



[NEW FIGURE TO COME]

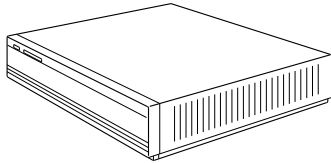
**DECstation 5000 Model 240  
Hardware Installation Guide**

EK-PM38A-IN-001

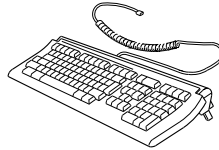
Draft 4 (Final), October 14, 1991

## Parts of the Basic Workstation

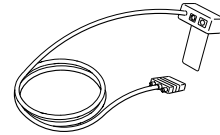
The basic workstation includes the following items:



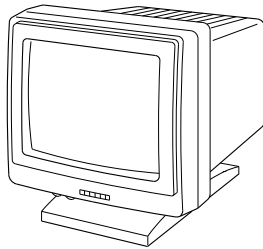
System unit



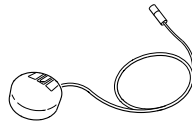
Keyboard with cable  
(Keyboard ordered may vary from the one shown)



Keyboard-mouse cable assembly



Monitor



Mouse with cable



System-unit-to-expansion-box cable



Screwdrivers



Antistatic wrist strap

**One of these three video cable assemblies:**



Gray-scale video cable assembly



Communication connector adapter



Monitor-to-system-unit power cable



Color video cable assembly



SCSI controller terminator



System unit power cord  
(This may need to be ordered separately.)



Monochrome video cable assembly



ThickWire Ethernet loopback connector



Monitor power cord  
(This may need to be ordered separately.)

WS3PI057

## Set up your system unit and monitor.

**Caution:** *It takes two people to unpack the monitor and system unit safely.*

During system installation, place the monitor to one side of the system unit so you can open the system unit, if necessary. When you have completed the installation, you can place the monitor on top of the system unit, if you wish.

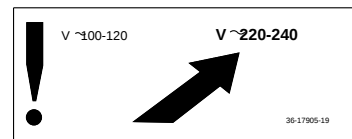
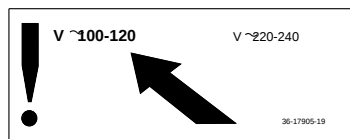
**Caution:** *Placing the system unit on its side blocks air vents and can damage the unit by causing it to overheat.*

Avoid placing the monitor near electromagnetic devices, such as printers or electric pencil sharpeners, or near iron or steel objects, such as filing cabinets or beams in walls, as this can interfere with its performance.

### 1. Check voltage requirements.

The voltage for many devices, including most monitors, must match that of your power source. Where necessary, a yellow voltage label that covers the power connector on your device tells the voltage requirements for that device.

**Caution:** *Connecting a device to a power source that does not meet the voltage requirements of that device can damage the device.*



WS3PI007

2. Be sure the on/off switches on the system unit and monitor are in the off position.



Press the 0 on this type of switch.



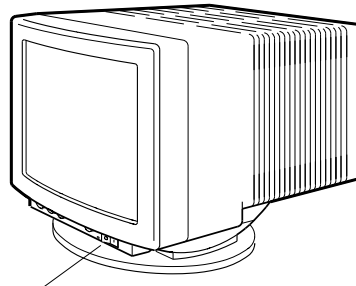
Press and release this type of switch.



Press and release this type of switch until it is in the out position.

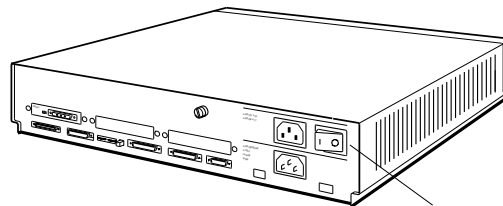
WS3PI008

The monitor shown below is one of several different monitors you can order for your workstation. The exact position of the on/off switch will vary depending on the monitor you ordered.



Monitor on/off switch

**Monitor**

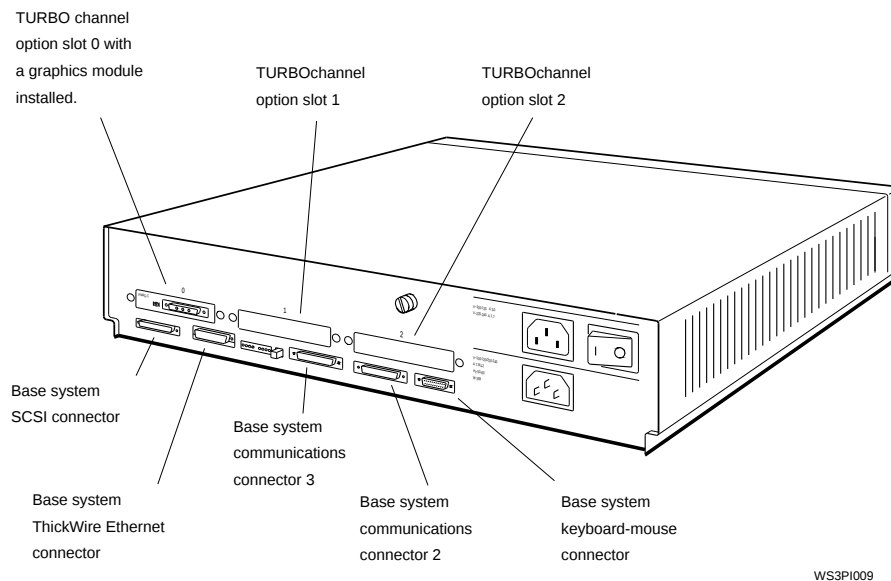


System unit on/off switch

**System unit**

WS3PI005

3. Locate the five base system connectors, the three TURBOchannel option slots, and the diagnostic LED display on the back of the system unit.



## Install any option modules inside the system box.

Most workstations come with internal options preinstalled at the factory. If you have additional internal options to install, see Chapter 3 of the *DECstation 5000 Model 240 Hardware Operator's Guide* for instructions on opening the system unit and installing your options.

## Connect the monitor to the system unit.

Simple instructions on connecting a color, gray-scale, or monochrome monitor are provided here. The monitors shown in the examples may differ slightly from the monitor you have. For more specific instructions, refer to the documentation for your particular monitor option.

## Locating the video connector

Before installing your monitor, locate the workstation video connector to which you will attach it. The video connector may be in any one of the TURBOchannel option slots on the system unit or in a TURBOchannel extender (TCE) box, which you will connect to the system unit. The examples used here assume that the video connector is in TURBOchannel option slot 0.

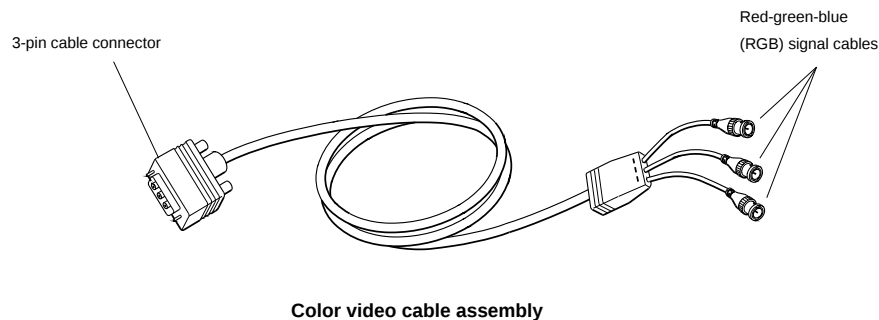
If the video connector is in a TCE box, install the TCE box before connecting the monitor. Refer to the *TURBOchannel Options User's Guide* for instructions on installing a TCE box.

## To connect more than one monitor to a workstation

You can connect an additional monitor for each additional graphics option module in your workstation. To connect an additional monitor, locate the video connector to which you will attach it and follow the instructions for connecting a single monitor.

## To connect a color monitor

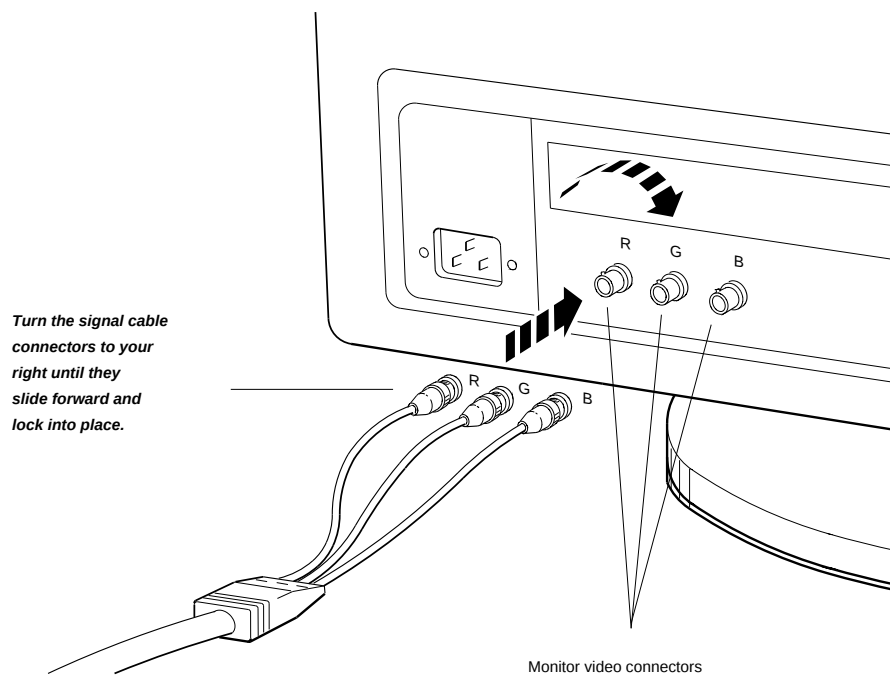
Use the color video cable assembly that came with your shipment.



WS3PI010

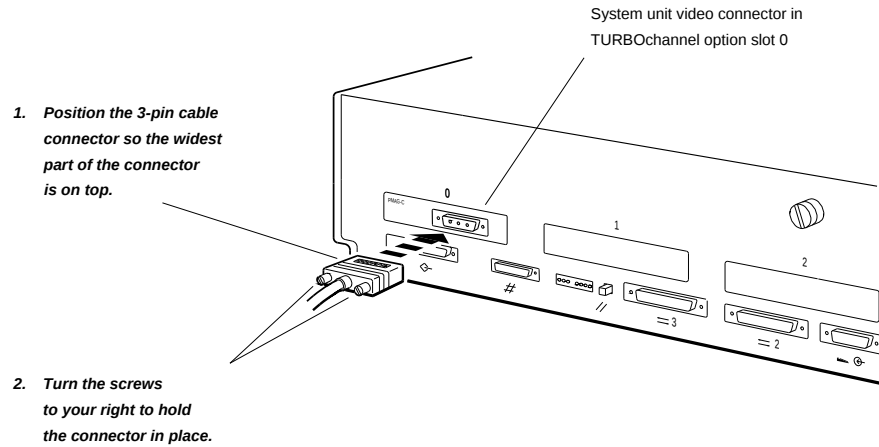
1. Connect the red, green, and blue signal cable connectors to the three round video connectors labeled R, G, and B on the monitor. The small collars on the cable connectors have two slots that fit over corresponding pins on the monitor connectors.

If your monitor has two sets of these connectors, use the bottom set, labeled VIDEO IN.



WS3PI011

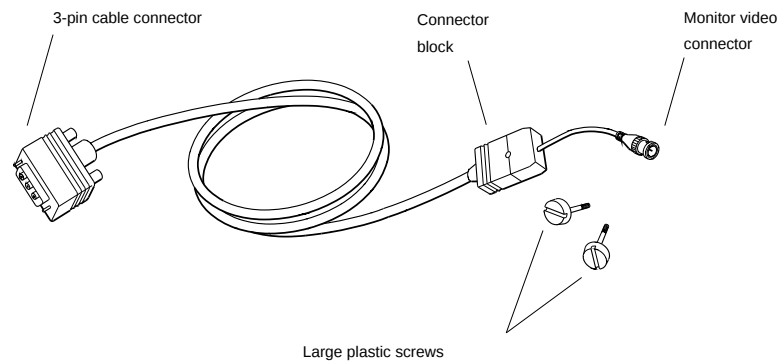
2. Connect the 3-pin cable connector to the workstation video connector in the system unit or TCE box.



WS3PI015

## To connect a gray-scale monitor

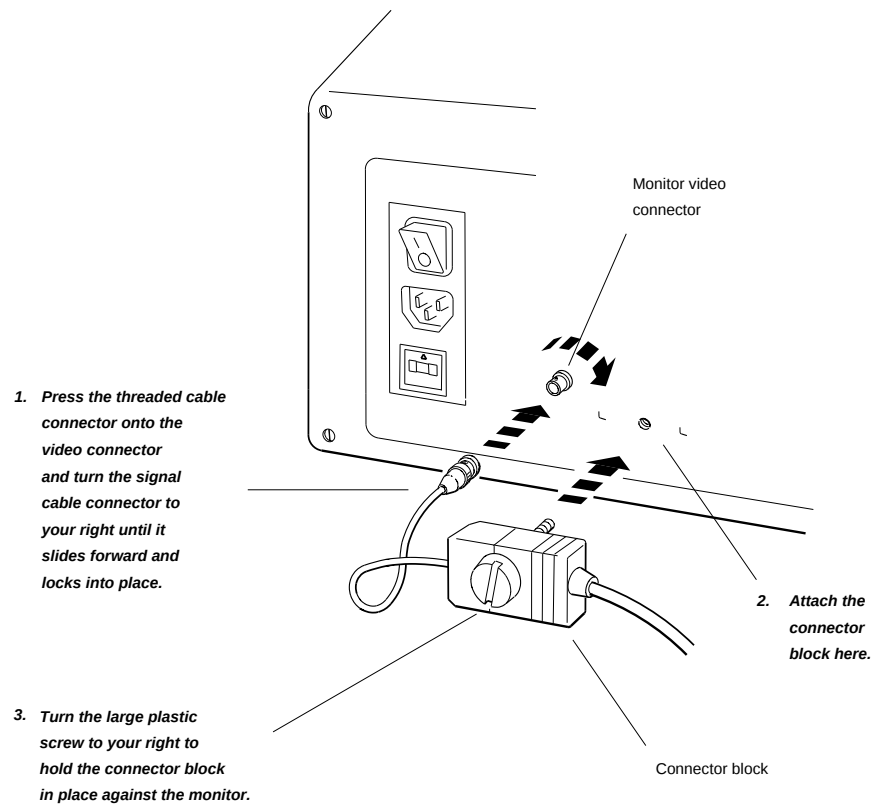
Use the gray-scale cable assembly that came with your shipment.



Gray-scale video cable assembly

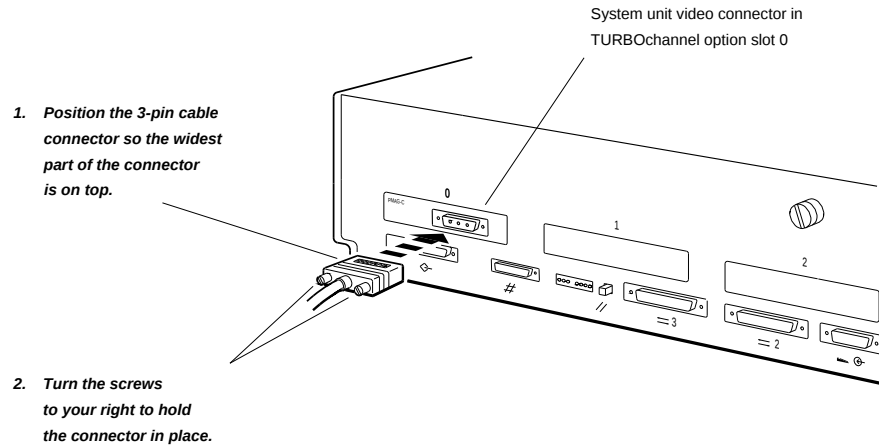
WS3PI013

1. Attach the round cable connector to the monitor.
2. Attach the connector block to the back of the monitor.



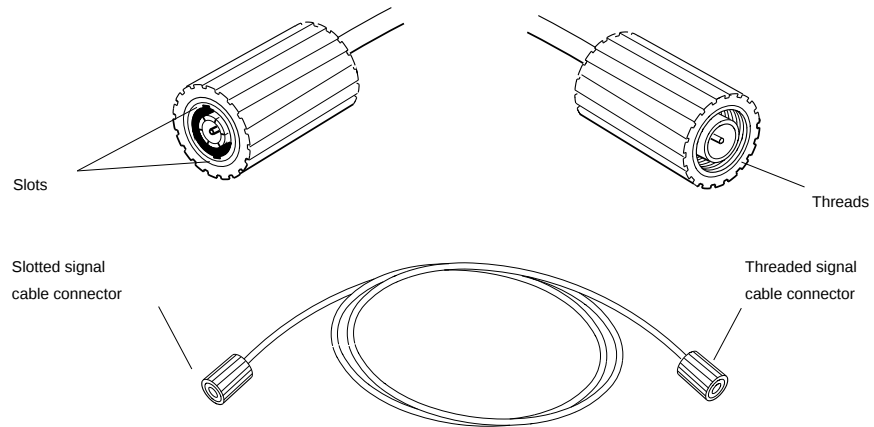
WS3PI014

3. Attach the 3-pin cable connector to the workstation video connector in the system unit or TCE box.



### To connect a monochrome monitor

Use the monochrome video cable assembly that came with your shipment.

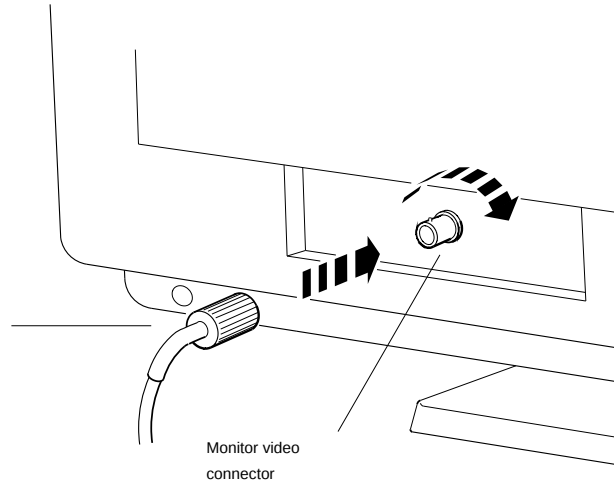


**Monochrome  
video cable assembly**

WS3PI016

1. Attach the slotted cable connector to the monitor video connector.

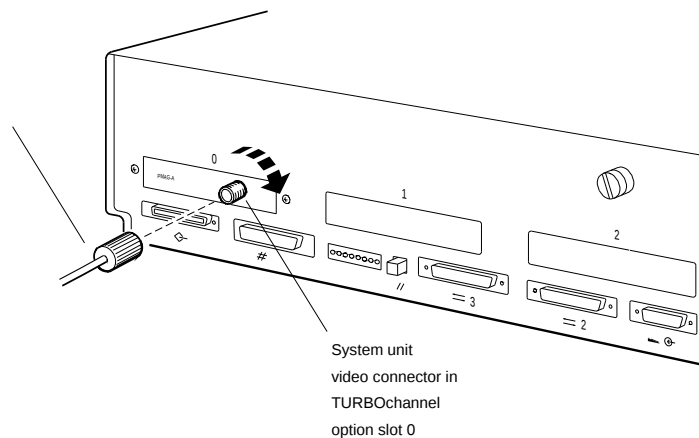
1. *Align the slots on the cable connector with the pins on the monitor video connector.*
2. *Press the slotted cable connector onto the monitor connector and turn the slotted cable connector to your right until it slides forward and locks into place.*



WS3PI018

2. Attach the threaded cable connector to the video connector in the system unit or TCE box.

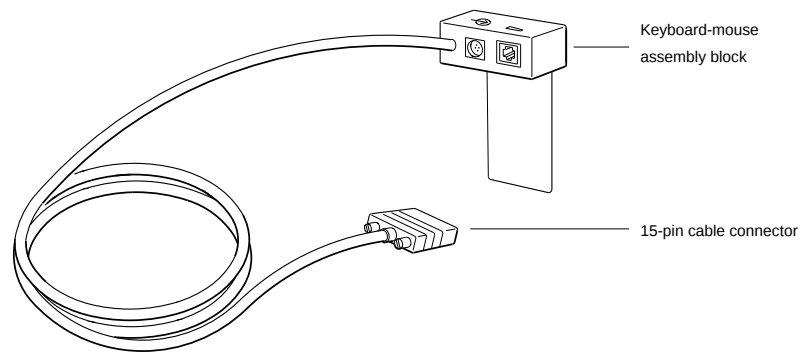
*Turn the threaded cable connector onto the video connector and turn the threaded connector to your right as far as it will go.*



WS3PI017

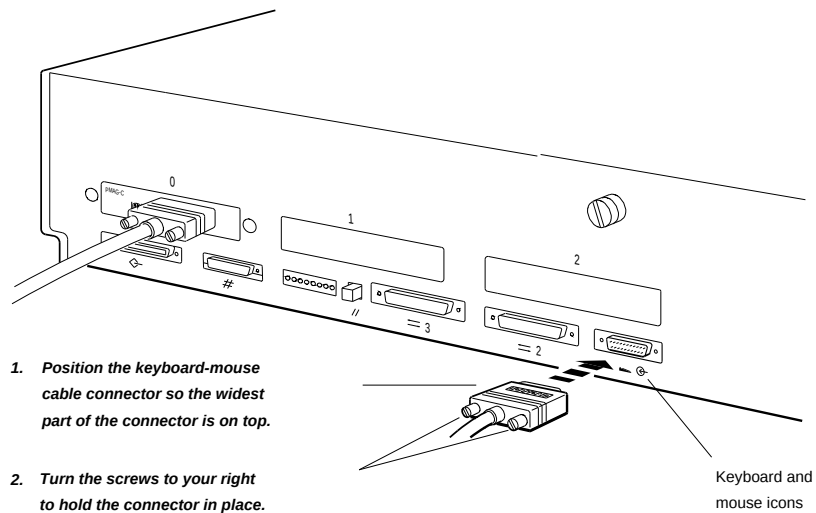
## Connect the keyboard and the mouse or tablet to the system unit.

1. Find the keyboard-mouse cable assembly that came with your workstation.



WS3PI068

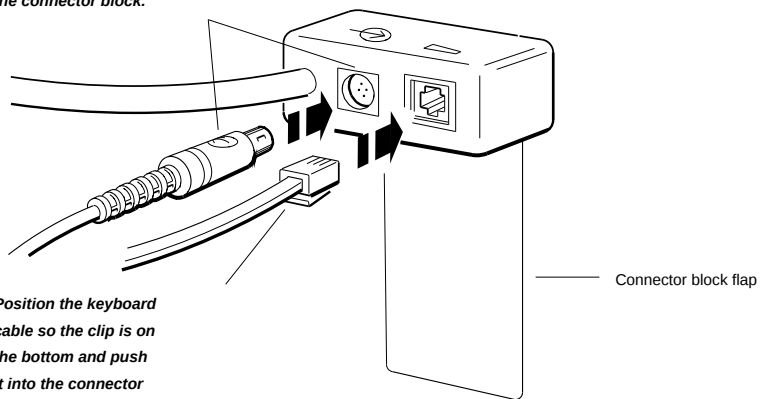
2. Plug the 15-pin connector on the keyboard-mouse cable assembly into the keyboard-mouse connector on the system unit.



WS3PI020

3. Insert the mouse or tablet cable connector and the keyboard cable connector into the connector block of the keyboard-mouse cable assembly.

1. *Position the mouse or tablet cable connector so the icon on it is below the mouse icon on the connector block and push the cable into the connector block.*



2. *Position the keyboard cable so the clip is on the bottom and push it into the connector block until it clicks into place.*

WS3PI019

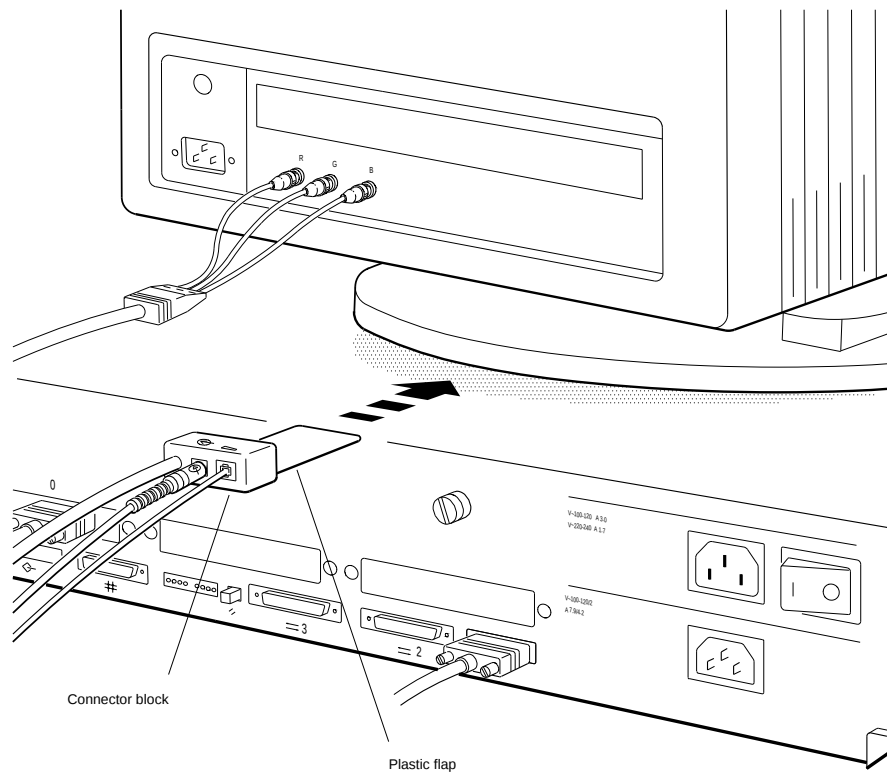
**Position the monitor and the keyboard-mouse connector block.**

1. Position the monitor on top of the system unit or wherever is convenient.
2. Holding the connector block with the keyboard and mouse icons facing up, bend back the plastic flap so that it points away from the cables.

[NEW FIGURE TO COME]

3. Lift the back of the monitor slightly, slide the plastic flap on the connector block under the base of the monitor, and lower the base onto the flap.

Be sure that the entire flap is under the base.



WS3PI047

## **Connect your workstation to the Ethernet network.**

The basic workstation comes with one ThickWire Ethernet connector for attaching to a single Ethernet network. You can connect the workstation to more than one Ethernet network if you have additional Ethernet connectors in any of the TURBOchannel option slots.

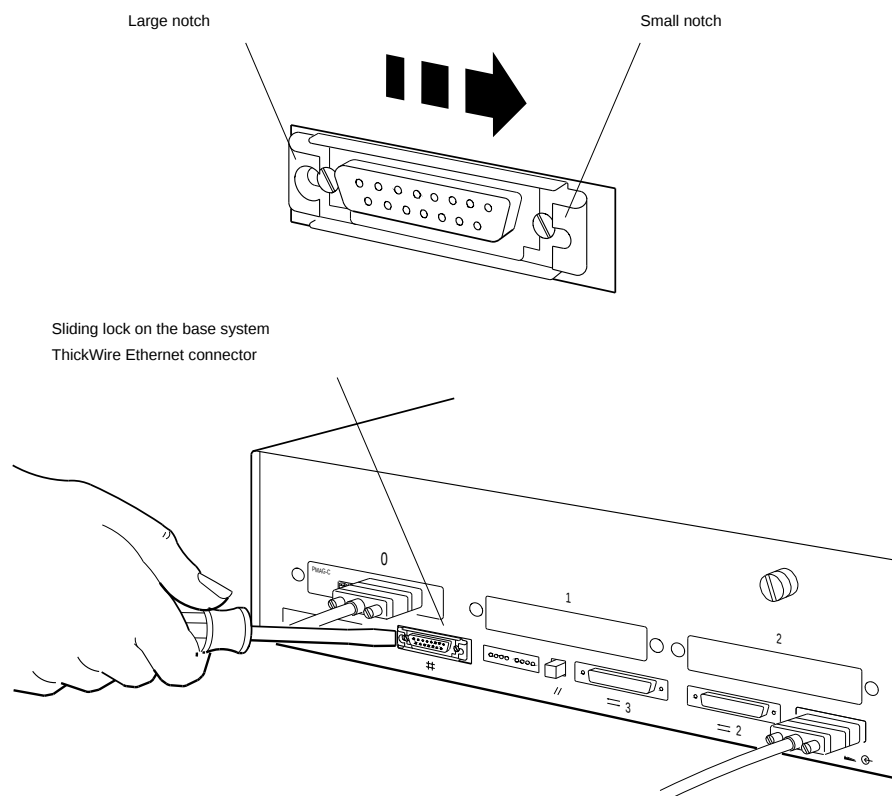
To install your workstation as a standalone system, turn to page TBD and follow the instructions on installing an Ethernet loopback connector.

To connect your workstation to a ThickWire, ThinWire, or Twisted-pair Ethernet network, start with the instructions “Connect a ThickWire Ethernet cable to the system unit,” which follow.

## Connect a ThickWire Ethernet cable to the system unit

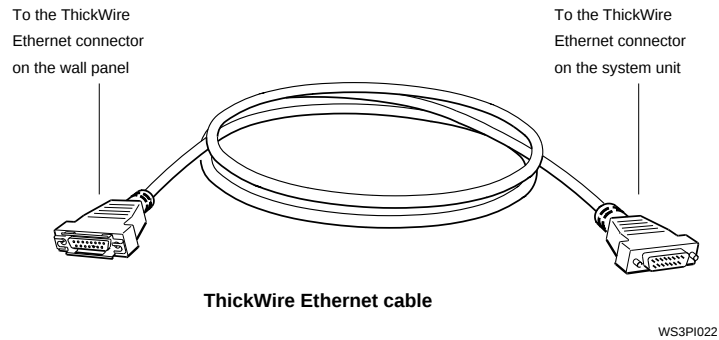
1. Make sure the sliding lock on the system unit Ethernet connector is in the unlocked position.

To unlock it, use a flat-blade screwdriver to slide the lock towards the small, u-shaped notch on the lock (either left or right, depending on the way the lock is mounted on your system).



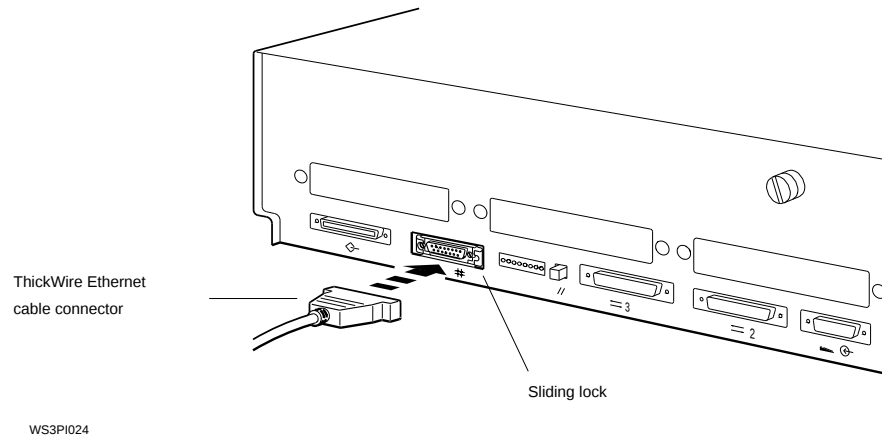
WS3PI023

2. Find the ThickWire cable that you ordered for your workstation. Notice that one end of the cable has a sliding lock on it and the other does not.

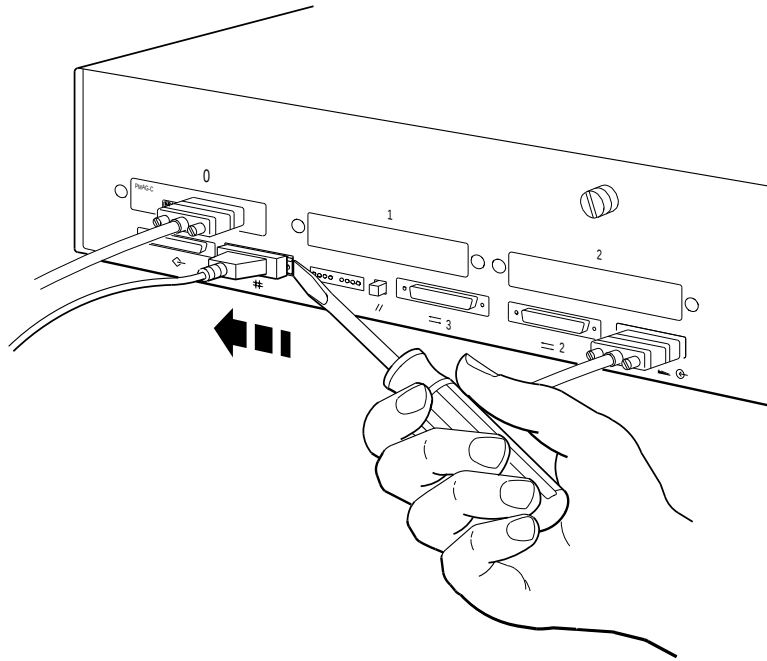


3. Position the cable connector that does *not* have the sliding lock so the widest part is on top.

Then push the connector directly onto the base system ThickWire Ethernet connector.



4. To lock the sliding lock on the base system Ethernet connector, push the protruding edge of the lock towards the center of the connector (using a flat-blade screwdriver) until it clicks into place. Check to make sure the cable is locked securely in place before proceeding.



WS3PI025

5. If connecting the workstation to a ThickWire network, turn to page TBD and continue with the instructions, "Put an Ethernet loopback connector on any unused Ethernet connectors.."

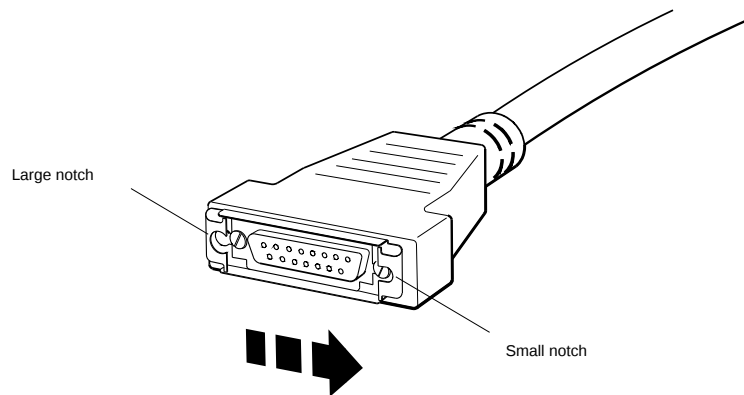
If connecting the workstation to a ThinWire network, turn to page TBD.

If connecting the workstation to a Twisted-pair network, turn to page TBD.

## To connect a ThinWire Ethernet adapter

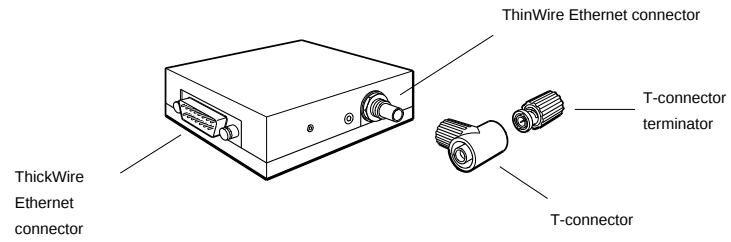
1. Locate the connector with the sliding lock on the other end of the ThickWire Ethernet cable you connected to your workstation.

Make sure the sliding lock on the cable connector is in the unlocked position. To unlock it, slide the lock on the connector towards the small, u-shaped notch on the lock (either left or right, depending on the way the lock is mounted on your cable).



WS3PO065

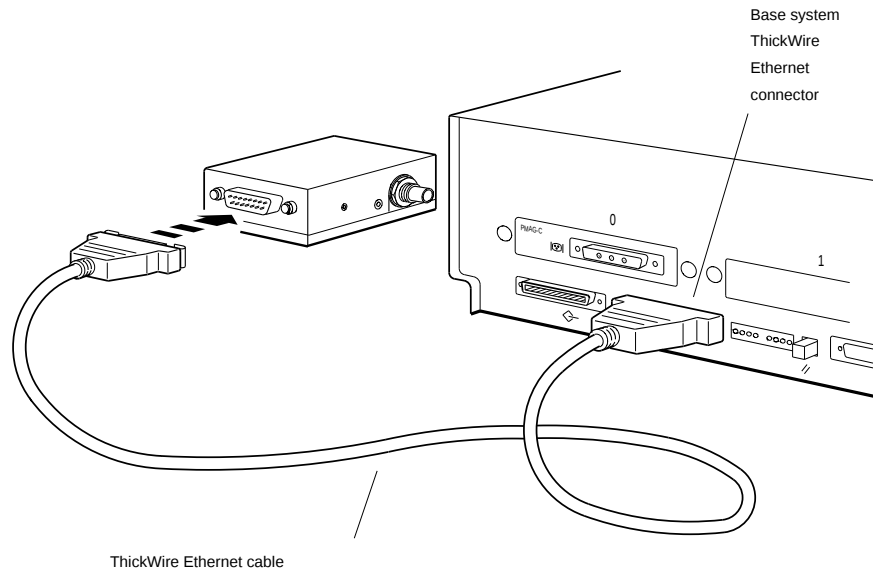
2. Find the ThickWire-to-ThinWire adapter, the T-connector, and the T-connector terminator that you ordered for your workstation.



**ThickWire-to-ThinWire Adapter**

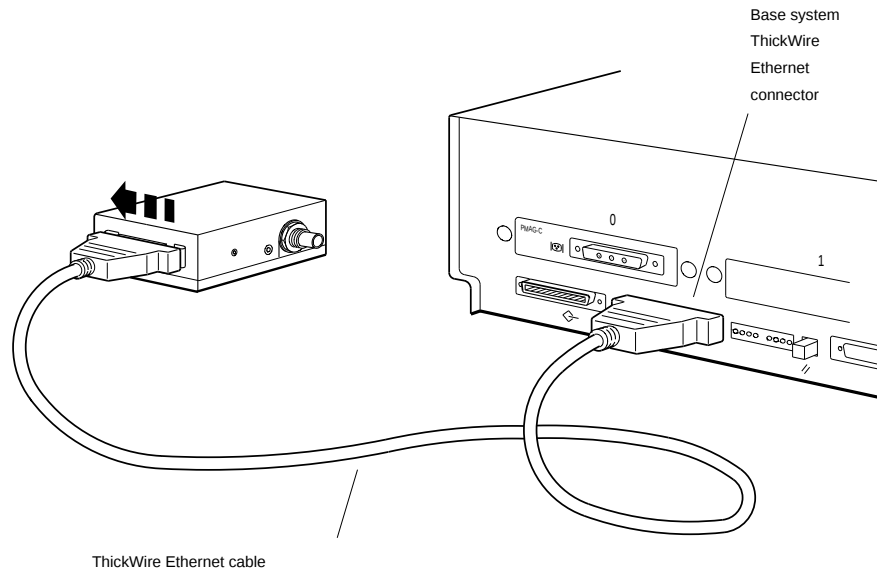
WS3PI026

3. Hold the ThickWire-to-ThinWire adapter and the free end of the ThickWire cable so that the connectors match up. Push the ThickWire cable connector with the sliding lock onto the ThickWire connector on the adapter.



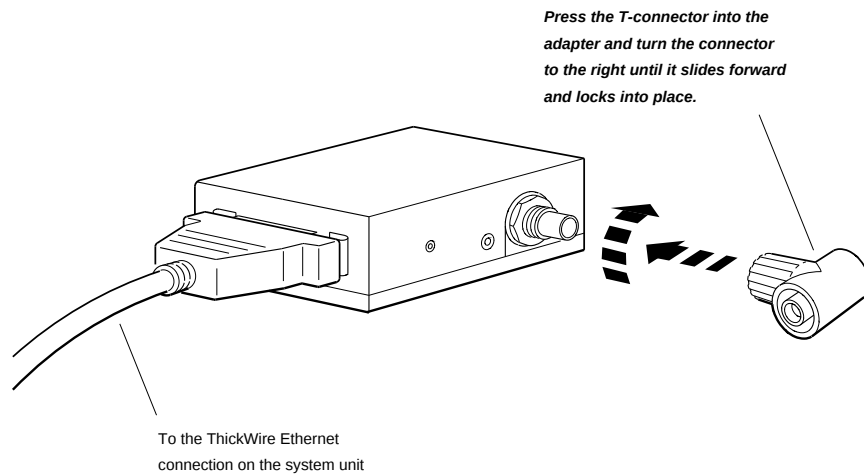
WS3PI063

4. To lock the sliding lock on the cable connector, push the protruding edge of the lock towards the center of the connector until it clicks into place. Check to make sure the cable is locked securely in place before proceeding.



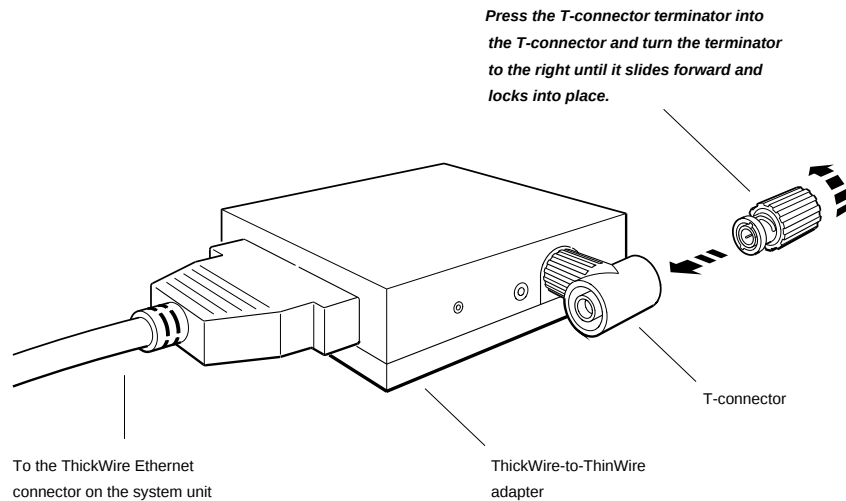
WS3PI064

5. Attach the T-connector to the ThinWire Ethernet connector on the adapter.



6. If you are connecting the workstation *within* a network cable segment, leave both ends of the T-connector free to attach your in-house network cables.

If you are connecting the workstation at the *end* of a network cable segment, attach a T-connector terminator to the open end of the T-connector on the adapter.



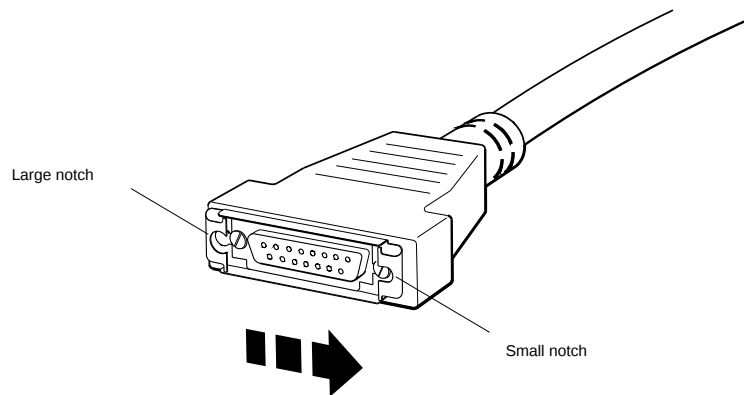
WS3PI066

7. Turn to page TBD and continue with the instructions "To complete the network connection."

## To connect a twisted-pair Ethernet adapter

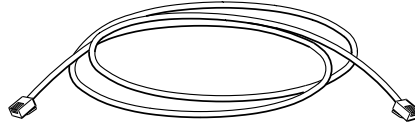
1. Locate the connector with the sliding lock on the other end of the ThickWire Ethernet cable you connected to your workstation.

Make sure the sliding lock on the cable connector is in the unlocked position. To unlock it, slide the lock on the connector towards the small, u-shaped notch on the lock (either left or right, depending on the way the lock is mounted on your cable).



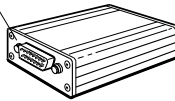
WS3PO065

2. Find the twisted-pair Ethernet cable and the ThickWire-to-twisted-pair adapter that you ordered for your workstation.



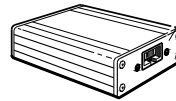
**Twisted-pair Ethernet cable**

ThickWire Ethernet connector



**Front view**

Twisted pair phone-jack  
type of connector

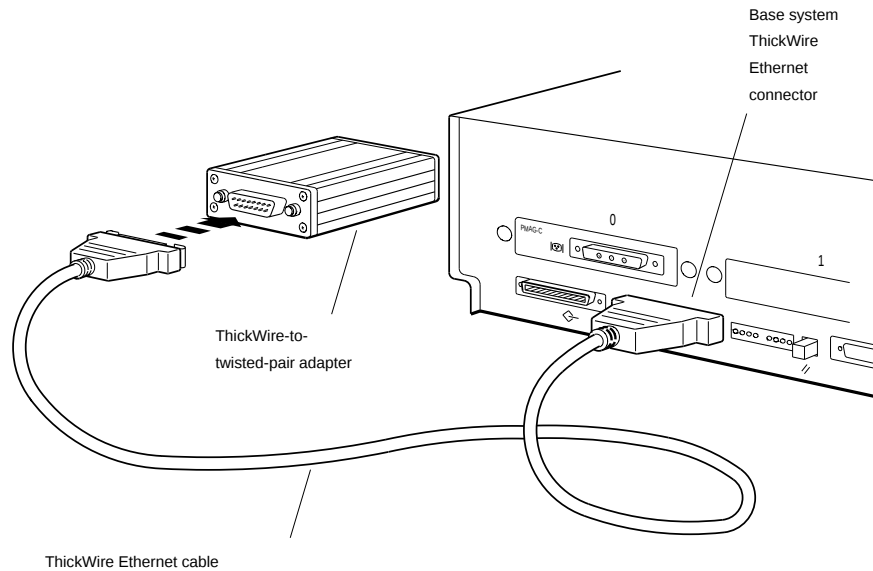


**Back view**

**ThickWire-to-twisted-pair adapter**

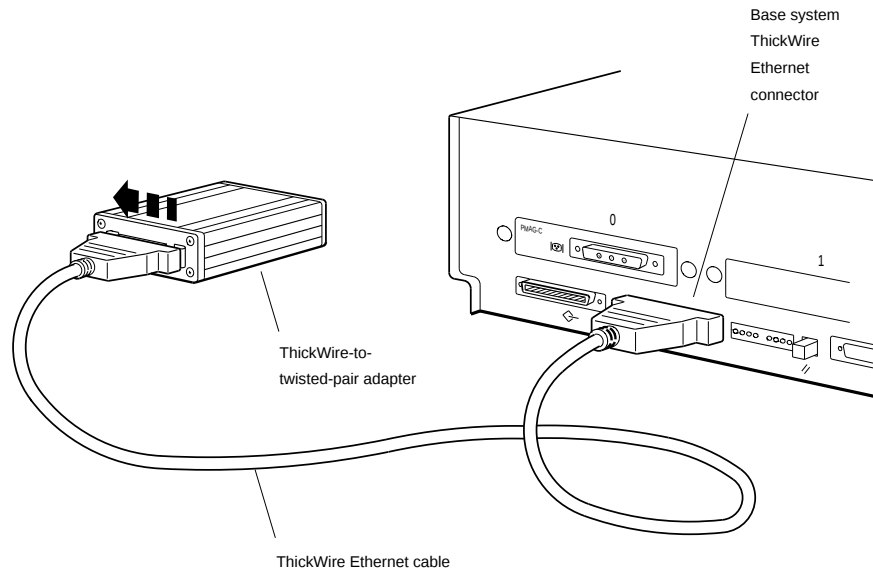
WS3PI028

3. Hold the ThickWire-to-Twisted-pair adapter and the free end of the ThickWire cable so that the connectors match up. Push the ThickWire cable connector with the sliding lock onto the ThickWire connector on the adapter.



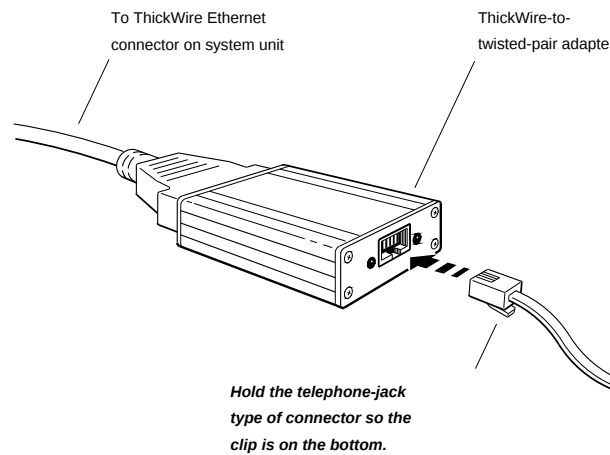
WS3PI060

4. To lock the sliding lock on the cable connector, push the protruding edge of the lock towards the center of the connector until it clicks into place. Check to make sure the cable is locked securely in place before proceeding.



WS3PI061

5. Locate the twisted-pair Ethernet cable. Notice that the telephone-jack type of connectors at both ends are identical. Push one of the connectors on the twisted-pair Ethernet cable into the telephone-jack type of connector on the adapter until it clicks into place.



WS3PI062

6. Turn to page TBD and continue with the instructions, “To complete the network connection.”

## To complete the network connection

The final steps in connecting your workstation to the network should be performed only by a system manager or other authorized personnel when the network is not active.

**Caution:** *Attempting to connect a workstation while the network is active may result in the loss of transmitted data.*

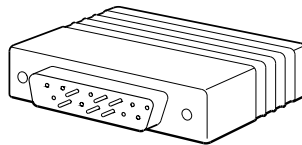
Later in the installation process you will test the workstation to check its configuration and to find out your Ethernet station address (see “Find out and report your Ethernet address” on page TBD). At that time, you will be instructed to report this address to your system manager so the manager can complete the network connection for you.

## Put an Ethernet loopback connector on any unused Ethernet connectors.

If all Ethernet connectors on the base system and in the TURBOchannel option slots are connected to network cables, turn to page TBD to continue with the instructions, “Attach a SCSI controller terminator to the base system SCSI connector..” Otherwise, continue with the following instructions.

**Caution:** *You must install an Ethernet loopback connector on every Ethernet connector on the system unit (and in the TURBOchannel option slots) that is not connected to a network cable, or the workstation will not perform correctly.*

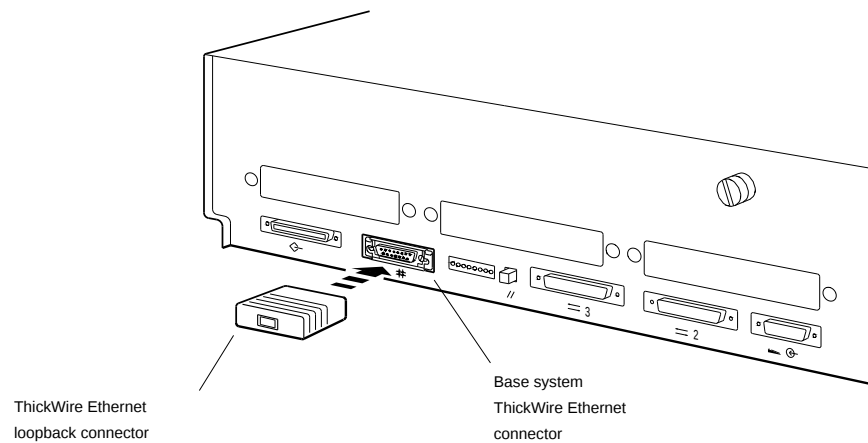
1. **[Does the sliding lock have to be in the unlocked position?]**
2. Find the ThickWire Ethernet loopback connector that came with your workstation.



ThickWire Ethernet loopback connector

WS3PI030

3. Hold the ThickWire Ethernet loopback connector so the widest part is on top and push the connector directly into the ThickWire connector on the base system unit.



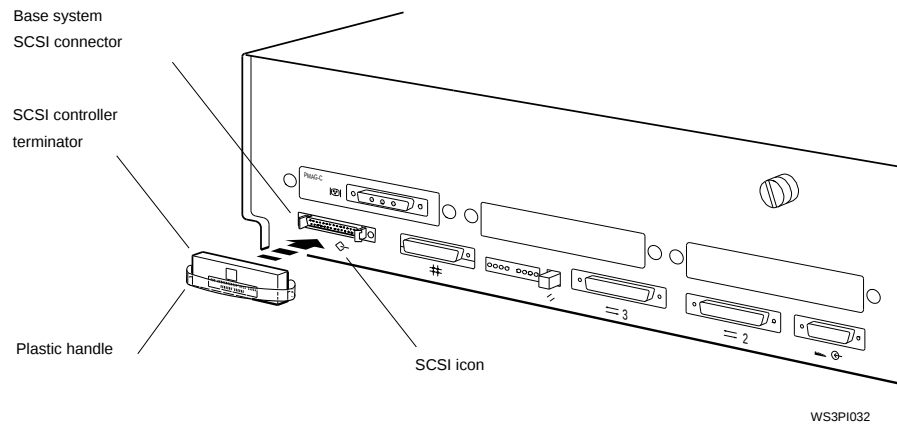
WS3PI031

4. Put Ethernet loopback connectors on any other unused Ethernet connectors you may have in the TURBOchannel option slots. (Only one Ethernet loopback connector comes with your workstation. Extra connectors must be ordered separately.)

## Attach a SCSI controller terminator to the base system SCSI connector.

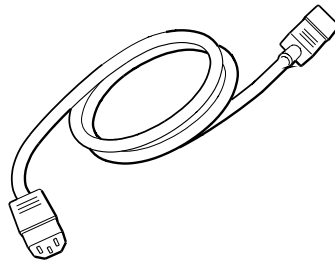
If you are attaching external storage devices to the base system SCSI connector, skip this step and turn to page TBD.

If you are *not* attaching external storage devices at this time, put a SCSI controller terminator on the base system SCSI connector and on any SCSI connectors you may have in the TURBOchannel option slots. (Your workstation comes with one SCSI controller terminator. Additional terminators must be ordered separately.)

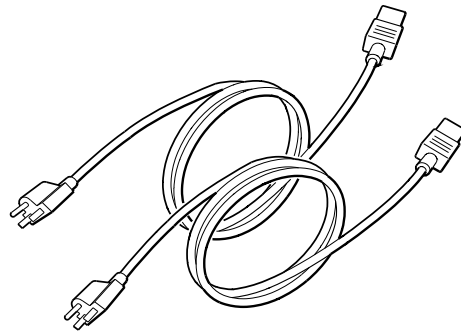


## Connect the system unit and monitor to power outlets.

1. Find the system unit power cord and either the monitor-to-system-unit power cable or the monitor power cord (identical to the system unit power cord) that you ordered for your workstation.



Monitor-to-system-unit  
power cable



System unit and monitor  
power cords

WS3PI058

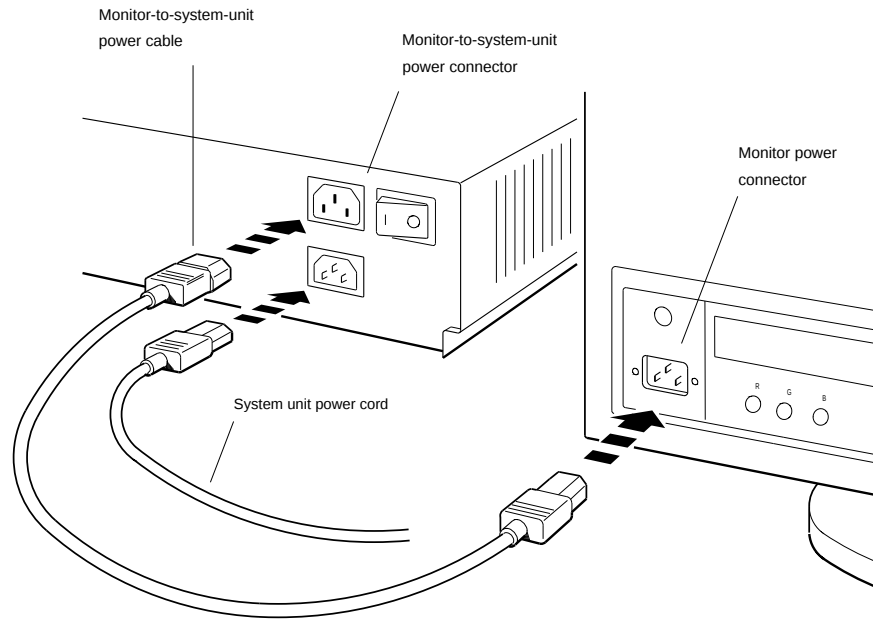
2. If you have not already done so, check the system unit and monitor voltage requirement labels printed on the back of the system unit (or check for a yellow voltage label covering the power connectors).

**Caution:** *Connecting a device to a power source that does not meet the voltage requirements of that device can damage the device.*

3. Plug the appropriate end of the monitor-to-system-unit power cable into the power connector on the monitor.

Plug the other end of the monitor-to-system-unit power cable into the monitor-to-system-unit power connector on the system unit.

4. Plug the appropriate end of the system unit power cord into the power connector on the system unit and plug the other end into a power outlet.



WS3PI033

If the monitor is too far from the system unit for the monitor-to-system-unit power cable to reach, connect the monitor directly to a power outlet with a monitor power cord (identical to the system unit power cord).

## Connect any external storage devices to the system unit.

If you are not connecting external storage devices at this time, turn to page TBD, and continue with the instructions, “Connect communication devices to the system unit..”

External storage devices are SCSI drives contained in external storage device or expansion boxes that you connect to a SCSI connector on the system unit. You can connect up to three expansion boxes (containing one to three SCSI drives each) to a single SCSI connector, by chaining them together with box-to-box expansion cables.

The following instructions may be used as a general guideline for connecting most external storage device boxes to the base system SCSI connector, except in the following circumstances:

- One of the boxes you are connecting is a TURBOchannel extender (TCE) box.
- You need more detailed installation information about a specific expansion box or storage device.
- You are connecting external storage devices to TURBOchannel SCSI option modules as well as to the base system SCSI connector.

For more detailed or special installation instructions for specific types of external storage devices, refer to the documentation that came with the device.

For instructions on connecting storage devices to TURBOchannel SCSI option modules, see the *TURBOchannel Options User's Guide*.

1. Check to make sure the number of SCSI drives and storage expansion boxes to be connected are within the allowable limits.

You can connect up to seven SCSI drives, contained in up to three expansion boxes, to the base system SCSI connector.

2. Check to make sure each SCSI drive has a unique SCSI ID number within the group of devices you are connecting. The SCSI ID for a single drive in its own box is usually displayed in a small window on the back of the box. Table 1 lists the usual SCSI ID numbers assigned to

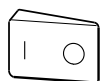
drives preinstalled in single-drive, BA42, or TCE expansion boxes.

**Table 1. Usual SCSI ID Assignments for External Drives**

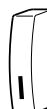
| Type of External Drive                          | Usual SCSI ID Number |
|-------------------------------------------------|----------------------|
| Hard disk drives                                | 0                    |
| Hard disk drives in a multi-drive expansion box | 0 and 1              |
| Diskette drives                                 | 4                    |
| Optical compact disc drives                     | 4                    |
| Tape drives                                     | 5                    |

If two or more of the drives to be connected to a SCSI connector have the same SCSI ID number, you must change the duplicate SCSI IDs. (See Chapter TBD of the *DECstation 5000 Model 240 Hardware Operator's Guide* for instructions on changing SCSI ID numbers).

3. Position the storage expansion boxes next to or on top of the system unit you may stack them one on top of the other.
4. Set the power switches on the storage expansion boxes to the off position.



Press the 0 on this type of switch.



Press and release this type of switch until it is in the out position.

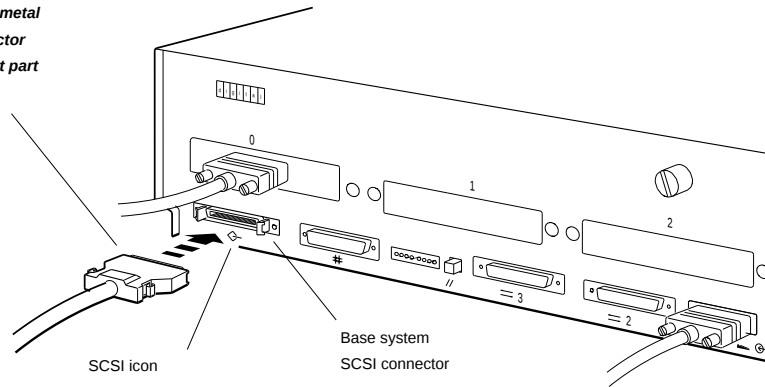
WS3PI034

- 
- Base system  
SCSI connector
- SCSI terminator
- Plastic handle
- SCSI icon
- WS3PI036

- 
- To a SCSI connector on the system unit
- To a SCSI connector on the expansion box
- System-unit-to-expansion-box cable**

7. Attach the smaller connector on the system-unit-to-expansion-box cable to the SCSI connector on the system unit.

*Position the metal cable connector so the widest part is on top.*

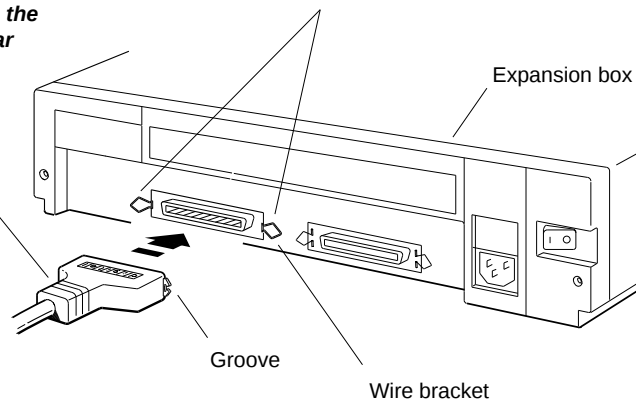


WS3PI037

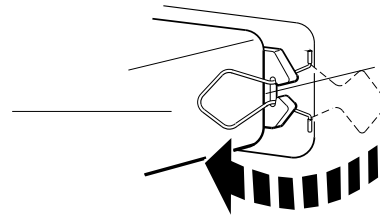
8. Attach the larger connector on the system-unit-to-expansion-box cable to one of the SCSI connectors on an expansion box.

**2. Hold the cable connector so the widest part is on the top and push the cable connector into the SCSI connector as far as it will go.**

**1. Pull the two wire brackets on the SCSI connector away from the connector.**

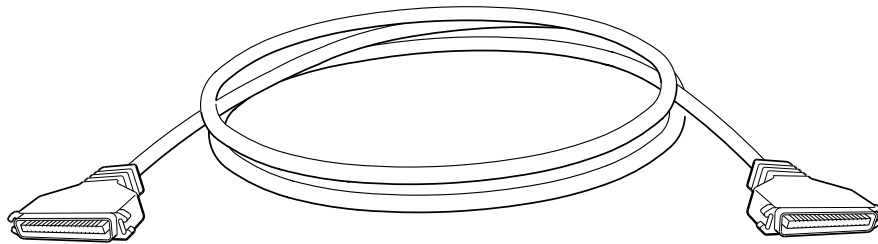


**3. Press the two wire brackets firmly against the sides of the cable connector until they click into the grooves on the connector.**



WS3PI038

9. Connect additional expansion boxes to the first box (up to a total of three per system unit SCSI connector), using box-to-box SCSI cables.



SCSI box-to-box cable

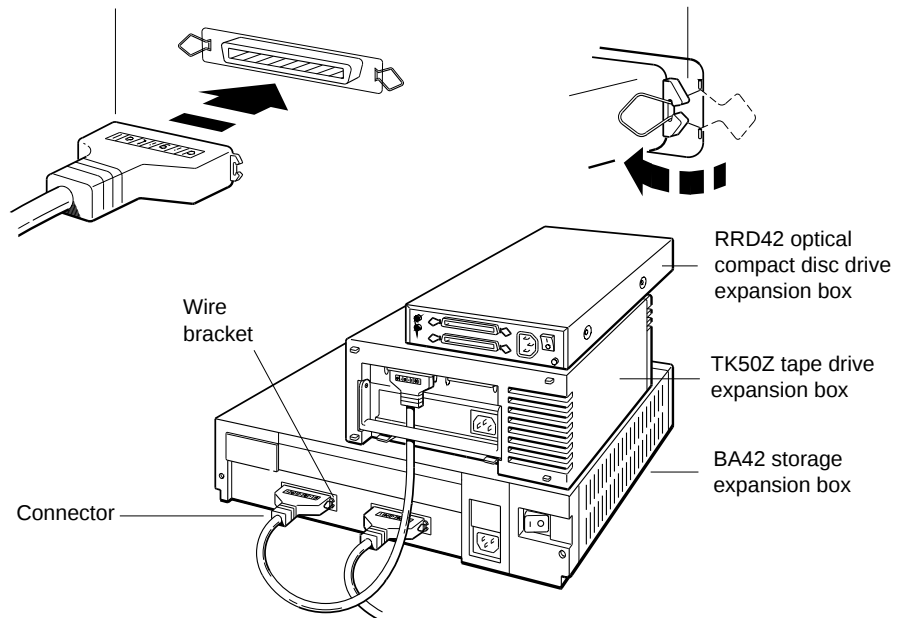
WS3PI054

Attach one end of a SCSI box-to-box cable to the unused SCSI connector on the previously-installed box.

Connect the other end of the cable to the SCSI connector on the next expansion box.

**1. Hold the connector so the widest part of the connector is on top.**

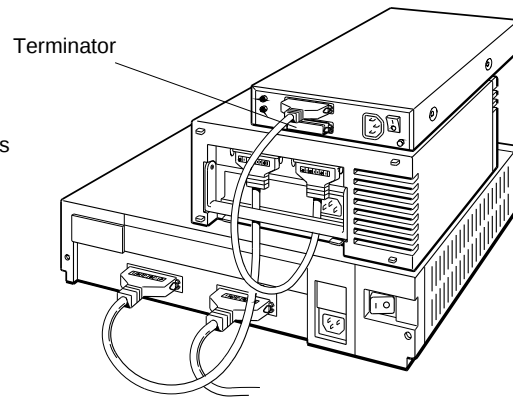
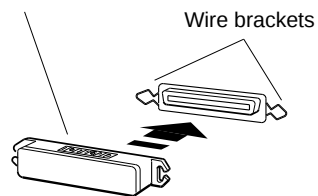
**2. Be sure the wire brackets are locked into the grooves on the sides of the connectors.**



WS3PI002

10. Put a SCSI drive terminator on the unused SCSI connector on the last box.

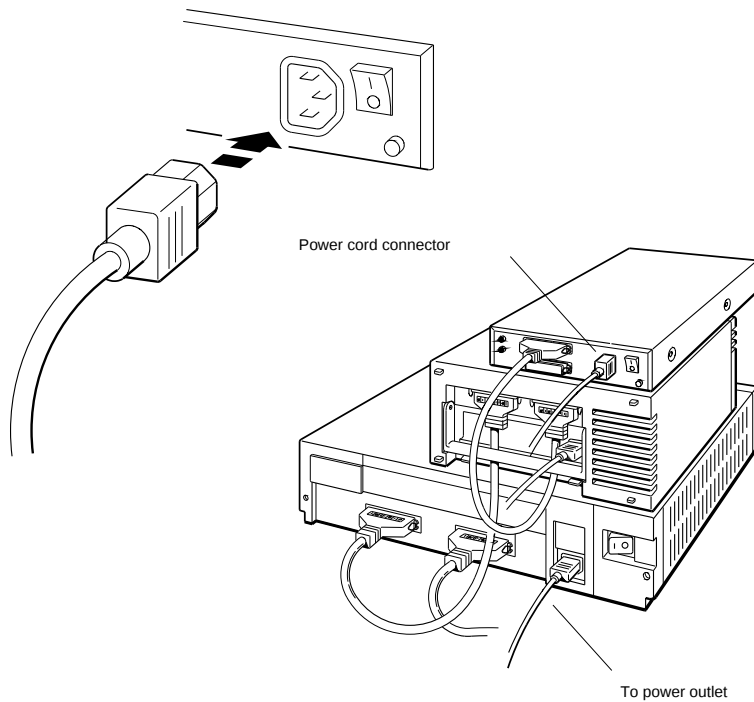
***Hold the terminator so the widest part of its connector is on top and push the terminator onto the empty expansion box connector.***



WS3PI003

11. For each expansion box, connect one end of the power cord that came with the device to the expansion box and connect the other end to a power outlet.

**Caution:** Check the voltage requirements for the device. Connecting a device to a power source that does not meet the voltage requirements of that device can damage the device.



WS3PI042

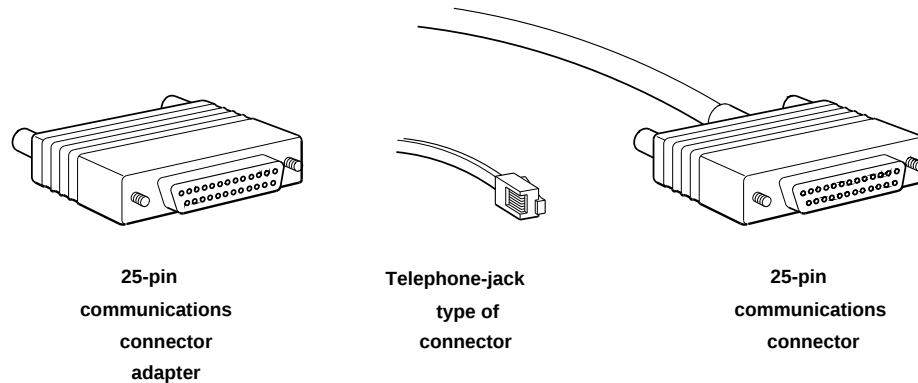
Refer to your TURBOchannel user documentation for instructions on connecting external storage devices to any SCSI connectors you may have in the TURBOchannel option slots.

## Connect communication devices to the system unit.

If you have no optional communication devices, such as modems or printers, turn to page TBD and follow the instructions in the section, “Test the Workstation.”

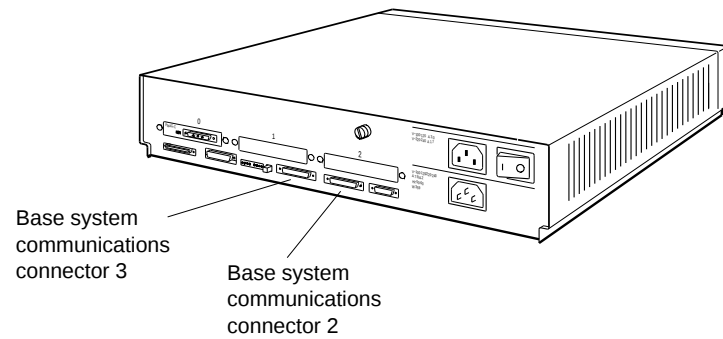
If your communication device has a 25-pin connector cable, you can attach it to your workstation directly.

If your communication device has a telephone-jack type of connector, you will need an adapter to attach it to the workstation.



WS3PI043

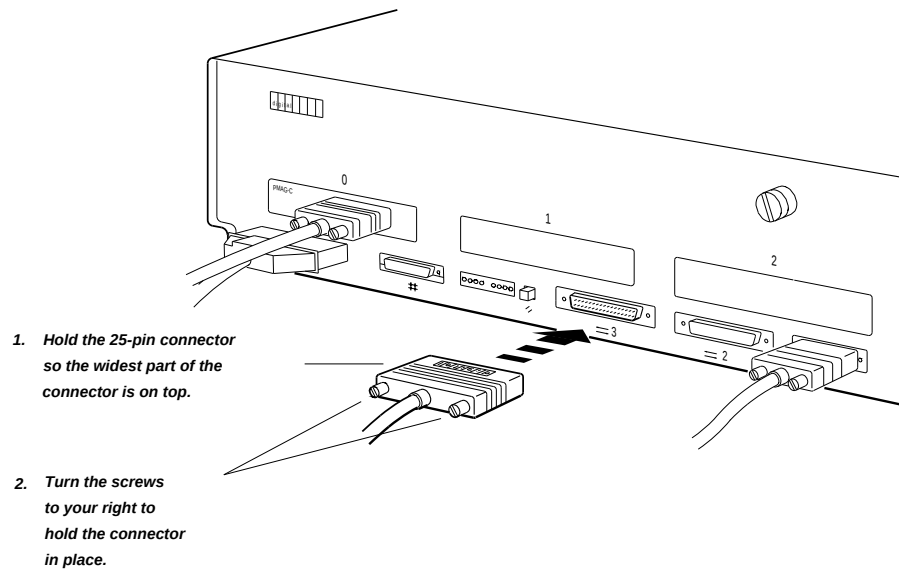
You can connect a modem or printer to either of the two communications connectors on the system unit.



WS3PI044

## To connect a device with a 25-pin connector

1. Attach the 25-pin connector on the communication device cable to either of the two communications connectors on the system unit.

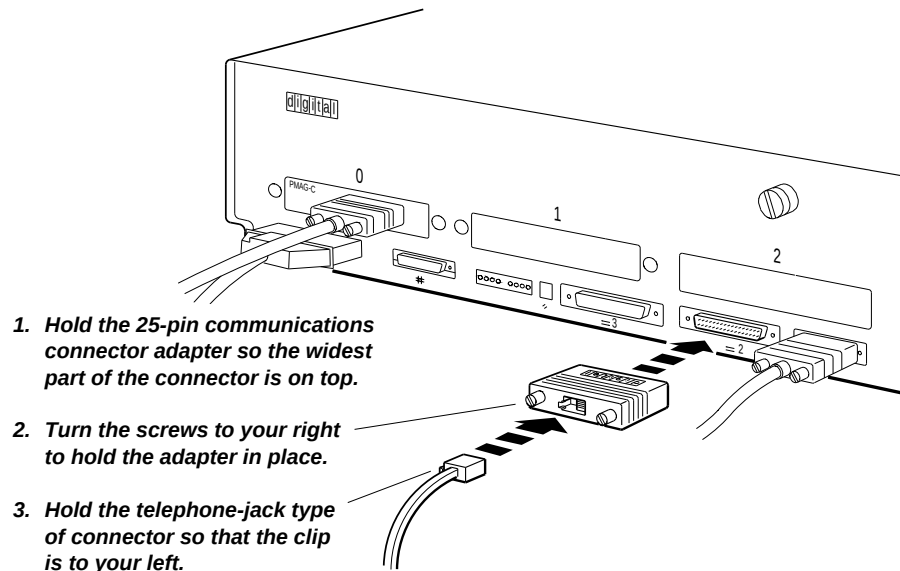


WS3PI045

2. Connect one end of the power cord that came with your device to the communication device and the other end to a power outlet.

**To connect a device that has a telephone-jack type of connector**

1. Attach a communications connector adapter to either of the communications connectors on the system unit.
2. Push the telephone-jack type of connector on the device cable into the matching receptacle on the adapter until it clicks into place.



WS3PI046

3. Connect one end of the power cord that came with your device to the communication device and the other end to a power outlet.

## Preparing to use your communications device

To start using your communications device, follow the instructions in the documentation that came with the device. You may also need information regarding transfer rates for the communications connectors on your workstation. Refer to Chapter 5 of the *DECstation 5000 Model 240 Hardware Operator's Guide* for this information.

## Test the workstation.

1. Turn on first the monitor, then any expansion boxes, and finally the system unit.

If you have multiple monitors connected to your workstation, the monitor connected to the graphics module in the lowest-numbered option slot will display all system test information.

The monitor must run for 10 to 15 seconds before it is warmed up enough for the display to be visible. The system then runs the automatic power-up self-test, which takes from 1 to 5 minutes. As each subtest runs, its name flashes at the bottom of the screen. Some tests display asterisks (\*) and other symbols or cause the screen to flicker.

At the end of the power-up self-test, messages explaining any errors that occurred during any of the subtests scroll across the screen. (You can redisplay these messages later.) Then one of the following occurs:

- If you are installing the workstation for the first time, the screen displays the following language menu for setting the keyboard language:

|                            |                              |
|----------------------------|------------------------------|
| 1) Dansk                   | 9) Français (Suisse Romande) |
| 2) Deutsch                 | 10) Italiano                 |
| 3) Deutsch (Schweiz)       | 11) Nederlands               |
| 4) English (American)      | 12) Norsk                    |
| 5) English (British/Irish) | 13) Português                |
| 6) Español                 | 14) Suomi                    |
| 7) Français                | 15) Svenska                  |
| 8) Français (Canadien)     | 16) Vlaams                   |

(1..16): \_

Type the number that corresponds to your language and press Return. The console prompt (>>) appears on the screen when the language is set.

If you need to change the workstation language, type **setenv console 0** at the console prompt and press Return. Then type **boot** and press Return to restart the workstation and redisplay the language menu.

- If the workstation has been installed before, the screen displays the console prompt (>>) or the restricted console prompt (R>).

Users can execute all console commands at the console prompt.

The restricted console prompt (R>) indicates that someone has set up a password requirement to restrict access to the console prompt. At the restricted console prompt, you can use only the **boot** and **passwd** console commands until you enter the correct password.

To change to the console prompt (>>), type **passwd** and press Return. Then enter the console password and press Return again. If you don't know the password, contact your system manager or a Digital service representative.

- If anything other than the language menu, console prompt (>>), or restricted prompt (R>) appears after the self-test, turn to Chapter 8 of *DECstation 5000 Model 240 Hardware Operator's Guide* for troubleshooting instructions.
2. When the console prompt appears, type **erl** and press Return to display a complete list of any error messages that scrolled across the screen during the self-test.

If you see any error messages or a message that begins with ?TFL:, turn to Chapter 8 of the *DECstation 5000 Model 240 Hardware Operator's Guide* for troubleshooting instructions or contact your system manager. After correcting the error, turn the machine off and then on again.

3. If no error messages appear, type **cnfg** at the console prompt and press Return to see what kind of hardware is installed in the workstation.
  - a. Look at the configuration display for your workstation to determine whether the amount of memory in your base system is the amount you ordered.
  - b. Make sure any TURBOchannel option modules that should have been installed are listed in the display.

A display similar to the following sample appears on your screen:

```
>>cnfg
3:  KN03-AA    DEC      X2.0d    TCF0    (224 MB, 1 MB NVRAM)
      {enet: 08-00-2b-0f-45-72)
      {SCSI = 7)
0:  PMAG-DA    DEC      V5.3d    TCF0    (DA:PXG+ - D=8 z=24)
```

Find the 3: and the 0: in the leftmost column of the sample display. These numbers identify the base system or TURBOchannel option slots for which information is being provided. The base system slot is 3. The first TURBOchannel option slot is 0.

Look at the line that starts with 3:. This line and the two partial lines that follow it describe the memory modules, Ethernet address, and the SCSI ID number for the base system (slot 3). Look at the entry in parentheses at the end of the first line. The first entry tells you how much memory you have (in this example, 224 megabytes). The second entry in the parentheses tells you how much optional battery backed-up memory you have (in this example, one megabyte).

Look at the second line of the display. The entry in the parentheses tells you the Ethernet station address (in this example, 08-00-2b-0f-45-72) for the Ethernet controller in the base system unit.

Look at the third line of the display. The entry in parentheses tells you the SCSI ID number (7) for the base system SCSI controller.

Look at the line that begins with 0:.. This line describes the module installed in TURBOchannel option slot 0. To find out what kind of TURBOchannel option module is present there, look at the entry in the parentheses on the same line. Then compare it with the entries in Table 2. In this case, the option module installed is a Low 3D graphics accelerator (DA:PXG+).

**Table 2. Base System and TURBOchannel Option Modules**

|                         |                                                                                                                                                                                                                                                                                             |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CX- - -d=8 or 24        | True color frame buffer, where d=8 indicates color or grey-scale and d=24 indicates "true" color (any color the eye can see). This module can be installed in any TURBOchannel option slot.                                                                                                 |
| CXT 8 plane             | Smart frame buffer. This module can be installed in any TURBOchannel option slot.                                                                                                                                                                                                           |
| DA: PXG+ - - -D=8 or 24 | Low 3D graphics accelerator, where D=8 indicates color or grey-scale and D=24 indicates "true" color (any color the eye can see). This module occupies two adjacent TURBOchannel option slots, but is connected to the system through the lower-numbered slot.                              |
| EA: PXG+ - - -D=8 or 24 | Mid 3D graphics accelerator, where D=8 indicates color or grey-scale and D=24 indicates "true" color (any color the eye can see). This module occupies two adjacent TURBOchannel option slots, but is connected to the system through the lower-numbered slot.                              |
| enet:                   | Ethernet controller. A ThickWire Ethernet controller is built into the base system. Other Ethernet controllers may be installed in the TURBOchannel option slots. The long number after enet: is a unique Ethernet station address that identifies the controller for the network software. |
| FA: PXGTurbo+           | High 3D graphics accelerator. This module occupies three adjacent TURBOchannel option slots, but is connected to the system through the lower-numbered slot.                                                                                                                                |

(continued on next page)

**Table 2 (Cont.). Base System and TURBOchannel Option Modules**

|             |                                                                                                                                                                                                                                                    |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MB          | Memory module. The number indicates the megabytes of memory installed in base slot 3.                                                                                                                                                              |
| MX - - -D=1 | Monochrome frame buffer, where D=1 indicates black and white. This module can be installed in any TURBOchannel option slot.                                                                                                                        |
| NVRAM       | Non-volatile random access memory module. An NVRAM module is an optional module that is preinstalled in the base system, if purchased for your workstation. It provides one megabyte of battery backed-up memory that will survive power failures. |
| PX - - -D=8 | 2D graphics accelerator, where D=8 indicates color or grey-scale. This module can be installed in any TURBOchannel option slot.                                                                                                                    |
| SCSI        | SCSI controller. One is built into base slot 3; others may be installed in the TURBOchannel option slots.                                                                                                                                          |

If the modules you ordered do not appear in the configuration display, turn to Chapter 8 of the *DECstation 5000 Model 240 Hardware Operator's Guide* for troubleshooting instructions.

4. Type **cnfg 3** at the console prompt (>>) and press Return to check the slot configuration for the base system (slot 3).  
The following is a sample slot configuration display for the base system:

```

>>cnfg 3
3:  KN03-AA    DEC    X2.0d    TCF0    (224 MB, 1 MB NVRAM)
                                         {enet: 08-00-2b-0f-45-72}
                                         {SCSI = 7}

-----
DEV  PID          (C) DEC  VID          REV      SCSI DEV
=====
rz0  RZ55          (C) DEC  DEC          0700    DIR
rz2  RZ24          (C) DEC  DEC          0700    DIR
rz4  RRD42         (C) DEC  DEC          0700    DIR
tz5  RRD42         (C) DEC  DEC          0700    DIR
tz5  RRD42         (C) DEC  DEC          0700    SEQ
dcache( 64 KB),  icache( 64KB)
mem( 0):  a0000000:  a1ffffff  ( 32 MB)
mem( 1):  a2000000:  a3ffffff  ( 32 MB)
mem( 2):  a4000000:  a5ffffff  ( 32 MB)
mem( 3):  a6000000:  a7ffffff  ( 32 MB)
mem( 4):  a8000000:  a9ffffff  ( 32 MB)
mem( 5):  aa000000:  abffffff  ( 32 MB)
mem( 6):  ac000000:  adffffff  ( 32 MB)
mem(14):  bc000000:  bc0fffff  (  1 MB)      Presto-NVR
>> mem(14):  clean, batt OK, armed

```

Check the cnfg 3 display for the status of NVRAM. The last two lines of the cnfg 3 display provide information on the NVRAM module, which is installed in memory slot 14, if present. The sample display shows that NVRAM is "clean" (empty), the battery is OK, and NVRAM battery-disconnect circuits are "armed" (NVRAM batteries are not currently in use).

5. Check the slot configuration display to see if the system recognizes all of the drives in the external storage devices you connected to the SCSI connector in that slot.
  - a. Look in the column labeled SCSI DEV for a coded description of the type of drive (in this example, DIR, CD-ROM, and SEQ).
  - b. Look in the column labeled PID for a coded description of the part ID number (in this example, RZ55, RZ24, and RRD42).
  - c. Look in the column labeled DEV for the device code and SCSI ID number for each of the drives connected to the base system SCSI connector (in this example, rz0, rz2, rz4, and tz5). The last character of the code is the SCSI ID number. The drives in this example have the SCSI ID numbers 0, 2, 4, and 5.

Table 3 lists the device codes, device descriptions, and types of drives you may see in your slot configuration display.

**Table 3. Codes for Different Types of SCSI Drives**

| Device Code (DEV) | Device Description (SCSI DEV) | Type of Drive        |
|-------------------|-------------------------------|----------------------|
| rx                | DIR                           | Diskette             |
| rz                | CD-ROM                        | Optical compact disc |
| rz                | DIR                           | Hard disk            |
| tz                | SEQ                           | Tape                 |

- c. The slot configuration display should show a separate SCSI ID for every external drive you connected to the SCSI connector in that slot. If a drive is not listed, it may be because it has a SCSI ID identical to that of another drive attached to the same SCSI connector. Check the physical SCSI ID setting on the device not listed and compare it to the SCSI ID numbers for the devices in the slot configuration display. (See Chapter 6 of the *DECstation 5000 Model 240 Hardware Operator's Guide* for instructions on checking the SCSI ID of an external drive that is not recognized by your workstation.)
  - If all the SCSI IDs are different, check to make sure all the cables are properly connected.
  - If two drives have the same ID, or if the missing drive has an ID of 7 or higher, turn off all workstation components and change the missing drive's SCSI ID to an unused number from 0 to 6. (See Chapter 6 of the *DECstation 5000 Model 240 Hardware Operator's Guide* for instructions on changing the SCSI ID setting of an external drive.)

Then turn on all the workstation components and test the slot configuration again by entering the command, **cnfg** slot\_number again.

- If all the drives have different IDs and all the cables are connected properly, turn to Chapter 8 of the *DECstation 5000 Model 240 Hardware Operator's Guide* for further troubleshooting instructions.
- 6. If you have any external storage devices attached to a SCSI connector in a TURBOchannel option slot, type **cnfg** slot\_number, replacing the slot\_number with the number of the option slot (0, 1, or 2) you want to check.  
Then check for the presence of all drives connected to that slot, as described in step 6.

## Find out and report your Ethernet address

If your workstation will be connected to an Ethernet network, you need to determine your Ethernet station address and report it to your system manager. The system manager can then complete the network connection for you.

(If you have installed your workstation as a standalone system, you can skip this step.)

1. At the workstation console prompt (>>), type **cnfg** and press Return. A display similar to the following appears on the screen:

```
>>cnfg
3:  KN03-AA  DEC      X2.0d    TCF0    (224 MB,   1 MB NVRAM)
                                     (enet: 08-00-2b-0f-45-72)
                                     {SCSI = 7}
0:  PMAG-BA  DEC      V5.3d    TCF0    (CX -- d=8)
1:  PMAD-AA  DEC      V5.3d    TCF0    (enet: 08-00-2b-0f-45-31)
>>
```

The 3: at the extreme left on the first line indicates the information that follows is for slot 3, the base system unit. Look at the second line of the display. The entry after enet: within the parentheses is the Ethernet station address for the base system, slot 3.

The 0: and the 1: at the extreme left indicate the information that follows is for TURBOchannel option slots 0 and 1.

In this display, both lines 3: and 1: show Ethernet station addresses:

- ❶ Ethernet address for the Ethernet controller in base slot 3 is 08-00-2b-0f-45-72.
  - ❷ Ethernet address for the Ethernet controller in option slot 1 is 08-00-2b-0f-45-31.
2. Write down the Ethernet address for each Ethernet controller to be connected to a network. Report the addresses to your system manager, and request that the manager complete the Ethernet connections for you.

## **Install the worksystem software**

You need the following ULTRIX manuals to perform the installation:

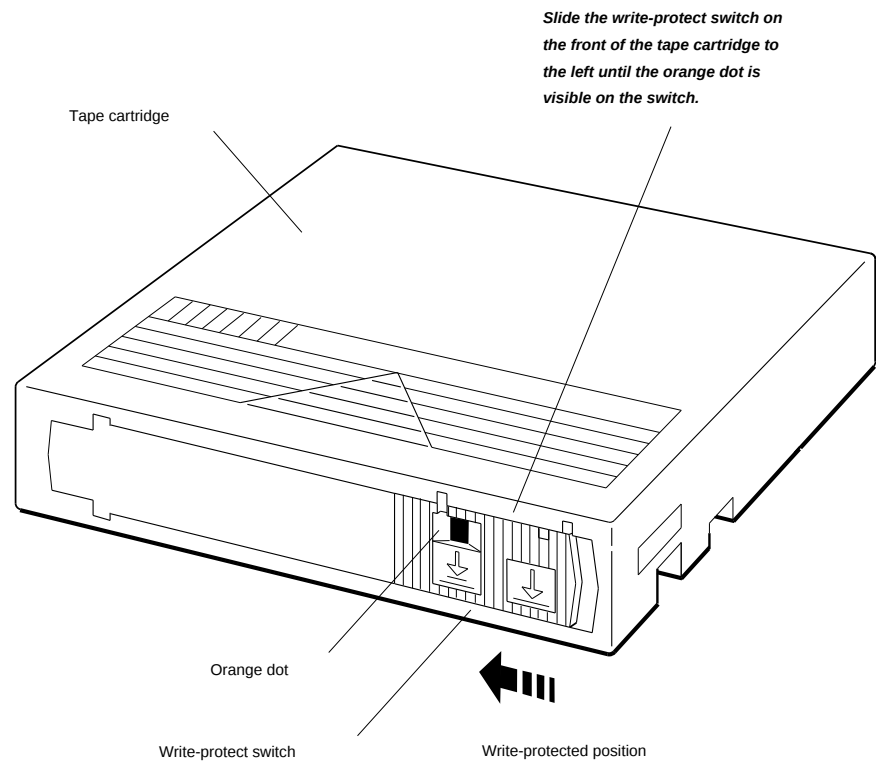
- *Guide to Installing ULTRIX*
- ULTRIX release notes

### **To install the worksystem software from a network**

1. Make sure that you reported your Ethernet address to your system manager and that your workstation has been connected to the Ethernet network.
2. Ask your system manager to install the worksystem software for you.

## To install the worksystem software from a tape drive

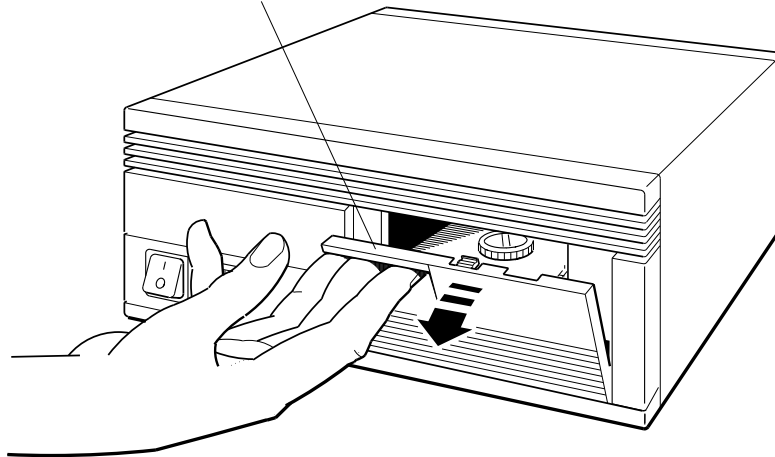
1. Remove the ULTRIX software installation tape cartridge from your tape cartridge kit and make sure it is write-protected.



WS3PI048

2. Open the door to the tape drive.

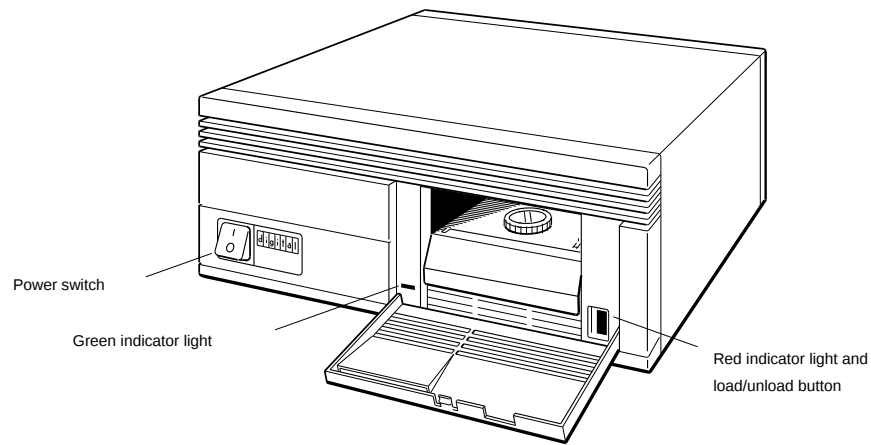
*Insert three fingers behind the lip on the left side of the top of the drive door and pull the door away from the drive to open it.*



WS3PI049

3. Make sure the load/unload button on the tape drive is in the unload (out) position. Then turn on the power by pressing the power button. Wait for the drive self-test to run.

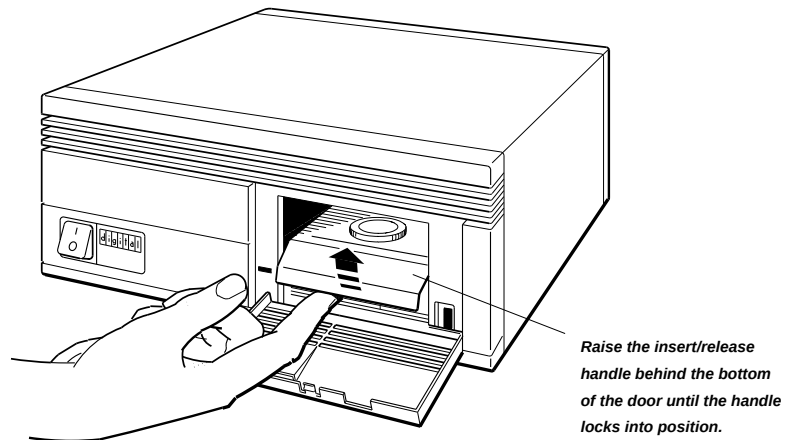
The red indicator light shines steadily for 5 to 15 seconds while an internal self-test runs. Then the red indicator light goes off and the green indicator light comes on. If at any time the red light flashes rapidly, there is a problem with the tape drive. See the troubleshooting section of the tape drive owner's manual for help or contact your field service representative.



WS3PI050

4. Lift the cartridge insert/release handle.

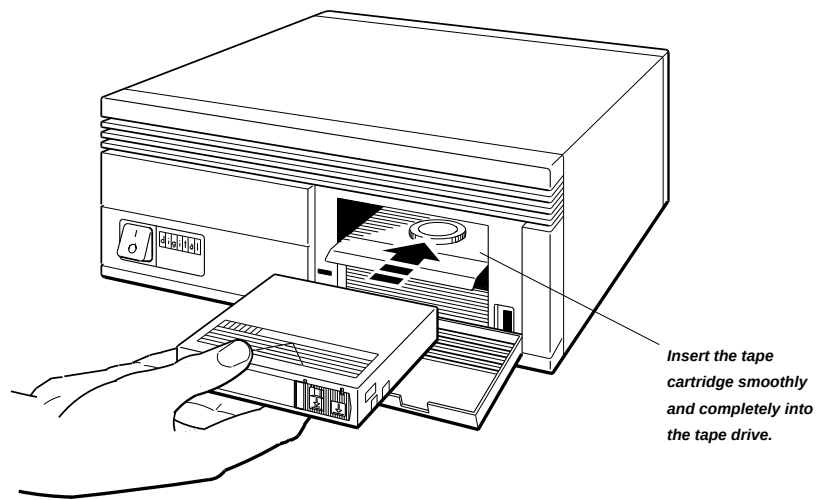
**Caution:** *Never lift the handle when the green light is on or blinking, as this may cause an error or damage the drive.*



WS3PI051

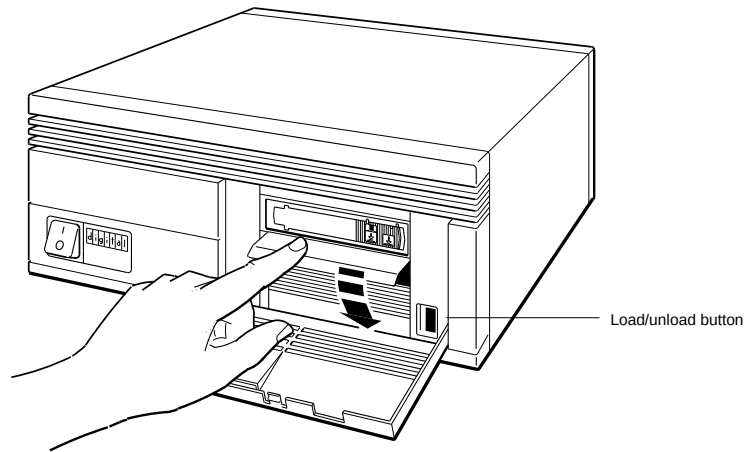
5. With the arrow on the tape cartridge pointing away from you, load the tape cartridge into the drive. (The owner's manual for the drive explains how to insert and remove tapes.)

**Caution:** *You will feel some resistance as you push the cartridge into place. It is very important not to stop at this point, but to continue pushing the cartridge firmly until it locks into place.*



WS3PI056

6. When the red indicator light turns on and the green indicator light goes off, lower the cartridge insert/release handle to the locked (closed) position.



WS3PI004

After several seconds, the green indicator light glows steadily and the red indicator light turns off.

7. Press the load/unload button so it is in the load (in) position.  
The tape goes through a load process that takes 5 to 7 seconds. Both lights come on and glow steadily when the tape reaches its beginning and is ready for use.
8. Find the device code and SCSI ID number for the tape drive you are using.

At the console prompt (>>), type **cnfg** slot\_number, replacing slot\_number with the number of the slot in which the tape drive is installed (0, 1, 2, or 3). For example, if the tape drive is attached to the base system SCSI connector, type **cnfg 3**. Then press Return.

Here is the relevant portion of a sample display:

```
>>cnfg 3
3:  KN03-AA   DEC   X2.0d   TCF0  (224 MB, 1 MB NVRAM)
                                     {enet: 08-00-2b-0f-45-72}
                                     {SCSI = 7}
```

| DEV | PID   |         | VID | REV  | SCSI   | DEV |
|-----|-------|---------|-----|------|--------|-----|
| rz0 | RZ55  | (C) DEC | DEC | 0700 | DIR    |     |
| rz2 | RZ24  | (C) DEC | DEC | 0700 | DIR    |     |
| rz4 | RRD42 | (C) DEC | DEC | 0700 | CD-ROM |     |
| tz5 |       |         |     |      | SEQ    |     |

All device codes in this display appear in the column labeled DEV. The device code for all tape drives begin with tz. In the example, the device code for the tape drive is tz5.

9. Type **boot** slot\_number/device\_code. Replace slot\_number with the tape drive's slot number (0, 1, 2, or 3) and device\_code with the device code of the tape drive. Then press Return. For the drive in the example, you would type **boot 3/tz5**.

If the message ?IO: 3/tz5 (bb rd) appears on the screen, make sure that the proper tape cartridge is in the drive and the red and green lights are glowing steadily. If retyping the boot command still causes this message to appear, contact your Digital service representative.

10. Follow the instructions on your screen to complete the basic worksystem software installation.

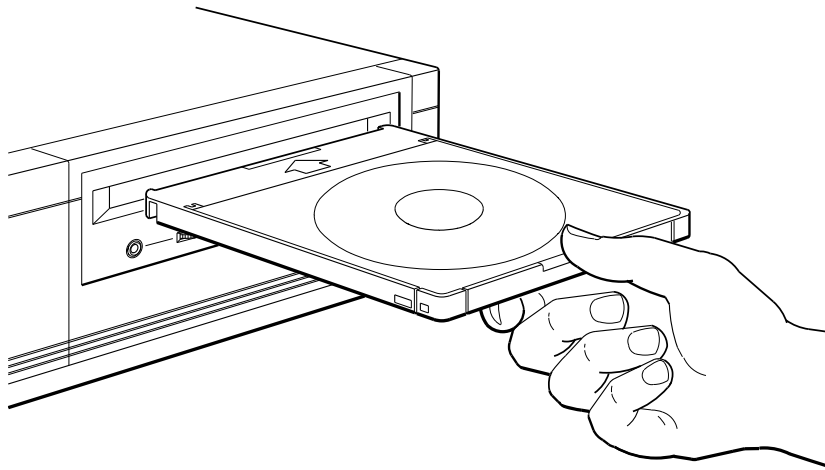
This procedure takes about two hours using a tape drive. For further assistance, refer to the *Guide to Installing ULTRIX*.

When the installation is complete, the login screen with the DIGITAL logo appears on your monitor.

Remove the tape from the drive after completing the installation. Follow the instructions in the tape drive owner's guide.

### To install the worksystem software from a compact disc drive

1. Remove the ULTRIX software installation compact disc from your ULTRIX Optical Compact Disc Kit.
2. Load the software installation compact disc into the drive. (The owner's manual for the drive explains how to insert and remove discs.)



WS3PI053

3. Find the device code and SCSI ID number assigned to your compact disc drive.

At the console prompt (`>>`), type **cnfg** slot\_number, replacing slot\_number with the number of the slot in which the compact disc drive is installed (0, 1, 2, or 3). For example, if the compact disc drive is attached to the base system (slot 3) SCSI connector, type **cnfg 3**. Then press Return.

Here is the relevant portion of a sample display:

```
>>cnfg 3
3:  KN03-AA    DEC    X2.0d    TCF0    (224 MB, 1 MB NVRAM)
                                         {enet: 08-00-2b-0f-45-72}
                                         {SCSI = 7}
```

| DEV | PID   |         | VID | REV  | SCSI   | DEV |
|-----|-------|---------|-----|------|--------|-----|
| rz0 | RZ55  | (C) DEC | DEC | 0700 | DIR    |     |
| rz2 | RZ24  | (C) DEC | DEC | 0700 | DIR    |     |
| rz4 | RRD42 | (C) DEC | DEC | 0700 | CD-ROM |     |
| tz5 |       |         |     |      | SEQ    |     |

The drive with the CD-ROM device description in the SCSI DEV column is the optical compact disc drive. To find its device code, look at the entry on the same line in the column labeled DEV. In this example, the CD-ROM device code is rz4.

- After the green indicator light stops glowing, at the console prompt (>>) type **boot slot\_number/device\_code/vmunix**, replacing slot\_number with the CD-ROM's slot number and device\_code with the CD-ROM's device code from the DEV column of the display. Then press Return. For the drive in the example, you would type **boot 3/rz4/vmunix**.
- Follow the instructions that appear on the screen to complete the basic worksystem software installation.

This procedure takes about an hour using a compact disc drive. For further assistance, refer to the *Guide to Installing ULTRIX*.

When the installation is complete, the login screen with the DIGITAL logo appears on your monitor.

To remove the compact disc from the device drive after completing the installation, follow the instructions in the disc drive owner's guide.

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