

KLESI-SF
Q22-bus Adapter Option
Installation Guide

Order No. EK-KLESI-IN-001

digital equipment corporation
maynard, massachusetts

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About This Guide

This guide provides step-by-step instructions to install the KLESI-SF Q22-bus adapter option kit in a BA200 series microsystem enclosure. The kit is designed for use in BA200 series enclosures only.

The KLESI module serves as a controller for a mass storage control protocol (MSCP) device, such as the TU81E tape drive.

Intended Audience

This document is intended only for Digital Field Service personnel or for qualified self maintenance customers who have purchased a micro systems maintenance kit.

MicroVAX Systems Maintenance Kit	part number ZNABX-GZ, C5
MicroPDP-11 Systems Maintenance Kit	part number ZYABX-GZ, P5

For the Self-Maintenance Customer

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

It is your responsibility to perform a software backup before Digital Field Service personnel arrive at the site. This step is important to ensure that data is not lost during installation.

CAUTION: If you install the KLESI-SF option kit yourself, make sure you are wearing an antistatic wrist strap connected to a grounded antistatic work surface before you handle the modules. The system modules are susceptible to damage by static discharge.

Also make sure the bus grant continuity path is intact after the installation. There cannot be any empty backplane slots between modules.

To install the KLESI-SF option kit, carefully follow the installation procedure in Chapter 2. If you have problems performing the installation, refer to the system's maintenance guide. If you still have problems, call Digital Field Service for assistance.

For Field Service

Make sure you take precautions against static when unpacking and installing the module. Use the groundstrap and antistatic mat found in the Static-Protective Field Service Kit, part number 29-26246-00. The antistatic kit is part of the Field Service tool kit, not the option kit.

To install the KLESI-SI² option kit, carefully follow the installation procedure in Chapter 2.

Submit a LARS Form After the Installation: For information on completing this form, contact your unit manager.

Cautions and Notes

Cautions and notes appear throughout this guide. They have the following meanings.

Cautions Provide information to prevent damage to equipment or software.

Notes Provide general information about the current topic.

Related Documents

You can order the following documents from Digital. This guide refers to many of these documents.

Document	Order Number
KLESIB Adapter Technical Manual	EK-LESIB-TM
KLESIB Module User and Installation Guide	EK-LESIB-UG
TU81/TA81 Tape Subsystem User's Guide	EK-TUA81-UG
TU81/TA81 Tape Subsystem Technical Manual	EK-TUA81-TM
MicroVAX Systems Maintenance Guide*	EK-001AA-MG
MicroVAX 3500 and MicroVAX 3600 Systems Maintenance Update*	EK-159AA-UD
MicroPDP-11 Systems Maintenance Guide†	AZ-F111A-MG
Micro Systems Site Preparation Guide	EK-067AB-PC
MDM User's Guide	AA-FM7A-DN

* These documents are included in the MicroVAX Systems Maintenance Kit (ZNABX-GZ, C5).

† This document is included in the MicroPDP-11 Systems Maintenance Kit (ZYABX-GZ, T5).

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Chapter 1

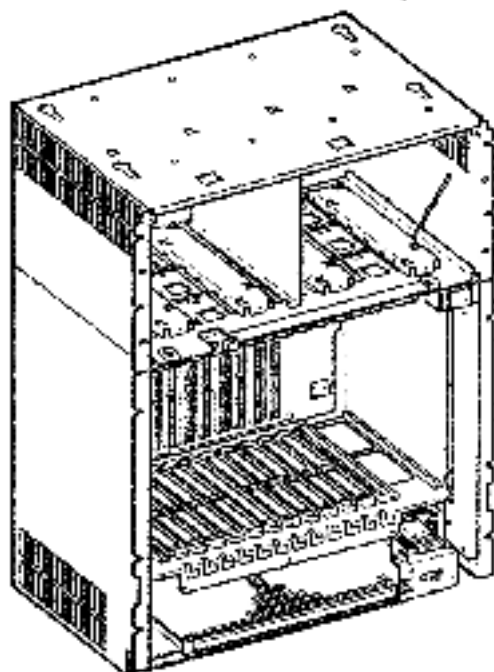
Description

This chapter describes the BA200 series enclosure and the KLEST module.

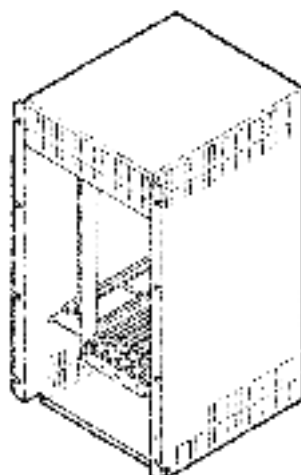
1.1 BA200 Series System Enclosure

The BA200 series enclosure has a 6- or 12-slot Q-bus backplane. Figure 1-1 shows the 12-slot BA213 and the 6-slot BA214 enclosure chassis. The BA213 has one or two modular power supplies, and the BA214 has one power supply.

The backplane implements the Q22-bus on the AB rows of each slot. The CD interconnect is implemented on the CD rows of each slot. Fixed disk drives face the rear of the enclosure, providing easy access to the drive signal and power cables. A TK tape drive faces the front of the enclosure.



BA213 ENCLOSURE



BA214 ENCLOSURE

BA200-01

Figure 1-1 BA200 Series Enclosures

2 Description

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

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

- Option modules with external I/O connectors have **bulkhead handles**. These handles replace the insert panels and internal cabling found in the BA23 and BA123 enclosures.
- Non-I/O modules (such as memory modules) have **blank bulkhead covers**.

The module handles and blank covers form an electrical seal that complies with regulations for electromagnetic interference (EMI) for (1) keeping radio frequency interference generated by the system in the enclosure, and (2) keeping external radio frequencies from entering the enclosure. The module handles and blank covers also help guarantee proper airflow.

For more information: See the *MicroVAX Systems Maintenance Guide* to learn more about BA200 series enclosures.

1.2 KLESI-S Module

The quad-height KLESI-S (M7740-00) Q22-bus adapter module is a controller for a mass storage control protocol (MSCP) device. You must install the KLESI-S in the backplane of a BA200 series enclosure.

In the MicroVAX 3600 dual-cabinet system, the KLESI-S is the controller for a TU81E tape drive. The TU81E is in an H9643 expander cabinet attached to the H9644 cabinet. The H9644 cabinet in this system contains the BA213 enclosure and a 10.5 inch disk or tape drive. Figure 1-2 shows this configuration.

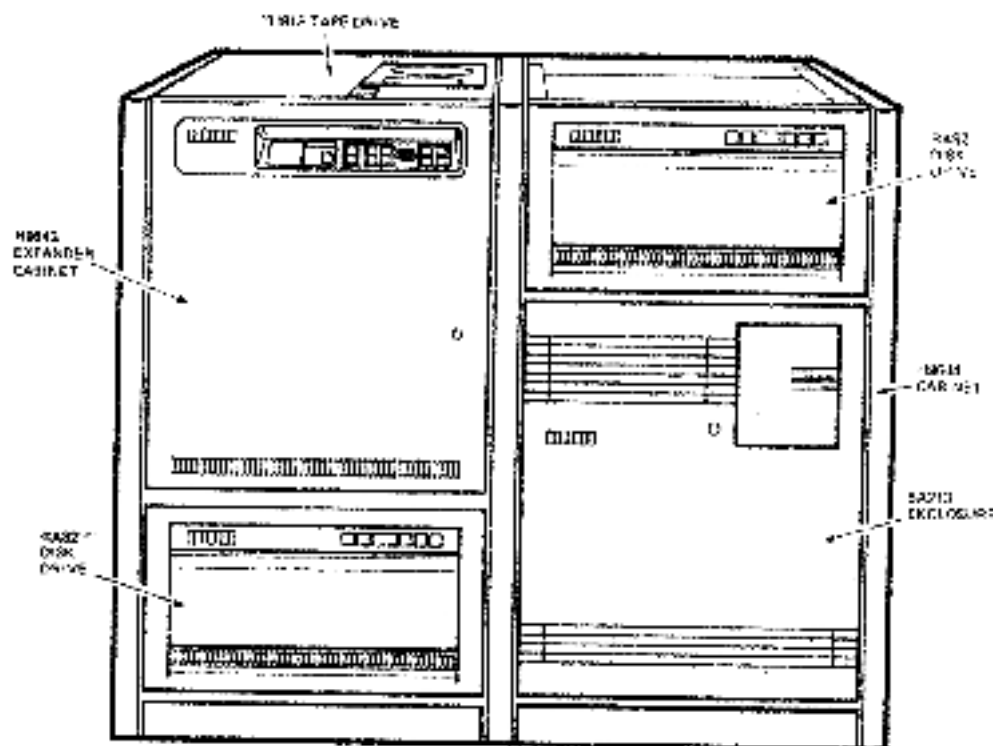


Figure 1-2 MicroVAX 3600 Dual-Cabinet System

For more information: See the *KLESI-B Adapter Technical Manual* and the *KLESI-B Module User and Installation Guide* for more information on the KLESI-B adapter module.

See the *MicroVAX 3500 and MicroVAX 3600 Systems Maintenance Update* for more information on the MicroVAX 3600 dual-cabinet system.

Chapter 2

Installation

This chapter provides step-by-step procedures for unpacking, inspecting, and installing the KLESI-SF option kit in the BA200 series enclosure. This chapter also discusses system and module configuration.

2.1 Installing the TU81E Tape Transport

Before you unpack the KLESI-SF option kit, refer to the *TU81/TA81 Tape Subsystem User's Guide* in the TU81E-SF option kit. The user's guide provides

- site preparation information for the TU81E tape transport.
- procedures to help you unpack and install the TU81E tape transport.

Make sure there is adequate space and facilities to add the TU81E tape transport to the existing system. If necessary, move the system to a new location. See the *Micro Systems Site Preparation Guide* for more site preparation information on BA200 series enclosures.

Unpack and assemble the TU81E tape transport according to the procedures in the *TU81/TA81 Tape Subsystem User's Guide*.

2.2 Unpacking the KLESI-SF Option Kit

Unpack the KLESI-SF shipment and check the contents as follows. If any item is missing or damaged:

- contact the customer's sales representative.
 - contact the customer's delivery agent.
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 you have installed the module and tested the system successfully.
 3. Put on your antistatic wrist strap. Attach the alligator clip to the metal chassis of the BA200 series enclosure. Place the antistatic mat on your work surface.

4. Use Table 2-1 to identify the contents of the KLESI-SF option kit. The checklist numbers correspond to the numbered items in Figure 2-1.

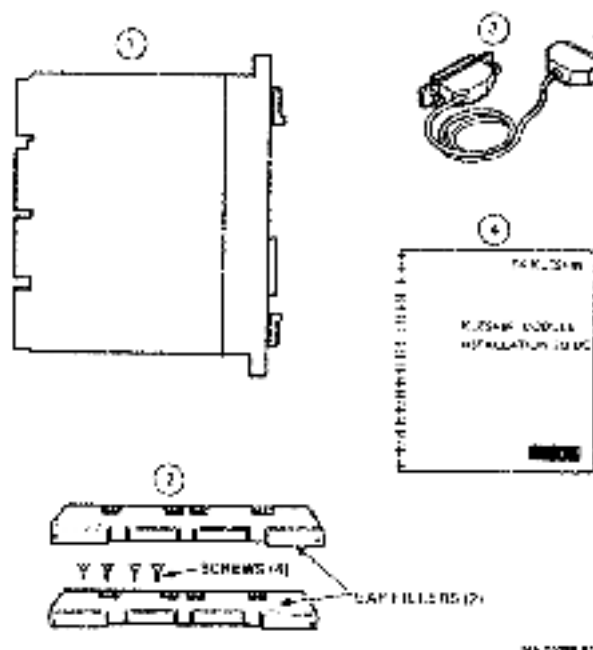


Figure 2-1 KLESI-SF Option Kit Contents

Table 2-1 KLESI-SF Option Kit Checklist

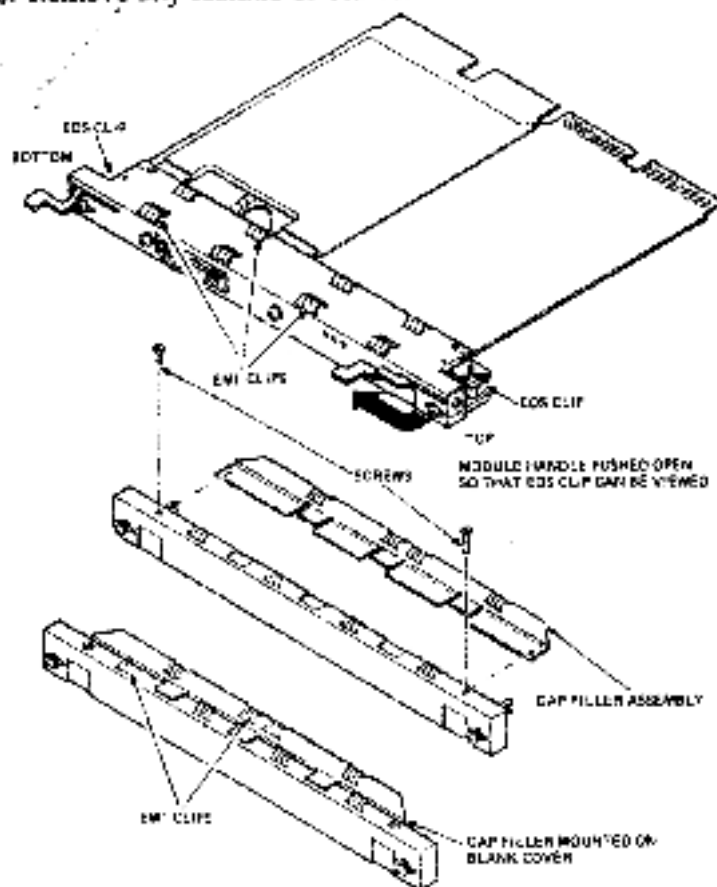
Part Description	Part Number
1 KLESI-SF Q22-bus controller	M7740-PA
2 Two gap filler assemblies, consisting of two gap fillers and four flathead screws	70-24505-01
3 50-pin D-subminiature I/O cable	17-00692-02 (BC18C-05)
4 Installation guide	EK-KLESI-IN

- Remove the KLESI-S module from the antistatic bag.
- Inspect the module for shipping damage. Carefully check for cracks, breaks, and loose components.

2.3 Inspecting the EMI and EOS Clips

To comply with regulations on electromagnetic interference (EMI), the bulkhead handles, blank covers, and gap fillers have transient protection EMI and electrical overstress (EOS) clips. These clips are grounded through the module handle.

1. Check the EMI and EOS clips on the KLES1-S handle for residue or corrosion on (Figure 2-2). Also check the EMI clips on the two gap fillers. Remove any residue or corrosion with alcohol.



see section 2.1

Figure 2-2 EMI and EOS Clips

2. Make sure the EMI and EOS clips are arched. When you press them slightly, they should return to their original shape.
3. If any clip is missing or broken, replace it.

EMI clip part number 12-26340-01

EOS clip part number 12-26922-01

4. Place the KLESI-S module on the antistatic mat.

2.4 Software Backup and Operating System Shutdown

It is the customer's responsibility to perform a software backup and shut down the operating system software.

Make sure the customer backs up the software and shuts down the operating system software before you continue. Have the customer leave the system power on.

2.5 Checking the System Configuration

Before you install the KLESI-SF option, you must complete a configuration worksheet for your BA200 series enclosure. This step ensures that you will not exceed the system's limits for power and bus loads.

You need to gain access to the modules installed in the system backplane before you configure the system. Refer to the system documentation for procedures to help you remove any covers and gain access to the modules. To check the system configuration, perform the following steps.

1. On the worksheet (Figure 2-3), list all the devices already installed in the system. Each module has an identifying label on the cover or handle.
2. List all the devices you plan to install in the system.
3. Fill in the information for each device, using the data listed in Table 2-2.
4. Add up the columns. Make sure the totals are within the limits for the enclosure.

Table 2-2 Power and Bus Load Data

Option	Module	Current (Amps) (Max)		Power (Max)	Bus Loads	
		+5 V	+12 V		AC	DC
AAV11-SA	A1009-PA	1.8	0.0	9.0	2.1	0.5
ADV11-SA	A1008-PA	3.7	0.0	16.0	2.3	0.5
AXV11-SA	A026-PA	2.0	0.0	10.0	1.2	0.3
CXA16-M	M3118-YA	1.6	200 mA	10.4	3.0	0.5
CXB16-M	M3118-YB	2.0	0.0	10.0	3.0	0.5
CXY08-M	M3119-YA	1.8	300 mA	12.6	3.2	0.5
DELQA-SA	M7516-PA	2.7	0.5	19.5	2.2	0.5
DEQNA-SA	M7504	3.5	0.50	23.5	2.2	0.5
DFA01		1.2	0.15	7.8	1.0	1.0
DPV11-SA	M8020-PA	1.2	0.30	9.6	1.0	1.0
DRQ3B-SA	M7658-PA	4.5	0.0	22.5	2.0	1.0
DRV1J-SA	M8049-PA	1.8	0.0	9.0	2.0	1.0
DRV1W-SA	M7651-PA	1.8	0.0	9.0	2.0	1.0
DZQ11-SA	M3106-PA	1.0	0.36	9.3	1.4	0.5
EQ01-SA	M3125-PA	5.0	0.0	25.0	4.6	1.0
IEQ11-SA	M8634-PA	3.5	0.0	17.5	2.0	1.0
KA630-AA	M7478	6.2	0.14	32.7	2.7	1.0
KA630-AA	M7606	6.2	0.14	32.7	2.7	1.0
KA650-AA/BA	M7620-A/B	6.4	0.14	33.6	2.7	1.0
KDA50-Q	M7164	6.93	0.0	34.65	3.0	0.5
KDA50-Q	M7165	6.57	0.03	33.21	-	-
KDJ11-BF	M8190	5.5	0.2	29.9	2.6	1.0
KLE51-SA	M7740-PA	3.0	0.0	15.0	2.3	1.0
KMV1A-SA	M7500-PA	2.6	0.2	15.4	3.0	1.0
KWV11-SA	M4002-PA	2.2	13 mA	11.156	1.0	0.3
LPV11-SA	M8086-PA	1.6	0.0	8.0	1.8	0.5
MRV11-D	M7942	1.6*	0.0	8.0*	3.0	0.5
M9060-YA		5.3	0.0	26.5	0.0	0.0
MS630-AA	M7607	1.0	0.0	5.0	-	-
MS630-BA	M7608	1.8	0.0	9.0	0.0	0.0
MS630-CA	M7609	3.1	0.0	15.5	0.0	0.0
MS650-AA	M7621-A	2.7	0.0	13.5	-	-

*Value is for the unpopulated module only.

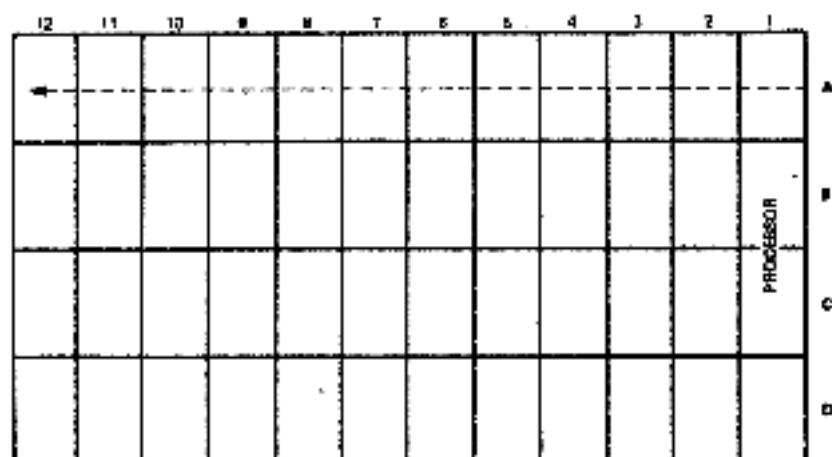
Table 2-2 (Cont.) Power and Bus Load Data

Option	Module	Current (Amps) (Max)		Power (Max)	Bus Loads	
		+5 V	+12 V	Watts	AC	DC
MSV11-JD	M8637-D	3.74	0.0	18.7	2.7	0.5
MSV11-JE	M8637-E	4.1	0.0	20.5	2.7	0.5
MSV11-QA	M7551-AA	2.4	0.0	12.0	2.0	1.0
RA70		3.8	4.2	69.4	-	-
RD53A-EA		0.9	2.5	34.5	0.0	0.0
RD54A-EA		1.3	1.34	22.6	0.0	0.0
RQDX3-M	M7555	2.48	0.06	13.1	1.9	0.5
TK50E-EA		1.35	2.4	35.6	0.0	0.0
TK70E-EA		1.3	2.4	35.3	-	-
TQK50	M7546	2.9	0.0	14.5	2.8	0.5
TQK70-SA	M7559	3.5	0.0	17.5	4.3	.5
TSV05-SA	M7196	6.5	0.0	32.8	3.0	1.0

2.5.1 Guidelines for Module Placement

Bus Continuity

Bus grant signals pass through each installed module, using the A connectors of each slot. Figure 2-4 shows the path of the bus grant signals. To ensure the continuity of this path, use bus grant continuity cards (M9047) in empty backplane slots.



MA-9011-01

Figure 2-4 Bus Grant Continuity Path

Power Supplies

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

- A 12-slot enclosure has one or two power supplies.
 - If there is one power supply, it is to the right of the backplane.
 - If there are two power supplies, the one to the right of the backplane powers slots 1 through 6, and the one to the left of the backplane powers slots 7 through 12.
- A 6-slot enclosure has one power supply, to the left of the backplane.

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 an M9060-YA load module in one of the open backplane slots powered by that power supply. Otherwise, the power supply enters an error mode and shuts down the system.

If a power supply meets the minimum load requirement, you should remove an existing load module. See Section 2.8 for procedures on installing or removing load modules.

Module Order

The order of modules in the backplane depends on four factors.

- The relative use of devices in the system
- The expected performance of each device relative to other devices
- The ability of a device to tolerate delays between bus requests and bus grants (delay tolerance)
- The tendency of a device to prevent devices farther from the CPU from accessing the bus

Table 2-3 lists the recommended order of modules in a BA200 series enclosure. Use the table as a guideline when installing modules.

Table 2-3 Recommended Module Order

MicroVAX	MicroFDP-11/53	MicroFDP-11/83
KA620/KA630/KA650	KDJ11-SA/-SB	MSV11-JD/-JE
MS630-B/-C/MS650-A	MSV11-QA	KDJ11-BF
TSV05	TSV05	TSV05
MRV11	MRV11	MRV11
AAV11	AAV11	AAV11
ADV11	ADV11	ADV11
KWV11	KWV11	KWV11
AXV11	AXV11	AXV11
DEQNA/DELQA	DEQNA/DELQA	DEQNA/DELQA
DPV11	DPV11	DPV11
DFA01	DFA01	DFA01
DZQ11	DZQ11	DZQ11
CXA16	CXA16	CXA16
CXB16	CXB16	CXB16
CXY08	CXY08	CXY08
LPV11	LPV11	LPV11
KDA50	KDA50	KDA50
KLESI	KLESI	KLESI
IEQ11	IEQ11	IEQ11
DRV1J	DRV1J	DRV1J
DRQ3B	DRQ3B	DRQ3B
DRV1W	DRV1W	DRV1W
IBQ01	TQK50/TQK70	TQK50/TQK70
TQK50/TQK70	RQDX3	RQDX3
RQDX3		

2.6 Configuring the KLESI-S Module

You set the control and status register (CSR) address for the KLESI by using DIP switch R58 (Figure 2-5).

The table following the figure lists the CSR address to use if the KLESI-S is the first or second tape controller in the system. The interrupt vector is set under program control.

IMPORTANT: Check the factory setting of the CSR address. If necessary, reset the CSR address before you install the KLESI-S module.

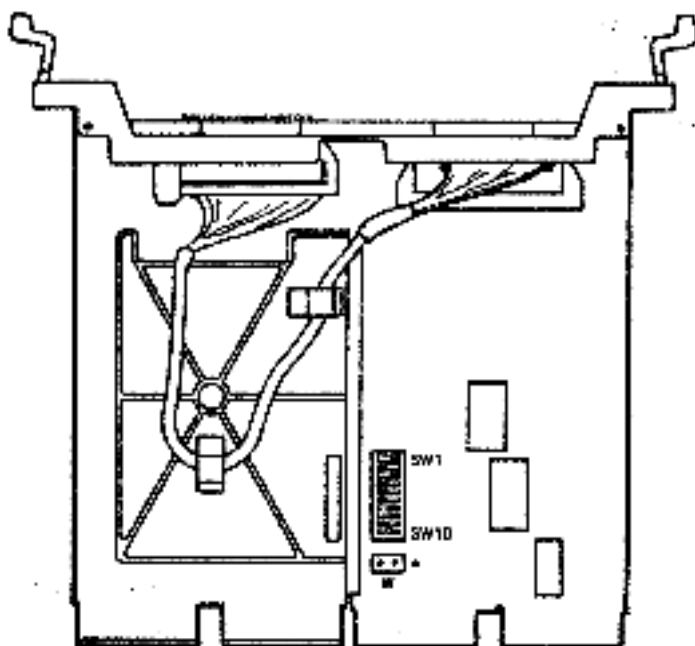


Figure 2-5 KLESI-S (M7740-PA) Module Layout

KLESI (M7740) CBR Addressing

CBR Address	A12	A11	A10	A9	A8	A7	A6	A5	A4	A3	A2	← Bits
	←-----ESB Switches-----→										← Jumper	← Switch/ Jumper
	1	2	3	4	5	6	7	8	9	10	W	

Address for first controller (factory setting)

17774500	1	1	0	0	3	0	1	0	0	0	0
----------	---	---	---	---	---	---	---	---	---	---	---

Possible addresses for second controller

17760404	0	0	0	0	1	0	0	0	0	0	1
17760444	0	0	0	0	1	0	0	1	0	0	1

For switches: 1 = switch on, 0 = switch off.

For jumper W: 0 = jumper on left and center pin
(module fingers toward you).

1 = jumper on right and center pin.

2.7 Testing the Existing System

Test the existing system as follows.

1. Insert the diagnostic tape cartridge into the tape drive. Use the MicroVAX diagnostic monitor (MDM) for a MicroVAX system, or the XXDP+ diagnostic monitor for MicroPDP-11 systems.
2. Test the existing system to make sure it is running properly. See Chapter 3 for more information on testing and troubleshooting.
3. After the successful completion of the test, remove the tape cartridge and turn the  power switch off (0). Unplug the ac power cord from the wall outlet.

CAUTION: Always remove the tape cartridge before turning power off.

2.8 Relocating Modules

CAUTION: Only qualified service personnel should remove or install modules.

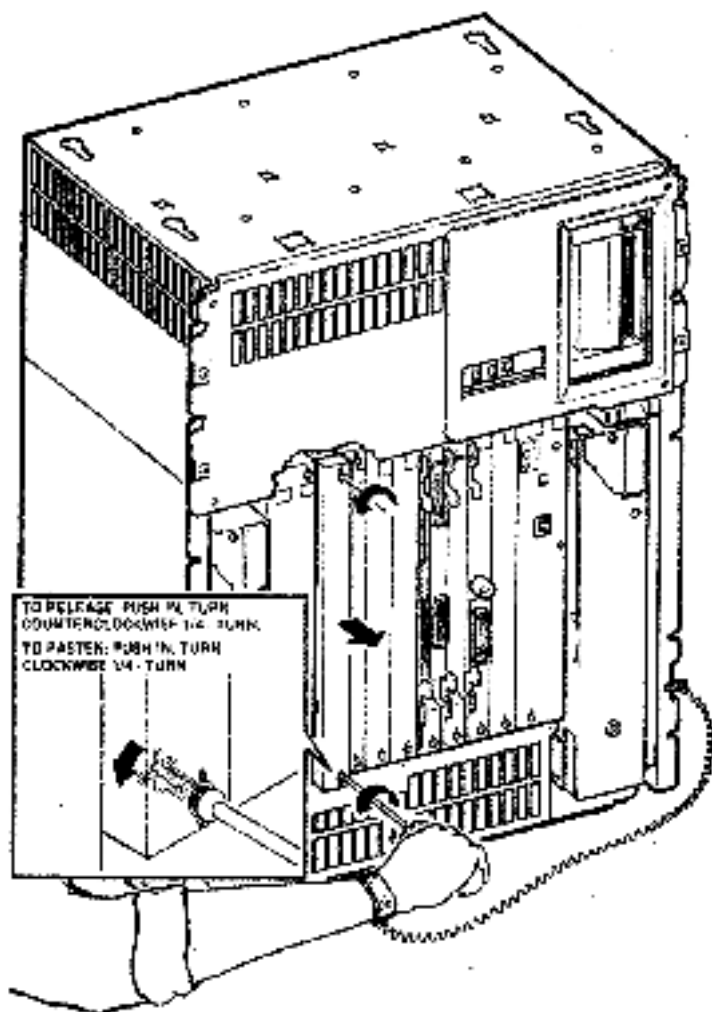
Check the recommended module order in Table 2-3 to determine which slot you should install the KLESLS module in. If you need to relocate modules in the backplane, use the following procedures and keep modules in their original order.

2.8.1 Modules with Blank Covers

Use the following procedure to remove and install modules with blank covers.

CAUTION: Make sure you are wearing a grounded antistatic wrist strap when you remove or install modules.

1. Release the two 1/4-turn captive screws that hold the blank cover to the card cage (Figure 2-6).
2. Pull the blank cover away from the card cage.



NOTE:
THIS ILLUSTRATION SHOWS HOW TO RELEASE
CAPTIVE SCREWS ON ALL PLANK COVERS AND
BULKHEAD HANDLES

MS-017801

Figure 2-6 Releasing the Captive Screws

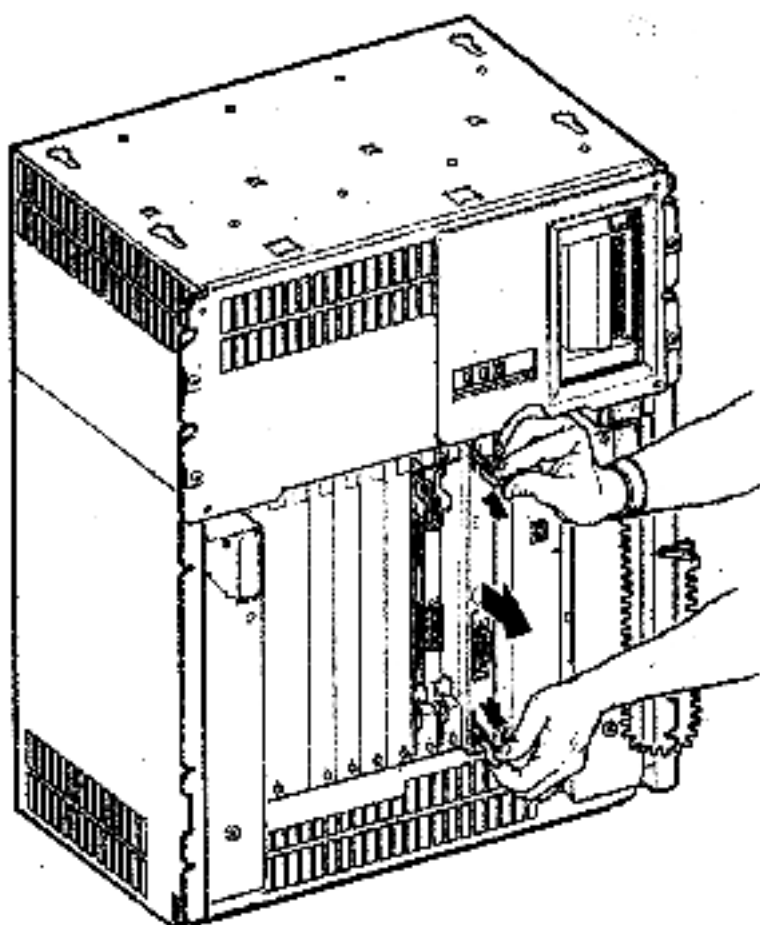
3. Note the orientation of any internal cables connected to the module. Some connectors are not keyed. Carefully label and disconnect the internal cables.
4. Unlock the module's release levers by simultaneously pulling up on the top lever and pulling down on the bottom lever. For a module with a plastic handle, pull out on the plastic handle.
5. Carefully pull the module out of the card cage.
6. Confirm the module's CSR address and interrupt vector. See the *MicroVAX Systems Maintenance Guide* or the *MicroPDP-11 Systems Maintenance Guide* for help in determining the correct setting. Change jumpers or switch settings if necessary. If no change is necessary, be careful not to disturb any switchpacks on the module.
7. Install the module in its new location by reversing the steps in this procedure. Do not fasten the 1/4-turn screws yet.

2.8.2 Modules with Handles

Use the following procedure to remove and install modules with handles.

CAUTION: Make sure you are wearing a grounded antistatic wrist strap when you remove or install modules.

1. Note the orientation of external cables connected to the module. Carefully label and then disconnect the cables.
2. Release the two 1/4-turn captive screws that hold the module's handle to the card cage (Figure 2-6).
3. Unlock the release levers by simultaneously pulling up on the top lever and pulling down on the bottom lever (Figure 2-7).
4. Pull out on the module's handle and remove the module from the card cage.
5. Confirm the module's CSR address and interrupt vector. See the *MicroVAX Systems Maintenance Guide* or the *MicroPDP-11 Systems Maintenance Guide* for help in determining the correct setting. Change jumpers or switch settings if necessary. If no change is necessary, be careful not to disturb any switchpacks on the module.
6. Install the module in its new location by reversing the steps in this procedure. Do not fasten the 1/4-turn screws yet.



NOTE:
THIS ILLUSTRATION SHOWS HOW TO
UNLOCK RELEASE LEVERS ON ALL
MODULES WITH ATTACHED HANDLES.

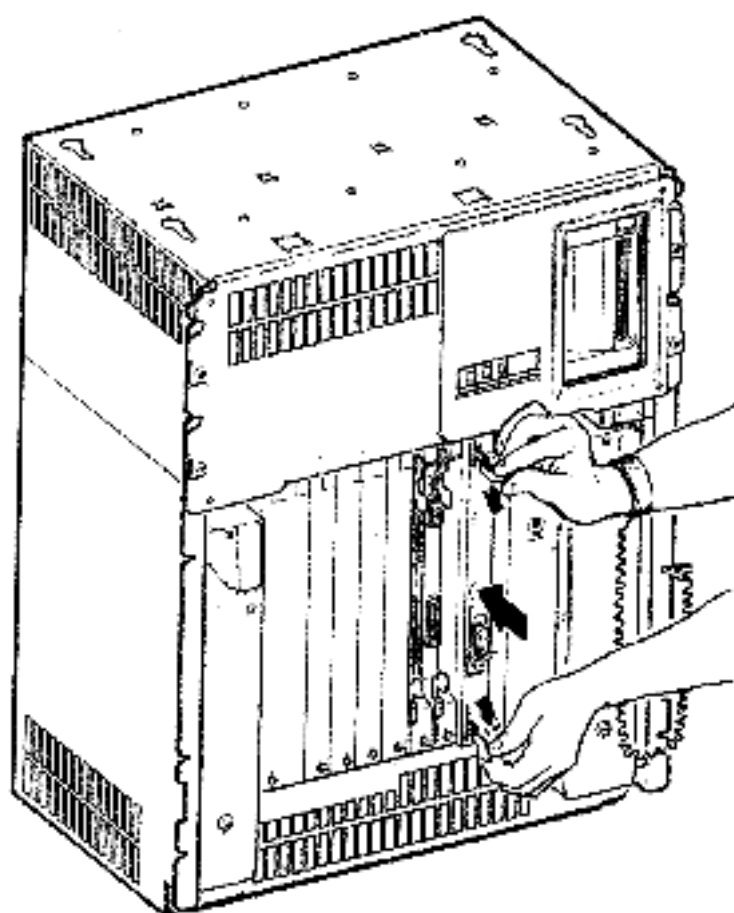
11-1-00000-01

Figure 2-7 Unlocking the Release Levers

2.9 Installing the KLESI-S Module

CAUTION: Be careful not to snag the module's components on the card guides or adjacent modules.

1. Insert the KLESI-S module into the appropriate card slot, using the recommended module order in Table 2-3.
2. Grasp the module's top and bottom release levers. Lock the module in place by simultaneously pushing the top lever down and pulling the bottom lever up (Figure 2-8).
3. Do not fasten the 1/4-turn captive screws.



NOTE:
THIS ILLUSTRATION SHOWS HOW TO LOCK
RELEASE LEVERS AND INSERT ALL MODULES
WITH ATTACHED HANDLES.

Figure 2-8 Inserting the Module

2.10 Verifying the Ground Connections

When you install a module with a blank cover or flush handle next to a recessed-handle module, you *must* install a gap filler assembly between the modules to meet EMI regulations. Without the gap filler, circuitry on the recessed-handle module is exposed.

Two gap filler assemblies (part number 70-24505-01) are provided with the option kit. Each gap filler assembly includes one gap filler and two screws. Use as many of the assemblies as you need for your configuration. You may not need any.

Check that the ground connections are correctly in place as follows.

1. Check the backplane to see if any recessed-handle module is next to a module with a blank cover or a flush handle.
2. If so, make sure a gap filler assembly is installed on the side of the blank cover or flush handle that is next to the recessed-handle module (Figure 2-9).

NOTE: *There should not be any open spaces between the modules in the backplane.*

3. If there are no open spaces, you do not need the gap filler assemblies. Fasten the 1/4-turn captive screws on all handles and covers in the backplane.

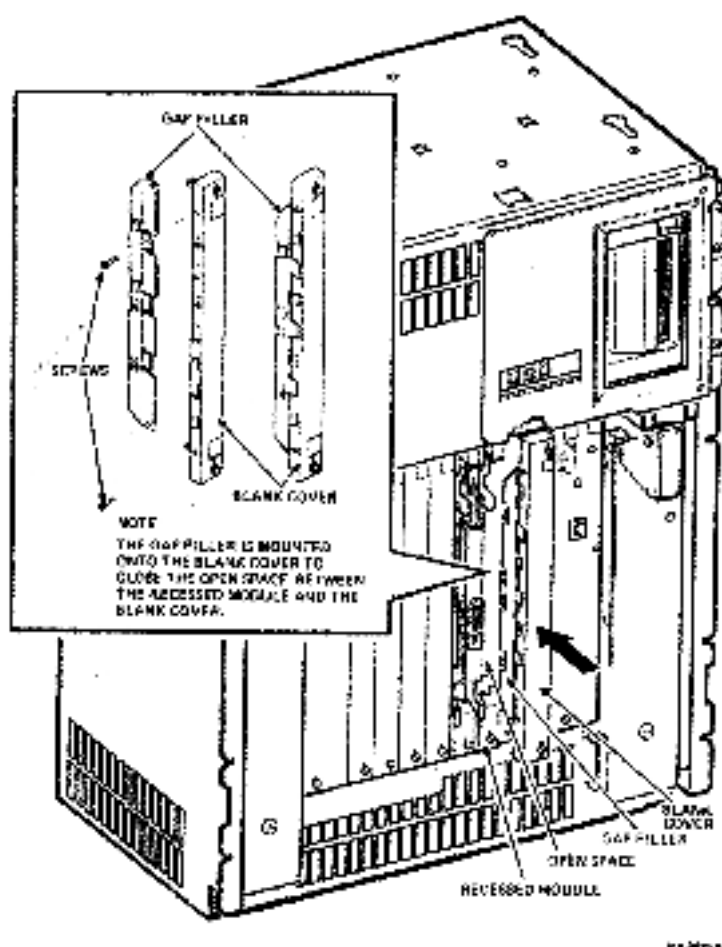


Figure 2-9 Ground Connections

4. Install the gap filler assembly, if needed, as follows.
 - a. Fit the gap filler (part number 70-24505-01) onto the side of the blank cover or flush-handle module that is next to the recessed-handle module. Make sure the gap filler's tabs fit into the tab indentations on the blank cover or flush handle (Figure 2-10). Use the two screws that come with the assembly to attach the gap filler at the top and bottom.
 - b. If you have a blank cover, place the blank cover with the gap filler over the card cage slot.
If you have a flush-handle module, insert the module into the card slot.
 - c. Make sure there is correct ground (no open spaces) between the two modules.
 - d. Fasten the 1/4-turn captive screws on all handles and covers in the backplane.

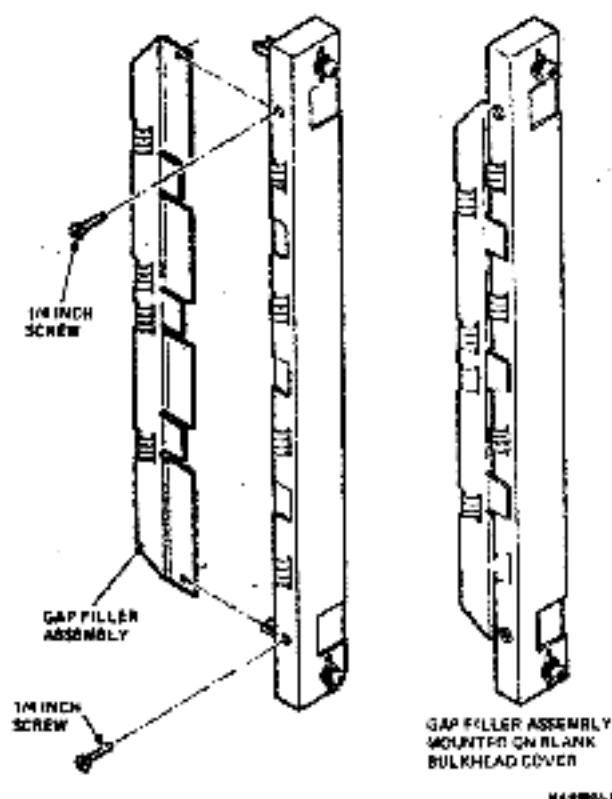


Figure 2-10 Attaching the Gap Filler Assembly

2.11 Connecting the TU81E Tape Transport

Connect the KLESIS controller module to the TU81E tape transport as follows.

1. Connect the right-angled end of the RC18G-05 cable (part number 17-00592-02) to the $\bar{J}$ connector on the KLESIS bulkhead handle (Figure 2-11).
2. Tighten the single captive screws on the top and bottom of the 50-pin connector (Figure 2-11).
3. Route the other end of the cable under the backplane and out the rear of the enclosure (Figure 2-11).

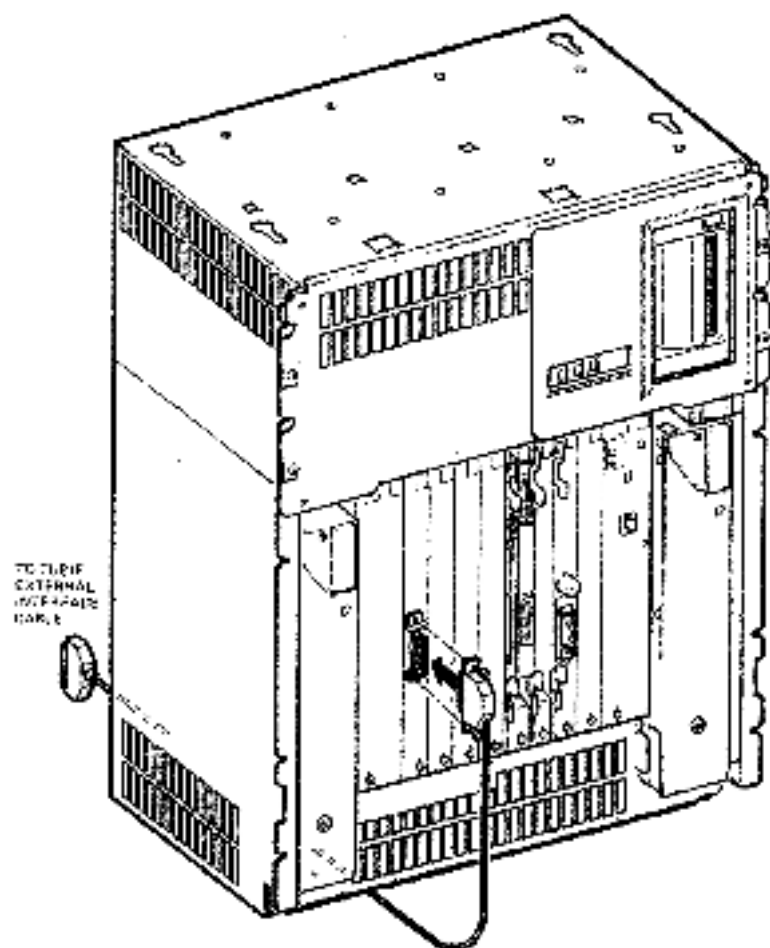


Figure 2-11 KLESIS Cable Connection

4. Connect the cable to the 50-pin external I/O cable on the TU81E tape transport (Figure 2-12). Tighten the single captive screws on the top and bottom of the 50-pin connector.
5. Plug the TU81E power cord into the wall outlet.

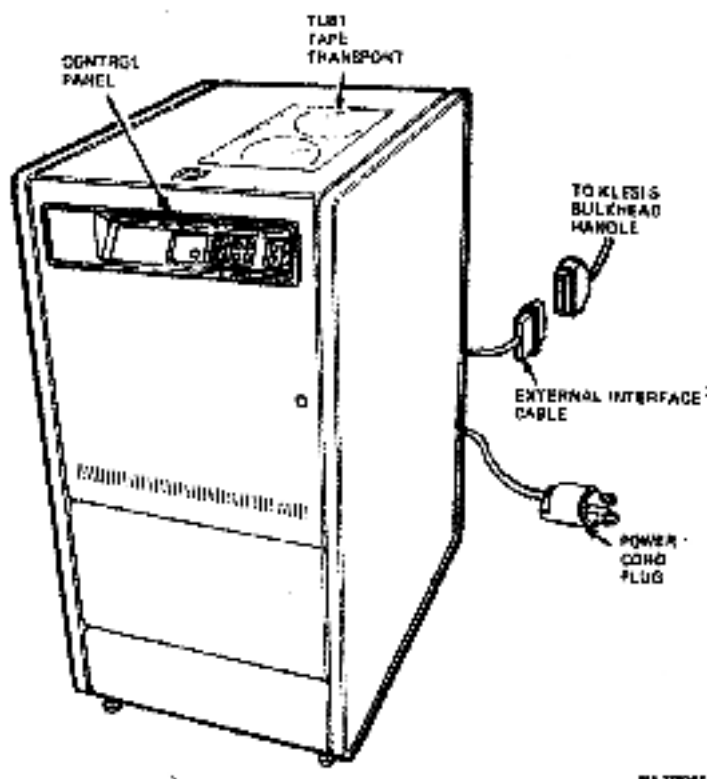


Figure 2-12 TU81E Cable Connection

Chapter 3

Testing the New Configuration

This chapter describes the tests and procedures you should use to complete the KLESIS installation.

3.1 Testing a MicroVAX System

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

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

Verify mode functional tests	user or field service
Verify mode exerciser tests	user or field service
Service mode functional tests	field service
Service mode exerciser tests	field service
Utility tests	field service

1. Plug the BA200 series enclosure power cord into the wall outlet and turn the power switch on (1).
2. Boot the MDM media.
3. Type 2 at the main menu, so the diagnostics can identify the new module and add it to the configuration file.

Look at the list of devices displayed to make sure the new module and tape drive are included. If they are not included, repeat the installation sequence and make sure you have set the module switches correctly.

4. Run the verify mode functional tests and exerciser tests.
5. Run the service mode exerciser tests. These tests require a loopback connector, provided with the maintenance kit. See the *MDM User's Guide* for information on how to run the tests.

These tests should complete without error. If an error occurs, see Chapter 6 of the *MicroVAX Systems Maintenance Guide* for troubleshooting procedures.

3.2 Testing a MicroPDP-11 System

Use XXDP+ to test a MicroPDP-11 system.

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

1. Plug the BA200 series enclosure power cord into the wall outlet and turn the  power switch on (1).
2. Boot the MicroPDP-11 customer diagnostic media.
3. Type 2 at the main menu, so the diagnostics can identify the new module and add it to the configuration file.

Look at the list of devices displayed to make sure the new module and tape drive are included. If they are not included, repeat the installation sequence and make sure you have set the module switches correctly.

The MicroPDP-11 Maintenance Kit (ZYABX-GZ, C5) lets you:

- run individual diagnostic programs under the XXDP+ diagnostic monitor.
- configure and run DEC/X11 system test programs.

DEC/X11 checks to see if the system is operating correctly. The exerciser is made up of different modules, one for each option present. If you remove or install options, you must reconfigure the exerciser. Do not run DEC/X11 until all individual device diagnostics have run without error.

The tests should complete without error. If an error occurs, see Chapter 4 of the *MicroPDP-11 Systems Maintenance Guide* for troubleshooting procedures and more instructions on how to run XXDP+.

3.3 Reconnecting External Devices

After you complete the tests successfully, reconnect external devices to the system as follows.

1. Remove the diagnostics tape cartridge from the BA200 series enclosure and turn the  power switch off (0). Unplug the ac power cord from the wall outlet.
2. Carefully reconnect any external devices you may have disconnected from modules. Make sure you reconnect the external cables to their correct modules.
3. Install any covers you removed to gain access to the modules.
4. Have the customer bring up the operating system software. The installation procedure is now complete.



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