

HP VISUALIZE Personal Workstation User's Guide

P- Class (A6034) and X-Class (A1280) Workstations

Printed in USA June 2000



Manufacturing Part Number: A1280-90002

Edition E0600

© Copyright 2000 Hewlett-Packard Company

Notice

The information contained in this document is subject to change without notice.

Hewlett-Packard makes no warranty of any kind with regard to this material, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Hewlett-Packard shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this material.

Hewlett-Packard assumes no responsibility for the use or reliability of its software on equipment that is not furnished by Hewlett-Packard.

This document contains proprietary information that is protected by copyright. All rights reserved. No part of this document may be photocopied, reproduced or translated to another language without the prior written consent of Hewlett-Packard Company.

Trademark Acknowledgments

Adobe® Reader © 1987-1997 Adobe Systems Incorporated. All rights reserved. Adobe and Acrobat are trademarks of Adobe Systems Incorporated.

Microsoft® is a U.S. registered trademark of Microsoft Corporation.

Windows™ is a trademark of Microsoft Corporation. Windows NT® is a registered trademark of Microsoft Corporation.

Netscape® is a trademark of Netscape Communications Corporation.

Pentium™ is a trademark of Intel Corporation.

HP Printing Division:

Hewlett-Packard Company
3404 E. Harmony Road
Fort Collins, CO 80528-9599
USA

Contents

1. Using Your Personal Workstation

X- and P-Class Product Description	22
X- and P-Class Workstation Physical Characteristics	24
Your Personal Workstation's Hardware Control Panel	25
HP MaxiLife and Its Display	25
Control Panel Lights	25
System Rear Panel Connectors	26
USB Connectors	27
Serial Connector	27
PS/2 Connectors	27
Audio Connectors	28
Parallel IEEE 1284 I/O Connector	28
LAN Connector	29
Power Cord Connector	29
Memory	29
Monitors	29
Operating System Overview	30
Using Your Multimedia Keyboard	31
Description of Softkeys on the Keyboard	31
Setting Up Your HP Multimedia Keyboard	34
The Euro Symbol	37
HP Support Services	37
Using Your HP Mouse	38
Starting and Stopping Your Personal Workstation	39
Starting Your Personal Workstation for the First Time	39
Starting Your Personal Workstation	39
Initializing Your Software	40
Stopping Your Personal Workstation	41

Contents

Setting Your Password	41
Setting the Administrator Password	41
Setting a User Password	42
Using Power Management	43
Connecting SCSI Accessories	44
Connecting an External SCSI Accessory	45
Connecting Internal SCSI Accessories	48
Additional Information and Help	51
Recycling an Old HP Personal Workstation	52
2. Opening Your Personal Workstation and Installing Accessories	
Supported HP Field Replaceable Units (FRUs)	55
Removing and Replacing the Left-Side and Front Panels	56
Removing the Left-Side Panel	56
Removing the Front Panel	59
Replacing the Front Panel	64
Replacing the Left-Side Panel	68
Installing and Removing Memory	71
Installing Additional Memory	72
Removing Memory	75
Removable Media Devices	77
IDE and FDD Cable and Connector Information	77
Installing and Removing a CD Device	79
Installing and Removing a Floppy Disk Drive	89
Hard Disk Drives	95
Installing a Hard Disk Drive	95
Removing a Hard Disk Drive	103
Installing and Removing Accessory Boards	109

Contents

AGP Pro Accessory Board Slot	111
Installing I/O Cards	112
Removing I/O Cards	115
Installing and Removing a Processor	118
Removing the Processor	119
Installing a Processor	123
Installing and Removing a Voltage Regulator Module (VRM)	128
Removing a Voltage Regulator Module	129
Installing a Voltage Regulator Module	131
Installing Drivers and Utilities	134

3. Troubleshooting Your Personal Workstation

Solving Problems	136
HP Summary Screen	136
HP Diagnostics	136
If Your Personal Workstation Does Not Start Properly.	137
Display is Blank and There Are No Error Messages	137
If you are Unable to Change any Values in Setup	139
If a POST Error Message is Displayed	140
If You Cannot Turn Off Your Personal Workstation	142
If Your Personal Workstation Has a Hardware Problem.	143
Display Does Not Work Properly.	143
If Your Keyboard Does Not Work.	144
If Your Mouse Does Not Work	144
If Your Local Printer Does Not Work	145
If the Floppy Disk Drive Does Not Work.	146
If the Hard Disk Drive Does not Work	146
If the CD-ROM Drive Has a Problem	147
If an Accessory Board Does not Work	149

Contents

If Your Personal Workstation Has a Software Problem	150
If You Have Forgotten Your Password	150
If You Can't Start the Setup Program	151
If the Date and Time Are Incorrect	151
If Your Application Software Does Not Work	151
If You Have a Network Problem.	152
If Your Personal Workstation Has an Audio Problem.	152
Using HP MaxiLife to Diagnose Problems	153
Pre-Boot Checks	154
POST Phase.	155
Operating System Boot Phase	155
Run-Time Errors.	156
Main Menu	157
HP Hardware Diagnostics Utility	162
Recovering Your Personal Workstation's Operating System	164
4. Hewlett-Packard Support and Information Services	
Introduction	166
Your HP-Authorized Reseller	167
Hewlett-Packard Information Services.	168
HP Forum on CompuServe.	168
HP Forum on America Online	169
HP World Wide Web Site	169
Ordering Drivers and BIOS on Diskette.	170
HP Support Services	172
Hewlett-Packard Telephone Support	173
Lifeline Telephone Support	175
Summary	176

Contents

Hewlett-Packard Marketing Headquarters 178

A. Regulatory Information and Warranty

Regulatory Information 181

 FCC (for USA only) 181

HP Hardware Warranty 184

 HP Year 2000 Warranty 184

 Three Year Limited Hardware Warranty 185

 Limitation of Warranty 186

 Limitation of Liability and Remedies 186

 Obtaining On-Site Warranty Service 187

 Customer Responsibilities 188

 Obtaining Parts Warranty Service 188

 HP Telephone Support Services 188

 HP Software Product License Agreement and
 Software Product Limited Warranty 189

 HP Software Product License Agreement 189

 HP Software Product Limited Warranty 191

Contents

Figures

Figure 1-1. Front Panel Controls	25
Figure 1-2. System Unit Rear Panel Connectors	26
Figure 1-3. Audio Connectors	28
Figure 1-4. HP's Multimedia Keyboard	34
Figure 1-5. Connecting HP's Multimedia Keyboard	34
Figure 1-6. Connecting the Microphone and Headset to the Keyboard .	36
Figure 1-7. HP Three-Button Mouse	38
Figure 1-8. Adaptec SCSI Card.	44
Figure 1-9. Terminating the SCSI Accessory.	46
Figure 1-10. Connecting the Personal Workstation to the SCSI Accessory	46
Figure 1-11. Adaptec SCSI Card Internal Connectors	48
Figure 2-1. Removing the Left-Side Panel Thumb Screws	57
Figure 2-2. Sliding the Left-Side Panel to the Rear of the Personal Workstation	58
Figure 2-3. Removing the Left-Side Panel	58
Figure 2-4. Lifting Up on the Top Section's Retainer Tabs	60
Figure 2-5. View of the Top Section of the Front Panel Swung Outward. .	60
Figure 2-6. View of the Top Section's Hinge Slots	61
Figure 2-7. Lifting Up on the Bottom Section's Retainer Tabs	62
Figure 2-8. View of the Bottom Section of the Front Panel Swung Outward	63
Figure 2-9. View of the Bottom Section's Hinge Slots	63
Figure 2-10. View of the Bottom Section's Hinge Slots	64

Figures

Figure 2-11. Connecting the Bottom Section to the Personal Workstation	65
Figure 2-12. Closing the Bottom Section	65
Figure 2-13. View of the Top Sections Hinge Slots.	66
Figure 2-14. Connecting the Top Section to the Personal Workstation.	67
Figure 2-15. Closing the Top Section.	67
Figure 2-16. Inside View of the Left-Side Panel.	68
Figure 2-17. Replacing the Left-Side Panel	69
Figure 2-18. Left-Side Panel Showing the Half-Inch Gap	69
Figure 2-19. Sliding the Left-Side Panel into Place	70
Figure 2-20. Replacing the Left-Side Panel Thumb Screws	70
Figure 2-21. Personal Workstation Memory Slots	71
Figure 2-22. Preparing the Memory Slot Ejector Tabs	73
Figure 2-23. Installed DIMM Card	74
Figure 2-24. Keyed DIMM Card	74
Figure 2-25. Pressing Downward on the Memory Slot Ejector Tabs. . .	75
Figure 2-26. Lifting the DIMM Card Out of the Personal Workstation	76
Figure 2-27. IDE Cable	77
Figure 2-28. FDD Cable	78
Figure 2-29. System Board Connectors for the IDE and FDD Cables .	78
Figure 2-30. Removing the Front Panel CD Drive Blank	80
Figure 2-31. Removing the Metal Blank from the Accessory Chassis. .	81
Figure 2-32. Attaching the Guide Rail to the CD Drive.	82
Figure 2-33. Properly Installed Guide Rail.	82

Figures

Figure 2-34. Install the CD Drive into the Top Shelf	83
Figure 2-35. Connect the CD Drive Audio Cable	83
Figure 2-36. Connect CD Drive IDE Cable	84
Figure 2-37. Connect the CD Drive Power Cable.	84
Figure 2-38. Disconnect the CD Drive Power Cable	85
Figure 2-39. Disconnect CD Drive IDE Cable	85
Figure 2-40. Disconnect the CD Drive Audio Cable	86
Figure 2-41. Remove the CD Drive into the Top Shelf	86
Figure 2-42. Removing the Front Panel CD Drive Blank	87
Figure 2-43. Replacing the Metal Blank into the Accessory Chassis . . .	88
Figure 2-44. Floppy Disk Drive and Guide Rails.	90
Figure 2-45. Attaching the Guide Rails to the Floppy Disk Drive	90
Figure 2-46. Install the Floppy Disk Drive into Its Shelf	91
Figure 2-47. Connect the Floppy Disk Drive Power Cable	91
Figure 2-48. Connect Floppy Disk Drive FDD Cable.	92
Figure 2-49. Disconnect the Floppy Disk Drive FDD Cable	93
Figure 2-50. Disconnect Floppy Disk Drive Power Cable	93
Figure 2-51. Remove the Floppy Disk Drive from Its Shelf	94
Figure 2-52. Hard Disk Drive and Guide Rails	96
Figure 2-53. Attaching the Guide Rails to the Hard Disk Drive	96
Figure 2-54. Install the Hard Disk Drive into Its Shelf	97
Figure 2-55. Connect the Hard Disk Drive Interface Cable	97
Figure 2-56. Connect Hard Disk Drive Power Cable	98

Figures

Figure 2-57. Installing the Hard Disk Drive in its Mounting Bracket .	99
Figure 2-58. Attaching Guide Rails on the Hard Disk Drive Mounting Bracket	99
Figure 2-59. Install the Hard Disk Drive into Its CD Drive Shelf . . .	100
Figure 2-60. Connect the Hard Disk Drive Interface Cable	101
Figure 2-61. Connect Hard Disk Drive Power Cable	101
Figure 2-62. Disconnect the Hard Disk Drive Interface Cable	103
Figure 2-63. Disconnect Hard Disk Drive Power Cable	104
Figure 2-64. Remove the Hard Disk Drive from Its Shelf	104
Figure 2-65. Disconnect the Hard Disk Drive Interface Cable	105
Figure 2-66. Disconnect Hard Disk Drive Power Cable	105
Figure 2-67. Remove the Hard Disk Drive From Its CD Drive Shelf .	106
Figure 2-68. Removing the Hard Disk Drive Guide Rails and Mounting Screws	106
Figure 2-69. Removing the Hard Disk Drive from Its Mounting Bracket	107
Figure 2-70. Replacing the Hard Disk Drive Mounting Bracket Guide Rails	107
Figure 2-71. Install the Hard Disk Drive Mounting Bracket	108
Figure 2-72. I/O Card Slots and their Capabilities	109
Figure 2-73. Card Guides for the Full-Size I/O Cards	110
Figure 2-74. HP Visualize fx AGP Connector that is Not Supported .	111
Figure 2-75. Removing the T-15 Torx Screw and Bulkhead	112
Figure 2-76. Installing the I/O Card	113
Figure 2-77. Completing the I/O Card Installation	114

Figures

Figure 2-78. Removing the I/O Card's T-15 Torx Screw	115
Figure 2-79. Removing the I/O Card.	116
Figure 2-80. Replacing the Bulkhead Blank	116
Figure 2-81. Processor Connectors and Terminator	118
Figure 2-82. Disconnect the Power Cable for the Processor's Fan	120
Figure 2-83. Remove the Fan Mount from the Processor Connectors .	121
Figure 2-84. Remove the Processor.	122
Figure 2-85. Installing the Processor	124
Figure 2-86. Placing the Fan Mount Over the Processors.	125
Figure 2-87. Installing the Processor Fan Mount	126
Figure 2-88. Connect the Power Cable for the Processor's Fan.	126
Figure 2-89. Voltage Regulator Module (VRM) Slots.	128
Figure 2-90. Ejector Tabs in the Downward Position	130
Figure 2-91. Removing the Voltage Regulator Module (VRM)	131
Figure 2-92. Ejector Tabs in the Downward Position	132
Figure 2-93. Installing the Voltage Regulator Module (VRM)	133
Figure 2-94. Installed Voltage Regulator Module (VRM)	133

Figures

Tables

Table 1-1. X- and P-Class Features.	22
Table 1-2. X- and P-Class Characteristics	24
Table 1-3. Audio Electrical Specifications	28
Table 1-4. Low-Voltage Differential SCSI Cables	47
Table 2-1. Supported HP Field Replaceable Units.	55
Table 3-1. Actions to Take and Where to Find Help	138
Table 3-2. Pre-Boot Messages	154
Table 3-3. POST Phase Message.	155
Table 3-4. Operating System Boot Phase Message	155
Table 3-5. Run-Time Error Messages.	156
Table 3-6. System Info. Messages	159
Table 3-7. Example of Boot Steps Message	159
Table 3-8. Test Component Messages.	160
Table 4-1. HP Information Services	166
Table 4-2. CompuServe On-line Service Numbers.	168
Table 4-3. Lifeline Telephone Support Numbers	175

Tables

Preface

This owner's guide describes how to use your HP VISUALIZE P-Class (A6034) or X-Class (A1280) Personal Workstation.

It is intended for the Personal Workstation user who wants to:

- Set up the Workstation for the first time.
- Configure the Workstation.
- Troubleshoot problems on the Workstation.
- Add accessories to the Workstation.
- Find out where to get more information and support.

Important Safety Information

WARNING

If you have any doubt that you can lift the HP VISUALIZE Personal Workstation or display safely, do not try to move it without help.

For your safety, always connect the equipment to a grounded wall outlet. Always use a power cord with a properly grounded plug, such as the one provided with this equipment, or one in compliance with your national regulations. This HP VISUALIZE Personal Workstation is disconnected from the power by removing the power cord from the power outlet. This means the Personal Workstation must be located close to a power outlet that is easily accessible.

For your safety, never remove the HP VISUALIZE Personal Workstation's cover without first removing the power cord from the power outlet, and any connection to the telecommunications network. Always replace the cover on the Personal Workstation before switching it on.

To avoid electric shocks, do not open the power supply. There are no user-serviceable parts inside.

This HP VISUALIZE Personal Workstation is a class 1 laser product. Do not attempt to make any adjustment to the laser units.

Important Ergonomic Information

It is strongly recommended that you read the ergonomic information before using your HP VISUALIZE Personal Workstation. If you are using Windows NT, open the Start menu in the task bar and select Help. Then double-click the help topic "Working in Comfort."

Installation Notice

Products designated in the applicable Hewlett-Packard price list as customer-installable can be installed by computer-knowledgeable customers who carefully read and follow the instructions provided. Customers who elect to have the product installed by our field personnel are charged the applicable field installation charge, as covered under the standard terms and conditions. For more information, please contact your local sales representative.

Revision History

The revision history for each edition of the manual is listed below:

Edition	Revision History
E0600	First Printing

Problems, Questions, and Suggestions

If you have any problems or questions with our hardware, software, or documentation, please contact either your HP Response Center or your local HP representative. If you have access to a web browser, you can get the latest software and hardware patches at the following URL:

`http://www.hp.com/visualize/support`

Documentation Conventions

Unless otherwise noted in the text, this guide uses the following symbolic conventions.

<i>user-supplied values</i>	Italic words or characters in syntax and command descriptions represent values that you must supply. Italics are also used in text for emphasis.
screen display	Information that the system displays, commands that you must use literally, and path names appear in this typeface.
Enter	Keycaps are presented with a special keycap font as shown in the left column. (In this document, we refer to the Enter key. On your keyboard, the key may be labeled either Enter or Return .)

Electrostatic Discharge (ESD) Precautions

Electrostatic charges can damage the integrated circuits on printed circuit boards. To prevent such damage from occurring, observe the following precautions during board unpacking and installation:

- Stand on a static-free mat.
- Wear a static strap to ensure that any accumulated electrostatic charge is discharged from your body to ground.
- Create a common ground for the equipment you are working on by connecting the static-free mat, static strap, and peripheral units to that piece of equipment.
- Keep uninstalled printed circuit boards in their protective antistatic bags.
- Handle printed circuit boards by their edges, once you have removed them from their protective antistatic bags.

1 Using Your Personal Workstation

Using Your Personal Workstation
X- and P-Class Product Description

HP Visualize Personal Workstations are offered in two configurations - the X-Class (A1280) and the P-Class (A6034). The major difference between these configurations is maximum memory availability. The P-Class is upgradeable to 2 GBytes (SDRAM) and the X-Class is upgradeable to 4 GBytes (SDRAM).

X- and P-Class Product Description

To gain a better understanding of the HP VISUALIZE Personal Workstations, see Table 1-1. This table lists the Personal Workstation's key features.

Table 1-1 X- and P-Class Features

Feature:	Description:
Processor (standard)	Intel Pentium III with 256 KB cache memory and 133 MHz FSB
Main memory (size)	Upgradeable to 4 GBytes (SDRAM) - X-Class Upgradeable to 2 GBytes (SDRAM) - P-Class
Video (AGP Pro slot)	HP VISUALIZE <i>fx</i> graphics cards (with/without Texture Module), ELSA GLoria II graphics card and ELSA Synergy II graphics card
LAN	Ethernet 10BT/100TX LAN on the system board
Audio	Integrated 16-bit high fidelity with high-end mixing capability and SigmaDelta converters

Table 1-1 X- and P-Class Features

Feature:	Description:
Rear connectors	<ul style="list-style-type: none"> • PS/2 mouse • PS/2 keyboard • 25-pin parallel • 9-pin serial • Two USB connectors • LINE IN jack (3.5 mm) • LINE OUT jack (3.5 mm) • MIC IN jack (3.5 mm) • Headset jack (3.5 mm)
Disk drive shelves	<p>Seven mass storage shelves supporting:</p> <ul style="list-style-type: none"> • Two front-access, 3.5-inch bays • Three front-access, 5.25 in. bays • Two internal hard disk drive bays
System board connectors	<ul style="list-style-type: none"> • One flexible disk drive connector • Two IDE connectors (for up to four IDE devices) • One CD-ROM audio connector • Internal speaker connector • One external start connector
Accessory slots	<ul style="list-style-type: none"> • One AGP Pro (Accelerated Graphics Port) slot • Three 32-bit, 33 MHz, 5V PCI slots • Two 64-bit, 66 MHz, 3.3V PCI slots

X- and P-Class Workstation Physical Characteristics

Table 1-2

X- and P-Class Characteristics

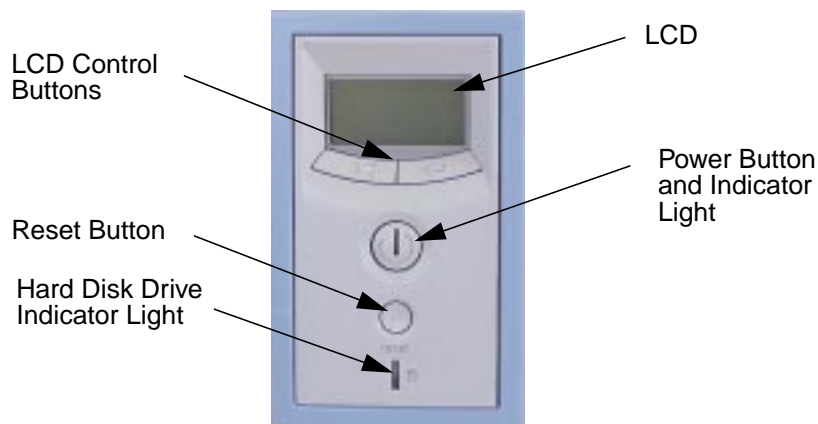
Characteristics:	Description:
Weight (excl. keyboard and display)	15.93 kilograms (35.11 pounds).
Dimensions	47.3 cm (max.) (D) by 20.9 cm (W) by 48.3 cm (H) (18.62 inches by 8.22 inches by 19.02 inches).
Footprint	0.099 m ² (1.06 sq ft).
Storage temperature	-40°C to +70°C (-40°F to +158 °F).
Storage humidity	8% to 90% (relative).
Operating temperature	+5°C to +35°C (+41°F to +95°F).
Operating humidity	15% to 80% (relative).

Your Personal Workstation's Hardware Control Panel

The hardware control panel is located on the front of your Personal Workstation. See Figure 1-1.

Figure 1-1

Front Panel Controls



HP MaxiLife and Its Display

HP MaxiLife and its LCD helps you diagnose problems with your Personal Workstation and provides system information you may need to obtain support. Press one of the LCD control buttons to display the menu.

Use ▲▼ to scroll through the menu items and ↵ to select the item required. For more information on using the LCD, refer to the section “Using HP MaxiLife to Diagnose Problems” in the chapter “Troubleshooting Your Personal Workstation.”

Control Panel Lights

There are two lights on your Personal Workstation's control panel. The light in the middle of the on/off button glows when the system is on. The other light is the hard disk drive indicator light, which glows when the disk is active.

System Rear Panel Connectors

This section describes the following connectors on the system unit's rear panel:

- USB connectors
- Serial connectors
- PS/2 keyboard and mouse connectors
- Audio connectors (including headset and microphone)
- Parallel IEEE 1284 I/O connector
- LAN connector
- Power cord connector.

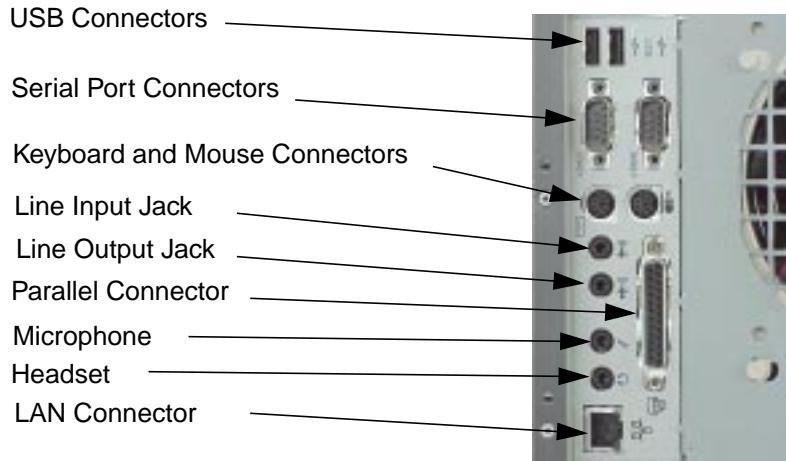
NOTE

To maintain FCC/EMI compliance, verify that all cables are fully seated and properly fastened.

Figure 1-2 shows the locations of the connectors on the system's rear panel.

Figure 1-2

System Unit Rear Panel Connectors



USB Connectors

There are two Universal Serial Bus (USB) connectors located on the rear panel of your Personal Workstation. These connectors support several USB devices. Note that you should consult the documentation that accompanies each device for specific information concerning its use.

For more information on the Universal Serial Bus, use your browser and the following URL:

`http://www.usb.org`

Serial Connector

You can attach a variety of pointing devices (such as, a mouse or trackball), or peripheral devices (such as, printer, plotters, and modems) to the serial ports on this Personal Workstation. Consult the documentation that accompanies each pointing or peripheral device for specific information concerning its use.

PS/2 Connectors

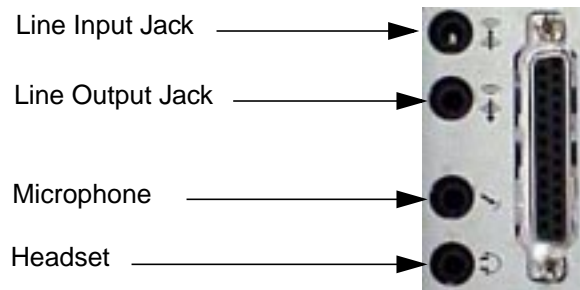
There are two PS/2 connectors located on the rear panel of the Personal Workstation. One PS/2 connector is labeled with a mouse and the other connector is labeled with a keyboard.

Audio Connectors

Your Personal Workstation has audio input and output capability through external input and output connectors on the rear panel and through an internal speaker. The rear panel contains the Line IN, Line OUT, Mic IN, and Headset OUT connectors. See Figure 1-3.

Figure 1-3

Audio Connectors



The audio connectors are standard stereo audio mini-jacks. For a summary of the computer audio electrical specifications, see Table 1-3. Note that the audio electrical specifications meet PC99 and AC97 requirements.

Table 1-3 Audio Electrical Specifications

Frequency Response	20 Hz to 20k Hz
Max Input Sensitivity/Impedance	
Line in	2.0Vrms/10Kohms
Microphone	100mVrms/47Kohm
Max Output Level/Impedance	
Line out	1.5Vrms/40Kohms
Headset	1.0Vrms/32ohms
Speaker (internal)	n.a.

Parallel IEEE 1284 I/O Connector

The 25-pin parallel I/O interface uses IEEE 1284 I/O interface protocols.

LAN Connector

Your Personal Workstation has a built-in Twisted Pair (TP) connector for the 802.3 (ETHERNET) or 10 BaseT/100 BaseT network. Your Personal Workstation will automatically select the correct network setting.

Power Cord Connector

A 120V/240V AC power cord with three prong connectors for plugging into the rear panel of the Personal Workstation and for the wall outlet. Note that you can select between 120 volts AC and 240 volts AC using the selector switch on back of the Personal Workstation.

Memory

The main memory for an HP VISUALIZE Personal Workstation can vary - from a minimum of 256 MBytes and a maximum of 4 GBytes for the X-Class and a 128 MByte minimum to a 2GByte maximum for the P-Class. When you install the memory, you have to use matched pairs (for example, two 128 MByte DIMM cards installed sequentially according to the memory loading order). Note that there are four memory slots for the X-Class and eight memory slots for the X-Class.

To learn how to install DIMM cards in your Personal Workstation, follow the procedure in the section “Installing Memory” in the chapter “Opening Your Personal Workstation and Installing Accessories.”

Monitors

You can use any PC monitor with your Personal Workstation.

Before using your monitor, you should become familiar with its controls, connectors and indicators. For information on these controls and indicators and on using your monitor, see the documentation that came with the monitor.

Operating System Overview

Your Personal Workstation uses the Windows NT operating system. This system comes pre-loaded on your system unit's hard disk drive. When you turn your system on, it will automatically boot-up into an NT operating system.

If your system fails to boot-up, please read the chapter "Troubleshooting Your Personal Workstation" before calling your HP support person. Taking this action first could save you valuable time.

Using Your Multimedia Keyboard

The HP multimedia keyboard includes soft keys you can use to:

- Display and configure the actions assigned to keys.
- Perform one-touch shortcuts to start applications, open files, or open sites on the World-Wide Web.
- Launch the Internet browser supplied with your system.
- Lock your Personal Workstation.
- Access HP TopTools and customer information.
- Mute or adjust the volume of the audio system.

This keyboard also includes audio and headset cables to plug into the rear panel jacks of the Personal Workstation.

Description of Softkeys on the Keyboard

This section provides a description of softkeys you will find on your multimedia keyboard.

Menu Key

Pressing the Menu soft key displays the soft key section of the HP enhanced keyboard on your screen. Click any of the keys on the screen to display the action assigned to an individual key or to change or assign an action to a key. Shortcut keys are provided specifically for user-defined actions.

Shortcut Keys

The Shortcut soft keys can be used to start an application, open a document, or open a site on the Internet. Actions can be assigned to the Shortcut keys by pressing the Menu key and clicking the key you want to configure in the keyboard displayed on you screen.

Internet Key

This soft key is used to start the Netscape™ Communicator 4.0 browser configured on the Personal Workstation (default setting). The MicroSoft® Internet Explorer is also available.

Lock Key

The action of the Lock key is configured by pressing the Menu Key, and then clicking on Configure, the Extended Keys tab and the on-screen Lock button. With HP Lock installed, the actions you can specify for the Lock/Suspend key are:

- Launch screen saver
- Lock the front panel

HP TopTools

Pressing this soft key opens HP TopTools. This application helps you manage and reduce overall ownership costs and provides advanced Personal Workstation management tools that can, for example, be used for remote BIOS updates and security management.

NOTE

Before using HP TopTools for the first time, you must install it as follows:

- Select **Programs** from the **Start** menu.
- Select the submenu **HP DMI**.
- Select **Setup** from this menu.

The System Health window of the HP TopTools hardware monitoring facility provides information on:

- Fan Control in the HP cooling system
- System Temperature for Personal Workstation components
- ECC Error Notification (only when ECC DIMMs are installed)
- Voltage Monitoring for components

Mute and Volume Keys

Pressing the Mute key mutes the audio, or restores the audio if it has been muted. The Volume keys can be used to control the volume level.

For more information on controlling audio on your system, see the *Using Sound* guide preloaded on your Personal Workstation.

Microphone and Headset Connectors

This multimedia keyboard has microphone and headset indicator lights above the function keys, and just below these indicator lights on the backside of the multimedia keyboard are plug-in jacks for the microphone and headset. This feature allows you more flexibility for locating your Personal Workstation other places than on top of your desk.

HP Customer Information

This soft key accesses HP Customer Information, which includes information regarding:

- Product features
- Preloaded software on the system
- How to configure the HP enhanced keyboard
- How to configure the World-Wide Web browser
- HP support information
- Links to the HP Personal Workstation web site.

Setting Up Your HP Multimedia Keyboard

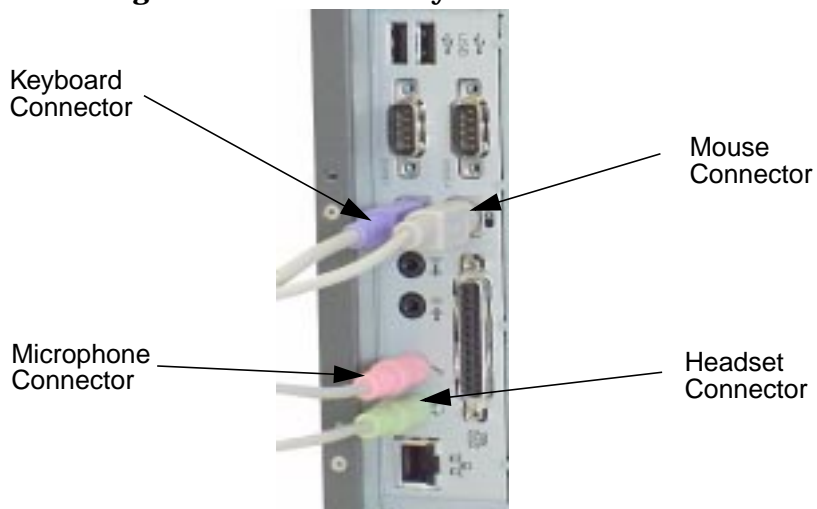
This section provides a procedure that explains how to set up your multimedia keyboard.

1. Shut down your Personal Workstation and connect the HP multimedia keyboard to the Personal Workstation. See Figure 1-4 and Figure 1-5. The microphone and headset are not supplied with the Personal Workstation.

Figure 1-4 HP's Multimedia Keyboard



Figure 1-5 Connecting HP's Multimedia Keyboard



NOTE

When you connect the keyboard jack to the rear of the Personal Workstation, the Personal Workstation's internal speaker is deactivated. You can then connect a headset or speakers to the rear of the multimedia keyboard to get sound.

NOTE

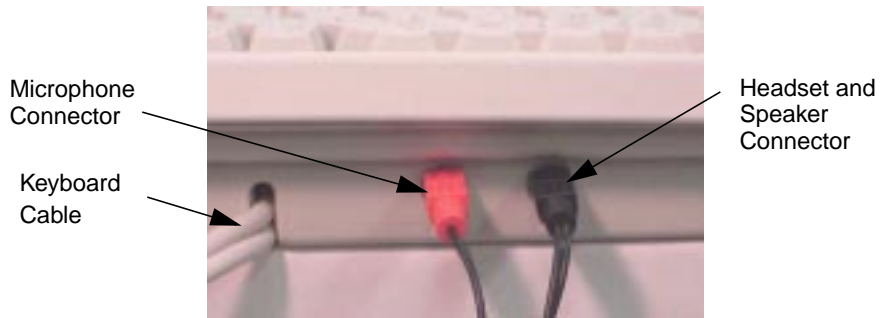
To avoid discomfort from unexpected noise, always turn the volume down before connecting headphones or speakers.

Listening to loud sounds for prolonged periods of time may permanently damage your hearing. Before putting on your headset, place them around your neck and turn the volume down. When you put on your headset, slowly increase the volume until you find a comfortable listening level, and leave the volume control at that position.

Using Your Personal Workstation
Using Your Multimedia Keyboard

2. Connect the microphone and headset to the rear of the multimedia keyboard as shown in Figure 1-6. The microphone and headset are one unit in this example. These devices can be separate units. Note that speakers can be plugged into the headset jacket instead of a headset.

Figure 1-6 Connecting the Microphone and Headset to the Keyboard



NOTE

Your Personal Workstation may have a CD or DVD drive. Even though these drives may have a headset socket and a volume control, use the keyboard sockets as described in this section. This will ensure that you use all your Personal Workstation's multimedia features.

The Euro Symbol

This section only applies if your keyboard comes with the Euro symbol key (only available with certain language models).

Your keyboard's Euro symbol key can only be used with Operating Systems and applications that support this feature.

- Not all applications support the Euro symbol.
- Not all fonts contain the Euro character.

Windows NT 4.0 Euro Support

Windows NT 4.0 does not provide integrated support. For more information on how to enable support of the Euro symbol, refer to Microsoft's web site at:

www.microsoft.com/windows/euro.asp

Configuring Your Keyboard for the Euro Symbol

To configure your keyboard, follow this procedure:

1. Select the **Start** button on the system status bar and select the menu item **Settings**. While in the submenu, click on the item **Control Panel**.
2. Double-click on the folder **Keyboard** in the "Folder Contents" frame of the window.
3. Select the **Language** or **Input Locales** tab in the "Keyboard Properties" window.
4. Click on **Add** and select the country that corresponds with your keyboard, and click **OK**.
5. Click **OK** to exit the **Control Panel**.

HP Support Services

You can get help with solving problems with HP VISUALIZE accessories from the following HP support web site:

www.hp.com/visualize/support

Using Your HP Mouse

The mouse that is shipped with your system is an HP Three-Button Mouse. See Figure 1-7.

Using your systems mouse software you can configure the mouse for a left-handed or right-handed person. What this means is you can select either the left or right mouse button to be the normal select and drag button. In either case, the other outside button becomes the context menu and special drag button. The middle button is used for pasting text that has been saved on the system clipboard.

To configure your three-button mouse, follow these steps:

1. Click on the **Start** button.
2. Select the **Settings** menu, and then select the **Control Panel** submenu.
3. Double-click on the **Mouse** icon and select the **Buttons** tab and choose the appropriate settings.

Figure 1-7 **HP Three-Button Mouse**



Starting and Stopping Your Personal Workstation

Starting Your Personal Workstation for the First Time

If your Personal Workstation has preinstalled software, it is initialized the first time you start the Personal Workstation. The software initialization process takes a few minutes. This process sets up the software in your language and sets up your software to use the hardware installed in your computer (you can change the settings after the software has been initialized).

Starting Your Personal Workstation

1. Before you start your Personal Workstation, turn on the display. If the Personal Workstation is already turned on, save your data and exit all programs, then restart the Personal Workstation.
2. Start your Personal Workstation in one of these ways:
 - Press the power button on the front panel.
 - Press the keyboard space bar. The keyboard power-on feature will work only if **Space-bar** is enabled and you have a HP keyboard.

When you switch on the computer, it carries out the Power-On-Self-Test (POST) while the HP VISUALIZE Workstation's logo is displayed. If you wish to view the POST details, press **Esc** to get the HP Summary Screen. If there is an error in the POST, the error will automatically be displayed.

Initializing Your Software

NOTE

Do NOT switch OFF the Personal Workstation while the software is being initialized—this could cause unexpected results.

To initialize your software:

1. Turn on the display first, and then turn on the Personal Workstation.

When the Personal Workstation is switched on, the HP VISUALIZE Workstation's logo is displayed. The Personal Workstation performs a Power-On-Self-Test (POST). Press **Esc** if you want to view the POST details in the HP Summary Screen.

If an error is detected during the Power-On-Self-Test, the Personal Workstation will automatically display the error. You may be prompted to press **F2** to start the *Setup* program to correct the error.

2. The software initialization routine starts. It displays the software license agreement, gives you an opportunity to read "Working in Comfort" (ergonomic advice for computer users), and then asks questions about the Personal Workstation. For example:
 - The name of the person who will use the Personal Workstation and your company name. (If necessary, the user name can be modified later.)
 - The current date and time.
 - The type of printer (for example, HP LaserJet 5L). This is shown on the front of the printer. You also need to enter the connection used by the printer.
3. While the initialization program is running, you can complete the Warranty Registration card that came with this manual.
4. When the initialization routine has finished, click OK and the Personal Workstation will restart.

Stopping Your Personal Workstation

To stop the Personal Workstation, make sure that you have exited all programs and the operating system (if necessary), and then press the On/Off button on the control panel.

Setting Your Password

You can set two passwords, the administrator (or supervisor) password and the user password, to provide two levels of protection for your Personal Workstation. You set both passwords using the **Security** menu in the *Setup* program.

Setting the Administrator Password

Set the administrator password to protect the Personal Workstation's configuration in *Setup*. An administrator password can provide a power-on password prompt that prevents you Personal Workstation from being started or used in your absence.

If you have set both an administrator password and user password, and you enter the *Setup* program using the user password, you will be restricted in your ability to change *Setup* items. If you enter the *Setup* program with an administrator password, you will have no restrictions.

To set an administrator password:

1. Start the *Setup* program by pressing the **F2** key during boot-up.
2. Select the **Security** menu.
3. Select the **Supervisor Password** submenu.
4. Choose the **Set Supervisor Password** setup item. You will be asked to enter your password twice. When you see the **Setup Notice** message, press any key to continue. Save your changes when you exit the *Setup* program by selecting **Exit**, then **Exit Saving Changes**.

To remove the password, follow the same procedure as to set a password. You will be asked to enter the existing password first. Then, for the new password, leave the password field blank and press **Enter**. To confirm

your choice, press **Enter** a second time.

Setting a User Password

A user password can only be set if an administrator password has already been set using the *Setup* program.

Set a user password to provide a power-on password prompt. This will prevent your Personal Workstation from being started or used in your absence.

If you have set both an administrator password and user password, and you enter the *Setup* program using the user password, you will be restricted in your ability to change setup items. If you enter the *Setup* program with an administrator password, you will have no restrictions.

To set a user password:

1. Start the *Setup* program by pressing the **F2** key during boot-up.
2. Select the **Security** menu.
3. Select the **User Password** submenu.
4. Choose the **Set User Password** setup item. You will be asked to enter your password twice. When you see the **Confirmation** message, select **Yes** to continue. Once the password has been selected, it is saved even if you choose **Exit without Saving**.

To remove the password, follow the same procedure as to set a password. You will be asked to enter the existing password first. Then, for the new password, leave the password field blank and press **Enter**. To confirm your choice, press **Enter** a second time.

NOTE

If you forget your password, refer to the section “If You Have Forgotten Your Password” in the chapter “Troubleshooting Your Personal Workstation.”

Using Power Management

Power management enables you to reduce your Personal Workstation's overall power consumption by slowing down the Personal Workstation's activity when it is idle. To configure power management, refer to the Power menu in the Setup program.

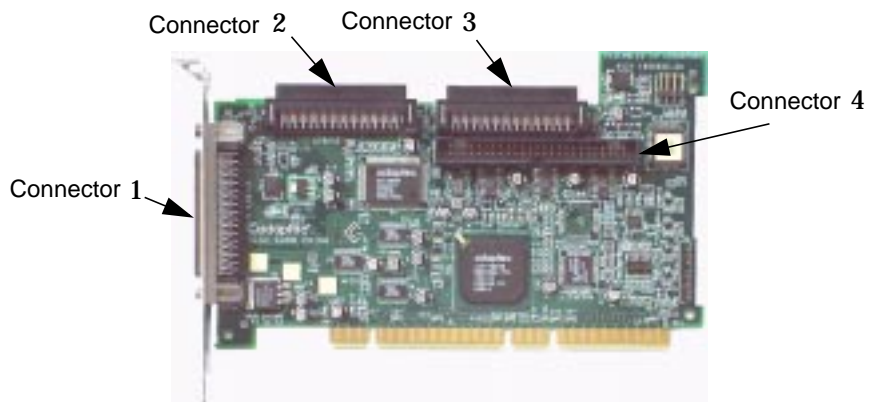
Refer to your operating system documentation for detailed information about the capability of your operating system to implement power management.

Connecting SCSI Accessories

Your Personal Workstation is equipped with an Ultra 160/m SCSI card. This section covers the connection of internal and external SCSI accessories.

The Adaptec SCSI card is capable of connecting to Low-Voltage Differential (LVD) SCSI devices (for example, Ultra2 and Ultra 160/m) and Single-Ended (SE) SCSI devices (for example, Ultra SCSI, Fast SCSI, SCSI-1, etc.). Examples of single ended devices include: DAT drives, Scanners, and older hard disk drives.

Figure 1-8 **Adaptec SCSI Card**



Here is a description of connectors one through four as seen in Figure 1-8.

- | | |
|-------------|--|
| Connector 1 | 68-pin external connector for LVD SCSI devices |
| Connector 2 | 68-pin internal connector for LVD SCSI devices |
| Connector 3 | 68-pin internal connector for Wide SE SCSI devices |
| Connector 4 | 50-pin internal connector for Narrow SE SCSI devices |

While SE SCSI devices will work when attached to connector 1 or 2, this will limit all devices to single-ended mode. For example, this would result in the Ultra 160/m hard disk drive performance being limited from 160 MB/second to 40 MB/second. Therefore, it is recommended that you connect only LVD SCSI devices to connectors 1 and 2.

Connecting an External SCSI Accessory

The intended use of the external SCSI connector is to connect Low-Voltage Differential SCSI devices to your Personal Workstation.

An external SCSI device is connected as follows:

1. Assign an unused SCSI address to the accessory. SCSI addresses range from 0 to 15 for wide 16-bit SCSI devices. The SCSI address 0 is reserved for the first SCSI hard disk drive and SCSI address 7 is reserved for the SCSI controller (the default for narrow and wide SCSI devices).

Refer to the manual provided with the SCSI accessory for instructions on selecting a SCSI address.

NOTE

You do not need to set a SCSI address for Plug-and-Play SCSI devices (SCSI devices that support the SCAM protocol).

Using Your Personal Workstation
Connecting SCSI Accessories

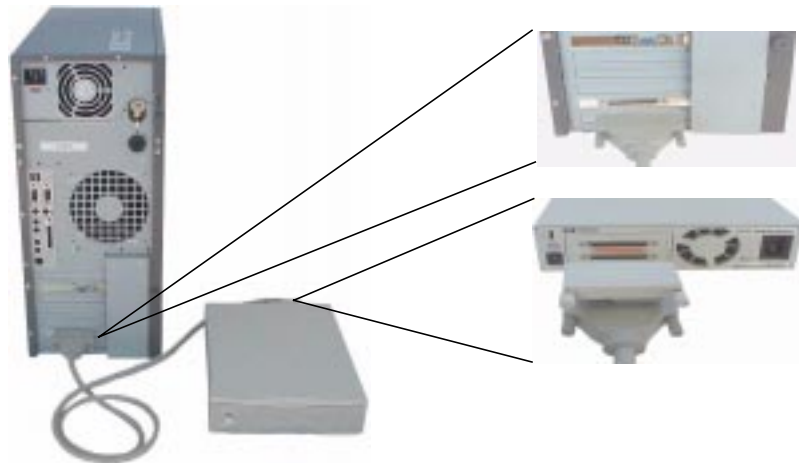
2. Make sure the SCSI accessory is terminated correctly—either internally or by a terminating resistor (refer to the manual provided with the SCSI accessory). See Figure 1-9.

Figure 1-9 Terminating the SCSI Accessory



3. Connect the SCSI accessory to your Personal Workstation's external 68-pin SCSI connector with a shielded SCSI cable. See Figure 1-10.

Figure 1-10 Connecting the Personal Workstation to the SCSI Accessory



4. Refer to the manual provided with the SCSI accessory to learn how to install any software that may be necessary for using it.

NOTE

The total length of the external SCSI cable should not exceed 10 meters (approximately 32 feet) and there must be at least eight inches of cable separating each device.

Contact you dealer to order shielded HP SCSI cables to connect external SCSI accessories.

CAUTION

Low-voltage differential SCSI is very sensitive to noise, and therefore, all cables on the SCSI bus must be exceptionally high quality cables. Examples of these are given in Table 1-4.

Please make sure that any external hard disk enclosures are rated for low-voltage differential SCSI use.

Table 1-4

Low-Voltage Differential SCSI Cables

Cable Number	Cable Length	Description
C2978A	0.5m	68-pin HDTS ¹ to 68-pin HDTS
C2979A	1.5m	
C2911B	1.0m	
C2924B	2.5m	
C2361A	1.0m	68-pin VHDCI ² to 68-pin HDTS
C2362A	2.5m	
C2363A	10.0m	
C2365A	5.0m	

1. High Density Thumbscrew (HDTS)
2. Very High Density Cabled Interconnect (VHDCI)

Connecting Internal SCSI Accessories

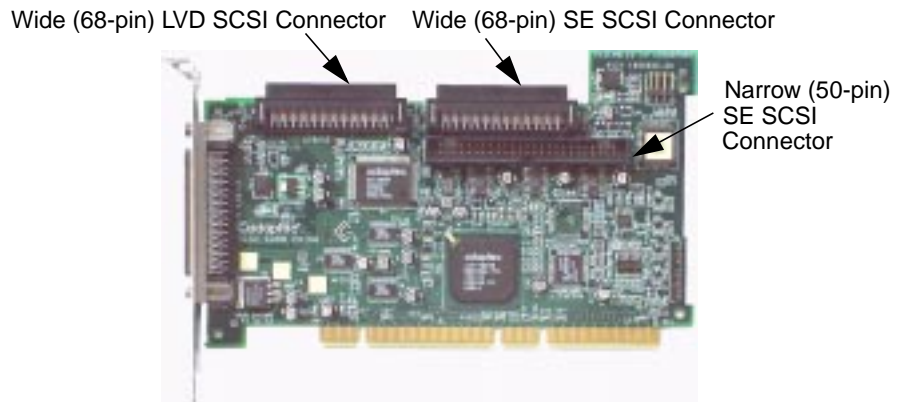
There are three internal SCSI connectors located on the Adaptec SCSI card. See Figure 1-11. Your Personal Workstation comes with a LVD SCSI cable for connecting internal LVD SCSI devices. To connect internally Wide SE and Narrow SE SCSI devices, you will need to purchase a cable for them.

NOTE

While SE SCSI devices will work when attached to the LVD SCSI connector, this will limit all devices to single-ended mode.

To learn how to install you internal SCSI device, read the chapter “Opening Your Personal Workstation and Installing Accessories.” For additional installation information, read the subsequent sections.

Figure 1-11 Adaptec SCSI Card Internal Connectors



Connecting LVD SCSI Accessories

The intended use for the internal LVD SCSI connector is to connect internal Low-Voltage Differential SCSI devices to your Personal Workstation.

An internal LVD SCSI devices is connected as follows:

1. Assign an unused SCSI address to the accessory. SCSI addresses range from 0 to 15 for wide 16-bit SCSI devices. The SCSI address 0 is reserved for the first SCSI hard disk drive and SCSI address 7 is reserved for the SCSI controller (the default for narrow and wide SCSI devices).

Refer to the manual provided with the SCSI accessory for instructions on selecting a SCSI address.

2. Connect the SCSI accessory to your Personal Workstation's internal 68-pin LVD SCSI connector with the SCSI cable shipped with your system.
3. Refer to the manual that was provided with you SCSI accessory to learn how to install any software that may be necessary for using it.

Connecting SE SCSI Accessories

The intended use for the internal Wide SE SCSI and Narrow SE SCSI connectors is to connect internal Wide and Narrow single-ended SCSI devices to your Personal Workstation.

An internal Wide or Narrow single-ended SCSI device can be connected as follows:

1. Assign an unused SCSI address to the accessory. SCSI addresses range from 0 to 15 for wide 16-bit SCSI devices and 0 to 8 for narrow 8-bit SCSI devices. The SCSI address 0 is reserved for the first SCSI hard disk drive and SCSI address 7 is reserved for the SCSI controller (the default for narrow and wide SCSI devices).

Refer to the manual provided with the SCSI accessory for instructions on selecting a SCSI address.

2. Connect the SCSI accessory to your Personal Workstation's internal 68-pin wide SE SCSI connector or 50-pin narrow SE SCSI connector with the SCSI cable you purchased.
3. Refer to the manual that was provided with your SCSI accessory to learn how to install any software that may be necessary for using it.

Additional Information and Help

Additional information about your Personal Workstation is preloaded on the Personal Workstation's hard disk drive. This information includes:

- New features—what is new and special about your Personal Workstation
- Working in comfort—guidance on ergonomics issues
- Using Sound—provides guidance on audio issues
- Network Administrator's Guide—provides instructions on setting up your Personal Workstation for a LAN connection
- Glossary.

Users of Windows NT 4.0 can access this information by opening the **Start** menu in the task bar and selecting **Programs>HPInfo**.

Recycling an Old HP Personal Workstation

HP has a strong commitment towards the environment. This HP Personal Workstation has been designed to respect the environment as much as possible.

HP can take an old computer back for recycling when it reaches the end of its useful life.

In several countries, HP has a product take-back program. Collected equipment is sent to one of HP's recycling facilities in Europe or the United States. As many parts as possible are reused, the remainder are recycled. Special care is taken with batteries and other potentially toxic substances, which are reduced to non-harmful components through a special chemical process.

If you require more details about HP's product take-back program, contact your dealer or your nearest HP Sales Office.

If you will be either installing or removing accessories from your Personal Workstation, you will need to have the proper tools for these tasks:

- A light-duty flat-blade screwdriver with a 150mm (6 inch) shaft. The flat blade should be of the proper width to fit in the slot on a T-15 Torx screw.
- A T-15 Torx screwdriver. Note that the screws these screwdrivers are used on have a recessed slot for use with a flat-bladed screwdriver.

WARNING

Always unplug the Personal Workstation power cord from the electrical outlet or power source before opening the Personal Workstation.

Supported HP Field Replaceable Units (FRUs)

Table 2-1 provides you with a list of the supported hard disk drives, CD drives, memory cards, floppy disk drives and I/O cards.

Table 2-1 Supported HP Field Replaceable Units

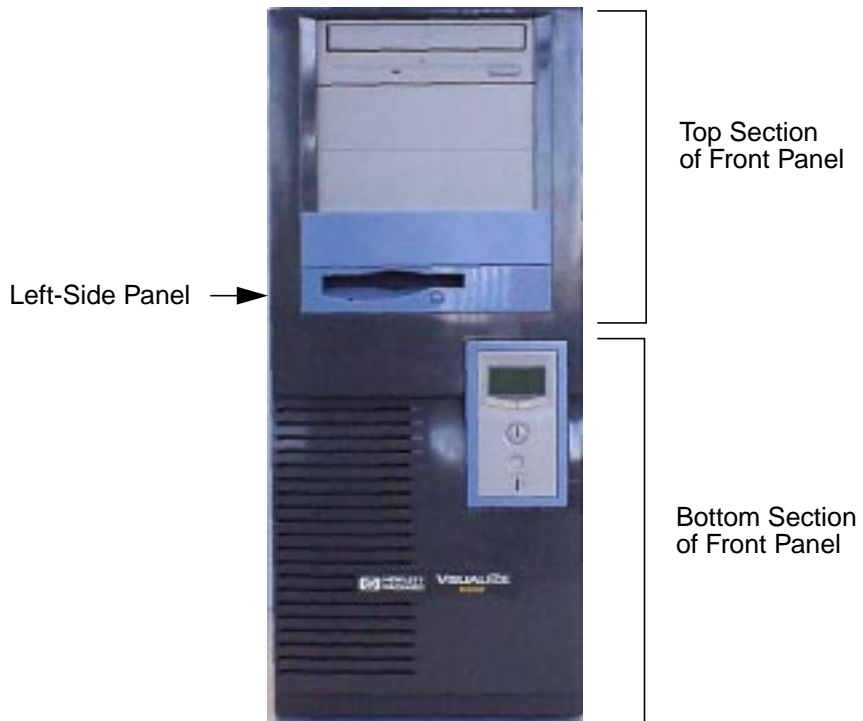
Type of FRU	Description
Hard Disk Drive	18 GByte, 10 K rpm Ultra 160/m Wide Low-Voltage Differential SCSI 9 GByte, 10 K rpm Ultra 160/m Wide Low-Voltage Differential SCSI
CD Drive	CD-ROM, ATAPI controller DVD-ROM, ATAPI controller CD-RW, ATAPI controller
Floppy disk Drive	1.44 MByte Floppy Disk Drive
Memory Cards	64 MByte DIMM (P-Class only) 128 MByte DIMM 256 MByte DIMM 512 MByte DIMM
I/O Cards	Three 32-bit, 33 MHz, 5V PCI slots Two 64 bit, 66 MHz, 3.3V PCI slots One AGP Pro slot

Removing and Replacing the Left-Side and Front Panels

This section explains how to remove your Personal Workstation's left-side panel and its front panel. This section also explains how to replace the front and left-side panels of your Personal Workstation. Note that it is important to be able to remove the left-side panel and front panel in order to gain access to accessory shelves, memory slots, I/O slots, and the system processor.

Removing the Left-Side Panel

The procedure in this section explains how to remove the left-side panel of your Personal Workstation (use the Personal Workstation's front panel as the reference).

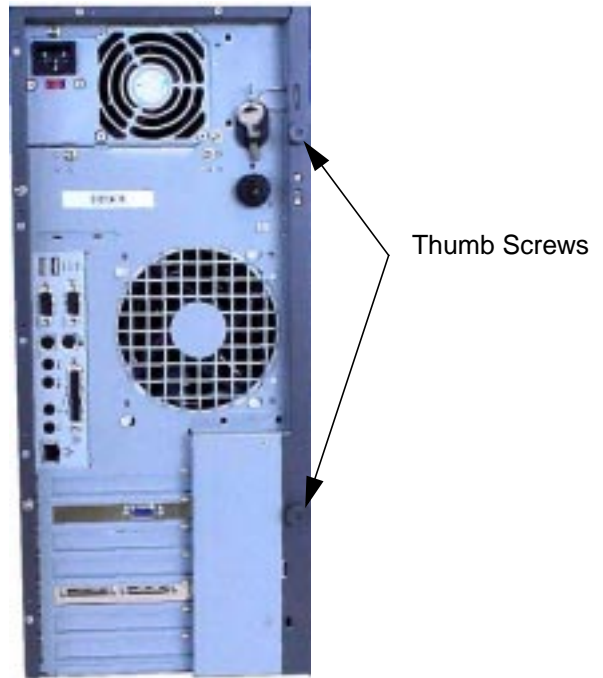


WARNING

Turn the Personal Workstation off and unplug the power cord before replacing or removing the left-side panel.

1. Remove the left-side panel's two thumb screws. See Figure 2-1.

Figure 2-1 Removing the Left-Side Panel Thumb Screws



Opening Your Personal Workstation and Installing Accessories
Removing and Replacing the Left-Side and Front Panels

2. Slide the left-side panel toward the rear of the Personal Workstation approximately 0.5 inches as shown in Figure 2-2.

Figure 2-2 Sliding the Left-Side Panel to the Rear of the Personal Workstation



3. Remove the left-side panel by grasping the rear part of the panel as shown in Figure 2-3 and pulling the panel outward. Next, lift the panel up and away from the Personal Workstation, and place it where its exterior surface cannot be damaged.

Figure 2-3 Removing the Left-Side Panel



Removing the Front Panel

The front panel can only be removed after you have removed the left-side panel. The front panel is divided into a top and bottom section. Removing the top section of the front panel allows you access to the accessory shelves (for example, CD drive and floppy disk drive), and removing the bottom section allows you access to the control panel module.

NOTE

The bottom section of the front panel can only be removed after the top section of the front panel is removed.

Top Section Removal

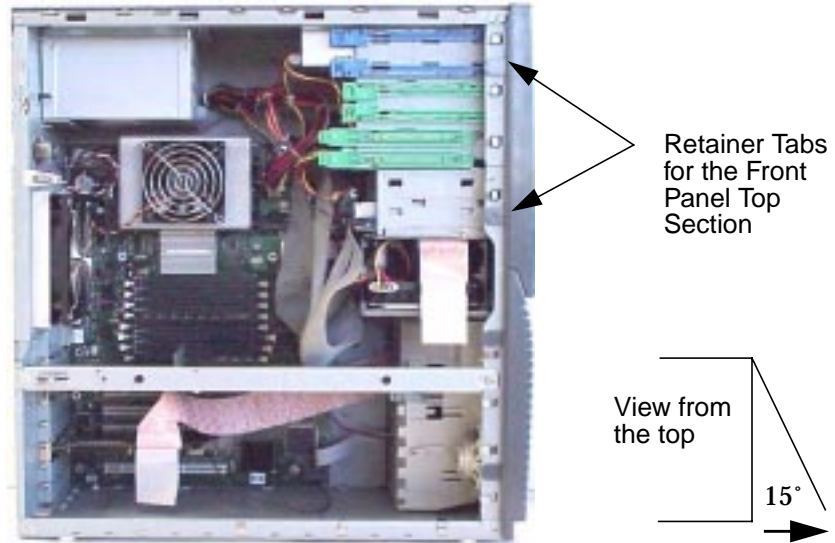
The procedure in this section explains how to remove the top section of the front panel. Removing the top section of the front panel gives you access to the Personal Workstation's accessory shelves. These shelves are the 5.25 inch shelves (bay area for CD drives and hard disk drives) and the 3.5 inch shelves (bay area for floppy disk drive and other floppy disk size devices).

1. Remove the left-side panel as explained in the section "Removing the Left-Side Panel" in this chapter.

Opening Your Personal Workstation and Installing Accessories
Removing and Replacing the Left-Side and Front Panels

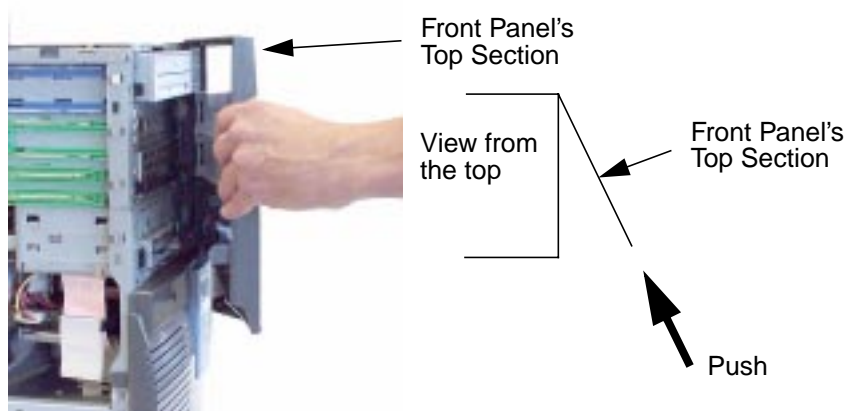
2. Lift up on both retainer tabs of the top section of the front panel. While holding the tabs, swing this section outward 15 degrees in the direction of the arrow. See Figure 2-4.

Figure 2-4 Lifting Up on the Top Section's Retainer Tabs



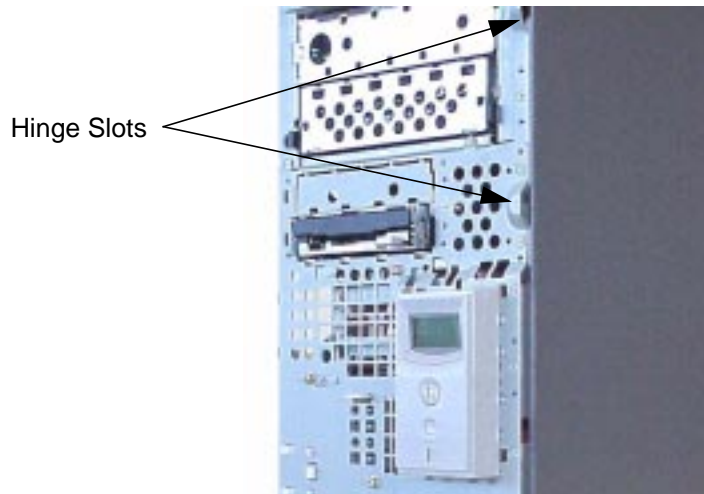
Your front panel's top section will look like the one in Figure 2-5 when you have completed this step.

Figure 2-5 View of the Top Section of the Front Panel Swung Outward



3. Hold the top section of the front panel in one hand and push this section in the direction of the “Push” arrow as shown in Figure 2-5. This will release the top section’s hinge tabs from their hinge slots and the top section will be freed from the system chassis. See Figure 2-6.

Figure 2-6 **View of the Top Section’s Hinge Slots**



Opening Your Personal Workstation and Installing Accessories

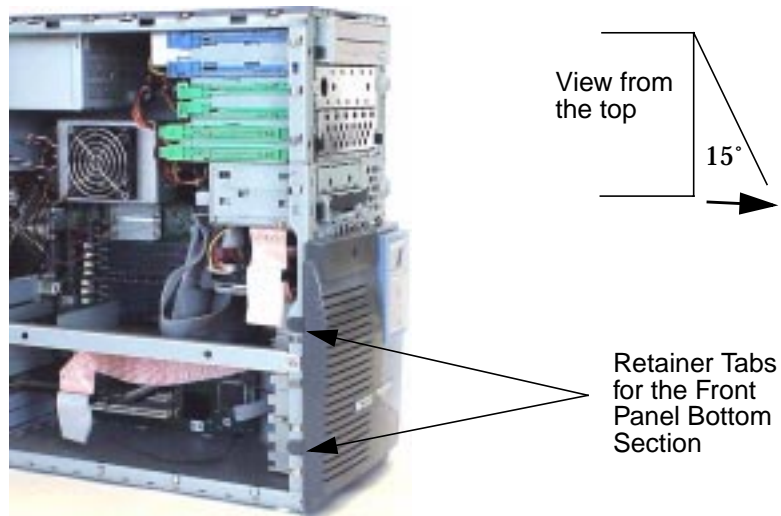
Removing and Replacing the Left-Side and Front Panels

Bottom Section Removal

The procedure in this section explains how to remove the bottom section of the front panel. Removing the bottom section of the front panel gives you access to the Personal Workstation's control module.

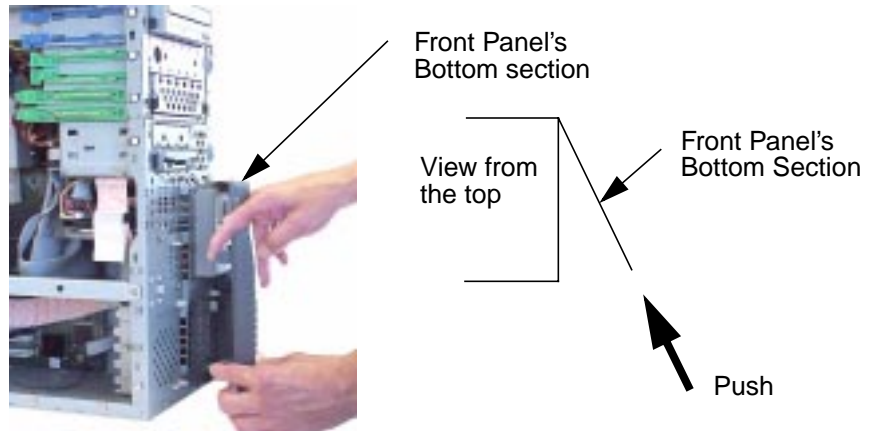
1. Remove the left-side panel as explained in the section “Removing the Left-Side Panel” in this chapter, and remove the top section of the front panel as explained in the section “Top Section Removal” in this chapter.
2. Lift up on both retainer tabs of the bottom section of the front panel. While holding the tabs, swing this section outward 15 degrees in the direction of the arrow. See Figure 2-7.

Figure 2-7 Lifting Up on the Bottom Section's Retainer Tabs



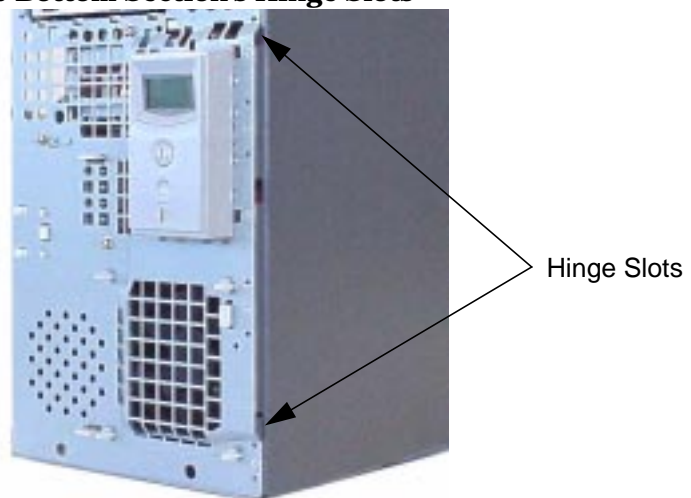
Your front panel's bottom section will look like the one in Figure 2-8 when you have completed this step.

Figure 2-8 View of the Bottom Section of the Front Panel Swung Outward



3. Hold the bottom section of the front panel in one hand and push this section in the direction of the “Push” arrow as shown in Figure 2-8. This will release the bottom section’s hinge tabs from their hinge slots and the bottom section will be freed from the system chassis. See Figure 2-9.

Figure 2-9 View of the Bottom Section’s Hinge Slots



Replacing the Front Panel

After you have completed your accessory installation or control module repair, you will need to replace the front panel. This section explains how to perform this task.

NOTE

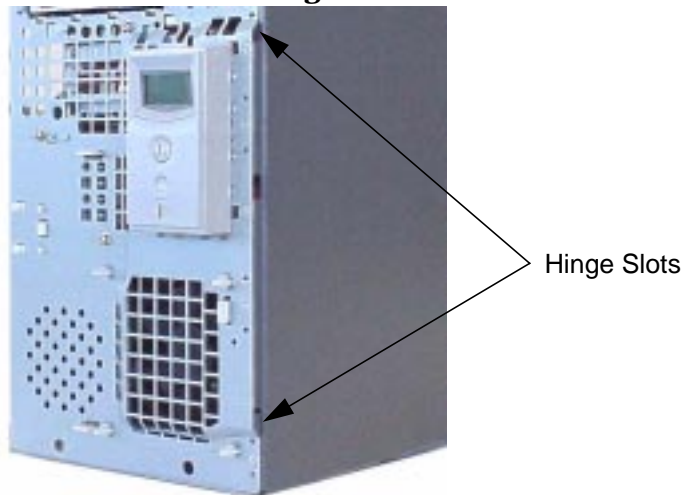
The bottom section of the front panel must be replaced before replacing the top section. Also, note that the left-side panel must be off the Personal Workstation before you can replace the front panel sections.

Bottom Section Replacement

The procedure in this section explains how to replace the bottom section of the front panel.

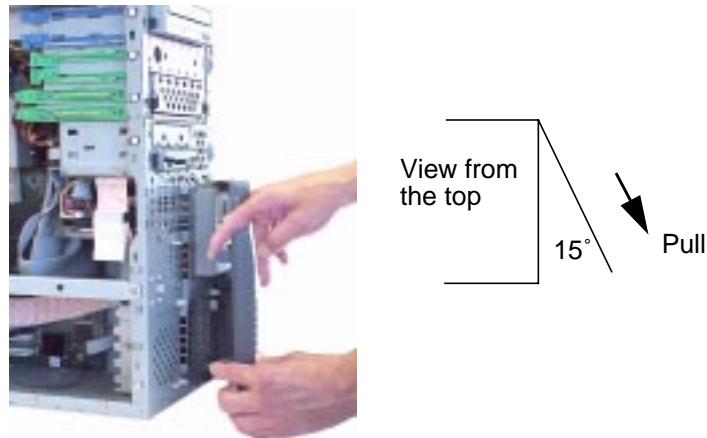
1. Locate the bottom section hinge slots and tabs. See Figure 2-10.

Figure 2-10 View of the Bottom Section's Hinge Slots



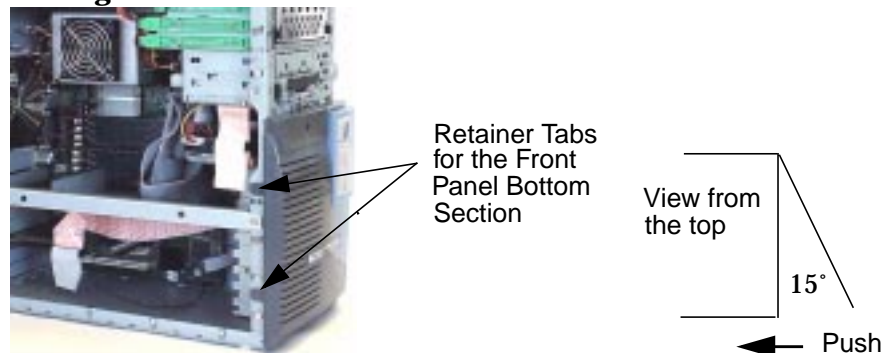
2. Place the hinge tabs of the bottom section into the hinge slots. To complete this step, hold the bottom section of the front panel at a 15 degree angle to the front of the Personal Workstation and pull in the direction of the arrow. See Figure 2-11.

Figure 2-11 Connecting the Bottom Section to the Personal Workstation



3. Close the bottom section by pushing it inward in the direction of the arrow. See Figure 2-12. The retainer tabs should snap into place.

Figure 2-12 Closing the Bottom Section

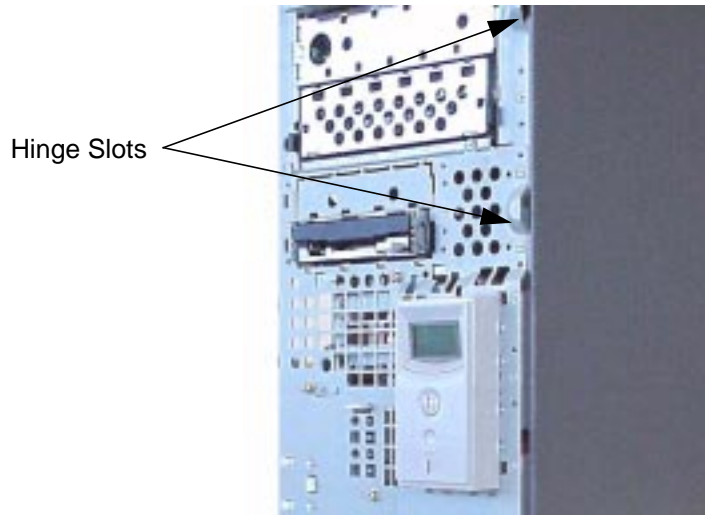


Top Section Replacement

The procedure in this section explains how to replace the top section of the front panel.

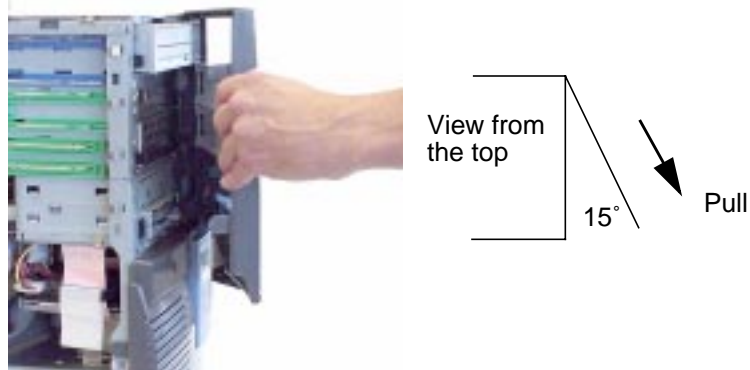
1. Locate the top section hinge slots and tabs. See Figure 2-13. Note that the bottom section of the front panel should already be installed.

Figure 2-13 **View of the Top Sections Hinge Slots**



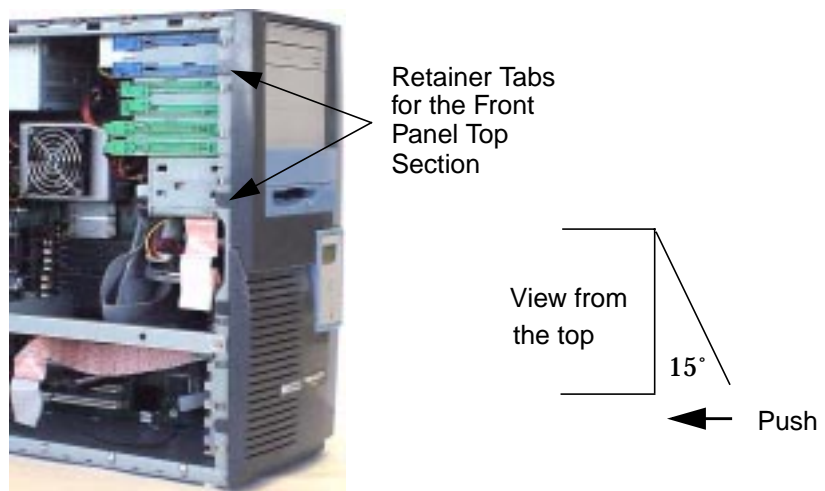
- Place the hinge tabs of the top section into the hinge slots. To complete this step, hold the top section of the front panel at a 15 degree angle to the front of the Personal Workstation and pull in the direction of the arrow. See Figure 2-14.

Figure 2-14 Connecting the Top Section to the Personal Workstation



- Close the top section by pushing it inward in the direction of the arrow. See Figure 2-15. The retainer tabs should snap into place.

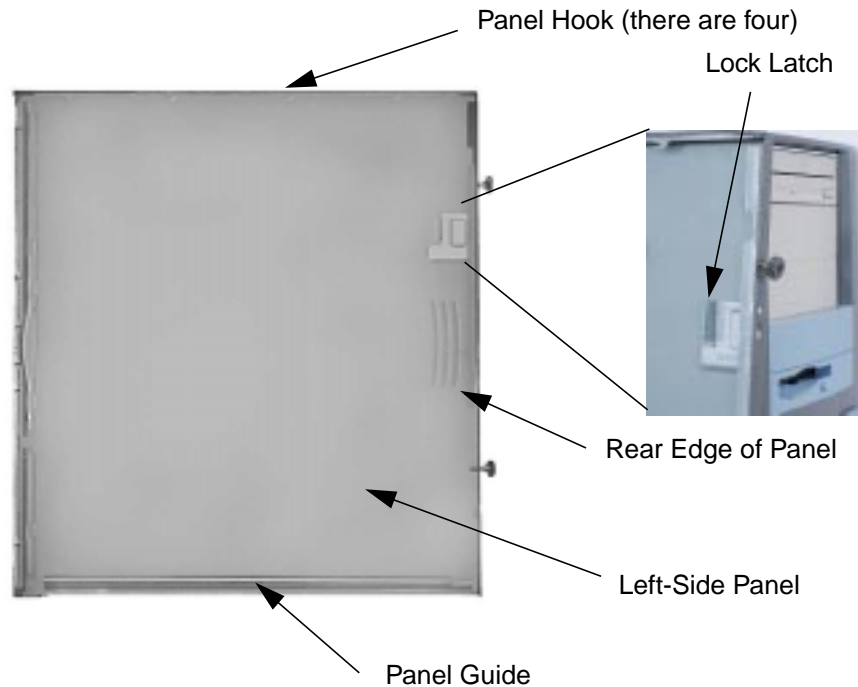
Figure 2-15 Closing the Top Section



Replacing the Left-Side Panel

This section explains how to replace the left-side panel of your Personal Workstation. The inside view of this panel is shown in Figure 2-16 to help you with the panel's nomenclature.

Figure 2-16 Inside View of the Left-Side Panel



WARNING

Turn the Personal Workstation off and unplug the power cord before replacing or removing the left-side panel.

To replace the left-side panel, follow this procedure:

1. Place the panel guide over the system's inside-bottom edge, leaving a half-inch gap between the front edge of the panel and the front of the chassis. See Figure 2-17 and Figure 2-18.

Figure 2-17 Replacing the Left-Side Panel

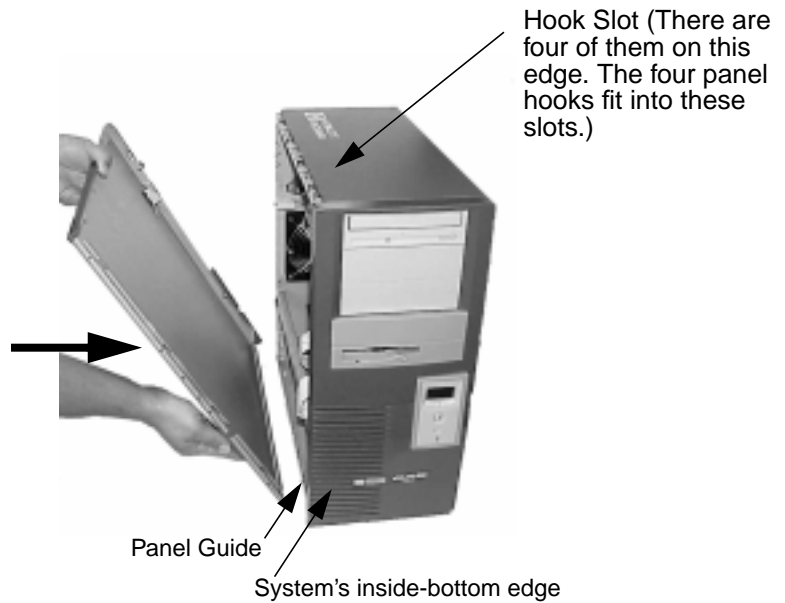
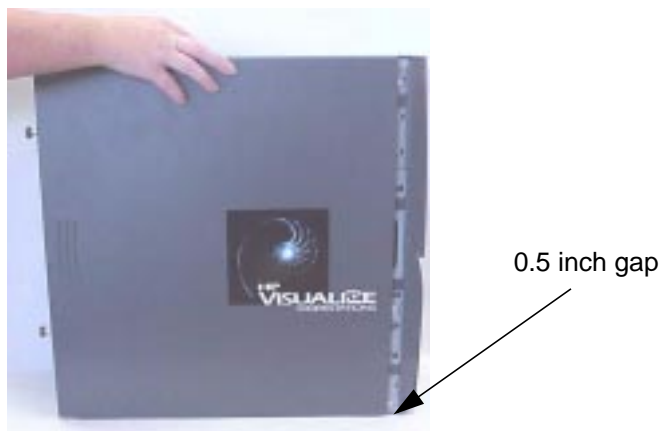


Figure 2-18 Left-Side Panel Showing the Half-Inch Gap



Opening Your Personal Workstation and Installing Accessories
Removing and Replacing the Left-Side and Front Panels

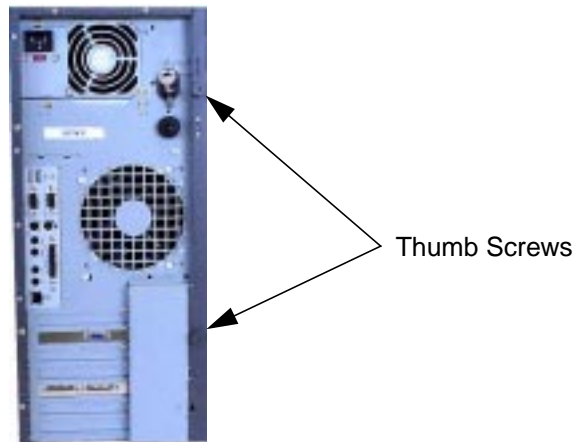
2. Locate the four hook slots on the top edge of the system and align these slots with the four panel hooks on the left-side panel. Next, push the left-side panel inward (in the direction of the arrow). See Figure 2-19. Note that in some cases you might have to lift up slightly on the panel to get the panel hooks to fit in the slots.

Figure 2-19 Sliding the Left-Side Panel into Place



3. Screw the left-side panel thumb screws in place to complete the left-side panel replacement on the Personal Workstation. See Figure 2-20.

Figure 2-20 Replacing the Left-Side Panel Thumb Screws



Installing and Removing Memory

This section contains information on how to install and remove memory (DIMM cards).

NOTE

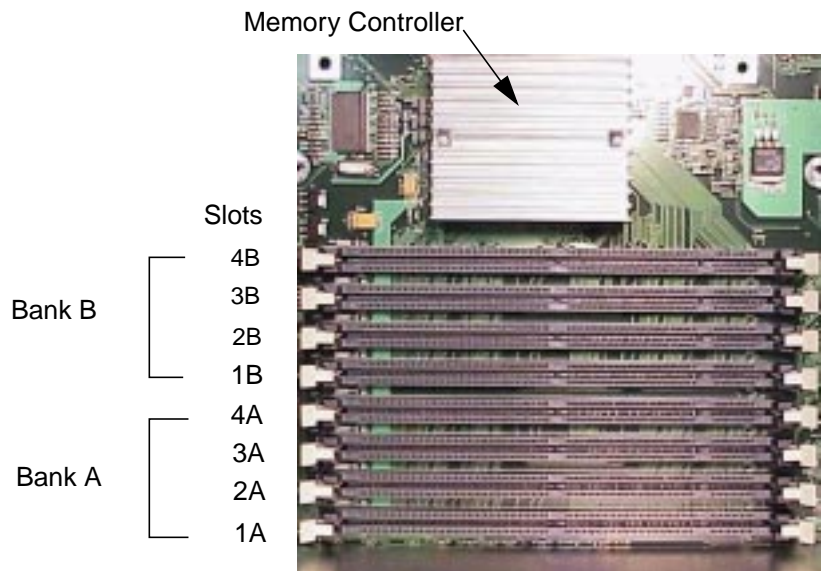
The memory must be loaded in pairs, and you can have a minimum of 256 MBytes to a maximum of 4 GBytes of memory for the X-Class (128MBytes to 2GBytes for the P-Class). When you install the memory, you have to use matched pairs (for example, two 128 MByte DIMM cards installed sequentially according to the memory loading order).

When expanding the memory in your Personal Workstation, you can obtain maximum performance by keeping the size of all memory cards the same.

The X-Class system board has eight memory card slots; the P-Class has four. Figure 2-21 shows the eight X-Class memory slots and how they're numbered. The four P-Class slots are 1A, 2A, 1B and 2B.

Figure 2-21

Personal Workstation Memory Slots



Installing Additional Memory

Perform the following steps to add memory (DIMM cards) to your Personal Workstation.

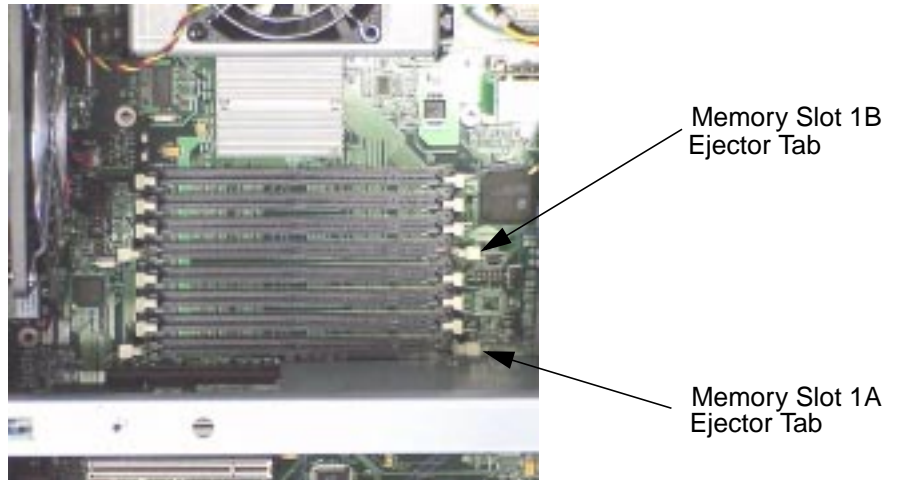
WARNING

Turn the Personal Workstation off and unplug the power cord before installing or removing memory.

1. Open the left-side panel of your Personal Workstation as explained in the section “Removing the Left-Side Panel” in this chapter.
2. Position the memory slots as show in Figure 2-21. The memory slots are divided into two banks. Bank A consists of slots 1A through 4A (or 1A through 2A, if it is a P-Class) and Bank B consists of slots 1B through 4B (2B for P-Class). Note that the memory must be loaded in matching pairs (banks are interleaved) for example, if you load a card in slot 1A, you must also load a card in slot 1B of equal size.

3. Press downward on the ejector tabs that are associated with the memory slots where you will install the DIMM cards. See Figure 2-22.

Figure 2-22 Preparing the Memory Slot Ejector Tabs



NOTE: Figure 2-22 shows memory slots for an X-Class configuration. There are only 4 slots available for the P-Class.

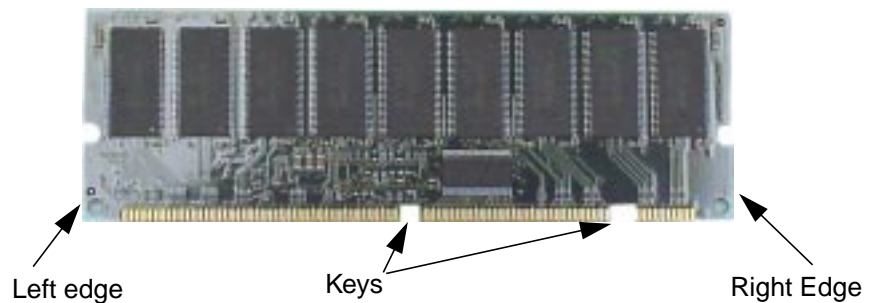
Opening Your Personal Workstation and Installing Accessories
Installing and Removing Memory

4. Insert the DIMM card into its appropriate memory slots by aligning the left and right edges of the card with the guides on the memory card slot. Then push downward until the DIMM card is firmly seated in place, and the ejector tabs lock in place. See Figure 2-24. The DIMM cards are keyed for proper installation. See Figure 2-23. Note that this step showed the installation of the DIMM card in memory slot 1A. Its matching DIMM card would be placed in memory slot 1B. Figure 2-23 shows the eight X-Class memory slots.

Figure 2-23 Installed DIMM Card



Figure 2-24 Keyed DIMM Card



5. Replace the left-side panel as explained in the section “Replacing the Left-Side Panel” in this chapter.

Removing Memory

Perform the following steps to remove memory (DIMM cards) from your Personal Workstation.

WARNING

Turn the Personal Workstation off and unplug the power cord before installing or removing memory.

1. Open the left-side panel of your Personal Workstation as explained in the section “Removing the Left-Side Panel” in this chapter.
2. Position the memory slots as show in Figure 2-25. The memory slots are divided into two banks. Bank A consists of slots 1A through 4A (2A for P-Class) and bank B consists of slots 1B through 4B (2B for P-Class). Note that the memory must be removed in matching pairs (banks are interleaved) for example, if you remove a card from slot 1A, you must also remove a card from slot 1B of equal size.
3. Press downward on the ejector tabs that are associated with the memory slots of the DIMM cards you want to remove. See Figure 2-25 which shows the eight X-Class slots.

Figure 2-25 Pressing Downward on the Memory Slot Ejector Tabs



Opening Your Personal Workstation and Installing Accessories
Installing and Removing Memory

4. Remove the DIMM cards from their memory slots by holding the left and right edges of the DIMM cards and lifting them out of their slots. See Figure 2-26. You should store these cards in an anti-static bag. Note that this step showed the removal of the DIMM card in memory slot 1A. Its matching DIMM card should also be removed from memory slot 1B.

Figure 2-26 **Lifting the DIMM Card Out of the Personal Workstation**



Note: The above Figure shows the eight X-Class slots. The P-Class has four slots.

5. Replace the left-side panel as explained in the section “Replacing the Left-Side Panel” in this chapter.

Removable Media Devices

This section discusses the installation and removal of removable media devices. There are two types of removable media devices allowed in your Personal Workstation:

- CD devices (for example, CD-ROM drives and CD-RW drives)
- Floppy disk drives

There is one shelf available for a floppy disk drive and three shelves available for CD devices.

NOTE

The guide rails mentioned in this section that are used on the floppy disk drives are color coded green. The blue guide rails are used on the hard disk drives, and the black guide rails are used on the CD drives.

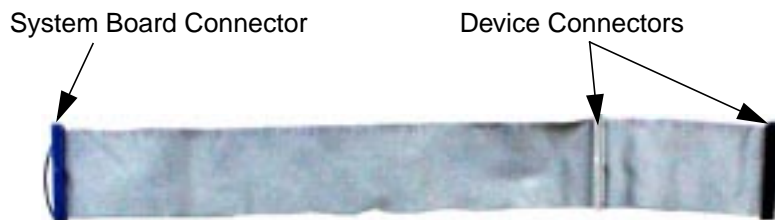
IDE and FDD Cable and Connector Information

Before you install or remove a CD drive or floppy disk drive, you should read this section. This section provides information regarding cable connector locations on the system board and the types of cables that are required for the various devices.

The IDE cable is used for IDE hard disk drives and CD drives. The IDE cables have two connectors on them plus a connector for the system board. See Figure 2-27.

Figure 2-27

IDE Cable



Opening Your Personal Workstation and Installing Accessories
Removable Media Devices

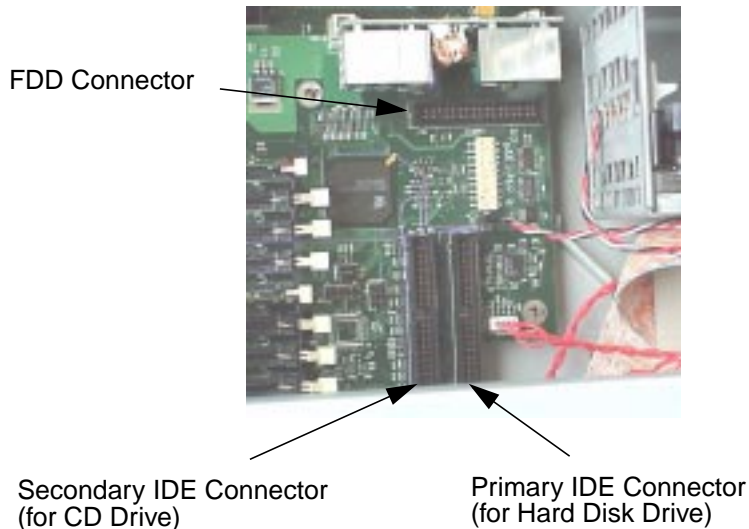
The FDD cable is used for the floppy disk drive. This cable has one connector for the device and one for the system board. See Figure 2-28.

Figure 2-28 FDD Cable



The system board connectors for the IDE and FDD cables are shown in Figure 2-29.

Figure 2-29 System Board Connectors for the IDE and FDD Cables



Note that the connectors on the system board and the cables are keyed so they can be connected properly.

Installing and Removing a CD Device

This section explains how to install and remove your CD device.

WARNING

Turn the Personal Workstation off and unplug the power cord before installing or removing the CD drive.

CAUTION

CD drives are susceptible to mechanical and electrical shock. When handling the drive, always wear the static-grounding strap that came with the CD drive kit. Always handle the drive carefully.

Installing a CD Drive

This procedure explains how to install your CD drive in your Personal Workstation. Note that this procedure uses the top shelf of the CD drive bay area for demonstrating how to install a CD drive. In this case, there is no blank to remove from the front panel and you may skip step 2. If you do desire to install a CD drive into shelf two or three, you will need to complete step 2.

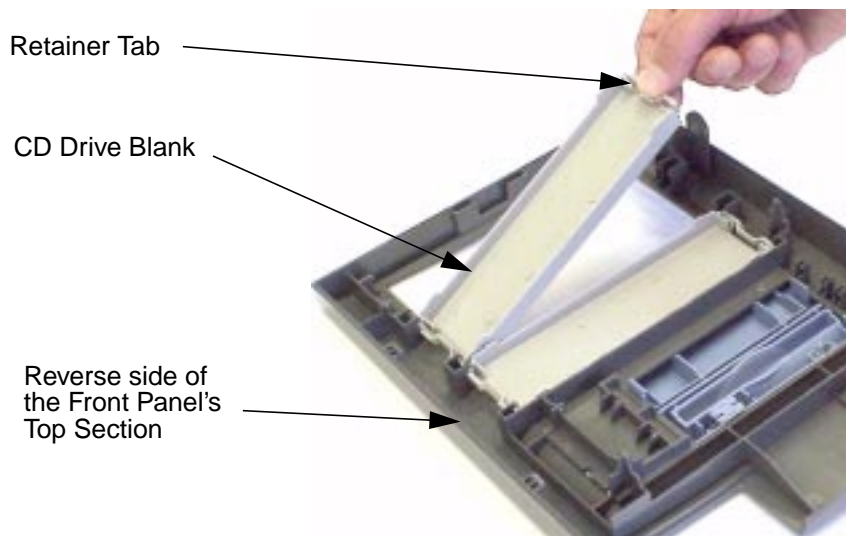
1. Remove the left-side panel and the top part of the front cover as explained in the sections “Removing the Left-Side Panel” and “Removing the Front Panel” in this chapter.

Opening Your Personal Workstation and Installing Accessories

Removable Media Devices

2. Perform this step if you already have a CD drive installed in the top shelf of your Personal Workstation's accessory chassis, and you want to install an additional CD drive.
 - a. Remove any blank that would prevent access to the CD drive from the front panel. Note to remove the blank you need to press inward on its plastic-retainer tab as shown in Figure 2-30.

Figure 2-30 Removing the Front Panel CD Drive Blank



- b. Remove the metal blank from the accessory chassis by placing your thumb into the hole on the left-side of the metal blank and pulling outward. See Figure 2-31.

Figure 2-31 Removing the Metal Blank from the Accessory Chassis



Opening Your Personal Workstation and Installing Accessories Removable Media Devices

3. Attach the guide rails to both sides of the CD Drive. The pins of the guide rail should be placed in the lower holes on the side of the CD drive. See Figure 2-32 and Figure 2-33.

NOTE

The CD drive guide rails are color coded black. They are located on the chassis of the CD drive bay area.

Figure 2-32 Attaching the Guide Rail to the CD Drive

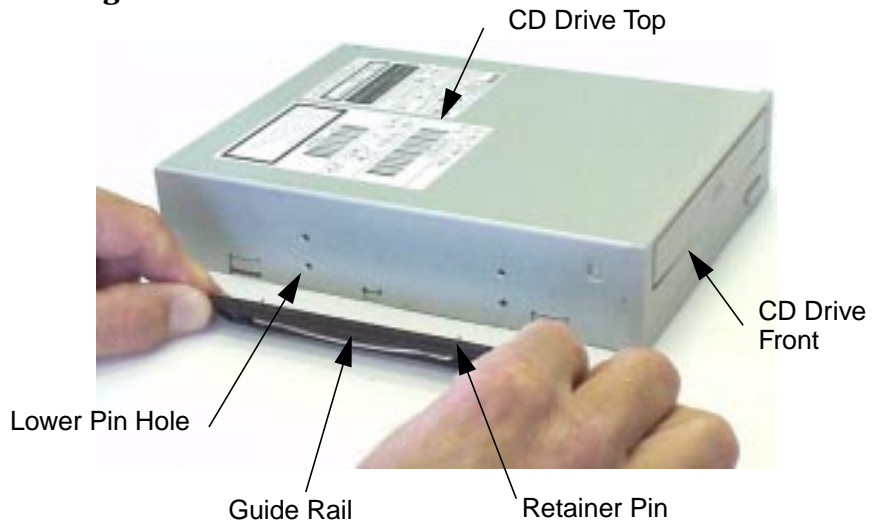
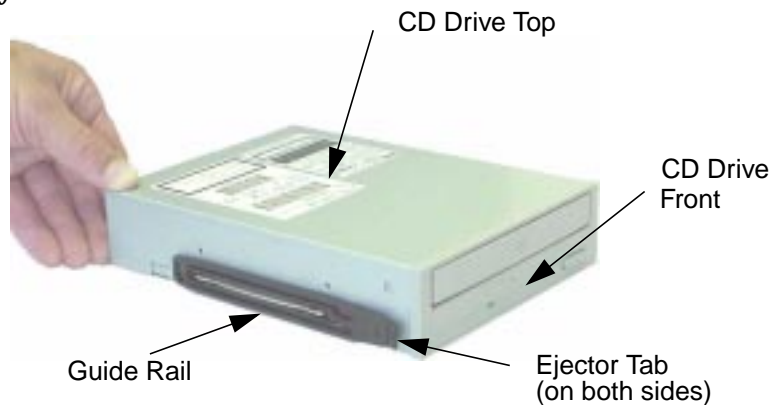


Figure 2-33 Properly Installed Guide Rail



4. Install the CD drive into the top shelf of the Personal Workstation's chassis as shown in Figure 2-34.

Figure 2-34 Install the CD Drive into the Top Shelf



5. Connect the audio, IDE and power cables to the connectors on the back of the CD drive. See the Figure 2-35, Figure 2-36 and Figure 2-37.

Figure 2-35 Connect the CD Drive Audio Cable

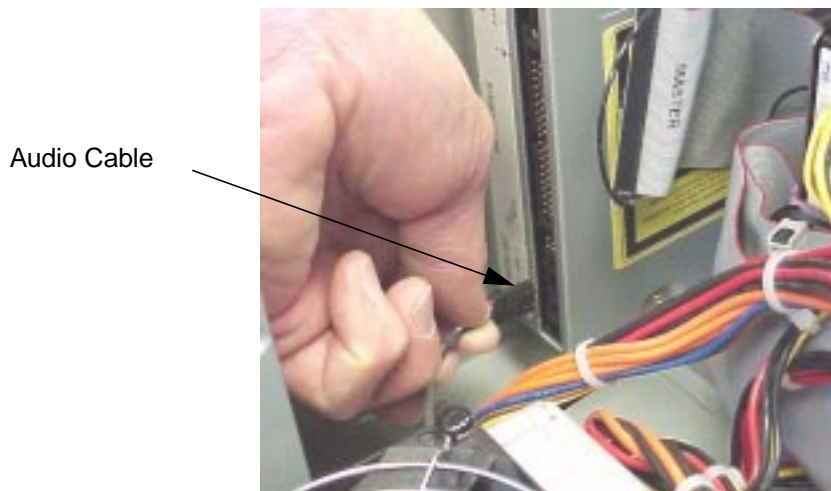


Figure 2-36 **Connect CD Drive IDE Cable**

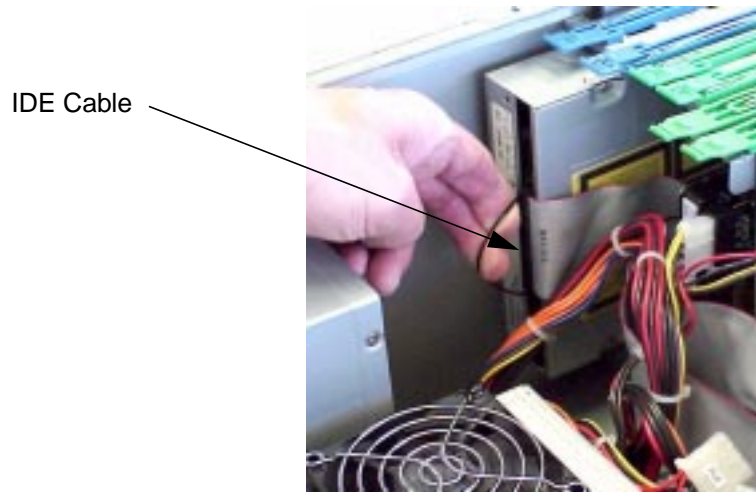
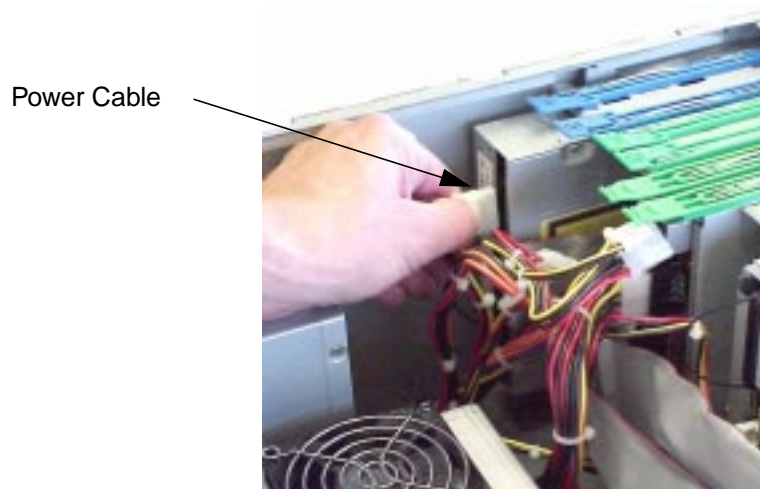


Figure 2-37 **Connect the CD Drive Power Cable**



6. Ensure all cables internal to the Personal Workstation are clear of any sharp edges or hot components. Next replace the top section of the front panel and the left-side panel of the Personal Workstation as explained in the sections “Replacing the Front Panel” and “Replacing the Left-Side Panel” in this chapter.

Removing a CD Drive

This procedure explains how to remove your CD drive from your Personal Workstation.

1. Remove the left-side panel and the top part of the front cover as explained in the sections “Removing the Left-Side Panel” and “Removing the Front Panel” in this chapter.
2. Disconnect the power, IDE and audio cables from the connectors on the back of the CD drive. See the Figure 2-38, Figure 2-39 and Figure 2-40.

Figure 2-38 **Disconnect the CD Drive Power Cable**

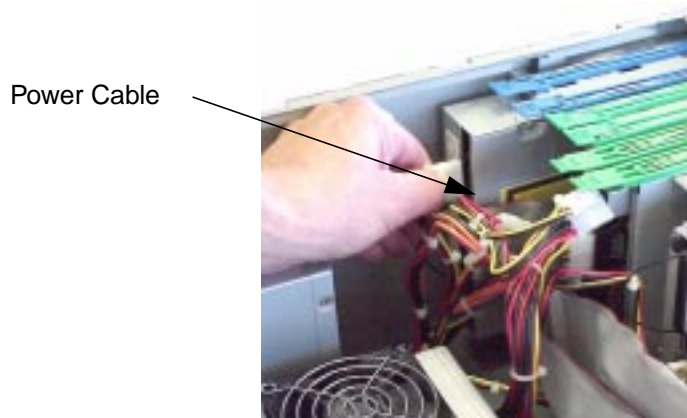


Figure 2-39 **Disconnect CD Drive IDE Cable**

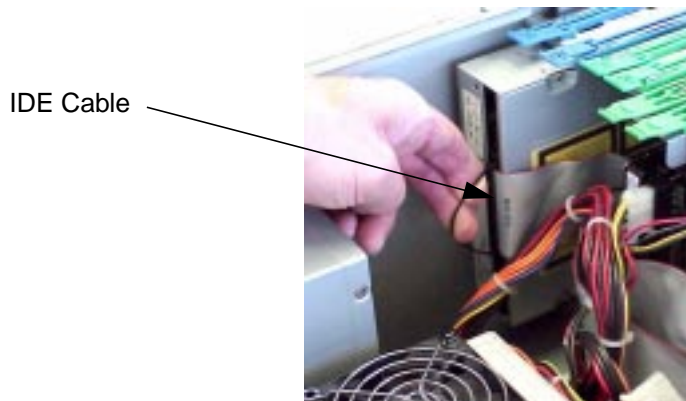
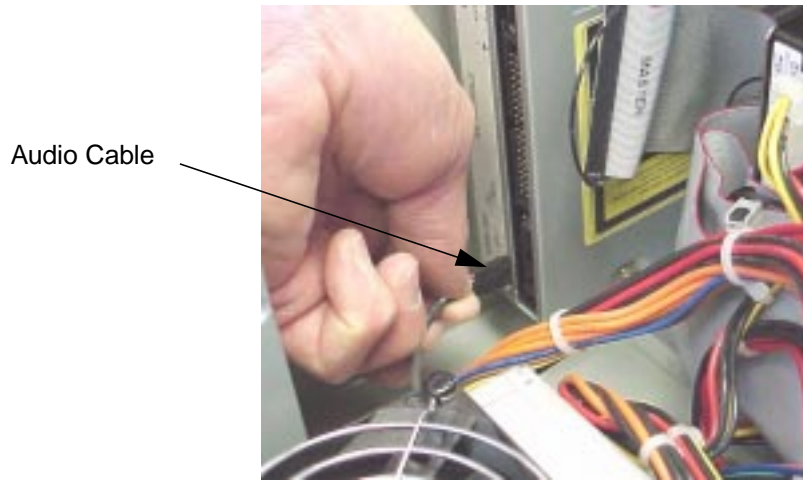


Figure 2-40 **Disconnect the CD Drive Audio Cable**



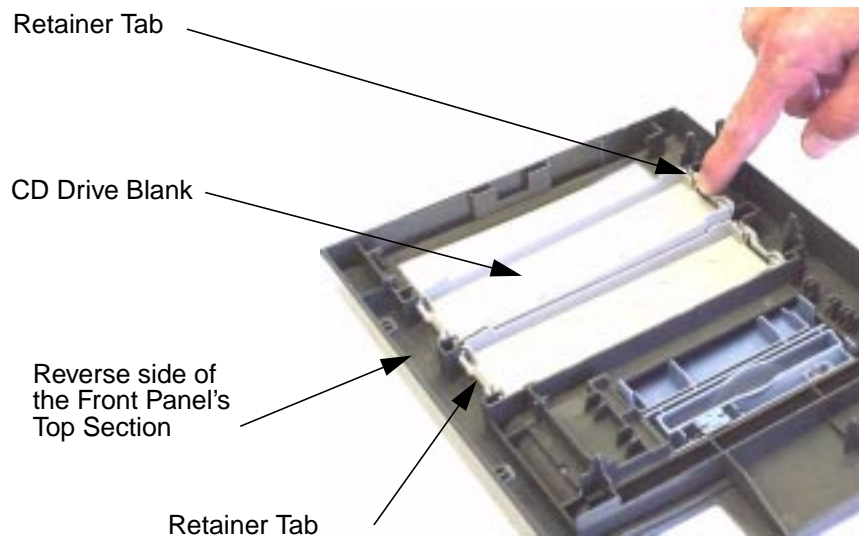
3. Remove the CD drive from the top shelf of the Personal Workstation's chassis as shown in Figure 2-41. You will need to press the black tabs on each guide rail against the CD drive and at the same time pull outward on the guide rails.

Figure 2-41 **Remove the CD Drive into the Top Shelf**



4. Perform this step if you already have a CD drive installed in the top shelf of your Personal Workstation's accessory chassis, and you are removing a CD drive other than the one located in the top accessory shelf.
 - a. Replace any blank that was removed from the CD drive's front panel. To replace the blank you need to press inward on its plastic-retainer tabs, and then place the blank into the front panel opening as shown in Figure 2-42.

Figure 2-42 Removing the Front Panel CD Drive Blank

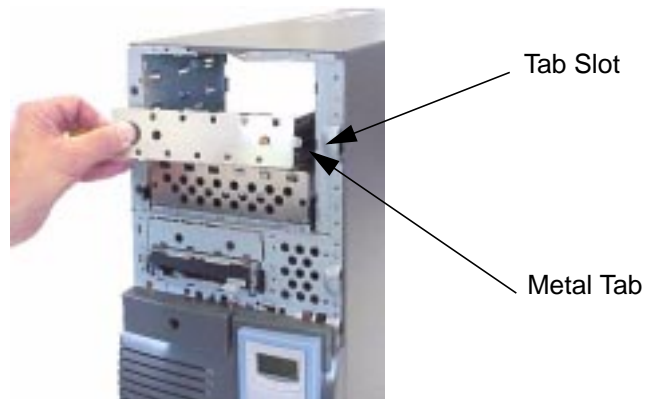


Opening Your Personal Workstation and Installing Accessories

Removable Media Devices

- b. Replace the metal blank in the accessory chassis where you removed the CD drive. To do this, you need insert your thumb into the hole on the left side of the metal blank. Then insert the metal tab on the right side of the metal blank into its slot on the accessory chassis and push inward on the metal blank until it locks in place. See Figure 2-43.

Figure 2-43 Replacing the Metal Blank into the Accessory Chassis



5. Ensure all cables internal to the Personal Workstation are clear of any sharp edges or hot components. Next replace the top section of the front panel and the left-side panel of the Personal Workstation as explained in the sections “Replacing the Front Panel” and “Replacing the Left-Side Panel” in this chapter.

Installing and Removing a Floppy Disk Drive

This section explains how to install and remove your floppy disk drive. Since a floppy disk drive comes installed in your Personal Workstation, the only time you will need to install a floppy disk drive is when you need to replace a faulty one.

WARNING

Turn the Personal Workstation off and unplug the power cord before installing or removing the floppy disk drive.

CAUTION

Floppy disk drives are susceptible to mechanical and electrical shock. When handling the drive, always wear the static-grounding strap that came with the floppy disk drive kit. Always handle the drive carefully.

Installing a Floppy Disk Drive

This procedure explains how to install your floppy disk drive in your Personal Workstation.

1. Remove the left-side panel and the top part of the front cover as explained in the sections “Removing the Left-Side Panel” and “Removing the Front Panel” in this chapter.
2. Remove the old floppy disk drive as explained in the subsequent section “Removing a Floppy Disk Drive” in this chapter.

Opening Your Personal Workstation and Installing Accessories
Removable Media Devices

3. Attach the guide rails to both sides of the floppy disk drive. See Figure 2-44 and Figure 2-45.

NOTE

The Floppy disk drive guide rails are color coded green. They are located on the chassis of the CD drive bay area.

Figure 2-44 Floppy Disk Drive and Guide Rails

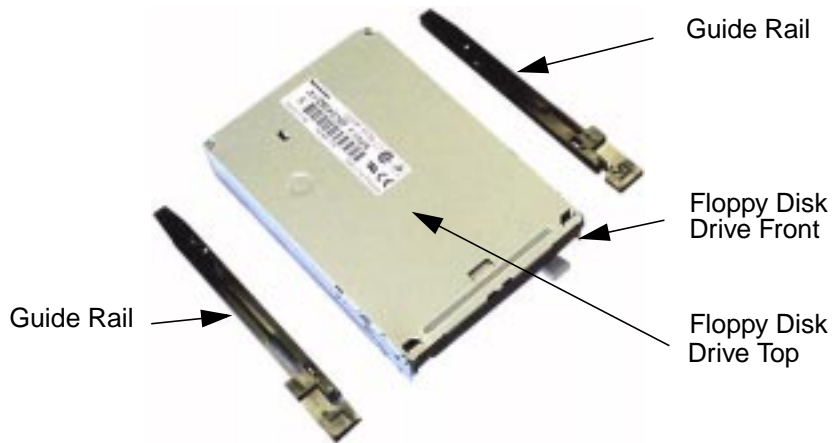
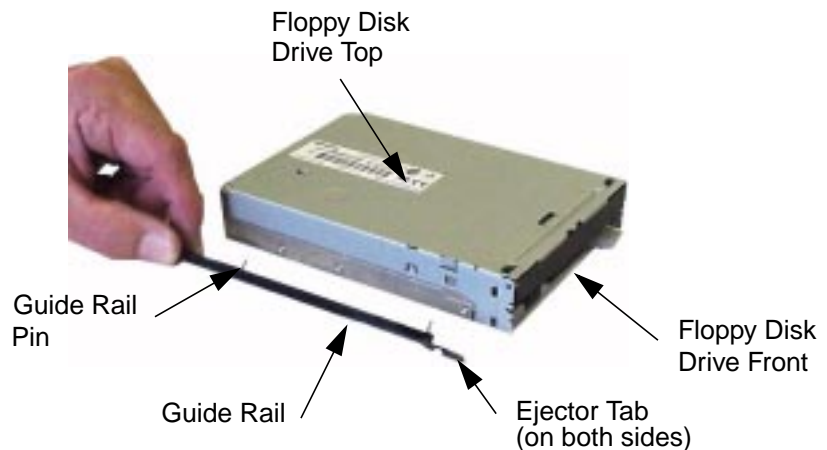
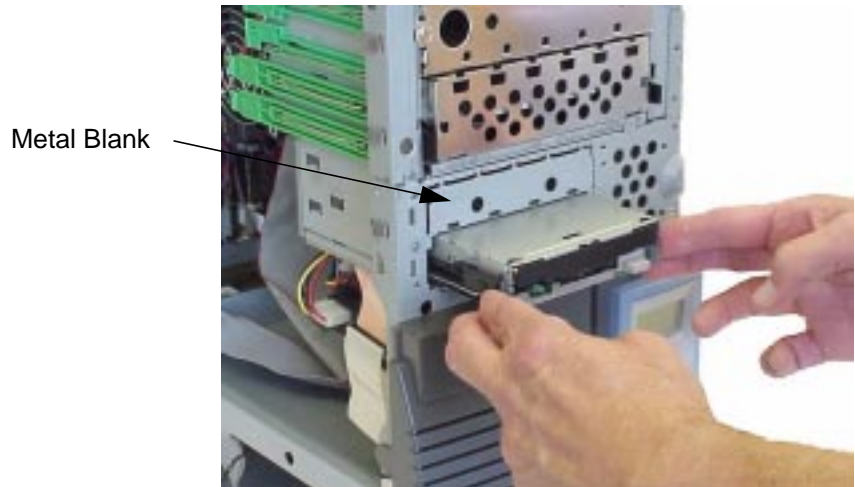


Figure 2-45 Attaching the Guide Rails to the Floppy Disk Drive



4. Install the floppy disk drive into the fifth-internal shelf down from the top of the Personal Workstation's chassis as shown in Figure 2-46. Note that there is a metal blank that can be removed from the floppy disk drive bay area for an additional floppy-size device to be installed.

Figure 2-46 **Install the Floppy Disk Drive into Its Shelf**



5. Connect the power and IDE cables to the connectors on the back of the floppy disk drive. See the Figure 2-47 and Figure 2-48.

Figure 2-47 **Connect the Floppy Disk Drive Power Cable**

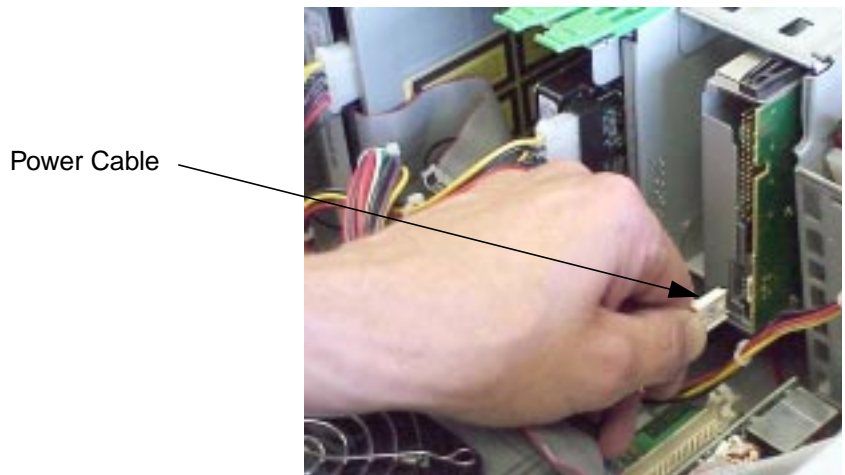
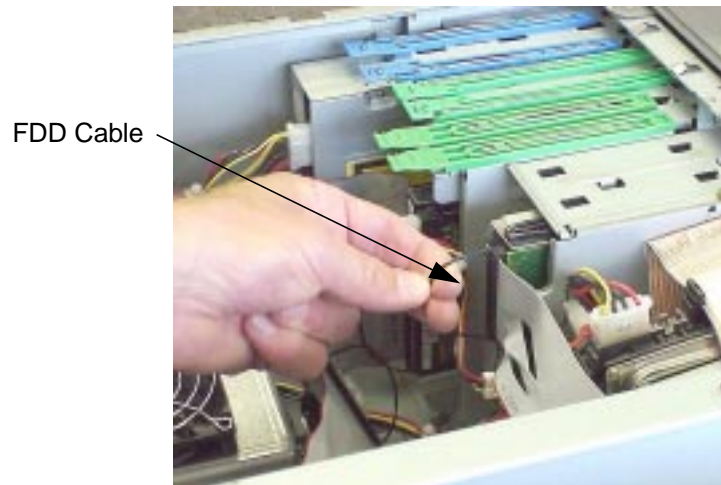


Figure 2-48 **Connect Floppy Disk Drive FDD Cable**



6. Ensure all cables internal to the Personal Workstation are clear of any sharp edges or hot components. Next replace the top section of the front panel and the left-side panel of the Personal Workstation as explained in the sections “Replacing the Front Panel” and “Replacing the Left-Side Panel” in this chapter.

Removing a Floppy Disk Drive

This procedure explains how to remove your floppy disk drive from your Personal Workstation.

1. Remove the left-side panel and the top part of the front cover as explained in the sections “Removing the Left-Side Panel” and “Removing the Front Panel” in this chapter.
2. Disconnect the IDE and power cables from the connectors on the back of the floppy disk drive. See the Figure 2-49 and Figure 2-50.

Figure 2-49 **Disconnect the Floppy Disk Drive FDD Cable**

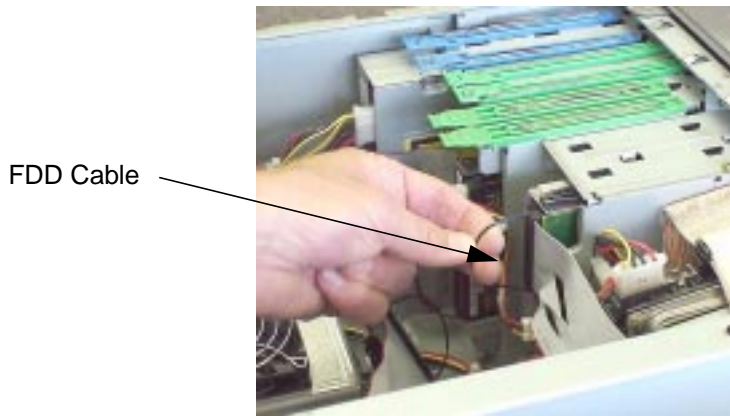
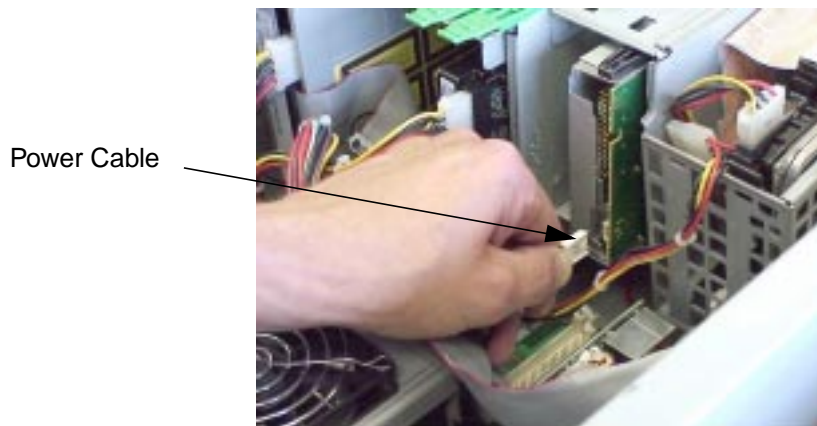


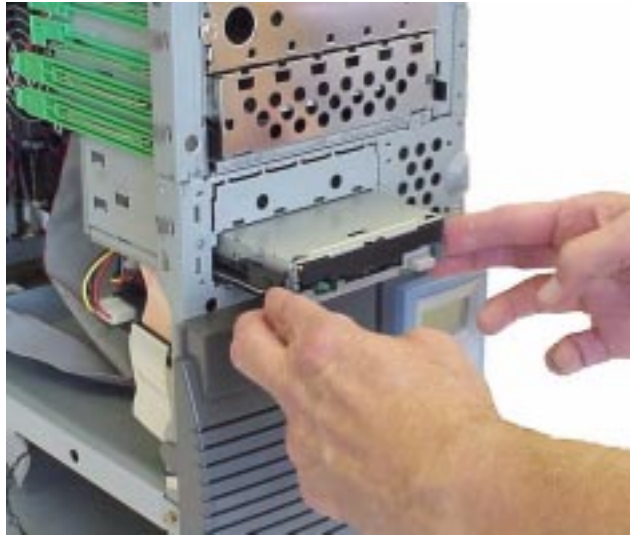
Figure 2-50 **Disconnect Floppy Disk Drive Power Cable**



Opening Your Personal Workstation and Installing Accessories
Removable Media Devices

3. Remove the floppy disk drive from the fifth-internal shelf down from the top of the Personal Workstation's chassis. To do this, press inward on the guide rail's retainer tabs and slide the floppy disk drive outward as shown in Figure 2-51.

Figure 2-51 Remove the Floppy Disk Drive from Its Shelf



4. Ensure all cables internal to the Personal Workstation are clear of any sharp edges or hot components. Next replace the top section of the front panel and the left-side panel of the Personal Workstation as explained in the sections “Replacing the Front Panel” and “Replacing the Left-Side Panel” in this chapter.

Hard Disk Drives

This section describes how to install and remove your Personal Workstation's hard disk drives. There is also a section on how to complete your hard disk drive installation.

Your Personal Workstation can have a maximum of three internal SCSI hard disk drives installed in the Personal Workstation. Two drives can be installed in the internal shelves of the hard disk drive bay area, and one of the hard disk drives can be install in an empty shelf of the CD drive bay area. You can only install a maximum of two IDE hard disk drive in the Personal Workstation, and both of these hard disk drives must be installed in the hard disk drive bay area. The IDE cable for the IDE hard disk drive must be connected to the primary IDE connector on the system board. Note that IDE and SCSI hard disk drives cannot be mixed.

For the purpose of this discussion, the SCSI and IDE cables will be called the interface cables.

NOTE

The hard disk drive guide rails are color coded blue. They are located on the chassis of the CD drive bay area.

CAUTION

Hard disk drives are susceptible to mechanical and electrical shock. When handling the drive, always wear the static-grounding strap that came with the hard disk drive kit. Always handle the drive carefully.

Installing a Hard Disk Drive

This procedure explains how to install your hard disk drive in your Personal Workstation. Since you can install a hard disk drive in the CD drive bay area, this section provides a procedure for doing this.

WARNING

Turn the Personal Workstation off and unplug the power cord before installing or removing the hard disk drive.

Installing a Hard Disk Drive in the Standard Hard Disk Drive Bay Area

1. Remove the left-side panel as explained in the section “Removing the Left-Side Panel” in this chapter.
2. Attach the guide rails to both sides of the hard disk drive. See Figure 2-52 and Figure 2-53. Note that the narrow blue plastic guide rails located on the chassis of the CD drive bay area are used on the hard disk drives.

Figure 2-52 Hard Disk Drive and Guide Rails

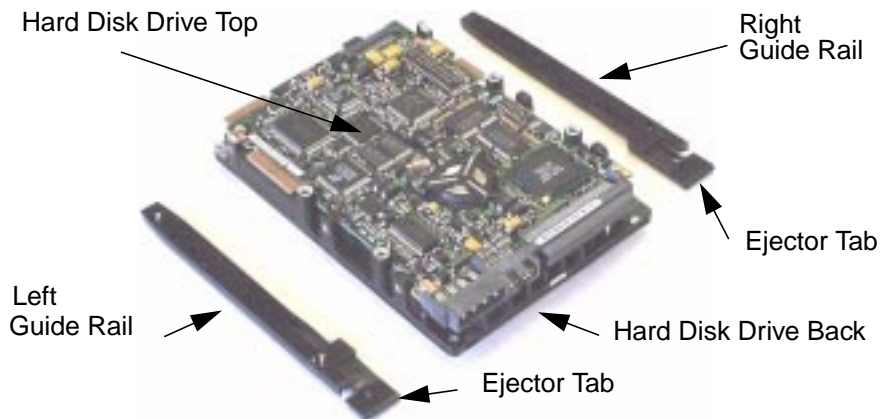
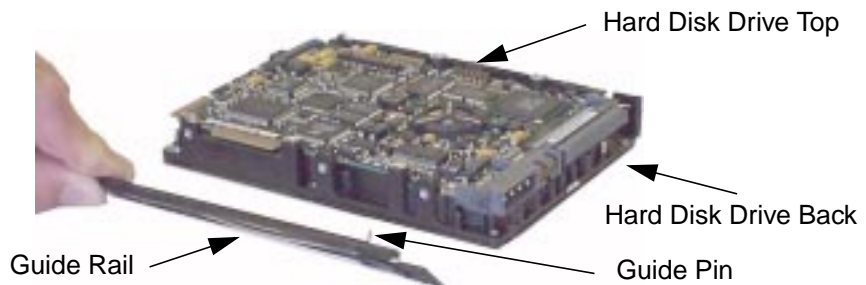


Figure 2-53 Attaching the Guide Rails to the Hard Disk Drive



3. Install the hard disk drive into the internal hard disk drive shelf. See Figure 2-54.

Figure 2-54 **Install the Hard Disk Drive into Its Shelf**



4. Connect the interface and power cables to the connectors on the back of the hard disk drive. See the Figure 2-55 and Figure 2-56.

Figure 2-55 **Connect the Hard Disk Drive Interface Cable**

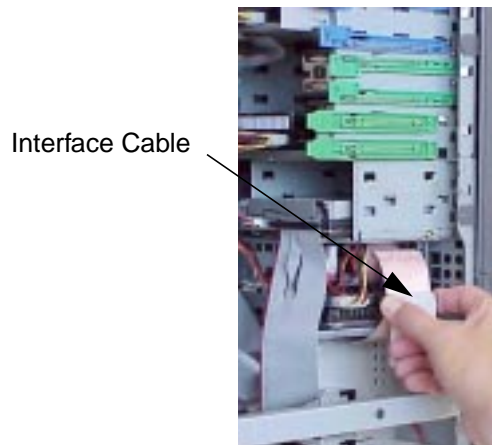
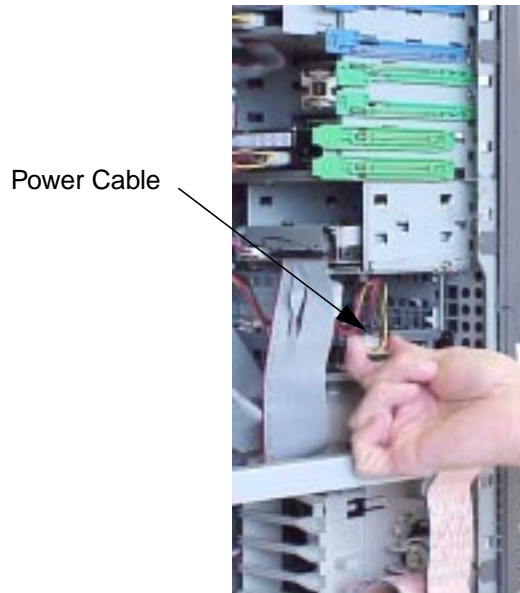


Figure 2-56 **Connect Hard Disk Drive Power Cable**

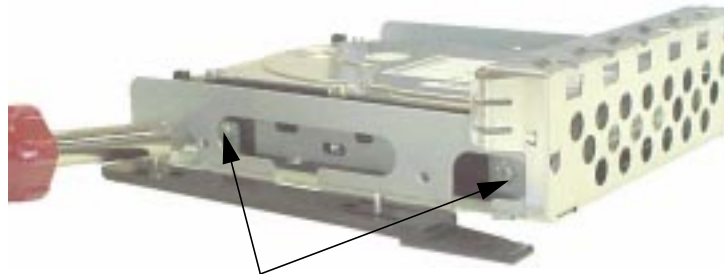


5. Ensure all cables internal to your Personal Workstation are clear of any sharp edges or hot components. Next replace the left-side panel of the Personal Workstation as explained in the section “Replacing the Left-Side Panel” in this chapter.

Installing a Hard Disk Drive in the CD Drive Bay Area

1. Remove the left-side panel and top front panel as explained in the sections “Removing the Left-Side Panel” and “Top Section Removal” in this chapter.
2. Install the hard disk drive in the special mounting bracket for the CD drive bay area using the four mounting screws if it has not already been installed. See Figure 2-57. Note that the mounting bracket is part of the hard disk drive kit.

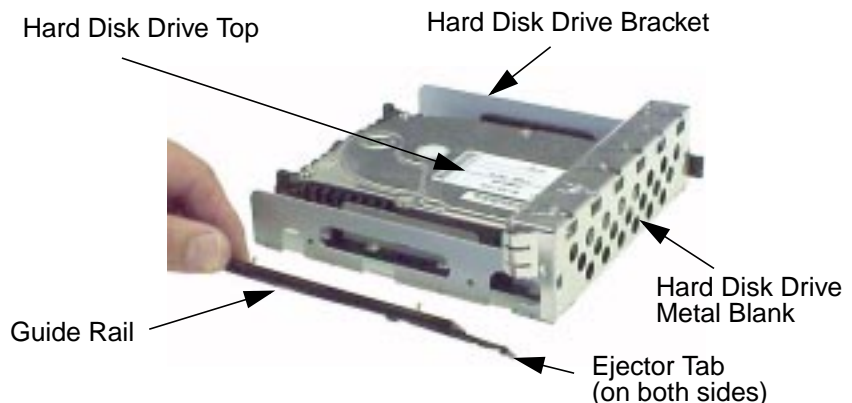
Figure 2-57 Installing the Hard Disk Drive in its Mounting Bracket



Slotted Mounting Screws (there are two on the other side)

3. Attach guide rails to both sides of the hard disk drive mounting bracket. See Figure 2-58. Note that the black plastic guide rails located on the CD drive bay area are used on the hard disk drive bracket.

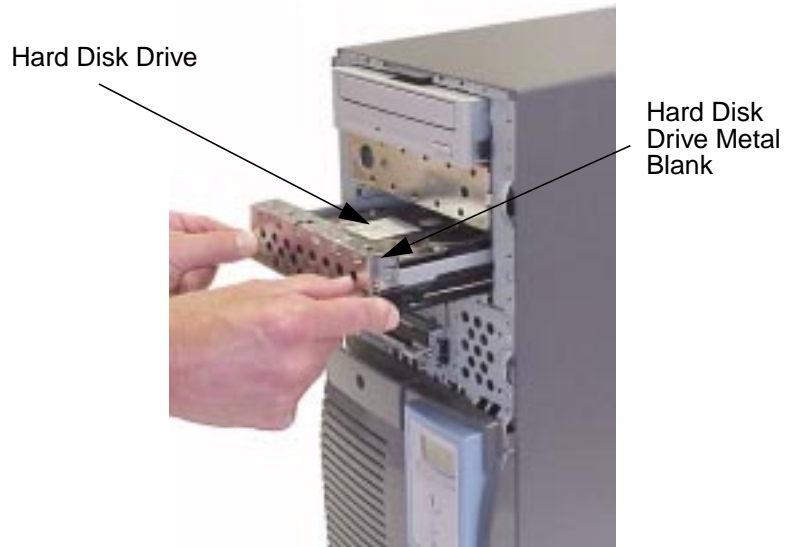
Figure 2-58 Attaching Guide Rails on the Hard Disk Drive Mounting Bracket



Opening Your Personal Workstation and Installing Accessories
Hard Disk Drives

4. Install the hard disk drive into the third-internal shelf down from the top of the CD drive bay area. See Figure 2-59.

Figure 2-59 Install the Hard Disk Drive into Its CD Drive Shelf



5. Connect the interface and power cables to the connectors on the back of the hard disk drive. See the Figure 2-60 and Figure 2-61.

Figure 2-60 **Connect the Hard Disk Drive Interface Cable**

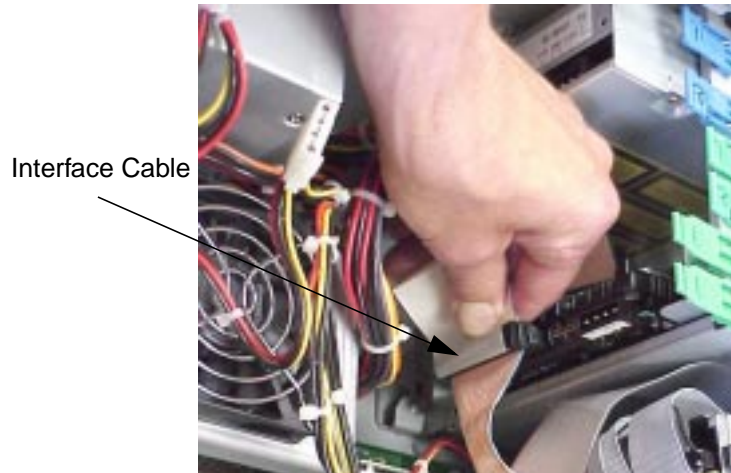
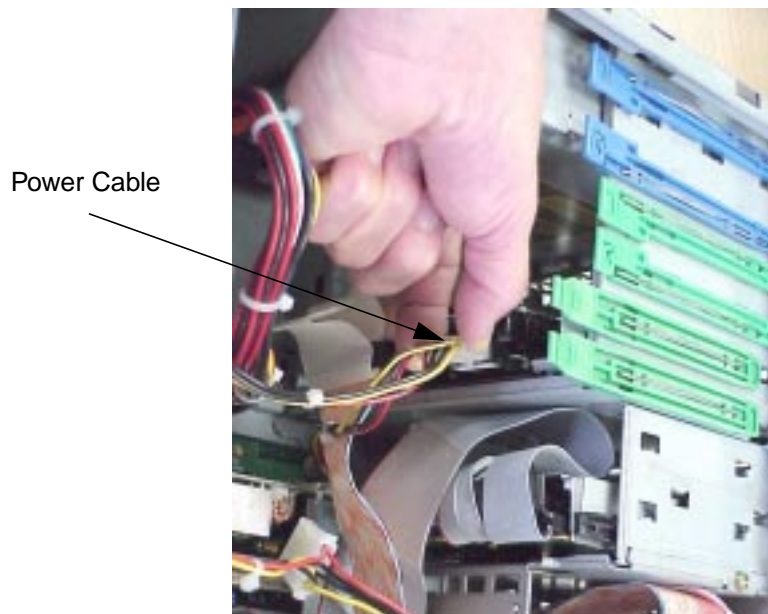


Figure 2-61 **Connect Hard Disk Drive Power Cable**



Opening Your Personal Workstation and Installing Accessories
Hard Disk Drives

6. Ensure all cables internal to the Personal Workstation are clear of any sharp edges or hot components. Next replace the left-side panel of the Personal Workstation as explained in the section “Replacing the Left-Side Panel” in this chapter.

Removing a Hard Disk Drive

This procedure explains how to remove your hard disk drive from your Personal Workstation. Since it is possible to have a hard disk drive installed in the CD drive bay, this section also explain how to remove a hard disk drive from the CD drive bay.

WARNING

Turn the Personal Workstation off and unplug the power cord before installing or removing the hard disk drive.

Removing a Hard Disk Drive from the Standard Hard Disk Drive Bay Area

1. Remove the left-side panel as explained in the section “Removing the Left-Side Panel” in this chapter.
2. Disconnect the interface and power cables from the connectors on the back of the hard disk drive. See the Figure 2-62 and Figure 2-63.

Figure 2-62 Disconnect the Hard Disk Drive Interface Cable

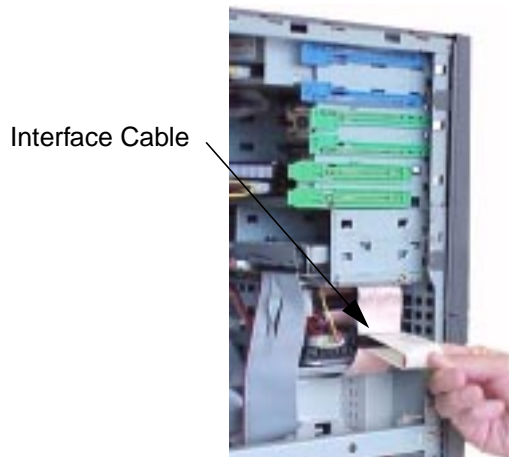
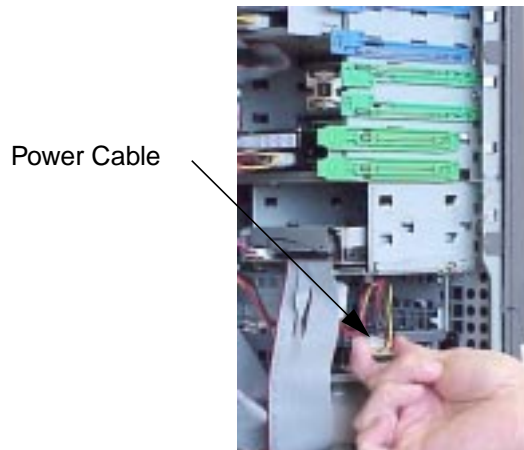


Figure 2-63 **Disconnect Hard Disk Drive Power Cable**



3. Remove the hard disk drive from the internal hard disk drive shelf. To do this, press inward on the guide rail's retainer tabs and slide the hard disk drive outward as shown in Figure 2-64.

Figure 2-64 **Remove the Hard Disk Drive from Its Shelf**



4. Ensure all cables internal to the Personal Workstation are clear of any sharp edges or hot components. Next replace the left-side panel of the Personal Workstation as explained in the section “Replacing the Left-Side Panel” in this chapter.

Removing a Hard Disk Drive from the CD Drive Bay

1. Remove the left-side panel and top front panel as explained in the sections “Removing the Left-Side Panel” and “Top Section Removal” in this chapter.
2. Disconnect the interface and power cables from their connectors on the back of the hard disk drive. See the Figure 2-65 and Figure 2-66.

Figure 2-65 **Disconnect the Hard Disk Drive Interface Cable**

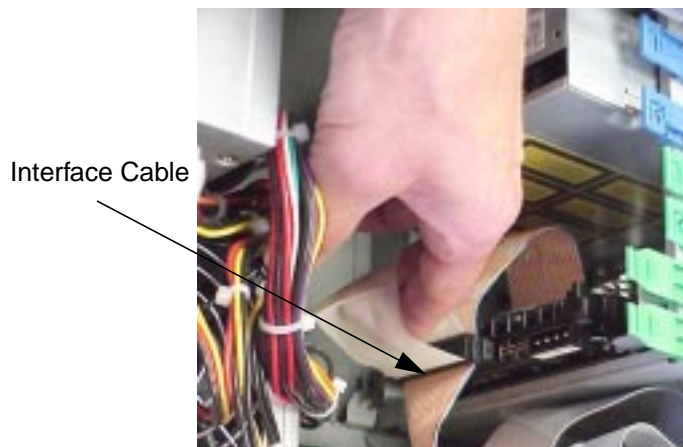
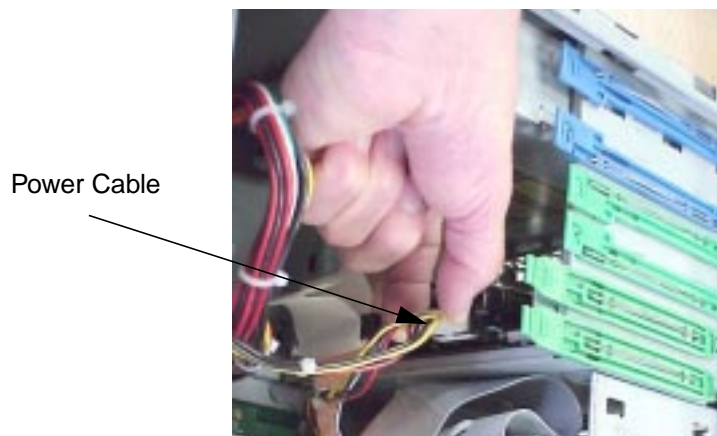


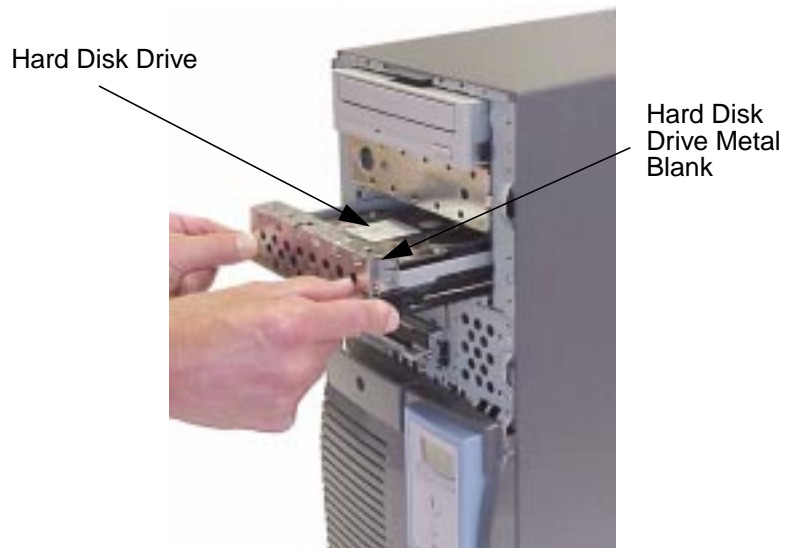
Figure 2-66 **Disconnect Hard Disk Drive Power Cable**



3. Remove the hard disk drive from the third-internal shelf down from

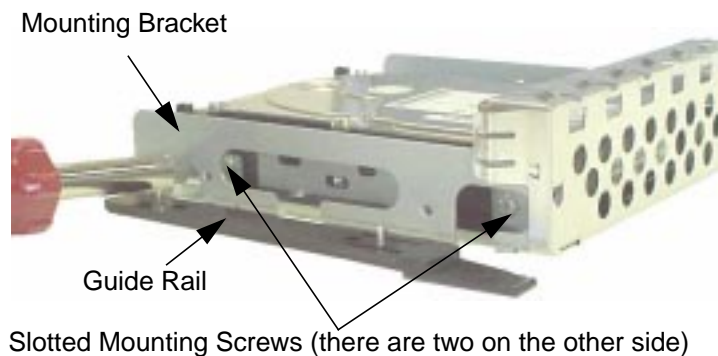
the top of the CD drive bay area. See Figure 2-67.

Figure 2-67 Remove the Hard Disk Drive From Its CD Drive Shelf



4. Remove both guide rails by lifting up on either end of the guide rails. They will snap off the mounting bracket. Next, remove the four mounting screws from the hard disk drive mounting bracket. See Figure 2-68.

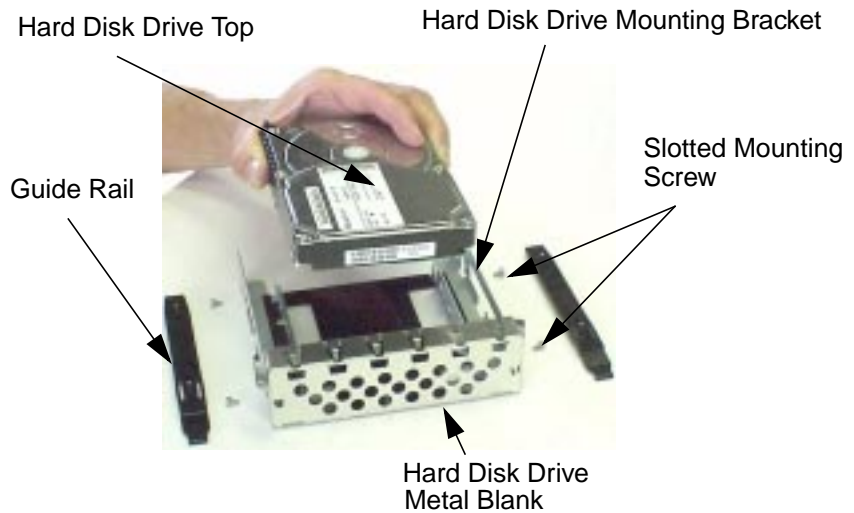
Figure 2-68 Removing the Hard Disk Drive Guide Rails and Mounting Screws



5. Remove the hard disk drive from the mounting bracket. See Figure

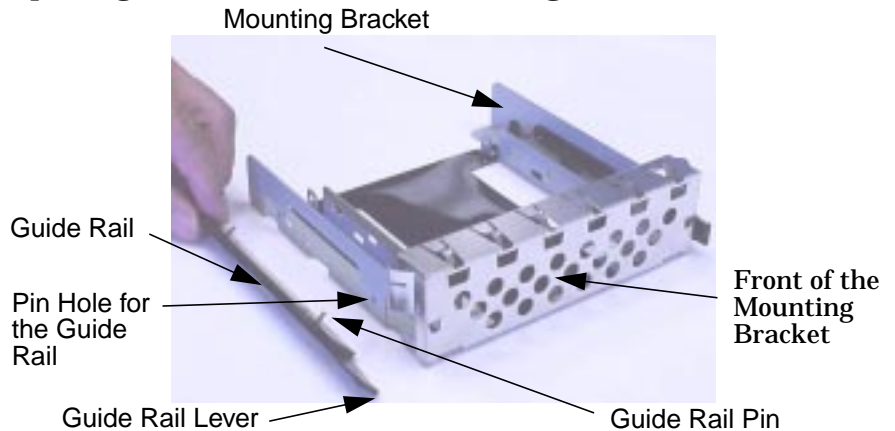
2-69.

Figure 2-69 Removing the Hard Disk Drive from Its Mounting Bracket



6. Replace the two guide rails on the hard disk drive mounting bracket. Note that the guide rail pins fit into the appropriate pin holes on the mounting bracket, and the guide rail lever needs to be located toward the front of the mounting bracket. See Figure 2-70.

Figure 2-70 Replacing the Hard Disk Drive Mounting Bracket Guide Rails



Opening Your Personal Workstation and Installing Accessories

Hard Disk Drives

7. Install the hard disk drive mounting bracket in the third shelf down from the top of the CD drive's bay area. To do this, align the guide rails with the bay area guide and slide the mounting bracket into the bay area until it snaps in place. See Figure 2-71.

Figure 2-71 **Install the Hard Disk Drive Mounting Bracket**




8. Ensure all cables internal to the Personal Workstation are clear of any sharp edges or hot components. Next replace the top section of the front panel and the left-side panel of the Personal Workstation as explained in the sections “Replacing the Top Section” and “Replacing the Left-Side Panel” in this chapter.

Installing and Removing Accessory Boards

Your Personal Workstation has six I/O slots available for installing I/O cards in that are AGP Pro and PCI compatible. See Figure 2-72.

Figure 2-72

I/O Card Slots and their Capabilities

Slot Number		
AGP Pro		AGP Pro
5		32-bit PCI, 33 MHz, 5 V
4		32-bit PCI, 33 MHz, 5 V
3		32-bit PCI, 33 MHz, 5 V
2		64-bit PCI, 66 MHz, 3.3 V
1		64-bit PCI, 66 MHz, 3.3 V

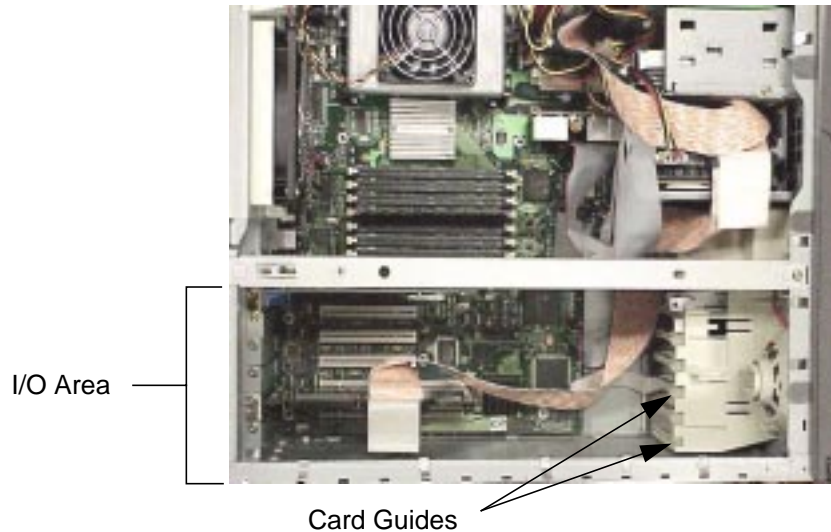
NOTE

Each of the I/O slots on the system board are keyed to allow for proper installation of accessory cards. The exception is the AGP Pro card slot. This slot is not keyed so that it can maintain the capability of supporting 3.3 volt AGP Pro cards.

Opening Your Personal Workstation and Installing Accessories
Installing and Removing Accessory Boards

This Personal Workstation's AGP Pro and PCI card slots can hold both the full-size and short cards. The installation and removal procedures in this section are demonstrated using the short cards. There are, however, guides on the fan mount in the I/O area of your Personal Workstation that accommodate the full-size cards. See Figure 2-73.

Figure 2-73 **Card Guides for the Full-Size I/O Cards**



NOTE: The above Figure shows the eight X-Class memory slots. The P-Class has four slots.

This section does not refer to the installation of a specific I/O card. For information on your I/O card, refer to the manual that was shipped with your card.

AGP Pro Accessory Board Slot

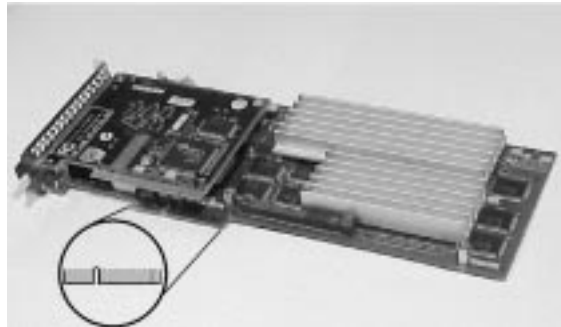
The Accelerated Graphics Port Pro (AGP Pro) bus, provides a high performance graphics interface. This new AGP Pro connector provides more power for our high performance HP VISUALIZE fx^4+ and HP VISUALIZE $fx6+$ graphics cards, however, you need to note the following **CAUTION** statement.

CAUTION

Do not plug in a fx^4 (D5511-69501), fx^6 (D6796-69501), fx^2+ (A5013-69001), fx^4+ (A5012-69001) or fx^6+ (D6796-69501) graphics card into the AGP Pro slot as this will result in damage to your system board. See Figure 2-74.

Figure 2-74

HP VISUALIZE fx AGP Connector that is Not Supported



Installing I/O Cards

The procedure in this section explains how to install I/O cards in the I/O card slots on the system board.

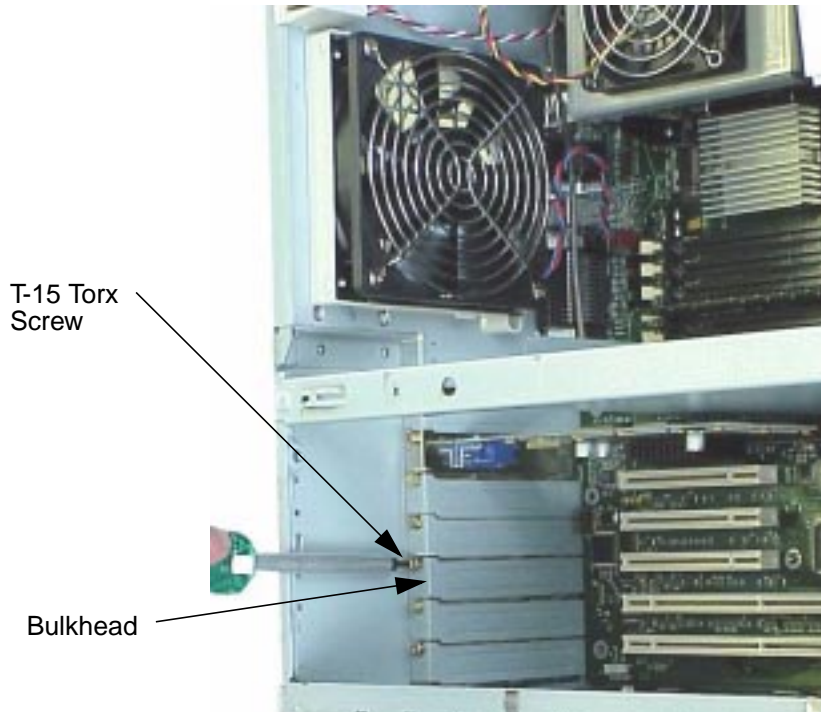
WARNING

Turn the Personal Workstation off and unplug the power cord before installing or removing I/O cards.

To install your I/O card, follow this procedure:

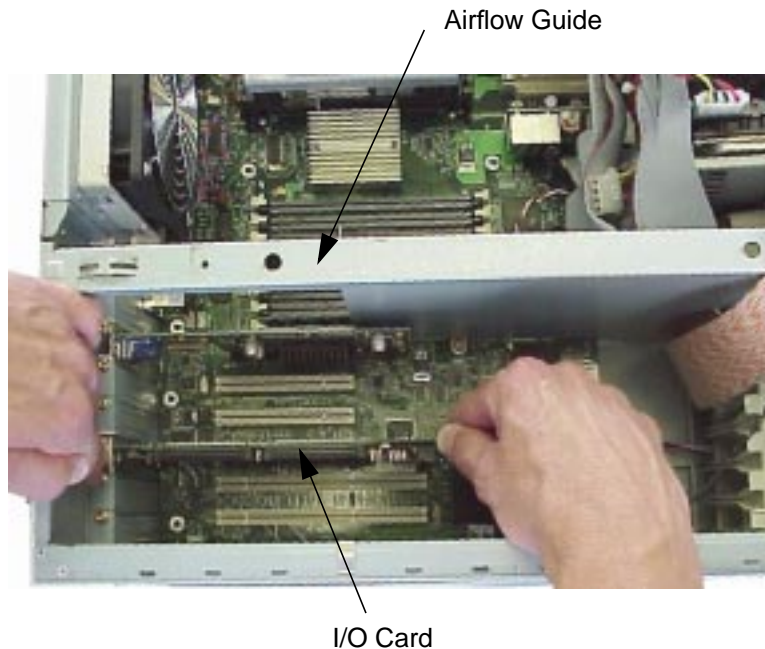
1. Remove the left-side panel as explained in the section “Removing the Left-Side Panel” in this chapter.
2. Remove the T-15 Torx screw from the bulkhead as shown in Figure 2-75.

Figure 2-75 Removing the T-15 Torx Screw and Bulkhead



3. Take your I/O card out of its anti-static bag making sure you are wearing the static-grounding strap that was shipped with your I/O card.
4. Install the I/O card into its connector on the system board. Note that you should position the I/O card's connector port so that it fits through the opening you created when you removed the bulkhead for the I/O card's connector. You need to press firmly downward on the I/O card when putting it into its connector on the system board. The contact fingers of the I/O card should fit snugly in the connector. See Figure 2-76.

Figure 2-76 **Installing the I/O Card**



Opening Your Personal Workstation and Installing Accessories
Installing and Removing Accessory Boards

5. Screw the T-15 Torx screw into the slot at the top of the I/O card's bulkhead. See Figure 2-77.

Figure 2-77 **Completing the I/O Card Installation**



6. Ensure all cables internal to the Personal Workstation are clear of any sharp edges or hot components. Next replace the left-side panel of the Personal Workstation as explained in the section “Replacing the Left-Side Panel” in this chapter.

Removing I/O Cards

The procedure in this section explains how to remove I/O cards from the I/O card slots on the system board.

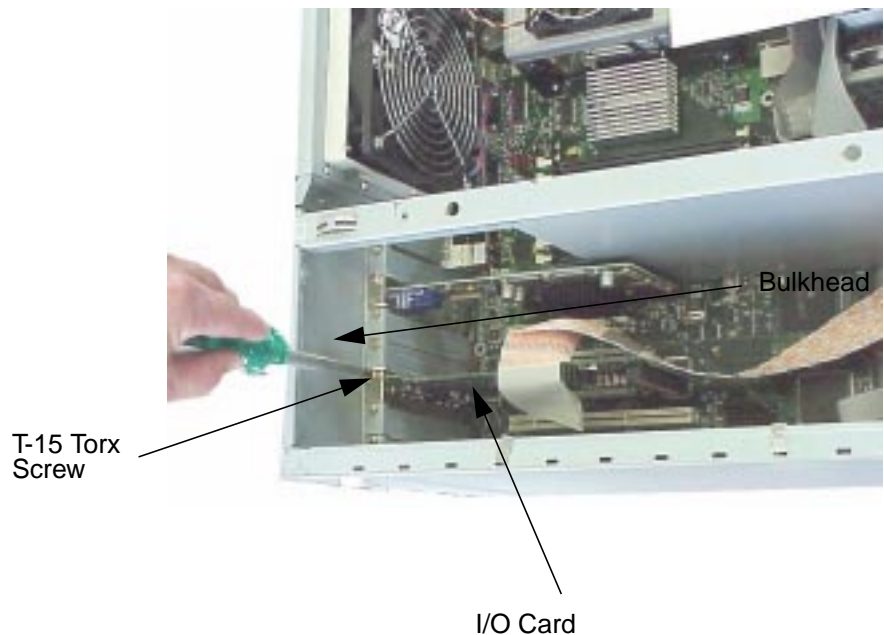
WARNING

Turn the Personal Workstation off and unplug the power cord before installing or removing I/O cards.

To remove your I/O card, follow this procedure:

1. Remove the left-side panel as explained in the section “Removing the Left-Side Panel” in this chapter.
2. Unscrew the T-15 Torx screw from the I/O card’s bulkhead as shown in Figure 2-78.

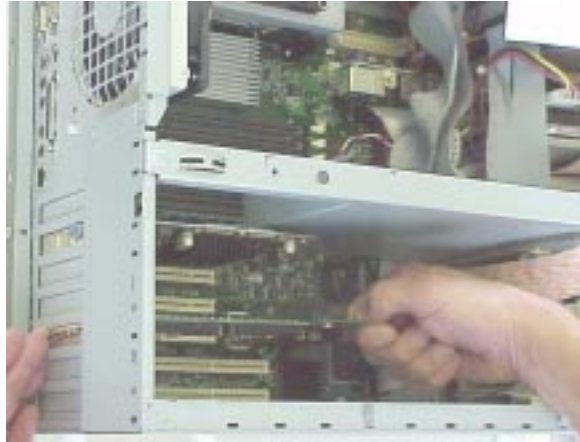
Figure 2-78 Removing the I/O Card’s T-15 Torx Screw



Opening Your Personal Workstation and Installing Accessories
Installing and Removing Accessory Boards

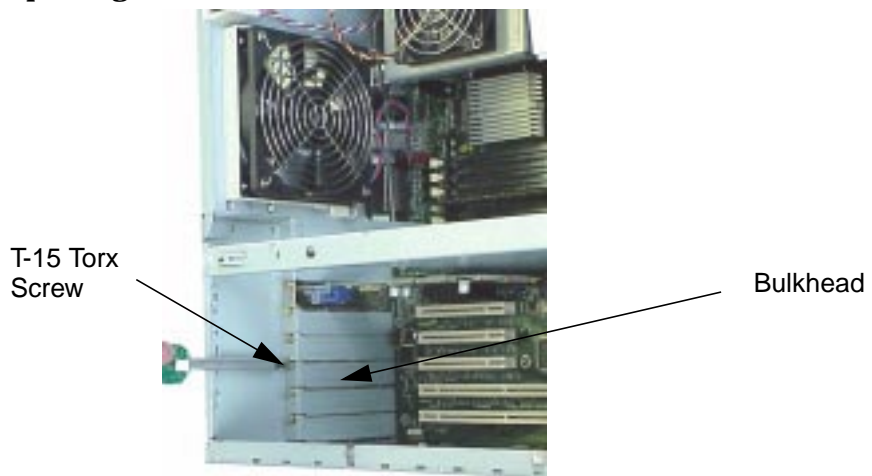
3. Remove the I/O card from the I/O connector on the system board. Note that you should lift upward on the I/O card's bulkhead and its opposite edge. See Figure 2-79.

Figure 2-79 **Removing the I/O Card**



4. Place your I/O card in its anti-static bag making sure you are wearing the static-grounding strap that was shipped with your I/O card.
5. Replace the bulkhead blank as shown in Figure 2-80.

Figure 2-80 **Replacing the Bulkhead Blank**



6. Ensure all cables internal to the Personal Workstation are clear of any sharp edges or hot components. Next replace the left-side panel of the Personal Workstation as explained in the section “Replacing the Left-Side Panel” in this chapter.

Installing and Removing a Processor

There are two processor slots on your system board. This section will discuss the installation and removal of the processor from processor slot B. See Figure 2-81.

CAUTION

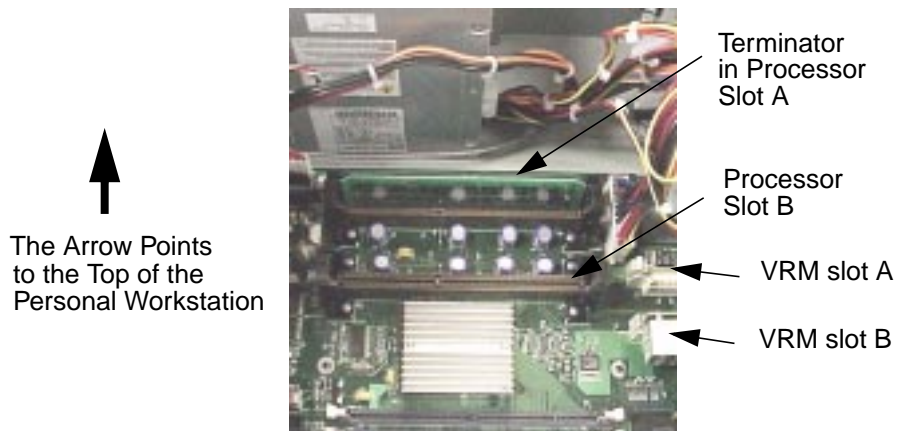
The processor is susceptible to mechanical and electrical shock. When handling the processor, always wear the static-grounding strap that came with the processor kit. Always handle the processor carefully.

CAUTION

If your system only has a single processor, there must be a terminator card (see Figure 2-81) in processor slot A and a Voltage Regulator Module (VRM) in VRM slot B before turning on power to the Personal Workstation. The terminator card is pre-installed in your Personal Workstation if you are using only one processor. For information on installation and removal of the VRM component, read the section “Installing and Removing a Voltage Regulator Module” in this chapter.

Figure 2-81

Processor Connectors and Terminator



Removing the Processor

The procedure in this section explains how to remove a processor from your Personal Workstations system board. Note that this section assumes you have a need for removing the current processor and replacing it with a new one as explained in the section “Installing a Processor” in this chapter.

WARNING

Turn the Personal Workstation off and unplug the power cord before installing or removing the processor.

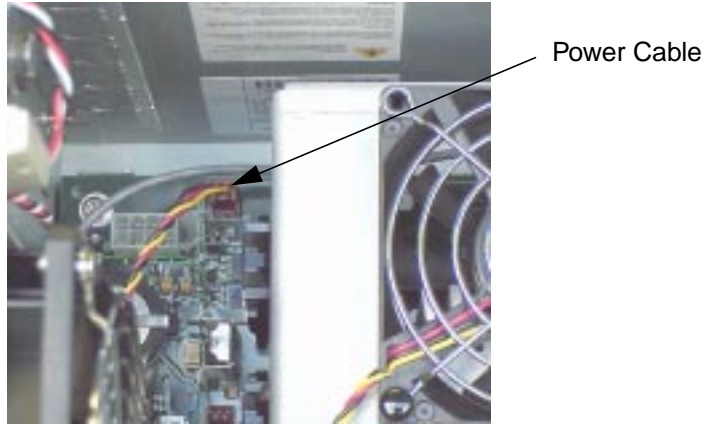
To remove a processor, follow this procedure:

1. Remove the left-side panel as explained in the section “Removing the Left-Side Panel” in this chapter.
2. Put on the static-grounding strap that was shipped with your processor and attach it to the metal chassis of your Personal Workstation. Next, remove the processor from its anti-static bag.

Opening Your Personal Workstation and Installing Accessories
Installing and Removing a Processor

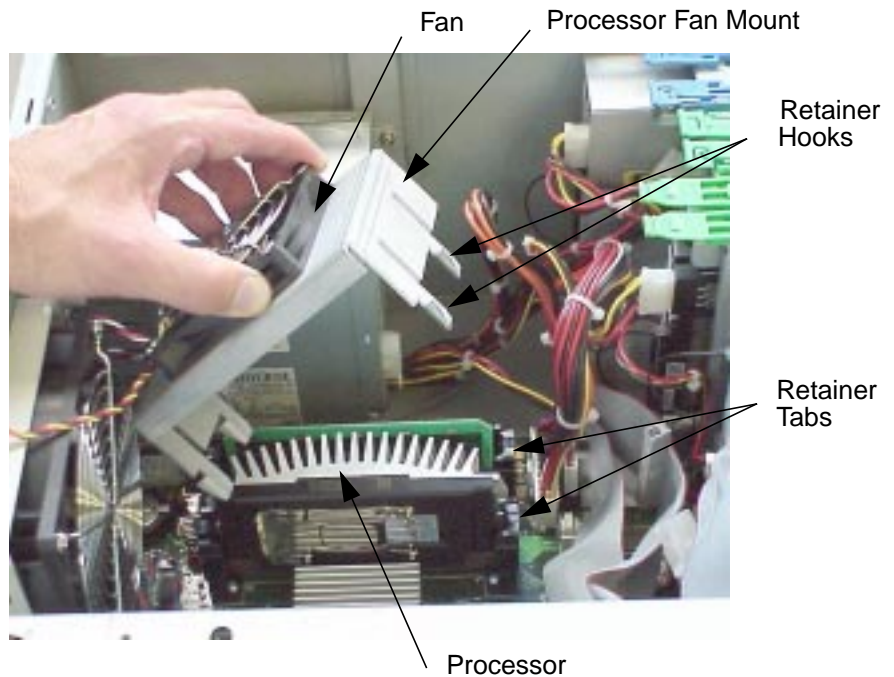
3. Disconnect the power cable for the processor's fan from the system board. See Figure 2-82.

Figure 2-82 **Disconnect the Power Cable for the Processor's Fan**



4. Remove the fan mount from the processor connectors. To do this you will have to pull outward on the retainer tabs located at the ends of each processor connector. This will release the fan mount retainer hooks from the connector's retainer tabs. See Figure 2-83. Note that it is easiest to remove the processor fan mount by removing one side at a time.

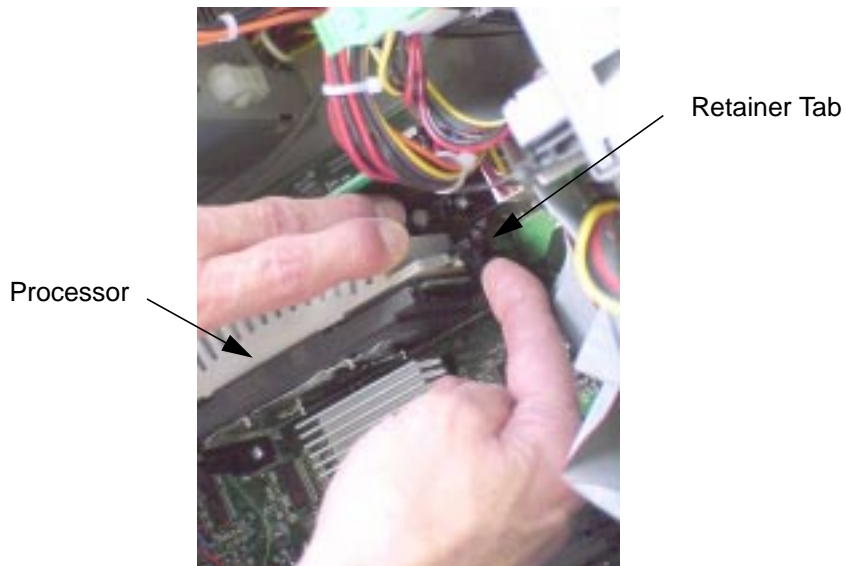
Figure 2-83 Remove the Fan Mount from the Processor Connectors



Opening Your Personal Workstation and Installing Accessories
Installing and Removing a Processor

5. Remove the processor from its connector on the system board. To do this, pull outward on the right connector's retainer tab (relative to the top of the Personal Workstation) and lift upward on the right edge of the processor board. You will need to do the same thing to the left side of the processor. See Figure 2-84. Note that you can hold the processor's heat sink in the hand you are not using for lifting; however, the heat sink should not be used as a handle for removing or replacing the processor.

Figure 2-84 Remove the Processor



6. Install the new processor into the processor connector as explained in the section “Installing a Processor” in this chapter.
7. Ensure all cables internal to the Personal Workstation are clear of any sharp edges or hot components. Next replace the left-side panel of the Personal Workstation as explained in the section “Replacing the Left-Side Panel” in this chapter.

Installing a Processor

The procedure in this section explains how to install a processor on your Personal Workstations system board. This section also assumes that you are replacing your current processor.

WARNING

Turn the Personal Workstation off and unplug the power cord before installing or removing the processor.

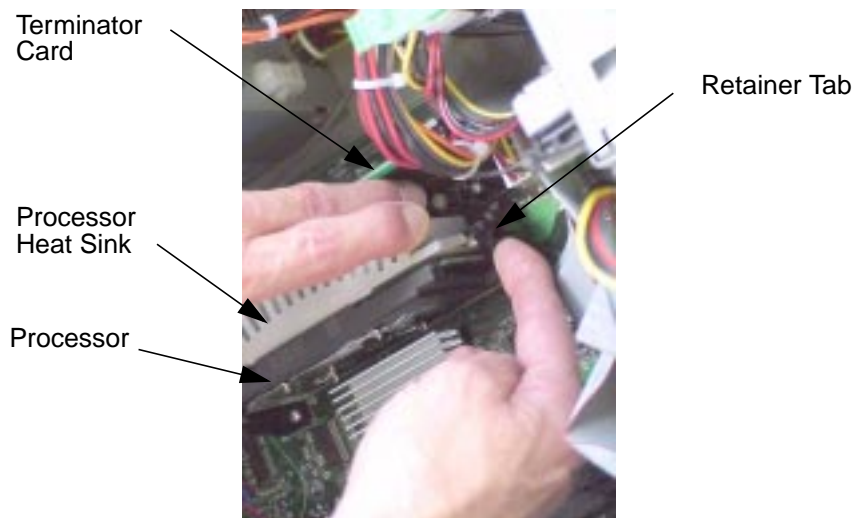
To install a processor, follow this procedure:

1. Remove the left-side panel as explained in the section “Removing the Left-Side Panel” in this chapter.
2. Put on the static-grounding strap that was shipped with your processor and attach it to the metal chassis of your Personal Workstation. Next, grasp hold of the processor by its edges and remove it from its anti-static bag.
3. Remove the fan mount from the processor connectors and the processor that your are replacing from its connector, as explained in the section “Removing a Processor” in this chapter.

Opening Your Personal Workstation and Installing Accessories
Installing and Removing a Processor

4. Install the processor in its connector on the system board. To do this, pull outward on the right connector's retainer tab (relative to the top of the Personal Workstation) and push inward on the right edge of the processor board. You will need to do the same thing to the left side of the processor. See Figure 2-85. Note that you can hold the processor's heat sink in the hand you are not using for pushing; however, the heat sink should not be used as a handle for removing or replacing the processor.

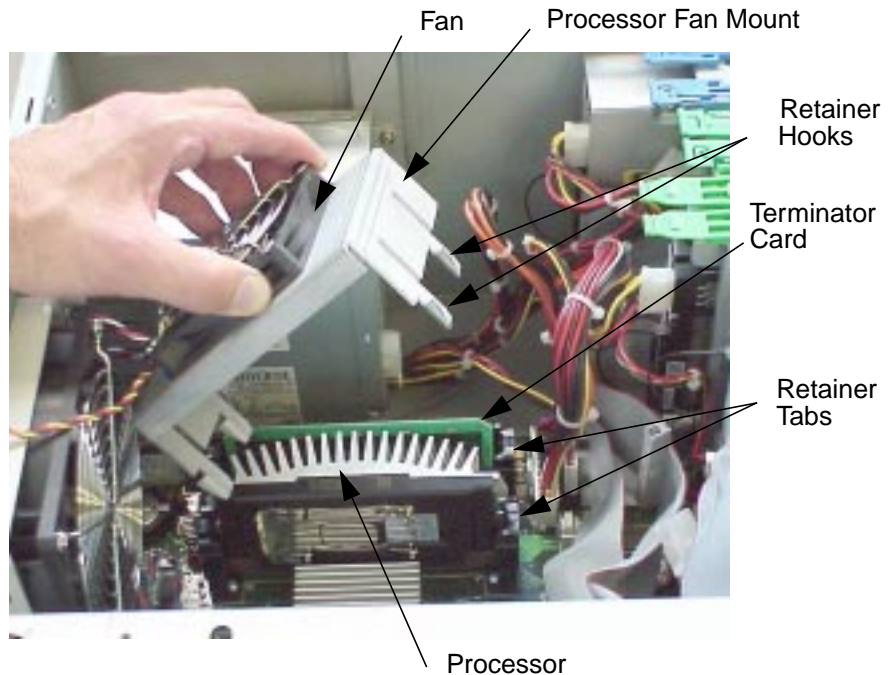
Figure 2-85 **Installing the Processor**



Press down firmly on the processor and terminator card to ensure they are properly seated in their connectors.

5. Place the four retainer hooks, located on the processor fan mount, into their retainer tabs on the processor connectors. You will have to pull outward on the retainer tabs and push firmly downward on the fan mount to secure the fan mount in place over the top of the processor and the terminator card. See Figure 2-86.

Figure 2-86 Placing the Fan Mount Over the Processors



Opening Your Personal Workstation and Installing Accessories
Installing and Removing a Processor

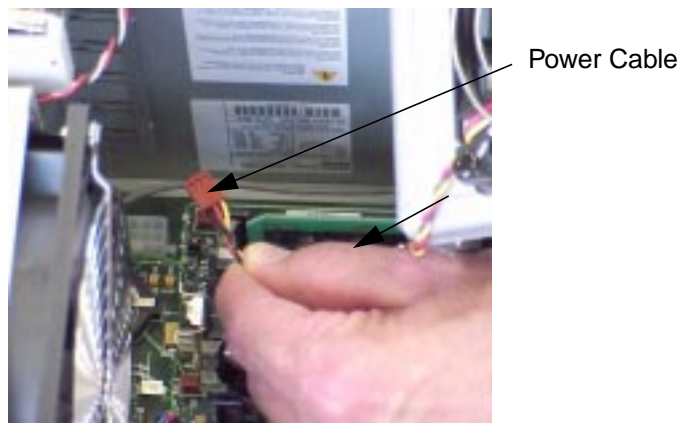
6. Complete the installation of the processor fan mount. See Figure 2-87.

Figure 2-87 **Installing the Processor Fan Mount**



7. Connect the power cable for the processor's fan to the system board. See Figure 2-88.

Figure 2-88 **Connect the Power Cable for the Processor's Fan**



8. Ensure all cables internal to the Personal Workstation are clear of any sharp edges or hot components. Next replace the left-side panel of the Personal Workstation as explained in the section “Replacing the Left-Side Panel” in this chapter.

Installing and Removing a Voltage Regulator Module (VRM)

There are two Voltage Regulator Module (VRM) slots on your system board. This section will discuss the installation and removal of the VRM from VRM slot B. See Figure 2-89.

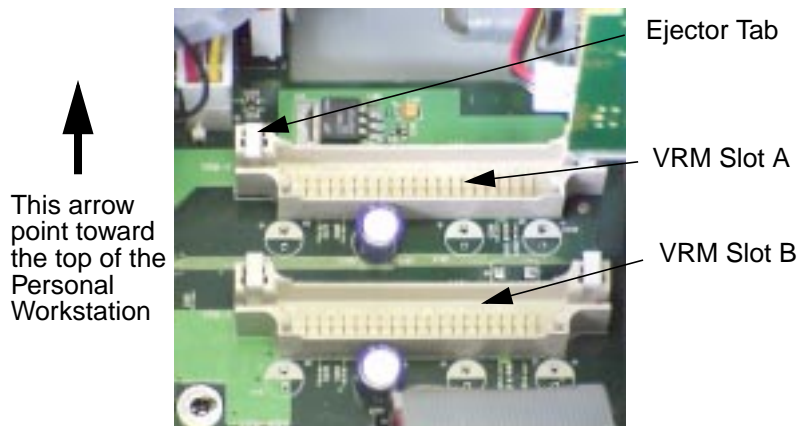
CAUTION

The Voltage Regulator Module (VRM) is susceptible to mechanical and electrical shock. When handling the VRM, always wear the static-grounding strap that came with the VRM kit. Always handle the VRM carefully.

CAUTION

If your system only has a single processor, there must be a terminator card (see Figure 2-81) in processor slot A and a Voltage Regulator Module (VRM) in VRM slot B (see Figure 2-89) before turning on power to your Personal Workstation. The terminator card is pre-installed in your Personal Workstation if you are using only one processor.

Figure 2-89 Voltage Regulator Module (VRM) Slots



Removing a Voltage Regulator Module

The procedure in this section explains how to remove a Voltage Regulator Module (VRM) from your Personal Workstations system board. Note that this section assumes you have a need for removing the original VRM, and replacing the current VRM with a new one as explained in the section “Installing a Voltage Regulator Module” in this chapter.

WARNING

Turn the Personal Workstation off and unplug the power cord before installing or removing the Voltage Regulator Module.

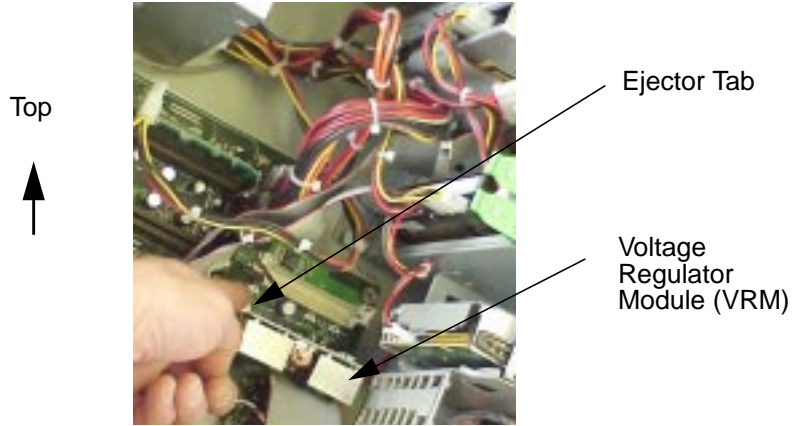
To remove a VRM from the system board, follow this procedure:

1. Remove the left-side panel as explained in the section “Removing the Left-Side Panel” in this chapter.
2. Put on the static-grounding strap that was shipped with your VRM and attach it to the metal chassis of your Personal Workstation.

Opening Your Personal Workstation and Installing Accessories
Installing and Removing a Voltage Regulator Module (VRM)

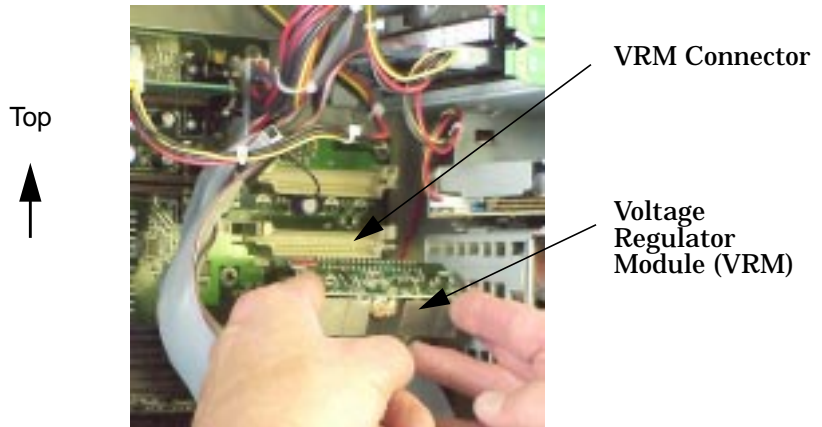
3. Push downward on the VRM connector's ejector tabs. See Figure 2-90. Note that the arrow points to the top inside of the Personal Workstation.

Figure 2-90 Ejector Tabs in the Downward Position



4. Remove the VRM from its connector on the system board. See Figure 2-91. Note that the arrow points to the top inside of the Personal Workstation.

Figure 2-91 Removing the Voltage Regulator Module (VRM)



5. Install the new VRM into the VRM connector as explained in the section “Installing a Voltage Regulator Module” in this chapter.
6. Ensure all cables internal to the Personal Workstation are clear of any sharp edges or hot components. Next replace the left-side panel of the Personal Workstation as explained in the section “Replacing the Left-Side Panel” in this chapter.

Installing a Voltage Regulator Module

The procedure in this section explains how to install a Voltage Regulator Module (VRM) on your Personal Workstations system board. This section assumes you need to replace the current VRM in slot B.

WARNING

Turn the Personal Workstation off and unplug the power cord before installing or removing the Voltage Regulator Module.

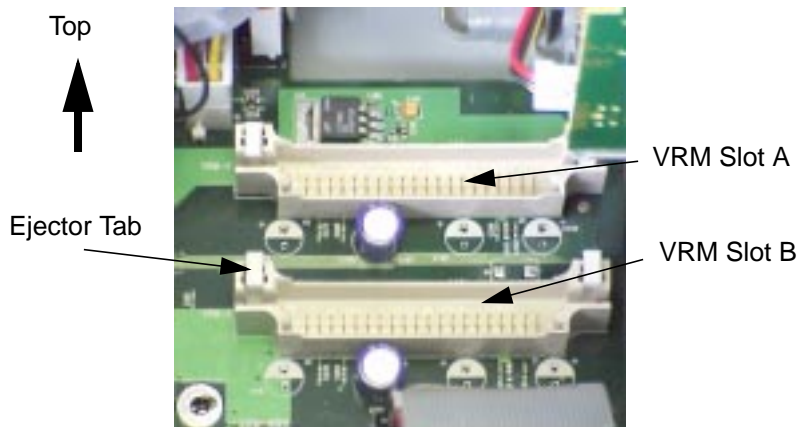
Opening Your Personal Workstation and Installing Accessories

Installing and Removing a Voltage Regulator Module (VRM)

To install a VRM, follow this procedure:

1. Remove the left-side panel as explained in the section “Removing the Left-Side Panel” in this chapter.
2. Put on the static-grounding strap that was shipped with your VRM and attach it to the metal chassis of your Personal Workstation. Next, remove the VRM from its anti-static bag.
3. Remove the current VRM from VRM slot B as explained in the section “Removing a Voltage Regulator Module” in this chapter.
4. Push downward on the VRM connector’s ejector tabs. See Figure 2-92. Note that the arrow points to the top inside of the Personal Workstation.

Figure 2-92 Ejector Tabs in the Downward Position



5. Install the VRM into its connector on the system board. See Figure 2-93 and Figure 2-94. Note that the arrow points to the top inside of the Personal Workstation.

Figure 2-93 Installing the Voltage Regulator Module (VRM)

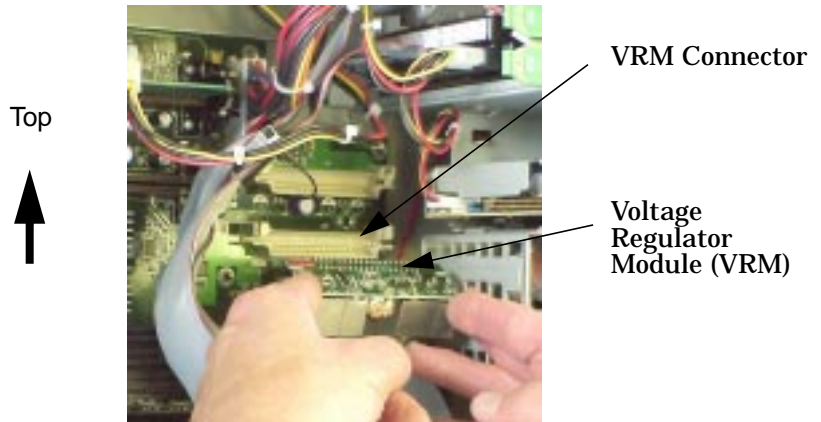
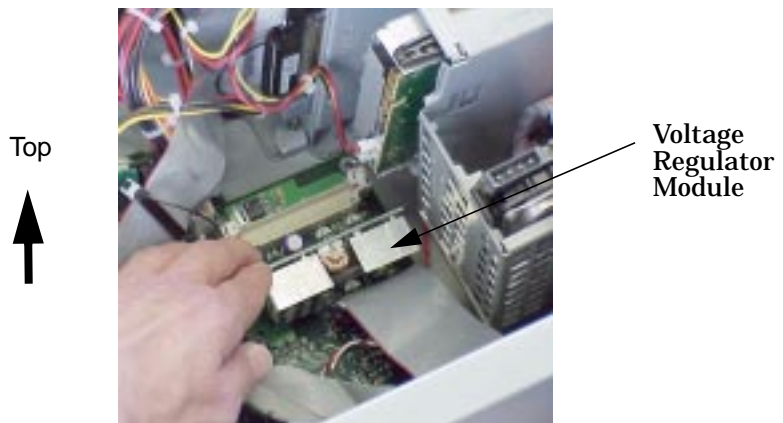


Figure 2-94 Installed Voltage Regulator Module (VRM)



6. Ensure all cables internal to the Personal Workstation are clear of any sharp edges or hot components. Next replace the left-side panel of the Personal Workstation as explained in the section “Replacing the Left-Side Panel” in this chapter.

Installing Drivers and Utilities

Once you have installed accessory boards and mass-storage devices on your system, you will need to install their drivers. To install the latest drivers or utilities for the HP VISUALIZE Personal Workstation go to the following web site:

`http://www.hp.com/visualize/support`

Drivers can also be found in the HP Tool and Support CD-ROM that is shipped with your system. This CD-ROM has detailed instructions on how to install the operating system, diagnostic utilities and each of the drivers, such as audio, video, LAN and IDE.

3 **Troubleshooting Your Personal Workstation**

This chapter deals with problems you may encounter when using your Personal Workstation.

Solving Problems

This chapter can help you solve most problems you might have with your Personal Workstation.

If you are unable to solve your problem after following the advice in this chapter, refer to the chapter “Hewlett-Packard Support and Information Services.”

HP Summary Screen

The HP Summary Screen provides information about your Personal Workstation’s current configuration. To view the Summary Screen, press **Esc** just after your Personal Workstation is turned on and while the logo is displayed during the Power-on-Self-Test (POST).

HP Diagnostics

You can use HP MaxiLife to help you diagnose problems with your Personal Workstation. For more information on using HP MaxiLife, refer to the section “Using HP MaxiLife to Diagnose Problems.”

A HP Hardware Diagnostics utility is either preloaded on your hard disk drive or is available on the World-Wide-Web.

With this utility you can diagnose hardware-related problems that may arise with your Personal Workstation. For more information, refer to the section “HP Hardware Diagnostics Utility.”

If Your Personal Workstation Does Not Start Properly

Use this section if your Personal Workstation does not start properly when you turn it on, and if you experience one of the following symptoms:

- Your Personal Workstation's display is blank and there are no error messages.
- You cannot change any values in the Setup program.
- A POST error message is displayed.
- An error message and smiley-face icon appears on the LCD screen (refer to the section "Using HP MaxiLife to Diagnose Problems").

Display is Blank and There Are No Error Messages

If your display is blank and there are no error messages when you turn on your Personal Workstation, follow this procedure:

1. Check the LCD screen (refer to the section "Using HP MaxiLife to Diagnose Problems").
2. Check external items.
3. Check internal items.
4. Rebuild your Personal Workstation's components.

Check External Items

Be sure the following external items are functioning properly:

- Check that the computer and display are turned on. (The power light should be illuminated.)
- Check the display's contrast and brightness settings.
- Make sure that all cables and power cords are firmly plugged in.
- Make sure the power outlet is working.

Troubleshooting Your Personal Workstation
If Your Personal Workstation Does Not Start Properly

Check Internal Items

If the Personal Workstation still does not start properly, follow this procedure to check the internal items:

1. Turn off the display, the computer, and all external devices.
2. Unplug all power cords and cables, noting their positions. Disconnect the Personal Workstation from any telecommunications network.
3. Remove the cover.
4. Check the following items:

Table 3-1 Actions to Take and Where to Find Help

Action	Reference
Check all internal cables.	Ensure they are correctly attached and firmly in place.
Check that the processor and VRM are correctly installed.	Refer to the sections “Installing and Removing a Processor” and “Installing and Removing a Voltage Regulator Module” in the chapter “Opening Your Personal Workstation and Installing Accessories.”
Check that the processor speed switches have been set correctly.	Call your local HP Support Representative.
Reset the Personal Workstation or power-off the LAN.	Refer to the section “Your Personal Workstation’s Hardware Control Panel” in the chapter “Using Your Personal Workstation.”
Check that the memory modules are correctly installed.	Refer to the section “Installing Additional Memory” in the chapter “Opening Your Personal Workstation and Installing Accessories.”
Check that accessory boards are firmly seated in their slots.	Refer to in the section “Installing and Removing Accessory Boards” in the chapter “Opening Your Personal Workstation and Installing Accessories.”
Verify that any switches and jumpers on the accessory boards are properly set.	Refer to the manuals that came with each board.

Table 3-1 Actions to Take and Where to Find Help

Action	Reference
Check that the switches on the system board are properly set.	Call your local HP Support Representative.
Check that fans are installed correctly.	Call your local HP Support Representative.
Check that power supply is properly connected.	Call your local HP Support Representative.

5. Replace the cover.
6. Reconnect all cables and power cords.
7. Turn on the display and computer.

Rebuild Your Personal Workstation's Components

If your Personal Workstation still does not start properly, remove all boards and accessories, except the hard disk drive and video board. Start the Personal Workstation. If the Personal Workstation now works, add the boards and accessories one at a time to determine which one is causing the problem.

If you are Unable to Change any Values in *Setup*

Ensure that you are using the correct password.

If a POST Error Message is Displayed

The Power-On-System-Test (POST) can detect both an error and a change to the configuration. In either case, an error code and short description is displayed. Depending on the kind of error, you will have one or more of these choices available on screen:

- Press **F1** to ignore the message and continue.
- Press **F2** to run Setup and correct a system configuration error. HP recommends that you correct the error before proceeding, even if the Personal Workstation appears to start successfully.
- Press **Enter** to see more details about the message. After viewing these details, you will be returned to the original POST display screen. If the message is actually a change to the configuration you have made (for example, you have just removed some memory), you can then press **F4** to accept the change and update Setup's configuration information. Otherwise, press **F1** to ignore the message and continue, or press **F2** to run Setup and correct a system configuration error. (The number of choices you will have available are dependent on the kind of error.)

Clearing the Personal Workstation's Configuration Memory

If the Personal Workstation then starts, but POST still persists in reporting an error, clear the current configuration memory values and reinstall the built-in default values as follows:

1. Turn off the Personal Workstation, disconnect the power and cables, and remove the cover. Disconnect the Personal Workstation from any telecommunications network.
 - a. Set the system board switch 6 (CLEAR CMOS) DOWN to clear the configuration.
 - b. Replace the cover, and reconnect only the power cable.

- c. Turn on the Personal Workstation. This will erase the CMOS memory.
 - d. Wait until the Personal Workstation has started. A message will be displayed similar to this: "Configuration has been cleared, set switch Clear CMOS to the open position before rebooting."
 - e. Turn off the Personal Workstation, disconnect the power cable, and remove the cover.
 - f. Set the system board switch 6 (CLEAR CMOS) UP to retain the configuration.
2. Replace the cover, and reconnect the power and cables.
 3. Switch on the Personal Workstation. An error message will be displayed similar to the following:

On your monitor:

Incorrect PC Configuration

On your Personal Workstation's LCD:

Error! POST Error xx

The Personal Workstation will stop. Press **Enter** (to view the system errors) and then press **Esc**.

4. Run `Setup` by pressing **F2**. CMOS default values will be automatically downloaded and saved.
5. Make any other changes you want and press **Esc** to save the configuration and exit from `Setup`.

If You Cannot Turn Off Your Personal Workstation

Use this section if you cannot turn off your Personal Workstation, the power indication light is red, and you hear a “buzzing” sound.

- Check if your Personal Workstation is locked, whereby “power-off” is not allowed. You will need to enter a password to unlock the PC Workstation (see the section “Setting Your Password” in the chapter “Using Your Personal Workstation” for more information).
- Check if you are in a standby mode, in which case a “power-off” would risk a loss of information/data (refer to the Power Menu in the HP *Setup* program).

CAUTION

If you press the On/Off button for four seconds, the system will be automatically turned off. Note that this does not shut down the operating system properly.

If Your Personal Workstation Has a Hardware Problem

This section describes what to do if you have problems with your display, disk drives, printer, accessory boards, keyboard, or mouse.

Display Does Not Work Properly

If Nothing Is Displayed On the Screen

If nothing is displayed on the screen, but the Personal Workstation starts and the keyboard, disk drives, and other peripheral devices seem to operate properly:

- Make sure that the display is plugged in and switched ON.
- Check that the brightness and contrast controls are properly set.
- Ensure that the display video cable is correctly connected.
- Switch off the display, and unplug it from the power outlet.
- Disconnect the video cable and examine the video cable connector pins. If the pins are bent, carefully straighten them.
- Check that the video upgrade is properly installed if you have one.
- If the display works correctly during the Power-On-Self-Test (POST), but goes blank when Windows starts, check that you have enough memory for the video mode you have selected. Boot the operating system in VGA mode (available with some systems).
- If your screen's refresh rate is set too high, the screen might be blank. Check the refresh settings to ensure they are not too high.

Other Display Problems

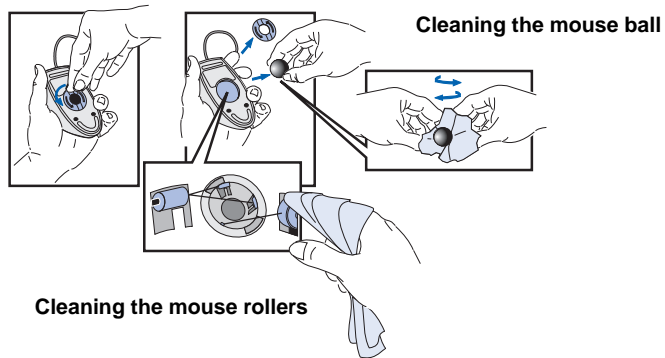
If the display image is not aligned with the screen, use the display's controls to center the image (refer to the display manual for instructions). If the screens generated by the applications do not appear to be correct, check the application's manual to find out which video standard is required. Also check your display manual to find out which refresh rate is required. Use your operating system's procedures, to select the correct refresh rate.

If Your Keyboard Does Not Work

Ensure that the keyboard is correctly connected. The keyboard LEDs should blink once during POST.

If Your Mouse Does Not Work

- Ensure that the mouse is correctly connected.
- Ensure that the mouse driver supplied with the preloaded software is installed correctly.
- Clean the mouse ball and rollers as shown in the figure below (use a non-residual contact cleaner).



If Your Local Printer Does Not Work

- Make sure the printer's power switch is ON.
- Verify that the power cord is plugged into the power outlet and the printer.
- Verify that you have the correct cable for the printer. Make sure that it is securely connected to the correct connector (port) on the PC Workstation and printer.
- Check that the printer is online.
- Examine the paper feed mechanism for a paper jam.
- Make sure that the printer is configured correctly for the PC Workstation and for the application.
 1. Ensure the Personal Workstation's port has been correctly configured using *Setup*.
 2. Make sure the printer is correctly set up in your operating system's configuration.
 3. Ensure the application program's "print" menu has been correctly set up. (Refer to the manual supplied with the application software.)
- Check that the Personal Workstation's port is working properly by running another peripheral connected to the port.
- If you receive an error message, refer to the printer's manual for help.

If the Floppy Disk Drive Does Not Work

- Check that you are using a formatted diskette and it is inserted correctly.
- Check you are using a diskette that is the correct density.
- Check that the flexible disk drive is not disabled in the Setup program (**Advanced > Floppy Disk Drive**).
- Check that the flexible disk drive is correctly configured in the Setup program (**Advanced > Floppy Disk Drive**).
- Check that the Flexible Disks item and the Write on Flexible Disks item are not set to locked in the Setup program (**Security > Hardware Protection**).
- Clean the flexible disk drive using a diskette cleaning kit.
- Check that the disk power and data cables are correctly connected.

If the Hard Disk Drive Does not Work

- Check that the disk power and data cables are correctly connected (refer to the section “Hard Disk Drive” in the chapter “Opening Your Personal Workstation and Installing Accessories”).
- For an IDE drive, check the IDE Device’s configuration settings in the Setup program (**Advanced > IDE Devices**).
- For an IDE drive, check the Hardware Protection settings in the Setup program (**Security > Hardware Protection**).
- For an IDE drive, check the Start from Hard Disk Drive settings in the Setup program (**Security > Start from Hard Disk Drive**).

If the Hard Disk Activity Light Does Not Work

If the hard disk activity light does not flicker when the Personal Workstation is accessing the hard disk drive:

- Check that the control panel connector is firmly attached to the system board.
- Check that the disk power and data cables are correctly connected.

If the CD-ROM Drive Has a Problem

WARNING

Be sure to disconnect the power cord and any telecommunication cables from your computer before you remove the cover to check the cable connections or jumper settings.

To avoid electric shock and harm to your eyes by laser light, do not open the CD-ROM drive enclosure. The drive should be serviced by qualified service personnel only. Refer to the label on the drive for power requirements and wavelength. Do not attempt to make any adjustment to the unit. This Personal Workstation is a class 1 laser product.

The CD-ROM Drive Does not Work

- Check that the cables have been properly connected.
- Check that the CD-ROM is inserted in the drive.
- Check the IDE Devices configuration settings in the Setup program (**Advanced > IDE Devices**).
- Check the Hardware Protection settings in the Setup program (**Security > Hardware Protection**).
- Check the Start from CD-ROM settings in the Setup program (**Security > Start from CD-ROM**).
- Check that the Integrated Bus IDE Adapters item is set to Both in the Setup program (**Advanced > IDE Devices**).

No Sound from the CD-ROM Drive

If you are having problems with sound when playing a CD:

- Check that the volume control (if present) on the CD-ROM or CD-RW drive front panel is not set to the minimum.
- Ensure that the disk in the drive is an audio disk and not a photo CD or data CD.
- If using headphones or external speakers, check that they are properly connected to the Audio Front Panel (not to the audio jack for the CD-ROM).
- Check that the CD Audio switch is selected in the mixer (if selected a speaker icon will appear in the task bar).
- Check that the CD audio cable is correctly installed and is connected to the system board.

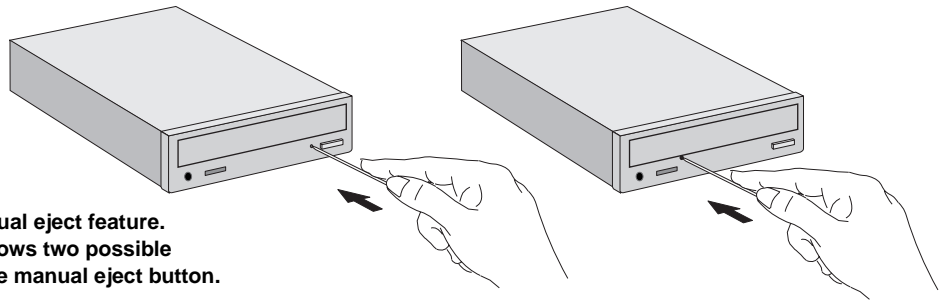
The CD-ROM Drive is Idle

If the drive does not appear to be working, try accessing the disk by clicking on the drive icon or drive letter assigned to the drive by your operating system.

The CD-ROM Drive Does not Open

If you have difficulty removing a CD-ROM disk from the CD-ROM drive (during a power failure for example), you can use the manual eject button. To eject a CD-ROM disk using the manual eject button, proceed as follows:

1. If the CD-ROM drive manual eject button is not visible, remove the front bezel covering the drive. The manual eject button is inside a small hole in the front of the CD-ROM drive.
2. With a thin, solid rod, such as the end of a paper clip, push the drive's manual eject button.



Using the manual eject feature.
The picture shows two possible
locations of the manual eject button.

3. The drive door is released, opening slightly. Carefully pull it open fully and retrieve the disk.
4. To close the drive door, push it gently closed without forcing it. The drive door may not close completely until it is fully functional (for example, when the power comes back on).
5. If required, replace the drive's front bezel.

If an Accessory Board Does not Work

Carry out the following checks:

- Check that the accessory board has been firmly installed in the slot.
- Check that the accessory board has been correctly configured.

If Your Personal Workstation Has a Software Problem

If You Have Forgotten Your Password

□ If you forget the User Password and the Administrator password is set and known:

1. Switch off the Personal Workstation.
2. Restart the Personal Workstation.
3. Wait for the message **F2 Setup**.
4. Press **F2** to start Setup.
5. Type the Administrator password to enter Setup.
6. Select Security, the User Password submenu, and set a new User password.
7. Press **F3** to save the new User password and exit Setup.

□ If you forget both the User password and the Administrator password:

1. Switch off the Personal Workstation and remove the computer's cover (refer to the section "Removing and Replacing the Left-Side and Front Panels" in the chapter "Opening Your Personal Workstation and Installing Accessories").
2. Set switch 7 (PSWRD) on the system board switch block to ON (DOWN). For more information, call your local HP Support Representative.
3. Replace the Personal Workstation's cover and switch on the Personal Workstation. Allow it to complete its start-up routine. Then you should receive this message "Password Clear."
4. Switch off the Personal Workstation and remove the cover.
5. Reset switch 7 (PSWRD) to OFF (UP).
6. Replace the computer's cover (refer to the section "Replacing the Left-Side Panel" in the chapter "Opening Your Personal Workstation and Installing Accessories").

7. Switch on the Personal Workstation and allow it to start-up.
8. Press **F2** when prompted to use *Setup*.
9. Set new User and Administrator passwords.
10. Press **F3** to save the new passwords and exit *Setup*.

If You Can't Start the *Setup* Program

This may happen if the copy of the Personal Workstation's configuration stored in memory is corrupted. You will need to erase this bad configuration. Refer to the side heading "Clearing the Personal Workstation's Configuration Memory" in the section "If a POST Error Message is Displayed" for more information on how to do this.

If the Date and Time Are Incorrect

The date and time can be incorrect for the following reasons:

- The time has changed to reflect the beginning or end of Summer Time
- The Personal Workstation has been unplugged from the main power source for too long and the battery is discharged.

To change the date and time, use your operating system utilities or the *Setup* program.

If Your Application Software Does Not Work

If the Personal Workstation reports the system is OK and the indicator light over the power switch is illuminated, but some software won't run, refer to the operating system and/or application software manuals.

If You Have a Network Problem

If you have a problem with your Personal Workstation's network, run the **Intel ProSet** utility provided with Windows NT 4.0. This utility is located in the system **Control Panel** window. To run the **Intel ProSet** utility, follow this procedure:

1. Click on the **Start** button and select the **Settings** item.
2. Click on the **Control Panel** item in the **Settings** menu.
3. Double click on the **Intel ProSet** icon.
4. Click on the **Diagnostics** tab when the **Intel ProSet** window appears and follow the instructions.

If Your Personal Workstation Has an Audio Problem

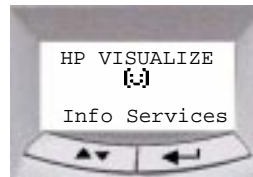
If you encounter problems with the audio on your Personal Workstation, refer to the *Using Sound* guide preloaded onto your Personal Workstation.

To get to your *Using Sound* guide, follow this procedure:

1. Click on the **Start** button and select **Programs** from the menu.
2. Select **HP Info** from the group menu.
3. Click on the **Using Sound** menu item.

Using HP MaxiLife to Diagnose Problems

Your HP LCD can help you to diagnose problems with your Personal Workstation, even when you are unable to get your system and monitor working properly. The LCD is part of the control module on your Personal Workstations front panel. The LCD looks similar to this:



The LCD is able to display four 16 character lines. The two buttons located under the LCD are used to move up and down (▲▼) through menus and validate (↵) choices.

When you press the ON/OFF button, the system initiates the normal start-up sequence that is composed of the following steps, which are detailed in the subsequent sections.

1. Pre-Boot Checks
2. POST Phase
3. Operating System Boot Phase

Pre-Boot Checks

When you press your Personal Workstation's on/off button, HP MaxiLife will check your system before it initiates the start-up sequence. You will see one of the following messages on the LCD as these checks progress:

Table 3-2 Pre-Boot Messages

Message	Description of what to do
Error! Power supply	Check power supply and power cable connections.
Error! Proc slot1 issue	Check for processor in slot 1.
Error! Socket Proc 1	Check that a CPU or terminator is installed in CPU slot 1.
Error! Socket Proc 2	Check that a CPU or terminator is installed in CPU slot 2.
Error! Power supply	Check with your local HP Service Representative.
Error! Vcache L2 error	Check processor 1 and 2 VRM installations.
Error! VCC CPU 2 error	Check processor 2 VRM installation.
Error! Memory error	Check memory installation.
Error! No DIMM	Check memory installation.
Error! DIMM devices	Check that DIMMs installed are compatible.
Error! No HW monitoring	Check with your local HP Service Representative.
Error! No Video	Check for system video card.
Error! Power	Check that the processor is installed correctly. Check that there is no VRM plugged in adjacent to a processor slot terminator.

POST Phase

When the POST (Power-On Self Test) sequence is initiated, any error messages that the BIOS may issue are displayed on the LCD. See Table 3-3. Note that if POST issues several error codes, the last error code given will be the one that is visible on the LCD.

Table 3-3 POST Phase Message

Message	Description of what to do
Error! POST Error xx	Wait for the last POST error message and press ↵. You can step through the error codes until you find the one that matches yours. A description of the error and what to do will be given.

Operating System Boot Phase

If no error message has been issued by the BIOS at this phase, the operating system will boot up and the message shown in Table 3-4 will be displayed.

Table 3-4 Operating System Boot Phase Message

Message	Description of what to do
HP VISUALIZE	No errors occurred.

Run-Time Errors

During normal usage of the Personal Workstation the processor checks some vital system parameters. If an error occurs, a message is automatically displayed on the LCD. See Table 3-5 for a list of the messages. If several errors occur at the same time, they will be displayed by cycling every few seconds through these four error sources:

- Pre-boot diagnostics
- Run-time error 1
- Run-time error 2
- POST error

There will be only one error cause given for each source. For example, if a fan error occurs for the disks and I/O slots, only the Fan disk error would be displayed since both errors come from the “run-time error 2” source.

Table 3-5 Run-Time Error Messages

Message	Description of what to do
Pre-boot Diagnostics	
Error! VCC CPU 2 error	Check that CPU 2 is properly installed.
Error! Vcache L2 error	Check that CPUs are properly installed.
Run-time Error 1	
Error! Ambient Temp	Check that the fan in the I/O bay area are working.
Error! Power supply	Check that the VRMs are properly installed.

Table 3-5 Run-Time Error Messages

Message	Description of what to do
Run-time Error 2	
Error! Processor Temp	Check that the fan in the CPU bay area is working.
Error! PCI Fan	Check that the fan in the I/O bay area is working.
Error! System Fan	Check that the fan in the CPU bay area is working.
POST error	
Error! POST Error xx	Wait for the last POST error message and press ↵. You can step through the error codes until you find the one that matches yours. A description of the error and what to do will be given.

Main Menu

HP MaxiLife can also be configured to:

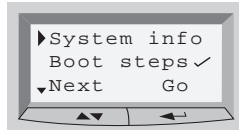
- Display the configuration details of your Personal Workstation required to obtain support (see the section “System Info.”).
- Indicate POST (Power-On Self Test) steps during the power-on phase (see the section “Boot Steps”).
- Perform diagnostic tests on your Personal Workstation’s various hardware components and display the results (see the section “Diags”).

To configure your HP LCD:

1. Ensure that your Personal Workstation’s power cord is connected to a grounded outlet. In this state, your Personal Workstation’s hardware management chip is active, even if your system is not powered on.

Troubleshooting Your Personal Workstation Using HP MaxiLife to Diagnose Problems

2. Press the Services LCD control button. The following menu is displayed.



3. Use ▲▼ to scroll down through the menu items and ↵ to select the required menu item.

System Info.

System information is displayed on the LCD one screen at a time and should detail the following:

- Product name
- Bios version
- Number & speed of processors
- Number and capacity of memory modules installed
- Serial Number
- DIMM information.

To view these details, use the ▲▼ button to scroll through the information screens. Table 3-6 provides examples of the message displayed for the **System Info.** function.

Table 3-6 System Info. Messages

Introduction Message 1	Message 2
Product Name HP VISUALIZE Next Exit	BIOS Version LID.00.15d Next Exit
Message 3	Message 4
Serial No. 0000000000 Next Exit	2 Coppermine Freq= 600MHZ Next Exit
Message 5	Message 6
DIMM1: 128 MB DIMM2: None Next Exit	DIMM3: None DIMM4: None Next Exit
Message 7	Message 8
DIMM5: 128 MB DIMM6: None Next Exit	DIMM7: None DIMM8: None Next Exit

Boot Steps

Where available, the Boot steps option will display all POST steps the next time your Personal Workstation is powered on if it is selected. For support purposes, POST steps are shown as POST codes and displayed on the LCD as follows:

Table 3-7 Example of Boot Steps Message

Message	Description
HP VISUALIZE POST Error 24 Next Exit	Post steps will be displayed on the LCD the next time your Personal Workstation is powered on.

Diags

If your Personal Workstation is powered off when **Diags** is selected, the LCD displays a second menu.

To view the test results for each system component, press the ▲▼ control button.

The following table shows the messages that will be in the LCD if a test passes and if a test fails. The Component part of these displays will be filled in with the test component messages from Table 3-8.

Test Ok	Test failed
Component	Component
Next	Error
	Next

Table 3-8

Test Component Messages

Proc slot1 issue	Socket Proc 1
BIOS	Socket Proc 2
VCC CPU 2 error	RAM error
Power supply	Vcache L2 error

If an error is detected, an error screen appears indicating the problem. To continue viewing the test results of the other system components, press the ▲▼ control button. For example, if there is a problem with a power supply, an alarm will sound and the following error screen will appear.

When the diagnostic tests are complete, one of the following screens is displayed. The message on the left indicates that system errors were detected, and the message on the right indicates that no system errors were detected.

Diagnostics: Done: OK EXIT	Diagnostics: Done: FAIL EXIT
----------------------------------	------------------------------------

You can exit the test session by pressing the ↵ button.

HP Hardware Diagnostics Utility

The Hardware Diagnostics utility helps you to diagnose hardware-related problems on HP PCs and Personal Workstations. It is a series of tools designed to help you to:

- Check the configuration of your system and verify that it is functioning correctly.
- Diagnose hardware-related problems.
- Provide precise information to HP-dedicated Support Agents so that they can solve any problems quickly and effectively.

Installing this Utility

PC users must first install the latest version of this utility and then ensure it is ready for use.

For more information about how and where to install this utility, refer to the Hardware Diagnostics *User's Guide*, available on the HP World Wide Web Site in PDF (Adobe Acrobat) format.

It is important that you use the latest version of this utility to diagnose hardware-related problems. If you do not, HP-dedicated Support Agents may request that you do so before offering support.

The latest version of this utility can be obtained from HP Electronic Information Services, available 24 hours per day, 7 days per week.

To access these services you should connect to the HP World Wide Web Site at www.hp.com/go/visualizesupport

**Starting This
Diagnostics Utility**

To start the Hardware Diagnostics utility:

1. Quit all applications, shut down the operating system and restart your PC.
 - a. If you are going to run this utility from a diskette, insert it into the flexible disk drive before you restart the PC. On restarting, this utility will run automatically, displaying the Welcome screen.
 - b. If you are going to run this utility from your hard disk drive, the PC will restart with the option to choose between your usual operating system and this utility. Select the Hardware Diagnostics option and it will start automatically, displaying the Welcome screen.
2. Press F2 to continue and follow the instructions on-screen to carry out the diagnostic tests.

This utility will automatically detect the complete hardware configuration of your system before any tests can be performed.

**Basic System
Tests**

To verify the correct operation of your system's hardware, you will need to carry out the Basic System Tests.

**Advanced System
Tests**

To perform more in-depth testing of your system's individual components, you will need to carry out the Advanced System Tests.

NOTE

The advanced test phase of this utility is suitable for intermediate and advanced users only.

Support Ticket

To produce a complete record of your system's configuration and test results, you will need to create a Support Ticket. This can then be sent, via email or fax, to your local or HP-dedicated Support Agent.

For more information on how to use this utility, refer to the Hardware Diagnostics User's Guide, available on the HP World Wide Web Site, at www.hp.com./go/visualizesupport/

Recovering Your Personal Workstation's Operating System

If for some reason you should need to recover your HP VISUALIZE Personal Workstation's operating system (for example, a system crash, etc.), the Recovery CD can help you do this. This CD-ROM includes a set of tools for recovering your operating system, installing drivers for optimizing the use of HP hardware and HP utilities.

To recover your HP VISUALIZE Personal Workstation's operating system, follow this procedure:

1. Ensure that your Personal Workstation is turned on, and insert the Recovery CD into the CD drive's CD-ROM tray. When you have the Recovery CD inserted into the CD-ROM tray, turn off the Personal Workstation.
2. Turn on your Personal Workstation.
3. Select the appropriate item from the following menu:

Microsoft Windows 98 Startup Menu

1. Recover your software (Windows NT4)
2. Partition and format your hard disk (if necessary)
3. Run hardware diagnostics (HP DiagTools)
4. Exit

Enter a choice: 1

4. Follow the instructions that appear on your display.

Introduction

Hewlett Packard computers are engineered for quality and reliability to give you many years of trouble-free service. To ensure that your desktop system maintains its reliability and to keep you up-to-date with the latest developments, HP and a worldwide network of trained and authorized resellers provide a comprehensive range of service and support options which are listed below:

- HP-Authorized Reseller
- HP Support Assistant CD-ROM
- HP Information Services

Table 4-1 HP Information Services

Service	Means of Access
HP Forum on CompuServe	Modem
HP Forum on America Online (US only)	Modem
HP World Wide Web Site	World Wide Web Access
HP Drivers/BIOS diskettes	Delivered by mail

- HP Support Services
 - Technical phone support
 - Lifeline phone support
 - Network phone-in support

NOTE

When calling any of the international telephone numbers listed in this chapter, replace the '+' with your international telephone access code.

Your HP-Authorized Reseller

HP-Authorized Resellers have been trained on HP Personal Workstation equipment and are familiar with its configuration and environment. Authorized Resellers can also answer questions regarding non-HP hardware, software and systems as well as answer queries about usage not intended for, or not common for, the HP Personal Workstation.

Authorized HP Resellers can also offer consulting services tailored to your specific needs regarding product development or custom installations. Similar support services are offered by third parties or the HP Customer Support organization in your country.

Hewlett-Packard Information Services

Hewlett-Packard Electronic Information Services are available 24 hours a day, 7 days a week, ensuring that the most up-to-date information is always available.

HP Forum on CompuServe

The HP Systems Forum on CompuServe® is an on-line service, accessible via modem. This service provides information about your HP Personal Workstation, and allows you to communicate with other HP users through an on-line user forum. HP users share their knowledge and experience with you, and you will be able to ask, or answer, technical questions about your HP Personal Workstation, and HP products.

You can also download the latest versions of drivers, BIOS and software utilities for HP Personal Workstations.

As a preferred Hewlett Packard customer, you are invited to join CompuServe at no initial charge.

For the United States and the United Kingdom, call the number shown below and ask for representative 51. For all other locations, first call the worldwide number to obtain the number of your local sales office, then call your local sales office and ask for representative 51.

Table 4-2 CompuServe On-line Service Numbers

Country	Local Call / Freephone Number	Direct Number
United States	1 (800) 848-8199	+1 (614) 529-1349
United Kingdom	(0800) 289378	+44 (1272) 760680
Worldwide		+1 (614) 529-1349

CompuServe will send you a free introductory membership immediately, including information on how to access CompuServe.

At the CompuServe prompt, type GO HP.

HP Forum on America Online

The HP Forum on America Online is an electronic information and communication service which can be accessed via modem.

To access the HP Forum:

- select Keyword Search from the menu,
- type HP,
- press **Enter**.

This will load the HP Home Page directly onto your screen.

In the HP Forum you can ask and answer questions about HP products and you can also download drivers, software application notes, or utilities for HP products.

Membership information can be obtained by calling 1(800) 827-6364, giving the preferred customer number 1118.

HP World Wide Web Site

The HP World Wide Web site gives you access to information about HP, its products, including product data sheets, service and support information, electronic newsletters and technical tips. You can also download the latest versions of drivers, BIOS and software utilities.

The Access Guide Directory guides you through the information and services available.

World-Wide Web URL

For product information: <http://www.hp.com/visualize/support>

For service and support information: <http://www.hp.com/visualize/support>

Ordering Drivers and BIOS on Diskette

You can order diskettes from HP, with the latest versions of drivers, BIOS and software utilities. The diskettes will be delivered by mail.

Information for ordering diskettes is set out in the tables below:

North and Latin America	Europe
Phone +1 (970) 339 7009 Monday - Saturday 24 hours per day	Phone +44 (1429) 865511 Monday - Friday 8.30 a.m. - 6.00 p.m. Central European Time
Fax +1 (970) 330 7655	Fax +44 (1429) 866000
Mail US Driver Fulfillment for Hewlett-Packard PO Box 1754, Greeley, Colorado 80632 USA	Mail European Fulfillment for Hewlett-Packard c/o StarPak International, Ltd., Hartlepool, Cleveland, TS25 2YP United Kingdom

Australia	Asia - Pacific
Phone + 61 (2) 565 6099 Monday - Friday 8.30 a.m. - 5.30 p.m. Australian Eastern Time	Phone + 65 740 4477 Monday - Friday 8.30 a.m. - 5.30 p.m. Singapore Time
Fax + 61 (2) 519 5631	Fax + 65 740 4499
Mail Fulfill: Plus Pty Ltd., Private Bag 75, Alexandria NSW Australia 2015	Mail Fulfill: Plus Pte Ltd., No 51, Ubi Ave. 3, Singapore 1440

To identify a specific BIOS, driver or utility for your Personal Workstation, please follow the steps listed below prior to placing your order.

- Contact your authorized HP reseller for assistance in selecting the appropriate driver.
- If your reseller is unable to help you, call HP FIRST for the most up-to-date list of drivers.

HP Support Services

Hewlett-Packard provides a three-year hardware warranty which includes on-site service during the first year after purchase, and a parts dispatch only during the second and third years after purchase. This warranty coverage will apply from the nearest HP or HP-authorized service outlet.

HP telephone support for your Personal Workstation is available during the first year of your hardware warranty. This service will also provide technical assistance with the basic configuration and setup of your PC Workstation and for the bundled or pre-loaded operating system.

Lifeline Telephone support is available during the second and third years of hardware warranty, via the Lifeline program, which is a fee-based service.

HP does NOT provide support for Personal Workstations configured as network servers. We recommend HP NetServers for your network server requirements.

NOTE

Reloading the software bundled or pre-loaded on your Personal Workstation is not covered by the HP three-year warranty. For your bundled application, HP recommends that you keep the master CD-ROM.

Your HP-authorized reseller offers various service contracts which can be tailored to your particular support needs.

Hewlett-Packard Telephone Support

HP North American Customer Support Center

Assistance from the HP North American Customer Support Center is available Monday to Friday, 7:00 am to 6:00 pm Mountain time.

The number is: +1 (970) 635-1000

HP European Customer Support Center

Assistance from the HP European Customer Support Center is available Monday to Friday, 8:30 am to 6:00 pm Central European time.¹

Country	Language	Local Number
United Kingdom	English	0171 512 5202
Ireland	English	01 662 5525
Netherlands	Dutch	020 606 8751
Belgium	Dutch	02 626 8806
	French	02 626 8807
Switzerland	French	084 880 1111
	German	084 880 1111
Germany	German	0180 525 8143
France	French	01 43 62 34 34
Austria	German	0660 6386
Norway	Norwegian	22 11 6299
Denmark	Danish	3929 4099
Sweden	Swedish	08 619 2170
Italy	Italian	02 26410350

1. For non-listed European countries, support is available in English by calling +44 171 512 5202.

Hewlett-Packard Support and Information Services
Hewlett-Packard Telephone Support

Country	Language	Local Number
Spain	Spanish	902 321 123
Portugal	Portuguese	01 441 7199

Please have the following information ready when you call so that your enquiry can be dealt with quickly:

- Your HP Personal Workstation model number and serial number.
- The operating system version and the configuration.
- A description of the software installed and the accessories used.

Lifeline Telephone Support

Lifeline is a fee-based telephone support program for Personal Workstations available after the one-year telephone support provided as part of the hardware warranty has expired.

Your call can either be charged to your phone bill at a per-minute rate or to your credit card (Visa, Mastercard or American Express) at a flat fee.

The charge begins **AFTER** you have been put in contact with a support technician. If your problem is found to be covered by the HP Hardware Warranty, no charge will be applied.

In the US please call the appropriate number listed below.

Table 4-3

Lifeline Telephone Support Numbers

Number	Method of Payment	Charge Type
1 (900) 555-1500	Charged to phone bill	per-minute rate
1 (800) 999-1148	Charged to credit card	Flat fee

In Europe, please call the telephone support center (+44 171 512 5202).

Free access to HP information services is not affected by this service. You are encouraged to access HP Information Services throughout the life of your Personal Workstation, whether in or out of warranty.

Summary

The table below summarizes the services and support available from HP or authorized resellers.

Service	Covers	Period covered	Response time	Fee	When available	Purchase from
Basic Warranty	Parts and labor for HP products: first year onsite parts & labor; second and third year parts only.	Three years from date of purchase.	Next working day for onsite.	No charge.	At time of purchase.	HP.
HP Support Option	Parts and labor for HP products.	First three years.	Next working day.	One fee which covers the three years.	With purchase of the product.	HP Authorized reseller.
HP Support Assistant	CD-ROM containing: Product Manuals, Technical Information and Product features.	Released quarterly.	N/A	Annual subscription.	Anytime.	HP.
Electronic services	Technical information, drivers, utilities, tools and diagnostics.	Anytime.	24-hour access.	No charge.	Anytime.	HP BBS, WWW, CompuServe, America Online.

Service	Covers	Period covered	Response time	Fee	When available	Purchase from
Technical Phone support	Basic assistance for Personal Workstation setup, configuration, start-up and hardware diagnosis.	First year.	Business hours.	No charge.	At time of purchase.	HP.
Lifeline phone support	Basic assistance for Personal Workstation setup, configuration, start-up and hardware diagnosis.	After first year.	Business hours.	Per- call fee, no time limit.	Anytime after first year.	HP.
HP Network Phone-in support	Advanced remote technical support for multivendor networked environments.	Annual contract.	Business hours: 24-hour/ 7-day service also available.	Annual fee, or minimum fee per incident.	Anytime.	HP Authorized reseller.
Service Contracts	Technical Support.	Customer defined.	As required.	Annual fee, or fee per incident.	Anytime.	Reseller

Hewlett-Packard Marketing Headquarters

Should you wish to contact Hewlett-Packard, check your local telephone directory for the HP Sales and Service Office near you. If you cannot find a convenient HP office, you can write to one of the major HP Sales and Service Offices or one of the Worldwide Marketing Headquarters listed here.

ASIA

Far East Sales Region Hdqtrs
Hewlett-Packard Asia Ltd.
22/F Peregrine Tower
Lipp Centre
89 Queensway, Central
Hong Kong

LATIN AMERICA

Hewlett-Packard
Prolongación Reforma No. 700
Col. Lomas de Santa Fe
Del. Alvaro Obregón
México
01210 Mexico, D.F.

EUROPE

European Operations Hdqtrs
Hewlett-Packard S.A.
150, route du Nant-d'Avril
P.O. Box 1217
Meyrin 2/Geneva
Switzerland

USA

Intercon Operations Hdqtrs
Hewlett-Packard Company
3495 Deer Creek Road
P.O. Box 10495
Palo Alto, CA 94303-0896
USA

MIDDLE EAST / AFRICA

Middle East / Central Africa Sales
Hdqtrs
Hewlett-Packard S.A.
Rue de Veyrot 39
CH-1217 Meyrin 1/Geneva
Switzerland

CANADA

Hewlett-Packard Ltd.
6877 Goreway Drive
Mississauga
Ontario L4V 1M8
Canada

A **Regulatory Information and
Warranty**

Declaration of Conformity

according to ISO/IEC Guide 22 and EN 45014

Manufacturer: Hewlett-Packard Company
3404 East Harmony Rd.
Fort Collins, CO 80528
USA

Declares that the:
Product Name: HP VISUALIZE Personal Workstation
Base Product Number: A1280 / A6034
Product Options: All

conforms to the following specifications:

Safety. IEC 950:1991+A1+A2+A3+A4+A11/EN 60950:1992+A1+A2+A3+A4+A11
IEC 60825-1:1993/EN60825-1:1994+A11 Class 1 for LEDs
USA 21CFR Subpart J – for FC Laser module
China GB4943-1995
Russia GOST R 50377-92

EMC. CISPR 11: 1997 / EN 55011: 1991 Class A
CISPR 22: 1993 +A1+A2 / EN 55022: 1994+A1+A2 Class A
EN 50082-1:1992 Also compliant with:
IEC 1000-3-2: 1995 / EN 61000-3-2: 1998
IEC 1000-4-2: 1995 +A1 / EN 61000-4-2: 1999 - 4kV CD, 8 kV AD
IEC 1000-4-3: 1995 / EN 61000-4-3: 1996 - 10 v/m
IEC 1000-4-4: 1995 / EN 61000-4-4:1995 -2 kV Signal, 4 kV Power Lines
U.S. FCC Part 15, Class A
Japan VCCI Class A
Australia/New Zealand AS/NZS 2046.1/2:1992, AS/NZS 3548:1995, and
AS/NZS 4251.1:1994
China GB9254-1988
Taiwan CNS13438 Class A
Russia GOST R 29216-94

and is certified by: UL Listed to UL1950, 2nd edition, File E146385
cUL Listed to CSA 22.2 No. 950-M93
TUV Certified to EN60950 2nd edition with A1+A2+A3+A4+A11
HP Fort Collins CCQD HTC

supplementary information:

The product herewith complies with the requirements of the following Directives and carries the CE marking accordingly:

- the EMC directive 89/336/EEC and 92/31/EEC and 93/68/EEC
- the Low Voltage Directive 73/23/EEC and 93/68/EEC

This product was tested in a typical Hewlett-Packard workstation configuration.

Original signed by Ruth Lutes, Site Quality Manager, Fort Collins, CO, USA

For Compliance Information ONLY, contact: European Contact: Your local Hewlett-Packard Sales and Service Office or Hewlett-Packard GmbH, Dept. HQ-TRE Standards Europe, Herrenberger Strasse 130 Boeblingen (FAX: +49-7031-14-3143) **Americas Contact:** Hewlett-Packard, Fort Collins Site Quality Mgr., Mail Stop 64, 3404 E. Harmony Road, Fort Collins, CO 80528, U.S.A.

Regulatory Information

FCC (for USA only)

Federal Communications Commission Radio Frequency Interference Statement

NOTE:

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules and the Canadian Department of Communications. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Hewlett-Packard's FCC Compliance Tests were conducted with HP-supported peripheral devices and HP shielded cables, such as those you receive with your system. Changes or modifications not expressly approved by Hewlett-Packard could void the user's authority to operate the equipment.

Notice for Canada

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.
Cet appareil numérique de la Class A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Safety Warning for the USA and Canada

If the power cord is not supplied with the computer, select the proper power cord according to your local national electric code.
USA: use a UL listed type SVT detachable power cord.
Canada: use a CSA certified detachable power cord.

For your safety, never remove the PC's cover without first removing the power cord and any connection to a telecommunication network. Always replace the cover before switching on again.

Regulatory Information and Warranty

Regulatory Information

Si le cordon secteur n'est pas livré avec votre ordinateur, utiliser un cordon secteur en accord avec votre code électrique national.

USA: utiliser un cordon secteur "UL listed," de type SVT.

Canada: utiliser un cordon secteur certifié CSA.

Pour votre sécurité, ne jamais retirer le capot de l'ordinateur sans avoir préalablement débranché le cordon secteur et toute connection à un réseau de télécommunication. N'oubliez pas de replacer le capot avant de rebrancher le cordon secteur.

Notice for the Netherlands

Bij dit apparaat zijn batterijen geleverd. Wanneer deze leeg zijn, moet U ze niet weggooien maar inleveren als KCA.

Notice for Germany

Wenn die Batterie nicht korrekt eingebaut wird, besteht Explosionsgefahr. Zu ihrer eigenen Sicherheit sollten Sie nicht versuchen, die Batterie wiederaufzuladen, zu zerlegen oder die alte Batterie zu verbrennen. Tauschen Sie die Batterie nur gegen den gleichen oder ähnlichen Typ aus, der vom Hersteller empfohlen wird. Bei der in diesem PC integrierten Batterie handelt es sich um eine Lithium-Batterie, die keine Schwermetalle enthält. Batterien und Akkumulatoren gehören nicht in den Hausmüll. Sie werden vom Hersteller, Händler oder deren Beauftragten kostenlos zurückgenommen, um sie einer Verwertung bzw. Entsorgung zuzuführen.

Noise Declaration for Germany

Lärmangabe nach Maschinenlärmmverordnung - 3 GSGV (Deutschland)
LpA < 70 db am Arbeitsplatz normaler Betrieb nach EN27779: 11.92.

Notice for Japan (Class A)

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）クラスA情報技術装置です。この装置を家庭環境で使用すると電波障害を引き起こすことがあります。この場合には使用者が適切な対策を講ずることがあります。

Notice for Korea

사용시 안내문 (A급 기기)

이 기기는 업무용으로 전자파장애감정을 받은 기기이오니, 만약 잘못된 구입하셨을 때에는 구입한 곳에서 비입무용으로 교환하시기 바랍니다.

Notice for Taiwan

警告使用者：
這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

Recycling Your PC

HP has a strong commitment toward the environment. Your HP Personal Computer has been designed to respect the environment as much as possible.

HP can also take your old PC back for recycling when it reaches the end of its useful life.

HP has a product take-back program in several countries. The collected equipment is sent to one of HP's recycling facilities in Europe or the USA. As many parts as possible are reused. The remainder is recycled. Special care is taken for batteries and other potentially toxic substances, which are reduced into non-harmful components through a special chemical process.

If you require more details about HP's product take-back program, contact your dealer or your nearest HP Sales Office.

HP Hardware Warranty

Important: This is your hardware product warranty statement. Please, read it carefully.

Warranty terms may be different in your country. If so, your Authorized HP Dealer or Hewlett-Packard Sales and Service Office can give you details.

HP products may contain remanufactured parts equivalent to new in performance or may have been subject to incidental use.

HP products external to the system processor unit —such as external storage subsystems, displays, printers, and other peripherals— are covered by the applicable warranties for those products; HP software is covered by the HP Software Product Limited Warranty

FOR CONSUMER TRANSACTIONS IN AUSTRALIA AND NEW ZEALAND: THE WARRANTY TERMS CONTAINED IN THIS STATEMENT, EXCEPT TO THE EXTENT LAWFULLY PERMITTED, DO NOT EXCLUDE, RESTRICT OR MODIFY AND ARE IN ADDITION TO THE MANDATORY STATUTORY RIGHTS APPLICABLE TO THE SALE OF THIS PRODUCT TO YOU.

HP Year 2000 Warranty

This HP Year 2000 Warranty is in addition to the HP Standard Commercial Warranties contained in Exhibit E16, HP Terms and Conditions of Sale and Service. HP warrants that each HP hardware, software, and firmware Product delivered under this HP Year 2000 Warranty will be able to accurately process date data (including, but not limited to, calculating, comparing, and sequencing) from, into, and between the twentieth and twenty-first centuries, and the years 1999 and 2000, including leap year calculations, when used in accordance with the Product documentation provided by HP (including any instructions for installing patches or upgrades), provided that all other products (e.g. hardware, software, firmware) used in combination with such HP Product(s) properly exchange date data with it.

If the Specifications require that specific HP Products must perform as a system in accordance with the foregoing warranty, then that warranty will apply to those HP Products as a system, and Customer retains sole responsibility to ensure the Year 2000 readiness of its information

technology and business environment. The duration of this warranty extends through January 31, 2001. The remedies available under this warranty will be defined in, and subject to, the terms and limitations of the warranties contained in HP's standard commercial warranties. To the extent permitted by local law, this warranty applies only to branded HP Products and not to products manufactured by others that may be sold or distributed by HP. This HP Year 2000 Warranty applies only to HP Products shipped after the effective date, July 01, 1998, of this warranty. Nothing in this warranty will be construed to limit any rights or remedies provided elsewhere in the HP Terms and Conditions of Sale and Service with respect to matters other than Year 2000 compliance.

Three Year Limited Hardware Warranty

Hewlett-Packard (HP) warrants this hardware product against defects in materials and workmanship for a period of three years from receipt by the original end-user purchaser.

The three year warranty includes on-site service during the first year of use (free parts and labor), and parts service provided by an HP Service Center or a participating Authorized HP Personal Computer Dealer Repair Center, during the second and third years of use.

If HP receives notice of above defined defects during the warranty period, HP will either, at its option, repair or replace products, which prove to be defective.

Should HP be unable to repair or replace the product within a reasonable amount of time, the customer's alternate exclusive remedy shall be a refund of the purchase price upon return of the product.

The system processor unit, keyboard, mouse, and Hewlett-Packard accessories inside the system processor unit —such as video adapters, mass storage devices, and interface controllers— are covered by this warranty.

This warranty is extended worldwide under certain conditions (please check with your local HP office) to products purchased from HP or an Authorized HP Personal Computer Dealer which are reshipped by the original purchaser either for use by the original purchaser or provided as an incidental part of systems integrated by the original purchaser. When available in the country of use, service is provided in the same manner as if the product was purchased in that country and can only be provided in countries where the product is designed to operate. If the product is not normally sold by HP in the country of use, it must be returned to the

Regulatory Information and Warranty

HP Hardware Warranty

country of purchase for service. Response time for on-site service, and parts delivery turn-around time for parts service, are subject to changes from standard conditions based upon non-local parts availability.

Limitation of Warranty

The above warranty shall not apply to defects resulting from: misuse; unauthorized modification; operation or storage outside the environmental specifications for the product; in-transit damage; improper maintenance; or defects resulting from use of non-HP software, accessories, media, supplies, consumables, or such items not designed for use with the product.

Reloading the bundled or pre-loaded software on your Personal Workstation is not covered by the HP warranty.

HP MAKES NO OTHER EXPRESS WARRANTY, WHETHER WRITTEN OR ORAL, WITH RESPECT TO THIS PRODUCT. ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS IS LIMITED TO THE THREE-YEAR DURATION OF THIS WRITTEN WARRANTY. SOME STATES OR PROVINCES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

This warranty gives you specific legal rights, and you may also have other rights, which vary, from state to state, or province to province.

Limitation of Liability and Remedies

THE REMEDIES PROVIDED ABOVE ARE THE CUSTOMER'S SOLE AND EXCLUSIVE REMEDIES. IN NO EVENT SHALL HP BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, WHETHER BASED ON WARRANTY, CONTRACT, TORT, OR ANY OTHER LEGAL THEORY.

The foregoing limitation of liability shall not apply in the event that any HP product sold hereunder is determined by a court of competent jurisdiction to be defective and to have directly caused bodily injury, death, or property damage; provided, that in no event shall HP's liability for property damage exceed the greater of \$50,000 or the purchase price of the specific product that caused such damage.

Some states or provinces do not allow the exclusion or limitation of incidental or consequential damages—including lost profit—so the above limitation or exclusion may not apply to you.

Obtaining On-Site Warranty Service

To obtain on-site warranty service, the customer must contact an HP Sales and Service Office (in the US, call the HP Customer Support Center at (970) 635-1000) or a participating Authorized HP Personal Computer Dealer Repair Center. The customer must be prepared to supply proof of the purchase date.

The system processor unit, keyboard, mouse, and Hewlett-Packard accessories inside the system processor unit—such as video adapters, mass storage devices, and interface controllers—are covered by this warranty.

During the on-site warranty period, customer-replaceable components may be serviced through expedited part shipment. In this event, HP will prepay shipping charges, duty, and taxes; provide telephone assistance on replacement of the component when necessary; and pay shipping charges, duty, and taxes for any part that HP asks to be returned.

On-site visits caused by non-Hewlett-Packard products—whether internal or external to the system processor unit—are subject to standard per-incident travel and labor charges.

On-site service for this product is restricted or unavailable in certain locations. In HP Excluded Travel Areas—areas where geographical obstacles, undeveloped roads, or unsuitable public transportation prohibit routine travel—service is provided on a negotiated basis at extra charge.

Response time for HP on-site service in an HP Service Travel Area is normally next business day (excluding HP holidays) for HP Travel Zones 1-3 (generally 100 miles or 160 Km from the HP office). Response time is second business day for Zones 4 and 5 (200 miles, 320 Km); third business day for Zone 6 (300 miles, 480 Km); and negotiated beyond Zone 6. Worldwide Customer Support Travel information is available from any HP Sales and Service Office.

Travel restrictions and response time for dealer or distributor service are defined by the participating dealer or distributor.

Service contracts which provide after-hour or weekend coverage, faster response time, or service in an Excluded Travel Area are often available

from HP, an authorized dealer, or authorized distributor at additional charge.

Customer Responsibilities

The customer may be required to run HP-supplied diagnostic programs before an on-site visit or replacement part will be dispatched.

The customer is responsible for the security of its proprietary and confidential information and for maintaining a procedure external to the products for reconstruction of lost or altered files, data, or programs.

The customer must provide: access to the product; adequate working space and facilities within a reasonable distance of the product; access to and use of all information and facilities determined necessary by HP to service the product; and operating supplies and consumables such as the customer would use during normal operation.

A representative of the customer must be present at all times. The customer must state if the product is being used in an environment which poses a potential health hazard to repair personnel; HP or the servicing dealer may require that the product be maintained by customer personnel under direct HP or dealer supervision.

Obtaining Parts Warranty Service

When parts warranty service applies, the customer may be required to run HP-supplied diagnostic programs before a replacement part will be dispatched. The customer must be prepared to supply proof of purchase.

The customer shall return some defective parts upon HP demand. In that case, HP will prepay shipping charges for parts returned to the HP parts service center.

HP Telephone Support Services

HP Free telephone support for your Personal Workstation is available during the first year from date of purchase. This service will also provide technical assistance with the basic configuration and setup of your HP VISUALIZE Personal Workstation and for the bundled or pre-loaded operating system.

Telephone support is available at the end of the first year from date of purchase, via the Lifeline program, which is a fee-based service (North

America and Europe only).

HP does NOT provide telephone support for Personal Workstations configured as network servers. We recommend HP NetServers for your network server requirements.

(Rev. 17/03/98)

HP Software Product License Agreement and Software Product Limited Warranty

Your HP VISUALIZE Personal Workstation contains preinstalled software programs. Please read the Software License Agreement before proceeding.

CAREFULLY READ THIS LICENSE AGREEMENT AND LIMITED WARRANTY STATEMENT BEFORE PROCEEDING TO OPERATE THIS EQUIPMENT. RIGHTS IN THE SOFTWARE ARE OFFERED ONLY ON THE CONDITION THAT THE CUSTOMER AGREES TO ALL TERMS AND CONDITIONS OF THE LICENSE AGREEMENT. PROCEEDING TO OPERATE THE EQUIPMENT INDICATES YOUR ACCEPTANCE OF THESE TERMS AND CONDITIONS. IF YOU DO NOT AGREE WITH THE TERMS OF THE LICENSE AGREEMENT, YOU MUST NOW EITHER REMOVE THE SOFTWARE FROM YOUR HARD DISK DRIVE AND DESTROY THE MASTER DISKETTES, OR RETURN THE COMPLETE COMPUTER AND SOFTWARE FOR A FULL REFUND.

PROCEEDING WITH CONFIGURATION SIGNIFIES YOUR ACCEPTANCE OF THE LICENSE TERMS.

HP Software Product License Agreement

UNLESS OTHERWISE STATED BELOW, THIS HP SOFTWARE PRODUCT LICENSE AGREEMENT SHALL GOVERN THE USE OF ALL SOFTWARE THAT IS PROVIDED TO YOU, THE CUSTOMER, AS PART OF THE HP COMPUTER PRODUCT. IT SHALL SUPERSEDE ANY NON-HP SOFTWARE LICENSE TERMS THAT MAY BE FOUND ON-LINE, OR IN ANY DOCUMENTATION OR OTHER MATERIALS CONTAINED IN THE COMPUTER PRODUCT PACKAGING.

Note: Operating System Software by Microsoft is licensed to you under the Microsoft End User License Agreement (EULA) contained in the Microsoft documentation.

Regulatory Information and Warranty

HP Hardware Warranty

The following License Terms govern the use of the software:

USE. Customer may use the software on any one computer. Customer may not network the software or otherwise use it on more than one computer. Customer may not reverse assemble or decompile the software unless authorized by law.

COPIES AND ADAPTATIONS. Customer may make copies or adaptations of the software (a) for archival purposes or (b) when copying or adaptation is an essential step in the use of the software with a computer so long as the copies and adaptations are used in no other manner.

OWNERSHIP. Customer agrees that he/she does not have any title or ownership of the software, other than ownership of the physical media. Customer acknowledges and agrees that the software is copyrighted and protected under the copyright laws. Customer acknowledges and agrees that the software may have been developed by a third party software supplier named in the copyright notices included with the software, who shall be authorized to hold the Customer responsible for any copyright infringement or violation of this Agreement.

PRODUCT RECOVERY CD-ROM. If your computer was shipped with a product recovery CD-ROM: (i) The product recovery CD-ROM and/or support utility software may only be used for restoring the hard disk of the HP computer with which the product recovery CD-ROM was originally provided.(ii) The use of any operating system software by Microsoft contained in any such product recovery CD-ROM shall be governed by the Microsoft End User License Agreement (EULA).

TRANSFER OF RIGHTS IN SOFTWARE. Customer may transfer rights in the software to a third party only as part of the transfer of all rights and only if Customer obtains the prior agreement of the third party to be bound by the terms of this License Agreement. Upon such a transfer, Customer agrees that his/her rights in the software are terminated and that he/she will either destroy his/her copies and adaptations or deliver them to the third party.

SUBLICENSING AND DISTRIBUTION. Customer may not lease, sublicense the software or distribute copies or adaptations of the software to the public in physical media or by telecommunication without the prior written consent of Hewlett-Packard.

TERMINATION. Hewlett-Packard may terminate this software license for failure to comply with any of these terms provided Hewlett-Packard has requested Customer to cure the failure and Customer has failed to do

so within thirty (30) days of such notice.

UPDATES AND UPGRADES. Customer agrees that the software does not include updates and upgrades which may be available from Hewlett-Packard under a separate support agreement.

EXPORT CLAUSE. Customer agrees not to export or re-export the software or any copy or adaptation in violation of the U.S. Export Administration regulations or other applicable regulation.

U.S. GOVERNMENT RESTRICTED RIGHTS. Use, duplication, or disclosure by the U.S. Government is subject to restrictions as set forth in subparagraph (c)(1)(ii) of the Rights in Technical Data and Computer Software clause in DFARS 252.227-7013. Hewlett-Packard Company, 3000 Hanover Street, Palo Alto, CA94304 U.S.A. Rights for non-DOD U.S. Government Departments and Agencies are as set forth in FAR 52.227-19(c)(1,2).

HP Software Product Limited Warranty

THIS HP SOFTWARE PRODUCT LIMITED WARRANTY SHALL COVER ALL SOFTWARE THAT IS PROVIDED TO YOU, THE CUSTOMER, AS PART OF THE HP COMPUTER PRODUCT, INCLUDING ANY OPERATING SYSTEM SOFTWARE. IT SHALL SUPERSEDE ANY NON-HP WARRANTY TERMS THAT MAY BE FOUND ON-LINE, OR IN ANY DOCUMENTATION OR OTHER MATERIALS CONTAINED IN THE COMPUTER PRODUCT PACKAGING.

Ninety-Day Limited Software Warranty. HP warrants for a period of NINETY (90) DAYS from the date of the purchase that the software product will execute its programming instructions when all files are properly installed. HP does not warrant that the software will be uninterrupted or error free. In the event that this software product fails to execute its programming instructions during the warranty period, Customer's remedy shall be a refund or repair. Should HP be unable to replace the media within a reasonable amount of time, Customer's alternate remedy shall be a refund of the purchase price upon return of the product and all copies.

Removable Media (If supplied). HP warrants the removable media, if supplied, upon which this product is recorded to be free from defects in materials and workmanship under normal use for a period of NINETY (90) DAYS from the date of purchase. In the event the media proves to be defective during the warranty period, Customer's remedy shall be to

Regulatory Information and Warranty
HP Hardware Warranty

return the media to HP for replacement. Should HP be unable to replace the media within a reasonable amount of time, Customer's alternate remedy shall be a refund of the purchase price upon return of the product and destruction of all other non removable media copies of the software product.

Notice of Warranty Claims. Customer must notify HP in writing of any warranty claim not later than thirty (30) days after the expiration of the warranty period.

Limitation of Warranty. HP makes no other express warranty, whether written or oral with respect to this product. Any implied warranty of merchantability or fitness for a particular purpose is limited to the 90-day duration of this written warranty. Some states or provinces do not allow limitations on how long an implied warranty lasts, so the above limitation or exclusion may not apply to you. This warranty gives specific legal rights, and you may also have other rights which vary from state to state, or province to province.

Limitation of Liability and Remedies. THE REMEDIES PROVIDED ABOVE ARE CUSTOMER'S SOLE AND EXCLUSIVE REMEDIES. IN NO EVENT SHALL HP BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING LOST PROFIT) WHETHER BASED ON WARRANTY, CONTRACT, TORT OR ANY OTHER LEGAL THEORY. Some states or provinces do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

Obtaining Warranty Service. Warranty service may be obtained from the nearest HP sales office or other location indicated in the owner's manual or service booklet.

Consumer transactions in Australia and the United Kingdom: The disclaimers and limitations above shall not apply and shall not affect the statutory rights of a Consumer.

(Rev. 19/11/96)

Index

A

- Administrator password, setting, 41
- America Online, the HP Forum, 169
- Audio
 - troubleshooting, 152
- Audio connectors, 26
- Audio interface, troubleshooting, 152

B

- BIOS
 - Obtaining via World Wide Web, 169
 - Ordering by mail, 170

C

- CD drive, 55
 - Installing, 79
 - Removing, 85
- CD-ROM
 - Troubleshooting, 147
- CD-RW
 - Troubleshooting, 147
- CompuServe
 - Free introductory membership, 168
 - HP forum, 168
- Control panel lights, 25

D

- Declaration of conformity, 179
- Diagnostics, 136
- Drivers
 - Installing, 134
 - Obtaining via World Wide Web, 169
 - Ordering by mail, 170

E

- Electrostatic discharge (ESD), 20
- Error message, 140
- ESD (electrostatic discharge), 20
- Euro symbol, 37

F

- FDD cable, 78
- Features, Personal Workstation, 22
- Flexible disk drive
 - Troubleshooting, 146
- Floppy disk drive, 55
 - Installing, 89
 - Removing, 93
- Front panel
 - Removing, 59
 - Replacing, 64
- Front panel controls, 25

H

- Hard disk drive, 55
 - Installing, 95
 - Installing in CD drive bay area, 99
 - Removing, 103
 - Removing from CD drive bay area, 105
 - Troubleshooting, 146
- Hardware diagnostics utility, 162
- Hewlett-Packard
 - Information services, 168
 - Marketing headquarters, 178
 - World Wide Web access, 169
- Hinge slots
 - Bottom panel section, 63
 - Top panel section, 61
- HP accessories, supported, 55
- HP accessory
 - CD drive, 55

- Floppy disk drive, 55
- Hard disk drive, 55
- I/O cards, 55
 - Memory cards, 55
- HP Forum
 - America Online, 169
 - CompuServe, 168
 - HP MaxiLife, 153
 - HP Summary Screen, 136
 - HP Support Services, 37

I

- I/O card
 - Capabilities, 109
 - Installing, 112
 - Removing, 115
 - Slots, 109
- I/O cards, 55
- IDE cable, 77
- If, 144
- Information services, 168
- Initializing your software, 40

K

- Keyboard
 - Troubleshooting, 144
- Keyboard configuring, 37

L

- LAN connector (802.3 TP), 26
- Left-side panel
 - Removing, 56
 - Replacing, 68
- Lights, control panel, 25
- Lock latch, 68

M

- Management, power, 43
- MaxiLife, 25, 153
- Media devices, removable, 77
- Memory, 29

- Installing, 72
- Removing, 75
- Memory cards, 55
- Memory slots, 71
- Monitors, 29
- Mouse
 - Troubleshooting, 144
- Mouse, using your HP, 38
- Multimedia keyboard
 - Headset connector, 33
 - HP Customer information, 33
 - HP TopTools, 32
 - Internet keys, 31
 - Lock/Suspend key, 32
 - Menu keys, 31
 - Microphone connector, 33
 - Mute and volume keys, 32
 - Setting it up, 34
 - Shortcut keys, 31
- N**
- Network problems,
 - troubleshooting, 152
- O**
- Operating system overview, 30
- Operating system recovery, 164
- P**
- Panel guide, 68
- Panel hook, 68
- Parallel IEEE 1284 I/O connector, 26
- Password
 - If you forget, 150
- Password, setting, 41
- Personal Workstation
 - Characteristics, 24
 - Front panel controls, 25
 - Memory, 29
 - Monitors, 29
 - Multimedia keyboard, 31
 - Operating system overview, 30
 - Rear panel connectors, 26
 - Recycling, 52
 - Setting your password, 41
 - Starting, 39
 - Starting for the first time, 39
 - Stopping, 41
- Personal Workstation features,
 - 22
- POST error message, 140
- Power cord connector, 26
- Power management, 43
- Pre-boot checks, 154
- Printer
 - Troubleshooting, 145
- Processor
 - Fan mount, 125
 - Installing, 123
 - Removing, 119
- PS/2 connectors, 26, 27
- R**
- Rear panel connectors, 26
- Recovery, operating system, 164
- Recycling an old Personal Workstation, 52
- Regulatory information, 181
- Removable media devices, 77
- RS-232C serial I/O connectors,
 - 26, 27
- S**
- Setup
 - Troubleshooting, 151
- Software
 - Troubleshooting, 150
- Starting your Personal Workstation, 39
- Stopping your Personal Workstation, 41
- Summary Screen, 136
- Support
 - Summary of services, 176
 - Telephone, 173, 175
 - Support Services, HP, 37
 - Supported HP accessories, 55
- T**
- Telephone support
 - Out of warranty, 175
 - Under warranty, 173
- Terminator card, 124
- Troubleshooting
 - audio, 152
 - Audio interface, 152
 - CD-ROM, 147
 - CD-RW, 147
 - Flexible disk drive, 146
 - Hard disk drive, 146
 - Keyboard, 144
 - Mouse, 144
 - Network problems, 152
 - Printer, 145
 - Setup, 151
 - Software, 150
- Twisted pair LAN connector (802.3 TP), 26
- U**
- URL
 - HP World Wide Web site, 169
- USB connectors, 26, 27
- User password, setting, 42
- Utilities
 - Installing, 134
- V**
- Voltage Regulator Module (VRM), 128
- VRM
 - Installing, 131
 - Removing, 129

Index

W

Warranty information, 184

World Wide Web

 Access to HP, 169

Y

Year 2000 warranty, 184