KMV1A-S COMMUNICATIONS CONTROLLER FOR THE BA200-SERIES ENCLOSURE

Installation Guide

Order No. EK-KMV1A-IG-001

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Preface

This installation guide provides the information and procedures necessary to install and test the KMV1A-SF, the KMV1A-SG or the KMV1A-SH Programmable Communications Controller option kit in the BA200-series microsystem enclosure. It is only intended for use by DEC field service personnel or qualified self-maintenance customers.

It is the customer's responsibility to do a software backup prior to installing the KMV1A-S. This step is important to safeguard against data being lost during the installation process.

If you are not qualified to install a KMV1A-S series option kit, call Digital Field Service to schedule an installation.

If you are to perform the installation of a KMV1A-S series option kit, make sure you are wearing an anti-static wrist strap connected to a grounded anti-static workstation before you handle it. It is 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.

If you have any difficulty in performing the installation, call Digital Field Service for assistance.

Be sure to take anti-static precautions when unpacking and installing the module. Use the groundstrap and anti-static mat contained in the Anti-Static Kit, P/N 29-26246-00. The Anti-Static Kit is not included in the installation kit. It is part of the field service kit.

Diagnostics

The diagnostics for the KMV1A are released through the Software Distribution Center (SDC). The following options can be ordered separately by self-maintenance customers, according to the type of processor they have.

1. For the MicroPDP-11 family:

    *   ZJ-360-RZ diagnostic documentation kit

    *   ZJ-360-FR diagnostic fiche kit

    *   ZJ-360 diagnostic kit

2. For the MicroVAX family, the diagnostics are included in the MicroVAX MDM set of test programs.

Table 1: Associated Documents

Title	Order number
KMV1A Programmable Communication Controller User's Guide	EK-KMV1A -UG
MicroVAX System Maintenance Guide[1]	EK-O01AA-MG
MDM User's Guide	AA-FM7A-DN
MicroPDP-11 Systems Technical Manual	EK-MIC-11-TM-002

[1]This document is included in the MicroVAX System Kit.

Customers who have trouble with their equipment during the installation should call their local DEC field service engineers.

Chapter 1

INTRODUCTION

1.1 BA200-Series Enclosure

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

The backplane uses the Q22-bus in the AB rows of each slot. The CD interconnect is used in all 12 slots. MicroVAX systems use the CD rows of slots 1 through 3 for their high-speed memory interconnects.

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

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 enclosure connect directly to external I/O connectors. 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 those 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 the 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 frequencies generated by the system in the enclosure, and (2) keeping radio frequencies out of the enclosure.

See the MicroVAX System Maintenance Guide for further information on the BA200-series enclosure.

Figure 1-1: BA213 Enclosure Chassis, BA200-Series
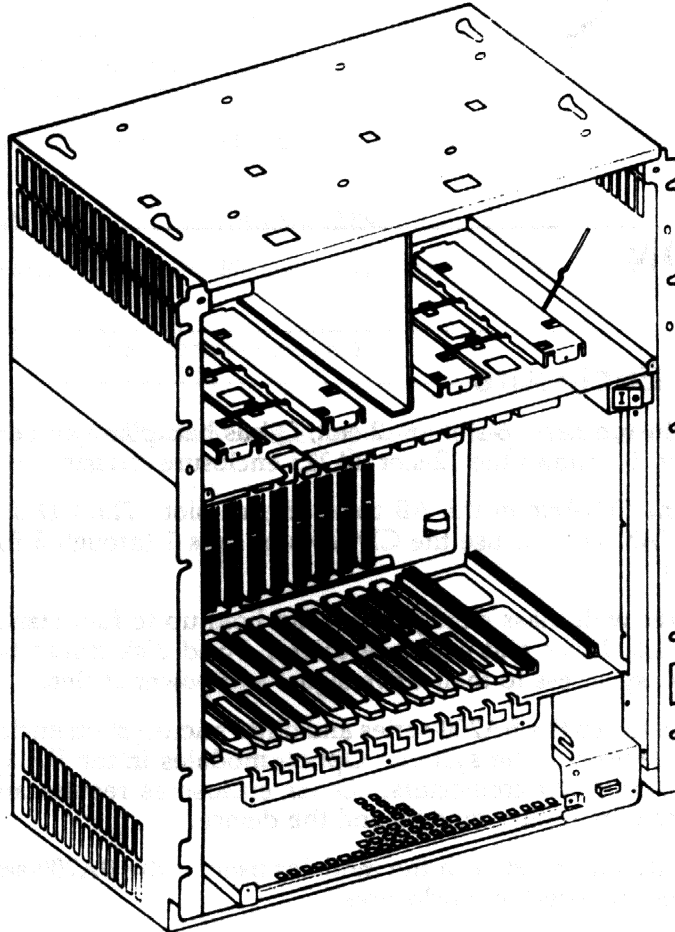
1.2 KMV1A Hardware

The KMV1A hardware consists of a quad-height board, an indicator panel, and a line connector cable. It is designed to be used in a communication link by Q-bus based systems. The KMV1A is microprocessor based and able to perform functions for bit-oriented synchronous protocols (like HDLC), byte-oriented synchronous protocols (like BSC), or asynchronous protocols. The application firmware defines the computer instructions that are needed to execute the protocol-related activities.

Features of the KMV1A include:

- Direct Memory Access (DMA) across the Q-bus for medium-speed transmission and reception.
- A DCT11 microprocessor with the PDP-11 base level instruction set.
- A 7201 PUSART (Programmable Universal Synchronous/Asynchronous Receiver/Transmitter) line controller chip.
- An EPROM of 8K bytes, with root firmware and power-up self-test diagnostics.
- RAM space of 32K bytes, for implementation of data-link protocols.
- Synchronous (bit-oriented or byte-oriented) as well as asynchronous capabilities for the application firmware.
- Extensive support of modem signals.
- An on-board null modem clock.

The KMV1A-SF option kit has the RS232-C electrical interface.

The KMV1A-SG option kit has the RS422-A electrical interface.

The KMV1A-SH option kit has the RS423-A electrical interface.

All the aforementioned option kits are designed for installation in the BA200-series enclosure.

See the KMV1A User's Guide for further information.

Chapter 2

INSTALLATION

2.1 General

This chapter provides step-by-step procedures for unpacking, inspecting, and installing the KMV1A-S series option kits in the BA200-series enclosure. It also discusses system and module configurations.

2.2 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 you have installed the module and have successfully completed the testing.

3. Put on your anti-static wrist strap.

4. Attach the wrist strap and anti-static mat to the BA200-series enclosure metal chassis. Use the anti-static mat when locating the module.

5. Use the following checklist to identify the contents of your KMV1A-S series option kit (Figure 2-1):

   You should have one of the following:

   - One M7500-PA module for the KMV1A-SF option kit
   - One M7500-PB module for the KMV1A-SG option kit
   - One M7500-PC module for the KMV1A-SH option kit

You should have all of the following:

- One filler kit consisting of two gap filler assemblies (70-24505-01).
- One Installation Guide (EK-KMV1A-IG-001).
- One KMV1A User's Guide (EK-KMV1A-UG). See **Caution**
- One H3066 loopback connector for the KMV1A-SF
- One H3067 loopback connector for the KMV1A-SG or KMV1A-SH

Caution

Not all the information contained in this guide is relevant for the KMV1A-S.

6. Remove the KMV1A module from the anti-static bag.

7. Inspect the module for shipping damage.

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

2.3 Inspecting the EOS and FCC Clips

Note

To comply with FCC regulations, the bulkhead handles, blank covers, and gap fillers are equipped with transient protection EOS and FCC clips; these clips are grounded through the module handle.

1. Ensure that there is no residue or corrosion on the FCC and EOS clips on the KMV1A handle (Figure 2-2). Also ensure that there is no residue or corrosion on the FCC clips on the two gap fillers (Figure 2-2). If so, remove it with alcohol.

2. Ensure that the FCC and EOS clips 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 FCC clip P/N 12-26340-01.

2.4 Software Backup and Operating System Shutdown

It is the customer's responsibility to perform a software backup and then to shut down the operating system software. Ensure that the customer has taken these steps before starting the installation procedures.
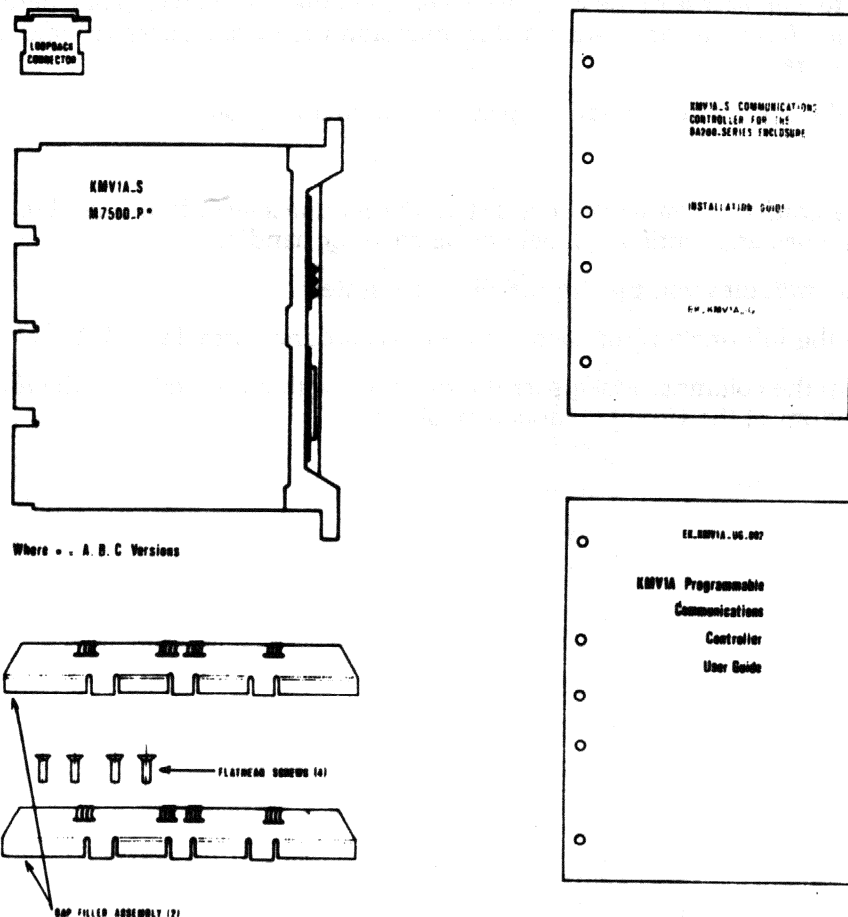
2.5 Testing the Existing System

1. Ensure the existing system is running properly.

Caution

Always remove the diskette/tape before turning the power off. Never work inside
a system enclosure without first shutting off the system power.

2. After the successful completion of the test, remove the floppy or tape and turn the I/O
power switch off. Unplug the ac power cord from the wall outlet.

2.6 Checking the System Configuration

You must complete the BA200-Series Enclosure Worksheet (Figure 2-3) to make sure you do 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's documentation for procedures to help you remove any existing covers.

To check the system configuration, perform the following steps:

1. On the configuration worksheet, list all the modules already installed in the system; each module has an identifying label on the cover or handle.

2. List the modules you plan to install in the system.

3. Fill in the information for each device in accordance with Table 2-1.

4. Add up the columns. Make sure the totals are within the limits for the enclosure, given at the bottom of the Configuration Worksheet.

Figure 2-2: Inspecting the EOS and FCC Clips
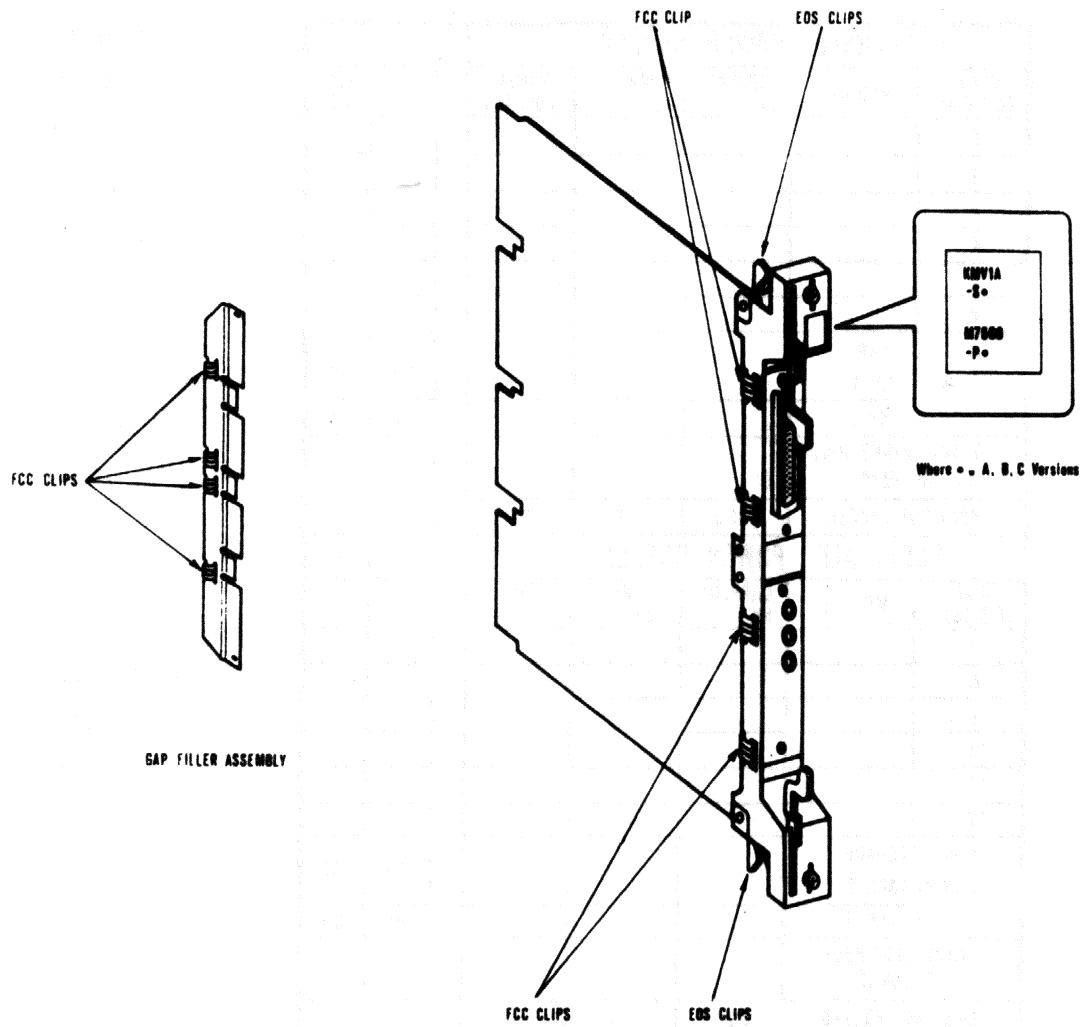
Figure 2-3: BA200-Series Enclosure Configuration Worksheet

RIGHT-HALF POWER SUPPLY						BUS LOADS	
SLOT (A B C D)	MODULE	CURRENT 5V	CURRENT 12V	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 P.S COLUMNS						–	–
MUST NOT EXCEED		33.0	7.0	230.0		–	–
LEFT-HALF POWER SUPPLY						–	–
SLOT (A B C D)	MODULE	CURRENT 5V	CURRENT 12V	POWER (WATTS)		–	–
7							
8							
9							
10							
11							
12							
MASS STORAGE >>> TAPE 2						0.0	0.0
>>> DISK 3						0.0	0.0
TOTAL LEFT HALF P.S COLUMNS						–	–
MUST NOT EXCEED		33.0	7.0	230.0		–	–
			TOTAL BUS LOADS >>>				
			MUST NOT EXCEED >>>			35.0	20.0

Table 2-1: Power and Bus Load Data

| Option	+5V	+12V	Watts	AC Bus Load	DC Bus Load
CXA16-M	1.6	0.29	11.5	3.0	1.0
CXB16-M	2.0	0.0	10.0	3.0	1.0
CXY08-M	1.8	0.43	14.2	3.0	1.0
DEQNA-SA	3.5	0.50	23.5	3.0	0.5
DPV11-SA	1.2	0.30	9.6	2.2	1.0
DRQ3B-SA	4.5	0.0	22.5	1.0	1.0
DRV1W-SA	1.8	0.0	9.0	2.0	1.0
DZQ11-SA	1.0	0.36	9.3	2.0	0.5
IBQ01-SA	5.0	0.30	28.6	1.4	1.0
IEQ11-SA	3.5	0.0	17.5	4.6	1.0
KA620-AA	6.2	0.14	32.7	2.0	1.0
KA630-AA	6.2	0.14	32.7	2.7	1.0
KDJ11-BF	5.5	0.20	29.9	2.6	1.0
KDJ11-SA/SB	3.47	0.19	19.6	3.0	1.0
KMV1A-SF/SG/SH	2.6	0.20	15.4	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
MS6300-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
M9060-YA	5.3	0.0	26.5	0.0	0.0
RD53-EA	0.9	2.5	34.5	0.0	0.0
RD54-EA	1.3	1.34	22.6	0.0	0.0
RQDX3-M	2.48	0.06	13.1	1.9	0.5
TK50E-EA	1.35	2.4	35.6	0.0	0.0
TQK50	2.9	0.0	14.5	2.8	0.5

[1] Value is for the unoccupied module only.

2.7 Guidelines for Module Placement

2.7.1 Bus Continuity

Bus grant signals pass through each installed module as shown in Figure 2.4. Use Bus Grant Continuity Cards (M9047) in vacant backplane slots to ensure bus continuity.

Figure 2-4: Bus Grant Continuity Path
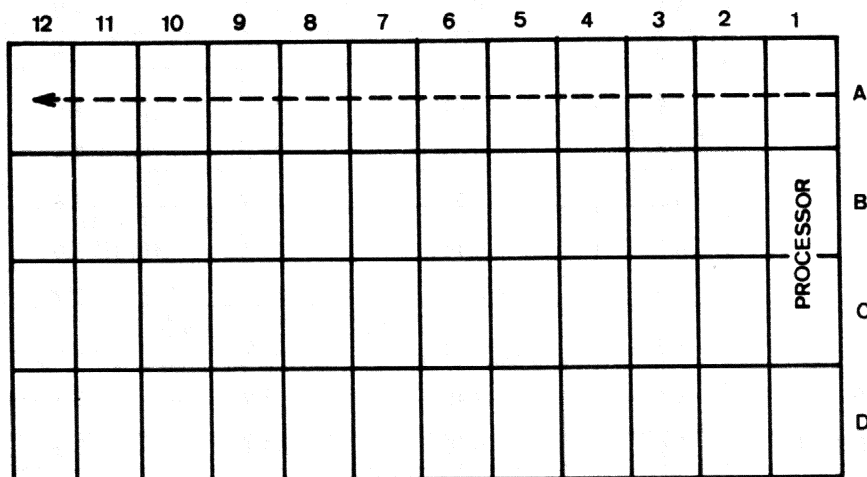
2.7.2 Power Supplies

The BA200-series enclosure contains one or two separate 230-Watt power supplies. For enclosures with two power supplies, the first (right-side) power supply powers slots 1 through 6 and the second (left-side) one slots 7 through 12.

Each power supply in the enclosure must have a minimum 5-Amp load on the 5-volt output to maintain regulation. If the minimum load requirement is not met, you must install a load module (M9060-YA) in an open backplane slot which is powered by that power supply. Otherwise, the power supply will enter an error mode and shut down the system.

Refer to section 2.8 (Relocating Existing Modules) for procedures to install or remove modules.

2.7.3 Module Order

Use the following recommended module order (from right to left in the BA200-series enclosure) to help you correctly install the KMV1A module.

- CPU Board
- Memory board
- MRV11
- DPV11
- DRV11-J
- LPV11
- DLVJ1
- DZQ11
- KMV1A
- DEQNA
- CXA16
- CXB16
- CXY16
- IEQ11 - No restrictions on position
- IBQ01 - No restrictions on position
- TQK50
- RQDX3
- DRQ3B
- DRV1W - Should be the last device on the Q-Bus.

2.7.4 Determining CSR Addresses and Interrupt Vectors

CSR addresses and interrupt vectors are fixed or floating. Fixed means there is a fixed location in memory reserved for the address or vector of a particular module. These modules are shipped with the correct address and vector settings for use as the first of their type. If they are not the first, then the settings of subsequent ones must be considered as floating; some modules only have floating addresses and vectors.

A floating address or vector is assigned a location within an octal range. The exact location depends on what other modules are in the system. The ranges are as follows:

- Floating CSR address: 17760010 - 17763776
- Floating interrupt vector: 300 - 777

If you have a MicroVAX system, use CONFIG, a program of the SYSGEN utility, to determine the CSR address and interrupt vector; see 2.7.5. If you don't have this utility, see 2.7.6 to determine the address and vector values; substitute the numbers for nnn in 17760(nnn). Once you know the values, see 2.7.7 to set them.

The address and vector settings are configured by switch packs E29 and E13 respectively; the locations of the packs are shown in Figure 2-5.

Note

To set switches of modules other than the KMV1A, refer to the user guides for the modules or the System Technical Manual.

2.7.5 Determining Addresses and Vectors using CONFIG

Run this procedure to find the addresses of your new configuration. See Table 2-2, Entries to use with the SYSGEN Utility.

STEP	ACTION	RESPONSE
1	Key in: MCR SYSGEN	SYSGEN>
2	Key in: CONFIGURE	DEVICE>
3	Key in: KMV11	DEVICE>
4	Hold down CTRL and press Z when you have keyed in all device identities	CSR: address Vector: value Support:
5	Key in: EXIT	System returns to the MicroVMS command prompt

Note

If there is more than one of the same device in the system, follow its identity by a comma and the number of devices.
An asterisk next to a displayed address indicates that you can use the address, but if you change the configuration you must run SYSGEN again to find out if the address has also changed.
If Support reads 'No', a software driver for the module concerned is not included in the VMS based system.

Table 2-2: Entries to use with the SYSGEN Utility

Device	Entry made at the Device Prompt
DPV11	DPV11
LPV11	LP11
DEQNA	UNA
KLESI, TQK50 or TQK70	TU81
RQDX3 or KDA50	UDA
KMV1A	KMV11
CX Series	DHV11

2.7.6 Determining CSR Addresses using a Table

The following table gives module addresses for four typical configurations; only use it if you don't have SYSGEN. See Note when determining vectors.

Table 2-3: Floating CSR Addresses

Device	Example configurations 1 to 4			
	1	2	3	4
DPV11	270*	270*	270*	270*
2nd MSCP	404*	404*	404*	404*
KMV1A	420	420	420	420
KMV1A			440	440
CX series		460	500	500
CX series				520

* The presence or absence of this device will not affect other addresses in the configuration.

MSCP is the abbreviation for Mass Storage Control Protocol. It is the collective name used for KLESI, TQK50 AND TQK70 devices.

Note

When setting vectors, begin at 300 for the first module and increment the address by 10 for each subsequent device in the following order: DPV11, 2nd MSCP, then the KMV1A followed by the CX series.

2.7.7 Examples of setting the CSR Address and Interrupt Vector

The following shows the factory setting and other common settings:

Table 2-4: Setting the CSR Address - E29

Address	Switch settings								
	9	8	7	6	5	4	3	2	1
17760420*	0	0	0	0	1	0	0	0	1
17760460	0	0	0	0	1	0	0	1	1
17760520	0	0	0	0	1	0	1	0	1

1 = ON, 0 = OFF/OPEN
* This is the factory setting.

Interrupt vectors are set in the same way:

Table 2-5: Setting the Vector Address - E13

Address	Switch settings						
	7	6	5	4	3	2	1
300*	0	0	1	1	0	0	0
310	0	0	1	1	0	0	1
320	0	0	1	1	0	1	0

1 = ON, 0 = OFF/OPEN
* This is the factory setting.

2.7.8 Interfaces

You should check switch pack E85 as follows. Its location is shown in Figure 2-5.

Table 2-6: Setting the Interfaces - Switch Pack E85

Interface type	Switch Settings									
	10	9	8	7	6	5	4	3	2	1
RS-232C	1	1	1	1	1	1	0	0	0	0
RS-422A	1	1	0	0	0	0	1	1	1	1
RS-423A	1	1	1	1	1	1	0	0	0	0

1 = ON, 0 = OFF/OPEN

Note

All the above are factory settings.

Corresponding Modules
RS-232C — M7500-PA
RS-422A — M7500-PB
RS-423A — M7500-PC

2.7.9 Test Switches

You should check the test switches as follows. Their locations are shown in Figure 2.5.

Table 2-7: Setting the Self-test Switches - Switch Packs 13 and 29

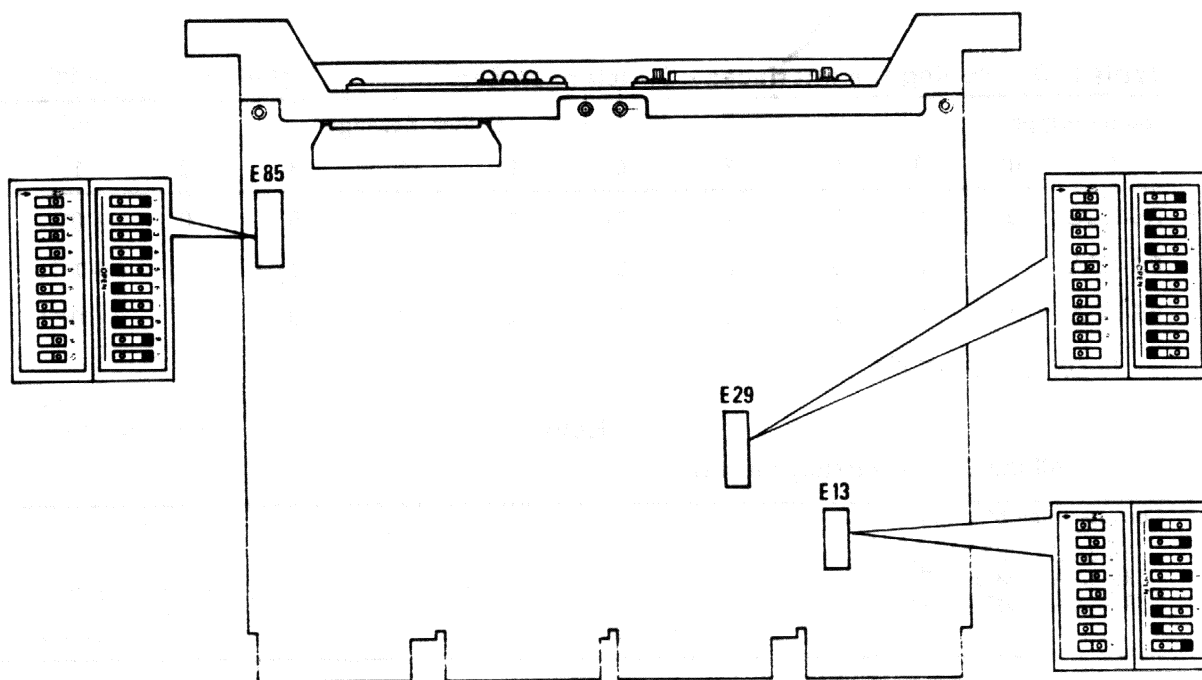| Switch Pack	Switch	Switch Setting
13	8	1
29	10	0

1 = ON, 0 = OFF/OPEN

Note

All the above are factory settings.
The settings ensure that a self test is activated at power up.

Figure 2-5: Switch Pack Locations

2.8 Relocating existing Modules

Caution

Only qualified service personnel should remove or install modules.

If the slot into which you plan to install the KMV1A is empty, go to section 2.9. If it already contains a module use the following procedures to relocate the KMV1A in the backplane.

2.8.1 Removing Modules with Blank Covers

Caution

Make sure you are wearing a grounded anti-static wrist strap when you remove or install modules.

1. Release the two ¼-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.

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

4. Unlock the module release levers by simultaneously pulling up on the top lever and pulling down on the bottom lever. For modules 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 section 2.7.4 for help in determining the correct setting. Change switch settings if necessary. If no change is necessary, be careful not to disturb any switch packs on the module.

7. Reverse this procedure to install the module in its new location. Do not fasten the ¼-turn screws until you have installed the KMV1A module.

2.8.2 Removing Modules with Handles

Caution

Make sure you are wearing a grounded anti-static wrist strap when you remove or install modules.

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

2. Release the two ¼-turn captive screws that hold the handle of the module to the card cage (Figure 2-6).

3. Simultaneously unlock the release levers by pulling up on the top lever and pulling down on the bottom one (Figure 2-7).

4. Pull on the handle of the module to remove it from the slot.

5. Confirm the module's CSR address and interrupt vector; see section 2.7.4 for help in determining the correct setting. Change switch settings if necessary. If no change is necessary, be careful not to disturb any switch packs on the module.

6. Reverse this procedure to install the module in its new location. Do not fasten the ¼-turn screws until you have installed the KMV1A module.
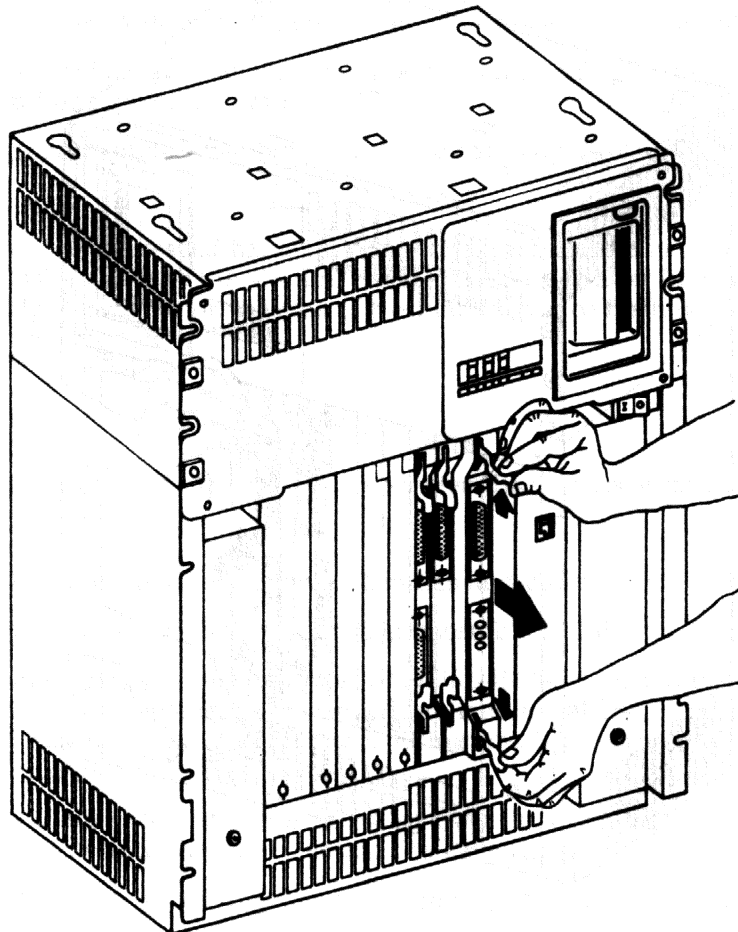
Figure 2-6: Releasing the Captive Screws

Figure 2-6: Releasing the Captive Screws
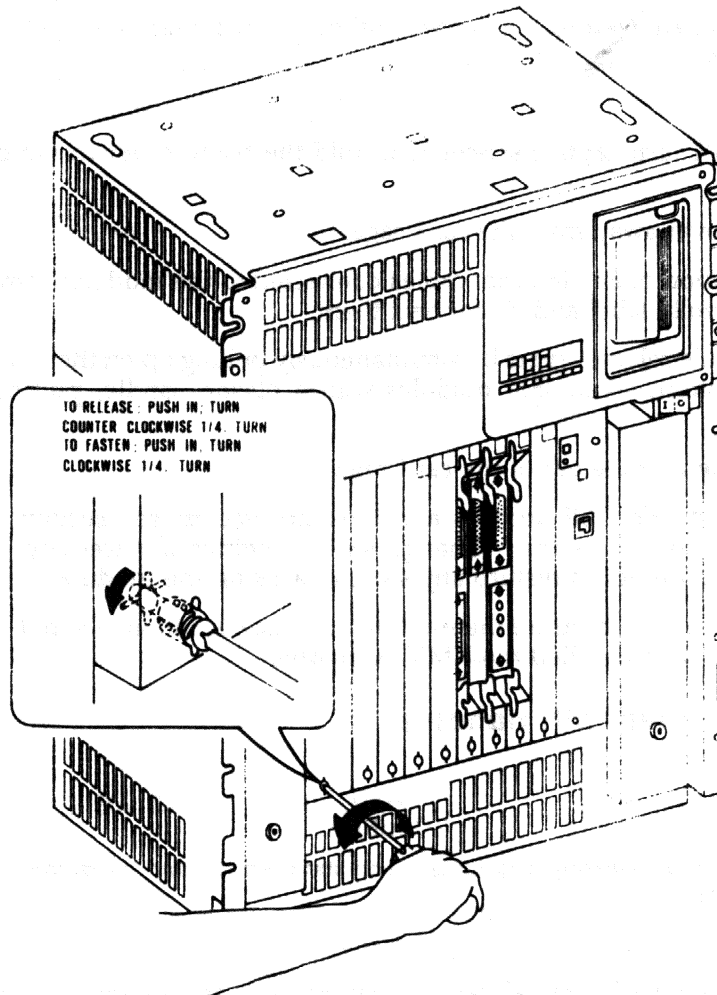
2.9 Installing the KMV1A

Caution

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

1. Insert the KMV1A module into the appropriate card slot using the recommended module order listed in section 2.7.3.

Figure 2-7: Unlocking the Release Levers

2. Holding both the top and bottom release levers, lock the module in place by simultaneously pushing the top lever down and pulling the bottom one up (Figure 2.8).

3. Do not fasten the ¼-turn captive screws. Verify the ground connections first (section 2.10).

Figure 2-8: Inserting the Module
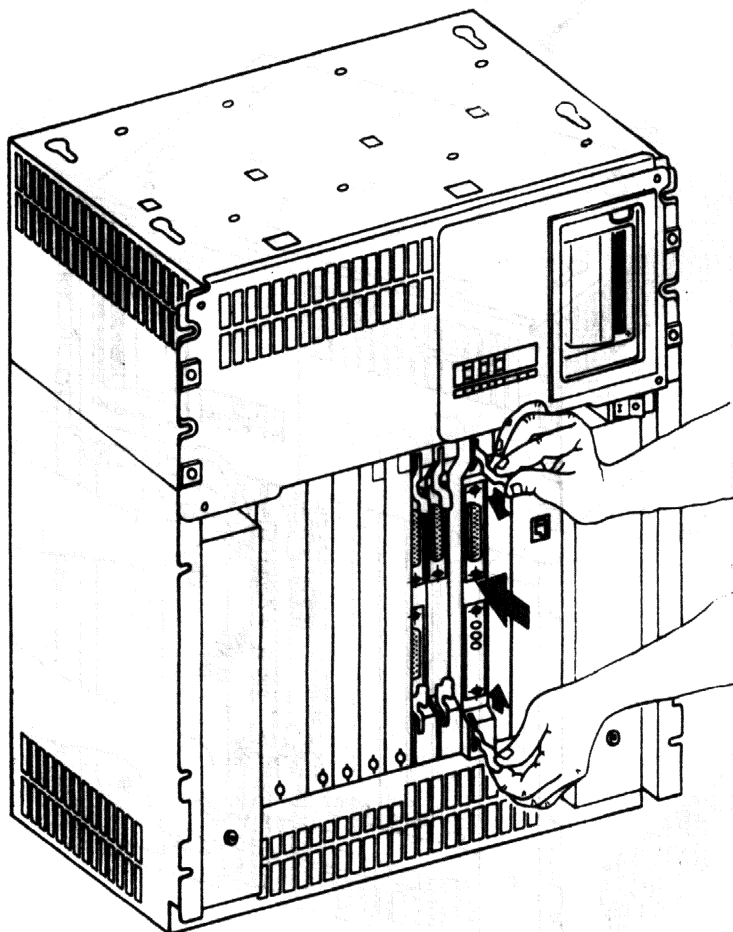
2.10 Verifying the Ground Connections

Caution

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 FCC regulations. Without it, circuitry on the recessed-handle module will be exposed.

Two gap filler assemblies (P/N 70-24071-01) are provided with the option kit. Each assembly includes one gap filler and two screws.

Verify that the ground connections (Figure 2-9) are correctly in place as follows:

1. Check to see if any recessed-handle module in the backplane has a module with a blank cover or a flush handle in the slot immediately before or after it. If so, verify that a gap filler assembly is installed on the side of the blank cover or flush handle that is next to the recessed-handle module

Note

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

2. Fasten the ¼-turn captive screws on all handles and covers in the backplane.
3. If an open space exists, install the gap filler assembly as follows:
   a. Using two screws and one gap filler (P/N 70-24505-01), attach the gap filler to the top and bottom of the side blank cover or flush handle that fits next to the recessed-handle module. Make sure the gap-filler tabs fit into the tab indentations on the blank cover flush handle (Figure 2-9).
   b. Place the blank cover with the gap filler over the card cage slot, or insert the flush handle module with the gap filler into the card slot.
   c. Ensure that there is correct ground (no open spaces) between the two modules.
   d. Fasten the ¼-turn captive screws on all handles and covers in the backplane.

2.11 Connecting to External Devices

See Figure 2-10 for connecting to external devices and observe the following:

- Use a BCC 04 cable for the KMV1A-SF.
- Use a BC 18Y cable for the KMV1A-SG/SH.

These cables are not supplied with the KMV1A. They can, however, be ordered from DECdirect.

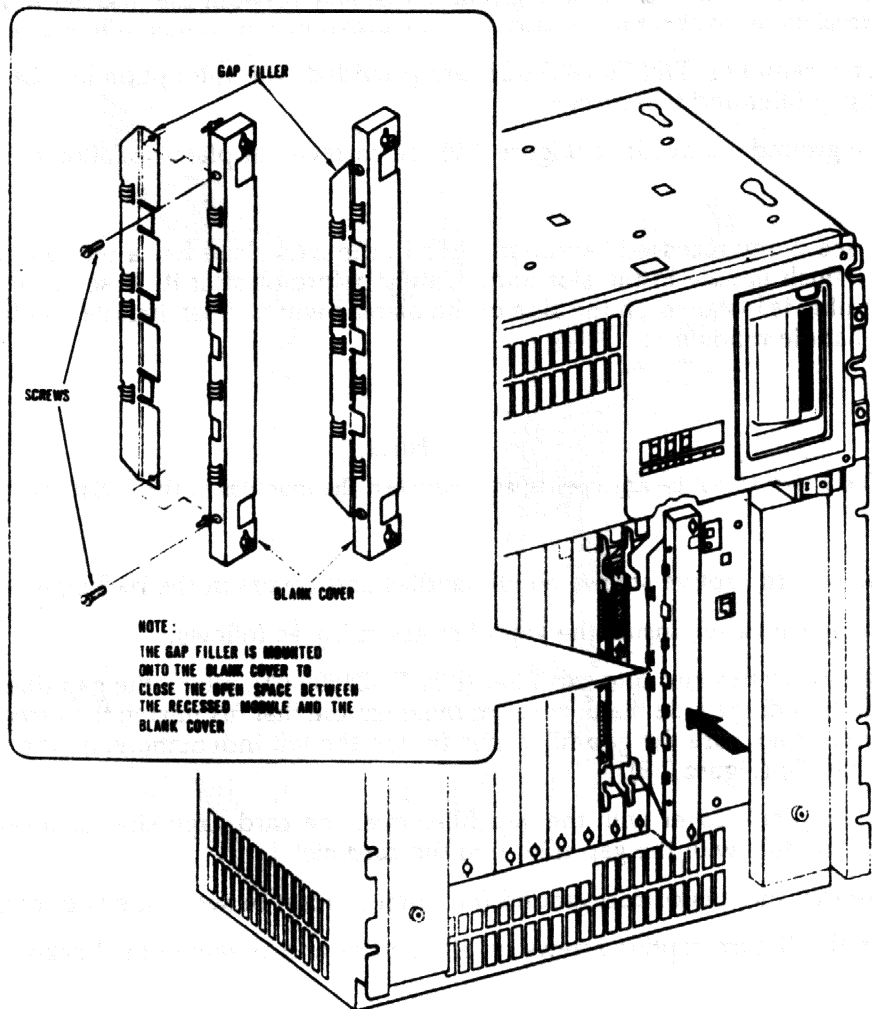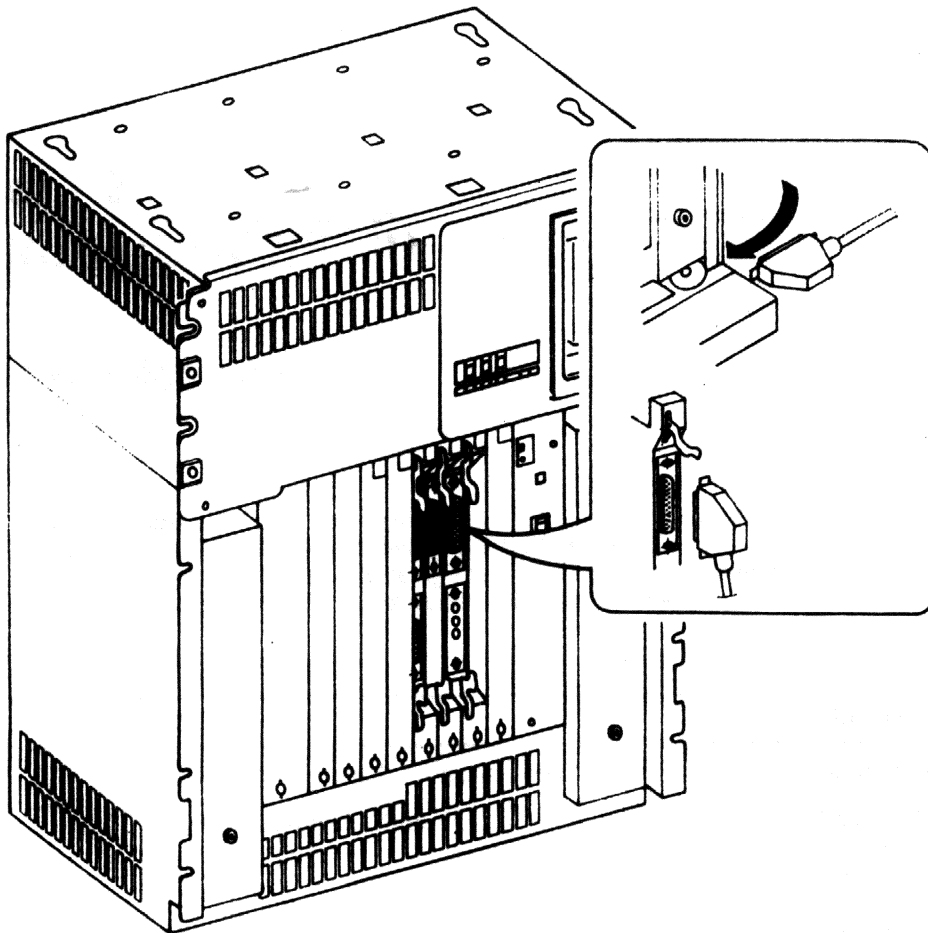**Figure 2-9: Attaching the Gap Filler Assembly**

Figure 2-10: Connecting to External Devices

Chapter 3
TESTING THE CONFIGURATION

3.1 MicroVAX Systems

Note

Loopback connectors are not required for testing communication devices at this level.
All data input must be terminated by the **RETURN** key.
The procedure uses a tape, this being the device most commonly used.
If you have problems with the procedures, key in *HELP* at any time for advice.

STEP	ACTION	RESPONSE
1	Switch on I/O switch on front panel	Lamp in switch lights
2	Check the green LED on the KMV1A	It should light after about 10 seconds. The following should be displayed. Read through it and take the actions given in bold characters.

KA630-A.V1.3

Performing normal system tests.

   7..6..5..4..3..

Tests completed.

Load the uVAXII Diagnostic Customer TK50 Tape. The following appears:

> > >
Key in: **b mu0**

The following appears. Carry out actions as requested.

   2..1..0.. %VAXELN system initializing

VAXELN V2.4-00

MicroVAX Diagnostic Monitor - Version 2.02

The current date and time is: 2-OCT-1987 08:42:07.07

Press the **RETURN** key to continue, or enter the new date and time; then press the **RETURN** key.

[DD-MMM-YYYY HH:MM]:

The current date and time is: 2-OCT-1987 08:42:10.55

The system is preparing for testing.

This may take several minutes.
Please wait ...

The system is ready for testing.

Press the **RETURN** key to continue.

MAIN MENU

1 - Test the system
2 - Display System Configuration and Devices
3 - Display the System Utilities Menu
4 - Display the Service Menu
5 - Exit MicroVAX Diagnostic Monitor

Type the number; then press the **RETURN** key. 2

MAIN MENU
SYSTEM CONFIGURATION AND DEVICES

CPUA ... MicroVAX/RTVAX CPU
KA630-AA 1MB, FPU MC = 00 HW = 00
MEMA ... MicroVAX/rtVAX memory system
5 megabytes. 10240 Pages.

KA630 ... CPU module, 1MB on-board memory
                    MS630-BB ... Quad height memory module, 4MB
        RQDXA ... Winchester/diskette controller.
               Revisions = 2 and 1
                         RD53 ... Nonremovable
        KMV1AA ... Programmmable communications interface for Q-bus
               PROM Revision - 2
        TK50A ... TK50 CONTROLLER
               REV FW = 4

Press the **RETURN** key to return to the previous menu.

MAIN MENU

    1 - Test the system
    2 - Display System Configuration and Devices
    3 - Display the System Utilities Menu
    4 - Display the Service Menu
    5 - Exit MicroVAX Diagnostic Monitor

Type the number; then press the **RETURN** key. 1

MAIN MENU SYSTEM TEST

    This is a test of the MicroVAX computer and its devices.
    No additional preparation for this testing is required; the MicroVAX is ready to be tested.
    Testing occurs in two parts: the functional tests quickly test each device sequentially; the
    exerciser test (lasting about 4 minutes) tests how many devices work together.
    To halt the test at any time and return to the Main Menu, type **CTRL-C** by holding down
    the CTRL key and pressing the C key.

BEGIN DEVICE TESTS

    This is a test of all system devices identified by the system. If any of your system devices
    are not listed below, consult your system documentation for the action to take.

    Device   Result
    CPU ....   passed
    MEMA ....   passed
    RQDXA ....   passed
    KMV1A ....   passed
    TK50A ....   passed

BEGIN EXERCISER TEST

    Results are reported at the end of the testing.

SYSTEM TEST PASSED

All devices passed functional tests and the system passed the exerciser test.
At this point you may exit from the MicroVAX Diagnostic Monitor or perform more specialised testing. If you would like additional information, consult the system documentation.

Press the **RETURN** key to return to the previous menu.

MAIN MENU

1 - Test the system
2 - Display System Configuration and Devices
3 - Display the System Utilities Menu
4 - Display the Service Menu
5 - Exit MicroVAX Diagnostic Monitor

Type the number; then press the **RETURN** key. 5

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Exiting MicroVAX Diagnostic Monitor.

Exit complete. You may now load your system software.

Note

If the KMV1A is not specified in the system configuration display or if it fails the device test, check its switch pack settings. If they are alright call DEC field service.

3.2 MicroPDP-11 Systems

Note

A loopback connector is not required for testing the KMV1A at this level.
All data input must be terminated by the **RETURN** key.

STEP	ACTION	RESPONSE
1	Insert the diagnostic kit.	
2	Switch on I/O switch on front panel.	Lamp in switch lights. 'BOOTING FROM Mn' displayed.
3	Check the green LED on the KMV1A.	It should light after about 10 seconds.
4	Key in: R VKMA??	'DR >' is displayed.
5	Key in: START	'CHANGE HW (L) ?' is displayed.
6	Key in: Y	'UNITS (D)' is displayed.
7	Key in: Number of KMV1A's installed	Addresses requested.
8	Key in: Last six figures of KMV1A address. Replace the '7' by a '1'	Vector requested.
9	Key in: KMV1A vector	Priority level requested.
10	Press **RETURN**	'RUNNING ON UNIT' is displayed.

Test runs continuously until you press CTRL C. Do this when 'EOP (End of Pass) 5' is displayed.

Fit the loopback connector to the KMV1A. Repeat the test, this time keying in R VKMB?? in STEP 4 instead of R VKMA??

Note

If the KMV1A fails the device test, check its switch pack settings. If they are alright call DEC field service.