



Maintenance and Service Guide

HP Compaq nx6325 Notebook PC
HP Compaq nx6315 Notebook PC

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

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Maintenance and Service Guide
HP Compaq nx6325 Notebook PC
HP Compaq nx6315 Notebook PC
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1

Product Description

The HP Compaq nx6325 Notebook PC and HP Compaq nx6315 Notebook PC offer advanced modularity, AMD Turion™ Mobile 64 Technology and Mobile AMD Sempron™ processors, and extensive multimedia support.



*HP Compaq nx6325 Notebook PC and
HP Compaq nx6315 Notebook PC*

1.1 Features

- The following processors are available, varying by computer model:
 - ❑ AMD Turion 64 ML-60 (2.00-GHz)
 - ❑ AMD Turion 64 ML-56 (1.80-GHz)
 - ❑ AMD Turion 64 ML-52 (1.60-GHz)
 - ❑ AMD Turion 64 ML-50 (1.60-GHz)
 - ❑ Mobile AMD Sempron 3500+ (1.80-GHz)
 - ❑ Mobile AMD Sempron 3400+ (1.80-GHz)
 - ❑ Mobile AMD Sempron 3200+ (1.60-GHz)
- 15.0-inch, SXGA+WVA, TFT (1400 × 1050) or 15.0-inch, XGA, TFT (1280 × 800) with over 16.8 million colors, varying by computer model
- 100-, 80-, 60-, and 40-GB high-capacity hard drive, varying by computer model
- 256-MB DDR2 synchronous DRAM (SDRAM) at 533 MHz, expandable to 2.0 GB
- Microsoft® Windows® XP Professional
- Full-size Windows keyboard with embedded numeric keypad
- TouchPad pointing device
- Integrated 10 Base-T/100 Base-TX/1000 Base-T Ethernet local area network (LAN) network interface card (NIC) with RJ-45 jack
- Integrated high-speed 56K modem with RJ-11 jack
- Integrated wireless support for Mini Card IEEE 802.11a/b/g or 802.11b/g Wireless LAN (WLAN) device
- Support for one optional Type I or Type II 32-bit (CardBus) or 16-bit PC Card, varying by computer model

- External 65-watt AC adapter with 3-wire power cord
- 6-cell Li-Ion battery
- Stereo speakers
- Volume up, volume mute, and volume down buttons
- Support for the following optical drives:
 - ❑ DVD±RW and CD-RW Combo Drive with LightScribe
 - ❑ DVD±RW and CD-RW Combo Drive
 - ❑ DVD/CD-RW Combo Drive
 - ❑ CD-ROM drive
- Connectors:
 - ❑ Accessory battery
 - ❑ Audio-in (microphone)
 - ❑ Audio-out (headphone)
 - ❑ Digital Media Slot (HP Compaq nx6325 models only)
 - ❑ Docking connector (HP Compaq nx6325 models only)
 - ❑ ExpressCard
 - ❑ External monitor
 - ❑ IEEE 1394
 - ❑ PC Card
 - ❑ Power
 - ❑ RJ-11 (modem)
 - ❑ RJ-45 (network)
 - ❑ S-Video-out (HP Compaq nx6325 models only)
 - ❑ Universal Serial Bus (USB) v. 2.0 (two or three, varying by computer model)

1.2 Resetting the Computer

If the computer you are servicing has an unknown password, follow the steps below to reset the password. These steps also clear CMOS.



The following steps will not clear an unknown password if the stringent security option has been enabled in the BIOS. If stringent security is enabled, the system board must be replaced to reset an unknown password. Refer to [Section 5.13, “RTC Battery,”](#) for more information on replacing the system board.

Before replacing the system board, perform the steps below to be sure that stringent security has been properly enabled.

Enabling stringent security provides enhanced protection for the power-on password and administrator password and other forms of power-on authorization. Stringent security is enabled/disabled by accessing the Password Options menu in the Computer Setup utility. Refer to [Section 2.1, “Computer Setup,”](#) for more information.

1. Prepare the computer for disassembly (refer to [Section 5.3, “Preparing the Computer for Disassembly,”](#) for more information). Remove the real-time clock (RTC) battery (refer to [Section 5.13, “RTC Battery,”](#) for more information on removing and replacing the RTC battery).
 2. Wait approximately 5 minutes.
 3. Replace the RTC battery and reassemble the computer.
 4. Connect AC power to the computer. Do not reinsert any batteries at this time.
 5. Turn on the computer.
- All passwords and all CMOS settings have been cleared.

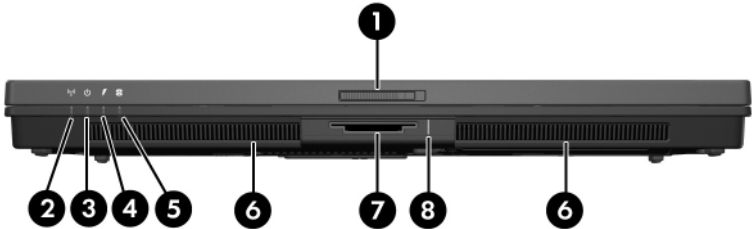
1.3 Power Management

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

- Standby
- Hibernation
- Setting customization by the user
- Hotkeys for setting the level of performance
- Battery calibration
- Lid switch standby/resume
- Power button
- Advanced Configuration and Power Management (ACPM) compliance

1.4 External Components

The external components on the front of the computer are shown below and described in Table 1-1.



Front Components

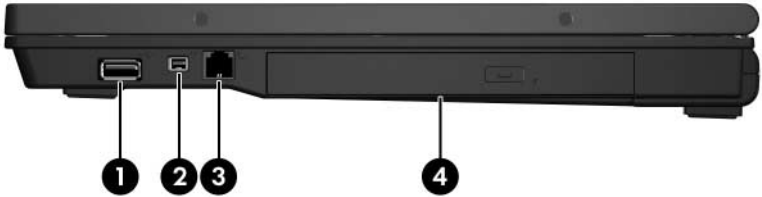
Table 1-1
Front Components

Item	Component	Function
1	Display release latch	Opens the computer.
2	Wireless light	On: An integrated wireless device, such as a wireless local area network (LAN) device and/or a Bluetooth® device, is turned on.
3	Power light	■ On: The computer is on. ■ Blinking: The computer is in standby. ■ Off: The computer is off or in hibernation.

Table 1-1
Front Components (Continued)

Item	Component	Function
4	Battery light	<ul style="list-style-type: none"> ■ Amber: A battery is charging. ■ Green: A battery is close to full charge capacity. ■ Blinking amber: A battery that is the only available power source has reached a low-battery condition. When the battery reaches a critical low-battery condition, the battery light begins blinking more quickly. ■ Off: If the computer is plugged into an external power source, the light is turned off when all batteries in the computer are fully charged. If the computer is not plugged into an external power source, the light stays off until the battery reaches a low-battery condition.
5	Drive light	Blinking: The hard drive or optical drive is being accessed.
6	Speakers (2)	Produce computer sound.
7	Digital Media Slot (HP Compaq nx6325 models only)	Supports optional digital card formats: SD (Secure Digital) Memory Card, MultiMediaCard, Memory Stick, Memory Stick Pro, Memory Stick Duo (with adapter), SmartMedia card, and xD-Picture Card.
8	Digital Media Slot light (HP Compaq nx6325 models only)	On: A digital card is being accessed.

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

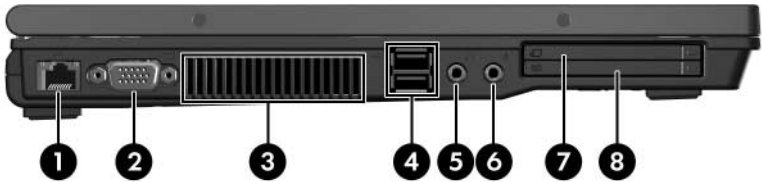


Right-Side Components

Table 1-2
Right-Side Components

Item	Component	Function
1	USB port (HP Compaq nx6325 models only)	Connects optional USB devices.
2	1394 port	Connects an optional IEEE 1394 device such as a camcorder.
3	RJ-11 (modem) jack	Connects a modem cable.
4	Optical drive	Reads an optical disc.

The external components on the left side of the computer are shown below and described in Table 1-3.




Left-Side Components

Table 1-3

Left-Side Components

Item	Component	Function
1	RJ-45 (network) jack	Connects a network cable.
2	External monitor port	Connects an external monitor.
3	Exhaust vent	Enables airflow to cool internal components.

 To prevent overheating, do not obstruct vents. Use the computer only on a hard, flat surface. Do not allow another hard surface, such as an adjoining optional printer, or a soft surface, such as pillows or thick rugs or clothing, to block airflow.


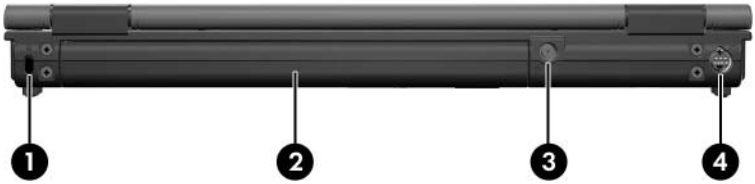
 The computer fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation.

Table 1-3
Left-Side Components (Continued)


Item	Component	Function
4	USB ports (2)	Connect optional USB devices.
5	Audio-out (headphone) jack	Produces system stereo sound when connected to optional powered stereo speakers, headphones, ear buds, a headset, or television audio.
6	Audio-in (microphone) jack	Connects an optional headset microphone or a monaural microphone.
7	ExpressCard slot (HP Compaq nx6325 models only)	Supports optional ExpressCard/54 or ExpressCard/34 cards.
8	PC Card slot (select models only) or smart card slot (select models only)	Supports optional Type I/II PC Cards, 16-bit PC Cards, and 32-bit (CardBus) or industry standard smart cards including Java™ Cards.

The external components on the rear panel of the computer are shown below and described in Table 1-4.



Rear Panel Components

Table 1-4
Rear Panel Components

Item	Component	Function
1	Security cable slot	Attaches an optional security cable to the computer.  The security cable is designed to act as a deterrent, but it may not prevent the computer from being mishandled or stolen.
2	Battery bay	Holds the primary battery.
3	Smart adapter power connector	Connects an AC adapter.
4	S-Video-out jack (HP Compaq nx6325 models only)	Connects an optional S-Video device, such as a television, VCR, camcorder, overhead projector, or video capture card.

The standard keyboard components of the computer are shown below and described in Table 1-5.



Standard Keyboard Components

Table 1-5
Standard Keyboard Components

Item	Component	Function
1	f1 to f12 keys (12)	Execute frequently used system functions when pressed in combination with the fn key.
2	caps lock key	Enables caps lock and turns on the caps lock light.
3	fn key	Executes frequently used system functions when pressed in combination with a function key or the esc key.
4	Windows logo key	Displays the Windows Start menu.
5	Windows applications key	Displays a shortcut menu for items beneath the pointer.
6	Arrow keys	Moves the cursor around the screen.
7	Embedded numeric keypad keys (15)	Can be used like the keys on an external numeric keypad.
8	num lock key	Enables numeric lock, turns on the embedded numeric keypad, and turns on the num lock light.

The computer top components are shown below and described in Table 1-6.




Top Components, Part 1

Table 1-6
Top Components, Part 1

Item	Component	Function
1	Power button	<p>When the computer is</p> <ul style="list-style-type: none"> ■ Off, press to turn on the computer. ■ In standby, briefly press to exit standby. ■ In hibernation, briefly press to exit hibernation. <p>If the computer has stopped responding and Windows shutdown procedures cannot be used, press and hold the power button for at least 5 seconds to turn off the computer.</p>
2	Display switch	<p>Initiates standby if the display is closed while the computer is on.</p>

Table 1-6
Top Components, Part 1 (Continued)

Item	Component	Function
3	Info Center button (HP Compaq nx6325 models only)	Launches Info Center, which enables you to open various software solutions.
4	Wireless button	Turns the wireless feature on or off, but does not create a wireless connection.  To establish a wireless connection, a wireless network must already be set up.
5	Presentation button (HP Compaq nx6325 models only)	Starts the presentation feature.
6	Caps lock light	On: caps lock is on.
7	Num lock light	On: num lock or the numeric keypad is on.
8	Volume mute button (HP Compaq nx6325 models only)	Mutes and restores speaker volume.
9	Volume down button (HP Compaq nx6325 models only)	Decreases speaker volume.
10	Volume up button (HP Compaq nx6325 models only)	Increases speaker volume.
11	Internal microphone (HP Compaq nx6325 models only)	Records sound.

The computer top components are continued below and described in Table 1-7.

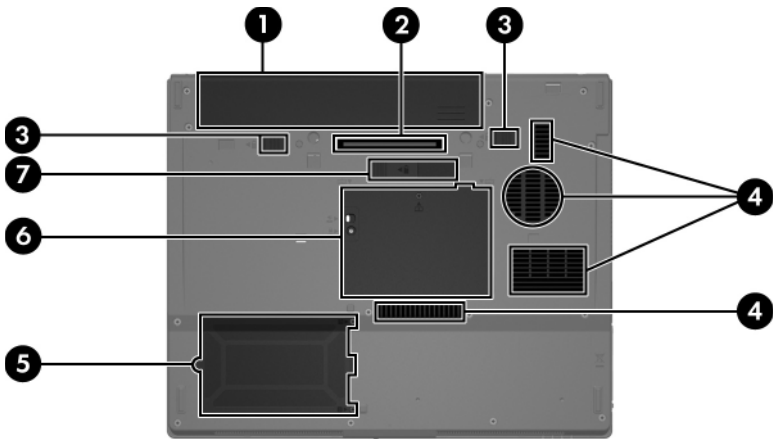


Top Components, Part 2

Table 1-7
Top Components, Part 2

Item	Component	Function
1	TouchPad	Moves the pointer and selects or activates items on the screen. Can be set to perform other mouse functions, such as scrolling, selecting, and double-clicking.
2	Left and right TouchPad buttons	Function like the left and right buttons on an external mouse.
3	TouchPad scroll zone	Scrolls up or down.
4	Fingerprint reader (HP Compaq nx6325 models only)	Allows a fingerprint logon to Windows instead of a password logon.

The external components on the bottom of the computer are shown below and described in Table 1-8.





Bottom Components

Table 1-8
Bottom Components

Item	Component	Function
1	Battery bay	Holds the primary battery.
2	Docking connector (HP Compaq nx6325 models only)	Connects the an optional docking device.
3	Primary battery release latches (2)	Releases the primary battery from the battery bay.

Table 1-8
Bottom Components (*Continued*)

Item	Component	Function
4	Exhaust vents	<p data-bbox="524 370 953 423">Enable airflow to cool internal components.</p> <p data-bbox="524 451 953 667">  To prevent overheating, do not obstruct vents. Use the computer only on a hard, flat surface. Do not allow another hard surface, such as an adjoining optional printer, or a soft surface, such as pillows or thick rugs or clothing, to block airflow. </p> <p data-bbox="524 699 953 862">  The computer fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation. </p>
5	Hard drive bay	Holds the hard drive.
6	Expansion memory module compartment	Contains the expansion memory module slot.
7	Accessory battery connector (exposed when cover is pushed to the right)	Connects an optional accessory battery.

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:

- AMD Turion 64 or Mobile AMD Sempron processors
- Audio
- Display
- ExpressCard
- Fingerprint reader board (HP Compaq nx6325 models only)
- Hard drive
- Keyboard and TouchPad
- Memory module
- Mini Card module
- PC Card



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

The computer uses an electric 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. Exhaust air is displaced through the ventilation grill located on the left side of the computer.

Troubleshooting



WARNING: Only authorized technicians trained by HP 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, do not attempt to make repairs at the component level or 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

Computer Setup is a preinstalled, ROM-based utility that can be used even when the operating system is not working or will not load.



Some of the Computer Setup menu items listed in this guide may not be supported by your computer.

Pointing devices are not supported in Computer Setup. You must use the keyboard to navigate and make selections.

An external keyboard connected by USB can be used with Computer Setup only if USB legacy support is enabled.

The information and settings in Computer Setup are accessed from the File, Security, Diagnostics, and System Configuration menus.

1. Open Computer Setup by turning on or restarting the computer, and then pressing **f10** while the “F10 = ROM Based Setup” message is displayed in the lower-left corner of the screen.

In Computer Setup, the following shortcuts are available:

- ❑ To change the language, press **f2**.
 - ❑ To view navigation information, press **f1**.
 - ❑ To close open dialog boxes and return to the main Computer Setup screen **esc**.
2. Select the **Files, Security, Diagnostics, or System Configuration** menu.
 3. To exit Computer Setup, choose one of the following methods:
 - ❑ To exit Computer Setup without saving your preferences, use the arrow keys to select **File > Ignore Changes and Exit**. Then follow the instructions on the screen.
 - ❑ To save your preferences and exit Computer Setup, use the arrow keys to select **File > Save Changes and Exit**. Then follow the instructions on the screen.

Computer Setup Defaults

To return all settings in Computer Setup to the values that were set at the factory:

1. Open Computer Setup by turning on or restarting the computer, and then pressing **f10** while the “F10 = ROM Based Setup” message is displayed in the lower-left corner of the screen.

In Computer Setup, the following shortcuts are available:

- To change the language, press **f2**.
 - To view navigation information, press **f1**.
 - To close open dialog boxes and return to the main Computer Setup screen **esc**.
2. Use the arrow keys to select **File > Restore defaults**, and then press **enter**.
 3. When the confirmation dialog box opens, press **f10**.
 4. Select the Restore defaults check box, and then press **enter**.
 5. To confirm the restoration, press **f10**.
 6. To save your preferences and exit Computer Setup, use the arrow keys to select **File > Save Changes and Exit**. Then follow the instructions on the screen.

Your preferences go into effect when the computer restarts.



Your password and security settings are not changed when you restore the factory default settings.

Computer Setup Menus

The menu tables in this section provide an overview of Computer Setup options.



Some of the Computer Setup menu items listed in this chapter may not be supported by your computer.

Table 2-1
File Menu

Select	To Do This
System Information	<ul style="list-style-type: none">■ View identification information for the computer and the battery packs in the system.■ View specification information for the processor, cache and memory size, system ROM, video revision, and keyboard controller version.
Restore defaults	Replace the configuration settings in Computer Setup with factory default settings. (Password and security settings are not changed when you restore the factory default settings.)
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. Your changes go into effect when the computer restarts.

Table 2-2
Security Menu



Select	To Do This
Setup password	Enter, change, or delete a setup password.
Power-on password	Enter, change, or delete a power-on password.
Password options	<ul style="list-style-type: none"> ■ Enable/disable stringent security. ■ Enable/disable password requirement on computer restart.
DriveLock passwords	<ul style="list-style-type: none"> ■ Enable/disable DriveLock on any computer hard drive and optional MultiBay hard drives. ■ Change a DriveLock user or master password. <p> DriveLock settings are accessible only when you enter Computer Setup by turning on (not restarting) the computer.</p>
Smart Card security	<p>Enable/disable support for smart card and Java™ Card power-on authentication.</p> <p> Power-on authentication for smart cards is supported only on computers with optional smart card readers.</p>
TPM Embedded Security	<p>Enable/disable support for TPM (Trusted Platform Module) Embedded Security, which protects the computer from unauthorized access to owner functions in Embedded Security for ProtectTools. For more information, refer to the ProtectTools Security Manager Reference Guide located in the Help and Support Center, or refer to Credential Manager for ProtectTools online Help.</p>

Table 2-2
Security Menu (*Continued*)





Select	To Do This
System IDs	Enter user-defined computer asset and ownership tag.
Disk Sanitizer	<p>Run Disk Sanitizer to destroy all existing data on the primary hard drive. The following options are available:</p> <ul style="list-style-type: none">  Fast: Runs the Disk Sanitizer erase cycle once.  Optimum: Runs the Disk Sanitizer erase cycle 3 times.  Custom: Allows you to select the desired number of Disk Sanitizer erase cycles from a list. <p> If you run Disk Sanitizer, the data on the primary hard drive is destroyed permanently.</p>

Table 2-3
Diagnostics Menu

Select	To Do This
Memory Check	Run a comprehensive check on system memory.
Hard Drive Self-Test options	Run a comprehensive self-test on any hard drive in the system or on any optional MultiBay hard drive.

Table 2-4
System Configuration Menu

Select	To Do This
Language (or press f2).	Change the Computer Setup language.
Boot options	<ul style="list-style-type: none"> ■ Set f9, f10, and f12 delay when starting up. ■ Enable/disable CD-ROM boot. ■ Enable/disable Floppy boot. ■ Enable/disable internal network adapter boot and set the boot mode (PXE or RPL). ■ Enable/disable MultiBoot, which sets a boot order that can include most boot devices in the system. ■ Set the boot order.

Table 2-4
System Configuration Menu (*Continued*)

Select	To Do This
Device configurations	<ul style="list-style-type: none"> ■ Swap the functions of the fn key and left ctrl key. ■ 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. When enabled, USB legacy support allows a USB keyboard, mouse, and hub to work in Computer Setup even when a Microsoft Windows operating system is not loaded. ■ The computer to start from bootable USB devices, including a hard drive, diskette drive diskette, or optical drive connected by a USB port to the computer or to an optional docking device (select models only). ■ Automatic/disable Intel® SpeedStep Technology. ■ Select a parallel port mode: EPP (Enhanced Parallel Port), standard, bidirectional, or ECP (Enhanced Capabilities Port). ■ Enable/disable BIOS DMA data transfers (select models only). ■ Enable/disable the system fan when connected to an AC outlet. ■ Enable/disable Intel or AMD PSAA Execution Disable. When enabled, the processor can disable some virus code execution, which helps to improve computer security. ■ Enable/disable LAN Power Save. When enabled, saves power by turning off the LAN when not in use.

Table 2-4
System Configuration Menu (*Continued*)

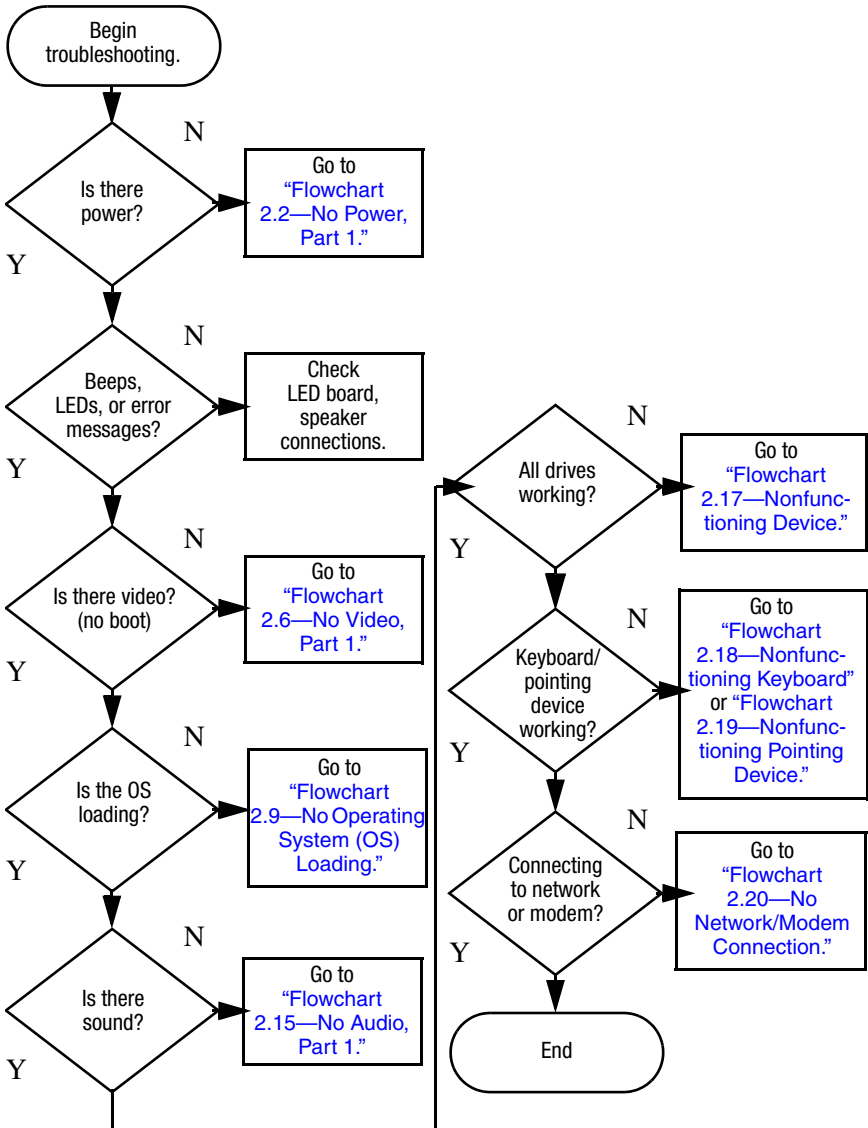
Select	To Do This
Device configurations (<i>Continued</i>)	<ul style="list-style-type: none"> ■ Enable/disable SATA Native Support. ■ Enable/disable Dual Core CPU. ■ Enable/disable Secondary Battery Fast Charge.
Built-In Device Options	<ul style="list-style-type: none"> ■ Enable/disable embedded WWAN Device Radio. ■ Enable/disable embedded WLAN Device Radio. ■ Enable/disable embedded Bluetooth® Device Radio. ■ Enable/disable LAN/WLAN Switching. When enabled, switches to a WLAN when a LAN is either unavailable or disconnected. ■ Enable/disable Wake on LAN from Off. ■ Enable/disable the ambient light sensor.
Port Options	<ul style="list-style-type: none"> ■ Enable/disable the serial port. ■ Enable/disable the parallel port. ■ Enable/disable the flash media reader. ■ Enable/disable the USB port. △ Disabling the USB port also disables MultiBay devices and ExpressCard devices on the advanced port replicator. ■ Enable/disable the 1394 port. ■ Enable/disable the cardbus slot. ■ Enable/disable the ExpressCard slot. ■ Enable/disable the infrared port.

2.2 Troubleshooting Flowcharts

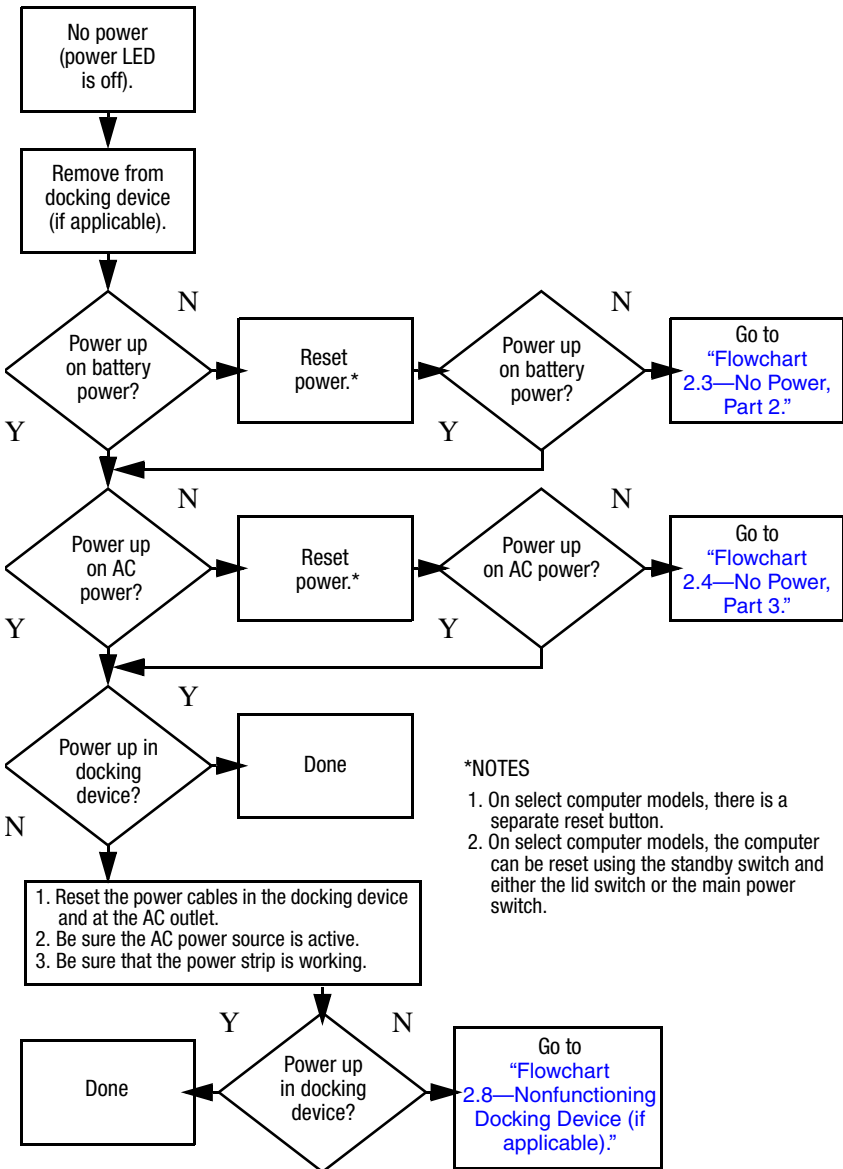
Table 2-5
Troubleshooting Flowcharts Overview

Flowchart	Description
2.1	"Flowchart 2.1—Initial Troubleshooting"
2.2	"Flowchart 2.2—No Power, Part 1"
2.3	"Flowchart 2.3—No Power, Part 2"
2.4	"Flowchart 2.4—No Power, Part 3"
2.5	"Flowchart 2.5—No Power, Part 4"
2.6	"Flowchart 2.6—No Video, Part 1"
2.7	"Flowchart 2.7—No Video, Part 2"
2.8	"Flowchart 2.8—Nonfunctioning Docking Device (if applicable)"
2.9	"Flowchart 2.9—No Operating System (OS) Loading"
2.10	"Flowchart 2.10—No OS Loading, Hard Drive, Part 1"
2.11	"Flowchart 2.11—No OS Loading, Hard Drive, Part 2"
2.12	"Flowchart 2.12—No OS Loading, Hard Drive, Part 3"
2.13	"Flowchart 2.13—No OS Loading, Diskette Drive"
2.14	"Flowchart 2.14—No OS Loading, Optical Drive"
2.15	"Flowchart 2.15—No Audio, Part 1"
2.16	"Flowchart 2.16—No Audio, Part 2"
2.17	"Flowchart 2.17—Nonfunctioning Device"
2.18	"Flowchart 2.18—Nonfunctioning Keyboard"
2.19	"Flowchart 2.19—Nonfunctioning Pointing Device"
2.20	"Flowchart 2.20—No Network/Modem Connection"

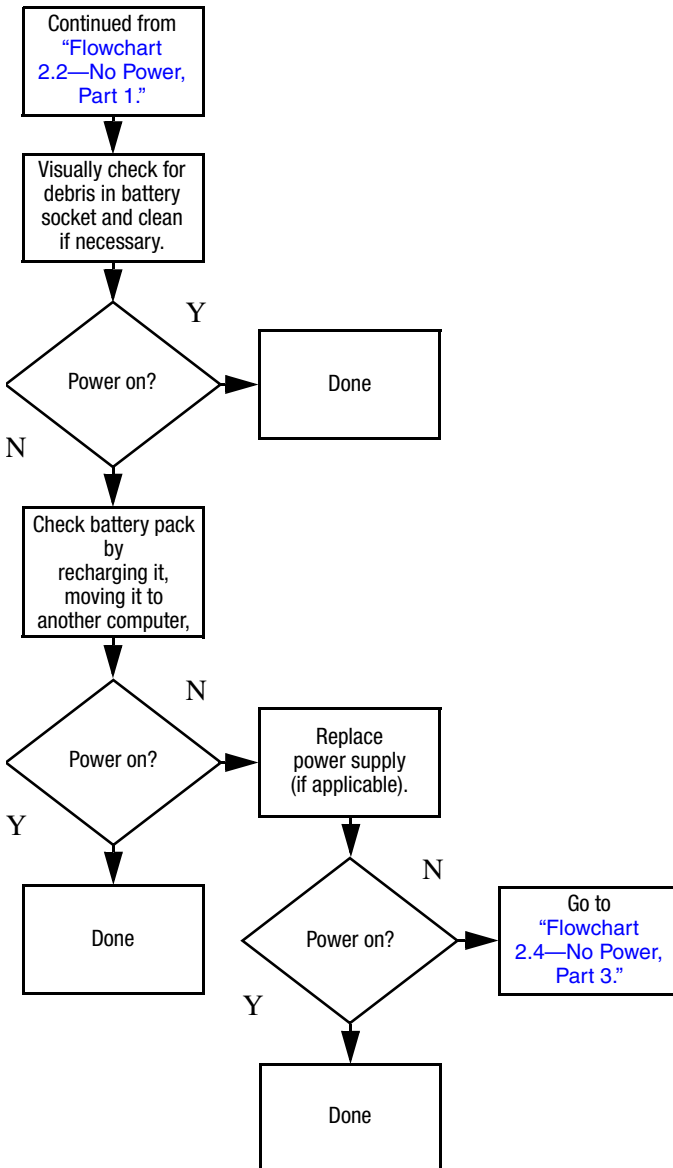
Flowchart 2.1 – Initial Troubleshooting



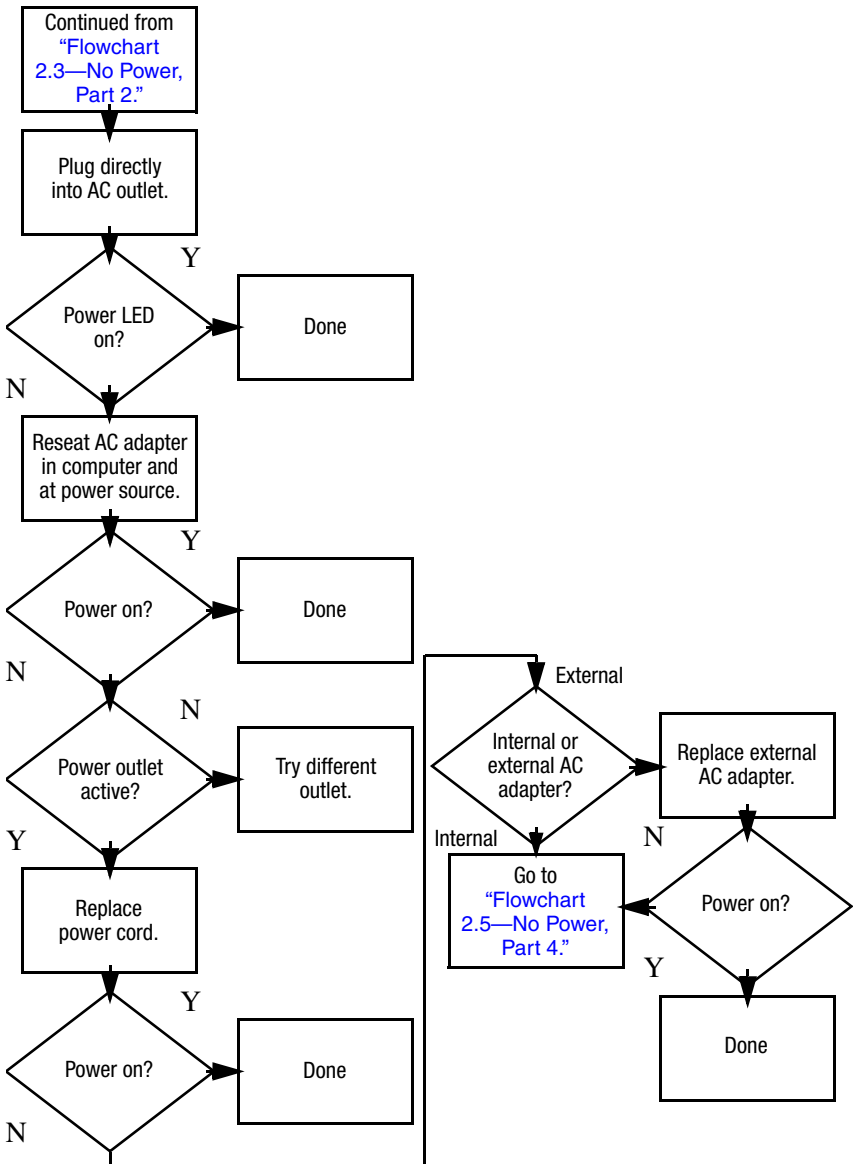
Flowchart 2.2—No Power, Part 1



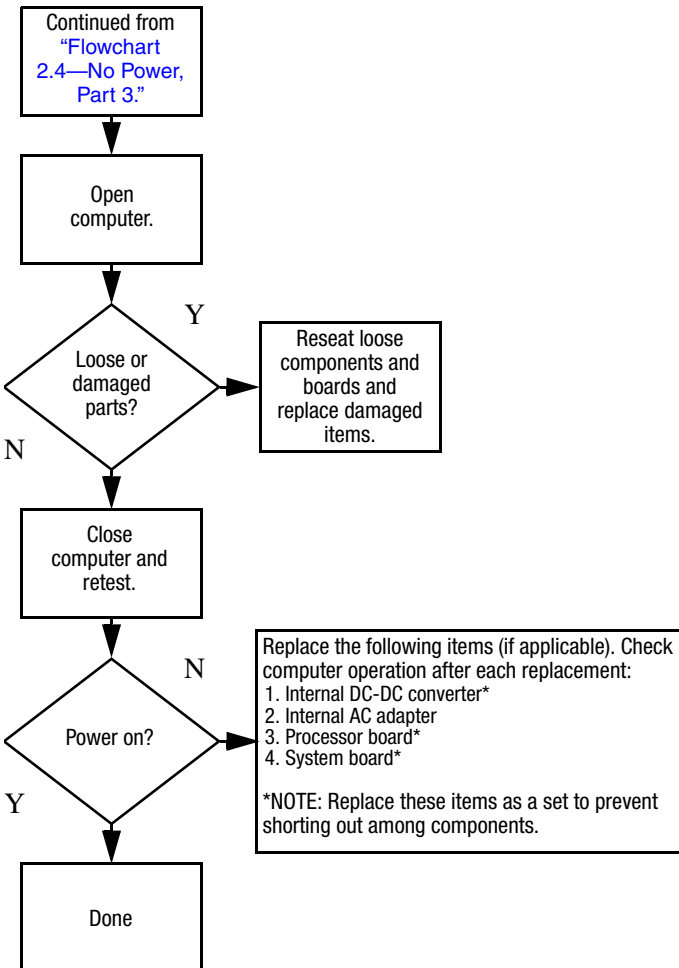
Flowchart 2.3—No Power, Part 2



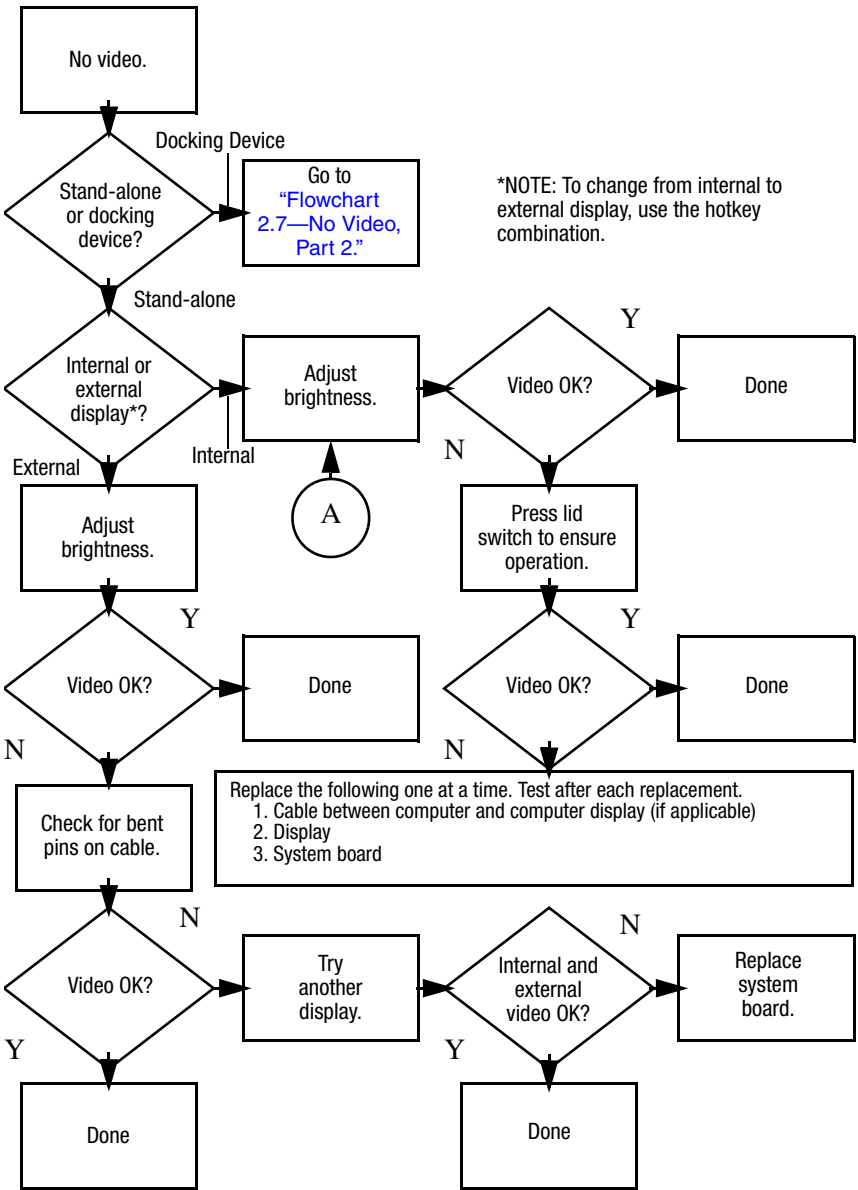
Flowchart 2.4—No Power, Part 3



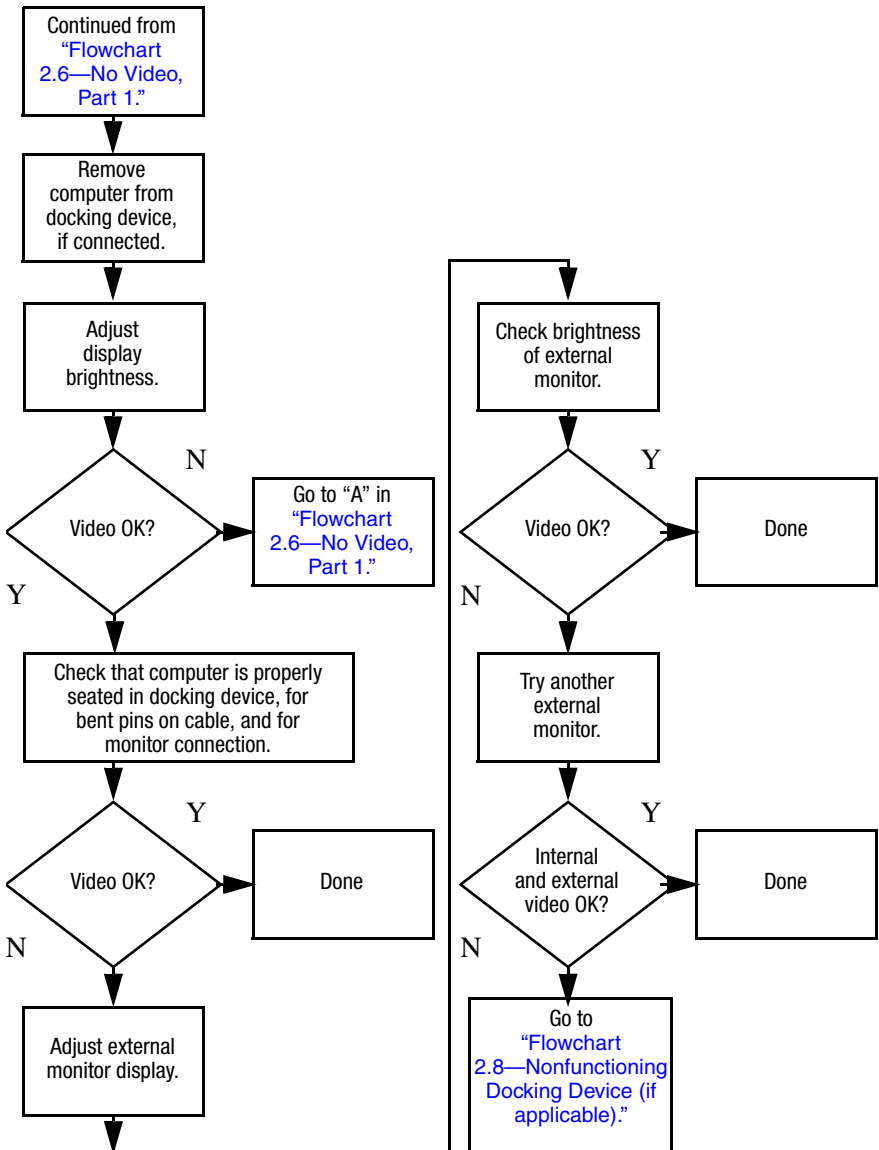
Flowchart 2.5—No Power, Part 4



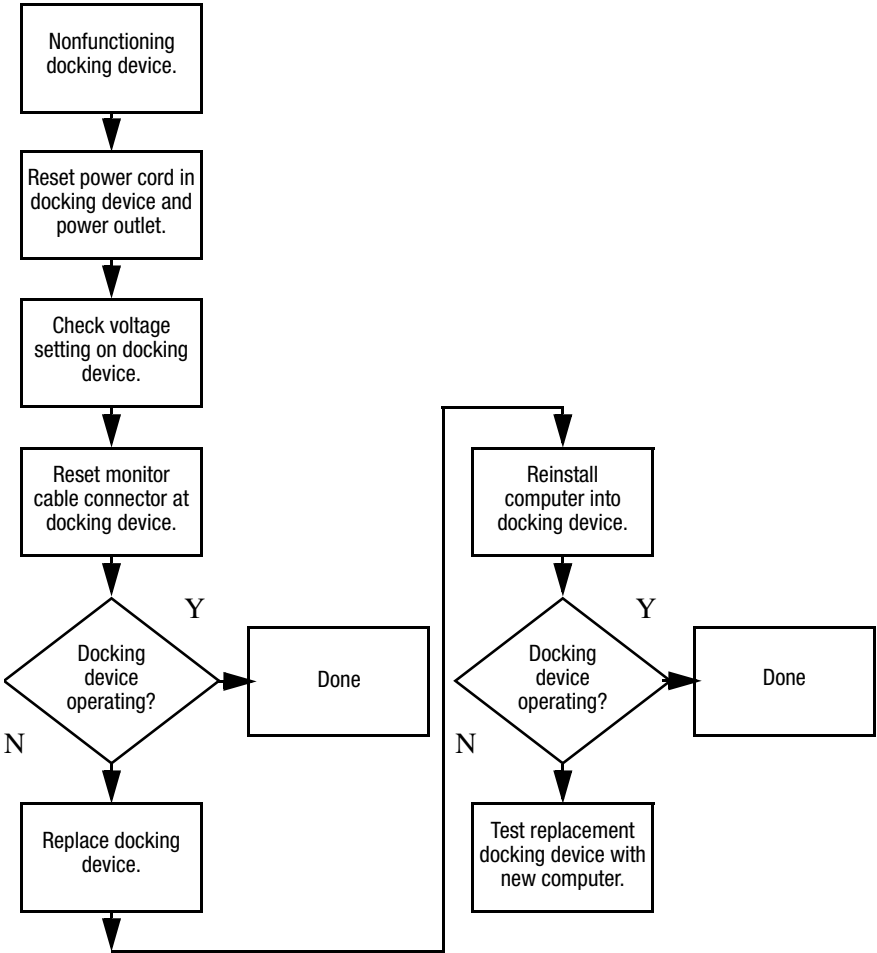
Flowchart 2.6—No Video, Part 1



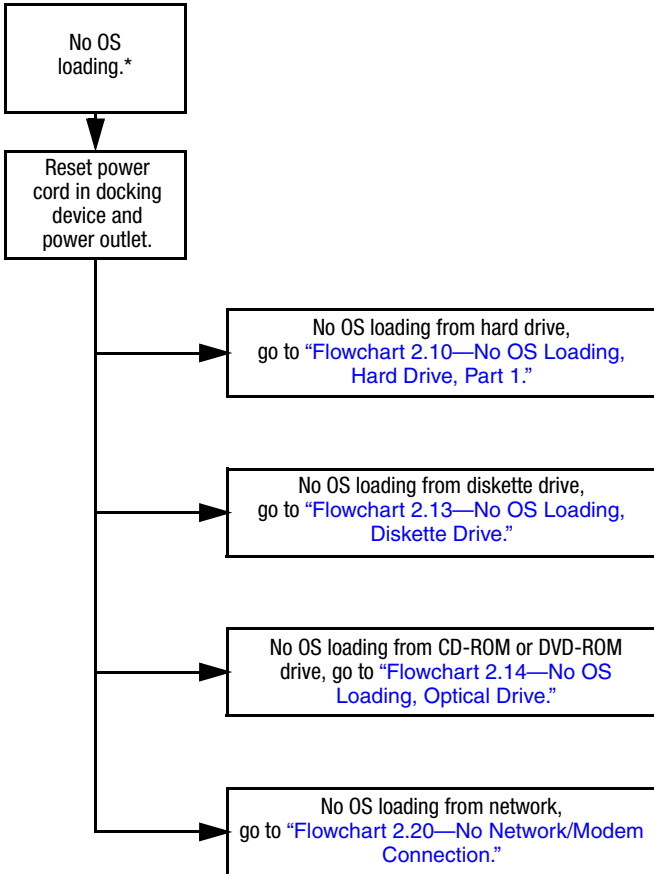
Flowchart 2.7—No Video, Part 2



Flowchart 2.8—Nonfunctioning Docking Device (if applicable)

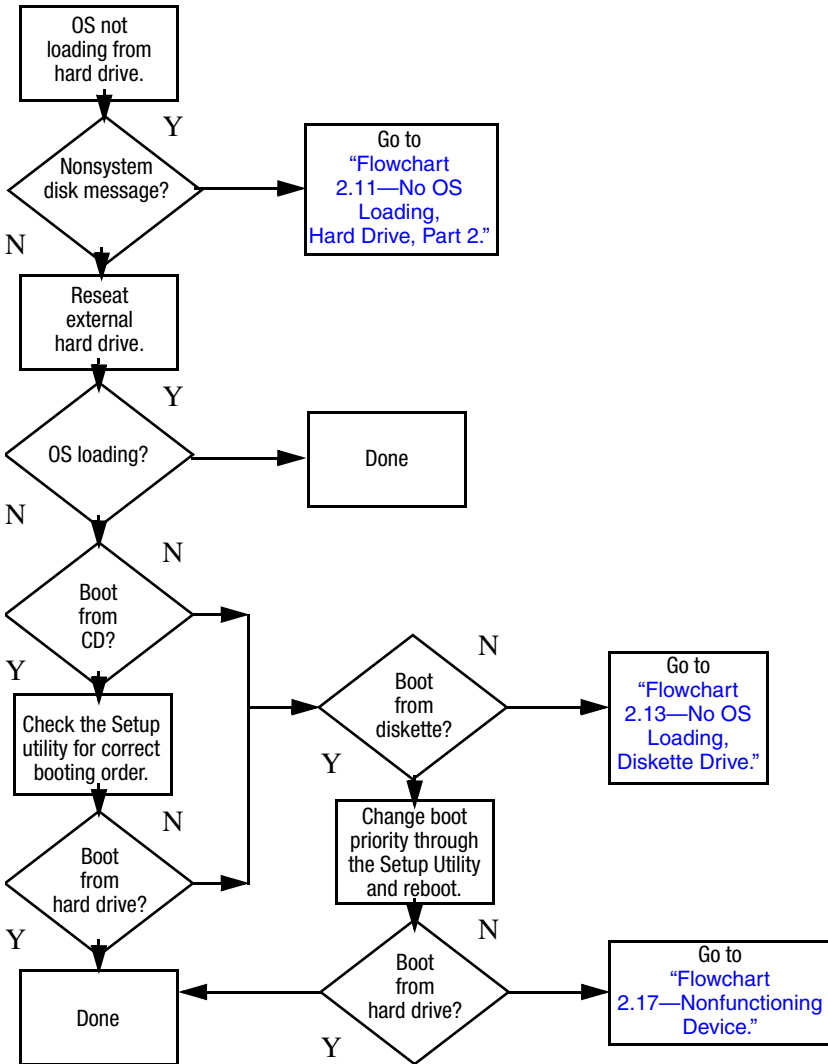


Flowchart 2.9—No Operating System (OS) Loading

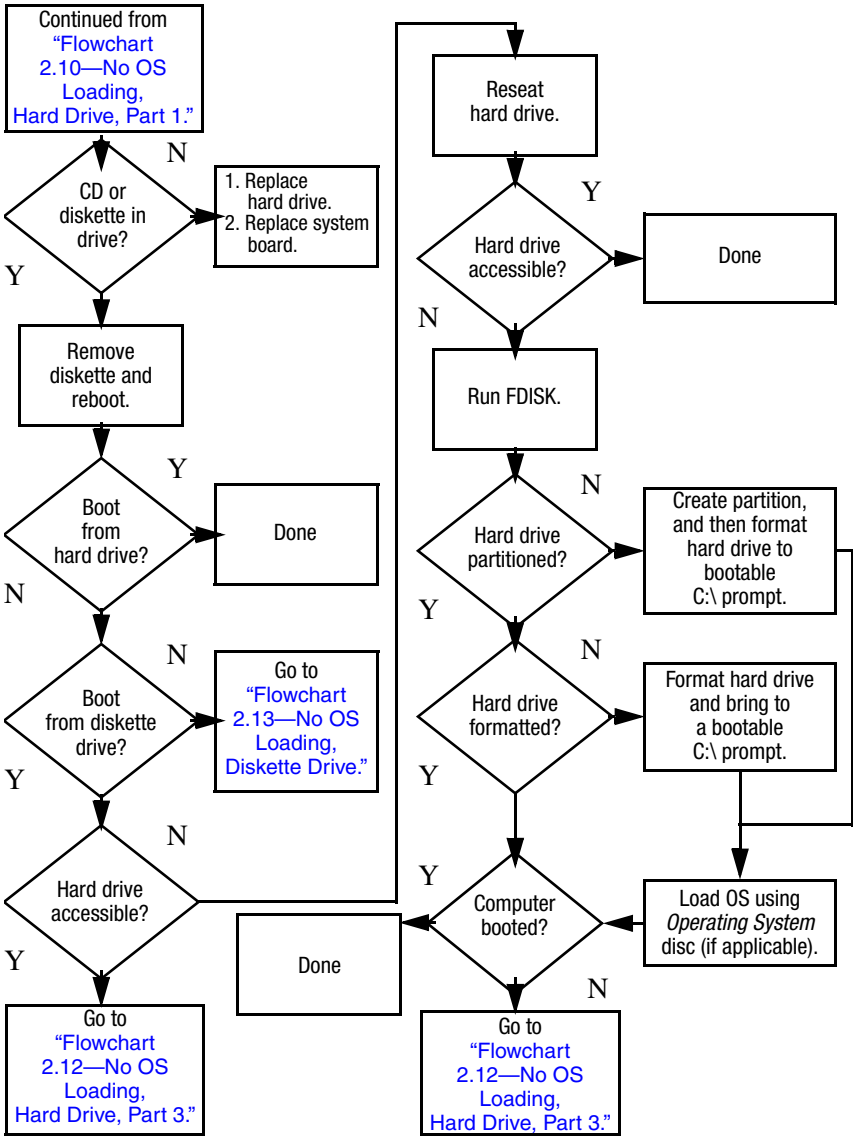


*NOTE: Before beginning troubleshooting, always check cable connections, cable ends, and drives for bent or damaged pins.

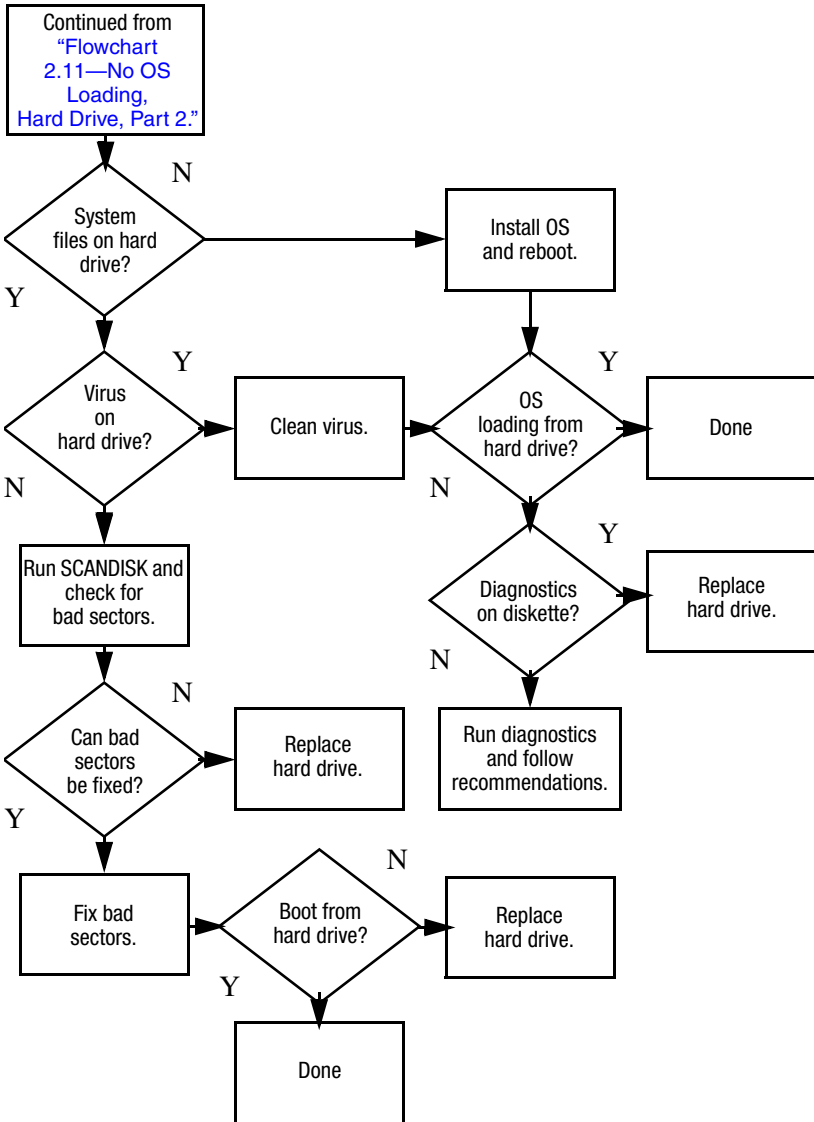
Flowchart 2.10—No OS Loading, Hard Drive, Part 1



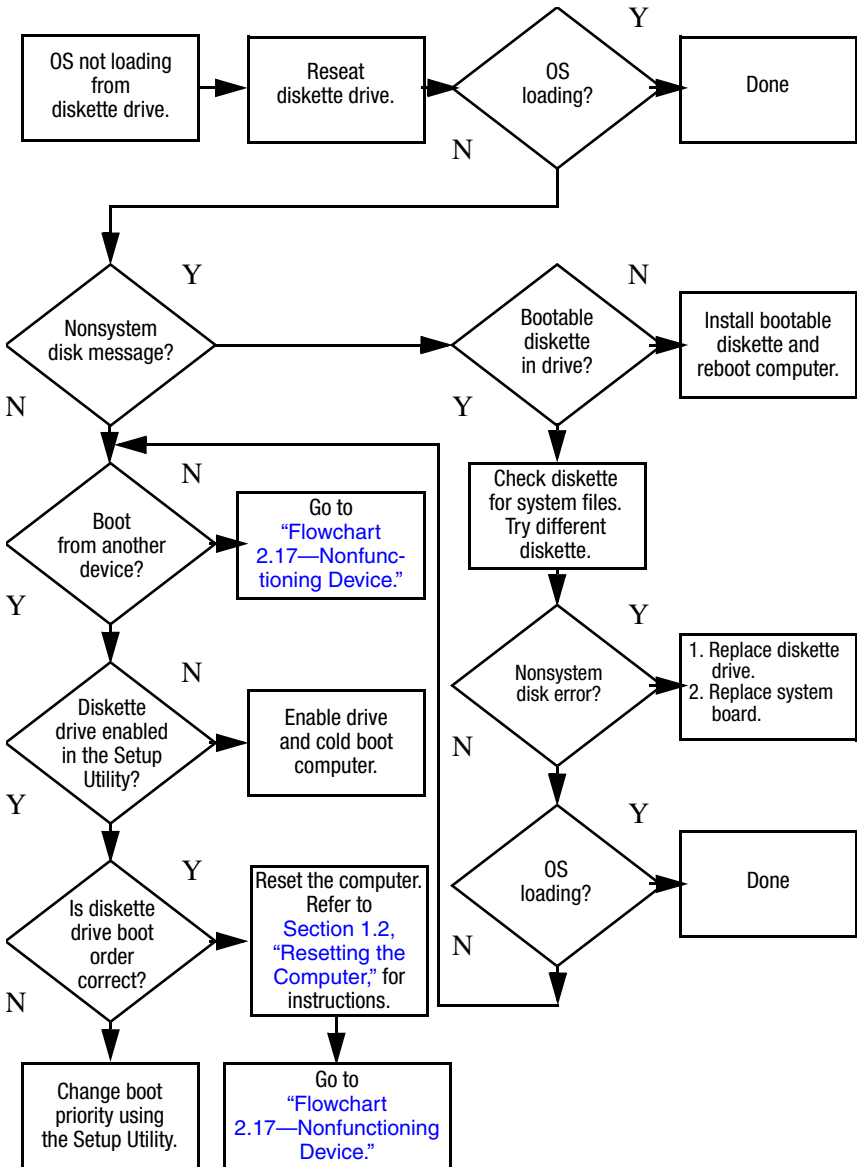
Flowchart 2.11 – No OS Loading, Hard Drive, Part 2



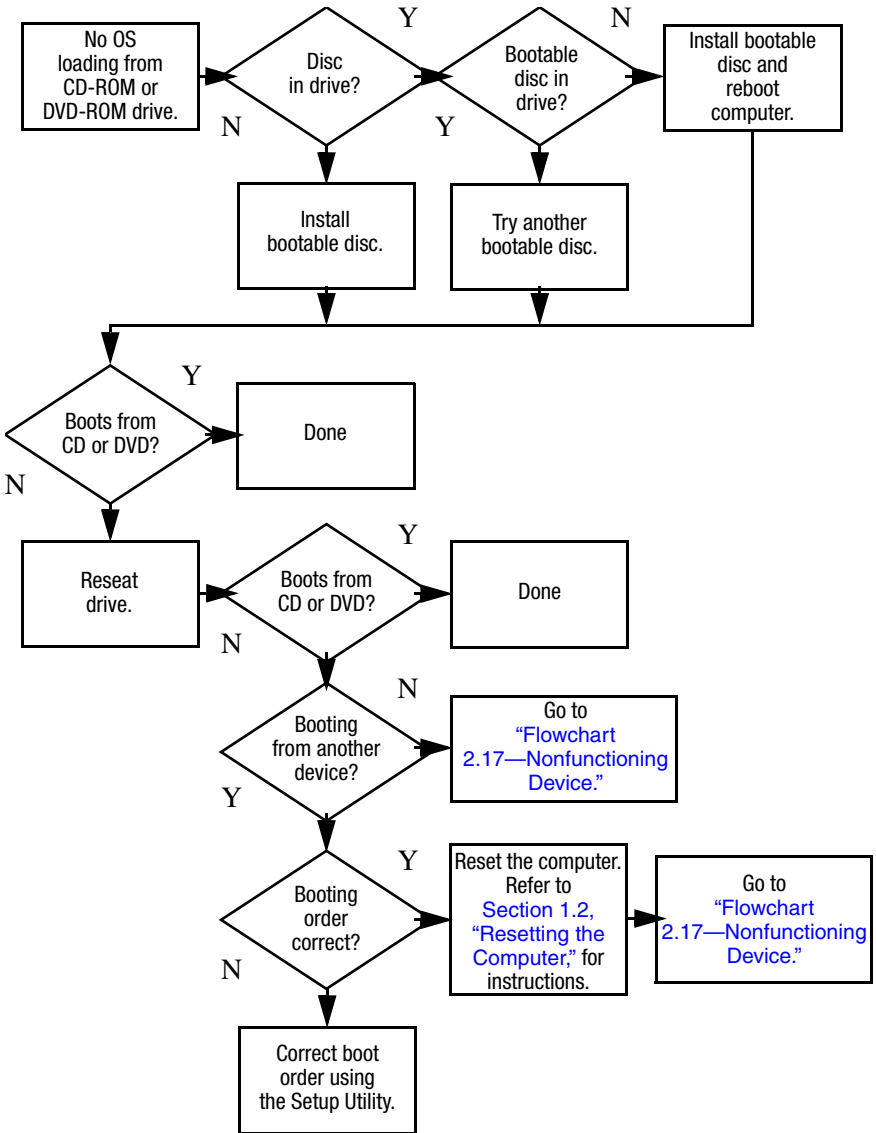
Flowchart 2.12—No OS Loading, Hard Drive, Part 3



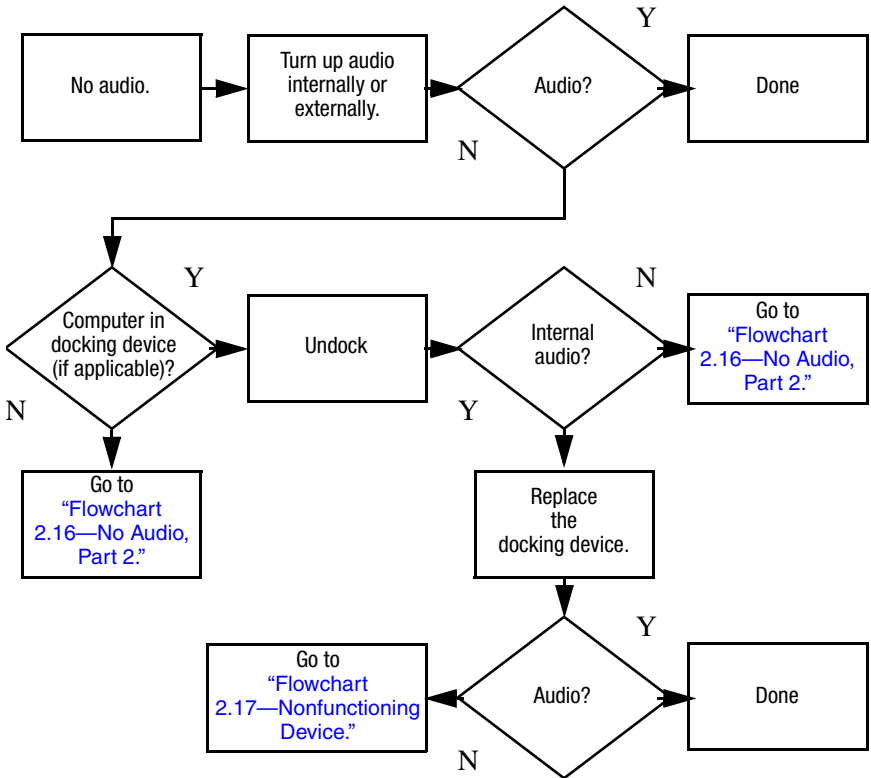
Flowchart 2.13—No OS Loading, Diskette Drive



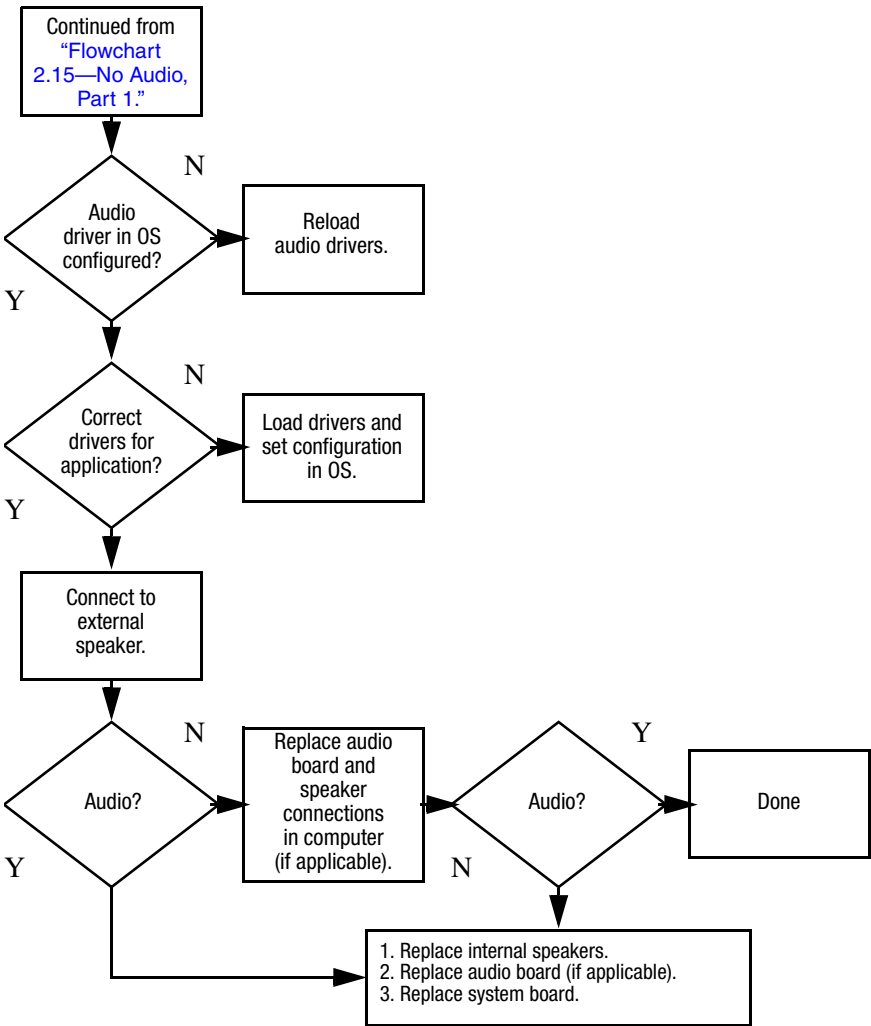
Flowchart 2.14—No OS Loading, Optical Drive



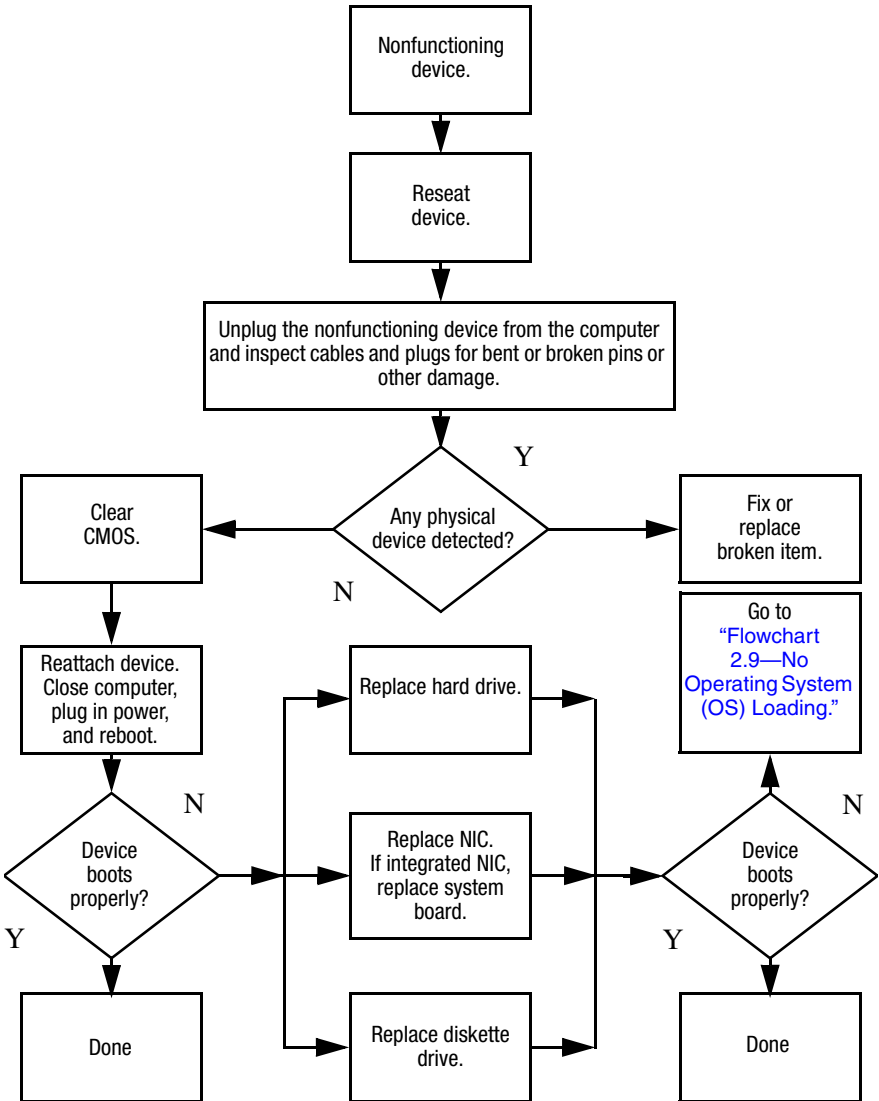
Flowchart 2.15—No Audio, Part 1



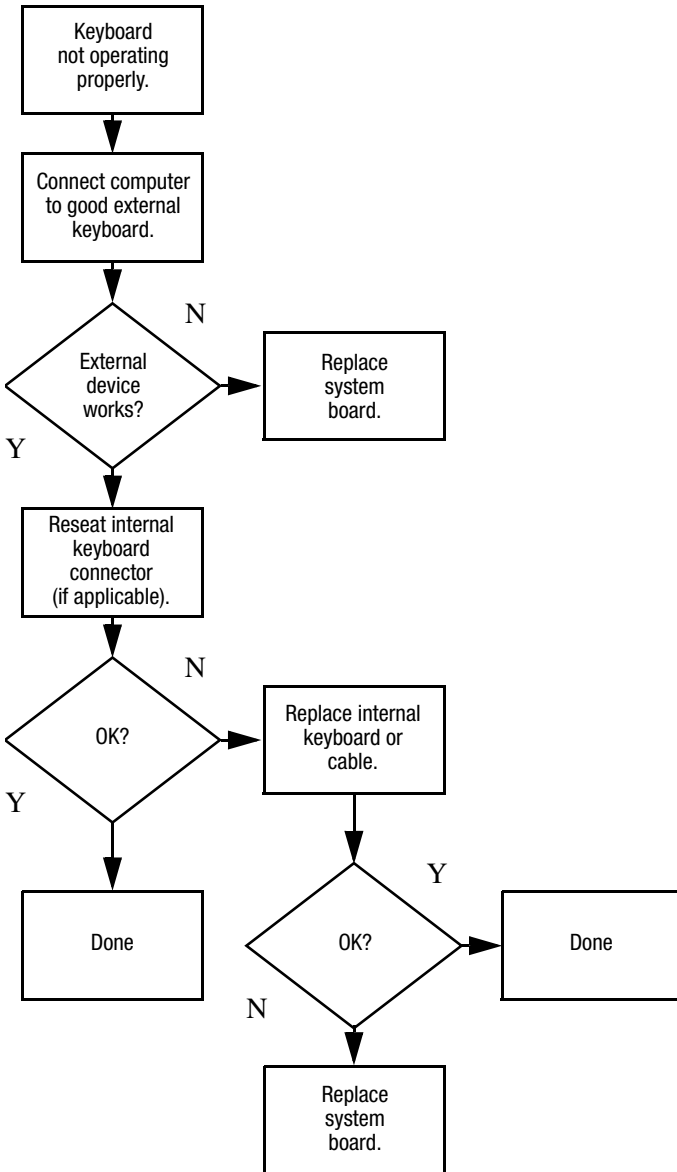
Flowchart 2.16—No Audio, Part 2



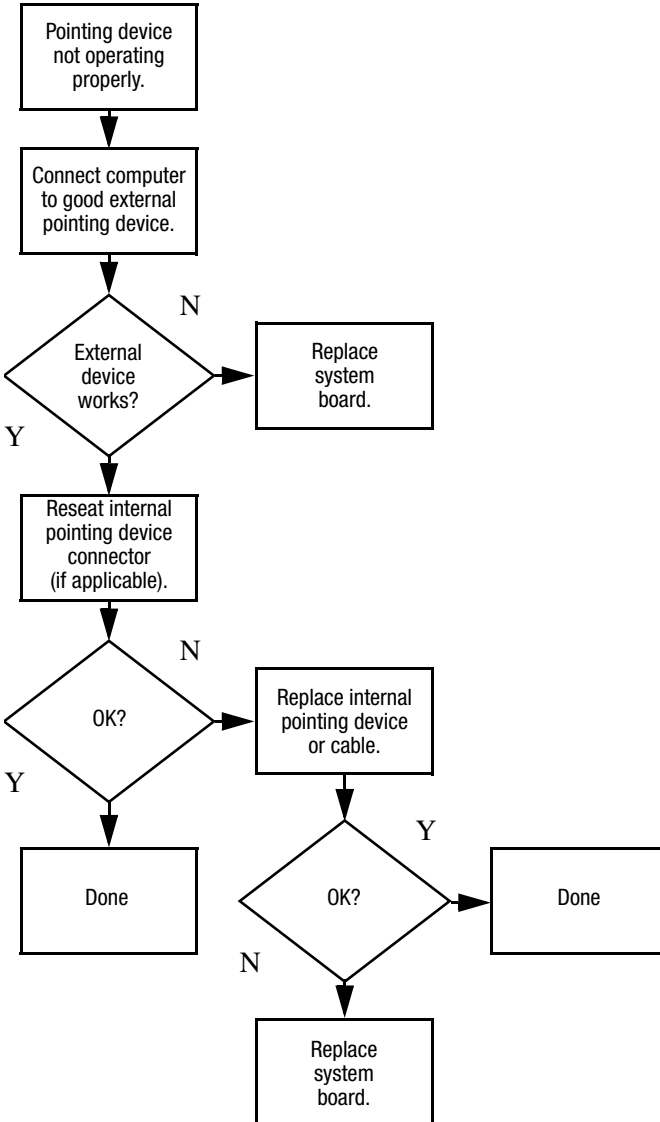
Flowchart 2.17—Nonfunctioning Device



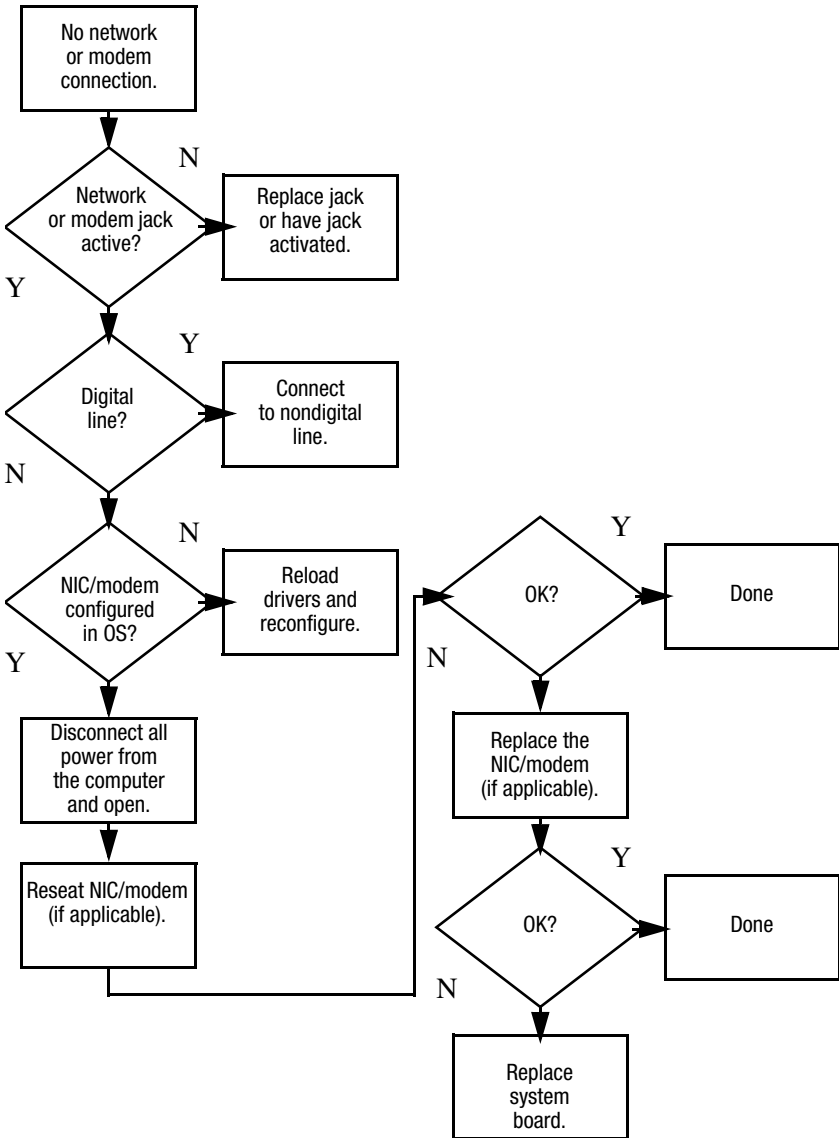
Flowchart 2.18—Nonfunctioning Keyboard



Flowchart 2.19—Nonfunctioning Pointing Device



Flowchart 2.20—No Network/Modem Connection

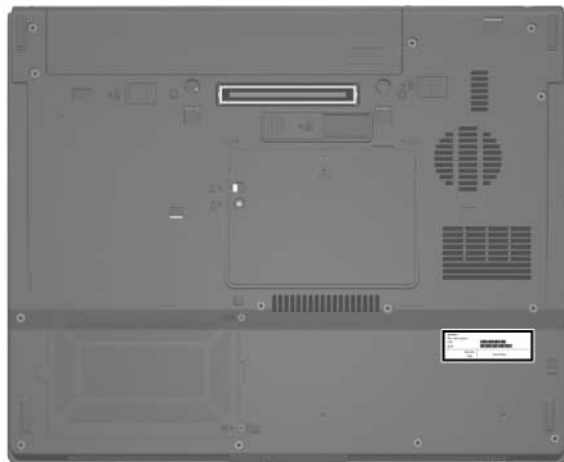


Illustrated Parts Catalog

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

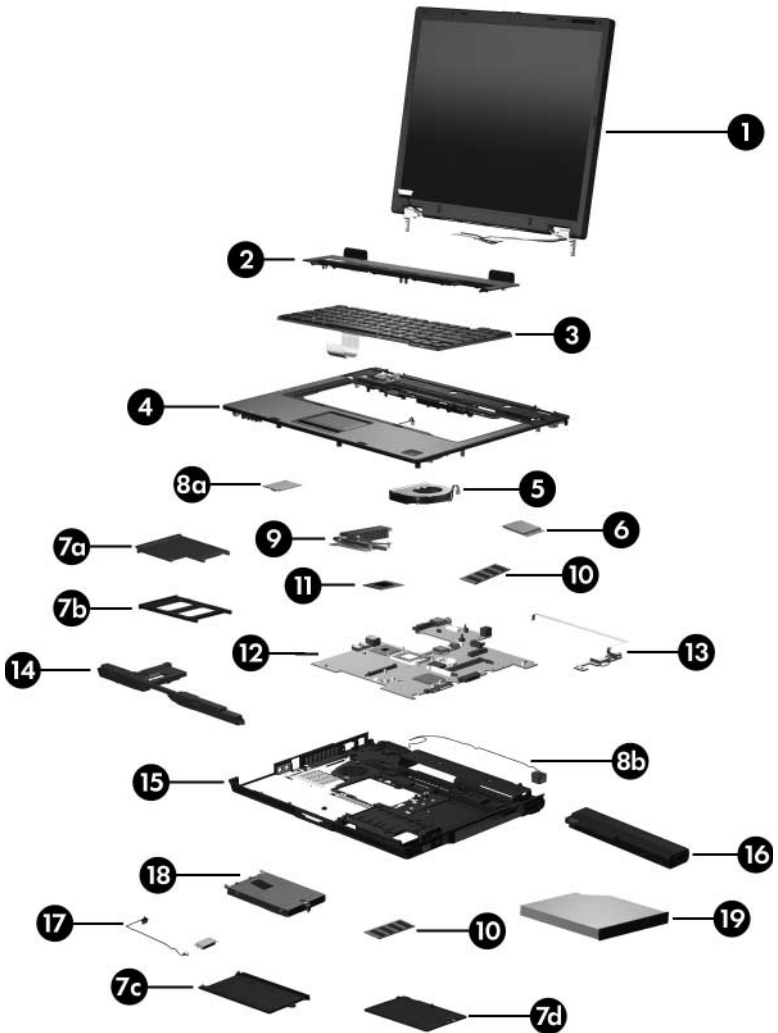
3.1 Serial Number Location

When ordering parts or requesting information, provide the computer serial number and model number located on the bottom of the computer.



Serial Number Location

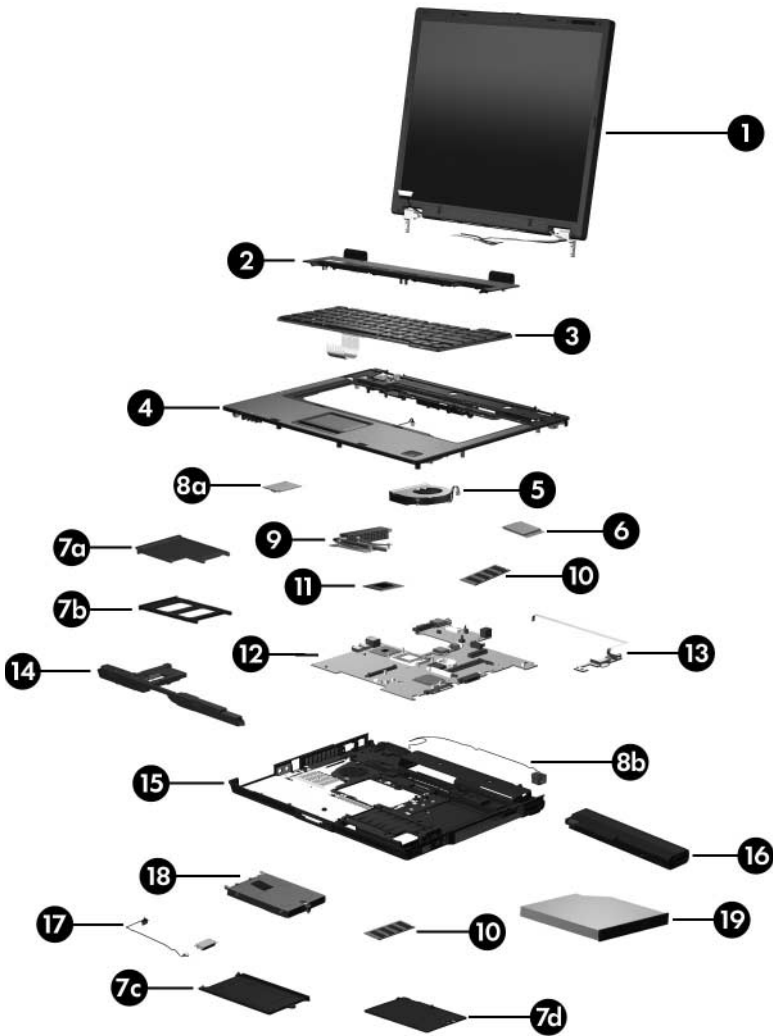
3.2 Computer Major Components



Computer Major Components

Table 3-1
Spare Parts: Computer Major Components

Item	Description	Spare Part Number		
1	Display assemblies (include wireless antenna transceivers and cables)			
	15.0-inch, SXGA+WVA, TFT	430869-001		
	15.0-inch, XGA, TFT, with BrightView	430868-001		
	15.0-inch, XGA, TFT	430867-001		
2	Switch covers (include LED board and LED board cable)			
	For use with HP Compaq nx6325 models	430878-001		
	For use with HP Compaq nx6315 models	430877-001		
3	Keyboards			
	Belgium	416039-A41	Norway	416039-091
	Brazil	416039-201	Portugal	416039-131
	Czech Republic	416039-221	Russia	416039-251
	Denmark	416039-081	Saudi Arabia	416039-171
	Europe	416039-021	Slovakia	416039-231
	France	416039-051	Slovenia	416039-BA1
	French Canada	416039-121	Spain	416039-071
	Germany	416039-041	Sweden	416039-B71
	Greece	416039-151	Switzerland	416039-111
	Hungary	416039-211	Taiwan	416039-AB1
	Iceland	416039-DD1	Thailand	416039-281
	Israel	416039-BB1	Turkey	416039-141
	Italy	416039-061	The United Kingdom	416039-031
	Japan	416039-291		
	Korea	416039-AD1	The United States	416039-001
	Latin America	416039-AB1		

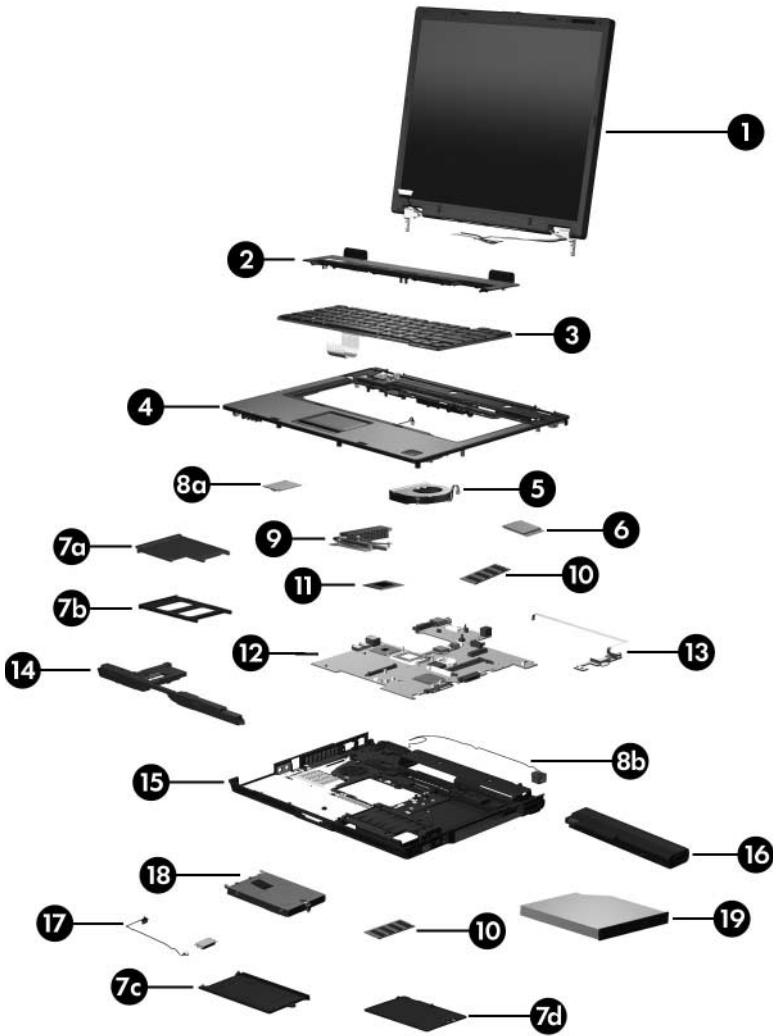


Computer Major Components

Table 3-1

Spare Parts: Computer Major Components (*Continued*)

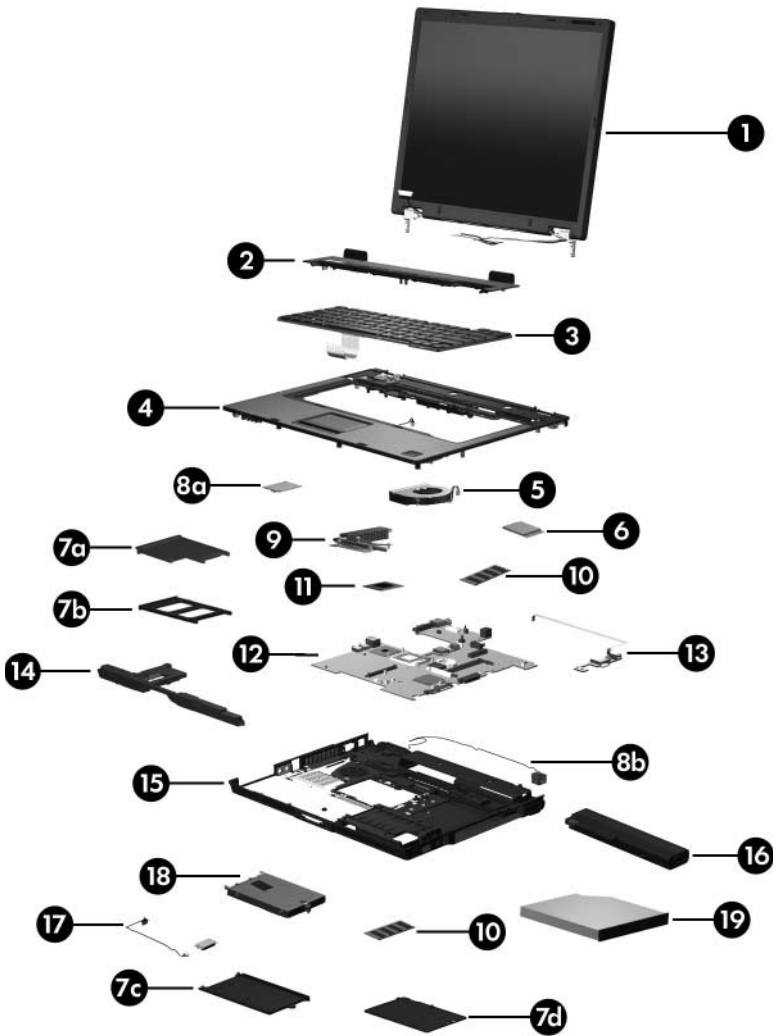
Item	Description	Spare Part Number		
4	Top covers (include TouchPad, bracket, and cable)			
	For use with HP Compaq nx6325 models	430866-001		
	For use with HP Compaq nx6315 models	430865-001		
	Fingerprint reader board (not illustrated; includes fingerprint reader board cable)	431964-001		
5	Fan	413696-001		
6	Mini Card modules			
	802.11a/b/g WLAN module for use in the United States and Canada	407254-001		
	802.11a/b/g WLAN module for use in Japan	407254-291		
	802.11a/b/g WLAN module for use in the countries listed below. These countries are categorized as the rest of the world (ROW).	407254-002		
	China	Honduras	Qatar	Uruguay
	Ecuador	Pakistan	South Korea	Venezuela
	Haiti	Peru		
	802.11b/g WLAN module for use in the United States and Canada	407253-001		
	802.1b/g WLAN module for use in Japan	407253-291		
	802.11b/g WLAN module for use in the ROW countries listed below:	407253-002		
	China	Honduras	Qatar	Uruguay
	Ecuador	Pakistan	South Korea	Venezuela
	Haiti	Peru		



Computer Major Components

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

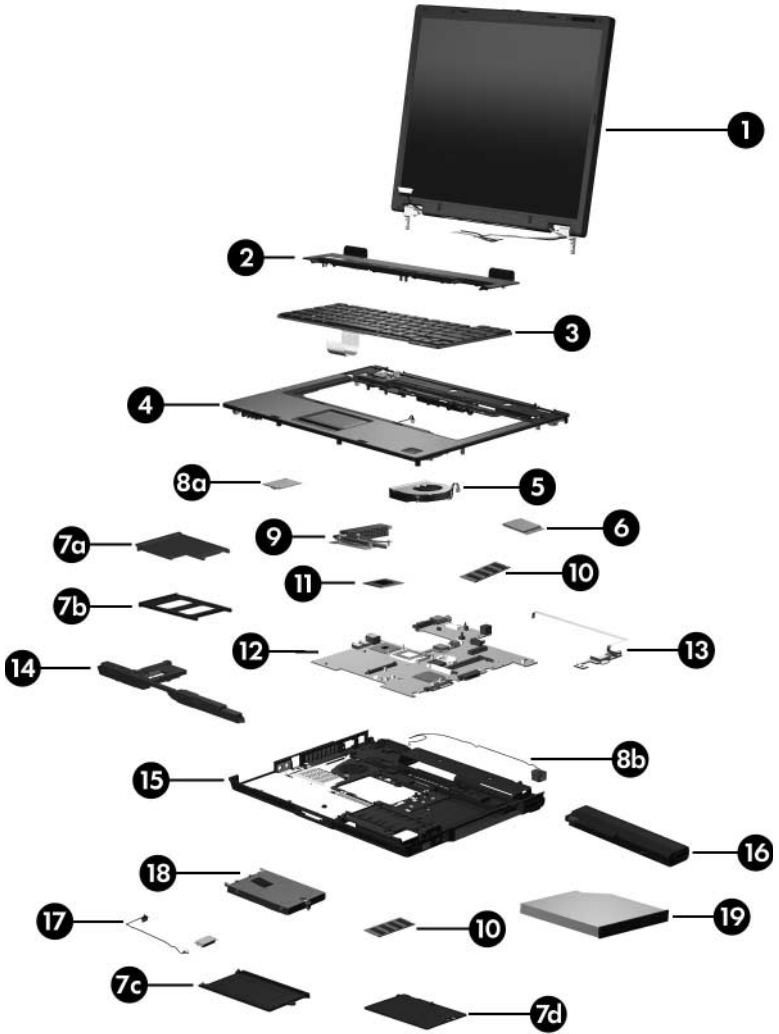
Item	Description	Spare Part Number
	Plastics Kit	430884-001
	Includes:	
7a	ExpressCard bezel	
7b	PC Card bezel	
7c	Hard drive cover (includes 2 captive screws, secured by C-clips)	
7d	Memory module compartment cover (includes 1 captive screw, captured by a C-clip)	
	Not illustrated:	
	Computer feet (6)	
8a	Modem module (includes modem module cable)	430881-001
8b	Modem module cable (included with modem module and also included in the Cables Kit, spare part number 430883-001)	
9	Heat sink (includes thermal paste)	430885-001
	Thermal Grease Kit (not illustrated)	413706-001
10	Memory modules	
	PC2-5300	
	1024-MB	414046-001
	512-MB	414045-001
	256-MB	414044-001



Computer Major Components

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

Item	Description	Spare Part Number
11	Processors (include thermal paste)	
	AMD Turion 64 ML-60 (2.00-GHz)	430876-001
	AMD Turion 64 ML-56 (1.80-GHz)	430875-001
	AMD Turion 64 ML-52 (1.60-GHz)	430874-001
	AMD Turion 64 ML-50 (1.60-GHz)	430873-001
	Mobile AMD Sempron 3500+ (1.80-GHz)	430872-001
	Mobile AMD Sempron 3400+ (1.80-GHz)	430871-001
	Mobile AMD Sempron 3200+ (1.60-GHz)	430870-001
	Thermal Grease Kit (not illustrated)	413706-001
12	System boards (include PC Card/ExpressCard assembly)	
	For use with HP Compaq nx6325 models	430864-001
	For use with HP Compaq nx6315 models	430863-001
13	USB/audio boards (include USB/audio board cable)	
	For use with HP Compaq nx6325 models	430882-001
	For use with HP Compaq nx6315 models	431965-001
14	Speaker	413697-001
15	Base enclosures	
	For use with HP Compaq nx6325 models	430880-001
	For use with HP Compaq nx6315 models	430879-001
16	Batteries	
	6-cell, 5.1-Ah	415306-001
	6-cell, 4.0-Ah	393652-001
17	Bluetooth® module (includes Bluetooth module cable)	398393-001



Computer Major Components

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

Item	Description	Spare Part Number
18	Hard drives (all 540 rpm, include frame)	
	100-GB	413853-001
	80-GB	413852-001
	60-GB	413851-001
	40-GB	413850-001
19	Optical drives (include bezel and optical drive bracket)	
	8X Max DVD±RW and CD-RW Combo Drive	431963-001
	4X Max DVD±RW and CD-RW Combo Drive	431961-001
	24X Max DVD/CD-RW Combo Drive	431962-001
	24X Max CD-ROM drive	431960-001

3.3 Plastics Kit

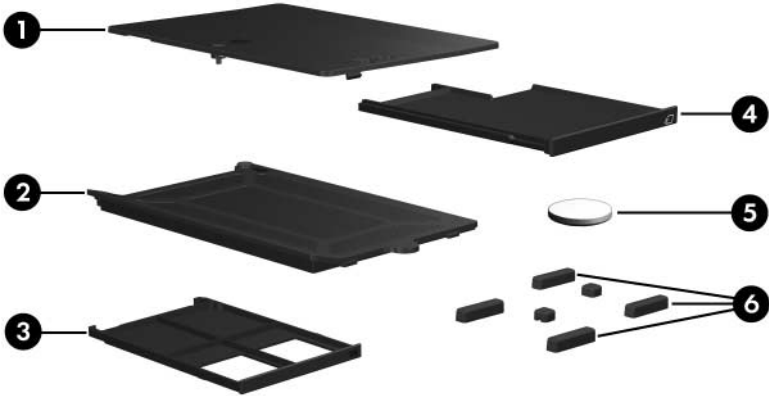


Table 3-2
Plastics Kit
Spare Part Number Information

Item	Description	Spare Part Number
	Plastics Kit	430884-001
	Includes:	
1	Memory module compartment cover (includes 1 captive screw, secured by a C-clip)	
2	Hard drive cover (includes 2 captive screws, secured by C-clips)	
3	PC Card bezel	
4	ExpressCard bezel	
5	RTC battery	
6	Computer feet (6)	

3.4 Cable Kit

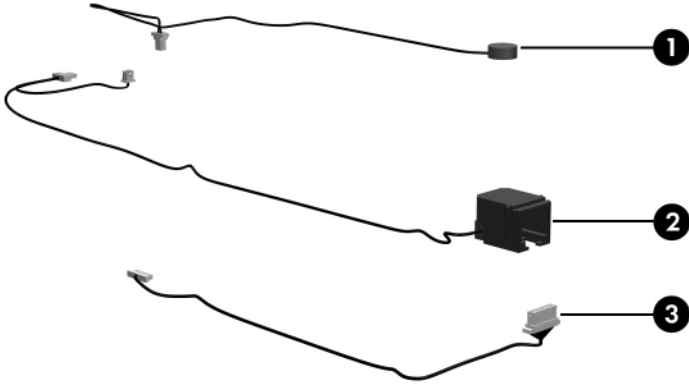


Table 3-3

Cable Kit

Spare Part Number Information

Item	Description	Spare Part Number
	Cable Kit	430883-001
	Includes:	
1	Microphone (for use only with HP Compaq nc6325 models)	
2	Modem module cable	
3	Bluetooth module cable	

3.5 Mass Storage Devices



Table 3-4
Mass Storage Devices
Spare Part Number Information

Item	Description	Spare Part Number
1	Hard drives (include frame)	
	100-GB	413853-001
	80-GB	413852-001
	60-GB	413851-001
	40-GB	413850-001
2	Optical drives (include bezel)	
	8X Max DVD±RW and CD-RW Combo Drive	431963-001
	4X Max DVD±RW and CD-RW Combo Drive	431961-001
	24X Max DVD/CD-RW Combo Drive	431962-001
	24X Max CD-ROM drive	431960-001

3.6 Miscellaneous (Not Illustrated)

Table 3-5
Miscellaneous (Not Illustrated)
Spare Part Information

Description	Spare Part Number
8-cell travel battery	367456-001
65-watt AC adapter	381090-001
External MultiBay II	366143-001
External MultiBay II power cable and stand	366144-001
HP Docking Station	413267-001
HP Docking Station 120 W AC adapter	391174-001
HP Docking Station Miscellaneous Plastics Kit	380089-001
MultiBay 8X DVD-ROM Drive (for use in External MultiBay II and HP Docking Station)	373314-001
MultiBay 24X DVD/CD-RW Combo Drive (for use in External MultiBay II and HP Docking Station)	373315-001
DVD±RW and CD-RW Double-Layer Combo Drive (for use in External MultiBay II and HP Docking Station)	375557-001
Nylon carrying case	325815-002

Table 3-5
Miscellaneous (Not Illustrated)
Spare Part Information (*Continued*)

Description	Spare Part Number
Power cords	
For use in:	
Australia	246959-011
Belgium, Europe, Finland, Germany, Greece, the Netherlands, Norway, Portugal, Spain, and Sweden	246959-021
Brazil	246959-201
Canada, French Canada, Latin America, Taiwan, and the United States	246959-001
Denmark	246959-081
Hong Kong and the United Kingdom	246959-031
Israel	246959-BB1
Italy	246959-061
Japan	246959-291
Korea	246959-AD1
Sweden	246959-AG1

Table 3-5
Miscellaneous (Not Illustrated)
Spare Part Information (*Continued*)

Description	Spare Part Number
Screw Kit (includes the following screws; refer to Appendix A, "Screw Listing," for more information on specifications and usage)	413705-001 and 432160-001
<ul style="list-style-type: none"> ■ Hex socket HM5.0x9.0 screw lock ■ Phillips PM2.5x13.0 spring-loaded screw ■ Phillips PM2.5x4.0 shoulder screw ■ Phillips PM2.5x4.0 screw ■ Phillips PM2.0x8.0 shoulder screw ■ Phillips PM2.0x7.0 screw 	<ul style="list-style-type: none"> ■ Phillips PM2.0x4.0 screw ■ Phillips PM2.0x3.0 screw ■ Phillips PM1.5x4.0 screw ■ Phillips PM1.5x3.5 screw ■ Torx8 T8M2.0x9.0 screw ■ Torx8 T8M2.0x4.0 screw ■ Torx8 T8M2.0x2.0 screw

3.7 Sequential Part Number Listing

Table 3-6
Sequential Part Number Listing

Spare Part Number	Description
246959-001	Power cord for use in Canada, French Canada, Latin America, Taiwan, and the United States
246959-011	Power cord for use in Australia
246959-021	Power cord for use in Belgium, Europe, Finland, Germany, Greece, the Netherlands, Norway, Portugal, Spain, and Sweden
246959-031	Power cord for use in Hong Kong and the United Kingdom
246959-061	Power cord for use in Italy
246959-081	Power cord for use in Denmark
246959-201	Power cord for use in Brazil
246959-291	Power cord for use in Japan
246959-AD1	Power cord for use in Korea
246959-AG1	Power cord for use in Sweden
246959-BB1	Power cord for use in Israel
325815-002	Nylon carrying case
366143-001	External MultiBay II
366144-001	External MultiBay II power cable and stand
367456-001	8-cell travel battery
373314-001	MultiBay 8X DVD-ROM Drive (for use in External MultiBay II and HP Docking Station)
373315-001	MultiBay 24X DVD/CD-RW Combo Drive (for use in External MultiBay II and HP Docking Station)

Table 3-6
Sequential Part Number Listing (Continued)

Spare Part Number	Description
375557-001	DVD±RW and CD-RW Double Layer Combo Drive (for use in External MultiBay II and HP Docking Station)
380089-001	HP Docking Station Miscellaneous Plastics Kit
381090-001	65-watt AC adapter
391174-001	HP Docking Station 120 W AC adapter
393652-001	6-cell, 4.0-Ah battery
398393-001	Bluetooth module (includes Bluetooth module cable)
407253-001	802.11b/g WLAN Mini Card module for use in the United States and Canada
407253-002	802.11b/g WLAN Mini Card module for use in the ROW countries listed below:
	China Honduras Qatar Uruguay Ecuador Pakistan South Korea Venezuela Haiti Peru
407253-291	802.11b/g WLAN Mini Card module for use Japan
407254-001	802.11a/b/g WLAN Mini Card module for use in the United States and Canada
407254-002	802.11a/b/g WLAN Mini Card module for use in the ROW countries listed below:
	China Honduras Qatar Uruguay Ecuador Pakistan South Korea Venezuela Haiti Peru
407254-291	802.11a/b/g WLAN Mini Card module for use Japan
413267-001	HP Docking Station
413696-001	Fan
413697-001	Speaker

Table 3-6
Sequential Part Number Listing (*Continued*)

Spare Part Number	Description
413705-001	Screw Kit
413706-001	Thermal Grease Kit
413850-001	5400-rpm, 40-GB hard drive (includes frame)
413851-001	5400-rpm, 60-GB hard drive (includes frame)
413852-001	5400-rpm, 80-GB hard drive (includes frame)
413853-001	5400-rpm, 100-GB hard drive (includes frame)
414044-001	PC2-5300, 256-MB memory module
414045-001	PC2-5300, 512-MB memory module
414046-001	PC2-5300, 1024-MB memory module
415306-001	6-cell, 5.1-Ah battery
430863-001	System board for use with HP Compaq nx6315 models
430864-001	System board or use with HP Compaq nx6325 models
430865-001	Top cover for use with HP Compaq nx6315 models (includes TouchPad, bracket, and cable)
430866-001	Top cover for use with HP Compaq nx6325 models (includes TouchPad, bracket, and cable)
430867-001	15.0-inch XGA, TFT display assembly (includes wireless antenna transceivers and cables)
430868-001	15.0-inch XGA, TFT display assembly with BrightView (includes wireless antenna transceivers and cables)
430869-001	15.0-inch, SXGA+WVA, TFT display assembly (includes wireless antenna transceivers and cables)
430870-001	Mobile AMD Sempron 3200+ (1.60-GHz) processor
430871-001	Mobile AMD Sempron 3400+ (1.80-GHz) processor

Table 3-6
Sequential Part Number Listing (*Continued*)

Spare Part Number	Description
430872-001	Mobile AMD Sempron 3500+ (1.80-GHz) processor
430873-001	AMD Turion TL-60 (1.60-GHz) processor
430874-001	AMD Turion TL-56 (1.60-GHz) processor
430875-001	AMD Turion TL-52 (1.80-GHz) processor
430876-001	AMD Turion TL-50 (2.00-GHz) processor
430877-001	Switch cover for use with HP Compaq nx6315 models (includes LED board and LED board cable)
430878-001	Switch cover for use with HP Compaq nx6325 models (includes LED board and LED board cable)
430879-001	Base enclosure for use with HP Compaq nx6315 models
430880-001	Base enclosure for use with HP Compaq nx6325 models
430881-001	Modem module (includes modem module cable)
430882-001	USB/audio board for use with HP Compaq nx6325 models (includes USB/audio board cable)
430883-001	Screw Kit
430885-001	Heat sink (includes thermal paste)
431960-001	24X Max CD-ROM drive
431961-001	4X Max DVD±RW and CD-RW Combo Drive
431962-001	24X Max DVD/CD-RW Combo Drive
431963-001	8X Max DVD±RW and CD-RW Combo Drive
431964-001	Fingerprint reader board (includes fingerprint reader board cable)
431965-001	USB/audio board for use with HP Compaq nx6315 models (includes USB/audio board cable)

Table 3-6
Sequential Part Number Listing (*Continued*)

Spare Part Number	Description
432160-001	Plastics Kit
416039-001	Keyboard for use with models with TouchPad and fingerprint reader in the United States
416039-021	Keyboard for use with models with TouchPad and fingerprint reader in Europe
416039-031	Keyboard for use with models with TouchPad and fingerprint reader in the United Kingdom
416039-041	Keyboard for use with models with TouchPad and fingerprint reader in Germany
416039-051	Keyboard for use with models with TouchPad and fingerprint reader in France
416039-061	Keyboard for use with models with TouchPad and fingerprint reader in Italy
416039-071	Keyboard for use with models with TouchPad and fingerprint reader in Spain
416039-081	Keyboard for use with models with TouchPad and fingerprint reader in Denmark
416039-091	Keyboard for use with models with TouchPad and fingerprint reader in Norway
416039-111	Keyboard for use with models with TouchPad and fingerprint reader in Switzerland
416039-121	Keyboard for use with models with TouchPad and fingerprint reader in French Canada
416039-131	Keyboard for use with models with TouchPad and fingerprint reader in Portugal
416039-141	Keyboard for use with models with TouchPad and fingerprint reader in Turkey

Table 3-6
Sequential Part Number Listing (*Continued*)

Spare Part Number	Description
416039-151	Keyboard for use with models with TouchPad and fingerprint reader in Greece
416039-161	Keyboard for use with models with TouchPad and fingerprint reader in Latin America
416039-171	Keyboard for use with models with TouchPad and fingerprint reader in Saudi Arabia
416039-201	Keyboard for use with models with TouchPad and fingerprint reader in Brazil
416039-211	Keyboard for use with models with TouchPad and fingerprint reader in Hungary
416039-221	Keyboard for use with models with TouchPad and fingerprint reader in the Czech Republic
416039-231	Keyboard for use with models with TouchPad and fingerprint reader in Slovakia
416039-251	Keyboard for use with models with TouchPad and fingerprint reader in Russia
416039-281	Keyboard for use with models with TouchPad and fingerprint reader in Thailand
416039-291	Keyboard for use with models with TouchPad and fingerprint reader in Japan
416039-A41	Keyboard for use with models with TouchPad and fingerprint reader in Belgium
416039-AB1	Keyboard for use with models with TouchPad and fingerprint reader in Taiwan
416039-AD1	Keyboard for use with models with TouchPad and fingerprint reader in Korea
416039-B71	Keyboard for use with models with TouchPad and fingerprint reader in Sweden

Table 3-6
Sequential Part Number Listing (*Continued*)

Spare Part Number	Description
416039-BA1	Keyboard for use with models with TouchPad and fingerprint reader in Slovenia
416039-BB1	Keyboard for use with models with TouchPad and fingerprint reader in Israel
416039-DD1	Keyboard for use with models with TouchPad and fingerprint reader in Iceland
432160-001	Screw Kit

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
- Torx8 screwdriver
- 5.0-mm socket for system board screwlocks
- Flat-bladed screwdriver

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



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

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. Be sure 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.

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, and then shut it down through the operating system.
- Before removing a diskette drive or optical drive, be sure that a diskette or disc is not in the drive and be sure that the optical drive tray is closed.
- Before handling a drive, be sure that you are discharged of static electricity. While handling a drive, avoid touching the connector.
- Handle drives on surfaces covered with at least one inch of shock-proof foam.
- Avoid dropping drives from any height onto any surface.
- After removing a hard drive, an optical 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 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 might not be affected at all and can work perfectly throughout a normal cycle. Or the device might 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. Be sure 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-shielding material (refer to [Table 4-2, “Static-Shielding Materials”](#)).
- 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 fixtures must directly contact dissipative surfaces, use fixtures made only 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 $\pm 10\%$ 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, use alligator clips to connect a wrist strap.
- 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

Event	Relative Humidity		
	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 V.

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

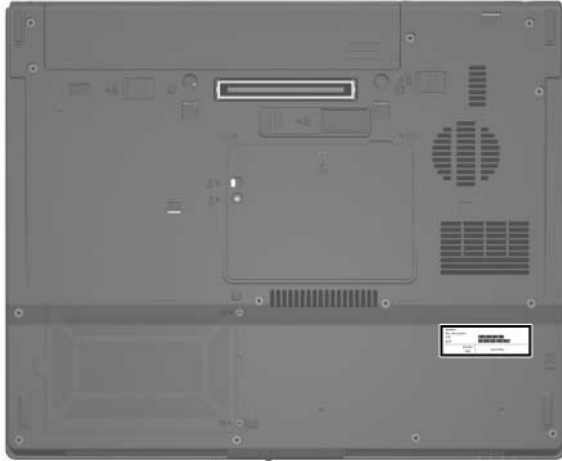
This chapter provides removal and replacement procedures.

There are as many as 50 screws and screw locks, in 9 different sizes, that must be removed, replaced, or loosened when servicing the computer. Make special note of each screw and screw lock size and location during removal and replacement.

Refer to [Appendix A, “Screw Listing”](#) for detailed information on screw and screw lock sizes, locations, and usage.

5.1 Serial Number

Report the computer serial number to HP when requesting information or ordering spare parts. The serial number is located on the bottom of the computer.




Serial Number Location

5.2 Disassembly Sequence Chart

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

Disassembly Sequence Chart		
Section	Description	# of Screws Removed
5.3	Preparing the Computer for Disassembly	
	Battery	0
5.4	Hard Drive	2 loosened to remove the hard drive cover 1 loosened to remove the hard drive 4 to remove the hard drive frame
5.5	Computer Feet	0
5.6	Bluetooth Module	0
5.7	External Memory Module	1 loosened to remove the memory module compartment cover
5.8	Optical Drive	1 to remove the optical drive 2 to remove the optical drive bracket
5.9	Keyboard	2
5.10	Fan	2 loosened
5.11	Heat Sink	4
5.12	Processor	1 loosened
5.13	RTC Battery	0

Disassembly Sequence Chart (*Continued*)

Section	Description	# of Screws Removed
5.14	<p>Mini Card WLAN Module</p> <p> To prevent an unresponsive system and the display of a warning message, install only a Mini Card device authorized for use in your computer by the governmental agency that regulates wireless devices in your country. If you install a device and then receive a warning message, remove the device to restore computer functionality. Then contact Customer Care.</p>	2
5.15	Internal Memory Module	0
5.16	Switch Cover	2
5.17	Display Assembly	6
5.18	Top Cover	15
5.19	Speaker	0
5.20	Microphone	0
5.21	Modem Module	2
5.22	USB/Audio Board	1
5.23	System Board	2 screw locks

5.3 Preparing the Computer for Disassembly

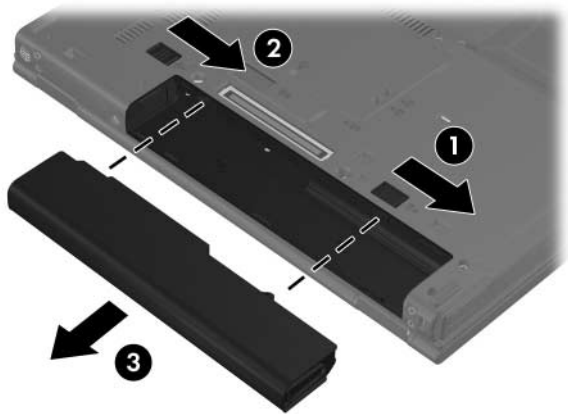
Before you begin any removal or installation procedures:

1. Shut down the computer. If you are unsure whether the computer is off or in hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power cord.

Battery Spare Part Number Information

6-cell, 5.1-Ah	415306-001
6-cell, 4.0-Ah	393652-001

4. Remove the battery by following these steps:
 - a. Turn the computer upside down with the rear panel toward you.
 - b. Slide the battery release latch on the right **1** and then the battery release latch on the left **2** to release the battery.
 - c. Slide the battery **3** straight back and remove it.



Removing the Battery

Reverse the above procedure to install the battery.

5.4 Hard Drive

Hard Drive Spare Part Number Information

Hard drives (all 540 rpm, include frame)

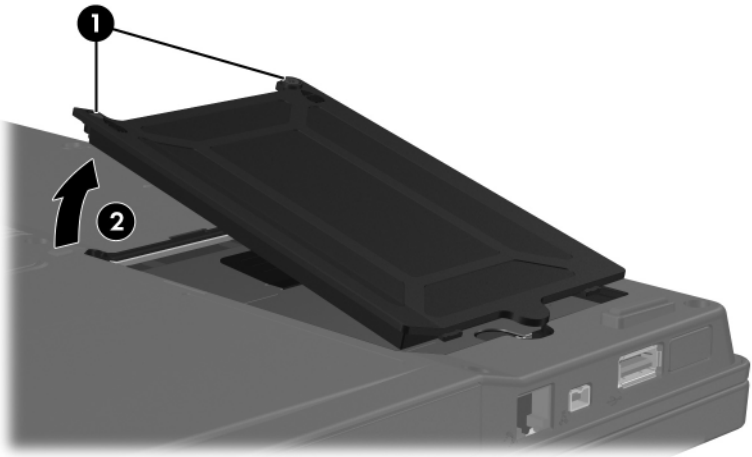
100-GB	413853-001
80-GB	413852-001
60-GB	413851-001
40-GB	413850-001

1. Prepare the computer for disassembly (refer to [Section 5.3](#)).
2. Position the computer with the front toward you.

3. Loosen the two Phillips PM2.0×5.0 screws ❶ that secure the hard drive cover to the computer.
4. Lift the right side of the hard drive cover ❷ and swing it up and to the left.
5. Remove the hard drive cover.

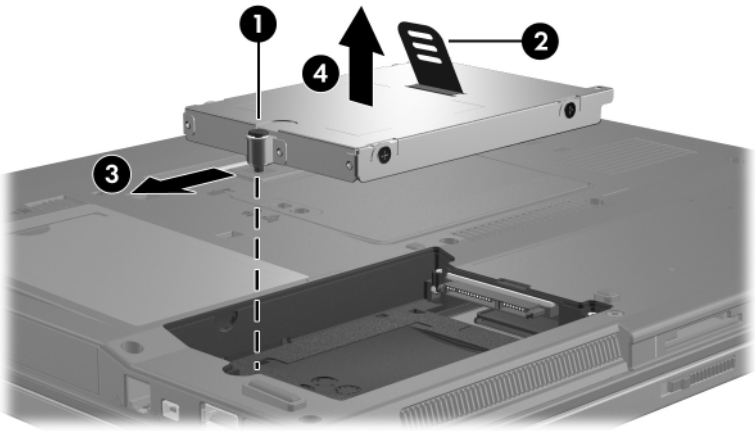


The hard drive cover is included in the Plastics Kit, spare part number 430884-001.



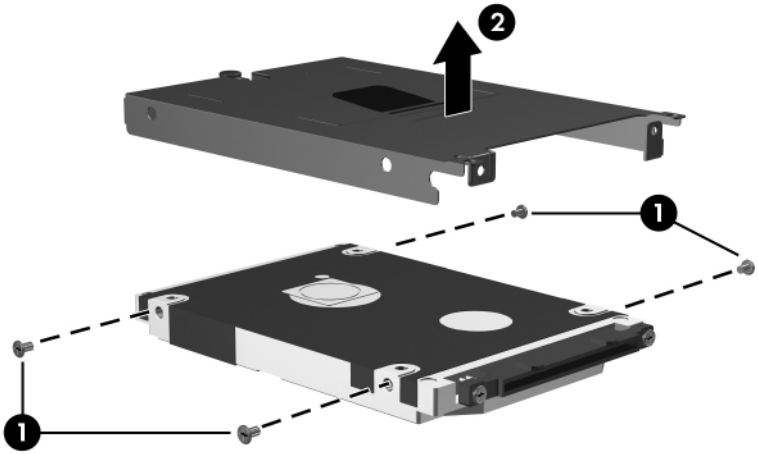
Removing the Hard Drive Cover

6. Loosen the Phillips PM2.5×13.0 spring-loaded hard drive retention screw ❶.
7. Grasp the mylar tab ❷ on the hard drive and slide the hard drive ❸ to the right to disconnect it from the system board.
8. Remove the hard drive ❹ from the hard drive bay.



Removing the Hard Drive

9. Remove the four Phillips PM3.0×4.0 hard drive frame screws ❶ from each side of the hard drive.
10. Lift the frame ❷ straight up to remove it from the hard drive.

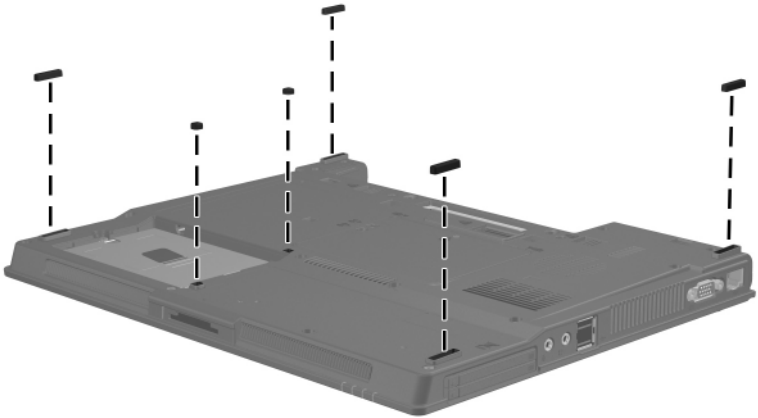


Removing the Hard Drive Frame

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

5.5 Computer Feet

The computer feet are adhesive-backed rubber pads. The feet are included in the Plastics Kit, spare part number 430884-001.



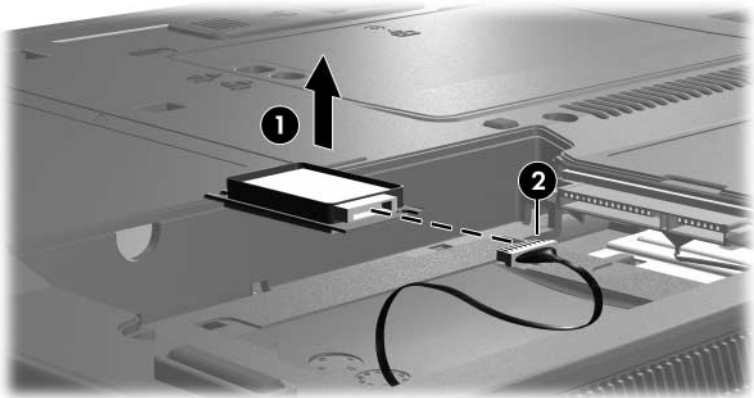
Replacing the Computer Feet

5.6 Bluetooth Module

Bluetooth Module Spare Part Number Information

Bluetooth module (includes Bluetooth module cable)	398393-001
--	------------

1. Prepare the computer for disassembly (refer to [Section 5.3](#)).
2. Remove the hard drive ([Section 5.4](#)).
3. Slide the Bluetooth module ❶ out of the clip in the hard drive compartment.
4. Disconnect the Bluetooth cable ❷ from the module.



Removing the Bluetooth Module

Reverse the above procedure to install a Bluetooth module.

5.7 External Memory Module

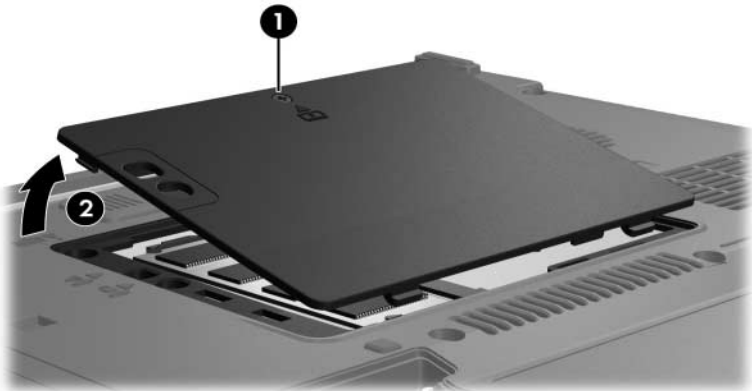
Memory Module Spare Part Number Information

PC2-5300	
1024-MB	414046-001
512-MB	414045-001
256-MB	414044-001

1. Prepare the computer for disassembly (refer to [Section 5.3](#)).
2. Position the computer with the front toward you.
3. Loosen the Phillips PM2.0×5.0 screw ❶ that secures the memory module compartment cover to the computer.
4. Lift the rear edge of the cover ❷ up and swing it toward you.
5. Remove the memory module compartment cover.



The memory module compartment cover is included in the Plastics Kit, spare part number 430884-001.

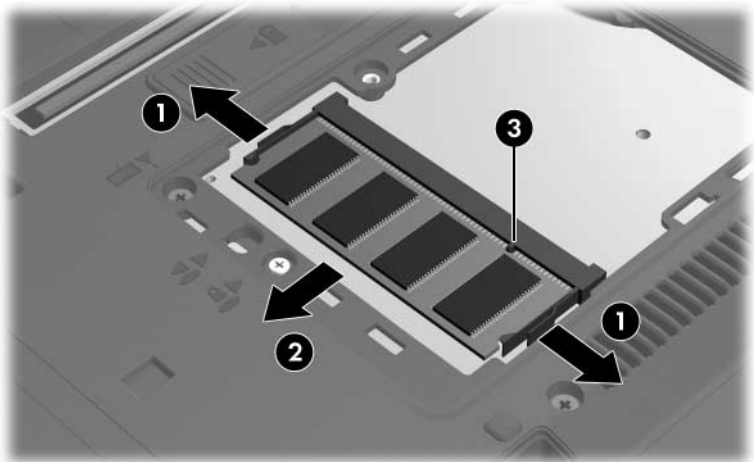


Removing the Memory Module Compartment Cover

6. Spread the retaining tabs **1** on each side of the memory module socket to release the memory module. (The edge of the module opposite the socket rises away from the computer.)
7. Slide the module **2** away from the socket at an angle.
8. Remove the memory module.



Memory modules are designed with a notch **3** to prevent incorrect installation into the memory module socket.



Removing the Memory Module

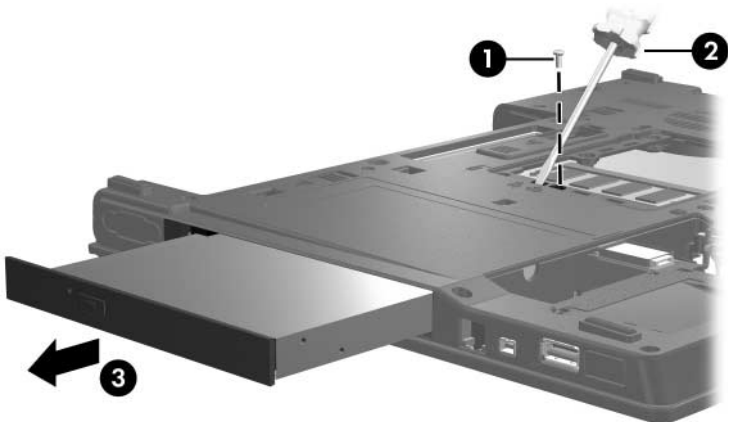
Reverse the above procedure to install a memory module.

5.8 Optical Drive

Optical Drive Spare Part Number Information

8X Max DVD±RW and CD-RW Combo Drive	431963-001
4X Max DVD±RW and CD-RW Combo Drive	431961-001
24X Max DVD/CD-RW Combo Drive	431962-001
24X Max CD-ROM drive	431960-001

1. Prepare the computer for disassembly ([Section 5.3](#)).
2. Position the computer with the right side toward you.
3. Remove the Torx8 T8M2.0×9.0 screw **❶** that secures the optical drive to the computer.
4. Insert a flat-bladed driver into the slot **❷** on the bottom of the computer and push the tab.
5. Remove the optical drive **❸** from the computer.



Removing the Optical Drive

6. If it is necessary to replace the optical drive bracket, remove the two Phillips PM2.0×4.0 screws **1** that secure the bracket to the optical drive.
7. Remove the optical drive bracket **2**.



Removing the Optical Drive

Reverse the above procedure to reassemble and install an optical drive.

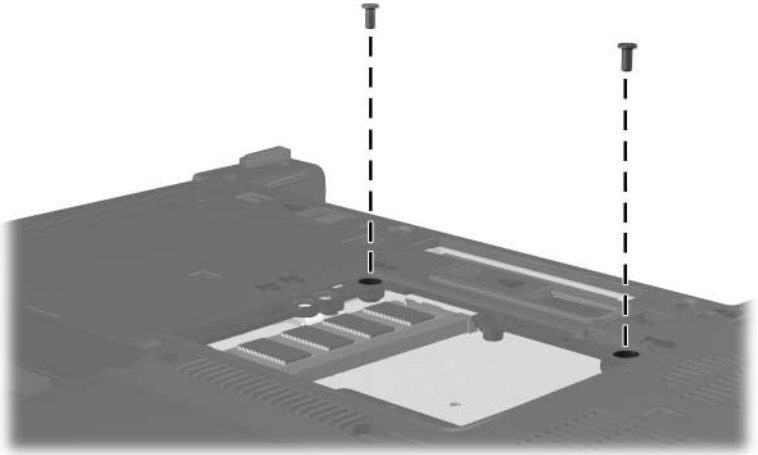
5.9 Keyboard

Keyboard Spare Part Number Information

Belgium	416039-A41	Latin America	416039-161
Brazil	416039-201	Norway	416039-091
Czech Republic	416039-221	Portugal	416039-131
Denmark	416039-081	Russia	416039-251
Europe	416039-021	Saudi Arabia	416039-171
France	416039-051	Slovakia	416039-231
French Canada	416039-121	Slovenia	416039-BA1
Germany	416039-041	Spain	416039-071
Greece	416039-151	Sweden	416039-B71
Hungary	416039-211	Switzerland	416039-111
Iceland	416039-DD1	Taiwan	416039-AB1
Israel	416039-BB1	Thailand	416039-281
Italy	416039-061	Turkey	416039-141
Japan	416039-291	The United Kingdom	416039-031
Korea	416039-AD1	The United States	416039-001

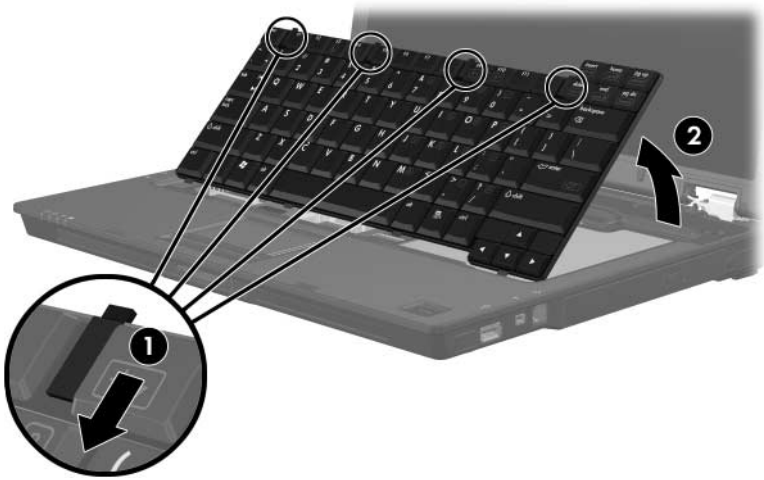
1. Prepare the computer for disassembly ([Section 5.3](#)).
2. Remove the memory module compartment cover ([Section 5.7](#)).

3. Remove the two Torx8 T8M2.0×9.0 screws that secure the keyboard to the computer.



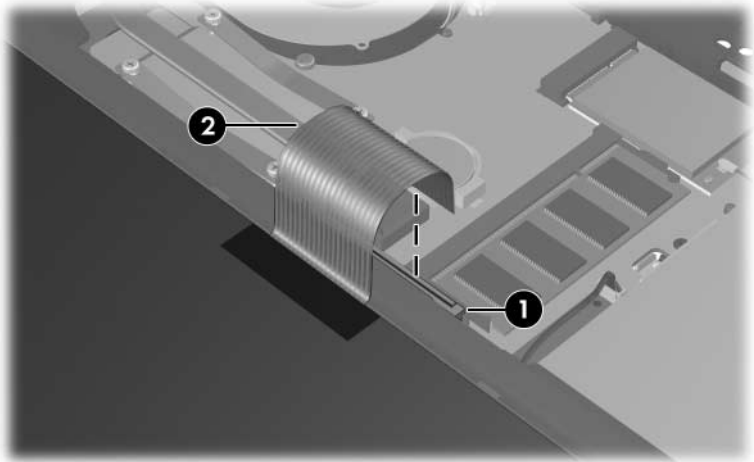
Removing the Keyboard Screws

4. Turn the computer display-side up with the front toward you.
5. Open the computer as far as possible.
6. Slide the four keyboard retaining latches **1** toward you.
7. Lift the rear edge of the keyboard **2** and swing it forward until it rests on the palm rest.



Releasing the Keyboard

8. Release the ZIF connector **1** to which the pointing stick cable is attached and disconnect the pointing stick cable **2**.



Disconnecting the Keyboard Cable

9. Remove the keyboard.

Reverse the above procedure to install the keyboard.

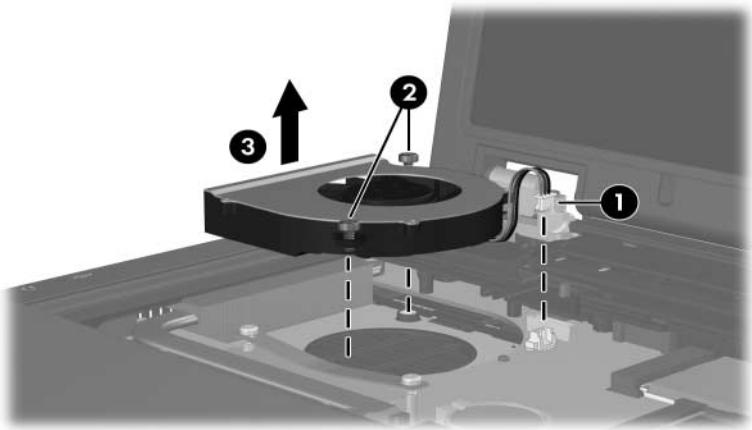
5.10 Fan

Fan Spare Part Number Information

Fan

413696-001

1. Prepare the computer for disassembly ([Section 5.3](#)).
2. Release the keyboard ([Section 5.9](#)).
3. Disconnect the fan cable ❶ from the system board.
4. Loosen the two Phillips PM2.0×7.0 screws ❷ that secure the fan to the computer.
5. Remove the fan ❸.



Removing the Fan

Reverse the above procedure to install the fan.

5.11 Heat Sink

Heat Sink Spare Part Number Information

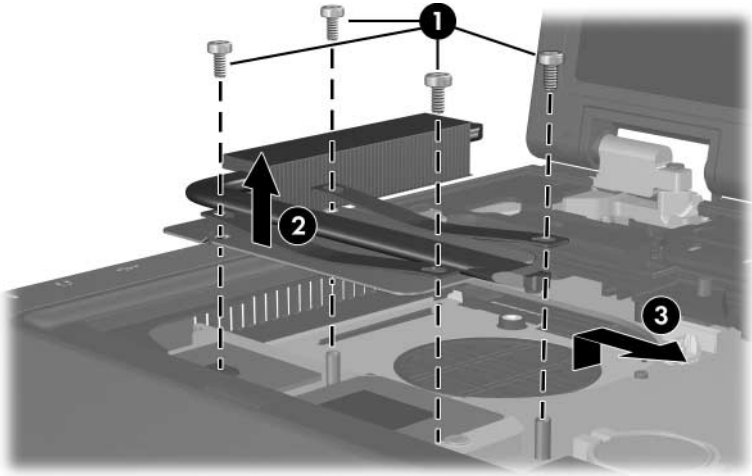
Heat sink (includes thermal paste)	430885-001
Thermal Grease Kit (not illustrated)	413706-001

1. Prepare the computer for disassembly ([Section 5.3](#)).
2. Release the keyboard ([Section 5.9](#)).
3. Remove the fan ([Section 5.10](#)).

4. Remove the four Phillips PM2.0×6.0 screws **1** that secure the heat sink to the computer.
5. Lift the right side of the heat sink **2** to disengage it from the processor.
6. Slide the heat sink **3** to the right to remove it.



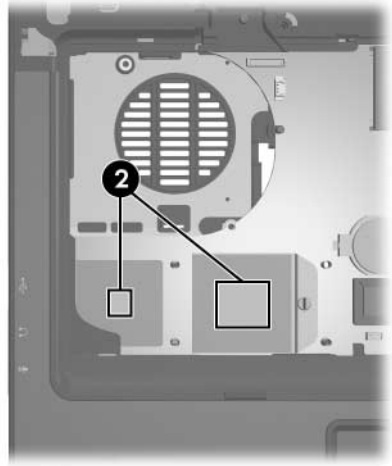
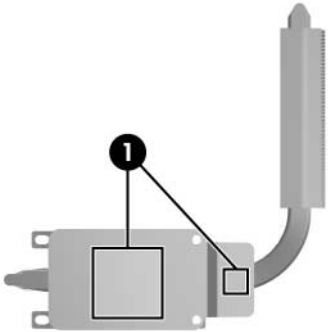
Due to the adhesive quality of the thermal paste located between the heat sink and processor, it may be necessary to move the heat sink from side to side to detach the heat sink from the processor.



Removing the Heat Sink



The thermal paste and thermal pads should be thoroughly cleaned from the surfaces of the heat sink **1** and system board components **2** each time the heat sink is removed. Thermal paste and pads are included with the heat sink and all processor spare part kits.



Thermal Paste and Pad Locations

Reverse the above procedure to install the heat sink.

5.12 Processor

Processor Spare Part Number Information

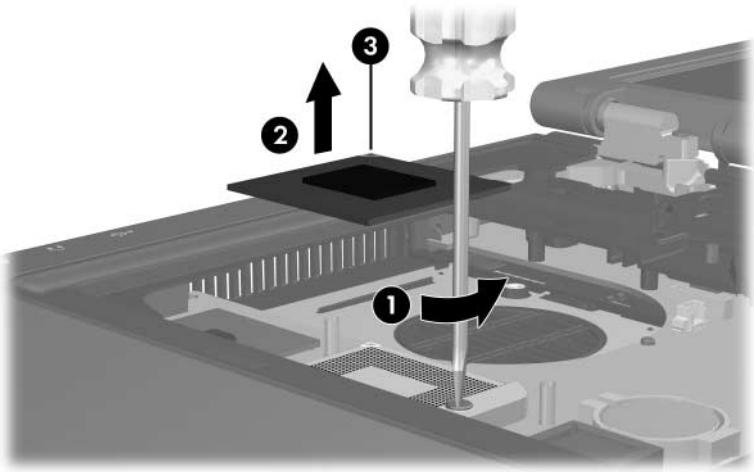
AMD Turion 64 ML-60 (2.00-GHz)	430876-001
AMD Turion 64 ML-56 (1.80-GHz)	430875-001
AMD Turion 64 ML-52 (1.60-GHz)	430874-001
AMD Turion 64 ML-50 (1.60-GHz)	430873-001
Mobile AMD Sempron 3500+ (1.80-GHz)	430872-001
Mobile AMD Sempron 3400+ (1.80-GHz)	430871-001
Mobile AMD Sempron 3200+ (1.60-GHz)	430870-001

1. Prepare the computer for disassembly ([Section 5.3](#)).
2. Release the keyboard ([Section 5.9](#)).
3. Remove the fan ([Section 5.10](#)).
4. Remove the heat sink ([Section 5.11](#)).

5. Use a flat-bladed screwdriver to turn the processor locking screw **1** one-half turn counterclockwise until you hear a click.
6. Lift the processor **2** straight up and remove it.



The gold triangle **3** on the processor should be located in the left-rear corner of the processor socket when you install the processor.



Removing the Processor

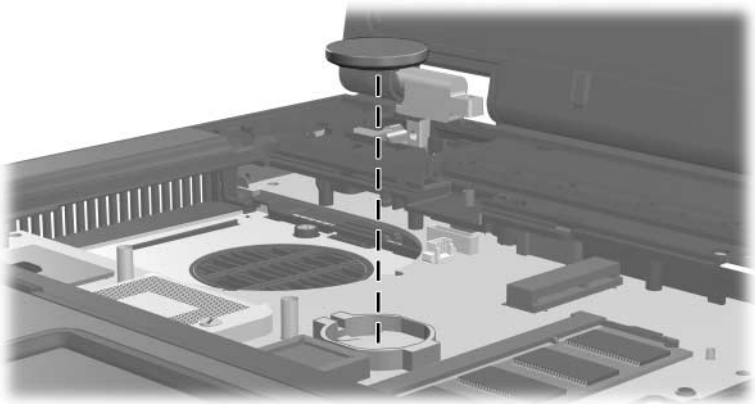
Reverse the above procedure to install the processor.

5.13 RTC Battery



The RTC battery is included in the Plastics Kit, spare part number 430884-001.

1. Prepare the computer for disassembly ([Section 5.3](#)).
2. Release the keyboard ([Section 5.9](#)).
3. Remove the RTC battery from the socket on the system board.



Removing the RTC Battery

Reverse the above procedure to install the RTC battery. Be sure that the RTC battery is installed with the “+” sign facing up.

5.14 Mini Card WLAN Module

Mini Card WLAN Module Spare Part Number Information

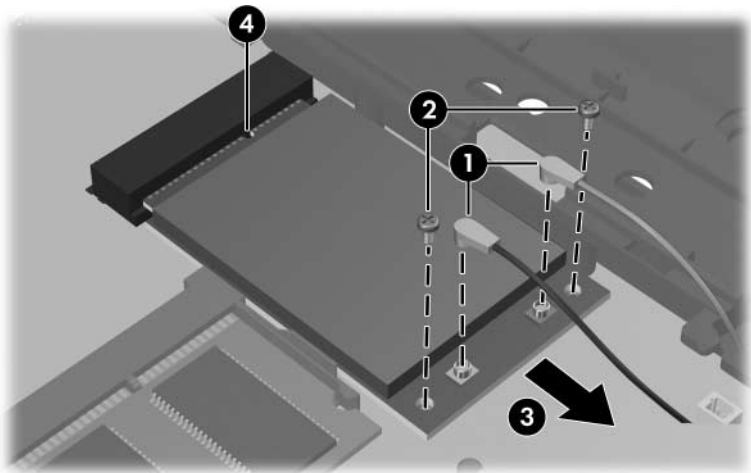
802.11a/b/g WLAN module for use in the United States and Canada	407254-001		
802.11a/b/g WLAN module for use in Japan	407254-291		
802.11a/b/g WLAN module for use in the ROW countries listed below:	407254-002		
China	Honduras	Qatar	Uruguay
Ecuador	Pakistan	South Korea	Venezuela
Haiti	Peru		
802.11b/g WLAN module for use in the United States and Canada	407253-001		
802.11b/g WLAN module for use in Japan	407253-291		
802.11b/g WLAN module for use in the ROW countries listed below:	407253-002		
China	Honduras	Qatar	Uruguay
Ecuador	Pakistan	South Korea	Venezuela
Haiti	Peru		

1. Prepare the computer for disassembly ([Section 5.3](#)).
2. Release the keyboard ([Section 5.9](#)).
3. Position the computer with the front toward you.

4. Make note of which antenna cable is attached to which antenna clip on the Mini Card WLAN module before disconnecting the cables, then disconnect the auxiliary and main antenna cables ❶ from the module.
5. Remove the two Phillips PM2.5×4.0 screws ❷ that secure the Mini Card WLAN module to the computer.
6. Remove the Mini Card WLAN module ❸ by pulling the module from the socket at an angle.



Mini Card WLAN modules are designed with a notch ❹ to prevent incorrect installation.



Removing a Mini Card WLAN Module

Reverse the above procedure to install a Mini Card WLAN module.

5.15 Internal Memory Module

Memory Module Spare Part Number Information

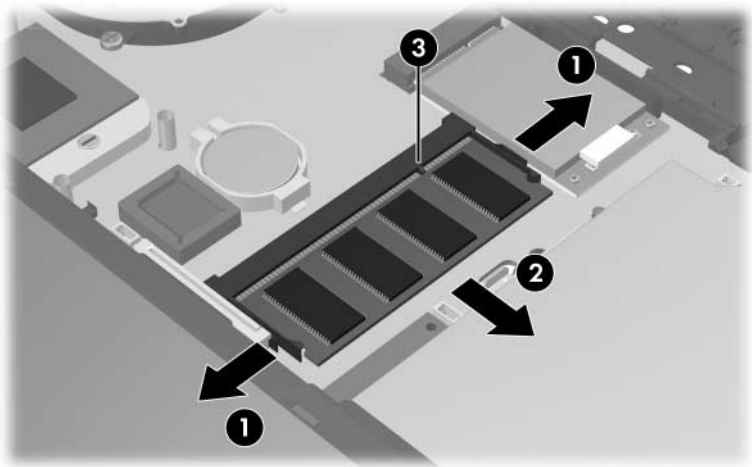
PC2-5300	
1024-MB	414046-001
512-MB	414045-001
256-MB	414044-001

1. Prepare the computer for disassembly ([Section 5.3](#)).
2. Release the keyboard ([Section 5.9](#)).

3. Spread the retaining tabs **1** on each side of the memory module socket to release the memory module. (The edge of the module opposite the socket rises away from the computer.)
4. Slide the module **2** away from the socket at an angle.
5. Remove the memory module.



Memory modules are designed with a notch **3** to prevent incorrect installation into the memory module socket.



Removing the Memory Module

Reverse the above procedure to install a memory module.

5.16 Switch Cover

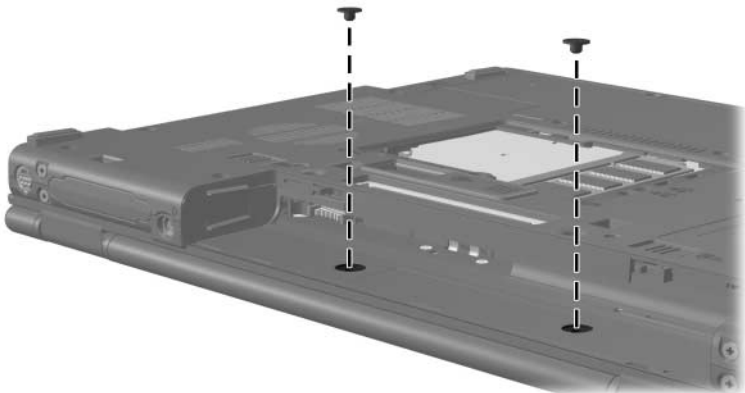


Both switch cover spare part kits include an LED board and LED board cable.

Switch Cover Spare Part Number Information

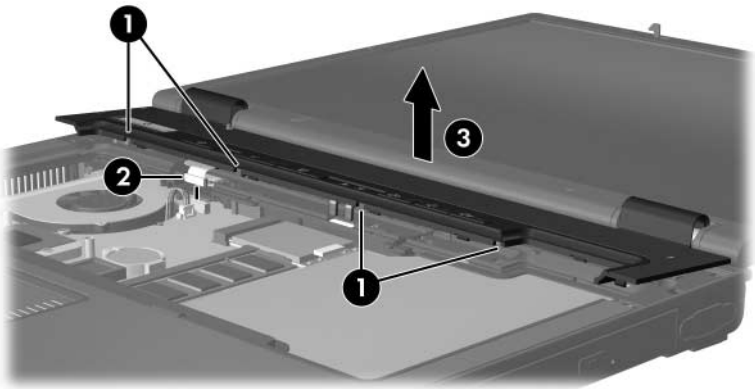
For use with HP Compaq nx6325 models	430878-001
For use with HP Compaq nx6315 models	430877-001

1. Prepare the computer for disassembly ([Section 5.3](#)).
2. Remove the keyboard ([Section 5.9](#)).
3. Turn the computer upside down with the rear panel toward you.
4. Remove the two Torx8 T8M2.5×2.0 screws that secure the switch cover to the computer.



Removing the Switch Cover Screws

5. Turn the computer display-side up with front toward you.
6. Open the computer as far as possible.
7. Disconnect the LED board cable ❶ from the system board.
8. Insert a flat-bladed screwdriver into the four notches ❷ on the front edge of the switch cover ❸ and lift up until the cover disengages from the computer.
9. Remove the switch cover.



Removing the Switch Cover

Reverse the above procedure to install the switch cover.

5.17 Display Assembly

Display Assembly Spare Part Number Information

15.0-inch, SXGA+WVA, TFT	430869-001
15.0-inch, XGA, TFT, with BrightView	430868-001
15.0-inch, XGA, TFT	430867-001


1. Prepare the computer for disassembly ([Section 5.3](#)).
2. Remove the keyboard ([Section 5.9](#)).
3. Disconnect the wireless antenna cables from the Mini Card WLAN module ([Section 5.14](#)).
4. Remove the switch cover ([Section 5.16](#)).

5. Remove the four Torx8 T82.5×9.0 screws that secure the display assembly to the computer.

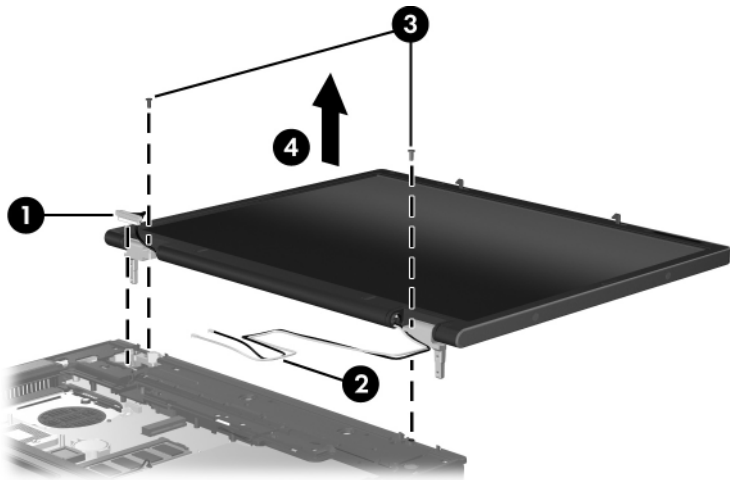


Removing the Display Assembly Screws

6. Turn the computer display-side up with the front toward you.
7. Open the computer as far as possible.

 **CAUTION:** Support the display assembly when removing the following screws. Failure to support the display assembly can result in damage to the display assembly and other computer components.

8. Disconnect the display cable ❶ from the system board.
9. Remove the wireless antenna cables ❷ from the clips in the top cover.
10. Remove the two Torx8 T8M2.5×9.0 screws ❸ that secure the display assembly to the computer.
11. Lift the display assembly ❹ straight up and remove it.



Removing the Display Assembly

Reverse the above procedure to reassemble and install the display assembly

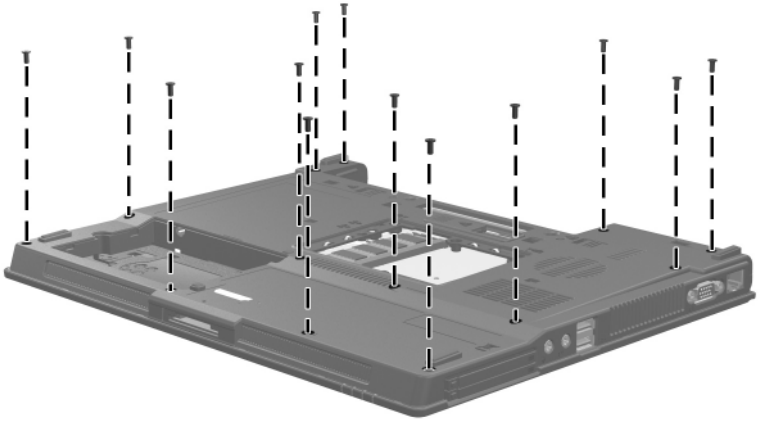
5.18 Top Cover

Top Cover Spare Part Number Information

For use with HP Compaq nx6325 models	430866-001
For use with HP Compaq nx6315 models	430865-001
Fingerprint reader board (not illustrated; includes fingerprint reader board cable)	431964-001

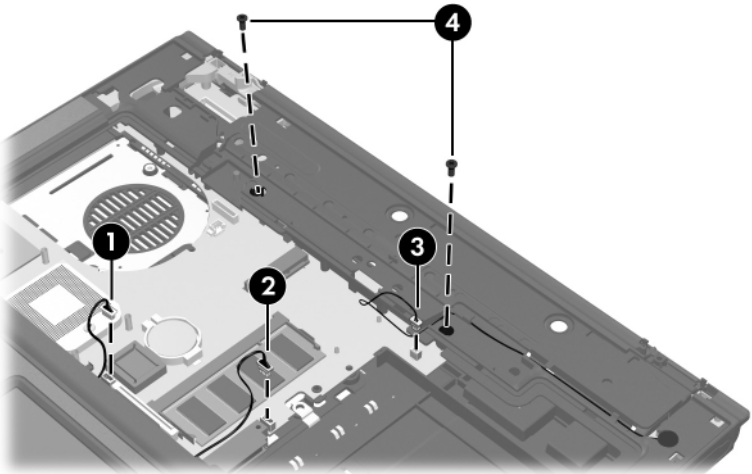
1. Prepare the computer for disassembly ([Section 5.3](#)), and then remove the following components:
 - a. Hard drive ([Section 5.4](#))
 - b. Optical drive ([Section 5.8](#))
 - c. Keyboard ([Section 5.9](#))
 - d. Switch cover ([Section 5.16](#))
 - e. Display assembly ([Section 5.17](#))
2. Turn the computer upside down with the front toward you.

3. Remove the thirteen Torx8 T8M2.5x9.0 screws that secure the top cover to the computer.



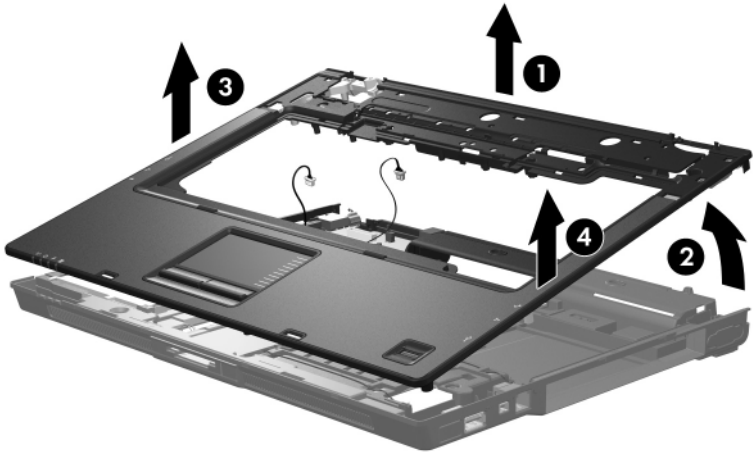
Removing the Top Cover Screws, Part 1

4. Turn the computer right-side up with the front toward you.
5. Disconnect the following cables from the system board:
 - ❶ TouchPad cable
 - ❷ Fingerprint reader board cable (HP Compaq nx6325 models only)
 - ❸ Microphone cable
6. Remove the two Torx8 T8M2.5×9.0 screws ❹ that secure the top cover to the computer.



Removing the Top Cover Screws, Part 2

7. Lift up the rear edge of the top cover ❶ until it disengages from the base enclosure.
8. Swing the top cover ❷ toward you until the left and right sides of the top cover disengage from the base enclosure.
9. Lift up on the left ❸ and right sides ❹ of the top cover until the top cover disengages from the base enclosure.



Releasing the Top Cover

Reverse the above procedure to install the top cover and TouchPad.

5.19 Speaker

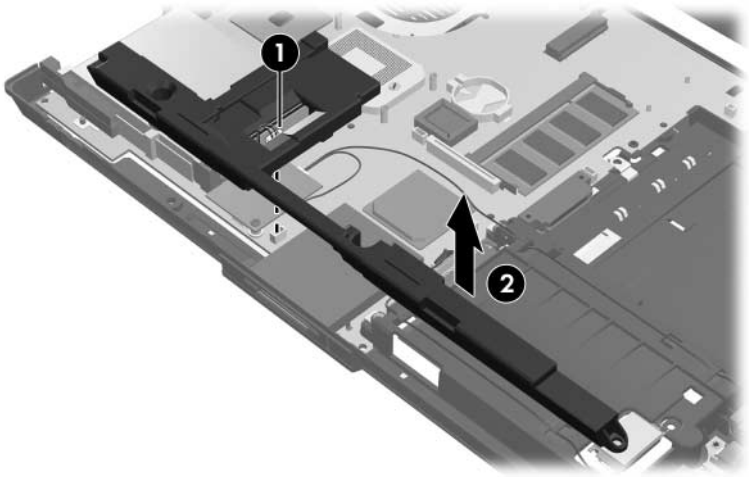
Speaker Spare Part Number Information

Speaker

413697-001

1. Prepare the computer for disassembly ([Section 5.3](#)), and then remove the following components:
 - a. Hard drive ([Section 5.4](#))
 - b. Optical drive ([Section 5.8](#))
 - c. Keyboard ([Section 5.9](#))
 - d. Switch cover ([Section 5.16](#))
 - e. Display assembly ([Section 5.17](#))
 - f. Top cover ([Section 5.18](#))

2. Disconnect the speaker cable ❶ from the system board.
3. Remove the speaker ❷.



Removing the Speaker

Reverse the above procedure to install the speaker.

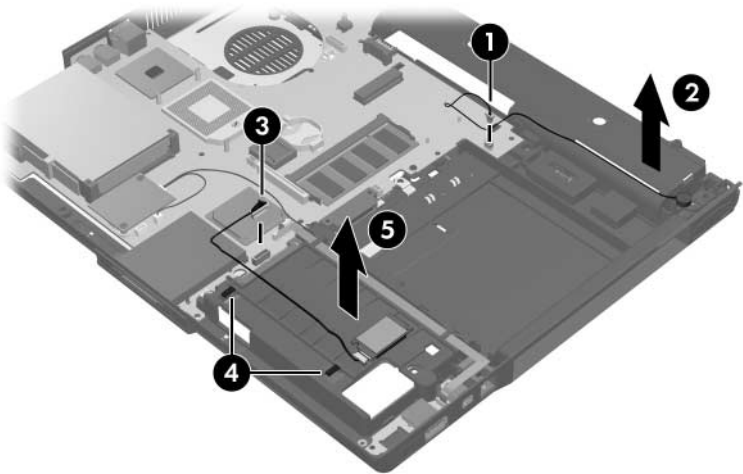
5.20 Microphone



The microphone is included in the Cable Kit, spare part number 430883-001, and is for use only with HP Compaq nx6325 models.

1. Prepare the computer for disassembly ([Section 5.3](#)), and then remove the following components:
 - a. Hard drive ([Section 5.4](#))
 - b. Optical drive ([Section 5.8](#))
 - c. Keyboard ([Section 5.9](#))
 - d. Switch cover ([Section 5.16](#))
 - e. Display assembly ([Section 5.17](#))
 - f. Top cover ([Section 5.18](#))

2. Disconnect the microphone cable ❶ from the system board and remove the microphone ❷ from the computer.
3. If it is necessary to replace the Bluetooth module cable, disconnect the cable ❸ from the system board, remove the cable ❹ from the clips in the base enclosure, and then remove the cable ❺ from computer.



Removing the Microphone and Bluetooth Module Cable

Reverse the above procedure to install the microphone.

5.21 Modem Module

Modem Module Spare Part Number Information

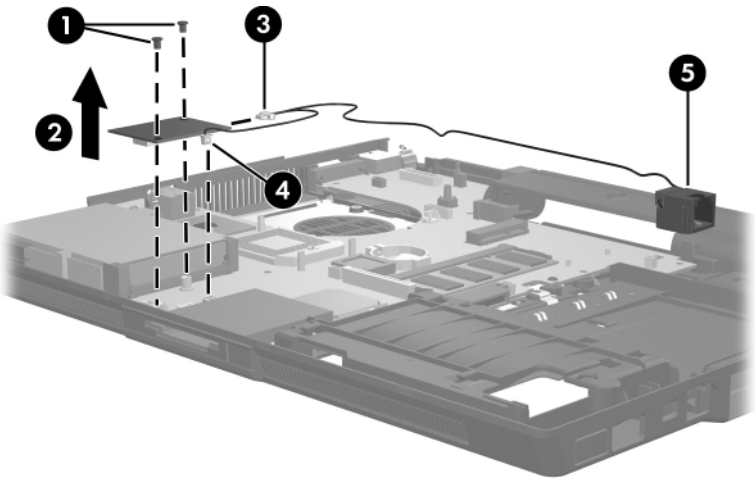
Modem module (includes modem module cable)	430881-001
--	------------

1. Prepare the computer for disassembly ([Section 5.3](#)), and then remove the following components:
 - a. Hard drive ([Section 5.4](#))
 - b. Optical drive ([Section 5.8](#))
 - c. Keyboard ([Section 5.9](#))
 - d. Switch cover ([Section 5.16](#))
 - e. Display assembly ([Section 5.17](#))
 - f. Top cover ([Section 5.18](#))

2. Remove the two Phillips PM2.5×4.0 screws ❶ that secure the modem module to the system board.
3. Lift the front of the modem module ❷ to disconnect it from the system board.
4. Disconnect the modem module cable ❸ from the modem module.
5. Disconnect the modem cable ❹ from the system board.
6. Remove the modem connector ❺ from the clip in the base enclosure.



The modem module cable is included with the modem module spare part kit and is also available in the Cable Kit, spare part number 430883-001.



Removing the Modem Module and Cable

Reverse the above procedure to install the modem module.

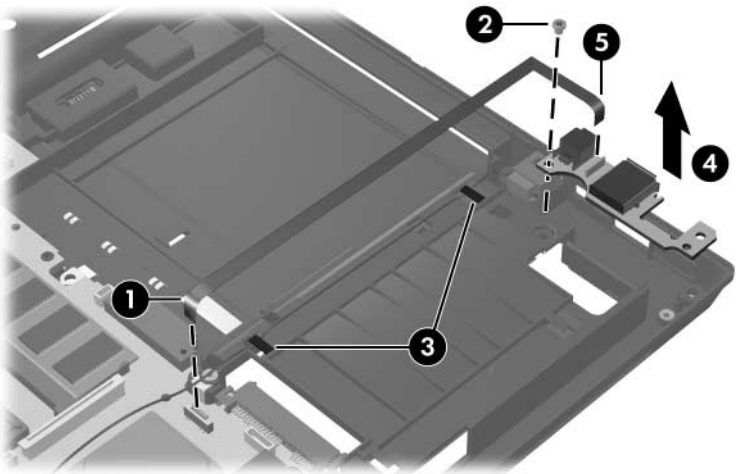
5.22 USB/Audio Board

USB/Audio Board Spare Part Number Information

Includes USB/audio board cable	
For use with HP Compaq nx6325 models	430882-001
For use with HP Compaq nx6315 models	431965-001

1. Prepare the computer for disassembly ([Section 5.3](#)), and then remove the following components:
 - a. Hard drive ([Section 5.4](#))
 - b. Optical drive ([Section 5.8](#))
 - c. Keyboard ([Section 5.9](#))
 - d. Switch cover ([Section 5.16](#))
 - e. Display assembly ([Section 5.17](#))
 - f. Top cover ([Section 5.18](#))

2. Position the computer with the rear panel toward you.
3. Release the ZIF connector to which the USB/audio board cable is connected and disconnect the USB/audio board cable ❶ from the system board.
4. Remove the Phillips PM2.0×3.0 screw ❷ that secures the USB/audio board to the base enclosure.
5. Remove the cable from the clips ❸ in the base enclosure.
6. Remove the USB/audio board ❹.
7. Release the ZIF connector to which the USB/audio board cable is connected and disconnect the USB/audio board cable ❺ USB/audio board.



Removing the USB/Audio Board

Reverse the above procedure to install the USB/audio board.

5.23 System Board

System Board Spare Part Number Information

System boards (include PC Card/ExpressCard assembly)

For use with HP Compaq nx6325 models	430864-001
For use with HP Compaq nx6315 models	430863-001

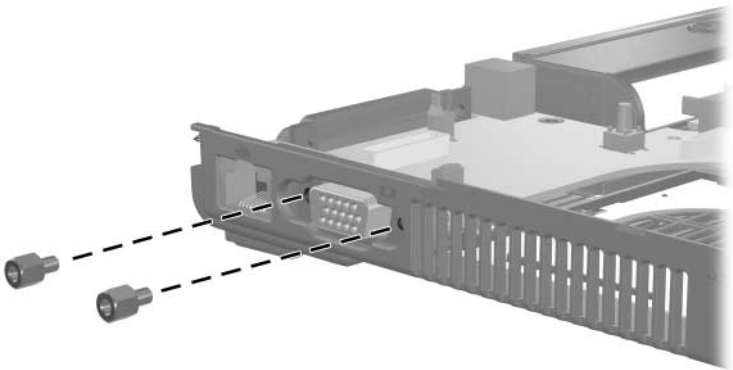


When replacing the system board, be sure that the following components are removed from the defective system board and installed on the replacement system board:

- Memory modules ([Section 5.7](#) and [Section 5.15](#))
 - Fan ([Section 5.10](#))
 - Heat sink ([Section 5.11](#))
 - Processor ([Section 5.12](#))
 - RTC battery ([Section 5.13](#))
 - Mini Card WLAN module ([Section 5.14](#))
 - Modem module and cable ([Section 5.21](#))
-

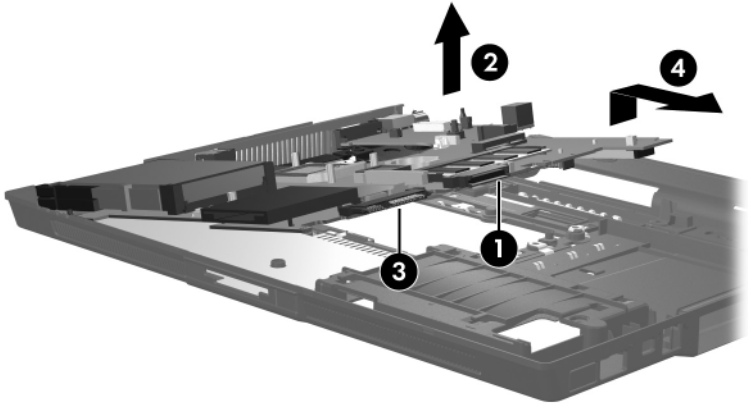
1. Prepare the computer for disassembly ([Section 5.3](#)), and then remove the following components:
 - a. Hard drive ([Section 5.4](#))
 - b. Optical drive ([Section 5.8](#))
 - c. Keyboard ([Section 5.9](#))

- d. Switch cover ([Section 5.16](#))
 - e. Display assembly ([Section 5.17](#))
 - f. Top cover ([Section 5.18](#))
 - g. Speaker ([Section 5.19](#))
 - h. Microphone ([Section 5.20](#))
 - i. USB/audio board ([Section 5.22](#))
2. Remove the two HM5.0×9.0 screw locks on each side of the external monitor connector.



Removing the System Board Screw Locks

3. Use the optical drive connector **1** to lift the right side of the system board **2** until the power connector **3** is clear of the base enclosure.
4. Slide the system board **4** to the right at an angle and remove it from the base enclosure.



Removing the System Board

Reverse the above procedures to install the system board.

Specifications

This chapter provides physical and performance specifications.

Table 6-1
Computer

Dimensions	Metric	U.S.
Height	< 32.8 cm	< 12.9 in
Width	< 26.7 cm	< 10.5 in
Depth (varies from front to back)	< 3.0 to 3.6 cm	< 1.2 to < 1.4 in
Weight		
With 15.0-inch display, optical drive, and 6-cell battery pack	< 2.7 kg	< 6.0 lbs
Input Power		
Operating voltage	18.5 V dc @ 3.5 A - 65 W	
Operating current	3.5 A	
Temperature		
Operating (not writing to optical disc)	0°C to 35°C	32°F to 95°F
Operating (writing to optical disc)	5°C to 35°C	41°F to 95°F
Nonoperating	-20°C to 60°C	-4°F to 140°F

Table 6-1
Computer (Continued)

Relative humidity (noncondensing)		
Operating	10% to 90%	10% to 90%
Nonoperating	5% to 95%	5% to 95%
Maximum altitude (unpressurized)		
Operating (14.7 to 10.1 psia)	-15 m to 3,048 m	-50 ft to 10,000 ft
Nonoperating (14.7 to 4.4 psia)	-15 m to 12,192 m	-50 ft to 40,000 ft
Shock		
Operating	125 g, 2 ms, half-sine	
Nonoperating	200 g, 2 ms, half-sine	
Random Vibration		
Operating	0.75 g zero-to-peak, 10 Hz to 500 Hz, 0.25 oct/min sweep rate	
Nonoperating	1.50 g zero-to-peak, 10 Hz 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, SXGA+WVA, TFT Display

Dimensions		
Height	30.0 cm	11.8 in
Width	22.9 cm	9.0 in
Diagonal	38.1 cm	15.0 in
Number of colors	Up to 16.8 million	
Contrast ratio	250:1	
Brightness	150 nits typical	
Pixel resolution		
Pitch	0.264 × 0.264 mm	
Format	1400 × 1050	
Configuration	RGB vertical stripe	
Backlight	Edge lit	
Character display	80 × 25	
Total power consumption	5.5 W	
Viewing angle	+/-35° horizontal, +15/-35° vertical typical	

Table 6-3
15.0-inch, XGA, TFT Display

Dimensions		
Height	30.0 cm	11.8 in
Width	22.9 cm	9.0 in
Diagonal	38.1 cm	15.0 in
Number of colors	Up to 16.8 million	
Contrast ratio	250:1	
Brightness	150 nits 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	5.5 W	
Viewing angle	+/-35° horizontal, +15/-35° vertical typical	

Table 6-4
Hard Drives

	100-GB*	80-GB*	60-GB*	40-GB*
Dimensions				
Height	9.5 mm	9.5 mm	9.5 mm	9.5 mm
Width	70 mm	70 mm	70 mm	70 mm
Weight	99 g	99 g	99 g	102 g
Interface type	SATA	SATA	SATA	SATA
Transfer rate				
Synchronous (maximum)	100 MB/sec	100 MB/sec	100 MB/sec	100 MB/sec
Security	ATA security	ATA security	ATA security	ATA security
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
Maximum	24 ms	24 ms	24 ms	24 ms
Logical blocks [†]	195,363,650	156,301,488	117,210,240	78,140,160
Disc rotational speed	5400 rpm	5400 rpm	7200 and 5400 rpm	5400 rpm
Operating temperature	5°C to 55°C (41°F to 131°F)			



Certain restrictions and exclusions apply. Consult Customer Care for details.

*1 GB = 1 billion bytes when referring to hard drive storage capacity. Actual accessible capacity is less.

†Actual drive specifications may differ slightly.

Table 6-5
Primary 6-cell, Li-Ion Battery

Dimensions

Height	2.00 cm	0.79 in
Width	9.40 cm	3.70 in
Depth	13.40 cm	5.28 in
Weight	0.34 kg	0.75 lb

Energy

Voltage	11.1 V
Amp-hour capacity	4.4 Ah
Watt-hour capacity	48 Wh

Temperature

Operating	5°C to 45°C	41°F to 113°F
Nonoperating	0°C to 60°C	32°F to 140°F

Table 6-6
DVD/CD-RW Combo Drive

Applicable disc	Read:	Write:
	DVD-R, DVD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), 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, CD-RW Photo CD (single and multisession) CD-Bridge	CD-R and CD-RW
Center hole diameter	1.5 cm (0.59 in)	
Disc diameter		
Standard disc	12 cm (4.72 in)	
Mini disc	8 cm (3.15 in)	

Table 6-6
DVD/CD-RW Combo Drive (Continued)

Disc thickness	1.2 mm (0.047 in)	
Track pitch	0.74 μ m	
Access time	CD media	DVD media
Random	< 110 ms	< 130 ms
Full stroke	< 210 ms	< 225 ms
Audio output level	Line-out, 0.7 V rms	
Cache buffer	2 MB	
Data transfer rate		
CD-R (24X)	3600 KB/s (150 KB/s at 1X CD rate)	
CD-RW (10X)	1500 KB/s (150 KB/s at 1X CD rate)	
CD-ROM (24X)	3600 KB/s (150 KB/s at 1X CD rate)	
DVD (8X)	10,800 KB/s (1352 KB/s at 1X DVD rate)	
Multiword DMA mode 2	16.6 MB/s	
Startup time	< 15 seconds	
Stop time	< 6 seconds	

Table 6-7
DVD±RW and CD-RW Combo Drive

Applicable disc	Read:	Write:
	DVD-R, DVD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), 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, CD-RW Photo CD (single and multisession) CD-Bridge	CD-R and CD-RW DVD-R and DVD-RW
Center hole diameter	1.5 cm (0.59 in)	
Disc diameter		
Standard disc	12 cm (4.72 in)	
Mini disc	8 cm (3.15 in)	

Table 6-7**DVD±RW and CD-RW Combo Drive (Continued)**

Disc thickness	1.2 mm (0.047 in)	
Track pitch	0.74 µm	
Access time	CD	DVD
Random	< 175 ms	< 230 ms
Full stroke	< 285 ms	< 335 ms
Audio output level	Audio-out, 0.7 Vrms	
Cache buffer	2 MB	
Data transfer rate		
CD-R (16X)	2,400 KB/s (150 KB/s at 1X CD rate)	
CD-RW (8X)	1,200 KB/s (150 KB/s at 1X CD rate)	
CD-ROM (24X)	3,600 KB/s (150 KB/s at 1X CD rate)	
DVD (8X)	10,800 KB/s (1,352 KB/s at 1X DVD rate)	
DVD-R (4X)	5,400 KB/s (1,352 KB/s at 1X DVD rate)	
DVD-RW (2X)	2,700 KB/s (1,352 KB/s at 1X DVD rate)	
Multiword DMA mode 2	16.6 MB/s	
Startup time	< 15 seconds	
Stop time	< 6 seconds	

Table 6-8
CD-ROM Drive

Applicable disc	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-RCD-RW Photo CD (single and multisession) CD-Bridge
Center hole diameter	1.5 cm (0.59 in)
Disc diameter	
Standard disc	12 cm (4.72 in)
Mini disc	8 cm (3.15 in)
Disc thickness	1.2 mm (0.047 in)

Table 6-9
System DMA

Hardware DMA	System Function
DMA0	Not applicable
DMA1*	Not applicable
DMA2*	Not applicable
DMA3	Not applicable
DMA4	Direct memory access controller
DMA5*	Available for PC Card
DMA6	Not assigned
DMA7	Not assigned

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

Table 6-10
System Interrupts

Hardware IRQ	System Function
IRQ0	System timer
IRQ1	Standard 101-/102-Key or Microsoft Natural Keyboard
IRQ2	Cascaded
IRQ3	82801DB/DBM USB2 Enhanced Host Controller—24CD
IRQ4	COM1
IRQ5*	Conexant AC—Link Audio 82801DB/DBM SMBus Controller—24C3 Data Fax Modem with SmartCP
IRQ6	Diskette drive
IRQ7*	Parallel port
IRQ8	System CMOS/real-time clock
IRQ9*	Microsoft ACPI-compliant system
IRQ10*	USB UHCI controller—24C2 82852/82855 GM/GME Graphic Controller Realtek RTL8139 Family PCI fast Ethernet Controller

Table 6-10
System Interrupts (Continued)

IRQ11	USB EHCI controller—24CD USB UHCI controller—24C4 USB UHCI controller—24C7 Pro/Wireless 2200BG TI OHCI 1394 host controller TI PCI1410 CardBus controller
IRQ12	Synaptics PS/2 TouchPad
IRQ13	Numeric data processor
IRQ14	Primary IDE channel
IRQ15	Secondary IDE channel

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



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.

Table 6-11
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/RTC
072 - 07F	Unused
080 - 08F	DMA page registers
090 - 091	Unused
092	Port A
093 - 09F	Unused
0A0 - 0A1	Interrupt controller no. 2

Table 6-11
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 6-11
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 6-12
System Memory Map

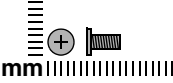
Size	Memory Address	System Function
640 KB	00000000-0009FFFF	Base memory
128 KB	000A0000-000BFFFF	Video memory
48 KB	000C0000-000CBFFF	Video BIOS
160 KB	000C8000-000E7FFF	Unused
64 KB	000E8000-000FFFFF	System BIOS
15 MB	00100000-00FFFFFF	Extended memory
58 MB	01000000-047FFFFF	Super extended memory
58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

A

Screw Listing

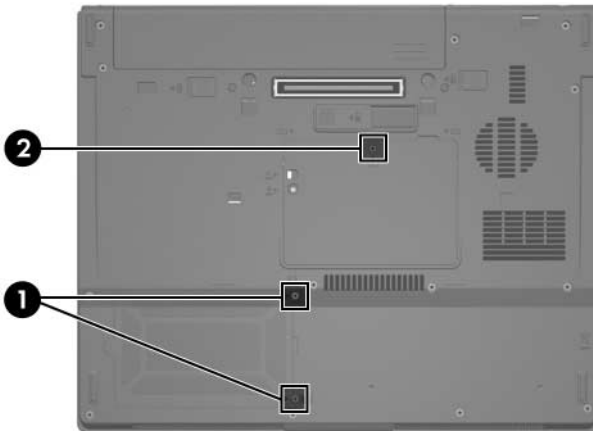
This appendix provides specification and reference information for the screws and screw locks used in the computer. All screws and screw locks listed in this appendix are available in the Screw Kit, spare part numbers 413705-001 and 432160-001.

Table A-1
Phillips PM2.0x5.0 Screw

	Color	Qty.	Length	Thread	Head Width
	Black	3	5.0 mm	2.0 mm	4.0 mm

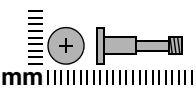
Where used:

- 1 Two screws that secure the hard drive cover to the computer (screws are captured on the cover by C-clips; documented in [Section 5.4](#))
- 2 One screw that secures the memory module compartment cover to the computer (screw is captured on the cover by a C-clip; documented in [Section 5.7](#))



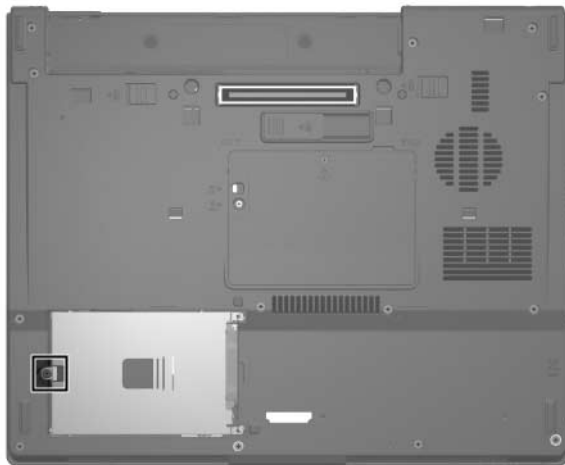
Phillips PM2.0x5.0 Screw Locations

Table A-2
Phillips PM2.5×13.0 Spring-Loaded Hard Drive
Retention Screw

	Color	Qty.	Length	Thread	Head Width
	Silver	1	13.0 mm	2.5 mm	5.5 mm



Where used:

One screw that secures the hard drive to the computer (screw is captured on the hard drive frame by a C-clip; documented in [Section 5.4](#))



*Phillips PM2.5×13.0 Spring-Loaded Hard Drive Retention Screw
Screw Location*

Table A-3
Phillips PM3.0x4.0 Screw

 mm 	Color	Qty.	Length	Thread	Head Width
	Silver	4	4.0 mm	3.0 mm	4.5 mm

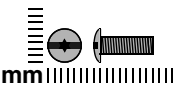
Where used:

4 screws that secure the hard drive frame to the hard drive (documented in [Section 5.4](#))



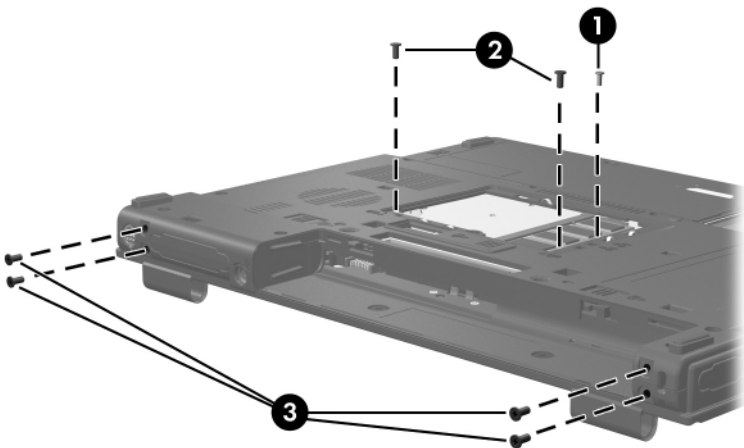
Phillips PM3.0x4.0 Screw Locations

Table A-4
Torx8 T8M2.5×9.0 Screw

	Color	Qty.	Length	Thread	Head Width
Black	24	9.0 mm	2.5 mm	4.0 mm	

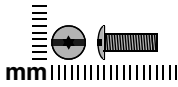
Where used:

- ❶ One screw that secures the optical drive to the computer (documented in [Section 5.8](#))
- ❷ Two screws that secure the keyboard to the computer (documented in [Section 5.9](#))
- ❸ Four screws that secure the display assembly to the computer (documented in [Section 5.17](#))



Torx8 T8M2.5×9.0 Screw Locations

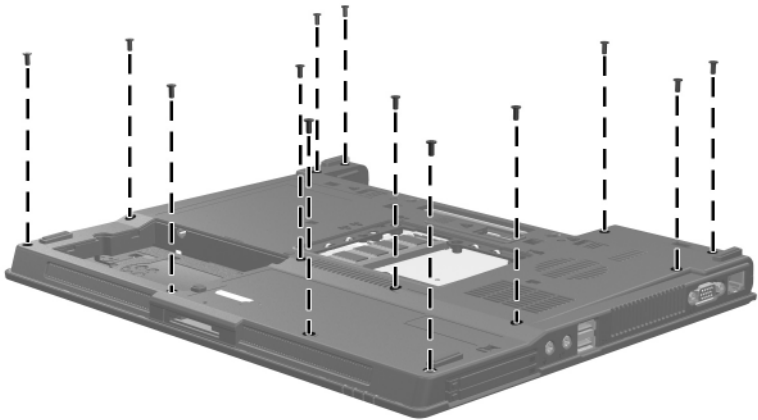
Table A-4
Torx8 T8M2.5×9.0 Screw (Continued)



Color	Qty.	Length	Thread	Head Width
Black	24	9.0 mm	2.5 mm	4.0 mm

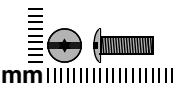
Where used:

13 screws that secure the top cover to the computer (documented in [Section 5.18](#))



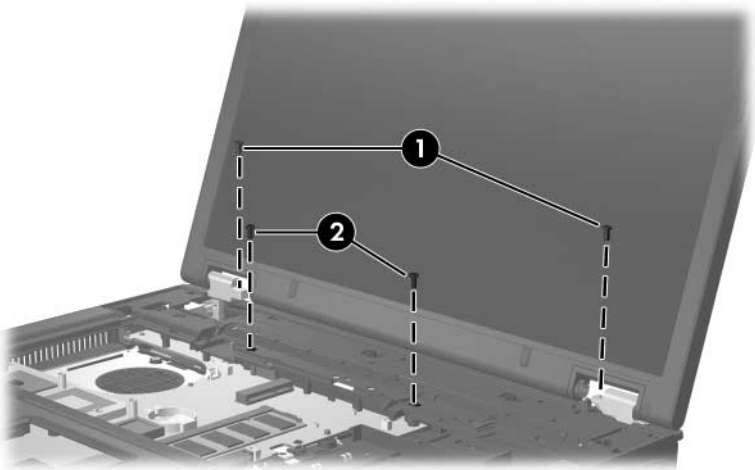
Torx8 T8M2.5×9.0 Screw Locations

Table A-4
Torx8 T8M2.5×9.0 Screw (Continued)

	Color	Qty.	Length	Thread	Head Width
	Black	24	9.0 mm	2.5 mm	4.0 mm

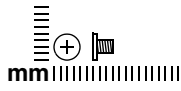
Where used:

- ❶ Two screws that secure the display assembly to the computer (documented in [Section 5.17](#))
- ❷ Two screws that secure the top cover to the computer (documented in [Section 5.18](#))



Torx8 T8M2.5×9.0 Screw Locations

Table A-5
Phillips PM2.0x3.0 Screw

	Color	Qty.	Length	Thread	Head Width
	Silver	3	3.0 mm	2.0 mm	4.0 mm

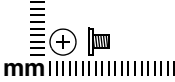
Where used:

2 screws that secure the optical drive bracket to the optical drive to the computer (documented in [Section 5.8](#))



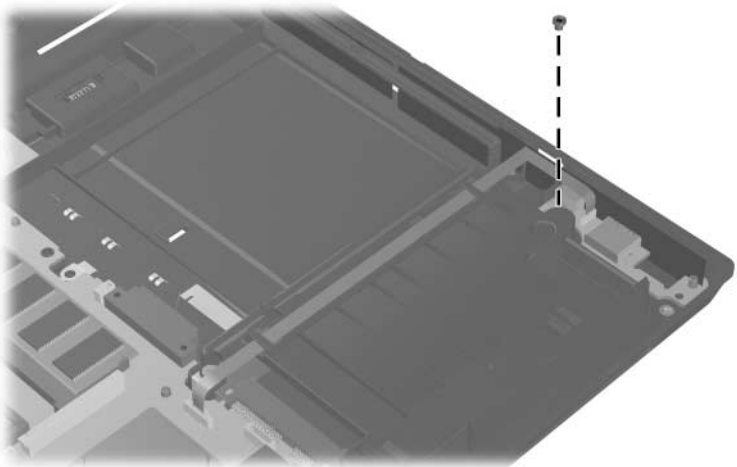
Phillips PM2.0x3.0 Screw Locations

Table A-5
Phillips PM2.0×3.0 Screw (Continued)

	Color	Qty.	Length	Thread	Head Width
	Silver	3	3.0 mm	2.0 mm	4.0 mm

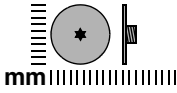
Where used:

One screw that secures the USB/audio board to the base enclosure (documented in [Section 5.22](#))



Phillips PM2.0×3.0 Screw Location

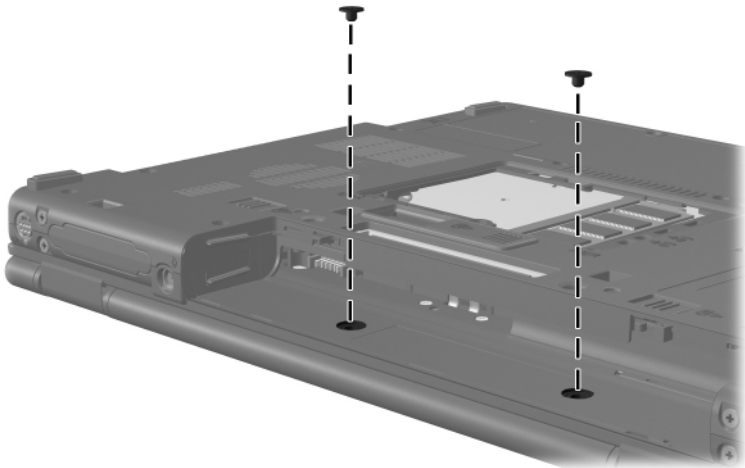
Table A-6
Torx8 T8M2.5x2.0 Screw



Color	Qty.	Length	Thread	Head Width
Black	2	2.0 mm	2.5 mm	4.0 mm

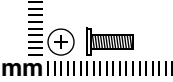
Where used:

2 screws that secure the switch cover to the computer (documented in [Section 5.16](#))



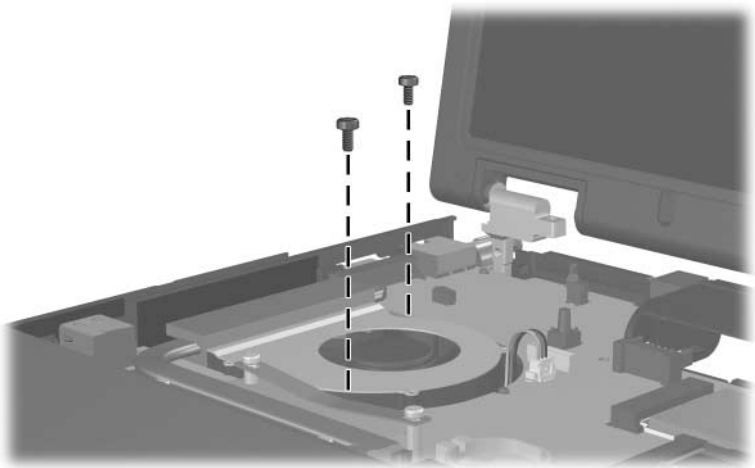
Torx8 T8M2.5x2.0 Screw Locations

Table A-7
Phillips PM2.0x7.0 Screw

 mm	Color	Qty.	Length	Thread	Head Width
	Silver	6	7.0 mm	2.0 mm	5.0 mm

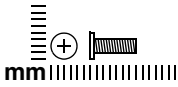
Where used:

2 screws that secure the fan assembly to the computer (documented in [Section 5.17](#))



Phillips PM2.0x7.0 Screw Locations

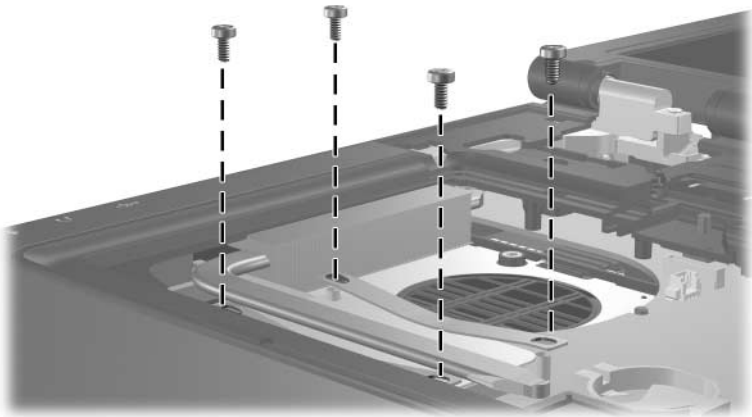
Table A-7
Phillips PM2.0x7.0 Screw (Continued)



Color	Qty.	Length	Thread	Head Width
Silver	6	7.0 mm	2.0 mm	6.0 mm

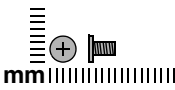
Where used:

4 screws that secure the heat sink to the to the computer (documented in [Section 5.11](#))



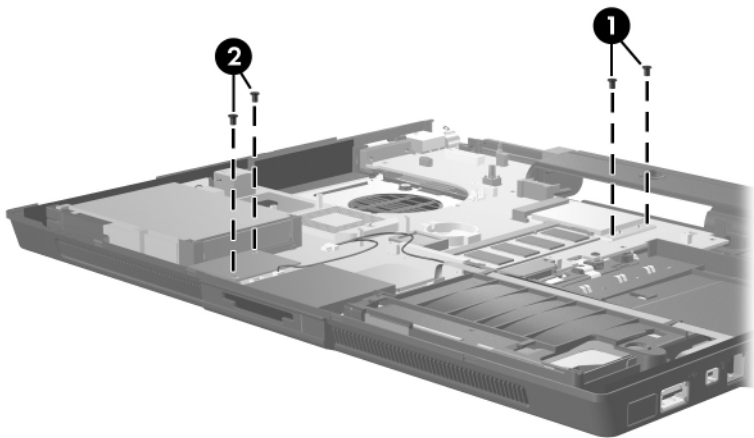
Phillips PM2.0x7.0 Screw Locations

Table A-8
Phillips PM2.5×4.0 Screw

	Color	Qty.	Length	Thread	Head Width
	Silver	4	4.0 mm	2.5 mm	4.5 mm

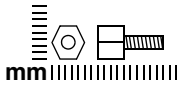
Where used:

- ❶ Two screws that secure the Mini Card WLAN to the computer (documented in [Section 5.14](#))
- ❷ Two screws that secure the modem module to the computer (documented in [Section 5.21](#))



Phillips PM2.5×4.0 Screw Locations

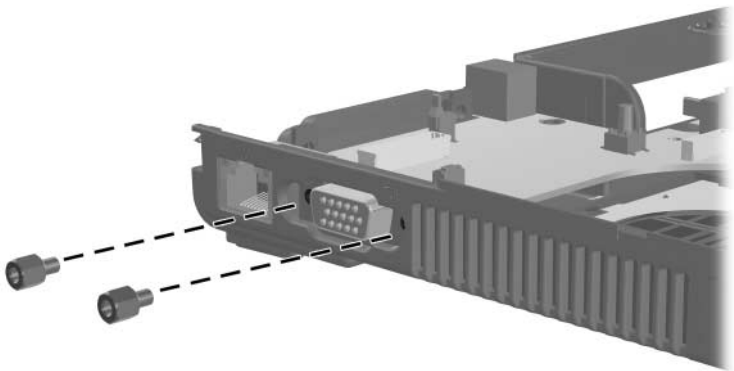
Table A-9
Hex Socket HM5.0×9.0 Screw Lock



Color	Qty.	Length	Thread	Head Width
Silver	2	9.0 mm	5.0 mm	5.0 mm

Where used:

2 screw locks that secure the system board to the computer (documented in [Section 5.23](#))



Hex Socket HM5.0×9.0 Screw Lock Locations

Backup and Recovery

Backup

HP Backup and Recovery Manager provides several ways to back up the system and to recover optimal system functionality.



HP installed drivers, utilities, and applications can be copied to a CD or to a DVD using HP Backup and Recovery Manager.



Formatted DVD±RW discs and DVD±RW double-layer discs are not compatible with HP Backup and Recovery Manager.



The computer must be connected to external power before you perform backup and recovery procedures.

Safeguarding Your Data

To safeguard your documents, store personal files in the My Documents folder and periodically create a backup copy of the folder.

Backing Up the System

Using HP Backup and Restore Manager, you can

- Back up specific files and folders.
- Back up the entire system.
- Back up modifications since your last backup, using HP system restore points.
- Schedule backups.

Backing Up Specific Files or Folders

You can back up specific files or folders to the hard drive, to an optional external hard drive, or to discs.



This process will take several minutes, depending on the file size and the speed of the computer.

To back up specific files or folders:

1. Select **Start > All Programs > HP Backup & Recovery > HP Backup and Recovery Manager**.
2. Click **Next**.
3. Click **Back up to protect system settings and important data files**, and then click **Next**.
4. Click **Back up individual files and folders**, and then click **Next**.

The Backup Wizard opens.

5. Click **Next**.
6. Click **Backup selected files from most common locations (Recommended)**.

– or –

Click **Advanced Backup (Experienced users)** to access advanced filtering techniques.

7. Click **Next**.
8. Follow the on-screen instructions.

Backing Up the Entire Hard Drive

When you perform a complete backup of the hard drive, you are saving the full factory image, including the Windows operating system, software applications, and all personal files and folders.



A copy of the entire hard drive image can be stored on another hard drive, on a network drive, or on recovery discs that you create.



This process may take over an hour, depending on your computer speed and the amount of data being stored.

To back up your entire hard drive:

1. Select **Start > All Programs > HP Backup & Recovery > HP Backup and Recovery Manager**.
2. Click **Next**.
3. Click **Back up to protect system settings and important data files**, and then click **Next**.
4. Click **Back up entire hard drive**, and then click **Next**.

The “Back up entire hard disk” page opens.

5. Click **Next**.
 6. Select the location for the backup files, and then click **Next**.
 7. Select the **Protect data access with password** check box, and type your password in the **Password and Confirm** boxes.
-



This step is optional. If you do not want to password-protect your data access, clear the **Protect data access with password** check box.

8. Click **Next**.
9. Follow the on-screen instructions.

Backing Up Modifications Made to the System

When you back up modifications since your last backup, you are creating system recovery points. This allows you to save a snapshot of your hard drive at a specific point in time. You can then recover back to that point if you want to reverse subsequent changes made to your system.



The first system recovery point, a snapshot of the entire image, is automatically created the first time you perform a backup. Subsequent recovery points make a copy of changes made after that time.

HP recommends that you create recovery points

- Before you add or extensively modify software or hardware.
 - Periodically, whenever the system is performing optimally.
-



Recovering to an earlier recovery point does not affect data files or e-mails created since that recovery point.

After you create a recovery point, you are prompted to schedule subsequent recovery points. You can schedule recovery points for a specific time or event in your system.

To create and schedule a system recovery point:

1. Select **Start > All Programs > HP Backup & Recovery > HP Backup and Recovery Manager**.
2. Click **Next**.
3. Click **Back up to protect system settings and important data files**, and then click **Next**.
4. Click **Create or manage Recovery Points**, and then click **Next**.

The “Recovery Point Manager” page opens.

5. Follow the on-screen instructions.

Scheduling Backups

To schedule backups:

1. Select **Start > All Programs > HP Backup & Recovery > HP Backup Scheduler**.

The “Backup Scheduler” page opens.

2. Click **Next**.
3. Schedule system recovery points at specific intervals (now, daily, weekly, or monthly) or at specific events, such as at system start or when you dock to an optional docking station (select computer models only), by clicking one of the available options. Click **Next** to further define the settings.

A summary of your system recovery point settings is displayed.

4. Follow the on-screen instructions.

Recovery

HP Backup and Recovery Manager analyzes the hard drive and creates a dedicated hard drive recovery partition on the hard drive large enough to store a copy of the full factory image. You can choose whether you want to store that copy on the recovery partition, on another drive, or on external recovery discs.



Before using HP Backup and Recovery Manager, try repairing the system by running Microsoft Windows System Restore. For more information, select **Start > Help and Support**, and then search for “System Restore.”

HP Backup and Recovery Manager allows you to

- **Create recovery discs (highly recommended).** The recovery discs are used to start up your computer and to recover the full factory image (operating system and software) in case of system failure or instability.



If you do not have a CD or DVD burner, a copy of the entire hard drive image can be stored on another hard drive or on a network drive.

- **Perform a recovery.** You can perform a full system recovery or recover important files from the recovery partition on the hard drive, from another drive, or from recovery discs that you create.

Creating Recovery Discs (Highly Recommended)

After setting up the computer for the first time, you can create a set of recovery discs of the full factory image, using Recovery Media Creator in the HP Backup and Recovery Manager. The recovery discs are used to start up (boot) the computer and recover the operating system and software to factory settings in case of system failure or instability.



CAUTION: After you create the recovery discs, you can increase the amount of available space on the hard drive by deleting the recovery partition. However, doing this is not recommended. If you delete this partition, you will lose any information that is on the partition.



Only one set of recovery discs can be created for this computer.

Before creating recovery discs:

- Obtain high-quality CD-R, DVD-R, or DVD+R media, purchased separately.



Formatted DVD±RW discs and DVD±RW double-layer discs are not compatible with HP Backup and Recovery Manager.

- Number each disc before inserting it into the optical drive of the computer.
- If necessary, you can cancel Recovery Media Creator before you have finished creating the recovery discs. The next time you open Recovery Media Creator, you will be prompted to continue the disc creation process where you left off.

To create a set of recovery discs:

1. Select **Start > All Programs > HP Backup & Recovery > HP Backup and Recovery Manager**.
2. Click **Next**.
3. Click **Create factory software recovery CDs or DVDs to recover the system (Highly recommended)**, and then click **Next**.

The “Recovery Media Creator” page opens.

4. Click **Next**.
5. Click **Write to CD/DVD**, and then click **Next**.
6. Follow the on-screen instructions.

Performing a Recovery

Performing a Recovery from the Recovery Discs

To perform a recovery from the recovery discs:

1. Back up all personal files.
2. Insert the first recovery disc into the optical drive and restart the computer.
3. Follow the on-screen instructions.

Performing a Recovery from the Hard Drive

There are 2 ways to initiate a recovery from the hard drive:

- From within Windows.
- From the recovery partition.

Initiating a Recovery in Windows

To initiate a recovery in Windows:

1. Back up all personal files.
2. Select **Start > All Programs > HP Backup & Recovery > HP Backup and Recovery Manager**.
3. Click **Next**.
4. Click **Recover important files or the entire system**, and then click **Next**.
5. Click a recovery option, and then click **Next**.



If you choose to recover the system, the computer restarts and recovery begins.

6. Follow the on-screen instructions.

Initiating a Recovery from the Hard Drive Recovery Partition

To initiate a recovery from the hard drive recovery partition:

1. Back up all personal files.
2. Restart the computer, and then press **f11** before the Windows operating system loads.
3. Click a recovery option, and then click **Next**.
4. Follow the on-screen instructions.

Display Component Recycling



WARNING: The backlight contains mercury. Caution should be exercised when removing and handling the backlight to avoid damaging this component and causing exposure to the mercury.



CAUTION: The procedures in this appendix can result in damage to display components. The only components intended for recycling purposes are the liquid crystal display (LCD) panel and the backlight. Careful handling should be exercised when removing these components.

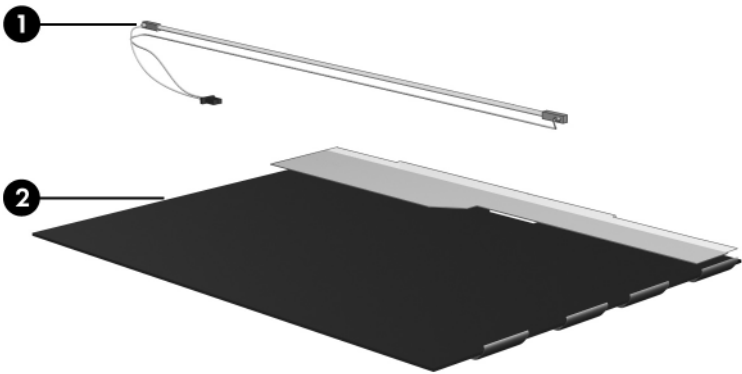


Materials Disposal

This HP product contains mercury in the backlight in the display assembly that might require special handling at end-of-life.

Disposal of mercury may be regulated because of environmental considerations. For disposal or recycling information, contact your local authorities or the Electronic Industries Alliance (EIA) at <http://www.eiae.org>.

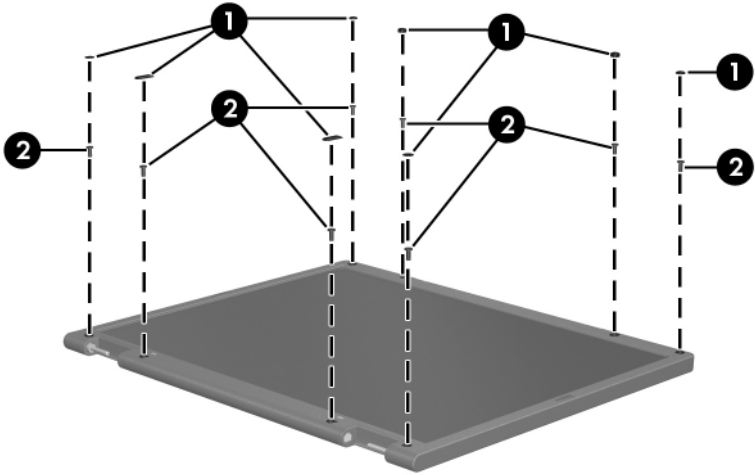
This appendix provides disassembly instructions for the display assembly. The display assembly must be disassembled to gain access to the backlight **1** and the liquid crystal display (LCD) panel **2**.



Disassembly procedures differ from one display assembly to another. The procedures provided in this appendix are general disassembly instructions. Specific details, such as screw sizes, quantities, and locations, and component shapes and sizes, can vary from one computer model to another.

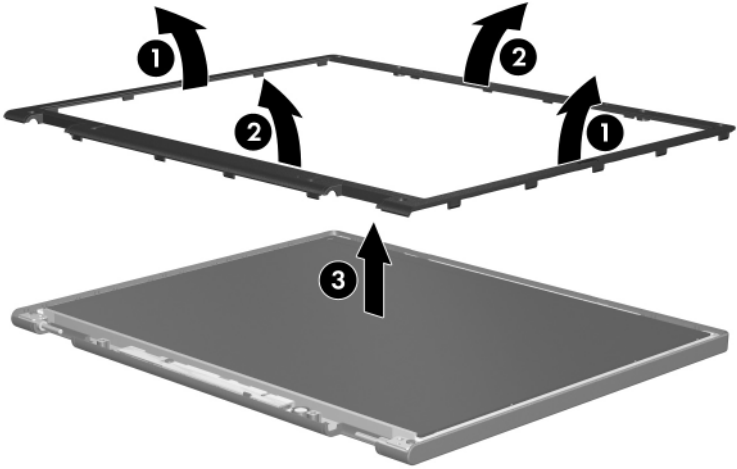
Perform the following steps to disassemble the display assembly:

1. Remove all screw covers **1** and screws **2** that secure the display bezel to the display assembly.



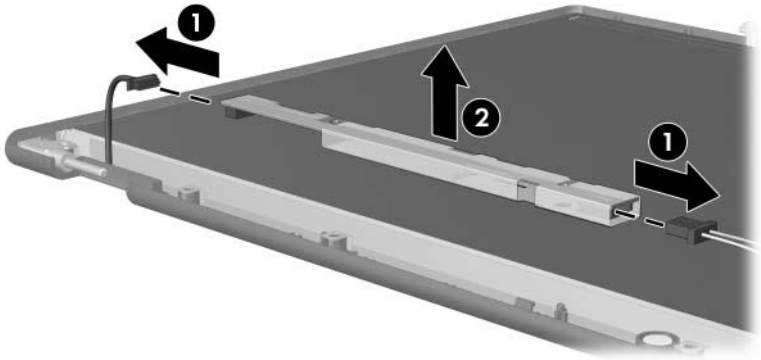
Removing the Display Bezel Screw Covers and Screws

-
2. Lift up and out on the left and right inside edges ① and the top and bottom inside edges ② of the display bezel until the bezel disengages from the display assembly.
3. Remove the display bezel ③.



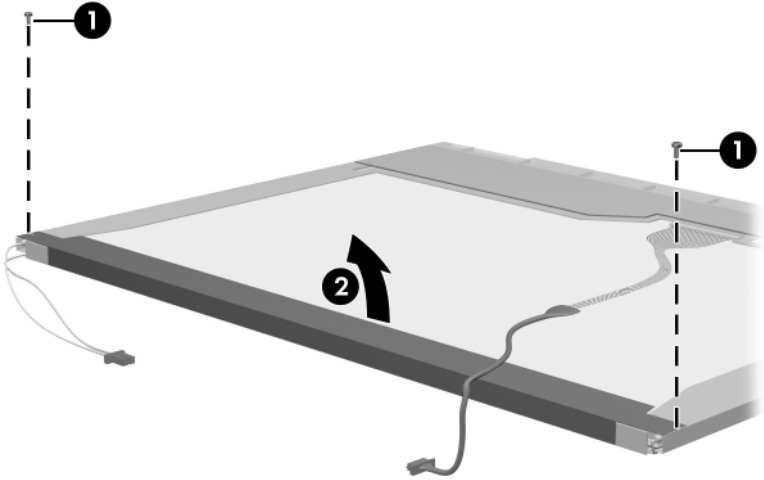
Removing the Display Bezel

4. Disconnect all display panel cables ① from the display inverter and remove the inverter ②.



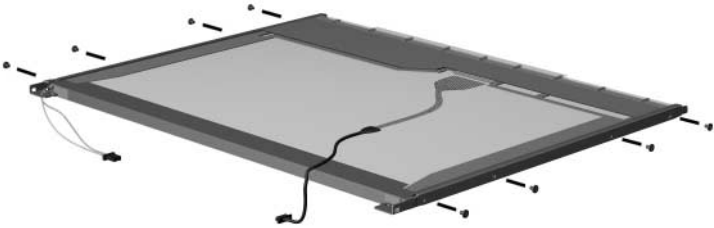
Removing the Display Inverter

5. Remove all screws **1** that secure the display panel assembly to the display enclosure.
6. Remove the display panel assembly **2** from the display enclosure.



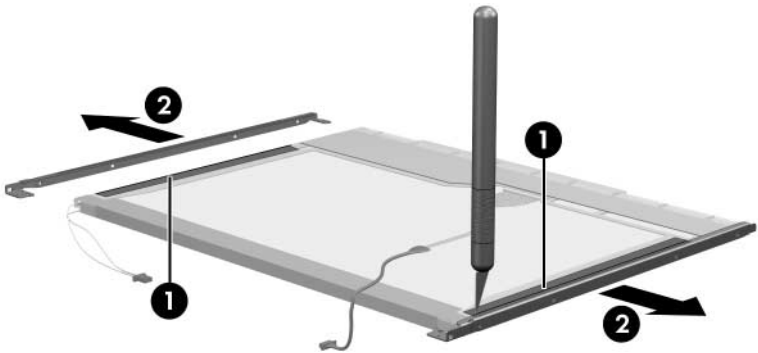
Removing the Display Panel Assembly

7. Turn the display panel assembly upside down.
8. Remove all screws that secure the display panel frame to the display panel.



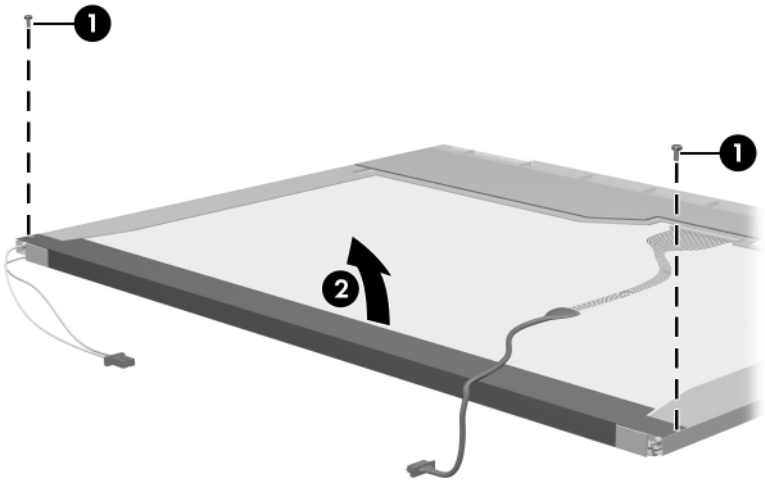
Removing the Display Panel Frame Screws

9. Use a sharp-edged tool to cut the tape ❶ that secures the sides of the display panel to the display panel frame.
10. Remove the display panel frame ❷ from the display panel.



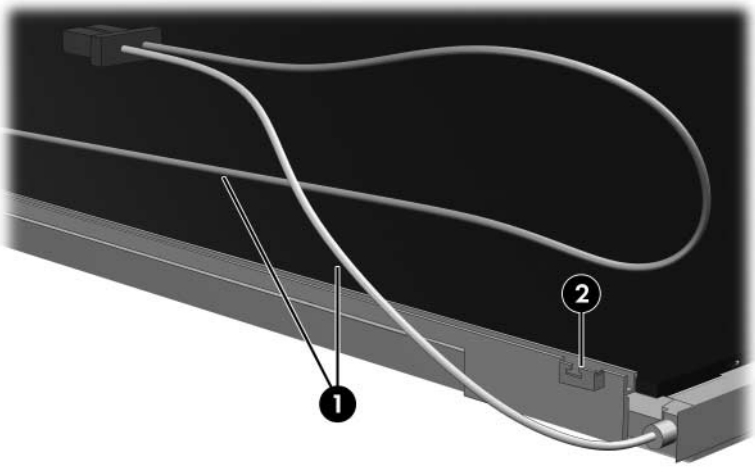
Removing the Display Frame

11. Remove the screws ❶ that secure the backlight cover to the display panel.
12. Lift the top edge of the backlight cover ❷ and swing it forward.
13. Remove the backlight cover.



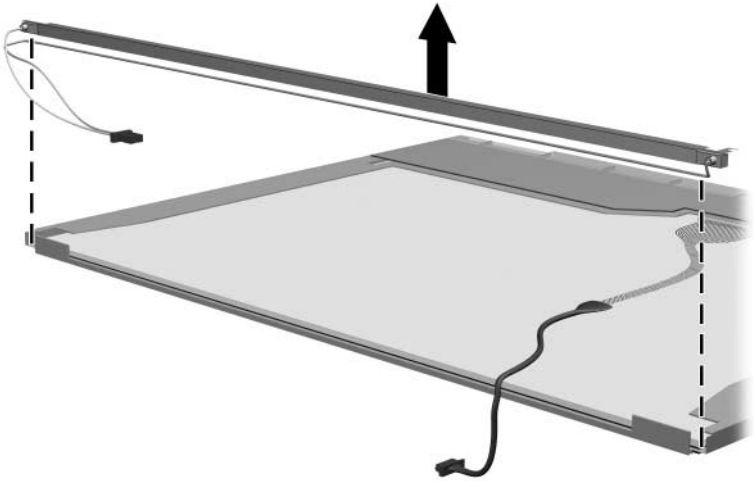
Removing the Backlight Cover

14. Turn the display panel right-side up.
15. Remove the backlight cables **1** from the clip **2** in the display panel.



Releasing the Backlight Cables

16. Turn the display panel upside down.
17. Remove the backlight frame from the display panel.

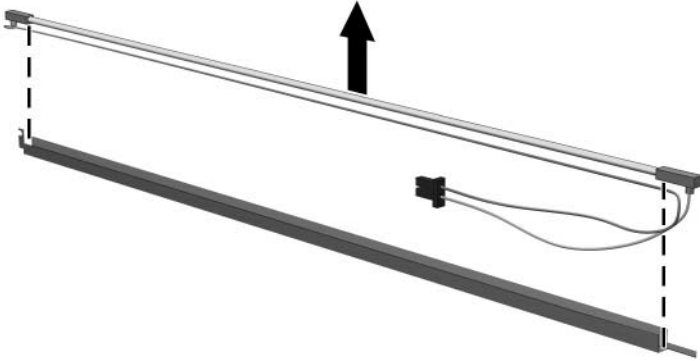


Removing the Backlight Frame



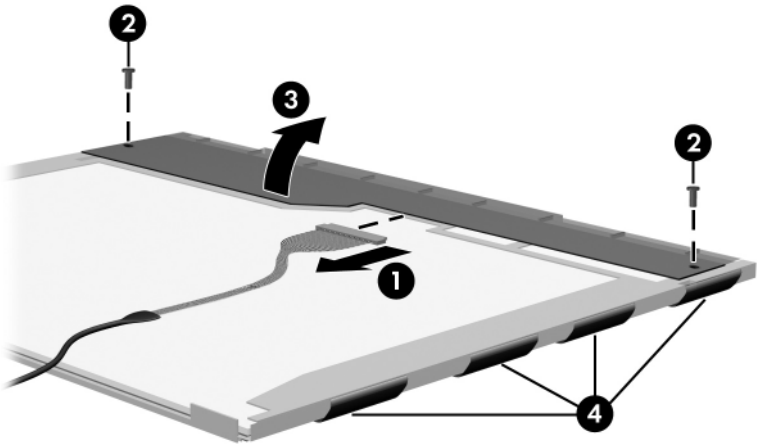
WARNING: The backlight contains mercury. Caution should be exercised when removing and handling the backlight to avoid damaging this component and causing exposure to the mercury.

18. Slide the backlight out of the backlight frame.



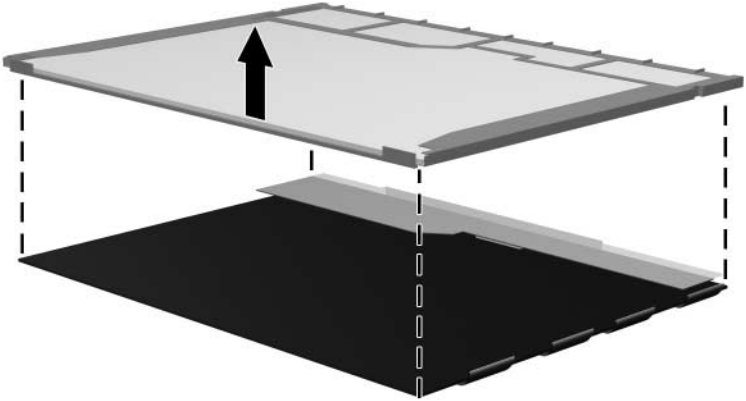
Removing the Backlight

19. Disconnect the display cable **1** from the LCD panel.
20. Remove the screws **2** that secure the LCD panel to the display rear panel.
21. Release the LCD panel **3** from the display rear panel.
22. Release the tape **4** that secures the LCD panel to the display rear panel.



Releasing the LCD Panel

23. Remove the LCD panel.



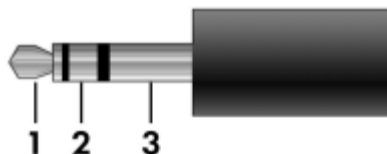
Removing the LCD Panel

24. Recycle the LCD panel and backlight.

D

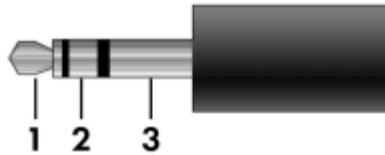
Connector Pin Assignments

Table D-1
Audio-Out (Headphone)



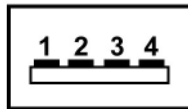
Pin	Signal	Pin	Signal
1	Audio out, left channel	3	Ground
2	Audio out, right channel		

Table D-2
Audio-In (Microphone)



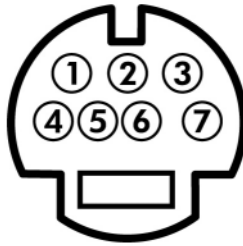
Pin	Signal	Pin	Signal
1	Audio signal in	3	Ground
2	Audio signal in		

Table D-3
Universal Serial Bus



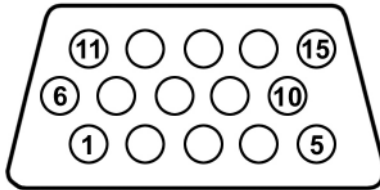
Pin	Signal	Pin	Signal
1	+5 VDC	3	Data +
2	Data -	4	Ground

Table D-4
S-Video-Out



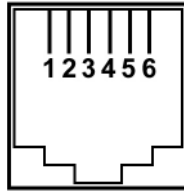
Pin	Signal	Pin	Signal
1	S-VHS color (C) signal	5	TV-CD
2	Composite video signal	6	S-VHS intensity ground
3	S-VHS intensity (Y) signal	7	Composite video ground
4	S-VHS color ground		

Table D-5
External Monitor



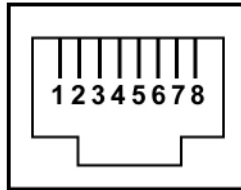
Pin	Signal	Pin	Signal
1	Red analog	9	+5 VDC
2	Green analog	10	Ground
3	Blue analog	11	Monitor detect
4	Not connected	12	DDC 2B data
5	Ground	13	Horizontal sync
6	Ground analog	14	Vertical sync
7	Ground analog	15	DDC 2B clock
8	Ground analog		

Table D-6
RJ-11 (Modem)



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

Table D-7
RJ-45 (Network)



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

Power Cord Set Requirements

3-Conductor Power Cord Set

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

The power cord set included 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.

General Requirements

The requirements listed below are applicable to all countries.

- The length of the power cord set must be at least 1.5 m (5.0 ft) and a maximum of 2.0 m (6.5 ft).
- 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 sets must have a minimum current capacity of 10 amps and a nominal voltage rating of 125 or 250 V 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/Region	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



NOTES:

1. The flexible cord must be <HAR> Type HO5VV-F, 3-conductor, 1.0 mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country where it will be used.
2. The flexible cord must be Type 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 mm² conductor size. The wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (7 A, 125 V) configuration.

3-Conductor Power Cord Set Requirements (*Continued*)

Country/Region	Accredited Agency	Applicable Note Number
Korea	EK	4
The Netherlands	KEMA	1
Norway	NEMKO	1
People's Republic of China	CCC	5
Sweden	SEMKO	1
Switzerland	SEV	1
Taiwan	BSMI	4
United Kingdom	BSI	1
United States	UL	2



NOTES:

1. The flexible cord must be <HAR> Type HO5VV-F, 3-conductor, 1.0 mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country where it will be used.
 2. The flexible cord must be Type 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 mm² conductor size. The wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (7 A, 125 V) configuration.
 4. The flexible cord must be Type RVV, 3-conductor, 0.75 mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country where it will be used.
 5. The flexible cord must be Type VCTF, 3-conductor, 0.75 mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country where it will be used.
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