELOAD BYTES VALUE           MTD72420
 0071B2       41E0 89E4 =007B9A             BAL   R14,CCLEAR          CLEAR INTERFACE              MTD72430
 0071B6       41F0 8E86 =008040             BAL   R15,SELSETR         SET UP READ BUFFER ADDRESSES MTD72440
 0071BA       41F0 8F14 =0080D2             BAL   R15,REWMT           REWIND TAPE                  MTD72450
 0071BE       41E0 8A9E =007C60             BAL   R14,CBYRD           PUT INTERFACE INTO BYTE READ MODE MTD72460
 0071C2       41F0 8A94 =007C5A             BAL   R14,CREAD           ISSUE READ COMMAND           MTD72470
 0071C6       E560 4001 89D0                LA    R6,READBUF          LOAD READ BUFFER ADDRESS     MTD72480
 0071CC       41E0 8A52 =007C22    TA.101   BAL   R14,SENSTA3                                      MTD72490
```

TEST A

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 0071D0   DB16 0000                           RD    R1,0(R6)          READ INTO BUFFER BYTE BY BYTE        MTD72500
 0071D4   2661                                AIS   R6,1              INCREMENT BUFFER ADDRESS             MTD72510
 0071D6   2751                                SIS   R5,1              DECREMENT BYT COUNT                  MTD72520
*0071D8   2286       =0071CC                  BNL   TA.101            CONTINUE TIL COMPLETE                MTD72530
 0071DA   41E0 8A06 =007BE4                   BAL   R14,SENSTA1                                            MTD72540
                                   *                                                                       MTD72550
 0071DE   0859                                LR    R5,R9             RESTORE BYTE COUNT                   MTD72560
 0071E0   2470                                LIS   R7,0              INDEX REGISTER CLEARED               MTD72570
 0071E2   2420                                LIS   R2,0                                                   MTD72580
 0071E4   E640 923C =008424                   LA    R4,DATAPAT                                             MTD72590
 0071E8   D334 4200 0000           TA.201     LB    R3,0(R4,R2)       DATA WRITTEN                         MTD72600
 0071EE   D387 4001 89D0                      LB    R8,READBUF(R7)    DATA READ                            MTD72610
 0071F4   0538                                CLR   R3,R8                                                  MTD72620
*0071F6   2138       =007206                  BNE   TAR01             INCORRECT COMPARE                    MTD72630
 0071F8   2671                                AIS   R7,1              INCREMENT READBUF ADDRESS            MTD72640
 0071FA   C720 0001                           XHI   R2,1              TOGGLE PATTERN                       MTD72650
 0071FE   2751                                SIS   R5,1                                                   MTD72660
*007200   228C       =0071E8                  BNL   TA.201                                                 MTD72670
 007202   4300 9148 =00834E                   B     PASS                                                   MTD72680
 007206   E650 81A0 =0073AA        TAR01      LA    R5,TA.E001        BYTE MODE READ..                     MTD72690
 00720A   D000 9782 =008990        TAR01.1    STM   R0,ERRSAVE        SAVE REGISTERS                       MTD72700
 00720E   41F0 1BD0                           BAL   R15,LCORE         RESTORE LOW CORE BEFORE ERROR        MTD72710
 007212   D100 977A =008990                   LM    R0,ERRSAVE                                             MTD72720
 007216   4070 91FA =008414                   STH   R7,INDEX          BYTE LOCATION                        MTD72730
 00721A   4030 92DE =0084FC                   STH   R3,WSTORE                                              MTD72740
 00721E   4080 92DC =0084FE                   STH   R8,RSTORE                                              MTD72750
 007222   41E0 2CC4                           BAL   R14,T1ERRORA      DATA WRITTEN AND READ                MTD72760
 007226   E6F0 35F6                           LA    R15,MESSG3A                                            MTD72770
 00722A   E6E0 9368 =008596                   LA    R14,CONTMSG       SUSPECTED ERROR WITH CONTROLLER      MTD72780
 00722E   4300 909A =0082CC                   B     ERRORX                                                 MTD72790

 007232   41F0 9156 =00838C        TA.300     BAL   R15,LOOPTOP                                            MTD72810
 007238   0000 736A                           DAC   TSTA.END          PASS ADDRESS                 R01     MTD72820
 00723C   0000 736A                           DAC   TSTA.END                                               MTD72830
 007240   41F0 8E8E =0080D2                   BAL   R15,REWMT         REWIND TAPE                          MTD72840
 007244   2430                                LIS   R3,0              CLEAR BUFFER AREA                    MTD72850
 007246   2470                                LIS   R7,0              INDEX REGISTER                       MTD72860
 007248   4037 0080                TA.301     STH   R3,X'80'(R7)                                           MTD72870
 00724C   2672                                AIS   R7,2              INCREMENT BUFFER POINTER             MTD72880
 00724E   C570 00FF                           CLHI  R7,X'FF'                                               MTD72890
*007252   2285       =007248                  BNL   TA.301            CONTINUE                             MTD72900
 007254   2470                                LIS   R7,0              CLEAR INDEX REGISTER                 MTD72910
 007256   D237 007A                TA.3011    STB   R3,X'7A'(R7)                                           MTD72920
 00725A   2571                                AIS   R7,1              INCREMENT INDEX                      MTD72930
 00725C   C570 007F                           CLHI  R7,X'7F'                                               MTD72940
*007260   2035       =007256                  BNE   TA.3011           CONTINUE                             MTD72950
 007262   4830 91A2 =008408                   LH    R3,DRIVSAV        GET DRIVE ADDRESS                    MTD72960
 007266   D230 0078                           STB   R3,X'78'          STORE IT                             MTD72970
 00726A   C830 0040                           LHI   R3,X'40'          COMMAND BYTE                         MTD72980
 00726E   D230 0079                           STB   R3,X'79'                                               MTD72990
 007272   0859                                LR    R5,R9             RELOAD BYTE COUNT                    MTD73000
 007274   CA50 0080                           AHI   R5,X'80'          CALCULATE AL ENDING ADDRESS          MTD73010
 007278   D505 0000                           AL    0(R5)             AUTO LOAD FROM X'80' TO CONT R5      MTD73020
```

TEST A

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00727C       43F0 8080 =007300        7303            BFC   15,TA.302          CC SHOULD BE ZERO                        MTD73030
007280       9577                     7304            EPSR  R7,R7              CAPTURE CC                               MTD73040
007282       4310 8046 =0072CC        7305            BFC   1,TA.303A          ITS NOT DRIVE UNAVAILABLE                MTD73050
007286       E650 8130 =0073BA        7306            LA    R5,TA.E002         AL..                                     MTD73060
00728A       41F0 90E0 =00836E        7307            BAL   R15,LOOP2                                                   MTD73070
00728E       E650 812E =0073C0        7308            LA    R5,TA.E003         DRIVE UNAVAILABLE                        MTD73080
007292       D000 96FA =008990        7309  TAR03A    STM   R0,ERRSAVE         SAVE REGISTERS                           MTD73090
007296       41F0 1BD0                7310            BAL   R15,LCORE          RESTORE LOW CORE                         MTD73100
00729A       D100 96F2 =008990        7311            LM    R0,ERRSAVE                                                  MTD73110
00729E       41F0 90CC =00836E        7312            BAL   R15,LOOP2          OUTPUT PENDING MESSAGES                  MTD73120
0072A2       D000 96EA =008990        7313            STM   R0,ERRSAVE         SAVE REGISTERS                           MTD73130
0072A6       2401                     7314            LIS   R0,1               1 DIGIT                                  MTD73140
0072A8       2410                     7315            LIS   R1,0               EXPECTED CC = 0                          MTD73150
0072AA       E620 818A =007438        7316            LA    R2,TAERMSG2+12     STORED HERE                              MTD73160
0072AE       41F0 1680                7317            BAL   R15,HEXASC                                                  MTD73170
0072B2       0817                     7318            LR    R1,R7              ACTUAL CC                                MTD73180
0072B4       E620 8190 =007448        7319            LA    R2,TAERMSG3+12                                              MTD73190
0072B8       41F0 1680                7320            BAL   R15,HEXASC         CONVERT                                  MTD73200
0072BC       D100 96D0 =008990        7321            LM    R0,ERRSAVE                                                  MTD73210
0072C0       E6F0 8168 =00742C        7322            LA    R15,TAERMSG2                                                MTD73220
0072C4       E6E0 92CE =008596        7323            LA    R14,CONTMSG        SUSPECTED ERROR WITH CONTROLLER          MTD73230
0072C8       4300 9000 =0082CC        7324            B     ERRORX             ERROR ROUTINE                            MTD73240
*0072CC      2329      =0072DE        7325  TA.303A   BFC   2,TA.303B         ITS NOT END OF MEDIUM                    MTD73250
0072CE       E650 80E8 =0073BA        7326            LA    R5,TA.E002         AL..                                     MTD73260
0072D2       41F0 9098 =00836E        7327            BAL   R15,LOOP2                                                   MTD73270
0072D6       E650 8106 =0073E0        7328            LA    R5,TA.E004         CC INDICATES END OF MEDIUM               MTD73280
0072DA       4300 FFB4 =007292        7329            B     TAR03A                                                      MTD73290
*0072DE      2349      =0072F0        7330  TA.303B   BFC   4,TA.303C         EXA OR TIME OUT                          MTD73300
0072E0       E650 80D6 =0073BA        7331            LA    R5,TA.E002         AL..                                     MTD73310
0072E4       41F0 9086 =00836E        7332            BAL   R15,LOOP2                                                   MTD73320
0072E8       E650 8110 =0073FC        7333            LA    R5,TA.E005         CC INDICATES EXA OR TIME OUT             MTD73330
0072EC       4300 FFA2 =007292        7334            B     TAR03A                                                      MTD73340
0072F0       E650 80C6 =0073BA        7335  TA.303C   LA    R5,TA.E002         AL..                                     MTD73350
0072F4       41F0 9076 =00836E        7336            BAL   R15,LOOP2                                                   MTD73360
0072F8       E650 8122 =00741E        7337            LA    R5,TA.E006         INCORRECT CC                             MTD73370
0072FC       4300 FF92 =007292        7338            B     TAR03A             ERROR MESSAGE OUT                        MTD73380
                                      7339  *                                                                           MTD73390
007300       41E0 88E0 =007BE4        7340  TA.302    BAL   R14,SENSTA1                                                 MTD73400
007304       41F0 8E0A =008112        7341            BAL   R15,STATCHK        CHECK STATUS OF INTERFACE                MTD73410
007308       C430 00FF                7342            NHI   R3,X'00FF'         ONLY LSB NECESSARY           R01         MTD73420
00730C       C530 001C                7343            CLHI  R3,X'1C'           STATUS SHOULD BE 1C                      MTD73430
007310       4330 8028 =00733C        7344            BE    TA.400             EVERYTHING OK HERE                       MTD73440
007314       D000 9678 =008990        7345            STM   R0,ERRSAVE         SAVE REGISTERS                           MTD73450
007318       41F0 1BD0                7346            BAL   R15,LCORE          RESTORE LOW CORE IMMEDIATELY             MTD73460
00731C       D100 9670 =008990        7347            LM    R0,ERRSAVE         RESTORE REGISTERS                        MTD73470
007320       C800 001C                7348            IHI   R0,X'1C'           EXPECTED STATUS                          MTD73480
007324       4000 90A0 =0083C8        7349            STH   R0,STATGD          SAVE IT                                  MTD73490
007328       E650 808E =0073BA        7350            LA    R5,TA.E002         AL..                                     MTD73500
00732C       41E0 28AE                7351            BAL   R14,TOERRORB       DRIVE AND STATUS'S                       MTD73510
007330       E6F0 2A4C                7352            LA    R15,MESSAGE1                                                MTD73520
007334       E6E0 925E =008596        7353            LA    R14,CONTMSG        SUSPECTED ERROR WITH CONTROLLER          MTD73530
007338       4300 8F90 =0082CC        7354            B     ERRORX             ERROR MESSAGE                            MTD73540
                                      7355  *                                                                           MTD73550
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00733C  0659                    7356  TA.400   LR    R5,R9              RESTORE BYTE AMOUNT TO COMPARE R01   MTD73560
00733F  2420                    7357           LIS   R2,0                                                   MTD73570
007340  E640 90E0 =008424       7358           LA    R4,DATAPAT                                             MTD73580
007344  2470                    7359           LIS   R7,0                                                   MTD73590
007346  D334 4200 0000          7360  TA.401   LB    R3,0(R4,R2)        EXPECTED PATTERN                    MTD73600
00734C  D387 0080               7361           LB    R8,X'80'(R7)       DATA WRITTEN                        MTD73610
007350  0538                    7362           CLR   R3,R8              COMPARE THEM                        MTD73620
*007352 2138       =007362      7363           BNE   TAR02              ERROR IF .NE.                       MTD73630
007354  2671                    7364           AIS   R7,1               INCREMENT READ ADDRESS              MTD73640
007356  C720 0001               7365           XHI   R2,1               TOGGLE PATTERN                      MTD73650
00735A  2751                    7366           SIS   R5,1                                                   MTD73660
*00735C 228B       =007346      7367           BNL   TA.401             CONTINE TIL COMPLETE                MTD73670
00735E  4300 8FEC =00834E       7368           B     PASS                                                   MTD73680
007362  E650 8054 =0073BA       7369  TAR02    LA    R5,TA.E002         AL..                                MTD73690
007366  4300 FEA0 =00720A       7370           B     TAR01.1            COMMON ERROR ROUTINE                MTD73700

00736A  D000 9622 =008990       7372  TSTA.END STM   R0,ERRSAVE         SAVE REGISTERS                      MTD73720
00736E  41F0 1BD0               7373           BAL   R15,LCORE          SET UP LOW CORE                     MTD73730
007372  D100 961A =008990       7374           LM    R0,ERRSAVE         RESTORE REGISTERS                   MTD73740
007376  41F0 2836               7375           BAL   R15,TST.DRIV       OTHER DRIVES TO BE TESTED           MTD73750
00737A  4800 908C =00840A       7376           LH    R0,DRIVSAV1                                            MTD73760
00737E  C300 000E               7377           THI   R0,X'E'            CHECK FLAG                          MTD73770
007382  4330 133C               7378           BZ    TSTEND             END TEST A                          MTD73780
007386  41F0 89CE =007D58       7379           BAL   R15,IT.B1          INIT TEST FOR OTHER DRIVES          MTD73790
00738A  4300 FDB6 =007144       7380           B     TA.000                                                 MTD73800



00738E  4259 5445 5320 5452     7382  TA.MSG1  DC    C'BYTES TRANSFERRED = X"7F"',X'0D0A'                  MTD73820
007396  414E 5346 4552 5245
00739E  4420 3D20 5822 3746
0073A6  2220
0073A8  0D0A
0073AA  4259 5445 204D 4F44     7383  TA.E001  DC    C'BYTE MODE READ',X'0D0A'                            MTD73830
0073B2  4520 5245 4144
0073B8  0D0A
0073BA  414C 2E2E               7384  TA.E002  DC    C'AL..',X'0D0A'                                      MTD73840
0073BE  0D0A
0073C0  4343 2049 4E44 4943     7385  TA.E003  DC    C'CC INDICATES DRIVE UNAVAILABLE',X'0D0A'            MTD73850
0073C8  4154 4553 2044 5249
0073D0  5645 2055 4E41 5641
0073D8  494C 4142 4C45
0073DE  0D0A
0073E0  4343 2049 4E44 4943     7386  TA.E004  DC    C'CC INDICATES END OF MEDIUM',X'0D0A'                MTD73860
0073E8  4154 4553 2045 4E44
0073F0  204F 4620 4D45 4449
0073F8  554D
0073FA  0D0A
0073FC  4343 2049 4E44 4943     7387  TA.E005  DC    C'CC INDICATES EXAMINE OR TIME OUT',X'0D0A'          MTD73870
007404  4154 4553 2045 5841
00740C  4D49 4E45 204F 5220
007414  5449 4D45 204F 5554
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TEST A

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00741C       0D0A
00741E       494E 434F 5252 4543      7388  TA.E006  DC    C'INCORRECT CC',X'0D0A'                    MTD73880
007426       5420 4343
00742A       0D0A
                                      7389  *                                                        MTD73890
00742C       4343 2045 5850 4543      7390  TAERMSG2 DC    C'CC EXPECTED=*',X'8D0A'                   MTD73900
007434       5445 443D 2A2C
00743A       8D0A
00743C       4343 2052 4543 4549      7391  TAERMSG3 DC    C'CC RECEIVED=*',X'0D0A'                   MTD73910
007444       5645 443D 2A2C
00744A       0D0A
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                                      7393 ********************************************************     MTD73930
                                      7394 *        TEST B REWIND AND UNLOAD CHECK                 *     MTD73940
                                      7395 *                                                      *     MTD73950
                                      7396 * PURPOSE: TO CHECK THE UNLOAD COMMAND                 *     MTD73960
                                      7397 *                                                      *     MTD73970
                                      7398 * TEST SPEC: THE TEST ISSUES AN UNLOAD COMMAND TO THE  *     MTD73980
                                      7399 * TAPE DRIVE,TIMES OUT AND CHECK THE STATUS            *     MTD73990
                                      7400 * FOR OFFLINE CONDITION.                               *     MTD74000
                                      7401 *                                                      *     MTD74010
                                      7402 * ERRORS:                                              *     MTD74020
                                      7403 *                                                      *     MTD74030
                                      7404 * OPTION:                                              *     MTD74040
                                      7405 * DRIVE.                                               *     MTD74050
                                      7406 *                                                      *     MTD74060
                                      7407 ********************************************************     MTD74070


00744C      41F0 88FA =007D4A         7409 TESTB    BAL   R15,TESTINIT        INIT TEST                          MTD74090
                                      7410 *                                                                     MTD74100
                                      7411 *  CHECK IF DU INTERRUPTS WHEN DRIVE IS TURNED OFF LINE               MTD74110
                                      7412 *                                                                     MTD74120
007450      41F0 8F38 =00838C         7413 TSTB.2   BAL   R15,LOOPTOP                                            MTD74130
007454      0000 74C2                 7414          DAC   TSTB.1                                                 MTD74140
007458      0000 7544                 7415          DAC   TSTB.END                                               MTD74150
00745C      41F0 EE4E =0062AF         7416          BAL   R15,INTRSET         SET UP TABLES                      MTD74160
007460      41E0 8866 =007CCA         7417          BAL   R14,CDISARM         DISARM ANY PENDING INTERRUPTS      MTD74170
007464      4830 0A54                 7418          LH    R3,PSW3             ENABLE PROCESSOR INTRPTS           MTD74180
007468      95E3                      7419          EPSR  R14,R3                                                 MTD74190
00746A      E600 803C =0074AA         7420          LA    R0,TSTB.2A          INTERRUPT ADDRESS                  MTD74200
00746E      4000 21E6                 7421          STH   R0,DEVINT           INTO TABLE                         MTD74210
007472      41E0 885A =007CD0         7422          BAL   R14,CENBLE          ENABLE INTERRUPTS                  MTD74220
007476      E650 8168 =0075E2         7423          LA    R5,TBMSG1           TURN DRIVE OFF LINE                MTD74230
00747A      41F0 1802                 7424          BAL   R15,PRINT           OUTPUT MESSAGE                     MTD74240
00747E      F830 07FF FFFF            7425          LI    R3,Y'7FFFFFF'       ALLOW TIME TO DO THIS              MTD74250
007484      41F0 1A8C                 7426 TSTB.20  BAL   R15,TSTBRK          CHECK FOR BREAKING OUT             MTD74260
007488      2731                      7427          SIS   R3,1                DECREMENT TIMER                    MTD74270
*00748A     2033      =007484         7428          BNZ   TSTB.20                                                MTD74280
00748C      41E0 874C =007BDC         7429          BAL   R14,SENSTA          GET STATUS                         MTD74290
007490      E650 80DF =007572         7430          LA    R5,TB.E001          NO INTERRUPT OCCURRED ON TRANSTION TO  MTD74300
007494      2401                      7431          LIS   R0,X'01'            EXPECTED STATUS                    MTD74310
007496      4000 8F2E =0083C8         7432 TBR01.1  STH   R0,STATGD                                              MTD74320
00749A      41E0 28AE                 7433          BAL   R14,TOERRORB        DRIVE AND STATUS                   MTD74330
00749E      E6F0 2A4C                 7434          LA    R15,MESSAGE1                                           MTD74340
0074A2      E6E0 90F0 =008596         7435          LA    R14,CONTMSG         SUSPECTED ERROR WITH CONTROLLER    MTD74350
0074A6      4300 8E22 =0082CC         7436          B     ERRORX                                                 MTD74360
                                      7437 *                                                                     MTD74370
0074AA      41E0 872E =007BDC         7438 TSTB.2A  BAL   R14,SENSTA          CHECK STATUS                       MTD74380
0074AE      C430 0001                 7439          NHI   R3,X'01'            FOR DU                             MTD74390
0074B2      4230 8E98 =00834E         7440          BNZ   PASS                ITS OK                             MTD74400
0074B6      E650 80DC =007596         7441          LA    R5,TB.E002          AFTER DU INTERRUPT, INCORRECT STATUS   MTD74410
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 0074BA    C800 0025                               LHI   R0,X'25'           EXP STATUS                              MTD74420
 0074BE    4300 FFD4 =007496                       B     TBR01.1                                                    MTD74430

 0074C2    41E0 8804 =007CCA            TSTB.1     BAL   R14,CDISARM        DISARM INTERRUPTS FROM OCCURRING        MTD74450
 0074C6    41F0 8EC2 =00838C                       BAL   R15,LOOPTOP        CALCULATE ADDRESSES                     MTD74460
 0074CC    0000 7544                               DAC   TSTB.END           NEXT SEQUENCE                           MTD74470
 0074D0    0000 7544                               DAC   TSTB.END           PROCEED LIMIT                           MTD74480
 0074D4    E650 8120 =0075F8                       LA    R5,TB.MSG2         CHECK THAT DRIVE IS ON LINE             MTD74490
 0074D8    41F0 1802                               BAL   R15,PRINT          MESSAGE MUST BE PRINTED                 MTD74500
 0074DC    F830 07FF FFFF                          LI    R3,Y'7FFFFFF'      ALLOW TIME                              MTD74510
 0074E2    41E0 86F6 =007BDC            TSTB.01    BAL   R14,SENSTA         CHECK STATUS FOR NOT DU                 MTD74520
 0074E6    C330 0001                               THI   R3,X'01'           IF IT IS NOT                            MTD74530
*0074EA    233B      =007500                       BZ    TSTB.10            ATTEMPT UNLOAD                          MTD74540
 0074EC    41F0 1A8C                               BAL   R15,TSTBRK         CHECK FOR BREAK DEPRESSION              MTD74550
 0074F0    2731                                    SIS   R3,1               ELSE WAIT FOR DRIVE TO BE ONLINE        MTD74560
*0074F2    2038      =0074E2                       BNZ   TSTB.01                                                    MTD74570
 0074F4    E550 80C4 =0075BC                       LA    R5,TB.E003         TIMED OUT WAITING FOR ON LINE STATUS    MTD74580
 0074F8    41F0 8E72 =00836F                       BAL   R15,LOOP2                                                  MTD74590
 0074FC    4300 8E4E =00834E                       B     PASS                                                       MTD74600
 007500    41E0 8696 =007B9A            TSTB.10    BAL   R14,CCLEAR         CLEAR INTERFACE                         MTD74610
 007504    41E0 86D4 =007BDC                       BAL   R14,SENSTA         SENSE THE STATUS                        MTD74620
 007508    C430 0001                               NHI   R3,X'01'           CHECK TO SEE IF DEVICE                  MTD74630
 00750C    4230 8878 =007D88                       BNZ   IT.C               IS ON LINE.GIVE NOTICE IF NOT           MTD74640
 007510    F800 0001 D4C0                          LI    R0,Y'1D4C0'        LOAD TIMER COUNT(2 MINS.)               MTD74650
 007516    41E0 87C8 =007CF2                       BAL   R14,CUNLD          UNLOAD TAPE                             MTD74660
 00751A    2701                         TB.1       SIS   R0,1               DECREMENT COUNTER                       MTD74670
 00751C    2031      =00751A                       BNZS  TB.1               KEEP DOING UNTIL ZERO                   MTD74680
 00751E    41E0 86BA =007BDC                       BAL   R14,SENSTA         LOAD STATUS                             MTD74690
 007522    C430 0001                               NHI   R3,X'01'           IS DEVICE NOW DU?                       MTD74700
 007526    4230 8E24 =00834E                       BNZ   PASS               YES! END TEST                           MTD74710
                                        *                                                                           MTD74720
 00752A    2404                                    LIS   R0,4               EXPECTED STATUS(DU)                     MTD74730
 00752C    4000 8E98 =0083C8                       STH   R0,STATGD          SAVE IT                                 MTD74740
 007530    E650 8028 =00755C                       LA    R5,TB.E000         TAPE DID NOT UNLOAD                     MTD74750
 007534    41E0 2564                               BAL   R14,TOERRORA       DRIVE, STATUS'S                         MTD74760
 007538    E6F0 2A4C                               LA    R15,MESSAGE1                                               MTD74770
 00753C    E5E0 8FEA =00852A                       LA    R14,DRIVMSG                                                MTD74780
 007540    4300 8D88 =0082CC                       B     ERRORX                                                     MTD74790
                                        *                                                                           MTD74800
 007544    41F0 2836                    TSTB.END   BAL   R15,TST.DRIV       CHECK FOR OTHER DRIVES                  MTD74810
 007548    4800 8EBE =00840A                       LH    R0,DRIVSAV1        CHECK FLAG                              MTD74820
 00754C    C300 000E                               THI   R0,X'E'            IS IT SET                               MTD74830
 007550    4330 133C                               BZ    TSTEND             NO, END TEST                            MTD74840
 007554    41F0 8800 =007D58                       BAL   R15,IT.B1          INIT TEST FOR OTHER DRIVES              MTD74850
 007558    4300 FEF4 =007450                       B     TSTB.2             BEGIN TEST B                            MTD74860

 00755C    5441 5045 2044 4944          TB.E000    DC    C'TAPE DID NOT UNLOAD',X'0D0A'                             MTD74880
 007564    204E 4F54 2055 4E4C
 00756C    4F41 4420
 007570    0D0A
 007572    4E4F 2049 4E54 4552          TB.E001    DC    C'NO INTERRUPT OCCURRED ON MANUAL DU',X'0D0A'              MTD74890
 00757A    5255 5054 204F 4343
 007582    5552 5245 4420 4F4E
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TESTB

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00758A       204D 414E 5541 4C20
007592       4455
007594       0D0A
007596       494E 434F 5252 4543      7490  TB.E002  DC    C'INCORRECT STATUS AFTER DU INTERRUPT',X'0D0A'          MTD74900
00759E       5420 5354 4154 5553
0075A6       2041 4654 4552 2044
0075AE       5520 494E 5445 5252
0075B6       5550 5420
0075BA       0D0A
0075BC       5449 4D45 4420 4F55      7491  TB.E003  DC    C'TIMED OUT WAITING FOR ON LINE STATUS',X'0D0A'         MTD74910
0075C4       5420 5741 4954 494E
0075CC       4720 464F 5220 4F4E
0075D4       204C 494E 4520 5354
0075DC       4154 5553
0075E0       0D0A
0075E2       5455 524E 2044 5249      7492  TBMSG1   DC    C'TURN DRIVE OFF LINE',X'0D0A'                         MTD74920
0075EA       5645 204F 4646 204C
0075F2       494E 4520
0075F6       0D0A
0075F8       5455 524E 2044 5249      7493  TB.MSG2  DC    C'TURN DRIVE ON LINE',X'0D0A'                          MTD74930
007600       5645 204F 4E20 4C49
007608       4E45
00760A       0D0A
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TEST C

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                                7495  *                                                     MTD74950
                                7496  *******************************************************MTD74960
                                7497  *                                                     *MTD74970
                                7498  *            T E S T      C                         *MTD74980
                                7499  *                                                     *MTD74990
                                7500  * TEST C IS A SCOPE LOOP THAT WILL READ AND WRITE     *MTD75000
                                7501  * THROUGH THE SELCH OR THE MUX BUS. TEST C WILL       *MTD75010
                                7502  * WORK IN TESTMODE OR TALK DIRECTLY TO TAPE DE-       *MTD75020
                                7503  * PENDING ON OPTION SET-UP.                           *MTD75030
                                7504  *                                                     *MTD75040
                                7505  * APPLICABLE OPTIONS:                                 *MTD75050
                                7506  *                                                     *MTD75060
                                7507  * DRIVE, SELCH, ONLINE, TRMODE, DATA, AND BYTES.      *MTD75070
                                7508  *                                                     *MTD75080
                                7509  *******************************************************MTD75090

 00760C      4810 2052          7511  TESTC    LH    R1,DRIVE+$VALU1     GET DRIVE ADDRESS                          MTD75110
 007610      4010 8DF4 =008408  7512           STH   R1,DRIVSAV          SAV IT                                     MTD75120
 007614      2401               7513           LIS   R0,1                SET FLAG                                   MTD75130
 007616      4000 8DF0 =00840A  7514           STH   R0,DRIVSAV1                                                    MTD75140
 00761A      4820 2108          7515           LH    R2,SELCH+$VALU1     SELCH TRANSFERS SELECTED                   MTD75150
 00761E      41E0 867C =007C9E  7516           BAL   R14,CSTOP           STOP SELCH                         R01     MTD75160
*007622      204B       =00760C 7517           BO    TESTC               BEGIN TEST C IF FALSE SYNC         R01     MTD75170
 007624      41E0 8676 =007C9F  7518           BAL   R14,CSTOP           FOR SURE                           R01     MTD75180
 007628      73A0 200C          7519           LHL   R10,BYTES+$VALU1     GET BYTES VALUE                            MTD75190
 00762C      27A1               7520           SIS   R10,1                                                          MTD75200
 00762E      085A               7521           LR    R5,R10              LOAD BYTE VALUE INTO ANOTHER REGISTER      MTD75210
 007630      4840 2036          7522           LH    R4,DATA+$VALU1      LOAD ALTERNATE BYTE PATTERN                MTD75220
*007634      2133       =00763A 7523           BNZ   TC.000              DATA PATTERN IS USER SPECIFIED             MTD75230
 007636      4840 8DF6 =008430  7524           LH    R4,TESTPAT+10       DATA PATTERN A55A                          MTD75240
 00763A      4040 8DE6 =008424  7525  TC.000   STH   R4,DATAPAT          STORE IT                                   MTD75250
 00763E      4800 20DE          7526  TESTC.1  LH    R0,ONLINE+$VALU1    CHECK IF ONLINE TESTING?           R01     MTD75260
*007642      2138       =007652 7527           BNZ   TESTC.1A            YES, THEN SET UP FOR IT            R01     MTD75270
 007644      27A1               7528           SIS   R10,1               ADJUST FOR PROPER TRANSFER                 MTD75280
 007646      41E0 8580 =007DCA  7529           BAL   R14,TMCLEAR          OTHERWISE, CLEAR THE BOARD         R01     MTD75290
 00764A      41E0 863E =007C8C  7530           BAL   R14,CTESTMDE        PUT INTO TESTMODE                  R01     MTD75300
 00764E      4300 8066 =0076B8  7531           B     TESTC.1B            CONTINUE                           R01     MTD75310
 007652      41E0 8544 =007B9A  7532  TESTC.1A BAL   R14,CCLEAR          CLEAR ALL                          R01     MTD75320
 007656      4240 FFB2 =00760C  7533           BO    TESTC               START TEST OVER IF FALSE SYNCR01           MTD75330
 00765A      F800 007F FFFF     7534           LI    R0,Y'7FFFFF'        SET UP TIMER                       R01     MTD75340
 007660      41E0 8578 =007BDC  7535  TC.001   BAL   R14,SENSTA          GET DRIVE STATUS                   R01     MTD75350
 007664      C330 0014          7536           THI   R3,X'14'            NO MOTION SET                      R01     MTD75360
*007668      2135       =007672 7537           BNZ   TC.002              YES, NEXT                          R01     MTD75370
 00766A      2701               7538           SIS   R0,1                DECRMENT TIMER                     R01     MTD75380
*00766C      2036       =007660 7539           BNZ   TC.001              CONTINUE WAIT                      R01     MTD75390
 00766E      4300 FF9A =00760C  7540           B     TESTC               START TEST C OVER IF NOT           R01     MTD75400
 007672      C330 0020          7541  TC.002   THI   R3,X'20'            IS TAPE AT BOT?                    R01     MTD75410
 007676      4230 8030 =0076AA  7542           BNZ   TC.004              THEN NO REWIND                     R01     MTD75420
 00767A      41E0 8614 =007C92  7543           BAL   R14,CREW            ISSUE REWIND COMMAN                R01     MTD75430
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TEST C

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 00767E   F800 007F FFFF                LI    R0,Y'7FFFFF'      TIMER                        R01   MTD75440
 007684   41F0 8554 =007BDC  TC.002A    BAL   R14,SENSTA        CHECK TAPE STATUS            R01   MTD75450
 007688   2345      =007692             BNOS  TC.002B           TAPE IS IN MOTION            R01   MTD75460
 00768A   2701                          SIS   R0,1              DECREMENT TIMER              R01   MTD75470
 00768C   2034      =007684             BNZS  TC.002A           WAIT                         R01   MTD75480
 00768E   4300 FF7A =00760C             B     TESTC             BEGIN TESTC AGAIN            R01   MTD75490
 007692   F800 007F FFFF     TC.002B    LI    R0,Y'7FFFFF'      TIMER                        R01   MTD75500
 007698   41E0 8540 =007BDC  TC.003     BAL   R14,SENSTA        CHECK DRIVE STATUS           R01   MTD75510
 00769C   C330 0014                     THI   R3,X'14'          NO MOTION SET?               R01   MTD75520
*0076A0   2135      =0076AA             BNZ   TC.004            OK, CONTINUE                 R01   MTD75530
 0076A2   2701                          SIS   R0,1              DECREMENT TIMER              R01   MTD75540
*0076A4   2036      =007698             BNZ   TC.003            WAIT                         R01   MTD75550
 0076A6   4300 FF62 =00760C             B     TESTC             START TESTC AGAIN            R01   MTD75560
 0076AA   41E0 8524 =007BD2  TC.004     BAL   R14,CDENS         ISSUE DENSITY COMMAND        R01   MTD75570
 0076AE   C3A0 0001                     THI   R10,X'0001'       IS THIS AN ODD BYTE?         R01   MTD75580
*0076B2   2333      =0076B8             BZ    TESTC.1B          NO, CONTINUE                 R01   MTD75590
 0076B4   41E0 8630 =007CE8             BAL   R14,CWRODBY       ISSUE ODD BYTE COMMAND       R01   MTD75600
 0076B8   4800 2124          TESTC.1B   LH    R0,TRMODE+$VALU1  MODE OF TRANSFER?                  MTD75610
 0076BC   4330 8136 =0077F6             BZ    TC.100            READ-WRITE TRANSFERS SELECTED      MTD75620
 0076C0   41F0 874C =007F10             BAL   R15,RESTORE1      ENABLE INT                         MTD75630
 0076C4   E660 9308 =0089D0             LA    R6,WRTBUF         LOAD ADDRESS OF WRITE BUF          MTD75640
 0076C8   5060 8E08 =0084D4             STA   R6,WBUF           STORE ADDRESS                      MTD75650
 0076CC   2470                          LIS   R7,X'0'           ZERO OUT INDEX COUNTER             MTD75660
 0076CE   4047 92FE =0089D0  LC.1       STH   R4,WRTBUF(R7)     STORE PATTERN INTO WRITE BUF       MTD75670
 0076D2   2672                          AIS   R7,2              INCREMENT WRITE BUFFER LOC         MTD75680
 0076D4   27A2                          SIS   R10,2                                                MTD75690
*0076D6   2284      =0076CE             BNL   LC.1                                                 MTD75700
 0076D8   41E0 85C2 =007C9E             BAL   R14,CSTOP         FORCE SELCH STATE                  MTD75710
 0076DC   41E0 85BE =007C9E             BAL   R14,CSTOP                                            MTD75720
 0076E0   E630 92EC =0089D0             LA    R3,WRTBUF         LOAD WRITE BUFFER ADDRESS          MTD75730
 0076E4   0A35                          AAR   R3,R5             CALCULATE ENDING ADDRESS           MTD75740
 0076E6   5030 8DEE =0084D8             ST    R3,ENDBUF         STORE ENDING ADDR. OF BUFFER       MTD75750
 0076EA   41E0 860C =007CFA             BAL   R14,WRBUF         SET UP SELCH WRITE ADDRESSES       MTD75760
 0076EE   41E0 858E =007C80             BAL   R14,CWRITE        AND WRITE MODE                     MTD75770
 0076F2   E600 8014 =00770A             LA    R0,LC.4           INTERRUPT ADDRESS                  MTD75780
 0076F6   4000 21E8                     STH   R0,DEVINT+2                                          MTD75790
 0076FA   7300 200C                     LHL   R0,BYTES+$VALU1   TIMVALUE                           MTD75800
 0076FE   41E0 8584 =007C86             BAL   R14,CGO           GIVE SELCH THE GO                  MTD75810
 007702   41F0 162A                     BAL   R15,TIMER         WAIT FOR INTERRUPT                 MTD75820
 007706   4300 FF02 =00760C             B     TESTC             BEGIN TEST AGAIN                   MTD75830
 00770A   41F0 86FA =007E08  LC.4       BAL   R15,RESTORE       RESTORE R1,R2,PSW                  MTD75840
 00770E   41E0 853A =007C4C             BAL   R14,SENSTA2       GET STATUS                         MTD75850
 007712   41F0 8588 =007C9E             BAL   R14,CSTOP         INIT SELCH                         MTD75860
 007716   41E0 8584 =007C9E             BAL   R14,CSTOP         CLEAR IT TOO                       MTD75870
 00771A   4800 20DE                     LH    R0,ONLINE+$VALU1  IS THIS ONLINE VERSION?      R01   MTD75880
 00771E   4330 8050 =007772             BZ    TC.5              NO, TESTMODE                 R01   MTD75890
 007722   F800 007F FFFF                LI    R0,Y'7FFFFF'      SET UP TIMER                 R01   MTD75900
 007728   41E0 84B0 =007BDC  TC.005     BAL   R14,SENSTA        GET DRIVE STATUS             R01   MTD75910
 00772C   C330 0014                     THI   R3,X'14'          NO MOTION SET                R01   MTD75920
*007730   2135      =00773A             BNZ   TC.006            YES, NEXT                    R01   MTD75930
 007732   2701                          SIS   R0,1              DECREMENT TIMER              R01   MTD75940
*007734   2036      =007728             BNZ   TC.005            CONTINUE WAIT                R01   MTD75950
 007736   4300 FED2 =00760C             B     TESTC             START TEST C OVER IF NOT     R01   MTD75960
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TEST C

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 00773A       C330 0020              7597  TC.006    THI   R3,X'20'          IS TAPE AT BOT?                R01       MTD75970
 00773E       4230 8030 =007772      7598            BNZ   TC.5              THEN NO REWIND                 R01       MTD75980
 007742       41E0 854C =007C92      7599            BAL   R14,CREW          ISSUE REWIND COMMAN            R01       MTD75990
 007746       F800 007F FFFF         7600            LI    R0,Y'7FFFFF'      TIMER                          R01       MTD76000
 00774C       41E0 848C =007BDC      7601  TC.006B   BAL   R14,SENSTA        CHECK TAPE STATUS              R01       MTD76010
 007750       2345      =00775A      7602            BNOS  TC.007            TAPE IS IN MOTION              R01       MTD76020
 007752       2701                   7603            SIS   R0,1              DECREMENT TIMER                R01       MTD76030
 007754       2034      =00774C      7604            BNZS  TC.006B           WAIT                           R01       MTD76040
 007756       4300 FEB2 =00760C      7605            B     TESTC             BEGIN TESTC AGAIN              R01       MTD76050
 00775A       F800 007F FFFF         7606  TC.007    LI    R0,Y'7FFFFF'      TIMER                          R01       MTD76060
 007760       41E0 8478 =007BDC      7607            BAL   R14,SENSTA        CHECK DRIVE STATUS             R01       MTD76070
 007764       C330 0014              7608            THI   R3,X'14'          NO MOTION SET?                 R01       MTD76080
*007768       2135      =007772      7609            BNZ   TC.5              OK, CONTINUE                   R01       MTD76090
 00776A       2701                   7610            SIS   R0,1              DECREMENT TIMER                R01       MTD76100
*00776C       2039      =00775A      7611            BNZ   TC.007            WAIT                           R01       MTD76110
 00776E       4300 FE9A =00760C      7612            B     TESTC             START TESTC AGAIN              R01       MTD76120
 007772       E610 4001 89D0         7613  TC.5      LA    R1,READBUF        LOAD ADDR. OF READ BUF.                  MTD76130
 007778       5010 8D60 =0084DC      7614            STA   R1,RDBUF          STORE IT.                                MTD76140
 00777C       0A15                   7615            AR    R1,R5             ADD IT TO READ BUF.                      MTD76150
 00777E       5010 8D56 =0084D8      7616            STA   R1,ENDBUF         STORE IT AS END ADDRESS                  MTD76160
 007782       41F0 8692 =007E18      7617            BAL   R15,CLRBUF        CLEAR READ BUFFER.                       MTD76170
 007786       41E0 85A0 =007D2A      7618            BAL   R14,REBUF         SET UP SELCH READ ADDRESSES              MTD76180
 00778A       7310 8C7A =008408      7619            LHL   R1,DRIVSAV        GET DEV ADDRESS AGAIN                    MTD76190
 00778E       41E0 84C8 =007C5A      7620            BAL   R14,CREAD         PUT INTERFACE IN READ MODE               MTD76200
 007792       E600 8014 =0077AA      7621            LA    R0,LC.20          INTERRUPT ADDRESS                        MTD76210
 007796       4000 21E8              7622            STH   R0,DEVINT+2                                              MTD76220
 00779A       7300 200C              7623            LHL   R0,BYTES+$VALU1   TIMVALUE                               MTD76230
 00779E       41E0 84F6 =007C98      7624            BAL   R14,CGOREAD       GIVE THE SELCH THE GO                    MTD76240
 0077A2       41F0 162A              7625            BAL   R15,TIMER         WAIT FOR INTERRUPT                       MTD76250
 0077A6       4300 FE62 =00760C      7626            B     TESTC             BEGIN TEST AGAIN                         MTD76260
 0077AA       41F0 865A =007F08      7627  LC.20     BAL   R15,RESTORE       RESTORE R1,R2,PSW                        MTD76270
 0077AE       41E0 849A =007C4C      7628            BAL   R14,SENSTA2                                             MTD76280
 0077B2       41E0 84E8 =007C9E      7629            BAL   R14,CSTOP         INIT SELCH                               MTD76290
 0077B6       41E0 84E4 =007C9E      7630            BAL   R14,CSTOP         CLEAR IT TOO!                            MTD76300
 0077BA       2420                   7631  TC.COMP0  LIS   R2,0              ZERO OUT TOGGLE INDEX REGISTER           MTD76310
 0077BC       E630 8C64 =008424      7632            LA    R3,DATAPAT        GET ADDRESS OF WHERE DATA IS             MTD76320
 0077C0       2470                   7633            LIS   R7,0              CLEAR INDEX REGISTER                     MTD76330
 0077C2       D363 4200 0000         7634  TC.COMP   LB    R6,0(R3,R2)       DATA EXPECTED                            MTD76340
 0077C8       D387 4001 89D0         7635            LB    R8,READBUF(R7)    DATA READ                                MTD76350
 0077CE       0568                   7636            CLR   R6,R8             COMPARE FOR EQUALITY                     MTD76360
 0077D0       4230 FE38 =00760C      7637            BNE   TESTC             BEGIN TESTC IF ERRORS          R01       MTD76370
 0077D4       2671                   7638            AIS   R7,1              INCREMENT INDEX REGISTER                 MTD76380
 0077D6       C720 0001              7639            XHI   R2,1              REVERSE R2                               MTD76390
 0077DA       0557                   7640            CLR   R5,R7             COMPARE TO BYTES                         MTD76400
*0077DC       208D      =0077C2      7641            BL    TC.COMP           CONTINUE UNTIL FINISHED                  MTD76410
 0077DE       41F0 1A8C              7642            BAL   R15,TSTBRK        CHECK FOR BREAK                          MTD76420
 0077E2       41F0 2836              7643            BAL   R15,TST.DRIV      SEE IF OTHER DRIVES                      MTD76430
 0077E6       7300 8C20 =00840A      7644            LHL   R0,DRIVSAV1                                               MTD76440
 0077EA       C300 000E              7645            THI   R0,X'E'                                                  MTD76450
 0077EE       4330 FE1A =00760C      7646            BZ    TESTC             ELSE BEGIN AGAIN AT DRIVE 1              MTD76460
 0077F2       4300 FE48 =00763E      7647            B     TESTC.1                                                  MTD76470

                                     7649  *                                                                        MTD76490
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TEST C

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                                    7650  *  READ WRITE SCOPE LOOP                                                    MTD76500
                                    7651  *                                                                           MTD76510
 0077F6      41E0 8486 =007C80      7652  TC.100   BAL   R14,CWRITE                                                  MTD76520
 0077FA      9814                   7653  TC.102   WHR   R1,R4          WRITE DATA TO TAPE                          MTD76530
 0077FC      27A2                   7654           SIS   R10,2          DECREMENT BYTE COUNT                        MTD76540
*0077FE      2282       =0077FA     7655           BNL   TC.102         CONTINUE                                    MTD76550
 007800      08A5                   7656           LR    R10,R5         RESTORE R10                                 MTD76560
                                    7657  *                                                                           MTD76570
 007802      E690 4001 89D0         7658           LA    R9,READBUF     ADDRESS OF READ BUFFER                      MTD76580
 007808      5090 8CD0 =0084DC      7659           STA   R9,RDBUF       SAVE IT                                     MTD76590
 00780C      0A95                   7660           AAR   R9,R5          ADD TO IT BYTES AMOUNT                      MTD76600
 00780E      5090 8CC6 =0084D8      7661           STA   R9,ENDBUF      ADDRESS SET UP                              MTD76610
 007812      41F0 8602 =007E18      7662           BAL   R15,CLRBUF     CLEAR THIS READBUF                          MTD76620
 007816      4800 20DE              7663           LH    R0,ONLINE+SVALU1 ARE WE TALKING TO TAPE?          R01     MTD76630
 00781A      4330 8050 =00786E      7664           BZ    TC.103         NO, IN TESTMODE                   R01     MTD76640
 00781E      F800 007F FFFF         7665           LI    R0,Y'7FFFFF'   SET UP TIMER                      R01     MTD76650
 007824      41E0 83B4 =007BDC      7666  TC.105   BAL   R14,SENSTA      GET DRIVE STATUS                  R01     MTD76660
 007828      C330 0014              7667           THI   R3,X'14'       NO MOTION SET                     R01     MTD76670
*00782C      2135       =007836     7668           BNZ   TC.106         YES, NEXT                         R01     MTD76680
 00782E      2701                   7669           SIS   R0,1           DECRMENT TIMER                    R01     MTD76690
*007830      2036       =007824     7670           BNZ   TC.105         CONTINUE WAIT                     R01     MTD76700
 007832      4300 FDD6 =00760C      7671           B     TESTC          START TEST C OVER IF NOT          R01     MTD76710
 007836      C330 0020              7672  TC.106   THI   R3,X'20'       IS TAPE AT BOT?                   R01     MTD76720
 00783A      4230 8030 =00786E      7673           BNZ   TC.103         THEN NO REWIND                    R01     MTD76730
 00783E      41F0 8450 =007C92      7674           BAL   R14,CREW       ISSUE REWIND COMMAN               R01     MTD76740
 007842      F800 007F FFFF         7675           LI    R0,Y'7FFFFF'   TIMER                             R01     MTD76750
 007848      41E0 8390 =007BDC      7676  TC.106B  BAL   R14,SENSTA      CHECK TAPE STATUS                 R01     MTD76760
 00784C      2345       =007856     7677           BNOS  TC.107         TAPE IS IN MOTION                 R01     MTD76770
 00784E      2701                   7678           SIS   R0,1           DECREMENT TIMER                   R01     MTD76780
 007850      2034       =007848     7679           BNZS  TC.106B        WAIT                              R01     MTD76790
 007852      4300 FDB6 =00760C      7680           B     TESTC          BEGIN TESTC AGAIN                 R01     MTD76800
 007856      F800 007F FFFF         7681  TC.107   LI    R0,Y'7FFFFF'   TIMER                             R01     MTD76810
 00785C      41E0 837C =007BDC      7682           BAL   R14,SENSTA      CHECK DRIVE STATUS                R01     MTD76820
 007860      C330 0014              7683           THI   R3,X'14'       NO MOTION SET?                    R01     MTD76830
*007864      2135       =00786E     7684           BNZ   TC.103         OK, CONTINUE                      R01     MTD76840
 007866      2701                   7685           SIS   R0,1           DECREMENT TIMER                   R01     MTD76850
*007868      2039       =007856     7686           BNZ   TC.107         WAIT                              R01     MTD76860
 00786A      4300 FD9E =00760C      7687           B     TESTC          START TESTC AGAIN                 R01     MTD76870
 00786F      41E0 83F8 =007C5A      7688  TC.103   BAL   R14,CREAD                                                  MTD76880
 007872      E690 4001 89D0         7689           LA    R9,READBUF                                                  MTD76890
 007878      F800 0007 FFFF         7690           LI    R0,Y'7FFFF'    TIMER                             R01     MTD76900
 00787E      41E0 835A =007BDC      7691  TC.104   BAL   R14,SENSTA      CHECK STATUS                              MTD76910
*007882      2385       =00788C     7692           BNC   TC.104A        BRANCH OUT ON NOT BUSY            R01     MTD76920
 007884      2701                   7693           SIS   R0,1           DECREMENT TIMER                   R01     MTD76930
*007886      2034       =00787E     7694           BNZ   TC.104         WAIT                              R01     MTD76940
 007888      4300 FD80 =00760C      7695           B     TESTC          START TEST C OVER                 R01     MTD76950
 00788C      D919 0000              7696  TC.104A  RH    R1,0(R9)       READ INTO READ BUFFER                     MTD76960
 007890      2692                   7697           AIS   R9,2           INCREMENT ADDRESS                         MTD76970
 007892      27A2                   7698           SIS   R10,2          DECREMENT BYTE COUNT                      MTD76980
 007894      228B       =00787E     7699           BNLS  TC.104         CONTINUE TIL COMPLETE                     MTD76990
 007896      4300 FF20 =0077BA      7700           B     TC.COMPO       CHECK DATA                                MTD77000
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                                 ******************************************************* MTD77040
                                 *               T E S T     D                        *  MTD77050
                                 *                                                    *  MTD77060
                                 *  TEST D IS A WRITE-ONLY SCOPE LOOP.                *  MTD77070
                                 *  THIS TEST IS DESIGNED TO TEST THE WRITE           *  MTD77080
                                 *  CAPABILITIES OF THE 6250 INTERFACE SHOULD         *  MTD77090
                                 *  SOME PROBLEM OCCUR AND WRITE IS SUSPECTED         *  MTD77100
                                 *  TO BE AT FAULT.                                   *  MTD77110
                                 *                                                    *  MTD77120
                                 *  THIS TEST CAN BE RUN DIRECTLY FROM THE            *  MTD77130
                                 *  INTERFACE TO THE TAPE DRIVE.(TRMODE=0)            *  MTD77140
                                 *  OR                                                *  MTD77150
                                 *  THIS TEST CAN RUN THROUGH THE SELCH TO            *  MTD77160
                                 *  THE TAPE DRIVE.(TRMODE=1)                         *  MTD77170
                                 *                                                    *  MTD77180
                                 *  THIS TEST TERMINATES ON BREAK KEY                 *  MTD77190
                                 *  DEPRESSION ONLY.  ERROR MESSAGES ARE              *  MTD77200
                                 *  NOT APPLICABLE IN A SCOPE LOOP.                   *  MTD77210
                                 *                                                    *  MTD77220
                                 *  OTHER OPTIONS THAT ARE APPLICABLE IN              *  MTD77230
                                 *  TEST D ARE  (BYTES) AND (RECORDS).                *  MTD77240
                                 *                                                    *  MTD77250
                                 *  ALSO, THE (DATA) OPTION IS APPLICABLE             *  MTD77260
                                 *  HERE TO ALLOW THE USER TO SPECIFY A               *  MTD77270
                                 *  SPECIFIC DATA PATTERN IF DESIRABLE.               *  MTD77280
                                 *                                                    *  MTD77290
                                 *  A DRIVE ADDRESS AND SELCH ADDRESS(IF              *  MTD77300
                                 *  APPLICABLE TO YOUR USE MUST BE SPECIFIED          *  MTD77310
                                 *  IN THE DRIVE AND SELCH OPTIONS.                   *  MTD77320
                                 ******************************************************* MTD77330

 00789A   41F0 84AC =007D4A    TESTD    BAL   R15,TESTINIT       INIT TEST                           MTD77350
 00789E   41F0 8802 =0080A4    TD.0     BAL   R15,WRTENB                                             MTD77360
 0078A2   4840 2036                     LH    R4,DATA+$VALU1                                         MTD77370
*0078A6   2133      =0078AC             BNZ   TD.000             USER SPECIFIED DATA PATTERN         MTD77380
 0078A8   4840 8B84 =008430             LH    R4,TESTPAT+10      ELSE USE A55A                       MTD77390
 0078AC   4040 8B74 =008424    TD.000   STH   R4,DATAPAT                                             MTD77400
 0078B0   4800 2124                     LH    R0,TRMODE+$VALU1   CHECK MODE OF TRANSFER SELECTED     MTD77410
 0078B4   4230 8062 =00791A             BNZ   TD.100             SELCH TRANSFERS IF SET              MTD77420
                               *                                                                     MTD77430
                               * THIS IS GOING TO BE DONE WITH DATA WRITES                           MTD77440
 0078B8   7380 20FA                     LHL   R8,RECORDS+$VALU1                                      MTD77450
 0078BC   41E0 82DA =007B9A    TD.00AA  BAL   R14,CCLEAR         CLEAR INTERFACE                     MTD77460
 0078C0   41E0 830E =007BD2             BAL   R14,CDENS          DENSITY COMMAND                     MTD77470
 0078C4   7350 200C                     LHL   R5,BYTES+$VALU1    GET BYTES VALUE                     MTD77480
 0078C8   2751                          SIS   R5,1               DECREASE BY 1                       MTD77490
 0078CA   C350 0001                     THI   R5,Y'0001'         IS IT AN ODD VALUE?                 MTD77500
*0078CE   2133      =0078D4             BNZ   TD.001             NO.                                 MTD77510
 0078D0   41E0 8414 =007CF8             BAL   R14,CWRODBY        ELSE ISSUE ODD BYTE COMMAND         MTD77520
 0078D4   41E0 83A8 =007C80    TD.001   BAL   R14,CWRITE                                             MTD77530
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TEST 9

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0078D8      9814                    7754  TD.002    WHR   R1,R4              WRITE OUT TO TAPE                          MTD77540
0078DA      2752                    7755            SIS   R5,2               DECREASE BYTE COUNT                        MTD77550
0078DC      2282        =0078D8     7756            BNLS  TD.002             CONTINUE UNTIL LESS THAN ZERO              MTD77560
0078DE      F800 007F FFFF          7757  TD.003    LI    R0,Y'7FFFFF'       TIME VALUE                                 MTD77570
0078E4      41E0 82F4 =007BDC       7758  TD.0031   BAL   R14,SENSTA          WAIT FOR NO MOTION                         MTD77580
*0078E8     2145        =0078F2     7759            BO    TD.003A            JUMP OUT WHEN NO MOTION SETS               MTD77590
0078EA      2701                    7760            SIS   R0,1               DECREMENT TIME VALUE                       MTD77600
*0078EC     2034        =0078E4     7761            BNZ   TD.0031            CONTINUE WAIT                              MTD77610
0078EE      4300 FFA8 =00789A       7762            B     TESTD              OTHERWISE, START TEST                      MTD77620
0078F2      C530 0014               7763  TD.003A   CLHI  R3,X'14'                                                     MTD77630
0078F6      C330 0020               7764            THI   R3,X'20'           TAPE AT EOT?                               MTD77640
0078FA      4230 80AE =0079AC       7765            BNZ   TSTD.END           REWIND AND END TEST                        MTD77650
                                    7766  *                                                                            MTD77660
0078FE      2781                    7767            SIS   R8,1               DECREMENT RECORDS COUNT                    MTD77670
007900      4230 FFB8 =0078BC       7768            BNZ   TD.00AA            OUTPUT ALL RECORDS                         MTD77680
007904      F800 007F FFFF          7769  TD.004    LI    R0,Y'7FFFFF'       LOAD TIME LIMIT                            MTD77690
00790A      41E0 82CE =007BDC       7770  TD.0041   BAL   R14,SENSTA          GET INTERFACE STATUS                       MTD77700
00790E      4240 809A =0079AC       7771            BO    TSTD.END           END TEST                                   MTD77710
007912      2701                    7772            SIS   R0,1               DECREMENT TIMER                            MTD77720
*007914     2035        =00790A     7773            BNZ   TD.0041            CONTINUE WAIT                              MTD77730
007916      4300 FF80 =00789A       7774            B     TESTD              BEGIN TEST AGAIN                           MTD77740

                                    7776  * DO THIS WRITE ONLY LOOP USING SELCH TRANSFERS                              MTD77760
                                    7777  *                                                                            MTD77770

            0000 791A               7779  TD.100    EQU   *                                                          MTD77790
00791A      4820 2108               7780            LH    R2,SELCH+$VALU1    GET SELCH ADDRESS                          MTD77800
00791E      E640 8B02 =008424       7781            LA    R4,DATAPAT         GET DATA ADDRESS                           MTD77810
007922      7380 20FA               7782            LHL   R8,RECORDS+$VALU1   GET RECORD AMOUNT                        MTD77820
007926      7360 200C               7783            LHL   R6,BYTES+$VALU1    GET BYTES AMOUNT                           MTD77830
00792A      2761                    7784            SIS   R6,1               ADJUST FOR HALFWORD COUNT                  MTD77840
00792C      0856                    7785            LR    R5,R6              COPY IT                                    MTD77850
00792E      41F0 8512 =007E44       7786            BAL   R15,SEL.3                                                    MTD77860
007932      41F0 84DA =007F10       7787            BAL   R15,RESTORE1       ENABLE INT                                 MTD77870
007936      41E0 8260 =007B9A       7788  TD.1000   BAL   R14,CCLEAR          CLEAR COMMAND                              MTD77880
00793A      41E0 8294 =007BD2       7789            BAL   R14,CDENS          DENSITY COMMAND                            MTD77890
00793E      41E0 83B8 =007CFA       7790            BAL   R14,WRBUF                                                    MTD77900
007942      C350 0001               7791            THI   R5,X'0001'         IS IT AN ODD VALUE                         MTD77910
*007946     2133        =00794C     7792            BNZ   TD.1002            NO COMMAND IF NOT                          MTD77920
007948      41E0 839C =007CE8       7793            BAL   R14,CWRODBY        ISSUE ODD BYTE COMMAND                     MTD77930
00794C      41E0 8330 =007C80       7794  TD.1002   BAL   R14,CWRITE         WRITE COMMAND                              MTD77940
007950      E600 8014 =007968       7795            LA    R0,TD.1004         INTERRUPT ADDRESS                          MTD77950
007954      4000 21E8               7796            STH   R0,DEVINT+2                                                 MTD77960
007958      0806                    7797            LR    R0,R6              TIMVAL                                     MTD77970
00795A      260F                    7798            AIS   R0,15              INCREASE SOME                    R01       MTD77980
00795C      41E0 8326 =007C86       7799            BAL   R14,CGO            SELCH GO COMMAND                           MTD77990
007960      41F0 162A               7800            BAL   R15,TIMER          WAIT FOR SELCH INTERRUPT         R01       MTD78000
007964      4300 FF32 =00789A       7801            B     TESTD              BEGIN TEST AGAIN                 R01       MTD78010
007968      41F0 849C =007E08       7802  TD.1004   BAL   R15,RESTORE        RESTORE R1,R2,PSW                          MTD78020
00796C      41E0 82DC =007C4C       7803            BAL   R14,SENSTA2        CHECK SELCH STATUS                         MTD78030
007970      41E0 832A =007C9E       7804            BAL   R14,CSTOP          CHECK ENDING ADDRESSES                     MTD78040
007974      41E0 8326 =007C9E       7805            BAL   R14,CSTOP          CHECK ENDING ADDRESSES                     MTD78050
007978      F800 007F FFFF          7806  TD.1005   LI    R0,Y'7FFFFF'       TIME VALUE                       R01       MTD78060
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TEST D

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 00797E       41E0 825A =007EDC        7807  TD.10051  BAL   R14,SENSTA          WAIT FOR NO MOTION                          MTD78070
*007982       2145      =00798C        7808            BO    TD.1005A            R01                                         MTD78080
 007984       2701                     7809            SIS   R0,1                DECREMENT TIMER                 R01         MTD78090
*007986       2034      =00797E        7810            BNZ   TD.10051            CHECK AGAIN                     R01         MTD78100
 007988       4300 FF0E =00789A        7811            B     TESTD               RESTART TEST                    R01         MTD78110
 00798C       C330 0020                7812  TD.1005A  THI   R3,X'20'            IS TAPE AT EOT?                             MTD78120
*007990       213E      =0079AC        7813            BNZ   TSTD.END            REWIND AND END.                             MTD78130
 007992       2781                     7814            SIS   R8,1                DECREMENT RECORD COUNT                      MTD78140
 007994       4380 FF9E =007936        7815            BNL   TD.1000             CONTINUE UNTIL FINISHED                     MTD78150
 007998       F800 007F FFFF           7816  TD.1006   LI    R0,Y'7FFFFF'        TIME VALUE                      R01         MTD78160
 00799E       41F0 823A =007EDC        7817  TD.10061  BAL   R14,SENSTA          WAIT FOR NO MOTION              R01         MTD78170
*0079A2       2145      =0079AC        7818            BO    TSTD.END            R01                                         MTD78180
 0079A4       2701                     7819            SIS   R0,1                DECREMENT TIMER                 R01         MTD78190
*0079A6       2034      =00799E        7820            BNZ   TD.10061            CHECK AGAIN                         R01     MTD78200
 0079A8       4300 FEEE =00789A        7821            B     TESTD               R01                                         MTD78210

 0079AC       41F0 8722 =008CD2        7823  TSTD.END  BAL   R15,REWMT           OR CSKBF                                    MTD78230
 0079B0       41F0 1A8C                7824            BAL   R15,TSTBRK          CHECK FOR BREAK                             MTD78240
 0079B4       41F0 2836                7825            BAL   R15,TST.DRIV        SEE IF OTHER DRIVES ARE SPECIFIED           MTD78250
 0079B8       4800 8A4E =00840A        7826            LH    R0,DRIVSAV1         LOOK AT DRIVSAV1                            MTD78260
 0079BC       C300 000E                7827            THI   R0,X'E'                                                       MTD78270
 0079C0       4230 FEDA =00789E        7828            BNZ   TD.0                                                          MTD78280
 0079C4       4300 FED2 =00789A        7829            B     TESTD                                                         MTD78290
 0079C8       4300 FED2 =00789E        7830            B     TD.0                CHECK OTHER DRIVES                          MTD78300
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                                      7833 ********************************************************  MTD78330
                                      7834 *              T E S T     E                           *  MTD78340
                                      7835 *                                                      *  MTD78350
                                      7836 *  TEST E IS A READ-ONLY SCOPE LOOP.                   *  MTD78360
                                      7837 *  THIS TEST IS DESIGNED TO TEST THE READ              *  MTD78370
                                      7838 *  CAPABILITIES OF THE 6250 INTERFACE SHOULD           *  MTD78380
                                      7839 *  SOME PROBLEM OCCUR AND READ IS SUSPECTED            *  MTD78390
                                      7840 *  TO BE AT FAULT.                                     *  MTD78400
                                      7841 *                                                      *  MTD78410
                                      7842 *  NOTE: TEST D MUST BE EXECUTED BEFORE TEST E         *  MTD78420
                                      7843 *        FOR PROPER RESULTS!                           *  MTD78430
                                      7844 *                                                      *  MTD78440
                                      7845 *  THIS TEST CAN BE RUN DIRECTLY FROM THE              *  MTD78450
                                      7846 *  INTERFACE TO THE TAPE DRIVE.(TRMODE=0)              *  MTD78460
                                      7847 *  OR                                                  *  MTD78470
                                      7848 *  THIS TEST CAN RUN THROUGH THE SELCH TO              *  MTD78480
                                      7849 *  THE TAPE DRIVE.(TRMODE=1)                           *  MTD78490
                                      7850 *                                                      *  MTD78500
                                      7851 *  THIS TEST TERMINATES ON BREAK KEY                   *  MTD78510
                                      7852 *  DEPRESSION ONLY.  ERROR MESSAGES ARE                *  MTD78520
                                      7853 *  NOT APPLICABLE IN A SCOPE LOOP.                     *  MTD78530
                                      7854 *                                                      *  MTD78540
                                      7855 *  OTHER OPTIONS THAT ARE APPLICABLE IN                *  MTD78550
                                      7856 *  TEST E ARE  (BYTES) AND (RECORDS).                  *  MTD78560
                                      7857 *                                                      *  MTD78570
                                      7858 *  ALSO, THE (DATA) OPTION IS APPLICABLE               *  MTD78580
                                      7859 *  HERE TO ALLOW THE USER TO SPECIFY A                 *  MTD78590
                                      7860 *  SPECIFIC DATA PATTERN IF DESIRABLE.                 *  MTD78600
                                      7861 *                                                      *  MTD78610
                                      7862 *  A DRIVE ADDRESS AND SELCH ADDRESS(IF                *  MTD78620
                                      7863 *  APPLICABLE TO YOUR USE MUST BE SPECIFIED            *  MTD78630
                                      7864 *  IN THE DRIVE AND SELCH OPTIONS.                     *  MTD78640
                                      7865 ********************************************************  MTD78650

 0079CC    41F0 837A =007D4A          7867 TESTE    BAL   R15,TESTINIT       INIT TEST                 MTD78670
 0079D0    41F0 86FE =0080D2          7868 TESTE.00 BAL   R15,REWMT          REWIND TAPE               MTD78680
 0079D4    4840 2036                  7869          LH    R4,DATA+SVALU1     LOAD DATA TO BE READ      MTD78690
*0079D8    2133      =0079DE          7870          BNZ   TSTE.00            USER SPECIFIED PATTERN    MTD78700
 0079DA    4840 8A52 =008430          7871          LH    R4,TESTPAT+10                                MTD78710
 0079DE    4040 8A42 =008424          7872 TSTE.00  STH   R4,DATAPAT                                   MTD78720
 0079E2    4800 2124                  7873          LH    R0,TRMODE+SVALU1   CHECK TRANSFER MODE       MTD78730
 0079E6    4230 8084 =007A6E          7874          BNZ   TE.100             SELCH TRANSFERS IF 1      MTD78740
                                      7875 *                                                         MTD78750
                                      7876 * THIS IS GOING TO BE DONE WITH DATA READS                MTD78760
                                      7877 *                                                         MTD78770
 0079EA    E660 4001 89D0             7878          LA    R6,READBUF                                   MTD78780
 0079F0    5060 8AE8 =0084DC          7879          STA   R6,RDBUF                                     MTD78790
 0079F4    7350 200C                  7880          LHL   R5,BYTES+SVALU1    GET BYTES VALU1           MTD78800
 0079F8    2751                       7881          SIS   R5,1               DECREASE BY 1:            MTD78810
 0079FA    0A65                       7882          AAR   R6,R5              FIGURE ENDING ADDRESS     MTD78820
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 0079FC    5060 8AD8 =0084D8    7883            STA   R6,ENDBUF                                         MTD78830
 007A00    41F0 8414 =007F18    7884            BAL   R15,CLRBUF        CLEAR READBUF                   MTD78840
 007A04    7380 20FA            7885            LHL   R8,RECORDS+$VALU1 GET RECORDS VALUE               MTD78850
 007A08    0875                 7886  TE.001A   LR    R7,R5             LOAD INTO TEMP REGISTER         MTD78860
 007A0A    41E0 824C =007C5A    7887            BAL   R14,CREAD                                         MTD78870
                                7888  *                                                                 MTD78880
 007A0E    E660 4001 89D0       7889            LA    R6,READBUF        GET START ADDRESS               MTD78890
 007A14    F800 0007 FFFF       7890  TE.002    LI    R0,Y'7FFFF'       TIMVAL                  R01     MTD78900
 007A1A    41E0 81BE =007BDC    7891  TE.003    BAL   R14,SENSTA        GET INTERFACE STATUS            MTD78910
*007A1E    2385      =007A28    7892            BNC   TE.003A           CONTINUE ON NOT BUSY            MTD78920
 007A20    2701                 7893            SIS   R0,1              DECREMENT COUNTER               MTD78930
*007A22    2034      =007A1A    7894            BNZ   TE.003            CONTINUE WAIT                   MTD78940
 007A24    4300 FFA4 =0079CC    7895            B     TESTE             RESTART TEST IF TIMED OUT       MTD78950
 007A28    D916 0000            7896  TE.003A   RH    R1,0(R6)          READ INTO READBUF               MTD78960
 007A2C    2662                 7897            AIS   R6,2              INCREMENT READBUF ADDRESS       MTD78970
 007A2E    2772                 7898            SIS   R7,2              DECREASE BYTES COUNT            MTD78980
*007A30    228E      =007A14    7899            BNL   TE.002            CONTINUE UNTIL FINISHED         MTD78990
 007A32    F800 007F FFFF       7900  TE.004    LI    R0,Y'7FFFFF'      TIME LIMIT              R01     MTD79000
 007A38    41E0 81A0 =007BDC    7901  TE.0041   BAL   R14,SENSTA        CHECK INTERFACE STATUS          MTD79010
*007A3C    2145      =007A46    7902            BO    TE.004A                                           MTD79020
 007A3E    2701                 7903            SIS   R0,1              DECREMENT TIMER                 MTD79030
*007A40    2034      =007A38    7904            BNZ   TE.0041                                           MTD79040
 007A42    4300 FF86 =0079CC    7905            B     TESTE             RESTART TEST                    MTD79050
 007A46    C330 0020            7906  TE.004A   THI   R3,X'20'          TAPE AT EOT?                    MTD79060
 007A4A    4230 80A0 =007AEE    7907            BNZ   TSTE.END          REWIND AND END TAPE             MTD79070
                                7908  *                                                                 MTD79080
 007A4E    41F0 1A8C            7909            BAL   R15,TSTBRK        TEST FOR BREAK DEPRESSION HERE    MTD79090
 007A52    2781                 7910            SIS   R8,1              DECREMENT RECORD COUNT          MTD79100
 007A54    4230 FFB0 =007A08    7911            BNZ   TE.001A           CONTINUE                        MTD79110
 007A58    F800 007F FFFF       7912  TE.005    LI    R0,Y'7FFFFF'      TIMELIMIT                       MTD79120
 007A5E    41E0 817A =007BDC    7913  TE.0051   BAL   R14,SENSTA                                        MTD79130
 007A62    4240 8088 =007AEE    7914            BO    TSTE.END          JUMP OUT ON NO MOTION           MTD79140
 007A66    2701                 7915            SIS   R0,1              DECREMENT TIMER                 MTD79150
*007A68    2035      =007A5E    7916            BNZ   TE.0051           CONTINUE CHECK                  MTD79160
 007A6A    4300 FF5E =0079CC    7917            B     TESTE             RESTART TEST E OTHERWISE        MTD79170

                                7919  * THIS SHALL BE DONE WITH SELCH READS                             MTD79190
                                7920  *                                                                 MTD79200
 007A6E    4820 2108            7921  TE.100    LH    R2,SELCH+$VALU1                                   MTD79210
 007A72    7380 20FA            7922            LHL   R8,RECORDS+$VALU1 SET UP RECORDS VALUE            MTD79220
 007A76    41F0 85C6 =008040    7923  TE.1000   BAL   R15,SELSETP       SET UP READ BUFFER              MTD79230
 007A7A    41F0 8392 =007E10    7924            BAL   R15,RESTORE1      ENABLE INT                      MTD79240
 007A7E    41E0 82A8 =007D2A    7925            BAL   R14,REBUF                                         MTD79250
 007A82    41E0 81D4 =007C5A    7926            BAL   R14,CREAD                                         MTD79260
 007A86    E600 8016 =007AA0    7927            LA    R0,TE.1003        INTERRUPT ADDRESS               MTD79270
 007A8A    4000 21E8            7928            STH   R0,DEVINT+2                                       MTD79280
 007A8E    7300 200C            7929            LHL   R0,BYTES+$VALU1                                   MTD79290
 007A92    260F                 7930            AIS   R0,15             INCREASE SOME           R01     MTD79300
 007A94    41E0 8200 =007C98    7931            BAL   R14,CGOREAD                                       MTD79310
 007A98    41F0 162A            7932            BAL   R15,TIMER         WAIT FFOR SELCH INTERRUPT  R01  MTD79320
 007A9C    4300 FF2C =0079CC    7933            B     TESTE             BEGIN TEST AGAIN        R01     MTD79330
 007AA0    41F0 8364 =007E08    7934  TE.1003   BAL   R15,RESTORE       RESTORE R1,R2,PSW       R01     MTD79340
 007AA4    41E0 81A4 =007C4C    7935            BAL   R14,SENSTA2       CHECK SELCH STATUS              MTD79350
```

TEST E

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 007AA8    41E0 81F2 =007C9E      7936             BAL   R14,CSTOP          INIT SELCH                          MTD79360
 007AAC    41E0 81EE =007C9E      7937             BAL   R14,CSTOP          FOR SURE                            MTD79370
 007AB0    F800 007F FFFF         7938  TE.1004    LI    R0,Y'7FFFFF'       TIME LIMIT                  R01     MTD79380
 007AB6    41E0 8122 =007BDC      7939  TE.10041   BAL   R14,SENSTA                                              MTD79390
*007ABA    2145      =007AC4      7940             BO    TE.1004A           JUMP OUT ON NOMOTION        R01     MTD79400
 007ABC    2701                   7941             SIS   R0,1               DECREMENT TIMER             R01     MTD79410
*007ABE    2034      =007AB6      7942             BNZ   TE.10041           R01                                 MTD79420
 007AC0    4300 FF08 =0079CC      7943             B     TESTE              RESTART TEST                R01     MTD79430
 007AC4    C330 0020              7944  TE.1004A   THI   R3,X'20'           TAPE AT EOT                         MTD79440
 007AC8    4230 8022 =007AEE      7945             BNZ   TSTE.END          END TEST                            MTD79450
                                  7946  *                                                                      MTD79460
 007ACC    41F0 1A8C              7947             BAL   R15,TSTBRK         CHECK FOR BREAK KEY HERE            MTD79470
 007AD0    2781                   7948             SIS   R8,1               DECREMENT RECORD COUNT              MTD79480
 007AD2    4230 FFA0 =007A76      7949             BNZ   TE.1000            CONTINUE TILL THROUGH               MTD79490
 007AD6    41E0 81C4 =007C9E      7950             BAL   R14,CSTOP                                              MTD79500
 007ADA    F800 007F FFFF         7951  TE.1005    LI    R0,Y'7FFFFF'       TIME LIMIT                          MTD79510
 007AE0    41E0 80F8 =007BDC      7952  TE.10051   BAL   R14,SENSTA                                              MTD79520
*007AE4    2145      =007AEE      7953             BO    TSTE.END           NO MOTION SET?                      MTD79530
 007AE6    2701                   7954             SIS   R0,1               DECREMENT TIMER                     MTD79540
*007AE8    2034      =007AE0      7955             BNZ   TE.10051           CONTINUE CHECK                      MTD79550
 007AEA    4300 FEDE =0079CC      7956             B     TESTE              RESTART TEST IF TIMED OUT           MTD79560

 007AEE    41F0 2836              7958  TSTE.END   BAL   R15,TST.DRIV        CHECK FOR OTHER DRIVES              MTD79580
 007AF2    4800 8914 =00840A      7959             LH    R0,DRIVSAV1        OTHER DRIVES SPECIFIED              MTD79590
 007AF6    C300 000E              7960             THI   R0,X'E'                                                MTD79600
 007AFA    4230 FED2 =0079D0      7961             BNZ   TESTE.00                                               MTD79610
 007AFE    4300 FECA =0079CC      7962             B     TESTE              ELSE BEGIN AT START FOR 1ST DRIVE   MTD79620
```

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                         ****************************************************   MTD79640
                         *                                                  *   MTD79650
                         *           T E S T     F                          *   MTD79660
                         *                                                  *   MTD79670
                         * TEST F IS A SCOPE LOOP DESIGNED TO LOOP          *   MTD79680
                         * ON A SPECIFIED COMMAND OR LIST OF COMMANDS (1-4) *   MTD79690
                         * FROM THE OPTION COMMAND.                         *   MTD79700
                         *                                                  *   MTD79710
                         * IT WILL LOOP ON THESE COMMANDS, THEN CHECK FOR   *   MTD79720
                         * NMTN AND TMS.  IF NMTN IS FOUND, A COMMAND       *   MTD79730
                         * CLEAR IS ISSUED AND THE COMMANDS ARE LOOPED ON.  *   MTD79740
                         * IF TMS IS SET, A REWIND IS EXECUTED AND THEN     *   MTD79750
                         * THE CLEAR COMMAND IS GIVEN.                      *   MTD79760
                         *                                                  *   MTD79770
                         * BREAK KEY DEPRESSION ONLY TERMINATES THE TEST.   *   MTD79780
                         *                                                  *   MTD79790
                         * APPLICABLE OPTIONS:                              *   MTD79800
                         * DRIVE, COMMAND, AND TIMELIMT                     *   MTD79810
                         ****************************************************   MTD79820

 007B02  4810 2052           TESTF    LH   R1,DRIVE+SVALU1      GET DRIVE ADDRESS               MTD79840
 007B06  4010 88FE =008408            STH  R1,DRIVSAV                                           MTD79850
 007B0A  2401                         LIS  R0,1                 SET FLAG                        MTD79860
 007B0C  4000 88FA =00840A            STH  R0,DRIVSAV1                                          MTD79870
 007B10  41E0 80C8 =007BDC            BAL  R14,SENSTA           CHECK STATUS OF DRIVE           MTD79880
 007B14  C330 0001                    THI  R3,X'01'             IS IT DU?                       MTD79890
*007B18  2338      =007B28            BZ   TF.000A              IF NOT, CONTINUE                MTD79900
 007B1A  E650 294C                    LA   R5,T0.E004           DRIVE UNAVAILABLE               MTD79910
 007B1E  41F0 884C =00836E            BAL  R15,LOOP2            OUTPUT MESSAGE?                 MTD79920
 007B22  4300 1358                    B    ABORT                END TESTING                     MTD79930
 007B26  2420                TF.000   LIS  R2,0                 INDEX REGISTER                  MTD79940
 007B28  41F0 1A8C           TF.000A  BAL  R15,TSTBRK           CHECK FOR BREAK DEPRESSION      MTD79950
 007B2C  41E0 80AC =007BDC            BAL  R14,SENSTA           CHECK STATUS                    MTD79960
 007B30  C330 0020                    THI  R3,X'20'             HAS TAPE REACHED EOT?           MTD79970
*007B34  2333      =007B3A            BZ   TF.001A              NO, CONTINUE                    MTD79980
 007B36  41F0 8598 =0080D2            BAL  R15,REWMT            OTHERWISE, REWIND TAPE          MTD79990
 007B3A  4860 2116           TF.001A  LH   R6,TIMELIMT+SVALU1   LOAD A TIME LIMIT  *            MTD80000
 007B3E  3466                         EXHR R6,R6                                                MTD80010
 007B40  7300 2118                    LHL  R0,TIMELIMT+SVALU2                                   MTD80020
 007B44  0660                         OR   R6,R0                GET FULLWORD VALUE              MTD80030
 007B46  4842 201A                    LH   R4,COMMAND+SVALU1(R2)                                MTD80040
 007B4A  41E0 8048 =007B96   TF.000B  BAL  R14,OCR              ISSUE SPECIFIED OUTPUT COMMAND  MTD80050
 007B4E  41E0 808A =007BDC            BAL  R14,SENSTA           SENSE STATUS                    MTD80060
 007B52  C430 0014                    NHI  R3,X'14'             CHECK FOR NO MOTION             MTD80070
*007B56  2136      =007B62            BNZ  TF.002               RECEIVED                        MTD80080
 007B58  2761                         SIS  R6,1                 DECREMENT TIMER                 MTD80090
 007B5A  2133      =007B60            BNZS TF.00BA              CONTINUE TO WAIT                MTD80100
 007B5C  41E0 803A =007B9A            BAL  R14,CCLEAR           CLEAR INTERFACE                 MTD80110
*007B60  220B      =007B4A   TF.00BA  B    TF.000B              CONTINUE IF TOO                 MTD80120
 007B62  C430 0020           TF.002   NHI  R3,X'20'             CHECK FOR 'BOT'                 MTD80130
*007B66  2333      =007B6C            BZ   TF.003               END OF TAPE NOT REACHED YET     MTD80140
 007B68  41E0 8566 =0080D2            BAL  R14,REWMT            ELSE REWIND MAG TAPE            MTD80150
 007B6C  41E0 802A =007B9A   TF.003   BAL  R14,CCLEAR           CLEAR INTERFACE                 MTD80160
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TEST F

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 007B70       2622                    8017             AIS    R2,2                                    MTD80170
 007B72       C520 0004               8018             CLHI   R2,4                                    MTD80180
 007B76       4280 FFAE =007B28       8019             BL     TF.000A       CONTINUE WITH DRIVES      MTD80190
 007B7A       C520 000E               8020             CLHI   R2,14         GET NEXT COMMAND LOCATION MTD80200
*007B7E       2384      =007B86       8021             BNL    TF.004                                  MTD80210
 007B80       242E                    8022             LIS    R2,14         INDEX REGISTER TO 14      MTD80220
 007B82       4300 FFA2 =007B28       8023             B      TF.000A       TRY COMMAND AT THIS LOC   MTD80230
 007B86       C520 0012               8024  TF.004     CLHI   R2,18         CHECKED ALL COMMANDS?     MTD80240
 007B8A       4380 FF98 =007B26       8025             BNL    TF.000        START OVER IF COMPLETED ALL MTD80250
 007B8E       C820 0010               8026             LHI    R2,16         INDEX TO 16               MTD80260
 007B92       4300 FF92 =007B28       8027             B      TF.000A       DO COMMAND AT THIS LOCATION MTD80270

 007B96       9E14                    8029  OCR        OCR    R1,R4                                   MTD80290
 007B98       030E                    8030             BR     R14           RETURN                    MTD80300
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TEST SUBROUTINES

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                                    8032  *                                                                          MTD80320
                                    8033  *  S U B R O U T I N E     C C L E A R                                     MTD80330
                                    8034  *                                                                          MTD80340
 007B9A      DE10 882C =0083CA      8035  CCLEAR   OC    R1,CMDCLR          CLEAR INTERFACE                       MTD80350
*007B9E      2303      =007BA4      8036           B     CRDC.0             RETURN                                MTD80360

                                    8038  *                                                                          MTD80380
                                    8039  *  S U B R O U T I N E     C D R C L R                                     MTD80390
                                    8040  *                                                                          MTD80400
 007BA0      DE10 8831 =0083D5      8041  CDRCLR   OC    R1,DRVCLR          CLEAR FORMATTER AND DRIVE             MTD80410
 007BA4      D0E0 8CFC =0088A4      8042  CRDC.0   STM   R14,SR14SAV        SAVE R14 AND R15                      MTD80420
 007BA8      F800 007F FFFF         8043           LI    R0,Y'7FFFFF'       TIME VALUE                            MTD80430
 007BAE      41E0 802A =007BDC      8044  CDRC.1   BAL   R14,SENSTA         SENSE STATUS FOR NMTN                 MT MTD80440
 007BB2      C330 0014              8045           THI   R3,X'14'                                                   MTD80450
*007BB6      2137      =007BC4      8046           BNZ   CRDC.2                                                     MTD80460
 007BB8      41F0 1A8C              8047           BAL   R15,TSTBRK         CHECK FOR BREAK DEPRESSION            MTD80470
 007BBC      2701                   8048           SIS   R0,1               DECREMENT TIME OUT                    MTD80480
*007BBF      2038      =007BAF      8049           BNZ   CDRC.1                                                     MTD80490
 007BC0      4300 8042 =007C06      8050           B     TR00A              TIMED OUT WAITING FOR NO MOTION       MTD80500
 007BC4      D1E0 8CDC =0088A4      8051  CRDC.2   LM    R14,SR14SAV                                              MTD80510
 007BC8      030E                   8052           BR    R14                ##          RETURN                    MTD80520

                                    8054  * S U B R O U T I N E    T M C L E A R                                   MTD80540
                                    8055  *                                                                          MTD80550
 007BCA      C830 00C9              8056  TMCLEAR  LHI   R3,X'C9'                                                 MTD80560
 007BCE      9F13                   8057           OCR   R1,R3              CLEAR INTERFACE IN TESTMODE           MTD80570
 007BD0      030E                   8058           BR    R14                RETURN                                MTD80580

                                    8060  * S U B R O U T I N E   C D E N S                                        MTD80600
                                    8061  *                                                                          MTD80610
 007BD2      4830 8836 =00840C      8062  CDENS    LH    R3,DENSFLAG        GET FLAG VALUE                        MTD80620
 007BD6      DE13 880A =0083E4      8063           OC    R1,DENSEITY(R3)    PROPER DENSITY (08, 18, 28)           MTD80630
 007BDA      030E                   8064           BR    R14                RETURN                                MTD80640

                                    8066  *                                                                          MTD80660
                                    8067  *  S U B R O U T I N E     S E N S T A                                     MTD80670
 007BDC      9D13                   8068  SENSTA   SSR   R1,R3              SENSE THE STATUS OF THE DEVICE        MTD80680
 007BDE      4030 87E2 =0083C4      8069           STH   R3,STATUS          SAVE STATUS                           MTD80690
 007BE2      030E                   8070           BR    R14                RETURN                                MTD80700

                                    8072  * S U B R O U T I N E   S E N S T A 1                                    MTD80720
                                    8073  *                                                                          MTD80730
 007BE4      F800 007F FFFF         8074  SENSTA1  LI    R0,Y'7FFFFF'                                              MTD80740
 007BEA      9D13                   8075  SENSTA1A SSR   R1,R3                                                     MTD80750
 007BEC      4030 87D4 =0083C4      8076           STH   R3,STATUS          SAVE STATUS                           MTD80760
 007BF0      C330 0014              8077           THI   R3,X'14'           TEST FOR NO MOTION BITS               MTD80770
 007BF4      023E                   8078           BNZR  R14                RETURN IF EITHER SET                  MTD80780
 007BF6      D0E0 8CAA =0088A4      8079           STM   R14,SR14SAV        SAVE R14                              MTD80790
 007BFA      41F0 1A8C              8080           BAL   R15,TSTBRK         CHECK FOR BREAK DEPRESSION            MTD80800
 007BFE      D1E0 8CA2 =0088A4      8081           LM    R14,SR14SAV        RESTORE REGISTERS                     MTD80810
 007C02      2701                   8082           SIS   R0,1                                                     MTD80820
*007C04      203D      =007BEA      8083           BNZ   SENSTA1A                                                   MTD80830
 007C06      E650 8BC0 =0087C8      8084  TR00A    LA    R5,TSTERRA         TIMED OUT WAITING FOR "NMTN"          MTD80840
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TEST SUBROUTINES

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 007C0A       C800 0014              8085            LHI   RC,X'14'           EXPECTED STATUS                          MTD80850
 007C0E       4000 87B6 =0083C8      8086  TR00      STH   RC,STATGD                                                   MTD80860
 007C12       41E0 28AE              8087            BAL   R14,TOERRORB       DRIVE AND STATUS                         MTD80870
 007C16       E6F0 2A4C              8088            LA    R15,MESSAGE1                                                MTD80880
 007C1A       E6E0 8978 =008596      8089            LA    R14,CONTMSG        SUSPECTED ERROR WITH CONTROLLER          MTD80890
 007C1E       4300 86AA =0082CC      8090            B     ERRORX                                                      MTD80900

                                     8092  * S U B R O U T I N E   S E N S T A 3                                       MTD80920
                                     8093  *                                                                         MTD80930
 007C22       F800 0000 FFFF         8094  SENSTA3   LI    R0,Y'FFFF'                                                  MTD80940
 007C28       9D13                   8095  SENSTA3A  SSR   R1,R3                                                     MTD80950
 007C2A       4030 8796 =0083C4      8096            STH   R3,STATUS                                                 MTD80960
 007C2E       038E                   8097            BNCR  R14                RETURN ON NOT BUSY                     MTD80970
 007C30       D0E0 8C70 =0088A4      8098            STM   R14,SR14SAV        SAVE 14 & 15                           MTD80980
 007C34       41F0 1A8C              8099            BAL   R15,TSTBRK         CHECK FOR BREAK DEPRESSION             MTD80990
 007C38       D1E0 8C68 =0088A4      8100            LM    R14,SR14SAV        RESTORE REGISTERS                      MTD81000
 007C3C       2701                   8101            SIS   R0,1               DECREMENT TIMER                        MTD81010
*007C3E       203B       =007C28     8102            BNZ   SENSTA3A                                                  MTD81020
 007C40       E650 8BA4 =0087E8      8103            LA    R5,TSTERRB                                                MTD81030
 007C44       C800 0034              8104            LHI   R0,X'34'                                                  MTD81040
 007C48       4300 FFC2 =007C0F      8105            B     TR00                                                      MTD81050

                                     8107  *   S U B R O U T I N E    S E N S T A 2                                  MTD81070
                                     8108  *                                                                         MTD81080
 007C4C       9D23                   8109  SENSTA2   SSR   R2,R3                SENSE SELCH STATUS                     MTD81090
 007C4E       4030 8774 =0083C6      8110            STH   R3,SELSTAT         SAVE SELCH STATUS                      MTD81100
 007C52       030E                   8111            BR    R14                RETURN                                 MTD81110

                                     8113  * S U B R O U T I N E   C S K F F                                           MTD81130
                                     8114  *                                                                         MTD81140
 007C54       DE10 8781 =0083D9      8115  CSKFF     OC    R1,SKIPFF          SKIP FORWARD FILE                      MTD81150
*007C58       230C       =007C70     8116            B     CWREOF.0           RETURN                                 MTD81160

                                     8118  *  S U B R O U T I N E   C R E A D                                         MTD81180
                                     8119  *                                                                         MTD81190
 007C5A       DE10 8771 =0083CF      8120  CREAD     OC    R1,READ            ISSUE READ COMMAND                     MTD81200
 007C5E       030E                   8121            BR    R14                RETURN                                 MTD81210

                                     8123  * S U B R O U T I N E   C B Y R D                                         MTD81230
                                     8124  *                                                                         MTD81240
 007C60       DE10 8768 =0083CC      8125  CBYRD     OC    R1,BYRD            BYTE READ COMMAND                      MTD81250
 007C64       030E                   8126            BR    R14                RETURN                                 MTD81260

                                     8128  *  S U B R O U T I N E   C S K F B                                       MTD81280
                                     8129  *                                                                         MTD81290
 007C66       DE10 876E =0083D8      8130  CSKFB     OC    R1,SKIPFB          SKIP FORWARD BLOCK                     MTD81300
*007C6A       2303       =007C70     8131            B     CWREOF.0                                                  MTD81310

                                     8133  *  S U B R O U T I N E   C W R E O F                                       MTD81330
                                     8134  *                                                                         MTD81340
 007C6C       DE10 8766 =0083D6      8135  CWREOF    OC    R1,WEOF            WRITE END-OF-FILE MARK                 MTD81350
 007C70       4300 FF30 =007BA4      8136  CWREOF.0  B     CRDC.0             RETURN                                 MTD81360
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                                       8138  *  S U B R O U T I N E   C S K B F                              MTD81380
                                       8139  *                                                               MTD81390
 007C74      DE10 8763 =0083DB         8140  CSKBF     OC     R1,SKIPBF          SKIP BACKWARD FILE          MTD81400
*007C78      2204      =007C70         8141            B      CWREOF.0           RETURN                      MTD81410

                                       8143  * S U B R O U T I N E   C S K B B                               MTD81430
                                       8144  *                                                               MTD81440
 007C7A      DE10 875C =0083DA         8145  CSKBB     OC     R1,SKIPBB          SKIP BACKWARD BLOCK         MTD81450
*007C7E      2207      =007C70         8146            B      CWREOF.0           RETURN                      MTD81460

                                       8148  *  S U B R O U T I N E   C R I T E                              MTD81480
                                       8149  *                                                               MTD81490
 007C80      DE10 874A =0083CE         8150  CWRITE    OC     R1,WRITE           WRITE MODE                  MTD81500
 007C84      030E                      8151            BR     R14                RETURN                      MTD81510
                                       8152  *  S U B R O U T I N E   C G O                                  MTD81520
                                       8153  *                                                               MTD81530
 007C86      DE20 875E =0083E8         8154  CGO       OC     R2,GO              SELCH GO READ COMMAND       MTD81540
 007C8A      030E                      8155            BR     R14                RETURN                      MTD81550

                                       8157  *  S U B R O U T I N E   C T E S T M D E                        MTD81570
                                       8158  *                                                               MTD81580
 007C8C      DE10 873B =0083CB         8159  CTESTMDE  OC     R1,TSTMDE          TESTMODE COMMAND            MTD81590
 007C90      030E                      8160            BR     R14                RETURN                      MTD81600

                                       8162  *  S U B R O U T I N E   C R E W                                MTD81620
 007C92      DE10 8737 =0083CD         8163  CREW      OC     R1,REWIND          REWIND                      MTD81630
 007C96      030E                      8164            BR     R14                RETURN                      MTD81640

                                       8166  *  S U B R O U T I N E   C G O R E A D                          MTD81660
                                       8167  *                                                               MTD81670
 007C98      DE20 874D =0083E9         8168  CGOREAD   OC     R2,GOREAD          SELCH GO READ               MTD81680
 007C9C      030E                      8169            BR     R14                RETURN                      MTD81690

                                       8171  *  S U B R O U T I N E   C S T O P                              MTD81710
                                       8172  *                                                               MTD81720
 007C9E      DE20 8748 =0083FA         8173  CSTOP     OC     R2,STOP            STOP                        MTD81730
 007CA2      030E                      8174            BR     R14                RETURN                      MTD81740

                                       8176  *                                                               MTD81760
                                       8177  *  S U B R O U T I N E   C S T O P S                            MTD81770
                                       8178  *                                                               MTD81780
 007CA4      DE20 8743 =0083EB         8179  CSTOPS    OC     R2,STOPS           SELCH STOP                  MTD81790
 007CA8      030E                      8180            BR     R14                RETURN                      MTD81800

                                       8182  *  S U B R O U T I N E   C N O P 0                              MTD81820
                                       8183  *                                                               MTD81830
 007CAA      DE10 8722 =0083D0         8184  CNOP0     OC     R1,NOP0                                        MTD81840
 007CAE      4300 FEF2 =007FA4         8185  CNOP0.0   B      CRDC.0             RETURN                      MTD81850

                                       8187  *  S U B R O U T I N E   C N O P 1                              MTD81870
                                       8188  *                                                               MTD81880
 007CB2      DE10 871B =0083D1         8189  CNOP1     OC     R1,NOP1                                        MTD81890
*007CB6      2204      =007CAE         8190            B      CNOP0.0            RETURN                      MTD81900
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                                       8192  *  S U B R O U T I N E   C N O P 2                                   MTD81920
                                       8193  *                                                                    MTD81930
 007CB8      DE10 8716 =0083D2         8194  CNOP2     OC    R1,NOP2                                              MTD81940
*007CBC      2207      =007CAF         8195            B     CNOP0.0            RETURN                            MTD81950

                                       8197  *  S U B R O U T I N E   C N O P 3                                   MTD81970
                                       8198  *                                                                    MTD81980
 007CBE      DE10 8711 =0083D3         8199  CNOP3     OC    R1,NOP3                                              MTD81990
*007CC2      220A      =007CAF         8200            B     CNOP0.0            RETURN                            MTD82000

                                       8202  *  S U B R O U T I N E   C N O P 4                                   MTD82020
                                       8203  *                                                                    MTD82030
 007CC4      DE10 870C =0083D4         8204  CNOP4     OC    R1,NOP4                                              MTD82040
*007CC8      220D      =007CAF         8205            B     CNOP0.0            RETURN                            MTD82050

                                       8207  *  S U B R O U T I N E . C D I S A R M                               MTD82070
                                       8208  *                                                                    MTD82080
 007CCA      DE10 8713 =0083E1         8209  CDISARM   OC    R1,DISARM          DISARM INTERRUPTS COMMAND         MTD82090
 007CCE      030E                      8210            BR    R14                RETURN                            MTD82100

                                       8212  *  S U B R O U T I N E   C E N B L E                                 MTD82120
                                       8213  *                                                                    MTD82130
 007CD0      DE10 8709 =0083DD         8214  CENBLE    OC    R1,ENABLE          ENABLE INTERRUPTS COMMAND         MTD82140
 007CD4      030E                      8215            BR    R14                                                  MTD82150

                                       8217  *  S U B R O U T I N E   C D I S B L E                               MTD82170
                                       8218  *                                                                    MTD82180
 007CD6      DE10 8706 =0083F0         8219  CDISBLE   OC    R1,DISABLE         DISABLE INTERRUPTS COMMAND        MTD82190
 007CDA      030E                      8220            BR    R14                RETURN                            MTD82200

                                       8222  *  S U B R O U T I N E   C E X T D                                   MTD82220
                                       8223  *                                                                    MTD82230
 007CDC      DE20 870C =0083EC         8224  CEXTD     OC    R2,EXTEND                                            MTD82240
 007CE0      030E                      8225            BR    R14                RETURN                            MTD82250

                                       8227  *  S U B R O U T I N E   C U N L D                                   MTD82270
                                       8228  *                                                                    MTD82280
 007CE2      DE10 86FC =0083E2         8229  CUNLD     OC    R1,UNLOAD          ISSUE UNLOAD COMMAND              MTD82290
 007CE6      030E                      8230            BR    R14                RETURN                            MTD82300

                                       8232  *  S U B R O U T I N E   C W R O D B Y                               MTD82320
                                       8233  *                                                                    MTD82330
 007CE8      DE10 86F2 =0083DF         8234  CWRODBY   OC    R1,WRODDBY         ISSUE X'0B'                       MTD82340
 007CEC      030E                      8235            BR    R14                RETURN                            MTD82350

                                       8237  *                                                                    MTD82370
                                       8238  *  S U B R O U T I N E   C G A P L S                                 MTD82380
 007CEE      9E13                      8239  CGAPLS    OCR   R1,R3              GAPLESS COMMAND                   MTD82390
 007CF0      030E                      8240            BR    R14                RETURN                            MTD82400

                                       8242  *  S U B R O U T I N E   R E D E                                     MTD82420
                                       8243  *                                                                    MTD82430
 007CF2      9913                      8244  REDE      RHR   R1,R3              READ ADDRESS COMMAND              MTD82440
```

TEST SUBROUTINES

```
007CF4      4030 8750 =008448         8245          STH    R3,SNSHW                                                  MTD82450
007CF8      030E                      8246          BR     R14                 RETURN                                MTD82460

                                      8248  *  S U B R O U T I N E    W R B U F                                  MTD82480
                                      8249  *                                                                    MTD82490
007CFA      DA20 87D7 =0084D5         8250  WRBUF   WD     R2,WBUF+1           SET UP FOR ADDRESSES                  MTD82500
007CFE      D820 87D4 =0084D6         8251          WH     R2,WBUF+2           OF WRITE TO SELCH                     MTD82510
007D02      5800 87CE =0084D4         8252          L      R0,WBUF                                                   MTD82520
007D06      5000 87DA =0084E4         8253          ST     R0,STARADDR                                               MTD82530
007D0A      DA20 87CB =0084D9         8254          WD     R2,ENDBUF+1                                               MTD82540
007D0E      D820 87C8 =0084DA         8255          WH     R2,ENDBUF+2                                               MTD82550
007D12      030E                      8256          BR     R14                 RETURN                                MTD82560

                                      8258  *S U B R O U T I N E    W B U F 2                                    MTD82580
                                      8259  *                                                                    MTD82590
007D14      DA20 87D1 =0084E9         8260  WRBUF2  WD     R2,WBUF2+1                                                MTD82600
007D18      D820 87CE =0084EA         8261          WH     R2,WBUF2+2                                                MTD82610
007D1C      5020 87C4 =0084E4         8262          ST     R2,STARADDR                                               MTD82620
007D20      DA20 87C9 =0084ED         8263          WD     R2,ENDBUF2+1                                              MTD82630
007D24      D820 87C6 =0084EE         8264          WH     R2,ENDBUF2+2                                              MTD82640
007D28      030E                      8265          BR     R14                 RETURN                                MTD82650

                                      8267  *  S U B R O U T I N E    R E B U F                                  MTD82670
                                      8268  *                                                                    MTD82680
007D2A      DA20 87AF =0084DD         8269  REBUF   WD     R2,RDBUF+1          SET UP READ ADDRESSES                 MTD82690
007D2E      D820 87AC =0084DE         8270          WH     R2,RDBUF+2          FOR SELCH                             MTD82700
007D32      5800 87A6 =0084DC         8271          L      R0,RDBUF                                                  MTD82710
007D36      5000 87AA =0084E4         8272          ST     R0,STARADDR                                               MTD82720
007D3A      DA20 879B =0084D9         8273          WD     R2,ENDBUF+1                                               MTD82730
007D3E      D820 8798 =0084DA         8274          WH     R2,ENDBUF+2                                               MTD82740
007D42      030E                      8275          BR     R14                 RETURN                                MTD82750

                                      8277  *S U B R O U T I N E    R E E N D                                    MTD82770
                                      8278  *                                                                    MTD82780
007D44      9B23                      8279  REEND   RDR    R2,R3               READ ENDING ADDRESSES ON SELCH        MTD82790
007D46      992D                      8280          RHR    R2,R13                                                    MTD82800
007D48      030E                      8281          BR     R14                 RETURN                                MTD82810

                                      8283  *****************************************************               MTD82830
                                      8284  *                                                   *               MTD82840
                                      8285  *          TEST INIT ROUTINE                        *               MTD82850
                                      8286  *                                                   *               MTD82860
                                      8287  *****************************************************               MTD82870

            0000 7D4A                 8289  TESTINIT EQU   *                                                         MTD82890
007D4A      7310 2052                 8290          LHL    R1,DRIVE+$VALU1     LOAD 2ND DEVICE ADDRESS               MTD82900
007D4E      4010 86B6 =008408         8291          STH    R1,DRIVSAV          SAVE DRIVE ADDR                       MTD82910
007D52      2401                      8292          LIS    R0,1                                                      MTD82920
007D54      4000 86B2 =00840A         8293          STH    R0,DRIVSAV1         SET FLAG TO 1                         MTD82930
            0000 7D58                 8294  IT.B1   EQU    *                                                         MTD82940
007D58      7330 0A54                 8295          LHL    R3,PSW3             ENABLE PROCESSOR INTERRUPTS           MTD82950
007D5C      95E3                      8296          EPSR   R14,R3                                                    MTD82960
007D5E      7320 2108                 8297          LHL    R2,SELCH+$VALU1     SEE IF THERE IS A SELCH               MTD82970
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TEST SUBROUTINES

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*007D62  233B      =007D78   8298           BZ    IT.B2              IF NOT, CONTINUE INTERFACE CHECK      MTD82980
 007D64  41E0 FF36 =007C9E   8299           BAL   R14,CSTOP          OTHERWISE INIT AND                    MTD82990
 007D68  41E0 FF32 =007C9F   8300           BAL   R14,CSTOP          STOP THE SELCH                        MTD83000
 007D6C  4020 21E2           8301           STH   R2,DEVSADR+2       SET UP SELCH ADDR                     MTD83010
 007D70  E6E0 1CF8           8302           LA    R14,RETOPSW                                              MTD83020
 007D74  40E0 21E8           8303           STH   R14,DEVINT+2       IGNORE SELCH INTERRUPTS               MTD83030
 007D78  4800 20DE           8304  IT.B2    LH    R0,ONLINF+SVALU1   LOOK AT ONLINE OPTION               MTD83040
 007D7C  033F                8305           BZR   R15                RETURN IF NO TAPE NEEDED              MTD83050
 007D7E  41E0 FE5A =007BDC   8306           BAL   R14,SENSTA                                               MTD83060
 007D82  C430 0001           8307           NHI   R3,X'01'           ZERO IN ON DU                         MTD83070
*007D86  233B      =007D9C   8308           BZ    IT.1               IF ZERO CONTINUE ON                   MTD83080
 007D88  E650 294C           8309  IT.C     LA    R5,T0.E004         DRIVE UNAVAILABLE                     MTD83090
 007D8C  41E0 DFB8 =005D48   8310           BAL   R14,T7ERRORA       DRIVE AND STATUS                      MTD83100
 007D90  56F0 EAEE =006882   8311           LA    R15,T7ERMSG1                                             MTD83110
 007D94  E6E0 87B4 =00854C   8312           LA    R14,DRIVFMSG       SUSPECTED ERROR W DRIVE O FORMATTR    MTD83120
 007D98  4300 8530 =0082CC   8313           B     ERRORX                                                   MTD83130
 007D9C  41E0 FDFA =007B9A   8314  IT.1     BAL   R14,CCLEAR         CLEAR DRIVE AND INTERFACE             MTD83140
*007DA0  204C      =007D88   8315           BO    IT.C               BRANCH IF FALSE SYNC ON COMMAND       MTD83150
 007DA2  41E0 FDFA =007BA0   8316           BAL   R14,CDRCLR         CLEAR FORMATTER                       MTD83160
 007DA6  41E0 FF20 =007CCA   8317           BAL   R14,CDISARM        DISARM ANY PENDING INTERRUPTS         MTD83170
                             8318  *                                                                      MTD83180
 007DAA  41E0 FE2E =007BDC   8319           BAL   R14,SENSTA         CHECK STATUS AGAIN                    MTD83190
 007DAE  C430 0020           8320           NHI   R3,X'20'           ZERO IN ON BOT                        MTD83200
 007DB2  4230 802A =007DE0   8321           BNZ   IT.2               AT BOT? CONTINUE ON                   MTD83210
 007DB6  50F0 8716 =0084D0   8322           ST    R15,SAVR15         SAVE RETURN ADDRESS                   MTD83220
 007DBA  41F0 8314 =0080D2   8323           BAL   R15,REWMT          REWIND DRIVE THEN                     MTD83230
 007DBE  58F0 870E =0084D0   8324           LDA   R15,SAVR15         RESTORE RETURN LBAL.                  MTD83240
 007DC2  41E0 FE1E =007BE4   8325  IT.3     BAL   R14,SENSTA1        CHECK STATUS                          MTD83250
 007DC6  C430 0020           8326           NHI   R3,X'20'           TRY BOT AGAIN                         MTD83260
*007DCA  213B      =007DE0   8327           BNZ   IT.2               AT BOT! CONTINUE                      MTD83270
 007DCC  E650 89E0 =0087B0   8328           LA    R5,NOBOT           CAN NOT FIND BOT                      MTD83280
 007DD0  41E0 DF74 =005D48   8329           BAL   R14,T7ERRORA       DRIVE AND STATUS                      MTD83290
 007DD4  E650 EAAA =006882   8330           LA    R5,T7ERMSG1                                              MTD83300
 007DD8  41F0 8592 =00836E   8331           BAL   R15,LOOP2                                                MTD83310
 007DDC  4300 1358           8332           B     ABORT              ABORT TESTING                         MTD83320
                             8333  *                                                                      MTD83330
 007DE0  41E0 FDF8 =007BDC   8334  IT.2     BAL   R14,SENSTA         CHECK STATUS ONE MORE TIME            MTD83340
 007DE4  C430 00C0           8335           NHI   R3,X'C0'           HOW ARE THE ERROR BITS?               MTD83350
*007DE8  2134      =007DF0   8336           BNZ   TESTIERR           BRANCH IF ONE IS ACTIVE               MTD83360
 007DEA  41E0 FDB2 =007BA0   8337           BAL   R14,CDRCLR         CLEAR FCU AND DRIVE                   MTD83370
 007DEE  030F                8338           BR    R15                RETURN                                MTD83380
                             8339  *                                                                      MTD83390
 007DF0  E650 8A38 =00882C   8340  TESTIERR LA    R5,ERRBIT          ERROR BITS ARE SET                    MTD83400
 007DF4  41F0 8576 =00836F   8341           BAL   R15,LOOP2                                                MTD83410
 007DF8  41F0 841A =008216   8342           BAL   R15,SNS.COM1       WHAT ERROR BITS                       MTD83420
 007DFC  56F0 895A =00875A   8343           LA    R15,DSBMSG                                               MTD83430
 007E00  E6E0 8772 =008576   8344           LA    R14,FORMMSG        SUSPECTED ERROR WITH FORMATTER        MTD83440
 007E04  4300 84C4 =0082CC   8345           B     ERRORX                                                   MTD83450
                             8346  *                                                                      MTD83460
                             8347  * SUBROUTINE TO RESTORE R1, R2 AND PSW3                                 MTD83470
                             8348  * AFTER RETURNING FROM TIMER ROUTINE.                                   MTD83480
                             8349  *                                                                      MTD83490
 007E08  4810 85FC =008408   8350  RESTORE  LH    R1,DRIVSAV         RESTORE R1                            MTD83500
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TEST SUBROUTINES

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007E0C  7320 2108            8351          LHL   R2,SELCH+SVALU1     RESTORE R2                          MTD83510
007E10  48D0 0A54            8352  RESTORE1 LH   R13,PSW3            PSW 70F0                            MTD83520
007E14  95ED                 8353          EPSR  R14,R13             ENFORCE                             MTD83530
007E16  030F                 8354          BR    R15                 RETURN INT ENABLED                  MTD83540

                             8356  *                                                                       MTD83560
                             8357  ********************************************************              MTD83570
                             8358  *                                                      *              MTD83580
                             8359  * WE COME HERE TO CLEAR OUT THE READ BUFFER           *              MTD83590
                             8360  * RDBUF = START ADDRESS,ENDBUF = END ADDRESS          *              MTD83600
                             8361  *                                                      *              MTD83610
                             8362  ********************************************************              MTD83620

        0000 7E18            8364  CLRBUF  EQU   *                                                       MTD83640
007E18  D000 8634 =008450    8365          STM   R0,REGS             SAVE REGISTERS                      MTD83650
007E1C  5810 86BC =0084DC    8366          LDA   R1,RDBUF            LOAD ADDRESS OF START               MTD83660
007E20  5820 86B4 =0084D8    8367          LDA   R2,ENDBUF           LOAD ADDRESS OF END                 MTD83670
007E24  2622                 8368          AIS   R2,2                DO ONE EXTRA HW                     MTD83680
007E26  2430                 8369          LIS   R3,0                LOAD ZEROS FOR BUFFER               MTD83690
007E28  4031 0000            8370  CLR.1   STH   R3,0(R1)            STORE ZEROS IN BUFFER LBAL          MTD83700
007E2C  2612                 8371          AIS   R1,2                INCREMENT LBAL                      MTD83710
007E2E  0512                 8372          CLAR  R1,R2               ARE WE AT END?                      MTD83720
*007E30 2224       =007F28   8373          BNP   CLR.1               NO! STORE SOME MORE                 MTD83730
007E32  D100 861A =008450    8374          LM    R0,REGS             RESTORE REGISTERS                   MTD83740
007E36  030F                 8375          BR    R15                 RETURN TO CALLER                    MTD83750

                             8377  ********************************************************              MTD83770
                             8378  *                                                      *              MTD83780
                             8379  * COME HERE TO SET UP WRITE BUFFER FOR SELCH          *              MTD83790
                             8380  *                                                      *              MTD83800
                             8381  ********************************************************              MTD83810

        0000 7F38            8383  SELSETW EQU   *                                                       MTD83830
007E38  D000 8654 =008490    8384          STM   R0,REGSAVE          STORE REGISTERS                     MTD83840
007E3C  7360 200C            8385          LHL   R6,BYTES+SVALU1     LOAD RECORD SIZE                    MTD83850
007E40  2761                 8386          SIS   R6,1                ALLOW FOR BYTES                     MTD83860
*007F42 2303       =007E48   8387          B     SEL.31                                                  MTD83870
007E44  D000 8648 =008490    8388  SEL.3   STM   R0,REGSAVE          SAVE REGISTERS                      MTD83880
007E48  4820 2108            8389  SEL.31  LH    R2,SELCH+SVALU1     LOAD SELCH ADDRESS                  MTD83890
007E4C  5830 8680 =0089D0    8390          LA    R3,WRTBUF           LOAD ADDRESS OF WRITE BUF           MTD83900
007E50  5030 8680 =0084D4    8391          STA   R3,WBUF             STORE THE ADDRESS                   MTD83910
007E54  4834 0000            8392          LH    R3,0(R4)            LOAD TEST PATTERN                   MTD83920
007E58  2470                 8393          LIS   R7,X'0'             ZERO OUT INDEX COUNTER              MTD83930
007E5A  4037 8B72 =0089D0    8394  SEL.1   STH   R3,WRTBUF(R7)       STORE PATTERN INTO WRITE BUF        MTD83940
007E5E  2672                 8395          AIS   R7,2                INCREMENT WRITE BUF LBAL            MTD83950
007E60  0576                 8396          CLAR  R7,R6               WRITE BUFFER FULL?                  MTD83960
*007E62 2224       =007F5A   8397          BNP   SEL.1               NO! STORE SOME MORE                 MTD83970
007E64  41E0 FE36 =007C9F    8398          BAL   R14,CSTOP           FORCE SELCH STATE                   MTD83980
007E68  5830 8B64 =0089D0    8399          LA    R3,WRTBUF           LOAD WRITE BUFFER ADDRESS           MTD83990
007E6C  0A63                 8400          AAR   R6,R3               CALCULATE ENDING ADDRESS            MTD84000
007E6E  5060 8666 =0084D8    8401          ST    R6,ENDBUF           STORE ENDING ADDR. OF BUFFER        MTD84010
007E72  D100 861A =008490    8402          LM    R0,REGSAVE          RESTORE REGISTERS                   MTD84020
007E76  030F                 8403          BR    R15                 BRANCH BACK TO CALLER               MTD84030
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                                8404  ****************************************************           MTD84040
                                8405  *                                                  *           MTD84050
                                8406  * COME HERE  TO CHECK SELCH STATUS                 *           MTD84060
                                8407  *                                                  *           MTD84070
                                8408  ****************************************************           MTD84080

007E78    41E0 FDD0 =007C4C     8410  SELCHK   BAL   R14,SENSTA2         CHECK STATUS                  MTD84100
007E7C    41E0 FE1E =007C9E     8411           BAL   R14,CSTOP           INIT SELCH                    MTD84110
007E80    41E0 FE20 =007CA4     8412           BAL   R14,CSTOPS          STOP SELCH AND ENABLE STATUS  MTD84120
007E84    C530 0000             8413           CLHI  R3,X'0'             COMPARE FOR BAD STAT          MTD84130
007E88    033F                  8414           BER   R15                 AND IF GOOD BRANCH OUT        MTD84140
007E8A    D000 8B02 =008990     8415           STM   R0,ERRSAVE          SAVE REGISTERS                MTD84150
007E8E    41F0 84DC =00836E     8416           BAL   R15,LOOP2           OUTPUT PENDING MESSAGES       MTD84160
007E92    E650 8038 =007ECE     8417           LA    R5,ERRMSG8          INCORRECT STATUS IN SELCH *** MTD84170
007E96    4810 2108             8418           LH    R1,SELCH+$VALU1     SELCH ADDRESS                 MTD84180
007E9A    2403                  8419           LIS   R0,3                DIGITS TO CONVERT             MTD84190
007E9C    E620 8048 =007EE8     8420           LA    R2,ERRMSG8+26       STORED HERE                   MTD84200
007EA0    41F0 1680             8421           BAL   R15,HEXASC          CONVERT                       MTD84210
007EA4    41F0 84C6 =00836E     8422           BAL   R15,LOOP2           OUTPUT FIRST MESSAGE          MTD84220
007EA8    4810 851A =0083C6     8423           LH    R1,SELSTAT          SELCH STATUS                  MTD84230
007EAC    2404                  8424           LIS   R0,4                DIGITS TO CONVERT             MTD84240
007EAE    E620 8049 =007EFB     8425           LA    R2,ERRMESS8+13                                    MTD84250
007EB2    41F0 1680             8426           BAL   R15,HEXASC                                        MTD84260
007EB6    D100 8AD6 =008990     8427           LM    R0,ERRSAVE                                        MTD84270
007EBA    E650 8030 =007EEE     8428           LA    R5,ERRMESS8         2ND MSG                       MTD84280
007EBE    41E0 DE86 =005D48     8429           BAL   R14,T7ERRORA        DRIVE AND DRIVE STATUS        MTD84290
007EC2    E6F0 E9BC =006882     8430           LA    R15,T7ERMSG1                                      MTD84300
007EC6    E6E0 86CC =008596     8431           LA    R14,CONTMSG         SUSPECTED ERROR W CONTROLLER  MTD84310
007ECA    4300 83FE =0082CC     8432           B     ERRORX              OUTPUT MESSAGE                MTD84320
                                8433  *                                                              MTD84330
007ECE    494E 434F 5252 4543   8434  ERRMSG8  DC    C'INCORRECT STATUS ON SELCH ***',X'0D0A'          MTD84340
007ED6    5420 5354 4154 5553
007EDE    204F 4E20 5345 4C43
007EE6    4820 2A2A 2A20
007EEC    0D0A
007EEE    5345 4C43 4820 5354   8435  ERRMESS8 DC    C'SELCH STATUS=****',X'0D0A'                      MTD84350
007EF6    4154 5553 3D2A 2A2A
007EFE    2A20
007F00    0D0A
                                8436  ****************************************************           MTD84360
                                8437  * COME HERE TO CHECK SELCH ENDING ADDRESS          *           MTD84370
                                8438  ****************************************************           MTD84380

                                8440  *                                                              MTD84400
007F02    41E0 FDD6 =007CDC     8441  SELEND   BAL   R14,CEXTD           SET EX.ADDRESS BIT            MTD84410
007F06    41E0 FE3A =007D44     8442           BAL   R14,REEND           READ ENDING ADDRS ON SELCH    MTD84420
007F0A    3433                  8443           EXHR  R3,R3               SET UP UPPER HALF             MTD84430
007F0C    063D                  8444           OAR   R3,R13              OR THE TWO TOGETHER           MTD84440
007F0E    5030 85CE =0084E0     8445           STA   R3,STOPADR          AND STORE IT                  MTD84450
007F12    41E0 FD88 =007C9E     8446           BAL   R14,CSTOP           RESET SELCH                   MTD84460
007F16    41E0 FCC2 =007BDC     8447           BAL   R14,SENSTA          LOAD INTERFACE STATUS         MTD84470
007F1A    58A0 85C2 =0084E0     8448           LDA   R10,STOPADR         LOAD ENDING ADDRESS           MTD84480
007F1E    55A0 85B6 =0084D8     8449           CLA   R10,ENDBUF          COMPARE ACTUAL AND CALCULATED MTD84490
```

TEST SUBROUTINES

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 007F22   033F                   8450           BER   R15               CONTINUE IF EQUAL                      MTD84500
 007F24   D000 8A68 =008990      8451  SELEND.1 STM   R0,ERRSAVE        SAVE REGISTERS                         MTD84510
 007F28   41F0 8442 =00836E      8452           BAL   R15,LOOP2         OUTPUT PENDING MESSAGES                MTD84520
 007F2C   55A0 85B4 =0084F4      8453           CLA   R10,STARADDR                                             MTD84530
*007F30   213D      =007F4A      8454           BNE   SELERR.1                                                 MTD84540
 007F32   5800 85AE =0084F4      8455           L     R0,STARADDR                                              MTD84550
 007F36   5500 85A2 =0084DC      8456           CLA   R0,RDBUF          COMPARE TO RDBUF START                 MTD84560
*007F3A   2334      =007F42      8457           BE    SELERRA           NO READ OCCURRED                       MTD84570
 007F3C   E650 80EC =00802C      8458           LA    R5,ERMSGBA        NO WRITE OCCURRED                      MTD84580
*007F40   2303      =007F46      8459           B     SELERRAA                                                 MTD84590
 007F42   E650 80D4 =00801A      8460  SELERRA  LA    R5,ERMSGAA        NO READ OCCURRED                       MTD84600
 007F46   41F0 8424 =00836E      8461  SELERRAA BAL   R15,LOOP2                                                MTD84610
 007F4A   2403                   8462  SELERR.1 LIS   R0,3              3 DIGITS                               MTD84620
 007F4C   4810 2108              8463           LH    R1,SELCH+$VALU1   SELCH ADDRESS                          MTD84630
 007F50   E620 8078 =007FCC      8464           LA    R2,ERRMSG9+34                                            MTD84640
 007F54   41F0 1680              8465           BAL   R15,HEXASC                                               MTD84650
 007F58   D100 8A34 =008990      8466           LM    R0,ERRSAVE                                               MTD84660
 007F5C   E650 804A =007FAA      8467           LA    R5,ERRMSG9        INCORRECT ENDING ADDRESS ON SELCH ***  MTD84670
 007F60   41E0 DDE4 =005D48      8468           BAL   R14,T7ERRORA                                             MTD84680
 007F64   E650 E91A =006882      8469           LA    R5,T7ERMSG1       DRIVE AND STATUS                       MTD84690
 007F68   41F0 8402 =00836E      8470           BAL   R15,LOOP2                                                MTD84700
 007F6C   D000 8A20 =008990      8471           STM   R0,ERRSAVE                                               MTD84710
 007F70   2404                   8472           LIS   R0,4              4 DIGITS                               MTD84720
 007F72   4810 8450 =0083C6      8473           LH    R1,SELSTAT        ACTUAL STATUS                          MTD84730
 007F76   C410 00FF              8474           NHI   R1,X'00FF'        CLEAR HIGH ORDER BITS                  MTD84740
 007F7A   E620 8061 =007FDF      8475           LA    R2,MESSAGE9+13    STORED HERE                            MTD84750
 007F7E   41F0 1680              8476           BAL   R15,HEXASC                                               MTD84760
 007F82   2406                   8477           LIS   R0,6              SIX DIGITS                             MTD84770
 007F84   5810 8550 =0084D8      8478           L     R1,ENDBUF         EXPECTED ENDING ADDRESS                MTD84780
 007F88   E620 806B =007FF7      8479           LA    R2,MESSAGEA+17    STORED HERE                            MTD84790
 007F8C   41F0 1680              8480           BAL   R15,HEXASC                                               MTD84800
 007F90   081A                   8481           LR    R1,R10            ACTUAL ENDING ADDRESS                  MTD84810
 007F92   E620 807B =008011      8482           LA    R2,MESSAGEB+17                                           MTD84820
 007F96   41F0 1680              8483           BAL   R15,HEXASC        CONVERT                                MTD84830
 007F9A   D100 89F2 =008990      8484           LM    R0,ERRSAVE        RESTORE REGISTERS                      MTD84840
 007F9E   E6F0 8030 =007FD2      8485           LA    R15,MESSAGE9                                             MTD84850
 007FA2   E6E0 85F0 =008596      8486           LA    R14,CONTMSG       SUSPECTED ERROR W CONTROLLER           MTD84860
 007FA6   4300 8322 =0082CC      8487           B     ERRORX                                                   MTD84870
                                 8488  *                                                                       MTD84880
 007FAA   494E 434F 5252 4543    8489  ERRMSG9  DC    C'INCORRECT ENDING ADDRESS ON SELCH ***',X'0D0A'         MTD84890
 007FB2   5420 454E 4449 4E47
 007FBA   2041 4444 5245 5353
 007FC2   204F 4E20 5345 4C43
 007FCA   4820 2A2A 2A20
 007FD0   0D0A
 007FD2   5345 4C43 4820 5354    8490  MESSAGE9 DC    C'SELCH STATUS=****',X'8D0A'                             MTD84900
 007FDA   4154 5553 3D2A 2A2A
 007FE2   2A20
 007FE4   8D0A
 007FE6   4558 5045 4354 4544    8491  MESSAGEA DC    C'EXPECTED ADDRESS=******',X'8D0A'                       MTD84910
 007FEE   2041 4444 5245 5353
 007FF6   3D2A 2A2A 2A2A 2A20
 007FFE   8D0A
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TEST SUBROUTINES

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008000 4143 5455 414C 2041      8492 MESSAGEB DC    C'ACTUAL ADDRESS  =******',X'0D0A'                MTD84920
008008 4444 5245 5353 2020
008010 3D2A 2A2A 2A2A 2A20
008018 0D0A
00801A 4E4F 2052 4541 4420      8493 ERMSGAA  DC    C'NO READ OCCURRED',X'0D0A'                      MTD84930
008022 4F43 4355 5252 4544
00802A 0D0A
00802C 4E4F 2057 5249 5445      8494 ERMSGBA  DC    C'NO WRITE OCCURRED',X'0D0A'                     MTD84940
008034 204F 4343 5552 5245
00803C 4420
00803E 0D0A
                                8495 *                                                               MTD84950
                                8496 ***************************************************             MTD84960
                                8497 *                                                 *             MTD84970
                                8498 * COME HERE TO SET UP READ BUFFER                 *             MTD84980
                                8499 *                                                 *             MTD84990
                                8500 ***************************************************             MTD85000

      0000 8040                 8502 SELSETR  EQU   *                                                MTD85020
008040 D000 844C =008490        8503          STM   R0,REGSAVE        STORE WORKING REGISTERS        MTD85030
008044 E610 4001 89D0           8504          LA    R1,READBUF        LOAD ADDR. OF READ BUFFER      MTD85040
00804A 5010 848E =0084DC        8505          STA   R1,RDBUF          STORE IT                       MTD85050
00804E 7320 200C                8506          LHL   R2,BYTES+SVALU1   LOAD RECORD LENGHT             MTD85060
008052 2721                     8507          SIS   R2,1              ALLOW FOR BYTES                MTD85070
008054 0A12                     8508          AAR   R1,R2             CALCULATE BUFFER SIZE          MTD85080
008056 5010 847E =0084D8        8509          ST    R1,ENDBUF         STORE ENDING ADDRESS           MTD85090
00805A 41F0 FDBA =007E18        8510          BAL   R15,CLRBUF        CLEAR OUT READ BUFFER          MTD85100
00805E D100 842F =008490        8511          LM    R0,REGSAVE        RESTORE REGISTERS              MTD85110
008062 030F                     8512          BR    R15               RETURN TO CALLER               MTD85120
                                8513 *                                                               MTD85130
                                8514 ***************************************************             MTD85140
                                8515 *                                                 *             MTD85150
                                8516 * THIS ROUTINE IS TO MAKE SURE MAG. TAPE         *             MTD85160
                                8517 * EXCEPTS REWIND COMMAND                         *             MTD85170
                                8518 *                                                 *             MTD85180
                                8519 ***************************************************             MTD85190

      0000 8064                 8521 RWTMOUT  EQU   *                                                MTD85210
008064 C860 01FF                8522          LHI   R6,X'1FF'         LOAD TIMEOUT COUNT             MTD85220
008068 41E0 FB70 =007BDC        8523 RW.1     BAL   R14,SENSTA        DO A STATUS CHECK              MTD85230
00806C C330 0014                8524          THI   R3,X'14'          FOR NMTM                       MTD85240
008070 033F                     8525          BZR   R15               OK IF NMTM DROPS               MTD85250
008072 41E0 FB66 =007BDC        8526          BAL   R14,SENSTA        CHECK TO SEE IF BACK AT BOT ALRE MTD85260
008076 C430 0020                8527          NHI   R3,X'20'          ZERO IN ON BOT                 MTD85270
00807A 023F                     8528          BNZR  R15               BACK TO PROGRAM IF AT BOT      MTD85280
00807C 2761                     8529          SIS   R6,1              OTHERWISE DECREMENT COUNTER    MTD85290
00807E 203B       =008068       8530          BNZS  RW.1              KEEP TRYING UNTIL ZERO         MTD85300
008080 41E0 FB58 =007BDC        8531          BAL   R14,SENSTA        LOAD STATUS                    MTD85310
008084 41F0 82F6 =00836E        8532          BAL   R15,LOOP2         OUTPUT PENDING MESSAGES        MTD85320
008088 E650 86A8 =008734        8533          LA    R5,COMERMS8       DRIVE TIME OUT ON REWIND       MTD85330
00808C C800 0020                8534          LHI   R0,X'20'          EXPECTED STATUS                MTD85340
008090 4000 8334 =0083C8        8535          STH   R0,STATGD                                        MTD85350
008094 41F0 28AE                8536          BAL   R15,TOERRORB      DRIVE AND STATUS'S             MTD85360
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TEST SUBROUTINES

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008098       E6F0 2A4C              8537          LA    R15,MESSAGE1                                          MTD85370
00809C       E6E0 848A =00852A      8538          LA    R14,DRIVMSG         SUSPECTED ERROR WITH TAPE DRIVE   MTD85380
0080A0       4300 8228 =0082CC      8539          B     ERRORX                                                MTD85390
                                    8540  *                                                                   MTD85400
                                    8541  ****************************************************                MTD85410
                                    8542  *                                                  *                MTD85420
                                    8543  * COME HERE TO CHECK WRITE INHIBIT OR FILE PROTECT ACT*VE           MTD85430
                                    8544  *                                                  *                MTD85440
                                    8545  ****************************************************                MTD85450

             0000 80A4              8547  WRTENB  EQU   *                                                     MTD85470
0080A4       4800 208A              8548          LH    R0,DRVTYPE+$VALU1   LOOK IF TELEX OR STC              MTD85480
0080A8       023F                   8549          BNZR  R15                 RETURN                            MTD85490
0080AA       41E0 FC10 =007CBE      8550          BAL   R14,CNOP3           ADDRESS STATUS HW 3               MTD85500
0080AE       41E0 FC40 =007CF2      8551          BAL   R14,REDF            READ STATUS HW                    MTD85510
0080B2       C430 1000              8552          NHI   R3,X'1000'          FILE PROTECT ACTIVE?              MTD85520
0080B6       033F                   8553          BZR   R15                 NO! GO BACK TO CALLER             MTD85530
0080B8       2403                   8554          LIS   R0,3                DIGITS TO CONVERT                 MTD85540
0080BA       4810 834A =008408      8555          LH    R1,DRIVSAV          DRIVE ADDRESS                     MTD85550
0080BE       E620 879E =008860      8556          LA    R2,WRTINH+32                                          MTD85560
0080C2       41F0 1680              8557          BAL   R15,HEXASC          CONVERT                           MTD85570
0080C6       E650 8776 =008840      8558          LA    R5,WRTINH           WRITE INHIBIT SET                 MTD85580
0080CA       41F0 82A0 =00836E      8559          BAL   R15,LOOP2                                             MTD85590
0080CE       4300 1358              8560          B     ABORT               AND ABORT TEST                    MTD85600
                                    8561  *                                                                   MTD85610
                                    8562  ****************************************************                MTD85620
                                    8563  *                                                  *                MTD85630
                                    8564  * COME HERE TO REWIND MAG TAPE DRIVE               *                MTD85640
                                    8565  *                                                  *                MTD85650
                                    8566  ****************************************************                MTD85660

             0000 80D2              8568  REWMT   EQU   *                                                     MTD85680
0080D2       41E0 FB06 =007BDC      8569          BAL   R14,SENSTA                                            MTD85690
0080D6       C330 0020              8570          THI   R3,X'20'            IS  BOT SET ALREADY               MTD85700
0080DA       023F                   8571          BNZR  R15                 DO NOT ISSUE REWIND IF SO         MTD85710
0080DC       C330 0010              8572          THI   R3,X'10'            NO MOTION SET                     MTD85720
*0080E0      2133       =0080E6     8573          BNZ   RW.2A                                                 MTD85730
0080E2       41E0 FAFE =007BE4      8574          BAL   R14,SENSTA1                                           MTD85740
0080E6       41E0 FBA8 =007C92      8575  RW.2A   BAL   R14,CREW            GIVE COMMAND                      MTD85750
0080EA       C800 077F              8576          LHI   R0,X'77F'           TIMEOUT VALUE                     MTD85760
0080EE       41E0 FAEA =007BDC      8577  RW.3    BAL   R14,SENSTA          SENSE STATUS                      MTD85770
0080F2       234D       =00810C     8578          BNOS  RW.3B               WAIT FOR NMTN TO DROP             MTD85780
0080F4       2701                   8579          SIS   R0,1                DECREMENT TIMER             R01   MTD85790
*0080F6      2034       =0080EF     8580          BNZ   RW.3                CONTINUE WAIT FOR MOTION    R01   MTD85800
0080F8       E650 870C =008808      8581          LA    R5,TSTERRC          TIMED OUT WAITING FOR TAPE MOTION R01 MTD85810
0080FC       41E0 DC48 =005D48      8582          BAL   R14,T7ERRORA        DRIVE & STATUS              R01   MTD85820
008100       E5F0 E77E =006882      8583          LA    R15,T7ERMSG1        R01                               MTD85830
008104       E6E0 848E =008596      8584          LA    R14,CONTMSG         SUSPECTED ERROR W CONTROLLER R01  MTD85840
008108       4300 81C0 =0082CC      8585          B     ERRORX              R01                               MTD85850
00810C       41E0 FAD4 =007BE4      8586  RW.3B   BAL   R14,SENSTA1         THEN WAIT FOR NMTN                MTD85860
008110       030F                   8587          BR    R15                 AND RETURN TO CALLER              MTD85870
                                    8588  * ****************************************************            MTD85880
                                    8589  *                                                  *                MTD85890
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TEST SUBROUTINES

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                                  8590  * COME HERE TO CHECK OUT THE STATUS BYTE                *  MTD85900
                                  8591  *                                                       *  MTD85910
                                  8592  * ***************************************************** *  MTD85920
          0000 8112               8593  STATCHK  EQU   *                                          MTD85930
 008112   41E0 FAC6 =007BDC       8594           BAL   R14,SENSTA          LOAD STATUS            MTD85940
 008116   C430 0001               8595           NHI   R3,X'01'            IS DEVICE GONE DU?     MTD85950
 00811A   4230 FC6A =007D88       8596           BNZ   IT.C                YES! FLAG IT           MTD85960
 00811E   41E0 FAC2 =007BE4       8597           BAL   R14,SENSTA1         WAIT FOR NMTN          MTD85970
 008122   C430 00C0               8598           NHI   R3,X'C0'            SHECK STATUS FOR ERROR BITS  MTD85980
*008126   213A       =00813A      8599           BNZ   STAT.ER             BRANCH TO ERROR IF SET MTD85990
 008128   50F0 83A4 =0084D0       8600           STA   R15,SAVR15          SAVE RETURN LOC        MTD86000
 00812C   41F0 1A8C               8601           BAL   R15,TSTBRK          TEST FOR BREAK         MTD86010
 008130   58F0 839C =0084D0       8602           LDA   R15,SAVR15          RESTORE RETURN LOC     MTD86020
 008134   41E0 FAA4 =007BDC       8603  STATCHK1 BAL   R14,SENSTA          LOAD STATUS AGAIN      MTD86030
 008138   030F                   8604           BR    R15                 AND RETURN TO CALLER   MTD86040
                                  8605  * OTHERWISE CHECK REASON FOR ERROR                       MTD86050
 00813A   41E0 FA9E =007BDC       8606  STAT.ER  BAL   R14,SENSTA          LOAD STATUS            MTD86060
                                  8607  *                                                        MTD86070
                                  8608  ********************************************************  MTD86080
                                  8609  *                                                      *  MTD86090
                                  8610  *  COME  HERE  TO  CHECK OUT STATUS BYTE ERROR BITS   *  MTD86100
                                  8611  *                                                      *  MTD86110
                                  8612  ********************************************************  MTD86120

          0000 813E               8614  SNS.ERR  EQU   *                                          MTD86140
 00813E   C430 0080               8615           NHI   R3,X'80'            IS ERR BIT SET?        MTD86150
 008142   4330 804C =008192       8616           BZ    SNS.ERB             NO! CHECK OTHER BIT    MTD86160
                                  8617  *                                                        MTD86170
                                  8618  *        THIS ELIMINATES RECEIVE PARITY,READ OVERRUN      MTD86180
                                  8619  *        WRITE UNDERFLOW AND FCU OFFLINE                 MTD86190
                                  8620  *                                                        MTD86200
 008146   7330 827A =0083C4       8621           LHL   R3,STATUS           LOAD STATUS AGAIN      MTD86210
 00814A   C430 0040               8622           NHI   R3,X'40'            IS TERR SET ALSO?      MTD86220
 00814E   4330 8030 =008182       8623           BZ    SNS.ERC             NO! CHECK TRANSFER ERRORS  MTD86230
                                  8624  *                                                        MTD86240
                                  8625  *        THIS MEANS BUS PARITY OR FORMATTER OVERRUN       MTD86250
                                  8626  *                                                        MTD86260
 008152   41E0 FB54 =007CAA       8627           BAL   R14,CNOP0            ADDRESS A STATUS HW    MTD86270
 008156   41E0 FB98 =007CF2       8628           BAL   R14,REDE             READ AND LOAD IT       MTD86280
 00815A   243E                    8629           LIS   R3,14               LOAD TEST OFFSET       MTD86290
 00815C   7430 82E8 =008448       8630           TBT   R3,SNS4W            TEST FOR BUS PARITY    MTD86300
*008160   2339       =008172      8631           BZ    SNS.ERD             BRANCH TO ANOTHER CHECK  MTD86310
                                  8632  *MUST BE BUS PARITY ERROR TO GET HERE                    MTD86320
 008162   E650 84CC =008632       8633           LA    R5,COMERMS0         INCORRECT DEVICE STATUS HALFWORD  MTD86330
 008166   41F0 8204 =00836E       8634           BAL   R15,LOOP2           OUTPUT 1ST MESSAGE?    MTD86340
 00816A   E650 84F0 =00865E       8635           LA    R5,COMERMS1         'BUS PARITY' IS INDICATED  MTD86350
 00816E   4300 803E =0081B0       8636           B     STATERR             BRANCH TO COMMON ROUTINE  MTD86360
                                  8637  *MUST BE FORMATTER OVERRUN TO GET HERE                   MTD86370
          0000 8172               8638  SNS.ERD  EQU   *                                          MTD86380
 008172   E650 84BC =008632       8639           LA    R5,COMERMS0         INCORRECT DEVICE STATUS HALFWORD  MTD86390
 008176   41F0 81F4 =00836E       8640           BAL   R15,LOOP2                                  MTD86400
 00817A   E650 84FC =00867A       8641           LA    R5,COMERMS2         'FORMATTER OVERRUN' IS INDICATED  MTD86410
 00817E   4300 802F =0081B0       8642           B     STATERR             BRANCH TO COMMON ROUTINE  MTD86420
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                                   *                                                        MTD86430
                                   *       HERE WE'LL CHECKOUT ERR BIT STATUS               MTD86440
                                   *       WHICH MEANS BASICALLY REJECT OR DATA CHECKS      MTD86450
                                   *                                                        MTD86460
         0000 8182                 SNS.ERC  EQU  *                                          MTD86470
008182   E650 84AC =008632                  LA   R5,COMERMS0        INCORRECT DEVICE STATUS HALFWORD RETU MTD86480
008186   41F0 81E4 =00836E                  BAL  R15,LOOP2                                  MTD86490
00818A   E650 850E =00869C                  LA   R5,COMERMS3        REJECT OR DATA CHECK IS INDICATED     MTD86500
00818E   4300 801E =0081B0                  B    STATERR            BRANCH TO COMMON ROUTINE              MTD86510
                                   *                                                        MTD86520
                                   *       COME HERE TO CHECK OUT TERR BIT STATUS           MTD86530
                                   *                                                        MTD86540
         0000 8192                 SNS.ERB  EQU  *                                          MTD86550
008192   41E0 FB14 =007CAA                  BAL  R14,CNOP0          ADDRESS A STATUS HW     MTD86560
008196   41E0 FB58 =007CF2                  BAL  R14,REDE           AND LOAD BUS STATUS HW  MTD86570
00819A   243D                               LIS  R3,13              LOAD TEST OFFSET        MTD86580
00819C   7430 82A8 =008448                  TBT  R3,SNSHW           TEST FOR WRITE UNDERFLOW MTD86590
0081A0   4330 8034 =0081D8                  BZ   SNS.ERBA           CHECK NEXT ONE IF ZERO  MTD86600
0081A4   E650 848A =008632                  LA   R5,COMERMS0        INCORRECT DEVICE STATUS HALFWORD RETU MTD86610
0081A8   41F0 81C2 =00836E                  BAL  R15,LOOP2                                  MTD86620
0081AC   E650 8510 =0086C0                  LA   R5,COMERMS4        'WRITE UNDERFLOW' IS INDICATED        MTD86630
0081B0   41F0 81BA =00836E         STATERR  BAL  R15,LOOP2          OUTPUT PENDING MESSAGES MTD86640
0081B4   4810 8250 =008408                  LH   R1,DRIVSAV         LOAD DRIVE ADDR         MTD86650
0081B8   41F0 805A =008216                  BAL  R15,SNS.COM1                               MTD86660
0081BC   4800 208A                          LH   R0,DRVTYPE+$VALU1  LOOK IF STC OR TELEX    MTD86670
*0081C0  2335      =0081CA                  BZ   STATER1            STC IF 0                MTD86680
0081C2   E6F0 8588 =00874E                  LA   R15,DSBMSG0                                MTD86690
0081C6   4300 8106 =0082D0         STATER0  B    ERROR                                      MTD86700
0081CA   E650 8580 =00874E         STATER1  LA   R5,DSBMSG0         LOAD 0-3 DSH            MTD86710
0081CE   41F0 819C =00836E                  BAL  R15,LOOP2          OUTPUT IF POSSIBLE      MTD86720
0081D2   E6F0 85CE =0087A4                  LA   R15,DSB4MSG        LOAD 4TH DSH            MTD86730
0081D6   2208      =0081C6                  BS   STATER0            ERROR ROUTINE           MTD86740
                                   *                                                        MTD86750
         0000 81D8                 SNS.ERBA EQU  *                                          MTD86760
0081D8   243F                               LIS  R3,15              LOAD TEST OFFSET        MTD86770
0081DA   7430 826A =008448                  TBT  R3,SNSHW           TEST FOR READ OVERRUN   MTD86780
*0081DE  2339      =0081F0                  BZ   SNS.ERBB           CHECK NEXT ONE IF ZERO  MTD86790
0081E0   E650 844E =008632                  LA   R5,COMERMS0        INCORRECT DEVICE STATUS HALFWORD      MTD86800
0081E4   41F0 8186 =00836E                  BAL  R15,LOOP2                                  MTD86810
0081E8   E650 84F4 =0086E0                  LA   R5,COMERMS5        READ OVERRUN IS INDICATED             MTD86820
0081EC   4300 FFC0 =0081B0                  B    STATERR            AND BRANCH TO ERROR ROUTINE           MTD86830
                                   *                                                        MTD86840
         0000 81F0                 SNS.ERBB EQU  *                                          MTD86850
0081F0   7430 81D0 =0083C4                  TBT  R3,STATUS          TEST FOR DU             MTD86860
*0081F4  2339      =008206                  BZ   SNS.ERBC           LAST CHANCE?            MTD86870
0081F6   E650 8438 =008632                  LA   R5,COMERMS0        INCORRECT DEVICE STATUS HALFWORD      MTD86880
0081FA   41F0 8170 =00836E                  BAL  R15,LOOP2                                  MTD86890
0081FE   E650 84FC =0086FE                  LA   R5,COMERMS6        FORMATTER WENT OFFLINE  MTD86900
008202   4300 FFAA =0081B0                  B    STATERR            AND OUTPUT ERROR        MTD86910
                                   *OUTPUT ? THEN ?                                         MTD86920
         0000 8206                 SNS.ERBC EQU  *                                          MTD86930
008206   E650 8428 =008632                  LA   R5,COMERMS0        INCORRECT DEVICE STATUS HALFWORD      MTD86940
00820A   41F0 8160 =00836E                  BAL  R15,LOOP2                                  MTD86950
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TEST SUBROUTINES

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00820E    E650 8506 =008718    8696           LA    R5,COMERMS7        REASON OF FAILURE UNKNOWN     MTD86960
008212    4300 FF9A =0081B0    8697           B     STATERR                                          MTD86970
                               8698  *                                                             MTD86980
008216    D000 8776 =008990    8699  SNS.COM1 STM   R0,ERRSAVE         SAVE REGISTERS                MTD86990
00821A    2403                 8700           LIS   R0,3               DIGITS TO CONVERT             MTD87000
00821C    E620 8534 =008754    8701           LA    R2,DSBMSG0+6                                     MTD87010
008220    41F0 1680            8702           BAL   R15,HEXASC                                       MTD87020
008224    41E0 FA82 =007CAA    8703           BAL   R14,CNOP0          ADDRESS DSB0                  MTD87030
008228    41E0 FAC6 =007CF2    8704           BAL   R14,REDE           LOAD DSB0 IN                  MTD87040
00822C    E620 8549 =008779    8705           LA    R2,DSB0+5          LOAD ADDR. OF STORAGE         MTD87050
008230    41F0 8046 =00827A    8706           BAL   R15,SNSCONV        CONVERT HW STATUS TO ASCII    MTD87060
008234    41E0 FA7A =007CB2    8707           BAL   R14,CNOP1          ADDRESS DSB1                  MTD87070
008238    41E0 FAB6 =007CF2    8708           BAL   R14,REDE           LOAD IN DSB1                  MTD87080
00823C    E620 8545 =008785    8709           LA    R2,DSB1+5          LOAD ADDR. OF STORAGE         MTD87090
008240    41F0 8036 =00827A    8710           BAL   R15,SNSCONV        CONVERT HW STATUS TO ASCII    MTD87100
008244    41E0 FA70 =007CB8    8711           BAL   R14,CNOP2          ADDRESS DSB2                  MTD87110
008248    41E0 FAA6 =007CF2    8712           BAL   R14,REDE           LOAD IN DSB2                  MTD87120
00824C    E620 8541 =008791    8713           LA    R2,DSB2+5          LOAD ADDRESS OF STORAGE       MTD87130
008250    41F0 8026 =00827A    8714           BAL   R15,SNSCONV        CONVERT HW STATUS TO ASCII    MTD87140
008254    41E0 FA66 =007CBE    8715           BAL   R14,CNOP3          ADDRESS DSB3                  MTD87150
008258    41E0 FA96 =007CF2    8716           BAL   R14,REDE           LOAD IN DSB3                  MTD87160
00825C    E620 853D =00879D    8717           LA    R2,DSB3+5          LOAD ADDRESS OF STORAGE       MTD87170
008260    41F0 8016 =00827A    8718           BAL   R15,SNSCONV        CONVERT HW STATUS TO ASCII    MTD87180
008264    41E0 FA5C =007CC4    8719           BAL   R14,CNOP4          ADDRESS DSB4                  MTD87190
008268    41E0 FA86 =007CF2    8720           BAL   R14,REDE           LOAD IN DSB4                  MTD87200
00826C    E620 8539 =0087A9    8721           LA    R2,DSB4MSG+5       LOAD ADDR. OF STORAGE         MTD87210
008270    41F0 8006 =00827A    8722           BAL   R15,SNSCONV        CONVERT HW STATUS TO ASCII    MTD87220
008274    D100 8718 =008990    8723           LM    R0,ERRSAVE         RESTORE REGISTERS             MTD87230
008278    030F                 8724           BR    R15                RETURN                        MTD87240
                               8725  *                                                             MTD87250
          0000 827A            8726  SNSCONV  EQU   *                                                MTD87260
00827A    D000 8212 =008490    8727           STM   R0,REGSAVE                                       MTD87270
00827E    2404                 8728           LIS   R0,4               LOAD BYTE COUNT               MTD87280
008280    7310 81C4 =008448    8729           LHL   R1,SNSHW           LOAD HW STATUS                MTD87290
008284    41F0 1680            8730           BAL   R15,HEXASC         CONVERT HW STATUS TO ASCII    MTD87300
008288    D100 8204 =008490    8731           LM    R0,REGSAVE         RESTORE REGISTERS             MTD87310
00828C    030F                 8732           BR    R15                RETURN TO CALLER              MTD87320
                               8733  *                                                             MTD87330
                               8734  *******************************************************       MTD87340
                               8735  *                                                     *       MTD87350
                               8736  * COME HERE IF TO WRITE A RECORD USING WRITE DATA'S   *       MTD87360
                               8737  * R5 = BYTE COUNT  R4 = DATA PATTERN                  *       MTD87370
                               8738  *                                                     *       MTD87380
                               8739  *******************************************************       MTD87390

          0000 828E            8741  DWRITE   EQU   *                                                MTD87410
00828E    41E0 F908 =007B9A    8742           BAL   R14,CCLEAR         CLEAR INTERFACE               MTD87420
008292    41E0 F93C =007BD2    8743           BAL   R14,CDENS          DENSITY COMMAND               MTD87430
008296    C350 0001            8744           THI   R5,X'0001'         IS BYTE VALUE ODD?            MTD87440
*00829A   2133      =0082A0    8745           BNZ   DW.0               NO                            MTD87450
00829C    41E0 FA48 =007CE8    8746           BAL   R14,CWRODBY        ISSUE ODD BYTE COMMAND        MTD87460
0082A0    41E0 F9DC =007C80    8747  DW.0     BAL   R14,CWRITE         PUT INTERFACE IN WRITE MODE   MTD87470
0082A4    41E0 F97A =007C22    8748           BAL   R14,SENSTA3        LOOK AT BUSY                  MTD87480
```

TEST SUBROUTINES

```
         0000 82A8           8749  DW.1     EQU   *                                             MTD87490
0082A8   9814                8750           WHR   R1,R4           WRITE OUT DATA                MTD87500
0082AA   2752                8751           SIS   R5,2            DECREMENT BYTE COUNT          MTD87510
0082AC   2282       =0082A8  8752           BNLS  DW.1            CONTINUE UNTIL ZERO           MTD87520
0082AE   41E0 F92A  =007BDC  8753  DW.2     BAL   R14,SENSTA      CHECK STATUS FOR              MTD87530
0082B2   C430 00C0           8754           NHI   R3,X'C0'        ERROR BITS SET                MTD87540
0082B6   4230 FE58  =008112  8755           BNZ   STATCHK         AND IF SET CHECK IT OUT       MTD87550
0082BA   C330 0020           8756           THI   R3,X'20'                                      MTD87560
0082BE   023F                8757           BNZR  R15             RETURN IF EOT                 MTD87570
         0000 82C0           8758  DW.3     EQU   *                                             MTD87580
0082C0   41E0 F920  =007BE4  8759           BAL   R14,SENSTA1     ALSO CHECK STATUS             MTD87590
0082C4   C330 0010           8760           THI   R3,X'10'        FOR NMTN                      MTD87600
0082C8   023F                8761           BNZR  R15             RETURN TO CALLER IF STOPPED   MTD87610
0082CA   220F       =0082AE  8762           BS    DW.2            OTHERWISE WAIT                MTD87620
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                                        8765  ****************************************************                          MTD87650
                                        8766  *                                                  *                          MTD87660
                                        8767  *                                                  *                          MTD87670
                                        8768  *          ERROR ROUTINES                          *                          MTD87680
                                        8769  *                                                  *                          MTD87690
                                        8770  *                                                  *                          MTD87700
                                        8771  ****************************************************                          MTD87710

 0082CC       50E0 8120 =0083F0         8773  ERRORX    ST    R14,BOARDMSG       STORE BOARD MSG ADDR                    MTD87730
 0082D0       50F0 8120 =0083F4         8774  ERROR     ST    R15,FIRSTMSG       STORE BODY MSG ADDR                     MTD87740
 0082D4       D000 86B8 =008990         8775            STM   R0,ERRSAVE         SAVE R0-R15                             MTD87750
 0082D8       2411                      8776            LIS   R1,1                                                       MTD87760
 0082DA       6110 1E5C                 8777            AHM   R1,TOTERR          INCREMENT TOTAL ERROR                   MTD87770
 0082DE       4800 811E =008400         8778            LH    R0,ERR.FLG         LOOK AT ERROR FLAG                      MTD87780
 0082E2       4330 801E =008304         8779            BZ    ERROR.1            OUTPUT MESSAGE?                         MTD87790
*0082E6       2315      =0082F0         8780            BNM   STERFLG            STORE ERROR FLAG                        MTD87800
 0082E8       E650 821A =008506         8781            LA    R5,FAILMSG         'FAIL'                                  MTD87810
 0082EC       41F0 807E =00836E         8782            BAL   R15,LOOP2          OUTPUT MESSAGE IF NO LOOP 2             MTD87820
                                        8783  *                                                                         MTD87830
 0082F0       4800 810E =008402         8784  STERFLG   LH    R0,LOOP.OPT                                                MTD87840
 0082F4       4000 8108 =008400         8785            STH   R0,ERR.FLG         SET ERR.FLG                             MTD87850
 0082F8       4330 8046 =008342         8786            BZ    NEXTSEQ                                                    MTD87860
 0082FC       58F0 80F8 =0083F8         8787  LOOPOUT   L     R15,OPTPOINT                                               MTD87870
 008300       4300 80B4 =0083B8         8788            B     LOOP.IT            EXIT                                    MTD87880
 008304       5850 80EC =0083F4         8789  ERROR.1   L     R5,FIRSTMSG        GET ADDRESS OF BODY OF MSG              MTD87890
 008308       41F0 8062 =00836E         8790            BAL   R15,LOOP2          OUTPUT IF NOT LOOP 2                    MTD87900
 00830C       5850 80E0 =0083F0         8791            L     R5,BOARDMSG        ADDR OF BOARD MESSAGE                   MTD87910
*008310       2333      =008316         8792            BZ    ERROR.1A           NO BOARD MESSAGE APPLICABLE             MTD87920
 008312       41F0 8058 =00836E         8793            BAL   R15,LOOP2          OUTPUT IF NOT LOOP 2                    MTD87930
 008316       4800 20EC                 8794  ERROR.1A  LH    R0,PROCEED+SVALU1  LOOK AT PROCEED OPT                     MTD87940
 00831A       4330 0ABC                 8795            BZ    OPTIN1             OUTPUT *(PRO 0 OVERRIDES LOO 1&2)       MTD87950
 00831E       C500 0001                 8796            CLHI  R0,1               PROCEED ON ERROR AS FAR AS POSSIBLE     MTD87960
 008322       4230 FFCA =0082F0         8797            BNE   STERFLG                                                    MTD87970
 008326       58F0 80CE =0083F8         8798            L     R15,OPTPOINT                                               MTD87980
 00832A       58FF 0004                 8799            L     R15,ADC(R15)                                               MTD87990
 00832E       5800 80CA =0083FC         8800            L     R0,WPROCEED                                                MTD88000
*008332       2334      =00833A         8801            BZ    NEWLIM                                                     MTD88010
 008334       05F0                      8802            CLR   R15,R0                                                     MTD88020
 008336       4380 FFB6 =0082F0         8803            BNL   STERFLG            SET ERROR FLAG                          MTD88030
 00833A       50F0 80BE =0083FC         8804  NEWLIM    ST    R15,WPROCEED                                               MTD88040
 00833E       4300 FFAE =0082F0         8805            B     STERFLG                                                    MTD88050
 008342       58F0 80B2 =0083F8         8806  NEXTSEQ   L     R15,OPTPOINT                                               MTD88060
 008346       58FF 0000                 8807            L     R15,0(R15)                                                 MTD88070
 00834A       4300 806C =0083BA         8808            B     LOOPEXIT           EXIT                                    MTD88080
                                        8809  *                                                                         MTD88090
                                        8810  *                                                                         MTD88100
 00834E       D000 863E =008990         8811  PASS      STM   R0,ERRSAVE                                                 MTD88110
 008352       4800 80AA =008400         8812            LH    R0,ERR.FLG                                                 MTD88120
 008356       4210 FF96 =0082F0         8813            BM    STERFLG            LOOP IF PASSED LAST TIME                MTD88130
*00835A       223C      =008342         8814            BZ    NEXTSEQ            SKIP IF NO ERROR LAST TIME              MTD88140
 00835C       25C1                      8815            LCS   R0,1               R0=-1                                   MTD88150
 00835E       4000 809E =008400         8816            STH   R0,ERR.FLG         SET ERR.FLG                             MTD88160
 008362       E650 819A =008500         8817            LA    R5,PASSMSG         'PASS'                                  MTD88170
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TEST ERROR SUBROUTINES

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008366       41F0 8004 =00836E        8818            BAL   R15,LOOP2           OUTPUT IF NOT LOOP2                    MTD88180
00836A       4300 FF8E =0082FC        8819            B     LOOPOUT                                                  MTD88190
                                      8820  *                                                                        MTD88200
00836E       4800 20EC                8821  LOOP2     LH    R0,PROCEED+$VALU1   LOOK AT PROCEED OPTION               MTD88210
008372       4330 1902                8822            BZ    PRINT               PROCEED 0 OVERRIDES LOOP OPTION    MTD88220
008376       4800 8086 =008400        8823            LH    R0,ERR.FLG          CHECK ERROR FLAG             R01   MTD88230
00837A       4230 FF72 =0082FC        8824            BNZ   STERFLG             NO PRINT IF HAVE ALREADY     R01   MTD88240
00837E       4800 8080 =008402        8825            LH    R0,LOOP.OPT                                            MTD88250
008382       C500 0002                8826            CLHI  R0,2                                                   MTD88260
008386       033F                     8827            BER   R15                 DO NOT OUTPUT MESSAGES               MTD88270
008388       4300 1802                8828            B     PRINT               PRINT MESSAGE                        MTD88280


00838C       26F3                     8830  LOOPTOP   AIS   R15,ADC-1                                               MTD88300
00838E       C4F0 FFFC                8831            NHI   R15,-ADC            ROUND R15                          MTD88310
008392       50F0 8062 =0083F8        8832            ST    R15,OPTPOINT        SET OPTPOINT(PROCEED LIMIT)        MTD88320
008396       D000 85F6 =008990        8833            STM   R0,ERRSAVE          SAVE REGISTERS                     MTD88330
00839A       55F0 805E =0083FC        8834            CL    R15,=PROCEED        LOOK AT ADDRESS VALUE              MTD88340
*00839E      218D      =0083B8        8835            BL    LOOP.IT                                                MTD88350
                                      8836  *                                                                        MTD88360
                                      8837  *                                                                        MTD88370
0083A0       2406                     8838  PROLIM    LIS   R0,6                DIGIT CONVERSION                   MTD88380
0083A2       081F                     8839            LR    R1,R15              ADDRESS                            MTD88390
0083A4       E620 8172 =00851A        8840            LA    R2,LIMMSG+14        STORED HERE                        MTD88400
0083A8       41F0 1680                8841            BAL   R15,HEXASC          CONVERT                            MTD88410
0083AC       E650 815C =00850C        8842            LA    R5,LIMMSG           'PROCEED LIMIT ****** REACHED'     MTD88420
0083B0       41F0 1802                8843            BAL   R15,PRINT           PRINT MESSAGE                      MTD88430
0083B4       4300 0ABC                8844            B     OPTIN1              *                                  MTD88440
                                      8845  *                                                                        MTD88450
*0083B8      26F8                     8846  LOOP.IT   AI    R15,2*ADC                                              MTD88460
0083BA       50F0 85D2 =008990        8847  LOOPEXIT  ST    R15,ERRSAVE         SAVE R15                           MTD88470
0083BE       D100 85CE =008990        8848            LM    R0,ERRSAVE          RESTORE REGISTERS                  MTD88480
0083C2       0300                     8849            BR    R0                  RETURN                             MTD88490
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BUFFERS AND TEST CONSTANTS

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                                8851  *              STATUS STORAGE                                       MTD88510
0083C4                          8852          ALIGN 4                                                     MTD88520
0083C4                          8853  STATUS   DS    2                                                    MTD88530
0083C6                          8854  SELSTAT  DS    2                                                    MTD88540
0083C8                          8855  STATGD   DS    2                                                    MTD88550
                                8856  *              MAG TAPE COMMANDS                                    MTD88560
0083CA        090C              8857  CMDCLR   DC    X'090C'          CLEAR INTERFACE                     MTD88570
              0000 83CB         8858  TSTMDE   EQU   CMDCLR+1         INTERFACE IN TEST MODE              MTD88580
0083CC        0DE0              8859  BYRD     DCX   0DE0             BYTE READ MODE                      MTD88590
              0000 83CD         8860  REWIND   EQU   BYRD+1           REWIND MAG TAPE                     MTD88600
0083CE        6040              8861  WRITE    DCX   6040             WRITE MODE                          MTD88610
              0000 83CF         8862  READ     EQU   WRITE+1          READ MODE                           MTD88620
0083D0        0001              8863  NOP0     DCX   0001             NOP COMMANDS                        MTD88630
              0000 83D1         8864  NOP1     EQU   NOP0+1                                               MTD88640
0083D2        0203              8865  NOP2     DCX   0203                                                 MTD88650
              0000 83D3         8866  NOP3     EQU   NOP2+1                                               MTD88660
0083D4        0410              8867  NOP4     DCX   0410                                                 MTD88670
              0000 83D5         8868  DRVCLR   EQU   NOP4+1           CLEAR DRIVE                         MTD88680
0083D6        C0D0              8869  WEOF     DCX   C0D0             WRITE END OF FILE MARK              MTD88690
              0000 83D7         8870  EGAP     EQU   WEOF+1           ERASE GAP MODE                      MTD88700
0083D8        B0A0              8871  SKIPFB   DCX   B0A0             SKIP FORWARD BLOCK                  MTD88710
              0000 83D9         8872  SKIPFF   EQU   SKIPFB+1         SKIP FORWARD FILE                   MTD88720
0083DA        9080              8873  SKIPBB   DCX   9080             SKIP BACKWARD BLOCK                 MTD88730
              0000 83DB         8874  SKIPBF   EQU   SKIPBB+1         SKIP BACKWARD FILE                  MTD88740
0083DC        5048              8875  RDBACK   DCX   5048             READ BACKWARD                       MTD88750
              0000 83DD         8876  ENABLE   EQU   RDBACK+1         ENABLE INTERFACE INTERRUPTS         MTD88760
0083DE        0B0A              8877  WRODDBY  DCX   0B0A             WRITE ODD BYTES                     MTD88770
              0000 83DF         8878  GAPLSS   EQU   WRODDBY+1        GAPLESS MODE COMMAND                MTD88780
0083E0        88C8              8879  DISABLE  DCX   88C8             DISABLE INTERFACE INTERRUPTS        MTD88790
              0000 83E1         8880  DISARM   EQU   DISABLE+1        DISARM INTERFACE INTERRUPTS         MTD88800
0083E2        F000              8881  UNLOAD   DCX   F000             UNLOAD MAG TAPE                     MTD88810
0083E4        0818              8882  DENSEITY DC    X'0818',X'2830'  1600,6250,800                       MTD88820
0083E6        2830
              0000 83E7         8883  TTUS     EQU   DENSEITY+3       TAPE UNIT STATUS COMMAND            MTD88830
                                8884  *              SELCH COMMANDS                                       MTD88840
0083E8        5474              8885  GO       DC    X'5474'          GO TO WRITE ON SELCH                MTD88850
              0000 83E9         8886  GOREAD   EQU   GO+1             READ THROUGH SELCH                  MTD88860
0083EA        4C0C              8887  STOP     DC    X'4C0C'          STOP SELCH                          MTD88870
              0000 83EB         8888  STOPS    EQU   STOP+1           STOP & INIT SELCH                   MTD88880
0083EC        4800              8889  EXTEND   DC    X'4800'          EXTENDED ADDR OF SELCH              MTD88890
                                8890  *              TEST CONSTANTS                                       MTD88900
0083F0        0000 0000         8891  BOARDMSG DCY   0                                                    MTD88910
0083F4        0000 0000         8892  FIRSTMSG DCY   0                                                    MTD88920
0083F8        0000 0000         8893  OPTPOINT DCY   0                                                    MTD88930
0083FC        0000 0000         8894  WPROCEED DCY   0                                                    MTD88940
008400        0000              8895  ERR.FLG  DCX   0                                                    MTD88950
008402        0000              8896  LOOP.OPT DCX   0                                                    MTD88960
008404        00FF              8897  BYSAV    DCX   FF                                                   MTD88970
008406        0000              8898  RECSAV   DCX   0                                                    MTD88980
008408        0000              8899  DRIVSAV  DCX   0                                                    MTD88990
00840A        0000              8900  DRIVSAV1 DCX   0                                                    MTD89000
00840C        0000              8901  DENSFLAG DCX   0                                                    MTD89010
00840E        0000              8902  DECFLG   DCX   0                                                    MTD89020
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BUFFERS AND TEST CONSTANTS

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008410  0000                    8903  RECFLG1   DCX   0                          MTD89030
008412  0000                    8904  RECFLG2   DCX   0                          MTD89040
008414  0000                    8905  INDEX     DCX   0                          MTD89050
008416  0000                    8906  ZEROS     DC    X'0000'                    MTD89060
008418  1600                    8907  GAPLEN    DC    X'1600'                    MTD89070
00841A  4F00                    8908            DC    X'4F00'                    MTD89080
00841C  0B00                    8909            DC    X'0B00'                    MTD89090
00841E  4F00                    8910            DC    X'4F00'                    MTD89100
008420                          8911            ALIGN 4                          MTD89110
008420  0003 A000               8912  BASE      DC    Y'3A000'                   MTD89120
008424  0000                    8913  DATAPAT   DCX   0                          MTD89130
                                8914  *               TEST PATTERNS              MTD89140
008426  FF11                    8915  TESTPAT   DC    X'FF11',X'2244'            MTD89150
008428  2244
00842A  8855                    8916            DC    X'8855',X'EECC'            MTD89160
00842C  EECC
00842E  3377                    8917            DC    X'3377',X'A55A'            MTD89170
008430  A55A
008432  5AA5                    8918            DC    X'5AA5',X'DDAA'            MTD89180
008434  DDAA
008436  0123                    8919            DC    X'0123',X'4567'            MTD89190
008438  4567
00843A  89AB                    8920            DC    X'89AB',X'CDEF'            MTD89200
00843C  CDEF
00843E  FEDC                    8921            DC    X'FEDC',X'BA98'            MTD89210
008440  BA98
008442  7654                    8922            DC    X'7654',X'3210'            MTD89220
008444  3210
                                8923  *               DATA STORAGE               MTD89230
008446                          8924  BUFFZ     DS    2                          MTD89240
008448  0000                    8925  SNSHW     DC    X'0000'                    MTD89250
00844A                          8926  LENSAV    DS    2                          MTD89260
00844C                          8927  FILSAV    DS    2                          MTD89270
008450                          8928            ALIGN 4                          MTD89280
008450                          8929  REGS      DS    64                         MTD89290
008490                          8930  REGSAVE   DS    64                         MTD89300
0084D0  0000 0000               8931  SAVR15    DC    Y'0'                       MTD89310
0084D4                          8932            ALIGN 4                          MTD89320
0084D4                          8933  WBUF      DS    4                          MTD89330
0084D8                          8934  ENDBUF    DS    4                          MTD89340
0084DC                          8935  RDBUF     DS    4                          MTD89350
0084E0                          8936  STOPADR   DS    4                          MTD89360
0084E4                          8937  STARADDR  DS    4                          MTD89370
0084E8                          8938  WBUF2     DS    4                          MTD89380
0084EC                          8939  ENDBUF2   DS    4                          MTD89390
0084F0                          8940  TSTBUF    DS    12                         MTD89400
0084FC                          8941  WSTORE    DS    2                          MTD89410
0084FE                          8942  RSTORE    DS    2                          MTD89420
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                                    8944  *              TEST MESSAGES                                           MTD89440
008500      5041 5353               8945  PASSMSG  DC      C'PASS',X'0D0A'                                       MTD89450
008504      0D0A
008506      4641 494C               8946  FAILMSG  DC      C'FAIL',X'0D0A'                                       MTD89460
00850A      0D0A
00850C      5052 4F43 4545 4420     8947  LIMMSG   DC      C'PROCEED LIMIT ****** REACHED',X'0D0A'               MTD89470
008514      4C49 4D49 5420 2A2A
00851C      2A2A 2A2A 2052 4541
008524      4348 4544
008528      0D0A
00852A      5355 5350 4543 5445     8948  DRIVMSG  DC      C'SUSPECTED ERROR WITH TAPE DRIVE',X'0D0A'            MTD89480
008532      4420 4552 524F 5220
00853A      5749 5448 2054 4150
008542      4520 4452 4956 4520
00854A      0D0A
00854C      5355 5350 4543 5445     8949  DRIVFMSG DC      C'SUSPECTED ERROR WITH DRIVE OR FORMATTER',X'0D0A'    MTD89490
008554      4420 4552 524F 5220
00855C      5749 5448 2044 5249
008564      5645 204F 5220 464F
00856C      524D 4154 5445 5220
008574      0D0A
008576      5355 5350 4543 5445     8950  FORMMSG  DC      C'SUSPECTED ERROR WITH FORMATTER',X'0D0A'             MTD89500
00857E      4420 4552 524F 5220
008586      5749 5448 2046 4F52
00858E      4D41 5454 4552
008594      0D0A
008596      5355 5350 4543 5445     8951  CONTMSG  DC      C'SUSPECTED ERROR WITH CONTROLLER',X'0D0A'            MTD89510
00859E      4420 4552 524F 5220
0085A6      5749 5448 2043 4F4E
0085AE      5452 4F4C 4C45 5220
0085B6      0D0A
0085B8      5355 5350 4543 5445     8952  SELMSG   DC      C'SUSPECTED ERROR WITH SELCH',X'0D0A'                 MTD89520
0085C0      4420 4552 524F 5220
0085C8      5749 5448 2053 454C
0085D0      4348
0085D2      0D0A
0085D4      4E4F 204D 4154 4348     8953  NOSELCH  DC      C'NO MATCH ON SELCH ADDRESS',X'0D0A'                  MTD89530
0085DC      204F 4E20 5345 4C43
0085E4      4820 4144 4452 4553
0085EC      5320
0085EE      0D0A
0085F0      224E 4D54 4E22 2044     8954  ERMSGA   DC      C'"NMTN" DID NOT SET AFTER REWIND',X'0D0A'            MTD89540
0085F8      4944 204F 4F54 2053
008600      4554 2041 4654 4552
008608      2052 4557 494E 4420
008610      0D0A
008612      2242 4F54 2220 4449     8955  ERMSGB   DC      C'"BOT" DID NOT SET AFTER REWIND',X'0D0A'             MTD89550
00861A      4420 4E4F 5420 5345
008622      5420 4146 5445 5220
00862A      5245 5749 4E44
008630      0D0A
008632      494E 434F 5252 4543     8956  COMERMS0 DC      C'INCORRECT DEVICE STATUS HALFWORD RETURNED',X'0D0A'  MTD89560
00863A      5420 4445 5649 4345
```

TEST MESSAGES

```
008642  2053 5441 5455 5320
00864A  4341 4C46 574F 5244
008652  2052 4554 5552 4E45
00865A  4420
00865C  0D0A
00865E  2242 5553 2050 4152      8957  COMERMS1 DC    C'"BUS PARITY" IS INDICATED',X'0D0A'                    MTD89570
008666  4954 5922 2049 5320
00866E  494E 4449 4341 5445
008676  4420
008678  0D0A
00867A  2246 4F52 4D41 5454      8958  COMERMS2 DC    C'"FORMATTER OVERRUN" IS INDICATED',X'0D0A'             MTD89580
008682  4552 204F 5645 5252
00868A  554E 2220 4953 2049
008692  4E44 4943 4154 4544
00869A  0D0A
00869C  5245 4A45 4354 204F      8959  COMERMS3 DC    C'REJECT OR DATA CHECK IS INDICATED',X'0D0A'            MTD89590
0086A4  5220 4441 5441 2043
0086AC  4845 4343 2049 5320
0086B4  494E 4449 4341 5445
0086BC  4420
0086BE  0D0A
0086C0  2257 5249 5445 2055      8960  COMERMS4 DC    C'"WRITE UNDERFLOW" IS INDICATED',X'0D0A'               MTD89600
0086C8  4E44 4552 464C 4F57
0086D0  2220 4953 2049 4E44
0086D8  4943 4154 4544
0086DE  0D0A
0086E0  2252 4541 4420 4F56      8961  COMERMS5 DC    C'"READ OVERRUN" IS INDICATED',X'0D0A'                  MTD89610
0086E8  4552 5255 4E22 2049
0086F0  5320 494E 4449 4341
0086F8  5445 4420
0086FC  0D0A
0086FE  464F 524D 4154 5445      8962  COMERMS6 DC    C'FORMATTER WENT OFF LINE',X'0D0A'                      MTD89620
008706  5220 5745 4E54 204F
00870E  4646 204C 494F 4520
008716  0D0A
008718  5245 4153 4F4E 204F      8963  COMERMS7 DC    C'REASON OF FAILURE UNKNOWN',X'0D0A'                    MTD89630
008720  4620 4641 494C 5552
008728  4520 554E 4B4E 4F57
008730  4520
008732  0D0A
008734  4452 4956 4520 5449      8964  COMERMS8 DC    C'DRIVE TIME OUT ON REWIND',X'0D0A'                     MTD89640
00873C  4D45 204F 5554 204F
008744  4E20 5245 5749 4F44
00874C  0D0A
                                 8965  *                                                                      MTD89650
00874E  4452 4956 4520 2A2A      8966  DSBMSG0  DC    C'DRIVE ***',X'8D0A'                                    MTD89660
008756  2A20
008758  8D0A
00875A  4445 5649 4345 2053      8967  DSBMSG   DC    C'DEVICE STATUS HALFWORDS:',X'8D0A'                     MTD89670
008762  5441 5455 5320 4841
00876A  4C46 574F 5244 533A
008772  3D0A
008774  4453 4230 3D2A 2A2A      8968  DSB0     DC    C'DSB0=****',X'8D0A'                                    MTD89680
```

TEST MESSAGES

```
00877C       2A20
00877E       8D0A
008780       4453 4231 3D2A 2A2A      8969  DSB1      DC    C'DSB1=****',X'8D0A'                                  MTD89690
008788       2A20
00878A       8D0A
00878C       4453 4232 3D2A 2A2A      8970  DSB2      DC    C'DSB2=****',X'8D0A'                                  MTD89700
008794       2A20
008796       8D0A
008798       4453 4233 3D2A 2A2A      8971  DSB3      DC    C'DSB3=****',X'0D0A'                                  MTD89710
0087A0       2A20
0087A2       0D0A
0087A4       4453 4234 3D2A 2A2A      8972  DSB4MSG   DC    C'DSB4=****',X'0D0A'                                  MTD89720
0087AC       2A20
0087AE       0D0A
0087B0                                8973            ALIGN 4                                                     MTD89730
0087B0       4445 5649 4345 2043      8974  NOBOT     DC    C'DEVICE CAN NOT FIND BOT!',X'0D0A'                   MTD89740
0087B8       414E 204E 4F54 2046
0087C0       494E 4420 424F 5421
0087C8       0D0A
0087CA       5449 4D45 4420 4F55      8975  TSTERRA   DC    C'TIMED OUT WAITING FOR "MMTN"',X'0D0A'               MTD89750
0087D2       5420 5741 4954 494E
0087DA       4720 464F 5220 224E
0087E2       4D54 4E22
0087E6       0D0A
0087E8       5449 4D45 4420 4F55      8976  TSTERRB   DC    C'TIMED OUT WAITING FOR NON-BUSY',X'0D0A'             MTD89760
0087F0       5420 5741 4954 494E
0087F8       4720 464F 5220 4E4F
008800       4E2D 4255 5359
008806       0D0A
008808       5449 4D45 4420 4F55      8977  TSTERRC   DC    C'TIMED OUT WAITING FOR TAPE MOTION',X'0D0A' R01      MTD89770
008810       5420 5741 4954 494E
008818       4720 464F 5220 5441
008820       5045 204D 4F54 494F
008828       4E20
00882A       0D0A
00882C                                8978            ALIGN 4                                                     MTD89780
00882C       4552 524F 5220 4249      8979  ERRBIT    DC    C'ERROR BITS ARE SET',X'0D0A'                         MTD89790
008834       5453 2041 5245 2053
00883C       4554
00883E       0D0A
008840                                8980            ALIGN 4                                                     MTD89800
008840       4649 4C45 2050 524F      8981  WRTINH    DC    C'FILE PROTECT IS ACTIVE ON DRIVE ***',X'0D0A'        MTD89810
008848       5445 4354 2049 5320
008850       4143 5449 5645 204F
008858       4E20 4452 4956 4520
008860       2A2A 2A20
008864       0D0A
008868                                8982            ALIGN 4                                                     MTD89820
008868       4F50 5449 4F4E 204F      8983  ONLINO    DC    C'OPTION ONLINE=0',X'0D'                              MTD89830
008870       4E4C 494E 453D 3020
008878       000D
00887A       4452 4956 4520 2A2A      8984  DEVOFF    DC    C'DRIVE *** IS OFF LINE',X'0D0A'                      MTD89840
008882       2A20 4953 204F 4646
```

TEST MESSAGES

```
008888          204C 494E 4520
008890          0D0A
                0000 8891           8985  LNZB      EQU   *-1                 LAST PROGRAM BYTE                       MTD89850
008898                              8986            ALIGN 8                                                       MTD89860
                0000 8898           8987  PSWSAVE   EQU   *                   PPF PSW SAVE AREA (MOVES)               MTD89870
008898                              8988  $TBRKSV   DS    8                   STORAGE FOR TSTBRK ROUTINE              MTD89880
0088A0                              8989  $R15SAV   DS    4                                                       MTD89890
0088A4                              8990  $R14SAV   DS    8                   MUST BE SEPARATE                        MTD89900
0088AC                              8991  $OUTBUF   DS    $BUFLEN             LENGTH IS $BUFLEN                       MTD89910
0088FC                              8992  $INBUF    DS    $BUFLEN             LENGTH IS $BUFLEN                       MTD89920
00894C                              8993            ALIGN 4                                                       MTD89930
00894C                              8994  R15SAVE   DS    4                                                       MTD89940
008950                              8995  RSAVE     DS    64                  REGISTER SAVE AREA                      MTD89950
008990                              8996  ERRSAVE   DS    64                  STORAGE FOR ERROR ROUTINES              MTD89960
                                    8997  **END ETPER05 DATA STATEMENTS                                             MTD89970


0089D0                              8999  WRTBUF    DS    65536                                                   MTD89990
0189D0                              9000  READBUF   DS    65536                                                   MTD90000
0289D0                              9001            END                                                           MTD90010
```

SYMBOL TABLE & CROSS REFERENCE LIST

ASSEMBLED BY CAL/32 03-338F00-00

START OPTIONS: T=32,EPLST

NO CAL ERRORS
NO CAL WARNINGS
7 PASSES

TABLE SPACE USED : 39K DISC SECTORS : 0

```
$ACTIND   0000 0001    88*  1402  1449  1481
$BRKEND   0000 1F5B  1501  2290*
$BRKFLG   0000 1E4A   213   234  1497  1498  1678  1703  2235*
$BS.COMM  0000 1D84  2095  2100  2105  2111*
$BUFIO    0000 0001    89*  1379  1551
$BUFLEN   0000 0050    70*  1191  1384  1557  1612  8991  8992
$CKROUT   0000 0008    65*   767   770   786   789   804   807   809   811   813   815   817   820   830
                      833   841   844  1349  1352  1368  1373
$CLKSTRT  0000 1E37  2222*
$CLOCK    0000 0001    86*  1217  1219  1237
$COMM1    0000 1D90  2152*
$COMM2    0000 1DA6  2158*  2160
$CON      0000 0A5C   191*  1511
$CONPAS   0000 1E3C  1653  1741  1786  1798  2225*
$DEC.0    0000 10E8   733*   752
$DEC.1    0000 10EA   734*   747
$DEC.2    0000 10FE   740*   743
$DEC.3    0000 1106   741   744*
$DEC1     0000 16B4  1316*  1330
$DEC2     0000 16BA  1318*  1323  1325
$DEC3     0000 16CC  1319  1326*
$DECASC   0000 0001    84*  1307
$DECHEX   0000 0001    83*   724
$DECTAB   0000 0001    82*  2253
$DISPADR  0000 1432  1001  1015  1018*
$DISPLAY  0000 0001    87*   935   999
$DU.X     0000 1B50  1756  1758*
$ERRF1    0000 1D8E  1850  2137*
$ERRF2    0000 1D86  1836  2115*
$ERRF3    0000 1D38  1843  2042*  2083
$ERRF4    0000 1CFC  1968  1974  2016*
$ERRF5    0000 1D8A  1895  2129*
$ERRF6    0000 1D00  1979  2021*
$ERRF7    0000 1D76  1898  2099*
$ERRF8    0000 1D7A  1892  2104*
$ERRF9    0000 1D7E   114  2109*
$ERRF9CH  0000 1D7E   114*  1861
$GTCH.1   0000 1950  1558  1561*
$HEXA.1   0000 168C  1298*  1305
$INBUF    0000 88FC   257   856  1190  1561  1603  8992*
$IS.DU    0000 1B4E  1749  1754  1757*
$KBINT    0000 0001    85*  1791  1904  1960  2231
$KBR.1    0000 1B98  1788  1790*
```

SYMBOL TABLE & CROSS REFERENCE LIST

```
SKEEP.1    0000 1292            868    872*   875
SKEEP.2    0000 129A            873    876*
SKEEP1     0000 12D0            892*   951
SKEEP2     0000 12D6            894*   908    941
SKEEP2.1   0000 12FA            903    905*
SKEEP3     0000 131C            918*
SKEEP5     0000 1358            897    946*
SKEEP5.1   0000 1372            953    955*
SKEEP5.2   0000 138C            958    961*
SKEEP7     0000 13A4            966    974*
SLCOR1     0000 1BDC           1820*  1823
SLCOR2     0000 1BEC           1830*
SLCOR3     0000 1BF0           1831*  1833
SLCOR4     0000 1C24           1862*  1864
SLCOR5     0000 1C30           1884*
SLCORXIT   0000 1C58           1901*
SLINCNT    0000 2134            779    853   2335*
SLINEPOS   0000 1E54           1383   1389   1440   1556   1560   1563   1573   2240*
SLSTB.0    0000 16FE           1350*  1364
SLSTB.1    0000 1716           1353   1357*
SLSTB.2    0000 1724           1361*
SLSTB.2A   0000 1726           1351   1362*
SLSTB.2B   0000 1744           1369   1371*
SLSTB.2C   0000 1754           1374   1376*
SLSTB.A    0000 16F2           1346*  1372
SLSTB.B    0000 16FC           1345   1349*
SLSTBIT    0000 16E0            793   1339*
SLSTPAS    0000 1E3E           1631   1745   2226*
SMAXIO     0000 0006            132*   762   1621
SMM.1      0000 1D50           2065   2070*
SMM.2      0000 1D5A           2067   2073*
SMM.3      0000 1D6A           2068   2072   2073   2083*
SMSGPRT    0000 15C0           1104   1113   1126   1168*
SMSGPRT1   0000 15D0           1095   1173*
SNLFCNTR   0000 1E44           1407   1409   2229*
SNLFDEV    0000 0A58            189*  1485
SNLFFLAG   0000 1E40            235    977   1076   1161   1174   1417   1422   1450   1482   1504   1707   1768   1776   2162
                               2227*
SNLFHIST   0000 1E42           1452   1459   1463   2228*
SNODISP    0000 1428           1004   1015*
SNOT.DU    0000 184A           1751   1755*
SOPT.0     0000 1140            760    767*
SOPT.0A    0000 114A            776*
SOPT.2     0000 115E            782*   787
SOPT.3     0000 122A            824    839*
SOPT.5     0000 1246            794    846*
SOPT.6     0000 127C            861*
SOPT.A     0000 1152            778*   851    861
SOPT.B     0000 115A            780*   854
SOPTNAME   0000 0000             54*
SOPTPRT    0000 1128            313    313    759*
SOPTV.0    0000 15FE           1190*  1195   1206
SOPTV.2    0000 160A           1199*  1202
```

SYMBOL TABLE & CROSS REFERENCE LIST

```
$CPIV.3     0000 1616          1200   1204*
$OTC.0      0000 18D2          1515*  1526
$OTC.1      0000 18D6          1516*  1521
$OTC.2      0000 18E2          1520*  1528
$OTC.3      0000 18EA          1519   1523*
$OTC.4      0000 18FE          1514   1522   1530*
$OTC.5      0000 1906          1532*  1540
$OTC.6      0000 1924          1542*  1547
$OTC.7      0000 1932          1517   1533   1535   1538   1543   1545   1548*
$OUTBUF     0000 88AC           783    789    804    807    809    811    813    815    817    820    830    833    841    844
                               983    984    986   1355   1359   1366   1387   1411   1412   1434   8991*
$P0         0000 1802          1431   1438*
$P1         0000 1808          1398   1435   1439*  1607
$PAUSE      0000 1E62          1515   1520   1530   2247*
$PRINT      0000 17E6           215    912    955    959    978    980   1427*  1505   1669   2034   2183   2203   4455   6517
$PRT.2      0000 1822          1450*  1476   1479
$PRT.2A     0000 1844          1451   1462*
$PRT.2B     0000 1854          1453   1460   1466*
$PRT.3      0000 1876          1473   1482*
$PRT.3A     0000 18B0          1503*  1723
$PRT.3B     0000 1886          1483   1487*
$PRT.3C     0000 188C          1465   1486   1493*
$PRT.4      0000 18C0          1502   1507*
$PRTFLG     0000 1E56          1477   1496   1704   2241*
$PRTNLF     0000 1790          1403*
$PUTC.1     0000 176E          1385   1387*
$R14SAV     0000 88A4          1094   1101   1110   1119   1132   1148   1163   1179   1817   1901   8042   8051   8079   8081
                               8098   8100   8990*
$R15SAV     0000 88A0          1026   1030   1035   1040   1046   1052   1085   1382   1390   1555   1564   5275   5302   8989
$R5B.1      0000 165A          1276*  1285   1288
$R5B.2      0000 1668          1280   1282*
$R5BIN      0000 0001            81*  1269
$RD.1       0000 196A          1571*  1601
$RD.2       0000 196C          1572*  1602   1613
$RD.3       0000 1972          1574*  1614
$RD.3A      0000 1992          1580   1586*
$RD.4       0000 19A0          1588   1590*
$RD.5       0000 19C2          1595   1597   1600*
$RD.6       0000 19CC          1599   1603*
$RD.7       0000 19E0          1605   1608*
$RD.8       0000 19EC          1609   1612*
$READ       0000 1964           243    855   1559   1570*
$RSAVRET    0000 1648           754   1265*  1277   1306   1331   1442   1499   1802
$RUNIT      0000 1280           316    316    866*
$SETUP      0000 1BB8          1531   1807*
$SHUTDWN    0000 1E64           952   2248*
$STC.1      0000 1A08          1623   1625*
$STC.2      0000 1A0E          1626   1628*
$STC.3      0000 1A2C          1633   1638*
$STC.4      0000 1A6C          1655   1658*
$STC.5      0000 1A7A          1661   1663*
$STIM1      0000 1630          1227*  1232
$STRUC1     0000 000E            63*    68    387    388    400    406    574    575    587    593    700    701    713    719
```

SYMBOL TABLE & CROSS REFERENCE LIST

STBRKSV	0000 8898	812 816 821 846 2825 2833 1676 1684 8988*
STESTOP	0000 0BCC	297 297 321*
STIMER	0000 162A	1218*
STIMRET	0000 1640	1233 1258*
STIMVAL	0000 0A5A	190* 1229
STIMXT	0000 1646	1259*
STSTB.1	0000 1A9A	1682* 1694 1696 1699 1729
STSTB.1A	0000 1AA0	1684* 1705
STSTB.2	0000 1AA8	1680 1687*
STSTB.3	0000 1ABA	1690 1692*
STSTB.4	0000 1AD4	1701* 1737
STSTB.4B	0000 1AF2	1721*
STSTB.5	0000 1AFC	1692 1725*
STSTB.6	0000 1B0A	1727 1730* 1736
STSTB.7	0000 1B10	1732* 1733
STSTDU.1	0000 1B32	1744 1746*
STSTOP.1	0000 0BE4	330* 344
STSTOP.3	0000 0BFE	337 340*
STSTOP.4	0000 0C00	339 341*
STSTOP.5	0000 0C0E	324 342 346*
SVALU1	0000 0C0A	66* 222 238 346 358 367 373 385 387 400 414 433 449 470 482 494 501 514 527 553 561 572 574 587 595 623 632 640 650 656 662 670 678 698 700 713 792 803 812 825 839 870 907 950 2408 2412 2422 2423 2425 2432 2434 2446 2447 2451 2454 2456 2460 2473 2563 2627 2645 2729 2730 2744 2825 2954 3018 3042 3071 3138 3140 3142 3148 3150 3166 3177 3215 3238 3271 3278 3283 3316 3356 3371 3397 3421 3444 3451 3495 3626 3708 3717 3726 3735 3744 3753 3762 3771 3780 3801 3810 3819 3828 3837 3846 3855 3864 3873 3892 3924 3943 3979 4103 4116 4117 4120 4152 4153 4154 4167 4211 4326 4338 4341 4345 4378 4379 4385 4433 4515 4541 4543 4548 4580 4622 4626 4629 4661 4695 4737 4782 4794 4822 4866 5043 5048 5255 5280 5369 5376 5381 5387 5408 5447 5470 5496 5526 5529 5993 5997 6004 6005 6007 6050 6141 6142 6143 6263 6270 6272 6283 6392 6394 6446 6508 6620 6625 6858 7104 7110 7115 7164 7176 7209 7219 7511 7515 7519 7522 7526 7561 7580 7588 7623 7663 7737 7741 7745 7748 7780 7782 7783 7869 7873 7880 7885 7921 7922 7929 7984 8000 8004 8290 8297 8304 8351 8385 8389 8418 8463 8506 8548 8667 8794 8821
SVALU2	0000 000C	67* 347 386 388 394 406 573 575 581 593 668 699 701 707 719 808 816 827 867 2335 2817 2833 8002
SWASDU	0000 1E58	217 961 976 1444 1758 1760 2161 2242*
SXI1	0000 1CBE	1967* 1972
SXI2	0000 1CCE	1970 1973*
SXI32	0000 1C9E	115 1951* 5855 5925 6087 6162 6222
SXI32CH	0000 1C9E	115* 1829
.A	0000 00C1	2343 2363*
.B	0000 00C2	2341 2364*
.C	0000 00C3	2340 2342 2356 2365*
.D	0000 00C4	2343 2344 2345 2346 2347 2348 2349 2366*
.E	0000 00C5	2338 2344 2349 2356 2358 2367*
.F	0000 00C6	2350 2351 2351 2368*
.I	0000 00C9	2345 2350 2351 2352 2359 2369*
.L	0000 00CC	2339 2350 2353 2370*

SYMBOL TABLE & CROSS REFERENCE LIST

.M	0000	00CD	2342	2348	2359	2371*									
.N	0000	00CE	2344	2352	2353	2372*									
.O	0000	00CF	2339	2339	2340	2342	2353	2354	2355	2373*					
.P	0000	00D0	2348	2354	2355	2374*									
.R	0000	00D2	2345	2346	2347	2355	2356	2357	2360	2375*					
.S	0000	00D3	2346	2358	2376*										
.T	0000	00D4	2338	2343	2347	2349	2352	2354	2359	2360	2377*				
.U	0000	00D5	2348	2357	2378*										
.V	0000	00D6	2346	2347	2379*										
.X	0000	00D8	2349	2380*											
.Y	0000	00D9	2341	2381*											
@PRINT	0000	17F4	845	994	1370	1375	1418	1433*							
ABORT	0000	1358	945*	3146	4699	5259	7993	8332	8560						
ABSTOP	0002	89D0	885												
ADC	0000	0004	119	202	744	769	1066	1067	1069	1093	1135	1152	1168	1169	1172	1175
			1176	1187	1275	1315	1329	1403	1404	1424	1427	1428	1430	1708	1825	1837
			1844	1851	1867	1937	1984	2006	2044	2084	2116	2121	2133	2138	2145	2171
			2185	2189	8799	8830	8831	8846								
AMSG	0000	1F40	239	2287*												
ASCIDEV	0000	1ECB	1122	2269*												
ASCIDEV2	0000	1EDA	1105	2273*												
ASCILOC	0000	1F11	1158	2281*												
ASCIMAW	0000	1EFA	2200	2277*												
ASCIMSW	0000	1EE7	2181	2275*												
ASCIPSW	0000	1F05	1141	2279*												
ASCISTA	0000	1ED3	1114	1127	2271*											
BASE	0000	8420	5908	6076	6127	8912*										
BOARDMSG	0000	83F0	8773	8791	8891*											
BRK.SAV	0000	1E6C	2250*													
BRKMSG	0000	1F42	1506	2288*												
BRKVECT	0000	1E48	1683	1709	1710	2234*										
BTESTNO	0000	1E5E	893	894	898	922	2245*									
BUFFZ	0000	8446	2852	8924*												
BUFSAV	0000	7090	7181*													
BYMSG0	0000	1F9C	534	546	2296*											
BYRD	0000	83CC	8125	8859*	8860											
BYSAV	0000	8404	237	374	8897*											
BYTE.1	0000	0C56	371	373*												
BYTE.CMD	0000	0C52	300	372*												
BYTE.DEF	0000	0C4C	300	370*												
BYTES	0000	2002	238	373	449	482	2311*	2422	2446	2447	2451	2729	3177	3215	3238	3278
			3283	3316	3371	3397	3421	3451	4120	4154	4345	4385	4433	4548	4580	4629
			4661	4737	4782	4794	4822	4866	5048	5280	5381	5387	5408	5447	5470	5496
			5529	6007	6050	6143	6283	6446	7219	7519	7580	7623	7748	7783	7880	7929
			8385	8506												
C300ADR	0000	0A1E	141*													
CAR2ND	0000	0A42	172*													
CARRD	0000	0A40	171*													
CARRQ2S	0000	0A4C	181*													
CBYRD	0000	7C60	7246	8125*												
CCLEAR	0000	7B9A	472	2478	2657	3147	3173	3367	4118	4156	4343	5144	5192	5218	5277	5443
			5472	5607	5642	5674	5706	5783	6006	6274	7218	7243	7461	7532	7746	7788
			8011	8016	8035*	8314	8742									

SYMBOL TABLE & CROSS REFERENCE LIST

```
CDENS     0000 7BD2          3176  3358  3601  4119  4221  4254  4344  4559  4640  4717  4749  4834  5042  5278
                             5444  5608  5643  5675  5707  5784  6018  6282  6634  6739  6870  7227  7557  7747
                             7789  8062* 8743
CDISARM   0000 7CCA          5609  5693  5722  5768  5806  6002  6054  6190  6262  6310  6415  6490  6521  7417
                             7445  8209* 8317
CDISBLE   0000 7CD6          5644  6161  8219*
CDRC.1    0000 7BAE          8044* 8049
CDRCLR    0000 7BA0          2479  8041* 8316  8337
CENBLE    0000 7CD0          5624  5656  5682  5713  5734  5749  5789  5812  6017  6062  6125  6174  6192  6277
                             5344  6400  6475  7422  8214*
CERGAP    0000 4892          4239  4471* 6871
CEXTD     0000 7CDC          6947  7039  8224* 8441
CGAPLS    0000 7CEE          6895  8239*
CGO       0000 7C86          3187  3293  4227  4260  4356  4724  4756  4841  5291  5457  6313  6642  6911  6931
                             7581  7799  8154*
CGOREAD   0000 7C98          3217  3318  4284  4387  4796  4881  5480  6416  6678  7006  7624  7931  8168*
CLIF2ND   0000 0A3A           168*
CLIFADR   0000 0A16           137*
CLIFRD    0000 0A38           167*
CLR.1     0000 7E28          8370* 8373
CLRBUF    0000 7E18          2760  3466  4277  4934  5392  6669  7617  7662  7884  8364* 8510
CMDCLR    0000 83CA          8035  8857* 8858
CNOP0     0000 7CAA          3628  6705  6711  6757  6781  6803  8184* 8627  8656  8703
CNOP0.0   0000 7CAE          8185* 8190  8195  8200  8205
CNOP1     0000 7CB2          3701  8189* 8707
CNOP2     0000 7CB8          3794  8194* 8711
CNOP3     0000 7CBE          3890  4169  5179  8199* 8550  8715
CNOP4     0000 7CC4          8204* 8719
COM.0     0000 0C78           378   384*
COM.1     0000 0CCA           390   396   402   407*
COM.CMD   0000 0C68           301   379*
COM.DEF   0000 0C64           301   377*
COMERMS0  0000 8632          8633  8639  8648  8661  8680  8688  8694  8956*
COMERMS1  0000 865E          8635  8957*
COMERMS2  0000 867A          8641  8958*
COMERMS3  0000 869C          8650  8959*
COMERMS4  0000 86C0          8663  8960*
COMERMS5  0000 86E0          8682  8961*
COMERMS6  0000 86FE          8690  8962*
COMERMS7  0000 8718          8696  8963*
COMERMS8  0000 8734          8533  8964*
COMM      0000 1D90          2111  2119  2130  2144*
COMMAND   0000 2010           385   386   387   388   394   400   406   801  2312*  8004
CON2ND    0000 0A30           162*  163  1649
CONCMD    0000 0A32           164*  1636  1646  1648  1811
CONENRD   0000 0A31           163*  1797
CONRADR   0000 0A2A           157*  1643  1687  1783  1796  1959
CONRD     0000 0A2E           160*   161  1647  1658  1784
CONRQ2S   0000 0A48           177*  1630  1651  1652  1662  1789  1800
CONT.1    0000 0C44           363   367*
CONT.CMD  0000 0C3A           299   364*
CONT.DEF  0000 0C36           299   362*
CONTIN    0000 1FF4           367   950  2310*  2454
```

SYMBOL TABLE & CROSS REFERENCE LIST

CONTMSG	0000	8596 2471 2486 2496 2579 2587 2595 2603 2671 2795 2986 3002 3015 3067 3254 3326 3391 3435 3492 3611 3635 4177 4193 4316 4415 4452 4963 5094 5160 5187 5251 5432 5515 5665 5946 6026 6214 6247 6302 6701 6714 6999 7100 7278 7323 7353 7435 8089 8431 8486 8584 8951*
CONWADR	0000	0A2C 158* 1581 1645 1921
CONWRT	0000	0A2F 161* 1582 1924
COUNT	0000	1E60 900 932 934 2246*
CRDBACK	0000	5808 5394 5474 5554*
CRDC.0	0000	7BA4 8036 8042* 8136 8185
CRDC.2	0000	7BC4 8046 8051*
CREAD	0000	7C5A 484 2761 2989 3076 3211 3312 3399 3467 4157 4181 4279 4381 4403 4593 4669 4790 4875 5075 5163 5202 5224 5754 5874 6149 6227 6401 6477 6673 6720 7002 7247 7620 7688 7887 7926 8120*
CREW	0000	7C92 3394 5736 5858 6128 6377 7543 7599 7674 8163* 8575
CRLF	0000	1782 214 229 451 453 879 1396* 2163
CRLFMSG	0000	1F60 1606 2292*
CRT2ND	0000	0A36 166*
CRTRD	0000	0A34 165*
CRTRQ2S	0000	0A49 178*
CSKBB	0000	7C7A 5219 5220 5221 5241 5959 6987 6988 8145*
CSKBF	0000	7C74 5199 5200 5242 5243 5466 5489 6657 8140*
CSKFB	0000	7C66 478 3888 5073 5201 5972 8130*
CSKFF	0000	7C54 5146 5194 5195 5239 5240 8115*
CSTOP	0000	7C9E 2413 2414 3162 3163 3269 3270 3307 3308 3330 3331 4208 4209 4335 4336 4705 4706 4778 4779 4819 4820 4863 4864 4919 5038 5039 5365 5366 5441 5442 5493 5494 5542 6265 6266 6372 6373 6621 6622 6662 6663 6899 6900 6906 6907 6924 6925 6952 6968 6969 7021 7022 7038 7044 7058 7059 7127 7516 7518 7571 7572 7586 7587 7629 7630 7804 7805 7936 7937 7950 8173* 8299 8300 8398 8411 8446
CSTOPS	0000	7CA4 8179* 8412
CTESTMDE	0000	7C8C 2749 2972 3039 3286 3455 7530 8159*
CUNLD	0000	7CE2 7466 8229*
CWREOF	0000	7C6C 3602 4138 4369 5056 5063 5265 5270 6102 6345 8135*
CWREOF.0	0000	7C70 8116 8131 8136* 8141 8146
CWRITE	0000	7C80 2750 2973 3048 3181 3287 3369 3456 4125 4222 4255 4350 4532 4560 4641 4718 4750 4835 5284 5451 5683 5714 5793 6019 6287 6635 6740 6773 6795 6902 7232 7577 7652 7753 7794 8150* 8747
CWRODBY	0000	7CE8 3180 3375 4124 4348 4531 4556 4637 4714 4746 4831 5283 5450 6011 6286 6772 7231 7560 7752 7793 8234* 8746
D.ERR	0000	4814 4437 4446*
D0	0000	0D32 441* 491
D0.0	0000	0D34 442* 464
D1	0000	0D36 443* 462
D2	0000	0D48 447 449*
D2.1	0000	0D56 450 453*
D3	0000	0D66 456 458*
DAT.1	0000	47F4 4434* 4442
DAT.MISS	0000	5F42 6202 6208*
DATA	0000	202C 414 2314* 2744 2954 3018 3166 3271 3356 3444 3495 4541 4543 4622 4626 5376 5993 6626 7209 7522 7737 7869
DATA.1	0000	0CDA 412 414*
DATA.CMD	0000	0CD6 302 413*
DATA.DEF	0000	0CD2 302 411*

SYMBOL TABLE & CROSS REFERENCE LIST

DATAPAT 0000 8424 2747 2777 2959 2960 3171 3172 3276 3277 3361 3362 3449 3450 4711 4712
5377 5380 5405 5606 5635 5660 5996 6197 6271 6444 6629 6630 7212 7259
7358 7525 7632 7740 7781 7872 8913*
DATCOMP 0000 47E2 4400 4429*
DATCOMP2 0000 5F24 6199* 6206
DBASE 0000 708C 7162 7180*
DECASC 0000 16A8 1312*
DECFLG 0000 840E 4527 4528 4709 4949 8902*
DECHEX 0000 10DF 730*
DECHEX1 0000 1120 753*
DECTAB 0000 1E74 739 1317 2254*
DEFTESTS 0000 21EE 321 322 2394*
DENS.0 0000 0CFA 422 425*
DENS.1 0000 0D04 426 429*
DENS.CMD 0000 0CEC 303 420*
DENS.DEF 0000 0CE2 303 417*
DENSEITY 0000 83E4 2504 8063 8882* 8883
DENSFLAG 0000 840C 220 432 2503 4215 4248 4270 4295 8062 8901*
DENSITY 0000 203A 222 433 2315*
DEVINT 0000 21E5 1973 2387* 3184 3214 3290 3315 4225 4258 4282 4353 4384 4721 4753 4793
4838 4878 5288 5454 5477 5611 5637 5646 5655 5679 5712 5731 5748 5791
5854 5870 5954 5970 6016 6100 6124 6155 6225 6276 6312 6342 6375 6398
6414 6474 6511 6637 6672 7421 7579 7622 7796 7928 8303
DEVMSG 0000 1EC7 1128 2268* 2269 2270 2271
DEVMSG2 0000 1ED6 1106 2272* 2273
DEVOFF 0000 887A 508 510 8984*
DEVSADR 0000 21E0 1967 2384* 6507 6509 8301
DISABLE 0000 83E0 8219 8879* 8880
DISARM 0000 83E1 8209 8880*
DISPLAY 0000 13F8 936 1001*
DRIV.0 0000 1084 691 697*
DRIV.CMD 0000 1074 304 692*
DRIV.DEF 0000 106E 304 690*
DRIVE 0000 2048 698 699 700 701 707 713 719 797 2316* 2408 2563 2817 2825 2833
7511 7994 8290
DRIVE.1 0000 10D6 703 709 715 720*
DRIVEMSG 0000 854C 8312 8949*
DRIVMSG 0000 852A 2669 7478 8538 8948*
DRIVSAV 0000 8408 439 471 2409 2467 2564 2610 2647 2805 2819 2827 2835 2866 3112 3990
5102 5992 6031 7175 7296 7512 7619 7985 8291 8350 8555 8665 8899*
DRIVSAV1 0000 840A 2411 2515 2566 2800 2814 2821 2829 2837 2841 3510 4001 4462 4990 5307
5546 6525 6812 7184 7376 7482 7514 7644 7826 7959 7987 8293 8900*
DRVCLR 0000 83D5 8041 8868*
DRVS.00 0000 0EF6 565 571*
DRVS.1 0000 0F48 577 583 589 594*
DRVS.1A 0000 0F4A 595* 609 615
DRVS.1AA 0000 0F88 610* 613
DRVS.1B 0000 0F92 611 614*
DRVS.CMD 0000 0ED6 305 566*
DRVS.DEF 0000 0EE0 305 564*
DRVSMSG 0000 1F62 599 603 605 2294*
DRVSTAT 0000 2064 572 573 574 575 581 587 593 595 799 2318*
DRVT.1 0000 0ED8 557 561*

SYMBOL TABLE & CROSS REFERENCE LIST

```
DRVT.CMD   0000 0ECE    306   558*
DRVT.DEF   0000 0ECA    306   556*
DRVTYPE    0000 2080    514   561  2320*  3626  3708  3717  3726  3735  3744  3753  3762  3771  3780  3801
                       3810  3819  3828   3837  3846  3855  3864  3873  3892  3924  3943  3979  4167  8548
                       8667
DSB0       0000 8774   8705  8968*
DSB1       0000 8780   8709  8969*
DSB2       0000 878C   8713  8970*
DSB3       0000 8798   8717  8971*
DSB4MSG    0000 87A4    518  8673  8721  8972*
DSBMSG     0000 875A    516   521  8343  8967*
DSBMSG0    0000 874E   8669  8671  8701  8966*
DUMP       0000 208E    470  2321*
DUMP.2     0000 0DB8    440   475   477   481*
DUMP.2A    0000 0DC6    485*  489
DUMP.CMD   0000 0D7E    307   466*
DUMP.DEF   0000 0D1A    307   436*
DUMP.END   0000 0DDE    437   438   467   468   491*
DUMPC1     0000 0DAE    478*  480
DW.0       0000 82A0   5614  5648  8745  8747*
DW.1       0000 82A8   5694  5723  8749*  8752
DW.1A      0000 596C   5678  5691*
DW.2       0000 82AE   8753*  8762
DW.3       0000 82C0   8758*
DWRITE     0000 828E   5052  5055  5059  5062  5383  8741*
EGAP       0000 83D7   4471  8870*
ENABLE     0000 83DD   8214  8876*
ENDBUF     0000 84D8   2759  3465  4276  4916  4933  5391  5406  5495  5534  6668  6888  6955  6960  6979
                       7026  7030  7047  7575  7616  7661  7883  8254  8255  8273  8274  8367  8401  8449
                       8478  8509  8934*
ENDBUF2    0000 84EC   6892  6957  6959  8263  8264  8939*
EOTMSG     0000 1F2F    956  2284*
ERMSGA     0000 85F0   2491  8954*
ERMSGAA    0000 801A   8460  8493*
ERMSGB     0000 8612   2500  8955*
ERMSGBA    0000 802C   8458  8494*
ERR        0000 1434   1026*  2164
ERR.FLG    0000 8400    883  8778  8785  8812  8816  8823  8895*
ERR1       0000 1510   1070  1094*
ERRALL     0000 149C   1052*  2028
ERRBIT     0000 882C   8340  8979*
ERRCOM     0000 14B4   1027  1031  1036  1041  1048  1053  1060*
ERRCOM1    0000 14E2   1028  1033  1038  1044  1050  1056  1074*
ERRCOM2    0000 1502   1079  1084*
ERRD       0000 1444   1030*
ERRD1      0000 1520   1032  1042  1101*
ERRDEV     0000 1E32   1103  1121  2217*
ERRDS      0000 146C   1040*
ERRDS1     0000 1550   1054  1119*
ERRL       0000 1484   1046*
ERRL1      0000 1594   1049  1148*
ERRL1A     0000 15A6   1158*
ERRLVL     0000 1F2D   2025  2283*
```

SYMBOL TABLE & CROSS REFERENCE LIST

ERRMESS8	0000 7EEE	8425	8428	8435*											
ERRMSG	0000 1EA2	1096	2263*	2264	2265										
ERRMSG8	0000 7ECE	8417	8420	8434*											
ERRMSG9	0000 7FAA	8464	8467	8489*											
ERRNO	0000 1FAA	2023	2030	2154	2165	2265*									
ERROR	0000 82D0	8670	8774*												
ERROR.1	0000 8304	8779	8789*												
ERROR.1A	0000 8316	8792	8794*												
ERRORX	0000 82CC	2472	2487	2497	2580	2588	2596	2604	2640	2670	2796	2987	3003	3016	3068
		3198	3228	3255	3304	3327	3392	3436	3493	3612	3636	4178	4194	4317	4330
		4416	4453	4964	4987	5095	5161	5188	5252	5433	5516	5666	5947	6027	6215
		6248	6303	6470	6702	6715	7000	7101	7279	7324	7354	7436	7479	8090	8313
		8345	8432	8487	8539	8585	8773*								
ERRPL1	0000 1578	1055	1132*	2167											
ERRPL1A	0000 1586	1141*													
ERRPL1B	0000 159E	1144	1150*												
ERRS	0000 1458	1035*													
ERRS1	0000 1538	1037	1043	1110*											
ERRSAVE	0000 8990	1060	1084	1340	1376	1405	1423	2609	2615	2862	2877	3104	3128	3189	3195
		3219	3225	3987	3997	5097	5118	6029	6040	6292	6298	6316	6321	7270	7272
		7309	7311	7313	7321	7345	7347	7372	7374	8415	8427	8451	8466	8471	8484
		8699	8723	8775	8811	8833	8847	8848	8996*						
ERRSTA	0000 1E34	1112	1125	2219*											
ET.005A	0000 2DE6	3179	3181*												
ET.1	0000 268E	2696*	2705												
ET.3	0000 2688	2701	2706*												
ET.D	0000 2EF4	3240*	3247												
ETESTNO	0000 1EA8	1064	2264*												
EXTD.0	0000 0E2A	505	513*												
EXTD.00	0000 0E00	495	502*												
EXTD.0A	0000 0E50	515	521*												
EXTD.1	0000 0E76	529*	533												
EXTD.CMD	0000 0DEC	308	496*												
EXTD.DEF	0000 0DE2	308	493*												
EXTDMSG2	0000 1F8A	523	2295*												
EXTDRVS	0000 209C	494	501	527	2322*										
EXTEND	0000 83EC	8224	8889*												
FAILMSG	0000 8506	8781	8946*												
FIF.1	0000 0FAC	619	623*												
FIF.CMD	0000 0FA2	310	620*												
FIF.DEF	0000 0F9E	310	618*												
FIFO	0000 20B8	623	2324*	2434	2730	3042	3071								
FILE.1	0000 0EC2	551	553*												
FILE.CMD	0000 0EBE	309	552*												
FILE.DEF	0000 0EBA	309	550*												
FILES	0000 20AA	553	2323*	4116	4152	4338	4378	6004	6141	6270	6392				
FILSAV	0000 844C	6278	6281	8927*											
FIRSTMSG	0000 83F4	8774	8789	8892*											
FORMMSG	0000 8576	8344	8950*												
GAPLEN	0000 8418	4217	4250	4272	4297	8907*									
GAPLSS	0000 83DF	6893	8878*												
GETCHR	0000 1938	1555*													
GO	0000 83E8	8154	8885*	8886											

SYMBOL TABLE & CROSS REFERENCE LIST

```
GOREAD    0000 83E9   8168  8886*
HALT9     0000 1394    218   964*  970  1083  1445
HEXASC    0000 1680    509   540   600   604   805   810   814   818   831   842   911   988   991  1123
                      1143  1159  1171  1294* 1359  1414  2182  2202  2469  2613  2637  2869  2873  2876
                      2910  3111  3115  3120  3124  3127  3194  3224  3300  3324  3992  3996  5104  5108
                      5111  5114  5117  6035  6039  6297  6320  6423  7172  7317  7320  8421  8426  8465
                      8476  8480  8483  8557  8702  8730  8841
HEXTAB    0000 1E88   1199  1301  1326  2024  2256*
IMPTOP    0000 0000:I
INCR      0000 1E36   1003  2221*
INDEX     0000 8414   2407  2791  3011  3109  3250  3345  3428  3488  4312  4446  4959  4982  5426  5511
                      5942  6210  6465  7096  7273  8905*
INIT      0000 2276    887  2405*
INIT.00A  0000 22A6  2415*  2517
INIT.00B  0000 2388   2463  2465  2473*
INIT.00C  0000 239C   2476  2478*
INIT.00D  0000 23CE   2482  2488*
INIT.01A  0000 22E8   2424  2432*
INIT.02A  0000 22F0   2426  2434*
INIT.0A   0000 2400   2490  2498*
INIT.0A1  0000 2316   2431  2440  2445*
INIT.0AA  0000 2308   2435  2441*
INIT.0B   0000 2320   2428  2433  2437  2442  2447*
INIT.0B1  0000 233A   2449  2454*
INIT.10A  0000 2352   2455  2458  2461*
INIT.1A   0000 2410   2474  2499  2502*
INIT.1AA  0000 241E  2505*  2511
INIT.20   0000 243E   2416  2417  2514*
INITER1   0000 23EC  2494*  2501
INITRET   0000 12CC    888*
INT.1     0000 0FC2    627   631*
INT.CMD   0000 0FB8    311   628*
INT.DEF   0000 0FB4    311   626*
INTDEV    0000 1E32   1956  2216*  2217
INTLEVEL  0000 20C6    632  2325*
INTLVL    0000 21EC    631  1978  2390*
INTLVLM   0000 1F18   2035  2282*  2283
INTPSW    0000 1E28   1952  2212*
INTRSET   0000 62AE   5595  6506*  6624  6856  7416
INTSTA    0000 1E34   1957  2218*  2219
IO        0000 0A10    133*  850  1578  1619  1620  1628  1629  1635  1642  1644  1688  1743  1769  1777
                      1810  1912
IOSAVE    0000 1E4C    766   849  1484  1512  1742  1770  1778  1808  2236*
ISITERR   0000 1E4E    206   231   901   920  1065  1075  1447  1500  1722  2033  2155  2166  2237*
IT.1      0000 7D9C   8308  8314*
IT.2      0000 7DF0   8321  8327  8334*
IT.3      0000 7DC2  8325*
IT.B1     0000 7D58   2803  3513  4004  4465  4993  5310  5549  6528  6719  6737  6770  6793  6815  7187
                      7379  7485  8294*
IT.B2     0000 7D78   8298  8304*
IT.C      0000 7D88   2477  3605  7464  8309*  8315  8596
KBINT     0000 1E46   1930  2232*
KBINTO    0000 1C60   1908*  1961
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SYMBOL TABLE & CROSS REFERENCE LIST

KBINT2 0000 1C7A 1914 1920*
KBINT2A 0000 1C86 1924* 1926
KBINT2B 0000 1C8A 1923 1925*
KBINT3 0000 1C94 1919 1930*
KBRD 0000 1B9A 1795* 2518
KBRD1 0000 1BB2 1799 1801*
KBREAD 0000 1B7E 1574 1783*
L.5A 0000 3114 3382 3384*
LADC 0000 0002 923 1314
LC.1 0000 76CE 7567* 7570
LC.20 0000 77AA 7621 7627*
LC.4 0000 770A 7578 7584*
LCOPE 0000 1BD0 211 877 1817* 7271 7310 7346 7373
LENASC 0000 2ABC 2905* 4960 4983
LENSAV 0000 844A 2908 4600 4646 4676 4751 4800 4884 4917 8926*
LEVELA.1 0000 0D0C 419 424 428 432*
LIMMSG 0000 850C 8840 8842 8947*
LNZB 0000 8891 8985*
LOCMSG 0000 1F0D 1149 2280*
LOOP 0000 1FE6 358 2309*
LOOP.1 0000 0C28 354 358*
LOOP.CMD 0000 0C1E 298 355*
LOOP.DEF 0000 0C1A 298 353*
LOOP.IT 0000 83B8 8788 8835 8846*
LOOP.OPT 0000 8402 359 8784 8825 8896*
LOOP2 0000 836E 519 524 547 606 2445 2453 2614 2741 2863 2865 3063 3092 3105 3107
3145 3190 3220 3320 3954 3966 3969 3973 3988 4189 4409 4698 5098 5100
5258 6030 6293 7107 7113 7119 7174 7224 7307 7312 7327 7332 7336 7459
7992 8331 8341 8416 8422 8452 8461 8470 8532 8559 8634 8640 8649 8662
8664 8672 8681 8689 8695 8782 8790 8793 8818 8821*
LOOPEXIT 0000 83BA 8808 8847*
LOOPOUT 0000 82FC 8787* 8819
LOOPTOP 0000 838C 436 466 2415 2569 2624 2642 2726 2968 3035 3159 3266 3363 3441 3595
3618 3698 3791 3884 3976 4110 4205 4323 4332 4522 4575 4618 4657 4692
4701 4775 4816 4860 5035 5362 5590 5620 5631 5671 5703 5727 5762 5780
5850 5999 6120 6259 6369 6617 6659 6734 6767 6790 6896 6965 7214 7239
7281 7413 7446 8830*
LP.3 0000 315C 3400* 3404
LPADR 0000 0A1A 139*
LPWRT 0000 0A3C 169*
M.CHK1 0000 7008 7137* 7140
M.CHK2 0000 7042 7148 7157*
M.CHK3 0000 702E 7149* 7152
MATCH 0000 0AF0 250* 860
MATCH.01 0000 0AFA 253* 268
MATCH.02 0000 0B04 257* 265 274
MATCH.03 0000 0B20 266* 283
MATCH.04 0000 0B22 267* 271
MATCH.05 0000 0B30 262 273*
MATCH.06 0000 0B36 275* 279
MATCH.07 0000 0B42 276 280*
MATCH.08 0000 0B50 284* 288
MATCH.09 0000 0B5E 261 286 290*

SYMBOL TABLE & CROSS REFERENCE LIST

```
MAXTST    0000 2234          331   2397*
MEM.INT   0000 703C         7131   7154*
MEMCHK    0000 6FEC         6853   7130*
MESS3.0   0000 35E8         2909   3542*  4962   4985
MESSAGA   0000 245C         2444   2522*  2740
MESSAGAA  0000 247E         2430   2439   2523*  2735
MESSAGAB  0000 249E         2452   2524*
MESSAGE1  0000 2A4C         2495   2665   2868   2893*  2985   3001   3066   3390   3610   4176   4192   4414   5250   6246
                            6700   6998   7352   7434   7477   8088   8537
MESSAGE2  0000 2A58         2872   2894*
MESSAGE3  0000 2A6C         2875   2895*
MESSAGE4  0000 361C         3123   3546*
MESSAGE5  0000 3630         3126   3547*
MESSAGE9  0000 7FD2         8475   8485   8490*
MESSAGEA  0000 7FE6         8479   8491*
MESSAGEB  0000 8000         8482   8492*
MESSG3A   0000 35F6         2794   3014   3114   3253   3434   3491   3543*  4315   4451   5431   5514   5945   6213   6468
                            7099   7277
MESSG3B   0000 3602         3119   3544*
MESSG3C   0000 360E         3110   3545*
MICROBUS  0000 0A22          143*
MISSED    0000 2EFE         3243   3248*
MMAWMSG   0000 1EF0         2204   2276*  2277
MMSW      0000 1E2C         2063   2066   2070   2178   2213*
MMSWMSG   0000 1EDE         2184   2274*  2275
MOD32     0000 1E30          208   2215*
MREADC    0000 0A44          173*  1915
MTESTNO   0000 1E9E          910   1063   2261*
NEWLIM    0000 833A         8801   8804*
NEWPSW    0000 1E20          925    926   2211*
NEXTSEQ   0000 8342         8786   8806*  8814
NOBOT     0000 87B0         8328   8974*
NOERMSG   0000 1EBE          960   2267*
NOERR     0000 1E50         2238*
NOP0      0000 83D0         8184   8853*  8864
NOP1      0000 83D1         8189   8864*
NOP2      0000 83D2         8194   8865*  8866
NOP3      0000 83D3         8199   8866*
NOP4      0000 83D4         8204   8867*  8868
NORM      0000 1E35         1013   2220*
NOSEL     0000 6B20         3144   6818*  7118
NOSELCH   0000 85D4         4328   4697   5257   6518   7106   8953*
NST       0000 4840         4456   4458*
NULLMSG   0000 1F5C          979   1397   2291*  2292
OCR       0000 7B96         2421   8005   8029*
OLDPSW    0000 1E18         1047   1133   1150   1958   2012   2152   2210*
ONL.1     0000 0FDC          636    640*
ONL.CMD   0000 0FD2          312    637*
ONL.DEF   0000 0FCE          312    635*
ONLINO    0000 8868         7112   8983*
ONLINE    0000 20D4          640   2326*  2425   2432   2473   2645   3138   7110   7526   7588   7663   8304
OPT       0000 1FD8          777   2307*
OPT.2A    0000 118E          791    796*
```

SYMBOL TABLE & CROSS REFERENCE LIST

```
OPT.2BB     0000 11A4          798    800    803*
OPT.2C      0000 1200          802    823*
OPT.3A      0000 1230          841*
OPT.3B      0000 1242          822    834    845*
OPT.PROC    0000 0B70          291    294    297*
OPT.TAB     0000 2146          251   2338*
OPTEND      0000 2128         2333*
OPTEND2     0000 2128          847   2332*
OPTIN       0000 0AB4          227*  1591   1593   2192   2205
OPTIN1      0000 0ABC          230*   348    360    368    375    409    415    434    452    512    520    548    554    562
                               596    616    624    633    641    651    657    663    671    679    722    848    858    962
                              1507   1671   2036   2169   8795   8844
OPTION      0000 2128          767    770   2334*  2335
OPTPOINT    0000 83F8         8787   8798   8806   8832   8893*
OPTRTN      0000 114E          768    777*
OPTVAL      0000 15FC          330    381    391    397    403    498    568    578    584    590    684    694    704    710
                               716    761   1186*
ORIGIN      0000 0A00          108*   117
ORIGIN1     0000 0A00          109    118*
ORIGIN2     0000 0A04          124*
OUT.SAV     0000 1E68         1511   1548   2249*
OUTCHR      0000 18C4          240    242    458   1455   1457   1471   1492   1494   1511*
PASLADR     0000 0A12          135*  1747
PASS        0000 834E         2512   2599   2629   2633   2646   2719   2787   3025   3087   3499   3506   3603   3638   3641
                              3689   3704   3779   3797   3872   3955   3967   3970   3974   3980   3983   4197   4305   4327
                              4397   4419   4569   4605   4610   4651   4683   4769   4810   4854   4893   5245   5419   5507
                              5615   5625   5654   5695   5747   5774   5842   5969   6091   6113   6194   6253   6337   6362
                              6502   6761   6785   6807   6956   6958   7071   7076   7237   7268   7368   7440   7460   7471
                              8811*
PASSMSG     0000 8500         8817   8945*
PAT.1       0000 2F28         3246   3256*
PATCHK      0000 32C0         3256   3341   3425   3484   3494*
PATCHK.1    0000 32D8         3496   3502*
PRINT       0000 1802          511    517    522   1162   1178   1420   1437*  6868   7424   7450   8822   8828   8843
PRO.1       0000 0FF8          644    647    650*
PRO.CMD     0000 0FE8          314    645*
PRO.DEF     0000 0FE4          314    643*
PROCBED     0000 20B2          650   2327*  8794   8821
PROLIM      0000 83A0         8838*
PSW         0000 0A50          185*
PSW2        0000 0A52          186*   194    230    930   1061   1982   2026   2076   2156   2418   5661   5691   5720   5741
                              5765   5796   5829   5843   5990   6379   6418   6479   6515   6644   6648   6680   6686   6914
                              6943   7009   7035   7054   7155
PSW3        0000 0A54          187*   921   5600   5676   5708   5732   5750   5787   5801   5821   5835   5863   5885   5896
                              5916   5966   6013   6046   6070   6084   6108   6136   6157   6188   6236   6268   6308   6328
                              6353   6388   6409   6430   6486   6522   6638   6674   6903   6920   6935   6970   7017   7418
                              8295   8352
PSWMSG      0000 1F01         1142   2278*  2279   2280   2281
PSWSAVE     0000 8898         1866   8987*
PURETOP     0000 0000:P
PUTCHR      0000 175C         1382*
QMSG        0000 1F3C         1670   2236*
QUESTN      0000 1A7C          250   1668*
```

SYMBOL TABLE & CROSS REFERENCE LIST

R0 0000 0000

91* 205 206 207 208 212 213 219 220 221 222 233 234 235
237 238 418 423 427 431 432 506 514 536 598 730 731 742
753 782 783 796 819 820 827 828 829 832 833 840 843 844
849 850 852 853 867 870 872 880 881 882 883 884 885 886
892 893 909 919 920 931 947 948 957 961 969 975 976 977
985 992 993 1001 1003 1008 1012 1013 1015 1016 1060 1062 1063 1064
1065 1074 1075 1076 1084 1102 1111 1120 1124 1140 1157 1226 1231 1258
1265 1274 1275 1276 1284 1294 1295 1312 1313 1340 1341 1347 1361 1376
1396 1405 1413 1415 1416 1417 1421 1422 1423 1433 1438 1439 1440 1447
1532 1541 1542 1570 1575 1577 1635 1636 1639 1650 1741 1745 1750 1750
1758 1759 1760 1767 1768 1769 1770 1775 1776 1777 1778 1783 1784 1785
1789 1795 1796 1797 1800 1801 1810 1811 1818 1820 1821 1829 1831 1861
1862 1866 1887 1888 1889 1912 1913 1922 1953 2027 2064 2066 2073 2074
2077 2157 2180 2201 2406 2407 2410 2411 2422 2427 2436 2441 2447 2448
2450 2451 2456 2457 2459 2460 2466 2473 2492 2493 2515 2516 2565 2566
2609 2611 2615 2634 2645 2648 2649 2662 2563 2666 2667 2730 2763 2767
2770 2800 2801 2814 2815 2820 2821 2823 2828 2829 2831 2836 2837 2840
2841 2862 2867 2871 2877 2906 2907 2911 2981 2982 2997 2998 3010 3011
3018 3042 3071 3104 3108 3113 3116 3121 3128 3138 3140 3148 3183 3184
3185 3186 3189 3191 3195 3213 3214 3215 3216 3219 3221 3225 3278 3289
3290 3291 3292 3297 3314 3315 3316 3317 3321 3387 3388 3510 3511 3606
3607 3626 3708 3717 3726 3735 3744 3753 3762 3771 3780 3801 3810 3819
3828 3837 3846 3855 3864 3873 3892 3924 3943 3979 3987 3989 3994 3997
4001 4002 4167 4186 4187 4224 4225 4226 4257 4258 4259 4281 4282 4283
4352 4353 4354 4355 4383 4384 4385 4386 4411 4412 4429 4443 4462 4463
4526 4527 4627 4628 4708 4709 4720 4721 4722 4723 4752 4753 4754 4755
4792 4793 4794 4795 4837 4838 4839 4840 4877 4878 4879 4880 4904 4918
4929 4935 4949 4990 4991 5081 5082 5083 5084 5097 5101 5105 5118 5130
5131 5133 5135 5137 5140 5149 5150 5212 5213 5234 5235 5247 5248 5287
5288 5289 5290 5307 5308 5453 5454 5455 5456 5476 5477 5478 5479 5527
5541 5546 5547 5735 5743 5752 5767 5827 5837 5857 5865 5873 5908 5955
5968 5971 5997 6029 6033 6036 6040 6050 6051 6076 6086 6101 6110 6126
6127 6148 6226 6238 6243 6244 6292 6294 6298 6314 6316 6317 6321 6343
6376 6399 6420 6443 6460 6476 6525 6526 6640 6676 6812 6813 6912 6959
6960 6994 6995 7007 7169 7184 7185 7270 7272 7309 7311 7313 7314 7321
7345 7347 7348 7349 7372 7374 7375 7377 7420 7421 7431 7432 7442 7465
7467 7473 7474 7482 7483 7513 7514 7526 7534 7538 7544 7547 7550 7554
7561 7578 7579 7580 7588 7590 7594 7600 7603 7606 7610 7621 7622 7623
7644 7645 7663 7665 7669 7675 7678 7681 7685 7690 7693 7741 7757 7760
7769 7772 7795 7796 7797 7798 7806 7809 7816 7819 7826 7827 7873 7890
7893 7900 7903 7912 7915 7927 7928 7929 7930 7938 7941 7951 7954 7959
7960 7986 7987 8002 8003 8043 8048 8074 8082 8085 8086 8094 8101 8104
8252 8253 8271 8272 8292 8293 8304 8365 8374 8384 8388 8402 8415 8419
8424 8427 8451 8455 8456 8462 8466 8471 8472 8477 8484 8503 8511 8534
8535 8548 8554 8576 8579 8667 8699 8700 8723 8727 8728 8731 8775 8778
8784 8785 8794 8796 8800 8802 8811 8812 8815 8816 8821 8823 8825 8826
8833 8838 8848 8849

R1 0000 0001

92* 232 251 254 258 260 269 270 277 278 439 471 486 502
507 507 527 528 530 538 595 601 602 732 739 744 780 783
784 786 803 808 812 816 825 826 826 828 839 894 895 896
898 902 905 930 931 950 967 968 969 987 989 1005 1006 1006
1007 1007 1008 1009 1010 1010 1011 1011 1012 1061 1062 1077 1078 1080
1081 1103 1112 1121 1125 1134 1151 1227 1230 1298 1318 1320 1342 1348

SYMBOL TABLE & CROSS REFERENCE LIST

		1362	1363	1371	1407	1408	1409	1444	1512	1513	1515	1518	1520	1523	1524
		1525	1527	1530	1531	1532	1534	1536	1537	1539	1540	1544	1546	1619	1622
		1624	1628	1639	1640	1641	1642	1644	1646	1648	1650	1651	1742	1743	1746
		1747	1748	1752	1753	1755	1757	1759	1761	1761	1798	1801	1807	1808	1809
		1810	1811	1812	1813	1819	1820	1821	1822	1830	1831	1832	1860	1862	1863
		1954	1981	2026	2027	2076	2077	2083	2091	2156	2157	2161	2162	2178	2190
		2191	2193	2408	2409	2467	2563	2564	2610	2635	2647	2751	2772	2805	2817
		2819	2825	2827	2833	2835	2846	2852	2866	2870	2874	2908	2975	2991	3040
		3077	3109	3112	3118	3122	3125	3192	3222	3298	3322	3376	3401	3457	3470
		3990	3993	4126	4139	4471	4533	4561	4595	4642	4671	4930	4931	4932	4933
		5077	5102	5106	5109	5112	5115	5167	5204	5226	5397	5528	5531	5532	5536
		5538	5554	5596	5770	5807	5813	5883	5889	5913	5992	6031	6037	6055	6063
		6138	6159	6167	6295	6318	6330	6355	6390	6411	6421	6432	6488	6507	6650
		6688	6706	6741	6747	6758	6774	6782	6796	6804	6922	6937	7019	7056	7170
		7175	7233	7250	7315	7318	7511	7512	7613	7614	7615	7616	7619	7653	7696
		7754	7896	7984	7985	8029	8035	8041	8057	8063	8068	8075	8095	8115	8120
		8125	8130	8135	8140	8145	8150	8159	8163	8184	8189	8194	8199	8204	8209
		8214	8219	8229	8234	8239	8244	8290	8291	8350	8366	8370	8371	8372	8418
		8423	8463	8473	8474	8478	8481	8504	8505	8508	8509	8555	8665	8729	8750
		8776	8777	8839											
R10	0000 000A	101*	1951	1951	1952	1976	1977	1978	2024	2024	2025	2729	2732	2734	2737
		2739	2742	2743	2752	2754	2774	3177	3178	3185	3283	3284	3291	3453	3458
		3460	3472	4345	4346	4354	4530	4534	4548	4549	4551	4568	4580	4581	4583
		4609	4629	4631	4633	4634	4635	4639	4646	4650	4652	4661	4663	4665	4666
		4667	4676	4682	4684	4722	4953	5280	5281	5289	5447	5448	5455	5470	5478
		6053	6056	6198	6200	6203	6210	6453	6454	6464	6954	6955	6957	7046	7048
		7219	7220	7222	7225	7519	7520	7521	7528	7558	7569	7654	7656	7698	8448
		8449	8453	8481											
R11	0000 000B	102*	4547	4549	4552	4557	4568	4570	4579	4581	4584	4600	4609	4611	4630
		4631	4650	4662	4663	4682	4738	4739	4742	4751	4768	4770	4781	4783	4786
		4800	4809	4811	4823	4824	4853	4867	4868	4892	4951				
R12	0000 000C	103*	250	256	326	332	345	357	366	380	383	393	399	405	408
		430	497	500	560	567	570	580	586	592	622	630	639	649	677
		683	686	693	696	706	712	718	721	738	763	765	871	1068	1071
		1203	4338	4371	4378	4417	5596	5597	5598	5804	5826	5856	5888	5907	5926
		6049	6075	6088	6146	6163	6223								
R13	0000 000D	104*	1069	1072	1357	1360	1571	1572	1573	1600	1603	1610	1610	1612	2042
		2042	2063	2070	2071	6950	7042	8280	8352	8353	8444				
R14	0000 000E	105*	194	196	197	210	330	333	334	335	338	340	381	384	386
		387	388	391	397	403	472	478	484	485	490	498	503	529	568
		571	573	574	575	578	584	590	597	684	694	697	699	700	701
		704	710	716	761	906	921	925	952	954	1047	1070	1071	1072	1094
		1095	1101	1104	1110	1113	1119	1126	1132	1133	1134	1148	1150	1163	1164
		1168	1169	1170	1172	1175	1176	1177	1179	1180	1192	1197	1213	1406	1419
		1664	1676	1684	1687	1693	1697	1706	1707	1710	1725	1728	1730	1734	1817
		1835	1840	1842	1847	1849	1857	1859	1893	1896	1899	1901	1953	1958	1982
		1999	2043	2152	2158	2167	2413	2414	2419	2421	2461	2471	2478	2479	2480
		2484	2486	2494	2496	2572	2577	2579	2582	2585	2587	2590	2593	2595	2598
		2601	2603	2616	2631	2639	2657	2658	2664	2669	2671	2704	2748	2749	2750
		2761	2764	2793	2795	2806	2847	2853	2878	2971	2972	2973	2976	2984	2986
		2989	2990	2992	3000	3002	3013	3015	3038	3039	3048	3055	3065	3067	3076
		3083	3117	3129	3137	3147	3162	3163	3173	3175	3176	3180	3181	3187	3197
		3209	3211	3217	3226	3252	3254	3269	3270	3281	3282	3286	3287	3293	3302

SYMBOL TABLE & CROSS REFERENCE LIST

3306	3307	3308	3311	3312	3318	3326	3329	3330	3331	3367	3368	3369	3375
3379	3389	3391	3394	3396	3399	3400	3405	3433	3435	3454	3455	3456	3467
3469	3490	3492	3495	3598	3601	3602	3609	3611	3628	3629	3633	3635	3639
3701	3702	3794	3795	3888	3889	3890	3891	3998	4118	4119	4124	4125	4129
4130	4138	4139	4145	4156	4157	4158	4163	4164	4169	4170	4175	4177	4181
4182	4183	4191	4193	4208	4209	4220	4221	4222	4227	4239	4240	4245	4253
4254	4255	4260	4279	4284	4314	4316	4329	4335	4336	4343	4344	4348	4349
4350	4356	4369	4370	4380	4381	4387	4403	4404	4405	4413	4415	4450	4452
4472	4531	4532	4536	4556	4559	4560	4564	4593	4594	4599	4637	4640	4641
4645	4669	4670	4675	4705	4706	4714	4716	4717	4718	4724	4730	4745	4748
4749	4750	4756	4763	4778	4779	4789	4790	4796	4819	4820	4831	4833	4834
4835	4841	4848	4863	4864	4874	4875	4881	4919	4961	4963	4984	4986	5038
5039	5042	5056	5063	5064	5073	5075	5076	5085	5092	5094	5099	5119	5132
5144	5146	5151	5158	5160	5163	5164	5179	5180	5185	5187	5192	5194	5195
5199	5200	5201	5202	5203	5218	5219	5220	5221	5224	5225	5239	5240	5241
5242	5243	5249	5251	5262	5264	5265	5267	5269	5270	5275	5277	5278	5279
5283	5284	5291	5295	5301	5302	5303	5365	5366	5394	5395	5396	5401	5430
5432	5441	5442	5443	5444	5445	5450	5451	5457	5466	5472	5473	5474	5480
5489	5493	5494	5513	5515	5542	5555	5601	5607	5608	5609	5624	5642	5643
5644	5656	5658	5662	5663	5665	5674	5675	5677	5682	5683	5685	5692	5693
5706	5707	5709	5713	5714	5716	5721	5722	5733	5734	5736	5742	5749	5751
5754	5756	5766	5768	5769	5783	5784	5788	5789	5793	5795	5797	5802	5806
5810	5812	5815	5816	5822	5830	5836	5838	5844	5858	5864	5866	5874	5886
5891	5897	5898	5917	5918	5944	5946	5959	5967	5972	5978	5980	5983	5991
6002	6006	6011	6014	6017	6018	6019	6021	6024	6026	6032	6041	6047	6054
6058	6060	6062	6065	6071	6085	6102	6109	6125	6128	6137	6149	6158	6161
6171	6173	6174	6177	6189	6190	6192	6212	6214	6227	6237	6239	6245	6247
6262	6265	6266	6269	6274	6277	6280	6282	6286	6287	6300	6302	6309	6310
6313	6329	6344	6345	6354	6357	6372	6373	6377	6380	6389	6396	6400	6401
6410	6415	6416	6419	6431	6467	6469	6475	6477	6480	6487	6490	6491	6516
6521	6523	6621	6622	6633	6634	6635	6639	6642	6645	6649	6657	6662	6663
6670	6673	6675	6678	6681	6687	6692	6699	6701	6705	6711	6712	6714	6720
6721	6722	6739	6740	6744	6746	6748	6757	6772	6773	6777	6779	6781	6795
6799	6801	6803	6870	6871	6872	6895	6899	6900	6902	6904	6906	6907	6908
6911	6915	6921	6924	6925	6928	6931	6936	6944	6947	6948	6952	6953	6968
6969	6971	6972	6987	6988	6989	6997	6999	7001	7002	7005	7006	7010	7018
7021	7022	7023	7036	7038	7039	7040	7044	7055	7058	7059	7060	7069	7074
7090	7098	7100	7127	7156	7218	7227	7231	7232	7236	7243	7246	7247	7249
7254	7276	7278	7323	7340	7351	7353	7417	7419	7422	7429	7433	7435	7438
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SYMBOL TABLE & CROSS REFERENCE LIST

R15 0000 000F

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SYMBOL TABLE & CROSS REFERENCE LIST

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		2718 2765 2777 2779 2978 2979 2993 2995 3005 3006 3008 3060 3061 3089
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SYMBOL TABLE & CROSS REFERENCE LIST

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		5919	5925	5926	5953	5954	5966	5967	5969	5970	5981	5990	5991	6013	6014
		6015	6016	6020	6046	6047	6048	6049	6064	6070	6071	6074	6075	6084	6085
		6087	6088	6090	6099	6100	6108	6109	6112	6123	6124	6136	6137	6145	6146
		6157	6158	6162	6163	6164	6165	6176	6185	6188	6189	6193	6199	6201	6208
		6222	6223	6224	6225	6236	6237	6240	6268	6269	6275	6276	6283	6284	6288
		6289	6308	6309	6311	6312	6328	6329	6336	6341	6342	6353	6354	6358	6361
		6374	6375	6379	6380	6388	6389	6397	6398	6409	6410	6413	6414	6418	6419
		6430	6431	6438	6452	6454	6463	6473	6474	6479	6480	6486	6487	6492	6510
		6511	6515	6516	6522	6523	6636	6637	6638	6639	6644	6645	6648	6649	6655
		6665	6666	6667	6668	6671	6672	6674	6675	6680	6681	6686	6687	6693	6695
		6696	6707	6708	6724	6725	6727	6749	6751	6752	6759	6760	6783	6784	6805
		6806	6876	6880	6885	6886	6887	6888	6889	6890	6891	6892	6893	6894	6903
		6904	6909	6910	6914	6915	6920	6921	6929	6930	6935	6936	6943	6944	6949
		6949	6950	6951	6970	6971	6980	6981	6982	6983	6984	6985	6990	7009	7010
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		7055	7081	7083	7092	7110	7116	7123	7131	7132	7142	7144	7146	7147	7150
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		7667	7672	7683	7763	7764	7812	7906	7944	7989	7997	8007	8013	8045	8056
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		389	395	401	407	446	448	453	454	455	457	496	537	543	544
		566	576	582	588	682	685	692	702	708	714	720	759	778	779
		788	789	806	807	811	815	856	857	859	982	983	984	1190	1194
		1196	1199	1278	1281	1282	1286	1287	1298	1299	1300	1301	1301	1302	1316
		1321	1322	1324	1326	1326	1327	1354	1355	1365	1366	1387	1450	1452	1454
		1456	1458	1459	1462	1463	1464	1470	1472	1482	1484	1485	1488	1493	1496
		1498	1541	1561	1574	1575	1577	1585	1586	1587	1589	1590	1592	1594	1596
		1598	1603	1604	1608	1651	1652	1653	1654	1654	1660	1660	1790	1918	1920
		1929	2420	2695	2700	2703	2744	2746	2747	2751	2954	2956	2959	2960	2975
		3005	3020	3023	3040	3049	3166	3168	3171	3172	3271	3273	3276	3277	3356
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		3682	3687	3688	3705	3706	3714	3715	3723	3724	3732	3733	3741	3742	3750
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SYMBOL TABLE & CROSS REFERENCE LIST

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SYMBOL TABLE & CROSS REFERENCE LIST

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		4159	4160	4161	4434	4436	4447	4585	4587	4588	4589	4592	4595	4596	4668
		4671	4672	4908	4909	4910	4912	4917	4941	4943	4947	4951	4953	4959	4968
		4970	4975	4977	4982	5389	5399	5414	5416	5429	5498	5499	5504	5511	5927
		5930	5933	5935	5942	6004	6114	6141	6251	6270	6278	6281	6364	6392	6500
		6878	6882	6986	6992	7068	7073	7087	7123	7124	7143	7144	7146	7257	7261
		7264	7273	7286	7287	7288	7289	7291	7292	7293	7294	7304	7304	7318	7359
		7361	7364	7566	7567	7568	7633	7635	7638	7640	7886	7898	8393	8394	8395
		8396													
R8	0000 0008	99*	322	328	340	347	739	742	899	900	901	904	907	2780	2781
		2790	3021	3022	3023	3047	3077	3240	3242	3248	3285	3339	3347	3397	3403
		3421	3422	3423	3432	3477	3478	3487	4435	4436	4448	4557	4558	4562	4584
		4591	4597	4639	4643	4667	4673	4944	4945	4958	5406	5418	5499	5500	5502
		5510	5930	5931	5941	6007	6008	6009	6012	6143	6144	6147	6195	6272	6339
		6394	6471	7066	7070	7075	7160	7162	7261	7262	7275	7361	7362	7635	7636
		7745	7767	7782	7814	7885	7910	7922	7948						
R9	0000 0009	100*	321	327	338	346	1578	1579	1581	1582	1583	1585	1786	1921	1924
		1925	1927	1929	1930	1931	2756	2757	2758	2759	2762	2772	2773	3241	3242
		3249	3462	3463	3464	3465	3468	3470	3471	4154	4161	4742	4743	4744	4786
		4787	4827	4828	4829	4871	4872	4912	4915	4932	4975	6166	6167	6168	6200
		6201	6209	6451	6453	6456	6465	6858	6859	6860	6910	6930	6981	7082	7083
		7093	7161	7163	7166	7168	7170	7228	7242	7256	7300	7356	7658	7659	7660
		7661	7689	7696	7697										
RDBACK	0000 83DC	5554	8875*	8876											
RDBUF	0000 84DC	2757	3463	4274	4931	5386	6666	6977	7028	7614	7659	7879	8269	8270	8271
		8366	8456	8505	8935*										
RDDATA	0000 28A6	2598	2852*												
READ	0000 83CF	8120	8862*												
READBUF	0001 89D0	446	486	2756	2762	2780	3241	3336	3347	3401	3416	3462	3468	3477	4159
		4273	4299	4430	4587	4595	4671	4930	4943	4970	5385	5407	5424	5499	5871
		5930	6166	6200	6453	6665	6975	7065	7094	7133	7158	7248	7261	7513	7635
		7658	7689	7878	7889	8504	9000*								
RFBUF	0000 7D2A	3209	3311	4278	4380	4789	4874	5473	6396	6670	7005	7618	7925	8269*	
REC.1	0000 100A	654	656*												
REC.CMD	0000 1006	315	655*												
REC.DEF	0000 1000	315	653*												
REC1	0000 51B2	5123	5133*												
REC2	0000 51B6	5125	5135*												
REC3	0000 51BA	5127	5137*												
REC5	0000 51BE	5129	5139*												
RECFLG1	0000 8410	5109	5131	8903*											
RECFLG2	0000 8412	5084	5106	5213	5235	8904*									
RECNUM	0000 513E	5099	5121*												
RECORDS	0000 20F0	656	2328*	4117	4153	4341	4379	6005	6142	6272	6394	7164	7745	7782	7885
		7922													
RECOUT	0000 51AC	5131*	5134	5136	5138	5141									
RECSAV	0000 8406	6862	6866	6875	6974	7066	7165	7168	8898*						
REDF	0000 7CF2	3629	3639	3702	3795	3891	4170	5180	8244*	8551	8628	8657	8704	8708	8712

SYMBOL TABLE & CROSS REFERENCE LIST

```
                                8716   8720
REEND       0000 7D44           6948   7040   8279*  8442
REGS        0000 8450           8365   8374   8929*
REGSAVE     0000 8490           2906   2911   4429   4443   4904   4918   4929   4935   5527   5541   8384   8388   8402   8503
                                8511   8727   8731   8930*
RESTORE     0000 7E08           3199   3229   3305   3328   4230   4263   4287   4359   4390   4727   4760   4801   4845   4885
                                5294   5460   5483   7584   7627   7802   7934   8350*
RESTORE1    0000 7E10           3165   3279   4214   4340   4707   5285   5446   7563   7787   7924   8352*
RETOPSW     0000 1CF8           1932   2005*  2232   8302
RETOPSW1    0000 1CF8           2011*
REWIND      0000 83CD           8163   8860*
REWMT       0000 80D2            473   2488   2702   3164   3205   3210   3235   3257   3366   3383   3887   4113   4151   4210
                                4236   4238   4269   4337   4365   4376   4396   4525   4540   4578   4604   4621   4660   4704
                                4736   4780   4821   4865   5040   5067   5069   5145   5193   5298   5367   5785   6003   6267
                                6440   6623   6664   6901   7217   7245   7284   7823   7868   7999   8015   8323   8568*
RITEDATA    0000 289E           2590   2846*
RSAVE       0000 8950            730   1226   1258   1265   1274   1294   1312   1396   1433   1438   1570   1795   4264   5743
                                5767   5837   5865   5883   5884   5913   5914   5968   6086   6110   6138   6139   6159   6160
                                6238   6330   6331   6355   6356   6390   6391   6411   6412   6432   6433   6443   6460   6488
                                6489   6650   6651   6688   6689   6922   6923   6937   6938   7019   7020   7056   7057   7079
                                7089   8995*
RSTORE      0000 84FE           2790   3009   3125   3249   3431   3432   3487   4311   4447   4958   4981   5080   5115   5121
                                5168   5208   5230   5429   5510   5941   6209   6464   7093   7275   8942*
RUN         0000 2136           2336*
RW.1        0000 8068           8523*  8530
RW.2A       0000 80E6           8573   8575*
RW.3        0000 80EE           8577*  8580
RW.3B       0000 810C           8578   8586*
RWTMOUT     0000 8064           3395   3521*
SAVR15      0000 84D0           2405   2519   3502   3504   8322   8324   8600   8602   8931*
SCHK1       0000 620E           6448   6450*
SDAT.1      0000 6212           6452*  6459
SDAT.ERR    0000 6234           6455   6463*
SEL.1       0000 7E5A           8394*  8397
SEL.2       0000 6FDC           6879   6883   7122*  7126
SEL.3       0000 7E44           4219   4252   4715   6632   7786   8388*
SEL.31      0000 7E48           8387   8389*
SEL.5       0000 6FB8           3589   4096   4513   5031   5356   5588   7110*  7117   7208
SEL.6       0000 6FCA           7105   7116*
SELADR      0000 6FA4           6613   6852   7103*
SELC.1      0000 101C            660    662*
SELC.CMD    0000 1018            317    661*
SELC.DEF    0000 1012            317    659*
SELCH       0000 20FE            662   2329*  2412   2627   3142   3150   4326   4695   5255   5526   6263   6508   6620   6858
                                7104   7176   7515   7780   7921   8297   8351   8389   8418   8463
SELCHK      0000 7E78           3200   3230   4231   4265   4288   4360   4391   4728   4761   4802   4846   4886   5299   5451
                                5484   6333   6435   6652   6690   6946   7045   8410*
SELEND      0000 7F02           3201   3231   3332   4232   4266   4289   4361   4392   4729   4762   4803   4847   4887   5300
                                5462   5485   5334   6436   6653   6691   8441*
SELEND.1    0000 7F24           6961   8451*
SELERR.1    0000 7F4A           8454   8462*
SELERRA     0000 7F42           8457   8460*
SELERRAA    0000 7F46           8459   8461*
```

SYMBOL TABLE & CROSS REFERENCE LIST

```
SELI.1     0000 57DA          5536*  5540
SELINCW    0000 57BA          5440   5525*
SELMSG     0000 85B8          2639   3197   3226   4329   4986   6469   8952*
SELSETR    0000 8040          3208   3310   4377   5471   6395   7244   7923   8502*
SELSETW    0000 7E38          3174   3280   4342   5276   6279   8383*
SELSTAT    0000 83C6          8110   8423   8473   8854*
SELTST     0000 1E52           876    896   2239*
SELV.2     0000 4ED0          4909*  4913
SELVRD     0000 4EF4          4788   4873   4928*
SELVWRT    0000 4EC0          4747   4832   4903*
SENSTA     0000 7BDC           503    597   2461   2480   2572   2658   2704   2764   2992   3055   3083   3117   4130   4145
                              4164   4183   4245   4405   5064   5085   5151   5756   5816   5838   5866   5898   5918   6032
                              6239   6357   6491   6953   6989   7023   7060   7429   7438   7452   7462   7469   7535   7545
                              7551   7591   7601   7607   7666   7676   7682   7691   7758   7770   7807   7817   7891   7901
                              7913   7939   7952   7988   7996   8006   8044   8068*  8306   8319   8334   8447   8523   8526
                              8531   8569   8577   8594   8603   8606   8753
SENSTA1    0000 7BE4           490   3379   3396   3405   3598   3889   4129   4139   4163   4182   4240   4370   4404   4536
                              4564   4599   4645   4675   4730   4763   4848   5301   5401   6173   6592   6722   6746   6748
                              6779   6801   6872   6972   7001   7236   7254   7340   8074*  8325   8574   8586   8597   8759
SENSTA1A   0000 7BEA          8075*  8083
SENSTA2    0000 7C4C          2631   3306   3329   5295   7585   7628   7803   7935   8109*  8410
SENSTA3    0000 7C22           485    529   2976   2990   3400   3469   4158   4594   4670   5076   5164   5203   5225   5395
                              5396   5769   5810   6058   6060   6171   6721   6744   6777   6799   7249   8094*  8748
SENSTA3A   0000 7C28          8095*  8102
SET.RTN    0000 1E70          1807   1812   2251*
SETKB      0000 1B5E           228    236   1638   1668   1767*
SETLST     0000 1B6E           888   1775*
SINK       0000 1E38          1785   2224*
SKIPBB     0000 83DA          8145   8873*  8874
SKIPBF     0000 83DB          8140   8874*
SKIPFB     0000 83D8          8130   8871*  8872
SKIPFF     0000 83D9          8115   8872*
SNS.COM1   0000 8216           513   8342   8666   8699*
SNS.ERB    0000 8192          8616   8655*
SNS.ERBA   0000 81D8          8660   8676*
SNS.ERBB   0000 81F0          8679   8685*
SNS.ERBC   0000 8206          8687   8693*
SNS.ERC    0000 8182          8623   8647*
SNS.ERD    0000 8172          8631   8638*
SNS.ERR    0000 813E          4132   4147   4166   5845   8614*
SNSCONV    0000 827A          8706   8710   8714   8718   8722   8726*
SNSHW      0000 8448          3645   3651   3657   3662   3667   3672   3677   3682   3688   3706   3715   3724   3733   3742
                              3751   3760   3769   3778   3799   3808   3817   3826   3835   3844   3853   3862   3871   3895
                              3900   3905   3910   3915   3920   3928   3933   3938   3946   3951   3960   3963   3981   3993
                              4172   5182   6706   6708   6758   6760   6782   6784   6804   6806   8245   8630   8659   8678
                              8729   8925*
SPACHK     0000 1052           355    364    372    413    420    469    552    558    620    628    637    645    655    661
                              667    675    681*
STAMSG     0000 1ECF          1115   2270*
STARADDR   0000 84E4          8253   8262   8272   8453   8455   8937*
START      0000 0A5E           118    194*
START3     0000 0A72           124    125    126    201*
STARTA     0000 0A72           195    201    205*   997
```

SYMBOL TABLE & CROSS REFERENCE LIST

```
STAT.ER   0000 813A   4732  4765  4850  8599  8605*
STATCHK   0000 8112   3202  3232  3380  4233  4243  4267  4290  4362  4393  4537  4565  4601  4647  4677
                      4804  4888  5068  5222  5271  5384  5463  5486  5773  5868  5924  6089  6111  6191
                      6335  6360  6437  6654  6973  7341  8593* 8755
STATCHK1  0000 8134   8603*
STATER0   0000 81C6   8670* 8674
STATER1   0000 81CA   8668  8671*
STATERR   0000 8120   8636  8642  8651  8664* 8683  8691  8697
STATSD    0000 83C8   2493  2649  2663  2870  2982  2998  3061  3090  3296  3388  3409  3607  4187  4412
                      5150  5248  6244  6696  6727  6752  6995  7349  7432  7474  8086  8535  8855*
STATUS    0000 83C4    601   884  2666  2674  2681  2688  2696  2709  2715  2874  3118  6037  8069  8076
                      8096  8621  8686  8853*
STCON     0000 19F8    210  1619* 2158
STERFLG   0000 82F0   8780  8784* 8797  8803  8805  8813  8824
STOP      0000 83EA   8173  8887* 8888
STOPADR   0000 84E0   6951  6954  7043  7046  8445  8448  8936*
STOPS     0000 83EB   8179  8888*
T.2       0000 3082   3337  3344*
T.3       0000 3066   3335* 3340
T.4       0000 2F6E   3274  3278* 3342
T.6       0000 313E   3385  3394*
T.7A      0000 3190   3415* 3424
T0.000    0000 2744   2745  2747*
T0.000A   0000 2734   2733  2738  2742*
T0.102    0000 275C   2751* 2753
T0.104    0000 278E   2764* 2768  2775
T0.105    0000 27AC   2766  2772*
T0.7A     0000 2720   2731  2737*
T0.COMP   0000 27C2   2779* 2786
T0.E000   0000 28FA   2578  2880*
T0.E001   0000 2908   2586  2881*
T0.E002   0000 2916   2594  2882*
T0.E003   0000 2924   2602  2883*
T0.E003A  0000 2932   2636  2638  2884*
T0.E004   0000 294C   2661  2885* 7991  8309
T0.E005   0000 2960   2678  2886*
T0.E006   0000 2980   2685  2887*
T0.E007   0000 29A0   2692  2888*
T0.E008   0000 29C0   2706  2889*
T0.E009   0000 29F0   2713  2890*
T0.E00A   0000 2A00   2720  2891*
T0.E00D   0000 2A20   2792  2892*
T0.ENDA   0000 2826   2802  2805*
T0.ERR    0000 27E2   2782  2789*
T0.MSGA   0000 272E   2736  2741*
T0ERMSG1  0000 2A80   2468  2470  2576  2584  2592  2600  2612  2896*
T0ERMSG2  0000 2A9A   2483  2864  2897* 3608
T0ERRORA  0000 2564   2577  2585  2593  2601  2609* 7476
T0ERRORB  0000 28AE   2494  2664  2862* 2984  3000  3065  3389  3609  4191  4413  5249  6245  6699  6997
                      7351  7433  8087  8536
T0R00     0000 2612   2662* 2679  2686  2693  2707  2714  2721
T0R00A    0000 2636   2670* 2672
T0R00B    0000 263C   2668  2671*
```

SYMBOL TABLE & CROSS REFERENCE LIST

T1.005	0000 2F78	3280*											
T1.006A	0000 30F6	3374	3376*	3378									
T1.04A	0000 2C26	3045	3047*										
T1.05A	0000 2C88	3074	3076*										
T1.40A	0000 2F34	3183	3199*										
T1.4A	0000 2C22	3043	3046*										
T1.4C0	0000 2FBA	3213	3229*										
T1.5A	0000 2C94	3072	3075*										
T1.600	0000 321C	3453*	3485										
T1.6000	0000 31E8	3141	3441*										
T1.601	0000 3206	3445	3448*										
T1.601A	0000 3216	3447	3451*										
T1.602	0000 3230	3457*	3459										
T1.604	0000 3250	3469*	3473										
T1.COMP	0000 3274	3476*	3483										
T1.E000	0000 330E	2983	3516*										
T1.E001	0000 333C	2999	3518*										
T1.E002	0000 336A	3012	3520*										
T1.E003	0000 339C	3064	3522*										
T1.E004	0000 33CC	3093	3524*										
T1.E008	0000 33FC	3251	3526*										
T1.E008A	0000 341A	3346	3527*										
T1.E009	0000 343C	3299	3301	3528*									
T1.E00A	0000 346A	3323	3325	3529*									
T1.E00B	0000 3498	3386	3530*										
T1.E00C	0000 34AC	3410	3531*										
T1.E00C1	0000 34C0	3429	3532*										
T1.E00D	0000 34E2	3193	3196	3533*									
T1.E00E	0000 3504	3223	3227	3534*									
T1.E00F	0000 3526	3288	3535*										
T1.E00G	0000 3544	3313	3536*										
T1.E00H	0000 3564	3182	3537*										
T1.E00I	0000 357E	3212	3538*										
T1.E00J	0000 3596	3489	3539*										
T1.ERR	0000 3296	3479	3486*										
T1ERMSG1	0000 35B6	3106	3540*										
T1ERMSG2	0000 35CE	3062	3091	3541*									
T1ERRORA	0000 2CC4	2793	3013	3104*	3252	3433	3490	4314	4450	4961	4984	5430	5513	5944	6212
		6467	7098	7276											
T1R003	0000 31CE	3348	3432*										
T1R01	0000 2C4C	3056	3060*										
T1R01.2	0000 2C64	3065*	3094										
T1R02	0000 2CAA	3084	3089*										
T1R06	0000 2D54	3144*	3152										
T1R09	0000 2F06	3189*	4229	4262	4358	4726	4759	4844	5293	5459	6646	6917			
T1R0A	0000 312A	3389*	3411										
T1R0B	0000 31B8	3418	3428*										
T1R10	0000 2E8C	3219*	4286	4389	4799	4883	5482	6683	7012						
T2.000	0000 371A	3646	3650*										
T2.0000	0000 367A	3600	3604*										
T2.001	0000 372C	3652	3656*										
T2.002	0000 373E	3658	3661*										
T2.003	0000 3750	3663	3666*										

SYMBOL TABLE & CROSS REFERENCE LIST

T2.004	0000 3762	3668	3671*		
T2.005	0000 3774	3673	3676*		
T2.006	0000 3786	3678	3681*		
T2.007	0000 3798	3683	3687*		
T2.008	0000 37F2	3707	3714*		
T2.009	0000 3812	3716	3723*		
T2.00A	0000 3832	3725	3732*		
T2.00B	0000 3852	3734	3741*		
T2.00C	0000 3872	3743	3750*		
T2.00D	0000 3892	3752	3759*		
T2.00E	0000 38B2	3761	3768*		
T2.00F	0000 38D2	3770	3777*		
T2.010	0000 393A	3800	3807*		
T2.011	0000 395A	3809	3816*		
T2.012	0000 397A	3818	3825*		
T2.013	0000 399A	3827	3834*		
T2.014	0000 39BA	3836	3843*		
T2.015	0000 39DA	3845	3852*		
T2.016	0000 39FA	3854	3861*		
T2.017	0000 3A1A	3863	3870*		
T2.018	0000 3A96	3901	3904*		
T2.019	0000 3AA8	3906	3909*		
T2.01A	0000 3ABA	3911	3914*		
T2.01B	0000 3ACC	3916	3919*		
T2.01C	0000 3B1C	3896	3925	3939	3943*
T2.01D	0000 3B58	3944	3959*		
T2.01E	0000 3AF8	3929	3932*		
T2.01F	0000 3B0A	3934	3937*		
T2.020	0000 36E6	3631	3637*		
T2.4	0000 36F0	3639*			
T2.5	0000 3A58	3889*			
T2.CA	0000 3B34	3947	3950*		
T2.D0	0000 3C1E	3684	4007*		
T2.E000	0000 3C3E	3679	4008*		
T2.E000A	0000 3C64	3674	4009*		
T2.E000B	0000 3C8A	3669	4010*		
T2.E000C	0000 3CB2	3664	4011*		
T2.E000D	0000 3CD4	3659	4012*		
T2.E000E	0000 3CEC	3653	4013*		
T2.E000F	0000 3D5A	3632	4016*		
T2.E001	0000 3D16	3647	4014*		
T2.E0010	0000 3D42	3690	4015*		
T2.E0011	0000 3D70	3642	3984	4017*	
T2.E002	0000 3D84	3710	4018*		
T2.E003	0000 3DA6	3775	4019*		
T2.E003A	0000 3DBC	3719	4020*		
T2.E004	0000 3DDC	3766	4021*		
T2.E004A	0000 3DFC	3728	4022*		
T2.E005	0000 3E1C	3757	4023*		
T2.E005A	0000 3E3C	3737	4024*		
T2.E006	0000 3E5C	3748	4025*		
T2.E006A	0000 3E7E	3746	4026*		
T2.E007	0000 3E98	3739	4027*		
T2.E007A					

SYMBOL TABLE & CROSS REFERENCE LIST

```
T2.E008    0000 3EBA          3755   4028*
T2.E008A   0000 3EDA          3730   4029*
T2.E009    0000 3F04          3764   4030*
T2.E009A   0000 3F24          3721   4031*
T2.E00A    0000 3F3A          3773   4032*
T2.E00AA   0000 3F5C          3712   4033*
T2.E00B    0000 3F88          3782   4034*
T2.E00BA   0000 3FA4          3784   4035*
T2.E00C    0000 3FBC          3803   4036*
T2.E00CA   0000 3FDE          3868   4037*
T2.E00D    0000 3FF8          3812   4038*
T2.E00DA   0000 401A          3859   4039*
T2.E00E    0000 403A          3821   4040*
T2.E00EA   0000 405C          3850   4041*
T2.E00F    0000 4078          3830   4042*
T2.E00FA   0000 409A          3841   4043*
T2.E010    0000 40C8          3839   4044*
T2.E010A   0000 40EA          3832   4045*
T2.E011    0000 4104          3848   4046*
T2.E011A   0000 4126          3823   4047*
T2.E012    0000 4140          3857   4048*
T2.E012A   0000 4162          3814   4049*
T2.E013    0000 4180          3866   4050*
T2.E013A   0000 41A2          3805   4051*
T2.E014    0000 41C0          3875   4052*
T2.E014A   0000 41D6          3877   4053*
T2.E015    0000 41EE          3902   4054*
T2.E015    0000 420A          3907   4055*
T2.E017    0000 422A          3912   4056*
T2.E018    0000 424E          3917   4057*
T2.E019    0000 4274          3922   4058*
T2.E01A    0000 4296          3956   4059*
T2.E01B    0000 42BC          3930   4060*
T2.E01C    0000 42DE          3935   4061*
T2.E01D    0000 4302          3940   4062*
T2.E01E    0000 4320          3897   4063*
T2.F       0000 3ADE          3921   3924*
T2.G       0000 3B8E          3952   3961   3972*
T2.G0      0000 3B7E          3964   3968*
T2.MSG2    0000 3B40          3953*
T2.MSG2A   0000 3B44          3949   3954*
T2.MSG3    0000 3B50          3956*
T2ERMSG0   0000 4390          3634   3991   4067*  5186   6713
T2ERMSG1   0000 439C          3995   4068*
T2ERRORA   0000 3BCE          3633   3987*  4175   5185   6712
T2MSG1     0000 4338          3948   3965   4064*
T2MSG2     0000 4356          3953   3968   4065*
T2MSG3     0000 4372          3972   4066*
T2R00.1    0000 3668          3607*
T2R01      0000 36D2          3633*  3643   3649   3655   3660   3665   3670   3675   3680   3686   3691   3711   3713   3720
                              3722   3729   3731   3738   3740   3747   3749   3756   3758   3765   3767   3774   3776   3783
                              3785   3804   3806   3813   3815   3822   3824   3831   3833   3840   3842   3849   3851   3859
                              3860   3867   3869   3876   3878   3898   3903   3908   3913   3918   3923   3931   3936   3941
```

SYMBOL TABLE & CROSS REFERENCE LIST

			3957	3985	
T2R02	0000	37EA	3709	3712*	
T2R0210	0000	38CA	3772	3775*	
T2R0211	0000	38EE	3781	3784*	
T2R02A	0000	380A	3718	3721*	
T2R02B	0000	382A	3727	3730*	
T2R02C	0000	384A	3736	3739*	
T2R02D	0000	386A	3745	3748*	
T2R02E	0000	388A	3754	3757*	
T2R02F	0000	38AA	3763	3766*	
T2R0310	0000	39F2	3856	3859*	
T2R0311	0000	3A12	3865	3868*	
T2R0312	0000	3A36	3874	3877*	
T2R03A	0000	3932	3802	3805*	
T2R03B	0000	3952	3811	3814*	
T2R03C	0000	3972	3820	3823*	
T2R03D	0000	3992	3829	3832*	
T2R03E	0000	39B2	3838	3841*	
T2R03F	0000	39D2	3847	3850*	
T3.02A	0000	4406	4123	4125*	
T3.2A	0000	440A	4126*	4128	
T3.2B	0000	43EE	4118*	4137	
T3.2C	0000	43EA	4117*	4144	
T3.2DA	0000	4420	4136*		
T3.3E	0000	44A8	4168	4173	4179*
T3.3F	0000	444C	4154*	4180	
T3.3G	0000	4448	4153*	4196	
T3.3H	0000	44E8	4185	4195*	
T3.3J	0000	445A	4158*	4162	
T3.4DA	0000	4552	4224	4230*	
T3.4E	0000	456C	4235	4238*	
T3.4G	0000	4582	4242	4245*	
T3.4J	0000	45C8	4257	4263*	
T3.4L	0000	4624	4281	4287*	
T3.4M	0000	4646	4298*	4306	
T3.5	0000	46A4	4324	4325	4332*
T3.5A	0000	46D0	4343*	4368	
T3.5A1	0000	46E6	4347	4349*	
T3.5BA	0000	470A	4352	4359*	
T3.5C	0000	46C8	4341*	4372	
T3.5DB	0000	4726	4364	4367*	
T3.6A	0000	474A	4380*	4402	
T3.6B	0000	4746	4379*	4418	
T3.6C1	0000	4770	4383	4390*	
T3.6DB	0000	478E	4395	4398*	
T3.6DC	0000	47D8	4407	4417*	
T3.DER	0000	4654	4301	4309*	
T3.E000	0000	4898	4474*		
T3.E002	0000	48BE	4174	4475*	
T3.E004	0000	48E4	4190	4476*	
T3.E004A	0000	4906	4410	4477*	
T3.E007	0000	4924	4223	4478*	
T3.E00A	0000	4940	4256	4479*	

SYMBOL TABLE & CROSS REFERENCE LIST

```
T3.E00B   0000 495E          4280   4480*
T3.E00C   0000 4978          4313   4481*
T3.E00D   0000 499A          4351   4482*
T3.E00F   0000 49C2          4382   4483*
T3.E011   0000 49E8          4399   4449   4484*
T3.E012   0000 4A0C          4188   4408   4485*
T3.ERER   0000 4664          4247   4308*
T4.000    0000 4A9E          4555   4557*
T4.0000   0000 4A7A          4542   4545*
T4.0000A  0000 4A7E          4544   4546*
T4.0002   0000 4C9C          4720   4727*
T4.001    0000 4AAA          4561*  4563
T4.002    0000 4DB4          4776   4816*
T4.002A   0000 4DD8          4825   4827*  4856
T4.002AA  0000 4DE6          4830   4832*
T4.002C   0000 4E16          4837   4845*
T4.003    0000 4B48          4576   4618*
T4.003A   0000 4B86          4636   4638*
T4.003B   0000 4F94          4642*  4644
T4.003EE  0000 4B64          4623   4626*
T4.003EF  0000 4B68          4625   4627*
T4.004    0000 4BBC          4619   4657*
T4.004A   0000 4BD8          4664   4666*
T4.004B   0000 4BE2          4670*  4674
T4.005    0000 4E42          4817   4860*
T4.005A   0000 4E68          4869   4871*  4895
T4.005C   0000 4F94          4877   4884*
T4.02C    0000 4D56          4784   4786*  4812
T4.1A     0000 4C3A          4693   4694   4696   4701*
T4.1D     0000 4CD4          4745   4747*
T4.1E1    0000 4D04          4752   4760*
T4.2AA    0000 4D2E          4702   4767   4775*
T4.2D1    0000 4D88          4792   4800*
T4.5      0000 4AEE          4582   4584*  4612
T4.6      0000 4B0A          4594*  4598
T4.7A     0000 4B34          4603   4606*
T4.9A     0000 4ACE          4523   4524   4575*
T4.CHK    0000 4F12          4607   4681   4940*
T4.CHKA   0000 4F16          4943*  4954
T4.CHKB   0000 4F36          4950   4953*
T4.CHKC   0000 4F38          4952   4954*
T4.E002   0000 4FEC          4836   4843   4998*
T4.E004   0000 4FB2          4791   4798   4996*
T4.E005   0000 4FD4          4606   4997*
T4.E006   0000 500E          4680   4999*
T4.E008   0000 5026          4719   4758   5000*
T4.E009   0000 5048          4876   5001*
T4.ERR    0000 4F3E          4946   4957*
T4.NEXT   0000 4B2C          4567   4604*  4649   4679   4806   4852   4890
T4.SCHK   0000 4F5E          4807   4891   4967*
T4.SCHKA  0000 4F62          4970*  4978
T4.SERR   0000 4F7A          4973   4980*
T4044A    0000 4BDA          4667*  4685
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SYMBOL TABLE & CROSS REFERENCE LIST

T4066	0000 4B7A	4632	4634*				
T4067	0000 4B7C	4635*	4653				
T4099	0000 4A90	4550	4552*	4571			
T4100	0000 4CC6	4740	4742*	4771			
T4CLR	0000 4AF4	4587*	4590				
T5.1A	0000 50E4	5069*	5272				
T5.1B	0000 50E0	5066	5068*				
T5.2E	0000 5204	5148	5163*				
T5.2F	0000 51C6	5079	5144*				
T5.3A	0000 5248	5170	5192*				
T5.3E	0000 528C	5207	5218*				
T5.4	0000 52CC	5229	5239*				
T5.5B1	0000 538C	5287	5294*				
T5.5C	0000 539E	5297	5299*				
T5.CHK1	0000 5224	5074	5178*	5223			
T5.E000	0000 53C8	5088	5313*				
T5.E000A	0000 5406	5090	5315*				
T5.E001	0000 5438	5156	5317*				
T5.E001A	0000 5472	5154	5319*				
T5.E002	0000 54A2	5210	5321*				
T5.E003	0000 54D2	5233	5323*				
T5.E004	0000 5506	5246	5325*				
T5.E005	0000 5528	5286	5326*				
T5.E006	0000 553E	5184	5327*				
T5.E007	0000 5554	5139	5328*				
T5.S000	0000 5316	5256	5261*				
T5.SW1	0000 5368	5282	5284*				
T5.SWRT	0000 5346	5262	5264	5267	5269	5274*	
T5ERMSG0	0000 5578	5093	5103	5329*			
T5ERMSG1	0000 5584	5107	5330*				
T5ERMSG2	0000 559A	5110	5331*				
T5ERMSG3	0000 55B0	5113	5332*				
T5ERMSG4	0000 55C4	5116	5333*				
T5ERRORA	0000 5138	5092	5097*				
T5R01	0000 51F0	5153	5156*	5171			
T5R01.5	0000 51F4	5155	5158*				
T5R02	0000 5124	5087	5090*				
T5R02.1	0000 5128	5089	5092*	5215	5236		
T6.002A	0000 5676	5410	5413*				
T6.1DB	0000 5648	5396*	5400				
T6.2B	0000 5678	5412	5414*	5422			
T6.2C	0000 5694	5417	5424*				
T6.3A1	0000 5706	5453	5460*				
T6.3AA	0000 5720	5465	5470*				
T6.3B	0000 56E6	5449	5451*				
T6.3C1	0000 5750	5476	5483*				
T6.3CA	0000 576A	5488	5493*				
T6.3E	0000 577E	5499*	5506				
T6.E002	0000 580E	5427	5557*				
T6.E003	0000 5820	5452	5558*				
T6.E004	0000 583E	5475	5512	5559*			
T601A	0000 5616	5378	5381*				
T6R04	0000 5794	5503	5509*				

SYMBOL TABLE & CROSS REFERENCE LIST

```
T7.0008   0000 5F62          6207   6217*
T7.002    0000 58AC          5591   5620*
T7.003    0000 58C4          5621   5631*
T7.005    0000 597E          5672   5703*
T7.007    0000 5D10          6010   6012*
T7.3A     0000 59BC          5711   5720*
T7.3B     0000 59CA          5704   5705   5727*
T7.3BC    0000 5A4E          5769*  5772
T7.3C     0000 59FE          5730   5741*
T7.4C     0000 5AE8          5803   5820*
T7.4D     0000 5AD0          5813*  5824
T7.4E     0000 5B12          5825   5834*
T7.4F     0000 5B0A          5831*  5840
T7.4G     0000 5ABE          5807*  5811
T7.4H     0000 5ACC          5809   5812*
T7.5      0000 5BB8          5889*  5904
T7.5C     0000 5BCC          5887   5895*
T7.5CA    0000 5BFA          5910*  5921
T7.5DA    0000 5C30          5929*  5936
T7.5DAT   0000 5C1E          5920   5923*
T7.5E     0000 5C0A          5900   5915*
T7.5EE    0000 5C02          5906   5913*
T7.5ERR   0000 5C4C          5932   5939*
T7.7A     0000 5CFC          6006*  6094
T7.7D     0000 5CF8          6005*  6115
T7.7G     0000 5E82          6142*  6252
T7.7H     0000 5ED2          6167*  6172
T7.7I     0000 5E86          6143*  6218
T7.7K     0000 5EFA          6175*  6186
T7.7L     0000 5EE2          6170   6173*
T7.DRD    0000 5E6C          6123   6135*
T7.DRD1   0000 5EAA          6145   6156*
T7.DRD2   0000 5FFA          6164   6184*
T7.DRD3   0000 5F8C          6224   6235*
T7.DRD4   0000 5FBC          6241   6250*
T7.DW1    0000 5D94          6055*  6059
T7.DW2    0000 5DA0          6057   6060*
T7.DW2A   0000 5DA6          6052   6062*
T7.DWA    0000 5DAA          6063*  6073
T7.DWB    0000 5DBC          6048   6069*
T7.DWC    0000 5DDE          6074   6083*
T7.DWRT   0000 5D76          6015   6045*
T7.DWTA   0000 5DEC          6092*
T7.E000   0000 62F6          5605   6531*
T7.E001   0000 631A          5623   6532*
T7.E002   0000 633C          5634   6533*
T7.E003   0000 6360          5653   6534*
T7.E004   0000 6384          5686   6535*
T7.E006   0000 63AA          5738   5860   6536*
T7.E007   0000 63E2          5757   5880   6538*
T7.E008   0000 6418          5717   5798   6023   6540*
T7.E00A   0000 644E          5831   6078   6542*
T7.E00B   0000 647C          6130   6544*
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SYMBOL TABLE & CROSS REFERENCE LIST

```
T7.E00D     0000 64B6          5892   6151   6546*
T7.E00E     0000 64E4          5910   6178   6548*
T7.E010     0000 6512          5961   6550*
T7.E011     0000 6550          5974   6552*
T7.E012     0000 658C          5817   6066   6554*
T7.E012A    0000 65C2          5943   6211   6556*
T7.E013     0000 65E8          6104   6557*
T7.E014     0000 661A          6229   6559*
T7.E015     0000 664C          6242   6561*
T7.E016     0000 667E          6291   6563*
T7.E017     0000 66BE          6319   6322   6565*
T7.E018     0000 66E6          6332   6566*
T7.E019     0000 670A          6347   6567*
T7.E020     0000 6744          6381   6569*
T7.E021     0000 677C          6403   6571*
T7.E022     0000 67BA          6422   6424   6573*
T7.E022A    0000 67E4          6434   6456   6574*
T7.E024     0000 6806          6481   6575*
T7.E025     0000 683E          6494   6577*
T7.NOS      0000 62C2          6264   6514*
T7.S2A      0000 60CC          6338*
T7.S3B      0000 611C          6260   6359   6369*
T7.S3C      0000 6116          6363*
T7.S4B      0000 6168          6395*  6472
T7.S4C      0000 6164          6393*  6501
T7.S6       0000 61F8          6439   6442*
T7.S6A      0000 6280          6473   6485*
T7.S77      0000 6254          6461   6471*
T7.SA       0000 5FFE          6273*  6340
T7.SA1      0000 6030          6285   6287*
T7.SB       0000 5FFA          6272*  6365
T7.SC       0000 6038          6289*  6290
T7.TM       0000 5E1E          6099   6107*
T7ERMSG1    0000 6882          2485   3303   5159   5664   6025   6034   6301   6580*  8311   8330   8430   8469   8583
T7ERMSG2    0000 688E          6038   6581*
T7ERRORA    0000 5D48          2484   3302   5158   5663   6024   6029*  6300   8310   8329   8429   8468   8582
T7MSG3      0000 6876          6296   6299   6579*
T7R04       0000 5D38          6024*  6067   6079   6105   6131   6152   6179   6230
T7R05       0000 6040          6292*  6348   6382   6404   6483
T7R05.5     0000 605C          6300*  6323   6425
T7R06       0000 5FA4          6243*  6495
T8.1B       0000 68A2          6616*  6816
T8.1BB      0000 68D2          6627   6529*
T8.1D       0000 6916          6636   6647*
T8.2        0000 693A          6618   6619   6656   6659*
T8.2A       0000 699A          6671   6685*
T8.2C       0000 69D6          6694   6704*
T8.3        0000 69FE          6709   6719*
T8.4        0000 6A24          6660   6725   6733*
T8.43       0000 6A4A          6743   6746*
T8.4C       0000 6A3E          6741*  6745
T8.4E       0000 6A6A          6750   6756*
T8.5        0000 6A84          6735   6767*
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SYMBOL TABLE & CROSS REFERENCE LIST

```
T8.5A       0000 6A9E           6774*  6778
T8.5C       0000 6AAA           6776   6779*
T8.6        0000 6AC8           6768   6790*
T8.6A       0000 6ADE           6796*  6800
T8.6C       0000 6AEF           6798   6801*
T8.E000     0000 6B3E           6641   6819*
T8.E001     0000 6B52           6677   6820*
T8.E002     0000 6B66           6697   6821*
T8.E003     0000 6B84           6710   6822*
T8.E004     0000 6BA8           6728   6823*
T8.E005     0000 6BD4           6753   6824*
T8.E006     0000 6BF8           6762   6825*
T8.E007     0000 6C22           6786   6826*
T8.E008     0000 6C4C           6808   6827*
T8R02       0000 69C6           6698*  6729   6754
T8R03       0000 69EA           6711*  6763   6788   6809
T9.005      0000 6E4A           6989*  6993
T9.1        0000 6C7C           6851*  7188
T9.1A       0000 6CB6           6871*  6874
T9.1AA      0000 6CAE           6864   6869*
T9.50A      0000 6E76           6991   7001*
T9.CERR     0000 6F7C           7084   7092*
T9.COMP     0000 6F58           7069   7074   7079*
T9.COMP1    0000 6F5E           7081*  7088
T9.E000     0000 70E4           6916   6945   7192*
T9.E002     0000 70F6           7011   7037   7050   7193*
T9.E005     0000 7106           6996   7194*
T9.E007     0000 7122           7097   7195*
T9.MSG2     0000 70CA           6867   7191*
T9MSG1      0000 70AA           7171   7173   7190*
T9R02       0000 6DE8           6961*  7051
TA.000      0000 7144           7209*  7380
TA.001      0000 714E           7210   7212*
TA.001A     0000 717E           7221   7225*
TA.002      0000 7192           7230   7232*
TA.002A     0000 7196           7233*  7235
TA.100      0000 71A4           7215   7239*
TA.101      0000 71CC           7249*  7253
TA.201      0000 71E8           7260*  7267
TA.300      0000 7232           7240   7281*
TA.301      0000 7248           7287*  7290
TA.3011     0000 7256           7292*  7295
TA.302      0000 7300           7303   7340*
TA.303A     0000 72CC           7305   7325*
TA.3038     0000 72D7           7325   7330*
TA.303C     0000 72F0           7330   7335*
TA.400      0000 733C           7344   7356*
TA.401      0000 7345           7360*  7357
TA.E001     0000 739A           7259   7383*
TA.E002     0000 73BA           7306   7326   7331   7335   7350   7369   7384*
TA.E003     0000 73C0           7308   7385*
TA.E004     0000 73F0           7328   7386*
TA.E005     0000 73FC           7333   7387*
```

SYMBOL TABLE & CROSS REFERENCE LIST

TA.E005	0000 741E	7337	7383*			
TA.MSG1	0000 738E	7223	7382*			
TAERMSG2	0000 742C	7316	7322	7390*		
TAERMSG3	0000 743C	7319	7391*			
TAR01	0000 7206	7263	7269*			
TAR01.1	0000 720A	7270*	7370			
TAR02	0000 7362	7363	7369*			
TAR03A	0000 7292	7309*	7329	7334	7338	
TB.1	0000 751A	7467*	7468			
TB.E000	0000 755C	7475	7488*			
TB.E001	0000 7572	7430	7489*			
TB.E002	0000 7596	7441	7490*			
TB.E003	0000 75BC	7458	7491*			
TB.MSG2	0000 75F8	7449	7493*			
TBMSG1	0000 75E2	7423	7492*			
TBR01.1	0000 7496	7432*	7443			
TC.000	0000 763A	7523	7525*			
TC.001	0000 7660	7535*	7539			
TC.002	0000 7672	7537	7541*			
TC.002A	0000 7684	7545*	7548			
TC.002B	0000 7692	7546	7550*			
TC.003	0000 7698	7551*	7555			
TC.004	0000 76AA	7542	7553	7557*		
TC.005	0000 7728	7591*	7595			
TC.006	0000 773A	7593	7597*			
TC.006B	0000 774C	7601*	7604			
TC.007	0000 775A	7602	7606*	7611		
TC.100	0000 77F6	7562	7652*			
TC.102	0000 77FA	7653*	7655			
TC.103	0000 786E	7664	7673	7684	7688*	
TC.104	0000 787E	7691*	7694	7699		
TC.104A	0000 788C	7692	7696*			
TC.105	0000 7824	7666*	7670			
TC.106	0000 7836	7668	7672*			
TC.106B	0000 7848	7676*	7679			
TC.107	0000 7856	7677	7681*	7686		
TC.5	0000 7772	7589	7598	7609	7613*	
TC.COMP	0000 77C2	7634*	7641			
TC.COMPO	0000 77BA	7631*	7700			
TD.0	0000 789E	7736*	7828	7830		
TD.000	0000 78AC	7738	7740*			
TD.001	0000 78D4	7751	7753*			
TD.002	0000 78D8	7754*	7756			
TD.003	0000 78DE	7757*				
TD.0031	0000 78E4	7758*	7761			
TD.003A	0000 78F2	7759	7763*			
TD.004	0000 7904	7769*				
TD.0041	0000 790A	7770*	7773			
TD.00AA	0000 78BC	7746*	7758			
TD.100	0000 791A	7742	7779*			
TD.1000	0000 7936	7788*	7815			
TD.1002	0000 794C	7792	7794*			
TD.1004	0000 7968	7795	7802*			

SYMBOL TABLE & CROSS REFERENCE LIST

```
TD.1005    0000 797A          7806*
TD.10051   0000 797E          7807*  7810
TD.1005A   0000 7980          7808   7812*
TD.1006    0000 7936          7816*
TD.10061   0000 799E          7817*  7820
TD.DR3     0000 285A          2815   2823*
TD.DR4     0000 2878          2824   2831*
TE.001A    0000 7A08          7886*  7911
TE.002     0000 7A1A          7890*  7899
TE.003     0000 7A1A          7891*  7894
TE.003A    0000 7A28          7892   7896*
TE.004     0000 7A32          7900*
TE.0041    0000 7A38          7901*  7904
TE.004A    0000 7A46          7902   7906*
TE.005     0000 7A58          7912*
TE.0051    0000 7A5E          7913*  7916
TE.100     0000 7A6E          7874   7921*
TE.1000    0000 7A76          7923*  7949
TE.1003    0000 7AA0          7927   7934*
TE.1004    0000 7AB0          7938*
TE.10041   0000 7AB6          7939*  7942
TE.1004A   0000 7AC4          7940   7944*
TE.1005    0000 7ADA          7951*
TE.10051   0000 7AEC          7952*  7955
TEST       0000 1FD8           346    347    790    792    867    870    907   2308*  2456   2460
TEST0      0000 24BC          2395   2563*
TEST0.1    0000 24CE          2569*  2804
TEST0.2A   0000 2504          2575   2582*
TEST0.3A   0000 2524          2583   2590*
TEST0.4A   0000 2542          2591   2598*
TEST0.5    0000 2588          2570   2571   2624*
TEST0.6    0000 25D2          2625   2626   2642*
TEST0.6B   0000 2644          2660   2674*
TEST0.6C   0000 265C          2677   2681*
TEST0.6D   0000 2674          2684   2688*
TEST0.6E   0000 268C          2691   2695*
TEST0.6F   0000 26CC          2699   2709*
TEST0.6G   0000 26D8          2712   2716*
TEST0.7    0000 26F4          2643   2726*
TEST1      0000 2ADA          2395   2951*
TEST1.01   0000 2B54          2980   2989*
TEST1.02   0000 2B94          2996   3005*
TEST1.03   0000 2BCA          3007   3018*
TEST1.04   0000 2BF4          2969   2970   3028   3035*
TEST1.05   0000 2C78          3059   3071*
TEST1.06   0000 2D36          3036   3037   3137*
TEST1.1    0000 2AF0          2953*  3514
TEST1.1B   0000 2AFE          2968*  3024   3029
TEST1.4    0000 2D7A          3151   3159*
TEST1.4D   0000 2E58          3204   3207*
TEST1.4E   0000 2EDE          3234   3237*
TEST1.5    0000 2F36          3143   3266*
TEST1.6    0000 3090          3149   3356*
```

SYMBOL TABLE & CROSS REFERENCE LIST

```
TEST1.60   0000 30AA          3357   3360*
TEST1.6A   0000 30BA          3359   3363*  3426
TEST1.6C   0000 318C          3407   3413*
TEST2      0000 3644          2395   3588*
TEST2.01   0000 36A6          3596   3618*  4005
TEST2.02   0000 37AE          3619   3698*
TEST2.03   0000 38F6          3699   3791*
TEST2.04   0000 3A3E          3792   3884*
TEST2.4A   0000 3A84          3893   3899*
TEST3      0000 43BA          2395   4095*
TEST3.4    0000 44F2          4205*  4333
TEST4      0000 4A24          2395   4512*
TEST5      0000 506A          2395   5029*
TEST6      0000 55D8          2395   5355*
TEST7      0000 5856          2395   5586*
TEST8      0000 689A          2396   6611*
TEST9      0000 6C78          2396   6849*
TESTA      0000 713C          2396   7206*
TESTB      0000 744C          2396   7409*
TESTC      0000 760C          2396   7511*  7517   7533   7540   7549   7556   7583   7596   7605   7612   7626   7637   7646
                              7671   7680   7687   7695
TESTC.1    0000 763E          7526*  7647
TESTC.1A   0000 7652          7527   7532*
TESTC.1B   0000 76B8          7531   7559   7561*
TESTD      0000 789A          2396   7735*  7762   7774   7801   7811   7821   7829
TESTE      0000 79CC          2396   7867*  7895   7905   7917   7933   7943   7956   7962
TESTE.00   0000 79D0          7868*  7961
TESTF      0000 7B02          2396   7984*
TESTIERR   0000 7DF0          8336   8340*
TESTINIT   0000 7D4A          2952   3588   4095   4512   5030   5355   5587   6612   6850   7207   7409   7735   7867   8289*
TESTPAT    0000 8426          2746   2956   3021   3040   3168   3273   3358   3446   3497   4115   4218   4251   4293   4339
                              4398   4545   4624   4638   5051   5054   5057   5060   5078   5081   5122   5124   5126   5128
                              5165   5205   5227   5261   5263   5266   5268   5379   5612   5681   5807   5813   5928   5995
                              6140   6628   6876   6880   7067   7072   7211   7524   7739   7871   8915*
TESTS      0000 21F4           924   2395*
TF.000     0000 7B26          7994*  8025
TF.000A    0000 7B28          7990   7995*  8019   8023   8027
TF.000B    0000 7B4A          8005*  8012
TF.001A    0000 7B3A          7998   8000*
TF.002     0000 7B62          8008   8013*
TF.003     0000 7B6C          8014   8016*
TF.004     0000 7B86          8021   8024*
TF.00BA    0000 7B60          8010   8012*
TIM.1      0000 102E           666    668*
TIM.CMD    0000 102A           318    667*
TIM.DEF    0000 1024           318    665*
TIMELIMT   0000 210C           668    670    823   2330*  8000   8002
TIMER      0000 162A          1222*  3188   3218   3294   3319   4228   4261   4285   4357   4388   4725   4757   4797   4842
                              4882   5292   5458   5481   5737   5755   5828   5859   5879   5909   5960   5973   6077   6103
                              6129   6150   6228   6315   6346   6378   6402   6417   6478   6643   6679   6913   7008   7582
                              7625   7800   7932
TIMOUT     0000 5CAE          5658   5685   5716   5795   5815   5891   5978*  5982   6021   6065   6177
TITLE      0000 2236           216   2399*
```

SYMBOL TABLE & CROSS REFERENCE LIST

```
TMCLEAR   0000 7BCA          2582   2748   2806   2971   3038   3137   3281   3454   7529   8056*
TOTAL     0000 1E5A           881    937    948    987   2243*
TOTERR    0000 1E5C           882    937    957    989   1078   1081   2244*  8777
TOTMSG    0000 1EAE           981   2256*
TR.3      0000 2FDF          3289   3305*
TR.4      0000 3046          3314   3328*
TR00      0000 7C0E          2771   8086*  8105
TR00A     0000 7C06          8050   8084*
TRM.1     0000 104A           674    678*
TRM.CMD   0000 1040           319    675*
TRM.DEF   0000 103C           319    673*
TRMODE    0000 211A           676   2331*  2423   3140   3148   4103   4211   4515   5043   5369   5997   7116   7561   7741
                             7873
TST.DRIV  0000 2836          2514   2799   2814*  3509   4000   4461   4989   5306   5545   6524   6811   7183   7375   7481
                             7643   7825   7958
TST0.END  0000 280C          2644   2727   2728   2799*
TST1.01   0000 2ABE          2955   2958*
TST1.03   0000 2BE8          3019   3026*
TST1.06A  0000 2D62          3139   3147*
TST1.1    0000 2AFE          2957   2961*
TST1.2A   0000 2C32          3049*  3051
TST1.2B   0000 2C3C          3055*  3058
TST1.3A   0000 2C8E          3077*  3079
TST1.3B   0000 2C96          3083*  3085
TST1.40A  0000 2DAE          3167   3170*
TST1.4A   0000 2DBE          3169   3173*  3258
TST1.5A   0000 2F5E          3272   3275*
TST1.END  0000 32F2          3160   3161   3267   3268   3364   3365   3442   3443   3509*
TST2.01A  0000 3708          3627   3644*
TST2.30B  0000 3B9E          3885   3976*
TST2.END  0000 3C02          3597   3620   3700   3793   3886   3977   3978   4000*
TST3.1    0000 43C2          4103*  4466
TST3.6    0000 473A          4366   4376*
TST3.END  0000 487A          4111   4112   4206   4207   4334   4457   4461*
TST3.NST  0000 4834          4212   4454*
TST3.S    0000 4684          4104   4323*
TST4.02   0000 4A5C          4533*  4535
TST4.1    0000 4C1A          4516   4692*
TST4.2    0000 4A2C          4515*  4994
TST4.END  0000 4F9A          4577   4620   4658   4659   4703   4777   4818   4861   4862   4989*
TST5.1    0000 5072          5035*  5311
TST5.5    0000 5304          5044   5265*
TST5.END  0000 53B0          5036   5037   5306*
TST6.1    0000 55E0          5362*  5550
TST6.3    0000 56BC          5370   5440*
TST6.END  0000 57F0          5363   5364   5545*
TST7.DER  0000 5910          5610   5645   5660*
TST7.1    0000 585E          5590*  6529
TST7.1ER  0000 5914          5661*  5687   5718   5739   5758   5799   5818   5832   5861   5881   5962   5975
TST7.2    0000 592A          5632   5671*
TST7.3B   0000 5A34          5728   5762*
TST7.4    0000 5A62          5729   5763   5780*
TST7.4A   0000 5AAA          5790   5801*
```

SYMBOL TABLE & CROSS REFERENCE LIST

TST7.5 0000 5B38 5781 5850*
TST7.5A 0000 5B68 5853 5863*
TST7.5AB 0000 5B9E 5881* 5893 5911
TST7.5B 0000 5BA2 5869 5883*
TST7.6 0000 5C6C 5934 5937 5953*
TST7.6A 0000 5C88 5953 5966*
TST7.7 0000 5CC0 5851 5989*
TST7.70 0000 5CD4 5994 5996*
TST7.7B 0000 5E3A 6000 6120*
TST7.END 0000 62D4 5592 5622 5633 5673 5764 5782 5852 6001 6121 6122 6261 6370 6371 6441
6521*
TST7.S 0000 5FC6 5998 6259*
TST7.S1 0000 606C 6275 6307*
TST7.S2 0000 60A6 6311 6327*
TST7.S3 0000 60F2 6341 6352*
TST7.S4 0000 6152 6374 6387*
TST7.S5 0000 6190 6397 6408*
TST7.S6 0000 61CC 6413 6429*
TST7.S7 0000 62A4 6493 6499*
TST8.END 0000 6B08 6661 6736 6769 6791 6792 6811*
TST9.1 0000 6C84 6855* 7167 7177
TST9.2A 0000 6D32 6905* 6941
TST9.2AA 0000 6D90 6929 6934*
TST9.3 0000 6D60 6909 6919*
TST9.4 0000 6DA6 6927 6940 6942*
TST9.5 0000 6DEC 6897 6965*
TST9.51 0000 6E7E 7004* 7031
TST9.6 0000 6E9C 6980 7016*
TST9.61 0000 6ED0 7025 7035*
TST9.8 0000 6F0C 6982 7053*
TST9.8A 0000 6F26 7049 7064*
TST9.8A1 0000 6F30 7067* 7077
TST9.END 0000 7092 6898 6966 6967 7183*
TST9.WT 0000 6D4A 6912* 6932
TSTA.END 0000 736A 7216 7241 7282 7283 7372*
TSTB.01 0000 74E2 7452* 7457
TSTB.1 0000 74C2 7414 7445*
TSTB.10 0000 7500 7454 7461*
TSTB.2 0000 7450 7413* 7486
TSTB.20 0000 7484 7426* 7428
TSTB.2A 0000 74AA 7420 7438*
TSTB.END 0000 7544 7415 7447 7448 7481*
TSTBRK 0000 1A8C 443 918 1478 1495 1675* 1909 3026 3503 5979 7426 7455 7642 7824 7909
7947 7995 8047 8080 8099 8601
TSTBUF 0000 84F0 525 535 3047 5770 8940*
TSTD.END 0000 79AC 7765 7771 7813 7818 7823*
TSTDRV.0 0000 2894 2818 2826 2832 2834 2840*
TSTDU 0000 1B20 949 965 1082 1441 1516 1741* 2159
TSTE.00 0000 79DE 7870 7872*
TSTE.END 0000 7AEE 7907 7914 7945 7953 7958*
TSTEND 0000 133C 930* 2807 3512 4003 4464 4992 5309 5548 6519 6527 6814 7108 7114 7120
7186 7378 7484
TSTERRA 0000 87CA 8084 8975*

SYMBOL TABLE & CROSS REFERENCE LIST

TSTERRB	0000 87E8	2769	8103	8976*											
TSTERRC	0000 8808	8581	8977*												
TSTMDE	0000 83CB	8159	8858*												
TSTMSG	0000 1E98	913	2260*	2261											
TTUS	0000 83E7	528	8883*												
TUS.OUT	0000 0E94	538*	545												
UNARY	0000 1620	906	1210*												
UNLOAD	0000 83E2	8229	8881*												
WBUF	0000 84D4	4906	5531	6886	7565	8250	8251	8252	8391	8933*					
WBUF2	0000 84E8	6890	8250	8261	8938*										
WEOF	0000 83D6	8135	8869*	8870											
WPROCEED	0000 83FC	886	3800	8804	8834	8894*									
WRBUF	0000 7CFA	3175	3282	4220	4253	4349	4716	4748	4833	5279	5445	6280	6633	6908	7576
		7790	8250*												
WRBUF2	0000 7D14	6928	8260*												
WRITE	0000 83CE	8150	8861*	8862											
WRODDBY	0000 83DE	2505	2508	8234	8877*	8878									
WRTBUF	0000 99D0	3240	3335	4905	4909	4914	5501	5528	6885	7123	7564	7567	7573	8390	8394
		8399	8999*												
WRTENB	0000 80A4	4114	4529	4546	5041	5368	5593	6625	6857	7736	8547*				
WRTINH	0000 8840	8556	8558	8981*											
WSTORE	0000 84FC	2789	3008	3122	3248	3344	3430	3486	4310	4448	4957	4980	5082	5112	5166
		5209	5231	5428	5509	5940	6208	6463	7092	7274	8941*				
XIERR1	0000 1D02	2017	2022*												
XIERR2	0000 1D34	2032	2036*												
ZEROS	0000 8416	2846	8906*												

R02 PATCH INFORMATION FOR DIAGNOSTIC 06-263M95A13

LOCATION	OLD VALUE	NEW VALUE	NEW ACTION
3A00	246A	2469	LIS R6.9
21B0	2050	0D50	delete 'prelim' statement
7BAA	4800	5800	L R0.STARADDR
0A54	70F0	30F0	disable int

This patch is to be incorporated in object labeled 06-263 R01.1 on multi-media packages.