DECsystem 3100

Operator's Guide

May 1989

USA

This equipment generates, uses, and may emit radio frequency energy. The equipment has been type tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such radio frequency interference. Operation of this equipment in a residential area may cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

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In this system, writers use an ASCII text editor to create source
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About This Guide

Use this guide to learn to use and troubleshoot your DECsystem 3100 hardware.

This guide tells you:

- How to use the connectors, controls, and indicator lights on your DECsystem 3100 hardware

- How to adjust your DECsystem 3100 hardware for your comfort

- What options you can use to increase your DECsystem 3100's performance

- How to use a tape drive

- How to diagnose and solve hardware problems

- How to dismantle and pack your DECsystem 3100 in preparation for moving

Table 1   Conventions Used In This Guide

Convention	Use
Monospace type	Anything that appears on your console terminal screen is set in monospace.
Boldface type	**Anything you are asked to type is set in boldface.**

1

Basic DECsystem 3100 Hardware

This chapter describes the basic parts of the DECsystem 3100:
the system unit and console terminal.

Figure 1-1   The Basic DECsystem 3100

System unit

Console terminal

Keyboard
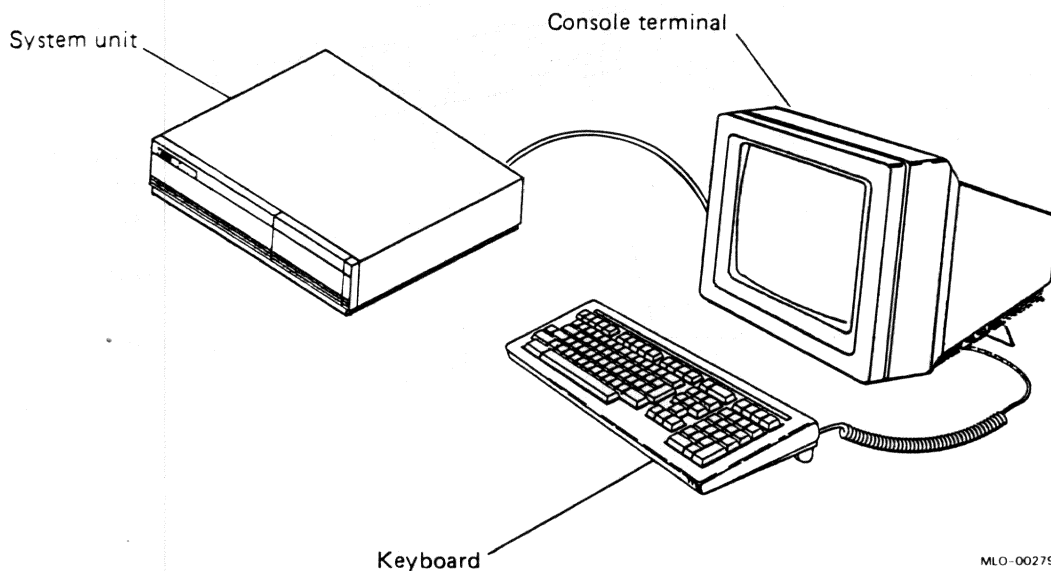
MLO-002791

The System Unit

The system unit is designed to sit flat on a desk or table with the console terminal placed on top of or next to it (Figure 1–1).

Caution: *Standing the system unit on its side blocks vents and can damage the unit.*

If you look at the back of the system unit, you can see, starting in the upper-left corner and moving in a counterclockwise direction from left to right, the connectors, controls, and indicator lights described in Table 1–1 and pictured in Figure 1–2. Figure 1–2 shows the icons that appear on the system unit.

Figure 1–2   The Back of the System Unit
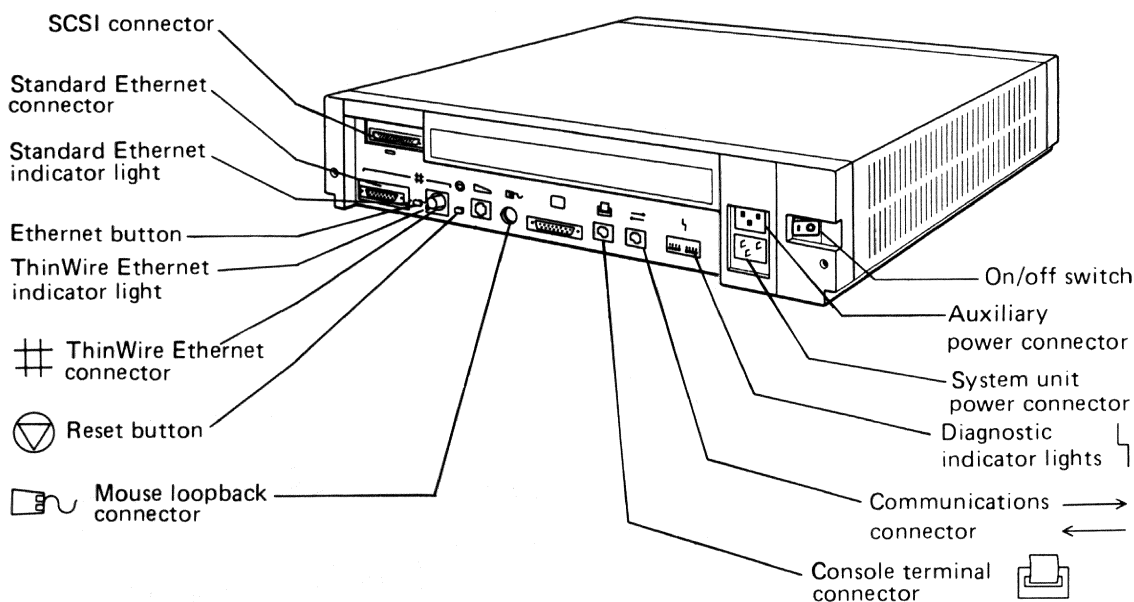
MLO–002792

Table 1-1   Connectors, Controls, and Indicator Lights on the System Unit

Item	Function
SCSI connector	The point at which external small computer system interface (SCSI) storage devices connect to the system unit. If you have no such devices, this connector must be covered with a terminator.
Standard Ethernet connector	The point at which Standard Ethernet connects to the system unit.
Standard Ethernet light	Glows green on a DECsystem 3100 selected for Standard Ethernet.
Ethernet button	Activates your ThinWire or Standard Ethernet connection.
	When your DECsystem 3100 is connected to Standard Ethernet, the light to the right of the Standard Ethernet connector glows green.
	When your DECsystem 3100 is connected to ThinWire Ethernet, the light to the left of the ThinWire T-connector glows green.
ThinWire light	Glows green on a DECsystem 3100 for ThinWire Ethernet.
ThinWire connector	The point at which ThinWire Ethernet connects to the system unit.
Reset button	Returns you to the console prompt.
Console terminal connector	The point at which the console terminal connects to the system unit.
Communications connector	The point at which a communications device connects to the system unit.
Diagnostic lights	Indicate diagnostic failures.
System unit power connector	The point at which power from the power source reaches the system unit.
Console terminal–system unit power connector	The point at which power passes from the system unit to the console terminal.
On/off switch	Turns the system unit on and off. Press the 1 to turn it on. Press the 0 to turn it off.

2

Using the DECsystem 3100

This chapter tells about using the DECsystem 3100, including how to:

- Turn your DECsystem 3100 on and off
- Interpret and use the configuration table
- Use console commands
- Use an external tape drive

Turning On Your DECsystem 3100

Turn the power strip on (set the on/off switch to 1). When the switch is turned to the on position, the switch will glow.

As soon as you turn on the power strip, the following things happen:

- The system unit begins its power-up self-test.

- The power indicator lights on your equipment glow green.

The console terminal warms up, and a display similar to the following gradually appears on the screen:

```
KN01 V6.5

7..6..5..4..3..2..1..0

16Mb.........0
```

When testing has been completed successfully, the following appears at the bottom of the display:

```
KN01 V6.5
08-00-2b-0d-f7-6a
0x01000000
>>
```

If the power-up self-test display fails to appear, or if the following line flashes on your screen, see Chapter 4 of this guide for troubleshooting instructions.

```
FAILURE - RESET TO CONTINUE
```

Turning Off Your DECsystem 3100

Follow these steps to turn off your DECsystem 3100:

1 Shut down your operating system by following the instructions in your operating system software documentation.

2 Turn the power strip off (set the on/off switch to 0). The switch will stop glowing.

Using the Configuration Display

The configuration display tells you

- How much memory your DECsystem 3100 contains

- What your Ethernet station address is (You must know this to be able to connect your DECsystem 3100 to a network.)

- What storage devices your system has and what units they are assigned to

Displaying Your DECsystem 3100 Configuration

Type **test -c** at the console prompt (>>) and press RETURN.

A display similar to the one in Figure 2–1 appears on your screen.

Figure 2–1   Sample Configuration Display

```
MEMORY: 16Mbytes
VIDEO: MONO
ETHERNET STATION ADDRESS: 08-00-2b-0c-4a-8b
SCSI DEVICES:
Unit[7]
Unit[6]KN01--SII
Unit[5]
Unit[4]
Unit[3] Device type  0 DISK
           RMB                    0x0
           Version                1
           Response data format   1 CCS
           Additional length      31
           Vendor                 DEC
           Product identification RZ55    (C) DEC
           Firmware revision level 0618
Unit[2]
Unit[1]
Unit[0]
```

From this display, you learn the following:

Line 1 — Tells you how much memory you have. The system described in Figure 2–1 has 16 megabytes of memory. You could add one or two 4-megabyte memory modules to this system.

Line 3 — Tells you your Ethernet station address. The address for the system described in the figure is 08-00-2b-0d-F7-6a. You need to know your Ethernet address if you want to be able to connect your DECsystem 3100 to a network.

Line 4 — Introduces the list of storage-device locations available in your system. These storage devices are called small computer system interface (SCSI) devices. The remaining lines of this display describe any SCSI devices that are assigned to Units [7] through [0].

Line 5 — Tells you that the system described in the figure has nothing assigned to Unit [7]. You could add a storage device here.

Line 6 — Tells you that Unit [6] contains the controller that directs the operation of your SCSI devices.

Lines 7, 8 — Tell you that the system described in the figure has nothing assigned to Unit [5] or Unit [4]. You could add storage devices here.

Line 9 — The system in Figure 2–1 has a hard disk drive assigned to Unit [3]. The words Device type 0 DISK appear on the unit-number line for any unit that contains a hard disk. If Unit [3] contained a tape drive, the words Device type 1 TAPE would appear on the unit-number line.

Lines 10–16 — Describe the device assigned to Unit [3] in more detail. This type of description displays for any SCSI device connected to your system.

Lines 17, 18, 19 — The system described in Figure 2–1 has no devices assigned to Unit [2], Unit [1], or Unit [0]. You could add storage devices here.

Using Console Commands

By typing commands at the console prompt (>>), you can gather some important information about your DECsystem 3100 hardware.

Many of the console commands are used for diagnostics and debugging by Digital service personnel. However, you may find the following useful to know:

help	Displays the list of console commands and tells how to issue them.
?	Displays the list of console commands and tells how to issue them.
init	Performs a full initialization of your system. Initialization prepares the system to start.
printenv	Displays the environment variables. This display contains a list of variables, such as the baud rate for your communications devices, and gives the current value for each variable.
test -a	Runs the DECsystem 3100 hardware self-test.
test -c	Runs the configuration test and displays your current configuration.

A more extensive list of console commands can be found in Appendix A of this guide.

Using a Tape Drive

The optional TK50Z tape drive can store 95 megabytes on each of its TK50–K (CompacTape) tape cartridges, or 296 megabytes on each TK52–K (CompacTape II) tape cartridges. Its function is to read and write data to and from the magnetic tape in a cartridge.

The cartridges for your tape drive contain magnetic tape on a single reel. The top of each cartridge carries the label "CompacTape."

When you load a cartridge, the tape automatically threads onto the reel inside the drive.

Before you remove a cartridge, the tape must be fully rewound. This process can take up to 90 seconds. Rewinding occurs automatically when you attempt to remove the cartridge.

Checking the Position of the Tape Leader Inside a Cartridge

Before using a cartridge, check the position of the leader inside by doing the following:

1 Remove the cartridge from its protective case.

2 Open the door on the back of the cartridge.

   a Insert your thumb into the groove on the right corner of the back of the cartridge.

   b Press up on the door lock to release it.

   c Push the right edge of the door away from you until the door is fully open and you can see the leader (Figure 2–2).

Figure 2–2   Opening the Door in the Cartridge

MLO-002793
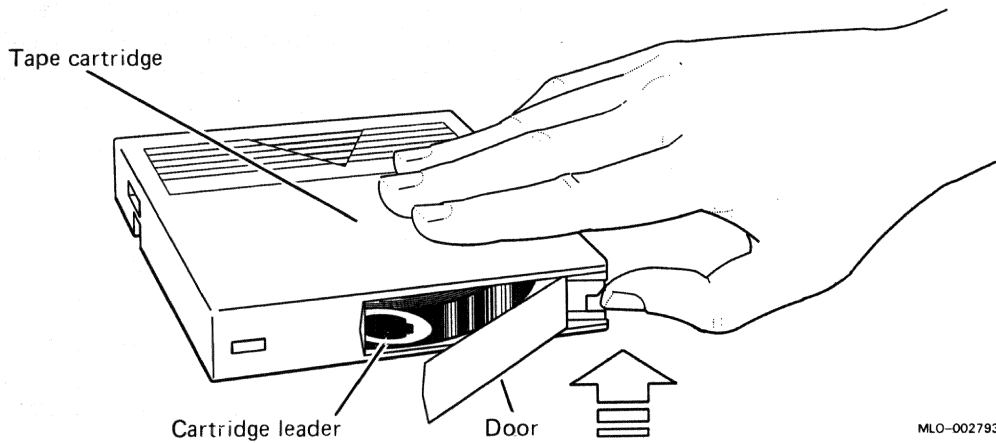
3 Be sure the leader is positioned as it is shown in Figure 2–3.
If it looks different in any way, use another cartridge.

Caution: *Using a cartridge that has an incorrectly positioned leader can*
damage your tape drive.

Figure 2-3   A Tape Leader Positioned Correctly in the Cartridge

Tape cartridge

Cartridge leader
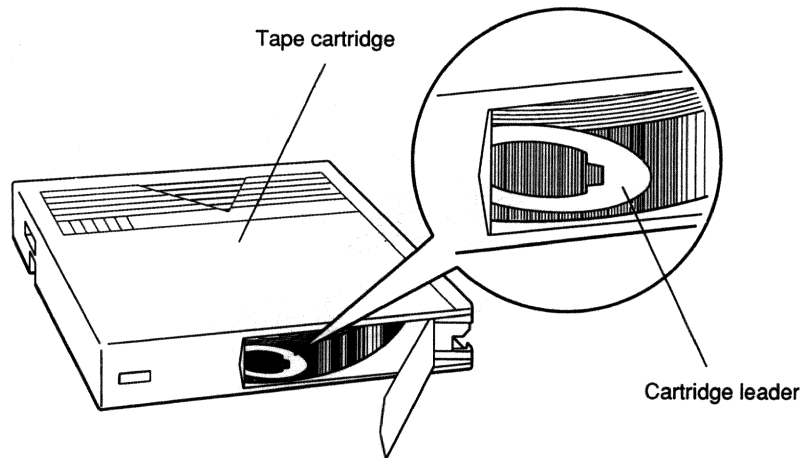
DEPG010

Write-Protecting a Cartridge

To prevent information on the tape from being written over, write-protect the cartridge. Do this when you use your drive to read software or data from the tape.

To write-protect a cartridge (Figure 2-4):

1   Find the write-protect switch on the right-hand side of the front of the cartridge.

2   Slide the switch to the left until an orange dot appears above the left arrow on the switch.

Figure 2–4   A Write-Protected Cartridge

Tape cartridge   Orange dot

Write-protected
position

Write-protect switch
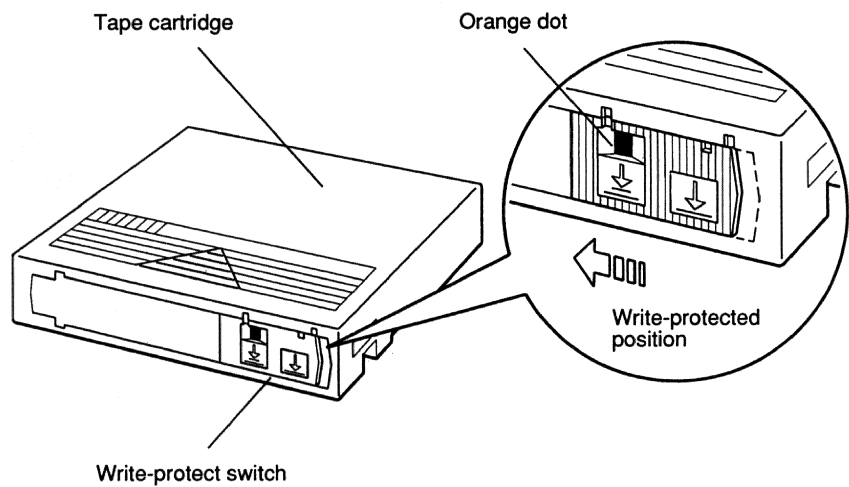
DEPG011

Write-Enabling a Tape Cartridge

When you want to write data to a cartridge, write-enable it. Do this when you want to use your drive as a back-up device.

To write-enable a tape cartridge:

1 Find the write-protect switch on the right-hand side of the front of the cartridge.

2 Slide the switch all the way to the right until the orange dot disappears. See Figure 2–5.

Figure 2–5   A Write-Enabled Cartridge

Tape cartridge

Write-enabled position

Write-protect switch

MLO–002794
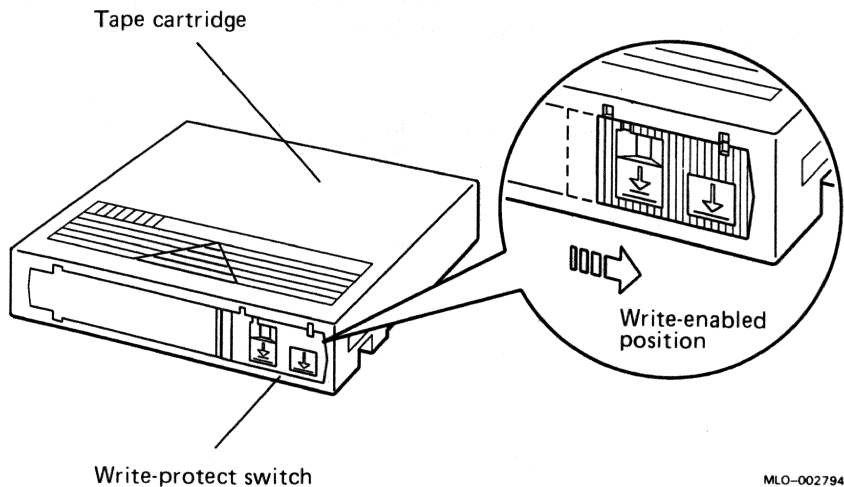
Checking the Take-Up Leader Inside the Drive

The take-up leader inside the drive must be in the correct position for it to mate with the tape cartridge leader. If the take-up leader is not in the correct position, call your Digital service representative.

Caution: *Trying to use a tape drive when the take-up leader is not in the correct position can damage the drive.*

1 Find the cartridge insert/release handle on the front of the expansion box.

2 Press it down until you can see the leader inside the drive.

3 Be sure the leader is positioned as shown in Figure 2–6.

   If the leader is not positioned correctly, call your Digital service representative.

Figure 2–6   A Take-Up Leader Positioned Correctly in the Drive

Take-up leader   Notch in leader   Buckling link

Cartridge insert/release handle
(down position)
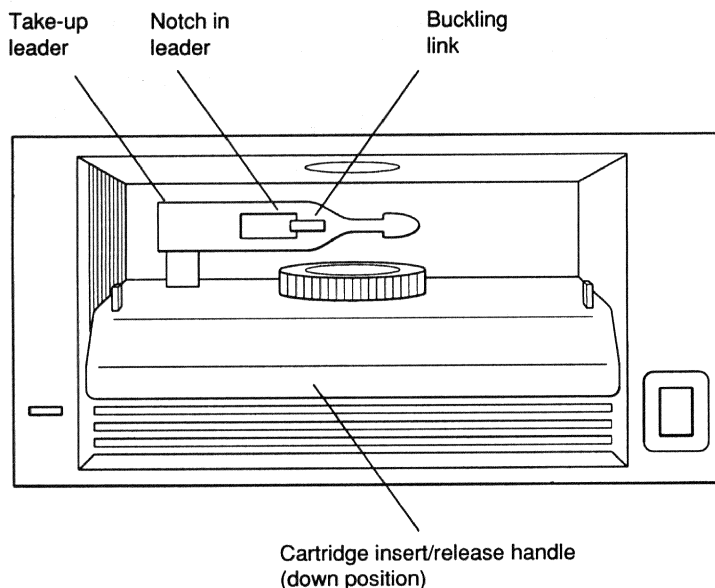
DEPG013

Loading the Tape Cartridge

1 Press and release the load/unload button on the front of the expansion box until it pops into the unload (out) position (Figure 2–7).

Figure 2–7   Pressing the Load/Unload Button on a Tape Drive

Green indicator light

On/off switch
in on position

Red indicator light and
load/unload button
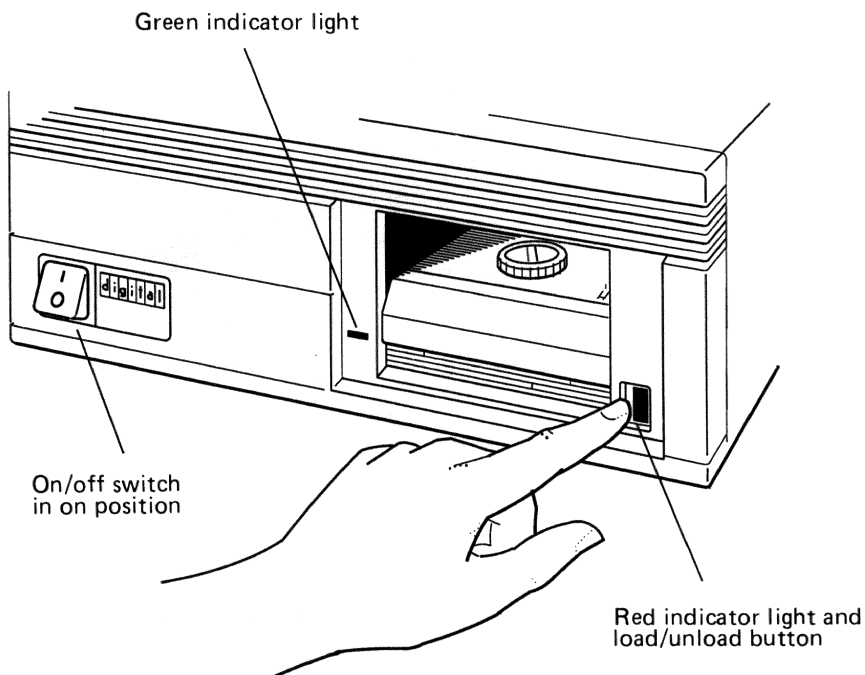
MLO–002795

2 Turn the drive on (set the on/off switch to 1).

The red light in the lower-right corner of the front of the box glows for 5 to 15 seconds while the drive runs its self-test.

- If the self-test fails, or if there is any problem with the drive, the red light blinks rapidly.

- If this occurs, stop using the drive and refer to Chapter 4 of this guide for troubleshooting procedures or call your system manager or Digital service representative for help.

3 When the red light goes out and the green light in the lower-left corner glows, lift the cartridge insert/release handle to open the drive door (Figure 2–8).

Caution: *Lifting the insert/release handle while the red light glows or blinks can damage the tape and the drive.*

Figure 2–8   Lifting the Insert/Release Handle on a Tape Drive

Green indicator light

Cartridge insert/release
handle

Red indicator light and
load/unload button
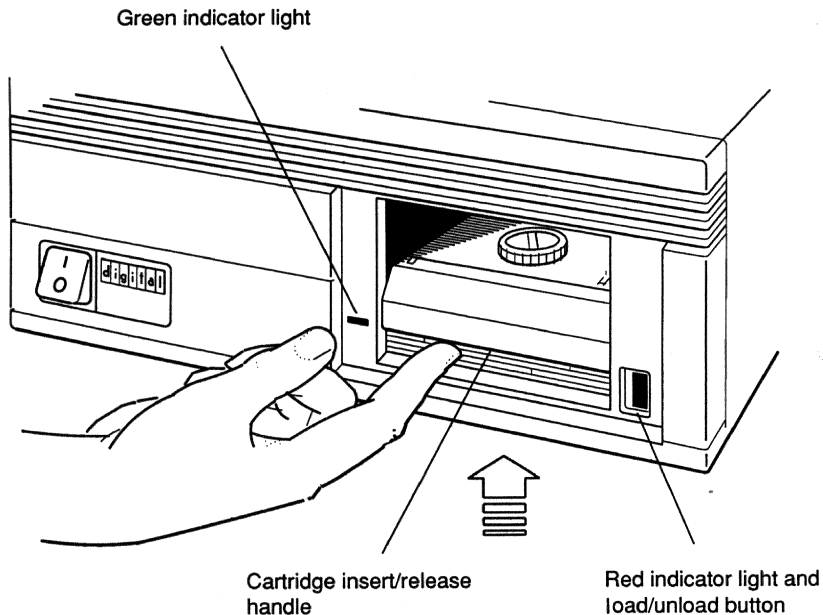
MLO–002796

4 Position the cartridge so the arrow is on top and pointing away from you and the write-protect switch faces you.

5 Place the cartridge part way into the drive (Figure 2–9).

Figure 2–9   Inserting a Tape in the Drive

Green indicator light

Red indicator light and
load/unload button

MLO–002797

6 When you begin to feel resistance, push the cartridge firmly and smoothly into the drive until it locks into place.

The green light turns off and the red light glows.

7 Lower the insert/release handle to close the drive door (Figure 2–10).

Figure 2–10   Lowering the Insert/Release Handle on a Tape Drive

Green indicator light

Cartridge insert/release handle

Red indicator light and load/unload button
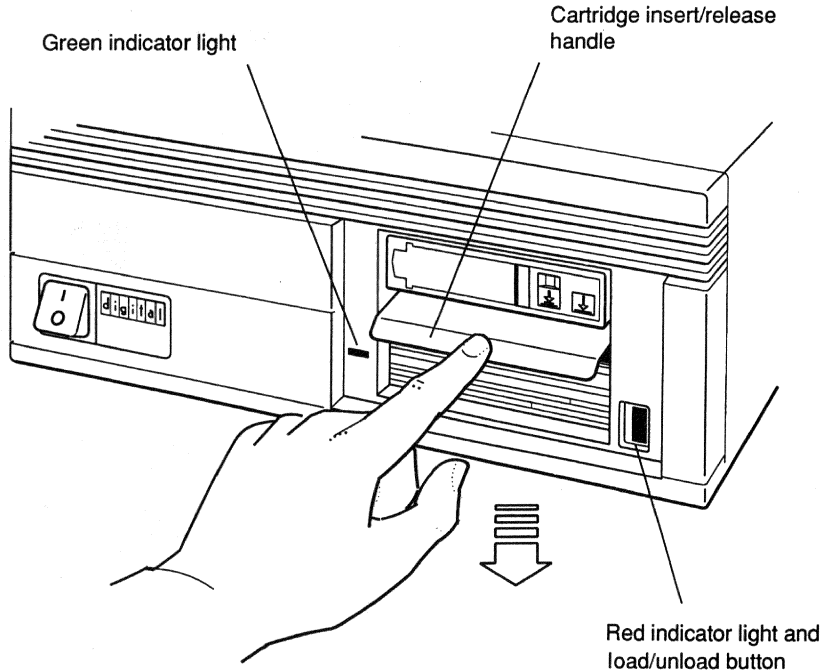
MLO–002798

8 Wait for the red light to turn off and the green light to glow.

9 Press the load/unload button until it locks into the load (in) position.

10 Begin to use the cartridge when the red and green lights both glow steadily.

As you use the cartridge, you will notice the following:

- The green light blinks while the red light glows during normal system operation.

- Both the red and green lights blink while the tape rewinds.

- The green light turns off and the red light blinks rapidly when there is a problem.

  If this happens, see Chapter 4 of this guide for troubleshooting procedures or call your system manager or Digital service representative.

Removing the Tape Cartridge

1 Press and release the load/unload button on the front of the expansion box until it pops out into the unload position (Figure 2–11).

   If any tape must be rewound, the red and green lights blink slowly while rewinding is in process.

2 Wait 8 to 10 seconds for the tape to unload after rewinding is complete.

Figure 2–11   Pressing the Load/Unload Button on a Tape Drive

Green indicator light

On/off switch in on position

Red indicator light and load/unload button
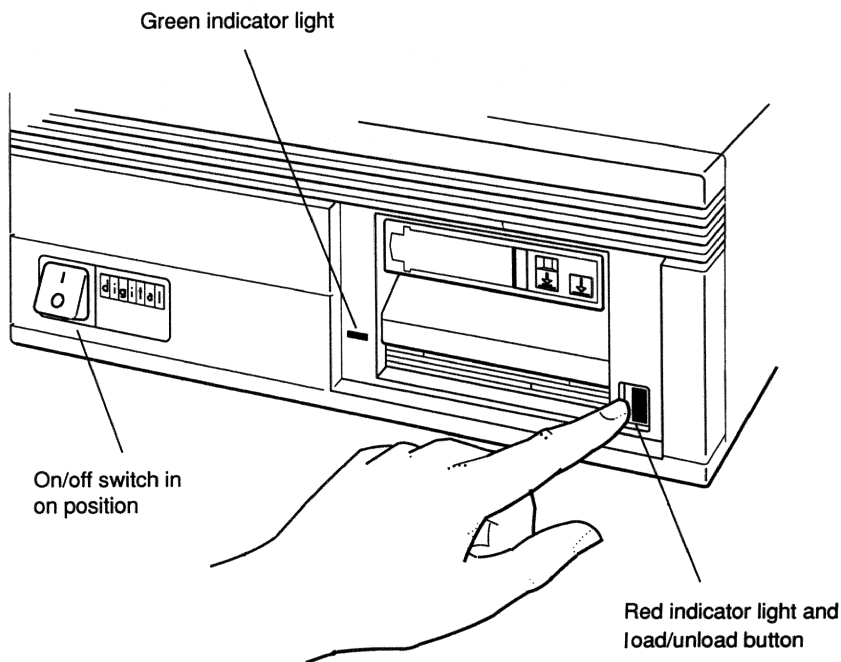
MLO–002799

- The red light glows steadily while the tape unloads.

- When the red light turns off and the green light glows, you can remove the cartridge.

3 Lift the insert/release handle on the front of the expansion box to partially eject the tape (Figure 2–12).

Caution: *Lifting the insert/release handle while the red light glows or blinks can damage the tape and drive.*

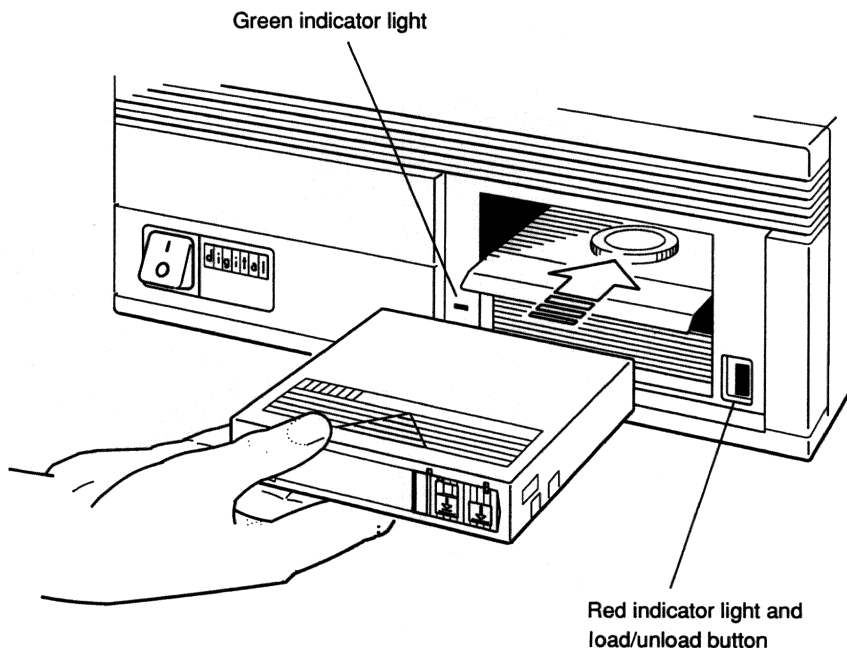**Figure 2–12   Lifting the Insert/Release Handle on a Tape Drive**

Green indicator light

Cartridge release handle

Red indicator light and load/unload button
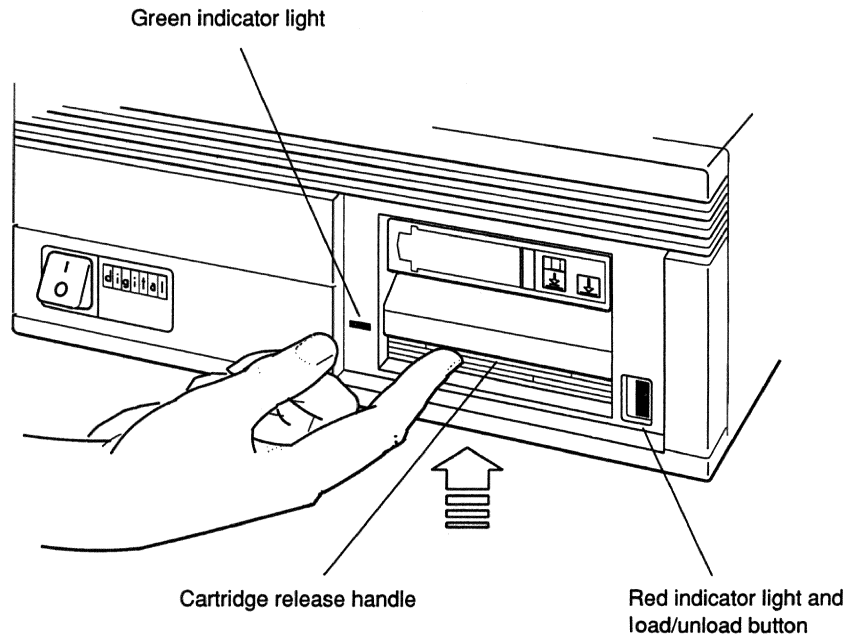
MLO–002800

4 Pull the cartridge out of the drive and return it to its protective case (Figure 2–13).

5 Turn the drive off (set the on/off switch to 0).

Figure 2–13   Removing a Tape Cartridge

On/off switch
in off position

Green indicator light

Red indicator light and
load/unload button
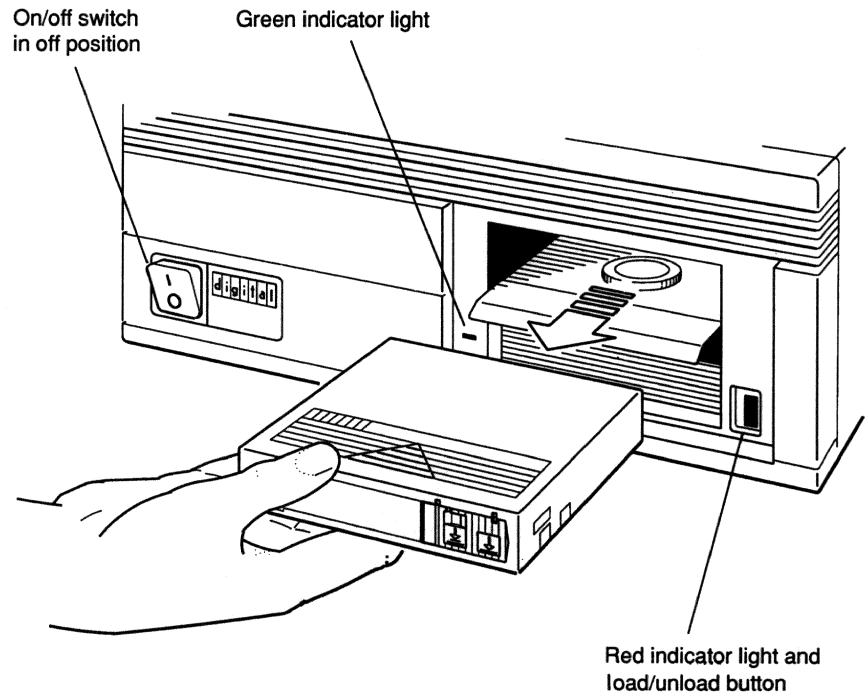
MLO–002801

Labeling a Tape Cartridge

Give your cartridge a name that clearly states what information is on the tape.

1   Write the name you have selected on the label that came with your cartridge (Figure 2–14).

2   Slide the label into the slot on the front of the cartridge.

Caution: *Putting a label anywhere other than the front of the cartridge can damage the tape drive.*

Figure 2–14   Labeling a Tape Cartridge

Label insertion slot

Tape cartridge label
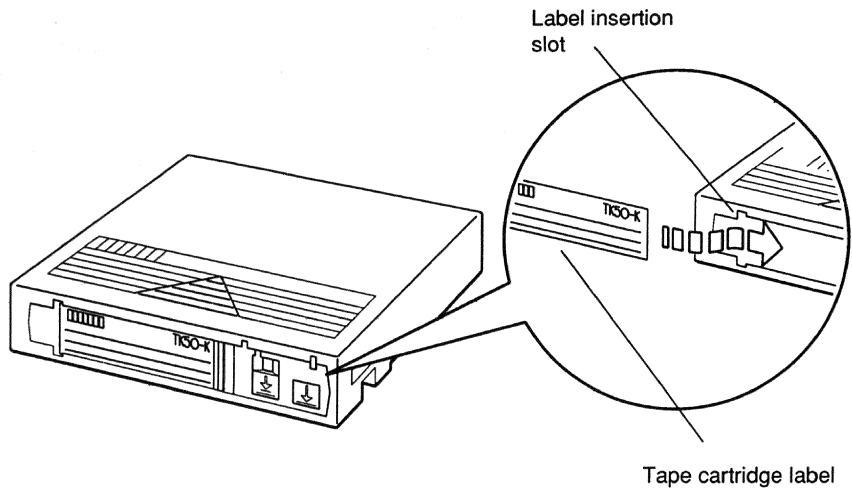
DEPG030

(continued on next page)

3

Hardware Options

This chapter explains:

- What memory and storage options are available and how to get them installed

- What printers and modems are available for your system and where to learn how to install them

Adding Memory

You can add 4-megabyte memory modules to your basic DECsystem 3100 up to a total of 24 megabytes of memory.

To determine how much memory you can add to your DECsystem 3100, use the configuration display as described in Chapter 2 of this guide.

Installing Memory Modules

To install memory modules, contact your Digital service representative, who will perform the installation for you.

Adding Storage

Storage devices available for your DECsystem 3100 include the following:

■ 332-Mbyte RZ55 external hard disk drive

■ 95-Mbyte TK50Z external tape drive

You can have up to six such devices in your DECsystem 3100.

External tape and disk drives come preinstalled in expansion boxes. See Figures 3–1 and 3–2.

Figure 3–1   Expansion Boxes (Single)
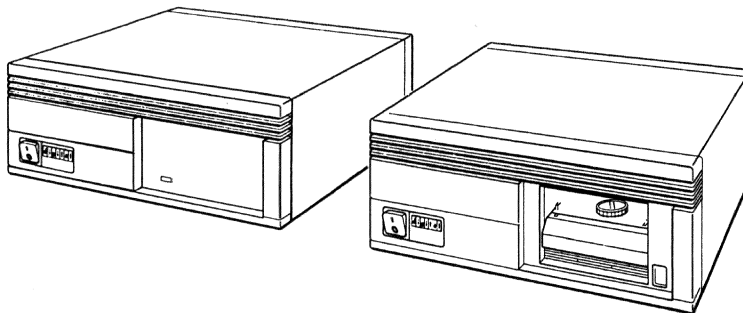
DEPI031

Figure 3–2   Expansion Boxes (Dual)
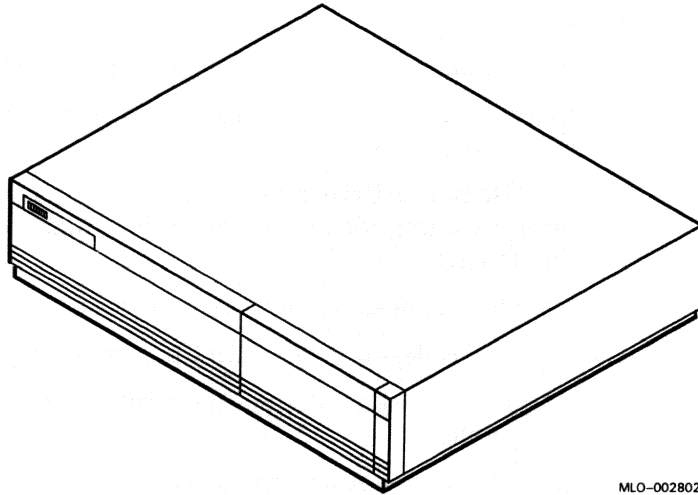
MLO–002802

Installing Storage Devices

To install internal storage devices, contact your Digital service representative, who will perform the installation for you.

To install external storage devices, follow the instructions given in Chapter 4 of the *DECsysytem 3100 Installation Guide*, which is located at the front of this binder.

Adding a Printer

Printers that you can use with your DECsystem 3100 include:

LN03 — A desktop, nonimpact laser printer that produces letter-quality text at a rate of eight pages per minute

LN03 PLUS — An enhanced LN03 that prints documents with both text and graphics

LN03R ScriptPrinter — A nonimpact page printer that uses laser recording technology to produce high-quality text, graphics, and images

LA100 — A desktop dot-matrix printing terminal

LA75 — A desktop dot-matrix printer with pixel graphics

LA50 — A desktop dot-matrix printer with bitmap or character-cell graphics

LJ250 color — A desktop dot-matrix color printer

LPS20 PrintServer — A networked printer that functions as an independent system (or node) in a network

LPS40 PrintServer — A networked printer that functions as an independent system (or node) in a network

When you order a printer, you may need to order a serial line cable to connect it to your system unit. Your Digital sales representative can tell you what you need.

Installing a Printer

For instructions on installing a printer, see Chapter 5 in the *DECsystem 3100 Installation Guide*, which is located at the front of this binder.

Adding a Modem

Modems available for the DECsystem 3100 include the following:

DF242 Scholar Plus — A 300/1200/2400-bits-per-second, full-duplex asynchronous modem

DF224 — A 300/1,200/2,400-bits-per-second, full-duplex asynchronous modem

DF212 — A 300/600/1,200-bits-per-second, full-duplex asynchronous modem

DF112 — A 300/1,200-bits-per-second, full-duplex asynchronous modem

DF03 — A 300/1,200-bits-per-second, full-duplex asynchronous modem

Other modems are described in your software documentation.

When you order your modem, you may need to order a serial line cable and/or a DECconnect Passive Adapter with which to connect your modem cable to your system unit. Your Digital sales representative can tell you what you need.

Note: *Auto-answer is not available; data leads only are connected.*

Installing a Modem

For instructions on installing a modem, see the section on installing communication devices in Chapter 5 in the *DECsystem 3100 Installation Guide*, which is located at the front of this binder.

4

Troubleshooting

This chapter explains:

- How to use the self-test

- What you can do to correct hardware problems and when to ask for help

- What kind of information your Digital service representative needs from you

Important: *In case you need to call your Digital service representative later, you should write down the nature of the problem, including any error messages you have received and the numbers of any self-tests that fail. You should also list the steps you take to try to correct the problem and the results you get.*

Using the Self-Test

The self-test consists of a number of tests that check the parts of your DECsystem 3100 and tell you whether they are working correctly.

You can run the self-test in one of the following ways:

- By turning on your system unit

- By pressing the reset button on the back of the system unit (see Figure 4–1)

- By typing **test -a** at the console prompt (>>) and pressing RETURN

Figure 4–1   The On/Off Switch and Reset Button on the System Unit

Reset button

On/off switch
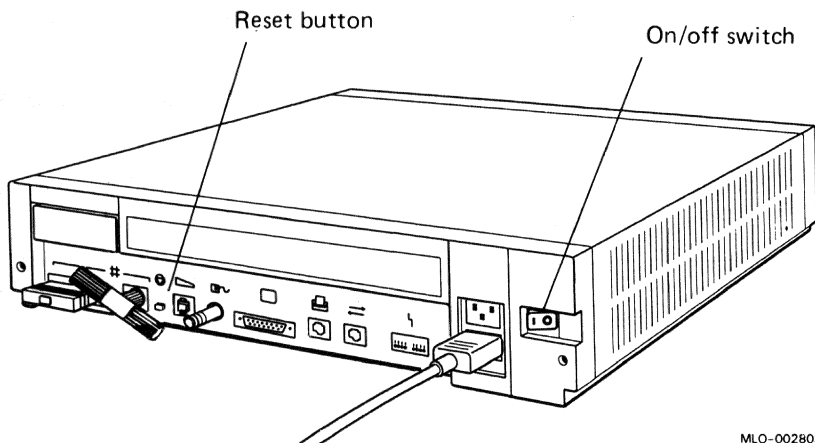
MLO-002803

When you turn the system unit on, the self-test starts automatically. A self-test performed this way is called a power-up self-test.

If the power-up self-test is successful, a display similar to the following appears on your screen:

```
KN01 V6.5

7..6..5..4..3..2..1..0

16Mb..........0
KN01 V6.5
08-00-2b-0d-f7-6a
0x01000000
>>
```

When you type **test -a** to run a self-test, the power to the DECsystem 3100 is not turned off. Tests performed this way are simply called self-tests.

If the self-test is successful, a display similar to the following appears on your screen.

```
KN01 V6.5

7..6..5..4..3..2..1..0

16Mb..........0
>>
```

If a Self-Test Fails

If your DECsystem 3100 fails one of its tests, self-testing stops and a display similar to the following will appear on the screen:

```
KN01 V6.5

7..6..5..4..3..2..
FAILURE

16Mb..........0
>>
```

The number of the test that failed is the last number that appeared on your screen before the failure message.

If Test 7, 6, 5, or 4 Fails

Record the number of the test that failed and report it to your system manager or to your Digital service representative.

If Test 2 Fails

Check your Ethernet connections.

DECsystem 3100 on Standard Ethernet   Follow these steps for a DECsystem 3100 on a standard Ethernet:

1   Turn your system unit off and make sure the standard Ethernet cable connector is securely connected to the standard Ethernet connector on the back of the system unit and that the slide latch is engaged. See Figure 4–2.

2   Turn the system unit on to rerun the self-tests.

3   Check the Ethernet indicator light that lies between the standard Ethernet connector and the Ethernet button.

   If the light is not glowing green, use the point of a pen or some similar tool to press the Ethernet button.

Caution: Because of the graphite in pencil lead, using the point of a pencil to press the Ethernet button can damage the system unit.

4   Press the reset button to rerun the self-tests.

5   If the light still fails to glow green, or if your DECsystem 3100 continues to fail test 2, record the number of the test and report it to your system manager or your Digital service representative.

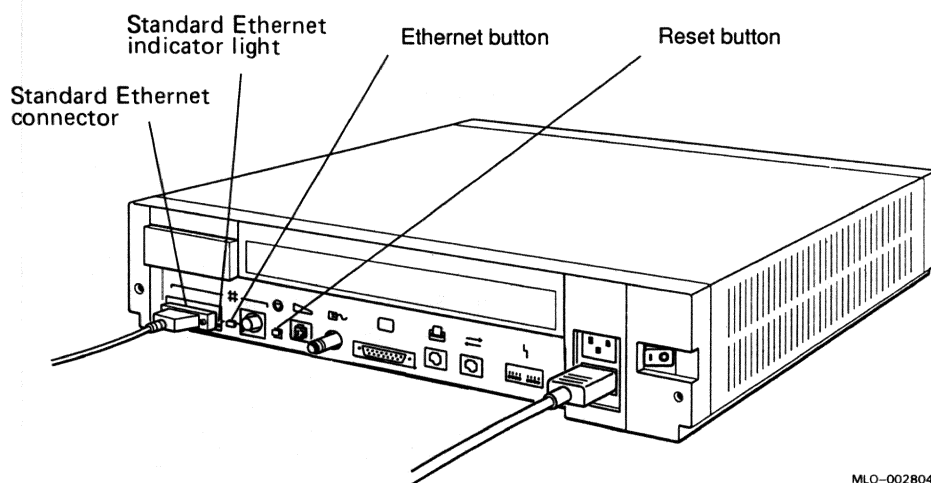**Figure 4–2   Checking Standard Ethernet Connections**

MLO–002804

DECsystem 3100 on ThinWire Ethernet Follow these steps for a
DECsystem 3100 on ThinWire Ethernet:

1   Turn your system unit off and make sure the ThinWire T-
    connector is securely connected to the ThinWire Ethernet
    connector on the back of the system unit. See Figure 4–3.

    If your DECsystem 3100 is at the end of a ThinWire segment,
    make sure the ThinWire cable connector is firmly attached
    to one end of the T-connector and a ThinWire terminator is
    firmly attached to the other end.

    If your DECsystem 3100 is within a ThinWire segment, make
    sure the ThinWire cable connectors are firmly attached to both
    ends of the T-connector.

2   Turn the system unit on to rerun the self-tests.

3   Check the Ethernet indicator light that lies between the
    ThinWire connector and the Ethernet button.

    If the light is not glowing green, use the point of a pen or some
    similar tool to press the Ethernet button.

Caution: *Because of the graphite in pencil lead, using the point of a*
    pencil to press the Ethernet button can damage the system
    unit.

4   Press the reset button to rerun the self-test.

Figure 4–3   Checking ThinWire Connections
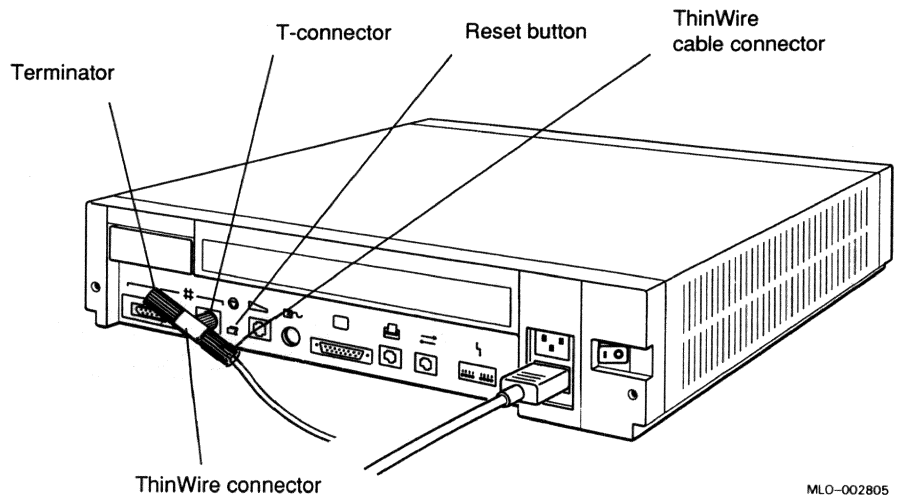
5   If the light still fails to glow green, or if your DECsystem
    3100 continues to fail test 2, record the number of the test
    and report it to your system manager or your Digital service
    representative.

DECsystem 3100 Not on a Network   Follow these steps for a
DECsystem 3100 not on a network:

1   Make sure a standard Ethernet terminator is securely
    attached to the standard Ethernet connector on the back
    of the system unit. See Figure 4–4.

    A light should glow green on the back of the terminator.

2   Make sure a ThinWire T-connector with a terminator on each
    end is securely attached to the ThinWire connector on the
    back of the system unit.

3   Press the reset button to rerun the self-test.

4   If your DECsystem 3100 continues to fail test 2, record the
    number of the test and report it to your system manager or
    your Digital service representative.

Figure 4–4   Checking Ethernet Terminators

Standard Ethernet
terminator

Reset button

ThinWire terminators

MLO–002806
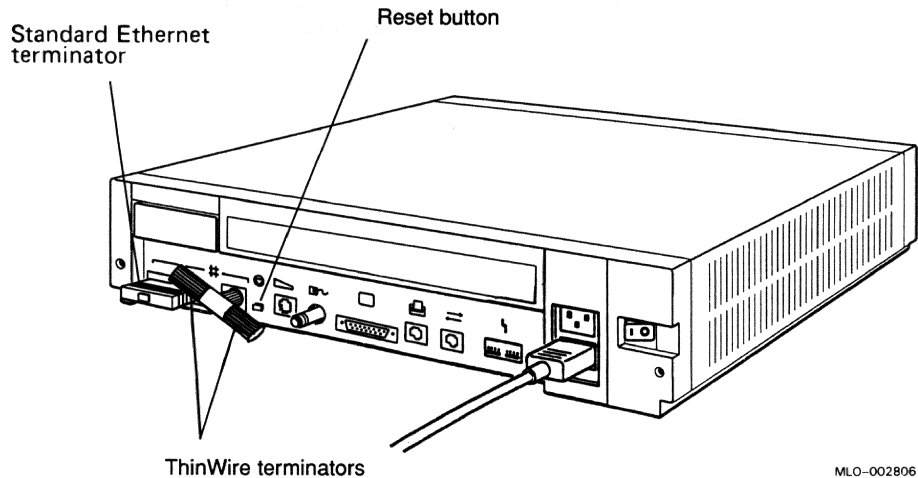
If Test 1 Fails

Check your SCSI connections. All devices are connected in a
chain, from the system unit to the first box to the second box, and
so on. The last box needs a terminator. See Figures 4–5 and 4–6.

1   Turn your system unit and any external storage devices off. If
    you have more than one such device, turn your power strip off.

2   Make sure that:

    ■ All storage device cables are securely connected.

    ■ The final device has a terminator securely seated into the
      unused connector.

    ■ All connectors are free of damaged pins.

    ■ The cable that runs between expansion boxes is the
      12-inch or 18-inch cable supplied by Digital.

3   Turn any external storage devices and your system unit on to
    run the self-tests. If you have more than one external storage
    device connected to your DECsystem 3100, turn your power
    strip on.

4   If test 1 continues to fail, record the number of the test and
    report it to your system manager or your Digital service
    representative.

Figure 4–5   Checking SCSI Connections (Single)

MLO–002807
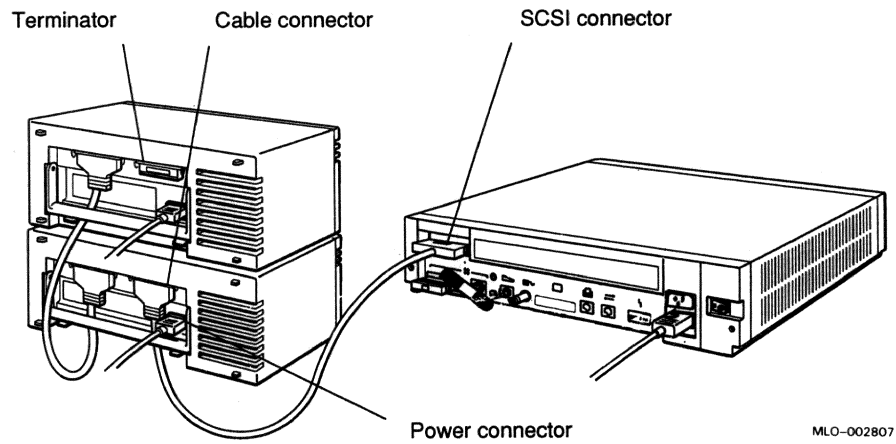
Figure 4–6   Checking SCSI Connections (Dual)

MLO–002808
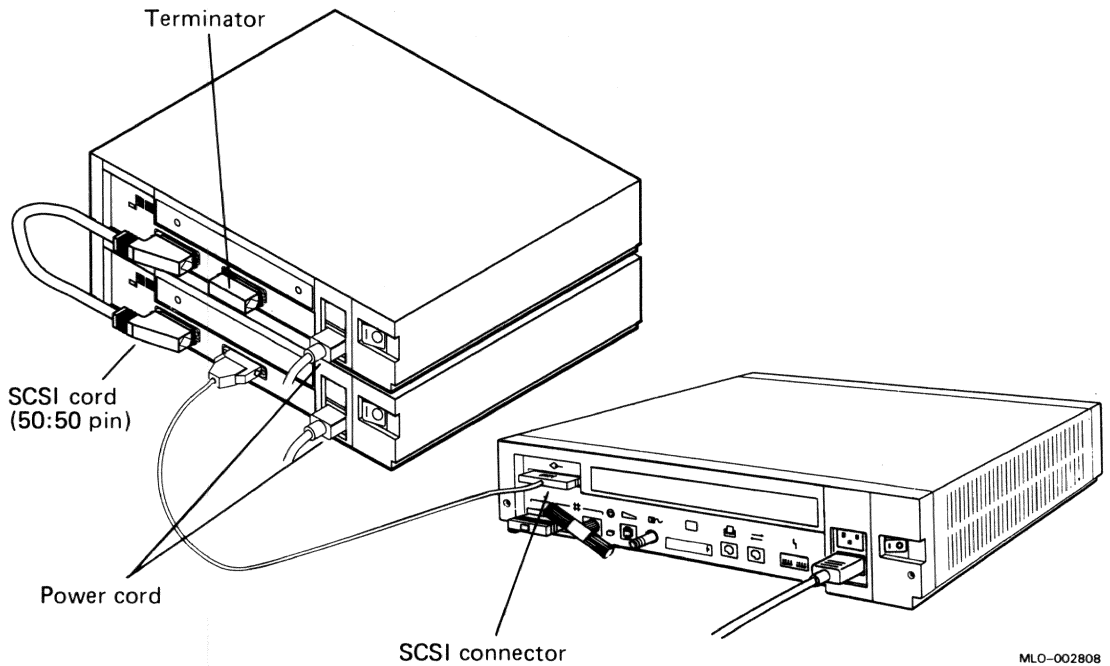
Solving Hardware Problems

Table 4–1 offers solutions to some common hardware problems. If you follow the suggestions given here and your problem remains unresolved, contact your system manager or your Digital service representative.

Table 4–1   Solutions to Common Hardware Problems

Problem	Solution
The console terminal screen is blank.	Do the following:
	1 Adjust your brightness and contrast controls to increase the brightness and contrast.
	2 Be sure your system unit and console terminal are turned on.
	3 Turn your system unit off.
	4 Be sure the console terminal–system unit power cable and the system unit power cord are connected correctly.
	5 Be sure the video cable is securely connected to the console terminal and the system unit.
	6 Turn your system unit on.
The screen display is distorted or unstable.	Do the following:
	1 Turn your system unit off.
	2 Make sure the video cable connectors are correctly attached to the console terminal and system unit.
	3 Turn the system unit on.
On a color console terminal, red or blue color is missing.	Do the following:
	1 Turn the system unit off.
	2 Be sure the video cable connectors are correctly attached to the console terminal and system unit.
	3 Turn the system unit on.

Table 4–1 (Cont.)   Solutions to Common Hardware Problems

Problem	Solution
Color is distorted or unclear.	Do the following:
	1 Move any electric pencil sharpener or other electromechanical devices away from the console terminal.
	2 Move such items as magnetic paper clip holders away from the console terminal.
	3 Press the degauss button on the console terminal for 5 seconds.
	4 If that doesn't help, wait 10 minutes and press the degauss button for 5 seconds again.
Everything happening on your screen freezes.	*If you are on a network*, do the following:
	1 Wait a few minutes.
	2 Press the reset button.
	If you are not on a network, do the following:
	■ Press the reset button.
When you type, nothing happens on the screen.	Do the following:
	1 Press and release the Hold Screen key [F1] your keyboard.
	2 Turn your system unit off.
	3 Make sure the keyboard cable is firmly attached to the system unit and turn the system unit on again.
	4 Turn the system unit off and try another keyboard.
	5 Turn the system unit on again.

Table 4–1 (Cont.)   Solutions to Common Hardware Problems

Problem	Solution
You cannot log into the network.	*If you are on Standard Ethernet*, do the following:

If you are on Standard Ethernet, do the following:

1   Be sure the Standard Ethernet indicator light glows green to the right of the Standard Ethernet connector.

   If it does not, use the point of a pen, or some similar tool, to press and release the Ethernet button.

Caution: *Because of the graphite in pencil lead, using the point of a pencil to press the Ethernet button can damage the system unit.*

2   Turn your system unit off.

3   Be sure your Standard Ethernet connector is firmly attached to the Standard Ethernet connector on the system unit.

4   Turn your system unit on.

If you are on ThinWire Ethernet, do the following:

1   Be sure the ThinWire Ethernet indicator light glows green to the left of the ThinWire connector.

   If it does not, use the point of a pen, or some similar tool, to press and release the Ethernet button.

Caution: *Because of the graphite in pencil lead, using the point of a pencil to press the Ethernet button can damage the system unit.*

2   Turn your system unit off.

3   Be sure your ThinWire cable connector(s) and/or terminator are firmly attached to the ThinWire T-connector.

4   Be sure the ThinWire T-connector is correctly attached to the ThinWire connector on the system unit.

5   Turn your system unit on.

Table 4–1 (Cont.)   Solutions to Common Hardware Problems

Problem	Solution
No cursor shows on the screen.	Do the following: 1 Turn your system unit off. 2 Turn your system unit on.
An error message appears when you try to use an external hard disk or tape drive.	*If you have only one external storage device*, do the following: 1 Be sure the device is turned on. 2 Turn the device and the system unit off. 3 Be sure the system unit expansion cable is correctly connected to the device and the system unit. 4 Be sure a terminator is correctly attached to the second connector on the device. 5 Turn the device and the system unit on. *If you have more than one external storage device*, do the following: 1 Be sure all devices and your system unit are receiving power from a common power strip. 2 Be sure all devices are turned on. 3 Turn the power strip off. 4 Be sure the system unit expansion cable is correctly connected to the first device and the system unit. 5 Be sure the connector cables between devices are the 12-inch or 18-inch cables supplied by Digital and that they are connected correctly. 6 Be sure a terminator is firmly attached to the second connector on the final device. 7 Turn the power strip on.

Table 4–1 (Cont.)   Solutions to Common Hardware Problems

Problem	Solution
A red light blinks rapidly on the front of your tape drive.	Do the following:
	1 Push the load/unload button four times.
	2 Turn the tape drive off and then back on again. Do this only one time.
An error message appears when you try to use your printer.	Do the following:
	1 Be sure your printer is turned on.
	2 Turn your printer and system unit off.
	3 Be sure your printer power cord is connected to an active power source.
	4 Be sure the printer cable connector is correctly attached to the communications connector on the system unit.
	5 Turn on your printer and system unit.
	6 See the documentation that came with your printer for instructions on checking your printer's baud rate.
An error message appears when you try to use your communications device.	Do the following:
	1 Be sure your device is turned on.
	2 Turn off your device and your system unit.
	3 Be sure your device's power cord is connected to an active power source.
	4 Be sure the communications device cable connector is correctly attached to the communications connector on the system unit.
	5 Turn on your device and system unit.
	6 See the documentation that came with your communications device for instructions on checking your device's baud rate.

Contacting Your Digital Service Representative

If you have followed the suggestions offered in this chapter and your problem remains unresolved, your Digital service representative can help you. You can get your service representative's name and telephone number from your Digital sales representative.

Before you place your call:

- If you have not already done so, write down the nature of the problem, including any error messages you have received and the number of any self-test that failed.

- If you have not already done so, list the steps you have taken to correct the problem and the results you got.

- Write down the serial and model numbers of your system and/or any peripheral device involved.

5

Moving the DECsystem 3100

This chapter tells you how to take your DECsystem 3100 apart and pack it in preparation for moving.

When you move your DECsystem 3100, Digital recommends that you repack each piece of equipment in the carton it came in.

Dismantling the DECsystem 3100

1   Follow the procedures for turning off your DECsystem 3100 given in Chapter 2 of this guide.

2   Unplug all power cords from the power source.

3   Disconnect any optional peripheral devices from the system unit and, if you have more than one expansion box, disconnect them from each other.

4   If you have a small computer system interface (SCSI) terminator in the SCSI connector on the back of the system unit, remove the terminator from that connector.

5   Replace the plastic cover that protected the SCSI connector when you first received the system unit.

   a   Line up the top and sides of the cover with the top and sides of the opening around the SCSI connector.

   b   Press up on the latch on the bottom of the cover until you can push it into the slot under the connector and the cover snaps into place.

6   Disconnect the console terminal from the system unit.

7   If you are on a network, disconnect your Ethernet cable from the connector on the system unit.

Caution: *Disconnecting the Ethernet cable at the network connection instead of at the system unit interrupts network performance.*

Packing Your Equipment

Pack each piece of equipment in the carton it came in. If you do not have the original container, use a sturdy, well-padded container.

Be sure to use the padding that came in each carton to hold each item securely in place.

Be sure to include the following in each carton:

- Any cables, power cords, and terminators that came with that device

- The documentation for that device

Reinstalling Your DECsystem 3100

To reinstall your DECsystem 3100, follow the instructions provided in the *DECsystem 3100 Installation Guide*, which is located at the front of this binder.

A

Console Commands

Console Command Conventions

Use the following conventions when typing console commands:

- All commands typed at console level are case sensitive. The DECsystem 3100 does not recognize uppercase and lowercase letters as the same input.

- To type any console command, type the command exactly as it is displayed on the console menu and press the RETURN key.

- Type numeric values as follows:

  - Enter *decimal values* as a string of decimal digits with no leading zeros (for example, 123).

  - Enter *octal values* as a string of octal digits with a leading zero (for example, 0177).

  - Enter *hexadecimal values* as a string of hexadecimal digits preceded by 0x (for example, 0x3ff).

  - Enter *binary values* as by a string of binary digits preceded by 0b (for example, 0b1001).

Using the Console Menu

The console menu, which appears in Figure A–1, lists the commands you can use while at console level. Display the console menu by typing **?** at the console prompt and pressing the RETURN key.

Figure A–1   Console Menu

```
CMD:
  auto
  boot [-f FILE] [-n] [ARG...]
  cat FILE...
  ctrs
  d [-(b|h|w) ADDR VAL
  disable DEV
  dump [-(b|h|w)] [-(o|d|u|x|c|B)] RNG
  e [-(b|h|w) ADDR
  enable DEV
  fill [-(b|h|w)] [-v VAL] RNG
  go [PC]
  help [CMD]
  ? [CMD]
  init
  printenv [EVAR...]
  setenv EVAR STR
  test [ARG...]
  unsetenv EVAR
RNG:
  ADDR#CNT
  ADDR:ADDR
```

Auto Command

This command starts the autoboot sequence that puts the
DECsystem 3100 into multiuser mode (the normal time-sharing
environment). The format for this command is:

auto

After you start the autoboot sequence, the sequence delays for 5
seconds. During this delay, you can abort the bootstrap sequence
by typing CTRL/C on the console. When you type the autoboot
command, the DECsystem 3100 tries to boot according to the
bootpath variable stored in the environment variables table.

Boot Command

This command specifies a file from which the operating system is
loaded. The format for this command is:

boot [-f FILE] [-n] [ARG...]

■ The -f flag followed by the FILE parameter specifies the file
   you want to use during a boot procedure. If you do not specify
   the -f flag and a file, the file specified by the environment
   variable *bootpath* is loaded.

The FILE parameter has the format

device(controller,unit,partition)filename

- — The device indicates the device from which you are booting the operating system. Typical devices are rz for hard disk, tz for tape, and mop for network booting.

- — The controller indicates the ID number of the default controller.

- — The unit indicates the unit number of the device from which you are booting the operating system.

- — The partition indicates the number of the partition from which you are booting the operating system.

- — The filename indicates the name of the operating system file.

- ▪ The -n flag indicates that the specified file is loaded but not executed.

- ▪ The parameter ARG specifies any information to be passed to the booted image.

Cat Command

This command copies files to the console terminal. The format for this command is:

cat FILE

The parameter FILE is the name of any file you want to copy. The file format to use is

tftp( )/path

The path is the standard ULTRIX–32 operating system path format.

Ctrs Command

This command displays all the network counters. The format for this command is

ctrs

A typical display looks like the following:

```
15905 : seconds since zeroed
    0 : bytes received
    0 : bytes sent
    0 : frames received
    0 : frames sent
    0 : multicast bytes received
    0 : multicast frames received
    0 : frames sent deferred
    0 : frames sent, single collision
    0 : frames sent, multiple collision
    0 : send failures
    0 : send failure bitmap
    0 : receive failures
    0 : receive failure bitmap
    0 : unrecognized destinations
    0 : data overruns
    0 : unavailable system buffers
    0 : unavailable user buffers
```

D (Deposit) Command

This command deposits a single byte, halfword, or word value at the specified address. The format for this command is:

d [-(b | h | w) ADDR VAL

- The parameter -b indicates a single byte.

- The parameter -h indicates a halfword.

- The parameter -w indicates a word.

- The parameter ADDR indicates a virtual address. For example, to examine physical location 0, type **0x80000000**.

- The parameter VAL indicates a specific numeric value.

Disable Command

This command disables the connection to a specified device. It also removes the device from the list of recognized console terminals stored in volatile memory. The format for this command is:

disable DEV

The parameter DEV is the device you are disabling. The valid devices you can specify are

- tty(n), where n indicates a serial line. Specify 2 for the communications connector and 3 for the printer/console

connector. For example, to disable an alternate console, you type

disable tty(3)

- crt(0), where 0 is the only valid number and indicates the console terminal.

If you do not specify a value, the current list of enabled console devices appears.

Dump Command

This command shows a formatted display of the contents of memory. The format for this command is:

dump [-(b | h | w)] [-(o | d | u | x | c | B)]RNG

- The parameter -b displays memory in bytes.

- The parameter -h displays memory in halfwords.

- The parameter -w displays memory in words.

- The parameter -o displays memory in octal format.

- The parameter -d displays memory in decimal format.

- The parameter -u displays memory in unsigned decimal format.

- The parameter -x displays memory in hexadecimal format.

- The parameter -c displays memory in ASCII format.

- The parameter -B displays memory in binary format.

- The parameter RNG indicates a range of memory. The values for this parameter are as follow:
  ADDR#CNT displays a specified number of a values.
  ADDR:ADDR displays all values between the specified addresses.

E (Examine) Command

This command examines the byte, halfword, or word at a specified address. The format for this command is:

e [-(b | h | w)] ADDR

- The parameter -b indicates a single byte.

- The parameter -h indicates a halfword.

- The parameter -w indicates a word.

- The parameter ADDR indicates a virtual address. For example, to examine physical location 0, type **0x80000000**.

Enable Command

This command enables the connection to a specified device. It also adds the device to the list of current console devices stored in volatile memory. The format for this command is:

enable DEV

The parameter DEV is the device you are enabling. The valid devices you can specify are

- tty(n), where n indicates a serial line. Specify 2 for the communications connector and 3 for the printer/console connector. For example, to enable an alternate console, you type

enable tty(3)

- crt(0), where 0 is the only valid number and indicates the console terminal.

If you do not specify a value, the current list of enabled console devices appears. You can enable more than one device as a console device.

Fill Command

This command places a specified value in a range of memory. If you do not specify a value, the DECsystem 3100 puts zeros in the memory range. The format for this command is:

fill [-(b | h | w)] [-v VAL] RNG

- The parameter -b indicates bytes.

- The parameter -h indicates halfwords.

- The parameter -w indicates words.

- The parameter -v VAL specifies the numeric value you are placing in memory.

- The parameter RNG is the memory range. You can specify the following values:
  ADDR#CNT fills a specified number of values.
  ADDR:ADDR fills all values between the indicated addresses.

Go Command

This command transfers control to the indicated entry point address. The format for this command is:

go [PC]

The parameter PC is the entry point address you want to use.

If you do not specify an entry address, the DECsystem 3100 uses the entry point of the program module that was most recently loaded. If no program module was previously loaded, the DECsystem 3100 uses 0 as the entry point address.

Help Command

This command displays the correct format for a specified command. The format for this command is:

help [CMD]

The parameter CMD is the command for which you need information. If you do not specify the CMD parameter, the complete console menu appears.

? Command

This command functions exactly like the help command. The format for this command is:

? [CMD]

Refer to the help command section in this chapter for more details.

Init Command

This command fully initializes the system. The format for this command is:

init

The effect of the init command is identical to turning the power on or pressing the reset button, except that the DECsystem 3100 does not execute the diagnostic tests.

Printenv Command

This command displays the current value for a specified environment variable. The format for this command is:

printenv [EVAR...]

The parameter EVAR is the variable whose value you want to see. If you do not specify a variable, the complete environment variable table appears. Figure A–2 shows an example of this table.

Figure A–2   Environment Variable Table

```
baud2=1200
baud3=9600
bootpath=
bootmode=*
console=0
systype=0x82011601
bitmap=0xa000fcc0
bitmaplen=0xc0
inetaddr=0
osconsole=1
```

There are three types of variables: volatile (lost when power resumes), nonvolatile (maintained after power resumes), and fixed (rebuilt when power is turned on). The following table describes the default variables.

Table A–1   Default Environment Variables

Variable	Type	Description
baud2	Nonvolatile	Indicates the baud rate of the communications connector.
baud3	Nonvolatile	Indicates the baud rate of the printer/console connector.
bootpath	Nonvolatile	Indicates the default bootpath. The DECsystem 3100 uses this variable when you type the auto command.

Table A-1 (Cont.)   Default Environment Variables

Variable	Type	Description
bootmode	Nonvolatile	Indicates the mode in which the DECsystem 3100 is placed when it is turned on or reset. Use a one-character code to specify the bootmode. The bootmode codes you can use are:

* The default code; stops the DECsystem 3100 at the console prompt

a Boots the DECsystem 3100 after power is turned on or system is reset; uses the bootpath variable

d Resets the DECsystem 3100 without running diagnostics

r Restarts the DECsystem 3100

(continued on next page)

Table A–1 (Cont.) Default Environment Variables

Variable	Type	Description
console	Nonvolatile	Indicates which device is used for the console when the DECsystem 3100 is started. Use a single numeric character to set the value of this variable. The most common values for the console are:

0   Determines the correct DECsystem 3100 device and sets the value according to the osconsole variable

1   Enables the console terminal, crt(0), and the keyboard connector, tty(0)

4   Enables the communications connector, tty(2)

8   Enables the printer/console connector, tty(3)

9   Enables the console terminal, crt(0); the keyboard connector, tty(0); and the printer/console connector, tty(3)

Variable	Type	Description
systype	Fixed	Uses a value taken from the hardware register in the central processing unit. Do not change this variable.
bitmap	Fixed	Indicates the address of the memory bitmap. The bitmap is a vector of words. Each bit in a word corresponds to a page in memory. If the bit is set to 1, the page is good and available to memory. If the bit is set to 0, the page is bad. Do not change this variable.
bitmaplen	Fixed	Indicates the length of the memory bitmap. Do not change this variable.

Table A–1 (Cont.)   Default Environment Variables

Variable	Type	Description
inetaddr	Volatile	Indicates the DECsystem 3100's internet address; used by the Ethernet driver.
osconsole	Volatile	Indicates which device the DECsystem 3100 selected as the console when the DECsystem 3100 was turned on. The value for this variable is indicated by a single numeric character. For example, if the console variable is set to 0 and the DECsystem 3100 selects the monitor as the console, the osconsole value is set to 1.

Setenv Command

This command assigns new values to the specified variable. Refer to the printenv command section in this chapter for a description of each variable. The format for this command is:

setenv EVAR STR

- The parameter EVAR is the variable you want to set.

- The parameter STR is the value you want to specify.

You can add your own environment variables. These variables are stored in volatile memory. The environment variables table can contain up to 16 variables, a total of 256 characters. Refer to Table A–1 for a description of each variable.

Test Command

This command allows you to run the self-test or display the current configuration table. The format for this command is:

test ARG

Specify the parameter ARG as follows:

- Specify -a to run the self-test. This self-test is similar to the power-up self-test.

- specify -c to display the configuration table. The configuration table provides such information as how much memory is installed and what kind of disk and/or tape storage device is connected.

Figure A–3 shows a typical configuration table.

Figure A–3   Sample Configuration Table

```
MEMORY: 16Mbytes
VIDEO: MONO
ETHERNET STATION ADDRESS: 08-00-2b-0c-4a-8b
SCSI DEVICES:
Unit[7]
Unit[6]KN01--SII
Unit[5]
Unit[4]
Unit[3]
Unit[2]
Unit[1]
Unit[0] Device type  0 DISK
            RMB                    0x0
            Version                1
            Response data format   1 CCS
            Additional length      31
            Vendor                 DEC
            Product identification RZ55    (C)  DEC
            Firmware revision level 0700
```

Unsetenv Command

This command removes the specified variable from the environment variables table. The format for this command is:

unsetenv EVAR

The parameter EVAR is the variable you are removing. Refer to Table A–1 for a description of each variable.

The environment variables stored in nonvolatile memory are not affected.

Warm Command

This command restarts the DECsystem 3100 without performing the complete bootstrap procedures. This feature is not currently supported by ULTRIX and is reserved for future use.

Booting the DECsystem 3100 Software

After you finish running diagnostics, boot the DECsystem 3100 software.

■ If booting the DECsystem 3100 to multiuser mode (for a normal time-sharing environment), type:

auto

The DECsystem 3100 uses the bootpath environment variable stored in nonvolatile memory.

- If booting the DECsystem 3100 to single-user mode (only the root partition is mounted), type:

   boot

   The DECsystem 3100 uses the bootpath environment variable stored in nonvolatile memory.

- If booting the DECsystem 3100 to single-user mode from a server on the network, type

   boot -f mop( )

Booting a stand-alone DECsystem 3100 from disk takes approximately 3 minutes. If you boot the operating system successfully, the DECsystem 3100 prompts you to log on.

Unsuccessful DECsystem 3100 Software Boot

If the DECsystem 3100 software does not boot successfully

1   Enter the printenv command to display the environment variables table. Check the bootmode and bootpath variables.

2   Enter the setenv command to set the bootpath variable to boot the operating system from the hard disk or the network.

3   Use the boot command to boot the operating system.

4   If you still cannot boot the operating system, talk to the system manager.

Shutting Down the DECsystem 3100 Software

Before running any diagnostic self-tests, shut down the DECsystem 3100 software by logging into an account that has superuser privileges and type one of the commands in Table A–2 at the system prompt (#):

Table A-2   Shutdown Commands

Command	Result
/etc/shutdown -h now	Starts the operating system shutdown procedure immediately, without issuing warning messages.
/etc/shutdown -h hhmm	Shuts down the operating system at a specified time. In this table, **hh** indicates hours, **mm** indicates minutes. The DECsystem 3100 sends warning messages to all users on the Local Area Network (LAN) indicating shutdown time.
/etc/shutdown -h +n	Shuts down the operating system after a specified number of minutes. In this table, **n** indicates the number of minutes after which the operating system shuts down. The DECsystem 3100 sends warning messages to all users on the LAN at an increasing frequency as shutdown time approaches.

B

Interpreting Self-Tests

This section tells you how to interpret the results of the following types of self-tests:

- Power-up self-tests and self-tests

- Power-up self-test codes that appear in the LED status display on the back of the system unit

Using the Power-Up Self-Tests and the Self-Tests

There are two ways to interpret self-test results when a test fails:

- Use the test code number displayed on the console terminal.

- Use the LED codes that appear on the LED status display on the back of the system unit.

Test code numbers that display on the console terminal are described in Table B–1. If a test fails the number of the test that failed is the last number displayed on your screen.

Table B–2 describes codes that are represented when various combinations of lights on the LED status display glow red on the back of the system unit.

Interpreting Console Terminal Self-Test Codes

To interpret self-test results that display on your console terminal, use Table B–1 to determine where the error occurred and what action to take.

Table B–1   Console Terminal Self-Test Display Codes

Test Code	Component Tested	Action
7	Video single in-line memory (video SIM) module	The failing of this test is normal.
6	VDAC and PCC	The failing of this test is normal.
5	DZ serial line	If this test fails, contact your Digital service representative.
4	System module	Follow the SCSI troubleshooting procedures described in Chapter 4 of this guide. If the test continues to fail, contact your Digital service representative.
2	Network interface (LANCE)	Follow the Ethernet troubleshooting procedures described in Chapter 4 of this guide. If the test continues to fail, contact your Digital service representative.
1	Disk and SCSI bus peripherals	If this test fails, contact your Digital service representative.
0	All; indicates the end of the test	None; the system test succeeded.

Interpreting LED Self-Test Codes

To interpret self-test results without using a console terminal, use Table B–2 to determine where the error occurred and what action to take. The binary codes in the LED Display column reflect the red status LED display as viewed from the back of the system unit.

Table B–2   LED Self-Test Display Codes

LED Display (1 = LED on 0=LED off)	Hexadecimal Code	Component Tested	Suggested Action
0111 1111	7f	System module	If this test fails, contact your Digital service representative.
1011 1111	bf	Disk	If this test fails, follow the SCSI troubleshooting procedures described in Chapter 4 of this guide. If the test continues to fail, contact your Digital service representative.
1110 1111	ef	Memory	If this test fails, contact your Digital service representative.
1111 1111	ff	LEDs set at power up or reset	If this test fails, contact your Digital service representative.

C

Environmental Requirements

This appendix lists the physical description, nonoperating conditions, and operating conditions for these units:

- System unit (Tables A–1 to A–3)
- RZ55 Hard Disk (Tables A–4 to A–6)
- TK50Z Tape Drive (Tables A–7 to A–9)

Table C-1   System Unit Description

	Weight	Height	Width	Depth
System Unit	17.8 kg	14.99 cm	46.38 cm	40.00 cm
	39 lb	5.90 in	18.26 in	15.75 in

Table C-2   System Unit Nonoperating Conditions

Temperature range	−40°C to 66°C (−40°F to 151°F)
Relative humidity	10% to 95% at 66°C (151°F)
Altitude	4900 m (16000 ft)
Maximum wet bulb temperature	28°C (82°F)
Minimum dew point	2°C (36°F)

Table C-3   System Unit Operating Conditions

Temperature range[1]	10°C to 40°C (50°F to 104°F)
Temperature change rate	11°C (20°F) per hour maximum
Relative humidity	10% to 90% (noncondensing)
Altitude	2400 m (8000 ft) at 36°C
Maximum wet bulb temperature	28°C (82°F)
Minimum dew point	2°C (36°F)
Input voltage	Auto adjust 100–120 VAC to 220–240 VAC
Input current	2.8 Amps at 100–120 VAC
	1.5 Amps at 220–240 VAC
Power	190 Watts
Frequency	47 to 63 Hz
Heat dissipation	155 Watts maximum

[1]Reduce maximum temperature by 1.8°C (3.24° F) for each 1000-meter increase in altitude.

Table C-4　RZ55 SCSI Hard Disk Drive Description

	Weight	Height	Width	Depth
RZ55 Expansion Box	13.2 kg	14 cm	33 cm	29 cm
	29 lb	5.5 in	12.75 in	11.25 in

Table C-5　RZ55 SCSI Hard Disk Drive Nonoperating Conditions

Temperature range	−40°C to 66°C (-40°F to 151°F)
Temperature change rate	20°C (36°F) per hour maximum
Relative humidity	8% to 95% (packaged)
Altitude	−304 to 12300 m (−1000 ft to 40000 ft)
Maximum wet bulb temperature	46°C (115°F) (packaged)

Table C-6　RZ55 SCSI Hard Disk Drive Operating Conditions

Temperature range[1]	10°C to 55°C (50°F to 131°F)
Relative humidity	8% to 80% (noncondensing)
Altitude	−304 to 4600 m (−1000 to 15000 ft)
Maximum wet bulb temperature	25.6°C (78°F)
Input current	2.4 Amps at 100 to 120 VAC
	1.3 Amps at 220 to 240 VAC
Power	160 Watts
Frequency	50 to 60 Hz
Heat dissipation	32 Watts maximum

[1]Reduce maximum temperature by 1.8°C (3.24°F) for each 1000-meter increase in altitude.

Table C–7   TK50Z Tape Drive Description

	Weight	Height	Width	Depth
TK50Z Expansion Box	12.7 kg	14 cm	33 cm	29 cm
	28 lb	5.5 in	12.75 in	11.25 in

Table C–8   TK50Z Tape Drive Nonoperating Conditions

Temperature range	−30°C to 66°C (−22°F to 151°F)
Relative humidity	10% to 95% (noncondensing)
Maximum wet bulb temperature	28°C (82°F)
Minimum dew point	2°C (36°F)

Table C–9   TK50Z Tape Drive Operating Conditions

Temperature range[1]	10°C to 40°C (50°F to 104°F)
Relative humidity	10% to 80% (noncondensing)
Maximum wet bulb temperature	28°C (82°F)
Minimum dew point	2°C (36°F)
Input current	2.4 Amps at 100 to 120 VAC
	1.3 Amps at 220 to 240 VAC
Power	160 Watts
Frequency	50 to 60 Hz
Heat dissipation	32 Watts maximum

[1]Reduce maximum temperature by 1.8°C (3.24°F) for each 1000-meter increase in altitude.

D

DECsystem 3100 Part Numbers

Table D–1   Cords, Cables, and Connectors

Item	Part Number	Order Number
Expansion box power cord	17–00606–10	—
Power supply to internal disks cable	17–02225–01	—
SCSI cover	74–38189–01	—
SCSI 68-pin terminator	12–29635–01	—
Serial line cable	—	BC16E–10
System unit power cord (US)	17–00606–10	—
Standard Ethernet cable	—	BNE4C–02
Standard Ethernet terminator (loopback connector)	12–22196–01	—
ThinWire T-connector	12–25534–01	H8223
ThinWire terminator	12–25535–01	H8225
ThinWire cable (12')	17–01241–09	BC16M–12
ThinWire LAN assembly kit	22–00112–01	BC16T–12
68-pin to 50-pin system unit–expansion box connector cable	17–02008–01	—
12-inch 50-pin to 50-pin connector cable	—	BC09K–DE
18-inch 50-pin to 50-pin connector cable	—	BC19J–1E
50-pin SCSI terminator for expansion box	12–30552–01	—

Table D–2   Basic Components

Item	Order Number
External disk drive, 325-Mbyte, 120 volts	RZ55–FA
External disk drive, 325-Mbyte, 240 volts	RZ55–F3
Memory expansion	MS01–AA
Tape drive, 95-Mbyte, 120 volts	TK50Z–GA
Tape drive, 95-Mbyte, 240 volts	TK50Z–G3

Table D-3   Documentation

Item	Order Number
DECsystem 3100 Documentation Kit	EK–D3100–DK–001
DECsystem 3100 Installation Guide	EK–D3100–IN–001
DECsystem 3100 Operator's Guide	EK–D3100–OG–001
DECsystem 3100 Maintenance Guide	EK–332AA–MG
ULTRIX Software	
The ULTRIX Worksystem User Kit	QA–VV1AD–GZ
The ULTRIX Worksystem Programming Kit	QA–VV1AE–GZ
The ULTRIX Worksystem Full Kit	QA–VV1AA–GZ
Release Notes for RISC Processors	AA–ML77A–TE
Technical Summary for RISC Processors	AA–MM35A–TE
Documentation Overview for RISC Processors	AA–MM05A–TE
Guide to Server Kit Installation for RISC Processors	AA–ML74A–TE
The Little Gray Book: An ULTRIX Primer	AA–MG64A–TE
ULTRIX User Information	
ULTRIX Reference Pages, Section 1	AA–ML93A–TE
ULTRIX Reference Pages, Section 7	AA–ML99A–TE
DECwindows User Applications	
Introduction to the ULTRIX Worksystem Software User Environment	AA–MA86A–TE
DECwindows User's Guide	AA–MA87A–TE
DECwindows Desktop Applications Guide	AA–MA88A–TE
Guide to the uwm Window Manager	AA–KU50B–TE
Guide to the dxdiff Visual Differences Program	AA–MA89A–TE

Table D–3 (Cont.)   Documentation

Item	Order Number
XUI Programming	
XUI Programming Overview	AA–MA90A–TE
Guide to Writing Applications Using XUI Toolkit Widgets	AA–MA91A–TE
Guide to the XUI User Interface Language Compiler	AA–MA94A–TE
Guide to Porting Xlib Applications: X Version 10 to X Version 11	AA–MA92A–TE
Guide to the dxdb Debugger	AA–MA93A–TE
Guide to the XUI Toolkit: C Language Binding	AA–MA95A–TE
Guide to the X Toolkit Widgets: C Language Binding	AA–MF09A–TE
Guide to the XUI Toolkit Intrinsics: C Language Binding	AA–MA96A–TE
Guide to the Xlib Library: C Language Binding	AA–MA97A–TE
X Window System Protocol: X Version 11	AA–MA98A–TE
ULTRIX Reference Pages, Section 3	AA–MA99A–TE
ULTRIX Programming	
Guide to Languages and Programming for RISC Processors	AA–ML94A–TE
POSIX Conformance Document	AA–LY25A–TE
Guide to Internationalization	AA–LY26A–TE
Guide to the Source Code Control System	AA–ME84A–TE
Guide to Preparing Software for Distribution on ULTRIX Systems	AA–MG62A–TE
Guide to Curses Screen-Handling	AA–LY27A–TE
Compound Document Architecture Manual	AA–LY28A–TE
ULTRIX Reference Pages, Section 2	AA–ML95A–TE
ULTRIX Reference Pages, Section 3	AA–ML96A–TE

Table D–3 (Cont.)   Documentation

Item	Order Number
ULTRIX Reference Pages, Section 4	AA–ML97A–TE
ULTRIX Reference Pages, Section 5	AA–ML98A–TE
ULTRIX System Management	
Advanced Installation Guide for RISC Processors	AA–ML79A–TE
Introduction to System and Network Management for RISC Processors	AA–ML80A–TE
Guide to System Environment Setup for RISC Processors	AA–ML81A–TE
Guide to System Configuration File Maintenance for RISC Processors	AA–ML82A–TE
Guide to System Shutdown and Startup for RISC Processors	AA–ML83A–TE
Guide to System Backup and Restore for RISC Processors	AA–ML84A–TE
Guide to System Disk Maintenance for RISC Processors	AA–ML85A–TE
Guide to System Crash Recovery for RISC Processors	AA–ML86A–TE
Guide to the Error Logger System for RISC Processors	AA–ML87A–TE
Guide to System Exercisers	AA–ME96A–TE
Guide to Networking for RISC Processors	AA–ML88A–TE
Guide to Ethernet Communication Servers for RISC Processors	AA–MM36A–TE
Guide to Network File System	AA–ME99A–TE
Guide to the BIND Service	AA–LY21A–TE
Guide to Yellow Pages Service	AA–ME00A–TE
Guide to Diskless Management Services for RISC Processors	AA–ML89A–TE
Guide to Remote Installation Service for RISC Processors	AA–ML90A–TE
Guide to the uucp Utility	AA–MF03A–TE

Table D-3 (Cont.)   Documentation

Item	Order Number
ULTRIX Reference Pages, Section 8	AA–ML91A–TE
RZ55 Disk Drive	
The RZ55 Disk Drive Service Manual	EK–RZ55D–SV
LN03 Printer	
Installing and Using the LN03	EK–0LN03–UG
LN03 PLUS Printer	
LN03 PLUS User Guide	EK–LN03S–UG
LN03R ScriptPrinter	
ScriptPrinter Installation Guide	EK–LN03R–UG
ScriptPrinter Operator Guide	EK–LN03R–OG
LA100 Printer	
LA100 Letterwriter User Documentation Kit	EK–LW100–UG
LA75 Printer	
Installing and Using the LA75 Companion Printer	EK–0LA75–UG
LJ250/252 Printer	
Installing and Using the LJ250/252 Companion Color Printer	EK–LJ250–DK
TK50Z Tape Drive	
TK50Z Tape Drive Subsystem Owner's Manual	EK–LEP05–OM
TK50Z User's Guide	EK–OTK50–UG
Technical Manual	EK–OTK50–TM

Table D-3 (Cont.)   Documentation

Item	Order Number
DECconnect and Standard Ethernet	
DECconnect System General Description	EK–DECSY–GD
DECconnect System Requirements Evaluation Workbook	EK–DECSY–EG
DECconnect System Installation and Verification Guide	EK–DECSY–VG
DECconnect System Stand-alone ThinWire Networks: Planning and Installation Guide	EK–DECSY–TG
DECconnect System Planning and Configuration Guide	EK–DECSY–CG
Remote System Manager Server Documentation Kit	QLB13–GZ
Remote System Manager Client Documentation Kit	QLB14–GZ
Ethernet ThinWire Repeaters (DEMPR/DESPR) Installation and User's Guide	EK–THNRP–UG

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From	Call	Write
Alaska, Hawaii, or New Hampshire	603–884–6660	Digital Equipment Corporation P.O. Box CS2008 Nashua NH 03061
Rest of U.S.A. and Puerto Rico[1]	800–DIGITAL	

[1]Prepaid orders from Puerto Rico, call Digital's local subsidiary (809–754–7575)

Canada	800–267–6219 (for software documentation) 613–592–5111 (for hardware documentation)	Digital Equipment of Canada Ltd. 100 Herzberg Road Kanata, Ontario, Canada K2K 2A6 Attn: Direct Order Desk
Internal orders (for software documentation)	—	Software Supply Business (SSB) Digital Equipment Corporation Westminster MA 01473
Internal orders (for hardware documentation)	DTN: 234–4323 508–351–4323	Publishing & Circulation Services (P&CS) NRO3–1/W3 Digital Equipment Corporation Northboro MA 01532

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