DIAGNOSTIC LOADING PROCEDURE NO. 1A AUTOMATIC MESSAGE ACCOUNTING RECORDING CENTER (AMARC) GENERIC 3

CONTENTS PAGE

1. GENERAL

1.01 This section provides information on the Generic 3 diagnostics for No. 1A AMARC. This section also contains the required information for loading the diagnostics onto disk, loading the diagnostic generic programs into memory, and execution of the diagnostics. Modes and options are discussed for use with each diagnostic program.

1.02 Whenever this section is reissued, the reason for reissue will be listed in this paragraph.

1.03 The following procedures are provided:

A. Procedure for Loading Diagnostics Onto Disk: This procedure provides steps necessary for loading the diagnostic programs onto the disk.

B. Procedure for Booting the Diagnostics From Disk to an Out-of-Service (OOS) Processor: This procedure provides steps necessary for booting the No. 1A AMARC Generic 3 diagnostics onto an OOS processor.

C. Performing Diagnostics: This procedure provides the information needed to run the diagnostics.

1.04 The diagnostic program for Generic 3 utilizes a monitor program that is used for interactive communications between the user and the No. 1A AMARC. It is a program built into the diagnostics

design using high level program language. A step-by-step procedure through each of the selected diagnostic programs will be printed at the system console 1 (SC1) input/output (I/O) terminal. The monitor has the ability to ask questions, print information about the diagnostics, and read responses from the user. Table A shows examples of typical questions and responses made by the monitor.

1.05 The Generic 3 diagnostics are composed of a number of diagnostic programs. Each program may be selected by typing its name or associated number at the SC1 I/O terminal. Any individual program, group of programs, or all programs can be selected.

1.06 The diagnostic programs have three modes of operation that can be used to run the diagnostics. Each mode is chosen to coincide with the particular operation desired. These modes, which are described in paragraph 2.07, are the initialization, execute, and quick.

1.07 Options are provided for each diagnostic program. These options provide additional flexibility to the diagnostic procedure and provide more information.

1.08 For all operations at the DEC* processor console, the keys should have the following settings:

Power switch (with key lock)—POWER position to use the console. LOCK position to disable console. OFF to remove power.

Address display select switch (8-positions)—CONS PHY (console physical) position.

Data display select switch (4-positions)—DATA PATHS position.

LAMP TEST switch (white)—normal position.

Control Switches—

LOAD ADRS (load address)—Used during some operations; if not used, should be normal.

EXAM (examine data)—Used during some operations; if not used, should be normal.

DEP (deposit)—Should be normal.

CONT (continue)—Should be normal.

ENABLE/HALT—Used to stop processor by operating to HALT position. For the processor to run, it must be in the normal or ENABLE position.

S INST/S BUS CYCLE—Single instruction/single bus cycle—should be in normal position, S INST.

START—This key is used to load the program from tape or initialize the program. This key is used with the LOAD ADRS and ENABLE/HALT key. After a processor has been halted using the ENABLE/HALT key, set the console switches to the appropriate address; operate and release the LOAD ADRS key; release the ENABLE/HALT key; and momentarily operate the START key to start the processor executing the appropriate program. When the START key is released, it will restore to its normal position, and the processor will start running.

1.09 No. 1A AMARC Generic 3 provides for interfacing up to 16 I/O terminals through a flexport arrangement. Flexports are identified as FP00 through FP07 and FP10 through FP17. Flexports FP00 and FP01 have been dedicated to the system consoles SC0 and SC1, respectively. The SC0 is used

*Registered trademark of Digital Equipment Corporation.

for active CPU messages, and SC1 is used for other CPU messages. The system consoles (0 and 1) can be dedicated to messages associated with the active CPU and the standby or out-of-service CPU, respectively. Manual isolation of a CPU connects SC1 I/O to that CPU only. The active CPU can no longer communicate with SC1 I/O.

1.10 While performing the procedures of this section, various other output messages may be printed due to time of day or configuration of the system. All messages that occur should be investigated and any automatic output messages **not** associated with a trouble condition may be disregarded. Any trouble conditions generated by the system, either automatically or in response to an input message request, should be analyzed using the IM and OM before continuing with the procedure.

2. PROCEDURES

A. Procedure for Loading Diagnostics Onto Disk

2.01 Loading the diagnostics from an OOS processor onto the disk requires the use of two magnetic tapes—the stand alone copy (SACOPY) program tape (TP-5P355-03) and the SACOPY data tape (TP-5P355-04) containing the AMARC diagnostic program. The SACOPY program controls both the tape unit and disk during the copy operations. Operational instructions are provided for locating data on the tape that is to be written onto the disk. The SACOPY data tape, which is mounted on the tape unit after the SACOPY program, is the data which will be copied onto the disk.

2.02 This procedure needs only to be performed initially per disk pack. Once a disk pack is prepared, it can be stored and reused without having to repeat this procedure.

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
1	With associated processor halted, mount a formatted disk into disk drive. Refer to Disk Pack Restoral Procedure of Section 201-900-330.	
2	At disk drive— Perform lamp test by depressing lamp test button located under front display panel of disk drive.	All disk drive lamps lighted.
3	Depress CONTROL A switch.	CONTROL A lamp lighted.
4	Place WRITE PROTECT switch in nonwrite protect mode.	
5	Depress START/STOP switch to START.	START indicator and DOOR LOCKED indicator lighted and disk pack starts to rotate. ***Note:*** If DOOR LOCKED indicator does not light, close door fully.
6	Mount SACOPY program tape onto associated tape drive.	
7	At processor console— Set console switches to 17773030 (octal).	
8	Depress LOAD ADRS key.	

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
9	Release HALT key.	
10	Depress START key.	Magnetic tape moves forward and message **"CORE MEMORY SIZE IS XXXK WORDS"** is printed on I/O terminal. The tape then continues to move forward for a few seconds and then rewinds. I/O terminal prints: **Stand Alone Copy/Verify Program** **Mode: copy, vrfy, or vcopy?**
11	Remove SACOPY program tape.	
12	Mount SACOPY diagnostic data tape onto associated tape drive up to load point.	
13	At associated I/O terminal— Type: **vcopy** (CR)	RSP: **verified copy from:**
14	Type: **tm0** (CR)	RSP: **to:**
15	Type: **hp0** (CR) (Specifies area on disk where data is to be printed.)	RSP: **hp0** RSP: **No. of blocks: xxxx** Where **xxxx** = No. of blocks on data tape that will be read. SACOPY data tape begins to be read. *Note:* Data tape will take approximately 20 minutes to be read. VCOPY will then read the tape for another 20 minutes and compare the data to that on the disk. When tape has been read, message **no bad sectors on hp0** occurs. The tape rewinds and will be read again. If disk is good, the following response will print: **Verify** **No. of blocks: xxx** **No bad sectors on hp0** **Next Copy/Verify Mode: copy, vrfy, or vcopy?**

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
		If disk is bad, the following response will print: **Mismatch: Block xxxxx, Offset xx:** **Source = xxxxxx, Dest = xxxxxx** **Proceed?** If disk is acceptable, the following response will print: **Bad sectors on hp0!** **cyl track sector** **xx xx xx**
	Note: When a bad disk is discovered, type **y** and depress CR key to continue testing, or type **n** and depress CR key to discontinue testing.	
16	If tape moves only a short distance and stops— Verify disk is in proper mode.	
17	At processor console— Depress HALT key.	
18	At disk drive— Remove SACOPY data tape.	
	Note: Disk pack is loaded with the diagnostics. Disk pack can be labeled, then removed and stored for later use.	

B. Procedure for Booting the Diagnositics From Disk to an Out-Of-Service (OOS) Processor

2.03 The following procedures are for booting the No. 1A AMARC Generic 3 diagnostics from disk onto an OOS processor. Procedures are provided in Section 201-900-322 for placing the processor out of service.

2.04 This procedure boots the diagnostics from disk to an OOS processor. It utilizes a disk loaded with Generic 3 diagnostics. If the disk is not prepared with the Generic 3 diagnostic, it will be necessary to perform Procedure A of this section.

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
1	Install disk pack marked 1AAM3 DIAGNOSTICS.	
2	Install lap plug 0 into disk drive.	
3	Depress Control A switch.	Control A lamp lighted.
4	Place WRITE PROTECT switch in nonwrite protect mode.	

STEP	ACTION/INPUT MESSAGE	RESPONSE (RSP)/MESSAGE (MSG)
5	At processor console— Set console switches to 17773000 (octal).	
6	Depress LOAD ADRS key.	
7	Release HALT key.	
8	Depress START key.	RSP: 4 sets of numbers
9	At associated SC1 terminal— Type: **DBO**	RSP: **hpboot** **hpboot 2:**
10	Type: **unix.diag**	RSP: **unix.diag.** ***** No. 1A AMARC** **DIAGNOSTICS—1AAM3 Iss 2.0***** **SYSTEM SIZE = 72.1K ****** **AVAIL MEM = 439.8K ***** **ENTER RUN LEVEL (0-7) =**
11	Type: **7**	RSP: **7** **INIT: SINGLE** **USER MODE** **Password:** password is typed in at the following step ***Note:*** Password will not print on I/O terminal.
12	Type: **amarc**	RSP: "#" System has successfully booted up and is ready to start the diagnostics.
13	Type: **date mmddhhmmyy** (CR) ***Note:*** Where: mm is month number; dd is the day number in the month; hh is the hour number (24 hr clock); mm is the minute number; yy is the year number. This will set the proper date and time.	
14	At I/O terminal— Type: **diagnostics** I/O terminal prints: **current date** Format: day of week, mm, dd, time, yy	

***** No. 1A AMARC diagnostics - 1AAM3 Issue 1 *****

The following diagnostics are available:

No.	Program Name		
1	async.dsif	:	tests the Asynchronous Data Set Interface Unit
2	flexport	:	tests the Asynchronous Flexport (TTY) Interface Unit
3	flxprt.status	:	tests the Flexport (TTY) Status Interface
4	alarm.control	:	tests the Alarm and Control Unit

The diagnostics can be run in three different modes:

1. **control parameter initialization mode or "init" mode**
2. **execute mode or "e" mode**
3. **quick mode or "q" mode**

If you want more information about the different modes of operation type "help", otherwise type in the mode (init, e, or q) that you want to run the diagnostics. Note: Always hit the "return" key after each response.

Note: The monitor prints a ">" when waiting for a response.

C. Performing Diagnostics

2.05 The No. 1A AMARC Generic 3 diagnostics are comprised of four different programs. Each diagnostic program is run under control of a monitor and has the capability of running alone and independently of any other diagnostic program. To exit from the monitor, type the word **stop** . The following are the diagnostic programs and descriptions:

- Asynchronous Data Set Interface, (async dsif)—tests the hardware partition consisting of an isolation switching circuit, DZ11B multiplexer circuit, and associated cables.
- Asynchronous Flexport (TTY) Interface (flexport)—tests the hardware partition consisting of an isolation switching circuit, DZ11B multiplexer circuit, and associated cables.
- Flexport (TTY) Status Interface (flexprt. status)—tests the hardware partition consisting of an isolation switching circuit, DR11C general purpose interface circuit, and associated cables.
- Alarm and Control Unit (alarm ctrl.)—tests the hardware partition which is the main interface between the two PDP-11 processors. It monitors the status of each processor and provides appropriate alarms and controls, when necessary, via DR11C interface circuits.

2.06 The diagnostic programs will be executed under the control of the monitor which provides three types of operation modes. The three modes of operation are: control parameter initialization or "init" mode, execute or "e" mode, and quick or "q" mode.

2.07 When running the diagnostics, additional information may be obtained concerning modes of operation. The word **help** should be typed at the SC1 I/O terminal when additional information is needed. After help is typed, the following information will be printed at the SC1 I/O terminal:

>help

There are 3 different modes of operation which are used to run the diagnostics.

1. control parameter initialization mode or "init" mode:

When this mode is selected the diagnostics provide step-by-step instructions for selecting the diagnostic program to set up control parameter data and then execute it if you want to.

2. execute mode or "e" mode:

When this mode is selected the diagnostics that you set up previously using the control parameter initialization (init) mode are executed.

3. quick mode or "q" mode

When this mode is selected the diagnostics are run in the quick or short mode. You type in the diagnostic program to run along with any control parameter data that is required.
Only one diagnostic program can be executed at a time.

Each diagnostic can be run with different options. Available options are described below:

1. d - DATA option

   This option is used to tell the diagnostic program that control parameter data will be typed in through your console. This option is used only for the "async.dsif", "flexport", and "sadr11c" diagnostics.

2. c - CHANNEL option

   This option is used to select a particular multiplexer channel. This option applies only to the "async.dsif" and "flexport" diagnostic programs. If this option is to be used the "d" option must also be used.

3. l - LOOP option

   The LOOP option causes the diagnostic program to continuously loop on a particular test until the "ctrl" and "\" keys of your console are depressed simultaneously.

4. p - PRINT option

   This option provides a printout of the test results in tabular form.

Note: If both the "l" and "p" options are used a differential printout will be provided. That is, test results that are different from the preceding ones will be printed.

The different options are invoked by first typing the diagnostic name followed by a space, followed by a "-" sign and then the option letter [cdlp] that you want. If control parameter data is required then the option letter(s) is followed by a space and then the data.

The following is the format that must be used to run the diagnostics in the "q" mode:

name [-cdlp] [data] [data] [data]

where items in brackets are optional.

If you want examples as to how each diagnostic is run in the quick "q" mode type "examples" - otherwise type the mode that you want to run the diagnostics.

2.08 Examples illustrating the use of the "q" mode can be obtained by typing "**examples**" and then the name or associated number of the desired diagnostic program. After examples is typed, the following information will be printed at the SC1 I/O terminal:

>examples

Examples using the "q" mode are available for the following diagnostics:

No.	Program Name		
1	async.dsif	:	tests the Asynchronous Data Set Interface Unit
2	flexport	:	tests the Asynchronous Flexport (TTY) Interface Unit
3	flxprt.status	:	tests the Flexport (TTY) Status Interface
4	alarm.control	:	tests the Alarm and Control Unit

To select any diagnostic program type either the name of the diagnostic program or the number associated with each diagnostic name. To exit type "quit."

>1

Asynchronous Data Set Interface : (async.dsif)

The following examples illustrate the running of this diagnostic program using the "q" mode of operation:

examples 1. async.dsif

This says test all the multiplexers associated with the asynchronous data set interface. Here the default values are used which are 00 to 13.

To select specific multiplexers or a channel within a multiplexer see the following examples:

2. async.dsif -d 04 07

This says test multiplexer 4 through 7.

Note: If only one multiplexer is to be tested then one piece of data is required, unless the CHANNEL 'c' option is used then three pieces of data is required. The first two specify the multiplexers and the third the channel of the multiplexer(s) that is to be tested. See the following examples:

3. async.dsif -d 5

This says test multiplexer 5.
(async.dsif -d 5 5 would also do the same thing)

4. async.dsif -cd 00 07 4

   This says test channel 4 of multiplexers 0 thru 7

5. async.dsif -cdl 10 10 0

   This says loop on channel 0 of multiplexer 10

Do you want any other examples?
If you do type in diagnostic name or associated number - otherwise type 'no' (n).
>2

Flexport (TTY) Interface : (flexport)

The following examples illustrate the running of this diagnostic program using the "q" mode of operation:

examples 1. flexport

   This will test flexport multiplexers 0 and 1.

   To select specific multiplexers or a channel within a multiplexer see the following examples:

2. flexport -d 0

   This says test flexport multiplexer 0.
   Note: If only one multiplexer is to be tested then one piece of data is required, unless the CHANNEL "c" option is used then three pieces of data is required. The first two specify the multiplexers and the third the channel of the multiplexer(s) that is to be tested. See the following examples:

3. flexport -cd 0 1 7

   This says test channel 7 of multiplexers 0 and 1

4. flexport -cd 1 1 0

   This says test channel 0 of flexport multiplexer 1.

5. flexport -cdl 0 0 3

   This says LOOP on channel 3 of multiplexer 0.

6. flexport -dp 0

   This says test multiplexer 0 of the flexports and print the output results in tabular form.

Do you want any other examples:
If you do type in diagnostic name or associated number - otherwise type 'no' (n).
>2

Flexport Status Interface: (flxprt.status)

The following examples illustrate the running of this diagnostic program using the "q" mode of operation:

type in the name of the diagnostic program followed by any of the options. i.e. - [lp]. If the [l] option is selected then you can specify test vectors for the diagnostic program to LOOP on. The range of test vector numbers is 1 to 38.

p is the PRINT option - prints results in table form l says LOOP between the specified test vector numbers. If no test vector numbers are specified the diagnostic program will LOOP on all of the vectors.

examples 1. flxprt.status

will test the flexport (TTY) status interface

2. flxprt.status -p

will test the flexport (TTY) status interface and also provide a printout in tabular form of the expected results and actual output test results.

3. flxprt.status -l 15 28

will LOOP on test vectors 15 thru 28.

4. flxprt.status -lp

This will continuously test the flexport status interface until the "quit" key is depressed. Furthermore, it will provide a printout of any test results that are different of immediate preceding ones.

Do you want any other examples?
If you do type in diagnostic name or associated number - otherwise type 'no' (n).
>2

Alarm and Control Unit DR11C Interface : (sadr11c)

This diagnostic program tests the 0DR11C-SA and 1DR11C-SA interface of the Alarm and Control Unit.

The following examples illustrate the running of this diagnostic program using the "q" mode of operation:

type in the name of the diagnostic program followed by any of the options. i.e. - [dlp].

d is the DATA option - selects which DR11C to be tested.

p is the PRINT option - prints results in table form

l says LOOP between the specified test vector numbers. If no test vector numbers are specified the diagnostic program will LOOP on all of the vectors.

If the [d] option is selected then you must specify which DR11C-SA interface you want tested, i.e. 0 or 1. If the [l] option is selected then you can specify test vectors for the diagnostic program to LOOP on. The range of test vector numbers is 1 to 38.

examples 1. **sadr11c**

This will test both DR11C interfaces in the Processor Isolation State.

2. **sadr11c -d 0**

This will test the 0DR11C-SA only. If the 1DR11C-SA was to be tested then you would type

sadr11c -d 1

3. **sadr11c -dlp 0**

This says test 0DR11C-SA and loop on the test. Also provide a differential printout.

4. **sadr11c -l 1 15**

This says loop on input test vectors 1 thru 15.

Note: Looping will be done on 0DR11C-SA first. To loop on 1DR11C-SA the "quit" function key must be depressed once.

5. **sadr11c -dl 1 5**

This is another way to just loop on 1DR11C-SA on test vector 5.

2.09 The following procedures consist of the diagnostic programs being performed in the initialization mode, execute mode, and the quick mode. The procedures require that the OOS processor is booted up using the 1AAM3 diagnostics disk pack. If the diagnostic program is not loaded into the OOS processor, it will be necessary to perform Procedure B of this section.

Note: To exit from the diagnostics, type **stop** when in the monitor.

STEP	PROCEDURE

Diagnostics Performed Using The Init Mode

1 Type: **init**

Note: If the word **help** is typed at the I/O terminal, additional information will be provided for the init, e, or q modes. Refer to paragraph 2.07 for the printout that will occur.

I/O terminal prints:

... answer all questions "yes" ("y") or "no" ("n") unless otherwise stated. Then hit the "return" key.

STEP	PROCEDURE

Do you want more information about the diagnostic programs?

2 Type: **yes** or **no**

Note: If yes is typed, additional information will be given on the diagnostic programs.

I/O terminal prints:

The following diagnostics are available:

No.	Program Name		
1	async.dsif	:	tests the Asynchronous Data Set Interface Unit
2	flexport	:	tests the Asynchronous Flexport (TTY) Interface Unit
3	flxprt.status	:	tests the Flexport (TTY) Status Interface
4	alarm.control	:	tests the Alarm and Control Unit

Which diagnostic programs do you wish to setup for testing?

Type in either the program name or number associated with each program name. If you want all the diagnostic programs to run type the word "all".

Note: Any individual program, group of programs, or all programs can be selected.

3 Type the program name or number associated with each program name. If all the diagnostic programs are desired, type **all** .

Note: The following procedure assumes all diagnostics are being run. The general format for each program is typified in the following procedure:

I/O terminal prints:

***** ASYNCHRONOUS DATA SET INTERFACE (async.dsif) DIAGNOSTIC PROGRAM *****
****
The asynchronous data set interface diagnostic program is set to test the following DZ11B multiplexers:
multiplexer no. = x, x, x, x, etc
Do you want to change this data?

4 Type: **yes** or **no**
If yes is typed, the following statement will be printed:

type in number of 1st multiplexer to be tested - then a space, followed by the number of the last multiplexer to be tested - number must be (00-13) octal.

STEP	PROCEDURE

Do you want any options to run the diagnostic with?

available options are

l or LOOP option—loops a multiplexer or multiplexer channel.

p or PRINT option—prints test results in tabular form.

5 Type: **yes** or **no**

If yes, type in option(s), ie, "l" or "p" or "lp."

I/O terminal prints:

***** FLEXPORT (ASYNCHRONOUS TTY) INTERFACE (flexport) DIAGNOSTIC PROGRAM *****
****

The asynchronous tty interface diagnostic program is set to test the following DZ11B multiplexers:

Do you want to change this data?

6 Type: **yes** or **no**
If yes is typed, the following statement will be printed.

type in number of multiplexer to be tested—number must be "0" or "1", or "01" for both multiplexers.

I/O terminal prints:

Do you want any options to run the diagnostics with?
Available options are:
"l" option—loops a multiplexer or multiplexer channel
"p" option—prints test results in tabular form.

7 Type: **yes** or **no**
If yes, type in option(s), ie, "l" or "p" or "lp".

I/O terminal prints:

***** FLEXPORT (TTY) STATUS INTERFACE (flxprt.status) DIAGNOSTIC PROGRAM *****
****

Do you want to run the diagnostic program with any option(s)?
Available options are:
l—loop on a test vector or a range of test vectors; valid input test vectors are 1-38.
p—prints output test results in tabular form.

STEP	PROCEDURE

8 Type: **yes** or **no**
If yes, type in option(s), ie, "l" or "p" or "lp"
No other data is necessary for this diagnostic program:

I/O terminal prints:

The Alarm and Control Unit consists of the following diagnostics:

No.	Program Name		
4.1	sadr11c	:	tests DR11C-SA in the isolation state
4.2	alarms	:	tests ODR11C-SA alarms
4.3	ama. data	:	tests ODR11C-SA AMA Tape and Disk Logic
4.4	watchdog	:	tests the Watchdog timer
4.5	cntrl.normal	:	tests 1DR11C-SA Normal Controls
4.6	cntrl.emergency	:	tests 1DR11C-SA Emergency Controls
4.7	display.panel	:	tests the Display Control Panel

If you want all the diagnostic programs type "all" otherwise type the program name or number associated with each program name:

9 Type the program name or number associated with each program name. If all the diagnostic programs are desired type **all**.

Do you want any options?

Available options are "p" (PRINT).

Note: If more than one Alarm and Control Unit diagnostic program is selected, only the "p" option is available. If only one diagnostic program is selected, both the "l" and "p" options are available.

10 Type: **yes** or **no**
If yes, type in option **p** (PRINT).

I/O terminal prints:

Anymore programs to setup for testing?

Type in name or associated number—otherwise type **no**.

If no , then I/O terminals prints:

Do you want to execute the diagnostic program(s) you selected now?

STEP	PROCEDURE

11 Type: **yes** or **no**

Note: Programs will remain stored for later execution using the "execute" mode and will be changed only if the "init" mode is used again.

I/O terminal prints:

The following diagnostic programs will be executed:

The selected diagnostic programs will be listed now.

The following warning is printed before the execution of the Asynchronous Data Set Interface, Asynchronous Flexport (TTY) Interface, the Flexport (TTY) Status Interface, and the Status and Alarm DR11C interface circuit part of the Alarm and Control Unit diagnostic.

WARNING: In order for this diagnostic program to execute, the interface for the processor under test must be in the "PROCESSOR ISOLATE STATE" i.e. red LED associated with "PROCESSOR" must be "ON".

Is the PROCESSOR ISOLATE light (red LED) "ON"?

12 Type: **yes** or **no**
If no is typed, the following statement will be printed.

Place interface for processor under test in the PROCESSOR ISOLATE STATE by holding the key associated with "PROCESSOR" upward first and depressing the EXECUTE button at the same time. The red LED should light. If this happens type "yes", otherwise type "help."

13 Type: **yes**

I/O terminal prints:

diagnostic will now execute

Table B provides an example of output messages for each diagnostic program.

Note: When executing the Asynchronous Data Set Interface, Asynchronous Flexport (TTY) Interface, Flexport (TTY) Status Interface, and the Status and Alarm DR11C interface circuit diagnostic programs, the processor under test must be in the "PROCESSOR ISOLATE STATE". When executing the Alarm and Control Unit diagnostic program, the processor under test must be in the "Interface Isolate State" except for the sadr11c module. The I/O terminal will print the following before executing the Alarm and Control Unit diagnostic program.

WARNING: In order for this diagnostic program to execute, the interface for the processor under test must be in the "INTERFACE ISOLATE STATE" i.e., red LED associated with "INTERFACE" must be "ON".

STEP	PROCEDURE
	Is the INTERFACE ISOLATE light (red LED) "ON"?
14	Type: **yes** or **no** If no is typed, the following statement will be printed: **Place interface for processor under test in the Interface Isolate State by holding the key associated with "INTERFACE" upward first and depressing the EXECUTE button at the same time. The red LED should light. If this happens type "yes" otherwise type "help".** The diagnostics will be executed now. At the end of execution, control will be returned to the monitor where another mode can be selected. ***Note:*** The "l" option is not recommended for use with the "init" mode. When the "l" option is used, the diagnostic program loops continuously on a particular test until the "ctrl" and "\" keys of the I/O terminal are depressed simultaneously.

STEP	PROCEDURE
	Diagnostics Performed Using the Execute Mode
1	Type: **execute** or **e** ***Note:*** If the word "help" is typed at the I/O terminal, refer to paragraph 2.07 for the printout that will occur. I/O terminal prints: **The following diagnostic programs will be executed:** All of the diagnostic programs selected previously using the "init" mode will be listed now. The following warning is printed before the execution of the Asynchronous Data Set Interface, Asynchronous Flexport (TTY) Interface, the Flexport (TTY) Status Interface, and the Status and Alarm DR11C interface circuit diagnostic programs. ***WARNING: In order for this diagnostic program to execute, the interface for the processor under test must be in the "PROCESSOR ISOLATE STATE" i.e., red LED associated with "PROCESSOR" must be "ON".*** **Is the PROCESSOR ISOLATE light (red LED) "ON"?**

STEP	PROCEDURE

2 Type: **yes** or **no**
If no is typed, the following statement will be printed:

Place interface for processor under test in the PROCESSOR ISOLATE STATE by holding the key associated with "PROCESSOR" upward first and depressing the EXECUTE button at the same time. The red LED should light. If this happens type "yes", otherwise type "help".

3 Type: **yes**

I/O terminal prints:

diagnostic will now execute

Table B provides an example of the output messages for each diagnostic program.

Note 1: The execute mode is used to run the diagnostic programs that have previously been stored in memory using the init mode.

Note 2: When executing the Asynchronous Data Set Interface, Asynchronous Flexport (TTY) Interface (flexport), Flexport (TTY) Status Interface, and the Status and Alarm DR11C interface circuit diagnostic programs, the processor under test must be in the "PROCESSOR ISOLATE STATE". When executing the Alarm and Control Unit diagnostic program, the processor under test must be in the "Interface Isolate State" except for the sadr11c module. The I/O terminal will print the following before executing the Alarm and Control Unit diagnostic program:

WARNING: In order for this diagnotic program to execute, the interface for the processor under test must be in the "INTERFACE ISOLATE STATE" i.e., red LED associated with "INTERFACE" must be "ON".

Is the INTERFACE ISOLATE light (red LED) "ON"?

4 Type: **yes** or **no**
If no is typed, the following statement will be printed:

Place interface for processor under test in the Interface Isolate State by holding the key associated with "INTERFACE" upward first and depressing the EXECUTE button at the same time. The red LED should light. If this happens type "yes" otherwise type "help".

The diagnostics will be executed now. At the end of execution, control will be returned to the monitor where another mode can be selected.

STEP	PROCEDURE

Diagnostics Performed Using the Quick Mode

1 Type: **quick** or **q**

Note: If the word "help" is typed at the I/O terminal, refer to paragraph 2.07 for the printout that will occur. If examples of the "q" mode are needed, type the word **examples**.

2 Type in diagnostic name followed by any option(s) and data:

Table B provides an example of the output messages for each diagnostic program.

Note: When executing the Asynchronous Data Set Interface, Asynchronous Flexport (TTY) Interface, Flexport (TTY) Status Interface, and Status and Alarm DR11C interface circuit diagnostic programs, the processor under test must be in the "PROCESSOR ISOLATE STATE". When executing the Alarm and Control Unit diagnostic program, the processor under test must be in the "Interface Isolate State" except for the sadr11c module. The I/O terminal will print one of the following messages depending upon which diagnostic program was typed in:

WARNING: In order for this diagnostic program to execute, the interface for the processor under test must be in the "PROCESSOR ISOLATE STATE" i.e., red LED associated with "PROCESSOR" must be "ON".

Is the PROCESSOR ISOLATE light (red LED) "ON"?

3 Type: **yes** or **no**
If no is typed, the following statement will be printed:

Place interface for processor under test in the PROCESSOR ISOLATE STATE by holding the key associated with "PROCESSOR" upward first and depressing the EXECUTE button at the same time. The red LED should light. If this happens type "yes" otherwise type "help".

WARNING: In order for this diagnostic program to execute, the interface for the processor under test must be in the "INTERFACE ISOLATE STATE" i.e. red LED associated with "INTERFACE" must be "ON".

Is the INTERFACE ISOLATE light (red LED) "ON"?

4 Type: **yes** or **no**
If no is typed, the following statement will be printed:

Place interface for processor under test in the Interface Isolate State by holding the key associated with "INTERFACE" upward first and depressing the EXECUTE button at the same time. The red LED should light. If this happens type "yes", otherwise type "help."

The diagnostics will be executed now. At the end of the execution, control will be returned to the monitor where another mode can be selected.

STEP	PROCEDURE

Note: When the "l" option is used, the diagnostic program loops continuously on a particular test until the "ctrl" and "\" keys of the I/O terminal are depressed simultaneously.

After all diagnostics have been run and control is returned to the monitor, type **stop** to end the diagnostics.

I/O terminal prints:

END OF DIAGNOSTICS

To restore system:

5 Type: **sync** (CR)

I/O terminal prints:

HALT CPU and proceed to remove DISK PACK

TABLE A

RESPONSES MADE BY MONITOR

Statement made by monitor instructing how to respond to questions:

```
. . . answer all questions "yes" ("y") or "no" ("n") unless
. . . otherwise stated. Then hit the "return" key.
```

Format errors that are commonly made and how the monitor responds:

```
1 >inita
  inita : invalid response —
  to select the mode of operation
  type "init", "e", "q", or "help".
  To terminate the diagnostics type "stop"

2 type in number of 1st multiplexer to be tested —
  then a space, followed by the number
  of the last multiplexer to be tested —
  number must be (00—13) octal.
  >00 7
  00 7 invalid multiplexer number — or format error
  number must be "00—13" octal. Retype number.
  >
  00 04
```

TABLE B

DIAGNOSTICS OUTPUT MESSAGES

Asynchronous Data Set Interface Diagnostic Program

DZ11B mpxr 0 channel 0 PASSED :
DZ11B mpxr 0 channel 1 PASSED :

DZ11B mxpr 0 channel 2 FAILED : (ERRCD 3)
*Invalid data in CSR:
This failure is caused by the Transmit or Receive leads:
Check the transmit and receive leads of the cable.
If OK then replace CP TN102. If problem still there then replace the DZ11B multiplexer.

DZ11B mxpr 0 channel 2 FAILED : (ERRCD 4)
*Invalid data in RBUF:
This failure is caused by the Transmit or Receive leads:
Check the transmit and receive leads of the cable.
If OK then replace CP TN102. If problem still there then replace the DZ11B multiplexer.

DZ11B mpxr 0 channel 3 PASSED :
DZ11B mpxr 0 channel 4 PASSED :
DZ11B mpxr 0 channel 5 PASSED :
DZ11B mpxr 0 channel 6 PASSED :
DZ11B mpxr 0 channel 7 PASSED :
DZ11B mpxr 0 FAILED

DZ11B mpxr 1 channel 0 PASSED :
DZ11B mpxr 1 channel 1 PASSED :
DZ11B mpxr 1 channel 2 PASSED :
DZ11B mpxr 1 channel 3 PASSED :
DZ11B mpxr 1 channel 4 PASSED :
DZ11B mpxr 1 channel 5 PASSED :
DZ11B mpxr 1 channel 6 PASSED :
DZ11B mpxr 1 channel 7 PASSED :
DZ11B mpxr 1 PASSED

DZ11B mpxr 4 channel 0 FAILED : (ERRCD 0)
*Invalid data in MSR:

Possible cause of failure:		Action to be taken:
1. Bad or disconnected cable	—	Replace or connect cable
2. Defective CP TN102	—	Replace CP TN102
3. Defective DZ11B mpxr	—	Replace DZ11B mpxr

TABLE B (Contd)

DIAGNOSTIC OUTPUT MESSAGES

Asynchronous Flexport (TTY) Interface Diagnostic Program

DZ11B mpxr 1 channel 0 PASSED :
DZ11B mpxr 1 channel 1 PASSED :
DZ11B mpxr 1 channel 2 PASSED :
DZ11B mpxr 1 channel 3 PASSED :
DZ11B mpxr 1 channel 4 PASSED :
DZ11B mpxr 1 channel 5 PASSED :
DZ11B mpxr 1 channel 6 PASSED :
DZ11B mpxr 1 channel 7 PASSED :

*** DZ11B OUTPUT DATA : MULTIPLEXER 1 (address location)
****

MSR — Modem Status Register Data

CHANL NO	TEST 1 EXPECTED	TEST 1 ACTUAL	TEST 2 EXPECTED	TEST 2 ACTUAL
0	401	401	0	0
1	1002	1002	0	0
2	2004	2004	0	0
3	4010	4010	0	0
4	10020	10020	0	0
5	20040	20040	0	0
6	40100	40100	0	0
7	100200	100200	0	0

CSR — Control Status Register Data

CHANL NO	TEST 1 EXPECTED	TEST 1 ACTUAL	TEST 2:BIT 7 ONLY EXPECTED	TEST 2:BIT 7 ONLY ACTUAL
0	100040	100040	200	200
1	100440	100440	200	200
2	101040	101040	200	200
3	101440	101440	200	200
4	102040	102040	200	200
5	102440	102440	200	200
6	103040	103040	200	200
7	103440	103440	200	200

TABLE B (Contd)

DIAGNOSTIC OUTPUT MESSAGES

```
                RBUF — Receiver Buffer Register Data

CHANL      TBUF=0000                TBUF=0377
 NO     EXPECTED    ACTUAL      EXPECTED    ACTUAL
  0       100400     100400       100777     100777
  1       100000     100000       100377     100377
  2       101400     101400       101777     101777
  3       101000     101000       101377     101377
  4       102400     102400       102777     102777
  5       102000     102000       102377     102377
  6       103400     103400       103777     103777
  7       103000     103000       103377     103377

                RBUF — Receiver Buffer Register Data

CHANL      TBUF=0125                TBUF=0252
 NO     EXPECTED    ACTUAL      EXPECTED    ACTUAL
  0       100525     100525       100652     100652
  1       100125     100125       100252     100252
  2       101525     101525       101652     101652
  3       101125     101125       101252     101252
  4       102525     102525       102652     102652
  5       102125     102125       102252     102252
  6       103525     103525       103652     103652
  7       103125     103125       103252     103252

DZ11B mpxr 1 PASSED

          Flexport (TTY) Status Interface Diagnostic Program

                    DR11C (17767720)

DR11C — DRCSR TEST PASSED:

DR11C — DROUTBUF TEST PASSED:

DR11C — DRINBUF TEST PASSED:

**************************************************
```

TABLE B (Contd)

DIAGNOSTIC OUTPUT MESSAGES

D R 1 1 C — (17767720) TEST RESULTS (See Note)

Test No.	Expected Results	DROUTBUF Test Output Results	DRINBUF Test Output Results
1	0	0	0
2	1	1	1
3	2	2	2
4	4	4	4
5	10	10	10
6	20	20	20
7	40	40	40
8	100	100	100
9	200	200	200
10	400	400	400
11	1000	1000	1000
12	2000	2000	2000
13	4000	4000	4000
14	10000	10000	10000
15	20000	20000	20000
16	40000	40000	40000
17	100000	100000	100000
18	0	0	0
19	177777	177777	177777
20	177776	177776	177776
21	177775	177775	177775
22	177773	177773	177773
23	177767	177767	177767
24	177757	177757	177757
25	177737	177737	177737
26	177677	177677	177677
27	177577	177577	177577
28	177377	177377	177377
29	176777	176777	176777
30	175777	175777	175777
31	173777	173777	173777
32	167777	167777	167777
33	157777	157777	157777
34	137777	137777	137777
35	77777	77777	77777
36	0	0	0
37	52525	52525	52525
38	125252	125252	125252
39	0	0	0

Note: These test results are printed due to the selection of the P (PRINT) option in the flxprt.status diagnostics.

TABLE B (Contd)

DIAGNOSTIC OUTPUT MESSAGES

```
Alarm and Control DR11C-SA Diagnostic Program

                DR11C (17767740)
DR11C — DRCSR TEST PASSED:

DR11C — DROUTBUF TEST PASSED:

DR11C — DRINBUF TEST PASSED:

**************************************************

                DR11C (17767730)
DR11C — DRCSR TEST PASSED:

DR11C — DROUTBUF TEST PASSED:

DR11C — DRINBUF TEST PASSED:

**************************************************

WARNING:  In order for this diagnostic program to execute, the interface for the
          processor under test must be in the "INTERFACE ISOLATE STATE" i.e.
          red LED associated with "INTERFACE" must be "ON".

Is the INTERFACE ISOLATE light (red LED) "ON"?
>y
diagnostics will now execute

Alarm and Control Unit — ALARMS CKT Diagnostic Program

             ALARM CKT TEST FAILED
Test No. 0 Expected data = 40000 : Actual data =      10

ALARMS CKT (0DR11C-SA) TEST FAILED:  (17767740)

Alarm and Control Unit — AMA DATA CKT Diagnostic Program

AMA DATA CKT (0DR11C-SA) TEST PASSED:
>q
Type in diagnostic name followed by any option(s) and data:
>alarms
WARNING:  In order for this diagnostic program to execute, the interface for the
          processor under test must be in the "INTERFACE ISOLATE STATE" i.e.
          red LED associated with "INTERFACE" must be "ON".

Is the INTERFACE ISOLATE light (red LED) "ON"?
>y
diagnostics will now execute

Alarm and Control Unit — ALARMS CKT Diagnostic Program

ALARMS CKT (0DR11C-SA) TEST PASSED:
```