COMPAQ
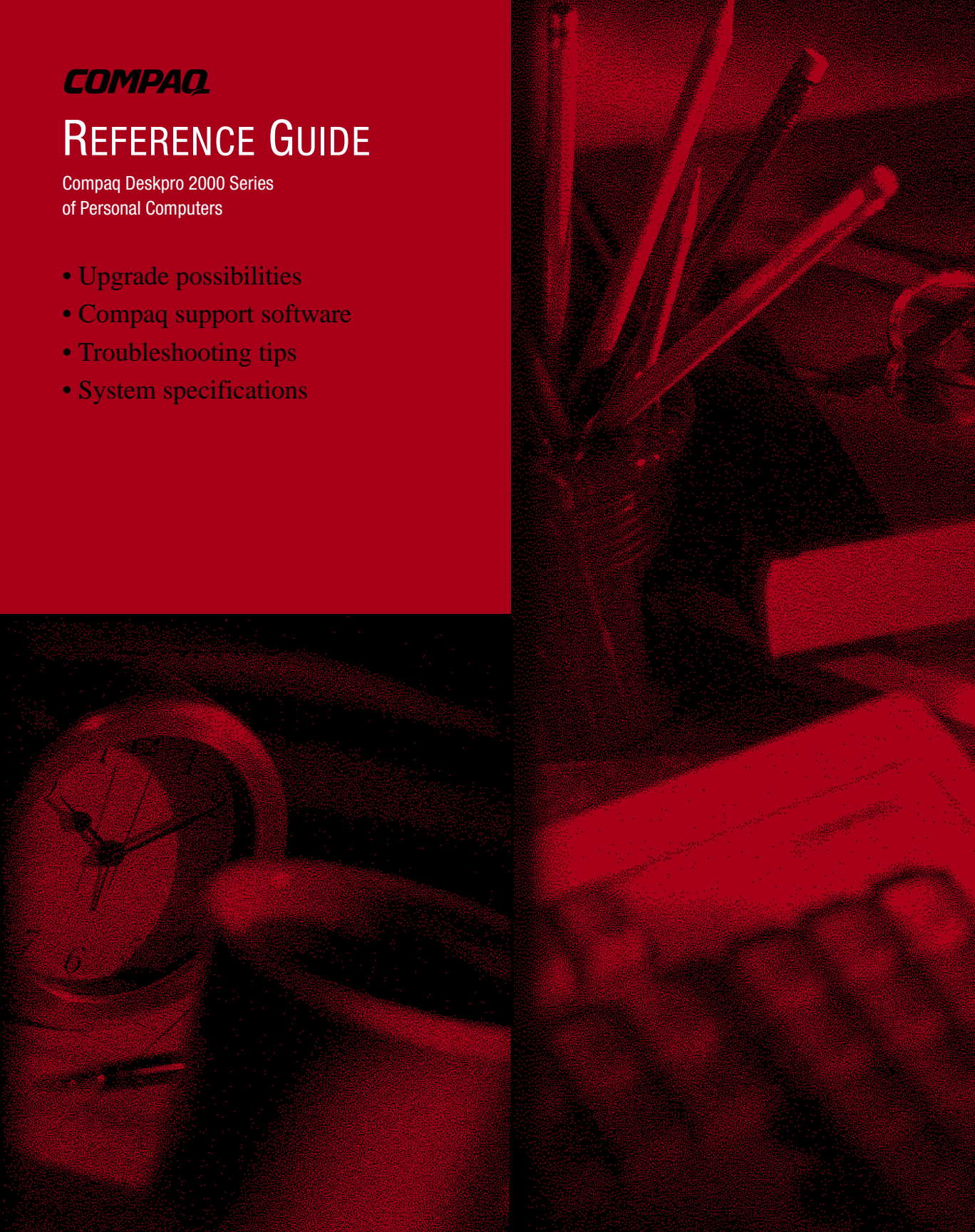
REFERENCE GUIDE

Compaq Deskpro 2000 Series
of Personal Computers

- Upgrade possibilities
- Compaq support software
- Troubleshooting tips
- System specifications

NOTICE

The information in this guide is subject to change without notice.

Reference Guide

Compaq Deskpro 2000 Series of Personal Computers

Compaq Computer Corporation

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preface

USING THIS GUIDE

The *Reference Guide* for the Compaq Deskpro 2000 Series of Personal Computers is a comprehensive reference that takes you further than the *Quick Setup* poster and the *Getting Started* instructions. The *Reference Guide* includes general information about your computer, troubleshooting and diagnostics, and technical specifications.

Symbols and Conventions

The following format conventions distinguish elements of the text throughout this guide:

■ Drive letters that are not in command lines are presented in uppercase type as shown here: drive A.

■ Directory names that are not in command lines are presented in uppercase type as shown here: DIRECTORY.

■ The file names are presented in uppercase italic type as shown here: *FILENAME*.

■ The names of commands are presented in lowercase as shown here: install, or a:\install.

■ Commands that are to be entered at the system prompt may be shown on a separate line.

■ When you need to type information without pressing the Enter key, you are directed to "type" the information.

■ When you need to type information *and* press the Enter key, you are directed to "enter" the information.

The following words and symbols mark special messages throughout this guide:

WARNING: Text set off in this manner indicates that failure to follow directions could result in bodily harm or loss of life.

CAUTION: Text set off in this manner indicates that failure to follow directions could result in damage to equipment or loss of information.

✎ Text set off in this manner presents clarifying information, specific instructions, commentary, sidelights, or interesting points of information.

Environmental Commitment

Compaq is committed to making environmentally friendly products. The Compaq Deskpro 2000 Series of Personal Computers was produced in a chlorofluorocarbons (CFC)-free factory. The type of plastics used in the product is marked with the International Standards Organization (ISO) identification symbols to aid in recycling. The packing boxes are made from recycled corrugated fiberboard. The cushioning material inside the packing boxes is made from CFC-free, recyclable polypropylene.

Additionally, Compaq has a take-back program for the return and reuse of foam inserts used in the packaging of selected Compaq computers. Reduce, reuse, and recycle are words to live by at Compaq.

chapter **1**

COMPUTER AT A GLANCE

This chapter summarizes the features of your computer, identifies the main components, and provides suggestions on how to care for your computer.

Compaq Deskpro 2000 Personal Computer

Feature Summary

■ Pentium processors running at speeds from 100 to 200 megahertz

■ Pentium Pro processors with speeds of 180 to 200 megahertz

■ 256-kilobyte secondary (L2) cache module on select Pentium models

■ 256-kilobyte secondary (L2) cache integrated into the processor chip on Pentium Pro models

■ Peripheral Components Interconnect (PCI) chipset used for PCI/ISA, memory, and peripheral control

■ Super I/O controller (integrates a serial port, parallel port, diskette drive interface, real-time clock, CMOS RAM, and mouse and keyboard controller)

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- PCI and ISA peripheral connectors on the expansion riser board

- 8-, 16-, or 32-megabyte extended data out (EDO) dynamic random access memory (DRAM) standard; expandable to 128- or 192-megabytes of DRAM installed in single inline memory modules (SIMMs)

- BIOS in a flash memory device supports PCI auto-configuration

- Desktop chassis includes expansion slots for up to five expansion boards

  - Two dedicated full-length PCI slots

  - Two dedicated ISA-bus slots (one half-length and one full-length)

  - One "combination" slot for either a PCI or an ISA expansion board

- Minitower chassis includes expansion slots for up to five expansion boards

  - Two dedicated full-length PCI slots

  - Two dedicated ISA-bus slots (one half-length and one full-length)

  - One "combination" slot for either a PCI or an ISA expansion board

- 145-watt (desktop models) or 185-watt (minitower models) continuous power supply, switch-selectable for 115 and 230 VAC operation

- One RS-232C-compatible 9-pin serial connector

- One multimode, 25-pin enhanced parallel connector

- One Universal Serial Bus (USB) connector on select models. The USB connector is a Plug and Play connector for use with mouse, keyboard, most joysticks, and future USB peripherals

- Five drive bays on both desktop and minitower models:

  - One external 3.5-inch, one-third height diskette drive bay

  - One internal 3.5-inch, one-third height drive bay

  - Two external 5.25-inch, one-half height drive bays (*or* one full-height drive)

❏ One internal 5.25-inch hard drive bay (one-third height or 3.5-inch hard drive with a special bracket)

■ One enhanced IDE (EIDE) hard drive installed: hard drive sizes range from 630 megabytes to 2.5 gigabytes

✎ The 2.5 gigabyte hard drives are partitioned into two, 1.25-gigabyte logical drives.

■ Drive fault prediction on select hard drives

■ One 1.44-megabyte, 3.5-inch high-density diskette drive installed

■ One 8X CD-ROM drive installed on select models

■ 1- to 2-megabyte graphics controller installed, depending on the model

■ Compaq SpaceSaver Keyboard, featuring the Microsoft Windows-specific keys

■ Mouse

■ Keyboard and mouse connectors on the back panel

■ Internal speaker mounted on system board

■ Intelligent Manageability and security features including password and cable lock provision

■ Microsoft Windows 95, Microsoft Windows 3.1 and MS/DOS, or Windows NT Workstation 4.0 operating system software

■ Compaq Diagnostics and Configuration utilities, support software, and device drivers

System Memory

The system supports base (conventional) and extended memory. Operating systems such as MS-DOS, OS/2, UNIX, and all application programs use base memory. For better performance, Windows NT, OS/2, and UNIX, as well as many MS-DOS applications, use extended memory.

The computer comes with either 8-, 16-, or 32-megabytes of EDO DRAM installed and supports up to 128- or 192-megabytes of EDO DRAM. EDO DRAM is implemented through 72-pin single inline memory modules (SIMMs). Refer to Chapter 5, "Upgrading the Desktop Computer," or Chapter 6, "Upgrading the Minitower Computer," for information on how to upgrade system memory.

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Cache Memory

Cache memory is very fast pipeline burst memory used for temporarily storing data for fast access by the processor. The faster the processor is, the more need there is for temporary data storage. A 256-kilobyte write-back, direct mapped secondary (L2) cache is integrated on Pentium models that have a speed of 120 megahertz or higher. A 256-kilobyte write-back, four-way, set associative secondary (L2) cache is integrated into the processor on Pentium Pro models.

Graphics Controllers

The purpose of a graphics controller is to generate the text and graphics images for the monitor screen. The quality of the picture you see depends on the resolution of your monitor and the number of colors that can be displayed. High resolution graphics with many colors require that the graphics controller has its own memory system. The computer comes with one of the following graphics controllers:

■   The Matrox MGA Millennium graphics controller comes standard with 2 megabytes of Windows random access memory (WRAM), which can be upgraded to 4 or 8 megabytes of WRAM.

■   The Cirrus 5446 PCI performance graphics controller comes standard with 1 megabyte of Extended Data Out (EDO) dynamic random access memory (DRAM), and can be upgraded to 2 megabytes of EDO DRAM.

■   The Cirrus 5436 PCI performance graphics controller comes standard with 1 megabyte of EDO DRAM, and can be upgraded to 2 megabytes of EDO DRAM.

IDE Peripheral Interface

The onboard PCI chipset provides a high-speed, 32-bit PCI/IDE interface, which supports the following:

■   Up to four PCI/IDE hard drives on the PCI bus

■   Enhanced Mode 3 and Mode 4 support

■   Logical block addressing (LBA) of hard drives larger than 528 megabytes

■   Extended cylinder head sector (ECHS) translation modes

■   ATAPI devices (such as CD-ROMs) on both IDE interfaces

System I/O

The onboard I/O controller integrates the functions for the serial and parallel ports, diskette drives, and the keyboard. This component provides:

■ Multimode bi-directional parallel port

   ❏ Standard mode: Centronics-compatible operation

   ❏ High-speed mode with support for an enhanced capabilities port (ECP) and enhanced parallel port (EPP)

■ One RS-232C compatible 9-pin serial port

■ Integrated real-time clock

■ A 242-byte, battery-backed CMOS RAM

■ Integrated 8042-compatible keyboard controller

■ Industry-standard diskette drive controller that supports:

   ❏ 720-kilobyte and 1.44-megabyte 3.5-inch drives (at 135 tracks per inch)

   ❏ 360-kilobyte and 1.2-megabyte 5.25-inch drives

The computer supports up to five drives and comes with one of the following hard drives installed: 630 megabytes, 1.08-, 1.2-, 1.62-, or 2.5-gigabytes. Depending on the model, one 8X CD-ROM drive may be installed in the 5.25-inch drive bay.

If you are using third-party controllers or non-IDE hard drives, each of the controller functions can be disabled through the Setup program. For more information, refer to Chapter 3, "Using Compaq Utilities."

System BIOS

The system BIOS provides ISA and PCI compatibility. Contained in a flash memory device on the system board, the BIOS provides the power-on self-test (POST) and the PCI and IDE auto-configuration utility.

The system BIOS is always "shadowed." Shadowing allows any BIOS routines to be executed from fast 32-bit onboard DRAM instead of from the slower 8-bit flash device.

PCI Auto-Configuration

The PCI auto-configuration utility works in conjunction with the Setup program to support using PCI expansion boards in the system. When you turn on the computer power after installing a PCI board, the BIOS automatically configures interrupts, DMA channels, I/O space, and so on. Since PCI expansion boards use the same interrupt resources as ISA expansion boards, you must specify the interrupts used by ISA boards in the Setup program. Chapter 3, "Using Compaq Utilities," explains how to use the Setup program. The PCI auto-configuration program complies with version 2.1 of the PCI BIOS specification.

IDE Auto-Configuration

If you install an IDE drive in the computer, the IDE auto-configuration utility automatically detects and configures the drive for operation in the computer. This utility eliminates the need to run the Setup program after you install an IDE drive.

ISA Plug and Play Capability

ISA Plug and Play capability provides auto-configuration of Plug and Play ISA boards and resource management for legacy (non–Plug and Play) ISA boards when used with Compaq's Computer Setup for Windows (CSW) utility or a Plug and Play–compatible operating system like Microsoft's Windows 95.

BIOS Upgrades

Because the BIOS is stored in a flash memory device, you can easily upgrade the BIOS without having to disassemble the system. The flash upgrade process can be accomplished by running a utility from a diskette, a hard drive, or over a network.

The section on Flash ROM in Chapter 2, "Protecting Information on Your Computer," explains how to run the BIOS upgrade utility. For information about the latest BIOS update, contact your authorized Compaq service provider.

Expansion Slots

The computer has two dedicated 16-bit ISA-compatible slots, two dedicated PCI-compatible expansion slots, and one "combination slot" that can be used by *either* a PCI or an ISA board. For more information about expansion slots and installing expansion boards, see Chapter 5, "Upgrading the Desktop Computer" or Chapter 6, "Upgrading the Minitower Computer."

Power Supply

The desktop computer has a 145-watt continuous power supply, and the minitower computer has a 185-watt continuous power supply to provide power for onboard resources, expansion boards, and drives. A switch on the computer back panel sets the power supply to operate at either:

■ 115 VAC (in the range of 100-120 VAC; 5.0 A maximum input current)

■ 230 VAC (in the range of 200-240 VAC; 3.0 A maximum input current)

For power supply output ratings, see Appendix B, "Specifications."

System Security

The system BIOS provides a power-on password option that you can enable through the Setup program. The computer includes a cable lock provision that makes it possible to lock the computer cover in place to prevent unauthorized access to the system jumpers and other internal components (a padlock is not included). For more information on this and additional security features, refer to Chapter 2, "Protecting Information on Your Computer."

Keyboard/Mouse Controller

The onboard I/O controller stores the keyboard and mouse controller code. Connectors for the keyboard and mouse are located on the back panel.

Real-Time Clock and CMOS RAM

The onboard I/O controller provides a real-time clock and CMOS RAM. Appendix H provides information about replacing the battery.

You can set the time for the clock and the CMOS values by using the Setup program described in Chapter 3, "Using Compaq Utilities."

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Power Supply Fan	For cooling, a fan is attached to the power supply at the rear of the computer chassis. This fan draws air in through the vents in the power supply and provides air flow across the processor.
Speaker	An internal speaker is mounted on the system board. The speaker provides audible error code information (beep codes) during the power-on self-test (POST) and as required by the software. See Chapter 7, "Troubleshooting," for beep code information.

Software

Windows 95/Windows 3.1 and MS/DOS

When you set up your computer initially, you are required to select which operating system you want to install. Your computer also comes preinstalled with the following Compaq software:

■ Partition-based Compaq Diagnostics utilities

■ Compaq Diagnostics for Windows

■ Computer Setup for Windows (CSW)

■ Compaq support software and device drivers

■ Online *Safety & Comfort Guide*

Windows NT Workstation 4.0

The Windows NT 4.0 operating system software is provided on a compact disc (CD) for easy installation along with the following Compaq software:

■ Compaq Diagnostics for Windows NT

■ Compaq support software and device drivers

■ Online *Safety & Comfort Guide*

Ordering Additional Operating System Drivers

If you plan to run any of the following operating systems on your computer, you must install the corresponding Compaq device drivers and utilities before attempting to use the computer:

■ IBM OS/2 or NetWare

■ Microsoft Windows NT Workstation 4.0 on computers that are not shipped with that operating system

■ A version of Microsoft Windows 95 or Microsoft Windows NT Workstation that is different from the version included with your computer

There are two methods you can use to order copies of suitable device drivers and utilities:

■ You can order the *Support Software CD for Compaq Desktop Products.* This compact disc contains the latest device drivers, utilities, and flashable ROM images needed to run MS-DOS, Windows 3.1, Windows 95, Windows NT Workstation 4.0, IBM OS/2, and NetWare on your Compaq commercial desktop product.

■ You can purchase backup diskettes.

If you choose to purchase the *Support Software CD*, you have two options:

■ You can purchase a single CD-ROM that gives you one-time access to the latest support software.

■ You can purchase a yearly subscription that delivers up to 12 monthly CD-ROMs.

The annual subscription offers you continuous access to the latest developments, while the single CD-ROM offers you information as you need it.

To order device drivers or purchase backup diskettes, call the appropriate number found in the "Worldwide Telephone Numbers" table in Chapter 7, "Troubleshooting."

✎ If you choose to call Compaq to place an order, be sure to have the serial number of your computer available. The serial number is on the right-hand side of your computer, near the system lights. This number is necessary for all purchases.

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Identifying Desktop Computer Features

The Compaq Deskpro 2000 Series of Personal Computers comes with a mouse and keyboard. You will also need a Compaq color monitor or other compatible monitor to operate your computer.

Front Panel Lights and Controls
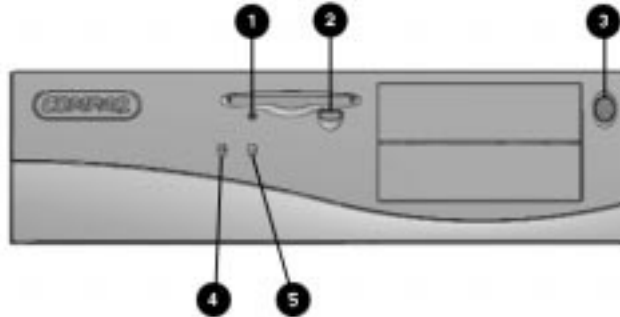
Power Switch and Front Panel Lights

Lights and Controls		
Ref.	**Component**	**Function**
❶	Diskette Drive Activity Light	Turns on when the diskette drive is reading or writing.
❷	Diskette Eject Button	Ejects a loaded diskette.
❸	Power Switch	Turns the computer on and off.
❹	Power-On Light	Turns on when the computer is turned on.
❺	Hard Drive Activity Light	Turns on when the hard drive is reading or writing.

The lights on the computer provide information about computer operation. When the power switch ❸ is turned on, the power-on light ❹ is green.

When the hard drive light ❺ or diskette drive light ❶ is on, the drive is either reading information from the disk or storing information on the disk.
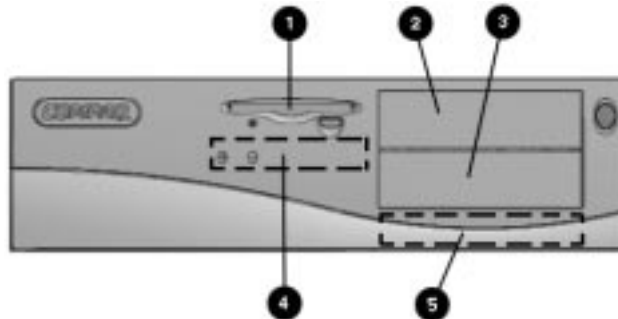
Drive Positions

Drive Positions on the Compaq Deskpro 2000 Desktop Computer

The computer has space available for a combination of up to five mass storage devices. They may be installed in various configurations, including those shown in the following table.

Compaq Deskpro 2000 Desktop Computer

Drive	Configuration
❶	Standard 3.5-inch 1.44MB diskette drive
❷	Optional diskette drive (5.25-inch or 3.5-inch), tape drive, hard drive, or CD-ROM drive (half-height)
❸	Optional diskette drive (5.25-inch or 3.5-inch), tape drive, hard drive, or CD-ROM drive (half-height)
❹	Primary hard drive bay (3.5-inch, third-height))
❺	Optional hard drive bay (5.25-inch. third-height))

To verify the type, size, and capability of the mass storage devices installed in your computer, run the View System Information (INSPECT) utility available at computer startup. Refer to Chapter 3, "Using Compaq Utilities," for more information.

✎ Your computer may have either a 5.25-inch hard drive or a 3.5-inch hard drive installed. If the hard drive is a 5.25-inch drive, it will be installed in location ❺. If the hard drive is a 3.5-inch drive, it will be installed in location ❹.

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Rear Panel Connectors

The following illustration shows the rear panel connectors on your desktop computer. Each connector is color-coded and includes an icon to help you identify its function.

Rear Panel Connectors

Rear Panel Connectors

Ref.	Component	Function
❶	Voltage Select Switch	Switches voltage between 115 V (U.S.) to 230 V to match geographical requirements.
❷	Monitor Connector	Connects a monitor to a graphics controller card (Pentium Pro models only). **NOTE:** The MGA Millennium graphics controller also includes a multimedia port which is not currently used.
❸	Power Cord Connector	Connects the computer to an electrical power outlet.
❹	USB Connector	Connects a monitor, keyboard, or future USB peripherals (Pentium Pro models only)
❺	Serial Connector	Connects a serial device, such as a serial printer.
❻	Keyboard Connector	Connects the keyboard.
❼	Mouse Connector	Connects the mouse.
❽	Parallel Connector	Connects a parallel device, such as a parallel printer.
❾	Monitor Connector	Connects a monitor to an integrated graphics controller (Pentium models only).

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Identifying the Minitower Features

The Compaq Deskpro 2000 Minitower Personal Computer comes with a mouse and keyboard. You will also need a Compaq color monitor or other compatible monitor to operate your computer.

Front Panel Lights and Controls
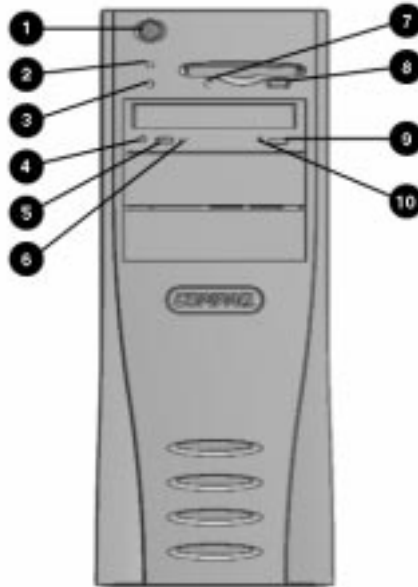
Power Switch and Front Panel Lights

Lights and Controls

Ref.	Component	Function
❶	Power Switch	Turns the computer on and off.
❷	Power-On Light	Turns on when the computer is turned on.
❸	Hard Drive Activity Light	Turns on when the hard drive is reading or writing.
❹	CD-ROM Headphone Jack	Connects a headphone to the CD-ROM drive.
❺	CD-ROM Headphone Volume Control	Increases and decreases the CD-ROM headphone volume.
❻	CD-ROM Drive Activity Light	Turns on when the CD-ROM drive is reading.
❼	Diskette Drive Activity Light	Turns on when the diskette drive is reading or writing.
❽	Diskette Eject Button	Ejects a loaded diskette.
❾	CD-ROM Emergency Eject Hole	Manually ejects a CD if the eject button is inoperable.
❿	CD-ROM Eject Button	Opens and closes the CD-ROM tray.

The lights on the computer provide information about the computer's operation. When the power switch ❶ is turned on, the power-on light ❷ is green.

When the hard drive light ❸, diskette drive light ❼, or CD-ROM drive light ❻ is on, the drive is either reading information from the disk or storing information on the disk.

Drive Positions

The computer has space available for a combination of up to five mass storage devices. They may be installed in various configurations, including those shown in the following tables.
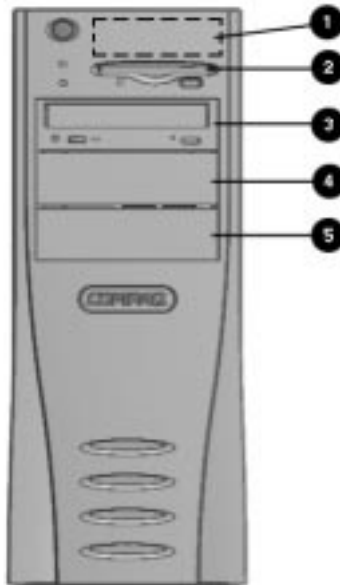
Drive Positions on the Minitower Computer

Compaq Deskpro 2000 Minitower Computer

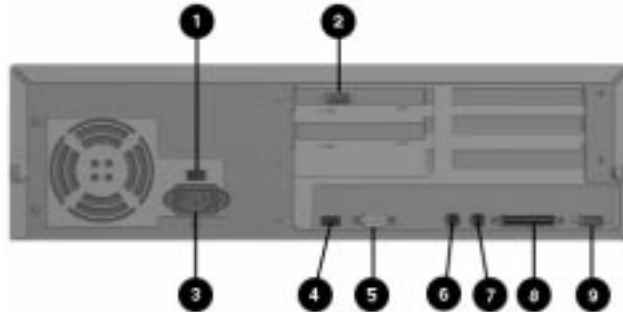| Drive	Configuration
❶	Internal 3.5-inch hard drive
❷	Standard 3.5-inch 1.44MB diskette drive
❸	Optional diskette drive (5.25-inch or 3.5-inch), CD-ROM, tape drive, or hard drive (half-height)
❹	Optional diskette drive (5.25-inch or 3.5-inch), tape drive, hard drive, or CD-ROM drive (half-height)
❺	Optional diskette drive (5.25-inch or 3.5-inch), tape drive, hard drive, or CD-ROM drive (half-height)

✎ Your computer may have either a 5.25-inch hard drive or a 3.5-inch hard drive installed. If the hard drive is a 5.25-inch drive, it will be installed in location ❺. If the hard drive is a 3.5-inch drive, it will be installed in location ❶.

To verify the type, size, and capability of the mass storage devices installed in your computer, run Compaq Diagnostics in Windows, or run the View System Information (INSPECT) utility available at computer startup. Refer to Chapter 3, "Using Compaq Utilities," for more information.

Rear Panel Connectors

The following illustration shows the rear panel connectors of your minitower computer. Each connector is color-coded and includes an icon to help identify its function.

Rear Panel Connectors

Rear Panel Connectors

Ref.	Component	Function
❶	Power Cord Connector	Connects the computer to an electrical power outlet.
❷	USB Connector	Connects a monitor, keyboard, or future USB peripherals (Pentium Pro models only)
❸	Serial Connector	Connects a serial device, such as a serial printer.
❹	Keyboard Connector	Connects the keyboard.
❺	Mouse Connector	Connects the mouse.
❻	Parallel Connector	Connects a parallel device, such as a parallel printer.
❼	Monitor Connector	Connects a monitor to an integrated graphics controller (Pentium models).

Continued

Rear Panel Connectors *Continued*

Ref.	Component	Function
❽	Voltage Select Switch	Switches voltage between 115 V (U.S.) to 230 V to match geographical requirements.
❾	Monitor Connector	Connects a monitor to a graphics controller card (Pentium Pro models only). **NOTE:** The MGA Millennium graphics controller also includes a multimedia port which is not currently used.

Using the Space–Saver Keyboard

Your keyboard has four principal typing areas and features Windows-specific keys:

❶ Main (typewriter) keypad.

❷ Function keys—F1 through F12—at the top of the keyboard. Each key instructs the computer to carry out a specific task. In Program Manager or Windows Explorer, for example, pressing F1 usually causes help information to appear on your screen.

❸ Windows Logo keys.

❹ Windows Application key.

❺ Arrow keys for moving the cursor up, down, right, and left. (The cursor indicates your position on the screen. If you are typing, the cursor shows where letters will appear.)

❻ Numeric (calculator style) keypad.

The numeric keypad has two operating modes, numeric and editing. When the Num Lock indicator light is on, the keypad is in the numeric mode and can be used like a calculator. To switch the keypad to the editing mode, press the Num Lock key (the light goes off).
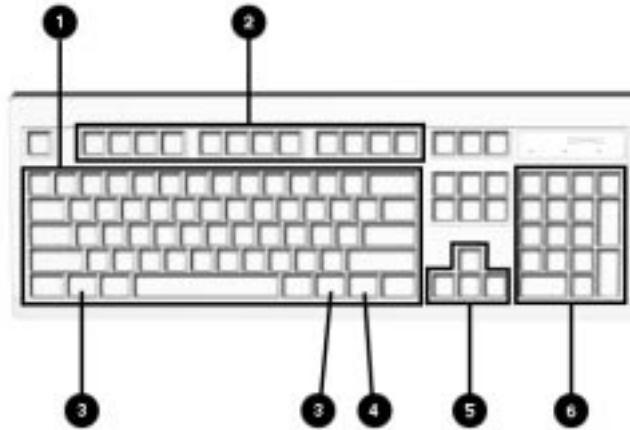
Keyboard Typing Areas

Three keys perform specific keyboard functions. The
corresponding lights at the top of the keyboard indicate whether
the keyboard functions are on or off (Num Lock ❶, Caps Lock
❷, and Scroll Lock ❸). The keyboard function is operating
when the light is on.
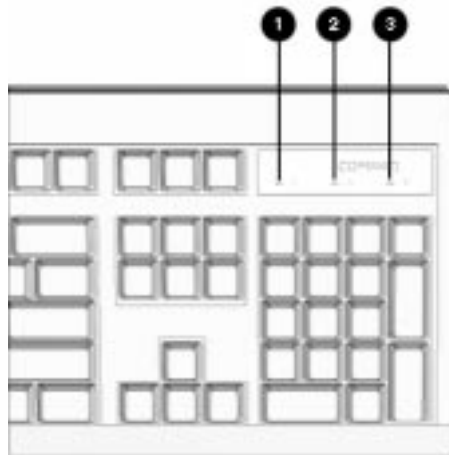
Keyboard Lights

The keyboard has feet on the bottom that you can use to tilt the
keyboard to a more comfortable typing angle.
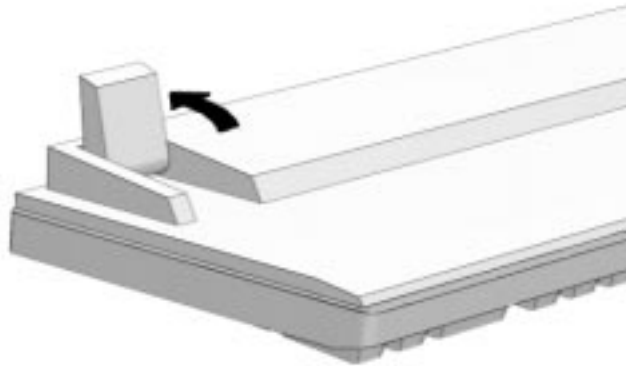
Keyboard Tilt Foot

Other function keys on the keyboard provide special functions depending on the software application you are using. These keys are described in the following table.
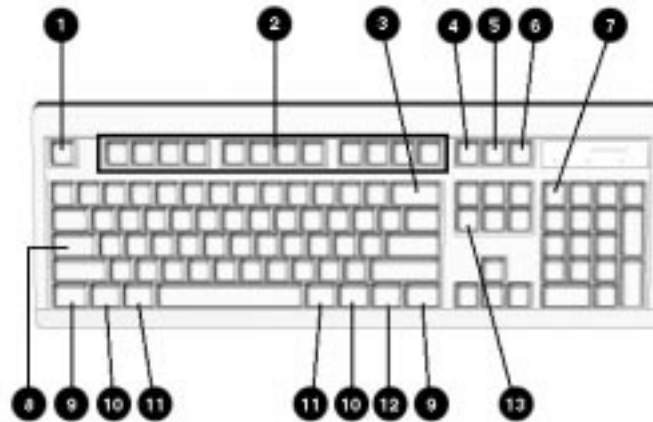
Special Function Keys

✎ Keyboard layout may vary by country.

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Special Function Keys

Reference	Key	Function
❶	Esc	Often assigned a specific task by the application. Frequently used as an exit key (for quitting an application), or for moving back one screen, or for canceling a command.
❷	F1 - F12	Used for specific effects in applications and operating systems. Refer to the application software documentation.
❸	Backspace	Moves the cursor left and deletes characters as it moves to the left.
❹	Print Scrn	Depending on the software you are using, prints the displayed screen to a printer. Using this key will not print the entire file.
❺	Scroll Lock	When the Scroll Lock light is on, it prevents the screen from scrolling in some spreadsheet applications.
❻	Pause	Temporarily suspends screen scrolling or some operations.
❼	Num Lock	When the Num Lock light is on, the numeric keypad is activated and the arrow keys are deactivated. (The arrow keys to the left of the keypad perform the same functions as the arrow keys on the keypad.)
❽	Caps Lock	When the Caps Lock light is on, all letters typed are capitalized.
❾	Ctrl	Used in combination with another key, its effect depends on the software application you are using.
❿	Windows Logo Keys	Opens the Windows Start menu. Used in combination with another key, its effect depends on the software application you are using.
⓫	Alt	Used in combination with another key, its effect depends on the software application you are using.
⓬	Windows Application Key	Opens a context menu for the software program you are using.
⓭	Delete	Deletes highlighted characters on the screen; otherwise, deletes one character at a time.
❾ ❿ ⓫	Ctrl+Alt+Delete	Holding down Ctrl and Alt while pressing Delete restarts the computer.

Using the Mouse

The Compaq mouse comes with your computer, but any serial PS/2 mouse will work in much the same way. The mouse controls the on-screen pointer or cursor when you use Windows and other mouse-oriented software.

Compaq Mouse

Most software applications that support a mouse use the four basic mouse techniques described below.

■ Point: Move your mouse to point to your selection on the screen.

■ Click: Press and release the left mouse button.

■ Double-Click: Press and release the left mouse button twice (quickly).

■ Click and Drag (also called Drag and Drop): Press and hold the left mouse button, then move the mouse. Release the button when you finish dragging your selection.

To use the mouse:

1. Make sure the mouse is properly connected to the computer and that the computer startup is complete.

2. Place the mouse on a clean, flat surface, such as your desktop.

3. Move your mouse across the flat surface—and a pointer moves across your screen.

   ❏ To type, move the pointer to a spot on the screen where you want to begin typing, then press and release (this is called clicking) the left mouse button once.

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The cursor will begin blinking at the spot you clicked, and you may begin typing there.

❏ To make a selection in a program menu, use the mouse to click on the menu name, then click on your selection in the drop-down menu list.

❏ To open icons (small pictures that represent files and programs), position the mouse pointer on the icon, then double-click.

✎ The double-click speed is timed. If you double-click too slowly, your computer responds as if you single-clicked twice. Remember, click quickly.

Customizing Mouse Buttons

You can swap the functions of the left and right mouse buttons. This can be useful if you are more comfortable holding the mouse with your left hand.

To switch button functions, enter the following at the system prompt. Enter a space wherever you see the ▲ character.

MOUSE ▲ LEFT

or

MOUSE ▲ RIGHT

Cleaning the Mouse

For the most part, a mouse cleans itself as you move it around. However, if you find that the pointer does not move smoothly, or that the ball does not move freely, you should clean the mouse.

To clean the mouse, complete the following steps:

1. Turn off your computer.
2. Disconnect the mouse cable from the computer.
3. Turn the mouse upside down.
4. Remove the mouse ball cover.
5. Gently turn the mouse over and let the ball drop into your hand.
6. Use a cotton swab dipped in isopropyl alcohol to wipe the ball clean. Squeeze the excess liquid out of the cotton swab before wiping the ball.
7. Dry the ball with a clean, lint-free cloth.
8. Blow into the ball-cage to remove any dust or lint from inside. (The cage contains rollers like those on a tape recorder. Use a cotton swab and tape head cleaner to wipe off any oil on these surfaces. Turn the rollers to clean all surfaces.)
9. Put the ball back into the mouse and close the mouse ball cover.
10. Plug the mouse cable into the computer.
11. If desired, turn on your computer.

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Caring for Your Computer

Follow these suggestions to protect your computer and monitor:

- Operate the computer on a sturdy, level surface such as a desk or table. Leave a three-inch (7.6-cm) clearance at the back of the system unit and above the monitor to permit required airflow

- Never restrict the airflow into the computer by blocking the front vents or air intake. Do not place the keyboard, with the keyboard feet down, directly against the front of the unit as this will restrict the airflow.

- Keep the computer away from excessive moisture, direct sunlight, and extremes of heat and cold. For information about the recommended temperature and humidity ranges for your computer, refer to Appendix A, "Specifications."

- Keep liquids away from the computer and keyboard.

- Never cover the ventilation slots on the monitor with any type of material.

✎ For the next two suggestions, be sure the computer is turned off.

- Wipe the exterior of the computer with a soft cloth dampened with water as needed. Using cleaning products may discolor or damage the finish.

- Occasionally clean the air vents on the front and back of the computer. Lint and other foreign matter can block the vents and limit the airflow.

chapter 2

PROTECTING INFORMATION ON YOUR COMPUTER

The Compaq Deskpro 2000 Series of Personal Computers has several different types of security features that provide solutions for a variety of potential security problems. This chapter identifies these features and describes their purposes.

Security Features Table

This table describes how the utilities and configuration switches and jumpers function together. In most cases you will not need to set any switches. For more information about the jumpers, refer to Appendix E, "System Board Jumpers."

Security Features

Feature	Purpose	How It Is Established
Setup Password	Prevents reconfiguration of the computer (use of the Computer Setup utility) until the password is entered.	Security Management (from both Windows and the Compaq Utilities menu)
Power-On Password	Prevents use of the computer unless the password is entered.	Security Management (from both Windows and the Compaq Utilities menu)
QuickLock/QuickBlank	Disables the keyboard and can blank the screen without exiting application; enabled with a password.	Security Management (from both Windows and the Compaq Utilities menu)
Diskette Boot Control	Prevents startup from the diskette drive.	Security Management (from both Windows and the Compaq Utilities menu)
Diskette Drive Control	Disables the diskette drive.	Security Management (from both Windows and the Compaq Utilities menu)

Continued

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Security Features *Continued*

Feature	Purpose	How It Is Established
Hard Drive Control	Disables the integrated hard drive.	Security Management (from both Windows and the Compaq Utilities menu)
Serial Interface Control	Prevents transfer of data through the integrated serial interface.	Security Management (from both Windows and the Compaq Utilities menu)
Parallel Interface Control	Prevents transfer of data through the integrated parallel interface.	Security Management (from both Windows and the Compaq Utilities menu)
Diskette Write Control	Prevents writing to the diskette drive. Allows Read only.	Security Management (from both Windows and the Compaq Utilities menu)
Flash ROM Write Protect	Prevents Flash ROM updates.	By enabling a Setup Password through Security Management (from both Windows and the Compaq Utilities menu)
Cable Lock Provision	Prevents theft of the computer or the computer cover.	By adding a cable lock to the installed bracket.

Installing the Cable Lock Provision

To install the cable lock provision, complete the following steps:

✎ Your computer may already have the cable lock provision installed.

1. Using a Torx T-15 screwdriver, remove the screw from the rear of the computer.

2. Position the bottom part of the cable lock provision over the screw hole and replace the screw.

3. Cover the screw with the top part of the cable lock provision.

4. Install a lock to prevent unauthorized removal of the computer cover.
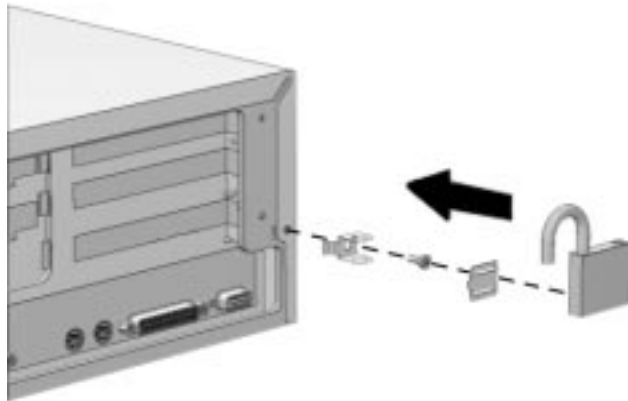
Installing the Cable Lock Provision and Padlock on the Desktop Computer
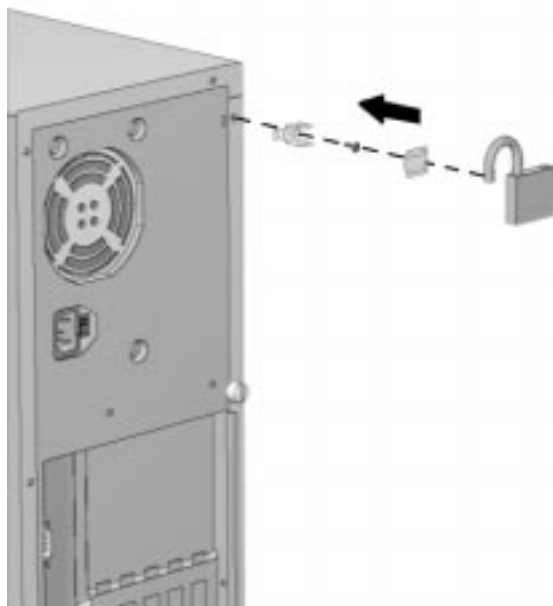
Installing the Cable Lock Provision and Padlock on the Minitower Computer

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Password Security

The Compaq Deskpro 2000 Personal Computer supports several different security password features that can be established by selecting either:

■ Security Management icon from the Compaq Control Center in Windows 3.1, or

■ Compaq Utilities menu at computer startup.

The procedures for accessing these features are presented below.

Because the security values you set through the Security Management utility can be overridden by Windows 95 values, Compaq recommends that you set your security values through the Windows 95 Passwords utility located in the Control Panel.

Setting a Power-On Password

Setting a power-on password through Security Management prevents unauthorized access to the computer when power is turned on until the password is entered. The password must be entered each time the computer is turned on and the key icon (⌐) appears on the monitor.

Using Windows 3.1

To set a power-on password using Windows 3.1, complete the following procedure:

1. From Windows 3.1, select or double-click on the Security Management icon found in the Compaq Control Center.

2. Click on the Power-On Password box to turn on the password feature if it is not already selected.

3. Select the Set option and follow the instructions to set a new password.

Using Windows 95 and Windows NT 4.0

To set a power-on password if you are using Windows 95 or Windows NT 4.0, complete the following steps:

1. Turn on or restart the computer (Ctrl+Alt+Delete).

2. Press the F10 key as soon as the cursor moves to the upper-right corner of the screen. This occurs almost immediately. The Power-On Self-Test (POST) runs, you hear two beeps, then the cursor moves to the upper-right corner.

3. Select and open Security Management from the Compaq Utilities menu on the screen.

4. Click on the Power-On Password box to turn the password on, if it is not already selected.

5. Select and open the Set option and follow the instructions to set a new password.

✎ Compaq diagnostics is installed in a special partition on the hard drive of the computer. The diagnostics utilities are also available on diskettes.

Entering a Power-On Password

To enter the Power-On Password, complete the following steps:

1. Turn on the computer.

2. When the key icon (⬚) appears on the monitor, enter your current password.

✎ Type carefully; for security reasons, the characters you type do not appear on the screen.

If you enter the password incorrectly, a broken key icon (⬚) is displayed. Try again. After three unsuccessful tries, you must turn the computer off, then on again before you can continue.

Changing a Power-On Password

To change the password, complete the following steps:

1. Turn on the computer.

2. When the key icon (⬚) is displayed, enter your current password, a slash (/) or alternate delimiter character, and your new password, as shown:

current password/new password/new password

Refer to the section "National Keyboard Delimiter Characters" for information on the delimiter syntax and keys required to change passwords.

✎ Type carefully; for security reasons, the characters you type do not display on the screen.

The new password takes effect the next time you turn on the computer.

Deleting a Power-On Password

To delete the password, when you no longer wish to use a power-on password, complete the following steps:

1. Turn on the computer.

2. When the key icon ($\mathtt{0\!-\!}$) is displayed, enter your current password followed by a slash (/) or alternate delimiter character as shown:

   current password/

This deletes the password until you establish a new one through Security Management.

Clearing a Power-On Password

If you forget your password, you cannot access the computer. However, you can clear the password by turning off the computer, removing the computer cover, and moving the plug on the E6 jumper from pins 5-6 to pins 6-7. When you move this jumper and restart the computer, your password is erased. You will then be able to access your system. For more information, refer to Appendix E, "System Board Jumpers."
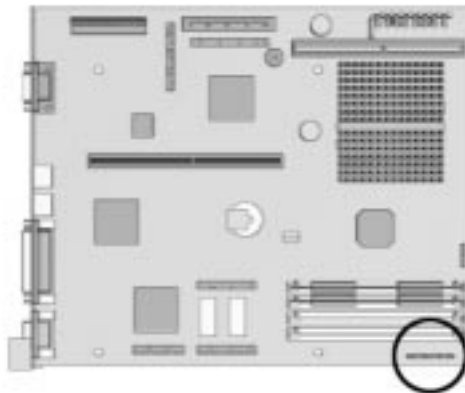
Locating the E6 Jumper on the System Board

✎ To set a new password, move the E6 jumper back to pins 5-6, restart the computer, and reestablish your password through Security Management.

National Keyboard Delimiter Characters

Each keyboard is designed to meet country-specific requirements. The syntax and keys that you use for changing or deleting your password depend on the keyboard that came with your computer.

To find the delimiter key required for changing or deleting your password, find your keyboard in the table below:

National Keyboard Delimiter Characters					
Arabic	**/**	Greek	**-**	Slovakian	**-**
Belgian	**=**	Hungarian	**-**	Spanish	**-**
BHCSY*	**-**	Italian	**-**	Swedish/Finnish	**/**
Brazilian	**/**	Japanese	**/**	Swiss	**-**
Chinese	**/**	Korean	**/**	Taiwanese	**/**
Czech	**-**	Latin American	**-**	Thai	**/**
Danish	**-**	Norwegian	**-**	Turkish	**.**
French	**!**	Polish	**-**	U.K. English	**/**
French Canadian	**é**	Portuguese	**-**	U.S. English	**/**
German	**-**	Russian	**/**		

* Bosnia-Herzegovina, Croatia, Slovenia, and Yugoslavia

Advanced Security Management

The following additional security features are provided in the Advanced section of Security Management:

■ Disable diskette drive

■ Disable diskette drive boot ability

■ Disable diskette drive write

■ Disable serial port

■ Disable parallel port

■ QuickLock\QuickBlank

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To activate one of the advanced security features, complete the following steps:

1. Select and open Security Management (located in Windows and/or the Compaq Utilities menu at computer startup).

2. Click on the Power-On Password box.

3. From the Power-On Password box, click on the Advanced box.

4. From the Advanced Security Management box, select one of the features listed above.

5. Select the OK button.

6. When you restart your computer, the feature you selected will be activated (if you select Disable diskette drive, you must enter your power-on password each time you turn on your computer, or the diskette drive will be non-functional).

To deactivate the feature, deselect the option and restart your computer.

✎ These features must be used in combination with a power-on password.

QuickLock/ QuickBlank

QuickLock and QuickBlank are enabled through Security Management. The keyboard and mouse interface can be disabled and the screen blanked from within an application. Entering a QuickLock key combination (Ctrl+Alt+L) disables the keyboard and the mouse interface. If QuickBlank is not activated, the application remains in view on the screen, but it cannot be accessed.

To reenable the input device interface and access the application, you must enter the power-on password that you established in Security Management.

Enabling QuickLock and QuickBlank

To enable the QuickLock and QuickBlank features, complete the following steps:

1. Turn on the computer.

2. When the cursor appears in the upper-right corner of the screen, press the F10 key.

✎ The cursor displays in the upper-right corner of the screen for approximately two seconds. If you do not press the F10 key during this time, you must turn the computer off, then on again to access the utility.

3. Press the Enter key to bypass the welcome screens and display the main menu.

4. From the main menu, select the Security Management feature, and press the Enter key.

5. When the steps in the Security Management screen display, select the step to View or Edit Details and press the Enter key.

6. Page down to locate the QuickLock password and QuickBlank items on the screen and follow the instructions provided to enable them.

    For more information about the various screen and configuration options, refer to Chapter 3, "Using Compaq Utilities."

7. Save the configuration and exit the utility.

Disabling the Keyboard and Mouse Interface

Once in an application, enter your QuickLock key combination (Ctrl+Alt+L).

The keyboard and mouse (or other input device connected to the mouse connector) are disabled. The application cannot be accessed now, but remains in view, unless the QuickBlank feature was also enabled through the Computer Setup utility.

Enabling the Keyboard and Mouse Interface

To enable the keyboard and input device connected to the mouse connector, enter the password. For security reasons, the characters you type do not appear on the screen. The application will not be affected by the characters typed.

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Flash ROM

Your computer comes with reprogrammable Flash ROM (Read Only Memory). ROM's purpose is to report operating system information to your computer. By enabling a Setup Password in Security Management in Windows, this operating system information is protected from being unintentionally updated or overwritten. This is important to assure computer operating integrity. Should you need or want to upgrade your ROM, you may order an upgraded ROMPaq diskette from Compaq.

⚠ **CAUTION:** If your computer does not have a Setup Password enabled, then the ROM is not write-protected and updates may occur that could disrupt the operating system.

To upgrade the ROM after you receive an upgraded ROMPaq diskette:

1. Insert the ROMPaq diskette in the floppy drive, enter the correct command and the computer will prompt for the Setup Password.

2. Enter the Setup Password.

3. If the Setup Password is entered correctly, the ROMPaq utility will take over and run the Flash ROM upgrade.

✎ If the Setup Password is incorrectly entered, the procedure will terminate and no changes will be made to the ROM.

4. When the utility is finished upgrading the ROM, remove the diskette from the floppy drive and restart your computer.

Protecting Your Software

To protect your software from loss or damage, you should keep a copy of all system software, applications, and related files stored on your hard disk. You can order a set of backup diskettes from Compaq at nominal cost, or you can make your own set. For more information, refer to Chapter 3, "Using Compaq Utilities."

chapter **3**

USING COMPAQ UTILITIES

This chapter provides instructions for using the Compaq configuration and diagnostics utilities and the software backup utilities that are preinstalled on your computer.

Configuration and Diagnostics Utilities

The configuration and diagnostic utilities can provide the system overview you will need if you call Compaq Customer Support for help with your computer. The configuration and diagnostic utilities can also be used for the following:

■ To change factory default settings, and to set or change the system configuration, which is sometimes necessary when you add or remove hardware.

■ To solve system configuration errors detected during the Power-On Self-Test (POST).

■ To establish and manage passwords and other security features.

■ To establish and manage energy-saving timeouts.

■ To determine if all of the devices installed on the computer are recognized by the system and functioning properly.

■ To determine information about the operating environment of the system.

■ To back up or upgrade the diagnostics software.

When to Reconfigure the Computer

When you add or remove optional equipment, the computer must be reconfigured to recognize these changes.

■ In Windows 3.1: After installing optional hardware and turning on your computer, read the messages that appear during startup. The system will either automatically recognize the new hardware, or it will tell you to run Computer Setup.

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■ In Windows 95 and Windows NT 4.0: If you install a Plug and Play device, Windows automatically recognizes the device and configures your computer. If you install a non-Plug and Play device, you must reconfigure your computer. In Windows 95, use Device Manager, and in Windows NT 4.0, use Computer Setup to reconfigure your computer.

There are two ways to access the configuration and diagnostics utilities on your computer. Compaq Diagnostics for Windows is accessible through the Windows environment, and the Compaq Utilities menu is accessible at startup.

Compaq Diagnostics for Windows

The following information is available through Compaq Diagnostics for Windows:

■ System overview

■ AssetControl information

■ Input devices

■ Communications ports

■ Storage devices

■ Graphics information

■ Memory configuration

■ Security Management settings

■ System health

■ Operating system

■ Windows version

Accessing Compaq Diagnostics in Windows 3.1

In Windows 3.1, follow these steps to access Compaq Diagnostics for Windows:

1. From Windows Program Manager, select the Compaq Utilities group box.

2. From the Compaq Utilities group box, select the Compaq Diagnostics icon (displayed as a computer with a stethoscope).

3. The computer automatically begins examining the system to determine what hardware is installed on your computer. When it is finished, an overview of your system appears.

✎ This screen contains the information that Compaq Customer Support needs to service your call.

To print a list of the hardware installed:

1. Click File in the left corner of the tool bar.

2. Select Print and follow the instructions to print a detailed report.

Accessing Compaq Diagnostics in Windows 95 and Windows NT 4.0

Follow these steps to access Compaq Diagnostics for Windows:

1. From the Windows taskbar, click Start, click Settings, then click Control Panel.

2. From the Control Panel, double-click the Compaq Diagnostics icon.

3. Follow the instructions on the screen.

Using Compaq Diagnostics for Windows

1. For specific hardware and software information, select a category from the Category menu or from the toolbar.

   As you move your cursor over the toolbar icons, the corresponding category names are displayed.

2. For more detailed information on a selected category, click More in the Information Level box.

   Categories or items of information displayed by Compaq Diagnostics for Windows are similar to but may vary slightly from what is available in View System Information (INSPECT).

3. Review, print, and, if necessary, discuss this information with your authorized Compaq reseller or service provider.

   To print the information, click File, then click Print. Select one of the following options: Detailed Report (All Categories), Summary Report (All Categories), or Current Category. Click OK to print the report you selected.

4. To exit Compaq Diagnostics for Windows, click File, then click Exit.

Using the Compaq Utilities Menu

To access the Compaq Utilities menu:

1. Turn on or restart the computer by pressing Ctrl+Alt+Delete at the same time.

   It is recommended that you not restart your computer using Ctrl+Alt+Delete while in Windows. Instead, exit Windows then restart the computer.

2. When the cursor blinks in the upper-right corner of the screen, press F10.

✎ The cursor blinks in the upper-right corner of the screen for approximately two seconds. If you do not press F10 during this time, you must restart the computer.

3. Press Enter to bypass the title and welcome screens. The Compaq Utilities menu appears.

Configuration and Diagnostics

This section describes the options available in Compaq Utilities. When using these utilities, see the online help for specific information.

Computer Setup

Use Computer Setup in the following instances:

■ To verify configuration parameters when resolving problems.

■ To get an overview of the computer's hardware.

■ To modify settings for graphics, processor, memory, audio, storage, communications, and input devices.

■ To enable or disable the diskette drive.

■ To enable or disable diskette boot ability.

■ To enable or disable diskette write control.

■ To enable or disable the serial or parallel ports.

■ To resolve errors when a system configuration error is detected but not automatically fixed during the Power-On Self-Test (POST).

■ To change factory default settings.

You may have to run Computer Setup if you add any of the following options:

■ Network card

■ Sound board

■ Modem

If you are using Microsoft Windows 3.1, you can access Computer Setup for Windows directly from the Compaq Utilities group box. From Program Manager, select the Compaq Utilities group box and double-click the Computer Setup icon. Click the Help menu option for more detailed information on using Computer Setup for Windows.

Security Management

Your computer offers security features that provide solutions for a variety of potential concerns. Use Security Management in the following instances:

■ To set, change, or delete your Power-On Password.

■ To set, change, or delete the setup password, which protects the computer's configuration.

■ To set your Power-On Password, when prompted, after turning on the computer.

■ To set or change QuickLock/QuickBlank features.

Refer to Chapter 2, "Protecting Information on Your Computer," to learn more about the security features available on the computer and how to establish them.

Power Management

Use Power Management in the following instances:

■ To create a custom power conservation level.

■ To enable or disable power management.

■ To change Standby timeout periods.

■ To change component timeout periods.

If you are using Windows 95 or Windows NT 4.0, you can establish or modify Power Management settings for the monitor using Display Properties. To access Display Properties, right click on the Windows Desktop, then choose Properties. You should first disable the monitor timeouts in Computer Setup, then establish the settings in Windows to avoid potential conflicts.

Computer Checkup (TEST)

Use Computer Checkup (TEST) in the following instances:

■ To determine if all of the devices installed on the computer are recognized by the system and functioning properly. Running TEST is optional but recommended after installing or connecting a new device.

■ To save, print, or display the information generated by TEST. It is recommended that you run TEST and have the printed report available before placing a call to the Compaq Customer Support Center.

■ To assist your Compaq authorized dealer, reseller, or service provider in analyzing the system by allowing the service provider to reproduce the same environment on another computer for testing.

To run TEST, complete the following steps:

1. Turn on only the external devices that you wish to test. You also may leave the printer connected to log error messages.

2. Access the Compaq Utilities menu.

3. From the Compaq Utilities menu, select Computer Checkup (TEST).

A test option menu is displayed.

4. Select the option to view the device list.

   A list of the installed hardware devices appears.

5. Verify that TEST correctly detected the devices installed.

   This utility will detect all devices manufactured by Compaq; devices from other manufacturers may not be detected.

   ❏ If the list is correct, select OK and go on to step 6.

   ❏ If the list is incorrect, be sure that any new devices are installed properly. If you do not find an installation problem, call your Compaq authorized dealer, reseller, or service provider.

6. Select one of the following from the test option menu:

   ❏ **Quick Check Diagnostics**—This option runs a quick, general test on each device with a minimal number of prompts. If errors occur, they are displayed when the testing is complete.

   ❏ **Automatic Diagnostics**—This option runs unattended, maximum testing of each device with minimal prompts. You can choose how many times to run the tests, to stop on errors, or to print or file a log of errors.

   ❏ **Prompted Diagnostics**—This option allows maximum control over the device testing process. You can choose attended or unattended testing, decide to stop on errors, or choose to print or file a log of errors.

7. Follow the instructions on the screen as the diagnostic tests are run on the devices. When the testing is complete, the test option menu appears again.

   When running TEST, record any error message numbers and have them available when you contact your Compaq authorized dealer, reseller, or service provider for assistance.

8. Exit to the Compaq Utilities menu.

View System Information (INSPECT)

Use View System Information (INSPECT) in the following instances:

■ To view information about the system once it has been configured.

■ To save, print, or display the information generated by INSPECT. It is recommended that you run INSPECT and have the printed report available before placing a call to the Compaq Customer Support Center.

■ To assist your Compaq authorized dealer, reseller, or service provider in analyzing the system by allowing the service provider to reproduce the same environment on another computer for testing.

INSPECT provides the following information about the system's operating environment:

■ Contents of the operating system startup files

■ Current memory configuration

■ ROM versions

■ Type of processor and coprocessor

■ Diskette drives, hard drives, CD-ROM drives, or tape drives installed

■ Active printer and communications interfaces

■ Modem type installed

■ Graphics settings

■ Windows *WIN.INI* file details

Prepare Computer for a Compaq Service Call (RemotePaq)

RemotePaq allows Compaq Customer Support to automatically run diagnostics on your computer. This option is only available in certain geographical areas and requires a modem.

✎ This utility is not available in Compaq Diagnostics for Windows; it must be accessed through the Compaq Utilities menu.

Create a Diagnostics Diskette

Create a Diagnostics Diskette allows you to back up the diagnostics software onto diskette. Compaq strongly recommends that you make a backup copy of this software as soon as possible.

✎ This utility is not available in Compaq Diagnostics for Windows; it must be accessed through the Compaq Utilities menu.

Exiting the Configuration and Diagnostics Menu

To exit the Compaq Utilities menu, select the Exit option or press Ctrl+Alt+Delete. Either option restarts the computer and saves any changes you made.

Changing Monitor Type Manually

Plug and Play monitor types are automatically detected, but if you are not using a Plug and Play monitor, you can manually select or change the monitor brand, model, refresh rates, color, and resolution.

Matrox MGA Millennium Power Desk Utilities

Under Windows 3.1 and Windows 95, use the Matrox MGA Millennium Monitor Selection utility to select a different monitor. To run Monitor Selection, follow these steps:

1. Select and open Monitor Selection, found in the MGA Millennium Power Desk, from the Start button in Windows 95 or the Control Panel in Windows 3.1.

2. Click the Monitor Selection button.

3. Select your monitor from among those listed.

4. Click OK to confirm your monitor selection.

5. Test your monitor selection, if desired, by clicking the Test button.

6. Click Save and Exit to confirm your monitor selection and close the Monitor Selection dialog box.

7. Select Control Panel, found in the MGA Millennium Power Desk, to set display settings and preferences.

COMPAQ

MGA Millennium Graphics Controller

If this computer setup does not include the Matrox driver for Windows NT 4.0, the MGA Panel will not be available and the monitor type will automatically be set.

If you are using Windows NT 4.0

Use the MGA Panel to select a monitor type, configure 3D accelerations, and obtain information about the MGA Millennium graphics controller installed in your computer.

To access the MGA Panel, double-click the MGA Panel icon, located in the Microsoft Windows NT Control Panel.

Monitor Tab

Use Monitor to select a monitor. Complete the following steps:

1. Click the Monitor tab in the MGA Panel.

2. If you have multiple graphics controllers or monitors installed, choose the Millennium board ID first, at the upper-right corner of the page.

3. Select the monitor controlled by the Millennium graphics controller.

4. Perform this procedure for each graphics controller that you have installed.

5. Click Save and restart your computer when prompted to do so.

Configuration Tab

Use Configuration to select 3D acceleration and language preferences. Complete the following steps:

1. Click the Configuration tab in the MGA Panel.

2. Enable 3D acceleration preferences (Z Buffer, Double Buffer, or Sub Pixel Precision) by clicking to place an arrow in the appropriate box or boxes.

3. Disable 3D acceleration preferences by clicking to remove the arrow from the appropriate box or boxes.

4. Select your language preference for the MGA Panel text by choosing the appropriate language in the language box.

Information Tab

Use Information to obtain MGA Millennium hardware information, including the following:

- graphics controller board type

- graphics controller board serial number

- amount of video memory (WRAM)

- video BIOS version

- memory mapping

- RamDAC speed

About Tab

Use Information to obtain MGA Millennium software information, including the following:

- graphics controller driver version

- current resolution settings

- current pixel depth settings

- current refresh rate settings

- available 3D acceleration settings

Cirrus PCI Graphics Utilities

If you are using Windows 3.1

1. Select the WinMode icon from the VGA Utilities Group Box. This launches a window showing the current configuration of your computer.

2. Select the desired monitor brand and model from the list of monitors displayed.

3. Close the WinMode utility. You can also modify this information using the MS-DOS command CLMODE. Select the Preview option to view the supported modes and exit Windows. When you restart Windows, Windows will be configured appropriately for the monitor.

COMPAQ

If you are using Windows 95

1. Click Start, then click Settings.

2. Click Control Panel, then double-click the Display icon.

3. Click the Settings tab.

4. Click the Change Display Type button.

5. Choose Monitor Type and click the Change button.

6. Click the Have Disk button.

7. Insert the manufacturer's installation disk into drive A and click the OK button.

To display driver information, click the Compaq tab.

If you are using Windows NT 4.0

1. Click Start, then click Settings.

2. Click Control Panel, then double-click the Display icon.

3. Click the Compaq tab.

4. Click the Settings button.

5. Click on the manufacturer of the monitor.

6. Click on the model of the monitor.

7. Click OK and restart the computer for changes to take effect.

Customizing the Display

Although the setup utility automatically selects the display configuration, you can manually change the graphics resolution of the controller to match a specific software program or suit your personal preferences.

Power Management

Use Computer Setup, accessible through the Compaq Utilities menu, to establish, modify, or disable the Power Management features of the computer. You should first disable the monitor timeouts in Computer Setup, then establish the settings in Windows 95 and Windows NT 4.0, to avoid potential conflicts. If you are using Windows 95 or Windows NT 4.0, you can establish, modify, or disable Power Management settings for the monitor using Display Properties. To access Display Properties, right click on the Windows Desktop, then choose Properties.

Matrox MGA Millennium Power Desk Utilities

Under Windows 3.1 and Windows 95, the MGA Millennium Power Desk Utilities Control Panel provides you with easy access to the features of your Matrox MGA Millennium graphics controller. By selecting the Control Panel, you can:

■ Configure four different display modes. You can change screen resolution, number of colors, font size, and the desktop size in each of the four display modes.

■ Enable or disable ModeSWITCH, which allows you to change the screen resolution, without exiting or restarting Windows.

■ Select between zoom factors of × 1, × 2, and × 4.

■ Change the cursor color.

■ Enable Center POPUP, which centers pop-up dialog boxes in your current display area.

■ Enable MaxVIEW, which limits the size of the application window so that it does not extend outside the working, on-screen area.

■ Configure hotkey combinations for various Matrox MGA Millennium display features.

To access these utilities, select the MGA Millennium Power Desk group and click Control Panel.

✎ Before running the Control Panel, be sure to select your monitor, using the Monitor Selection utility.

In addition to the information found in this guide, you can access online help in the Control Panel by clicking on the Help button.

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Changing Display Modes Using MGA Millennium Power Desk Utilities

You can use the MGA Millennium Power Desk Control Panel to configure four different display modes. A display mode is the combination of screen resolution, color depth, font size, and desktop size.

Color depth refers to the number of colors available at a specific screen resolution.

Font size refers to the size of the characters used by system menus and dialog boxes. The font size you choose will also affect the size of various other system resources such as buttons and window size.

■ Select small font for the 800 × 600 (or lower) display resolution.

■ Select large font for resolutions greater than 800 × 600.

The Desktop feature, found in the MGA Millennium Power Desk Control Panel, allows you to set up a Windows virtual desktop environment that occupies an area of up to 1600 × 1200 pixels, but is viewed at a display size of 1024 × 768. To see a part of the screen that's hidden from view, but still active in the virtual desktop area, just touch one of the screen edges with the mouse cursor.

To configure a display mode, follow these steps:

1. Select and open Control Panel, found in the MGA Millennium Power Desk.

2. Select the mode number you wish to configure and click the Setup button.

3. Choose:

   ❏ Screen resolution under Display

   ❏ Virtual desktop size under Desktop

   ❏ Font size under Fonts

   ❏ Color depth under Colors

✎ Not all of the resolutions and color possibilities supported by the Control Panel are available on all monitors.

4. Click OK to accept the changes.

5. Restart Windows for the new display setting to take effect.

MGA Millennium Graphics Controller

If you are using Windows NT 4.0

To change the resolution, complete the following steps:

1. Click Start, then click Settings.

2. Click Control Panel, then double-click the Display icon.

3. Click the Settings tab.

4. In the Desktop Area box, drag the pointer to the appropriate resolution.

5. In the Color Palette box, select the number of colors you want to display.

6. Select Font Size and Refresh Frequency.

7. Click OK for the changes to take effect.

✎ The refresh rate is determined by the monitor selected from the MGA Panel Monitor tab.

Cirrus PCI Graphics Utilities

If you are using Windows 3.1

1. Select the WinMode icon from the VGA Utilities Group Box. This launches a window showing the current configuration of your computer and all resolutions and color palettes supported by your graphics controller and monitor type.

2. Select the resolution and number of colors you want to display.

3. Close the WinMode utility and restart Windows to activate the new settings.

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If you are using Windows 95 or Windows NT 4.0

1. Click Start, then click Settings.

2. Click Control Panel, then double-click the Display icon.

3. Click the Settings tab.

4. In the Desktop Area box, drag the pointer to the desired resolution.

5. In the Color Palette box, select the number of colors you want to display.

6. Select Font Size and Refresh Frequency.

7. Click OK for the changes to take effect.

✎ The resolution and color palettes supported depend upon your graphics controller and monitor type. To display driver information, click the Compaq tab.

Protecting Your Software

To protect your software from loss or damage, you should keep a backup copy of all system software, applications, and related files stored on your hard drive. You can order a set of backup diskettes from Compaq at nominal cost, or you can make your own set.

Ordering Backup Diskettes

You can order backup diskettes from Compaq for all of the software preinstalled on your computer. You can order all software as a single set, or you can order the various software packages separately.

✎ Before calling Compaq to place your order, be sure to have the serial number of your computer available. This number is necessary for all diskette purchases.

Compaq authorized dealers, resellers, and service providers can tell you what backup software combinations are currently available for your computer. For a list of Compaq support telephone numbers, see Chapter 7, "Troubleshooting."

Making Your Own Backup Diskettes in Windows 95

Before you begin to back up the software on the computer, have a number of formatted blank diskettes close at hand to be used in the process.

To back up the software on the computer:

1. From the Windows desktop, click Start, point to Programs, point to Accessories, then click System Tools.

2. From the System Tools menu, click Backup. The computer starts the backup program.

3. Read the informational dialogs and click OK to continue.

✎ The backup program automatically creates full system backup diskettes that enable you to back up all programs, data, and important system files (such as the registry). This file set should not be used for partial or incremental backups.

4. To backup the entire system, select Open File Set from the file menu.

5. Click Full System Backup, click OK, then click Next Step to continue.

6. Select your hard drive from the left side of the MS Backup screen, then click Start Backup.

7. When the Backup Set Label dialog box appears, type:

   Full System Backup

   then click OK to continue.

8. Follow the instructions that appear on the screen until the backup is complete.

Restoring Your Hard Drive in Windows 95

To restore the software on the computer:

✎ If your hard drive has completely failed and you cannot access Windows 95, you will need to restore the Windows 95 operating system from your backup system diskettes prior to following the instructions below.

1. From the Windows desktop, click Start, point to Programs, point to Accessories, then click System Tools.

2. From the System Tools menu, click Backup. The computer starts the backup program.

3. Read the informational dialogs and click OK to continue.

4. A screen with three tabs (Backup, Restore, and Compare) appears. Click the Restore tab.

5. Insert the first backup diskette into the diskette drive.

6. Select the drive from which to restore files (the diskette drive).

7. Using your mouse, put a check in the box next to the files you want to restore. Putting a check next to the drive icon automatically selects all the files on that drive. (To deselect a file, click the box next to it.)

8. Click Next Step.

9. Select the destination drive.

10. Follow the instructions that appear on the screen until the installation is complete.

Making Your Own Backup Diskettes Using Windows NT 4.0

You should create a Windows NT 4.0 Emergency Repair diskette during the Windows NT 4.0 Setup process. To make an Emergency Repair diskette, complete the following steps:

1. Insert the Microsoft Windows NT Workstation 4.0 for Compaq Deskpro compact disc into the CD-ROM drive.

2. Press Ctrl+Alt+Delete to restart your computer.

3. Proceed through the Windows NT 4.0 Setup program, referring to the Microsoft Windows NT Workstation Installation Guide when necessary.

4. When prompted by Setup to create an Emergency Repair diskette, click Yes.

5. When prompted, insert a blank diskette and press the Enter key.

   Setup creates the Emergency Repair diskette.

6. Complete the Setup program as directed by the screen prompts.

To back up the information on your hard drive to a tape drive, follow these instructions:

1. In Windows, select the Backup application from the Administrative Tools group box.

   A list of drives appears.

2. Double-click the drive you wish to back up.

   A list of files on the drive appears.

3. Click the check-boxes of the files you wish to back up.

4. Click the Backup button in the menu bar of the Backup window.

   The system backs up the selected files to tape.

Restoring Windows NT 4.0

1. Insert the Microsoft Windows NT Workstation 4.0 for Compaq Deskpro compact disc into the CD-ROM drive.

2. Press Ctrl+Alt+Delete to restart your computer.

3. Proceed through the Windows NT 4.0 Setup program, referring to the Microsoft Windows NT Workstation Installation Guide when necessary.

4. When prompted by Setup, choose how you want to restore Windows NT 4.0:

   ❑ Press the Enter key to completely reinstall Windows NT 4.0. You should choose this option if your hard drive is corrupted.

   ❑ Press the R key to repair Windows NT 4.0. You should choose this option if your copy of Windows NT 4.0 has been damaged.

5. Complete the Setup program if you have chosen to reinstall Windows NT 4.0, or complete the following steps if you have chosen to repair Windows NT 4.0.

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6. When prompted by Setup, indicate whether you have the Emergency Repair diskette.

   ❑ If you have the Emergency Repair diskette:

   Press the Enter key.

   Insert the Emergency Repair diskette, and press Enter.

   ❑ If you do not have the Emergency Repair diskette:

   Press the Esc key.

   Setup searches your hard drive for Windows NT 4.0 and displays its path on the screen. Press Enter to verify repair of this path.

7. When prompted, select all of the registry files to be repaired. Setup compares the files on your hard drive to the files on the *Microsoft Windows NT Workstation 4.0 for Compaq Deskpro* compact disc and shows you the name of each mismatched file.

8. Press the Enter key to repair each file, or press the A key to repair all mismatched files.

   When all of the files have been repaired, Setup automatically restarts the computer.

Restoring Files on Your Hard Drive from a Tape Drive Using Windows NT 4.0

To restore the contents of your hard drive from a tape drive, follow these instructions:

1. In Windows, select the Backup application from the Administrative Tools group box.

   A list of files on the tape drive appears.

2. Click the check-boxes of the files you wish to restore.

3. Click the Restore button in the menu bar of the Backup window.

4. Respond to the prompts that appear on the screen. The system restores the selected files to your hard drive.

Intelligent Manageability

Intelligent Manageability combines innovative hardware and software technology with PC LAN management tools from Compaq and other leading vendors to make Compaq personal computers easier to inventory, troubleshoot, and protect. Intelligent Manageability features focus on Inventory Management, Fault Management, and Security Management.

✎ For Windows 3.1 and non-Windows environments, AssetControl, Fault Management, and Security Management features are available only through the View System Information (INSPECT) utility at computer startup.

Inventory Management

Conducting a physical inventory of personal computers, key components, and monitors can be time-consuming and costly. AssetControl is Compaq's inventory management solution, designed and built into new Compaq personal computers, key components, and monitors that support the VESA DDC and EDID standards.

Compaq's AssetControl features make it easy to maintain an accurate, up-to-date inventory and help to lower the cost of ownership. Detailed inventory information, including manufacturer, model, serial number of the computer's hard drive and monitor, asset tag, and ROM revision level can be viewed, printed, or saved electronically using Compaq Insight Personal Edition, Compaq Insight Manager, and network management products from the Compaq Desktop Management Solutions Partners.

AssetControl features:

■ Simplify and help to ensure accuracy of inventory and accounting procedures.

■ Allow the system administrator to identify software and revision levels remotely.

■ Streamline service calls by giving the administrator fast access to the computer's configuration and history.

✎ If the system board is replaced, the serial number must be updated manually using Compaq Insight Personal Edition or it will not be displayed correctly.

Fault Management

This computer includes Fault Management features combining innovative hardware and software technology to prevent the loss of critical data and minimize unplanned downtime.

✎ Support for specific features may vary by model.

The IntelliSafe SMART Hard Drive monitors hard drive activity to predict failures before they occur. Fault prediction and failure indication parameters, such as abnormal variations in spinup and seek times, or non-correctable read and write errors, are tracked to determine the hard drive condition. Should these errors become significant, the computer displays a warning message, giving you time to back up the hard drive and replace it prior to experiencing downtime or loss of data.

IntelliSafe SMART Hard Drives are compliant with the Small Form Factor Committee Specification for Self-Monitoring, Analysis and Reporting Technology (SMART). SMART is the industry standard technology, pioneered by Compaq, that in concert with Compaq Insight Management Agents allows you to prevent data loss and minimize downtime.

Proactive Tape Backup software initiates a tape backup upon receiving notice of an impending IntelliSafe SMART hard drive failure.

System health can be viewed using Compaq Insight Personal Edition. If the computer is connected to a network managed by Compaq Insight Manager or other SNMP-compliant management products, fault notices are also sent to the network management application.

For detailed instructions on customizing local alert messages or configuring the computer for Compaq Insight Manager and other SNMP-compliant network managers, see the online help.

Security Management

As access to a network increases, so does the risk of unauthorized access to critical information. The Compaq personal computer provides a robust set of security features to protect your computer and data from unauthorized access.

■ Physical security features such as the cable lock provision help prevent theft or unauthorized access to internal components such as processor and memory.

■ Passwords help prevent unauthorized access to information stored on the computer or the network.

■ Drive and media security features control access to the information stored on the computer and can prevent unauthorized transfer of data to a diskette drive or other removable storage media.

■ Device disabling features can prevent unauthorized transfer of data over fax/modems, serial ports, parallel ports, or infrared ports.

Security management features and current security settings can be viewed locally using Compaq Insight Personal Edition or remotely using Compaq Insight Manager.

Refer to Chapter 2, "Protecting Information on Your Computer," to learn more about the security features available on the computer and how to establish them.

Compaq Insight Personal Edition

Compaq Insight Personal Edition:

■ Lets you view AssetControl information locally.

■ Monitors IntelliSafe SMART Hard Drive.

■ Automatically displays a prefailure warning message upon detecting a hardware fault.

■ Lets you view hardware and software configuration information.

To run Compaq Insight Personal Edition:

1. Go to the Control Panel.

2. Double-click the Compaq Insight Personal Edition icon.

Compaq Insight Manager

Insight Manager is the Compaq application for easily managing servers and personal computers on a network. Insight Manager delivers intelligent monitoring and alerting, remote maintenance, and visual control of network resources.

Compaq Insight Management Agents operate on new Compaq personal computers, monitoring the health of the system and generating alert notifications for the system administrator if an impending fault or performance degradation is detected.

For detailed instructions on configuring the computer for Compaq Insight Manager and other SNMP-compliant network managers, see the online help.

Compaq Desktop Management Solutions Partners

To ensure the compatibility and integration of Compaq Intelligent Manageability, Compaq has joined forces with the leading names in PC LAN management software. They include:

- Arcada Software, Inc.

- Asset Software International (ASI) Corporation

- BindView Development

- Cheyenne Software, Inc.

- Frye Computer Systems, Inc., a Seagate Software Company

- Intel Corporation

- McAfee Associates, Inc.

- Microsoft Corporation

- NetWare, Inc.

- Seagate Enterprise Management Software

- Symantec Corporation

- Tally Systems Corporation

Compaq has worked closely with these vendors to ensure that their products are well integrated and compatible with Intelligent Manageability. Support for specific features may vary by operating system. Compaq is committed to providing solutions and leadership in desktop management.

chapter *4*

USING THE 8X CD-ROM

This chapter describes how to operate the 8X CD-ROM drive installed in your computer. The 8X CD-ROM drive is a random access, read-only storage device capable of retrieving data from a removable compact disc, which can store as much as 680 megabytes of digital information. It operates under most industry standard operating systems including: Windows NT, Windows 95, Windows 3.1, and OS/2.

CD-ROM Front Panel
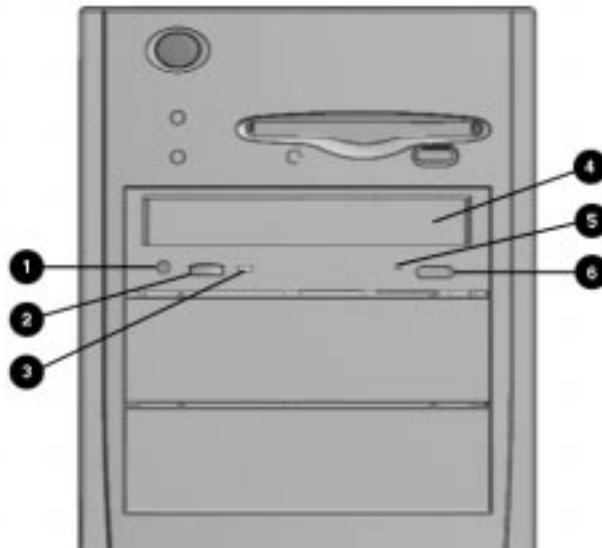
CD-ROM Front Panel

Ref.	Component	Function
❶	Headphone Jack	Connects a headphone.
❷	Headphone Volume Control	Increases and decreases the CD-ROM headphone volume.

Continued

CD-ROM Front Panel *Continued*

Ref.	Component	Function
❸	Busy Indicator	Flashes amber when the drive is reading a CD; turns green briefly when the computer is turned on.
❹	Disc Tray	Slides in and out of the CD-ROM and holds the disc in place.
❺	Emergency Eject Hole	Manually ejects a CD if the eject button is inoperable.
❻	Eject Button	Opens and closes the disc tray.

✎ This CD-ROM does not have speaker audio features. To be able to listen to audio CDs, you *must* use a headphone plugged into the CD-ROM headphone jack. The volume control on the front panel controls the volume to the CD-ROM headphone only. A sound board must be installed for audio features when using digital or data CDs.

✎ This computer also supports PD-CD and LS-120 Drives.

Opening the Tray Automatically

By following the instructions below, you can open and close the CD-ROM tray by using the automatic eject button.

1. With your computer turned on, open the CD-ROM tray by pressing the eject button ❶ on the front panel of the drive.

2. Place the CD-ROM disc ❷ in the tray, handling the CD-ROM disc from the edges, not the flat surfaces of the disc.

Opening the CD-ROM Tray

3. Close the tray by again pressing the eject button ❶.

   The drive performs a diagnostic check and automatically begins reading the table of contents (TOC). The busy indicator turns amber while the drive reads the TOC.

✎ The tray automatically opens if the disc is upside down, not properly nested in the tray, or if any other condition prevents the drive from reading the disc.

4. When the busy indicator turns green, the drive is ready to receive commands and data may be retrieved from the disc.

   Ensure plenty of clearance for the tray to open and close.

Opening the Tray Manually

By following the instructions below, you can operate the emergency eject button manually to remove a disc from the tray if the tray will not open.

✎ Certain applications or operating system software may disable the eject button to prevent accidental damage to the disc. If the eject button is disabled by the application software, it will not operate. Exit the application and again press the eject button to remove the disc. If the tray still doesn't open, follow the procedures below.

> ⚠ **CAUTION:** Before beginning this procedure, turn off the power to your computer.

1. Insert a metal rod into the emergency eject hole and push firmly.

✎ You may use a straightened paper clip to open the CD-ROM tray manually.

Opening the CD-ROM Tray Manually

2. Slowly pull the tray out from the drive until the tray is fully extended, then remove the disc.

Using CD-ROM Software

The first time you use a software program that comes on a compact disc, it may load a certain amount of program data onto the hard drive of your computer. This enables the program to run more efficiently and quickly in the future.

Read the software manufacturer's instructions that accompany the compact disc before you attempt to use it. Information to look for includes:

■ How much hard disk space will this program require? Do you have enough disk space?

■ Will you activate the disc from Windows or from the system prompt?

■ Have you connected any special devices the disc requires, such as a joystick or a keyboard?

■ Does the disc have a setup program that requires you to answer questions?

Audio Compact Discs

To advance an audio compact disc to either the first track or the next track, you must use one of the utilities listed below:

✎ This CD-ROM does not have speaker audio features. To be able to listen to audio CDs, you *must* use a headphone plugged into the CD-ROM headphone jack.

■ Media Player: Microsoft Windows 3.1 has a Media Player accessory, found in the Compaq group box, that can be used to change tracks, stop or start the compact disc, and mute the sound. Refer to the *Microsoft Windows User's Guide* for more information.

■ CDPlayer: Microsoft Windows NT and Windows 3.1 have a CDPlayer accessory that can be used to control audio compact disc play. Information on using CDPlayer can be found in the online help for that utility.

■ If you are using Windows 95, select the Start menu, point to Programs and select Accessories. Then select the Multimedia option. Refer to the *Introducing Microsoft Windows 95* guide for more information.

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✎ Some software compact discs take control of the keyboard. If this
occurs, adjust the sound before starting the software.

CD-ROM Drive Precautions

■ Do not move the drive during operation. This may cause it to malfunction during reading.

■ Avoid exposing the drive to sudden changes in temperature as condensation may form inside the unit. If the temperature suddenly changes while the drive is on, wait at least one hour before you turn off the power. If you operate the unit immediately, it may malfunction while reading.

■ Avoid placing the drive in a location that is subject to high humidity, extreme temperatures, mechanical vibration, or direct sunlight.

chapter **5**

UPGRADING THE DESKTOP COMPUTER

This chapter explains how to remove the computer cover and install the following optional upgrade and replacement equipment or firmware:

■   Expansion board

■   Processor upgrade

■   Additional memory

■   Graphics memory

■   Optional drive

The chapter also includes information about when to reconfigure the computer to ensure that the newly installed equipment is recognized by the computer.

Installation Sequence

To familiarize you with the process, a summary of the installation and configuration sequence begins this chapter. It is very important that you follow the sequence of steps to ensure the proper installation of any optional equipment.

1. If the computer is already on, turn it off and disconnect the power cord from the wall.

2. Disconnect the keyboard, monitor, and any other external equipment connected to the computer.

⚠ **WARNING:**   To reduce the risk of personal injury from hot surfaces, allow the internal system components to cool before touching.

⚠ **CAUTION:**   Static electricity can damage the electronic components of the computer or optional equipment. Before beginning these procedures, ensure that you are discharged of static electricity by briefly touching a grounded metal object. Refer to Appendix G for more information.

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3. Open the computer by removing its outside cover. Refer to the section "Removing the Computer Cover" in this chapter for instructions.

4. Install any optional equipment (ISA or PCI expansion board, processor upgrade, memory, drive). Refer to the applicable sections of the documentation that comes with the optional equipment for the instructions.

5. Replace the computer cover.

6. Reconnect the keyboard and monitor.

7. Turn on the monitor, computer, and any devices you want to test.

8. If you are using Windows 3.1, run the Computer Setup utility to reconfigure the computer. Refer to Chapter 3, "Using Compaq Utilities," for instructions.

9. Test the computer (optional) using the TEST utility.

When to Reconfigure the Computer in Windows 95

Windows 95 automatically recognizes all Plug and Play devices installed. However, if the device is not a Plug and Play device or is not installed properly, follow the instructions below:

1. Go to the Control Panel.

2. Select the Add New Hardware icon.

3. Follow the instructions on the screen

When to Reconfigure the Computer in Windows NT 4.0

Windows NT 4.0 automatically recognizes all Plug and Play devices installed. However, if the device is not a Plug and Play device or is not installed properly, you must reconfigure the computer to recognize these changes. Run the Computer Setup utility to ensure that the computer recognizes that the new drive or board has been installed.

✎ If you add a board or other option, run the Computer Setup utility *after* you complete the installation.

If configuration settings are incorrect, one or more devices may not work properly, and you may receive an error message. If this occurs, run the Computer Setup utility again. Refer to Chapter 3, "Using Compaq Utilities," for more information.

When to Reconfigure the Computer in Windows 3.1

System configuration is the process of specifying the devices and programs that make up a computer system. When you add or remove optional equipment, you must reconfigure the computer to recognize these changes. For example, if you add a drive or expansion board to the computer, you must run the Computer Setup utility to ensure that the computer recognizes that the new drive or board has been installed.

✎ If you add a board or other option, run the Computer Setup utility *after* you complete the installation.

If configuration settings are incorrect, one or more devices may not work properly, and you may receive an error message. If this occurs, run the Computer Setup utility again. Refer to Chapter 3, "Using Compaq Utilities," for more information.

Removing the Computer Cover

To install optional equipment, you must remove the computer cover to gain access to the drive bays or expansion slots you want to use.

⚠ **CAUTION:** Before removing the computer cover, ensure that the computer is turned off and that the power cord is disconnected from the electrical outlet.

To remove the computer cover, complete the following steps:

1. Turn off the computer and any external devices.

2. Disconnect the power cord from the power outlet and any external devices from the computer.

3. Remove the two thumbscrews on the rear panel of the desktop computer. Use a coin to loosen them if they're too tight to loosen by hand.

Loosening the Thumbscrews

4. Slide the desktop computer cover backward about 1 inch (2.5 cm); then, lift it up off the unit.
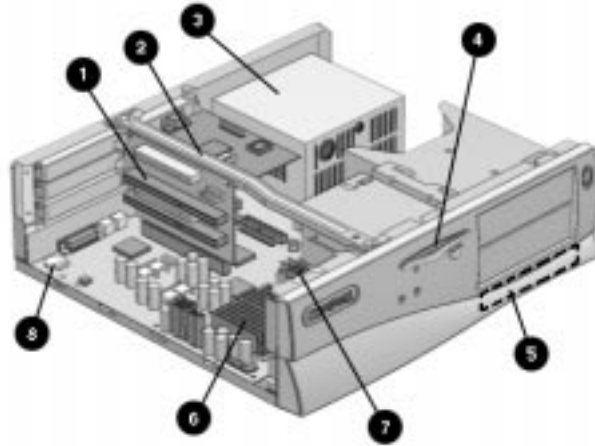

Removing the Desktop Computer Cover

An Inside View of the Computer

The following illustrations provide inside views of the main features of the computer. The table on the following page is keyed to the illustrations.
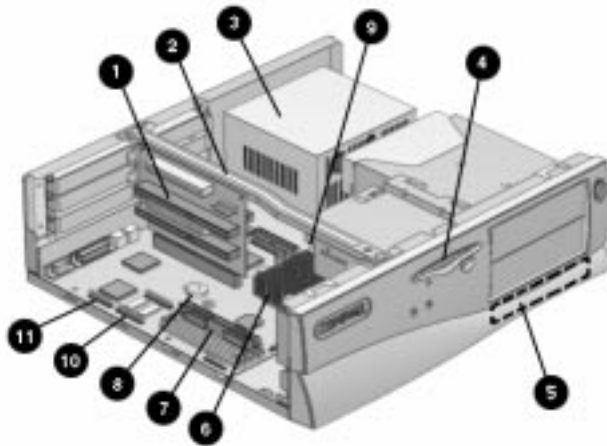
An Inside View of the Pentium-Based System Board

An Inside View of the Pentium Pro-Based System Board

System Board Components		
Interior Components	**Pentium Board**	**Pentium Pro Board**
Expansion slots	❶	❶
Riser card brace	❷	❷
Power supply	❸	❸
Diskette drive	❹	❹
Internal hard drive	❺	❺
Processor	❻	❻
Memory module sockets	❼	❼
Internal battery	❽	❽
Cache upgrade socket	❾	N/A
Graphics upgrade connector	❿ *	N/A
VESA connector	⓫	N/A

* The graphics upgrade connector is for use only with the Cirrus 5436 PCI
   Performance Graphics Controller.

The following sections explain how to install an expansion board, processor upgrade, additional memory, graphics memory, and an optional drive. For more complete installation instructions, refer to the installation guide included with the equipment.

✎ After installing optional equipment, refer to the sections in this chapter "When to Reconfigure the Computer in Windows 95," "When to Reconfigure the Computer in Windows NT 4.0," or "When to Reconfigure the Computer in Windows 3.1" to make sure the computer recognizes the new equipment.

Installing an Expansion Board

The Compaq Deskpro 2000 Series of Personal Computers contains the following five expansion slots: three slots are located on one side of the expansion riser board and two slots are located on the other side of the expansion riser board.

❶ Two PCI (Peripheral Component Interconnect) expansion slots, one on each side of the expansion riser board.

❷ Two ISA (Industry Standard Architecture) expansion slots, one on each side of the expansion riser board.

❸ One PCI/ISA shared expansion slot.
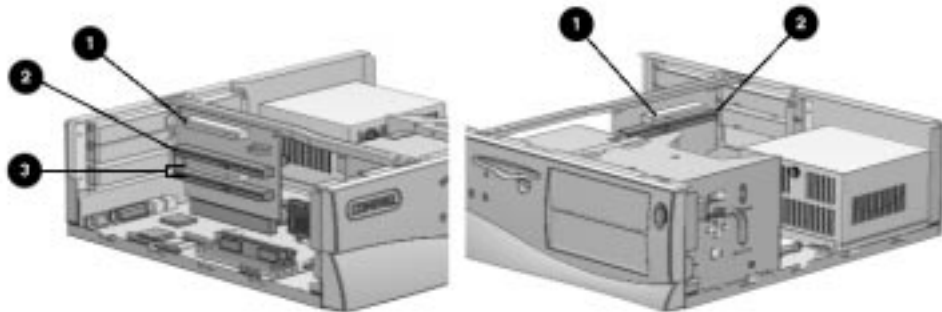
Five Expansion Slots on the Desktop Computer

Installing a PCI or ISA Board

To install a PCI or an ISA expansion board, complete the following steps:

1. Locate the correct vacant slot on the expansion board.

✎ If you are installing an expansion card on the side of the expansion riser board that has three expansion slots, skip this section and go to step 5.

2. If you are installing an expansion card on the expansion riser board side with two expansion slots (closest to the power supply), first remove the retaining screw and the retainer bracket ❶, then remove the expansion slot cover ❷.
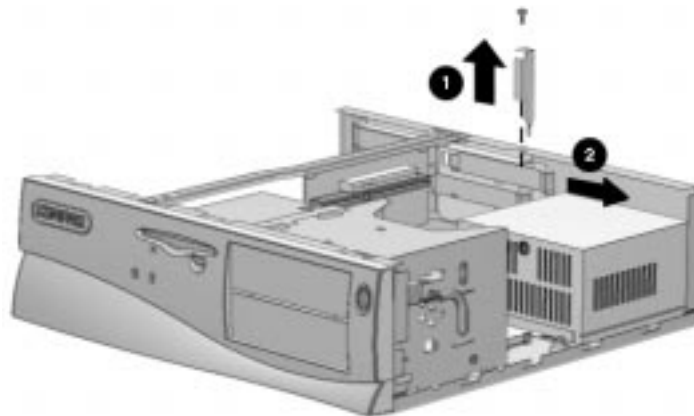
Removing the Retaining Screw, Retainer Bracket, and Slot Cover

3. Slide the expansion board into the expansion slot and press it firmly into place.
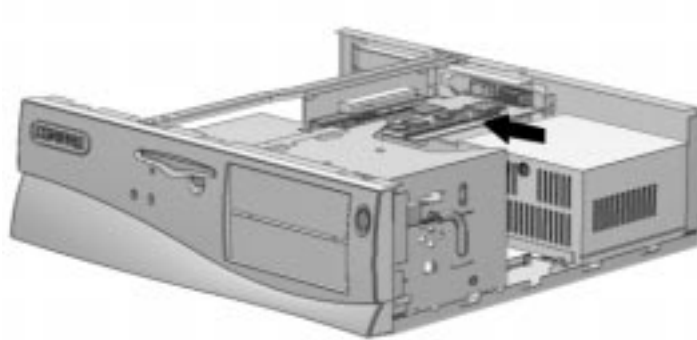
Sliding an Expansion Board into Place in a Desktop

✎ When you install an expansion board, make sure you press firmly on the board so that the whole connector seats properly in the expansion board slot.

4. Replace the retainer bracket and the retaining screw. Then skip to step 8.
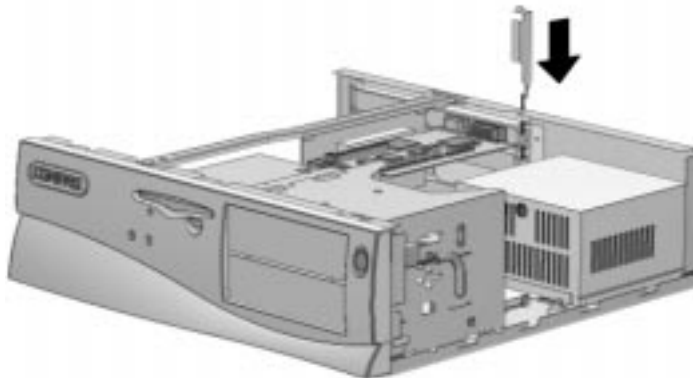
Replacing the Retainer Bracket and Retaining Screw

5. If you are installing an expansion card on the side of the expansion riser board that has three expansion slots, you need to remove only the retaining screw and the expansion slot cover.

✎ If you are installing an expansion card on the side of the expansion riser board that has two expansion slots, follow steps 2 through 4, then skip to step 8.
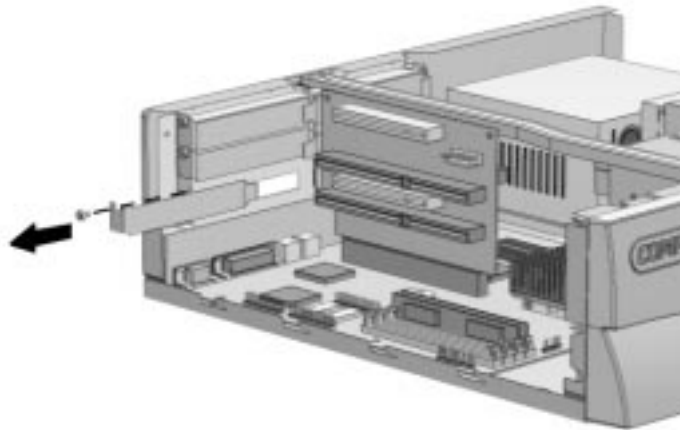
Removing the Retaining Screw and the Expansion Slot Cover

6. Slide the expansion board into the expansion slot and press it firmly into place.
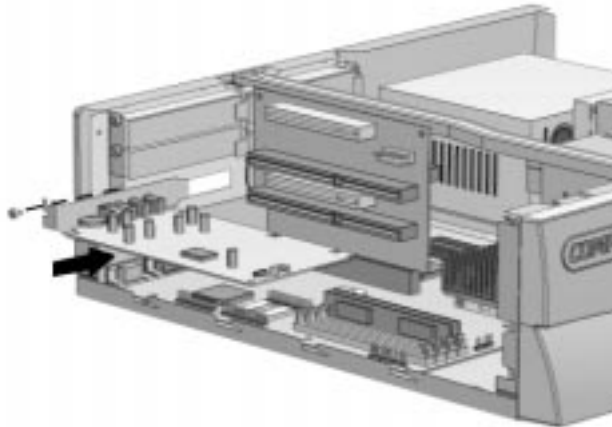
Sliding an Expansion Board into Place in a Desktop

✎ When you install an expansion board, make sure you press firmly on the board so that the whole connector seats properly in the expansion board slot.

7. Replace the retaining screw.

8. Replace the computer cover.

9. To reconfigure the computer to recognize the added expansion board, refer to the section in this chapter on reconfiguring the computer in Windows 95. If you are running Windows NT 4.0, refer to the section in this chapter on reconfiguring the computer in Windows NT 4.0. If you are running Windows 3.1, turn on the computer and run the Computer Setup utility to reconfigure the system. Refer to Chapter 3, "Using Compaq Utilities."

10. Test the computer (optional) using the Computer Checkup (TEST) utility. Refer to Chapter 3, "Using Compaq Utilities."

Upgrading the Processor

Depending on the model, you can upgrade the processor by replacing the processor currently installed with a processor upgrade.

Processor Supported Upgrades

Compaq Deskpro 2000 Pentium Models

Processor Upgrade:

■ Pentium 120 Mhz

■ Pentium 133 Mhz

■ Pentium 150 Mhz

■ Pentium 166 Mhz

■ Pentium 200 Mhz

Compaq Deskpro 2000 Pentium Pro Models

■ All Pentium Pros or Overdrive Processors

⚠ **CAUTION:** Installing the processor upgrade incorrectly may cause damage to the processor board. Compaq recommends that you have a Compaq authorized dealer, reseller or service provider install the processor upgrade. If you plan to install it yourself, read all the instructions carefully before you begin.

Installing a Processor Upgrade

To replace the installed processor with a processor upgrade, complete the following steps:

1. Remove the computer cover as described in the section "Removing the Computer Cover."

2. Remove the two screws from the diskette drive and move the diskette drive back until it rests on the power supply.
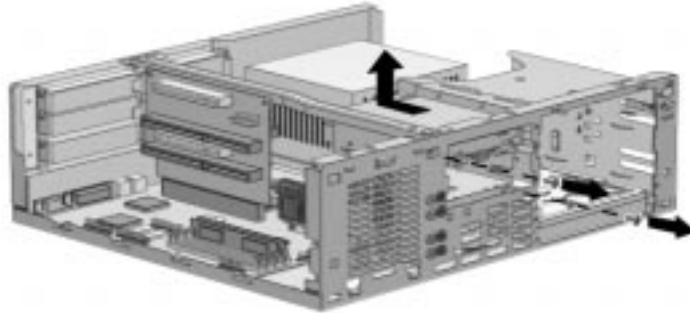
*Removing the Two Screws and the Diskette Drive*

> ⚠ **WARNING:** To reduce the risk of personal injury from hot surfaces, allow the internal system components to cool before touching.

> ⚠ **CAUTION:** When replacing a Pentium processor, you must release the heatsink retaining clip prior to pulling the ZIF socket handle. This clip engages the processor socket to hold the heatsink in place.

3. Remove the heatsink retaining clip ❶ by pressing down on the clip's extended tab until it releases from the safety catch.

4. Lift the heatsink ❷ off the processor.

5. Release the original processor from the socket by pulling the handle on the ZIF socket out ❸ and upward ❹.

6. Lift the processor ❺ out of the socket.
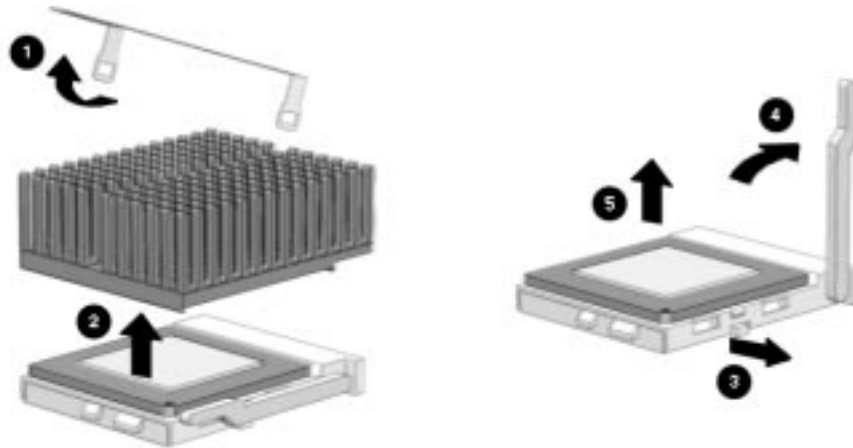
Removing the Processor

✎ The handle on the ZIF socket in your computer may not look identical to the handle shown in the drawing. All handle types perform the same function.

7. Align the new processor so that the single pin on the inside corner of the processor aligns with the single pinhole on the inside corner of the socket.

8. Install the processor by lowering it into the ZIF socket.

9. Push the handle on the ZIF socket back into place to secure the processor.

10. Install the heatsink and the heatsink retaining clip.

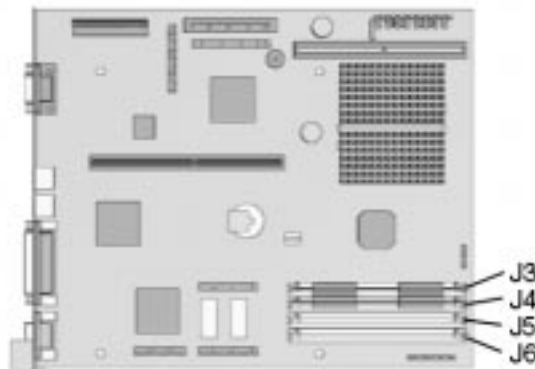11. Replace the computer cover.

12. Run the Computer Setup utility. Refer to Chapter 3, "Running Compaq Utilities."

13. Test the system (optional) using the Computer Checkup (TEST) utility. Refer to Chapter 3, "Running Compaq Utilities."

Installing Additional Memory

You can expand computer memory by installing industry standard single inline memory modules (SIMMs) on the system board. The following illustrations show the memory module sockets located on the system boards.

There are some differences to be noted when installing memory on the different system boards. There are four memory sockets that can be populated when installing memory on the Pentium system board. There are six memory sockets that can be populated on the Pentium Pro system board. However, two of these memory sockets on both system boards are used to hold the 8, 16, or 32 megabytes that come preinstalled on these models. You may replace the preinstalled memory modules with higher megabyte memory modules to achieve maximum memory.
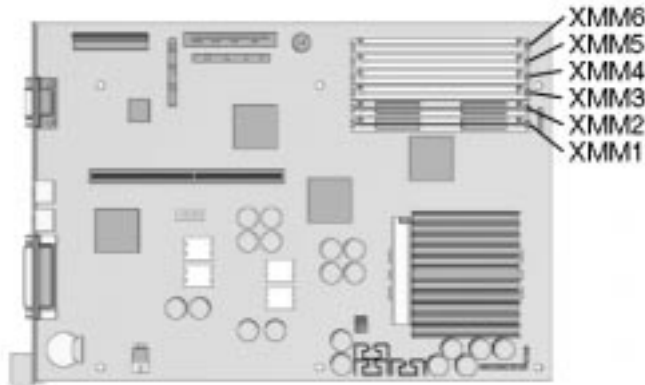
In both cases, SIMMs are installed in equally matched pairs; for example, two 4-megabyte modules, two 8-megabyte modules, two 16-megabyte modules, or two 32-megabyte modules. If you are mixing EDO and fast page mode (FPM) DRAM, identical modules must be installed two at a time, for example, two EDO modules of the same type, speed, and size, or two FPM DRAM modules of the same type, speed, and size.

Four Memory Module Sockets on the Pentium-Based System Board

> **CAUTION:** Static electricity can damage the electronic components of the computer or optional equipment. Before beginning these procedures, ensure that you are discharged of static electricity by briefly touching a grounded metal object. Refer to Appendix G for more information.

Six Memory Module Sockets on the Pentium Pro-Based System Board

Memory Upgrades		
Model	**Standard**	**Expandable to:**
Pentium–based system	8-, 16-, or 32-MB DRAM	128-MB DRAM
Pentium Pro–based system	16- or 32-MB DRAM	192-MB DRAM

> **CAUTION:** When handling a memory module, be careful not to touch any of the contacts. Doing so may damage the module

To install a memory module, complete the following steps:

1. Remove the computer cover as described in the section "Removing the Computer Cover."

2. Insert a memory module at a 45-degree angle into a memory socket on the system board.

    A memory module can be installed in only one way. Match the notch on the module with the tab on the memory socket. Push the module down into the socket, ensuring that the module is fully inserted and properly seated.

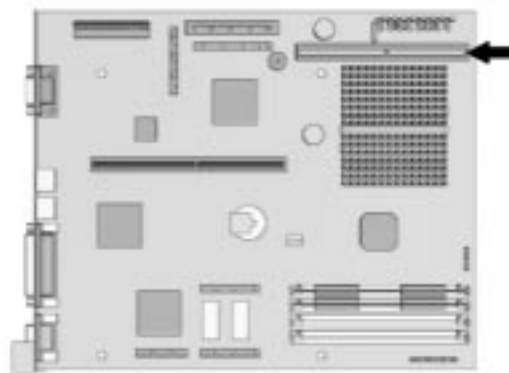3. Rotate the module gently to an upright position, allowing the latches to snap into place.
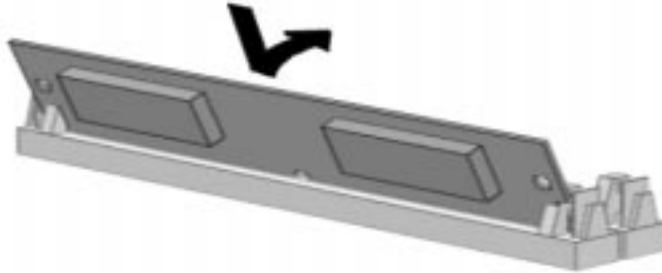
Installing a Memory Module

4. Repeat steps 2 and 3 for each module that you want to install.

5. Replace the computer cover.

6. Your system will automatically recognize system memory upgrades and will automatically reconfigure the computer. If, for some reason, the memory upgrades do not configure correctly, you will need to run Computer Setup to reconfigure the computer. Refer to Chapter 3, "Using Compaq Utilities," for information on running Computer Setup.

7. Test the system (optional) using the Computer Checkup (TEST) utility. Refer to Chapter 3, "Using Compaq Utilities."

Installing Optional Cache Memory

Cache memory is very fast pipeline burst memory used for temporarily storing data for fast access by the processor. If your computer does not have cache memory already installed, it can be upgraded to include cache memory by adding an optional 256-kilobyte pipeline burst L2 cache module (Compaq part no. 237716-1) on the system board. To install an optional cache module, complete the following steps:

1. Turn off the computer and remove the computer cover as described in the section "Removing the Computer Cover."

2. Locate the cache connector on the system board.

Locating the Cache Connector

3. Install a 256-kilobyte cache module onto the cache connector.

4. Replace the computer cover.

5. Reconnect all the cables and turn on the computer. It will automatically reconfigure the additional memory. Refer to Chapter 3, "Using Compaq Utilities."

Upgrading Graphics Capabilities

The Compaq Deskpro 2000 Series of Personal Computers comes with one of the following graphics controllers, depending on the model:

■ Matrox MGA Millennium graphics controller card

■ Cirrus 5446 PCI performance graphics controller

■ Cirrus 5436 PCI performance graphics controller

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The Matrox MGA Millennium controller is standard on the Pentium Pro–based computers. It is a high-performance PCI graphics controller with a maximum 1600×1200 non-interlaced resolution. The controller comes equipped with 2 megabytes of Windows Random Access Memory (WRAM) and is implemented to use a PCI bus. An optional 2 or 6 megabytes of memory may be added to the graphics controller board for greater color depth at higher resolutions. This will allow you to work with photorealistic images in applications that support these resolutions. The maximum non-interlaced resolution supported is 1600×1200.

The Cirrus 5446 PCI performance graphics controller has a maximum 1024×768 noninterlaced resolution. It is PCI implemented and comes with 1 megabyte of Extended Data Out (EDO) Dynamic Random Access Memory (DRAM). An optional 1 megabyte of DRAM may be added to the PCI graphics board for greater performance, increased color depth, and higher resolutions with a maximum of 256 colors at 1280×1024 noninterlaced resolution.

The Cirrus 5436 PCI performance graphics controller is integrated and has a maximum of 256 colors at 1024×768 non-interlaced resolution. It supports EDO DRAM configurations of 1 megabyte and 2 megabytes and is PCI implemented. It comes standard with 1 megabyte of EDO DRAM. An optional 1 megabyte of memory may be added to the system board for greater color depth and higher resolutions with a maximum of 256 colors at 1280×1024 at 75 Hz resolution.

Upgrading the Matrox MGA Millennium Graphics Controller or the Cirrus 5446 PCI Performance Graphics Controller

To install a 1-megabyte EDO DRAM upgrade module onto the PCI performance graphics controller board, or an additional 2- or 6-megabyte WRAM upgrade module onto the MGA Millennium graphics board:

1. Turn off the computer, disconnect the power cord from the electrical outlet, and remove the computer cover as described in the section "Removing the Computer Cover."

2. Remove the screw and the retainer bracket as described in the section, "Installing a PCI or ISA Board."

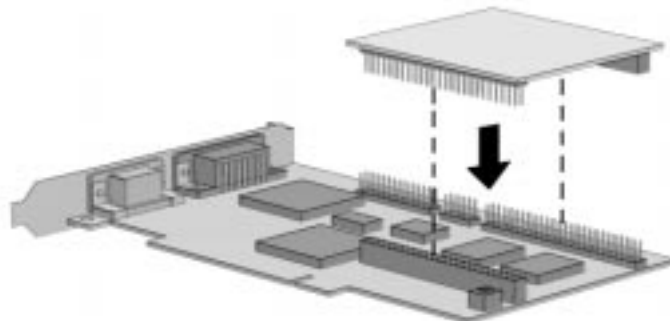3. Remove the graphics controller board from the PCI expansion slot.

Removing the Graphics Controller Board from the PCI Expansion Slot

4. Place the graphics board on a flat surface and install the upgrade memory module as illustrated below.
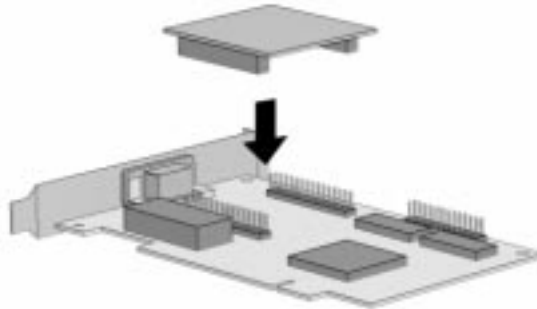
Installing an Upgrade Memory Module on the 5446 PCI Performance Graphics Controller Board

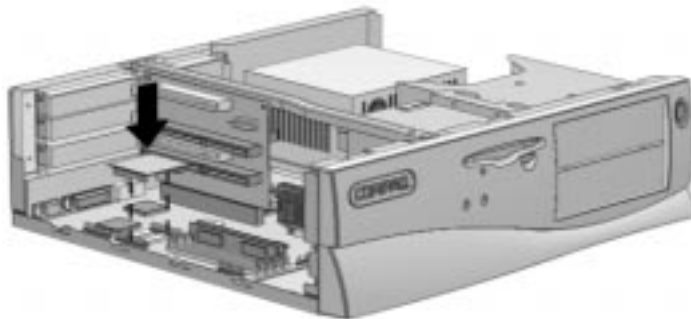*Installing a WRAM Upgrade Module on the MGA Millennium Graphics Board*

5. Replace the graphics controller board in the same expansion slot.

6. Replace the retainer bracket, the retaining screw, and the computer cover.

7. Turn the computer on and start the Windows program.

8. Select the Display icon in the Compaq Utilities group box in Windows 3.1, or the Display icon in the Control Panel in Windows 95 or Windows NT 4.0 to take advantage of the additional display modes now available with the upgraded memory. Follow the instructions on the screen. Refer to "Customizing the Display" in Chapter 3, "Using Compaq Utilities," for more information.

9. Test the system (optional) using the Computer Checkup (TEST) utility. Refer to Chapter 3, "Using Compaq Utilities."

Upgrading the Cirrus 5436 PCI Performance Graphics Controller

The Cirrus 5436 PCI performance graphics controller is integrated on the system board. The maximum upgrade is 1 megabyte of EDO DRAM for a total of 2 megabytes of EDO DRAM.

To install an additional 1-megabyte EDO DRAM card on the system board:

1. Turn off the computer and remove the computer cover as described in the section "Removing the Computer Cover."

2. Install the 1-megabyte EDO DRAM upgrade card onto the system board.

Installing a 1-MB EDO DRAM Module onto the System Board

3. Replace the computer cover.

4. Turn the computer on and start the Windows program.

5. Select the Display icon in the Compaq Utilities group box in Windows 3.1, or the Display icon in the Control Panel in Windows 95 or Windows NT 4.0 to take advantage of the additional display modes now available with the upgraded memory. Follow the instructions on the screen.

6. Test the system (optional) using the Computer Checkup (TEST) utility. Refer to Chapter 3, "Using Compaq Utilities."

Installing an Additional Hard Drive

The Compaq Deskpro 2000 Series of Personal Computers supports up to five drives internally. They may be installed in various configurations. The drive bays and their functions are:

❶ One standard 3.5-inch third-height diskette drive

❷ One 5.25-inch half-height bay for optional CD-ROM drive, diskette drive, tape drive, or hard drive

❸ One 5.25-inch half-height bay for optional CD-ROM drive, diskette drive, tape drive, or hard drive

❹ One 3.5-inch internal bay for hard drive

❺ One 5.25-inch internal bay for hard drive
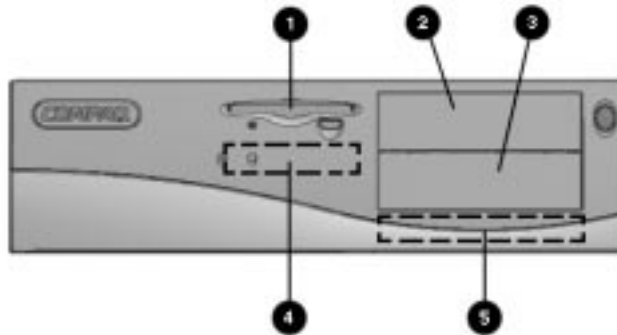
Five Drive Bay Positions on the Desktop Computer

Your computer will have either a 5.25-inch hard drive *or* a 3.5-inch hard drive installed. If the hard drive is a 5.25-inch drive, it will be installed in location ❺. If the hard drive is a 3.5-inch drive, it will be installed in location ❹.

Installation Instructions

Compaq strongly recommends that only an authorized service provider replace your primary hard drive.

Follow these steps to install an additional hard drive into one of the drive bays:

✎ Installing a third-party hard drive requires the installation of special Compaq flanged screws that are stored in the front of the computer frame.

1. Turn off the computer and remove the computer cover as described in the section "Removing the Computer Cover."

2. Remove the front bezel from the computer by locating the tabs ❶ on both sides of the bottom of the bezel. Push the tabs in and rotate the bezel up ❷ from the bottom and pull out.
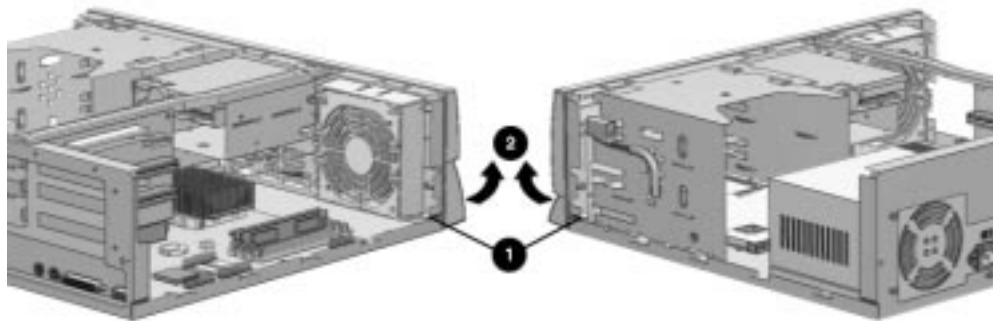
Removing the Front Bezel

3. Locate the extra U.S. and metric screws stored in the front of the computer frame for this purpose. Select the appropriate screws for the application.
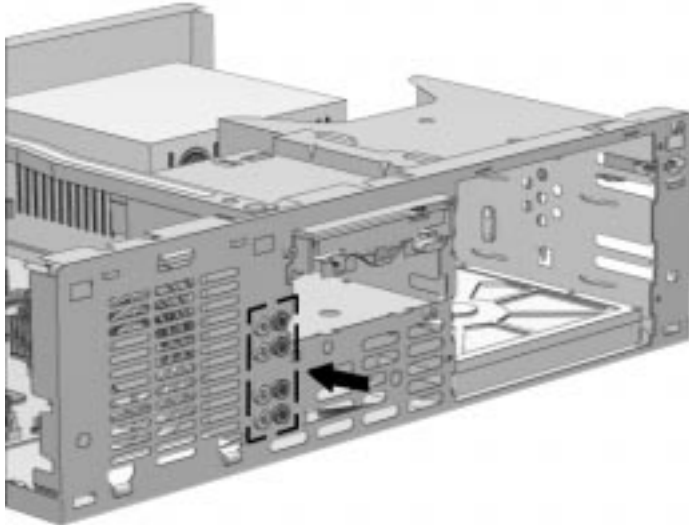

Locating the Flanged Screws

✎ Metric screws have a black finish while U.S. screws have a silver finish.

4. Install one flanged screw on each side of the front of the hard drive.

Installing the Flanged Screws into the Hard Drive

5. Install the hard drive assembly into the drive bay, install the drive bezel, and secure the hard drive with a single retaining screw that comes with the hard drive.
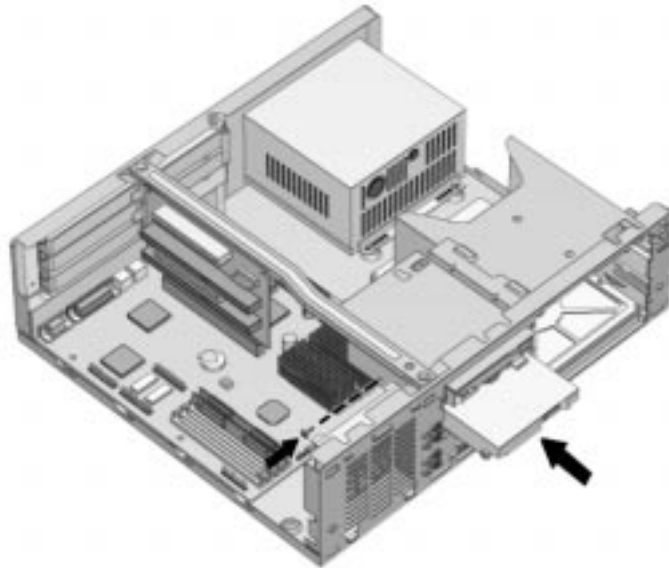
Installing the Hard Drive, Drive Bezel, and Retaining Screw

6. Skip the next section and complete installing the hard drive with the section, "Completing the Installation."

![COMPAQ]

Installing a 3.5-Inch Hard Drive into a 5.25-inch Bay

If you are installing a 3.5-inch hard drive into a 5.25-inch bay, you will need a bracket to hold the 3.5-inch hard drive in place. A bracket (part number 247239) for this purpose can be purchased from Compaq Computer Corporation. To install the 3.5-inch hard drive with the bracket, complete the following instructions.

1. Complete instructions 1 through 3 in the "Installation Procedures" section.

2. Place the 3.5-inch hard drive into the bracket.

3. Insert four screws into the bracket holes on both sides of the bracket to hold the hard drive in place.
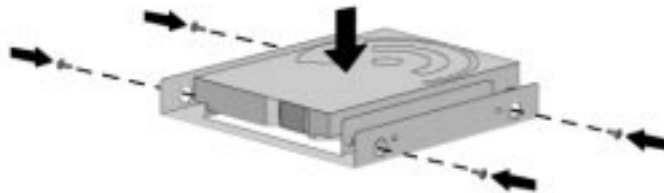
*Placing the Hard Drive and Inserting Four Screws into the Bracket*

4. Remove two flanged screws from the front of the computer frame and insert one on both sides of the bracket. These are guide screws used to position the bracket in place.
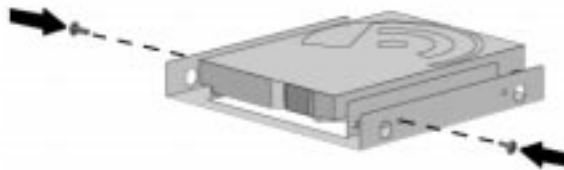
Inserting Two Flanged Screws into the Bracket

5. Install the hard drive assembly into the drive bay positioning the guide screws into the tabs on either side of the drive bay.

6. Secure the hard drive with one 3mm retaining screw that comes with the hard drive.
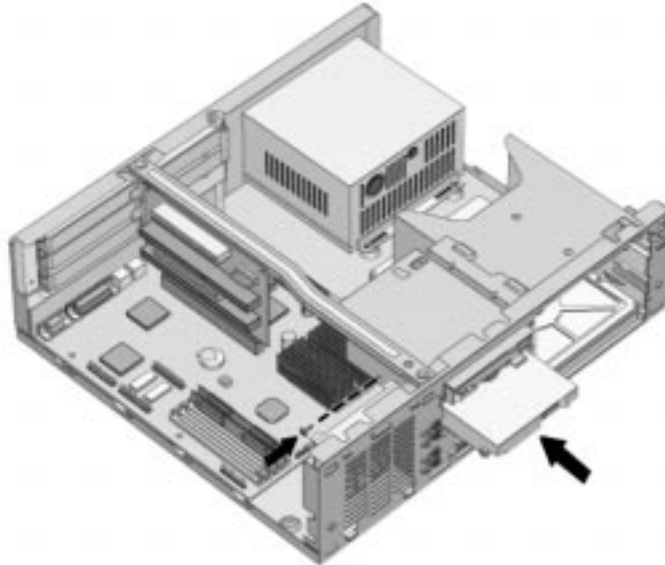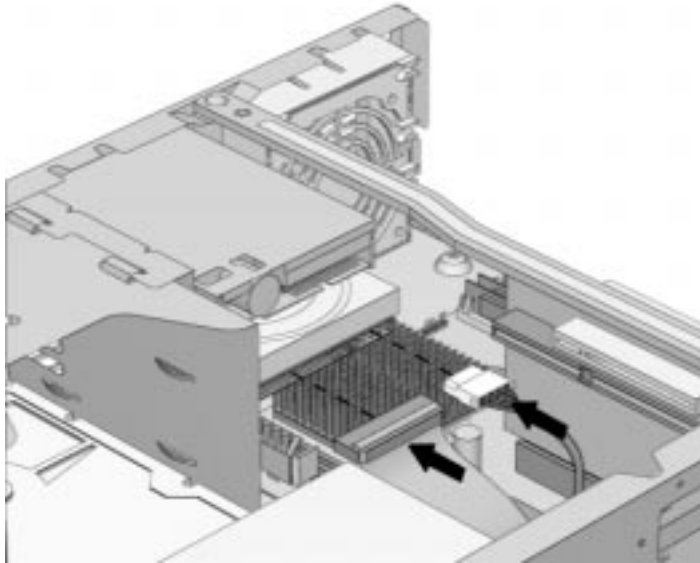

Installing the Hard Drive and Securing it with a Retaining Screw

7. Follow the instructions in the "Completing the Installation" section.

Completing the Installation

1. Connect the hard drive signal and power cables.

Connecting the Signal and Power Cables

2. Change the jumper settings if indicated in the documentation supplied with the new hard drive.

   If you change the drive configuration or add an additional hard drive, you may need to change the jumper settings. For more information on changing the jumper settings, see the documentation supplied with the new hard drive. By setting the jumpers on the drives, you are determining which drive is the primary drive and which is the secondary drive.

   If your new drive includes the cable select feature, no jumper setting changes are required. Refer to the documentation supplied with the cable for instructions on using the cable select feature. If you install a third-party hard drive, you will need to purchase a jumper cable. For a nominal fee, you can purchase a jumper cable (part number 112528-2) from Compaq Computer Corporation.

3. Replace the computer cover.

4. Your system will automatically recognize a hard drive sold by Compaq and will automatically reconfigure the computer. If you have installed a third party hard drive, you will need to run Computer Setup to reconfigure the computer. Refer to Chapter 3, "Using Compaq Utilities," for information on running Computer Setup.

5. Test the system (optional) using the Computer Checkup (TEST) utility. Refer to Chapter 3, "Using Compaq Utilities."

chapter 6

UPGRADING THE MINITOWER COMPUTER

This chapter explains how to remove the computer cover and install the following optional upgrade and replacement equipment or firmware:

■ Expansion board

■ Processor upgrade

■ Additional memory

■ Graphics memory

■ Optional drive

The chapter also includes information about when to reconfigure the computer to ensure that the newly installed equipment is recognized by the computer.

Installation Sequence

To familiarize you with the process, a summary of the installation and configuration sequence begins this chapter. It is very important that you follow the sequence of steps to ensure the proper installation of any optional equipment.

1. If the computer is already on, turn it off and disconnect the power cord from the wall.

2. Disconnect the keyboard, monitor, and any other external equipment connected to the computer.

⚠ **WARNING:** To reduce the risk of personal injury from hot surfaces, allow the internal system components to cool before touching.

⚠ **CAUTION:** Static electricity can damage the electronic components of the computer or optional equipment. Before beginning these procedures, ensure that you are discharged of static electricity by briefly touching a grounded metal object. Refer to Appendix G for more information.

COMPAQ

1. Open the computer by removing its outside cover. Refer to the section "Removing the Computer Cover" in this chapter for instructions.

2. Install any optional equipment (ISA or PCI expansion board, processor upgrade, memory, drive). Refer to the applicable sections of the documentation that comes with the optional equipment for the instructions.

3. Replace the computer cover.

4. Reconnect the keyboard and monitor.

5. Turn on the monitor, computer, and any devices you want to test.

6. If you are using Windows 3.1, run the Computer Setup utility to reconfigure the computer. Refer to Chapter 3, "Using Compaq Utilities," for instructions.

7. Test the computer (optional) using the TEST utility.

When to Reconfigure the Computer in Windows 95

Windows 95 automatically recognizes all Plug and Play devices installed. However, if the device is not a Plug and Play device or is not installed properly, follow the instructions below:

1. Go to the Control Panel.

2. Select the Add New Hardware icon.

3. Follow the instructions on the screen.

✎ If you add a board or other option, run the Computer Setup utility after you complete the installation. If configuration settings are incorrect, one or more devices may not work properly, and you may receive an error message. If this occurs, run the Computer Setup utility again. Refer to Chapter 3, "Using Compaq Utilities," for more information.

When to Reconfigure the Computer in Windows NT 4.0

Windows NT 4.0 automatically recognizes all Plug and Play devices installed. However, if the device is not a Plug and Play device or is not installed properly, you must reconfigure the computer to recognize these changes. Run the Computer Setup utility to ensure that the computer recognizes that the new drive or board has been installed.

✎ If you add a board or other option, run the Computer Setup utility *after* you complete the installation.

If configuration settings are incorrect, one or more devices may not work properly, and you may receive an error message. If this occurs, run the Computer Setup utility again. Refer to Chapter 3, "Using Compaq Utilities," for more information.

When to Reconfigure the Computer in Windows 3.1

System configuration is the process of specifying the devices and programs that make up a computer system. When you add or remove optional equipment, you must reconfigure the computer to recognize these changes. For example, if you add a drive or expansion board to the computer, you must run the Computer Setup utility to ensure that the computer recognizes that the new drive or board has been installed.

✎ If you add a board or other option, run the Computer Setup utility *after* you complete the installation.

If configuration settings are incorrect, one or more devices may not work properly, and you may receive an error message. If this occurs, run the Computer Setup utility again. Refer to Chapter 3, "Using Compaq Utilities," for more information.

COMPAQ

Removing the Computer Cover

To install optional equipment, you must remove the computer cover to gain access to the drive bays or expansion slots you want to use.

> ⚠ **CAUTION:** Before removing the computer cover, ensure that the computer is turned off and that the power cord is disconnected from the electrical outlet.

To remove the computer cover, complete the following steps:

1. Turn off the computer and any external devices.

2. Disconnect the power cord from the power outlet and any external devices from the computer.

3. Facing the back of the computer, loosen the three thumbscrews on the rear panel of the minitower computer and remove them. Use a coin to loosen them if they're too tight to loosen by hand.

Loosening the Thumbscrews

4. Slide the panel to the back of the computer and pull out to
   remove it.
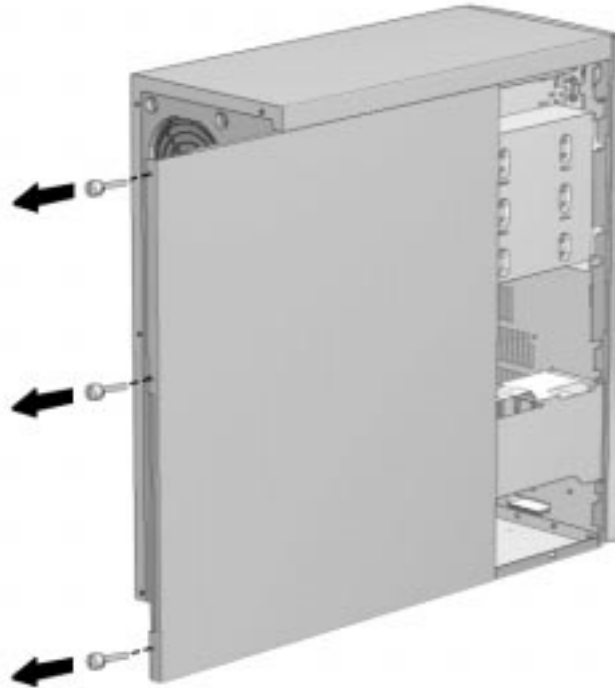
Removing the Minitower Computer Cover

✎ The configuration label located on the bridge plate inside the
   computer provides information for installing a new battery.

An Inside View of the Computer

These illustrations provide inside views of the main features of the computer. The following tables are keyed to the illustrations.
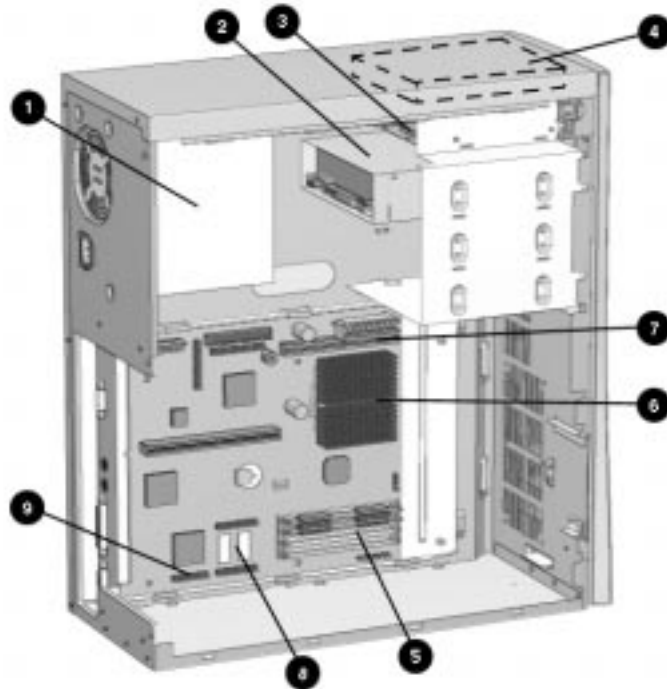
An inside View of a Pentium-Based System

Ref	Interior Components
❶	Power supply
❷	CD-ROM drive
❸	Diskette drive
❹	Internal hard drive
❺	Memory module sockets
❻	Processor
❼	Cache upgrade socket
❽	Graphics upgrade socket
❾	VESA connector
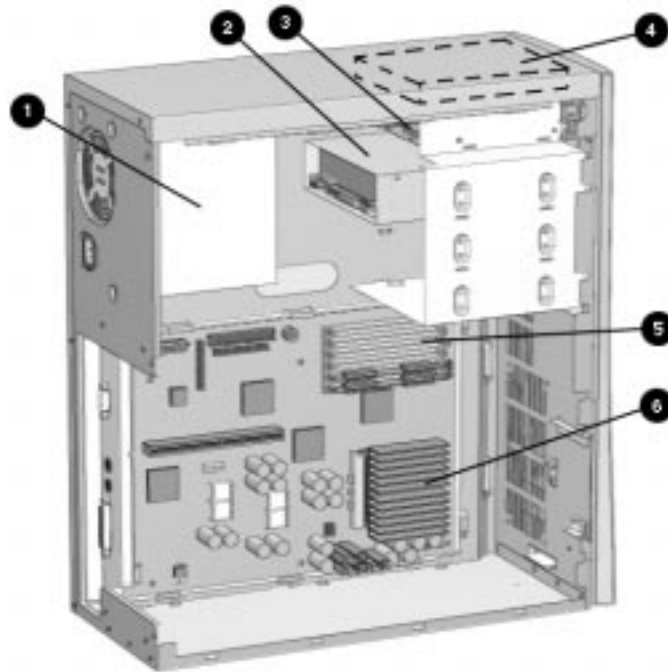
An inside View of the Pentium Pro-Based System

| Ref	Interior Components
❶	Power Supply
❷	CD-ROM drive
❸	Diskette drive
❹	Internal hard drive
❺	Memory module sockets
❻	Processor

The following sections explain how to install an expansion board, processor upgrade, additional memory, graphics memory, and an optional drive.

✎ After installing optional equipment, refer to the sections in this chapter, "When to Reconfigure the Computer in Windows 95", "When to Reconfigure the Computer in Windows NT 4.0," or "When to Reconfigure the Computer in Windows 3.1" to ensure that the computer recognizes the new equipment.

Removing the Expansion Card Brace

Before an expansion board can be installed or replaced, you must remove the expansion brace that holds the expansion cards. Follow these steps to safely remove the expansion card brace:

1. Remove the computer cover. Refer to the section "Removing the Computer Cover" in this chapter.

2. Grasp the expansion card brace at both ends and pull it out of the computer chassis. Use care when guiding the assembly out of the unit to prevent damaging the boards.

✎ When reinstalling the expansion card brace, fully seat the backplane board attached to the cage into the system board socket to ensure complete electrical contact.
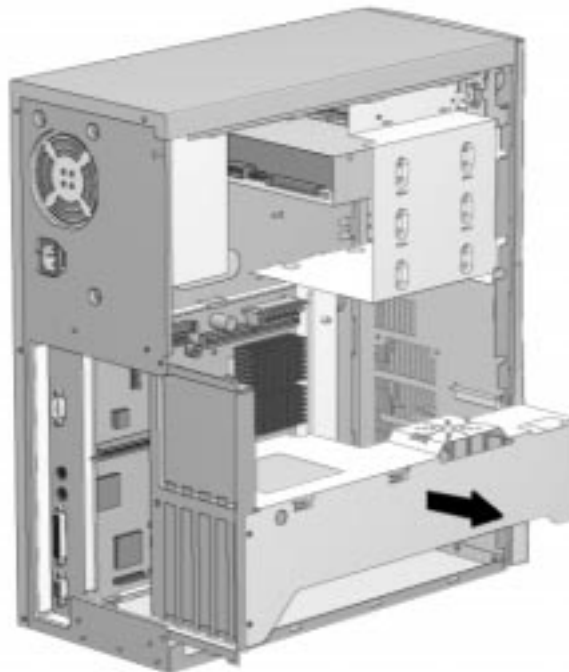
Removing the Expansion Board Brace

Installing an Expansion Board

The Compaq Deskpro 2000 Minitower Personal Computer contains five expansion slots, which are located on the expansion board. These consist of:

❶ Two PCI (Peripheral Component Interconnect) expansion slots (slots 1 and 2)

❷ One PCI/ISA (Industry Standard Architecture) shared expansion slot (Slot 3)
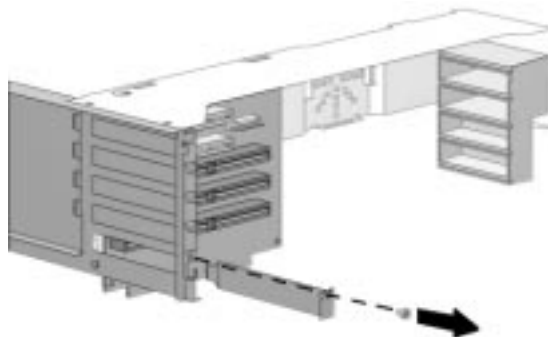
❸ Two ISA expansion slots (slots 4 and 5)
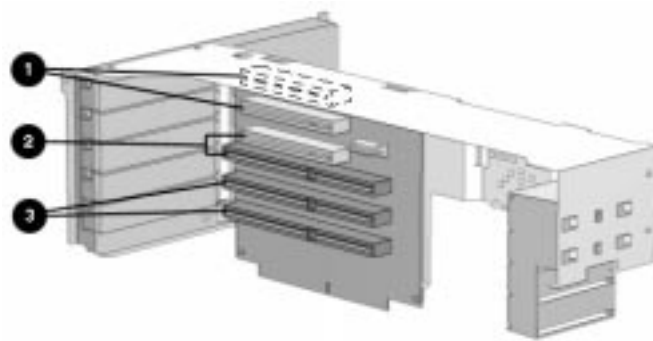
Five Expansion Slots in the Expansion Board

Installing a PCI or ISA Board

To install a PCI or an ISA expansion board, complete the following steps:

1. Locate the correct vacant slot in the expansion board.

2. Remove the screw from the expansion slot cover, then remove the expansion slot cover.


Removing the Screw and Expansion Slot Cover

3. Slide the expansion board into the expansion slot and press it firmly into place.
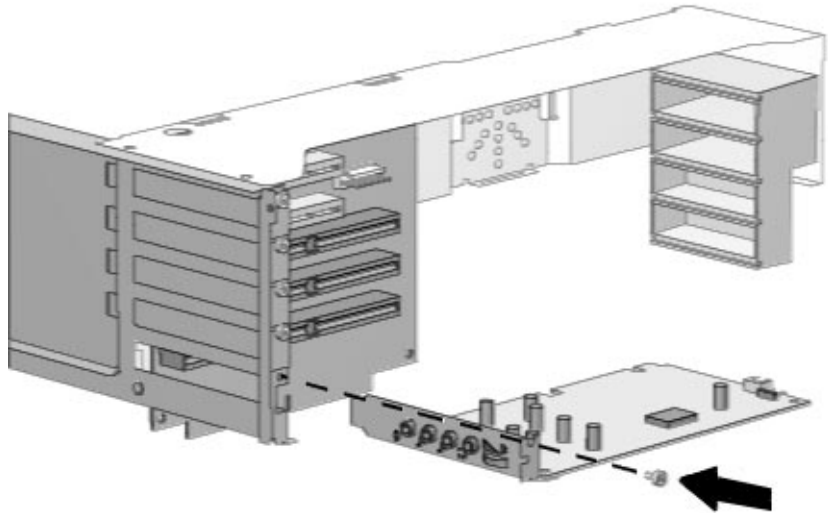
Sliding an Expansion Board into Place in the Expansion Brace

✎ When you install an expansion board, make sure you press firmly on the board so that the whole connector seats properly in the expansion board slot.

4. Replace the expansion brace into the minitower.
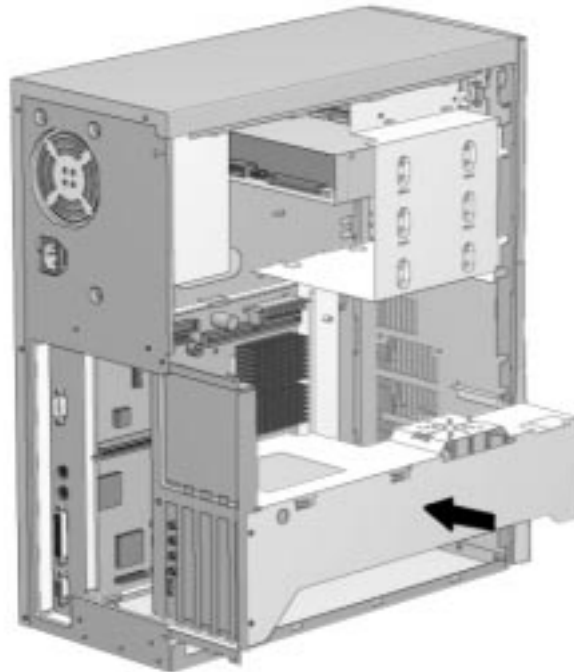
Replacing the Brace into the Minitower

5. Replace the computer cover.

6. Turn on the computer and run the Computer Setup utility to reconfigure the system if you are operating in Windows 3.1. Refer to Chapter 3, "Using Compaq Utilities." If you are operating in Windows 95 or Windows NT 4.0, refer to the sections in this chapter "When to Reconfigure the Computer in Windows 95" or "When to Reconfigure the Computer in Windows NT 4.0."

7. Test the computer (optional) using the Computer Checkup (TEST) utility. Refer to Chapter 3, "Using Compaq Utilities."

COMPAQ

Upgrading the Processor

Depending on the model, you can upgrade the processor by replacing the processor currently installed with a processor upgrade.

Processor Supported Upgrades

Compaq Deskpro 2000 Pentium Models

Processor Upgrade:

■ Pentium 133 Mhz

■ Pentium 150 Mhz

■ Pentium 166 Mhz

■ Pentium 200 Mhz

Compaq Deskpro 2000 Pentium Pro Models

■ All Pentium Pros or Overdrive Processors

⚠ **CAUTION:** Installing the processor upgrade incorrectly may cause damage to the processor board. Compaq recommends that you have a Compaq authorized reseller or service provider install the processor upgrade. If you plan to install it yourself, read all the instructions carefully before you begin.

Installing a Processor Upgrade

To replace the installed processor with a processor upgrade, complete the following steps:

1. Remove the computer cover as described in the section "Removing the Computer Cover."

⚠ **WARNING:** To reduce the risk of personal injury from hot surfaces, allow the internal system components to cool before touching.

⚠ **CAUTION:** When replacing a Pentium processor, you must release the heatsink retaining clip before you pull the ZIF socket handle. This clip engages the processor socket to hold the heatsink in place.

2. Remove the heatsink retaining clip ❶ by pressing down on the clip's extended tab until it releases from the safety catch.

3. Lift the heatsink ❷ off the processor.

4. Release the original processor from the socket by pulling the handle on the ZIF socket out ❸ and upward ❹.

5. Lift the processor ❺ out of the socket.
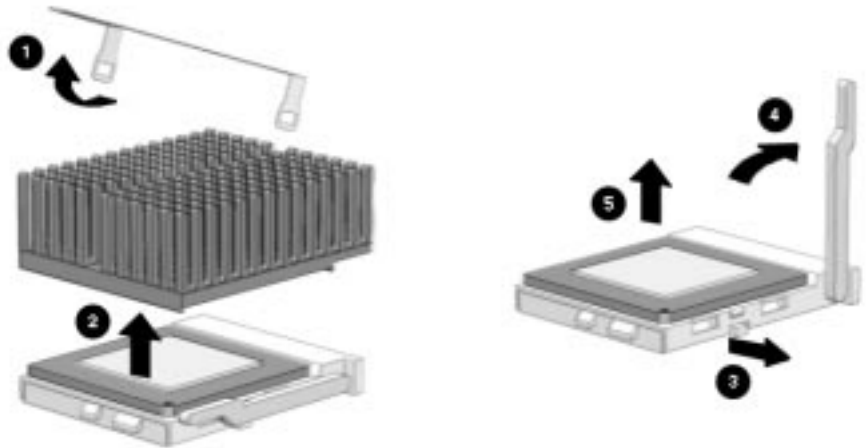
Removing the Processor

✎ The handle on the ZIF socket in your computer may not look identical to the handle shown in the drawing. All handle types perform the same function.
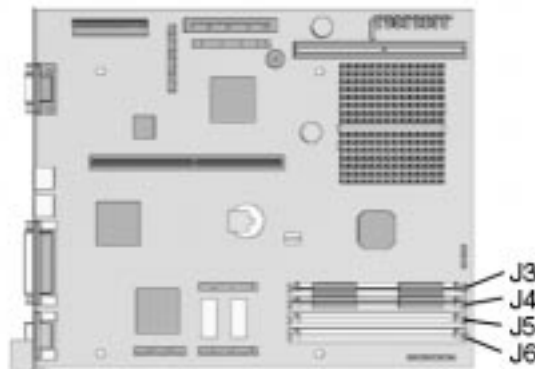
6. Align the new processor so that the single pin on the inside corner of the processor aligns with the single pinhole on the inside corner of the socket.

7. Install the processor by lowering it into the ZIF socket.

8. Push the handle on the ZIF socket back into place to secure the processor.

9. Install the heatsink and the heatsink retaining clip.

10. Replace the computer cover.

11. Run the Computer Setup utility. Refer to Chapter 3, "Running Compaq Utilities."

12. Test the system (optional) using the Computer Checkup (TEST) utility. Refer to Chapter 3, "Running Compaq Utilities."

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Installing Additional Memory

You can expand computer memory by installing industry standard single inline memory modules (SIMMs) on the system board. The following illustrations show the memory module sockets located on the system boards.

There are some differences to be noted when installing memory on the different system boards. There are four memory sockets that can be populated when installing memory on the Pentium system board. There are six memory sockets that can be populated on the Pentium Pro system board. However, two of these memory sockets on both system boards are used to hold the 8, 16, or 32 megabytes that come preinstalled on these models. You may replace the preinstalled memory modules with higher megabyte memory modules to achieve maximum memory.
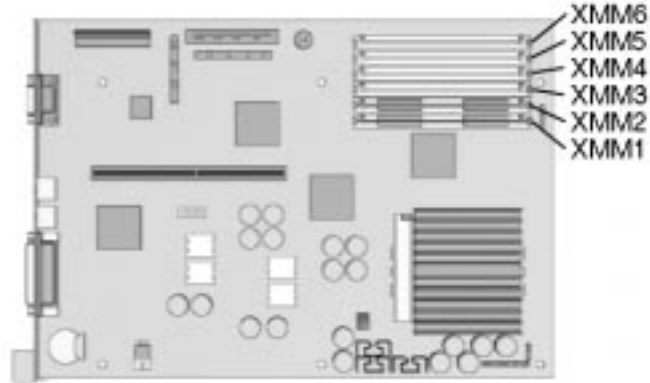
In both cases, SIMMs are installed in equally matched pairs; for example, two 4-megabyte modules, two 8-megabyte modules, two 16-megabyte modules, or two 32-megabyte modules. If you are mixing EDO and fast page mode (FPM) DRAM, identical modules must be installed two at a time, for example, two EDO modules of the same type, speed, and size; or two FPM DRAM modules of the same type, speed, and size.

Four Memory Sockets on the Pentium–Based System Board

⚠ **CAUTION:** Static electricity can damage the electronic components of the computer or optional equipment. Before beginning these procedures, ensure that you are discharged of static electricity by briefly touching a grounded metal object. Refer to Appendix G for more information.

Six Memory Module Sockets on the Pentium Pro–Based System Board
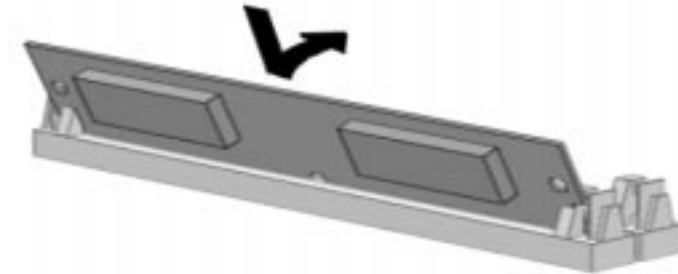
Memory Upgrades		
Model	**Standard**	**Expandable to:**
Pentium–based system	8- 16-, or 32-MB DRAM	128-MB DRAM
Pentium Pro–based system	16- or 32-MB DRAM	192-MB DRAM

⚠ **CAUTION:** When handling a memory module, be careful not to touch any of the contacts. Doing so may damage the module.

To install a memory module, complete the following steps:

1. Remove the computer cover as described in the section "Removing the Computer Cover."

2. Insert a memory module at a 45-degree angle into a memory socket on the system board.
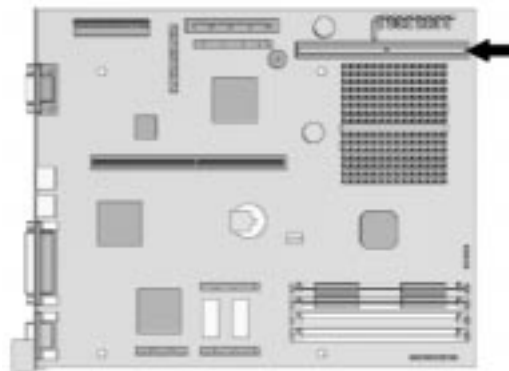

Installing a Memory Module

A memory module can be installed in only one way. Match the notch on the module with the tab on the memory socket. Push the module down into the socket, ensuring that the module is fully inserted and properly seated.

3. Rotate the module gently to an upright position, allowing the latches to snap into place.

4. Repeat steps 2 and 3 for each module that you want to install.

5. Replace the computer cover.

6. Your computer will recognize system memory upgrades and will automatically reconfigure the computer. If, for some reason, the memory upgrades do not configure correctly, you will need to run Computer Setup to reconfigure the computer. Refer to Chapter 3, "Using Compaq Utilities," for information on running Computer Setup.

7. Test the system (optional) using the Computer Checkup (TEST) utility. Refer to Chapter 3, "Using Compaq Utilities."

Installing Optional Cache Memory

Cache memory is very fast pipeline burst memory used for temporarily storing data for fast access by the processor. If your computer does not have cache memory already installed, it can be upgraded to include cache memory by adding an optional 256-kilobyte pipeline burst L2 cache module (Compaq part no. 237716-1) on the system board. To install an optional cache module, complete the following steps:

1. Turn off the computer and remove the computer cover as described in the section "Removing the Computer Cover."

2. Locate the cache connector on the system board.

Locating the Cache Connector on the System Board

3. Install a 256-kilobyte cache module onto the cache connector on the system board.

4. Replace the computer cover.

5. Reconnect all the cables and turn on the computer. It will automatically reconfigure the additional memory. Refer to Chapter 3, "Using Compaq Utilities."

Upgrading Graphics Capabilities

The Compaq Deskpro 2000 Series of Personal Computers comes with one of the following graphics controllers, depending on the model:

■ Matrox MGA Millennium graphics controller card

■ Cirrus 5436 PCI performance graphics controller

The Matrox MGA Millennium controller is standard on the Pentium Pro–based computers. It is a high-performance PCI graphics controller with a maximum 1600×1200 non-interlaced resolution. The controller comes equipped with 2 megabytes of WRAM (Windows Random Access Memory) and

is implemented to use a PCI bus. An optional 2 or 6 megabytes of memory may be added to the graphics controller board for greater color depth at higher resolutions. This will allow you to work with photorealistic images in applications that support these resolutions. The maximum non-interlaced resolution supported is 1600×1200.

The Cirrus 5436 PCI graphics controller is a performance controller with a maximum of 256 colors at 1024×768 non-interlaced resolution. It supports Extended Data Out (EDO) Dynamic Random Access Memory (DRAM) configurations of 1 megabyte and 2 megabytes and is PCI implemented. It comes standard with 1 megabyte of EDO DRAM. An optional 1 megabyte of memory may be added to the system board for greater color depth and higher resolutions with a maximum of 256 colors at 1280×1024 at 75 Hz resolution.

Upgrading the Matrox MGA Millennium Graphics Controller

To install an additional 2 megabytes of WRAM onto the MGA Millennium graphics board:

1. Turn off the computer and remove the computer cover as described in the section "Removing the Computer Cover."

2. Remove the bracket as described in the section "Installing a PCI or ISA Board."

3. Remove the graphics controller board from the expansion slot as described in the section "Installing a PCI or ISA Board."

4. Place the graphics board on a flat surface and install the 2- or 6-megabyte WRAM upgrade module.
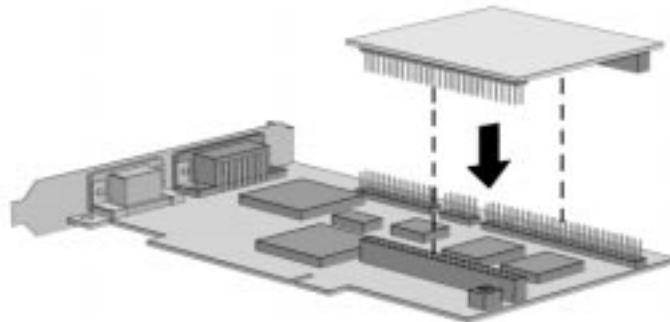
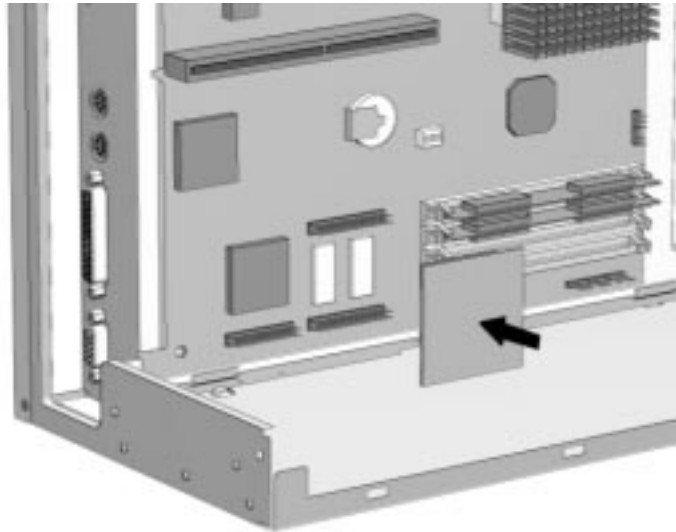*Installing a WRAM Upgrade Module on the Graphics Board*

5. Replace the graphics controller board in the same expansion slot.

6. Replace the brace holding the expansion board back into the minitower.

7. Replace the computer cover.

8. Turn on the computer and start the Windows program.

9. Select the Display icon in the Compaq Utilities group box in Windows 3.1, or the Display icon in the Control Panel in Windows 95 or Windows NT 4.0, to take advantage of the additional display modes now available with the upgraded memory. Follow the instructions on the screen.

10. Test the system (optional) using the Computer Checkup (TEST) utility. Refer to Chapter 3, "Using Compaq Utilities."

Upgrading the Cirrus 5436 PCI Performance Graphics Controller

The Cirrus 5436 PCI performance graphics controller is integrated on the system board. The maximum upgrade is 1 megabyte of EDO DRAM for a total of 2 megabytes of EDO DRAM.

To install an additional 1-megabyte EDO DRAM module on the system board:

1. Turn off the computer and remove the computer cover as described in the section "Removing the Computer Cover."

2. Install the 1-megabyte EDO DRAM upgrade module onto the system board.

Installing a 1-MB EDO DRAM Module onto the System Board

3. Replace the computer cover.

4. Turn the computer on and start the Windows program.

5. Select the Display icon in the Compaq Utilities group box in Windows 3.1, or the Display icon in the Control Panel in Windows 95 or Windows NT 4.0, to take advantage of the additional display modes now available with the upgraded memory. Follow the instructions on the screen.

6. Test the system (optional) using the Computer Checkup (TEST) utility. Refer to Chapter 3, "Using Compaq Utilities."

Installing an Additional Hard Drive

The Compaq Deskpro 2000 Series of Personal Computers supports up to five drives internally. They may be installed in various configurations. The drive bays and their functions are:

❶ One 3.5-inch internal bay for hard drive

❷ Standard 3.5-inch, third-height diskette drive

❸ Optional 5.25-inch drive for CD-ROM drive, tape drive, hard drive, or diskette drive (one-half height)

❹ Optional 5.25-inch drive for CD-ROM drive, tape drive, hard drive, or diskette drive (one-third height)

❺ One 5.25-inch internal bay for hard drive
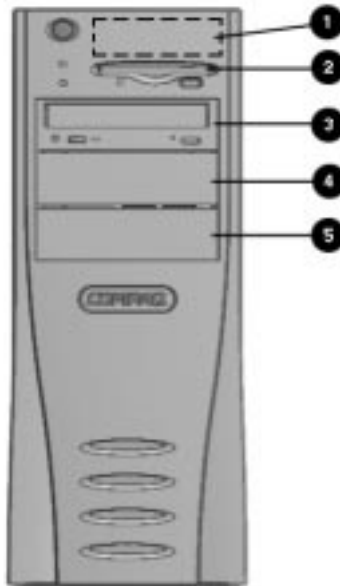

Five Drive Bay Positions on the Minitower Computer

✎ Your computer will have either a 5.25-inch hard drive or a 3.5-inch hard drive installed. If the hard drive is a 5.25-inch drive, it will be installed in location ❺. If the hard drive is a 3.5-inch drive, it will be installed in location ❶.

Installation Procedures

Compaq strongly recommends that only an authorized service provider replace your primary hard drive.

Follow these steps to install an additional hard drive into the drive bays:

✎ Installing a third-party hard drive requires the installation of the special Compaq flanged screws stored in the front of the computer.

1. Turn off the computer and remove the computer cover as described in the section "Removing the Computer Cover."

2. Locate the extra U.S. and metric screws stored in the front of the computer frame for this purpose. Select the appropriate screws for the application.
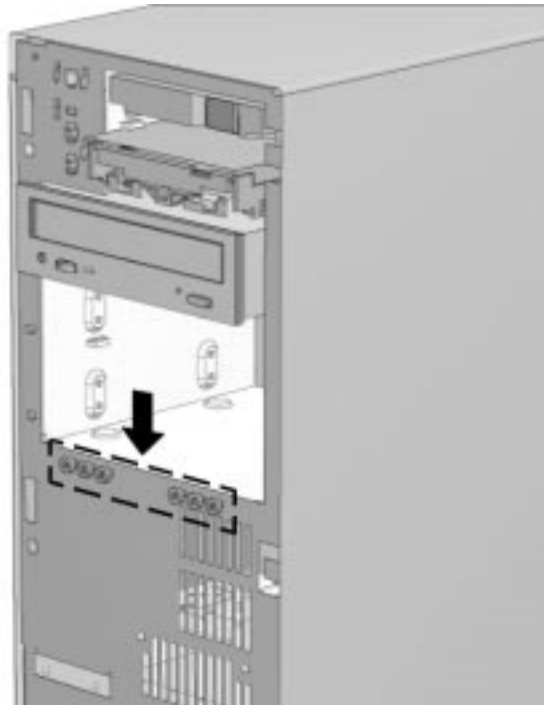
Locating the Screws Stored in the Computer

✎ Metric screws have a black finish while U.S. screws have a silver finish.

If you are installing a 3.5-inch hard drive into a 5.25-inch bay, you will need a bracket to hold the 3.5-inch hard drive in place. A bracket (part no. 247239) for this purpose can be purchased from Compaq Computer Corporation.

3. Place the hard drive into the bracket.

4. Insert four screws into the bracket holes on both sides of the bracket in order to secure the hard drive.

*Placing the Hard Drive and Inserting Screws into the Bracket*

5. Remove a Compaq precision screw from the front of the computer frame and insert the screw into the side of the bracket. This is a guide screw used to position the bracket in place inside the drive bay.

Inserting the Guide Screw into the Bracket

6. Install the hard drive assembly into the drive bay using the flanged screw to position the assembly in place.

![Compaq logo]

7. Secure the hard drive with two retaining screws.
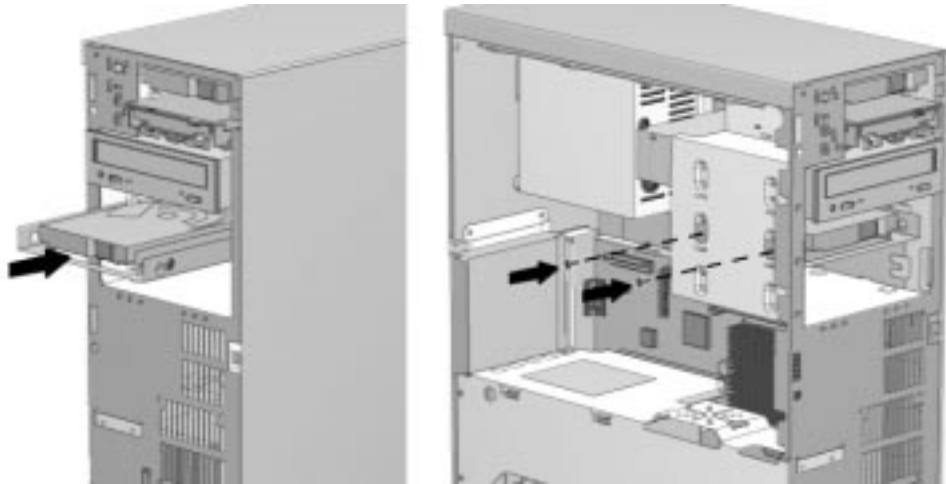
Installing the Hard Drive and Securing It with Two Retaining Screw

8. Skip the next section and go to "Completing the Installation."

## Installing a 3.5-inch Hard Drive into a 3.5-inch Drive Bay

If you are installing a 3.5-inch hard drive into drive bay location ❶, a bracket will not be needed.

To install a 3.5-inch hard drive into a 3.5-inch drive bay (location ❶), complete the following instructions:

1. Complete instructions 1 through 2 in the "Installation Procedures" section.

2. Insert one standard (guide) screw on the side of the hard drive that is opposite the switch.

3. Install the hard drive assembly into the 3.5-inch bay using the guide screw to position the assembly.

4. Install the drive bezel and secure the hard drive with two retaining screws.

5. Complete the instructions in the "Completing the Installation" section.

Completing the Installation

1. Connect the hard drive signal and power cables.
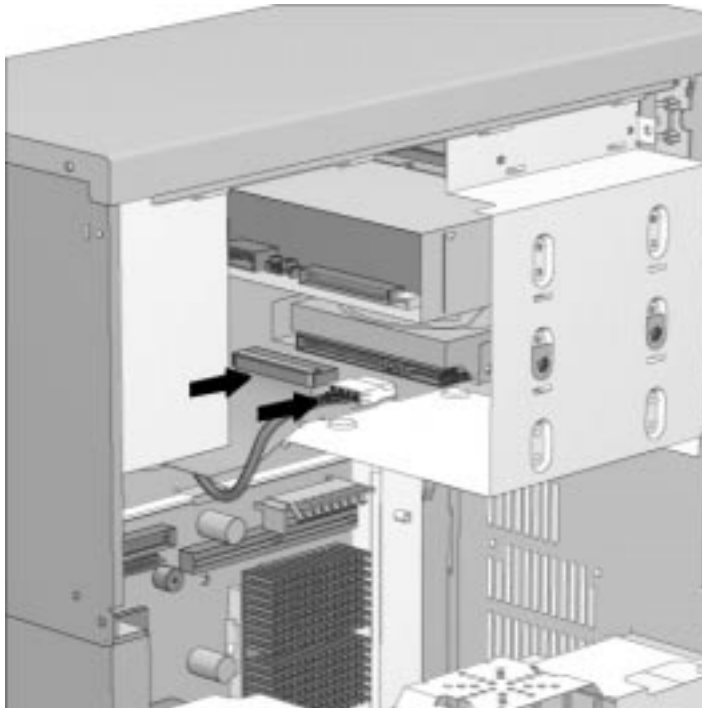
Connecting the Signal and Power Cables

2. Change the jumper settings if indicated in the documentation supplied with the new hard drive.

✎ If you change the drive configuration or if you add an additional hard drive, you may need to change the jumper settings. For more information on changing the jumper settings, see the documentation supplied with the new hard drive. By setting the jumpers on the drives, you are determining which drive is the primary drive and which is the secondary drive.

✎ If your new drive includes the cable select feature, no jumper setting changes are required. Refer to the documentation supplied with the cable for instructions on using the cable select feature. If you install a third party hard drive, you will need a jumper cable. For a nominal fee, a jumper cable (part number 112528-2) can be purchased from Compaq Computer Corporation.

3. Replace the computer cover.

4. Your computer will recognize a hard drive sold by Compaq and will automatically reconfigure the computer. If you have installed a third-party hard drive, you will need to run Computer Setup to reconfigure the computer. Refer to Chapter 3, "Using Compaq Utilities," for information on running Computer Setup.

Test the system (optional) using the Computer Checkup (TEST) utility. Refer to Chapter 3, "Using Compaq Utilities."

chapter 7

TROUBLESHOOTING

This chapter provides information on how to identify and correct some common disk, display, memory, and software problems. It also identifies and explains some common messages you may receive on the screen.

Consult Appendix C, "Error Messages," for an explanation of specific messages that may display during the Power-On Self-Test (POST) at startup.

Helpful Hints

If you encounter some minor problem with your computer, monitor, or software, refer to the following list of general suggestions before taking further action:

■ Check that the computer and monitor are plugged into a working electrical outlet.

■ Check to see that the computer is turned on and the green power light is on.

■ Check to see that the monitor is turned on and the green monitor light is on.

■ Turn up the brightness and contrast controls of the monitor if the monitor is dim.

■ Press and hold any key. If the system beeps, then your keyboard should be operating correctly.

■ Check all cable connections for loose connections or incorrect connections.

■ Make sure you ran the configuration utility *after installing* an expansion board or other option (memory, disk drive) and *before* installing an ISA board.

■ Check that all jumper settings have been set as instructed by the configuration utility.

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- Be sure that all the needed device drivers have been installed (for example, if you are using a mouse, you need a mouse device driver).

- Be sure that you have made all necessary changes to the *CONFIG.SYS* file.

- Be sure that you have made all necessary changes to the *AUTOEXEC.BAT* file (MS-DOS) or *STARTUP.CMD* file (OS/2).

- Make sure that all printer drivers have been installed for each application.

- Take out all diskettes from the diskette drives when you turn on your system.

Messages on the Screen

Many times a message or prompt is displayed on the screen. This message does not necessarily mean that an error condition exists. It may simply be the system prompt or an information message.

Some examples of information messages follow:

- A number indicating the amount of memory in your system.

- Backing up files to drive A:—This is an informational message to indicate that MS-DOS is backing up a file to the diskette in drive A.

- A> or A:—This is a prompt indicating that you are working from the floppy drive (drive A).

- C> or C:—This is a prompt indicating that you are working from the hard drive (drive C).

Solving Minor Problems

While your computer is configured just for you, problems you encounter while working may not be unique. Eliminating the typical problems described in this section may save you time and money. If you do have a problem with your computer, consider the problems and possible solutions outlined in the following series of tables. You may discover something you can resolve easily for yourself. If the condition persists, contact your Compaq authorized dealer or reseller.

Solving Power Problems

Problem	Cause	Solution
Computer won't turn on	Computer is not connected to an external power source.	Connect to an external power source.
	Cables to the external power source are unplugged.	Ensure that cables connecting the computer and the external source are plugged in properly.
	A PCI or ISA card that has been installed is defective.	Remove any adapter card that was just installed.
Computer doesn't automatically display the date and time	RTC (real-time clock) battery may need to be replaced. Battery life is approximately 5 years.	Replace the RTC battery. Refer to Appendix H, "Installing a New Battery," for installation instructions, or contact your Compaq authorized dealer or reseller for RTC battery replacement.
Computer powered off automatically	The unit temperature was exceeded. The fan may be blocked.	1. Unit is in an exceedingly hot environment. Let it cool down. 2. Contact your Compaq authorized dealer, reseller, or service provider.

Solving Disk Problems

If you encounter disk problems, some common causes and solutions for disk problems are listed in the following table:

Solving Disk Problems

Problem	Cause	Solution
Diskette drive light stays on	Diskette is damaged.	In Windows 3.1, run CHKDSK on the diskette. In Windows 95, run Scan Disk. At the Start menu, highlight Programs, select Accessories, then select System Tools.
	Diskette is incorrectly inserted.	Remove diskette and reinsert.
	Drive button is not pushed in.	Push in drive button.
	Software program is damaged.	Check the program diskettes.
	Drive cable is not properly connected.	Reconnect drive cable.

Continued

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Problem	Cause	Solution
Diskette drive cannot write to a diskette	Diskette is not formatted.	Format the diskette.
	Diskette is write-protected.	Use another diskette or remove the write protection.
	Writing to the wrong drive.	Check the drive letter in your path statement.
	Not enough space is left on the diskette.	Use another diskette.
	Diskette write control is enabled.	Check your security feature settings.
A problem has occurred with a disk transaction	The directory structure is bad, or there is a problem with a file.	Run CHKDSK to check for fragmentation. In Windows 95, run Scan Disk. At the Start menu, highlight Programs, select Accessories, then select System Tools.
Diskette drive cannot read a diskette	Diskette is not formatted.	Format the diskette.
	You are using the wrong diskette type for the drive type.	Check the type of drive you are using and use the correct diskette type.
Drive not found	Cable is loose.	Check connections.
Nonsystem disk message	The system is trying to start from a nonsystem diskette.	Remove the diskette from the drive.

Solving Display Problems

If you encounter display problems, refer to the documentation that came with your monitor and to the common causes and solutions listed in the following table:

Solving Display Problems

Problem	Cause	Solution
Blank screen	Monitor is not turned on and the monitor light is not on.	Turn on the monitor and check that the monitor light is on.
	The cable connections are not correct.	Check the cable connection from the monitor to the computer and to the electrical outlet.
	The energy saver feature has been enabled.	Press any key or click the mouse button and, if it is set, type your password.
	The RGB (Red, Green, Blue) input switch on the back of the monitor is incorrectly set.	Set the monitor's RGB input switch to 75 ohms and, if there is a sync switch, set it to External.
	You are using a fixed-sync monitor and it won't sync at the resolution chosen.	Be sure that the monitor can accept the same sweep rate as the resolution chosen.
Monitor does not function properly when used with energy saver features	Monitor without energy saver capabilities is being used with energy saver features enabled.	Disable monitor energy saver feature.
Garbled characters on the screen mixed with text	The *ANSI.SYS* driver is not in the *CONFIG.SYS* file.	You may need to add the *ANSI.SYS* driver to the *CONFIG.SYS* file. Add the following line to the file: DEVICE=C:\ANSI.SYS
Video colors are wrong	This indicates that either the cabling or monitor impedance is incorrect.	1. If you are using BNC cables, be sure that the Red, Green, and Blue BNC cables are connected to the corresponding monitor connectors. 2. Be sure your monitor's RGB inputs are set to 75 ohms.
Dim characters	The brightness and contrast controls are not set properly.	Adjust the monitor brightness and contrast controls.
	Cables are not properly connected.	Check that the video cable is securely connected to the video card and the monitor.
	The RGB switch on the back of the monitor is incorrectly set.	Set the RGB switch (and sync options, if this option is available) to 75 ohms, with the sync set to "external." Refer to the documentation included with the monitor.

Continued

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Solving Display Problems *Continued*

Problem	Cause	Solution
Blurry display or requested resolution cannot be set	If the graphics controller was upgraded, the correct display drivers may not be loaded.	Install the display drivers on the diskette included in the upgrade kit.
Screen goes blank	You may have a screen blanking utility installed or energy saver features are enabled.	Press any key or type password.
The picture is broken up, or it rolls, jitters, or blinks	The monitor connections may be incomplete or the monitor may be incorrectly adjusted.	1. Be sure the monitor cable is securely connected to the computer. 2. In a 2-monitor system or if another monitor is in close proximity, be sure the monitors are not interfering with each other's electromagnetic field by moving them apart.
Monitor overheats	There is not enough ventilation space for proper airflow.	Leave at least 3 inches (7.6 cm) of ventilation space. Be sure there is nothing sitting on top of the monitor obstructing the air flow.
Cursor will not move using the arrow keys on the keypad	The Num Lock key may be on.	Press the Num Lock key. The light should not be on if you want to use the arrow keys.

Solving Printer Problems

If you encounter printer problems, refer to the documentation that came with your printer and to the common causes and solutions listed in the following table:

Solving Printer Problems

Problem	Cause	Solution
Printer will not print	Printer is not turned on and online.	Turn the printer on and make sure it is online.
	The correct printer drivers for your application are not installed.	Install the correct printer drivers for your application.
	If you are on a network, you may not have made the connection to the printer.	Make the proper network connections to the printer.
Printer will not turn on	The cables may not be connected properly.	Reconnect all cables and check the power cord and electrical outlet.

Continued

Solving Printer Problems *Continued*

Problem	Cause	Solution
Prints garbled information	The correct printer drivers for your application are not installed.	Install the correct printer driver for your application.
	The cables may not be connected properly.	Reconnect all cables.
Printer is off line	The printer may be out of paper.	Check the paper tray and refill it if it is empty. Select online.

Solving Hardware Installation Problems

Solving Hardware Installation Problems

Problem	Cause	Solution
A new device is not recognized as part of the computer system	The Computer Setup utility has not been run to configure the new device.	Run the Computer Setup utility.
	Cable(s) of new external device are loose or power cables are unplugged.	Ensure that all cables are properly and securely connected and that pins in the cable or connector are not bent down.
	Power switch of new external device is not turned on.	Turn off the computer, turn on the external device, then turn on the computer to integrate the device with the computer system.

Solving Memory Problems

If you encounter memory problems, some common causes and solutions are listed in the following table:

Solving Memory Problems

Problem	Cause	Solution
Out of Memory error	Memory configuration may not be set up correctly.	Check your *CONFIG.SYS* file for the present memory configuration and edit the file using a text editor.
	You have run out of memory to run the application.	Check the application documentation to determine the memory requirements.

Continued

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Solving Memory Problems C*ontinued*

Problem	Cause	Solution
Memory count during POST is wrong	The memory modules may not be installed correctly.	Check that the memory modules have been installed correctly and that mixed EDO and Fast Page mode DRAM are in the same bank, then run the Configuration utility.
Insufficient memory error during operation	Too many Terminate and Stay Resident programs (TSRs) are installed.	Delete any TSRs that you do not need.
	You have run out of memory for your application.	Check the memory requirements for the application or add more memory to the computer.

Solving CD-ROM Problems

Solving CD-ROM Problems		
Problem	Cause	Solution
System will not boot from CD-ROM drive	The CD-ROM boot is not enabled through the Computer Setup utility.	Run the Computer Setup utility and set the drive priorities.
CD-ROM devices are not detected, driver is not loaded	CD-ROM drive is not connected properly or not properly terminated.	Refer to the documentation that came with the CD-ROM.

Solving Software Problems

Most software problems occur as a result of the following:

■ The application was not installed correctly.

■ The *CONFIG.SYS* file was not configured correctly.

■ Memory was not allocated correctly.

■ The *AUTOEXEC.BAT* file was not edited correctly.

■ There is a conflict between applications.

Troubleshooting Using Compaq Intelligent Manageability Features

The Local Alert Pop-Up Dialog notifies you of an impending or actual hardware failure. If the computer is connected to a network and the Compaq Insight Management Desktop Agents are installed and configured, an SNMP trap (message) is sent to the specified SNMP-compliant management application.

The Local Alert Pop-Up Dialog also tells you the steps you need to take prior to a hardware failure to avoid loss of data and damage to the computer. The system administrator can create a customized action message that might include contact telephone or pager numbers.

To close the Local Alert Pop-Up Dialog, click the Close button. To retrieve fault information after closing the dialog, run Compaq Insight Personal Edition.

IntelliSafe SMART Hard Drive Alert Message

Message	Recommended Actions
IntelliSafe SMART Hard Drive detects an imminent failure. Immediate action is recommended since data stored on drives xx may be lost.	Make note of the drive and system information provided below. Save the critical data on the affected hard drive(s). Contact your system administrator.

Contacting Compaq Customer Support

Before you call Compaq Customer Support for help with your computer, you need to have a printed copy of the system overview on hand to be able to answer Customer Support questions. This information is available in the Compaq Utilities menu.

To access the Compaq Utilities menu, complete the following steps:

1. Turn on or restart the computer. When the Power-On Self-Test (POST) is completed, and the cursor goes to the upper-right corner of the screen, press F10 immediately.

✎ The cursor displays in the upper-right corner of the screen for approximately two seconds. If you do not press the F10 key during this time, you must repeat the process to access the utility.

The utilities menu will then display on the screen.

2. From the menu, select View System Information (INSPECT).

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The computer will immediately begin looking through the system to identify what hardware is installed on your computer. When it is finished, a screen displaying an overview of your system will pop up.

✎ This screen contains the information that Customer Support requires to service your call.

3. Follow the Print instructions to print this information.

✎ More information about the Windows utilities is available from the online *About Your Computer* and the utility help screens.

■ In the United States, call 1-800-345-1518.

■ In Canada, call 1-800-263-5868.

■ For Compaq technical support in the United States and Canada, call 1-800-OKCOMPAQ (1-800-652-6672).

For help and service outside of the U.S. and Canada, contact your Compaq authorized dealer or reseller.

✎ If you take your computer to a Compaq authorized dealer or reseller for service, remember to provide the setup and power-on passwords, if they are set.

Worldwide Telephone Numbers

Locate your geographical area from the following table and use one of the telephone numbers for Compaq assistance.

General Information Numbers—Product information, technical assistance, and the location of your nearest Compaq authorized dealer, reseller, or service provider.

Technical Support Numbers—Hardware technical support in analyzing system configuration and diagnostic problems or troubleshooting.

Customer Support Numbers—Information on service and support programs including warranty, product catalogs, and white papers.

PaqFax Numbers—Automatic facsimile response system for technical and product specific information that is transmitted to any fax machine. PaqFax is available 24 hours a day.

✎ Telephone numbers are subject to change without notice.

Worldwide Telephone Numbers

Location	Country Code	Telephone Number
Argentina		
General Information	+54	-1-796-1616
Technical Support	+54	-1-796-1717
Australia		
General Information		61-2-9911-1999
Technical Support		61-2-9911-1955
PaqFax		61-2-9911-1982
Austria		
General Information		0222/8 78-16 16
Technical Support		0222/8 78-16-16
Ordering Backup Software	+31	-55-38-43-39
Belgium		
General Information	+32	-2-716-95-11
Compaq Care Center	+32	-2-716-96-96
Compaq Care Center Fax	+32	-2-716-95-85
General Fax	+32	-2-725-22-13
FaxPaq	+32	-2-716-96-99
QuickLine	+32	-2-716-95-92
Ordering Backup Software	+32	-2-716-96-78
Ordering Backup Software Fax	+32	-2-716-96-79
Brazil		
General Information		55-11-246-7866
Canada		
General Information		905-707-1715
Technical Support		1-800-OKCOMPAQ (1-800-652-6672)
Customer Support		1-800-263-5868
Ordering Backup Software		1-800-952-7689
Battery Pack Recycling		1-800-263-5868
Caribbean		
General Information		011-713-514-4220
Technical Support		011-713-518-2200

Continued

Worldwide Telephone Numbers *Continued*

Location	Country Code	Telephone Number
Chile		
General Information		56-2-274-1911
Technical Support		56-2-274-3007
China		
General Information		861-68313399
Technical Support		861-68346721
Colombia		
General Information		57-1-312-0201
Technical Support		57-1-345-0266
Czech Republic		
General Information	+42	-2-232-8772
Technical Support	+42	-2-232-8772
Denmark		
General Information	+45	-45-90-45-90
Technical Support	+45	-45-90-45-45
Finland		
General Information	+358	-0-615-599
Technical Support		9800-206-720
QuickLine (BBS)	+358	-0-6155 9870
France		
General Information	+33	-1-41-33-41-33
Technical Support	+33	-1-41-33-44-55

Continued

Worldwide Telephone Numbers *Continued*

Location	Country Code	Telephone Number
Germany		
Menu Selection		0190/88 80 80 (0,12 DM/2 sec. or 3,60 DM/min.)
Presario Hotline		0190/88 80 81 (0,12 DM/2 sec. or 3,60 DM/min.)
Notebook Hotline		0190/88 80 82 (0,12 DM/2 sec. or 3,60 DM/min.)
Desktop Hotline		0190/88 80 83 (0,12 DM/2 sec. or 3,60 DM/min.)
Server Hotline		0190/88 80 84 (0,12 DM/2 sec. or 3,60 DM/min.)
QuickLine		0180/5 21 21 18 (0,48 DM/min.)
FaxPaq		0180/5 21 21 19 (0,48 DM/min.)
Hong Kong		
General Information		852-28681382
Technical Support		852-90116633
PaqFax		852-28671648
Hungary		
General Information	+36	-1-201-8776
Technical Support	+36	-1-201-8776
India		
General Information		91-80-559-6023
PaqFax		91-80-559-8989
BBS		91-80-559-8900
Italy		
General Information	+39	-2-57-59-03-61
Technical Support	+39	-2-57-59-03-00
Customer Support	+39	-1-67-82-50-12

Continued

COMPAQ

Worldwide Telephone Numbers *Continued*

Location	Country Code	Telephone Number
Japan		
General Information		0120-101-589
Technical Support		0120-101-589
Presario		0120-099-589
Windows 95 Support		0120-505-589
Ordering Backup Software		0120-250-589
FaxStation		81-3-5402-0991
Korea		
General Information		82-2-3470-07001
Technical Support		82-2-523-3575 82-082-902-77774
Malaysia		
General Information		603-717-1188
Technical Support		603-718-1636
Mexico		
General Information		525-229-7900
Technical Support		525-229-7910
PaqFax		525-229-7920
Netherlands		
General Information		0182-565805
Presario		
Customer Support		06-32023091 (Dfl. 0.75/min)
Fax		06-8212391 (Dfl. 0.40/min)
All other products		
Customer Support		06-91681616 (Dfl. 0.75/min)
Fax		06-8991116 (Dfl. 0.40/min)
QuickLine Bulletin Board		0182-572366
New Zealand		
General Information		64-9-307-3969

Continued

Worldwide Telephone Numbers *Continued*

Location	Country Code	Telephone Number
Norway		
General Information	+47	-22-07-20-00
Technical Support	+47	-22-07-20-20
Poland		
General Information	+48	-2-630-3535
Technical Support	+48	-2-630-3535
Portugal		
General Information	+351	-1-4120132
Technical Support	+351	-1-4120132
Singapore		
General Information		65-753-6688
Customer Support Center		65-750-3030
PaqFax		65-750-4514
South Africa		
General Information		27-11-728-6999
Technical Support		27-11-728-6999
Spain		
General Information	+34	-1-640-1500
Technical Support	+34	-1-640-1302
Sweden		
General Information	+46	-8-703-5240
Technical Support	+46	-8-703-5240
PaqFax (hämtfax)	+46	-8-703-5225
QuickLine (BBS)	+46	-8-703-5220
Switzerland		
Technical Support		157/64-00
QuickLine Bulletin Board		01/8 38-24 21
Ordering Backup Software		155/62-06
PaqFax		01/8 38-22 38

Continued

Worldwide Telephone Numbers *Continued*

Location	Country Code	Telephone Number
Taiwan		
General Information		886-2-7351000
Technical Support		886-2-3761170
BBS		886-2-3761175
Thailand		
General Information		62-2-679-6222
United Arab Emirates (Dubai)		
General Information	+97	14 -818100
United Kingdom		
General Information		0990-134456
FaxPaq		0181-332-3550
QuickLine Bulletin Board		0181-332-9499
United States		
General Information		1-713-514-6864
Technical Support		1-800-0KCOMPAQ (1-800-652-6672)
Customer Support		1-800-345-1518
PaqFax		1-800-345-1518, Option 1
Download Facility (modem access only)		1-713-518-1418
Ordering Backup Software		1-800-952-7689
Battery Pack Recycling		1-800-524-9859
Venezuela		
General Information		58-2-953-6944

appendix A

AGENCY REGULATORY NOTICES

Federal Communications Commission Notice

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

■ Reorient or relocate the receiving antenna.

■ Increase the separation between the equipment and the receiver.

■ Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

■ Consult the dealer or an experienced radio or television technician for help.

Modifications

The FCC requires the user to be notified that any changes or modifications made to this device that are not expressly approved by Compaq Computer Corporation may void the user's authority to operate the equipment.

Cables

Connections to this device must be made with shielded cables with metallic RFI/EMI connector hoods to maintain compliance with FCC Rules and Regulations.

Mouse

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Canadian Notice

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Avis Canadien

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

German Ergonomics Notice

The Compaq Deskpro 2000 Series of Personal Computers, when combined with Compaq brand keyboards and monitors that bear the "GS" approval mark, meet the requirements of ZH 1/618 (German Safety Regulations for Display Work Places in the Office Sector). The installation guides included with the monitors provide configuration information.

EPA Energy Star Compliance

Compaq Deskpro 2000 Series of Personal Computers marked with the Energy Star Logo are compliant with the U.S. Environmental Protection Agency's (EPA) Energy Star Computers Program 2.0. The EPA Energy Star Logo does not imply endorsement by the EPA. As an Energy Star Partner, Compaq Computer Corporation has determined that the products marked with the Energy Star Logo meet the Energy Star guidelines for energy efficiency.

The Energy Star Computers Program was created by the EPA to promote energy efficiency and reduce air pollution through more energy-efficient equipment in homes, offices and factories. Compaq products achieve this by reducing the power consumption when not being used. Instructions for using the energy saving features of your computer are located in the power management section of this guide.

The power management feature of your computer is supported
when used with the following operating systems: DOS,
Windows, WindowsNT, and Windows95.

The power management feature of your computer is compatible
with network environments. This means, the user will not be
disconnected from the network during the low-power operating
state. The following network environments are supported:
NetWare, Windows95, WindowsNT, Banyan.

The power management feature, when used in conjunction with
an external Energy Star compliant monitor, will support the
power down features of the monitor. The power management
feature allows an external monitor to go into low-power mode
when the screen save time-out occurs. To take advantage of this
energy savings, the monitor power management feature has
been preset to power down the monitor after 15 minutes of
system inactivity. Refer to the Power Management or Energy
Saver section of this guide for instructions on modifying or
disabling this feature.

⚠ **CAUTION:** Using the Energy Save Monitor feature with non-
Energy Star compliant monitors may cause video distortion when
the Screen Save time-out occurs.

European Notice

Products with the CE Marking comply with both the EMC
Directive (89/336/EEC) and the Low Voltage Directive
(73/23/EEC) issued by the Commission of the European
Community.

Compliance with these directives implies conformity to the
following European norms:

■ EN55022 (CISPR 22) - Radio Frequency Interference

■ EN50082-1 (IEC801-2, IEC801-3, IEC801-4) -
Electromagnetic Immunity

■ EN60950 (IEC950) - Product Safety

![COMPAQ]

U.S. REGULATIONS CLASS 1 LASER PRODUCT

Laser Safety

All Compaq systems equipped with CD-ROM drives comply with appropriate safety standard including IEC 825. With specific regard to the laser, the equipment complies with laser product performance standards set by government agencies as a Class 1 laser product. It does not emit hazardous light; the beam is totally enclosed during all modes of customer operation and maintenance.

CDRH Regulations

The Center for Devices and Radiological Health (CDRH) of the U.S. Food and Drug Administration implemented regulations for laser products on August 2, 1976. These regulations apply to laser products manufactured from August 1, 1976. Compliance is mandatory for products marketed in the United States.

⚠️ **WARNING:** Use of controls, adjustment, or performance of procedures other than those specified in this manual may result in hazardous radiation exposure.
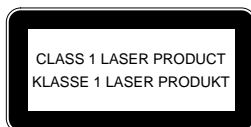
| CLASS 1 LASER PRODUCT KLASSE 1 LASER PRODUKT | This system is classified as a CLASS 1 LASER PRODUCT. This label is located on the outside of your system. A similar label also appears on the internal CD-ROM installed in your system. |

LASER INFO

Laser Type:	Semiconductor GaAIAs
Wave Length:	780 +/- 35 nm
Divergence Angle:	53.5 Degree +/- 1.5 Degree
Output Power:	Less than 0.2mW or 10,869 W•m^{-2}sr^{-1}
Polarization:	Circular
Numerical Aperture:	0.45 +/- 0.04

Only authorized technicians trained by Compaq should attempt to repair this equipment. All troubleshooting and repair procedures are detailed to allow only subassembly/module level repair. Because of the complexity of the individual boards and subassemblies, no one should attempt to make repairs at the component level or to make modifications to any printed wiring board. Improper repairs can create a safety hazard.

Japanese Notice

この装置は、第二種情報装置（住宅地域又はその隣接した地域において使用されるべき情報装置）で住宅地域での電波障害防止を目的とした情報処理装置等電波障害自主規制協議会(VCCI)基準に適合しております。
しかし、本装置をラジオ、テレビジョン受信機に近接してご使用になると、受信障害の原因となることがあります。
取扱説明書に従って正しい取り扱いをして下さい。

Battery Replacement Notice

⚠ **WARNING:** Your computer is provided with a battery-powered real-time clock circuit. There is a danger of explosion and risk of personal injury if the battery is incorrectly replaced or mistreated. Do not attempt to recharge the battery, disassemble it, immerse it in water, or dispose of it in fire. Refer to Appendix H for replacement procedures.

For more information about real-time clock battery replacement or proper disposal, contact your Compaq authorized reseller or service provider.

Power Cord Set Requirements

The voltage select switch feature on the computer permits it to operate from any line voltage between 120 or 240 volts AC.

The power cord set (flexible cord or wall plug) received with the computer meets the requirements for use in the country where you purchased the equipment.

Power cord sets must meet the requirements of the country where you use the computer. For more information on power cord set requirements, contact your Compaq authorized reseller or service provider.

General Requirements

The requirements listed below are applicable to all countries:

1. The length of the power cord set must be at least 5.00 feet (1.5 m) and a maximum of 9.75 feet (3.0 m).

2. All power cord sets must be approved by an acceptable accredited agency responsible for evaluation in the country where the power cord set will be used.

3. The power cord set must have a minimum current capacity of 10A and a nominal voltage rating of 125 or 250 volts AC, as required by each country's power system.

4. The appliance coupler must meet the mechanical configuration of an EN 60 320/IEC 320 Standard Sheet C13 connector, for mating with appliance inlet on the rear of the unit.

Country-Specific Requirements

If you encounter some minor problem with your computer, monitor, or software, refer to the following list of general suggestions before taking further action:

Power Cord Set Requirements - By Country		
Country	Accredited Agency	Applicable Note Numbers
Australia	EANSW	1
Austria	OVE	1
Belgium	CEBC	1
Canada	CSA	2
Denmark	DEMKO	1
Finland	FIMKO	1
France	UTE	1
Germany	VDE	1
Italy	IMQ	1
Japan	JIS	3
Norway	NEMKO	1
Sweden	SEMKO	1
Switzerland	SEV	1
United Kingdom	BSI	1
United States	UL	2

Notes:

1. The flexible cord must be <HAR> Type HO5VV-F, 3-conductor, 1.0 mm^2 conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country where it will be used.

2. The flexible cord must be Type SJT or equivalent, No. 18 AWG, 3-conductor. The wall plug must be a two-pole grounding type with a NEMA 5-15P (15A, 125V) or NEMA 6-15P (15A 250V) configuration.

3. The appliance coupler, flexible cord, and wall plug must bear a "T" mark and registration number in accordance with the Japanese Dentori Law. The flexible cord must be Type VCT or VCTF, 3-conductor, 0.75mm^2 conductor size. The wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (15A, 125V) configuration.

U.S. and Foreign Patents

Models of this product operating at 100 Mhz or less are covered by the following U.S. Patents:

4,574,279	5,125,088
5,381,530	5,101,497
5,538,947	

Models operating at greater than 100 Megahertz are covered by the following U.S. Patents:

4,574,279	5,125,088
5,101,497	5,538,947

Other U.S. and foreign patents may apply.

appendix B

SPECIFICATIONS

This appendix provides physical and performance specifications for the computer, keyboard, and mass storage devices.

Computer		
Desktop Dimensions		
Height	5.1 in	12.85 cm
Width	15.8 in	40.00 cm
Length	17.6 n	44.78 cm
Desktop Weight	23.7 lbs	10.74 kg
Minitower Dimensions		
Height	18.6 in	47.17 cm
Width	7.3 in	18.54 cm
Depth	17.1 in	42.37 cm
Minitower Weight	34.0 lb	15.40 kg
Temperature Range		
Operating	50° to 95°F	10° to 35°C
Shipping	-4° to 122°F	-20° to 50°C
Power Supply		
Operating Voltage Range	90-132 VAC	180-264 VAC
Rated Voltage Range	100-120 VAC	220-240 VAC
Rated Line Frequency	50 - 60 Hz	50 - 60 Hz
Rated Input Current (maximum)	5.0 A	3.0 A
Power Output		
Desktops	145 W	145 W
Minitower	185 W	185 W

Continued

Computer Specifications *Continued*

Relative Humidity (noncondensing)		
Operating	8% to 90%	8% to 90%
Nonoperating	5% to 95%	5% to 95%

SpaceSaver Keyboard

Dimensions		
Height	1.5 in	3.81 cm
Width	18.0 in	45.72 cm
Depth	6.5 in	16.51 cm
Weight	2.58 lb	1.17 kg

Diskette Drive

Diskettes	
Size (in)	3.5
High Density (MB)	1.44
Low Density (KB)	720
Light	Green
Height	One-third
Bytes per Sector	512
Sectors per Track	
High Density	18
Low Density	9
Tracks per Side	
High Density	80
Low Density	80
Read/Write Heads	2
Average Access Time (ms)	
Track-to-Track (high/low)	3/3
Average (high/low)	94/94
Settling Time	15
Latency Average	100

COMPAQ

Hard Drives			
	630-MB	**1.08-GB**	**1.2-GB**
Formatted Capacity			
Logical (MB)	631.7	1083.4	1281.9
Drive Type	65	65	65
Drive Size (in)	3.5	3.5	5.25
Transfer Rate			
Interface (MB/s)	22.9	16.7	16.7
Seek Time			
(including settling)			
Single Track (ms)	5.0	3.0	5.0
Average (ms)	14.0	12.0	15.5
Full Stroke (ms)	34.0	22.0	30.0
Disk Rotational Speed			
(RPM)	3811	5378	5400
Cylinders			
Logical	1224	2100	2484
Data Heads			
Logical	16	16	16
Sectors per Track			
Logical	63	63	63

COMPAQ

Hard Drives		
	1.6-GB	**2.5-GB**
Formatted Capacity		
Logical (MB)	1622	2560
Drive Type	65	65
Drive Size (in)	3.5	5.25
Transfer Rate		
Interface (MB/s)	16.7	16.7
Seek Time		
(including settling)		
Single Track (ms)	3.0	3.5
Average (ms)	12.0	15.5
Full Stroke (ms)	25.0	30.0
Disk Rotational Speed		
(RPM)	4480	4500
Cylinders		
Logical	3148	4969
Data Heads		
Logical	16	16
Sectors per Track		
Logical	63	63

8X CD-ROM Drive	
Applicable Disc	CD-ROM mode1, mode 2
	Mixed mode (audio and data combined)
	CD-DA
	Photo CD (single and multi-session)
	CDi ready
	CD-XA yeady
Center hole diametrer	15 mm
Disc diameter	12 cm, 8 cm
Disc thickness	1.2 mm
Track pitch	1.6 μm
Laser	
Beam divergerce	53.5 +/- 1.5 degrees
Output power	0.14 mW
Type	Semiconductor laser GaAs
Wave length	790 +/- 25 nm
Access time	
Random	150 ms
Full stroke	350 ms
Audio output level	0.7 Vrms typical
Cache buffer	128 KB minimum
Data transfer rate	
Sustained	1200 KB/sec
Startup time	7 seconds typical

COMPAQ

Graphics Controllers

Matrox MGA Millennium Graphics Controller

Upgradable	Yes		
	Number of Colors		
Resolutions	2MB	4MB	8MB
1600 x 1200	256	64,000	16.7 million
1280 x 1024	256	16.7 million	16.7 million
1152 x 882	64,000	16.7 million	16.7 million
1024 x 768	64,000	16.7 million	16.7 million
800 x 600	16.7 million	16.7 million	16.7 million
640 x 480	16.7 million	16.7 million	16.7 million
Connectors	DB15 Monitor Connector		
	P2-P5 30-pin headers for memory upgrade		

Cirrus 5446 PCI Graphics Controller

Upgradable	Yes	
	Number of Colors	
Resolutions	1MB DRAM	2MB DRAM
1280 x 1024	16	256
1024 x 768	256	64,000
800 x 600	32,000	16.7 million
640 x 480	64,000	16.7 million
Connectors	DB15 Monitor Connector	
	P2-P5 30-pin headers for memory upgrade	

Cirrus 5436 PCI Graphics Controller

Upgradeable	Yes	
	Number of Colors	
Resolutions	1MB	2MB
1280 x 1024	16	256
1024 x 768	256	64,000
800 x 600	32,000	16.7 million
640 x 480	64,000	16.7 million
Connectors	DB15 Monitor Connector	

COMPAQ

appendix **C**

ERROR MESSAGES

This appendix lists the error codes that you may encounter during the Power-On Self-Test (POST) or after restarting the computer, the probable source of the problem, and what steps you can take to resolve the error condition.

POST Error Messages and Codes

Error Code	Probable Source of Problem	Action
101-ROM Error	System ROM checksum.	Contact your Compaq authorized service provider.
101-I/O ROM Error	Options ROM checksum.	Contact your Compaq authorized service provider.
102-System Board Failure	DMA, timers, etc.	Replace the processor board. Run Computer Setup or Windows 95 utilities.
162-System Options Error	No diskette drive or mismatch in drive type.	Run Computer Setup or Windows 95 utilities.
162-System Options Not Set	Configuration incorrect.	Run Computer Setup or Windows 95 utilities.
163-Time & Date Not Set	Invalid time or date in configuration memory.	Run Computer Setup or Windows 95 utilities.
164-Memory Size Error	Configuration memory incorrect.	Run Computer Setup or Windows 95 utilities.
170-Expansion Device Not Responding	Board not ready after power-on delay.	Run Computer Setup or Windows 95 utilities.
172-ISA Configuration Nonvolatile Memory	Nonvolatile configuration memory corrupt.	Run Computer Setup or Windows 95 utilities.
173-PCI Slot ID Mismatch	PCI Board replaced. Configuration not updated.	Run Computer Setup or Windows 95 utilities.

Continued

COMPAQ

POST Error Messages and Codes *Continued*

Error Code	Probable Source of Problem	Action
174-PCI Configuration Slot Mismatch	PCI board not found.	Run Computer Setup or Windows 95 utilities.
174-ISA Configuration Slot Mismatch	Plug and Play ISA board not found.	Run Computer Setup or Windows 95 utilities.
175-PCI Configuration Slot Mismatch	PCI board added, configuration not updated.	Run Computer Setup or Windows 95 utilities.
175-ISA Configuration Slot Mismatch	Plug and Play ISA board added, configuration not updated.	Run Computer Setup or Windows 95 utilities.
178-Processor Configuration	Processor type or step does not match configuration memory.	Run Computer Setup or Windows 95 utilities.
201-Memory Error	RAM failure.	Contact your Compaq authorized service provider.
203-Memory Address Error	RAM failure.	Contact your Compaq authorized service provider.
205-Memory Error	Cache memory error.	Run the diagnostics utility.
301-Keyboard Error	Keyboard failure.	Check that you do not have a key stuck or something on the keyboard. Replace the keyboard if necessary.
303-Keyboard Controller Error	I/O keyboard controller.	Contact your Compaq authorized service provider.
304-Keyboard or System Unit Error	Keyboard.	Contact your Compaq authorized service provider.
40X-Parallel Port X Address Assignment Conflict	Both external and internal ports are assigned to parallel port X.	Run Computer Setup or Windows 95 utilities.
402-Monochrome Adapter Failure	Monochrome display controller.	Replace the monochrome display controller.
501-Display Adapter Failure	Video display controller.	Replace the DRAM module.

Continued

POST Error Messages and Codes *Continued*

Error Code	Probable Source of Problem	Action
601-Diskette Controller Error	Diskette controller circuitry.	Contact your Compaq authorized service provider.
605-Diskette Drive Error	Mismatch in drive type.	Run Computer Setup or Windows 95 utilities.
607-No Response Received at Primary Address from External Floppy Controller. Internal Floppy Controller Has Been Enabled.	Configuration error.	Run Computer Setup or Windows 95 utilities.
611-Primary Floppy Port Address Assignment Conflict	Configuration error.	Run Computer Setup or Windows 95 utilities.
612-Secondary Floppy Port Address Assign-ment Conflict	Configuration error.	Run Computer Setup or Windows 95 utilities.
702-A coprocessor has been detected that is not reported in CMOS.	Configuration error.	Run Computer Setup or Windows 95 utilities.
703-CMOS reports a coprocessor that has not been detected by POST.	Configuration error.	Run Computer Setup or Windows 95 utilities.
1155-System Board COM Port Address Assignment Conflict	Both external and internal serial ports assigned to same COM.	Run Computer Setup or Windows 95 utilities.
1730-Fixed Disk 0 does not support DMA mode.	Configuration error.	Run Computer Setup or Windows 95 utilities.
1731-Fixed Disk 1 does not support DMA Mode.	Configuration error.	Run Computer Setup or Windows 95 utilities.
1740-Fixed Disk 0 failed. Set Block Mode command.	Configuration error or drive failure.	Run Computer Setup or Windows 95 utilities.

Continued

COMPAQ

POST Error Messages and Codes *Continued*

Error Code	Probable Source of Problem	Action
1741-Fixed Disk 1 failed. Set Block Mode command.	Configuration error or drive failure.	Run the Compaq Utilities.
1750-Fixed Disk 0 failed. Identify command.	Configuration error or drive failure.	Run the Compaq Utilities.
1751-Fixed Disk 1 failed. Identify command.	Configuration error or drive failure.	Run the Compaq Utilities.
1760-Fixed Disk 0 does not support Block Mode	Configuration error.	Run Computer Setup or Windows 95 utilities.
1761-Fixed Disk 1 does not support Block Mode.	Configuration error.	Run Computer Setup or Windows 95 utilities.
1771-Primary Disk Port Address Assignment Conflict	Internal and external hard drive controllers are both assigned to the primary address.	Run Computer Setup or Windows 95 utilities.
1772-Secondary Disk Port Address Assignment Conflict	Internal and external hard drive controllers are both assigned to the secondary address.	Run Computer Setup or Windows 95 utilities.
1780-Disk 0 Failure	Hard drive/format error.	Run the Compaq Utilities.
1781-Disk 1 Failure	Hard drive/format error.	Run the Compaq Utilities.

Continued
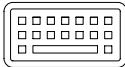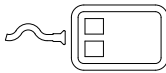
POST Error Messages and Codes *Continued*

Error Code	Probable Source of Problem	Action
1782-Disk Controller Failure	Hard drive circuitry error.	Run the Compaq Utilities.
1790-Disk 0 Error	Hard drive error or wrong drive type.	Run the Compaq Utilities.
1790-Disk 0 Configuration Error	Hard drive error or wrong drive type.	Run Computer Setup.
1791-Disk 1 Error	Hard drive error or wrong drive type.	Run the Compaq Utilities.
1792-Secondary Disk Controller Failure	Hard drive error or wrong drive type.	Run Computer Setup or Windows 95 utilities.
1800-Temperature Alert	System is too hot.	Power down system and allow cooling time.
Invalid Electronic Serial Number	Electronic serial number has become corrupted.	Run Compaq Utilities.
Audible (beep)	Power-on successful.	None.
(RESUME= "F1" KEY)	As indicated to continue.	Press the **F1** key.

appendix D

CONNECTOR PIN ASSIGNMENTS

Keyboard Interface

Connector and Icon		Pin	Signal
		1	Data
		2	Unused
		3	Ground
		4	+5V
		5	Clock
		6	Unused

Pointing Device Interface

Connector and Icon		Pin	Signal
		1	Data
		2	Unused
		3	Ground
		4	+5V
		5	Clock
		6	Unused

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Parallel Interface

Connector and Icon	Pin	Signal
	1	Strobe
	2	Data Bit 0
	3	Data Bit 1
	4	Data Bit 2
	5	Data Bit 3
	6	Data Bit 4
	7	Data Bit 5
	8	Data Bit 6
	9	Data Bit 7
	10	Acknowledge
	11	Busy
	12	Paper End
	13	Select
	14	Auto Line Feed
	15	Error
	16	Initialize Printer
	17	Select In
	18	Signal Ground
	19	Signal Ground
	20	Signal Ground
	21	Signal Ground
	22	Signal Ground
	23	Signal Ground
	24	Signal Ground
	25	Signal Ground

Serial Interface

Connector and Icon	Pin	Signal
	1	Carrier Detect
	2	Receive Data
	3	Transmit Data
	4	Data Term Ready
	5	Ground
	6	Data Set Ready
	7	Request to Send
	8	Clear to Send
	9	Ring Indicator

Monitor Interface

Connector and Icon	Pin	Signal
	1	Red
	2	Green
	3	Blue
	4	Monitor ID Bit 2
	5	Ground
	6	Red Return
	7	Green Return
	8	Blue Return
	9	Reserved
	10	Ground
	11	Monitor ID Bit 0
	12	DDC Data
	13	Horiz. Sync
	14	Vert. Sync
	15	DDC Clock

appendix E

SYSTEM BOARD JUMPERS

This section provides information for setting jumpers for enabling/disabling passwords and clearing configuration memory.

When you change a security feature, you will need to reset a jumper and reconfigure the computer to recognize this change. If the system configuration is incorrect, your computer may not work properly and you may receive error messages on the screen. Setting the system board jumpers are part of the reconfiguration process, along with running the Computer Setup utility.

✎ To change the system board jumpers, you must remove the computer cover. For procedures on removing the computer cover, refer to Chapter 5, "Upgrading Your Desktop Computer," or Chapter 6, "Upgrading Your Minitower Computer."

⚠ **WARNING:** To reduce the risk of personal injury from hot surfaces, allow the internal system components to cool before touching.

⚠ **CAUTION:** Be sure to turn off the computer before changing a jumper setting or damage to the system board can result.

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Setting Power-On Password Jumpers

The Power-On Password feature is enabled or disabled by moving the plug on the E6 jumper located on the system board. The E6 jumper has three pins. To enable the Power-On Password, move the plug to pins 5 and 6. To clear or disable the Power-On Password, move the plug to pins 6 and 7. The system default has the Power-On Password enabled.

✎ To set a new password, move the E6 jumper back to pins 5 and 6, restart the computer, and reestablish your password through Security Management.
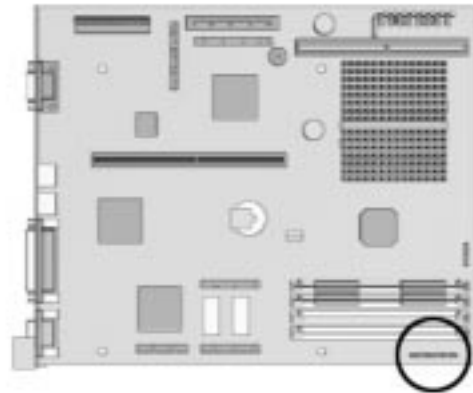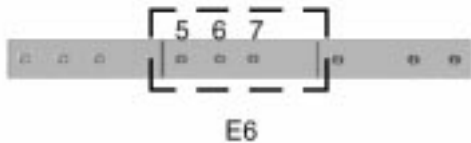
Locating the E6 Jumper on the System Board

Clearing Configuration Memory

The computer's configuration memory (CMOS) may occasionally be corrupted by static electricity. This happens very rarely. When it does occur, it is usually due to software or hardware that is not executing accurately or by adding or removing expansion boards to or from the computer. If the computer's configuration memory becomes corrupted, it is necessary to clear the configuration memory.

✎ Be sure your computer is powered off before beginning this procedure.

To clear and reset the configuration memory:

1. Remove the E8 jumper from pins 1 and 2 for 60 seconds; then replace the jumper.
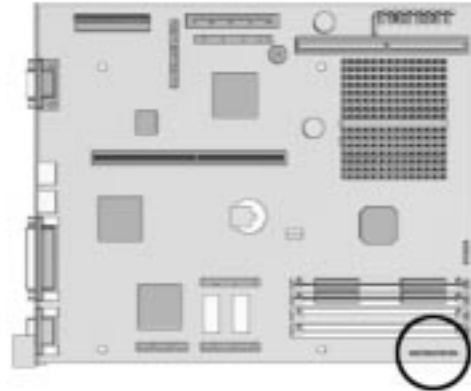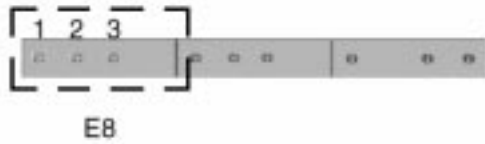
Locating the E8 Jumper on the System Board

2. Replace the cover and tighten the thumbscrews on the rear panel.

3. Turn the computer on.

4. Run the Computer Setup utility to reconfigure the system. Refer to Chapter 3, "Using Compaq Utilities."

✎ When jumper E8 is removed, your password will become invalid because the password is stored in the configuration memory. You will need to reset your password.

appendix F

SHIPPING YOUR COMPUTER

To prepare the computer for shipping, follow these guidelines:

1. Back up the hard drive files onto diskettes (or onto an external hard drive or other external storage device, if available). To prevent data loss, do not expose your backup diskettes to electrical or magnetic impulses.

2. Remove all diskettes from the the diskette drives; remove the CD from the CD-ROM drive, if any.

3. Turn off the computer and external devices.

4. Disconnect the power cord from the electrical outlet, then from the computer.

5. Disconnect your printer and any other external devices from their power sources, then from the computer.

✎ Make sure all boards are seated properly in the expansion slots with their retaining screws in place before shipping the computer.

6. Pack the computer in its original packing box or in similar packaging with sufficient packing material to protect it.

✎ For environmental nonoperating temperature ranges, refer to Appendix B, "Specifications."

appendix **G**

ELECTROSTATIC DISCHARGE

A discharge of static electricity from a finger or other conductor may damage system boards or other static-sensitive devices. This type of damage may reduce the life expectancy of the device.

Preventing Electrostatic Damage

To prevent electrostatic damage, observe the following precautions:

■ Avoid hand contact by transporting and storing products in static-safe containers.

■ Keep electrostatic-sensitive parts in their containers until they arrive at static-free workstations.

■ Place parts on a grounded surface before removing them from their containers.

■ Avoid touching pins, leads, or circuitry.

■ Always be properly grounded when touching a static-sensitive component or assembly.

Grounding Methods

There are several methods for grounding. Use one or more of the following methods when handling or installing electrostatic-sensitive parts:

■ Use a wrist strap connected by a ground cord to a grounded workstation or computer chassis. Wrist straps are flexible straps with a minimum of 1 Mohm +/- 10 percent resistance in the ground cords. To provide proper ground, wear the strap snug against the skin.

■ Use heelstraps, toestraps, or bootstraps at standing workstations. Wear the straps on both feet when standing on conductive floors or dissipating floor mats.

■ Use conductive field service tools.

■ Use a portable field service kit with a folding static-dissipating work mat.

If you do not have any of the suggested equipment for proper grounding, contact an Compaq authorized reseller or service provider.

✎ For more information on static electricity, contact your Compaq authorized dealer, reseller, or service provider.

appendix H

INSTALLING A NEW BATTERY

When your computer no longer automatically displays the correct date and time, it may mean the battery providing power to the real-time clock needs to be replaced. Battery life is usually about five to ten years under normal use. Use Compaq replacement battery 160274-001 or a comparable 600-milliamp alkaline, 4.5-volt battery.

✎ It is important to make a set of backup diagnostics diskettes before you install a new battery.

✎ If you are using a non-Compaq hard drive, it is important to take the following steps *before* installing the battery.

1. Run the Computer Setup utility and observe the drive type that is displayed in the System Configuration summary.

2. If the drive type number is 65 or 66, make a note of the drive parameters. You can view these parameters by restarting the computer and pressing F10 when the square cursor appears in the upper-right corner of the screen. From the Compaq Utilities menu, select Computer Setup. Select Storage, then select Configure Fixed Disk Drive to view the parameters. It is important to record these parameters on paper before continuing.

3. When you have completed the battery installation, you may need to run the Computer Setup utility and use the drive table parameters noted earlier to reconfigure your system.

To install the new battery, complete the following steps:

✎ Do not attempt to remove your old battery as it is permanently installed.

1. If your computer is on, turn it off.

2. Unplug the computer and disconnect any external devices.

3. Remove the computer cover. See the instructions in Chapter 5, "Upgrading the Desktop Computer," or Chapter 6, "Upgrading the Minitower Computer," for information on removing the cover.

4. The following illustration identifies the pin location for the battery connection.
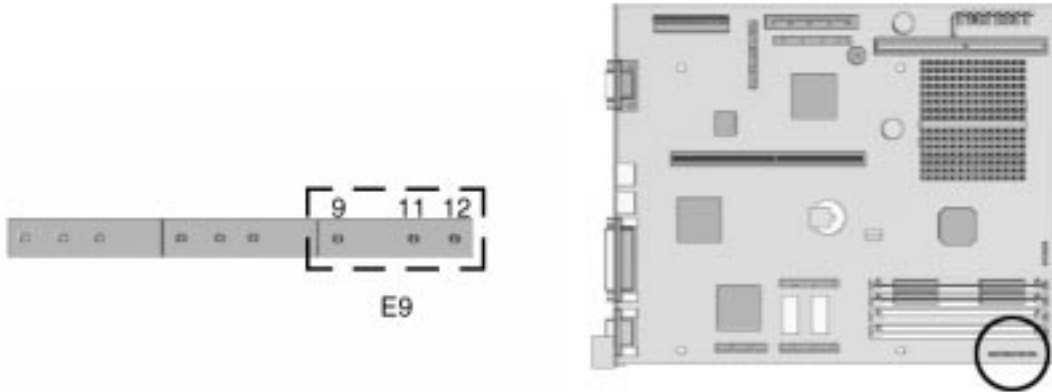
Battery Connection Location

5. Connect the new battery to pins 9 through 12 on the E9 battery header connector.

✎ Connecting the replacement battery to the pins automatically disconnects the internal, or "old" battery.

6. Remove the backing from the adhesive on the hook-and-loop fastener strip, and place the battery and the hook-and-loop fastener strip as shown in the following illustration.
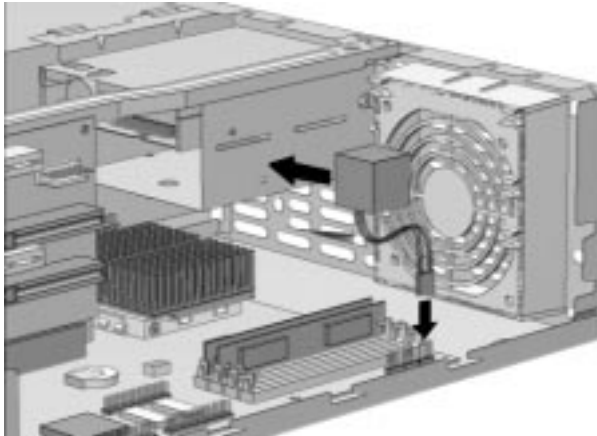
Installing the Battery on the Desktop
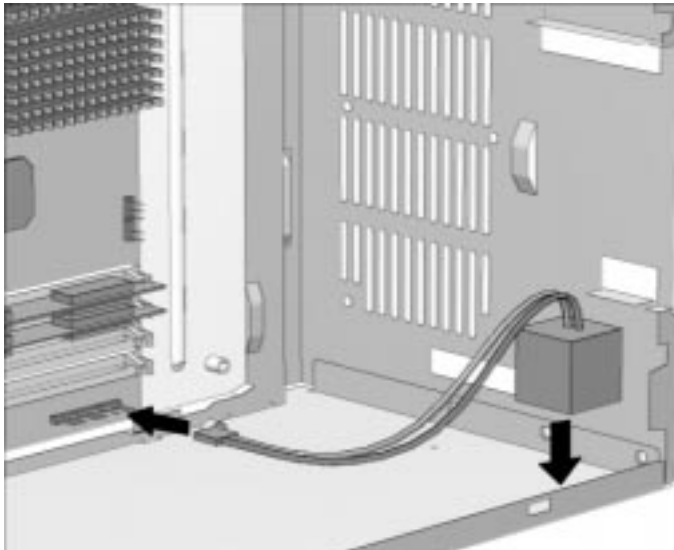
Installing the Battery on the Minitower

7. Replace the computer cover.

8. Place the sticker included with your battery kit on the back of your computer above the power connector.

9. Plug in the computer and reconnect any external devices.

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> ⚠️ **WARNING:** This equipment is designed for connection to a grounded (earthed) outlet. The grounding type plug is an important safety feature. To avoid the risk of electrical shock or damage to your equipment, do not disable this feature.

10. Turn on the computer.

11. Run the Computer Setup utility to reconfigure the system. Refer to Chapter 3, "Using Compaq Utilities."

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