



# **Maintenance and Service Guide**

HP Pavilion zx5000 Notebook PC

HP Pavilion zv5000 Notebook PC

Compaq Presario R3000 Notebook PC Series

HP Compaq Business Notebook nx9100 Series

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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

HP Pavilion zx5000 Notebook PC

HP Pavilion zv5000 Notebook PC

Compaq Presario R3000 Notebook PC Series

HP Compaq Business Notebook nx9100 Series

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## Product Description

The HP Pavilion zv5000 and zx5000 notebook PCs, the HP Compaq Business Notebook nx9100 Series, and the Compaq Presario R3000 notebook PC offer advanced modularity; a 64-bit Mobile Intel® Pentium® 4 processor, 64-bit AMD Athlon 64 processor, or 32-bit AMD XP-M processor; an ATI MOBILITY RADEON 9600 Pro graphics controller with 64 or 32 MB of discrete video memory; and extensive multimedia support.



*HP Pavilion zv5000 and zx5000 Notebooks*



*HP Compaq Business Notebook nx9100 Series and  
Compaq Presario R3000 Notebooks*



## 1.1 Features

- Mobile Intel Pentium 4 3.06-, 2.80-, 2.66-, and 2.40-GHz processors, all with 512-KB L2 cache, varying by notebook model
  - or -
  - Intel Pentium 4 DT 3.20-, 3.06-, 2.80-, 2.66-, and 2.40-GHz processors, all with 256-KB L2 cache, varying by notebook model
  - or -
  - AMD Athlon 64 1.8-, 2.0-, and 2.2-GHz processors, all with 1-MB L2 cache, varying by notebook model
  - or -
  - AMD Athlon XP-M 1.6-GHz processor with 256-KB L2 cache
- 15.4-inch wide UXGA (1600 × 1200), 15.4-inch wide XGA (1024 × 768), or 15.0-inch XGA (1024 × 768) TFT displays with over 16.7 million colors, varying by notebook model
- ATI MOBILITY RADEON 9600 Pro graphics controller with 64 or 32 MB of video memory, varying by notebook model
- 80-, 60-, 40-, or 30-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 and Microsoft Windows XP Professional
- Full-size Windows keyboard with integrated numeric keypad
- TouchPad pointing device
- Integrated 5-in-1 Memory Reader slot
- Integrated 10/100/1000BaseT Ethernet local area network (LAN) NIC with RJ-45 connector

- Integrated wireless support for Mini PCI 802.11a/b/g LAN devices
- 2 Type II PC Card slots with support for both 32-bit (CardBus) and 16-bit PC Cards
- External 120-watt AC adapter and power cord
- 12- or 8-cell Li-Ion battery pack
- Stereo speakers
- Support for the following devices in the MultiBay:
  - 24X Max DVD+RW/R and CD-RW Combo Drive
  - 24X Max DVD/CD-RW Combo Drive
  - 8X Max DVD-ROM Drive
  - 24X Max CD-ROM Drive
  - 8-cell Li-Ion battery pack
- Connectors for:
  - RJ-11 (modem)
  - RJ-45 network interface card (NIC)
  - Universal Serial Bus (USB) v. 2.0 (3)
  - S-Video
  - Parallel
  - External monitor
  - DC power
  - Docking
  - 1394 digital
  - Microphone
  - Stereo speaker/headphone
- Infrared port

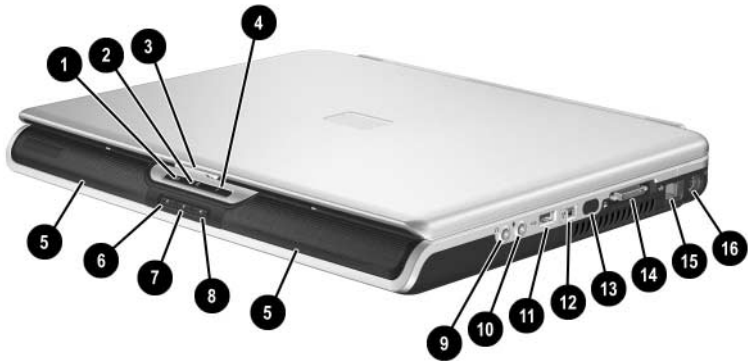
## 1.2 Power Management

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

- Standby
- Hibernation
- User-customizable settings
- Hotkeys for setting level of performance
- Battery calibration
- Lid switch standby/resume
- Power button
- Advanced Configuration and Power Interface (ACPI) compliance

## 1.3 External Components

The external components on the front and right side of the HP Pavilion zv5000 and zx5000 notebooks are shown below and described in Table 1-1.

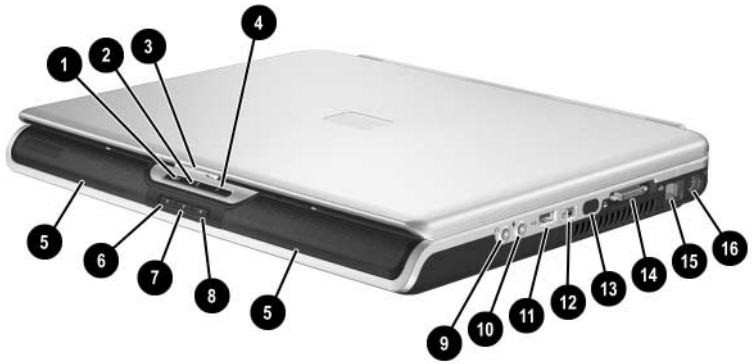


*Front and Right-Side Components—HP Pavilion zv5000 and zx5000 Notebooks*

**Table 1-1**

**Front and Right-Side Components  
HP Pavilion zv5000 and zx5000 Notebooks**

<b>Item</b>	<b>Component</b>	<b>Function</b>
①	Power/standby LED	On: Notebook is turned on. Blinking: Notebook is in Standby. Off: Notebook is off or in Hibernation.
②	IDE (Integrated Drive Electronics) LED; also referred to as the hard drive/optical drive activity LED	On: The internal hard drive or the optical drive is being accessed.
③	Display release latch	Opens the notebook.
④	Battery LED	On: A battery pack is charging. Blinking: Battery pack has reached a low-battery condition. Off: AC power is applied with battery pack either fully charged or not installed, or no AC power is applied.
⑤	Stereo speakers (2)	Produce stereo sound.
⑥	Volume increase button	Increases system volume.
⑦	Mute button	Mutes system volume. An LED comes on when the button is pushed in, and the sound is muted.
⑧	Volume decrease button	Decreases system volume.



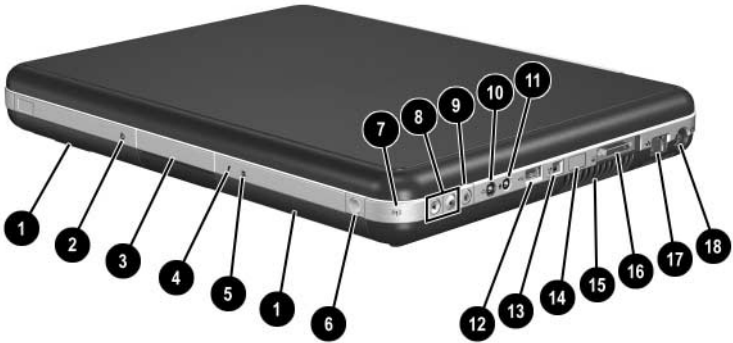
*Front and Right-Side Components—HP Pavilion zv5000 and  
zx5000 Notebooks (Continued)*

Table 1-1

**Front and Right-Side Components  
HP Pavilion zv5000 and zx5000 Notebooks (Continued)**

<b>Item</b>	<b>Component</b>	<b>Function</b>
9	Audio-out (headphone) jack	Connects an optional headphone, headset, or powered stereo speakers. Also connects the audio function of an audio/video device, such as a television or VCR.
10	Audio-in (microphone) jack	Connects an optional monaural microphone.
11	USB port	Connects USB 1.1- and 2.0-compliant devices to the notebook using a standard USB cable.
12	1394 connector (select models)	Connects an optional IEEE 1394 device, such as a camcorder.
13	Infrared port (select models)	Provides wireless communication between the notebook and an optional IrDA-compliant device.
14	Expansion port	Connects an optional port replicator.
15	RJ-45 (network) jack	Connects an optional network cable.
16	S-Video jack	Connects an optional S-Video device, such as a television, VCR, camcorder, overhead projector, or video capture card.

The external components on the front and right side of the HP Compaq Business Notebook nx9100 Series and Compaq Presario R3000 notebook are shown below and described in Table 1-2.



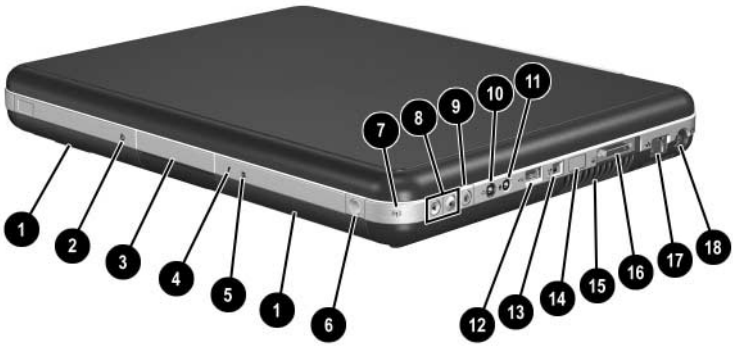
*Front and Right-Side Components—HP Compaq Business Notebook nx9100 Series and Compaq Presario R3000 Notebook*



Table 1-2

**Front and Right-Side Components  
HP Compaq Business Notebook nx9100 Series  
and Compaq Presario R3000**


Item	Component	Function
①	Stereo speakers (2)	Produce stereo sound.
②	Power/standby LED	On: Notebook is turned on. Blinking: Notebook is in Standby. Off: Notebook is off or in Hibernation.
③	Display release latch	Opens the notebook.
④	Battery LED	On: A battery pack is charging. Blinking: Battery pack has reached a low-battery condition. Off: AC power is applied with battery pack either fully charged or not installed, or no AC power is applied.
⑤	IDE (Integrated Drive Electronics) LED; also referred to as the hard drive/optical drive activity LED	On: The internal hard drive or the optical drive is being accessed.
⑥	Wireless button	Turns optional internal wireless device(s) on or off.
⑦	Wireless LED	On: At least one optional internal wireless device is active. Off: No wireless device is active.
⑧	Volume buttons (2)	Decrease and increase system volume. ■ To decrease volume, use left button. ■ To increase volume, use right button.
⑨	Mute button	Mutes system volume. An LED comes on when the button is pushed in, and the sound is muted.



*Front and Right-Side Components—HP Compaq Business Notebook nx9100 Series and Compaq Presario R3000 (Continued)*

Table 1-2

**Front and Right-Side Components  
HP Compaq Business Notebook nx9100 Series and  
Compaq Presario R3000 (Continued)**

Item	Component	Function
⑩	Audio-out (headphone) jack	Connects an optional headphone, headset, or power stereo speakers. Also connects the audio function of an audio/video device, such as a television or VCR.
⑪	Audio-in (microphone) jack	Connects an optional monaural microphone.
⑫	USB port	Connects USB 1.1- and 2.0-compliant devices to the notebook using a standard USB cable.
⑬	1394 connector (select models)	Connects an optional IEEE 1394 device, such as a camcorder.
⑭	Infrared port (select models)	Provides wireless communication between the notebook and an optional IrDA-compliant device.
⑮	Vents (2)	<p>Allow airflow to cool internal components.</p> <p> This notebook is designed to run demanding applications at full power. As a result of increased power consumption, it is normal for the notebook to feel warm or hot when used continuously. To avoid potential discomfort or burns, do not block the air vents or use the notebook on your lap for extended periods. The notebook complies with the user-accessible surface temperature limits defined by the International Standard for Safety of Information Technology Equipment (IEC-60950).</p>

**Table 1-2**

**Front and Right-Side Components  
HP Compaq Business Notebook nx9100 Series and  
Compaq Presario R3000 (Continued)**

Item	Component	Function
16	module port	Connects an optional port replicator.
17	RJ-45 (network) jack	Connects an optional network cable.
18	S-Video jack	Connects an optional S-Video device, such as a television, VCR, camcorder, overhead projector, or video capture card.

The notebook rear and left-side components are shown below and described in Table 1-3.





The notebook rear and left-side component locations are identical for the HP Pavilion zv5000 and zx5000, the HP Compaq Business Notebook nx9100 Series, and Compaq Presario R3000 Series. Notebook appearance varies by model.



*Rear and Left-Side Components*

Table 1-3

## Rear and Left-Side Components

Item	Component	Function
①	AC power connector	Connects an AC adapter.
②	Exhaust vent	Allows airflow to cool internal components.   This notebook is designed to run demanding applications at full power. As a result of increased power consumption, it is normal for the notebook to feel warm or hot when used continuously. To avoid potential discomfort or burns, do not block the air vents or use the notebook on your lap for extended periods. The notebook complies with the user-accessible surface temperature limits defined by the International Standard for Safety of Information Technology Equipment (IEC-60950).
③	External monitor port	Connects an optional external monitor or overhead projector.
④	Parallel connector	Connects an optional parallel device, such as an external diskette drive bay or a printer.
⑤	RJ-11 (modem) jack (select models)	Connects a modem cable.
⑥	Security cable slot	Attaches an optional security cable to the notebook.   Security solutions are designed to act as deterrents. These deterrents may not prevent a product from being mishandled or stolen.



The notebook rear and left-side component locations are identical for the HP Pavilion zv5000 and zx5000, HP Compaq Business Notebook nx9100 Series, and Compaq Presario R3000 models. Notebook appearance varies by model.

---



*Rear and Left-Side Components*

**Table 1-3****Rear and Left-Side Components (Continued)**

<b>Item</b>	<b>Component</b>	<b>Function</b>
7	5-in-1 Memory Reader LED (select models)	On: The 5-in-1 Memory Reader slot is accessing a digital memory card.
8	5-in-1 Memory Reader slot (select models)	Supports 5 types of optional digital memory cards: SD Memory Card, MultiMediaCard, SmartMedia Card, Memory Stick, and Memory Stick Pro.
9	PC Card slot (1 or 2 slots, select models)	Supports an optional Type I or Type II 32-bit (CardBus) or 16-bit PC Card.
10	PC Card eject button (one or 2 buttons, select models)	Ejects an optional PC Card from the PC Card slot.
11	USB port (2)	Connect USB 1.1- and 2.0-compliant devices to the notebook using a standard USB cable.
12	Optical drive bay	Holds a CD-ROM Drive, DVD-ROM Drive, DVD+RW/R and CD-RW Combo Drive, or DVD/CD-RW Combo Drive.
13	3 drive configurations: optional HP USB Digital Drive, optional diskette drive, or no drive	<ul style="list-style-type: none"> <li>■ Digital Bay: Supports an optional pocket-sized HP USB Digital Drive.</li> <li>■ Diskette Drive: Supports a standard 1.4-MB diskette.</li> <li>■ No drive: No drive bay is installed.</li> </ul>

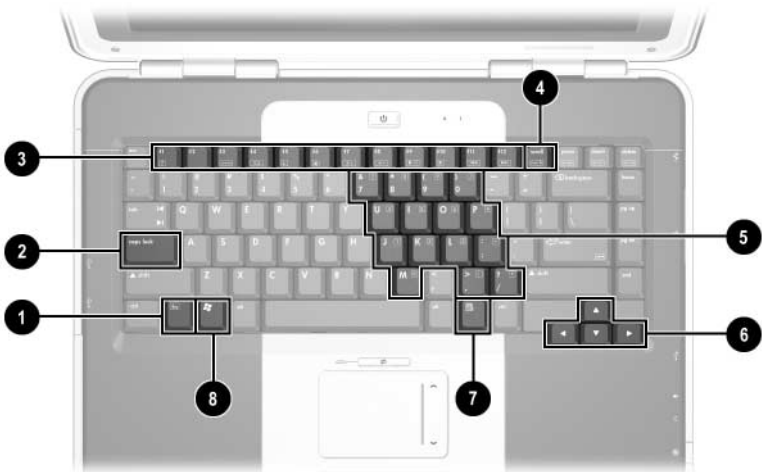
The notebook keyboard components are shown below and described in Table 1-4.

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The notebook keyboard component locations are identical for the HP Pavilion zv5000 and zx5000, HP Compaq Business Notebook nx9100 Series, and Compaq Presario R3000 Series. Notebook appearance varies by model.

---



*Keyboard Components*



Table 1-4

## Keyboard Components

Item	Component	Function
①	<b>fn</b> key	Combines with the function keys to perform additional system and application tasks.
②	<b>caps lock</b> key	Enables caps lock and turns on the caps lock LED.
③	<b>f1</b> through <b>f12</b> function keys	Perform system and application tasks. When combined with the <b>fn</b> key, the function keys <b>f1</b> and <b>f3</b> through <b>f12</b> perform additional tasks as hotkeys.
④	<b>num lock</b> key	Enables numeric lock and the internal keypad.
⑤	Internal keypad	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 Windows Start menu.

The top components of the HP Pavilion zv5000 and zx5000 notebooks are shown below and described in Table 1-5.



*Top Components—HP Pavilion zv5000 and zx5000 Notebooks*

Table 1-5

**Top Components  
HP Pavilion zv5000 and zx5000 Notebooks**

Item	Component	Function
①	Power button	<p>When the notebook is:</p> <ul style="list-style-type: none"> <li>■ Off, press and release to turn on the notebook.</li> <li>■ In Standby, press and release to exit Standby.</li> <li>■ In Hibernation, press and release to exit Hibernation.</li> </ul> <p>If the system has stopped responding and Windows shutdown procedures cannot be used, press and hold for 5 seconds to turn off the notebook.</p>
②	Caps lock LED	On: Caps lock is on.
③	Num lock LED	On: Num lock is on and or the embedded numeric keypad is enabled.
④	Picture button	Launches a digital imaging application.
⑤	Media button	Launches a multimedia application.
⑥	Wireless button	Turns optional internal wireless device(s) on or off.
⑦	Internet button	Launches the Internet.



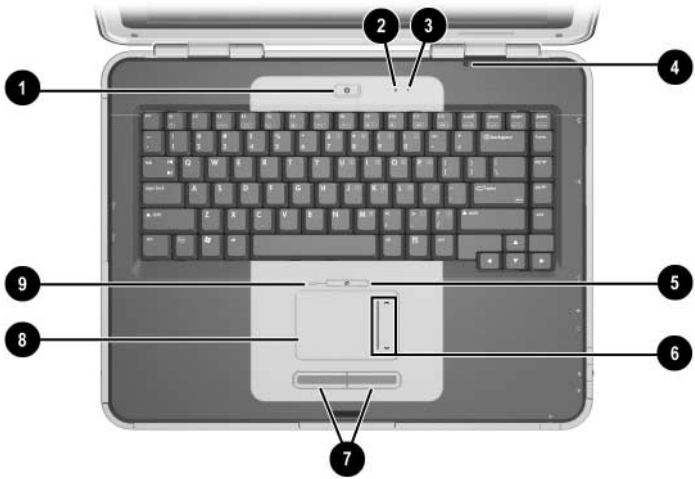
*Top Components—HP Pavilion zv5000 and zx5000 Notebooks  
(Continued)*

Table 1-5

**Top Components**  
**HP Pavilion zv5000 and zx5000 Notebooks (Continued)**

Item	Component	Function
8	Display lid switch	<ul style="list-style-type: none"> <li>■ If the notebook is closed while on, turns off the display.</li> <li>■ If the notebook is opened while in Standby, turns on the notebook (resumes from Standby).</li> </ul>
9	Exhaust vents (2)	<p>Allows airflow to cool internal components.</p> <p>△ This notebook is designed to run demanding applications at full power. As a result of increased power consumption, it is normal for the notebook to feel warm or hot when used continuously. To avoid potential discomfort or burns, do not block the air vents or use the notebook on your lap for extended periods. The notebook complies with the user-accessible surface temperature limits defined by the International Standard for Safety of Information Technology Equipment (IEC-60950).</p>
10	TouchPad button	Turns the TouchPad on or off.
11	TouchPad LED	On: TouchPad is enabled.
12	TouchPad scroll area	Scrolls upward or downward.
13	Left and right TouchPad buttons	Function like the left and right buttons on an external mouse.
14	TouchPad	Moves the pointer and selects or activates items on the screen.
15	5-in-1 Memory Reader LED (select models)	On: The 5-in-1 Memory Reader slot is accessing a digital memory card.

The top components of the HP Compaq Business Notebook nx9100 Series and Compaq Presario R3000 are shown below and described in Table 1-6.



*Top Components—HP Compaq Business Notebook nx9100 Series and Compaq Presario R3000*

Table 1-6

**Top Components**  
**HP Compaq Business Notebook nx9100 Series**  
**and Compaq Presario R3000**

Item	Component	Function
❶	Power button	<p>When the notebook is:</p> <ul style="list-style-type: none"> <li>■ Off, press the button and release to turn on the notebook.</li> <li>■ In Standby, press the button and release to exit Standby.</li> <li>■ In Hibernation, press the button and release to exit Hibernation.</li> </ul> <p>If the system has stopped responding and Windows shutdown procedures cannot be used, press and hold the button for 5 seconds to turn off the notebook.</p>
❷	Caps lock LED	On: Caps lock is on.
❸	Num lock LED	On: Num lock is on and the embedded numeric keypad is enabled.
❹	Display lid switch	<ul style="list-style-type: none"> <li>■ If the notebook is closed while on, turns off the display.</li> <li>■ If the notebook is opened while in Standby, turns on the notebook (resumes from Standby).</li> </ul>
❺	TouchPad button	Turns the TouchPad on or off.
❻	TouchPad scroll area	Scrolls upward or downward.
❼	Left and right TouchPad buttons	Function like the left and right buttons on an external mouse.
❽	TouchPad	Moves the pointer and selects or activates items on the screen.
❾	TouchPad LED	On: TouchPad is enabled.

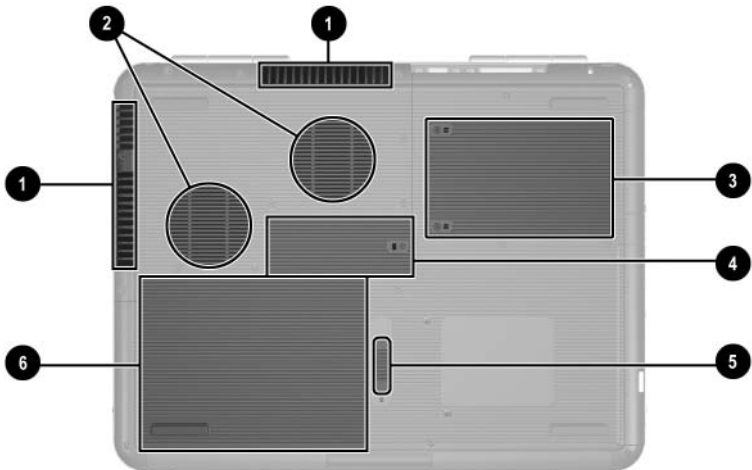
The external components on the bottom of the notebook are shown below and described in Table 1-7.

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The notebook bottom component locations are identical for the HP Pavilion zv5000 and zx5000, HP Compaq Business Notebook nx9100 Series, and Compaq Presario R3000 Series. Notebook appearance varies by model.

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*Bottom Components*



Table 1-7

## Bottom Components

Item	Component	Function
①	Exhaust vents (2)	<p>Allow airflow to cool internal components.</p> <p>△ To prevent overheating, do not obstruct vents. Do not allow a hard surface, such as an adjoining printer, or a soft surface, such as bedding or clothing, to block airflow.</p>
②	Fan vents (2)	<p>Provides airflow to cool internal components.</p> <p>△ To prevent overheating, do not obstruct vents. Do not allow a hard surface, such as an adjoining printer, or a soft surface, such as bedding or clothing, to block airflow.</p>
③	Hard drive bay	Holds the primary hard drive.
④	Memory module compartment	Contains one memory slot for an optional 256-, 512-, or 1024-MB memory module.
⑤	Battery release latch	Releases a battery pack from the battery bay.
⑥	Battery bay	Holds the battery pack. (Battery type varies by notebook model.)

## 1.4 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:

- Memory module
- Mini PCI communications devices
- Hard drive
- Display
- Keyboard and TouchPad
- Audio
- Mobile Intel Pentium 4, AMD Athlon 64, or AMD Athlon XP-M processor
- Fan
- PC Card



**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 can be caused by high external temperatures, heavy system power consumption, certain power management/battery conservation configurations, battery fast charging, and some software applications. Exhaust air is displaced through the ventilation grill located on the left side of the notebook.

# 2

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## Troubleshooting



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**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 and Diagnostics Utilities

The notebook features 2 system management utilities:

- **Computer Setup**—A system information and customization utility that can be used even when your operating system is not working or will not load. This utility includes settings that are not available in Microsoft Windows.
- **Diagnostics for Windows**—A system information and diagnostic utility that is used within the Windows operating system. Use this utility whenever possible to
  - ❑ Display system information.
  - ❑ Test system components.
  - ❑ Troubleshoot a device configuration problem in Windows XP Professional or Windows XP Home Edition.



It is not necessary to configure a device connected to a USB port on the notebook or to an optional port replicator.

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## Using Computer Setup

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

1. Turn on or restart the notebook. Press **f10** while the “f10 = ROM-Based Setup” message is displayed in the lower-left corner of the screen.
  - ❑ To change the language, press **f2**.
  - ❑ To view navigation information, press **f1**.
  - ❑ To return to the Computer Setup menu, press **esc**.
2. Select the File, Security, or Advanced menu.
3. To close Computer Setup and restart the notebook:
  - ❑ Select **File > Save Changes and Exit** and press **enter**.
  - or -
  - ❑ Select **File > Ignore Changes and Exit** and press **enter**.
4. When you are prompted to confirm your action, press **f10**.

## Selecting from the File Menu

---

**Table 2-1**  
**File Menu**




Select	To Do This
System Information	<ul style="list-style-type: none"><li>■ View identification information about the notebook, a port replicator, and any battery packs in the system.</li><li>■ View specification information about the processor, memory and cache size, and system ROM.</li></ul>
Save to Floppy	Save system configuration settings to a diskette.
Restore from Floppy	Restore system configuration settings from a diskette.
Restore Defaults	Replace configuration settings in Computer Setup with factory default settings. Identification information is retained.
Ignore Changes and Exit	Cancel changes entered during the current session, and then exit and restart the notebook.
Save Changes and Exit	Save changes entered during the current session, and then exit and restart the notebook.

---

## Selecting from the Security Menu

**Table 2-2**

### Security Menu

Select	To Do This
Setup Password	Enter, change, or delete a Setup password. The Setup password is called an administrator password in Computer Security, a program accessed from the Windows Control Panel.
Power-on Password	Enter, change, or delete a power-on password.
DriveLock Passwords	Enable/disable DriveLock; change a DriveLock User or Master password.   DriveLock Settings are accessible only when you enter Computer Setup by turning on (not restarting) the notebook.
Password Options (Password options can be selected only when a power-on password has been set.)	Enable/disable: <ul style="list-style-type: none"> <li>■ QuickLock</li> <li>■ QuickLock on Standby</li> <li>■ QuickBlank</li> </ul>  To enable QuickLock on Standby or QuickBlank, you must first enable QuickLock.
Device Security	Enable/disable: <ul style="list-style-type: none"> <li>■ Ports or diskette drives*</li> <li>■ Diskette write*</li> <li>■ CD-ROM or diskette startup</li> </ul>  Settings for a DVD-ROM can be entered in the CD-ROM field.
System IDs	Enter identification numbers for the notebook, a port replicator, and all battery packs in the system.

\*Not applicable to SuperDisk LS-120 drives.

## Selecting from the Advanced Menu

---

**Table 2-3**  
**Advanced Menu**

Select	To Do This
Language	Change the Computer Setup language.
Boot Options	<p>Enable/disable:</p> <ul style="list-style-type: none"> <li>■ QuickBoot, which starts the notebook more quickly by eliminating some startup tests. (If you suspect a memory failure and want to test memory automatically during startup, disable QuickBoot.)</li> <li>■ MultiBoot, which sets a startup sequence that can include most bootable devices and media in the system.</li> </ul>
Device Options	<ul style="list-style-type: none"> <li>■ Enable/disable the embedded numeric keypad at startup.</li> <li>■ Enable/disable multiple standard pointing devices at startup. (To set the notebook to support only a single, usually nonstandard, pointing device at startup, select Disable.)</li> <li>■ Enable/disable USB legacy support for a USB keyboard. (When USB legacy support is enabled, the keyboard works even when a Windows operating system is not loaded.)</li> <li>■ Set an optional external monitor or overhead projector connected to a video card in a Port Replicator as the primary device. (When the notebook display is set as secondary, the notebook must be shut down before it is undocked from a port replicator.)</li> </ul>

---



**Table 2-3**  
**Advanced Menu (*Continued*)**

Select	To Do This
Device Options ( <i>continued</i> )	<ul style="list-style-type: none"> <li>■ Change the parallel port mode from Enhanced Parallel Port (EPP, the default setting) to standard, bidirectional EPP, or Enhanced Capabilities Port (ECP).</li> <li>■ Set video-out mode to NTSC (default), PAL, NTSC-J, or PAL-M.*</li> <li>■ Enable/disable all settings in the SpeedStep window. (When Disable is selected, the notebook runs in Battery Optimized mode.)</li> <li>■ Specify how the notebook recognizes multiple identical port replicators that are identically equipped. Select Disable to recognize the port replicators as a single port replicator; select Enable to recognize the port replicators individually, by serial number.</li> <li>■ Enable/disable the reporting of the processor serial number by the processor to the software.</li> </ul>
HDD Self Test Options	Run a quick comprehensive self-test on hard drives in the system that support the test features.

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

## 2.2 Using Diagnostics for Windows

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

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

Diagnostics for Windows is designed to test HP components. If third-party components are tested, the results might be inconclusive.

### Obtaining, Saving or Printing Configuration Information

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

## Obtaining, Saving or Printing Diagnostic Test Information

1. Access Diagnostics for Windows by selecting **Start > Settings > Control Panel > Diagnostics for Windows**.
2. Select the **Test** tab.
3. In the scroll box, select the category or device you want to test.
4. Select a test type:
  - ❑ **Quick Test**—Runs a quick, general test on each device in a selected category.
  - ❑ **Complete Test**—Performs maximum testing on each device in a selected category.
  - ❑ **Custom Test**—Performs maximum testing on a selected device.
    - ◆ To run all tests for your selected device, select the **Check All** button.
    - ◆ To run only the tests you select, select the **Uncheck All** button, and then select the check box for each test you want to run.
5. Select a test mode:
  - ❑ **Interactive Mode**—Provides maximum control over the testing process. You determine whether the test was passed or failed. You might be prompted to insert or remove devices.
  - ❑ **Unattended Mode**—Does not display prompts. If errors are found, they are displayed when testing is complete.

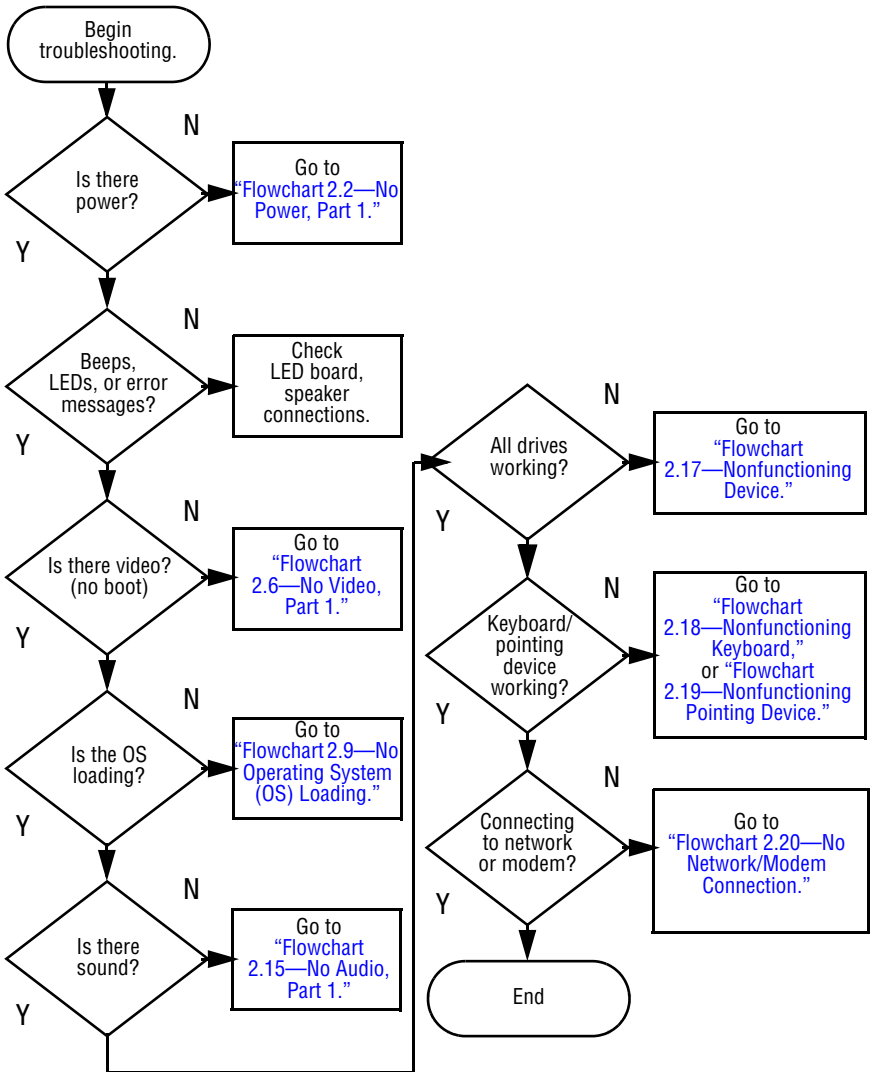
6. Select the **Begin Testing** button.
7. Select a tab to view a test report:
  - ❑ **Status tab**—Summarizes the tests run, passed, and failed during the current testing session.
  - ❑ **Log tab**—Lists tests run on the system, the number of times each test has run, the number of errors found on each test, and the total run time of each test.
  - ❑ **Error tab**—Lists all errors found in the notebook along with the corresponding error codes.
8. Select a tab to save the report:
  - ❑ **Log tab**—Select the **Save** button.
  - ❑ **Error tab**—Select the **Save** button.
9. Select a tab to print the report:
  - Log tab**—Select **File > Save As**, and then print the file from your folder.

## 2.3 Troubleshooting Flowcharts

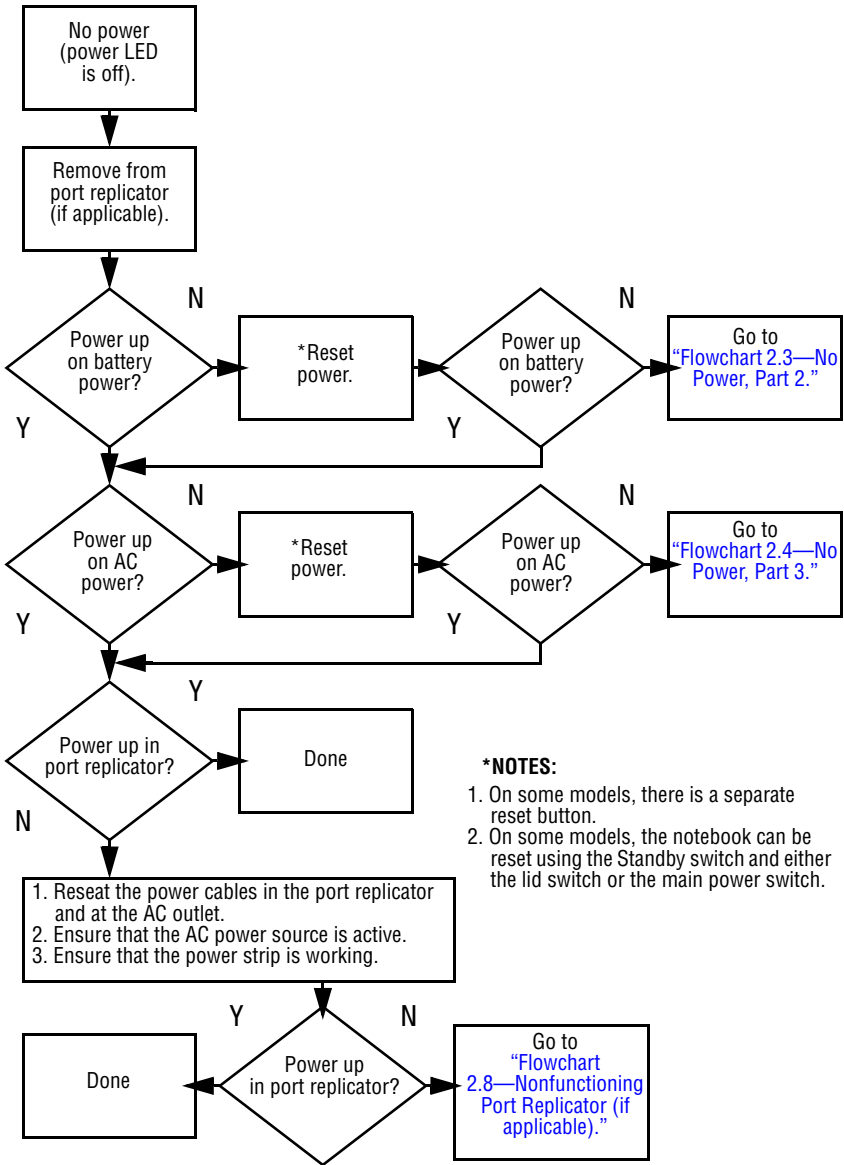
**Table 2-4**  
**Troubleshooting Flowcharts Overview**

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 Port Replicator (if applicable)"
2.9	"Flowchart 2.9—No Operating System (OS) Loading"
2.10	"Flowchart 2.10—No OS Loading, Hard Drive, Part 1"
2.11	"Flowchart 2.11—No OS Loading, Hard Drive, Part 2"
2.12	"Flowchart 2.12—No OS Loading, Hard Drive, Part 3"
2.13	"Flowchart 2.13—No OS Loading, Diskette Drive"
2.14	"Flowchart 2.14—No OS Loading, CD-ROM or DVD-ROM 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"

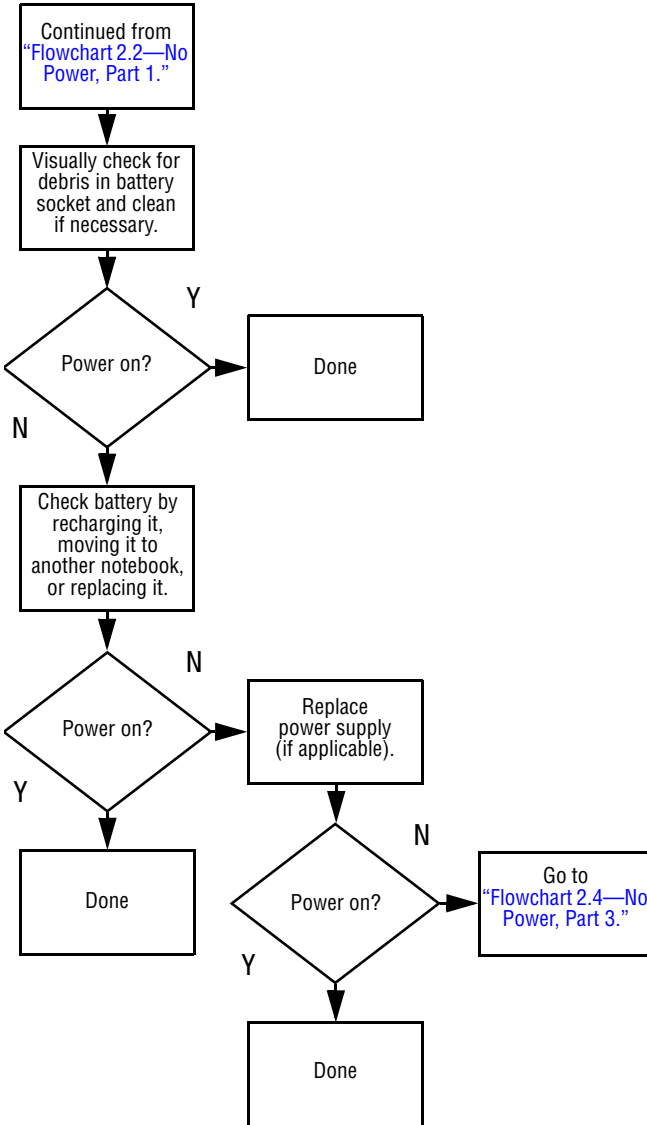
## Flowchart 2.1 – Initial Troubleshooting



## Flowchart 2.2—No Power, Part 1

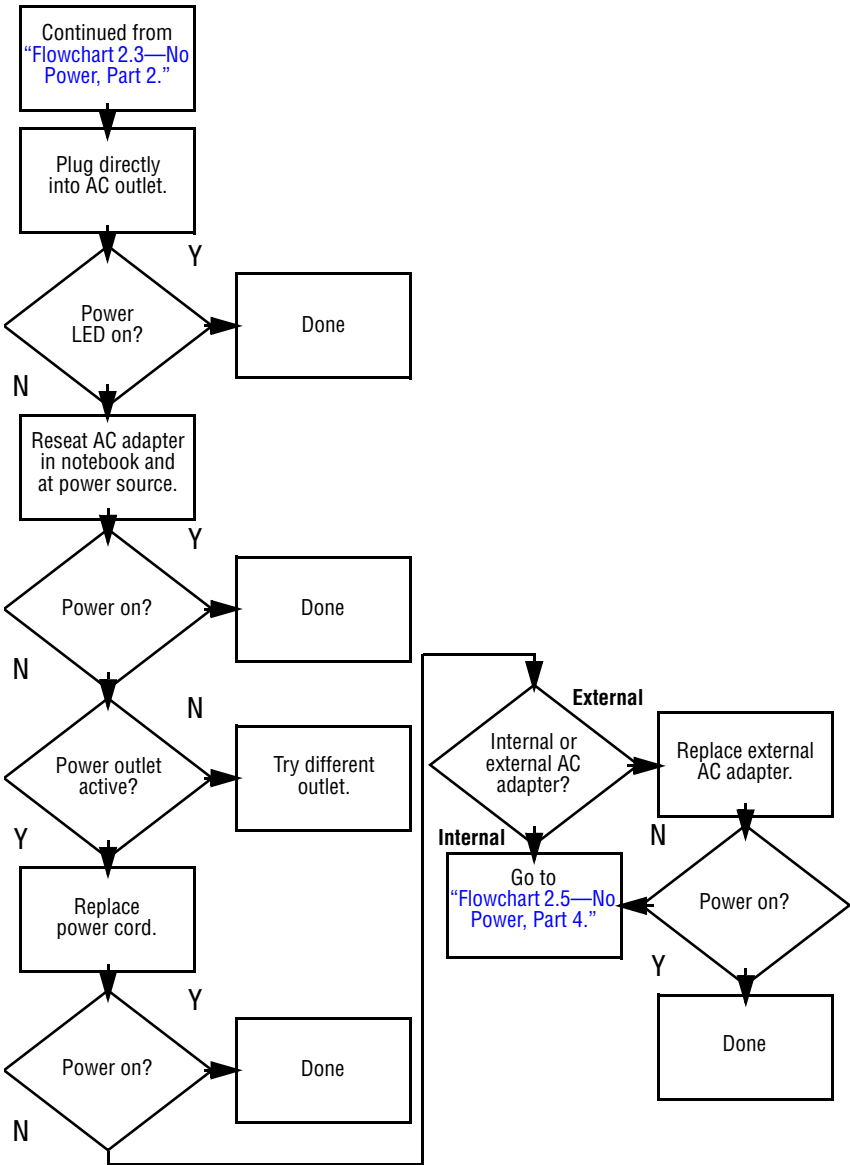


## Flowchart 2.3—No Power, Part 2

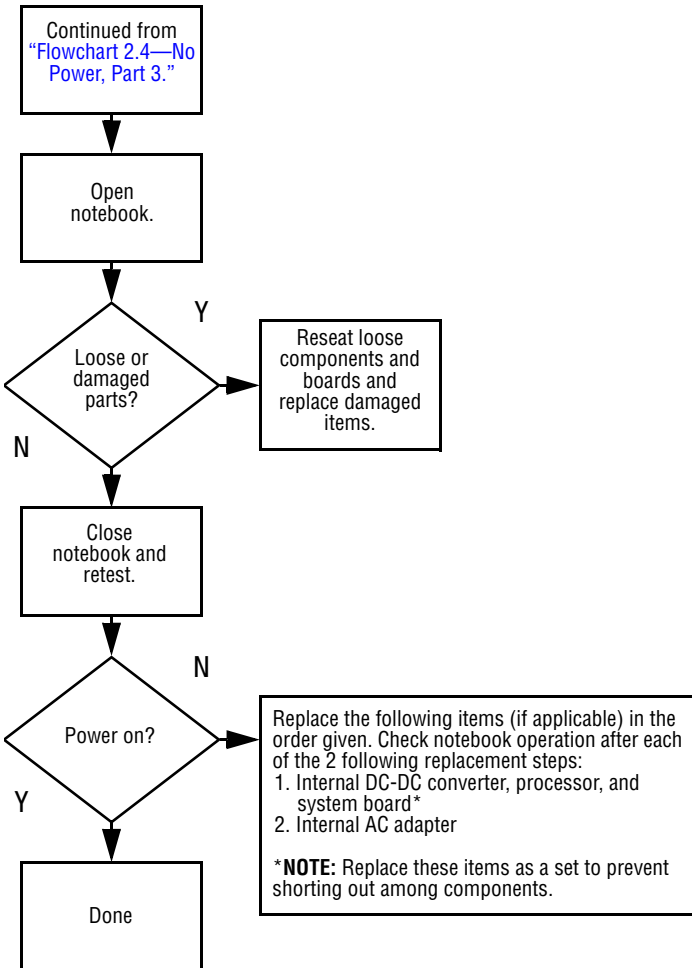




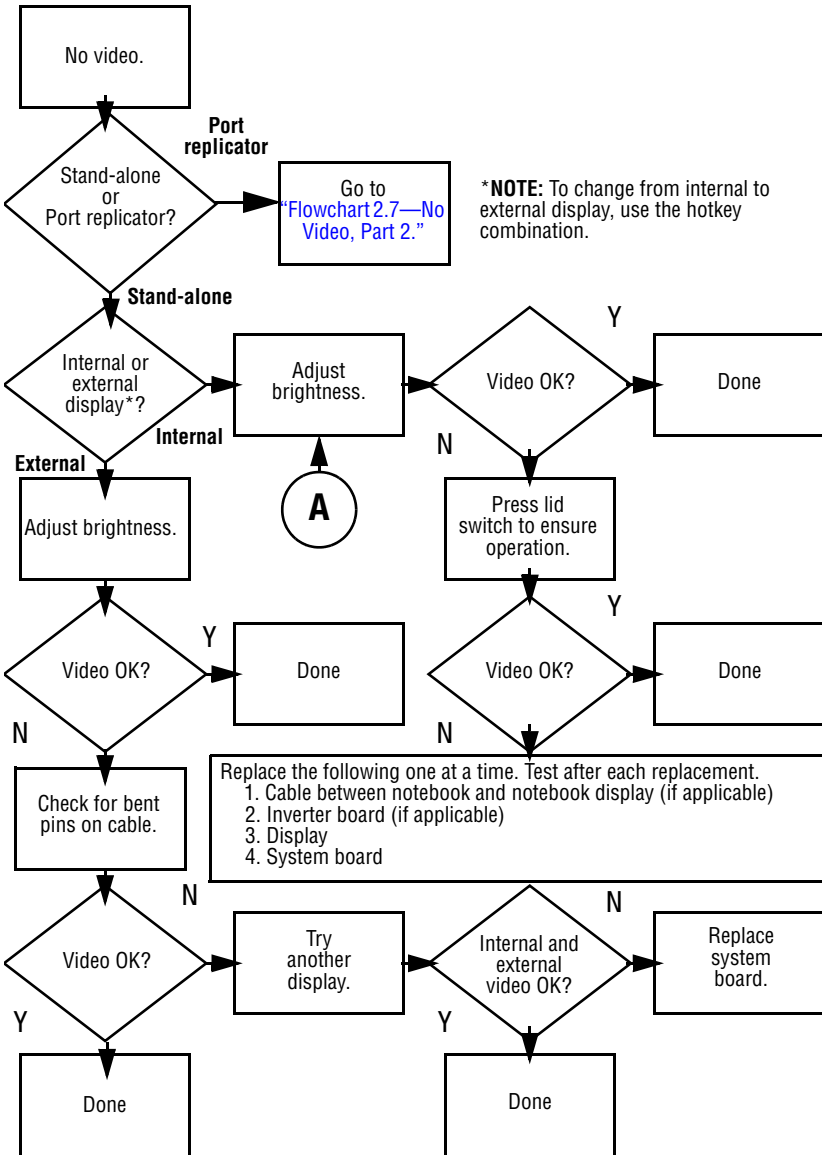
## Flowchart 2.4—No Power, Part 3



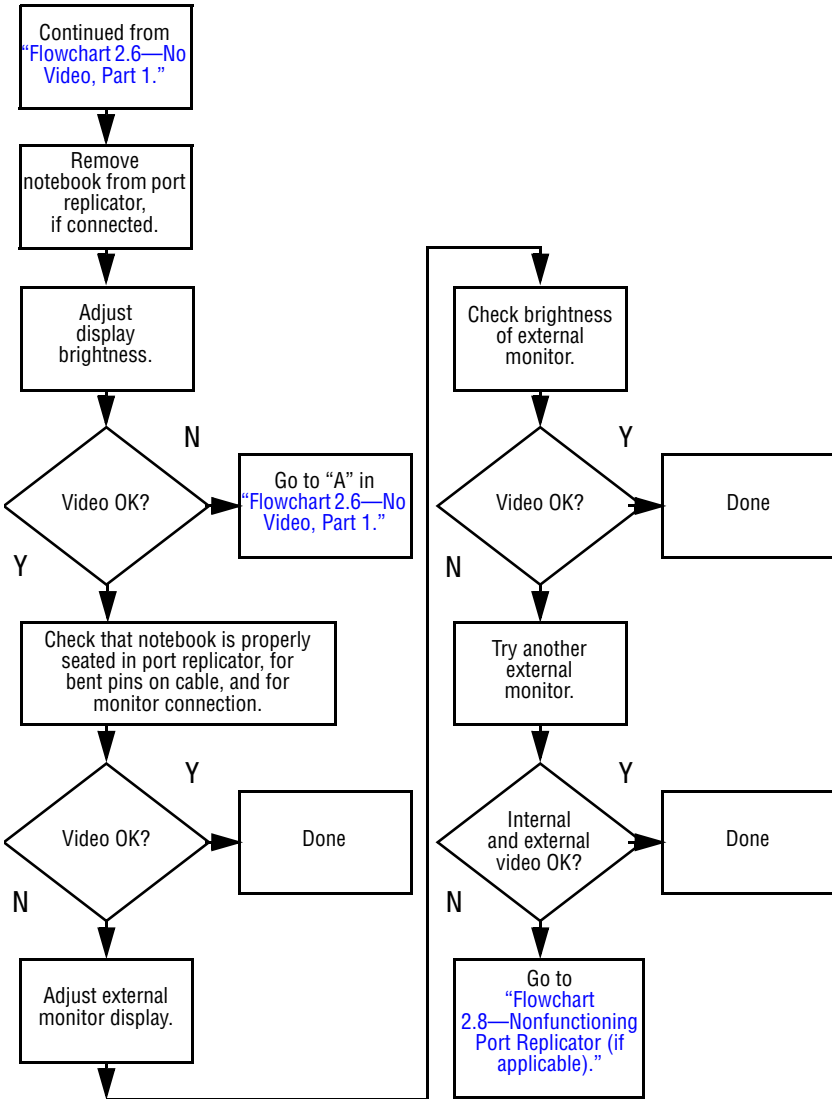
## Flowchart 2.5—No Power, Part 4



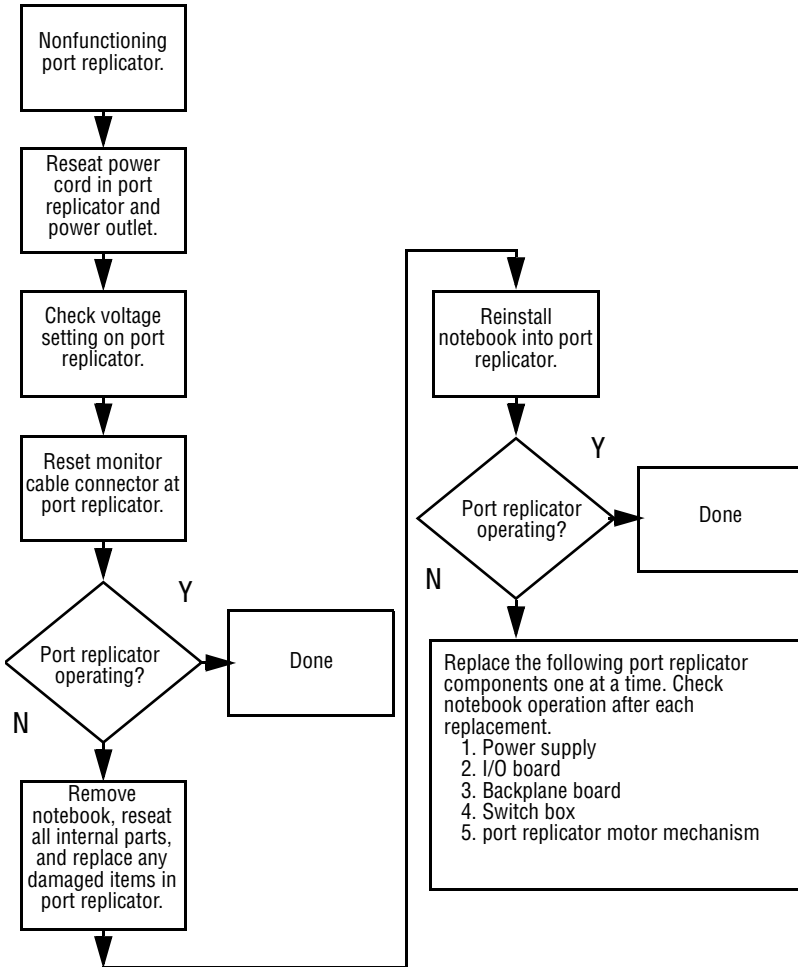
## Flowchart 2.6—No Video, Part 1



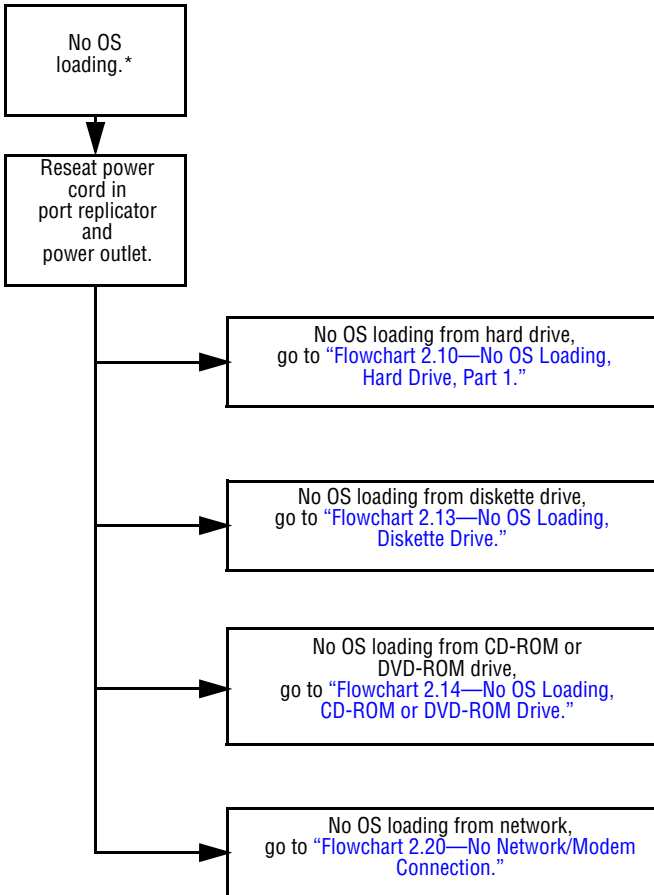
## Flowchart 2.7—No Video, Part 2



## Flowchart 2.8—Nonfunctioning Port Replicator (if applicable)

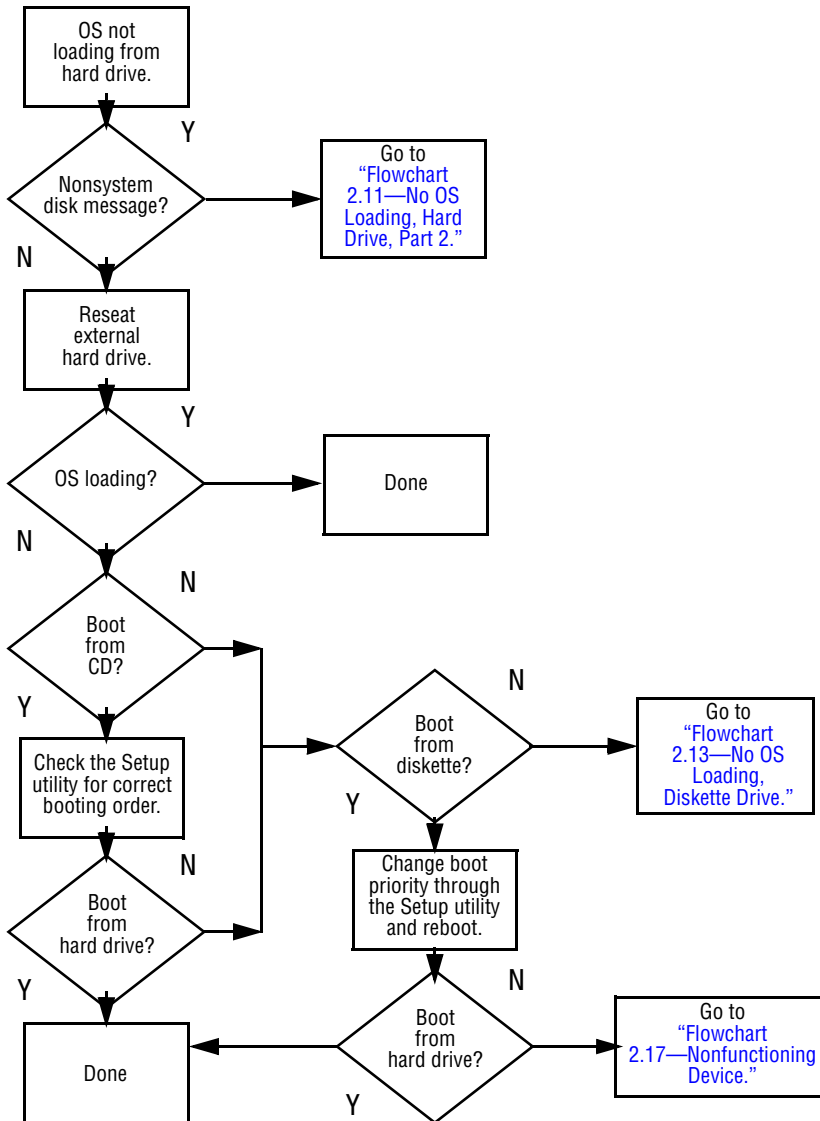


## Flowchart 2.9—No Operating System (OS) Loading

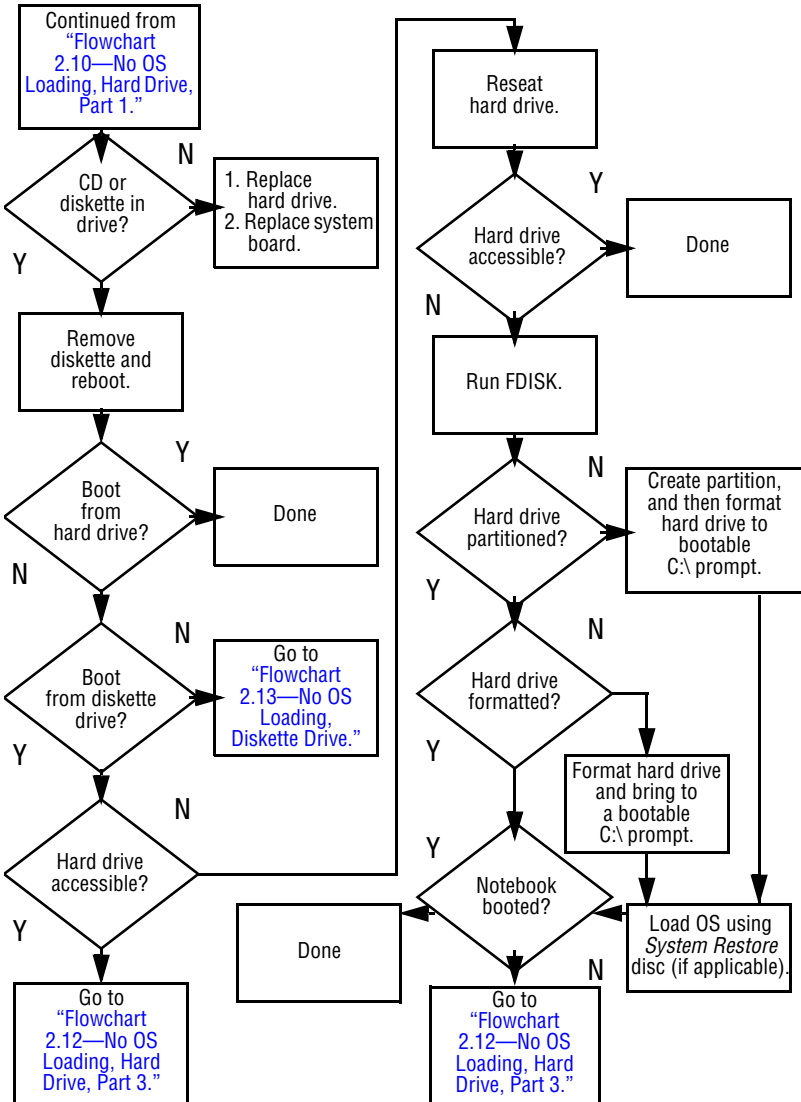


**\*NOTE:** Before beginning troubleshooting, always check cable connections, cable ends, and drives for bent or damaged pins.

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

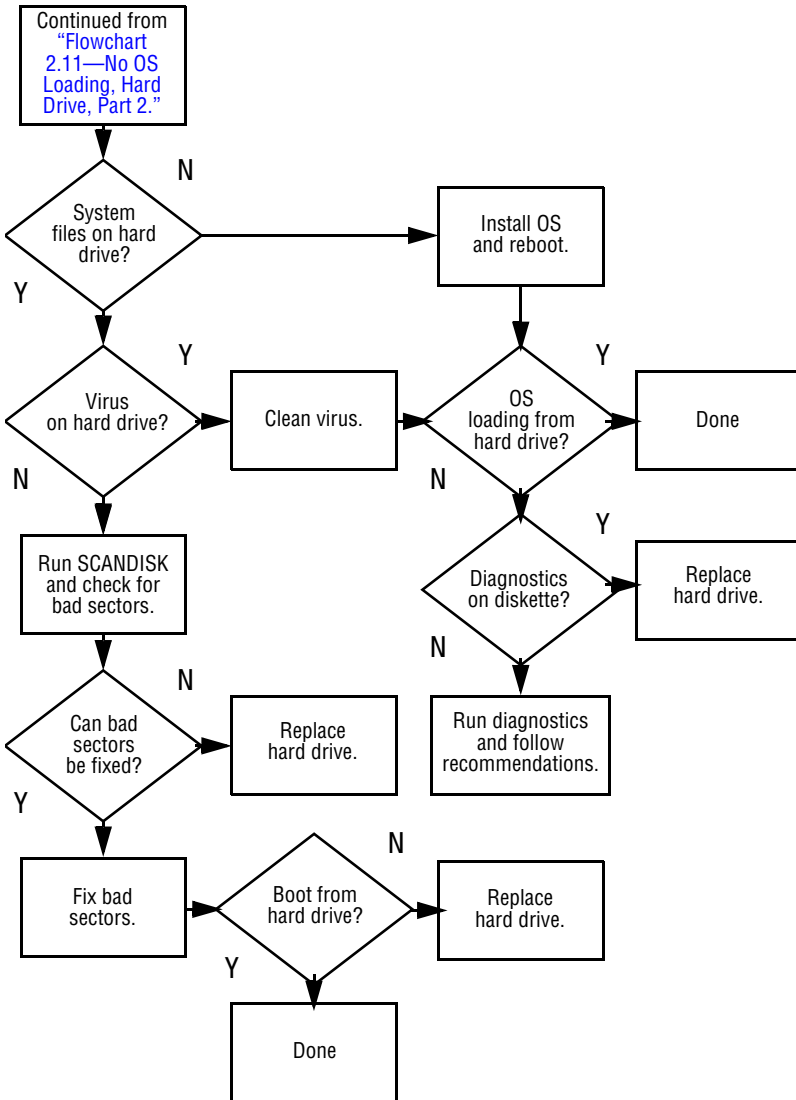


## Flowchart 2.11 – No OS Loading, Hard Drive, Part 2

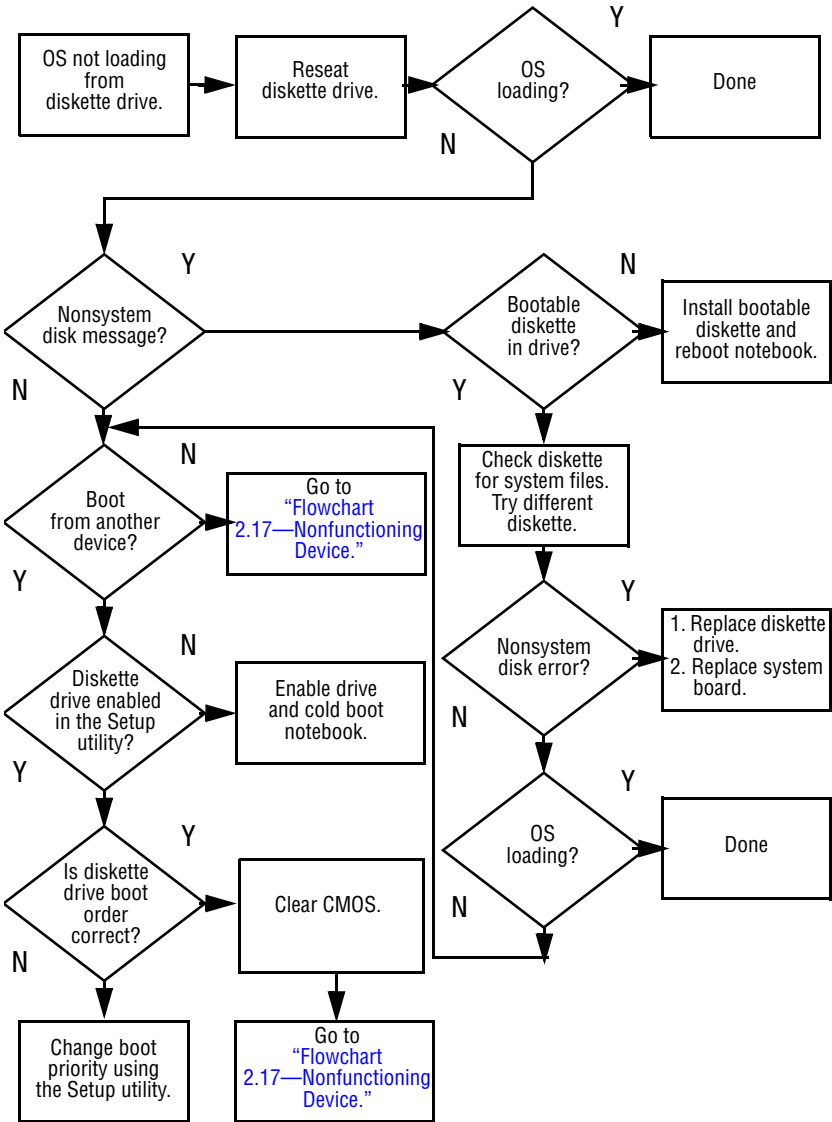




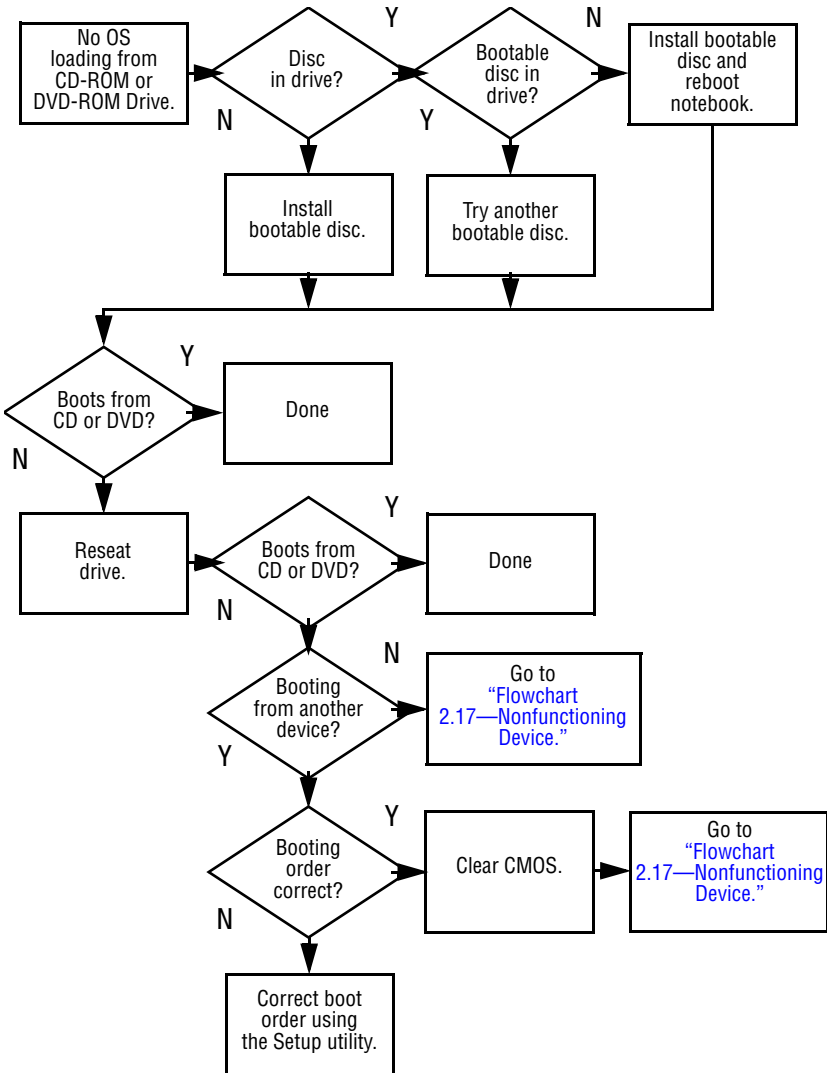
## Flowchart 2.12—No OS Loading, Hard Drive, Part 3



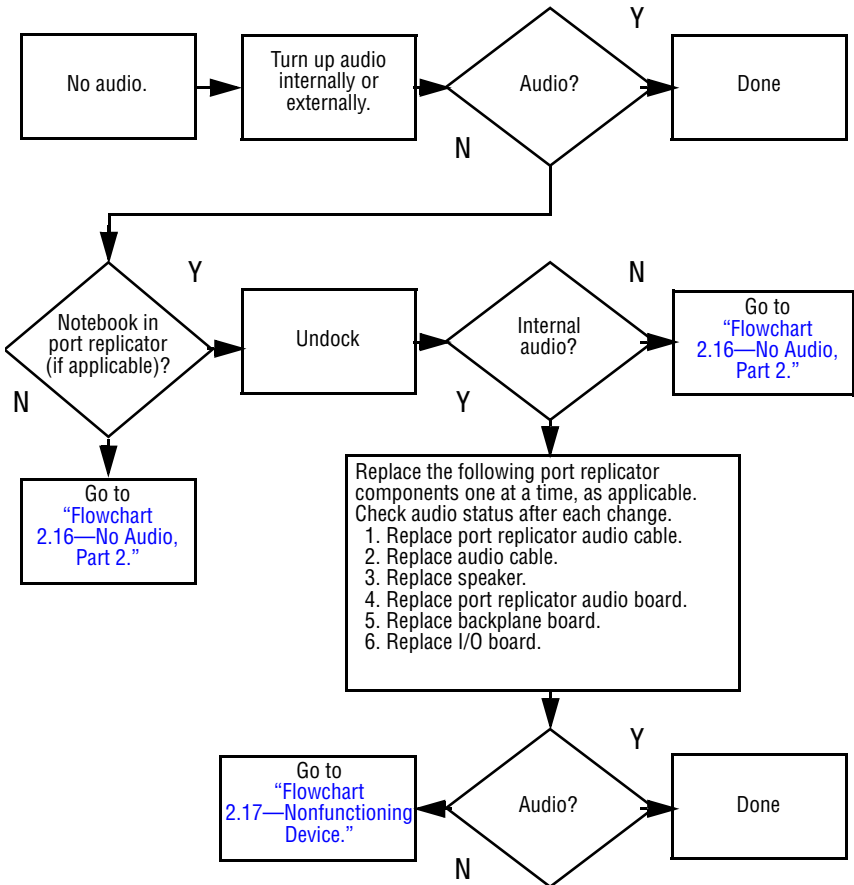
## Flowchart 2.13—No OS Loading, Diskette Drive



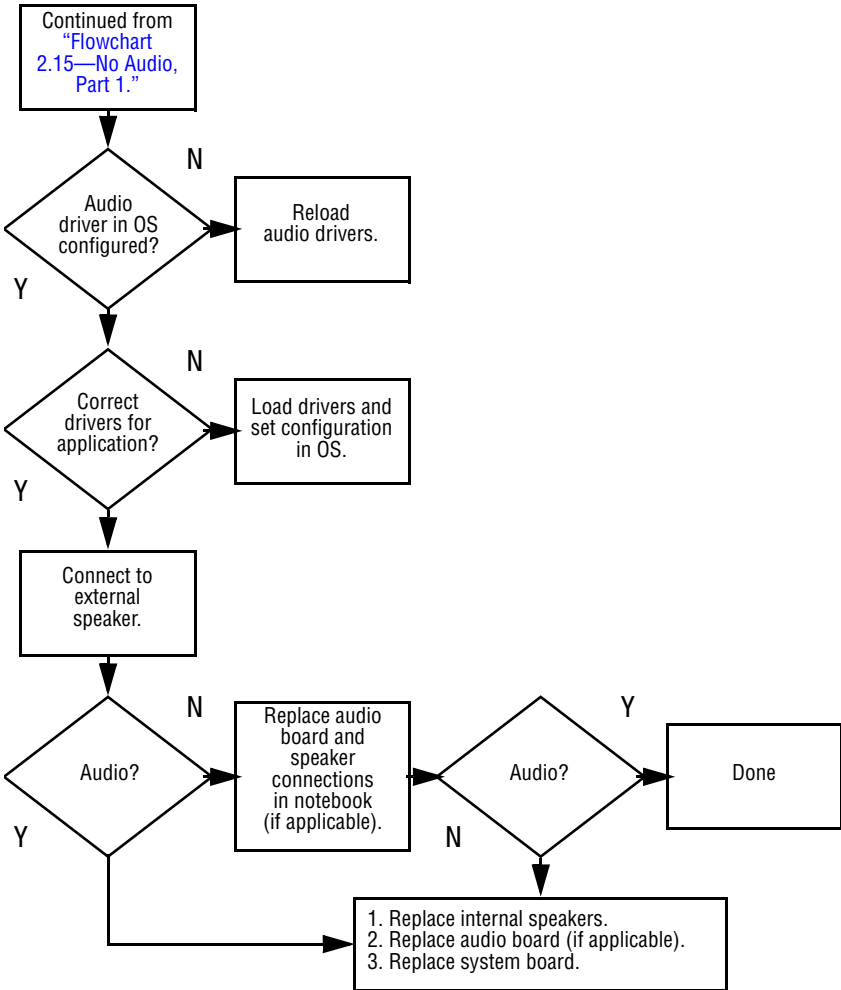
## Flowchart 2.14—No OS Loading, CD-ROM or DVD-ROM Drive



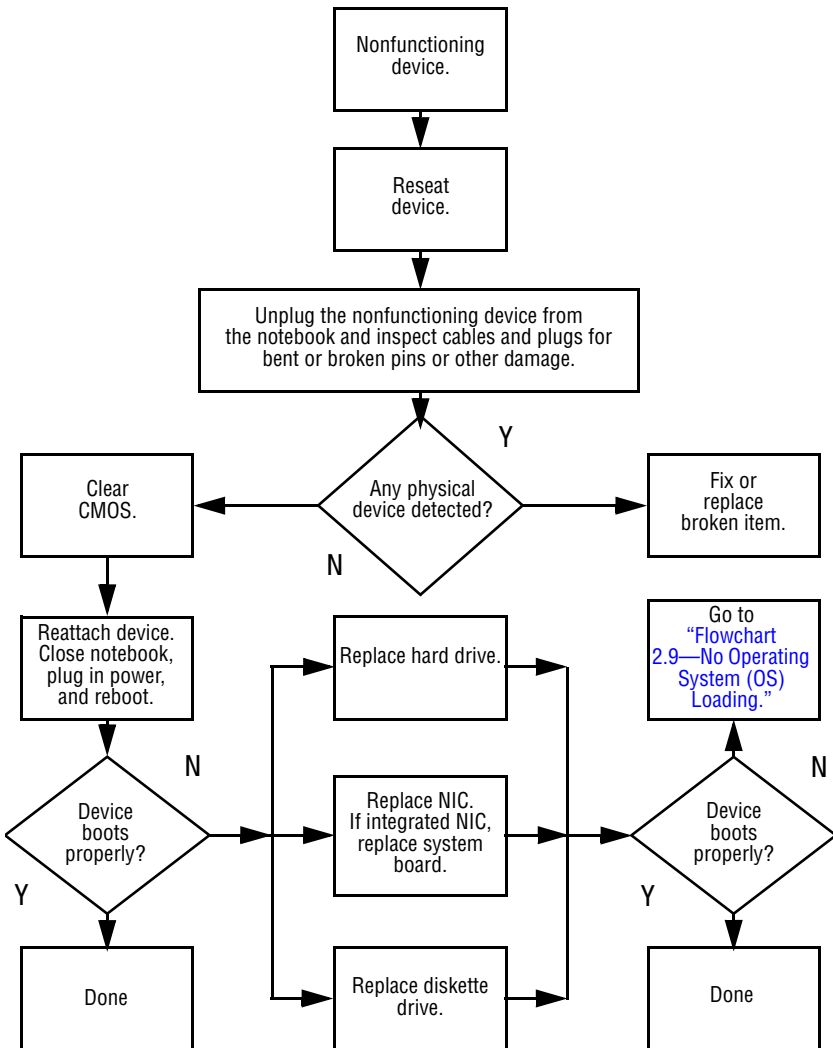
## Flowchart 2.15—No Audio, Part 1



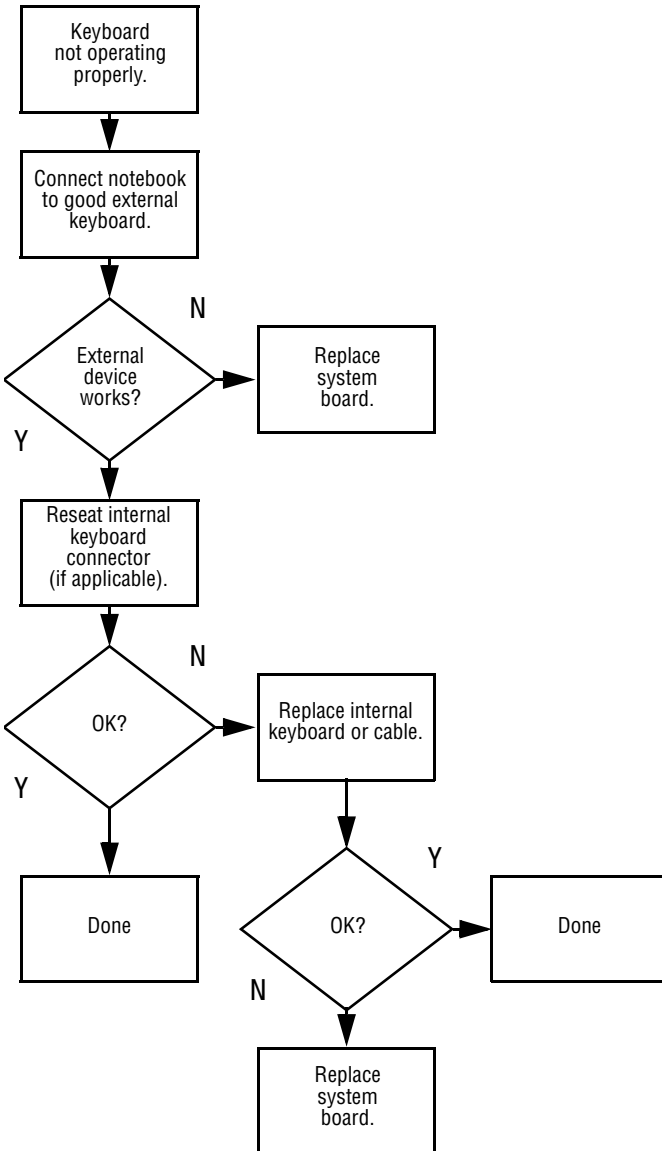
## Flowchart 2.16—No Audio, Part 2



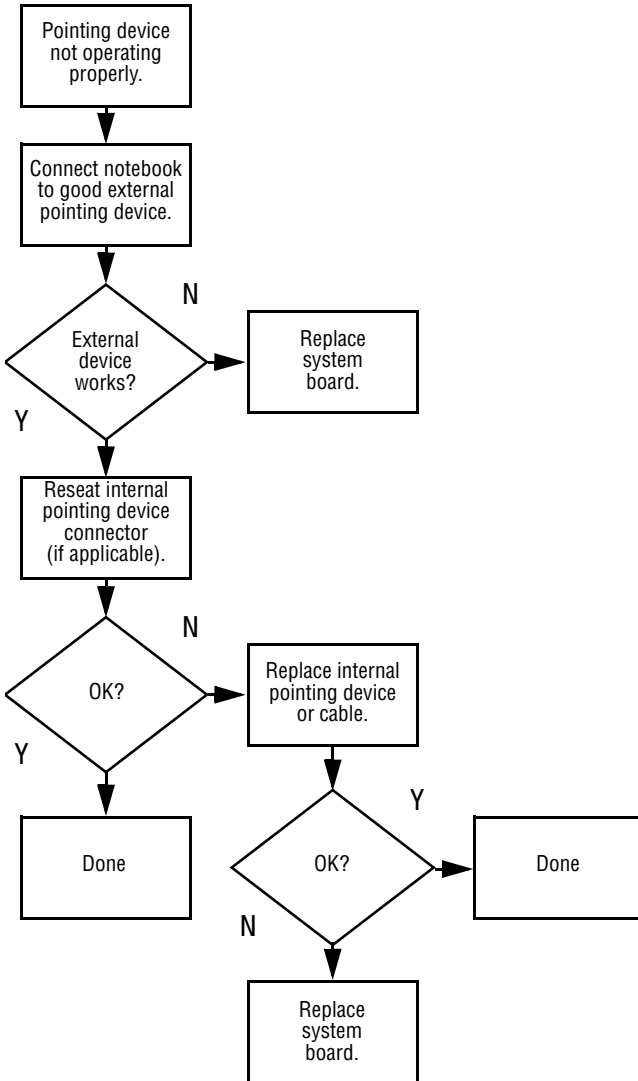
## Flowchart 2.17—Nonfunctioning Device



## Flowchart 2.18—Nonfunctioning Keyboard

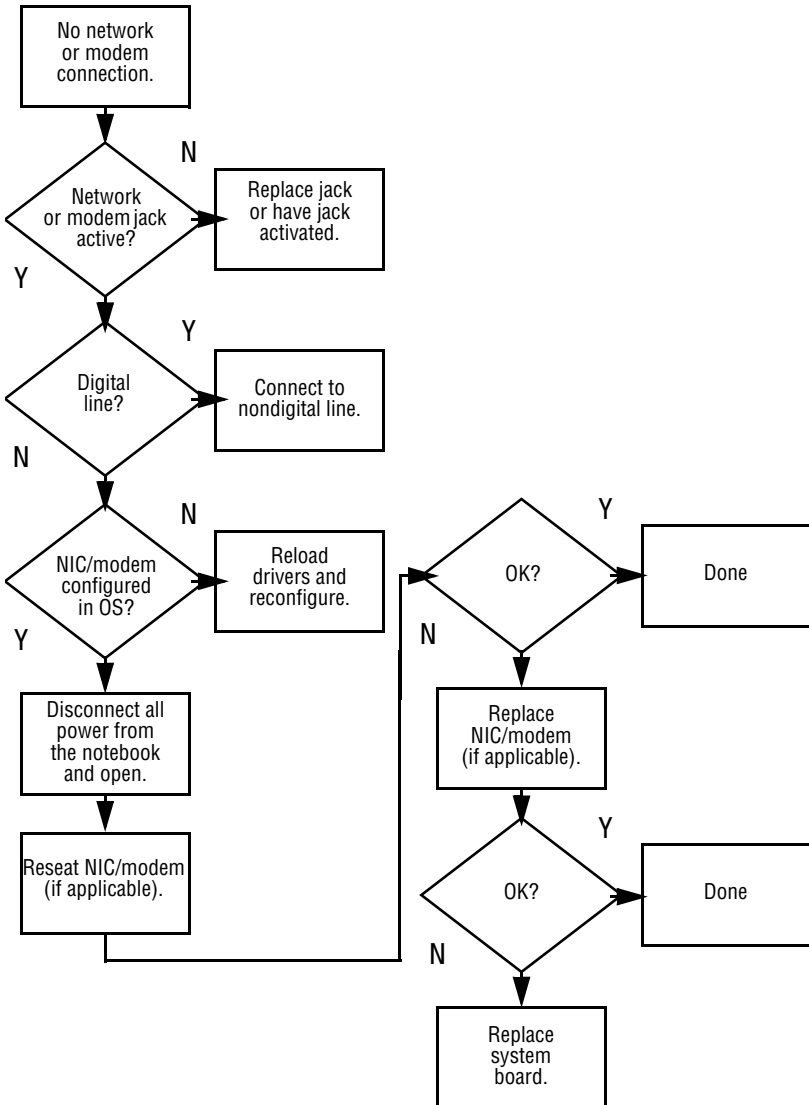


## Flowchart 2.19—Nonfunctioning Pointing Device





## Flowchart 2.20—No Network/Modem Connection



# 3

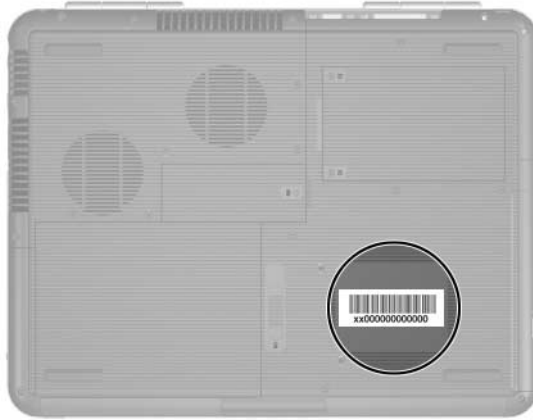
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## Illustrated Parts Catalog

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

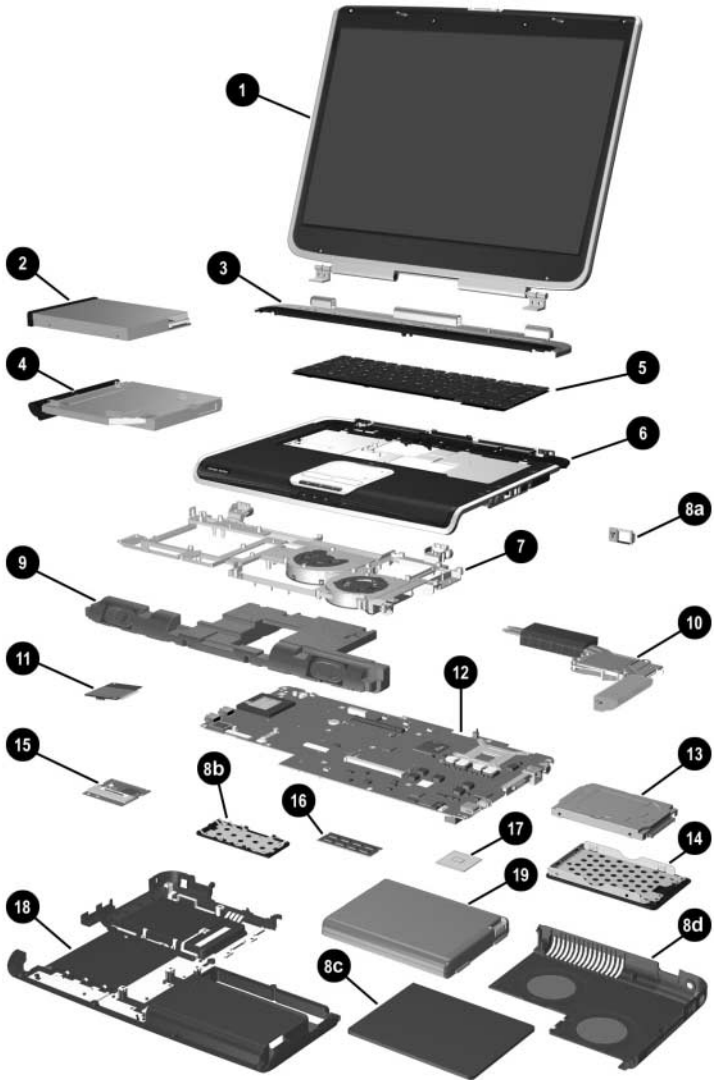
## **3.1 Serial Number Location**

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



*Serial Number Location*

## 3.2 Major Components— HP Pavilion zv5000 and zx5000

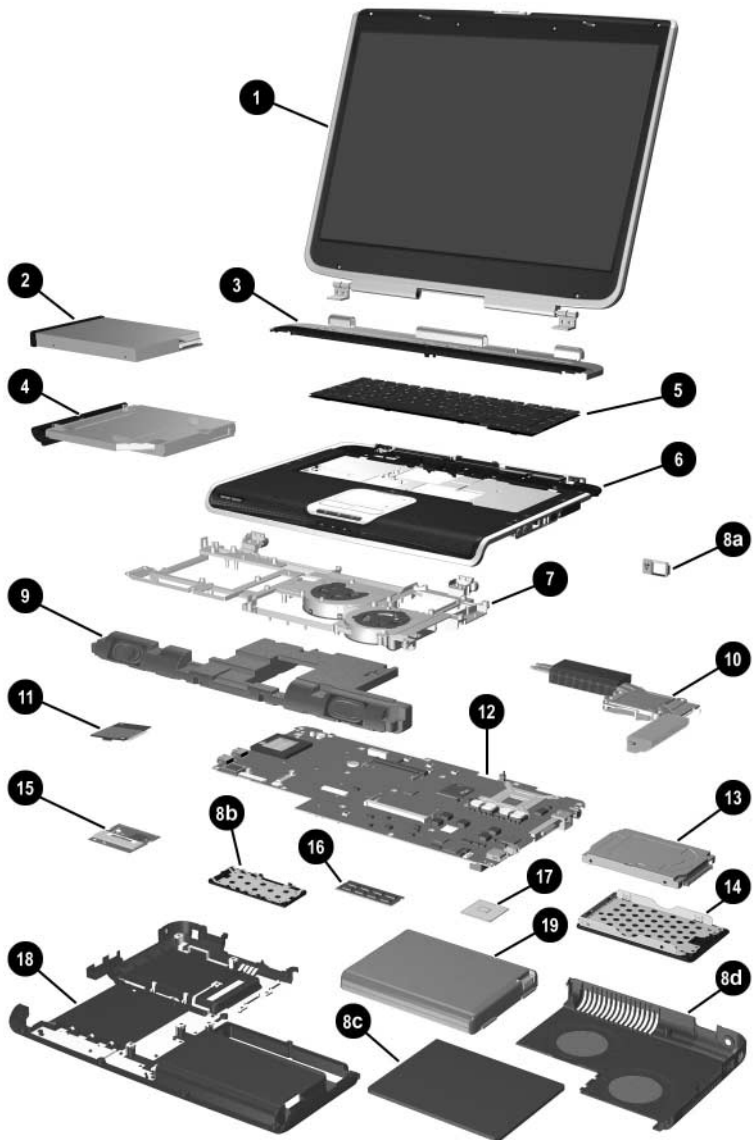


Notebook Major Components—HP Pavilion zv5000 and zx5000

**Table 3-2**

**HP Pavilion zv5000 and zx5000 Notebooks  
Spare Parts: Notebook Major Components**

<b>Item</b>	<b>Description</b>	<b>Spare Part Number</b>
<b>1</b>	<b>Display assemblies</b>	
	For use with HP Pavilion zx5000 notebook models	
	15.4-inch, WUXGA, with wireless antennae	350217-001
	15.4-inch, WUXGA, without wireless antennae	350847-001
	15.4-inch, WSXGA, with wireless antennae	350216-001
	15.4-inch, WSXGA, without wireless antennae	350844-001
	15.4-inch, WXGA, with wireless antennae	350215-001
	15.4-inch, WXGA, without wireless antennae	350841-001
	15.0-inch, XGA, with wireless antennae	350214-001
	15.0-inch, XGA, without wireless antennae	350838-001
	For use with HP Pavilion zv5000 notebook models	
	14.1-inch, XGA, with antennae	354862-001
	14.1-inch, XGA, without antennae	354865-001
	<b>Display inverter</b> (not illustrated)	354873-001
	<b>Wireless antennae cables</b> (not illustrated)	
	Right antennae cable	354874-001
	Left antennae cable	354875-001
<b>2</b>	<b>Diskette drive</b>	350231-001
	<b>Upper Logic Audio Board</b> (not illustrated)	370474-001
	<b>TouchPad Board</b> (not illustrated)	370473-001
	<b>LED Board</b> (not illustrated)	370472-001
	<b>Top Cover</b> (not illustrated)	370471-001
<b>3</b>	<b>Strip covers</b>	
	With wireless button	350849-001
	Without wireless button	350850-001

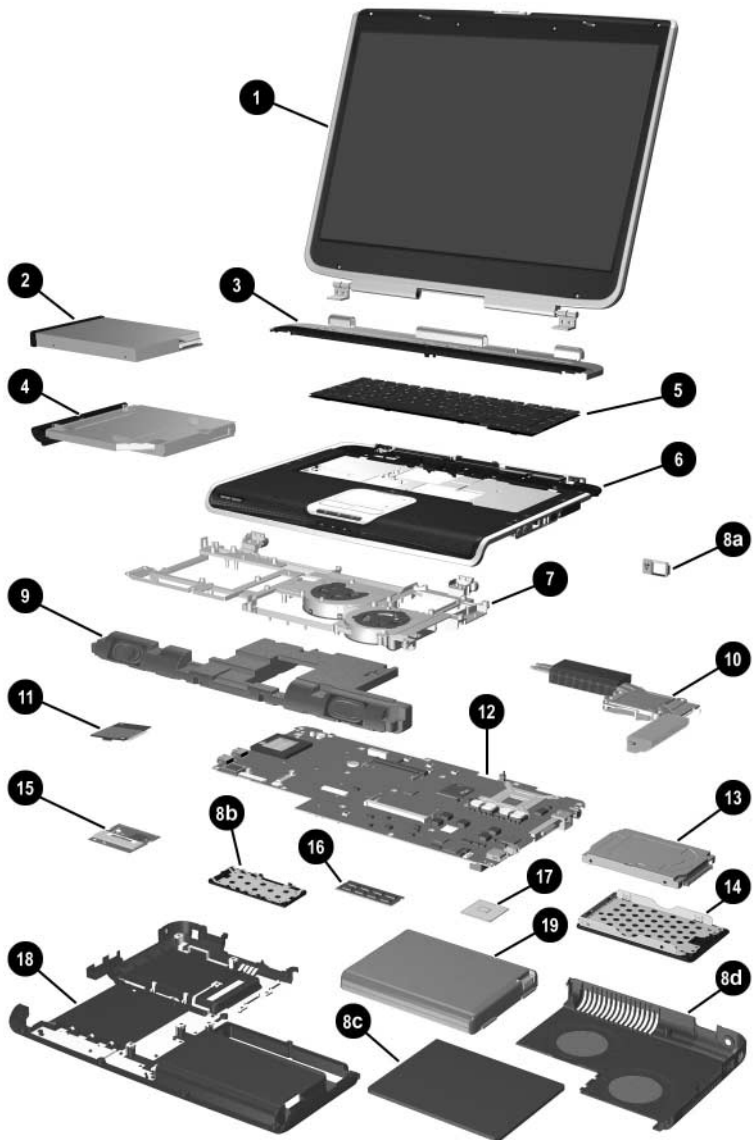


*Notebook Major Components—HP Pavilion zv5000 and zx5000  
(Continued)*

**Table 3-2**

**HP Pavilion zv5000 and zx5000 Notebooks  
Spare Parts: Notebook Major Components (Continued)**

<b>Item</b>	<b>Description</b>	<b>Spare Part Number</b>		
<b>4</b>	<b>Optical drives</b>			
	24X Max DVD+R/RW and CD-RW Combo Drive	350209-001		
	8X Max DVD-ROM Drive	350207-001		
	24X Max DVD/CD-RW Combo Drive	350208-001		
	24X Max CD-ROM Drive	354858-001		
<b>5</b>	<b>Keyboards</b>			
	Denmark	350187-081	People's Republic of China	350187-AA1
	Europe	350187-021		
	France	350187-051	Saudi Arabia	350187-171
	Germany	350187-041	Spain	350187-071
	Greece	350187-151	Sweden/Finland	350187-B71
	Israel	350187-BB1	Switzerland	350187-111
	Italy	350187-061	United Kingdom	350187-031
	The Netherlands	350187-331	United States	350187-001
<b>6</b>	<b>Front bezel</b>			
	HP Pavilion zx5000 models			350854-001
	HP Pavilion zv5000 models			365684-001
<b>7</b>	<b>Fan assemblies</b>			
	For use with HP Pavilion zx5000 "M10" models			350781-001
	For use with HP Pavilion zx5000 "M9" models			350232-001
	For use with HP Pavilion zv5000 models			370489-001



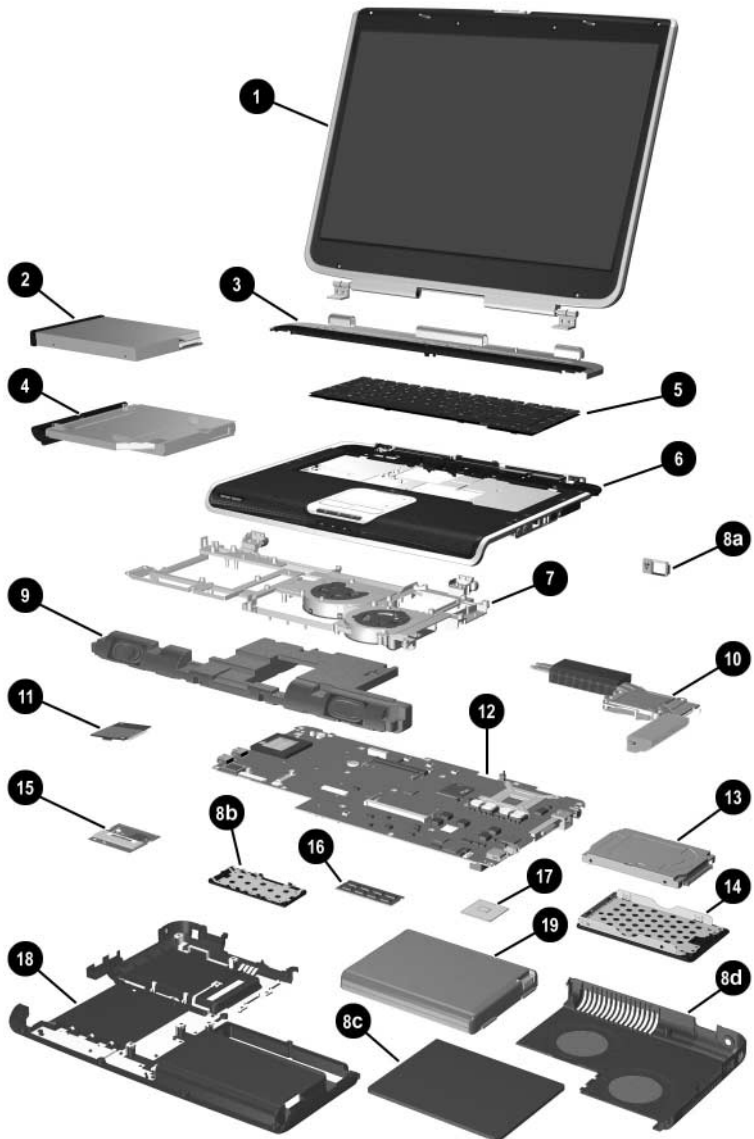
Notebook Major Components—HP Pavilion zv5000 and zx5000  
(Continued)



**Table 3-2**

**HP Pavilion zv5000 and zx5000 Notebooks  
Spare Parts: Notebook Major Components (Continued)**

<b>Item</b>	<b>Description</b>	<b>Spare Part Number</b>
4	<b>Optical drives</b>	
	24X Max DVD+R/RW and CD-RW Combo Drive	350209-001
	8X Max DVD-ROM Drive	350207-001
	24X Max DVD/CD-RW Combo Drive	350208-001
	24X Max CD-ROM Drive	354858-001
	<b>Miscellaneous Plastics Kit</b>	
	(includes the following components):	350206-001
8a	1394 bezel	
8b	Memory module compartment cover	
8c	Battery cover	
8d	Heat sink cover	
	PC Card slot space saver (not illustrated)	
	Notebook feet (not illustrated)	
9	<b>Speaker assembly</b>	350772-001

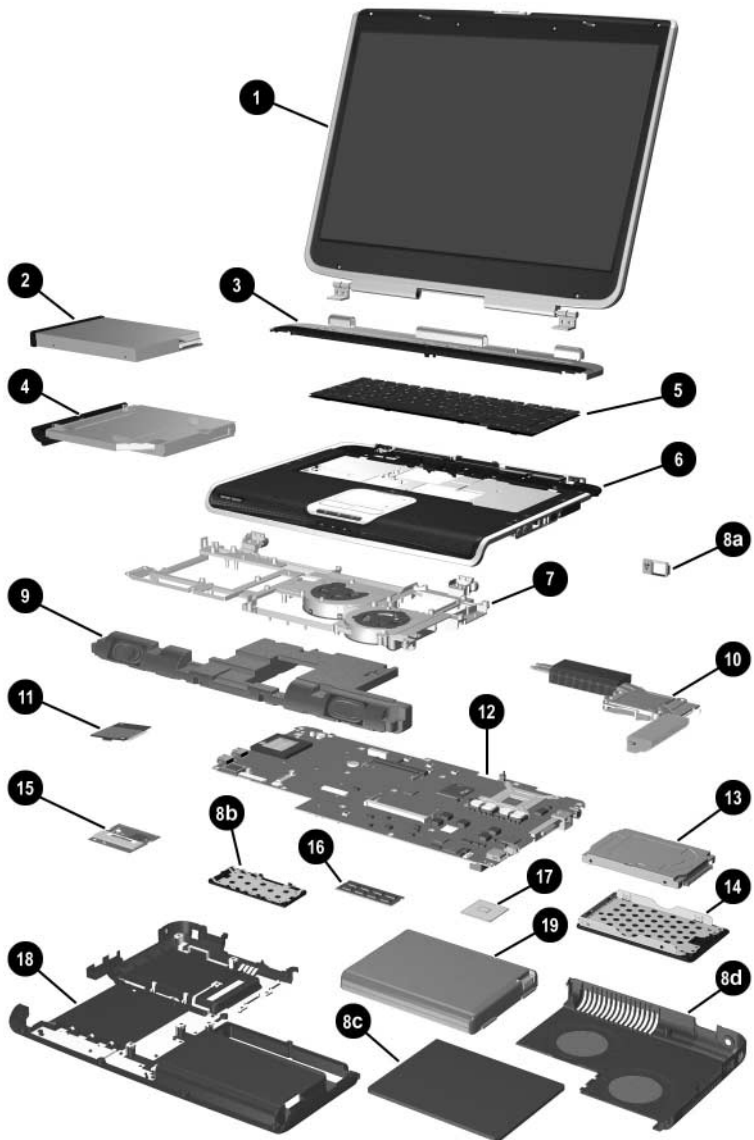


Notebook Major Components—HP Pavilion zv5000 and zx5000  
(Continued)

**Table 3-2**

**HP Pavilion zv5000 and zx5000 Notebooks  
Spare Parts: Notebook Major Components (Continued)**

<b>Item</b>	<b>Description</b>	<b>Spare Part Number</b>
10	<b>Heat sinks</b>	
	For use with HP Pavilion zx5000 "M10" models	350783-001
	For use with HP Pavilion zx5000 "M9" models	350233-001
	For use with HP Pavilion zv5000 Series	350776-001
11	<b>Modem board</b>	350239-001
12	<b>System boards</b>	
	For use with HP Pavilion zx5000 "M10" models	370533-001
	For use with HP Pavilion zx5000 M9" models	370531-001
	For use with HP Pavilion zv5000 "1620" models	354893-001
	For use with HP Pavilion zv5000 "1520" models	354894-001
	For use with HP Pavilion zv51xx and zv52xx Series models (full featured)	370475-001
	For use with HP Pavilion zv51xxand zv52xx Series models (without infrared)	370477 -001
	For use with HP Pavilion zx5000 Series models (full featured)	370493-001
	For use with HP Pavilion zx5000 Series models (without infrared)	370492-001
		<b>PC Card assembly (not illustrated)</b>
13	<b>Hard drives</b>	
	80-GB, 5400-rpm	350213-001
	80-GB, 4200-rpm	350212-001
	60-GB, 5400-rpm	354861-001
	60-GB, 4200-rpm	350211-001
	40-GB, 4200-rpm	350210-001
	30-GB, 4200-rpm	354860-001
14	<b>Hard drive cover</b>	350834-001

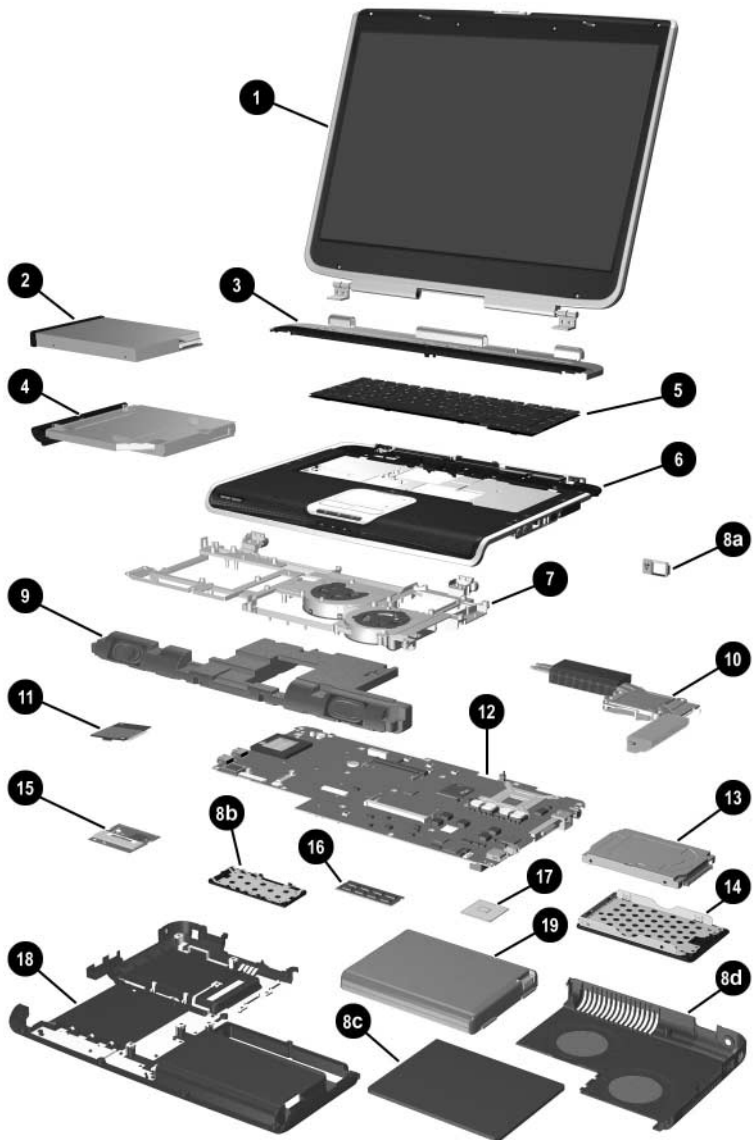


*Notebook Major Components—HP Pavilion zv5000 and zx5000  
(Continued)*

**Table 3-2**

**HP Pavilion zv5000 and zx5000 Notebooks  
Spare Parts: Notebook Major Components (Continued)**

<b>Item</b>	<b>Description</b>	<b>Spare Part Number</b>
<b>15</b>	<b>Mini PCI communications cards</b>	
	802.11a/b/g wireless LAN card	354876-001
	802.11b wireless LAN card	350218-001
	802.11g wireless LAN card	350219-001
	Bluetooth wireless LAN card	350220-001
<b>16</b>	<b>Memory modules</b>	
	1024-MB	350238-001
	512-MB	350237-001
	256-MB	370556-001
<b>17</b>	<b>Processors</b>	
	Mobile Intel Pentium 4, 3.06-GHz, 533-MHz	350229-001
	Mobile Intel Pentium 4, 2.80-GHz, 533-MHz	350774-001
	Mobile Intel Pentium 4, 2.40-GHz, 533-MHz	350228-001
	Mobile Intel Pentium 4 DT, 3.06-GHz	350225-001
	Mobile Intel Pentium 4 DT, 2.80-GHz	350224-001
	Mobile Intel Pentium 4 DT, 2.66-GHz	350223-001
	AMD Athlon 64, 2.40-GHz	370498-001
	AMD Athlon 64, 2.20-GHz	370483-001
	AMD Athlon 64, 2.00-GHz	370484-001
	AMD Athlon 64, 1.80-GHz	370485-001
	AMD Athlon 32, 1.80-GHz	370486-001
	AMD Athlon 32, 1.60-GHz	370487-001
	<b>Processor support bracket</b> (not illustrated)	
	For use with HP Pavilion zv5000 and zx5000 Series models	350785-001
	For use with HP Pavilion zv51xx Series models	356496-001



*Notebook Major Components—HP Pavilion zv5000 and zx5000  
(Continued)*

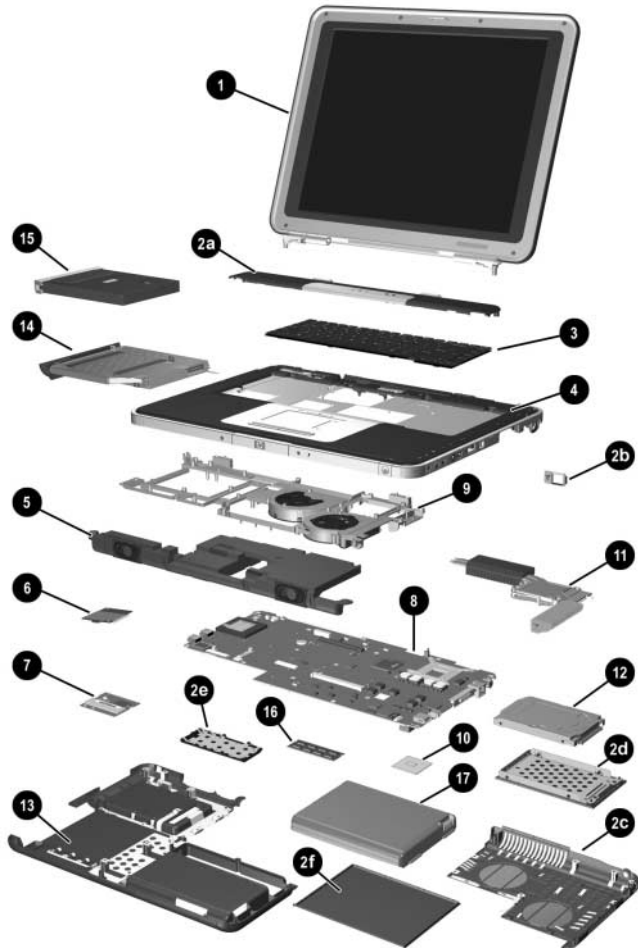
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**Table 3-2**

**HP Pavilion zv5000 and zx5000 Notebooks  
Spare Parts: Notebook Major Components (Continued)**

<b>Item</b>	<b>Description</b>	<b>Spare Part Number</b>
18	<b>Base enclosure</b>	350235-001
19	<b>Battery packs</b>	
	12-cell, Li-Ion, 14.8 V, 4.4-Ah	350836-001
	High Capacity 12-cell, Li-Ion, 14.8 V, 6.6-Ah	346971-001
	8-cell, Li-Ion, 14.4 V, 4.4-Ah	346970-001
	<b>Thermal module</b> (not illustrated)	350776-001
	<b>Cable Kit</b> (not illustrated)	350778-001

### 3.3 Major Components—HP Compaq Business Notebook nx9100 Series and Compaq Presario R3000 Series



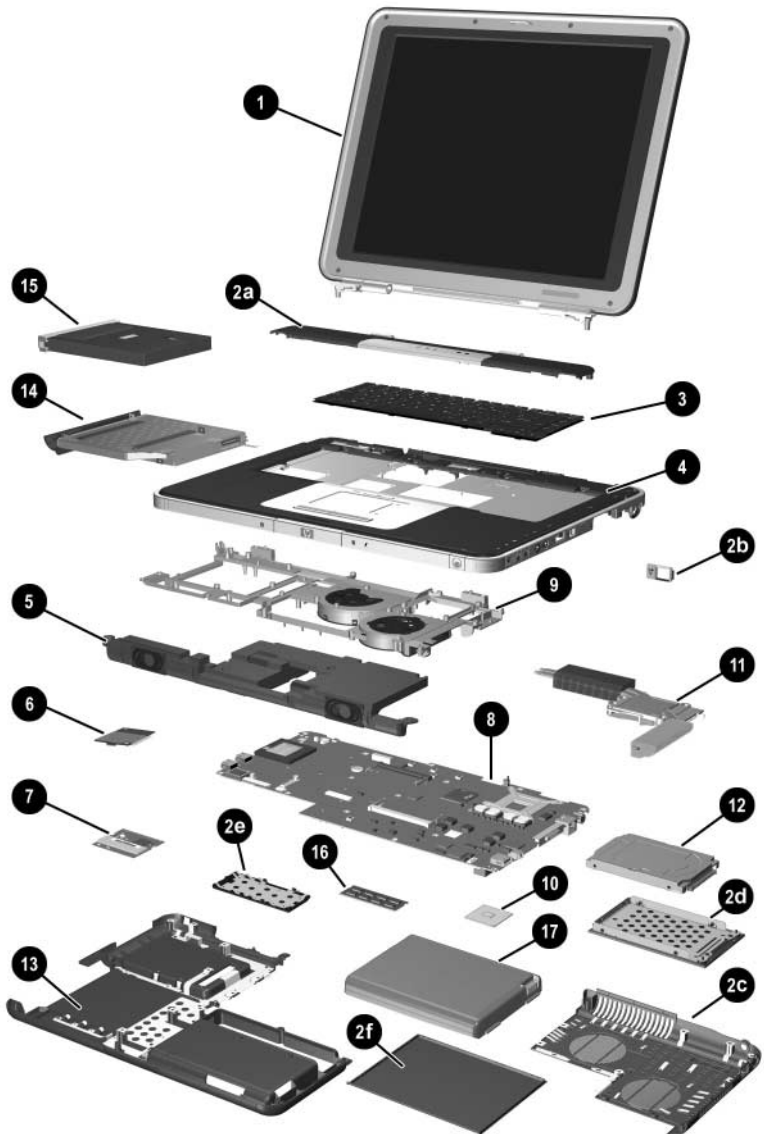
*Notebook Major Components—HP Compaq Business Notebook nx9100 Series and Compaq Presario R3000 (Continued)*



**Table 3-3**

**HP Compaq Business Notebook nx9100 Series  
and Compaq Presario R3000 Series  
Spare Parts: Notebook Major Components**

<b>Item</b>	<b>Description</b>	<b>Spare Part Number</b>
1	<b>Display assemblies</b>	
	For use with Compaq Presario R3000 Series models	
	15.4-inch, WUXGA, with wireless antennae	350846-001
	15.4-inch, WUXGA, without wireless antennae	350848-001
	15.4-inch, WSXGA, with wireless antennae	350843-001
	15.4-inch, WSXGA, without wireless antennae	350845-001
	15.4-inch, WXGA, with wireless antennae	350840-001
	15.4-inch, WXGA, without wireless antennae	350839-001
	15.0-inch, XGA, with wireless antennae	350837-001
	15.0-inch, XGA, without wireless antennae	350839-001
	14.1-inch, XGA, with antennae	354863-001
	14.1-inch, XGA, without antennae	354866-001
	For use with HP Compaq Business Notebook nx9100 Series models	
	15.4-inch, WXGA, with antennae	354870-001
	15.4-inch, WXGA, without antennae	354871-001
	15.0-inch, XGA, with antennae	354868-001
	15.0-inch, XGA, without antennae	354869-001
	14.1-inch, XGA, with antennae	354864-001
	14.1-inch, XGA, without antennae	354867-001
	<b>Display inverter</b> (not illustrated)	354872-001
	<b>Wireless antenna cables</b> (not illustrated)	
	Right antenna cable	354874-001
	Left antenna cable	354875-001

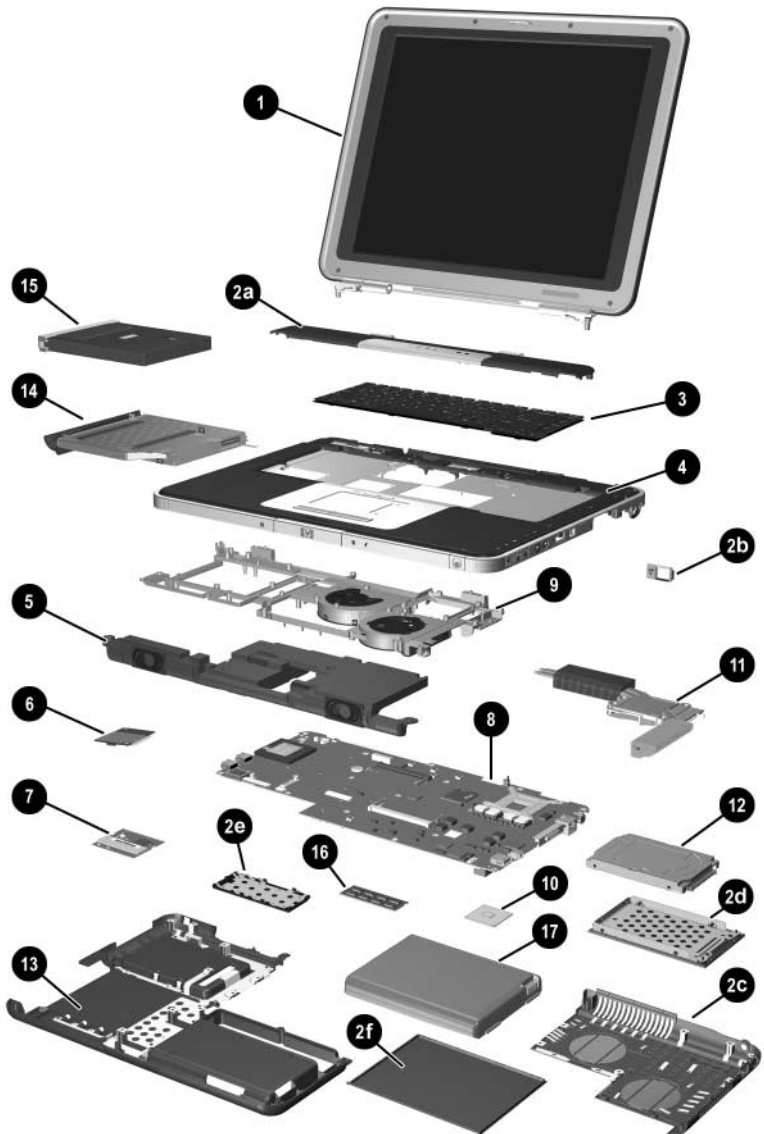


*Notebook Major Components—HP Compaq Business Notebook nx9100 Series and Compaq Presario R3000 (Continued)*

**Table 3-3**

**HP Compaq Business Notebook nx9100 Series  
and Compaq Presario R3000  
Spare Parts: Notebook Major Components (Continued)**

<b>Item</b>	<b>Description</b>	<b>Spare Part Number</b>
	<b>Miscellaneous Plastics Kit</b> (includes the following components):	350818-001
2a	<b>Strip covers</b>	
	For use with Compaq Presario R3000 Series models	350851-001
	For use with HP Compaq Business Notebook nx9100 Series models	354954-001
2b	1394 bezel	
2c	Heat sink cover	
2d	Hard drive cover	
2e	Memory module compartment cover	
2f	Battery cover	
	PC Card slot space saver (not illustrated)	
	Notebook feet (not illustrated)	
3	<b>Keyboards</b>	
	Denmark	350787-081
	Europe	350787-021
	France	350787-051
	Germany	350787-041
	Greece	350787-151
	Israel	350787-BB1
	Italy	357087-061
	The Netherlands	350787-331
	People's Republic of China	350787-AA1
	Saudi Arabia	350787-171
	Spain	350787-071
	Sweden/Finland	350787-B71
	Switzerland	350787-111
	United Kingdom	350787-031
	United States	350787-001

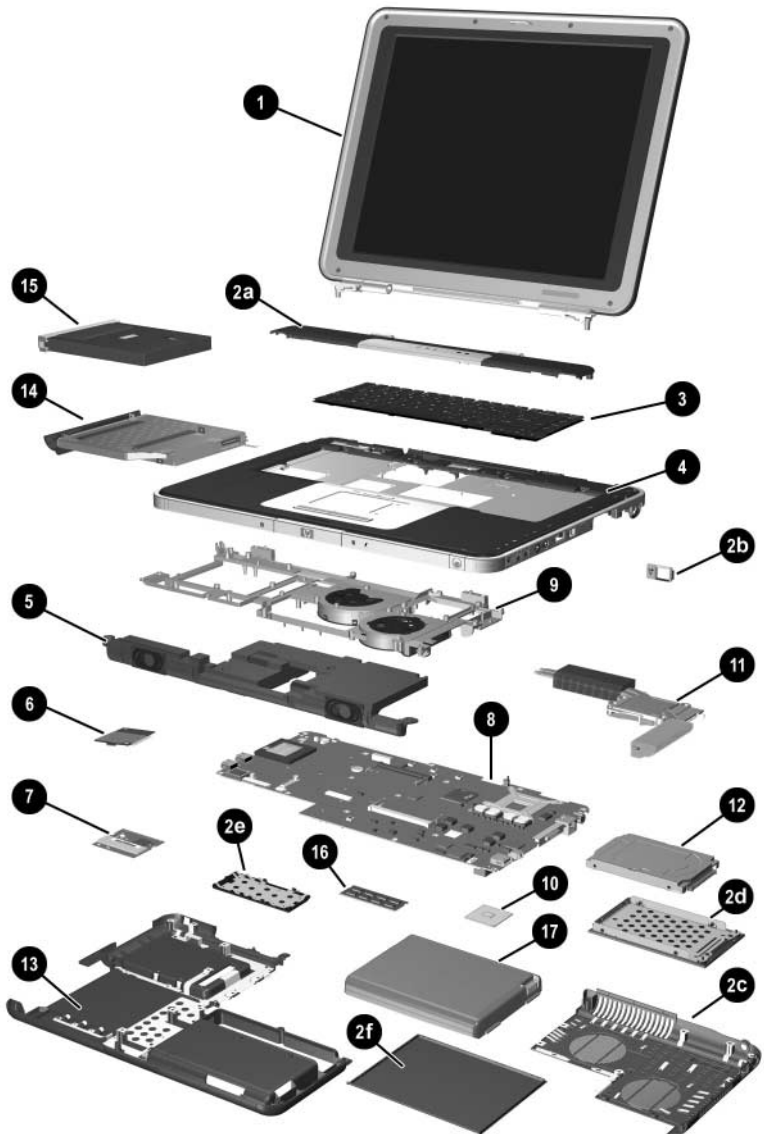


*Notebook Major Components—HP Compaq Business Notebook nx9100 Series and Compaq Presario R3000 (Continued)*

**Table 3-3**

**HP Compaq Business Notebook nx9100 Series  
and Compaq Presario R3000 Series  
Spare Parts: Notebook Major Components (Continued)**

<b>Item</b>	<b>Description</b>	<b>Spare Part Number</b>
<b>4</b>	<b>Front bezels</b>	
	For use with Compaq Presario R3000 Series models	
	with wireless button	350855-001
	without wireless button	350856-001
	For use with HP Compaq Business Notebook nx9100 models	
	with infrared lens and wireless button	354898-001
	with infrared lens, without wireless button	354899-001
	without infrared lens, with wireless button	354896-001
	without infrared lens, without wireless button	354897-001
<b>5</b>	<b>Speaker assembly</b>	350773-001
<b>6</b>	<b>Modem board</b>	350239-001
<b>7</b>	<b>Mini PCI communications cards</b>	
	802.11a/b/g wireless LAN card	354876-001
	802.11b wireless LAN card	350218-001
	802.11g wireless LAN card	350219-001
	Bluetooth wireless LAN card	350220-001

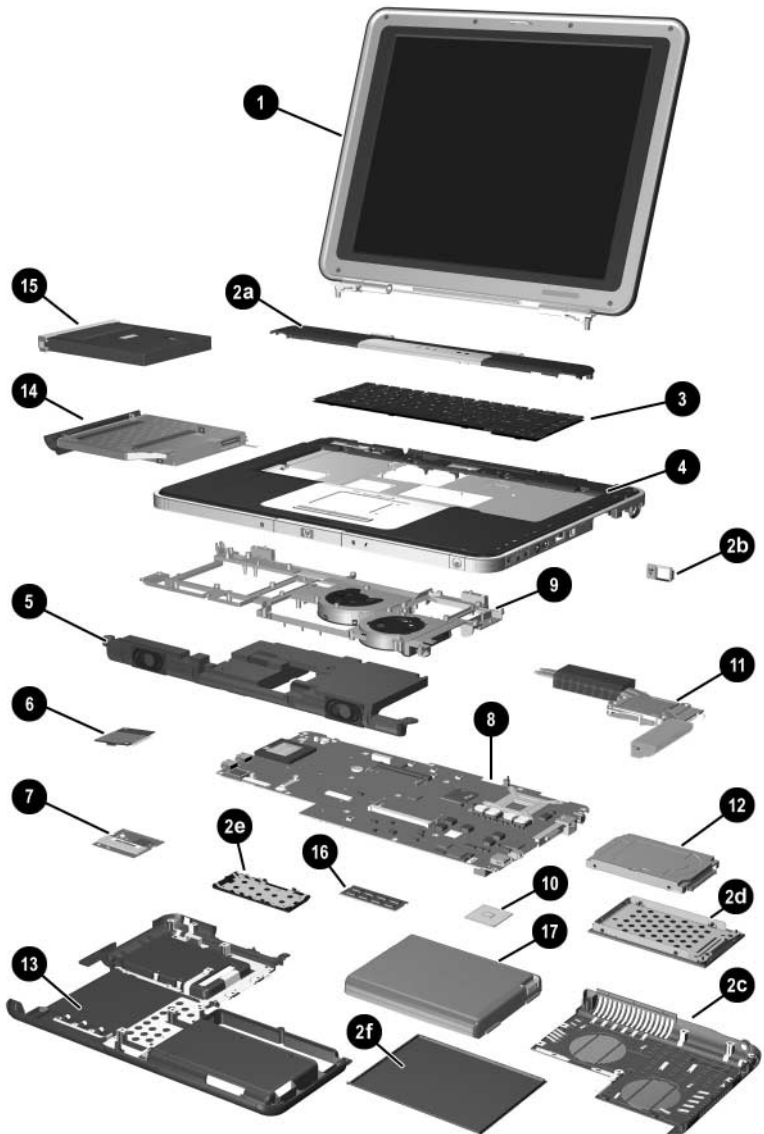


*Notebook Major Components—HP Compaq Business Notebook nx9100 Series and Compaq Presario R3000 (Continued)*

**Table 3-3**

**HP Compaq Business Notebook nx9100 Series  
and Compaq Presario R3000 Series  
Spare Parts: Notebook Major Components (Continued)**

<b>Item</b>	<b>Description</b>	<b>Spare Part Number</b>
<b>8</b>	<b>System boards</b>	
	For use with HP Compaq Business Notebook nx9100 and nx9110 models	370496-001
	For use with HP Compaq Business Notebook nx9105 models	360689-001
	For use with Compaq Presario R3200 and HP Compaq Business Notebook nx9110 notebook models (full featured)	370476-001
	For use with Compaq Presario R3200 and HP Compaq Business Notebook nx9110 notebook models (without infrared)	370478-001
	For use with Compaq Presario R3000 notebook models (full featured)	370495-001
	For use with Compaq Presario R3000 notebook models (without infrared)	370494-001
	For use with Compaq Presario R3000 "M10" models	370534-001
	For use with Compaq Presario R3000 "M9" models	370532-001
<b>9</b>	<b>Fan assembly</b>	
	For use with HP Compaq Business Notebook nx9100 Series and Compaq Presario R3000 notebook models	370490-001
	For use with Compaq Presario R3000 "M10" models	350782-001
	For use with Compaq Presario R3000 "M9" models	350780-001



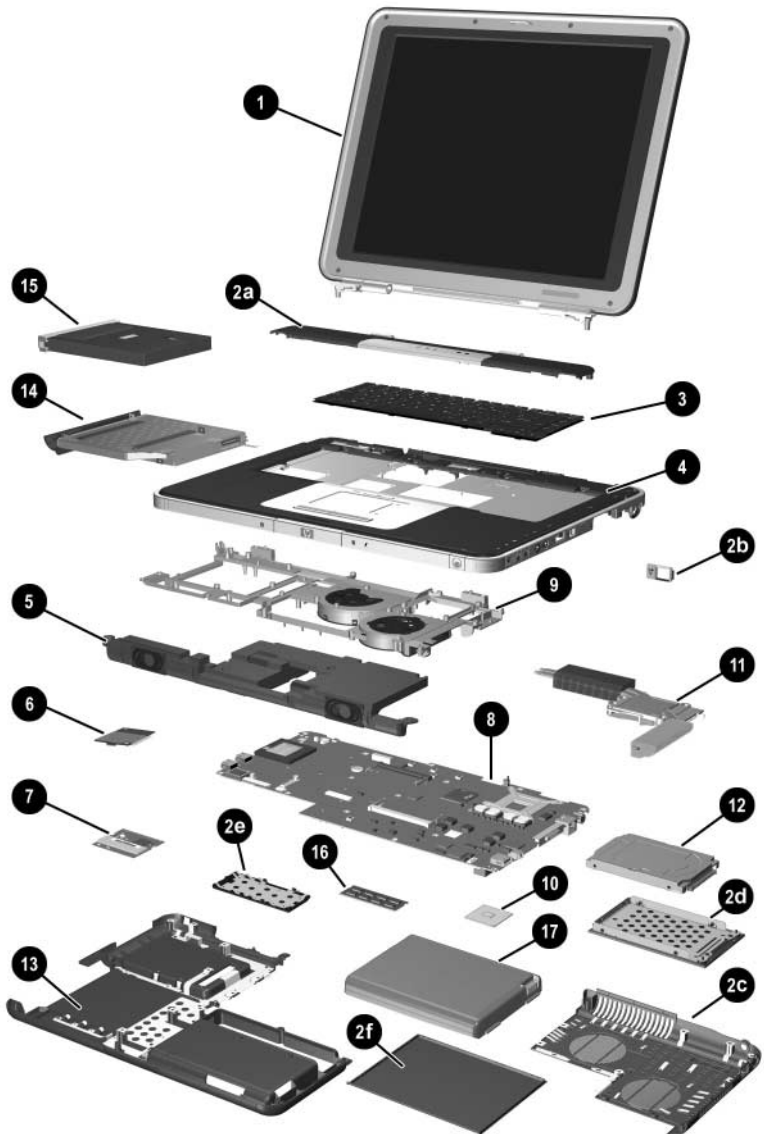
*Notebook Major Components—HP Compaq Business Notebook nx9100 Series and Compaq Presario R3000 (Continued)*



**Table 3-3**

**HP Compaq Business Notebook nx9100 Series  
and Compaq Presario R3000 Series  
Spare Parts: Notebook Major Components (Continued)**

<b>Item</b>	<b>Description</b>	<b>Spare Part Number</b>
10	<b>Processors</b>	
	Mobile Intel Pentium 4, 3.06-GHz, 533-MHz	350229-001
	Mobile Intel Pentium 4, 2.80-GHz, 533-MHz	350774-001
	Mobile Intel Pentium 4, 2.40-GHz, 533-MHz	350228-001
	Intel Pentium 4 DT, 3.20-GHz	364847-001
	Intel Pentium 4 DT, 3.06-GHz	350225-001
	Intel Pentium 4 DT, 2.80-GHz	350224-001
	Intel Pentium 4 DT, 2.66-GHz	350223-001
	AMD Athlon XP-M, 1.6-GHz	360693-001
	AMD Athlon XP-M, 1.8-GHz	360694-001
	AMD Athlon XP-M, 2.0-GHz	360695-001
	AMD Athlon 64, 2.4-GHz	370498-001
	AMD Athlon 64, 2.2-GHz	370483-001
	AMD Athlon 64, 2.0-GHz	370484-001
	AMD Athlon 64, 1.8-GHz	370485-001
	AMD Athlon 32, 1.8-GHz	370486-001
	AMD Athlon 32, 1.6-GHz	370487-001

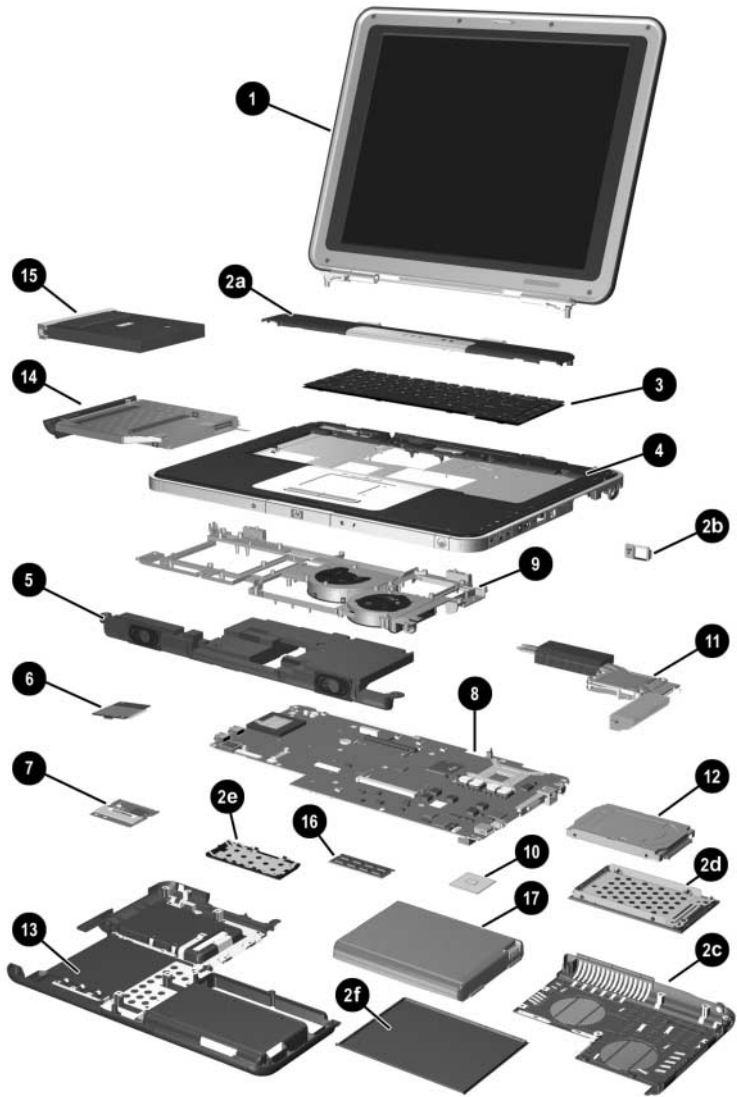


*Notebook Major Components—HP Compaq Business Notebook nx9100 Series and Compaq Presario R3000 (Continued)*

**Table 3-3**

**HP Compaq Business Notebook nx9100 Series  
and Compaq Presario R3000 Series  
Spare Parts: Notebook Major Components (Continued)**

<b>Item</b>	<b>Description</b>	<b>Spare Part Number</b>
<b>11</b>	<b>Heat sinks</b>	
	For use with HP Compaq Business Notebook nx9110 model and Compaq Presario R3001, R3002, and R3010 notebook models	350776-001
	For use with HP Compaq Business Notebook nx9105 and Compaq Presario R3004 and R31xx notebook models	360684-001
<b>12</b>	<b>Hard drives</b>	
	80-GB, 5400-rpm	350213-001
	80-GB, 4200-rpm	350212-001
	60-GB, 5400-rpm	354861-001
	60-GB, 4200-rpm	350211-001
	40-GB, 4200-rpm	350210-001
	30-GB, 4200-rpm	354860-001
<b>13</b>	<b>Base enclosure</b>	350786-001
<b>14</b>	<b>Optical drives</b>	
	24X Max DVD+R/RW and CD-RW Combo Drive	350833-001
	8X Max DVD-ROM Drive	350831-001
	24X Max DVD/CD-RW Combo Drive	350832-001
	24X Max CD-ROM Drive	354859-001
<b>15</b>	<b>Diskette drive</b>	350231-001
<b>16</b>	<b>Memory modules</b>	
	1024-MB	350238-001
	512-MB	350237-001
	256-MB	370556-001



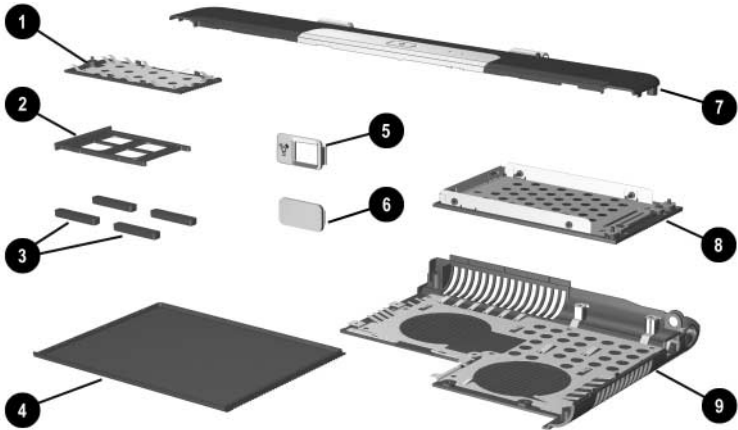
*Notebook Major Components—HP Compaq Business Notebook nx9100 Series and Compaq Presario R3000 (Continued)*

**Table 3-3**

**HP Compaq Business Notebook nx9100 Series  
and Compaq Presario R3000 Series  
Spare Parts: Notebook Major Components (Continued)**

<b>Item</b>	<b>Description</b>	<b>Spare Part Number</b>
17	<b>Battery packs</b>	
	12-cell, Li-Ion, 14.8-V, 6.6-Ah	346971-001
	8-cell, Li-Ion, 14.4-V, 4.4-Ah	346970-001
	<b>Thermal module</b> (not illustrated)	
	For use with HP Compaq Business Notebook nx9110 model and Compaq Presario R3001, R3002, and R3010 notebook models	350776-001
	For use with HP Compaq Business Notebook nx9105 and Compaq Presario R3004 and R31xx notebook models	360684-001
	<b>Cable Kit</b> (not illustrated)	350778-001

### 3.4 Miscellaneous Plastics Kit Components



Miscellaneous Plastics Kit Components

**Table 3-4**

**Miscellaneous Plastics Kit Components  
Spare Part Number 350206-001 for  
HP Pavilion zx5000 and zv5000 Series and Spare  
Part Number 350818-001 for HP Compaq Business Notebook  
nx9100 Series and Compaq Presario R3000 Series**

Item	Description
1	Memory module compartment cover
2	PC Card slot space saver
3	Notebook feet (4)
4	Battery cover
5	1394 bezel
6	Infrared lens
7	Strip cover
8	Hard drive cover
9	Heat sink cover

### 3.5 Mass Storage Devices



**Table 3-5**

**Mass Storage Devices  
Spare Part Number Information**

Item	Description	Spare Part Number
1	<b>Diskette drive</b>	
	For use with Pavilion zv5000 and zx5000 notebook models	350231-001
	For use with HP Compaq Business Notebook nx9100 Series and Compaq Presario R3000 models	350779-001
2	<b>Hard drives</b>	
	80-GB, 5400-rpm	350213-001
	80-GB, 4200-rpm	350212-001
	60-GB, 5400-rpm	354861-001
	60-GB, 4200-rpm	350211-001
	40-GB, 4200-rpm	350210-001
	30-GB, 4200-rpm	354860-001

Table 3-5

**Mass Storage Devices  
Spare Part Number Information (Continued)**

<b>Item</b>	<b>Description</b>	<b>Spare Part Number</b>
<b>3</b>	<b>Optical Drives</b>	
	For use with Pavilion zv5000 and zx5000 notebook models	
	24X Max DVD+R/RW and CD-RW Combo Drive	350209-001
	8X Max DVD-ROM Drive	350207-001
	24X Max DVD/CD-RW Combo Drive	350208-001
	24X Max CD-ROM Drive	354858-001
	For use with HP Compaq Business Notebook nx9100 Series and Compaq Presario R3000 Series models	
	24X Max DVD+R/RW and CD-RW Combo Drive	350833-001
	8X Max DVD-ROM Drive	350831-001
	24X Max DVD/CD-RW Combo Drive	350832-001
	24X Max CD-ROM Drive	354859-001
<b>4</b>	<b>HP USB Digital Drive</b>	
	DL702A (with 128-MB memory)	364727-001
	Weight saver	361694-001



## 3.6 Miscellaneous

**Table 3-6**  
**Miscellaneous (not illustrated)**  
**Spare Part Information**

Description		Spare Part Number
<b>3-wire power cord sets</b>		
Denmark	350188-081	People's Republic of China 350188-AA1
Europe	350188-021	
France	350188-051	Saudi Arabia 350188-171
Germany	350188-041	Spain 350188-071
Greece	350188-151	Sweden/Finland 350188-B71
Israel	350188-BB1	Switzerland 350188-111
Italy	350188-061	United Kingdom 350188-031
The Netherlands	350188-331	United States 350188-001
<b>Label Kits</b>		
	For use with Pavilion zx5200 Series	365398-001
	For use with Pavilion zv5200 Series	370479-001
	For use with Presario R3000 Series	365397-001
	For use with Presario R3200 Series	370480-001
	For use with HP Business Notebook nx9110 models	370481-001
	For use with Pavilion zx5000 Series and zv50xx notebook models	350230-001
	For use with Presario R3001, R3002, and R3010 knobbed models	350777-001
	For use with HP Pavilion zv51xx notebook models	360700-001
	For use with Compaq Presario R3004 notebook and R31xx notebook models	360701-001
	For use with HP Business Notebook nx9105 model	360702-001
<b>AC adapters</b>		
	120-W, PFC	370497-001
	120-W, non-PFC	370998-001
	135-W, PFC	360699-001

**Table 3-6**  
**Miscellaneous (not illustrated)**  
**Spare Part Information (Continued)**

Description	Spare Part Number
<b>Carrying cases</b>	
Leather, top load, Samsung	325817-001
Leather, top load, SG	325817-002
Nylon, top load, Samsung	325815-001
Nylon, top load, SG	325815-002
Nylon, entry level	325814-001
<b>Port Replicators</b>	
Advanced Port Replicator	339096-001
Common Port Replicator	339097-001
<b>Security card</b>	345856-001
<b>Entertainment Cable and Y Cable</b>	359680-001
<p><b>Screw Kit</b> (includes the following screws; refer to <a href="#">Appendix C, "Screw Listing,"</a> for more information on screw specifications and usage.)</p> <p>For use with HP Pavilion zx5000 Series and zv50xx notebook models, HP Compaq Business Notebook nx9110 model, and Compaq Presario R3001, R3002, and R3010 notebook models</p> <p>For use with HP Pavilion zv51xx notebook models, HP Compaq Business Notebook nx9105 model, and Compaq Presario R3004 and R31xx notebook models</p>	
<ul style="list-style-type: none"> <li>■ Phillips PM2.5×13.0 screw</li> <li>■ Phillips PM2.5×6.0 screw</li> <li>■ Phillips PM2.5×5.0 screw</li> <li>■ Phillips PM2.5×4.0 screw</li> <li>■ Phillips PM2.5×3.0 screw</li> </ul>	<ul style="list-style-type: none"> <li>■ Phillips PM2.5×11.0 spring-loaded screw</li> <li>■ Phillips PM1.5×10.0 shoulder screw</li> <li>■ Phillips PM2.0×3.0 screw</li> <li>■ Hex M5.0×9.0 standoffs</li> </ul>
<b>USB mouse, carbon</b>	164999-001

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

## **4.4 Preventing Electrostatic Damage**

Many electronic components are sensitive to electrostatic discharge (ESD). Circuitry design and structure determine the degree of sensitivity. Networks built into many integrated circuits provide some protection, but in many cases the discharge contains enough power to alter device parameters or melt silicon junctions.

A sudden discharge of static electricity from a finger or other conductor can destroy static-sensitive devices or microcircuitry. Often the spark is neither felt nor heard, but damage occurs.

An electronic device exposed to electrostatic discharge might not be affected at all and can work perfectly throughout a normal cycle. Or the device might function normally for a while, and 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, screwdrivers, and vacuums.
- When using fixtures that must directly contact dissipative surfaces, only use fixtures made of static-safe materials.
- Keep the work area free of nonconductive materials, such as ordinary plastic assembly aids and Styrofoam.
- Handle electrostatic-sensitive components, parts, and assemblies by the case or PCM laminate. Handle these items only at static-free workstations.
- Avoid contact with pins, leads, or circuitry.
- Turn off power and input signals before inserting or removing connectors or test equipment.



## 4.7 Grounding Equipment and Methods

Grounding equipment must include either a wrist strap or a foot strap at a grounded workstation.

- When seated, wear a wrist strap connected to a grounded system. Wrist straps are flexible straps with a minimum of one megohm  $\pm 10\%$  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, connect a wrist strap with alligator clips.
- When standing, use foot straps and a grounded floor mat. Foot straps (heel, toe, or boot straps) can be used at standing workstations and are compatible with most types of shoes or boots. On conductive floors or dissipative floor mats, use foot straps on both feet with a minimum of one-megohm resistance between the operator and ground. To be effective, the conductive strips must be worn in contact with the skin.

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

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

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

**Table 4-1**  
**Typical Electrostatic Voltage Levels**

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 volts.

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

**Table 4-2**  
**Static-Shielding Materials**

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

# 5

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## Removal and Replacement Procedures

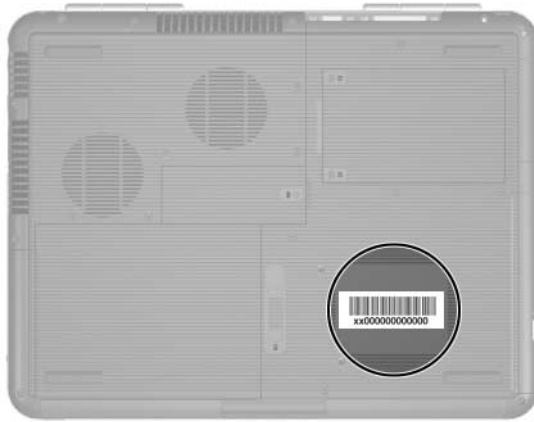
This chapter provides removal and replacement procedures.

There are 73 screws and standoffs, in 8 different sizes, that must be removed, replaced, or loosened when servicing the Pavilion notebook. There are 65 screws, in 8 different sizes, that must be removed, replaced, or loosened when servicing the HP Compaq Business Notebook nx9100 Series or Compaq Presario R3000 Series. Make special note of each screw and standoff size and location during removal and replacement.

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

## 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
	Hard drive	2 loosened to remove 4 removed to disassemble
5.4	Notebook feet	0
5.5	Memory module (external, located on bottom of notebook)	1 loosened
5.6	Combination drive	2 to remove 4 to disassemble
5.7	Heat sink	10 to remove Pavilion heat sink cover 11 to remove HP Compaq Business Notebook nx9100 Series and Compaq Presario R3000 heat sink cover 4 to remove heat sink
5.8	Processor	0
5.9	Strip cover	3
5.10	Keyboard	4
5.11	Modem board	2
5.12	Mini PCI communications card	0
5.13	System memory module (internal, located under keyboard)	0

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### Disassembly Sequence Chart (*Continued*)

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Section	Description	# of Screws Removed
5.14	Display assembly	8 on Pavilion 6 on HP Compaq Business Notebook nx9100 Series and Compaq Presario R3000
5.15	Base enclosure	13
5.16	Speaker assembly	1
5.17	System board	8 on Pavilion 4 on HP Compaq Business Notebook nx9100 Series and Compaq Presario R3000
5.18	Fan assembly	5 screws and 4 standoffs on Pavilion 5 screws on HP Compaq Business Notebook nx9100 Series and Compaq Presario R3000

---

## 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.

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### Spare Part Number Information

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#### Battery packs

For use with Pavilion notebook models

12-cell, Li-Ion, 14.8-V, 2.2-Ah	350836-001
12-cell, Li-Ion, 14.8-V, 6.6-Ah	346971-001
8-cell, Li-Ion, 14.4-V, 4.4-Ah	346970-001

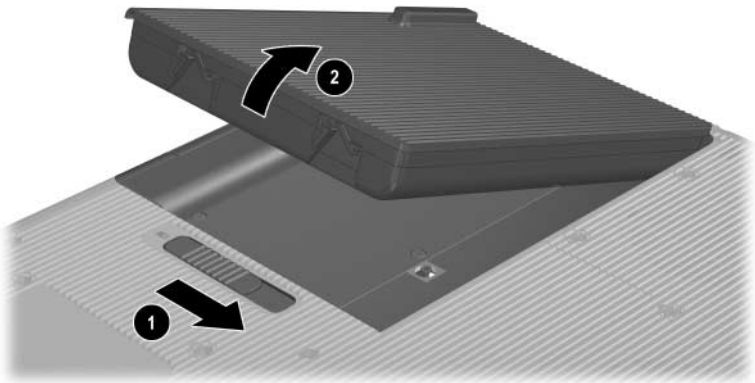
For use with HP Compaq Business Notebook  
nx9100 Series and Compaq Presario R3000  
Series models

12-cell, Li-Ion, 14.8-V, 6.6-Ah	346971-001
8-cell, Li-Ion, 14.4-V, 4.4-Ah	346970-001

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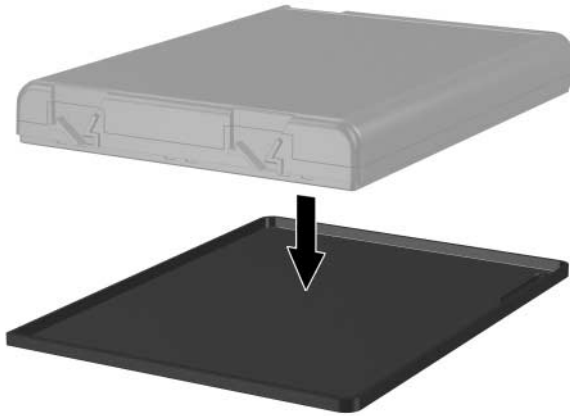


4. Remove the battery pack by following these steps:
  - a. Turn the notebook upside down with the rear panel toward you.
  - b. Slide and hold the battery release latch **1** toward you. The left side of the battery pack releases from the notebook.
  - c. Swing the battery pack up and to the right **2**.
  - d. Remove the battery pack.




*Removing the Battery Pack*

- e. If necessary, remove the battery pack cover.



#### *Removing the Battery Pack Cover*

-  The battery pack cover is included in the Miscellaneous Plastics Kit: spare part number 350206-001 for use with Pavilion notebook models, and spare part number 350818-001 for use with HP Compaq Business Notebook nx9100 Series and Compaq Presario R3000 Series models.

Reverse the above procedure to install the battery pack and battery pack cover.

---

### **Spare Part Number Information**

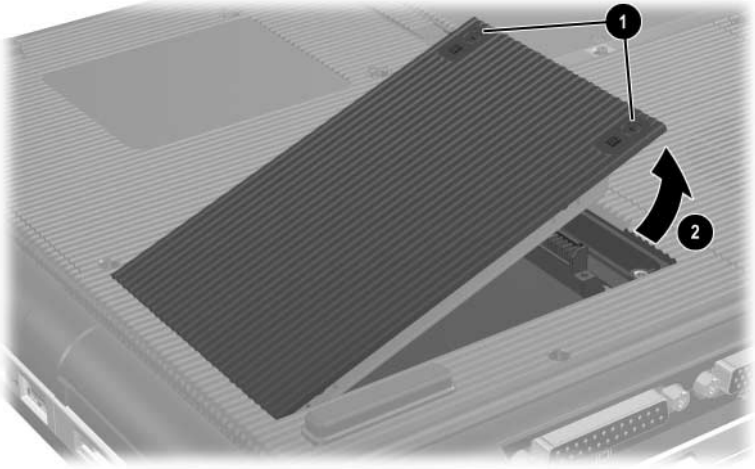
---

#### **Hard drives** (include hard drive cover)

80-GB, 5400-rpm	350213-001
80-GB, 4200-rpm	350212-001
60-GB, 5400-rpm	354861-001
60-GB, 4200-rpm	350211-001
40-GB, 4200-rpm	350210-001
30-GB, 4200-rpm	354860-001

---

5. Remove the hard drive by following these steps:
  - a. Turn the notebook upside down with the rear panel toward you.
  - b. Loosen the 2 PM2.5×6.0 captive screws ❶ that secure the hard drive cover to the notebook.
  - c. Lift the right side of the hard drive cover up and swing it to the left ❷ to disconnect the hard drive from the notebook.
  - d. Remove the hard drive.

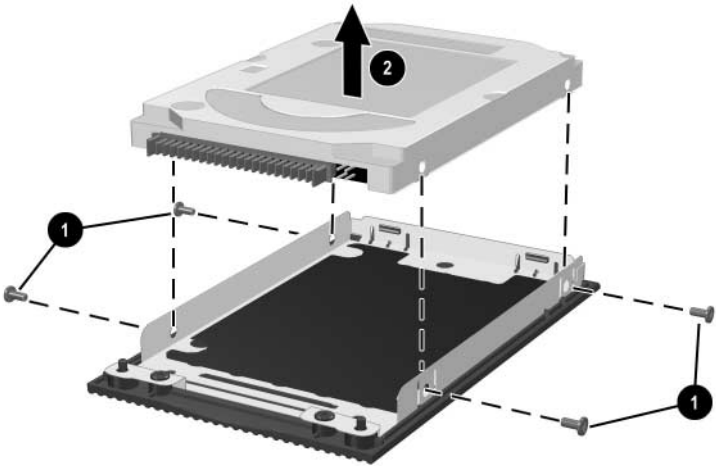


*Removing the Hard Drive*



**CAUTION:** The hard drive should be disassembled only if it is damaged and must be repaired. Unnecessary disassembly of the hard drive can result in damage to the hard drive and loss of information.

- e. Remove the 4 PM2.5×4.0 screws **1** that secure the hard drive to the hard drive cover.
- f. Remove the hard drive from the hard drive cover **2**.



### Removing the Hard Drive Cover



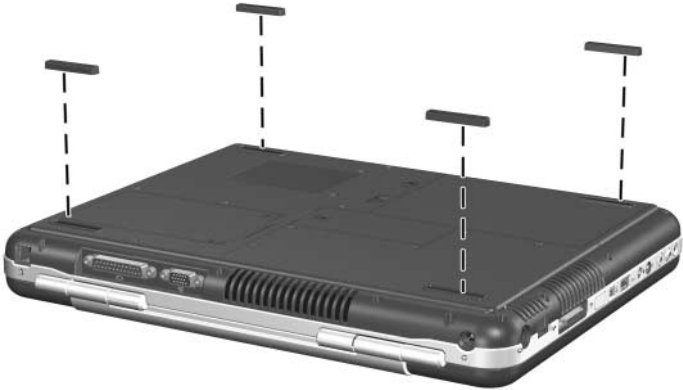
The hard drive cover is included with the hard drive and also in the Miscellaneous Plastics Kit: spare part number 350206-001 for use with Pavilion notebook models, and spare part number 350818-001 for use with HP Compaq Business Notebook nx9100 Series and Compaq Presario R3000 Series models.

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

## 5.4 Notebook Feet

The notebook feet are adhesive-backed rubber pads. The notebook feet are included in the Miscellaneous Plastics Kit: spare part number 350206-001 for use with Pavilion notebook models, and spare part number 350818-001 for use with HP Compaq Business Notebook nx9100 Series and Compaq Presario R3000 Series models.

- » Attach the notebook feet to the base enclosure as illustrated below.



*Replacing the Notebook Feet*

## 5.5 Memory Module

---

### Spare Part Number Information

---

#### Memory modules

1024-MB	350238-001
512-MB	350237-001
256-MB	370556-001

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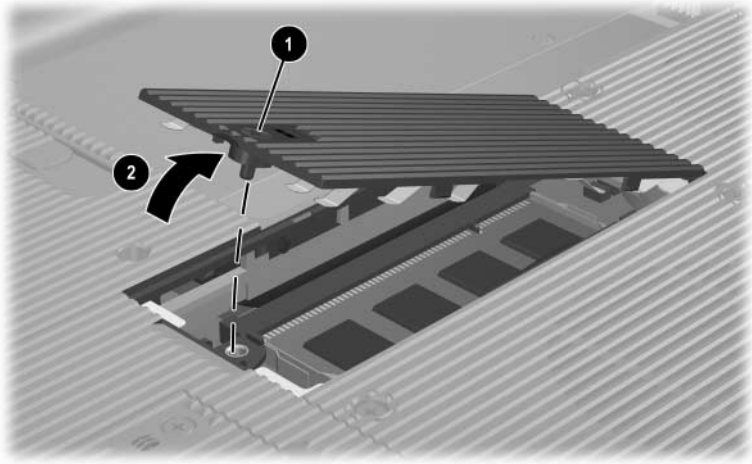
1. Prepare the notebook for disassembly ([Section 5.3](#)).
2. Turn the notebook upside down with the rear panel toward you.



Steps 3 through 7 apply only to HP Pavilion zx5000 Series, HP Pavilion zv5000 Series, and HP Compaq Business Notebook nx9100 Series models.

---

3. Loosen the PM2.5×6.0 captive screw **1** that secures the memory module compartment cover to the notebook.
4. Lift the left side of the memory module compartment cover up and swing it to the right **2**.
5. Remove the cover.

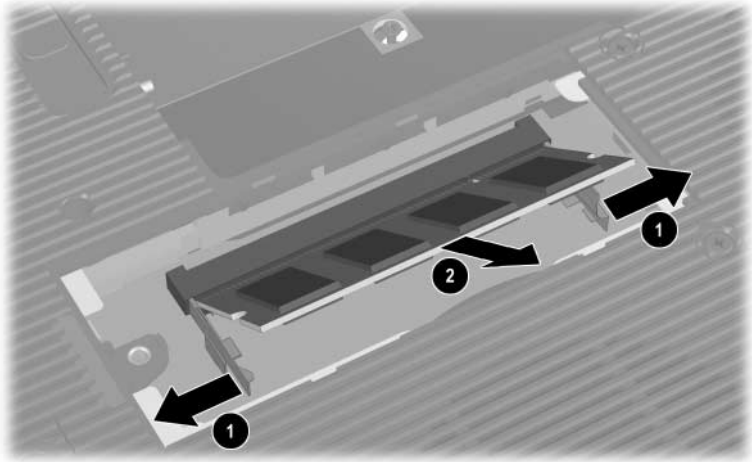


*Removing the Memory module Compartment Cover*



The memory module compartment cover is included in the Miscellaneous Plastics Kit: spare part number 350206-001 for use with Pavilion notebook models, and spare part number 350818-001 for use with HP Compaq Business Notebook nx9100 Series.

6. Spread the retaining tabs ❶ that secure the memory module to the socket. The edge of the board opposite the edge connector rises up.
7. Pull the board away from the socket at a 45-degree angle ❷.



*Removing a Memory Module*

Reverse the above procedure to install a memory module.

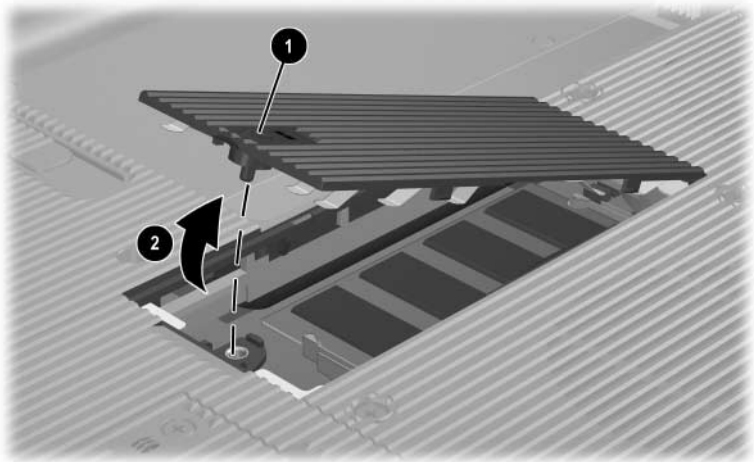




Steps 8 through 12 apply only to Compaq Presario R3000 Series models.

---

8. Loosen the PM2.5×6.0 captive screw **1** that secures the memory module compartment cover to the notebook.
9. Lift the left side of the memory module compartment cover up and swing it to the right **2**.
10. Remove the cover.

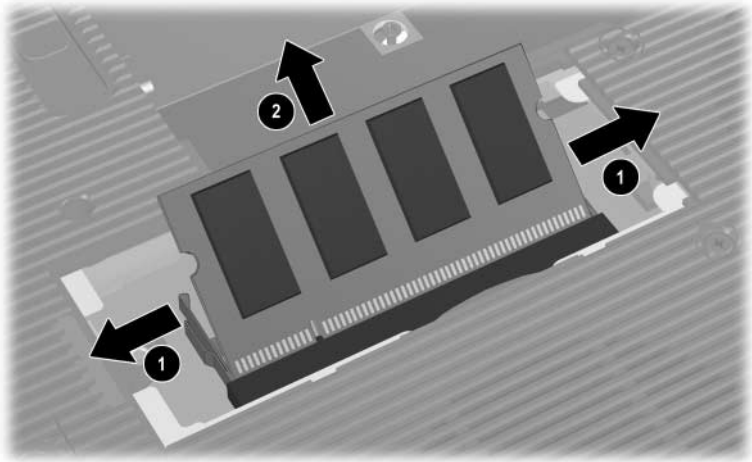


#### *Removing the Memory Module Compartment Cover*



The memory module compartment cover is included in the Miscellaneous Plastics Kit: spare part number 350818-001 for use with Compaq Presario R3000 Series models.

11. Spread the retaining tabs ❶ that secure the memory module to the socket. The edge of the board opposite the edge connector rises up.
12. Pull the board away from the socket at a 45-degree angle ❷.



### *Removing a Memory Module*

Reverse the above procedure to install a memory module.

## 5.6 Combination Drive

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The combination drive consists of an optical drive and either an HP USB Digital Drive or a diskette drive.

---

---

### Spare Part Number Information

---

#### Diskette drive

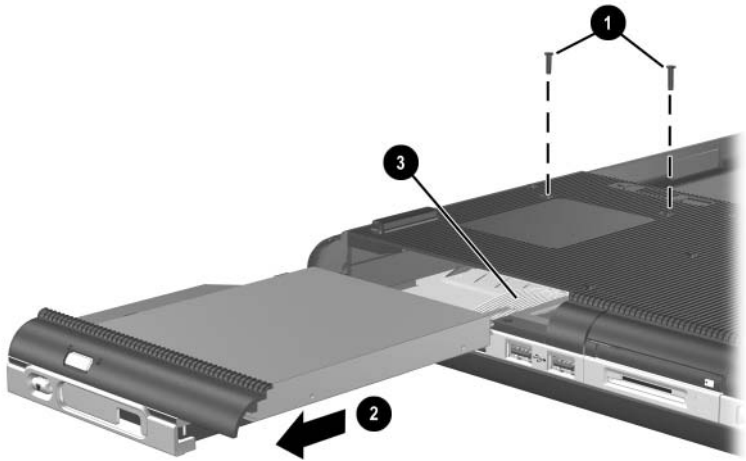
For use with Pavilion notebook models	350231-001
For use with HP Compaq Business Notebook nx9100 Series and Compaq Presario R3000 Series models	350779-001

#### Optical Drives

For use with Pavilion notebook models	
24X Max DVD+R/RW and CD-RW Combo Drive	350209-001
8X Max DVD-ROM Drive	350207-001
24X Max DVD/CD-RW Combo Drive	350208-001
24X Max CD-ROM drive	354858-001
For use with HP Compaq Business Notebook nx9100 Series and Compaq Presario R3000 Series models	
24X Max DVD+R/RW and CD-RW Combo Drive	350833-001
8X Max DVD-ROM Drive	350831-001
24X Max DVD/CD-RW Combo Drive	350832-001
24X Max CD-ROM Drive	354859-001

---

1. Prepare the notebook for disassembly (Section 5.3).
2. Turn the notebook upside down with the right side toward you.
3. Remove the 2 PM2.5×6.0 screws ❶ that secure the combination drive to the notebook.
4. Slowly slide the drive out of the notebook ❷ as far as the drive cable ❸ will allow.



*Releasing the Combination Drive*

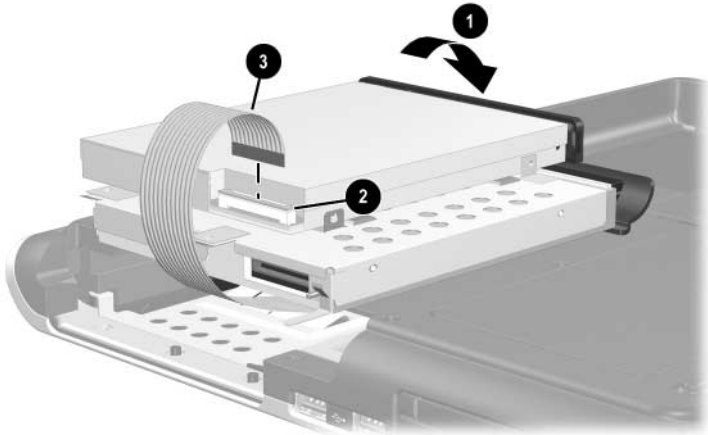
5. Flip the drive over and rest it on the notebook ❶.



If the combination drive consists of an optical drive and a diskette drive, perform steps 6 and 7 to disconnect the flex cable from the drive.

---

6. Release the zero insertion force (ZIF) connector ❷ to which the drive cable is attached and disconnect the cable ❸.
7. Remove the combination drive.



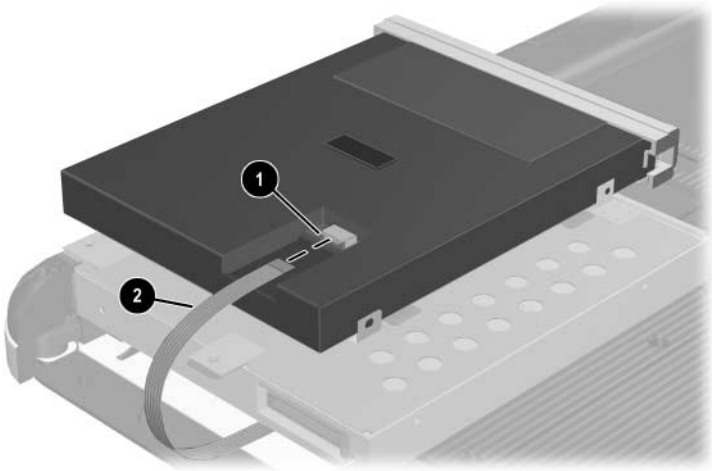
*Removing the Combination Drive*



If the combination drive consists of an optical drive and an HP USB Digital Drive, perform steps 8 and 9 to disconnect the flex cable from the drive.

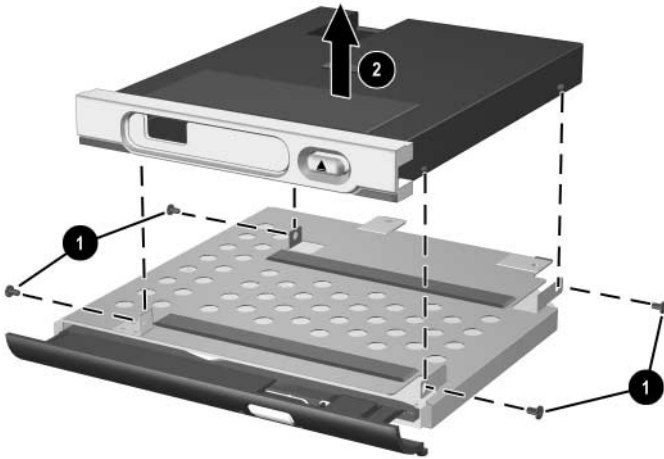
---

8. Release the zero insertion force (ZIF) connector **1** to which the drive cable is attached and disconnect the cable **2**.
9. Remove the combination drive.



*Removing the Combination Drive*

10. To separate the optical drive from the HP USB Digital Drive or diskette drive, remove the 4 PM2.0×3.0 screws **1** that secure the drives together.
11. Separate the drives **2**.



#### *Disassembling the Combination Drive*

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

## 5.7 Heat Sink

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### Spare Part Number Information

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#### Heat sinks

HP Pavilion zx5000 "M10" models	350783-001
HP Pavilion zx5000 "M9" models	350233-001
For use with HP Pavilion zv5000 Series, HP Compaq Business Notebook nx9110 model, and Compaq Presario R3001, R3002, and R3010 notebook models	350776-001
For use with HP Compaq Business Notebook nx9105 and Compaq Presario R3004 and R31xx notebook models	360684-001

---

1. Prepare the notebook for disassembly ([Section 5.3](#)).
2. Remove the memory module compartment cover ([Section 5.5](#)).
3. Turn the notebook so that the front panel is toward you.

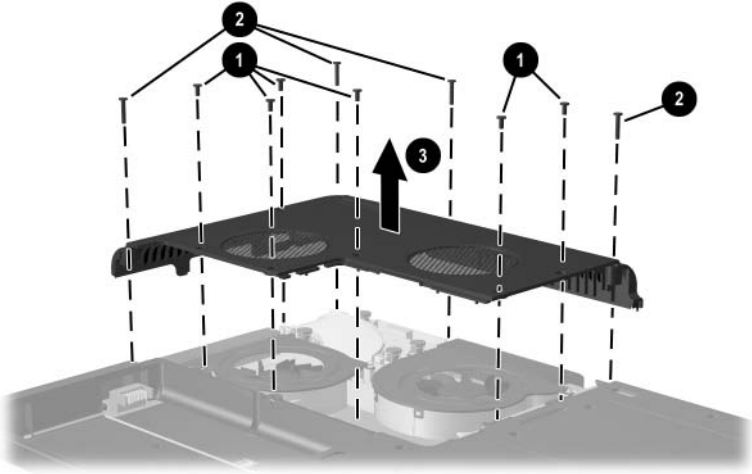




Steps 4 and 5 apply only to Pavilion notebook models.

---

4. Remove the 6 PM2.5×6.0 screws **1** and the 4 PM2.5×13.0 screws **2** that secure the thermal cover to the notebook.
5. Remove the thermal cover **3** from the notebook.

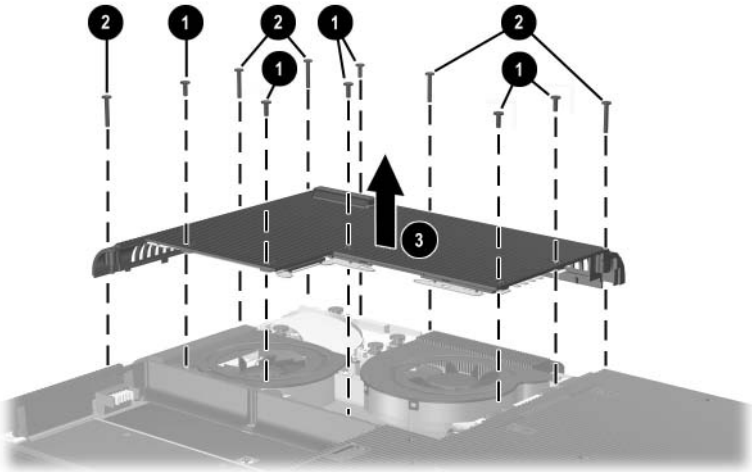


*Removing the Thermal Cover on Pavilion Notebook Models*



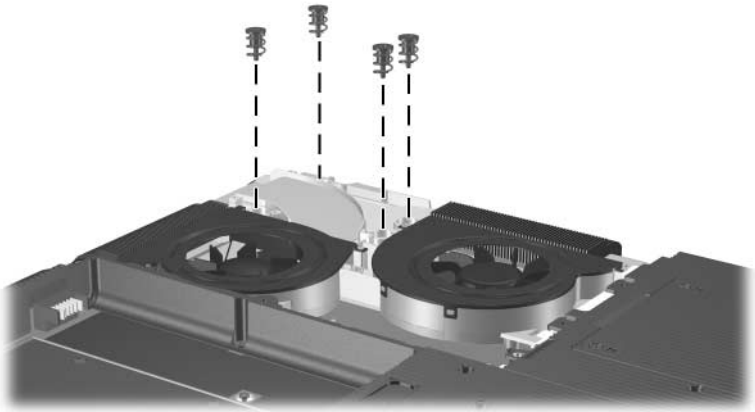
Steps 6 and 7 apply only to HP Compaq Business Notebook nx9100 Series and Compaq Presario R3000 Series notebook models.

6. Remove the 6 PM2.5×6.0 screws **1** and the 5 PM2.5×13.0 screws **2** that secure the thermal cover to the notebook.
7. Remove the thermal cover **3** from the notebook.




*Removing the Thermal Cover on HP Compaq Business Notebook nx9100 Series and Compaq Presario R3000 Series Models*

8. Remove the 4 PM2.5×11.0 spring-loaded shoulder screws that secure the heat sink to the notebook.



#### *Removing the Heat Sink Screws*

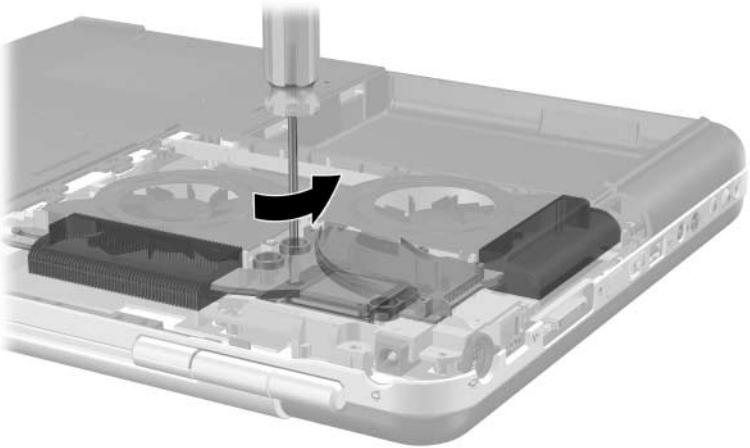
-  When reinstalling the heat sink screws, first start all 4 screws but do not tighten them. After all 4 screws are started, tighten each screw until the shoulder on the screw is fully seated against the screw post. Tighten the screws diagonally across the heat sink, not in sequence around the heat sink.



Step 9 applies only to notebook models with a Mobile Intel Pentium 4 or Intel Pentium 4 processor.


---

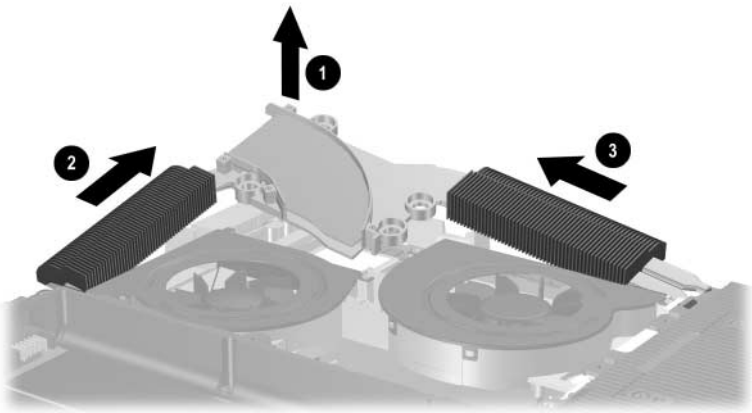
9. Use a flat-bladed screwdriver to turn the processor lock screw one-quarter turn counterclockwise to release the processor from the socket.



*Releasing the Processor on HP Compaq Business Notebook nx9100 Series and Compaq Presario R3000 Notebook Models*

10. Lift up on the right front corner of the heat sink ❶ until it disengages from the notebook.
11. Slide the heat sink away from you ❷, and then to the left ❸ to clear the tabs on the heat sink from the notebook.
12. Remove the heat sink.


 The processor will remain attached to the heat sink when the heat sink is removed from the notebook.



### *Removing the Heat Sink*


Reverse the above procedure to install the heat sink.

---

 Step 13 applies only to notebook models with a Mobile Intel Pentium 4 or Intel Pentium 4 processor.

---

13. Remove the processor from the heat sink and place it on an antistatic pad.

 Carefully clean any thermal grease residue from the heat sink and processor surfaces each time you remove the heat sink. Apply new thermal grease to both surfaces before reinstalling the heat sink.

## 5.8 Processor

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### Spare Part Number Information

---

#### Processors

Mobile Intel Pentium 4, 3.06-GHz, 533-MHz	350229-001
Mobile Intel Pentium 4, 2.80-GHz, 533-MHz	350774-001
Mobile Intel Pentium 4, 2.40-GHz, 533-MHz	350228-001
Intel Pentium 4 DT, 3.20-GHz	364847-001
Intel Pentium 4 DT, 3.06-GHz	350225-001
Intel Pentium 4 DT, 2.80-GHz	350224-001
Intel Pentium 4 DT, 2.66-GHz	350223-001
AMD Athlon XP-M, 1.6-GHz	360693-001
AMD Athlon XP-M, 1.8-GHz	360694-001
AMD Athlon XP-M, 2.0-GHz	360695-001
AMD Athlon 64, 2.4-GHz	370498-001
AMD Athlon 64, 2.2-GHz	370483-001
AMD Athlon 64, 2.0-GHz	370484-001
AMD Athlon 64, 1.8-GHz	370485-001
AMD Athlon 32, 1.8-GHz	370486-001
AMD Athlon 32, 1.6-GHz	370487-001

---

#### Processor support bracket (not illustrated)

For use with HP Pavilion zv5000 and zx5000 Series models	350785-001
For use with HP Pavilion zv51xx Series models	356496-001

---

1. Prepare the notebook for disassembly ([Section 5.3](#)).
2. Remove the memory module compartment cover ([Section 5.5](#)).
3. Remove the heat sink ([Section 5.7](#)).
4. Turn the notebook so that the the rear panel is toward you.



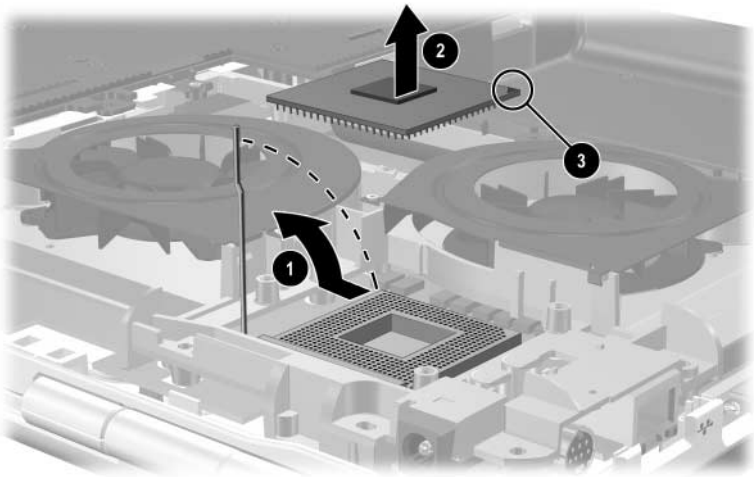
Steps 5 and 6 apply only to notebook models with an AMD Athlon 64 or Athlon XP-M processor.

---

5. Press the processor lock lever slightly to the left to release it and then lift it up so that it rotates toward you to a 90-degree angle ❶ to release the processor from the socket.
6. Lift the processor straight up ❷ to remove it.



Align the gold triangle ❸ in the upper-right corner when you reinstall the processor.



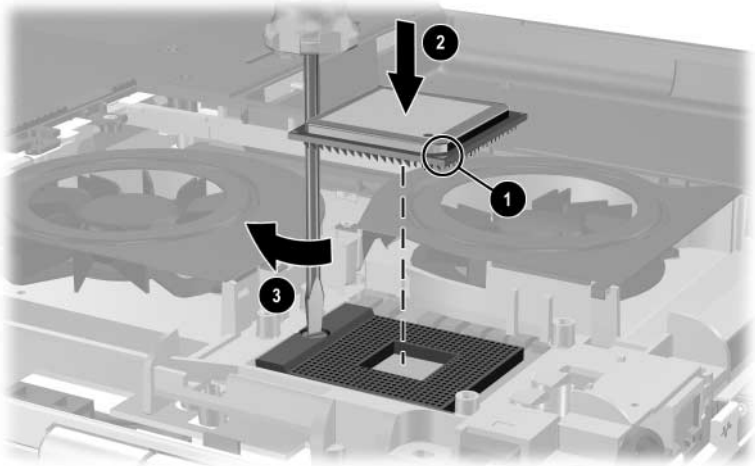
### *Removing the Processor*

Reverse the above procedure to install the processor.



Steps 7 and 8 apply only to notebook models with a Mobile Intel Pentium 4 or Intel Pentium 4 processor. The processor was removed with the heat sink in Section 5.7 to avoid damaging the pins.

7. Align the processor so that the gold triangle **1** is in the lower-right corner. Press the processor **2** straight down into the socket to install it.
8. Use a flat-bladed screwdriver to turn the processor lock screw **3** one-quarter turn clockwise to lock the processor in the socket.



*Replacing the Processor*



## 5.9 Strip Cover

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### Spare Part Number Information


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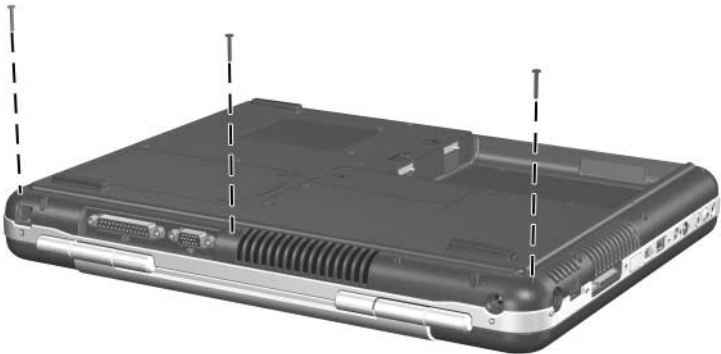
#### Strip covers

For use with Pavilion notebook models, with wireless button	350849-001
For use with Pavilion notebook models, without wireless button	350850-001
For use with Presario notebook models	350851-001
For use with Business Notebook models	354954-001

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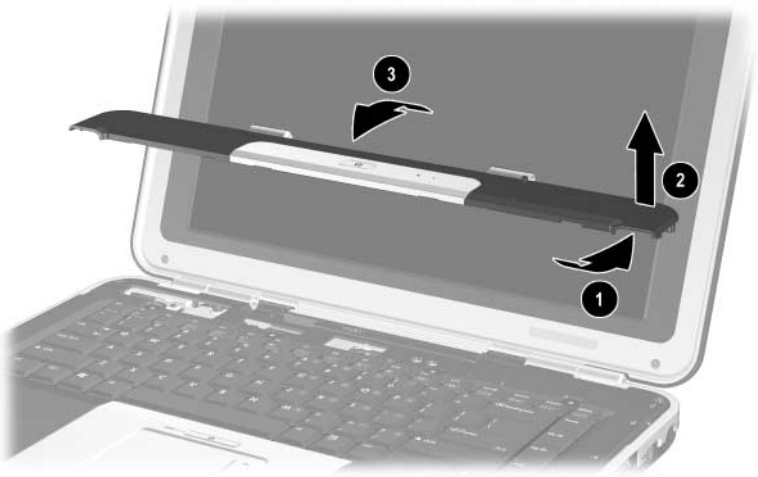
1. Prepare the notebook for disassembly ([Section 5.3](#)).
2. Turn the notebook upside down with the rear panel toward you.
3. Remove the 3 PM2.5×13.0 screws that secure the strip cover to the notebook.

 2 of the screws that secure the strip cover to the notebook also secure the thermal cover. It is not necessary to remove the thermal cover to remove the strip cover.



*Removing the Strip Cover Screws*

4. Turn the notebook right-side up with the front toward you.
5. Open the notebook display as far as possible.
6. Using a flat-bladed screwdriver, lift the right side ❶ of the strip cover to disengage the cover ❷ from the notebook.
7. Lift the middle of the strip cover ❸ and swing it toward you to remove it from the notebook.



### *Removing the Strip Cover*

Reverse the above procedure to install the strip cover.

## 5.10 Keyboard

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### Spare Part Number Information

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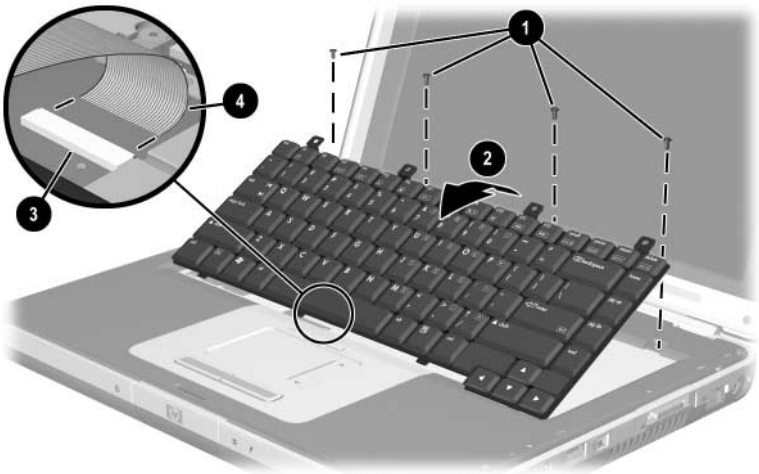
#### Keyboards

Denmark	350187-081	People's Republic	350187-AA1
Europe	350187-021	of China	
France	350187-051	Saudi Arabia	350187-171
Germany	350187-041	Spain	350187-071
Greece	350187-151	Sweden/Finland	350187-B71
Israel	350187-BB1	Switzerland	350187-111
Italy	350187-061	United Kingdom	350187-031
The Netherlands	350187-331	United States	350187-001

---

1. Prepare the notebook for disassembly ([Section 5.3](#)).
2. Remove the strip cover ([Section 5.9](#)).

3. Remove the 4 PM2.5×3.0 screws **1** that secure the keyboard to the notebook.
4. Lift the rear edge of the keyboard up **2** and swing it toward you until it rests on the palm rest.
5. Disconnect the ZIF connector **3** to which the keyboard cable is attached and disconnect the keyboard cable **4**.



### *Removing the Keyboard*

Reverse the above procedure to install the keyboard.

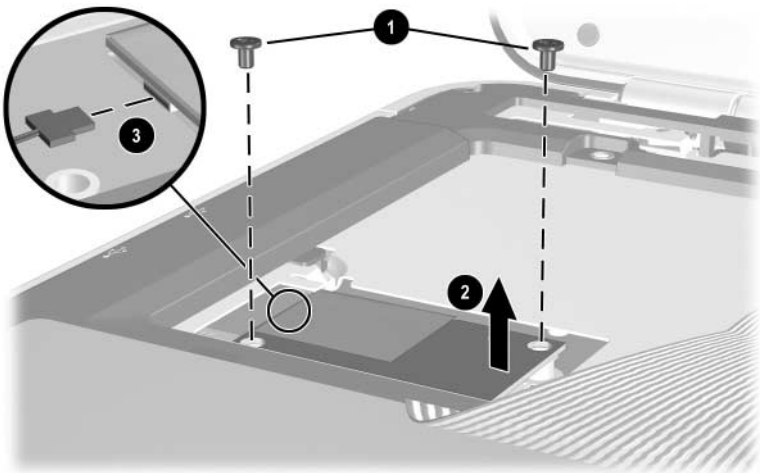
## 5.11 Modem Board

### Spare Part Number Information

Modem board

350239-001

1. Prepare the notebook for disassembly ([Section 5.3](#)).
2. Remove the strip cover ([Section 5.9](#)).
3. Remove the keyboard ([Section 5.10](#)).
4. Remove the 2 PM2.0×3.0 screws ❶ that secure the modem board to the notebook.
5. Lift up the right side ❷ of the modem board to disconnect it from the system board.
6. Remove the modem board.
7. Disconnect the modem cable ❸ from the modem board.



#### *Removing the Modem Board*

Reverse the above procedure to install the modem board.

## 5.12 Mini PCI Communications Card

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### Spare Part Number Information

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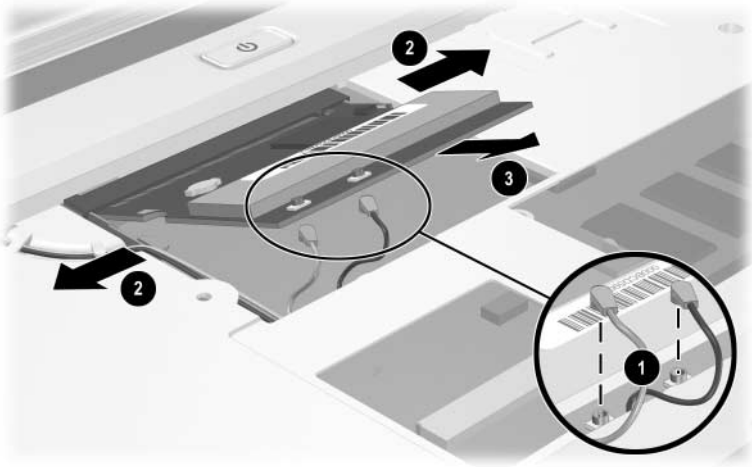
#### Mini PCI communications cards

802.11a/b/g wireless LAN card	354876-001
802.11b wireless LAN card	350218-001
802.11g wireless LAN card	350219-001
Bluetooth wireless LAN card	350220-001

---

1. Prepare the notebook for disassembly ([Section 5.3](#)).
2. Remove the strip cover ([Section 5.9](#)).
3. Remove the keyboard ([Section 5.10](#)).

4. Disconnect the 2 antennae cables ❶ from the Mini PCI communications card.
5. Spread the retaining tabs ❷ that secure the Mini PCI communications card to the socket. The edge of the card that is opposite the edge connector rises.
6. Pull the card away from the socket at a 45-degree angle ❸.



### *Removing the Mini PCI Communications Card*



**CAUTION:** Handle the antennae wires and connectors carefully during reassembly so that the connectors are not damaged and the wires do not become pinched between the edge of the board and the shield.

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

## 5.13 Primary Memory Module

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### Spare Part Number Information

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#### Memory modules

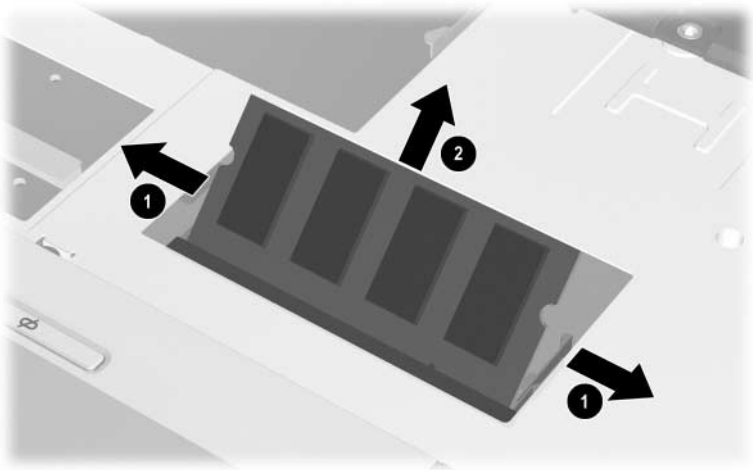
1024-MB	350238-001
512-MB	350237-001
256-MB	370556-001

---

1. Prepare the notebook for disassembly ([Section 5.3](#)).
2. Remove the strip cover ([Section 5.9](#)).
3. Remove the keyboard ([Section 5.10](#)).



4. Spread the retaining tabs ❶ that secure the primary memory board to the socket. The edge of the board that is opposite the edge connector rises up.
5. Pull the board away from the socket at a 45-degree angle ❷.



#### *Removing the Memory Module*

Reverse the above procedure to install the memory module.

## 5.14 Display Assembly

### Spare Part Number Information

#### Display assemblies

For use with HP Pavilion zv5000 notebook models

15.4-inch, WUXGA, with wireless antennae	350217-001
15.4-inch, WUXGA, without wireless antennae	350847-001
15.4-inch, WSXGA, with wireless antennae	350216-001
15.4-inch, WSXGA, without wireless antennae	350844-001
15.4-inch, WXGA, with wireless antennae	350215-001
15.4-inch, WXGA, without wireless antennae	350841-001
15.0-inch, XGA, with wireless antennae	350214-001
15.0-inch, XGA, without wireless antennae	350838-001

For use with HP Pavilion zx5000 notebook models

14.1-inch, XGA, with antennae	354862-001
14.1-inch, XGA, without antennae	354865-001

For use with Compaq Presario R3000 Series models

15.4-inch, WUXGA, with wireless antennae	350846-001
15.4-inch, WUXGA, without wireless antennae	350848-001
15.4-inch, WSXGA, with wireless antennae	350843-001
15.4-inch, WSXGA, without wireless antennae	350845-001
15.4-inch, WXGA, with wireless antennae	350840-001
15.4-inch, WXGA, without wireless antennae	350839-001
15.0-inch, XGA, with wireless antennae	350837-001
15.0-inch, XGA, without wireless antennae	350839-001
14.1-inch, XGA, with antennae	354863-001
14.1-inch, XGA, without antennae	354866-001

For use with HP Compaq Business Notebook nx9100 Series models

15.4-inch, WXGA, with antennae	354870-001
15.4-inch, WXGA, without antennae	354871-001
15.0-inch, XGA, with antennae	354868-001
15.0-inch, XGA, without antennae	354869-001
14.1-inch, XGA, with antennae	354864-001
14.1-inch, XGA, without antennae	354867-001

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### Spare Part Number Information (*Continued*)

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#### Display inverters (not illustrated)

For use with HP Pavilion zv5000 and zx5000 notebook models	354873-001
For use with HP Compaq Business Notebook nx9100 Series and Compaq Presario R3000 Pavilion notebook models	354872-001

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#### Wireless antennae cables (not illustrated)

Right antenna cable	354874-001
Left antenna cable	354875-001

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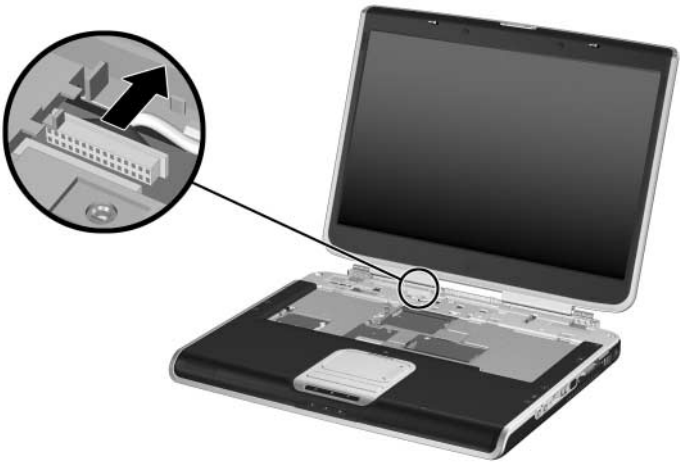
1. Prepare the notebook for disassembly ([Section 5.3](#)).
2. Remove the strip cover ([Section 5.9](#)).
3. Remove the keyboard ([Section 5.10](#)).
4. Remove the thermal cover ([Section 5.7](#)).
5. Disconnect the wireless antennae cables from the Mini PCI communications card ([Section 5.12](#)).



Steps 6 through 12 apply only to Pavilion notebook models.

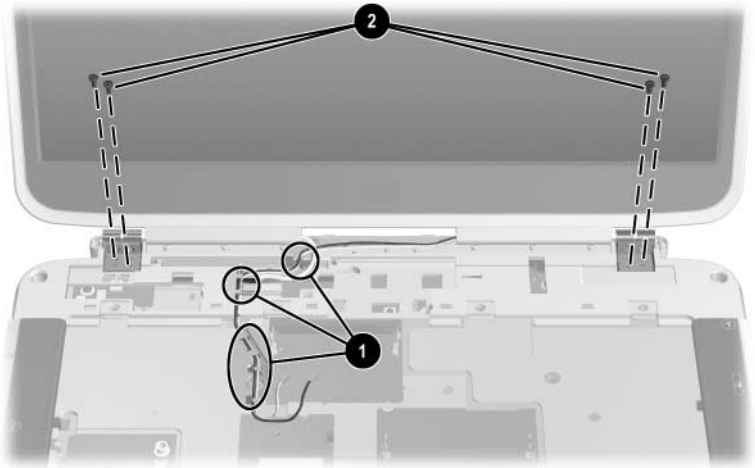
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6. Disconnect the display cable from the system board.



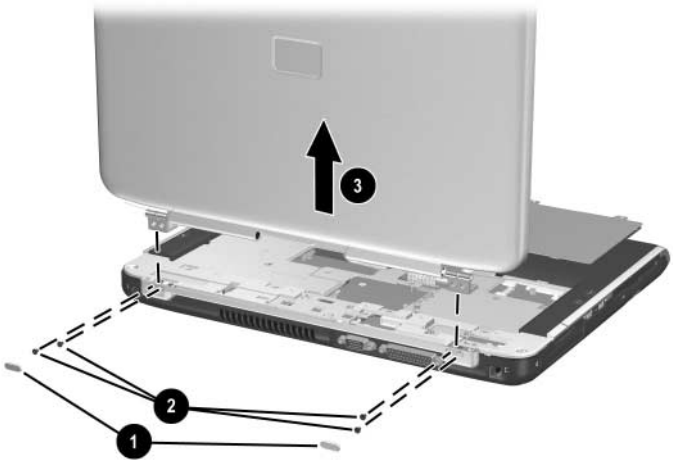
*Disconnecting the Display Cable on Pavilion Notebook Models*

7. Remove the antennae cables from the top cover clips **1** that secure the cables.
8. Remove the 4 PM2.5×6.0 screws **2** that secure the display assembly to the notebook.



*Removing the Wireless antennae Cables and Display Assembly Screws on Pavilion Notebook Models*

9. Position the notebook so the rear panel is toward you and the display is in a fully upright position.
10. Remove the oblong Mylar screw covers **1** from the rear panel of the notebook.
11. Remove the 4 PM2.5×6.0 screws **2** that secure the display assembly to the notebook.
12. Lift the display straight up **3** to remove it.



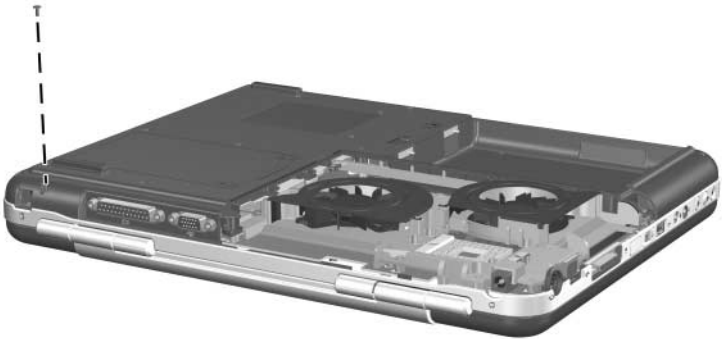
*Removing the Display Assembly on Pavilion Notebook Models*



Steps 13 through 22 apply only to HP Compaq Business Notebook nx9100 Series and Compaq Presario R3000 notebook models.

---

13. Turn the notebook upside down with the rear panel toward you.
14. Remove the PM2.5x6.0 screw that secures the display assembly to the notebook.



*Removing the Display Screw on HP Compaq Business Notebook nx9100 Series and Compaq Presario R3000 Series models*

15. Turn the notebook right-side up with the front toward you.

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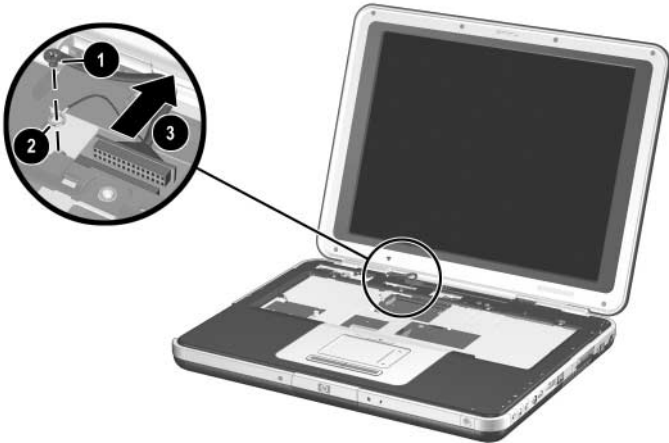
Step 16 does not apply to the HP Compaq Business Notebook nx9105 model and Compaq Presario R3004 and R31xx notebook models.

---

16. Remove the PM2.5x3.0 screw **1** that secures the display cable ground connector **2** to the notebook.

17. Disconnect the display cable **3** from the system board.

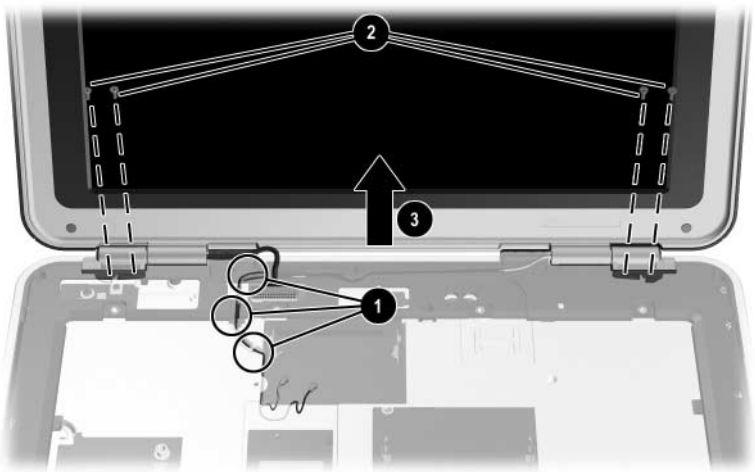
18. Remove the display cable from the cover clip.



*Disconnecting the Display Cable on HP Compaq Business Notebook nx9100 Series and Compaq Presario R3000 Notebook Models*



19. Remove the antenna cables from the top cover clips **1** that secure the cables.
20. Open the display assembly as far as possible.
21. Remove the 4 PM2.5x6.0 screws **2** that secure the display assembly to the notebook.
22. Lift the display straight up **3** to remove it.



*Removing the Display Assembly on Compaq Presario R3000 and HP Compaq Business Notebook nx9100 Series*

Reverse the above procedure to install the display assembly.

## 5.15 Base Enclosure

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### Spare Part Number Information

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#### Base enclosures

For use with Pavilion notebook models	350235-001
For use with Compaq Presario R3000 and HP Compaq Business Notebook nx9100 Series	350786-001

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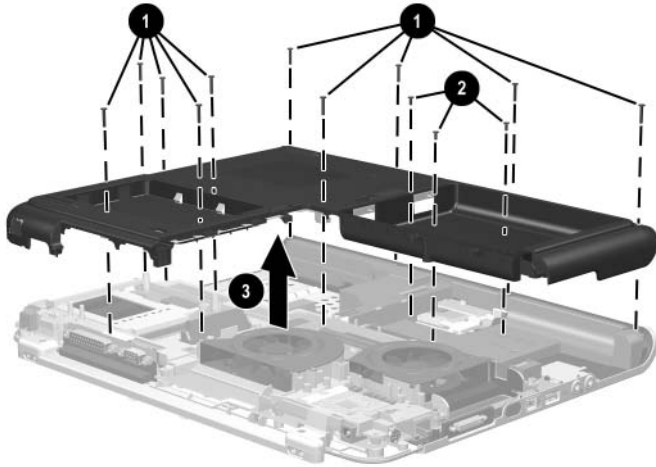
1. Prepare the notebook for disassembly ([Section 5.3](#)) and remove the following components:
  - Combination drive ([Section 5.6](#))
  - Strip cover ([Section 5.9](#))
  - Keyboard ([Section 5.10](#))
  - Display assembly ([Section 5.14](#))
2. Turn the notebook upside down with the rear panel toward you.



Steps 3 and 4 apply only to HP Pavilion notebook models.

---

3. Remove the 10 PM2.5×13.0 screws ❶ and the 3 PM2.5×6.0 screws ❷ that secure the base enclosure to the notebook.
4. Lift the base enclosure straight up ❸ to remove it.

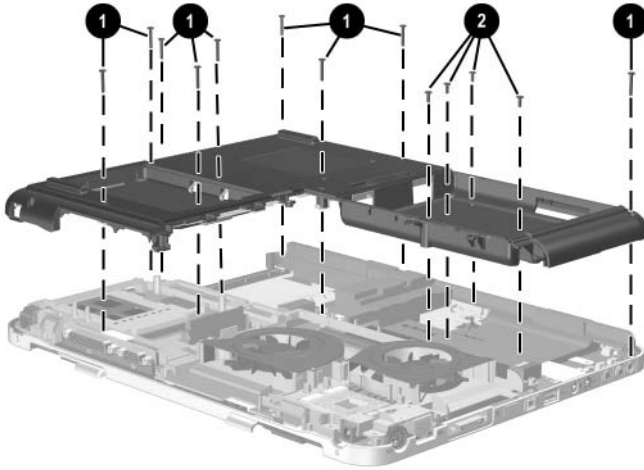


*Removing the Base Enclosure on Pavilion Notebook Models*



Steps 5 and 6 apply only to HP Compaq Business Notebook nx9100 Series and Compaq Presario R3000 Series models.

5. Remove the 9 PM2.5×13.0 screws ❶ and the 4 PM2.5×6.0 screws ❷ that secure the base enclosure to the notebook.
6. Lift the base enclosure straight up to remove it.



*Removing the Base Enclosure on HP Compaq Business Notebook nx9100 Series and Compaq Presario R3000 Series models*

Reverse the above procedure to install the base enclosure.

## 5.16 Speaker Assembly

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### Spare Part Number Information

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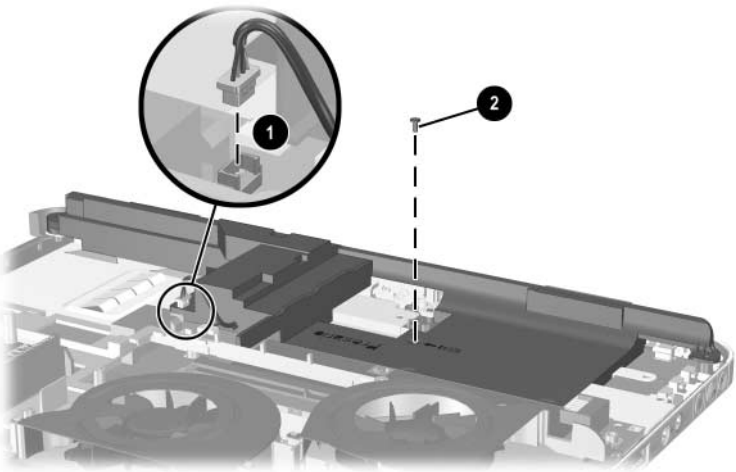
#### Speaker assemblies

For use with HP Pavilion notebook models	350772-001
For use with Compaq Presario R3000 and HP Pavilion nx9000 and nx9100 notebook models	350773-001

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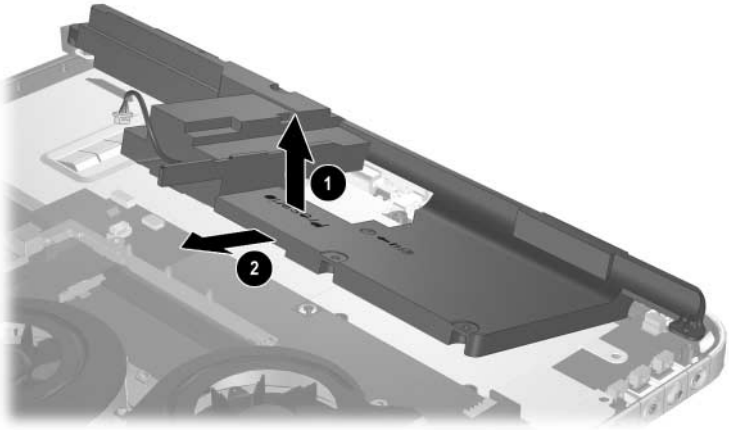
1. Prepare the notebook for disassembly ([Section 5.3](#)) and remove the following components:
  - ❑ Combination drive ([Section 5.6](#))
  - ❑ Strip cover ([Section 5.9](#))
  - ❑ Keyboard ([Section 5.10](#))
  - ❑ Display assembly ([Section 5.14](#))
  - ❑ Base enclosure ([Section 5.15](#))

2. Turn the notebook so that the the rear panel is toward you.
3. Disconnect the speaker cable **1** from the system board.
4. Remove the PM2.5×6.0 screw **2** that secures the speaker to the top cover.



*Disconnecting the Speaker Cable and Removing the Speaker Screw*

5. Lift up the edge ❶ of the speaker until it disengages from the top cover, and then slide the speaker toward you ❷ to remove it.



*Removing the Speaker*

Reverse the above procedure to install the speaker.

## 5.17 LED Board



This procedure only applies to HP Pavilion zv5000 Series and HP Pavilion zx5000 Series Notebooks

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### Spare Part Number Information

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**LED board**

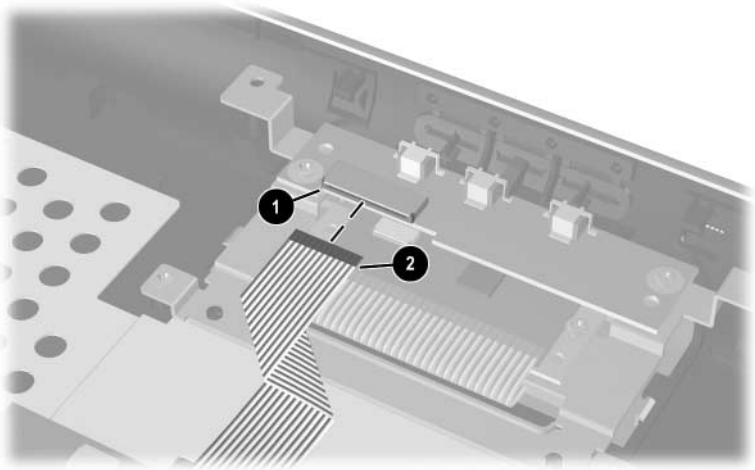
370473-001

---

1. Prepare the notebook for disassembly ([Section 5.3](#)) and remove the following components:
  - Combination drive ([Section 5.6](#))
  - Strip cover ([Section 5.9](#))
  - Keyboard ([Section 5.10](#))
  - Display assembly ([Section 5.14](#))
  - Base enclosure ([Section 5.15](#))
  - Speaker Assembly ([Section 5.16](#))

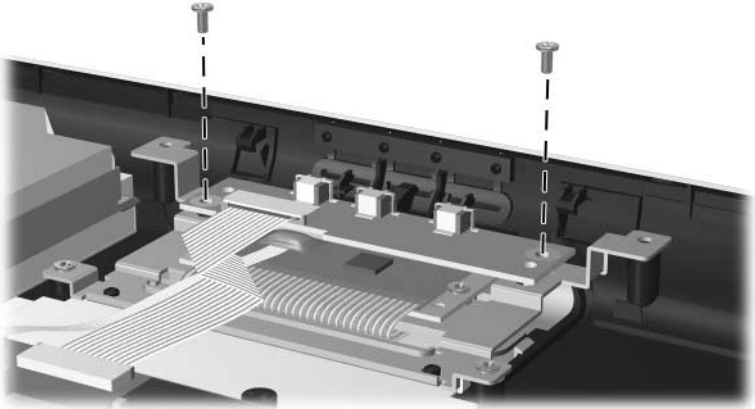


2. Release the ZIF connector ❶ to which the LED cable is attached and disconnect the cable ❷ from the LED board.



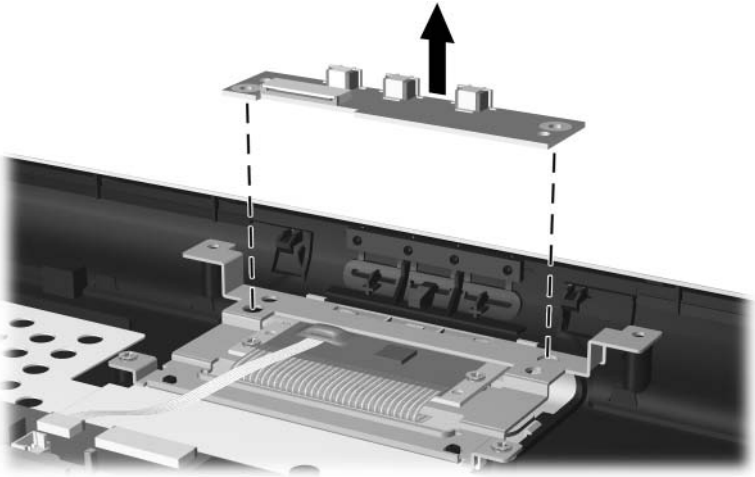
*Disconnecting the LED Cable*

3. Remove the 2 PM2.5×5.0 screws that secure the LED board to the system board.



*Removing the Screws from the LED Board*

4. Lift the LED board straight out of the notebook.



*Removing the LED Board*

Reverse the above procedure to install the LED board.

## 5.18 TouchPad



This procedure only applies to HP Pavilion zv5000 Series and HP Pavilion zx5000 Series Notebooks.

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### Spare Part Number Information

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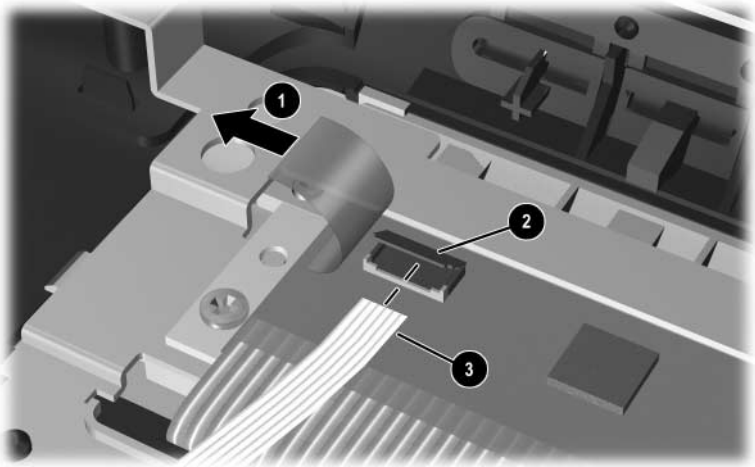
**TouchPad**

370473-001

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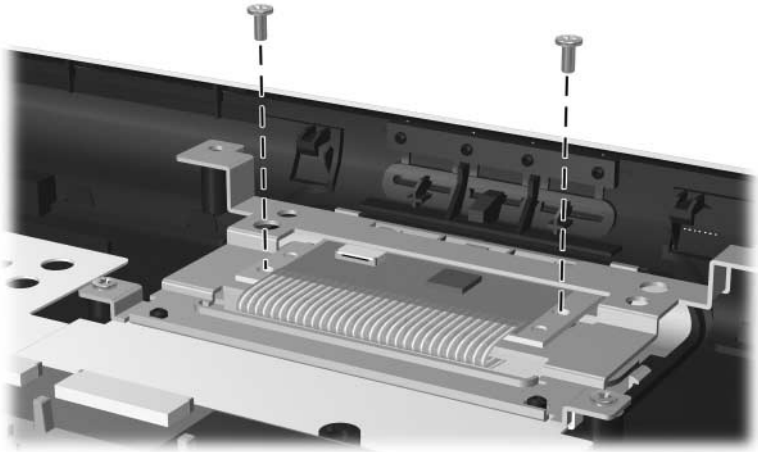
1. Prepare the notebook for disassembly ([Section 5.3](#)) and remove the following components:
  - Combination drive ([Section 5.6](#))
  - Strip cover ([Section 5.9](#))
  - Keyboard ([Section 5.10](#))
  - Display assembly ([Section 5.14](#))
  - Base enclosure ([Section 5.15](#))
  - Speaker assembly ([Section 5.16](#))
  - LED board ([Section 5.17](#))

2. Remove the adhesive tape ❶, release the LIF connector ❷ to which the TouchPad cable is attached, and disconnect the cable ❸ from the TouchPad board.



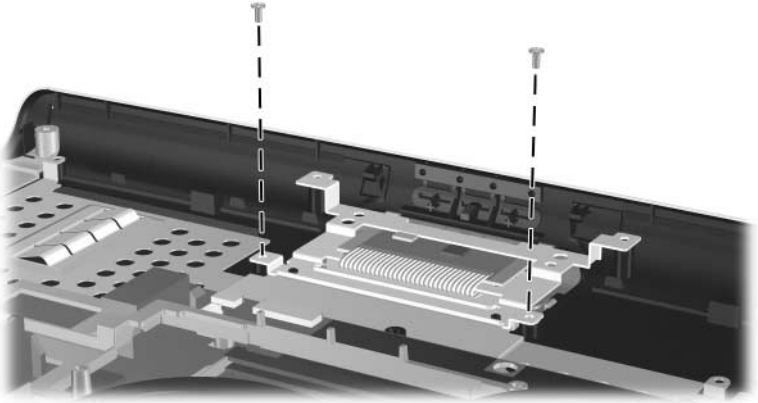
*Disconnecting the TouchPad Cable*

3. Remove the 2 PM2.5×5.0 screws that secure the TouchPad board to the top cover.



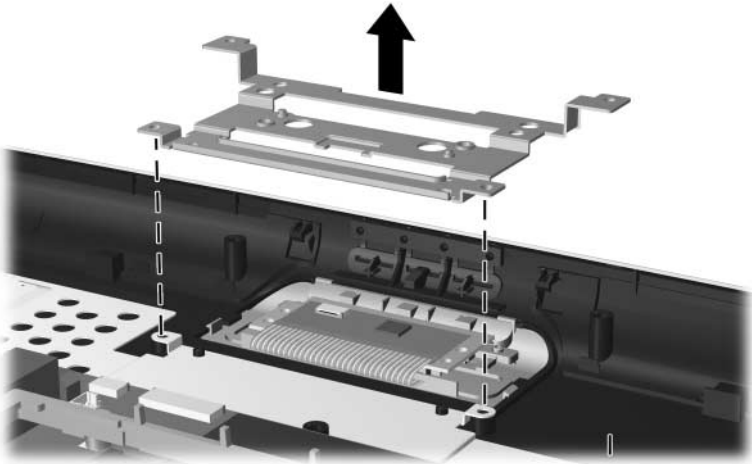
*Removing the Screws from the TouchPad Board*

4. Remove the 2 PM2.5×5.0 screws that secure the TouchPad board bracket to the top cover.



*Removing the Screws from the TouchPad Board Bracket*

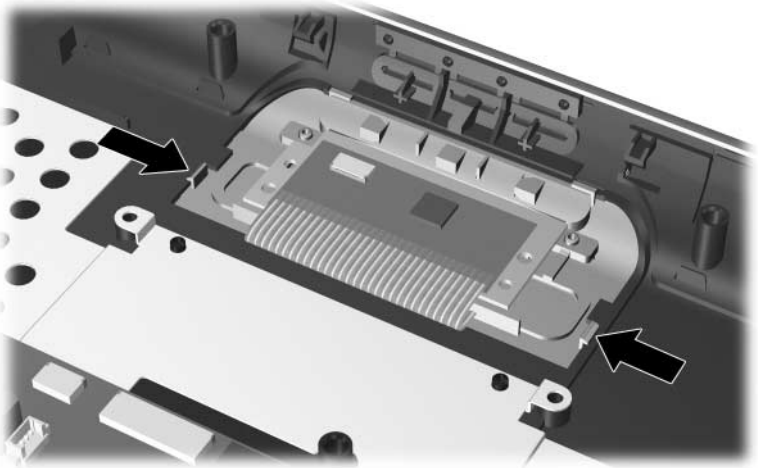
5. Pull the TouchPad bracket straight out of the top cover.



*Removing the TouchPad Board Bracket*

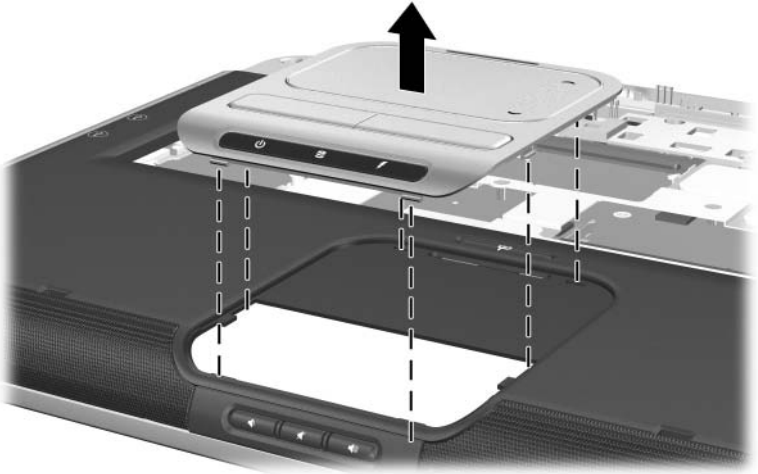


6. Carefully push in the 2 side release latches of the TouchPad to release the TouchPad from the top cover.



*Releasing the TouchPad from the Top Cover*

7. Turn the top cover over, carefully pry the edges of the TouchPad from the top cover, and then remove the TouchPad.



*Removing the Touchpad Assembly*

Reverse the above procedure to install the TouchPad assembly.

## 5.19 System Board

### Spare Part Number Information

#### System boards

For use with HP Pavilion zx5000 "M10" models	370533-001
For use with HP Pavilion zx5000 "M9" models	370531-001
For use with HP Pavilion zv5000 "1620" models	354893-001
For use with HP Pavilion zv5000 "1520" models	354894-001
For use with HP Pavilion zv51xx and zv52xx Series models (full featured)	370475-001
For use with HP Pavilion zv51xx and zv52xx Series models (without infrared)	370477-001
For use with HP Pavilion zx5000 Series models (full featured)	370493-001
For use with HP Pavilion zx5000 Series models (without infrared)	370492-001
For use with HP Compaq Business Notebook nx9100 and nx9110 models	370496-001
For use with HP Compaq Business Notebook nx9105 models	360689-001
For use with Compaq Presario R3200 and HP Compaq Business Notebook nx9110 notebook models (full featured)	370476-001
For use with Compaq Presario R3200 and HP Compaq Business Notebook nx9110 notebook models (without infrared)	370478-001
For use with Compaq Presario R3000 notebook models (full featured)	370495-001
For use with Compaq Presario R3000 notebook models (without infrared)	370494-001
For use with Compaq Presario R3000 "M10" models	370534-001
For use with Compaq Presario R3000 "M9" models	370532-001

<b>PC Card assemblies</b> (not illustrated)	350828-001
For use with HP Pavilion notebook models	350827-001
For use with Compaq Presario R3000 Series models	350828-001



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 modules ([Section 5.5](#) and [5.13](#))
  - Heat sink ([Section 5.7](#))
  - Processor ([Section 5.8](#))
  - Modem board ([Section 5.11](#))
  - Mini PCI communications card ([Section 5.12](#))
  - Fan assembly ([Section 5.20](#))
- 

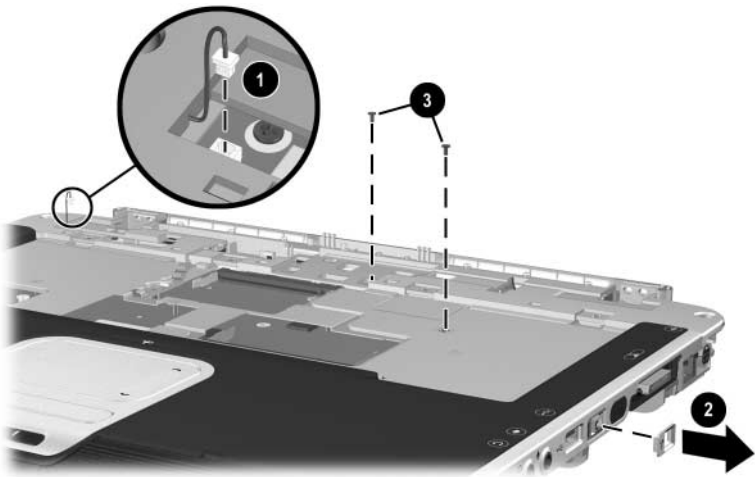
1. Prepare the notebook for disassembly ([Section 5.3](#)) and remove the following components:
  - ❑ Combination drive ([Section 5.6](#))
  - ❑ Strip cover ([Section 5.9](#))
  - ❑ Keyboard ([Section 5.10](#))
  - ❑ Display assembly ([Section 5.14](#))
  - ❑ Base enclosure ([Section 5.15](#))
  - ❑ Speaker assembly ([Section 5.16](#))
2. Turn the top cover right-side up with the rear panel toward you.



Steps 3 through 15 apply only to HP Pavilion notebook models.

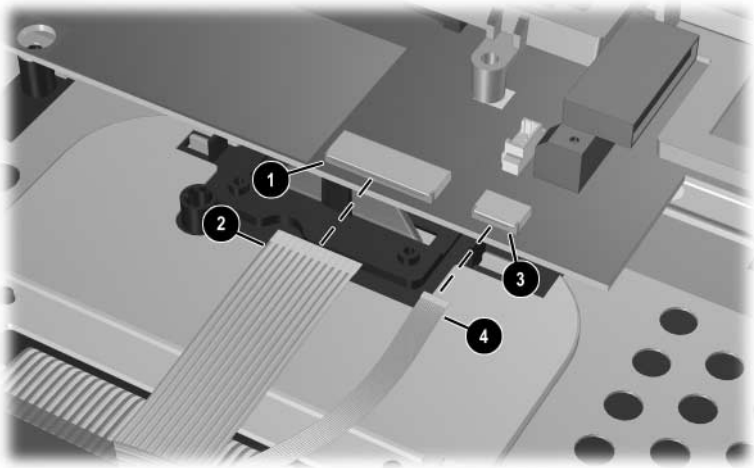
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3. Disconnect the modem cable from the system board **1**.
4. Remove the 1394 bezel **2** or the blank bezel from the top cover.
5. Remove the 2 PM2.5×6.0 screws **3** that secure the system board to the top cover.



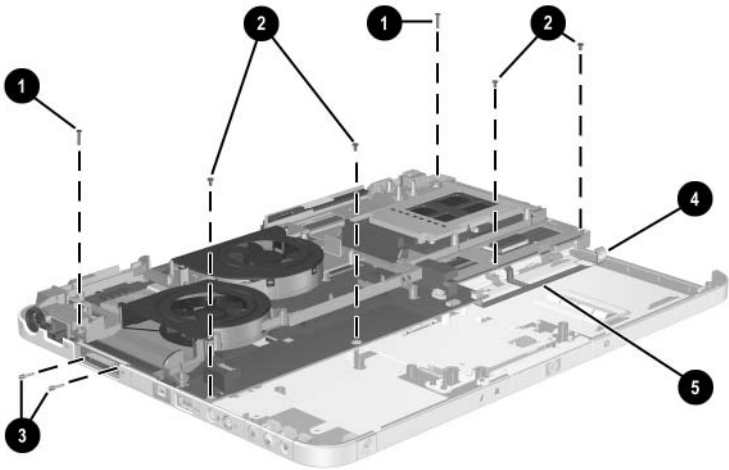
*Removing the System Board Screws on HP Pavilion zv5000 and HP Pavilion zx5000 Notebook Models*

6. Turn the top cover upside down with the rear panel toward you.
7. Release the ZIF connector **1** to which the audio flex cable is attached and disconnect the cable **2** from the system board.
8. Release the ZIF connector **3** to which the TouchPad cable is attached and disconnect the cable **4** from the system board.



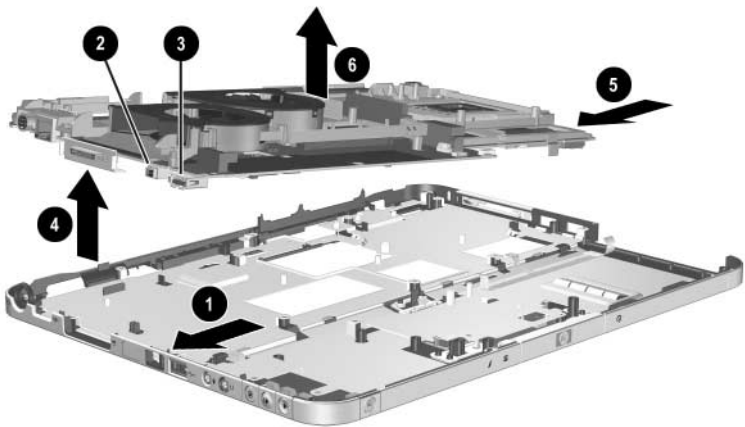
*Disconnecting the Audio and TouchPad Cables on HP Pavilion zv5000 and HP Pavilion zx5000 Notebook Models*

9. Remove the following screws that secure the system board to the top cover:
  - ❶ One PM2.5×13.0 screw
  - ❷ Four PM2.6×6.0 screws
  - ❸ Two slotted PM1.5×10.0 shoulder screws on each side of the port replicator connector
10. Remove the tape ❹ that secures the diskette drive cable top cover shielding.
11. Peel the diskette drive cable ❺ off the top cover shielding.



*Removing the System Board on HP Pavilion zv5000 and HP Pavilion zx5000 Notebook Models*

12. Flex the left side of the top cover **1** to the left until the 1394 **2** and USB ports **3** clear the top cover edge.
13. Lift the left side of the system board **4** until it rests at an angle.
14. Slide the system board away from the top cover at an angle **5** until the right side of the system board clears the top cover.
15. Lift the system board straight up **6** to remove it.



*Removing the System Board on HP Pavilion zv5000 and HP Pavilion zx5000 Notebook Models*

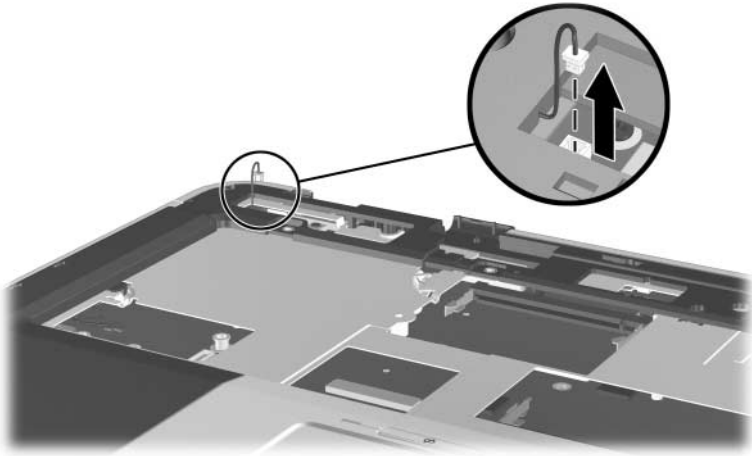




Steps 16 through 28 apply only to HP Compaq Business Notebook nx9100 Series and Compaq Presario R3000 Series models.

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16. Disconnect the modem cable from the system board.



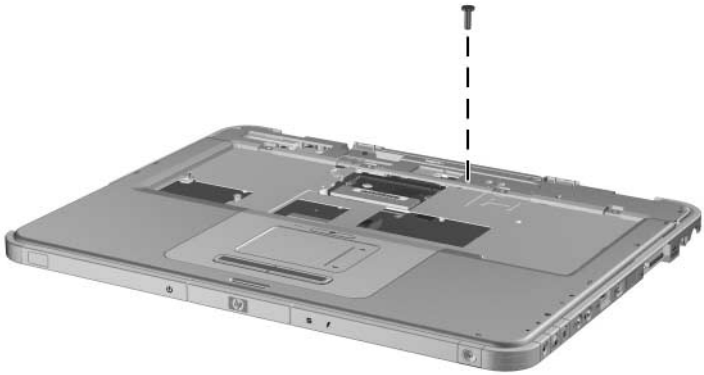
*Disconnecting the Modem Cable on HP Compaq Business Notebook nx9100 Series and Compaq Presario R3000 Series Models*



Step 17 applies only to the HP Compaq Business Notebook nx9105 model, and Compaq Presario R3004 and R31xx notebook models.

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17. Remove the PM2.5×6.0 screw that connects the top cover shield to the system board.



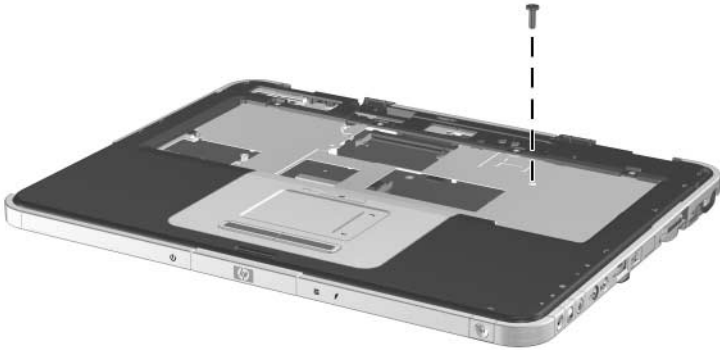
*Removing the Shield Screw on HP Compaq Business Notebook nx9105, Compaq Presario R3004 and R31xx Notebook Models*



Step 18 applies only to the HP Compaq Business Notebook nx9110 model and Compaq Presario R3001, R3002, and R3010 notebook models.

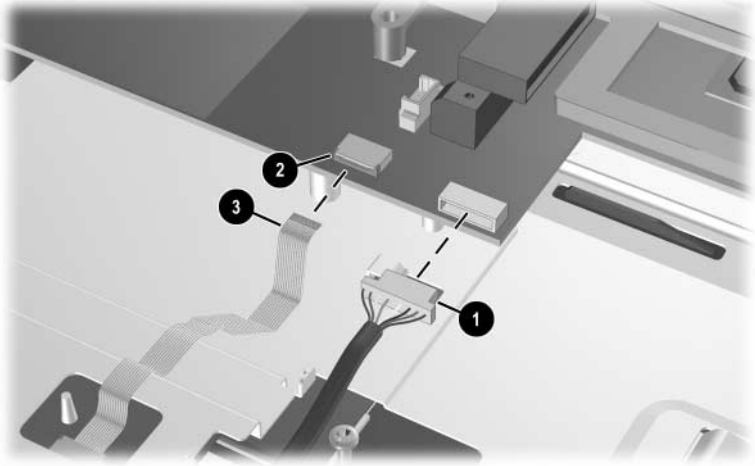
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18. Remove the Philips screw in the center of the shield.



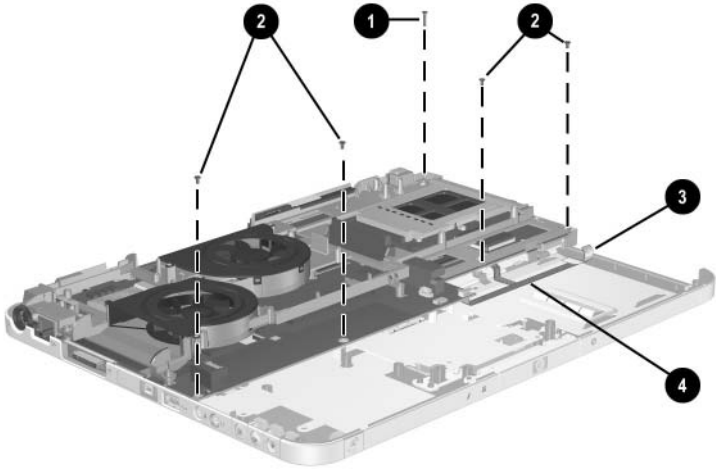
*Removing the Shield Screw on HP Compaq Business Notebook nx9110 and Compaq Presario R3001, 3002, and R3010 Notebooks*

19. Turn the top cover upside down with the front panel toward you.
20. Disconnect the audio cable from the system board **1**.
21. Release the ZIF connector **2** to which the TouchPad cable is attached and disconnect the cable **3** from the system board.



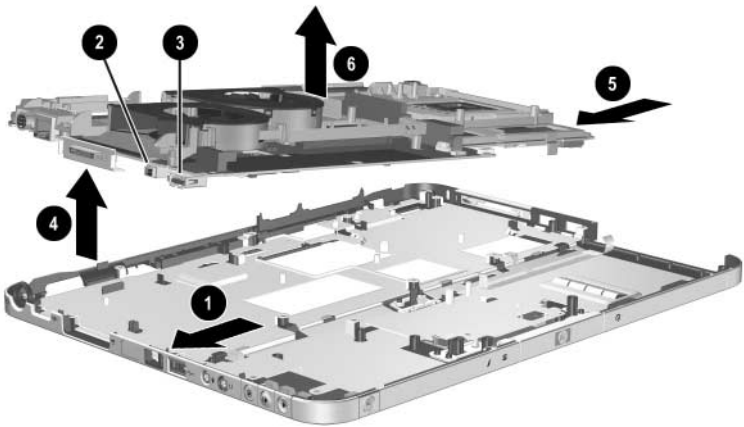
*Disconnecting the Audio and TouchPad Cables on HP Compaq Business Notebook nx9100 Series and Compaq Presario R3000 Series Models*

22. Remove the PM2.5×13.0 screw ❶ and the 4 PM2.5×6.0 screws ❷ that secure the system board to the top cover.
23. Remove the tape ❸ that secures the diskette drive cable top cover shielding.
24. Peel the diskette drive cable ❹ off the top cover shielding.



*Removing the System Board Screws on HP Compaq Business Notebook nx9100 Series and Compaq Presario R3000 Series Models*

25. Flex the left side of the top cover to the left **1** until the 1394 **2** and USB ports **3** clear the top cover edge.
26. Lift the left side of the system board **4** until it rests at an angle.
27. Slide the system board away from the top cover at an angle **5** until the right side of the system board clears the top cover.
28. Lift the system board straight up **6** to remove it.



*Removing the System Board on HP Compaq Business Notebook nx9100 Series and Compaq Presario R3000 Series Models*

Reverse the above procedure to install the system board.

## 5.20 Fan Assembly

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### Spare Part Number Information

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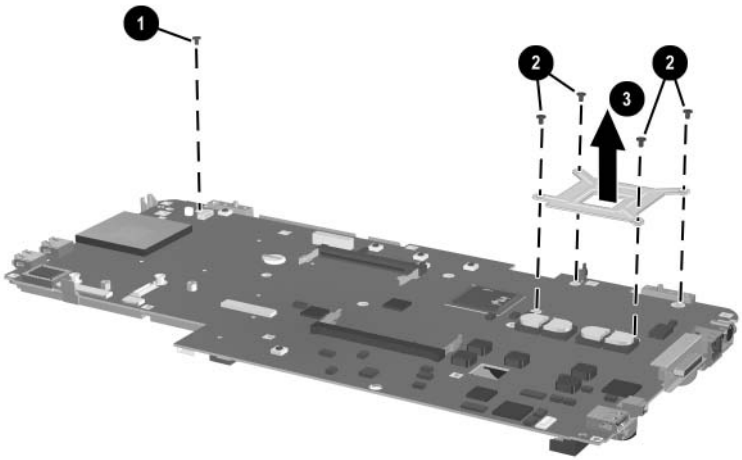
#### Fan assemblies

For use with HP Pavilion zx5000 "M10" models	350781-001
For use with HP Pavilion zx5000 "M9" models	350232-001
For use with HP Pavilion zv5000 models	370489-001
For use with HP Compaq Business Notebook nx9100 Series and Compaq Presario R3000 notebook models	370490-001
For use with Compaq Presario R3000 "M10" models	350782-001
For use with Compaq Presario R3000 "M9" models	350780-001

---

1. Prepare the notebook for disassembly ([Section 5.3](#)) and remove the following components:
  - ❑ Combination drive ([Section 5.6](#))
  - ❑ Strip cover ([Section 5.9](#))
  - ❑ Keyboard ([Section 5.10](#))
  - ❑ Display assembly ([Section 5.14](#))
  - ❑ Base enclosure ([Section 5.15](#))
  - ❑ Speaker assembly ([Section 5.16](#))
  - ❑ System board ([Section 5.19](#))

2. Turn the system board right-side up with the rear panel away from you.
3. Remove the PM2.5×5.0 screw ❶ and the 4 PM2.5×6.0 screws ❷ that secure the fan assembly and processor bracket to the system board.
4. Remove the processor bracket ❸.



*Removing the Fan Assembly Screws*



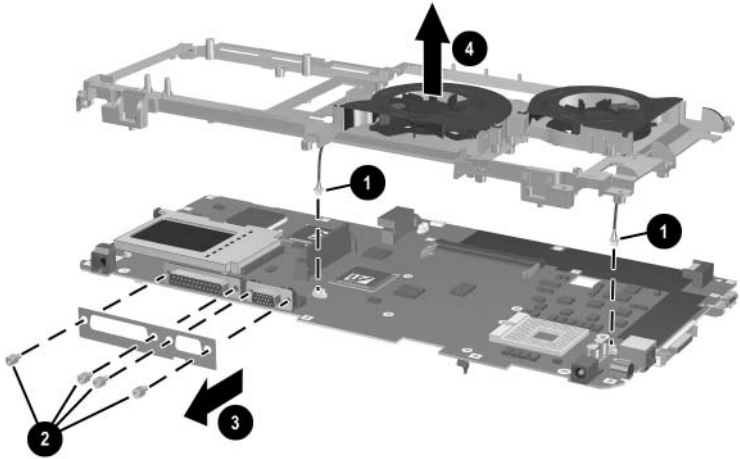
5. Turn the system board upside down with the rear panel toward you.
6. While holding the fan assembly with one hand, disconnect the fan cables **1** from the system board.



Steps 7 and 8 apply only to Pavilion notebook models.

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7. Use a 5.0-mm socket to remove the four 9.0-mm standoffs **2** on each side of the parallel and S-Video connectors.
8. Remove the I/O bracket **3**.
9. Remove the fan assembly **4**.



### Removing the Fan Assembly

Reverse the above procedure to install the fan assembly.

## 5.21 Upper Logic Audio Board

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This procedure only applies to HP Pavilion zv5000 Series and HP Pavilion zx5000 Series Notebooks

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### Spare Part Number Information

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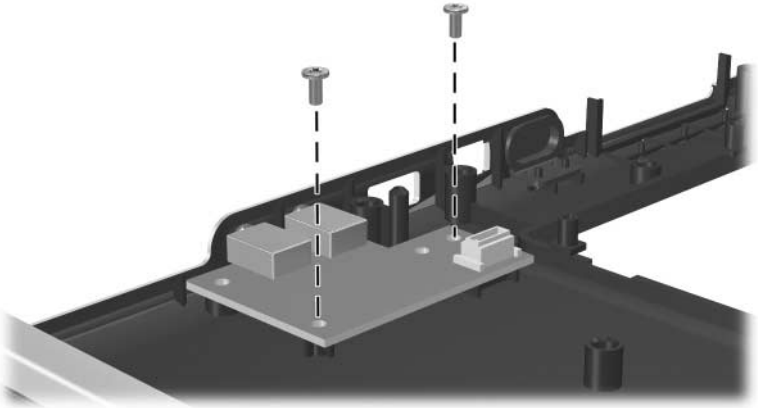
Upper Logic **Audio board**

370474-001

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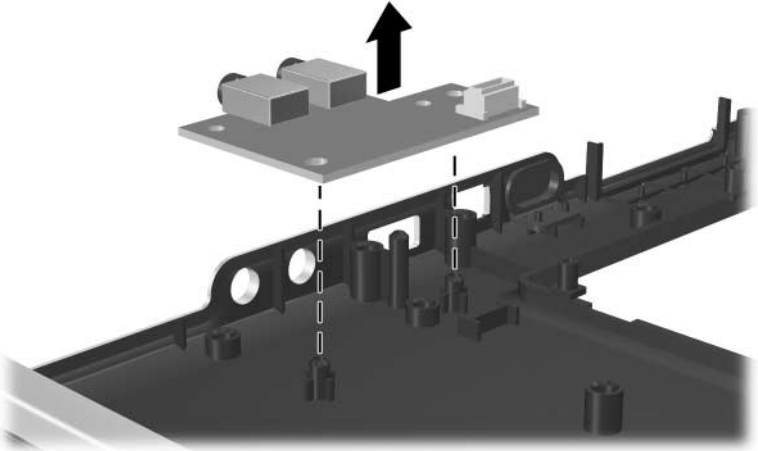
1. Prepare the notebook for disassembly ([Section 5.3](#)) and remove the following components:
  - Combination drive ([Section 5.6](#))
  - Strip cover ([Section 5.9](#))
  - Keyboard ([Section 5.10](#))
  - Display assembly ([Section 5.14](#))
  - Base enclosure ([Section 5.15](#))
  - Speaker assembly ([Section 5.16](#))
  - System board ([Section 5.19](#))
  - Fan assembly ([Section 5.20](#))

2. Remove the 2 PM2.5×5.0 screws that secure the audio board to the chassis.



*Removing the Screws from the Upper Logic Audio Board*

3. Pull the the audio board straight up out of the chassis.



*Removing the Upper Logic Audio Board*

Reverse the above procedure to install the upper logic audio board.

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## Specifications

This chapter provides physical and performance specifications.

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**Table 6-1**  
**HP Pavilion zx5000 Series Notebook**

<b>Dimensions</b>		
Height	5.06 cm	1.99 in
Width	36.20 cm	14.25 in
Depth	28.40 cm	11.18 in
<b>Weight</b>		
With 12-cell battery pack and MultiBay weight saver	3.735 kg	8.236 lb
With 12-cell battery pack and diskette drive	3.866 kg	8.524 lb
With 12-cell battery pack and garage (w/o cage)	3.815 kg	8.412 lb
With 12-cell battery pack and garage (with cage)	3.835 kg	8.456 lb
With 8-cell battery pack and MultiBay weight saver	3.620 kg	7.982 lb
<b>Stand-alone power requirements</b>		
Nominal operating voltage	14.4 V dc	
Maximum operating power	60 W	
Peak operating power	65 W	

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**Table 6-1**

**HP Pavilion zx5000 Series Notebook (Continued)**

**Temperature**

Operating (not writing to optical disc)	0°C to 35°C	32°F to 95°F
Operating (writing to optical disc)	5°C to 35°C	41°F to 95°F
Nonoperating	-20°C to 60°C	-4°F to 140°F

**Relative humidity (noncondensing)**

Operating	10% to 90%
Nonoperating	5% to 95%, 38.7° C (101.6° F) maximum wet bulb temperature

**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 voltage	0.75 g
Operating current	1.50 g



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

**Table 6-2**  
**HP Pavilion zv5000 Series Notebook**

**Dimensions**

Height	5.06 cm	1.99 in
Width	36.20 cm	14.25 in
Depth	28.4 cm	11.18 in

**Weight**

With 12-cell battery pack and MultiBay weight saver	3.712 kg	8.185 lb
With 12-cell battery pack and diskette drive	3.843 kg	8.473 lb
With 12-cell battery pack and garage (w/o cage)	3.792 kg	8.361 lb
With 12-cell battery pack and garage (with cage)	3.812 kg	8.405 lb
With 8-cell battery pack and MultiBay weight saver	3.597 kg	7.932 lb

**Stand-alone power requirements**

Nominal operating voltage	14.4 V dc
Maximum operating power	60 W
Peak operating power	65 W

**Temperature**

Operating (not writing to optical disc)	0°C to 35°C	32°F to 95°F
Operating (writing to optical disc)	5°C to 35°C	41°F to 95°F
Nonoperating	-20°C to 60°C	-4°F to 140°F

**Relative humidity (noncondensing)**

Operating	10% to 90%
Nonoperating	5% to 95%, 38.7° C (101.6° F) maximum wet bulb temperature

---

**Table 6-2**

**HP Pavilion zv5000 Series Notebook (Continued)**

---

**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 voltage	0.75 g
Operating current	1.50 g

---



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

---



**Table 6-3****HP Compaq Business Notebook nx9100 Series****Dimensions**

Height	5.06 cm	1.99 in
Width	36.20 cm	14.25 in
Depth	28.16 cm	11.09 in

**Weight**

With 12-cell battery pack and MultiBay weight saver	3.646 kg	8.040 lb
With 12-cell battery pack and diskette drive	3.777 kg	8.328 lb
With 12-cell battery pack and garage (w/o cage)	3.726 kg	8.216 lb
With 12-cell battery pack and garage (with cage)	3.746 kg	8.260 lb
With 8-cell battery pack and MultiBay weight saver	3.531 kg	7.786 lb

**Stand-alone power requirements**

Nominal operating voltage	14.4 V dc
Maximum operating power	60 W
Peak operating power	65 W

**Temperature**

Operating (not writing to optical disc)	0°C to 35°C	32°F to 95°F
Operating (writing to optical disc)	5°C to 35°C	41°F to 95°F
Nonoperating	-20°C to 60°C	-4°F to 140°F

**Relative humidity (noncondensing)**

Operating	10% to 90%
Nonoperating	5% to 95%, 38.7° C (101.6° F) maximum wet bulb temperature

---

**Table 6-3**

**HP Compaq Business Notebook nx9100 Series (Continued)**

---

**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 voltage	0.75 g
Operating current	1.50 g

---



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

---

**Table 6-4**  
**Compaq Presario R3000 Notebook**

**Dimensions**

Height	5.06 cm	1.99 in
Width	36.20 cm	14.25 in
Depth	28.40 cm	11.18 in

**Weight**

With 12-cell battery pack and MultiBay weight saver	3.669 kg	8.090 lb
With 12-cell battery pack and diskette drive	3.80 kg	8.379 lb
With 12-cell battery pack and garage (w/o cage)	3.749 kg	8.267 lb
With 12-cell battery pack and garage (with cage)	3.769 kg	8.311 lb
With 8-cell battery pack and MultiBay weight saver	3.555 kg	7.837 lb

**Stand-alone power requirements**

Nominal operating voltage	14.4 V dc
Maximum operating power	60 W
Peak operating power	65 W

**Temperature**

Operating (not writing to optical disc)	0°C to 35°C	32°F to 95°F
Operating (writing to optical disc)	5°C to 35°C	41°F to 95°F
Nonoperating	-20°C to 60°C	-4°F to 140°F

**Relative humidity (noncondensing)**

Operating	10% to 90%
Nonoperating	5% to 95%, 38.7° C (101.6° F) maximum wet bulb temperature

---

**Table 6-4**  
**Compaq Presario R3000 Notebook (Continued)**

---

**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 voltage	0.75 g
Operating current	1.50 g

---



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

---

**Table 6-5**  
**14.1" XGA, TFT Display**

<b>Dimensions</b>		
Height	28.6 cm	11.2 in
Width	21.4 cm	8.4 in
Diagonal	35.7 cm	14.1 in
<b>Number of colors</b>	Up to 16.8 million	
<b>Contrast ratio</b>	250:1	
<b>Refresh rate</b>	60 Hz	
<b>Brightness</b>	180 nits typical	
<b>Pixel resolution</b>		
Pitch	0.204 × 0.204 mm	
Format	1400 × 1050	
Configuration	RGB stripe	
<b>Backlight</b>	CCFT	
<b>Character display</b>	80 × 25	
<b>Total power consumption</b>	4 W	
<b>Viewing angle</b>	±40° horizontal, +20/-40° vertical typical	

---

**Table 6-6**  
**15.0" XGA (1024x768), TFT Display**

---

<b>Dimensions</b>		
Height	28.6 cm	11.2 in
Width	21.4 cm	8.4 in
Diagonal	35.7 cm	15.0 in
<b>Number of colors</b>	Up to 16.8 million	
<b>Contrast ratio</b>	250:1	
<b>Refresh rate</b>	60 Hz	
<b>Brightness</b>	180 nits typical	
<b>Pixel resolution</b>		
Pitch	0.204 × 0.204 mm	
Format	1024 × 768	
Configuration	RGB stripe	
<b>Backlight</b>	CCFT	
<b>Character display</b>	80 × 25	
<b>Total power consumption</b>	4 W	
<b>Viewing angle</b>	±40° horizontal, +20/-40° vertical typical	

---

**Table 6-7**  
**15.4" WXGA, TFT Display**

<b>Dimensions</b>		
Height	20.7 cm	8.1 in
Width	33.1 cm	13.0 in
Diagonal	39.1 cm	15.4 in
<b>Number of colors</b>	Up to 16.8 million	
<b>Contrast ratio</b>	200:1	
<b>Refresh rate</b>	60 Hz	
<b>Brightness</b>	180 nits typical	
<b>Pixel resolution</b>		
Pitch	0.259 × 0.259 mm	
Format	1280 × 800	
Configuration	RGB vertical stripe	
<b>Backlight</b>	Edge lit	
<b>Character display</b>	80 × 25	
<b>Total power consumption</b>	4 W	
<b>Viewing angle</b>	±65° horizontal, ±50° vertical typical	

---

**Table 6-8**  
**15.4" WXGA WVA (1280x800), TFT Display**

---

<b>Dimensions</b>		
Height	20.7 cm	8.1 in
Width	33.1 cm	13.0 in
Diagonal	39.1 cm	15.4 in
<b>Number of colors</b>	Up to 16.8 million	
<b>Contrast ratio</b>	200:1	
<b>Refresh rate</b>	60 Hz	
<b>Brightness</b>	180 nits typical	
<b>Pixel resolution</b>		
Pitch	0.204 × 0.204 mm	
Format	1280 × 800	
Configuration	RGB stripe	
<b>Backlight</b>	CCFT	
<b>Character display</b>	80 × 25	
<b>Total power consumption</b>	4 W	
<b>Viewing angle</b>	±65° horizontal, ±50° vertical typical	

---



**Table 6-9**  
**15.4" WXGA WVA BrightView (1280x800)**

<b>Dimensions</b>		
Height	28.6 cm	11.2 in
Width	21.4 cm	8.4 in
Diagonal	35.7 cm	14.1 in
<b>Number of colors</b>	Up to 16.8 million	
<b>Contrast ratio</b>	250:1	
<b>Refresh rate</b>	60 Hz	
<b>Brightness</b>	180 nits typical	
<b>Pixel resolution</b>		
Pitch	0.204 × 0.204 mm	
Format	1280 × 800	
Configuration	RGB stripe	
<b>Backlight</b>	CCFT	
<b>Character display</b>	80 × 25	
<b>Total power consumption</b>	4 W	
<b>Viewing angle</b>	±40° horizontal, +20/-40° vertical typical	

**Table 6-10**  
**15.4" WSXGA+ WVA (1680x1050)**

<b>Dimensions</b>		
Height	28.6 cm	11.2 in
Width	21.4 cm	8.4 in
Diagonal	35.7 cm	14.1 in
<b>Number of colors</b>	Up to 16.8 million	
<b>Contrast ratio</b>	250:1	
<b>Refresh rate</b>	60 Hz	
<b>Brightness</b>	180 nits typical	
<b>Pixel resolution</b>		
Pitch	0.204 × 0.204 mm	
Format	1680 × 1050	
Configuration	RGB stripe	
<b>Backlight</b>	CCFT	
<b>Character display</b>	80 × 25	
<b>Total power consumption</b>	4 W	
<b>Viewing angle</b>	±40° horizontal, +20/-40° vertical typical	

**Table 6-11**  
**15.4" WUXGA WVA (1920x1200)**

<b>Dimensions</b>		
Height	28.6 cm	11.2 in
Width	21.4 cm	8.4 in
Diagonal	35.7 cm	14.1 in
<b>Number of colors</b>	Up to 16.8 million	
<b>Contrast ratio</b>	250:1	
<b>Refresh rate</b>	60 Hz	
<b>Brightness</b>	180 nits typical	
<b>Pixel resolution</b>		
Pitch	0.279 × 0.279 mm	
Format	1920 × 1200	
Configuration	RGB stripe	
<b>Backlight</b>	CCFT	
<b>Character display</b>	80 × 25	
<b>Total power consumption</b>	4 W	
<b>Viewing angle</b>	±40° horizontal, +20/-40° vertical typical	

**Table 6-12**  
**Hard Drive**

	80-GB	80-GB	60-GB
<b>User capacity per drive*</b>	80 GB	80 GB	60GB
<b>Dimensions</b>			
Height	9.5 mm	9.5 mm	9.5 mm
Width	70 mm	70 mm	70 mm
Weight	99 g	99 g	99 g
<b>Interface type</b>	ATA-5	ATA-5	ATA-5
<b>Transfer rate</b>			
Synchronous (maximum)	100 MB/sec	100 MB/sec	100 MB/sec
Security	ATA security	ATA security	ATA security
<b>Seek times (typical read, including setting)</b>			
Single track			3 ms
Average			13 ms
Maximum			24 ms
<b>Logical blocks<sup>†</sup></b>			117,210,240
<b>Disk rotational speed</b>	5400 rpm	4200 rpm	5400 rpm
<b>Operating temperature</b>	5°C to 55°C (41°F to 131°F)	5°C to 55°C (41°F to 131°F)	5°C to 55°C (41°C to 131°F)

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

<sup>†</sup>Actual drive specifications may differ slightly.

**Table 6-12**  
**Hard Drive (Continued)**

	60-GB	40-GB	30-GB
<b>User capacity per drive*</b>	60 GB	40 GB	30 GB
<b>Dimensions</b>			
Height	9.5 mm	9.5 mm	9.5 mm
Width	70 mm	70 mm	70 mm
Weight	99 g	99 g	99 g
<b>Interface type</b>	ATA-5	ATA-5	ATA-5
<b>Transfer rate</b>			
Synchronous (maximum)	100 MB/sec	100 MB/sec	100 MB/sec
Security	ATA security	ATA security	ATA security
<b>Seek times</b> (typical read, including setting)			
Single track		3 ms	2.5 ms
Average		13 ms	12 ms
Maximum		24 ms	23 ms
<b>Logical blocks<sup>†</sup></b>	117,210,240	78,140,160	58,605,120
<b>Disk rotational speed</b>	4200 rpm	4200 rpm	4200 rpm
<b>Operating temperature</b>	5°C to 55°C (41°F to 131°F)	5°C to 55°C (41°F to 131°F)	5°C to 55°C (41°C to 131°F)

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

<sup>†</sup>Actual drive specifications may differ slightly.

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**Table 6-13**  
**External AC Adapter**

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<b>Weight</b>	0.29 kg	0.65 lb
<b>Power supply</b>		
Operating voltage	90 to 264 VAC RMS	
Operating current	1.6 A RMS	
Operating frequency range	47 to 63 Hz AC	
Maximum transient	4/50 kV	

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**Table 6-14**  
**8-cell Li-Ion Battery Pack**

---

<b>Dimensions</b>		
Height	1.90 cm	0.75 in
Width	7.60 cm	3.00 in
Depth	14.70 cm	5.80 in
Weight	0.43 kg	0.94 lb
<b>Energy</b>		
Voltage	14.4 V	
Amp-hour capacity	4.4 Ah	
Watt-hour capacity	65 Wh	
<b>Temperature</b>		
Operating	5°C to 45°C	41°F to 113°F
Nonoperating	0°C to 60°C	32°F to 140°F

---

---

**Table 6-15**  
**Optional MultiBay 8-cell Li-Ion Battery Pack**

---

**Dimensions**

Height	1.30 cm	0.50 in
Width	13.20 cm	5.20 in
Depth	13.90 cm	5.45 in
Weight	0.39 kg	0.86 lb

---

**Energy**

Voltage	14.8 V
Amp-hour capacity	6.6 Ah
Watt-hour capacity	96 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 6-16**  
**12-cell Li-Ion Battery Pack**

<b>Dimensions</b>		
Height	2.01 cm	0.75 in
Width	11.45 cm	4.50 in
Depth	21.24 cm	6.00 in
Weight	0.64 kg	1.40 lb
<b>Energy</b>		
Voltage	14.8 V	
Amp-hour capacity	4.4 Ah	
Watt-hour capacity	65 Wh	
<b>Temperature</b>		
Operating	5°C to 45°C	41°F to 113°F
Nonoperating	0°C to 60°C	32°F to 140°F

**Table 6-17**  
**High Capacity 12-cell Li-Ion Battery Pack**

<b>Dimensions</b>		
Height	2.01 cm	0.75 in
Width	11.45 cm	4.50 in
Depth	21.24 cm	6.00 in
Weight	0.64 kg	1.40 lb
<b>Energy</b>		
Voltage	14.8 V	
Amp-hour capacity	6.6 Ah	
Watt-hour capacity	98 Wh	
<b>Temperature</b>		
Operating	5°C to 45°C	41°F to 113°F
Nonoperating	0°C to 60°C	32°F to 140°F



**Table 6-18**  
**24X Max DVD+RW/R and CD-RW Combo Drive**

<b>Applicable disc</b>	DVD-5, DVD-9, DVD-10 CD-ROM (Mode 1 and 2) CD Digital Audio CD-XA ready (Mode 2, Form 1 and 2) CD-I ready (Mode 2, Form 1 and 2) CD-R (read only) CD Plus Photo CD (single/multisession) CD-Bridge	
<b>Center hole diameter</b>	1.5 cm	0.59 in
<b>Disc diameter</b>		
Standard disc	12 cm	4.72 in
Mini disc	8 cm	3.15 in
<b>Disc thickness</b>	1.2 mm	0.047 in
<b>Track pitch</b>	0.74 $\mu$ m	
<b>Access time</b>		
Random	< 150 ms	
Full stroke	< 225 ms	
<b>Audio output level</b>	Line-out, 0.7 Vrms	
<b>Cache buffer</b>	128 KB/s	
<b>Data transfer rate</b>		
CD-R (24X)	3,600 KB/s (150 KB/s at 1X CD rate)	
CD-RW (10X)	1,500 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)	
Multiword DMA mode 2	16.6 MB/s	
<b>Startup time</b>	< 15 seconds	
<b>Stop time</b>	< 6 seconds	

**Table 6-19**  
**24X Max DVD/CD-RW Combo Drive**

<b>Applicable disc</b>	DVD-5, DVD-9, DVD-10 CD-ROM (Mode 1 and 2) CD Digital Audio CD-XA ready (Mode 2, Form 1 and 2) CD-I ready (Mode 2, Form 1 and 2) CD-R (read only) CD Plus Photo CD (single/multisession) CD-Bridge	
<b>Center hole diameter</b>	1.5 cm	0.59 in
<b>Disc diameter</b>		
Standard disc	12 cm	4.72 in
Mini disc	8 cm	3.15 in
<b>Disc thickness</b>	1.2 mm	0.047 in
<b>Track pitch</b>	0.74 $\mu$ m	
<b>Access time</b>		
Random	< 150 ms	
Full stroke	< 225 ms	
<b>Audio output level</b>	Line-out, 0.7 Vrms	
<b>Cache buffer</b>	128 KB/s	
<b>Data transfer rate</b>		
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	
<b>Startup time</b>	< 15 seconds	
<b>Stop time</b>	< 6 seconds	

**Table 6-20**  
**8X Max DVD-ROM Drive**

<b>Applicable disc</b>	DVD-5, DVD-9, DVD-10 CD-ROM (Mode 1 and 2) CD Digital Audio CD-XA ready (Mode 2, Form 1 and 2) CD-I ready (Mode 2, Form 1 and 2) CD-R (read only) CD Plus Photo CD (single/multisession) CD-Bridge	
<b>Center hole diameter</b>	1.5 cm	0.59 in
<b>Disc diameter</b>		
Standard disc	12 cm	4.72 in
Mini disc	8 cm	3.15 in
<b>Disc thickness</b>	1.2 mm	0.047 in
<b>Track pitch</b>	0.74 $\mu$ m	
<b>Access time</b>		
Random DVD media	< 150 ms	
Full stroke DVD media	< 225 ms	
Random CD media	< 110 ms	
Full stroke CD media	< 200 ms	
<b>Audio output level</b>	Line-out, 0.7 Vrms	
<b>Cache buffer</b>	512 KB/s	
<b>Data transfer rate</b>		
Max 24X CD	3600 KB/s (150 KB/s at 1X CD rate)	
Max 8X DVD	10,800 KB/s (1352 KB/s at 1X DVD rate)	
Multiword DMA mode 2	16.6 MB/s	
<b>Startup time</b>	< 10 seconds	
<b>Stop time</b>	< 3 seconds	

**Table 6-21**  
**24X Max CD-ROM Drive**

<b>Applicable disc</b>	DVD-5, DVD-9, DVD-10 CD-ROM (Mode 1 and 2) CD Digital Audio CD-XA ready (Mode 2, Form 1 and 2) CD-I ready (Mode 2, Form 1 and 2) CD-R (read only) CD Plus Photo CD (single/multisession) CD-Bridge	
<b>Center hole diameter</b>	1.5 cm	0.59 in
<b>Disc diameter</b>		
Standard disc	12 cm	4.72 in
Mini disc	8 cm	3.15 in
<b>Disc thickness</b>	1.2 mm	0.047 in
<b>Track pitch</b>	1.6 $\mu$ m	
<b>Access time</b>		
Random	< 150 ms	
Full stroke	< 300 ms	
<b>Audio output level</b>	Line-out, 0.7 Vrms	
<b>Cache buffer</b>	128 KB/s	
<b>Data transfer rate</b>		
Sustained (16X)	2400 KB/s	
Variable	1500 to 3600 KB/s (10X to 24X)	
Multiword DMA mode 2	16.6 MB/s	
<b>Startup time</b>	< 8 seconds	
<b>Stop time</b>	< 4 seconds	

---

**Table 6-22**  
**System DMA**

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

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

---

**Table 6-23**  
**System Interrupts**

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



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

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

**Table 6-24**  
**System I/O Addresses**

<b>I/O Address (hex)</b>	<b>System Function (shipping configuration)</b>
000—00F	DMA controller no. 1
010—01F	Unused
020—021	Interrupt controller no. 1
022—024	Opti chipset configuration registers
025—03F	Unused
02E—02F	87334 “Super I/O” configuration for CPU
040—05F	Counter/timer registers
044—05F	Unused
060	Keyboard controller
061	Port B
062—063	Unused
064	Keyboard controller
065—06F	Unused
070—071	NMI enable/real time clock (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 6-24**  
**System I/O Addresses (Continued)**

<b>I/O Address (hex)</b>	<b>System Function (shipping configuration)</b>
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 6-24**  
**System I/O Addresses (Continued)**

<b>I/O Address (hex)</b>	<b>System Function (shipping configuration)</b>
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)

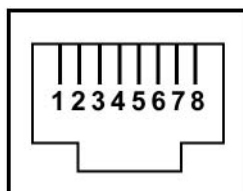
# A

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## Connector Pin Assignments

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**Table A-1**  
**RJ-45 (Network)**

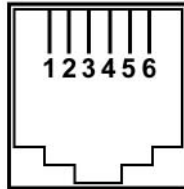


<b>Pin</b>	<b>Signal</b>	<b>Pin</b>	<b>Signal</b>
1	Transmit +	5	Unused
2	Transmit -	6	Receive -
3	Receive +	7	Unused
4	Unused	8	Unused

---

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**Table A-2**  
**RJ-11 (Modem)**

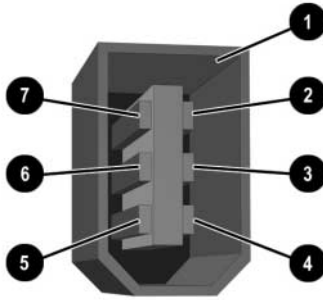


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<b>Pin</b>	<b>Signal</b>	<b>Pin</b>	<b>Signal</b>
1	Unused	4	Unused
2	Tip	5	Unused
3	Ring	6	Unused

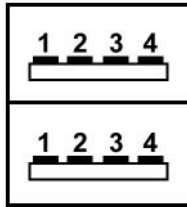
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**Table A-3**  
**IEEE 1394**



Pin	Signal	Pin	Signal
1	S-GND	5	TPA-
2	GND	6	TPB-
3	TPB+	7	VP
4	TPA+		

**Table A-4**  
**Universal Serial Bus**



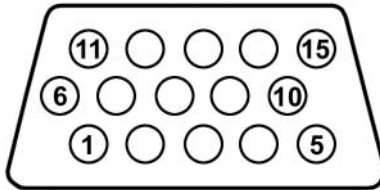
Pin	Signal	Pin	Signal
1	+5 VDC	3	Data +
2	Data -	4	Ground

**Table A-5**  
**S-Video**



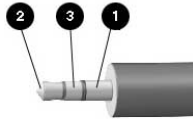
Pin	Signal	Pin	Signal
1	Ground (Y)	3	Y-Luminance (Intensity)
2	Ground (C)	4	C-Chrominance (Color)

**Table A-6**  
**External Monitor**



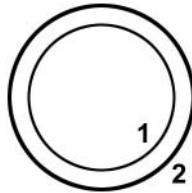
Pin	Signal	Pin	Signal
1	Red analog	9	+5 VDC
2	Green analog	10	Ground
3	Blue analog	11	Monitor detect
4	Not connected	12	DDC 2B data
5	Ground	13	Horizontal sync
6	Ground analog	14	Vertical sync
7	Ground analog	15	DDC 2B clock
8	Ground analog		

**Table A-7**  
**Audio-Out (Headphone)**



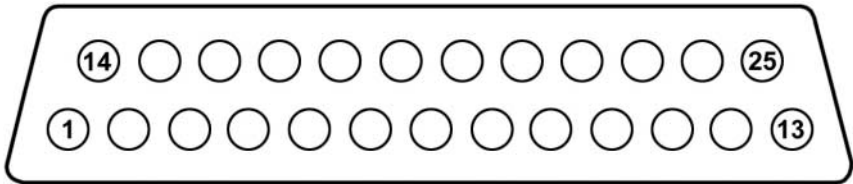
Pin	Signal	Pin	Signal
1	Ground	3	Right audio signal
2	Left audio signal		

**Table A-8**  
**Audio-In (Microphone)**



Pin	Signal	Pin	Signal
1	Audio in	2	Ground

**Table A-9**  
**Parallel**



Pin	Signal	Pin	Signal
1	Strobe	14	Auto linefeed
2	Data bit 0	15	Error
3	Data bit 1	16	Initialize paper
4	Data bit 2	17	Select in
5	Data bit 3	18	Ground
6	Data bit 4	19	Ground
7	Data bit 5	20	Ground
8	Data bit 6	21	+5VS
9	Data bit 7	22	PTF
10	Acknowledge	23	EXTFDD_VCC (+5V)
11	Busy	24	Ground
12	Paper end	25	Ground
13	Select		



---

## Power Cord Set Requirements

The wide range input feature of the notebook permits it to operate from any line voltage from 100 to 120 or 220 to 240 V 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

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## 3-Conductor Power Cord Set Requirements

---

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

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

Country	Accredited Agency	Applicable Note Number
United Kingdom	BSI	1
United States	UL	2

#### Notes

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

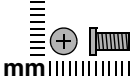

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## Screw Listing

This appendix provides specification and reference information for the screws used in the notebook. All screws listed in this appendix are available in the Miscellaneous Screw Kit:

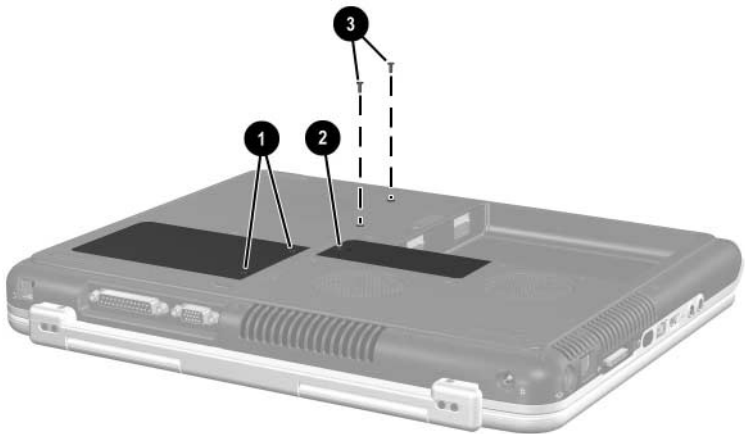
- Spare part number 350222-001 for use with HP Pavilion zx5000 Series and zv50xx notebook models, HP Compaq Business Notebook nx9110 model, and Compaq Presario R3001, R3002, and R3010 notebook models.
- Spare part number 360703-001 for use with HP Pavilion zv51xx notebook models, HP Compaq Business Notebook nx9105 model, and Compaq Presario R3004 and R31xx notebook models.

**Table C-1**  
**Phillips M2.5x6.0 Screw**

 mm 	Color	Qty.	Length	Thread	Head Width
	Black	46	6.0 mm	2.0 mm	4.0 mm

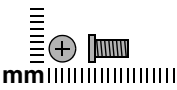
**Where used:**

- ❶ Two screws that secure the hard drive cover to the hard drive (documented in [Section 5.3](#))
- ❷ One screw that secures the memory module compartment cover to the notebook (documented in [Section 5.5](#))
- ❸ Two screws that secure the combination drive to the notebook (documented in [Section 5.6](#))



*Phillips PM2.5x6.0 Screw Locations*

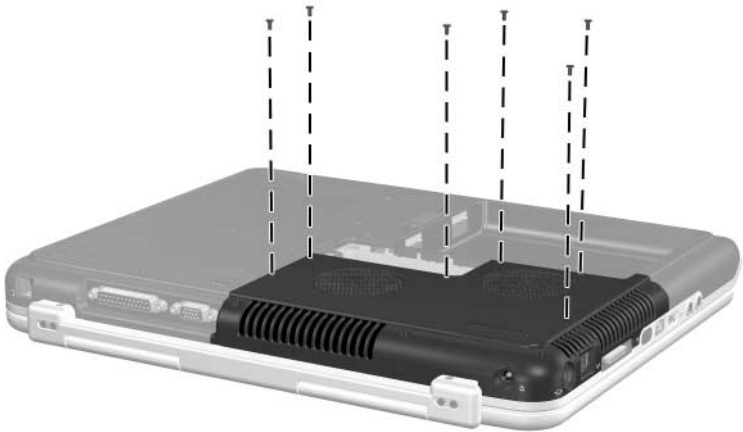
**Table C-1**  
**Phillips PM2.5×6.0 Screw (Continued)**

	Color	Qty.	Length	Thread	Head Width
	Black	46	6.0 mm	2.5 mm	4.0 mm

**Where used:**

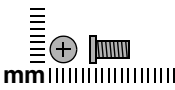
**Pavilion notebook models only**

6 screws that secure the heat sink cover to the notebook  
 (documented in [Section 5.7](#))



*Phillips PM2.5×6.0 Screw Locations*

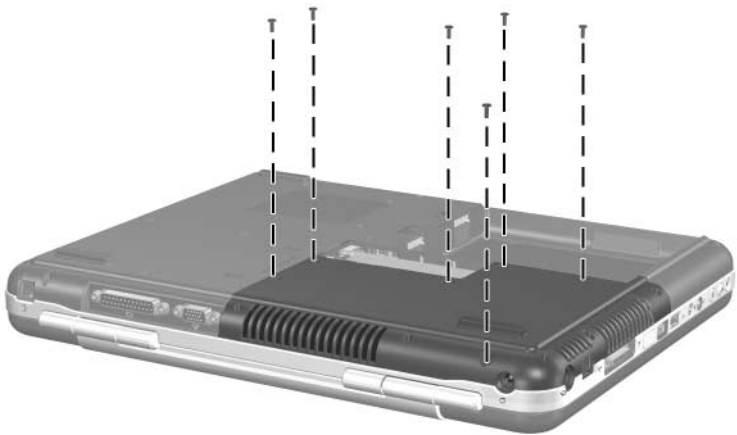
**Table C-1**  
**Phillips PM2.5x6.0 Screw (Continued)**

	Color	Qty.	Length	Thread	Head Width
	Black	46	6.0 mm	2.5 mm	4.0 mm

**Where used:**

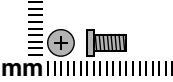
**HP Compaq Business Notebook nx9100 Series and Compaq Presario R3000 Series models only**

6 screws that secure the heat sink cover to the notebook  
 (documented in [Section 5.7](#))



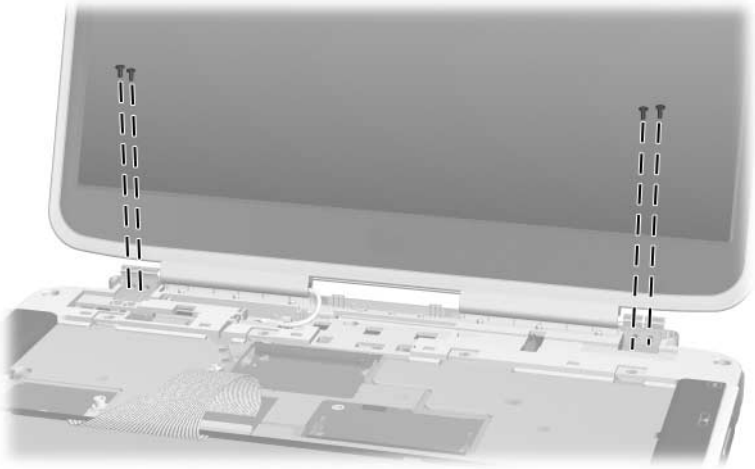
*Phillips PM2.5x6.0 Screw Locations*

**Table C-1**  
**Phillips PM2.5x6.0 Screw (Continued)**

	Color	Qty.	Length	Thread	Head Width
	Black	46	6.0 mm	2.5 mm	4.0 mm

**Where used:**

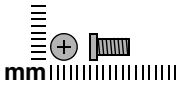
4 screws that secure the display assembly to the notebook  
 (documented in [Section 5.14](#))



*Phillips PM2.5x6.0 Screw Locations*



**Table C-1**  
**Phillips PM2.5x6.0 Screw (Continued)**



Color	Qty.	Length	Thread	Head Width
Black	46	6.0 mm	2.5 mm	4.0 mm

**Where used:**

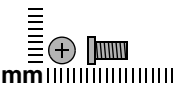
**HP Pavilion notebook models only**

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



*Phillips PM2.5x6.0 Screw Locations*

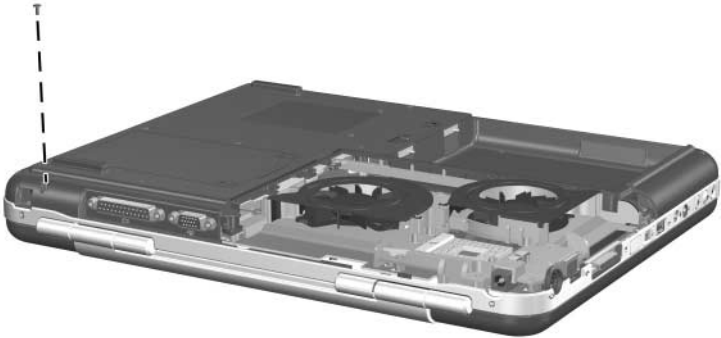
**Table C-1**  
**Phillips PM2.5×6.0 Screw (Continued)**

	Color	Qty.	Length	Thread	Head Width
mm	Black	46	6.0 mm	2.5 mm	4.0 mm

**Where used:**

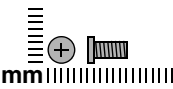
**HP Compaq Business Notebook nx9100 Series and Compaq Presario R3000 Series models only**

1 screw that secures the display assembly to the notebook  
 (documented in [Section 5.14](#))



*Phillips PM2.5×6.0 Screw Locations*

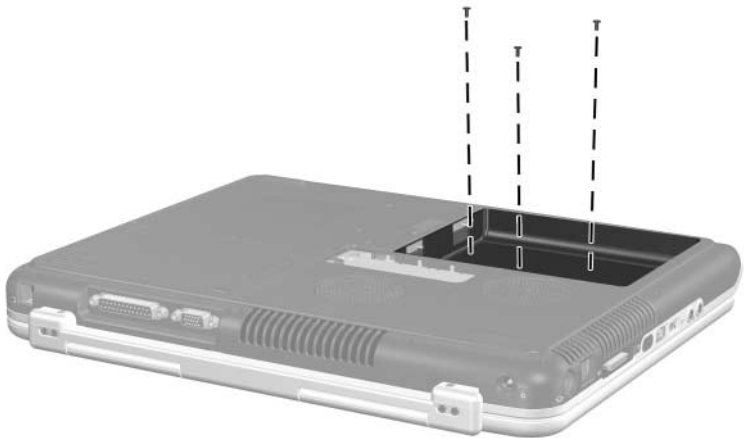
**Table C-1**  
**Phillips PM2.5x6.0 Screw (Continued)**

	Color	Qty.	Length	Thread	Head Width
	Black	46	6.0 mm	2.5 mm	4.0 mm

**Where used:**

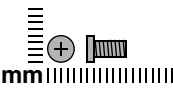
**Pavilion notebook models only**

3 screws that secure the base enclosure to the notebook  
 (documented in [Section 5.15](#))



*Phillips PM2.5x6.0 Screw Locations*

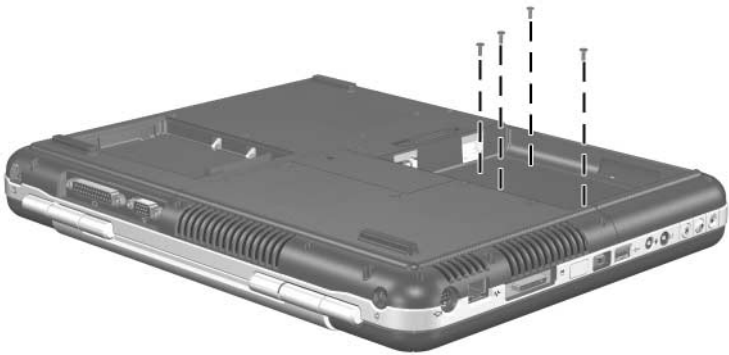
**Table C-1**  
**Phillips PM2.5×6.0 Screw (Continued)**

	Color	Qty.	Length	Thread	Head Width
	Black	46	6.0 mm	2.5 mm	4.0 mm

**Where used:**

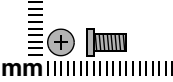
**HP Compaq Business Notebook nx9100 Series and Compaq Presario R3000 Series models only**

4 screws that secure the base enclosure to the notebook  
 (documented in [Section 5.15](#))



*Phillips PM2.5×6.0 Screw Locations*

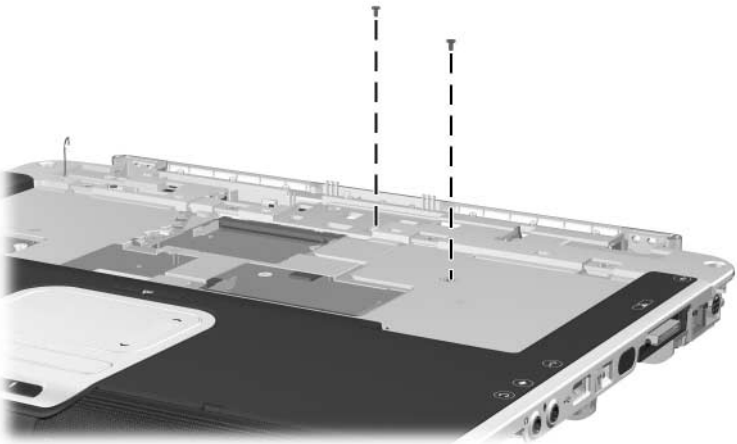
**Table C-1**  
**Phillips PM2.5x6.0 Screw (Continued)**

	Color	Qty.	Length	Thread	Head Width
	Black	46	6.0 mm	2.5 mm	4.0 mm

**Where used:**

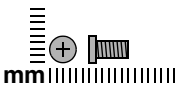
**HP Pavilion zx5000 Series and zv50xx notebook models only**

2 screws that secure the system board to the top cover  
 (documented in [Section 5.19](#))



*Phillips PM2.5x6.0 Screw Locations*

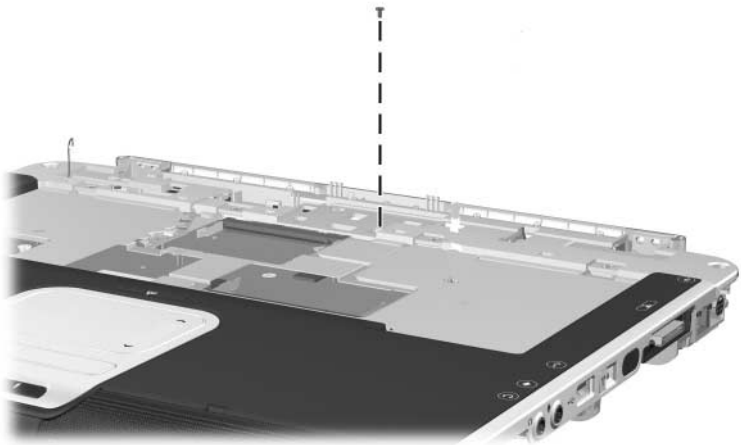
**Table C-1**  
**Phillips PM2.5x6.0 Screw (Continued)**

	Color	Qty.	Length	Thread	Head Width
	Black	46	6.0 mm	2.5 mm	4.0 mm

**Where used:**

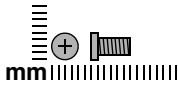
**HP Pavilion zv51xx notebook, Compaq Presario R3004 and R31xx notebook, and HP Business Notebook nx9105 models only**

One screw that secures the system board to the top cover (documented in [Section 5.19](#))



*Phillips PM2.5x6.0 Screw Locations*

**Table C-1**  
**Phillips PM2.5×6.0 Screw (Continued)**

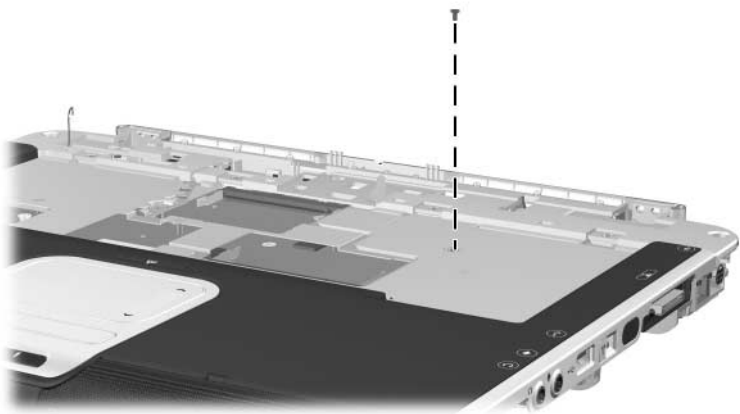


Color	Qty.	Length	Thread	Head Width
Black	46	6.0 mm	2.5 mm	4.0 mm

**Where used:**

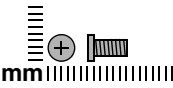
**Compaq Presario R3001, R3002, and R3010 notebook, and HP Business Notebook nx9110 models only**

One screw that secures the system board to the top cover (documented in [Section 5.19](#))



*Phillips PM2.5×6.0 Screw Locations*

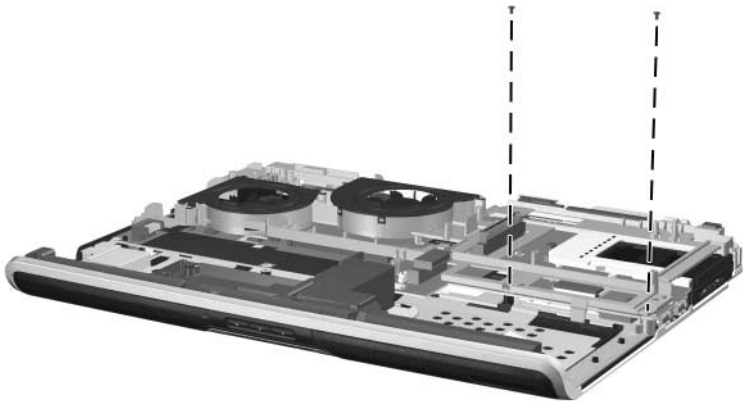
**Table C-1**  
**Phillips PM2.5×6.0 Screw (Continued)**

	Color	Qty.	Length	Thread	Head Width
	Black	46	6.0 mm	2.5 mm	4.0 mm

**Where used:**

**Pavilion notebook models only**

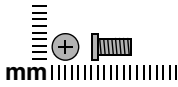
2 screws that secure the system board to the top cover  
 (documented in [Section 5.19](#))



*Phillips PM2.5×6.0 Screw Locations*



**Table C-1**  
**Phillips PM2.5x6.0 Screw (Continued)**

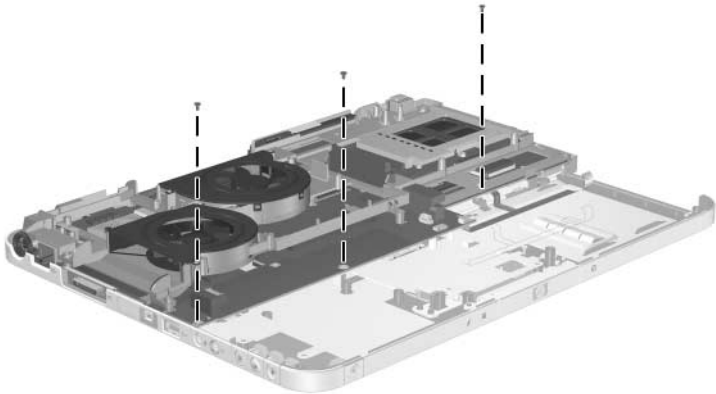


Color	Qty.	Length	Thread	Head Width
Black	46	6.0 mm	2.5 mm	4.0 mm

**Where used:**

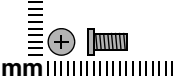
**Pavilion nx9000 and nx9110 and Presario notebook models only**

3 screws that secure the system board to the top cover  
 (documented in [Section 5.19](#))



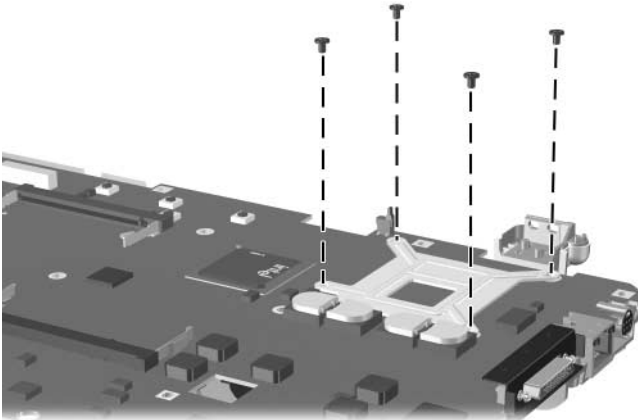
*Phillips PM2.5x6.0 Screw Locations*

**Table C-1**  
**Phillips PM2.5×6.0 Screw (Continued)**

	Color	Qty.	Length	Thread	Head Width
	Black	46	6.0 mm	2.5 mm	4.0 mm

**Where used:**

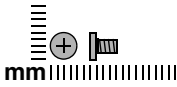
4 screws that secure the processor bracket to the fan assembly  
 (documented in [Section 5.20](#))



*Phillips PM2.5×6.0 Screw Locations*

**Table C-2**  
**Phillips PM2.5×4.0 Screw**

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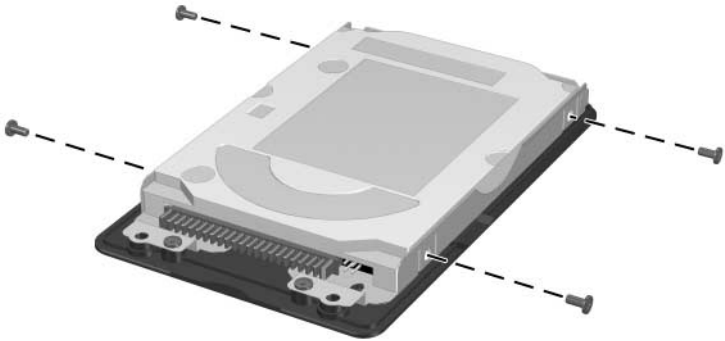
Color	Qty.	Length	Thread	Head Width
Black	4	4.0 mm	2.5 mm	4.0 mm

---

**Where used:**

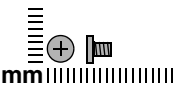
4 screws that secure the hard drive cover to the hard drive  
(documented in [Section 5.3](#))

---



*Phillips PM2.5×4.0 Screw Locations*

**Table C-3**  
**Phillips PM2.0×3.0 Screw**

	Color	Qty.	Length	Thread	Head Width
	Black	6	3.0 mm	2.0 mm	4.0 mm

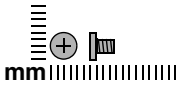
**Where used:**

4 screws that secure the diskette drive or HP USB Digital Bay drive to the optical drive (documented in [Section 5.6](#))



*Phillips PM2.0×3.0 Screw Locations*

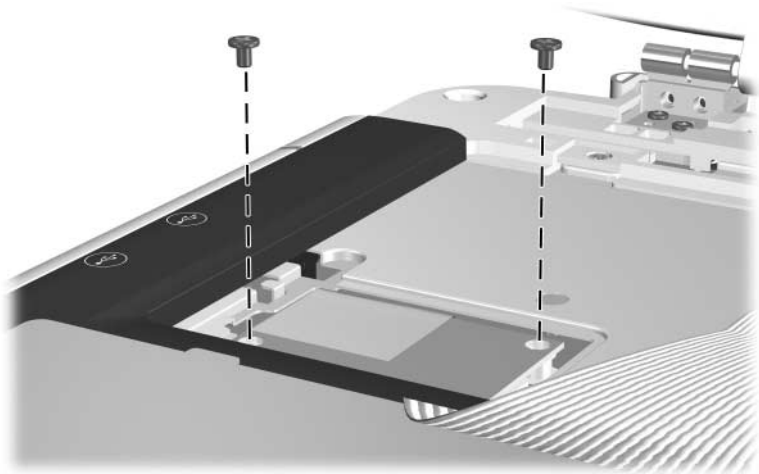
**Table C-3**  
**Phillips PM2.0×3.0 Screw (Continued)**



Color	Qty.	Length	Thread	Head Width
Black	6	3.0 mm	2.0 mm	4.0 mm

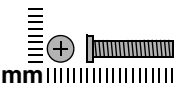
**Where used:**

2 screws that secure the modem board to the system board  
 (documented in [Section 5.11](#))



*Phillips PM2.0×3.0 Screw Locations*

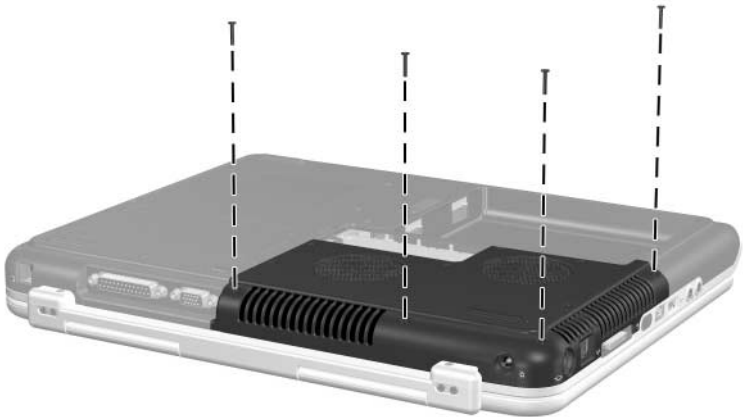
**Table C-4**  
**Phillips PM2.5×13.0 Screw**

	Color	Qty.	Length	Thread	Head Width
	Black	34	13.0 mm	2.5 mm	4.0 mm

**Where used:**

**Pavilion notebook models only**

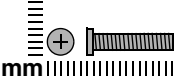
4 screws that secure the heat sink cover to the notebook  
 (documented in [Section 5.7](#))



*Phillips PM2.5×13.0 Screw Locations*

Table C-4

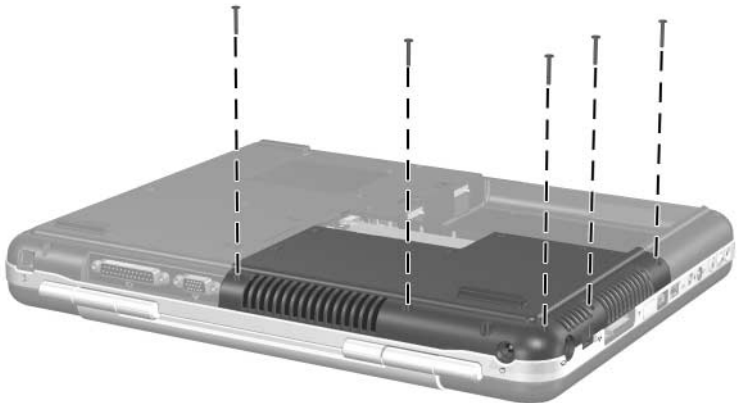
## Phillips PM2.5×13.0 Screw (Continued)

	Color	Qty.	Length	Thread	Head Width
mm	Black	34	13.0 mm	2.5 mm	4.0 mm

**Where used:**

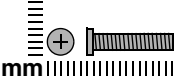
**HP Compaq Business Notebook nx9100 Series and  
Compaq Presario R3000 Series models only**

5 screws that secure the heat sink cover to the notebook  
(documented in [Section 5.7](#))



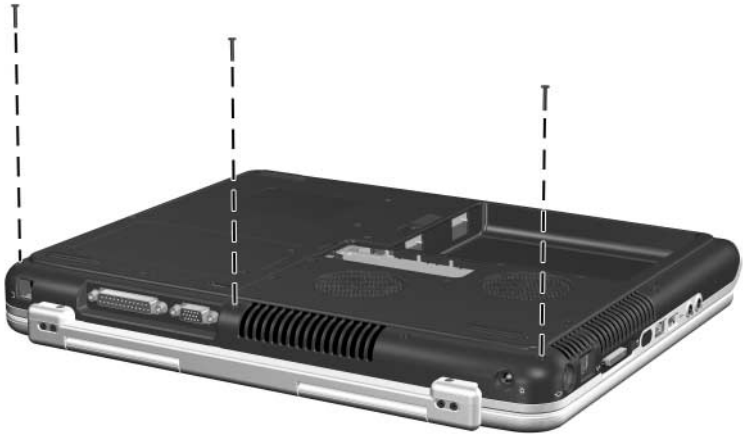
Phillips PM2.5×13.0 Screw Locations

**Table C-4**  
**Phillips PM2.5×13.0 Screw (Continued)**

	Color	Qty.	Length	Thread	Head Width
	Black	34	13.0 mm	2.5 mm	4.0 mm

**Where used:**

3 screws that secure the strip cover to the notebook  
 (documented in [Section 5.9](#))

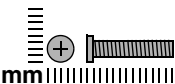


*Phillips PM2.5×13.0 Screw Locations*



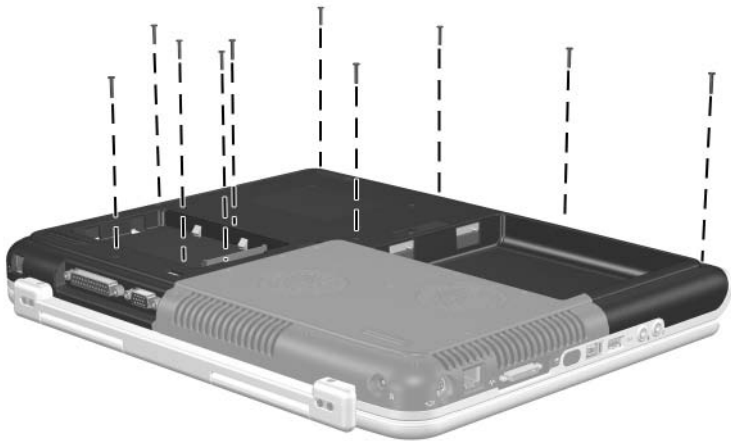
Table C-4

## Phillips PM2.5×13.0 Screw (Continued)

	Color	Qty.	Length	Thread	Head Width
	Black	34	13.0 mm	2.5 mm	4.0 mm

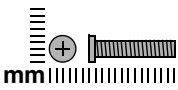
**Where used:****Pavilion notebook models only**

10 screws that secure the base enclosure to the notebook  
(documented in [Section 5.15](#))



Phillips PM2.5×13.0 Screw Locations

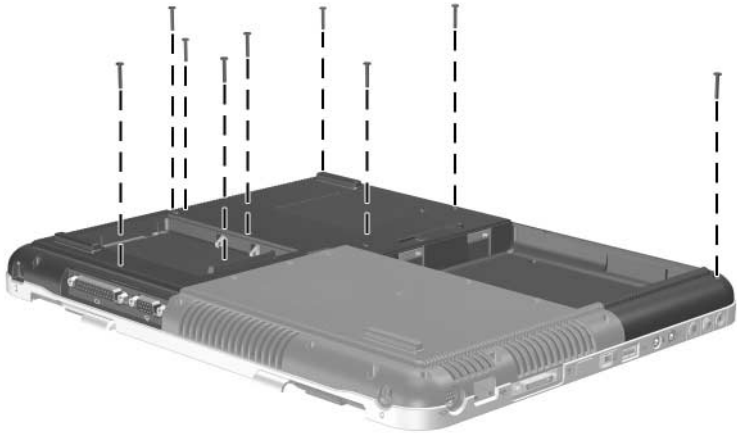
**Table C-4**  
**Phillips PM2.5×13.0 Screw (Continued)**

	Color	Qty.	Length	Thread	Head Width
	Black	34	13.0 mm	2.5 mm	4.0 mm

**Where used:**

**HP Compaq Business Notebook nx9100 Series and Compaq Presario R3000 Series models only**

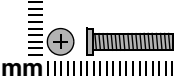
9 screws that secure the base enclosure to the notebook  
 (documented in [Section 5.15](#))



*Phillips PM2.5×13.0 Screw Locations*

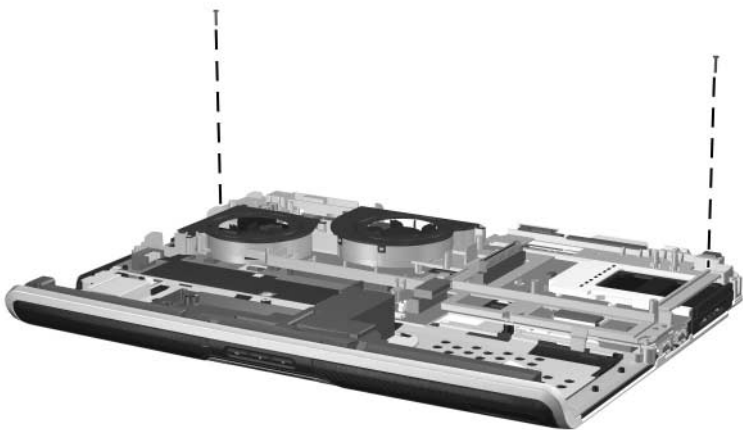
Table C-4

## Phillips PM2.5×13.0 Screw (Continued)

	Color	Qty.	Length	Thread	Head Width
	Black	34	13.0 mm	2.5 mm	4.0 mm

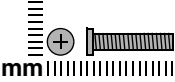
**Where used:****Pavilion notebook models only**

2 screws that secure the system board to the top cover  
(documented in [Section 5.19](#))



Phillips PM2.5×13.0 Screw Locations

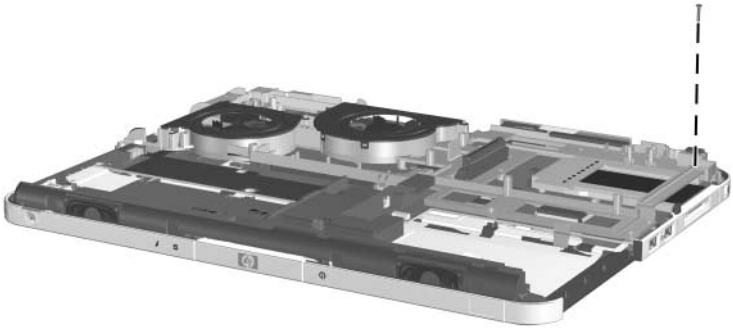
**Table C-4**  
**Phillips PM2.5×13.0 Screw (Continued)**

	Color	Qty.	Length	Thread	Head Width
	Black	34	13.0 mm	2.5 mm	4.0 mm

**Where used:**

**HP Compaq nx9000 and nx9110 and Presario notebook models only**

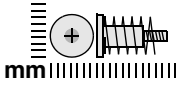
1 screw that secures the system board to the top cover  
 (documented in [Section 5.19](#))



*Phillips PM2.5×13.0 Screw Locations*

**Table C-5**

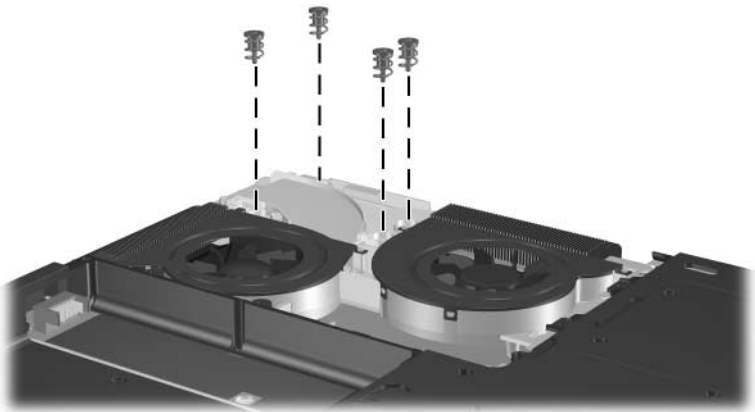
**Phillips PM2.5x11.0 Spring-Loaded Shoulder Screw**



Color	Qty.	Length	Thread	Head Width
Black	4	11.0 mm	2.5 mm	7.0 mm

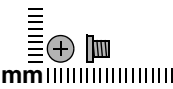
**Where used:**

4 screws that secure the heat sink to the notebook  
(documented in [Section 5.7](#))



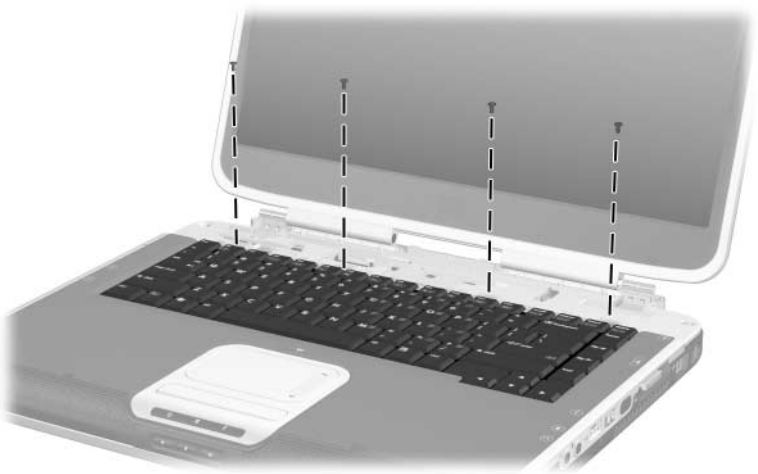
*Phillips PM2.5x11.0 Spring-Loaded Shoulder Screw Locations*

**Table C-6**  
**Phillips PM2.5×3.0 Screw**

	Color	Qty.	Length	Thread	Head Width
	Black	5	3.0 mm	2.5 mm	4.0 mm

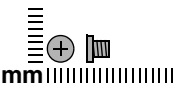
**Where used:**

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



*Phillips PM2.5×3.0 Screw Locations*

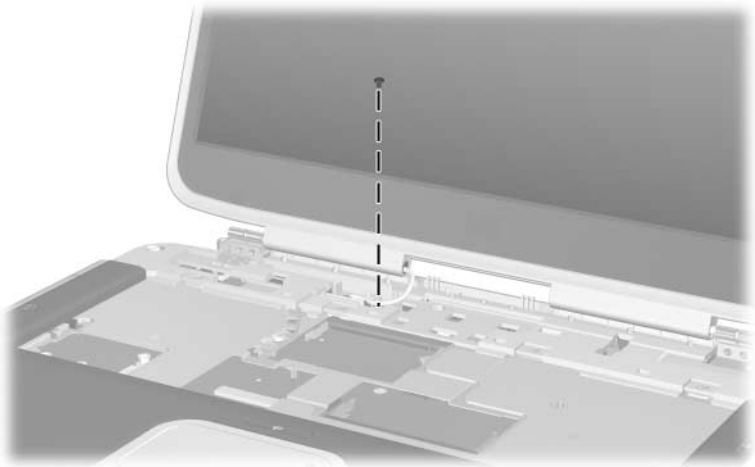
**Table C-6**  
**Phillips PM2.5×3.0 Screw (Continued)**

	Color	Qty.	Length	Thread	Head Width
	Black	5	3.0 mm	2.5 mm	4.0 mm

**Where used:**

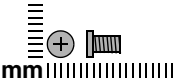
**HP Compaq Business Notebook nx9110 model and Compaq Presario R3001, R3002, and R3010 notebook models**

1 screw that secures the display cable ground loop to the notebook (documented in [Section 5.14](#))



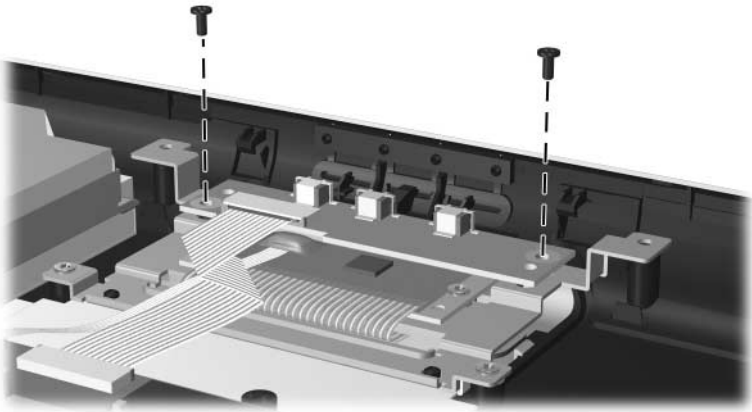
*Phillips PM2.5×3.0 Screw Locations*

**Table C-7**  
**Phillips PM2.5x5.0 Screw**

	Color	Qty.	Length	Thread	Head Width
	Black	2	5.0 mm	2.5 mm	4.0 mm

**Where used:**

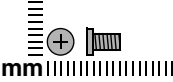
2 screws that secure the LED board to the top cover  
(documented in [Section 5.17](#))



*Phillips PM2.5x5.0 Screw Locations*

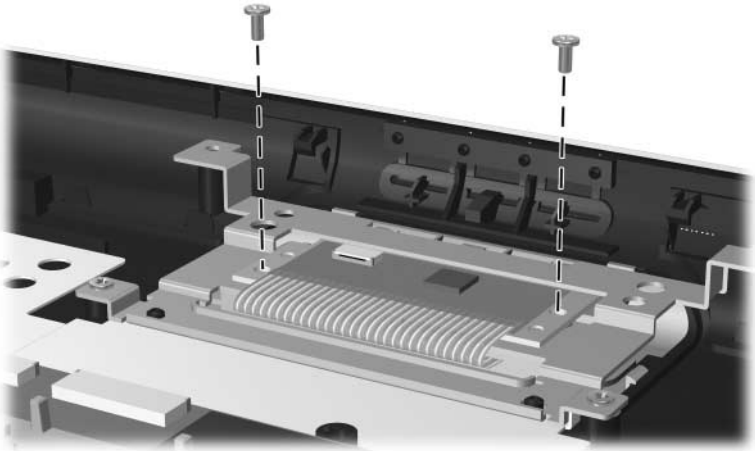


**Table C-7**  
**Phillips PM2.5×5.0 Screw (Continued)**

	Color	Qty.	Length	Thread	Head Width
	Silver	4	5.0 mm	2.5 mm	4.0 mm

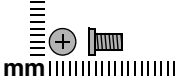
**Where used:**

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



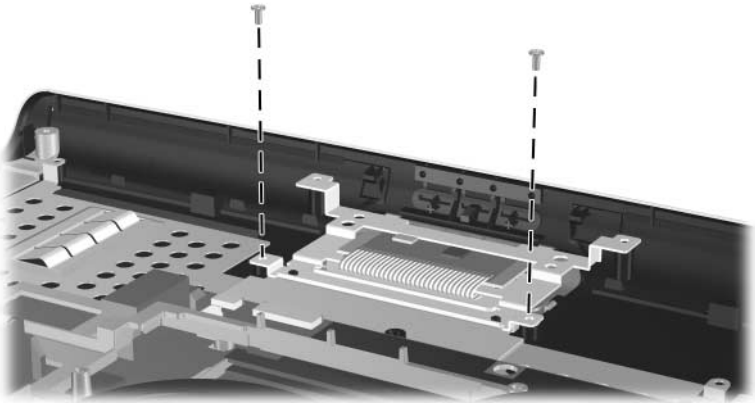
*Phillips PM2.5×5.0 Screw Locations*

**Table C-7**  
**Phillips PM2.5x5.0 Screw (Continued)**

	Color	Qty.	Length	Thread	Head Width
	Silver	4	5.0 mm	2.5 mm	4.0 mm

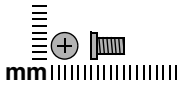
**Where used:**

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



*Phillips PM2.5x5.0 Screw Locations*

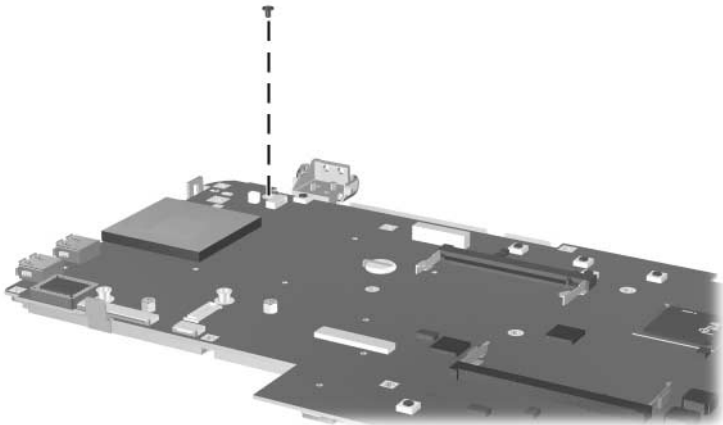
**Table C-7**  
**Phillips PM2.5x5.0 Screw (Continued)**



Color	Qty.	Length	Thread	Head Width
Black	1	5.0 mm	2.5 mm	4.0 mm

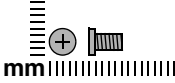
**Where used:**

1 screw that secures the system board to the fan assembly (documented in [Section 5.20](#))



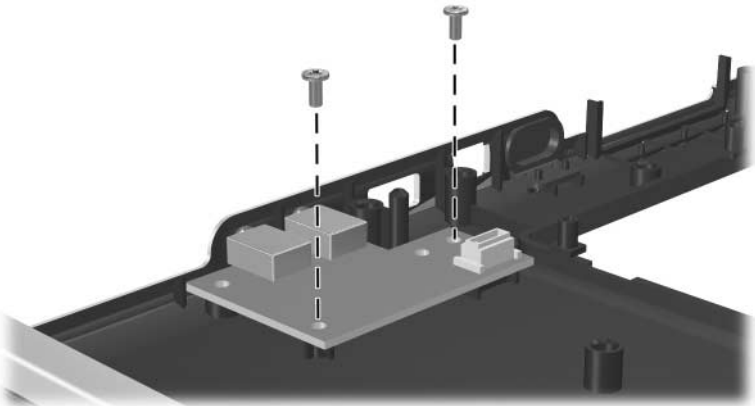
*Phillips PM2.5x5.0 Screw Locations*

**Table C-7**  
**Phillips PM2.5×5.0 Screw (Continued)**

	Color	Qty.	Length	Thread	Head Width
	Silver	2	5.0 mm	2.5 mm	4.0 mm

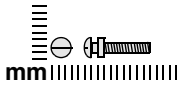
**Where used:**

2 screws that secure the audio board to the chassis  
 (documented in [Section 5.21](#))



*Phillips PM2.5×5.0 Screw Locations*

**Table C-8**  
**Phillips PM1.5×10.0 Shoulder Screw**

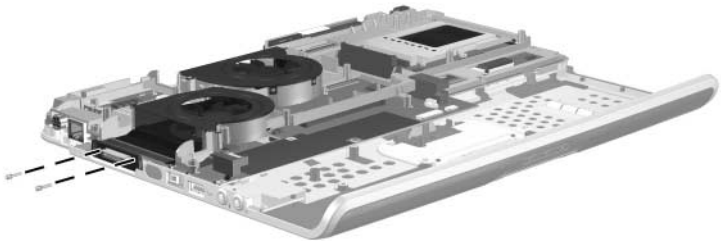


Color	Qty.	Length	Thread	Head Width
Black	2	10.0 mm	1.5 mm	3.0 mm

**Where used:**

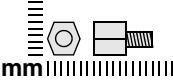
**Pavilion notebook models only**

2 screws that secure the system board to the top cover  
(documented in [Section 5.19](#))



*Phillips PM1.5×10.0 Shoulder Screw Locations*

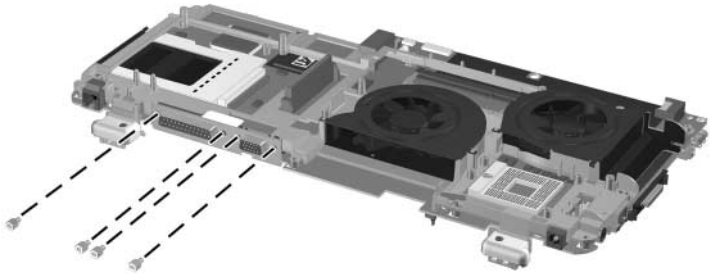
**Table C-9**  
**M5.0×9.0 Standoff**

	Color	Qty.	Length	Thread	Head Width
	Silver	4	9.0 mm	5.0 mm	5.0 mm

**Where used:**

**Pavilion notebook models only**

4 standoffs that secure the fan assembly to the system board  
 (documented in [Section 5.20](#))



*M5.0×9.0 Standoff Locations*

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