Maintenance and Service Guide

HP Pavilion zv6000 Notebook PC
Compaq Presario R4000 Notebook PC

July 2005

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

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1

Product Description

The HP Pavilion zv6000 Notebook PC ❶ and Compaq Presario R4000 Notebook PC ❷ offer advanced modularity, AMD Mobile Athlon™ 64 and Mobile AMD Sempron™ processors, and extensive multimedia support.
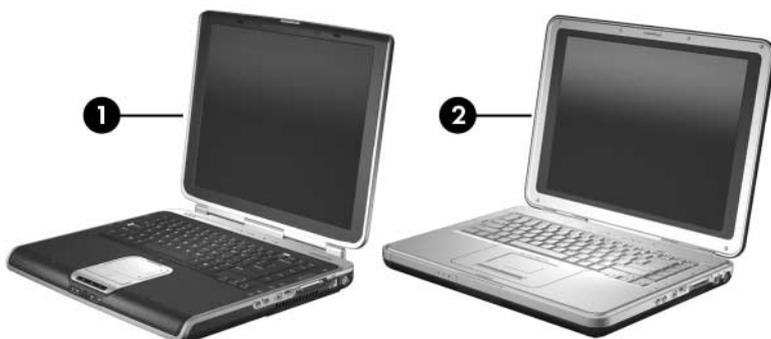
HP Pavilion zv6000 Notebook PC and Compaq Presario R4000 Notebook PC

1.1 Features

- AMD Mobile Athlon 64 4000, 3800, 3500, or 3200 processors, or Mobile AMD Sempron 3200 or 3000 processors, varying by notebook model

- 15.4-inch, WXGA, TFT (1280 × 800) with BrightView display, 15.4-inch, WXGA, TFT (1280 × 800) display, or 15.0-inch, XGA (1024×768), TFT display, varying by notebook model

- 100-, 80-, 60-, or 40-GB high-capacity hard drive, varying by notebook model
- 256-MB DDR synchronous DRAM (SDRAM) at 333 MHz, expandable to 2.0 GB
- Microsoft® Windows® XP Home Edition or Windows XP Professional, varying by notebook model
- Full-size Windows keyboard with embedded numeric keypad
- TouchPad pointing device, including dedicated horizontal (Compaq Presario R4000 models only) and vertical scroll regions and TouchPad on/off button.
- Integrated 10Base-T/100Base-TX Ethernet local area network (LAN) network interface card (NIC) with RJ-45 jack
- Integrated high-speed 56K modem with RJ-11 jack
- Integrated wireless support for Mini PCI IEEE 802.11b/g WLAN device (selected models only)
- Support for one Type I or Type II PC Card slot, with support for both 32-bit (CardBus) and 16-bit PC Cards
- Support for ExpressCard slot (selected models only)
- External 120- or 90-watt AC adapter with 3-wire power cord
- 12- or 8-cell Li-Ion battery pack, varying by notebook model
- Stereo speakers
- Volume up, volume mute, and volume down buttons
- Support for the following optical drives:
  - ❏ DVD±RW and CD-RW Double Layer Combo Drive with LightScribe
  - ❏ DVD±RW and CD-RW Combo Drive
  - ❏ DVD/CD-RW Combo Drive
  - ❏ DVD-ROM drive
- Connectors:
  - ❏ Audio-in (microphone)
  - ❏ Audio-out (headphone)

❏ Consumer infrared (full-featured HP Pavilion zv6000 models only)

❏ Digital Media Slot (full-featured HP Pavilion zv6000 models only)

❏ Expansion port 2

❏ ExpressCard slot (full-featured models only)

❏ External monitor

❏ IEEE 1394 (full-featured models only)

❏ Memory Reader (full-featured Compaq Presario R4000 models)

❏ PC Card

❏ Power

❏ Primary battery

❏ RJ-11 (modem)

❏ RJ-45 (network)

❏ S-Video-out

❏ Universal Serial Bus (USB) v. 2.0 (4)

✎ Numerous references are made throughout this *Maintenance and Service Guide* to "full-featured" and "defeatured" models. A model is considered to be full-featured if it has the following components:

■ 128-MB dedicated video frame buffer

■ Digital Media Slot (HP Pavilion zv6000 models)

■ ExpressCard slot

■ IEEE 1394 port

■ Memory Reader (Compaq Presario R4000 models)

■ Quick Launch buttons (HP Pavilion zv6000 models only)

A notebook model is considered to be defeatured if it has none of the components listed above.

1.2 **Resetting the Notebook**

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

1. Prepare the notebook for disassembly (refer to Section 5.3, "Preparing the Notebook for Disassembly," for more information).

2. Remove the real-time clock (RTC) battery (refer to Section 5.22, "System Board," for more information on removing and replacing the RTC battery).

3. Wait approximately 5 minutes.

4. Replace the RTC battery and reassemble the notebook.

5. Connect AC power to the notebook. Do not reinsert any battery packs at this time.

6. Turn on the notebook.

All passwords and all CMOS settings have been cleared.

1.3 **Power Management**

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

■ Standby

■ Hibernation

■ Setting customization by the user

■ Hotkeys for setting the level of performance

■ Battery calibration

■ Lid switch standby/resume

■ Power/standby button

■ Advanced Configuration and Power Management (ACPM) compliance

1.4 External Components

The external components on the front of the HP Pavilion zv6000 are shown below and described in Table 1-1. Depending on your notebook model, component locations may vary.
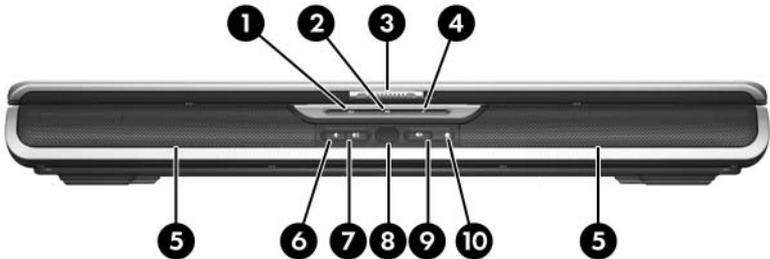
Front Components, HP Pavilion zv6000

Table 1-1

Front Components, HP Pavilion zv6000

Item	Component	Function
1	Power/standby light*	■ On: Notebook is turned on.
		■ Blinking: Notebook is in standby.
		■ Off: Notebook is off.
2	Integrated Drive Electronics (IDE) drive light	On or blinking: The primary hard drive or an optical drive is being accessed.

* If the power/standby and battery lights are blinking simultaneously, an incorrect power supply is connected to the notebook. The power supply should be disconnected immediately and replaced with the correct power supply.

Table 1-1

Front Components, HP Pavilion zv6000 *(Continued)*

Item	Component	Function
3	Display release latch	Opens the notebook.
4	Battery light*	■ On: The battery pack is charging. ■ Blinking: The battery pack has reached a low-battery condition. ■ Off: The battery pack is fully charged or not inserted.
5	Stereo speakers (2)	Produce stereo sound.
6	Volume down button	Decreases system volume.
7	Volume up button	Increases system volume.
8	Consumer infrared (IR) lens	Links the notebook to an optional remote control.
9	Volume mute button	Mutes or restores volume.
10	Mute light	On: Volume is muted.

* If the power/standby and battery lights are blinking simultaneously, an incorrect power supply is connected to the notebook. The power supply should be disconnected immediately and replaced with the correct power supply.

The external components on the front of the Compaq Presario R4000 are shown below and described in Table 1-2. Depending on your notebook model, component locations may vary.

Front Components, Compaq Presario R4000

Table 1-2

Front Components, Compaq Presario R4000

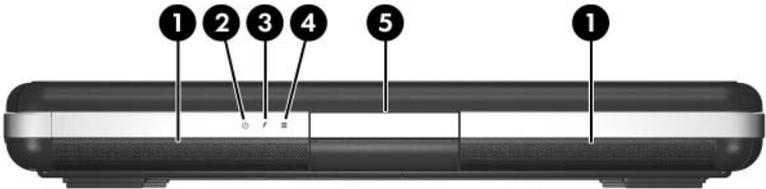| Item	Component	Function
1	Stereo speakers (2)	Produce stereo sound.
2	Power/standby light*	■ On: Notebook is turned on. ■ Blinking: Notebook is in standby. ■ Off: Notebook is off.
3	Battery light*	■ On: The battery pack is charging. ■ Blinking: The battery pack has reached a low-battery condition. ■ Off: The battery pack is fully charged or not inserted.
4	IDE drive light	On or blinking: The primary hard drive or an optical drive is being accessed.
5	Display release button	Opens the notebook.

* If the power/standby and battery lights are blinking simultaneously, an incorrect power supply is connected to the notebook. The power supply should be disconnected immediately and replaced with the correct power supply.

The external components on the rear panel of the notebook are shown below and described in Table 1-3. Depending on your notebook model, component locations may vary.
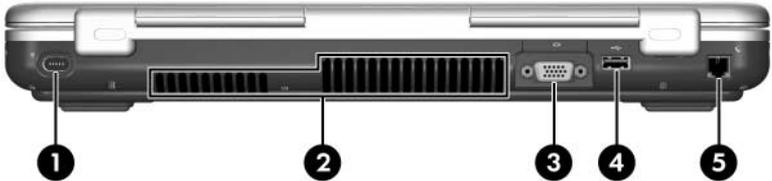
Rear Panel Components

Table 1-3

Rear Panel Components

Item	Component	Function
1	Power connector	Connects the AC adapter cable.
2	Exhaust vents (2)	Provide airflow to cool internal components.
		✎ To prevent overheating, do not obstruct vents. Do not allow a hard surface, such as a printer, or a soft surface, such as pillows or thick rugs or clothing, to block airflow.
3	External monitor port	Connects an optional VGA monitor or projector.
4	USB port	Connects an optional USB device.
5	RJ-11 (modem) jack	Connects the modem cable.

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

Right-Side Components

Table 1-4

Right-Side Components

Item	Component	Function
1	Audio-out (headphone) jack	Connects optional headphones or powered stereo speakers. Also connects the audio function of an audio/video device, such as a television or VCR.
2	Audio-in (microphone) jack	Connects an optional monaural (single sound channel) microphone.
3	1394 port (select models only)	Connects an optional 1394a device such as a scanner, a digital camera, or a digital camcorder.

Table 1-4

Right-Side Components *(Continued)*

Item	Component	Function
4	USB port	Connects optional USB devices.
5	Exhaust vent	Provides airflow to cool internal components. ✎ To prevent overheating, do not obstruct vents. Do not allow a hard surface, such as a printer, or a soft surface, such as pillows or thick rugs or clothing, to block airflow.
6	Expansion port 2	Connects the notebook to an optional docking device. ✎ The notebook has only one expansion port. The term *expansion port 2* describes the type of expansion port.
7	RJ-45 (network) jack	Connects an optional network cable.
8	S-Video-out jack	Connects an optional S-Video device, such as a television, VCR, camcorder, projector, or video capture card.

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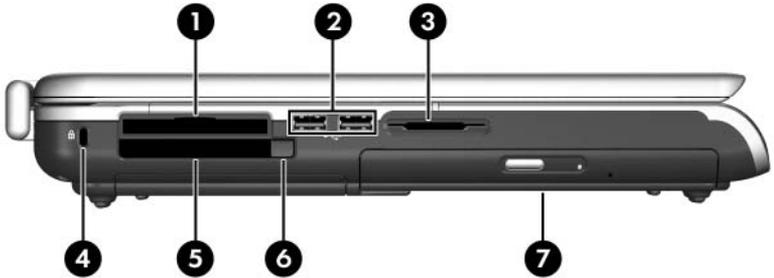
Left-Side Components
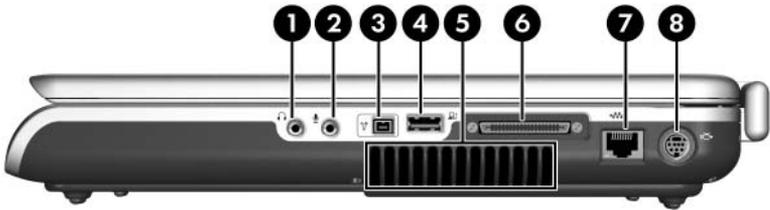
Table 1-5

Left-Side Components

Item	Component	Function
1	ExpressCard slot (select models only)	Supports an optional ExpressCard.
2	USB ports (2)	Connect optional USB devices.

Table 1-5

Left-Side Components *(Continued)*

Item	Component	Function
3	Digital Media Slot (select HP Pavilion zv6000 models only) Memory Reader (select Compaq Presario R4000 models only)	Supports most digital memory cards, including Secure Digital (SD) Memory Card, Memory Stick, Memory Stick Pro, xD-Picture Card, MultiMediaCard, or SmartMedia (SM) card.
4	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.
5	PC Card slot	■ Supports an optional Type I or Type II 32-bit (CardBus) or 16-bit PC Card. ■ Stores an optional remote control.
6	PC Card eject button	Ejects an optional PC Card from the PC Card slot.
7	Optical drive	Supports an optical disc.

The standard keyboard components on the notebook are shown below and described in Table 1-6.
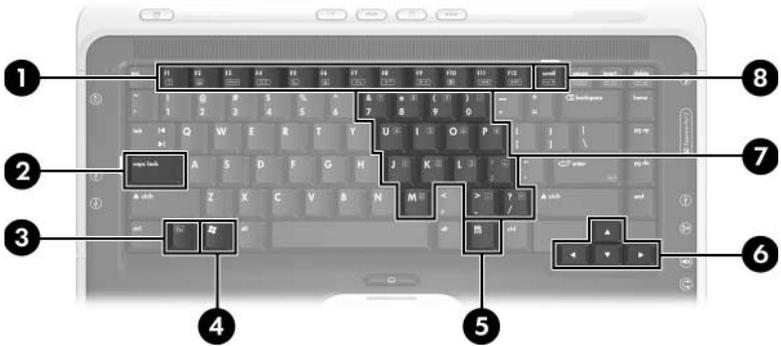
Standard Keyboard Components

Table 1-6

Standard Keyboard Components

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

The top components on the HP Pavilion zv6000 are shown below and described in Table 1-7.

Top Components, HP Pavilion zv6000 Models

Table 1-7

Top Components, HP Pavilion zv6000

Item	Component	Function
1	Digital Media Slot light (select models only)	On: An optional digital memory card is being accessed.
2	Caps lock light	On: Caps lock is on.
3	Exhaust vent	Provides airflow to cool internal components. ✎ To prevent overheating, do not obstruct vents. Do not allow a hard surface, such as a printer, or a soft surface, such as pillows or thick rugs or clothing, to block airflow.

Table 1-7

Top Components, HP Pavilion zv6000 *(Continued)*

Item	Component	Function
4	Power/standby button	When the notebook is ■ Off, press to turn on the notebook. ■ On, briefly press to initiate hibernation. ■ In standby, briefly press to resume from standby. ■ In hibernation, briefly press to restore from hibernation. ✎ If the system has stopped responding and Microsoft Windows shutdown procedures cannot be used, press and hold for at least 4 seconds to turn off the notebook.
5	Wireless button (select models only)	Turns the wireless functionality on or off, but does not create a wireless connection. ✎ To establish a wireless connection, a wireless network must already be set up.
6	Quick Launch buttons (select models only)	Launch default multimedia, digital imaging, or music applications (vary by model).
7	Display switch	If the notebook is closed while on, initiates standby.
8	Num lock light	On: Num lock is on or the embedded numeric keypad is enabled.

The top components on Compaq Presario R4000 models are shown below and described in Table 1-8.

Top Components, Compaq Presario R4000 Models

Table 1-8

Top Components, Compaq Presario R4000

Item	Component	Function
1	Memory Reader light (select models only)	On: A digital memory card is being accessed. (This light is also visible from the left side of the notebook.)
2	Caps lock light	On: Caps lock is on.

Table 1-8

Top Components, Compaq Presario R4000 *(Continued)*

Item	Component	Function
3	Wireless button (select models only)	Turns the wireless functionality on or off, but does not create a wireless connection. ✎ To establish a wireless connection, a wireless network must already be set up.
4	Power/standby button	When the notebook is ■ Off, press to turn on the notebook. ■ On, briefly press to initiate hibernation. ■ In standby, briefly press to resume from standby. ■ In hibernation, briefly press to restore from hibernation. ✎ If the system has stopped responding and Microsoft Windows shutdown procedures cannot be used, press and hold for at least 4 seconds to turn off the notebook.
5	Volume down button	Decreases system volume.
6	Volume up button	Increases system volume.
7	Volume mute button	Mutes or restores volume.
8	Display switch	If the notebook is closed while on, initiates standby.
9	Num lock light	On: Num lock is on or the embedded numeric keypad is enabled.

The HP Pavilion zv6000 notebook TouchPad components are shown below and described in Table 1-9.

TouchPad Components, HP Pavilion zv6000

Table 1-9

TouchPad Components, HP Pavilion zv6000

Item	Component	Function
1	TouchPad on/off button	Enables/disables the TouchPad.
2	TouchPad	Moves the pointer.
3	Left and right TouchPad buttons	Function like the left and right buttons on an external mouse.
4	TouchPad light	On: TouchPad is enabled.
5	TouchPad vertical scroll zone	Scrolls upward or downward.

The Compaq Presario R4000 notebook TouchPad components
are shown below and described in Table 1-10.
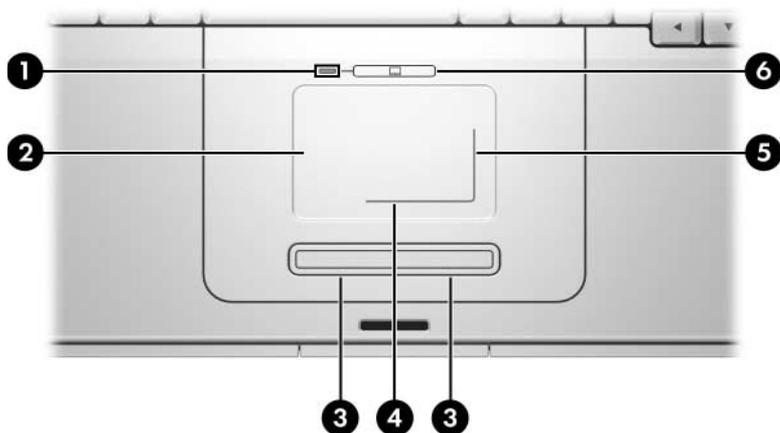
TouchPad Components, Compaq Presario R4000

Table 1-10

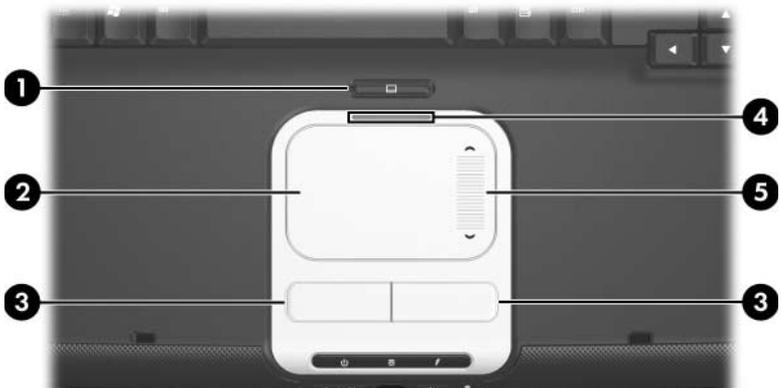**TouchPad Components, Compaq Presario R4000**

Item	Component	Function
1	TouchPad light	On: TouchPad is enabled.
2	TouchPad	Moves the pointer.
3	Left and right TouchPad buttons	Function like the left and right buttons on an external mouse.
4	TouchPad horizontal scroll zone	Scrolls toward left side or right side.
5	TouchPad vertical scroll zone	Scrolls up or down.
6	TouchPad on/off button	Enables/disables the TouchPad.

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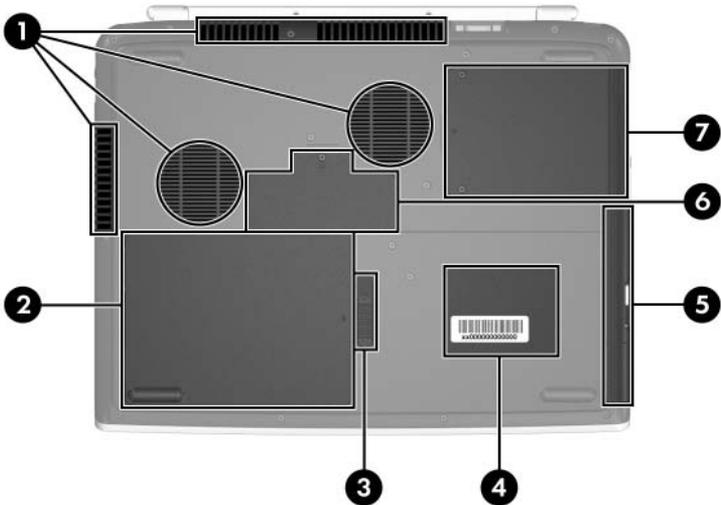
Bottom Components

Table 1-11

Bottom Components

Item	Component	Function
1	Vents (4)	Provide airflow to cool internal components.
		✎ To prevent overheating, do not obstruct vents. Do not allow a hard surface, such as a printer, or a soft surface, such as pillows or thick rugs or clothing, to block airflow.
2	Battery bay	Holds a battery pack.

Table 1-11

Bottom Components *(Continued)*

Item	Component	Function
3	Battery pack release latch	Releases a battery pack from the battery bay.
4	Labels area	Contains the serial number and other information labels.
5	Optical drive	Supports an optical disc, such as a CD or DVD.
6	Memory module compartment cover	Contains a memory module slot that supports a replaceable memory module.
7	Hard drive bay	Holds the primary hard drive.

1.5 **Design Overview**

This section presents a design overview of key parts and features of the notebook. Refer to Chapter 3, "Illustrated Parts Catalog," to identify replacement parts, and Chapter 5, "Removal and Replacement Procedures," for disassembly steps.

The system board provides the following device connections:

■ AMD Mobile Athlon 64 and Mobile AMD Sempron processors

■ Audio

■ Display

■ Hard drive

■ Keyboard and TouchPad

■ Memory module

■ Mini PCI communications devices

■ 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 are affected by high external temperatures, system power consumption, power management/battery conservation configurations, battery fast charging, and software applications. Exhaust air is displaced through the ventilation grill located on the left side of the notebook.

2

Troubleshooting

⚠️ **WARNING:** Only authorized technicians trained by HP should repair this equipment. All troubleshooting and repair procedures are detailed to allow only subassembly-/module-level repair. Because of the complexity of the individual boards and subassemblies, do not attempt to make repairs at the component level or modifications to any printed wiring board. Improper repairs can create a safety hazard. Any indication of component replacement or printed wiring board modification may void any warranty or exchange allowances.

2.1 Computer Setup

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

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

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

Accessing Computer Setup

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

1. Open Computer Setup by turning on or restarting the notebook. Press **f10** while the "Press <F10> to enter Setup" message is displayed in the lower-left corner of the screen.

   ❏ To change the language, use the arrow keys to select the **Advanced** menu, select **Language Support**, and then press **F5** or **F6** until the appropriate language is highlighted. Press **F10** to save your selection and exit the **Advanced** menu.

   ❏ To view navigation information, press **f1**.

   ❏ To return to the Computer Setup menu, press **esc**.

2. Select the **Main**, **Security**, **Advanced**, **Tools**, and **Exit** menus.

3. To exit Computer Setup, choose one of the following:

   ❏ To exit without saving any changes, use the arrow keys to select **Exit > Exit Discarding Changes**, and then follow the instructions on the screen.

   ❏ To exit and save all the settings you have entered, use the arrow keys to select **Exit > Exit Saving Changes**, and then follow the instructions on the screen.

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

Computer Setup Defaults

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

1. Open Computer Setup by turning on or restarting the notebook. Press **f10** while the "Press <F10> to enter Setup" message is displayed in the lower-left corner of the screen.

   ❏ To change the language, use the arrow keys to select the **Advanced** menu, select **Language Support**, and then press **F5** or **F6** until the appropriate language is highlighted. Press **F10** to save your selection and exit the **Advanced** menu.

   ❏ To view navigation information, press **f1**.

2. Use the arrow keys to select **Exit > Load Setup Defaults**.

3. Press F9.

4. Press enter to confirm the return to default configuration.

5. To confirm the restoration, press **f10**.

6. Select **Exit > Exit Saving Changes**, and then follow the instructions on the screen.

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

Selecting from the Main Menu

Table 2-1

Main Menu

Select	To Do This
System Information	■ View identification information about the notebook. ■ View specification information about the processor, memory and cache size, keyboard controller version, and system BIOS.

Selecting from the Security Menu

Table 2-2

Security Menu

Select	To Do This
Administrator password	Enter, change, or delete an HP Administrator password.
Power-on password	Enter, change, or delete a power-on password.
DriveLock password	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.
Device security	Enable diskette drive or optical drive for inclusion in MultiBoot.

Selecting from the Advanced Menu

Table 2-3

Advanced Menu

Select	To Do This
Video Graphic Mode	Select UMA, SidePort, or UMA+SidePort video memory modes.
Dedicated Video Memory	View the size of the on-board video memory.
Total Video Memory	View the size of the total system video memory
Language Support	Change the Computer Setup language.
Boot Order	Set the boot order.
Accessibility Options	Provides access to electronic and information technology to a wide range of people with disabilities.
Embedded WLAN device	Enable/disable a wireless local area network device.
Embedded Bluetooth device	Enable/disable a Bluetooth device.

Selecting from the Tools Menu

Table 2-4

Tools Menu

Select	To Do This
HDD Self-test	Run a quick or comprehensive self-test on any hard drive in the system.

Table 2-5

Exit Menu

Select	To Do This
Exit Saving Changes	Save changes entered during the current session. Then exit and restart the notebook. The changes you save are in effect when the notebook restarts.
Exit Discarding Changes	Cancel changes entered during the current session. Then exit and restart the notebook.
Load Setup Defaults	Replace configuration settings in Computer Setup with factory default settings. (Identification information is retained.)

2.2 Troubleshooting Flowcharts

Table 2-6

Troubleshooting Flowcharts Overview

Flowchart	Description
2.1	"Flowchart 2.1—Initial Troubleshooting"
2.2	"Flowchart 2.2—No Power, Part 1"
2.3	"Flowchart 2.3—No Power, Part 2"
2.4	"Flowchart 2.4—No Power, Part 3"
2.5	"Flowchart 2.5—No Power, Part 4"
2.6	"Flowchart 2.6—No Video, Part 1"
2.7	"Flowchart 2.7—No Video, Part 2"
2.8	"Flowchart 2.8—Nonfunctioning Docking Device (if applicable)"
2.9	"Flowchart 2.9—No Operating System (OS) Loading"
2.10	"Flowchart 2.10—No OS Loading, Hard Drive, Part 1"
2.11	"Flowchart 2.11—No OS Loading, Hard Drive, Part 2"
2.12	"Flowchart 2.12—No OS Loading, Hard Drive, Part 3"
2.13	"Flowchart 2.13—No OS Loading, Diskette Drive"

Table 2-6

Troubleshooting Flowcharts Overview *(Continued)*

Flowchart	Description
2.14	"Flowchart 2.14—No OS Loading, Optical Drive"
2.15	"Flowchart 2.15—No Audio, Part 1"
2.16	"Flowchart 2.16—No Audio, Part 2"
2.17	"Flowchart 2.17—Nonfunctioning Device"
2.18	"Flowchart 2.18—Nonfunctioning Keyboard"
2.19	"Flowchart 2.19—Nonfunctioning Pointing Device"
2.20	"Flowchart 2.20—No Network/Modem Connection"

Flowchart 2.1—Initial Troubleshooting

```
┌─────────────────┐
│     Begin       │
│ troubleshooting.│
└─────────────────┘
         │
         ▼        N          ┌──────────────┐
      ◇ Is there ────────────▶│ Go to        │
        power?               │ "Flowchart   │
         │                   │ 2.2—No Power,│
         Y                   │ Part 1."     │
         │                   └──────────────┘
         ▼        N          ┌──────────────┐
      ◇ Beeps, ─────────────▶│ Check        │
        LEDs, or error       │ LED board,   │
        messages?            │ speaker      │
         │                   │ connections. │
         Y                   └──────────────┘
         │
         ▼        N          ┌──────────────┐
      ◇ Is there video? ────▶│ Go to        │
        (no boot)            │ "Flowchart   │
         │                   │ 2.6—No Video,│
         Y                   │ Part 1."     │
         │                   └──────────────┘
         ▼        N          ┌──────────────┐
      ◇ Is the OS ──────────▶│ Go to        │
        loading?             │ "Flowchart   │
         │                   │ 2.9—No Operating │
         Y                   │ System (OS)  │
         │                   │ Loading."    │
         ▼        N          └──────────────┘
      ◇ Is there ───────────▶┌──────────────┐
        sound?               │ Go to        │
         │                   │ "Flowchart   │
         Y                   │ 2.15—No Audio,│
                             │ Part 1."     │
                             └──────────────┘
```
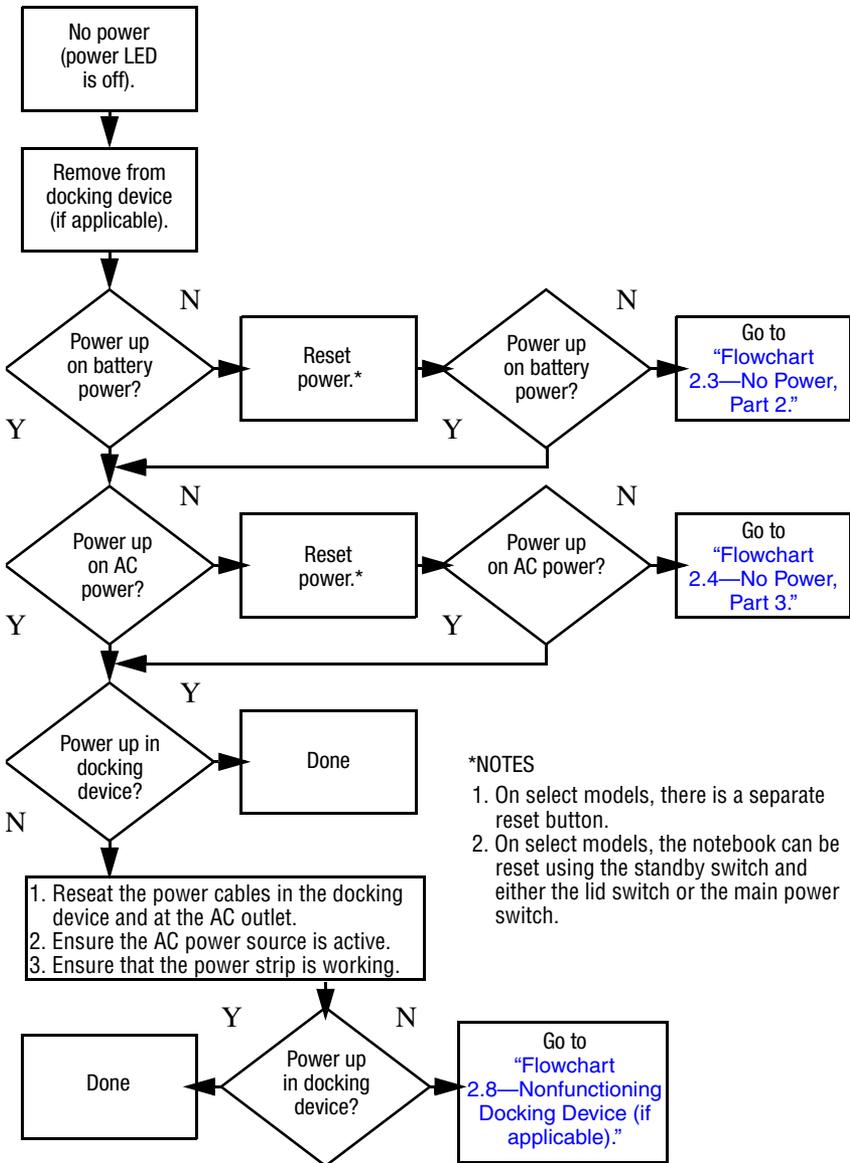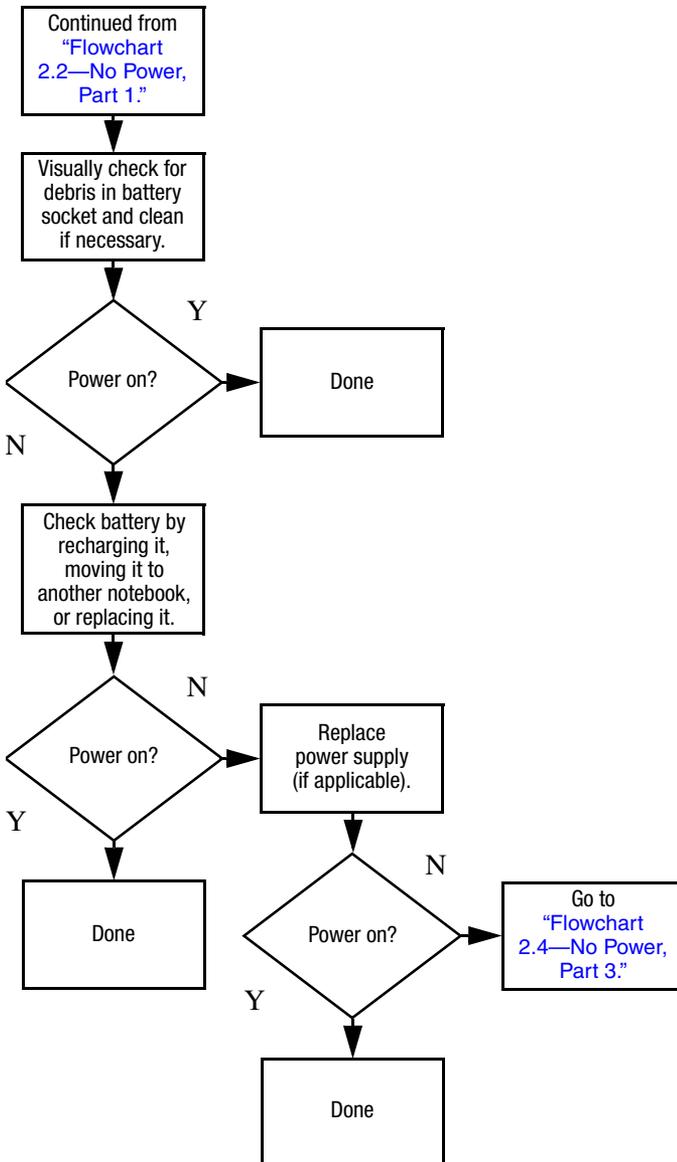
```
      ◇ All drives ──N──▶ Go to "Flowchart
        working?           2.17—Nonfunc-
         │Y                tioning Device."
         ▼
      ◇ Keyboard/ ──N──▶ Go to "Flowchart
        pointing           2.18—Nonfunc-
        device             tioning Keyboard"
        working?           or "Flowchart
         │Y                2.19—Nonfunc-
         ▼                 tioning Pointing
      ◇ Connecting ─N──▶  Device."
        to network
        or modem?         Go to "Flowchart
         │Y               2.20—No
         ▼                Network/Modem
      ┌───────┐           Connection."
      │  End  │
      └───────┘
```

Flowchart 2.2—No Power, Part 1

```
┌─────────────┐
│  No power   │
│ (power LED  │
│   is off).  │
└─────────────┘
       │
       ▼
┌─────────────┐
│ Remove from │
│docking device│
│(if applicable).│
└─────────────┘
       │
       ▼
```

Power up on battery power? —N→ Reset power.* —→ Power up on battery power? —N→ Go to "Flowchart 2.3—No Power, Part 2."

Y (down) / Y (down)

Power up on AC power? —N→ Reset power.* —→ Power up on AC power? —N→ Go to "Flowchart 2.4—No Power, Part 3."

Y (down) / Y (down)

Power up in docking device? —Y→ Done

N (down)

1. Reseat the power cables in the docking device and at the AC outlet.
2. Ensure the AC power source is active.
3. Ensure that the power strip is working.

Done ←Y— Power up in docking device? —N→ Go to "Flowchart 2.8—Nonfunctioning Docking Device (if applicable)."

*NOTES
1. On select models, there is a separate reset button.
2. On select models, the notebook can be reset using the standby switch and either the lid switch or the main power switch.

Flowchart 2.3—No Power, Part 2

```
┌─────────────────┐
│ Continued from  │
│  "Flowchart     │
│ 2.2—No Power,   │
│    Part 1."     │
└─────────────────┘
        │
        ▼
┌─────────────────┐
│ Visually check  │
│ for debris in   │
│ battery socket  │
│ and clean       │
│ if necessary.   │
└─────────────────┘
        │
        ▼
      Power          Y      ┌──────────┐
      on?  ───────────────▶ │   Done   │
        │                   └──────────┘
      N │
        ▼
┌─────────────────┐
│ Check battery   │
│ by recharging   │
│ it, moving it   │
│ to another      │
│ notebook, or    │
│ replacing it.   │
└─────────────────┘
        │
        ▼
      Power     N      ┌──────────────┐
      on?  ─────────▶  │ Replace      │
        │              │ power supply │
      Y │              │(if applicable)│
        ▼              └──────────────┘
┌──────────┐                 │
│   Done   │                 ▼
└──────────┘              Power      N    ┌─────────────┐
                          on?  ──────────▶│ Go to       │
                            │             │ "Flowchart  │
                          Y │             │ 2.4—No Power│
                            ▼             │  Part 3."   │
                       ┌──────────┐       └─────────────┘
                       │   Done   │
                       └──────────┘
```

Flowchart 2.4—No Power, Part 3

Continued from "Flowchart 2.3—No Power, Part 2."

Plug directly into AC outlet.

Power LED on?
— Y → Done
— N ↓

Reseat AC adapter in notebook and at power source.

Power on?
— Y → Done
— N ↓

Power outlet active?
— N → Try different outlet.
— Y ↓

Replace power cord.

Power on?
— Y → Done
— N ↓

Internal or external AC adapter?
— External → Replace external AC adapter.
— Internal → Go to "Flowchart 2.5—No Power, Part 4."

Power on?
— N → (back to Internal path)
— Y → Done

Flowchart 2.5—No Power, Part 4

```
┌─────────────────┐
│ Continued from  │
│ "Flowchart      │
│ 2.4—No Power,   │
│ Part 3."        │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Open            │
│ notebook.       │
└─────────────────┘
         │
         ▼
        ╱╲                    ┌─────────────────┐
       ╱  ╲      Y            │ Reseat loose    │
      ╱Loose ╲───────────────▶│ components and  │
     ╱ or     ╲               │ boards and      │
     ╲damaged ╱               │ replace damaged │
      ╲parts?╱                │ items.          │
       ╲  ╱                   └─────────────────┘
        ╲╱
      N  │
         ▼
┌─────────────────┐
│ Close           │
│ notebook and    │
│ retest.         │
└─────────────────┘
         │
         ▼
        ╱╲    N
       ╱  ╲───────────────▶┌──────────────────────────────────────────────┐
      ╱Power╲              │ Replace the following items (if applicable). Check │
      ╲ on? ╱              │ notebook operation after each replacement:    │
       ╲  ╱                │ 1. Internal DC-DC converter*                  │
        ╲╱                 │ 2. Internal AC adapter                        │
      Y  │                 │ 3. Processor board*                           │
         ▼                 │ 4. System board*                              │
┌─────────────────┐        │                                               │
│                 │        │ *NOTE: Replace these items as a set to prevent │
│ Done            │        │ shorting out among components.                │
│                 │        └──────────────────────────────────────────────┘
└─────────────────┘
```

Flowchart 2.6—No Video, Part 1

No video.

Stand-alone or docking device?

Docking Device → Go to "Flowchart 2.7—No Video, Part 2."

Stand-alone

*NOTE: To change from internal to external display, use the hotkey combination.

Internal or external display*?

Adjust brightness.

Video OK? — Y → Done

N

Internal

A

External

Adjust brightness.

Press lid switch to ensure operation.

Video OK? — Y → Done

N

Video OK? — Y → Done

N

Check for bent pins on cable.

Replace the following one at a time. Test after each replacement.
1. Cable between notebook and notebook display (if applicable)
2. Display
3. System board

Video OK? — N → Try another display. — N → Internal and external video OK? — N → Replace system board.

Y

Y

Done

Done

Flowchart 2.7—No Video, Part 2

Continued from "Flowchart 2.6—No Video, Part 1."

↓

Remove notebook from docking device, if connected.

↓

Adjust display brightness.

↓

Video OK?

N → Go to "A" in "Flowchart 2.6—No Video, Part 1."

Y ↓

Check that notebook is properly seated in docking device, for bent pins on cable, and for monitor connection.

↓

Video OK?

Y → Done

N ↓

Adjust external monitor display.

Check brightness of external monitor.

↓

Video OK?

Y → Done

N ↓

Try another external monitor.

↓

Internal and external video OK?

Y → Done

N ↓

Go to "Flowchart 2.8—Nonfunctioning Docking Device (if applicable)."

Flowchart 2.8—Nonfunctioning Docking Device (if applicable)

```
┌──────────────┐
│ Nonfunctioning│
│ docking device.│
└──────┬───────┘
       │
       ▼
┌──────────────┐
│ Reseat power  │
│ cord in docking│
│ device and    │
│ power outlet. │
└──────┬───────┘
       │
       ▼
┌──────────────┐                    ┌──────────────┐
│ Check voltage │                    │ Reinstall     │
│ setting on docking│                │ notebook into │
│ device.       │                    │ docking device.│
└──────┬───────┘                    └──────┬───────┘
       │                                   │
       ▼                                   ▼
┌──────────────┐                        ◇ Docking       Y   ┌────────┐
│ Reset monitor │                       ◇  device    ──────▶│  Done  │
│ cable connector at│                   ◇  operating?      └────────┘
│ docking device.│                         ◇
└──────┬───────┘                        N │
       │                                   ▼
     ◇ Docking   Y   ┌────────┐      ┌──────────────┐
    ◇  device  ─────▶│  Done  │      │ Test replacement│
    ◇  operating?    └────────┘      │ docking device with│
     ◇                               │ new notebook. │
   N │                               └──────────────┘
     ▼
┌──────────────┐
│ Remove notebook,│
│ replace docking│
│ device.       │
└──────────────┘
```

Flowchart 2.9—No Operating System (OS) Loading

No OS loading.*

↓

Reseat power cord in docking device and power outlet.

→ No OS loading from hard drive, go to "Flowchart 2.10—No OS Loading, Hard Drive, Part 1."

→ No OS loading from diskette drive, go to "Flowchart 2.13—No OS Loading, Diskette Drive."

→ No OS loading from optical drive, go to "Flowchart 2.14—No OS Loading, Optical Drive."

→ No OS loading from network, go to "Flowchart 2.20—No Network/Modem Connection."

*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

```
OS not
loading from
hard drive.
        │
        ▼
   Nonsystem  ──Y──▶  Go to
   disk message?       "Flowchart
        │              2.11—No OS
        N              Loading,
        │              Hard Drive, Part 2."
        ▼
   Reseat
   external
   hard drive.
        │
        ▼
   OS loading?  ──Y──▶  Done
        │
        N
        │
        ▼
   Boot       ──N──▶  Boot      ──N──▶  Go to
   from               from              "Flowchart
   CD?                diskette?         2.13—No OS
        │                │              Loading,
        Y                Y              Diskette Drive."
        ▼                ▼
   Check the Setup   Change boot
   utility for correct  priority through
   booting order.    the Setup utility
        │            and reboot.
        ▼                │
   Boot       ──N──┐     ▼
   from            │  Boot       ──N──▶  Go to
   hard drive?     │  from               "Flowchart
        │          │  hard drive?        2.17—Nonfunctioning
        Y          │     │               Device."
        ▼          └──▶  │
   Done  ◀─────────────  Y
```

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

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

Disc or diskette in drive? — N → 1. Replace hard drive. 2. Replace system board.

Y ↓

Remove disc or diskette and reboot.

Boot from hard drive? — Y → Done

N ↓

Boot from diskette drive? — N → Go to "Flowchart 2.13—No OS Loading, Diskette Drive."

Y ↓

Hard drive accessible? — N → Done

Y ↓

Go to "Flowchart 2.12—No OS Loading, Hard Drive, Part 3."

Reseat hard drive.

Hard drive accessible? — Y → Done

N ↓

Run FDISK.

Hard drive partitioned? — N → Create partition, and then format hard drive to bootable C:\ prompt.

Y ↓

Hard drive formatted? — N → Format hard drive and bring to a bootable C:\ prompt.

Y ↓

Notebook booted? — Y → Done

N ↓

Load OS using *Operating System* disc (if applicable).

Go to "Flowchart 2.12—No OS Loading, Hard Drive, Part 3."

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

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

System files on hard drive?

N → Install OS and reboot.

Y ↓

Virus on hard drive?

Y → Clean virus.

OS loading from hard drive?

Y → Done

N ↓

Diagnostics on disc or diskette?

Y → Replace hard drive.

N ↓

Run diagnostics and follow recommendations.

N ↓

Run SCANDISK and check for bad sectors.

Can bad sectors be fixed?

N → Replace hard drive.

Y ↓

Fix bad sectors.

Boot from hard drive?

N → Replace hard drive.

Y ↓

Done

Flowchart 2.13—No OS Loading, Diskette Drive

Flowchart 2.14—No OS Loading, Optical Drive

Flowchart 2.15—No Audio, Part 1

```
┌─────────────┐      ┌─────────────┐         ╱╲              Y    ┌─────────────┐
│             │      │ Turn up     │        ╱    ╲                │             │
│  No audio.  │─────▶│ audio       │──────▶│ Audio? │──────────▶│    Done     │
│             │      │ internally  │        ╲    ╱                │             │
│             │      │ or externally│        ╲╱                  │             │
└─────────────┘      └─────────────┘         │                   └─────────────┘
                                             │ N
```

```
        ╱╲                    ┌──────────┐        ╱╲          N    ┌─────────────────┐
       ╱    ╲   Y             │          │       ╱    ╲            │ Go to           │
      │ Notebook │──────────▶│  Undock  │─────▶│ Internal │─────▶│ "Flowchart      │
      │ in docking│           │          │      │ audio?   │       │ 2.16—No Audio,  │
      │ device    │           └──────────┘       ╲    ╱            │ Part 2."        │
      │(if applicable)?│                           ╲╱              └─────────────────┘
        ╲    ╱                                      │ Y
         ╲╱
          │ N
    ┌──────────────┐                        ┌─────────────────┐
    │ Go to        │                        │ Dock notebook   │
    │ "Flowchart   │                        │ in replacement  │
    │ 2.16—No Audio,│                       │ docking device. │
    │ Part 2."     │                        └─────────────────┘
    └──────────────┘                                 │
```

```
    ┌──────────────────┐        ╱╲              Y    ┌─────────────┐
    │ Go to            │       ╱    ╲                │             │
    │ "Flowchart       │◀─────│ Audio? │──────────▶│    Done     │
    │ 2.17—Nonfunctioning│     ╲    ╱                │             │
    │ Device."         │       ╲╱                    └─────────────┘
    └──────────────────┘        │
                                │ N
```

Flowchart 2.16—No Audio, Part 2

```
Continued from
"Flowchart
2.15—No Audio,
Part 1."
```

```
          N
Audio              Reload
driver in OS       audio drivers.
configured?

Y
```

```
          N
Correct            Load drivers and
drivers for        set configuration
application?       in OS.

Y
```

```
Connect to
external
speaker.
```

```
          N      Replace audio                 Y
                  board and
Audio?            speaker        Audio?              Done
                  connections
                  in notebook
Y                 (if applicable).      N
```

```
Replace the following components individually,
retesting after each replacement:
■    Internal speakers.
■    Audio board (if applicable).
■    System board.
```

Flowchart 2.17—Nonfunctioning Device

```
                    ┌─────────────────┐
                    │  Nonfunctioning │
                    │     device.     │
                    └────────┬────────┘
                             │
                    ┌────────▼────────┐
                    │     Reseat      │
                    │     device.     │
                    └────────┬────────┘
                             │
        ┌────────────────────▼────────────────────┐
        │ Unplug the nonfunctioning device from    │
        │ the notebook and inspect cables and      │
        │ plugs for bent or broken pins or other   │
        │ damage.                                  │
        └────────────────────┬────────────────────┘
                             │
                          Y  ▼
   ┌──────────┐         ◇─────────◇         ┌──────────┐
   │  Clear   │◄────────│ Any      │────────►│  Fix or  │
   │  CMOS.   │         │ physical │         │ replace  │
   └────┬─────┘         │ device   │         │ broken   │
        │               │ detected?│         │  item.   │
        │               ◇────┬────◇         └──────────┘
        │                N   │
   ┌────▼──────────┐
   │ Reattach      │    ┌──────────────┐
   │ device. Close │    │ Replace hard │
   │ notebook,     │    │    drive.    │
   │ plug in power,│    └──────────────┘
   │ and reboot.   │
   └────┬──────────┘
        │    N
     ◇──▼──◇           ┌──────────────┐         ◇────────◇
     │Device│          │ Replace NIC. │         │ Device │  N
     │boots │──────────│ If integrated│─────────│ boots  │──►
     │prop- │          │ NIC, replace │         │properly│
     │erly? │          │ system board.│         │   ?    │
     ◇──┬──◇           └──────────────┘         ◇───┬───◇
     Y  │                                       Y   │
   ┌────▼─────┐        ┌──────────────┐         ┌───▼──────┐
   │   Done   │        │Replace       │         │   Done   │
   └──────────┘        │diskette drive│         └──────────┘
                       └──────────────┘
```

Go to "Flowchart 2.9—No Operating System (OS) Loading."

Flowchart 2.18—Nonfunctioning Keyboard

```
┌─────────────────┐
│    Keyboard     │
│  not operating  │
│    properly.    │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Connect notebook│
│ to good external│
│    keyboard.    │
└─────────────────┘
         │
         ▼         N
      ◇ External ◇ ──────────►  ┌──────────┐
      ◇ device   ◇              │ Replace  │
      ◇ works?   ◇              │ system   │
         │                      │ board.   │
         │ Y                    └──────────┘
         ▼
┌─────────────────┐
│ Reseat internal │
│    keyboard     │
│    connector    │
│ (if applicable).│
└─────────────────┘
         │
         ▼          N
      ◇ Keyboard ◇ ──────────►  ┌──────────────┐
      ◇ operating◇              │Replace internal│
      ◇ properly?◇              │ keyboard or  │
         │                      │    cable.    │
         │ Y                    └──────────────┘
         ▼                             │
┌──────────┐                           ▼          Y
│          │                      ◇ Keyboard ◇ ──────► ┌────────┐
│   Done   │                      ◇ operating◇         │  Done  │
│          │                      ◇ properly?◇         └────────┘
└──────────┘                           │
                                       │ N
                                       ▼
                                  ┌──────────┐
                                  │ Replace  │
                                  │ system   │
                                  │ board.   │
                                  └──────────┘
```

Flowchart 2.19—Nonfunctioning Pointing Device

```
┌─────────────────┐
│ Pointing device │
│  not operating  │
│    properly.    │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Connect notebook│
│ to good external│
│ pointing device.│
└─────────────────┘
         │
         ▼         N       ┌──────────┐
      ◇ External ◇────────▶│ Replace  │
        device             │ system   │
        works?             │ board.   │
         │                 └──────────┘
       Y │
         ▼
┌─────────────────┐
│ Reseat internal │
│ pointing device │
│    connector    │
│ (if applicable).│
└─────────────────┘
         │
         ▼         N    ┌──────────────────┐
    ◇ Pointing  ◇──────▶│ Replace internal │
      device            │ pointing device  │
      operating         │    or cable.     │
      properly?         └──────────────────┘
       Y │                      │
         ▼                      ▼          Y    ┌────────┐
┌──────────────┐          ◇ Pointing ◇─────────▶│  Done  │
│     Done     │            device             └────────┘
└──────────────┘            operating
                            properly?
                           N │
                             ▼
                      ┌──────────┐
                      │ Replace  │
                      │ system   │
                      │ board.   │
                      └──────────┘
```

Flowchart 2.20—No Network/Modem Connection

No network or modem connection.

↓

Network or modem jack active? **N** → Replace jack or have jack activated.

Y ↓

Digital line? **Y** → Connect to nondigital line.

N ↓

NIC/modem configured in OS? **N** → Reload drivers and reconfigure.

Y ↓

Disconnect all power from the notebook and open.

↓

Reseat NIC/modem (if applicable).

Network or modem connection working? **Y** → Done

N ↓

Replace NIC/modem (if applicable).

↓

Network or modem connection working? **Y** → Done

N ↓

Replace system board.

3

Illustrated Parts Catalog

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

3.1 Serial Number Location

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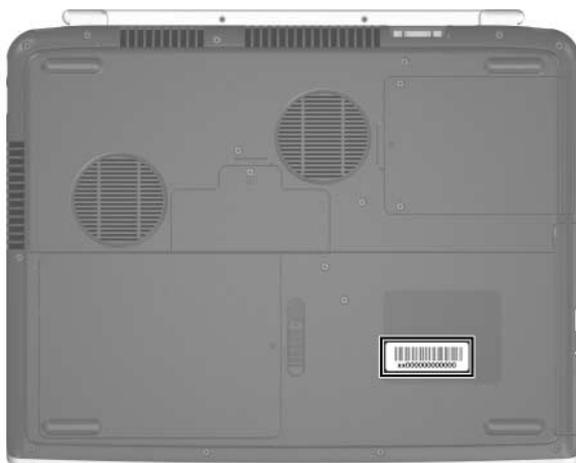
Serial Number Location

3.2 Notebook Major Components
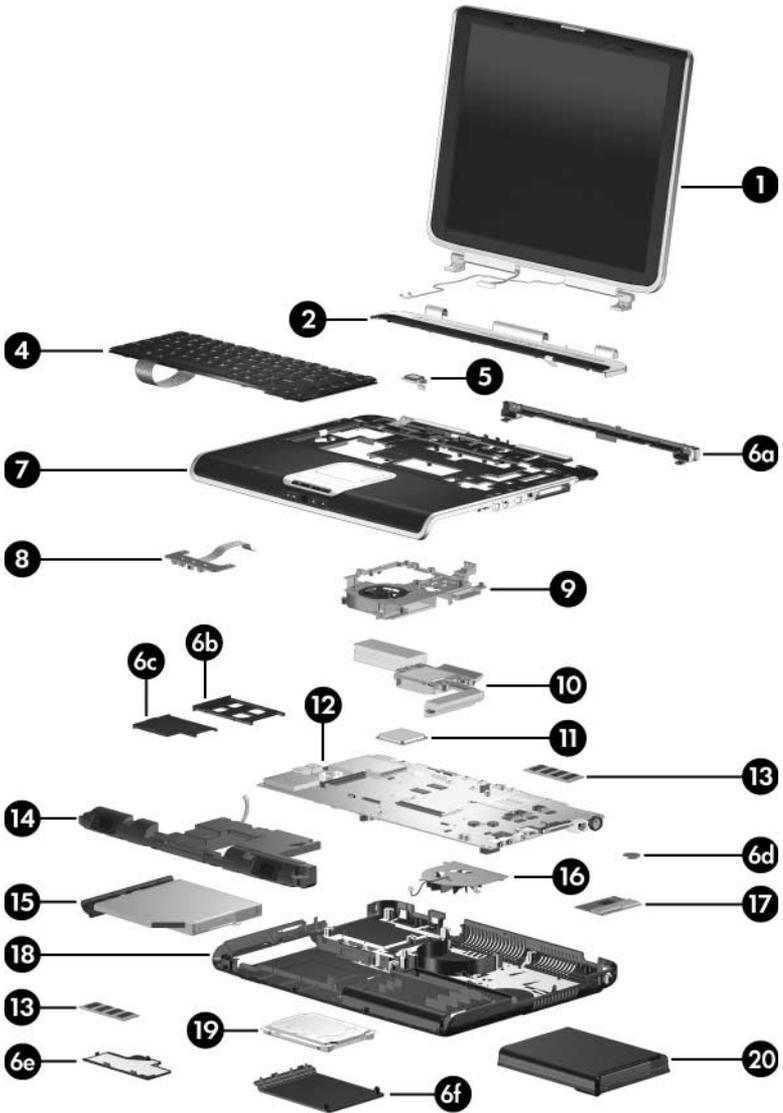
Notebook Major Components, HP Pavilion zv6000

Table 3-1

Spare Parts: Notebook Major Components

Item	Description	Spare Part Number
1	**Display assemblies** (include display cable, wireless antenna boards, and antenna cables)	
	For use with HP Pavilion zv6000 models with wireless capability	
	15.4-inch, WXGA, TFT with BrightView	383939-001
	15.4-inch, WXGA, TFT	383935-001
	For use with HP Pavilion zv6000 models without wireless capability	
	15.4-inch, WXGA, TFT with BrightView	383940-001
	15.4-inch, WXGA, TFT	383936-001
	For use with Compaq Presario R4000 models with wireless capability	
	15.4-inch, WXGA, TFT with BrightView	383941-001
	15.4-inch, WXGA, TFT	383937-001
	For use with Compaq Presario R4000 models without wireless capability	
	15.4-inch, WXGA, TFT with BrightView	383942-001
	15.4-inch, WXGA, TFT	383938-001
	15.0-inch, XGA, TFT	383946-001
	Display inverters (not illustrated)	
	For use with 15.4-inch display assemblies	383669-001
	For use with 15.0-inch display assemblies	383668-001
	Display latch kit (not illustrated)	383914-001
	Wireless antenna boards and cables (not illustrated)	383667-001

Notebook Major Components, Compaq Presario R4000

Table 3-1

Spare Parts: Notebook Major Components *(Continued)*

Item	Description		Spare Part Number
2	**Keyboard covers**		
	For use with HP Pavilion zv6000 models with wireless capability		383915-001
	For use with HP Pavilion zv6000 models without wireless capability		383916-001
	For use with Compaq Presario R4000 models with wireless capability		383918-001
	For use with Compaq Presario R4000 models without wireless capability		383917-001
3	**Volume board** (includes volume board cable; for use only on Compaq Presario R4000 models)		383912-001
4	**Keyboards**		
	For use with HP Pavilion zv6000 models:		

Belgium	383664-A41	Norway	383664-091
Denmark	383664-081	Portugal	383664-131
France	383664-051	Spain	383664-071
French Canada	383664-121	Sweden/Finland	383664-B71
Germany	383664-041	Switzerland	383664-111
Italy	383664-061	United Kingdom	383664-031
The Netherlands	383664-331	United States	383664-001

For use with Compaq Presario R4000 models:

Denmark	383665-081	Norway	383665-091
France	383665-051	Spain	383665-071
French Canada	383665-121	Sweden/Finland	383665-B71
Italy	383665-061	United Kingdom	383665-031
The Netherlands	383665-331	United States	383665-001
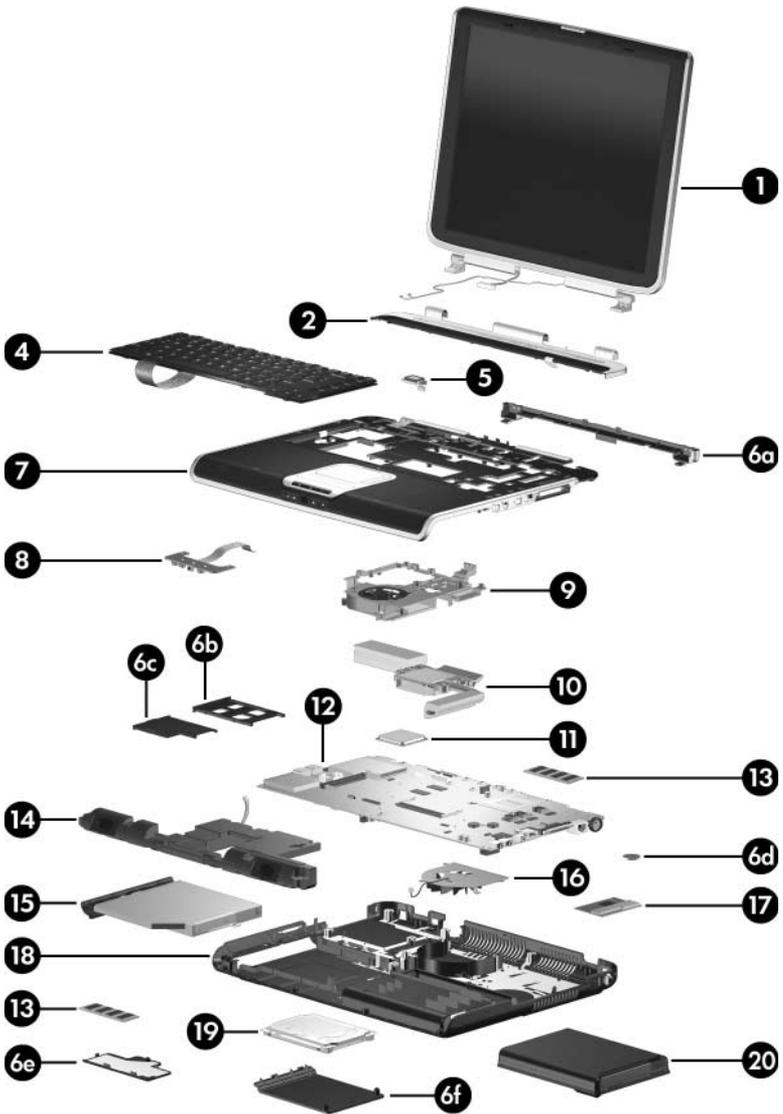
Notebook Major Components, HP Pavilion zv6000

Table 3-1

Spare Parts: Notebook Major Components *(Continued)*

Item	Description	Spare Part Number
5	**Bluetooth® wireless board** (includes Bluetooth board cable)	394733-001
	Miscellaneous Plastics Kit	383670-001
	Includes:	
6a	Top cover rear bezel (for use with HP Pavilion zv6000 models)	
6b	PC Card slot space saver	
6c	ExpressCard slot space saver	
6d	RTC battery	
6e	Memory module compartment cover	
6f	Hard drive cover	
	Notebook feet (not illustrated)	
7	**Top covers** (do not include TouchPad components)	
	For use with full-featured HP Pavilion zv6000 models	398034-001
	For use with defeatured HP Pavilion zv6000 models	398033-001
	For use with full-featured Compaq Presario R4000 models	398036-001
	For use with defeatured Compaq Presario R4000 models	398035-001
	TouchPad components (not illustrated)	
	TouchPad board (includes TouchPad cable)	383927-001
	TouchPad cover (for use with HP Pavilion zv6000 models only)	383928-001
	TouchPad support bracket (for use with Compaq Presario R4000 models only)	383913-001
8	**Front boards** (for use with HP Pavilion zv6000 models only)	
	For use with full-featured models with infrared	383905-001
	For use with defeatured models without infrared	384134-001
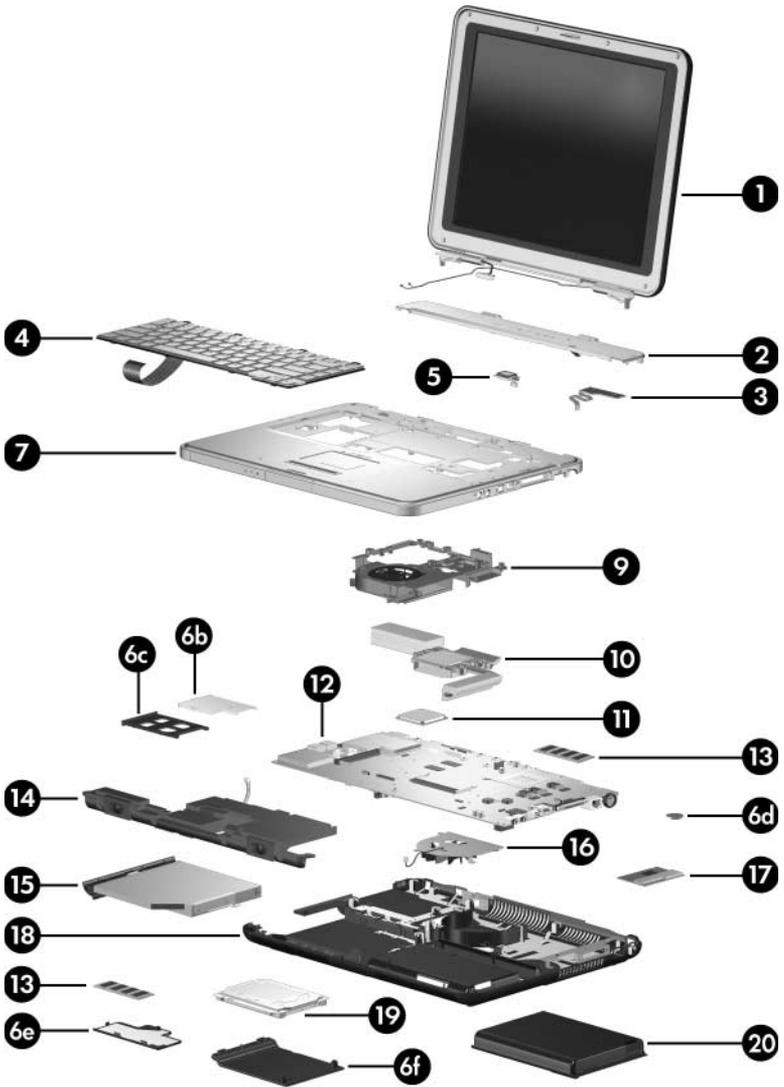
Notebook Major Components, Compaq Presario R4000

Table 3-1

Spare Parts: Notebook Major Components *(Continued)*

Item	Description	Spare Part Number
9	**Thermal frames** (include fan and thermal paste)	
	For use with HP Pavilion zv6000 models	383880-001
	For use with Compaq Presario R4000 models	383881-001
10	**Thermal modules**	
	For use with full-featured models	383675-001
	For use with defeatured models	383676-001
11	**Processors** (include thermal paste)	
	AMD Mobile Athlon 64 4000	396878-001
	AMD Mobile Athlon 64 3800	396877-001
	AMD Mobile Athlon 64 3500	396876-001
	AMD Mobile Athlon 64 3200	396879-001
	Mobile AMD Sempron 3200	396881-001
	Mobile AMD Sempron 3000	396880-001
12	**System boards**	
	For use with full-featured models	396870-001
	For use with defeatured models	396869-001
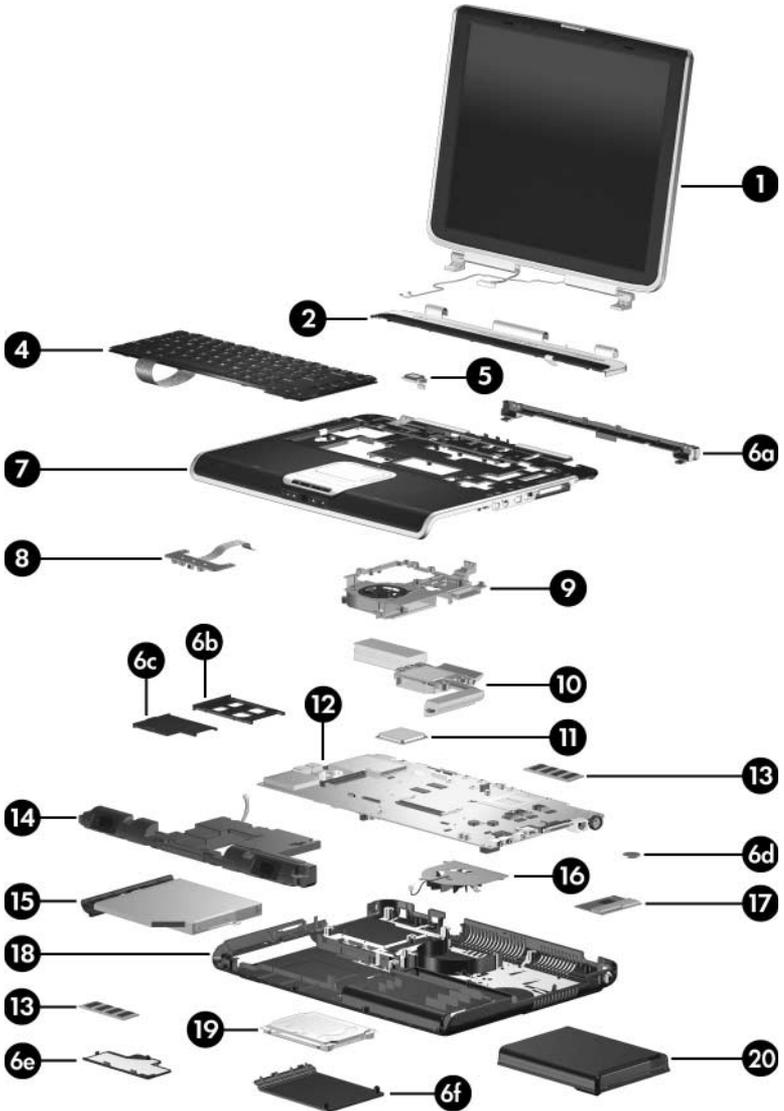
Notebook Major Components, HP Pavilion zv6000

Table 3-1

Spare Parts: Notebook Major Components *(Continued)*

Item	Description	Spare Part Number
13	**Memory modules**	
	1024 MB	383950-001
	512 MB	383949-001
	256 MB	383948-001
14	**Speakers**	
	For use with HP Pavilion zv6000 models	383919-001
	For use with Compaq Presario R4000 models	383920-001
15	**Optical drives**	
	For use with HP Pavilion zv6000 models	
	DVD±RW and CD-RW Double Layer Combo Drive with LightScribe	396871-001
	DVD±RW and CD-RW Double Layer Combo Drive	398032-001
	DVD/CD-RW Combo Drive	383961-001
	For use with Compaq Presario R4000 models	
	DVD±RW and CD-RW Double Layer Combo Drive with LightScribe	396872-001
	DVD±RW and CD-RW Double Layer Combo Drive	398031-001
	DVD±RW and CD-RW Combo Drive	383960-001
	DVD/CD-RW Combo Drive	383962-001
16	**Fan assembly**	383926-001
17	**Mini PCI communications cards**	
	802.11b/g wireless local access network (WLAN) card, for use in North America	392557-001
	802.11b/g WLAN card, for use in the rest of the world	392557-002
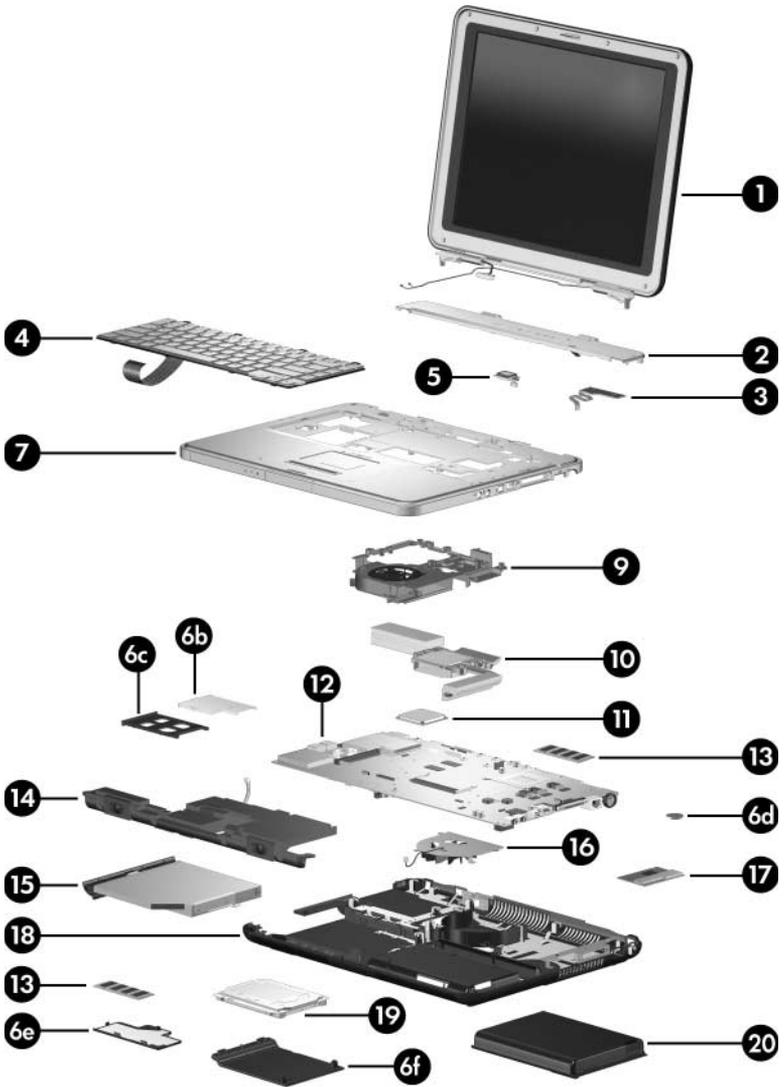
Notebook Major Components, Compaq Presario R4000

Table 3-1

Spare Parts: Notebook Major Components *(Continued)*

Item	Description			Spare Part Number
18	**Base enclosures**			
	For use with full-featured HP Pavilion zv6000 models			383921-001
	For use with defeatured HP Pavilion zv6000 models			383922-001
	For use with Compaq Presario R4000 models			383925-001
19	**Hard drives** (include frame and connector)			
	5400-rpm		4200-rpm	
	80-GB	383954-001	100-GB	392576-001
	60-GB	392575-001	80-GB	383953-001
			60-GB	383952-001
			40-GB	383951-001
20	**Battery packs**			
	12-cell, 6.6-AHr, for use with HP Pavilion zv6000 models			383963-001
	8-cell, 4.4-AHr, for use with HP Pavilion zv6000 models			383965-001
	12-cell, 6.6-AHr, for use with Compaq Presario R4000 models			383966-001
	8-cell, 4.4-AHr, for use with Compaq Presario R4000 models			383968-001

3.3 Mass Storage Devices

Table 3-2

Mass Storage Devices

Spare Part Number Information

Item	Description			Spare Part Number
1	**Hard drives** (include frame and connector)			
	5400 rpm		4200-rpm	
	80-GB	383954-001	100-GB	392576-001
	60-GB	392575-001	80-GB	383953-001
			60-GB	383952-001
			40-GB	383951-001
2	**Optical drives**			
	For use with HP Pavilion zv6000 models			
	DVD±RW and CD-RW Double Layer Combo Drive with LightScribe			396871-001
	DVD±RW and CD-RW Double Layer Combo Drive			398032-001
	DVD/CD-RW Combo Drive			383961-001
	For use with Compaq Presario R4000 models			
	DVD±RW and CD-RW Double Layer Combo Drive with LightScribe			396872-001
	DVD±RW and CD-RW Double Layer Combo Drive			398031-001
	DVD±RW and CD-RW Combo Drive			383960-001
	DVD/CD-RW Combo Drive			383962-001

3.4 Miscellaneous Plastics Kit
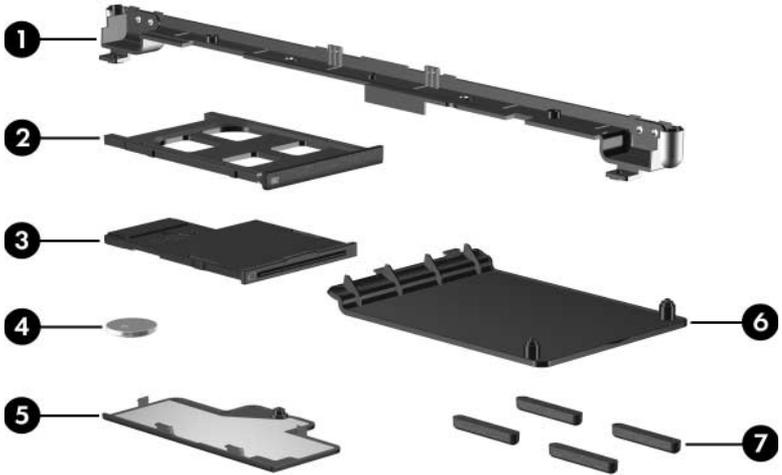
Table 3-3

Miscellaneous Plastics Kit

Spare Part Number 383670-001

Item	Description
1	Top cover rear bezel
2	PC Card slot space saver
3	ExpressCard slot space saver
4	RTC battery
5	Memory module compartment cover (includes 1 captive screw, secured by C-clip)
6	Hard drive cover (includes 2 captive screws, secured by C-clips)
7	Notebook feet (4)

3.5 Miscellaneous (Not Illustrated)

Table 3-4

Miscellaneous (Not Illustrated)

Spare Part Number Information

Description	Spare Part Number
All-in-one media cable	375759-001
Audio Y-cable	379452-001
Cable Kit	383671-001
HP remote control (for use with HP Pavilion zv6000 models)	371694-001
Label Kit	383672-001
Power supplies	
120 watt, PFC	394208-001
120 watt, non-PFC	394209-001
90 watt, PFC	394210-001
90 watt, non-PFC	394211-001
Power cords	
For use in:	
Belgium, Europe, Finland, France, Germany, Greece, the Netherlands, Norway, Portugal, Spain, and Sweden	350188-021
Canada, French Canada, Latin America, Taiwan, Thailand, and the United States	350188-001
Denmark	350188-081
Hong Kong and the United Kingdom	350188-031
Italy	350188-061
Switzerland	350188-111
Rubber Pad Kit	383674-001

Table 3-4

Miscellaneous (Not Illustrated)

Spare Part Number Information *(Continued)*

Description	Spare Part Number
Screw Kit (include the following screws; refer to Appendix C, "Screw Listing," for more information on specifications and usage)	383673-001

- Phillips PM2.5×8.0 screw
- Phillips PM2.5×7.0 screw
- Phillips PM2.5×4.0 screw
- Phillips PM2.0×16.0 screw
- Phillips PM2.0×5.0 screw

- Phillips PM2.0×12.0 spring-loaded screw
- Phillips PM2.0×4.0 screw
- Phillips PM2.0×2.0 screw
- Phillips PM1.5×4.0 screw

Description	Spare Part Number
Wired headset with volume control	371693-001
USB digital drive	364727-001
USB travel mouse	309674-001

3.6 Sequential Part Number Listing

Table 3-5

Sequential Part Number Listing

Spare Part Number	Description
309674-001	USB travel mouse
350188-001	Power cord for use in Canada, French Canada, Latin America, Taiwan, Thailand, and the United States
350188-021	Power cord for use in Belgium, Europe, Finland, France, Germany, Greece, the Netherlands, Norway, Portugal, Spain, and Sweden
350188-031	Power cord for use in Hong Kong and the United Kingdom
350188-061	Power cord for use in Italy
350188-081	Power cord for use in Denmark
350188-111	Power cord for use in Switzerland
364727-001	Rubber Pad Kit
371693-001	Wired headset with volume control
371694-001	HP remote control (for use with HP Pavilion zv6000 models)
375759-001	All-in-one Media Cable
377408-001	802.11b/g WLAN Mini PCI communications card, for use in most of the world
377408-002	802.11b/g WLAN Mini PCI communications card, for use in the rest of the world
379452-001	Audio Y-cable
383664-001	Keyboard for use with HP Pavilion zv6000 models in the United States
383664-031	Keyboard for use with HP Pavilion zv6000 models in the United Kingdom
383664-041	Keyboard for use with HP Pavilion zv6000 models in Germany

Table 3-5

Sequential Part Number Listing *(Continued)*

Spare Part Number	Description
383664-051	Keyboard for use with HP Pavilion zv6000 models in France
383664-061	Keyboard for use with HP Pavilion zv6000 models in Italy
383664-071	Keyboard for use with HP Pavilion zv6000 models in Spain
383664-081	Keyboard for use with HP Pavilion zv6000 models in Denmark
383664-091	Keyboard for use with HP Pavilion zv6000 models in Norway
383664-111	Keyboard for use with HP Pavilion zv6000 models in Switzerland
383664-121	Keyboard for use with HP Pavilion zv6000 models in French Canada
383664-131	Keyboard for use with HP Pavilion zv6000 models in Portugal
383664-331	Keyboard for use with HP Pavilion zv6000 models in the Netherlands
383664-A41	Keyboard for use with HP Pavilion zv6000 models in Belgium
383664-B71	Keyboard for use with HP Pavilion zv6000 models in Sweden/Finland
383665-001	Keyboard for use with Compaq Presario R4000 models in the United States
383665-031	Keyboard for use with Compaq Presario R4000 models in the United Kingdom
383665-051	Keyboard for use with Compaq Presario R4000 models in France
383665-061	Keyboard for use with Compaq Presario R4000 models in Italy
383665-071	Keyboard for use with Compaq Presario R4000 models in Spain
383665-081	Keyboard for use with Compaq Presario R4000 models in Denmark

Table 3-5

Sequential Part Number Listing *(Continued)*

Spare Part Number	Description
383665-091	Keyboard for use with Compaq Presario R4000 models in Norway
383665-121	Keyboard for use with Compaq Presario R4000 models in French Canada
383665-331	Keyboard for use with Compaq Presario R4000 models in the Netherlands
383665-B71	Keyboard for use with Compaq Presario R4000 models in Sweden/Finland
383667-001	Wireless antenna boards and cables
383668-001	Display inverter for use with 15.0-inch display assemblies
383669-001	Display inverter for use with 15.4-inch display assemblies
383670-001	Miscellaneous Plastics Kit
383671-001	Cable Kit
383672-001	Label Kit
383673-001	Screw Kit
383674-001	Rubber Pad Kit
383675-001	Thermal module for use with full-featured models
383676-001	Thermal module for use with defeatured models
383880-001	Thermal frame for use with HP Pavilion zv6000 models (includes fan and thermal paste)
383881-001	Thermal frame for use with Compaq Presario R4000 models (includes fan and thermal paste)
383905-001	Front board for use with full-featured HP Pavilion zv6000 models with infrared

Table 3-5

Sequential Part Number Listing *(Continued)*

Spare Part Number	Description
383912-001	Volume board (includes volume board cable; for use only on Compaq Presario R4000 models)
383913-001	TouchPad support bracket (for use with Compaq Presario R4000 models)
383914-001	Display latch kit
383915-001	Keyboard cover for use with HP Pavilion zv6000 models with wireless capability
383916-001	Keyboard cover for use with HP Pavilion zv6000 models without wireless capability
383917-001	Keyboard cover for use with Compaq Presario R4000 models without wireless capability
383918-001	Keyboard cover for use with Compaq Presario R4000 models with wireless capability
383919-001	Speaker for use with HP Pavilion zv6000 models
383920-001	Speaker for use with Compaq Presario R4000 models
383921-001	Base enclosure for use with full-featured HP Pavilion zv6000 models
383922-001	Base enclosure for use with defeatured HP Pavilion zv6000 models
383925-001	Base enclosure for use with Compaq Presario R4000 models
383926-001	Fan assembly (includes thermal paste)
383927-001	TouchPad board (not illustrated; includes TouchPad cable)
383928-001	TouchPad cover (not illustrated; for use with HP Pavilion zv6000 models only)
383935-001	Display assembly, 15.4-inch, WXGA, TFT, for use with HP Pavilion zv6000 models with wireless capability (includes display cable, wireless antenna boards, and antenna cables)

Table 3-5

Sequential Part Number Listing *(Continued)*

Spare Part Number	Description
383936-001	Display assembly, 15.4-inch, WXGA, TFT, for use with HP Pavilion zv6000 models without wireless capability (includes display cable)
383937-001	Display assembly, 15.4-inch, WXGA, TFT, for use with Compaq Presario R4000 models with wireless capability (includes display cable, wireless antenna boards, and antenna cables)
383938-001	Display assembly, 15.4-inch, WXGA, TFT, for use with Compaq Presario R4000 models without wireless capability (includes display cable)
383939-001	Display assembly, 15.4-inch, WXGA, TFT with BrightView, for use with HP Pavilion zv6000 models with wireless capability (includes display cable, wireless antenna boards, and antenna cables)
383940-001	Display assembly, 15.4-inch, WXGA, TFT with BrightView, for use with HP Pavilion zv6000 models without wireless capability (includes display cable)
383941-001	Display assembly, 15.4-inch, WXGA, TFT with BrightView, for use with Compaq Presario R4000 models with wireless capability (includes display cable, wireless antenna boards, and antenna cables)
383942-001	Display assembly, 15.4-inch, WXGA, TFT with BrightView, for use with Compaq Presario R4000 models without wireless capability (includes display cable)
383946-001	Display assembly, 15.0-inch, XGA, TFT, for use with Compaq Presario R4000 models without wireless capability (includes display cable)
383948-001	256-MB memory module
383949-001	512-MB memory module
383950-001	1024-MB memory module

Table 3-5

Sequential Part Number Listing *(Continued)*

Spare Part Number	Description
383951-001	4200-rpm 40-GB hard drive (includes frame and connector)
383952-001	4200-rpm, 60-GB hard drive (includes frame and connector)
383953-001	4200-rpm, 80-GB hard drive (includes frame and connector)
383954-001	5400-rpm, 80-GB hard drive (includes frame and connector)
383960-001	DVD±RW and CD-RW Combo Drive for use with Compaq Presario R4000 models
383961-001	DVD/CD-RW Combo Drive for use with HP Pavilion zv6000 models
383962-001	DVD/CD-RW Combo Drive for use with Compaq Presario R4000 models
383963-001	12-cell, 6.6-AHr battery pack for use with HP Pavilion zv6000 models
383965-001	8-cell, 4.4-AHr battery pack for use with HP Pavilion zv6000 models
383966-001	12-cell, 6.6-AHr battery pack for use with Compaq Presario R4000 models
383968-001	8-cell, 4.4-AHr battery pack for use with Compaq Presario R4000 models
384134-001	Front board for use with defeatured HP Pavilion zv6000 models without infrared
392557-001	802.11b/g WLAN card, for use in North America
392557-002	802.11b/g WLAN card, for use in the rest of the world
392574-001	DVD±RW and CD-RW Combo Drive with Lightscribe for use with Compaq Presario R4000 models
392575-001	5400-rpm 60-GB hard drive (includes frame and connector)
392576-001	4200-rpm 100-GB hard drive (includes frame and connector)

Table 3-5

Sequential Part Number Listing *(Continued)*

Spare Part Number	Description
394208-001	120-watt, PFC power supply
394209-001	120-watt, non-PFC power supply
394210-001	90-watt, PFC power supply
394211-001	90-watt, non-PFC power supply
394733-001	Bluetooth wireless board (includes Bluetooth board cable)
396869-001	System board for use with defeatured models
396870-001	System board for use with full-featured models
396871-001	DVD±RW and CD-RW Double Layer Combo Drive with Lightscribe for use with HP Pavilion zv6000 models
396872-001	DVD±RW and CD-RW Double Layer Combo Drive with LightScribe for use with Compaq Presario R4000 models
396876-001	AMD Mobile Athlon 64 3500 processor (includes thermal paste)
396877-001	AMD Mobile Athlon 64 3800 processor (includes thermal paste)
396878-001	AMD Mobile Athlon 64 4000 processor (includes thermal paste)
396879-001	AMD Mobile Athlon 64 3200 processor (includes thermal paste)
396880-001	Mobile AMD Sempron 3000 processor (includes thermal paste)
396881-001	Mobile AMD Sempron 3200 processor (includes thermal paste)
398031-001	DVD±RW and CD-RW Dual Layer Combo Drive for use with Compaq Presario R4000 models

Table 3-5

Sequential Part Number Listing *(Continued)*

Spare Part Number	Description
398032-001	DVD±RW and CD-RW Dual Layer Combo Drive for use with HP Pavilion zv6000 models
398033-001	Top cover for use with defeatured HP Pavilion zv6000 models
398034-001	Top cover for use with full-featured HP Pavilion zv6000 models
398035-001	Top cover for use with defeatured Compaq Presario R4000 models
398036-001	Top cover for use with full-featured Compaq Presario R4000 models

4

Removal and Replacement Preliminaries

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

4.1 Tools Required

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

■ Magnetic screwdriver

■ Phillips P0 screwdriver

■ Flat-bladed screwdriver

■ Tool kit—includes connector removal tool, loopback plugs, and case utility tool

4.2 Service Considerations

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

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

Plastic Parts

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

Cables and Connectors

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

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

4.3 Preventing Damage to Removable Drives

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

■ Before removing or inserting a hard drive, shut down the notebook. If you are unsure whether the notebook is off or in hibernation, turn the notebook on, and then shut it down through the operating system.

■ Before removing a diskette drive or optical drive, ensure that a diskette or disc is not in the drive and ensure that the optical drive tray is closed.

■ Before handling a drive, ensure that you are discharged of static electricity. While handling a drive, avoid touching the connector.

■ Handle drives on surfaces covered with at least one inch of shock-proof foam.

■ Avoid dropping drives from any height onto any surface.

■ After removing a hard drive, an optical drive, or a diskette drive, place it in a static-proof bag.

■ Avoid exposing a hard drive to products that have magnetic fields, such as monitors or speakers.

■ Avoid exposing a drive to temperature extremes or liquids.

■ If a drive must be mailed, place the drive in a bubble pack mailer or other suitable form of protective packaging and label the package "FRAGILE: Handle With Care."

4.4 **Preventing Electrostatic Damage**

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

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

An electronic device exposed to electrostatic discharge may not be affected at all and can work perfectly throughout a normal cycle. Or the device may function normally for a while, then degrade in the internal layers, reducing its life expectancy.

4.5 Packaging and Transporting Precautions

Use the following grounding precautions when packaging and transporting equipment:

■ To avoid hand contact, transport products in static-safe containers, such as tubes, bags, or boxes.

■ Protect all electrostatic-sensitive parts and assemblies with conductive or approved containers or packaging.

■ Keep electrostatic-sensitive parts in their containers until the parts arrive at static-free workstations.

■ Place items on a grounded surface before removing items from their containers.

■ Always be properly grounded when touching a sensitive component or assembly.

■ Store reusable electrostatic-sensitive parts from assemblies in protective packaging or nonconductive foam.

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

4.6 **Workstation Precautions**

Use the following grounding precautions at workstations:

■ Cover the workstation with approved static-shielding material (refer to Table 4-2, "Static-Shielding Materials").

■ Use a wrist strap connected to a properly grounded work surface and use properly grounded tools and equipment.

■ Use conductive field service tools such as cutters, screwdrivers, and vacuums.

■ When fixtures must directly contact dissipative surfaces, use fixtures made only of static-safe materials.

■ Keep the work area free of nonconductive materials such as ordinary plastic assembly aids and Styrofoam.

■ Handle electrostatic-sensitive components, parts, and assemblies by the case or PCM laminate. Handle these items only at static-free workstations.

■ Avoid contact with pins, leads, or circuitry.

■ Turn off power and input signals before inserting or removing connectors or test equipment.

4.7 Grounding Equipment and Methods

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

■ When seated, wear a wrist strap connected to a grounded system. Wrist straps are flexible straps with a minimum of one megohm ±10% resistance in the ground cords. To provide proper ground, wear a strap snugly against the skin at all times. On grounded mats with banana-plug connectors, use alligator clips to connect a wrist strap.

■ When standing, use foot straps and a grounded floor mat. Foot straps (heel, toe, or boot straps) can be used at standing workstations and are compatible with most types of shoes or boots. On conductive floors or dissipative floor mats, use foot straps on both feet with a minimum of one megohm resistance between the operator and ground. To be effective, the conductive strips must be worn in contact with the skin.

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

■ Antistatic tape

■ Antistatic smocks, aprons, and sleeve protectors

■ Conductive bins and other assembly or soldering aids

■ Nonconductive foam

■ Conductive tabletop workstations with ground cords of one megohm resistance

■ Static-dissipative tables or floor mats with hard ties to the ground

■ Field service kits

■ Static awareness labels

■ Material-handling packages

■ Nonconductive plastic bags, tubes, or boxes

■ Metal tote boxes

■ Electrostatic voltage levels and protective materials

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

Table 4-1

Typical Electrostatic Voltage Levels

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

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

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

Table 4-2

Static-Shielding Materials

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

5

Removal and Replacement Procedures

This chapter provides removal and replacement procedures.

There are as many as 75 screws, in 9 different sizes, that may have to be removed, replaced, or loosened when servicing the notebook. Make special note of each screw and screw lock size and location during removal and replacement.

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

5.1 **Serial Number**

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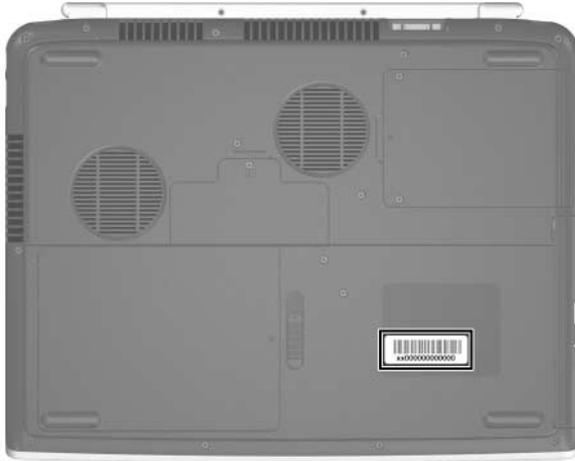
Serial Number Location

5.2 Disassembly Sequence Chart

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

Disassembly Sequence Chart

Section	Description	# of Screws Removed
5.3	Preparing the Notebook for Disassembly	
	Battery pack	0
5.4	Hard Drive	2 loosened to remove the hard drive cover 2 to remove the hard drive 4 to remove the hard drive frame
5.5	Notebook Feet	0
5.6	External Memory Module	1 loosened to remove the memory module compartment cover
5.7	Optical Drive	1
5.8	Keyboard Cover	4
5.9	Volume Board	2
5.10	Bluetooth Board	2
5.11	Keyboard	4
5.12	Mini PCI Communications Card	0

⚠ To prevent an unresponsive system and the display of a warning message, install only a Mini PCI device authorized for use in your notebook by the governmental agency that regulates wireless devices in your country. If you install a device and then receive a warning message, remove the device to restore notebook functionality. Then contact Customer Care.

Disassembly Sequence Chart *(Continued)*

Section	Description	# of Screws Removed
5.13	Internal Memory Module	0
5.14	Display Assembly	8 on HP Pavilion zv6000 models 6 on Compaq Presario R4000 models
5.15	Base Enclosure	17 on HP Pavilion zv6000 models 15 on Compaq Presario R4000 models
5.16	Fan Assembly	3
5.17	Speaker	0
5.18	Front Board	2
5.19	Thermal Module	4
5.20	Processor	0
5.21	Thermal Frame	13 on HP Pavilion zv6000 models 11 on Compaq Presario R4000 models
5.22	System Board	6

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 notebook on, and then shut it down through the operating system.

2. Disconnect all external devices connected to the notebook.

3. Disconnect the power cord.

Battery Pack Spare Part Number Information

For use with HP Pavilion zv6000 models	
12-cell, 6.0-AHr	383963-001
8-cell, 4.4-AHr	383965-001
For use with Compaq Presario R4000 models	
12-cell, 6.0-AHr	383966-001
8-cell, 4.4-AHr	383968-001

4. Remove the battery pack by following these steps:

   a. Turn the notebook upside down with the front toward you.

   b. Slide the battery release latch ❶ toward the notebook rear panel. (The right edge of the battery pack disengages from the notebook.)

   c. Lift the right edge of the battery pack ❷ up and swing it to the left.

   d. Remove the battery pack.
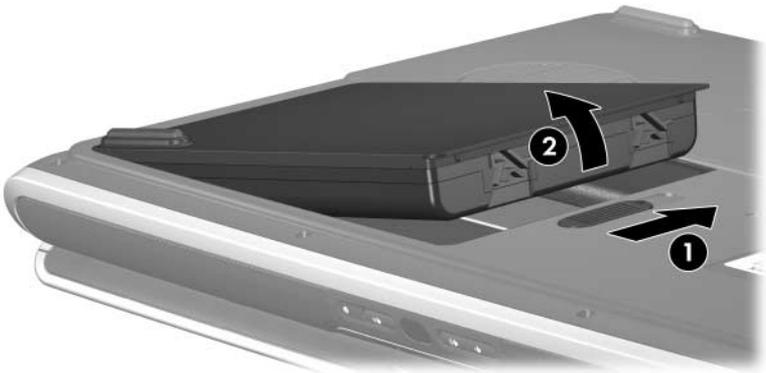
Removing the Battery Pack

Reverse the above procedure to install the battery pack.

5.4 Hard Drive

Hard Drive Spare Part Number Information	
5400-rpm 80-GB	383954-001
5400-rpm 60-GB	392575-001
4200-rpm 100-GB	392576-001
4200-rpm 80-GB	383953-001
4200-rpm 60-GB	383952-001
4200-rpm 40-GB	383951-001

1. Prepare the notebook for disassembly (Section 5.3).

2. Loosen the two PM2.0×7.0 screws ❶ that secure the hard drive cover to the notebook.

3. Lift the left side of the cover ❷ up and swing it to the right.

4. Remove the hard drive cover.

✎ The hard drive cover is included in the Miscellaneous Plastics Kit, spare part number 383670-001.
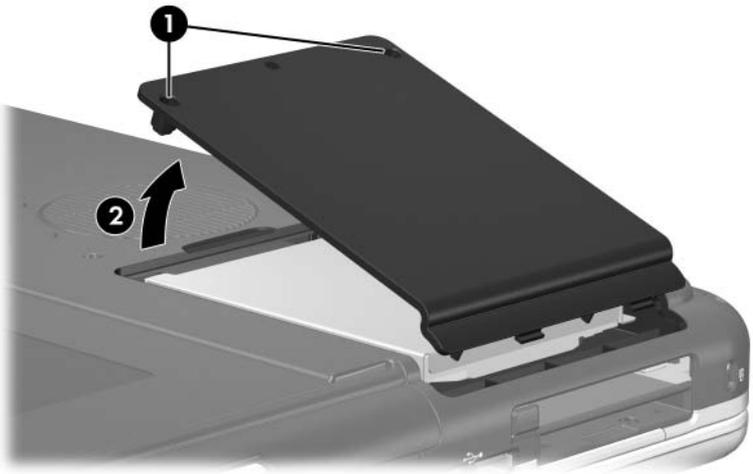
Removing the Hard Drive Cover

5. Remove the two PM2.0×7.0 hard drive retention screws ❶ that secure the hard drive to the notebook.

6. Slide the hard drive ❷ to the right to disconnect it from the system board.

7. Lift the hard drive ❸ straight up and remove it from the hard drive bay.
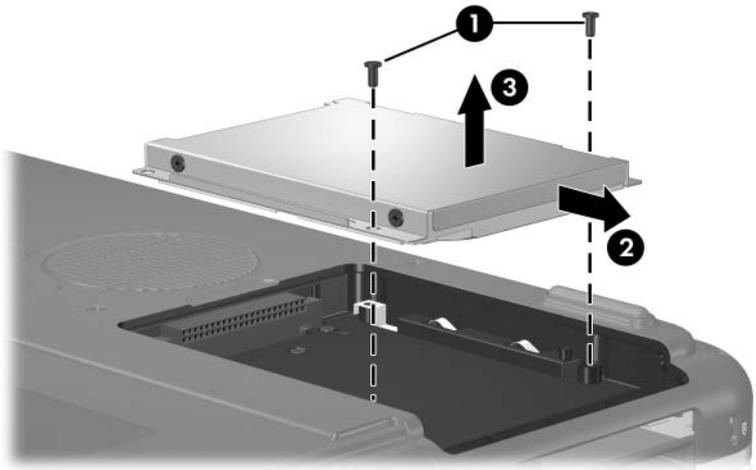
Removing the Hard Drive

8. Remove the four PM3.0×4.5 screws ❶ that secure the hard drive frame to the hard drive.

9. Lift the frame ❷ to remove if from the hard drive.
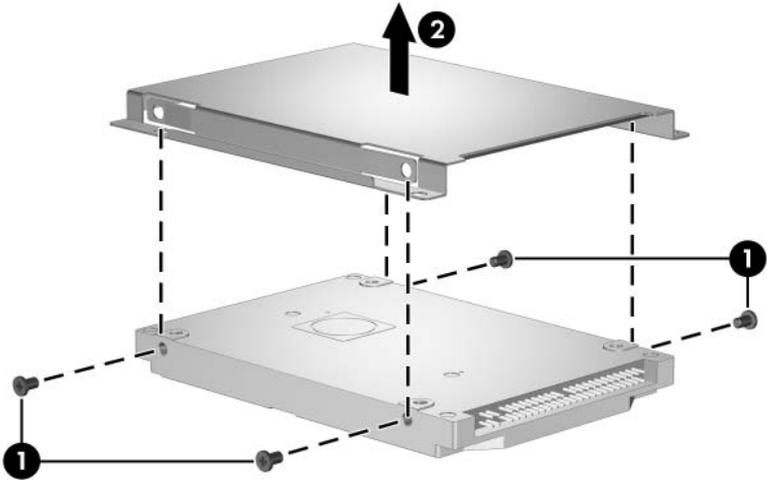
Removing the Hard Drive Frame

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

5.5 **Notebook Feet**

The notebook feet are adhesive-backed rubber pads. The feet are included in the Miscellaneous Plastics Kit, spare part number 383670-001.
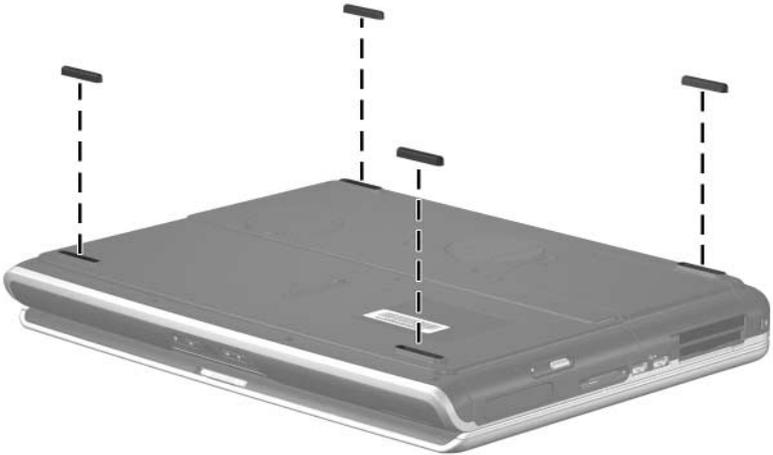
Replacing the Notebook Feet

5.6 **External Memory Module**

Memory Module Spare Part Number Information	
1024 MB	383950-001
512 MB	383949-001
256 MB	383948-001

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

2. Loosen the PM2.0×7.0 screw ❶ that secures the memory module compartment cover to the notebook.

3. Lift the rear edge of the cover ❷ up and swing it toward you.

4. Remove the memory module compartment cover.

✎ The memory module compartment cover is included in the Miscellaneous Plastics Kit, spare part number 383670-001.
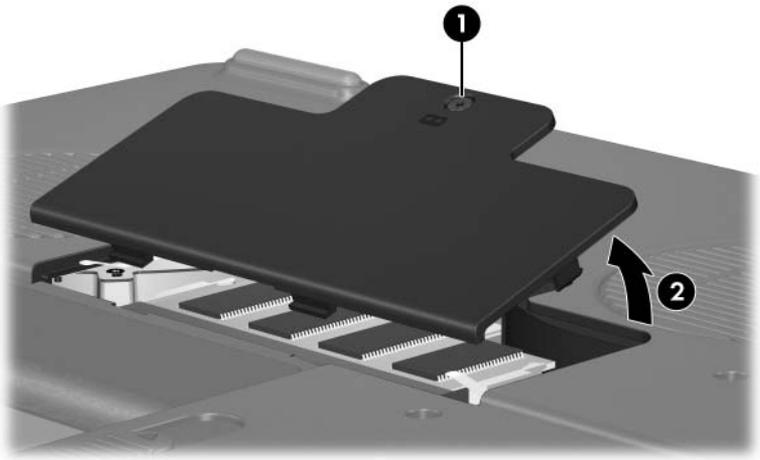
Removing the Memory Module Compartment Cover

5. Spread the retaining tabs ❶ on each side of the memory module socket to release the memory module. (The side of the module opposite the socket rises away from the notebook.)

6. Slide the module ❷ away from the socket at an angle.

7. Remove the memory module.

✎ Memory modules are designed with notches ❸ to prevent incorrect installation of the module into the memory module socket.
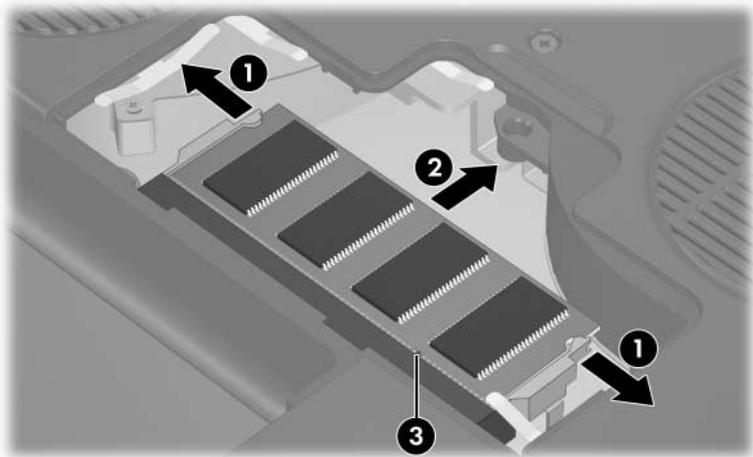
Removing the Memory Module

Reverse the above procedure to install a memory module.

5.7 Optical Drive

Optical Drive Spare Part Number Information

For use with HP Pavilion zv6000 models	
DVD±RW and CD-RW Double Layer Combo Drive with LightScribe	396871-001
DVD±RW and CD-RW Double Layer Combo Drive	398032-001
DVD/CD-RW Combo Drive	383961-001
For use with Compaq Presario R4000 models	
DVD±RW and CD-RW Double Layer Combo Drive with LightScribe	396872-001
DVD±RW and CD-RW Double Layer Combo Drive	398031-001
DVD±RW and CD-RW Combo Drive	383960-001
DVD/CD-RW Combo Drive	383962-001

1. Prepare the notebook for disassembly (Section 5.3).

2. Remove the PM2.0×7.0 screw ❶ that secures the optical drive to the notebook.

3. Insert a thin tool, such as a paper clip, into the media tray release hole ❷. The optical drive media tray releases from the optical drive.

4. Use the media tray frame to slide the optical drive ❸ to the right.

5. Remove the optical drive.
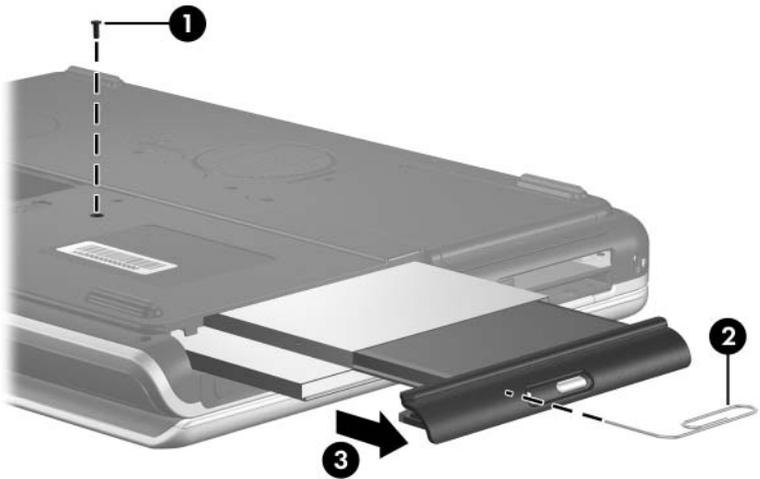
Removing the Optical Drive

Reverse the above procedure to install the optical drive.

5.8 Keyboard Cover

Keyboard Cover Spare Part Number Information

For use with HP Pavilion zv6000 models with wireless capability	383915-001
For use with HP Pavilion zv6000 models without wireless capability	383916-001
For use with Compaq Presario R4000 models with wireless capability	383918-001
For use with Compaq Presario R4000 models without wireless capability	383917-001

1. Prepare the notebook for disassembly (Section 5.3).

2. Turn the notebook upside down with the rear panel toward you.

3. Remove the four PM2.0×15.0 screws that secure the
   keyboard cover to the notebook.
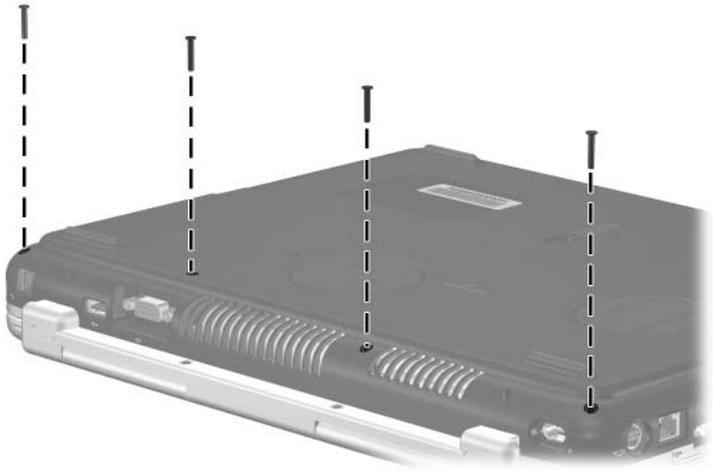
Removing the Keyboard Cover Screws

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

5. Open the notebook as far as possible.

✎ Steps 6 through 10 apply to HP Pavilion zv6000 models. See steps 11 through 15 in this section to remove the keyboard cover on Compaq Presario R4000 models.

6. Place a piece of masking tape on the left display hinge to protect the display hinge from being damaged by the removal of the keyboard cover.
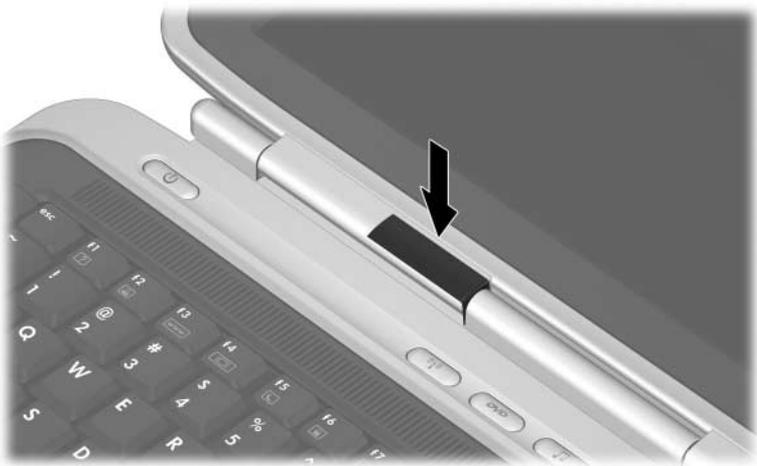
Applying Protective Masking Tape, HP Pavilion zv6000 Models

7. Press down on the label area of the keyboard cover ❶ to release the keyboard cover hook from the notebook.

8. Lift the right side of the keyboard cover ❷ and slide the right side of the cover toward the notebook rear panel.

Releasing the Keyboard Cover, HP Pavilion zv6000 Models

9. Continue pressing down on the pressure points on the keyboard cover (locations indicated by ❶, ❷, ❸) to release the keyboard cover hooks from the notebook. As you do so, continue lifting the right side of the keyboard cover and sliding the cover ❹ toward the notebook rear panel.

10. Remove the keyboard cover.
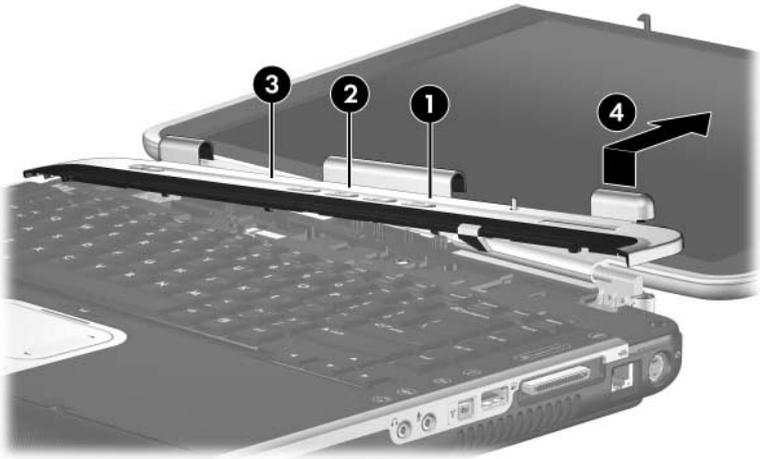
Removing the Keyboard Cover, HP Pavilion zv6000 Models

✎ Steps 11 through 15 apply to Compaq Presario R4000 models.

11. Insert a flat blade screwdriver into the notch ❶ behind the **insert** key and lift up the right side of the keyboard cover ❷.

12. Lift up on the middle ❸ of the keyboard cover until it disengages from the notebook.

Releasing the Keyboard Cover, Compaq Presario R4000 Models

13. Lift the rear edge of the keyboard cover ❶ and swing it forward until it rests on the keyboard.

14. Release the zero insertion force (ZIF) connector to which the volume board cable is attached and disconnect the volume board cable ❷ from the system board.

15. Remove the keyboard cover.
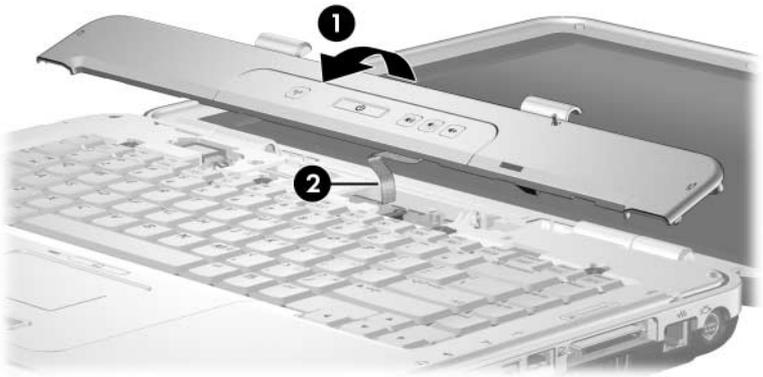
Removing the Keyboard Cover, Compaq Presario R4000 Models

Reverse the above procedure to install the keyboard cover.

5.9 **Volume Board**

✎ The volume board removal procedures in this section apply to Compaq Presario R4000 models.

Volume Board Spare Part Number Information

Volume board (includes volume board cable; for use only on Compaq Presario R4000 models)	383912-001

1. Prepare the notebook for disassembly (Section 5.3).
2. Remove the keyboard cover (Section 5.8).
3. Remove the two PM2.0×4.0 screws ❶ that secure the volume board to the keyboard cover.
4. Remove the volume board ❷.
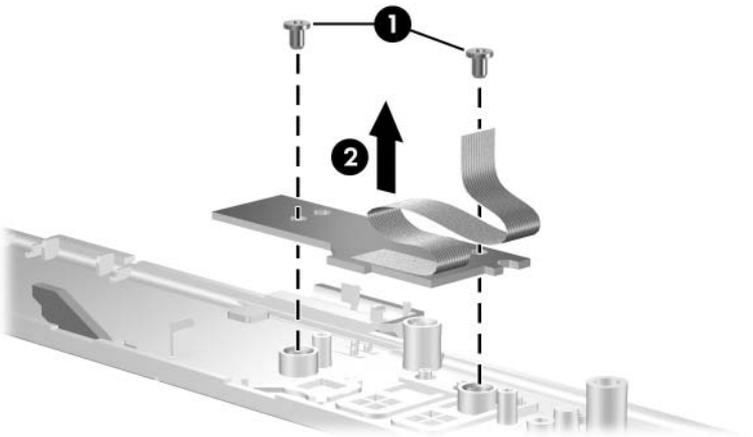
Removing the Volume Board

Reverse the above procedure to install the volume board.

5.10 Bluetooth Board

Bluetooth Board Spare Part Number Information

Bluetooth wireless board (includes Bluetooth board cable)   394733-001

1. Prepare the notebook for disassembly (Section 5.3).

2. Remove the keyboard cover (Section 5.8).

3. Disconnect the Bluetooth board cable ❶ from the system board.

4. Remove the two PM1.5×3.0 screws ❷ that secure the Bluetooth board to the notebook.

5. Remove the Bluetooth board ❸.
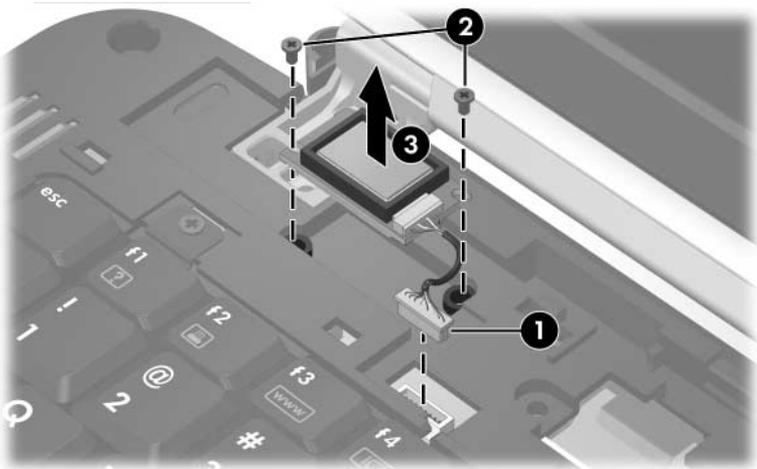
Removing the Bluetooth Board

Reverse the above procedure to install the Bluetooth board.

5.11 Keyboard

Keyboard Spare Part Number Information

For use with HP Pavilion zv6000 models:

Belgium	383664-A41	Norway	383664-091
Denmark	383664-081	Portugal	383664-131
France	383664-051	Spain	383664-071
French Canada	383664-121	Sweden/Finland	383664-B71
Germany	383664-041	Switzerland	383664-111
Italy	383664-061	United Kingdom	383664-031
The Netherlands	383664-331	United States	383664-001

For use with Compaq Presario R4000 models:

Denmark	383665-081	Norway	383665-091
France	383665-051	Spain	383665-071
French Canada	383665-121	Sweden/Finland	383665-101
Italy	383665-061	United Kingdom	383665-031
The Netherlands	383665-331	United States	383665-001

1. Prepare the notebook for disassembly (Section 5.3).

2. Remove the keyboard cover (Section 5.8).

3. Remove the four PM2.0×4.0 screws that secure the keyboard to the notebook.

Removing the Keyboard Screws

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

Releasing the Keyboard

5. Release the ZIF connector ❶ to which the keyboard cable is connected and disconnect the keyboard cable ❷ from the system board.

6. Remove the keyboard.
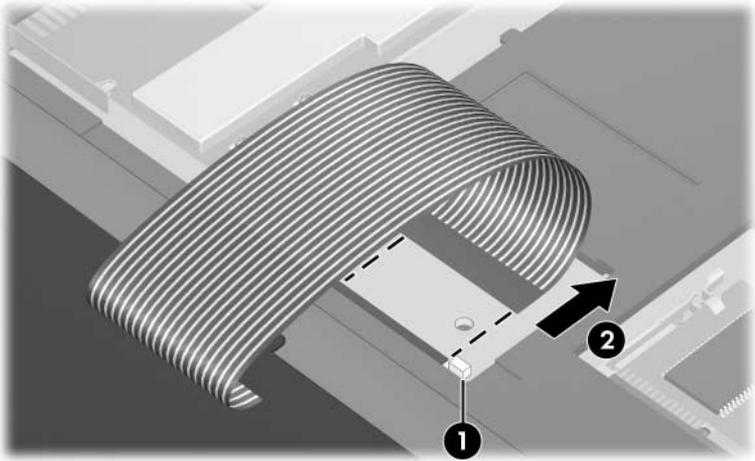
Disconnecting the Keyboard Cable

Reverse the above procedure to install the keyboard.

5.12 Mini PCI Communications Card

Mini PCI Communications Card
Spare Part Number Information

802.11b/g wireless local access network (WLAN) card, for use in North America	392557-001
802.11b/g WLAN card, for use in the rest of the world	392557-002

1. Prepare the notebook for disassembly (Section 5.3).

2. Remove the keyboard cover (Section 5.8).

3. Remove the keyboard (Section 5.11).

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

4. Disconnect the auxiliary and main antenna cables ❶ from the Mini PCI communications card.

5. Spread the retaining tabs ❷ on each side of the Mini PCI socket to release the Mini PCI communications card. (The edge of the card opposite the socket rises away from the notebook.)

6. Remove the Mini PCI communications card ❸ by pulling the card away from the socket at a 45-degree angle.

✎ Mini PCI communications cards are designed with notches ❹ to prevent incorrect installation of the card into the Mini PCI communcations card socket.
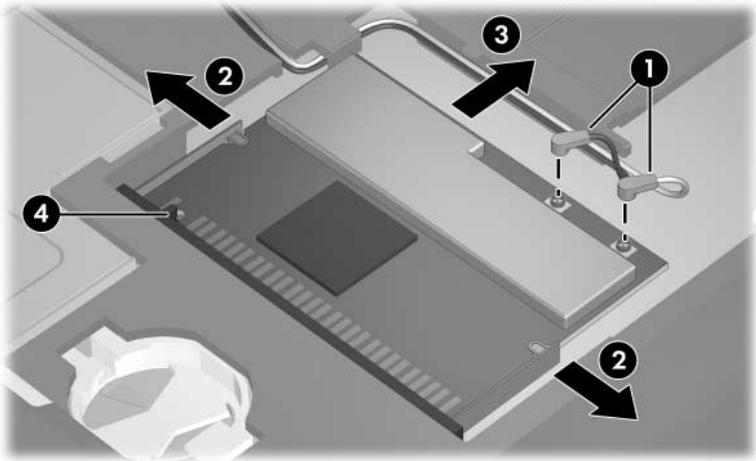
Removing a Mini PCI Communications Card

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

5.13 Internal Memory Module

Memory Module Spare Part Number Information

1024 MB	383950-001
512 MB	383949-001
256 MB	383948-001

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

2. Remove the keyboard cover (Section 5.8).

3. Remove the keyboard (Section 5.11).

4. Spread the retaining tabs ❶ on each side of the memory module socket to release the memory module. (The side of the module opposite the socket rises away from the notebook.)

5. Slide the module away from the socket at an angle ❷.

6. Remove the memory module.

✎ Memory modules include security slots ❸ to prevent the incorrect installation of the module into the memory module socket.
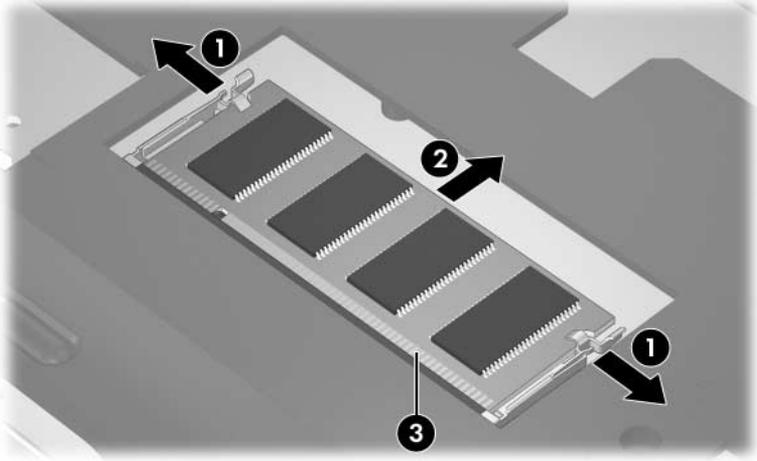
Removing the Memory Module

Reverse the above procedure to install a memory module.

5.14 Display Assembly

Display Assembly Spare Part Number Information

Display assemblies include display cable and (for models with wireless capability) wireless antenna boards and antenna cables.	
For use with HP Pavilion zv6000 models with wireless capability	
15.4-inch, WXGA, TFT with BrightView	383939-001
15.4-inch, WXGA, TFT	383935-001
For use with HP Pavilion zv6000 models without wireless capability	
15.4-inch, WXGA, TFT with BrightView	383940-001
15.4-inch, WXGA, TFT	383936-001
For use with Compaq Presario R4000 models with wireless capability	
15.4-inch, WXGA, TFT with BrightView	383941-001
15.4-inch, WXGA, TFT	383937-001
For use with Compaq Presario R4000 models without wireless capability	
15.4-inch, WXGA, TFT with BrightView	383942-001
15.4-inch, WXGA, TFT	383938-001
15.0-inch, XGA, TFT	383946-001
Display inverters (not illustrated)	
For use with 15.4-inch display assemblies	383669-001
For use with 15.0-inch display assemblies	383668-001
Display latch kit (not illustrated)	383914-001
Wireless antenna boards and cables (not illustrated)	383667-001

1. Prepare the notebook for disassembly (Section 5.3).

2. Remove the keyboard cover (Section 5.8).

3. Remove the keyboard (Section 5.11).

4. Turn the notebook upside down with the rear panel toward you.

✎ Steps 5 through 13 apply to HP Pavilion zv6000 models. See steps 14 through 21 in this section to remove the keyboard cover on Compaq Presario R4000 models.

5. Remove the two Mylar screw covers ❶ from the rear panel.

6. Remove the four PM2.0×7.0 screws ❷ that secure the display assembly to the notebook.

Removing the Display Screws, HP Pavilion zv6000 Models

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

8. Open the notebook as far as possible.

9. Disconnect the wireless antenna cables1 ❶ from the Mini PCI communications card.

10. Remove the wireless antenna cables from the clips ❷ in the top cover.

11. Disconnect the display cable from the system board ❸.
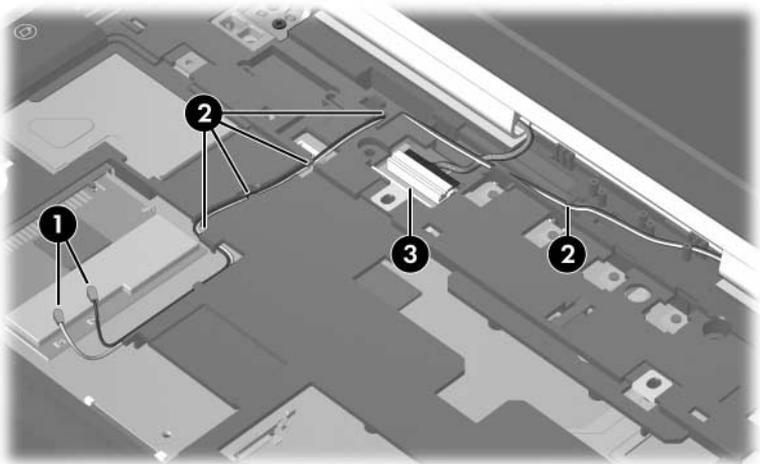
Removing the Display and Wireless Antenna Cables,
HP Pavilion zv6000 Models

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

12. Remove the four PM2.0×7.0 screws ❶ that secure the display assembly to the notebook.

13. Remove the display assembly ❷.
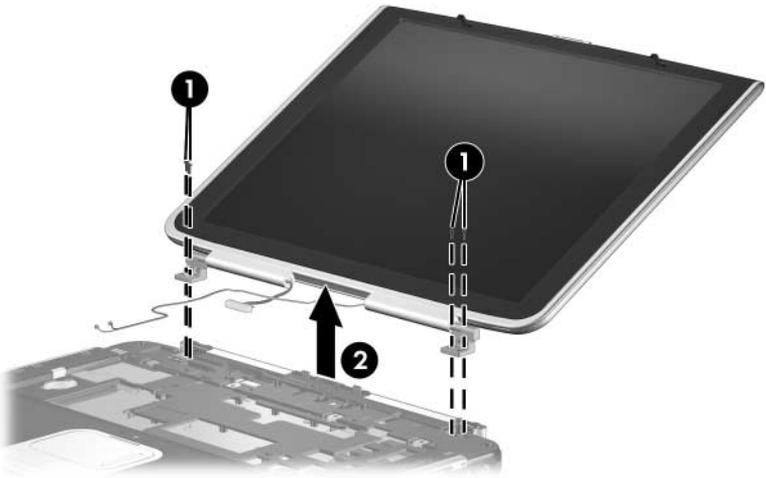
Removing the Display Assembly, HP Pavilion zv6000 Models

✎ Steps 14 through 21 apply to Compaq Presario R4000 models.

14. Remove the two PM2.0×7.0 screws that secure the display assembly to the notebook.
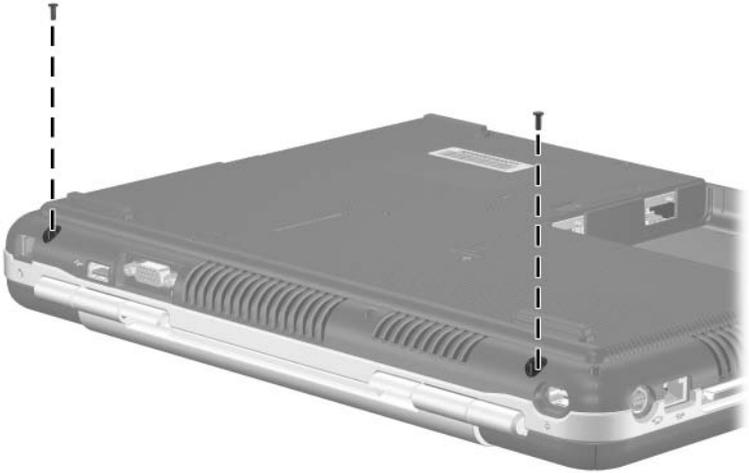
Removing the Display Screws, Compaq Presario R4000 Models

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

16. Open the notebook.

17. Disconnect the wireless antenna cables ❶ from the Mini PCI communications card.

18. Remove the wireless antenna cables from the clips ❷ in the top cover.

19. Disconnect the display cable from the system board ❸.
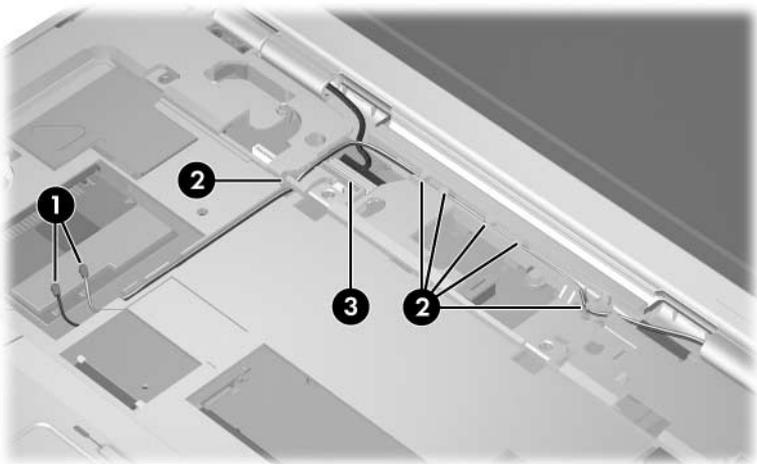
Removing the Display and Wireless Antenna Cables, Compaq Presario R4000 Models

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

20. Remove the four PM2.0×7.0 screws ❶ that secure the display assembly to the notebook.

21. Remove the display assembly ❷.
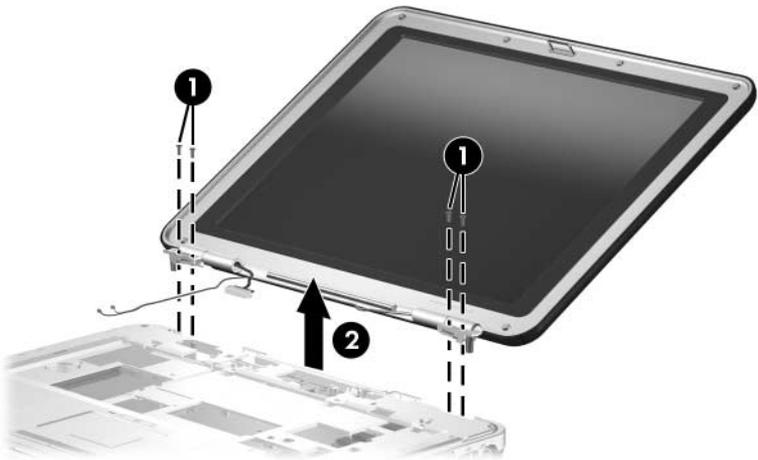
Removing the Display Assembly, Compaq Presario R4000 Models

Reverse the above procedure to install the display assembly.

5.15 Base Enclosure

Base Enclosure Spare Part Number Information	
For use with full-featured HP Pavilion zv6000 models	383921-001
For use with defeatured HP Pavilion zv6000 models	383922-001
For use with Compaq Presario R4000 models	383925-001

1. Prepare the notebook for disassembly (Section 5.3) and remove the following components:

   a. Hard drive (Section 5.4)

   b. Optical drive (Section 5.7)

   c. Keyboard cover (Section 5.8)

   d. Keyboard (Section 5.11)

   e. Display assembly (Section 5.14)

2. Turn the notebook upside down with the front toward you.

✎ Steps 3 through 7 apply to HP Pavilion zv6000 models. See
steps 8 through 12 in this section to remove the base enclosure
on Compaq Presario R4000 models.

3. Remove the thirteen PM2.0×15.0 screws that secure the base
   enclosure to the notebook.
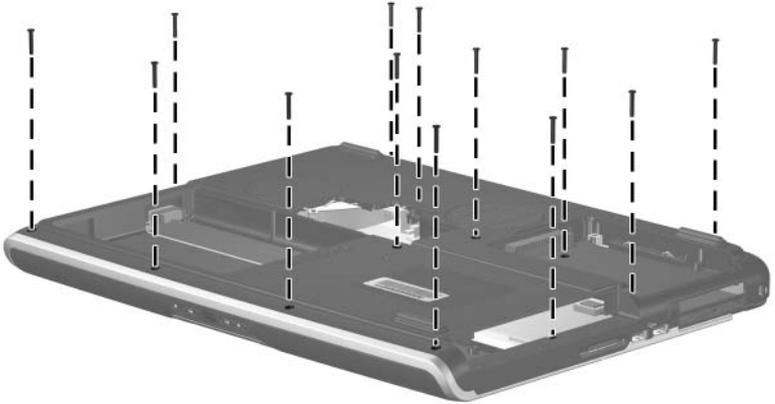
*Removing the Base Enclosure Screws, Part 1, HP Pavilion zv6000
Models*

4. Remove the four PM2.0×7.0 screws that secure the base
   enclosure to the notebook.
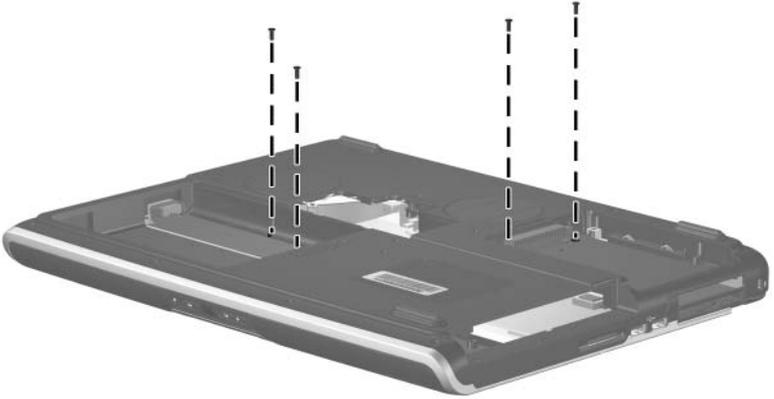
*Removing the Base Enclosure Screws, Part 2, HP Pavilion zv6000
Models*

5. Access the fan cable through the memory module expansion compartment and disconnect the fan cable from the system board.
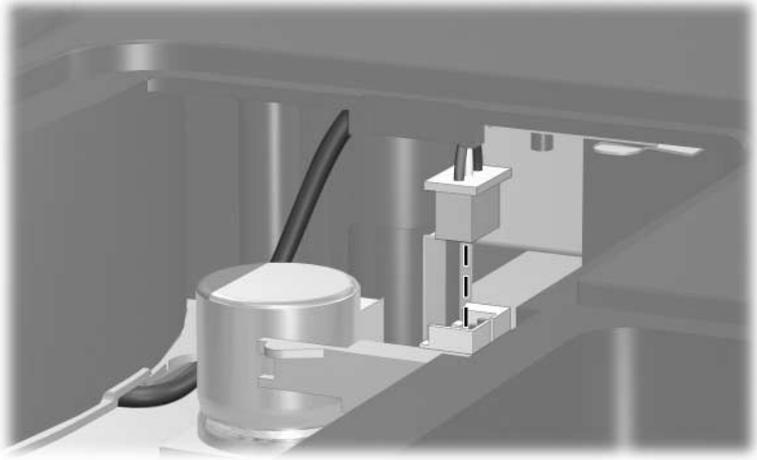
Disconnecting the Fan Cable, HP Pavilion zv6000 Models

6. Swing the rear edge of the base enclosure ❶ up and forward until it rests at an angle.

7. Lift the base enclosure ❷ up and remove it.
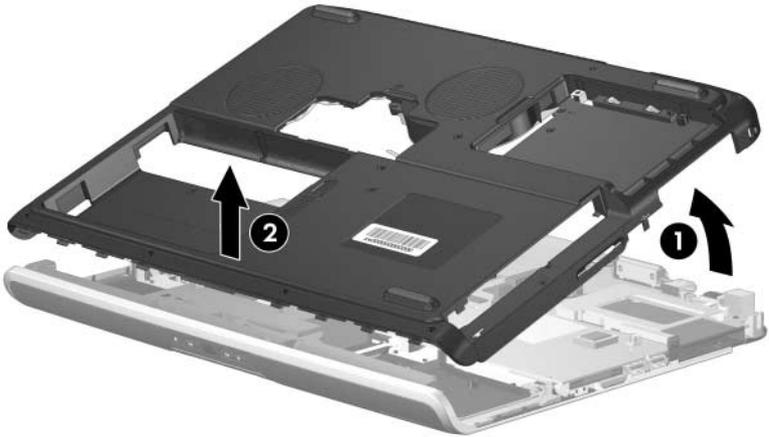
Removing the Base Enclosure, HP Pavilion zv6000 Models

✎ Steps 8 through 12 apply to Compaq Presario R4000 models.

8. Remove the ten PM2.0×15.0 screws that secure the base enclosure to the notebook.
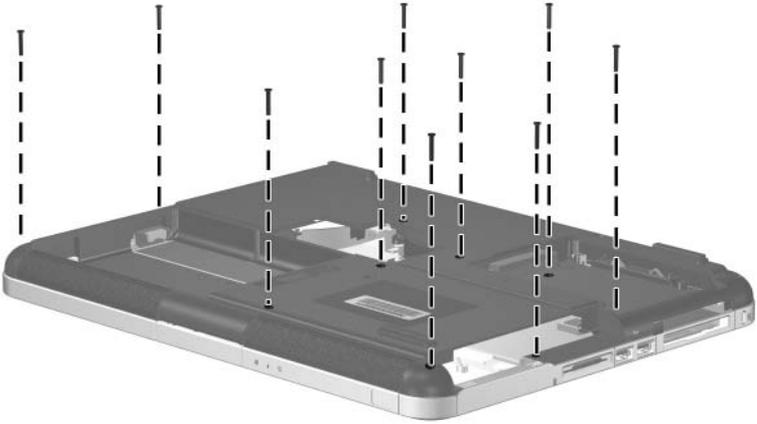
Removing the Base Enclosure Screws, Part 1, Compaq Presario R4000 Models

9. Remove the five PM2.0×7.0 screws that secure the base enclosure to the notebook.
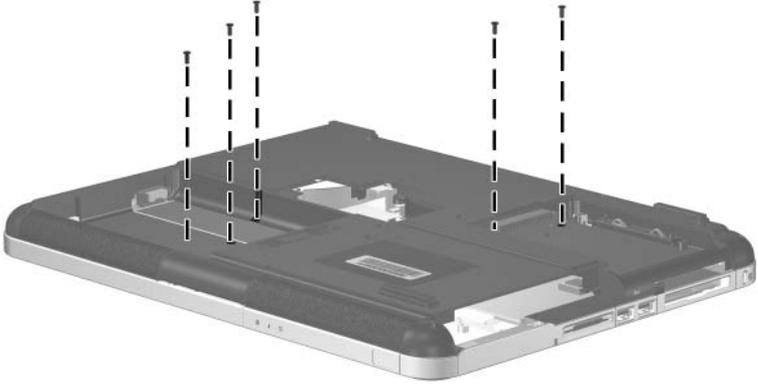
Removing the Base Enclosure Screws, Part 2, Compaq Presario R4000 Models

10. Access the fan cable through the memory module expansion compartment and disconnect the fan cable from the system board.
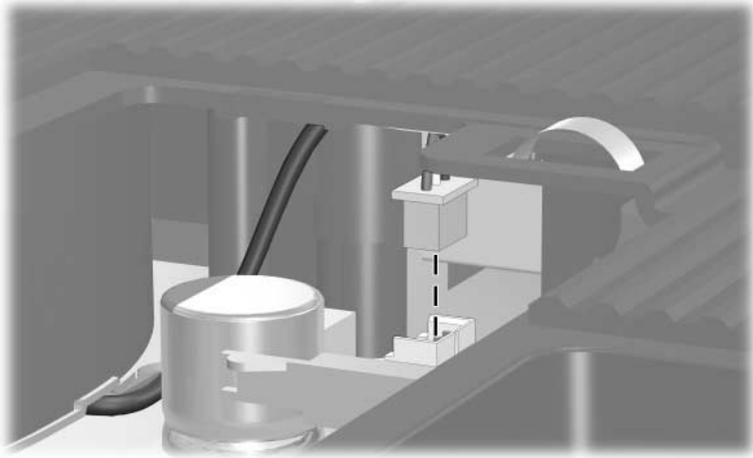
Disconnecting the Fan Cable, Compaq Presario R4000 Models

11. Swing the rear edge of the base enclosure ❶ up and forward until it rests at an angle.

12. Lift the base enclosure up ❷ and remove it.
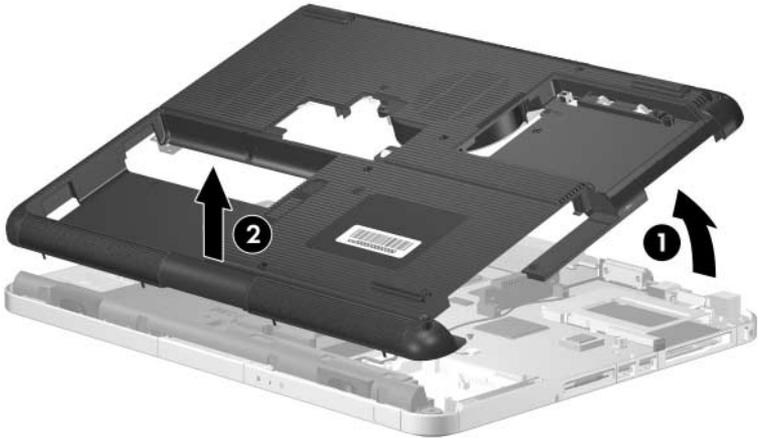
Removing the Base Enclosure, Compaq Presario R4000 Models

Reverse the above procedure to install the base enclosure.

5.16 Fan Assembly

Fan Assembly Spare Part Number Information

Fan assembly	383926-001

1. Prepare the notebook for disassembly (Section 5.3) and remove the following components:

   a. Hard drive (Section 5.4)

   b. Optical drive (Section 5.7)

   c. Keyboard cover (Section 5.8)

   d. Keyboard (Section 5.11)

   e. Display assembly (Section 5.14)

   f. Base enclosure (Section 5.15)

2. Position the base enclosure right-side up with the front toward you.

3. Remove the three PM2.0×4.0 coarse screws ❶ that secure the fan to the base enclosure.

✎ The screws removed in Step 3 have a coarser thread than other PM2.0×4.0 screws used in the notebook.

4. Remove the fan assembly ❷.
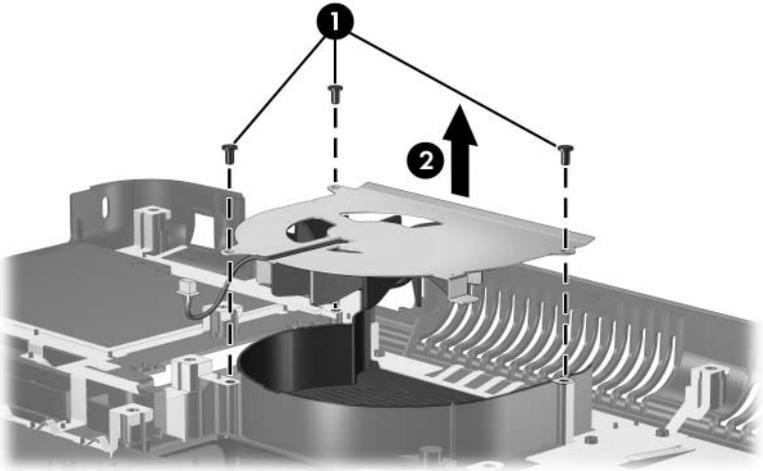
Removing the Fan Assembly

Reverse the above procedure to install the fan assembly.

5.17 Speaker

Speaker Spare Part Number Information

For use with HP Pavilion zv6000 models	383919-001
For use with Compaq Presario R4000 models	383920-001

1. Prepare the notebook for disassembly (Section 5.3) and remove the following components:

   a. Hard drive (Section 5.4)

   b. Optical drive (Section 5.7)

   c. Keyboard cover (Section 5.8)

   d. Keyboard (Section 5.11)

   e. Display assembly (Section 5.14)

   f. Base enclosure (Section 5.15)

2. Turn the top cover upside down with the front toward you.

3. Disconnect the speaker cable ❶ from the system board.

4. Lift the rear edge of the speaker ❷ up and swing it forward.

5. Remove the speaker ❸.
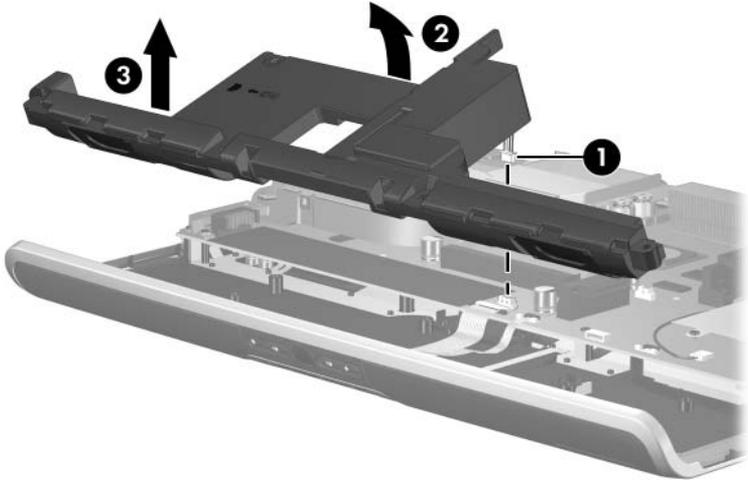
Removing the Speaker

Reverse the above procedure to install the speaker.

5.18 Front Board

✎ The front board removal procedures in this section apply to HP Pavilion zv6000 models.

Front Board Spare Part Number Information

For use with full-featured HP Pavilion zv6000 models with infrared	383905-001
For use with defeatured HP Pavilion zv6000 models without infrared	384134-001

1. Prepare the notebook for disassembly (Section 5.3) and remove the following components:

   a. Hard drive (Section 5.4)

   b. Optical drive (Section 5.7)

   c. Keyboard cover (Section 5.8)

   d. Keyboard (Section 5.11)

   e. Display assembly (Section 5.14)

   f. Base enclosure (Section 5.15)

   g. Speaker (Section 5.17)

2. Turn the top cover upside down with the rear panel toward you.

3. Release the ZIF connector ❶ to which the front board cable is attached and disconnect the cable ❷.
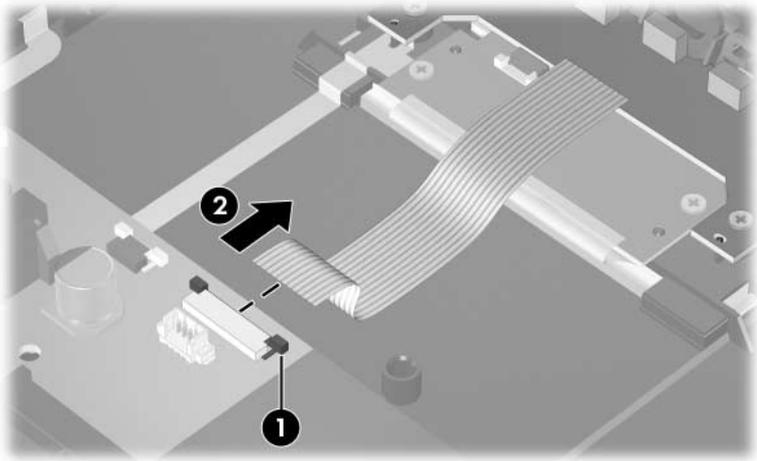
Disconnecting the Front Board Cable

4. Remove the two PM2.0×4.0 screws ❶ that secure the front board to the top cover.

5. Remove the front board ❷.
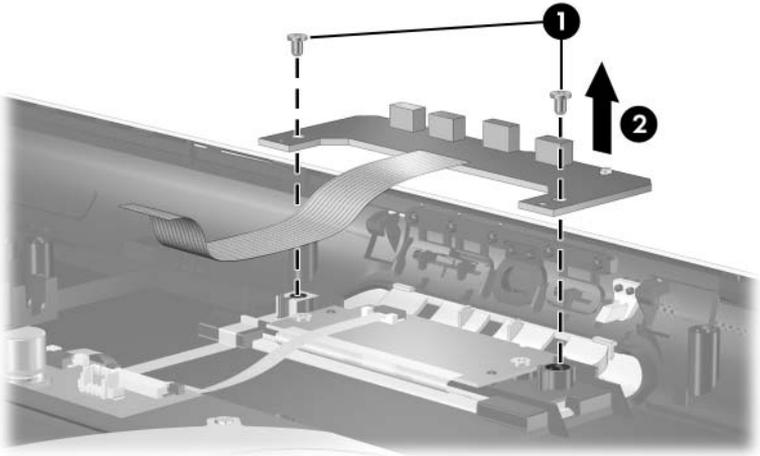
Removing the Front Board

Reverse the above procedure to install the front board.

5.19 Thermal Module

Thermal Module Spare Part Number Information

For use with full-featured models	383675-001
For use with defeatured models	383676-001

1. Prepare the notebook for disassembly (Section 5.3) and remove the following components:

   a. Hard drive (Section 5.4)

   b. Optical drive (Section 5.7)

   c. Keyboard cover (Section 5.8)

   d. Keyboard (Section 5.11)

   e. Display assembly (Section 5.14)

   f. Base enclosure (Section 5.15)

2. Position the top cover with the rear panel toward you.

3. Remove the four PM2.0×11.0 spring-loaded shoulder screws ❶ that secure the thermal module to the notebook.

4. Remove the thermal module ❷.
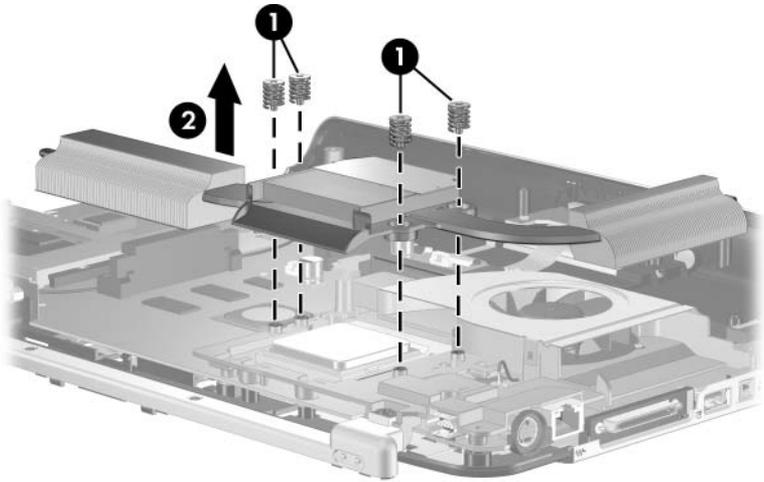
Removing the Thermal Module

✎ The thermal paste should be thoroughly cleaned from the surfaces of the thermal module ❶ and processor ❷ each time the thermal module is removed. Thermal paste is included with all thermal module and processor spare part kits.
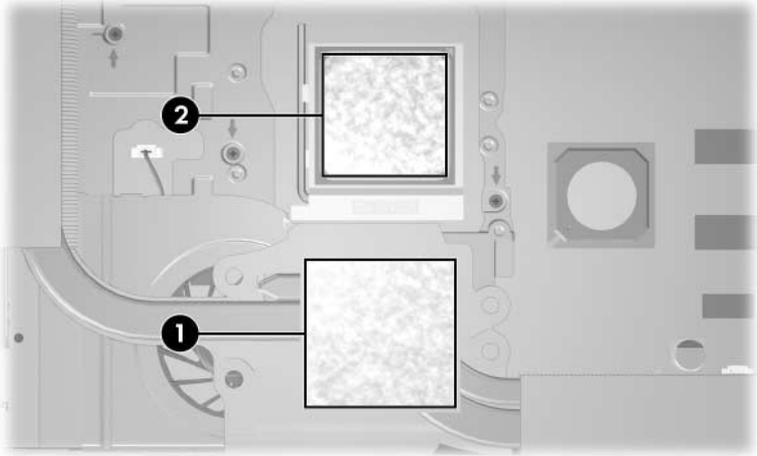
Thermal Paste Locations

Reverse the above procedure to install the thermal module.

5.20 Processor

Processor Spare Part Number Information

AMD Mobile Athlon 64 4000	396878-001
AMD Mobile Athlon 64 3800	396877-001
AMD Mobile Athlon 64 3500	396876-001
AMD Mobile Athlon 64 3200	396879-001
Mobile AMD Sempron 3200	396881-001
Mobile AMD Sempron 3000	396880-001

1. Prepare the notebook for disassembly (Section 5.3) and remove the following components:

   a. Hard drive (Section 5.4)

   b. Optical drive (Section 5.7)

   c. Keyboard cover (Section 5.8)

   d. Keyboard (Section 5.11)

   e. Display assembly (Section 5.14)

   f. Base enclosure (Section 5.15)

   g. Thermal module (Section 5.19)

2. Slide the tip of the processor release arm ❶ to the right until it clears the tab ❷ on the processor socket.

3. Swing the arm ❸ up and back as far as possible.

4. Remove the processor ❹.

✎ The gold triangle ❺ on the processor should be aligned in the front left corner when you install the processor.
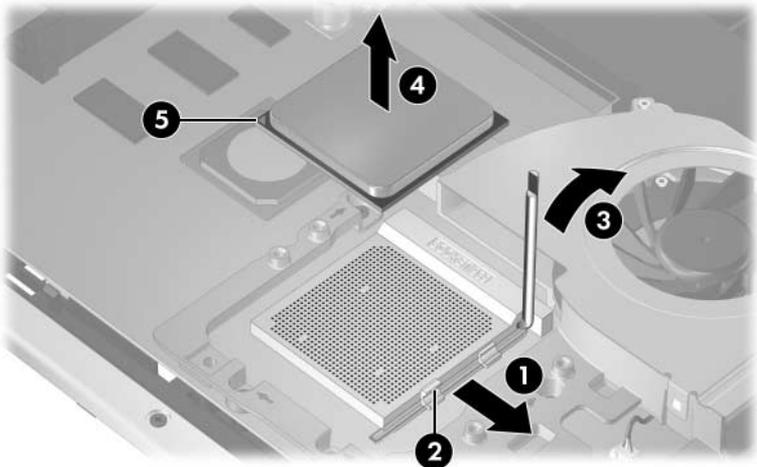
Removing the Processor

Reverse the above procedure to install the processor.

5.21 Thermal Frame

Thermal Frame Spare Part Number Information

For use with HP Pavilion zv6000 models	383880-001
For use with Compaq Presario R4000 models	383881-001

1. Prepare the notebook for disassembly (Section 5.3) and remove the following components:

   a. Hard drive (Section 5.4)

   b. Optical drive (Section 5.7)

   c. Keyboard cover (Section 5.8)

   d. Keyboard (Section 5.11)

   e. Display assembly (Section 5.14)

   f. Base enclosure (Section 5.15)

   g. Thermal module (Section 5.19)

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

3. Remove the PM2.0×7.0 screw that secures the thermal frame to the top cover.
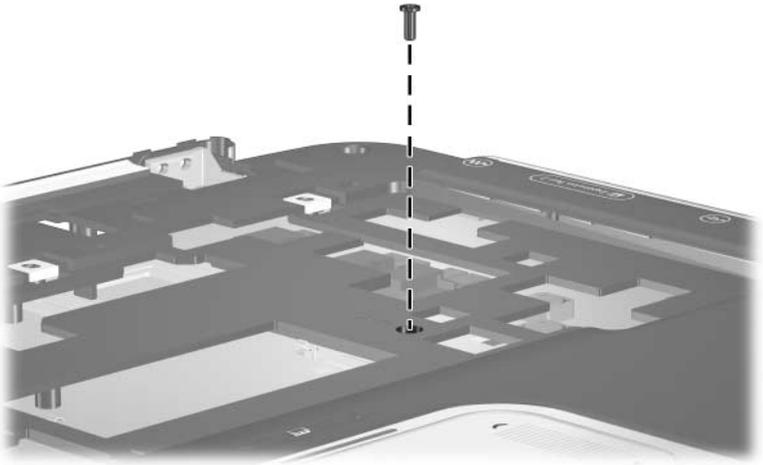
Removing the Thermal Frame Screw

4. Turn the notebook upside down with the rear panel toward you.

✎ Steps 5 and 6 apply to HP Pavilion zv6000 models.

5. Remove the two PM2.0×3.0 screws ❶ that secure the top cover rear bezel to the top cover.

6. Remove the top cover rear bezel ❷.

✎ The top cover rear bezel is included in the Miscellaneous Plastics Kit, spare part number 383670-001.
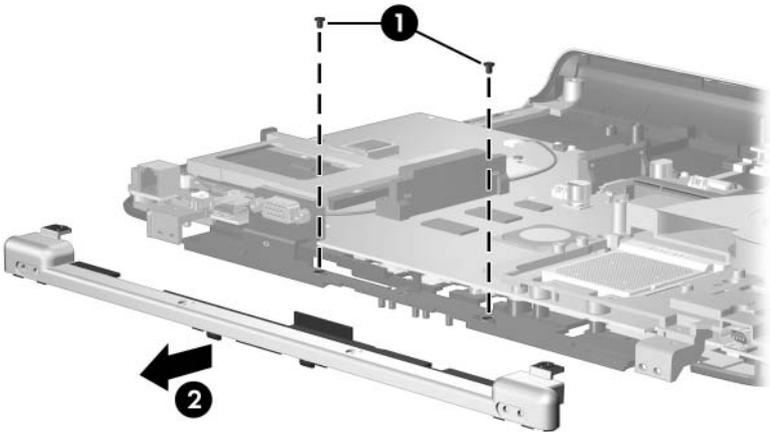
Removing the Top Cover Rear Bezel, HP Pavilion zv6000 Models

7. Disconnect the fan cable ❶ from the system board.

8. Remove the six PM2.0×7.0 screws ❷ that secure the thermal frame to the top cover.

9. Remove the thermal frame ❸.
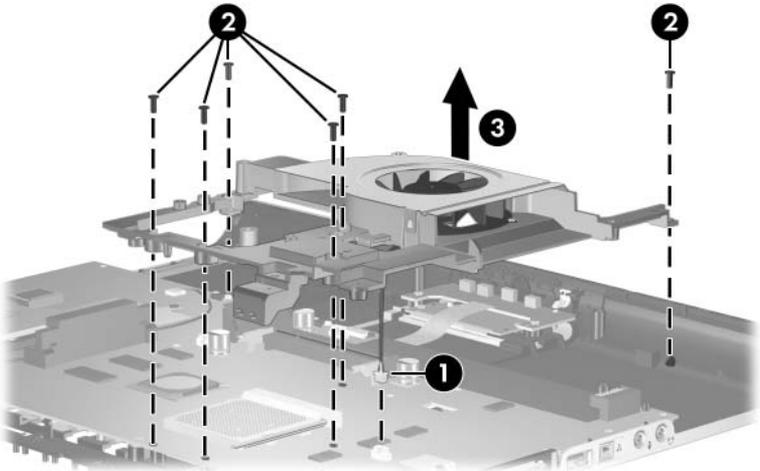
Removing the Thermal Frame

10. Remove the PM1.5×3.0 screw ❶ that secures the fan shield to the thermal frame.

11. Remove the fan shield ❷.
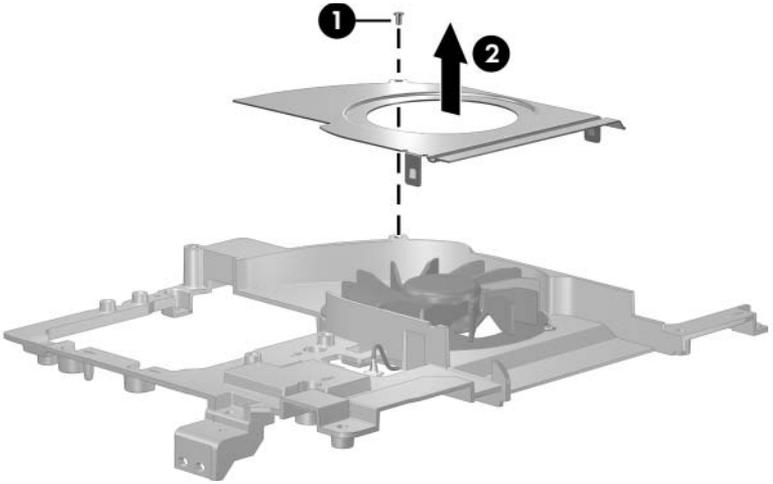
Removing the Fan Shield

12. Remove the three PM1.5×3.0 screws ❶ that secure the fan to the thermal frame.

13. Remove the fan ❷.
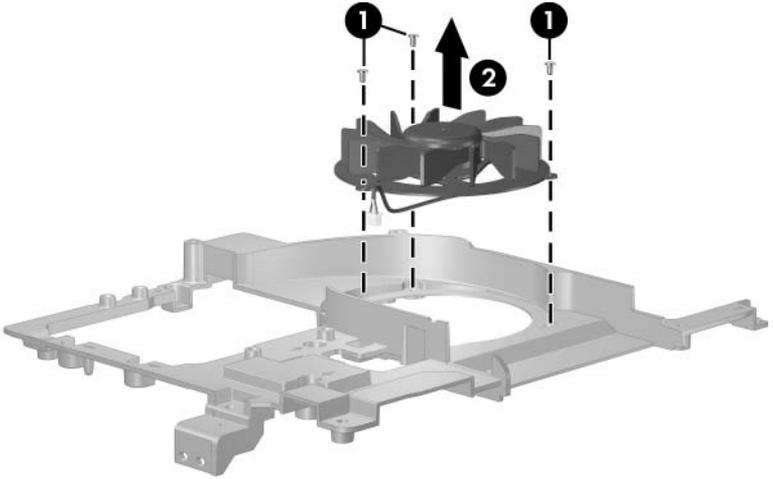
Removing the Fan

Reverse the above procedure to install the thermal frame.

5.22 System Board

System Board Spare Part Number Information

For use with full-featured models	396870-001
For use with defeatured models	396869-001

✎ 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 5.6 and Section 5.13)

■ Mini PCI communications card (Section 5.12)

■ Processor (Section 5.20)

■ RTC battery (Section 5.22)

---

1. Prepare the notebook for disassembly (Section 5.3) and remove the following components:

   a. Hard drive (Section 5.4)

   b. Optical drive (Section 5.7)

   c. Keyboard cover (Section 5.8)

   d. Bluetooth board (Section 5.10)

   e. Keyboard (Section 5.11)

   f. Display assembly (Section 5.14)

   g. Base enclosure (Section 5.15)

   h. Speaker (Section 5.17)

   i. Thermal module (Section 5.19)

   j. Thermal frame (Section 5.21)

---

2. Release the system board ZIF connector to which the TouchPad cable is connected and disconnect the TouchPad cable from the system board.
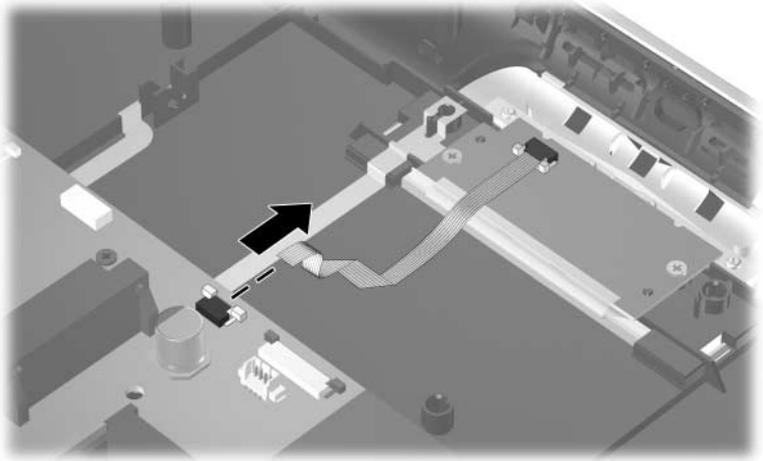
3. Turn the notebook upside down with the front toward you.

4. Position the top cover with the front toward you.

5. Remove the four PM2.0×7.0 screws ❶ that secure the system board to the top cover.

6. Remove the two SM1.5×8.0 shoulder screws ❷ on each side of the expansion port 2 connector that secure the system board to the top cover.

✎ Step 7 applies only to Compaq Presario R4000 models.

7. Disconnect the LED cable ❸ from the system board.
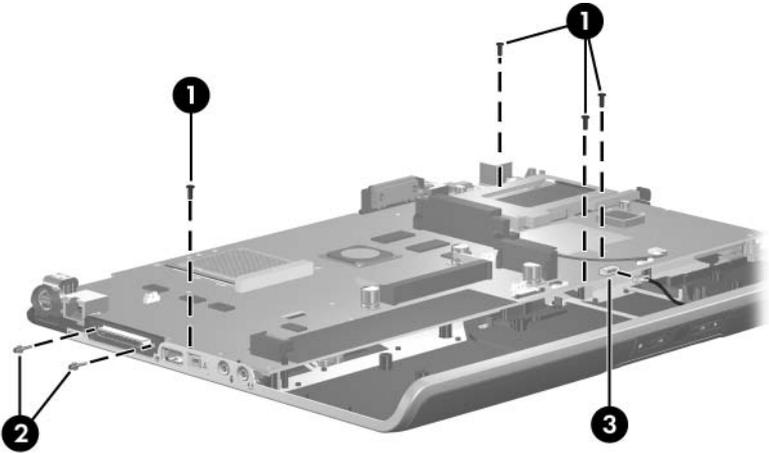
Removing the System Board Screws

8. Lift the left side of the system board ❶ until it rests at an angle.

9. Slide the system board ❷ to the left and remove it.
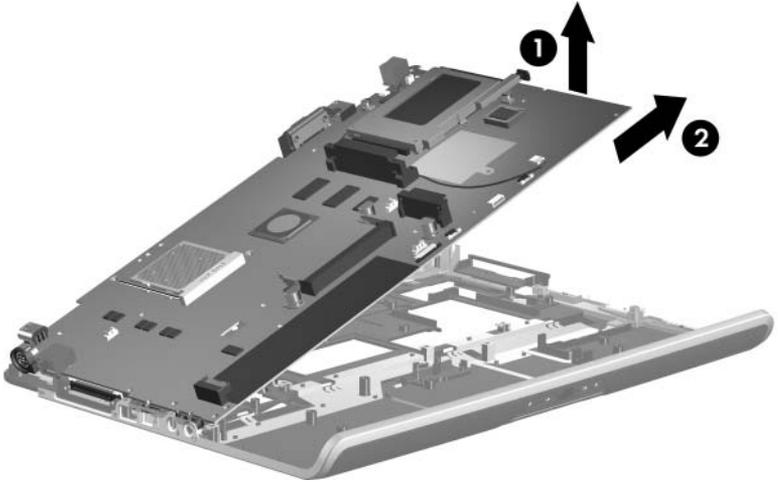
Removing the System Board

10. If necessary, disconnect both ends of the RJ-11 modem cable ❶ from the system board and remove the cable ❷.

✎ The RJ-11 modem cable is included in the Miscellaneous Cable Kit, spare part number 383671-001.
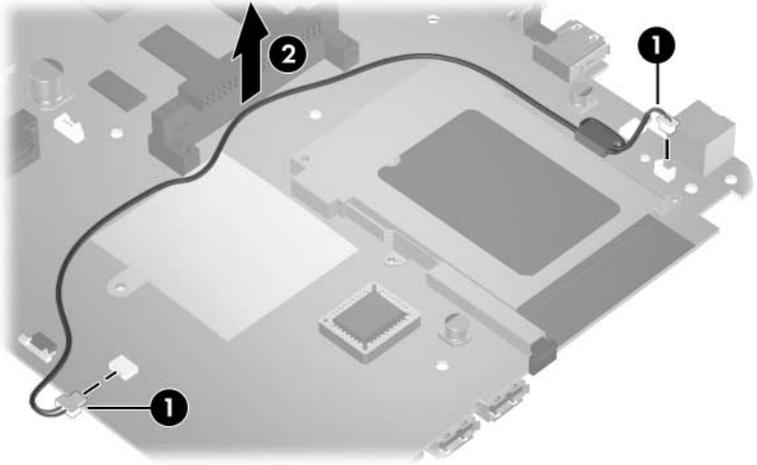
Removing the RJ-11 Modem Cable

11. Turn the system board upside down with the rear panel toward you.

12. Insert a flat blade tool into the notch on the RTC battery socket ❶ and remove the RTC battery ❷.

✎ The RTC battery is included in the Miscellaneous Plastics Kit, spare part number 383670-001.
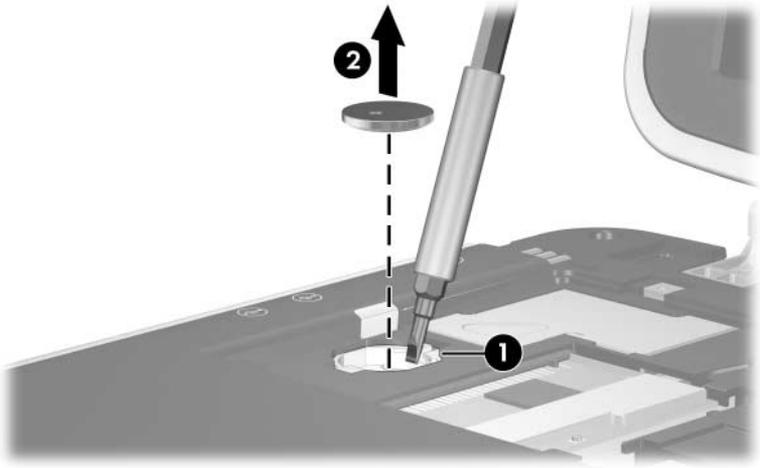
Removing the RTC Battery

Reverse the above procedure to install the RJ-11 modem cable, RTC battery, and system board.

6

Specifications

This chapter provides physical and performance specifications.

Table 6-1

Notebook

Dimensions	Metric	U.S.
HP Pavilion zv6000		
Height	5.26 cm	2.07 in
Width	36.20 cm	14.25 in
Depth	29.45 cm	11.60 in
Compaq Presario R4000		
Height	5.26 cm	2.07 in
Width	36.20 cm	14.25 in
Depth	28.40 cm	11.18 in
Weight		
With 15.4-inch display, optical drive and 12-cell battery pack	3.86 kg	8.5 lbs
With 15.0-inch display, optical drive and 12-cell battery pack	3.77 kg	8.3 lbs
With 15.4-inch display, optical drive and 8-cell battery pack	3.72 kg	8.2 lbs
With 15.0-inch display, optical drive and 8-cell battery pack	3.63 kg	8.0 lbs

Table 6-1

Notebook *(Continued)*

Input Power		
Operating voltage	18.5 V dc	
Operating current	4.9 A or 6.5 A	
Temperature		
Operating	10°C to 35°C	50°F to 95°F
Nonoperating	-20°C to 60°C	-4°F to 140°F
Relative humidity (noncondensing)		
Operating	10% to 90%	10% to 90%
Nonoperating	5% to 95%	5% to 95%
Maximum altitude (unpressurized)		
Operating (14.7 to 10.1 psia)	-15 m to 3,048 m	-50 ft to 10,000 ft
Nonoperating (14.7 to 4.4 psia)	-15 m to 12,192 m	-50 ft to 40,000 ft
Shock		
Operating	125 g, 2 ms, half-sine	
Nonoperating	200 g, 2 ms, half-sine	
Random Vibration		
Operating	0.75 g zero-to-peak, 10 Hz to 500 Hz, 0.25 oct/min sweep rate	
Nonoperating	1.50 g zero-to-peak, 10 Hz to 500 Hz, 0.5 oct/min sweep rate	

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

Table 6-2

15.4-inch, WXGA, TFT Display

Dimensions		
Height	20.7 cm	8.1 in
Width	33.1 cm	13.0 in
Diagonal	39.1 cm	15.4 in
Number of colors	Up to 16.8 million	
Contrast ratio	200:1	
Brightness	180 nits typical	
Pixel resolution		
Pitch	0.259 × 0.259 mm	
Format	1280 × 800	
Configuration	RGB vertical stripe	
Backlight	Edge lit	
Character display	80 × 25	
Total power consumption	4.0 W	
Viewing angle	±65° horizontal, ±50° vertical typical	

Table 6-3

15.0-inch, XGA, TFT Display

Dimensions		
Height	22.9 cm	9.0 in
Width	30.0 cm	11.8 in
Diagonal	38.1 cm	15.0 in
Number of colors	Up to 16.8 million	
Contrast ratio	250:1	
Brightness	150 nits typical	
Pixel resolution		
Pitch	0.264 × 0.264 mm	
Format	1024 × 768	
Configuration	RGB vertical stripe	
Backlight	Edge lit	
Character display	80 × 25	
Total power consumption	5.5 W	
Viewing angle	±35° horizontal, +15/-35° vertical typical	

Table 6-4

Hard Drives

	100-GB*	80-GB*	60-GB*	40-GB*
Dimensions				
Height	9.5 mm	9.5 mm	9.5 mm	9.5 mm
Width	70 mm	70 mm	70 mm	70 mm
Weight	99 g	99 g	102 g	99 g
Interface type	ATA-5	ATA-5	ATA-5	ATA-5
Transfer rate				
Synchronous (maximum)	100 MB/sec	100 MB/sec	100 MB/sec	100 MB/sec
Security	ATA security	ATA security	ATA security	ATA security
Seek times (typical read, including setting)				
Single track	3 ms	3 ms	3 ms	3 ms
Average	13 ms	13 ms	13 ms	13 ms
Maximum	24 ms	24 ms	24 ms	24 ms
Logical blocks[†]		156,301,488	117,210,240	78,140,160
Disc rotational speed	4200 RPM	5400 rpm and 4200 rpm	5400 rpm and 4200 rpm	4200 rpm
Operating temperature		5°C to 55°C (41°F to 131°F)		

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

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

[†]Actual drive specifications may differ slightly.

Table 6-5

DVD/CD-RW Combo Drive

Applicable disc	**Read:** DVD-R, DVD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), CD-ROM (Mode 1 and 2) CD Digital Audio, CD-XA ready (Mode 2, Form 1 and 2), CD-I ready (Mode 2, Form 1 and 2), CD-R, CD-RW, Photo CD (single and multisession), and CD-Bridge	**Write:** CD-R and CD-RW
Center hole diameter	1.5 cm (0.59 in)	
Disc diameter		
Standard disc Mini disc	12 cm (4.72 in) 8 cm (3.15 in)	
Disc thickness	1.2 mm (0.047 in)	
Track pitch	0.74 µm	

Table 6-5

DVD/CD-RW Combo Drive

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

Table 6-6

DVD±RW and CD-RW Combo Drive

Applicable disc	Read:	Write:
	DVD-R, DVD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18)	CD-R and CD-RW
	CD-ROM (Mode 1 and 2)	DVD-R and DVD-RW
	CD Digital Audio	
	CD-XA ready (Mode 2, Form 1 and 2)	
	CD-I ready (Mode 2, Form 1 and 2)	
	CD-R	
	CD-RW	
	Photo CD (single and multisession)	
	CD-Bridge	
Center hole diameter	1.5 cm (0.59 in)	
Disc diameter		
Standard disc	12 cm (4.72 in)	
Mini disc	8 cm (3.15 in)	
Disc thickness	1.2 mm (0.047 in)	
Track pitch	0.74 µm	

Table 6-6

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

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

Table 6-7

System DMA

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

Table 6-8

System Interrupts

Hardware IRQ	System Function
IRQ0	System timer
IRQ1	Quick Launch buttons
IRQ2	Cascaded
IRQ3	USB2 Enhanced Host Controller—24CD
IRQ4	COM1
IRQ5*	Conexant AC—Link Audio SMBus Controller—24C3 Data Fax Modem with SmartCP
IRQ6	Diskette drive
IRQ7*	Parallel port
IRQ8	System CMOS/real-time clock
IRQ9*	Microsoft ACPI-compliant system
IRQ10*	USB UHCI controller—24C2 GM/GME Graphic Controller Realtek RTL8139 Family PCI fast Ethernet Controller
IRQ11	USB EHCI controller—24CD USB UHCI controller—24C4 USB UHCI controller—24C7 Pro/Wireless 2200BG TI OHCI 1394 host controller TI PCI1410 CardBus controller

*Default configuration

✎ PC Card may assert IRQ3, IRQ4, IRQ5, IRQ7, or IRQ20.

Table 6-8

System Interrupts *(Continued)*

Hardware IRQ	System Function
IRQ12	Synaptics PS/2 port pointing device
IRQ13	Numeric data processor
IRQ14	Primary IDE channel
IRQ15	Secondary IDE channel
IRQ17	Conexant AC -Link Audio
IRQ17	Soft V90 Data Fax Modem with SmartCP
IRQ17	ATi Mobility Radeon Xpress 200 Series
IRQ19	Standard Enhanced PCI to USB Host Controller
IRQ19	Standard OpenHCD USB Host Controller
IRQ19	Standard OpenHCD USB Host Controller
IRQ20	TI 6411 PCIxx21/x515 Cardbus Controller
IRQ20	TI OHCI Compliant IEEE 1394 Host Controller
IRQ21	TI Integrated PCIxx21 FlashMedia Controller
IRQ21	Broadcom 802.11b/g WLAN
IRQ21	Microsoft ACPI-compliant system
IRQ22	Realtek RTL8100CL Family PCI fast Ethernet Controller
IRQ23	SDA Standard Compliant SD Host Controller

*Default configuration

✎ PC Card may assert IRQ3, IRQ4, IRQ5, IRQ7, or IRQ20.

Table 6-9

System I/O Addresses

I/O Address (hex)	System Function (shipping configuration)
0x00000000-0x00000CF7	PCI bus
0x00000000-0x00000CF7	Direct memory access controller
0x00000020-0x00000021	Programmable interrupt controller
0x0000002E-0x0000002F	System board resources
0x00000040-0x00000043	System timer
0x00000060-0x00000060	Quick Launch Buttons
0x00000061-0x00000061	System speaker
0x00000062-0x00000062	Microsoft ACPI-Compliant Embedded Controller
0x00000064-0x00000064	Quick Launch Buttons
0x00000066-0x00000066	Microsoft ACPI-Compliant Embedded Controller
0x00000070-0x00000071	System CMOS/real time clock
0x00000072-0x00000073	System board resources
0x00000080-0x0000008F	Direct memory access controller
0x00000092-0x00000092	System board resources
0x000000A0-0x000000A1	Programmable interrupt controller
0x000000B0-0x000000B1	System board resources
0x000000C0-0x000000DF	Direct memory access controller
0x000000F0-0x000000FE	Numeric data processor
0x00000170-0x00000177	Secondary IDE Channel

Table 6-9

System I/O Addresses *(Continued)*

I/O Address (hex)	System Function (shipping configuration)
0x000001F0-0x000001F7	Primary IDE Channel
0x00000220-0x0000022F	System board resources
0x00000274-0x00000277	ISAPNP Read Data Port
0x00000279-0x00000279	ISAPNP Read Data Port
0x00000280-0x00000293	System board resources
0x00000376-0x00000376	Secondary IDE Channel
0x000003B0-0x000003BB	PCI standard PCI-to-PCI bridge
0x000003B0-0x000003BB	ATI MOBILITY RADEON Xpress 200 Series
0x000003C0-0x000003DF	PCI standard PCI-to-PCI bridge
0x000003C0-0x000003DF	ATI MOBILITY RADEON Xpress 200 Series
0x000003F6-0x000003F6	Primary IDE Channel
0x0000040B-0x0000040B	System board resources
0x000004D0-0x000004D1	System board resources
0x000004D6-0x000004D6	System board resources
0x00000530-0x00000537	System board resources
0x00000870-0x0000087F	System board resources
0x00000A79-0x00000A79	ISAPNP Read Data Port
0x00000C00-0x00000C01	System board resources
0x00000C14-0x00000C14	System board resources
0x00000C50-0x00000C52	System board resources
0x00000C6C-0x00000C6C	System board resources

Table 6-9

System I/O Addresses *(Continued)*

I/O Address (hex)	System Function (shipping configuration)
0x00000C6F-0x00000C6F	System board resources
0x00000CD4-0x00000CD5	System board resources
0x00000CD6-0x00000CD7	System board resources
0x00000CD8-0x00000CDF	System board resources
0x00000D00-0x0000FFFF	PCI bus
0x00000F40-0x00000F47	System board resources
0x00001080-0x00001080	System board resources
0x00008000-0x0000805F	System board resources
0x00008100-0x000081FF	System board resources
0x00008400-0x0000840F	ATI SMBus
0x00008410-0x0000841F	Standard Dual Channel PCI IDE Controller
0x00009000-0x00009FFF	PCI standard PCI-to-PCI bridge
0x00009000-0x00009FFF	ATI MOBILITY RADEON Xpress 200 Series
0x0000A000-0x0000A0FF	Realtek RTL8139/810x Family Fast Ethernet NIC
0x0000F000-0x0000FFFF	PCI standard PCI-to-PCI bridge
0x0000FD00-0x0000FDFF	Texas Instruments PCIxx21/x515 Cardbus Controller
0x0000FE00-0x0000FEFF	Texas Instruments PCIxx21/x515 Cardbus Controller

Table 6-10

System Memory Map

Memory Map Address (hex)	System Function (shipping configuration)
0xD4100000-0xD41FFFFF	PCI standard PCI-to-PCI bridge
0xD4100000-0xD41FFFFF	ATI MOBILITY RADEON Xpress 200 Series
0xD8000000-0xDBFFFFFF	PCI standard PCI-to-PCI bridge
0xD8000000-0xDBFFFFFF	ATI MOBILITY RADEON Xpress 200 Series
0xFAC00000-0xFEBFFFFF	PCI standard PCI-to-PCI bridge
0xF6C00000-0xFABFFFFF	PCI standard PCI-to-PCI bridge
0xD4000000-0xD4000FFF	Standard OpenHCD USB Host Controller
0xD4001000-0xD4001FFF	Standard OpenHCD USB Host Controller
0xD4002000-0xD4002FFF	Standard Enhanced PCI to USB Host Controller
0xD4003000-0xD40033FF	ATI SMBus
0xFFF80000-0xFFFFFFFF	System board
0xE0000000-0xE03FFFFF	System board
0xE0000000-0xE03FFFFF	System board resources
0x0000-0x0FFF	System board

Table 6-10

System Memory Map *(Continued)*

Memory Map Address (hex)	System Function (shipping configuration)
0xD4208000-0xD42087FF	Texas Instruments OHCI Compliant IEEE 1394 Host Controller
0xD4200000-0xD4203FFF	Texas Instruments OHCI Compliant IEEE 1394 Host Controller
0xD4204000-0xD4205FFF	Broadcom 802.11b/g WLAN
0xFFEFF000-0xFFEFFFFF	Texas Instruments PCIxx21/x515 Cardbus Controller
0xFFEFE000-0xFFEFEFFF	Texas Instruments PCIxx21/x515 Cardbus Controller
0xF2C00000-0xF6BFFFFF	Texas Instruments PCIxx21/x515 Cardbus Controller
0xD4206000-0xD4207FFF	Texas Instruments PCIxx21 Integrated FlashMedia Controller
0xD4209000-0xD42090FF	SDA Standard Compliant SD Host Controller
0xD4208C00-0xD4208CFF	SDA Standard Compliant SD Host Controller
0xD4208800-0xD42088FF	SDA Standard Compliant SD Host Controller

Table 6-10

System Memory Map *(Continued)*

Memory Map Address (hex)	System Function (shipping configuration)
0xD4209400-0xD42094FF	Realtek RTL8139/810x Family Fast Ethernet NIC
0xD4003400-0xD40034FF	Conexant AC-Link Audio
0xD4003800-0xD40038FF	SoftV90 Data Fax Modem with SmartCP
0xFEC00000-0xFEC00FFF	System board resources
0xFEE00000-0xFEE00FFF	System board resources
0xA0000-0xBFFFF	PCI bus
0xA0000-0xBFFFF	PCI standard PCI-to-PCI bridge
0xA0000-0xBFFFF	ATI MOBILITY RADEON Xpress 200 Series
0xD6000-0xD7FFF	PCI bus
0xDC000-0xDDFFF	PCI bus
0xDD000-0xDDFFF	Texas Instruments PCIxx21/x515 Cardbus Controller
0xE0000-0xFFFFF	System board
0x40000000-0xFFFFFFFF	PCI bus

A

Connector Pin Assignments

Table A-1

Audio-Out (Headphone)
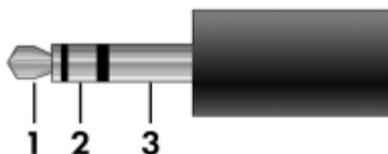
Pin	Signal	Pin	Signal
1	Audio out, left channel	3	Ground
2	Audio out, right channel		

Table A-2

Audio-In (Microphone)
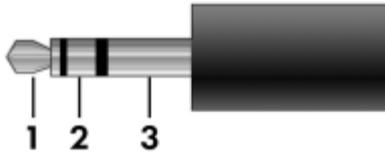
Pin	Signal	Pin	Signal
1	Audio in, left channel	3	Ground
2	Audio in, right channel		

Table A-3

Universal Serial Bus
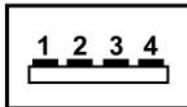
Pin	Signal	Pin	Signal
1	+5 VDC	3	Data +
2	Data –	4	Ground

Table A-4

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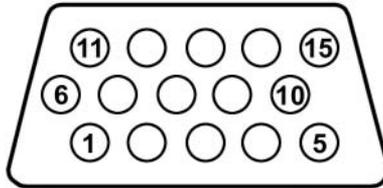
Pin	Signal	Pin	Signal
1	Red analog	9	+5 VDC
2	Green analog	10	Ground
3	Blue analog	11	Monitor detect
4	Not connected	12	DDC 2B data
5	Ground	13	Horizontal sync
6	Ground	14	Vertical sync
7	Ground	15	DDC 2B clock
8	Ground		

Table A-5

RJ-45 (Network)
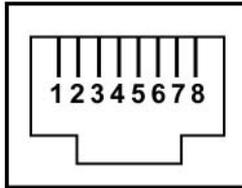
Pin	Signal	Pin	Signal
1	Transmit +	5	Unused
2	Transmit –	6	Receive –
3	Receive +	7	Unused
4	Unused	8	Unused

Table A-6

RJ-11 (Modem)
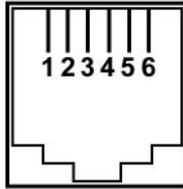
Pin	Signal	Pin	Signal
1	Unused	4	Unused
2	Tip	5	Unused
3	Ring	6	Unused

Table A-7

S-Video-Out

Pin	Signal	Pin	Signal
1	C (chrominance)	5	Composite video
2	Ground	6	Not connected
3	Y (luminance)	7	Ground
4	Ground		

B

Power Cord Set Requirements

3-Conductor Power Cord Set

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

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

Power cord sets for use in other countries must meet the requirements of the country where the notebook is used.

General Requirements

The requirements listed below are applicable to all countries.

■ The length of the power cord set must be at least 1.5 m (5.0 ft) and a maximum of 2.0 m (6.5 ft).

■ All power cord sets must be approved by an acceptable accredited agency responsible for evaluation in the country where the power cord set will be used.

■ The power cord sets must have a minimum current capacity of 10 amps and a nominal voltage rating of 125 or 250 V AC, as required by each country's power system.

■ The appliance coupler must meet the mechanical configuration of an EN 60 320/IEC 320 Standard Sheet C13 connector for mating with the appliance inlet on the back of the notebook.

Country-Specific Requirements

3-Conductor Power Cord Set Requirements

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

✎ NOTES:

1. The flexible cord must be <HAR> Type HO5VV-F, 3-conductor, 1.0 mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country where it will be used.

2. The flexible cord must be Type SPT-3 or equivalent, No. 18 AWG, 3-conductor. The wall plug must be a two-pole grounding type with a NEMA 5-15P (15 A, 125 V) or NEMA 6-15P (15 A, 250 V) configuration.

3. The appliance coupler, flexible cord, and wall plug must bear a "T" mark and registration number in accordance with the Japanese Dentori Law. The flexible cord must be Type VCT or VCTF, 3-conductor, 1.00 mm² conductor size. The wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (7 A, 125 V) configuration.

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

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

✎ NOTES:

1. The flexible cord must be <HAR> Type HO5VV-F, 3-conductor, 1.0 mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country where it will be used.

2. The flexible cord must be Type SPT-3 or equivalent, No. 18 AWG, 3-conductor. The wall plug must be a two-pole grounding type with a NEMA 5-15P (15 A, 125 V) or NEMA 6-15P (15 A, 250 V) configuration.

3. The appliance coupler, flexible cord, and wall plug must bear a "T" mark and registration number in accordance with the Japanese Dentori Law. The flexible cord must be Type VCT or VCTF, 3-conductor, 1.00 mm² conductor size. The wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (7 A, 125 V) configuration.

4. The flexible cord must be Type RVV, 3-conductor, 0.75 mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country where it will be used.

5. The flexible cord must be Type VCTF, 3-conductor, 0.75 mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country where it will be used.

C
Screw Listing

This appendix provides specification and reference information for the screws and screw locks used in the notebook. All screws listed in this appendix are available in the Screw Kit, spare part number 383673-001.

Table C-1

Phillips PM2.0×7.0 Screw
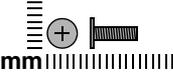
mm	Color	Qty.	Length	Thread	Head Width
	Black	40	7.0 mm	2.0 mm	4.5 mm

Where used:

❶ Two screws that secure the hard drive cover to the notebook (screws are captured on the cover by C clips; documented in Section 5.4)

❷ One screw that secures the memory module compartment cover to the notebook (screw is captured on the cover by a C clip; documented in Section 5.6)
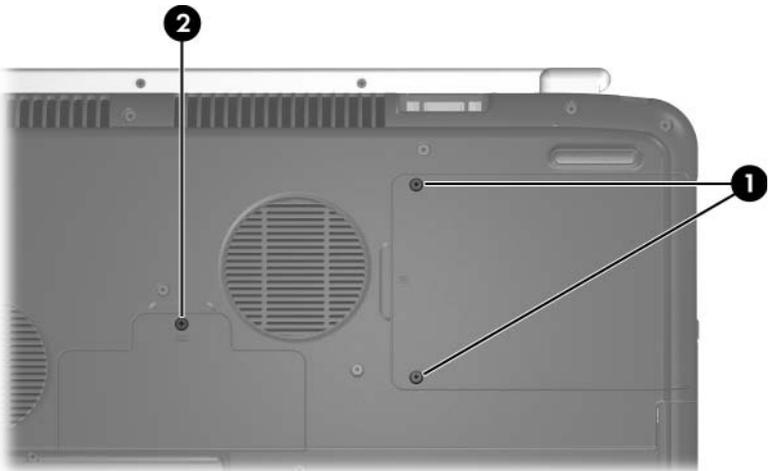
Phillips PM2.0×7.0 Screw Locations
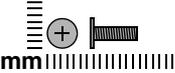
Table C-1

Phillips PM2.0×7.0 Screw *(Continued)*

	Color	Qty.	Length	Thread	Head Width
	Black	40	7.0 mm	2.0 mm	4.5 mm

Where used:

❶ Two screws that secure the hard drive to the notebook (documented in Section 5.4)

❷ One screw that secures the optical drive to the notebook (documented in Section 5.7)

Phillips PM2.0×7.0 Screw Locations

Table C-1

Phillips PM2.0×7.0 Screw *(Continued)*

mm	Color	Qty.	Length	Thread	Head Width
	Black	40	7.0 mm	2.0 mm	4.5 mm

Where used:

4 screws that secure the display assembly to the notebook on HP Pavilion zv6000 models (documented in Section 5.14)

Phillips PM2.0×7.0 Screw Locations

Table C-1

Phillips PM2.0×7.0 Screw *(Continued)*

	Color	Qty.	Length	Thread	Head Width
	Black	40	7.0 mm	2.0 mm	4.5 mm

Where used:

4 screws that secure the display assembly to the notebook on HP Pavilion zv6000 models (documented in Section 5.14)

Phillips PM2.0×7.0 Screw Locations

Table C-1

Phillips PM2.0×7.0 Screw *(Continued)*

mm	Color	Qty.	Length	Thread	Head Width
	Black	40	7.0 mm	2.0 mm	4.5 mm

Where used:

4 screws that secure the display assembly to the notebook on Compaq Presario R4000 models (documented in Section 5.14)

Phillips PM2.0×7.0 Screw Locations

Table C-1

Phillips PM2.0×7.0 Screw *(Continued)*

	Color	Qty.	Length	Thread	Head Width
	Black	40	7.0 mm	2.0 mm	4.5 mm

Where used:

❶ Two screws that secure the display assembly to the notebook on Compaq Presario R4000 models (documented in Section 5.14)

❷ Five screws that secure the base enclosure to the notebook on Compaq Presario R4000 models (documented in Section 5.15)

Phillips PM2.0×7.0 Screw Locations

Table C-1

Phillips PM2.0×7.0 Screw *(Continued)*

	Color	Qty.	Length	Thread	Head Width
	Black	40	7.0 mm	2.0 mm	4.5 mm

Where used:

4 screws that secure the base enclosure to the notebook on HP Pavilion zv6000 models (documented in)
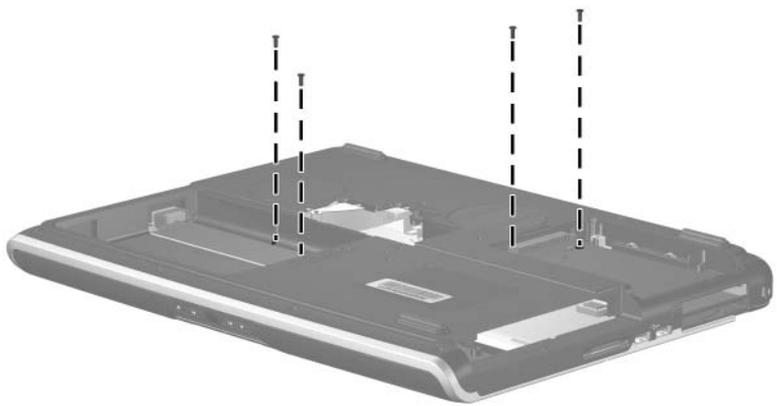
Phillips PM2.0×7.0 Screw Locations

Table C-1

Phillips PM2.0×7.0 Screw *(Continued)*

mm	Color	Qty.	Length	Thread	Head Width
	Black	40	7.0 mm	2.0 mm	4.5 mm

Where used:

One screw that secures the thermal frame to the top cover (documented in Section 5.21)
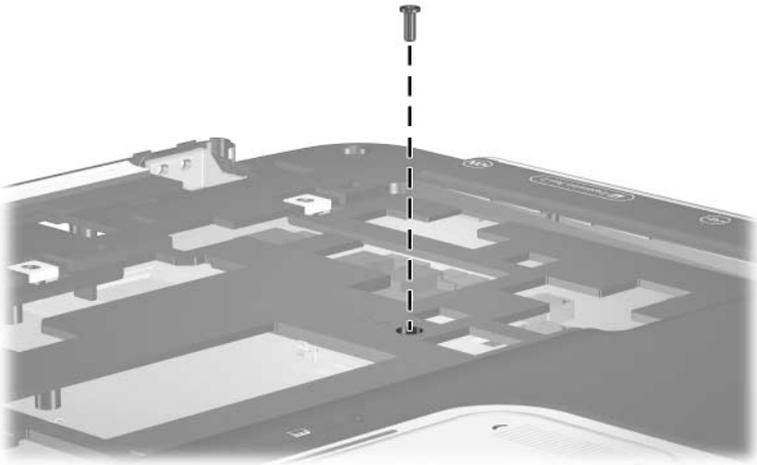
Phillips PM2.0×7.0 Screw Location

Table C-1

Phillips PM2.0×7.0 Screw *(Continued)*
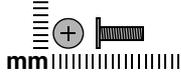
mm	Color	Qty.	Length	Thread	Head Width
	Black	40	7.0 mm	2.0 mm	4.5 mm

Where used:

6 screws that secure the thermal frame to the top cover (documented in Section 5.21)
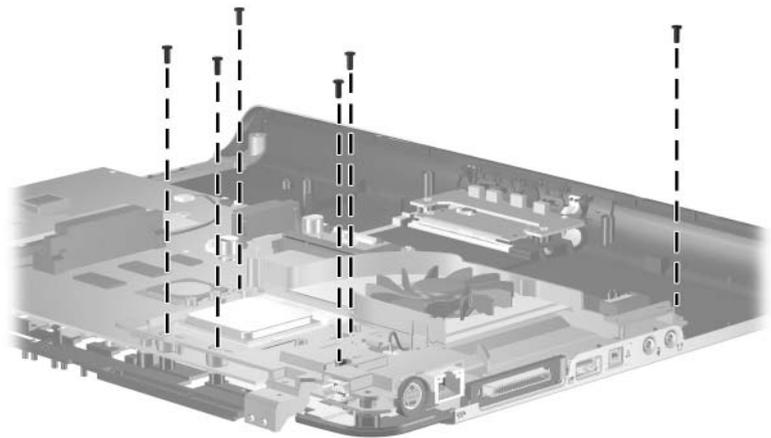
Phillips PM2.0×7.0 Screw Locations

Table C-1

Phillips PM2.0×7.0 Screw *(Continued)*
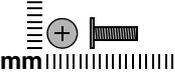
mm	Color	Qty.	Length	Thread	Head Width
	Black	40	7.0 mm	2.0 mm	4.5 mm

Where used:

4 screws that secure the system board to the top cover (documented in Section 5.22)
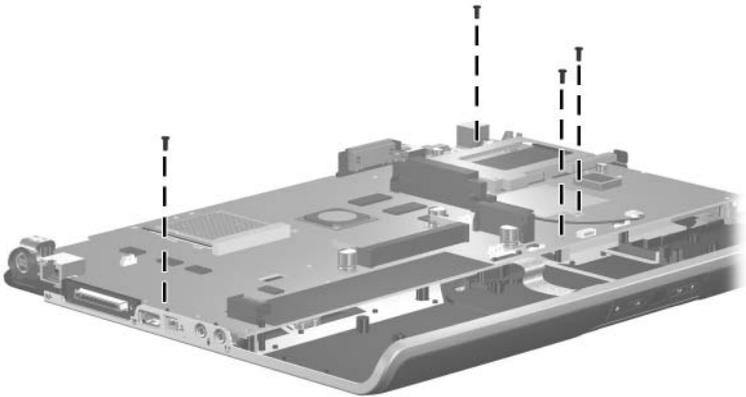
Phillips PM2.0×7.0 Screw Locations

Table C-2

Phillips PM3.0×4.5 Screw
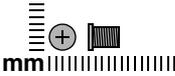
	Color	Qty.	Length	Thread	Head Width
	Black	4	4.5 mm	3.0 mm	4.0 mm

Where used:

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

Phillips PM3.0×4.5 Screw Locations

Table C-3
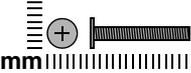
Phillips PM2.0×15.0 Screw

	Color	Qty.	Length	Thread	Head Width
	Black	27	15.0 mm	2.0 mm	4.5 mm

Where used:

4 screws that secure the keyboard cover to the notebook (documented in Section 5.8)
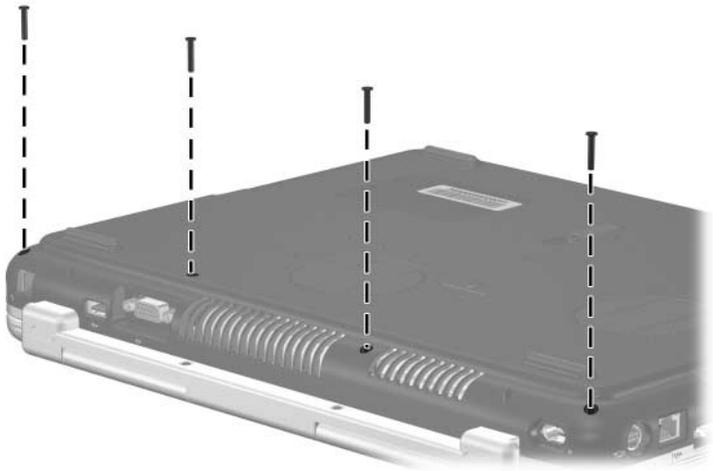
Phillips PM2.0×15.0 Screw Locations

Table C-3

Phillips PM2.0×15.0 Screw *(Continued)*
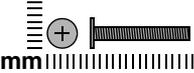
	Color	Qty.	Length	Thread	Head Width
	Black	27	15.0 mm	2.0 mm	4.5 mm

Where used:

13 screws that secure the base enclosure to the top cover on HP Pavilion zv6000 models (documented in Section 5.15)
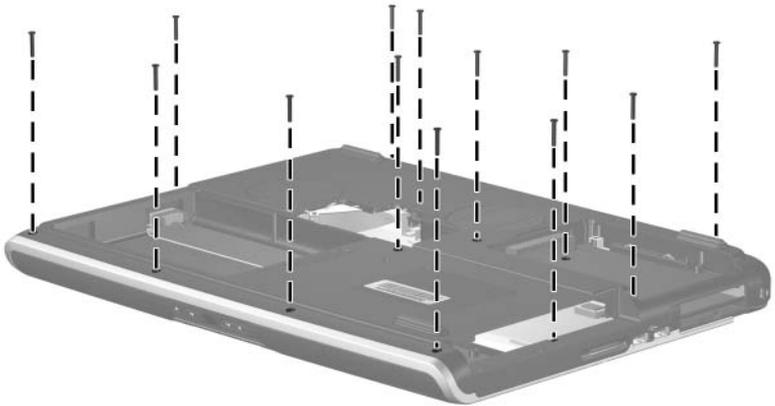
Phillips PM2.0×15.0 Screw Locations

Table C-3

Phillips PM2.0×15.0 Screw *(Continued)*
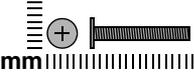
	Color	Qty.	Length	Thread	Head Width
	Black	27	15.0 mm	2.0 mm	4.5 mm

Where used:

10 screws that secure the base enclosure to the top cover on Compaq Presario R4000 models (documented in Section 5.15)
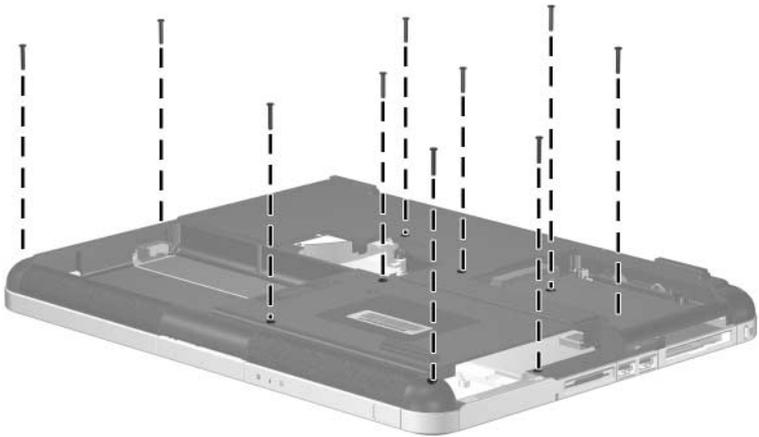
Phillips PM2.0×15.0 Screw Locations

Table C-4

Phillips PM2.0×4.0 Screw
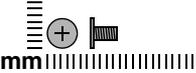
	Color	Qty.	Length	Thread	Head Width
	Black	8	4.0 mm	2.0 mm	4.5 mm

Where used:

2 screws that secure the volume board to the keyboard cover on Compaq Presario R4000 models (documented in Section 5.9)
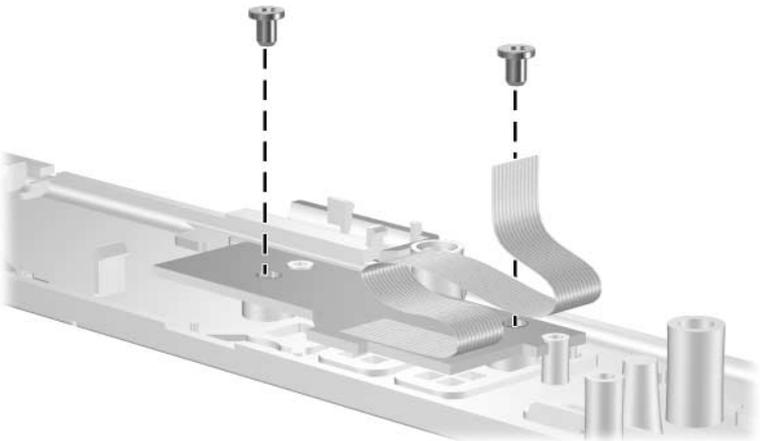
Phillips PM2.0×4.0 Screw Locations
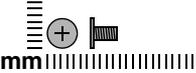
Table C-4

Phillips PM2.0×4.0 Screw *(Continued)*

mm	Color	Qty.	Length	Thread	Head Width
	Black	8	4.0 mm	2.0 mm	4.5 mm

Where used:

4 screws that secure the keyboard to the notebook (documented in Section 5.11)
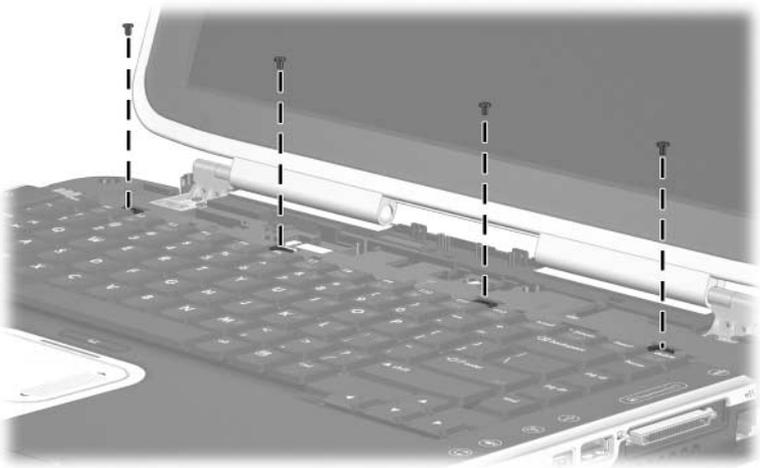
Phillips PM2.0×4.0 Screw Locations
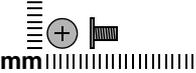
Table C-4

Phillips PM2.0×4.0 Screw *(Continued)*

mm ||||||||||||||||||||||	Color	Qty.	Length	Thread	Head Width
	Black	8	4.0 mm	2.0 mm	4.5 mm

Where used:

2 screws that secure the front board to the top cover on HP Pavilion zv6000 models (documented in Section 5.18)
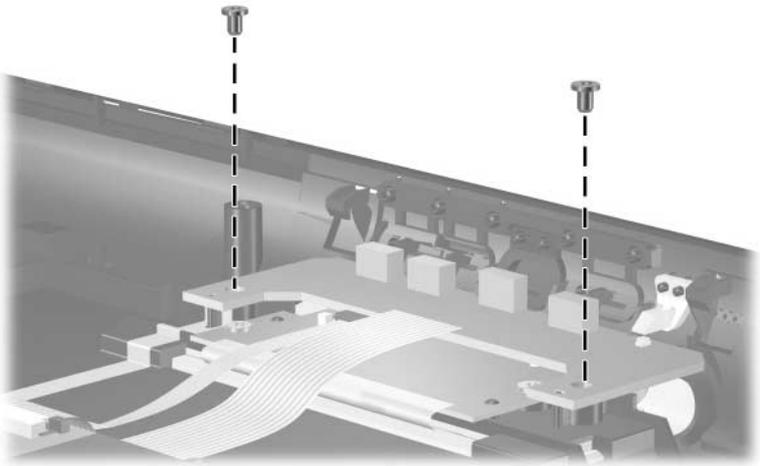
Phillips PM2.0×4.0 Screw Locations

Table C-5

Phillips PM1.5×3.0 Screw
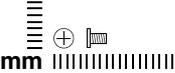
	Color	Qty.	Length	Thread	Head Width
mm	Silver	6	3.0 mm	1.5 mm	4.0 mm

Where used:

2 screws that secure the Bluetooth board to the notebook (documented in Section 5.10)
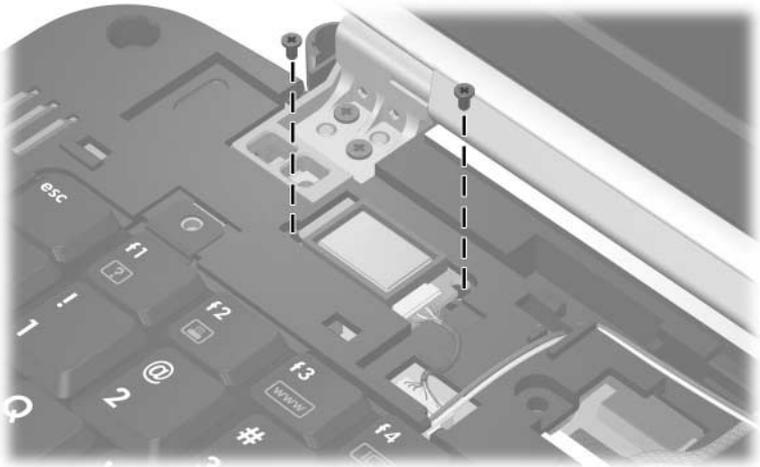
Phillips PM1.5×3.0 Screw Locations

Table C-5

Phillips PM1.5×3.0 Screw *(Continued)*
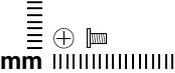
	Color	Qty.	Length	Thread	Head Width
mm	Silver	6	3.0 mm	1.5 mm	4.0 mm

Where used:

❶ One screw that secures the fan cover to the thermal frame (documented in Section 5.16)

❷ Three screws that secure the fan to the thermal frame (documented in Section 5.16)
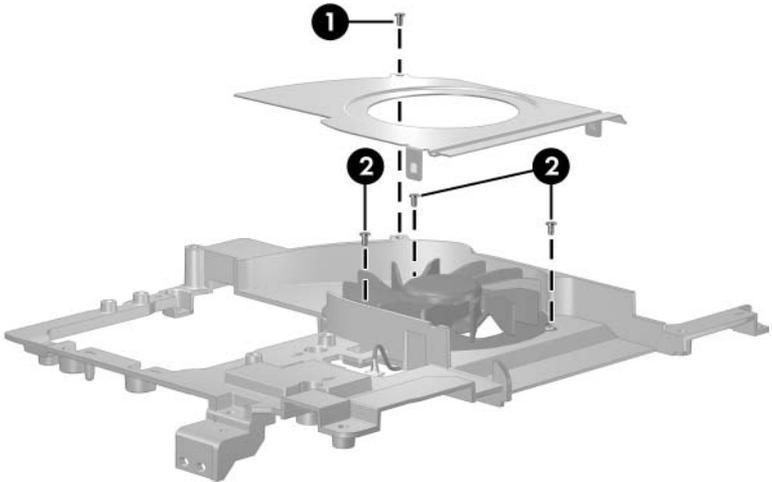
Phillips PM1.5×3.0 Screw Locations

Table C-6

Phillips PM2.0×4.0 Coarse Thread Screw

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

Where used:

3 screws that secure the fan assembly to the base enclosure (documented in Section 5.16)
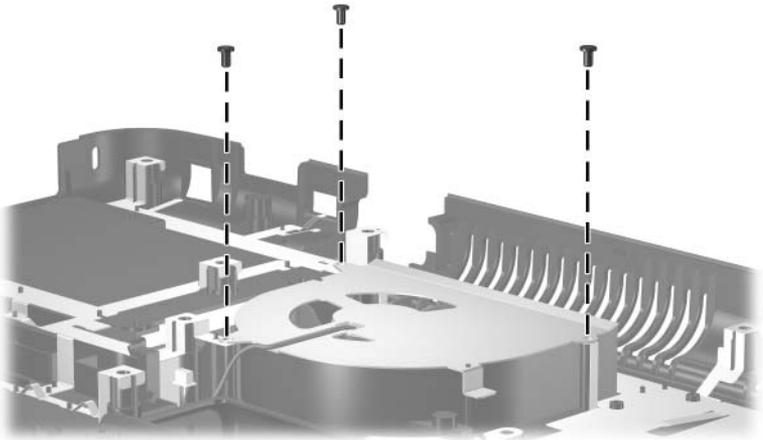
Phillips PM2.0×4.0 Coarse Thread Screw Locations

Table C-7

Phillips PM2.0×11.0 Spring-Loaded Shoulder Screw
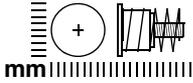
	Color	Qty.	Length	Thread	Head Width
	Silver	4	11.0 mm	2.0 mm	8.0 mm

Where used:

4 screws that secure the thermal module to the notebook (documented in Section 5.21)
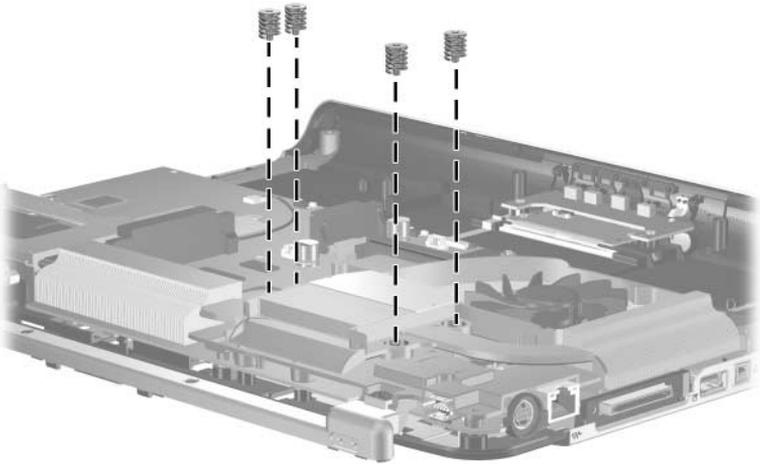
Phillips PM2.0×11.0 Spring-Loaded Shoulder Screw Locations

Table C-8

Phillips PM2.0×3.0 Screw
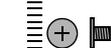
	Color	Qty.	Length	Thread	Head Width
	Silver	2	3.0 mm	2.0 mm	5.0 mm

2 screws that secure the top cover rear bezel to the top cover (documented in Section 5.21)
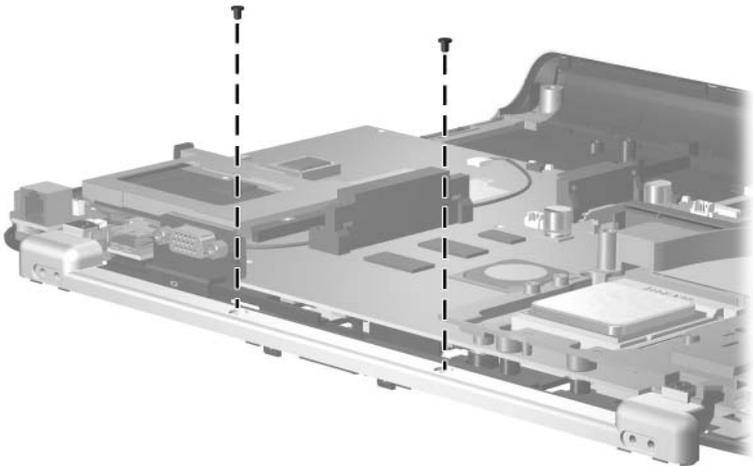
Phillips PM2.0×3.0 Screw Locations

Table C-9

Phillips PM1.5×8.0 Screw
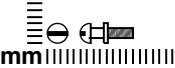
mm	Color	Qty.	Length	Thread	Head Width
	Silver	2	8.0 mm	1.5 mm	2.0 mm

2 screws that secure the system board to the top cover (documented in Section 5.22)
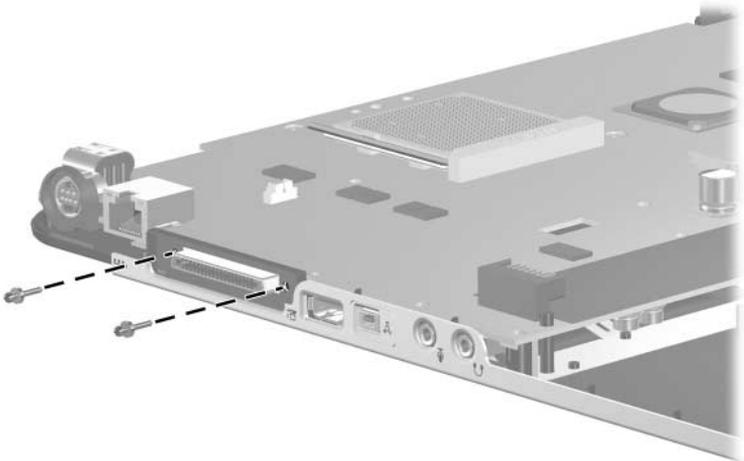
Phillips PM1.5×8.0 Screw Locations

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