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MAINTENANCE AND SERVICE GUIDE

COMPAQ PROLINEA FAMILY OF PERSONAL COMPUTERS
DESKTOP 3 SLOT/3 BAY
DESKTOP 4 SLOT/4 BAY

First Edition (February 1995)
Spare Part Number 172638-001
Documentation Part Number 172834-001

Preface

This Maintenance and Service Guide is a troubleshooting guide that can be used for reference when servicing the Desktop 3 slot/3 bay and Desktop 4 slot/4 bay models of the Compaq ProLinea Family of Personal Computers. Additional information is available in the SERVICE QUICK REFERENCE GUIDE.

Compaq Computer Corporation reserves the right to make changes to the Compaq ProLinea Family of Personal Computers without notice.

Symbols

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

>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>> WARNING <<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<

Text set off in this manner indicates that failure to follow directions in the warning 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 data.

>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>><<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<

IMPORTANT: Text set off in this manner presents clarifying information or specific instructions.

NOTE: Text set off in this manner presents commentary, sidelights, or interesting points of information.

Technician Notes

>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>> WARNING <<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<

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. Any indication of component replacement or printed wiring board modifications may void any warranty or exchange allowances.

>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>><<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<

>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>> CAUTION <<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<

To properly ventilate your system, you must provide at least 3 inches (7.62 cm) of clearance on the front and back of the computer.

>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>><<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<

>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>> WARNING <<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<

The computer is designed to be electrically grounded. To ensure proper operation, plug the AC power cord into a properly grounded electrical outlet only.

>>>

System Serial Number

The system serial number is displayed in two locations on the Compaq ProLinea Family of Personal Computers: on the right side of the computer near the front, and below the top expansion slot on the rear of the computer.

Locating Additional Information

The following documentation is available to support the Compaq ProLinea Family of Personal Computers:

- ABOUT YOUR COMPUTER (online document)
- COMPAQ DICTIONARY (online document)
- COMPAQ QUICK SETUP GUIDE
- COMPAQ BEYOND SETUP GUIDE
- MICROSOFT WINDOWS & MS-DOS 6 USER'S GUIDE
- Technical Training Guides
- Compaq Service Advisories and Bulletins
- COMPAQ QUICKFIND
- TECHNICAL REFERENCE GUIDE
- COMPAQ SERVICE QUICK REFERENCE GUIDE

Chapter 1. Product Description

Chapter 1.1 Models and Features

The Compaq ProLinea Family of Personal Computers introduces a new generation of desktop computers designed for the business environment. The family includes Desktop 3 slot/3 bay (DT3) and Desktop 4 slot/4 bay (DT4) models. This chapter describes the model offerings and features of the DT3 and DT4 computers.

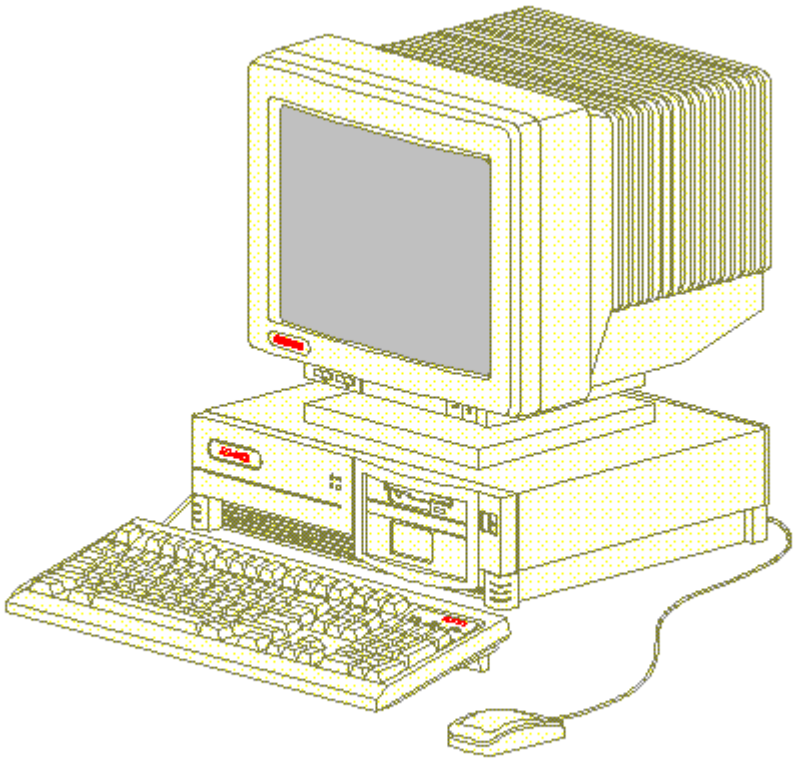

Figure 1-1. Compaq ProLinea Desktop 3 Slot/3 Bay Personal Computer

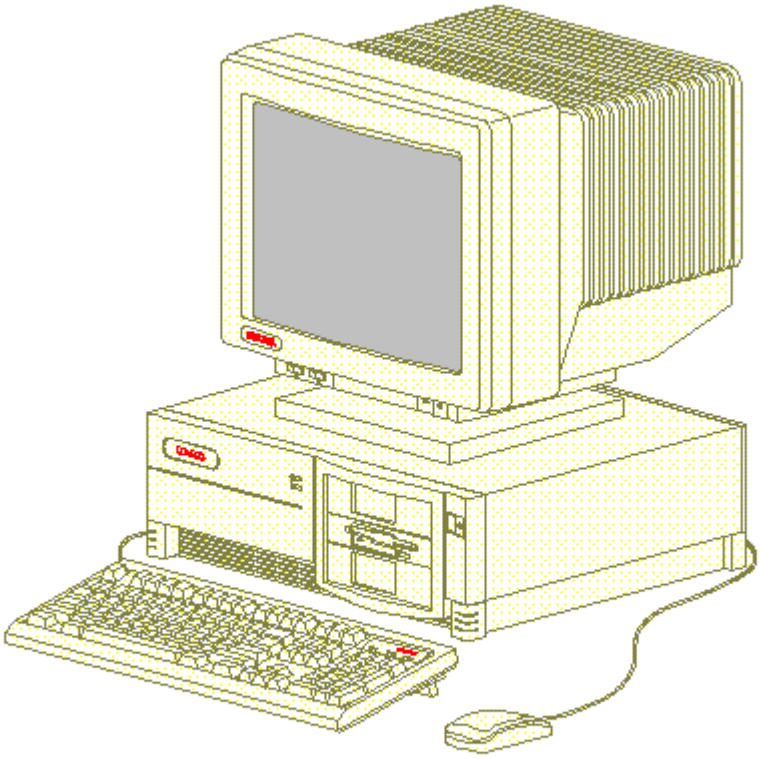

Figure 1-2. Compaq ProLinea Desktop 4 Slot/4 Bay Personal Computer

Chapter 1.2 Models

The Compaq ProLinea Family of Personal Computers is available in the desktop models described in the following sections.

Compaq ProLinea Personal Computer DT3 Models

The Compaq ProLinea Personal Computer is available in the DT3 models described in Table 1-1. These desktop computers have two ISA expansion slots, one shared PCI/ISA expansion slot, one Compaq option slot, and three mass storage bays. All models include a 3.5-inch diskette drive.

Table 1-1. Compaq ProLinea Personal Computer DT3 Models *

Model	Processor	Hard Drive	Memory	Graphics	Cache	CD-ROM
ProLinea 450	486DX2/50	None	8 MB	PCI Local Bus		No
ProLinea 450	486DX2/50	270 MB	8 MB	PCI Local Bus		No
ProLinea 450	486DX2/50	270 MB	4 MB	PCI Local Bus		No

ProLinea 466	486DX2/66	None	8 MB	PCI Local Bus		No
ProLinea 466	486DX2/66	270 MB	8 MB	PCI Local Bus		No
ProLinea 466	486DX2/66	420 MB	8 MB	PCI Local Bus		No
ProLinea 4100	486DX4/100	None	8 MB	PCI Local Bus	128 KB	No
ProLinea 4100	486DX4/100	270 MB	8 MB	PCI Local Bus	128 KB	No
ProLinea 4100	486DX4/100	420 MB	8 MB	PCI Local Bus	128 KB	No
ProLinea 575	586/75	None	8 MB	PCI Local Bus	256 KB	No
ProLinea 575	586/75	270 MB	8 MB	PCI Local Bus	256 KB	No
ProLinea 575	586/75	420 MB	8 MB	PCI Local Bus	256 KB	No

* Not all models are available in all geographic regions.

Compaq ProLinea Personal Computer DT4

Models

The Compaq ProLinea Personal Computer is available in the DT4 models described in Table 1-2. These desktop computers have two ISA expansion slots, two shared PCI/ISA expansion slots, one Compaq option slot, and four mass storage bays. All models include a 3.5-inch diskette drive.

Table 1-2. Compaq ProLinea Personal Computer DT4 Models *

Model	Processor	Hard Drive	Memory	Graphics	Cache	CD-ROM
ProLinea 450	486DX2/50	None	8 MB	PCI Local Bus		No
ProLinea 450	486DX2/50	270 MB	8 MB	PCI Local Bus		No
ProLinea 466	486DX2/66	None	8 MB	PCI Local Bus		No
ProLinea 466	486DX2/66	270 MB	8 MB	PCI Local Bus		No
ProLinea 466	486DX2/66	420 MB	8 MB	PCI Local		No

				Bus		
ProLinea 466	486DX2/66	420 MB	8 MB	PCI Local Bus		Yes
ProLinea 4100	486DX4/100	None	8 MB	PCI Local Bus	128 KB	No
ProLinea 4100	486DX4/100	420 MB	8 MB	PCI Local Bus	128 KB	No
ProLinea 4100	486DX4/100	420 MB	8 MB	PCI Local Bus	128 KB	Yes
ProLinea 575	586/75	None	8 MB	PCI Local Bus	256 KB	No
ProLinea 575	586/75	420 MB	8 MB	PCI Local Bus	256 KB	No
ProLinea 575	586/75	420 MB	8 MB	PCI Local Bus	256 KB	No
ProLinea 575	586/75	720 MB	16 MB	QVision 2000+	256 KB	No
ProLinea 575	586/75	720 MB	16 MB	PCI Local Bus	256 KB	No
ProLinea 590	586/90	None	8 MB	PCI Local Bus	256 KB	No
ProLinea 590	586/90	420 MB	8 MB	PCI Local Bus	256 KB	No
ProLinea 590	586/90	420 MB	8 MB	PCI Local Bus	256 KB	Yes
ProLinea 590	586/90	720 MB	16 MB	QVision 2000+	256 KB	No
ProLinea 590	586/90	720 MB	16 MB	PCI Local Bus	256 KB	No

* Not all models are available in all geographic regions.

Chapter 1.3 Standard Features

The Compaq ProLinea Desktop Personal Computers have the following standard features:

- 486DX2/50, 486DX2/66, 486DX4/100, 586/75, and 586/90 processors
- 4 MB (SIMM), 8 MB (soldered down) or 16 MB (soldered down) memory, depending on model (see Table 1-4 for memory upgrade schedule)

- 128 KB write back cache on 486DX4/100 models, 256 KB write back cache on 586/75 and 586/90 models

- 270, 420, or 720 MB IDE IntelliSafe hard drive (models available without hard drive)

- Enhanced PCI local bus graphics:
  - PCI Local Bus Integrated Graphics Controller on selected 486 and 586 models
  - QVision 2000+ Graphics Controller on selected 586 models

- DT3 form factor includes: one PCI/ISA shared slot, two ISA slots, Compaq option slot, one internal third-height drive bay, and two external half-height drive bays

- DT4 form factor includes: two PCI/ISA shared slots, two ISA slots, Compaq option slot, one internal third-height drive bay, one external third-height drive bay, and two external half-height drive bays

- CD-ROM drive with Enhanced Business Audio on selected models

- PCI local bus IDE interface for hard drive and CD-ROM (up to 4 drives)

- Power conservation features

- Plug and play design

- One mouse port (PS/2 style Compaq mouse)

- Preloaded software

- Diagnostics/Setup software

- Security management

- Three-year limited warranty

Preloaded Software

The following software is preloaded on the Compaq ProLinea Desktop Personal Computers:

- Microsoft Windows 3.1

- Diagnostics for Windows

- MS-DOS 6

- Windows Sound System 2.0 (CDS models only)

- ESS 688 Audio Drivers (CDS models only)

- Compaq Welcome Center, Compaq Control Center, and Compaq Learning Center

- Drivers for graphics and IDE CD-ROM

- Power Management

o Security Management (see Section 1.6)

o Online documentation

Security Management

The following security management features are designed into the Compaq ProLinea Desktop Personal Computers. These features can help prevent unauthorized access to critical data and theft of the computer.

o Cable lock provision allows the user to physically secure the computer hardware to protect against theft.

o Diskette boot control prevents the computer from being booted from a diskette.

o Diskette drive control allows disabling of the diskette drive.

o Diskette write control prevents unauthorized writing of data to a diskette.

o Hard drive control allows disabling of the hard drive.

o Flash ROM lock prevents unauthorized changes to the flash ROM.

o Keyboard password allows the computer to boot up but prevents data input until the password is entered.

o Parallel interface control prevents transfer of data through the parallel interface connector.

o Power-on password prevents unauthorized persons from booting up the computer.

o QuickLock/QuickBlank allows the user to lock the keyboard and/or blank the screen.

o Serial interface control prevents transfer of data through the serial interface connector.

o Setup password prevents unauthorized changes to the system configuration.

Chapter 1.4 Options

The options that are available from Compaq for the Compaq ProLinea Family of Personal Computers are described in the following sections.

Processor Upgrade

The processors in Compaq ProLinea Family of Personal Computers can be upgraded according to the schedule in Table 1-3. Upgrade kits are available from Compaq.

Table 1-3. Processor Upgrades
==========

Base processor	Can be upgraded to
486DX2/50	486DX2/66, or 486DX4/100
486DX2/66	486DX4/100
586/75	586/90

System Memory Options

The system memory options that are available from Compaq for the Compaq ProLinea Family of Personal Computers are listed below. The memory modules are SIMM, 70ns, without parity.

- 4 MB memory module
- 8 MB memory module
- 16 MB memory module
- 32 MB memory module

System memory can be upgraded according to the schedule in Table 1-4:

Table 1-4. Upgrade Schedule

Processor	Standard Memory	Expandable to	SIMM Sockets
486DX2/50	4 MB	128 MB	4
486DX2/50	8 MB	136 MB	4
486DX2/66	8 MB	136 MB	4
486DX4/100	8 MB	136 MB	4
586/75	8 MB	192 MB	6
586/75	16 MB	192 MB	6
586/90	8 MB	192 MB	6
586/90	16 MB	192 MB	6

Secondary Cache

Secondary cache memory option cards (128 KB or 256 KB) are available for the 486DX2/50, 486DX2/66, and 486DX4/100 models of the Compaq ProLinea Family of Personal Computers.

NOTE: All 586-class models have 256 KB secondary cache soldered to the system board.

Mass Storage Options

The following mass storage options are available from Compaq for the Compaq ProLinea Family of Personal Computers:

- 1.2 MB diskette drive, 5.25-inch, half-height
- 1.44 MB diskette drive, 3.5-inch, third-height
- 270 MB IDE hard drive
- 420 MB IDE hard drive
- 540 MB IDE hard drive
- 720 MB IDE hard drive
- 1 GB IDE hard drive
- 535 MB SCSI-2 hard drive
- 1.05 GB SCSI-2 hard drive
- 2.1 GB SCSI-2 hard drive
- 120/250 MB tape drive with compression
- 340/680 MB tape drive
- 525 MB tape drive
- 1.2 GB ACA tape drive
- 2/8 GB Turbo DAT tape drive
- Internal Quad-Speed IDE CD-ROM drive

Monitor Options

The following monitor options are available from Compaq for the Compaq ProLinea Family of Desktop Personal Computers:

- QVision 200 Color Monitor with AssetControl
- QVision 172 Color Monitor with AssetControl
- VGA 14-Inch Monochrome Monitor
- SVGA Color Monitor with low emissions and energy saver
- VGA Color Monitor with low emissions
- Compaq 14-Inch 1024 Color Monitor
- Compaq 151 FS Color Monitor with low emissions and AssetControl

o Compaq 171 FS Color Monitor with low emissions and AssetControl

NOTE: The Compaq ProLinea Family of Personal Computers does not support the AssetControl feature.

Graphics Controllers and Memory Options

The following graphics controller and memory options are available from Compaq for the Compaq ProLinea Family of Personal Computers:

o QVision 2000+ Graphics Controller with 2 MB VRAM

o QVision 1280/I Graphics Controller with 2 MB VRAM

o QVision 1280/P+ Graphics Controller with 1 MB VRAM (has VAFC connector)

o 1 MB DRAM graphics memory module for PCI Local Bus Integrated Graphics Controller

o 1 MB VRAM graphics memory module for QVision 1280/P+ Graphics Controller

o 2 MB VRAM graphics memory module for QVision 2000+ Graphics Controller

Serial/Parallel Interface Board

Ther serial/parallel board option is available from Compaq for the ProLinea Family of Personal Computers. This board uses an expansion slot and provides additional serial and parallel device support to the computer.

Modem

The SpeedPaq 144/I internal fax/modem is available from Compaq for the Compaq ProLinea Family of Personal Computer:

Software Options

The following software options are available from Compaq for the Compaq ProLinea Family of Personal Computer:

o MS-DOS 6 (3.5-inch diskettes)

o Corporate license agreements for MS-DOS 6

o MS-DOS 6 LicensePaq

o MS-DOS 6 corporate upgrade (100+ users)

o MS-DOS 6 LicensePaq upgrade

o SCO UNIX O/S from Compaq version 4.1 (with media kit)

o SCO UNIX network bundle from Compaq version 4.1 (with media kit)

o SCO UNIX and TCP/IP Development System from Compaq release 1.2

o SCO XSight Runtime version 4.1

o Open Desktop Development System, release 3.0

o Windows NT

o Sytos Plus Tape software for MS-DOS

o Sytos Plus Tape software for OS/2

Chapter 1.5 Front Panel Controls and LEDs

The front panel controls and LEDs for the DT3 and DT4 are almost identical. The controls and LEDs are identified in Figure 1-3 and described in Table 1-5.

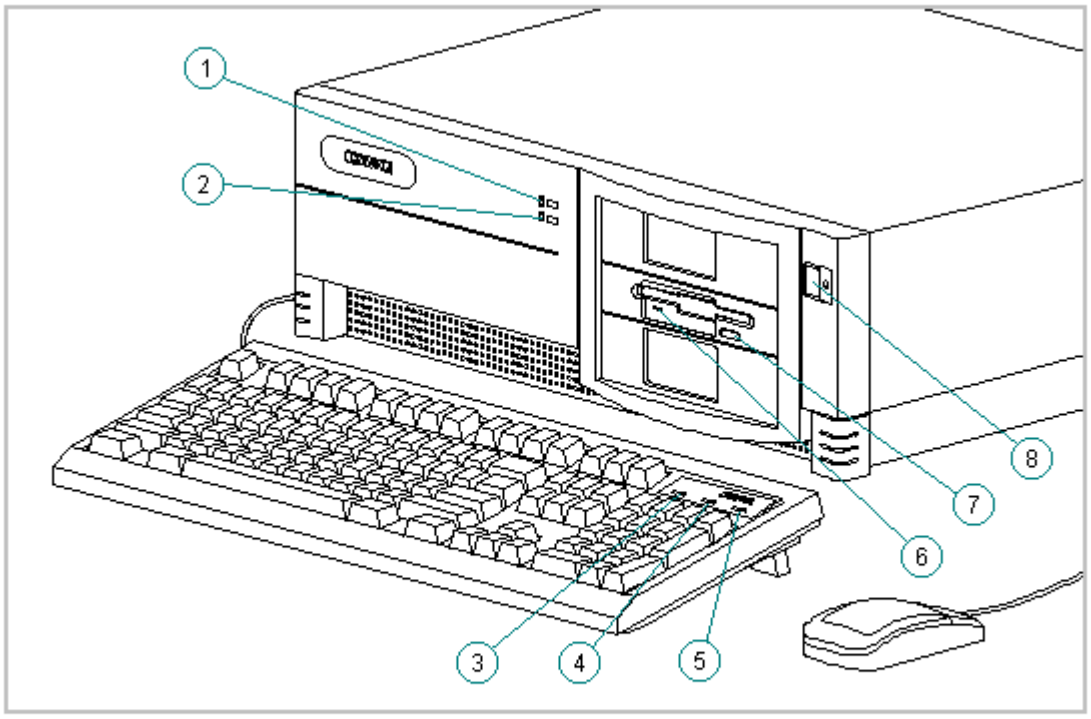

Figure 1-3. Compaq ProLinea Desktop Personal Computer Front Panel Controls and LEDs

Table 1-5. Front Panel Controls and LEDs

Item	Description	Function
1	Power-On Light	Turns on when the computer is turned on and blinks (optional) in Energy Saver mode.
2	Hard Drive Activity	Turns on when the hard drive is reading or

	Light	writing.
3	Num Lock Light	When the Num Lock light is on, the numeric keypad is activated.
4	Caps Lock Light	When the Caps Lock light is on, all letters typed will be capitalized.
5	Scroll Lock Light	When the Scroll Lock light is on, the screen will not scroll.
6	Diskette Drive Activity Light	Turns on when the diskette drive is reading or writing.
7	Diskette Eject Button	Ejects a loaded diskette.
8	Power (On/Off) Switch	Turns the computer on and off.

Chapter 1.6 Rear Panel Controls and Connectors

The controls and connectors located on the rear of the DT3 and DT4 are almost identical. They are identified in Figure 1-4 and described in Table 1-6. See Appendix A for connector pin assignments.

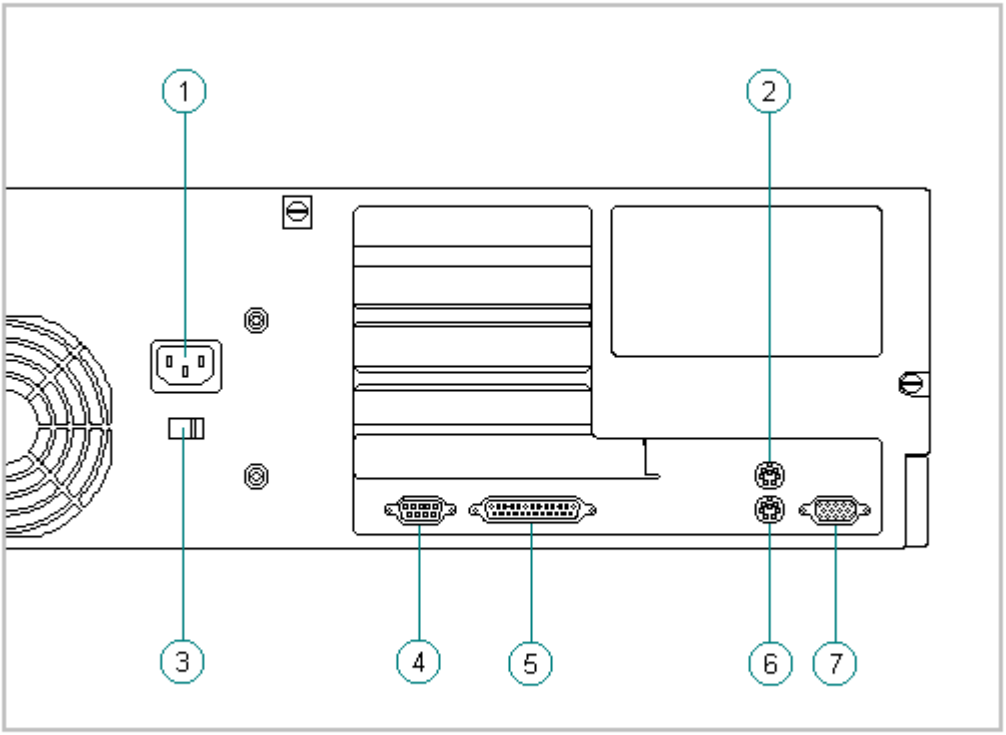

Figure 1-4. Compaq ProLinea Desktop Personal Computer Rear Panel Controls and Connectors

Table 1-6. Rear Panel Controls and Connectors *

Item	Description	Function
1	Power Cord Connector	Connects the computer to an electrical power outlet.
2	Mouse Connector	Connects the mouse.
3	Voltage Select Switch	Switches voltage between 115 VAC (US) and 230 VAC to match geographical requirements.
4	Serial Port	Connects to serial devices, such as a serial printer.
5	Parallel Port	Connects to parallel devices, such as a parallel printer.
6	Keyboard Connector	Connects the keyboard.
7	Monitor Connector	Connects the monitor.

* Actual connectors will vary with models.

Chapter 1.7 System Design

This section presents a design overview and functional descriptions of the key components of the Compaq ProLinea Family of Personal Computers. All replaceable components are identified in Chapter 3 and removal/replacement instructions are presented in Chapter 5.

Design Overview

The Compaq ProLinea Family of Personal Computers has a conventional design that uses a pan-type chassis to house the system board, expansion cards, power supply, and mass storage devices. The chassis is divided into two sections by a permanent panel that extends from the front to the rear of the chassis. This panel provides a mounting surface for the backplane board and separates the system board section from the section that houses the power supply and mass storage devices.

All internal components are immediately accessible when the unit cover, held in place by three thumb screws, is removed. The front bezel is mounted to the unit cover. Torx T-15 screws are used throughout the system except for the CD-ROM drive bracket which requires Torx T-10 screws.

The system board is easily removed by sliding it out from the side of the chassis after the unit cover is removed. The system board bracket, attached to the system board with three Torx screws, forms the right side of the chassis when the system board is installed. The system board shares the common backplane board with the expansion cards. No mounting screws are used with the system board.

Expansion boards are installed horizontally above the system board, engaging the backplane board which is attached to the central panel. A single screw attaches the expansion board to the rear panel of the chassis.

The power supply is mounted in the right rear corner of the chassis. Integrated clips on the bottom of the power supply engage cutouts in the floor of the chassis. The power supply is held in place by four Torx screws that are installed through the rear panel of the chassis.

The mass storage drive cage is located on the right side of the chassis, directly in front of the power supply. The drive cage can be tilted up from the rear to provide access to cable connections. The drive cage can accommodate one internal hard drive attached to the side of the cage and provides two or three (model dependent) drive bays for accessible mass storage devices.

Detailed descriptions of the system components are presented in the sections that follow.

System Board

The Compaq ProLinea Family of Personal Computers uses four basic system board configurations. All of the boards use SIMMs for expanded memory; four SIMM sockets on 486 models and six SIMM sockets on 586 models. The 486 models have 8 MB RAM soldered down on the system board; one of the 486 models has 4 MB RAM soldered down. The 586 models have either 8 MB or 16 MB SIMMs for RAM. The configurations are described in the following sections.

486-Based Board With 4 MB RAM

The 486-based system board with 4 MB RAM has the following characteristics:

- Used on 3-slot/3-bay and 4-slot/4-bay computers
- 4 MB SIMMs
- 4 SIMM sockets for memory expansion
- PCI Local Bus integrated graphics controller
- Accommodates 486DX2/50, 486DX2/66, and 486DX4/100 processors (238-pin ZIF socket)
- 128 KB cache memory standard on 486DX4/100 models only; 128 KB and 256 KB options for 486DX2 models
- Measures 8.5 x 11.5 inches (21.6 x 29.2 cm)

486-Based Board With 8 MB RAM

The 486-based system board with 8 MB RAM has the following characteristics:

- Used on 3-slot/3-bay and 4-slot/4-bay computers
- Integrated 8 MB RAM on the system board
- 4 SIMM sockets for memory expansion
- PCI Local Bus integrated graphics controller
- Accommodates 486DX2/50, 486DX2/66, and 486DX4/100 processors (238-pin ZIF socket)
- 128 KB cache memory standard on 486DX4/100 models only; 128 KB and 256 KB options for 486DX2 models
- Measures 8.5 x 11.5 inches (21.6 x 29.2 cm)

586-Based Board With DRAM Graphics

The 586-based system board with integrated DRAM graphics has the following characteristics:

- Used on 3-slot/3-bay and 4-slot/4-bay computers
- PCI Local Bus integrated graphics controller
- Six SIMM sockets for memory expansion
- Accommodates 586/75 and 586/90 processors (320-pin ZIF socket)
- 256 KB cache memory

o Measures 8.5 x 13.75 inches (21.6 x 34.9 cm)

586-Based Board Without Integrated Graphics

The 586-based system board without integrated graphics has the following characteristics:

o Used on 3-slot/3-bay and 4-slot/4-bay computers

o Designed for use with QVision 2000+ Graphics Controller in a PCI slot

o Six SIMM sockets for memory expansion

o Accommodates 586/75 and 586/90 processors (320-pin ZIF socket)

o 256 KB cache memory

o Measures 8.5 x 13.75 inches (21.6 x 34.9 cm)

IDE Interface

The IDE interface consists of two IDE connectors that support up to four IDE devices. Each connector can be individually disabled so that option card IDE interfaces will work.

Diskette Drive Interface

The diskette drive interface is 8477 compatible.

Serial Port

The serial port is RS-232C compatible.

Parallel Port

The following parallel support modes are supported:

o SPP (Bi-directional Standard Parallel Port)

o EPP (Enhanced Parallel Port)

o ECP (Extended Capabilities Port)

Keyboard/Mouse

All system boards will accommodate a standard 8042 keyboard/mouse controller.

Processor

The 486-based system boards support a variety of 486 processors at bus frequencies of 25-MHz and 33-MHz. These boards have a reconfigurable ZIF socket to accommodate the variety of processor pinouts and supports 3.3V and 5V processors. These system boards can be upgraded to a 486DX4/100

processor.

The 586-based system boards support the 586 processor running at bus frequencies of 50-MHz and 60-MHz.

Memory

All of the computers use 70ns enhanced page-mode DRAMs. Memory parity is not supported.

The 486-based system boards accommodate a total of four double-sided SIMMs. Either a single-sided 4 MB SIMM or 8 MB of soldered down DRAMs is installed for base memory.

The 586-based system boards accommodate a total of six double-sided SIMMs. Either two single-sided 4 MB SIMMs or two double-side 8 MB SIMMs are installed for base memory.

Memory Expansion

The SIMM sockets on the 486-based system board can be populated with 4, 8, 16, or 32 MB SIMMs in any order. The SIMM sockets on the 586-based system boards must be populated in pairs of equal size in sequential slots. The SIMMs must be 70ns or faster.

IMPORTANT: SIMMS with tin-lead pins must be used for memory upgrades.

Cache

All of the computers support a second level write-back cache. 486DX2/XX and 486DX4/100 models support an optional 128 KB or 256 KB cache board. 586 models support an integrated 256 KB cache.

Graphics

The Compaq ProLinea Family of Personal Computers is supported with a 2-tiered graphics strategy.

The 486-based system boards and selected 586-based system boards are shipped with a PCI Local Bus integrated graphics controller. These system boards are provided with 1 MB DRAM. Additional memory is provided with a daughter card. The PCI Local Bus integrated graphics controller supports the following maximum screen resolutions:

o 1024 x 768 x 256 colors with 1 MB DRAM

o 1280 x 1024 x 256 colors with 2 MB DRAM

Selected 586-based system boards are designed to be used with a QVision 2000+ Graphics Controller in a PCI slot. This will provide the following maximum screen resolutions:

o 1280 x 1024 x 256 colors with 2 MB VRAM

o 1280 x 1024 x 16.7M colors with 4 MB VRAM

Chapter 2. Troubleshooting

Chapter 2.0 Introduction

This chapter describes the three levels of troubleshooting for the computer:

- Power-On Self-Test (POST)
- Compaq diagnostics
- Troubleshooting without diagnostics

POST messages, diagnostic error codes, and memory error codes are included. The messages and codes appear in tables that include a description of the error, the probable cause, and the recommended action to resolve the error condition. Adherence to the procedures and precautions described in this chapter is essential for proper service.

Chapter 2.1 Power-On Password

The power-on password prevents use of the computer until the password is entered. To clear the power-on password, you must remove and replace a jumper on the system board. If you do not know the power-on password, use the following procedure to clear the password to allow troubleshooting:

1. Complete the preparation for disassembly procedures in Section 5.3.
2. Remove the unit cover as described in Section 5.4.
3. Move the jumper on E6 (Figure 2-1) from pins 1 and 2 and to pins 2 and 3.

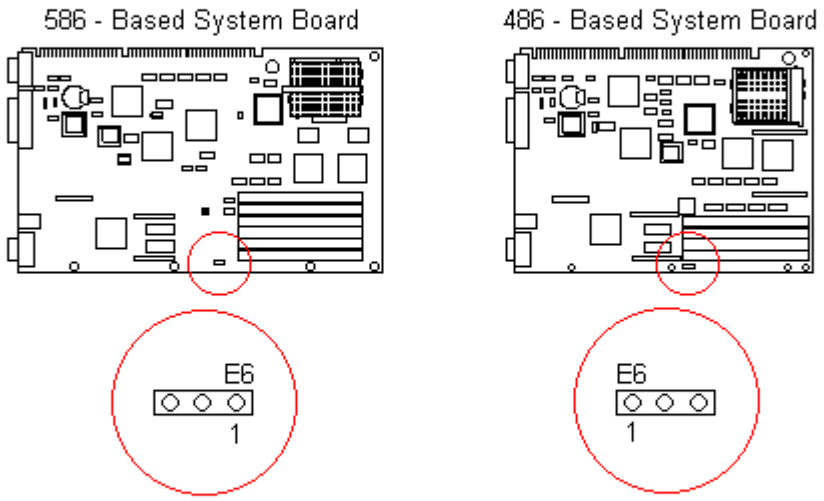

Figure 2-1. Power-On Password Jumper

4. Replace the unit cover and perform the desired troubleshooting.

Chapter 2.2 Power-On Self-Test

Power-on Self-Test (POST) is a series of diagnostic tests that runs automatically when the system is turned on. POST checks the following assemblies to ensure that the computer system is functioning properly:

- Keyboard
- Power supply
- System board
- System memory
- Memory modules
- Controllers
- Graphics system
- Diskette drives

o Hard drives

POST also detects the type of mass storage devices installed in the computer. If POST finds an error in the system, an error condition is indicated by an audible and/or visual message.

Power-on Self-Test Messages

An error message results if a problem is encountered during the Power-On Self-Test utility. Table 2-1 lists the messages for POST, the audible (beep) message, probable cause, and recommended action. The procedures referenced under "Recommended Action" are described in Sections 2.3 and 2.4 of this chapter.

Table 2-1. Power-On Self-Test Messages

Message	Beeps	Probable Cause	Recommended Action
101 - ROM Error	1 Long, 1 Short	System ROM checksum	1. Inspect the ROM placement. 2. Verify the correct ROM. 3. Replace the ROM.
101 - I/0 ROM Error	None	Option ROM checksum	1. Inspect the ROM placement. 2. Verify the correct ROM. 3. Replace the ROM.
102 - System Board Failure	None	DMA, timers, etc.	Replace the system board.
162 - System Options Error	2 Short	No diskette drive or mismatch in drive type	Run Computer Setup.
162 - System Options Not Set	2 Short	Configuration incorrect	Run Computer Setup.
163 - Time & Date Not Set	2 Short	Invalid time or date in configuration memory	Run Computer Setup.
164 - Memory Size Error	2 Short	Configuration memory incorrect	Run Computer Setup.
174 - ISA Configuration/ Slot Mismatch	1 Short	Plug & Play ISA board not found	Run the Configuration and Diagnostics Utilities.
175 - ISA Configuration/ Slot Mismatch	1 Short	Plug & Play ISA board added, configuration not updated	Run the Configuration and Diagnostics Utilities.

178 - Processor Configuration Invalid	None	Processor type or step do not match configuration memory	Run Computer Setup.
201 - Memory Error	None	RAM failure	1. Run Computer Setup. 2. Replace the memory module(s) (if any). 3. Replace system board.
203 - Memory Address Error	None	RAM failure	1. Run Computer Setup. 2. Replace the memory module(s) (if any). 3. Replace system board.

Message	Beeps	Probable Cause	Recommended Action
205 - Memory Error	None	Cache memory error	Run the Configuration and Diagnostics Utilities.
206 - Secondary cache controller Failure	None	Cache memory controller or RAM failure	Run the Configuration and Diagnostics Utilities.
301 - Keyboard Error	None	Keyboard Failure	Reconnect keyboard with computer turned off.
301 - Keyboard Error or Text Fixture Installed	None	Keyboard Failure	Replace the keyboard.
303 - Keyboard Controller Error	None	I/O board keyboard controller	Replace the system board.
304 - Keyboard or System Unit Error	None	Keyboard	1. Replace the keyboard. 2. Replace the system board.
40X - Parallel Port X Address Assignment Conflict	2 Short	Both external and internal ports are assigned to parallel port X	Run Computer Setup.
402 - Monochrome Adapter Failure	1 Long, 2 Short	Monochrome display controller	Replace the monochrome display controller.

501 - Display Adapter Failure	1 Long, 2 Short	Video display controller	Replace the video board.
601 - Diskette Controller Error	None	Diskette controller circuitry	1. Check and/or replace cables. 2. Replace the system board.
602 - Diskette Boot	None	Diskette in drive A not bootable	Replace the diskette.
605 - Diskette Drive Error	2 Short	Mismatch in drive type	Run Computer Setup.
611 - Primary Floppy Port Address Assignment Conflict	2 Short	Configuration error	Run Computer Setup.
612 - Secondary Floppy Port Address Assignment Conflict	2 Short	Configuration error	Run Computer Setup.
702 - A Coprocessor Has Been Detected That Is Not Reported In CMOS	None	Configuration error	Run Computer Setup.
703 - CMOS Reports a Coprocessor That Has Not Been Detected By POST	2 Short	Configuration error	Run Computer Setup.

Message	Beeps	Probable Cause	Recommended Action
1151 - COM Port 1 Address Assignment Conflict	2 Short	Both external and internal serial ports are assigned to COM1	Run Computer Setup.
1152 - COM Port 2 Address Assignment Conflict	2 Short	Both external and internal serial ports are assigned to COM2	Run Computer Setup.
1153 - COM Port 3 Address Assignment Conflict	2 Short	Both external and internal serial ports are assigned to COM3	Run Computer Setup.
1154 - COM Port 4 Address Assignment Conflict	2 Short	Both external and internal serial ports are assigned to COM4	Run Computer Setup.
1771 - Primary Disk Port Address Assignment Conflict	2 Short	Internal and external hard drive controllers are both assigned to	Run Computer Setup.

		primary address	
1772 - Secondary Disk Port Address Assignment Conflict	2 Short	Internal and external hard drive controllers are both assigned to the secondary address	Run Computer Setup.
1780 - Disk 0 Failure	None	Hard drive/format error	Run the Configuration and Diagnostics Utilities.
1781 - Disk 1 Failure	None	Hard drive/format error	Run the Configuration and Diagnostics Utilities.
1782 - Disk Controller	None	Hard drive circuitry error	Run the Configuration and Diagnostics Utilities.
1790 - Disk 0 Failure	None	Hard drive error or wrong drive type	Run the Configuration and Diagnostics Utilities.
1791 - Disk 1 Failure	None	Hard drive error or wrong drive type	Run the Configuration and Diagnostics Utilities.
XX000Y ZZ Parity Check 2	None	Parity RAM failure	Run the Configuration and Diagnostics Utilities.
Hard Drive Parameter Table or BIOS Error system Halted	3 Long	Configuration or hardware failure	Run the Configuration and Diagnostics Utilities.
IOCHECK Active Slot X	None	Defective board in slot X	Run the Configuration and Diagnostics Utilities.
Bus Master Timeout Slot X	None	Defective board in slot X	Run the Configuration and Diagnostics Utilities.
Audible	1 Short	Power-on successful	None.
Audible	2 Short	Power-on successful	None.
(RESUME = F1 KEY)	None	As indicated to continue	Press the F1 key.

Chapter 2.3 Compaq Diagnostics

This section explains how to use the Configuration and Diagnostics utilities installed on the computer.

IMPORTANT: If you are planning to run an alternate operating system (e.g., OS/2 or UNIX), you will need to configure your system using the Compaq Diagnostics diskette. Failure to do so can result in loss of data and reduced hard drive capacity.

Both Windows and DOS have configuration and diagnostic utilities that should be accessed in the following instances:

- When a system configuration error is detected during the Power-On Self-Test (POST).
- To change factory default settings for some of the computer features.
- To change the system configuration, which is sometimes necessary when you add or remove optional hardware.
- To set system configuration features.

The same utilities are available by selecting options on a menu called "Configuration and Diagnostics." To display this menu, restart the computer, then press the F10 key when the square cursor displays in the upper-right corner of the screen. Full instructions are presented later in this section. Diagnostics are available by selecting the Computer Checkup (TEST) utility on the Configuration and Diagnostics menu.

Compaq Diagnostics are installed on the hard drive of the Compaq ProLinea Personal Computer. The diagnostics are also available on diskettes.

IMPORTANT: The diagnostics and setup utilities are located on a hard disk partition in the computer, not on ROM. Details for recreating the diagnostics/setup partition are presented in Section 2.4 of this chapter.

You can access the diagnostics at startup from the hard drive or from the diskettes. Procedures for both methods are presented below. Both procedures will result in the Configuration and Diagnostics menu being displayed. Your particular menu may differ slightly from the one shown in Figure 2-2.

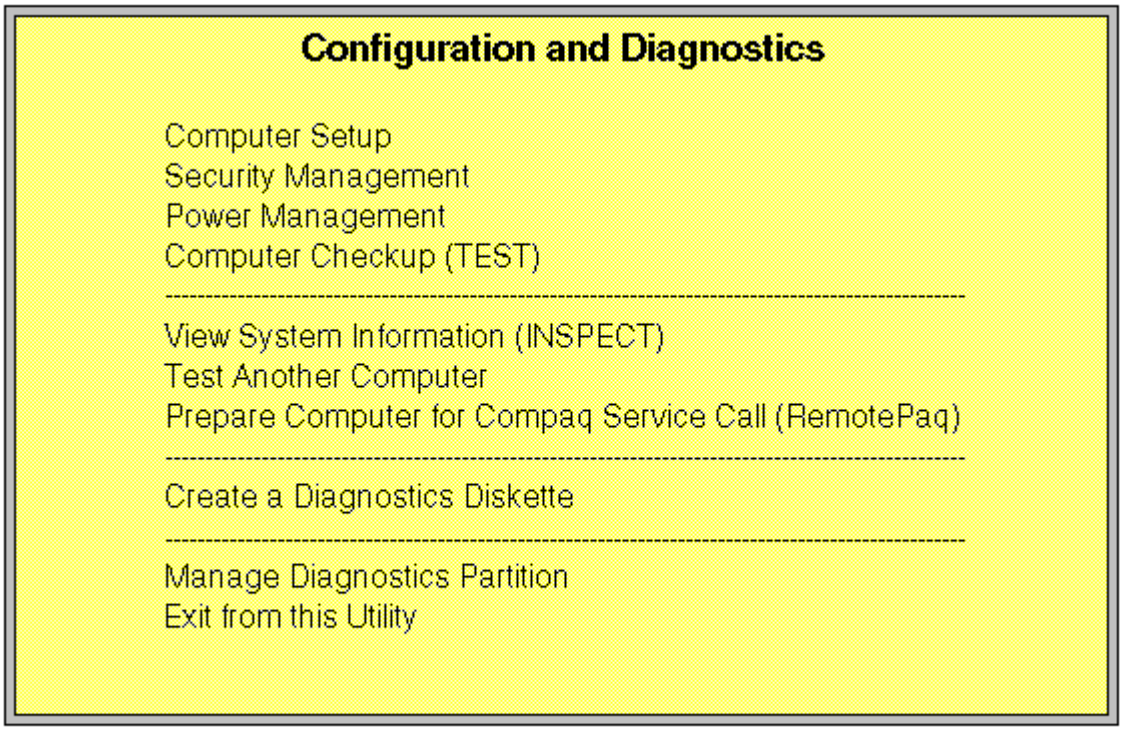

Figure 2-2. Configuration and Diagnostics Screen

Accessing the Configuration and Diagnostics Menu at Startup

To display the menu immediately after startup, 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 immediately: The Power-On Self-Test (POST) runs, you hear two beeps, then the cursor moves to the upper-right corner.

3. If prompted, select the desired language.

4. A menu similar to the one shown in Figure 2-2 will be displayed. You will be prompted through any procedure that you select.

Accessing the Configuration and Diagnostics Menu from Diskette

You can load either the Setup or Diagnostics diskette with this procedure. To load either of the diskettes, complete the following steps:

1. Insert the diskette into drive A.

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

3. If prompted, select the desired language.

4. If you load the Diagnostics diskette, a menu similar to the one shown in Figure 2-2 will be displayed. If you select Computer Setup from this menu, you will be prompted to insert the Setup diskette. You will be prompted through any procedure that you select.

Compaq Diagnostics for Windows

Compaq Diagnostics for Windows utility contains the same functionality as the DOS-based INSPECT program but in a Windows environment. To use the Compaq Diagnostics for Windows utility, select the Compaq Diagnostics icon from the Compaq Utilities group box. Once the program is running, you can use the tool bar or the menus to browse through the information. Some examples of the information you can view are:

- Product name
- CPU information
- Cache size and type
- Mouse driver versions
- COM ports, LPT ports, modems
- ISA and PCI slot information
- Version of certain software (MS-DOS, Windows)
- ROM version
- Storage information
- Power Management settings
- Multimedia devices information

The MS-DOS version of INSPECT is available on the system partition and is accessible as explained earlier in this section.

Chapter 2.4 Configuration and Diagnostics Menu Options

The Configuration and Diagnostics menu contains the following troubleshooting utilities:

- Computer Setup
- Computer Checkup (TEST)
- View System Information (INSPECT)
- Test another computer

- Prepare computer for Compaq Service Call (RemotePaq)
- Create a Diagnostics Diskette

See the user documentation for descriptions of the Security Management and Power Management utilities. A brief description of each of the troubleshooting utilities is presented below. Ample prompting is provided with each of these utilities.

Computer Setup

The Computer Setup utility is preinstalled on the hard drive and on diskette. It gives a snapshot of the computer's hardware configuration, aids in troubleshooting, and allows you to set custom features. Computer Setup recognizes a newly installed internal or external device and automatically updates the Computer Setup screen. Among the parameters checked are the following:

- Date and time
- Installed devices
- Memory status
- Password status
- Interface configurations
- Graphics configuration
- Computer serial number
- Controller status

The following activities can be performed from this screen:

- Press the Esc key to exit the screen and return to the startup procedure.
- Press the F1 key for instructions on how to navigate around the screen.

Computer Checkup (TEST)

Computer Checkup (TEST) is a utility that confirms if the various computer devices are recognized by the system and functioning properly. Use the TEST utility to help set up and test the computer and to install the operating system. The TEST menu offers the following:

- Quick Check Diagnostics runs a quick, general test on each device with a minimal number of prompts. If errors occur, they are displayed when the test is complete.
- Automatic Diagnostics runs unattended and provides 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 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.

The TEST option checks the following:

- CPU (main system)
- Keyboard
- Pointing device interface
- Parallel interfaces
- Graphics controllers
- Diskette drives
- Fixed disks
- Serial interfaces
- Installed Compaq devices (tape drive, SCSI device, or network status)

View System Information (INSPECT)

This utility allows you to inspect the status and configuration of the following parameters:

- System
- System ROM
- Keyboard
- System ports
- System storage
- Graphics
- Memory
- Operating system
- System files
- Windows files
- Network status
- Miscellaneous

The options available from this utility are:

- Print the inspect status.
- Save the inspect status to a file.
- Add comments to a parameter status.
- Exit the utility.

Test Another Computer

This utility allows you to download Computer Checkup (TEST), View System Information (INSPECT), or Computer Setup utilities through your computer's serial interface to a supported Compaq product that does not have a diskette drive.

RemotePaq

This utility is available in some geographical areas and requires a modem. The utility prepares your computer for a call from Compaq Service via modem. It allows Compaq Customer Support to automatically run diagnostics on your machine.

Create a Diagnostics Diskette

This option allows you to back up the diagnostics software onto two diskettes.

IMPORTANT: Compaq highly recommends that backup diagnostics diskettes are created as soon as the system is configured. This software is required to troubleshoot the system if the hard drive cannot be accessed or must be replaced.

Manage Diagnostics Partition

This option allows you to create, delete, or upgrade the diagnostics software on your computer. If the diagnostics partition is deleted, it can be recreated without deleting the DOS partition. The most likely use of this option is to upgrade the utilities.

Chapter 2.5 Diagnostic Error Codes

Diagnostic error codes occur if the system recognizes a problem while running the Compaq Diagnostic program. These error codes help identify possibly defective subassemblies.

Tables 2-2 through 2-15 list possible error codes, a description of the error condition, and the action required to resolve the error condition.

IMPORTANT: Retest the system after completing each step. If the problem has been resolved, do not proceed with the remaining steps.

For assistance in the removal and replacement of a particular subassembly, see Chapter 5, "Removal and Replacement Procedures."

Table 2-2. Processor Test Error Codes

Error Code	Description	Recommended Action
101 - xx	CPU test failed	Replace the system board and retest.
102 - xx	Coprocessor or Weitek Error	1. Run the Configuration and Diagnostics Utilities. 2. Replace the coprocessor and retest. 3. Replace the processor (if applicable) and retest.
103 - xx	DMA page registers test failed	Replace the system board and retest.
104 - xx	Interrupt controller master test failed	
105 - xx	Port 61 error	
106 - xx	Keyboard controller self-test failed	
107 - xx	CMOS RAM test failed	The following steps apply to 107 - xx through 109 - xx:
108 - xx	CMOS interrupt test failed	1. Replace the battery/clock module and retest.
109 - xx	CMOS clock test failed	2. Replace the system board and retest.
110 - xx	Programmable timer load data test failed	Replace the system board and retest.
113 - xx	Protected mode test failed	
114 - 01	Speaker test failed	1. Check system configuration. 2. Verify cable connections to speaker. 3. Replace the system board and retest.

Table 2-3. Memory Test Error Codes

Error Code	Description	Recommended Action
200 - xx	Memory machine ID test failed	The following steps apply to 200 - xx and 202 - xx:
202 - xx	Memory system ROM checksum failed	1. Replace the system ROM and retest. 2. Replace the system board and retest.
203 - xx	Write/Read test	The following steps apply to 203 - xx

	failed	through 215 - xx:
204 - xx	Address test failed	1. Remove the memory modules one at a time until the error goes away.
211 - xx	Random pattern test failed	2. Replace the good modules one at a time while making sure the error code does not return.
214 - xx	Noise test failed	3. Replace the bad modules and retest.
215 - xx	Random address test failed	

Table 2-4. Keyboard Test Error Codes

Error Code	Description	Recommended Action
300 - xx	Failed ID Test	The following steps apply to 300 - xx through 304 - xx:
301 - xx	Failed Self-test/ Interface Test	1. Check the keyboard connection. If disconnected, turn off the computer and connect the keyboard.
302 - xx	Failed Individual Key Test	2. Replace the keyboard and retest.
		3. Replace the system board and retest.
304 - xx	Failed Keyboard Repeat Test	

Table 2-5. Parallel Printer Test Error Codes

Error Code	Description	Recommended Action
401 - xx	Printer failed or not connected	The following steps apply to 401 - xx through 403 - xx:
402 - xx	Failed Port Test	1. Connect the printer.
		2. Check power to the printer.
403 - xx	Printer pattern test failed	3. Install the loop-back connector and retest.
		4. Check switch on the Serial/Parallel Interface board, if applicable.
		5. Replace the Serial/Parallel Interface board, if applicable.
		6. Replace the system board and retest.

Table 2-6. Diskette Drive Test

Error Code	Description	Recommended Action
600 - xx	Diskette ID drive types test failed	The following steps apply to 600 - xx through 698 - xx error codes:
601 - xx	Diskette format failed	1. Replace the diskette media and retest.
		2. Check and/or replace the diskette power and signal cables and retest.

602 - xx	Diskette read test failed	3. Replace the diskette drive and retest. 4. Replace the system board and retest.
603 - xx	Diskette write, read compare test failed	
604 - xx	Diskette random read test failed	
605 - xx	Diskette ID media failed	
606 - xx	Diskette speed test failed	
609 - xx	Diskette reset controller test failed	
610 - xx	Diskette change line test failed	
697 - xx	Diskette type error	
698 - xx	Diskette drive speed not within limits	
699 - xx	Diskette drive/ media ID error	1. Replace media. 2. Run the Configuration and Diagnostics Utilities.

Table 2-7. Serial Test Error Codes

Error Code	Description	Recommended Action
1101 - xx	Serial port test failed	1. Check switch settings on the Serial/Parallel Interface Board, if applicable. 2. Replace the system Board. 3. Replace the system board and retest.

Table 2-8. Modem Communications Test Error Codes

Error Code	Description	Recommended Action
1201 - xx	Modem internal loopback test failed	The following steps apply to 1201 - xx through 1210 - xx:
1203 - xx	Modem External Termination Test failed	1. Refer to modem documentation for correct Computer Setup procedures. 2. Check the modem line. 3. Replace the modem and retest.
1204 - xx	Modem Auto Originate Test failed	

1205 - xx	Auto answer Test failed
1210 - xx	Modem Direct Connect Test failed

Table 2-9. Hard Drive Test Error Codes

Error Code	Description	Recommended Action
1701 - xx	Hard drive format test failed	The following steps apply to 1701 - xx through 1736 - xx:
1702 - xx	Hard drive read test failed	1. Run the Configuration and Diagnostics Utilities and verify drive type.
1703 - xx	Hard drive write/read /compare test failed	2. Replace the hard drive signal and power cables and retest.
1704 - xx	Hard drive random seek test failed	3. Replace the hard drive controller board and retest (if applicable).
1705 - xx	Hard drive controller test failed	4. Replace the hard drive and retest (if applicable).
1706 - xx	Hard drive ready test failed	5. Replace the system board and retest.
1707 - xx	Hard drive recalibration test failed	
1708 - xx	Hard drive format bad track test failed	
1709 - xx	Hard drive reset controller test failed	
1710 - xx	Hard drive park head test failed	
1715 - xx	Hard drive head select test failed	
1716 - xx	Hard drive conditional format test failed	
1717 - xx	Hard drive ECC * test failed	
1719 - xx	Hard drive power mode test failed	
1724 - xx	Network preparation test failed	

1736 - xx	Drive monitoring test failed	

* ECC = Error Correction Code

Table 2-10. Tape Drive Test Error Codes

Error Code	Description	Recommended Action
1900 - xx	Tape ID failed	The following steps apply to 1900 - xx through 1906 - xx error codes:
1901 - xx	Tape servo write failed	1. Replace the tape cartridge and retest.
1902 - xx	Tape format failed	2. Check the switch settings on the adapter board.
1903 - xx	Tape drive sensor test failed	3. Check and/or replace the signal cable and retest.
1904 - xx	Tape BOT/EOT test failed	4. Replace the tape adapter board (if applicable) and retest.
1905 - xx	Tape read test failed	5. Replace the tape drive and retest.
1906 - xx	Tape write/read/ compare test failed	6. Replace the system board and retest.

Table 2-11. Video Test Error Codes

Error Code	Description	Recommended Action
501 - xx	Video controller test failed	The following error codes apply to 501 - xx through 516 - xx error codes:
502 - xx	Video memory test failed	1. Replace the monitor and retest. 2. Replace the system board.
503 - xx	Video attribute test failed	
504 - xx	Video character set test failed	
505 - xx	Video 80 x 25 mode 9 x 14 character cell test failed	
506 - xx	Video 80 x 25 mode 8 x 8 character cell test failed	
507 - xx	Video 40 x 25 mode test failed	
508 - xx	Video 320 x 200 mode color set 0 test	

	failed	
509 - xx	Video 320 x 200 mode color set 1 test failed	
510 - xx	Video 640 x 200 mode test failed	
511 - xx	Video screen memory page test failed	
512 - xx	Video gray scale test failed	
514 - xx	Video white screen test failed	
516 - xx	Video noise pattern test failed	

Error Code	Description	Recommended Action
2402 - xx	Video memory test failed	The following steps apply to 2402 - xx through 2456 - xx error codes:
2403 - xx	Video attribute test failed	1. Run the Configuration and Diagnostics Utilities. 2. Replace the monitor and retest. 3. Replace the video board and retest.
2404 - xx	Video character set test failed	
2405 - xx	Video 80 x 25 mode 9 x 14 character cell test failed	
2406 - xx	Video 80 x 25 mode 8 x 8 character cell test failed	
2408 - xx	Video 320 x 200 mode color set 0 test failed	
2409 - xx	Video 320 x 200 mode color set 1 test failed	
2410 - xx	Video 640 x 200 mode test failed	
2411 - xx	Video screen memory page test failed	
2412 - xx	Video gray scale test failed	
2414 - xx	Video white screen test failed	

2416 - xx	Video noise pattern test failed	
2418 - xx	ECG/VGC memory test failed	

Error Code	Description	Recommended Action
2419 - xx	ECG/VGC ROM checksum test failed	The following steps apply to 2402 - xx through 2456 - xx error codes: 1. Run the Configuration and Diagnostics Utilities. 2. Replace the monitor and retest. 3. Replace the video board and retest.
2421 - xx	ECG/VGC 640 x 200 graphics mode test failed	
2422 - xx	ECG/VGC 640 x 350 16 color set test failed	
2423 - xx	ECG/VGC 640 x 350 64 color set test failed	
2424 - xx	ECG/VGC monochrome text mode test failed	
2425 - xx	ECG/VGC monochrome graphics mode test failed	
2431 - xx	640 x 480 graphics test failure	
2432 - xx	320 x 200 graphics (256 color mode) test failure	
2448 - xx	Advanced VGA Controller test failed	
2451 - xx	132-column Advanced VGA test failed	
2456 - xx	Advanced VGA 256 Color test failed	
2458 - xx	Advanced VGA BitBLT test	The following steps apply to 2458 - xx through 2480 - xx error codes: 1. Replace the video board. 2. Replace the system board and retest.
2468 - xx	Advanced VGA DAC test	
2477 - xx	Advanced VGA data path test	
2478 - xx	Advanced VGA BitBLT test	
2480 - xx	Advanced VGA Linedraw test	

Table 2-12. Audio Test Error Codes

Error Code	Description	Recommended Action
3206 - xx	Audio System Internal Error	Replace the audio board and retest.

Table 2-13. Pointing Device Interface Test Error Codes

Error Code	Description	Recommended Action
8601 - xx	Mouse test failed	The following steps apply to 8601 - xx and 8602 - xx: 1. Replace with a working pointing device and retest. 2. Replace pointing device interface board and retest (if applicable). 3. Replace the system board and retest.
8602 - xx	Interface test failed	

Table 2-14. CD-ROM Test Error Codes

Error Code	Description	Recommended Action
3301 - xx	CD-ROM drive read test failed	The following steps apply to error codes 3301 - xx through 3305 - xx and 6600 - xx through 6623 - xx: 1. Replace the CD and retest. 2. Check the jumper settings on the adapter board. 3. Verify that the speakers are connected. 4. Check and/or replace the power and signal cables and retest. 5. Replace the CD-ROM drive and retest.
3305 - xx	CD-ROM drive seek test failed	
6600 - xx	ID test failed	
6605 - xx	Read test failed	
6608 - xx	Controller test failed	
6623 - xx	Random read test failed	

The SCSI error codes are written in the format AABB-CC and can be determined by looking up the respective parts of the code in the three corresponding tables numbered 2-15A, 2-15B, and 2-15C shown below. AA (Table 2-15A) identifies the drive type being tested. BB (Table 2-15B) identifies the type of test. CC (Table 2-15C) identifies the exact error received.

For example, if you received a diagnostic error code of 6523-05, you would look at Table 2-15A to identify the meaning of the first two numbers, 65. This indicates a hard drive problem. The second set of two numbers, 23, refers to a random read, as shown in Table 2-15B. The last two numbers,

05, indicate a seek failure, as listed in Table 2-15C. When you combine this information, you know that the diagnostics program was testing the random-read functioning of the hard drive and received a seek failure. The device is faulty and must be replaced.

Table 2-15A. SCSI Device Names

65XX - XX	Hard Drive
66XX - XX	CD-ROM Drive
67XX - XX	Tape Drive

Table 2-15B. SCSI Test Names

XX00 - XX	ID
XX03 - XX	Power Check
XX05 - XX	Read
XX06 - XX	SA/Media
XX08 - XX	Controller
XX23 - XX	Random Read
XX28 - XX	Media load/unload

Table 2-15C. SCSI Test Error Codes

Error Code	Description	Recommended Action
XXXX - 02	Drive not installed	Check cable connections.
XXXX - 03	Media not in drive	Install DATA CD/write-enabled tape in drive.
XXXX - 05	Seek failure	Replace the indicated device.
XXXX - 06	Drive timed out	
XXXX - 07	Drive busy	
XXXX - 08	Drive already reserved	
XXXX - 09	Unknown	
XXXX - 10	Unknown	
XXXX - 11	Media soft error	
XXXX - 12	Drive not ready	
XXXX - 13	Media error	

XXXX - 14	Drive hardware error	
XXXX - 15	Illegal drive command	Replace the indicated device.
XXXX - 16	Media was changed	Replace the indicated device.
XXXX - 17	Tape write protected	1. Disable write protect on tape cartridge. 2. Replace tape drive.
XXXX - 18	No data detected	Replace the indicated device.
XXXX - 21	Drive command aborted	Replace the indicated device.
65XX - 24	Media hard error	1. Back up data and perform Surface Analysis to reallocate defect. 2. Replace drive.
66XX - 24	Media hard error	1. Replace current DATA CD with different DATA CD 2. Replace drive.
67XX - 24	Media hard error	1. Ensure correct media type for this tape drive. 2. Replace current tape with new tape. 3. Replace tape drive.
XXXX - 25	Unknown	

Error Code	Description	Recommended Action
XXXX - 30	Controller timed out	Replace the indicated device.
XXXX - 31	Unrecoverable error	
XXXX - 32	Controller/drive disconnected	
XXXX - 33	Illegal controller command	
XXXX - 34	Invalid SCSI bus phase	
XXXX - 35	Invalid SCSI bus phase	
XXXX - 36	Invalid SCSI bus phase	
XXXX - 39	Error status from drive	
XXXX - 40	Target timed out	
XXXX - 41	SCSI bus stayed busy	
XXXX - 42	ACK/REQ lines bad	
XXXX - 43	ACK did not deassert	

XXXX - 44	Parity error	
XXXX - 50	Data pins bad	
XXXX - 51	Data line 7 bad	
XXXX - 52	MSG, C/D and/or I/O lines bad	
XXXX - 53	BSY never went busy	
XXXX - 54	BSY stayed busy	
XXXX - 60	Controller CONFIG-1 register bad	
XXXX - 61	Controller CONFIG-2 register bad	
XXXX - 65	Media not unloaded	

Error Code	Description	Recommended Action
XXXX - 90	Fan failure	1. Ensure fan(s) connected. 2. Replace non-functional fan(s).
XXXX - 91	Over Temperature	1. Ensure proper air flow. 2. Perform required maintenance and cleaning.
XXXX - 92	Side panel not installed	N/A
XXXX - 93	Primary redundant power supply failed, alternate supply active	
XXXX - 99	Autoloader reported tapes not loaded properly	1. Install tape(s) in autoloader tape drive according to test instructions. 2. Change autoloader magazine.

Chapter 2.6 Troubleshooting Without Diagnostics

This section describes some simple, preliminary test and guidelines for troubleshooting the computer without using the diagnostics.

Checklist for Solving Minor Problems

If you encounter some minor problem with the computer or software application, review the following checklist for possible solutions before running any of the diagnostic utilities:

- Is the computer connected to a working power outlet?
- Is the computer turned on and the power light illuminated?
- Are all cables connected properly and seated?
- Are all of the necessary device drivers installed?
- Is the CONFIG.SYS file correct?
- Is the AUTOEXEC.BAT file (MS-DOS) or STARTUP.CMD file (OS/2) correct?
- Was a nonbootable diskette loaded in the diskette drive at powerup?
- Are all switch settings correct?
- Was Computer Setup run after installing options (memory, disk drives, etc.) and before installing industry standard architecture (ISA) boards?

Power Problems

This section identifies some quick checks for power related problems.

Table 2-16. Solutions for Power Problems

Problem	Possible Solution
Computer will not turn on.	Ensure that the computer is connected to a power source.
Computer does not automatically display the date and time.	The Real Time Clock (RTC) battery may need to be replaced. See Chapter 5 for replacement procedures.
Computer powered off automatically.	The unit temperature may have been exceeded. Check the fan for function and blockage.

Diskette Drive Problems

This section identifies some quick checks for diskette drive related problems.

Table 2-17. Solutions for Diskette Drive Problems

Problem	Possible Solution
Diskette drive light stays on.	1. Diskette can be damaged. Run CHKDSK on the diskette. 2. Diskette could be installed incorrectly. Remove the diskette and reinsert. 3. Software program may be damaged. Check the program diskettes.

Diskette drive cannot write to a diskette.	1. Diskette is not formatted. Format the diskette. 2. Diskette is write protected. Either use another diskette that is not write protected or disable the write protection on the diskette. 3. Writing to the wrong drive. Check the drive letter in your path statement. 4. Not enough space is left on the diskette. Use another diskette to write the information.
Diskette drive cannot read a diskette.	1. Diskette is not formatted. Format the diskette. 2. Using the wrong diskette type for the drive type. Use a diskette that is compatible with the drive. 3. Reading the wrong drive. Check the drive letter in your path statement. 4. Diskette drive has been disabled by Computer Setup. Run Computer Setup and enable the diskette drive.

Monitor Problems

This section identifies some quick checks for monitor related problems.

Table 2-18. Solutions for Monitor Problems

Problem	Possible Solution
Characters are dim.	The brightness control is not set properly. Adjust the brightness control.
Screen is blank.	1. A screen blanking utility could be installed. Press any key. If the display reappears, you have a screen blanking utility installed. 2. The brightness needs adjusting. Adjust the brightness control. 3. Screen save has been initiated. Press any key or move the mouse to light the screen.
No sound.	Check the adjustment of the volume control on the WSS Sound Board on the rear of the computer.
Garbled characters on the screen are mixed with text.	The ANSI.SYS driver is not in the CONFIG.SYS file. Add the ANSI.SYS driver to the CONFIG.SYS file by adding the following line: DEVICE = C:\DOS\ANSI.SYS
Monitor overheats.	There is not enough ventilation space for proper airflow. Leave at least 3 inches (7.6 cm) of ventilation space. Also, be sure there is nothing on top of the monitor to

	obstruct air flow.
Cursor will not move using the arrow keys on the numeric keypad.	The Num Lock key is on. Press the Num Lock key. The Num Lock light should not be on when you want to use the arrow keys.

Hard Drive Problems

This section identifies some quick checks for hard drive related problems.

IMPORTANT: The IntelliSafe hard drive stores pre-failure information on certain parameters during drive operation. At some point, this information indicates that the drive should fail sometime in the future even though it is currently working fine. When you run diagnostics, if there is any pre-failure information stored on the drive, the computer will fail the hard drive diagnostics test. Proof of this test failure is required when returning a hard drive to Compaq as a failed hard drive.

The information provided by the diagnostics test includes: error code, system serial number, drive serial number, drive model, and drive firmware revision. Specific details of the drive failure are not included.

When you run the diagnostics, the test results are stored in a log. After completing the test, you can print this log to a local printer or save it to a file. Alternatively, before running the test, you can configure the test options to send the results to a local printer or file.

Solutions for some typical hard drive problems are presented in Table 2-19.

Table 2-19. Solutions for Hard Drive Problems

Problem	Possible Solution
Hard drive error occurs.	Hard disk has bad sectors or has failed. Reformat the hard disk.
Disk transaction problem.	Either the directory structure is bad or there is a problem with a file. At the C:\> prompt, run CHKDSK to check for problems. If problems exist, run CHKDSK /F to correct the problems. If a large number of lost allocation units is found, run the MS-DOS defragmentation program DEFRAG. See the MICROSOFT WINDOWS & MS-DOS 6.2 USER'S GUIDE for more information. Alternatively, at the C:\> prompt, run SCANDISK to check for problems. If problems exist, run SCANDISK/AUTOFIX to correct the problems. If a large number of lost allocation units is found, run the MS-DOS defragmentation program DEFRAG. Type HELP SCANDISK for more information.

Drive not found.	Cable could be loose. Check cable connections.
Nonsystem disk message.	1. The system is trying to start from a diskette that is not bootable. Remove the diskette from the diskette drive. 2. The system is trying to start from the hard drive but the hard disk has been damaged. Insert a bootable diskette into the diskette drive and restart the computer with Ctrl+Alt+Del. 3. Diskette boot has been disabled in Computer Setup. Run Computer Setup and enable diskette boot.
Hard drive operation seems slow.	The hard disk files may be fragmented. At the C:\> prompt, run CHKDSK to check for problems. If problems exist, run CHKDSK /F to correct the problems. If a large number of lost allocation units is found, run the MS-DOS defragmentation program DEFRAG. See the MICROSOFT WINDOWS & MS-DOS 6.2 USER'S GUIDE for more information. Alternatively, at the C:\> prompt, run SCANDISK to check for problems. If problems exist, run SCANDISK/AUTOFIX to correct the problems. If a large number of lost allocation units is found, run the MS-DOS defragmentation program DEFRAG. Type HELP SCANDISK for more information.
Hard drive activity light is not on, or stays on without blinking.	The hard disk files may be fragmented. At the C:\> prompt, run CHKDSK to check for problems. If problems exist, run CHKDSK /F to correct the problems. If a large number of lost allocation units is found, run the MS-DOS defragmentation program DEFRAG. See the MICROSOFT WINDOWS & MS-DOS 6.2 USER'S GUIDE for more information. Alternatively, at the C:\> prompt, run SCANDISK to check for problems. If problems exist, run SCANDISK/AUTOFIX to correct the problems. If a large number of lost allocation units is found, run the MS-DOS defragmentation program DEFRAG. Type HELP SCANDISK for more information.

Hardware Installation Problems

This section identifies some quick checks for a hardware problems.

Table 2-20. Solutions for Hardware Installation Problems

Problem	Possible Solutions
A new device is not recognized as part	1. When the system advised you of changes to the configuration, they were ignored.

of the computer system.	Reboot the computer and follow the instructions for accepting the changes. 2. The system may not have automatically recognized the new device. Run Computer Setup and identify the new device. 3. The cables for the new external device are loose or the power cables are unplugged. Check all cables. 4. The power switch for the new external device is not turned on. Turn off the computer, turn on the external device, and then turn the computer on to integrate the new device with the computer.

CD-ROM Problems

This section identifies some quick checks for CD-ROM drive problems.

Table 2-21. Solutions for CD-ROM Problems

Problem	Possible Solution
Cannot read compact disc.	1. CD is not properly seated in the drive. Eject the CD, press down on the CD firmly to correctly seat in the drive, then reload. 2. CD has been loaded upside down. Eject the CD, turn it over, then reload.
Cannot eject compact disc.	CD is not properly seated in the drive. Turn off the computer and insert a small jeweler's screwdriver (1/16-inch) into the emergency eject hole and push firmly. Slowly pull the tray out from the drive until the tray is fully extended, then remove the CD.
CD-ROM devices are not detected; driver is not loaded.	CD-ROM drive is not connected properly. Open the computer and check to see that the drive cable is connected properly.

Chapter 3. Illustrated Parts Catalog

Chapter 3.0 Introduction

This chapter provides an illustrated parts breakdown and a reference for spare parts for the DT3 and DT4 models of the Compaq ProLinea Family of Personal Computers. Spare part numbers and warranty tier are included.

Chapter 3.1 System Unit

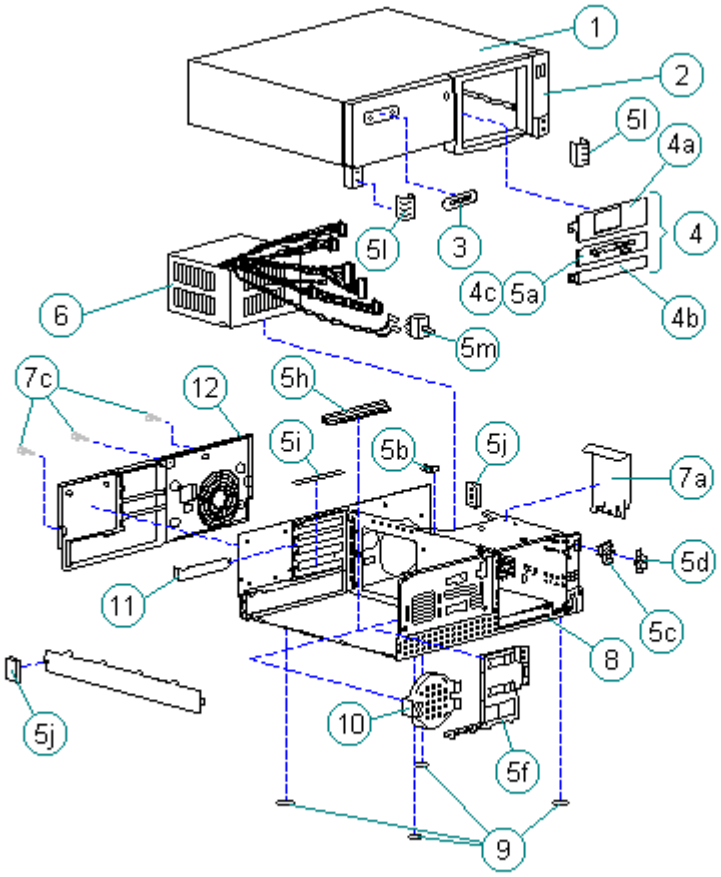

Figure 3-1. System Unit

Table 3-1. System Unit Spare Parts

Description	Spare Part Number	Warranty Tier
1. Hood Assembly w/Front Bezel (DT3) ** (Order logo separately)	172634-002	A
1. Hood Assembly w/Front Bezel (DT4) (Order logo separately)	172634-004	A
2. Front Bezel (DT3) ** (Order logo separately)	172632-002	A

2. Front Bezel (DT4) (Order logo separately)	172632-004	A
3. Logo Kit (includes logos for ProLinea 450, ProLinea 466, ProLinea 4100, ProLinea 575, and ProLinea 590)	172331-001	D
4. Blank Bezel Kit, Includes: a. 1/2-height bezel b. 1/6-height bezel c. 3.5-inch diskette drive bezel d. Shield (for Minitower) **	171748-001	D
5. Miscellaneous Plastic Parts Kit, Includes: a. 3.5" Diskette Drive Bezel b. Drive Cage Lock c. Switch Holder d. Switch Cap (DT3 & DT4, ProLinea Desktops (V)) e. Switch Cap (DT3 & DT4, ProLinea Desktops (N)) ** f. Option card guide (DT4) g. Option card guide (DT3) ** h. System board guide (DT3 & DT4) i. Insulator strip j. Rear corner bezel (Quantity = 2) k. Cable clip ** l. Front corner bezel (Quantity = 2) m. Power switch	172795-001	D
6. Power Supply, 145 W (US) *	172765-001	B
6. Power Supply, 145 W (PFC, outside of US) *	172766-001	B
7. Miscellaneous Hardware Kit ***, Includes: a. Hard Drive Bracket b. 3.5" Disk Drive Brkt w/adapter ** c. Thumbscrew (Quantity = 3) d. CD-ROM left drive rail ** e. CD-ROM right drive rail ** f. 3.5" Diskette/Hard Drive left rail ** g. 3.5" Diskette/Hard Drive right rail ** h. System board bracket (Minitower) **	172796-001	D
8. Chassis (shown for reference only)		
9. Feet, Rubber (Quantity = 10)	141332-001	D
10. Speaker w/o bracket (CDS models only)	141336-001	A
11. Slot Cover	141081-001	D
12. Rear Bezel (DT3) **	171747-001	A
12. Rear Bezel (DT4)	172633-001	A

* Includes Power Switch, Switch Holder, and Switch Cap
** Not shown
*** See Section 3.7 for details

Chapter 3.2 Mass Storage Devices

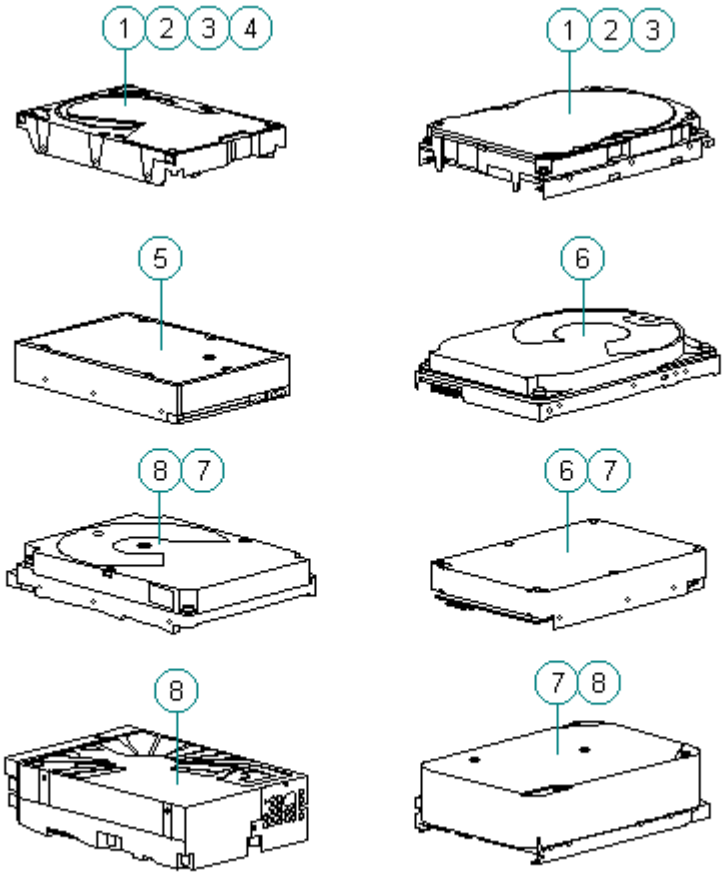

Figure 3-2. Hard Drives

Table 3-2. Hard Drives

Description	Spare Part Number	Warranty Tier
1. Hard Drive (270 MB IDE, w/o Bracket)	172778-001	B
2. Hard Drive (420 MB IDE, w/o Bracket)	172780-001	B
3. Hard Drive (540 MB IDE, w/o Bracket)	188666-001	B
4. Hard Drive (720 MB IDE, w/o Bracket)	172842-001	B
5. Hard Drive (1 GB IDE, w/o Bracket)	172941-001	B
6. Hard Drive (535 MB Fast SCSI-2 w/o Bracket)	148286-001	B
7. Hard Drive (1.05 GB Fast SCSI-2 w/o Bracket)	142039-001	B
8. Hard Drive (2.1 GB Fast SCSI-2 w/o Bracket)	142272-001	B

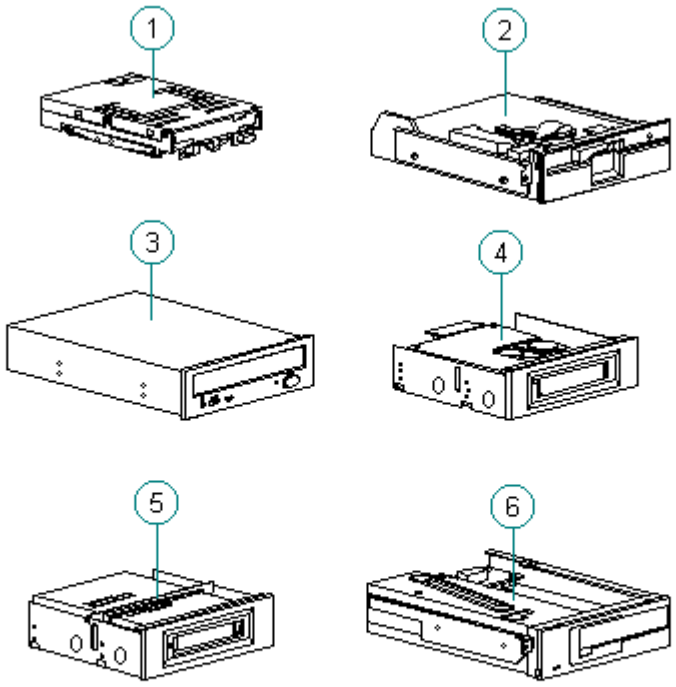

Figure 3-3. Diskette Drives, CD-ROM Drives, and Tape Drives

Table 3-3. Diskette Drives, CD-ROM Drives, and Tape Drives

Description	Spare Part Number	Warranty Tier
1. Diskette Drive (3.5", 1.44 MB, 3-mode, 1/3-height without bracket and bezel)	160788-201	B
2. Diskette Drive (5.25", 1.2 MB, 1/2-height)	141367-201	B
3. CD-ROM Drive (Internal Quad Speed, IDE)	172717-001	B
4. Tape Drive (120/250 MB w/Compression)	187657-001	B
5. Tape Drive (340/680 MB w/Compression)	187658-001	B
6. Tape Drive (525 MB ACA)	142073-001	B
7. Tape Drive (1.2 GB ACA/not shown)	199615-001	B
8. Tape Drive (2/8 GB DAT w/Compression/not shown)	142074-001	B

Chapter 3.3 Cables

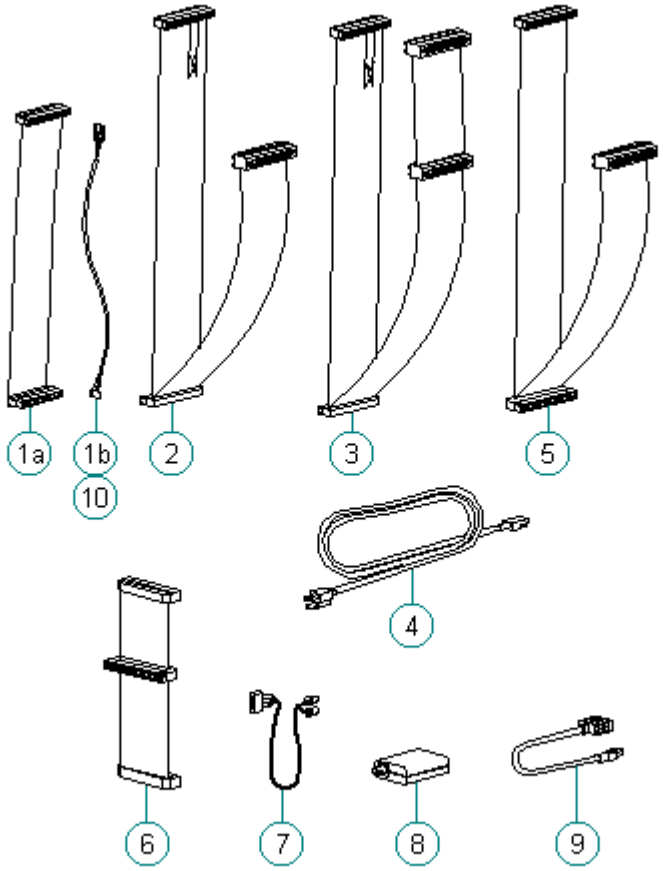

Figure 3-4. Cables

Table 3-4. Cables

Description	Spare Part Number	Warranty Tier
1. Cable kit, includes: a. IDE CD-ROM/hard drive cable, (Quantity = 2) b. Audio cable, (Quantity = 2)	172478-001	B
2. Cable, Diskette Drive (DT3)	172477-001	B
3. Cable, Diskette Drive (DT4)	172797-001	A
4. Power cord, AC, Gray (US, Canada, Latin America, Taiwan, Korea, Brazil, Thailand)	121258-001	A
4. Power cord, AC, Black (Australia/New Zealand)	100661-001 (no longer available)	A
4. Power cord, AC, Gray (Europe)	100614-002	A
4. Power cord, AC, Gray (Denmark)	130627-002	A
4. Power cord, AC, Gray (Italy)	109197-002	A

4. Power cord, AC, Black (Japan)	139867-005	A
4. Power cord, AC, Gray (Switzerland)	150304-002	A
4. Power cord, AC, Gray (UK, Hong Kong, Singapore)	100613-002	A
5. Cable, 2-device SCSI (3-Connector)	146997-001	A
6. Cable, hard drive (cable-select)	172945-001	A
7. Cable, LED Assembly	172531-001	A
8. Adapter, AUI to BNC Ethernet Transceiver (not shown)	192768-001	A
9. Cable, Token Ring (not shown)	172844-001	A
10. Cable kit, audio Includes: a. Desktop audio cable, (Quantity = 1) b. Minitower audio cable, (Quantity = 1)	171139-001	B

Chapter 3.4 Standard and Optional Boards

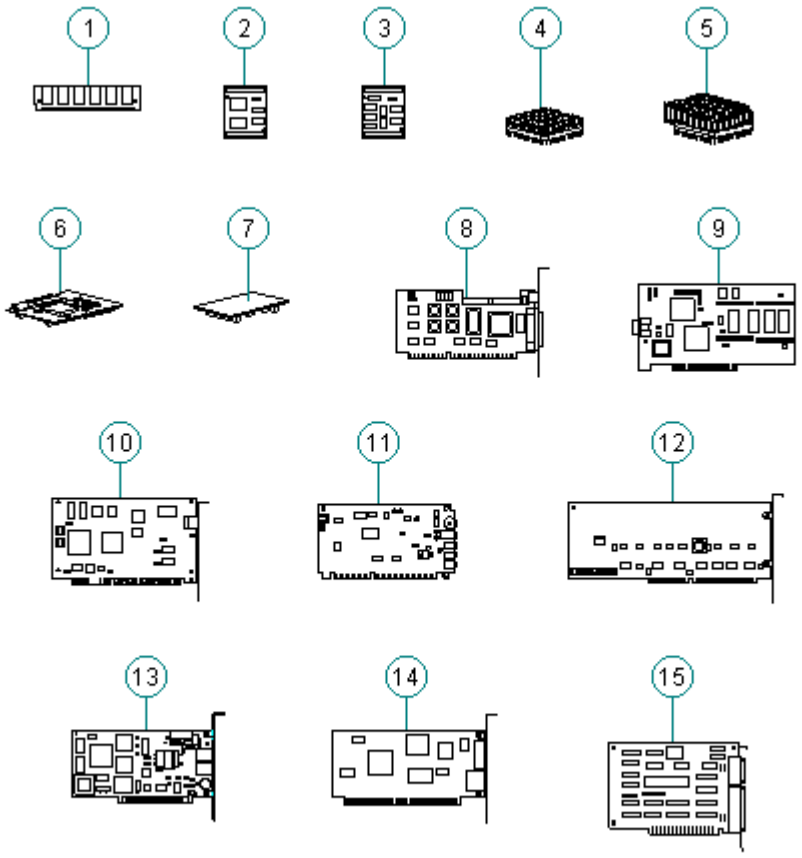

Figure 3-5. Standard and Optional Boards

Table 3-5 Standard and Optional Boards

Description	Spare Part Number	Warranty Tier
1. Memory Module (SIMM, 4 MB/70ns/Nonparity)	172718-001	A
1. Memory Module (SIMM, 8 MB/70ns/Nonparity)	172719-001	A
1. Memory Module (SIMM, 16 MB/70ns/Nonparity)	172938-001	A
1. Memory Module (SIMM, 32 MB/70ns/Nonparity)	172939-001	A
2. Cache Memory (L2/256 KB/12ns)	172894-001	A
3. Cache Memory (L2/128 KB/15ns)	172085-001	A
4. Processor (486DX2/50 MHz)	172937-001	A
4. Processor (486DX2/66 MHz)	194395-001	A
4. Processor (486DX4/100 MHz)	172673-001	A
5. Processor (586/75 MHz)	172671-001	A
5. Processor (586/90 MHz)	172670-001	A
5. Processor (586/100 MHz)	172760-001	A
6. VRAM (2 MB) for QVision 2000+ Graphics Controller	137895-001	A
7. VRAM (1 MB) for QVision 1280/P+ Graphics Controller	172467-001	A
8. DRAM (1 MB) for PCI local bus integrated graphics	171044-001	A
9. Controller, 6260 SCSI-2	133880-001	A
10. Controller, QVision 2000+ Graphics	137897-001	A
11. IBM-Compatible Auto 16/4 Token Ring ISA Controller (with cable and option slot bracket)	172194-001	A
12. IBM-Compatible Auto 16/4 Token Ring ISA Controller (w/o cable and option slot bracket)	no longer available	A
13. Enhanced Business Audio Board	172078-001	A
12. Controller, IDE disk drive	171745-001	A
14. Modem, SpeedPaq 144/I Internal Fax/Modem (US)	147453-001	D
15. Controller, Ethernet ISA (includes expansion slot bracket)	147220-001	A

16. Serial/Parallel Interface Board	106886-002	A
17. Controller, QVision 1280/I Graphics w/2 MB VRAM (not shown)	139182-001	A
18. Controller, QVision 1280/P+ Graphics w/1 MB VRAM (not shown)	137898-001	A

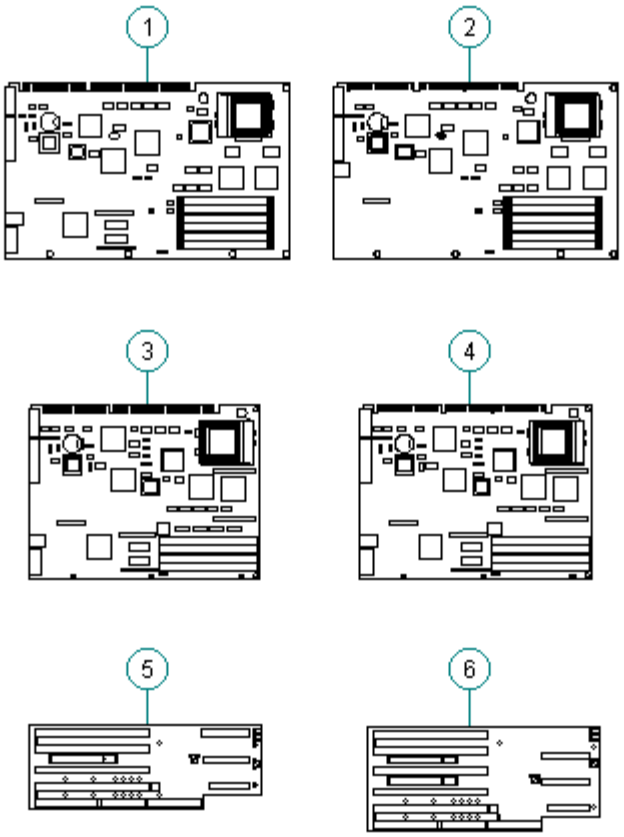

Figure 3-6. System and Backplane Boards

Table 3-6. System and Backplane Boards

Description	Spare Part Number	Warranty Tier
1. System Board (586-based, PCI Local Bus Integrated Graphics, for DT-3 and DT-4) *	172019-001	A
2. System Board (586-based, for use with QVision 2000+ Graphics Controller, for DT-3 and DT-4) *	172024-001	A
3. System Board (486-based, PCI Local Bus Integrated Graphics, 8 MB RAM down, for DT-3 and DT-4)	172170-001	A
4. System Board (486-based, PCI Local Bus		

Integrated Graphics, No RAM down, for DT-3 and DT-4) *	172174-001	A
5. Backplane Board, DT3	172622-001	B
6. Backplane Board, DT4	172623-001	B

* Ships without microprocessor and SIMMs

NOTE: The spare part number is not printed on the system board. Use the configuration code from the system serial number and Tables 3-7 and 3-8 to determine the correct spare part number.

The configuration code for the Compaq ProLinea Personal Computer is located in the fifth, sixth, seventh, and eighth digits of the system serial number, for example:

XXXXHLH1XXXX

where HLH1 is the configuration code.

Use the configuration code and Table 3-7 or Table 3-8 to find the correct spare part number for a replacement system board.

Table 3-7. DT3 Configuration Codes

Configuration Code	PCA Number	System Board Spare Part No.
GKX2	3910-003	172170-001
GKX3	3910-003	172170-001
HKX1	3910-003	172170-001
HKX2	3910-003	172170-001
HKX3	3910-003	172170-001
GKY2	3910-001	172170-001
GKY3	3922-001	172174-001
HKY1	3910-001	172170-001
HKY2	3910-001	172170-001
HKY3	3922-001	172174-001
GKZ2	3910-002	172170-001
GKZ3	3910-002	172170-001
HKZ1	3910-002	172170-001
HKZ2	3910-002	172170-001
HKZ3	3910-002	172170-001

GMZ2	3816-002	172019-001
GMZ3	3816-002	172019-001
HMZ1	3816-002	172019-001
HMZ2	3816-002	172019-001
HMZ3	3816-002	172019-001

Table 3-7. DT4 Configuration Codes

Configuration Code	PCA Number	System Board Spare Part No.
GLA2	3910-001	172170-001
HLA1	3910-001	172170-001
HLA2	3910-001	172170-001
GLB2	3910-002	172170-001
GLB3	3910-002	172170-001
GLB4	3910-002	172170-001
HLB1	3910-002	172170-001
HLB2	3910-002	172170-001
HLB3	3910-002	172170-001
HLB4	3910-002	172174-001
GLC2	3910-003	172170-001
GLC2	3910-003	172170-001
HLC1	3910-003	172170-001
HLC2	3910-003	172170-001
HLC3	3910-003	172170-001
GLD2	3816-001	172019-001
GLD3	3816-001	172019-001
GLD4	3819-001	172024-001
GLD5	3816-001	172019-001
HLD1	3816-001	172019-001
HLD2	3816-001	172019-001
HLD3	3816-001	172019-001

HLD4	3819-001	172024-001
HLD5	3816-001	172019-001
GNA2	3816-002	172019-001
GNA3	3816-002	172019-001
GNA4	3819-002	172024-001
GNA5	3816-002	172019-001
HNA1	3816-002	172019-001
HNA2	3816-002	172019-001
HNA3	3816-002	172019-001
HNA4	3819-002	172024-001
HNA5	3816-002	172019-001

Chapter 3.5 Keyboards

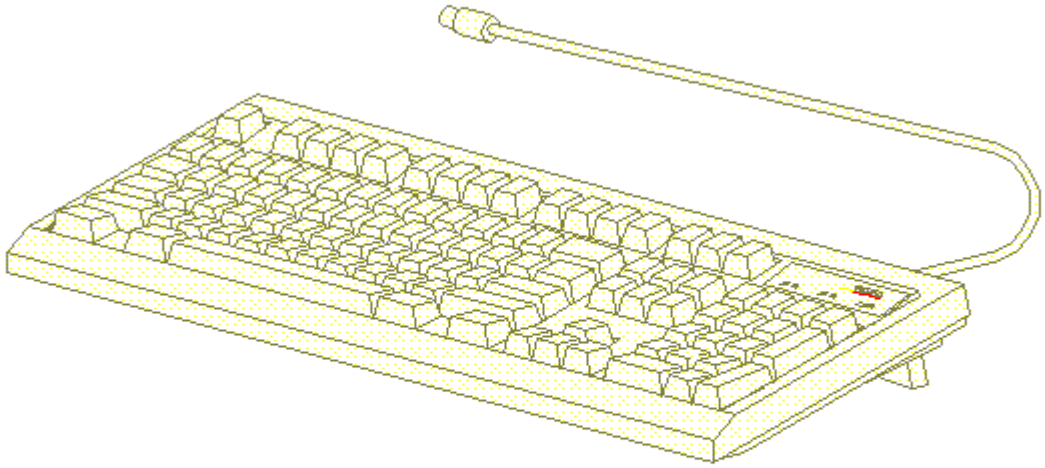

Figure 3-7. Compaq Spacesaver Keyboard

Table 3-9. Keyboards

Description	Spare Part Number	Warranty Tier
1. Keyboard, Spacesaver (Albanian *)	160648-226	A
2. Keyboard, Spacesaver (Arabic *)	160648-217	A
3. Keyboard, Spacesaver (Belgian *)	160648-218	A
4. Keyboard, Spacesaver (Brazil *)	160648-235	A
5. Keyboard, Spacesaver (BHCSY *)	160648-220	A
6. Keyboard, Spacesaver (Bulgarian *)	160648-225	A
7. Keyboard, Spacesaver (Canada *)	160648-231	A
8. Keyboard, Spacesaver (Beijing *)	160648-232	A
9. Keyboard, Spacesaver (Czech *)	160648-229	A
10. Keyboard, Spacesaver (Danish *)	160648-208	A
11. Keyboard, Spacesaver (French *)	160648-205	A
12. Keyboard, Spacesaver (French Canadian *)	160648-212	A
13. Keyboard, Spacesaver (German *)	160648-204	A
14. Keyboard, Spacesaver (Greek *)	160648-215	A
15. Keyboard, Spacesaver (Hungarian *)	160648-221	A
16. Keyboard, Spacesaver (Italian *)	160648-206	A
17. Keyboard, Spacesaver (Japan *)	160648-219	A
18. Keyboard, Spacesaver (Korean *)	160648-233	A
19. Keyboard, Spacesaver (Latin American *)	160648-216	A
20. Keyboard, Spacesaver (Norwegian *)	160648-209	A
21. Keyboard, Spacesaver (Poland *)	160648-222	A
22. Keyboard, Spacesaver (Portuguese *)	160648-213	A
23. Keyboard, Spacesaver (Romania *)	160648-227	A
24. Keyboard, Spacesaver (Russian *)	160648-224	A
25. Keyboard, Spacesaver (Slovakian *)	160648-223	A
26. Keyboard, Spacesaver (Spanish *)	160648-207	A

27.	Keyboard, Spacesaver	(Swedish/Finnish *)	160648-210 A
28.	Keyboard, Spacesaver	(Swiss *)	160648-211 A
29.	Keyboard, Spacesaver	(Taiwanese *)	160648-234 A
30.	Keyboard, Spacesaver	(Turkish *)	160648-214 A
31.	Keyboard, Spacesaver,	(UK English *)	160648-203 A
32.	Keyboard, Spacesaver	(US)	160648-201 A
33.	Keyboard, Spacesaver	(Yugoslavia *)	160648-228 A

* Not shown in Figure 3-7.

Chapter 3.6 Monitors

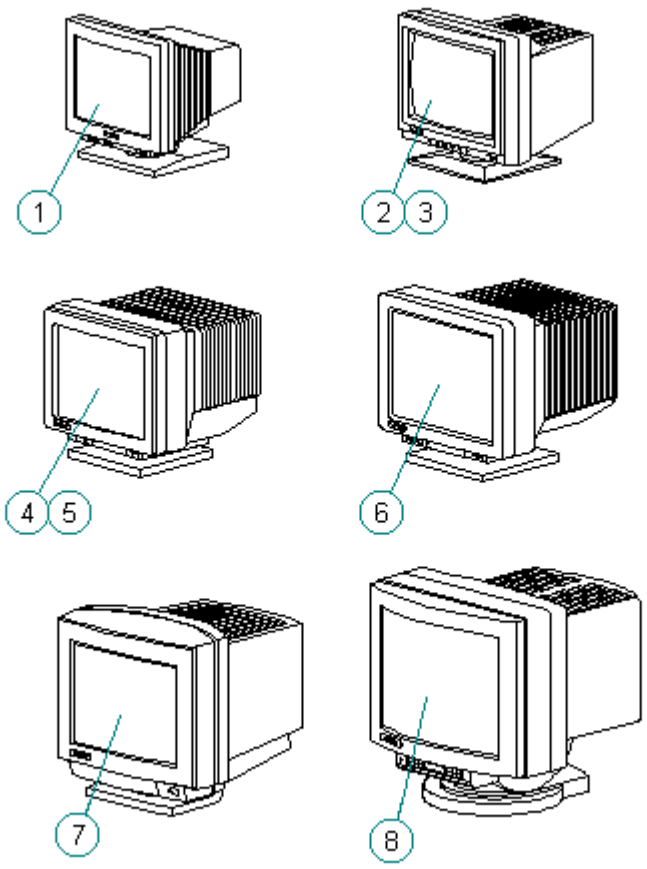

Figure 3-8. Monitors

Table 3-10. Monitors Spare Parts

Description	Spare Part Number	Warranty Tier
1. VGA 14" Monochrome Monitor (NA)	194962-001	A
1. VGA 14" Monochrome Monitor (NH)	194962-002	A
1. VGA 14" Monochrome Monitor (SH)	194962-003	A
2. VGA 14" Color Monitor, Low Emissions (NA)	143654-501	A
2. VGA 14" Color Monitor, Low Emissions (NH, 470AP)	143654-502	A
2. VGA 14" Color Monitor, Low Emissions (SH, 470AP)	143654-504	A
2. VGA 14" Color Monitor, Low Emissions (NH, 470P)	143654-505	A
2. VGA 14" Color Monitor, Low Emissions (SH, 470P)	143654-506	A
3. SVGA 14" Color Monitor, Low Emissions/Energy Saver (NA, 471P)	143804-501	A
3. SVGA 14" Color Monitor, Low Emissions/Energy Saver (NH, 471P)	143805-501	A
3. SVGA 14" Color Monitor, Low Emissions/Energy Saver (SH, 471P)	143806-501	A
3. SVGA 14" Color Monitor, Low Emissions/Energy Saver (NH, 472P)	143807-501	A
3. SVGA 14" Color Monitor, Low Emissions/Energy Saver (NA, 472P)	143807-502	A
3. SVGA 14" Color Monitor, Low Emissions/Energy Saver (SH, 472P)	143808-501	A
4. 1024 14" Color Monitor (NH, 460P)	141568-502	A
4. 1024 14" Color Monitor (SH, 460P)	141568-504	A
4. 1024 14" Color Monitor (NH, 461P)	141568-505	A
4. 1024 14" Color Monitor (SH, 461P)	141568-506	A
4. 1024 14" Color Monitor, AssetControl (NH, 462)	141568-602	A
4. 1024 14" Color Monitor, AssetControl (SH, 462)	141568-603	A

Description	Spare Part Number	Warranty Tier
4. 1024 14" Color Monitor, AssetControl (GSA, 462)	141568-604	A

Description	Spare Part Number	Warranty Tier
5. 151 FS Color Monitor, Low Emissions (NA, 441P)	147265-501	A
5. 151 FS Color Monitor, Low Emissions (NH, 443P)	147265-502	A
5. 151 FS Color Monitor, Low Emissions (NA, 443P)	147265-503	A
5. 151 FS Color Monitor, Low Emissions (SH, 443P)	147265-504	A
5. 151 FS Color Monitor, Low Emissions (NH, 441P)	147265-505	A
5. 151 FS Color Monitor, Low Emissions (SH, 441P)	147265-506	A
5. 151 FS Color Monitor, Low Emissions/AssetControl (NH, 444)	147265-601	A
5. 151 FS Color Monitor, Low Emissions/AssetControl (TCO, NH, 444)	147265-602	A
5. 151 FS Color Monitor, Low Emissions/AssetControl (SH, 444)	147265-603	A
5. 151 FS Color Monitor, Low Emissions/AssetControl (GSA, 444)	147265-604	A
6. 171 FS Color Monitor, Low Emissions (NA, 490)	190916-001	A
6. 171 FS Color Monitor, Low Emissions (NH, 490)	190916-002	A
6. 171 FS Color Monitor, Low Emissions (SH, 490)	190916-003	A
6. 171 FS Color Monitor, Low Emissions/AssetControl (NA, 491)	190916-601	A
6. 171 FS Color Monitor, Low Emissions/AssetControl (TCO, NH, 491)	190916-602	A
6. 171 FS Color Monitor, Low Emissions/AssetControl (SH, 491)	190916-603	A
6. 171 FS Color Monitor, Low Emissions/AssetControl (GSA, 491)	190916-604	A
7. QVision 172 Color Monitor, AssetControl (NA)	143547-602	A
7. QVision 172 Color Monitor, AssetControl (TCO NH)	143547-604	A
7. QVision 172 Color Monitor, AssetControl (SH)	143547-603	A
8. QVision 200 Color Monitor, AssetControl (NA)	143372-601	A

8. QVision 200 Color Monitor, AssetControl (NH)	143372-602	A
8. QVision 200 Color Monitor, AssetControl (SH)	143372-604	A

NOTE: AssetControl feature is not available on the Compaq ProLinea Personal Computer.

Chapter 3.7 Miscellaneous Hardware Kit

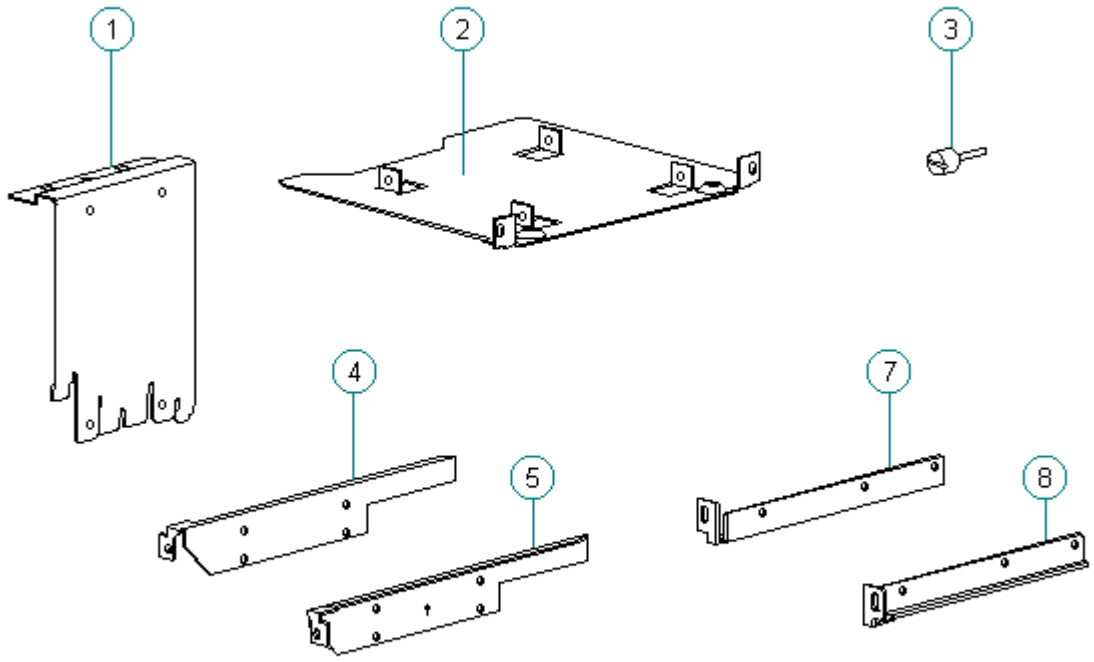

Figure 3-9. Miscellaneous Hardware Kit

Table 3-11. Miscellaneous Hardware Kit

Description	Spare Part Number	Warranty Tier
1. Miscellaneous Hardware Kit	172796-001	D
2. 3.5" Diskette Drive Bracket with adapter		
3. Thumbscrew (Quantity = 3)		

4. CD-ROM left drive rail

5. CD-ROM right drive rail

6. System board bracket (Minitower only/not shown)

7. 3.5" Diskette/Hard Drive left rail

8. 3.5" Diskette/Hard Drive right rail

9. Main panel clip for Minitower (not shown)

10. Access panel clip for Minitower (not shown)

11. Drive Shield for Minitower (not shown)

==========

Chapter 3.8 Miscellaneous Plastics Kit

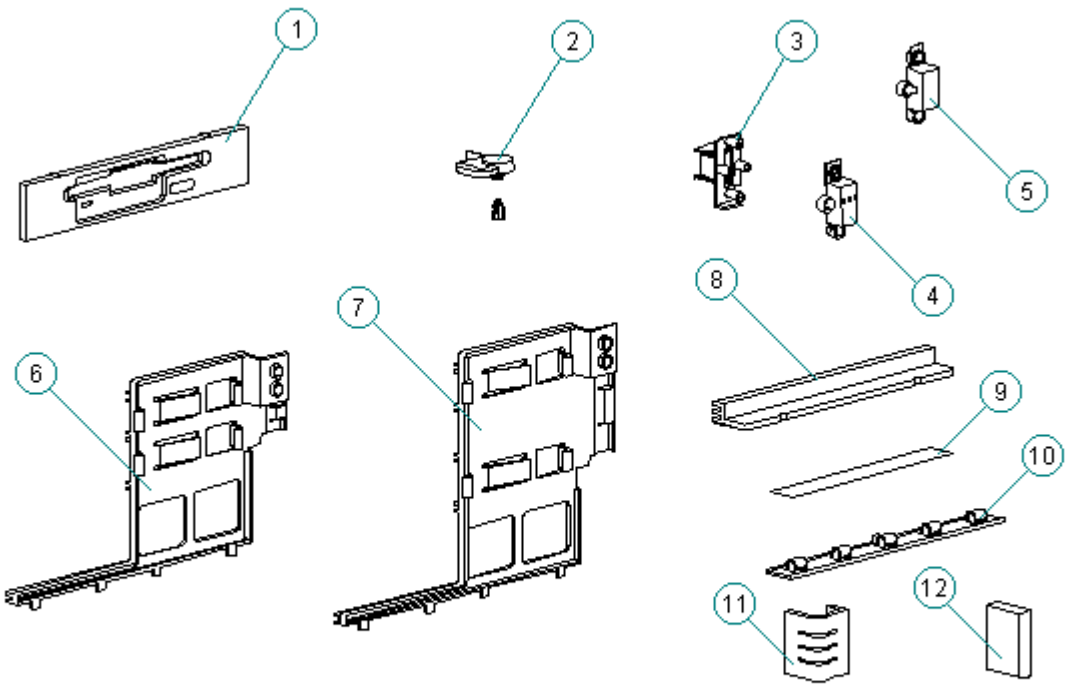

Figure 3-10. Miscellaneous Plastics Kit

Table 3-12. Miscellaneous Plastics Kit

Description	Spare Part Number	Warranty Tier
1. 3.5" Diskette Drive Bezel	172795-001	D
2. Drive Cage Lock		
3. Switch Holder		
4. Switch Cap (DT3 & DT4)		
5. Switch cap (V3 & V4)		
6. Option Card Guide (DT3)		
7. Option Card Guide (DT4)		
8. System Board Guide (DT3 & DT4)		
9. Insulator Strip		
10. Cable clip		
11. Front Corner Bezel (V3 & V4/Quantity = 2)		
12. Rear Corner Bezel (Quantity = 2)		
13. Power switch		

Chapter 3.9 Miscellaneous Parts

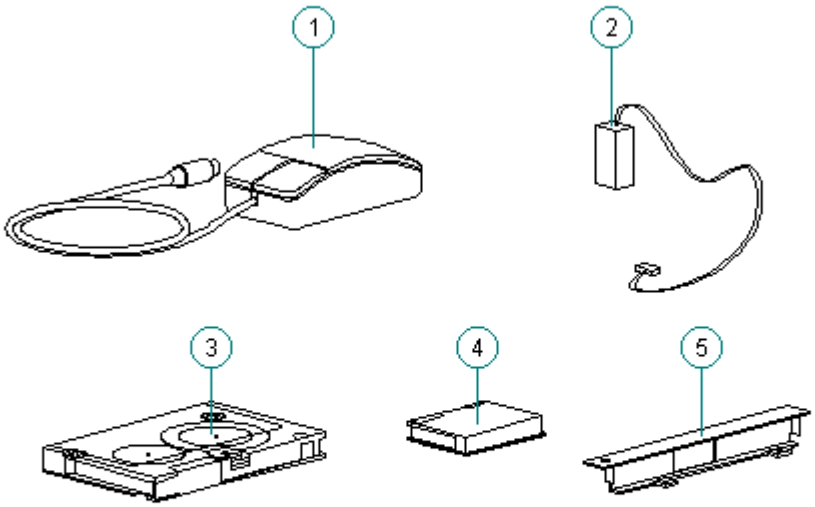

Figure 3-11. Miscellaneous Parts

Table 3-13. Miscellaneous Spare Parts

Description	Spare Part Number	Warranty Tier
1. Compaq Mouse	141189-201	D
2. Battery, Real-Time Clock (External)	160274-001	A
3. Tape Cartridge, 250 MB	115298-001	D
4. Tape Cartridge, 525 MB	119504-001	D
5. Option slot cover	173007-001	D
6. DAT Cartridge, 2.0 GB (Not shown)	131148-001	D
7. DDS2 Cartridge, 5.0 GB (Not shown)	199496-001	D
8. Tape Cartridge, 340/680 MB (Not shown)	184299-001	D
9. Screw Kit (6-32 x 5/16", slotted Torx)	141385-001	D

Chapter 3.10 Shipping Boxes

Description	Spare Part Number	Warranty Tier
DT3 Shipping Box, (Quantity = 5)	172141-001	D
DT4 Shipping Box, (Quantity = 5)	172142-001	D
Packing cushion (DT4)	172682-001	D
Packing cushion (DT3)	172683-001	D
Box and Packing, QV200 Color Monitor	143393-001	D
Shipping Box, QV200 Color Monitor (Quantity = 5)	143394-001	D
Box and Packing, QV172 Color Monitor	149408-001	D
Shipping Box, QV172 Color Monitor (Quantity = 5)	149409-001	D
Box and Packing, 151FS Monitor	189573-001	D
Shipping Box, 151FS Monitor (Quantity = 5)	189576-001	D
Box and Packing, 171FS Monitor	189574-001	D
Shipping Box, 171FS Monitor (Quantity = 5)	189577-001	D
Box and Packing, 1024 Monitor	189575-001	D
Shipping Box, 1024 Monitor (Quantity = 5)	189578-001	D

Chapter 3.11 Documentation

Description	Spare Part Number	Warranty Tier
Kit, ProLinea Quick Setup Guide & Beyond Setup Guide (Arabic)	172636-171	D
Kit, ProLinea Quick Setup Guide & Beyond Setup Guide (Brazilian Portuguese)	172636-201	D
Kit, ProLinea Quick Setup Guide & Beyond Setup Guide (Chinese)	172636-AA1	D
Kit, ProLinea Quick Setup Guide & Beyond Setup Guide (Czech)	172636-221	D
Kit, ProLinea Quick Setup Guide & Beyond Setup Guide (Danish)	172636-081	D
Kit, ProLinea Quick Setup Guide & Beyond Setup Guide (English)	172636-001	D
Kit, ProLinea Quick Setup Guide & Beyond Setup		

Description	Spare Part Number	Warranty Tier
Guide (German)	172636-041	D
Kit, ProLinea Quick Setup Guide & Beyond Setup Guide (French)	172636-051	D
Kit, ProLinea Quick Setup Guide & Beyond Setup Guide (Finnish)	172636-351	D
Kit, ProLinea Quick Setup Guide & Beyond Setup Guide (Hungarian)	172636-211	D
Kit, ProLinea Quick Setup Guide & Beyond Setup Guide (Italian)	172636-061	D
Kit, ProLinea Quick Setup Guide & Beyond Setup Guide (Japanese)	172636-191	D
Kit, ProLinea Quick Setup Guide & Beyond Setup Guide (Korean)	172636-AD1	D
Kit, ProLinea Quick Setup Guide & Beyond Setup Guide (Latin American Spanish)	172636-161	D
Kit, ProLinea Quick Setup Gde & Beyond Setup Guide (Netherlands)	172636-331	D
Kit, ProLinea Quick Setup Guide & Beyond Setup Guide (Norwegian)	172636-091	D
Kit, ProLinea Quick Setup Guide & Beyond Setup Guide (Polish)	172636-241	D
Kit, ProLinea Quick Setup Guide & Beyond Setup Guide (Spanish)	172636-071	D
Kit, ProLinea Quick Setup Guide & Beyond Setup Guide (Swedish)	172636-101	D
Kit, ProLinea Quick Setup Guide & Beyond Setup Guide (Thai)	172636-281	D
Kit, ProLinea Quick Setup Guide & Beyond Setup Guide (Taiwanese)	172636-AB1	D
Kit, ProLinea PC Maintenance and Service Guide (Desktop & MT)	172638-001	D
Manual, Windows Sound System Essentials (English, French, and German)	172999-001	D
Manual, Windows Sound System Essentials (English)	173006-001	D
User's Guide, QVision 200 Color Monitor	143395-001	D
User's Guide, QVision 172 Color Monitor	149410-001	D

User's Guide, QVision 171 Color Monitor	189571-001	D
User's Guide, Compaq 1024/151FS	189572-001	D

Chapter 3.12 Software

Description	Spare Part Number	Warranty Tier
Advanced Diagnostics 3.5-inch Diskette Kit (US)	109728-001	D
Advanced Diagnostics 3.5-inch Diskette Kit (German)	109728-041	D
Advanced Diagnostics 3.5-inch Diskette Kit (French)	109728-051	D
Advanced Diagnostics 3.5-inch Diskette Kit (Italian)	109728-061	D
Advanced Diagnostics 3.5-inch Diskette Kit (Spanish)	109728-071	D
Microsoft Windows 3.5-inch Diskette Kit (US/UK)	133413-001	D
Microsoft Windows 3.5-inch Diskette Kit (German)	133413-041	D
Microsoft Windows 3.5-inch Diskette Kit (French)	133413-051	D
Microsoft Windows 3.5-inch Diskette Kit (Italian)	133413-061	D
Microsoft Windows 3.5-inch Diskette Kit (Spanish)	133413-071	D
Microsoft Windows 3.5-inch Diskette Kit (Danish)	133413-081	D
Microsoft Windows 3.5-inch Diskette Kit (Norwegian)	133413-091	D
Microsoft Windows 3.5-inch Diskette Kit (Swedish)	133413-101	D
Microsoft Windows 3.5-inch Diskette Kit (Portuguese)	133413-131	D
Microsoft Windows 3.5-inch Diskette Kit (Dutch)	133413-331	D
Microsoft Windows 3.5-inch Diskette Kit (Finnish)	133413-351	D
AMD NIC/SCSI Software Kit	181102-001	D
IBM Auto 16/4TR Token Ring Driver Kit	194309-001	D
IDE CD-ROM Driver Diskette Kit (English)	181456-001	D
IDE CD-ROM Driver Diskette Kit (German)	181456-041	D
IDE CD-ROM Driver Diskette Kit (French)	181456-051	D

IDE CD-ROM Driver Diskette Kit (Italian)	181456-061	D
IDE CD-ROM Driver Diskette Kit (Spanish)	181456-071	D
IDE CD-ROM Driver Diskette Kit (Danish)	181456-081	D
IDE CD-ROM Driver Diskette Kit (Norwegian)	181456-091	D
IDE CD-ROM Driver Diskette Kit (Swedish)	181456-101	D
IDE CD-ROM Driver Diskette Kit (Portuguese)	181456-131	D
IDE CD-ROM Driver Diskette Kit (Dutch)	181456-331	D
IDE CD-ROM Driver Diskette Kit (Finnish)	181456-351	D
Mouse Driver Kit (US/UK)	133421-001	D
Mouse Driver Kit (German)	133421-041	D
Mouse Driver Kit (French)	133421-051	D
Mouse Driver Kit (Italian)	133421-061	D
Mouse Driver Kit (Spanish)	133421-071	D

Description	Spare Part Number	Warranty Tier
SCO Unix Support Drivers	125873-001	D
OS/2 Support Drivers	196004-001	D
Windows NT Support Drivers	196012-001	D
Flash for System ROM	148218-001	D
QVision 2000+ Windows Display Software	148213-001	D
QVision 1280/P Windows Display Software (for QVision 1280/P+ Controller)	196153-001	D
PCI Local Bus Display Software (CL 5434)	181207-001	D
ESS 688 Audio Drivers	181208-001	D
Microsoft Windows Sound System (English)	195831-001	D
Microsoft Windows Sound System (German)	195831-041	D
Microsoft Windows Sound System (French)	195831-051	D
Diagnostics for Windows (Danish)	181533-081	D
Diagnostics for Windows (Dutch)	181533-331	D
Diagnostics for Windows (English)	181533-001	D
Diagnostics for Windows (German)	181533-041	D

Diagnostics for Windows (French)	181533-051	D
Diagnostics for Windows (Italian)	181533-061	D
Diagnostics for Windows (Spanish)	181533-071	D
Diagnostics for Windows (Norwegian)	181533-091	D
Diagnostics for Windows (Swedish)	181533-101	D
Diagnostics for Windows (Portuguese)	181533-131	D
Diagnostics for Windows (Finnish)	181533-351	D
About Your Computer (Brazilian Portuguese)	181833-201	D
About Your Computer (Chinese)	181833-AA1	D
About Your Computer (Danish)	181833-081	D
About Your Computer (English)	181833-001	D
About Your Computer (Finnish)	181833-351	D
About Your Computer (French)	181833-051	D
About Your Computer (German)	181833-041	D
About Your Computer (Italian)	181833-061	D
About Your Computer (Korean)	181833-AD1	D
About Your Computer (Latin American Spanish)	181833-161	D
About Your Computer (Netherlands)	181833-331	D
About Your Computer (Norwegian)	181833-091	D
About Your Computer (Spanish)	181833-071	D
About Your Computer (Swedish)	181833-101	D
About Your Computer (Taiwan)	181833-AB1	D
About Your Computer (Thailand)	181833-281	D
QuickFind for Windows CD-ROM Kit (US)	137906-0XX **	D
QuickFind for Windows CD-ROM Kit (Outside US)	137907-0XX **	D

* International spares are not available from Houston. North American customers can order backup sets of all software on diskette format from the Compaq Order Center.

** QuickFind is updated monthly. To complete the QuickFind part number, add the suffix from Table 3-17 for the desired month. If you do not specify the 3-digit suffix, the default is the current month in which the order is placed.

Table 3-17. QuickFind Part Number Suffix

Suffix	Month	Suffix	Month
- 001	January	- 007	July
- 002	February	- 008	August
- 003	March	- 009	September
- 004	April	- 010	October
- 005	May	- 011	November
- 006	June	- 012	December

Chapter 4. Removal and Replacement Preliminaries

Chapter 4.0 Introduction

This chapter provides general service information for the computer. Adherence to the procedures and precautions described in this chapter is essential for proper service.

Chapter 4.1 Electrostatic Discharge Information

A sudden discharge of static electricity from your finger or other conductor can destroy static-sensitive devices or microcircuitry. Often the spark is neither felt nor heard, but damage occurs. An electronic device exposed to electrostatic discharge (ESD) may not be affected at all and can work perfectly throughout a normal cycle. Or it may function normally for a while, then degrade in the internal layers, reducing its life expectancy.

Networks built into many integrated circuits provide some protection, but in many cases, the discharge contains enough power to alter device parameters or melt silicon junctions.

Generating Static

Table 4-1 shows how different activities generate static electricity and at different electrostatic voltage levels.

Table 4-1. Typical Electrostatic Voltages

	Relative Humidity		
Event	10%	40%	55%
Walking across carpet	35,000 V	15,000 V	7,500 V
Walking across vinyl floor	12,000 V	5,000 V	3,000 V
Motions of bench worker	6,000 V	800 V	400 V
Removing DIPS from plastic tube	2,000 V	700 V	400 V
Removing DIPS from vinyl tray	11,500 V	4,000 V	2,000 V
Removing DIPS from Styrofoam	14,500 V	5,000 V	3,500 V
Removing bubble pack from PCB	26,500 V	20,000 V	7,000 V
Packing PCBs in foam-lined box	21,000 V	11,000 V	5,000 V

NOTE: 700 volts can degrade a product.

Preventing Electrostatic Damage to Equipment

Many electronic components are sensitive to ESD. Circuitry design and structure determine the degree of sensitivity. The following proper

packaging and ground precautions are necessary to prevent damage.

- To avoid hand contact, transport products in static-safe containers such as tubes, bags, or boxes.
- Protect all electrostatic parts and assemblies with conductive or approved containers or packaging.
- Keep electrostatic sensitive parts in their containers until they arrive at static-free stations.
- Place items on a grounded surface before removing them from their container.
- Always be properly grounded when touching a sensitive component or assembly.
- Place reusable electrostatic-sensitive parts from assemblies in protective packaging or conductive foam.

Use transporters and conveyors made of antistatic belts and roller bushings. Mechanized equipment used for moving materials must be wired to ground and proper materials selected to avoid static charging. When grounding is not possible, use an ionizer to dissipate electric charges.

Preventing Damage to Drives

To prevent static damage to diskette drives and hard drives, use the following precautions:

- Handle drives gently, using static-guarding techniques.
- Store drives in the original shipping containers.
- Avoid dropping drives from any height onto any surface.
- Handle drives on surfaces that have at least one inch of shock-proof foam.
- Always place the drives PCB assembly side down on the foam.

Grounding Methods

The method for grounding must include either a wrist strap or a foot strap at a grounded workstation. When seated, wear a wrist strap connected to a grounded system. When standing, use footstraps and a grounded floor mat.

Table 4-2. Static Shielding Protection Levels

Method	Voltage
Antistatic plastic	1,500 V
Carbon-loaded plastic	7,500 V

Metallized laminate	15,000 V

Grounding Workstations

To prevent static damage at the workstation, use the following precautions:

- Cover the workstation with approved static-dissipative material. Provide a wrist strap connected to the work surface and properly grounded tools and equipment.
- Use static-dissipative mats, foot straps, or air ionizers to give added protection.
- Handle electrostatic sensitive components, parts, and assemblies by the case or PCM laminate. Handle them only at static-free workstations.
- Avoid contact with pins, leads, or circuitry.
- Turn off power and input signals before inserting and removing connectors or test equipment.
- Use fixtures made of static-safe materials when fixtures must directly contact dissipative surfaces.
- Keep work area free of nonconductive materials such as ordinary plastic assembly aids and Styrofoam.
- Use field service tools, such as cutters, screwdrivers, and vacuums, that are conductive.
- Use a portable field service kit with a static-dissipative vinyl pouch that folds out of a work mat. Also, use a wrist strap and a ground cord for the work surface. Ground the cord to the chassis of the equipment undergoing test or repair.

Grounding Equipment

Use the following equipment to prevent static electricity damage to equipment:

Wrist Straps are flexible straps with a minimum of one megohm +/- 10% resistance in the ground cords. To provide proper ground, a strap must be worn snug against the skin. On grounded mats with more banana-plug connectors, connect a wrist strap with alligator clips.

Heelstraps/Toestraps/Bootstraps can be used at standing workstations and are compatible with most types of shoes or boots. On conductive floors or dissipative floor mats, use them on both feet with a minimum of one-megohm resistance between the operator and ground. To be effective, the conductive strips must be worn in contact with the skin.

Recommended Materials and Equipment

Other materials and equipment that are recommended for use in preventing static electricity include:

- Antistatic tape
- Antistatic smocks, aprons, or sleeve protectors
- Conductive bins and other assembly or soldering aids
- Conductive foam
- Conductive table-top workstations with ground cord of one-megohm resistance
- Static-dissipative table or floor mats with hard tie to ground
- Field service kits
- Static awareness labels
- Wrist straps and footwear straps providing one-megohm +/- 10% resistance
- Material handling packages
- Conductive plastic bags
- Conductive plastic tubes
- Conductive tote boxes
- Metal tote boxes
- Opaque shielding bags
- Transparent metallized shielding bags
- Transparent shielding tubes

Chapter 4.2 Service Considerations

Listed below are some of the considerations that you should keep in mind during the disassembly and assembly of the computer.

Tools and Software Requirements

To service the computer, you need the following:

- Torx T-10 and T-15 screwdrivers
- Flat-bladed screwdriver
- Diagnostics software

Screws

The screws used in the computer are not interchangeable. If an incorrect screw is used during the reassembly process, it can damage the unit. Compaq strongly recommends that all screws removed during disassembly be

kept with the part that was removed, then returned to their proper locations.

IMPORTANT: As each subassembly is removed from the computer, it should be placed away from the work area to prevent damage.

Cables and Connectors

Most cables used throughout the unit are flat flexible cables. These cables must be handled with extreme care to avoid damage. Apply only the tension required to seat or unseat the cables during insertion or removal from the connector. Handle cables by the connector whenever possible. In all cases, avoid bending, twisting, or tearing the cables, and ensure that the cables are routed in such a way that they cannot be caught or snagged by parts being removed or replaced.

>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>> CAUTION <<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<

When servicing this computer, ensure that cables are placed in their proper location during the reassembly process. Improper cable placement can damage the computer.

>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>><<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<

Plastic Parts

Plastic parts can be damaged by the use of excessive force during disassembly and reassembly. When handling the plastic parts, use care. Do not use a screwdriver or similar tool to pry apart the plastic components.

Chapter 5. Removal and Replacement Procedures

Chapter 5.0 Introduction

This chapter presents the removal and replacement procedures for the DT3 and DT4 models of the Compaq ProLinea Family of Personal Computers.

Chapter 5.1 System Serial Number

The system serial number should be provided to Compaq when requesting information or ordering spare parts. The system serial number is displayed in two locations: on the right side of the computer near the front, and between the top and middle expansion slots on the rear of the computer.

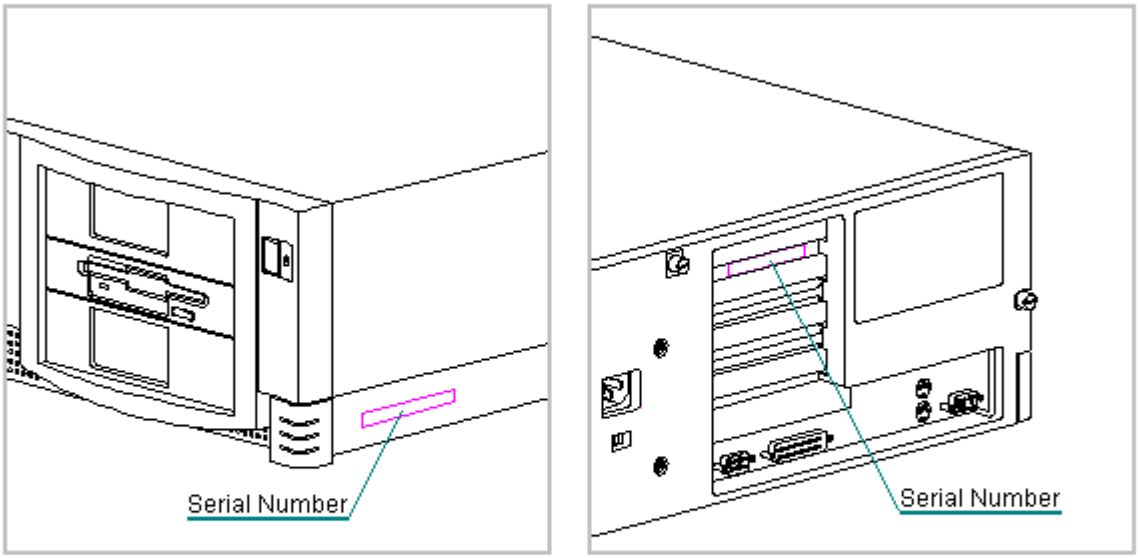

Figure 5-1. System Serial Number Locations

Chapter 5.2 Disassembly Sequence Chart

Use the chart below to determine the section number and disassembly sequence for removing components from the computer.

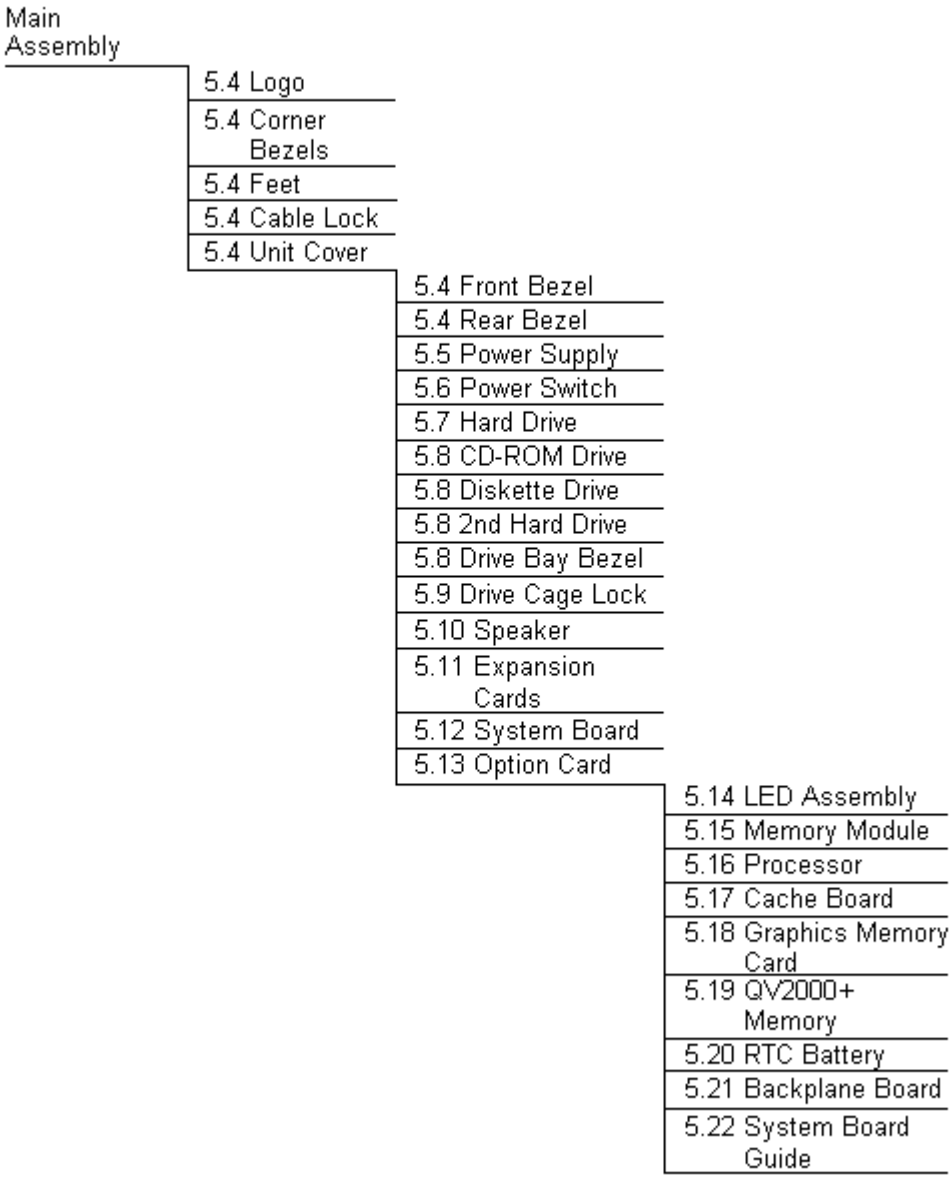

Figure 5-2. Disassembly Sequence Chart

Chapter 5.3 Preparation for Disassembly

To prepare the computer for the removal and replacement procedures, complete the following steps:

1. Remove any diskette, compact disc, or tape from the computer.

2. Turn off the computer and any peripheral devices that are connected to the computer.

>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>> CAUTION <<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<

The computer power switch should be turned off before you disconnect any cables.

>>>

3. Disconnect the power cord from the electrical outlet and then from the computer.

4. Disconnect all peripheral device cables from the computer.

   IMPORTANT: During disassembly, label each cable as you remove it, noting its position and routing.

Chapter 5.4 External Components

This section describes removal and/or replacement procedures that do not require access to the internal components of the computer. This includes:

- Compaq Logo
- Rear Corner Bezels
- Feet
- Cable Lock
- Unit Cover
- Front Bezel
- Rear Bezel

Compaq Logo

The Compaq logo is secured to the front bezel with adhesive. If the original logo came off, complete the following steps to replace the logo without removing the unit cover assembly:

1. Clean the recessed area in the front bezel where the logo is to be installed with a clean, damp cloth.

2. Remove the protective cover from the back of the replacement logo and press it into place as shown in Figure 5-3.

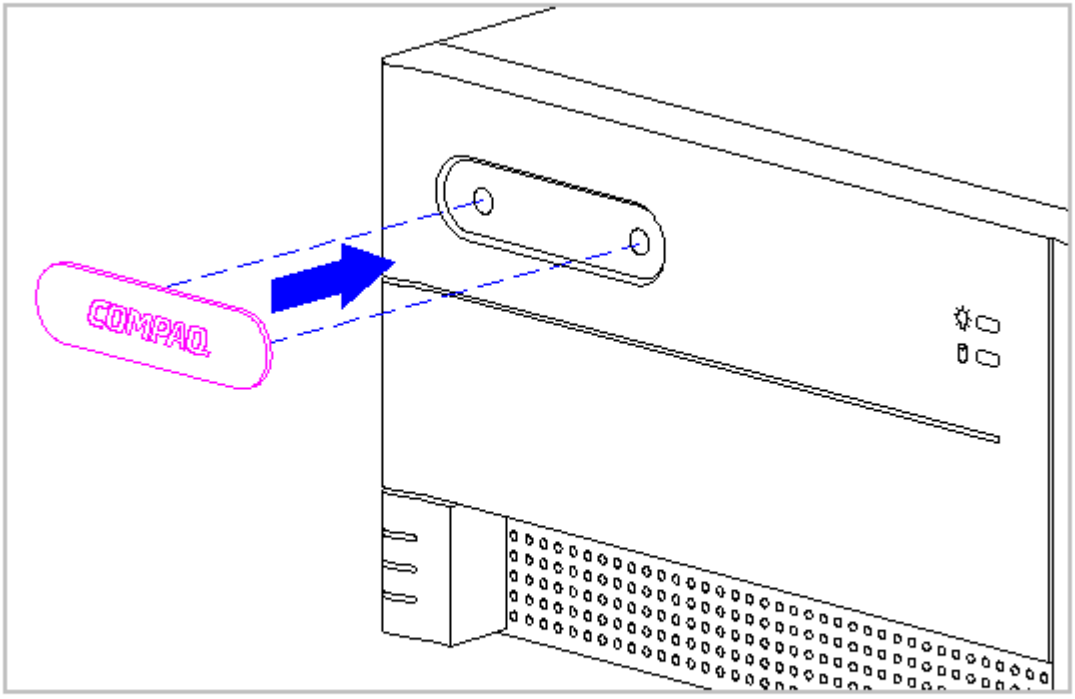

Figure 5-3. Installing the Compaq Logo

If the original logo is still installed and it is necessary to replace it, complete the following steps:

1. Remove the unit cover assembly as described later in this section.
2. From the inside of the front bezel, use a small screwdriver at the two holes shown in Figure 5-3 to apply pressure to the logo and remove it from the front bezel.
3. Clean the recessed area in the front bezel where the logo is to be installed with a clean, damp cloth.
4. Remove the protective cover from the back of the replacement logo and press it into place as shown in Figure 5-3.

Rear Corner Bezels

The rear corner bezels are not designed for removal; it is difficult to remove the bezels without damaging them. The right rear bezel is mounted to the chassis; the left rear corner bezel is mounted to the system board bracket. There is usually no reason to remove these bezels. Replacement bezels can be installed without removing the unit cover assembly. The bezels snap into place as shown in Figure 5-4.

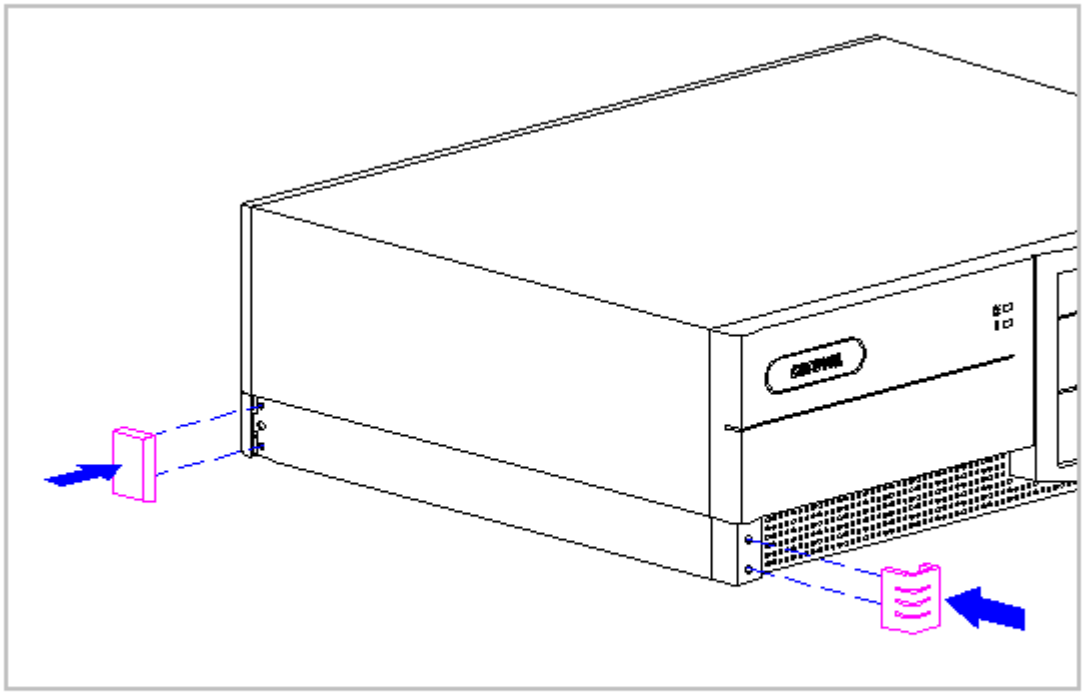

Figure 5-4. Installing the Rear Corner Bezels

Feet

Four rubber feet are mounted to the underside of the base pan. No parts have to be removed to gain access to the feet. The feet have an adhesive surface and are shipped with a protective strip in place. If necessary, use a small flat-bladed screwdriver to remove the old feet. Remove the protective strip, and install the replacement feet (Figure 5-5).

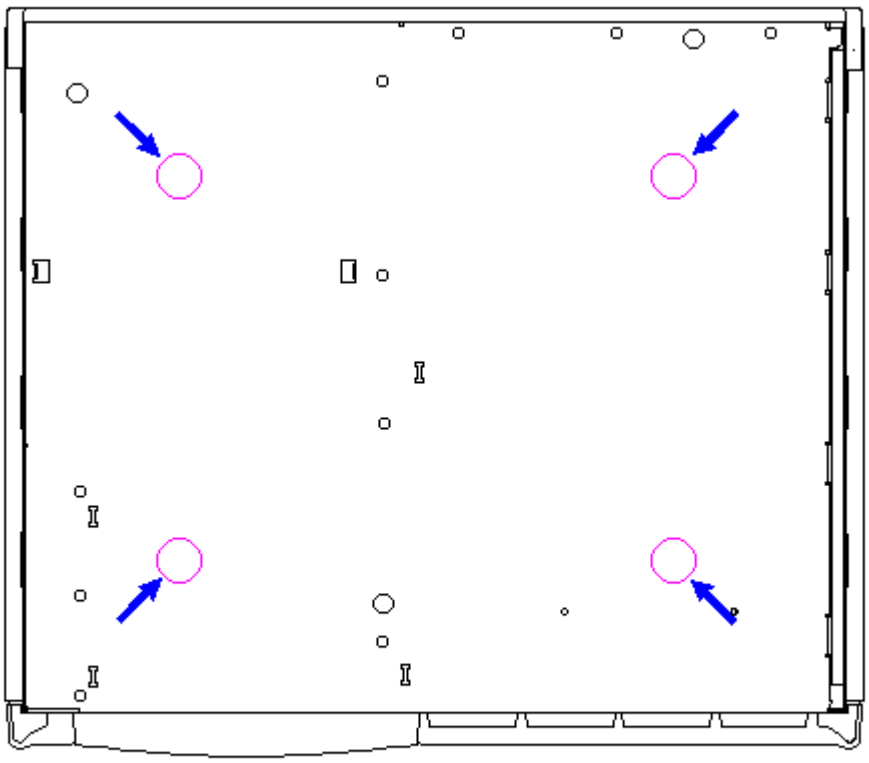

Figure 5-5. Installing the Feet

Cable Lock Installation

The center thumbscrew is the recommended location for installation of the optional cable lock . Remove the thumbscrew and install the cable lock U-bolt as shown in Figure 5-6).

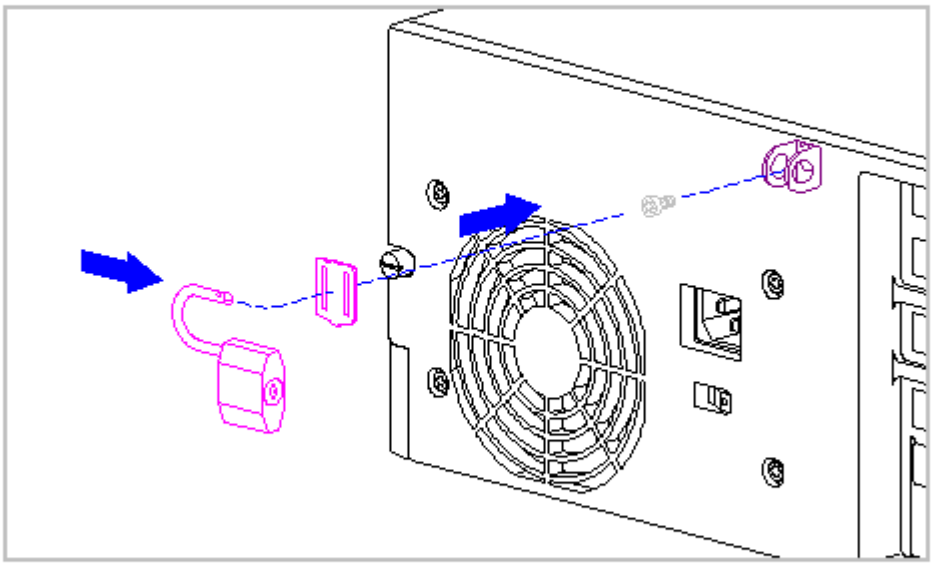

Figure 5-6. Installing the Cable Lock

Unit Cover Removal and Replacement

To remove the unit cover assembly, complete the following steps:

1. Perform preparation procedures described in section 5.3.

2. Loosen the three thumbscrews on the rear of the computer to release the cover (Figure 5-7). You may need a flat-bladed screwdriver to loosen the screws.

   NOTE: If the computer has a cable lock mechanism installed in place of one of the thumbscrews, see Cable Lock Installation presented earlier in this section.

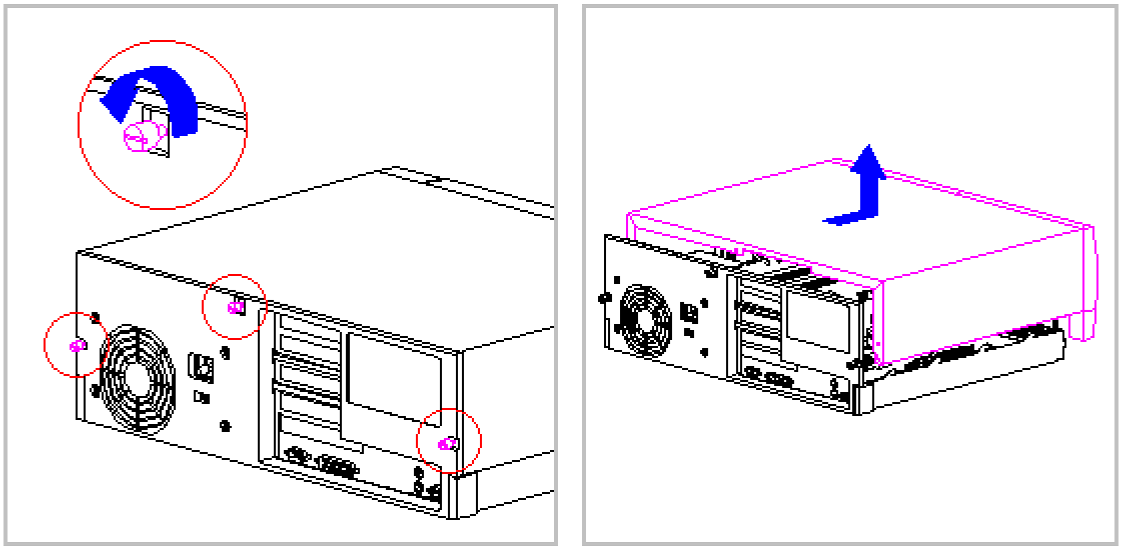

Figure 5-7. Removing the Unit Cover

3. Slide the cover toward the front of the computer and lift it up and away from the chassis (Figure 5-7).

The internal components of the computer are now accessible for service. To replace the unit cover, reverse the above procedure.

>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>> CAUTION <<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<

The system board bracket serves as the left chassis panel and is not rigidly fastened to the chassis. Lifting the computer by using this bracket as a handle results in the system board with bracket attached being removed from the computer. To avoid damage to the computer and possible personal injury, do not attempt to lift the computer by the system board bracket.

>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>><<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<

Front Bezel

The front bezel is mounted to the computer cover with five screws. The mounting screws also serve to hold the grounding clips in place along the top inside edge of the bezel. To replace the front bezel, complete the following steps.

1. Perform the preparation procedures described in Section 5.3.

2. Remove the cover assembly as described earlier in this section.

3. Remove the five screws the secure the front bezel to the cover (Figure 5-8) and separate the bezel from the cover.

   IMPORTANT: Note the locations and orientations of the grounding clips so they can be replaced in their original locations and orientations.

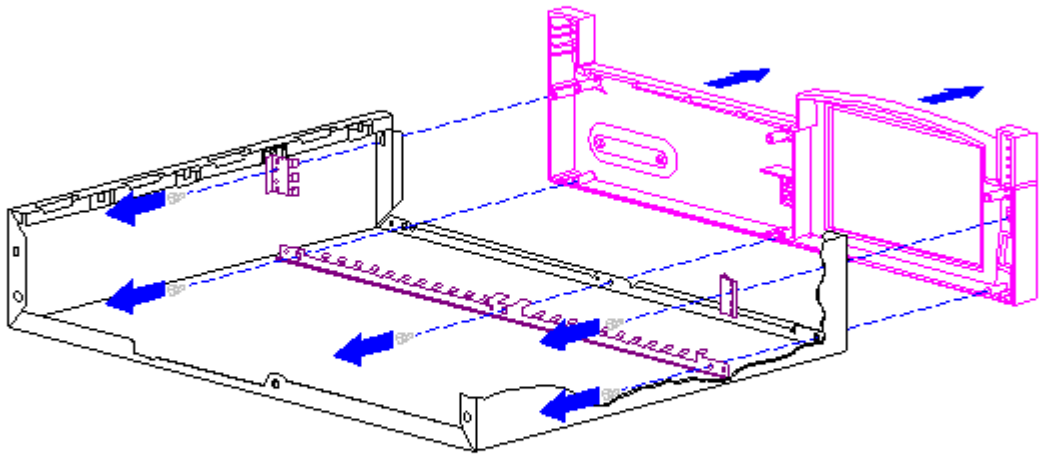

Figure 5-8. Removing the Front Bezel

4. Reverse steps 1 through 3 to install a front bezel, taking care to properly position and orient the grounding clips.

Rear Bezel

The rear bezel is not designed to be removed. It is secured to the rear panel of the base pan with snap-action tabs. It is difficult to remove the bezel without damaging the snap tabs.

To install a rear bezel, complete the following steps:

1. Complete the steps in Section 5.3 to prepare the computer for

disassembly.

2. Completely remove the three thumbscrews that secure the unit cover assembly (Figure 5-7).

3. Remove the power supply mounting screws (Figure 5-10).

   NOTE: If the computer has a cable lock mechanism installed in place of one of the thumbscrews, see Cable Lock Installation presented earlier in this section.

4. If the existing rear bezel is still in place, note the locations of the snap action tabs (Figure 5-9) and carefully pry the bezel away from the rear panel of the base pan.

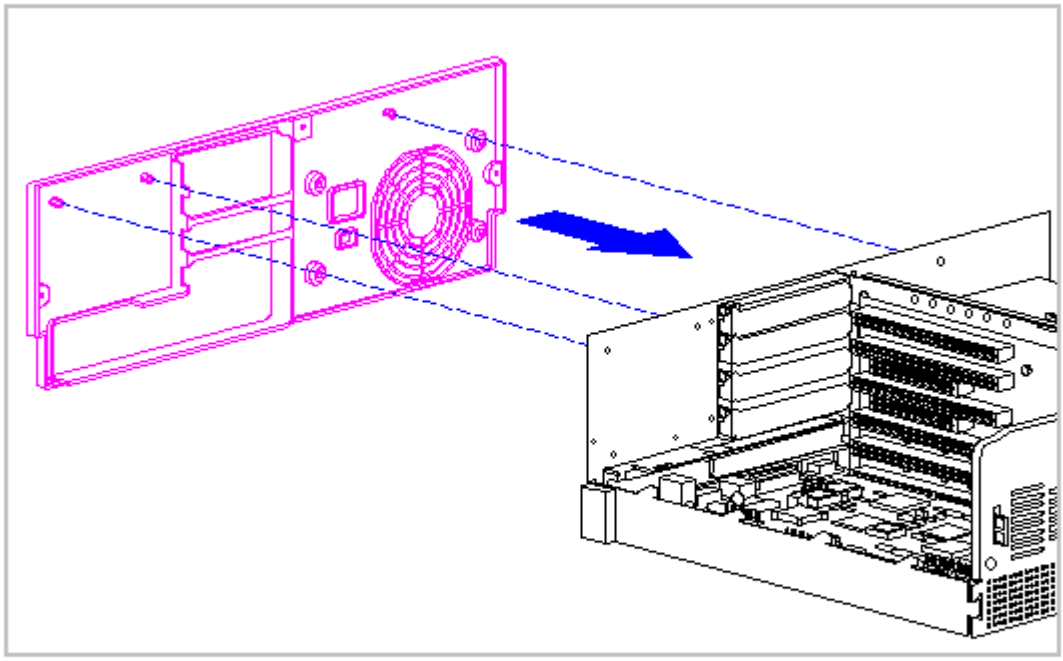

Figure 5-9. Installing the Rear Bezel

5. To install a rear bezel, align the three snap tabs with their holes in the rear chassis panel and snap the bezel into place (Figure 5-9).

6. Install the four power supply mounting screws (Figure 5-10) and replace the unit cover (Figure 5-7). See Section 5.4.4 for installation procedures if a cable lock is present.

Chapter 5.5 Power Supply

The power supply assembly includes the power supply, attached cables with connectors, power switch, power switch holder, and power switch cap. The power supply is located in the right rear corner of the computer assembly.

Removing the Power Supply

To remove the power supply, complete the following steps:

>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>> CAUTION <<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<

Note the orientation and routing of each power supply cable before you disconnect it. Damage to the computer can result if the cables are inserted incorrectly.

>>

1. Complete the steps in Section 5.3 to prepare the computer for disassembly.
2. Complete the steps in Section 5.4 to remove the unit cover assembly to gain access to the power supply.
3. Remove the four screws securing the power supply to the back of the chassis (Figure 5-10).

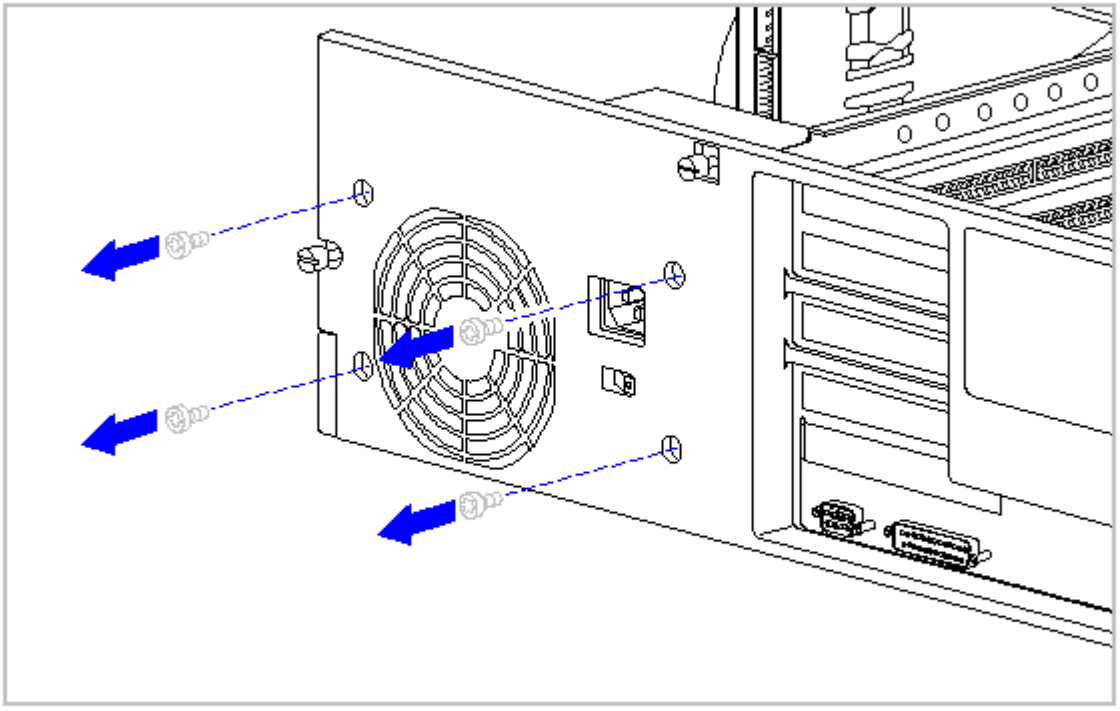

Figure 5-10. Removing the Power Supply Screws

4. Disconnect the power switch (Figure 5-11).

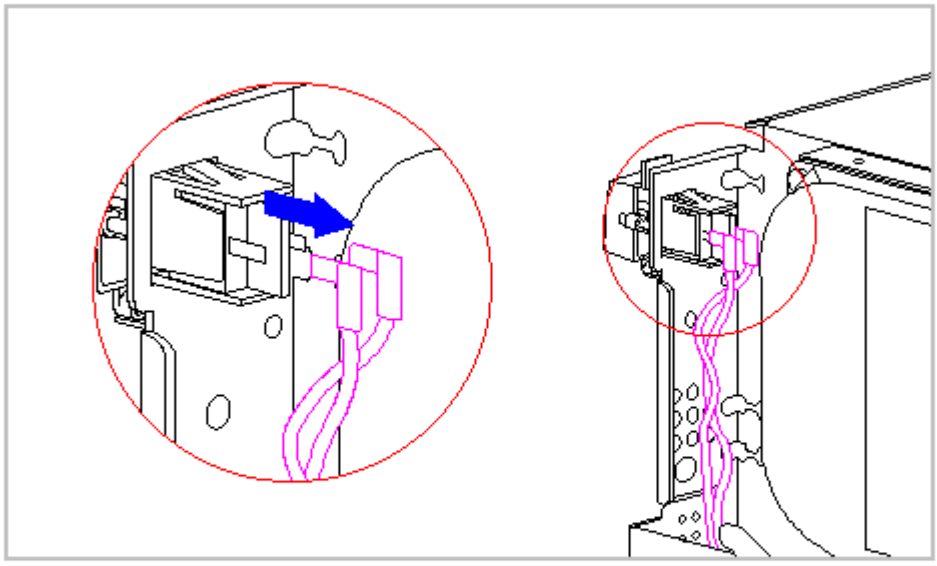

Figure 5-11. Disconnecting the Power Switch

5. Release the drive cage lock (plastic) on the top of the drive cage by rotating it clockwise as shown in the top view in the inset in Figure 5-12.

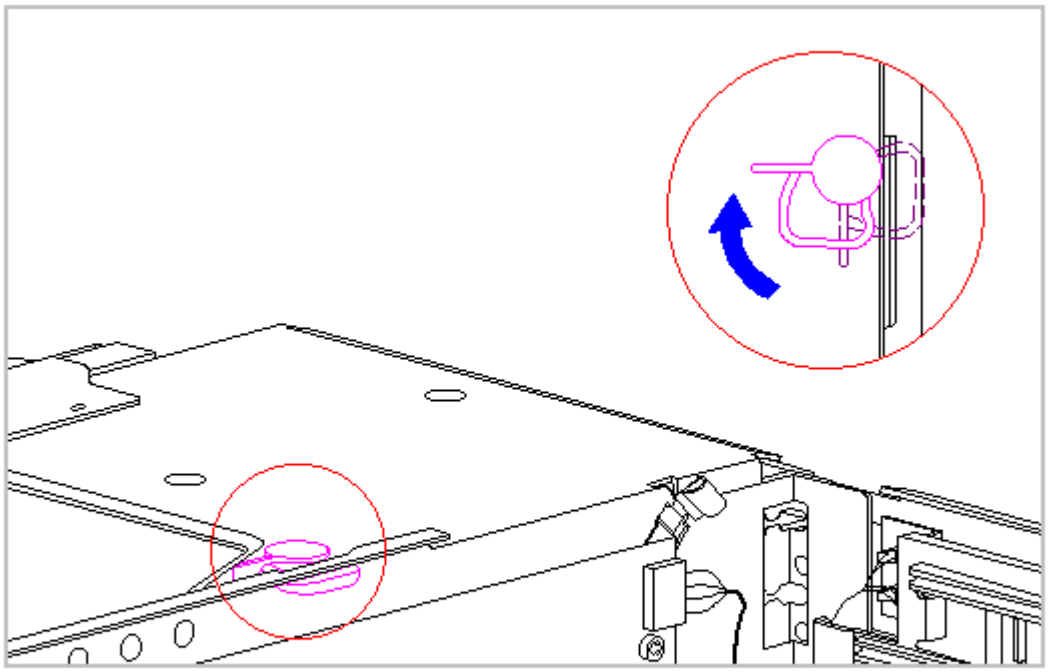

Figure 5-12. Releasing the Drive Cage

6. Elevating the drive cage will provide access to the drive cable connectors and power switch cable clamps on the floor of the chassis. Push the metal drive cage release (Figure 5-13) away from the drive cage and elevate the back end of the drive cage. The drive cage release will engage a cutout in the side of the drive cage when it has been elevated the proper amount (Figure 5-13).

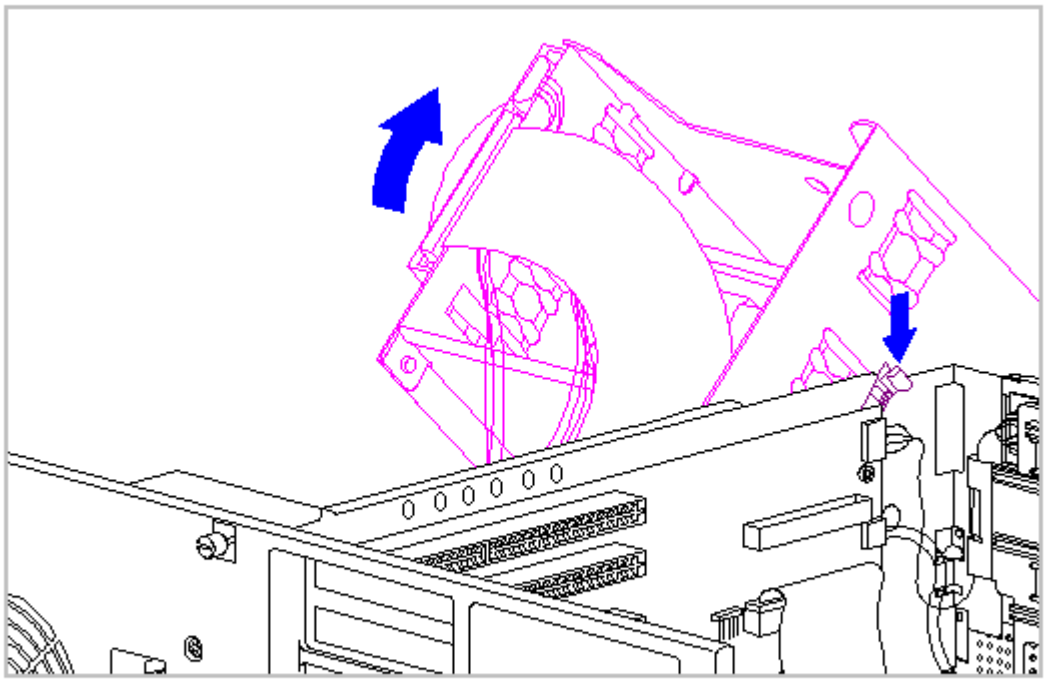

Figure 5-13. Elevating the Drive Cage

7. Release the wires going to the power switch from the clamps on the base pan (Figure 5-14).

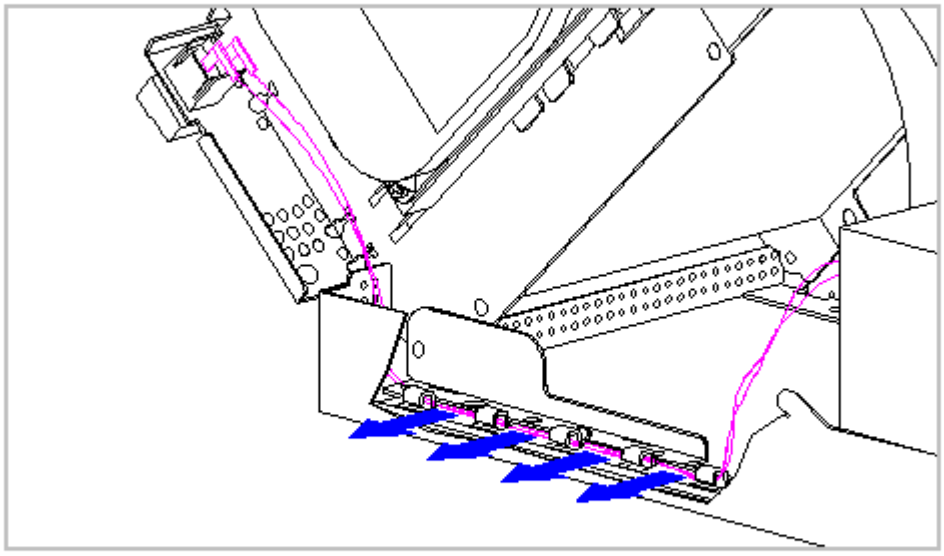

Figure 5-14. Releasing the Power Switch Wires from the Base Pan

8. Disconnect the power supply cables from the hard drive (Figure 5-15), CD-ROM drive (Figure 5-16), and diskette drive (Figure 5-17). Any other mass storage device will disconnect in the same manner.

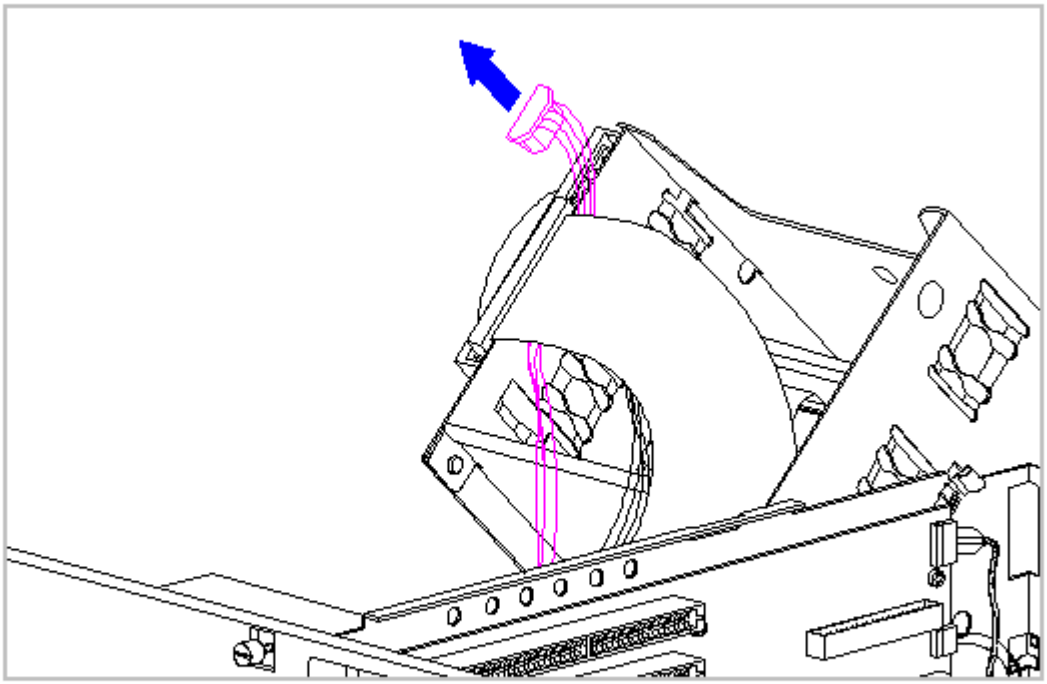

Figure 5-15. Disconnecting the Power Supply Cable from the Hard Drive

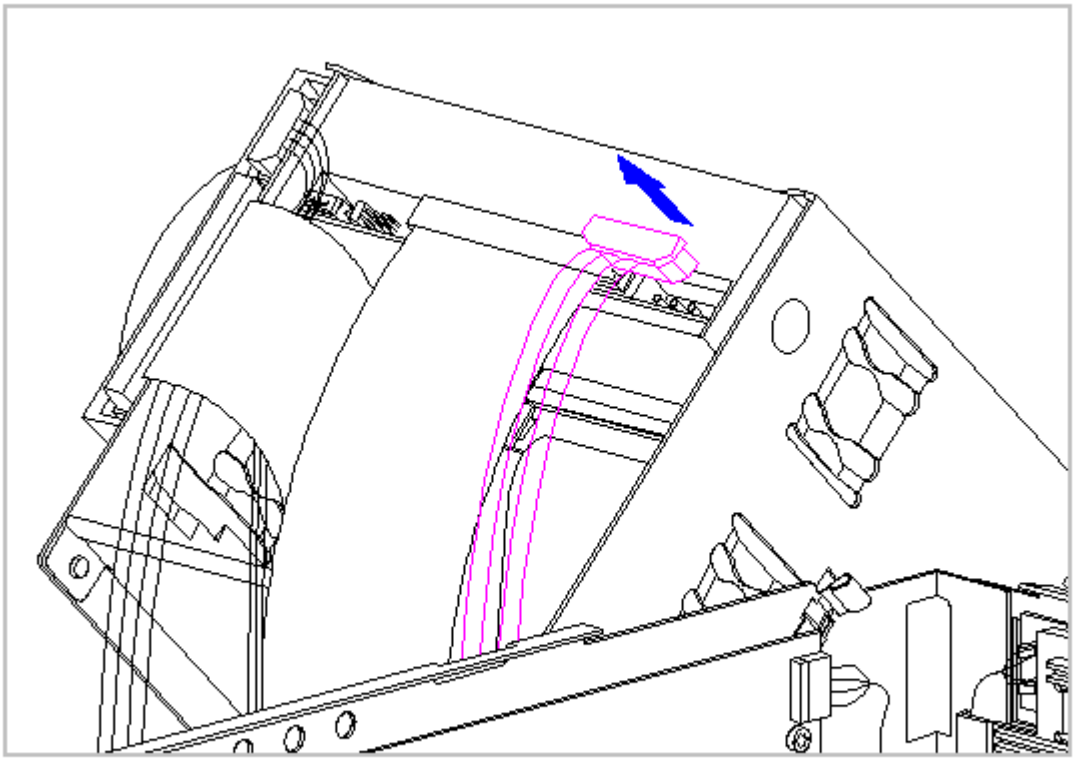

Figure 5-16. Disconnecting the Power Supply Cable from the CD-ROM Drive

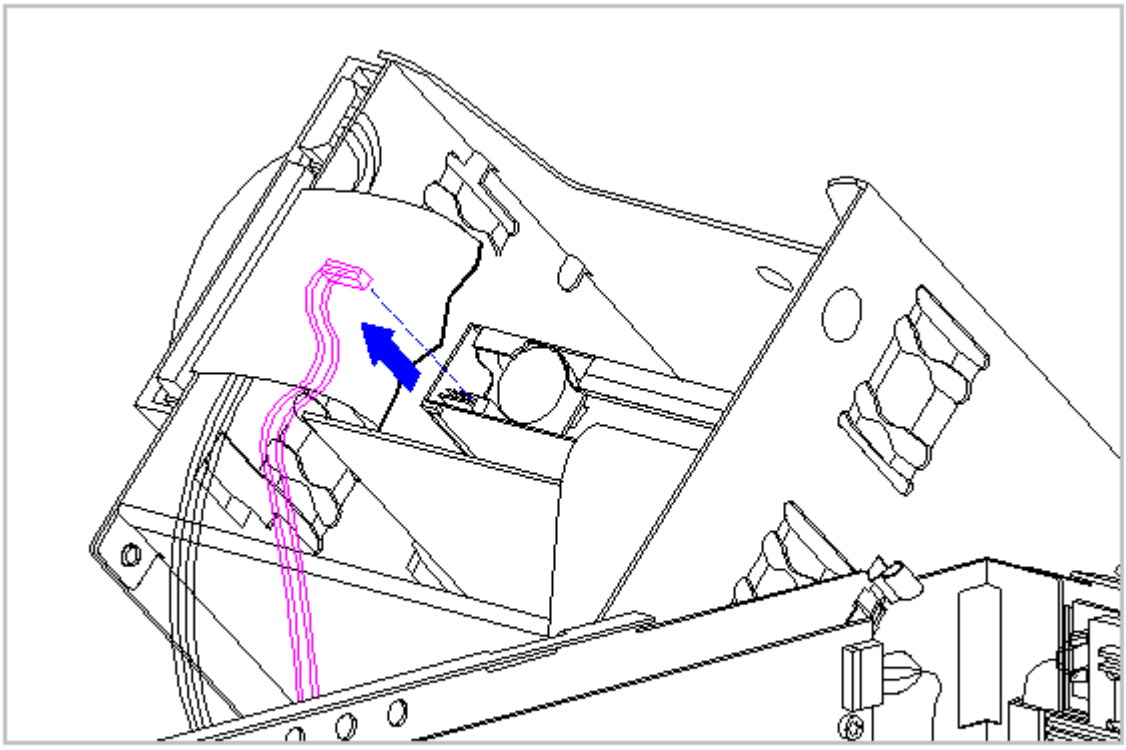

Figure 5-17. Disconnecting the Power Supply Cable from the Diskette Drive

9. Slide the power supply forward to disengage it from the base pan. Then lift it out slightly and disconnect the two power supply cables from the connectors on the backplane board (Figure 5-18). These connectors are not the same size so they can not be replaced incorrectly.

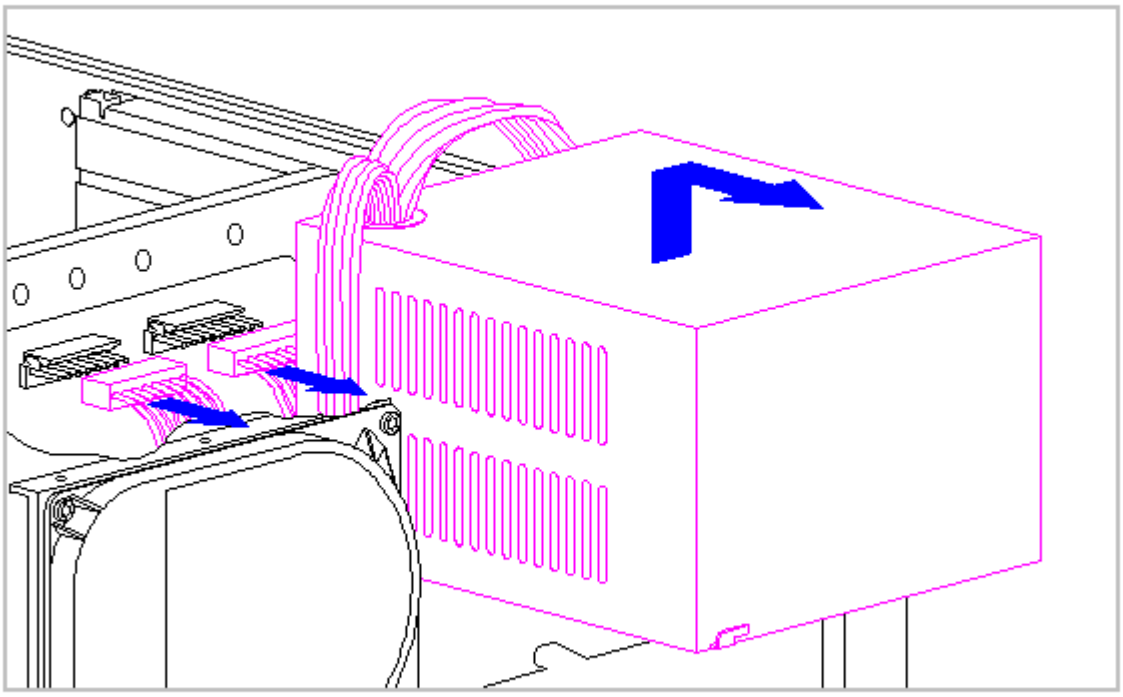

Figure 5-18. Disconnecting the Power Supply from the Backplane

10. The power supply is now disconnected from the computer and can be lifted out of the chassis.

Installing the Power Supply

To install the power supply, complete the following steps:

1. Position the power supply in its approximate mounting position and connect the two power supply cables to the connectors on the backplane (Figure 5-18).

2. Move the power supply into its mounting position, making certain that it engages the tabs in the floor of the base pan, and install the four power supply mounting screws (Figure 5-10).

3. Connect the power supply cables to the mass storage devices (Figures 5-15 through 5-17). These connectors are identical so they cannot be connected improperly.

4. Route the power switch wires forward and engage the wires in the clips provided on the floor of the base pan (Figure 5-14).

>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>> WARNING <<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<

When returning the drive cage from its elevated position to its resting position, lower the cage slowly and keep fingers clear of its travel path.

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>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>> CAUTION <<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<

When returning the drive cage to its resting position, ensure that none of the cables are pinched between the drive cage and the base pan.

>>

5. Connect the power switch (Figure 5-11).

6. Release the metal drive cage release (Figure 5-13) and lower the drive cage to its seated position.

7. Install the unit cover assembly (Figure 5-7).

>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>> CAUTION <<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<

Verify that the power supply voltage select switch is set to the proper voltage before applying power to the system.

>>

Chapter 5.6 Power Switch

To remove and replace the power switch, complete the following steps:

1. Complete the steps in Section 5.3 to prepare the computer for disassembly.

2. Complete the steps in Section 5.4 to remove the unit cover assembly to gain access to the power switch.

3. Remove the switch cap; it easily slides off the front of the switch (Figure 5-19).

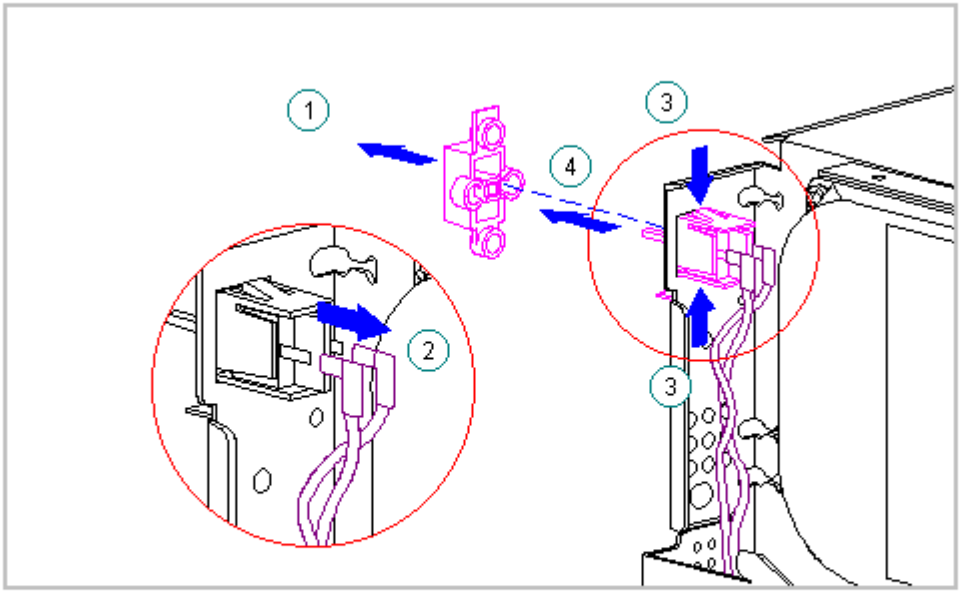

Figure 5-19. Removing the Power Switch

4. Disconnect the power switch as shown in the inset in Figure 5-19. Large hard drives can obstruct the removal of the power switch wires. If it is necessary to move or remove the hard drive, see Section 5.7 for details.

5. Press on the switch holder tabs and slide the switch holder and switch out of the front of the chassis panel.

6. If the switch is to be installed again, remove the switch from the switch holder by spreading the tabs and sliding the switch out of the back of the switch holder. It may be necessary to break the tabs to free the switch.

7. Reverse the above procedure to install a switch.

   IMPORTANT: Spreading the switch holder tabs to release the switch fatigues the plastic and renders it less reliable for retaining the switch. Compaq recommends that the switch holder should be discarded and not used for another switch installation.

Chapter 5.7 Hard Drive

The internal hard drive is mounted on the right side of the accessible

drive bays cage (Figure 5-20). To remove and replace the internal hard drive, complete the following steps:

IMPORTANT: Pay particular attention to the routing and folding of the power and signal cables for the hard drive. If it becomes necessary to replace one of these cables, it is essential that the cable is folded and routed in a similar manner at installation.

1. Complete the steps in Section 5.3 to prepare the computer for disassembly.

2. Complete the steps in Section 5.4 to remove the unit cover to gain access to the hard drive.

3. Disconnect the power and signal cables from the hard drive (Figure 5-20).

   NOTE: The hard drive cables are accessible without elevating the drive cage. However, if you find it necessary to elevate the drive cage to disconnect these cables from the hard drive, see steps 9 and 10 in Section 5.5 to elevate the drive cage.

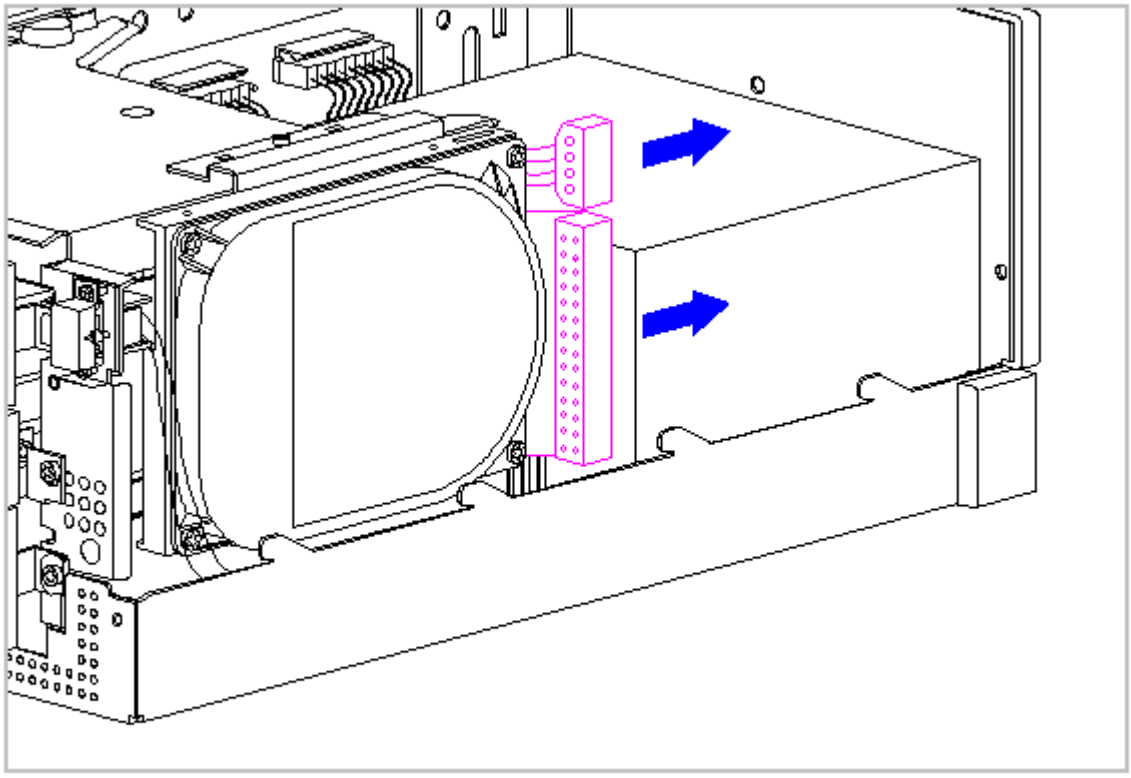

Figure 5-20. Disconnecting the Hard Drive Cables

4. Remove the single screw holding the hard drive bracket to the

accessible bay drive cage and remove the hard drive with bracket attached (Figure 5-21).

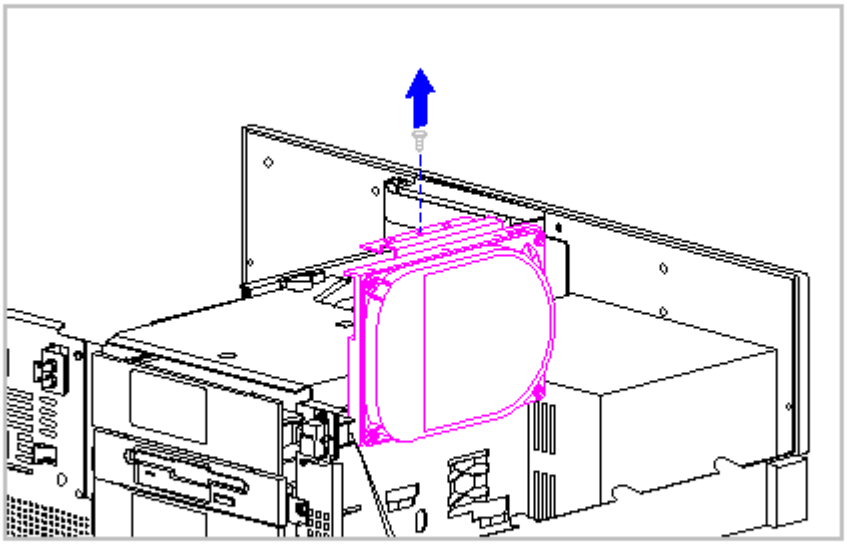

Figure 5-21. Removing the Hard Drive

NOTE: Offset flanges on the hard drive bracket engage cutouts in the side of the drive cage. Be sure to engage these flanges when installing the hard drive.

5. Remove the four screws securing the bracket to the hard drive and remove the bracket (Figure 5-22). Retain the bracket and screws for use on the replacement hard drive.

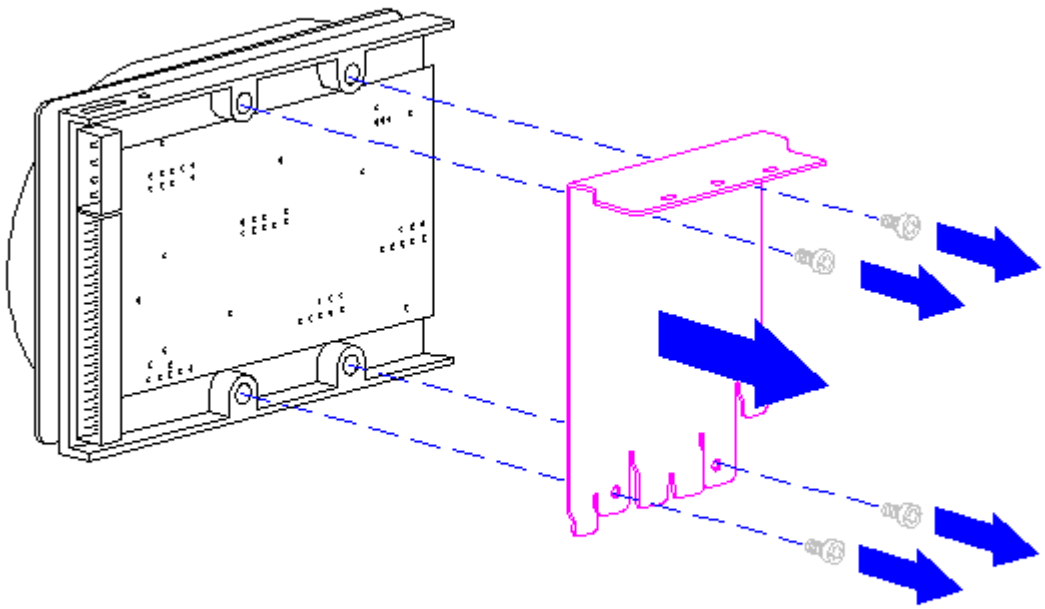

Figure 5-22. Removing the Hard Drive Bracket

Reverse the above procedure to install the mounting bracket and the hard drive. Be sure that the offset flanges on the bracket engage the cutout in the side of the drive cage.

Chapter 5.8 Accessible Drives

The following procedures assume the following accessible drive configurations.

- DT3 has a 3.5-inch diskette drive in the upper drive bay and optional diskette drive, tape drive, or CD-ROM drive in the lower drive bay.
- DT4 has an optional CD-ROM drive or tape drive in the upper drive bay, a 3.5-inch diskette drive in the middle drive bay, and an optional diskette drive, tape drive, or CD-ROM drive in the lower drive bay.

Other drive configurations can be removed and replaced with these same procedures.

IMPORTANT: Pay particular attention to the routing and folding of the power and signal cables for the accessible drives. If it becomes necessary to replace one of these cables, it is essential that the cable is folded and routed in a similar

manner at installation.

CD-ROM Drive

Ejecting a Compact Disc Manually

If you are unable to eject a CD from the CD-ROM drive by pressing the load/eject button, you can eject the CD manually as follows:

1. Turn off the computer.

2. Insert a small rod or jeweler's screwdriver [1/16-inch (1.4-mm) blade] into the manual eject hole (Figure 5-23) and push firmly to release the tray. Note that the manual eject hole is immediately adjacent to the drive eject button.

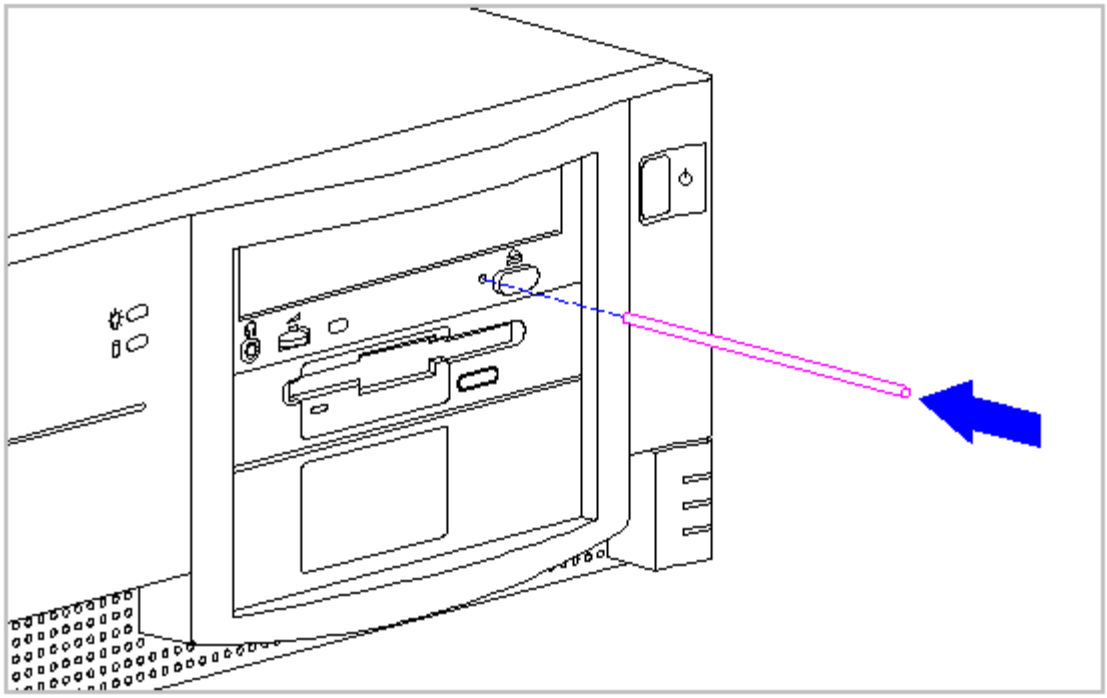

Figure 5-23. Ejecting a Compact Disc Manually

3. Slowly pull the tray out from the drive until the tray is fully extended, then remove the CD.

Removing the CD-ROM Drive

To remove the CD-ROM drive, complete the following steps:

1. Complete the steps in Section 5.3 to prepare the computer for disassembly.

2. Complete the steps in Section 5.4 to remove the unit cover to gain access to the drive cage and the CD-ROM drive.

3. Release the drive cage lock (plastic) on the top of the drive cage by rotating it clockwise (Figure 5-12).

4. Elevating the drive cage will provide access to the drive cable connectors. Push the metal drive cage release (Figure 5-13) away from the drive cage and elevate the back end of the drive cage. The drive cage release will engage a cutout in the side of the drive cage when the drive cage has been elevated the proper amount (Figure 5-13).

5. Disconnect the three cables (signal, power, and audio cables) from the back of the CD-ROM drive (Figure 5-24). Hint: Use a rocking motion on the signal cable connector (the largest connector) to ease the removal of the connector.

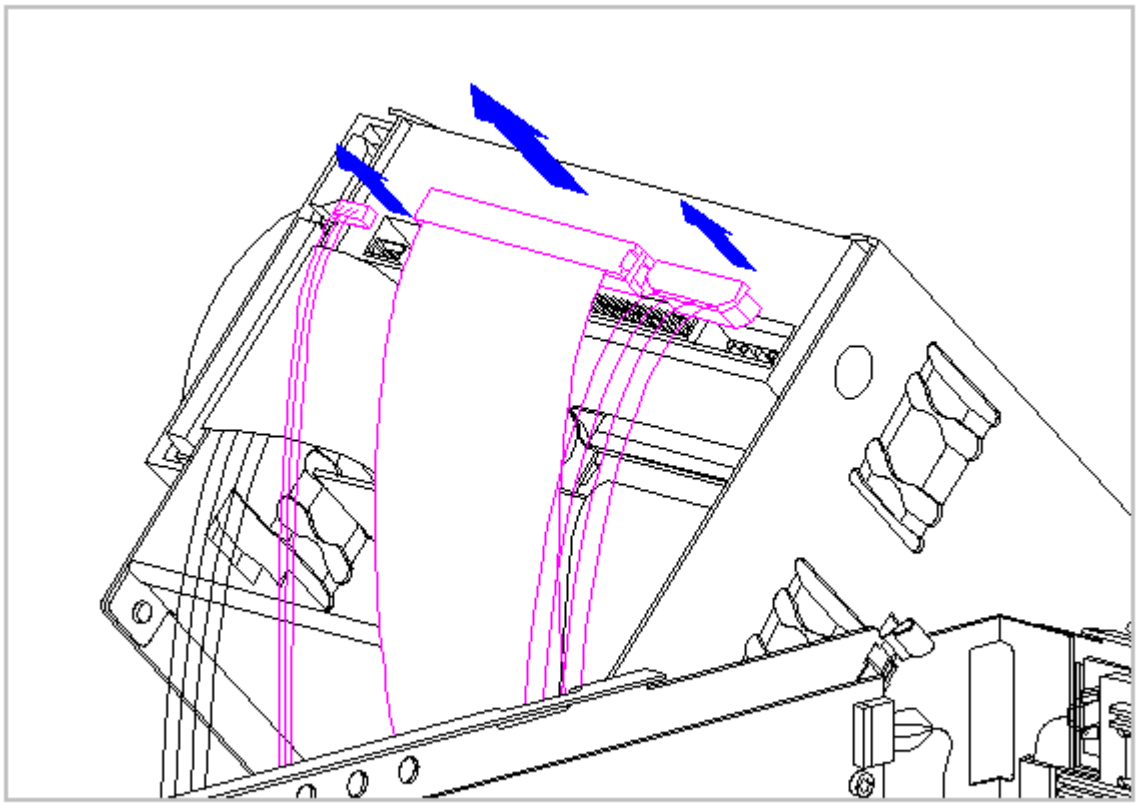

Figure 5-24. Disconnecting the Cables from the CD-ROM Drive

>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>> WARNING <<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<

When returning the drive cage from its elevated position to its resting position, lower the cage slowly and keep fingers clear of its travel path.

>>>

>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>> CAUTION <<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<

When returning the drive cage to its resting position, ensure that none of the cables are pinched between the drive cage and the base pan.

>>

6. Lower the drive cage down into its normal operating position, taking care not to damage the drive cage lock and retainer.

7. The CD-ROM drive is secured in place with two screws on the front of the computer. Remove the two screws and slide the CD-ROM drive out the front of the drive cage (Figure 5-25).

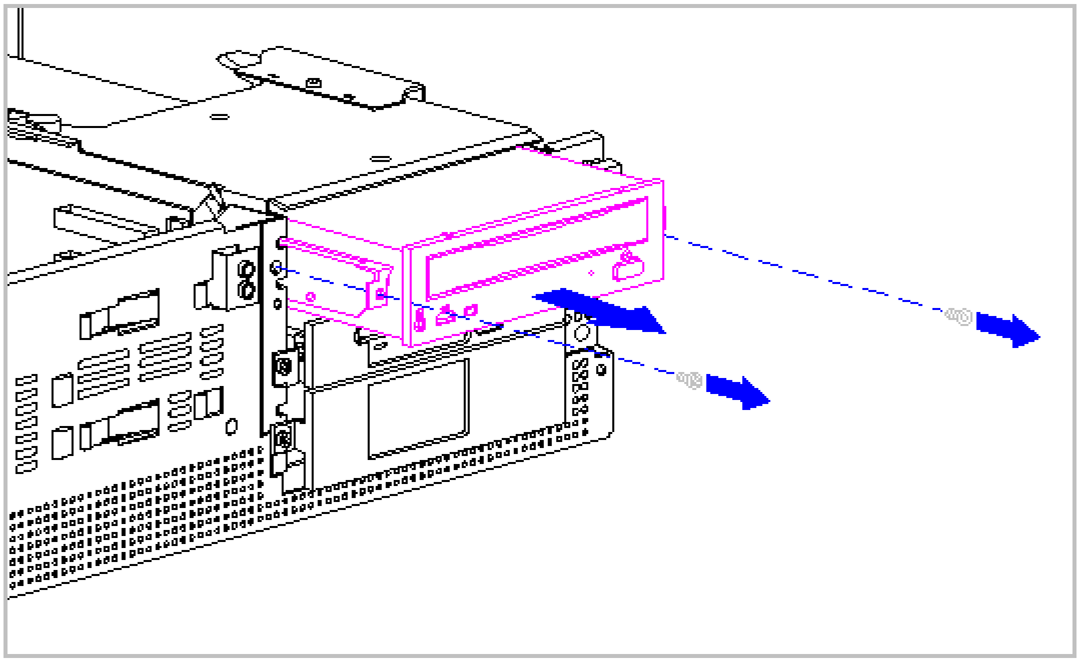

Figure 5-25. Removing the CD-ROM Drive

8. Remove and retain the mounting brackets from the CD-ROM drive (Figure 5-26).

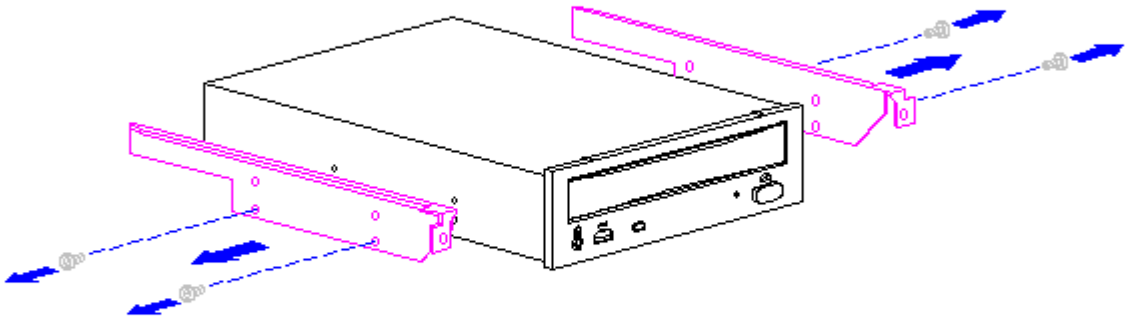

Figure 5-26. Removing the Mounting Brackets from the CD-ROM Drive

Reverse the above procedure to install the mounting brackets on the CD-ROM drive and install the CD-ROM drive.

Diskette Drive

To remove the diskette drive, complete the following steps:

1. Complete the steps in Section 5.3 to prepare the computer for disassembly.

2. Complete the steps in Section 5.4 to remove the unit cover to gain access to the drive cage and the diskette drive.

3. Release the drive cage lock (plastic) on the top of the drive cage by rotating it clockwise (Figure 5-12).

4. Elevating the drive cage will provide access to the drive cable connectors. Push the metal drive cage release (Figure 5-13) away from the drive cage and elevate the back end of the drive cage. The drive cage release will engage a cutout in the side of the drive cage when the drive cage has been elevated the proper amount (Figure 5-13).

5. Disconnect the power and signal cables from the back of the diskette drive (Figure 5-27). Hint: Use a rocking motion on the signal cable connector (the largest connector) to ease the removal of the connector.

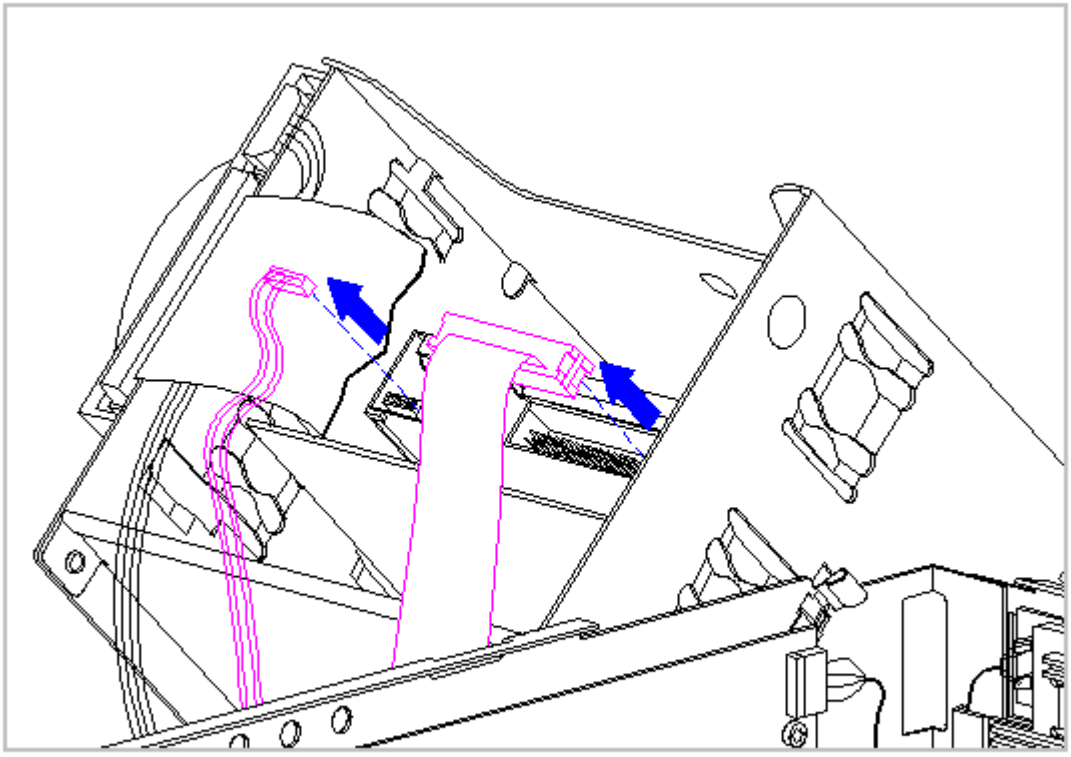

Figure 5-27. Disconnecting the Cables from the Diskette Drive

>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>> WARNING <<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<

When returning the drive cage from its elevated position to its resting position, lower the cage slowly and keep fingers clear of its travel path.

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>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>> CAUTION <<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<

When returning the drive cage to its resting position, ensure that none of the cables are pinched between the drive cage and the base pan.

>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>><<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<

6. Lower the drive cage down into its normal operating position, taking care not to damage the cables and drive cage locks.

7. The diskette drive is secured in place with two screws on the front of the computer. Remove the two screws and slide the diskette drive out the front of the drive cage (Figure 5-28).

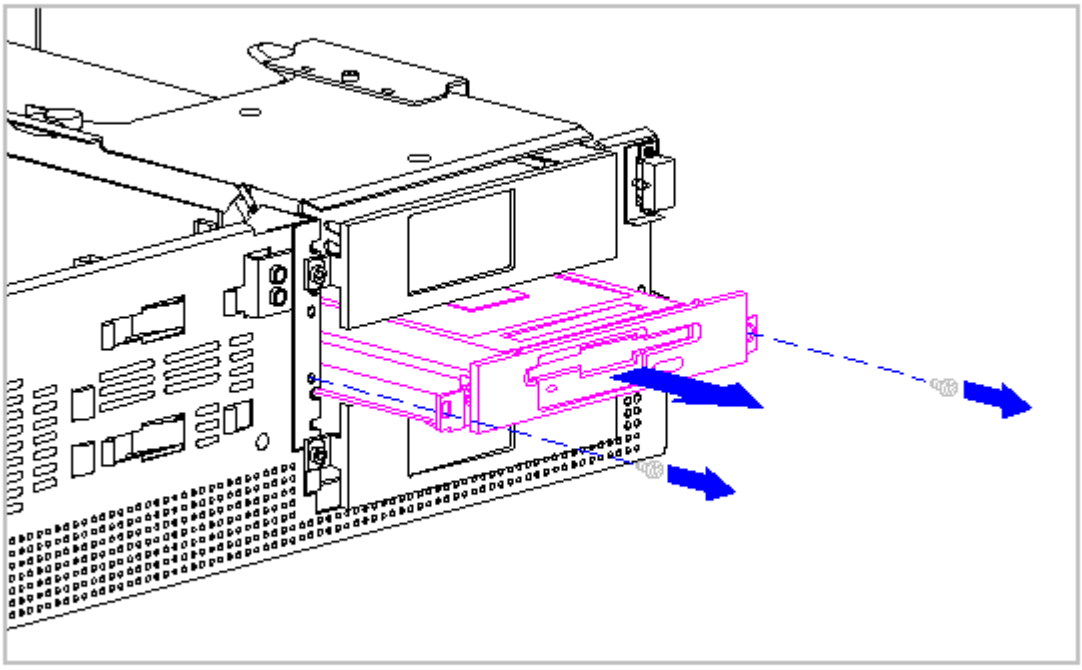


Figure 5-28. Removing the Diskette Drive

8. Remove and retain the diskette drive mounting bracket with bezel attached (Figure 5-29). The bracket is secured in place with four screws.

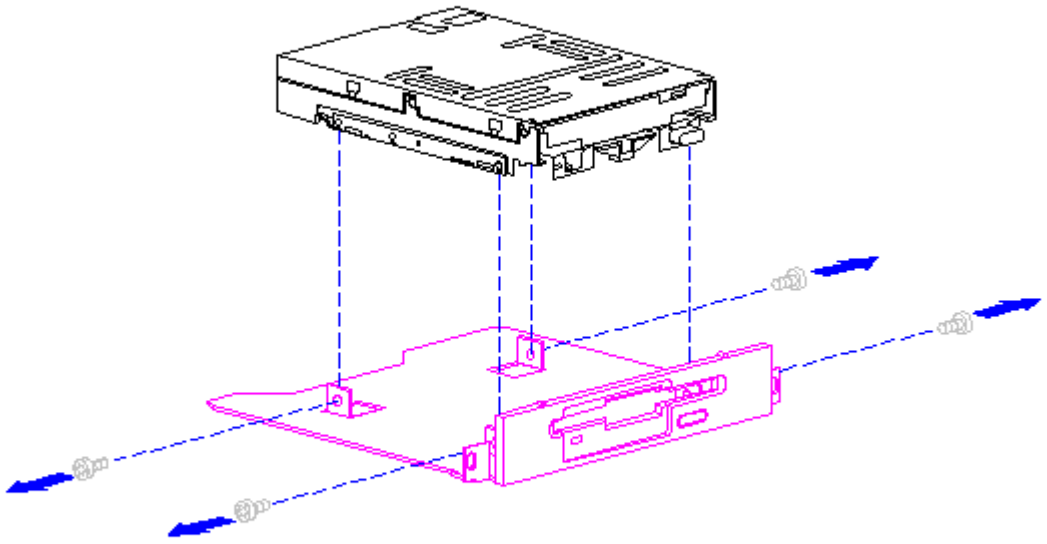


Figure 5-29. Removing the Mounting Bracket from the Diskette Drive

Reverse the above procedure to install the mounting bracket and bezel onto the diskette drive and install the diskette drive.

Second Hard Drive

Hard drives installed in the ProLinea Personal Computer use cable-select technology. Cable-select technology identifies the hard drives as device 0 (master) or device 1 (slave), depending on where they are connected on the cable-select cable. The configuration jumpers on both hard drives are set the same; the jumpers are preset for cable-select installation.

A typical cable-select installation is illustrated in Figure 5-30. The single-port hard drive cable connects the cable-select cable to the backplane board. The device 0 drive is the drive that is closer to the backplane board; it is connected to the short segment of the cable-select cable. The other drive is identified as the device 1 drive by being connected to the longer segment of the cable-select cable.

IMPORTANT: Cable-select may not function properly if drives other than those supported by Compaq are installed.

NOTE: The second drive on a cable-select cable can be a CD-ROM drive. However the CD-ROM drive must be installed in the device 1 position if there is a hard drive installed on the same cable. Ensure that the CD-ROM drive is set for cable-select configuration.

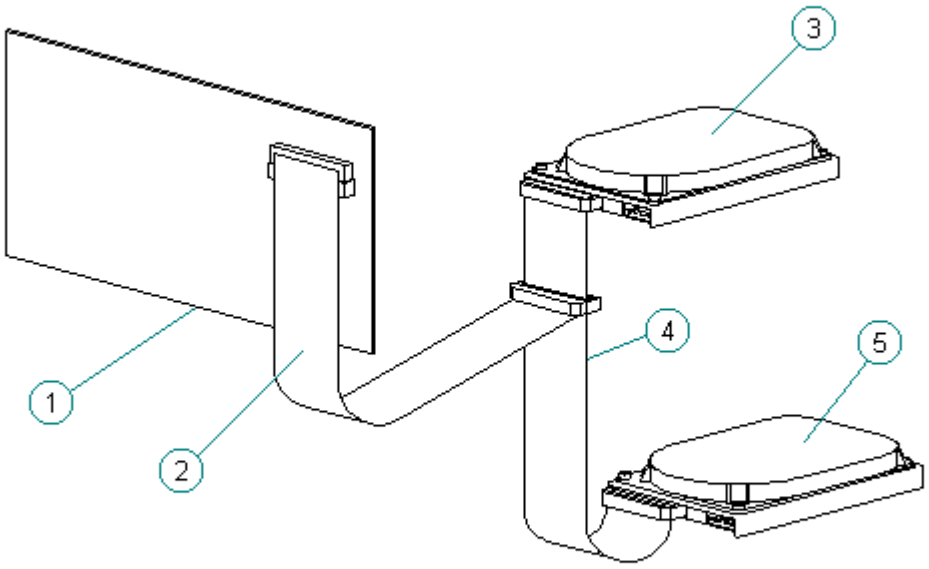


Figure 5-30. Typical Cable-Select Installation

The following procedure assumes that a second hard drive is already installed in the computer and it is being replaced. To install a second hard drive with cable-select configuration, complete the following steps:

1. Complete the steps in Section 5.3 to prepare the computer for disassembly.

2. Complete the steps in Unit Cover Removal and Replacement in Section 5.4 to gain access to the drive cage and hard drive.

3. Release the drive cage lock (plastic) on the top of the drive cage by rotating it clockwise (Figure 5-12).

4. Elevating the drive cage will provide access to the drive cable connectors. Push the metal drive cage release (Figure 5-13) away from the drive cage and elevate the back end of the drive cage. The drive cage release will engage a cutout in the side of the drive cage when the drive cage has been elevated the proper amount (Figure 5-13).

5. Disconnect the power and signal cables from the back of the hard drive as shown for a diskette drive in Figure 5-27. Hint: Use a rocking motion on the signal cable connector (the largest connector) to ease the removal of the connector.

>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>> WARNING <<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<

When returning the drive cage from its elevated position to its resting position, lower the cage slowly and keep fingers clear of its travel path.

>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>><<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<

>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>> CAUTION <<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<

When returning the drive cage to its resting position, ensure that none of the cables are pinched between the drive cage and the base pan.

>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>><<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<

6. Lower the drive cage into its normal operating position, taking care not to damage the cables or the drive cage locks.

7. The hard drive is obstructed from view by a blank bezel. The hard drive and bezel are secured in place with two screws on the front of the computer. The bezel is installed with its mounting tabs behind the mounting tabs for the hard drive. Remove the two screws (Figure 5-31), remove the bezel (Figure 5-32) and slide the hard drive out of the front of the drive cage (Figure 5-32).

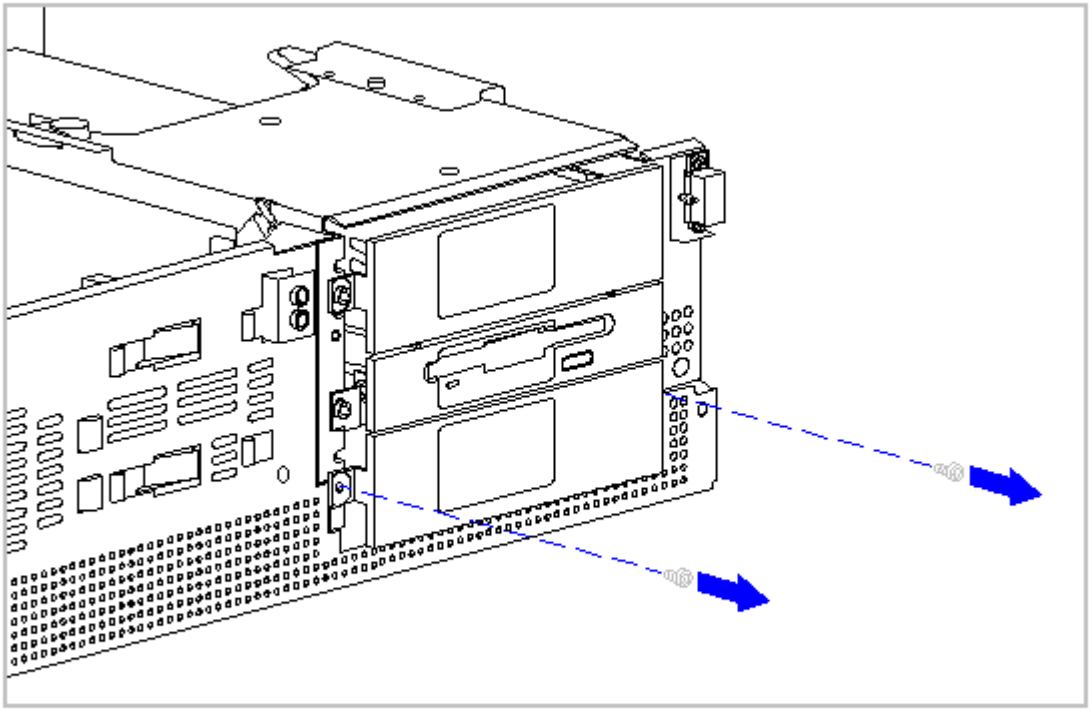


Figure 5-31. Removing the Hard Drive Screws

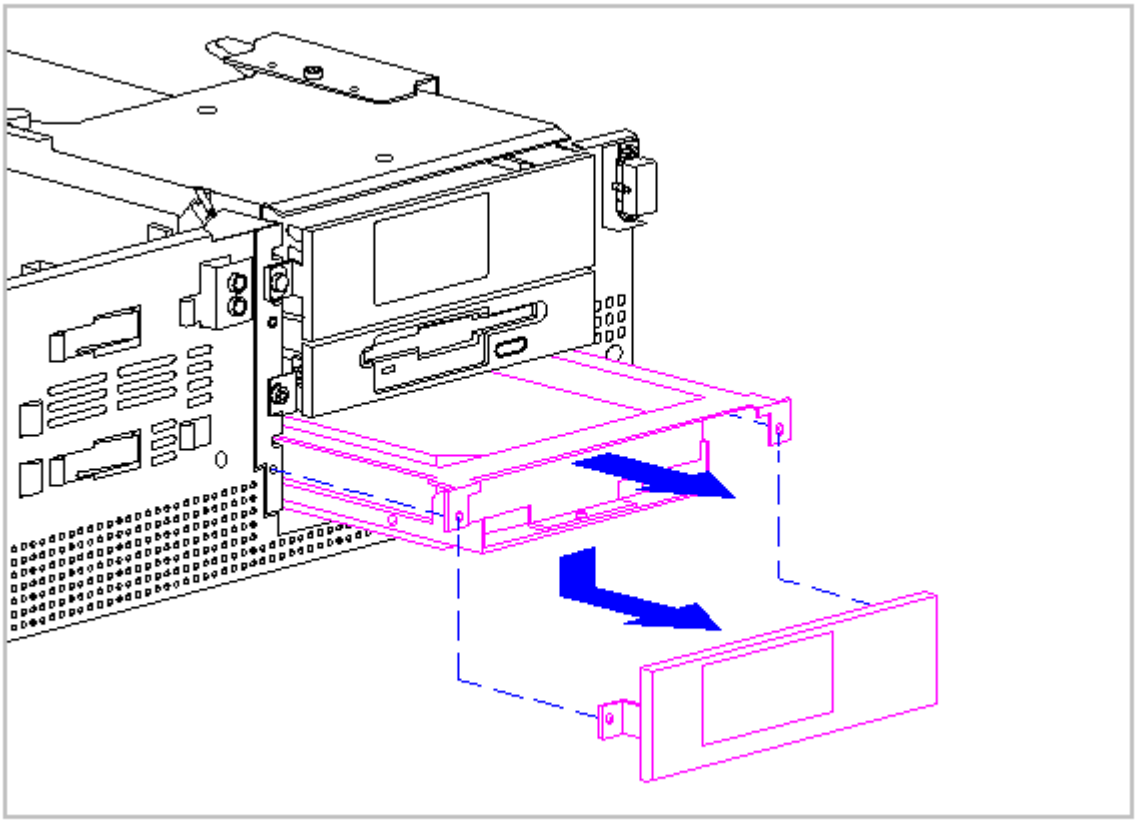


Figure 5-32. Removing the Bezel and Hard Drive

8. Remove and retain the hard drive mounting bracket (Figure 5-33).

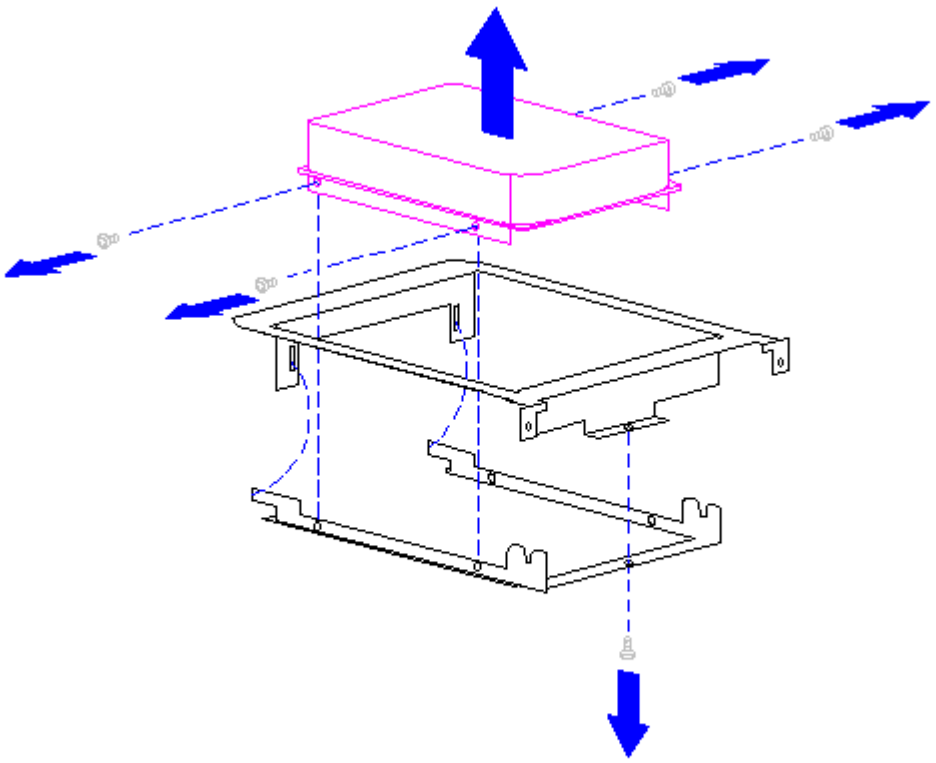


Figure 5-33. Removing the Mounting Bracket from a Hard Drive

9. Ensure that both hard drives have their configuration set for cable-select installation (see Chapter 6) and install the mounting bracket onto the hard drive (Figure 5-33).

10. Reverse the above procedure to complete the installation of the hard drive into an accessible drive bay.

Drive Bay Bezel

To remove a drive bay bezel, complete the following steps:

1. Complete the steps in Section 5.3 to prepare the computer for disassembly.

2. Complete the steps in Unit Cover Removal and Replacement in Section 5.4 to gain access to the drive bay bezel.

3. The bezel is held in place with two screws (Figure 5-34). Remove the screws to release the bezel.

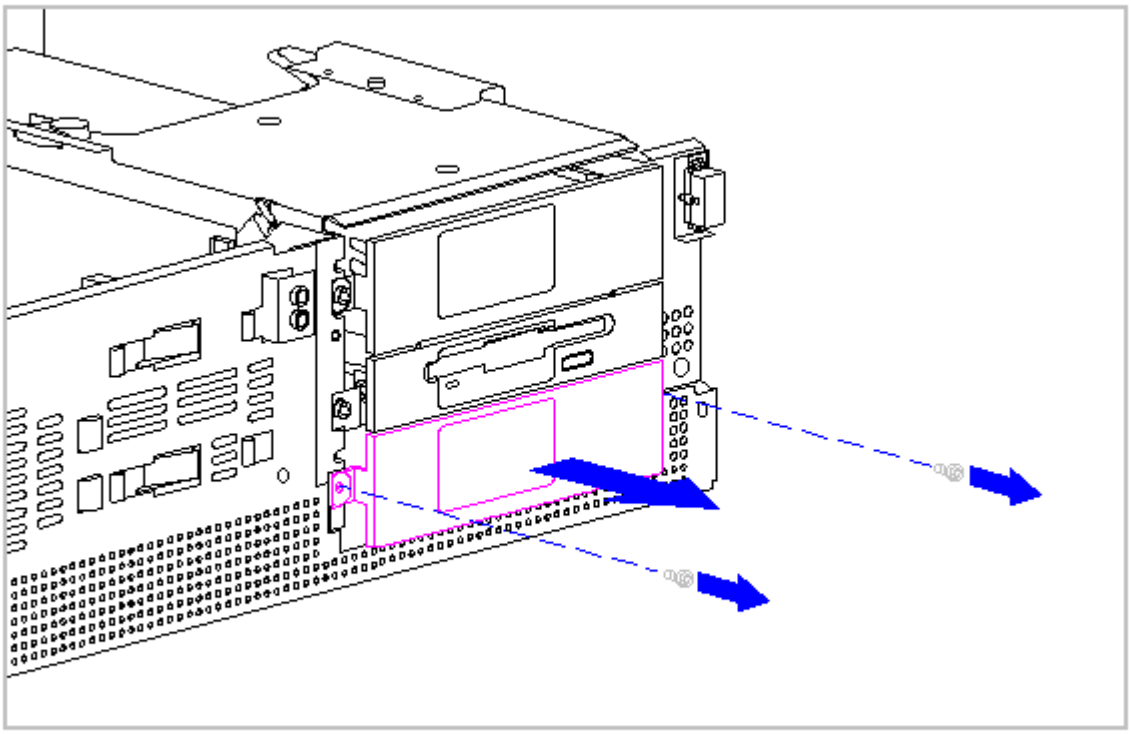


Figure 5-34. Removing a Bezel

Reverse the above procedure to install a bezel.

NOTE: The 1/6-height bezel is always installed directly below the diskette drive.

Chapter 5.9 Drive Cage Lock

The drive cage lock snaps into place in the hole provided on the top surface of the drive cage. To replace the lock assembly, it is not necessary to remove any of the mass storage devices from the drive cage. To remove and replace the drive cage lock assembly, complete the following steps.

1. Complete the steps in Section 5.3 to prepare the computer for disassembly.

2. Complete the steps in Unit Cover Removal and Replacement in Section 5.4 to gain access to the drive cage assembly.

3. Remove the original drive cage lock assembly if it is still installed. If the lock assembly does not separate easily, it may be necessary to pry it out. A flat bladed screwdriver is an acceptable tool.

4. Install the replacement lock by snapping it into place as shown in Figure 5-35.

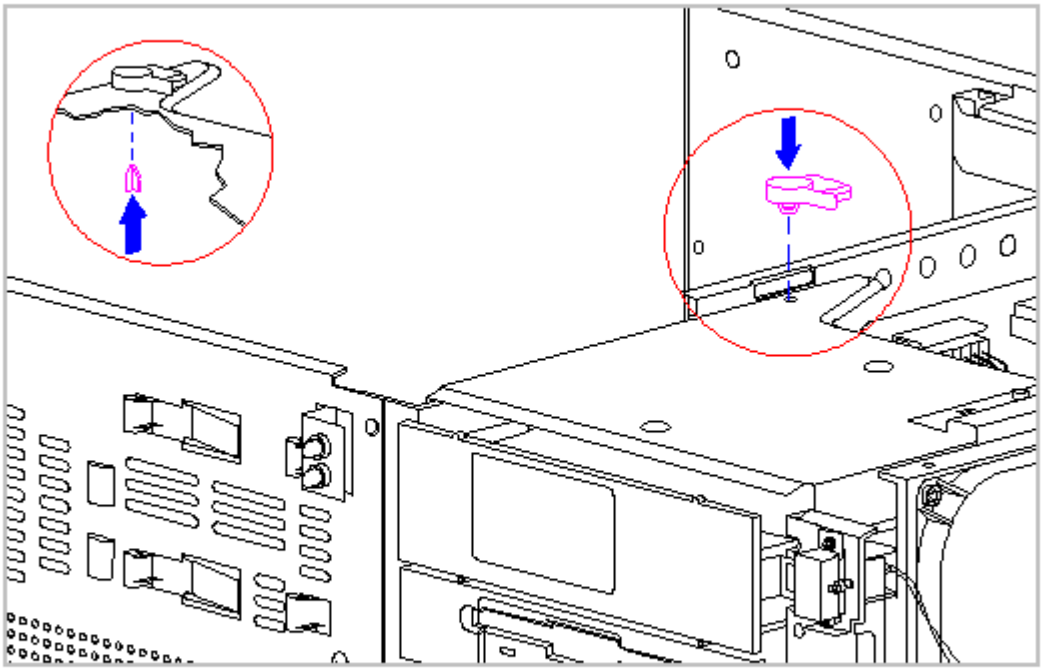


Figure 5-35. Installing the Drive Cage Lock

Chapter 5.10 Speaker

The speaker is mounted on the front chassis panel of CDS models. The speaker and its mounting bracket are installed as a unit but you must retain the speaker bracket for reassembly. To remove and replace the speaker, complete the following steps:

1. Complete the steps in Section 5.3 to prepare the computer for disassembly.

2. Complete the steps in Unit Cover Removal and Replacement in Section 5.4 to gain access to the speaker.

   NOTE: If the Enhanced Business Audio Board is installed in the option slot, the speaker cable is connected to the connector on the backplane board. If the Enhanced Business Audio Board is installed in an expansion slot, the speaker cable is connected to the connector on the Enhanced Business Audio Board.

3. Disconnect the speaker cable from its connector on the backplane (Figure 5-36).

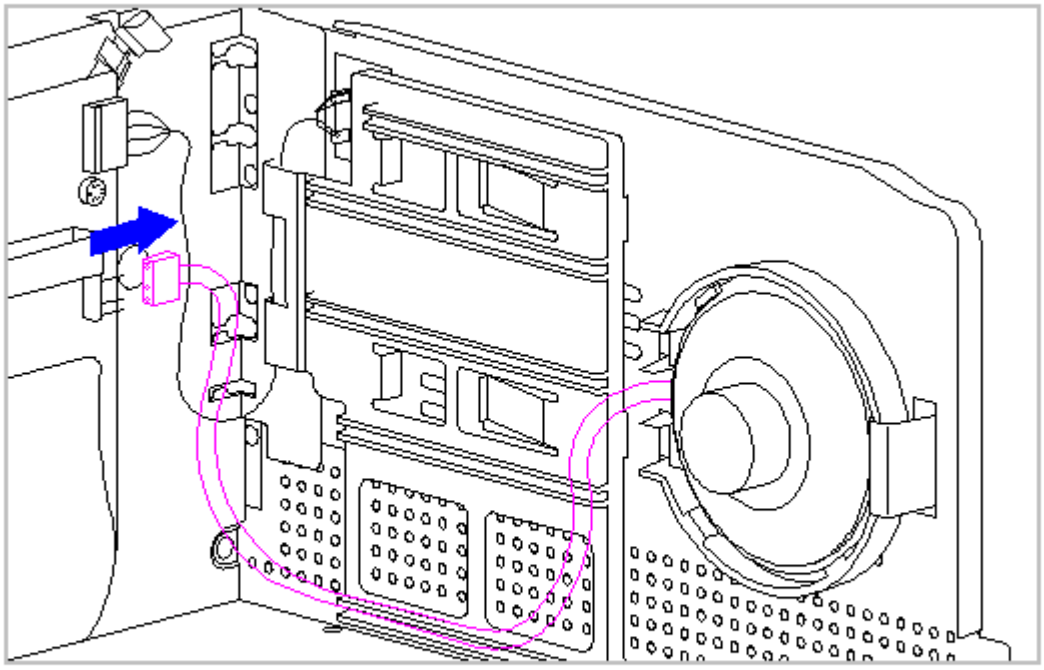


Figure 5-36. Disconnecting the Speaker Cable

4. Release the speaker bracket from the front panel by pushing on the tab and rotating the bracket away from the chassis panel (Figure 5-37).

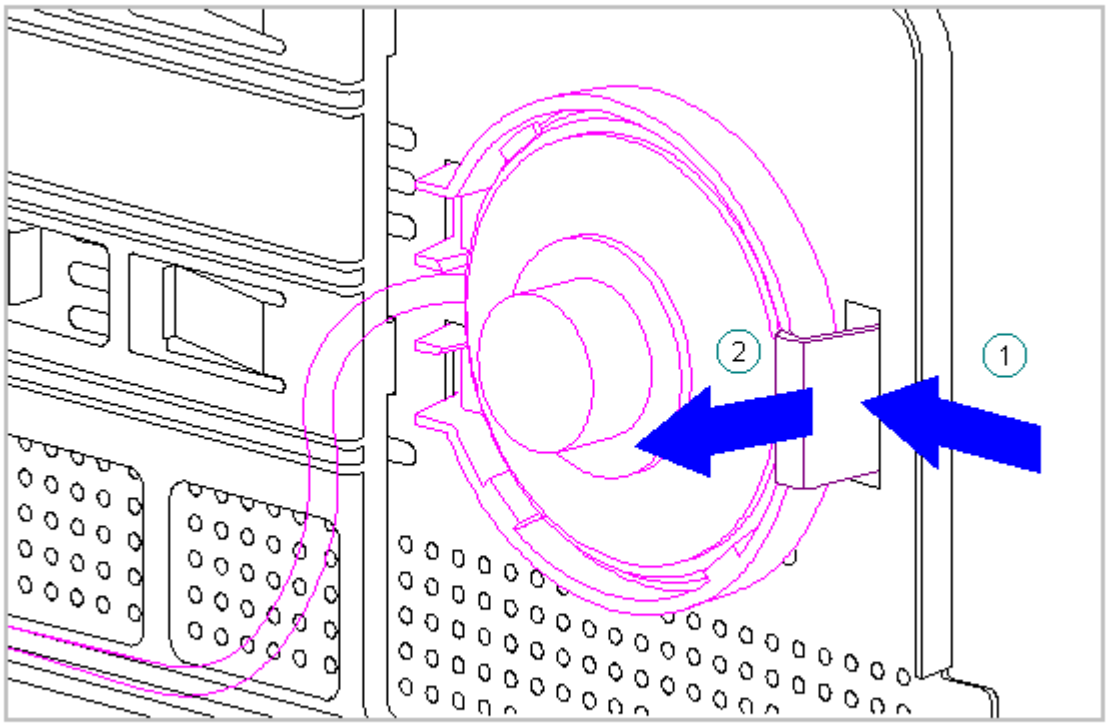


Figure 5-37. Removing the Speaker Assembly

5. The speaker is installed into the bracket with a snap action. Remove the speaker from the bracket.

6. Install the replacement speaker into the bracket using a snap action, making certain that the wires exit the speaker bracket as shown in Figure 5-37.

Reverse the above procedure to install a speaker assembly.

Chapter 5.11 Expansion Cards and Slot Covers

The DT3 has three ISA expansion slots, one of which is shared for PCI expansion. The DT4 has four ISA expansion slots, two of which are shared for PCI expansion. Expansion cards are installed in any of the slots in the same manner. To remove an expansion card, complete the following steps:

1. Complete the steps in Section 5.3 to prepare the computer for disassembly.

2. Complete the steps in Unit Cover Removal and Replacement in Section 5.4 to gain access to the expansion cards..

3. Disconnect any cables connected to the expansion card.

   NOTE: If removing an expansion card from one of the lower slots, it might be necessary to remove the upper expansion card(s) to have sufficient access for cable removal.

   NOTE: If removing a full length expansion card from a CDS model, the speaker will have to be removed from the front panel of the chassis to provide adequate clearance. See Section 5.9.

4. Remove the screw securing the expansion card bracket to the rear of the computer (Figure 5-38) and slide the option card out of its connector on the backplane board.

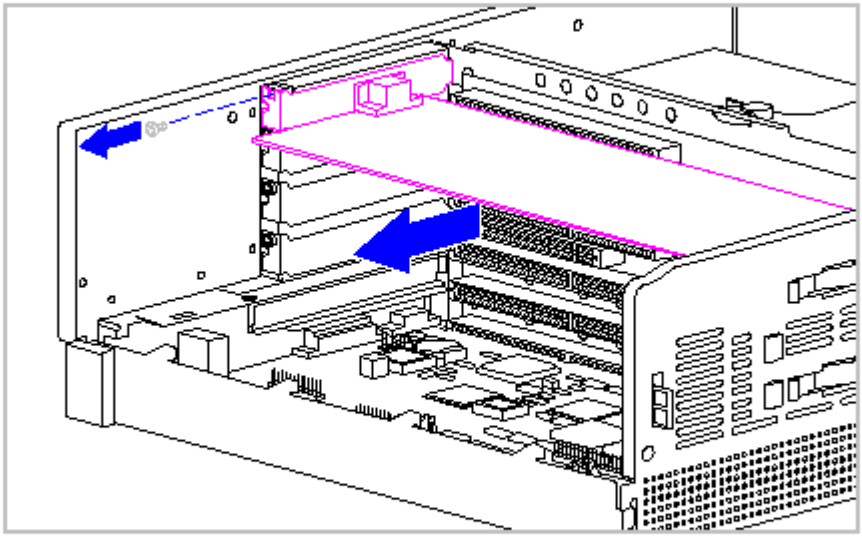


Figure 5-38. Removing an Expansion Card

5. If an expansion card is removed and not replaced, fill the opening in the rear panel with a slot cover as shown in Figure 5-39.

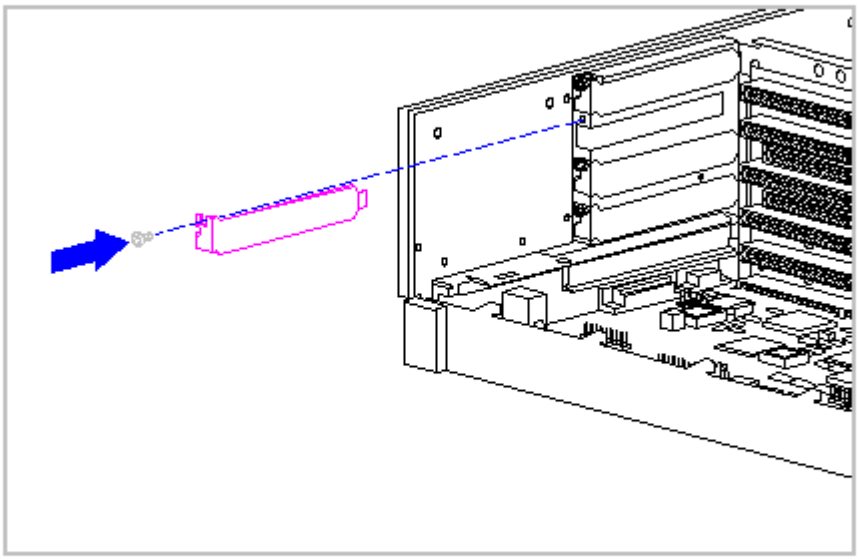


Figure 5-39. Installing an Expansion Card Slot Cover

Reverse the above procedure to install an option card.

Chapter 5.12 System Board

The system board rests on the bottom of the base pan under the option cards. It is not necessary to remove expansion cards or an option card prior to removing the system board.

The replacement system board is shipped from the factory with the bracket and I/O panel installed.

System Board Removal

To remove the system board from the computer, complete the following steps:

1. Complete the steps in Section 5.3 to prepare the computer for disassembly.

2. Complete the steps in Unit Cover Removal and Replacement in Section 5.4 to gain access to the system board.

>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>> CAUTION <<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<

If a replacement battery has been installed in the computer, do not disconnect the battery cable. Release the battery from the rear panel of the base pan and remove the system board with the battery connected to the board.

>>

NOTE: Before removing the system board, observe the relationship between the ends of the system board bracket and base pan. You can use this as an aid in determining that the board is properly seated at replacement.

3. Disconnect any option card cables that are connected to the system board.

>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>> CAUTION <<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<

Remove the system board slowly. Pull it out far enough to allow any cables to be disconnected.

>>

4. Grasp the system board bracket at the ends (Figure 5-40) and slide the system board and bracket out the side of the chassis.

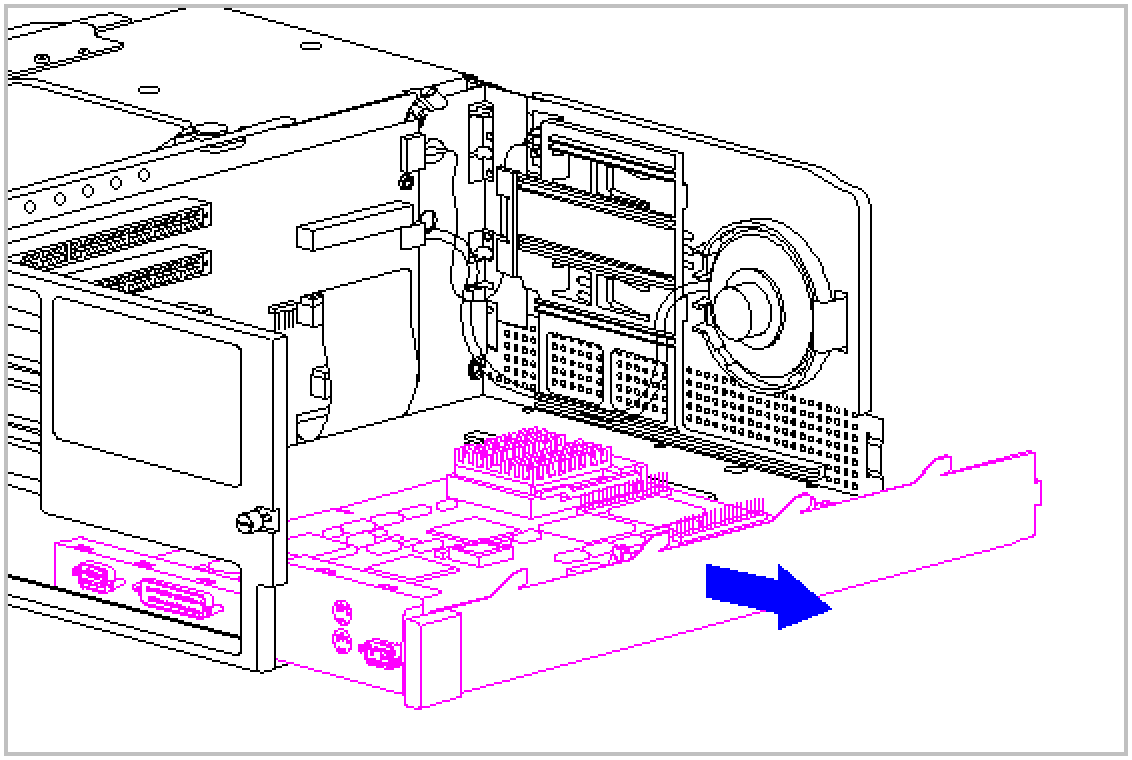


Figure 5-40. Removing the System Board

System Board Installation

The replacement system board can be installed in the computer by completing the following steps:

>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>> CAUTION <<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<

The system board should have four bumper pads installed on its bottom side. Verify that the bumper pads are in place before installing the system board.

>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>><<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<

1. Slide the system board all the way in until it touches the backplane connector.

2. It takes a strong push to seat the system board into the backplane connector. Raise the base pan and stand it on edge (Figure 5-41) with the system board on top. In this orientation, the system board can be pushed into place easily.

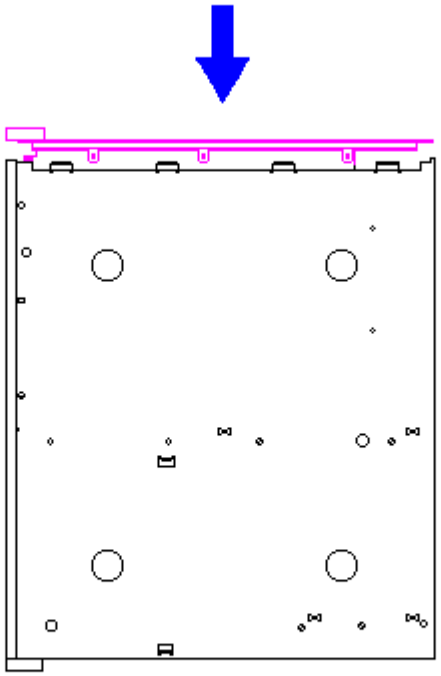


Figure 5-41. Installing the System Board

3. Reconnect any cables disconnected during disassembly and replace the unit cover.

   NOTE: If an option card is installed in the computer, you will not be able to see the system board connector on the backplane board during assembly. You will hear a definite "snap" when the system board is seated. Also, the relationship between the ends of the system board bracket and base pan can serve as another indicator that the board is properly seated.

Chapter 5.13 Option Card

The option card slot on the ProLinea Desktop Personal Computer is located immediately above the system board connector. The standard option cards are:

- Compaq 6260 SCSI-2 Controller
- IDE Disk Drive Controller
- NetFlex ENET/ISA Controller
- IBM Auto 16/4 Token-Ring ISA Adapter

o Enhanced Business Audio Board

Installation of each of these options uses the same procedure. It is necessary to remove the system board to remove either of these options. To remove and replace an option card, complete the following steps:

1. Complete the steps in Section 5.3 to prepare the computer for disassembly.

2. Complete the steps in Unit Cover Removal and Replacement in Section 5.4 to gain access to the option card.

3. Disconnect any cables connected to the option card.

   NOTE: It might be necessary to remove expansion card(s) to have sufficient access for cable removal. If removing a full length option card from a CDS model, the speaker will have to be removed from the front panel of the chassis to provide adequate clearance. See Section 5.9.

4. Remove the system board (Section 5.12).

5. Remove the screw securing the expansion card bracket to the rear of the computer (Figure 5-42) and slide the option card out of its connector on the backplane board.

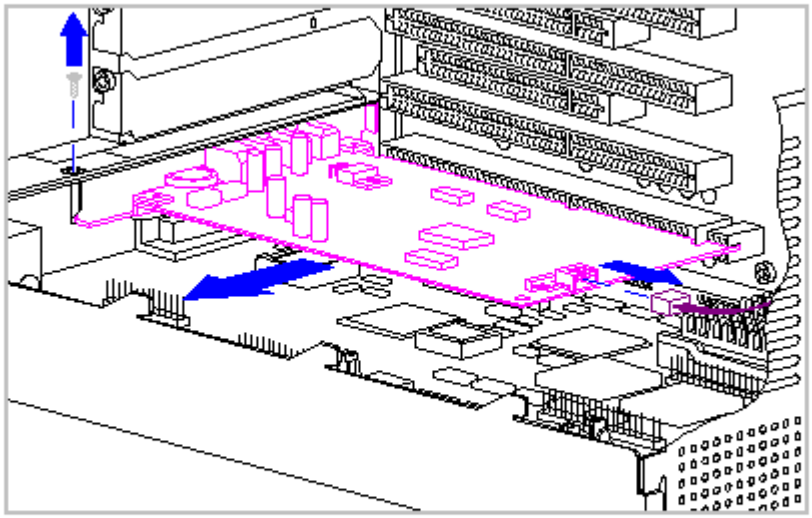


Figure 5-42. Option Card Removal

6. If an option card is removed and not replaced, fill the opening in the rear panel with a slot cover as shown in Figure 5-39.

7. Reverse the above procedure to install an option card.

   NOTE: If installing an Enhanced Business Audio Board in the option slot, the speaker cable should be connected to the speaker connector on the backplane board.

Chapter 5.14 LEDs

The LEDs are mounted on the front card bracket (Figure 5-43). The option cards, system board, and fax/modem card must be removed prior to removing the LEDs. To remove the LEDs, complete the following steps:

1. Complete the steps in Section 5.3 to prepare the computer for disassembly.

2. Complete the steps in Unit Cover Removal and Replacement in Section 5.4 to gain access to the option cards, system board, and LEDs.

3. Complete the steps in Section 5.11 and 5-13 to remove full-size expansion and option cards.

4. Complete the steps in Section 5.12 to remove the system board.

   NOTE: On models with CD-ROM installed, disconnecting the speaker cable from the backplane board (Figure 5-35) will prevent interference from this cable during these procedures.

5. Disconnect the LED cable from its connector on the backplane (Figure 5-43).

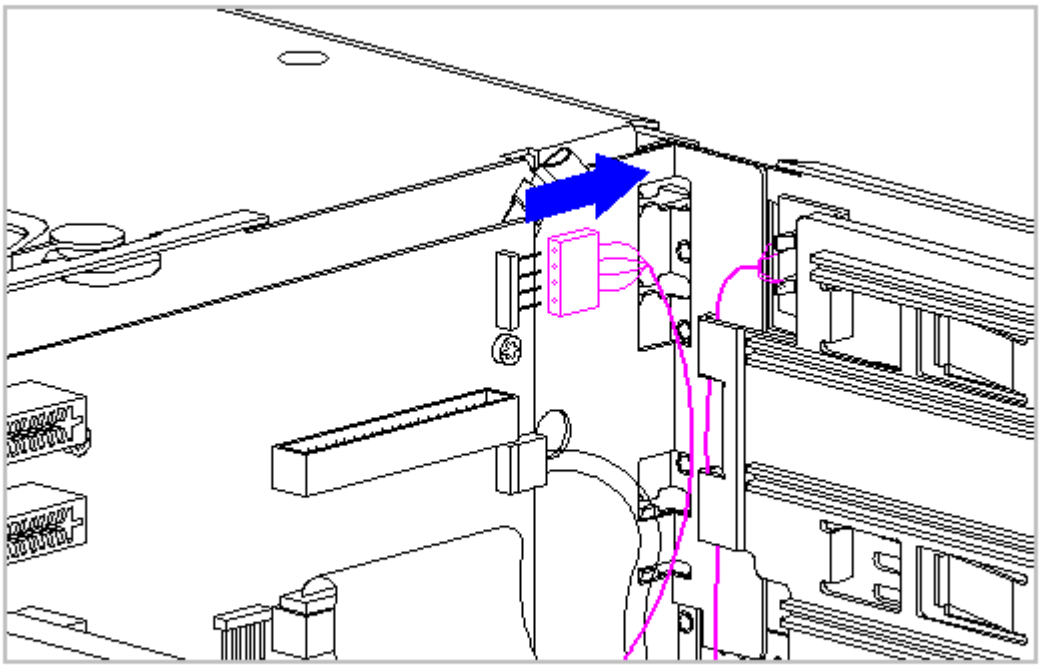


Figure 5-43. Disconnecting the LED Cable

6. Release the card guide from the front panel by sliding the card guide toward the drive cage while applying pressure from the front of the computer (Figure 5-44). Manipulate the end of the guide with the LEDs out of the cutout first.

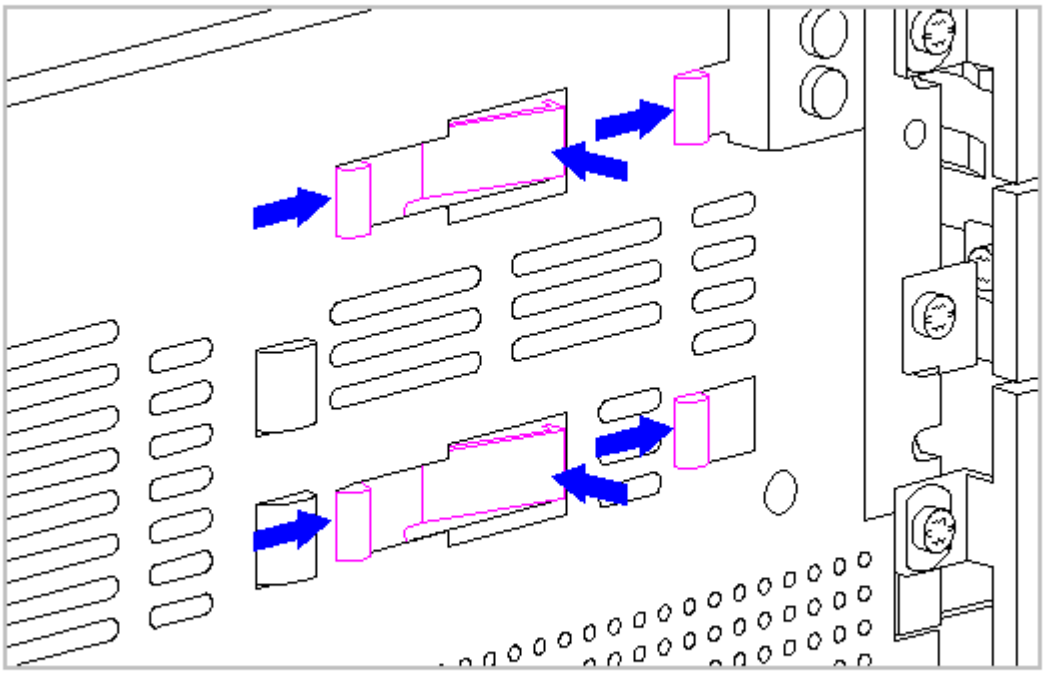


Figure 5-44. Removing the Card Guide

NOTE: For reference during replacement, note how the LED wires route through the end of the card guide (Figure 5-43).

7. Remove the LEDs from the card guide by spreading the tabs that secure the LEDs in place sufficiently for the LED to clear the tab hooks and pull the LEDs out of the card guide (Figure 5-45).

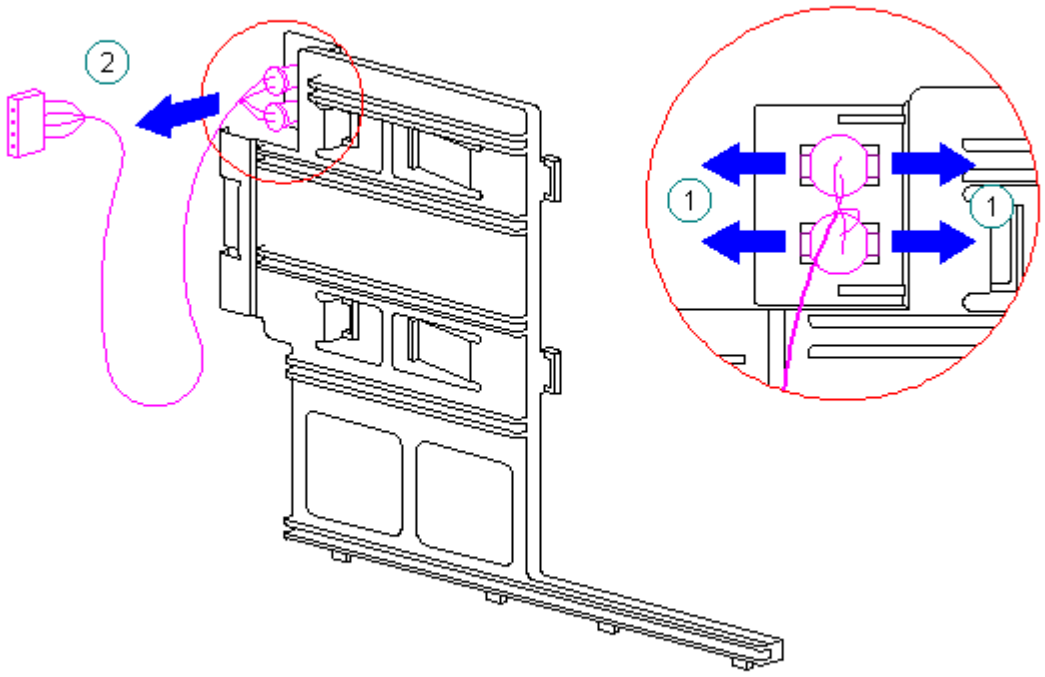


Figure 5-45. Removing the LEDs from the Card Guide

Reverse the above procedure to install the LEDs.

HINT: At installation, allowing the tabs that hold the LEDs to extend well beyond the cutout in the chassis front panel will facilitate proper positioning of the mounting tabs for easy insertion of the card guide.

Chapter 5.15 Memory Module

The SIMM sockets on system boards can be populated with 4, 8, 16, or 32 MB SIMMs. The sockets on the 486-based system boards can be populated in any order. The sockets on the 586-based system boards must be populated in pairs of equal size in sequential slots. The SIMMs must be 70ns or faster. SIMMs with tin-lead pins should be used.

To remove a SIMM, complete the following steps:

1. Complete the steps in Section 5.3 to prepare the computer for disassembly.

2. Complete the steps in Unit Cover Removal and Replacement in Section 5.4 to gain access to the system board.

3. Push out on the SIMM slot latches and tilt the SIMM 45 degrees from vertical and slide the SIMM out of its slot (Figure 5-46).

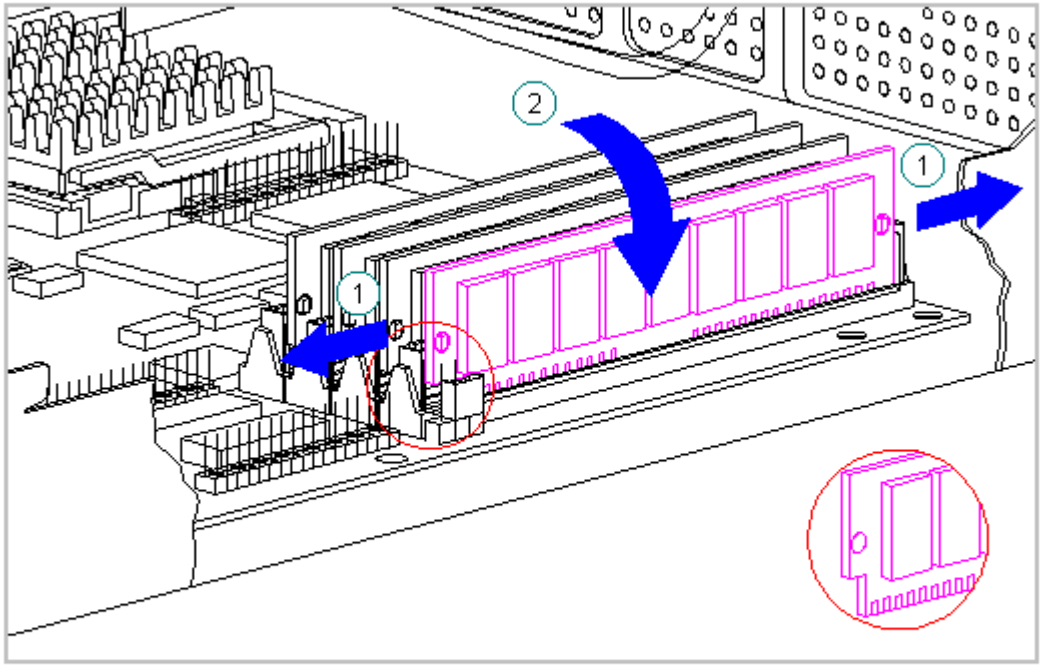


Figure 5-46. Removing the SIMM

The notch on the left end of the SIMM (Figure 5-46) serves as an orientation indicator. Use this notch as a guide to orient the SIMM properly and reverse the above procedure to install a SIMM.

Chapter 5.16 Processor

The processor for the computer is mounted in a ZIF socket on the system board as shown in Figure 5-47 and Figure 5-48.

IMPORTANT: On 586-based system boards, the heat sink retaining clip must be released before actuating the processor eject lever.

To replace a processor, complete the following steps:

1. Complete the steps in Section 5.3 to prepare the computer for disassembly.

2. Complete the steps in Unit Cover Removal and Replacement in Section 5.4 to gain access to the system board.

3. Remove any option/expansion cards that interfere with access to the processor (Sections 5-11 and 5-13).

4. Release the heat sink clip as shown in Figure 5-47 (586-based system boards only), remove the heat sink, and raise the eject lever to remove the processor.

   HINT: Use a rotating motion on the end of the heat sink clip to move the clip off of the tab on the side of the processor socket.

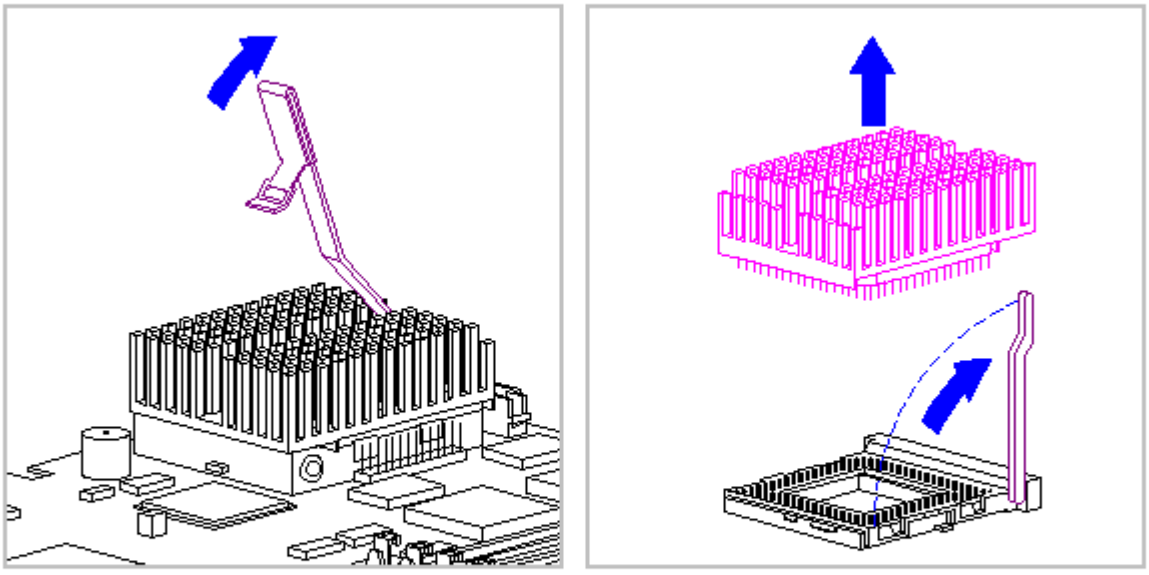


Figure 5-47. Removing a 586-Class Processor

5. On 486-based systems, simply raise the eject lever to remove the processor (Figure 5-48).

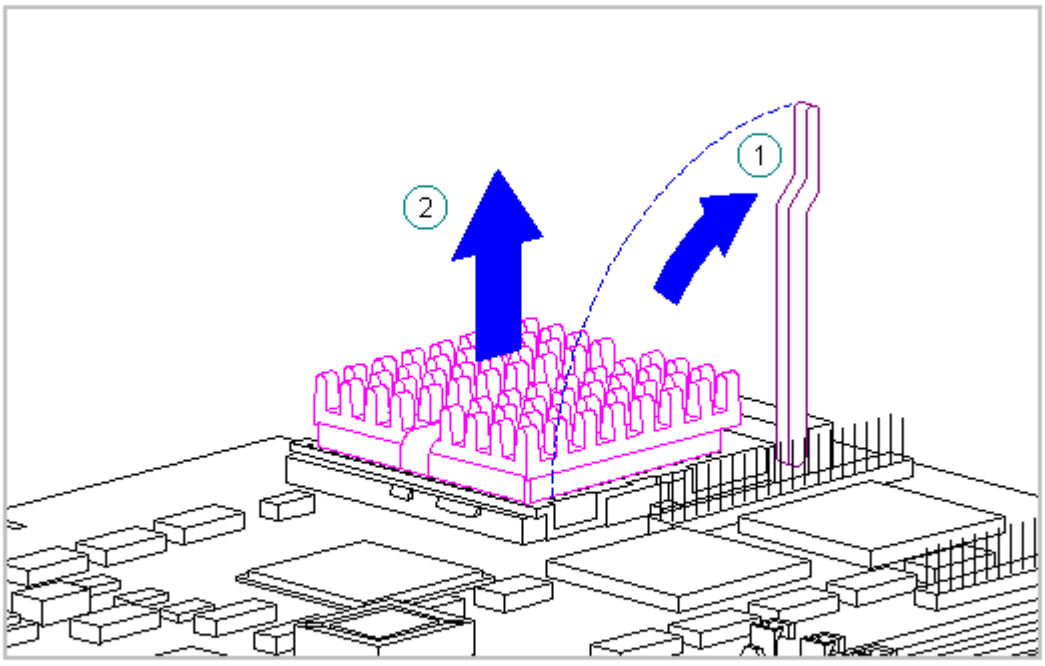


Figure 5-48. Removing a 486 Processor

Note the orientation of the notched corner of the processor and reverse the above procedure to install a processor.

Chapter 5.17 Cache Board

This procedure applies to 486-based system boards only. The secondary cache board is installed on the 486-based system board adjacent to the SIMM sockets (Figure 5-47). To remove the secondary cache board, complete the following steps:

1. Complete the steps in Section 5.3 to prepare the computer for disassembly.

2. Complete the steps in Unit Cover Removal and Replacement in Section 5.4 to gain access to the system board.

3. Remove any option or expansion cards (Sections 5.11 and 5.13) that interfere with access to the cache board.

4. Remove the secondary cache board as shown in Figure 5-49.

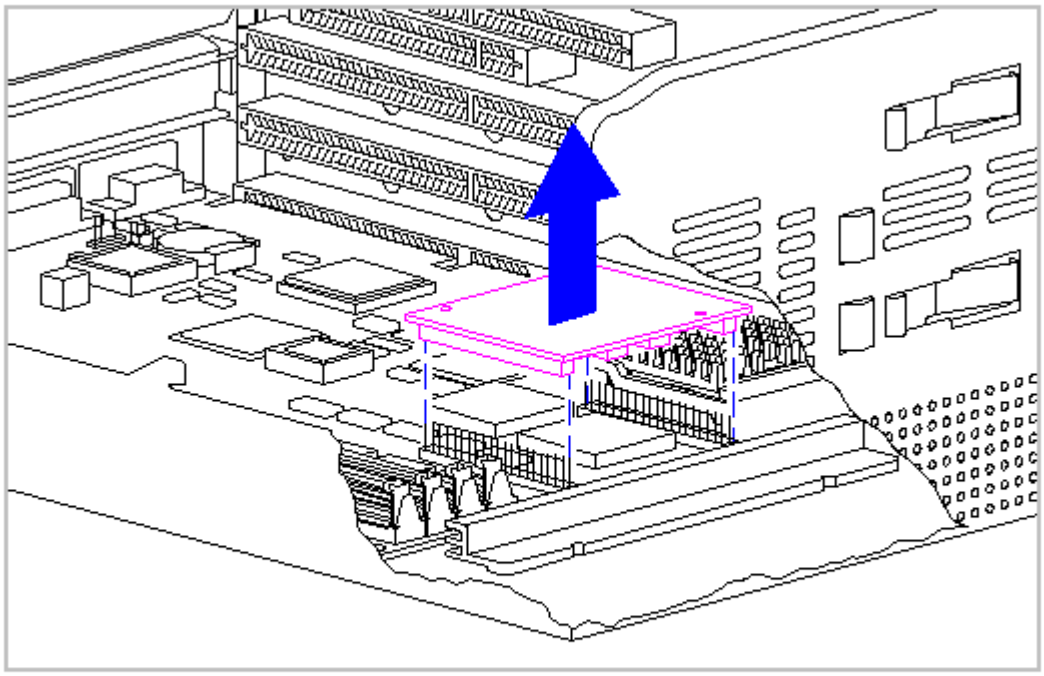


Figure 5-49. Removing the Secondary Cache Board

Reverse the above procedure to install a secondary cache board.

NOTE: The configuration of the connectors on the cache board and system board will not allow the board to be installed improperly. However, as a safeguard, verify that you are matching the cache board connectors (E9 and E10) with the system board connectors (P9 and P10, respectively).

Chapter 5.18 Graphics Memory Upgrade Module

The 1 MB DRAM memory upgrade module is installed on the 486-based system board with PCI Local Bus Integrated Graphics in the location indicated in Figure 5-49. To remove and replace the memory modules complete the following steps:

1. Complete the steps in Section 5.3 to prepare the computer for disassembly.

2. Complete the steps in Unit Cover Removal and Replacement in Section 5.4 to gain access to the system board.

3. Remove the video memory board as shown in Figure 5-50.

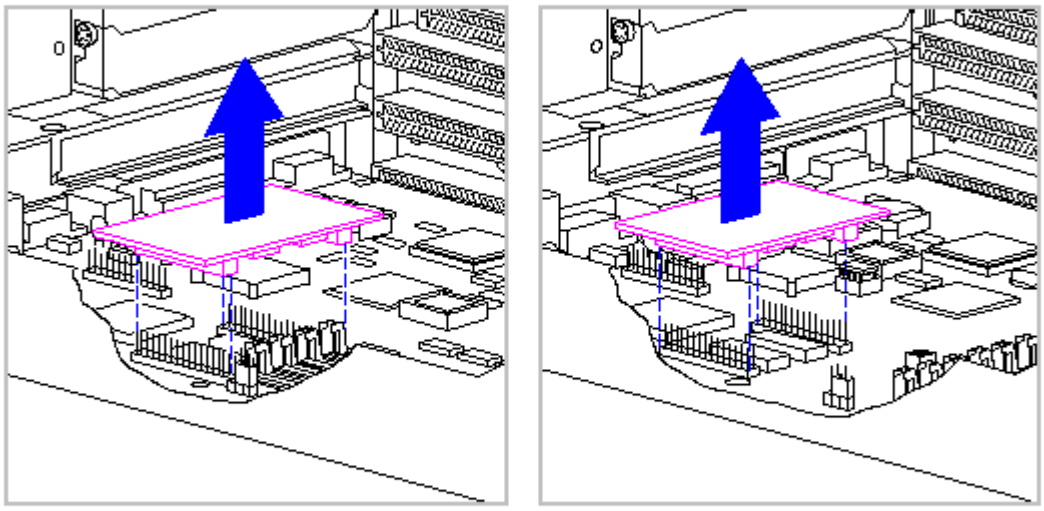


Figure 5-50. Removing the Video Memory Board

Reverse the above procedure to install a video memory board.

Chapter 5.19 QVision 2000+ Controller Memory Board

The QVision 2000+ Graphics Controller is installed in a PCI slot. Reference Section 5.11 for removal and replacement of the board. To remove and replace the 2 MB VRAM upgrade module on the board, complete the following steps.

1. Complete the steps in Section 5.3 to prepare the computer for disassembly.

2. Complete the steps in Unit Cover Removal and Replacement in Section 5.4 to gain access to the system board.

3. Complete the steps in Section 5.11 to remove the QVision 2000+ board.

4. Remove the video memory board as shown in Figure 5-51.

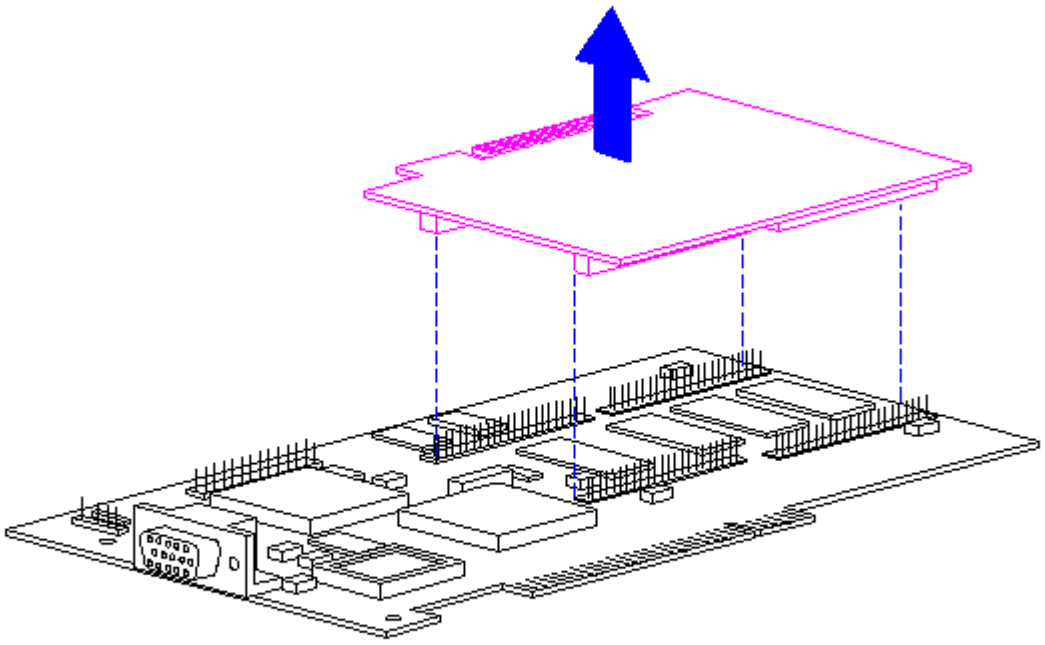


Figure 5-51. Removing the QVision 2000+ VRAM Upgrade Module

Reverse the above procedure to install a VRAM upgrade module and replace the QVision 2000+ Graphics Controller.

Chapter 5.20 RTC Battery

The RTC battery is permanently installed and cannot be removed. To install a replacement battery, complete the following steps:

1. Complete the steps in Section 5.3 to prepare the computer for disassembly.

2. Complete the steps in Unit Cover Removal and Replacement in Section 5.4 to gain access to the system board.

3. Mount the replacement battery on the rear panel of the base pan as shown in Figure 5-52. The battery is secured to the panel with an adhesive-backed hook-loop fastener. Remove the protective covering from the adhesive surface of the hook-loop fastener and install the battery.

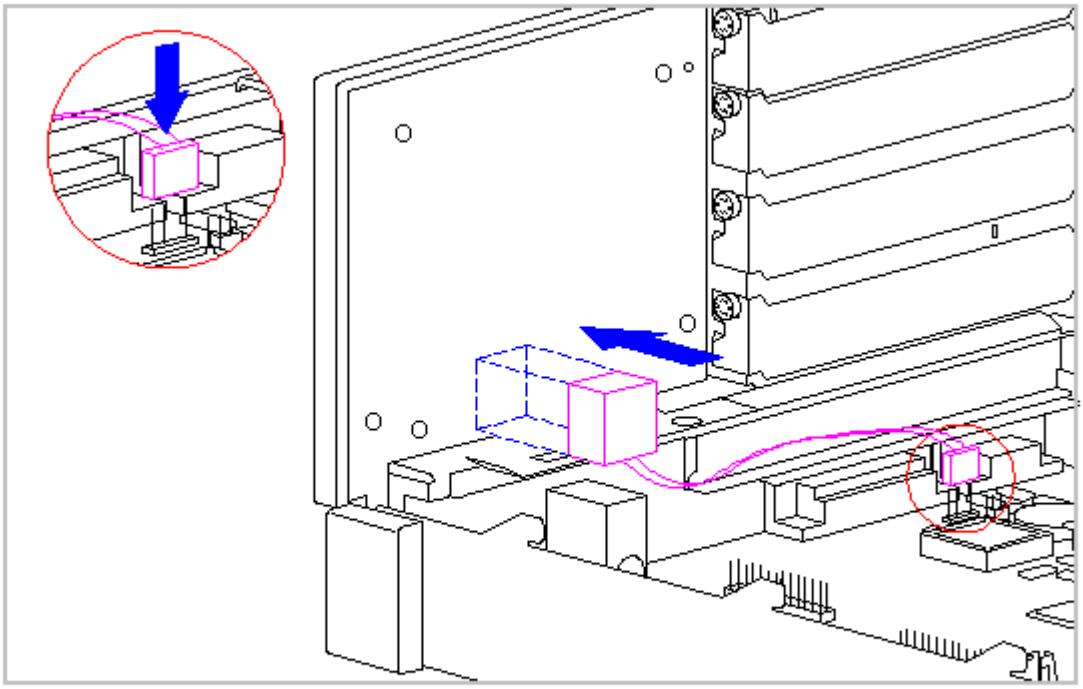


Figure 5-52. Installing a Replacement Battery

4. Move the E5 jumper plug to pins 2 and 3.

5. Connect the battery cable to connector P3 on the system board as shown in Figure 5-52.

   NOTE: The hook-loop fastener on the replacement battery allows you to temporarily remove the battery from the rear panel without having to disconnect the battery from the system board.

Chapter 5.21 Backplane Board

The backplane board is secured to the center chassis panel with six screws. To remove the backplane board, complete the following steps:

1. Complete the steps in Section 5.3 to prepare the computer for disassembly.

2. Complete the steps in Unit Cover Removal and Replacement in Section 5.4 to gain access to the option cards, system board, and LEDs.

3. Complete the steps in Section 5.11 and 5.13 to remove all expansion and option cards.

4. Complete the steps in Section 5.12 to remove the system board.

5. Disconnect the LED cable from its connector on the backplane board (Figure 5-42).

6. Release the speaker cable from the backplane board (Figure 5-35).

7. Disconnect the two power supply cables from the back side of the backplane board (Figure 5-19).

8. Disconnect the drive cables from the front side of the backplane board (Figure 5-53).

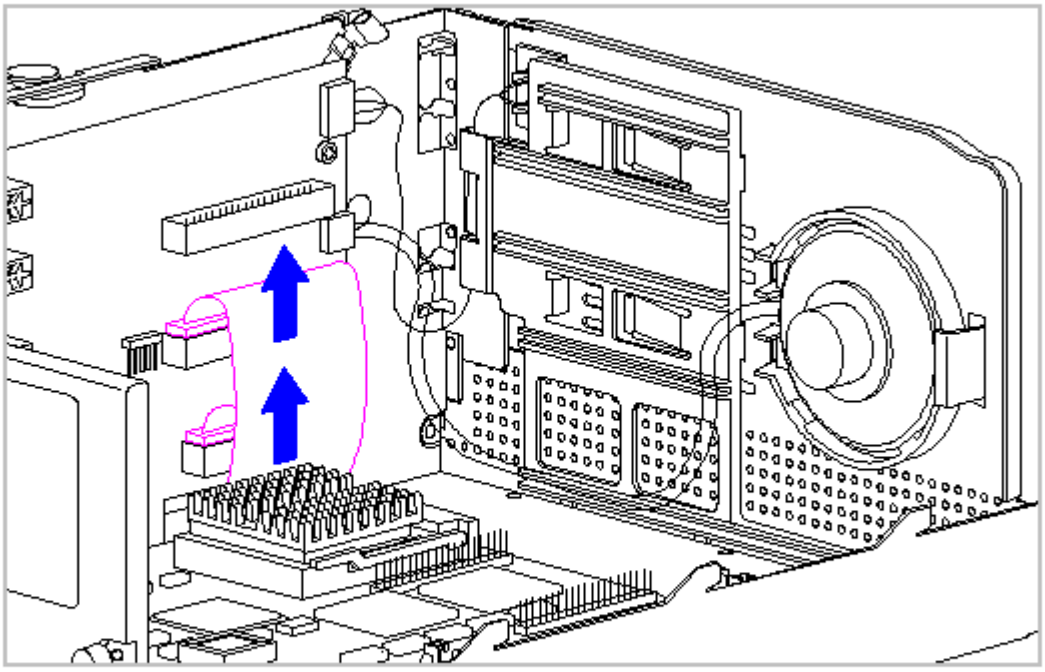


Figure 5-53. Disconnecting the Drive Cables from the Backplane Board

9. Remove the six screws securing the backplane board to the center chassis panel (Figure 5-54) and remove the backplane board.

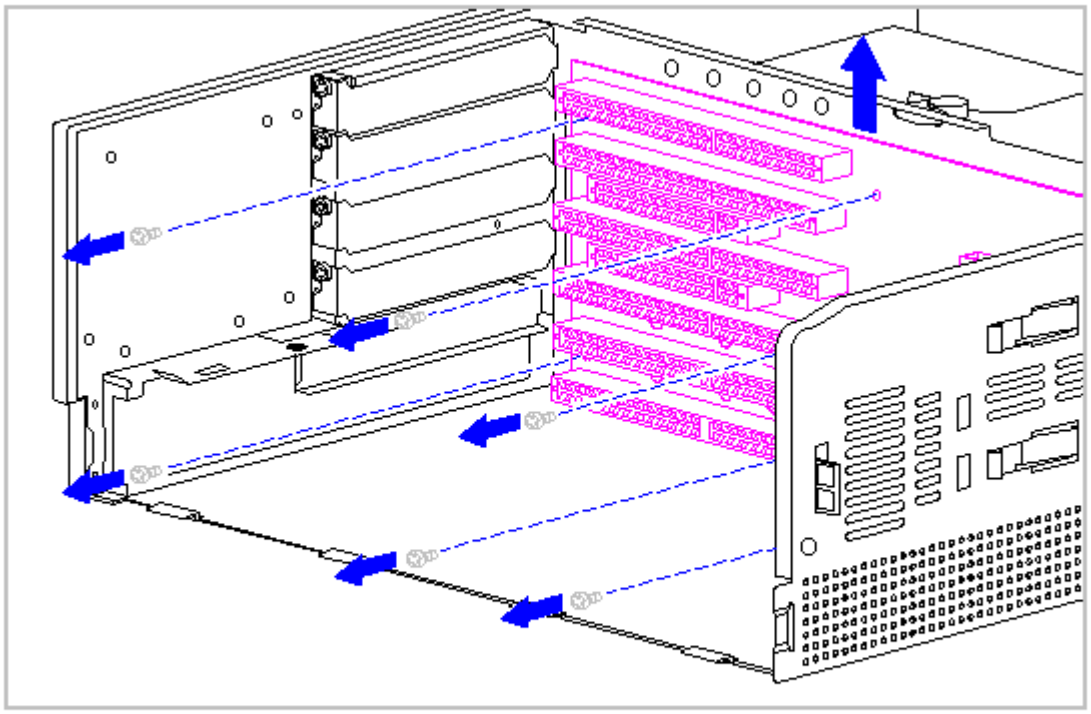


Figure 5-54. Removing the Backplane Board

Reverse the above procedure to install a backplane board.

IMPORTANT: If installing a Revision A backplane board, slide the board toward the front of the baseman before tightening the mounting screws. This will ensure proper alignment with the system board.

Chapter 5.22 System Board Guide

This procedure applies to the 486-based system board only. The system board guide for is attached to the floor of the base pan with adhesive. The guide is shipped with a protective strip over the adhesive. The system board, fax/modem card, and option cards must be removed prior to replacing the system board card guide.

To remove the system board guide, complete the following steps.

1. Complete the steps in Section 5.3 to prepare the computer for disassembly.

2. Complete the steps in Unit Cover Removal and Replacement in Section 5.4 to gain access to the option cards, system board, and LEDs.

3. Complete the steps in Section 5.11 to remove the option cards.

4. Complete the steps in Section 5.12 to remove the system board.

5. Remove and discard the system board guide. A small, flat-bladed screwdriver can be used to pry the guide from the chassis (Figure 5-55).

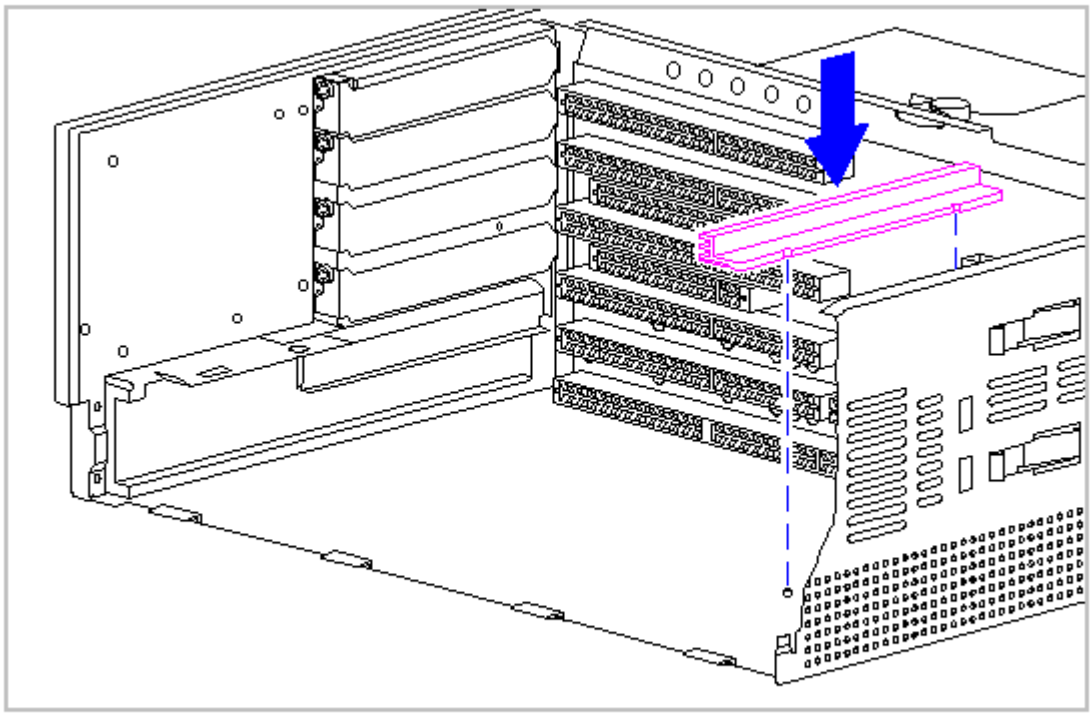


Figure 5-55. 486-Based System Board Guide

6. Remove any residual adhesive from the base pan.

7. Remove the protective strip from the back of the system board guide and install the guide, using the bosses on the pan of the chassis as guides to position the guide properly (Figure 5-55).

Chapter 6. Jumper and Switch Information

Chapter 6.0 Introduction

This chapter provides switch and jumper settings for the DT3 and DT4 models of the Compaq ProLinea Family of Personal Computers.

Chapter 6.1 486-Based System Boards

Connector and jumper locations on the 486-based system board are shown in Figure 6-1.

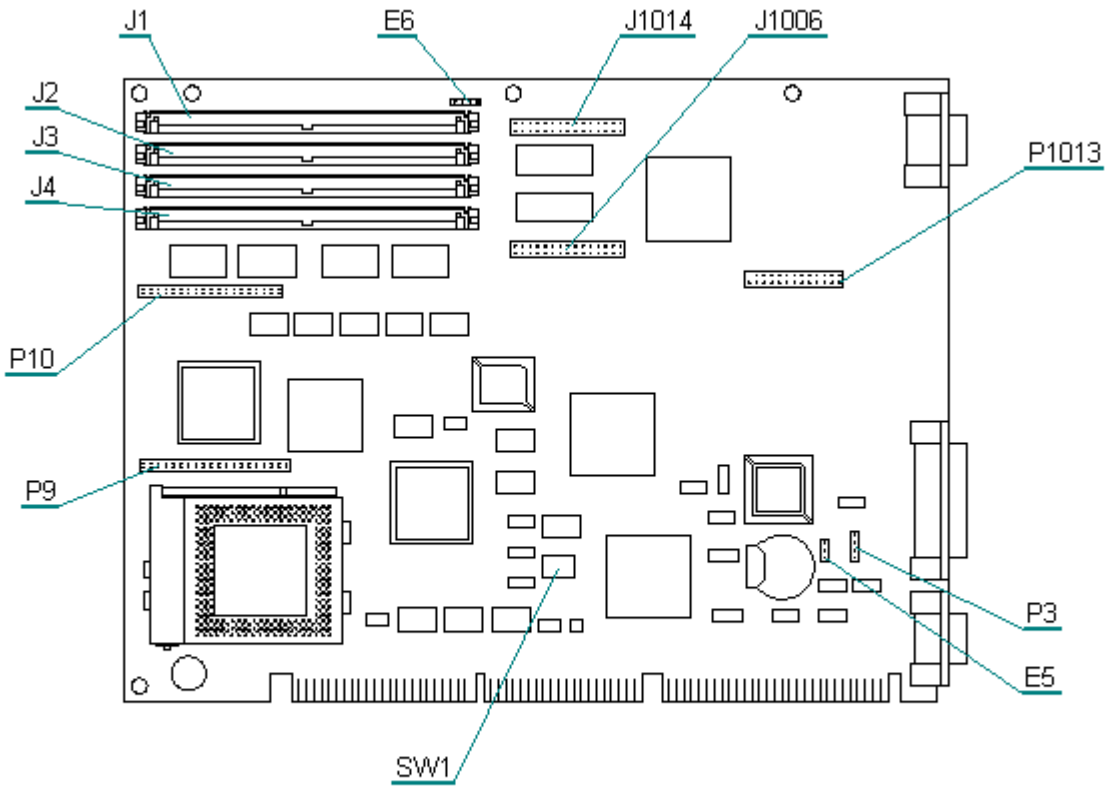


Figure 6-1. 486-Based System Board Connector and Jumper Locations

486-Based System Board Configuration Jumpers

The configuration jumpers for the 486-based system boards are identified in Table 6-1.

Table 6-1. 486-Based System Board Configuration Jumpers

Function	Setting	Description	Jumper
Password Enable/Disable	1 - 2	Password enabled	E6
	2 - 3	Password disabled	

Internal/ External Battery	1 - 2	Internal (onboard) battery	E5
	2 - 3	External battery. Connect battery at header P3	

486-Based System Board Processor Clock Speeds

The switch settings for the processors for the 486-based system boards are shown in Table 6-2.

Table 6-2. 486-Based System Board Processor SW1 Switch Settings

CPU Type/Operation	S1	S2	S3	S4
486DX2/50 MHz	ON	ON	OFF	OFF
486DX2/66 MHz	ON	OFF	OFF	OFF
486DX4/100 MHz	ON	OFF	OFF	OFF

486-Based System Board External Connectors

The external connectors located on the 486-based system board are identified in Table 6-3.

Table 6-3. 486-Based System Board External Connectors

Function	Description	Designator
Keyboard	Miniature 6 Pin	J9 Bottom
Mouse	Miniature 6 Pin	J9 Top
Parallel	DSub25 Pin	J8
Serial	DSub 9 pin	P7
Monitor	15 Pin Header	P1001

486-Based System Board Internal Connectors

The internal connectors located on the 486-based system board are identified in Table 6-4.

Table 6-4. 486-Based System Board Internal Connectors

Function	Description	Designator
SIMM Sockets	72 Pin SIMM	J1 - J4

Replacement Battery	4 Pin Header, Key 2	P3
Feature Connector	26 Pin Header	P1013
Processor/Upgrade Socket	ZIF	XU42
Graphics Memory Expansion	30 Pin Small Header	J1006, J1014

Chapter 6.2 586-Based System Boards

Connector and jumper locations on the 586-based system board are shown in Figure 6-2.

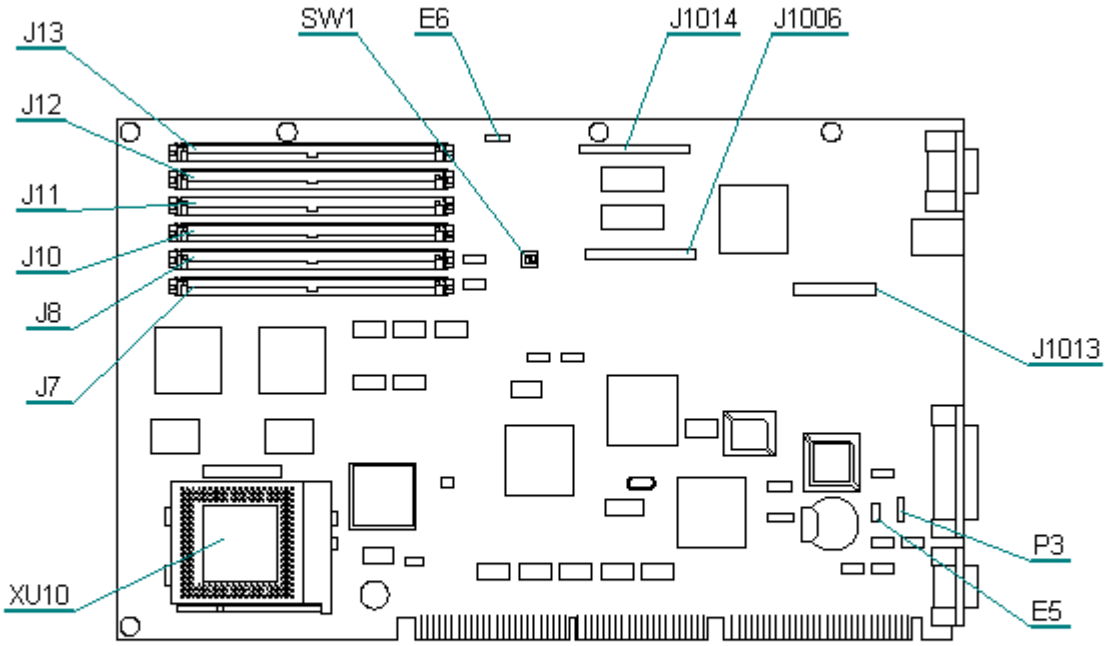


Figure 6-2. 586-Based System Board Connector and Jumper Locations

586-Based System Board Configuration Jumpers

The configuration jumpers for the 586-based system board are identified in Table 6-5.

Table 6-5. 586-Based System Board Configuration Jumpers

Function	Setting	Description	Jumper
Password	1 - 2	Password enabled	E6

Enable/Disable	2 - 3	Password disabled	
Internal/ External Battery	1 - 2	Internal (onboard) battery	E5
	2 - 3	External battery. Connect battery at header P3	

586-Based System Board Processor Clock Speeds

The settings for the processor switch SW1 for the 586-based system board are shown in Table 6-6.

Table 6-6. 586-Based System Board SW1 Switch Settings

CPU Type/Operation	S1	S2	Description
586/75 MHz	ON	OFF	50 MHz external, 75 MHz internal
586/90 MHz	OFF	OFF	60 MHz external, 90 MHz internal
586/100 MHz	ON	ON	50 MHz external, 100 MHz internal

586-Based System Board External Connectors

The external connectors located on the 586-based system board are identified in Table 6-7.

Table 6-7. 586-Based System Board External Connectors

Function	Description	Designator
Keyboard	Miniature 6 Pin	J9 Bottom
Mouse	Miniature 6 Pin	J9 Top
Parallel	DSub25 Pin	J2
Serial	DSub 9 pin	P2
Monitor	15 Pin Header	P6

586-Based System Board Internal Connectors

The internal connectors located on the 586-based system board are identified in Table 6-8.

Table 6-8. 586-Based System Board Internal Connectors

Function	Description	Designator
SIMM Sockets	72 Pin SIMM	J7, J8, J10 - J13
Replacement Battery	4 Pin Header, Key 2	P3
Feature Connector	26 Pin Header	J1013
Processor/Upgrade Socket	ZIF	XU10
Graphics Memory Expansion	44 Pin Small Header	P4, P5, P7, P8

Chapter 6.3 Backplane Boards

3-Slot Backplane Board

The connectors on the 3-slot backplane board are identified in Figure 6-3 and described in Table 6-9.

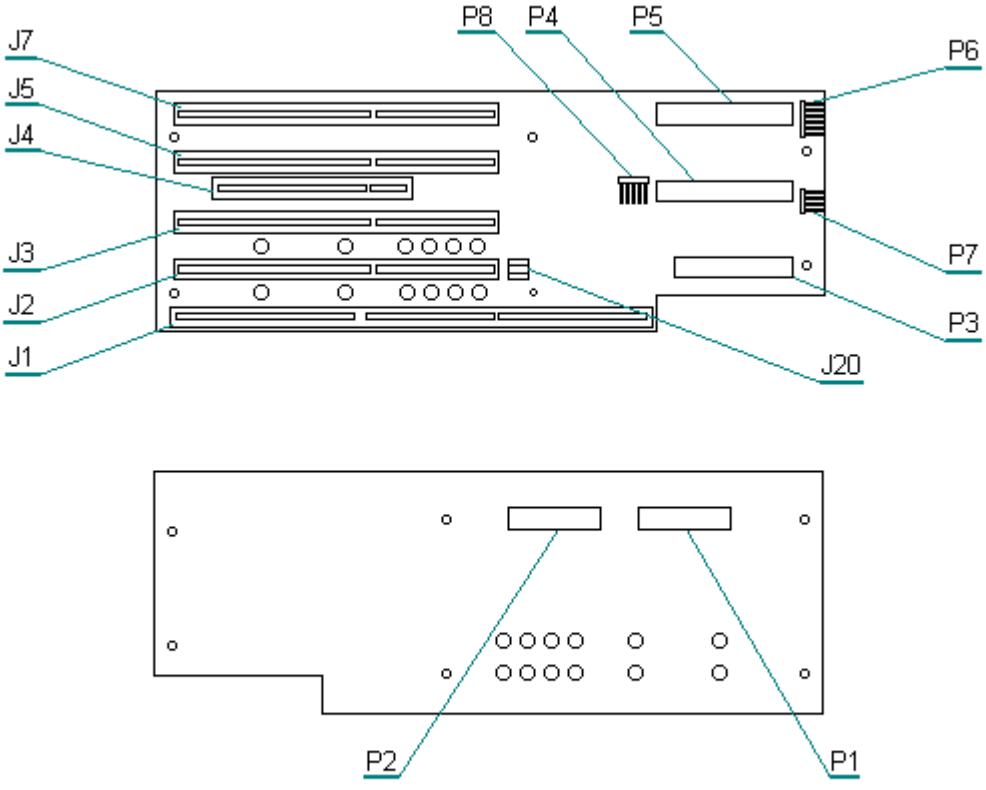


Figure 6-3. 3-Slot Backplane Board Connectors

Table 6-9. 3-Slot Backplane Board Connectors

Function	Description	Designator

Standard ISA Slots	ISA Socket	J5, J7
Shared ISA/PCI Slot	ISA Socket	J3
Shared ISA/PCI Slot	PCI Socket	J4
Compaq Option Slot	ISA Socket	J2
System Board	Edge connector	J1
Diskette Drive	34-pin edge connector	P3
IDE Drive	40 Pin Edge	P4, P5
Speaker	4-pin/key 3	P7
Power and Hard Drive LED	6 Pin Header, Key 3	P6
Display Data Channel	5 Pin Header, Key 2	P8
Audio Pickup		J20
Power Supply		P1, P2

4-Slot Backplane Board

The connectors on the 4-slot backplane board are identified in Figure 6-4 and described in Table 6-10.

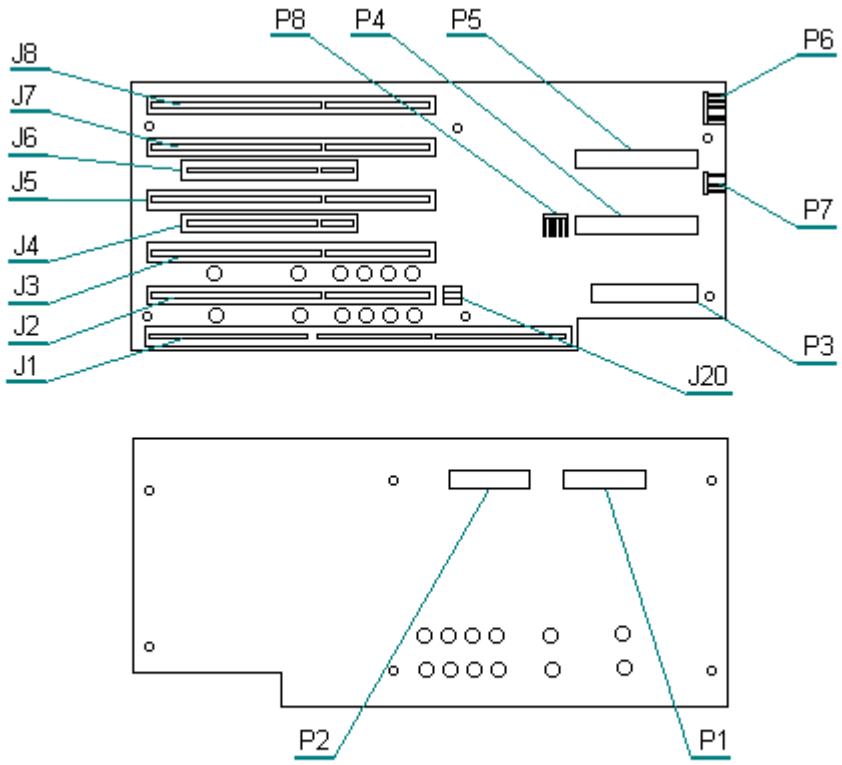


Figure 6-4. 4-Slot Backplane Board Connectors

Table 6-10. 4-Slot Backplane Board Connectors

Function	Description	Designator
Standard ISA Slots	ISA Socket	J7, J8
Shared ISA/PCI Slots	ISA Socket	J3, J5
Shared ISA/PCI Slots	PCI Connector	J4, J6
Compaq Option Slot	ISA Socket	J2
System Board	Edge connector	J1
Diskette Drive	34-pin edge connector	P3
IDE Drive	40 Pin Edge	P4,P5
Speaker	4-pin header, key 3	P7
Power and Hard Drive LED	6 Pin Header, Key 3	P6
Display Data Channel	5 Pin Header, Key 2	P8
Audio Pickup		J20

Power Supply	P1, P2

Chapter 6.4 IDE Hard Drives

The following IDE hard drives for the Compaq ProLinea Family of Personal Computers are available from Compaq Computer Corporation:

- 270 MB IDE hard drive
- 420 MB IDE hard drive
- 540 MB IDE hard drive
- 720 MB IDE hard drive
- 1 GB IDE hard drive

Cable-Select Technology

The Compaq ProLinea Family of Personal Computers uses cable-select technology for identifying Device 0 (master) and Device 1 (slave) IDE hard drives. Check that the jumpers on the IDE hard drive are set properly for cable-select installation.

Soft Drive Type

The Compaq ProLinea Family of Personal Computers supports an automatic soft-drive type mechanism where the system ROM and Computer Setup provide support for IDE hard drives that are not supported in the hard drive parameter table. Computer setup will automatically build a soft-drive type when it finds that a hard drive is not in the hard drive parameter table. You can also change or add a soft-drive type with Computer Setup.

The hard drive parameter information is stored in NV-RAM. The system ROM's POST copies the hard drive parameters into the hard drive parameter table in the shadow RAM copy of the system ROM. After POST, the soft-drive type appears as a hard drive type.

The soft-drive types are assigned to hard drive types as shown in Table 6-15.

Table 6-11. Soft-Drive Type Assignments

Controller	Drive	Hard Drive Type
Primary	0	65
Primary	1	66
Secondary	0	68
Secondary	1	15

For hard drives larger than 528 MB, the system automatically translates the hard drive parameters for MS-DOS by logically halving the number of cylinders and doubling the number of heads. This allows MS-DOS to access hard drives larger than 528 MB.

As stated earlier, the translated hard drive parameters are copied into the hard drive parameter table in the shadow RAM copy of the system ROM. If you are using an operating system other than MS-DOS, you must use the Compaq Diagnostics Diskette to set up the hard drive parameter without translation.

Jumper settings for the hard drives used in the computer are presented in the following sections.

270 MB IDE Hard Drive Jumper Settings

The jumper settings for the 270 MB IDE hard drives are shown in Figure 6-5 and Figure 6-6.

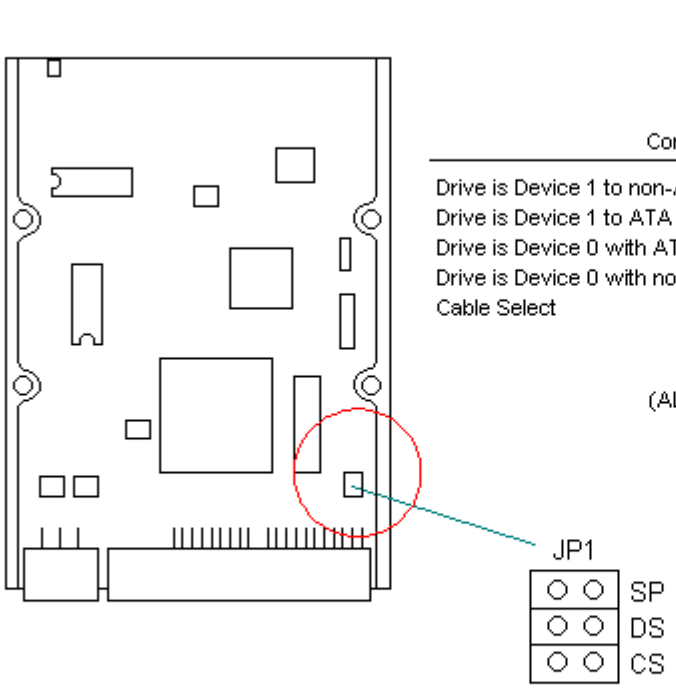
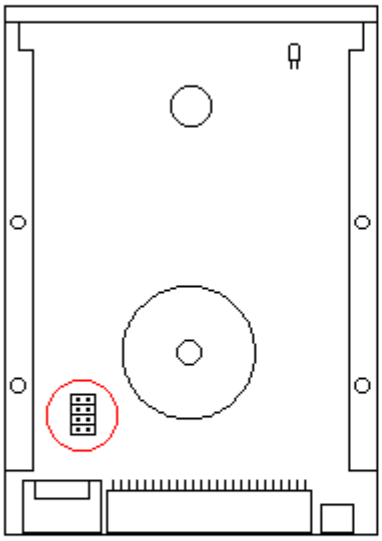


Figure 6-5. 270 MB Quantum IDE Hard Drive Jumper Settings

Seagate Drive - ST3295A
Assembly Number 172773



Configuration	Device 0
No Jumpers	Drive is a Device 0; the Device 1 is another ATA compatible drive or no Device 1 is present
1 and 2	Drive is a Device 0; a Device 1 is present, but it does not have a DASP-signal
3 and 4 (default)	CABLE SELECT
5 and 6	Drive is a Device 0; a Device 1 is present, but it is not ATA-compatable
7 and 8	The drive is a Device 1 to an ATA-compatable Device 0

(ALL CAPS indicates factory setting)

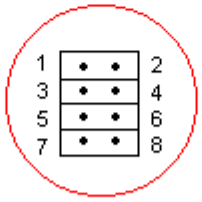
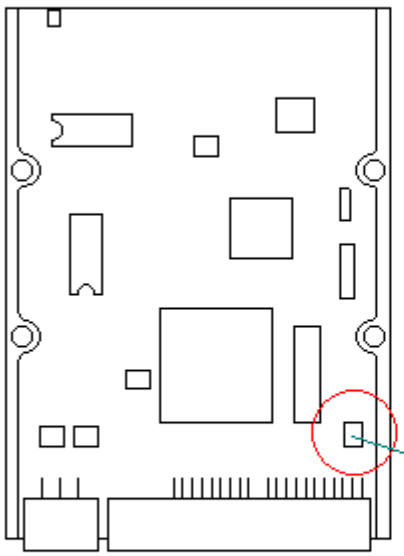


Figure 6-6. 270 MB Seagate IDE Hard Drive Jumper Settings

420 MB IDE Hard Drive Jumper Settings

The jumper settings for the 420 MB IDE hard drives are shown in Figures 6-7 and 6-8.

Quantum Drive - LPS420AT
Assembly Number 172774



Configuration	CS	DS	SP
Drive is Device 1 to non-ATA compatible drive	no	no	yes
Drive is Device 1 to ATA compatible drive	no	no	no
Drive is Device 0 with ATA compatible Device 1 present	no	yes	no
Drive is Device 0 with non-ATA compatible Device 1 present	no	yes	yes
Drive is configured for cable select	YES	NO	NO

(ALL CAPS indicates factory setting)

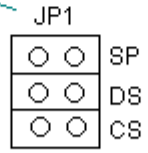
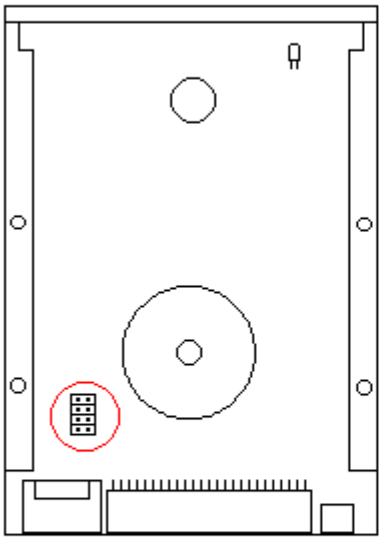


Figure 6-7. 420 MB Quantum IDE Hard Drive Jumper Settings



Seagate Drive - ST3491
Assembly Number 189586

Configuration	Device 0
No Jumpers	Drive is a Device 0; the Device 1 is another ATA compatible drive or no Device 1 is present
1 and 2	Drive is a Device 0; a Device 1 is present, but it does not have a DASP-signal
3 and 4 (default)	CABLE SELECT
5 and 6	Drive is a Device 0; a Device 1 is present, but it is not ATA-compatable
7 and 8	The drive is a Device 1 to an ATA-compatable Device 0

(ALL CAPS indicates factory setting)

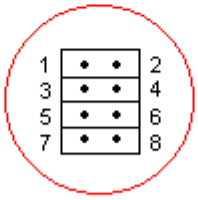


Figure 6-8. 420 MB Seagate IDE Hard Drive Jumper Settings

540 MB IDE Hard Drive Jumper Settings

The jumper settings for the 540 MB IDE are shown in Figures 6-9 and 6-10.

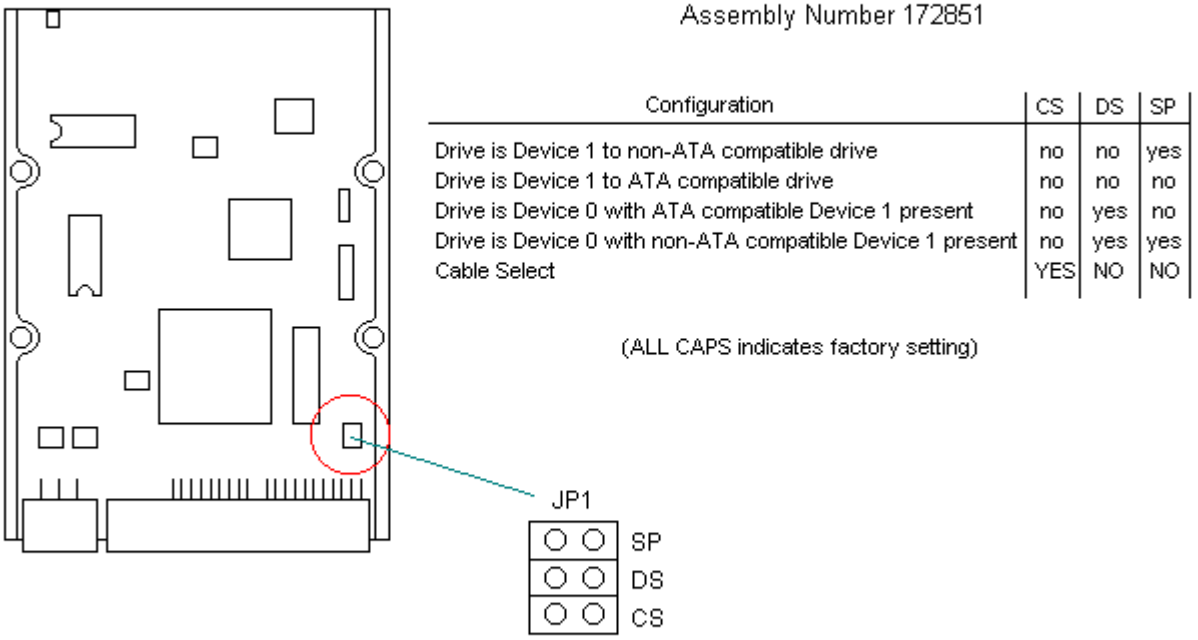


Figure 6-9. 540 MB Quantum IDE Hard Drive Jumper Settings

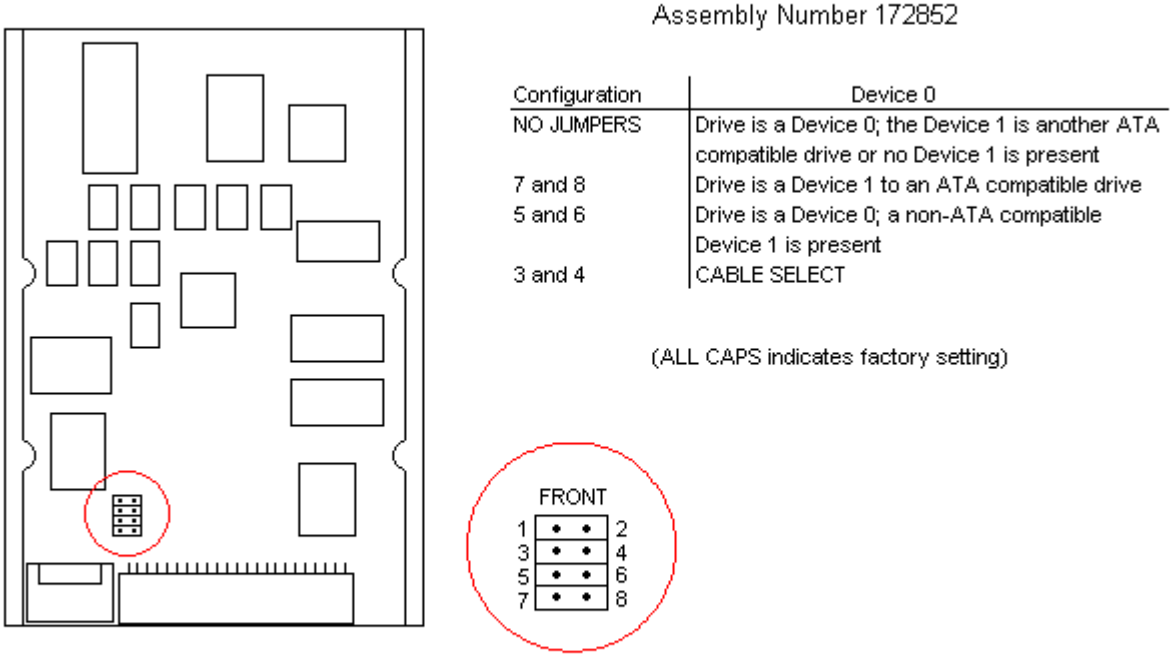


Figure 6-10. 540 MB Seagate IDE Hard Drive Jumper Settings

720 MB IDE Hard Drive Jumper Settings

The jumper settings for the 720 MB IDE are shown in Figure 6-11.

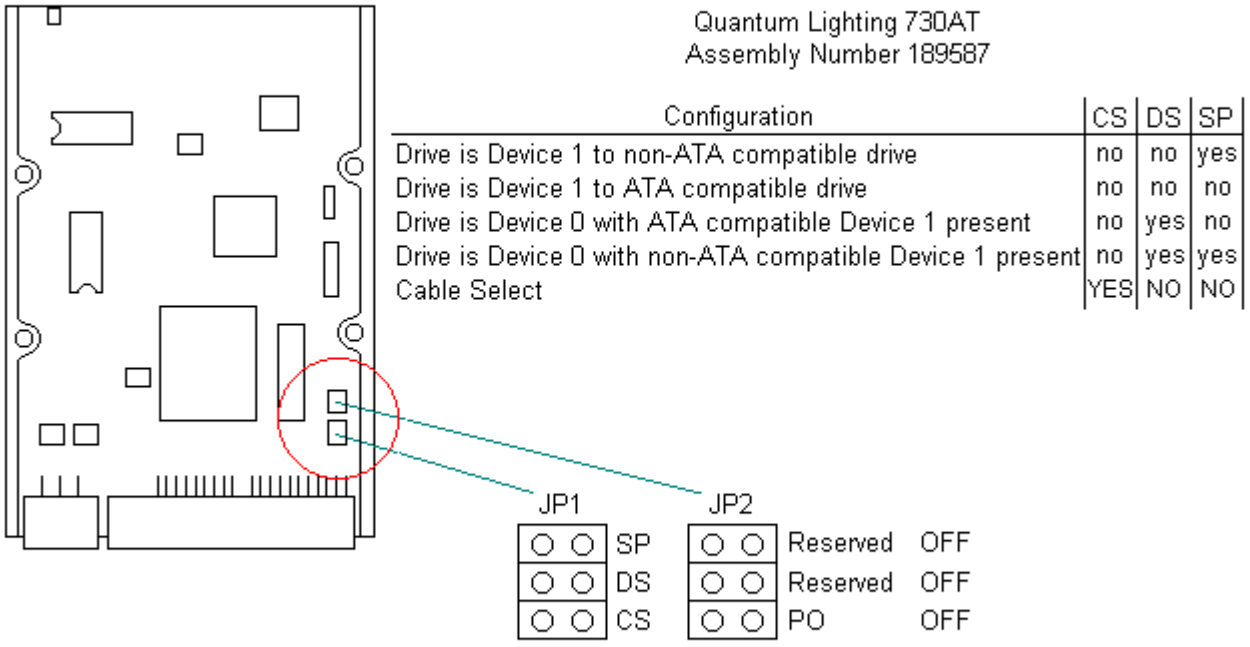
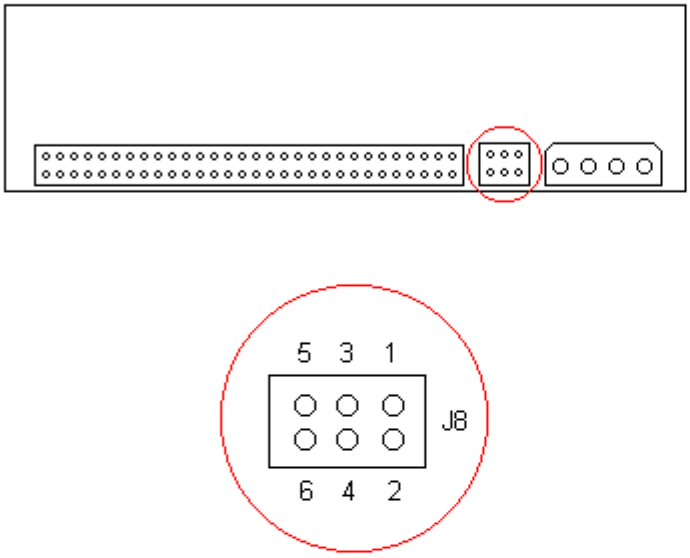


Figure 6-11. 720 MB Quantum IDE Hard Drive Jumper Settings

1 GB IDE Hard Drive Jumper Settings

The jumper settings for the 1 GB IDE are shown in Figure 6-12.



Western Digital - AC31000
Assembly Number 214127

Jumpers	
1 and 2	CABLE SELECT
3 and 4	Device 1
5 and 6	Device 0
3 and 5	Single Drive

(ALL CAPS indicates factory setting)

Figure 6-12. 1 GB IBM IDE Hard Drive Jumper Settings

Chapter 6.5 SCSI Hard Drives

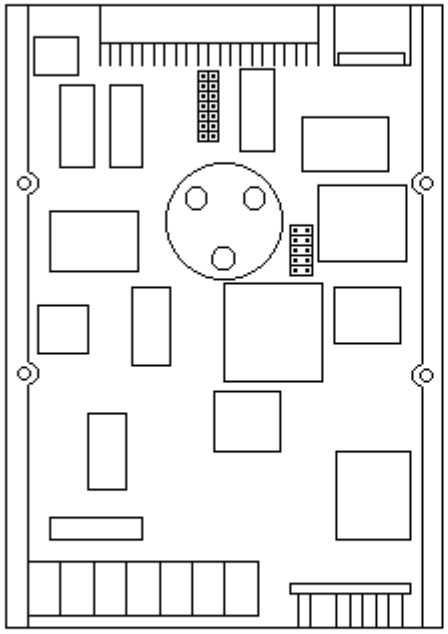
The following SCSI hard drives for the Compaq ProLinea Family of Personal Computers are available from Compaq Computer Corporation:

- 535 MB Fast SCSI-2 hard drive
- 1.0 GB Fast SCSI-2 hard drive
- 1.05 GB Fast SCSI-2 hard drive

o 2.1 GB Fast SCSI-2 hard drive

535 MB SCSI Hard Drives Jumper Settings

The jumper locations for the three 535 MB SCSI hard drives are shown in Figures 6-13 through 6-15. Jumper settings are given in Tables 6-12 through 6-14.



Conner Drive - CP30540
Assembly Number 148158

Figure 6-13. 535 MB Conner SCSI Hard Drive Jumper Locations

Table 6-12. 535 MB Conner SCSI-2 Hard Drive Jumper Options (Shipped configuration below)

Jumper	Option	Description
E1	PARK	SCSI Address, Bit 0
E2	PARK	SCSI Address, Bit 1
E3	OFF	SCSI Address, Bit 2
E4	ON	Disable Spin at Power-On
E5	OFF	Enable term, (No termination on this drive)
E6	OFF	Enable Term Power

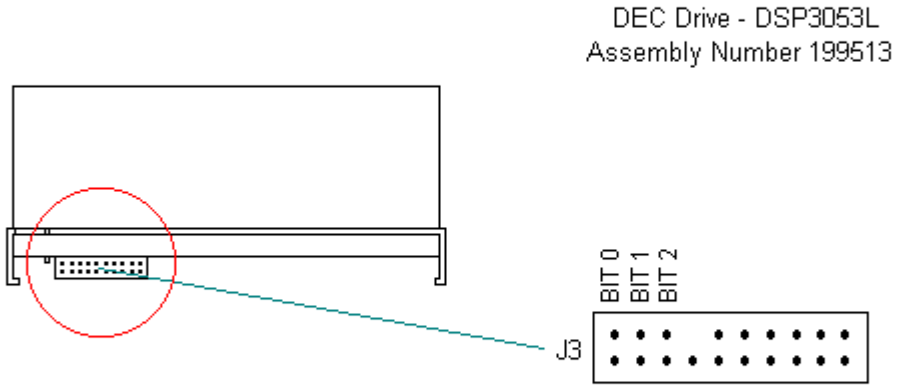


Figure 6-14. 535 MB DEC SCSI Hard Drive Jumper Settings

Table 6-13. 535 MB SCSI-2 DEC Hard Drive Jumper Options (Shipped configuration below)

Jumper	Option	Description
1 - 2	PARK	SCSI Address, Bit 0
3 - 4	PARK	SCSI Address, Bit 1
5 - 6	OPEN	SCSI Address, Bit 2
7	OPEN	Fault LED
8	key	
9	OPEN	Busy LED
10	OPEN	Spindle Sync Reference
11	OPEN	+5V Out
12	OPEN	Reserved
13 - 14	OPEN	Delay Spin/Write Protect, Disabled

15 - 16	OPEN	LED
17 - 18	OPEN	Reserved
19 - 20	OPEN	Spindle Sync Reference

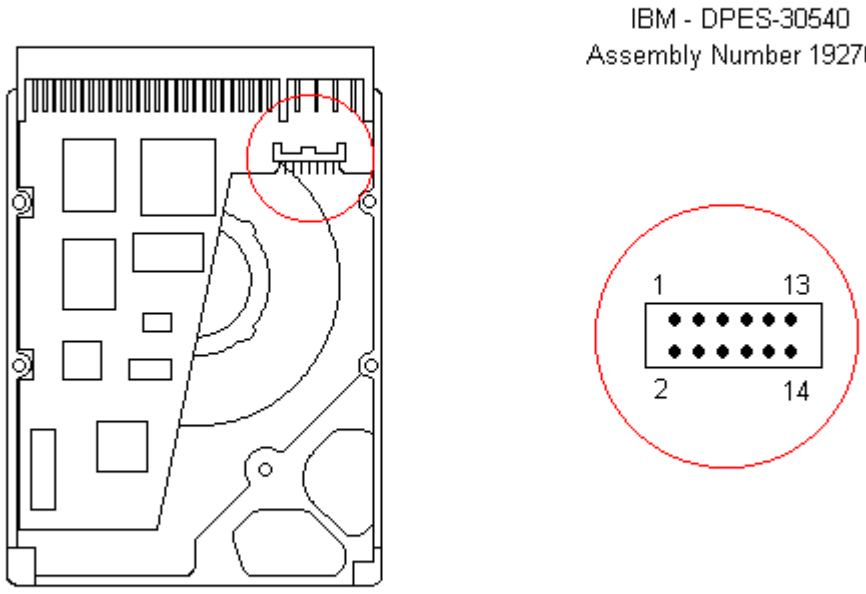


Figure 6-15. 535 MB IBM SCSI Hard Drive Jumper Locations

Table 6-14. 535 MB IBM SCSI-2 Hard Drive Jumper Options (Shipped configuration below)

Jumper	Option	Description
1 - 2	OFF	Device Identification, Bit 0
3 - 4	OFF	Device Identification, Bit 1
5 - 6	OFF	Device Identification, Bit 2
7 - 8	ON	Auto Spin Up Enabled
9 - 10	OFF	Unit Attention Enabled
11 - 12	OFF	SCSI Terminator On

13 - 14	OFF	TI Sync Negotiation Enabled

1.05 GB SCSI Hard Drive Jumper Settings

The jumper locations for the 1.05 GB SCSI hard drives are shown in Figures 6-16 through 6-21. See Tables 6-15 through 6-19 for jumper settings.

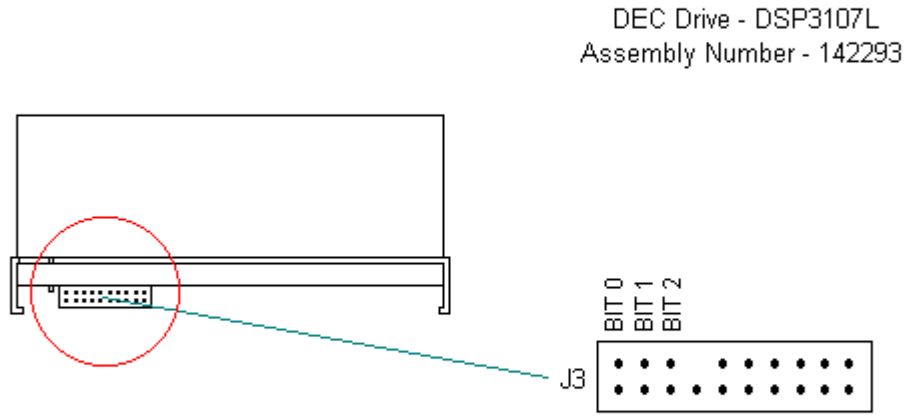


Figure 6-16. 1.05 GB DEC SCSI Hard Drive Jumper Locations

Table 6-15. 1.05 GB SCSI-2 DEC Hard Drive Jumper Options (Shipped configuration below)

Jumper	Option	Description
1 - 2	PARK	SCSI Address, Bit 0
3 - 4	PARK	SCSI Address, Bit 1
5 - 6	OPEN	SCSI Address, Bit 2
7	OPEN	Fault LED
8	key	
9	OPEN	Busy LED

10	OPEN	Spindle Sync Reference
11	OPEN	+5V Out
12	OPEN	Reserved
13 - 14	OPEN	Delay Spin/Write Protect, Disabled
15 - 16	OPEN	LED
17 - 18	OPEN	Reserved
19 - 20	OPEN	Spindle Sync Reference

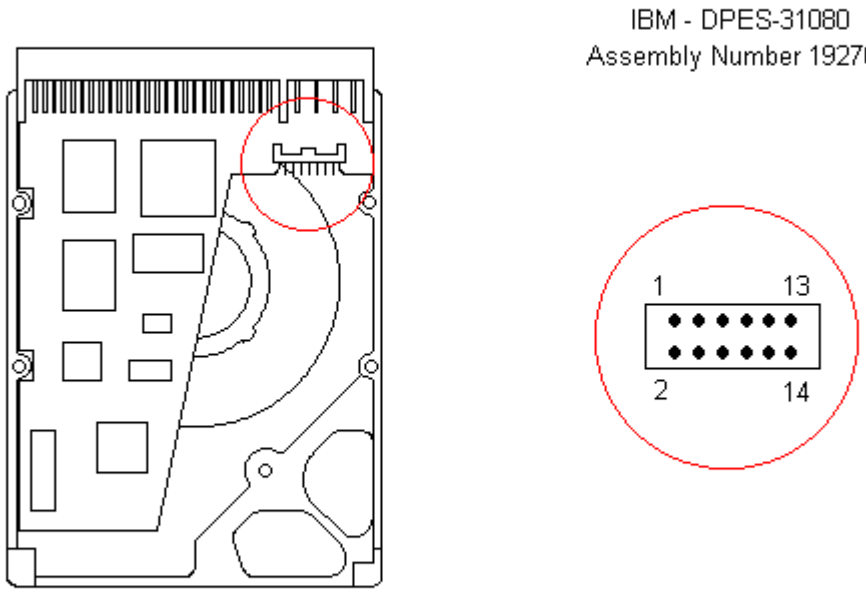


Figure 6-17. 1.05 GB IBM SCSI Hard Drive Jumper Locations

Table 6-16. 1.05 GB IBM SCSI-2 Hard Drive Jumper Options (Shipped configuration below)

Jumper	Option	Description
1 - 2	OFF	Device Identification, Bit 0
3 - 4	OFF	Device Identification, Bit 1
5 - 6	OFF	Device Identification, Bit 2

7 - 8	ON	Auto Spin Up Enabled
9 - 10	OFF	Unit Attention Enabled
11 - 12	OFF	SCSI Terminator On
13 - 14	OFF	TI Sync Negotiation Enabled

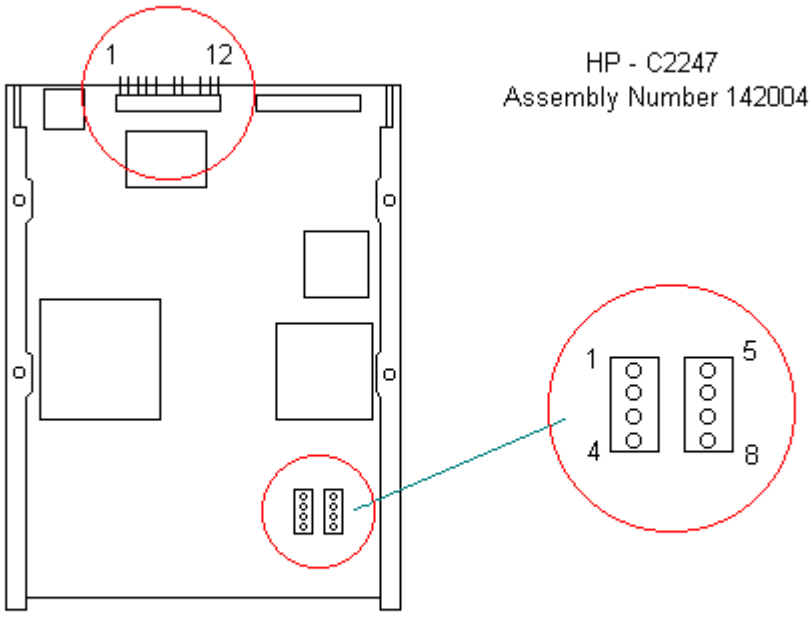


Figure 6-18. 1.05 GB HP SCSI Hard Drive Jumper Locations

Table 6-17. 1.05 GB SCSI HP Hard Drive Jumper Options (Shipped configuration shown)

Jumper	Option	Description
1	OFF	Write protect based on Mode Page
2	OFF	Unit Attention enabled
3	ON	Initiate SDTR message at power-on and reset
4	ON	Parity Checking enabled
5	OFF	Spin up with Start Unit Command

6	key	
7 - 8	OFF	Synchronized Spindle (unused)
9	key	
10	PARK	SCSI Address, Unit Select 1
11	PARK	SCSI Address, Unit Select 2
12	OFF	SCSI Address, Unit Select 3

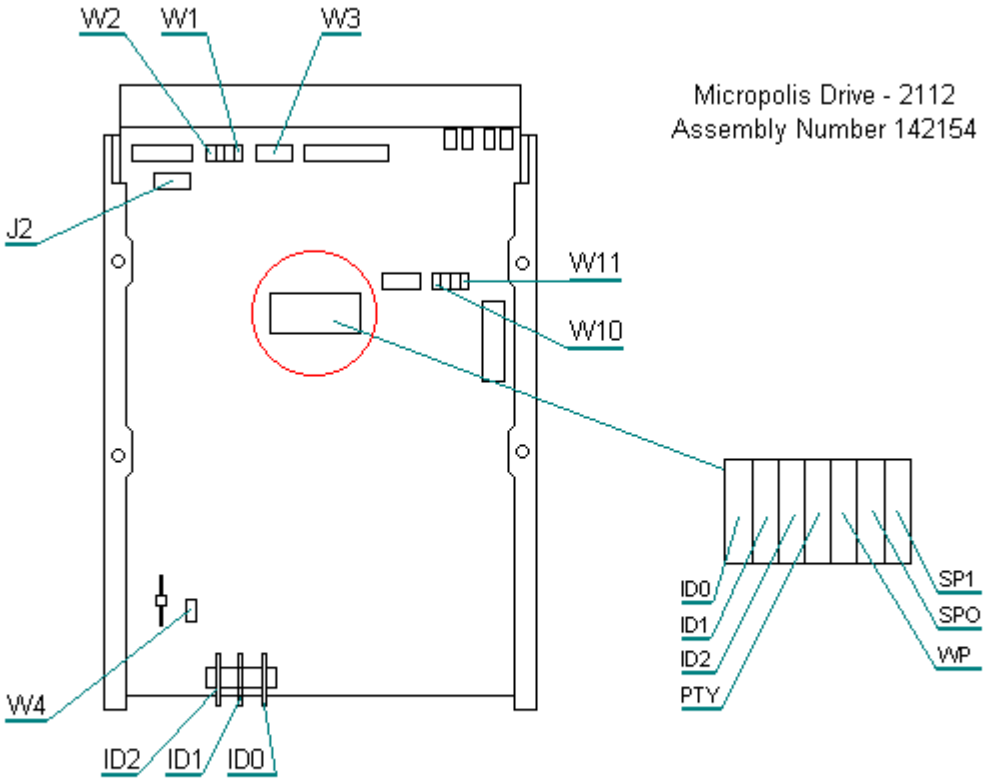


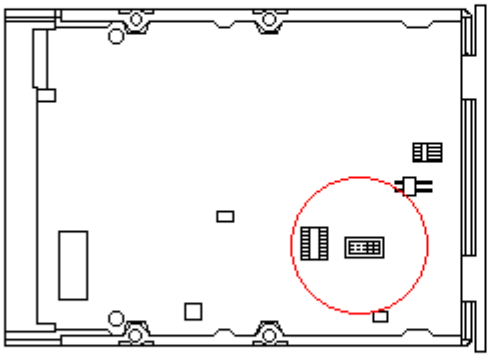
Figure 6-19. 1.05 GB Micropolis SCSI Hard Drive Jumper Locations

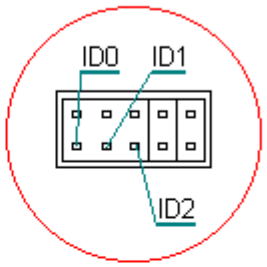
Table 6-18. 1.05 GB SCSI Micropolis Hard Drive Jumper Options (Shipped configuration shown)

Jumper	Option	Description
SW1		
ID0	PARK	SCSI Address, Unit Select 1
ID1	PARK	SCSI Address, Unit Select 2
ID2	OFF	SCSI Address, Unit Select 3

PTY	OFF	Parity Checking enabled
WP	OFF	Write protect disabled
SP0	ON	Spin up with Start Unit Command
SP1	OFF	Spin up delay disabled
W4	ON	LED on PCBA is enabled
W3	ON	Drive provide BUS termination power
W2	OFF	Termination power provided by Host
W1	OFF	Drive provide local termination power
W10	OFF	Slave Sync Termination enabled
W11	OFF	Master Sync Termination disabled

Fujitsu - M2694ES
Assembly Number 142189



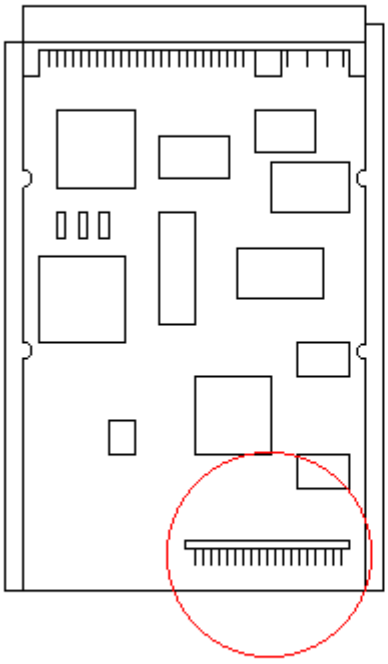


SCSI ID	Pin 3 ID 2	Pin 2 ID 1	Pin 1 ID 0
6	ON	ON	OFF
5	ON	OFF	ON
4	ON	OFF	OFF
3	OFF	ON	ON
2	OFF	ON	OFF
1	OFF	OFF	ON
0	OFF	OFF	OFF

Figure 6-20. 1.05 GB Fujitsu SCSI Hard Drive Jumper Locations

Table 6-19. 1.05 GB Fujitsu Hard Drive Jumper Options (Shipped configuration shown)

Jumper	Option	Description
SW1		
1	Off	SCSI-2 level
2	Off	Normal operation
3	On	Unit attention enabled
4	On	Retry count is unlimited
5	On	Parity checking enabled
6	On	Initiate SDTR message at power-on and reset
7	On	LED lights during operation
8	Off	Spin up with Start Unit Command
CNH11		
1 - 2	Park	SCSI address, Unit Select 1
3 - 4	Park	SCSI address, Unit Select 2
5 - 6	Park	SCSI address, Unit Select 3
7 - 8	On	Write protect disabled
9 - 10	Off	Reserved
CNH10		
1 - 2	On	Spindle sync terminating resistor power
3 - 4	On	SCSI terminating resistor power from IDD
5 - 6	On	SCSI terminating resistor power from TERMPWR
CNH6		
A0	Off	SCSI address, Unit Select 1
A1	Off	SCSI address, Unit Select 2
A2	Off	SCSI address, Unit Select 3



IBM - 0662
Assembly Number 142292

Jumper	Option	Description
1 - 2	key	
3 - 4	PARK	SCSI Address, Bit 2
5 - 6	PARK	SCSI Address, Bit 1
7 - 8	OFF	SCSI Address, Bit 0
9 - 10	key	
11 - 12	OFF	Spin Up with Start Unit Command
13 - 14	OFF	Terminator Disabled
15 - 16	OFF	Device 0/Device 1 Spindle Sync
17 - 18	OFF	LED
19 - 20	OFF	Write Protect Disabled
21 - 22	OFF	Auto Start Delay Disabled
23 - 24	OFF	Reserved

Figure 6-21. 1.05 GB IBM SCSI Hard Drive Jumper Settings

2.1 GB SCSI Hard Drive Jumper Settings

The jumper locations for the two 2.1 GB SCSI hard drives are shown in Figures 6-22 and 6-23. See Tables 6-20 and 6-21 for jumper settings.

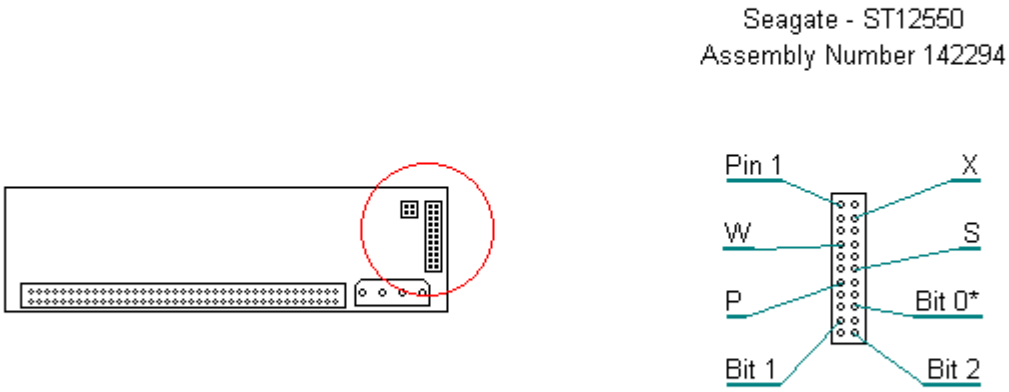


Figure 6-22. 2.1 GB Seagate SCSI Hard Drive Jumper Locations

Table 6-20. 2.1 GB Seagate SCSI-2 Hard Drive Jumper Options (Shipped configuration below)

Jumper	Option	Description
J01		
1 - 2	ON	Terminator Power SCSI Address, Unit Select 1
3 - 4	OFF	
J04		
1 - 2	OFF	Spindle Sync Connector
3 - 4	ON	Initiate SDTR Message at Power-On and Reset
5 - 6	OFF	Remote LED Connector
7 - 8	OFF	Write Protect Disabled
9 - 10	OFF	Delayed Motor Start Disabled
11 - 12	ON	Spin Up with Start Unit Command
13 - 14	OFF	Parity Checking Enabled

15 - 16	OFF	Reserved
17 - 18	OFF	SCSI Address, Unit Select 0
19 - 20	OFF	SCSI Address, Unit Select 1
21 - 22	OFF	SCSI Address, Unit Select 2

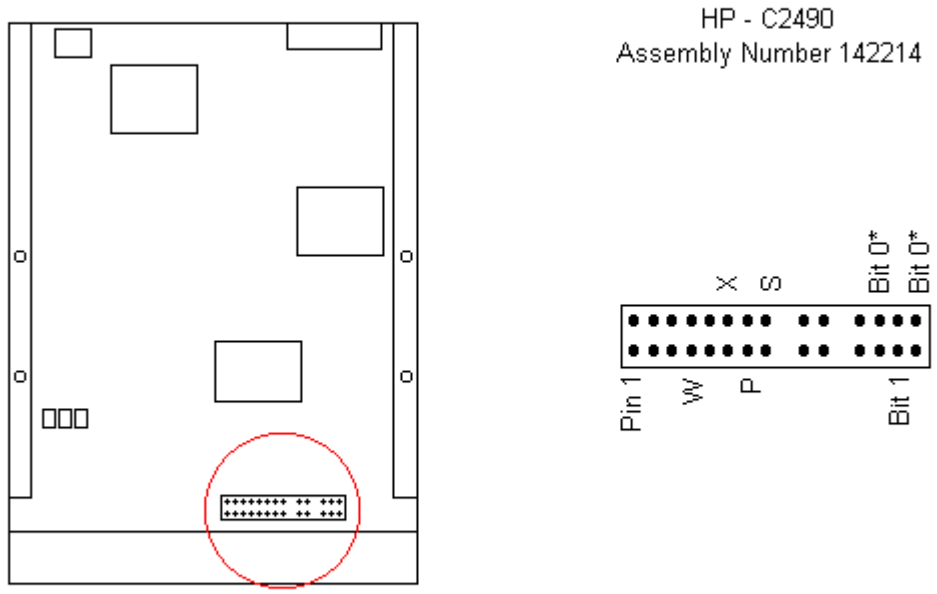


Figure 6-23. 2.1 GB HP SCSI Hard Drive Jumper Locations

Table 6-21. 2.1 GB HP SCSI-2 Hard Drive Jumper Options (Shipped configuration below)

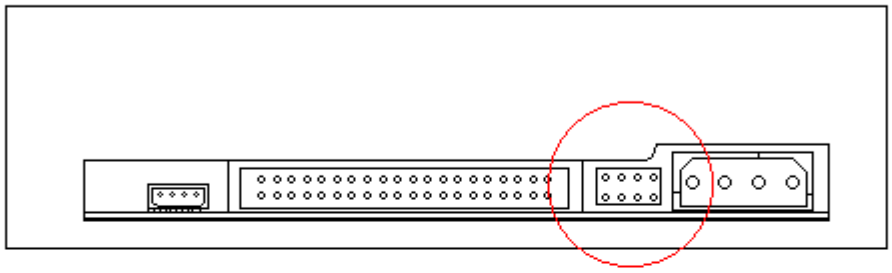
Jumper	Option	Description
1	OFF	SCSI Address, Unit Select 1
2	OFF	SCSI Address, Unit Select 2
3	OFF	SCSI Address, Unit Select 3
4	OFF	Reserved
5	key	

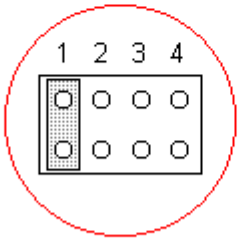
6	OFF	Synchronized Spindle Disabled
7	OFF	SCSI Pin 29 Disabled
8	key	
9	OFF	Spin Up with Start Unit Command
10	ON	Parity Checking Enabled
11	ON	Initiate SDTR Message at Power-On and Reset
12	OFF	Unit Attention Enabled
13	OFF	Write Protect based on Mode Page
14	OFF	Reserved
15	OFF	Terminator Disabled
16	OFF	Terminator Power Disabled

Chapter 6.6 CD-ROM Drive Jumper Settings

The jumper settings for the quad speed IDE CD-ROM drive are shown in Figure 6-24 and 6-25.

Panasonic CD-ROM - CR574-BCQ
Assembly Number 172708-001

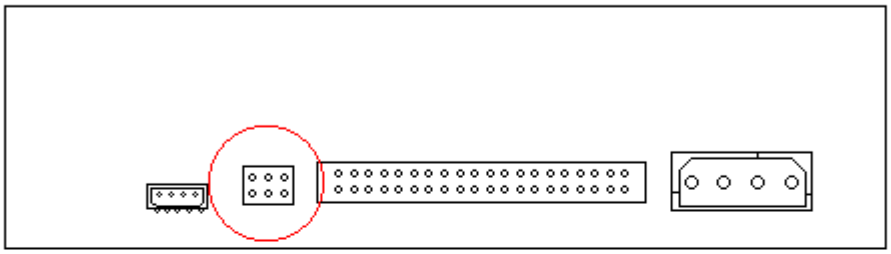


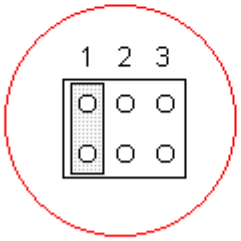


JUMPER	SETTING
1	Cable Select
2	Device 1
3	Device 0
4	Reserve

Figure 6-24. Jumper Positions for the Panasonic Quadspeed IDE CD-ROM Drive

Sony CD-ROM - CDU76E
Assembly Number 172708-002





JUMPER	SETTING
1	Cable Select
2	Device 1
3	Device 0
4	Reserve

Figure 6-25. Jumper Postions for the Sony Quadspeed IDE CD-ROM Drive

Chapter 7. Compaq Utilities

Chapter 7.0 Introduction

This chapter contains description of some Compaq utilities that can be helpful when servicing the Compaq ProLinea Family of Personal Computers. These utilities include:

- Energy Saver utility
- Graphics resolution
- QuickLock/QuickBlank
- Additional Security Management Features
- Flash ROM

Chapter 7.1 Energy Saver Utility

Energy Saver is a combination of hardware and software components that allows you to conserve power when your computer is turned on but not in use. The computer can be set to go into the Energy Saver mode after a specified period of inactivity and return to full power mode when user activity at the keyboard or mouse is detected. Energy Saver is available under the Windows environment, and some features are available under the MS-DOS environment. To take full advantage of the Energy Saver features, you must be using an Energy Saver monitor.

NOTE: The Energy Saver components are features of the computer; however, for full Energy Saver benefits, the computer must be connected to a monitor that has power conservation features.

Energy Saver Features

The Energy Saver features are described in Table 7-1.

Table 7-1. Energy Saver Features

Feature	Purpose	How It Is Established
Energy Saver Mode	Allows PC to go to a reduced power state.	Energy Saver (Default=OFF)
Energy Saver Timeouts	Allows user to select timeout values for system unit and/or energy saver monitor. Monitor and system timeouts may be set independently of each other.	Energy Saver: Monitor Default=15 min.; System unit Default=30 min.

Quick Energy Saver	Allows quick transition to Energy Saver mode; overrides Energy Saver timeout.	Energy Saver
Energy Saver Light	Allows optional blinking of system unit Power-On light when PC is in Energy Saver mode.	Energy Saver
Task Wake Up	Allows timed wake up to full power mode in order to perform specific functions.	System unit returns to full power mode when system activity is detected. System returns to Energy Saver mode when the task is complete and the Energy Saver timeout has expired.

Setting Energy Saver Values

To set Energy Saver values under the Windows environment, complete these steps:

1. Select the Power Management icon in the Compaq Control Center. Power Management can also be found in the Compaq Utilities group box of Windows Program Manager.

2. In the Energy Saver dialog box, Check ON to activate Energy Saver.

   a. Indicate whether you have an Energy Saver monitor.

   b. Set a timeout value for the system by entering a value ranging from 15 to 75 minutes (the default is 30 minutes).

   c. If you have an Energy Saver monitor, set a timeout value for the monitor by entering a value ranging from 5 to 60 minutes (the default is 15 minutes).

   d. Check the Blink LED box if you want the power light to blink when your computer is in Energy Saver mode.

   e. Click on OK, and the timeout values you set will take effect the next time you start your computer.

A dialog box displays, giving you the opportunity to restart your computer immediately. Or you may decide to wait for a more convenient time.

For information on accessing Energy Saver under the MS-DOS environment, refer to the online user's guide.

Chapter 7.2 Configuring Windows 3.1 Display

When you first set up your computer and monitor, the setup utility communicates with the monitor to automatically detect the monitor type,

select the best display configuration, and install the appropriate display drivers. This automated setup is referred to as Plug and Play; there are no switches to set or manual procedures to follow; just plug it in.

NOTE: A monitor with AssetControl is required for the Plug and Play setup to work. If you do not have a Plug and Play monitor, you can set up your display manually.

Supported Resolutions

Resolutions supported by the two graphics controllers installed on the Compaq ProLinea Family of Personal Computers are presented in the following Tables:

Table 7-2a. Supported Graphics Resolution for the Compaq QVision 2000+ Graphics Controller

Resolution	Colors (2 MB VRAM)	Colors (4 MB VRAM)
1280 x 1024	256	up to 16,777,216
1024 x 768	up to 65,536	up to 16,777,216
800 x 600	up to 16,777,216	up to 16,777,216
640 x 480	up to 16,777,216	up to 16,777,216

Table 7-2b. PCI Local Bus Integrated Graphics Controller

Resolution	Colors (1 MB DRAM)	Colors (2 MB DRAM)
1280 x 1024	16 **	up to 256 **
1024 x 768	up to 256	up to 65,536
800 x 600	up to 65,536	up to 16,777,216
640 x 480	up to 16,777,216	up to 16,777,216

** Interlaced mode

For more information on upgrading the graphics memory, refer to Chapter 5, "Removal and Replacement Procedures."

Changing Monitor Type Manually

Although the setup utility automatically detects Plug and Play monitor types, if you are not using a Plug and Play monitor, you can manually select or change the monitor type. The procedure varies slightly for each graphics controller.

NOTE: If you are not sure which graphics controller is installed on the computer, run Compaq Diagnostics to identify the installed controller.

QVision 2000+ Graphics Controller

If the computer has a QVision 2000+ Graphics Controller, complete the following steps to change the monitor type:

1. Select the Monitor Selection icon from the QVision 2000 Power Desk group.
2. Click on the Monitor Selection button and select the desired monitor type from the list of monitors displayed.
3. Click on the Save and Exit button. When you restart Windows, Windows will be configured appropriately for the monitor.

PCI Local Bus Integrated Graphics Controller

If the computer has a PCI Local Bus Integrated Graphics Controller, complete the following steps to change the monitor type:

1. Select the Winmode icon from the Compaq 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 and exit Windows. When you restart Windows, Windows will be configured appropriately for the monitor.

Setting Graphics Resolution

The quality of the picture you see depends on the resolution of the monitor and the number of colors that are displayed. Although the setup utility automatically selects the display configuration, you can manually change the resolution to match a software program or suit personal preferences. The procedure varies slightly for each graphic controller.

NOTE: If you are not sure which graphics controller is installed on the computer, run Compaq Diagnostics to identify the installed controller.

QVision 2000+ Graphics Controller

If the computer has a QVision 2000+ Graphics Controller, complete the following steps to change the resolution:

1. Select the Control Panel icon from the QVision 2000 Power Desk group. This launches a window showing the current configuration of your computer.
2. Select a mode and then click on the SETUP button.

3. The resolutions in the displayed list are those supported by the selected monitor type. Choose a resolution and color depth.

4. Close the Control Panel and exit Windows. When you restart Windows, the new resolution will be activated.

PCI Local Bus Integrated Graphics Controller

If the computer has a PCI Local Bus Integrated Graphics Controller, complete the following steps to change the resolution:

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

2. Select a resolution from the list of resolutions. The resolutions available from the list are those supported by the selected monitor type.

3. Close the Winmode utility and exit Windows. When you restart Windows, the new resolution will be activated.

Chapter 7.3 QuickLock/QuickBlank

The QuickLock/QuickBlank security feature can be used to disable the keyboard and blank the screen without exiting an application. The feature is enabled with a password.

Enabling QuickLock/QuickBlank

QuickLock and QuickBlank are enabled through Security Management, either from Windows or from the Configuration and Diagnostics Menu. 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, the user must enter the power-on password that the user established in Security Management.

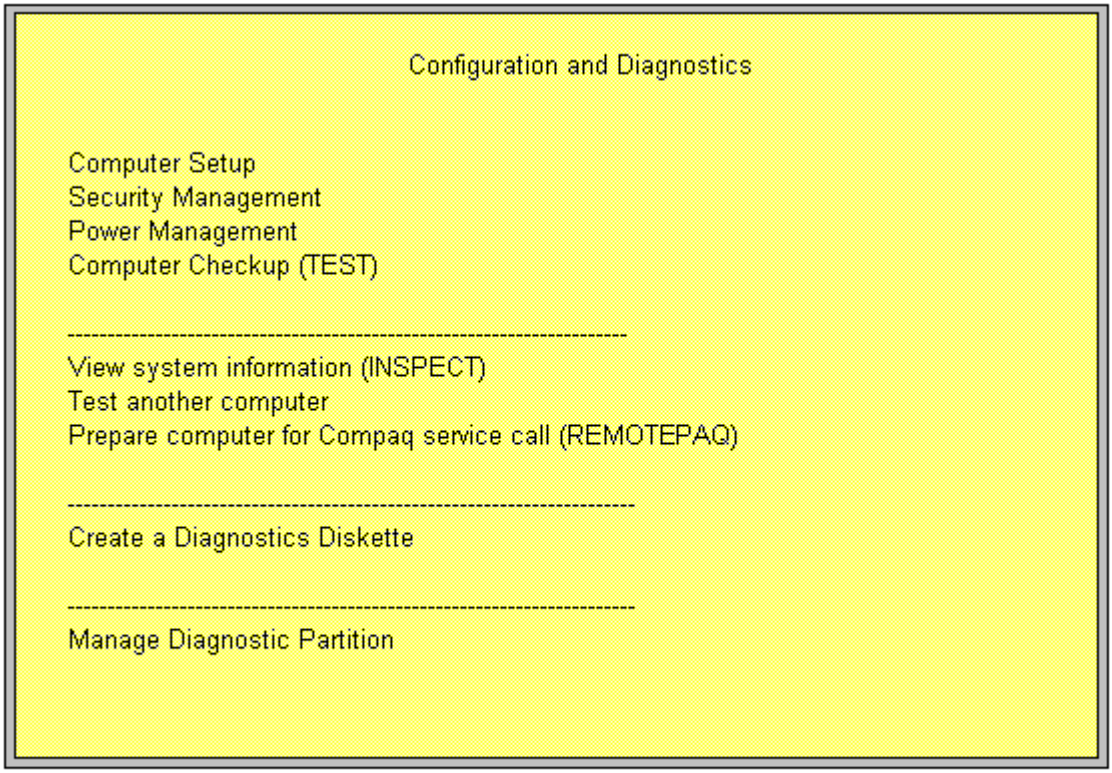
To enable the QuickLock and QuickBlank features from the Configuration and Diagnostics Menu, complete the following steps:

1. Turn on the computer.

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

   IMPORTANT: The cursor displays in the upper-right corner of the screen for approximately 2 seconds. If the user do not press the F10 key during this time, the user 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.



Configuration and Diagnostics Screen IP7-6

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 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.

7. Save the configuration and exit the utility.

Keyboard and Mouse Interface

Disabling the Keyboard and Mouse Interface

Once in an application, enter the 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 Configuration utility.

Enabling the Keyboard and Mouse Interface

To enable the keyboard and input device connected to the mouse connector, enter the password.

NOTE: For security reasons, the characters the user types do not appear on the screen. The application will not be affected by the characters typed.

Chapter 7.4 Additional Security Management Features

The additional security features provided in the advanced section of Security Management are presented in Table 7-3. These features must be used in combination with a power-on password. To enable one of these features:

1. Select and open Security Management, found in the Compaq Control Center.
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 any of the features listed above.
5. Select the OK button.
6. When you restart the computer, the feature you selected will be disabled.

To disable the feature, deselect the option and restart the computer.

NOTE: Table 7-3 describes how the utilities and configuration switches function together. In most cases the user will not need to set any switches. For more information about these switches, refer to Chapter 6, "Jumper and Switch Settings."

Table 7-3. Advanced Security Features

Feature	Purpose	How It Is Established
SETUP Password	Allows configuration to be changed.	Computer Setup utility
Power-On Password	Prevents use of the computer unless password is entered	Security Management (from both Windows and Configuration and Diagnostics menu)
QuickLock/QuickBlank	Disables keyboard and can blank the screen without exiting application; enabled with a password	Security Management (from both Windows and Configuration and Diagnostics menu)

Diskette Boot Control	Prevents startup from diskette drive	Security Management (from both Windows and Configuration and Diagnostics menu)
Diskette Drive Control	Disables diskette drive	Security Management (from both Windows and Configuration and Diagnostics menu)
Hard Drive Control	Disables integrated hard drive	Security Management (from both Windows and Configuration and Diagnostics menu)
Serial Interface Control	Prevents transfer of data through the integrated serial interface	Security Management (from both Windows and Configuration and Diagnostics menu)
Parallel interface Control	Prevents transfer of data through the integrated parallel interface	Security Management (from both Windows and Configuration and Diagnostics menu)
Diskette Write Control	Prevents writing to the diskette drive. Allows Read only.	Security Management (from both Windows and Configuration and Diagnostics menu)
Flash ROM Lock	Prevents Flash ROM updates	ROMPaq or Setup Password required to update ROM
Cable Lock Provision	Prevents theft of computer	Optional hardware. Lock is used to prevent removal of the computer or computer cover

Chapter 7.5 Flash ROM

The Compaq ProLinea Personal Computer comes with reprogrammable Flash ROM (Read Only Memory). Flash ROM, set to its default setting of OFF, protects the Flash ROM from being upgraded and the System BIOS from being updated.

To update the ROM, order the ROMPaq diskette from Compaq. To upgrade the ROM, complete the following procedures:

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

>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>> CAUTION <<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<

If the computer does not have a Setup Password enabled, then the ROM is

not write-protected and unauthorized updates can occur.

>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>><<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<

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.

   NOTE: If the Setup Password is entered incorrectly, 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 diskette drive and reboot the computer.

Chapter 8. Specifications

Chapter 8.0 Introduction

This chapter provides physical, environmental, and performance specifications for the Compaq ProLinea Family of Personal Computers.

Chapter 8.1 System

The specifications for the DT3 and DT4 computers are presented in Table 8-1 and 8-2, respectively.

DT3 System Specifications

The specifications for the DT3 Desktop Computer are presented in Table 8-1.

Table 8-1. DT3 System Specifications

	U.S.	Metric
Dimensions:		
Height	4.75 in	12.07 cm
Width	17.69 in	44.93 cm
Depth	15.05 in	38.23 cm
Weight (approximate)	22.5 lb	10.2 kg
Power Supply:		
Voltage Select Setting	115 VAC	230 VAC
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	4 A	220 - 240 VAC
Power Output	50 - 60 Hz	2 A
Maximum Rated Power	145 W	145 W
Temperature:		
Operating	50oF to 95oF	10oC to 35oC
Nonoperating	50oF to 122oF	10oC to 50oC
Humidity (noncondensing):		
Operating	8% to 90%	8% to 90%
Nonoperating	5% to 95%	5% to 95%
Maximum Altitude (unpressurized):		
Operating	10,000 ft	3,048 m
Nonoperating	30,000 ft	9,144 m
Heat Dissipation (nominal)	770 Btu/hr	3.23 kg-cal/min

DT4 System Specifications

The specifications for the DT4 Desktop Computer are presented in

Table 8-2.

Table 8-2. DT4 System Specifications

	U.S.	Metric
Dimensions:		
Height	5.75 in	14.61 cm
Width	17.69 in	44.93 cm
Depth	15.30 in	38.86 cm
Weight (approximate)	24.0 lb	10.9 kg
Power Supply:		
Voltage Select Setting	115 VAC	230 VAC
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	4 A	220 - 240 VAC
Power Output	50 - 60 Hz	2 A
Maximum Rated Power	145 W	145 W
Temperature:		
Operating	50oF to 95oF	10oC to 35oC
Nonoperating	50oF to 122oF	10oC to 50oC
Humidity (noncondensing):		
Operating	8% to 90%	8% to 90%
Nonoperating	5% to 95%	5% to 95%
Maximum Altitude (unpressurized):		
Operating	10,000 ft	3,048 m
Nonoperating	30,000 ft	9,144 m
Heat Dissipation (nominal)	770 Btu/hr	3.23 kg-cal/min

Chapter 8.2 System Interrupts

Hardware IRQ	System Function
IRQ 0	Timer Interrupt (Not on ISA Bus) *
IRQ 1	Keyboard (Not on ISA Bus) *
IRQ 2	Interrupt Controller Cascade (Not on ISA Bus) *
IRQ 3	(COM 2) *
IRQ 4	Serial Port (COM 1) *
IRQ 5	Parallel Port (LPT 1) *
IRQ 6	Diskette Drive *
IRQ 7	Parallel Port *

IRQ 8	Real-Time Clock (Not on ISA Bus)
IRQ 9	IDE Controller (Secondary)
IRQ 10	IDE Controller (Secondary)
IRQ 11	PCI Interrupt *
IRQ 12	Mouse *
IRQ 13	Coprocessor (Not on ISA Bus)
IRQ 14	IDE Controller (Primary/Hard Drive) *
IRQ 15	IDE Controller (Secondary/CD-ROM Drive) *

* Default Configuration

Chapter 8.3 System DMA

Hardware DMA	System Function
DMA 0	ISA Expansion
DMA 1	System Audio
DMA 2	Diskette Drive
DMA 3	ECP Parallel Port LPT1 (Default; Alternate = DMA 0)
DMA 4	DMA Controller Cascading (Not on ISA Bus)
DMA 5	ISA Expansion
DMA 6	ISA Expansion
DMA 7	ISA Expansion

Chapter 8.4 System I/O Address

I/O Address (Hex)	System Function (Shipping Configuration)
000 - 00F	DMA Controller # 1
010 - 01F	Unused
020 - 03F	Interrupt Controller # 1
040 - 043	Counter/Timer
044 - 05F	Unused

060	Keyboard Controller
061	Port B
062 - 063	Unused
064	Keyboard Controller
065 - 06F	Unused
070 - 071	NMI Enable/Real Time Clock
072 - 07F	Unused
080 - 08F	DMA Page Registers
090 - 091	Unused
092	Port A
093 - 09F	Unused
0A0 - 0BF	Interrupt Controller # 2
0C0 - 0DF	DMA Controller # 2
0E0 - 0EB	Unused
0EC - 0ED	483 Configuration Index/Data
0EE - 0EF	483 Fast A20/Fast Reset
0F0 - 0F1	Co-Processor Busy Clear/Reset
0F2 - 0F3	Unused
0F4 - 0F5	483 CPU Speed Slow/Fast
0F6 - 0F8	Unused
0F9	483/PGL Configuration Lock

I/O Address (Hex)	System Function (Shipping Configuration)
0FA	Unused
0FB	483/PGL configuration Unlock
0FC - 0FF	Unused
100 - 12F	Unused
130 - 131	Modem PGL Index/Data (Default; Alt = 140h, 260h, 270h)
132 - 16F	Unused
170 - 177	CD-ROM
178 - 1EF	Unused

1F0 - 1F7	Fixed Disk Controller
1F8 - 1FF	Unused
200	Unused
201	Unused
202 - 21F	Unused
220 - 22F	Entertainment Audio (Default; Alternate =240h)
230 - 277	Unused
278 - 27F	Reserved Parallel Port
280 - 2E7	Unused
2E8 - 2EF	Reserved Serial Port
2F0 - 2F7	Unused

I/O Address (Hex)	System Function (Shipping Configuration)
2F8 - 2FF	Modem (COM 2)
300 - 317	Unused
318 - 319	TV Tuner Board (Default; Alt = 328h)
31A - 36F	Unused
370 - 377	Reserved (2nd Diskette Drive)
378 - 37F	Parallel Port (Primary)
380 - 387	Unused
388 - 38B	FM Synthesizer - OPL3
38C - 397	Unused
398 - 399	Super AI/O Index/Data (Default; Alt = 26Eh, 15Ch, 02Eh)
39A - 3AF	Unused
3B0 - 3BB	MDA, EGA/VGA
3BC - 3BF	Reserved (Parallel Port)
3C0 - 3DF	EGA/VGA
3E0 - 3E7	Unused
3E8 - 3EF	Reserved (Serial Port)
3F0 - 3F7	Diskette Controller

3F8 - 3FF	Serial Port (Primary)

Chapter 8.5 System Memory Map

Size	Memory Address	System Function
640 KB	00000000 - 0009FFFF	Base Memory
128 KB	000A0000 - 000BFFFF	Video RAM
24 KB	000C0000 - 000C5FFF	Video ROM
2 KB	000C6000 - 000C67FF	Unused
6 KB	000C6800 - 000C7FFF	Video ROM
96 KB	000C8000 - 000DFFFF	Unused
64 KB	000E0000 - 000EFFFF	Unused
64 KB	000F0000 - 000FFFFF	System ROM
15 MB	00100000 - 00FFFFFF	Host, PCI, or ISA Memory Expansion
240 MB	01000000 - 0FFFFFFF	Host or PCI Memory Expansion
1792 MB	10000000 - 7FFFFFFF	PCI Memory Expansion
16 MB	80000000 - 80FFFFFF	ISA Memory Mapped I/O Devices
2,080,384 KB	81000000 - FFFBFFFF	PCI Memory Expansion
256 KB	FFFC0000 - FFFFFFFF	System ROM

Chapter 8.6 Diskette Drives

	1.44 MB	1.2 MB
Diskette Size	3.5-in	5.25-in
Drive Height	One-third	One-third
Drive Rotation (rpm)	300	360
LED Read/Write Indicators	Green	Green
Capacity Per Diskette (high/low density)	1.44 MB/720 KB	1.2 MB/360 KB

Transfer Rate (bps) (high/low density)	500 K/250 K	500 K/300 K
Bytes Per Sector	512	512
Sectors Per Track (high/low density)	18/9	15/9
Tracks Per Side (high/low density)	80/80	80/40
Seek Time (ms):		
Track-to-Track (high/low density)	3/3	3/10
Average (high/low density)	94/94	80/133
Settling Time	15	15
Latency Average	100	84
Cylinders (high/low)	80/80	80/40
Read/Write Heads	2	2

Chapter 8.7 Hard Drives

	270 MB	270 MB	420 MB	420 MB	540 MB
Formatted Capacity:					
Physical (MB)	270.6	272.7	421.9	428.1	528.4
Logical (MB)	270.6	272.7	421.9	428.1	541.3
Compaq Part Number	172772	172773	172774	189586	172851
Drive Type	65	65	65	65	65
Transfer Rate:					
Media (Mbits/sec)	36.0	35.8	27.9	32.0	36.0
Interface (MB/sec)	13.3	13.3	13.3	13.3	13.3
Typical Seek Time (including settling):					
Single Track (ms)	5.0	5.0	5.0	5.0	5.0
Average (ms)	14.0	14.0	14.0	14.0	14.0
Full Stroke (ms)	28.0	34.0	28.0	34.0	28.0
Disk Rotational Speed (rpm)	3600	3811	3600	3811	3600
Cylinders:					
Physical	2853	3063	2519	2890	2853
Logical	944	761	1010	899	1926
Data Heads:					
Physical	2	2	4	4	4
Logical	14	14	16	15	9
Sectors per Track:					
Physical	58 - 118	60 - 105	55 - 104	53 - 92	58 - 118

Logical	40	50	51	62	61
Buffer Size (KB)	96	120	96	120	96

* All part numbers have a -001 suffix

Table 8-8b. Hard Drives (Part 2 of 4)

	540 MB	720 MB	1 GB	535 MB	535 MB
Formatted Capacity:					
Physical (MB)	545.5	730.8	1083.8	545.7	541.9
Logical (MB)	545.5	730.8	1082.0	535.8	535.8
Compaq Part Number	172852	189587	214127	148158	192766
Drive Type	65	65	65	SCSI	SCSI
Transfer Rate:					
Media (Mbits/sec)	35.8	47.2	50.2	43.1	55.1
Interface (MB/sec)	13.3	13.3	13.3	10.0	10.0
Typical Seek Time (including settling):					
Single Track (ms)	5.0	4.0	5.0	3.3	3.7
Average (ms)	14.0	11.5	14.0	10.0	10.5
Full Stroke (ms)	34.0	22.0	24.0	16.0	22.0
Disk Rotational Speed (rpm)	3811	4500	4495	5400	5400
Cylinders:					
Physical	3063	3658	3811	2242	4901
Logical	1057	1416	2100	511	511
Data Heads:					
Physical	4	4	6	6	2
Logical	16	16	16	64	64
Sectors per Track:					
Physical	65 - 105	64 - 128	61 - 117	59 - 89	90 - 122
Logical	63	63	63	32	32
Buffer Size (KB)	120	96	128	256	448

* All part numbers have a -001 suffix

Table 8-8c. Hard Drives (Part 3 of 4)

	535 MB	1.05 GB	1.05 GB	1.05 GB	1.05 GB
Formatted Capacity:					
Physical (MB)	535.8	1050.1	1083.8	1052.0	1052.1
Logical (MB)	535.8	1050.0	1050.0	1050.0	1050.0
Compaq Part Number *	199513	142293	192765	142292	142004

Drive Type	SCSI	SCSI	SCSI	SCSI	SCSI
Transfer Rate:					
Media (Mbits/sec)	44.0	44.0	56.1	40.0	35.4
Interface (MB/sec)	10.0	10.0	10.0	10.0	10.0
Typical Seek Time (including settling):					
Single Track (ms)	1.0	1.0	3.7	2.5	2.5
Average (ms)	9.5	9.5	10.5	10.0	10.5
Full Stroke (ms)	20.0	20.0	22.0	18.0	22.0
Disk Rotational Speed (rpm)	5400	5400	5400	5400	5400
Cylinders:					
Physical	3117	3117	4903	4119	1981
Logical	511	1001	1001	1001	1001
Data Heads:					
Physical	4	8	4	5	13
Logical	64	64	64	64	64
Sectors per Track:					
Physical	59 - 119	59 - 119	90 - 122	90 - 108	52 - 96
Logical	32	32	32	32	32
Buffer Size (KB)	512	512	448	256	256

* All part numbers have a -001 suffix

Table 8-8d. Hard Drives (Part 4 of 4)

	1.05 GB	1.05 GB	2.1 GB	2.1 GB
Formatted Capacity:				
Physical (MB)	1083.9	1050.4	2139.5	2132.6
Logical (MB)	1050.0	1050.0	2104.3	2104.3
Compaq Part Number *	142189	142154	142294	142214

Drive Type	SCSI	SCSI	SCSI	SCSI
Transfer Rate:				
Media (Mbits/sec)	35.4	34.6	47.7	40.8
Interface (MB/sec)	10.0	10.0	10.0	10.0
Typical Seek Time (including settling):				
Single Track (ms)	2.5	3.0	2.4	2.5
Average (ms)	10.0	10.0	10.5	9.5
Full Stroke (ms)	22.0	25.0	20.5	18.0
Disk Rotational Speed (rpm)	5400	5400	7200	6400
Cylinders:				
Physical	1819	1744	2707	2582

Logical	1001	1001	255	255
Data Heads:				
Physical	15	8	19	18
Logical	64	64	255	255
Sectors per Track:				
Physical	58 - 96	58 - 94	58 - 97	68 - 108
Logical	32	32	63	63
Buffer Size (KB)	512	512	960	256

* All part numbers have a -001 suffix

Chapter 8.8 CD-ROM Drive

Applicable Disc:	
CD-ROM	Mode 1 and Mode 2
CD-DA	
Mixed Mode	Audio and Data Combined
CD-XA	
Photo CD	Single and Multiple Session
Disc Diameter	12 cm, 8 cm
Capacity	550 MB (Mode 1, 12 cm) 640 MB (Mode 2, 12 cm) 180 MB (8 cm)
Block Size:	
CD-ROM Mode 1	2048, 1024, 512 bytes
CD-ROM Mode 2	2340, 2336, 1024, 512 bytes
CD-DA	2352 bytes
CD-XA	2352, 2324, 2048 bytes
Center Hole	15 mm diameter
Rotational Speed	2120 - 920 rpm, quad speed
Disc Thickness	1.2 mm
Track Pitch	1.6 um
Laser:	
Beam Divergence	53.5 degrees +/- 1.5 degrees
Output Power	0.14 mW
Type	Semiconductor laser GaAIAs
Wave Length	780 nm +/- 25 nm
Access Time:	
Random	Less than 275 ms
Full Stroke	Less than 600 ms
Audio Output Level:	
Line Out	0.8V (RMS) at 47 kOhms
Headphone	0.6V (RMS) at 32 Ohms

Cache Buffer	128 KB
Data Transfer Rate:	
Sustained	600 KB/sec
Burst	4.0 MB/sec
Interface Cable Length (Max)	18 in
Startup Time	< 7 sec (typical)
Stop Time	< 2 sec
Dimensions:	
Height	1.67 in (42.5 mm)
Width	5.75 in (146.0 mm)
Depth	8.23 in (209.0 mm)
Weight	1.98 lb (900.0 gm)

Table 8-10. CD-ROM Physical Characteristics

	U.S.	Metric
Dimensions:		
Width	5.75 in	14.60 cm
Height	1.7 in	4.25 cm
Depth	8.0 in	20.7 cm
Weight	1.15 lb	0.9 kg

Table 8-11. CD-ROM Drive Environmental Conditions

	U.S.	Metric
Operating:		
Temperature	41oF to 113oF	5oC to 45oC
Humidity	10 to 80%	10 to 80%
Maximum Wet Bulb	86oF	29oC
Atmosphere	Noncondensing	Noncondensing
Nonoperating/Transportation:		
Temperature	-22oF to 159oF	-30oC to 70oC
Humidity	5% to 90%	5% to 90%
Atmosphere	Noncondensing	Noncondensing
Power Requirement	+5VDC	Tolerance +/- 5% Ripple 100 mVp-p Current 0.5 A (typ) 0.8 A max.
	+12VDC	Tolerance +/- 5% Ripple 200 mVp-p Current 0.3 A (typ) 1.5 A max.
Shock:		
Operating	15 RMS at 11 ms half sine wave	
Nonoperating	50 GO - P at 11 ms half sine wave	
Transportation	76 cm drop (with standard package)	

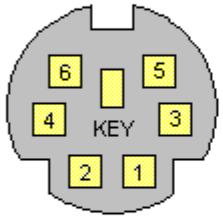
Vibration:	
Operating	1 GO - P at 5 to 500 Hz
Nonoperating	2 GO - P at 5 to 300 Hz
Transportation	0.015 G2/Hz at 5 to 50 Hz (with standard package)

Chapter 8.9 Mouse

	U.S.	Metric
Dimensions:		
Height	1.22 in	3.1 cm
Length	3.94 in	10.0 cm
Width	2.20 in	5.6 cm
Weight (without cable)	3.4 oz	85 gm
Base Resolution	400 dpi	
Tracking Speed	10 in/sec maximum	25 cm/sec maximum
Lifetime:		
Mechanical	Exceeds 300 miles	
Switch	Exceeds 1 million operations	
Temperature:		
Operating	32oF to 104oF	0oC to 40oC
Storage	-4oF to 140oF	-20oC to 60oC
Relative Humidity	10% to 90% noncondensing	
ESD	No soft errors through 10 kV No hard errors through 15 kV Specific performance depends on host system.	

Appendix A. Connector Pin Assignments

This appendix contains the pin assignments for all external connectors:

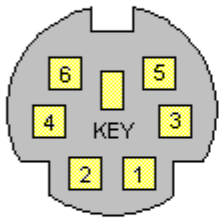


Pin	Signal
1	Data
2	Unused
3	Ground
4	+5 VDC
5	Clock
6	Unused

Location of Pin Assignments for the Keyboard Connector IPA-1a

Table A-1. Keyboard

Pin	Signal
1	Data
2	Unused
3	Ground
4	+5 VDC
5	Clock
6	Unused



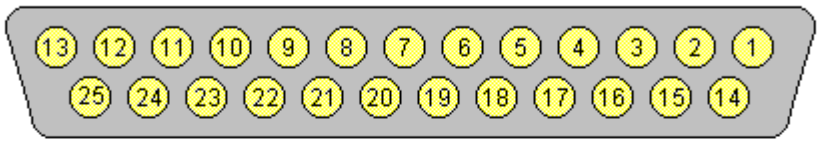
Pin	Signal
1	Data
2	Unused
3	Ground
4	+5 VDC
5	Clock
6	Unused

Location of Pin Assignments for the Mouse Connector

IPA-1b

Table A-2. Mouse

Pin	Signal
1	Data
2	Unused
3	Ground
4	+5 VDC
5	Clock
6	Unused



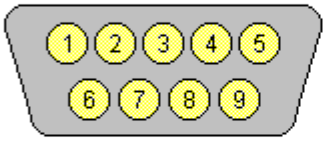
Pin	Signal	Pin	Signal
1	Strobe*	10	Acknowledge
2	Data Bit 0	11	Busy
3	Data Bit 1	12	Paper End
4	Data Bit 2	13	Select
5	Data Bit 3	14	Auto Linefeed
6	Data Bit 4	15	Error
7	Data Bit 5	16	Initialize Printer
8	Data Bit 6	17	Select IN

Location of Pin Assignments for the Parallel Interface Connector IPA-1c

Table A-3. Parallel Interface

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 Linefeed
15	Error
16	Initialize Printer
17	Select IN
18 - 25	Signal Ground



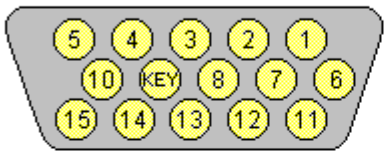
Pin	Signal
1	Carrier Detect
2	Receive Data
3	Transmit Data
4	Data Terminal Ready
5	Signal Ground
6	Data Set Ready
7	Request to Send
8	Clear to Send
9	Ring Indicator

Location of Pin Assignments for the Serial Interface Connector IPA-2a

Table A-4. Serial Interface

Pin	Signal
1	Carrier Detect
2	Receive Data
3	Transmit Data

4	Data Terminal Ready
5	Signal Ground
6	Data Set Ready
7	Request to Send
8	Clear to Send
9	Ring Indicator



Pin	Signal
1	Red Analog
2	Green Analog
3	Blue Analog
4	Not Connected
5	Ground
6	Ground Analog
7	Ground Analog
8	Ground Analog
9	Not Connected
10	Ground
11	Not Connected
12	Not Connected
13	Horizontal Sync
14	Vertical Sync
15	Not Connected

Location of Pin Assignments for a VGA Monitor Connector IPA-2b

Table A-5. VGA Monitor

Pin	Signal
1	Red Analog
2	Green Analog
3	Blue Analog
4	Not Connected

5	Ground
6	Ground Analog
7	Ground Analog
8	Ground Analog
9	Not Connected
10	Ground
11	Not Connected
12	Not Connected
13	Horizontal Sync
14	Vertical Sync
15	Not Connected

Appendix B. Power Cord Set Requirements

The voltage select switch feature on the computer permits it to operate from any line voltage between 100 - 120 or 220 - 240 volts AC.

The power cord set received with the computer meets the requirements for use in the country where you purchased the equipment.

Power cord sets for use in other countries must meet the requirements of the country where you use the computer. For more information on power cord set requirements, contact your Authorized Compaq 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 6.00 feet (1.8 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 Switch Box.

Country-Specific Requirements

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	SETI	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 mm2 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, 0.75mm2 conductor size. The wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (15A, 125V) configuration.