



Maintenance and Service Guide

HP Pavilion dv4000 Notebook PC
Compaq Presario V4000 Notebook PC

Document Part Number: 377367-001

March 2005

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

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Maintenance and Service Guide
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Compaq Presario V4000 Notebook PC
First Edition March 2005
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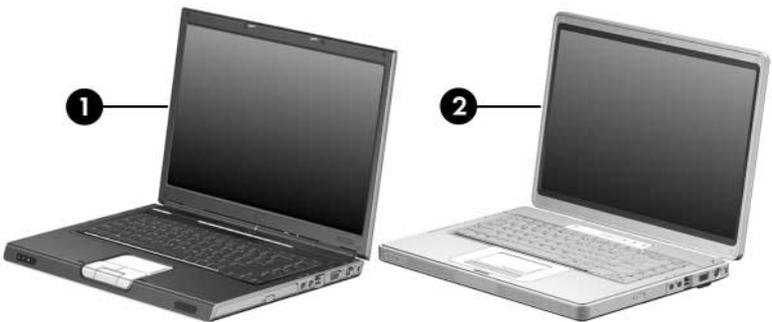
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Product Description

The HP Pavilion dv4000 Notebook PC ❶ and Compaq Presario V4000 Notebook PC ❷ offer advanced modularity, Intel® Pentium® M and Celeron® M processors, and extensive multimedia support.



HP Pavilion dv4000 Notebook PC and Compaq Presario V4000 Notebook PC

1.1 Features

- Intel Pentium M 2.00-, 1.73-, 1.60-, or 1.50-GHz processors, or Intel Celeron M 1.50-, 1.40-, or 1.30-GHz processors, varying by notebook model
- 15.4-inch, WXGA, TFT (1280 × 800) with BrightView display, or 15.4-inch, WXGA, TFT (1280 × 800) display, varying by notebook model
- 100-, 80-, 60-, or 40-GB high-capacity hard drive, varying by notebook model
- 256-MB DDR synchronous DRAM (SDRAM) at 333 MHz, expandable to 2.0 GB
- Microsoft® Windows® XP Home Edition or Windows XP Professional, varying by notebook model
- Full-size Windows keyboard with embedded numeric keypad
- TouchPad pointing device, including dedicated horizontal (Compaq Presario V4000 models) and vertical scroll regions
- Integrated 10Base-T/100Base-TX 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 PCI IEEE 802.11b/g WLAN device (selected models only)
- Support for one Type I or Type II PC Card slot, with support for both 32-bit (CardBus) and 16-bit PC Cards
- Support for ExpressCard slot
- External 65-watt AC adapter with 3-wire power cord
- 12- or 6-cell Li-Ion battery pack, varying by notebook model
- Stereo speakers
- Volume up, volume mute, and volume down buttons
- QuickPlay buttons (select models only)
- Support for the following optical drives:
 - DVD±RW and CD-RW Combo Drive
 - DVD/CD-RW Combo Drive



Numerous references are made throughout this *Maintenance and Service Guide* to “full-featured” and “defeated” models.

A model is considered to be full-featured if it has 4 Universal Serial Bus ports and the following components:

- Digital Media Slot/Memory Reader
- Expansion port
- ExpressCard slot
- IEEE 1394 port
- Infrared port
- Quick Launch buttons (HP Pavilion dv4000 models only)

A notebook model is considered to be defeated if it has only 2 Universal Serial Bus ports and none of the components listed above.

■ Connectors:

- Audio-in (microphone)
- Audio-out (headphone)
- Digital Media Slot (full-featured models only)
- Expansion port (full-featured models only)
- ExpressCard slot (full-featured models only)
- External monitor
- IEEE 1394 (full-featured models only)
- Infrared (full-featured models only)
- PC Card
- Power
- Primary battery
- RJ-11 (modem)
- RJ-45 (network)
- S-Video-out
- Serial port (full-featured models only)
- Smart card
- Universal Serial Bus (USB) v. 2.0 (4 ports on full-featured models, 2 ports on defeated models)

1.2 Resetting the Notebook

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

1. Prepare the notebook for disassembly (refer to [Section 5.3, “Preparing the Notebook for Disassembly,”](#) for more information).
2. Remove the real-time clock (RTC) battery (refer to [Section 5.9, “RTC Battery,”](#) for more information on removing and replacing the RTC battery).
3. Wait approximately 5 minutes.
4. Replace the RTC battery and reassemble the notebook.
5. Connect AC power to the notebook. Do not reinsert any battery packs at this time.
6. Turn on the notebook.

All passwords and all CMOS settings have been cleared.

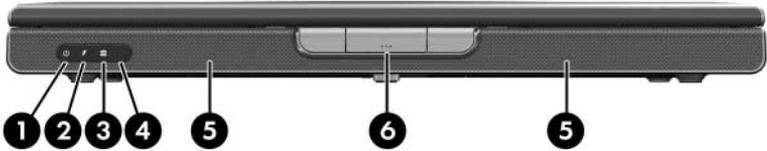
1.3 Power Management

The notebook comes with power management features that extend battery operating time and conserve power. The notebook 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/standby button
- Advanced Configuration and Power Management (ACPM) compliance

1.4 External Components

The external components on the front of the notebook are shown below and described in Table 1-1. Depending on your notebook model, component locations may vary.

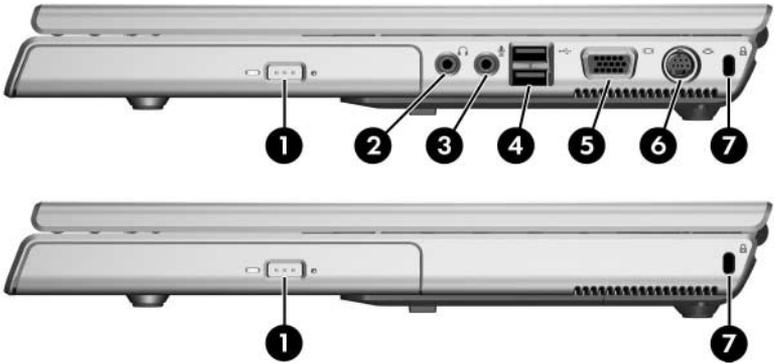


Front Components

Table 1-1
Front Components

Item	Component	Function
1	Power/standby light	<ul style="list-style-type: none"> ■ On: Notebook is turned on. ■ Blinking: Notebook is in standby. ■ Off: Notebook is off or in hibernation.
2	Battery light	<ul style="list-style-type: none"> ■ On: The battery pack is charging. ■ Blinking: The battery pack has reached a low-battery condition. ■ Off: The battery pack is fully charged or not inserted.
3	Integrated Drive Electronics (IDE) drive light	On or blinking: The internal hard drive or an optical drive is being accessed.
4	Consumer infrared (IR) lens (select models only)	Links the notebook to an optional remote control.
5	Speakers	Produce stereo sound.
6	Display release button	Opens the notebook.

The external components on the right side of the HP Pavilion dv4000 are shown below and described in Table 1-2. Depending on your notebook model, component locations may vary.

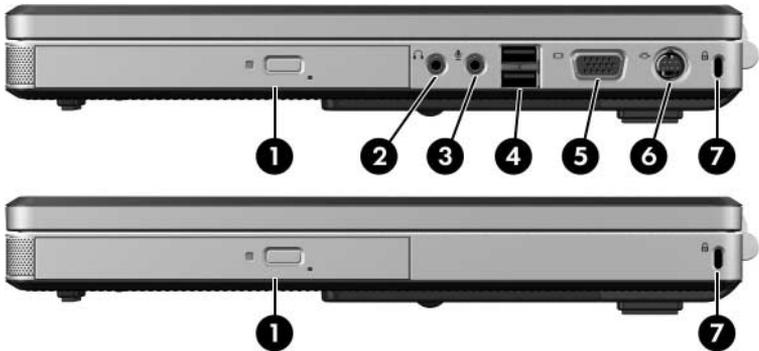


Right-Side Components, HP Pavilion dv4000

Table 1-2
Right-Side Components, HP Pavilion dv4000

Item	Component	Function
1	Optical drive	Supports an optical disc, such as a CD or DVD.
2	Audio-out (headphone) jack (full-featured models only)	Connects an optional headphone or powered stereo speakers. Also connects the audio function of an audio/video device, such as a television or VCR.
3	Audio-in (microphone) jack (full-featured models only)	Connects an optional stereo microphone.
4	USB ports (full-featured models only)	Connect optional USB devices.  Number of USB ports vary by model.
5	Monitor port (full-featured models only)	Connects an optional VGA monitor or projector.
6	S-Video-out jack (full-featured models only)	Connects the video function of an optional S-Video device, such as a television, VCR, or video capture card.
7	Security cable slot	Attaches an optional security cable to the notebook.  The purpose of security solutions is to act as a deterrent. These solutions do not prevent the product from being mishandled or stolen.

The external components on the right side of the Compaq Presario V4000 are shown below and described in Table 1-3. Depending on your notebook model, component locations may vary.

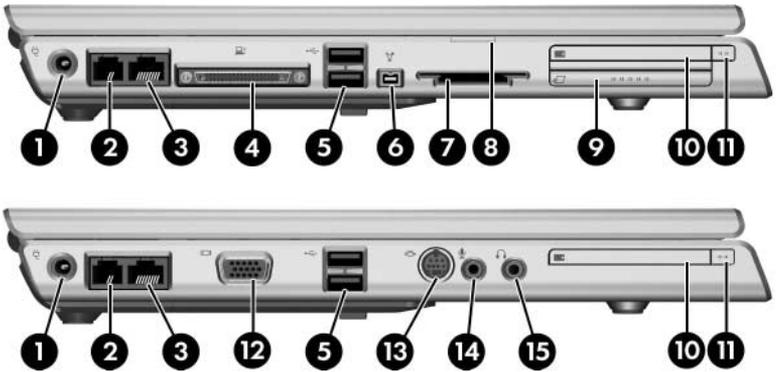


Right-Side Components, Compaq Presario V4000

Table 1-3
Right-Side Components, Compaq Presario V4000

Item	Component	Function
1	Optical drive	Supports an optical disc, such as a CD or DVD.
2	Audio-out (headphone) jack (full-featured models only)	Connects an optional headphone or powered stereo speakers. Also connects the audio function of an audio/video device, such as a television or VCR.
3	Audio-in (microphone) jack (full-featured models only)	Connects an optional stereo microphone.
4	USB ports (full-featured models only)	Connect optional USB devices.  Number of USB ports vary by model.
5	Monitor port (full-featured models only)	Connects an optional VGA monitor or projector.
6	S-Video-out jack (full-featured models only)	Connects the video function of an optional S-Video device, such as a television, VCR, or video capture card.
7	Security cable slot	Attaches an optional security cable to the notebook.  The purpose of security solutions is to act as a deterrent. These solutions do not prevent the product from being mishandled or stolen.

The external components on the left side of the HP Pavilion dv4000 are shown below and described in Table 1-4. Depending on your notebook model, component locations may vary.



Left-Side Components, HP Pavilion dv4000

Table 1-4
Left-Side Components, HP Pavilion dv4000

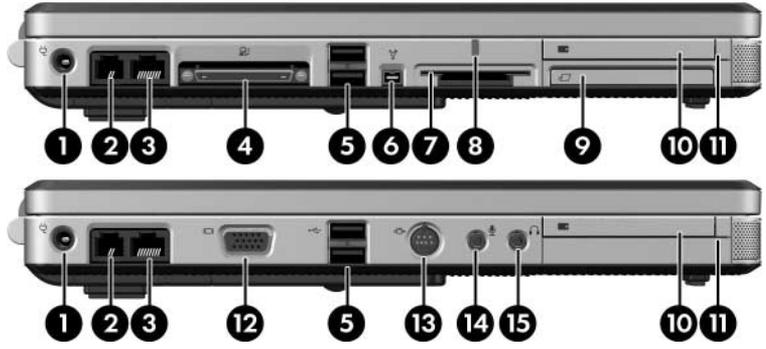
Item	Component	Function
1	Power connector	Connects the AC adapter cable.
2	RJ-11 (modem) jack	Connects a modem cable (not included).
3	RJ-45 (network) jack	Connects a network cable (not included).
4	Expansion port 2 (full-featured models only)	<p>Connects the notebook to an optional docking device.</p> <p> The notebook has only one expansion port. The term <i>expansion port 2</i> describes the type of expansion port.</p>
5	USB ports	<p>Connect optional USB devices.</p> <p> Number of USB ports vary by model.</p>
6	1394 port (4-pin; full-featured models only)	Connects an optional 1394a device such as a scanner, a digital camera, or a digital camcorder.
7	Digital Media Slot (full-featured models only)	Supports the following optional digital cards: SD (Secure Digital) Memory Card, SD I/O Card, Memory Stick, Memory Stick Pro, MultiMediaCard, xD-Picture Card, and SmartMedia.
8	Digital Media Slot light (full-featured models only)	On: An optional digital card is being accessed.
9	ExpressCard slot (full-featured models only)	Supports an optional ExpressCard.
10	PC Card slot	Supports an optional Type I or Type II 32-bit (CardBus) or 16-bit PC Card.
11	PC Card eject button	Ejects PC Cards from the PC Card slot.

Table 1-4

Left-Side Components, HP Pavilion dv4000 (*Continued*)

Item	Component	Function
12	Monitor port (full-featured models only)	Connects an optional VGA monitor or projector.
13	S-Video-out jack (defeatured models only)	Connects the video function of an optional S-Video device, such as a television, VCR, or video capture card.
14	Audio-in (microphone) jack (defeatured models only)	Connects an optional stereo microphone.
15	Audio-out (headphone) jack (defeatured models only)	Connects an optional headphone or powered stereo speakers. Also connects the audio function of an audio/video device, such as a television or VCR.

The external components on the left side of the Compaq Presario V4000 are shown below and described in Table 1-5. Depending on your notebook model, component locations may vary.



Left-Side Components, Compaq Presario V4000

Table 1-5

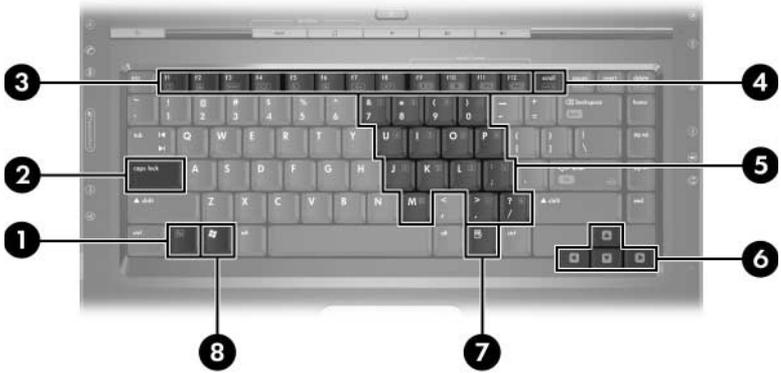
Left-Side Components, Compaq Presario V4000

Item	Component	Function
1	Power connector	Connects the AC adapter cable.
2	RJ-11 (modem) jack	Connects a modem cable (not included).
3	RJ-45 (network) jack	Connects a network cable (not included).
4	Expansion port 2 (full-featured models only)	Connects the notebook to an optional docking device.  The notebook has only one expansion port. The term <i>expansion port 2</i> describes the type of expansion port.
5	USB ports	Connect optional USB devices.  Number of USB ports vary by model.
6	1394 port (4-pin; full-featured models only)	Connects an optional 1394a device such as a scanner, a digital camera, or a digital camcorder.
7	Memory Reader (full-featured models only)	Supports the following optional digital cards: SD (Secure Digital) Memory Card, SD I/O Card, Memory Stick, Memory Stick Pro, MultiMediaCard, xD-Picture Card, and SmartMedia.
8	Memory Reader light (full-featured models only)	On: An optional digital card is being accessed.
9	ExpressCard slot (full-featured models only)	Supports an optional ExpressCard.
10	PC Card slot	Supports an optional Type I or Type II 32-bit (CardBus) or 16-bit PC Card.
11	PC Card eject button	Ejects PC Cards from the PC Card slot.

Table 1-5**Left-Side Components, Compaq Presario V4000 (Continued)**

Item	Component	Function
12	Monitor port (full-featured models only)	Connects an optional VGA monitor or projector.
13	S-Video-out jack (defeated models only)	Connects the video function of an optional S-Video device, such as a television, VCR, or video capture card.
14	Audio-in (microphone) jack (defeated models only)	Connects an optional stereo microphone.
15	Audio-out (headphone) jack (defeated models only)	Connects an optional headphone or powered stereo speakers. Also connects the audio function of an audio/video device, such as a television or VCR.

The standard keyboard components of the notebook are shown below and described in Table 1-6.



Standard Keyboard Components

Table 1-6
Standard Keyboard Components

Item	Component	Function
1	fn key	Combines with other keys to perform system tasks as hotkeys. For example, pressing fn+f7 decreases screen brightness.
2	caps lock key	Enables caps lock and turns on the caps lock light.
3	f1 to f12 keys (12)	Perform system and application tasks. When combined with fn , function keys perform additional tasks as hotkeys.
4	num lock key	Enables numeric lock, turns on the embedded numeric keypad, and turns on the num lock light.
5	Embedded numeric keypad keys (15)	Can be used like the keys on an external numeric keypad.
6	Arrow keys	Move the cursor around the screen.
7	Windows applications key	Displays a shortcut menu for items beneath the pointer.
8	Windows logo key	Displays the Microsoft Windows Start menu.

The top components on HP Pavilion dv4000 models are shown below and described in Table 1-7.



Top Components, HP Pavilion dv4000 Models

Table 1-7

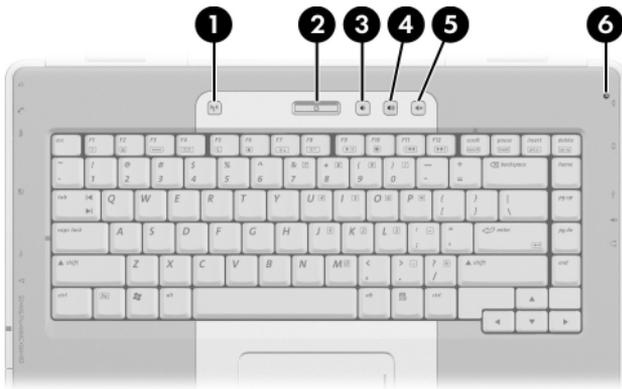
Top Components, HP Pavilion dv4000

Item	Component	Function
1	Power/standby light	<ul style="list-style-type: none">■ On: Notebook is turned on.■ Blinking: Notebook is in standby.■ Off: Notebook is off or in hibernation.

Table 1-7
Top Components, HP Pavilion dv4000 (Continued)

Item	Component	Function
2	Power/standby button	<p>When the notebook is</p> <ul style="list-style-type: none"> ■ Off, press to start the notebook. ■ On, briefly press to initiate hibernation. ■ In standby, briefly press to resume from standby. ■ In hibernation, briefly press to restore from hibernation. <p> If the system has stopped responding and Windows shutdown procedures cannot be used, press and hold for at least 4 seconds to turn off the notebook.</p>
3	Quick Launch buttons (select models only)	Launch default multimedia, digital imaging, or music applications (vary by model).
4	Volume mute button	Mutes or restores volume.
5	Wireless light (select models only)	<p>On: One or more internal wireless devices have been turned on.</p> <p> To establish a wireless connection, a wireless network must already be set up.</p>
6	Wireless button (select models only)	<p>Turns the wireless functionality on or off, but does not create a wireless connection.</p> <p> To establish a wireless connection, a wireless network must already be set up.</p>
7	Volume down button	Decreases system volume.
8	Volume up button	Increases system volume.
9	Display switch	Initiates standby when the notebook is closed.

The top components on Compaq Presario V4000 models are shown below and described in Table 1-8.

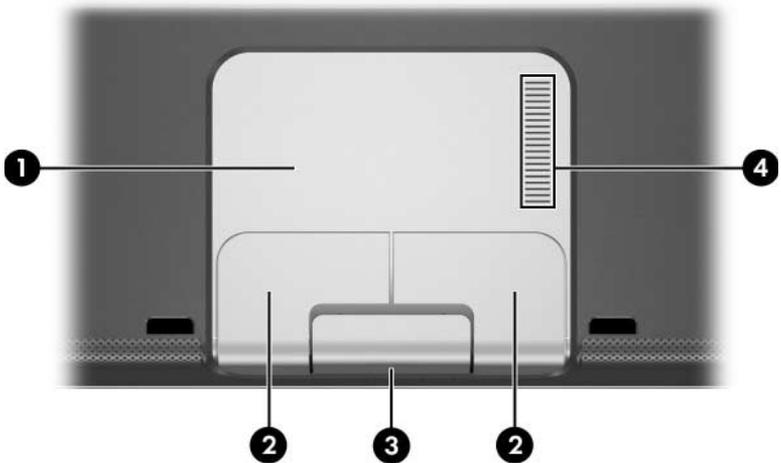


Top Components, Compaq Presario V4000 Models

Table 1-8
Top Components, Compaq Presario V4000 Models

Item	Component	Function
1	Wireless button (select models only)	<p>Turns the wireless functionality on or off, but does not create a wireless connection.</p> <p> To establish a wireless connection, a wireless network must already be set up.</p>
2	Power/standby button	<p>When the notebook is</p> <ul style="list-style-type: none"> ■ Off, press to start the notebook. ■ On, briefly press to initiate hibernation. ■ In standby, briefly press to resume from standby. ■ In hibernation, briefly press to restore from hibernation. <p> If the system has stopped responding and Windows shutdown procedures cannot be used, press and hold for at least 4 seconds to turn off the notebook.</p>
3	Volume down button	Decreases system volume.
4	Volume mute button Volume mute light	<p>Mutes or restores volume.</p> <p>On: Volume is muted.</p>
5	Volume up button	Increases system volume.
6	Display switch	Initiates standby when the notebook is closed.

The HP Pavilion dv4000 notebook TouchPad components are shown below and described in Table 1-9.



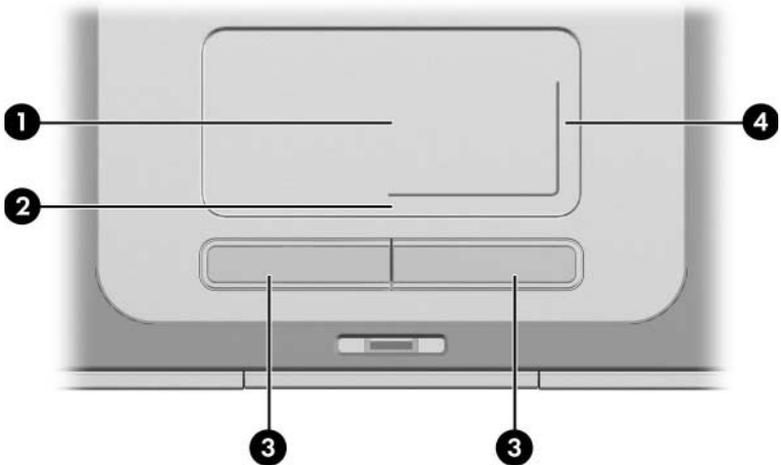
TouchPad Components, HP Pavilion dv4000

Table 1-9

TouchPad Components, HP Pavilion dv4000

Item	Component	Function
1	TouchPad	Moves the pointer.
2	Left and right TouchPad buttons	Function like the left and right buttons on an external mouse.
3	Display release button	Opens the notebook.
4	TouchPad vertical scroll zone	Scrolls up or down.

The Compaq Presario V4000 notebook TouchPad components are shown below and described in Table 1-10.



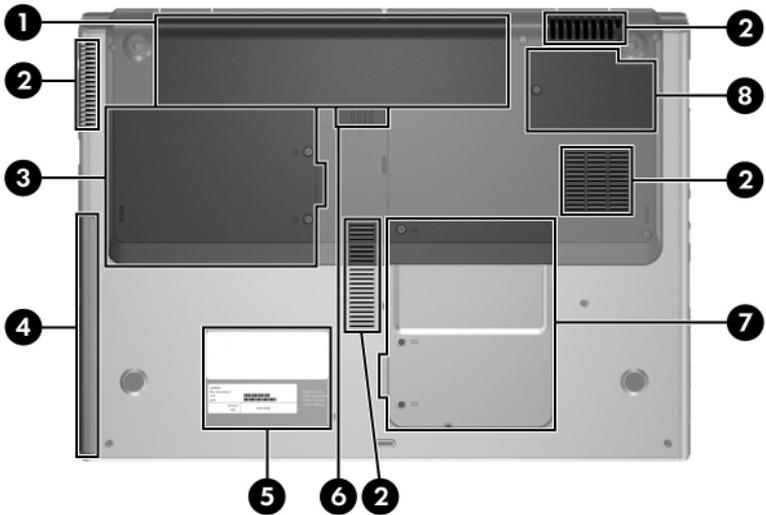
TouchPad Components, Compaq Presario V4000

Table 1-10

TouchPad Components, Compaq Presario V4000

Item	Component	Function
1	TouchPad	Moves the pointer.
2	TouchPad horizontal scroll zone	Scrolls left or right.
3	Left and right TouchPad buttons	Function like the left and right buttons on an external mouse.
4	TouchPad vertical scroll zone	Scrolls up or down.

The external components on the bottom of the notebook are shown below and described in Table 1-11.



Bottom Components

Table 1-11
Bottom Components

Item	Component	Function
1	Battery bay	Holds a battery pack.
2	Vents (4)	Provide airflow to cool internal components.  To prevent overheating, do not obstruct vents. Do not allow a hard surface, such as a printer, or a soft surface, such as pillows or thick rugs or clothing, to block airflow.
3	Hard drive bay	Holds the internal hard drive.
4	Optical drive	Supports an optical disc, such as a CD or DVD.
5	Labels area	Contains the serial number and other information labels.
6	Battery pack release latch	Releases a battery pack from the battery bay.

Table 1-11
Bottom Components (Continued)

Item	Component	Function
7	Memory module/Mini PCI compartment cover	<ul style="list-style-type: none"> <li data-bbox="524 370 889 423">■ Holds an optional wireless LAN device (select models only). <li data-bbox="524 448 939 808">△ To prevent an unresponsive system and the display of a warning message, install only a Mini PCI device authorized for use in your notebook by the governmental agency that regulates wireless devices in your country. If you install an unauthorized device and then receive a warning message, remove the device to restore notebook functionality. Then contact Customer Care. <li data-bbox="524 821 948 954">■ Contains 2 memory module slots that support replaceable memory modules. The number of preinstalled memory modules varies by notebook model.
8	Thermal cover	Provides access to the heat sink and processor.

1.5 Design Overview

This section presents a design overview of key parts and features of the notebook. 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:

- Audio
- Display
- Hard drive
- Intel Pentium M and Celeron M processors
- Keyboard
- Memory module
- Mini PCI communications devices
- PC Card
- TouchPad



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

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

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. If the operating system is working, the notebook restarts the operating system after you exit Computer Setup.



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

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

Accessing Computer Setup

The information and settings in Computer Setup are accessed from the **File**, **Security**, **Tools**, and **Advanced** menus.

1. Open Computer Setup by turning on or restarting the notebook. Press **f10** while the F10 = Based Setup message is displayed in the lower-left corner of the screen.
 - To change the language, press **f2**.
 - To view navigation information, press **f1**.
 - To return to the Computer Setup menu, press **esc**.
2. Select the **File**, **Security**, **Tools**, or **Advanced** menu.
3. To exit Computer Setup, choose one of the following:
 - To exit without saving any changes, use the arrow keys to select **File > Ignore changes and exit**, and then follow the instructions on the screen.
 - To exit and save all the settings you have entered, use the arrow keys to select **File > Save changes and exit**, and then follow the instructions on the screen.

Your preferences are set when you exit Computer Setup and take effect when the notebook restarts.

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 notebook. Press **f10** while the F10 = Based Setup message is displayed in the lower-left corner of the screen.
 - To change the language, press **f2**.
 - To view navigation information, press **f1**.
2. Use the arrow keys to select **File > Restore defaults**.
3. Select the **Restore Defaults** check box.

4. To confirm the restoration, press **f10**.
5. Select **File > Save changes and exit**, and then follow the instructions on the screen.

When the computer restarts, the factory settings are restored, and any identification information you have entered is saved.

Selecting from the File Menu

Table 2-1
File Menu

Select	To Do This
System Information	<ul style="list-style-type: none"> ■ View identification information about the notebook and any battery packs in the system. ■ View specification information about the processor, memory and cache size, video revision, keyboard controller version, and system ROM.
Save to floppy	Save system configuration settings to a diskette.
Restore to floppy	Restore system configuration settings from a diskette.
Restore defaults	Replace configuration settings in Computer Setup with factory default settings. (Identification information is retained.)
Ignore changes and exit	Cancel changes entered during the current session. Then exit and restart the notebook.
Save changes and exit	Save changes entered during the current session. Then exit and restart the notebook. The changes you save are in effect when the notebook restarts.

Selecting from the Security Menu

Table 2-2
Security Menu

Select	To Do This
Administrator password	Enter, change, or delete an HP Administrator 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 required password on restart.
DriveLock passwords	<p>Enable/disable DriveLock; change a DriveLock user or master password.</p> <p> DriveLock Settings are accessible only when you enter Computer Setup by turning on (not restarting) the notebook.</p>
Smart Card Security	<p>Enable/disable power-on support for smart cards.</p> <p> This feature is supported by select smart card readers only.</p>
Embedded Security	<ul style="list-style-type: none"> ■ Enable/Disable the embedded security chip. ■ Restore embedded security chip to factory settings. ■ Enable/Disable power-on authentication support. ■ Enable/Disable automatic DriveLock. ■ Reset power-on authentication credential <p> Embedded Security settings are accessible only if the notebook is equipped with an embedded security chip.</p>
Device security	<p>Enable/Disable devices in the system.</p> <p>Enable NIC for inclusion in MultiBoot.</p>
System IDs	Enter user-defined identification values.

Selecting from the Tools Menu

Table 2-3
Tools Menu

Select	To Do This
HDD Self Test options	Run a quick or comprehensive self-test on any hard drive in the system.
Battery Information	View information about any battery packs in the notebook.
Memory Check	<ul style="list-style-type: none"> <li data-bbox="426 594 902 646">■ Run a self-test on memory modules in the notebook. <li data-bbox="426 659 902 711">■ View information about memory modules installed in the notebook.

Selecting from the Advanced Menu

Table 2-4
Advanced Menu

Select	To Do This
Language (or press f2)	Change the Computer Setup language.
Boot options	<ul style="list-style-type: none"> ■ Enable/Disable MultiBoot, which sets a startup sequence that can include most bootable devices and media in the system. ■ Set the boot order.
Device options	<ul style="list-style-type: none"> ■ Swap the functions of the fn key and left ctrl key. ■ Enable/Disable multiple pointing devices at startup. (To set the notebook to support only a single, usually nonstandard, pointing device at startup, select Disable.) ■ Enable/Disable USB legacy support for a USB keyboard, mouse, and hub. When USB legacy support is enabled <ul style="list-style-type: none"> <input type="checkbox"/> A USB keyboard, mouse, and hub work even when a Windows operating system is not loaded. <input type="checkbox"/> The notebook starts from a bootable hard drive, diskette drive diskette, or CD, CD-RW, or DVD inserted into a drive connected by a USB connector to the notebook or to an optional docking device. ■ Select a parallel port mode: EPP (Enhanced Parallel Port), standard, bidirectional, or ECP (Enhanced Capabilities Port). ■ Enable/Disable all settings in the SpeedStep window. (When Disable is selected, the notebook runs in Battery Optimized mode.)

2.2 Troubleshooting Flowcharts

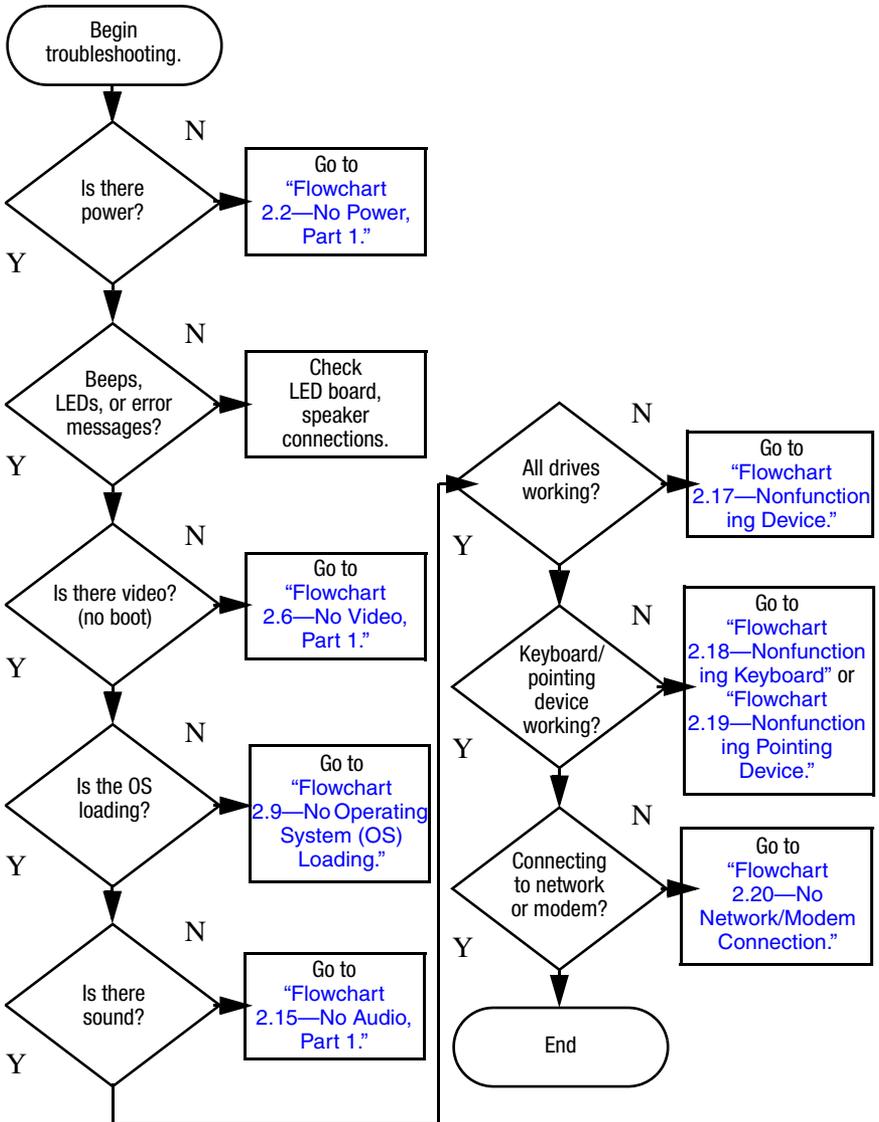
Table 2-5
Troubleshooting Flowcharts Overview

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"

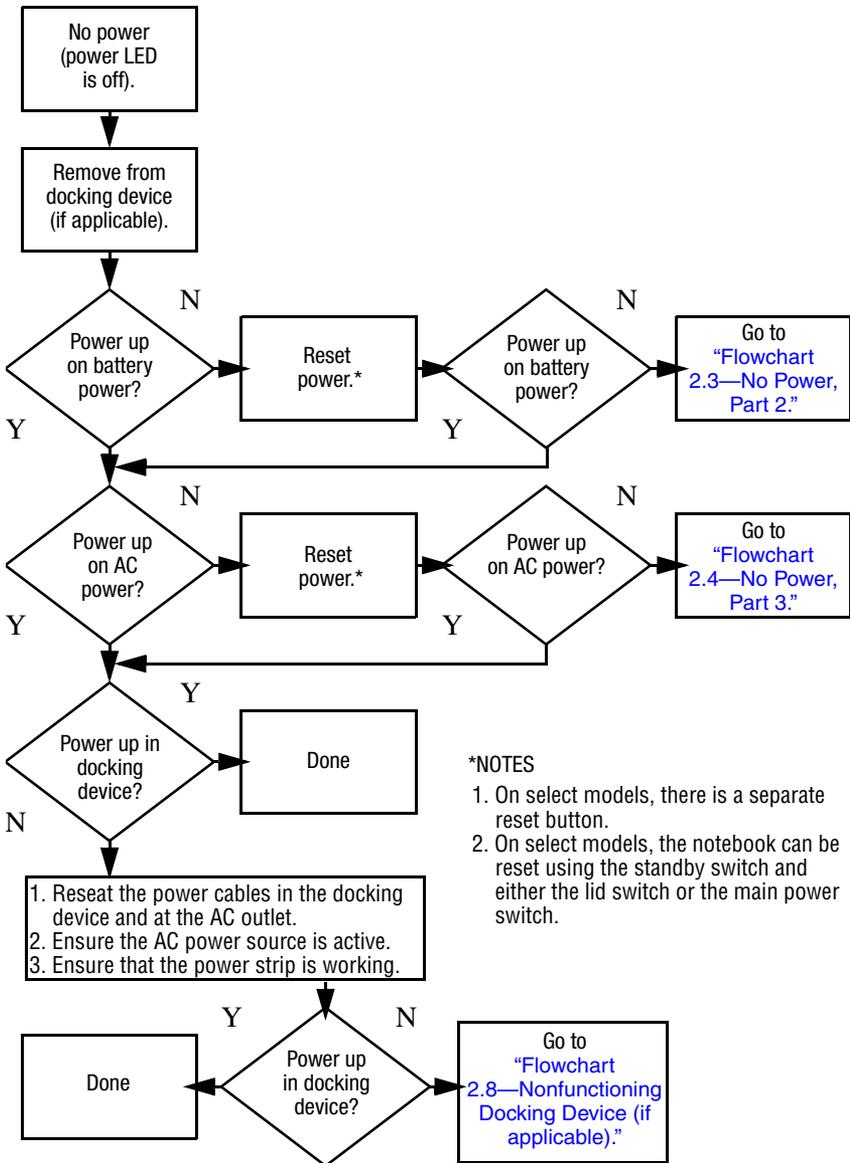
Table 2-5
Troubleshooting Flowcharts Overview (*Continued*)

Flowchart	Description
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"

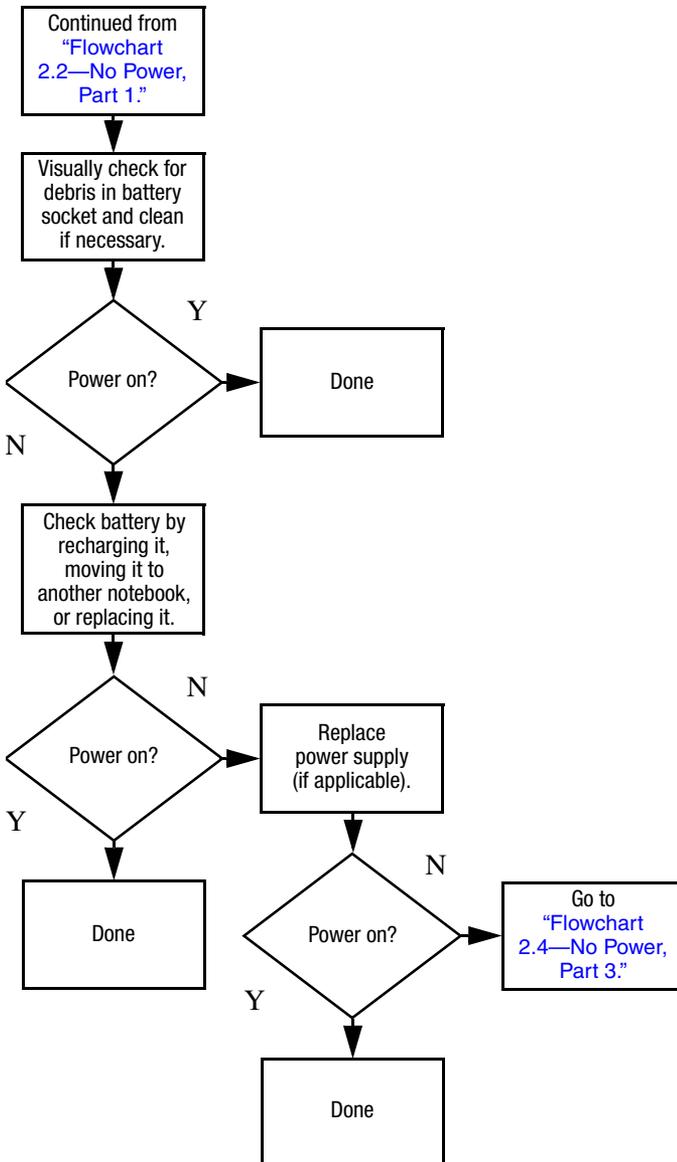
Flowchart 2.1 – Initial Troubleshooting



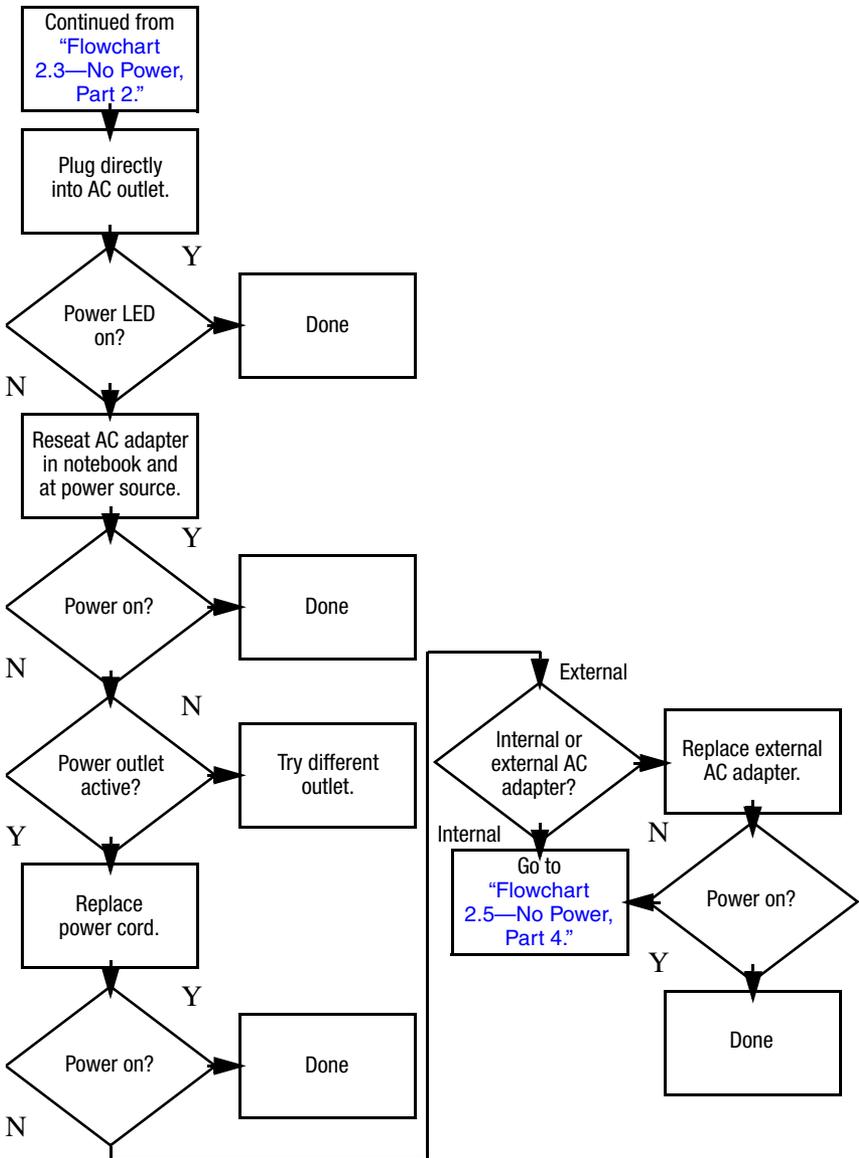
Flowchart 2.2—No Power, Part 1



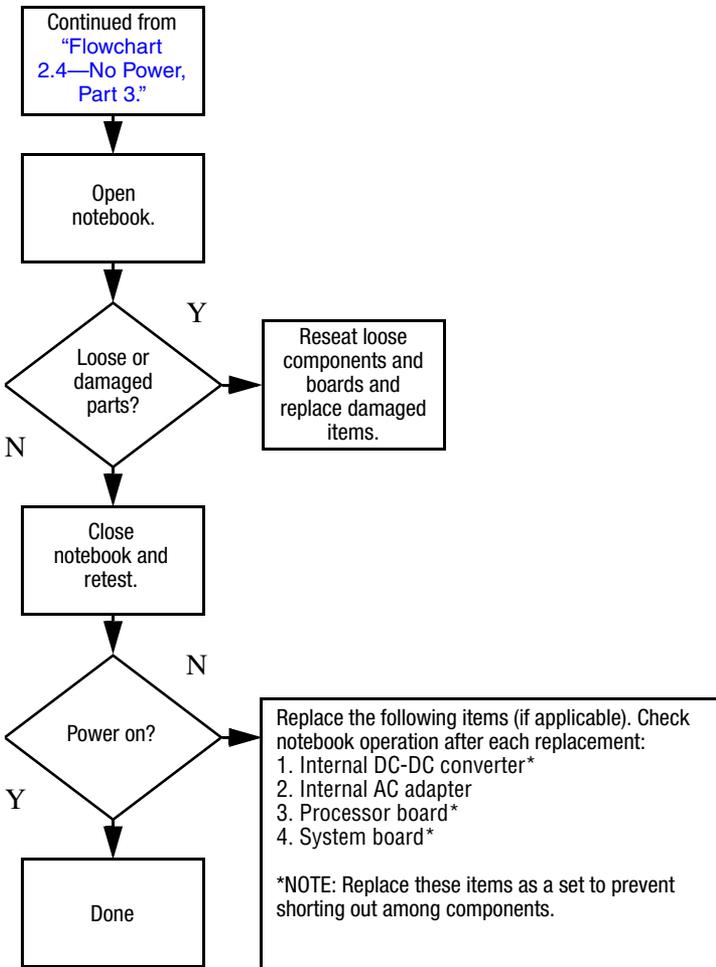
Flowchart 2.3—No Power, Part 2



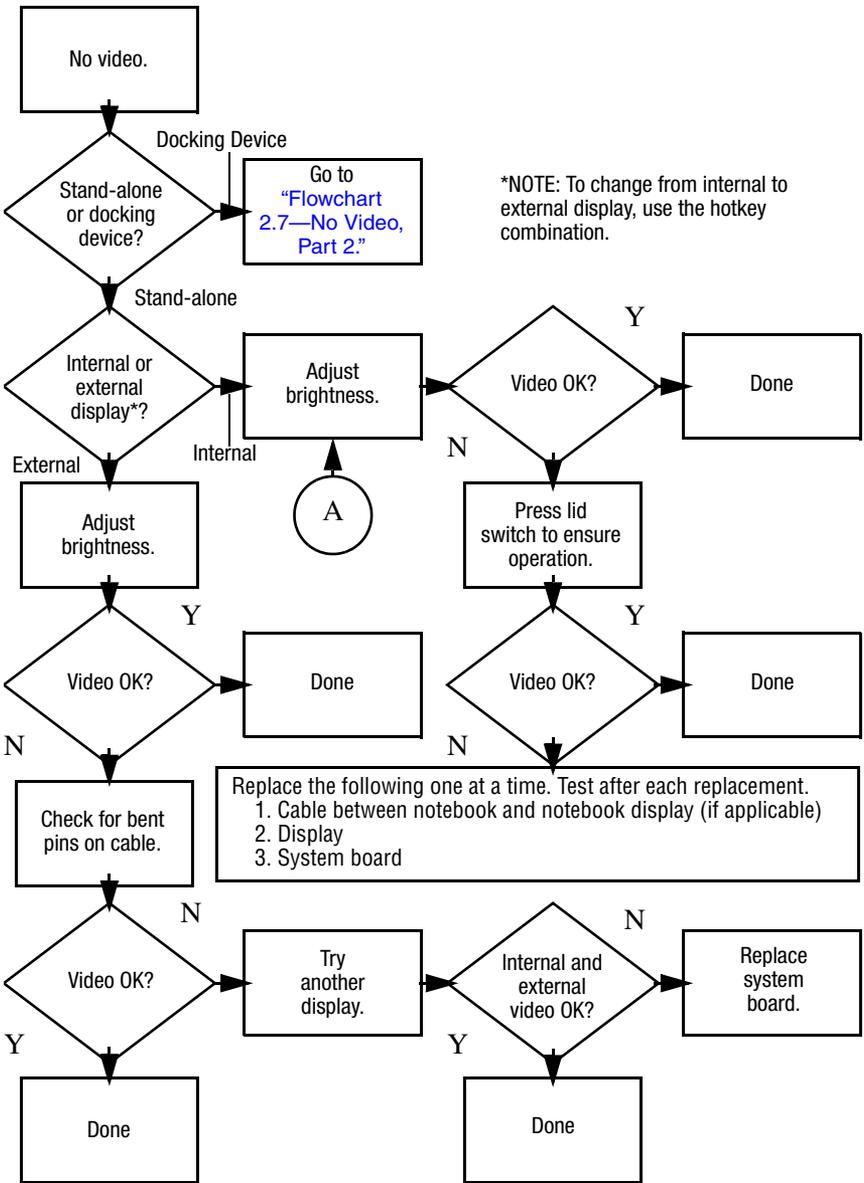
Flowchart 2.4—No Power, Part 3



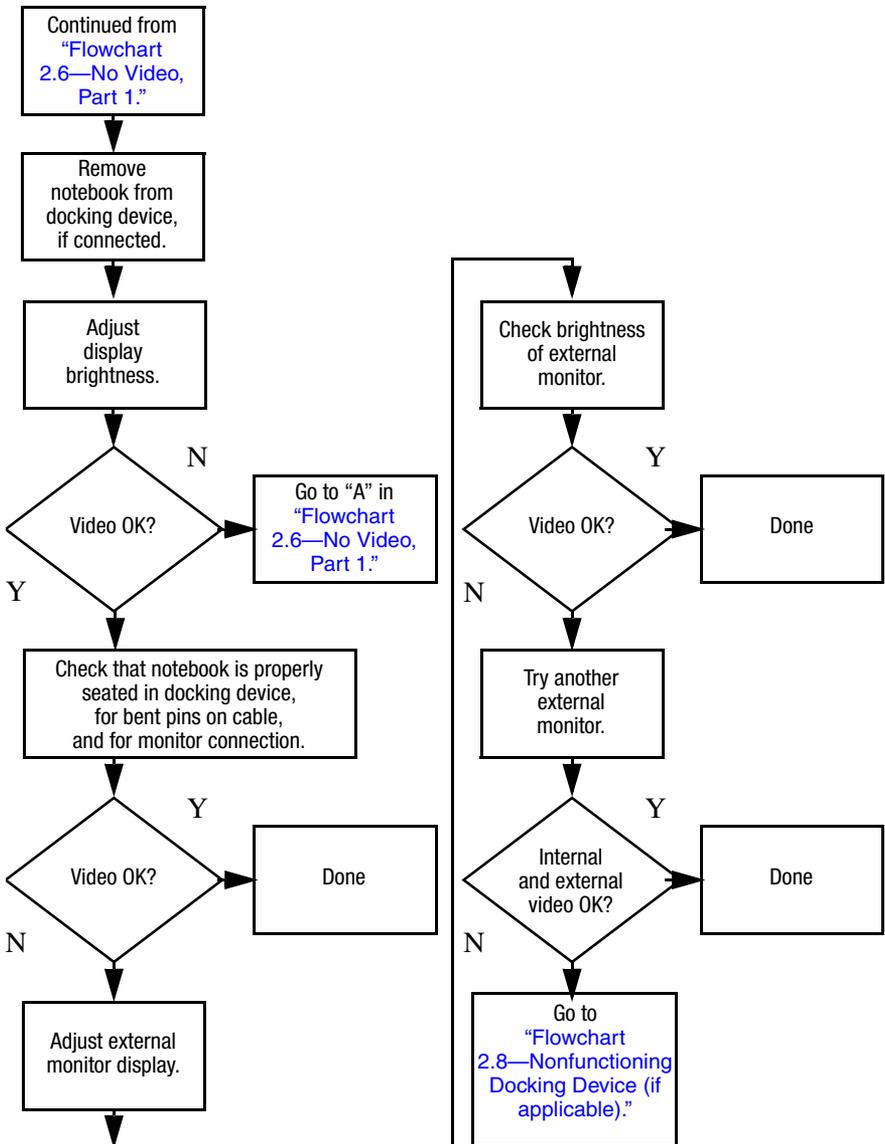
Flowchart 2.5—No Power, Part 4



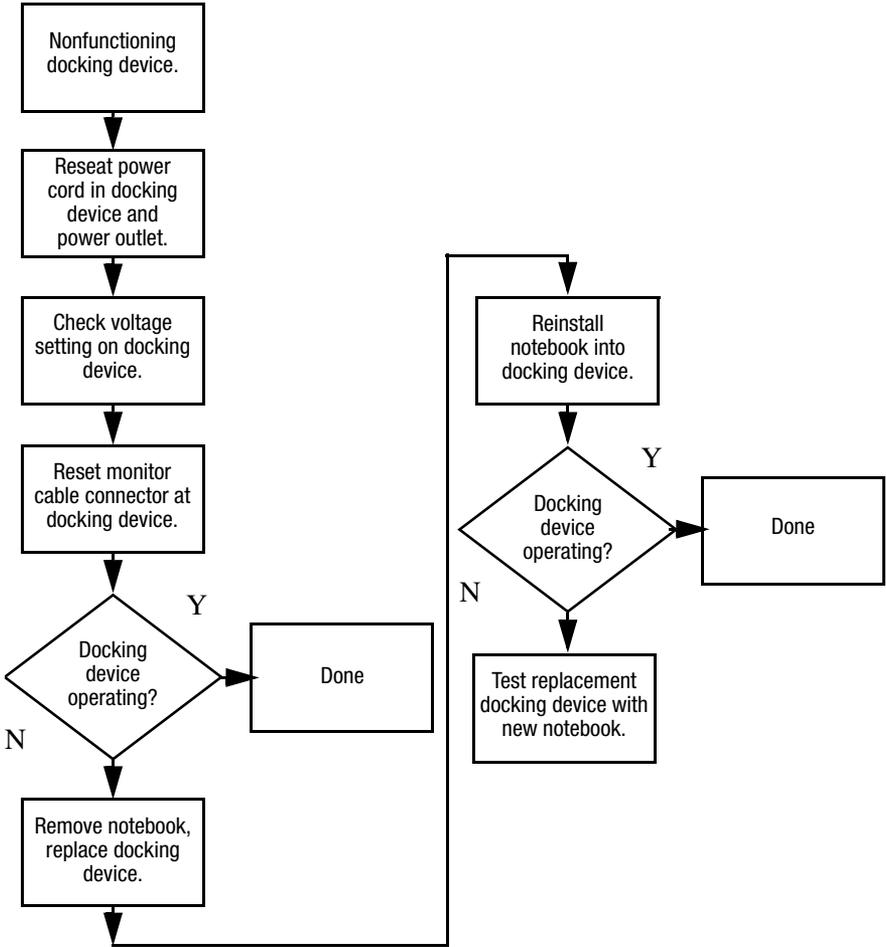
Flowchart 2.6—No Video, Part 1



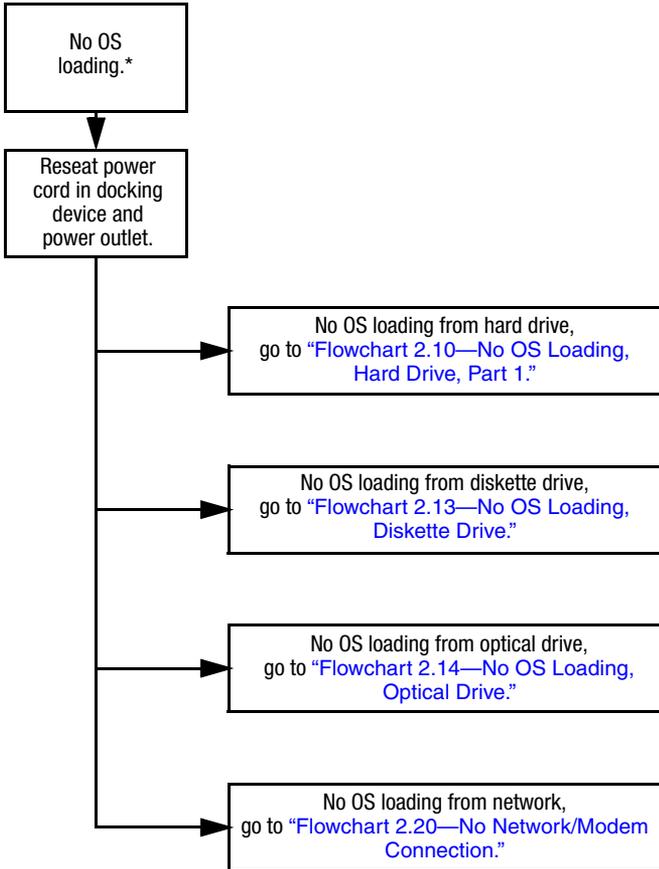
Flowchart 2.7—No Video, Part 2



Flowchart 2.8—Nonfunctioning Docking Device (if applicable)

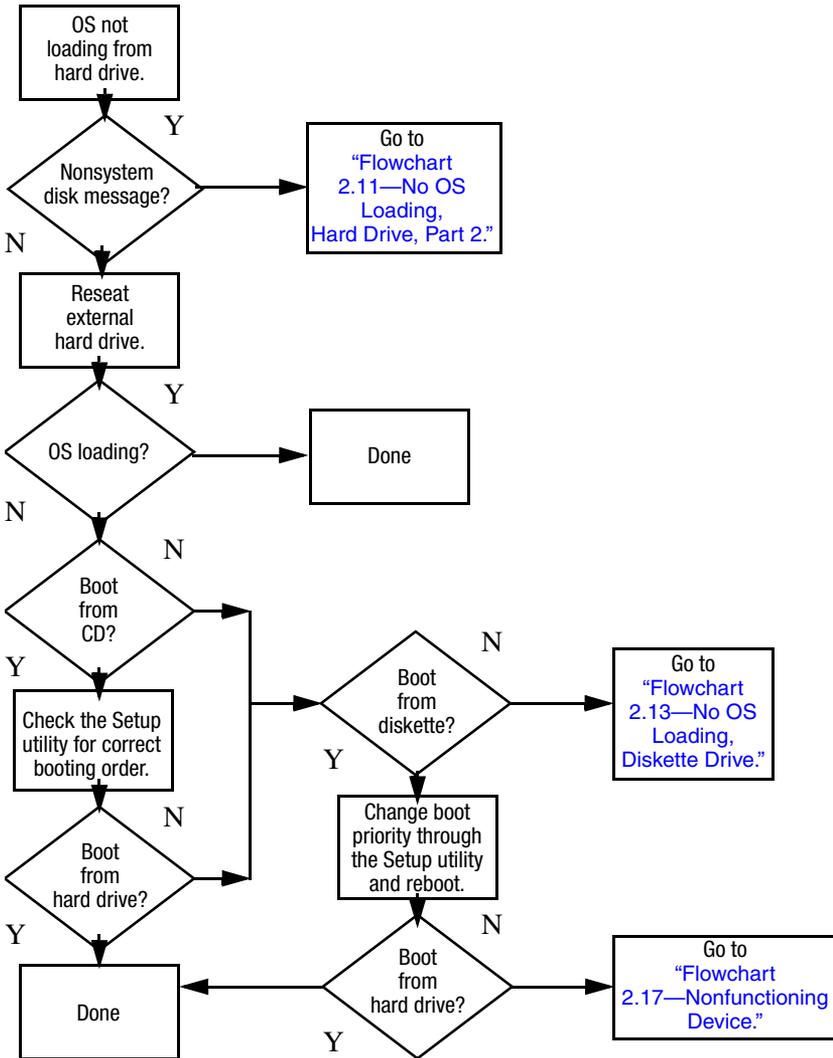


Flowchart 2.9—No Operating System (OS) Loading

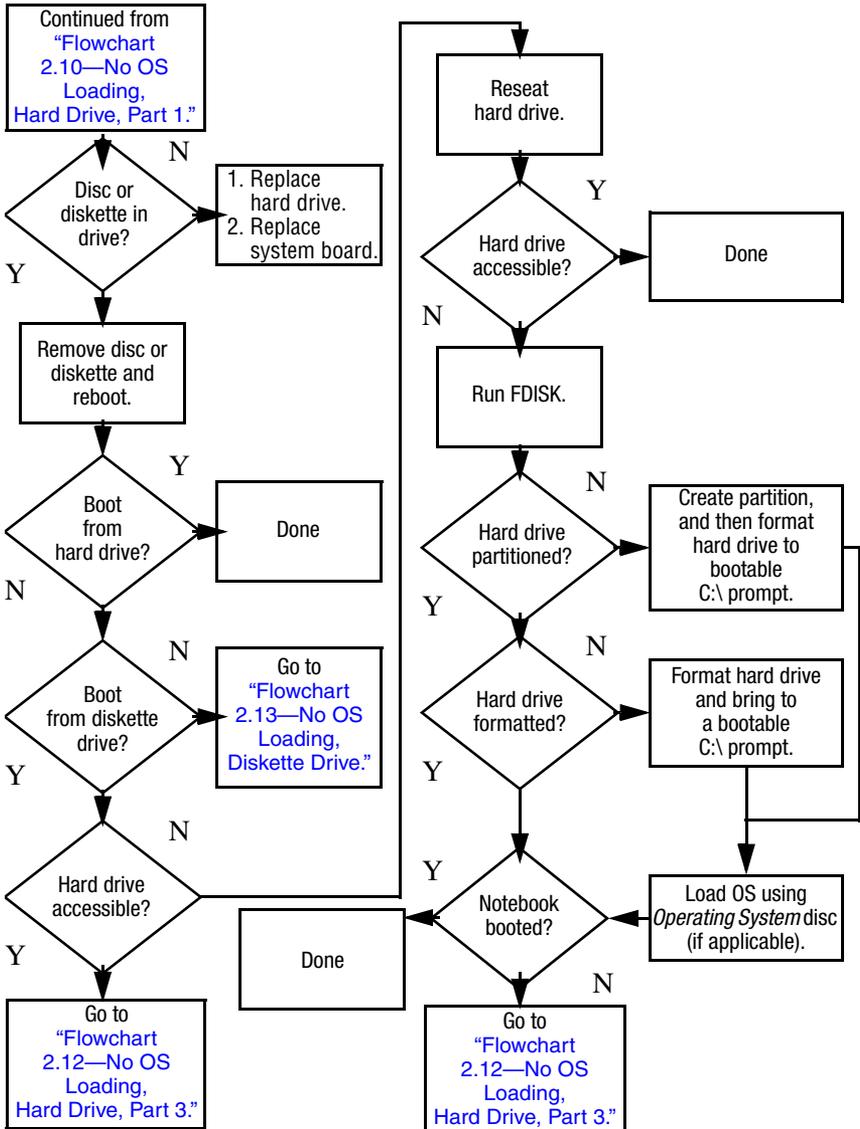


*NOTE: Before beginning troubleshooting, always check cable connections, cable ends, and drives for bent or damaged pins.

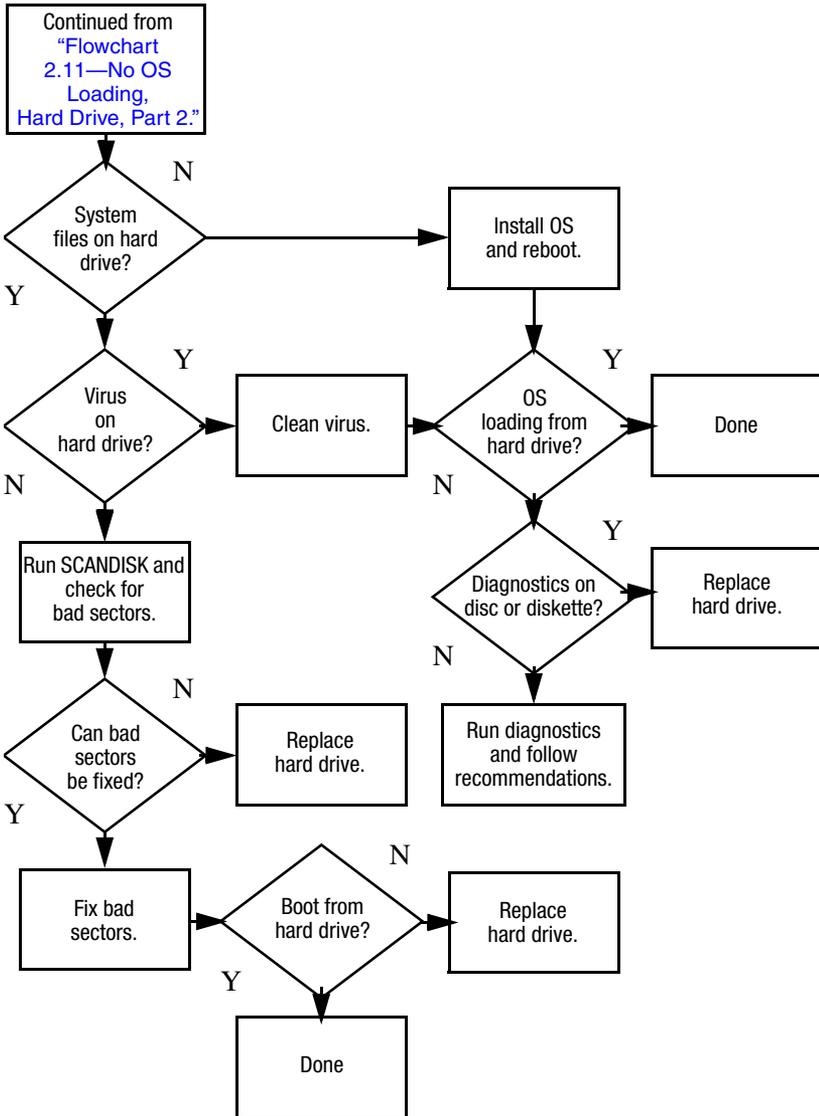
Flowchart 2.10—No OS Loading, Hard Drive, Part 1



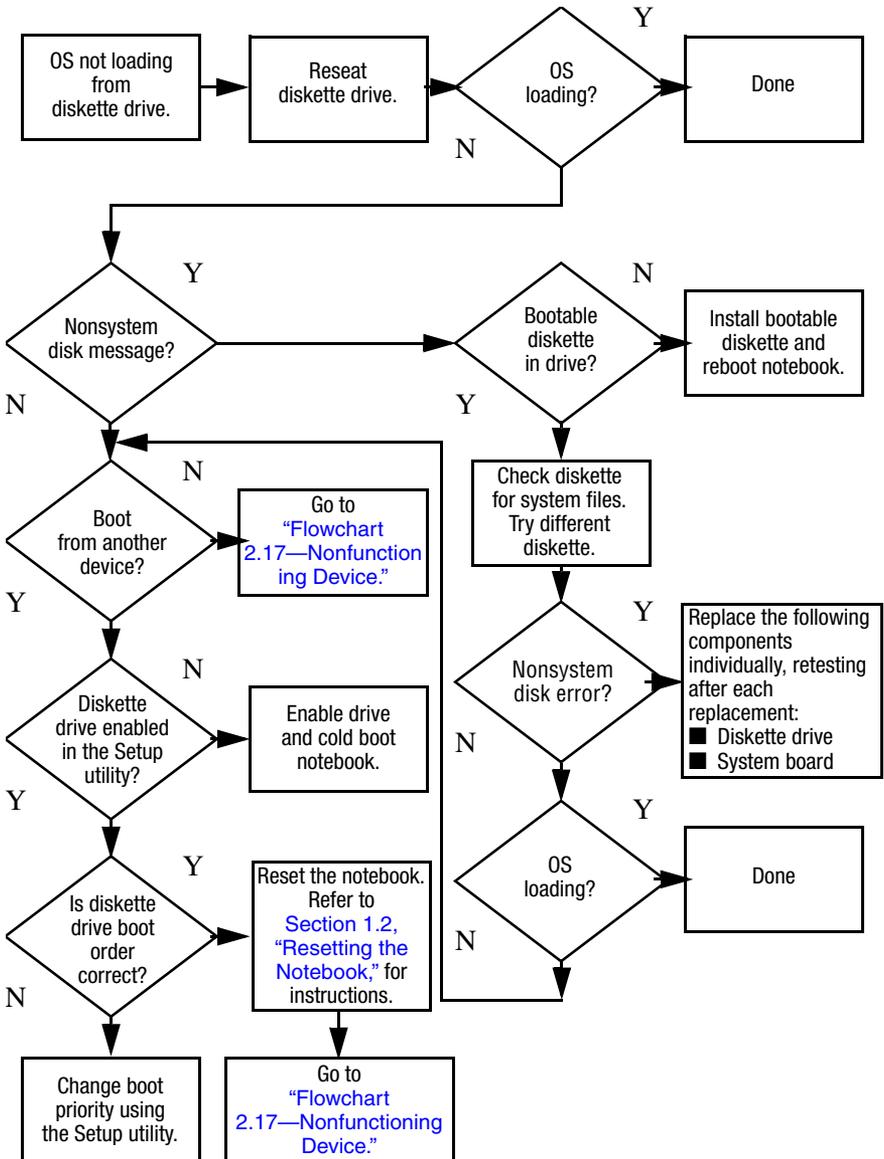
Flowchart 2.11 – No OS Loading, Hard Drive, Part 2



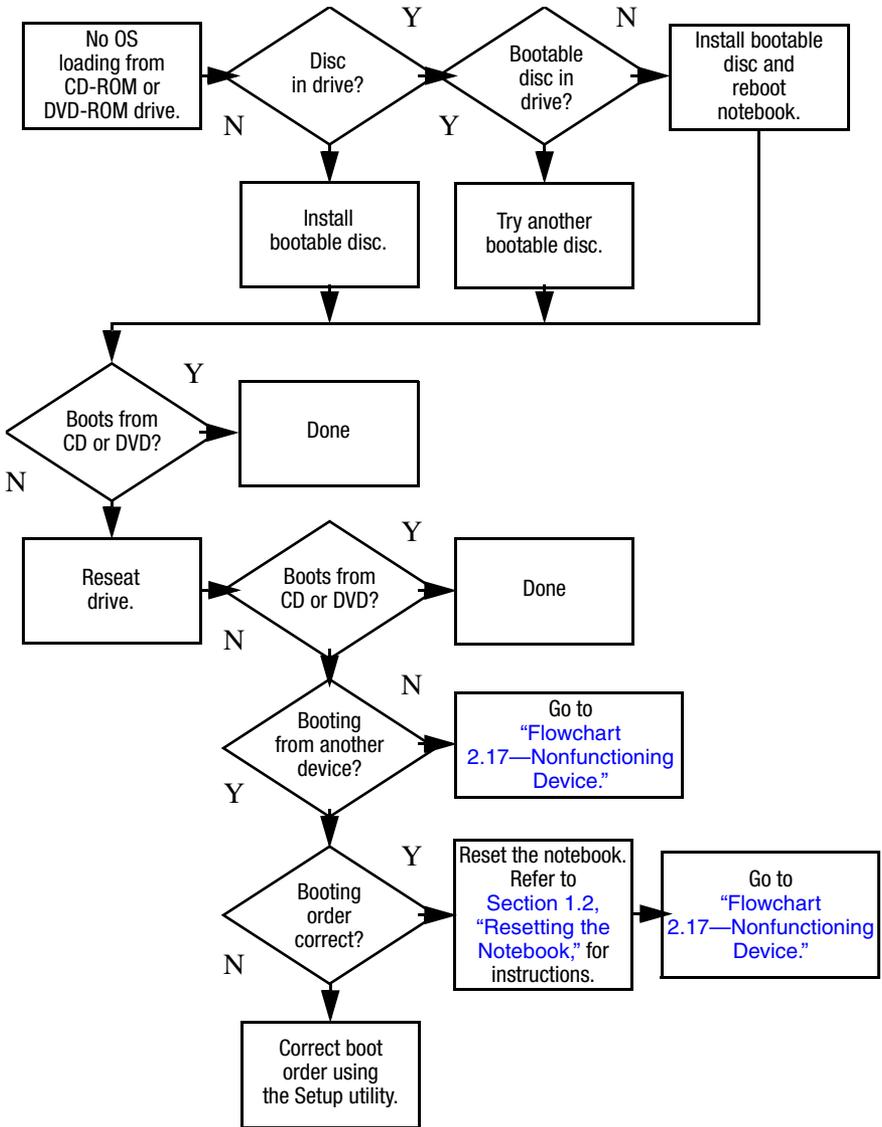
Flowchart 2.12—No OS Loading, Hard Drive, Part 3



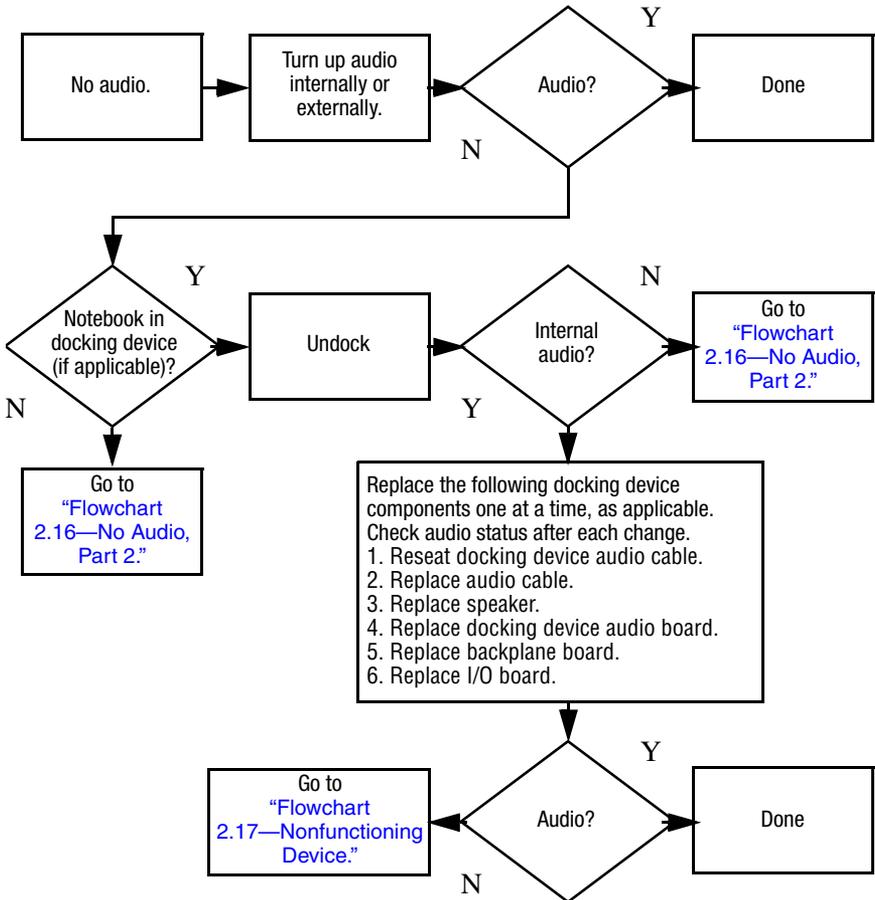
Flowchart 2.13—No OS Loading, Diskette Drive



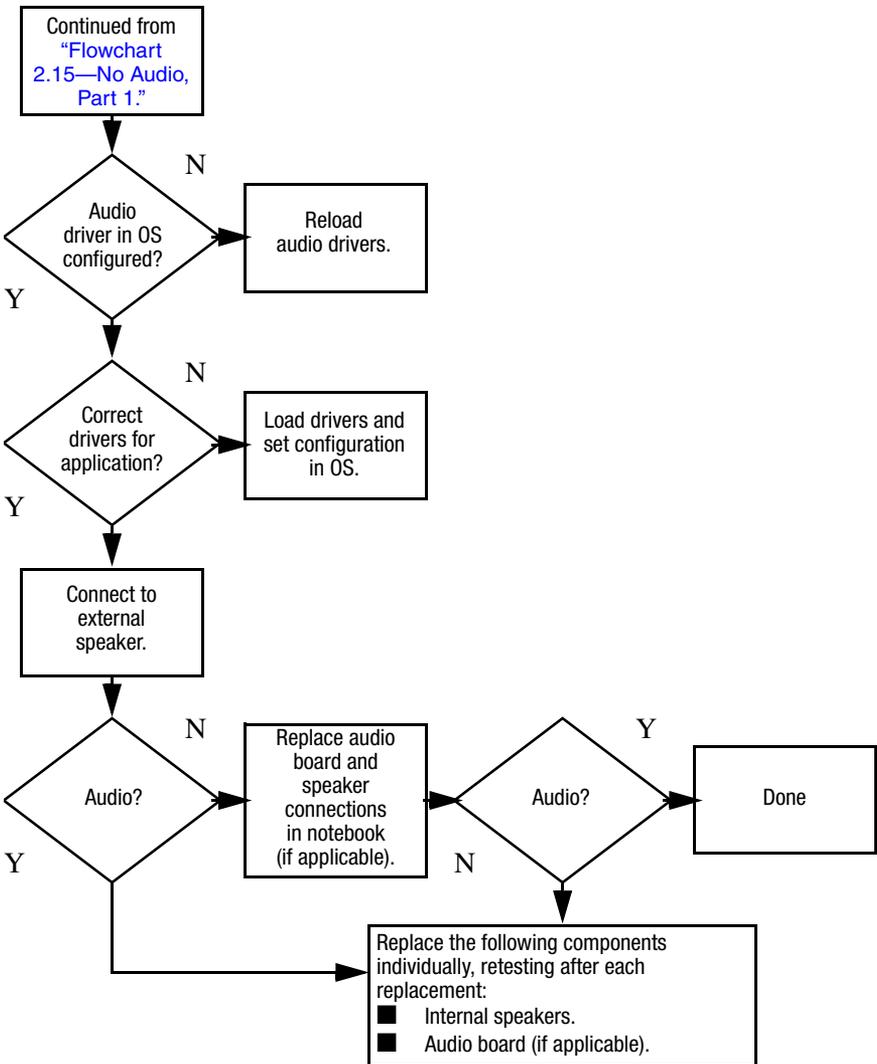
Flowchart 2.14—No OS Loading, Optical Drive



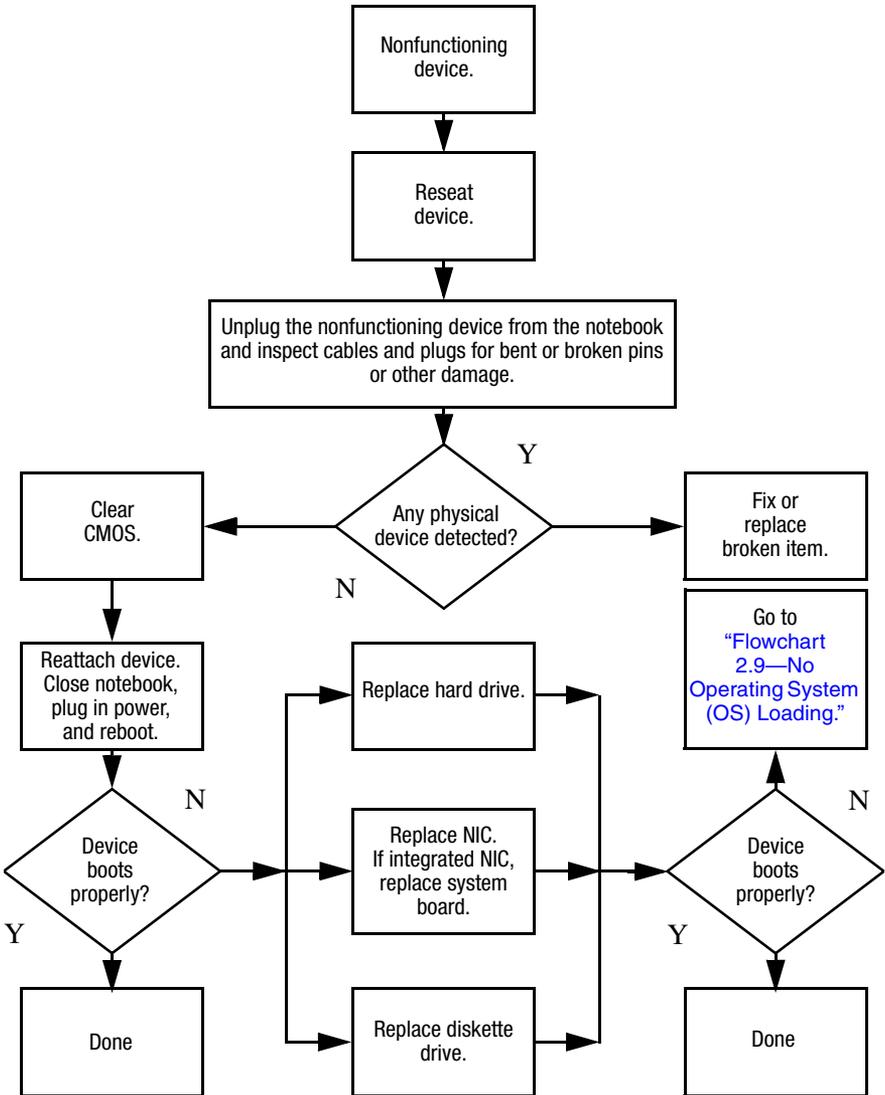
Flowchart 2.15—No Audio, Part 1



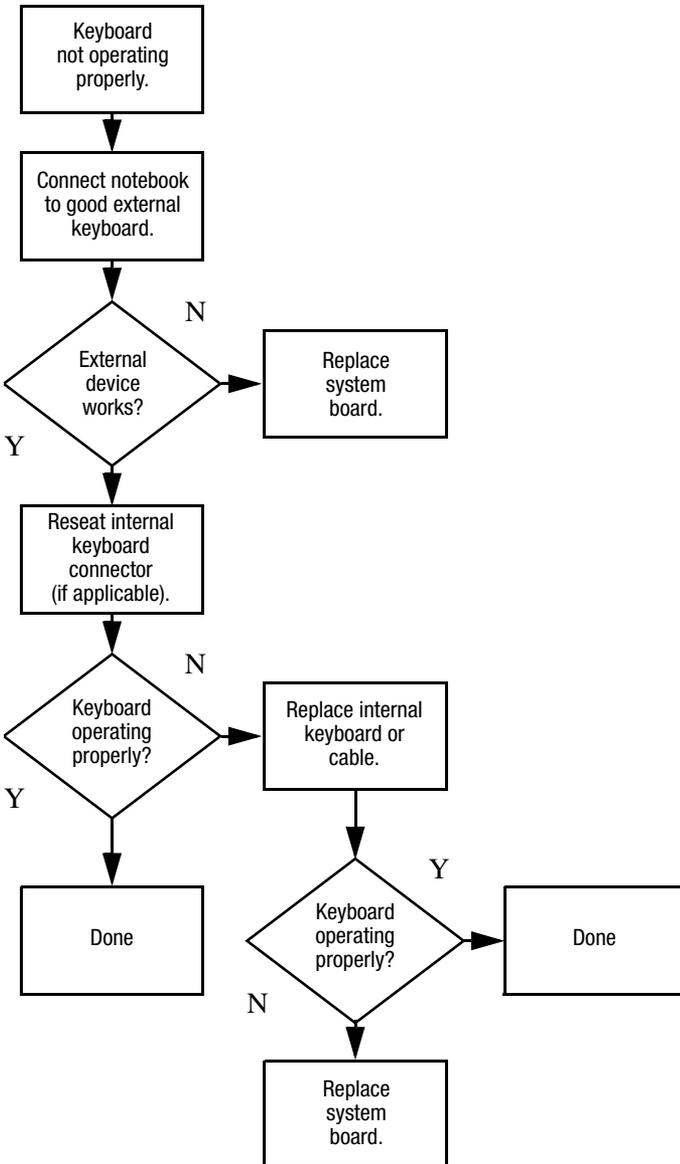
Flowchart 2.16—No Audio, Part 2



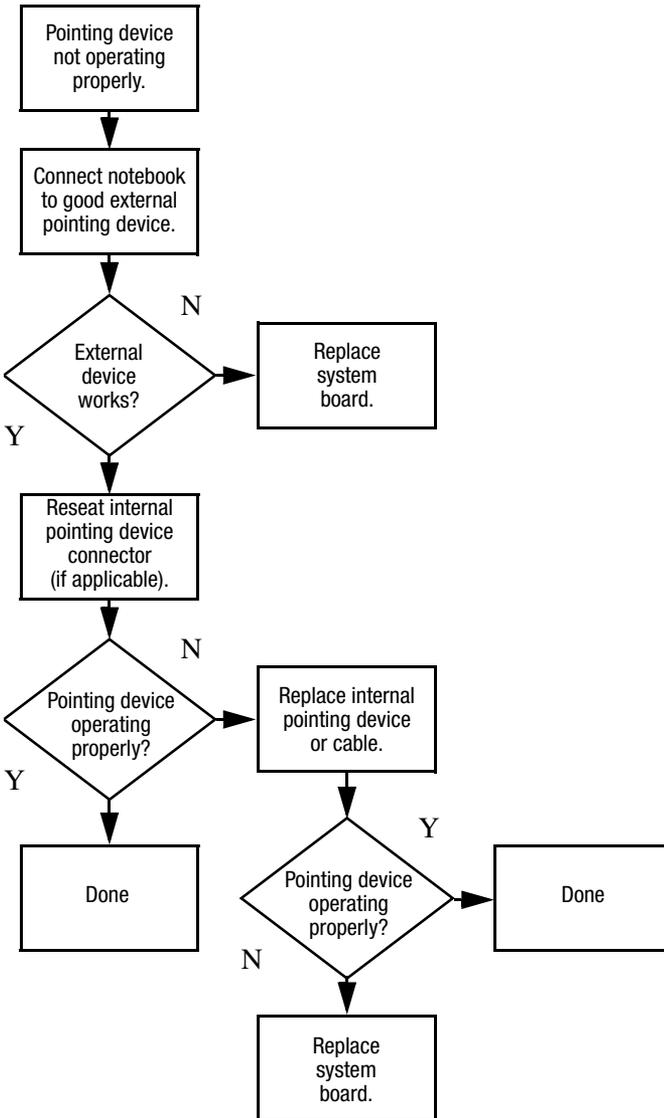
Flowchart 2.17—Nonfunctioning Device



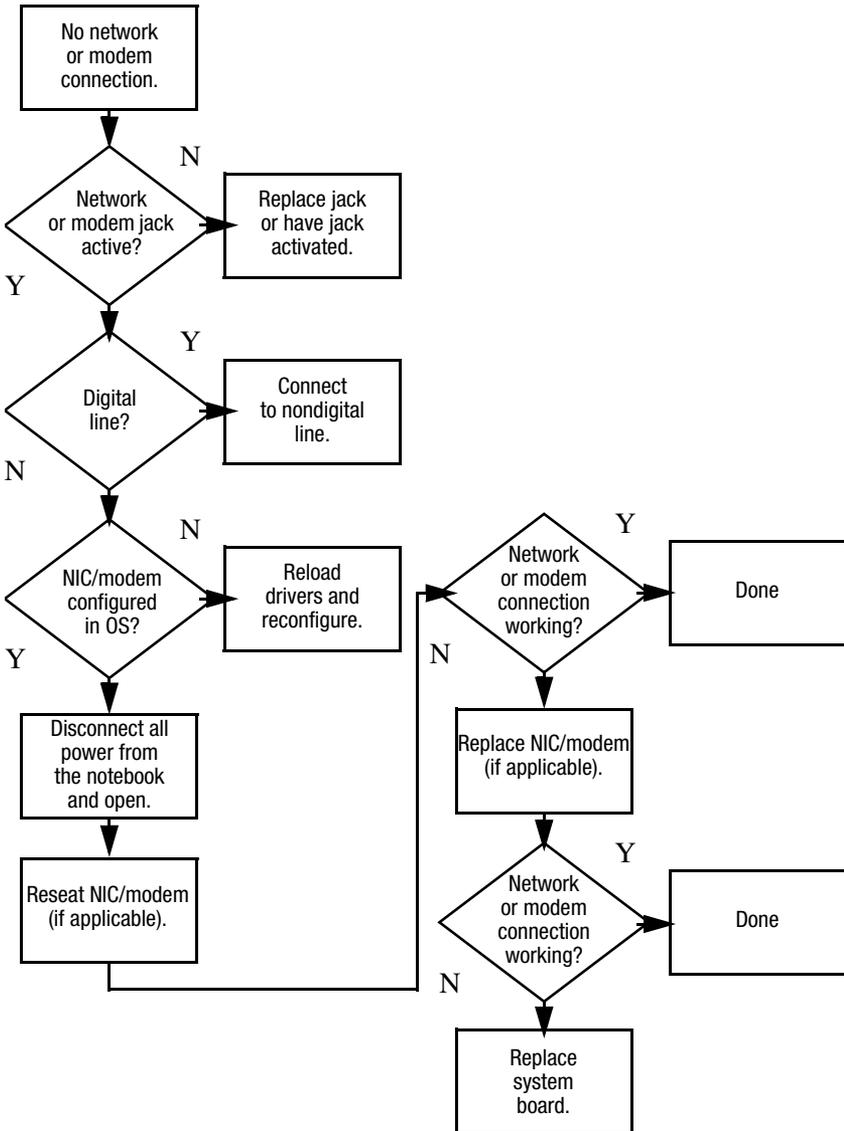
Flowchart 2.18—Nonfunctioning Keyboard



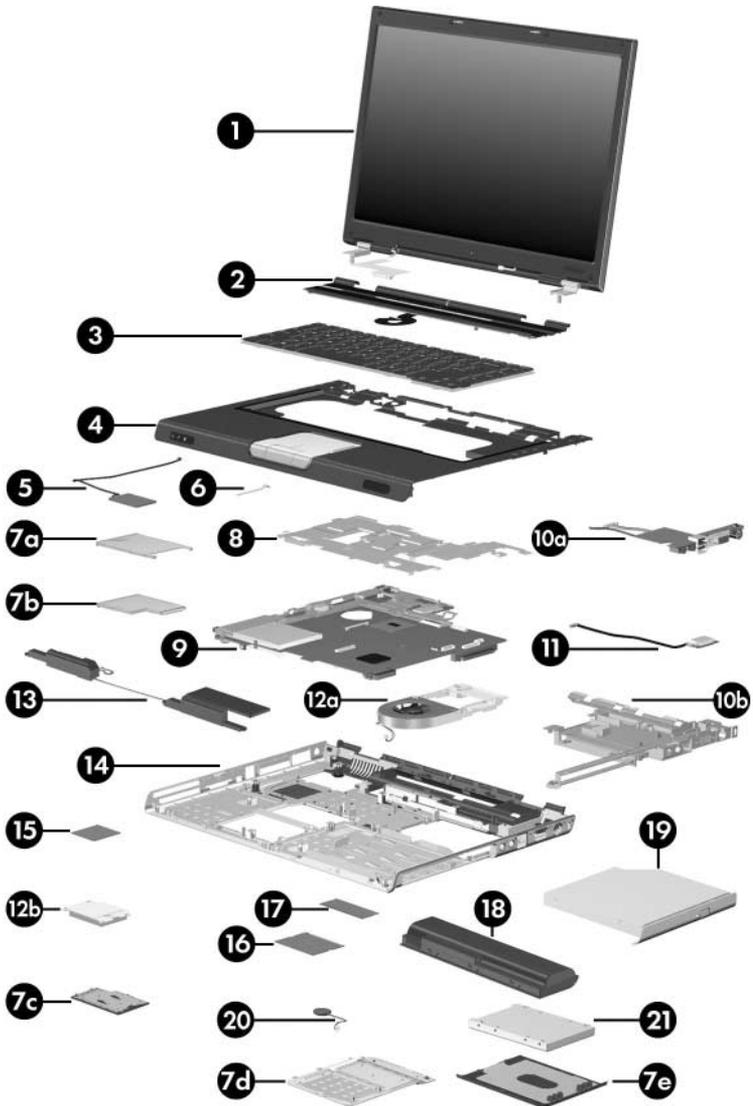
Flowchart 2.19—Nonfunctioning Pointing Device



Flowchart 2.20—No Network/Modem Connection



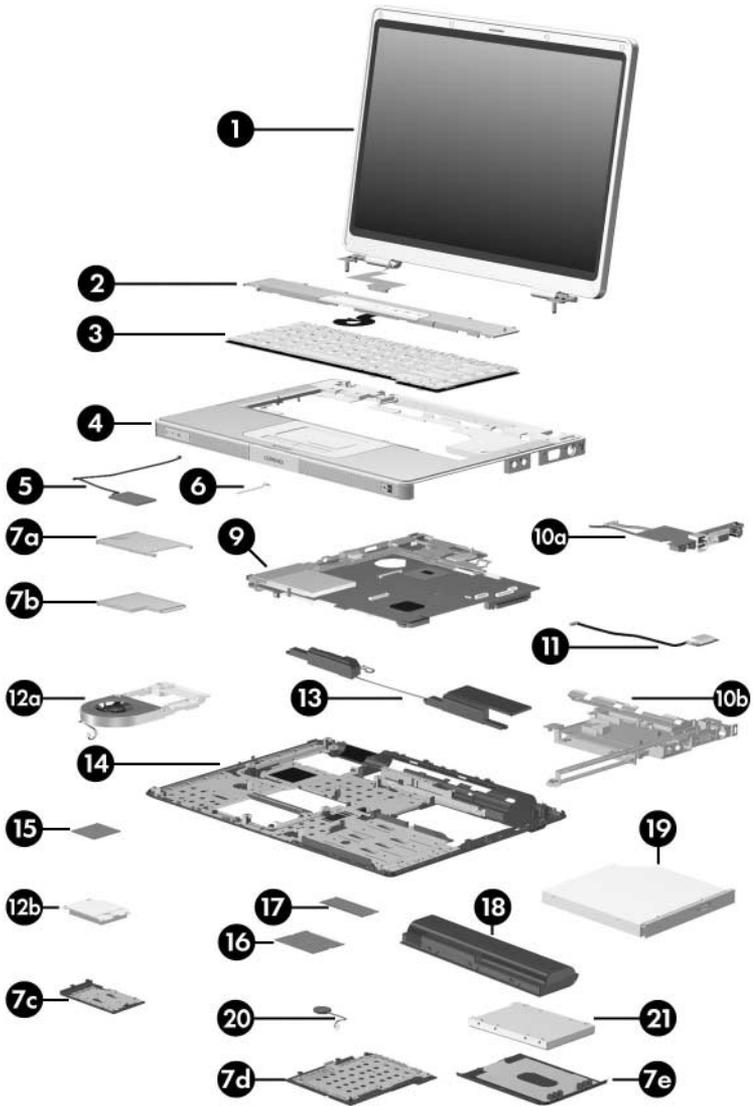
3.2 Notebook Major Components



Notebook Major Components, HP Pavilion dv4000

Table 3-1
Spare Parts: Notebook Major Components

Item	Description	Spare Part Number
1	Display assemblies (include display cable, wireless antenna boards, and antenna cables)	
	For use with HP Pavilion dv4000 models	
	15.4-inch, WXGA, TFT with BrightView	383477-001
	15.4-inch, WXGA, TFT	383476-001
	For use with Compaq Presario V4000 models	
	15.4-inch, WXGA, TFT with BrightView	383479-001
	15.4-inch, WXGA, TFT	383478-001
	Display front bezels (not illustrated)	
	For use with HP Pavilion dv4000 models	390276-001
	For use with Compaq Presario V4000 models	390277-001
	Display rear cover (not illustrated)	
	For use with HP Pavilion dv4000 models	390278-001
	For use with Compaq Presario V4000 models	390279-001
2	Switch cover (includes LED board and LED board cable)	
	For use with HP Pavilion dv4000 models	383465-001
	For use with Compaq Presario V4000 models	384619-001

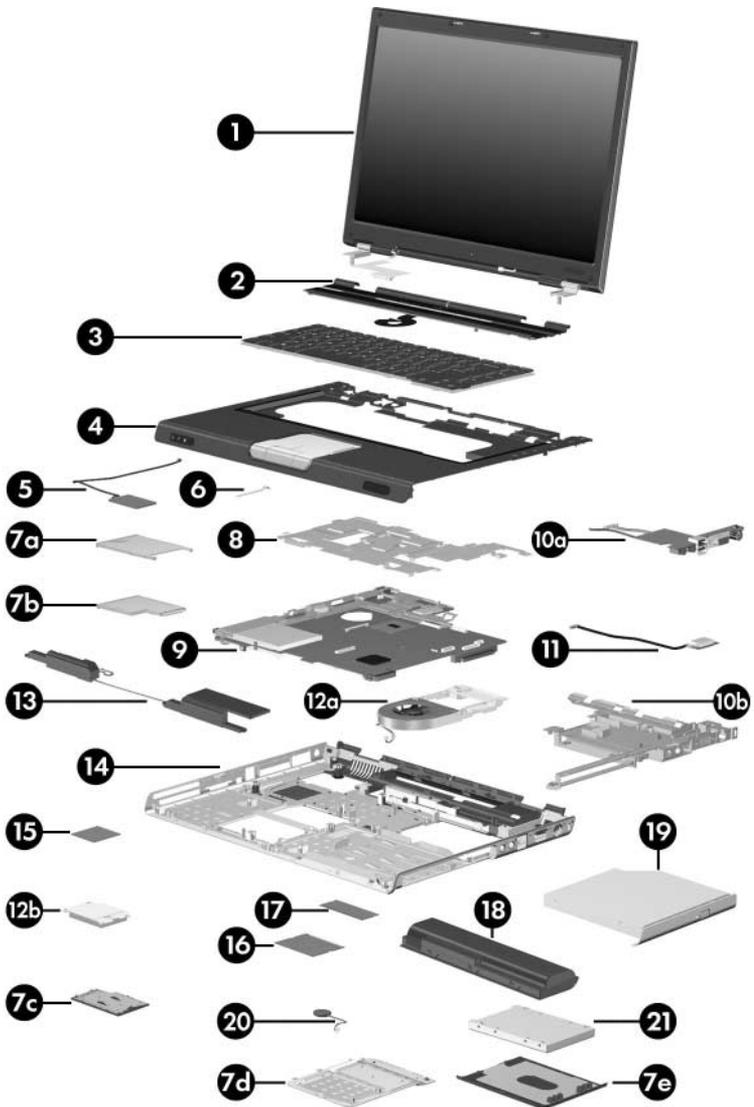


Notebook Major Components, Compaq Presario V4000

Table 3-1

Spare Parts: Notebook Major Components (Continued)

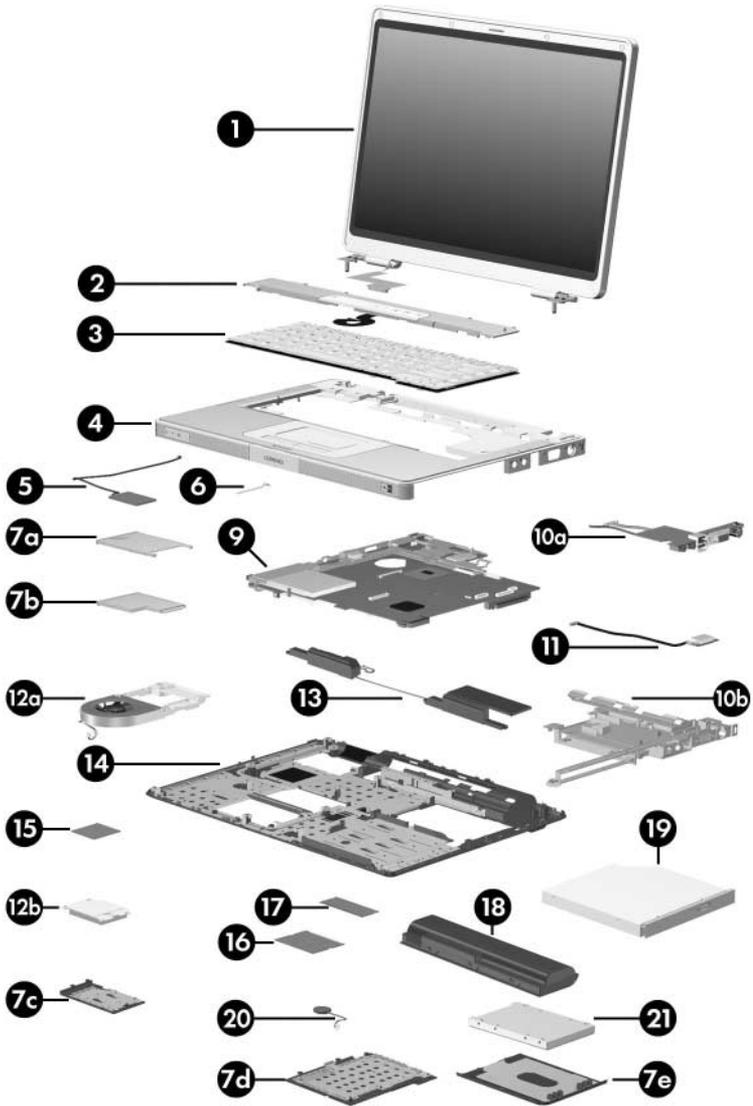
Item	Description	Spare Part Number	
3	Keyboards		
	For use with HP Pavilion dv4000 models:		
	Belgium	383495-181	Norway 383495-091
	Denmark	383495-081	Portugal 383495-131
	Europe	383495-021	Saudi Arabia 383495-171
	France	383495-051	Spain 383495-071
	French Canada	383495-121	Sweden/Finland 383495-B71
	Germany	383495-041	Switzerland 383495-111
	Greece	383495-151	Taiwan 383495-AB1
	Italy	383495-061	Thailand 383495-281
	Korea	383495-AD1	United Kingdom 383495-031
	The Netherlands	383495-331	United States 383495-001
	For use with Compaq Presario V4000 models:		
	Denmark	384635-081	Spain 384635-071
	France	384635-051	Sweden/Finland 384635-101
	French Canada	384635-121	United Kingdom 384635-031
	Italy	384635-061	United States 384635-001
	The Netherlands	384635-331	
4	Top covers (include TouchPad)		
	For use with full-featured HP Pavilion dv4000 models (includes TouchPad)	384620-001	
	For use with defeatured HP Pavilion dv4000 models (includes TouchPad)	390915-001	
	For use with full-featured Compaq Presario V4000 models (does not include TouchPad)	384621-001	
	For use with defeatured Compaq Presario V4000 models (does not include TouchPad)	390916-001	
	TouchPad board , for use with Compaq Presario V4000 models (not illustrated)	391737-001	



Notebook Major Components, HP Pavilion dv4000

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

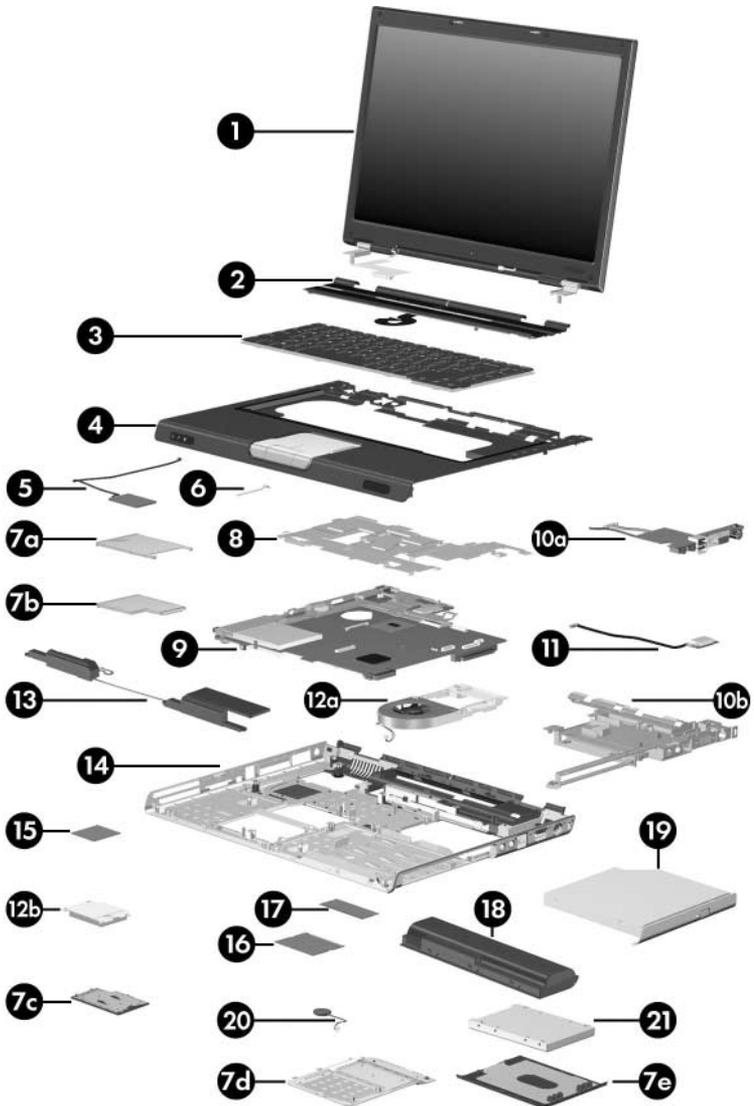
Item	Description	Spare Part Number
5	Modem board (high-speed 56K, includes modem cable)	384623-001
6	TouchPad cable	383467-001
	Miscellaneous Doors/Covers Kit	
	For use with HP Pavilion dv4000 models	383469-001
	For use with Compaq Presario V4000 models	384627-001
	Includes:	
7a	PC Card slot space saver	
7b	ExpressCard slot space saver	
7c	Thermal cover	
7d	Memory module compartment cover	
7e	Hard drive cover	
	Notebook feet (not illustrated)	
8	System board shield (for use with HP Pavilion dv4000 models)	384624-001
9	System boards	
	Full-featured	383463-001
	Defeatured	383462-001
	USB board , includes:	384625-001
10a	USB board, USB board cable, and audio board cable	
10b	USB board frame	
11	Bluetooth® wireless board (includes Bluetooth board cable)	383459-001
	Heat sink assembly , includes:	384622-001
12a	Fan	
12b	Heat sink	
	Thermal paste (not illustrated)	



Notebook Major Components, Compaq Presario V4000

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

Item	Description	Spare Part Number
13	Speakers	383466-001
14	Base enclosures	
	For use with full-featured HP Pavilion dv4000 models	384629-001
	For use with defeatured HP Pavilion dv4000 models	390917-001
	For use with Compaq Presario V4000 models	385739-001
15	Processors (include thermal paste)	
	Intel Pentium M 2.00-GHz	383475-001
	Intel Pentium M 1.73-GHz	383474-001
	Intel Pentium M 1.60-GHz	383473-001
	Intel Pentium M 1.50-GHz	383472-001
	Intel Celeron M 1.50-GHz	383471-001
	Intel Celeron M 1.40-GHz	383470-001
	Intel Celeron M 1.30-GHz	389036-001
16	Mini PCI communications cards	
	802.11b/g wireless local access network (WLAN) card, for use in most of the world	378973-001
	802.11b/g (WLAN) card, for use in the rest of the world	378972-001
	802.11b/g WLAN Broadcom card, for use in most of the world	378975-001
	802.11b/g WLAN Broadcom card, for use in the rest of the world	378974-001
17	Memory modules	
	1024 MB	383482-001
	512 MB	383481-001
	256 MB	383480-001



Notebook Major Components, HP Pavilion dv4000

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

Item	Description	Spare Part Number		
18	Battery packs			
	12-cell, 8.8-AHr	383492-001		
	6-cell, 4.4-AHr	383493-001		
19	Optical drives			
	For use with HP Pavilion dv4000 models			
	DVD±RW and CD-RW Combo Drive (double-layer writing capability)	391743-001		
	DVD±RW and CD-RW Combo Drive	383491-001		
	DVD/CD-RW Combo Drive	383490-001		
	For use with Compaq Presario V4000 models			
	DVD±RW and CD-RW Combo Drive (double-layer writing capability)	391744-001		
	DVD±RW and CD-RW Combo Drive	384632-001		
	DVD/CD-RW Combo Drive	384631-001		
20	RTC battery (includes 2-sided tape)	384626-001		
21	Hard drives (include frame and connector)			
	5400 rpm	4200-rpm		
	80-GB	383487-001	100-GB	383488-001
	60-GB	383485-001	80-GB	383486-001
			60-GB	383484-001
			40-GB	383483-001

3.3 Miscellaneous Doors/Covers Kit

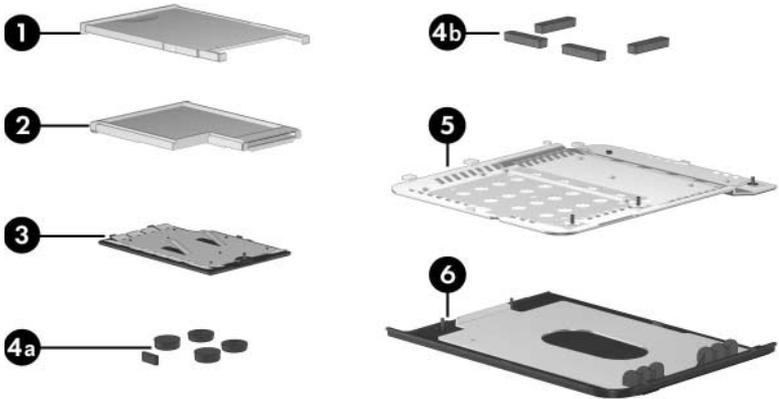


Table 3-2

Spare Part Numbers 383469-001

(for use with HP Pavilion dv4000 models)

and 384627-001

(for use with Compaq Presario V4000 models)

Item	Description
1	PC Card slot space saver
2	ExpressCard slot space saver
3	Thermal cover (includes one captive screw, secured by C-clip)
	Notebook feet
4a	For use with HP Pavilion dv4000 models
4b	For use with Compaq Pavilion V4000 models
5	Memory module/Mini PCI compartment cover (includes 3 captive screws, secured by C-clips)
6	Hard drive cover (includes 2 captive screws, secured by C-clips)

3.4 Miscellaneous Cable Kit

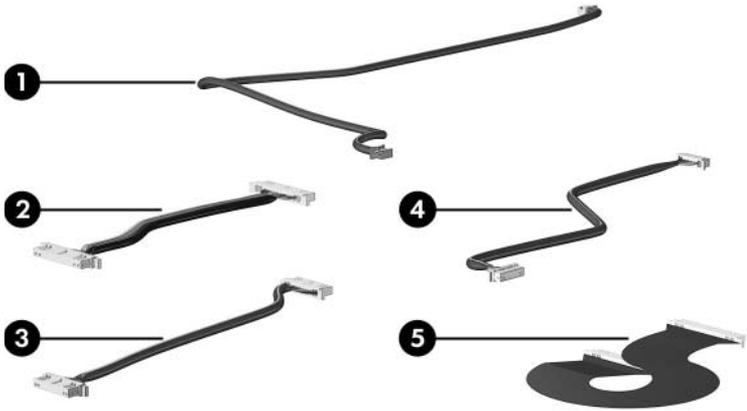


Table 3-3

Spare Part Number 383468-001

Item	Description
1	Modem cable
2	Audio board cable
3	USB board cable
4	Bluetooth board cable
5	LED board cable

3.5 Mass Storage Devices

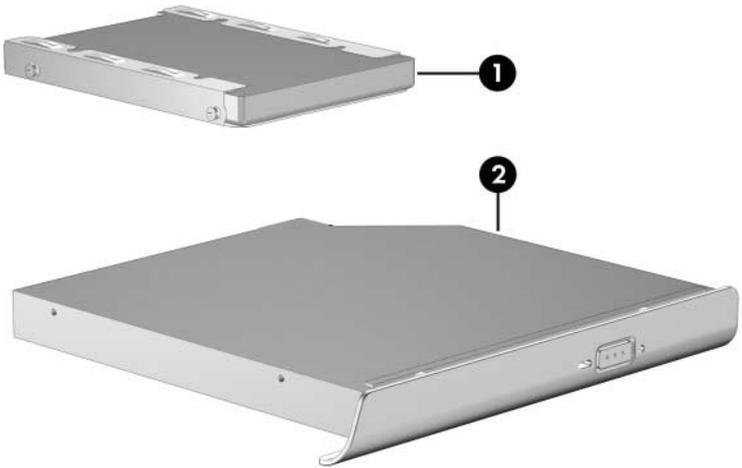


Table 3-4
Spare Part Number Information

Item	Description	Spare Part Number
1	Hard drives (include frame and connector)	
	5400 rpm	
	80-GB 383487-001	4200-rpm
	60-GB 383485-001	100-GB 383488-001
		80-GB 383486-001
		60-GB 383484-001
		40-GB 383483-001
2	Optical drives	
	For use with HP Pavilion dv4000 models	
	DVD±RW and CD-RW Combo Drive (double-layer writing capability)	391743-001
	DVD±RW and CD-RW Combo Drive	383491-001
	DVD/CD-RW Combo Drive	383490-001
	For use with Compaq Presario V4000 models	
	DVD±RW and CD-RW Combo Drive (double-layer writing capability)	391744-001
	DVD±RW and CD-RW Combo Drive	384632-001
	DVD/CD-RW Combo Drive	384631-001

3.6 Miscellaneous (Not Illustrated)

Table 3-5
Spare Part Information

Description	Spare Part Number
Power supply, 65 watt	383494-001
Power cords	
For use in:	
Australia and New Zealand	383496-011
Belgium, Europe, Finland, France, Germany, Greece, the Netherlands, Norway, Portugal, Spain, and Sweden	383496-021
Canada, French Canada, Latin America, Taiwan, Thailand, and the United States	383496-001
Denmark	383496-081
Hong Kong and the United Kingdom	383496-031
Israel	383496-BB1
Italy	383496-061
People's Republic of China	383496-AA1
Korea	383496-AD1
Switzerland	383496-111

Table 3-5
Spare Part Information (Continued)

Description	Spare Part Number
Screw Kits (include the following screws; refer to Appendix C, "Screw Listing," for more information on specifications and usage)	
■ Phillips PM2.5×8.0 screw	■ Phillips PM2.0×12.0 spring-loaded screw
■ Phillips PM2.5×7.0 screw	■ Phillips PM2.0×4.0 screw
■ Phillips PM2.5×4.0 screw	■ Phillips PM2.0×2.0 screw
■ Phillips PM2.0×16.0 screw	■ Phillips PM1.5×4.0 screw
■ Phillips PM2.0×5.0 screw	
For use with full-featured HP Pavilion dv4000 models	384628-001
For use with defeatured HP Pavilion dv4000 models	385740-001
For use with full-featured Compaq Presario V4000 models	385741-001
For use with defeatured Compaq Presario V4000 models	385742-001

3.7 Sequential Part Number Listing

Table 3-6
Sequential Part Number Listing

Spare Part Number	Description
378972-001	802.11b/g WLAN Mini PCI communications card, for use in the rest of the world
378973-001	802.11b/g WLAN Mini PCI communications card, for use in most of the world
378974-001	802.11b/g WLAN card Mini PCI communications Broadcomm card, for use in rest of the world
378975-001	802.11b/g WLAN Mini PCI communications Broadcomm card, for use in most of the world
383459-001	Bluetooth wireless board (includes Bluetooth board cable)
383462-001	Defeatured system board
383463-001	Full-featured system board
383465-001	Switch cover for use with HP Pavilion dv4000 models (includes LED board and LED board cable)
383466-001	Speakers
383467-001	TouchPad cable
383468-001	Miscellaneous Cable Kit
383469-001	Miscellaneous Doors/Covers Kit for use with HP Pavilion dv4000 models
383470-001	Intel Celeron M 1.40-GHz processor (includes thermal paste)
383471-001	Intel Celeron M 1.50-GHz processor (includes thermal paste)
383472-001	Intel Pentium M 1.50-GHz processor (includes thermal paste)
383473-001	Intel Pentium M 1.60-GHz processor (includes thermal paste)
383474-001	Intel Pentium M 1.73-GHz processor (includes thermal paste)

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

Spare Part Number	Description
383475-001	Intel Pentium M 2.00-GHz processor (includes thermal paste)
383476-001	15.4-inch, WXGA, TFT display assembly, for use with HP Pavilion dv4000 models (includes display cable, wireless antenna boards, and antenna cables)
383477-001	15.4-inch, WXGA, TFT display assembly with BrightView for use with HP Pavilion dv4000 models (includes display cable, wireless antenna boards, and antenna cables)
383478-001	15.4-inch, WXGA, TFT display assembly for use with Compaq Presario V4000 models (includes display cable, wireless antenna boards, and antenna cables)
383479-001	15.4-inch, WXGA, TFT display assembly with BrightView for use with Compaq Presario V4000 models (includes display cable, wireless antenna boards, and antenna cables)
383480-001	256-MB memory module
383481-001	512-MB memory module
383482-001	1024-MB memory module
383483-001	4200-rpm 40-GB hard drive (includes frame and connector)
383484-001	4200-rpm 60-GB hard drive (includes frame and connector)
383485-001	5400 rpm, 60-GB hard drive (includes frame and connector)
383486-001	4200-rpm 80-GB hard drive (includes frame and connector)
383487-001	5400 rpm, 80-GB hard drive (includes frame and connector)
383488-001	4200-rpm 100-GB hard drive (includes frame and connector)
383490-001	DVD/CD-RW Combo Drive or use with HP Pavilion dv4000 models
383491-001	DVD±RW and CD-RW Combo Drive for use with HP Pavilion dv4000 models

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

Spare Part Number	Description
383492-001	12-cell, 8.8-AHr battery pack for use with HP Pavilion dv4000 models
383493-001	6-cell, 4.4-AHr battery pack for use with HP Pavilion dv4000 models
383494-001	65-watt power supply
383495-001	Keyboard for use with HP Pavilion dv4000 models in the United States
383495-021	Keyboard for use with HP Pavilion dv4000 models in Europe
383495-031	Keyboard for use with HP Pavilion dv4000 models in the United Kingdom
383495-041	Keyboard for use with HP Pavilion dv4000 models in Germany
383495-051	Keyboard for use with HP Pavilion dv4000 models in France
383495-061	Keyboard for use with HP Pavilion dv4000 models in Italy
383495-071	Keyboard for use with HP Pavilion dv4000 models in Spain
383495-081	Keyboard for use with HP Pavilion dv4000 models in Denmark
383495-091	Keyboard for use with HP Pavilion dv4000 models in Norway
383495-111	Keyboard for use with HP Pavilion dv4000 models in Switzerland
383495-121	Keyboard for use with HP Pavilion dv4000 models in French Canada
383495-131	Keyboard for use with HP Pavilion dv4000 models in Portugal
383495-151	Keyboard for use with HP Pavilion dv4000 models in Greece
383495-171	Keyboard for use with HP Pavilion dv4000 models in Saudi Arabia
383495-181	Keyboard for use with HP Pavilion dv4000 models in Belgium

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

Spare Part Number	Description
383495-281	Keyboard for use with HP Pavilion dv4000 models in Thailand
383495-331	Keyboard for use with HP Pavilion dv4000 models in the Netherlands
383495-AB1	Keyboard for use with HP Pavilion dv4000 models in Taiwan
383495-AD1	Keyboard for use with HP Pavilion dv4000 models in Korea
383495-B71	Keyboard for use with HP Pavilion dv4000 models in Sweden/Finland
383495-BB1	Keyboard for use with HP Pavilion dv4000 models in Israel
383496-001	Power cord for use in Canada, French Canada, Latin America, Taiwan, Thailand, and the United States
383496-011	Power cord for use in Australia and New Zealand
383496-021	Power cord for use in Belgium, Europe, Finland, France, Germany, Greece, the Netherlands, Norway, Portugal, Spain, and Sweden
383496-031	Power cord for use in Hong Kong and the United Kingdom
383496-061	Power cord for use in Italy
383496-081	Power cord for use in Denmark
383496-111	Power cord for use in Switzerland
383496-AA1	Power cord for use in People's Republic of China
383496-AD1	Power cord for use in Korea
383496-BB1	Power cord for use in Israel
384619-001	Switch cover for use with Compaq Presario V4000 models (includes LED board and LED board cable)
384620-001	Top cover for use with full-featured HP Pavilion dv4000 models (includes TouchPad)

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

Spare Part Number	Description
384621-001	Top cover for use with full-featured Compaq Presario V4000 models (does not include TouchPad)
384622-001	Heat sink assembly (includes fan, heat sink, and thermal paste)
384623-001	Modem board (high-speed 56K, includes modem cable)
384624-001	System board shield (for use with HP Pavilion dv4000 models)
384625-001	USB board (includes USB board, USB board frame, USB board cable, and audio board cable)
384626-001	RTC battery (includes 2-sided tape)
384627-001	Miscellaneous Doors/Covers Kit for use with Compaq Presario V4000 models
384628-001	Screw Kit for use with full-featured HP Pavilion dv4000 models
384629-001	Base enclosure for use with full-featured HP Pavilion dv4000 models
384631-001	DVD/CD-RW Combo Drive for use with Compaq Presario V4000 models
384632-001	DVD±RW and CD-RW Combo Drive for use with Compaq Presario V4000 models
384635-001	Keyboard for use with Compaq Presario V4000 models in the United States
384635-031	Keyboard for use with Compaq Presario V4000 models in the United Kingdom
384635-051	Keyboard for use with Compaq Presario V4000 models in France
384635-061	Keyboard for use with Compaq Presario V4000 models in Italy
384635-071	Keyboard for use with Compaq Presario V4000 models in Spain

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

Spare Part Number	Description
384635-081	Keyboard for use with Compaq Presario V4000 models in Denmark
384635-101	Keyboard for use with Compaq Presario V4000 models in Sweden and Finland
384635-121	Keyboard for use with Compaq Presario V4000 models in French Canada
384635-331	Keyboard for use with Compaq Presario V4000 models in the Netherlands
385739-001	Base enclosure for use with Compaq Presario V4000 models
385740-001	Screw Kit for use with defeatured HP Pavilion dv4000 models
385741-001	Screw Kit for use with full-featured Compaq Presario V4000 models
385742-001	Screw Kit For use with defeatured Compaq Presario V4000 models
389036-001	Intel Celeron M 1.30-GHz processor (includes thermal paste)
390276-001	Display front bezel for use with HP Pavilion dv4000 models
390277-001	Display front bezel for use with Compaq Presario V4000 models
390278-001	Display rear cover for use with HP Pavilion dv4000 models
390279-001	Display rear cover for use with Compaq Presario V4000 models
390915-001	Top cover for use with defeatured HP Pavilion dv4000 models (includes TouchPad)
390916-001	Top cover for use with defeatured Compaq Presario V4000 models (does not include TouchPad)
390917-001	Base enclosure for use with defeatured HP Pavilion dv4000 models

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

Spare Part Number	Description
391737-001	TouchPad board, for use with Compaq Presario V4000 models
391743-001	DVD±RW and CD-RW Combo Drive (double-layer writing capability), for use with HP Pavilion dv4000 models
391744-001	DVD±RW and CD-RW Combo Drive (double-layer writing capability), for use with Compaq Presario V4000 models

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
- Flat-bladed screwdriver
- Tool kit—includes connector removal tool, loopback plugs, and case utility tool

4.2 Service Considerations

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



As you remove each subassembly from the notebook, 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 notebook, ensure that cables are placed in their proper locations during the reassembly process. Improper cable placement can damage the notebook.

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

4.3 Preventing Damage to Removable Drives

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

- Before removing or inserting a hard drive, shut down the notebook. If you are unsure whether the notebook is off or in hibernation, turn the notebook on, and then shut it down through the operating system.
- Before removing a diskette drive or optical drive, ensure that a diskette or disc is not in the drive and ensure that the optical drive tray is closed.
- Before handling a drive, ensure that you are discharged of static electricity. While handling a drive, avoid touching the connector.
- Handle drives on surfaces 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 may not be affected at all and can work perfectly throughout a normal cycle. Or the device may function normally for a while, then degrade in the internal layers, reducing its life expectancy.

4.5 Packaging and Transporting Precautions

Use the following grounding precautions when packaging and transporting equipment:

- To avoid hand contact, transport products in static-safe containers, such as tubes, bags, or boxes.
- Protect all electrostatic-sensitive parts and assemblies with conductive or approved containers or packaging.
- Keep electrostatic-sensitive parts in their containers until the parts arrive at static-free workstations.
- Place items on a grounded surface before removing items from their containers.
- Always be properly grounded when touching a sensitive component or assembly.
- Store reusable electrostatic-sensitive parts from assemblies in protective packaging or nonconductive foam.
- Use transporters and conveyors made of antistatic belts and roller bushings. Ensure that mechanized equipment used for moving materials is wired to ground and that proper materials are selected to avoid static charging. When grounding is not possible, use an ionizer to dissipate electric charges.

4.6 Workstation Precautions

Use the following grounding precautions at workstations:

- Cover the workstation with approved static-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, drivers, 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 94 screws and screw locks, in 10 different sizes, that may have to be removed, replaced, or loosened when servicing the notebook. Make special note of each screw and screw lock size and location during removal and replacement.

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

5.1 Serial Number

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



Serial Number Location

5.2 Disassembly Sequence Chart

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

Disassembly Sequence Chart

Section	Description	# of Screws Removed
5.3	Preparing the notebook for disassembly Battery pack	0
5.4	Hard drive	2 loosened to remove the hard drive cover 4 to remove the hard drive frame
5.5	Notebook feet	0
5.6	Optical drive	1
5.7	Memory module	3 loosened to remove the memory module/Mini PCI compartment cover
5.8	Mini PCI communications card	3 loosened to remove the memory module/Mini PCI compartment cover
	 To prevent an unresponsive system and the display of a warning message, install only a Mini PCI device authorized for use in your notebook 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 notebook functionality. Then contact Customer Care.	
5.9	RTC battery	0

Disassembly Sequence Chart (*Continued*)

Section	Description	# of Screws Removed
5.10	Heat sink	1 loosened to remove the thermal cover 4 removed to remove the heat sink
5.11	Processor	1 loosened
5.12	Switch cover	3 on Compaq Presario V4000 models
5.13	Keyboard	4
5.14	Display assembly	6
5.15	Top cover (HP Pavilion dv4000 models)	16
5.16	Base enclosure (Compaq Presario V4000 models)	16
5.17	Modem board	2
5.18	System board	11 on HP Pavilion dv4000 models 4 on Compaq Presario V4000 models
5.19	Fan assembly	7
5.20	Speakers	3
5.21	USB board	8
5.22	Bluetooth board	2

5.3 Preparing the Notebook for Disassembly

Before you begin any removal or installation procedures:

1. Shut down the notebook. If you are unsure whether the notebook 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 notebook.
3. Disconnect the power cord.

Battery Pack Spare Part Number Information

12-cell, 8.8-AHr	383492-001
6-cell, 4.4-AHr	383493-001

4. Remove the battery pack by following these steps:
 - a. Turn the notebook upside down with the front toward you.

- b. Slide and hold the battery release latch **1** to the left. (The front edge of the battery pack disengages from the notebook.)
- c. Lift the front edge of the battery pack up and swing it away from you **2**.
- d. Remove the battery pack.



Removing the Battery Pack

Reverse the above procedure to install the battery pack.

5.4 Hard Drive

Hard Drive Spare Part Number Information

5400 rpm		4200 rpm	
80-GB	383487-001	100-GB	383488-001
60-GB	383485-001	80-GB	383486-001
		60-GB	383484-001
		40-GB	383483-001

1. Prepare the notebook for disassembly ([Section 5.3](#)).

2. Loosen the two PM2.0×5.0 screws **1** that secure the hard drive cover to the notebook.
3. Lift the right side of the cover up and swing it to the left **2**.
4. Remove the hard drive cover.

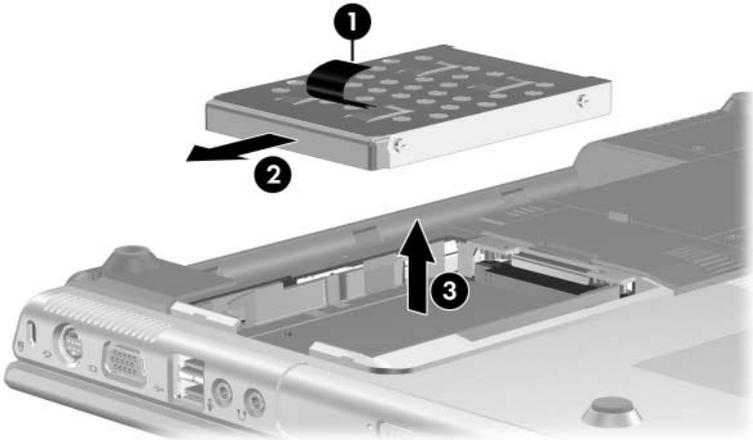


The hard drive cover is included in the Miscellaneous Doors/Covers Kits, spare part number 383469-001 (for use with HP Pavilion dv4000 models) and spare part number 384627-001 (for use with Compaq Presario V4000 models).



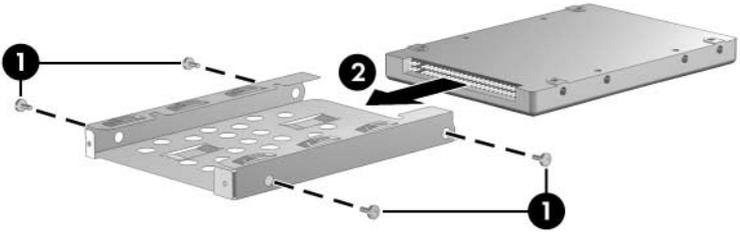
Removing the Hard Drive Cover

5. Use the tab **1** on the right side of the hard drive to pull the hard drive to the left **2** until it disconnects from the notebook.
6. Lift the hard drive straight up **3** and remove it from the hard drive bay.



Removing the Hard Drive

7. Remove the four PM2.5×4.0 screws **1** that secure the hard drive frame to the hard drive.
8. Slide the frame forward **2** to remove it from the hard drive.

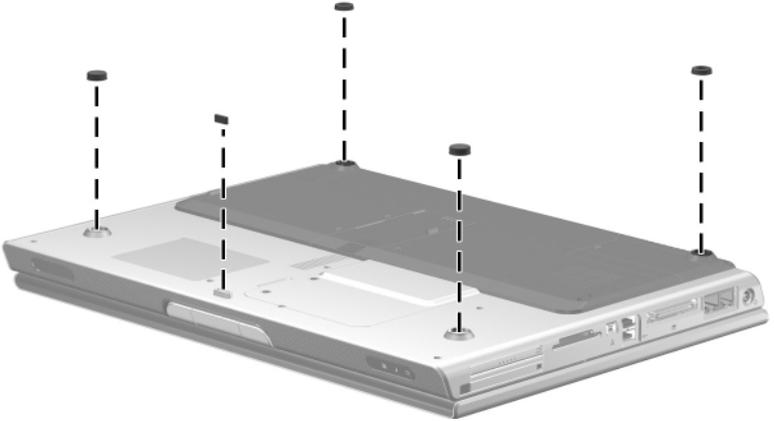


Removing the Hard Drive Frame

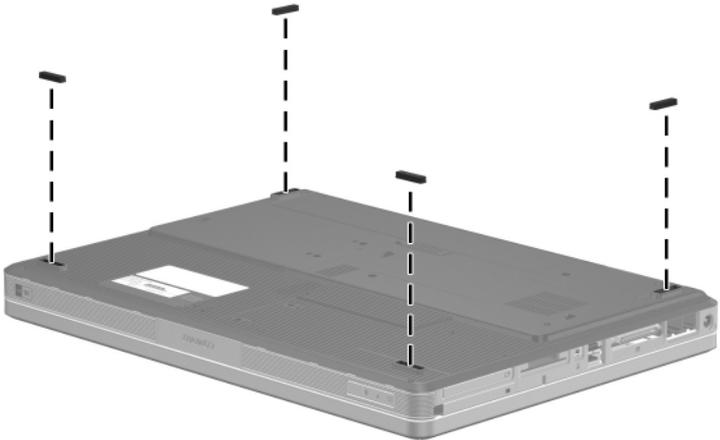
Reverse the above procedure to reassemble and install the hard drive.

5.5 Notebook Feet

The notebook feet are adhesive-backed rubber pads. The feet are included in the Miscellaneous Doors/Covers Kits, spare part number 383469-001 (for use with HP Pavilion dv4000 models) and spare part number 384627-001 (for use with Compaq Presario V4000 models).



Replacing the Notebook Feet, HP Pavilion dv4000



Replacing the Notebook Feet, Compaq Presario V4000

5.6 Optical Drive

Optical Drive Spare Part Number Information

For use with HP Pavilion dv4000 models

DVD±RW and CD-RW Combo Drive (double-layer writing capability)	391743-001
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DVD±RW and CD-RW Combo Drive	383491-001
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DVD/CD-RW Combo Drive	383490-001
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For use with Compaq Presario V4000 models

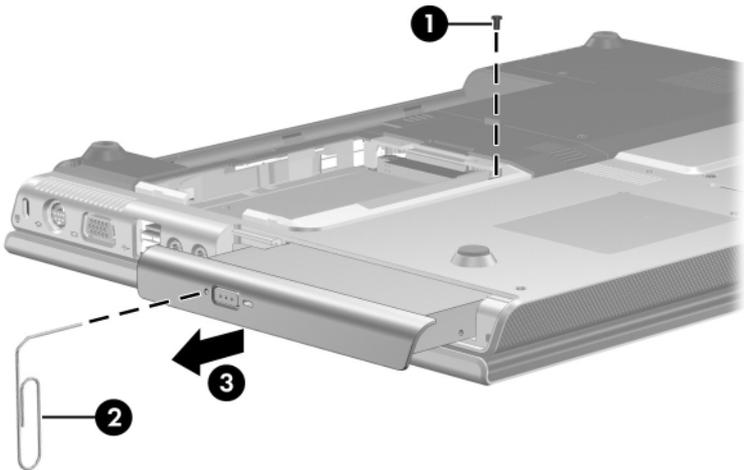
DVD±RW and CD-RW Combo Drive (double-layer writing capability)	391744-001
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DVD±RW and CD-RW Combo Drive	384632-001
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DVD/CD-RW Combo Drive	384631-001
-----------------------	------------

1. Prepare the notebook for disassembly ([Section 5.3](#)).
2. Remove the hard drive cover ([Section 5.4](#)).

3. Remove the PM2.5×7.0 screw ❶ that secures the optical drive to the notebook.
4. Insert a thin tool, such as a paper clip, into the media tray release hole ❷. (The optical drive media tray releases from the optical drive.)
5. Use the media tray frame to slide the optical drive to the left ❸.
6. Remove the optical drive.



Removing the Optical Drive

Reverse the above procedure to install the optical drive.

5.7 Memory Module

Memory Module Spare Part Number Information

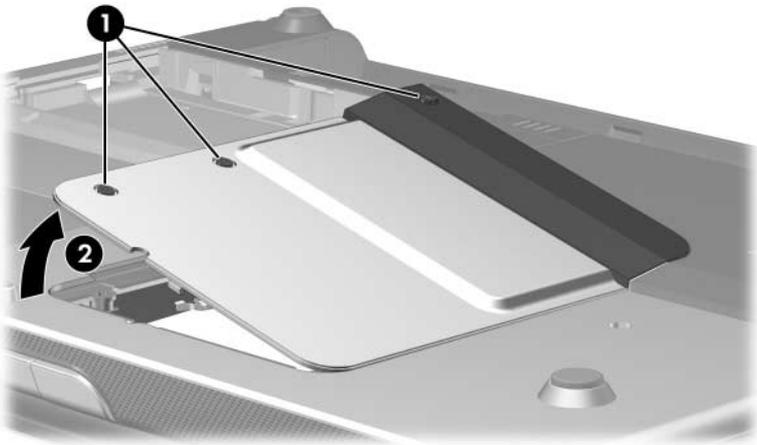
1024 MB	383482-001
512 MB	383481-001
256 MB	383480-001

1. Prepare the notebook for disassembly (refer to [Section 5.3](#)).

2. Loosen the three PM2.0×5.0 screws **1** that secure the memory module compartment cover to the notebook.
3. Lift the left edge of the cover up and swing it to the right **2**.
4. Remove the memory module compartment cover.



The memory module compartment cover is included in the Miscellaneous Doors/Covers Kits, spare part number 383469-001 (for use with HP Pavilion dv4000 models) and spare part number 384627-001 (for use with Compaq Presario V4000 models).

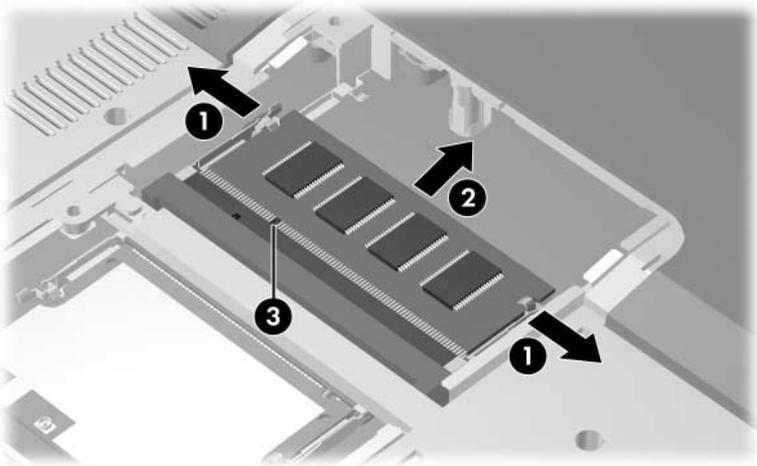


Removing the Memory Module Compartment Cover

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



Note that memory modules are slotted **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 Mini PCI Communications Card

Mini PCI Communications Card

Spare Part Number Information

802.11b/g WLAN card, for use in most of the world	378973-001
802.11b/g WLAN card, for use in the rest of the world	378972-001
802.11b/g WLAN Broadcomm card, for use in most of the world	378975-001
802.11b/g WLAN Broadcomm card, for use in the rest of the world	378974-001

1. Prepare the notebook for disassembly ([Section 5.3](#)).
2. Remove the memory module compartment cover ([Section 5.8](#)).

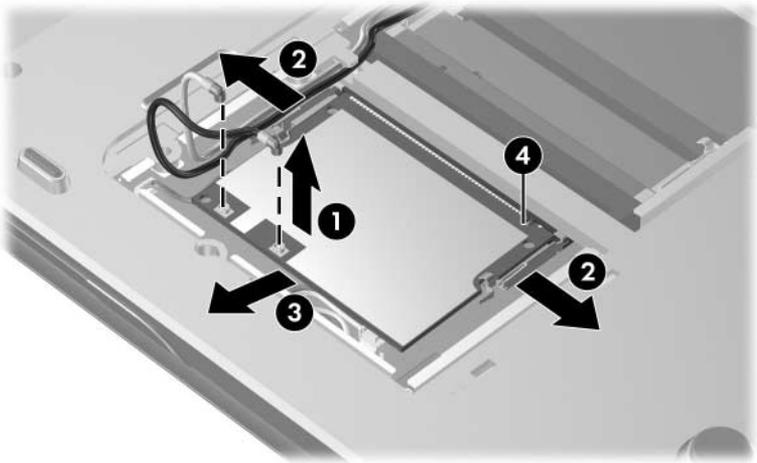


Make note of which antenna cable is attached to which antenna clip on the Mini PCI communications card before disconnecting the cables.

3. Disconnect the auxiliary and main antenna cables ❶ from the Mini PCI communications card.
4. Spread the retaining tabs ❷ on each side of the Mini PCI socket to release the Mini PCI communications card. (The edge of the card opposite the socket rises away from the notebook.)
5. Remove the Mini PCI communications card by pulling the card away from the socket at a 45-degree angle ❸.



Note that the Mini PCI communications card is slotted ❹ to prevent incorrect installation.



Removing a Mini PCI Communications Card

Reverse the above procedure to install a Mini PCI communications card.

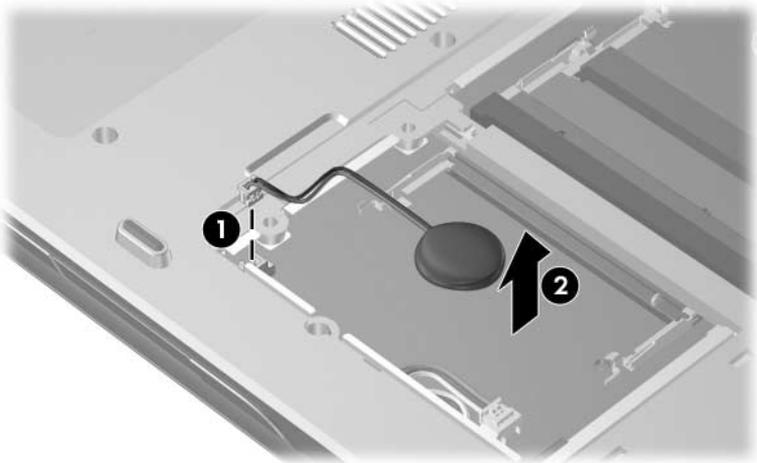
5.9 RTC Battery

RTC Battery Spare Part Number Information

RTC battery (includes 2-sided tape)

384626-001

1. Prepare the notebook for disassembly ([Section 5.3](#)).
2. Remove the Mini PCI communications card ([Section 5.8](#)).
3. Disconnect the RTC battery cable ❶ from the system board.
4. Remove the RTC battery ❷ from the system board. (The RTC battery is attached to the system board with two-sided tape.)



Removing the RTC Battery

Reverse the above procedure to install the RTC battery.

5.10 Heat Sink

Heat Sink Spare Part Number Information

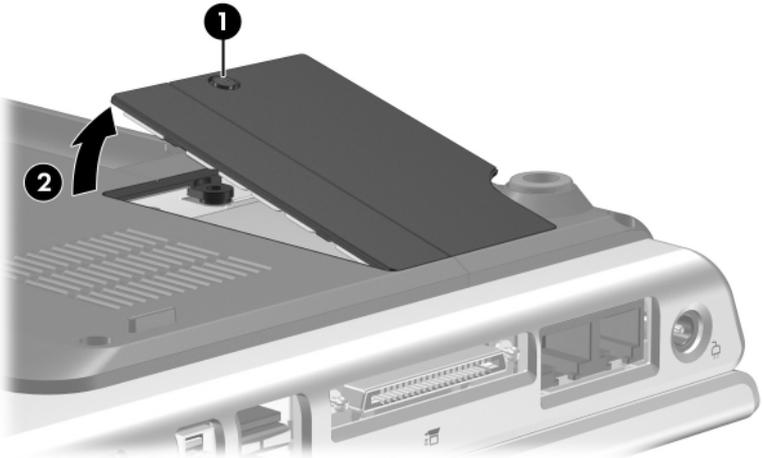
Heat sink (includes fan and thermal paste)	384622-001
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1. Prepare the notebook for disassembly ([Section 5.3](#)).
2. Remove the PM2.0×5.0 screw ❶ that secures the thermal cover to the notebook.
3. Lift the left edge of the cover up and swing it to the right ❷.



The thermal cover is included in the Miscellaneous Doors/Covers Kits, spare part number 383469-001 (for use with HP Pavilion dv4000 models) and spare part number 384627-001 (for use with Compaq Presario V4000 models).

4. Remove the thermal cover.



Removing the Thermal Cover



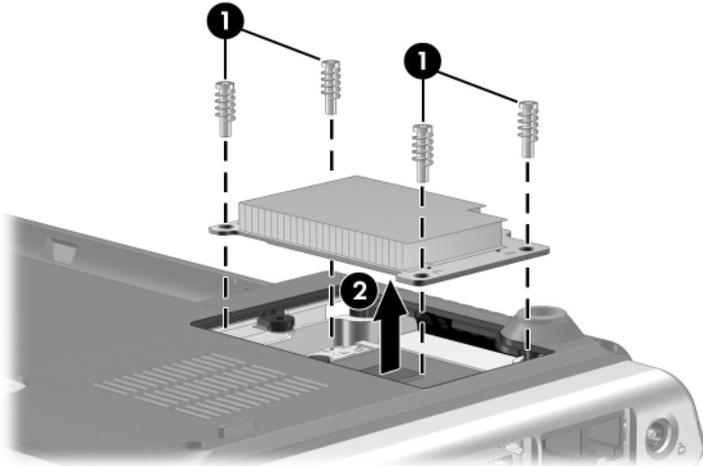
The following screws should be removed and installed in the 1, 2, 3, 4 sequence stamped on the heat sink.

5. Remove the four PM2.0×12.0 spring-loaded shoulder screws ❶ that secure the heat sink to the notebook.



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.

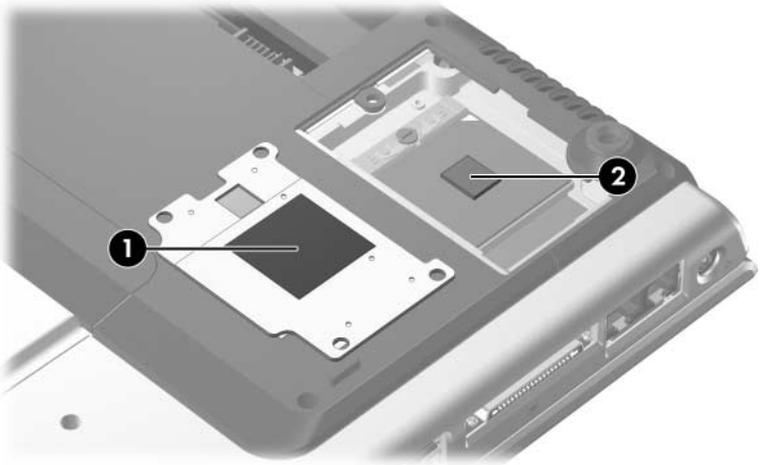
6. Remove the heat sink ❷.



Removing the Heat Sink



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



Thermal Paste Locations

Reverse the above procedure to install the heat sink.

5.11 Processor

Processor Spare Part Number Information

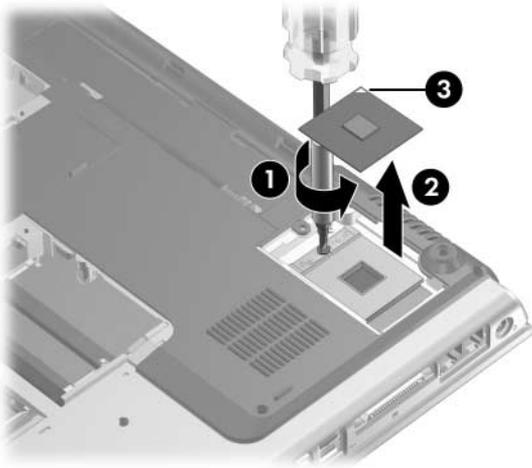
Intel Pentium M 2.00-GHz	383475-001
Intel Pentium M 1.73-GHz	383474-001
Intel Pentium M 1.60-GHz	383473-001
Intel Pentium M 1.50-GHz	383472-001
Intel Celeron M 1.50-GHz	383471-001
Intel Celeron M 1.40-GHz	383470-001
Intel Celeron M 1.30-GHz	389036-001

1. Prepare the notebook for disassembly ([Section 5.3](#)).
2. Remove the heat sink ([Section 5.10](#)).

3. Use a flat-blade screw driver to turn the processor locking screw one-quarter turn counterclockwise ❶ until you hear a click.
4. Lift the processor straight up and remove it ❷.



The gold triangle ❸ on the processor should be aligned in the rear right corner when you install the processor.



Removing the Processor

Reverse the above procedure to install the processor.

5.12 Switch Cover

Switch Cover Spare Part Number Information

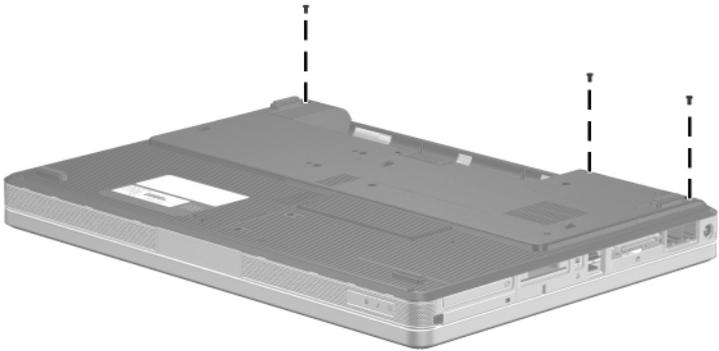
For use with HP Pavilion dv4000 models (includes LED board and LED board cable)	383465-001
For use with Compaq Presario V4000 models (includes LED board and LED board cable)	384619-001

1. Prepare the notebook for disassembly ([Section 5.3](#)).



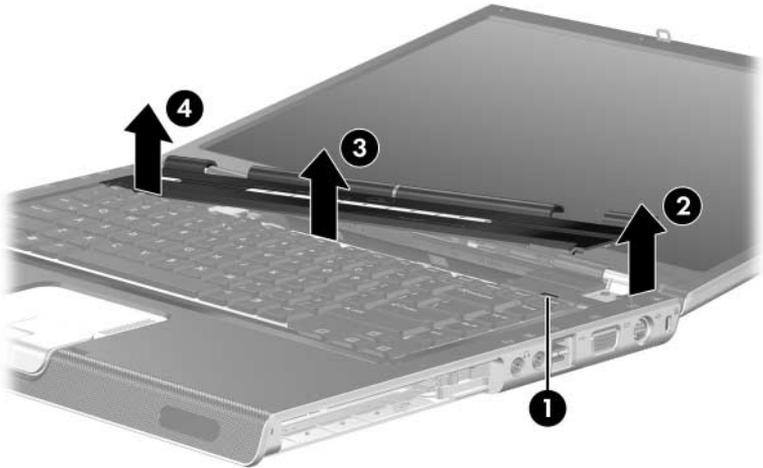
Steps 2 and 3 apply to Compaq Presario V4000 models.

2. Turn the notebook upside down with the rear panel toward you.
3. Remove the three PM2.5×7.0 screws that secure the switch cover to the notebook.



Removing the Switch Cover Screws, Compaq Presario V4000 Models

4. Turn the notebook right-side up with the front toward you.
5. Open the notebook as far as possible.
6. Press and hold down the **insert** key ❶.
7. Insert a flat blade tool into the notch in the switch cover behind the **insert** key and lift the switch cover up ❷.
8. Disengage the center ❸ and left side ❹ of the switch cover from the notebook.
9. Rest the switch cover on the notebook.



Releasing the Switch Cover

5.13 Keyboard

Keyboard Spare Part Number Information

For use with HP Pavilion dv4000 models:

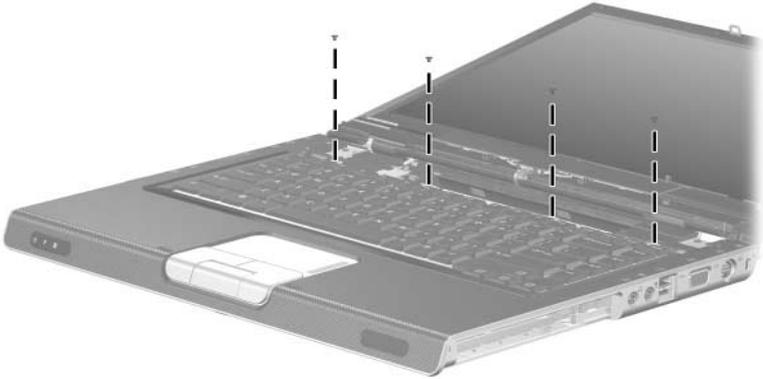
Belgium	383495-181	Norway	383495-091
Denmark	383495-081	Portugal	383495-131
Europe	383495-021	Saudi Arabia	383495-171
France	383495-051	Spain	383495-071
French Canada	383495-121	Sweden/Finland	383495-b71
Germany	383495-041	Switzerland	383495-111
Greece	383495-151	Taiwan	383495-ab1
Italy	383495-061	Thailand	383495-281
Korea	383495-ad1	United Kingdom	383495-031
The Netherlands	383495-331	United States	383495-001

For use with Compaq Presario dv4000 models:

Denmark	384635-081	Spain	384635-071
France	384635-051	Sweden/Finland	384635-101
French Canada	384635-121	United Kingdom	384635-031
Italy	384635-061	United States	384635-001
The Netherlands	384635-331		

1. Prepare the notebook for disassembly ([Section 5.3](#)).
2. Release the switch cover ([Section 5.12](#)).

3. Remove the four PM2.0×2.0 screws that secure the keyboard to the notebook.



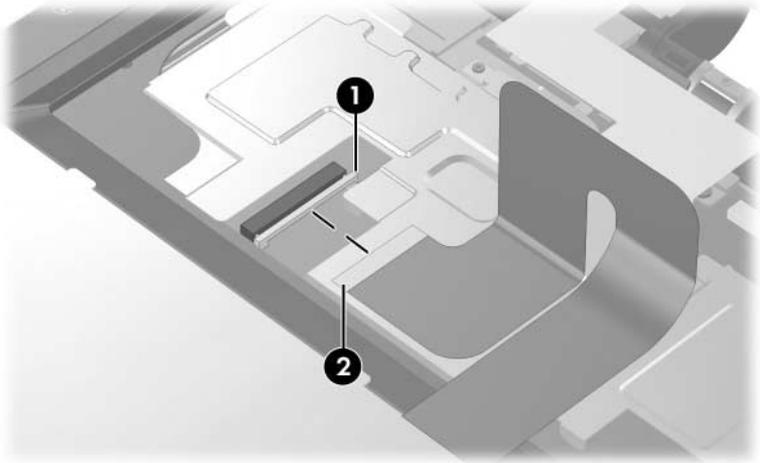
Removing the Keyboard Screws

4. Lift the rear edge of the keyboard and swing it forward until it rests on the palm rest.



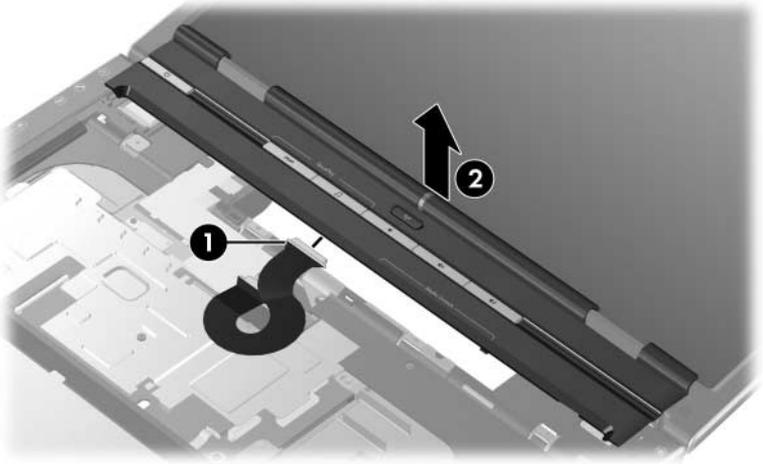
Releasing the Keyboard

5. Release the ZIF connector **1** to which the keyboard cable is connected and disconnect the keyboard cable **2** from the system board.
6. Remove the keyboard.



Disconnecting the Keyboard Cable

7. Disconnect the LED board cable ❶ from the system board.
8. Remove the switch cover ❷.



Removing the Switch Cover

Reverse the above procedure to install the keyboard and switch cover.

5.14 Display Assembly

Display Assembly Spare Part Number Information

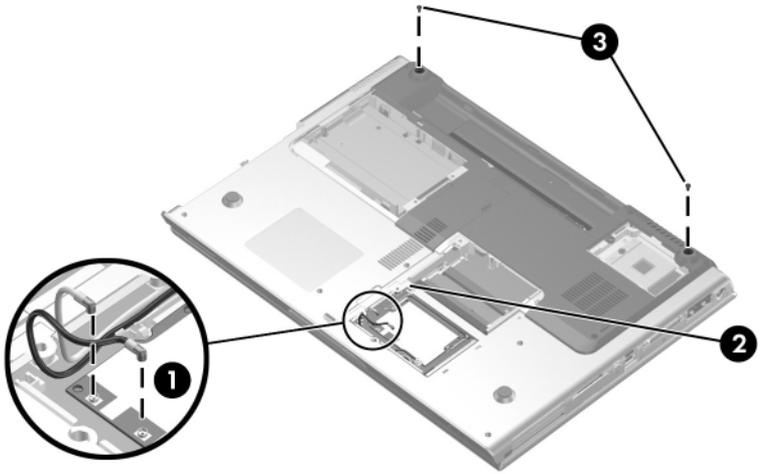


All display assembly spare part kits include display cable, wireless antenna boards, and antenna cables.

For use with HP Pavilion dv4000 models	
15.4-inch, WXGA, TFT with BrightView	383477-001
15.4-inch, WXGA, TFT	383476-001
For use with Compaq Presario V4000 models	
15.4-inch, WXGA, TFT with BrightView	383479-001
15.4-inch, WXGA, TFT	383478-001
Display front bezels (not illustrated)	
For use with HP Pavilion dv4000 models	390276-001
For use with Compaq Presario V4000 models	390277-001
Display rear cover (not illustrated)	
For use with HP Pavilion dv4000 models	390278-001
For use with Compaq Presario V4000 models	390279-001

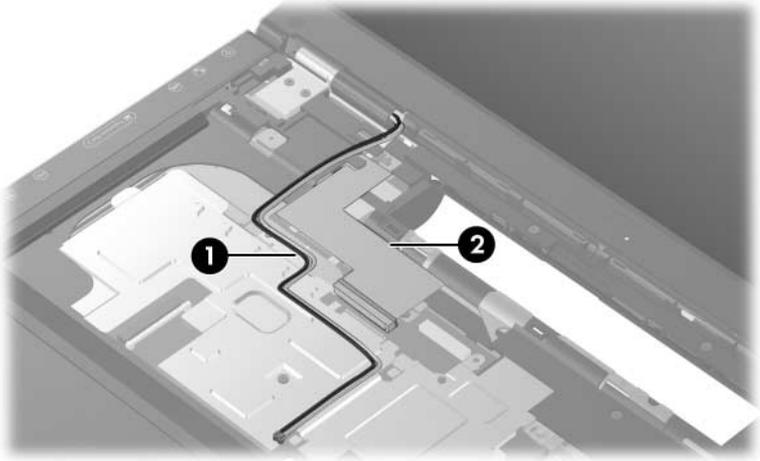
1. Prepare the notebook for disassembly ([Section 5.3](#)).
2. Remove the switch cover ([Section 5.12](#)).
3. Remove the keyboard ([Section 5.13](#)).
4. Turn the notebook upside down with the front toward you.

5. Disconnect the wireless antenna cables from the Mini PCI communications card **1**.
6. Remove the cables from the clip **2** in the base enclosure.
7. Remove the two PM2.5×7.0 screws **3** that secure the display assembly to the notebook.



Removing the Display Screws

8. Turn the notebook right-side up with the front toward you.
9. Open the display as far as possible.
10. Remove the wireless antenna cables ❶ from the clips in the top cover.
11. Disconnect the display cable from the system board ❷.

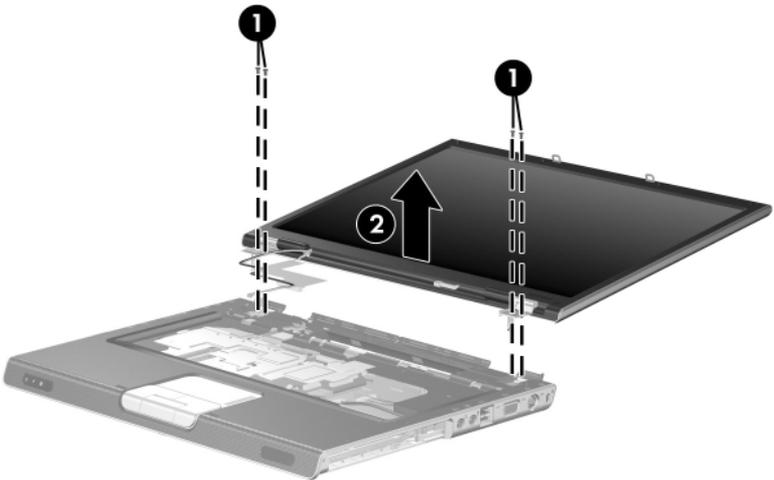


Removing the Wireless Antenna Cables



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 notebook components.

12. Remove the four PM2.5×7.0 screws ❶ that secure the display assembly to the notebook.
13. Remove the display assembly ❷.



Removing the Display Assembly

Reverse the above procedure to install the display assembly.

5.15 Top Cover



The top cover removal procedures in this section apply to HP Pavilion dv4000 models.

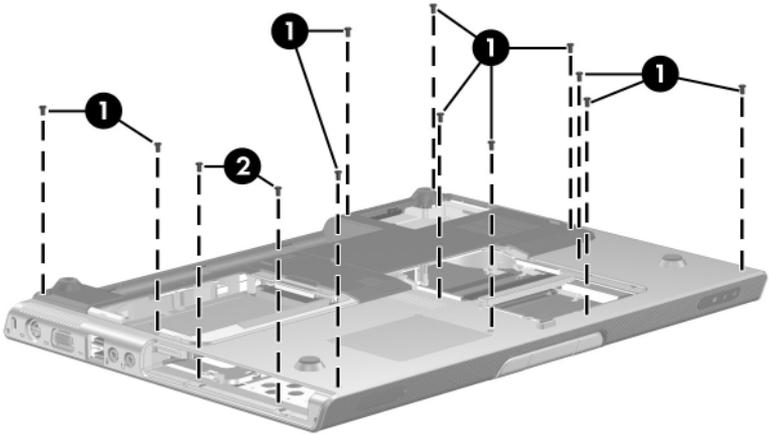
Top Cover Spare Part Number Information

For use with full-featured HP Pavilion dv4000 models (includes TouchPad)	384620-001
For use with defeatured HP Pavilion dv4000 models (includes TouchPad)	390915-001
For use with full-featured Compaq Presario V4000 models (does not include TouchPad)	384621-001
For use with defeatured Compaq Presario V4000 models (does not include TouchPad)	390916-001

1. Prepare the notebook for disassembly ([Section 5.3](#)) and remove the following components:
 - a. Hard drive ([Section 5.4](#))
 - b. Switch cover ([Section 5.12](#))
 - c. Keyboard ([Section 5.13](#))
 - d. Display assembly ([Section 5.14](#))
2. Turn the notebook upside down with the front toward you.

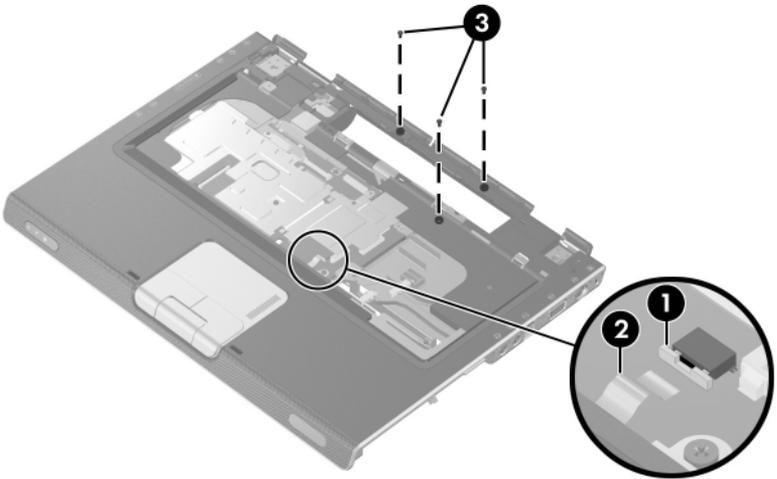
3. Remove the following:

- ❶ Eleven PM2.5×7.0 screws
- ❷ Two PM2.0×4.0 screws in the optical drive bay



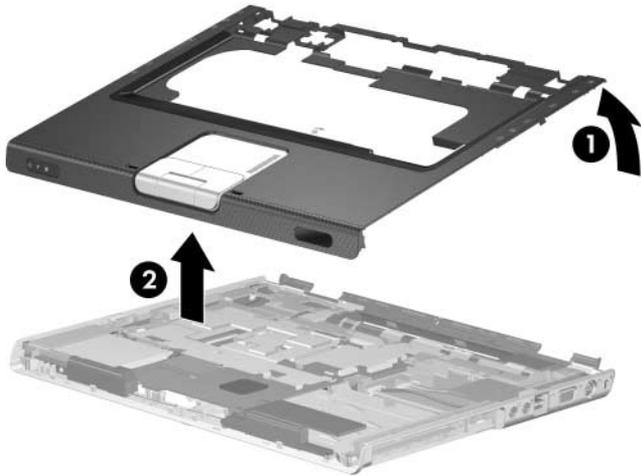
*Removing the Top Cover Screws, Part 1,
HP Pavilion dv4000 Models*

4. Turn the notebook right side up with the front toward you.
5. Release the ZIF connector **1** to which the TouchPad cable is attached and disconnect the cable **2** from the system board.
6. Remove the three PM2.5×7.0 screws **3** that secure the top cover to the base enclosure.



Removing the Top Cover Screws, Part 2,
HP Pavilion dv4000 Models

7. Swing the rear edge of the top cover up and forward ① until it rests at an angle.
8. Lift the top cover up and remove it ②.



Removing the Top Cover, HP Pavilion dv4000 Models

Reverse the above procedure to install the top cover.

5.16 Base Enclosure



The base enclosure removal procedures in this section apply to Compaq Presario V4000 models.

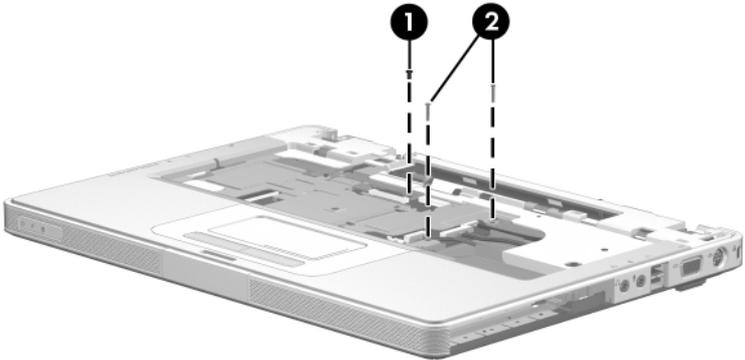
Base Enclosure Spare Part Number Information

For use with full-featured HP Pavilion dv4000 models	384629-001
For use with defeatured HP Pavilion dv4000 models	390917-001
For use with Compaq Presario V4000 models	385739-001

1. Prepare the notebook for disassembly ([Section 5.3](#)) and remove the following components:
 - a. Hard drive ([Section 5.4](#))
 - b. Switch cover ([Section 5.12](#))
 - c. Keyboard ([Section 5.13](#))
 - d. Display assembly ([Section 5.14](#))
2. Turn the notebook right-side up with the front toward you.

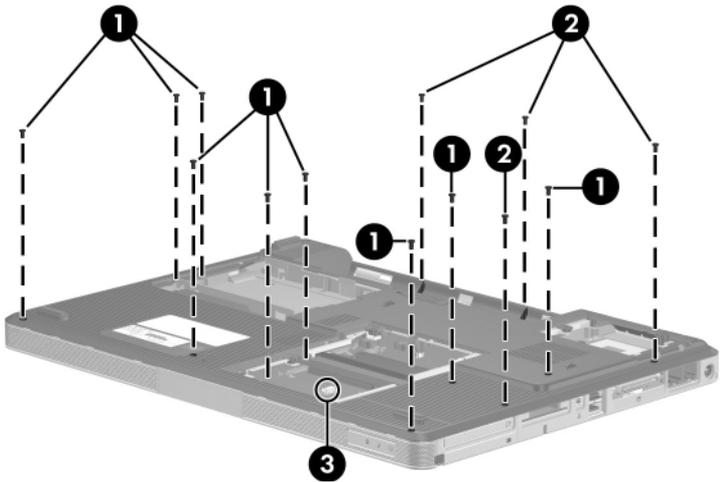
3. Remove the following screws:

- ❶ One PM2.5×7.0 screw
- ❷ Two PM2.0×16.0 screws



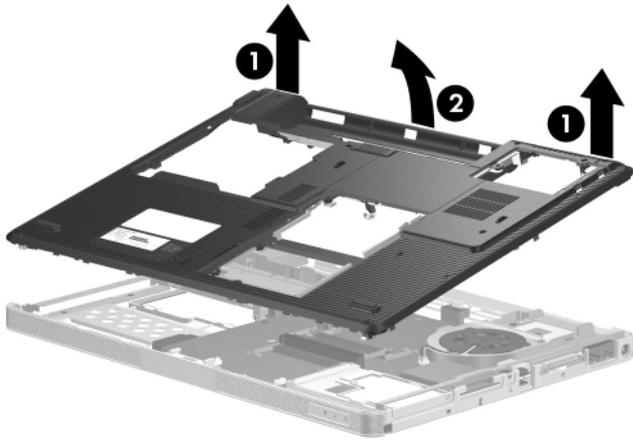
*Removing the Base Enclosure Screws, Part 1,
Compaq Presario V4000 Models*

4. Turn the notebook upside down with the front toward you.
5. Remove the following screws:
 - ❶ Nine PM2.5×7.0 screws
 - ❷ Four PM2.0×4.0 screws
6. Disconnect the speaker cable ❸.



*Removing the Base Enclosure Screws, Part 2,
Compaq Presario V4000 Models*

7. Lift the left and right rear corners **1** of the base enclosure until the rear edge of the base enclosure disengages from the notebook.
8. Swing the rear edge of the base enclosure up and forward **2** until it disengages from the notebook.
9. Remove the base enclosure.



Removing the Base Enclosure, Compaq Presario V4000 Models

Reverse the above procedure to install the base enclosure.

5.17 Modem Board

Modem Board Spare Part Number Information

Modem board (high-speed 56kbps)

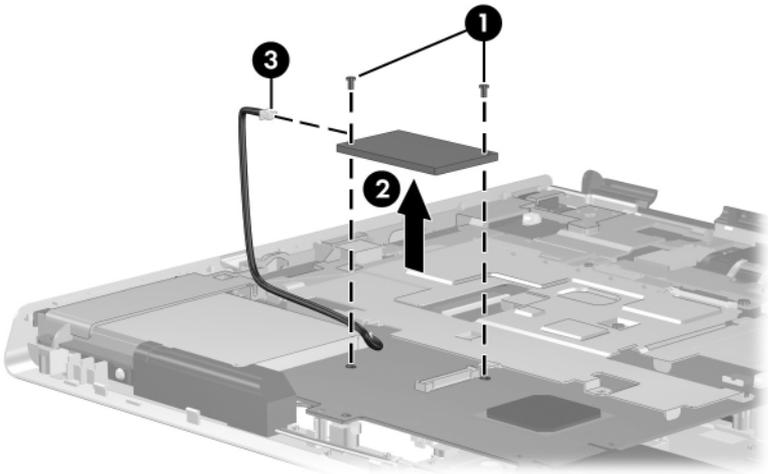
384623-001



The modem board cannot be removed from Compaq Presario V4000 models until after the system board has been removed.

1. Prepare the notebook for disassembly ([Section 5.3](#)) and remove the following components:
 - a. Hard drive ([Section 5.4](#))
 - b. Switch cover ([Section 5.12](#))
 - c. Keyboard ([Section 5.13](#))
 - d. Display assembly ([Section 5.14](#))
 - e. Top cover (HP Pavilion dv4000 models, [Section 5.15](#))
 - f. Base enclosure (Compaq Presario V4000 models, [Section 5.16](#))

2. Remove the two PM2.0×4.0 screws ❶ that secure the modem board to the system board.
3. Lift the right side of the modem board ❷ to disconnect the modem board from the system board.
4. Disconnect the modem cable ❸ from the modem board.
5. Remove the modem board.



Removing the Modem Board

Reverse the above procedure to install the modem board.

5.18 System Board

System Board Spare Part Number Information

Full-featured	383463-001
Defeated	383462-001



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

- Memory module ([Section 5.7](#))
 - Mini PCI communications card ([Section 5.8](#))
 - RTC battery ([Section 5.9](#))
 - Processor ([Section 5.11](#))
 - Modem board ([Section 5.17](#))
-

1. Prepare the notebook for disassembly ([Section 5.3](#)) and remove the following components:
 - a. Hard drive ([Section 5.4](#))
 - b. Optical drive ([Section 5.6](#))
 - c. Heat sink ([Section 5.10](#))

- d. Switch cover ([Section 5.12](#))
 - e. Keyboard ([Section 5.13](#))
 - f. Display assembly ([Section 5.14](#))
 - g. Top cover (HP Pavilion dv4000 models, [Section 5.15](#))
 - h. Base enclosure (Compaq Presario V4000 models, [Section 5.16](#))
2. Turn the notebook upside down with the front toward you.
 3. Disconnect the speaker cable from the system board.

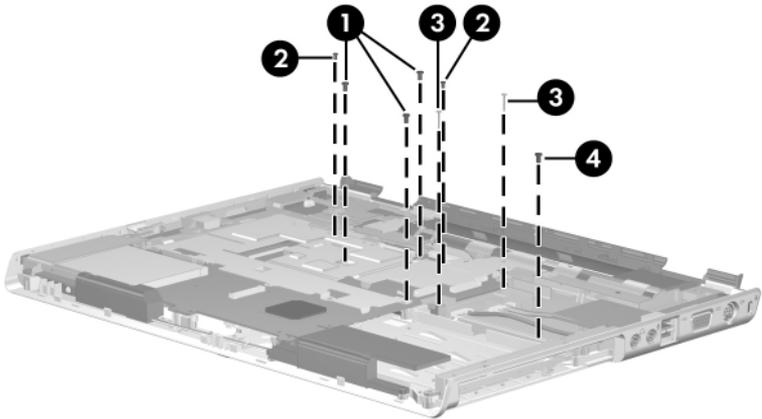


Disconnecting the Speaker Cable



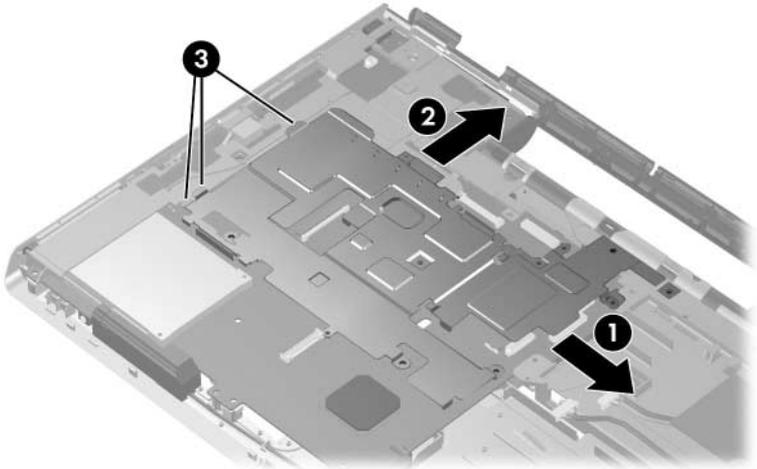
Steps 4 through 18 apply to HP Pavilion dv4000 models. See steps 19 through 24 in this section to remove the system board on Compaq Presario V4000 models.

4. Turn the notebook top side up with the front toward you.
5. Remove the following screws:
 - ① Three PM2.5×7.0 screws that secure the system board and shield to the notebook
 - ② Two PM2.0×4.0 screws that secure the system board and shield to the notebook
 - ③ Two PM2.0×16.0 screws that secure the system board, shield, and USB board to the notebook
 - ④ One PM2.5×7.0 screw that secures the USB board to the notebook



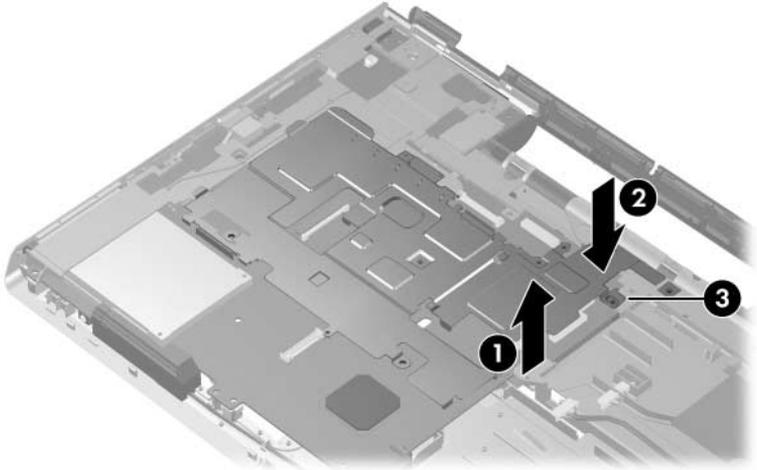
Removing the System Board Screws, HP Pavilion dv4000 Models

- Slide the system board shield forward **1** and to the right **2** until the tabs **3** on the shield disengage from the base enclosure.



*Releasing the System Board Shield, Part 1,
HP Pavilion dv4000 Models*

7. Lift up on the left side of the USB board frame **1**.
8. Press down on the right side of the system board shield **2** until the shield tab **3** disengages from the standoff on the bottom of the USB board frame.

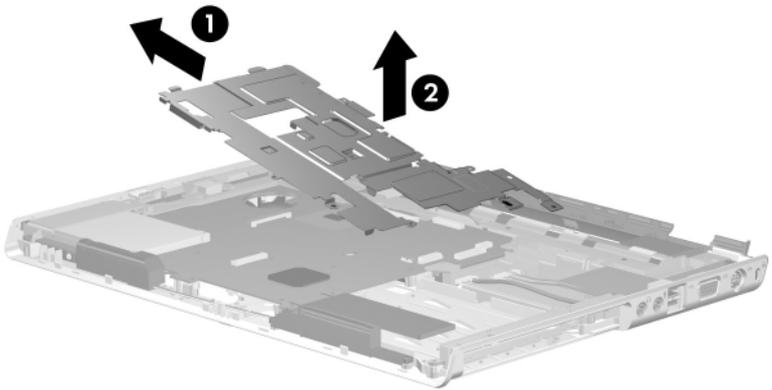


*Releasing the System Board Shield, Part 2,
HP Pavilion dv4000 Models*

9. Slide the system board shield to the left ❶ until it clears the USB board frame.
10. Remove the system board shield ❷.

System Board Shield Spare Part Number Information

System board shield (for use with HP Pavilion dv4000 models) 384624-001

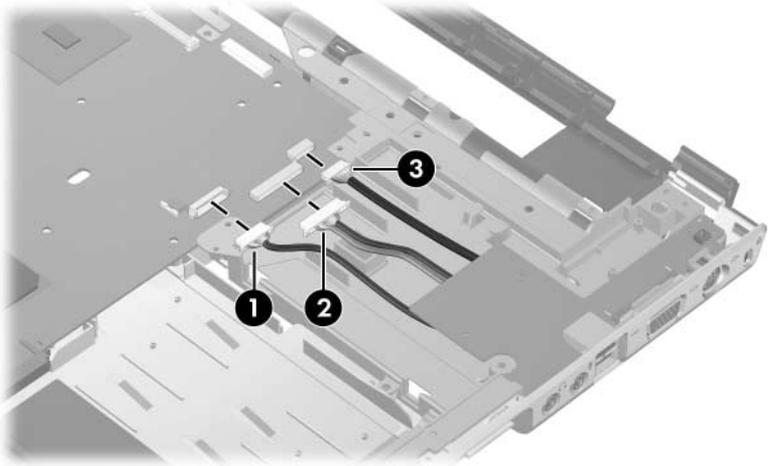


Removing the System Board Shield, HP Pavilion dv4000 Models



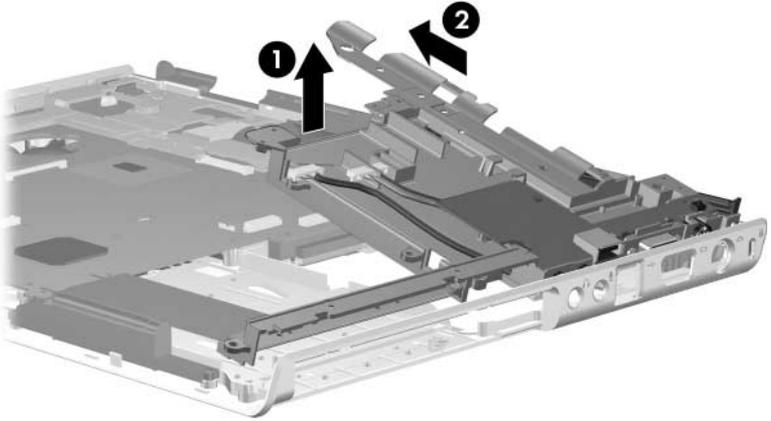
Steps 11 through 18 provide instructions for removing the USB board and frame on HP Pavilion dv4000 models. Refer to [Section 5.21, “USB Board,”](#) for instructions on removing the USB board and frame on Compaq Presario V4000 models.

11. Disconnect the audio **1**, USB **2**, and Bluetooth cables **3** from the system board.



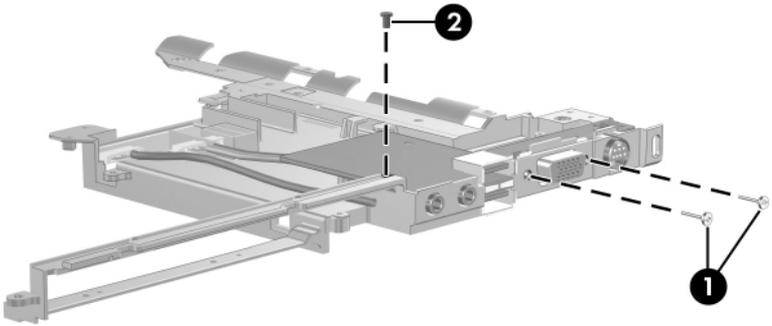
Disconnecting the Audio, USB, and Bluetooth Board Cables, HP Pavilion dv4000 Models

12. Lift the left side of the USB board and frame ❶ until it rests at an angle.
13. Slide the USB board and frame to the left ❷ and remove it.



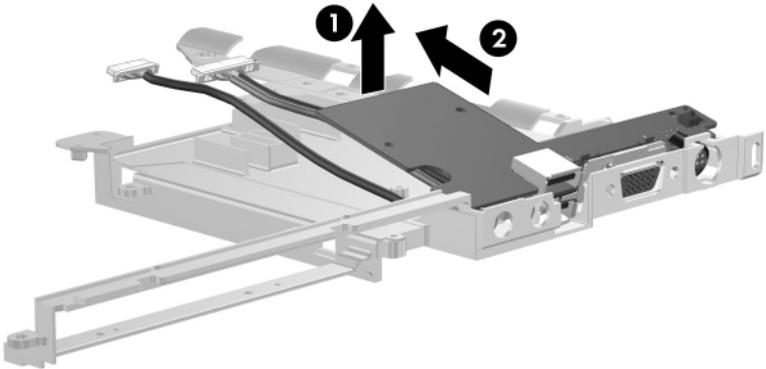
Removing the USB Board and Frame, HP Pavilion dv4000 Models

14. Remove the two PM2.5×8.0 round head screws **1** and the PM2.0×4.0 screw **2** that secure the USB board to the frame.



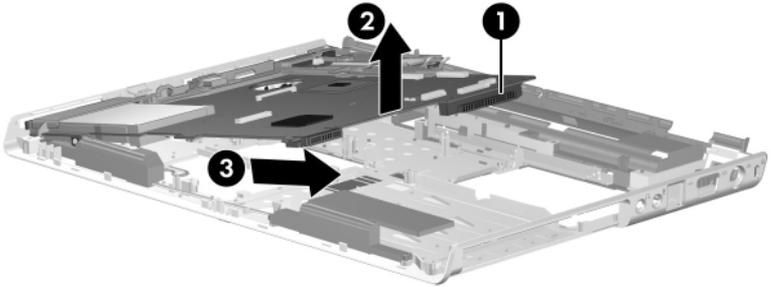
Removing the USB Board Screws, HP Pavilion dv4000 Models

15. Lift the left side of the USB board ❶ until it rests at an angle.
16. Slide the USB board to the left ❷ and remove it from the frame.



Removing the USB Board, HP Pavilion dv4000 Models

17. Use the hard drive connector **1** to lift the right side of the system board **2** until it rests at an angle.
18. Slide the system board to the right **3** and remove it.

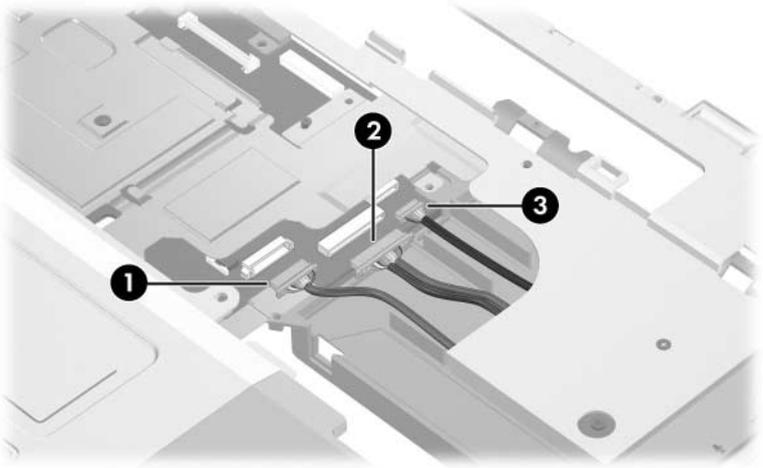


Removing the System Board, HP Pavilion dv4000 Models



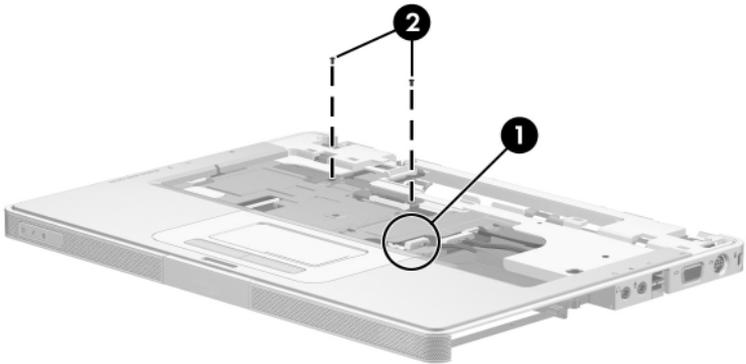
Steps 19 through 24 apply to Compaq Presario V4000 models.

19. Turn the top cover right-side up with the front toward you.
20. Disconnect the audio **1**, USB **2**, and Bluetooth cables **3** from the system board.



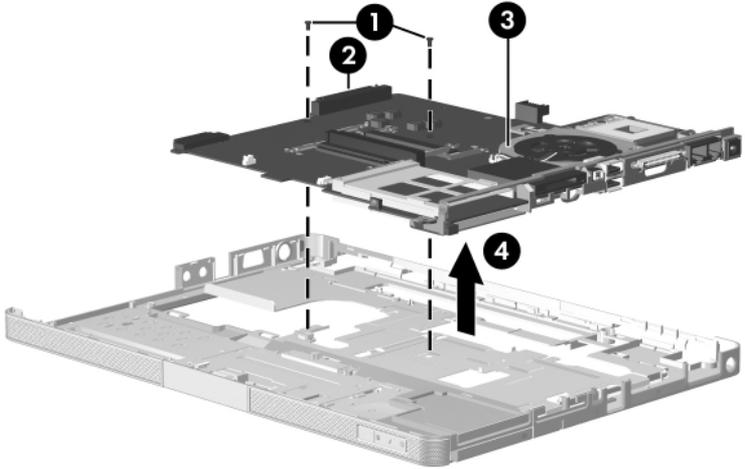
Disconnecting the System Board Cables, Compaq Presario V4000 Models

21. Release the ZIF connector to which the TouchPad cable is attached and disconnect the cable ❶ from the system board.
22. Remove the two PM2.0×4.0 screws ❷ that secure the system board to the top cover.



*Removing the System Board Screws, Part 1,
Compaq Presario V4000 Models*

23. Turn the top cover upside down with the front toward you.
24. Remove the two PM2.5×7.0 screws ❶ that secure the system board to the top cover.
25. Use the hard drive connector ❷ and fan frame ❸ to lift the system board straight up and remove it ❹.



Removing the System Board, Compaq Presario V4000 Models

Reverse the above procedure to install the system board.

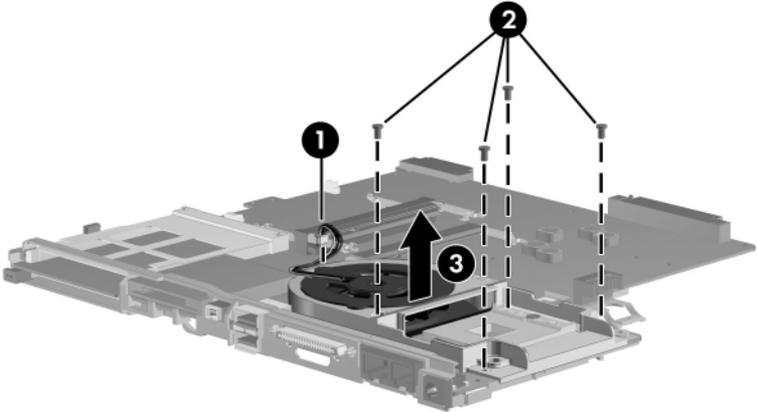
5.19 Fan Assembly



The fan assembly is included in the heat sink assembly spare part kit, spare part number 384622-001. Refer to refer [Section 5.10](#), “Heat Sink,” for information on removing the heat sink.)

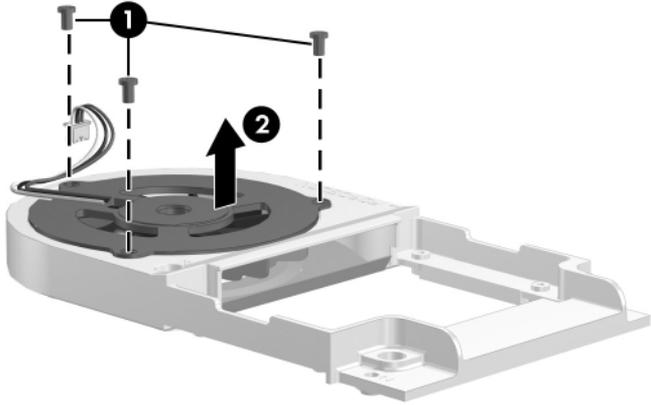
1. Prepare the notebook for disassembly ([Section 5.3](#)) and remove the following components:
 - a. Hard drive ([Section 5.4](#))
 - b. Switch cover ([Section 5.12](#))
 - c. Keyboard ([Section 5.13](#))
 - d. Display assembly ([Section 5.14](#))
 - e. Top cover ([Section 5.15](#))
 - f. System board ([Section 5.18](#))
2. Turn the system board upside down with the right side toward you.

3. Disconnect the fan cable ❶ from the system board.
4. Remove the four PM2.5×7.0 screws ❷ that secure the fan assembly to the system board.
5. Remove the fan assembly ❸.



Removing the Fan Assembly

6. Remove the three PM2.0×4.0 screws ❶ that secure the fan to the fan assembly.
7. Remove the fan ❷.



Removing the Fan

Reverse the above procedure to reassemble and install the fan assembly.

5.20 Speakers

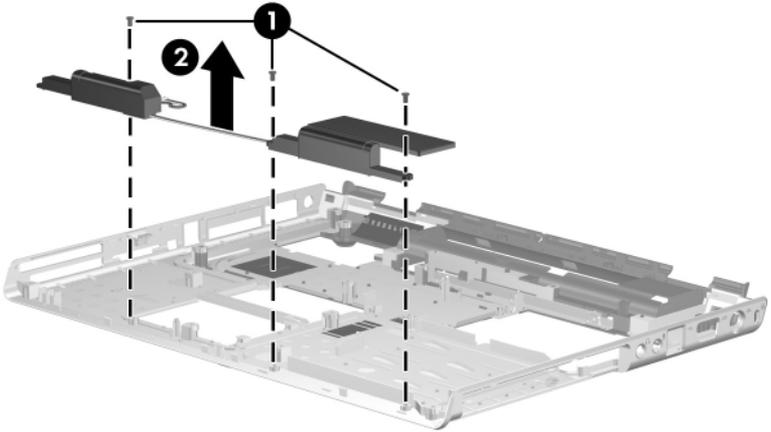
Speakers Spare Part Number Information

Speakers

383466-001

1. Prepare the notebook for disassembly ([Section 5.3](#)) and remove the following components:
 - a. Hard drive ([Section 5.4](#))
 - b. Switch cover ([Section 5.12](#))
 - c. Keyboard ([Section 5.13](#))
 - d. Display assembly ([Section 5.14](#))
 - e. Top cover ([Section 5.15](#))
 - f. System board ([Section 5.18](#))

2. Remove the three PM2.0×4.0 screws ❶ that secure the left and right speakers to the base enclosure.
3. Remove the left and right speakers ❷.



Removing the Speakers

Reverse the above procedure to install the speakers.

5.21 USB Board



This section applies to Compaq Presario V4000 models. Refer to Steps 11 through 18 in [Section 5.18, “System Board,”](#) for instructions for removing the USB board and frame on HP Pavilion dv4000 models.

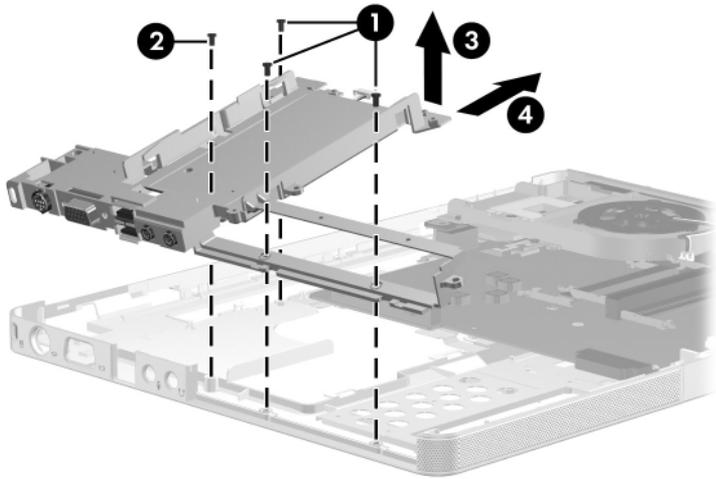
USB Board Spare Part Number Information

USB board (includes frame)

384625-001

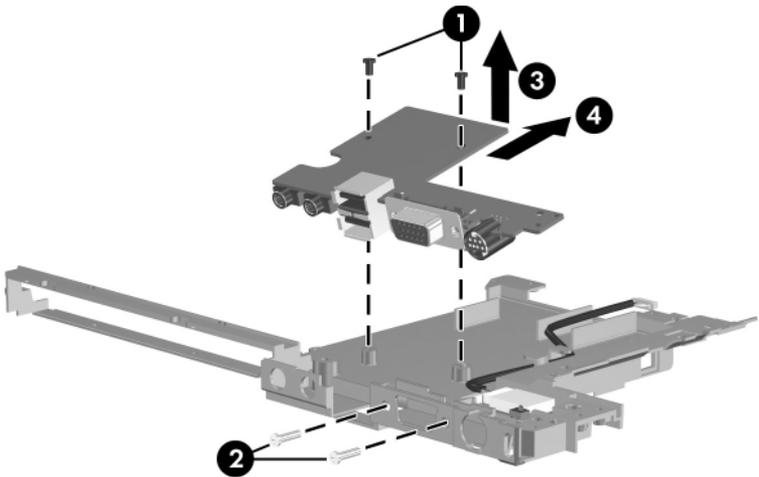
1. Prepare the notebook for disassembly ([Section 5.3](#)) and remove the following components:
 - a. Hard drive ([Section 5.4](#))
 - b. Switch cover ([Section 5.12](#))
 - c. Keyboard ([Section 5.13](#))
 - d. Display assembly ([Section 5.14](#))
 - e. Top cover (HP Pavilion dv4000 models, [Section 5.15](#))
 - f. Base enclosure (Compaq Presario V4000 models, [Section 5.16](#))
 - g. System board ([Section 5.18](#))
2. Position the top cover with the left side toward you.

3. Remove the three PM2.0×4.0 screws ❶ that secure the USB board and frame to the top cover.
4. Remove the PM 2.5×7.0 screw ❷ that secures the USB board and frame to the top cover.
5. Lift the rear edge of the USB board and frame ❸ until it disengages from the top cover.
6. Slide the USB board and frame away from you ❹ and remove it from the top cover.



Removing the USB Board and Frame, Compaq Presario V4000 Models

7. Remove the PM2.0×4.0 screw ❶ that secures the USB board to the frame.
8. Remove the two PM2.5×8.0 screws ❷ that secure the USB board to the frame.
9. Lift the rear edge of the USB board ❸ until it disengages from the frame.
10. Slide the frame away ❹ and remove it.



Removing the USB Board

Reverse the above procedure to install the USB board.

5.22 Bluetooth Board

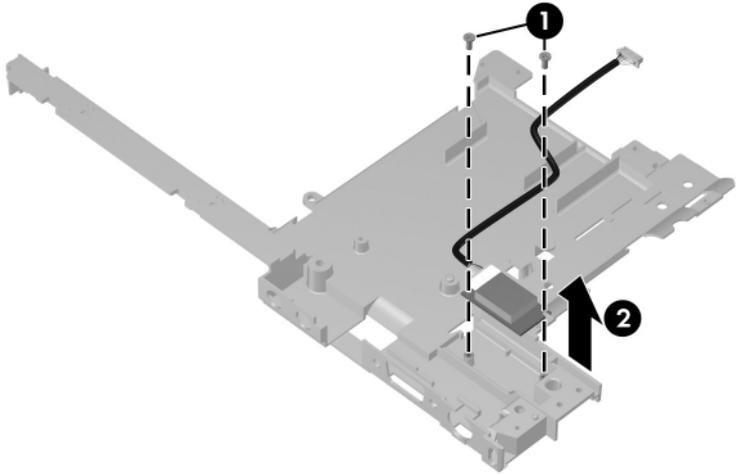
Bluetooth Board Spare Part Number Information

Bluetooth wireless board

383459-001

1. Prepare the notebook for disassembly ([Section 5.3](#)) and remove the following components:
 - a. Hard drive ([Section 5.4](#))
 - b. Switch cover ([Section 5.12](#))
 - c. Keyboard ([Section 5.13](#))
 - d. Display assembly ([Section 5.14](#))
 - e. Top cover (HP Pavilion dv4000 models, [Section 5.15](#))
 - f. Base enclosure (Compaq Presario V4000 models, [Section 5.16](#))
 - g. System board ([Section 5.18](#))
 - h. USB board ([Section 5.21](#))

2. Remove the two PM1.5×4.0 screws ❶ that secure the Bluetooth board to the USB board frame.
3. Remove the Bluetooth board ❷.



Removing the Bluetooth Board

Reverse the above procedure to install the Bluetooth board.

Specifications

This chapter provides physical and performance specifications.

Table 6-1
Notebook

Dimensions	Metric	U.S.
Height	3.35 cm	1.32 in
Width	35.85 cm	14.13 in
Depth	25.78 cm	10.16 in
Weight		
Full-featured model with 15.4-inch display, optical drive and 12-cell battery pack	2.99 kg	6.48 lbs
Input Power		
Operating voltage	18.5 V dc @ 3.5 A - 65 W	
Operating current	3.5 A	
Temperature		
Operating	10°C to 35°C	50°F to 95°F
Nonoperating	-20°C to 60°C	-4°F to 140°F

Table 6-1
Notebook (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 notebook operates well within this range of temperatures.

Table 6-2
15.4-inch, WXGA, TFT Display

Dimensions		
Height	20.9 cm	8.1 in
Width	33.1 cm	13.0 in
Diagonal	39.1 cm	15.4 in
Number of colors	Up to 16.8 million	
Contrast ratio	200:1	
Brightness	180 nits typical	
Pixel resolution		
Pitch	0.259 × 0.259 mm	
Format	1366 × 768	
Configuration	RGB vertical stripe	
Backlight	Edge lit	
Character display	80 × 25	
Total power consumption	5.5 W	
Viewing angle	+/-65° horizontal, +50° vertical typical	

Table 6-3
Hard Drives

	100-GB*	80-GB*	80-GB*
Dimensions			
Height	9.5 mm	9.5 mm	9.5 mm
Width	70 mm	70 mm	70 mm
Weight	102 g	99 g	99 g
Interface type			
	ATA-5	ATA-5	ATA-5
Transfer rate			
Synchronous (maximum)	100 MB/sec	100 MB/sec	100 MB/sec
Security	ATA security	ATA security	ATA security
Seek times (typical read, including setting)			
Single track	3 ms	3 ms	3 ms
Average	13 ms	13 ms	13 ms
Maximum	24 ms	24 ms	24 ms
Logical blocks [†]			
	195,364,233	156,301,488	156,301,488
Disc rotational speed			
	4200 rpm	5400 rpm	4200 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 6-3
Hard Drives (Continued)

	60-GB*	60-GB*	40-GB*
Dimensions			
Height	9.5 mm	9.5 mm	9.5 mm
Width	70 mm	70 mm	70 mm
Weight	102 g	99 g	99 g
Interface type	ATA-5	ATA-5	ATA-5
Transfer rate			
Synchronous (maximum)	100 MB/sec	100 MB/sec	100 MB/sec
Security	ATA security	ATA security	ATA security
Seek times (typical read, including setting)			
Single track	3 ms	3 ms	3 ms
Average	13 ms	13 ms	13 ms
Maximum	24 ms	24 ms	24 ms
Logical blocks [†]	117,210,240	117,210,240	78,140,160
Disc rotational speed	5400 rpm	4200 rpm	4200 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 6-4
Primary 6-cell, Li-Ion Battery Pack

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 6-5
DVD/CD-RW Combo Drive

Applicable disc	Read: 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), and CD-Bridge	Write: 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)	
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 6-6
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)	
Disc thickness	1.2 mm (0.047 in)	
Track pitch	0.74 μm	

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

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)	
Multword DMA mode 2	16.6 MB/s	
Startup time	< 15 seconds	
Stop time	< 6 seconds	

Table 6-7
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 6-8
System Interrupts

Hardware IRQ	System Function
IRQ0	System timer
IRQ1	Standard 101-/102-Key or Microsoft Natural Keyboard
IRQ2	Cascaded
IRQ3	Intel 82801DB/DBM USB2 Enhanced Host Controller—24CD
IRQ4	COM1
IRQ5*	Conexant AC—Link Audio Intel 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*	Intel USB UHCI controller—24C2 Intel 82852/82855 GM/GME Graphic Controller Realtek RTL8139 Family PCI fast Ethernet Controller

Table 6-8
System Interrupts (Continued)

IRQ11	Intel USB EHCI controller—24CD Intel USB UHCI controller—24C4 Intel USB UHCI controller—24C7 Intel 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 6-9
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 6-9
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 6-9
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)

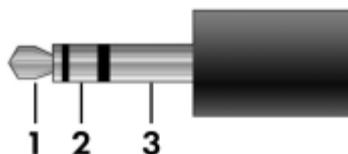
Table 6-10
System Memory Map

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	01000000-047FFFFFFF	Super extended memory
58 MB	04800000-07FFFFFFF	Unused
2 MB	08000000-080FFFFFFF	Video memory (direct access)
4 GB	08200000-FFFEFFFF	Unused
64 KB	FFFF0000-FFFFFFFF	System BIOS

A

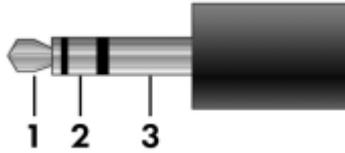
Connector Pin Assignments

Table A-1
Audio-Out (Headphone)



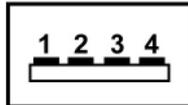
Pin	Signal	Pin	Signal
1	Audio out, left channel	3	Ground
2	Audio out, right channel		

Table A-2
Audio-In (Microphone)



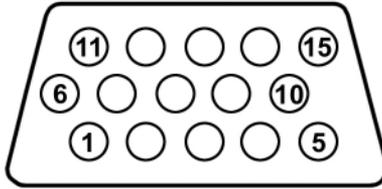
Pin	Signal	Pin	Signal
1	Audio signal in	3	Ground
2	Audio signal in		

Table A-3
Universal Serial Bus



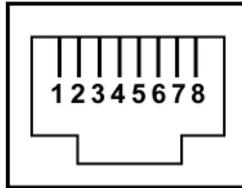
Pin	Signal	Pin	Signal
1	+5 VDC	3	Data +
2	Data -	4	Ground

Table A-4
External Monitor



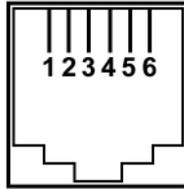
Pin	Signal	Pin	Signal
1	Red analog	9	+5 VDC
2	Green analog	10	Ground
3	Blue analog	11	Monitor detect
4	Not connected	12	DDC 2B data
5	Ground	13	Horizontal sync
6	Ground analog	14	Vertical sync
7	Ground analog	15	DDC 2B clock
8	Ground analog		

Table A-5
RJ-45 (Network)



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

Table A-6
RJ-11 (Modem)



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

Table A-7
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		

Power Cord Set Requirements

3-Conductor Power Cord Set

The wide range input feature of the notebook 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 notebook 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 notebook 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 notebook.

Country-Specific Requirements

3-Conductor Power Cord Set Requirements

Country	Accredited Agency	Applicable Note Number
Australia	EANSW	1
Austria	OVE	1
Belgium	CEBC	1
Canada	CSA	2
Denmark	DEMKO	1
Finland	FIMKO	1
France	UTE	1
Germany	VDE	1
Italy	IMQ	1
Japan	METI	3



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	Accredited Agency	Applicable Note Number
The Netherlands	KEMA	1
Norway	NEMKO	1
Sweden	SEMKO	1
Switzerland	SEV	1
United Kingdom	BSI	1
United States	UL	2



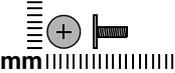
NOTES:

1. The flexible cord must be <HAR> Type HO5VV-F, 3-conductor, 1.0 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.
-

Screw Listing

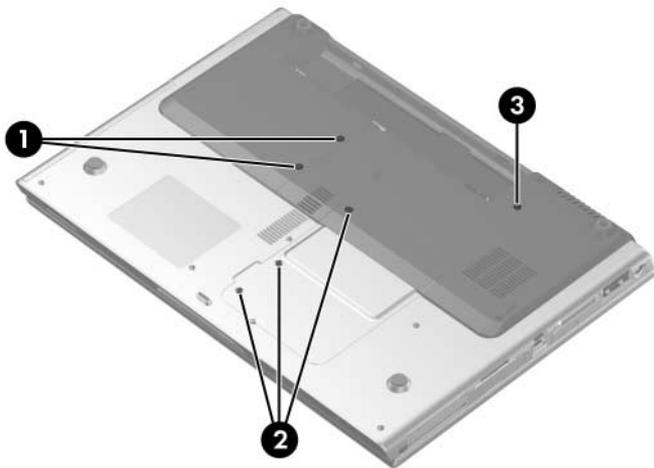
This appendix provides specification and reference information for the screws and screw locks used in the notebook. All screws and screw locks listed in this appendix are available in the Screw Kit, spare part number 382692-001.

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

	Color	Qty.	Length	Thread	Head Width
	Black	6	5.0 mm	2.0 mm	5.0 mm

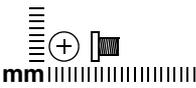
Where used:

- ❶ Two screws that secure the hard drive cover to the notebook (screws are captured on the cover by C clips; documented in [Section 5.4](#))
- ❷ Three screws that secure the memory module compartment cover to the notebook (screw is captured on the cover by C clips; documented in [Section 5.7](#))
- ❸ One screw that secures the thermal cover to the notebook (screw is captured on the cover by C clips; documented in [Section 5.10](#))



Phillips M2.0x5.0 Screw Locations

Table C-2
Phillips PM2.5×4.0 Screw

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

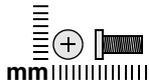
Where used:

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



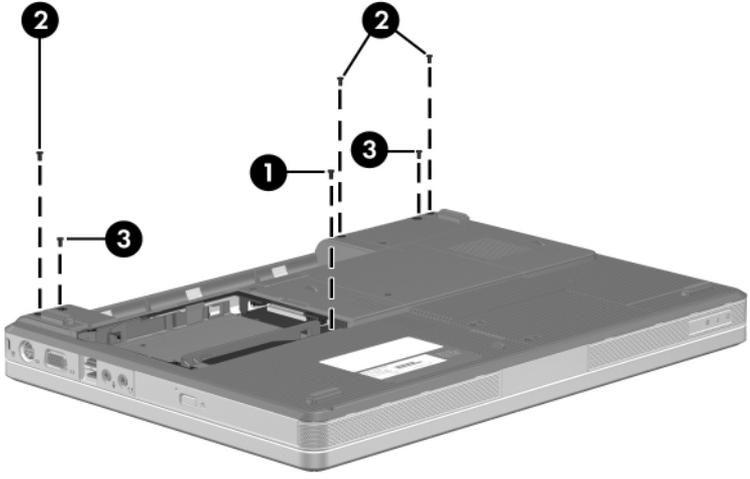
Phillips M2.5×4.0 Screw Location

Table C-3
Phillips 2.5x7.0 Screw

 mm	Color	Qty.	Length	Thread	Head Width
	Black	44	7.0 mm	2.5 mm	4.5 mm

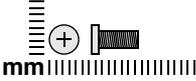
Where used:

- ❶ One screw that secures the optical drive to the notebook (documented in [Section 5.6](#))
- ❷ Three screws that secure the switch cover on Compaq Presario V4000 models notebook (documented in [Section 5.12](#))
- ❸ Two screws that secure the display assembly to the notebook (documented in [Section 5.14](#))



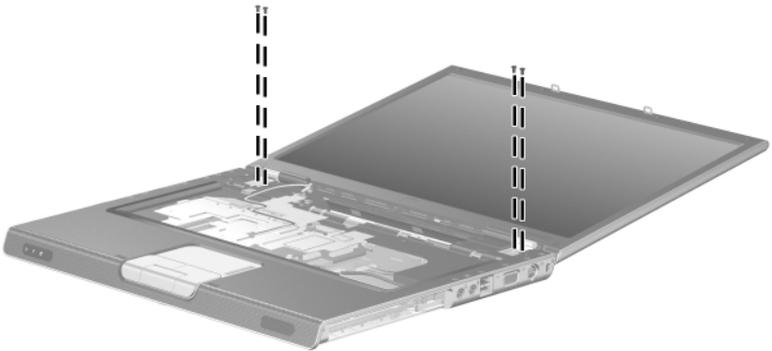
Phillips M2.5x7.0 Screw Locations

Table C-3
Phillips 2.5×7.0 Screw (Continued)

	Color	Qty.	Length	Thread	Head Width
	Black	44	7.0 mm	2.5 mm	4.5 mm

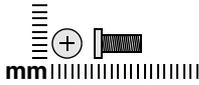
Where used:

4 screws that secure the display assembly to the notebook (documented in [Section 5.14](#))



Phillips M2.5×7.0 Screw Locations

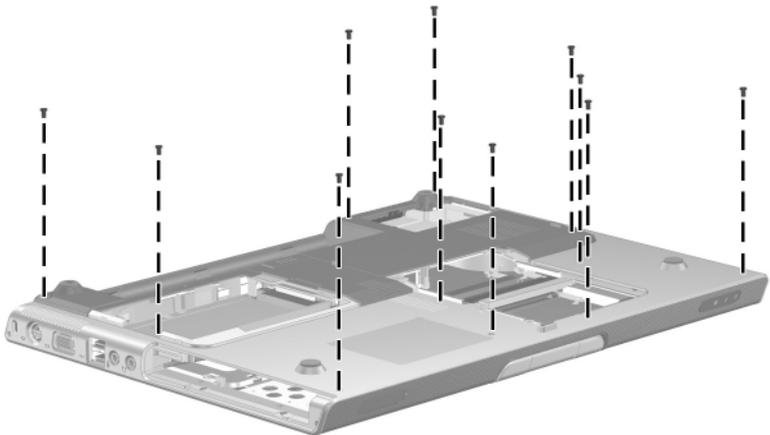
Table C-3
Phillips 2.5×7.0 Screw (Continued)



Color	Qty.	Length	Thread	Head Width
Black	44	7.0 mm	2.5 mm	4.5 mm

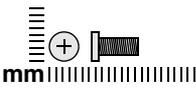
Where used:

11 screws that top cover to the HP Pavilion dv4000 (documented in [Section 5.15](#))



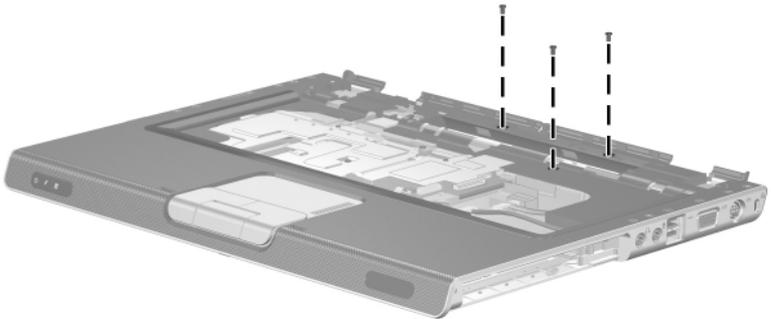
Phillips M2.5×7.0 Screw Locations

Table C-3
Phillips 2.5×7.0 Screw (Continued)

	Color	Qty.	Length	Thread	Head Width
	Black	44	7.0 mm	2.5 mm	4.5 mm

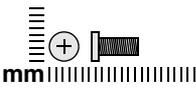
Where used:

3 screws that secure the top cover to the HP Pavilion dv4000 (documented in [Section 5.15](#))



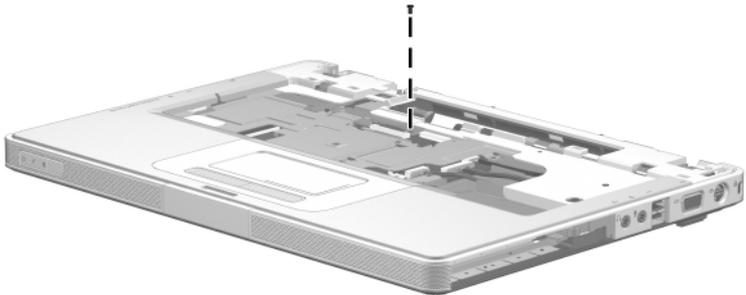
Phillips M2.5×7.0 Screw Locations

Table C-3
Phillips 2.5×7.0 Screw (Continued)

	Color	Qty.	Length	Thread	Head Width
	Black	44	7.0 mm	2.5 mm	4.5 mm

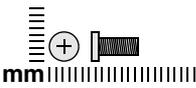
Where used:

One that secures the base enclosure to the Compaq Presario V4000 (documented in [Section 5.16](#))



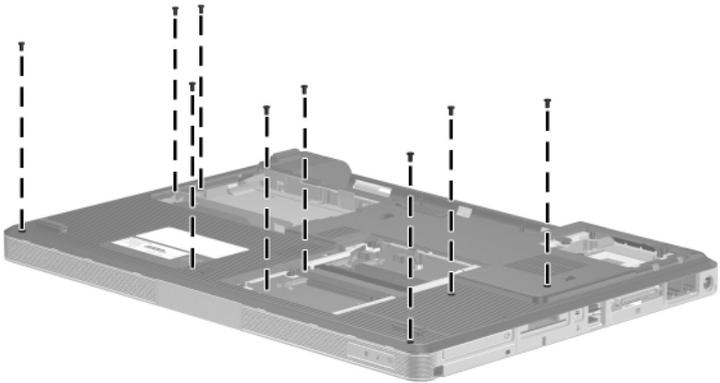
Phillips M2.5×7.0 Screw Locations

Table C-3
Phillips 2.5×7.0 Screw (Continued)

	Color	Qty.	Length	Thread	Head Width
	Black	44	7.0 mm	2.5 mm	4.5 mm

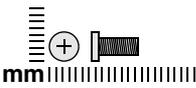
Where used:

9 screws that secure the base enclosure to the Compaq Presario V4000 (documented in [Section 5.16](#))



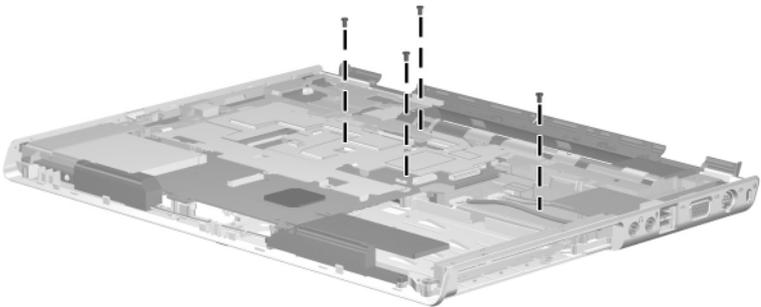
Phillips M2.5×7.0 Screw Locations

Table C-3
Phillips 2.5×7.0 Screw (Continued)

	Color	Qty.	Length	Thread	Head Width
	Black	44	7.0 mm	2.5 mm	4.5 mm

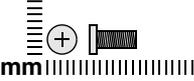
Where used:

4 screws that secure the system board on HP Pavilion dv4000 models (documented in [Section 5.18](#))



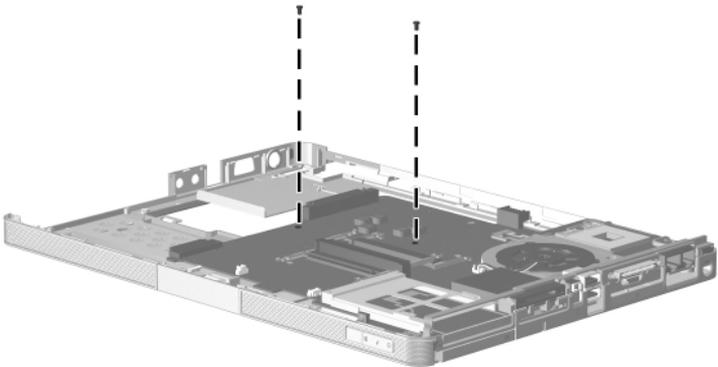
Phillips M2.5×7.0 Screw Locations

Table C-3
Phillips 2.5×7.0 Screw (Continued)

	Color	Qty.	Length	Thread	Head Width
	Black	44	7.0 mm	2.5 mm	4.5 mm

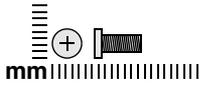
Where used:

2 screws that secure the system board to the top cover on the Compaq Presario V4000 (documented in [Section 5.18](#))



Phillips M2.5×7.0 Screw Locations

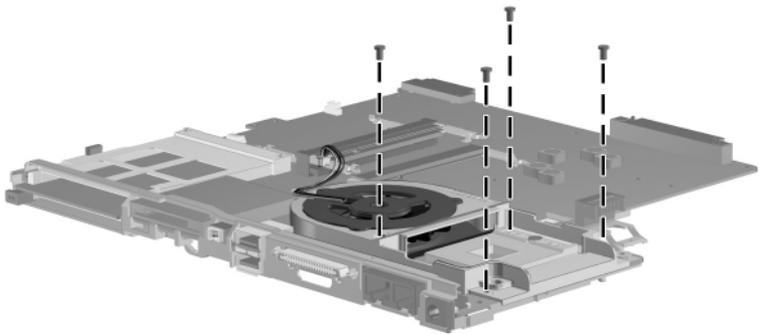
Table C-3
Phillips 2.5×7.0 Screw (Continued)



Color	Qty.	Length	Thread	Head Width
Black	44	7.0 mm	2.5 mm	4.5 mm

Where used:

4 screws that secure the fan assembly to the system board (documented in [Section 5.19](#))



Phillips M2.5×7.0 Screw Locations

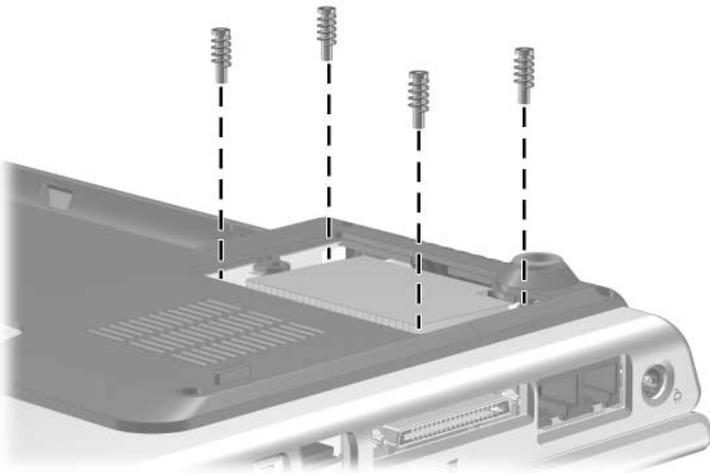
Table C-4

Phillips 2.0×12.0 Spring-Loaded Screw

	Color	Qty.	Length	Thread	Head Width
	Silver	4	12.0	2.0 mm	5.0 mm

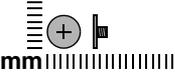
Where used:

4 screws that secure the heat sink to the notebook (documented in [Section 5.10](#))



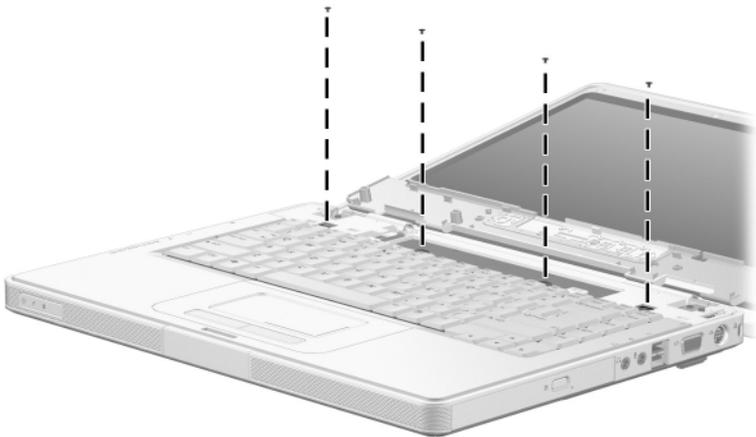
Phillips M2.0×12.0 Spring-Loaded Screw Locations

Table C-5
Black Phillips 2.0×2.0 Screw

	Color	Qty.	Length	Thread	Head Width
	Black	4	2.0 mm	2.0 mm	5.0 mm

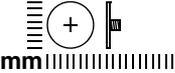
Where used:

4 screws that secure the keyboard on Compaq Presario V4000 models (documented in [Section 5.13](#))



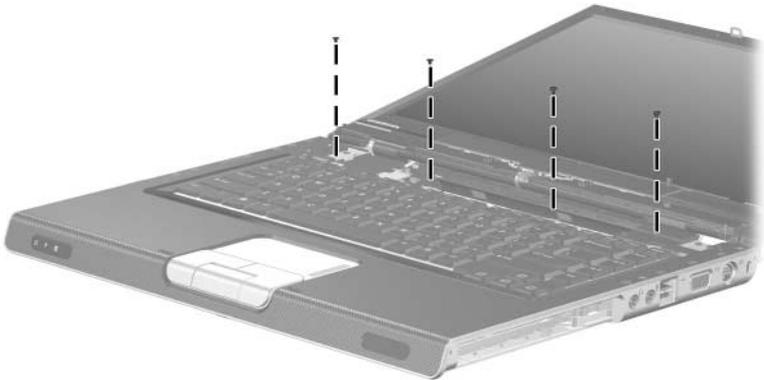
Phillips M2.0×2.0 Screw Locations

Table C-6
Silver Phillips 2.0×2.0 Screw

	Color	Qty.	Length	Thread	Head Width
	Silver	4	2.0 mm	2.0 mm	7.0 mm

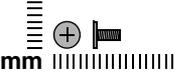
Where used:

4 screws that secure the keyboard on HP Pavilion dv4000 models (documented in [Section 5.13](#))



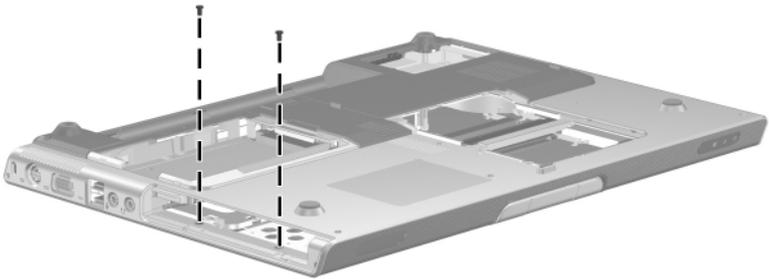
Phillips M2.0×2.0 Screw Locations

Table C-7
Phillips PM2.0x4.0 Screw

 mm	Color	Qty.	Length	Thread	Head Width
	Black	22	4.0 mm	2.0 mm	4.0 mm

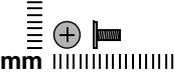
Where used:

2 screws that secure the top cover HP Pavilion dv4000 models (documented in [Section 5.15](#))



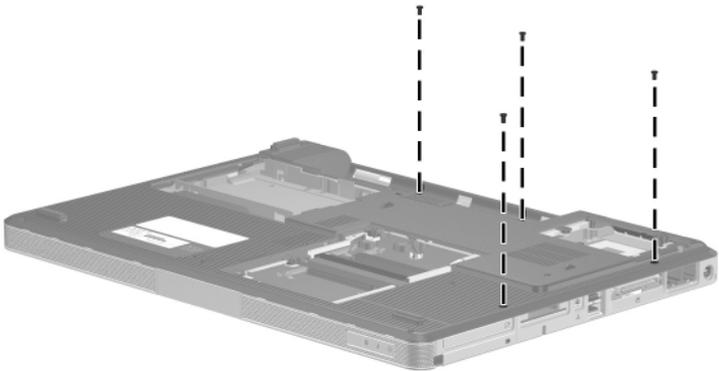
Phillips PM2.0x4.0 Screw Location

Table C-7
Phillips PM2.0x4.0 Screw (Continued)

	Color	Qty.	Length	Thread	Head Width
	Black	22	4.0 mm	2.0 mm	4.0 mm

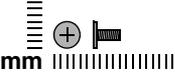
Where used:

4 screws that secure the base enclosure on Compaq Presario V4000 models (documented in [Section 5.16](#))



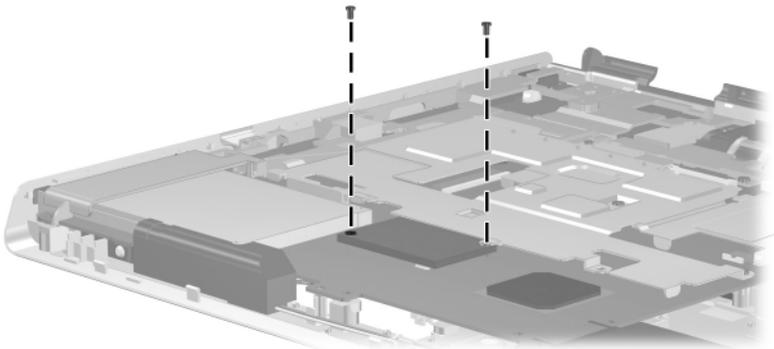
Phillips PM2.0x4.0 Screw Location

Table C-7
Phillips PM2.0x4.0 Screw (Continued)

 mm	Color	Qty.	Length	Thread	Head Width
	Black	22	4.0 mm	2.0 mm	4.0 mm

Where used:

2 screws that secure the modem board to the system board (documented in [Section 5.17](#))



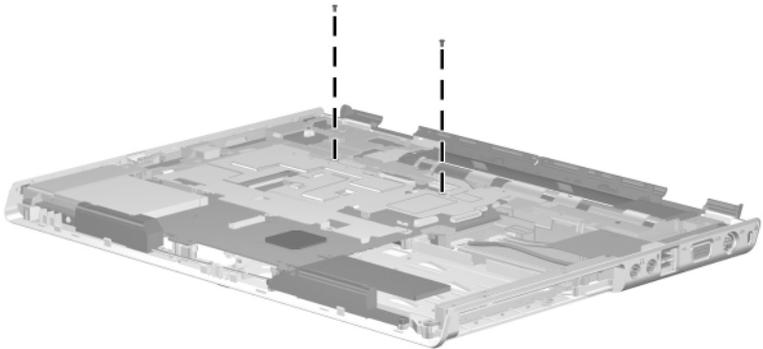
Phillips PM2.0x4.0 Screw Location

Table C-7
Phillips PM2.0x4.0 Screw (Continued)

 mm 	Color	Qty.	Length	Thread	Head Width
	Black	22	4.0 mm	2.0 mm	4.0 mm

Where used:

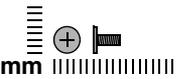
2 screws that secure the system board to the base enclosure on HP Pavilion dv4000 notebooks (documented in [Section 5.18](#))



Phillips PM2.0x4.0 Screw Location

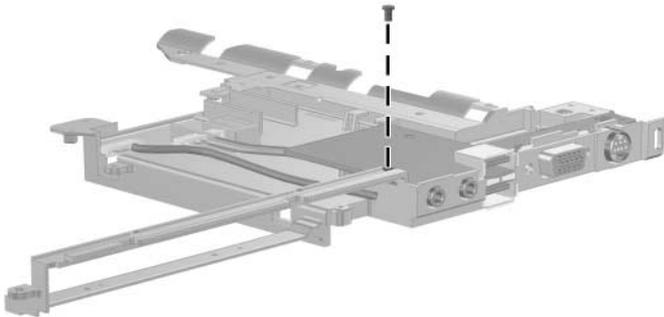
Table C-7

Phillips PM2.0x4.0 Screw (Continued)

	Color	Qty.	Length	Thread	Head Width
	Black	22	4.0 mm	2.0 mm	4.0 mm

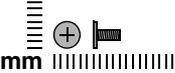
Where used:

One screw that secures the USB board and frame to the base enclosure on HP Pavilion dv4000 notebooks (documented in [Section 5.18](#)) and to the top cover on Compaq Presario V4000 notebooks (documented in [Section 5.21](#))



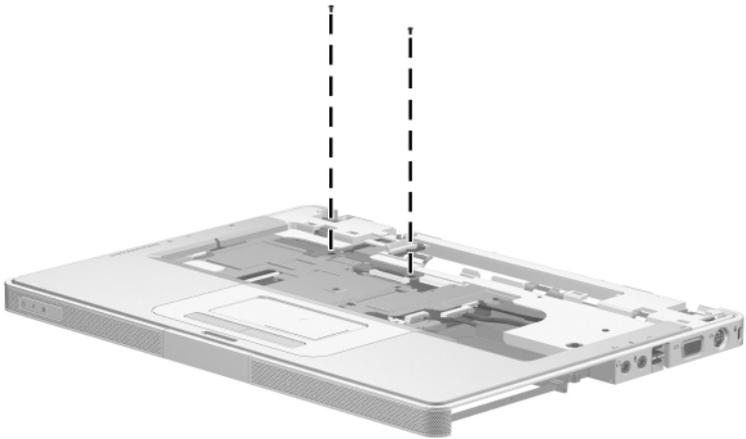
Phillips PM2.0x4.0 Screw Location

Table C-7
Phillips PM2.0x4.0 Screw (Continued)

	Color	Qty.	Length	Thread	Head Width
	Black	22	4.0 mm	2.0 mm	4.0 mm

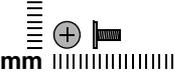
Where used:

2 screws that secure the system board to the top cover (documented in [Section 5.18](#))



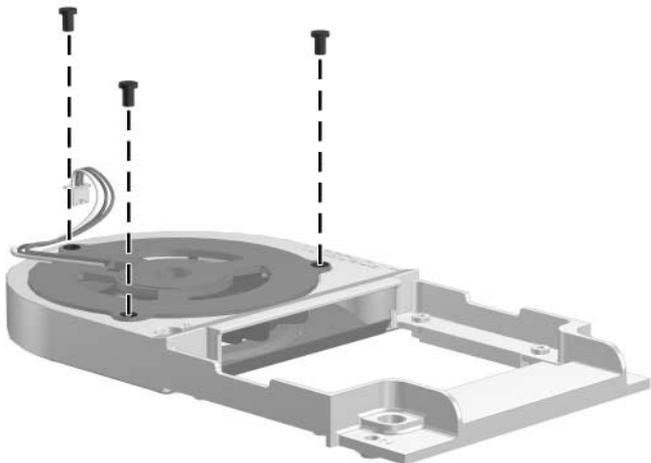
Phillips PM2.0x4.0 Screw Location

Table C-7
Phillips PM2.0x4.0 Screw (Continued)

	Color	Qty.	Length	Thread	Head Width
	Black	22	4.0 mm	2.0 mm	4.0 mm

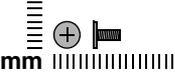
Where used:

3 screws that secure the fan to the fan assembly (documented in [Section 5.19](#))



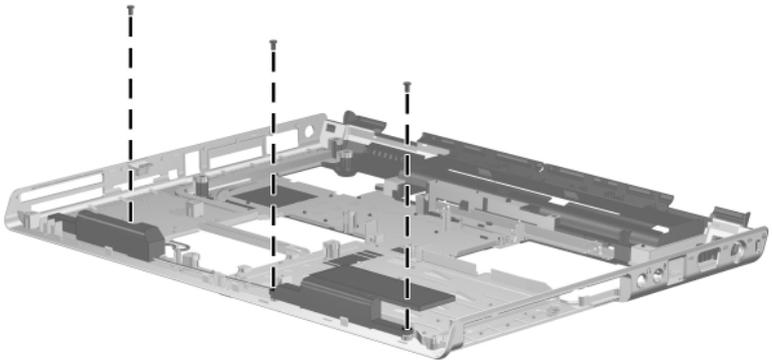
Phillips PM2.0x4.0 Screw Location

Table C-7
Phillips PM2.0×4.0 Screw (Continued)

	Color	Qty.	Length	Thread	Head Width
	Black	22	4.0 mm	2.0 mm	4.0 mm

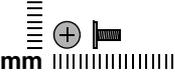
Where used:

3 screws that secure the speaker to the base enclosure (documented in [Section 5.20](#))



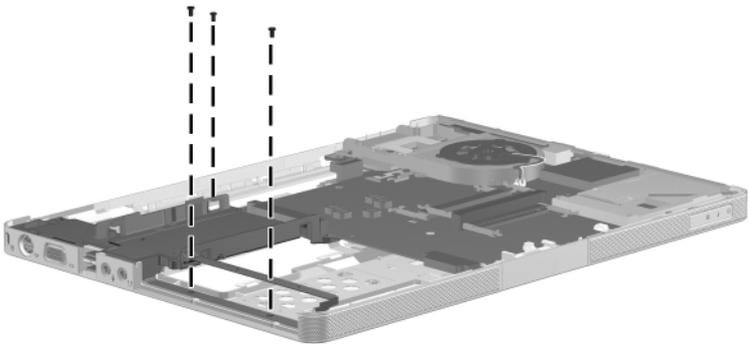
Phillips PM2.0×4.0 Screw Location

Table C-7
Phillips PM2.0x4.0 Screw (Continued)

 mm	Color	Qty.	Length	Thread	Head Width
	Black	22	4.0 mm	2.0 mm	4.0 mm

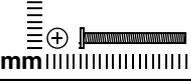
Where used:

3 screws that secure the USB board and frame to the notebook (documented in [Section 5.21](#))



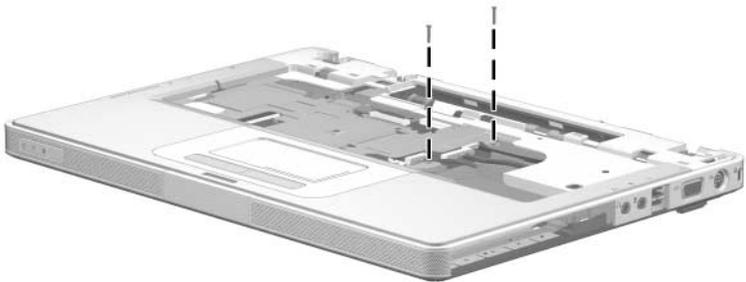
Phillips PM2.0x4.0 Screw Location

Table C-8
Phillips PM2.0x16.0 Screw

	Color	Qty.	Length	Thread	Head Width
	Black	2	16.0 mm	2.0 mm	4.5 mm

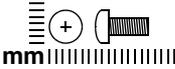
Where used:

2 screws that secure the base enclosure on Compaq Presario V4000 models (documented in [Section 5.16](#)) and the system board on HP Pavilion dv4000 models (documented in [Section 5.18](#))



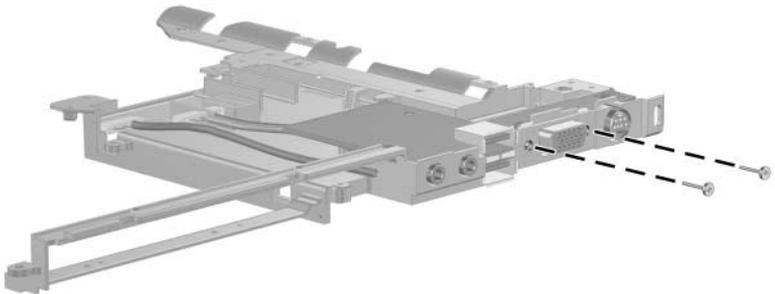
Phillips M2.0x16.0 Screw Locations

Table C-9
Phillips PM2.5×8.0 Screw

	Color	Qty.	Length	Thread	Head Width
	Silver	2	8.0 mm	2.5 mm	5.0 mm

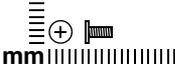
Where used:

2 screws that secure the USB board to the frame on HP Pavilion dv4000 notebooks (documented in [Section 5.18](#)) and Compaq Presario V4000 notebooks (documented in [Section 5.21](#))



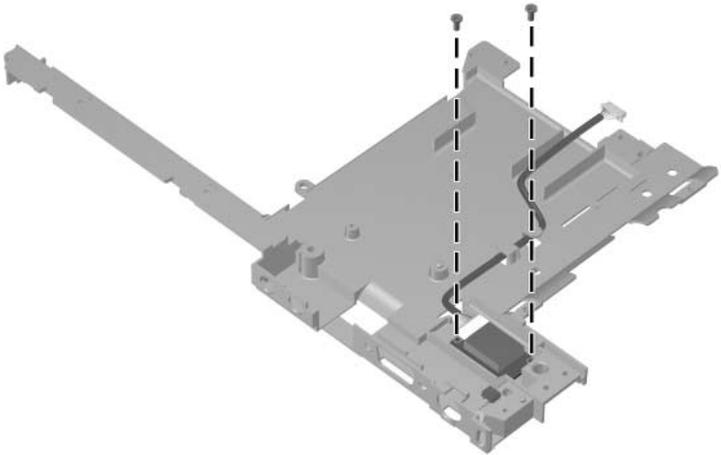
Phillips M2.5×8.0 Screw Locations

Table C-10
Phillips PM1.5×4.0 Screw

	Color	Qty.	Length	Thread	Head Width
	Silver	2	4.0 mm	1.5 mm	3.0 mm

Where used:

2 screws that secure the Bluetooth board to the USB board frame (documented in [Section 5.22](#))



Phillips M1.5×4.0 Screw Locations

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