COMPAQ

Maintenance and Service Guide

Compaq Evo Notebook N800c Series
Compaq Evo Notebook N800v Series
Compaq Evo Notebook N800w Series
Compaq Presario 2800 Mobile PC

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This guide is a troubleshooting reference used for maintaining and servicing the notebook. It provides comprehensive information on identifying computer features, components, and spare parts, troubleshooting computer problems, and performing computer disassembly procedures.

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Product Description

The Compaq Presario 2800 Series Mobile PC and Evo Notebook N800 Series offer advanced modularity, Intel Mobile Pentium 4 processors with SpeedStep technology with 64-bit architecture, industry-leading Accelerated Graphics Port (AGP) implementation, and extensive multimedia support.

Figure 1-1. Compaq Presario 2800 and Evo Notebook N800

1.1 Features

- 2.2-, 2.0-, 1.9-, 1.8-, 1.7-, 1.6-, 1.5-, or 1.4-GHz Intel Mobile Pentium 4 processor with SpeedStep technology, with 256-KB integrated L2 cache, varying by computer model
- ATI Mobile Radeon 9000 or ATI P7 graphics controller with 32 to 64 MB of shared SDRAM and 4X AGP graphics card, varying by computer model
- 128-MB high-performance Synchronous DRAM (SDRAM), expandable to 1.0 GB
- Microsoft Windows 2000, Windows XP Home, or Windows XP Professional, varying by computer model
- 15.0-inch UXGA (1600 × 1200), SXGA+ (1400 × 1050), or XGA (1024 × 768), or 14.1-inch XGA (1024 × 768), TFT display with over 16.7 million colors, varying by computer model
- Full-size Windows 98 keyboard with:
  - ❏ TouchPad pointing device (Presario 2800 and Evo Notebook N800c models)
  - ❏ TouchPad and point stick (Evo Notebook N800c models only)
- Network interface card (NIC) integrated on the system board, with a mini PCI V.92 modem
- Integrated wireless support of 802.11b and Bluetooth devices through MultiPort
- Support for one Type I or II PC Card slot with support for both 32-bit CardBus and 16-bit PC Cards
- External 65 W AC adapter with power cord
- 8-cell lithium ion (Li ion) battery pack

- 60-, 40-, 30-, or 20-GB high-capacity hard drive, varying by computer model
- Support for the following drives through the MultiBay:
  - 1.44-MB diskette drive
  - 24X Max CD-ROM drive
  - 8X Max CD-RW drive
  - 8X Max DVD-ROM drive
  - 8X Max DVD-CDRW combination drive
  - 40- or 30-GB hard drive
  - LS-120 drive
  - 8-cell battery pack
- Connectors for:
  - RJ-45 network
  - RJ-11 modem
  - Universal Serial Bus
  - Parallel devices
  - External monitor
  - AC power
  - Stereo line out/headphone
  - Mono microphone
  - S-video
  - Port replicator
  - Infrared
- JBL Pro stereo speakers with bass reflex
- Dolby Digital certified sound

1.2 Clearing a Password

If the notebook you are servicing has an unknown password, follow these steps to clear the password. These steps also clear CMOS:

1. Prepare the computer for disassembly (refer to Section 5.3, "Preparing the Computer for Disassembly," for more information).
2. Remove the RTC battery (refer to Section 5.17, "Disk Cell RTC Battery").
3. Wait approximately five minutes.
4. Replace the RTC battery and reassemble the computer.
5. Connect AC power to the computer. Do **not** reinsert any battery packs at this time.
6. Turn on the computer.

All passwords and all CMOS settings have been cleared.

1.3 Power Management

The computer comes with power management features that extend battery operating time and conserve power. The computer supports the following power management features:

- Suspend
- Hibernation
- Setting customization by the user
- Hotkeys for setting level of performance
- Smart battery that provides an accurate battery power gauge
- Battery calibration
- Lid switch Suspend/resume
- Power/Suspend button
- Advanced Configuration and Power Management (ACP) compliance

1.4 Computer External Components

The external components on the front and right side of the computer are shown in Figure 1-2 and described in Table 1-6.

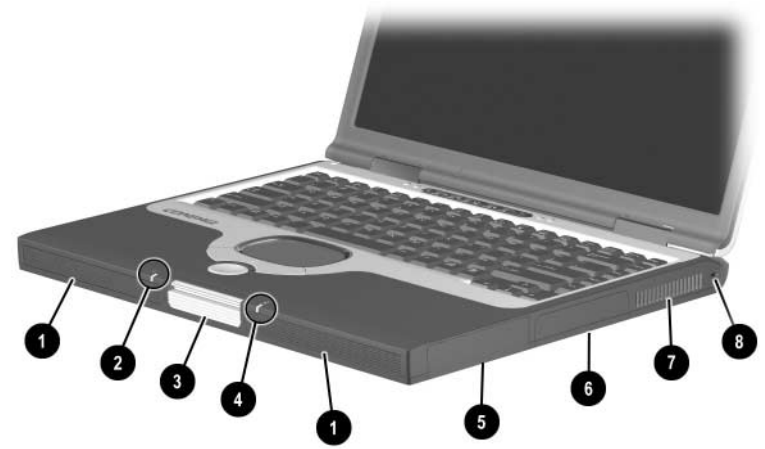


Figure 1-2. Front and Right Side Components

Table 1-6
Front and Right Side Components

Item	Component	Function
1	Stereo speakers (2)	Produce stereo sound.
2	Power/Suspend light	On: Power is turned on. Off: Power is turned off. Blinking: Computer is in Suspend mode.

Table 1-6
Front and Right Side Components *(Continued)*

Item	Component	Function
3	Display release latch	Opens the computer.
4	Battery light	On: A battery pack is charging. Blinking: A battery pack that is the only available power source has reached a low-battery condition.
5	Battery bay	Accepts an 8-cell lithium ion (Li ion) battery pack.
6	Hard drive bay	Supports the removable primary hard drive. The hard drive is secured to the computer by one screw.
7	Vent	Allows airflow to cool internal components.
	⚠ **CAUTION:** To prevent damage, the computer shuts down if an overheating condition occurs. Do not block the cooling vent. Avoid placing the computer on a blanket, rug, or other flexible surface that may cover the vent area.	
8	Security cable slot	Attaches an optional security cable to the computer.

The computer rear panel and left side components are shown in Figure 1-3 and described in Table 1-7.

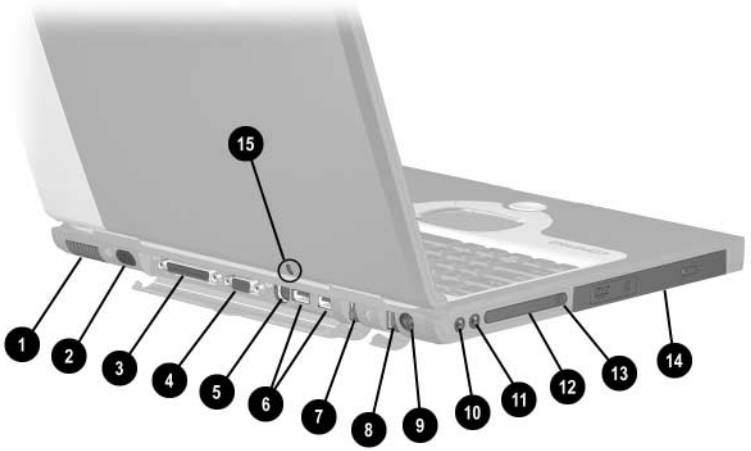


Figure 1-3. Rear Panel and Left Side Components

Table 1-7
Rear Panel and Left Side Components

Item	Component	Function
1	Vent	Allows airflow to cool internal components.
	CAUTION: To prevent damage, the computer shuts down if an overheating condition occurs. Do not block the cooling vent. Avoid placing the computer on a blanket, rug, or other flexible surface that may cover the vent area.	
2	Infrared port	Provides wireless communication between the computer and another infrared-equipped device using an infrared beam.
3	Parallel connector	Connects a parallel device.

Table 1-7
Rear Panel and Left Side Components *(Continued)*

Item	Component	Function
4	External monitor connector	Connects an external monitor or overhead projector.
5	S-Video connector	Connects a television, VCR, camcorder, or overhead projector.
6	USB connectors (2)	Connect USB devices.
7	RJ-11 modem jack	Connects the modem cable to an internal modem. A modem cable is included with internal modem models.
8	RJ-45 network jack	Connects the network cable. A network cable is not included with the computer.
9	DC power jack	Connects any one of the following: ■ AC adapter ■ Optional automobile power adapter/charger ■ Optional aircraft power adapter
10	Mono microphone jack	Connects a mono microphone, disabling the built-in microphone.
11	Stereo speaker/ headphone jack	Connects stereo speakers, headphones, headset, or television audio.
12	PC Card slot	Supports a 32-bit (CardBus) or 16-bit PC Card.
13	PC Card eject button	Ejects a PC Card from the PC Card slot.
14	MultiBay	Accepts MultiBay devices, such as a diskette drive, optical drive, hard drive, or optional battery pack.

The computer keyboard components are shown in Figure 1-4 and described in Table 1-8.

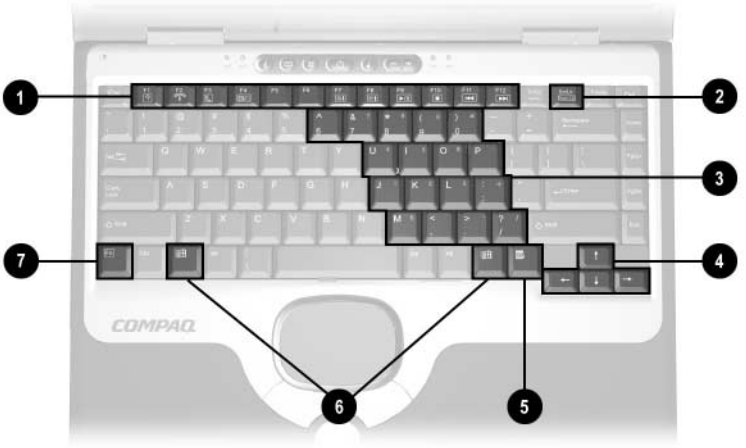


Figure 1-4. Keyboard Components

Table 1-8
Keyboard Components

Item	Component	Function
1	**F1** through **F12** function keys	Perform preset functions.
2	**Num lock** key	On: Num lock is on and the embedded numeric keypad is enabled.

Table 1-8
Keyboard Components *(Continued)*

Item	Component	Function
3	Embedded numeric keypad	Converts keys to numeric keypad.
4	Cursor control keys	Move the cursor around the screen.
5	Windows application key	Displays a menu when using a Microsoft application. The menu is the same one that is displayed by pressing the right mouse button.
6	Windows logo keys	Displays the Windows Start menu.
7	**Fn** key	Used with hotkeys to perform preset hotkey functions.

The computer top components are shown in Figure 1-5 and described in Table 1-9.

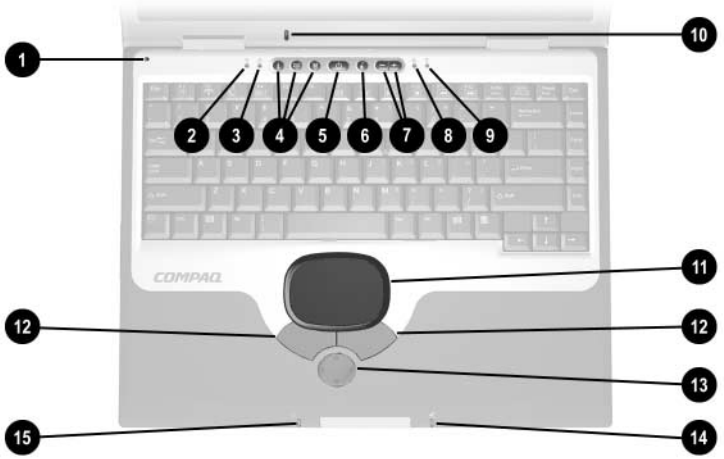


Figure 1-5. Top Components

Table 1-9
Top Components

Item	Component	Function
1	Display lid switch	Turns off the computer display if the computer is closed while on.
2	Power light	On: Power is turned on. Blinking: Computer is in Suspend mode. The power light also blinks if a battery pack that is the only available power source reaches a low-battery condition.
3	Num lock light	On: Num lock is on and the embedded numeric keypad is enabled.
4	Easy Access Buttons (3)	Provide quick access to the Internet. Refer to the *Hardware Guide* that ships with the computer for information about these buttons.

Table 1-9
Top Components *(Continued)*

Item	Component	Function
5	Power button	Turns on the computer. Use the operating system Shut Down command to turn off the computer.
6	Digital audio button	Launches Windows Media Player to play MP3 music.
7	Volume control buttons	Adjust the volume of the stereo speakers.
8	Caps lock light	On: Caps lock is on.
9	Drive indicator light	Turns on when the hard drive, CD-, or DVD-ROM drive is accessed.
10	Microphone	Allows for audio input.
11	TouchPad	Moves the mouse cursor, selects, and activates.
12	TouchPad buttons	Function like the left and right mouse buttons on an external mouse.
13	EasyScroll	Scrolls the screen left, right, up, and down.
14	Battery power light	On: A battery pack is charging. Blinking: A battery pack that is the only available power source has reached a low-battery condition.
15	Power/Suspend light	On: Power is turned on. Off: Power is turned off. Blinking: Computer is in Suspend mode.

The external components on the bottom of the computer are shown in Figure 1-6 and described in Table 1-10.

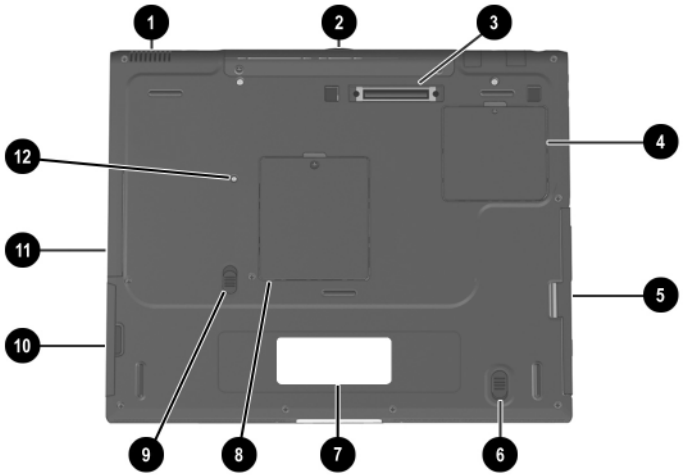


Figure 1-6. Bottom Components

Table 1-10
Bottom Components

Item	Component	Function
1	Vent	Allows airflow to cool internal components.
	CAUTION: To prevent damage, the computer shuts down if an overheating condition occurs. Do not block the cooling vent. Avoid placing the computer on a blanket, rug, or other flexible surface that may cover the vent area.	
2	Connector cover	Protects the parallel, external monitor, external keyboard/mouse, and USB connectors.
3	Docking connector	Connects the computer to an optional port replicator.

Table 1-10
Bottom Components *(Continued)*

Item	Component	Function
4	Mini PCI communications compartment	Contains the mini PCI modem card.
5	MultiBay	Accepts a diskette drive, optical drive, hard drive, or battery pack.
6	MultiBay release switch	Releases the MultiBay device from the connector.
7	Serial number	Identifies the computer; needed when you call Compaq customer support.
8	Memory expansion compartment	Covers the memory expansion compartment that contains two memory expansion slots for memory expansion boards.
9	Battery pack release switch	Releases the battery pack from the battery compartment.
10	Battery bay	Accepts an 8-cell lithium ion (Li ion) battery pack.
11	Hard drive bay	Supports the primary hard drive. The hard drive is secured to the computer by one screw.
12	Hard drive retention screw	Secures the hard drive to the computer.

1.5 Design Overview

This section presents a design overview of key parts and features of the computer. Refer to Chapter 3, "Illustrated Parts Catalog," to identify replacement parts, and Chapter 5, "Removal and Replacement Procedures," for disassembly steps. The system board provides the following device connections:

- Memory expansion board
- Hard drive
- Display
- Keyboard/TouchPad or pointing stick
- Audio
- Intel Mobile Pentium 4 processors with SpeedStep technology
- Fan
- PC Card
- Modem or modem/NIC

The computer uses an electrical fan for ventilation. The fan is controlled by a temperature sensor and is designed to turn on automatically when high temperature conditions exist. These conditions are affected by high external temperatures, system power consumption, power management/battery conservation configurations, battery fast charging, and software applications. Exhaust air is displaced through the ventilation grill located on the left side of the computer.

CAUTION: To properly ventilate the computer, allow at least a 3-inch (7.6 cm) clearance on the left and right sides of the computer.

2

Troubleshooting

WARNING: Only authorized technicians trained by Compaq should 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 modification may void any warranty or exchange allowances.

2.1 Computer Setup and Diagnostics Utilities

Selecting Computer Setup or Compaq Diagnostics

The computer features two Compaq system management utilities:

- **Computer Setup**—A system information and customization utility that can be used even when your operating system is not working or will not load. This utility includes settings that are not available in Windows.

- **Compaq Diagnostics**—A system information and diagnostic utility that is used within your Windows operating system. Use this utility whenever possible to:
  - ❏ Display system information.
  - ❏ Test system components.
  - ❏ Troubleshoot a device configuration problem in Windows 2000, Windows XP Professional, or Windows XP Home.

It is not necessary to configure a device connected to a USB connector on the computer or an optional docking base.

Using Computer Setup

Information and settings in Computer Setup are accessed from the File, Security, or Advanced menus:

1. Turn on or restart the computer. Press **F10** while the F10 = ROM Based Setup message is displayed in the lower-left corner of the screen.
   - ❏ To change the language, press **F2.**
   - ❏ To view navigation information, press **F1.**
   - ❏ To return to the Computer Setup menu, press **esc.**
2. Select the **File, Security,** or **Advanced** menu.
3. To close Computer Setup and restart the computer:
   - ❏ Select **File > Save Changes** and **Exit** and press **enter.**

   or
   - ❏ Select **File > Ignore Changes** and **Exit** and press **enter.**
4. When you are prompted to confirm your action, press **F10.**

Selecting from the File Menu

Table 2-1
File Menu

Select	To Do This
System Information	■ View identification information about the computer, a docking base, and any battery packs in the system. ■ View specification information about the processor, memory and cache size, and system ROM.
Save to Floppy	Save system configuration settings to a diskette.
Restore from Floppy	Restore system configuration settings from a diskette.
Restore Defaults	Replace configuration settings in Computer Setup with factory default settings. (Identification information is retained.)
Ignore Changes and Exit	Cancel changes entered during the current session, then exit and restart the computer.
Save Changes and Exit	Save changes entered during the current session, then exit and restart the computer.

Selecting from the Security Menu

Table 2-2
Security Menu

Select	To Do This
Setup Password	Enter, change, or delete a setup password. (The setup password is called an administrator password in Compaq Computer Security, a program accessed from the Windows Control Panel.)
Power-on Password	Enter, change, or delete a power-on password.
DriveLock Passwords	Enable/disable DriveLock; change a DriveLock User or Master password. ✎ DriveLock Settings are accessible only when you enter Computer Setup by turning on (not restarting) the computer.
Password Options Password options can be selected only when a power-on password has been set.	Enable/Disable: ■ QuickLock ■ QuickLock on Suspend ■ QuickBlank ✎ To enable QuickLock on Suspend or QuickBlank, you must first enable QuickLock.
Device Security	Enable/Disable: ■ Ports or diskette drives* ■ Diskette write* ■ CD-ROM or diskette startup ✎ Settings for a DVD-ROM can be entered in the CD-ROM field.
System IDs	Enter identification numbers for the computer, a docking base, and all battery packs in the system.

*Not applicable to SuperDisk LS-120 drives.

Selecting from the Advanced Menu

Table 2-3
Advanced Menu

Select	To Do This
Language (or press **F2**)	Change the Computer Setup language.
Boot Options	Enable/Disable: ■ QuickBoot, which starts the computer more quickly by eliminating some startup tests. (If you suspect a memory failure and want to test memory automatically during startup, disable QuickBoot.) ■ MultiBoot, which sets a startup sequence that can include most bootable devices and media in the system.
Device Options	■ Enable/disable the embedded numeric keypad at startup. ■ Enable/disable multiple standard pointing devices at startup. (To set the computer to support only a single, usually nonstandard, pointing device at startup, select **Disable.**) ■ Enable/disable USB legacy support for a USB keyboard. (When USB legacy support is enabled, the keyboard works even when a Windows operating system is not loaded.) ■ Set an optional external monitor or overhead projector connected to a video card in a docking base as the primary device. (When the computer display is set as secondary, the computer must be shut down before undocking from a docking base.)

Table 2-3
Advanced Menu *(Continued)*

Select	To Do This
Device Options *(continued)*	■ Change the parallel port mode from EPP (Enhanced Parallel Port [default]) to standard, bidirectional, EPP or ECP (Enhanced Capabilities Port). ■ Set video-out mode to NTSC (default), PAL, NTSC-J, or PAL-M.* ■ Enable/disable all settings in the SpeedStep window. (When **Disable** is selected, the computer runs in Battery Optimized mode.) ■ Specify how the computer recognizes multiple identical docking bases that are identically equipped. (Select **Disable** to recognize the docking bases as a single docking base; select **Enable** to recognize the docking bases individually, by serial number.) ■ Enable/disable the reporting of the processor serial number by the processor to the software.
HDD Self Test Options	Run a quick comprehensive self test on hard drives in the system that support the test features.

*Video modes vary even within regions. However, NTSC is common in North America; PAL, in Europe, Africa, and the Middle East; NTSC-J, in Japan; and PAL-M, in Brazil. Other South and Central American regions may use NTSC, PAL, or PAL-M.

2.2 Using Compaq Diagnostics

When you access Compaq Diagnostics, a scan of all system components is displayed on the screen before the Compaq Diagnostics window opens.

You can display more or less information from anywhere within Compaq Diagnostics by selecting **Level** on the menu bar.

Compaq Diagnostics is designed to test Compaq components. If non-Compaq components are tested, the results may be inconclusive.

Obtaining, Saving, or Printing Configuration Information

1. Access Compaq Diagnostics by selecting **Start > Settings > Control Panel > Compaq Diagnostics.**
2. Select **Categories,** then select a category from the drop-down list.
   - ❏ To save the information, select **File > Save As.**
   - ❏ To print the information, select **File > Print.**
3. To close Compaq Diagnostics, select **File > Exit.**

Obtaining, Saving, or Printing Diagnostic Test Information

1. Access Compaq Diagnostics by selecting **Start > Settings > Control Panel > Compaq Diagnostics.**
2. Select the **Test** tab.
3. In the scroll box, select the category or device you want to test.
4. Select a test type:
   - ❏ **Quick Test**—Runs a quick, general test on each device in a selected category.
   - ❏ **Complete Test**—Performs maximum testing on each device in a selected category.
   - ❏ **Custom Test**—Performs maximum testing on a selected device.
     - ◆ To run all tests for your selected device, select the **Check All** button.
     - ◆ To run only the tests you select, select the **Uncheck All** button, then select the checkbox for each test you want to run.

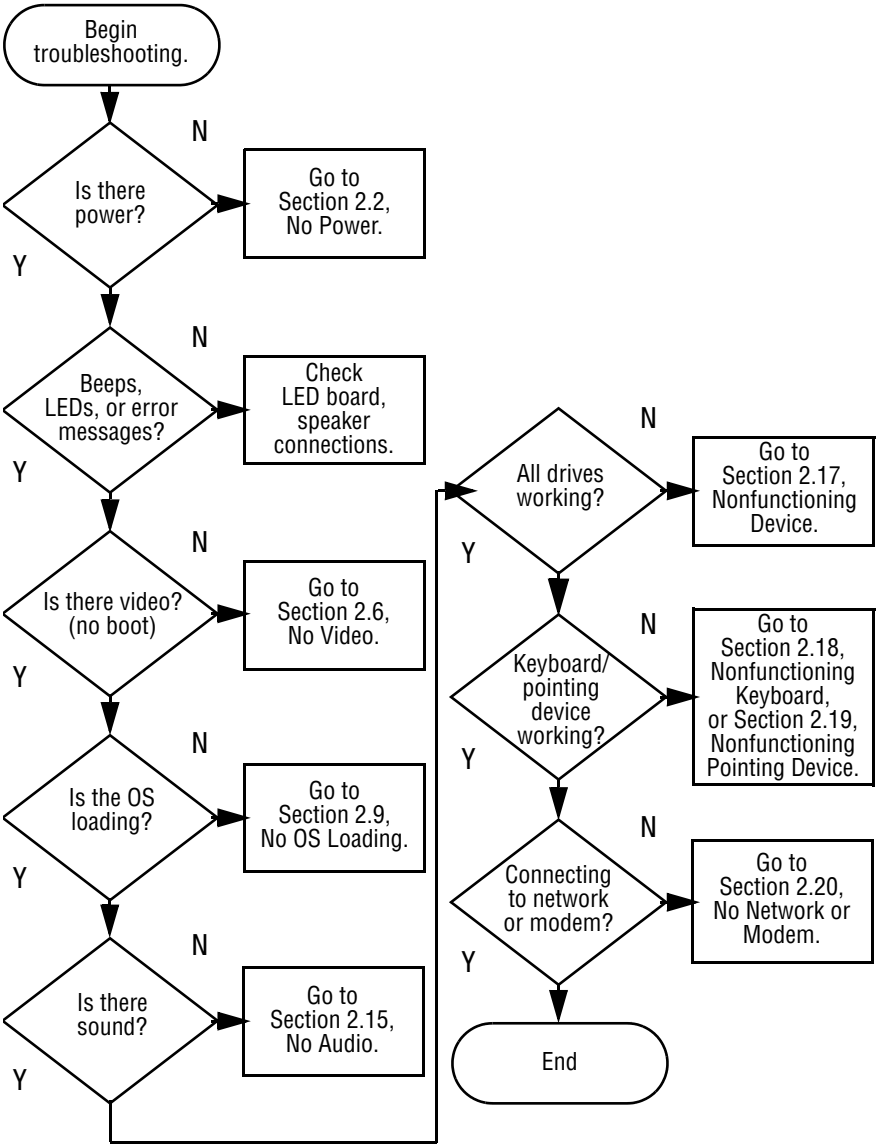
5. Select a test mode:
   - ❏ **Interactive Mode**—Provides maximum control over the testing process. You determine whether the test was passed or failed and may be prompted to insert or remove devices.
   - ❏ **Unattended Mode**—Does not display prompts. If errors are found, they are displayed when testing is complete.
6. Select the **Begin Testing** button.
7. Select a tab to view a test report:
   - ❏ **Status tab**—Summarizes the tests run, passed, and failed during the current testing session.
   - ❏ **Log tab**—Lists tests run on the system, the number of times each test has run, the number of errors found on each test, and the total run time of each test.
   - ❏ **Error tab**—Lists all errors found in the computer with their error codes.
8. Select a tab to save the report:
   - ❏ **Log tab**—Select the **Log tab Save** button.
   - ❏ **Error tab**—Select the **Error tab Save** button.
9. Select a tab to print the report:
   - ❏ **Log tab**—Select **File > Save As,** then print the file from your folder.

2.3 Troubleshooting Flowcharts

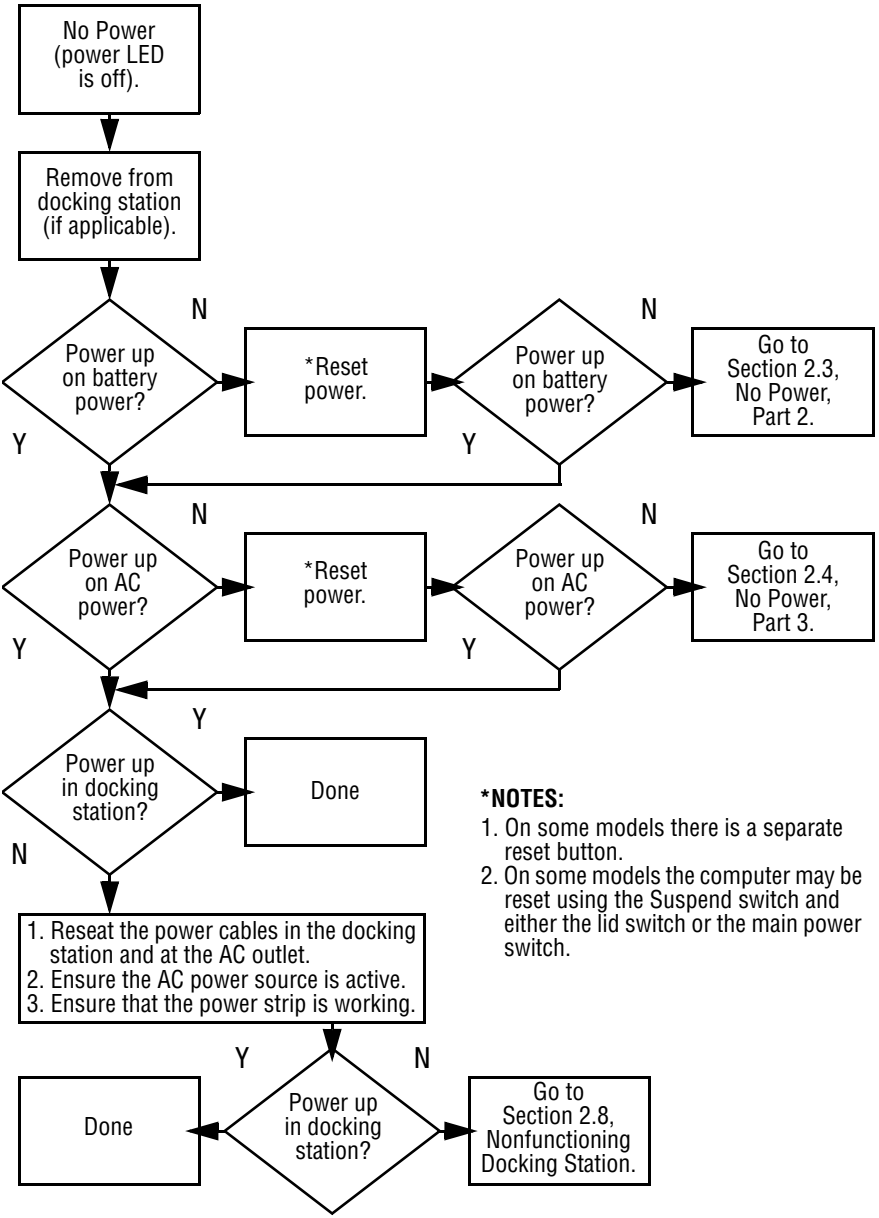
Table 2-4
Troubleshooting Flowcharts Overview

Flowchart	Description
2.1	Initial troubleshooting
2.2	No power, part 1
2.3	No power, part 2
2.4	No power, part 3
2.5	No power, part 4
2.6	No video, part 1
2.7	No video, part 2
2.8	Nonfunctioning docking station
2.9	No operating system (OS) loading
2.10	No OS loading from hard drive, part 1
2.11	No OS loading from hard drive, part 2
2.12	No OS loading from hard drive, part 3
2.13	No OS loading from diskette drive
2.14	No OS loading from CD- or DVD-ROM drive
2.15	No audio, part 1
2.16	No audio, part 2
2.17	Nonfunctioning device
2.18	Nonfunctioning keyboard
2.19	Nonfunctioning pointing device
2.20	No network or modem connection

Flowchart 2.1—Initial Troubleshooting



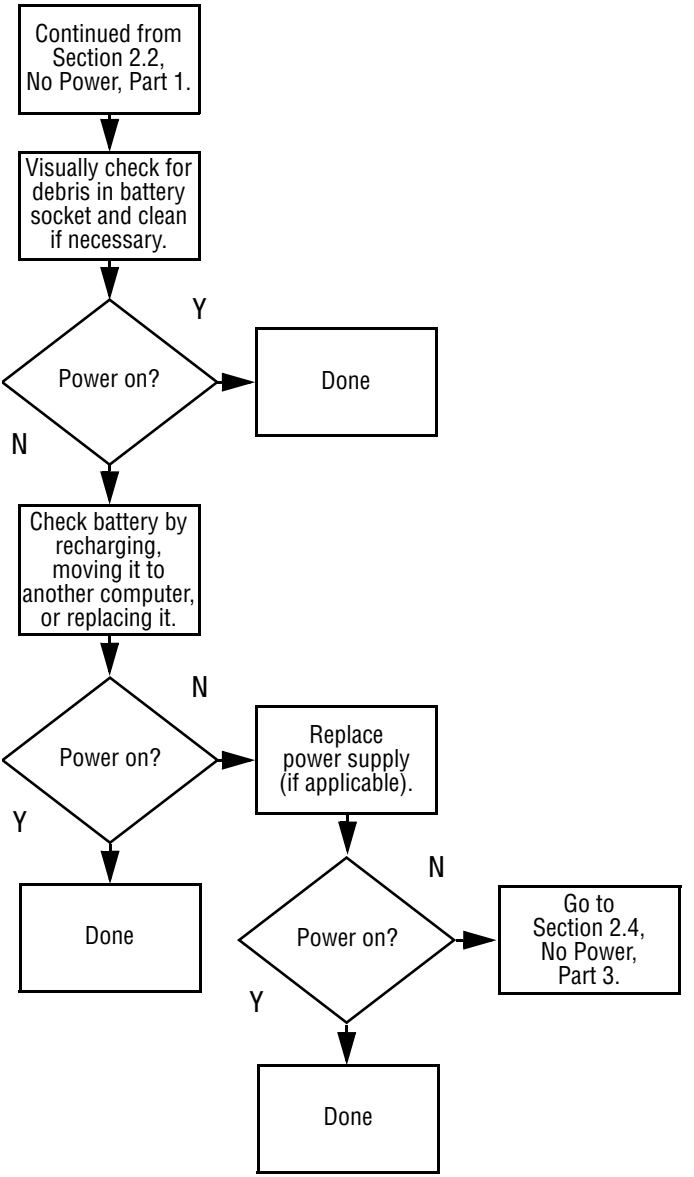
Flowchart 2.2—No Power, Part 1



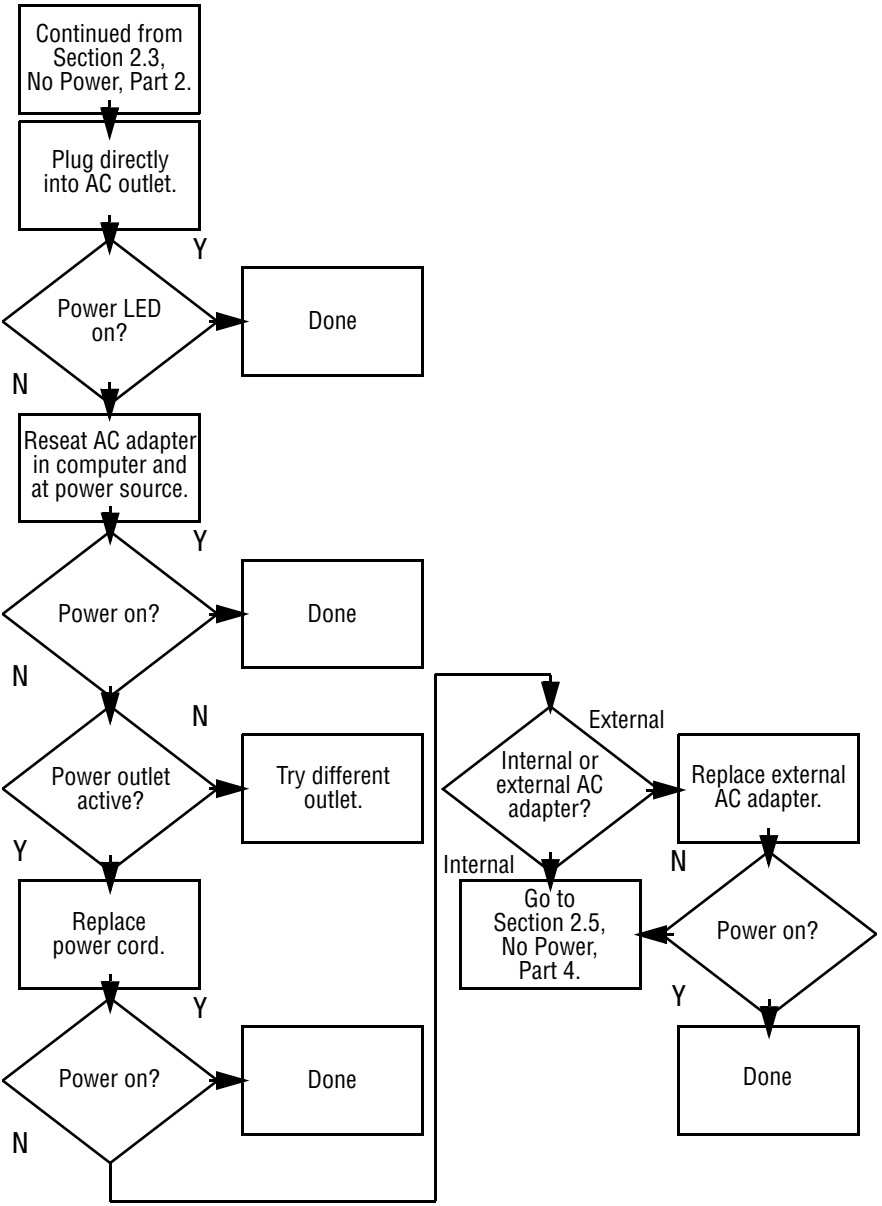
***NOTES:**

1. On some models there is a separate reset button.
2. On some models the computer may be reset using the Suspend switch and either the lid switch or the main power switch.

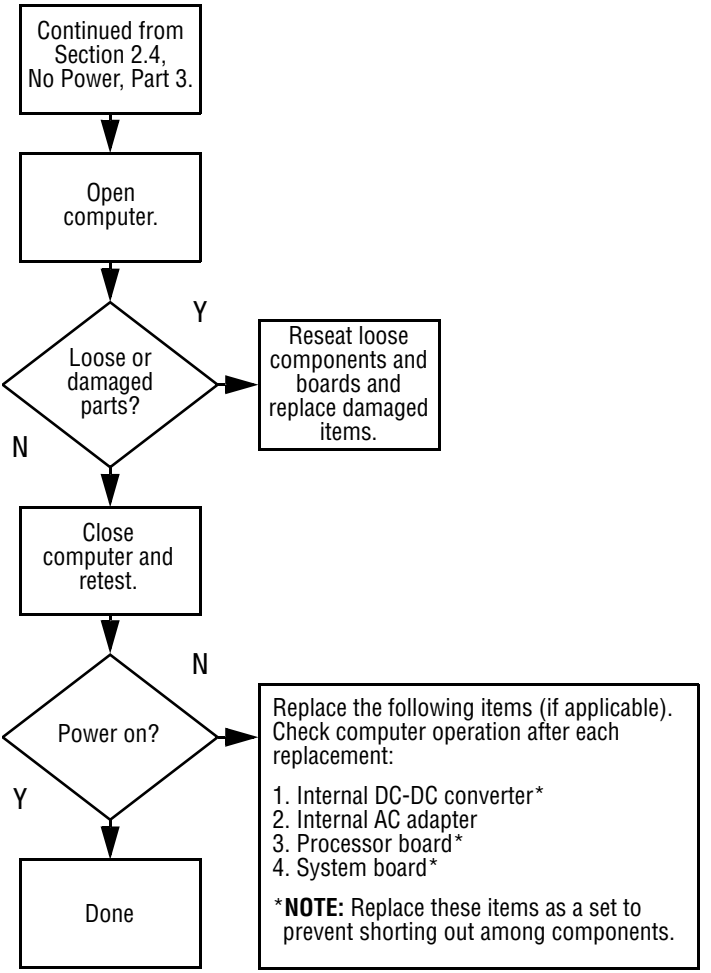
Flowchart 2.3—No Power, Part 2



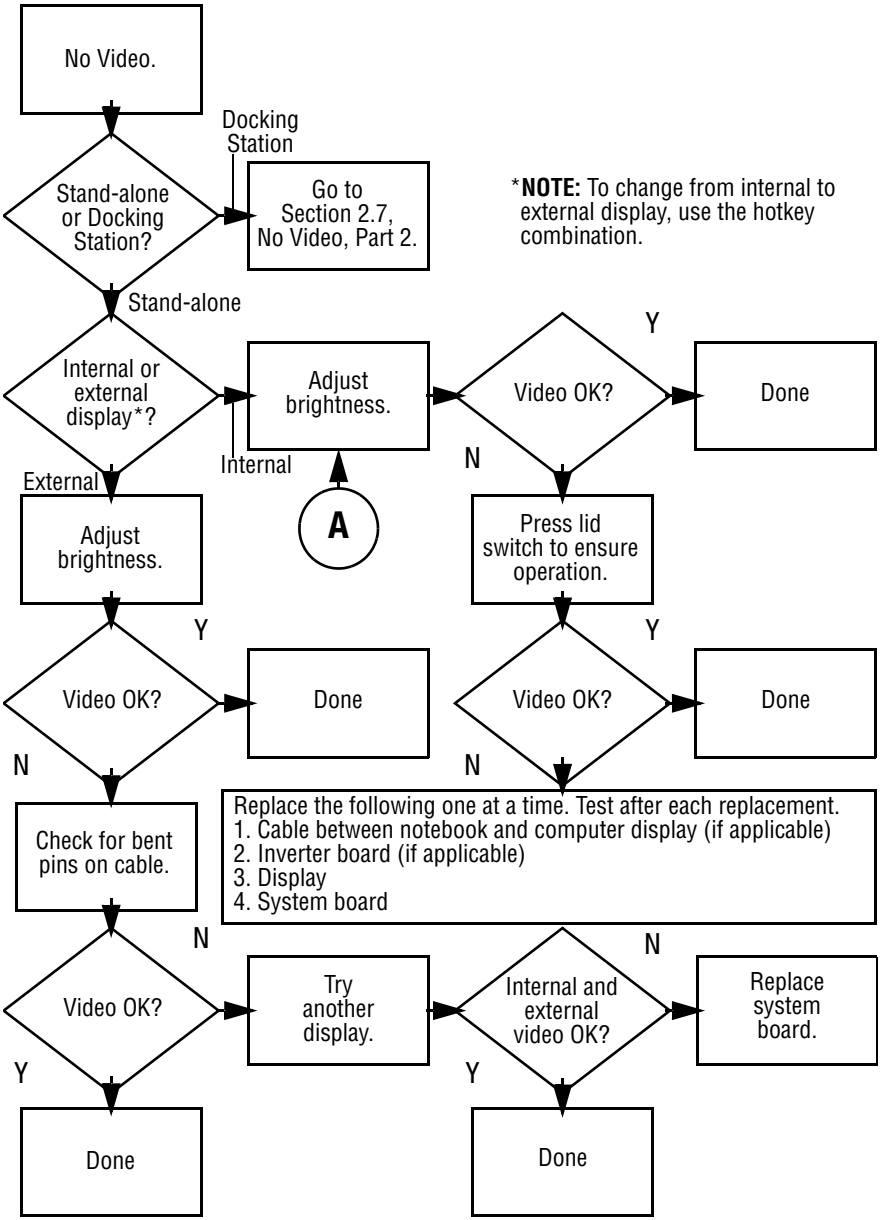
Flowchart 2.4—No Power, Part 3



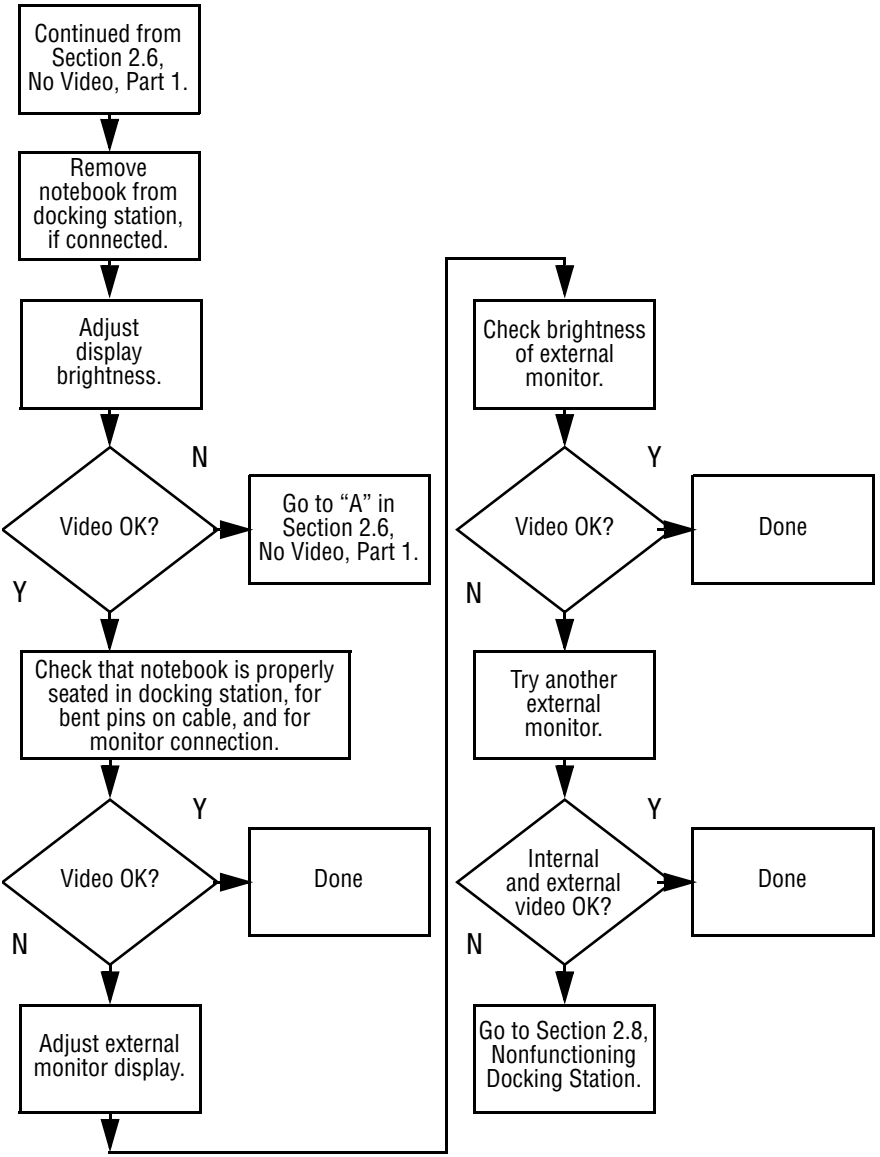
Flowchart 2.5—No Power, Part 4



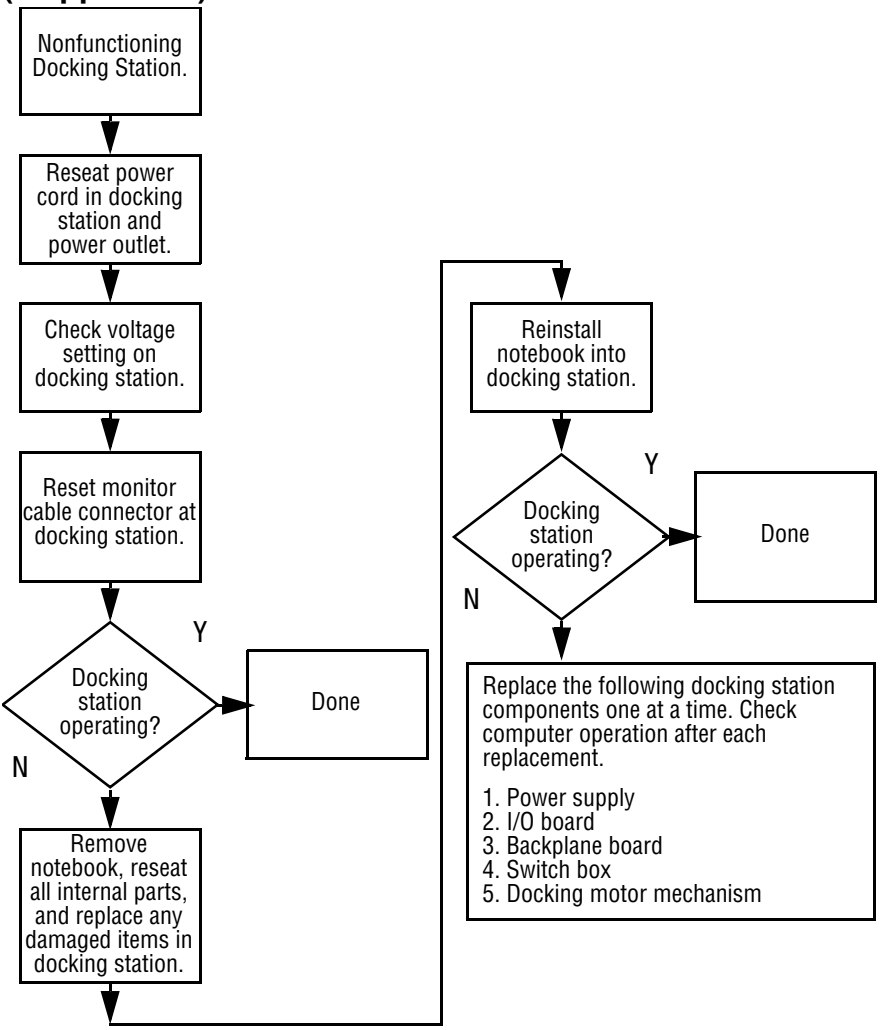
Flowchart 2.6—No Video, Part 1



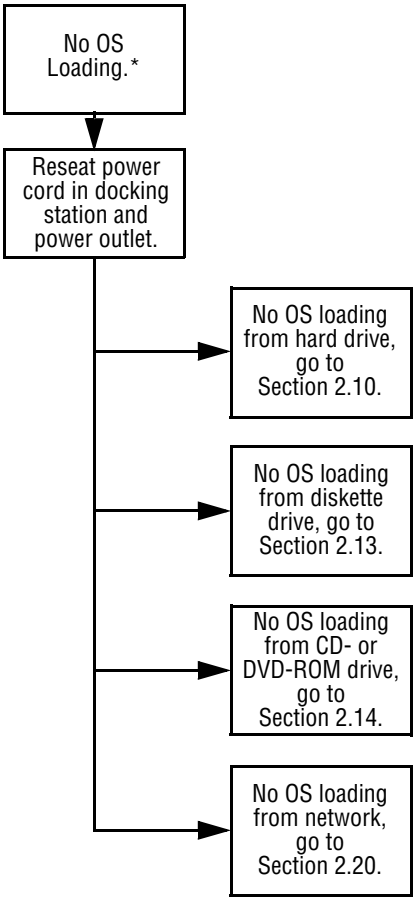
Flowchart 2.7—No Video, Part 2



Flowchart 2.8—Nonfunctioning Docking Station (if applicable)

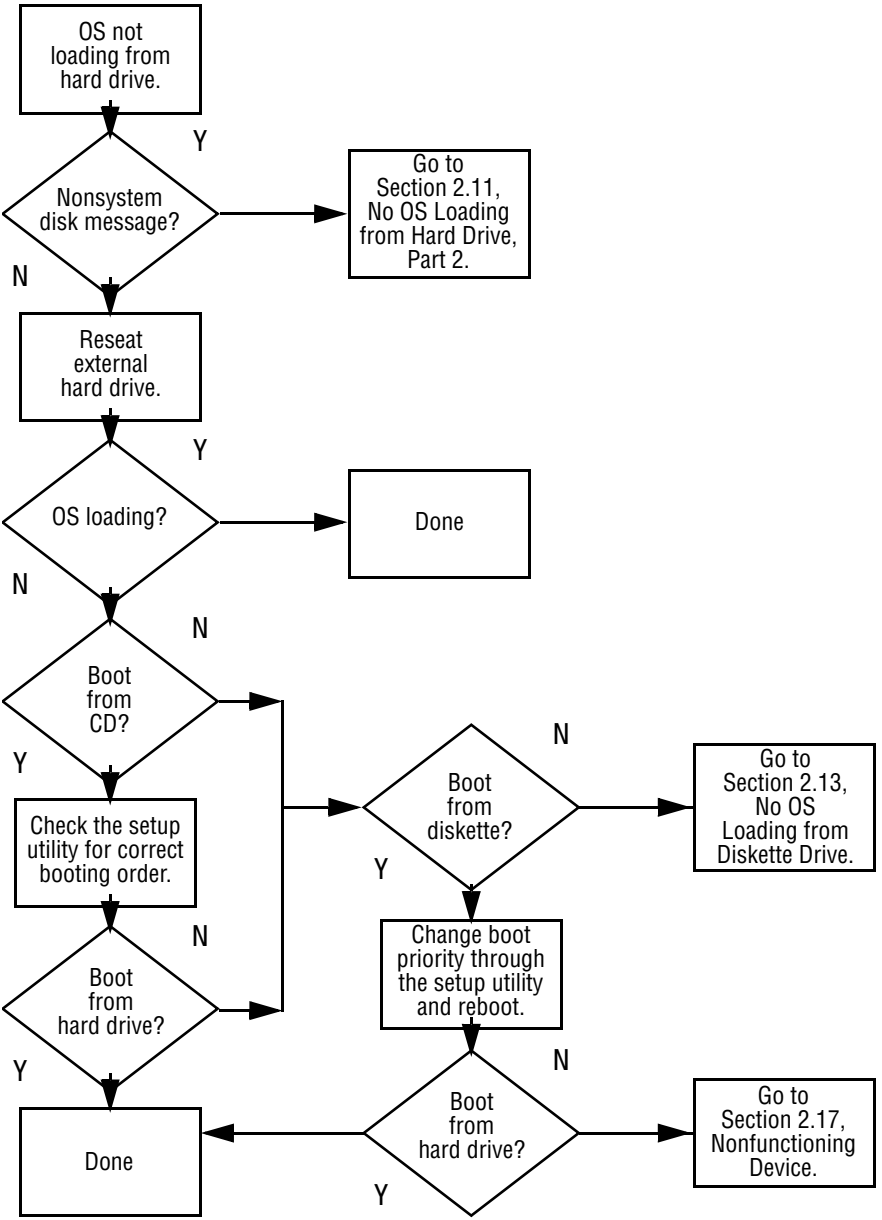


Flowchart 2.9—No Operating System (OS) Loading

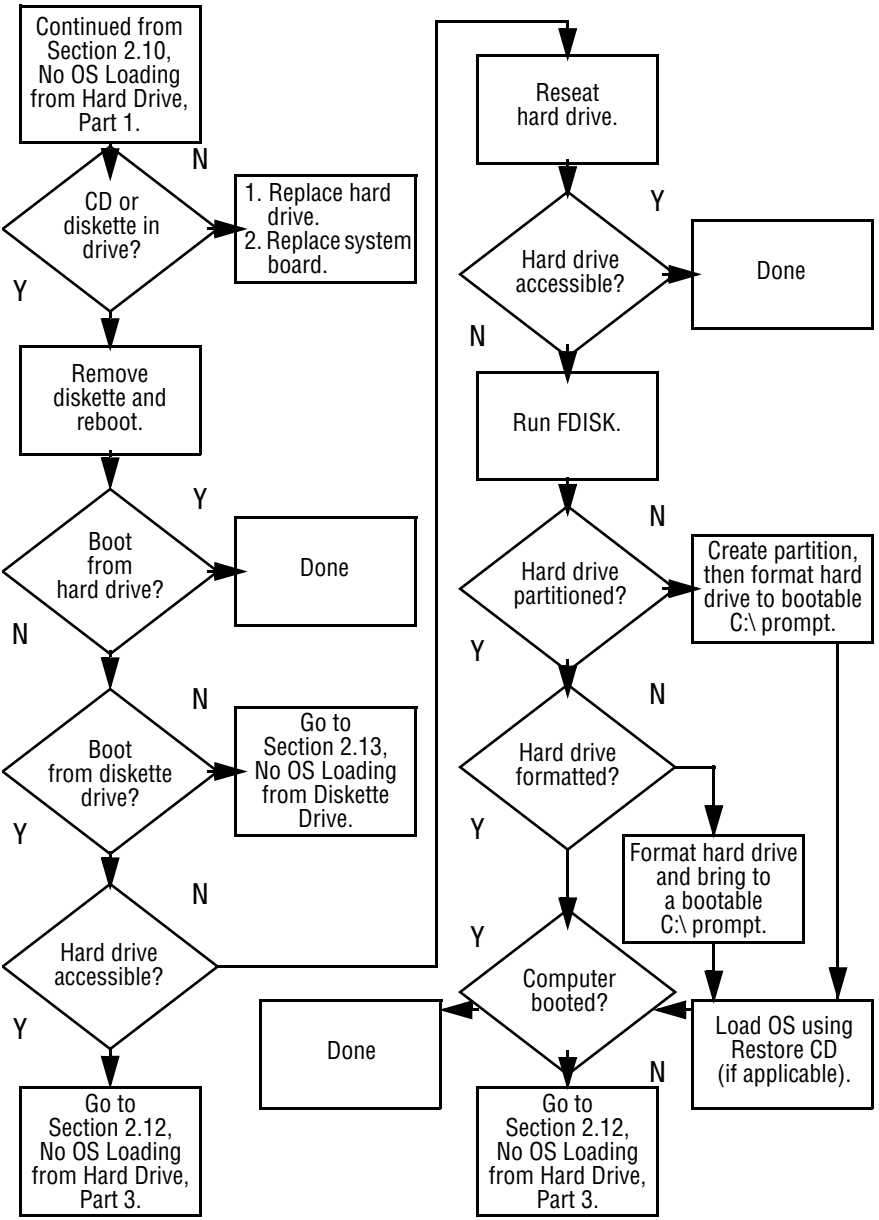


*__NOTE:__ Before beginning troubleshooting, always check cable connections, cable ends, and drives for bent or damaged pins.

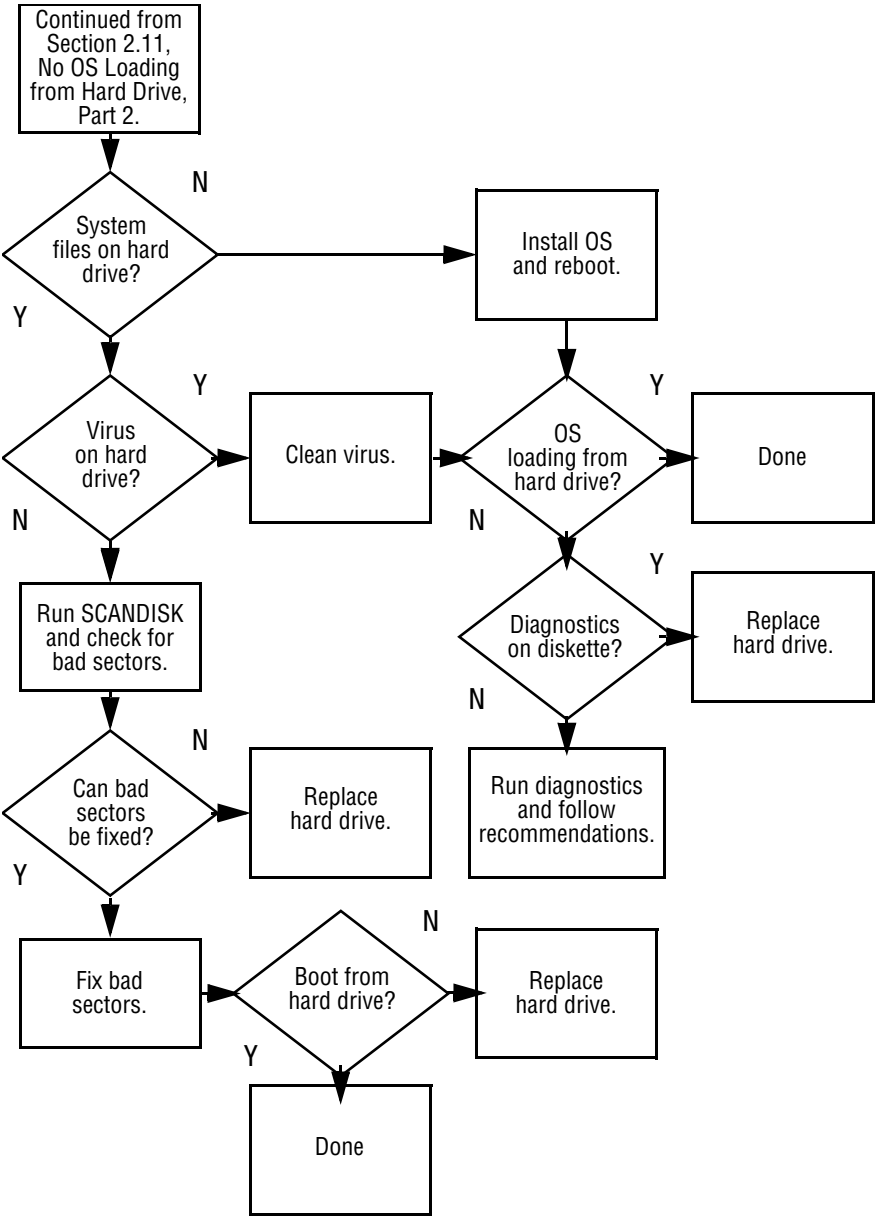
Flowchart 2.10—No OS Loading from Hard Drive, Part 1



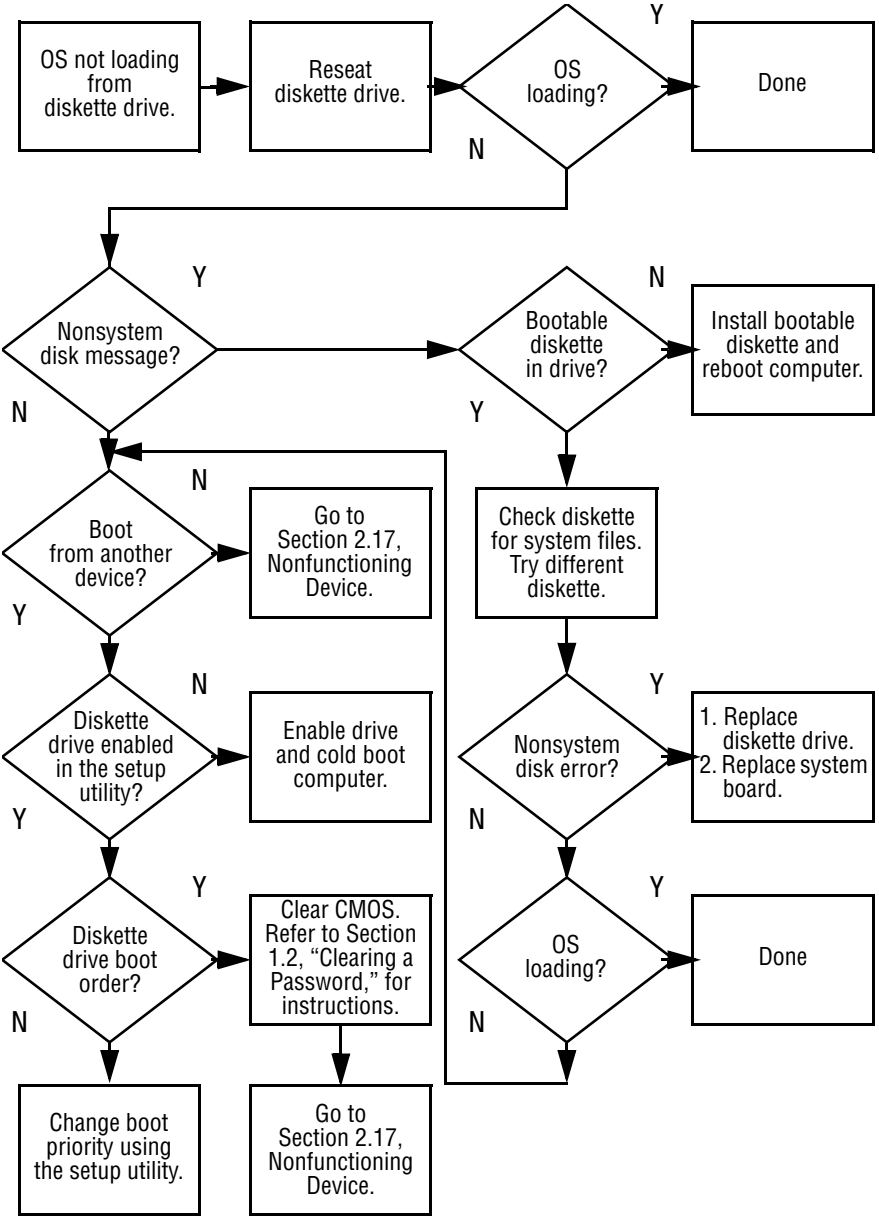
Flowchart 2.11—No OS Loading from Hard Drive, Part 2



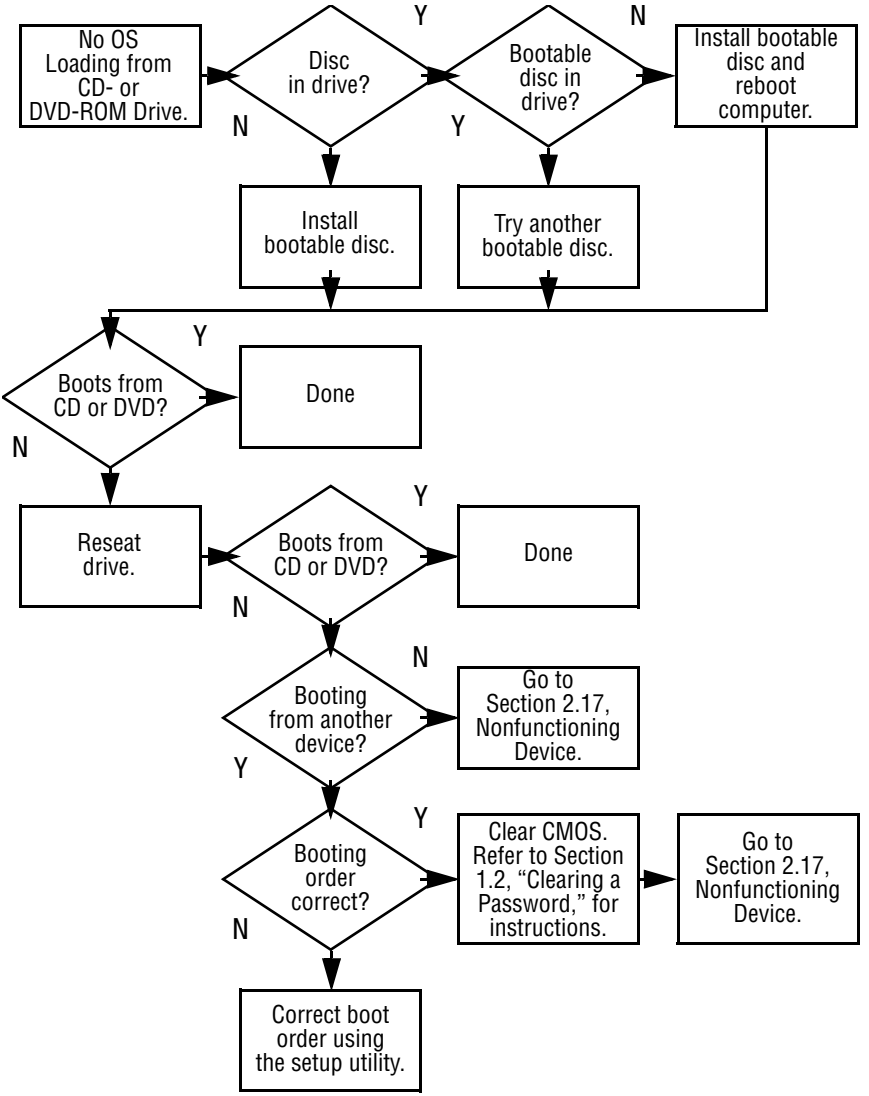
Flowchart 2.12—No OS Loading from Hard Drive, Part 3



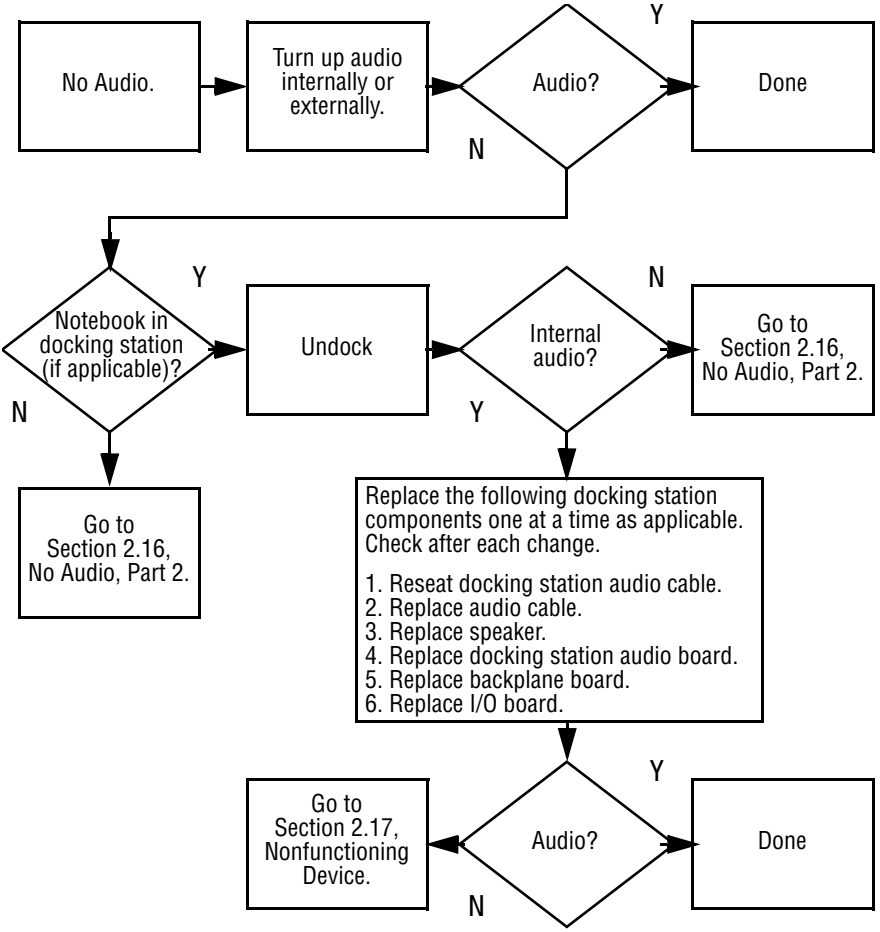
Flowchart 2.13—No OS Loading from Diskette Drive



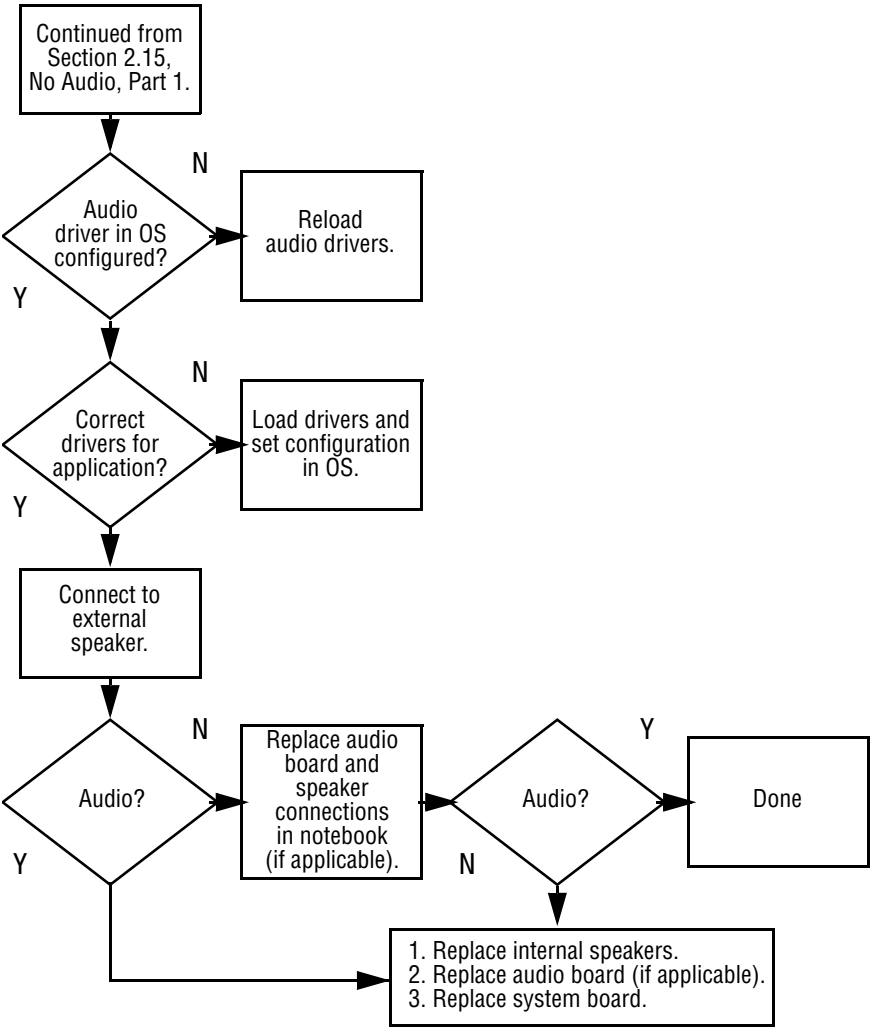
Flowchart 2.14—No OS Loading from CD- or DVD-ROM Drive



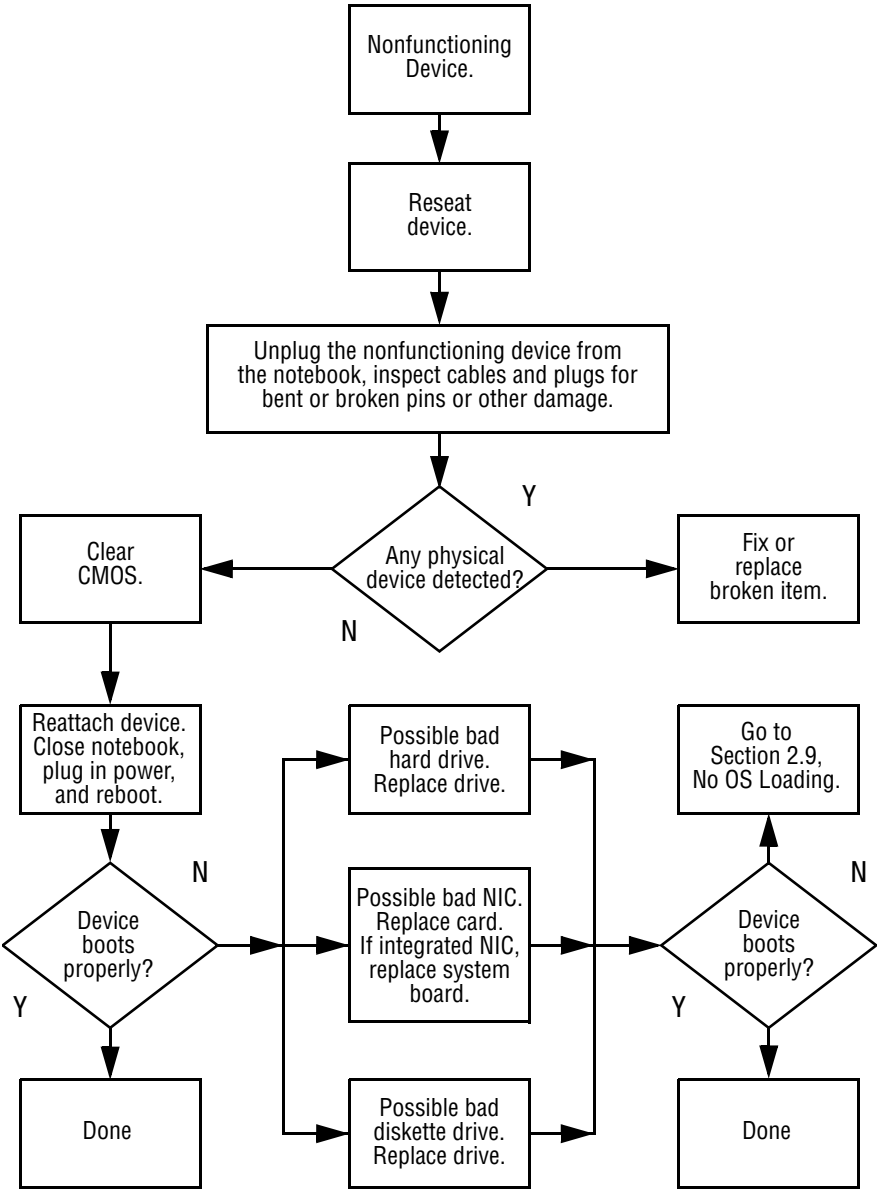
Flowchart 2.15—No Audio, Part 1



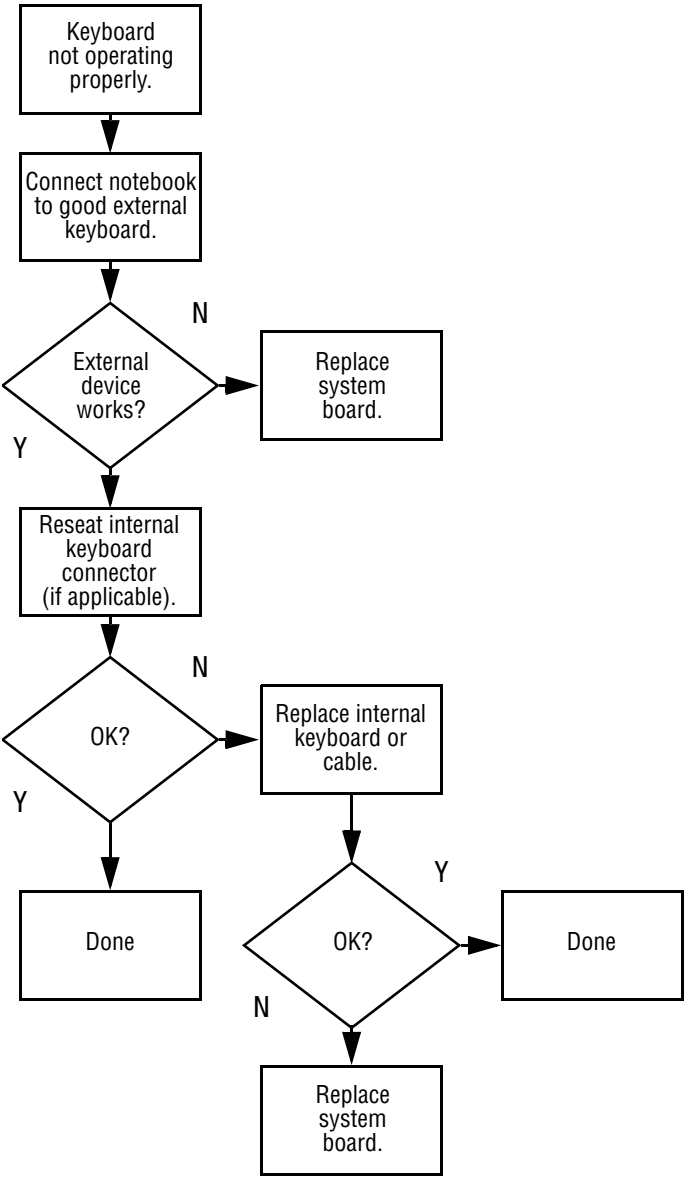
Flowchart 2.16—No Audio, Part 2



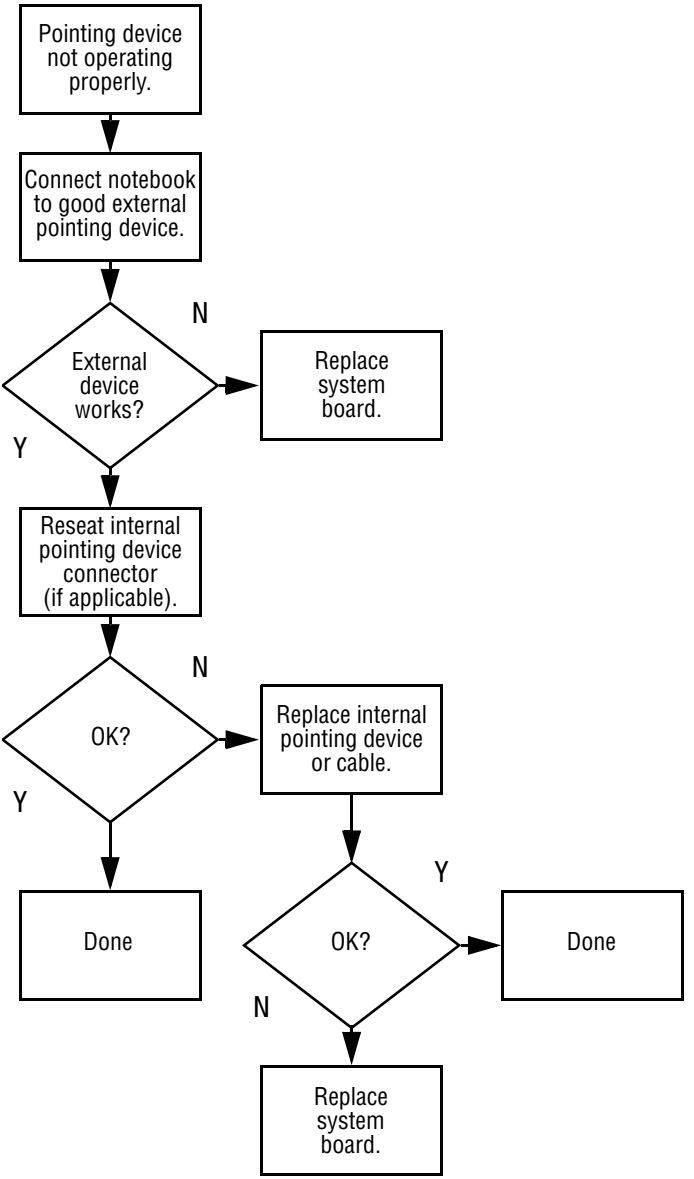
Flowchart 2.17—Nonfunctioning Device



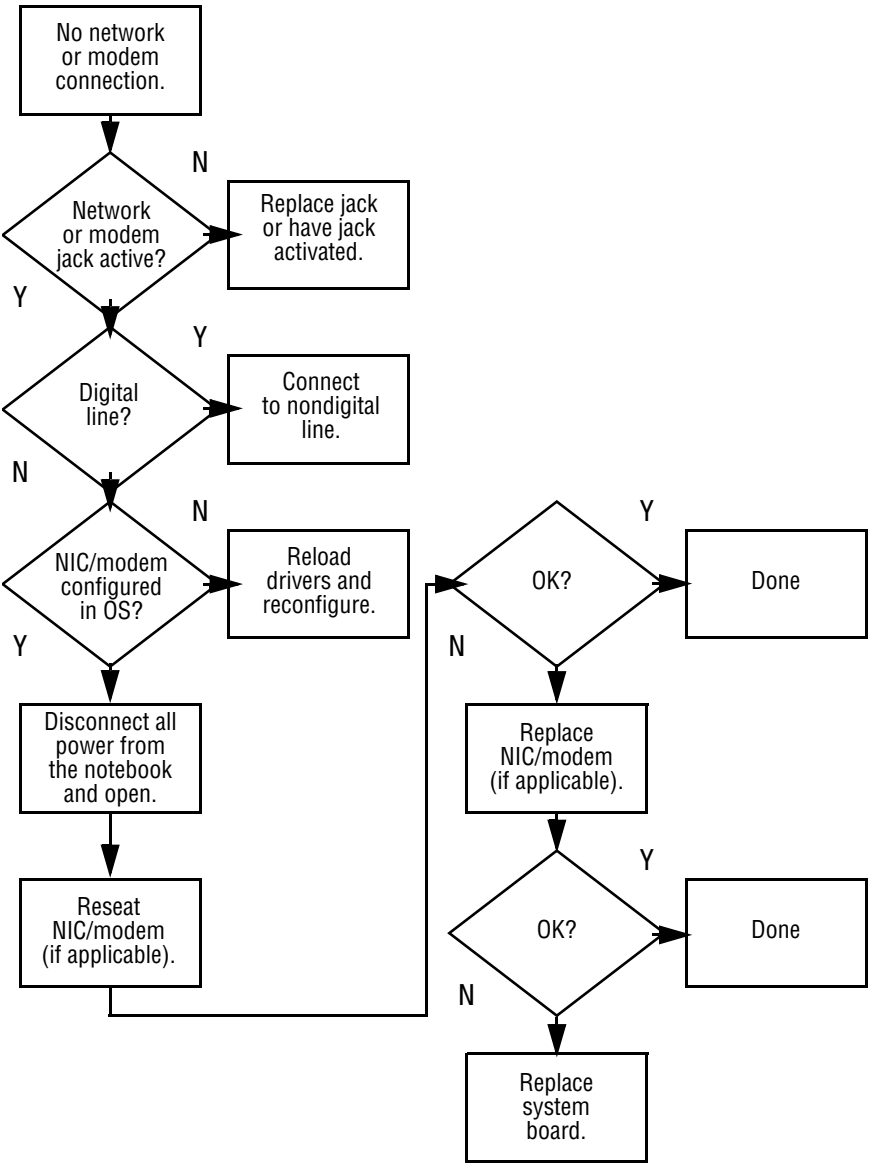
Flowchart 2.18—Nonfunctioning Keyboard



Flowchart 2.19—Nonfunctioning Pointing Device



Flowchart 2.20—No Network or Modem Connection



3

Illustrated Parts Catalog

This chapter provides an illustrated parts breakdown and a reference for spare part numbers and option part numbers.

3.1 Serial Number Location

When ordering parts or requesting information, provide the computer serial number and model number located on the bottom of the computer (Figure 3-1).

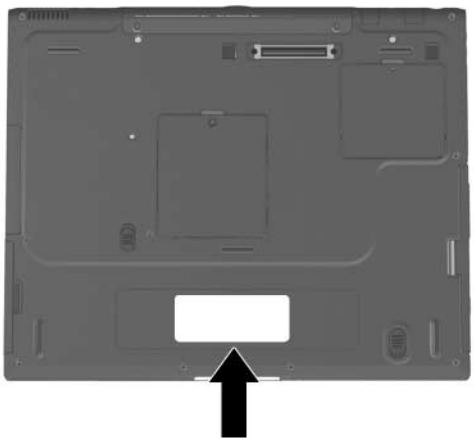


Figure 3-1. Serial Number Location

3.2 Computer System Major Components

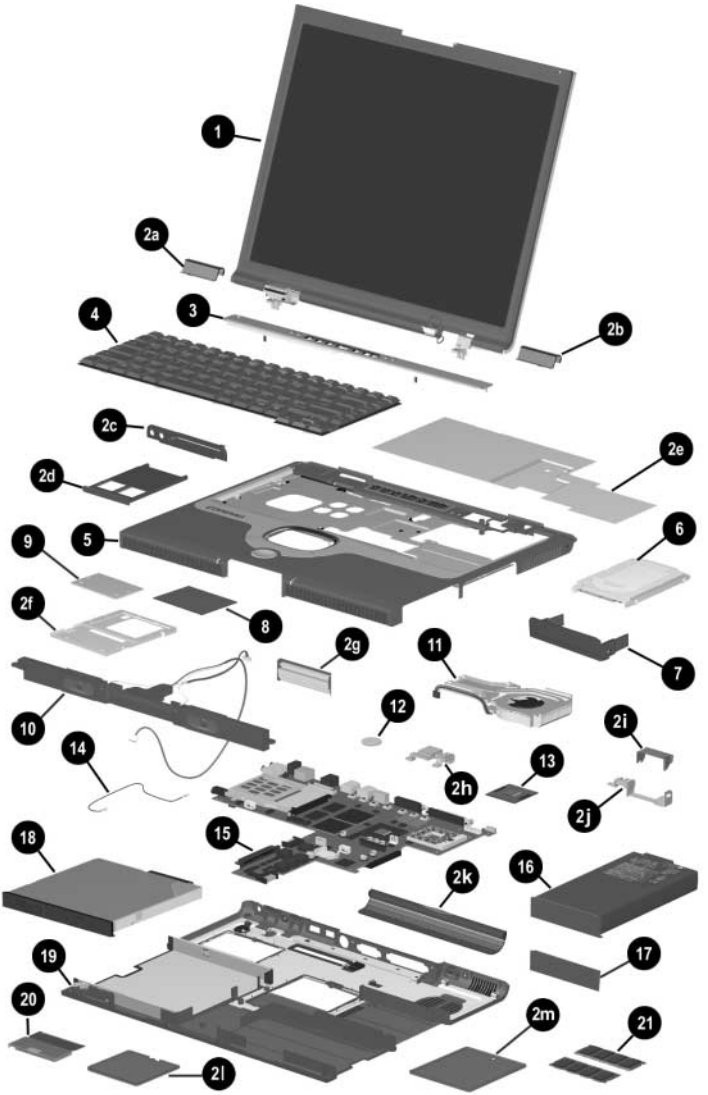


Figure 3-2. Computer System Major Components

Table 3-1
Spare Parts: Computer System Major Components

Item	Description	Spare Part Number
1	**Displays**	
	Contain parts with carbon finish for use with Evo Notebook N800c, N800v, and N800w models	
	15-inch, UXGA	286872-001
	15-inch, SXGA+	286871-001
	15-inch, XGA	286870-001
	14-inch, XGA	286869-001
	Contain parts with silver finish for use with Presario 2800 models	
	15-inch, UXGA	285265-001
	15-inch, SXGA+	285264-001
	15-inch, XGA	285263-001
	14-inch, XGA	285262-001
	MultiPort cover	289037-001

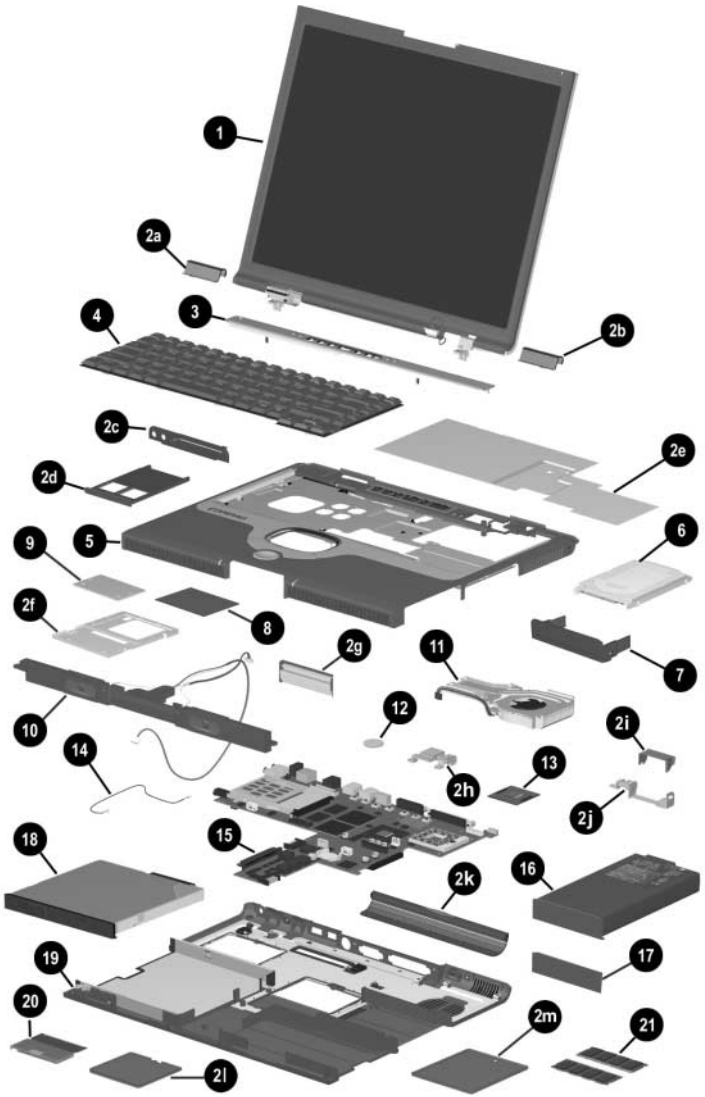


Figure 3-2. Computer System Major Components

Table 3-1
Spare Parts: Computer System Major Components *(Continued)*

Item	Description		Spare Part Number
	Miscellaneous Plastics/Hardware Kit Contains parts with silver finish for use with Presario 2800 models Contains parts with carbon finish for use with Evo Notebook N800c, N800v, and N800w models Includes:		285261-001 286868-001
2a	Left hinge cover	not illustrated:	
2b	Right hinge cover	Computer feet	
2c	PC Card bezel	MultiBay weight saver	
2d	PC Card slot space saver	Docking connector cover	
2e	Keyboard shield		
2f	TouchPad bracket		
2g	Display assembly release		
2h	Left display support		
2i	Fan channel		
2j	Right display support		
2k	Connector cover		
2l	Mini PCI compartment cover		
2m	Memory expansion compartment cover		
3	**LED cover**		288503-001

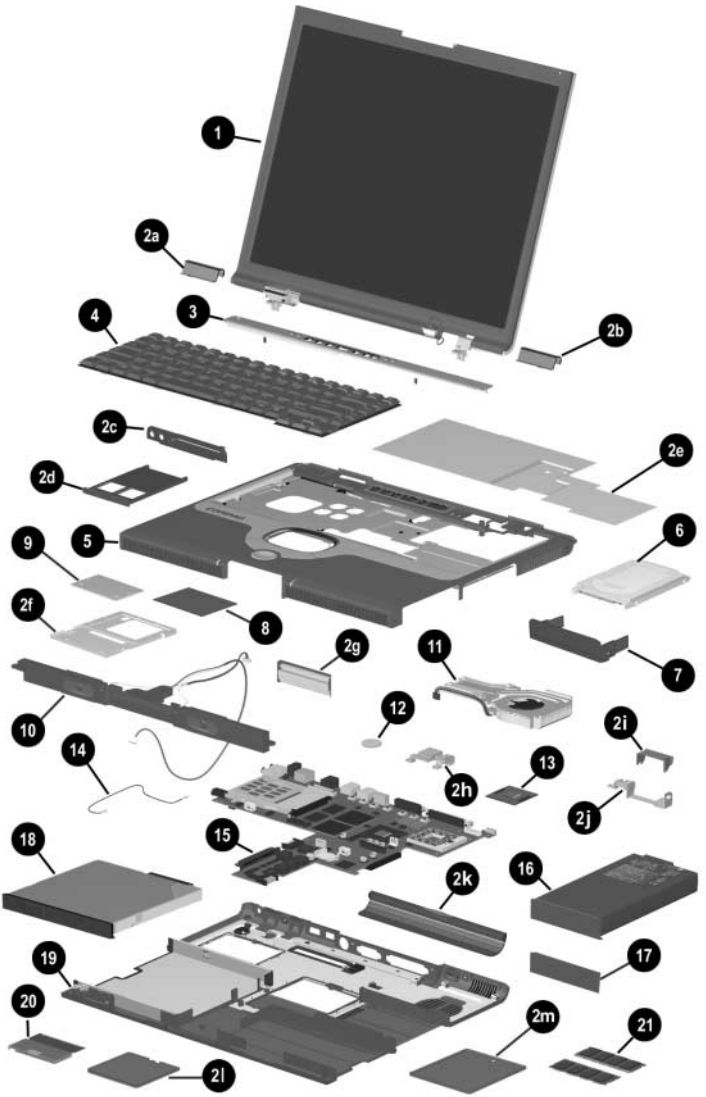


Figure 3-2. Computer System Major Components

Table 3-1
Spare Parts: Computer System Major Components *(Continued)*

Item	Description			Spare Part Number
4	**Keyboards** (for use with TouchPad models only)			
	Arabic	285280-171	Korean	285280-AD1
	Belgian	285280-181	Latin American	
	Brazilian	285280-201	Spanish	285280-161
	Chinese	285280-AA1	Norwegian	285280-091
	Czech	285280-221	Portuguese	285280-131
	Danish	285280-081	Russian	285280-251
	French	285280-051	Slovakian	285280-231
	French		Spanish	285280-071
	Canadian	285280-121	Swedish	285280-101
	German	285280-041	Swiss	285280-111
	Greek	285280-151	Taiwanese	285280-AB1
	Hebrew	285280-BB1	Thai	285280-281
	Hungarian	285280-211	Turkish	285280-141
	International	285280-002	U.K. English	285280-031
	Italian	285280-061	U.S. English	285280-001
	Keyboards with pointing stick			
	Arabic	285281-171	Latin American	285281-161
	Belgian	285281-181	Spanish	
	Brazilian	285281-201	Norwegian	285281-091
	Czech	285281-221	Portuguese	285281-131
	Danish	285281-081	Russian	285281-251
	French	285281-051	Slovakian	285281-231
	French		Spanish	285281-071
	Canadian	285281-121	Swedish	285281-101
	German	285281-041	Swiss	285281-111
	Greek	285281-151	Taiwanese	285281-AB1
	Hebrew	285281-BB1	Thai	285281-281
	Hungarian	285281-211	Turkish	285281-141
	International	285281-002	U.K. English	285281-031
	Italian	285281-061	U.S. English	285281-001
	Korean	285281-AD1		

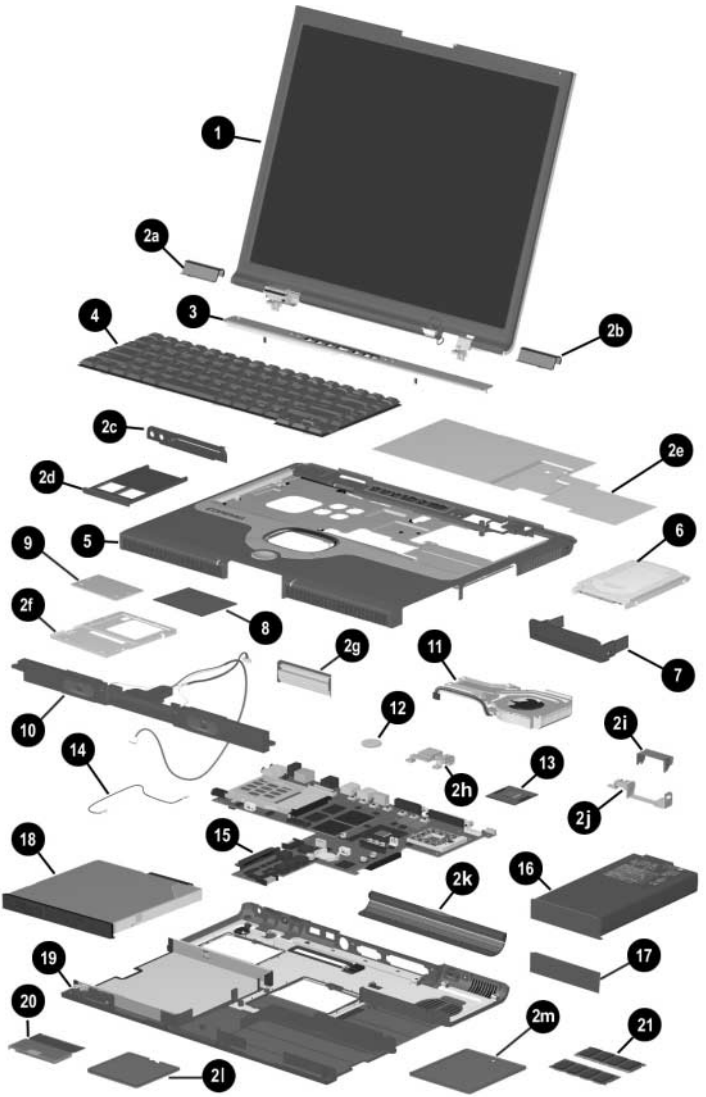


Figure 3-2. Computer System Major Components

Table 3-1
Spare Parts: Computer System Major Components *(Continued)*

Item	Description	Spare Part Number
5	**Top cover**	
	for Dual Point (TouchPad and Point Stick)	285256-001
	for TouchPad only (silver finish for use with Presario 2800 models)	285257-001
	for TouchPad only (carbon finish for use with Evo Notebook N800c, N800v, and N800w models)	295699-001
6	**Hard drives**	
	60 GB	285277-001
	40 GB	285276-001
	40 GB (does not include hard drive bezel)	301245-001
	30 GB	285275-001
	20 GB	285274-001
7	**Hard drive bezels**	
	Hard drive bezel with silver finish for use with Presario 2800 models	286874-001
	Hard drive bezel with carbon finish for use with Evo Notebook N800c, N800v, and N800w models	286875-001
8	**TouchPad**	285258-001
9	**TouchButton boards**	
	for Dual Point (TouchPad and Point Stick)	285259-001
	for TouchPad only	285260-001
10	**Speaker assembly**	285266-001
11	**Fan**	285267-001
12	**Disk cell RTC battery**	198718-001

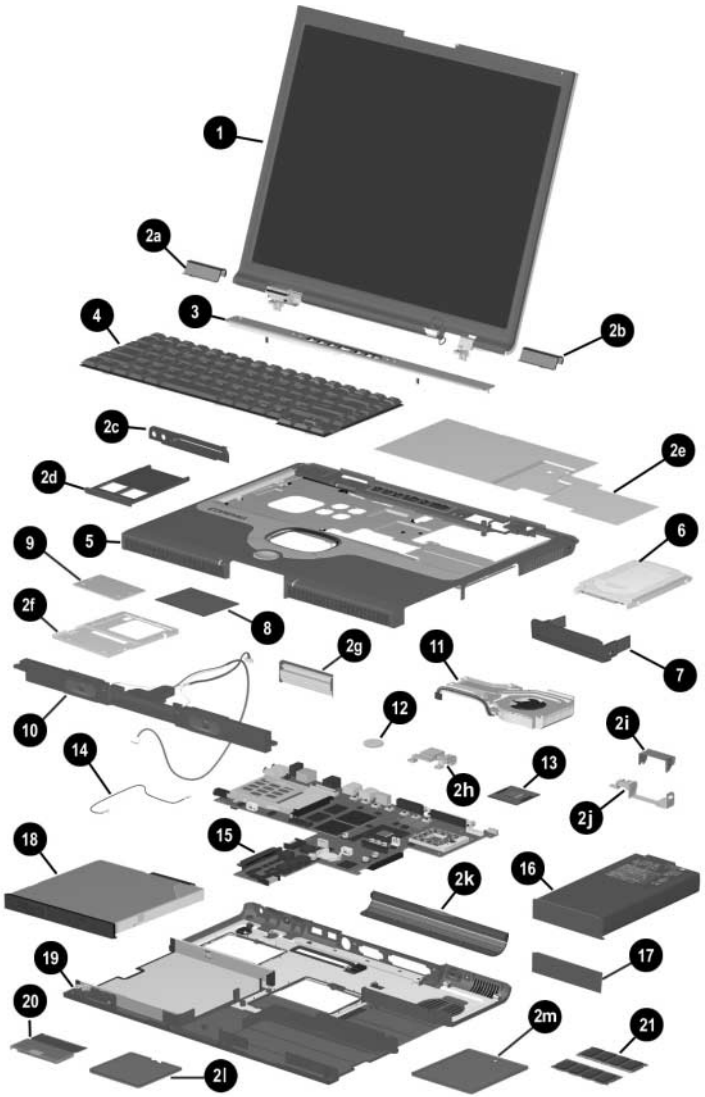


Figure 3-2. Computer System Major Components

Table 3-1
Spare Parts: Computer System Major Components *(Continued)*

Item	Description	Spare Part Number
13	**Processors**	
	Intel Mobile Pentium 4 with SpeedStep technology	
	2.2-GHz processor	308420-001
	2.0-GHz processor	305075-001
	1.9-GHz processor	305074-001
	1.8-GHz processor	285295-001
	1.7-GHz processor	285294-001
	1.6-GHz processor	285293-001
	1.5-GHz processor	285292-001
	1.4-GHz processor	285291-001
	Intel Mobile Pentium 4 (non-SpeedStep technology)	
	1.6-GHz processor	306704-001
	1.5-GHz processor	306703-001
	Miscellaneous Cable Kit, includes:	285268-001
14a	Modem cable	
15	**System boards** (do not contain memory)	
	with the ATI Mobile Radeon 9000 graphics controller	
	64-MB of video memory	310784-001
	32-MB of video memory	310783-001
	with the ATI P7 graphics controller	
	64-MB of video memory	285254-001
	32-MB of video memory	285253-001
16	**Battery pack,** 8 cell, 4.0 AH, 62 WH	281234-001

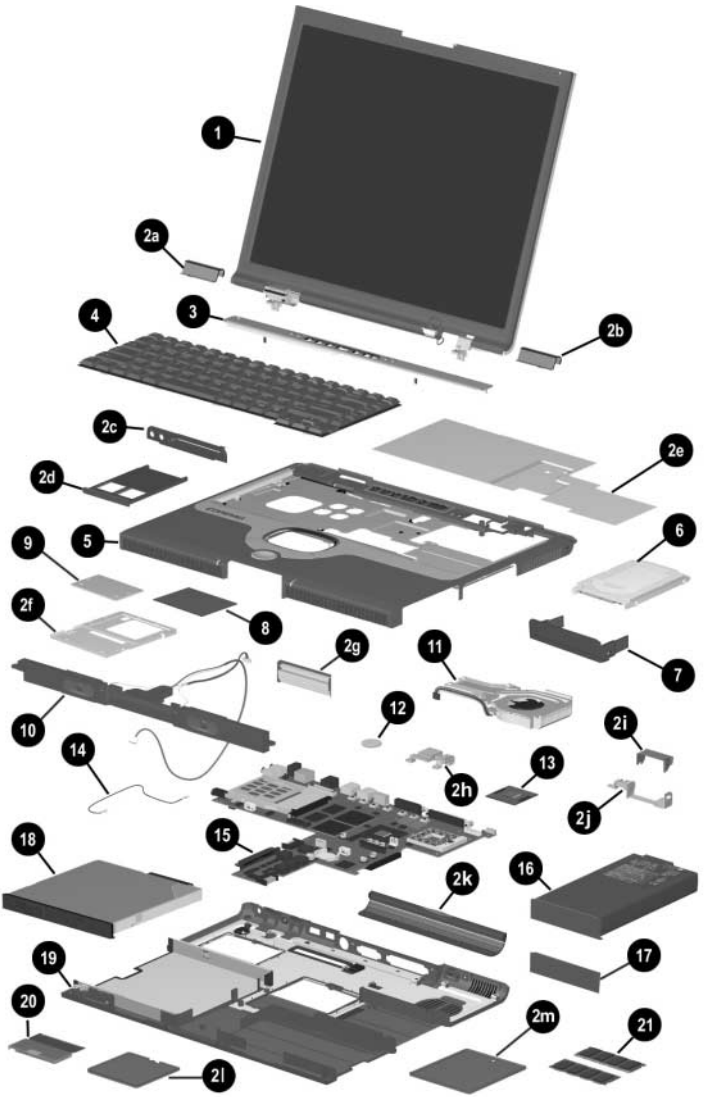


Figure 3-2. Computer System Major Components

Table 3-1
Spare Parts: Computer System Major Components *(Continued)*

Item	Description	Spare Part Number
17	**Battery bezels**	
	Battery bezel with silver finish for use with Presario 2800 models	286876-001
	Battery bezel with carbon finish for use with Evo Notebook N800c, N800v, and N800w models	286877-001
18	**MultiBay devices**	
	Diskette drive	285278-001
	24X Max CD-ROM drive	285282-001
	16X Max CD-RW drive	301244-001
	8X Max CD-RW drive	285284-001
	8X Max DVD-ROM drive	285283-001
	24X Max DVD-ROM/CD-RW combination drive	301294-001
	8X Max DVD-ROM/CD-RW combination drive	285285-001
	LS-120 drive	285279-001
	Battery pack	281235-001
19	**Base enclosures** (includes shield)	
	with silver finish (Presario 2800 models only)	285255-001
	with carbon finish (Evo Notebook N800c, N800v, and N800w models)	286867-001
20	**Mini PCI communications boards**	
	modem, type III, mini PCI, 56 Kbps (United States)	285286-001
	modem, type III, mini PCI, 56 Kbps (International)	285287-002
21	**Memory expansion boards**	
	512 MB	285273-001
	256 MB	285272-001
	128 MB	285271-001

3.3 Miscellaneous Plastics/Hardware Kit Components

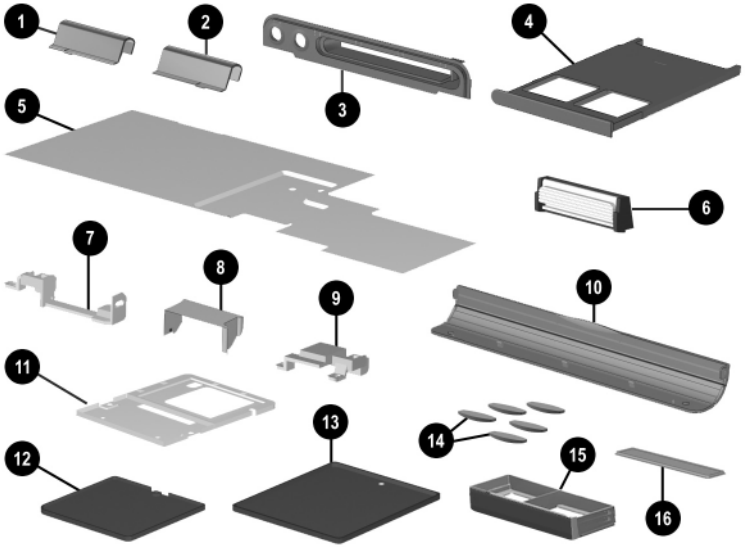


Figure 3-3. Miscellaneous Plastics/Hardware Kit Components

Table 3-2
Miscellaneous Plastics/Hardware Kit Components
Spare Part Number 285261-001
(contains parts with silver finish for use with Presario 2800 models)
Spare Part Number 286868-001
(contains parts with carbon finish for use with Evo Notebook N800c, N800v, and N800w models)

Item	Description	Item	Description
1	Left hinge cover	9	Right display support
2	Right hinge cover	10	Connector cover
3	PC Card bezel	11	TouchPad bracket
4	PC Card slot space saver	12	Mini PCI compartment cover
5	Keyboard shield	13	Memory expansion compartment cover
6	Display release assembly	14	Computer feet (5)
7	Left display support	15	MultiBay weight saver
8	Fan channel	16	Docking connector cover

3.4 Mass Storage Devices

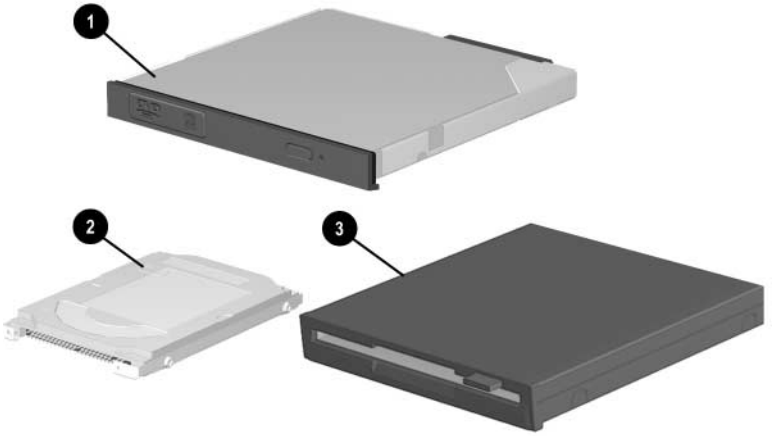


Figure 3-4. Mass Storage Devices

Table 3-3
Mass Storage Devices

Item	Description	Spare Part Number
1	**Optical drives**	
	24X Max CD-ROM drive	285282-001
	16X Max CD-RW drive	301244-001
	8X Max CD-RW drive	285284-001
	8X Max DVD-ROM drive	285283-001
	24X Max DVD-ROM/CD-RW combination drive	301294-001
	8X Max DVD-ROM/CD-RW combination drive	285285-001
2	**Hard drives**	
	60 GB	285277-001
	40 GB	285276-001
	40 GB (does not include hard drive bezel)	301245-001
	30 GB	285275-001
	20 GB	285274-001
3	**Diskette drive**	285278-001

3.5 Miscellaneous

Table 3-4
Spare Parts: Miscellaneous (not illustrated)

Description			Spare Part Number
AC adapters			
90 watt			287515-001
65 watt			285288-001
Advanced Port Replicator			288502-001
Bluetooth MultiPort Module with cover			288504-001
802.11b Wireless Local Area Network (LAN) MultiPort Module with cover			286873-001
Common Port Replicator			285289-001
Logo Kit			288501-001
Power cord, 2-wire			
Australian	174120-011	Swiss	174120-115
Chinese	174120-AA1	U.K. English	174120-031
International	174120-002	U.S. English	174120-001

Table 3-4
Spare Parts: Miscellaneous (not illustrated) *(Continued)*

Description			Spare Part Number
Power cord, 3-wire			
Australian	198723-011	Korean	198723-AD1
Chinese	198723-AA1	Swedish	198723-101
International	198723-B31	Swiss	198723-BG1
Italian	198723-061	Taiwanese	198723-AB1
Japanese	198723-291	U.K. English	198723-031
		U.S. English	198723-001
Screw Kit (includes the following screws; refer to Appendix C, "Screw Listing," for more information on screw specifications and usage.)			285290-001
■ Phillips M3.0 × 4.0		■ Phillips M2.0 × 8.0	
■ Phillips M2.5 × 9.0		■ Phillips M2.0 × 5.5	
■ Phillips M2.0 × 10.0		■ Phillips M2.0 × 4.0	

4

Removal and Replacement Preliminaries

This chapter provides essential information for proper and safe removal and replacement service.

4.1 Tools Required

You will need the following tools to complete the removal and replacement procedures:

- Magnetic screwdriver
- Phillips P0 screwdriver
- Tool kit (includes connector removal tool, loopback plugs, and case utility tool)

4.2 Service Considerations

The following sections include some of the considerations that you should keep in mind during disassembly and assembly procedures.

As you remove each subassembly from the computer, place the subassembly (and all accompanying screws) away from the work area to prevent damage.

Plastic Parts

Using excessive force during disassembly and reassembly can damage plastic parts. Use care when handling the plastic parts. Apply pressure only at the points designated in the maintenance instructions.

Cables and Connectors

Cables must be handled with extreme care to avoid damage. Apply only the tension required to unseat or seat the cables during removal and insertion. Handle cables by the connector whenever possible. In all cases, avoid bending, twisting, or tearing cables. Ensure that cables are routed in such a way that they cannot be caught or snagged by parts being removed or replaced. Handle flex cables with extreme care; these cables tear easily.

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

4.3 Preventing Damage to Removable Drives

Removable drives are fragile components that must be handled with care. To prevent damage to the computer, damage to a removable drive, or loss of information, observe the following precautions:

- Before removing or inserting a hard drive, shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, then shut it down.
- Before removing a diskette drive or optical drive, ensure that a diskette or disc is not in the drive. Ensure that the optical drive tray is closed.
- Before handling a drive, ensure that you are discharged of static electricity. While handling a drive, avoid touching the connector.
- Handle drives on surfaces that have at least one inch of shock-proof foam.
- Avoid dropping drives from any height onto any surface.
- After removing a hard drive, CD-ROM drive, or a diskette drive, place it in a static-proof bag.
- Avoid exposing a hard drive to products that have magnetic fields, such as monitors or speakers.
- Avoid exposing a drive to temperature extremes or to liquids.
- If a drive must be mailed, place the drive in a bubble pack mailer or other suitable form of protective packaging and label the package “Fragile: Handle With Care.”

4.4 Preventing Electrostatic Damage

Many electronic components are sensitive to electrostatic discharge (ESD). Circuitry design and structure determine the degree of sensitivity. 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.

A sudden discharge of static electricity from a 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 may not be affected at all and can work perfectly throughout a normal cycle. Or the device may function normally for a while, then degrade in the internal layers, reducing its life expectancy.

4.5 Packaging and Transporting Precautions

Use the following grounding precautions when packaging and transporting equipment:

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

- Store reusable electrostatic-sensitive parts from assemblies in protective packaging or nonconductive foam.
- Use transporters and conveyors made of antistatic belts and roller bushings. Ensure that mechanized equipment used for moving materials is wired to ground and that proper materials are selected to avoid static charging. When grounding is not possible, use an ionizer to dissipate electric charges.

4.6 Workstation Precautions

Use the following grounding precautions at workstations:

- Cover the workstation with approved static-dissipative material (refer to Table 4-2).
- Use a wrist strap connected to a properly grounded work surface and use properly grounded tools and equipment.
- Use conductive field service tools, such as cutters, screwdrivers, and vacuums.
- When using fixtures that must directly contact dissipative surfaces, only use fixtures made of static-safe materials.
- Keep the work area free of nonconductive materials, such as ordinary plastic assembly aids and Styrofoam.
- Handle electrostatic-sensitive components, parts, and assemblies by the case or PCM laminate. Handle these items only at static-free workstations.
- Avoid contact with pins, leads, or circuitry.
- Turn off power and input signals before inserting or removing connectors or test equipment.

4.7 Grounding Equipment and Methods

Grounding equipment 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. Wrist straps are flexible straps with a minimum of one megohm ±10% resistance in the ground cords. To provide proper ground, wear a strap snugly against the skin at all times. On grounded mats with banana-plug connectors, connect a wrist strap with alligator clips.
- When standing, use foot straps and a grounded floor mat. Foot straps (heel, toe, or boot straps) can be used at standing workstations and are compatible with most types of shoes or boots. On conductive floors or dissipative floor mats, use foot straps 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.

Other grounding equipment recommended for use in preventing electrostatic damage includes:

- Antistatic tape
- Antistatic smocks, aprons, and sleeve protectors
- Conductive bins and other assembly or soldering aids
- Nonconductive foam
- Conductive tabletop workstations with ground cords of one-megohm resistance
- Static-dissipative tables or floor mats with hard ties to the ground
- Field service kits
- Static awareness labels
- Material-handling packages

- Nonconductive plastic bags, tubes, or boxes
- Metal tote boxes
- Electrostatic voltage levels and protective materials

Table 4-1 shows how humidity affects the electrostatic voltage levels generated by different activities.

Table 4-1
Typical Electrostatic Voltage Levels

	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

✎ A product can be degraded by as little as 700 volts.

Table 4-2 lists the shielding protection provided by antistatic bags and floor mats.

Table 4-2
Static-Shielding Materials

Material	Use	Voltage Protection Level
Antistatic plastic	Bags	1,500 V
Carbon-loaded plastic	Floor mats	7,500 V
Metallized laminate	Floor mats	5,000 V

5

Removal and Replacement Procedures

This chapter provides removal and replacement procedures.

Phillips P1 screws are removed during disassembly. There are 48 screws, in nine different sizes, that must be removed, replaced, and loosened when servicing the computer. Make special note of each screw size and location during removal and replacement.

Refer to Appendix C, “Screw Listing,” for detailed information on screw sizes, locations, and usage.

5.1 Serial Number

Report the computer serial number to Compaq when requesting information or ordering spare parts. The serial number is located on the bottom of the computer (Figure 5-1).

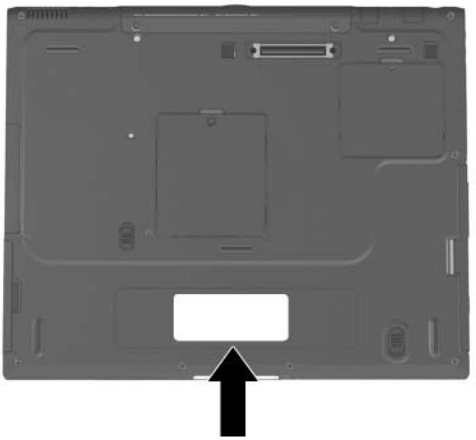


Figure 5-1. Serial Number Location

5.2 Disassembly Sequence Chart

Use the chart below to determine the section number to be referenced when removing computer components.

Table 5-1
Disassembly Sequence Chart

Section	Description	# of Screws Removed
5.3	Preparing the computer for disassembly	
	Battery pack	0

Table 5-1
Disassembly Sequence Chart *(Continued)*

Section	Description	# of Screws Removed
5.3 *(continued)*	MultiBay device	0
	Hard drive	1 to remove hard drive 2 to separate hard drive bezel from hard drive
5.4	Computer feet	0
5.5	Memory expansion board	1 loosened
5.6	Mini PCI communications board	1 loosened
5.7	Connector cover	2
5.8	LED cover	2
5.9	Keyboard	2 to remove keyboard shield
5.10	Display	4
5.11	Top cover	16
5.12	Speaker assembly	0
5.13	Display release assembly	2
5.14	TouchPad	4
5.15	Fan	4 loosened
5.16	Processor	0
5.17	Disk cell RTC battery	0
5.18	System board	5
5.19	Modem cable	0

5.3 Preparing the Computer for Disassembly

Perform the following steps before disassembling the computer:

1. Turn off the computer.
2. Disconnect the AC adapter and all external devices.
3. Remove the battery pack by following these steps:
   a. Turn the computer bottom side up with the left side facing forward.
   b. Slide and hold the battery release latch ❶ toward the back of the computer (Figure 5-2).
   c. Use the notch in the battery bay to slide the battery pack out of the battery bay ❷.
   d. Remove the battery pack.

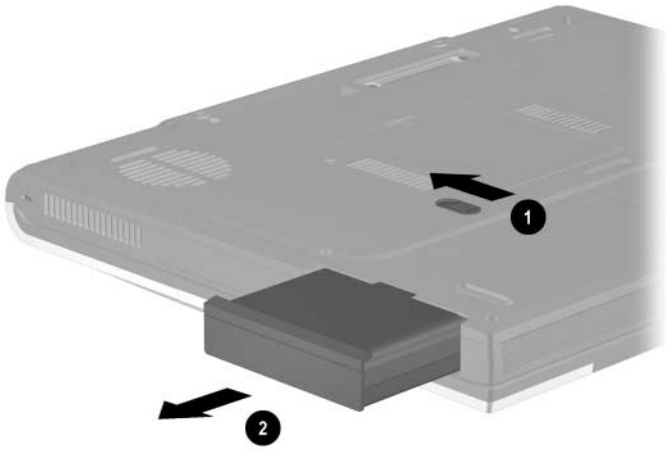


Figure 5-2. Removing the Battery Pack

Reverse the above procedures to install the battery pack.

4. To remove the battery bezel, slide the bezel straight down (Figure 5-3).

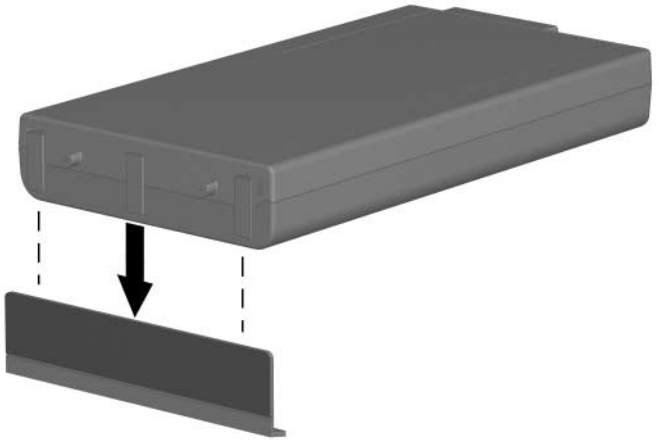


Figure 5-3. Removing the Battery Bezel

Battery Bezel Spare Part Number Information	
Battery bezel with silver finish for use with Presario 2800 models	286876-001
Battery bezel with carbon finish for use with Evo Notebook N800c, N800v, and N800w models	286877-001

Reverse the above procedures to install the battery bezel.

5. Remove the MultiBay device by following these steps:
   a. Turn the computer bottom side up with the right side facing forward.
   b. Slide and hold the MultiBay release latch toward the front of the computer ❶ (Figure 5-4).
   c. Use the notch in the MultiBay device to slide the device out of the MultiBay ❷.
   d. Remove the MultiBay device.

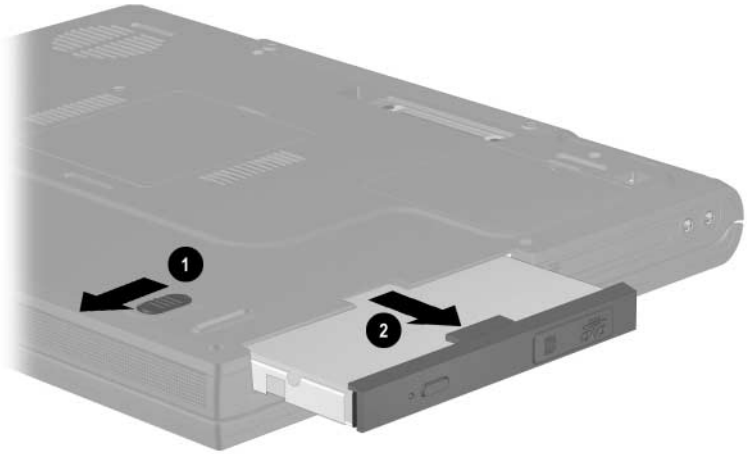


Figure 5-4. Removing a MultiBay Device

Reverse the above procedures to install a MultiBay device.

6. Remove the hard drive by following these steps:
   a. Turn the computer bottom side up with the left side facing forward.
   b. Remove the PM3.0 × 4.0 hard drive retention screw ❶ (Figure 5-5).
   c. Slide the hard drive forward ❷ to unseat the hard drive connector from the system board.
   d. Remove the hard drive.

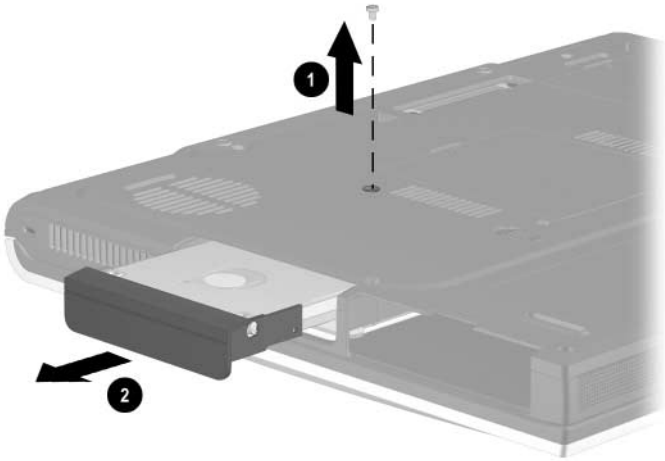


Figure 5-5. Removing the Hard Drive

7. Remove the two PM3.0 × 4.0 screws ❶ that secure the hard drive bezel to the hard drive (Figure 5-6).
8. Slide the hard drive bezel forward to separate it from the hard drive ❷.

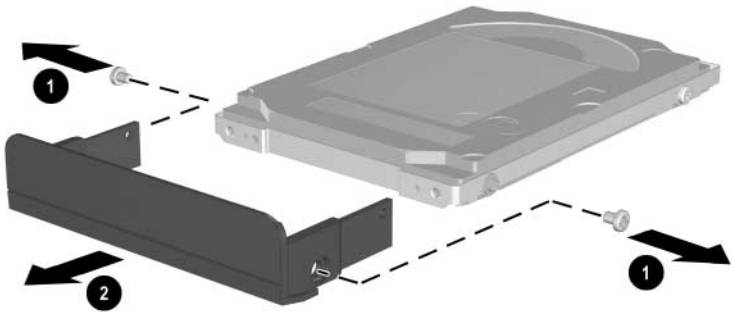


Figure 5-6. Removing the Hard Drive Bezel

Hard Drive Bezel Spare Part Number Information	
Hard drive bezel with silver finish for use with Presario 2800 models	286874-001
Hard drive bezel with carbon finish for use with Evo Notebook N800c, N800v, and N800w models	286875-001

Reverse the above procedure to install the hard drive and hard drive bezel.

5.4 Computer Feet

The computer feet are adhesive-backed rubber pads. The computer feet are included in the Miscellaneous Plastics/Hardware Kit, spare part numbers 285261-001 and 286868-001. The computer feet attach to the base enclosure as illustrated in Figure 5-7.

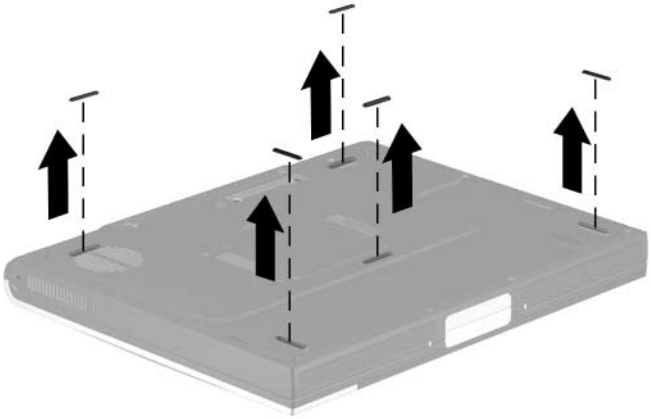


Figure 5-7. Replacing the Computer Feet

5.5 Memory Expansion Board

Memory Expansion Boards Spare Part Number Information	
512 MB	285273-001
256 MB	285272-001
128 MB	285271-001

1. Prepare the computer for disassembly (Section 5.3).
2. Turn the computer bottom side up with the rear panel facing forward.
3. Remove the PM2.0 × 5.0 screw ❶ that secures the memory expansion compartment cover to the base enclosure (Figure 5-8).
4. Lift the front edge of the cover and swing it back ❷.
5. Remove the cover ❸.

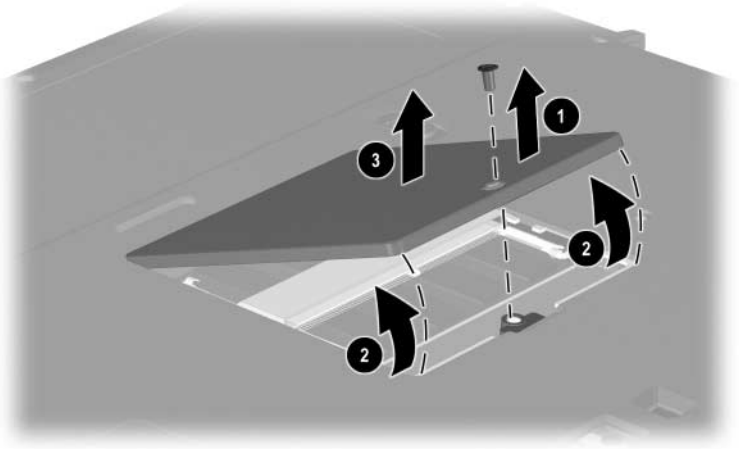


Figure 5-8. Removing the Memory Expansion Compartment Cover

Memory expansion compartment covers are available with silver finish for Presario 2800 models and carbon finish for Evo Notebook N800c, N800v, and N800w models. These covers are included in the Miscellaneous Plastics/Hardware Kit, spare part number 285261-001 for Presario 2800 models, and spare part number 286868-001 for Evo Notebook N800c, N800v, and N800w models.

6. Spread the memory expansion slot retaining tabs to release the memory expansion board ❶. The board tilts up at a 45-degree angle (Figure 5-9).
7. Remove the board by pulling it away from the connector at a 45-degree angle ❷.

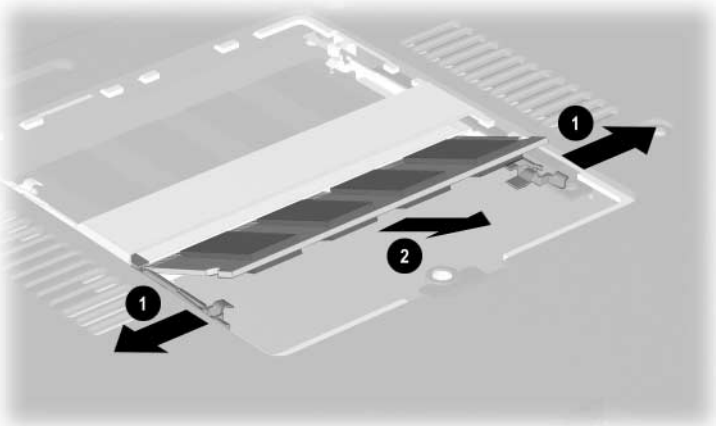


Figure 5-9. Removing a Memory Expansion Board

Reverse the above procedure to install a memory expansion board.

5.6 Mini PCI Communications Board

Mini PCI Communication Boards Spare Part Number Information	
U.S. modem	285286-001
International modem	285287-001

1. Prepare the computer for disassembly (Section 5.3).
2. Turn the computer bottom side up with the rear panel facing forward.

3. Remove the PM2.0 × 5.0 screw ❶ that secures the mini PCI compartment cover to the base enclosure (Figure 5-10).
4. Lift the front edge of the cover and swing it back ❷.
5. Remove the cover ❸.

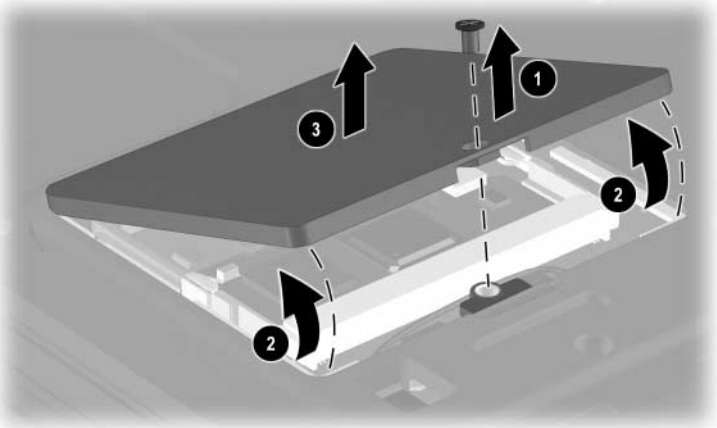


Figure 5-10. Removing the Mini PCI Communications Slot Cover

Mini PCI compartment covers are available with silver finish for Presario 2800 models and carbon finish for Evo Notebook N800c, N800v, and N800w models. These covers are included in the Miscellaneous Plastics/Hardware Kit, spare part number 285261-001 for Presario 2800 models, and spare part number 286868-001 for Evo Notebook N800c, N800v, and N800w models.

6. Disconnect the modem cable from the modem board ❶ (Figure 5-11).

The modem cable spare part number is 285268-001.

7. Spread the retaining tabs to release the mini PCI communications board ❷. The board tilts up at a 45-degree angle.
8. Remove the board by pulling it away from the connector at a 45-degree angle ❸.

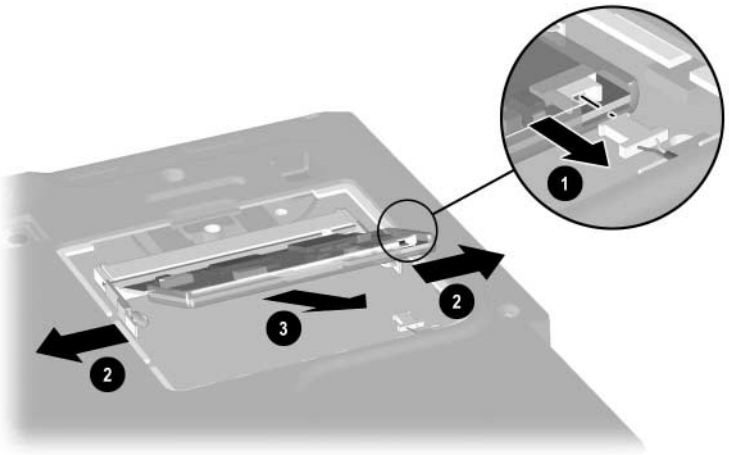


Figure 5-11. Removing a Mini PCI Communications Board

Reverse the above procedure to install a mini PCI communications board.

5.7 Connector Cover

The connector cover is available with silver finish for Presario 2800 models and carbon finish for Evo Notebook N800c, N800v, and N800w models. This cover is included in the Miscellaneous Plastics/Hardware Kit, spare part number 285261-001 for Presario 2800 models, and spare part number 286868-001 for Evo Notebook N800c, N800v, and N800w models.

1. Prepare the computer for disassembly (Section 5.3).
2. Turn the computer bottom side up with the rear panel facing forward.
3. Remove the two PM2.0 × 5.5 screws ❶ that secure the connector cover to the base enclosure (Figure 5-12).
4. Open the connector cover.
5. Remove the connector cover from the base enclosure ❷.

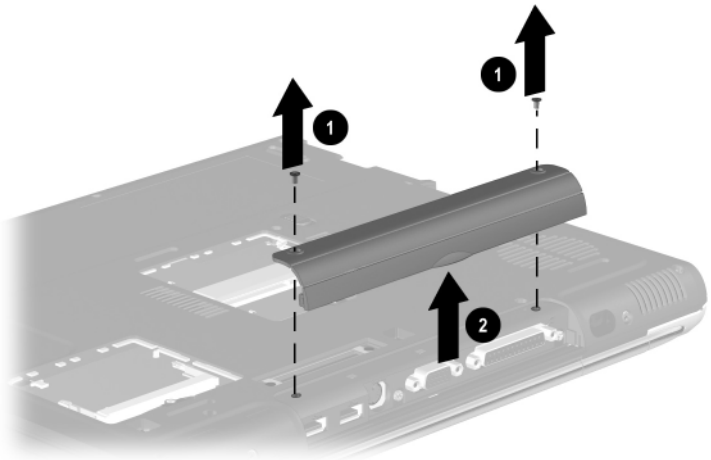


Figure 5-12. Removing the Connector Cover

Reverse the above procedure to install the connector cover.

5.8 LED Cover

LED Cover Spare Part Number Information	
LED cover	288503-001

1. Prepare the computer for disassembly (Section 5.3).
2. Turn the computer bottom side up with the rear panel facing forward.
3. Remove the two black PM2.0 × 10.0 screws that secure the LED cover to the base enclosure (Figure 5-13).

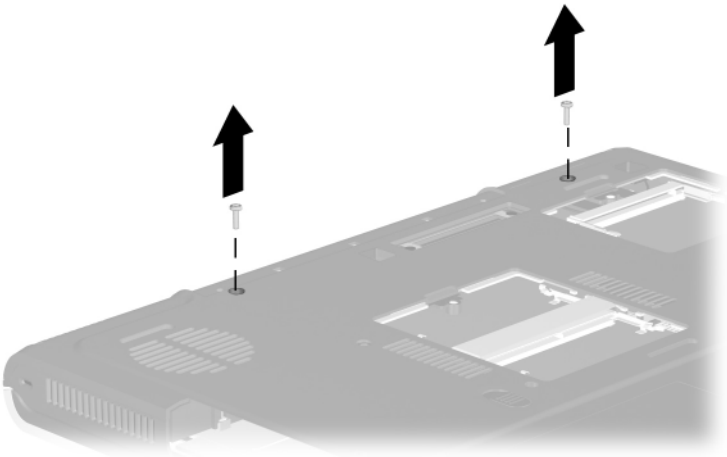


Figure 5-13. Removing the LED Cover Screws

4. Turn the computer top side up with the front facing forward.
5. Open the computer.

6. Use a flat-bladed tool to pry forward on the four clips on the LED cover ❶ (Figure 5-14).
7. Press the **esc** and **F1** keys to reveal the left notch ❷ in the LED cover.
8. Insert a flat-bladed tool into the left notch and lift the left side of the LED cover ❸.
9. Press the **Pause** and **Del** keys to reveal the right notch ❹ in the LED cover.
10. Insert a flat-bladed tool into the right notch and lift the right side of the LED cover ❺.
11. Remove the LED cover ❻.

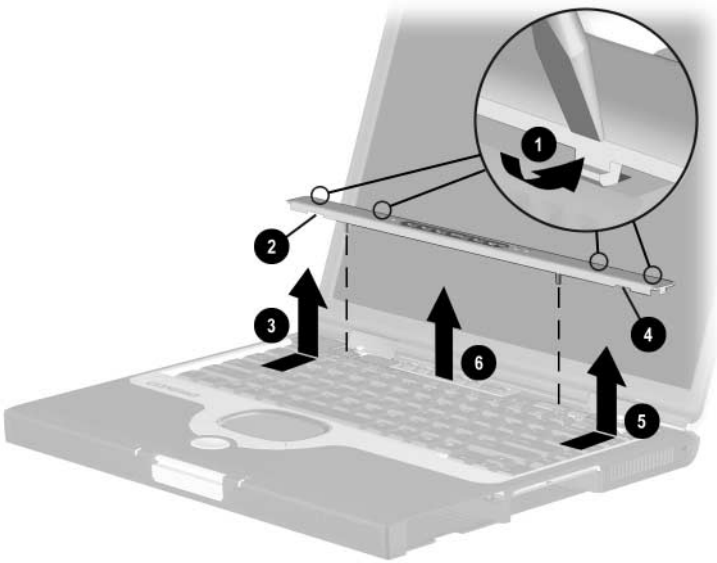


Figure 5-14. Removing the LED Cover

Reverse the above procedure to install the LED cover.

5.9 Keyboard

Keyboards
Spare Part Number Information

Keyboards (for use with TouchPad models only)

Arabic	285280-171	Korean	285280-AD1
Belgian	285280-181	Latin American Spanish	285280-161
Brazilian	285280-201	Norwegian	285280-091
Chinese	285280-AA1	Portuguese	285280-131
Czech	285280-221	Russian	285280-251
Danish	285280-081	Slovakian	285280-231
French	285280-051	Spanish	285280-071
French Canadian	285280-121	Swedish	285280-101
German	285280-041	Swiss	285280-111
Greek/Polish	285280-151	Taiwanese	285280-AB1
Hebrew	285280-BB1	Thai	285280-281
Hungarian	285280-211	Turkish	285280-141
International	285280-002	U.K. English	285280-031
Italian	285280-061	U.S. English	285280-001

Keyboards with pointing stick

Arabic	285281-171	Latin American Spanish	285281-161
Belgian	285281-181	Norwegian	285281-091
Brazilian	285281-201	Portuguese	285281-131
Czech	285281-221	Russian	285281-251
Danish	285281-081	Slovakian	285281-231
French	285281-051	Spanish	285281-071
French Canadian	285281-121	Swedish	285281-101
German	285281-041	Swiss	285281-111
Greek/Polish	285281-151	Taiwanese	285281-AB1
Hebrew	285281-BB1	Thai	285281-281
Hungarian	285281-211	Turkish	285281-141
International	285281-002	U.K. English	285281-031
Italian	285281-061	U.S. English	285281-001
Korean	285281-AD1		

1. Prepare the computer for disassembly (Section 5.3).
2. Remove the LED cover (Section 5.8).
3. Lift the back edge of the keyboard ❶ (Figure 5-15).
4. Slide the keyboard toward the back of the computer ❷.
5. Lift the back edge of the keyboard and swing it forward ❸ until it rests on the palm rest.

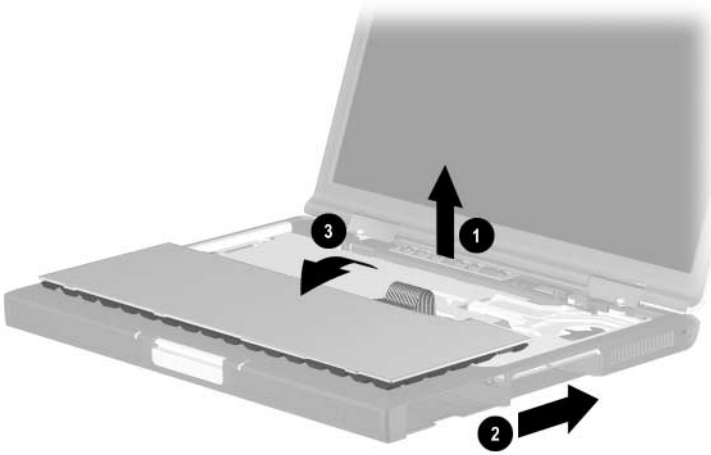


Figure 5-15. Releasing the Keyboard

6. Remove the two PM2.0 × 4.0 screws ❶ that secure the keyboard shield to the base enclosure (Figure 5-16).
7. Remove the keyboard shield ❷.

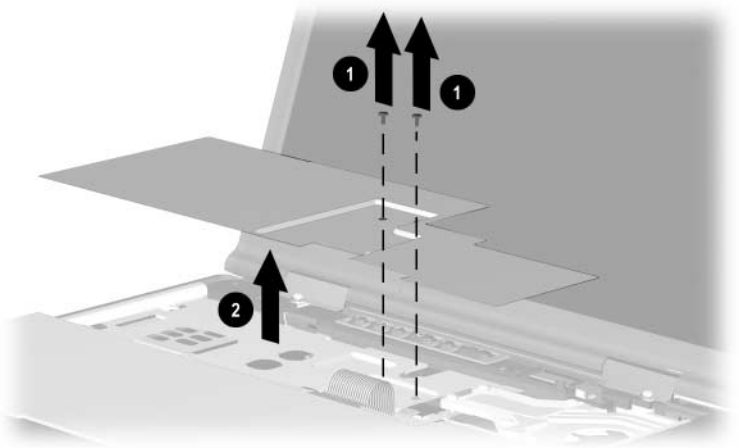


Figure 5-16. Removing the Keyboard Shield

The keyboard shield is included in the Miscellaneous Plastics/Hardware Kit, spare part numbers 285261-001 and 286868-001.

8. Release the ZIF connector ❶ to which the keyboard cable is connected and disconnect the keyboard cable ❷ from the system board (Figure 5-17).
9. Remove the keyboard.

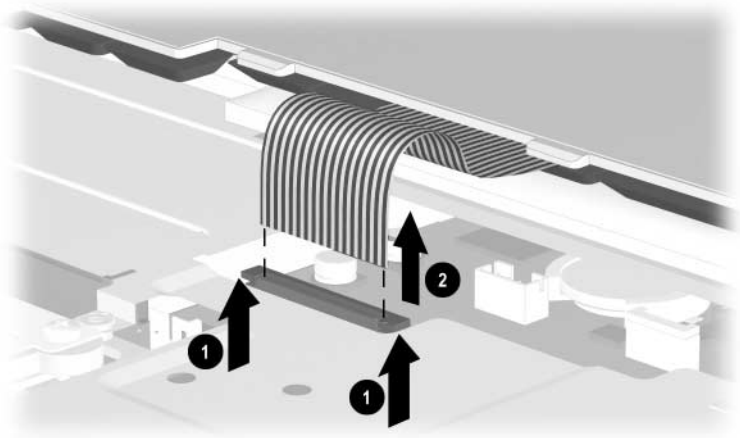


Figure 5-17. Removing the Keyboard

Reverse the above procedure to install the keyboard.

5.10 Display

Displays
Spare Part Number Information

Displays	
Contain parts with carbon finish for use with Evo Notebook N800c, N800v, and N800w models	
15-inch, UXGA	286872-001
15-inch, SXGA+	286871-001
15-inch, XGA	286870-001
14-inch, XGA	286869-001
Contain parts with silver finish for use with Presario 2800 models	
15-inch, UXGA	285265-001
15-inch, SXGA+	285264-001
15-inch, XGA	285263-001
14-inch, XGA	285262-001
MultiPort cover	289037-001

1. Prepare the computer for disassembly (Section 5.3).
2. Remove the LED cover (Section 5.8).
3. Close the computer and position the computer so the rear panel faces forward.

4. Remove the two PM2.5 × 9.0 screws that secure the display hinges to the base enclosure (Figure 5-18).

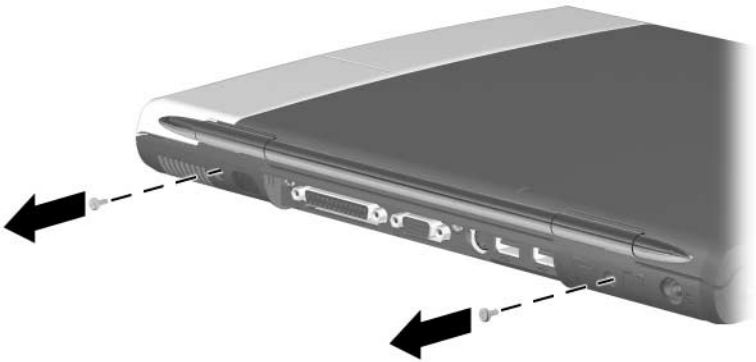


Figure 5-18. Removing the Display Screws

5. Position the computer so the front faces forward and open the computer.
6. Disconnect the display video ❶ and display inverter ❷ cables from the system board (Figure 5-19).
7. Remove the two PM2.0 × 10.0 screws ❸ that secure the display hinges to the base enclosure.
8. Lift the display straight up ❹ and remove it from the base enclosure.

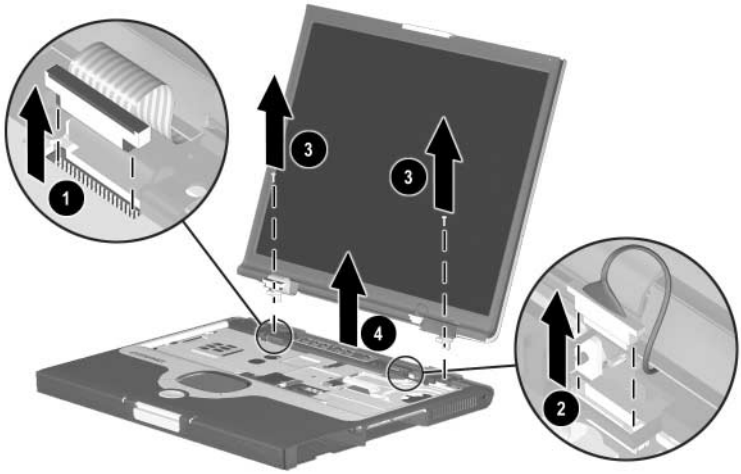


Figure 5-19. Removing the Display

9. Remove the hinge covers from the display (Figure 5-20).

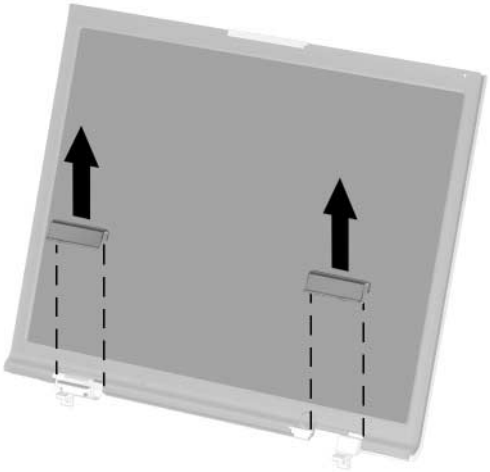


Figure 5-20. Removing the Hinge Covers

The display hinge covers are included in the Miscellaneous Plastics/Hardware Kit, spare part numbers 285261-001 and 286868-001.

Install the hinge covers on the display before installing the display on the base enclosure.

Reverse the above procedure to install the display.

5.11 Top Cover

Top Cover Spare Part Number Information	
For Dual Point (TouchPad and Point Stick)	285256-001
For TouchPad only (silver finish for use with Presario 2800 models)	285257-001
For TouchPad only (carbon finish for use with Evo Notebook N800c, N800v, and N800w models)	295699-001

1. Prepare the computer for disassembly (Section 5.3) and remove the following components:
   a. LED cover (Section 5.8)
   b. Keyboard and shield (Section 5.9)
   c. Display (Section 5.10)
2. Turn the computer bottom side up with the front facing forward.

3. Remove the nine PM2.0 × 8.0 screws ❶ securing the top cover to the base enclosure (Figure 5-21).
4. Remove the PM2.0 × 4.0 screw ❷ securing the top cover to the base enclosure in the hard drive bay.

Do not remove the screw in the middle of the hard drive bay ❸.

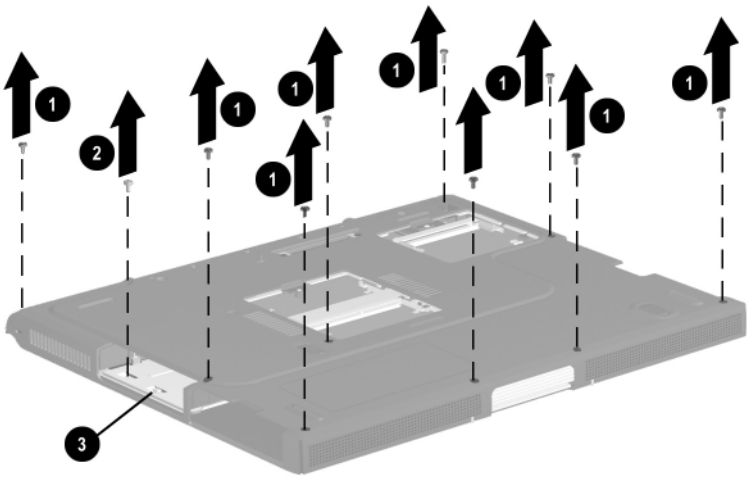


Figure 5-21. Removing the Top Cover Screws

5. Turn the computer top side up with the rear panel facing forward.

6. Disconnect the drive activity light and battery power light cable from the system board ❶ (Figure 5-22).
7. Release the ZIF connector ❷ to which the TouchPad cable is connected and disconnect the TouchPad cable ❸ from the system board.
8. Disconnect the speaker cable ❹ from the system board.

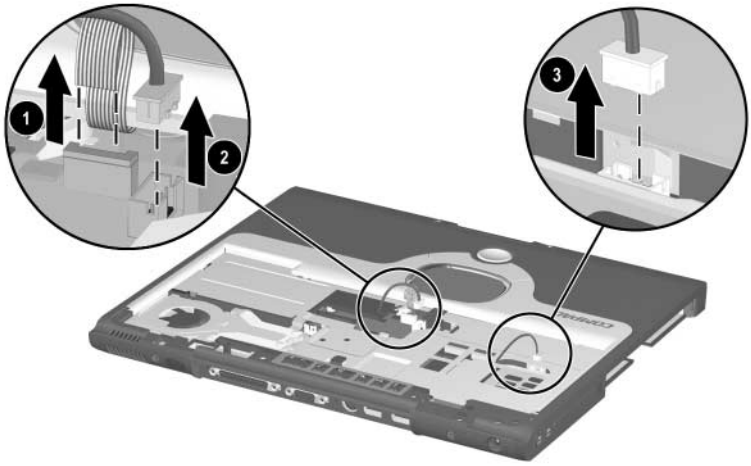


Figure 5-22. Disconnecting the Drive Activity Light/Battery Power Light, TouchPad, and Speaker Cables

9. Remove the following screws:

   a. Two PM2.0 × 5.5 screws ❶ that secure the top cover to the base enclosure on the computer rear panel (Figure 5-23)

   b. Two PM2.0 × 4.0 screws ❷ that secure the top cover to the base enclosure through the metal tabs on the top cover shield

   c. Two PM2.0 × 8.0 screws ❸ that secure the top cover to the base enclosure through the plastic tabs on the top cover

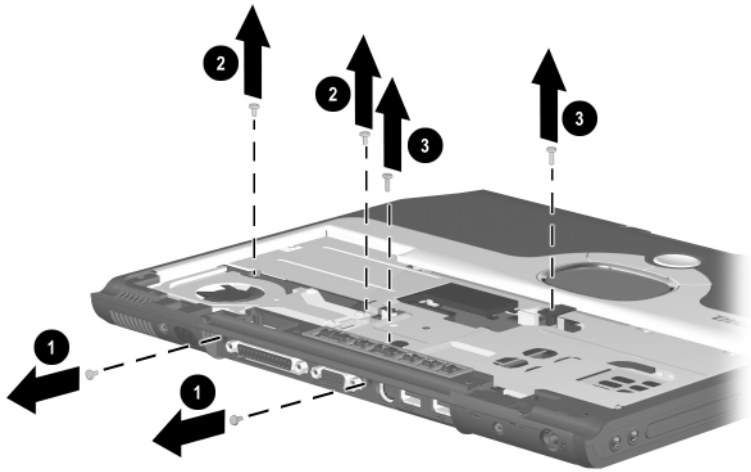


Figure 5-23. Removing the Top Cover Screws

10. Remove the top cover (Figure 5-24).

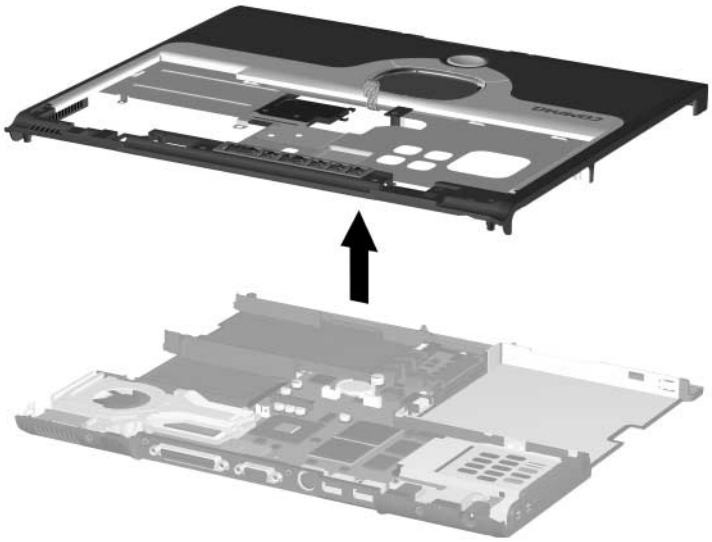


Figure 5-24. Removing the Top Cover

Reverse the above procedure to install the top cover.

5.12 Speaker Assembly

Speaker Assembly Spare Part Number Information	
Speaker assembly	285266-001

1. Prepare the computer for disassembly (Section 5.3) and remove the following components:
   a. LED cover (Section 5.8)
   b. Keyboard and shield (Section 5.9)
   c. Display (Section 5.10)
   d. Top cover (Section 5.11)
2. Position the top cover bottom side up with the front facing forward.

3. Route the drive activity light/battery power light cable and speaker cable out of the retaining clips in the top cover ❶ and ❷ (Figure 5-25).
4. Remove the strip of tape ❸ that secures the speaker assembly and TouchPad cables to the top cover and TouchPad assembly.
5. Remove the PM2.0 × 4.0 screw ❹ that secures the speaker assembly to the top cover.
6. Lift the speaker assembly straight up ❺ and remove it from the top cover.

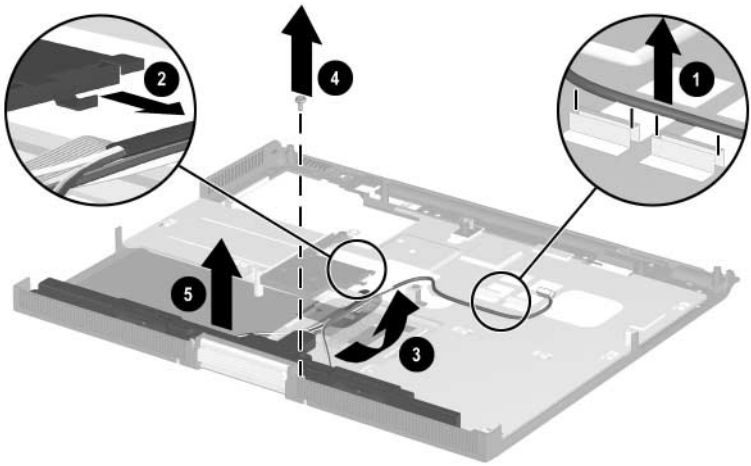


Figure 5-25. Removing the Speaker Assembly

Reverse the above procedure to install the speaker assembly.

5.13 Display Release Assembly

The display release assembly is available with silver finish for Presario 2800 models and carbon finish for Evo Notebook N800c, N800v, and N800w models. This assembly is included in the Miscellaneous Plastics/Hardware Kit, spare part number 285261-001 for Presario 2800 models, and spare part number 286868-001 for Evo Notebook N800c, N800v, and N800w models.

1. Prepare the computer for disassembly (Section 5.3) and remove the following components:
   a. LED cover (Section 5.8)
   b. Keyboard and shield (Section 5.9)
   c. Display (Section 5.10)
   d. Top cover (Section 5.11)
2. Position the top cover bottom side up with the front facing forward.

3. Remove the two PM2.0 × 4.0 screws ❶ that secure the display release assembly to the top cover (Figure 5-26).
4. Lift the display release assembly straight up ❷ and remove it from the top cover.

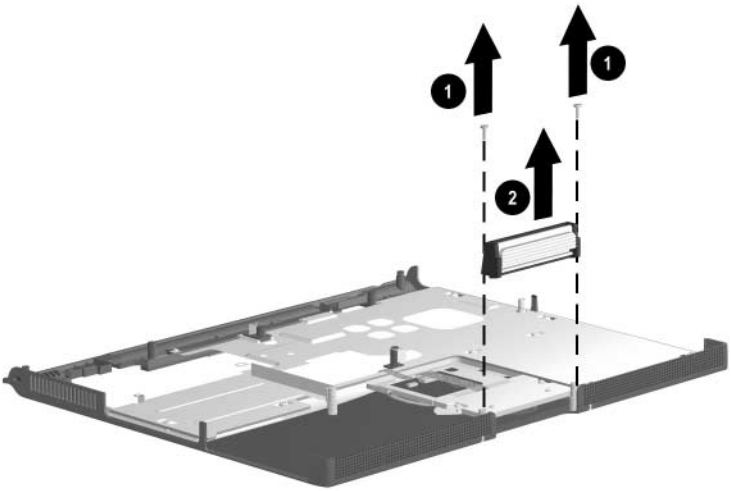


Figure 5-26. Removing the Display Release Assembly

Reverse the above procedure to install the display release assembly.

5.14 TouchPad

TouchPad and TouchButton Board Spare Part Number Information	
TouchPad	285258-001
TouchButton board for Dual Point	285259-001
TouchButton board for TouchPad	285260-001

1. Prepare the computer for disassembly (Section 5.3) and remove the following components:
   a. LED cover (Section 5.8)
   b. Keyboard and shield (Section 5.9)
   c. Display (Section 5.10)
   d. Top cover (Section 5.11)
   e. Speaker assembly (Section 5.12)

2. Remove the four PM2.0 × 4.0 screws ❶ that secure the TouchPad bracket to the top cover (Figure 5-27).
3. Disconnect the TouchPad cable ❷ from the low insertion force (LIF) connector on the TouchPad.
4. Slide the TouchPad bracket toward the back of the top cover ❸.
5. Lift the TouchPad bracket straight up ❹ and remove it.

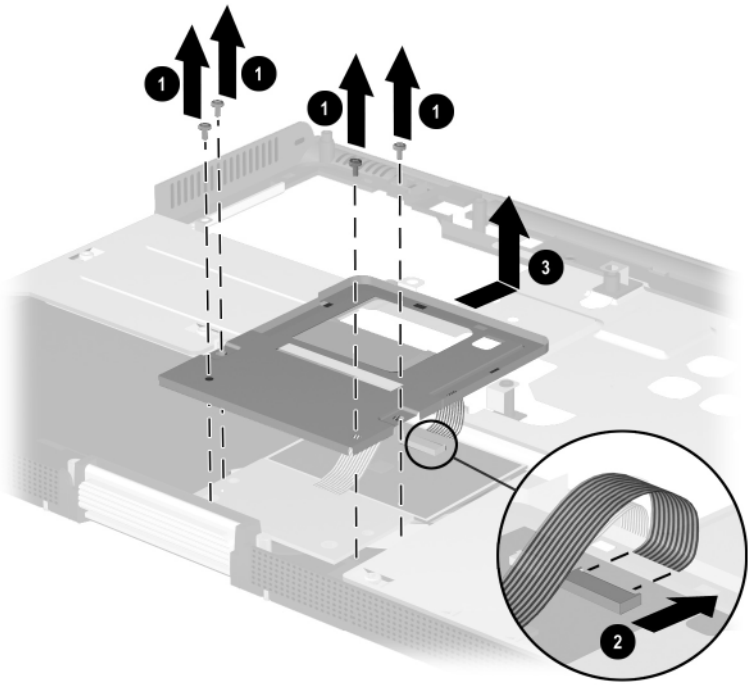


Figure 5-27. Removing the TouchPad

6. Remove the TouchPad ❶ and the TouchButton board ❷ from the top cover (Figure 5-28).

The TouchPad cables are part of the TouchButton board.

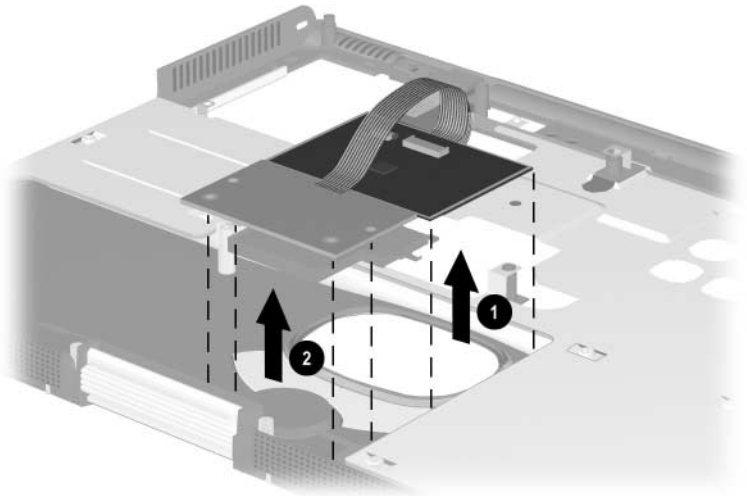


Figure 5-28. Removing the TouchPad and the TouchButton Board

Reverse the above procedure to install the TouchPad and the TouchButton board.

5.15 Fan

Fan Spare Part Number Information	
Fan	285267-001

1. Prepare the computer for disassembly (Section 5.3) and remove the following components:
   a. LED cover (Section 5.8)
   b. Keyboard and shield (Section 5.9)
   c. Display (Section 5.10)
   d. Top cover (Section 5.11)

2. Disconnect the fan cable from the system board ❶ (Figure 5-29).
3. Loosen the four PM2.0 × 9.0 shoulder screws ❷ that secure the fan to the processor mounting bracket.

These screws are secured to the fan and should not be removed.

4. Lift the fan straight up to remove it from the base enclosure ❸.

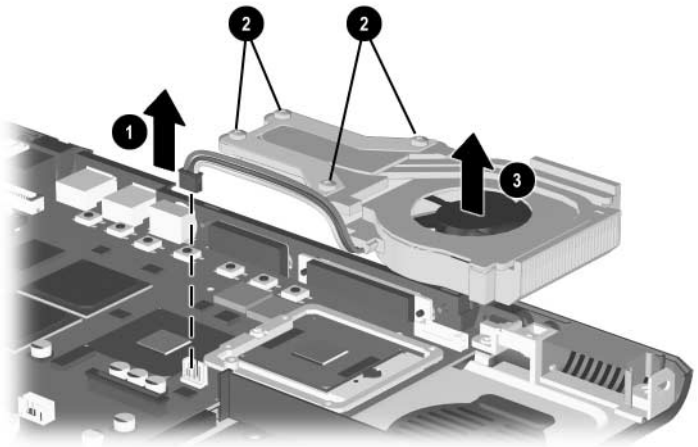


Figure 5-29. Removing the Fan

Reverse the above procedure to install the fan.

5.16 Processor

Processors Spare Part Number Information	
Intel Mobile Pentium 4 with SpeedStep technology	
2.2-GHz processor	308420-001
2.0-GHz processor	305075-001
1.9-GHz processor	305074-001
1.8-GHz processor	285295-001
1.7-GHz processor	285294-001
1.6-GHz processor	285293-001
1.5-GHz processor	285292-001
1.4-GHz processor	285291-001
Intel Mobile Pentium 4 (non-SpeedStep technology)	
1.6-GHz processor	306704-001
1.5-GHz processor	306703-001

CAUTION: Before removing the processor, make special note of the orientation of the printing on the processor. The gold triangle should be in the lower right corner when installing the processor. The processor must be installed in the same orientation in which it was removed.

1. Prepare the computer for disassembly (Section 5.3) and remove the following components:
   a. LED cover (Section 5.8)
   b. Keyboard and shield (Section 5.9)
   c. Display (Section 5.10)
   d. Top cover (Section 5.11)
   e. Fan (Section 5.15)

2. Use a flat-bladed tool to turn the processor locking screw ❶ one-half turn counterclockwise (Figure 5-30).
3. Lift the processor straight up and remove it ❷.

Make sure the gold triangle ❸ is in the lower right corner when installing the processor.

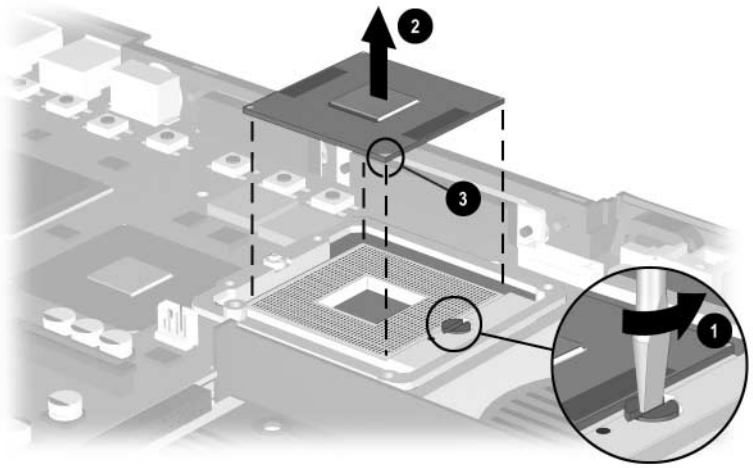


Figure 5-30. Removing the Processor

Reverse the above procedure to install the processor.

5.17 Disk Cell RTC Battery

Disk Cell RTC Battery Spare Part Number Information	
Disk cell RTC battery	198718-001

1. Prepare the computer for disassembly (Section 5.3) and remove the following components:
   a. LED cover (Section 5.8)
   b. Keyboard and shield (Section 5.9)
   c. Display (Section 5.10)
   d. Top cover (Section 5.11)

2. Use a flat-bladed tool to release the RTC battery from its socket ❶ (Figure 5-31).
3. Remove the RTC battery ❷.

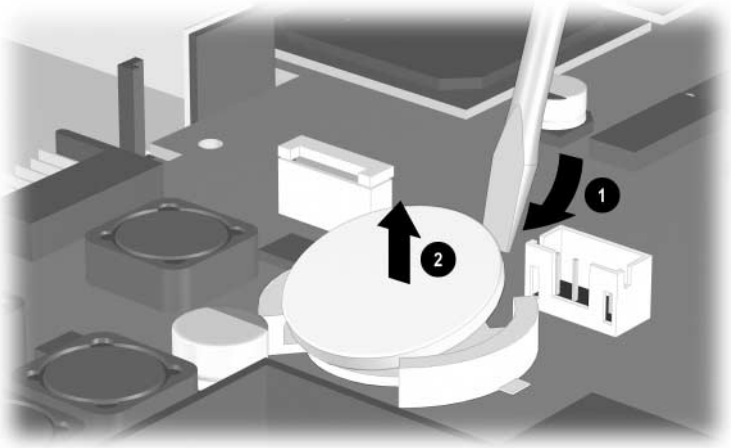


Figure 5-31. Removing the Disk Cell RTC Battery

When replacing an RTC battery, insert the battery with the "+" sign facing up.

5.18 System Board

System Boards Spare Part Number Information	
System boards (do not contain memory)	
with the ATI Mobile Radeon 9000 graphics controller	
64-MB of video memory	310784-001
32-MB of video memory	310783-001
with the ATI P7 graphics controller	
64-MB of video memory	285254-001
32-MB of video memory	285253-001

When replacing the system board, ensure that the following components are removed from the old system board and installed on the new system board:

- Memory expansion boards (Section 5.5)
- Mini PCI communications board (Section 5.6)
- Processor (Section 5.16)
- Disk cell RTC battery (Section 5.17)
- Modem cable (Section 5.19)

1. Prepare the computer for disassembly (Section 5.3) and remove the following components:
   a. LED cover (Section 5.8)
   b. Keyboard and shield (Section 5.9)
   c. Display (Section 5.10)
   d. Top cover (Section 5.11)
   e. Fan (Section 5.15)
2. Position the computer so the front faces forward.

3. Remove the two PM2.0 × 8.0 screws ❶ that secure the left ❷ and right ❸ display supports to the base enclosure (Figure 5-32).
4. Remove the left and right display supports from the base enclosure.

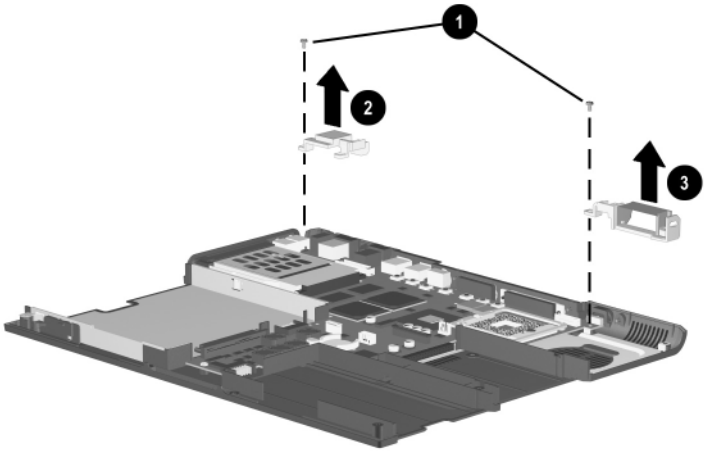


Figure 5-32. Removing the Display Supports

A plastic fan channel ❶ attaches to the right display support. The channel has two slots ❷ on either end that fit around two tabs ❸ on the display support. The fan channel is included in the Miscellaneous Plastics/Hardware Kit, spare part numbers 285261-001 and 286868-001 (Figure 5-33).

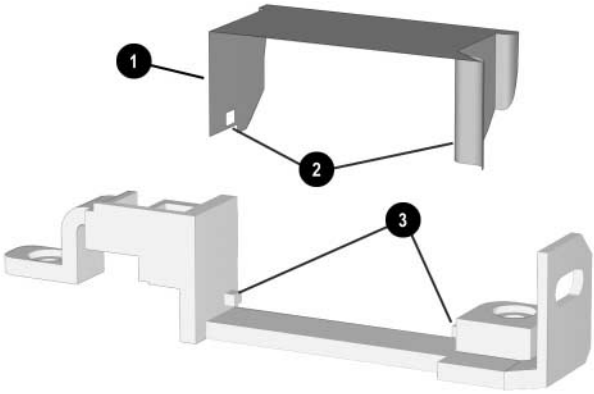


Figure 5-33. Replacing the Fan Channel on the Right Display Support

5. Remove the two PM2.0 × 5.5 screws ❶ that secure the system board to the base enclosure on either side of the MultiBay connector (Figure 5-34).
6. Remove the two PM2.0 × 8.0 screws ❷ that secure the system board to the base enclosure through the processor support bracket.

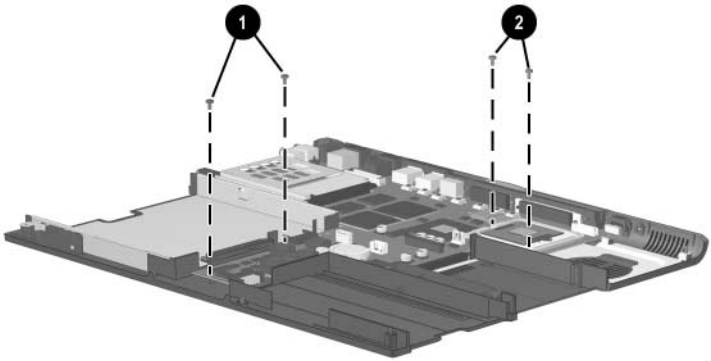


Figure 5-34. Removing the System Board Screws

7. Use the MultiBay connector ❶ to lift ❷ the front of the system board until the board rests at an angle (Figure 5-35).
8. Slide the system board forward at an angle ❸ and remove it from the base enclosure.
9. Remove the PC Card bezel ❹ from the system board.

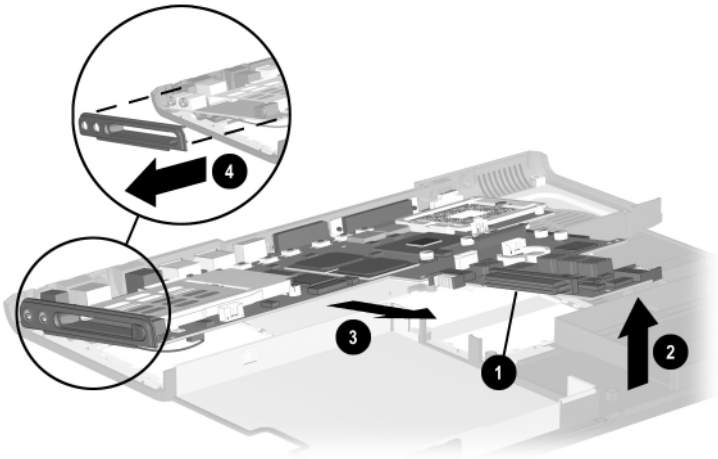


Figure 5-35. Removing the System Board

Reverse the above procedure to install the system board.

5.19 Modem Cable

The modem cable is included in the Miscellaneous Cable Kit, spare part number 285268-001.

1. Prepare the computer for disassembly (Section 5.3) and remove the following components:
   a. LED cover (Section 5.8)
   b. Keyboard and shield (Section 5.9)
   c. Display (Section 5.10)
   d. Top cover (Section 5.11)
   e. Fan (Section 5.15)
   f. System board (Section 5.18)
2. Turn the system board bottom side up with the rear panel facing forward.

3. If the modem is installed on the system board, disconnect the modem cable from the modem ❶ (Figure 5-36).
4. Disconnect the modem cable from the system board ❷.
5. Remove the modem cable.

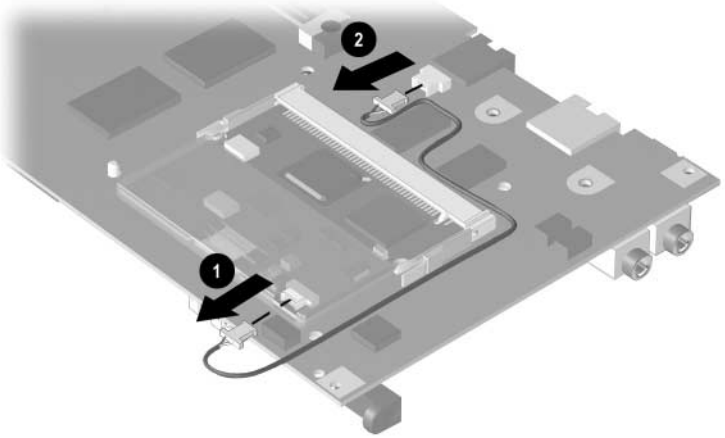


Figure 5-36. Removing the Modem Cable

When installing the modem cable, route the cable as shown in Figure 5-36.

6

Specifications

This chapter provides physical and performance specifications.

Table 6-1
Computer

Dimensions		
Height	1.30 in	3.3 cm
Width	12.48 in	31.7 cm
Depth	10.10 in	25.0 cm
Weight (varies by configuration)		
15.0-inch display, MultiBay device, 1 memory expansion board	6.40 lb	2.92 kg
14.1-inch display, MultiBay weight saver, 1 memory expansion board	5.45 lb	2.47 kg
Stand-alone power requirements		
Nominal operating voltage	14.8 VDC	
Average operating power	15.8 W	
Peak operating power	38 W	
Power in Suspend mode	< 800 mW	
Power in Hibernation mode	< 100 mW	

Table 6-1
Computer *(Continued)*

Temperature		
Operating	50° to 95° F	10° to 35° C
Nonoperating	14° to 140° F	-10° to 60° C
Relative humidity (noncondensing)		
Operating	10% to 90%	
Nonoperating	5% to 95%, 101.6° F (38.7° C) maximum wet bulb temperature	
Altitude (unpressurized)		
Operating	0 to 10,000 ft	0 to 3,048 m
Nonoperating	0 to 30,000 ft	0 to 9,144 m
Shock		
Operating	10 G, 11 ms, half-sine	
Nonoperating	60 G, 11 ms, half-sine	
Vibration		
Operating	0.5 G zero-to-peak, 10 to 500 Hz, 0.25 oct/min sweep rate	
Nonoperating	1.0 G zero-to-peak, 10 to 500 Hz, 0.5 oct/min sweep rate	

Applicable product safety standards specify thermal limits for plastic surfaces. The computer operates well within this range of temperatures.

Table 6-2
15.0-inch UXGA, TFT Display

Dimensions		
Height	9.00 in	22.86 cm
Width	11.94 in	30.33 cm
Diagonal	15.0 in	38.10 cm
Number of colors	up to 16.8 million	
Contrast ratio	150:1	
Brightness	120+ nit typical	
Pixel resolution		
Pitch		0.264 × 0.264 mm
Format		1600 × 1200
Configuration		RGB vertical stripe
Backlight	Edge lit	
Character display	80 × 25	
Total power consumption	4.20 W	

Table 6-3
15.0-inch SXGA+, TFT Display

Dimensions		
Height	9.00 in	22.86 cm
Width	11.94 in	30.33 cm
Diagonal	15.0 in	38.10 cm
Number of colors	up to 16.8 million	
Contrast ratio	150:1	
Brightness	120+ nit typical	
Pixel resolution		
Pitch		0.264 × 0.264 mm
Format		1280 × 1024
Configuration		RGB vertical stripe
Backlight	Edge lit	
Character display	80 × 25	
Total power consumption	4.20 W	

Table 6-4
15.0-inch XGA, TFT Display

Dimensions		
Height	9.00 in	22.86 cm
Width	11.94 in	30.33 cm
Diagonal	15.0 in	38.10 cm
Number of colors	up to 16.8 million	
Contrast ratio	150:1	
Brightness	120+ nit typical	
Pixel resolution		
Pitch		0.264 × 0.264 mm
Format		1024 × 768
Configuration		RGB vertical stripe
Backlight	Edge lit	
Character display	80 × 25	
Total power consumption	4.20 W	

Table 6-5
14.1-inch XGA, TFT Display

Dimensions		
Height	11.22 in	20.50 mm
Width	8.46 in	21.49 mm
Diagonal	14.1 in	35.81 mm
Number of colors	up to 16.8 million	
Contrast ratio	150:1	
Brightness	120+ nits typical	
Pixel resolution		
Pitch		0.264 × 0.264 mm
Format		1024 × 768
Configuration		RGB stripe
Backlight	Edge lit	
Character display	80 × 25	
Total power consumption	4.2 W	

Table 6-6
Hard Drives

	60 GB	40 GB	30 GB	20 GB
User capacity per drive[1]	60.0 GB	40.0 GB	30.0 GB	20.0 GB
Drive height	9.5 mm	9.5 mm	9.5 mm	9.5 mm
Drive width	70 mm	70 mm	70 mm	70 mm
Interface type	ATA-5	ATA-5	ATA-5	ATA-5
Seek times (typical read, including setting)				
Single track	3 ms	3 ms	3 ms	3 ms
Average	13 ms	13 ms	13 ms	13 ms
Full stroke	24 ms	24 ms	24 ms	24 ms
Logical blocks[3]	117,210,240	78,140,160	58,605,120	39,070,080
Logical configuration				
Cylinders	16,383	16,383	16,383	16,383
Heads	16	16	16	16
Sectors per track	63	63	63	63

[1]1 GB = 1,073,741,824 bytes.

[2]System capability may differ.

[3]Actual drive specifications may differ slightly.

Certain restrictions and exclusions apply. Consult the Compaq Customer Support Center for details.

Table 6-6
Hard Drives *(Continued)*

	60 GB	40 GB	30 GB	20 GB
Physical configuration				
Cylinders[3]	22,784	22,784	25,800	22,784
Heads	6	4	2	4
Sectors per track[3]	293 to 560	293 to 560	398 to 731	293 to 560
Bytes per sector	512	512	512	512
Buffer size[3]	2 MB	2 MB	512 KB	512 KB
Disk rotational speed	4200 rpm	4200 rpm	4200 rpm	4200 rpm
Transfer rate				
Interface max (MB/s)[2]	66.6	66.6	100	66.6
Media (MB/s)[3]	109 to 203	109 to 203	155 to 256	109 to 203

[1]1 GB = 1,073,741,824 bytes.

[2]System capability may differ.

[3]Actual drive specifications may differ slightly.

Certain restrictions and exclusions apply. Consult the Compaq Customer Support Center for details.

Table 6-7
Diskette Drive

Diskette size	3.5 in
Light	On system
Height	0.5 in (12.7 mm)
Bytes per sector	512
Sectors per track	
High density	18 (1.44 MB)
Low density	9
Tracks per side	
High density	80
Low density	80
Read/write heads	2
Average seek times	
Track-to-track (high/low)	3 to 6 ms
Average (high/low)	95 to 174 ms
Settling time	15 ms
Latency average	100 ms

Table 6-8
CD-ROM Drive

Applicable disk	CD-ROM (Mode 1, 2, and 3) CD-XA ready (Mode 2, Form 1 and 2) CD-I ready (Mode 2, Form 1 and 2) CD-R (read only) CD Plus Photo CD (single/multisession) CD-Extra Video CD CD-WO (fixed packets only) CD-Bridge	
Center hole diameter	0.59 in	1.5 cm
Disk diameter		12 cm, 8 cm
Disk thickness	0.047 in	1.2 mm
Track pitch	1.6 µm	
Access time		
Random	< 150 ms	
Full stroke	< 300 ms	
Cache buffer	128 KB	
Data transfer rate		
Sustained, 16X	150 KB/s at 1X	
Variable	1500 to 3600 KB/s (10X to 24X)	
Normal PIO Mode 4 (single burst)	16.66 KB/s	
Startup time	< 8 seconds	
Stop time	< 4 seconds	

Table 6-9
DVD-ROM Drive

Applicable disk	DVD-5, DVD-9, DVD-10 CD-ROM (Mode 1 and 2) CD Digital Audio CD-XA ready (Mode 2, Form 1 and 2) CD-I ready (Mode 2, Form 1 and 2) CD-R (read only) CD Plus Photo CD (single/multisession) CD-Bridge	
Center hole diameter	0.59 in	1.5 cm
Disk diameter		12 cm, 8 cm
Disk thickness	0.047 in	1.2 mm
Track pitch	0.74 µm	
Access time		
Random	< 150 ms	
Full stroke	< 225 ms	
Audio output level	Line-out, 0.7 Vrms	
Cache buffer	512 KB	
Data transfer rate		
Max 24X CD	3600 KB/s (150 KB/s at 1X CD rate)	
Max 8X DVD	10,800 KB/s (1352 KB/s at 1X DVD rate)	
Normal IO Mode 4 (single burst)	16.6 MB/s	
Startup time	< 12 seconds	
Stop time	< 3 seconds	

Table 6-10
CD-RW Drive

Center hole diameter	0.59 in	0.39 cm
Disk diameter		12 cm, 8 cm
Disk thickness	0.47 in	1.19 cm
Track pitch	0.74 µm	
Access time		
Random	< 150 ms	
Full stroke	< 225 ms	
Audio output level	Line-out, 0.7 Vrms	
Cache buffer	128 KB	
Data transfer rate		
Sustained, 16X	150 KB/s	
Sustained, 4X CD-RW	5,520 KB/s	
Normal PIO Mode 4 (single burst)	16.6 MB/s	
Startup time	< 15 seconds	
Stop time	< 6 seconds	

Table 6-11
External AC Adapter

Weight	0.45 lb	0.21 kg
Power supply		
Rated input voltage	90 to 264 VAC (auto-switching)	
Rated input current	< 60 W	
Rated frequency	50 to 60 Hz	

Table 6-12
8-cell, Li ion Battery Pack

Dimensions		
Height	0.82 in	21 mm
Width	5.67 in	144 mm
Depth	3.03 in	77 mm
Weight	0.94 lb	0.43 kg
Energy		
4.0 Amp hour		
Voltage	14.4 V	
Amp-hour capacity	4.0 Ah	
Watt-hour capacity	57.6 Wh	
3.6 Amp hour		
Voltage	14.4 V	
Amp-hour capacity	3.6 Ah	
Watt-hour capacity	51.8 Wh	
Temperature		
Operating	50 to 104° F	10 to 40° C
Nonoperating	-4 to 104° F	-20 to 60° C

Table 6-13
System DMA

Hardware DMA	System Function
DMA0	Available for audio
DMA1	Entertainment audio (default; alternate = DMA0, DMA3, none)
DMA2	Diskette drive
DMA3	ECP parallel port LPT1 (default; alternate = DMA0, none)
DMA4	DMA controller cascading (not available)
DMA5	Available for PC Card
DMA6	Not assigned
DMA7	Not assigned

PC Card controller can use DMA 1, 2, or 5.

Table 6-14
System Interrupts

Hardware IRQ	System Function
IRQ0	System timer
IRQ1	Keyboard controller
IRQ2	Cascaded
IRQ3	COM2
IRQ4	COM1
IRQ5	Audio (default)*
IRQ6	Diskette drive
IRQ7	Parallel port
IRQ8	Real time clock (RTC)
IRQ9	Infrared
IRQ10	System use
IRQ11	System use
IRQ12	Internal point stick or external mouse
IRQ13	Coprocessor (not available to any peripheral)
IRQ14	IDE interface (hard drive and optical drive)
IRQ15	System use

✎ PC Cards may assert IRQ3, IRQ4, IRQ5, IRQ7, IRQ9, IRQ10, IRQ11, or IRQ15. Either the infrared or the serial port may assert IRQ3 or IRQ4.

*Default configuration; audio possible configurations are IRQ5, IRQ7, IRQ9, IRQ10, or none.

Table 6-15
System I/O Addresses

I/O Address (hex)	**System Function** (shipping configuration)
000 - 00F	DMA controller no. 1
010 - 01F	Unused
020 - 021	Interrupt controller no. 1
022 - 024	Opti chipset configuration registers
025 - 03F	Unused
02E - 02F	87334 “Super I/O” configuration for CPU
040 - 05F	Counter/timer registers
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 - 0A1	Interrupt controller no. 2

Table 6-15
System I/O Addresses *(Continued)*

I/O Address (hex)	**System Function** (shipping configuration)
0A2 - 0BF	Unused
0C0 - 0DF	DMA controller no. 2
0E0 - 0EF	Unused
0F0 - 0F1	Coprocessor busy clear/reset
0F2 - 0FF	Unused
100 - 16F	Unused
170 - 177	Secondary fixed disk controller
178 - 1EF	Unused
1F0 - 1F7	Primary fixed disk controller
1F8 - 200	Unused
201	Joystick (decoded in ESS1688)
202 - 21F	Unused
220 - 22F	Entertainment audio
230 - 26D	Unused
26E - 26	Unused
278 - 27F	Unused
280 - 2AB	Unused
2A0 - 2A7	Unused
2A8 - 2E7	Unused
2E8 - 2EF	Reserved serial port

Table 6-15
System I/O Addresses *(Continued)*

I/O Address (hex)	**System Function** (shipping configuration)
2F0 - 2F7	Unused
2F8 - 2FF	Infrared port
300 - 31F	Unused
320 - 36F	Unused
370 - 377	Secondary diskette drive controller
378 - 37F	Parallel port (LPT1/default)
380 - 387	Unused
388 - 38B	FM synthesizer—OPL3
38C - 3AF	Unused
3B0 - 3BB	VGA
3BC - 3BF	Reserved (parallel port/no EPP support)
3C0 - 3DF	VGA
3E0 - 3E1	PC Card controller in CPU
3E2 - 3E3	Unused
3E8 - 3EF	Internal modem
3F0 - 3F7	“A” diskette controller
3F8 - 3FF	Serial port (COM1/default)
CF8 - CFB	PCI configuration index register (PCIDIVO-1)
CFC - CFF	PCI configuration data register (PCIDIVO-1)

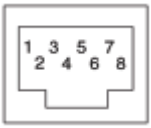
Table 6-16
System Memory Map

Size	Memory Address	System Function
640 KB	00000000-0009FFFF	Base memory
128 KB	000A0000-000BFFFF	Video memory
48 KB	000C0000-000CBFFF	Video BIOS
160 KB	000C8000-000E7FFF	Unused
64 KB	000E8000-000FFFFF	System BIOS
15 MB	00100000-00FFFFFF	Extended memory
58 MB	01000000-047FFFFF	Super extended memory
58 MB	04800000-07FFFFFF	Unused
2 MB	08000000-080FFFFF	Video memory (direct access)
4 GB	08200000-FFFEFFFF	Unused
64 KB	FFFF0000-FFFFFFFF	System BIOS

A

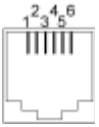
Connector Pin Assignments

Table A-1
RJ-45 Network Interface



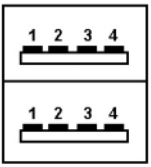
Pin	Signal	Pin	Signal
1	Transmit +	5	Unused
2	Transmit -	6	Receive -
3	Receive +	7	Unused
4	Unused	8	Unused

Table A-2
RJ-11 Modem



Pin	Signal	Pin	Signal
1	Unused	4	Unused
2	Tip	5	Unused
3	Ring	6	Unused

Table A-3
Universal Serial Bus

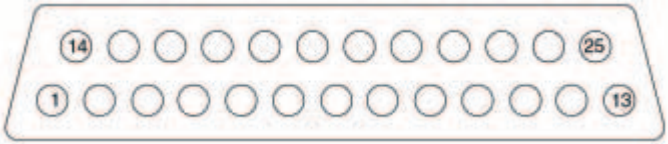


Pin	Signal	Pin	Signal
1	+5 VDC	3	Data +
2	Data -	4	Ground

Table A-4
S-Video

Pin	Signal	Pin	Signal
1	Ground (Y)	3	Y-Luminance (Intensity)
2	Ground (C)	4	C-Chrominance (Color)

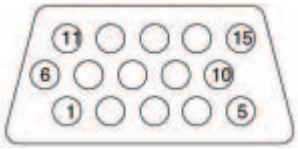
Table A-5
Parallel



Pin	Signal	Pin	Signal
1	Strobe*	10	Acknowledge*
2	Data bit 0	11	Busy
3	Data bit 1	12	Paper out
4	Data bit 2	13	Select
5	Data bit 3	14	Auto line feed*
6	Data bit 4	15	Error*
7	Data bit 5	16	Initialize printer*
8	Data bit 6	17	Select in*
9	Data bit 7	18-25	Signal ground

*Signal is active low.

Table A-6
External Monitor



Pin	Signal	Pin	Signal
1	Red analog	9	+5 VDC
2	Green analog	10	Ground
3	Blue analog	11	Monitor detect
4	Not connected	12	DDC 2B data
5	Ground	13	Horizontal sync
6	Ground analog	14	Vertical sync
7	Ground analog	15	DDC 2B clock
8	Ground analog		

Table A-7
Stereo Speaker/Headphone

Pin	Signal	Pin	Signal
1	Audio out	2	Ground

Table A-8
Microphone

Pin	Signal	Pin	Signal
1	Audio in	2	Ground

B

Power Cord Set Requirements

3-Conductor Power Cord Set

The computer's wide range input feature permits it to operate from any line voltage from 100 to 120 or 220 to 240 volts AC.

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

Power cord sets for use in other countries must meet the requirements of the country where the computer is used. For more information on power cord set requirements, contact a Compaq authorized reseller or service provider.

General Requirements

The requirements listed below are applicable to all countries:

- The length of the power cord set must be at least 5.00 feet (1.5 m) and a maximum of 6.50 feet (2.0 m).
- 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.
- The power cord set must have a minimum current capacity of 10 amps and a nominal voltage rating of 125 or 250 volts AC, as required by each country's power system.
- The appliance coupler must meet the mechanical configuration of an EN 60 320/IEC 320 Standard Sheet C13 connector, for mating with the appliance inlet on the back of the computer.

Country-Specific Requirements

3-Conductor Power Cord Set Requirements

Country	Accredited Agency	Applicable Note Number
Australia	EANSW	1
Austria	OVE	1
Belgium	CEBC	1
Canada	CSA	2
Denmark	DEMKO	1
Finland	FIMKO	1
France	UTE	1
Germany	VDE	1
Italy	IMQ	1
Japan	METI	3
The Netherlands	KEMA	1
Norway	NEMKO	1
Sweden	SEMKO	1
Switzerland	SEV	1
United Kingdom	BSI	1
United States	UL	2

Notes

1. The flexible cord must be <HAR> Type HO5VV-F, 3-conductor, 1.0 mm^2 conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country where it will be used.
2. The flexible cord must be Type SPT-3 or equivalent, No. 18 AWG, 3-conductor. The wall plug must be a two-pole grounding type with a NEMA 5-15P (15 A, 125 V) or NEMA 6-15P (15 A, 250 V) 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, 1.00 mm^2 conductor size. The wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (7 A, 125 V) configuration.

C

Screw Listing

This appendix provides specification and reference information for the screws used in the computer. All screws listed in this appendix are available in the Miscellaneous Screw Kit, spare part number 285290-001.

Table C-1
Phillips M3.0 × 4.0 Screw

	Color	Qty.	Length	Thread	Head Width
	Black	3	4.0 mm	3.0 mm	5.0 mm

Where used:
One screw that secures the hard drive to the computer (documented in Section 5.3)

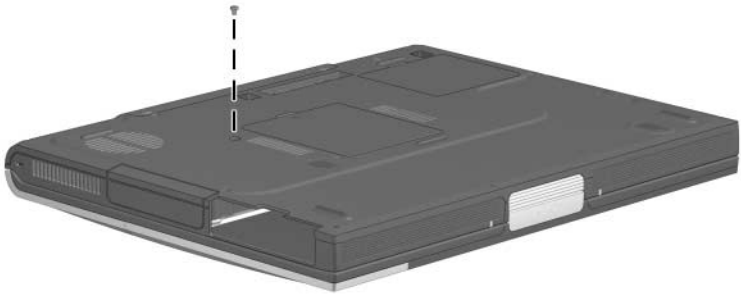


Figure C-1. Phillips M3.0 × 4.0 Screw Location

Table C-1
Phillips M3.0 × 4.0 Screw *(Continued)*

	Color	Qty.	Length	Thread	Head Width
	Black	3	4.0 mm	3.0 mm	5.0 mm

Where used:
Two screws that secure the hard drive bezel to the hard drive (documented in Section 5.3)

Figure C-2. Phillips M3.0 × 4.0 Screw Locations

Table C-2
Phillips M2.0 × 5.5 Screw

	Color	Qty.	Length	Thread	Head Width
	Silver	2	5.5 mm	2.0 mm	4.0 mm

Where used:

Two screws that secure the connector cover to the computer (documented in Section 5.7)

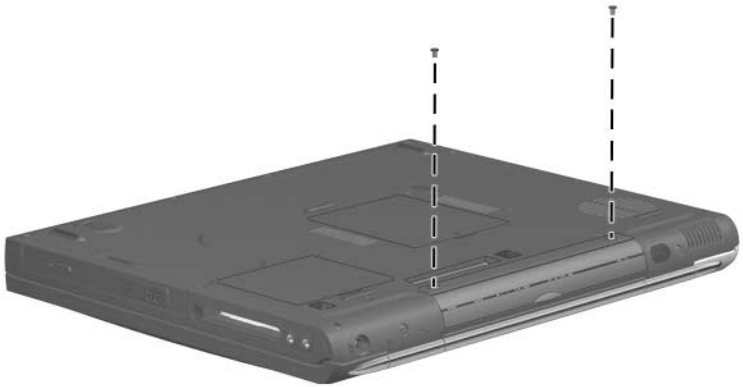


Figure C-3. Phillips M2.0 × 5.5 Screw Locations

Table C-2
Phillips M2.0 × 5.5 Screw *(Continued)*

	Color	Qty.	Length	Thread	Head Width
	Black	2	5.5 mm	2.0 mm	4.0 mm

Where used:

Two screws that secure the system board to the base enclosure on each side of the MultiBay connector (documented in Section 5.18)

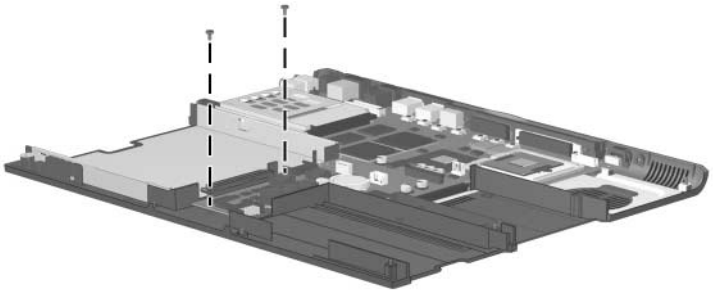


Figure C-4. Phillips M2.0 × 5.5 Screw Locations

Table C-3
Phillips M2.0 × 10.0 Screw

	Color	Qty.	Length	Thread	Head Width
	Black	4	10.0 mm	2.0 mm	4.0 mm

Where used:
Two screws that secure the LED cover to the computer (documented in Section 5.8)

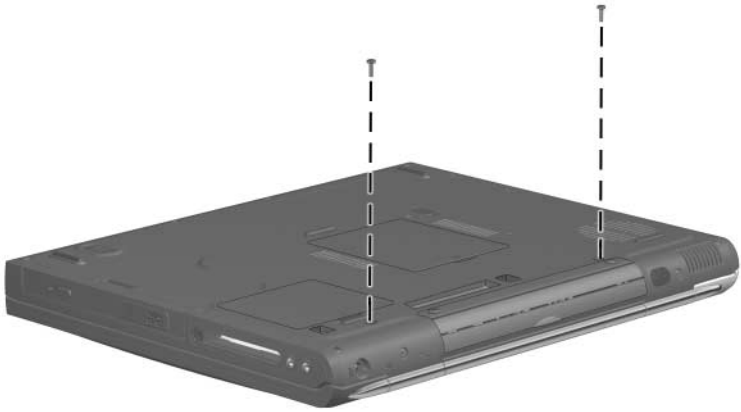


Figure C-5. Phillips M2.0 × 10.0 Screw Locations

Table C-3
Phillips M2.0 × 10.0 Screw *(Continued)*

	Color	Qty.	Length	Thread	Head Width
	Black	4	10.0 mm	2.0 mm	4.0 mm

Where used:
Two screws that secure the display hinge covers and display assembly to the computer (documented in Section 5.10)

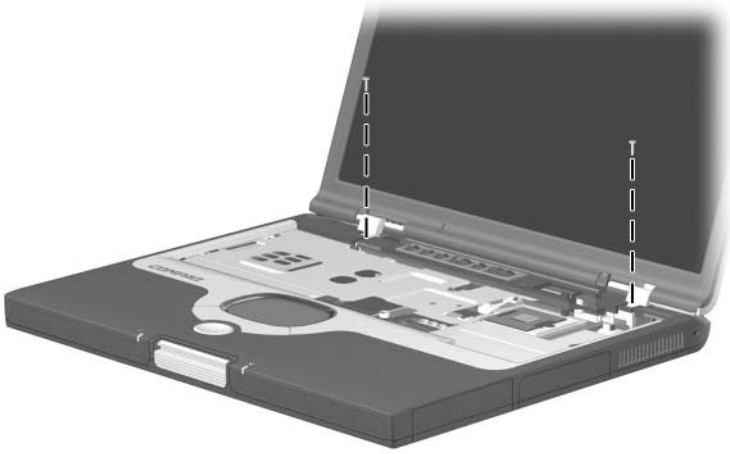


Figure C-6. Phillips M2.0 × 10.0 Screw Locations

Table C-4
Phillips M2.0 × 4.0 Screw

	Color	Qty.	Length	Thread	Head Width
	Gold	13	4.0 mm	2.0 mm	4.0 mm

Where used:
Two screws that secure the keyboard shield to the computer (documented in Section 5.9)

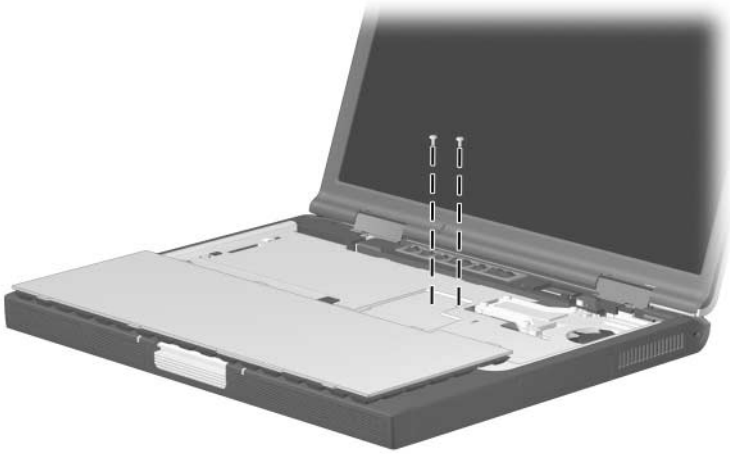


Figure C-7. Phillips M2.0 × 4.0 Screw Locations

Table C-4
Phillips M2.0 × 4.0 Screw *(Continued)*

	Color	Qty.	Length	Thread	Head Width
	Gold	13	4.0 mm	2.0 mm	4.0 mm

Where used:

One screw that secures the top cover to the base enclosure in the hard drive bay (documented in Section 5.11)

Figure C-8. Phillips M2.0 × 4.0 Screw Locations

Table C-4
Phillips M2.0 × 4.0 Screw *(Continued)*

	Color	Qty.	Length	Thread	Head Width
	Gold	13	4.0 mm	2.0 mm	4.0 mm

Where used:

❶ Two screws that secure the top cover to the base enclosure near the fan assembly (documented in Section 5.11)

❷ Two screws that secure the top cover to the base enclosure through the rear panel (documented in Section 5.11)

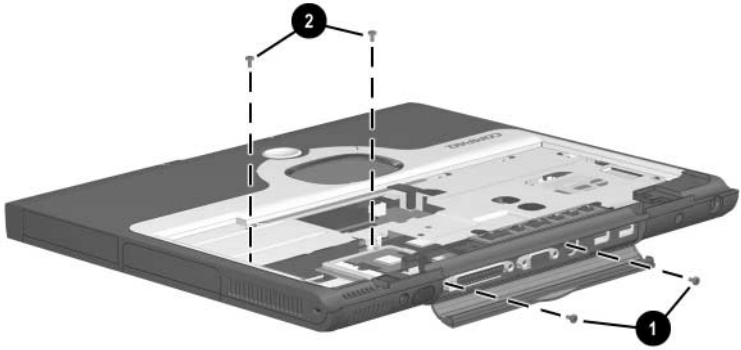


Figure C-9. Phillips M2.0 × 4.0 Screw Locations

Table C-4
Phillips M2.0 × 4.0 Screw *(Continued)*

	Color	Qty.	Length	Thread	Head Width
	Gold	13	4.0 mm	2.0 mm	4.0 mm

Where used:

One screw that secures the speaker assembly to the top cover (documented in Section 5.12)
NEW FOR 1.2 RELEASE

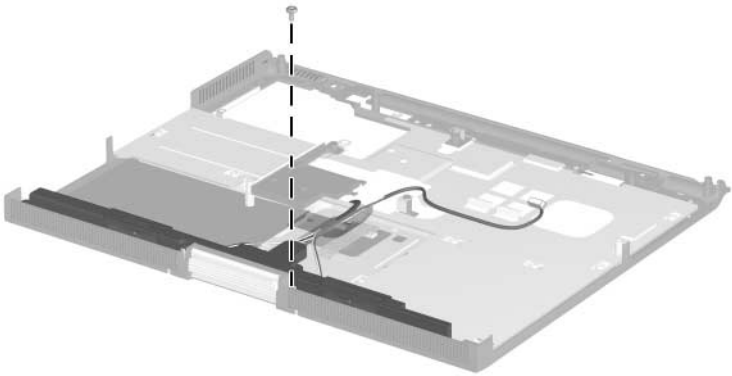


Figure C-10. Phillips M2.0 × 4.0 Screw Locations

Table C-4
Phillips M2.0 × 4.0 Screw *(Continued)*

	Color	Qty.	Length	Thread	Head Width
	Gold	13	4.0 mm	2.0 mm	4.0 mm

Where used:
Two screws that secure the display release assembly to the top cover (documented in Section 5.13)

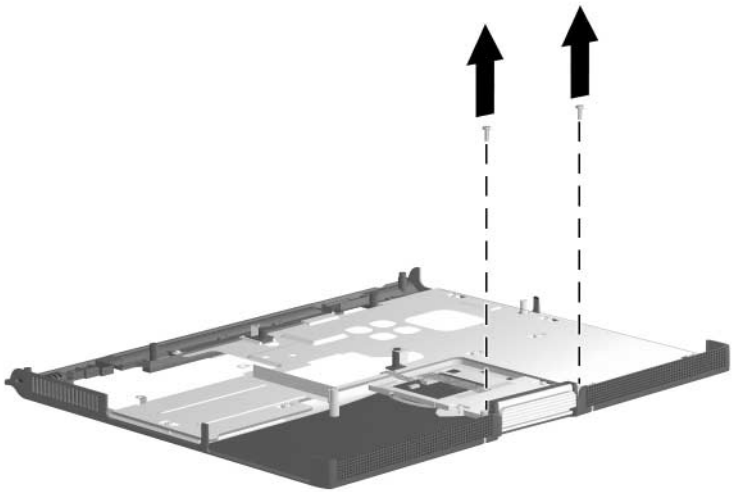


Figure C-11. Phillips M2.0 × 4.0 Screw Locations

Table C-4
Phillips M2.0 × 4.0 Screw *(Continued)*

	Color	Qty.	Length	Thread	Head Width
	Gold	13	4.0 mm	2.0 mm	4.0 mm

Where used:
Four screws that secure the TouchPad bracket to the top cover (documented in Section 5.14)

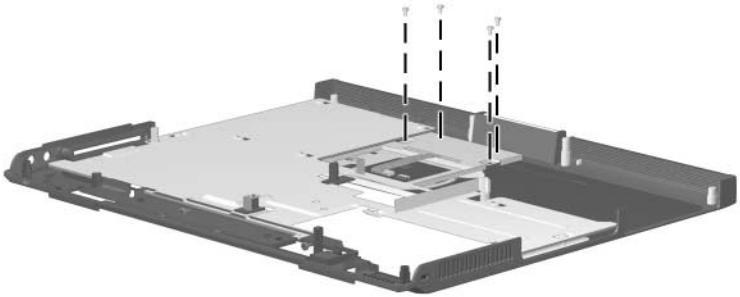


Figure C-12. Phillips M2.0 × 4.0 Screw Locations

Table C-5
Phillips M2.5 × 9.0 Screw

	Color	Qty.	Length	Thread	Head Width
	Black	2	9.0 mm	2.5 mm	4.0 mm

Where used:

Two screws that secure the display assembly to the computer through the rear panel (documented in Section 5.10)

Figure C-13. Phillips M2.5 × 9.0 Screw Locations

Table C-6
Phillips M2.0 × 8.0 Screw

	Color	Qty.	Length	Thread	Head Width
	Black	14	8.0 mm	2.0 mm	4.0 mm

Where used:

Nine screws that secure the top cover to the base enclosure through the bottom of the computer (documented in Section 5.11)

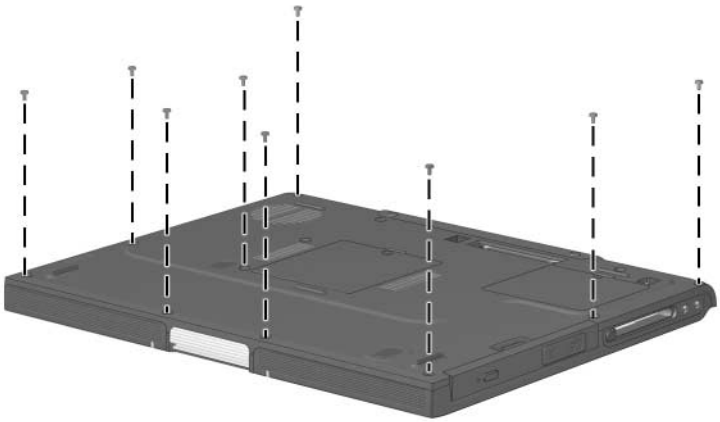


Figure C-14. Phillips M2.0 × 8.0 Screw Locations

Table C-6
Phillips M2.0 × 8.0 Screw *(Continued)*

	Color	Qty.	Length	Thread	Head Width
	Black	14	8.0 mm	2.0 mm	4.0 mm

Where used:

Two screws that secure the top cover to the base enclosure (documented in Section 5.11)

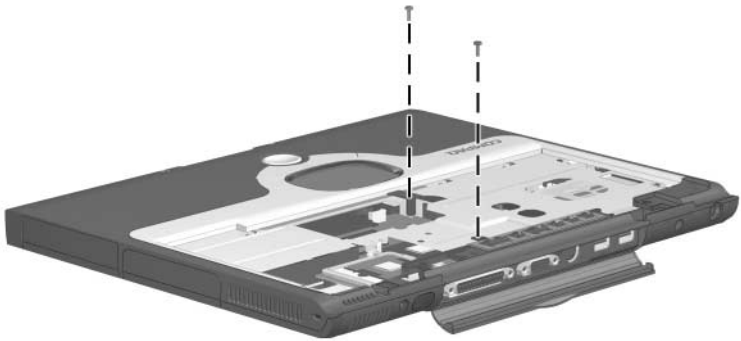


Figure C-15. Phillips M2.0 × 8.0 Screw Locations

Table C-6
Phillips M2.0 × 8.0 Screw *(Continued)*

	Color	Qty.	Length	Thread	Head Width
	Black	14	8.0 mm	2.0 mm	4.0 mm

Where used:

Two screws that secure the left and right display supports to the base enclosure (documented in Section 5.18)

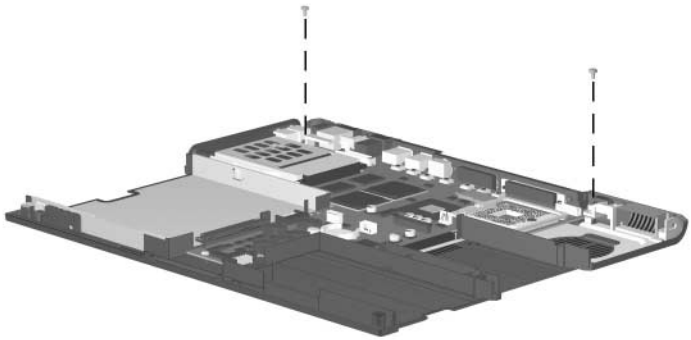


Figure C-16. Phillips M2.0 × 8.0 Screw Locations

Table C-6
Phillips M2.0 × 8.0 Screw *(Continued)*

	Color	Qty.	Length	Thread	Head Width
	Black	14	8.0 mm	2.0 mm	4.0 mm

Where used:

Two screws that secure the system board to the base enclosure through the processor support bracket (documented in Section 5.18)

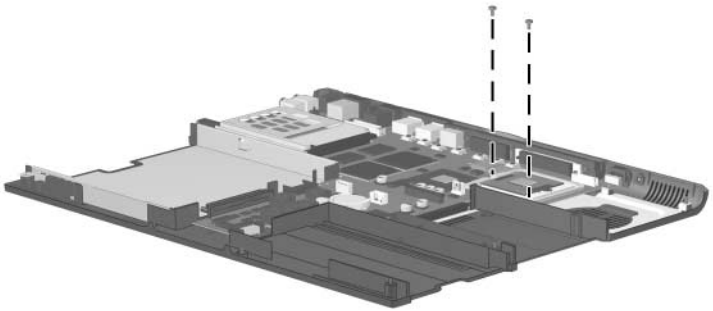


Figure C-17. Phillips M2.0 × 8.0 Screw Locations

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