
VAXcluster

# VAXcluster Console System

# Installation Guide

Part Number: EK-VXCNF-IN-006

**April 1992**

This guide describes how to install the VAXcluster Console System (VCS) software, how to physically connect the VCS host to the nodes it manages, and how to run the VCS demo.

| | |
|---|---|
| **Revision/Update Information:** | This manual is a revision of the *VAXcluster Console System Installation Guide*, Part Number EK-VXCNE-IN-005. |
| **Operating System and Version:** | VMS Version 5.4 |
| **Software Version:** | VCS Version 1.4 |

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# Contents

## 2 Software Installation

## 3 Using the VCS Demo and Console Emulator



## Index

## Examples



## Figures

## Tables

# Preface

The VAXcluster Console System (VCS) allows multiple system management from one location. The VCS software runs on most VMS V5.4 systems. See the VCS Software Product Description (SPD) for a specific description of host systems. Specific installation procedures for the host processors can be found in their respective installation documentation.

## Intended Audience

This guide is intended for Digital Customer Service.

## Structure of This Document

Chapter 1 provides installation procedures for the fiberoptic and DECconnect hardware components between the VCS host and serviced systems.

Chapter 2 provides the VCS software installation procedures for the host system and a work sheet for recording information about the serviced configuration.

Chapter 3 describes how to install and use the VCS turn-key demo and console emulator.

# Conventions

The *VAXcluster Console System Installation Guide* uses the following conventions:

| Convention | Meaning |
|---|---|
| *Italic* | Words or phrases appearing in italics indicate one of the following:<br>• Referencing of an associated document<br>• Emphasis on an important word or concept<br>• A variable<br>Italic text is also used to indicate titles of manuals. |
| **Bold** | Blue-green ink indicates information that you must enter from the keyboard or a screen object that you must choose. For online versions, user input is shown in **bold**. |
| UPPERCASE TEXT | Text in uppercase should be typed exactly as shown. |
| lowercase text | Text in lowercase is an item supplied by you, such as a file name or a node name. |
| [ ] | In format descriptions, brackets ( [ ] ) enclose an optional item. |
| { } | In format descriptions, braces ( { } ) indicate that you must choose one item from the enclosed list. |
| , . . . | A comma followed by a horizontal ellipsis indicates that you can supply more than one item separated by commas. |
| Return | In procedures, a key name is shown enclosed to indicate that you press a key on the keyboard. |
| Ctrl/x | In procedures, a sequence such as Ctrl/x indicates that you must hold down the key labeled Ctrl while you press another key or a pointing device button. |

## Associated Documents

The following documents are referred to in this manual:

*DECserver 200 Hardware Installation/Owner's Guide*
*DECconnect System Planning and Configuration Guide*
*DELNI Ethernet Local Network Interconnect Technical Manual*
*H4000 Ethernet Installation Guide*
*Guide to Terminal Server Manager*
*Guide to Setting Up a VMS System*
*VAX 8800/8700/8550/8500 Console User's Guide*
*VAX 8840/8830 Console User's Guide*
*VAXcluster Console System User's Guide*
*VAXcluster Console System Platform Manager's Guide*
*VMS System Manager's Manual*

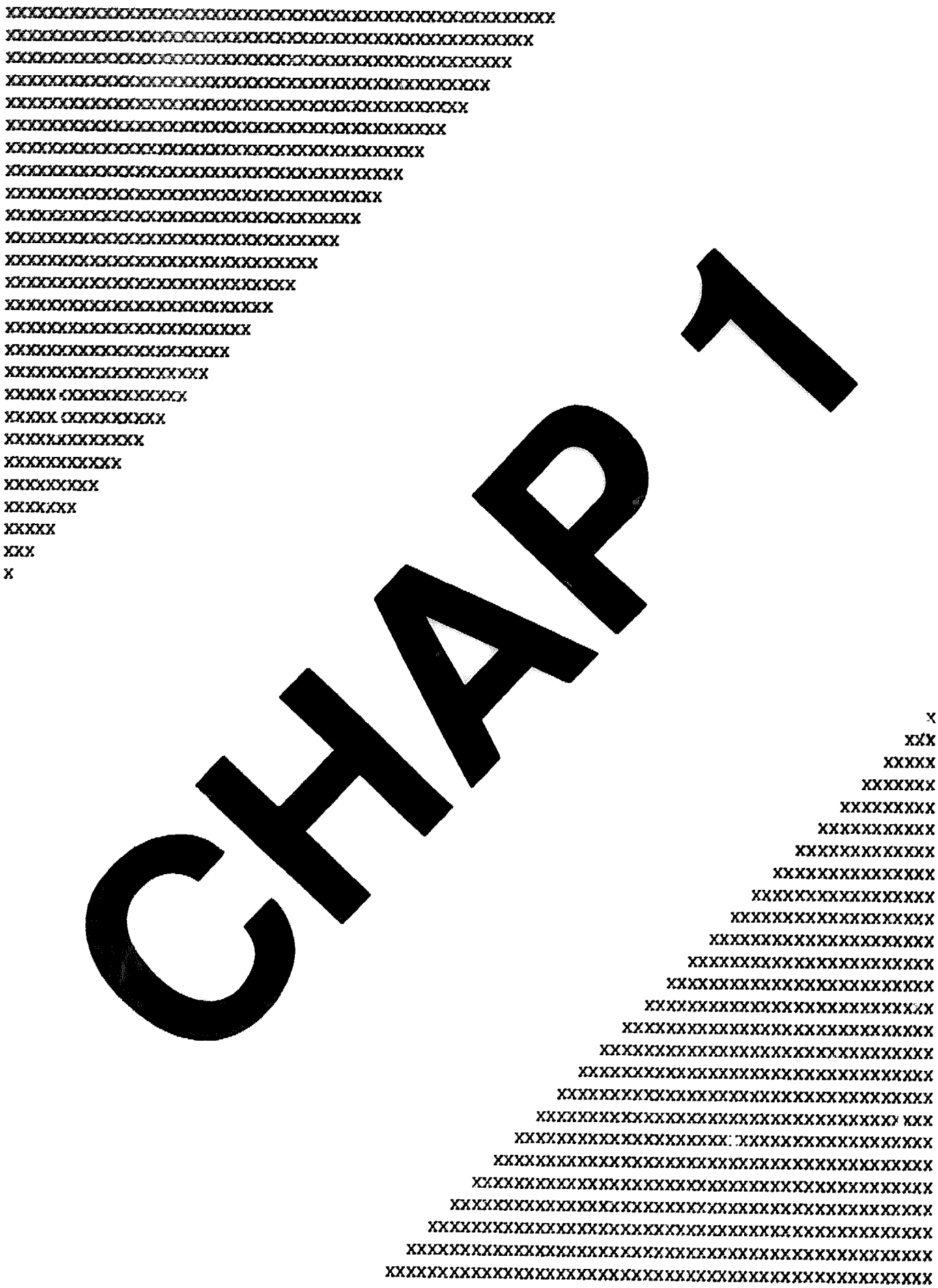
The following manuals contain additional information that pertains to using VCS:

*Guide to VMS System Security*
*Introduction to VMS System Management*
*Introduction to VMS System Routines*
*VMS DCL Concepts Manual*
*VMS License Management Utility Manual*

## Revision History

The following list describes the differences between the *VAXcluster Console System Installation Guide* Version 1.3 and Version 1.4.

- Chapter 1, Hardware Installation, has been reorganized.
- Chapter 2, Software Installation, has been updated with the Version 1.4 installation procedure. Some SYSGEN parameters have been added.
- Chapter 3, Using the VCS Demo and Console Emulator, is new.


СНАР 1

# 1

# Hardware Installation

This chapter describes how to prepare and install fiberoptic and DECconnect interconnection kits between the VAXcluster Console System (VCS) host and serviced systems.

Section 1.1 describes the direct and LAT connection methods that can be used in the VCS hardware installation procedures. Also described are precautionary guidelines to follow when the installation is performed on a VAX 8830/8840 system or a system that contains HSC devices.

Section 1.2 describes how to install DECconnect components on a serviced system.

Section 1.3 describes how to install fiberoptic components on a serviced system.

## 1.1 VCS Hardware Connection Methods and Precautions

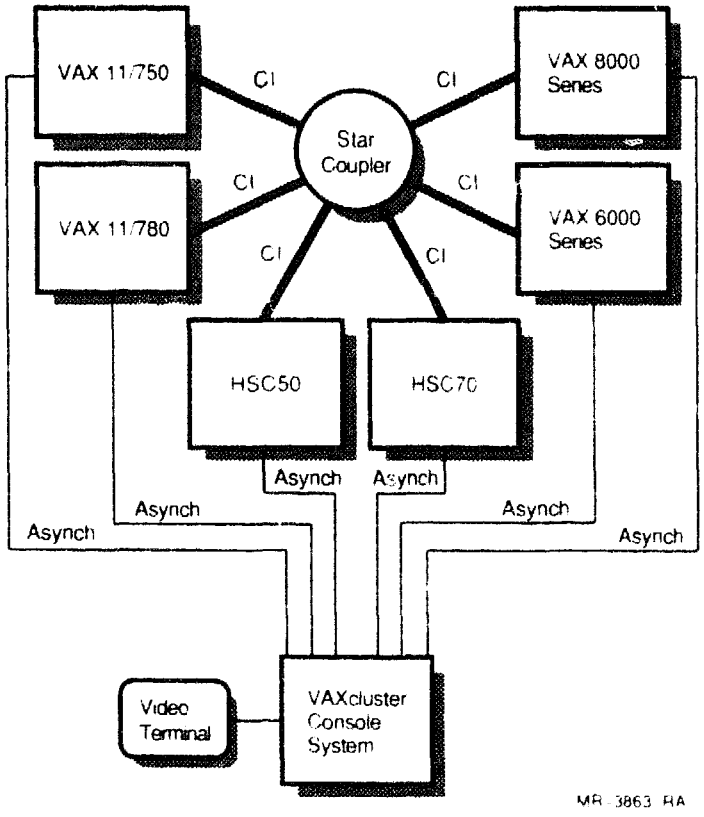
The VCS hardware can be connected by the following:

- The direct connection method described in Section 1.1.1
- The host-initiated LAT connection method described in Section 1.1.2

### 1.1.1 VCS Hardware Direct Connection

A VCS hardware direct connection consists of a host MicroVAX or VAXstation processor, up to 32 nodes serviced by the VCS software, and a fiberoptic (FOC) or DECconnect connection between the VCS host system and each serviced node. An example of a direct connection is shown in Figure 1–1.

**Figure 1–1 VCS Direct Connection Method**



## 1.1.2 VCS Hardware Host-Initiated LAT Connection

A VCS hardware host-initiated LAT connection consists of a VCS host system connected to an Ethernet network and serviced nodes that are connected by asynchronous fiberoptic or DECconnect hardware to a DECserver 200 terminal server.

An example of a VCS host-initiated LAT connection is shown in Figure 1–2. The VCS host is connected to an Ethernet network by a DELNI communications device. Figure 1–2 also shows four direct connections.

**Figure 1–2 VCS LAT Connection with DELNI**

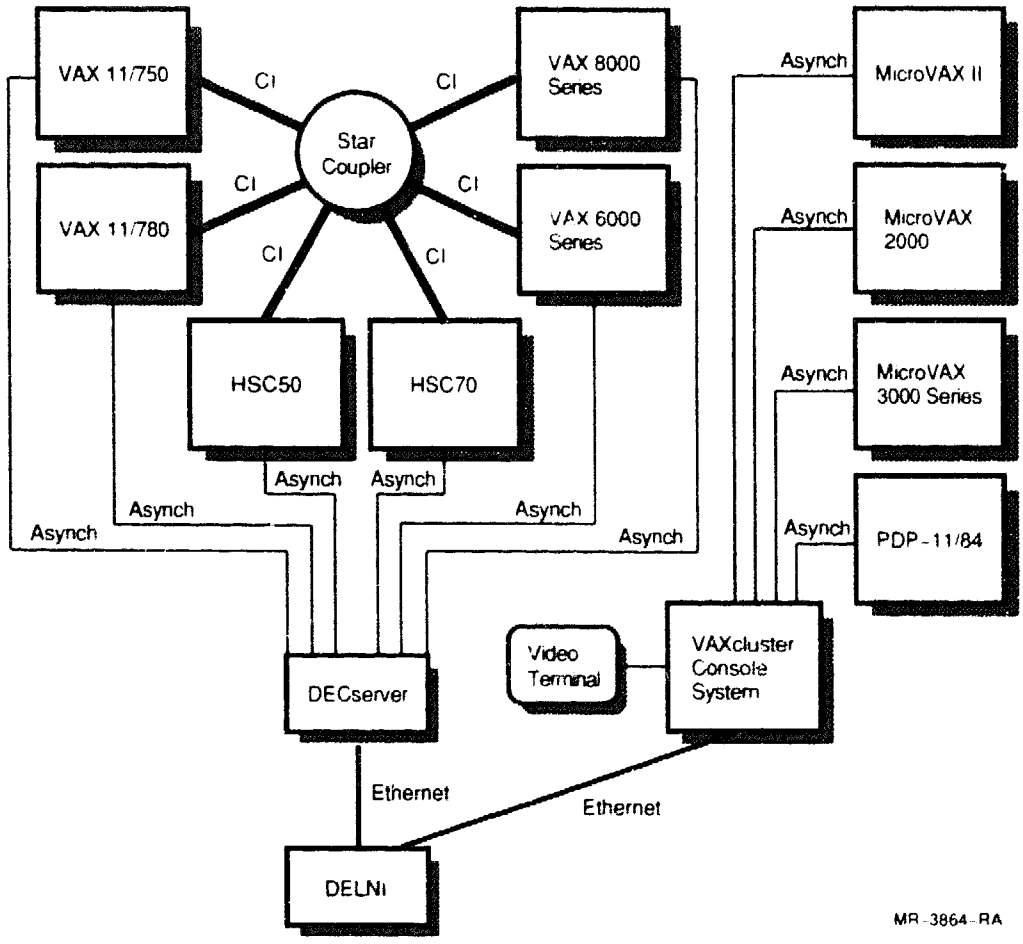
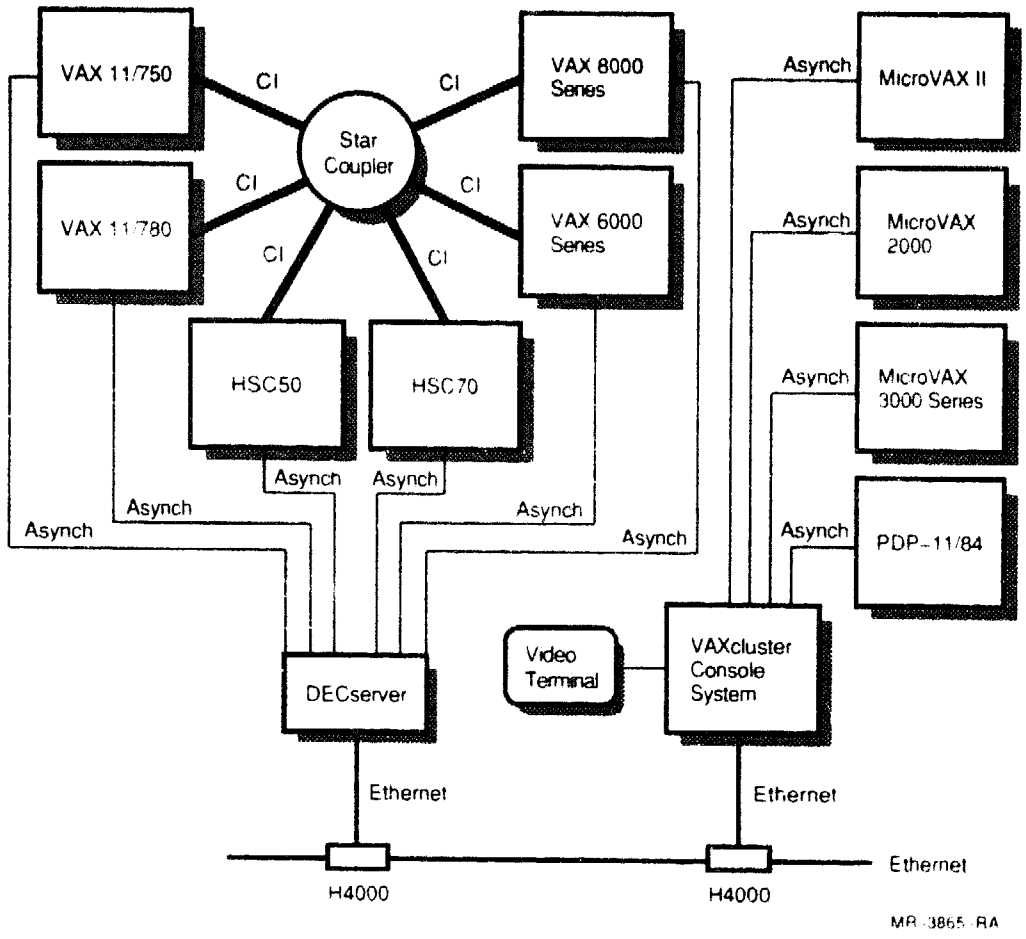


Figure 1–3 shows another example of a VCS LAT connection. The VCS host is connected to an H4000 Ethernet transceiver. Figure 1–3 also shows four direct connections.

**Figure 1–3 LAT Connection with H4000**



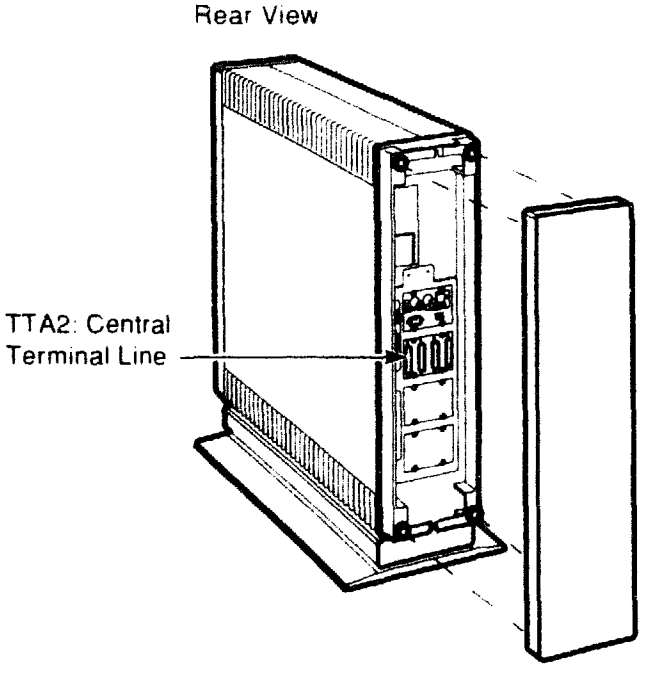
## 1.1.3 VCS Hardware Installation Precautions

Read Section 1.1.3.1 if the serviced system is a VAX 8830/8840 system. Read Section 1.1.3.2 if the serviced system contains HSC devices.

### 1.1.3.1 VAX 8830/8840 Precautions

Connect the VCS host to a VAX 8830/8840 system by the **central terminal line** of a VAXconsole MicroVAX II. The central terminal line is the 25-pin TTA2: port located on the back of the VAXconsole pedestal system box. See Figure 1–4. For more information about the VAXconsole central terminal line, refer to the *VAX 8840/8830 Console User's Guide*.

**Figure 1–4 VAXconsole Central Terminal Line**




**WARNING**

**It is unsafe to connect VCS directly to the 9-pin OPA0: local console port of the VAXconsole MicroVAX II.** Do not use the DECconnect components in the VCS fiberoptic kit for this purpose.

**Connect the VCS host system to the VAXconsole 25-pin TTA2: port instead.**

The following VAXconsole command may only be entered at the OPA0: local console port.

*PS-HW-0*> POWER { INITIALIZE | OFF | ON | STANDBY | STATUS }

If VCS is connected to the OPA0: local console port, the **POWER** command could accidentally be entered through a remote VCS user interface while an engineer is working on the VAX 8830/8840 system.

### 1.1.3.2 HSC Precautions

Powering off the VCS host system or the DECserver causes line disruption similar to the line disruption caused by powering off a console terminal. These disruptions are random electrical signals resembling break signals generated on terminal lines.

The inside panel of an HSC cabinet contains a switch with two positions, SECURE and ENABLE. Set this switch to the SECURE position, if it is currently set to the ENABLE position.

**CAUTION**

Powering off the VCS host system before ensuring that the SECURE /ENABLE switch on each HSC cabinet has been set correctly causes HSCs with incorrect switch settings to cease normal processing.

## 1.2 VCS DECconnect Components

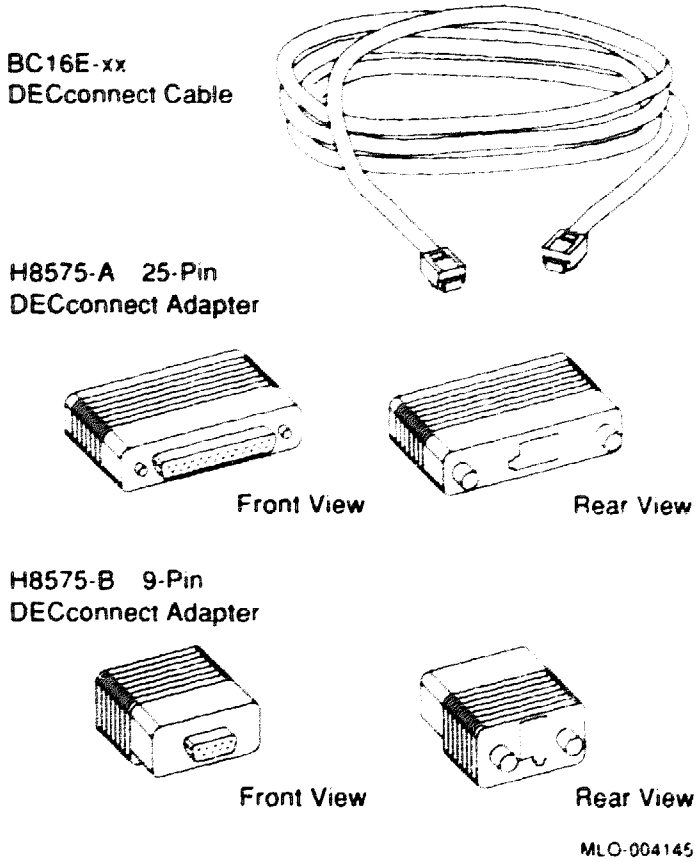
The VCS DECconnect hardware consists of DECconnect cables and DECconnect adapters. Each cable end is connected to an adapter.

The following DECconnect components are used for VCS:

- BC16E-xx DECconnect cable (xx denotes cable length)
- H8575-A 25-pin DECconnect adapter
- H8575-B 9-pin DECconnect adapter

Figure 1–5 shows the DECconnect hardware cable and adapters.

**Figure 1–5 DECconnect Cable and Adapters**



## 1.2.1 Preparing the Host System

Unpack and install the MicroVAX or VAXstation to be used as the VCS host system, following the accompanying installation and configuration documentation. Include all add-on options such as the DHQ11, DZQ11, or CXY08 serial line interface devices.

BA23, BA123, and BA213 types of system enclosures are suitable for a VCS direct connection method of installation. Figure 1–6 shows the BA23 type of system enclosure and where to gain access to the device connectors, to which the DECconnect adapters are installed.

**Figure 1–6 BA23 Device Connectors**

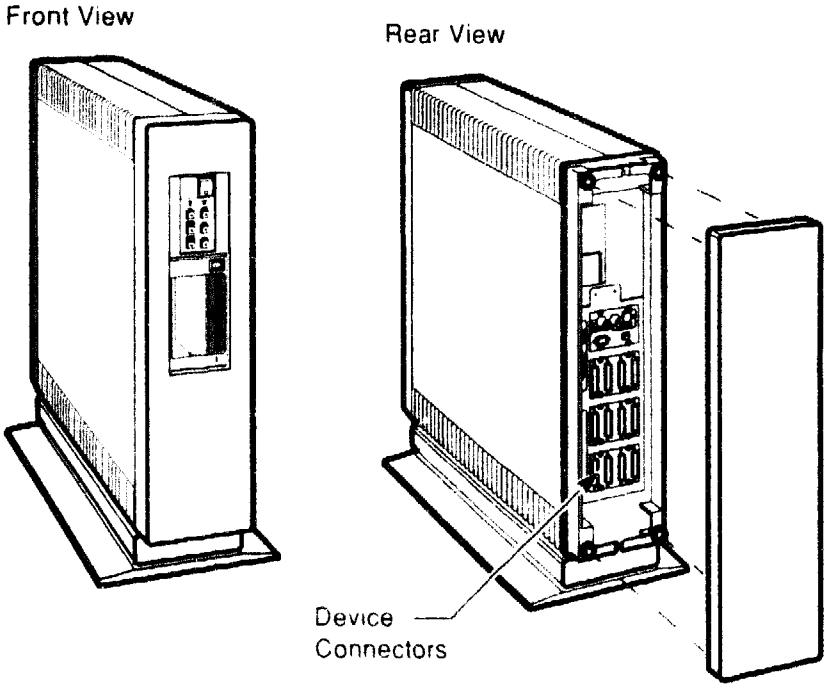


Figure 1–7 shows the BA123 type of system enclosure and device connector locations.

**Figure 1–7 BA123 Device Connectors**

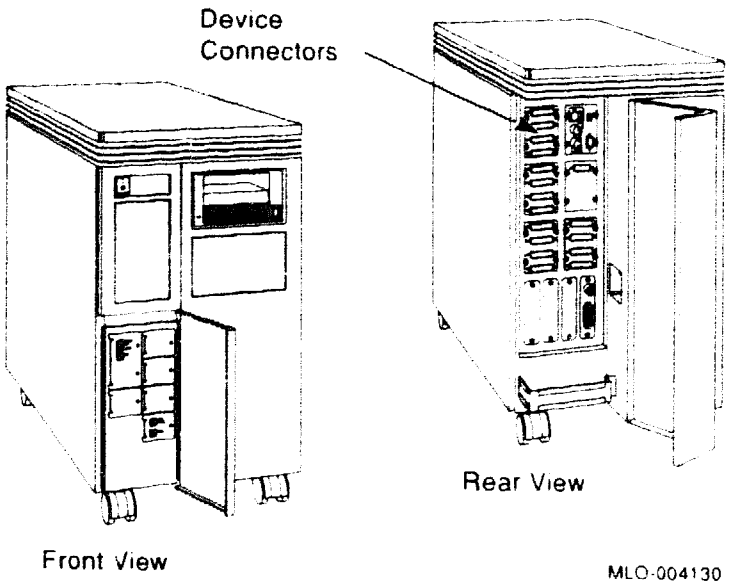
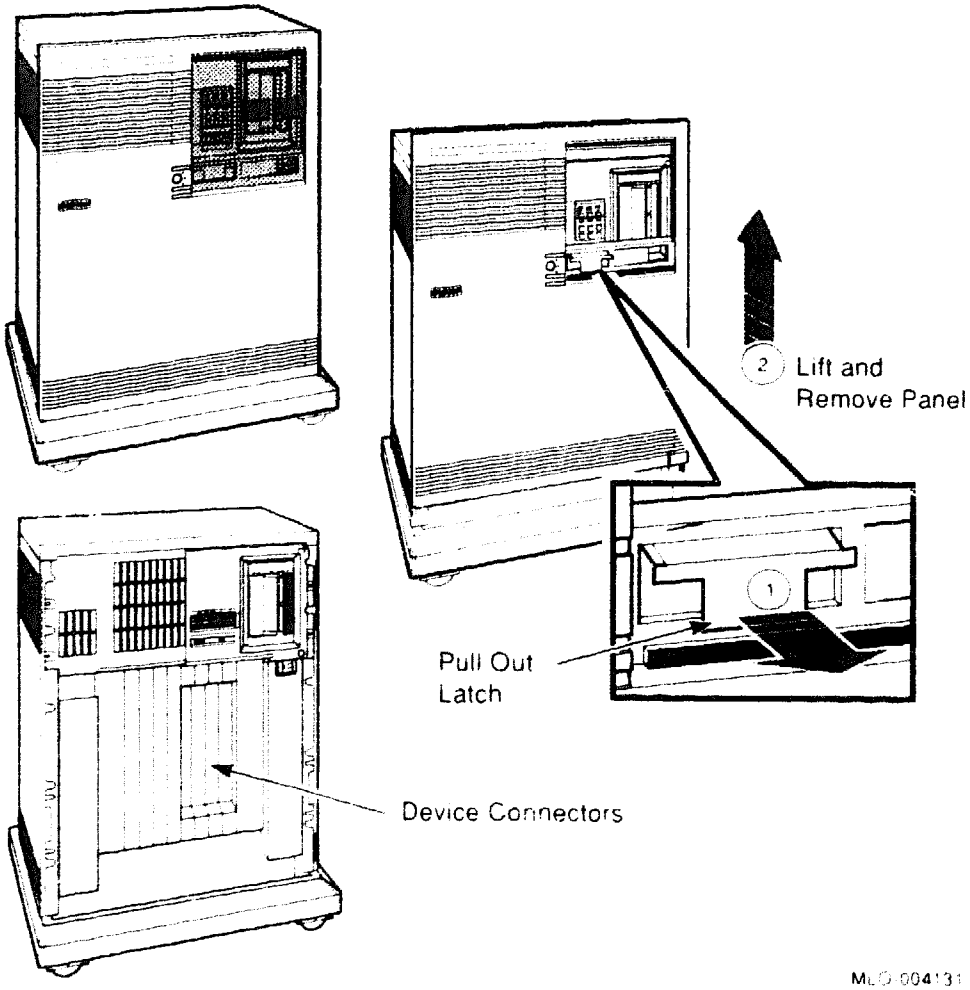


Figure 1–8 shows the BA213 type of system enclosure and device connector locations.

**Figure 1–8 BA213 Device Connectors**



## 1.2.2 Direct Connection Installation

If you are installing a direct connection to the host VCS MicroVAX or workstation, read the following instructions. If you are installing a LAT connection, read the instructions in Section 1.2.3.

1. Unpack the DECconnect adapters and cable.
2. Make the following connections:
   a. Install each DECconnect adapter on any unused port on the processor bulkhead. For BA23 and BA123 enclosures, see Figure 1–9. For BA213 enclosures, see Figure 1–10.

**Figure 1–9 BA23/BA123 Enclosure Bulkhead Connection**

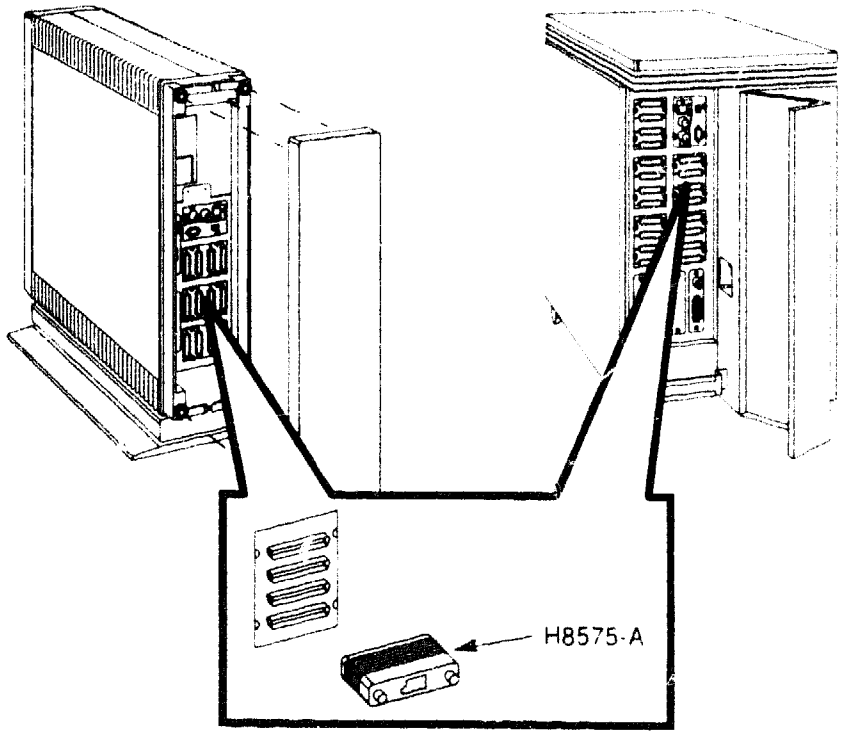
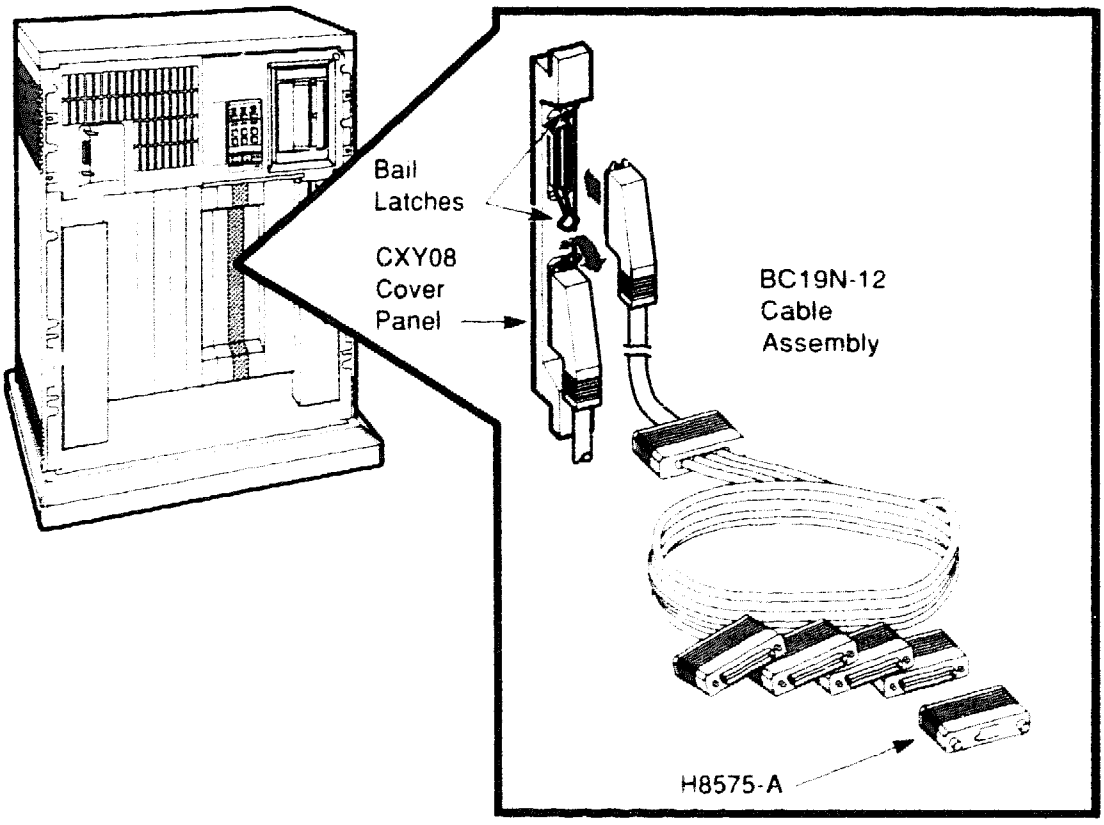


**Figure 1–10 BA213 Enclosure Bulkhead Connection**

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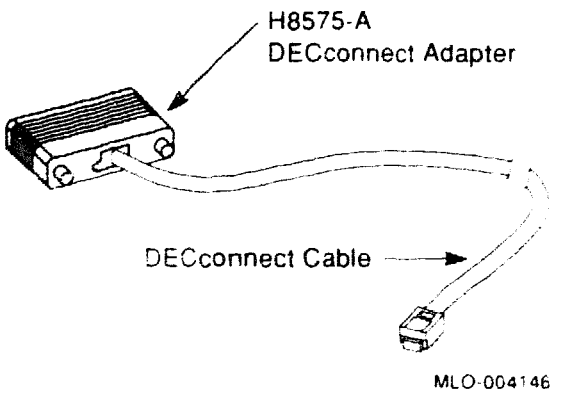
b. Connect a DECconnect cable to each DECconnect adapter. See Figure 1–11.

**Figure 1–11 DECconnect Adapter and Cable Connections**

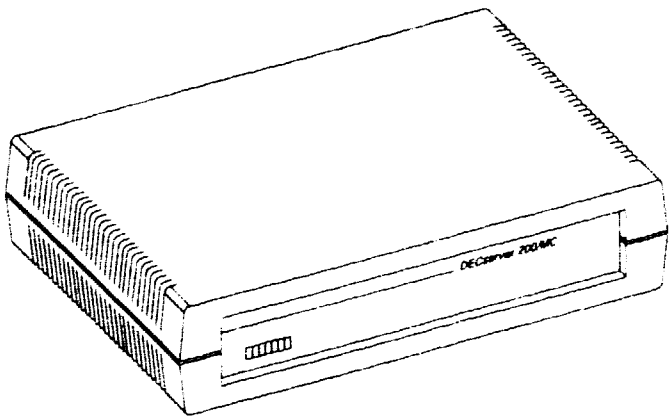


## 1.2.3 Host-Initiated LAT Connection Installation

The following instructions describe how to prepare the DECconnect hardware for host-initiated LAT connection to a DECserver 200 terminal server.

1. Install the DECserver 200 terminal server. A DECserver 200 terminal server is shown in Figure 1–12.

**Figure 1–12 DECserver 200 Terminal Server**



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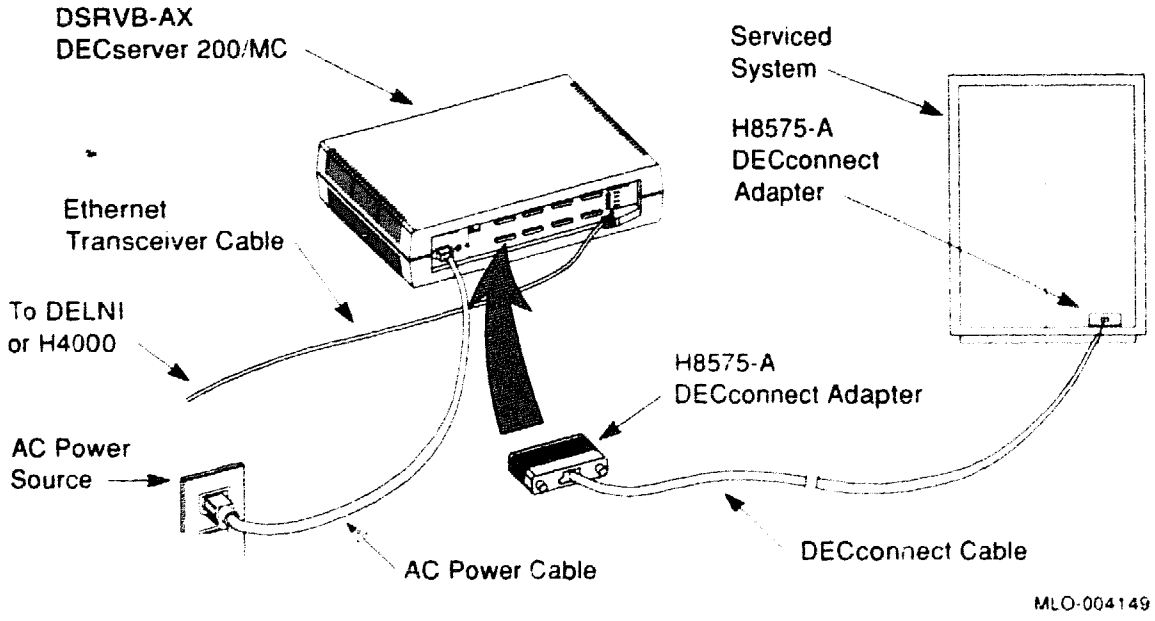
For installation procedures use the following documents:

- *DECserver 200 Hardware Installation / Owner's Guide*
- *DELNI Ethernet Local Network Interconnect Technical Manual*
- *H4000 Ethernet Installation Guide*

2. Unpack the DECconnect adapters and cable.

3. Make the following connections:
   a. Install each DECconnect adapter on any unused port on the DECserver 200 terminal server.
   b. Connect one DECconnect cable to each DECconnect adapter as shown in Figure 1–13.

**Figure 1–13 DECserver 200 Connections**



## 1.2.4 DECconnect Installation at the Serviced Nodes

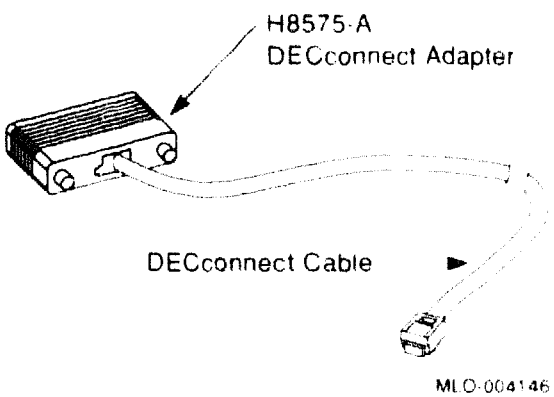
This section describes how to install the DECconnect hardware on VCS-serviced systems.

If a serviced system is a VAX 8830/8840 system, read the precautions in Section 1.1.3.1. If a serviced system is an HSC storage controller, read the precautions in Section 1.1.3.2.

For each serviced system, install the DECconnect cables and adapters as follows:

1. Plug the DECconnect adapter into the console port of the serviced system.
2. Connect the DECconnect cable to the DECconnect adapter. See Figure 1–14.

**Figure 1–14 DECconnect Adapter and Cable Connections**




When a DECconnect cable has been installed between the VCS host (or DECserver) and each system to be serviced by VCS, the configuration is ready to test.

### 1.2.5 DECconnect Adapter Troubleshooting

If the DECconnect adapter is not working correctly, do the following:

1. Ensure that the DECconnect adapter is seated correctly.
2. Ensure that the DECconnect cable ends are connected correctly.
3. Ensure that the baud rates at both ends are the same.
4. Ensure that the software parameters are set correctly.
5. Disconnect the DECconnect adapter from the serviced system and connect the adapter directly into a terminal port. Type some characters. If this does not correct the problem, reinstall the DECconnect adapter to the serviced system and continue to the next step.
6. Replace the DECconnect adapter at the VCS end with a spare. If the spare does not correct the problem, reinstall the original adapter and go to the next step.
7. Replace the DECconnect adapter at the serviced system with a spare. If the spare does not correct the problem, reinstall the original adapter and go to the next step.
8. Replace the DECconnect cable with a spare. Make sure this corrects the problem. Use the DECconnect adapter from the VCS host system and a terminal.

Refer to the *DECconnect System Planning and Configuration Guide* for more troubleshooting information about DECconnect cables and adapters.

## 1.3 VCS Fiberoptic Components

The VCS fiberoptic hardware consists of fiberoptic cable, fiberoptic converters, and power supplies for the fiberoptic converters. Each end of the cable needs a converter and a ±12V DC power source.

The following fiberoptic components are used for VCS:

- Fiberoptic cable (BN25J-XX)
- Fiberoptic converter kit (FOCHA-AE/IF), which contains the following components:

**Note**

Whether or not all the kit components are to be used depends on the kind of VCS-serviced system present.

  - 2 fiberoptic converters (FOCFB-BB)
  - 1 H7132 single-tap linear power supply
  - 1 VCS disable switch (17-01314-01)
  - 1 RS232 extension cable (BC14N)
  - 1 9-pin female adapter (H8571-B)
  - 1 25-pin male adapter (H8571-C)
  - 1 2-foot DECconnect cable (BC16E-02)
- H7133 16-tap switching power supply

The H7132 single-tap power supply is used to power the fiberoptic converter at the serviced node.

The H7133 16-tap power supply is used to power the fiberoptic converters at the VCS host in a direct connection installation or, at a terminal server (in a LAT connection installation). One H7133 power supply can provide power to a maximum of 16 fiberoptic converters. One H7133 power supply can provide power to the fiberoptics connected to two DECserver 200 terminal servers if the servers are within eight feet of each other.

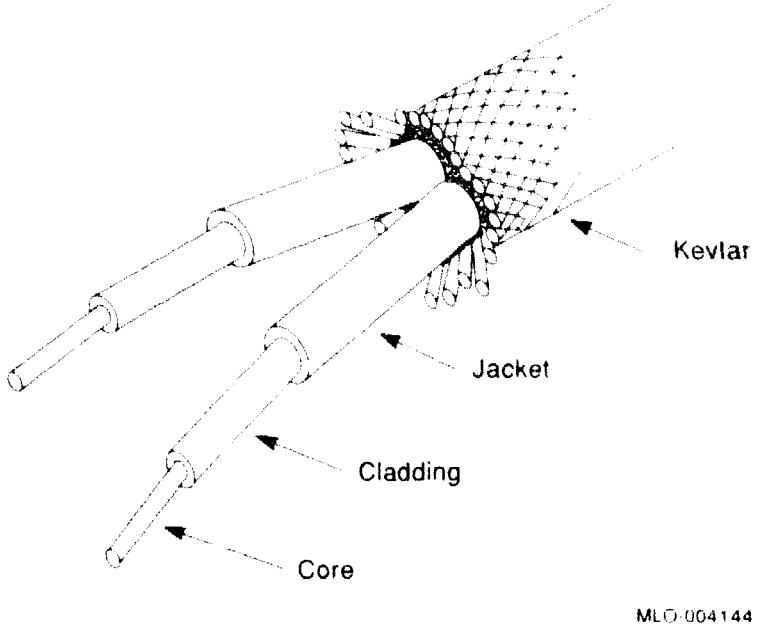
## 1.3.1 Fiberoptic Cable Characteristics

Fiberoptic cable connects a transmitter at one end and a receiver at the other end. The cable has two thin optical fibers (one to transmit and one to receive) that provide simultaneous bidirectional communication.

Each fiberoptic core is reinforced with cladding and enclosed in an inner jacket. The two inner jackets are sealed in a light polyurethane outer jacket.

Installing fiberoptic cables is different from installing traditional cables. Be careful not to break the fiberoptic core, but in many cases, normal cable installation techniques are adequate. Figure 1–15 shows basic fiberoptic cable structure.

**Figure 1–15 Fiberoptic Cable Structure**




## 1.3.2 Fiberoptic Cable Environmental Requirements

Fiberoptic cables are made to last longer than coaxial cables. They also require different maintenance. Within reasonable limits, fiberoptic cables are immune from the deteriorating effects of condensation, humidity, and temperature extremes. Fiberoptic cable can withstand a crushing force of 400 lb/in.

Basic fiberoptic cable requirements are as follows.

- Fiberoptic cable must not be kinked or crimped.

- Maintain operating temperature within +50°F to +160°F (+10°C to +70°C).

## 1.3.3 Preparing the Host System

Unpack and install the MicroVAX or VAXstation to be used as the VCS host system, following the accompanying installation and configuration documentation. Include all add-on options such as the DHQ11, DZQ11, or CXY08 serial line interface devices.

BA23, BA123, and BA213 types of system enclosures are suitable for a VCS direct connection method of installation. Figure 1–16 shows the BA23 type of system enclosure and where to gain access to the device connectors, to which the fiberoptic converters are installed.

**Figure 1–16 BA23 Device Connectors**

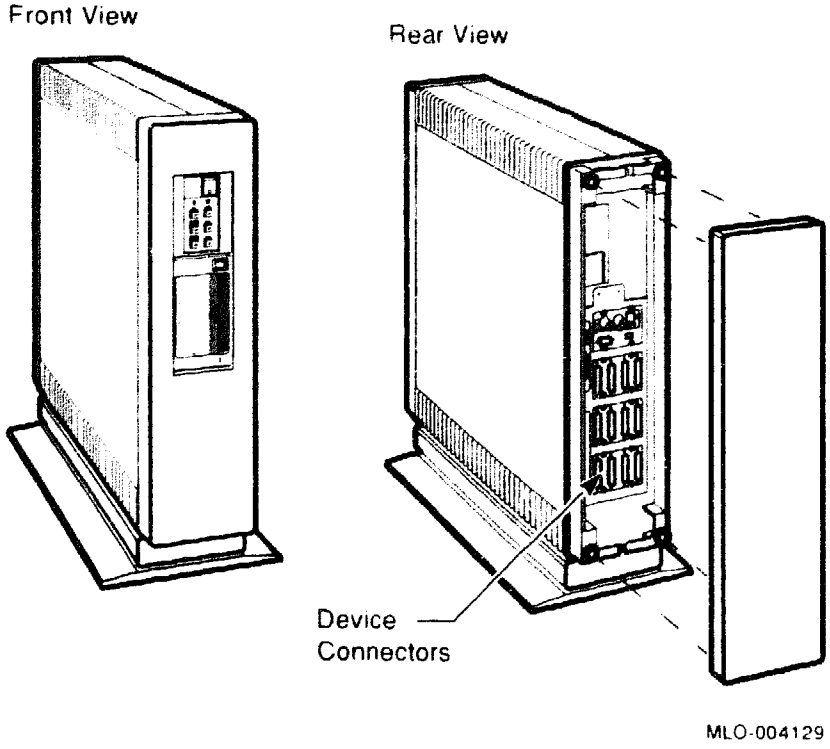


Figure 1–17 shows the BA123 type of system enclosure and device connector locations.

**Figure 1–17 BA123 Device Connectors**

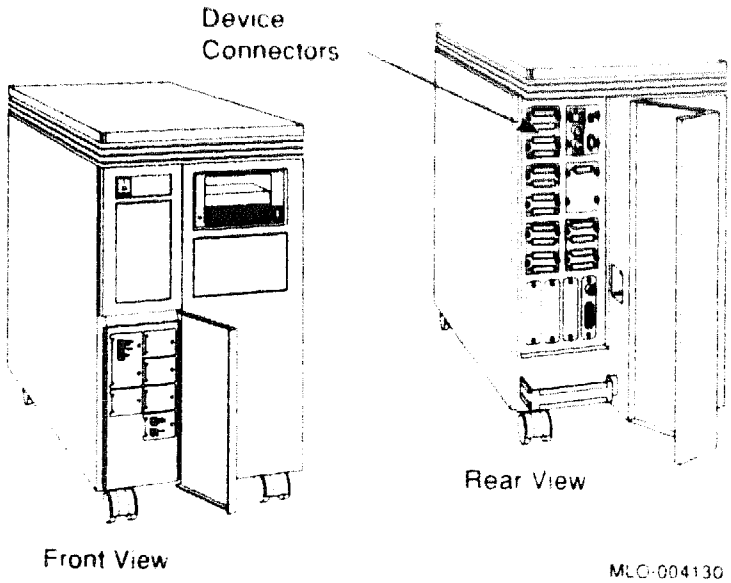
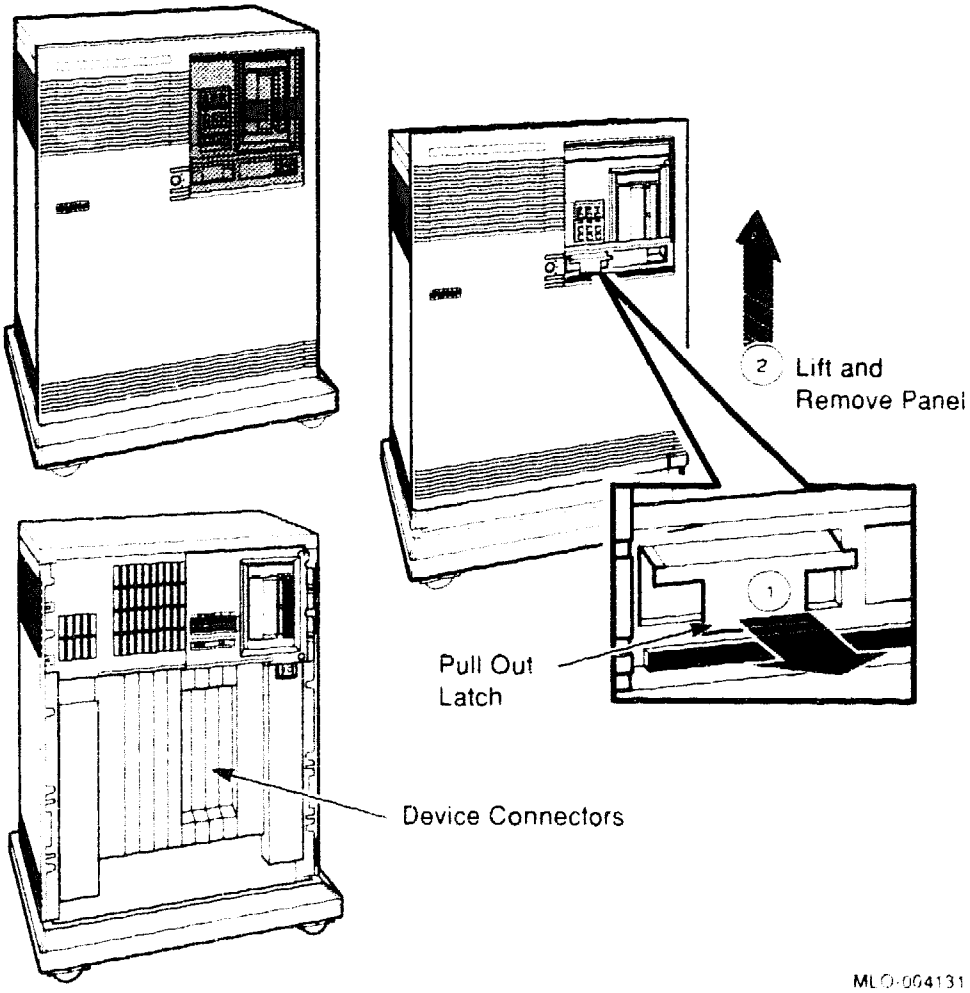


Figure 1–18 shows the BA213 type of system enclosure and device connector locations.

**Figure 1–18 BA213 Device Connectors**



### 1.3.4 Direct Connection Installation

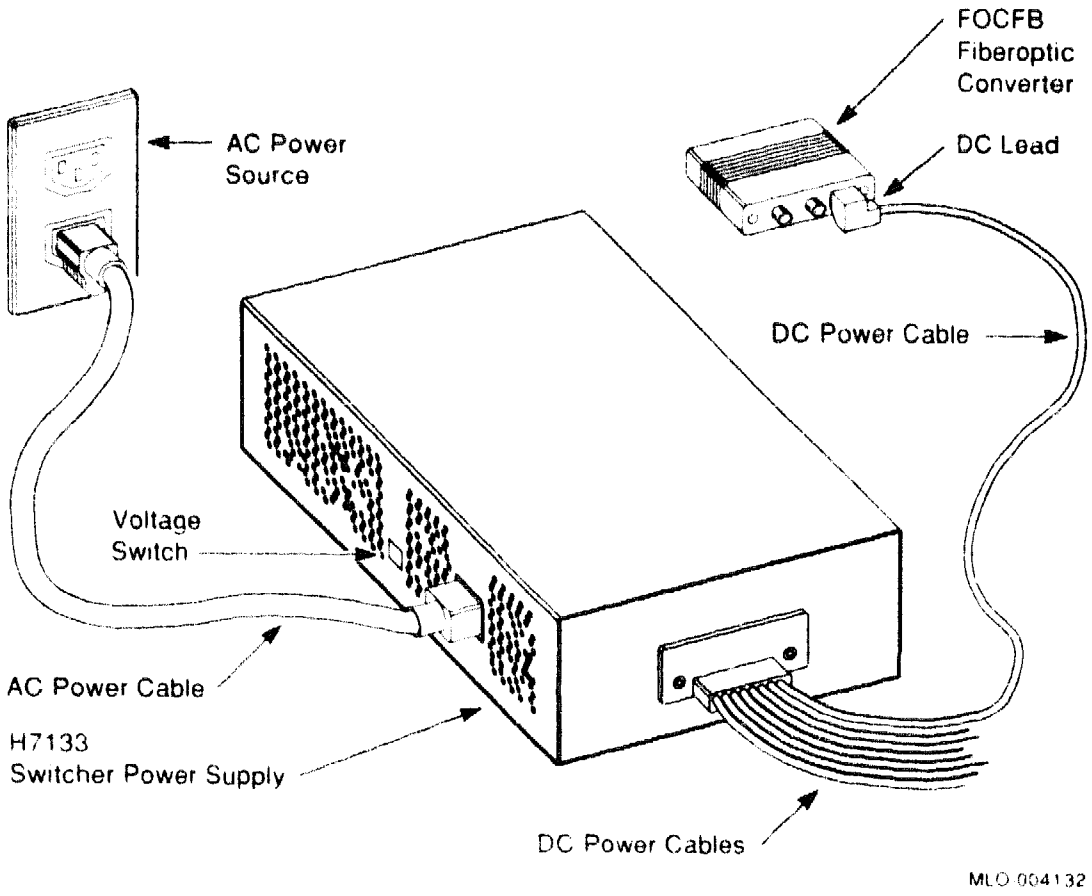
If you are installing a direct connection to the host VCS MicroVAX or workstation, read the following instructions. If you are installing a LAT connection, read the instructions in Section 1.3.5.

1. Unpack the fiberoptic converters.
2. Unpack the H7133 16-tap power supply.
3. Peel back the label that covers the power supply voltage switch and check the voltage setting. If necessary, change the switch setting to match the voltage source. See Figure 1–19.

**CAUTION**

Damage to the power supply can occur if the voltage switch setting does not match the voltage source.

**Figure 1–19 H7133 16-Tap Power Supply Connections**




4. Place the H7133 16-tap power supply on or near the host system. For a BA23 or BA123 MicroVAX enclosure, run the DC power cable through the cable guides at the rear door of the enclosure.

**CAUTION**

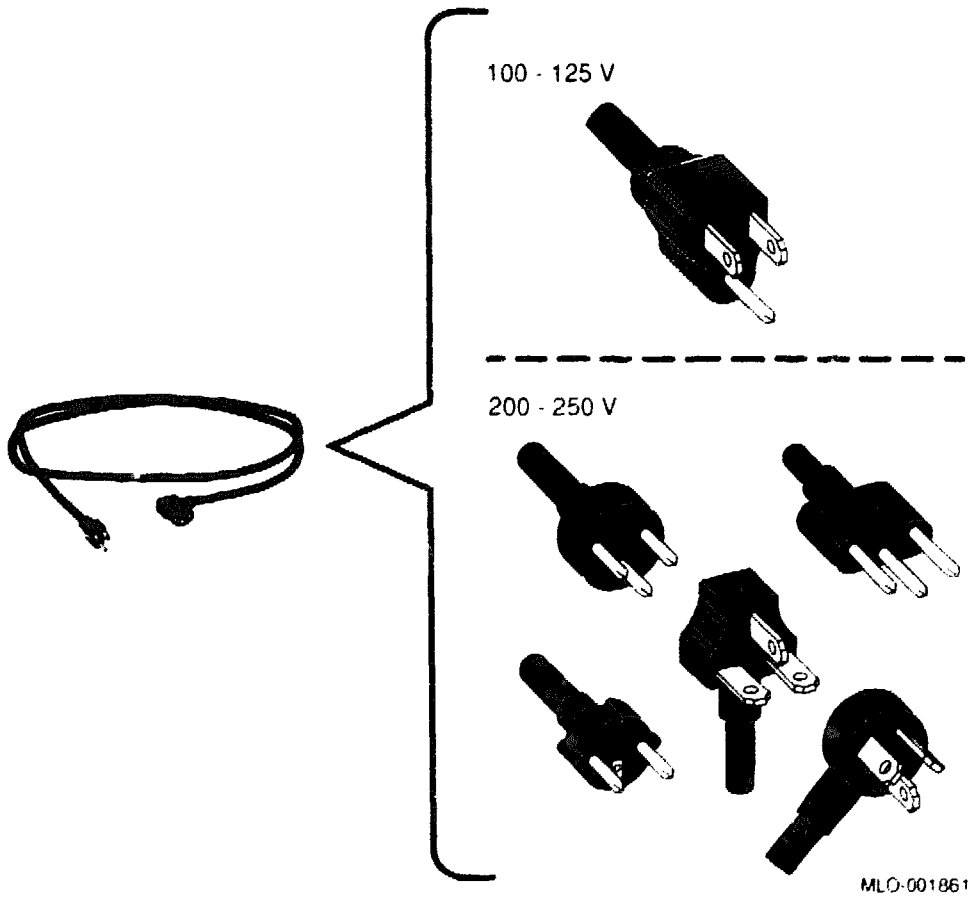
Connect the DC power cable to the fiberoptic converter **BEFORE** applying AC power. Otherwise, the power supply can be damaged.

5. Find an AC power source for the H7133 16-tap power supply. Figure 1–20 shows AC power plug types.

**Note**

Do not plug the power supply into any AC power source in the VCS host system.

**Figure 1–20 AC Power Plug Types**



6. Make the following connections:

   a. Install each fiberoptic converter on any unused port on the processor bulkhead. For BA23 and BA123 enclosures, see Figure 1–21. For BA213 enclosures, see Figure 1–22.

**Figure 1–21 BA23/BA123 Enclosure Bulkhead Connection**

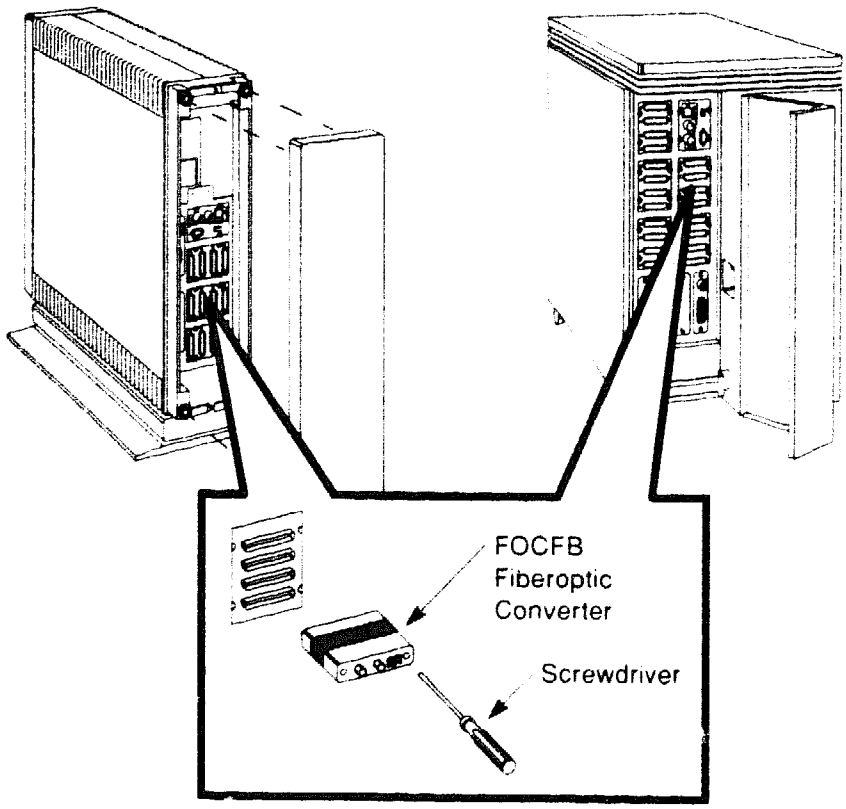
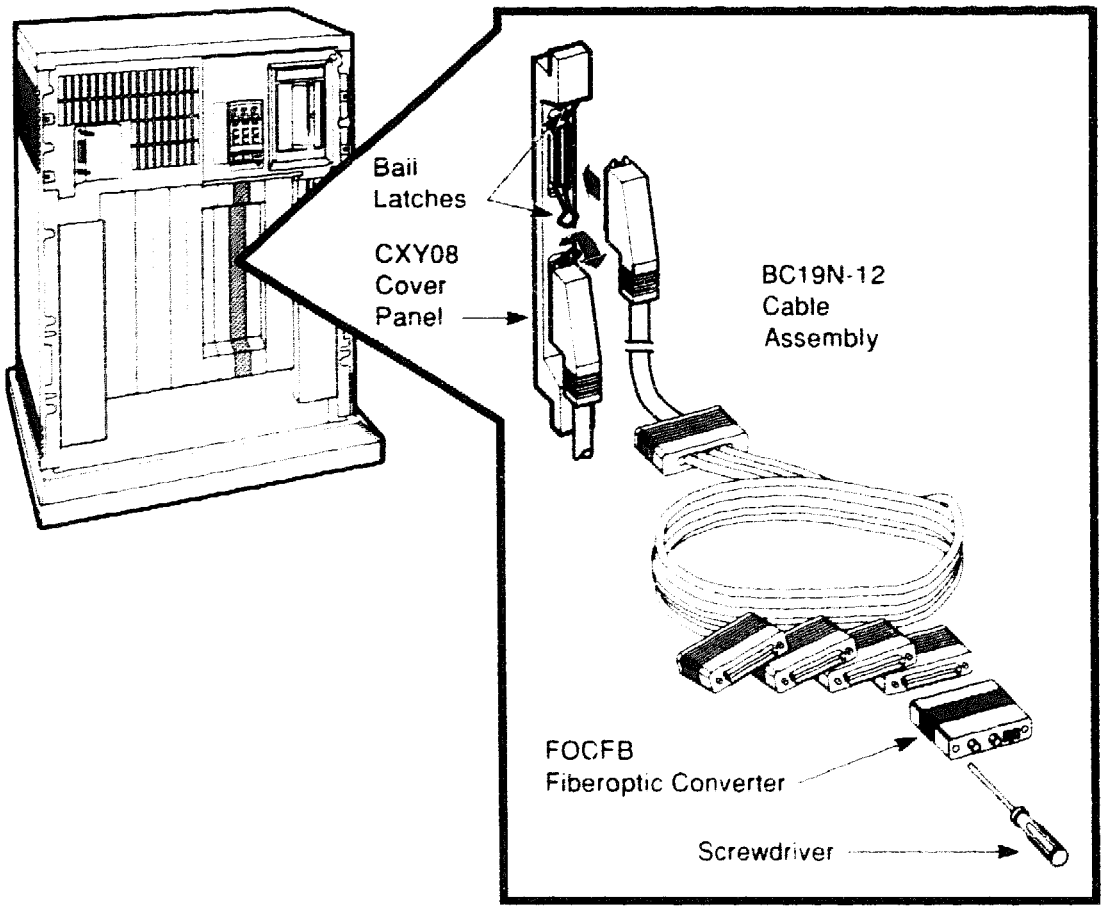


**Figure 1–22 BA213 Enclosure Bulkhead Connection**




b. Connect a DC power cable to each fiberoptic converter. See Figure 1–23.

c. Plug the power supply AC power cable into the AC power source. The H7133 power supply powers on when plugged into an AC power source. See Figure 1–23.

**CAUTION**

To prevent damage, do not bind the installed fiberoptic converters together with cable ties, tape, or any other method.

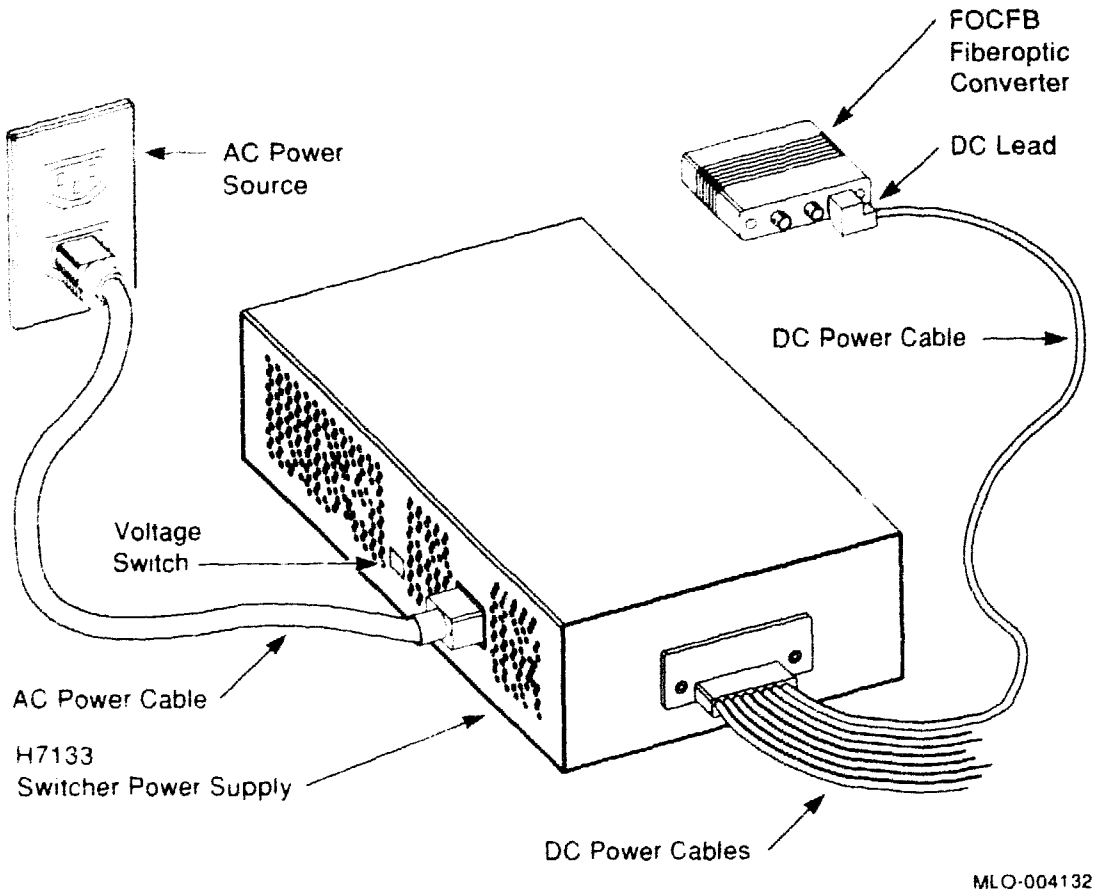
To prevent overheating, the fiberoptic converters need air to circulate around them.

Fiberoptic converters installed in a BA23 or BA123 system enclosure can also overheat when cables and converters block the air flow.

The back of these system enclosures can be cooled by the following:

- Moving the system enclosure to a cooler area
- Opening or removing the back door

**Figure 1–23 H7133 16-Tap Power Supply Connections**




**Note**

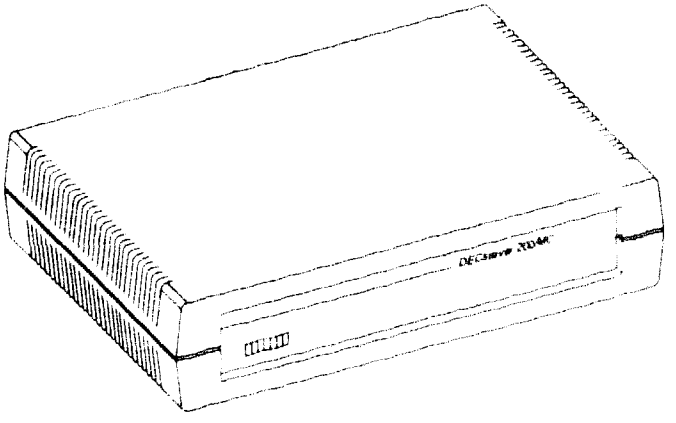
An installed fiberoptic converter shows no visible indication of a successful connection. Refer to Section 1.3.7 for troubleshooting information.

## 1.3.5 LAT Connection Installation

The following instructions describe how to prepare the fiberoptic hardware for a host-initiated LAT connection installation to a DECserver 200 terminal server.

1. Install the DECserver 200 terminal server. A DECserver 200 terminal server is shown in Figure 1–24.

**Figure 1–24 DECserver 200 Terminal Server**



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For installation procedures, use the following documents:

- *DECserver 200 Hardware Installation / Owner's Guide*
- *DELNI Ethernet Local Network Interconnect Technical Manual*
- *H4000 Ethernet Installation Guide*

2. Unpack the fiberoptic converters.
3. Unpack the H7133 16-tap power supply.
4. Peel back the label that covers the power supply voltage switch and check the voltage setting. If necessary, change the switch setting to match the voltage source. See Figure 1–19.

**CAUTION**

Damage to the power supply can occur if the voltage switch setting does not match the voltage source.

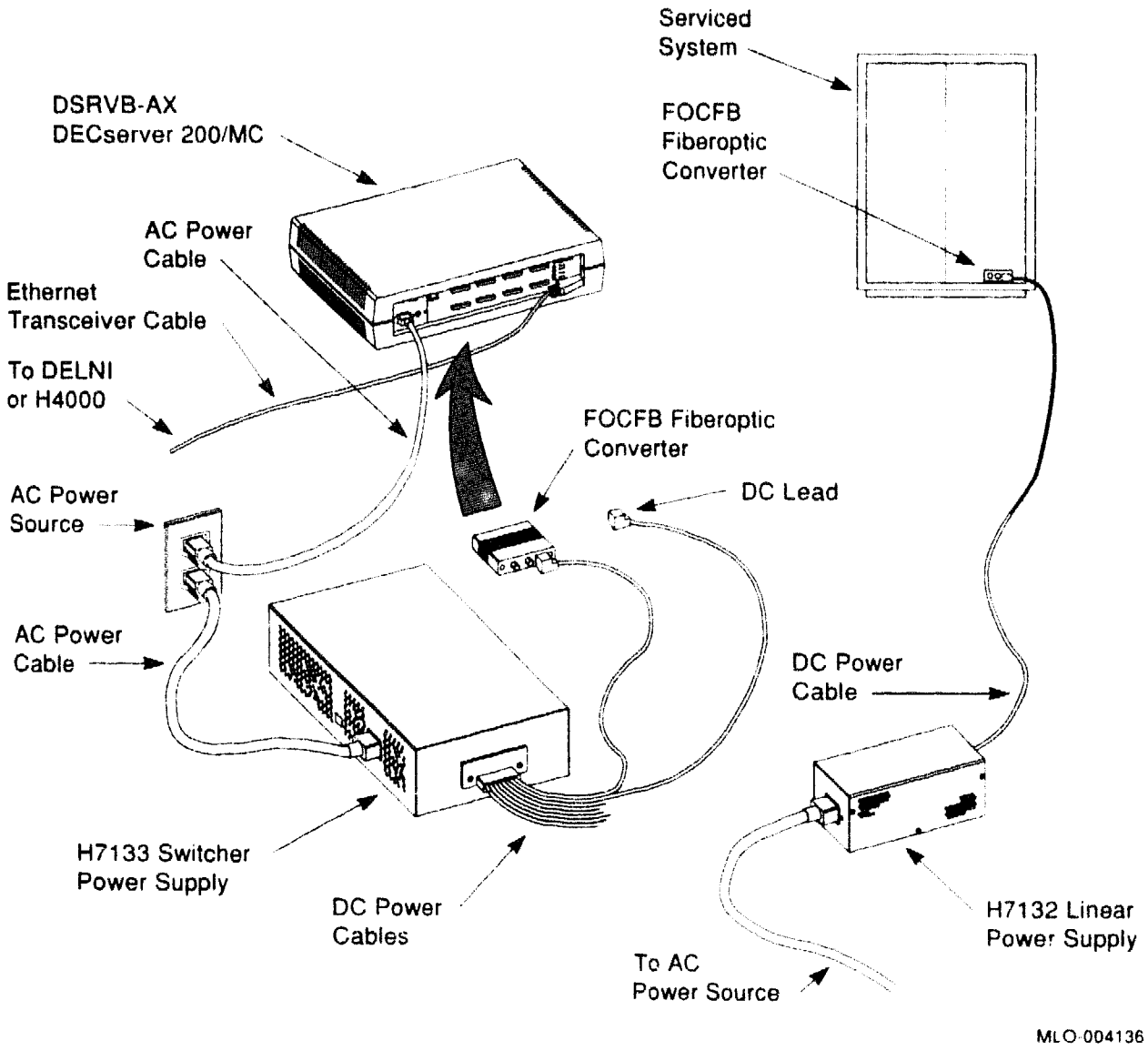
5. Place the H7133 power supply on or near the DECserver 200 terminal server.

**CAUTION**

Connect the DC power cable to the fiberoptic converter **BEFORE** applying AC power. Otherwise, the power supply can be damaged.

6. Find an AC power source for the H7133 16-tap power supply. Figure 1–20 shows AC power plug types.
7. Make the following connections.
   a. Install each fiberoptic converter on any unused port on the DECserver 200 terminal server. See Figure 1–25.
   b. Connect one power supply DC power cable to each fiberoptic converter as shown in Figure 1–23.
   c. Connect the H7133 16-tap power supply AC power cord to the AC power source as shown in Figure 1–23. The H7133 power supply powers on when plugged into the power source.

**Figure 1–25 DECserver 200 Connections**




## 1.3.6 Fiberoptic Installation at the Serviced Nodes

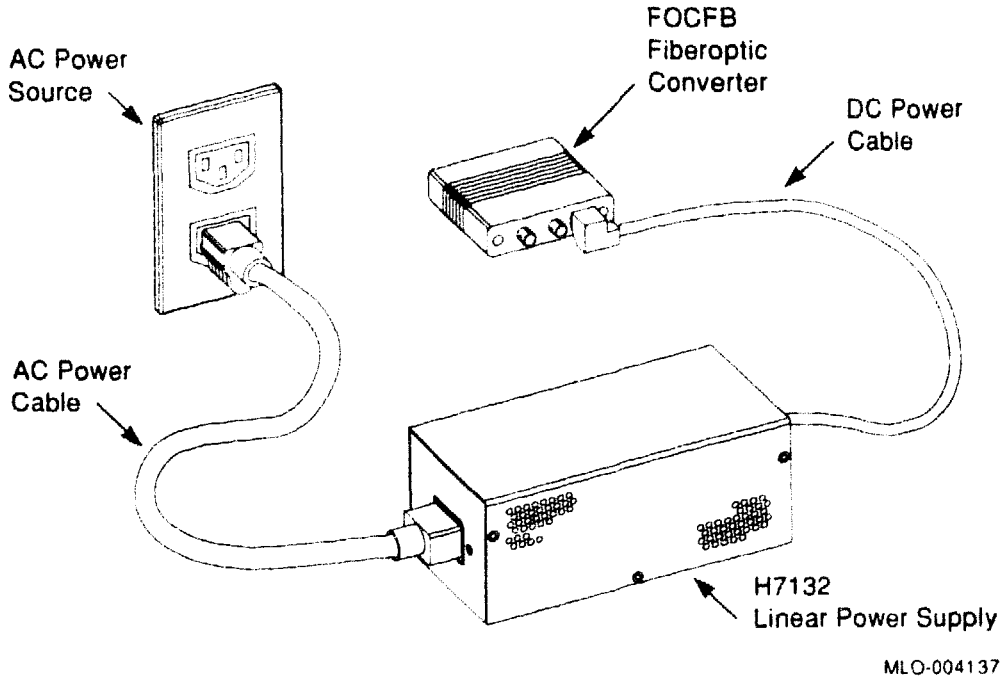
This section describes how to install the fiberoptic hardware on VCS-serviced systems.

If a serviced system is a VAX 8830/8840 system, read the precautions in Section 1.1.3.1. If a serviced system is an HSC storage controller, read the precautions in Section 1.1.3.2.

For each serviced system, install the H7132 single-tap power supplies and the fiberoptic cables and converters as follows:

1. Plug the fiberoptic converter into the console port of the serviced system.
2. Place the H7132 single-tap power supply conveniently near the serviced system.
3. Connect the DC power cable to the fiberoptic converter. See Figure 1–26.

**Figure 1–26 H7132 Single-Tap Power Supply Connections**




**CAUTION**

**BEFORE** applying AC power, connect the DC power cable to the fiberoptic converter. Otherwise, the power supply can be damaged.

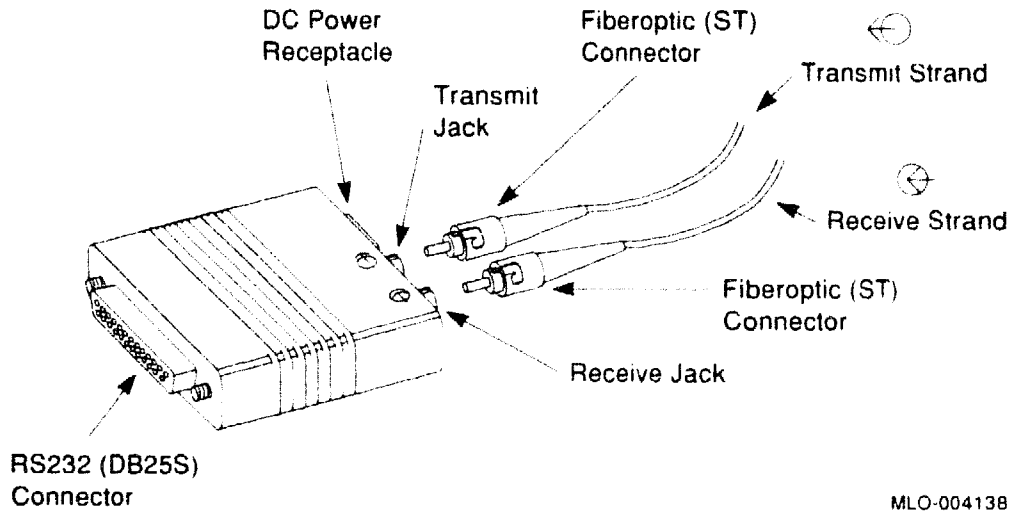
4. Find an AC power source for the H7132 power supply. Figure 1–20 shows AC power plug types.

**Note**

Do not plug the power supply into any AC power source in the serviced system.

5. Plug the power supply AC power cable into the AC power source. See Figure 1–26. The H7132 power supply powers on when plugged into the AC power source.
6. Each fiberoptic cable is labeled with either a transmit strand or receive strand symbol on the connector as shown in Figure 1–27. Each fiberoptic connector jack contains a transmit jack and a receive jack. Each fiberoptic connector jack is labeled with either the transmit or receive symbol as shown in Figure 1–27. Install the fiberoptic cable between the fiberoptic converter at the host or DECserver and the fiberoptic converter at the serviced system. Match the symbols at the converter jacks with the symbols on the cables to connect the cable correctly.

**Figure 1–27 Fiberoptic Connector Jacks**



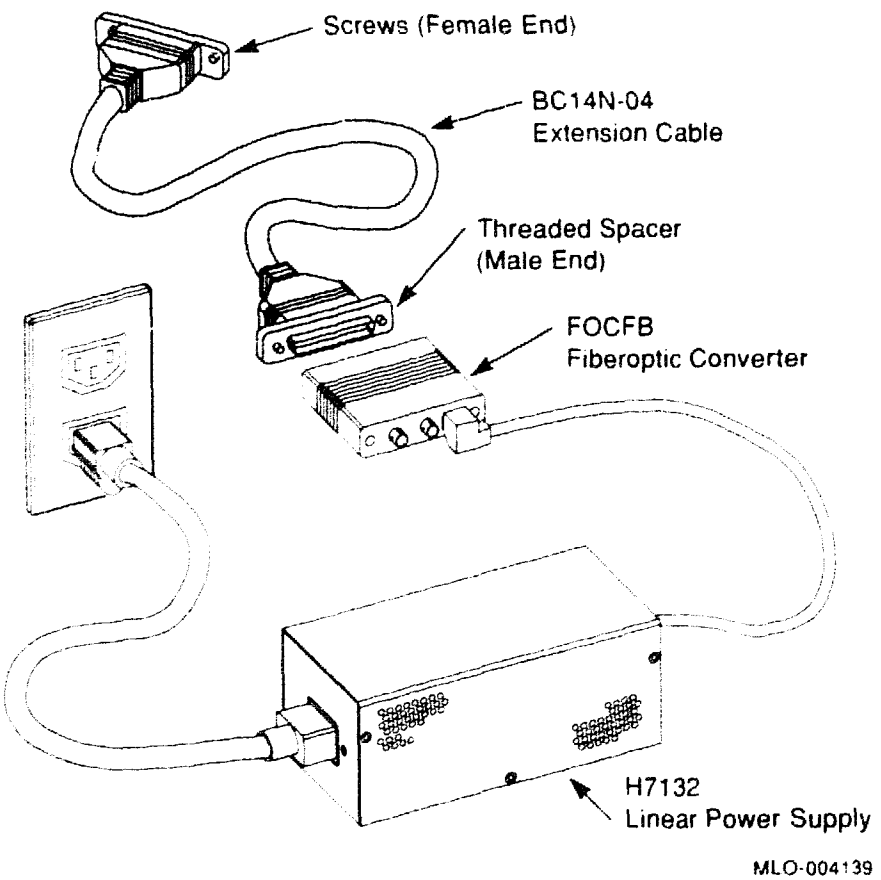

When a fiberoptic cable has been installed between the VCS host (or DECserver) and each system to be serviced by VCS, the configuration is ready to test.

### 1.3.6.1 Optional Extension Cable Installation

The optional extension cable enables the fiberoptic converter to be placed away from the serviced node's console port. See Figure 1–28. Use the extension cable when the fiberoptic converter cannot be connected directly to the bulkhead for the following reasons:

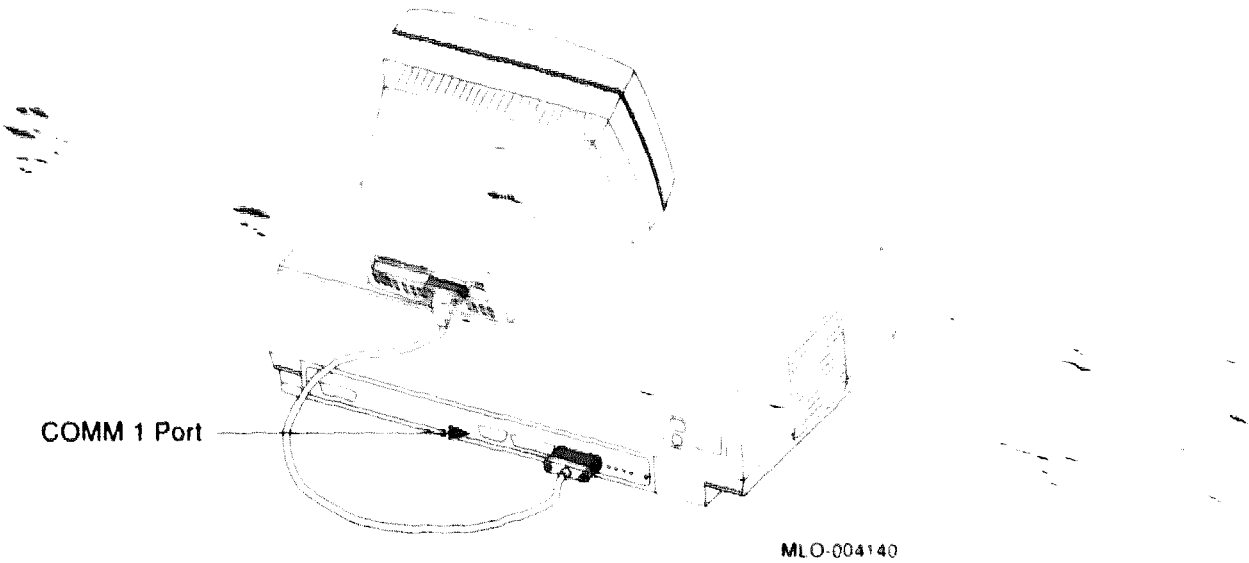
- Not enough clearance exists to close the system enclosure door when the fiberoptic converter is installed, as with the VAX 8200 system.
- A ridge near the communications port prevents the fiberoptic converter from being connected directly to the communications port, as with the VAX 8700/8800's VAXconsole PRO380.

**Figure 1–28 Console Extension Cable Connection**



To connect the VCS host to the VAXconsole PRO380 of a VAX 8700 or 8800 system, connect the extension cable to the COMM 1 port as shown in Figure 1–29.

**Figure 1–29 VAXconsole PRO380 COMM 1 Port**




### 1.3.6.2 Optional DECconnect Cabling Installation

Use the optional DECconnect components provided to connect the fiberoptic converter to MicroVAX and VAXstation systems with the BA23, BA123, and BA213 types of enclosures.

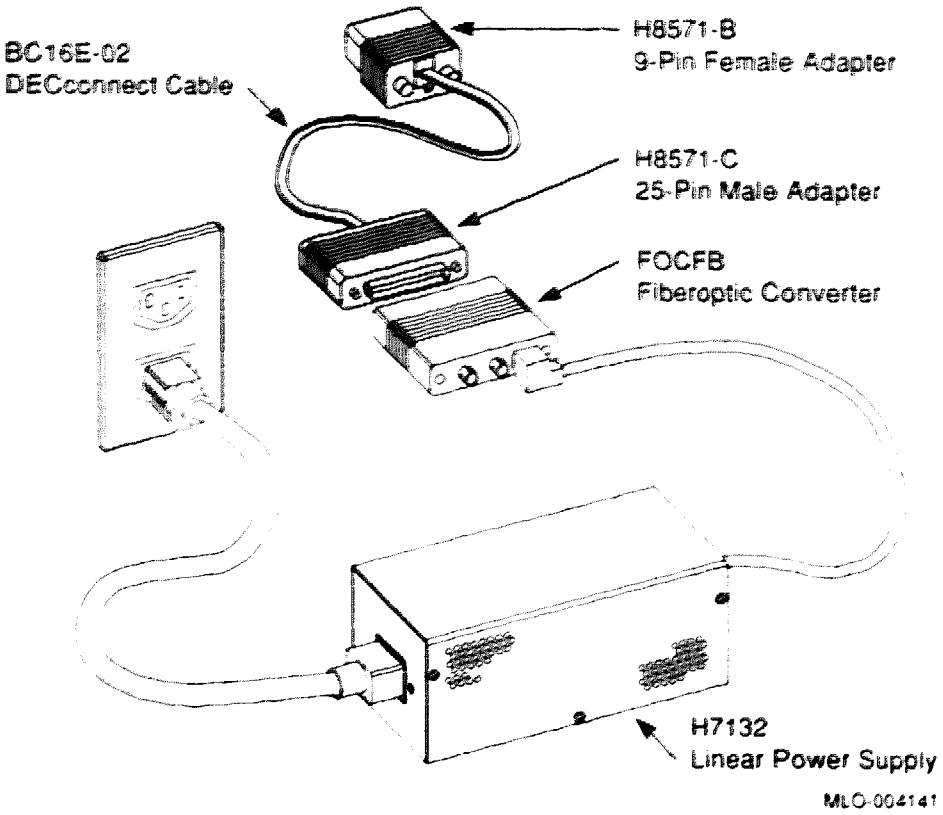
For the BA23 and BA123 types of enclosures, use the following optional components from the fiberoptic converter kit, as shown in Figure 1–30:

- 25-pin male adapter (H8571-C)
- 2-foot DECconnect cable (BC16E-02)
- 9-pin female adapter (H8571-B)

For the BA213 type of enclosure, use:

- 25-pin male adapter (H8571-C)
- 2-foot DECconnect cable (BC16E-02)

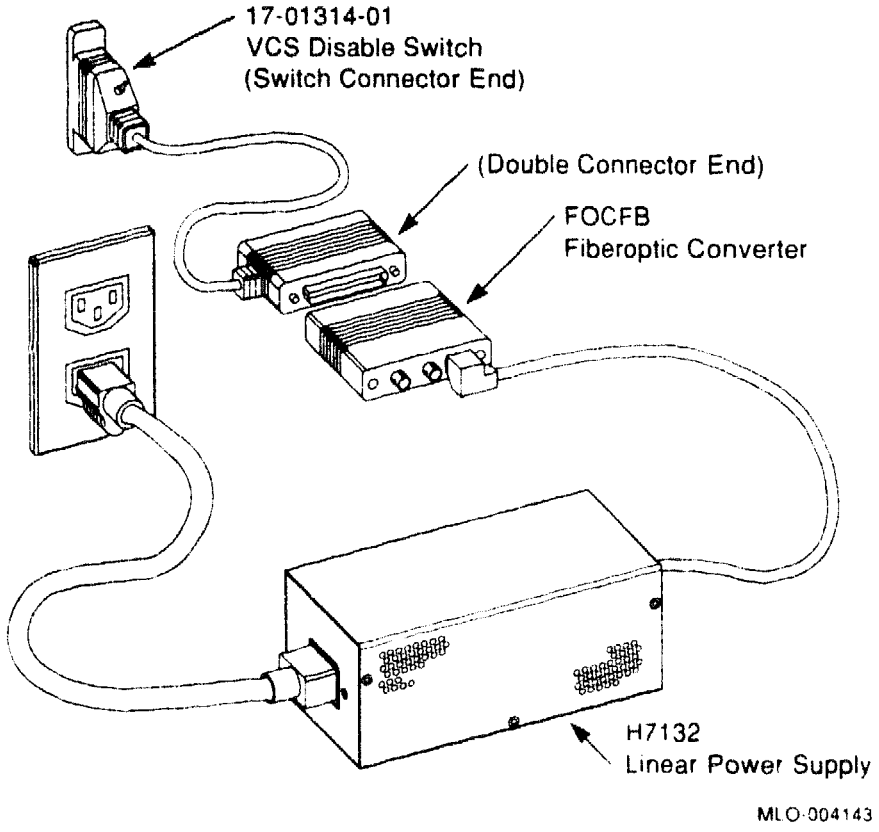
**Figure 1–30 Optional DECconnect Cabling**



### 1.3.6.3 Optional VCS Disable Switch Installation

Use the optional VCS disable switch to change to a local console terminal at a serviced node should the VCS host fail. Figure 1–31 shows VCS disable switch cabling connections.

**Figure 1–31 VCS Disable Switch Cabling**




The VCS disable switch has two settings: **VCS** and **LOCAL**. To connect the serviced system's console line to the VCS host, set the switch to the **VCS** setting. To connect the serviced system's console line to the local terminal, set the switch to the **LOCAL** setting.

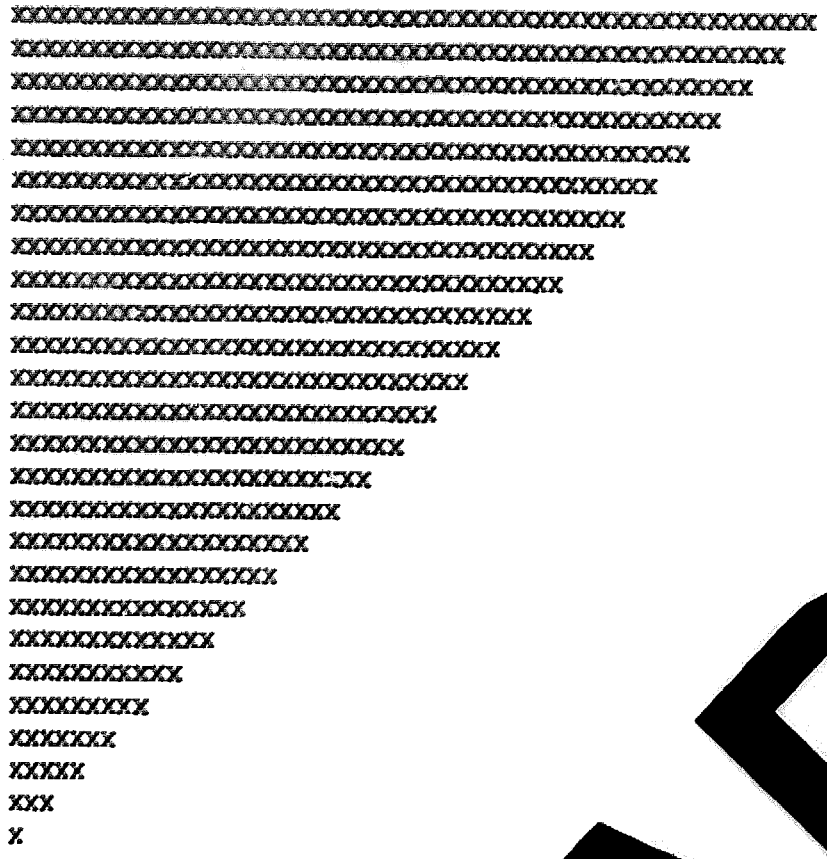
Install the VCS disable switch cable by performing the following procedures:

1. Plug the double connector female end into the console port of the serviced system. For a MicroVAX, plug the double connector female end into the H8571-C 25-pin adapter.
2. Plug the fiberoptic converter into the double connector end.
3. Plug the switch connector end into the terminal's communications port.

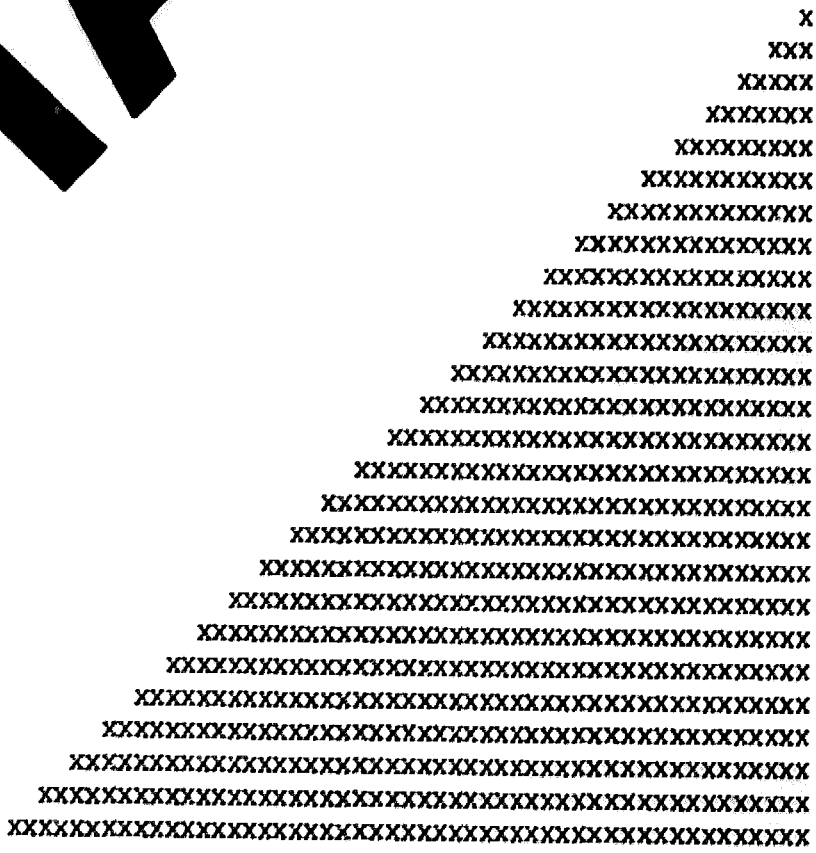
### 1.3.7 Fiberoptic Converter Troubleshooting

If the fiberoptic converter is not working correctly, do the following:

1. Ensure that ±12 voltages are present at each power supply DC output.
2. Ensure that the fiberoptic cable is connected correctly, as shown in Figure 1–27.
3. Replace the fiberoptic converter at the VCS end with a spare. If the spare does not correct the problem, reinstall the original converter and go to the next step.
4. Replace the fiberoptic converter at the serviced system with a spare. If the spare does not correct the problem, reinstall the original converter and go to the next step.
5. Replace the fiberoptic cable with a spare before stringing the new cable. Make sure this corrects the problem by testing the cables. Use the fiberoptic converter from the VCS host system and a terminal or a hand-held terminal (HHT).



# CHAP 2



# 2

# Software Installation

This chapter describes how to prepare for and perform the VAXcluster Console System (VCS) Version 1.4 software installation on a VCS host system. The installation process is organized in the following manner:

Section 2.1 describes the contents of the VCS software product kit.

Section 2.2 describes the installation preparation of the VCS host platform.

Section 2.3 describes the installation preparation for VAX 8500, 8700, or 8800 series systems.

Section 2.4 describes the actual installation of the VCS software.

Section 2.5 describes how to make site-specific modifications to the installed VCS software environment.

Section 2.6 describes how to start up the VCS software.

Section 2.7 describes the final adjustments to make to the VCS serviced systems.

## 2.1 VCS Software Kit Inventory

The VCS software kit consists of the VCS software distribution medium and the VCS Product Authorization Key (PAK). The PAK is a piece of paper containing the VCS software license information that must be entered during the software installation.

## 2.2 VCS Host Platform Preparation

The VCS software installation requires a minimum of 20 minutes. This time includes reading the installation instructions, performing the actual installation using VMSINSTAL, and creating the site-specific information. If you are unfamiliar with VMSINSTAL, VMS, LAT, or the configuration of the serviced nodes, allow an additional two hours for reading the referenced documentation and gathering the required information.

### 2.2.1 Required Software

VMS Version 5.4 must already be installed on the system before the VCS software can be installed. Enter the following command to determine what version of VMS is running.

```
$ SHOW SYSTEM  Return
```

The first line of the response indicates the version of VMS. This version of VMS should contain the latest version of VAXTPU, which is included in the UTIL kit of the VAX/VMS full kit.

Install the VCS software using VMSINSTAL, the standard VMS installation procedure. If you are unfamiliar with VMSINSTAL, read the information in the *VMS System Manager's Manual*.

### 2.2.2 Required Disk Space

Before the VCS software can be installed, a minimum of 9000 free blocks on the system disk is required. Enter the following command to determine the number of free blocks on the system disk:

```
$ SHOW DEVICE SYS$SYSDEVICE:  Return
```

The approximate disk block utilization requirements are:

9000 blocks, maximum peak disk-block utilization
2000 blocks, maximum net disk-block utilization

In addition, the VCS software requires a minimum of 1.5 megabytes of disk space, per month, per node in the cluster for the logging function. This space is in addition to the normal disk space requirements of the VCS host system software. This should permit the VCS software to keep log data files for the system consoles managed by the VCS software for up to a month.

### 2.2.3 User Terminals

The number of terminals needed to use the VCS software effectively depends on the user environment. If the site does not require simultaneous access to the consoles of the various nodes, a single terminal device as the console may be sufficient. However, if competition for access to the consoles is a norm at the site, additional user terminals should be available to the VCS software.

Simultaneous access exists when the operations staff and Digital Customer Service engineers need to perform different tasks on different serviced nodes at the same time. Digital Field Service engineers need access to consoles through the VCS software with reasonable proximity to the processors they are working on.

Network support greatly increases the flexibility and availability of the VCS software. Any terminal on the network can be used to access the VCS software.

### 2.2.4 SYSGEN Parameters

A number of SYSGEN parameters need to be modified for the VCS software to run properly. Use the SYSGEN parameters in this section as a guideline. Their values may vary, depending upon the number of managed consoles lines, the number of interactive VCS users, the frequency of scan events, and the amount of console line traffic.

It may be helpful to tune your system after it has been running for several weeks. A performance appraisal tool, such as DECps, can generate values which are appropriate for your system and working environment.

To change the SYSGEN parameters, place the following entries in the SYS$SYSTEM:MODPARAMS.DAT file. Then run the AUTOGEN utility to set these values. The recommended method of modifying system paramaters is to execute AUTOGEN in two passes, using the following commands:

```
$  @SYS$UPDATE:AUTOGEN SAVPARAMS GENPARAMS [Return]
$  @SYS$UPDATE:AUTOGEN SETPARAMS REBOOT [Return]
```

For more information on the AUTOGEN facility, see the *Guide to Setting Up a VMS System*.

The use of the **_MIN** prefix is recommended because it allows AUTOGEN to take other software requirements into account when setting final values.

- MIN_TTY_ALTALARM = 320
- MIN_TTY_ALTYPAHD = 1000
- MIN_PQL_MDIOLM = 64

Add the following entry if you are using LAT devices for console connections:

- MIN_LRPSIZE = 1504

Add the following entries if you are operating in a DECwindows environment:

- MIN_PQL_DASTLM = 200
- MIN_PQL_DBIOLM = 200
- MIN_PQL_DBYTLM = 65536
- MIN_PQL_DPGFLQUOTA = 37768
- MIN_PQL_DENQLM = 200
- MIN_PQL_DJTQUOTA = 1024

Add the following entries if you are using the Console Emulation Package (including the turn-key demo):

- MIN_GBLPAGES = 30000
- MIN_GBLPAGFIL = 6024
- MIN_GBLSECTIONS = 512
- MIN_SPTREQ = 5000

Digital recommends adding the following entries if other software applications coexist with the VCS software product:

- MIN_SRPCOUNT = 410
- MIN_IRPCOUNT = 300
- MIN_LRPCOUNT = 25

## 2.2.5 Setting Up Host-Initiated LAT Connections

When setting up host-initiated LAT connections, the VCS host system and the DECserver 200 must reside on the same Ethernet. When an Ethernet comprises two separate Ethernet segments joined by a LAN Bridge device, the DECserver 200 is supported as a LAT interface device.

The host-initiated LAT connection extends the logical I/O channels between the VCS host system and the terminal bulkheads located on a DECserver, over the Ethernet medium. The setup involves defining the DECserver port characteristics for host-initiated LAT connections and creating LTA devices on the VCS host system which are mapped to those ports.

If you are planning to use host-initiated LAT connections, create the LTA devices before running the Configuration Editor.

### 2.2.5.1 Setting Up DECserver 200 Ports

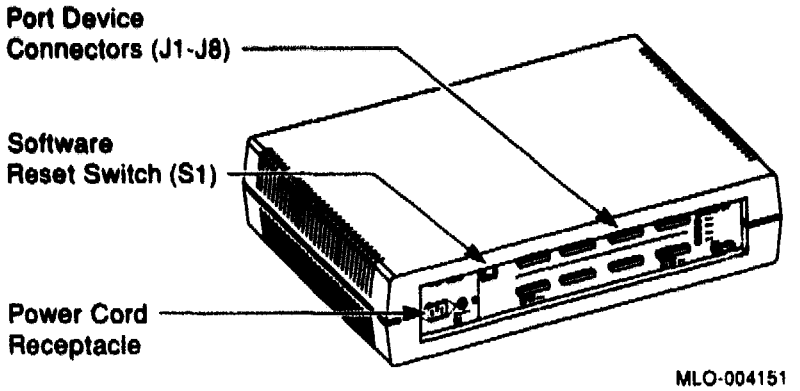
Before you set up the DECserver ports, the DECserver must be connected to the Ethernet and be ready to be loaded from a VAX system. A terminal must also be connected to the DECserver console port 1. Refer to the *DECserver 200 Hardware Installation/Owner's Guide* for additional information. Use the Terminal Server Manager (TSM) in place of the local DECserver console terminal if the TSM product is installed. Refer to the *Guide to Terminal Server Manager* for additional information about TSM.

Unless you are aware of the actual characteristics of the DECserver, perform the following steps to initialize the DECserver to a known state. However, if other devices are also being serviced by the DECserver, skip step 1 to avoid resetting their port characteristics.

1. **Use the red software reset switch (S1) located on the DECserver control/indicator back panel to restore factory-set characteristics to the DECserver's permanent database. To disconnect the DECserver power, remove the power cord from the back panel. While pressing the red software reset switch, simultaneously apply the power to the DECserver by reconnecting the power cord. Approximately one minute is required for the DECserver to be reloaded.**

   **The software reset switch is shown in Figure 2–1.**

**Figure 2–1 DECserver 200 Back Panel**




2. At the terminal keyboard, press Return twice to connect to the DECserver. The DECserver displays the following message:

```
DECserver 200 Terminal Server V2.0 (BL29) -- LAT V5.1
Please type HELP if you need assistance
Enter username>
```

3. Enter the user name. The DECserver responds with the **Local>** prompt.
4. Enter the factory-set password SYSTEM to enable the privileges on the DECserver:

```
Local> SET PRIVILEGE Return
Password>
```

   Enter the following command to change the factory-set privileged password:

```
Local> DEFINE SERVER PRIVILEGED PASSWORD password Return
```

5. Locate the DECserver name by entering the command:

```
Local> SHOW SERVER Return
```

**The second line of the response displays the address, name, and number of the DECserver. The DECserver name is required to define the LTA devices in Section 2.2.5.2. Use the command DEFINE SERVER NAME to change the default DECserver name.**

**Perform the following steps for each DECserver port being used for the VCS host-initiated LAT connections:**

**Note**

**If Port 1 is used as a host-initiated LAT connection, perform the following steps on Port 1 last. Step 11 requires logging off the port and then repeating the entire procedure. Doing so and not performing the steps on Port 1 last prevents reconnection to Port 1 once disconnected.**

6. **Define the port name:**

   ```
   Local> DEFINE PORT n NAME VCS0n [Return]
   ```

   **In the following steps, *n* is always the DECserver port which can be in the range of 1 to 8.**

7. **Define the port speed:**

   ```
   Local> DEFINE PORT n SPEED baud [Return]
   ```

   ***Baud* is baud rate.**

8. **Define the *reverse* characteristic:**

   ```
   Local> DEFINE PORT n ACCESS REMOTE [Return]
   Local> DEFINE PORT n BREAK REMOTE [Return]
   ```

9. **Disable the AUTOBAUD, AUTOPROMPT, and BROADCAST characteristics:**

   ```
   Local> DEFINE PORT n AUTOBAUD DISABLE [Return]
   Local> DEFINE PORT n AUTOPROMPT DISABLE [Return]
   Local> DEFINE PORT n BROADCAST DISABLE [Return]
   ```

10. **Disable the default LAT group 0. Enable a unique LAT group number so that only the VCS host system controls this port:**

    ```
    Local> DEFINE PORT n AUTHORIZE GROUP 0 DISABLE [Return]
    Local> DEFINE PORT n AUTHORIZE GROUP group ENABLE [Return]
    ```

    **The LAT group number is required to define the LTA devices in Section 2.2.5.2. Define the same group number for all the VCS host-initiated LAT connection ports of the same DECserver.**

11. Activate the port characteristics by logging off the port.

```
Local> LOGOUT PORT n [Return]
```

Repeat steps 6 through 11 for each DECserver port.

### 2.2.5.2 Using VCS$LTA.COM to Create LTA Devices

The VCS$LTA.COM procedure invokes the LATCP program, which defines the LTA devices and maps the DECserver ports. The procedure uses the following parameters:

@SYS$MANAGER:VCS$LTA.COM *device-range server port-range group*

This DCL command requires that the following information:

*device-range* The numeric range allowed for LTA devices. The range format is:

$$number_1[-number_2]$$

where $number_1$ is the beginning and $number_2$ is the ending of the range. The range can be in either ascending or descending order. The device numbers must be from 1 to 999. There are no spaces surrounding the hyphen character.

The number of devices specified by this range must be equal to the number of ports specified by *port-range*. The VCS$LTA.COM procedure checks for and notifies of any discrepancies between the two ranges.

*server* The name of the DECserver whose ports are mapped to the specified LAT devices. LATCP enables a DECserver name to be specified before the name is entered into the DECserver's database (see Step 5 in Section 2.2.5.1). Ensure that the specified name is defined in the intended DECserver's database before starting the VCS software. Otherwise, the VCS software fails when trying to establish a connection to the nonexistent DECserver.

*port-range* The numeric range allowed for DECserver ports. The port range format is:

$$number_1[-number_2]$$

where $number_1$ is the beginning and $number_2$ is the ending of the range. The range can be in either ascending or descending order. The port numbers must be from 1 to 8 for a DECserver 200 device, and from 1 to 16 for a DECserver 300 device. Note that there are no spaces surrounding the hyphen character.

The number of ports specified by this range must be equal to the number of devices specified by *device-range*. VCS$LTA.COM checks for and notifies of any discrepancies between the two ranges.

11. Activate the port characteristics by logging off the port.

```
Local> LOGOUT
```

Repeat steps 6 through 11 for each DECserver port.

### 2.2.5.2 Using VCS$LTA.COM to Create LTA Devices

The VCS$LTA.COM procedure invokes the LATCP program, which defines the LTA devices and maps the DECserver ports. The procedure uses the following parameters:

```
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```

This DCL command requires that the following information:

*device-range* The numeric range allowed for LTA devices. The range format is:

$$number_1[-number_2]$$

where $number_1$ is the beginning and $number_2$ is the ending of the range. The range can be in either ascending or descending order. The device numbers must be from 1 to 999. There are no spaces surrounding the hyphen character.

The number of devices specified by this range must be equal to the number of ports specified by *port-range*. The VCS$LTA.COM procedure checks for and notifies of any discrepancies between the two ranges.

*server* The name of the DECserver whose ports are mapped to the specified LAT devices. LATCP enables a DECserver name to be specified before the name is entered into the DECserver's database (see Step 5 in Section 2.2.5.1). Ensure that the specified name is defined in the intended DECserver's database before starting the VCS software. Otherwise, the VCS software fails when trying to establish a connection to the fictitious DECserver.

*port-range* The numeric range allowed for DECserver ports. The port range format is:

$$number_1[-number_2]$$

where $number_1$ is the beginning and $number_2$ is the ending of the range. The range can be in either ascending or descending order. The port numbers must be from 1 to 8 for a DECserver 200 device, and from 1 to 16 for a DECserver 300 device. Note that there are no spaces surrounding the hyphen character.

The number of ports specified by this range must be equal to the number of devices specified by *device range*. VCS$LTA.COM checks for and notifies of any discrepancies between the two ranges.

*group* — The unique LAT group number, defined for the ports in the DECserver and required for the VCS host system to gain control of those ports. (See Step 10 in Section 2.2.5.1).

The following command examples show how to create host-initiated LAT devices using the VCS$LTA.COM procedure:

1. `$ @SYS$MANAGER:VCS$LTA.COM 9 VCSDS0 8 34` Return

   Creates a single host-initiated LAT device LTA9. The device is mapped to the port VCS08 of the DECserver 200 named VCSDS0. The LAT group number 34 is required to gain control of the VCSDS0 port VCS08.

2. `$ @SYS$MANAGER:VCS$LTA.COM 13-10 VCSDS1 1-4 29` Return

   Creates four host-initiated LAT devices LTA13, LTA12, LTA11, and LTA10. Next, these devices are mapped to the ports VCS01, VCS02, VCS03, and VCS04 of the DECserver 200 (named VCSDS1) in the specified order. The LAT group number 29 is required to gain control of the VCSDS1 ports VCS01 through VCS04.

## 2.3 Installation Preparation for the VAX 8500/8700/8800 Series Systems

**Note**

The information in this section is applicable only if you are installing the VCS software to manage a VAX 8500, 8700, or 8800 series system. If you are not doing so, continue reading at Section 2.4.

These VAX series systems have either a PRO380 or a MicroVAX II as the console subsystem. This console subsystem is called the *VAXconsole*. The VAXconsole is a secondary computer that resides outside of the VAX system cabinets. Unlike other VAX systems (for example, VAX 8600) where the VCS software connects directly to the OPA0 port on the back of the system main cabinet, the VCS software is connected to this series of systems through the VAXconsole.

### 2.3.1 VAX 8500/8700/8800

**The VCS software must be connected to one of these systems using the remote port of the VAXconsole PRO380. This port is located on the back of the VAXconsole system box and labeled COMM 1. A number of steps must be performed to set up the remote port on the VAXconsole before communications between the VAXconsole and the VCS host system can be established. For more information about the VAXconsole commands described in the following steps, refer to the *VAX 8800/8700/8550/8500 Console User's Guide*.**

**Note**

The following steps are valid only for the PRO380 Console V9.3 software.

Digital recommends that the VCS system and the VAXconsole **not** share the same OPA0 device. Sharing the same console device can cause data flow control problems which can hang the VAXconsole. Use the VCS system to utilize the OPA0 device since its purpose is to consolidate console management. The OPA5 device is normally not enabled by default as an operator terminal during VAX/VMS system startup. Thus, valuable information is not logged by the VCS system during the early stages of VAX/VMS system startup. Enabling the OPA5 device as an operator terminal has the added disadvantage of doubling the I/O load on the VAXconsole system. For this reason Digital does not recommend that the OPA5 device be enabled as an operator terminal for a great length of time.

Perform the following steps at the VAXconsole local terminal keyboard:

1. Log in to the system manager's account, SYSTEM.
2. Issue the following commands to connect the OPA5 device:

```
$ MCR SYSGEN [Return]
SYSGEN> CONNECT CONSOLE/REMOTE [Return]
SYSGEN> EXIT [Return]
```

   The above commands should also be added to SYS$STARTUP:SYSTARTUP_V5.COM for subsequent system reloads to connect the OPA5 device at startup.

3. Log out of the system manager's account.
4. Enter the VAXconsole Console Mode by pressing Ctrl/P. The VAXconsole responds with the >>> prompt.

5. Enter the EXIT command to return the console program from the Micromonitor to the Console Command Language.

   >>> EXIT Return

6. Press Main Screen to return to the VAXconsole PRO P/OS Stand-Alone Main Menu.
7. From the Stand-Alone Main Menu select **PRO/Communications V3.0**.
8. Press Set-Up to display the Communications Menu.
9. Select the **Setup** menu.
10. Select **Setup Communications Line**.
11. The Communication Line Setup Menu displays the current setup values. Adjust the values to equal those given in Example 2–1.

**Example 2–1 VAXconsole PRO380 Communication Line Setup Menu**

```
          Communication Line Setup Menu

Receive speed (baud)      speed-of-your-choice
Transmit speed (baud)     Receive
Character type            8 bits, no parity
Number of stop bits       1
XOFF control              Enabled
Autoanswer                Disabled
Remote access             Disabled
Connection type           Hardwired
```

12. Press Exit to accept the new values and return to the **Setup** Menu.
13. Select **Save Setup** to save the new values.
14. Select items **Clear Comm** to activate the new port characteristics, and **Reset** to reset the remote port.
15. Press Main Screen to return to the VAXconsole PRO P/OS Stand-Alone Main Menu.
16. Select **CONSOLE/PRODCL** to enter the console program. The Console Program takes about 20 seconds to be fully operational. When ready, the VAXconsole responds with the >>> prompt.

17. **Enter the following command, which sets the remote port to NO MODEM:**

    ```
    >>> DISABLE REMOTE MODEM [Return]
    ```

    **NO MODEM is required because the connection between the VCS host system and the VAXconsole is a hardwired RS232 line.**

18. **Enter the following command, which enables the VCS software to communicate with the VAXconsole through the remote port as a user terminal:**

    ```
    >>> ENABLE REMOTE USER [Return]
    ```

19. **Enter the following command, which enables the VCS software to communicate with the VAXconsole through the remote port as a console terminal:**

    ```
    >>> REMOTE CONSOLE [Return]
    ```

20. **Enter the following command to set the remote VAXconsole port to OPA0:**

    ```
    >>> SET REMOTE TERMINAL OPA0 [Return]
    ```

21. **Enter the following command to set the VAXconsole local terminal to OPA5:**

    ```
    >>> SET TERMINAL OPA5 [Return]
    ```

22. **Enter the following command, which enters the VAXconsole into program I/O mode:**

    ```
    >>> SET TERMINAL PROGRAM [Return]
    ```

23. **Log in to the system manager's account to verify that the OPA5 device is operational.**

**The VAXconsole remote port has been successfully set up.**

### 2.3.2 VAX 8830/8840

At each of the VAX 8830/8840 series systems, perform the following steps at the VAXconsole local terminal keyboard:

1. Enter the VAXconsole Console Mode by pressing Ctrl/P. The VAXconsole responds with the prompt **PS-HW-0>**. This is one of the prompts displayed by the VAXconsole, depending on the current console mode. See Chapter 2 of the *VAX 8840/8830 Console User's Guide* for additional information about the VAXcluster Console Mode.
2. Enter the following command, which enables the VCS host system to communicate with the VAX through the central terminal port.

   ```
   PS-HW-0> ENABLE CENTRAL CONSOLE Return
   ```

3. Enter the following command to place the VAXconsole into program I/O mode:

   ```
   PS-HW-0> SET TERMINAL PROGRAM Return
   ```

## 2.3.3 Preparation Work Sheets

Use the work sheets in Figures 2–2 and 2–3 to record the information to be used by the VCS Configuration Editor.

### Figure 2–2 Work Sheet, Nodes 1 to 16

| VAXcluster Console Information | |
|---|---|
| Recorder Output Terminal _____ (TXA0, TXB4, etc) | Speed: _____ (300, 600, 1200, 2400, 4800, 9600) |
| VCS Log File Directory: _____ (SYS$MANAGER:,DUA0:[VCS_LOGS], etc) | |

| VAXcluster Node Information | | | | | | |
|---|---|---|---|---|---|---|
| | Node Name | Terminal Connection | Terminal Speed | Scan Option | Fill Option | Herald |
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |
| 6 | | | | | | |
| 7 | | | | | | |
| 8 | | | | | | |
| 9 | | | | | | |
| 10 | | | | | | |
| 11 | | | | | | |
| 12 | | | | | | |
| 13 | | | | | | |
| 14 | | | | | | |
| 15 | | | | | | |
| 16 | | | | | | |

(Up to Fifty Characters)
("FILL" for HSC–50 on HSC–70 Nodes. "NOFILL" for All Others)
(VMS750, VMS780, VMS8600, HSC50, HSC70 or User–Defined)
(300, 600, 1200, 2400, 4800, 9600 for VAXes – 300, 9600 for HSCs)
(TXA0–7, TXB0–7. etc)
(DECNET Node Name Suggested)

MR-4148-RA

## Figure 2–3 Work Sheet, Nodes 17 to 32

| VAXcluster Console Information | |
|---|---|
| Recorder Output Terminal _____ (TXA0, TXB4, etc) | Speed: _____ (300, 600, 1200, 2400, 4800, 9600) |
| VCS Log File Directory: _____ | (SYS$MANAGER:,DUA0:[VCS_LOGS], etc) |

| VAXcluster Node Information | | | | | | |
|---|---|---|---|---|---|---|
| | Node Name | Terminal Connection | Terminal Speed | Scan Option | Fill Option | Herald |
| 17 | | | | | | |
| 18 | | | | | | |
| 19 | | | | | | |
| 20 | | | | | | |
| 21 | | | | | | |
| 22 | | | | | | |
| 23 | | | | | | |
| 24 | | | | | | |
| 25 | | | | | | |
| 26 | | | | | | |
| 27 | | | | | | |
| 28 | | | | | | |
| 29 | | | | | | |
| 30 | | | | | | |
| 31 | | | | | | |
| 32 | | | | | | |

(Up to Fifty Characters)
("FILL" for HSC–50 on HSC–70 Nodes. "NOFILL" for All Others)
(VMS750, VMS780, VMS8600, HSC50, HSC70 or User–Defined)
(300, 600, 1200, 2400, 4800, 9600 for VAXes – 300, 9600 for HSCs)
(TXA0–7, TXB0–7, etc)
(DECNET Node Name Suggested)

MR–4149–RA

## 2.4 Installation of the VCS Software on the Host System

The VCS software installation includes the registration of the product license information and the actual installation of the software.

### 2.4.1 License Registration

License registration is required before the VCS software can be run. The license registration requires response to a series of questions prior to the software installation. Issue the following command to register and load the VCS software license:

```
$ @SYS$UPDATE:VMSLICENSE [Return]

    VMS License Management Utility Options:

        1. Register a Product Authorization Key
        2. Amend an existing Product Authorization Key
        3. Cancel an existing Product Authorization Key
        4. List Product Authorization Keys
        5. Modify an existing Product Authorization Key

        9. Exit this procedure

    Type '?' at any prompt for a description of the information
    requested.

Enter one of the above choices [1]: [Return]
Do you have your Product Authorization Key? [YES]: [Return]

   The REGISTER option allows you add a new license to a license
   database.  A Product Authorization Key (PAK) provides the product
   name and information you need to register the license.  You must
   enter all the information provided by your PAK exactly as specified.

PAK ID:
                      Issuer [DEC]: [Return]
         Authorization Number []: AWS-2K-88582-1 [Return]

PRODUCT ID:
                Product Name []: VAXCLUSTER-CONSOLE [Return]
                   Producer [DEC]: [Return]

NUMBER OF UNITS:
              Number of Units []: 3200 [Return]

KEY LEVEL:
                       Version []: 1.4 [Return]

KEY TERMINATION DATE:
         Key Termination Date []: 30-MAR-1992 [Return]

RATING:
      Availability Table Code []: [Return]
          Activity Table Code []: CONSTANT-100 [Return]
```

```
MISCELLANEOUS:
                Key Options []: Return
              Product Token []: Return
                Hardware-Id []: Return
                   Checksum []: 1- INDP-KHJJ-KIFB-COAF Return

      License Database File:  SYS$COMMON:[SYSEXE]LMF$LICENSE.LDB
                     Issuer:  DEC
              Authorization:  AWS-ZK-88582-1
                   Producer:  DEC
               Product Name:  VAXCLUSTER-CONSOLE
                      Units:  3200
                       Date:
                    Version:  1.4
           Termination Date:  30-MAR-1992
               Availability:
                   Activity:  CONSTANT=100
                    Options:
                      Token:
                Hardware ID:
                   Checksum:  1-INDP-KHJJ-KIFB-COAF

Is this information correct? [YES]: Return
Registering VAXCLUSTER-CONSOLE license in SYS$COMMON:[SYSEXE]LMF$LICENSE.LDB...

Do you want to LOAD this license on this system? [YES]: Return
%LICENSE-I-LOADED, DEC VAXCLUSTER-CONSOLE was successfully loaded with 0 units

    VMS License Management Utility Options:

        1. Register a Product Authorization Key
        2. Amend an existing Product Authorization Key
        3. Cancel an existing Product Authorization Key
        4. List Product Authorization Keys
        5. Modify an existing Product Authorization Key

        9. Exit this procedure

    Type '?' at any prompt for a description of the information
    requested.

Enter one of the above choices [1]: 9 Return
$
```

## 2.4.2 Installation Procedure

**Install the VCS software by performing the following steps:**

1. **Log in to the system manager's account, SYSTEM.**
2. **Issue the following command to identify the appropriate local load device for the software kit medium:**

   ```
   $ SHOW DEVICE /FULL Return
   ```

3. **Enter the following command to run the VMSINSTAL software:**

```
$ @SYS$UPDATE:VMSINSTAL VCS014 device
```

**where *device* is the local load device identified in the previous step.**

**If the VMSINSTAL software detects a system environment that may impede installation, you are asked if you want to continue with the installation. The VCS software installation does not require that DECnet be shut down or that interactive logins be disabled. If you are updating from VCS Version 1.3, you do not have to shut it down for this installation. This procedure will shut down the current software and restart with the new VCS software once the installation completes successfully.**

**If the VMSINSTAL software detects that DECnet is running or users are logged in, it displays the prompt:**

```
* Do you want to continue anyway [NO]?
```

**Answer YES.**

4. **VMSINSTAL asks:**

```
* Are you satisfied with the backup of your system disk [YES]?
```

**If a backup of the system disk is available that would enable a rebuild of the system disk in case of a drastic failure, answer YES and press Return.**

5. **VMSINSTAL asks:**

```
Please mount the first volume of the set on device.
* Are you ready?
```

**Load the distribution tape or cartridge labeled VCS014 on the specified load device. Answer YES and press Return when the device is ready for installation. VMSINSTAL responds:**

```
%MOUNT-I-MOUNTED, VCS mounted on device
```

6. **VMSINSTAL begins the installation and displays a message similar to the following:**

```
The following products will be processed:
  VCS V1.4
       Beginning installation of VCS V1.4 at 12:04
```

7. **VMSINSTAL restores the first save set and moves the release notes to directory SYS$HELP.**

```
%VMSINSTAL-I-RESTORE, Restoring product save set A ...
%VMSINSTAL-I-RELMOVED, The product's release notes have been
successfully moved to SYS$HELP.
```

8. **VMSINSTAL asks:**

```
* Do you want to purge files replaced by this installation [YES]?
```

**If the installation is an update of VCS from Version 1.3 to 1.4, and you want to purge the older generations of the product files, answer YES and press Return.**

9. **VMSINSTAL asks:**

```
* Do you want to run the IVP after the installation [YES]?
```

**If you want to execute the installation verification procedure, answer YES and press Return.**

10. **VMSINSTAL reminds you, with the following message, that the installation verification procedure can also be run afterward:**

```
The VCS Installation Verification Procedure can also be executed
manually after the installation by using the command:

        $ @SYS$TEST:VCS$IVP.COM
```

11. **VMSINSTAL asks:**

```
Product license information

Product:      VAXCLUSTER-CONSOLE
Producer:     DEC
Version:      1.4
Release Date: 30-MAR-1992

* Does this product have an authorization key registered and loaded?
```

**The product authorization key (PAK) must be registered and loaded before you can activate the VCS software. If you have done so, answer YES and press Return. Otherwise, VMSINSTAL prompts you to do so:**

```
**********************    W A R N I N G    **********************

At the completion of the VCS software installation, you must use
the following command:

        $ @SYS$UPDATE:VMSLICENSE

to register  and  load  the VCS product authorization key before
starting the software.
```

12. **VMSINSTAL verifies that the system disk contains a minimum of 9000 free blocks for the installation of the product. If not, VMSINSTAL notifies you and terminates the installation procedure with the following message:**

```
%VMSINSTAL-E-NOSPACE, VCS requires 9000 blocks for the installation
```

13. If sufficient disk space is found, VMSINSTAL restores the second save set.

```
%VMSINSTAL-I-RESTORE, Restoring product save set B ...
```

14. VMSINSTAL asks:

```
* Do you want to install the default icon bitmaps [YES]?
```

The VCS C³ display, the principal VCS user interface, uses icons to represent the status of systems and other resources in your computer room. VCS supplies many standard icons for you to use, and also allows you to create your own icons. However, the VCS tool for incorporating your own icons (described in the *VAXcluster Console System User's Guide* ) requires the bitmap DDIF source files for the standard VCS icons as well as your custom icons. These standard icon source files are restored to the directory VCS$ICONS: and take up approximately 106 disk blocks. If you want to install these files, answer **YES** and press Return.

If you will never create custom icons and want to save the disk space, answer **NO** and press Return.

15. VMSINSTAL asks:

```
* Do you want to install the turn-key VCS demo [NO]?
```

VCS includes an optional console emulator, which allows you to run VCS using previously collected console log file data in place of "live" console line data.

VCS also includes a demo log file that can be run continuously by the emulator until you shut VCS down. This allows you to demonstrate or evaluate the product without additional hardware or database setup.

Answer **YES** and press Return if you want the demo to run when you start VCS.

16. VMSINSTAL asks:

```
* Do you want to install the Console Emulation Package [YES]?
```

Answer **YES** and press Return if you want to be able to run the emulator.

Answer **NO** and press Return if you will never run the emulator or the demo and want to save disk space.

This is the last response you need to supply to the installation procedure.

17. **VMSINSTAL notifies you that the following product specific directories are to be created:**

```
The following directories are created to contain VCS files:

        SYS$SPECIFIC:[VCS]
        SYS$SPECIFIC:[VCS.CEP]
        SYS$SPECIFIC:[VCS.ENS]
        SYS$SPECIFIC:[VCS.LOG]
        SYS$SPECIFIC:[SYSHLP.EXAMPLES.VCS]
        SYS$SPECIFIC:[SYSHLP.EXAMPLES.VCS.ICONS]
        SYS$SPECIFIC:[SYSTEST.VCS$IVP]
```

18. **VMSINSTAL begins the next phase of the installation by moving the installed files to their target directories and displaying the following message:**

```
All requested VCS V1.4-000 save sets are restored.

%VMSINSTAL-I-MOVEFILES, Files will now be moved to their target
directories...
```

19. **VMSINSTAL activates the product startup procedure to install the image files:**

```
VAXcluster Console System Startup Procedure
Install VCS images...
```

20. **VMSINSTAL creates a template configuration data file:**

```
A template configuration file is now created to contain only the
scan event records. The commands that are to be used to create
this template configuration file can be found in the
Configuration Editor indirect command file:

        VCS$EXAMPLES:VCS$CONFIGURATION_TEMPLATE.COM

You need to use the Configuration Editor to create additional
configuration information describing the serviced nodes before
starting VCS. Use the following command to do so:

        $ VCS EDIT CONFIGURATION
```

21. **VMSINSTAL creates the template event notification system (ENS) data file:**

```
The default event notification system data file is now created
to contain a number of pre-defined actions and events. The
commands that are to be used to create this data file can be
found in the event notification system editor command file:

        VCS$EXAMPLES:VCS$ENS_TEMPLATE.COM

You need to use the event notification system editor to create
```

additional actions and events. Use the following command to do so:

```
$ VCS EDIT NOTIFICATION
```

**22. VMSINSTAL prompts you to issue the following commands, if not already done:**

Insert the following command into SYS$STARTUP:SYSTARTUP_V5.COM:

```
$ @SYS$STARTUP:VCS$STARTUP SYSTEM
```

**and**

Insert the following command into SYS$MANAGER:SYSHUTDWN.COM:

```
$ VCS SHUTDOWN
```

**23. VMSINSTAL verifies the SYSGEN parameters SCSNODE and SCSSYSTEMID and displays the following prompt:**

You must define the SYSGEN parameters SCSNODE and SCSSYSTEMID for the VCS host system. The VCS Central Control Coordinator Interface makes use of this information in the creation of subprocesses. Define these parameters as follows:

```
SCSNODE = quoted-node-name
SCSSYSTEMID = (1024 * DECnet-node-area) + DECnet-node-number
```

Thus, for node PETER whose DECnet node number is 1.484, its definitions of these parameters are:

```
SCSNODE = "PETER"
SCSSYSTEMID = 1508 ! (1024 * 1) + 484
```

**24. The following VMSINSTAL message reminds you of the option to remove the product from the system if you want to:**

To deinstall the VCS product, execute the following command:

```
$ @SYS$MANAGER:VCS$DEINSTAL.COM
```

**25. If you chose to perform the installation verification procedure earlier, VMSINSTAL performs the procedure at this time and displays the following:**

```
*****************************************************************
*          VCS 1.4 Installation Verification Procedure          *
*****************************************************************

Begin...
Complete!
```

26. **The product installation procedure is complete. VMSINSTAL displays a message similar to the following:**

```
Installation of VCS V1.4 completed at 12:12

VMSINSTAL procedure done at 12:13
```

## 2.4.3 VCS Installation Log

**This section consists of the following sample log of a VCS software installation:**

```
$ @SYS$UPDATE:VMSINSTAL VCS014 MUA0: Return

                VAX/VMS Software Product Installation Procedure V5.4

It is 14-MAR-1990 at 11:58.

Enter a question mark (?) at any time for help.

%VMSINSTAL-W-ACTIVE, The following processes are still active:
        USER
        DECW$WM_1
        DECW$WM_2
        DECW$TE_1
* Do you want to continue anyway [NO]? YES Return
* Are you satisfied with the backup of your system disk [YES]? YES Return
Please mount the first volume of the set on  MUA0:.
* Are you ready? YES Return
%MOUNT-I-MOUNTED, VCS mounted on _MISVCS$MUA0:
The following products will be processed:

  VCS V1.4

       Beginning installation of VCS V1.4 at 12:04

%VMSINSTAL-I-RESTORE, Restoring product save set A ...
%VMSINSTAL-I-RELMOVED, The product's release notes have been successfully
moved to SYS$HELP.
* Do you want to purge files replaced by this installation [YES]? Return
* Do you want to run the IVP after the installation [YES]? Return

       The VCS Installation Verification Procedure can also be executed
       manually after the installation by using the command:

              $ @SYS$TEST:VCS$IVP.COM

       Product license information

       Product:      VAXCLUSTER-CONSOLE
       Producer:     DEC
       Version:      1.4
       Release Date: 30-MAR-1992

* Does this product have an authorization key registered and loaded? YES Return
```

```
        In addition to a set of default icons, VCS allows you to design
        your own icons representing various serviced resources. To
        extend this collection of default icons, you need to install
        their icon bitmap DDIF source files.

* Do you want to install the default icon bitmaps [YES]? Return

        If you are installing VCS 1.4 to evaluate the product or to
        set up a demonstration of the product, you should install
        the VCS 1.4 turn-key demo so that VCS can be started after
        installation without requiring addtional hardware or
        configuration set up.

* Do you want to install the turn-key VCS demo [NO]? Return

        The VCS 1.4 Console Emulation Package is an optional set of tools used
        to set up VCS system outside of a production environment.  The
        package allows VCS to be run using previously collected console
        log files in place of actual console line connections.

* Do you want to install the Console Emulation Package [YES]? Return

        No further questions will be asked.

%VMSINSTAL-I-RESTORE, Restoring product save set B ...
%VMSINSTAL-I-RESTORE, Restoring product save set C ...
%VMSINSTAL-I-RESTORE, Restoring product save set D ...

        The following directories are created to contain VCS files:

                SYS$SPECIFIC:[VCS]
                SYS$SPECIFIC:[VCS.CEP]
                SYS$SPECIFIC:[VCS.ENS]
                SYS$SPECIFIC:[VCS.LOG]
                SYS$SPECIFIC:[SYSHLP.EXAMPLES.VCS]
                SYS$SPECIFIC:[SYSHLP.EXAMPLES.VCS.ICONS]
                SYS$SPECIFIC:[SYSTEST.VCS$IVP]

%VMSINSTAL-I-SYSDIR, This product creates system directory [VCS].

    If you intend to execute this layered product on other nodes in your
    VAXcluster, and you have the appropriate software license, you must
    prepare the system-specific roots on the other nodes by issuing the
    following command on each node (using a suitably privileged account):

$ CREATE /DIRECTORY SYS$SPECIFIC:[VCS]/OWNER_UIC=[1,4]
/PROTECTION=(S:RWED,O:RWED,G:RE,W)
%VMSINSTAL-I-SYSDIR, This product creates system directory [VCS.CEP].

    If you intend to execute this layered product on other nodes in your
    VAXcluster, and you have the appropriate software license, you must
    prepare the system-specific roots on the other nodes by issuing the
    following command on each node (using a suitably privileged account):

$ CREATE /DIRECTORY SYS$SPECIFIC:[VCS.CEP]/OWNER_UIC=[1,4]
/PROTECTION=(S:RWED,O:RWED,G:RE,W)
%VMSINSTAL-I-SYSDIR, This product creates system directory [VCS.ENS].
```

```
    If you intend to execute this layered product on other nodes in your
    VAXcluster, and you have the appropriate software license, you must
    prepare the system-specific roots on the other nodes by issuing the
    following command on each node (using a suitably privileged account):

$ CREATE /DIRECTORY SYS$SPECIFIC:[VCS.ENS]/OWNER_UIC=[1,4]
/PROTECTION=(S:RWED,O:RWED,G:RE,W)
%VMSINSTAL-I-SYSDIR, This product creates system directory [VCS.LOG].

    If you intend to execute this layered product on other nodes in your
    VAXcluster, and you have the appropriate software license, you must
    prepare the system-specific roots on the other nodes by issuing the
    following command on each node (using a suitably privileged account):

$ CREATE /DIRECTORY SYS$SPECIFIC:[VCS.LOG]/OWNER_UIC=[1,4]
/PROTECTION=(S:RWED,O:RWED,G:RE,W)
%VMSINSTAL-I-SYSDIR, This product creates system directory
[SYSHLP.EXAMPLES.VCS].

    If you intend to execute this layered product on other nodes in your
    VAXcluster, and you have the appropriate software license, you must
    prepare the system-specific roots on the other nodes by issuing the
    following command on each node (using a suitably privileged account):

$ CREATE /DIRECTORY SYS$SPECIFIC:[SYSHLP.EXAMPLES.VCS]
/OWNER_UIC=[1,4]/PROTECTION=(S:RWED,O:RWED,G:RE,W)
%VMSINSTAL-I-SYSDIR, This product creates system directory
[SYSHLP.EXAMPLES.VCS.ICONS].

    If you intend to execute this layered product on other nodes in your
    VAXcluster, and you have the appropriate software license, you must
    prepare the system-specific roots on the other nodes by issuing the
    following command on each node (using a suitably privileged account):

$ CREATE /DIRECTORY SYS$SPECIFIC:[SYSHLP.EXAMPLES.VCS.ICONS]
/OWNER_UIC=[1,4]/PROTECTION=(S:RWED,O:RWED,G:RE,W)
%VMSINSTAL-I-SYSDIR, This product creates system directory
[SYSTEST.VCS$IVP].

    If you intend to execute this layered product on other nodes in your
    VAXcluster, and you have the appropriate software license, you must
    prepare the system-specific roots on the other nodes by issuing the
    following command on each node (using a suitably privileged account):

$ CREATE /DIRECTORY SYS$SPECIFIC:[SYSTEST.VCS$IVP]/OWNER_UIC=[1,4]
/PROTECTION=(S:RWED,O:RWED,G:RE,W)

        All requested VCS V1.4-000 save sets are restored.

%VMSINSTAL-I-MOVEFILES, Files will now be moved to their target
directories...

VAXcluster Console System Startup Procedure

Installed protected image SYS$LIBRARY:VCS$USS.EXE
%SYSTEM-S-SYNCH, synchronous successful completion
%VCS-I-SHUTDOWN, VCS shutdown
```

```
A template configuration file is now created to contain only the
scan event records. The commands that are to be used to create
this template configuration file can be found in the
Configuration Editor indirect command file:

        VCS$EXAMPLES:VCS$CONFIGURATION_TEMPLATE.COM

Configuration Editor indirect command file:

        VCS$EXAMPLES:VCS$CONFIGURATION_TEMPLATE.COM

You need to use the Configuration Editor to create additional
configuration information describing the serviced nodes before
starting VCS. Use the following command to do so:

        $ VCS EDIT CONFIGURATION

The default event notification system data file is now created
to contain a number of pre-defined actions and events. The
commands that are to be used to create this data file can be
found in the event notification system editor command file:

        VCS$EXAMPLES:VCS$ENS_TEMPLATE.COM

You need to use the event notification system editor to create
additional actions and events. Use the following command to do
so:

        $ VCS EDIT NOTIFICATION
No ENS database modifications made.

        Insert the following command into SYS$STARTUP:SYSTARTUP_V5.COM:

                $ @SYS$STARTUP:VCS$STARTUP SYSTEM

        Insert the following command into SYS$MANAGER:SYSHUTDWN.COM:

                $ VCS SHUTDOWN

        To deinstall the VCS product, execute the following command:

                $ @SYS$MANAGER:VCS$DEINSTAL.COM


Install VCS images...

        ****************************************************************
        *          VCS V1.4 Installation Verification Procedure        *
        ****************************************************************

        Begin...
        Complete!
        Installation of VCS V1.4 completed at 12:12

        VMSINSTAL procedure done at 12:13

$
```

## 2.5 Site-Specific Modifications to the Installed VCS Environment

This section describes the site-specific modifications that must be performed after the VCS software has been installed on the VCS host system but before the software can be started. Some of these are modifications that must be made to the VCS software site-specific startup procedure SYS$MANAGER:VCS$SITE_SPECIFIC.COM. If present in the SYS$MANAGER directory, the SYS$MANAGER:VCS$SITE_SPECIFIC.COM is automatically invoked by the VCS software startup procedure SYS$STARTUP:VCS$STARTUP.COM before the VCS software processes are started.

### 2.5.1 Creating a Configuration File

Use the Configuration Editor to create the VCS Configuration File SYS$MANAGER:VCS$CONFIGURATION.DAT before starting the VCS software. This file describes all of the information necessary for the VCS software to manage and service the nodes in the configuration. Refer to the *VAXcluster Console System Platform Manager's Guide* for information about what to include in a Configuration File and how to use the Configuration Editor. If you are planning to use host-initiated LAT connections, create the LTA devices before running the Configuration Editor. See Section 2.2.

### 2.5.2 Console Line Communications Characteristics

The default character format for all terminal lines connected to the VCS host system is /NOEIGHTBIT, and is defined by the SYSGEN parameter TTY_DEFCHAR. The VCS software makes use of this terminal characteristic as defined in TTY_DEFCHAR. If the system manager leaves the default value (/NOEIGHTBIT)unchanged, all console lines managed by the VCS software on the host system inherit that characteristic.

Some systems' console ports require eight-bit character format. If you need to manage one of these systems using the VCS software, include the following command in the VCS software site-specific startup SYS$MANAGER:VCS$SITE_SPECIFIC.COM procedure:

```
$ SET TERMINAL device /PERMANENT /EIGHTBIT
```

In this command, *device* is the terminal port on the VCS host system that is configured for the serviced system requiring eight-bit character format.

The default setting for all terminal lines on the VCS host system is /NOPARITY. If you are installing the VCS software to control a system that requires a parity console line, include the following command in the VCS software site-specific startup procedure SYS$MANAGER:VCS$SITE_SPECIFIC.COM:

```
$ SET TERMINAL device /PERMANENT /PARITY
```

## 2.5.3 VCS Logical Names

The VCS software defines and accepts user-defined logical names. This section describes these logical names and their uses.

### 2.5.3.1 Node Name Grouping by Logical Name

Some VCS software commands can operate on one or more nodes while other commands can only operate on single nodes. The node names recognized by the VCS software are those names listed in the VCS Configuration File.

Any VCS software command that accepts a single node name can also accept a logical name for each node name. Do not use VCS as a logical name. The VCS REVIEW command does not work as expected if VCS is used as a logical name. For example, enter the following:

```
$ DEFINE NODE1 PEPPER Return
```

Now the following two commands are synonymous and enable you to connect to the same system:

```
$ VCS CONNECT NODE1 Return
$ VCS CONNECT PEPPER Return
```

Any VCS software command that accepts a list of node names also accepts a list of logical names for each node name. One logical name can be used with one node name, several node names, or any combination thereof. For example, assign the following logical names as node names:

```
$ DEFINE NODE1 PEPPER Return
$ DEFINE NODE2 HEART Return
$ DEFINE NODE3 HSC001 Return
$ DEFINE NODE4 HSC002 Return
$ DEFINE VAX NODE1,NODE2 Return
$ DEFINE HSC NODE3,NODE4 Return
$ DEFINE ALL VAX,HSC Return
```

Now the following commands are synonymous and can be used to monitor the same four systems — PEPPER, HEART, HSC001, and HSC002:

```
$ VCS MONITOR PEPPER,HEART,HSC001,HSC002 [Return]
$ VCS MONITOR NODE1,NODE2,NODE3,NODE4 [Return]
$ VCS MONITOR VAX,HSC [Return]
$ VCS MONITOR VAX,HSC001,HSC002 [Return]
$ VCS MONITOR ALL [Return]
```

Note that node names can be abbreviated; logical names cannot. The default node name used by the commands VCS ACCESS, VCS COORDINATE, VCS MONITOR, VCS RECORD, and VCS REVIEW is VCS$ALL_NODES, a system-wide logical name that specifies all the nodes in the current VCS software configuration. For more information about these commands, see the *VAXcluster Console System User's Guide*.

The logical names can be defined in any logical name table accessible to the user process. To make logical names available on a system-wide basis, define these logical names at system startup by including the DEFINE/SYSTEM /EXECUTIVE commands in The VCS software site-specific startup procedure. For example, include the commands that were listed previously in this section:

```
$ DEFINE/SYSTEM/EXECUTIVE NODE1 PEPPER
$ DEFINE/SYSTEM/EXECUTIVE NODE2 HEART
$ DEFINE/SYSTEM/EXECUTIVE NODE3 HSC001
$ DEFINE/SYSTEM/EXECUTIVE NODE4 HSC002
$ DEFINE/SYSTEM/EXECUTIVE VAX NODE1,NODE2
$ DEFINE/SYSTEM/EXECUTIVE HSC NODE3,NODE4
$ DEFINE/SYSTEM/EXECUTIVE ALL VAX,HSC
```

### 2.5.3.2 VCS Logical Name Definitions

The system-wide logical names listed in Table 2–1 are defined by VCS. Their definitions determine the behavior of the various VCS software components. You may re-define some of these logical names in the site-specific procedure SYS$MANAGER:VCS$SITE_SPECIFIC.COM to tailor your local environment.

**Table 2–1 Logical Names**

| | |
|---|---|
| VCS$† | The top level directory of the VCS related subdirectories containing various data and log files. |

†These logical names are defined by the VCS software components and should not be redefined or the product will behave incorrectly.

(continued on next page)

**Table 2–1 (Cont.) Logical Names**

| | |
|---|---|
| VCS$ALL_NODES† | The list of all nodes that are currently in the VCS configuration. |
| VCS$C3_MBX† | A $C^3$ inter-process communication mailbox. |
| VCS$CEP† | If defined, VCS is running in emulator mode. |
| VCS$CEP_CONFIGURATION | If defined, the name of the configuration file that the Console Emulation Package will use.<br>This logical name may be redefined. |
| VCS$CEP_INPUT | If defined, VCS$CEP_INPUT is the name of a VCS console log file. It is used as the default input file for the VCS$CEP process to feed console data to the console lines. |
| VCS$CEP_ROOT | The CEP files directory. |
| VCS$CONFIGURATION† | The VCS configuration file name that is currently active. |
| VCS$DEBUG | Defined to indicate .LOG and .ERR files will not be deleted. |
| VCS$DISPLAY† | The list of all DECwindows display servers where the $C^3$ Interface is started up automatically when VCS is activated (VCS Version 1.3 format). |
| VCS$DISPLAY_*n*† | The list of all DECwindows display servers where the $C^3$ Interface is started up automatically when VCS is activated (VCS Version 1.4 format). |
| VCS$ENS | The directory which contains the ENS data, command, and executable image files. |
| VCS$ENS_DATA_FILE† | The ENS data file name that is currently active. |
| VCS$ENS_LOG | The directory which contains the ENS process output and error log files. |
| VCS$ENS_MAILBOX | ENS inter-process communication device. |
| VCS$EVENT_LOG_ALLOCATION | The initial file allocation quantity in blocks for the VCS event log file. This logical name defines the default value of the FAB$L_ALQ field in the RMS FAB data structure when the VCS event log file is first created. |

†These logical names are defined by the VCS software components and should not be redefined or the product will behave incorrectly.

(continued on next page)

**Table 2–1 (Cont.) Logical Names**

| | |
|---|---|
| VCS$EVENT_LOG_EXTENSION | The default extension quantity in blocks for the VCS event log file. This logical name defines the default value of the FAB$L_DEQ field in the RMS FAB data structure when the VCS event log file is first created. Note that a larger extension quantity will help ensure a contiguous file. A contiguous file helps improve the speed of the REVIEW commands. Consider the VCS$EVENT_LOG_EXTENSION when deciding on the values for the allocation and extension quantities. |
| VCS$EXAMPLES† | The directory which contains the VCS sample source codes and other example files. |
| VCS$GROUP_*cluster-name*† | The list of all nodes that were defined to belong to the Cluster *cluster-name* in the VCS configuration file. *Cluster-name* can be used in any command that requires a list of nodes. |
| VCS$ICONS | The directory which contains the DIGITAL supplied icon image DDIF files. |
| VCS$IFEX_*pid* | A C[3] inter-process communication mailbox. |
| VCS$LOG† | The directory where the console and event log files are created and maintained by the VCS software. |
| VCS$LOG_ALLOCATION | The initial file allocation quantity in blocks for the VCS console log file. This logical name defines the default value of the FAB$L_ALQ field in the RMS FAB data structure when the VCS console log file is first created. |
| VCS$LOG_EXTENSION | The default extension quantity in blocks for the VCS console log file. This logical name defines the default value of the FAB$L_DEQ field in the RMS FAB data structure when the VCS console log file is first created. Note that a larger extension quantity will help ensure a contiguous file. A contiguous file helps to improve the speed of the REVIEW commands. Consider this when deciding on the values for the allocation and extension quantities. |
| VCS$MAILBOX† | The inter-process communication mailbox device. |
| VCS$PRIVATE | A unique identifier which is used by the VCS software to construct various inter-process communication facility names and devices when two or more nodes are running the VCS software in a VAXcluster environment. |

†These logical names are defined by the VCS software components and should not be redefined or the product will behave incorrectly.

(continued on next page)

**Table 2–1 (Cont.) Logical Names**

| | |
|---|---|
| VCS$PROCESS_C3 | If TRUE, the Central Control Coordinator process is started in the VCS startup sequence. The default is TRUE. |
| VCS$PROCESS_CEP | If TRUE, the VCS emulator process VCS$CEP is started before the VCS$IODL process in the VCS startup sequence. All terminal lines defined in the configuration file are ignored. All nodes are connected to FTAnn: devices served by the VCS$CEP process. If VCS$CEP_INPUT is defined and is a VCS log file, the file is opened and its contents are used to feed console data to the console lines.<br>This logical name may be redefined. |
| VCS$PROCESS_ELOG | If TRUE, the VCS Event Logger process VCS$ELOG is started in the VCS startup sequence. The default is TRUE. |
| VCS$PROCESS_ENS | If TRUE, the VCS Event Notification System processes are started in the VCS startup sequence. The default is TRUE. |
| VCS$PROCESS_SCANNER | If TRUE, the Data Scanner process VCS$SCANNER is started in the VCS startup sequence. The default is TRUE. |
| VCS$STANDBY | If TRUE, the VCS software will operate in a fail-over mode on an appropriately set up platform configuration. |
| VCS$TERMINAL_DEFAULT | The file name containing the customized features for the DECterm windows created by the $C^3$ Interface. |

## 2.5.4 Setting Console Terminal Characteristics

Specific parameters must be set for all lines that connect to the VCS host system. Execute the following command for each VAX system startup procedure for each serviced node:

```
$ SET TERMINAL OPA0: /PERMANENT /FULLDUP /HOSTSYNC /TTSYNC [Return]
```

Check the console line speed setting at each node to ensure that the console line speed matches the VCS host system terminal port speed.

If you are installing the VCS software to service a system without VMS, make sure that the system console software provides the same set of characteristics for the console terminal line. The equivalent console terminal characteristics are:

| | |
|---|---|
| /FULLDUP | Indicates the mode of operation is full-duplex. |
| /HOSTSYNC | Enables a system without VMS to control the flow of data from the VCS software. With this characteristic, the system can stop transmission from the VCS software by generating an XOFF when the input buffer is full. When the system's input buffer is empty, generating an XON resumes transmission by the VCS software. |
| /TTSYNC | Enables the system to respond to the flow control requests from the VCS software. With this characteristic the system can stop transmission to the VCS software when an XOFF is received. Transmission from the VCS software resumes when an XON is received. |

## 2.5.5 Starting the VCS Software at System Reboot

Add the following command to the SYS$STARTUP:SYSTARTUP_V5.COM to start the VCS software during system reboot:

```
$ @SYS$STARTUP:VCS$STARTUP.COM SYSTEM [Return]
```

See Section 2.5.5.1 for the description of VCS$STARTUP.COM.

Do not submit the VCS software startup command procedure VCS$STARTUP.COM in batch mode. The VCS software must allocate the terminal lines in SYSTARTUP_V5.COM before any other process. The following scenario can occur if another process allocates the terminal lines in STARTUP_V5.COM before the VCS software. Noise on an unallocated line can be mistaken for a login request and result in the LOGINOUT process prompting for a user name. This action normally causes a timeout at a terminal. However, a processor at each end of the terminal line can cause an infinite and alternating execution of the VCS host system and serviced system's LOGINOUT process, as shown in the following example:

```
Username:
Password:
    .
    .
    .
```

If you are not using host-initiated LAT devices, start the VCS software at any point within the SYS$STARTUP:SYSTARTUP_V5.COM command procedure. If you are using host-initiated LAT devices, you must create the LTA devices before starting the VCS software. Use the command procedure SYS$MANAGER:VCS$LTA.COM to create the LTA devices. The LTA devices require the LAT software and can only be created after DECnet software is started. Thus, the order of product startup is as follows:

1. DECnet
2. LAT
3. VCS

The following sample commands show how the components are started in SYS$STARTUP:SYSTARTUP_V5.COM:

```
    .
    .
    .
$ IF F$SEARCH("SYS$SYSTEM:NETACP.EXE") .NES. "" -
  THEN @SYS$MANAGER:STARTNET
$ @SYS$MANAGER:VCS$LTA 1-8 LAT40 1-8 54
$ @SYS$STARTUP:VCS$STARTUP SYSTEM
    .
    .
    .
```

### 2.5.5.1 VCS$STARTUP.COM

The SYS$STARTUP:VCS$STARTUP.COM enables the VCS system manager to start and control detached VCS software processes. This procedure also establishes the environment in which the VCS software operates.

The procedure has the following parameters:

$ @SYS$STARTUP:VCS$STARTUP.COM *option priority device*

where:

*option* is one of the following options or process names:

| | |
|---|---|
| INSTALL | indicates that the VCS software images are installed. This option does not start the VCS software. |
| SYSTEM | indicates that the VCS software images are installed and then the complete the VCS software startup sequence are performed. This option must be specified in the system startup procedure SYS$STARTUP:SYSTARTUP_V5.COM. |
| VCS$C3 | indicates that only the Central Control Coordinator processes are started. |
| VCS$CEP | indicates that only the Console Emulation Package should be started. |
| VCS$ELOG | indicates that only the Event Logger process is started. |
| VCS$ENS | indicates that only the ENS processes are started. |
| VCS$IODL | indicates that only the I/O Data Logger process is started. |
| VCS$RECORDER | indicates that a process is started. Multiple Interface processes may be run, each directing console data to a different output terminal device. |
| VCS$SCANNER | indicates that only the Data Scanner process is started. |

If *option* is omitted, that is, specified as " ", the complete VCS software startup sequence begins. This is the recommended option when starting the VCS software interactively.

*priority* represents the VCS software process priority. By default, all the VCS software processes inherit the current priority of the process that executes VCS$STARTUP.COM. If specifying a priority with the SYSTEM option, all VCS software processes inherit that value as their process base priority.

*device* If *option* is VCS$RECORDER, *device* represents the VCS Record Interface terminal output device name. If *option* is VCS$C3, *device* is optional and represents the DECwindows graphics server display. If *device* is specified, the $C^3$ Interface is started only on that DECwindows display.

### 2.5.5.2 VCS Startup Sequence

The complete VCS software startup sequence, executed by VCS$STARTUP.COM, is described in the following steps:

1. Define the specific logical names (for example, VCS$EXAMPLES).
2. Execute VCS$CEP_LOGICAL.COM if it exists in SYS$MANAGER.
3. Execute the site-specific procedure SYS$MANAGER:VCS$SITE_SPECIFIC.COM to set up the site requirements, if present.
4. Shut down the VCS software, if currently running.
5. Install the VCS software images, if required.
6. If selected by the VCS$PROCESS_CEP logical, the Console Emulation Package begins. Error messages are written to the file VCS$CEP_OUTPUT.LOG.
7. The I/O Data Logger process, VCS$IODL, begins. Error messages are written to the file SYS$MANAGER:VCS$IODL_OUTPUT.LOG.
8. The Data Scanner process, VCS$SCANNER, begins. Error messages are written to the file SYS$MANAGER:VCS$SCANNER_OUTPUT.LOG.

   Define the VCS logical name VCS$PROCESS_SCANNER to be FALSE in the SYS$MANAGER:VCS$SITE_SPECIFIC.COM procedure to inhibit the Data Scanner process from being started in the sequence.
9. The Event Logger process, VCS$ELOG, begins. Error messages are written to the file SYS$MANAGER:VCS$ELOG_OUTPUT.LOG.

   Define the VCS logical name VCS$PROCESS_ELOG to be FALSE in the SYS$MANAGER:VCS$SITE_SPECIFIC.COM procedure to inhibit the Event Logger process from being started in the sequence.
10. The ENS processes are started. Error messages are written to the file SYS$MANAGER:VCS$ENS_OUTPUT.LOG.

    To inhibit the ENS processes from being started in the sequence, define the VCS logical name VCS$PROCESS_ENS to be FALSE in the SYS$MANAGER:VCS$SITE_SPECIFIC.COM procedure.
11. On XUI systems, the VCS software starts the Central Control Coordinator Interface process, VCS$C3_*display*, if the VCS host system is a VAXstation or a display destination has been defined in the configuration file. Error messages are written to the file SYS$MANAGER:VCS$C3_*display*_OUTPUT.LOG.

    On Motif systems, $C^3$ startup is deferred until Motif starts.

Define the VCS logical name, VCS$PROCESS_C3 to be FALSE in the SYS$MANAGER:VCS$SITE_SPECIFIC.COM procedure to inhibit the Central Control Coordinator Interface processes from being started in the sequence.

12. If the parameter *device* is specified or the logical name VCS$RECORDER_TERMINAL is defined to point to an output terminal. The VCS software starts the Recorder Interface process VCS$REC_*device* and writes error messages to the file SYS$MANAGER:VCS$REC_*device*_OUTPUT.LOG.

### 2.5.6 Stopping the VCS Software at System Shutdown

Add the following command to SYS$MANAGER:SYSHUTDWN.COM to terminate communications between the VCS host system and the serviced systems:

```
$ VCS SHUTDOWN
```

Remember to execute the site-specific shutdown procedure when shutting down the VCS host system.

## 2.6 Starting the VCS Software

The VCS software can now be started for the first time. The two ways to start the VCS software are:

- Reboot the system and automatically start the VCS software at system startup.
- Manually start up the VCS software.

If the SYSGEN parameters have been adjusted, as described in Section 2.2.4 or Section 2.5.2, run the AUTOGEN procedure by entering the command:

```
$ @SYS$UPDATE:AUTOGEN SAVPARAMS REBOOT [Return]
```

This command automatically generates the new SYSGEN parameters. AUTOGEN automatically reboots the VCS host system. When the system is rebooted, the VCS software is started as a part of the system startup procedure. When the VCS host system completes the system startup, log in to the system manager's account, SYSTEM in Section 2.7.

To start up the VCS software manually, enter the following command:

```
$ @SYS$STARTUP:VCS$STARTUP.COM SYSTEM [Return]
```

## 2.7 Final Setup

**Although the VCS software is operational, additional procedures must be performed before the installation is complete.**

### 2.7.1 VAX 8500/8700/8800

**Note**

**Read the information in this section only if you are installing the VCS software to manage a VAX 8530, 8550, 8700, or 8800 system.**

**For each of these VAX systems, perform the following procedures at the VCS host system:**

**Note**

**The following steps are valid only for the VAXconsole PRO380 Console V9.3 Software.**

1. **Enter the command:**

   $ VCS CONNECT *node-name* Return

   **where *node-name* is the name of a VAX 8500/8700/8800 series system. Any keystrokes entered are forwarded to the VAXconsole PRO380.**

2. **Press Return to confirm that the communication path between the VCS host system and the VAXconsole PRO380 has been established successfully. The >>> prompt is displayed.**

3. **Enter the following command to share the same OPA0 device with the VAXconsole local terminal:**

   >>> SET TERMINAL OPA0 Return

4. **Enter the following command to enter the VAXconsole remote port into program I/O mode:**

   >>> SET TERMINAL PROGRAM Return

5. Press Ctrl/G to return to the VCS host system.

Now all of the console functions to control the VAX 8500/8700/8800 series system from a VCS software user interface can be performed with the exception of the following commands. However, the following commands can be entered from the VAXconsole PRO380 terminal keyboard:

- EXIT
- POWER { OFF / ON / STANDBY }
- DISABLE PRINTER
- ENABLE REMOTE { CONSOLE / USER }

## 2.7.2 VAX 8830/8840

**Note**

Read the information in this section only if the VCS software has been installed to manage one or more VAX 8830/8840 series systems.

For each of these VAX systems, perform the following steps at the VCS host system:

1. Enter the following command:

   ```
   $ VCS CONNECT node-name [Return]
   ```

   where *node-name* is the name of a VAX 8830/8840 series system. Any keystrokes entered are forwarded to the VAXconsole MicroVAX II.

2. Press Return to confirm that the communication path between the VCS host system and the VAXconsole MicroVAX II has been established successfully. The PS-HW-0> prompt is displayed.

3. Enter the following command to share the same OPA0 device with the VAXconsole local terminal:

   ```
   PS-HW-0> SET TERMINAL OPA0 [Return]
   ```

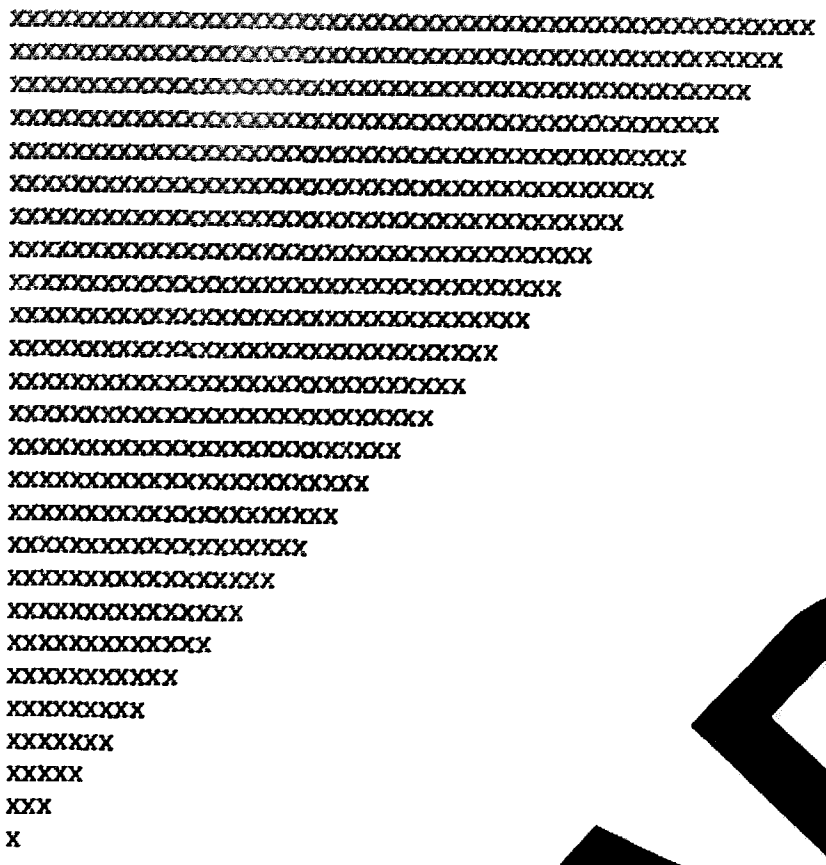
4. Enter the following command to enter the VAXconsole remote port into program I/O mode:

   ```
   PS-HW-0> SET TERMINAL PROGRAM [Return]
   ```

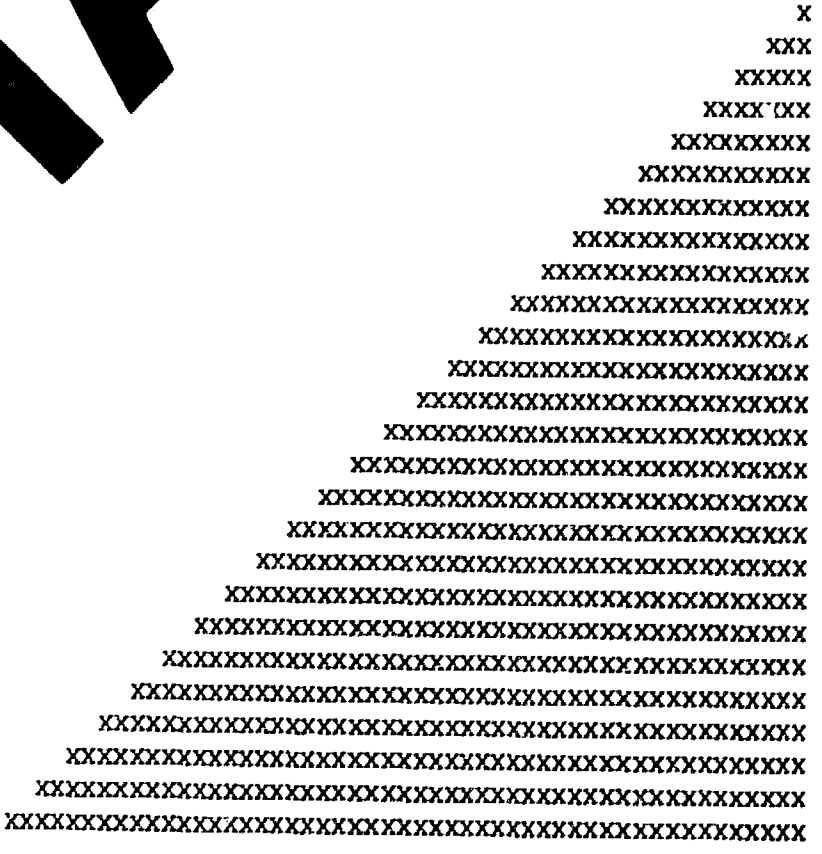
5. Press Ctrl/G to return to the VCS host system.

Now all of the console functions to control the VAX 8830/8840 series system from a VCS software user interface can be performed. However, enter the commands at the VAXconsole MicroVAX II terminal keyboard:

- EXIT
- POWER { INITIALIZE | OFF | ON | STANDBY | STATUS }



# CHAP 3



# 3

# Using the VCS Demo and Console Emulator

The VCS console emulator (or Console Emulation Package) allows you to run VCS on a VAXstation without physically connecting it to other systems.

The VCS console emulator has a variety of uses. These include:

- Demonstration of VCS capabilities in a single workstation environment without requiring hardware connections to any real console lines
- Training of new operators in a safe simulation environment instead of on live production machines
- Postmortem analysis of an operational problem situation to determine better ways to handle this situation in the future
- Preinstallation testing of changes to a production VCS environment

The console emulator requires a VCS configuration file to specify the environment to be emulated, and a VCS console log file to provide the simulated incoming information stream. Instead of using real connections to the nodes in the configuration, the software emulates these connections using the VMS pseudoterminal capability. The emulator then reads the specified console log file, and each event (which was recorded as having been received in a prior "live" session) is now transmitted as a string of characters to the corresponding emulated console line.

The emulator has control options to vary the rate at which the log file data is presented as emulated input. The log file being read contains time stamps that the emulator uses to vary the arrival rate of simulated inputs within the minimum and maximum delay parameters specified. This permits a log file that was originally recorded over several hours to be replayed in a few minutes, eliminating quiet periods where nothing interesting was happening.

### Demonstration

A *turn-key demo* is shipped with the console emulator. This includes a configuration file that depicts a typical installation, and a log file whose entries cause an interesting series of events to be detected by VCS and shown in its $C^3$ window. This demonstration package starts automatically after installation and is set up to cycle repetitively while you explore the various interfaces and menus that are available in VCS to deal with the events presented.

To use the console emulator for all other purposes, you must provide your own configuration and log files.

### Training

VCS does not include a set of training files because the training requirements of each customer are different. You can use your own configuration and input logs to replay events unique to your own data center.

Select a configuration file which accurately represents the actual environment in which the operator trainees will be working. Similarly, you would select segments of log files which include times when events occurred that the trainee needs to learn how to respond to. Several different short log files capturing different scenarios requiring operator response could be set up as a series of lessons. When you start the emulator, you can specify a log file name as input, so each lesson could be started by selecting a different file.

### Problem Analysis

If your site has experienced a serious operational problem (for example, failure to detect and act on an important error), the console emulator permits you to replay the failure scenario, and analyze how to prevent recurrences of the problem. Possible solutions might include:

- Adding a new string to a scan profile to detect occurrences of critical situations that previously went undetected
- Programming ENS to issue additional alarm messages
- Changing the instructions for how operators are to respond to certain situations

To use the emulator for such postmortem analysis, you specify the configuration file in use at the time of the problem, the log file that was captured during that problem period, and the time of day at which to begin replaying the critical time period.

In cases where it appears that VCS has malfunctioned, it will be useful for you to submit your configuration file and log file for the time period in question to Digital's support organization. They may be able to use the console emulator to reproduce, analyze, and fix the problem.

### Preinstallation Testing

Finally, if you are considering changing your configuration, you can use the console emulator to test your new configuration file before using it in an actual production environment. For instance, if you have added new events to your scan profile or ENS data file, you can run the emulator with your new configuration file, and replay selected previous log files to test if the new configuration definitions detect the additional conditions.

## 3.1 Starting and Running the VCS Demo

### Preinstallation Setup

Run VCS on a standalone workstation using the special demo product authorization key. The VCS console emulator cannot be run on a VCS production system, that is, a VCS platform that is monitoring and controlling "live" system consoles, without taking the production system offline.

Follow the VCS preinstallation procedures described in Section 2.2. Note the disk space recommendations for log files. VCS generates log files as it runs the demo, so allow disk space beyond the 9000 blocks required to install the VCS software.

Also note that, in addition to the SYSGEN parameters recommended for running a VCS production system, the emulator requires the following settings:

- MIN_GBLPAGES = 30000
- MIN_GBLPAGFIL = 6024
- MIN_GBLSECTIONS = 512
- MIN_SPTREQ = 5000

### Installation

Follow the VCS installation procedure in Section 2.4. Answer YES when you are prompted to install the turn-key demo.

```
* Do you want to install the turn-key VCS demo [NO]?

        No further questions will be asked.
```

The installation procedure continues automatically from here on, taking five minutes or more, depending on the workstation. Disregard messages telling you about postinstallation tasks (for example, using the Configuration Editor). The demo software includes all the files you need to demonstrate VCS.

When the installation procedure is complete, the demo starts running automatically.

### Using the Demo

A C³ Interface window is displayed on your workstation screen. The icons in the window change color in response to the events that the demo is generating.

You can use the Connect command to connect to a node displayed in the C³ window. The Connect window acts as a console terminal. In addition to the events generated by the demo, any characters you type to the Connect interface are echoed back and treated as console data. Therefore, you can generate an event by typing one of the text strings that is defined as a scan event in the configuration file.

If you start the Configuration Editor, its default input file is the standard configuration file, not the demo configuration file. If you exit from the Configuration Editor, you can safely ignore any "invalid terminal line" messages.

### Shutdown

To stop the demo:

1. Quit the C³ Interface using the File menu.
2. Shut down VCS to stop the VCS processes.

Once the demo is installed on this workstation, VCS is unavailable for production use (managing system consoles). If you start up VCS again, the demo starts over.

If you want to use this VAXstation to connect VCS to live system consoles you could deinstall the emulator completely, using the following command:

```
$ @SYS$MANAGER:VCS$CEP_DEINSTALL.COM Return
```

The following steps also allow VCS to run without the emulator.

1. Rename the file SYS$MANAGER:VCS$CEP_LOGICAL.COM to another name or directory.
2. Define the logical name VCS$PROCESS_CEP equal to "FALSE" in your VCS$SITE_SPECIFIC.COM file.

   ```
   $ DEFINE/SYS/EXEC VCS$PROCESS_CEP FALSE
   ```

To deinstall all the VCS software, enter the following command:

```
$ @SYS$MANAGER:VCS$DEINSTAL.COM Return
```

## 3.2 Starting and Running the Console Emulator

### Preinstallation Setup

Select a non-production VAXstation on which to emulate console lines. The VCS console emulator cannot be run on a VCS production system, that is, a VCS platform that is monitoring and controlling "live" system consoles, without taking the production system offline.

Follow the VCS preinstallation procedures described in Section 2.2. Note the disk space recommendations for log files. VCS generates log files as it runs the emulator, so allow disk space beyond the 9000 blocks required to install the VCS software.

Also note that, in addition to the SYSGEN parameters recommended for running a VCS production system, the emulator requires the following settings:

- MIN_GBLPAGES = 30000
- MIN_GBLPAGFIL = 6024
- MIN_GBLSECTIONS = 512
- MIN_SPTREQ = 5000

### Installation

Follow the VCS installation procedure in Section 2.4. Answer NO when you are prompted to install the turn-key demo. Answer YES when you are prompted to install the Console Emulation Package.

```
* Do you want to install the Console Emulation Package [YES]? Return
```

Follow the rest of the VCS installation procedure and postinstallation tasks.

### DCL Startup

To start the console emulator from DCL:

```
$ VCS START EMULATOR Return
```

For complete details about the VCS START EMULATOR command, see DCL command reference chapter in the *VAXcluster Console System User's Guide.*

*From a second terminal or DECterm window*, start VCS with the VCS$STARTUP command:

```
$ @SYS$STARTUP:VCS$STARTUP SYSTEM Return
```

### Automatic Startup

An alternative way to start the console emulator is to use the VCS$SITE_SPECIFIC command file. This is useful when you want the emulator to use the same input and configuration files every time you start the VCS software. Follow these steps:

1. Edit (or create) the file VCS$SITE_SPECIFIC.COM. Include the following commands:

```
$ DEFINE/SYS/EXEC VCS$CEP_CONFIGURATION configuration-file-name
$ DEFINE/SYS/EXEC VCS$CEP_INPUT log-file-name
$ DEFINE/SYS/EXEC VCS$PROCESS_CEP TRUE
```

2. Start VCS and the emulator with the VCS$STARTUP command:

```
$ @SYS$STARTUP:VCS$STARTUP SYSTEM Return
```

### Using the Emulator

A C³ Interface window is displayed on your workstation screen. The icons in the window change color in response to the events that the emulator is generating from the log file.

You can use the Connect command to connect to a node displayed in the C³ window. The Connect window acts as a console terminal. In addition to the events generated by the demo, any characters you type to the Connect interface are echoed back and treated as console data. Therefore, you can generate an event by typing one of the text strings that is defined as a scan event in the configuration file.

If you start the Configuration Editor, its default input file is the standard configuration file, not the demo configuration file. If you exit from the Configuration Editor, you can safely ignore any "invalid terminal line" messages.

### Shutdown

To stop the emulator:

1. Quit the C³ Interface using the File menu.
2. Shut down VCS to stop the VCS processes.

```
$ VCS SHUTDOWN Return
```

Once the emulator is installed on this workstation, VCS is unavailable for production use (managing system consoles). If you start up VCS again, the emulator starts.

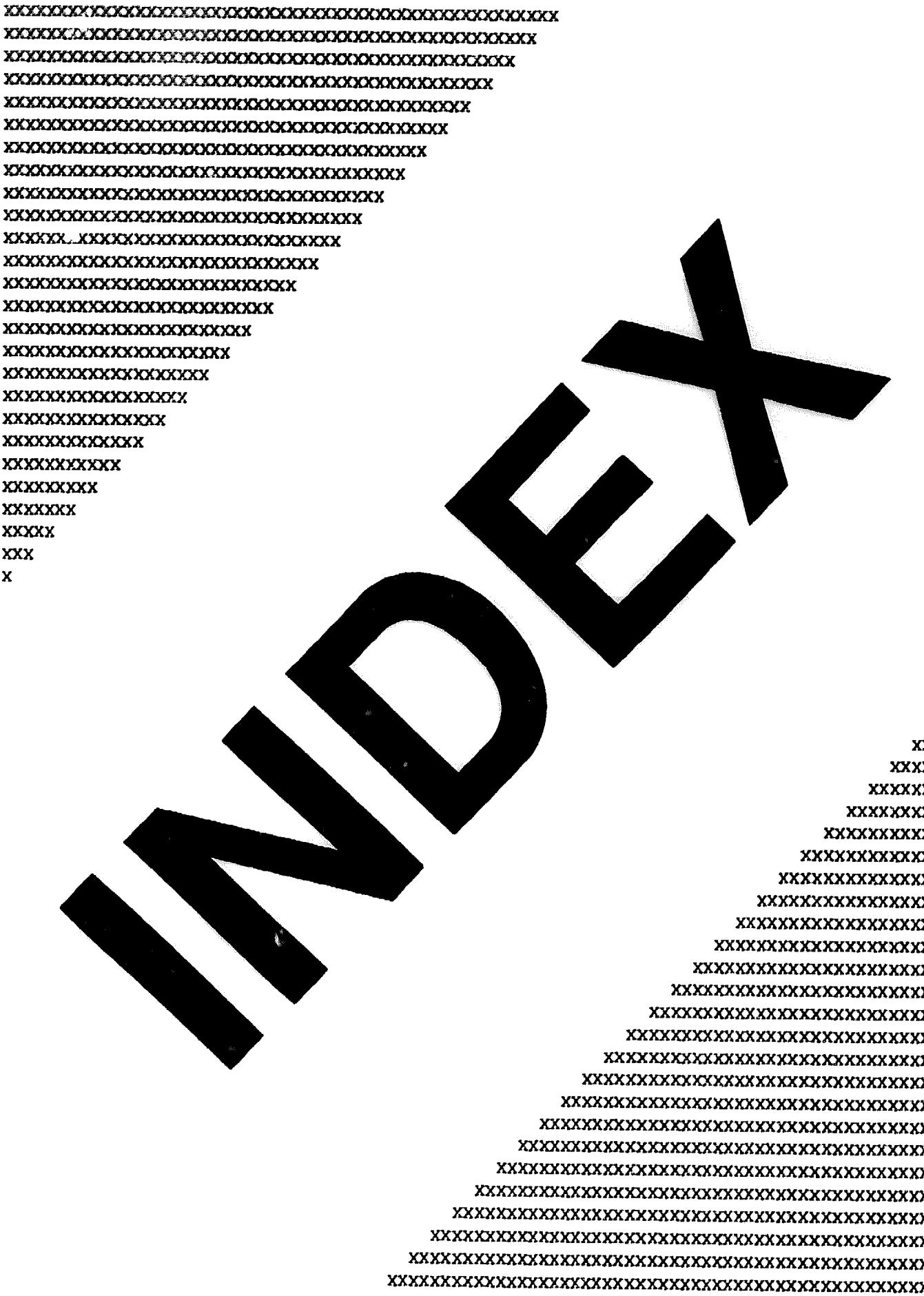
**If you want to use this VAXstation to connect VCS to live system consoles, you could deinstall the emulator completely, using the following command:**

```
$  @SYS$MANAGER:VCS$CEP_DEINSTALL.COM [Return]
```

**The following steps also allow VCS to run without the emulator.**

1. **Rename the file SYS$MANAGER:VCS$CEP_LOGICAL.COM to another name or directory.**
2. **Define the logical name VCS$PROCESS_CEP equal to "FALSE" in your VCS$SITE_SPECIFIC.COM file.**

   ```
   $ DEFINE/SYS/EXEC VCS$PROCESS_CEP FALSE
   ```


INDEX

# Index

## H



## L



## O



## P



## Q



## S