CXY08-AF

CXY08-AF 8-Line Asynchronous Multiplexer Option Installation Guide

Order No. EK-CXY08-IN-001

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Preface

Introduction

This installation guide provides the information and procedures necessary to install the CXY08-AF 8-line asynchronous multiplexer option kit in the BA200 Micro system enclosure.

Intended Audience

This guide is intended only for Digital Field Service personnel and qualified self-maintenance customer who have purchased the MicroVAX System Maintenance Kit (Order No. ZNABX-GZ, C5) or the MicroPDP-11 Systems Maintenance Kit (Order No. ZYABX-GZ, P5).

For the Customer

If you are not qualified to perform the installation of the CXY08-AF multiplexer option kit, call Digital Field Service to schedule an installation.

If you are to perform the installation of the CXY08-AF multiplexer option kit, make sure you are wearing an antistatic wrist strap connected to a grounded antistatic workstation before handling the modules. The system modules are susceptible to damage by static discharge. Also, ensure the bus grant continuity path is intact after the installation, no vacant backplane slots should exist between modules.

To install the CXY08-AF option kit, carefully follow the installation procedure in Chapter 2. If you have any difficulty in performing the installation, call Digital Field Service for assistance.

For Field Service

Be sure to take antistatic precautions when installing the new module. Use the wrist strap and antistatic mat found in the Antistatic Kit (P/N 29-26246-00). [1]

Use the configuration worksheets in Chapter 2 to determine whether the installation of the option module exceeds the power requirements and bus load requirements for the system.

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[1] The Antistatic Kit is not included in this installation kit. It is part of the Field Service tool kit

To install the CXY08-AF option kit, carefully follow the installation procedure in Chapter 2.

When you have completed the installation, submit a LARS form. For information on completing this form, contact your unit manager.

Associated Documents

The following sources contain further information about the CXY08-AF 8-line asynchronous multiplexer option.

Title	Order Number
CXY08 Technical Manual	EK-CXY08-TM
CXY08 User's Guide	EK-CXY08-UG
MicroVAX Systems Maintenance Guide[1]	EK-001AA-MG
MicroPDP-11 Systems Maintenance Guide[2]	AZ-FI11A-MG

[1] This document is included in the MicroVAX System Maintenance Kit.
[2] This document is included in the MicroPDP-11 Systems Maintenance Kit

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444 Whitney Street
Northboro, MA. 01532
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Section

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CHAPTER 1

Chapter 1
Description

This chapter describes the CXY08-AF option and the BA200-series system enclosure.

1.1 CXY08-AF Asynchronous Multiplexer Option

The CXY08-AF is an option for the BA200-series enclosure ONLY.

The CXY08-AF asynchronous multiplexer option performs data concentration, real-time processing, and interactive terminal handling. The CXY08-AF option module (hereafter refered to as CXY08) is quad-height, with a BA200-style bulkhead handle (Figure 1-1). The module provides eight full-duplex serial data channels. The option kit includes two cable assemblies; each has a 4-channel distributor.

All eight channels provide enough modem control to allow autoanswer dial-up operation over the public-switched telephone network.

Each channel can be separately programmed to operate at one of 16 baud rates. Each channel can also be programmed for split-speed operation.

Baud Rates			
50	150	1800	7200
75	300	2000	9600
110	600	2400	19,200
134.5	1200	4800	38,400

NOTE: *The two highest baud rate speeds (19,200 and 38,400) ARE NOT currently supported by Digital operating software.*

Figure 1–1: CXY08-M Module (M3119-YA) with Bulkhead Handle
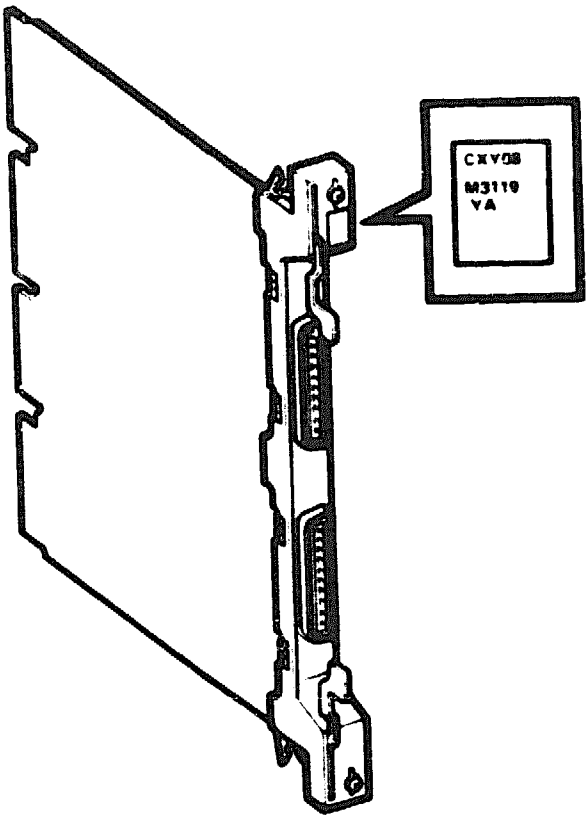
The module provides a throughput rate of 50,000 characters per second, using 8-bit character.

The CXY08 has two programming modes: DHV11 and DHU11. The preferred ode of operation is the DHU11 mode.

NOTE: *The CXY08 module is shipped factory set for the DHU11 programming mode.*

The CXY08 provides modem control signals which conform to EIA/CCITT standard EIA-232-D/V.24/V.28. The interface is compatible with X.26/V.10 standards, except for slew-rate requirements. You can use AT&T 103, 113, and 212 modems, or the equivalent. Table 1-1 shows data rate against approximate cable length for recommended cables.

NOTE: *The recommended cables for use with the CXY08 are BC22D-xx (null-modem) or BC22E-xx (modem).*

Table 1-1: Data-Rate/Cable-Length Relationship

Data Rate (Bits/s)	Approximate Cable Length in Meters (Feet) EIA-232-D
2400 baud or less	90m (300 ft)
4800 baud	75m (250 ft)
9600 baud	75m (250 ft)

NOTE: *EIA-232-D connections are intended for local communication. Communication devices can become nonoperational or be damaged if the total cable length exceeds 90m (300 ft) for EIA-232-D devices. The cable should not be run outside the building, and the low-voltage data wiring must be separated from ac power wiring.*

See the CXY08 *Technical Manual* (EK-CXY08-TM) for further information.

1.2 BA200-Series System Enclosures

The BA200 enclosure has a 6- or 12-slot, Q-bus backplane and one or two modular power supplies. Figure 1-2 shows the 12-slot BA213 and the 6-slot BA214 enclosure chassis. The backplane implements the Q22-bus on the AB rows of each slot. The CD interconnect is implemented in all 12 slots. MicroVAX systems use the CD rows of slots 1 through 3, and MicroPDP-11 systems use the CD rows of slots 1 through 4 for their high-speed memory interconnects.

BA200-series enclosures with mass storage area can hold up to four standard 13.3 cm (5.25 in) devices (three disk drives and one tape drive). Fixed disk drives face the rear of the enclosure, providing easy access to the drive signal and power cables. A TK50 drive faces the front of the enclosure.

The major difference between the BA200-series and other microsystem enclosures is in the way you connect external devices to the system. Option modules in the BA200-series enclosures connect directly to external I/O connectors. Other enclosures require an insert panel and internal cabling between the option module and the device.

Figure 1-2: BA200-Series Enclosures
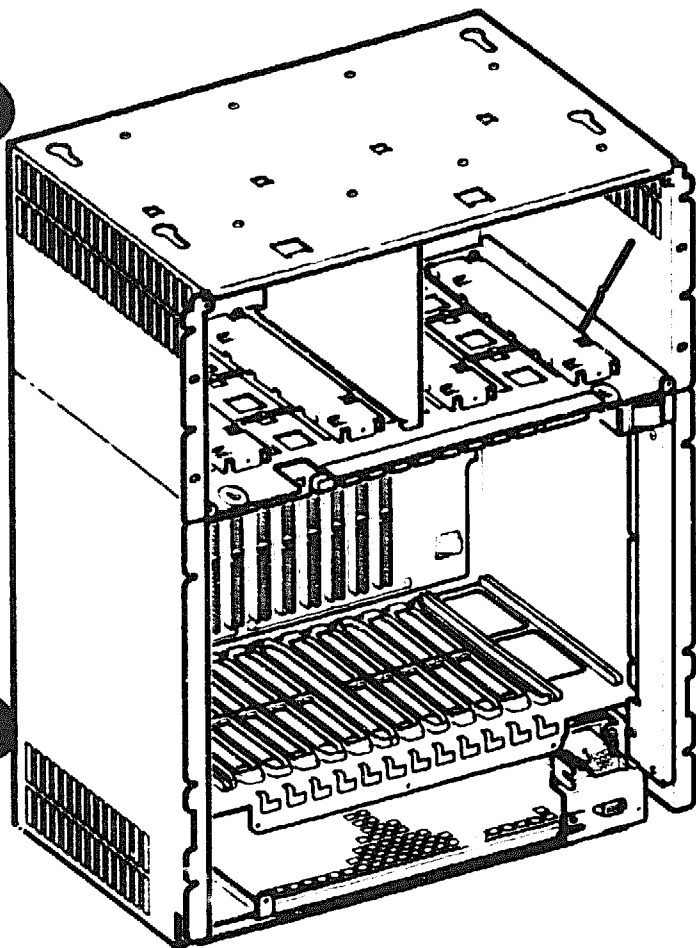
BA213 ENCLOSURE
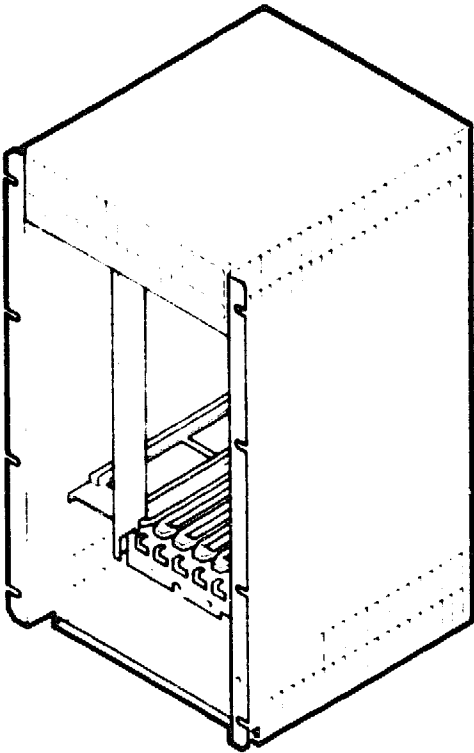
BA214 ENCLOSURE

There are two main differences between the modules used in the BA200-series enclosures and the modules used in the other microsystem enclosures.

- Option modules for external devices have bulkhead handles. These handles replace the insert panels and internal cabling found in the BA23 and BA123 enclosures.

- Standard Q22-bus modules (such as the RQDX3 and TQK50) have blank bulkhead covers.

The module handles and blank covers form an electrical seal that complies with FCC regulations for (1) keeping radio frequency interference generated by the system in the enclosure and (2) keeping radio frequencies out of the enclosure. The module handles and blank covers also help to guarantee proper airflow.

See the *MicroVAX Systems Maintenance Guide* (EK-001AA-MG) for further information on the BA200-series enclosures.

CHAPTER 2

Chapter 2
Installation

This chapter provides step-by-step procedures for unpacking, inspecting, and installing the CXY08-AF option kit. Module and system configuration are also discussed in this chapter.

CAUTION: *ONLY qualified service personnel should remove or install modules.*

2.1 Unpacking the Option Kit

1. Look for external damage on the shipping container such as dents, holes, or crushed corners.

2. Do not dispose of the packing material until the module has been successfully installed and is operational.

3. Put on your antistatic wrist strap.

4. Attach the wrist strap and antistatic mat to the BA200-series enclosure metal chassis. Use the antistatic mat for placement of the module.

5. Use the following checklist to identify the contents of the CXY08-AF option kit (Figure 2-1).

    The kit should include the following:

    *   One CXY08-M logic module (M3119-YA)

    *   Two 4-channel splitter cables (BC19N-12)

    *   One filler panel kit (70-24505-01)[2]

    *   One installation guide (EK-CXY08-IN)

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[2] The fil pa   kit should include two gap filler assemblies and four 1/4 inch flathead machine screws.

Figure 2-1: CXY08-AF Option Kit Contents

CXY08 AF INSTALLATION GUIDE

CXY08 AF
M3119 YA

BC19N 12
CABLE ASSEMBLY (2)

FLATHEAD SCREWS (4)

GAP FILLER ASSEMBLY (2)

FILLER PANEL KIT
70 24505 01
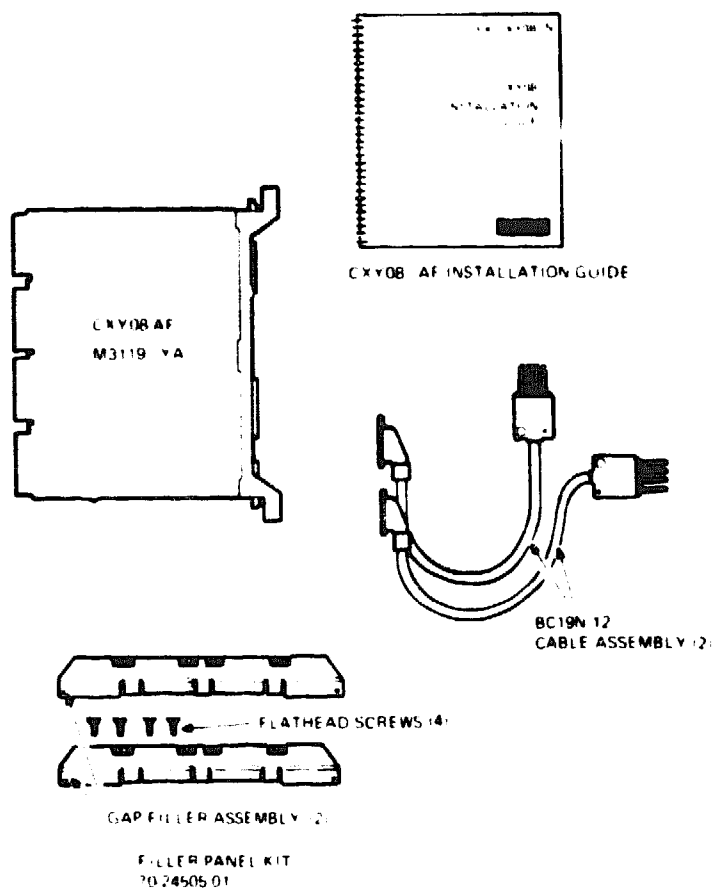
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6. Remove the CXY08 module from the antistatic bag.

7. Inspect the module for shipping damage.

8. Report any damage to the shipper and notify the Digital representative.

2.2 Inspecting The FCC and EOS Clips

NOTE: *To comply with FCC regulations, Bulkhead handles are equipped with transient protection FCC and EOS clips; these clips provide ground through the module handle.*

1. Ensure that there is no residue or corrosion on the FCC and EOS clips on the module handle (Figure 2-2). If so, remove any with alcohol. Ensure that there is no residue or corrosion on the FCC and EOS clips on the gap filler assemblies.

2. Ensure that the FCC and EOS clips on the handle are in an arched shape. When depressed slightly, they should return to their original shape.

3. If any clip is missing or broken, replace it with EOS clip P/N 12-26922-01 or FCC clip P/N 12-26340-01.

Figure 2-2: FCC and EOS Clips
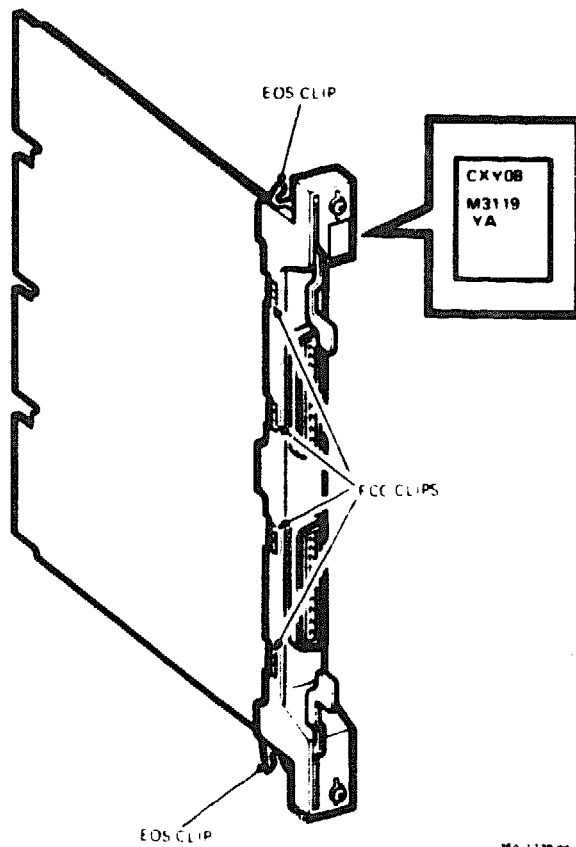
2.3 Software Backup

It is the customer's responsibility to perform a software backup.

Digital Field Service should make sure that the customer has taken this step before starting to configure the system.

2.4 Configuration

The following sections contain information on configuring the system and the CXY08-AF option.

2.4.1 Checking the System Configuration

You must complete the BA200-series enclosure configuration worksheet to make sure you do not exceed the system's limits for power and bus loads (Figure 2-3).

You need to gain access to the modules installed in the system backplane before you configure the system. Refer to the system's documentation for further information on how to gain access to the system modules.

To check the system configuration, perform the following steps.

1. On the configuration worksheet, list all the devices already installed in the system.

Figure 2-3: BA200-Series Configuration Worksheet

12-SLOT ENCLOSURE

RIGHT HALF POWER SUPPLY					BUS LOADS	
SLOT (ABCD)	MODULE	CURRENT 5 v	AMPS 12 v	POWER (WATTS)	AC	DC
1						
2						
3						
4						
5						
6						
MASS STORAGE >>> TAPE 1					0.0	0.0
>>> DISK 1					0.0	0.0
TOTAL RIGHT HALF POWER SUPPLY					—	—
MUST NOT EXCEED		33 0	7 0	230 0	—	—
LEFT HALF POWER SUPPLY					—	—
SLOT (ABCD)	MODULE	CURRENT 5 v	AMPS 12 v	POWER (WATTS)	—	—
7						
8						
9						
10						
11						
12						
MASS STORAGE >>> DISK 2					0.0	0.0
>>> DISK 3					0.0	0.0
TOTAL LEFT HALF POWER SUPPLY					—	—
MUST NOT EXCEED		33 0	7 0	230 0	—	—
			TOTAL BUS LOADS >>>			
			MUST NOT EXCEED >>>		35 0	20 0

6 SLOT ENCLOSURE

POWER SUPPLY					BUS LOADS	
SLOT (ABCD)	MODULE	CURRENT 5 v	AMPS 12 v	POWER (WATTS)	AC	DC
1						
2						
3						
4						
5						
6						
TOTAL POWER SUPPLY					—	—
MUST NOT EXCEED		33 0	7 0	230 0	—	—
			TOTAL BUS LOADS			
			MUST NOT EXCEED		35 0	20 0

2. List all the devices you plan to install in the system.

3. Fill in the information for each device, using the device information listed in Table 2-1.

4. Add up the columns. Make sure the totals are within the limits for the enclosure.

Table 2-1: Power and Bus Load Data

Factory-Installed Option	Current (Amps) (Max)		Power (Max)	Bus Loads	
	+5 V	+12 V	Watts	AC	DC
CXA16-M	1.6	200 mA	10.4	3.0	0.5
CXB16-M	2.0	0.0	10.0	3.0	0.5
CXY08-M	1.8	300 mA	12.6	3.2	0.5
DEQNA-SA	3.5	0.50	23.5	2.2	0.5
DPV11-SA	1.2	0.30	9.6	1.0	1.0
DRQ3B-SA	4.5	0.0	22.5	2.0	1.0
DRV1W-SA	1.8	0.0	9.0	2.0	1.0
DZQ11-SA	1.0	0.36	9.3	1.4	0.5
IBQ01-SA	5.0	0.30	28.6	4.6	1.0
IEQ11-SA	3.5	0.0	17.5	2.0	1.0
KA620-AA	6.2	0.14	32.7	2.7	1.0
KA630-AA	6.2	0.14	32.7	2.7	1.0
KDJ11-BF	5.5	0.2	29.9	2.6	1.0
KDJ11-SA/SB	3.47	0.19	19.6	3.0	1.0
MRV11-D	1.6[1]	0.0	8.0[1]	3.0	0.5
MS630-BB	1.8	0.0	9.0	0.0	0.0
MS630-CA	3.1	0.0	15.5	0.0	0.0
MSV11-JD	3.74	0.0	18.7	2.7	0.5
MSV11-JE	4.1	0.0	20.5	2.7	0.5
MSV11-QA	2.4	0.0	12.0	2.0	1.0
RQDX3-M	2.48	0.06	13.1	1.9	0.5
TQK50	2.9	0.0	14.5	2.8	0.5
M9060-YA	5.3	0.0	26.5	0.0	0.0
RD53A-EA	0.9	2.5	34.5	0.0	0.0
RD54A-EA	1.3	1.34	22.6	0.0	0.0
TK50E-EA	1.35	2.4	35.6	0.0	0.0

[1] Value is for the unpopulated module only

2.4.2 Guidelines for Module Placement

The following sections provide guidelines for placing the module in the backplane.

2.4.2.1 Bus Continuity

Bus grant signals pass through each installed module through the A connectors of each slot. Figure 2-4 shows the bus grant routing. You must use a bus grant continuity card (M9074) in vacant backplane slots to ensure bus continuity.

2.4.2.2 Power Supplies

The BA200-series enclosure contains one or two separate 230-watt power supplies.

- In 12-slot enclosures with one power supply, the power supply is located to the right of the backplane.

- In 12-slot enclosures with two power supplies, the power supply to the right of the backplane powers slots 1 through 6, and the power supply to the left of the backplane powers slots 7 through 12.

- In 6-slot enclosures, the power supply is located to the left of the backplane.

Figure 2-4:   Bus Grant Continuity Path
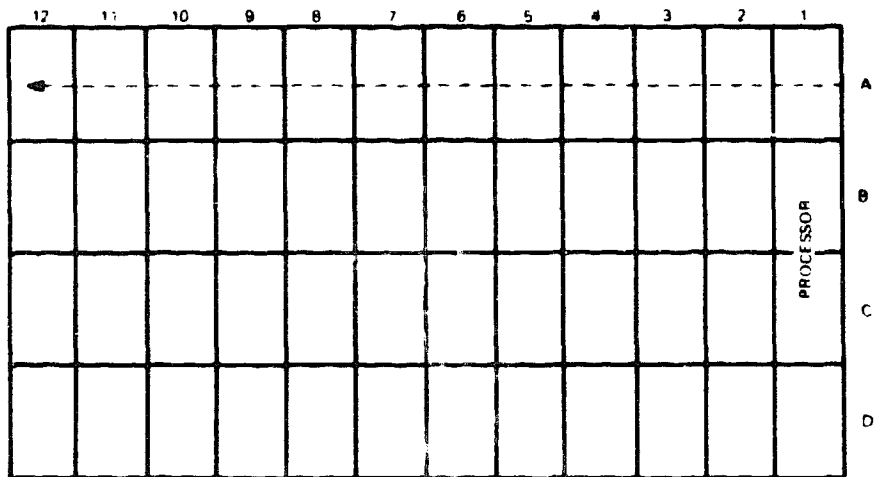
Each power supply in the enclosure must have a minimum 5-amp load on the 5-volt output to maintain regulation. If a power supply does not meet the minimum load requirement, you MUST install a load module (M9060-YA) in an open backplane slot that is powered by the power supply. The power supply will enter an error mode and shut down the system if the minimum load requirement is not met. If a power supply meets or exceeds the minimum load requirement, you should remove an existing load module.

Refer to Section 2.7, Relocating Existing Modules, for procedures on installing or removing modules.

2.4.2.3 CXY08-M Bus Priority

The CXY08 uses the BIRQ4 line to request interrupt service. It does not monitor any of the higher level interrupt request lines. Because of this, both the interrupt request and DMA (nonprocessor request) priorities of the CXY08 are selected by the position of the module on the bus. Devices closest to the CPU module have the highest priority.

In general, the CXY08 bus position is not critical. Table 2-2 shows the recommended module sequence.

Table 2-2: Recommended Module Sequence

MicroVAX Systems	MicroPDP-11/53	MicroPDP-11/83
KA620/KA630	KDJ11-SA	MSV11-JD/-JE
MS630-B/-C	MSV11-QA	KDJ11-BF
MRV11	MRV11	MRV11
DEQNA	DEQNA	DEQNA
DPV11	DPV11	DPV11
DFA01	DFA01	DFA01
DZQ11	DZQ11	DZQ11
CXA16	CXA16	CXA16
CXB16	CXB16	CXB16
CXY08	CXY08	CXY08
IEQ11[1]	IEQ11[1]	IEQ11[1]
IBQ01[1]	DRQ3B	DRQ3B
DRQ3B	DRV1W	DRV1W
DRV1W	TQK50[2]	TQK50[2]
TQK50[2]	RQDX3[2]	RQDX3[2]
RQDX3[2]		

[1]No restrictions on position
[2]Not applicable for the BA214 enclosure

2.4.3 Finding CSR Addresses and Interrupt Vectors

The following sections contain information on finding CSR addresses and interrupt vectors.

2.4.3.1 MicroPDP-11 Systems

For information on how to find CSR addresses and interrupt vectors for modules in a MicroPDP-11 system, refer to the *MicroPDP-11 Systems Maintenance Guide*.

2.4.3.2 MicroVAX Systems

To find CSR addresses and interrupt vectors manually for modules in a MicroVAX system, see the *MicroVAX Systems Maintenance Guide*.

You may also use the CONFIG program in the MicroVMS or the VMS SYSGEN utility to determine the correct CSR address and interrupt vector for the modules in the system. When you type in a list of the devices in the system, CONFIG automatically provides CSR address and interrupt vector information. Table 2-3 lists the devices supported by this utility.

Table 2-3: Devices Supported by SYSGEN

Device	Enter at DEVICE> Prompt
CXA16	DHV11
CXY08	DHV11
DEQNA	QNA
DPV11	DPV11
DRViW	DR11W
DZQ11	DZ11
IEQ11	IEQ11
RQDX3	UDA
TQK50	TU81

To use the SYSGEN utility, type the following at the system command prompt.

MCR SYSGEN

Press <RETURN>. The utility responds with the prompt,

SYSGEN>

At the prompt, type

CONFIGURE

Press <RETURN>. The utility responds with the prompt,

DEVICE>

At this point, enter the abbreviation for each device already installed in the system and for each device you intend to install in the system. Table 2-3 lists the abbreviations.

Enter one abbreviation per line, then press <RETURN>. The DEVICE> prompt prompts you for another entry. If you are installing more than one unit of a particular device, enter a comma and the number of devices after the abbreviation. For example, DHV11,2 indicates two DHV11 modules.

After you have entered all devices, enter <CTRL Z>. The program displays the following information for each device you entered.

CSR address and vector
the name assigned to the device by the operating system
the operating system support status (yes or no)

The program uses an asterisk (*) to indicate a floating address or vector. If there is more than one unit of a particular device, the first address refers to the first device to be installed. To exit from the SYSGEN utility, type <EXIT> at the SYSGEN prompt and press <RETURN>.

2.4.4 Configuring the CXY08-AF Option

Before installing the CXY08 module, you must define three parameters by selecting them on the module onboard switchpacks. The parameters are listed below.

- Module address (CSR)

- Interrupt vector address

- DHV11 or DHU11 programming mode

You select the CSR address and interrupt vector for the CXY08 by using DIP switches on the module (Figure 2-5). The module uses a floating CSR address and interrupt vector. The CXY08 is factory set to a CSR address of 17760440 (octal) and an interrupt vector of 300 (octal). The factory settings are only correct if no other floating address or vector option is installed in the microsystem. Figure 2-6 shows the factory settings.

Figure 2–5: CXY08-M Module Layout
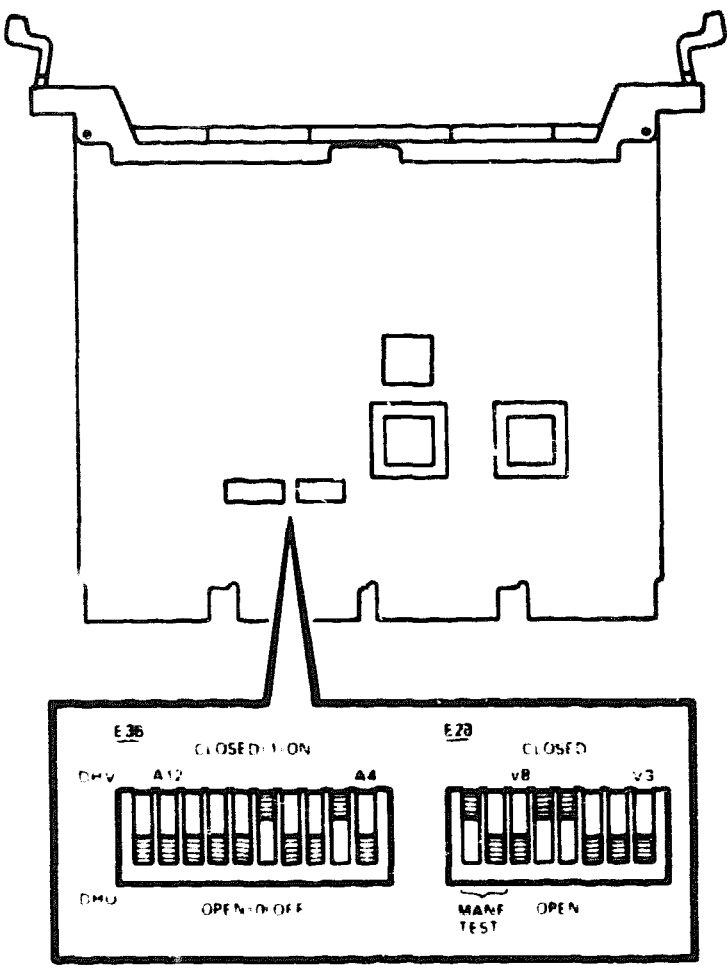
NOTE: *The CXY08 Asynchronous Multiplexer uses the same floating CSR address as the DHV11.*

Switch E36-1 selects DHV11 or DHU11 programming mode. Select the mode appropriate to the dev e driver in your system. Generally, DHU11 mode gives better perform nce because of reduced CPU overhead. To select DHU11 mode, set the switch to 0 (open).

Closing switch E28-1 enables the on-board 14.7458 MHz oscillator. Closing switch E28-2 enables a manufacturing diagnostic test mode. Switch E28-1 must be CLOSED and switch E28-2 must be OPEN for correct operation. The module self-test will fail if these switches are incorrectly set.

Figure 2-6: CXY08-M CSR and Interrupt Vector Factory Setting

	A12	A11	A10	A9	A8	A7	A6	A5	A4	ADDRESS BITS
CSR	E36									SWITCHPACK
ADDRESS	2	3	4	5	6	7	8	9	10	SWITCHES
17760440	0	0	0	0	1	0	0	1	0	FACTORY

1 - CLOSED   0 - OPEN

	V8	V7	V6	V5	V4	V3	VECTOR BITS
INTERRUPT	E28						SWITCHPACK
VECTOR	3	4	5	6	7	8	SWITCHES
300	0	1	1	0	0	0	

1 - CLOSED   0 - OPEN

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2.5 Operating System Software Shutdown

It is the customer's responsibility to shut down the operating system software.

Digital Field Service personnel should make sure that the customer has taken this step before continuing with the next section.

2.6 Testing the System

Test the existing system to make sure it is running properly.

1. Insert the diagnostic tape cartridge into the tape drive.

2. Run the MicroVAX diagnostic monitor (MDM) for MicroVAX systems, or run the XXDP+ diagnostic for MicroPDP-11 systems. See Chapter 3 for further information on testing and troubleshooting.

CAUTION: *ALWAYS remove the tape cartridge from the tape drive before turning the* ⏻ *power switch off (0).*

After the successful completion of the test, remove the tape cartridge, turn the ⏻ power switch off (0) and unplug the ac power cord from the wall outlet.

2.7 Relocating Existing Mc `ules

CAUTION: *Only qualified service personne* *uld remove or install modules.*

Check the recommended module order listed in Section 2.4.2.3. You may now need to relocate existing modules before you install the CXY08 option. If you do not need to relocate existing modules, proceed to Section 2.7.1.

2.7.1 Modules with Handles

Use the following procedure to remove modules with handles.

CAUTION: *Make sure you are wearing a grounded antistatic wrist strap before removing or installing modules.*

1. Note the orientation of external cables connected to the module. Carefully label and disconnect the cables.

2. Release the two 1/4-turn captive screws that hold the module's handle to the card cage (Figure 2-7)

Figure 2-7: Releasing the Captive Screws

TO RELEASE PUSH IN TURN
COUNTER CLOCKWISE 1 4 TURN
TO FASTEN PUSH IN TURN
CLOCKWISE 1 4 TURN

3. Unlock the release levers by simultaneously pulling up on the top lever and pulling down on the bottom lever (Figure 2-8).

4. Pull out on the module's handle and remove the module from the card cage.

Figure 2-8: Unlocking the Release Levers

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5. Confirm the module CSR address and interrupt vector, change jumpers and switch settings if necessary.

6. Reverse this procedure to install modules with handles. Do not fasten the 1/4-turn screws until you install the CXY08 module.
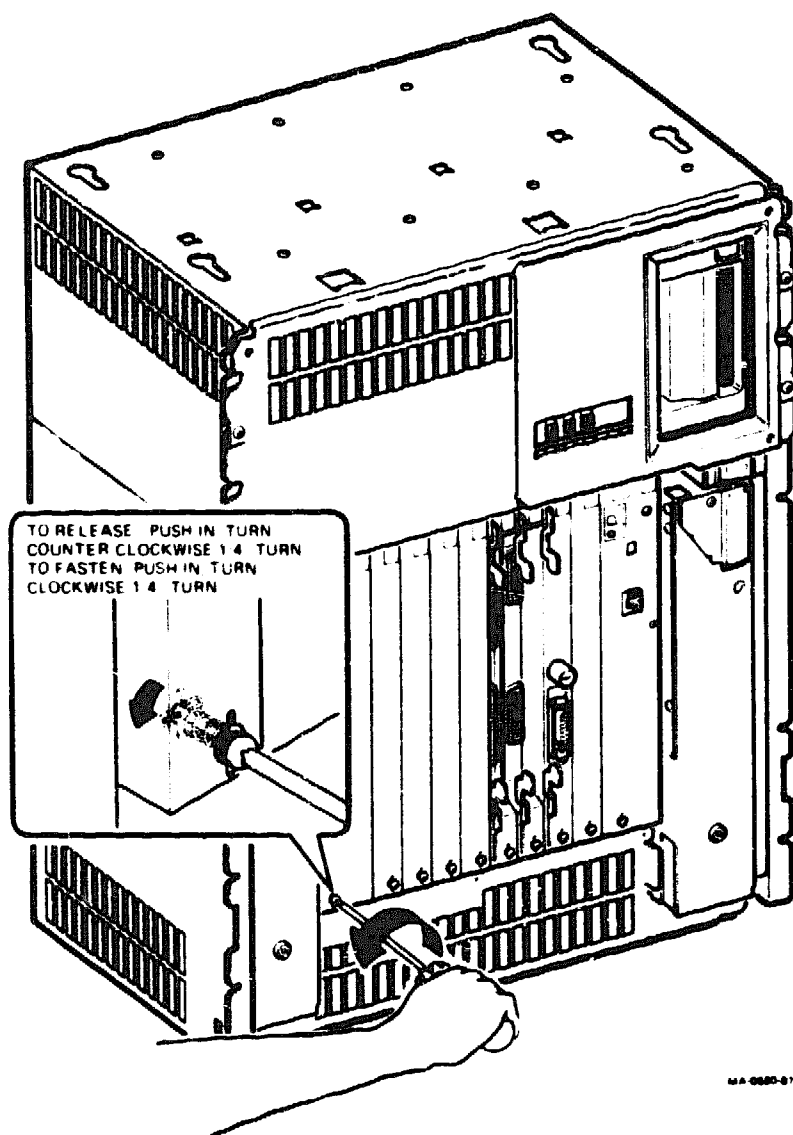
2.7.2 Modules with Blank Covers

Use the following procedure to remove modules with blank covers.

CAUTION: *Make sure you are wearing a grounded antistatic wrist strap before removing or installing modules.*
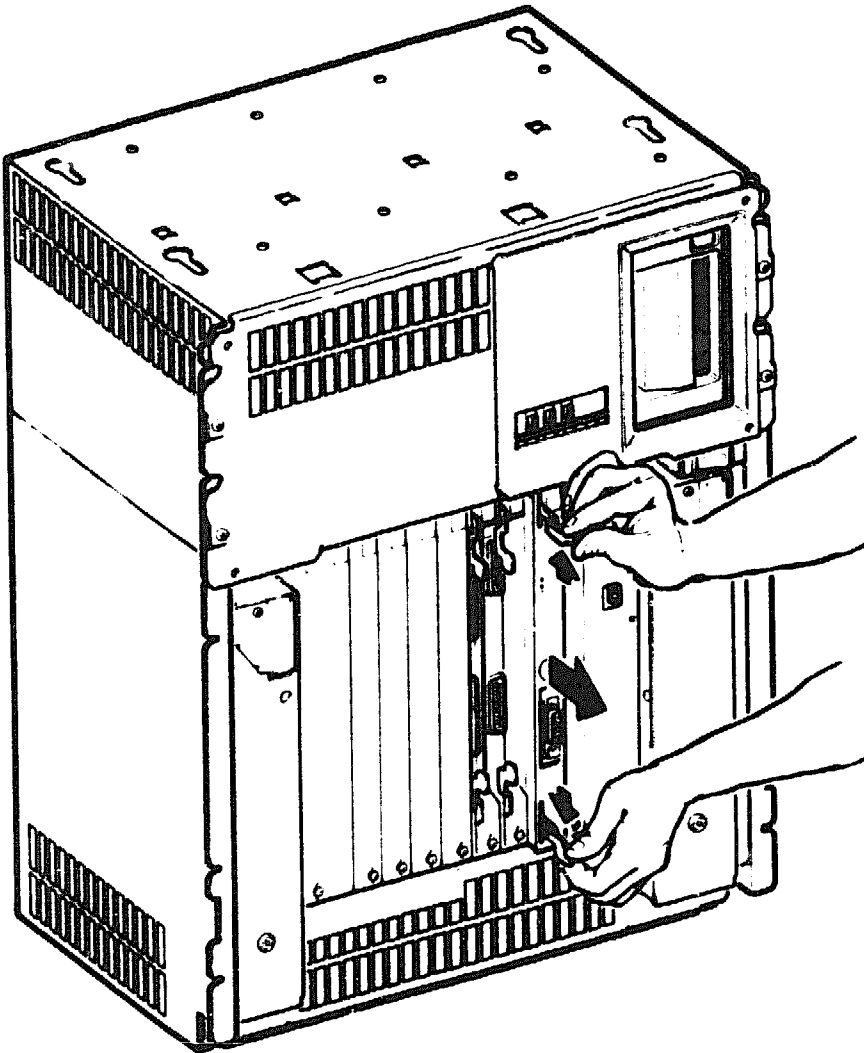
1. Release the two 1/4-turn captive screws that hold the blank cover to the card cage (Figure 2-9).

2. Pull the blank cover away from the card cage.

3. Note the orientation of any internal cables connected to the module. Some connectors are not keyed. Carefully label and disconnect the internal cables.

Figure 2–9: Removing the Blank Cover

TO RELEASE PUSH IN, TURN
COUNTER CLOCKWISE 1 4 TURN
TO FASTEN PUSH IN TURN
CLOCKWISE 1 4 TURN

4. Unlock the module release lever by simultaneously pulling up on the top lever and pulling down on the bottom lever. For modules with plastic handles, pull out on the plastic handle and remove the module from the card cage.

5. Confirm the module's CSR address and interrupt vector, change jumpers and switch settings if necessary.

6. Reverse this procedure to install modules with blank covers. Do not fasten the 1/4-turn screws until you install the CXY08 module.
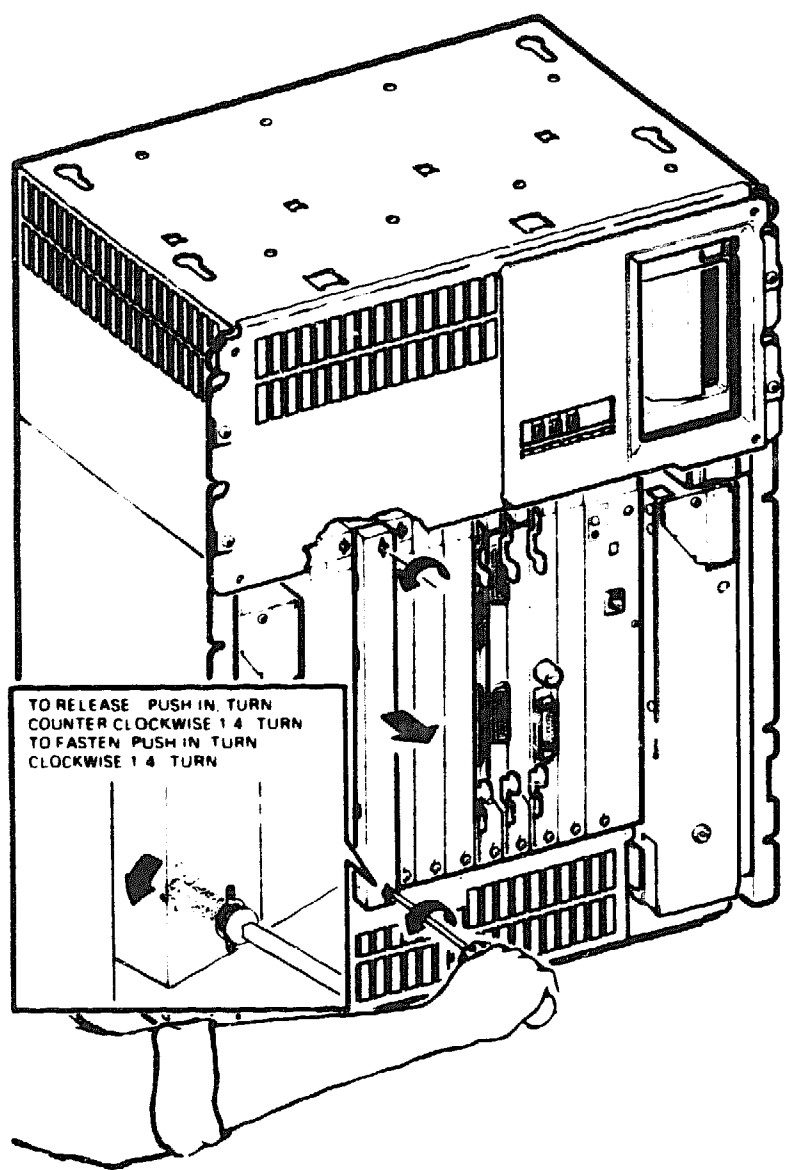
2.8 Verifying the Ground Connections

When you install a module with a blank bulkhead cover next to a module with a recessed-handle, you MUST install a gap filler assembly between the modules to meet FCC regulations. Without the gap filler assembly, circuitry on the module is exposed.

Two gap filler assemblies (P/N 70-24071-01) are provided as part of the filler panel kit.

Before you install the CXY08 option module, verify the ground connections as follows.

1. Check to see if any recessed-handle module has a module with a blank bulkhead cover or with flush-handle in the slot immediately before or after it.

2. If so, verify that a gap filler assembly is installed on the side of the blank bulkhead cover or the flush-handle that is next to the recessed-handle module (Figure 2-10).

   NOTE: *There SHOULD NOT be any open spaces between the modules.*

Figure 2-10: Ground Connections

GAP FILLER

SCREWS

BLANK COVER

NOTE
THE GAP FILLER IS MOUNTED
ONTO THE BLANK COVER TO
CLOSE THE OPEN SPACE BETWEEN
THE RECESSED MODULE AND THE
BLANK COVER

BLANK
COVER
GAP FILLER
OPEN SPACE
RECESSED MODULE
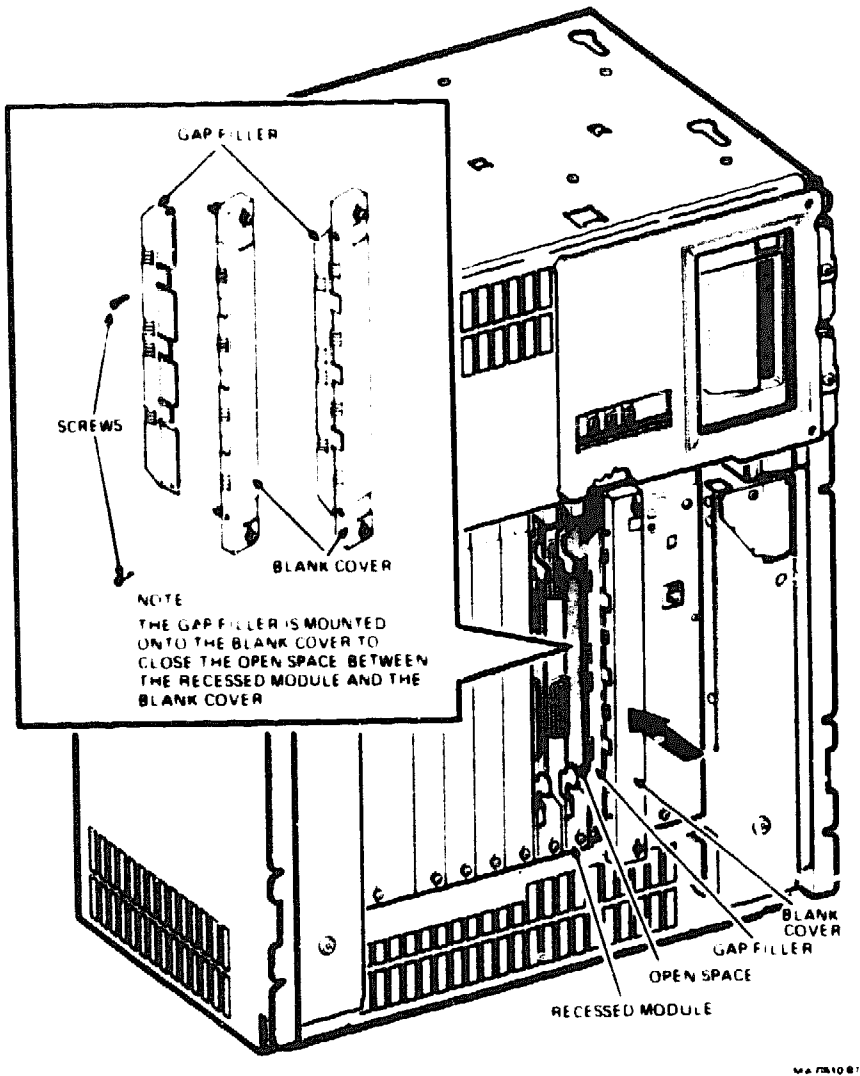
3. Install the gap filler assembly, if needed, as follows.

   • Using the two screws and a gap filler assembly supplied with the
     filler panel kit (P/N 70-24505-01), attach the gap filler assembly to
     the top and bottom of the side of the blank bulkhead cover or the
     flush-handle that fits next to the recessed-handle module. Make
     sure the gap filler assembly fits into the tab indentations on the
     blank bulkhead cover or the flush-handle (Figure 2-11).

NOTE: *The gap filler assemblies that are included with the filler panel kit are provided as spares if not used with this installation.*

Figure 2-11: Attaching The Gap Filler Assembly

1 4 INCH
SCREW

GAP FILLER
ASSEMBLY

1 4 INCH
SCREW

SINGLE WIDTH
BLANK BULKHEAD
COVER

GAP FILLER ASSEMBLY
MOUNTED ON BLANK
BULKHEAD COVER
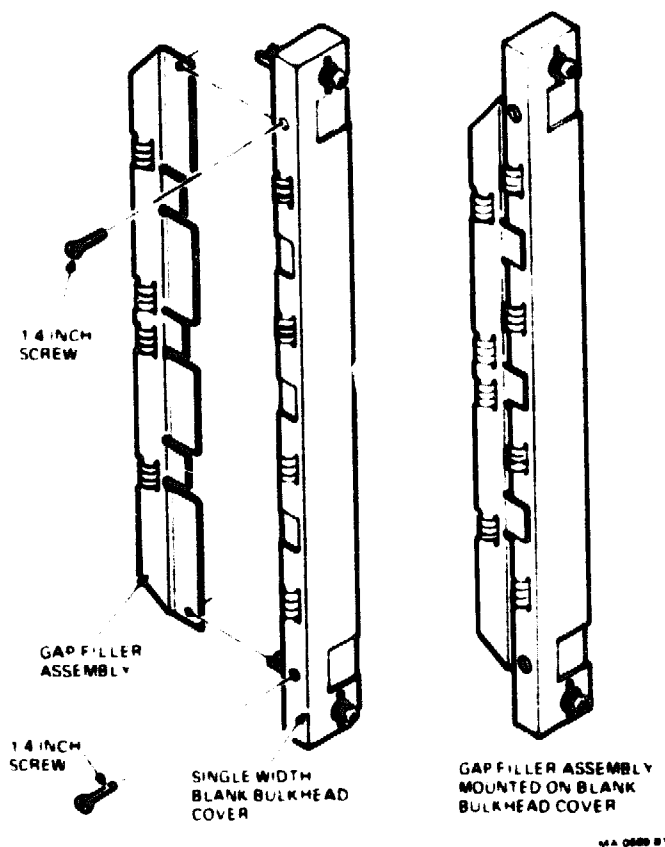
- Place the blank bulkhead cover with the gap filler assembly on the card cage.

- Insert the flush-handle module with the gap filler assembly attached into the card slot.

- Ensure that there is correct ground, with no open spaces, between the two modules.

- Do not fasten the 1/4-turn captive screws until you have installed the CXY08-AF option.

2.9 Installing the CXY08 Module

CAUTION: *BE CAREFUL not to snag the module's components on the card guides or adjacent modules.*

1. Insert the CXY08 module into the appropriate card slot (Figure 2-12). The module will not be l cked in place.

2. Holding both the top and bottom release levers, lock the module in place by simultaneously pushing down on the top lever and pulling up on the bottom lever.

3. Make sure that bus grant continuity is maintained from the CPU to the last module in the backplane. Insert bus grant cards where needed.

4. Fasten the two 1/4-turn screws on the CXY08 and also on the other modules and bulkhead covers in the system.

Figure 2-12: Inserting the Module

MA 0880 8
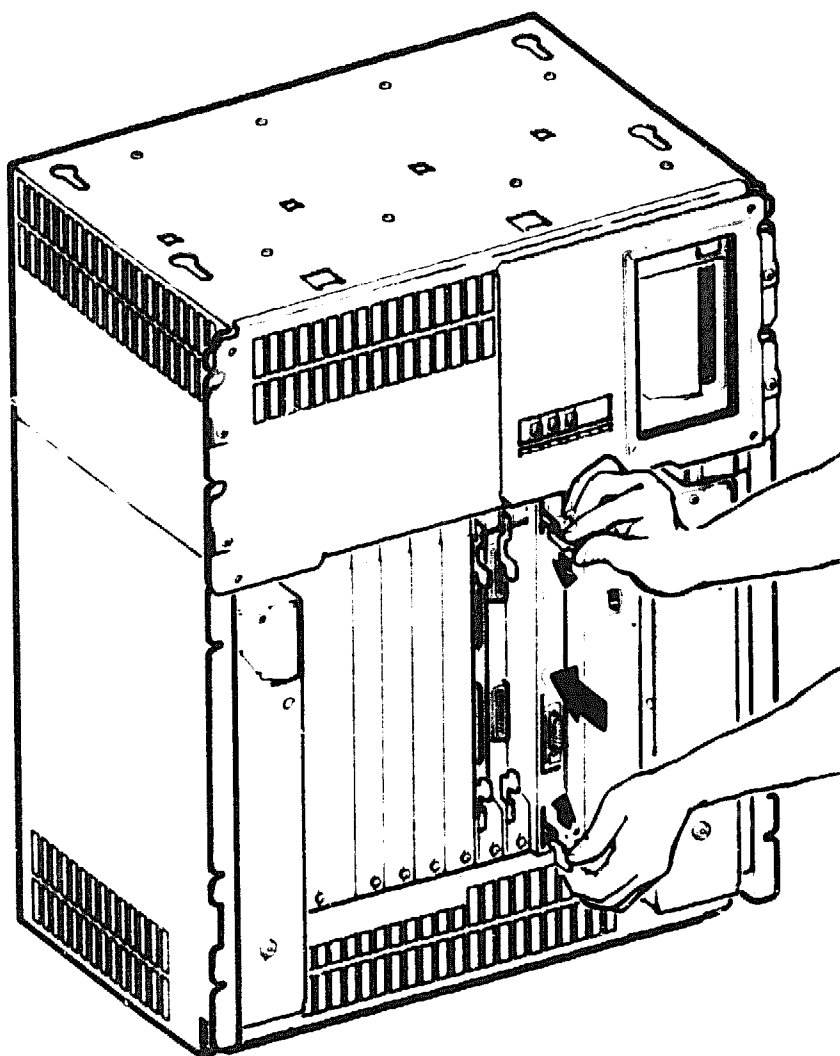
CHAPTER 3

Chapter 3
Testing the New Configuration

This chapter outlines the tests you should use after you have performed the installation.

3.1 Testing MicroPDP-11 Systems

NOTE: *XXDP+ diagnostic support is not available for the MicroPDP-11 System in the 6-slot BA214 enclosure.*

To verify that the MicroPDP-11 system and the CXY08 module are functioning correctly, perform the following test procedure.

1. Plug the ac power cord into the wall outlet.

2. Turn the $\overline{\text{i/o}}$ power switch on (1).

3. After two seconds, check that the module's green self-test LED is on; this indicates a successful self-test.

4. If the green self-test LED did not come on; this indicates an unsuccessful self-test. Correct any problems before proceeding with the test procedure.

   NOTE: *Refer to the CXY08 Technical Manual (EK-CXY08-TM) for troubleshooting information.*

5. Boot the MicroPDP-11 customer diagnostic media.

6. Type < I > at the main menu to allow the diagnostics to identify the new module and add it to the configuration file.

   NOTE: *Look at the list of devices displayed, and make sure that the new module is included. If it is not included, repeat the installation sequence, and make sure that the module switches have been set correctly.*

7. Type <T> at the main menu to run the system te sts.

A MicroPDP-11 Maintenance Kit (Order No ZYABX-GZ,P5) is available, which allows you to run individual diagnostic programs under the XXDP+ diagnostic monitor, and to configure and run DECX11 system test programs. The XXDP+ functional diagnostic is VHQA??, and the DECX11 module is XDHV??.OBJ.

The DECX/11 checks to see if the system is functioning correctly. The exerciser is made up of different modules, one for each option present, and is unique to the system being tested. If you remove or install options, the exerciser must be reconfigured. DO NOT run DECX/11 until all individual device diagnostics have run without error.

The tests should complete without error. If an error occurs, refer to the *MicroPDP 11 Systems Maintenance Guide* (AZ-FI11A-MG) for troubleshooting procedures or further instructions on how to XXDP+.

3.2 Testing MicroVAX Systems

NOTE: *For BA214 enclosures, use the Ethernet Server Kit to test the system (PN ZNA07-CM, -CP, or -C5).*

To verify that the MicroVAX system and the CXY08 module are functioning correctly, perform the following test procedure.

1. Plug the ac power cord intc the wall outlet.

2. Turn the ꥍ power switch on (1).

3. After two seconds, check that the module's green self-test LED is on; this indicates a successful self-test.

4. If the green self-test LED did not come on; this indicates an unsuccessful self-test Correct any problems before proceeding with this test procedure.

    NOTE: *Refer to the CXY08 Technical Manual (EK-CXY08-TM) for troubleshooting information.*

5. Boot the MicroVAX maintenance system media.

6. Type <2> at the main menu to allow the diagnostics to identify the new module and add it to the configuration file.

NOTE: *Look at the list of devices displayed, and make sure that the new module is included. If it is not included, repeat the installation sequence, and make sure that the module switches have been set correctly.*

Use the MicroVAX diagnostic monitor (MDM) to test a MicroVAX system. This software provides the following five groups of menu-driven tests.

- Verify-mode functional tests - user or field service

- Verify-mode exerciser tests - user or field service

- Service-mode exerciser tests - field service

- Utility tests - field service (Loopback connector (H3046) must be attached to the module to run these tests).

7. Run the verify-mode functional tests and exerciser tests. Then run the service-mode exerciser tests.

These tests should complete without error. If an error occurs, consult the *MicroVAX Systems Maintenance Guide* (EK-001AA-MG) for troubleshooting information.

3.3 Connecting External Devices

NOTE: *BE SURE to remove the tape cartridge from the tape drive before turning off (0) the ᵛᵒ| power switch.*

After the testing has been successfully completed, connect any external cables to the appropiate modules.

1. Turn off the ᵛᵒ power switch (0) and unplug the ac power cord from the wall outlet.

2. Feed the end of the large cables (BC19N-12) under the system (Figure 3-1).

3. Connect one end of the BC19N-12 cables assemblies to connector J1 and J2 on the CXY08-AF module bulkhead cover. Lock the cable into place with the bail latches. Figure 3-1 shows the cable connections for the CXY08 module.

4. Attach a modem to one of the four connectors at the opposite end of the cable assembly. If you want to place the modem farther away from the system, attach a BC22E modem cable between the cable assembly and the modem. See your modem documentation for the location of the coι ιector, and for instructions on using your modem.

Figure 3-1: CXY08-AF Cable Connections
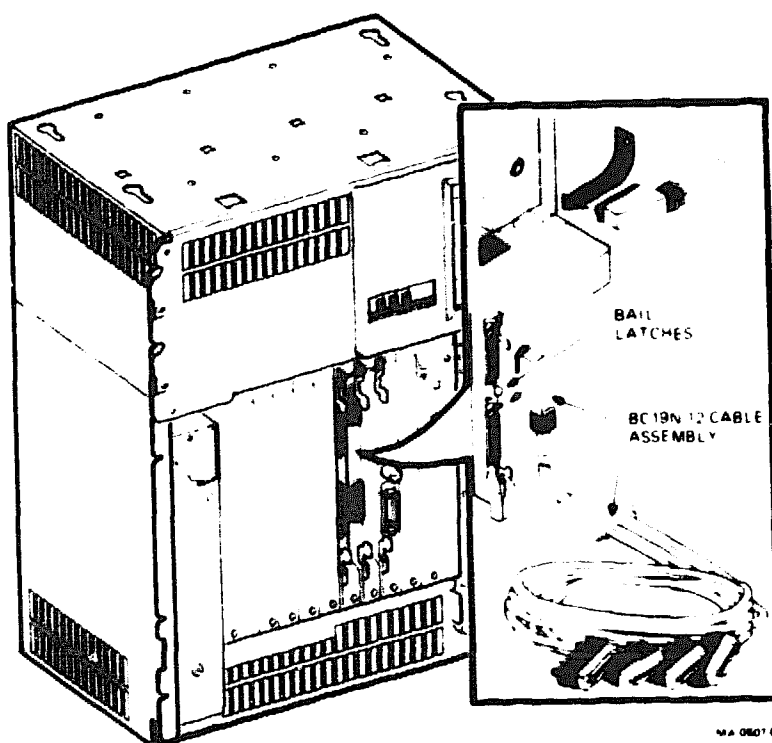
The installation procedure is now complete.

NOTE: *Refer to Appendix A for the signal names, pin numbers and CCITT circuit numbers for the BC19N-12 cable assembly.*

It is the customer's responsibility to bring-up the operating system software once installation is complete.

APPENDIX A

Appendix A
Cable Assembly Pin-out

Table A-1 shows the signal names and pin numbers for the BC19N-12 cable assembly.

Table A-1: BC19N-12 Signal Names and Pin Numbers

Signal (module)	Name	Circuit No.	25-Pin Connector Pin No.	50-Pin Connector Pin No.
TXD0(4)	Transmitted Data	103	2	1
RXD0(4)	Received Data	104	3	2
RTS0(4)	Request to Send	105	4	3
CTS0(4)	Clear to Send	106	5	4
DSR0(4)	Data Set Ready	107	6	5
SGND0(4)	Signal Ground	102	7	6
CD0(4)	Data Carrier Detected	109	8	7
[1]	Speed Mode Indication	112	12	8
DTR0(4)	Data Terminal Ready	108/2	20	9
CI0(4)	Calling Indicator	125	22	10
[1]	Test Indicator	142	25	11
TXD1(5)	Transmitted Data	103	2	13
RXD1(5)	Received Data	104	3	14
RTS1(5)	Request to Send	105	4	15
CTS1(5)	Clear to Send	106	5	16
DSR1(5)	Data Set Ready	107	6	17
SGND1(5)	Signal Ground	102	7	18
CD1(5)	Data Carrier Detected	109	8	19
[1]	Speed Mode Indication	112	12	20
DTR1(5)	Data Terminal Ready	108/2	20	21
CI1(5)	Calling Indicator	125	22	22

[1] Not supported by CXY08

Signal (module)	Name	Circuit No.	25-Pin Connector Pin No.	50-Pin Connector Pin No.
[1]	Test Indicator	142	25	23
TXD2(6)	Transmitted Data	103	2	24
RXD2(6)	Received Data	104	3	25
RTS2(6)	Request to Send	105	4	26
CTS2(6)	Clear to Send	106	5	27
DSR2(6)	Data Set Ready	107	6	28
SGND2(6)	Signal Ground	102	7	29
CD2(6)	Data Carrier Detected	109	8	30
[1]	Speed Mode Indication	112	12	31
DTR2(6)	Data Terminal Ready	108/2	20	32
CI2(6)	Calling Indicator	125	22	33
[1]	Test Indicator	142	25	34
TXD3(7)	Transmitted Data	103	2	35
RXD3(7)	Received Data	104	3	36
RTS3(7)	Request to Send	105	4	37
CTS3(7)	Clear to Send	106	5	38
DSR3(7)	Data Set Ready	107	6	39
SGND3(7)	Signal Ground	102	7	40
CD3(7)	Data Carrier Detected	109	8	41
[1]	Speed Mode Indication	112	12	42
DTR3(7)	Data Terminal Ready	108/2	20	43
CI3(7)	Calling Indicator	125	22	44
[1]	Test Indicator	142	25	45

[1] Not supported by CXY08

NOTE: *The 25-pin connector is a male D-type connector.*

The following examples show you how to use the table.

- Signal TXD0 is the transmitted data line for channel 0; the CCITT circuit number is 103. It is connected to pin 1 on the 50-pin connector (J1) for channels 0 to 3.

- Signal TXD4 is the transmitted data line for channel 4; the CCITT circuit number is 103, and it is connected to pin 1 on the 50-pin connector (J2) for channels 4 to 7.