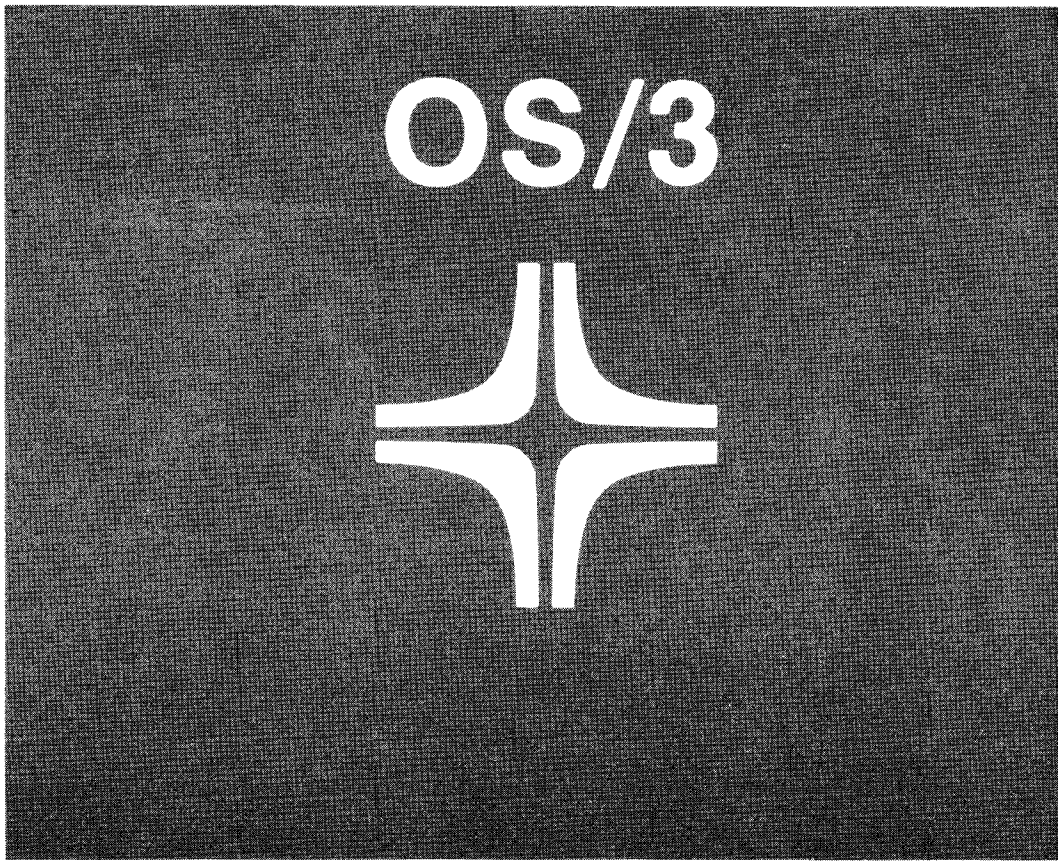
Operator Maintenance Guide



Environment: System 80

SPERRY UNIVAC

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PAGE STATUS SUMMARY

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Part/Section	Page Number	Update Level
Cover/ Disclaimer		
PSS	1	
Contents	1 thru 3	
1	1 thru 7	
2	1 thru 6	
3	1 thru 14	
4	1 thru 9	
5	1 thru 17	
6	1 thru 9	
7	1 thru 14	
User Comment Sheet		

Part/Section	Page Number	Update Level

Part/Section	Page Number	Update Level

*New pages

All the technical changes are denoted by an arrow (→) in the margin. A downward pointing arrow (↓) next to a line indicates that technical changes begin at this line and continue until an upward pointing arrow (↑) is found. A horizontal arrow (→) pointing to a line indicates a technical change in only that line. A horizontal arrow located between two consecutive lines indicates technical changes in both lines or deletions.

Contents

PAGE STATUS SUMMARY

CONTENTS

1. INTRODUCTION

1.1. SCOPE 1-1

1.2. HOW TO USE THIS MANUAL FOR BASIC FAULT ISOLATION 1-1

1.3. APPLICABLE DOCUMENTATION AND TEST MEDIA 1-1

2. FAULT ISOLATION PROCEDURES

2.1. GENERAL 2-1

2.2. FAULT CLASSIFICATION 2-1

2.3. HARD ERROR (HPR STOP) 2-3

2.4. HARD ERROR (CHECKSTOP) 2-4

2.4.1 PROCESSOR CHECKSTOP (CHECKSTOP CP) 2-4

2.4.2 INPUT OUTPUT MICROPROCESSOR CHECKSTOP (CHECKSTOP IA) 2-4

2.5. SOFT ERROR 2-5

2.6 SYSTEM HANG 2-6

3. OPERATING PROCEDURES FOR MICRODIAGNOSTIC TESTS

3.1. GENERAL 3-1

3.2. OPERATING PROCEDURES 3-1

3.2.1 PROCESSOR STATIC AND DYNAMIC MICRODIAGNOSTIC TESTS 3-2

3.2.2 I/O MICROPROCESSOR STATIC AND DYNAMIC MICRODIAGNOSTIC TESTS 3-9

4. OPERATING PROCEDURES FOR MACRODIAGNOSTIC (INSTRUCTION) TESTS

4.1. GENERAL 4-1

4.2. OPERATING PROCEDURES 4-1

5. OPERATING PROCEDURES FOR ONLINE (PERIPHERAL) TESTS

5.1. GENERAL 5-1

5.2. OPERATING PROCEDURES 5-1

6. ERROR LOG

6.1. GENERAL 6-1

6.2. ERROR LOG FILE DESCRIPTION 6-1

6.3. ERROR LOG OPERATING PROCEDURES 6-1

6.4. ERROR LOG INTERPRETATION 6-4

6.5. ERROR LOG TRANSMISSION TO SPERRY 6-4

6.6. ERROR LOG SUMMARY FILE (ESUM) 6-4

6.7. ERROR LOG EDITOR 6-8

7. CALLING FOR ASSISTANCE

7.1. GENERAL 7-1

7.1.1 CHECKPOINT STICKER 7-1

7.2. GENERAL PROCEDURES 7-2

7.2.1. ACOUSTIC COUPLER 7-2

7.2.2. MODEM 7-4

7.3. CHECKPOINT SYSTEM (CONTINENTAL UNITED STATES) 7-4

7.4. TRACE REMOTE OPERATION (CONTINENTAL UNITED STATES) 7-6

7.5. REMOTE PERFORMANCE DATA (CONTINENTAL UNITED STATES) 7-7

7.6. CHECKPOINT SYSTEM (OTHER THAN CONTINENTAL UNITED STATES) 7-10

7.7. TRACE REMOTE OPERATION (OTHER THAN CONTINENTAL UNITED STATES) 7-13

7.8. REMOTE PERFORMANCE REPORTING (OTHER THAN CONTINENTAL UNITED STATES) 7-14

FIGURES

1-1. Error Isolation 1-3

2-1. Hard Error Console Indication (HPR) 2-1
2-2. Hard Error Console Indication (Check Stop) 2-2
2-3. Soft Error Indication 2-2
2-4. Program Status Word (PSW) Display 2-3
2-5. Processor Control Unit Bit Array (CUBA) Display 2-4
2-6. Input Output Microprocessr Control Unit Bit Array (CUBA) Display 2-5

3-1. Static Microdiagnostic Operating Procedures 3-3
3-2. Dynamic Microdiagnostic Operating Procedures 3-6
3-3 IOMP Static Microdiagnostic Tests 3-10
3-4. IOMP Dynamic Microdiagnostic Tests 3-13

4-1. Macrodiagnostic Operating Procedures 4-2
4-2. CPMDC Macrodiagnostic Operating Procedures 4-4
4-3. IOCD Macrodiagnostic Operating Procedures 4-6

5-1. Online Operating Procedures 5-2
5-2. Operating Procedures For Online Communications Peripheral Tests 5-9
5-3. Operating Procedures For Online Peripheral Tests 5-13

6-1. Operating Procedures For Obtaining an Error Log Printout 6-2
6-2. I/O and Peripheral Error Log 6-4
6-3. Processor Error Log 6-5
6-4. Device Physical Information (ERROR LOG EDIT) 6-6
6-5. System Information (ERROR LOG EDIT) 6-7

7-1. Checkpoint Sticker (Continental U.S. Telephone Numbers) 7-1
7-2. Acoustic Coupler/Modem Placement 7-2
7-3. Acoustic Coupler/Modem 7-3
7-4. CHECKPOINT Information Sticker 7-12

1. Introduction

1.1. SCOPE

This manual contains procedures which will enable the operator to provide a detailed error description when requesting corrective maintenance. The detailed error description will assist the SPERRY Customer Engineer in replacing the defective part on the first call.

This manual is applicable to System 80 Models 3, 4, 5, and 6.

1.2. HOW TO USE THIS MANUAL FOR BASIC FAULT ISOLATION

This manual is divided into seven sections which contain the procedures for defining the malfunctions and the procedures for reporting the malfunction to Sperry Customer Engineering.

When a malfunction or error occurs use this manual as follows, also refer to figure 1-1.

1. Use section 2 to determine the type of malfunction or error. After the error type is determined, section 2 will reference you to the appropriate diagnostic tests to run for further definition. The operating procedures for the diagnostic tests are contained in the following sections:

   Section 3. Microdiagnostic Tests

   Section 4. Macrodiagnostic Tests

   Section 5. Online Tests

   Section 6. Error Log Analysis

2. After the specified diagnostic tests are executed, the results are recorded or noted.

3. Section 7 contains procedures for reporting the recorded test results to Sperry Customer Engineering.

1.3. APPLICABLE DOCUMENTATION AND TEST MEDIA

The following documentation is required in addition to this manual.

UP 8076 SPERRY UNIVAC OPERATING SYSTEM/3 (OS/3)
SYSTEM MESSAGES PROGRAMMER/OPERATOR REFERENCE

The following mass storage media is required to load and execute the diagnostic tests:

Processor Microdiagnostic Tests (MODEL 3)
Diskettes DH4701

Processor Microdiagnostic Tests (MODEL 5)
Diskettes DH4706

Input Output Microprocessor
Microdiagnostic Tests (MODEL 3,5)
Diskettes DH4710

Processor Instruction Tests
Diskette DH4720

Online Diagnostic Tests
Resident on Operating System Disk

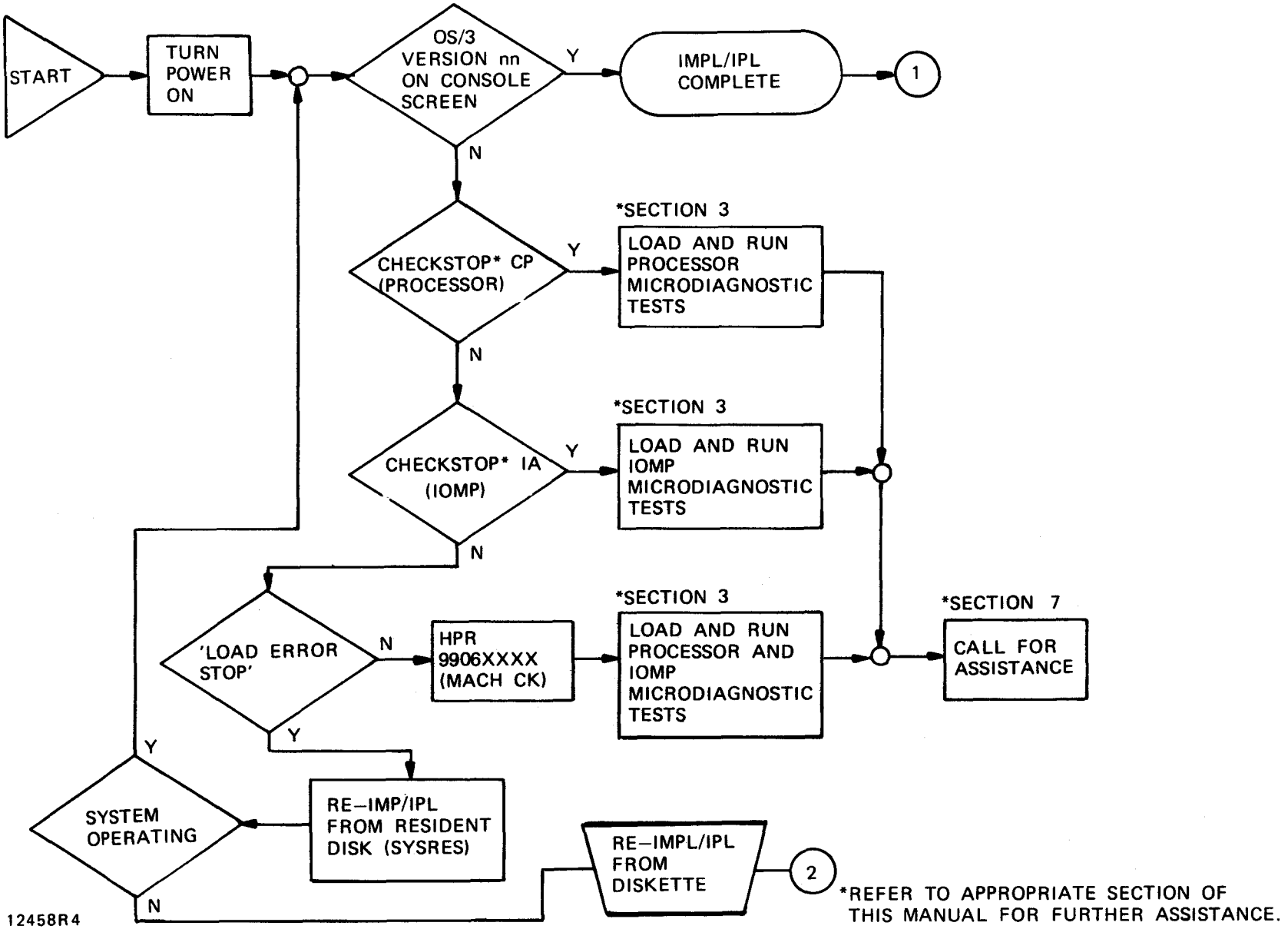


Figure 1-1. Error Isolation (Sheet 1 of 5)

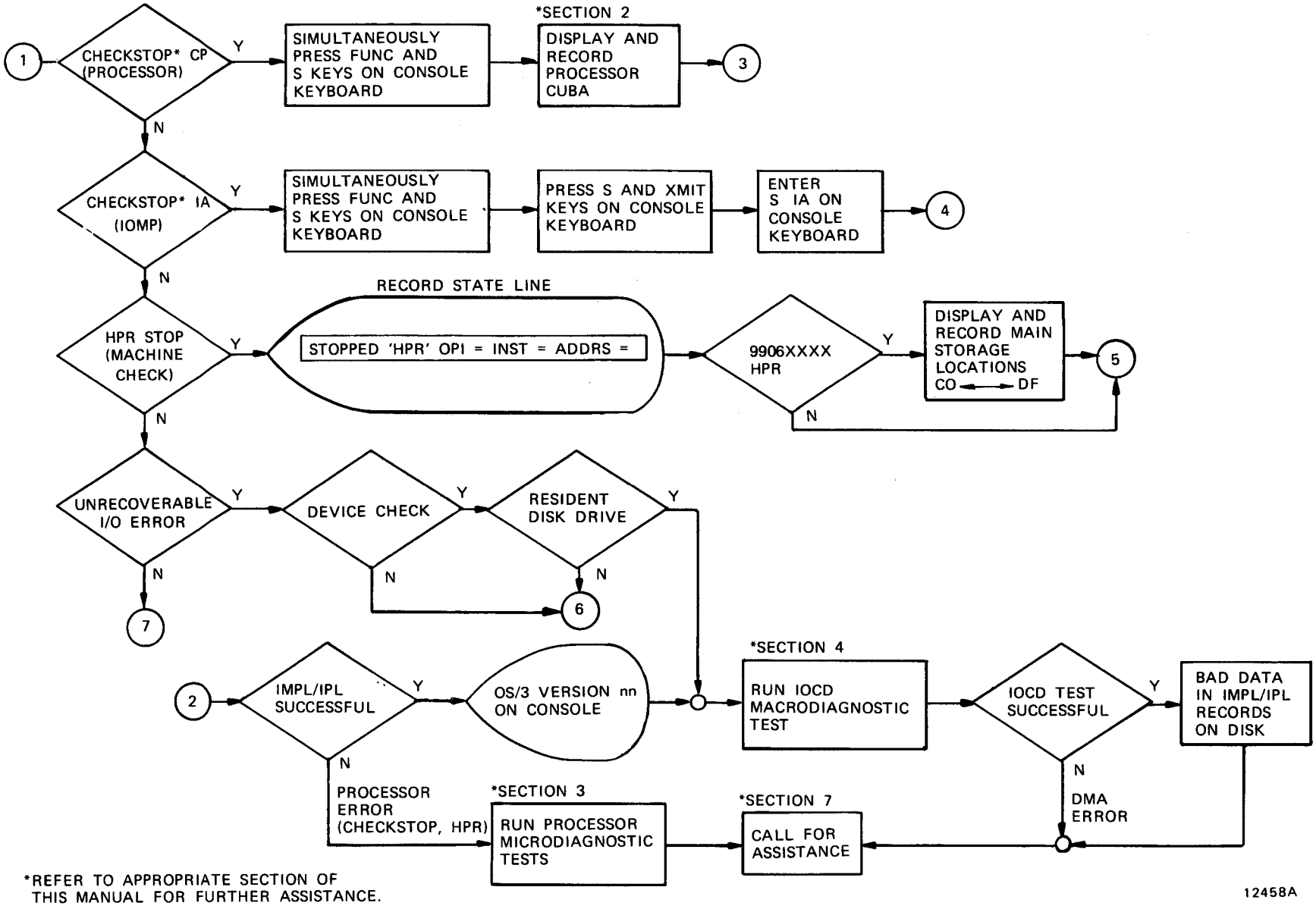


Figure 1-1. Error Isolation (Sheet 2 of 5)

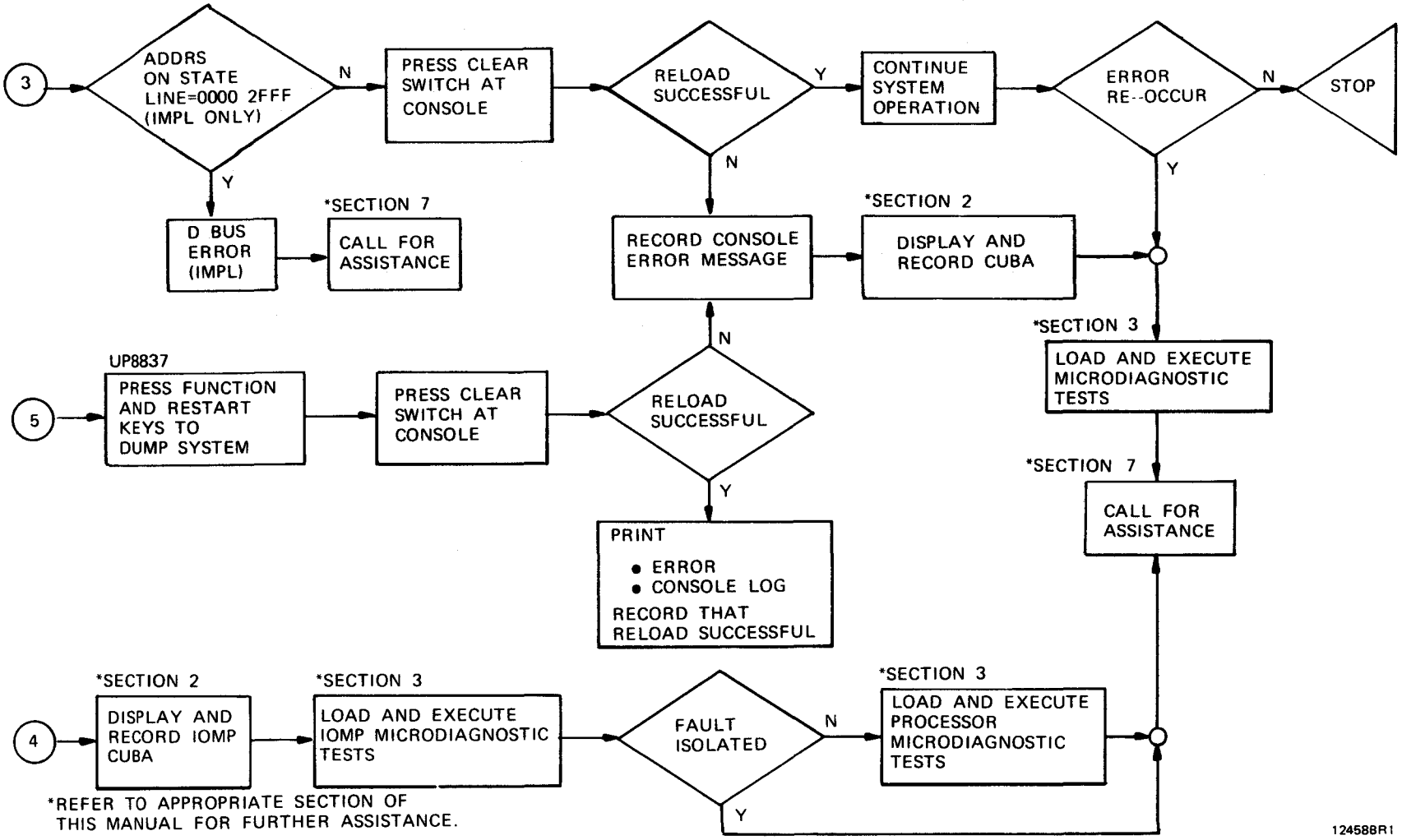


Figure 1-1. Error Isolation (Sheet 3 of 5)

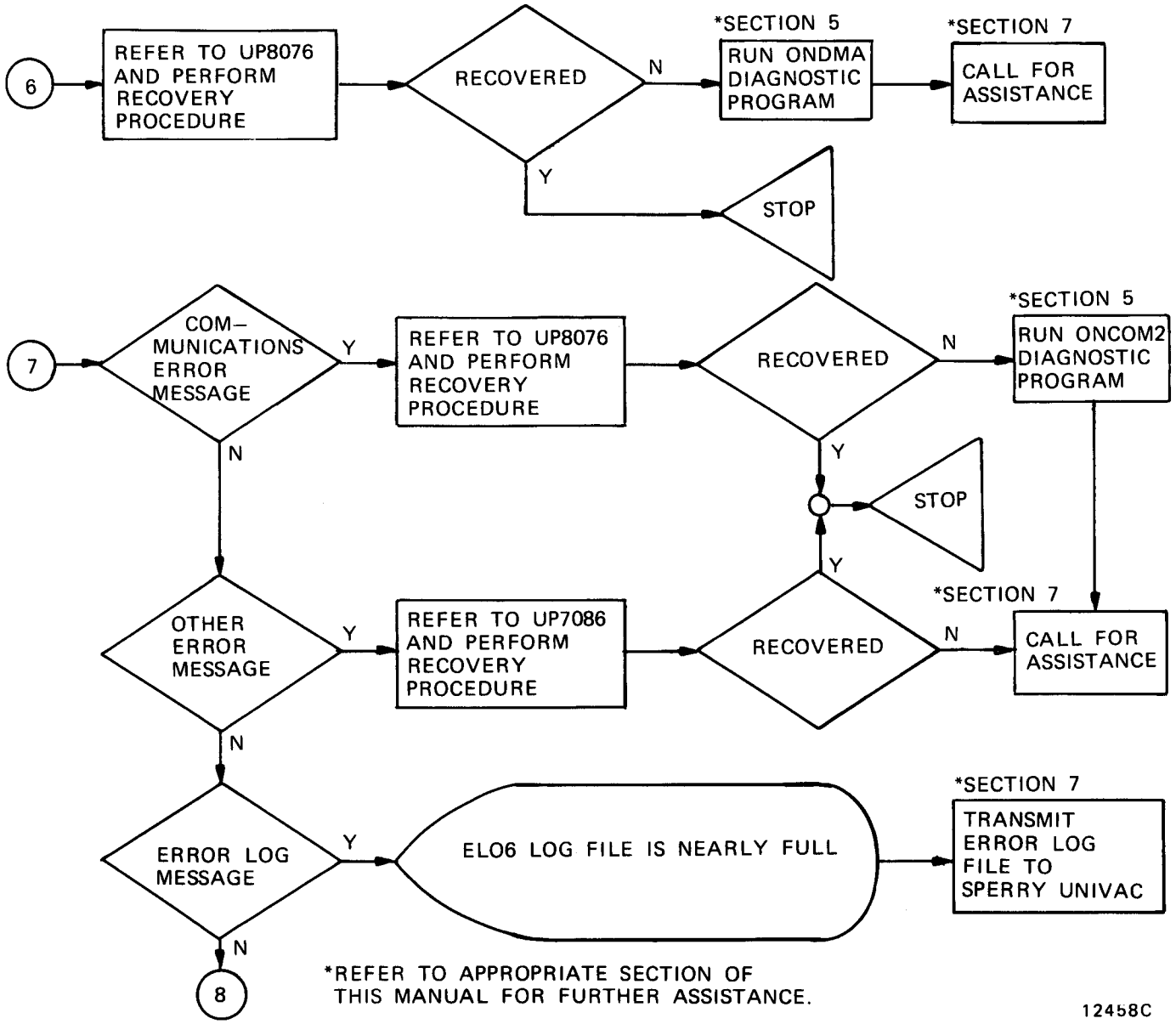
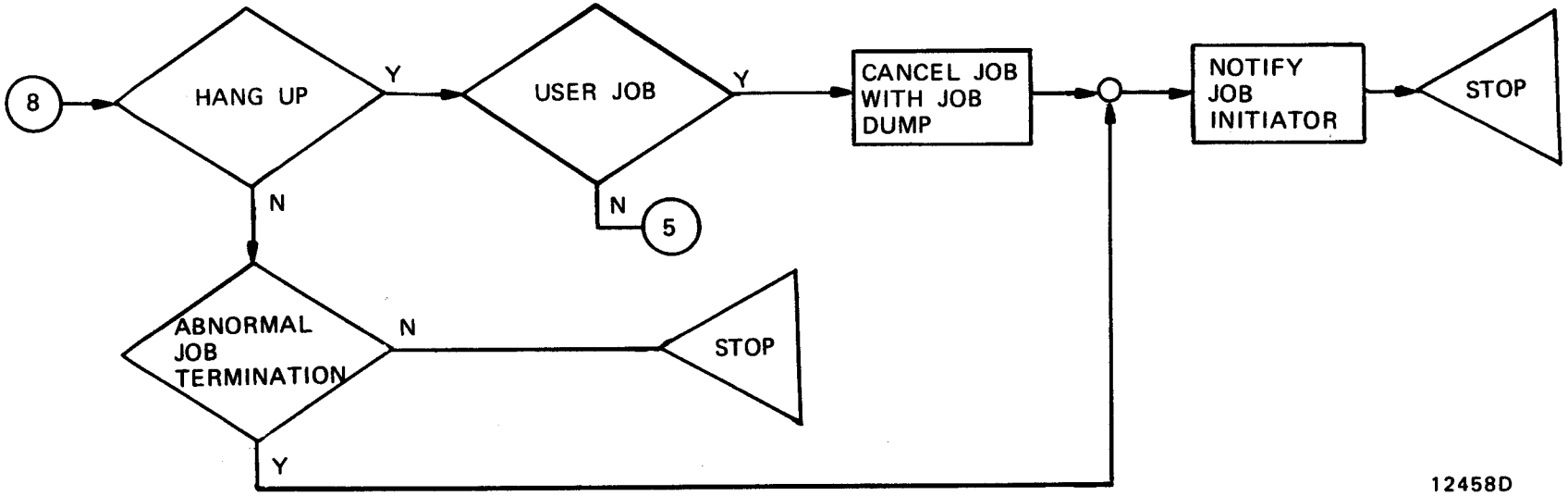


Figure 1-1. Error Isolation (Sheet 4 of 5)



*REFER TO APPROPRIATE SECTION OF THIS MANUAL FOR FURTHER ASSISTANCE.

Figure 1-1. Error Isolation (Sheet 5 of 5)

2. Fault Isolation Procedures

2.1. GENERAL

This section contains procedures which will enable the operator to use the system console to determine the error type. After the error type is determined, the appropriate diagnostic tests will be referenced for further error definition.

2.2. FAULT CLASSIFICATION

There are two basic types of errors which can occur in the system. They are a HARD ERROR and a SOFT ERROR.

When HARD ERROR occurs, the message *CHECK STOP* or STOPPED *HPR* is displayed on the console message line (figures 2-1 and 2-2) and processing stops.

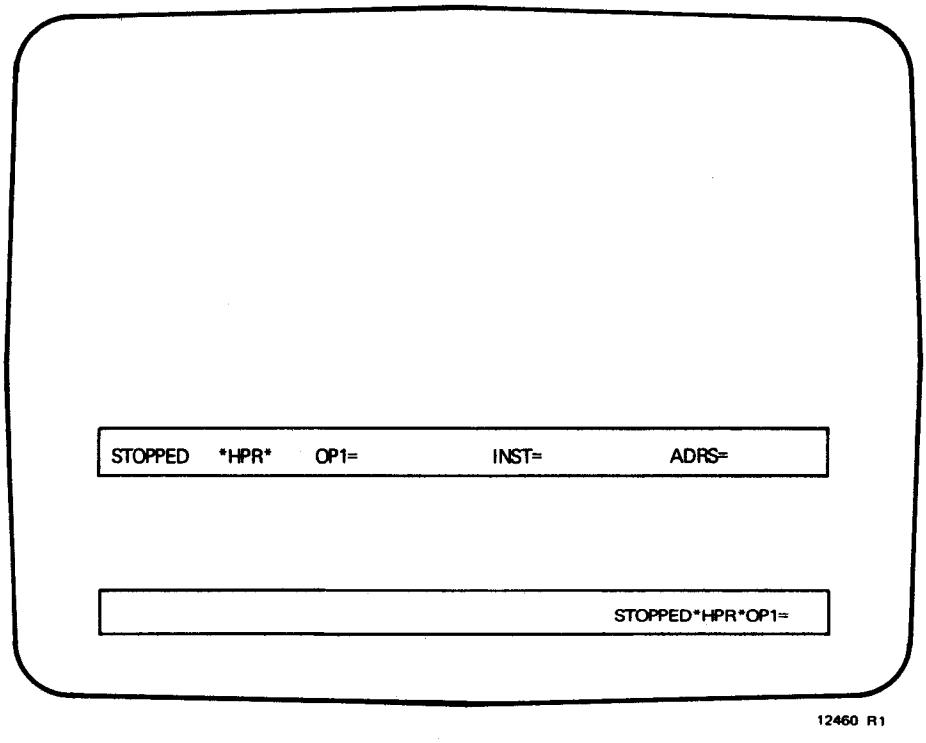


Figure 2-1. Hard Error Console Indication (HPR)

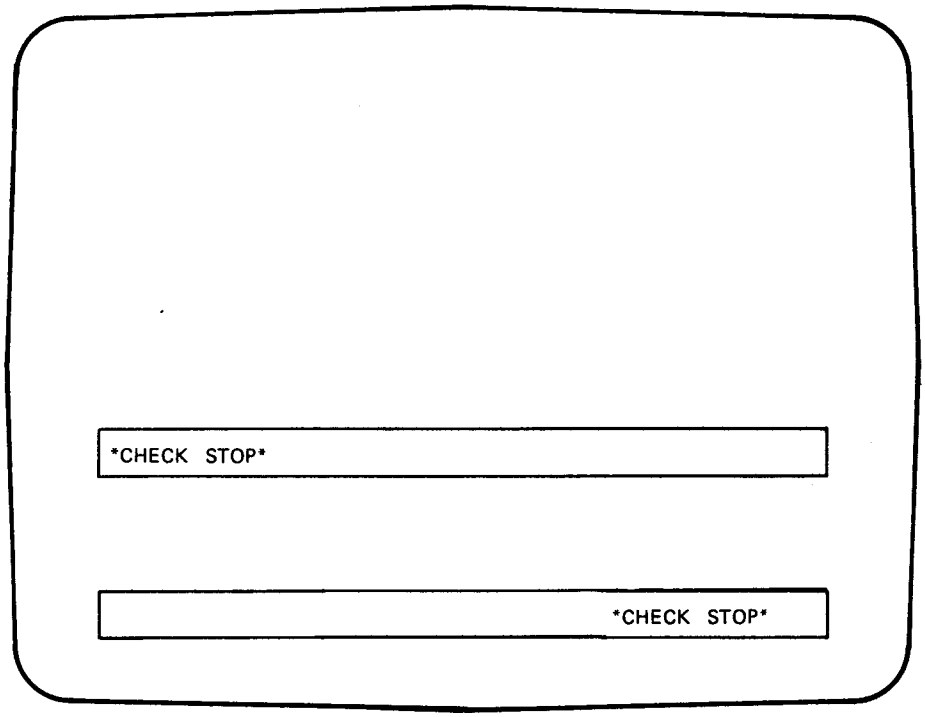


Figure 2-2. Hard Error Console Indication (Check Stop)

When a SOFT ERROR occurs, a message is displayed on the console message line (figure 2-3) and processing continues.

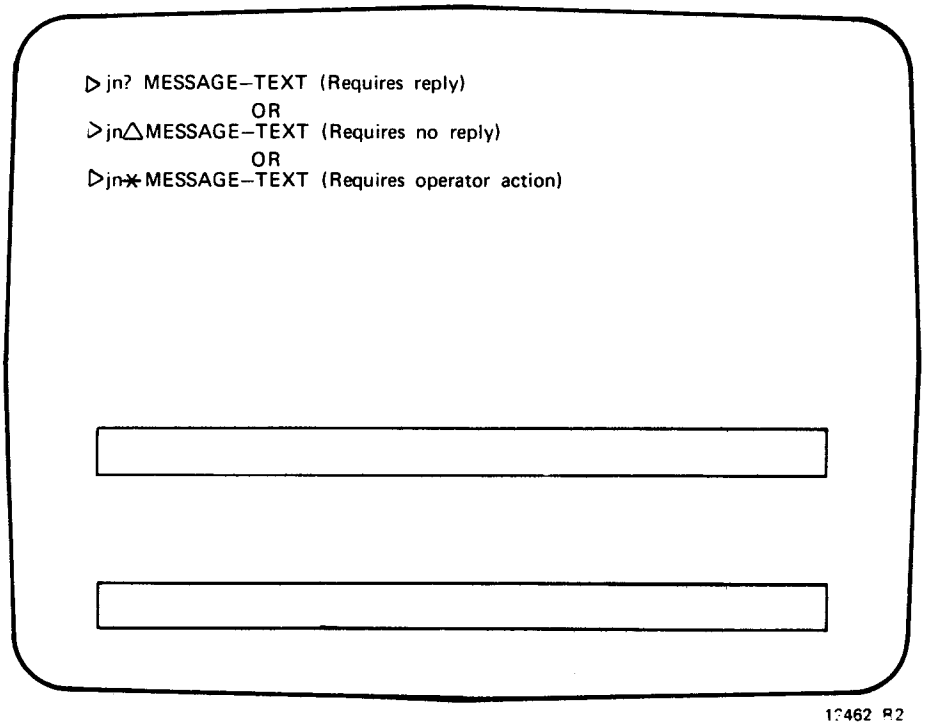


Figure 2-3. Soft Error Indication

2.3. HARD ERROR (HPR STOP)

When a HARD ERROR (HPR STOP) occurs refer to UP-8076 to determine the error type and recovery procedures.

NOTE:

Before attempting error recovery display and record the contents of CUBA and the PSW as described below:

If system console is in Console Mode, simultaneously press FUNCTION key and D key on console keyboard to enter Control Mode.

1. Display Program Status Word (PSW) by entering D PS on the console keyboard.
2. The PSW is displayed on the console screen as illustrated on figure 2-4. Record the PSW.

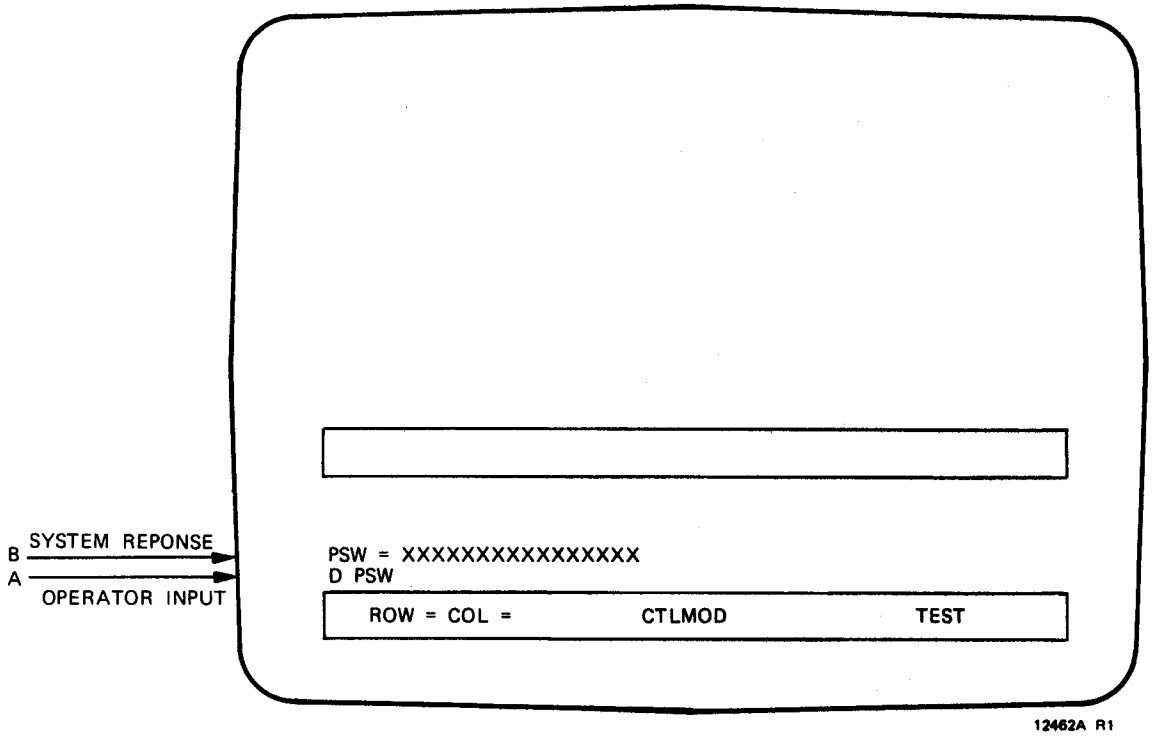


Figure 2-4. Program Status Word (PSW) Display

3. Simultaneously press FUNCTION key and S key on console keyboard.
4. Press S key and XMIT key on console keyboard.
5. Display the Control Unit Bit Array (CUBA) by entering D QB on the console keyboard.
6. CUBA is displayed on the console screen as illustrated on figure 2-5.

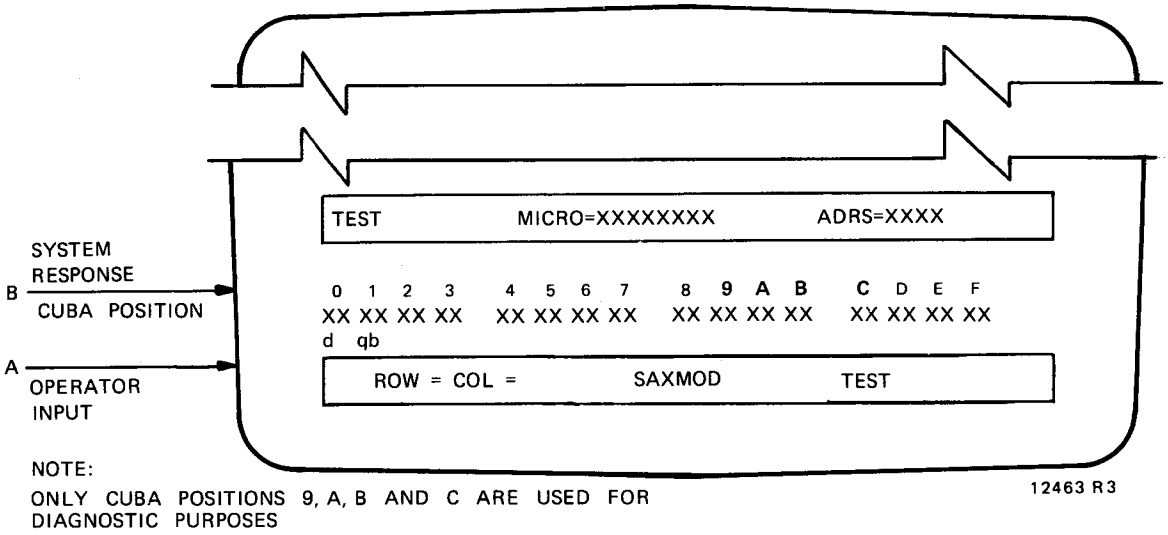


Figure 2-5. Processor Control Unit Bit Array (CUBA) Display

7. Record the contents of CUBA positions 9,A,B and C and proceed to section 3 of this manual and execute the static and dynamic microdiagnostic tests.

8. Obtain a system dump (SYSDUMP). Instructions for obtaining the SYSDUMP are provided in UP-8837 SPERRY UNIVAC OS/3 DUMP ANALYSIS.

9. Save the SYSDUMP.

2.4. HARD ERROR (CHECK STOP)

2.4.1 PROCESSOR CHECKSTOP (CHECKSTOP CP)

When a processor checkstop occurs proceed with the following procedure to obtain an error definition.

1. Simultaneously press FUNCTION Key and S key on console keyboard.

2. Press S key and XMIT key on console keyboard.

3. Display the processor Control Unit Bit Array (CUBA) by entering D QB on the console keyboard.

4. CUBA is displayed on the console screen as illustrated on figure 2-5.

5. Record the contents of CUBA positions 9,A,B and C and proceed to section 3 of this manual and execute the processor static and dynamic microdiagnostic tests.

2.4.2 INPUT OUTPUT MICROPROCESSOR CHECKSTOP (CHECKSTOP IA)

When an IOMP checkstop occurs proceed with the following procedure to obtain an error definition.

1. Enter S IA on console keyboard.
2. Press S key and XMIT key on console keyboard.
3. Display the Input Output Microprocessor (IOMP) Control Unit Bit Array (CUBA) by entering D QB on the console keyboard.
4. The IOMP CUBA is displayed on the console screen as illustrated on figure 2-6.
5. Record the contents of the IOMP CUBA and proceed to section 3 of the manual and execute the IOMP static and dynamic microdiagnostic tests.

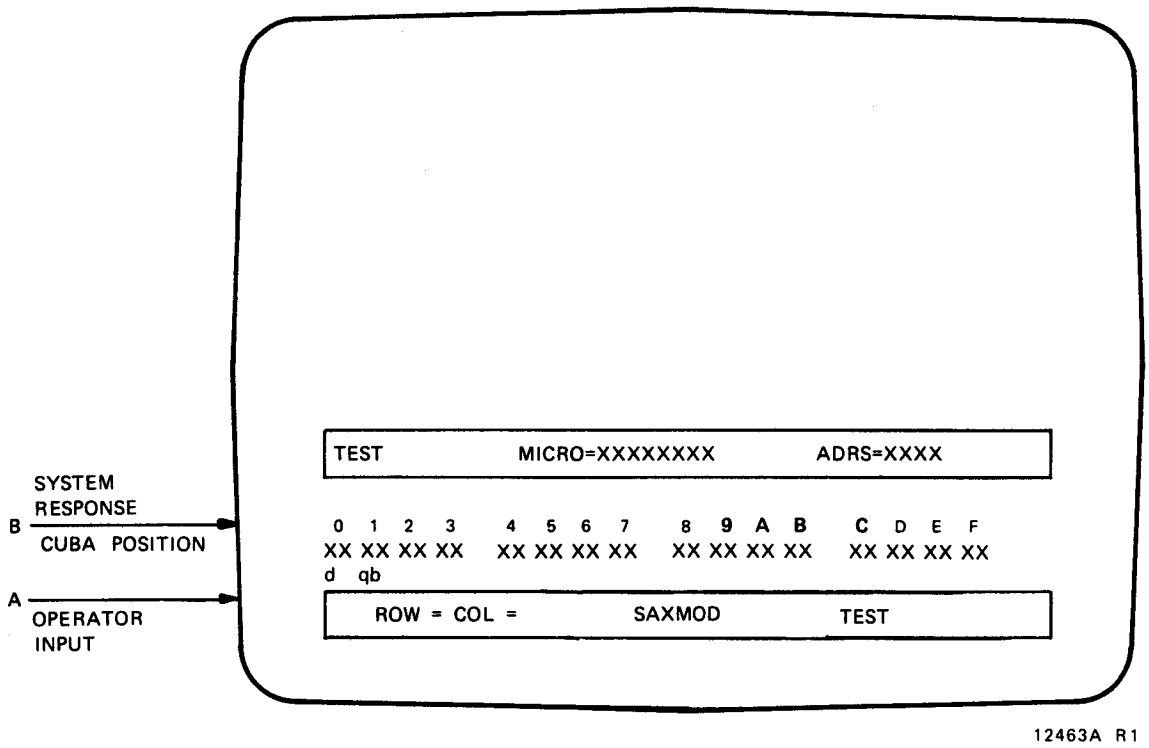


Figure 2-6. Input Output Microprocessor Control Unit Bit Array (CUBA) Display

2.5. SOFT ERROR

When a SOFT ERROR occurs proceed with the following procedure to obtain an error definition.

1. Note the error message on the console screen and refer to UP8076 for error type determination and corrective action.
2. If the error message described in UP8076 references a peripheral (input or output) device, execute the appropriate Online diagnostic tests described in section 5 of this manual.
3. If execution of a valid job that has previously run successfully produces erratic results, execute the Macrodiagnostic tests described in section 4 of this manual.

2.6 SYSTEM HANG

When a system hang occurs proceed with the following procedure to recover.

1. Press console RESET switch
2. Simultaneously press FUNC and D keys on keyboard
3. Simultaneously press FUNC and STOP keys on keyboard
4. Simultaneously press FUNC and START keys on keyboard
5. Simultaneously press FUNC and C keys on keyboard
6. Simultaneously press FUNC and UNLOCK keys on keyboard
7. Press XMIT key on keyboard.

3. Operating Procedures For Microdiagnostic Tests

3.1. GENERAL

This section of the manual contains illustrated step-by-step instructions for loading and executing the static and dynamic microdiagnostic tests. The microdiagnostic tests are executed when a hard error was detected in the fault isolation procedures in section 2 of this manual.

3.2. OPERATING PROCEDURES

The microdiagnostic operating procedures are contained on four figures:

Figure 3-1 - Contains the operating procedures for the static microdiagnostics.

Figure 3-2 - Contains the operating procedures for the dynamic microdiagnostics.

Figure 3-3- Contains the operating procedures for the I/O microprocessor static microdiagnostics.

Figure 3-4 - Contains the operating procedures for the I/O microprocessor dynamic microdiagnostics.

NOTE:

All static microdiagnostic tests must be run prior to running the dynamic microdiagnostic tests.

The operating procedures are presented in pictorial format. Each step of the operating procedures is represented by an illustration of the console screen. The operator input and system response information are in alphabetic sequence and are represented by alphabetic entries at the side of the illustration.

3.2.1 PROCESSOR STATIC AND DYNAMIC MICRODIAGNOSTIC TESTS

Prepare the system for loading and executing the processor microdiagnostics as follows:

Step	Description
1	Place appropriate microdiagnostic diskette in diskette drive.
2	Simultaneously press S key and FUNCTION key on console keyboard.
3	Press S key and XMIT key on console keyboard and proceed to figure 3-1 to execute the static microdiagnostic test or to figure 3-2 to execute the dynamic microdiagnostic tests.

NOTE:

All data is entered in lower case, except Katakana.

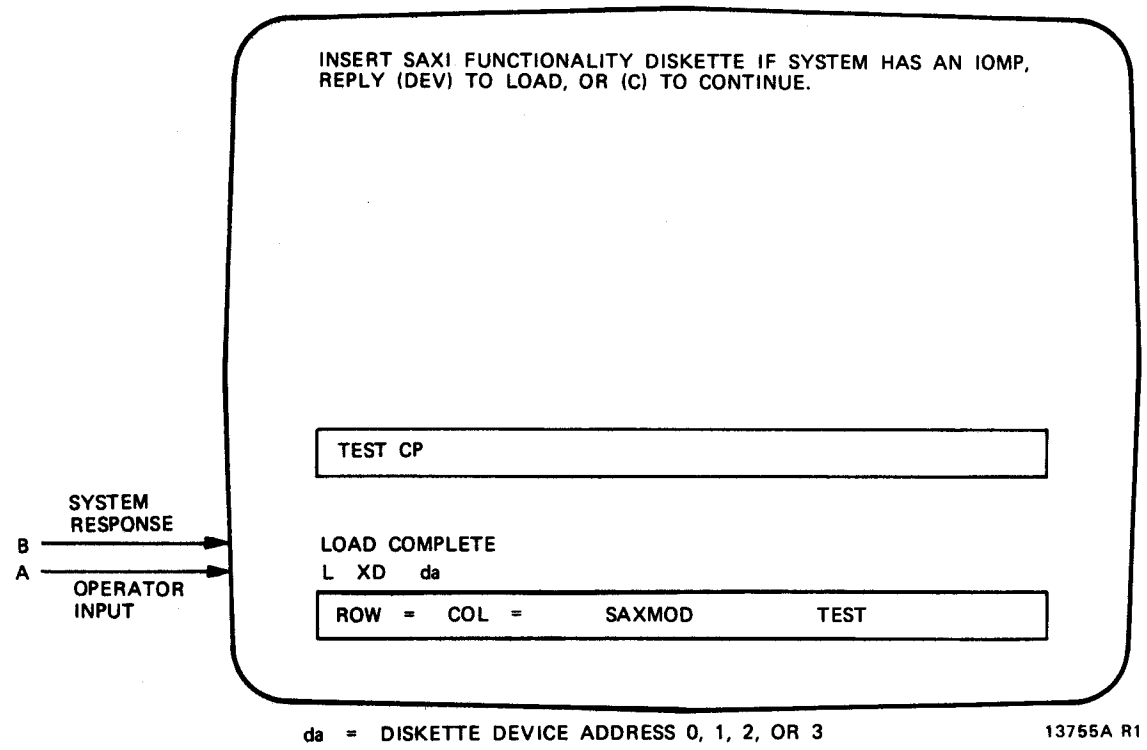


Figure 3-1. Static Microdiagnostic Operating Procedures (a)

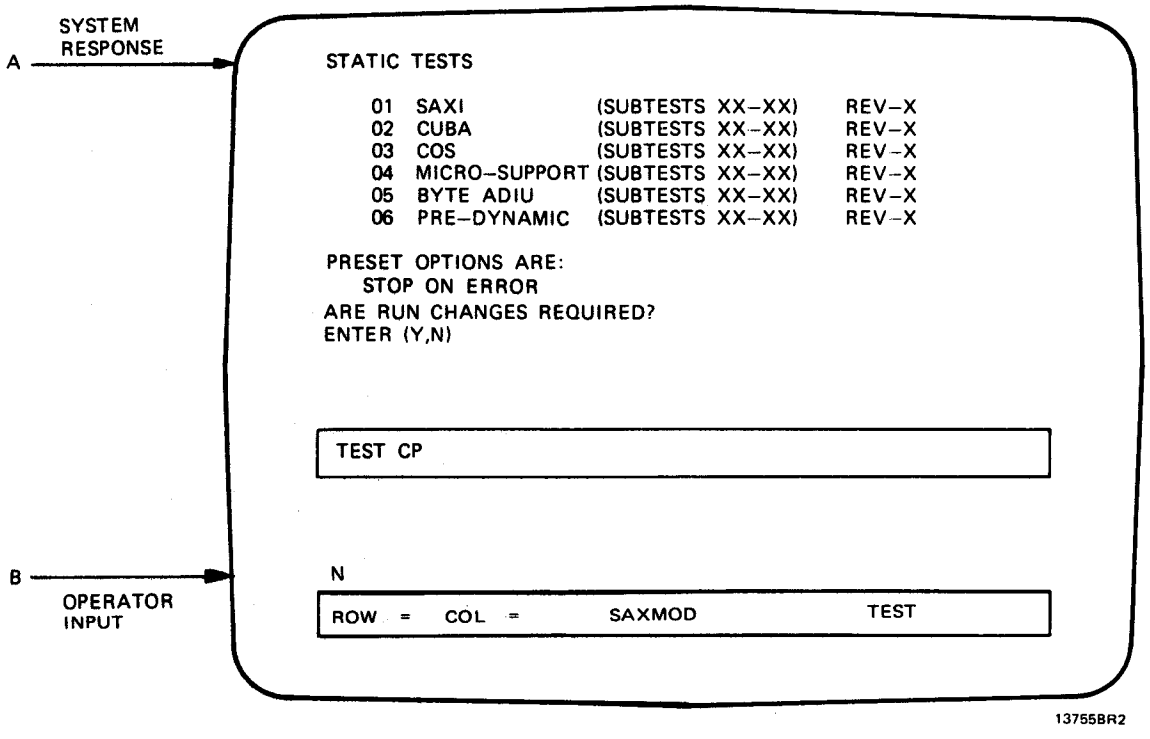


Figure 3-1. Static Microdiagnostic Operating Procedures (b)

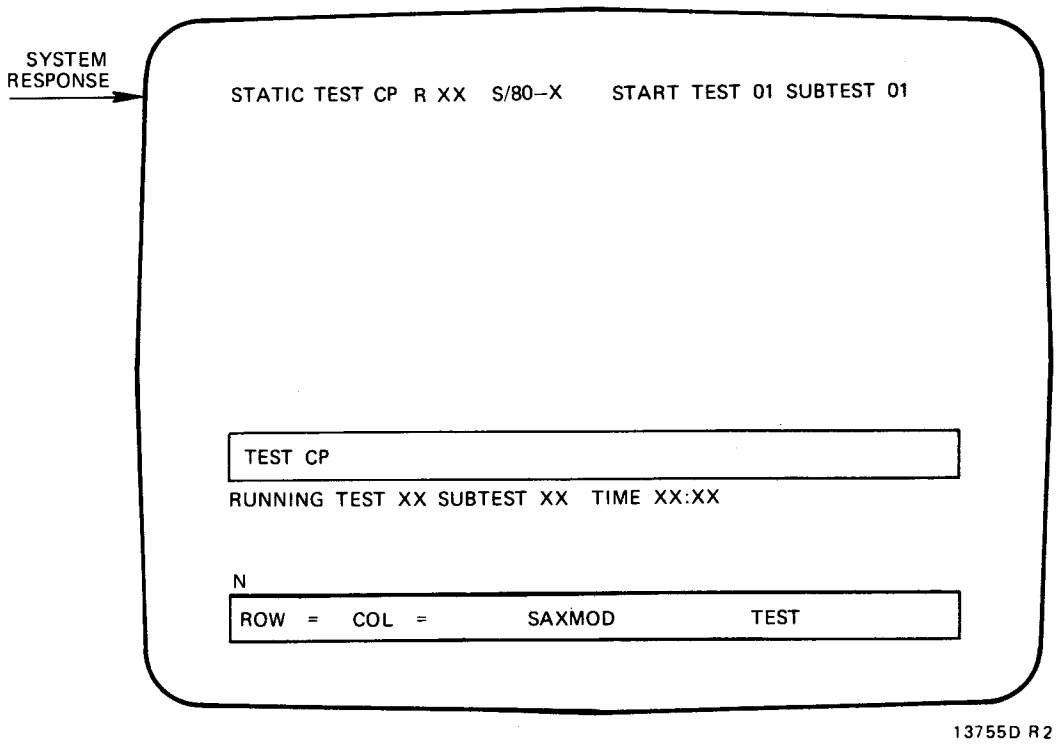


Figure 3-1. Static Microdiagnostic Operating Procedures (c)

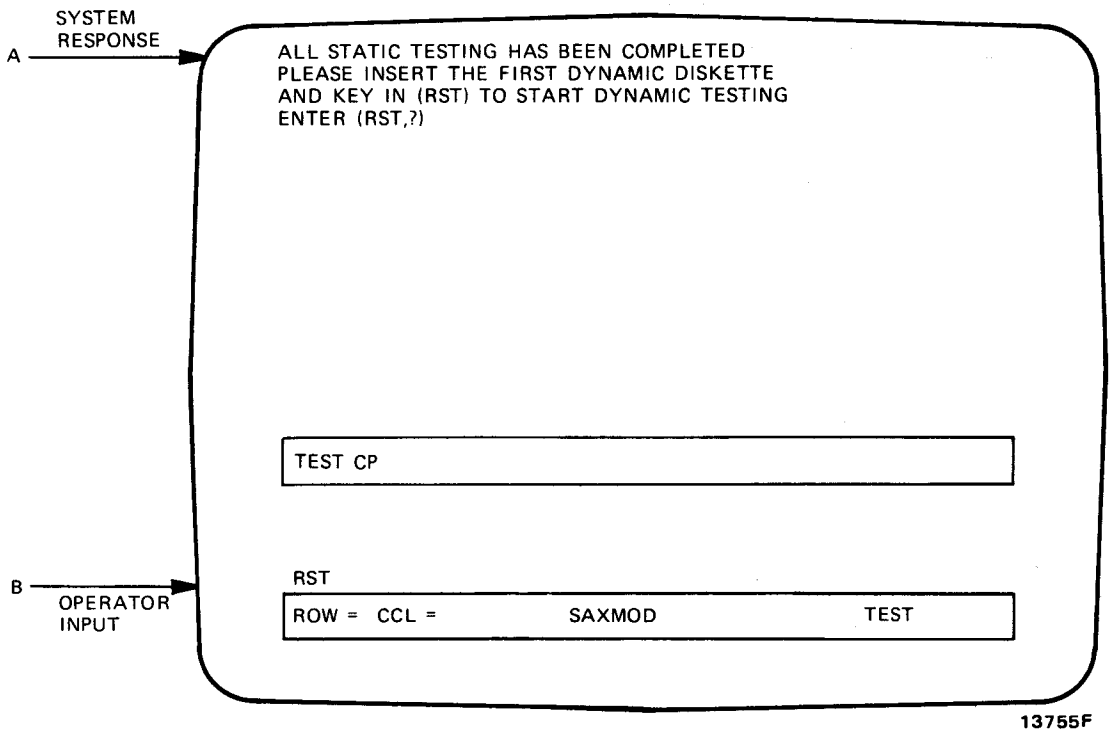


Figure 3-1. Static Microdiagnostic Operating Procedures (d)

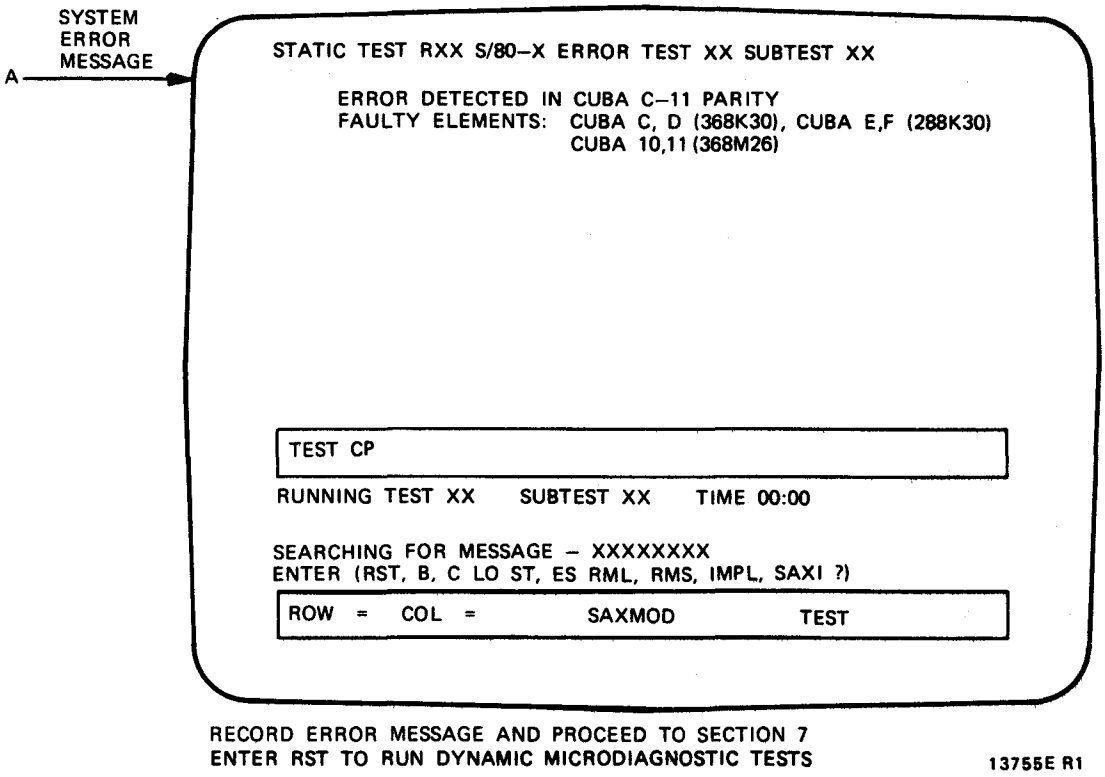


Figure 3-1. Static Microdiagnostic Operating Procedures (e)

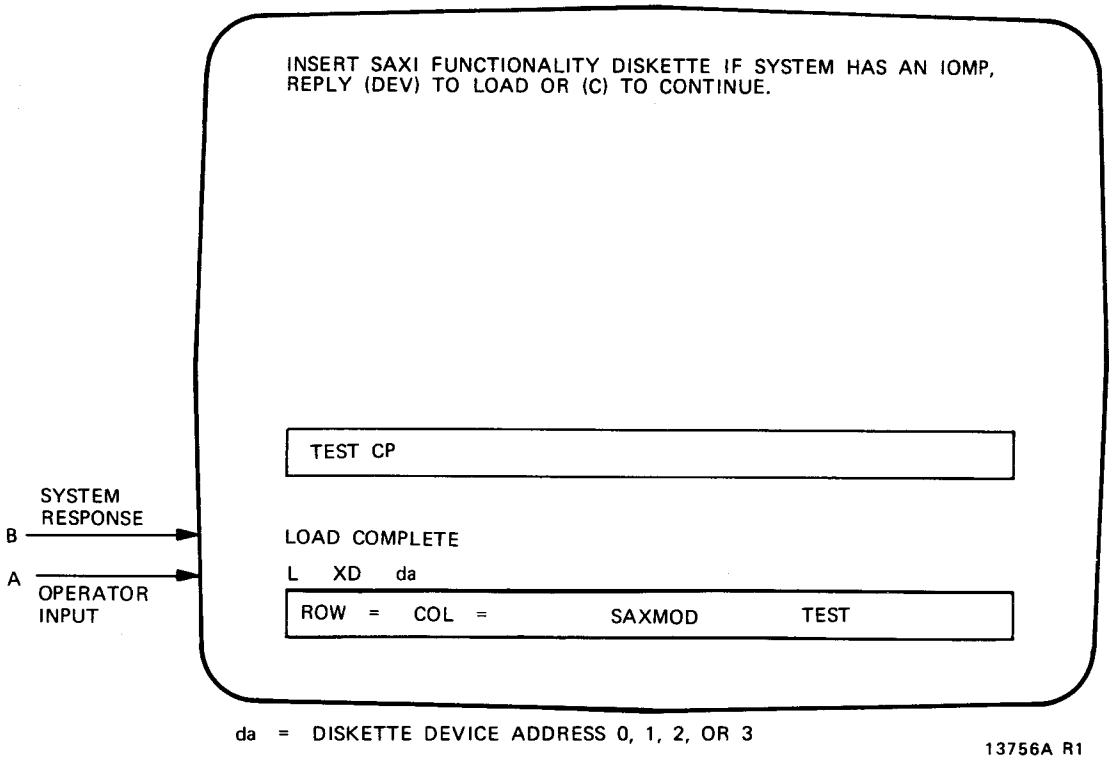


Figure 3-2. Dynamic Microdiagnostic Operating Procedures (a)

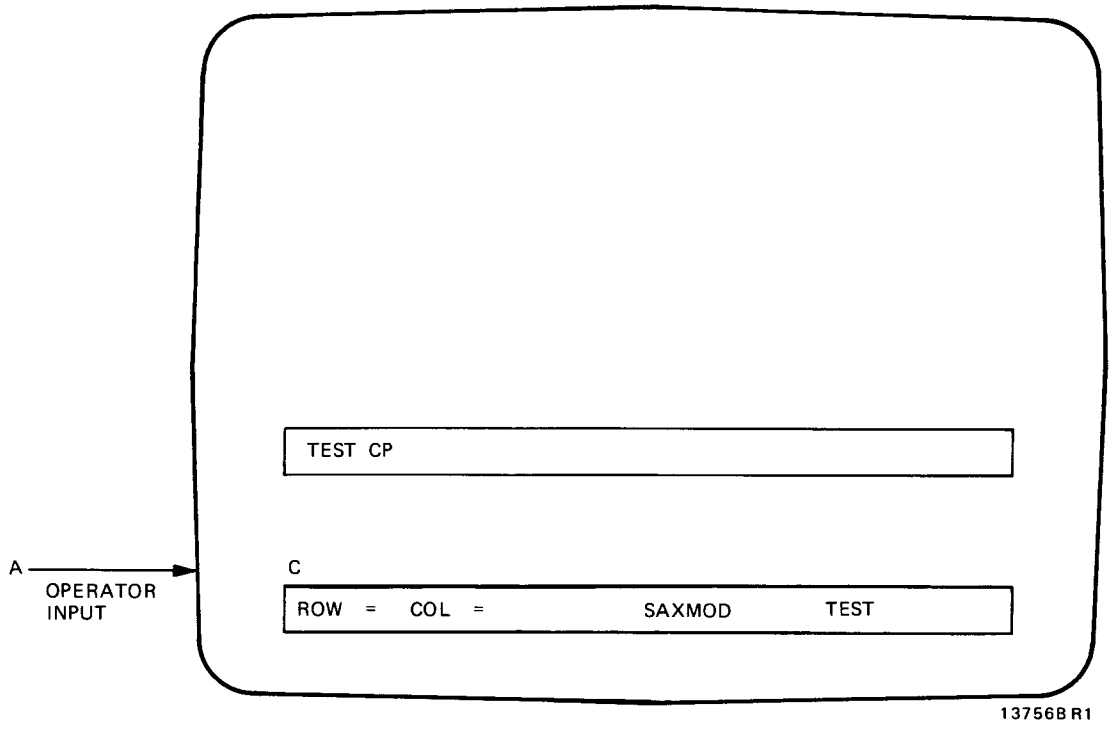


Figure 3-2. Dynamic Microdiagnostic Operating Procedures (b)

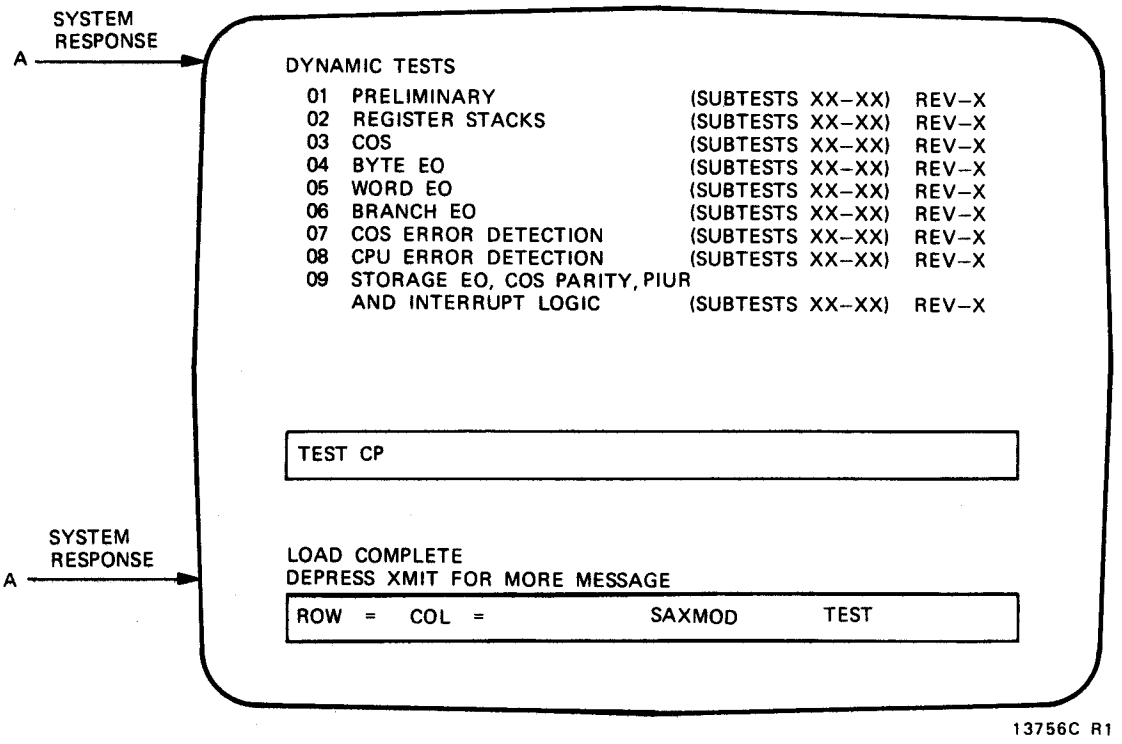


Figure 3-2. Dynamic Microdiagnostic Operating Procedures (c)

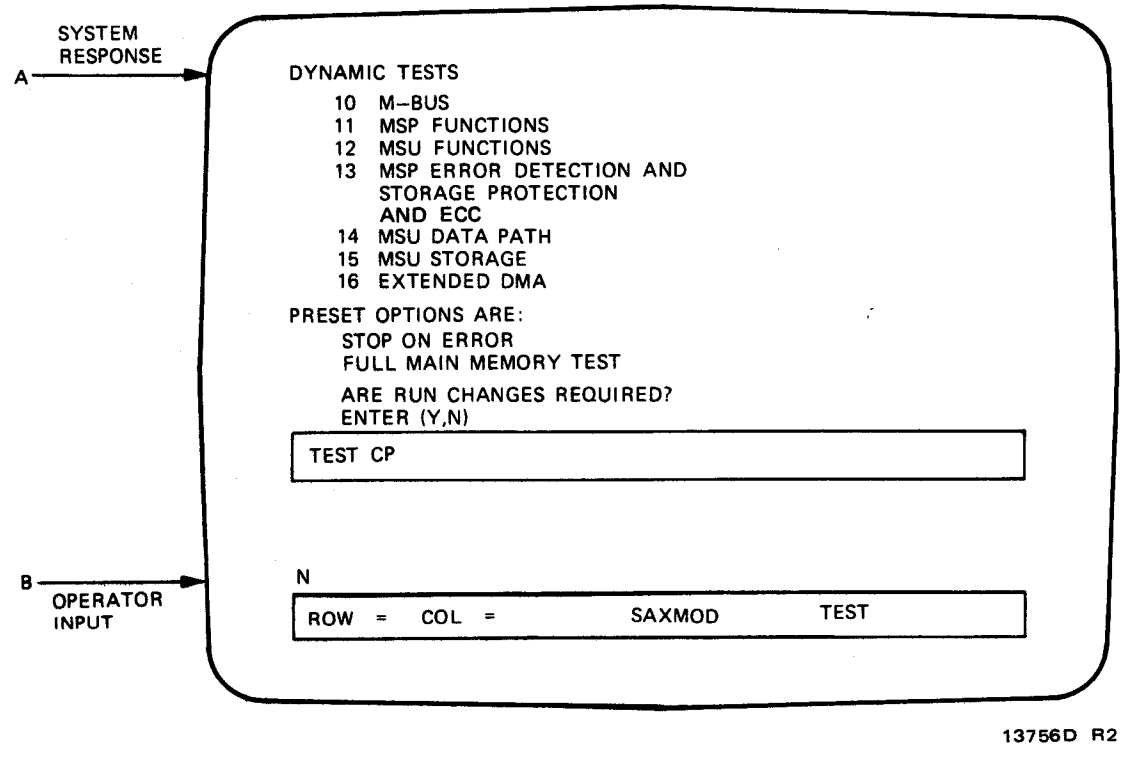


Figure 3-2. Dynamic Microdiagnostic Operating Procedures (d)

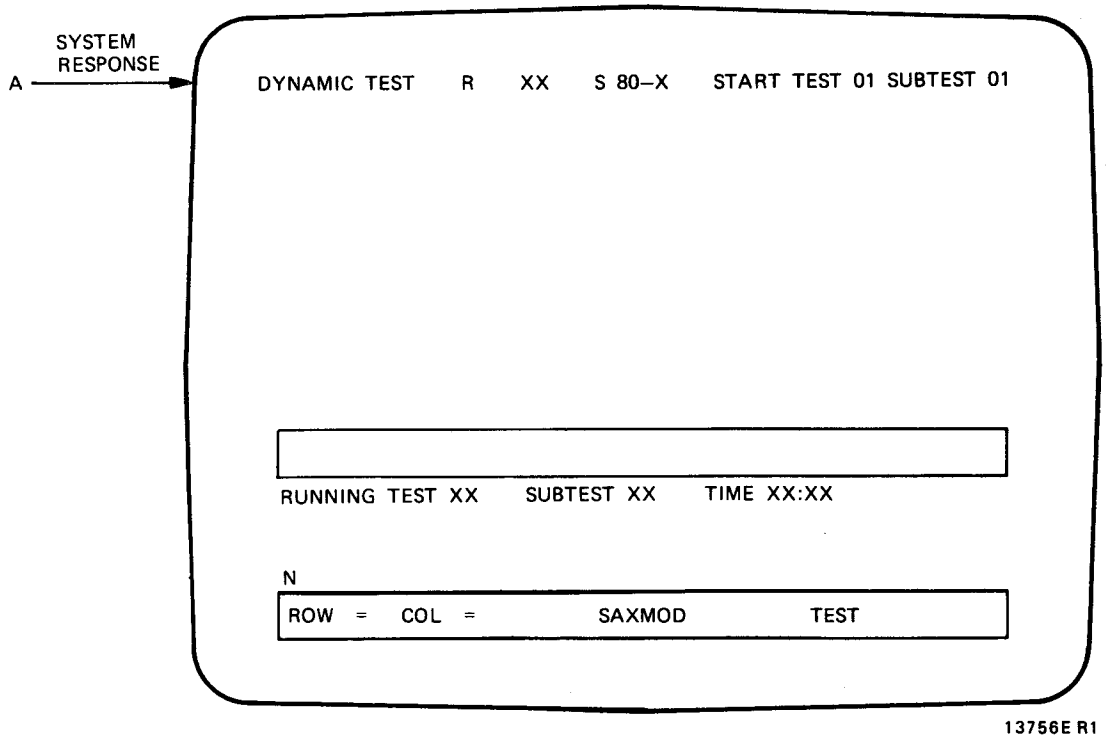
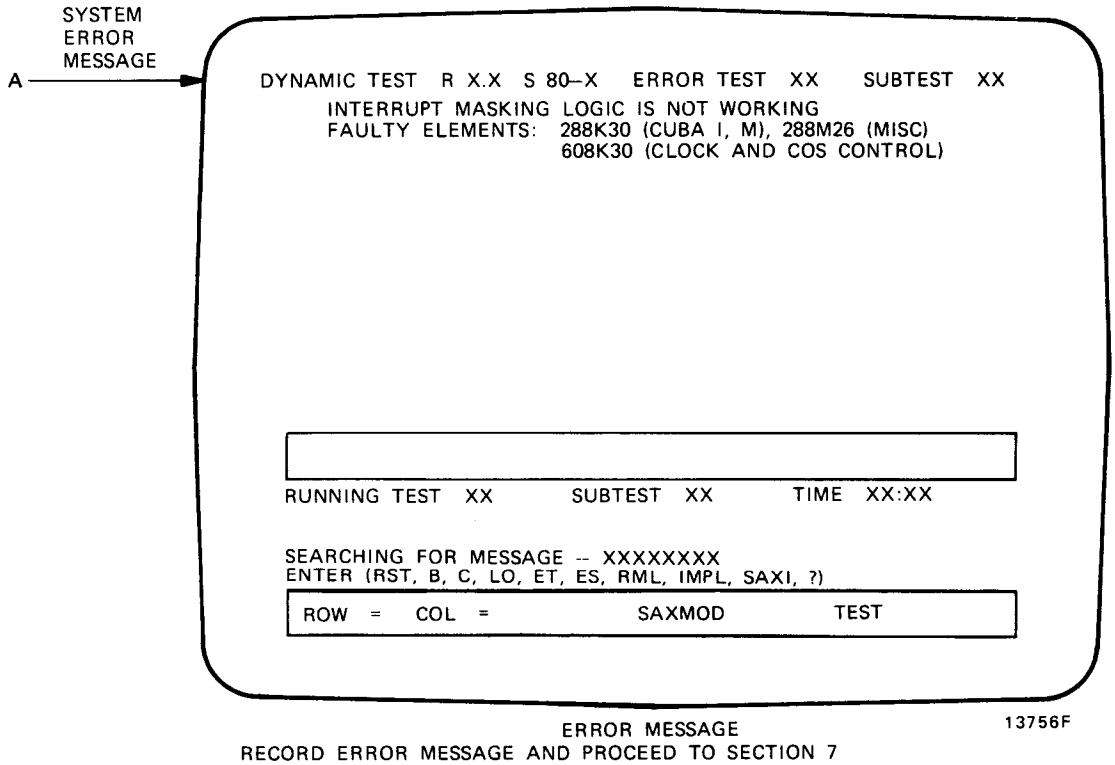


Figure 3-2. Dynamic Microdiagnostic Operating Procedures (e)



ERROR MESSAGE
RECORD ERROR MESSAGE AND PROCEED TO SECTION 7

Figure 3-2. Dynamic Microdiagnostic Operating Procedures (f)

3.2.2 I/O MICROPROCESSOR STATIC AND DYNAMIC MICRODIAGNOSTIC TESTS

Prepare the system for loading and executing the I/O microprocessor microdiagnostic tests as described in table 3-1.

NOTE:

- *If the message CHECKSTOP IA appears on the console screen after the IMPL/IPL sequence, start the sequence with step 1 in table 3-1.*
- *If the message CHECKSTOP IA appears on the console screen during normal system operation, start the sequence with step 5 in table 3-1.*

Table 3-1

Step	Action
1	Simultaneously press FUNCTION and S keys on the console keyboard.
2	Press S and XMIT keys on console keyboard.
3	Place extended SAXI diskette in diskette drive.
4	Enter L SX N on console keyboard. N is number of diskette drive. Press XMIT key. LOAD COMPLETE appears on console screen when diskette is loaded.
5	Place IOMP test diskette (DH4710) in diskette drive.
6	Enter L XD N on console keyboard. N is number of diskette drive. Press XMIT key. LOAD COMPLETE appears on console screen when diskette is loaded.
7	Continue IOMP sequence with figures 3-3 and 3-4.

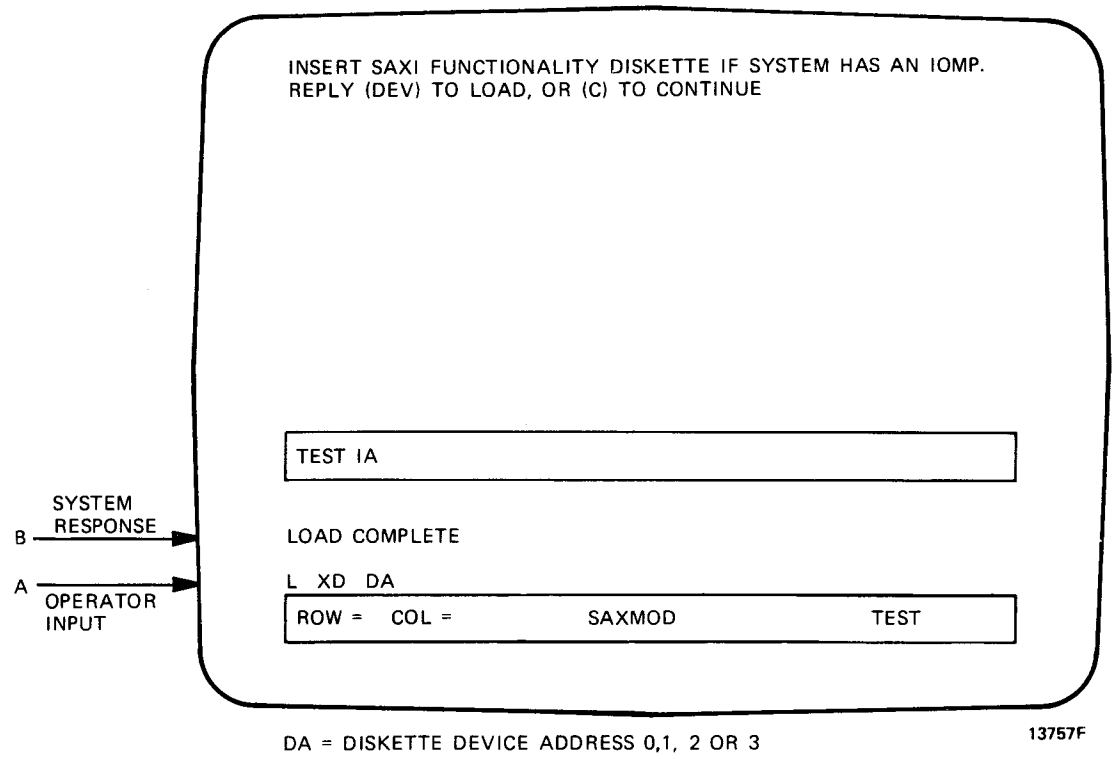


Figure 3-3. IOMP Static Microdiagnostics Tests (a)

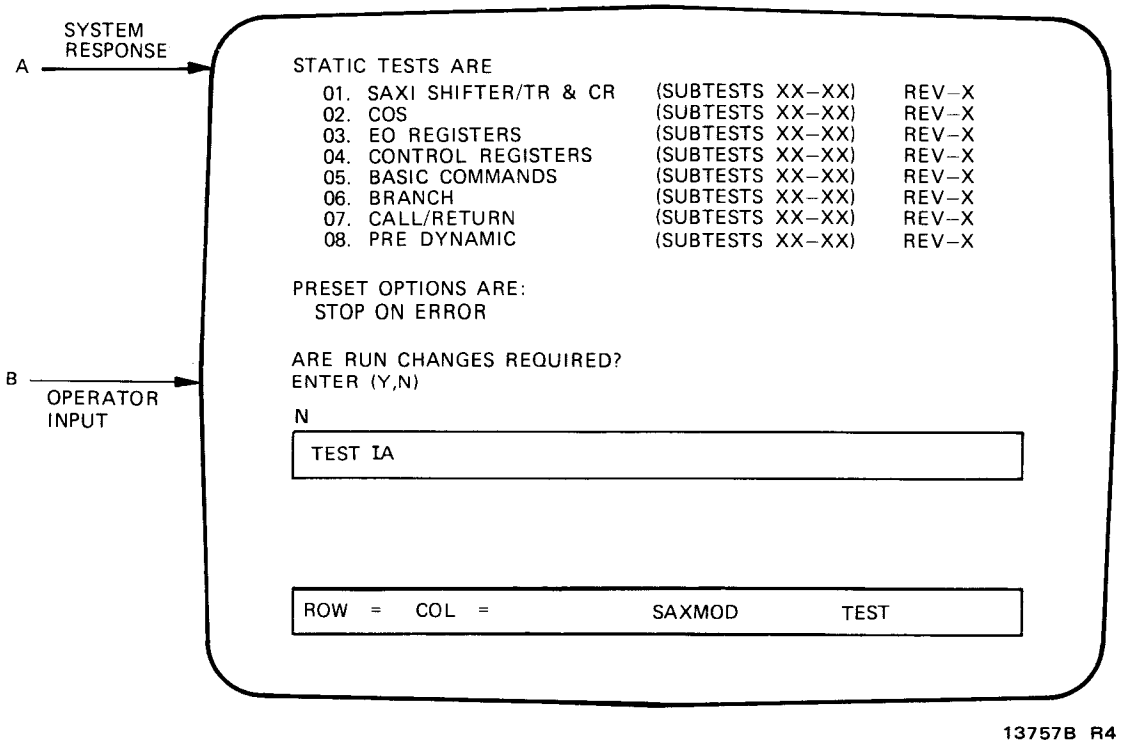


Figure 3-3. IOMP Static Microdiagnostics Tests (b)

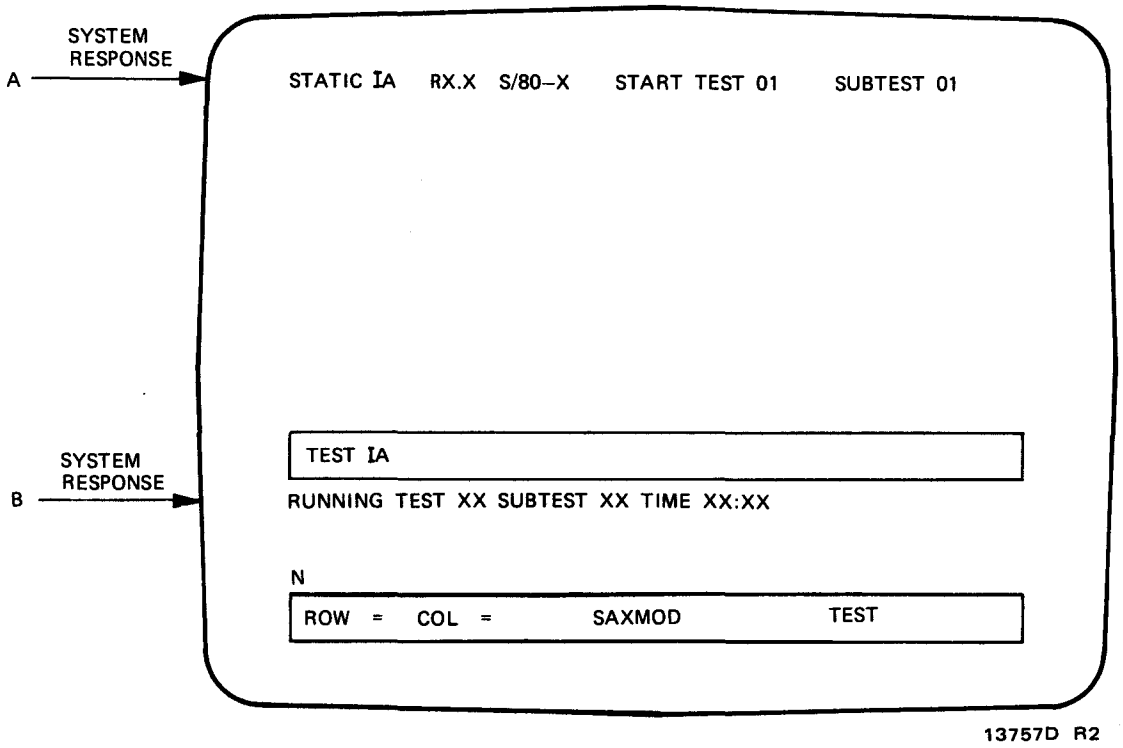


Figure 3-3. IOMP Static Microdiagnostics Tests (c)

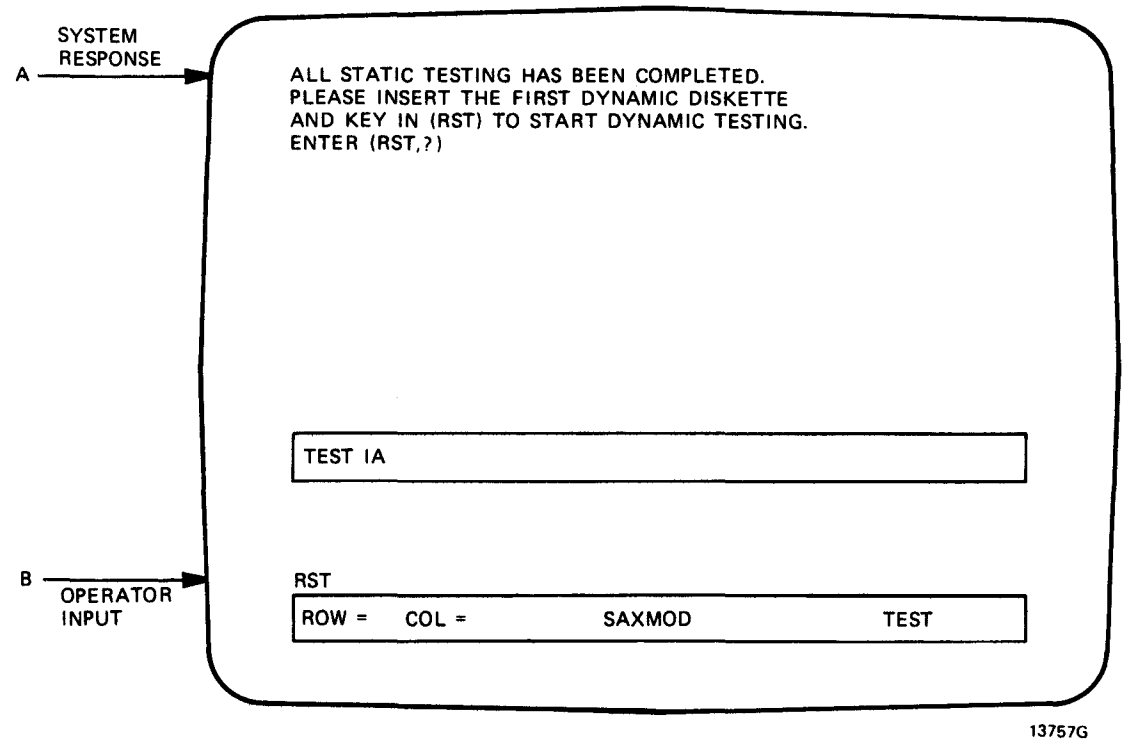


Figure 3-3. IOMP Static Microdiagnostics Tests (d)

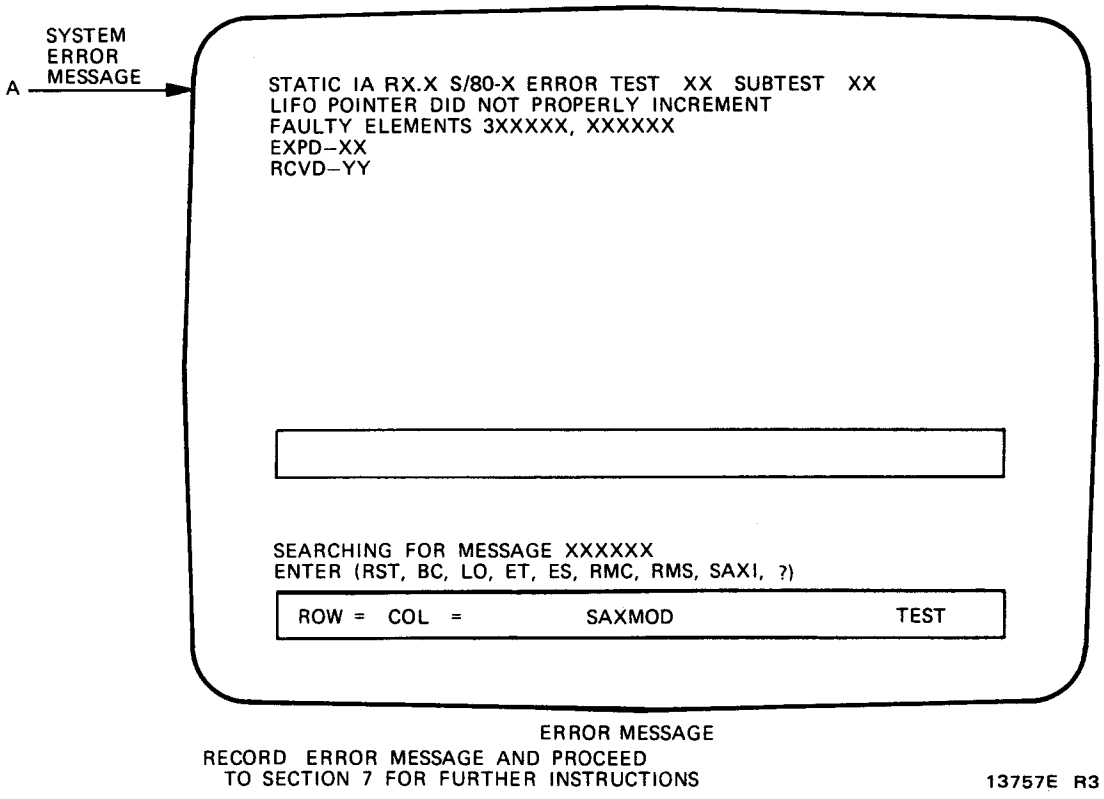


Figure 3-3. IOMP Static Microdiagnostic Tests (e)

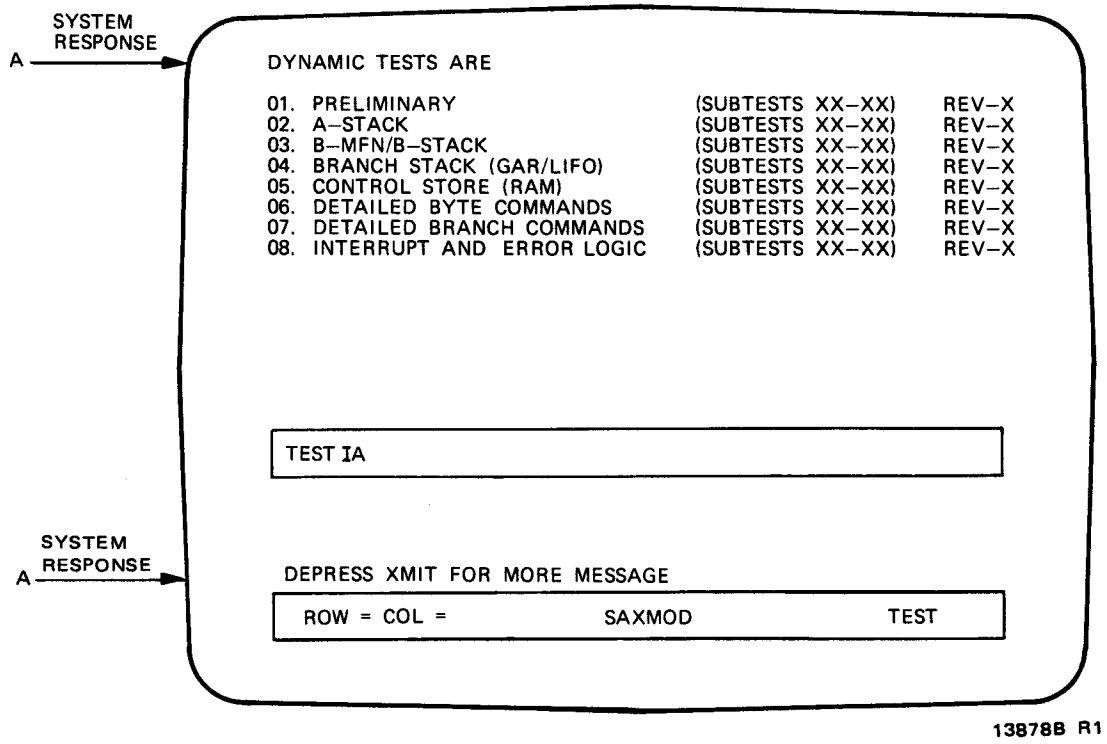


Figure 3-4. IOMP Dynamic Microdiagnostic Tests (a)

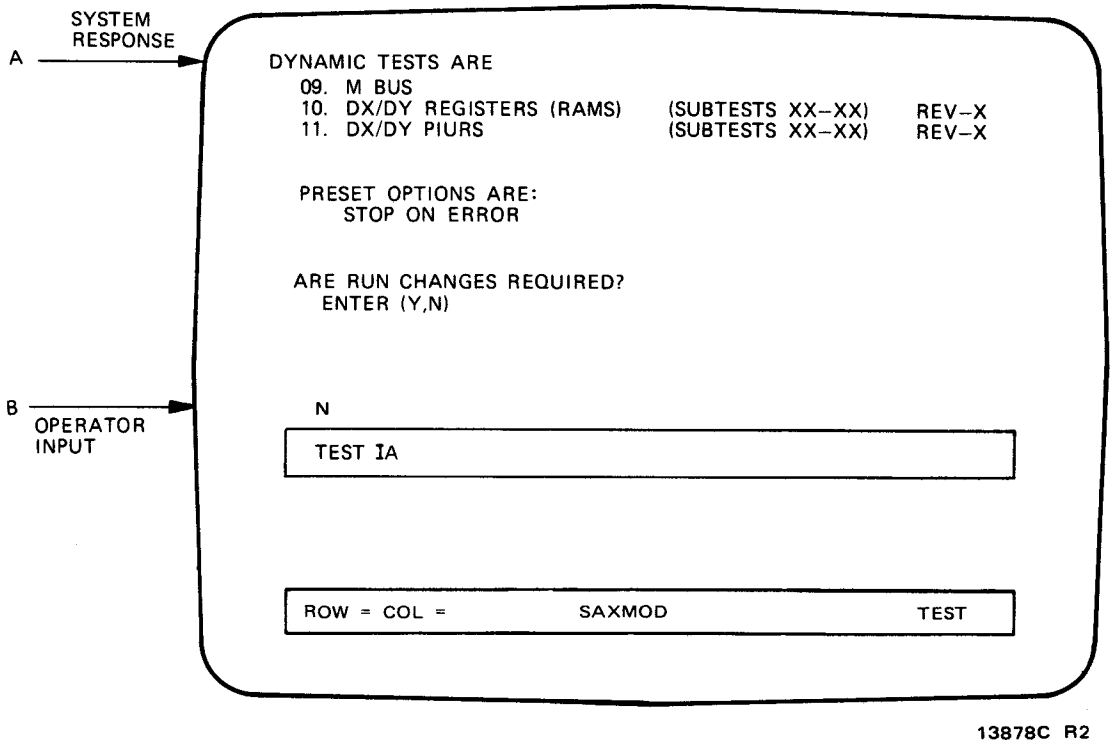


Figure 3-4. IOMP Dynamic Microdiagnostic Tests (b)

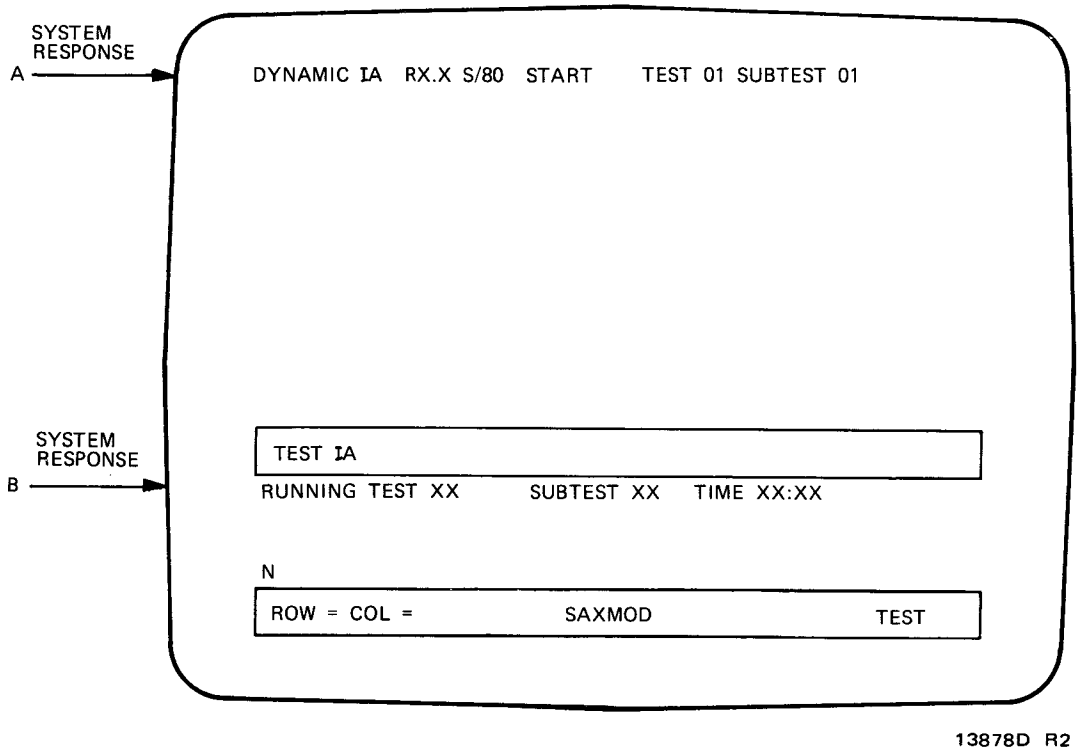


Figure 3-4. IOMP Dynamic Microdiagnostic Tests (c)

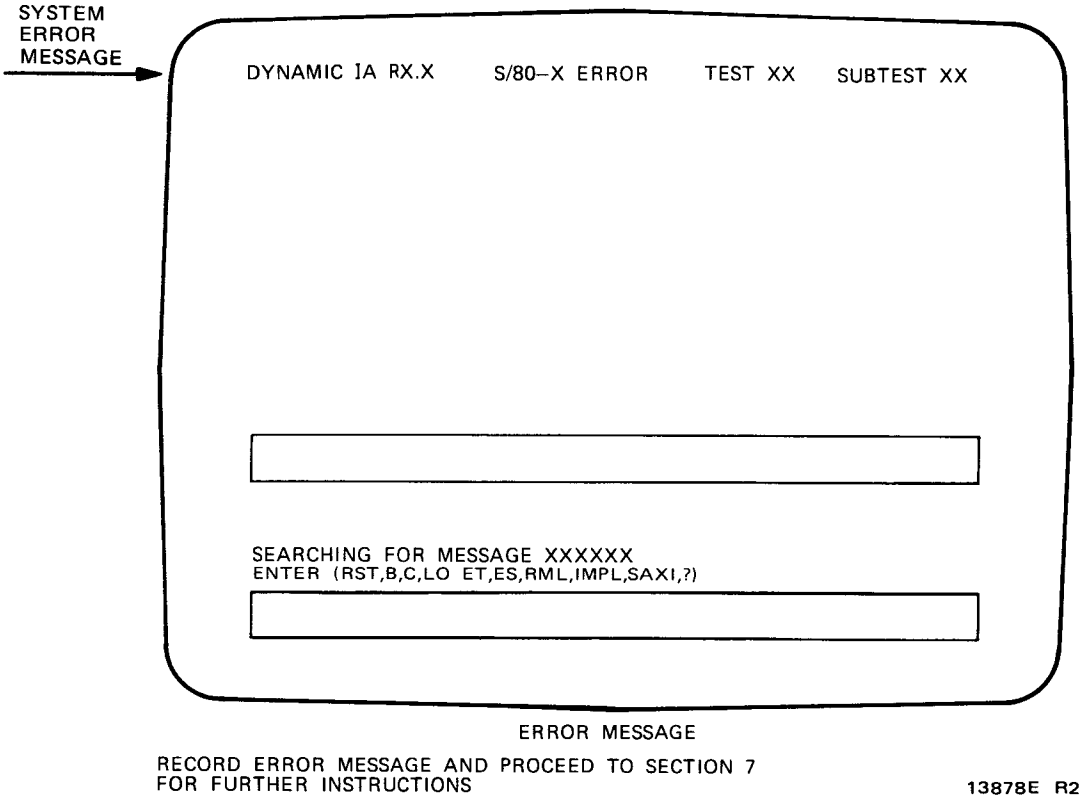


Figure 3-4. IOMP Dynamic Microdiagnostic Tests (d)

4. Operating Procedures For Macrodiagnostic (Instruction) Tests

4.1. GENERAL

This section of the manual contains illustrated step-by-step instructions for loading and executing the macrodiagnostic (instruction) tests. The macrodiagnostic tests are executed when an instruction error was detected in the fault isolation procedures in section 2 of this manual.

4.2. OPERATING PROCEDURES

The macrodiagnostic operating procedures are contained in figures 4-1, 4-2 and 4-3. The operating procedures are presented in pictorial format. Each step of the operating procedures is represented by an illustration of the console screen. The operator input and system response information are in alphabetic sequence and are represented by alphabetic entries at the side of the illustration.

Prepare the system for loading and executing the macrodiagnostics as follows:

Step	Action
1	Place macrodiagnostic diskette (DH4720) in diskette drive.
2	Press IPL key on console keyboard and proceed to figure 4-1 to execute the macrodiagnostic tests.

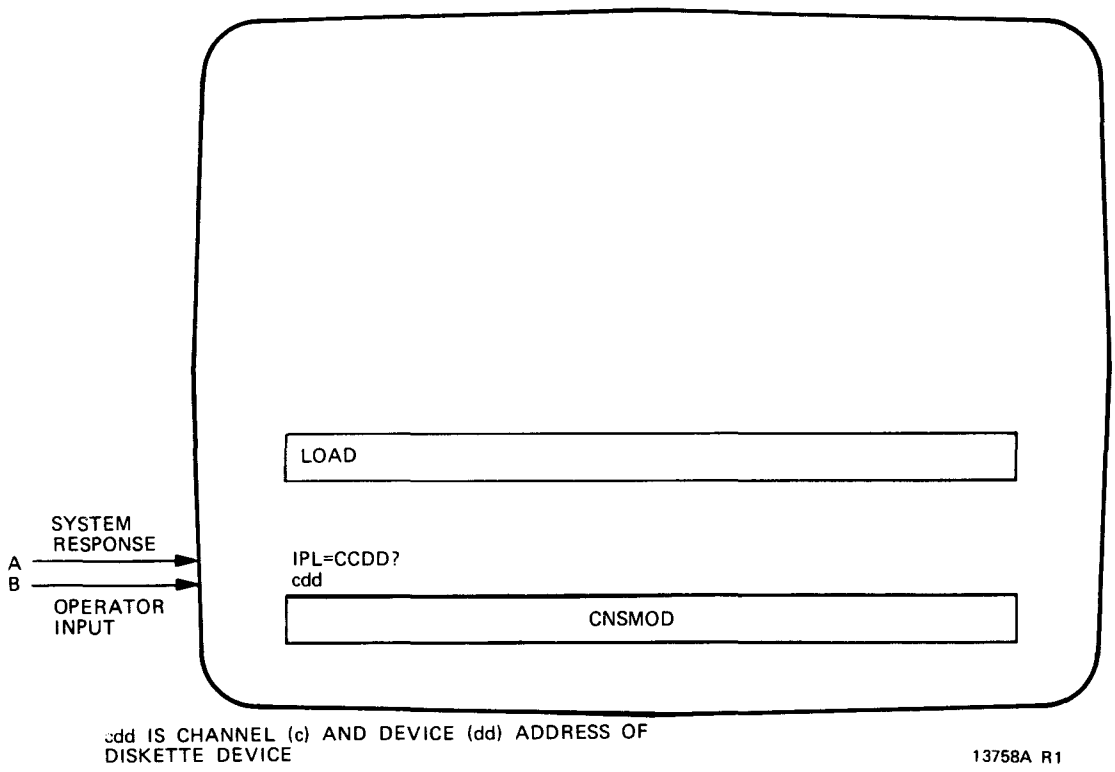


Figure 4-1. Macrodiagnostic Operating Procedures (a)

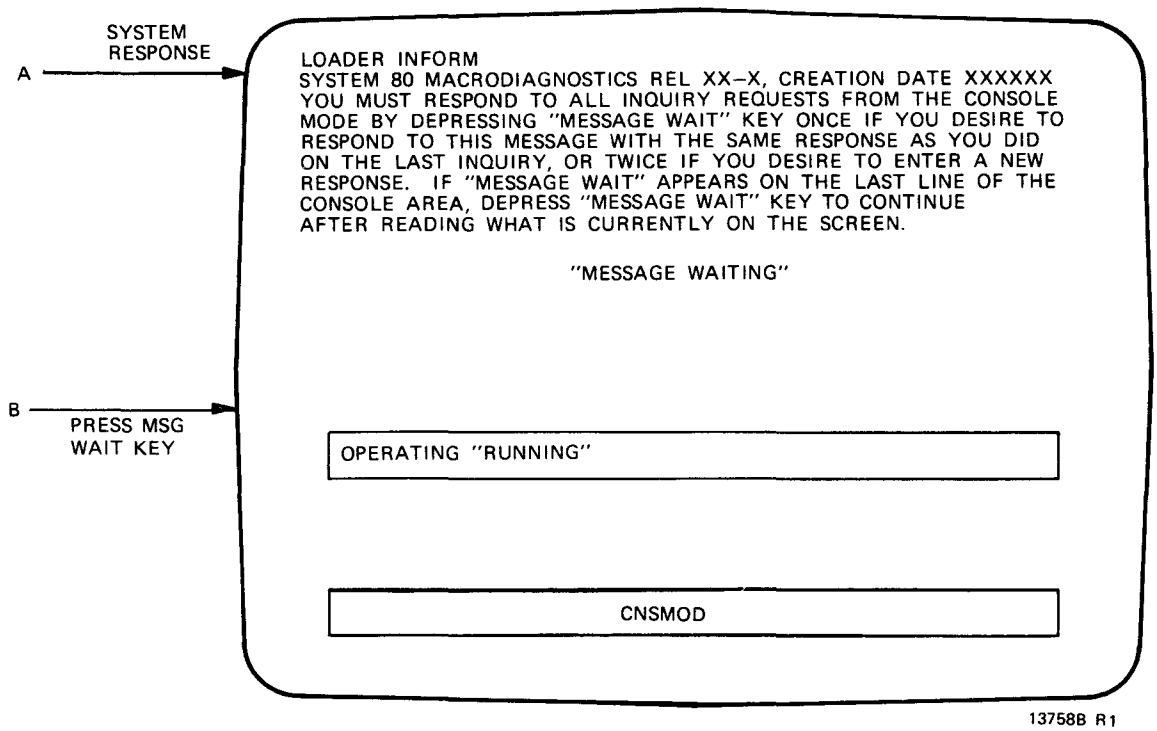


Figure 4-1. Macrodiagnostic Operating Procedures (b)

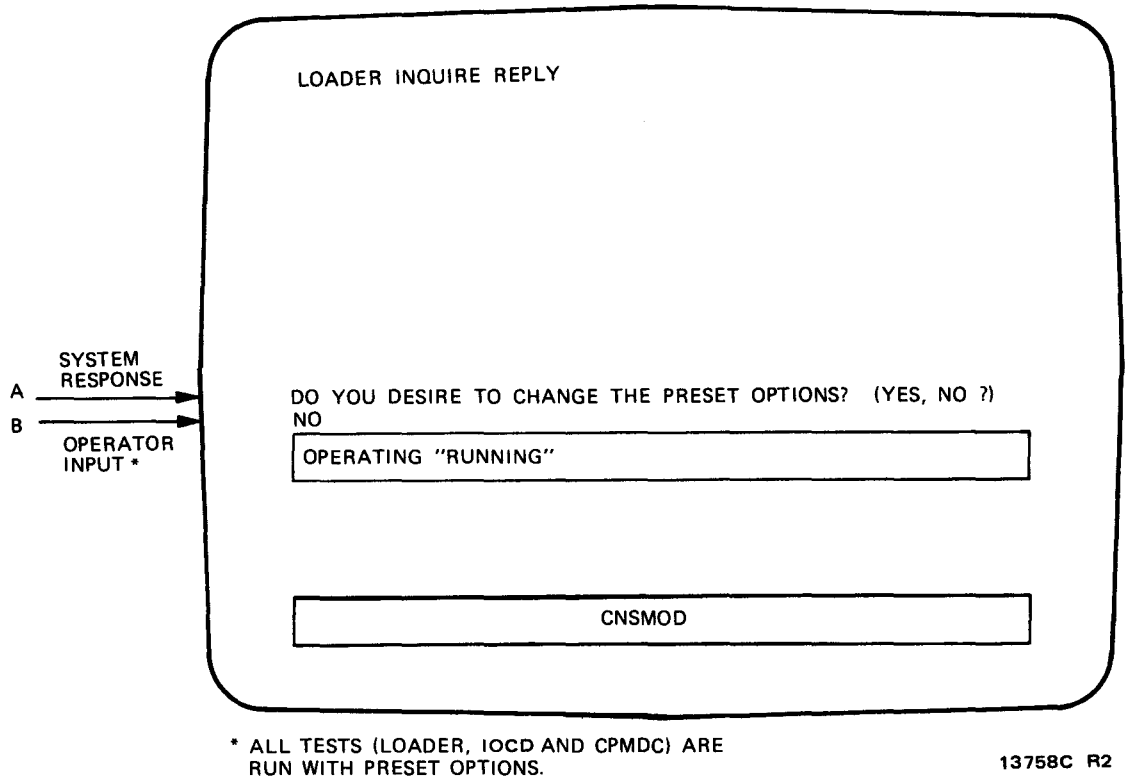


Figure 4-1. Macrodiagnostic Operating Procedures (c)

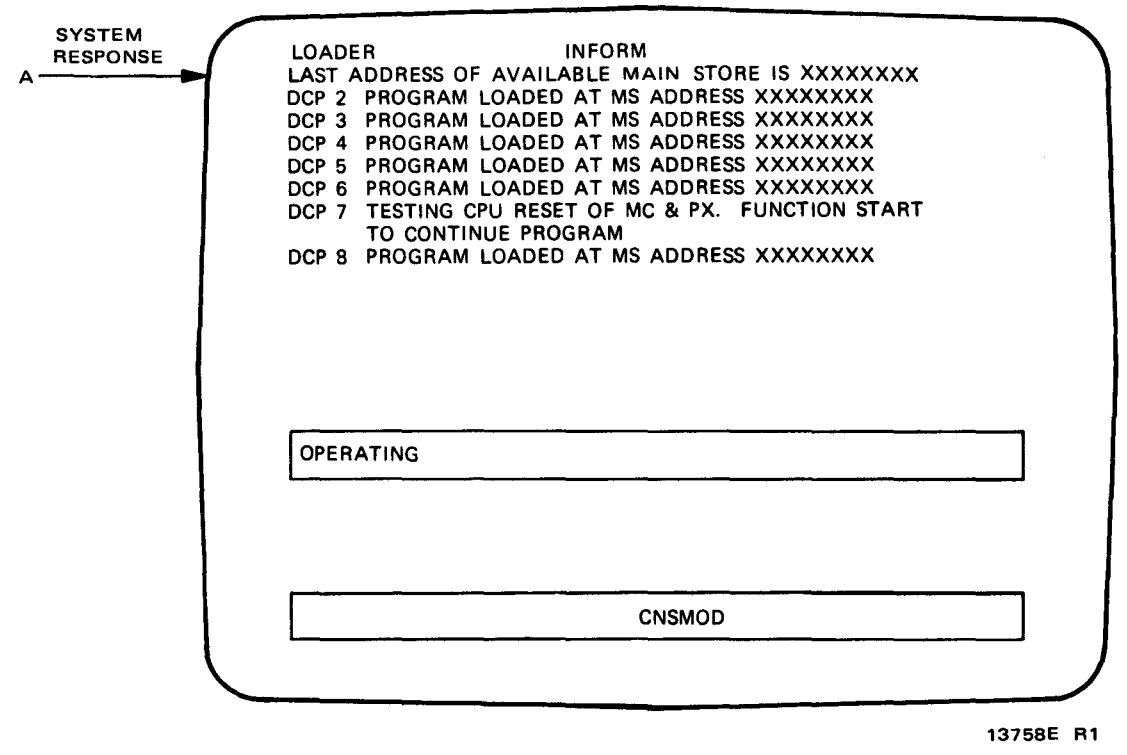


Figure 4-1. Macrodiagnostic Operating Procedures (d)

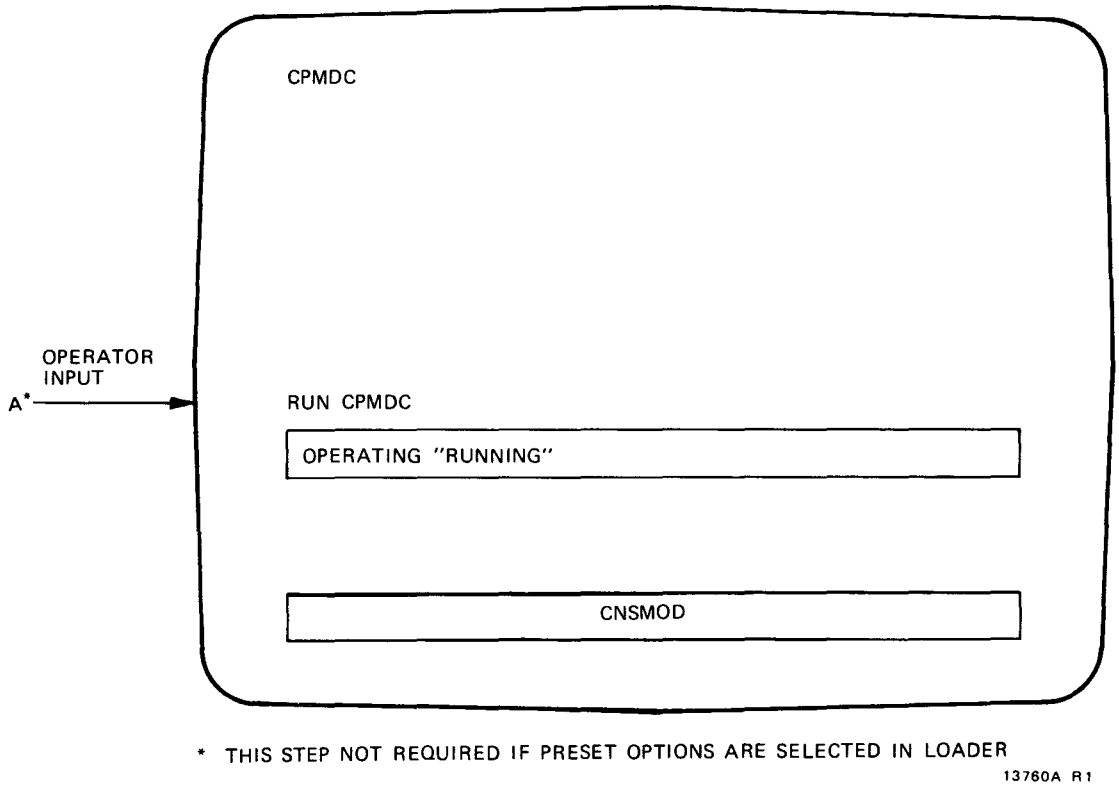


Figure 4-2. CPMDC Macrodiagnostic Operating Procedures (a)

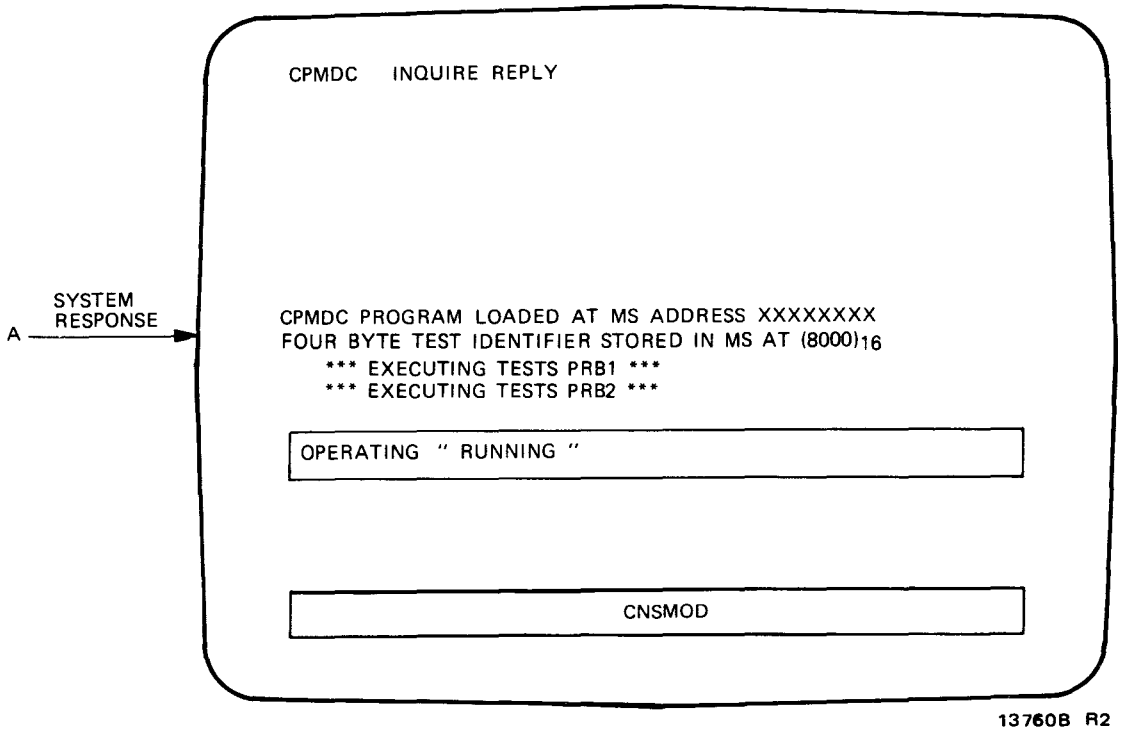


Figure 4-2. CPMDC Macrodiagnostic Operating Procedures (b)

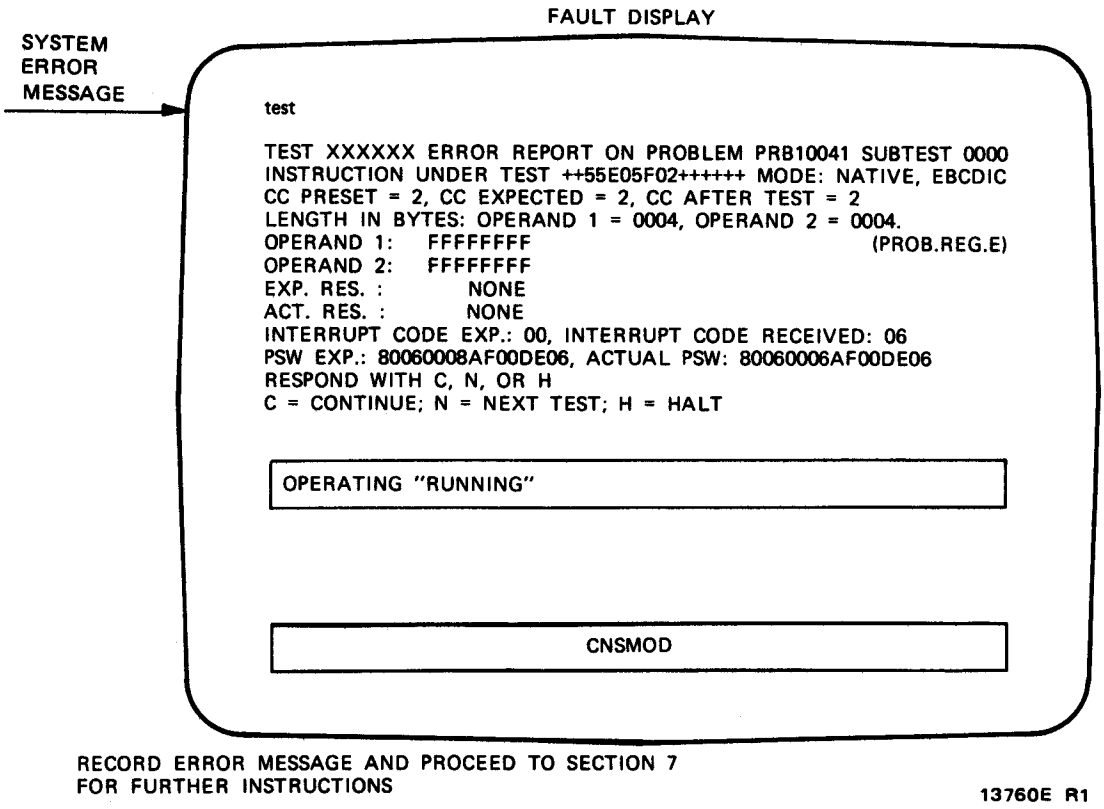
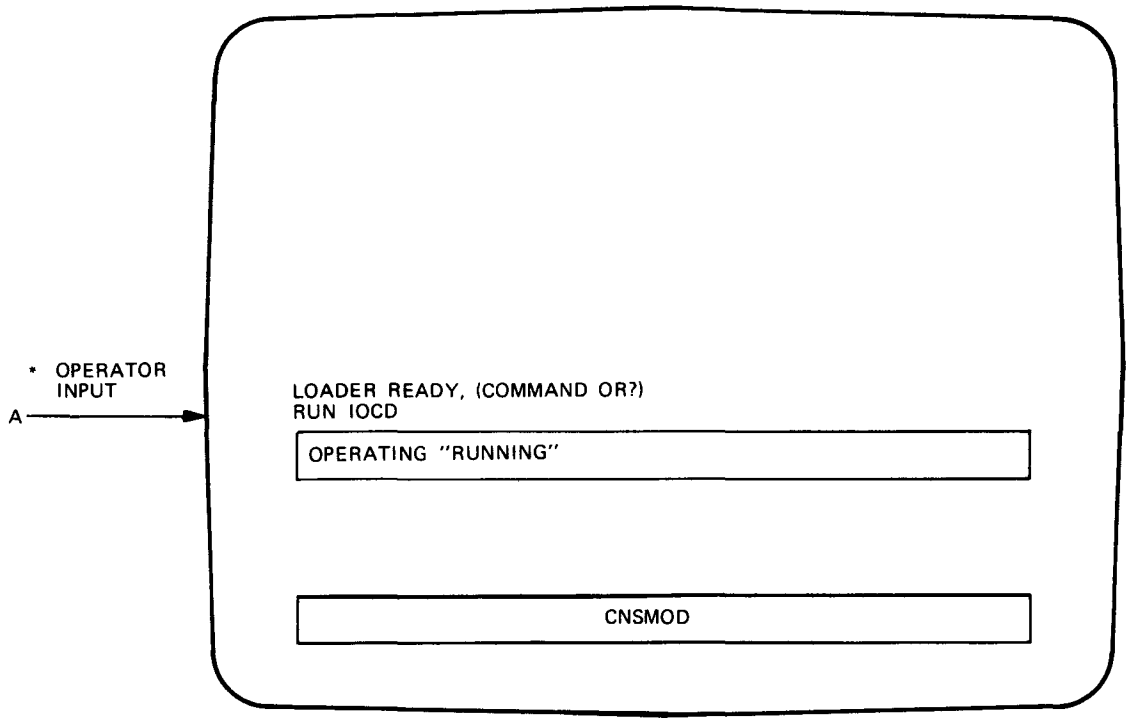


Figure 4-2. CPMDC Macrodiagnostic Operating Procedures (c)



* THIS STEP NOT REQUIRED IF PRESET OPTIONS ARE SELECTED IN LOADER

Figure 4-3. IOCD Macrodiagnostic Operating Procedures (a)

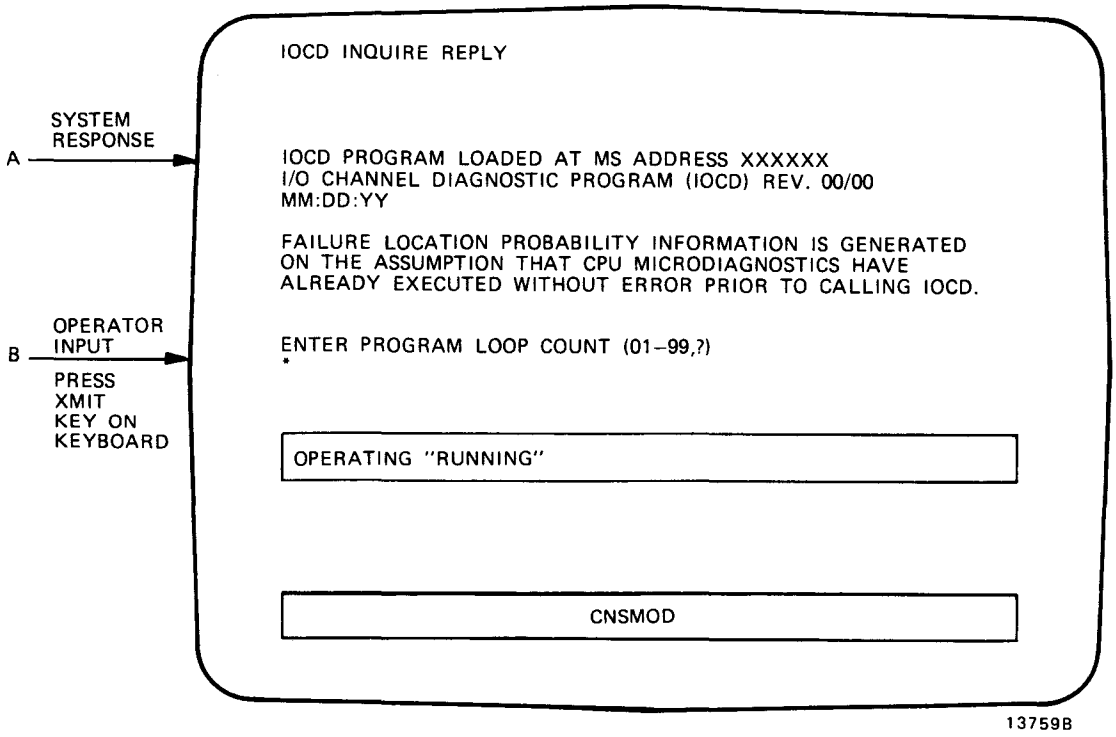


Figure 4-3. IOCD Macrodiagnostic Operating Procedures (b)

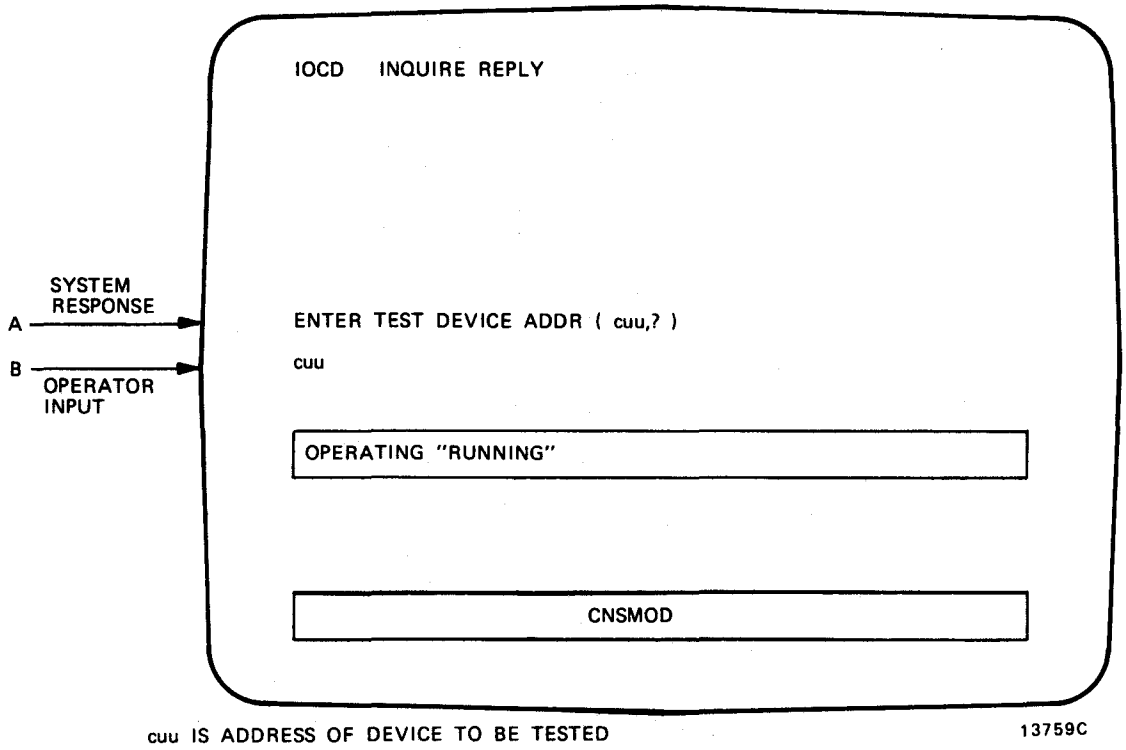


Figure 4-3. IOCD Macrodiagnostic Operating Procedures (c)

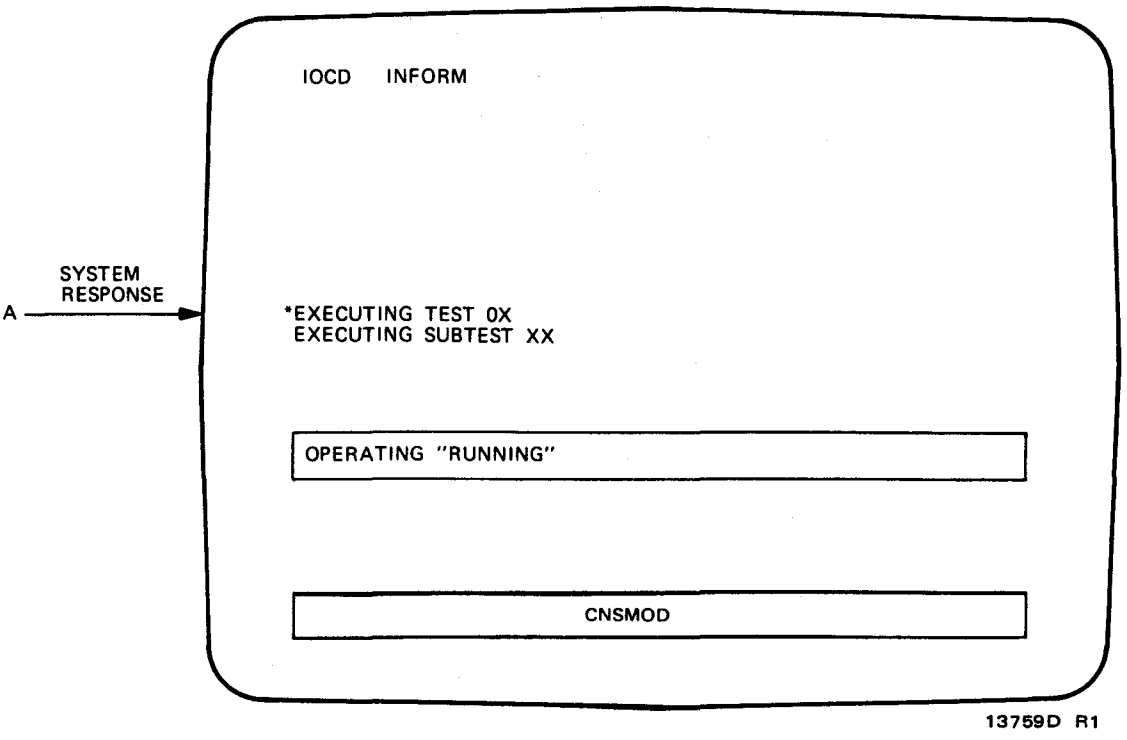
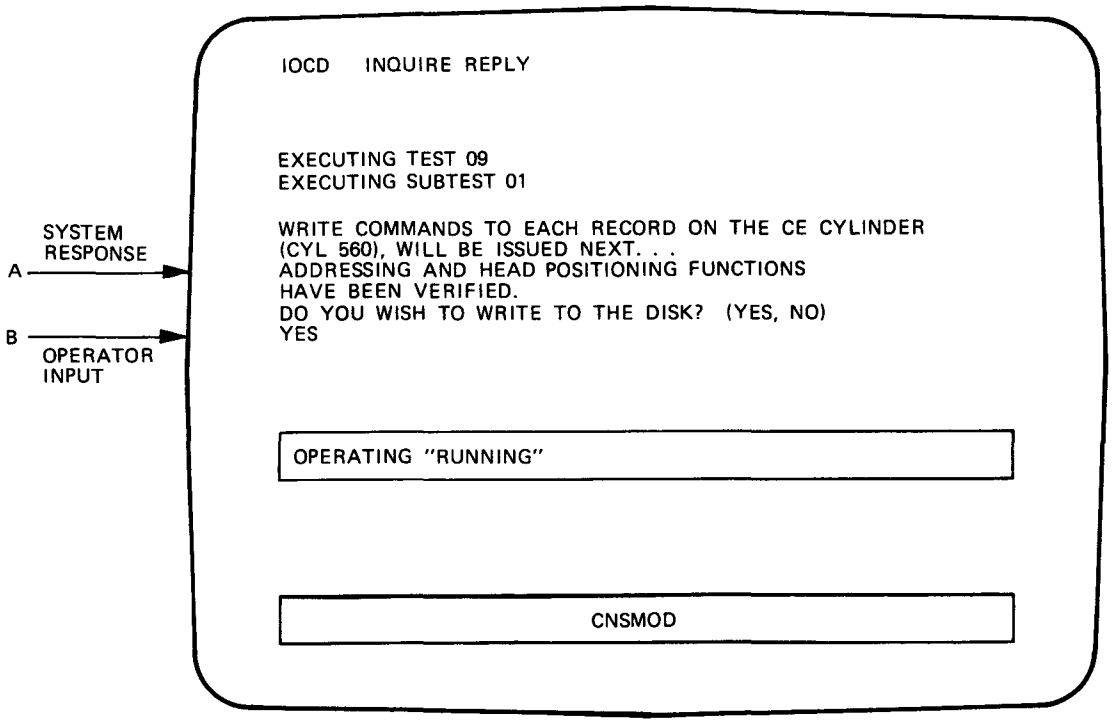


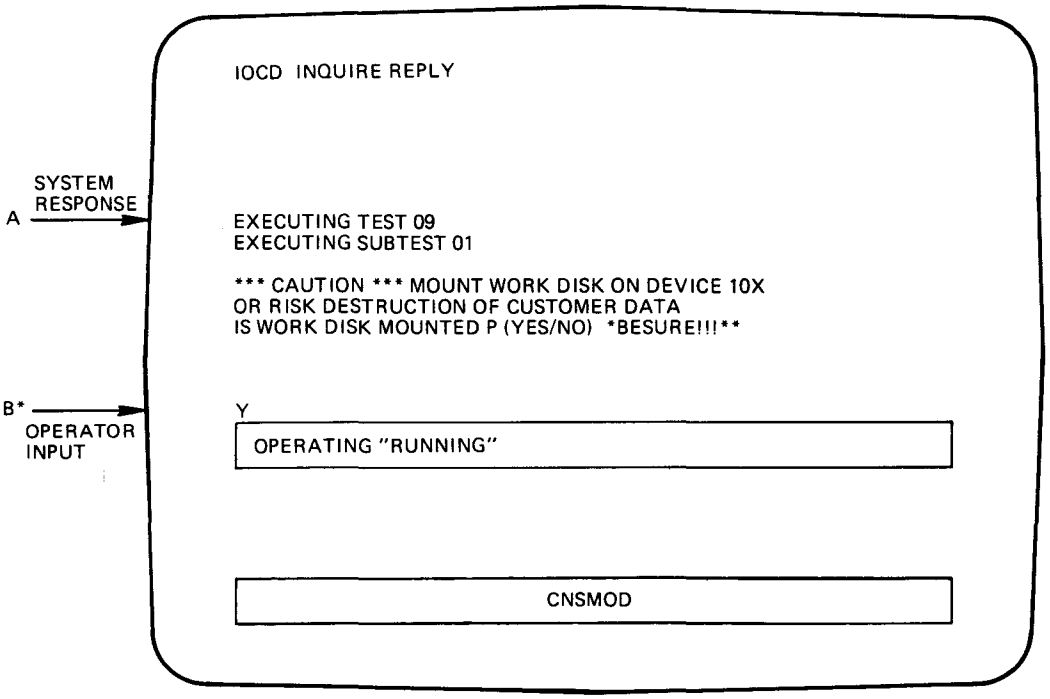
Figure 4-3. IOCD Macrodiagnostic Operating Procedures (d)



NOTE: IF THE SYSTEM RESPONSE INDICATES THAT THE ADDRESSING AND HEAD FUNCTIONS HAVE NOT BEEN VERIFIED ENTER NO.

13759E R1

Figure 4-3. IOCD Macrodiagnostic Operating Procedures (e)



* THIS STEP IS REQUIRED FOR DISK TYPE 8419 (REMOVABLE MEDIA) IF WORK DISK IS NOT MOUNTED ENTER N AND TEST WILL NOT BE EXECUTED

13930 R1

Figure 4-3. IOCD Macrodiagnostic Operating Procedures (f)

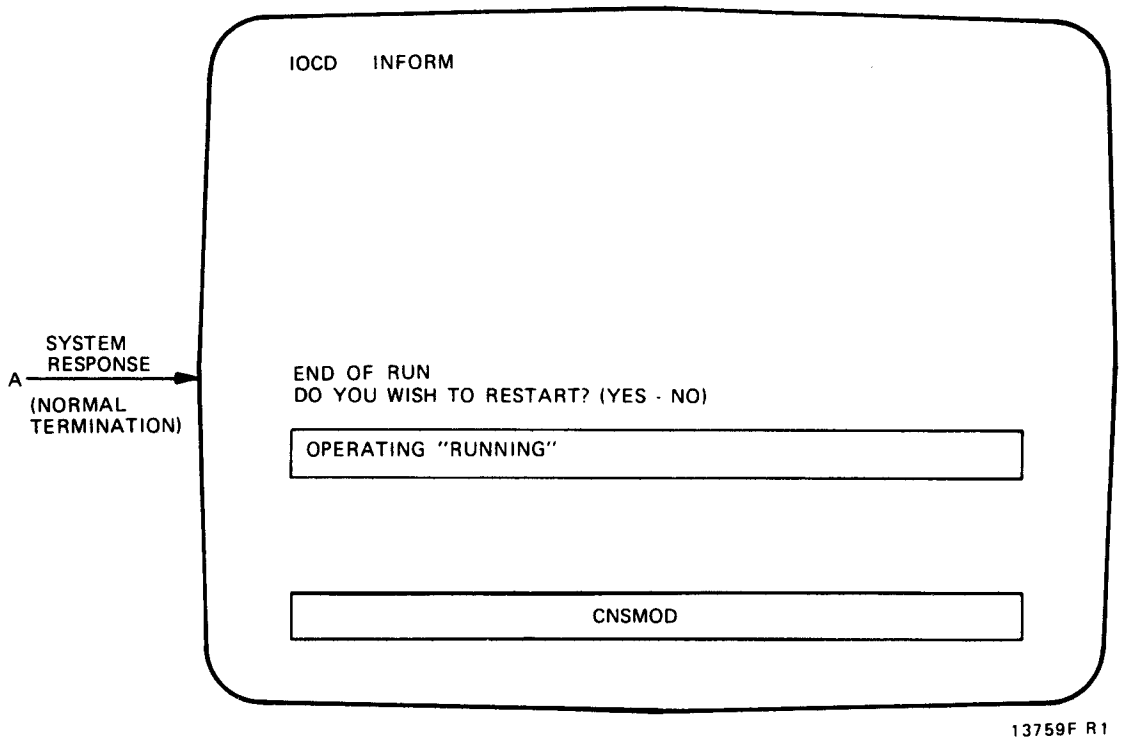


Figure 4-3. IOCD Macrodiagnostic Operating Procedures (g)

5. Operating Procedures For Online (Peripheral) Tests

5.1. GENERAL

This section of the manual contains illustrated step-by-step instructions for loading and executing the online (peripheral) tests. The online tests verify the operation of the peripheral devices and their controllers and can be run in a job slot concurrent with other jobs. The online tests are resident on the system resident disk.

5.2. OPERATING PROCEDURES

The operating procedures for the online diagnostic tests are provided in pictorial format. Each step of the operating procedures is represented by an illustration of the console screen. The operator input and system response information are in alphabetic sequence and are represented by alphabetic entries at the side of the illustration.

The operating procedures for the online tests are provided on three figures: 5-1, 5-2, and 5-3.

Figure 5-1 provides detailed step-by-step procedures for obtaining a system configurator and a list of all diagnostic tests.

Figure 5-2 provides detailed step-by-step procedures for executing online diagnostic tests for communications peripheral devices.

Figure 5-3 provides detailed step-by-step procedures for executing online diagnostic tests for non-communications peripheral devices.

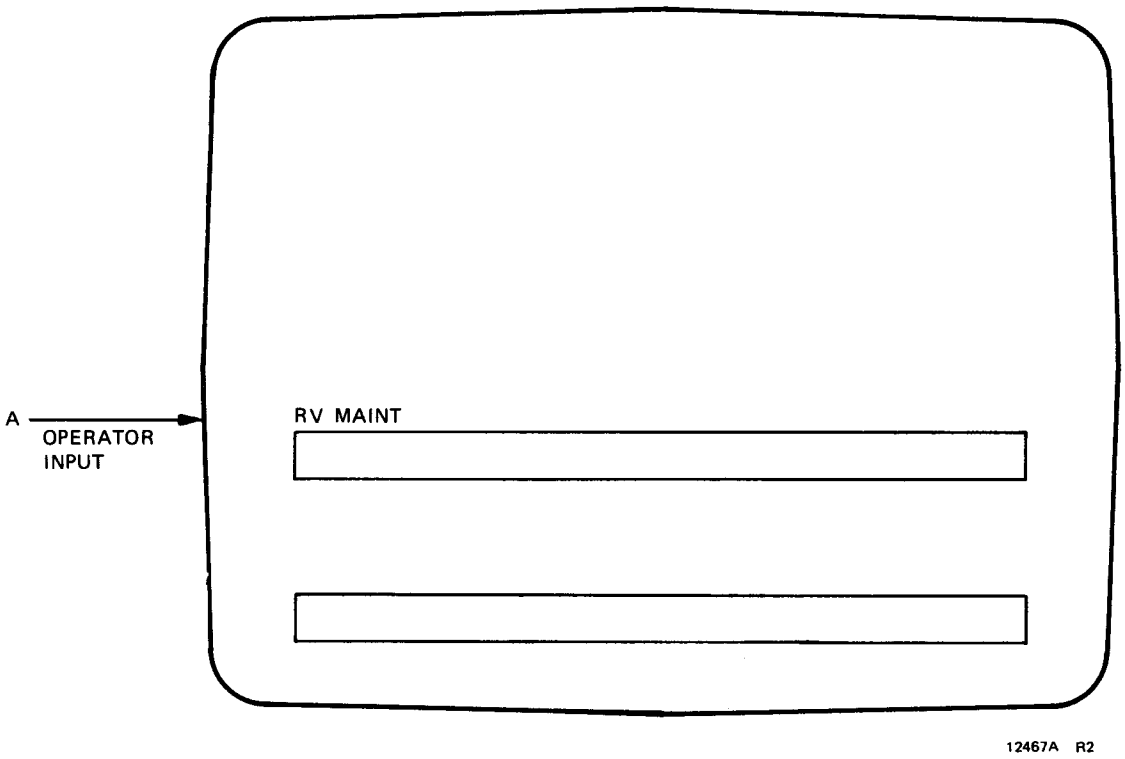


Figure 5-1. Online Operating Procedures (a)

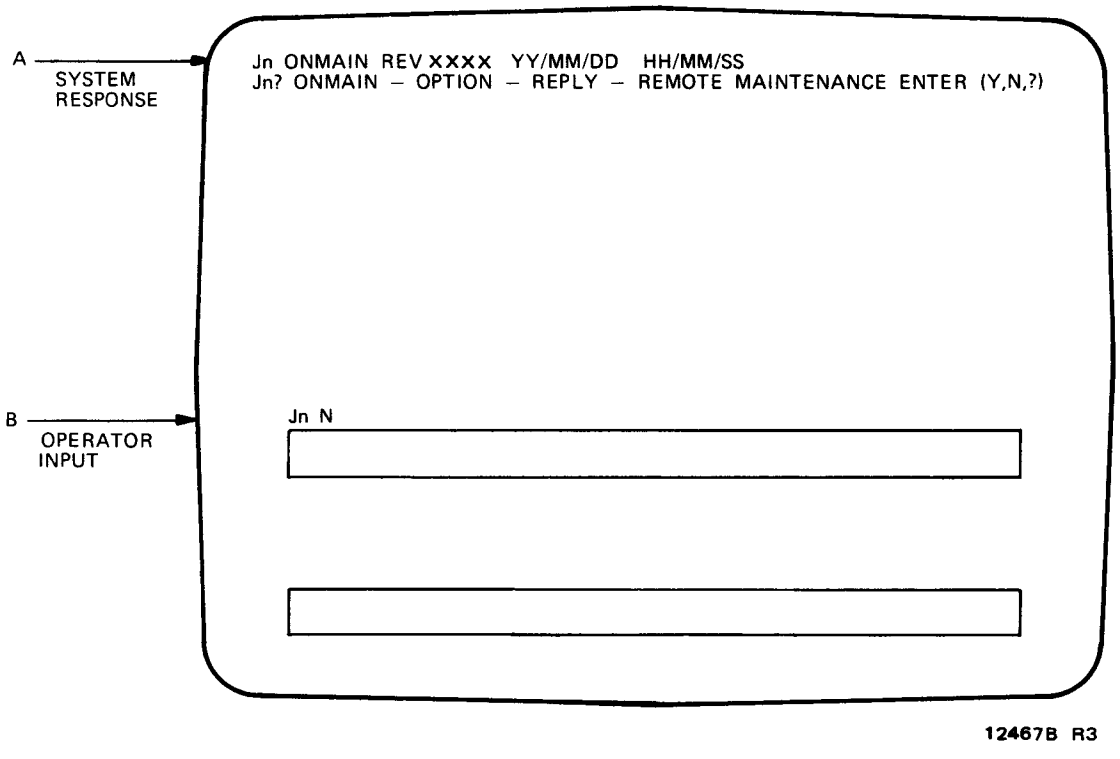


Figure 5-1. Online Operating Procedures (b)

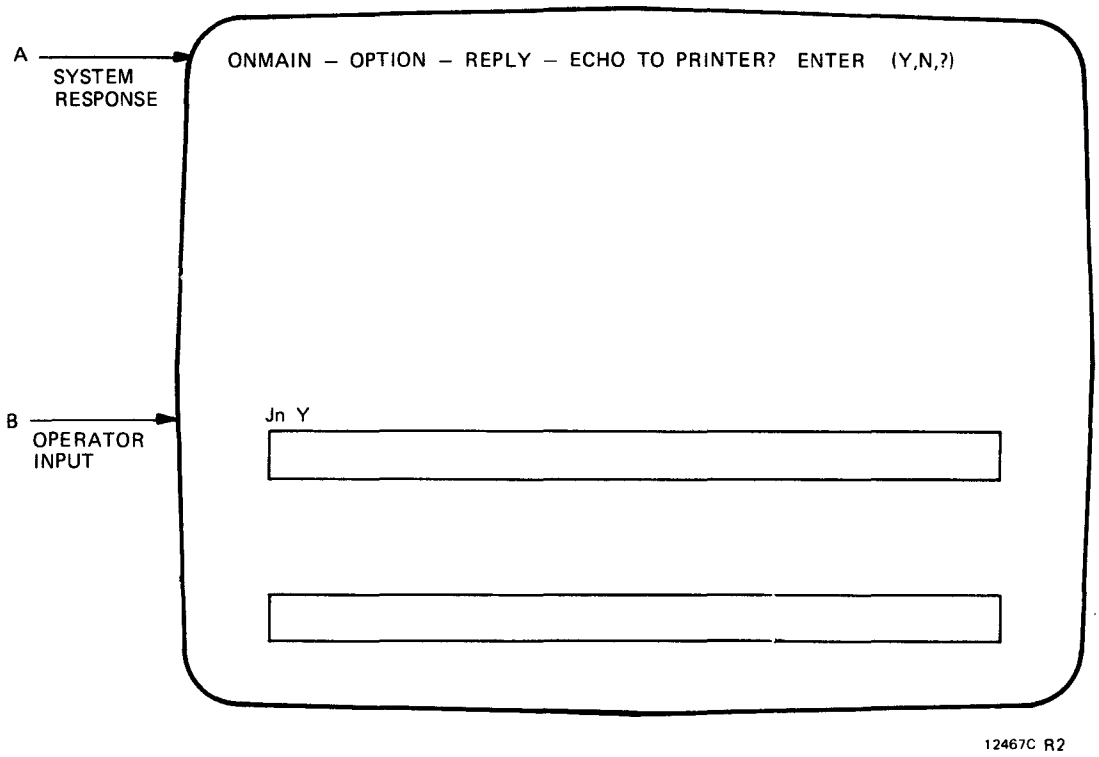


Figure 5-1. Online Operating Procedures (c)

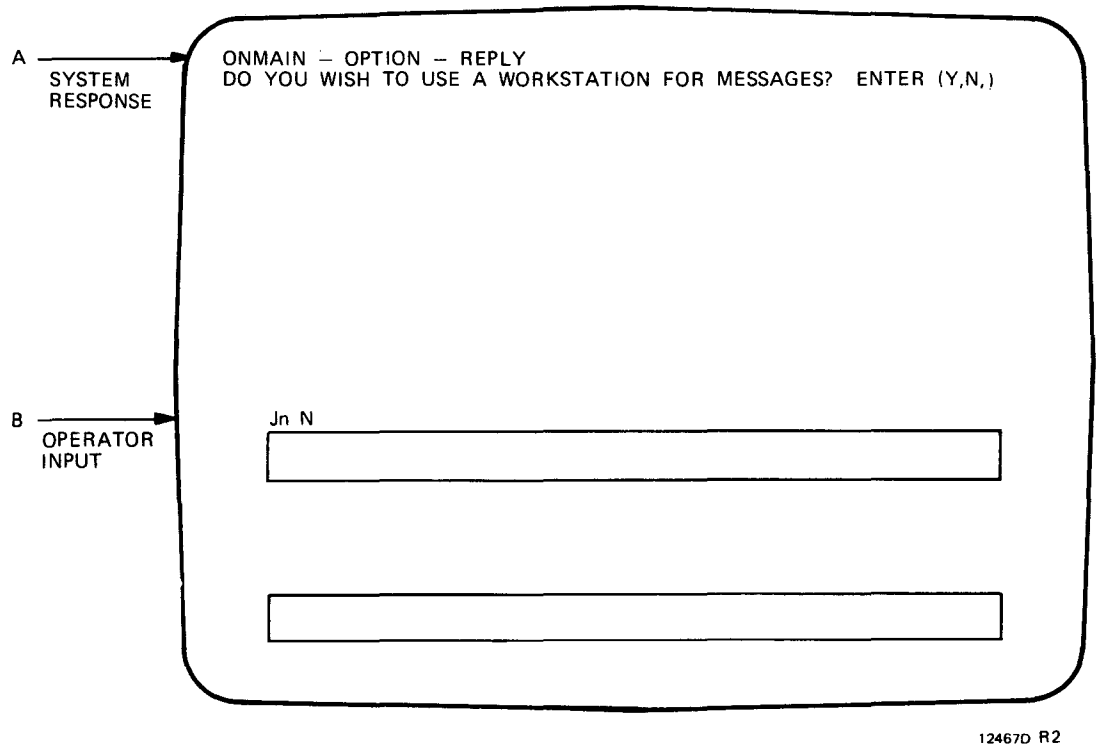


Figure 5-1. Online Operating Procedures (d)

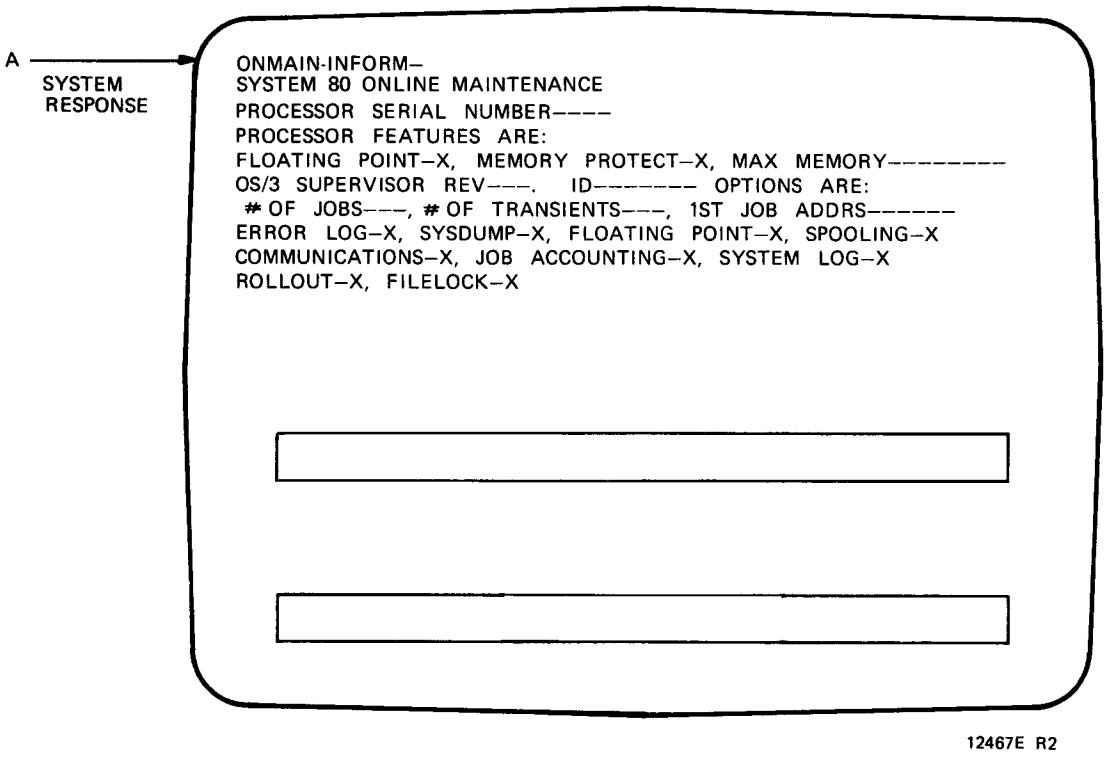


Figure 5-1. Online Operating Procedures (e)

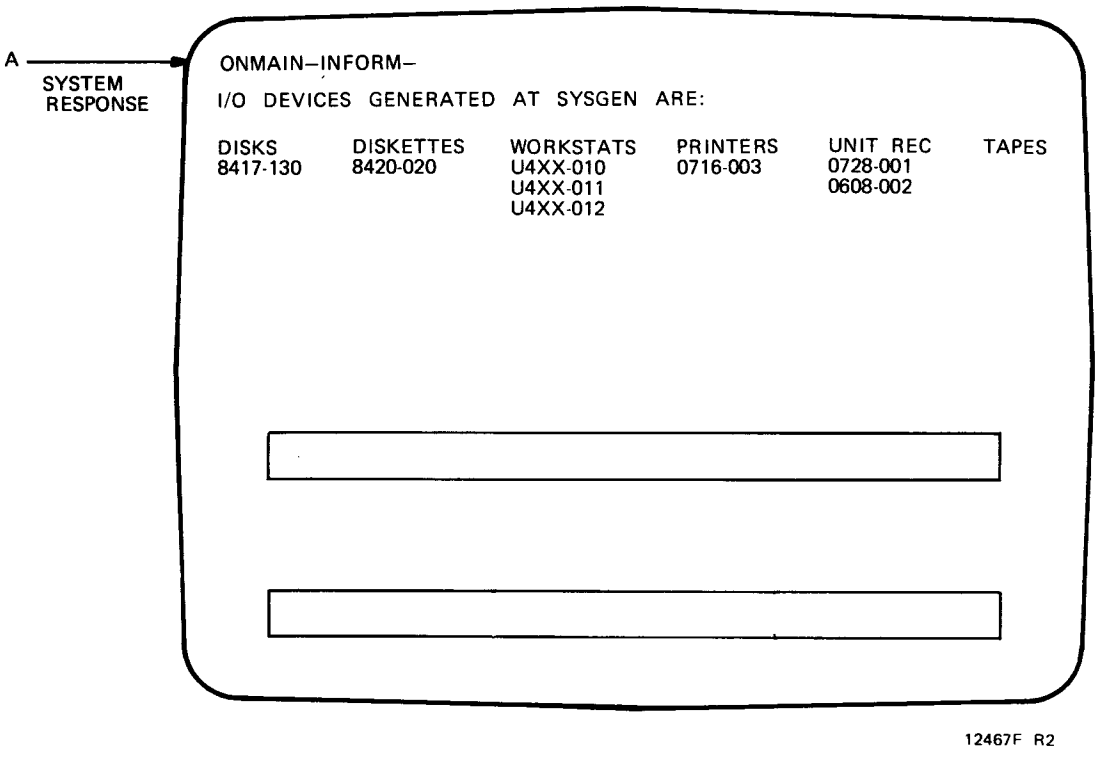


Figure 5-1. Online Operating Procedures (f)

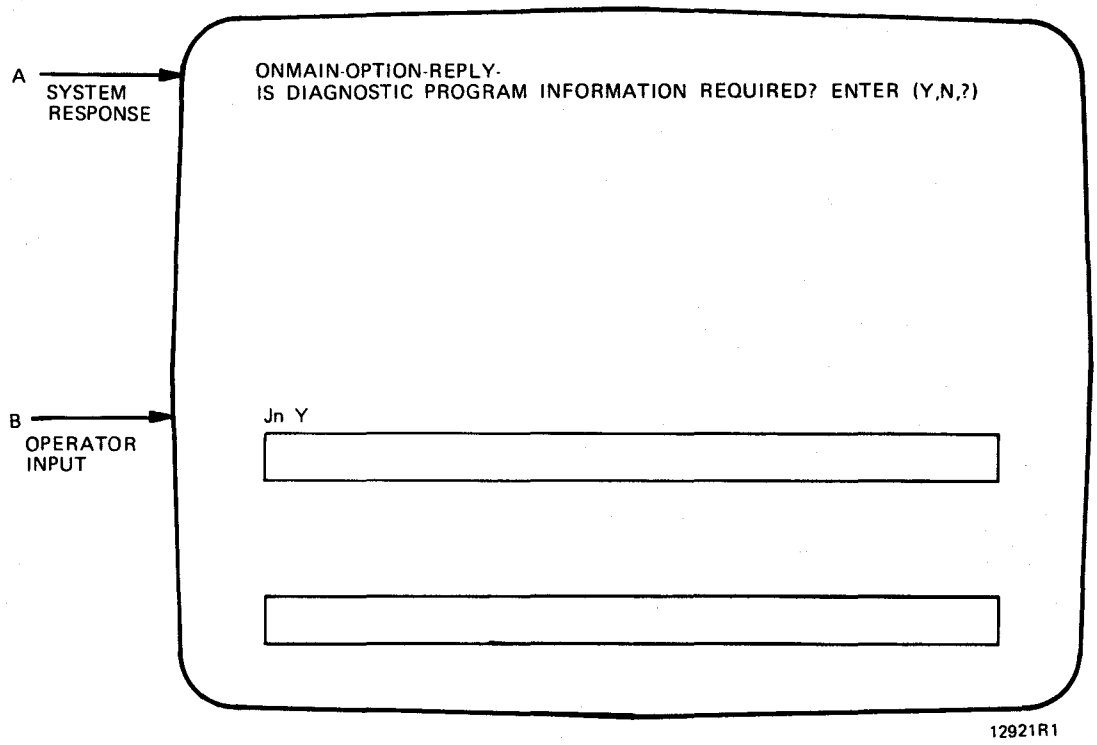


Figure 5-1. Online Operating Procedures (g)

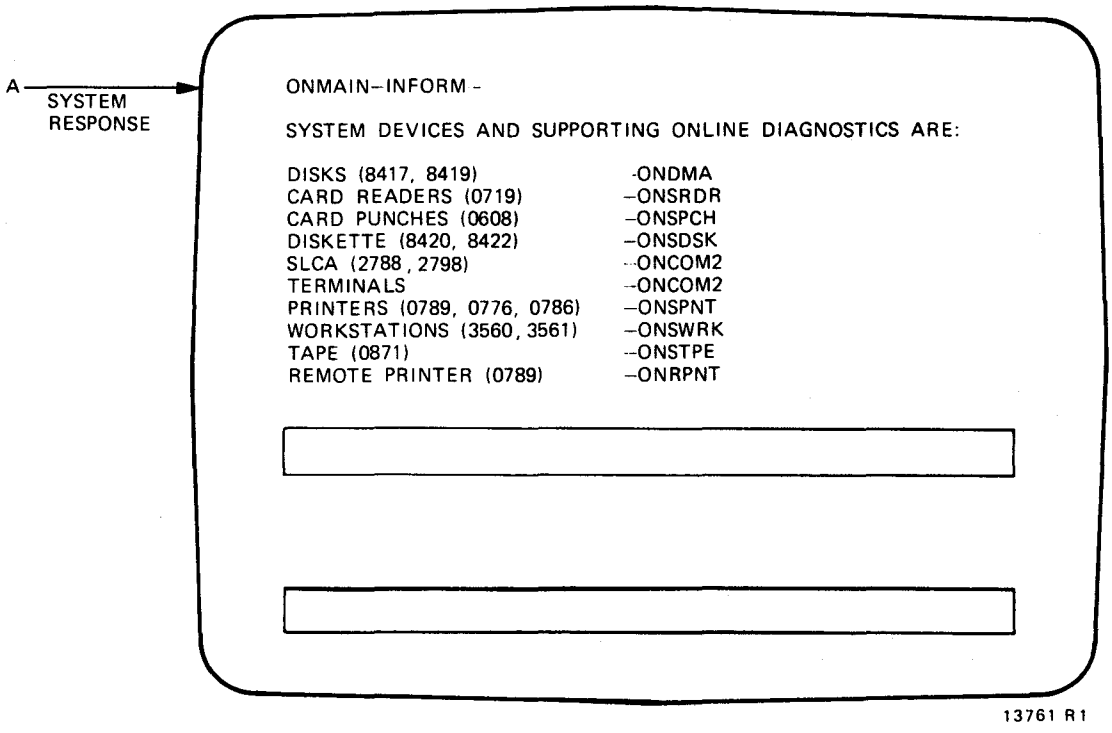


Figure 5-1. Online Operating Procedures (h)

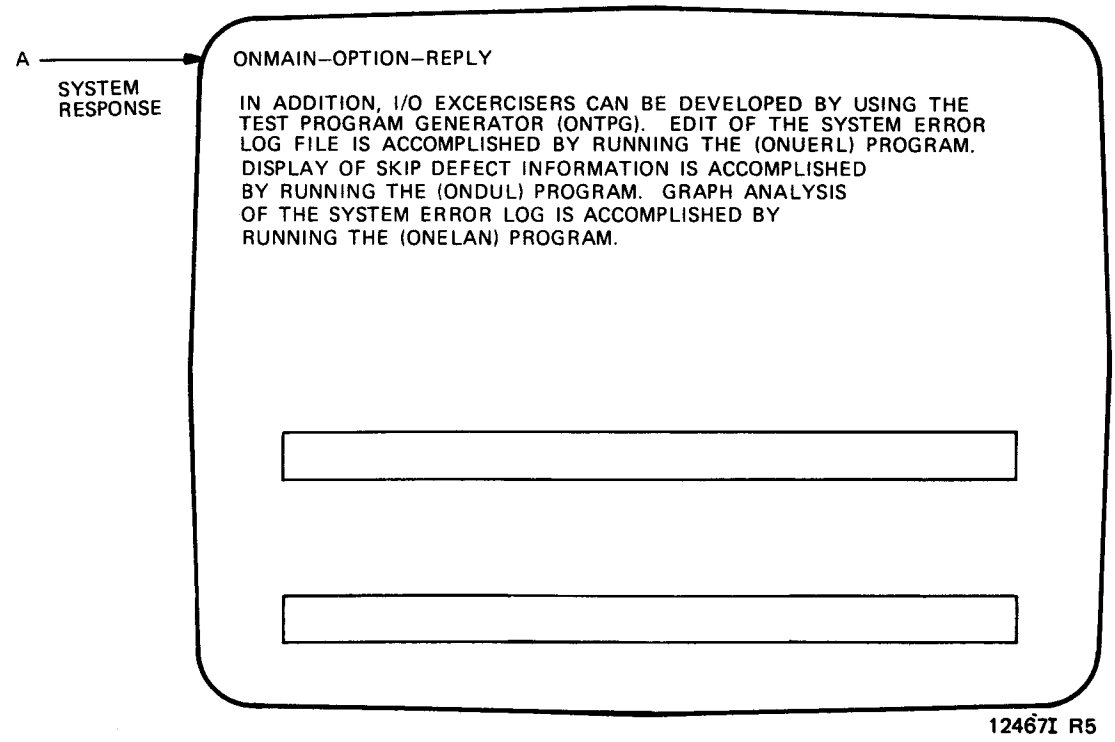


Figure 5-1. Online Operating Procedures (i)

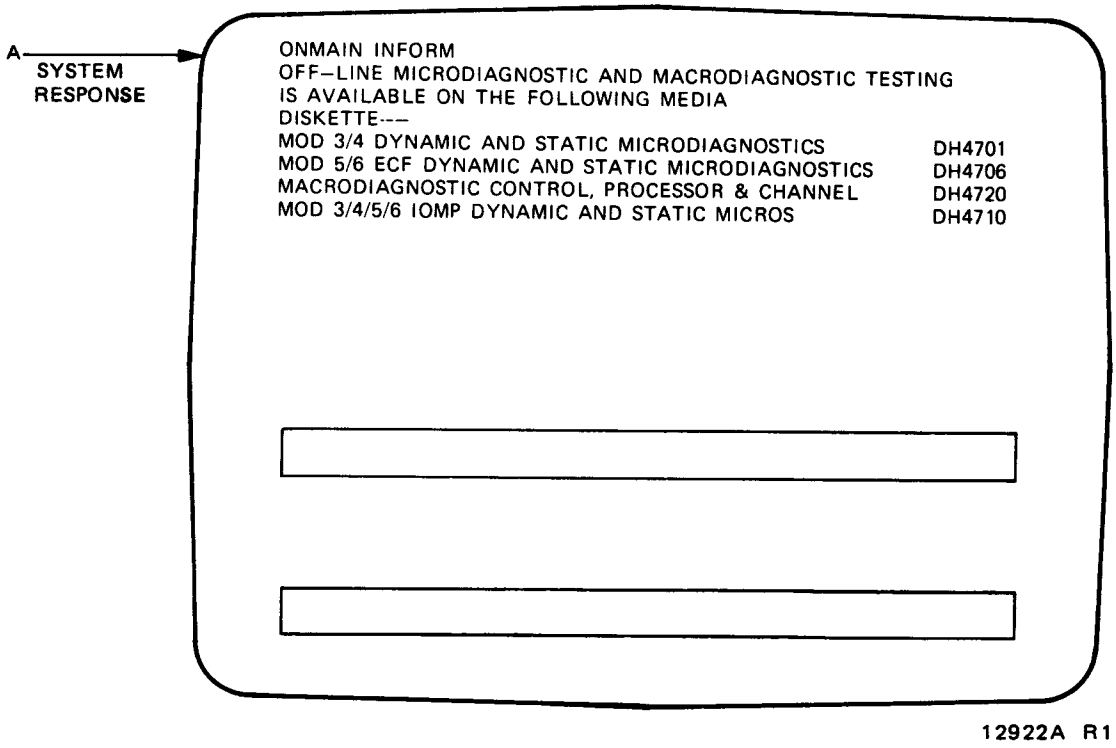


Figure 5-1. Online Operating Procedures (j)

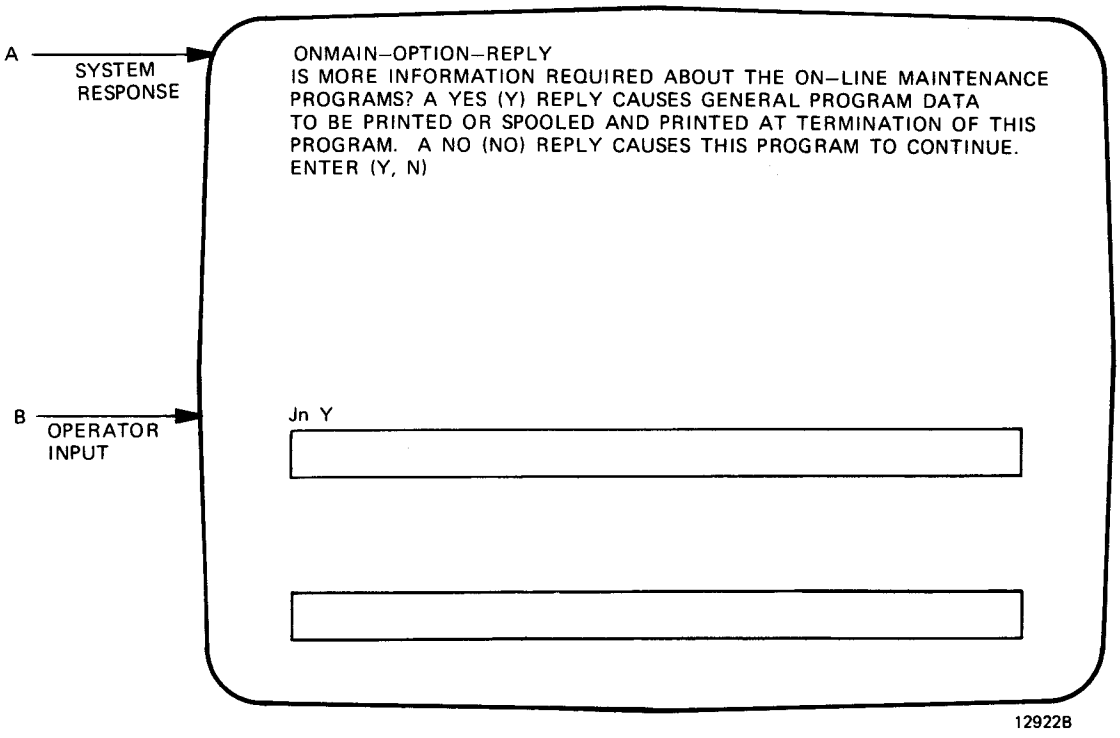


Figure 5-1. Online Operating Procedures (k)

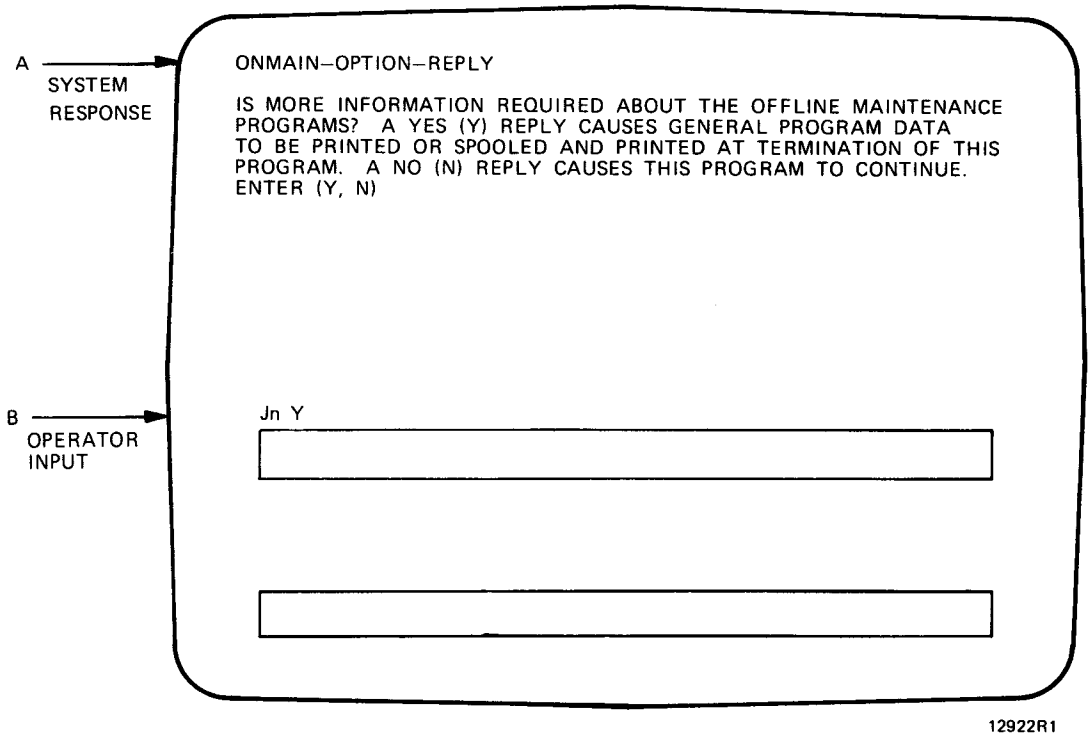


Figure 5-1. Online Operating Procedures (l)

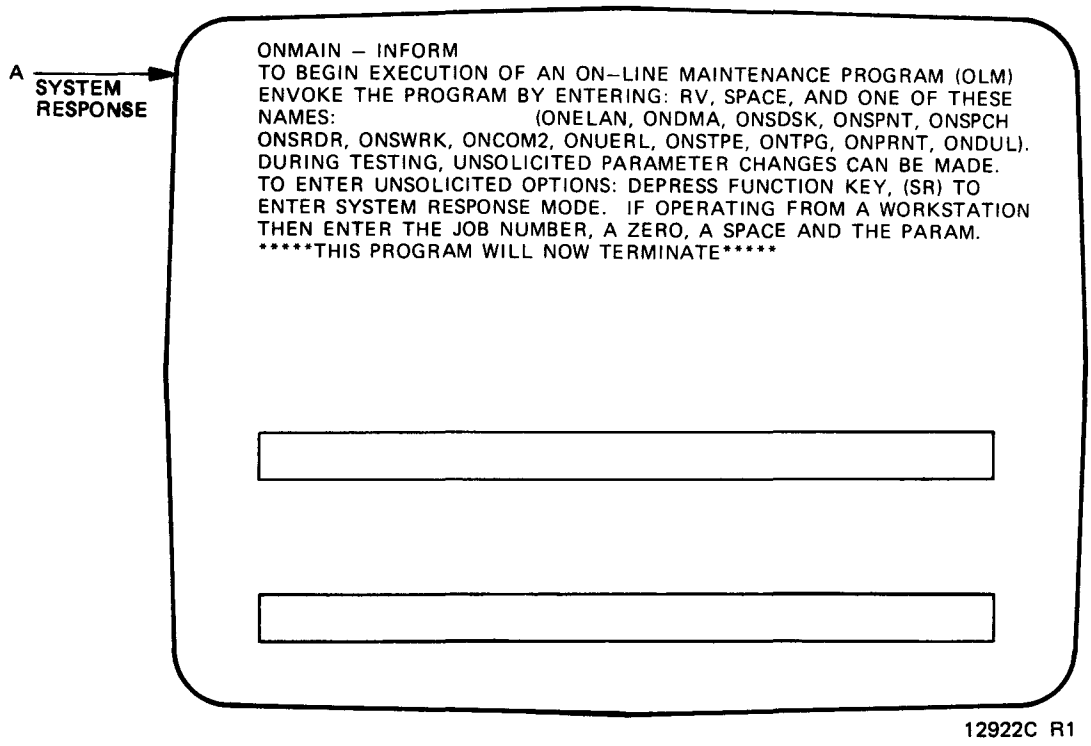
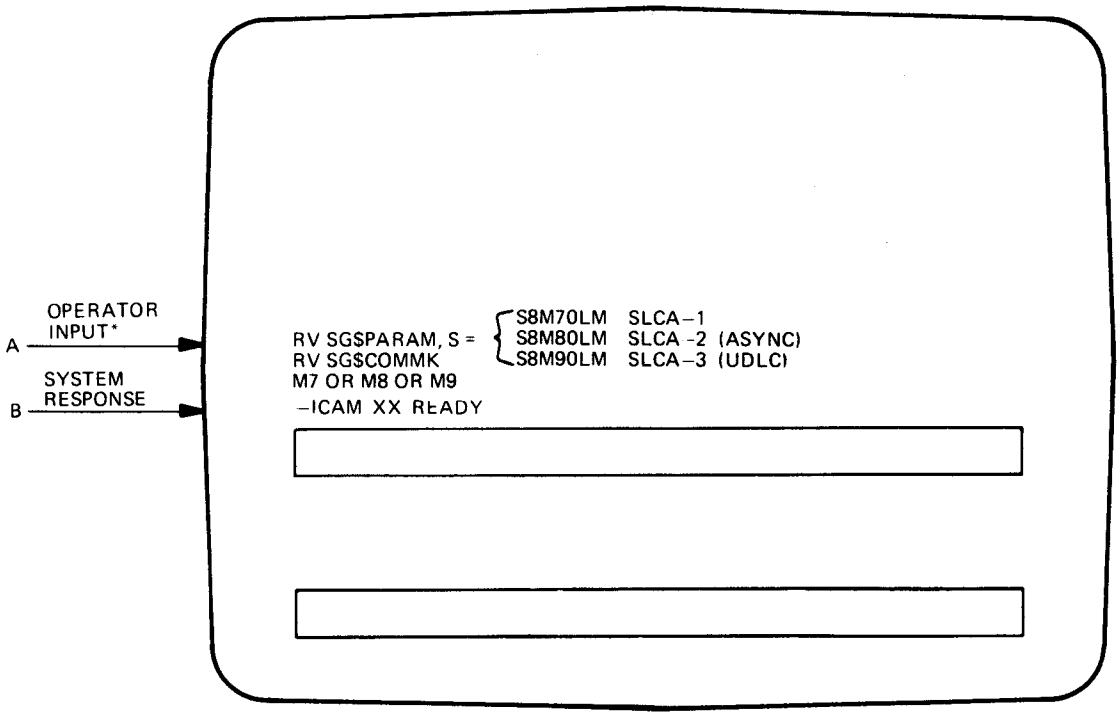


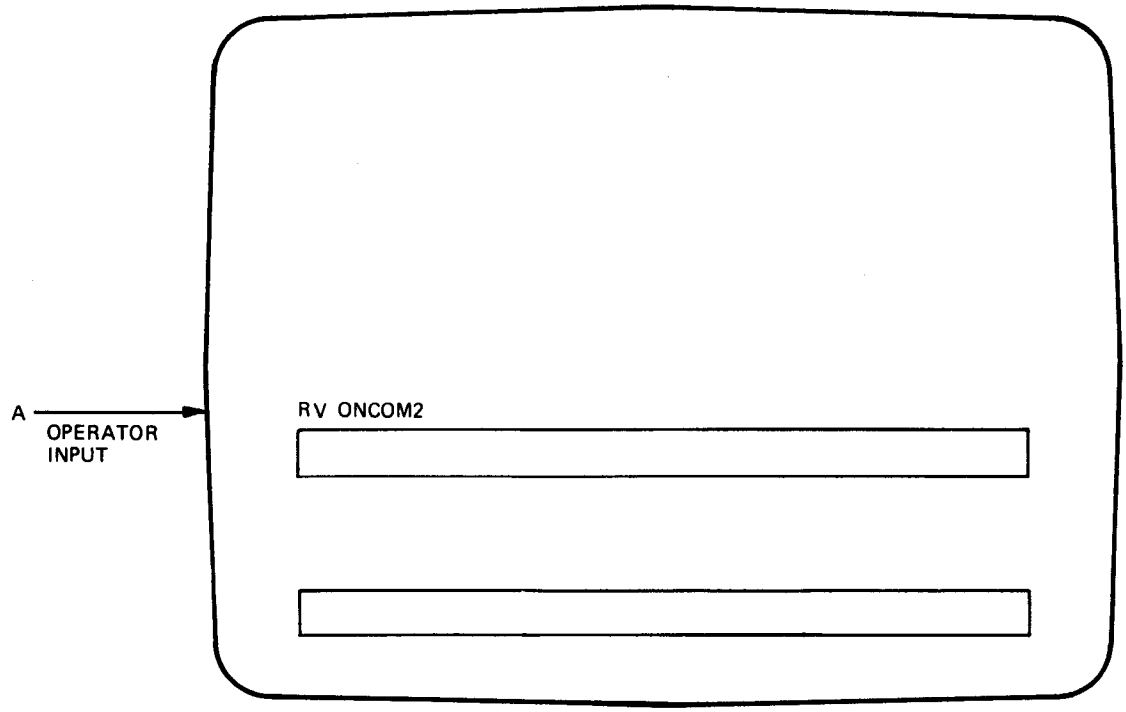
Figure 5-1. Online Operating Procedures (m)



*NOTE: THIS STEP IS REQUIRED PRIOR TO EXECUTING ONCOM2 IF THE INTEGRATED COMMUNICATIONS ACCESSING METHOD (ICAM) MODULE IS NOT CONFIGURED ON THE OPERATING SYSTEM

12468H R2

Figure 5-2. Operating Procedures For Online Communications Peripheral Tests (a)



12468A R2

Figure 5-2. Operating Procedures For Online Communications Peripheral Tests (b)

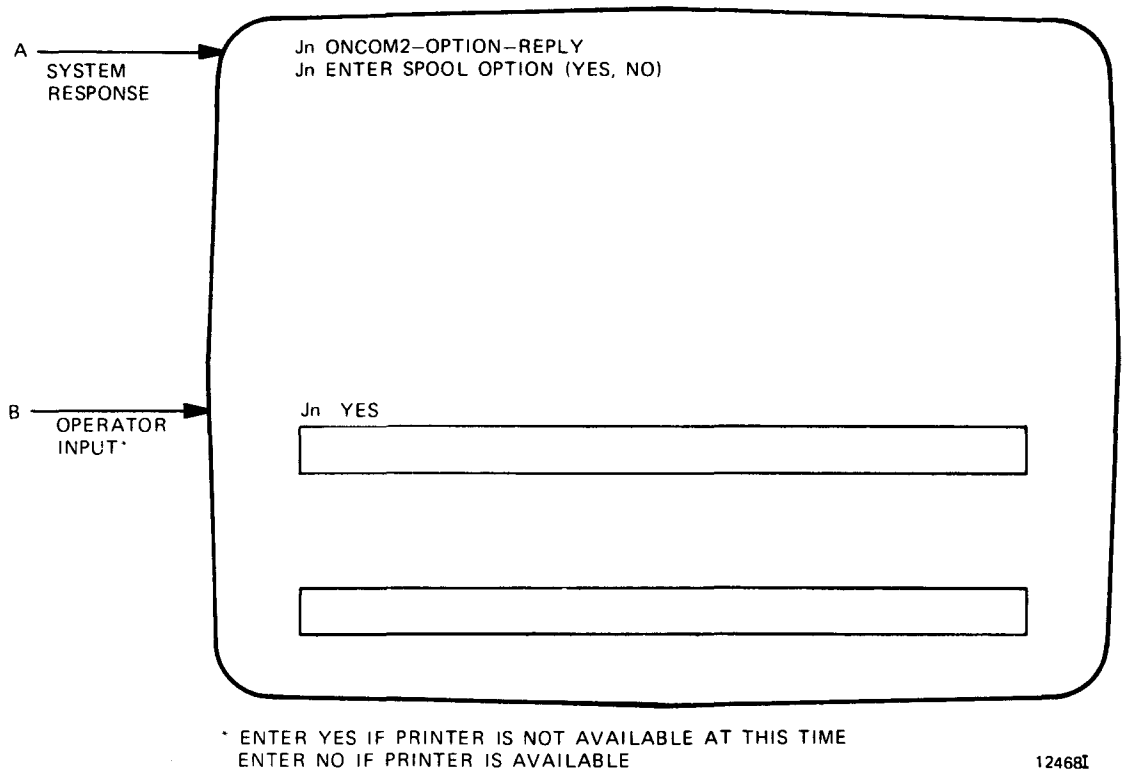


Figure 5-2. Operating Procedures For Online Communications Peripheral Tests (c)

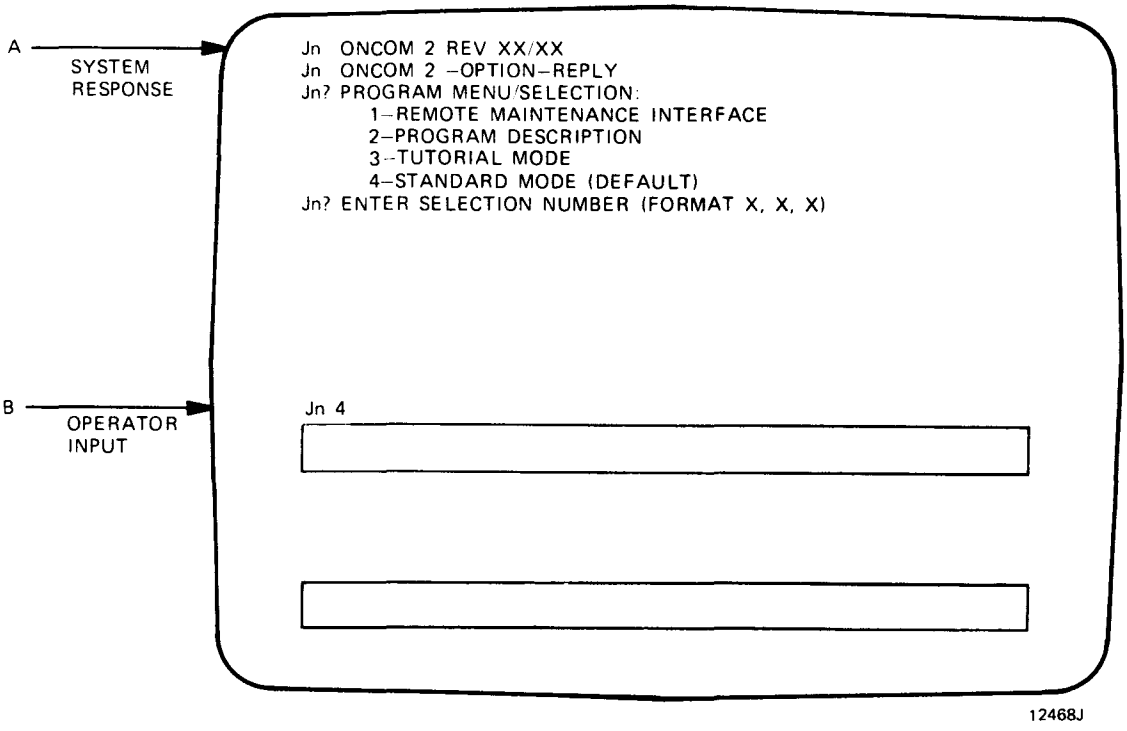
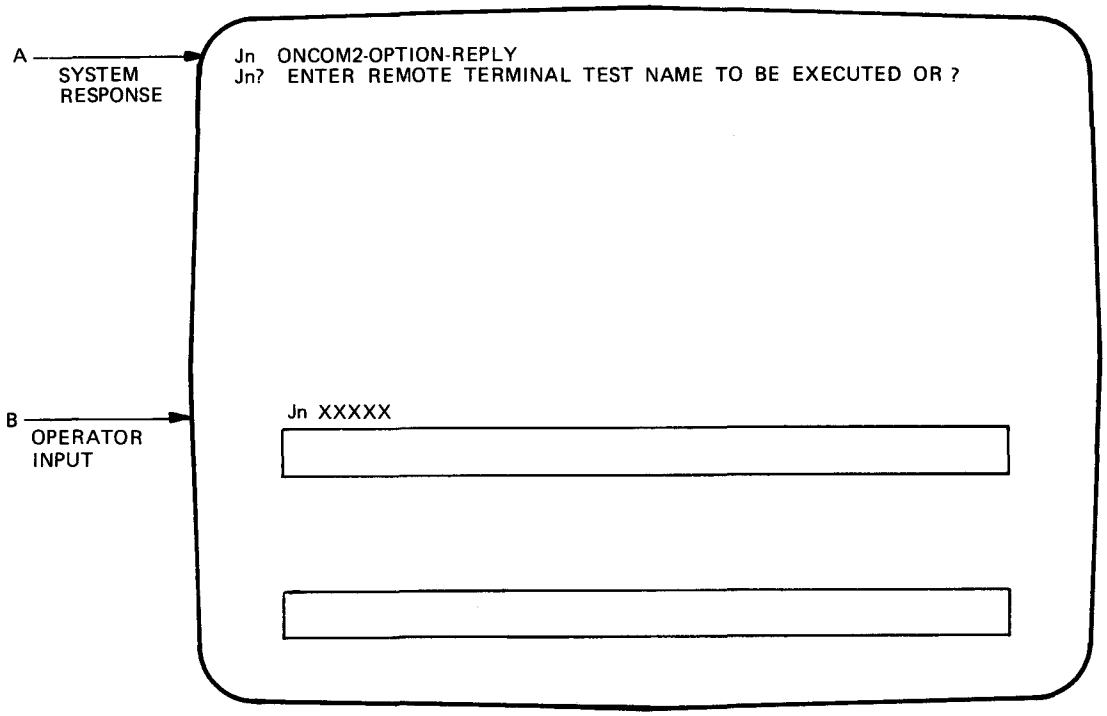
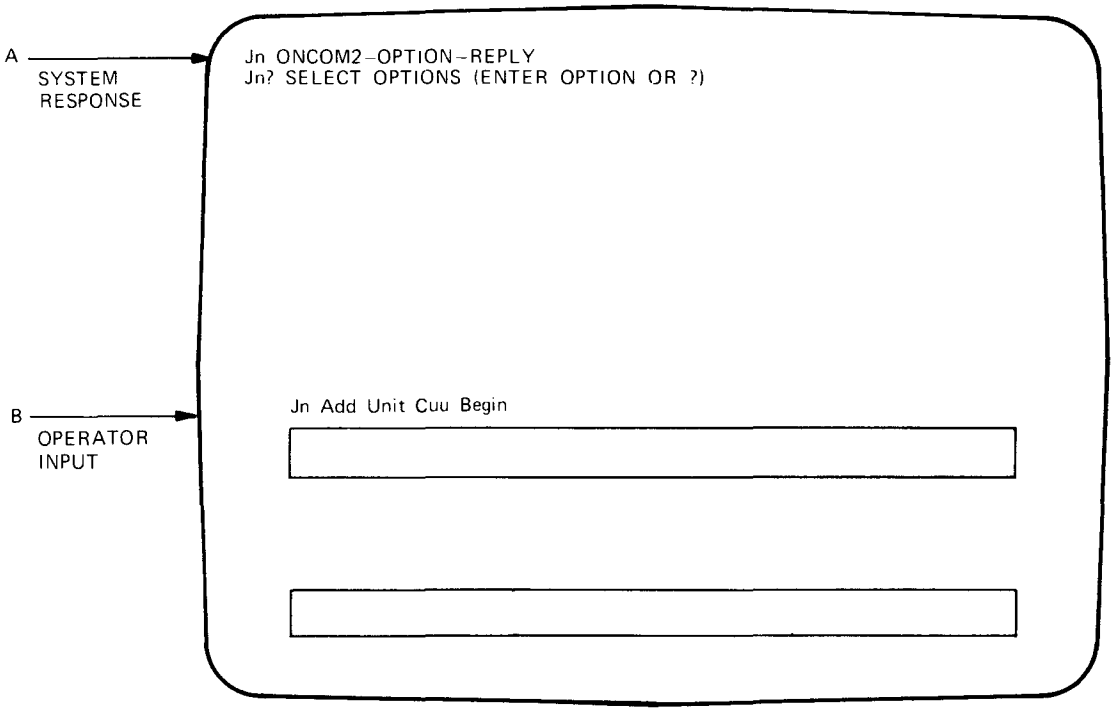


Figure 5-2. Operating Procedures For Online Communications Peripheral Tests (d)



XXXX = CTP FOR COMMUNICATIONS TEST PROGRAM. SLCA FOR COMMUNICATIONS ADAPTER, U100 FOR UNISCOPE 100, U200 FOR UNISCOPE 200, U400 FOR UTS400, UDLC FOR UNIVERSAL DATA LINK CONTROL, NTR1, OR NTR5 FOR 9000 REMOTE, REMWS FOR REMOTE WORKSTATION, PDN1 OR PDN2 FOR PUBLIC DATA NETWORK 12468E R4

Figure 5-2. Operating Procedures For Online Communications Peripheral Tests (e)



PRESELECTED TESTS ARE EXECUTED NOW 12468F R2

Figure 5-2. Operating Procedures For Online Communications Peripheral Tests (f)

SYSTEM ERROR MESSAGE

ERROR MESSAGES LONG (RML)

```
ONCOM2        ERROR          REPLY          06/26/80        00:17:06
REMOTE TERMINAL PROGRAM CTP                 - TEST 001 - DEVICE 208
EXECUTING A WRITE/READ POLL CHAIN
    '          'INCOR ' PROGM  ' PROT  ' DATA   ' CHANN  ' INTRF  ' CHAIN  '
    '   PCI    'LNGTH ' CHECK  ' CHECK'   CHECK' CHECK  ' CHECK  ' CHECK  '
EXP '    0     '   0  '   0    '   0   '   0    '    0   '   0    '   0    '
REC '    0     '   0  '   0    '   0   '   0    '    0   '   0    '   0    '
    '          '      '        '       'CHANN   '   DEV  ' UNIT   ' UNIT   '
    'ATTEN     '      '        ' BUSY  ' END    '   END  ' CHECK  ' EXCEP  '
EXP '    0     '   0  '   0    '   0   '   1    '    1   '   0    '   0    '
REC '    0     '   0  '   0    '   0   '   1    '    1   '   0    '   0    '
    '          '      ' IDLE   '       '        ' LINK   '        ' FUNCT  '
    '          '      ' TIME   'HRDWE ' PROG   ' LEVEL  ' ERR    ' COMPL  '
    '          '      ' STAT   '  ERR  '  ERR   ' EXCEP  ' COMPL  ' NORM   '
EXP '    0     '   0  '   0    '   0   '   0    '    0   '   0    '   1    '
REC '    0     '   0  '   0    '   0   '   0    '    0   '   0    '   1    '
    'SUCC      '      '        '       '        '        'IMMED  '        '
    'FUNCT     '      ' BUFF   '       '        '        'INLIN  '        '
    'COMPL     '      ' COMPL  '       '        '        'RTRN   '        '
EXP '    1     '   0  '   0    '   0   '   0    '    0   '   0    '   0    '
REC '    1     '   0  '   0    '   0   '   0    '    0   '   0    '   0    '
    'CMMD      '      '        '       ' DATA   '        ' RING   '        '
    'REJCT     '      '        '       ' CHECK  '        '  IND   '        '
EXP '    0     '   0  '   0    '   0   '   0    '    0   '   1    '   0    '
REC '    0     '   0  '   0    '   0   '   0    '    0   '   1    '   0    '
    '          '      'CARR    ' BAD   '        '        '        '        '
    '          '      ' OFF    'DIAL   '        '        '        '        '
EXP '    0     '   0  '   0    '   0   '   0    '    0   '   0    '   0    '
REC '    0     '   0  '   0    '   0   '   0    '    0   '   0    '   0    '
ENTER (B,C,R,E,NT,RMS,RML,?)
```

12468G R4

Figure 5-2. Operating Procedures For Online Communications Peripheral Tests (g)

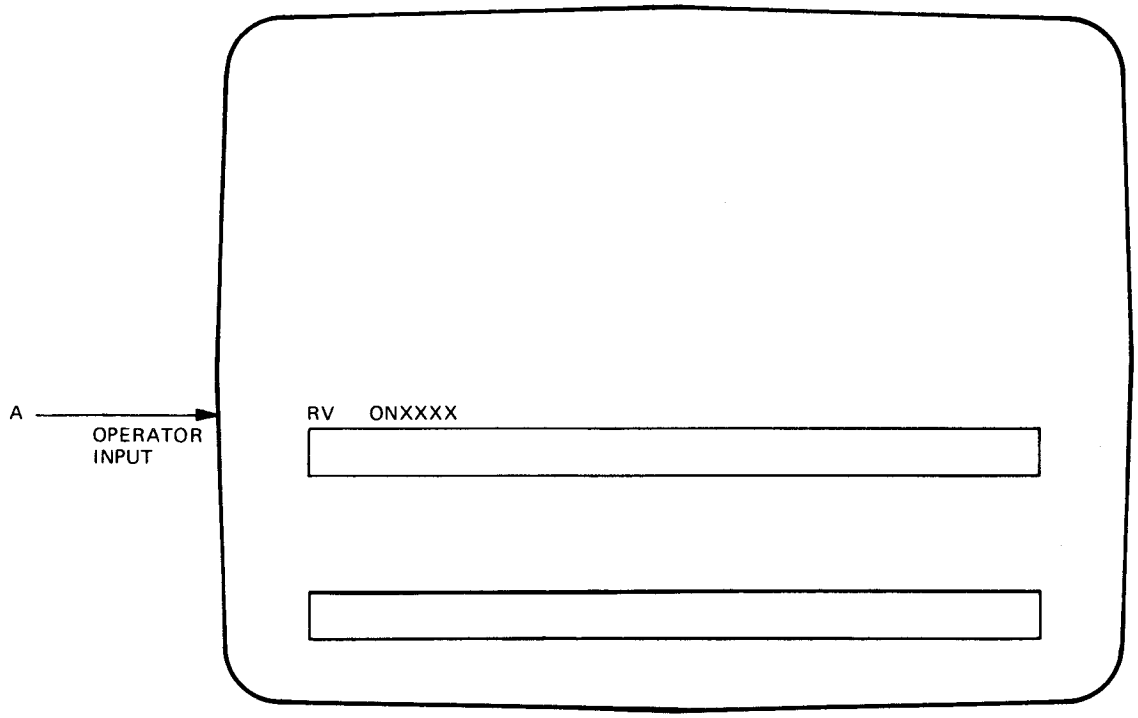
ERROR MESSAGE SHORT (MS)

SYSTEM ERROR MESSAGE

```
1H  ONCOM2      INFORM  NO  REPLY       11/05/80        02:15:05
1J  NTR1     - ENTERING  TEST 004
1K  ONCOM2      ERROR   REPLY           11/05/81        02:15:16
1L  REMOTE TERMINAL PROGRAM NTR1  - TEST 004  -   DEVICE 208
1M  LOAD SLCA CNTRL FOR RS449 WITHOUT SUPPORT PRESENT
1N  I/O TERM. ERR DVC:08 CMD:D0 FUNC:30
1P  CHAIN= 01
1Q        DS  CS  LS1  SB2  SB3   RBC
1A  EXP:  0C 00   01   80   00   00   XXXX
1B  REC:  00   00   08   80   00   00   0000
1C?ENTER (B,C,R,E,NT,RMS,RML,RST,?)
 1C  RST
```

13931 R1

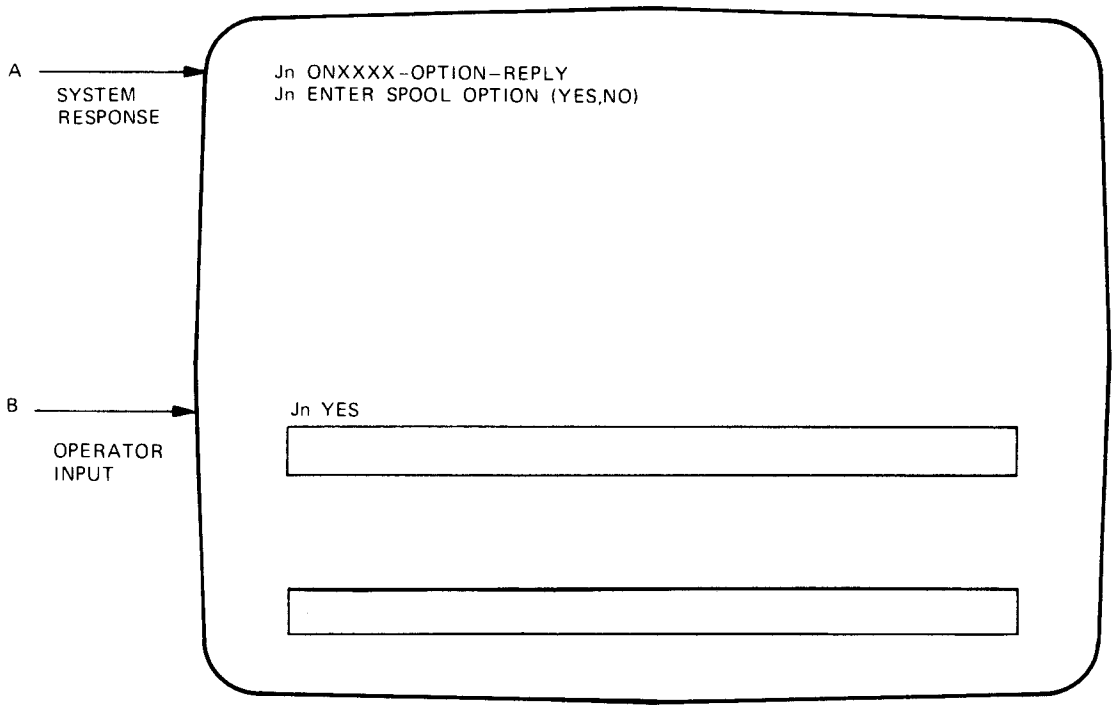
Figure 5-2. Operating Procedures For Online Communications Peripheral Tests (h)



XXXX = DMA FOR DISKS, SRDR FOR READERS, SPCH FOR PUNCHES,
SDSK FOR DISKETTES,
SPNT FOR PRINTERS, SWRK FOR WORKSTATIONS
OR RPNT FOR REMOTE PRINTERS, STPE FOR TAPES

12469A R5

Figure 5-3. Operating Procedures for Online Peripheral Tests (a)



NOTE: ENTER YES IF PRINTER IS NOT AVAILABLE TO PROGRAM AT THIS TIME.
IF PRINTER IS AVAILABLE ENTER NO.

12989R2

Figure 5-3. Operating Procedures for Online Peripheral Tests (b)

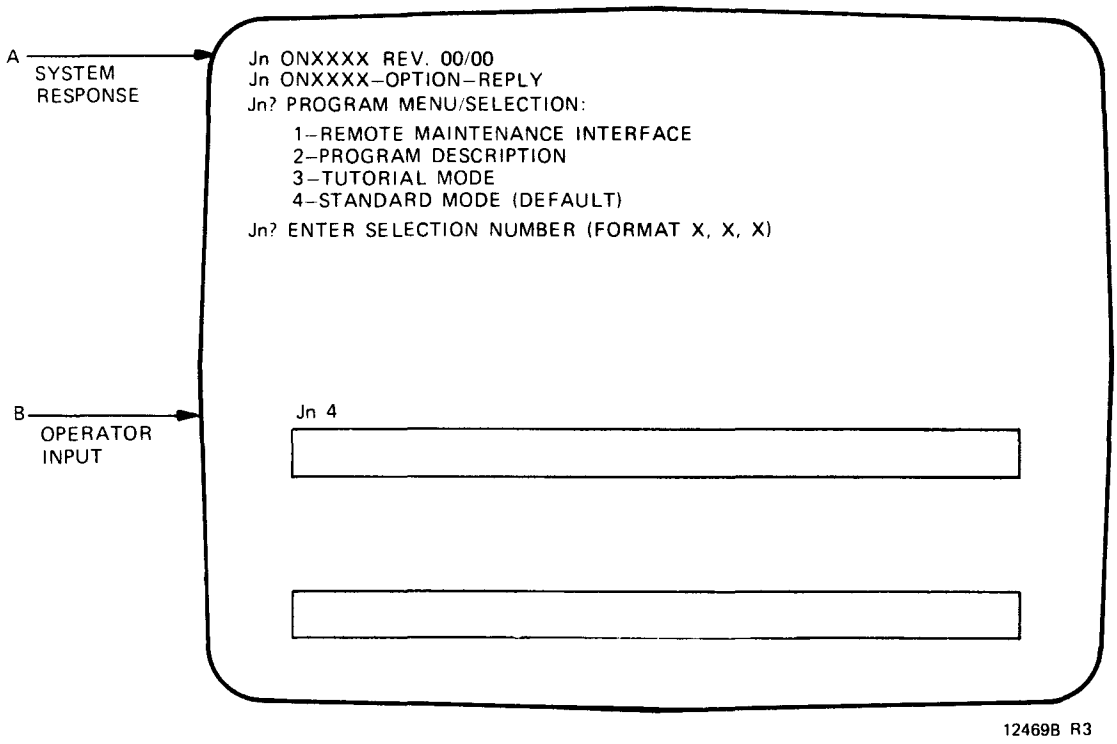


Figure 5-3. Operating Procedures for Online Peripheral Tests (c)

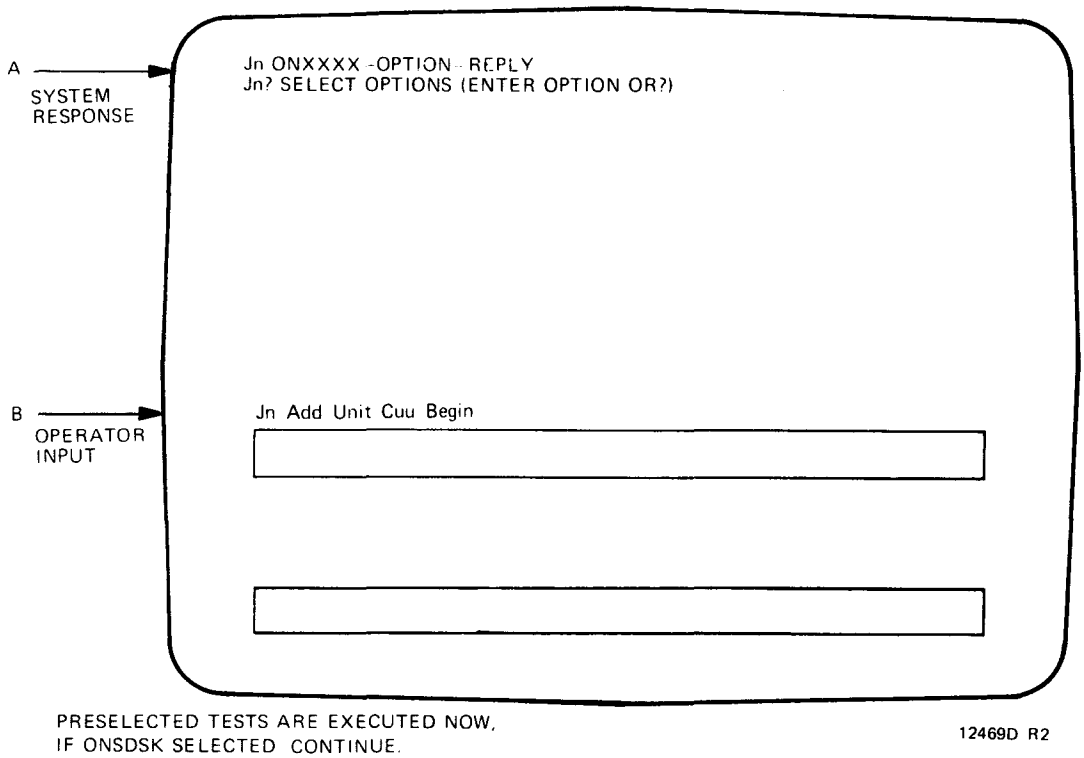


Figure 5-3. Operating Procedures for Online Peripheral Tests (d)

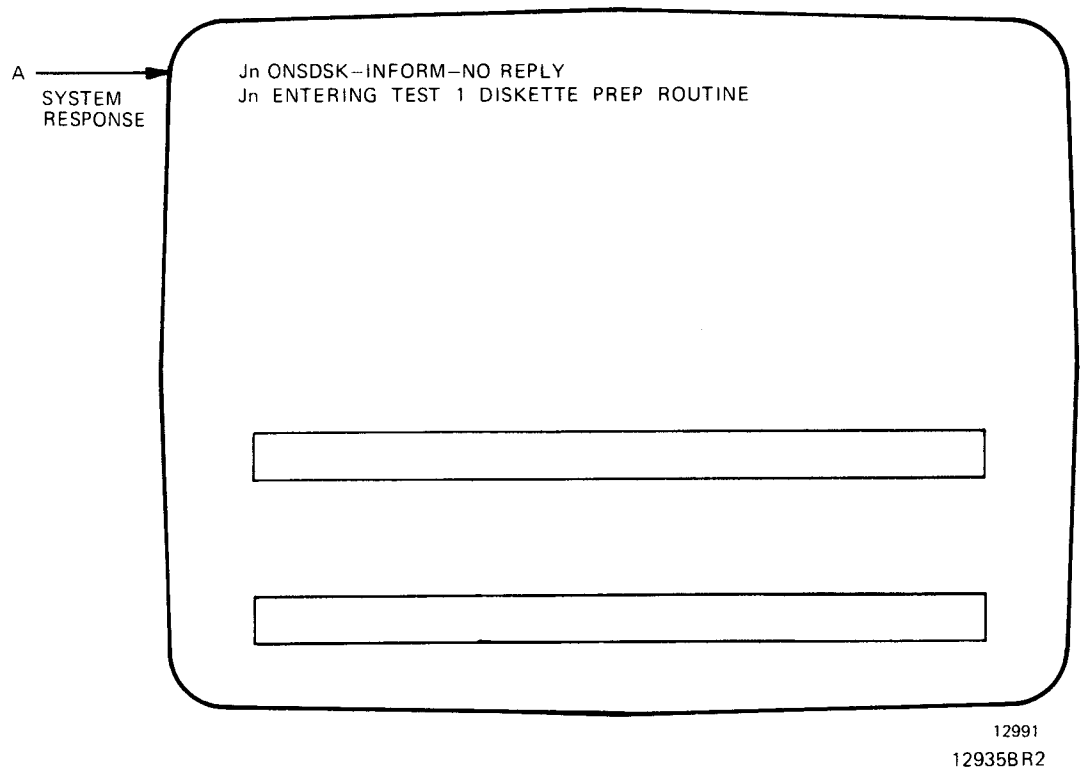


Figure 5-3. Operating Procedures for Online Peripheral Tests (e)

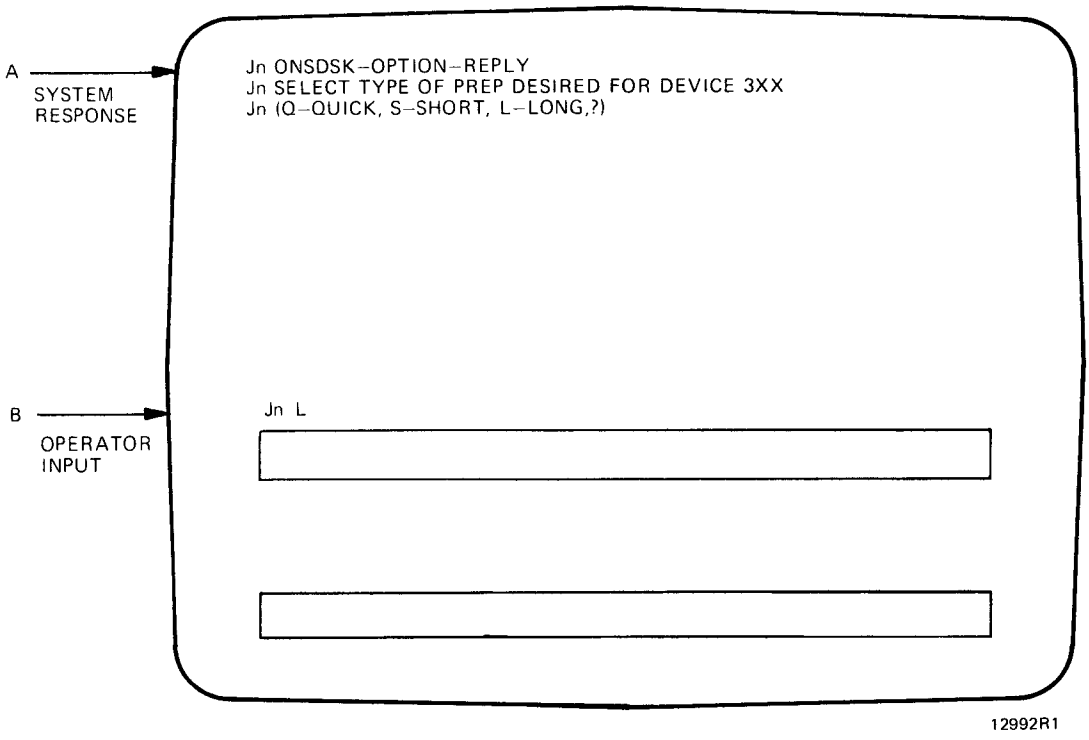


Figure 5-3. Operating Procedures for Online Peripheral Tests (f)

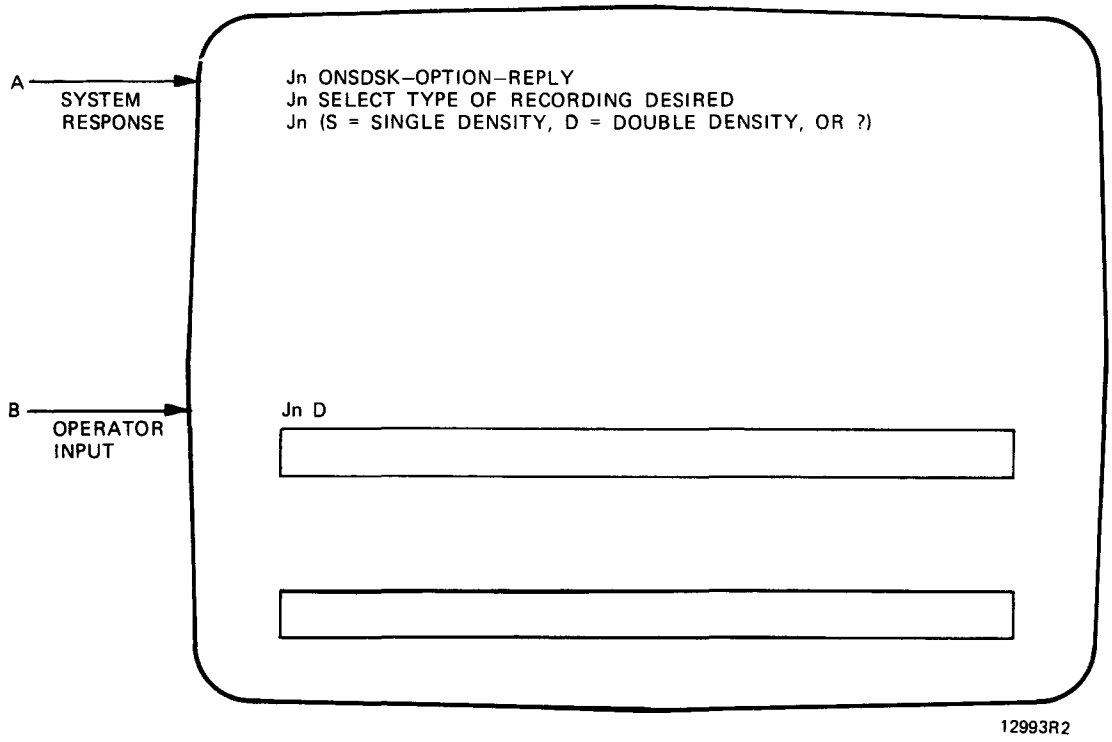


Figure 5-3. Operating Procedures for Online Peripheral Tests (g)

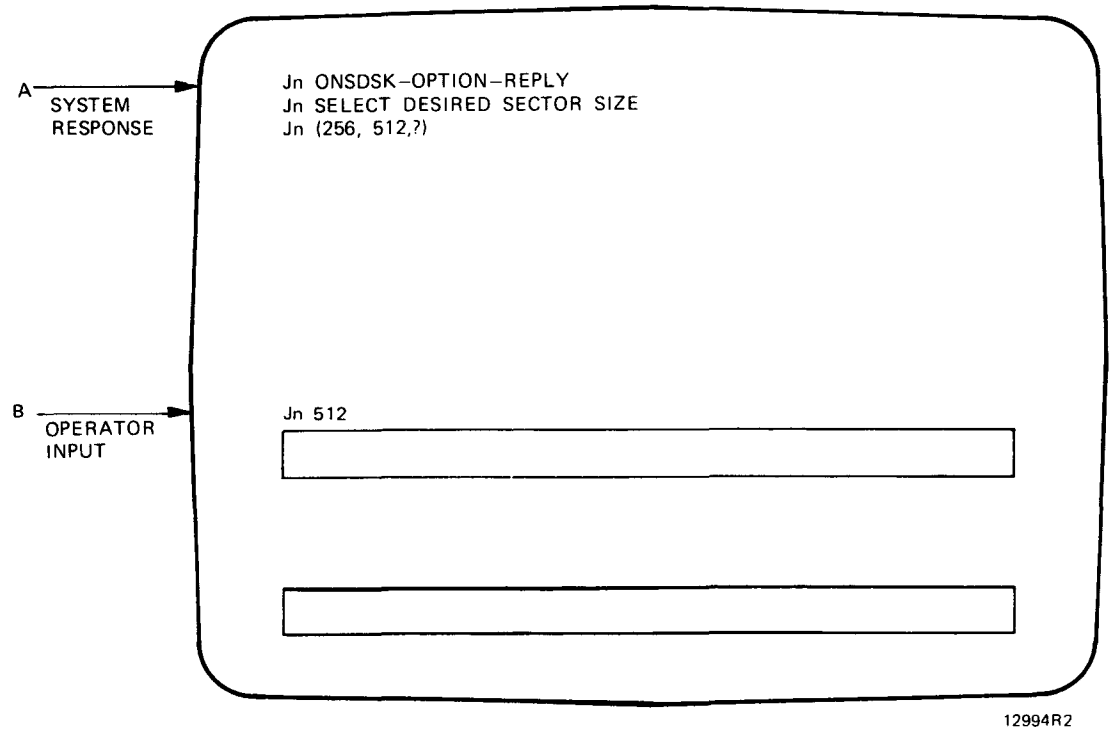


Figure 5-3. Operating Procedures for Online Peripheral Tests (h)

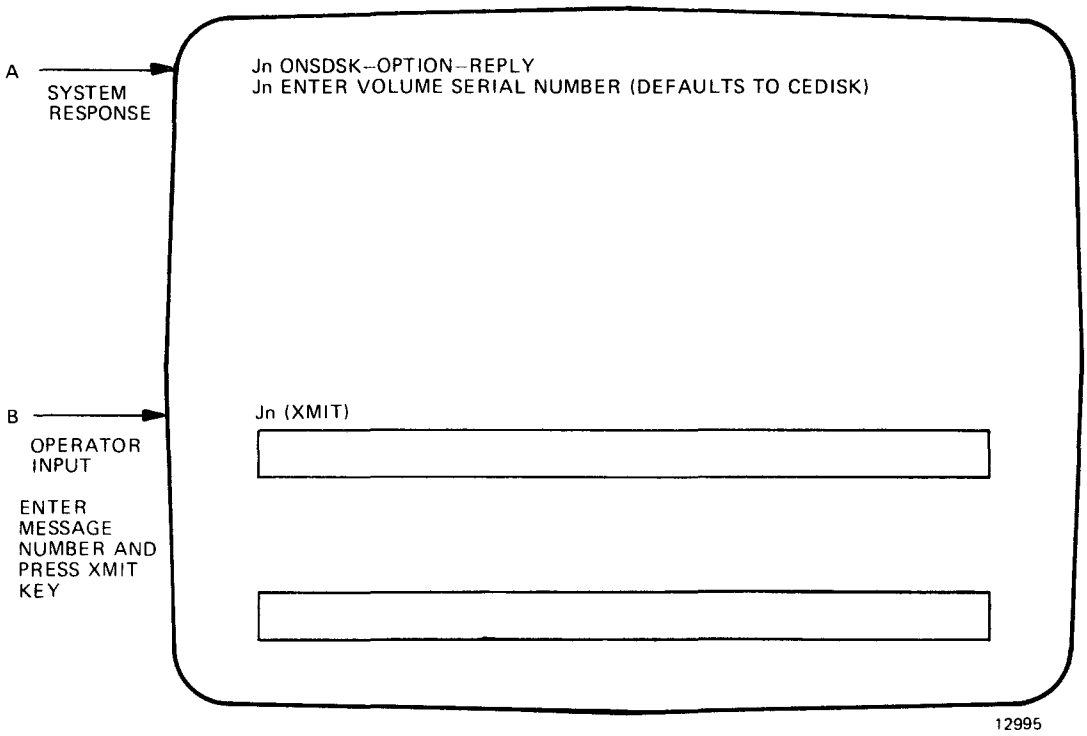


Figure 5-3. Operating Procedures for Online Peripheral Tests (i)

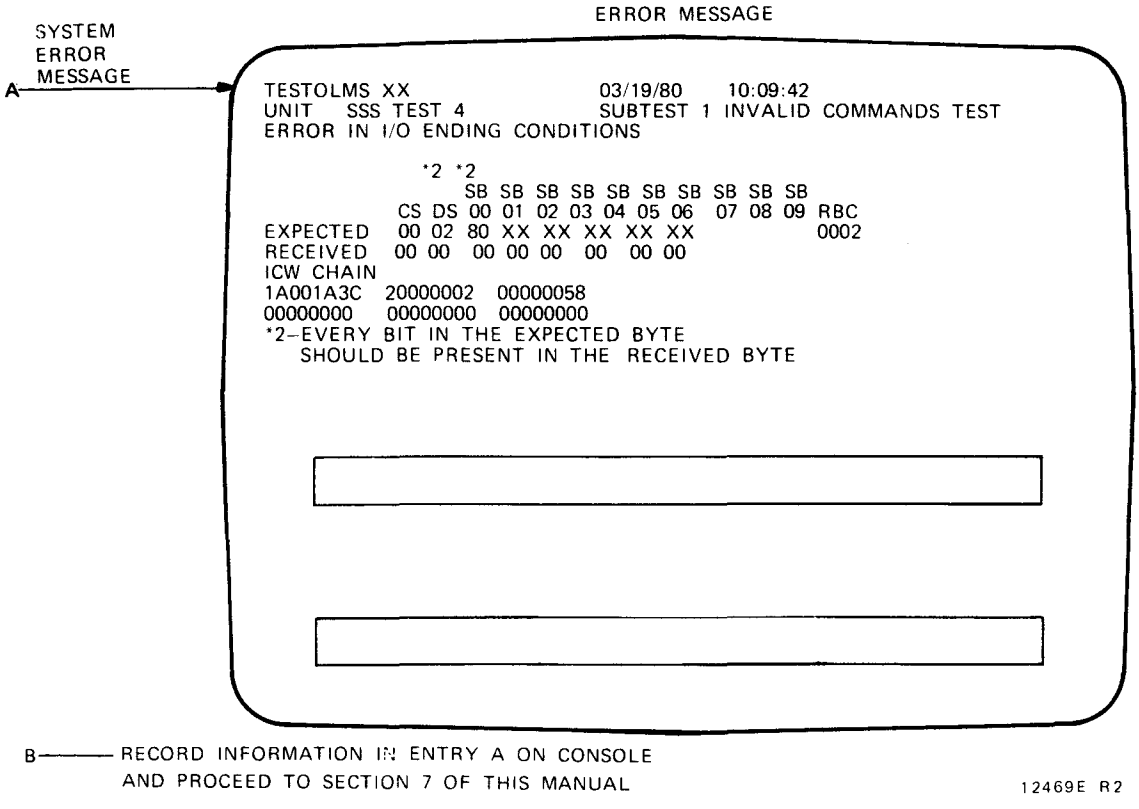


Figure 5-3. Operating Procedures for Online Peripheral Tests (j)

6. Error Log

6.1. GENERAL

This section contains step-by-step instructions for obtaining the system error log. Instructions are also provided for transmitting the error log to SPERRY.

The error log is an online program that records peripheral device, I/O channel and processor errors for historical and statistical analysis. Each time an error occurs, the error log program provides temporary storage of all related error information.

NOTE:

This section only provides instructions for transmitting the error log to SPERRY. For a complete description of the ONUERL program and its options refer to UP-8859 SPERRY UNIVAC System 80 Operations Handbook.

6.2. ERROR LOG FILE DESCRIPTION

The error log file is described by the following points:

1. Device - the error log file must be maintained on the SYSRES disk.

2. File Name - the name of the error log must be: YELOG.

3. Allocation and Format Write - allocation of the error log file to YRES must be done at SYSGEN time (on creation of SYSRES), and format write must be done by the Space Management.

4. File Size - the file size is approximately 1100 records of 256 bytes each.

6.3. ERROR LOG OPERATING PROCEDURES

The error log program is an online program and can be executed concurrently with other jobs. The step-by-step operating procedures are provided in figure 6-1.

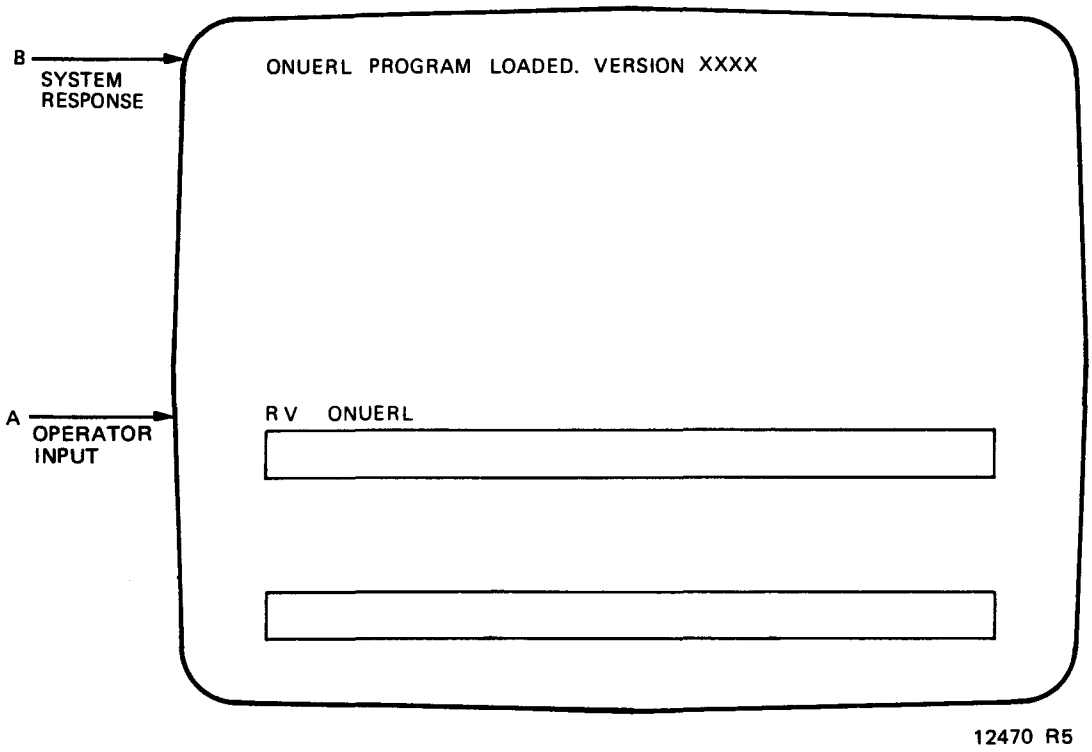


Figure 6-1. Operating Procedures For Obtaining an Error Log Printout (a)

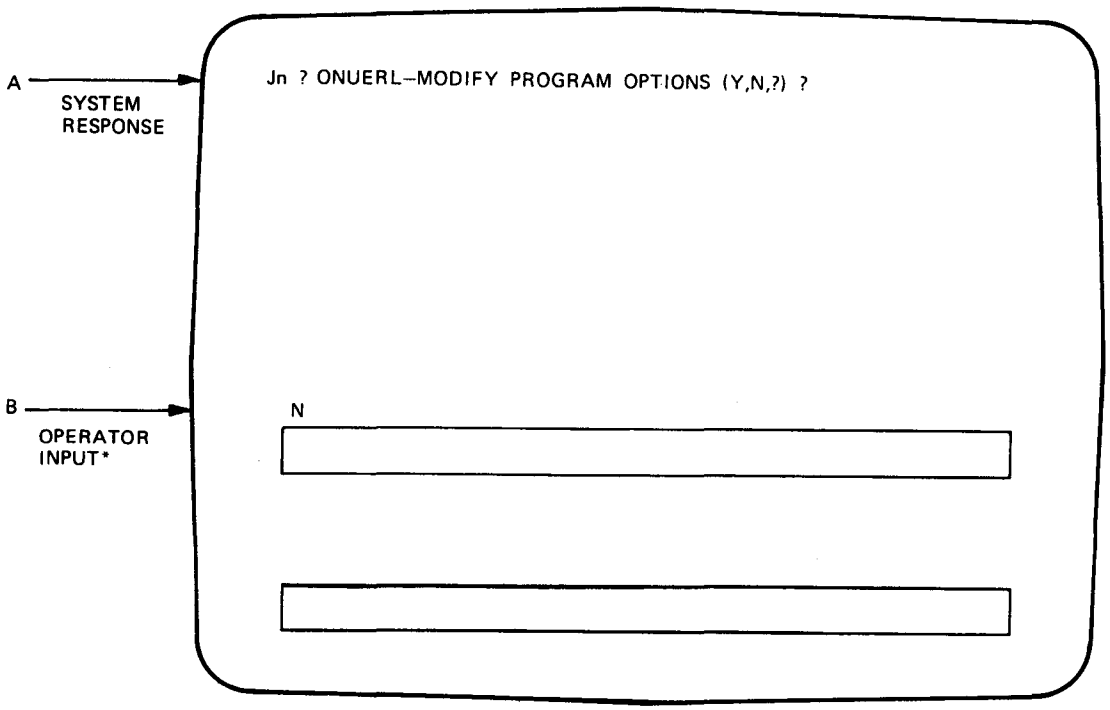


Figure 6-1. Operating Procedures For Obtaining and Error Log Printout (b)

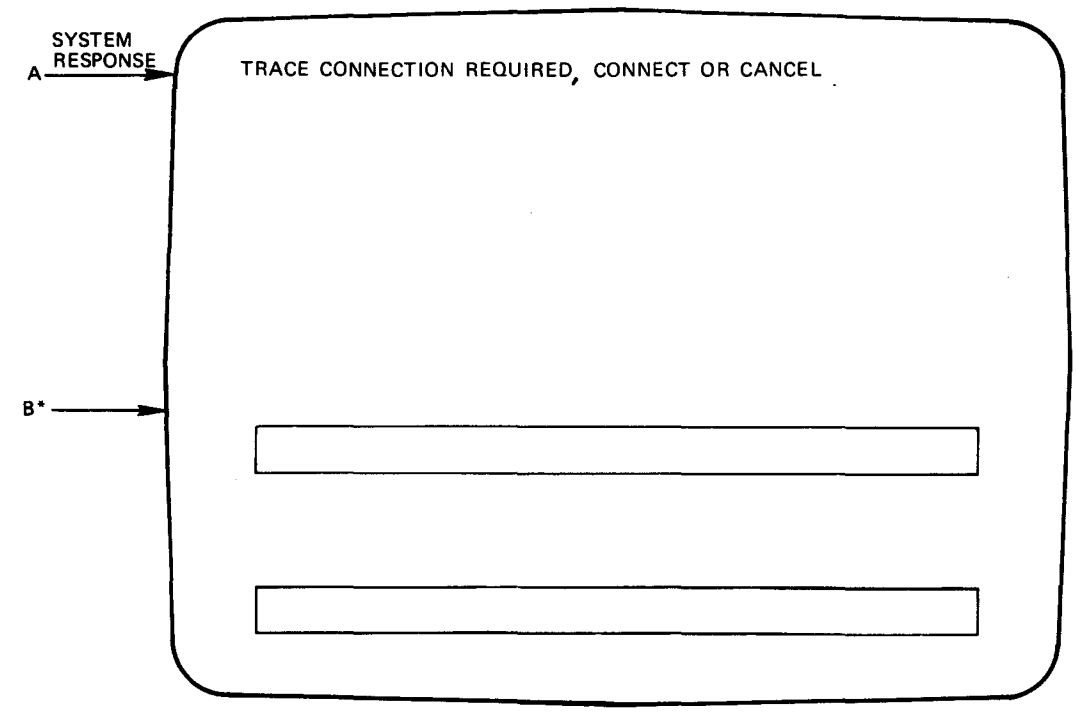


Figure 6-1. Operating Procedures For Obtaining and Error Log Printout (c)

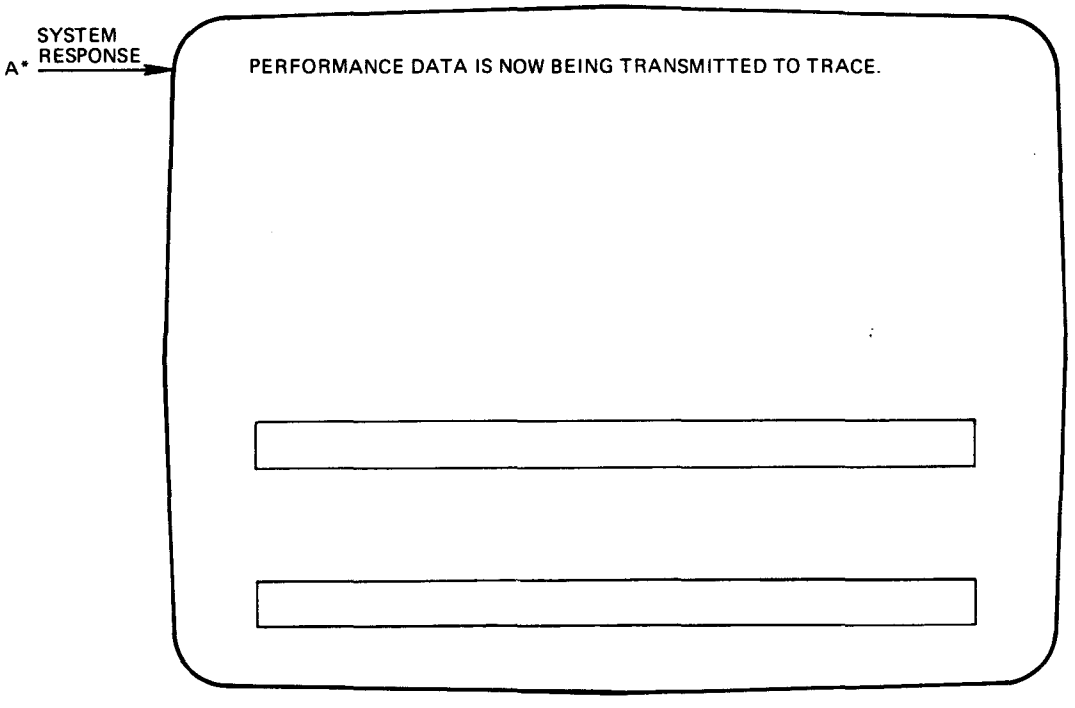


Figure 6-1. Operating Procedures For Obtaining and Error Log Printout (d)

6.4. ERROR LOG INTERPRETATION

An interpretation of the error log printout is provided in the following figures:

Figure 6-2 I/O and Peripheral Error Log
Figure 6-3 Processor Error Log
Figure 6-4 Device Physical Information
Figure 6-5 System Information

6.5. ERROR LOG TRANSMISSION TO SPERRY

The system error log must be transmitted to SPERRY every two weeks. Use the procedure specified in section 7 of this manual to transmit the error log.

6.6 ERROR LOG SUMMARY FILE (ESUM)

The Error Log Summary file is contained on YRES for the exclusive use of the error editor program. ESUM receives error summary data for use by the analysis section of ONUERL and stores the data for transmission to TRACE during execution of ONUERL. ESUM must be initialized by ONUERL.

```
        DMA ICW                                  I/O  RTRY STAT DSX DSSC DSW SSO-1 2-3 4-5  6-7  8-9  10-11  OPR          RCVRD

01/01/80 01.02.30 U-9 TAPE       CHDV: XXX, J-NME: XXXXXXXX, ADDR: XXXXXX, SZE: XXXXXX, X-BLK: XXXXX, A-BLK: XXXXX, ORIG: XXXX
XXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXX XXXXX  XX  XXXX XXXX XX  XX  XXXX XXXX XXXX XXXX XXXX XXXX    X             X
X———————————————————— X———————————————————— XXXXX  XX  XXXX XXXX XX  XX  XXXX XXXX XXXX XXXX XXXX XXXX    X             X



** CHAN. LOC-OUT ***  MM/DD/YY,HH.MM.SS, CHCB ADR: XXXXXX, CH/SUB: XXXX, MOD: XXXX, CS/CW: XXXX
   CIQ WD0       CIQ WD1       CAIQ WD0      CAIQ WD1      CEIQ WD0      CEIQ WD1      CDIQ WD0      CDIQ WD1      CDIQ WD2
   XXXXXXXX      XXXXXXXX      XXXXXXXX      XXXXXXXX      XXXXXXXX      XXXXXXXX      XXXXXXXX      XXXXXXXX      XXXXXXXX
LOG-OUT: CONTROL BITS  END BUF ADR  CH FLG  RBC   DV/CH STAT   CURR ICW OFS  I/O PART.CDE   PHYS DVC
       X X X X X X X X   XXXXXX     XX XX   XXXX  XX XX          XXXX          XXXX          XXXX
         VALIDITY BITS  MSP ERR DESC  MSP ERR ADR    DMA MICROCODE
       X X X X X X X X    XXXX          XXXX         XXXXXXXX XXXXXXXX                                                    12512
```

Figure 6-2. I/O and Peripheral Error Log

```
*** CPU RETRY STACK LOG-OUT ***  MM/DD/YY, HH.MM.SS, K1 =ACTOR: XXXX, CR12: XXXXXXXX, CR13: XXXXXXXX, ELAPSED TM: HHH.MM.SS.MSG
   CLASS: XX, RETRY COUNT: XXX, HPVSR STATE: XX, CUBA09:.XX, CUBA0A: XX, CUBA0B: XX, CUBA0C: XX, WDS 2-3: XXXXXXXX XXXXXXXX
                                                                                                WD-3, 16-31: XXXXXXXX
                                                                                                WD-3, 0-7: XX

** MSE **  MM/DD/YY, HH.MM.SS, K2: XXXX, CR13: XXXX XXXX, M-SIZE: XXXXXXXXXX, ELEM. SIZE: XXXXXX, ELAPSED TIME: HHH.MM.SS.MSC
        ELE.: X, ADR.: XXXXXX-XXXXXX    CNTRL: XXXXXXXX(BIN), SYND.: XXXXXXXX(BIN), COUNT: XXXXXXX(DEC) BYTE: X, BIT: X

** EMCIC ** MM/DD/YY, HH.MM.SS, CR15: XX XXXXXX, CLASS: XX, RETRY COUNT: XXX, HPVSR STATE: XX,ELAPSED TIME: HHH.MM.SS.MSC
          CUBA09: XX, CUBA0A: XX, CUBA0B: XX, CUBA0C: XX,2-3 :XXXXXXXX XXXXXXXX,D-1D:XXXXXXXX XXXXXXXX,VBITS:XXXXXXXX XXXXXXXX

** STATUS TABLE ** MM/DD/YY, HH.MM.SS, CR15  CNTRL: XXXXXXXX(BIN), DBLE-WD COUNT: XXX(DEC), ADDR: XXXX
                                                SUPERVISOR GENERAL REGISTERS
 R0 : XXXXXXXX   R1 : XXXXXXXX   R2 : XXXXXXXX   R3 : XXXXXXXX   R4 : XXXXXXXX   R5 : XXXXXXXX   R6 : XXXXXXXX   R7 : XXXXXXXX
 R8 :            R9 :            R10:            R11:            R12:            R13:            R14:            R15:

                                                PROBLEM GENERAL REGISTERS

                                                FLOATING POINT REGISTERS
 R0 : X——————————X          R1 : X——————————X          R2 : X——————————X          R3 : X——————————X

      X——————————X          PSW : X——————————X              XXXXXXXX    ITR: XXXXXXXX       X——————————X

                                                CONTROL REGISTERS

                                                RELOCATION REGISTERS
```

SAME AS GEN. REG.

12513R1

Figure 6-3. Processor Error Log

```
ONUERL-ERROR LOG EDIT. VERSION 48/14.     TEST OF ONUERL                    81/08/14  21.03  PAGE   1

 **3560 WORK-STATION**********************  **0789 PRINTER**************************  **0789 PRINTER**************************
 * DVC TYPE CODE: 01010104              *  * DVC TYPE CODE: 04021400              *  * DVC TYPE CODE: 04021400              *
 * CHAN,/DVC ADDR.: 0310                *  * CHAN,/DVC ADDR.: 0330                *  * CHAN,/DVC ADDR.: 0331                *
 * FEATURES:                            *  * FEATURES:                            *  * FEATURES:                            *
 * 24X80 SCREEN                         *  * 132 PRINT POSITIONS                  *  * 132 PRINT POSITIONS                  *
 * PARTIAL FCC                          *  * AUTO-RETRY                           *  * AUTO-RETRY                           *
 * LGREMSK: EA0A                        *  * LGREMSK: 2215                        *  * LGREMSK: 2215                        *
 **************************************  ****************************************  ****************************************

 **0719 READER****************************  **0608 PUNCH****************************  **SUL DISKETTE**************************
 * DVC TYPE CODE: 0820F008              *  * DVC TYPE CODE: 02011000              *  * DVC TYPE CODE: 4001006F              *
 * CHAN,/DVC ADDR.: 0332                *  * CHAN,/DVC ADDR.: 0333                *  * CHAN,/DVC ADDR.: 0320                *
 * FEATURES:                            *  * FEATURES:                            *  * FEATURES:                            *
 * 90 COLUMN CARD                       *  * AUTO-RETRY                           *  * 128 BYTE RECORD                      *
 * AUTO-RETRY                           *  * LGREMSK: B21D                        *  * 256 BYTE RECORD                      *
 * INVALID BIT IN DVC TYPE CODE         *  ****************************************  * 512 BYTE RECORD                      *
 * INVALID BIT IN DVC TYPE CODE         *                                           * 1024 BYTE RECORD                     *
 * INVALID BIT IN DVC TYPE CODE         *                                           * M2-FM RECORDING                      *
 * LGREMSK: B21D                        *                                           * DOUBLE SIDED MEDIA                   *
 **************************************                                            * LGREMSK: 87A0                         *
                                                                                    ****************************************

 **SUL DISKETTE**************************  **SUL DISKETTE**************************  **SUL DISKETTE**************************
 * DVC TYPE CODE: 4001006F              *  * DVC TYPE CODE: 4001006F              *  * DVC TYPE CODE: 4001016F              *
 * CHAN,/DVC ADDR.: 0321                *  * CHAN,/DVC ADDR.: 0341                *  * CHAN,/DVC ADDR.: 0340                *
 * FEATURES:                            *  * FEATURES:                            *  * FEATURES:                            *
 * 128 BYTE RECORD                      *  * 128 BYTE RECORD                      *  * 128 BYTE RECORD                      *
 * 256 BYTE RECORD                      *  * 256 BYTE RECORD                      *  * 256 BYTE RECORD                      *
 * 512 BYTE RECORD                      *  * 512 BYTE RECORD                      *  * 512 BYTE RECORD                      *
 * 1024 BYTE RECORD                     *  * 1024 BYTE RECORD                     *  * 1024 BYTE RECORD                     *
 * M2-FM RECORDING                      *  * M2-FM RECORDING                      *  * M2-FM RECORDING                      *
 * DOUBLE SIDED MEDIA                   *  * DOUBLE SIDED MEDIA                   *  * DOUBLE SIDED MEDIA                   *
 * LGREMSK: 87A0                        *  * LGREMSK: 87A0                        *  * AUTO LOAD                            *
 **************************************  ****************************************  * LGREMSK: 87A0                         *
                                                                                    ****************************************

 **8417 DISC******************************  **9417 DISC******************************  **8417 DISC******************************
 * DVC TYPE CODE: 20080000              *  * DVC TYPE CODE: 20080000              *  * DVC TYPE CODE: 20080020              *
 * CHAN,/DVC ADDR.: 0100                *  * CHAN,/DVC ADDR.: 0101                *  * CHAN,/DVC ADDR.: 0102                *
 * FEATURES:                            *  * FEATURES:                            *  * FEATURES:                            *
 * NONE                                 *  * NONE                                 *  * FIXED HEADS                          *
 * LGREMSK: 25C3                        *  * LGREMSK: 25C3                        *  * LGREMSK: 25C3                        *
 **************************************  ****************************************  ****************************************
                                                                                                                      13764
```

Figure 6-4. Device Physical Information (ERROR LOG EDIT)

```
ONUERL-ERROR LOG EDIT. VERSION 48/14.      TEST OF ONUERL                                    81/08/14  21.03  PAGE    3

CUSTOMER ID.: 123456789. OS/3 VER.  07, REV. 1 , DATE  81/08/14, TIME  21.00.58, FLAGS 10R0, CHARACTERISTICS 738E0080

SYSRES: 104, PRINTER: 330, READER: 332, $Y$ELOG: 104 MAIN STORAGE SIZE: 00100000, USER MEMORY SIZE:000ED300

 RETRY STACK INT. TIME.       PRIOR:      0.00.00.00, LAST:  21.00.58.935
        MSE  INT. TIME.       PRIOR:      0.00.00.00, LAST:  21.00.58.935
       EMCIC INT. TIME.                              , LAST:   0.00.00.000
      ERROR ENTRY TIME.       PRIOR:      0.00.00.00, LAST:  21.00.58.935

 BIT MAP ADDRESS: 012AA0, BIT MAP WORD COUNT:    1. BIT MAP DATA (IN BITS. EACH BIT = 64K. 0 = ON LINE, 1 = OFF LINE):
00000000 00000000 11111111 11111111
```

13766 R1

Figure 6-5. System Information (ERROR LOG EDIT)

6.7 ERROR LOG EDITOR

The system error log is edited and displayed under control of ONUERL. The program options are:

1. OPEN = **CURRENT,** BEGIN, PRIOR
2. TRACE = **TRANSMIT** , YES, NO, REPEAT
3. ELOG = NO, **YES**
4. DOC = **NO,** YES

NOTE:

Bold options are preset.

1. DEVICE TYPE - A 4 character identification of device type assembled into the PUB at supervisor generation time.
2. DEVICE ADR - A combination address consisting of the channel for this I/O (co-channel or primary) and the control unit device address from the PUB.
3. DATE, TIME - The date and time the error log was written to the error file.
4. JOB NAME - The name of the job to which the device was allocated.
5. VSN - The volume serial number of the volume mounted on the device.
6. RT - Record Type: 20 = I/O Error, 31 = Operator Response, 40 = Termination.
7. RCVRY - Indicates the number of retries the supervisor initiated to recover from the error. The letter following the retry number indicates the error's disposition. R = recovered by Supervisor. U = not recovered by Supervisor; error passed to user program.
8. VALID I/O's - Contains the number of valid I/O's prior to the error. It indicates the frequency of errors for the device.
9. ERROR - CCXXAAAA = command code, key, data address.
   XXXXBBBB = byte or record count.
10. DISK - If the failing device was a disk and the first CCW was a seek, the cylinder (CCC) and the head (HH) identifications are recorded. If, in scanning the chain, a search equals command is recognized, the record number (RR) is recorded.
11. DV/SC STATS - The device and subchannel status recognized when the error recovery sequence was completed.
12. SENSE BYTES - The sense bytes recognized when the first unit check of the error recovery sequence was initiated. Up to six sense bytes are displayed for all devices except the 84XX disk drives, which display 24 sense bytes on the next line.

13. MODE - On tape devices, normal and current tape mode will be displayed.

14. XPCT BLCK - Expected block number.

15. ACT BLCK - Actual block number. Actual block number and CCCHHRR are not displayed on unit record devices.

16. MACH CHK OLD PSW - PSW at time of error.

17. PGM CHK OLD PSW - PSW at time of error.

18. RELOC RG - Contents of the Relocation Register.

19. SUP R-0 - Contents of supervisor register 0.

20. SUP R-1 - Contents of supervisor register 1.

7. Calling For Assistance

7.1. GENERAL

This section of the manual provides step-by-step instructions for contacting Sperry and providing a detailed description of the suspected hardware failure.

7.1.1. CHECKPOINT STICKER

The CHECKPOINT sticker (figure 7-1) contains the telephone numbers to call when requesting assistance and is mounted on the acoustic coupler.

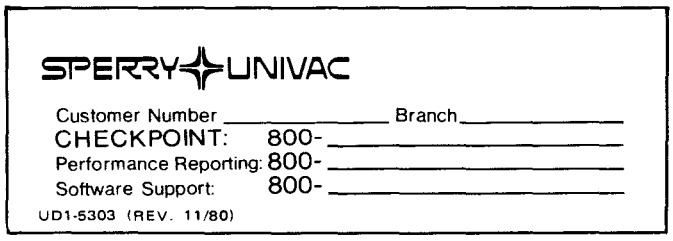
The CHECKPOINT sticker contains:

- the Customer number
- the Branch number
- the CHECKPOINT 800-telephone number
- the Performance Reporting 800-telephone number
- the Software Support 800-telephone number

The Customer number is the 5-digit Customer Engineering site identification number.

The Branch number is the 4-digit Branch identification number.

The telephone numbers will be completed by the Customer Engineer when the system is installed.



13212 R1

Figure 7-1. Checkpoint Sticker (Continental U.S. Telephone Numbers)

7.2. GENERAL PROCEDURES

7.2.1. ACOUSTIC COUPLER

1. Locate acoustic coupler and place acoustic coupler on system console near telephone (figure 7-2).

2. Ensure that the data cord and power cord are connected to the acoustic coupler, and the power cord is connected to a live AC source.

3. Position HALF/DUPLEX switch on acoustic coupler to DUPLEX (figure 7-3a).

4. Position POWER-OFF switch on acoustic coupler to the POWER position to apply power. The RX DATA indicator on the acoustic coupler will light.

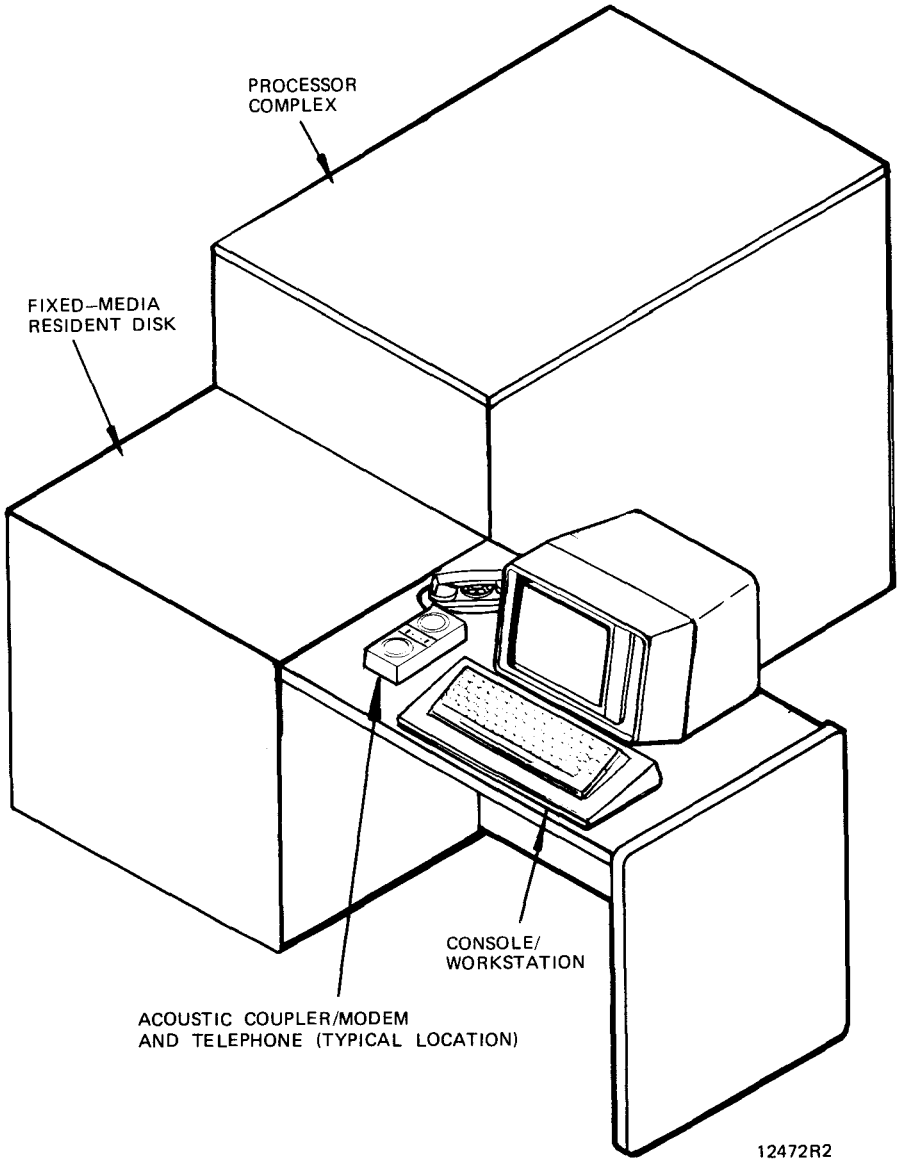
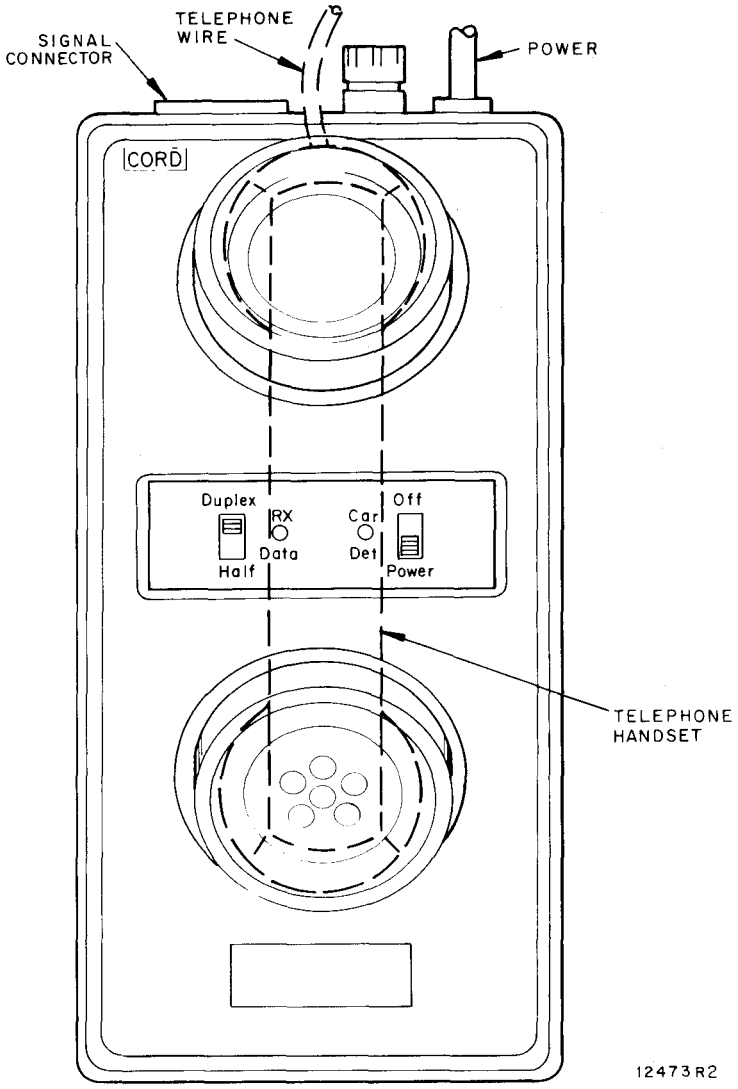
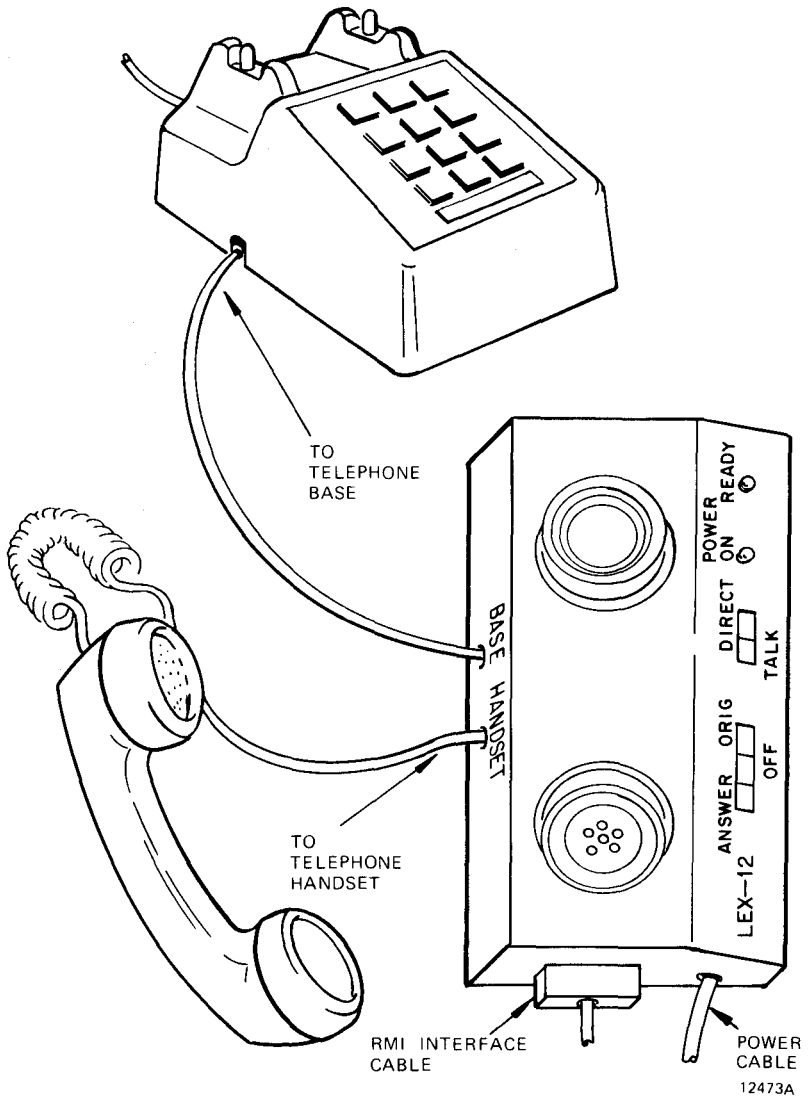


Figure 7-2. Acoustic Coupler/Modem Placement



a. Acoustic Coupler



b. Modem

Figure 7-3. Acoustic Coupler/Modem

7.2.2 MODEM

1. Locate modem and place modem on system console near telephone (figure 7-2).

2. Ensure that the data cord and power cord are connected to the modem, and the power cord is connected to a live AC source.

3. Position ANSWER/OFF/ORIG switch on modem to ORIG (figure 7-3b). The READY indicator on the modem will light.

4. Position TALK/DIRECT switch to TALK.

NOTE:

Sections 7.3, 7.4 and 7.5 apply to the continental United States. Sections 7.6, 7.7 and 7.8 apply to areas other than the continental United States.

7.3. CHECKPOINT SYSTEM (CONTINENTAL UNITED STATES)

NOTE:

The following CHECKPOINT procedures apply only to System 80 systems installed within the continental United States.

The CHECKPOINT system provides technical service response 24 hours a day, seven days a week. All requests for support on hardware problems should be made to the CHECKPOINT center.

The following paragraphs describe the course of action to be taken by System 80 operators when maintenance problems arise.

1. Determine whether the problem is hardware or software. If it is positively determined that the problem is software, call the Software Support Telephone number listed on the CHECKPOINT sticker (figure 7-1)

2. If an error message, system error code, or other indication points to a hardware error, contact the CHECKPOINT center at the telephone number located on the CHECKPOINT information sticker (figure 7-1). The CHECKPOINT information sticker is on the acoustic coupler.

   If CHECKPOINT maintenance service is not available, contact the Sperry Customer Engineering office or service point at the telephone number they have provided. Before contacting the CHECKPOINT facility, the site operator should ensure that the diagnostic test media is available.

3. If a hardware malfunction is indicated, save the error message printout for support personnel and report the information to CHECKPOINT.

4. Before contacting the CHECKPOINT facility, the site operator should make sure that the following test media are available since they are required during TRACE remote testing activities:

SYSTEM 80 MICRODIAGNOSTICS (DOUBLE-SIDE, DOUBLE-DENSITY DISKETTE)

A. MODEL 3 PROCESSOR MICRODIAGNOSTICS

1. DH4701 Static and Dynamic Microdiagnostics

Control Number	Description
DH4702	CP3231 - Tests 1-6
DH4703	CP3232 - Tests 1-8
DH4704	CP3233 - Tests 9-16

B. MODEL 5 PROCESSOR MICRODIAGNOSTICS

1. DH4706 Static and Dynamic Microdiagnostics

Control Number	Description
DH4707	CP5231 - Tests 1-6
DH4708	CP5232 - Tests 1-8
DH4709	CP5233 - Tests 9-16

C. IOMP MICRODIAGNOSTICS

1. DH4710 Static and Dynamic Microdiagnostics

Control Number	Description
DH4711	IMP101 - Tests 1-8
DH4712	IMP102 - Tests 1-6
DH4713	IMP103 - Tests 7-11

SYSTEM 80 MACRODIAGNOSTICS (DOUBLE-SIDE, DOUBLE-DENSITY DISKETTE)

A. MODEL 3 AND MODEL 5 MACRODIAGNOSTICS

Control Number	Description
DH4720	MACR01 - Prelude, IOCD, CPMDC

5. The CHECKPOINT specialist will request the following information.

- Customer number - located on the CHECKPOINT information sticker on the acoustic coupler (See Figure 7-1).
- Branch number - located on the CHECKPOINT sticker.
- Site operator's name
- Customer (site) name.
- Operating system revision level.

6. The CHECKPOINT specialist will discuss the condition to determine if remote maintenance can assist in resolving the problem. The following points may be considered in this discussion:

   - If online maintenance tests have been run, the specialist should be informed of the results.
   - Visible error conditions or console error messages from the OS/3 Operating System should be relayed to the CHECKPOINT specialist.
   - System configuration information should be relayed to the CHECKPOINT specialist.

7. Using the information provided, the CHECKPOINT specialist decides if the remote maintenance capability of TRACE can help solve the problem. If it is determined that remote maintenance cannot assist, the CHECKPOINT specialist refers the problem to the Customer Engineering office.

8. If remote maintenance can help solve the problem, troubleshooting is initiated using the TRACE system (see 7.4).

9. In all cases, the CHECKPOINT service response center informs the Customer Engineering office of the status of all calls.

7.4. TRACE REMOTE OPERATION (CONTINENTAL UNITED STATES)

Remote control of the System 80 can be implemented using the TRACE facilities.

The TRACE application programs use a telephone communications data path to the System 80. During remote operations, the CHECKPOINT specialist monitors and controls the execution of onsite test routines using remote console operations. After a malfunctioning area has been located, the remote console is used for further isolation of the failure. The information provided by this diagnostic tool allows the CHECKPOINT specialist to provide comprehensive assistance for onsite problem analysis.

1. The CHECKPOINT specialist determines if the TRACE remote capability can help solve the problem.

2. The CHECKPOINT specialist will explain a proposed testing sequence. Testing may be performed in either the online or offline mode, depending on the type of the problem, site production requirements and system configuration.

   For certain types of system problems, such as intermittent central complex or peripheral errors, the specialist may request the System 80 Error Log (ONUERL) program.

3. Acoustic Coupler

   a. The CHECKPOINT specialist will notify you when to place the telephone handset in the acoustic coupler. Ensure that the telephone mouthpiece is placed in the coupler muff labeled CORD.

   b. After the handset is placed in the acoustic coupler, the following conditions must exist to ensure a proper connection:

- Acoustic coupler CAR DET light is on.
- Acoustic coupler RX DATA light is flickering.
- RMIMOD is displayed on system indicator line on the console.

4. Modem

   a. The CHECKPOINT specialist will notify you when to place the TALK/DIRECT switch on the modem to DIRECT. Do not replace the telephone hanset in its cradle. Place it on the table.

   b. Ensure that the READY Indicator is on.

   If all of these condition do not exist, the remote connection is not established. Please lift the telephone handset and listen for the CHECKPOINT operator. If the CHECKPOINT specialist is not on the line, terminate the connection and try again.

   NOTE:

   During testing, the operator should monitor the console screen for messages from the CHECKPOINT specialist and respond to the messages when they appear on the console.

5. For particular tests, the CHECKPOINT specialist will request the site operator to load the required test media.

   NOTE:

   While TRACE testing is active, the message TRACE ACTIVE will appear on the console at one-minute intervals.

6. When all required tests have been run, the CHECKPOINT specialist will request the operator to return to voice mode. Test results may be discussed and procedures for degraded system operation may be suggested.

7. The CHECKPOINT specialist will contact the local Customer Engineering office to ensure that necessary parts and service personnel are dispatched to the site.

8. Replace the telephone and set in the cradle to terminate the remote connection.

7.5. REMOTE PERFORMANCE DATA (CONTINENTAL UNITED STATES)

TRACE monitoring of system performance is required when the thresholds are exceeded. The following files are transmitted during the operation:

- ☐ System Error Log file

  This file contains a summary of recorded system hardware errors.

- ☐ System Definition File (SDF)

  This file contains information on the system configuration and microcode levels.

The site operator should be aware that the performance data transmission to SPERRY via the ONUERL program is required. The schedule for this transmission will be provided by the branch Customer Engineering personnel. If there is a problem relating to scheduled transmission time, CHECKPOINT can be contacted at the number provided on the sticker.

NOTE:

There should not be any other online programs active when transmitting the performance data (ONUERL) to the TRACE facility.

1. Run the error log program (ONUERL) as described in Section 6 of this manual.
2. When the message 'ONUERL READY FOR TRACE. MAKE CONNECTION AND GO OR CANCEL' appears, initiate the connection as described in the following steps.
3. Simultaneously press FUNCTION and D keys on console keyboard. CTLMOD will be displayed on the console system indicator line.
4. Simultaneously press FUNCTION and STOP keys on console keyboard to stop the system.
5. Ensure acoustic coupler is ready (Power switch in POWER position, FULL-DUPLEX switch in DUPLEX position).
6. Use the phone and acoustic coupler/modem connected to the System 80 to contact the TRACE facility at the performance reporting number shown on the CHECKPOINT information sticker (see figure 7-1).
7. When the high-pitched data tone is received, place the telephone handset in the acoustic coupler and observe that the CAR DET light is on and the RX DATA light is flickering. If this does not occur, the remote connection is not established. Repeat steps 5 and 6 again.
8. Ensure that RMIMOD is displayed in the system indicator line.
9. When the remote connection is made the console screen contains workstation mode data from the OS/3 operating system. Within 30 seconds of the connection to TRACE the screen is erased and TRACE displays the following message:

   ENTER CUSTOMER NUMBER (SHOWN ON CHECKPOINT STICKER).

10. Enter the customer number on the CHECKPOINT information sticker. The entry form is 'CXXXXX' or 'CXXXXX-YY' where x and y represent decimal digits. If the entry is in error TRACE displays:

    KEY ERROR - CUSTOMER NUMBER IS IN THE FORM 'CXXXXX' OR CXXXXX-YY'-REENTER.

    Reenter the customer number.

11. If repeated key entry errors are encountered, the following message is displayed:

    CONTACT CHECKPOINT FOR CORRECT PERFORMANCE DATA TRANSMISSION PROCEDURES.

    Follow steps 17 through 21 and contact CHECKPOINT.

12. The following messages are displayed if the entered customer number can not be found:

    CXXXXX-YY IS NOT REGISTERED IN THE CHECKPOINT FILES

    PLEASE RECHECK THAT YOU HAVE ENTERED THE CUSTOMER NUMBER SHOWN ON THE STICKER

    ENTER THE CORRECT CUSTOMER NUMBER OR ENTER "STOP" AND CONTACT CHECKPOINT

    If the customer number has been entered incorrectly the correct number should be entered at this time. If the displayed customer number is the one shown on the CHECKPOINT sticker, the operator should enter "STOP", follow the disconnect procedures in steps 17 through 21, and contact CHECKPOINT.

13. The following message is displayed if the customer number is found in the CHECKPOINT files:

    CXXXXX-YY IS REGISTERED AS site name CORRECT? (Y N)

    If the site name shown in the message is correct, the operator should enter "Y". If it is not correct, the customer number may have been entered in error. The operator should enter "N". Step 12 shows the options available at this time.

14. When the customer number is accepted the TRACE system readies the System 80 for performance data transmisison and displays:

    PERFORMANCE DATA IS NOW BEING TRANSMITTED TO TRACE.

15. During the transmission of the performance data the following conditions will exist:

    - System console remains in RMI mode.
    - Acoustic coupler CAR DET light is on.
    - Acoustic coupler RX DATA light flickers continuously.

NOTE

Monitor the console screen for the following error messages from TRACE:

**CHECK STOP* ENCOUNTERED*

HPR STOP ENCOUNTERED

JOB ONUERL NOT FOUND

The following error message is displayed after the above messages or can be displayed by itself if other error conditions occur.

ERROR DURING PERFORMANCE DATA TRANSMISSION-CONTACT CHECKPOINT

If any of these error messages are displayed, terminate the sequence and contact CHECKPOINT at the telephone number listed on the CHECKPOINT sticker. Report the problem and all error messages to the CHECKPOINT specialist. After disconnecting from CHECKPOINT, any error messages can be re-displayed on the console screen by entering workstation mode.

16. After all performance data is transmitted to TRACE, the following message is displayed on the console screen

    THE TRANSMISSION IS NOW COMPLETE - THANK YOU
    (Other advisory messages may also be displayed at this time.)

    Approximately 15 seconds after this message TRACE automatically disconnects the telephone line.

17. Replace the telephone handset in the telephone cradle. If the modem is used position the TALK/DIRECT switch on the modem to TALK.

18. Simultaneously press the FUNCTION and START keys on the console keyboard to restart the system.

19. Simultaneously press the FUNCTION and C keys on the console keyboard to enter console mode.

20. Press MSG WIAT Key on console keyboard to display the SOE character.

21. Key in REBUILD or RE to restore the console screen. The system is ready for operation.

7.6. CHECKPOINT SYSTEM (OTHER THAN CONTINENTAL UNITED STATES)

NOTE:

The following CHECKPOINT procedures apply only to System 80 systems installed where this capability is available other than the continental United States.

The CHECKPOINT system provides technical service response during periods of arranged coverage. All requests for support on hardware problems should be made to the local CHECKPOINT, using the telephone number provided by Sperry.

The following paragraphs describe the course of action to be taken by System 80 operators when maintenance problems arise.

1. Determine whether the problem is hardware or software. If it is positively determined that the problem is software, call the local Sperry office.

2. If an error message, system error code, or other indication points to a hardware error, contact CHECKPOINT at the telephone number located on the CHECKPOINT information sticker near the system console (figure 7-4).

   Before contacting the CHECKPOINT facility the operator should ensure that the diagnostic test media is available.

3. If a hardware malfunction is indicated, save the error message printout for support personnel and report the information to CHECKPOINT.

4. Before contacting CHECKPOINT, the site operator should make sure the following test media are available since they are required during TRACE remote testing activities:

   SYSTEM 80 MICRODIAGNOSTIC (DOUBLE-SIDE, DOUBLE-DENSITY DISKETTE)

   A. MODEL 3 MICRODIAGNOSTICS

      1. DH4701 Static and Dynamic Microdiagnostics

Control Number	Description
DH4702	CP3231 - Tests 1-6
DH4703	CP3232 - Tests 1-8
DH4704	CP3233 - Tests 9-16

   B. MODEL 5 MICRODIAGNOSTICS

      1. DH4706 Static and Dynamic Microdiagnostics

Control Number	Description
DH4707	CP5231 - Test 1-6
DH4708	CP5233 - Test 1-8
DH4709	CP5233 - Tests 9-16

   C. IOMP MICRODIAGNOSTICS

      1. DH4710 Static and Dynamic Microdiagnostics

Control Number	Description
DH4711	IMP101 - Test 1-8
DH4712	IMP102 - Test 1-6
DH4713	IMP103 - Tests 7-11

SYSTEM 80 MACRODIAGNOSTICS (DOUBLE-SIDE, DOUBLE-DENSITY DISKETTE)

A. MODEL 3 AND MODEL 5 MACRODIAGNOSTICS

Control Number	Description
DH4720	MACR01 - Prelude, IOCD, CPMDC

5. The CHECKPOINT coordinator will request the following information:

   - Customer number - located on the CHECKPOINT information sticker near the system console (See Figure 7-4).
   - Branch number - located on the CHECKPOINT sticker.
   - Site operator's name.
   - Customer (site) name
   - Operating system revision level.

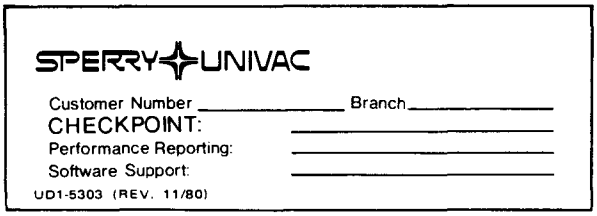


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Figure 7-4. CHECKPOINT Information Sticker

6. The CHECKPOINT coordinator will discuss the condition to determine if remote maintenance can assist in resolving the problem. The following points may be considered in this discussion:

   - If online maintenance tests have been run, the coordinator should be informed of the results.
   - Visible error conditions or console error messages from the OS/3 Operating System should be relayed to the CHECKPOINT coordinator.
   - System configuration information should be relayed to the CHECKPOINT coordinator.

7. Using the information provided, the CHECKPOINT coordinator decides if the remote maintenance capability of TRACE can help solve the problem. If it is determined that remote maintenance can assist, the CHECKPOINT coordinator arranges for TRACE to call the site.

8. If remote maintenance cannot help solve the problem, the CHECKPOINT coordinator organizes local branch resources to solve the problem.

9. In all cases, the CHECKPOINT informs the Customer Engineering office of the status of all calls.

7.7. TRACE REMOTE OPERATION (OTHER THAN CONTINENTAL UNITED STATES)

NOTE:

These procedures apply only to System 80 systems installed where TRACE capabilities are available.

Remote control of the System 80 can be implemented using the TRACE facilities.

The TRACE application programs use a telephone communications data path to the System 80. During remote operations, the TRACE specialist monitors and controls the execution of onsite test routines using remote console operations. After a malfunctioning area has been located, the remote console is used for further isolation of the failure. The information provided by this diagnostic tool allows the TRACE specialist to provide comprehensive assistance for onsite problem analysis.

The following steps provide instructions for using the TRACE system for onsite problem analysis.

1. The TRACE specialist determines if the TRACE remote capability can help solve the problem.

2. The TRACE specialist will explain a proposed testing sequence. Testing may be performed in either the online or offline mode, depending on the type of the problem, site production requirements, and configuration.

   For certain types of system problems, such as intermittent central complex or peripheral errors, the specialist may request execution of the System 80 performance data (ONUERL) program.

   NOTE:

   When the System 80 is under control of the CHECKPOINT, the message RMIMOD is displayed on the system indicator line on the console.

3. The specialist initiates the transfer of the ONUERL file to the TRACE facility. When this transfer is completed, the ONUERL data will be reviewed for other symptomatic data relating to the failure.

   NOTE:

   If the TRACE specialist sends a console message requesting that the operator return to voice mode, follow the local PTT procedures supplied by the CHECKPOINT coordinator.

4. At this point, the specialist may request additional information to decide which diagnostic tests are to be run. For particular tests, the operator should watch the console for messages from TRACE or requests to switch to voice mode.

5. While the remote facility is running tests, the operator should monitor operation of the system. Console messages from TRACE and requests to switch to voice mode may appear on the system console.

6. For particular tests, the specialist will request the operator to mount the required test media and return to data mode.

7. The operator must monitor the console screen for any messages from the TRACE specialist.

8. When all required tests have been run, the specialist will request the operator to return to voice mode. Test results may be discussed and procedures for degraded system operation may be suggested.

9. The TRACE specialist will contact the local Customer Engineering office to ensure that necessary parts and service personnel are dispatched to the site.

10. Replace the telephone handset in the cradle to terminate the remote connection.

7.8. REMOTE PERFORMANCE REPORTING (OTHER THAN CONTINENTAL UNITED STATES)

NOTE:

- *These procedures apply only to SYSTEM 80 systems installed where TRACE capabilities are available.*
- *There should not be any other online programs active when transmitting the performance data (ONUERL) to the TRACE faciity.*

TRACE monitoring of system performance data to the TRACE facility. The following files are transmitted during this operation:

- System Errror Log file

  This file contains a summary of recorded system hardware errors.

- System Definition File (SDF)

  This file contains information on the system configuration and microcode level.

1. TRACE will link up for transmission according to procedures supplied by the Customer Engineering organization in the subsidiary.

2. The TRACE software will automatically transfer the system performance data from the System 80 to the TRACE facility. The following message is displayed when the data transfer is complete:

   THE TRANSMISSION IS COMPLETE. GO TO VOICE MODE

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