

COMPAQ

Maintenance and Service Guide

Compaq Presario V2600 Notebook PC

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

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Maintenance and Service Guide
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1

Product Description

The Compaq Presario V2600 Notebook PC offers advanced modularity, Intel® Core Duo and Core Solo processors, and extensive multimedia support.



Compaq Presario V2600 Notebook PC

1.1 Features

- The following processors are available, varying by computer model:
 - ❑ Intel Core Duo T2500 (2.00-GHz)
 - ❑ Intel Core Duo T2400 (1.83-GHz)
 - ❑ Intel Core Duo T2300 (1.66-GHz)
 - ❑ Intel Core Solo T1300 (1.66-GHz)
- 14.0-inch WXGA (1280 × 768) TFT display with over 16.7 million colors, varying by computer model
- 100-, 80-, 60-, or 40-GB high-capacity hard drive, varying by computer model
- 256-MB DDR synchronous DRAM (SDRAM) at 533 MHz, expandable to 2.0 GB on models with Intel Core Duo processors and 1.0 GB on models with Intel Core Solo processors
- Microsoft® Windows® XP Home Edition or Windows XP Professional, or Free DOS, varying by computer model
- Full-size Windows keyboard with embedded numeric keypad
- TouchPad pointing device with on/off button and dedicated two-way scroll region
- Integrated 10/100 BASE-T Ethernet local area network (LAN) network interface card (NIC) with RJ-45 jack
- Integrated high-speed 56K modem with RJ-11 jack
- Integrated wireless support for Mini Card IEEE 802.11b and 802.11b/g WLAN device

- Support for ExpressCards
- External 65-watt AC adapter with 3-wire power cord
- 6-cell or 12-cell Li-Ion battery pack
- Stereo speakers with volume up and down buttons
- Support for the following optical drives:
 - ❑ 8X Max DVD+RW/R and CD-RW Combo Drive
 - ❑ 4X Max DVD+RW/R and CD-RW Combo Drive
 - ❑ 8X Max DVD-ROM Drive
 - ❑ 24X Max DVD/CD-RW Combo Drive
- Connectors:
 - ❑ External monitor
 - ❑ Universal Serial Bus (USB) v. 2.0
 - ❑ RJ-11 (modem)
 - ❑ RJ-45 (network)
 - ❑ Audio-out (headphone)
 - ❑ Audio-in (microphone)
 - ❑ Power
 - ❑ IEEE 1394 digital (select models only)
 - ❑ S-Video-out (select models only)
 - ❑ Parallel
 - ❑ Serial
 - ❑ Docking (select models only)
 - ❑ Memory Reader (select models only)

1.2 Resetting the Computer

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

1. Prepare the computer for disassembly (refer to [Section 5.3, “Preparing the Computer for Disassembly,”](#) for more information).
2. Remove the real-time clock (RTC) battery (refer to [Section 5.16, “RTC Battery,”](#) for more information).
3. Wait approximately 5 minutes.
4. Replace the RTC battery and reassemble the computer.
5. Connect AC power to the computer. Do not reinsert any battery packs at this time.
6. Turn on the computer.

All passwords and all CMOS settings have been cleared.

1.3 Power Management

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

- 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 computer are shown below and described in Table 1-1.



Front Components

Table 1-1
Front Components

| Item | Component | Function |
|-------------|--|--|
| 1 | Speakers (2) | Produce stereo sound. |
| 2 | Wireless light (select models only) | On: An integrated wireless device is hardware enabled. |
| 3 | Power light | <ul style="list-style-type: none"> ■ On: Computer is turned on. ■ Blinking: Computer is in standby. ■ Off: Computer is off. |
| 4 | Drive light | On or blinking: The internal hard drive or an optical drive is being accessed. |
| 5 | Battery light | <ul style="list-style-type: none"> ■ Amber: The battery pack is charging. ■ Green: The battery pack is fully charged. ■ Off: The battery pack is discharging or not inserted. |
| 6 | Display release button | Opens the computer. |
| 7 | Audio-in (microphone) jack | Connects an optional monaural (single sound channel) microphone. |
| 8 | Audio-out (headphone) jack | Connect optional headphones or powered stereo speakers. Also connect the audio function of an audio/video device such as a television or VCR. |

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



Right-Side Components

Table 1-2
Right-Side Components


| Item | Component | Function |
|-------------|---|--|
| 1 | USB connectors (2) | Connect an optional USB device. |
| 2 | Memory Reader (select models only) | In Windows, supports digital cards. |
| 3 | 1394 port (select models only) | Connects an optional 1394 device such as a scanner, digital camera, or digital camcorder. |
| 4 | Memory Reader light (select models only) | On: A digital card is being accessed. |
| 5 | Optical drive | Supports an optical disc. |
| 6 | S-Video-out jack (select models only) | Connects an optional S-Video device, such as a television, VCR, camcorder, projector, or video capture card. |

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

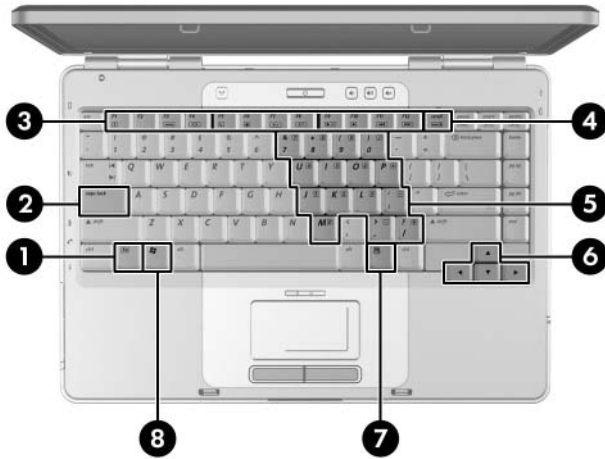


Rear and Left-Side Components

Table 1-3
Rear and Left-Side Components

| Item | Component | Function |
|------|-----------------------|---|
| 1 | Exhaust vent | Provide airflow to cool internal components.  To prevent overheating, do not obstruct vents. Use the computer only on a flat, hard surface. Do not allow a hard surface, such as a printer, or a soft surface, such as pillows, thick rugs or clothing, to block airflow. |
| 2 | Power connector | Connects an AC adapter cable. |
| 3 | External monitor port | Connects an optional VGA external monitor or projector. |
| 4 | Expansion port 2 | Connects the computer to an optional expansion product or docking device. |
| 5 | RJ-45 (network) jack | Connects an optional network cable. |
| 6 | RJ-11 (modem) jack | Connects the modem cable. |
| 7 | USB connector | Connects an optional USB device. |
| 8 | ExpressCard slot | Supports an optional ExpressCard device. |
| 9 | Security cable slot | Attaches an optional security cable to the computer. |

The computer keyboard components on the computer are shown below and described in Table 1-4.



Keyboard Components

Table 1-4
Keyboard Components

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

The computer top components on the computer are shown below and described in Table 1-5.



Top Components, Part 1

Table 1-5
Top Components, Part 1

| Item | Component | Function |
|------|-----------------|--|
| 1 | Caps lock light | On: Caps lock is on. |
| 2 | Display switch | If the computer is closed while on, turns off the display. |

Table 1-5
Top Components, Part 1 (Continued)

| Item | Component | Function |
|-------------|--------------------|--|
| 3 | Wireless button | Enables/disables an internal wireless device. |
| | Wireless light | On: an integrated wireless device is hardware enabled. |
| 4 | Power button | When the computer is <ul style="list-style-type: none"> ■ Off, press to turn on the computer. ■ On, briefly press to initiate Hibernation. ■ In Standby, briefly press to resume from Standby. ■ In Hibernation, briefly press to restore from Hibernation. |
| | Power light | <ul style="list-style-type: none"> ■ On: Computer is turned on. ■ Blinking: Computer is in standby. ■ Off: Computer is off. |
| 5 | Volume down button | Decreases system volume. |
| 6 | Volume up button | Increases system volume. |
| 7 | Volume mute button | Mutes or restores volume. |
| | Mute light | On: Volume is muted. |
| 8 | Num lock light | On: Num lock or the internal keypad is on. |

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

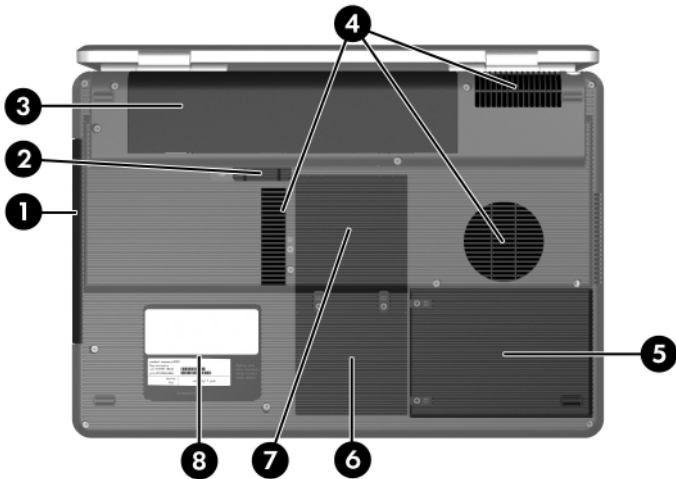


Top Components, Part 2

Table 1-6
Top Components, Part 2

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

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





Bottom Components

Table 1-7
Bottom Components

| Item | Component | Function |
|-------------|----------------------------|---|
| 1 | Optical drive | Supports an optical disc. |
| 2 | Battery pack release latch | Releases a battery pack from the battery bay. |
| 3 | Battery pack | Holds a battery pack. |

Table 1-7
Bottom Components (Continued)

| Item | Component | Function |
|------|---------------------------|---|
| 4 | Exhaust vents (4) | <p>Provide airflow to cool internal components.</p> <p> To prevent overheating, do not obstruct vents. Use the computer only on a flat, hard surface. Do not allow a hard surface, such as a printer, or a soft surface, such as pillows, thick rugs or clothing, to block airflow.</p> |
| 5 | Hard drive bay | Holds the internal hard drive. |
| 6 | Mini Card compartment | <p>Holds an optional wireless LAN device.</p> <p> To prevent an unresponsive system and the display of a warning message, install only a Mini Card device authorized for use in your computer by the governmental agency that regulates wireless devices in your country. If you install a device and then receive a warning message, remove the device to restore computer functionality. Then contact Customer Care.</p> |
| 7 | Memory module compartment | Contains 2 memory slots that support replaceable memory modules. The number of preinstalled memory modules varies by computer model. |
| 8 | Label areas (2) | Contain the computer serial number and other applicable regulatory labels. |

1.5 Design Overview

This section presents a design overview of key parts and features of the computer. Refer to [Chapter 3, “Illustrated Parts Catalog,”](#) to identify replacement parts, and [Chapter 5, “Removal and Replacement Procedures,”](#) for disassembly steps.

The system board provides the following device connections:

- Memory module
- Mini Card modules
- Hard drive
- Display
- Keyboard and TouchPad
- Audio
- Intel Core Duo and Core Solo processors
- Fan
- ExpressCard



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

The computer uses an electric fan for ventilation. The fan is controlled by a temperature sensor and is designed to 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. Exhaust air is displaced through the ventilation grill located on the left side of the computer.

Troubleshooting



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

2.1 Computer Setup

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



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

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

Accessing Computer Setup

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

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

Your preferences are set when you exit Computer Setup and go into effect when the computer restarts.

Computer Setup Defaults

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

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

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

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




Selecting from the File Menu

Table 2-1
File Menu

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

Selecting from the Security Menu

Table 2-2
Security Menu

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

Selecting from the Tools Menu

Table 2-3
Tools Menu

| Select | To Do This |
|-----------------------|--|
| HDD Self Test options | Run a quick or comprehensive self-test on any hard drive in the system. |
| Battery Information | View information about any battery packs in the computer. |
| Memory Check | <ul style="list-style-type: none"> <li data-bbox="426 594 900 646">■ Run a self-test on memory modules in the computer. <li data-bbox="426 659 900 711">■ View information about memory modules installed in the computer. |

Selecting from the Advanced Menu

Table 2-4
Advanced Menu

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

2.2 Troubleshooting Flowcharts

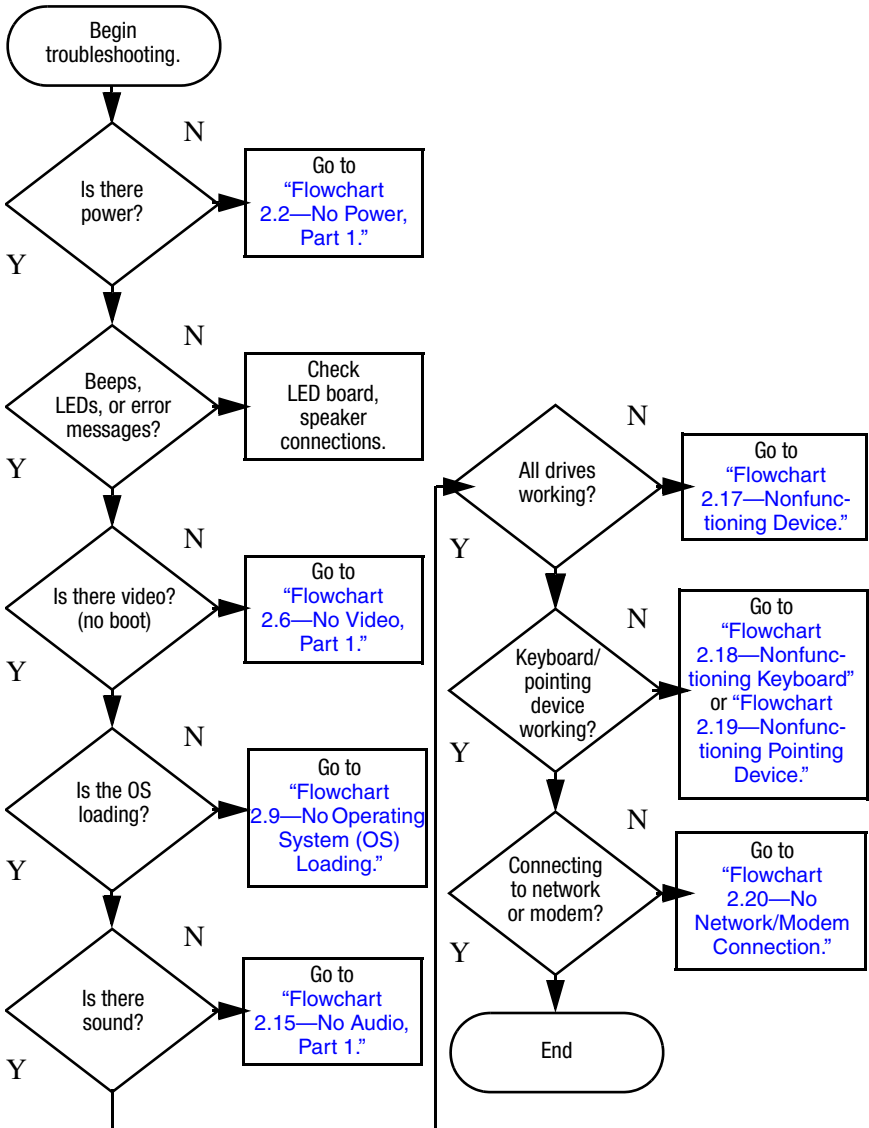
Table 2-5
Troubleshooting Flowcharts Overview

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

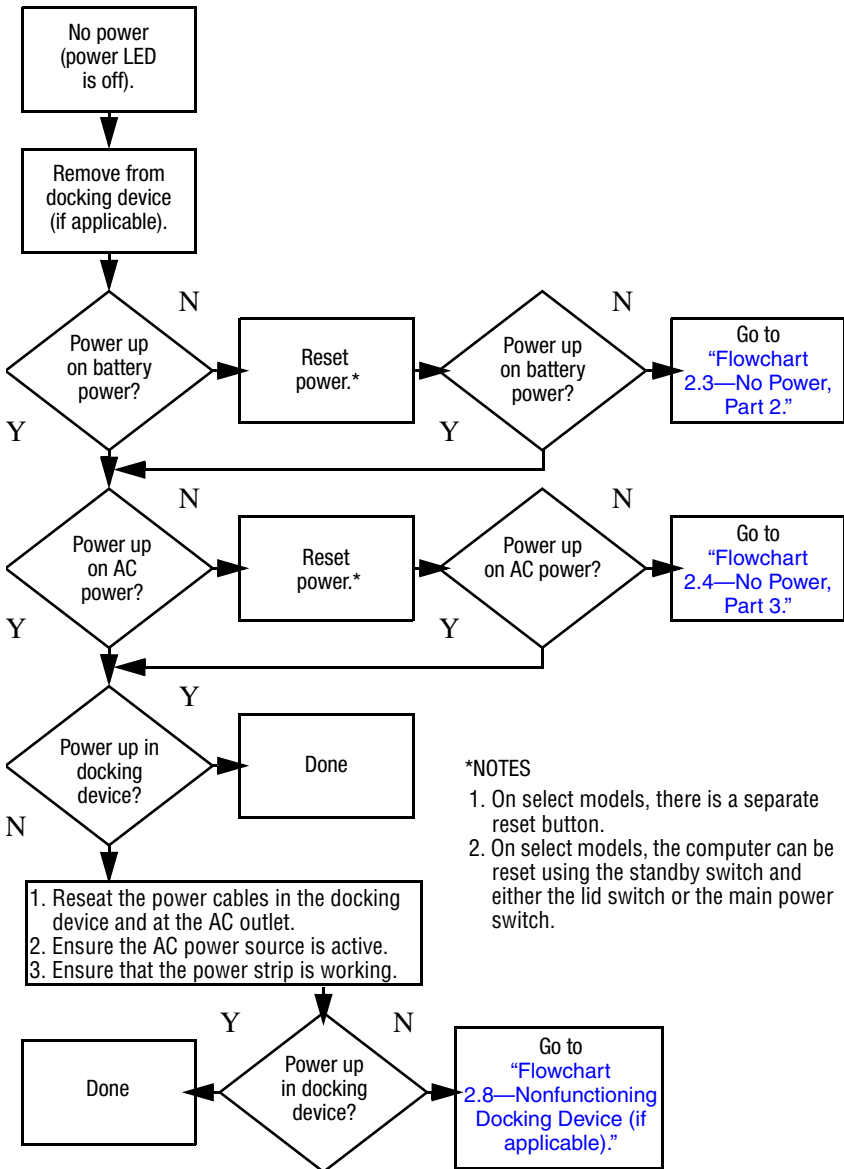
Table 2-5
Troubleshooting Flowcharts Overview (*Continued*)

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

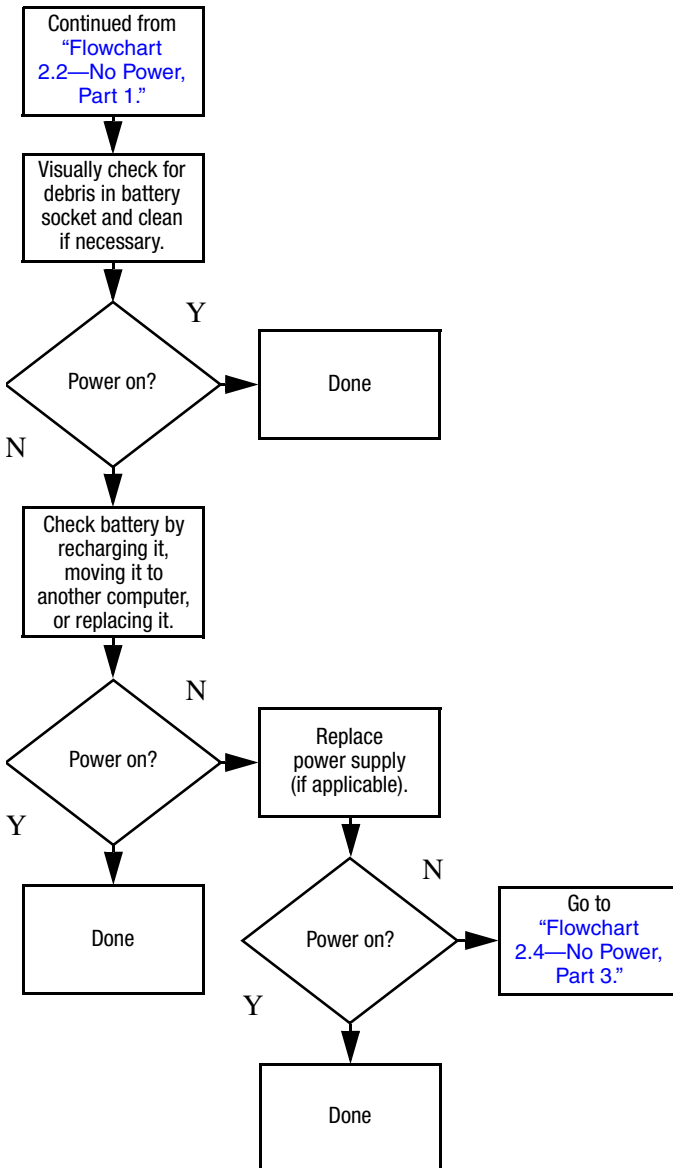
Flowchart 2.1 – Initial Troubleshooting



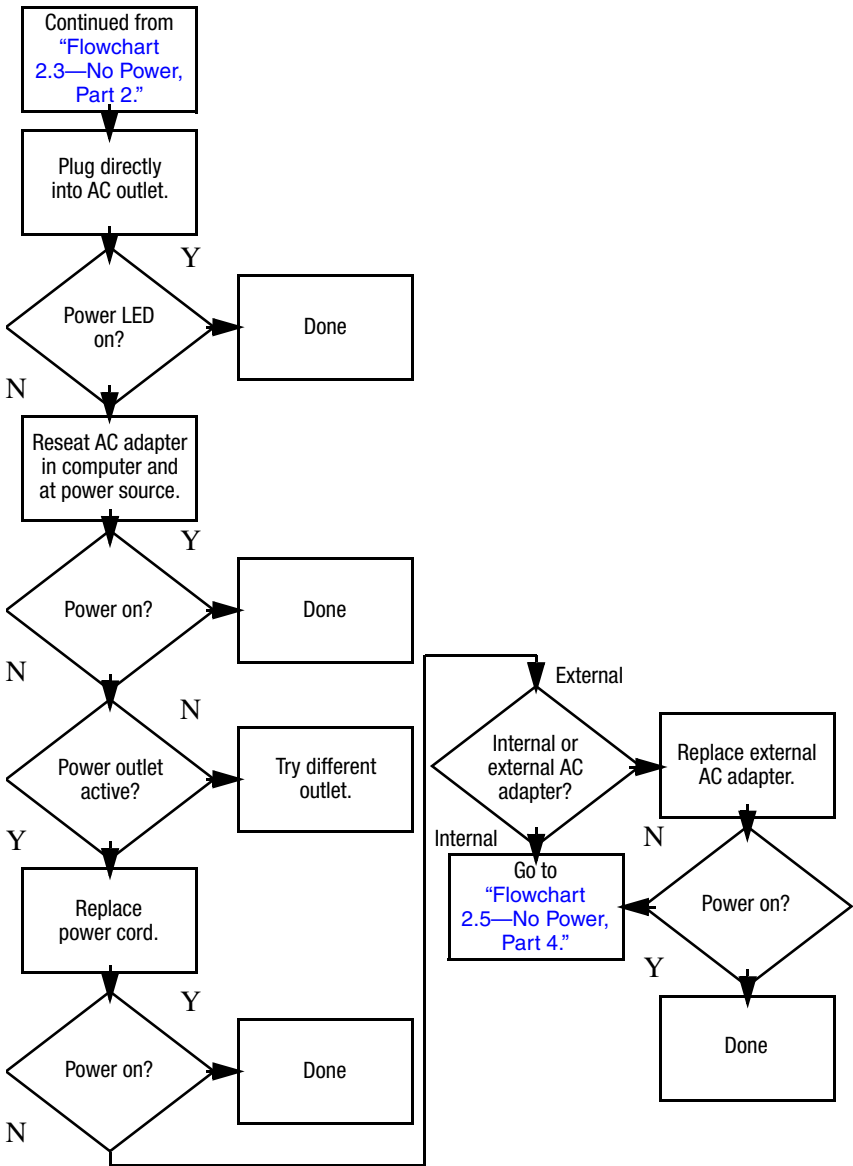
Flowchart 2.2—No Power, Part 1



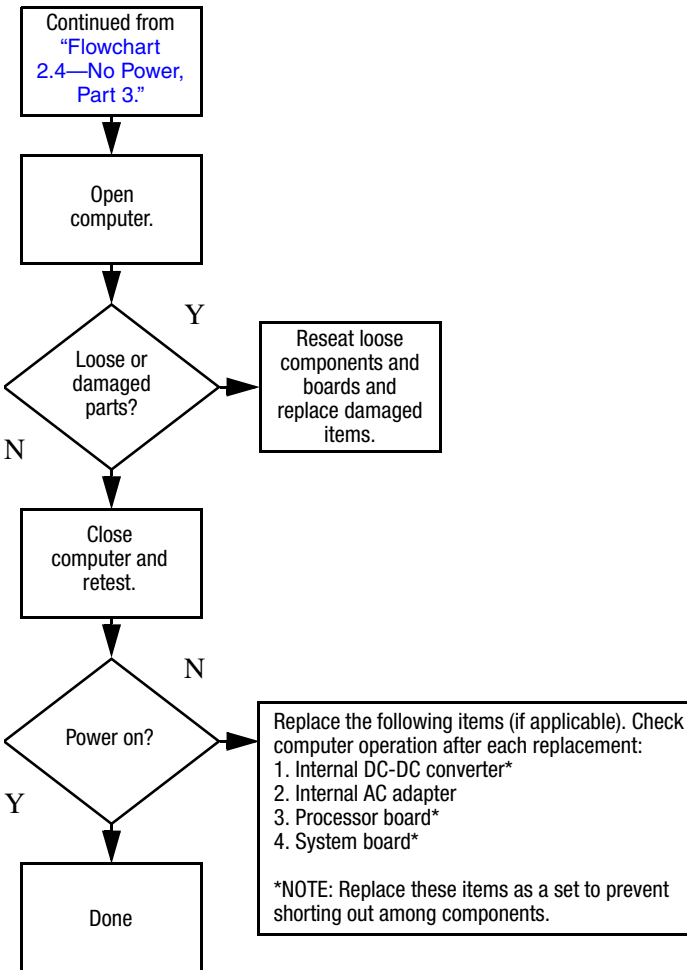
Flowchart 2.3—No Power, Part 2



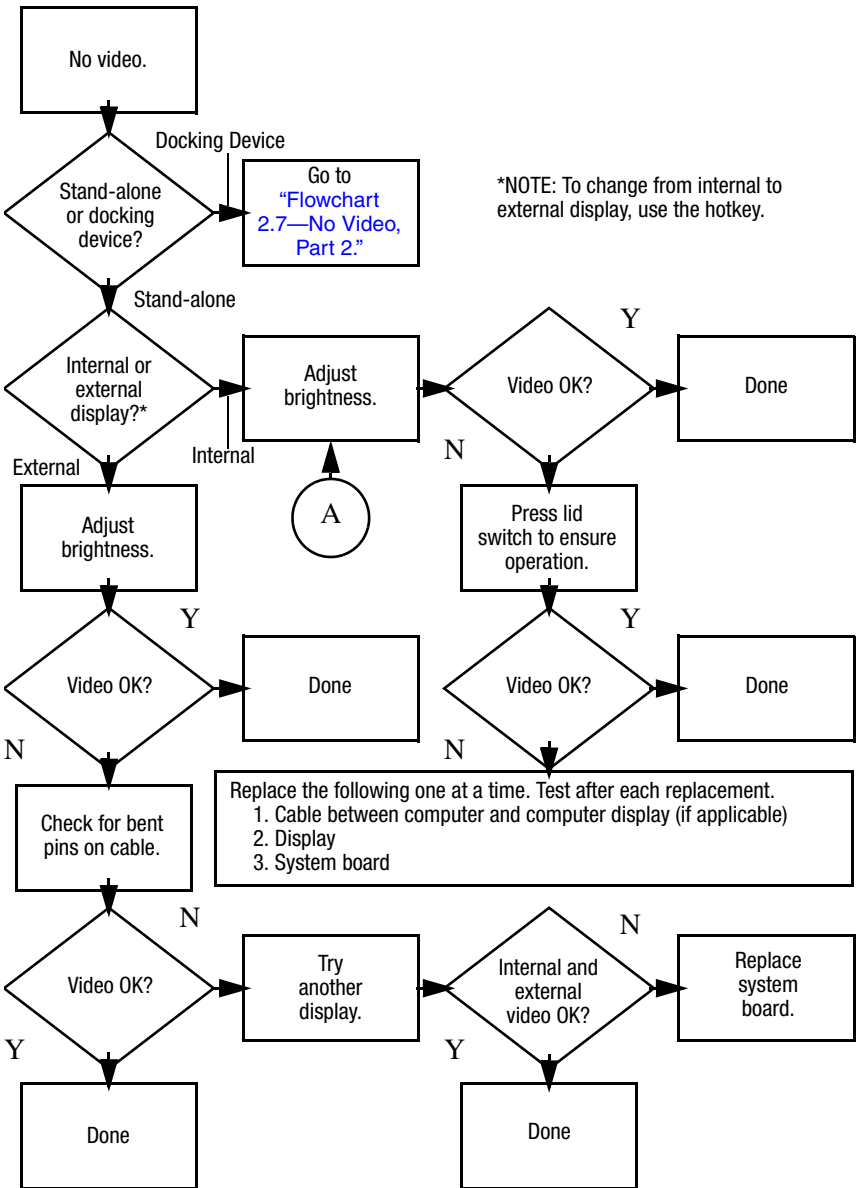
Flowchart 2.4—No Power, Part 3



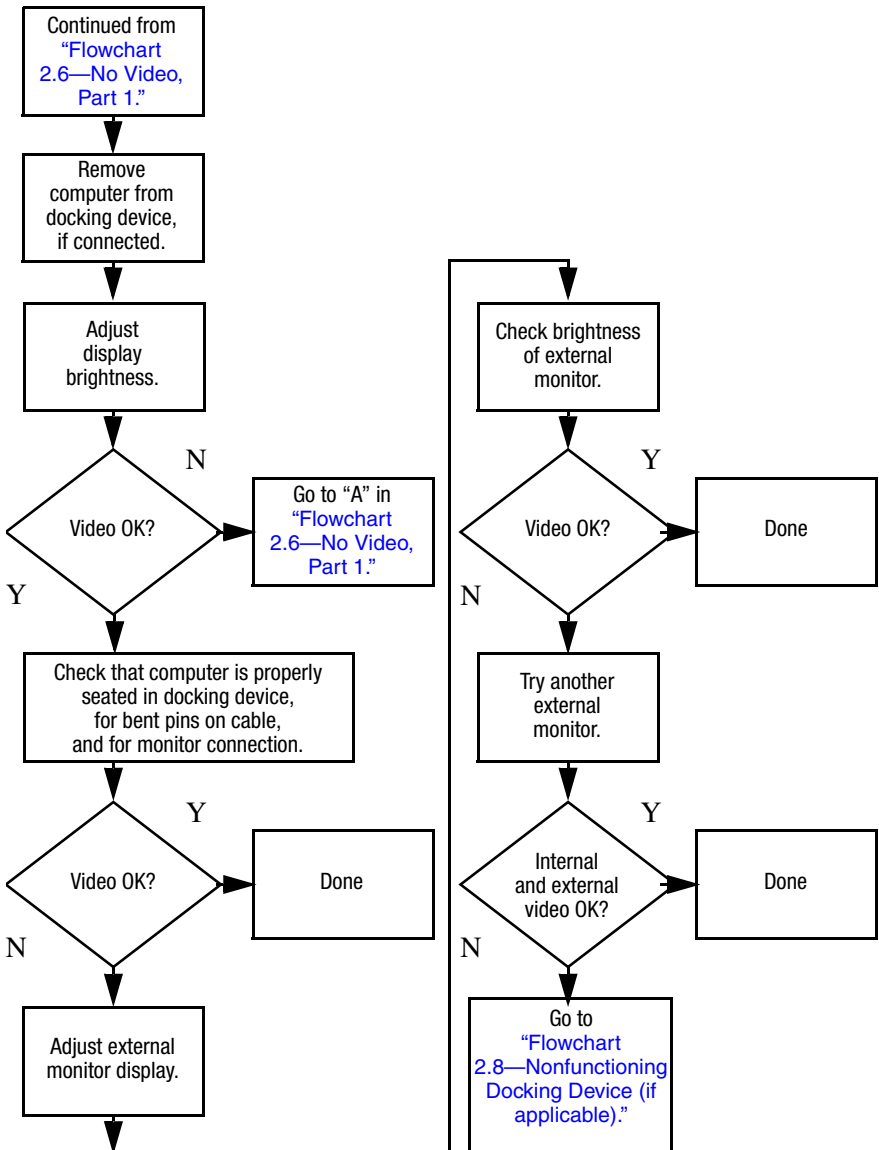
Flowchart 2.5—No Power, Part 4



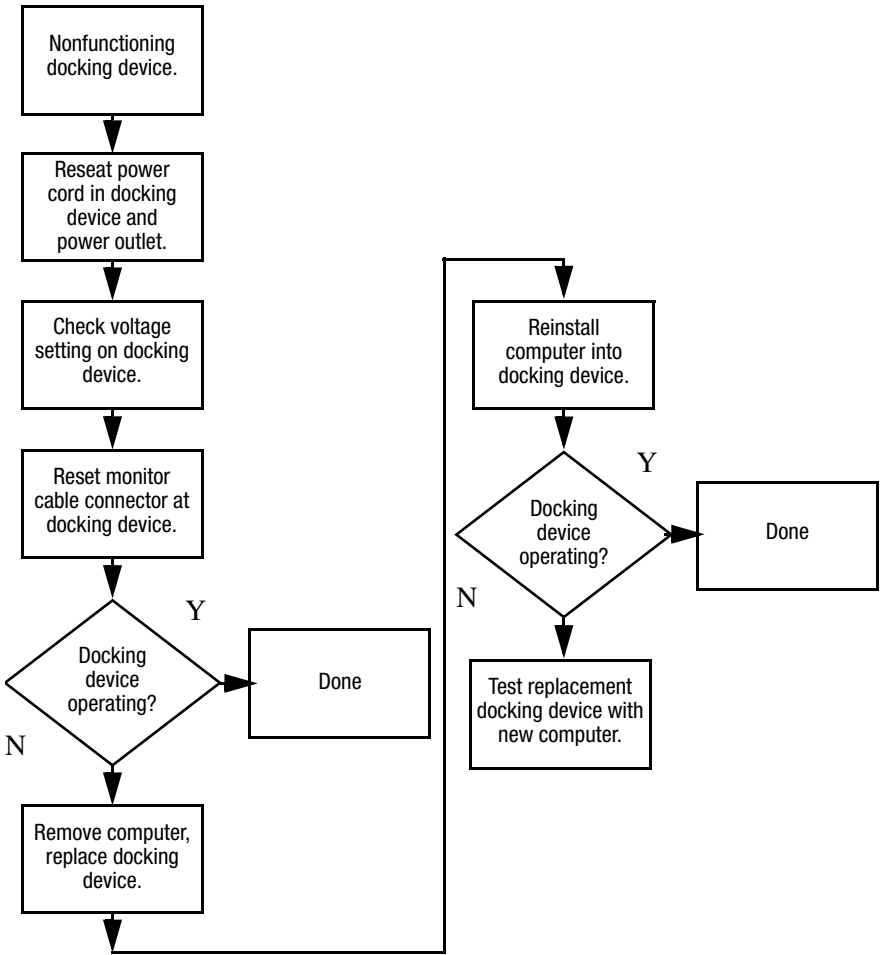
Flowchart 2.6—No Video, Part 1



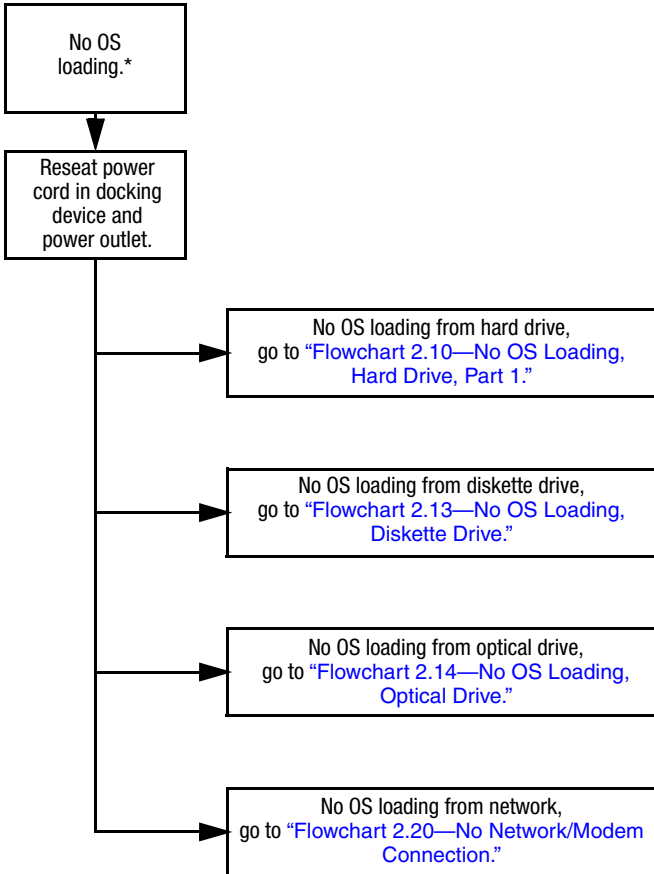
Flowchart 2.7—No Video, Part 2



Flowchart 2.8—Nonfunctioning Docking Device (if applicable)

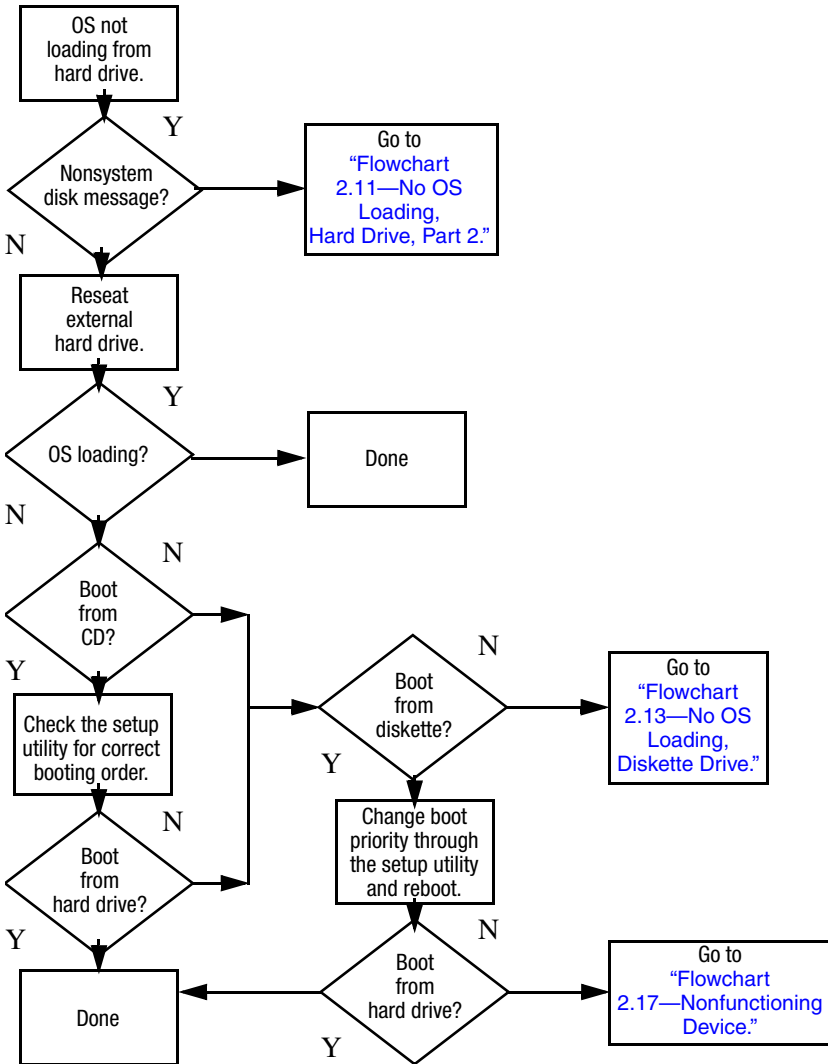


Flowchart 2.9—No Operating System (OS) Loading

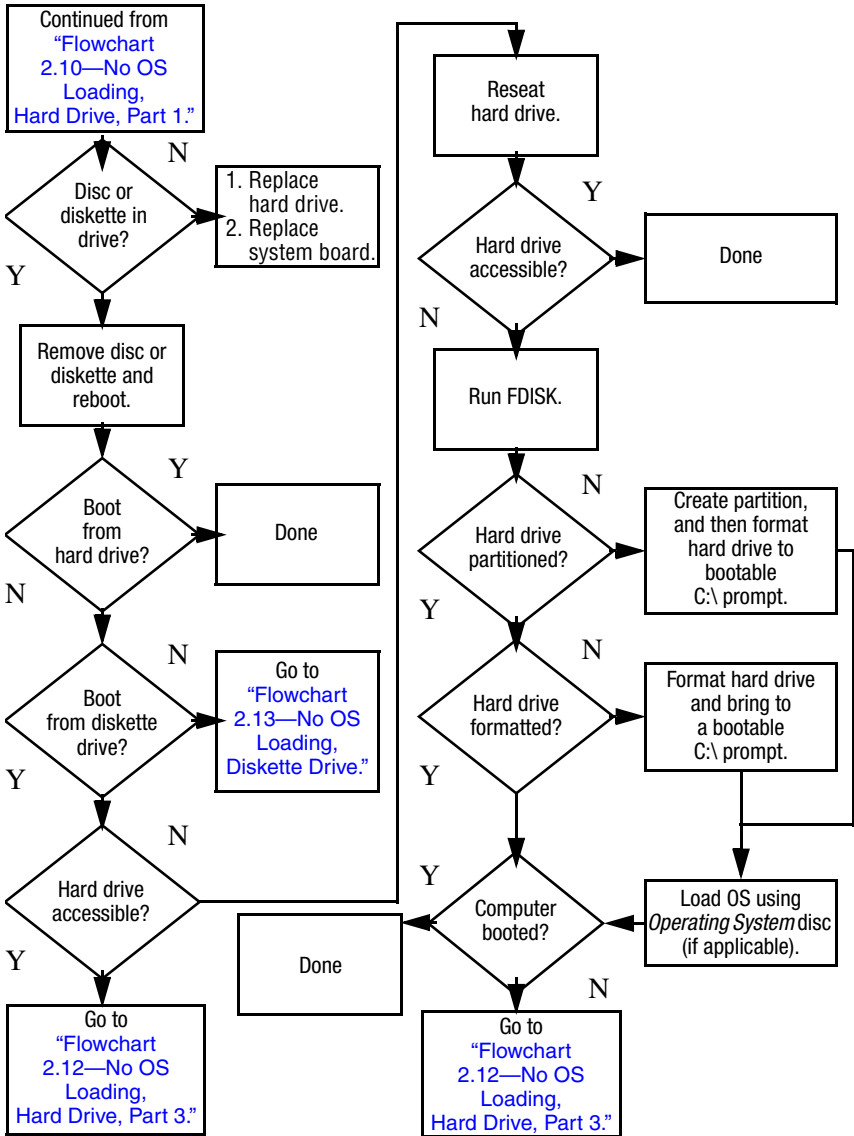


*NOTE: Before beginning troubleshooting, always check cable connections, cable ends, and drives for bent or damaged pins.

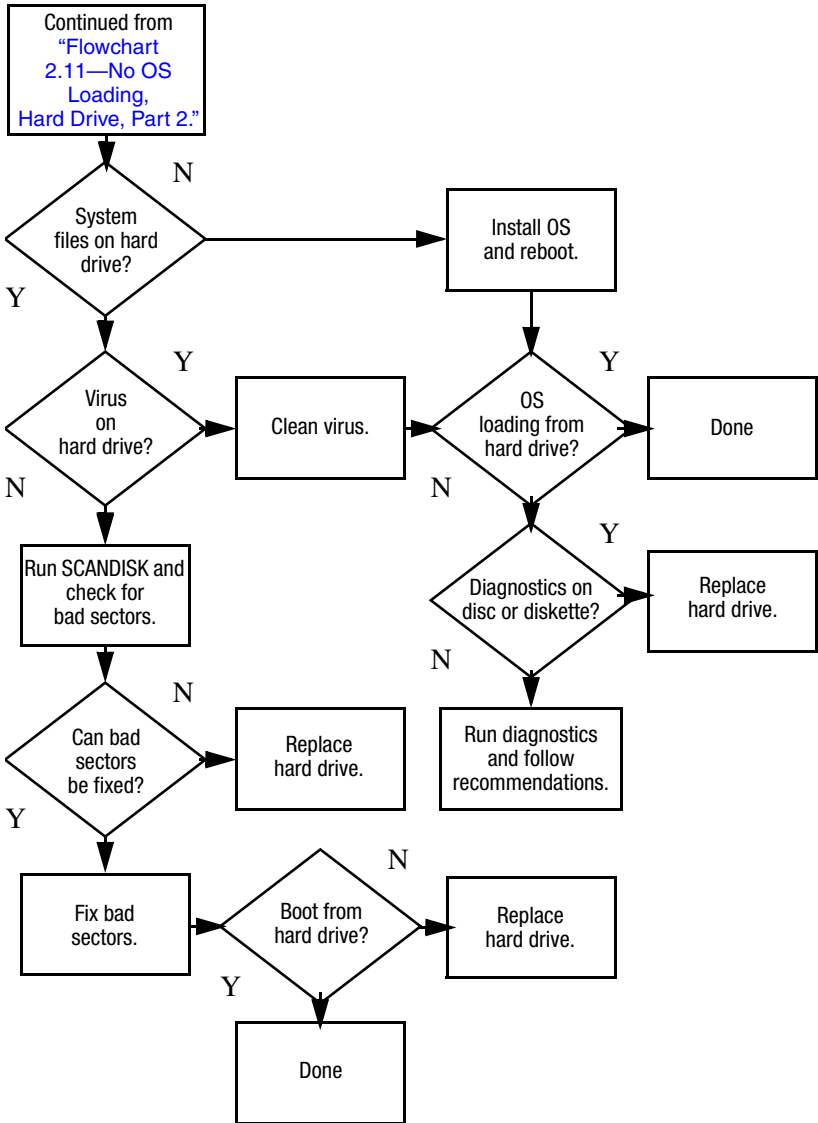
Flowchart 2.10—No OS Loading, Hard Drive, Part 1



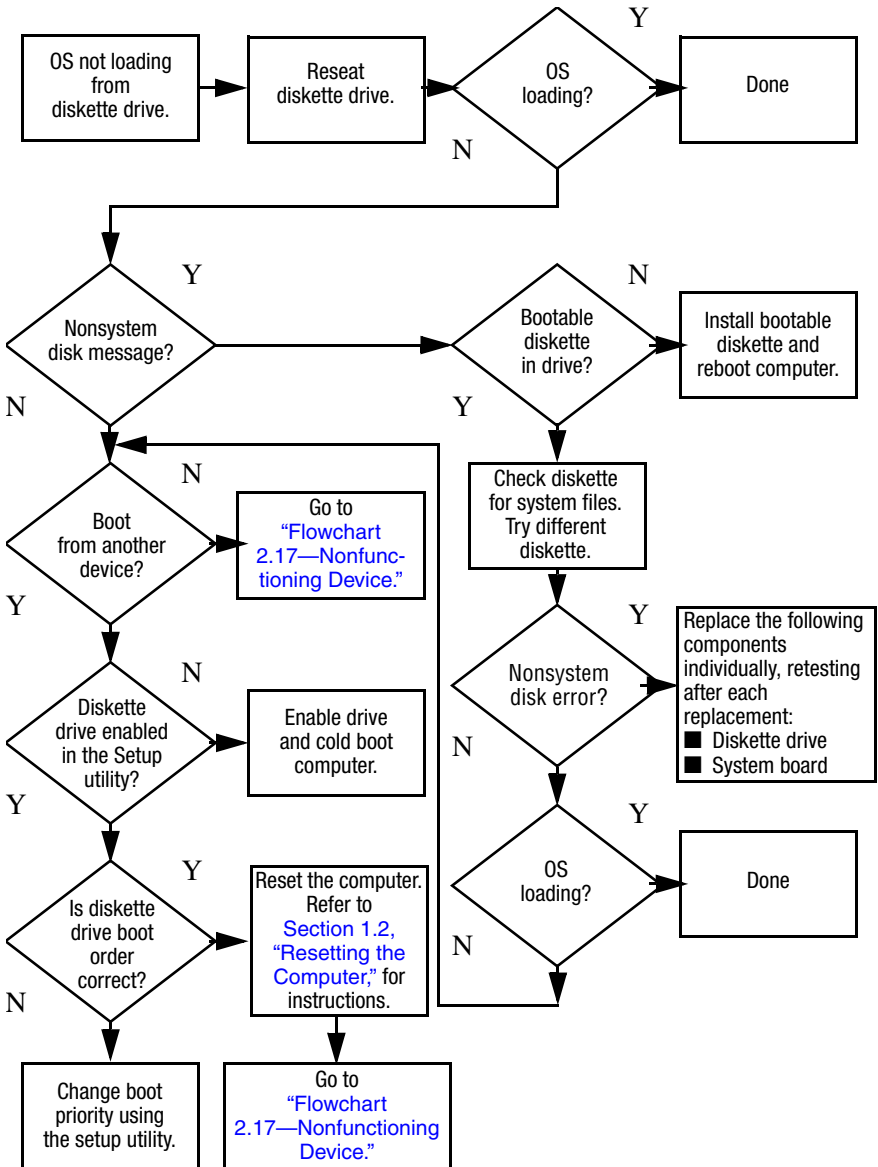
Flowchart 2.11 – No OS Loading, Hard Drive, Part 2



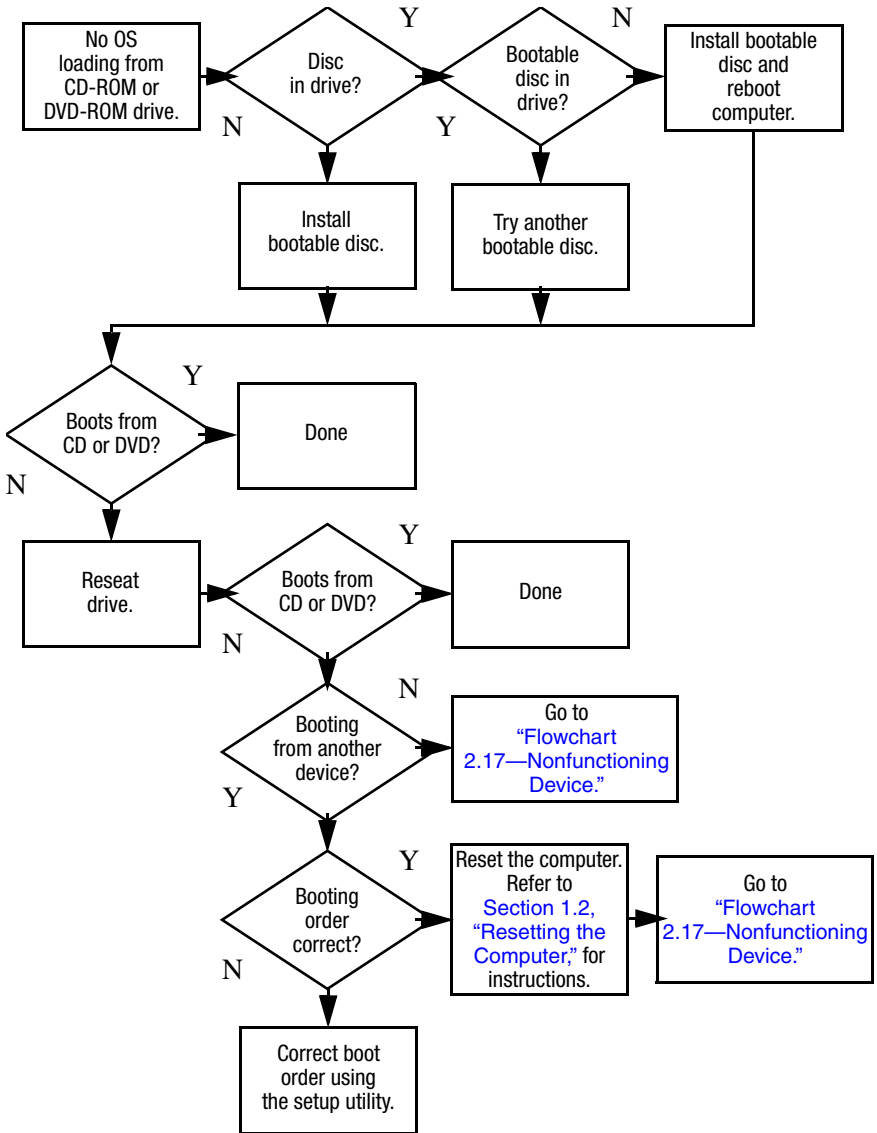
Flowchart 2.12—No OS Loading, Hard Drive, Part 3



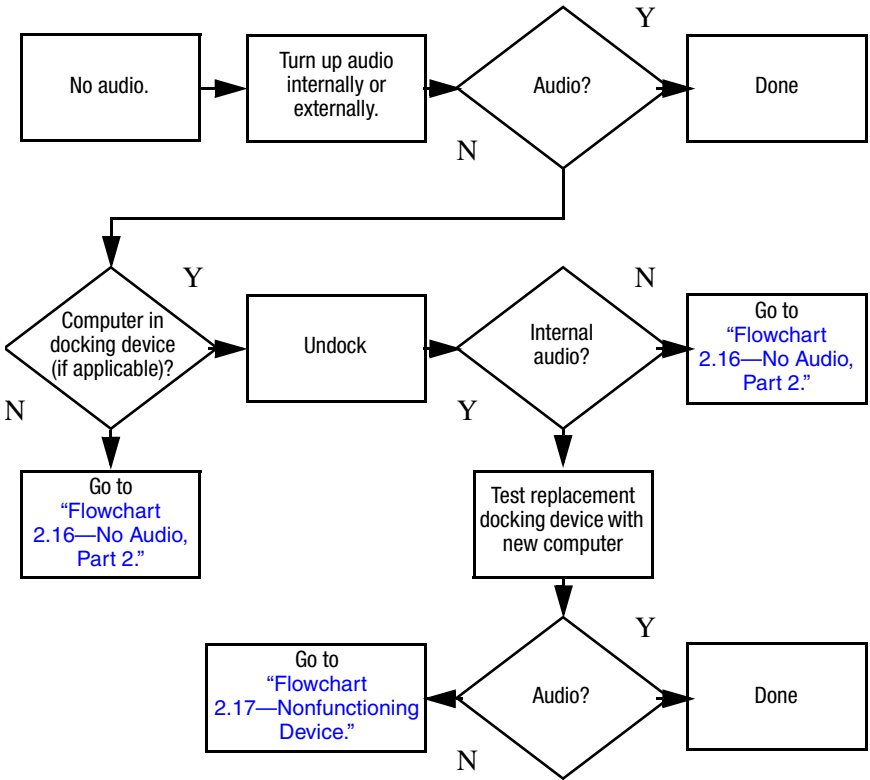
Flowchart 2.13—No OS Loading, Diskette Drive



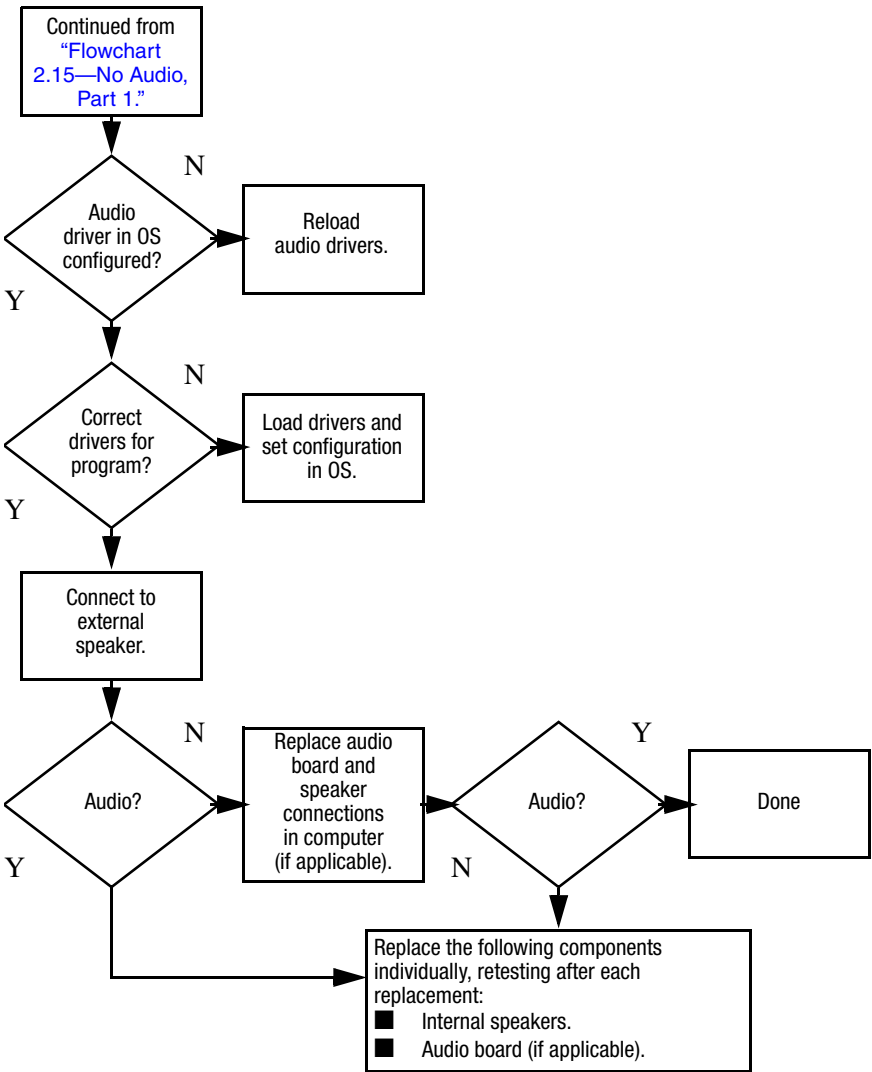
Flowchart 2.14—No OS Loading, Optical Drive



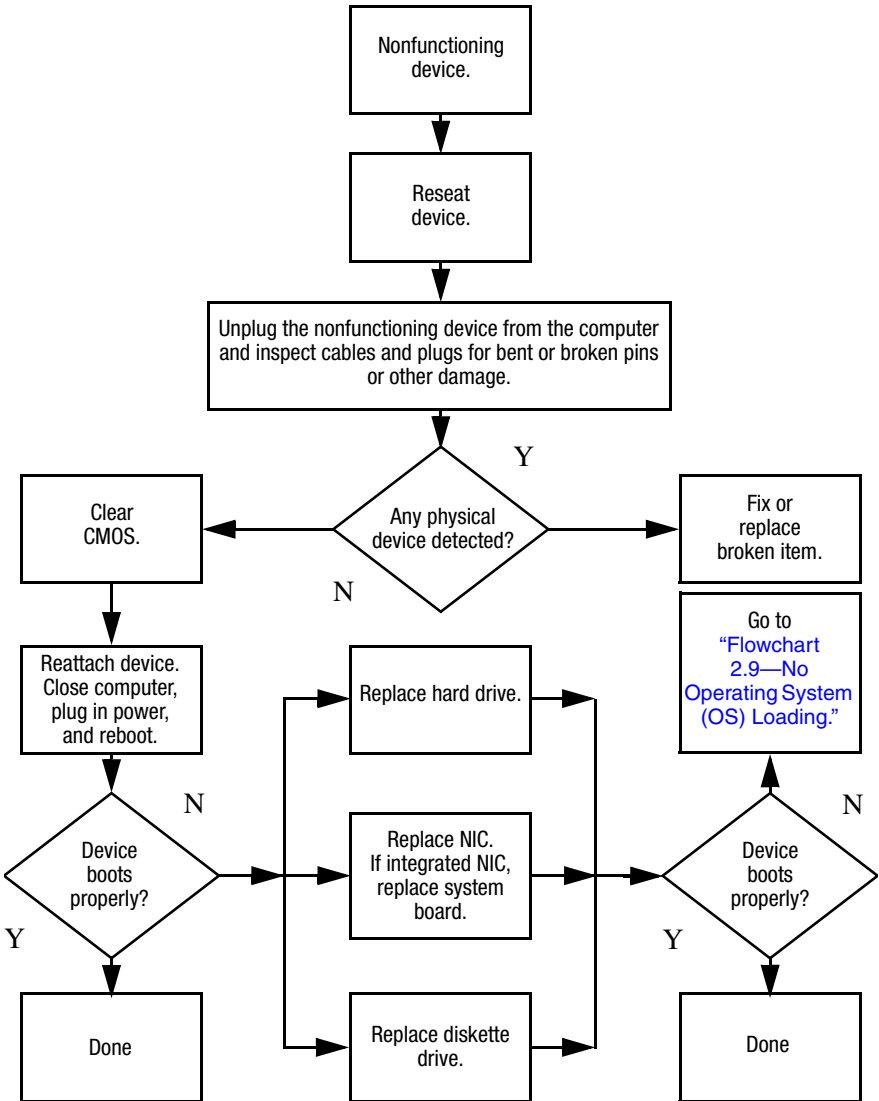
Flowchart 2.15—No Audio, Part 1



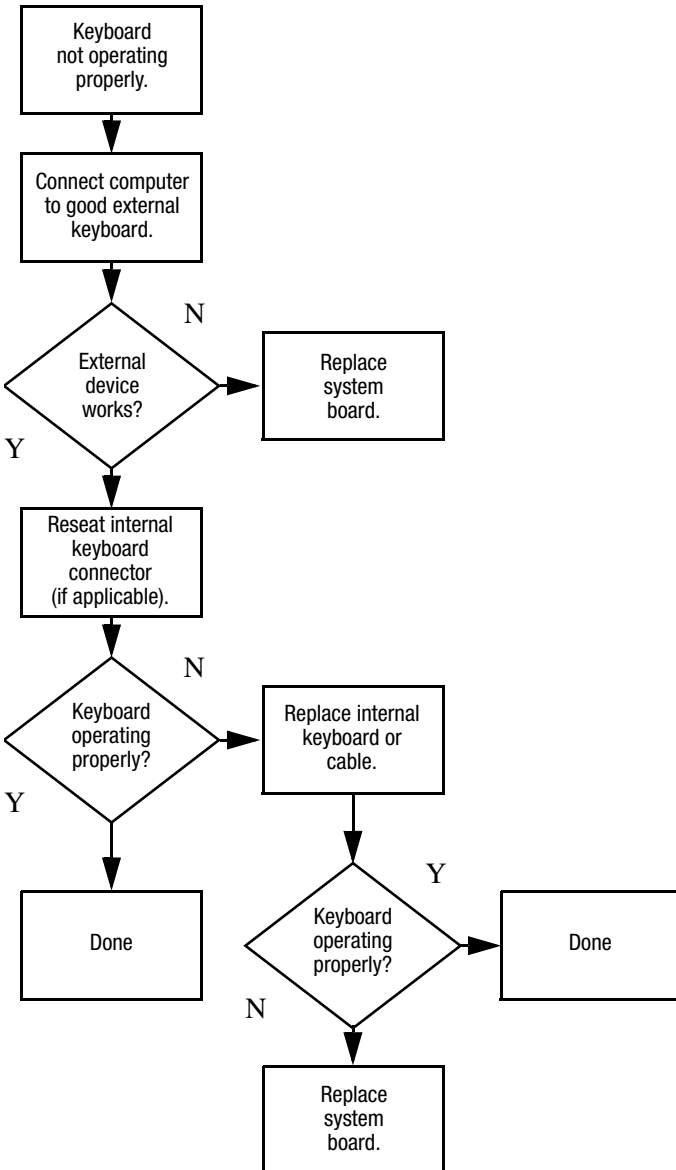
Flowchart 2.16—No Audio, Part 2



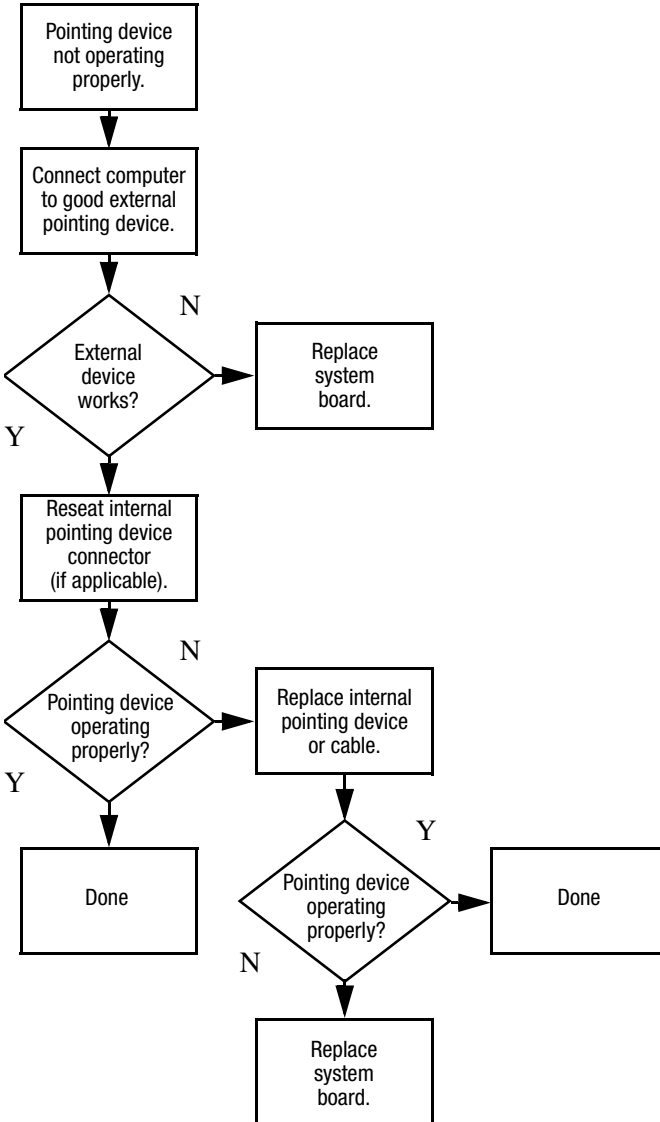
Flowchart 2.17—Nonfunctioning Device



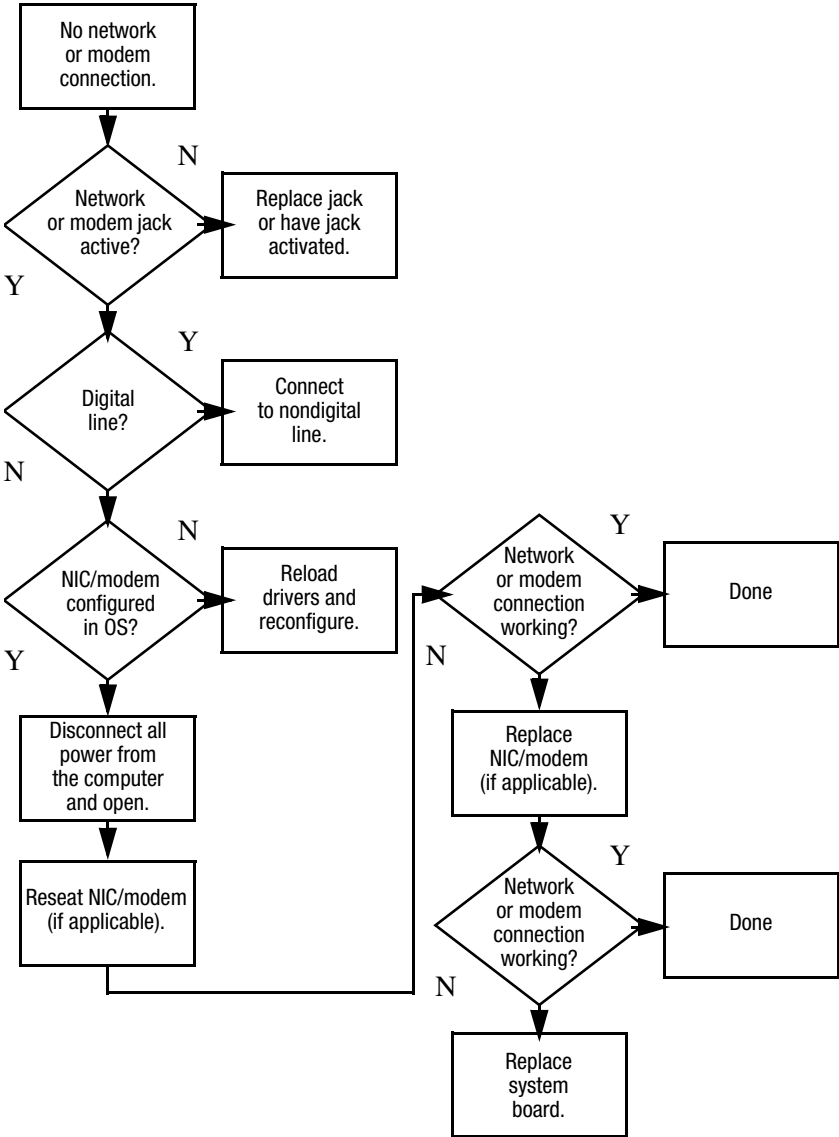
Flowchart 2.18—Nonfunctioning Keyboard



Flowchart 2.19—Nonfunctioning Pointing Device



Flowchart 2.20—No Network/Modem Connection



Illustrated Parts Catalog

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

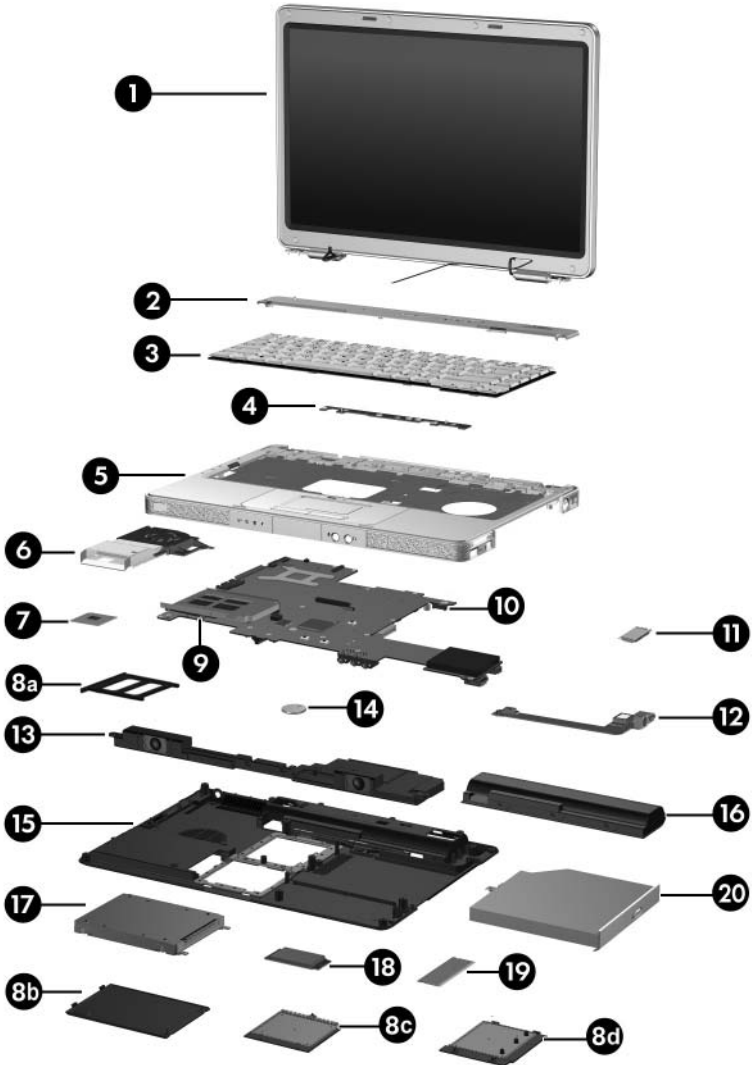
3.1 Serial Number Location

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




Serial Number Location

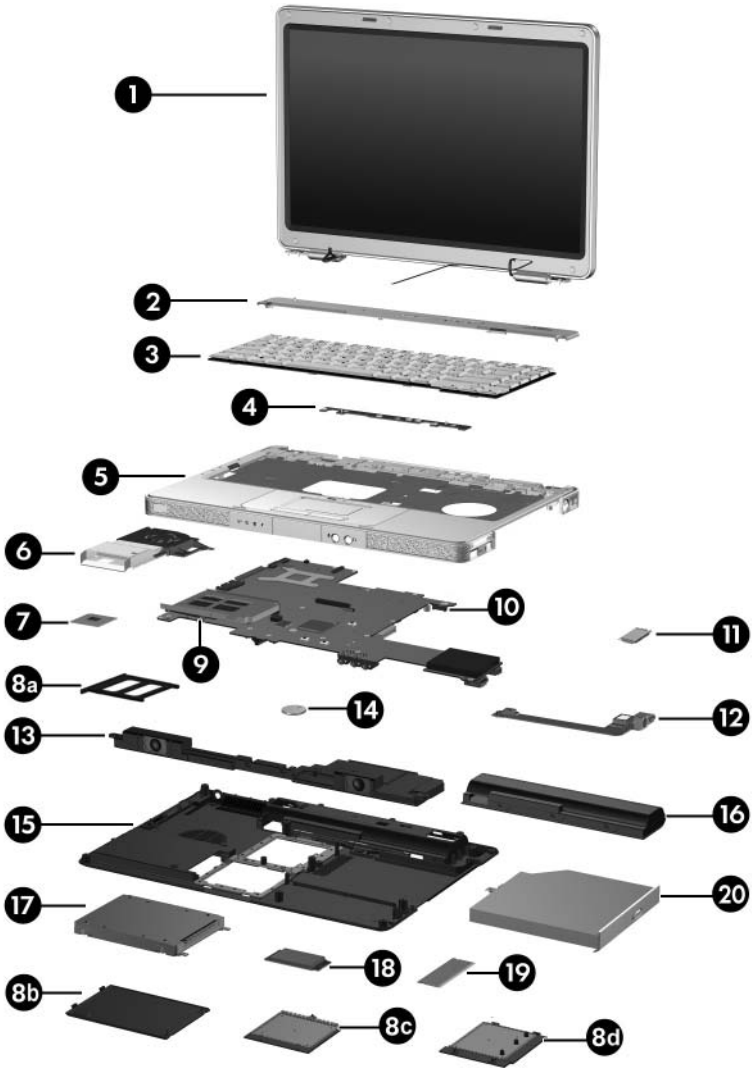
3.2 Computer Major Components



Computer Major Components

Table 3-1
Spare Parts: Computer Major Components

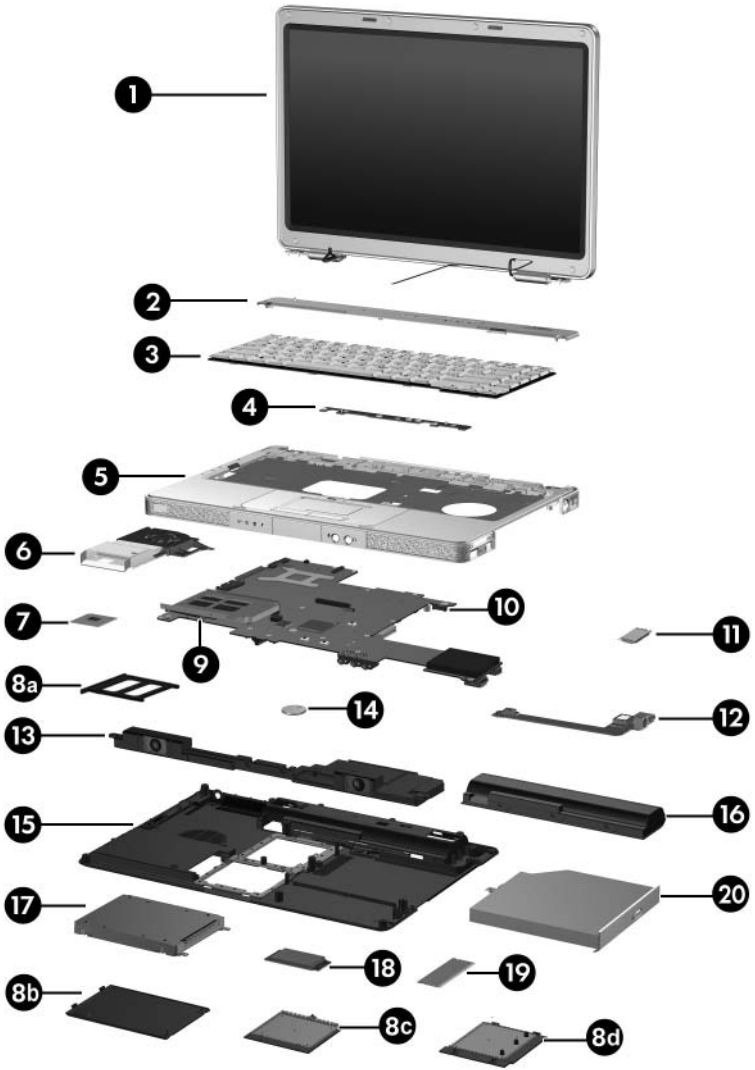
| Item | Description | Spare Part Number | | |
|-------------|---|--------------------------|--|------------|
| 1 | Display assemblies (include wireless antenna transceivers and cables) | | | |
| | 14.0-inch, WXGA, SVA with BrightView | 412339-001 | | |
| | 14.0-inch, WXGA | 412337-001 | | |
| |  Refer to Section 3.3, "Display Assembly Components," for display assembly internal component spare part number information. | | | |
| 2 | Switch covers (include wireless button and light) | | | |
| | For use on models with wireless capability | 394371-001 | | |
| | For use on models without wireless capability | 394372-001 | | |
| 3 | Keyboards | | | |
| | French Canada | 394277-121 | Asia Pacific, Australia, Canada, | 394277-001 |
| | International | 394277-B31 | Canada, | |
| | Korea | 394277-AD1 | Hong Kong, | |
| | Latin America | 394277-161 | the People's Republic | |
| | Taiwan | 394277-AB1 | of China, and the | |
| | Thailand | 394277-281 | United States | |
| 4 | LED board (includes cable, not illustrated) | | 412400-001 | |
| 5 | Top covers (include TouchPad) | | | |
| | For use on full-featured computer models | | 412379-001 | |
| | For use on defeatured computer models | | 412380-001 | |
| 6 | Fan/heat sink assembly (includes thermal pad) | | 412397-001 | |



Computer Major Components

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

| Item | Description | Spare Part Number |
|-------------|---|--------------------------|
| 7 | Processors (include thermal pad) | |
| | Intel Core Duo T2500 (2.00-GHz) | 412333-001 |
| | Intel Core Duo T2400 (1.83-GHz) | 412334-001 |
| | Intel Core Duo T2300 (1.66-GHz) | 412335-001 |
| | Intel Core Solo T1300 (1.66-GHz) | 412332-001 |
| | Plastics Kit | 412385-001 |
| | Includes: | |
| 8a | ExpressCard slot bezel | |
| 8b | Hard drive cover (includes two captive screws) | |
| 8c | Mini Card compartment cover (includes 2 captive screws) | |
| 8d | Memory module compartment cover (includes 2 captive screws) | |
| | Computer feet (not illustrated) | |
| 9 | ExpressCard assembly | 412331-001 |
| 10 | 945GM System board | 412240-001 |
| 11 | Bluetooth® module (includes Bluetooth module cable) | 412766-001 |
| 12 | USB/S-Video board | 412398-001 |
| 13 | Speaker assembly | 394373-001 |
| 14 | RTC battery | 412390-001 |
| 15 | Base enclosure | 412383-001 |
| | Rubber Feet Kit (includes computer feet) | 412579-001 |
| 16 | Battery packs | |
| | 12-cell, 8.8-AHr | 396600-001 |
| | 6-cell, 4.0-AHr | 396601-001 |

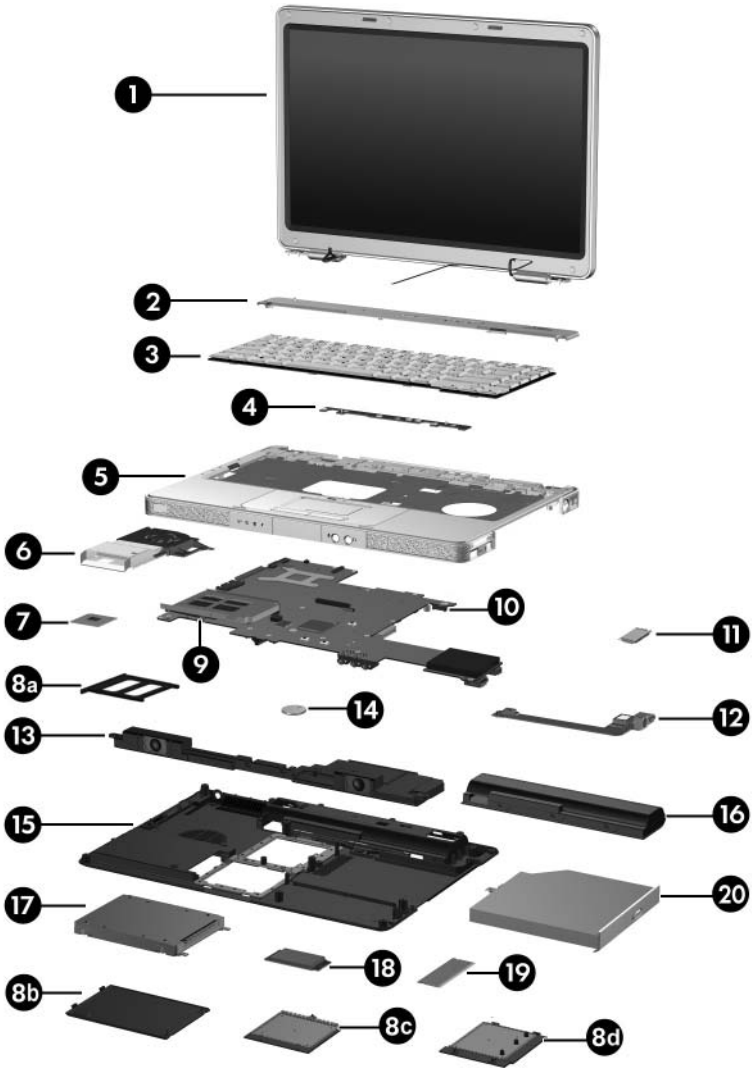


Computer Major Components

Table 3-1

Spare Parts: Computer Major Components (Continued)

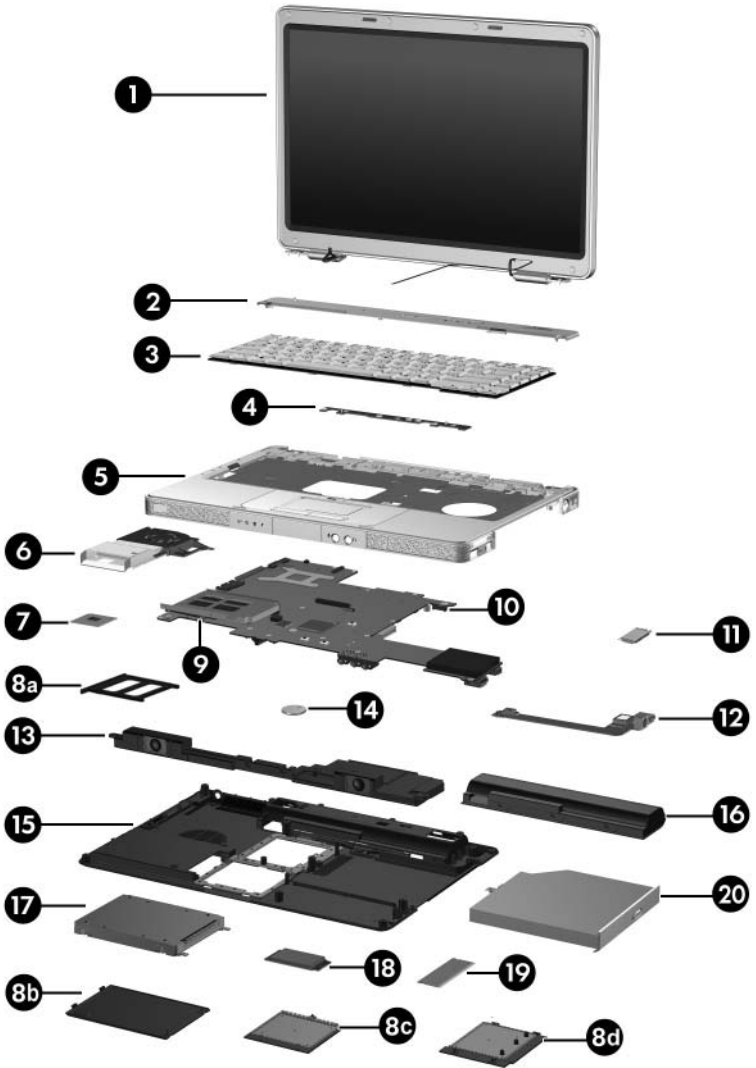
| Item | Description | Spare Part Number | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------|---|-------------------|-------------------|--------|----------|-----------|-------|-------|--------------|-----------|--------------------|-----------|--------|---------|------|----------|-------------------|----------|-----------|--------|---------|--------|-----------|-------------|--|--|
| 17 | Hard drives (include frame and connector) | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 5400-rpm, 100-GB | 412367-001 | | | | | | | | | | | | | | | | | | | | | | | | |
| | 5400-rpm, 80-GB | 412366-001 | | | | | | | | | | | | | | | | | | | | | | | | |
| | 5400-rpm, 60-GB | 412365-001 | | | | | | | | | | | | | | | | | | | | | | | | |
| | 5400-rpm, 40-GB | 412364-001 | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | Mini Card modules | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 802.11a/b/g WLAN module for use in the countries listed below. These countries are categorized as most of the world (MOW 1). | 407674-001 | | | | | | | | | | | | | | | | | | | | | | | | |
| | <table border="0"> <tr> <td>Antigua & Barbuda</td> <td>Canada</td> <td>Panama</td> <td>Paraguay</td> </tr> <tr> <td>Argentina</td> <td>Chile</td> <td>India</td> <td>Saudi Arabia</td> </tr> <tr> <td>Australia</td> <td>Dominican Republic</td> <td>Indonesia</td> <td>Taiwan</td> </tr> <tr> <td>Bahamas</td> <td>Guam</td> <td>Malaysia</td> <td>The United States</td> </tr> <tr> <td>Barbados</td> <td>Guatemala</td> <td>Mexico</td> <td>Vietnam</td> </tr> <tr> <td>Brunei</td> <td>Hong Kong</td> <td>New Zealand</td> <td></td> </tr> </table> | Antigua & Barbuda | Canada | Panama | Paraguay | Argentina | Chile | India | Saudi Arabia | Australia | Dominican Republic | Indonesia | Taiwan | Bahamas | Guam | Malaysia | The United States | Barbados | Guatemala | Mexico | Vietnam | Brunei | Hong Kong | New Zealand | | |
| Antigua & Barbuda | Canada | Panama | Paraguay | | | | | | | | | | | | | | | | | | | | | | | |
| Argentina | Chile | India | Saudi Arabia | | | | | | | | | | | | | | | | | | | | | | | |
| Australia | Dominican Republic | Indonesia | Taiwan | | | | | | | | | | | | | | | | | | | | | | | |
| Bahamas | Guam | Malaysia | The United States | | | | | | | | | | | | | | | | | | | | | | | |
| Barbados | Guatemala | Mexico | Vietnam | | | | | | | | | | | | | | | | | | | | | | | |
| Brunei | Hong Kong | New Zealand | | | | | | | | | | | | | | | | | | | | | | | | |



Computer Major Components

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

| Item | Description | Spare Part Number | | |
|-------------|--|--------------------------|-----------------------|--------------------|
| 18 | Mini Card modules (Continued) | | | |
| | 802.11a/b/g WLAN module for use in the countries listed below. These countries are categorized as most of the world (MOW 2). | 407674-002 | | |
| | Aruba | Egypt | The Philippines | The Netherlands |
| | Austria | El Salvador | Poland | |
| | Azerbaijan | Estonia | Portugal | Norway |
| | Bahrain | Finland | Romania | Oman |
| | Belgium | France | Russia | Slovenia |
| | Bermuda | Georgia | Serbia and Montenegro | South Africa |
| | Bulgaria | Germany | | Spain |
| | Cayman Islands | Greece | Singapore | Sri Lanka |
| | Columbia | Hungary | Slovakia | Sweden |
| | Croatia | Iceland | Liechtenstein | Switzerland |
| | Cyprus | Ireland | Lithuania | Turkey |
| | The Czech Republic | Italy | Luxembourg | The United Kingdom |
| | Denmark | Latvia | Malta | |
| | | Lebanon | Monaco | Uzbekistan |
| | 802.11a/b/g WLAN module for use in the countries listed below. These countries are categorized as the rest of the world (ROW). | | | 407674-003 |
| | China | Honduras | Qatar | Uruguay |
| | Ecuador | Pakistan | South Korea | Venezuela |
| | Haiti | Peru | | |
| | 802.11b/g WLAN module HS MOW | | | 407159-001 |
| | 802.11b/g WLAN module HS ROW | | | 407159-002 |
| | 802.11b/g WLAN module GL | | | 407674-004 |

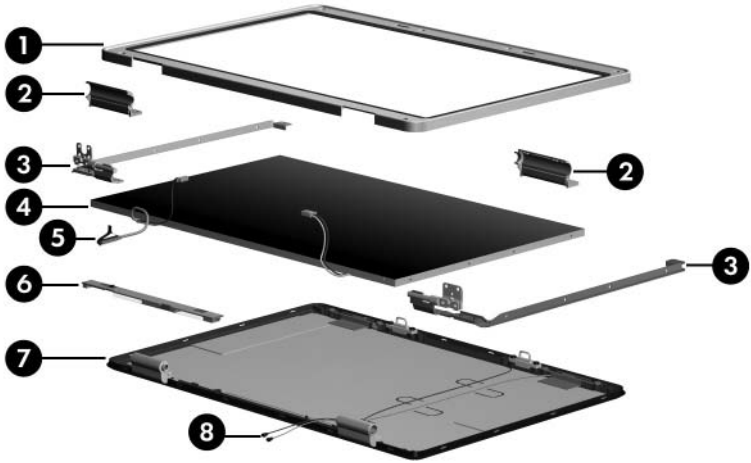


Computer Major Components

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

| Item | Description | Spare Part Number |
|-------------|---|--------------------------|
| 19 | Memory modules, 1-DIMM, DDR2 | |
| | PC2-4200, 533-MHz 1024 MB | 412360-001 |
| | 512 MB | 412359-001 |
| | 256 MB | 412358-001 |
| | Secure Digital (SD) Memory Card (not illustrated) | |
| | 512-MB | 407316-001 |
| | 256-MB | 403573-001 |
| 20 | Optical drives (include bezel) | |
| | 24X Max DVD/CD-RW Combo Drive | 412369-001 |
| | 8X Max DVD±RW/R and CD-RW Double-Layer Combo Drive | 412371-001 |
| | 8X Max DVD±RW/R and CD-RW Double-Layer Combo Drive with LightScribe | 394362-001 |
| | 8X Max DVD±RW/R and CD-RW Double-Layer Combo Drive with LightScribe and "HLDS" | 417370-001 |

3.3 Display Assembly Components

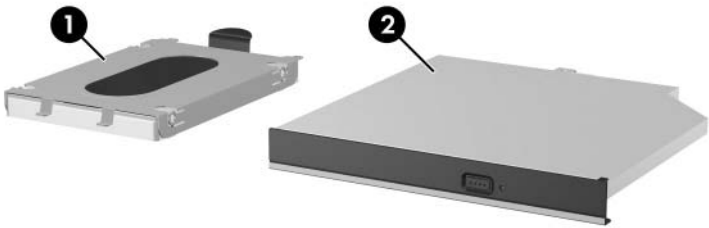


Display Assembly Components

Table 3-2
Display Assembly Components
Spare Part Number Information

| Item | Description | Spare Part Number |
|-------------|---|--------------------------|
| 1 | Display bezel | 412344-001 |
| 2 | Display hinge covers | 412357-001 |
| 3 | Display hinges | 412356-001 |
| 4 | Display panels | |
| | 14.0-inch, WXGA, SVA with BrightView | 412341-001 |
| | 14.0-inch, WXGA | 412340-001 |
| 5 | Display cable | 412354-001 |
| 6 | Display inverter | 412346-001 |
| 7 | Display enclosure (includes wireless antenna transceivers and cables and microphone and cable) | 412351-001 |
| | Display Screw Kit (not illustrated) | 417713-001 |
| | Rubber Feet Kit (includes display bezel rubber screw covers, not illustrated) | 412579-001 |

3.4 Mass Storage Devices

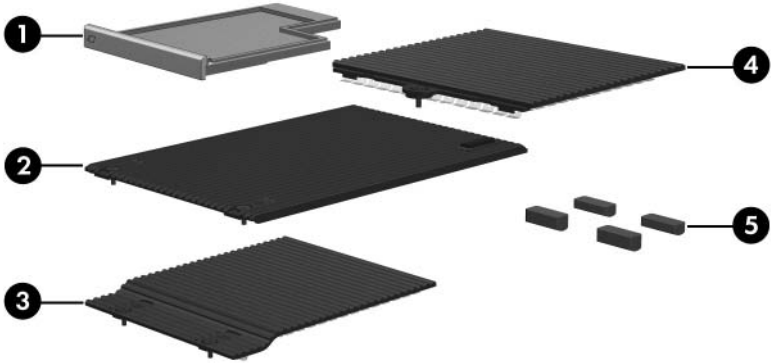


Mass Storage Devices

Table 3-3
Mass Storage Devices
Spare Part Number Information

| Item | Description | Spare Part Number |
|-------------|--|--------------------------|
| 1 | Hard drives (include frame and connector) | |
| | 5400-rpm | |
| | 100-GB | 412367-001 |
| | 80-GB | 412366-001 |
| | 60-GB | 412365-001 |
| | 40-GB | 412364-001 |
| 2 | Optical drives | |
| | 24X Max DVD/CD-RW Combo Drive | 412369-001 |
| | 8X Max DVD±RW/R and CD-RW Double-Layer Combo Drive | 412371-001 |
| | 8X Max DVD±RW/R and CD-RW Double-Layer Combo Drive with LightScribe | 394362-001 |
| | 8X Max DVD±RW/R and CD-RW Double-Layer Combo Drive with LightScribe and "HLDS" | 417370-001 |
| | USB digital drive (not illustrated) | 364727-001 |

3.5 Plastics Kit



Plastics Kit Contents

Table 3-4
Plastics Kit
Spare Part Number Information

| Item | Description | Spare Part Number |
|-------------|---------------------------------|--------------------------|
| | Plastics Kit | 412385-001 |
| | Includes: | |
| 1 | ExpressCard slot bezel | |
| 2 | Hard drive cover | |
| 3 | Mini Card compartment cover | |
| 4 | Memory module compartment cover | |

3.6 Miscellaneous

Table 3-5
Spare Parts: Miscellaneous (not illustrated)

| Description | Spare Part Number |
|---|--|
| Logo Kit | 394370-001 |
| HP backpack | 405527-001 |
| Wired headset with volume control | 371693-001 |
| USB travel mouse | 309674-001 |
| HP xc2000 Notebook All-in-One Media Cable | 404577-001 |
| HP 65W AC Adapter | 402018-001 |
| Screw Kit (includes the following screws; refer to Appendix C, "Screw Listing," for more information on screw specifications and usage) | 412387-001 |
| <ul style="list-style-type: none"> ■ Phillips PM2.5×4.0 screw ■ Phillips PM2.5×7.0 round head screw ■ Phillips PM2.5×7.0 screw ■ Phillips PM2.5×5.0 screw | <ul style="list-style-type: none"> ■ Phillips PM2.5×4.0 screw ■ Phillips PM2.0×3.0 screw ■ Phillips PM1.5×2.0 screw |

Table 3-5

Spare Parts: Miscellaneous (not illustrated) (Continued)

| Description | Spare Part Number |
|---|--------------------------|
| Power cords | |
| For use in: | |
| Australia and New Zealand | 394279-011 |
| Belgium, Europe, Finland, France, Germany, Greece, the Netherlands, Norway, Portugal, Spain, and Sweden | 394279-021 |
| Brazil | 394279-201 |
| Canada, French Canada, Latin America, Thailand, and the United States | 394279-001 |
| Denmark | 394279-081 |
| Hong Kong and the United Kingdom | 394279-031 |
| India | 394279-D61 |
| Israel | 394279-BB1 |
| Italy | 394279-061 |
| Korea | 394279-AD1 |
| People's Republic of China | 394279-AA1 |
| Switzerland | 394279-111 |
| Taiwan | 394279-AB1 |

3.7 Sequential Part Number Listing

Table 3-6

Spare Parts: Sequential Part Number Listing

| Spare Part Number | Description |
|--------------------------|---|
| 309674-001 | USB travel mouse |
| 364727-001 | USB digital drive (not illustrated) |
| 371693-001 | Wired headset with volume control |
| 394277-001 | Keyboard for use in the Asia Pacific, Australia, Canada, Hong Kong, the People's Republic of China, and the United States |
| 394277-121 | Keyboard for use in the French Canada |
| 394277-161 | Keyboard for use in Latin America |
| 394277-281 | Keyboard for use in Thailand |
| 394277-AB1 | Keyboard for use in Taiwan |
| 394277-AD1 | Keyboard for use in Korea |
| 394277-B31 | Keyboard for international use |
| 394279-001 | Power cord for use in Canada, French Canada, Latin America, Thailand, and the United States |
| 394279-011 | Power cord for use in Australia and New Zealand |
| 394279-021 | Power cord for use in Belgium, Europe, Finland, France, Germany, Greece, the Netherlands, Norway, Portugal, Spain, and Sweden |
| 394279-031 | Power cord for use in Hong Kong and the United Kingdom |
| 394279-061 | Power cord for use in Italy |
| 394279-081 | Power cord for use in Denmark |
| 394279-111 | Power cord for use in Switzerland |
| 394279-201 | Power cord for use in Brazil |

Table 3-6

Spare Parts: Sequential Part Number Listing (*Continued*)

| Spare Part Number | Description |
|--------------------------|---|
| 394279-AA1 | Power cord for use in the People's Republic of China |
| 394279-AB1 | Power cord for use in Taiwan |
| 394279-AD1 | Power cord for use in Korea |
| 394279-BB1 | Power cord for use in Israel |
| 394279-D61 | Power cord for use in India |
| 394362-001 | 8X Max DVD±RW/R and CD-RW Double-Layer Combo Drive with LightScribe |
| 394370-001 | Logo Kit |
| 394371-001 | Switch cover for use on models with wireless capability (includes wireless button and light) |
| 394372-001 | Switch cover for use on models without wireless capability (includes wireless button and light) |
| 394373-001 | Speaker assembly |
| 396600-001 | 12-cell, 8.8-AHr battery pack |
| 396601-001 | 6-cell, 4.0-AHr battery pack |
| 402018-001 | HP 65W AC Adapter |
| 403573-001 | 256-MB SD Memory Card |
| 404577-001 | HP xc2000 Notebook All-in-One Media Cable |
| 405527-001 | HP backpack |
| 407159-001 | 802.11b/g WLAN Mini Card module HS MOW |
| 407159-002 | 802.11b/g WLAN Mini Card module HS ROW |
| 407313-001 | HP Mobile Remote Control |
| 407316-001 | 512-MB SD Memory Card |

Table 3-6

Spare Parts: Sequential Part Number Listing (*Continued*)

| Spare Part Number | Description | | |
|--------------------------|--|-----------------------|--------------------|
| 407674-001 | 802.11a/b/g WLAN Mini Card module for use in the MOW 1 countries listed below. | | |
| Antigua & Barbuda | Canada | Hong Kong | New Zealand |
| Argentina | Chile | Panama | Paraguay |
| Australia | Dominican Republic | India | Saudi Arabia |
| Bahamas | Guam | Indonesia | Taiwan |
| Barbados | Guatemala | Malaysia | The United States |
| Brunei | | Mexico | Vietnam |
| 407674-002 | 802.11a/b/g WLAN Mini Card module for use in the MOW 2 countries listed below. | | |
| Aruba | Denmark | Lebanon | Monaco |
| Austria | Egypt | The Philippines | The Netherlands |
| Azerbaijan | El Salvador | Poland | Norway |
| Bahrain | Estonia | Portugal | Oman |
| Belgium | Finland | Romania | Slovenia |
| Bermuda | France | Russia | South Africa |
| Bulgaria | Georgia | Serbia and Montenegro | Spain |
| Cayman Islands | Germany | Singapore | Sri Lanka |
| Columbia | Greece | Slovakia | Sweden |
| Croatia | Hungary | Slovenia | Switzerland |
| Cyprus | Iceland | Liechtenstein | Turkey |
| The Czech Republic | Ireland | Lithuania | The United Kingdom |
| | Italy | Luxembourg | |
| | Latvia | Malta | Uzbekistan |
| 407674-003 | 802.11a/b/g WLAN Mini Card module for use in the ROW countries listed below. | | |
| China | Honduras | Qatar | Uruguay |
| Ecuador | Pakistan | South Korea | Venezuela |
| Haiti | Peru | | |

Table 3-6

Spare Parts: Sequential Part Number Listing (*Continued*)

| Spare Part Number | Description |
|--------------------------|---|
| 407674-004 | 802.11b/g WLAN Mini Card module GL |
| 412240-001 | 945GM system board |
| 412331-001 | ExpressCard assembly |
| 412332-001 | Intel Core Solo T1300 (1.66-GHz) processor (includes thermal pad) |
| 412333-001 | Intel Core Duo T2500 (2.00-GHz) processor (includes thermal pad) |
| 412334-001 | Intel Core Duo T2400 (1.83-GHz) processor (includes thermal pad) |
| 412335-001 | Intel Core Duo T2300 (1.66-GHz) processor (includes thermal pad) |
| 412337-001 | 14.0-inch, WXGA display assembly (includes wireless transceivers and cables) |
| 412339-001 | 14.0-inch, WXGA, SVA with BrightView display assembly (includes wireless antenna transceivers and cables) |
| 412340-001 | 14.0-inch, WXGA display panel |
| 412341-001 | 14.0-inch, WXGA, SVA display panel with BrightView |
| 412344-001 | Display bezel |
| 412346-001 | Display inverter |
| 412348-001 | USB camera cable |
| 412351-001 | Display enclosure |
| 412354-001 | Display cable |
| 412356-001 | Display hinges |
| 412357-001 | Display hinge covers |

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

| Spare Part Number | Description |
|--------------------------|--|
| 412358-001 | 1-DIMM, DDR2, PC2-4200, 533-MHz, 256-MB memory module |
| 412359-001 | 1-DIMM, DDR2, PC2-4200, 533-MHz, 512-MB memory module |
| 412360-001 | 1-DIMM, DDR2, PC2-4200, 533-MHz, 1024-MB memory module |
| 412364-001 | 5400-rpm, 40-GB hard drive (includes frame and connector) |
| 412365-001 | 5400-rpm, 60-GB hard drive (includes frame and connector) |
| 412366-001 | 5400-rpm, 80-GB hard drive (includes frame and connector) |
| 412367-001 | 5400-rpm, 100-GB hard drive (includes frame and connector) |
| 412369-001 | 24X Max DVD/CD-RW Combo Drive |
| 412371-001 | 8X Max DVD±RW/R and CD-RW Double-Layer Combo Drive |
| 412379-001 | Top cover for use with full-featured computer models (includes TouchPad) |
| 412380-001 | Top cover for use with defeatured computer models (includes TouchPad) |
| 412383-001 | Base enclosure |
| 412385-001 | Plastics Kit |
| 412387-001 | Screw Kit |
| 412390-001 | RTC battery |

Table 3-6

Spare Parts: Sequential Part Number Listing (*Continued*)

| Spare Part Number | Description |
|--------------------------|---|
| 412397-001 | Fan/heat sink assembly (includes thermal pad) |
| 412398-001 | USB/S-Video board |
| 412400-001 | LED board (includes cable) |
| 412579-001 | Rubber Feet Kit (includes computer feet used on base enclosure and display bezel rubber screw covers) |
| 412766-001 | Bluetooth module (includes Bluetooth module cable) |
| 417370-001 | 8X Max DVD±RW/R and CD-RW Double-Layer Combo Drive with LightScribe and "HLDS" |
| 417713-001 | Display Screw Kit |

Removal and Replacement Preliminaries

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

4.1 Tools Required

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

- Magnetic screwdriver
- Phillips P0 and P1 screwdrivers
- 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 computer, place the subassembly (and all accompanying screws) away from the work area to prevent damage.

Plastic Parts

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

Cables and Connectors



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

Cables must be handled with extreme care to avoid damage. Apply only the tension required to unseat or seat the cables during removal and insertion. Handle cables by the connector whenever possible. In all cases, avoid bending, twisting, or tearing cables. 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 computer, damage to a removable drive, or loss of information, observe the following precautions:

- Before removing or inserting a hard drive, shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
- Before removing a diskette drive or optical drive, 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, CD-ROM drive, or a diskette drive, place it in a static-proof bag.
- Avoid exposing a hard drive to products that have magnetic fields, such as monitors or speakers.
- Avoid exposing a drive to temperature extremes or liquids.
- If a drive must be mailed, place the drive in a bubble pack mailer or other suitable form of protective packaging and label the package, "FRAGILE: Handle With Care."

4.4 Preventing Electrostatic Damage

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

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

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

4.5 Packaging and Transporting Precautions

Use the following grounding precautions when packaging and transporting equipment:

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

4.6 Workstation Precautions

Use the following grounding precautions at workstations:

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

4.7 Grounding Equipment and Methods

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

- When seated, wear a wrist strap connected to a grounded system. Wrist straps are flexible straps with a minimum of one megohm $\pm 10\%$ resistance in the ground cords. To provide proper ground, wear a strap snugly against the skin at all times. On grounded mats with banana-plug connectors, 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 84 screws, in 8 different sizes, that must be removed, replaced, or loosened, when servicing the computer. Make special note of each screw size and location during removal and replacement.

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

5.1 Serial Number

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




Serial Number Location

5.2 Disassembly Sequence Chart

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

Disassembly Sequence Chart

| Section | Description | # of Screws Removed |
|---------|--|---|
| 5.3 | Preparing the Computer for Disassembly | |
| | Battery pack | 0 |
| 5.4 | Hard Drive | 2 loosened to remove the hard drive cover 4 removed to disassemble the hard drive |
| 5.5 | Computer Feet | 0 |
| 5.6 | Memory Module | 2 loosened to remove the memory module compartment cover |
| 5.7 | Mini Card Module | 1 loosened to remove the Mini Card module compartment cover 2 removed to remove the Mini Card module |
| |  To prevent an unresponsive system and the display of a warning message, install only a Mini Card device authorized for use in your computer by the governmental agency that regulates wireless devices in your country. If you install a device and then receive a warning message, remove the device to restore computer functionality. Then contact Customer Care. | |
| 5.8 | Optical Drive | 1 to remove the optical drive 2 to remove the optical drive bracket |
| 5.9 | Switch Cover | 2 |
| 5.10 | Keyboard | 4 |

Disassembly Sequence Chart (*Continued*)

| Section | Description | # of Screws Removed |
|---------|-------------------------------|---------------------|
| 5.11 | Display Assembly | 4 |
| | Display bezel | 6 |
| | Display release hooks | 4 |
| | Display inverter | 1 |
| | Display hinge covers | 4 |
| | Display panel | 2 |
| | Display hinges | 4 |
| | Wireless antenna transceivers | 4 |
| 5.12 | Base Enclosure | 18 |
| 5.13 | USB/S-Video Board | 2 |
| 5.14 | Bluetooth Module | 2 |
| 5.15 | Speaker Assembly | 0 |
| 5.16 | RTC Battery | 0 |
| 5.17 | Fan/Heat Sink Assembly | 4 loosened |
| 5.18 | Processor | 1 loosened |
| 5.19 | System Board | 3 |
| 5.20 | LED Board | 2 |
| 5.21 | ExpressCard Assembly | 2 |

5.3 Preparing the Computer for Disassembly

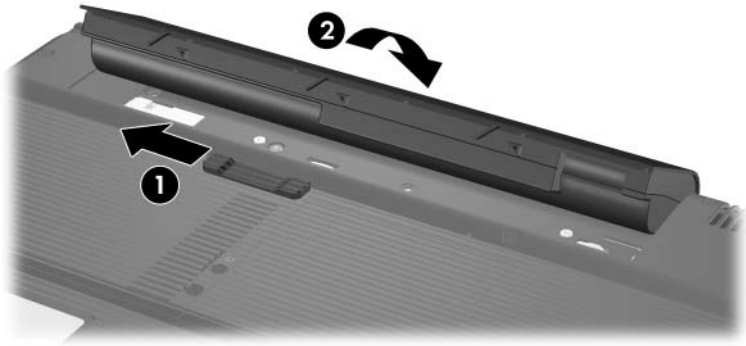
Before you begin any removal or installation procedures:

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

Battery Pack Spare Part Number Information

| | |
|------------------|------------|
| 12-cell, 8.8-AHr | 396600-001 |
| 6-cell, 4.0-AHr | 396601-001 |

4. Remove the battery pack by following these steps:
 - a. Turn the computer upside down with the front panel toward you.
 - b. Slide and hold the battery release latch **1** to the left. (The front edge of the battery pack disengages from the computer.)
 - c. Lift the front edge of the battery pack **2** up and swing it back.
 - 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

Frame and connector included.

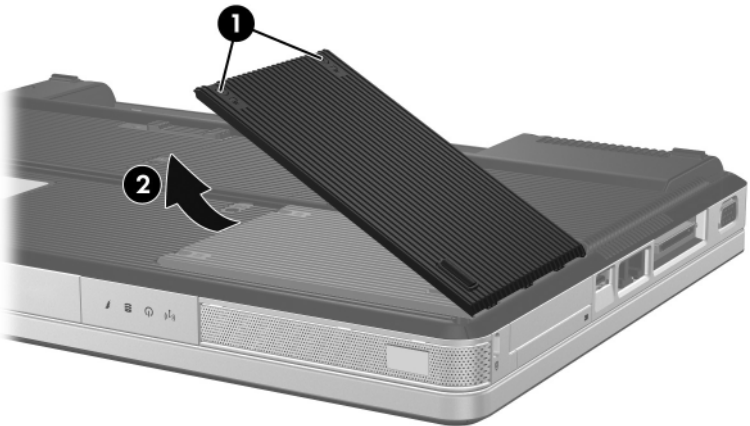
| | |
|------------------|------------|
| 5400-rpm, 100-GB | 412367-001 |
| 5400-rpm, 80-GB | 412366-001 |
| 5400-rpm, 60-GB | 412365-001 |
| 5400-rpm, 40-GB | 412364-001 |

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

2. Loosen the two black Phillips PM2.0x5.0 screws ❶ that secure the hard drive cover to the computer.
3. Lift the left side of the cover ❷ and swing it to the right.
4. Remove the hard drive cover.

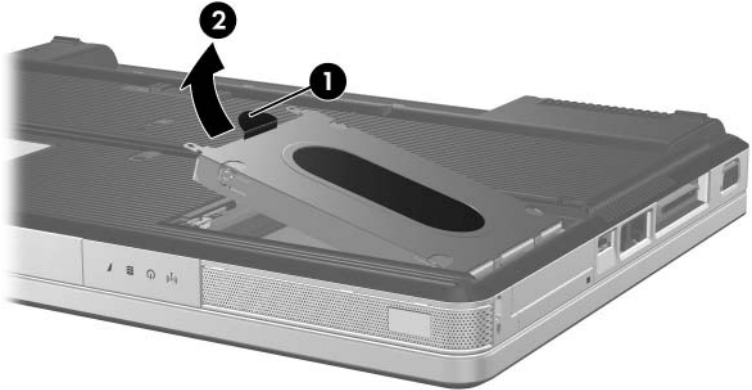


The hard drive cover is included in the Plastics Kit, spare part number 412385-001.



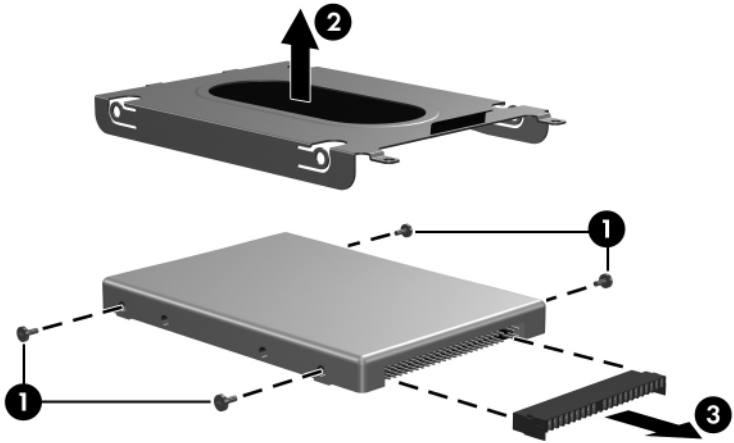
Removing the Hard Drive Cover

5. Use the mylar tab **1** to lift the hard drive **2** until it disconnects from the computer.
6. Remove the hard drive from the hard drive bay.



Removing the Hard Drive

7. Remove the four Phillips PM2.5×4.0 screws ❶ that secure the hard drive frame to the hard drive.
8. Lift the frame ❷ straight up to remove it from the hard drive.
9. Slide the hard drive connector ❸ off the hard drive.

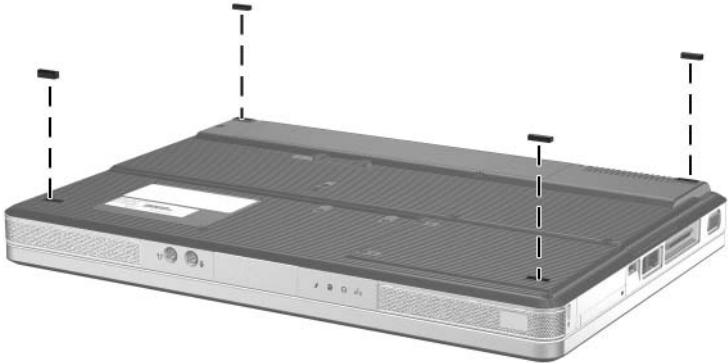


Removing the Hard Drive Frame and Connector

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

5.5 Computer Feet

The computer feet are adhesive-backed rubber pads. The feet are included in the Rubber Feet Kit, spare part number 412579-001.



Replacing the Computer Feet

5.6 Memory Module

Memory Module Spare Part Number Information

PC2-4200, 533-MHz

1024 MB

412360-001

512 MB

412359-001

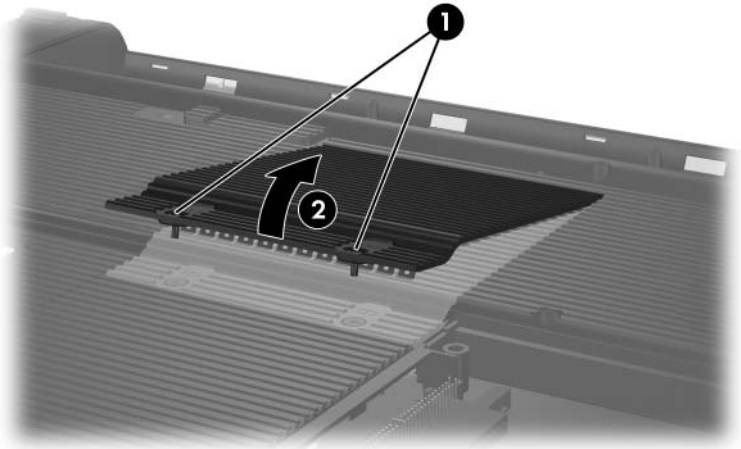
256 MB

412358-001

1. Prepare the computer for disassembly (refer to [Section 5.3](#)).
2. Loosen the two black Phillips PM2.0x5.0 screws ❶ that secure the memory module compartment cover to the computer.
3. Lift the front edge of the memory module compartment cover ❷ up and swing it back.
4. Remove the memory module compartment cover.



The memory module compartment cover is included in the Plastics Kit, spare part number 412385-001.

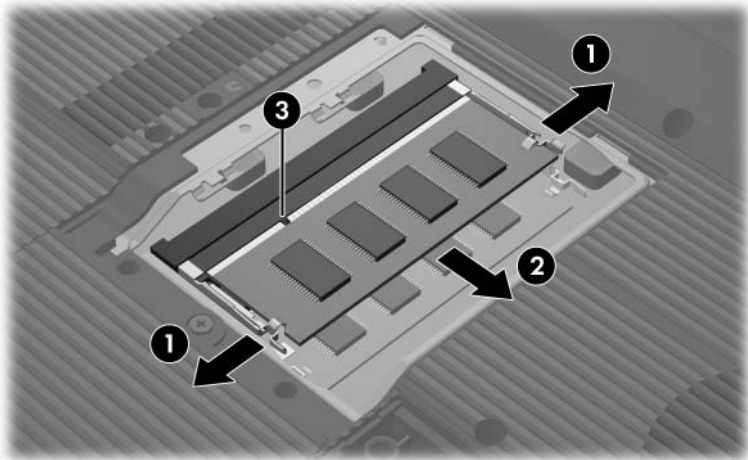


Removing the Memory Module Compartment Cover

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



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



Removing the Memory Module

Reverse the above procedure to install a memory module.

5.7 Mini Card Module

Mini Card Module

Spare Part Number Information

| | | | |
|--|--------------------|-----------------------|--------------------|
| 802.11a/b/g WLAN module for use in the MOW 1 countries listed below. | | | 407674-001 |
| Antigua & Barbuda | Chile | Panama | Paraguay |
| Argentina | Dominican Republic | India | Saudi Arabia |
| Australia | | Indonesia | Taiwan |
| Bahamas | Guam | Malaysia | The United States |
| Barbados | Guatemala | Mexico | Vietnam |
| Brunei | Hong Kong | New Zealand | |
| Canada | | | |
| 802.11a/b/g WLAN module for use in the MOW 2 countries listed below. | | | 407674-002 |
| Aruba | El Salvador | Poland | Norway |
| Austria | Estonia | Portugal | Oman |
| Azerbaijan | Finland | Romania | Slovenia |
| Bahrain | France | Russia | South Africa |
| Belgium | Georgia | Serbia and Montenegro | Spain |
| Bermuda | Germany | Singapore | Sri Lanka |
| Bulgaria | Greece | Slovakia | Sweden |
| Cayman Islands | Hungary | Liechtenstein | Switzerland |
| Columbia | Iceland | Lithuania | Turkey |
| Croatia | Ireland | Luxembourg | The United Kingdom |
| Cyprus | Italy | Malta | Uzbekistan |
| The Czech Republic | Latvia | Monaco | |
| Denmark | Lebanon | The Netherlands | |
| Egypt | The Phillipines | | |

Mini Card Module

Spare Part Number Information (*Continued*)

802.11a/b/g WLAN module for use in the ROW countries listed below. 407674-003

| | | | |
|---------|----------|-------------|-----------|
| China | Honduras | Qatar | Uruguay |
| Ecuador | Pakistan | South Korea | Venezuela |
| Haiti | Peru | | |

802.11b/g WLAN module HS MOW 407159-001

802.11b/g WLAN module HS ROW 407159-002

802.11b/g WLAN module GL 407674-004

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

2. Loosen the black Phillips PM2.0×5.0 screw ❶ that secures the Mini Card compartment cover to the computer.
3. Lift the rear edge of the Mini Card compartment cover ❷ up, and then swing it forward.
4. Remove the Mini Card compartment cover.



The Mini Card compartment cover is included in the Plastics Kit, spare part number 412385-001.

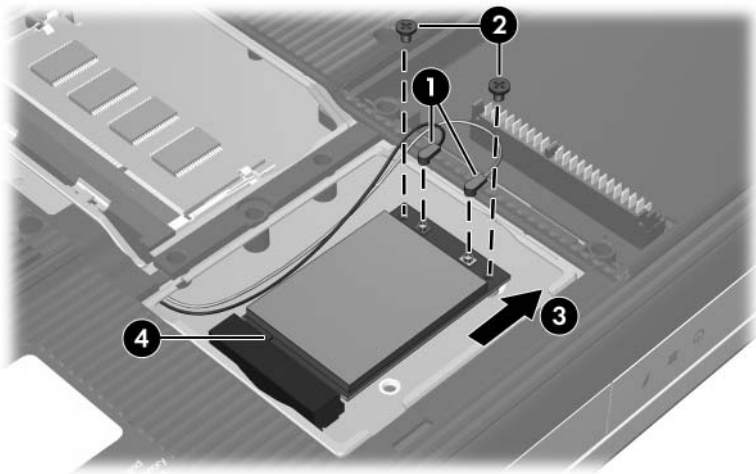


Removing the Mini Card Compartment Cover

5. Make note of which wireless antenna cable is attached to which antenna clip on the Mini Card module before disconnecting the cables, then disconnect the cables ❶ from the module.
6. Remove the two black Phillips PM2.0×5.0 screws ❷ that secure the Mini Card module to the system board. (The edge of the module opposite the Mini Card socket rises away from the computer).
7. Remove the Mini Card module ❸ by pulling the module away from the socket at an angle.



Mini Card modules are designed with a notch ❹ to prevent incorrect installation into the Mini Card module socket.



Removing a Mini Card Module

Reverse the above procedure to install a Mini Card module.

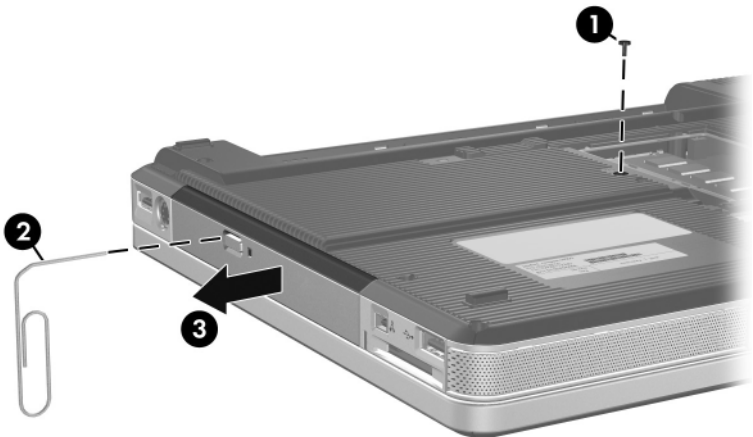
5.8 Optical Drive

Optical Drive Spare Part Number Information

| | |
|--|------------|
| 24X Max DVD/CD-RW Combo Drive | 412369-001 |
| 8X Max DVD±RW/R and CD-RW Double-Layer Combo Drive | 412371-001 |
| 8X Max DVD±RW/R and CD-RW Double-Layer Combo Drive with LightScribe | 394362-001 |
| 8X Max DVD±RW/R and CD-RW Double-Layer Combo Drive with LightScribe and "HLDS" | 417370-001 |

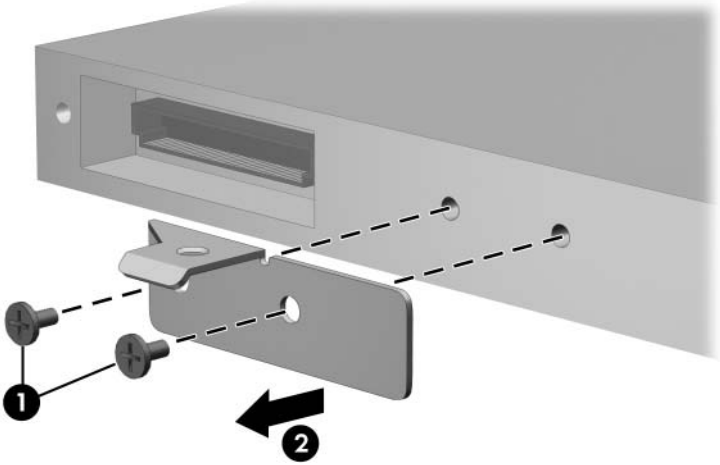
1. Prepare the computer for disassembly ([Section 5.3](#)).

2. Remove the Phillips PM2.0×8.5 screw **1** that secures the optical drive to the computer.
3. Insert a thin tool, such as a paper clip, into the media tray release hole **2**. (The optical drive media tray releases from the optical drive.)
4. Use the media tray frame to slide the optical drive **3** to the left.
5. Remove the optical drive.



Removing the Optical Drive

6. Remove the two Phillips PM2.0×2.0 screws ❶ that secure the optical drive bracket to the optical drive.
7. Remove the optical drive bracket ❷.



Removing the Optical Drive Bracket

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

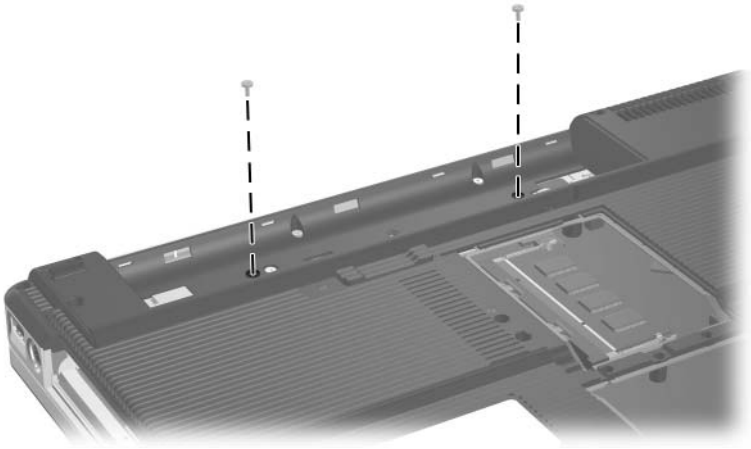
5.9 Switch Cover

Switch Cover Spare Part Number Information

| | |
|---|------------|
| For use on models with wireless capability | 394371-001 |
| For use on models without wireless capability | 394372-001 |

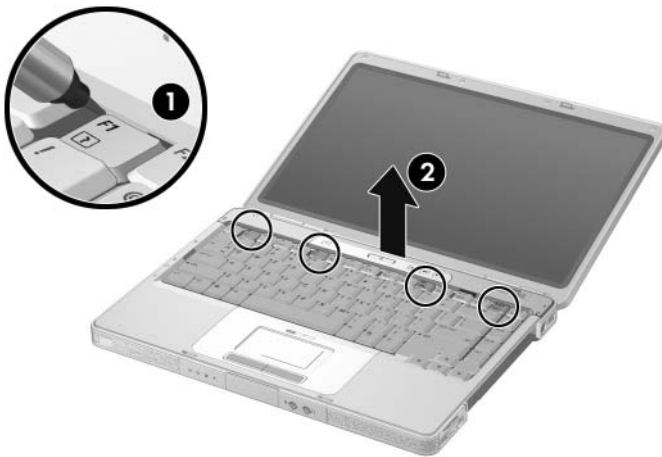
1. Prepare the computer for disassembly ([Section 5.3](#)).

2. Position the computer with the rear panel toward you.
3. Remove the two silver Phillips PM2.0×5.0 screws that secure the switch cover to the computer.



Removing the Switch Cover Screws

4. Turn the computer display side up with the front panel toward you.
5. Open the computer as far as possible.
6. Insert a flat-bladed screwdriver into the slots located behind the **f1**, **f5**, **f11**, and **insert** keys ❶ and lift up on the front edge of the switch cover ❷ until it disengages from the computer.
7. Remove the switch cover.



Removing the Switch Cover

Reverse the above procedure to install the switch cover.

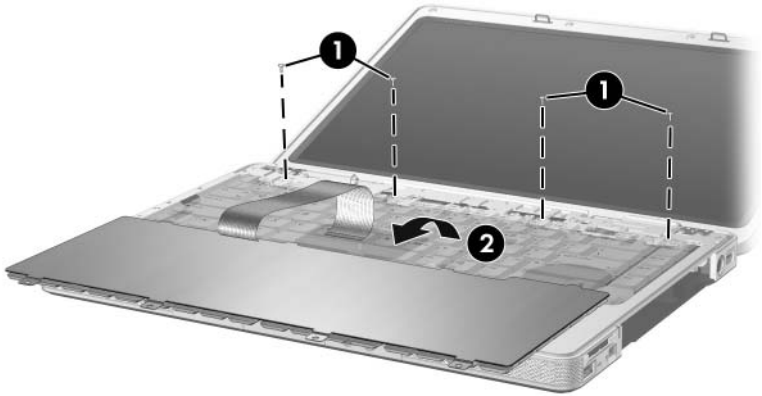
5.10 Keyboard

Keyboard Spare Part Number Information

| | | | |
|---------------|------------|--------------------------|------------|
| French Canada | 394277-121 | Asia Pacific, Australia, | 394277-001 |
| International | 394277-B31 | Canada, | |
| Korea | 394277-AD1 | Hong Kong, | |
| Latin America | 394277-161 | the People's Republic | |
| Taiwan | 394277-AB1 | of China, and the | |
| Thailand | 394277-281 | United States | |

1. Prepare the computer for disassembly ([Section 5.3](#)).
2. Remove the optical drive ([Section 5.8](#)).
3. Remove the switch cover ([Section 5.9](#)).
4. Close the computer.
5. Turn the computer upside down with the front toward you.

6. Remove the four Phillips PM2.0×3.0 screws ❶ that secure the keyboard to the computer.
7. Swing the rear edge of the keyboard ❷ up and forward until it rests on the palm rest.



Releasing the Keyboard

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



Disconnecting the Keyboard Cable

9. Remove the keyboard.
- Reverse the above procedure to install the keyboard.

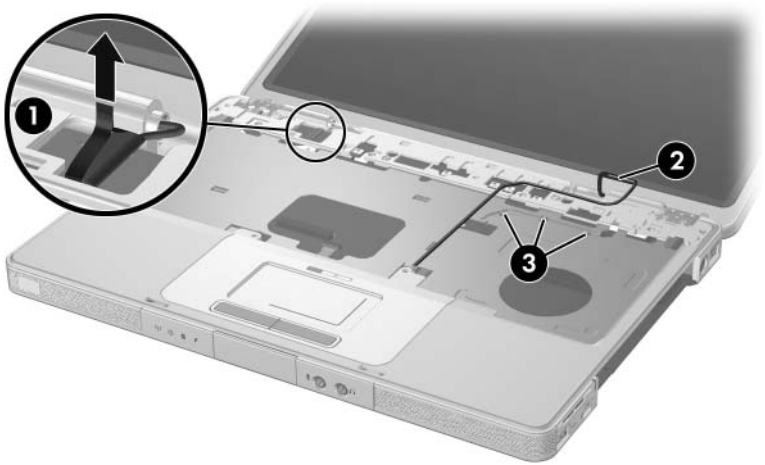
5.11 Display Assembly

Display Assembly Spare Part Number Information

| | |
|--------------------------------------|------------|
| 14.0-inch, WXGA, SVA with Brightview | 412339-001 |
| 14.0-inch, WXGA | 412337-001 |

1. Prepare the computer for disassembly ([Section 5.3](#)).
2. Remove the memory module compartment cover ([Section 5.6](#)).
3. Remove the Mini Card compartment cover and disconnect the wireless antenna cables from the Mini Card ([Section 5.7](#)).
4. Remove the wireless antenna cables from the Mini Card and memory module compartments.
5. Remove the switch cover ([Section 5.9](#)).
6. Remove the keyboard ([Section 5.10](#)).
7. Turn the computer display side up with the front panel toward you.
8. Open the display as far as possible.

9. Disconnect the display cable ❶ from the system board.
10. Remove the tape ❷ that secures the wireless antenna cables to the top cover.
11. Remove the cables from the clips ❸ in the top cover.

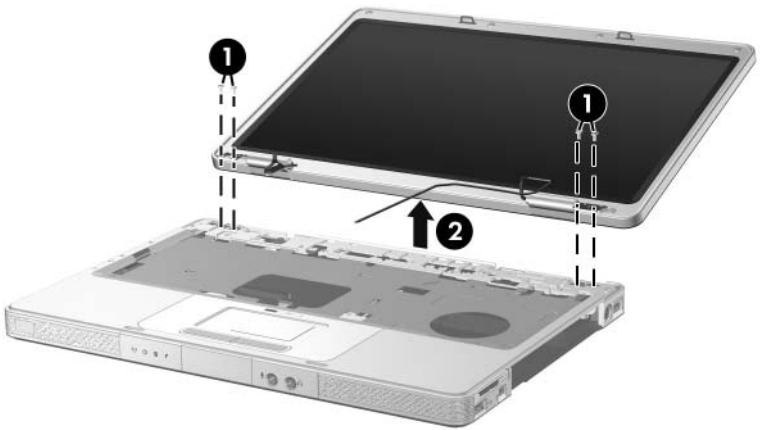


Disconnecting the Display Cable and Removing the Wireless Antenna Cables



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

12. Remove the four black Phillips PM2.0x5.0 screws ❶ that secure the display assembly to the computer.
13. Remove the display assembly ❷.

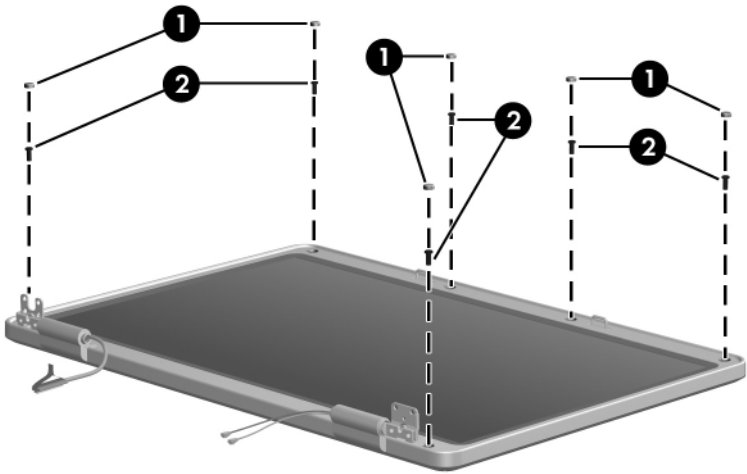


Removing the Display Assembly

14. Remove the six rubber screw covers ❶ and the six Phillips PM2.5×6.0 screws ❷ that secure the display bezel to the display assembly.



The rubber screw covers are included in the Rubber Feet Kit, spare part number 412579-001.



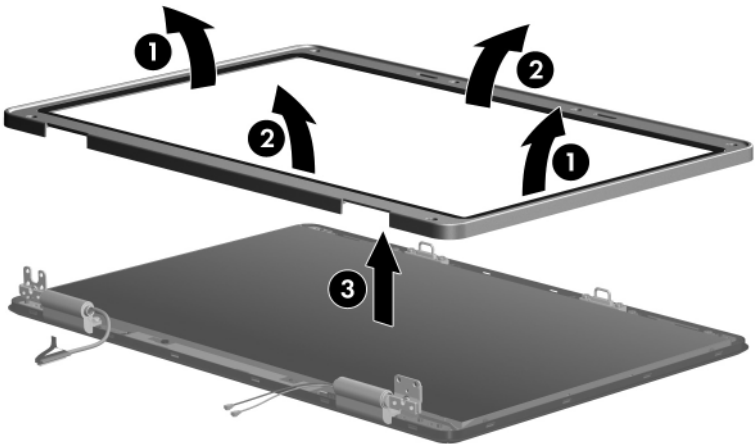
Removing the Display Bezel Screws

Display Assembly Components

Spare Part Number Information

| Description | Spare Part Number |
|--|-------------------|
| Display bezel | 412344-001 |
| Display enclosure (includes wireless antenna transceivers and cables and microphone and cable) | 412351-001 |

15. Flex the insides edges of the left and right sides **1** and the top and bottom sides **2** of the display bezel until the bezel disengages from the display enclosure.
16. Remove the display bezel **3**.

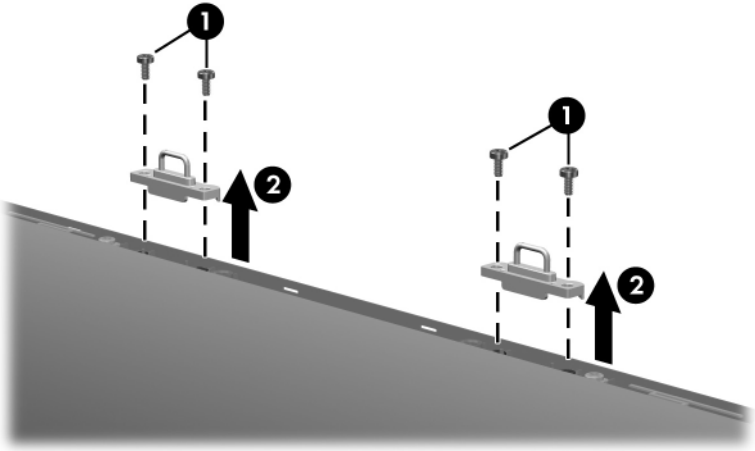


Removing the Display Bezel



The display release hooks are available in the Display Hinge Kit, spare part number 412356-001.

17. If it is necessary to replace the display release hooks, remove the two Phillips PM2.5×6.0 screws ❶ that secure each hook to the display enclosure.
18. Remove the display release hooks ❷.



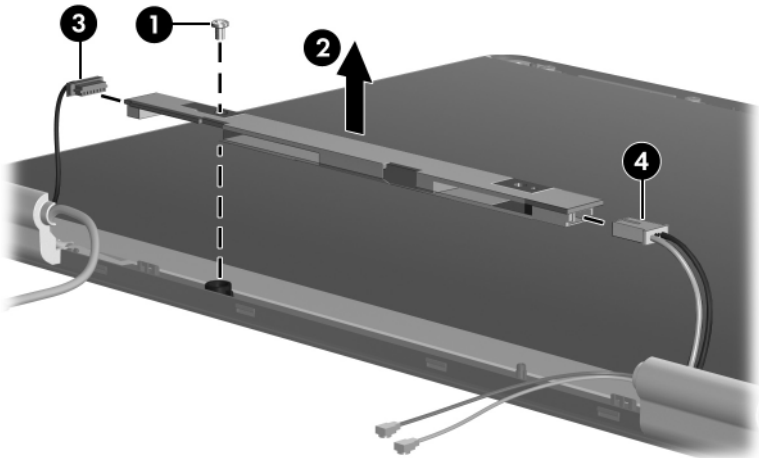
Removing the Display Release Hooks

Display Assembly Components

Spare Part Number Information

| Description | Spare Part Number |
|------------------|-------------------|
| Display inverter | 412346-001 |

19. Remove the Phillips PM2.0x3.0 screw **1** that secures the display inverter to the display enclosure.
20. Lift the inverter **2** out of the enclosure as far as the display cable and backlight cables will allow.
21. Disconnect the display **3** and backlight cables **4** from the inverter.
22. Remove the display inverter.



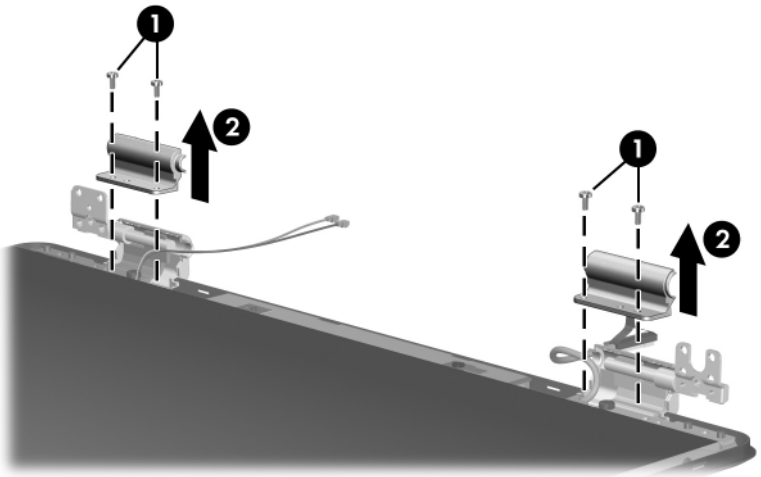
Removing the Display Inverter

Display Assembly Components

Spare Part Number Information

| Description | Spare Part Number |
|----------------------|-------------------|
| Display hinge covers | 412357-001 |

23. If it is necessary to replace the display hinge covers, remove the two Phillips PM2.5×6.0 screws ❶ that secure each cover to the display enclosure.
24. Remove the display hinge covers ❷.



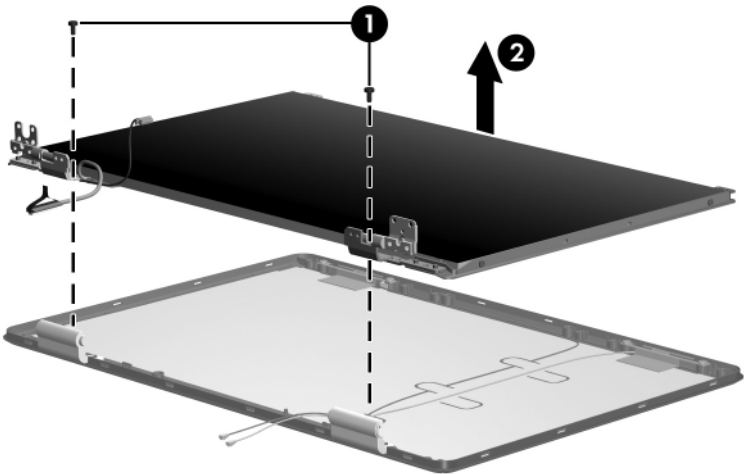
Removing the Display Hinge Covers

Display Assembly Components

Spare Part Number Information

| Description | Spare Part Number |
|--------------------------------------|-------------------|
| Display panels | |
| 14.0-inch, WXGA, SVA with BrightView | 412341-001 |
| 14.0-inch, WXGA | 412340-001 |

25. Remove the two Phillips PM2.5×6.0 screws ❶ that secure the display panel to the display enclosure.
26. Remove the display panel ❷ from the display enclosure.



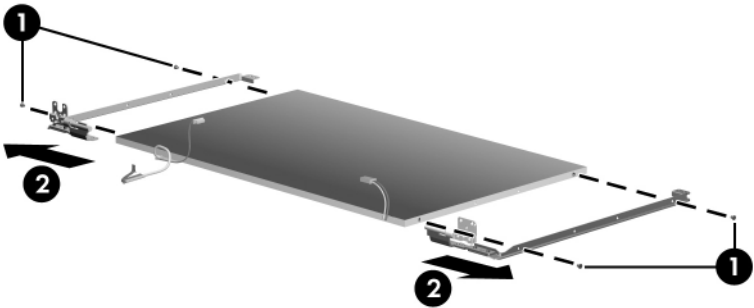
Removing the Display Panel

Display Assembly Components

Spare Part Number Information

| Description | Spare Part Number |
|---|-------------------|
| Display Hinge Kit, includes: Display hinges Display release hooks | 412356-001 |

27. If it is necessary to replace the display hinges, remove the two Phillips PM2.0×3.0 screws ❶ that secure each hinge to the display panel.
28. Remove the display hinges ❷.

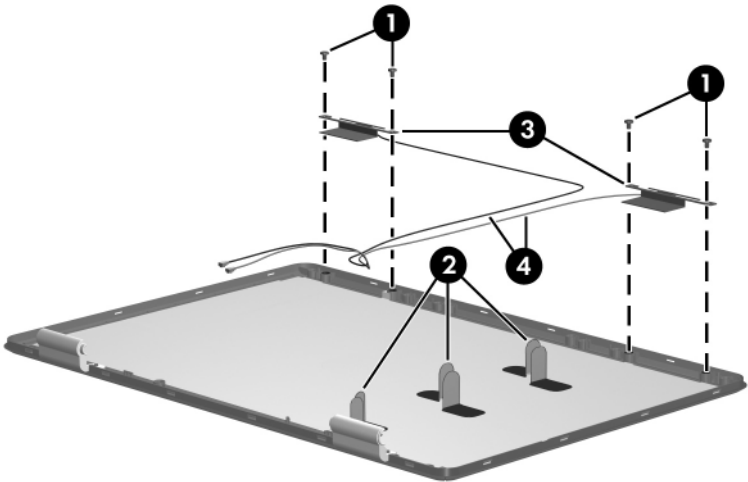


Removing the Display Hinges



The wireless antenna transceivers and cables are included with the display enclosure, spare part number 412351-001.

29. If it is necessary to replace the wireless transceivers and cables, remove the two Phillips PM2.0×3.0 screws **1** that secure the left and right transceivers to the display enclosure.
30. Release the retention tabs **2** built in to the display enclosure lining that secure the wireless antenna cables to the display enclosure.
31. Detach the wireless antenna transceivers **3** from the display enclosure.
32. Remove the wireless antenna transceivers and cables **4**.



Removing the Wireless Antenna Transceivers and Cables

Reverse the above procedure to reassemble and install the display assembly

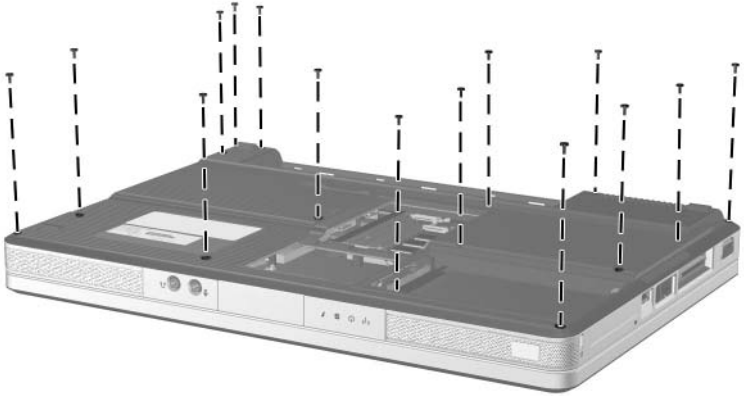
5.12 Base Enclosure

Base Enclosure Spare Part Number Information

| | |
|----------------|------------|
| Base enclosure | 412383-001 |
|----------------|------------|

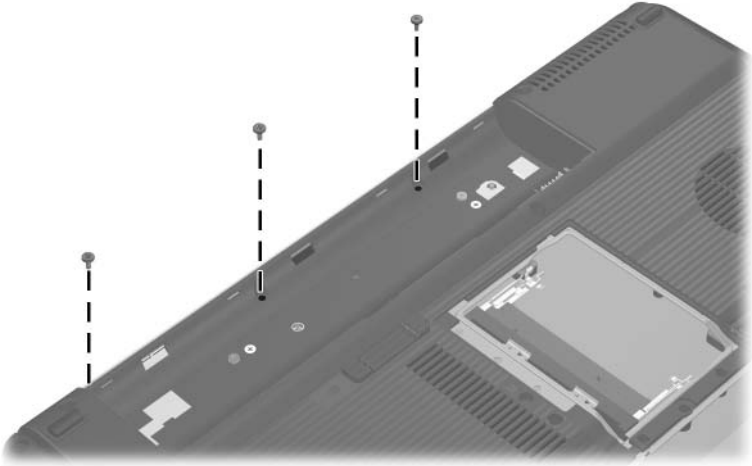
1. Prepare the computer for disassembly ([Section 5.3](#)) and remove the following components:
 - ❑ Hard drive ([Section 5.4](#))
 - ❑ Optical drive ([Section 5.8](#))
 - ❑ Switch cover ([Section 5.9](#))
 - ❑ Keyboard ([Section 5.10](#))
 - ❑ Display assembly ([Section 5.11](#))

2. Remove the fifteen Phillips PM2.0×8.5 screws that secure the base enclosure to the computer.



Removing the Base Enclosure Screws

3. Remove the three silver Phillips PM2.0×5.0 screws that secure the base enclosure to the computer.
4. Lift the base enclosure straight up and remove it.



Removing the Base Enclosure

Reverse the above procedure to install the base enclosure.

5.13 USB/S-Video Board

USB/S-Video Board

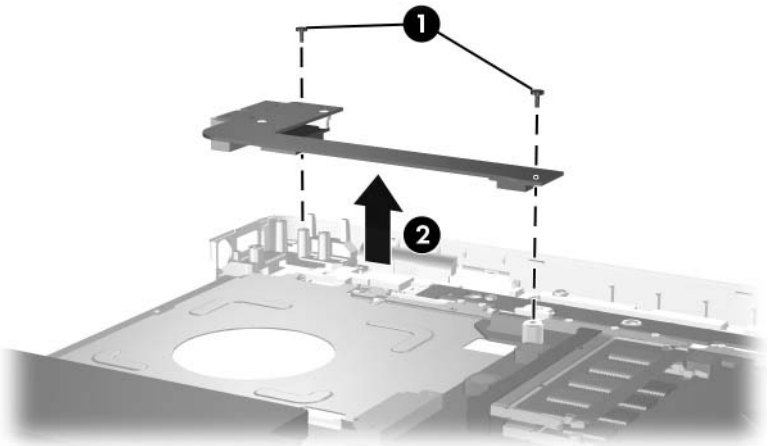
Spare Part Number Information

USB/S-Video Board

412398-001

1. Prepare the computer for disassembly ([Section 5.3](#)) and remove the following components:
 - ❑ Optical drive ([Section 5.8](#))
 - ❑ Switch cover ([Section 5.9](#))
 - ❑ Keyboard ([Section 5.10](#))
 - ❑ Display assembly ([Section 5.11](#))
 - ❑ Base enclosure ([Section 5.12](#))

2. Remove the two silver Phillips PM2.0×5.0 screws ❶ that secure the USB/S-Video board to the top cover.
3. Lift up on the right side of the board ❷ to disconnect it from the system board.
4. Remove the USB/S-Video board.



Removing the USB/S-Video Board

Reverse the above procedure to install the USB/S-Video board.

5.14 Bluetooth Module

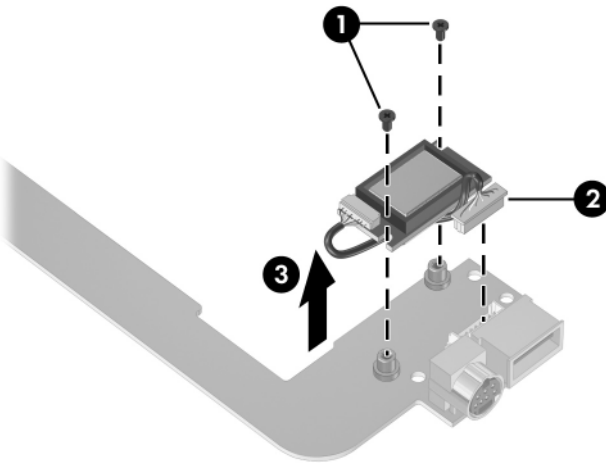
Bluetooth Module Spare Part Number Information

Bluetooth module

412766-001

1. Prepare the computer for disassembly ([Section 5.3](#)) and remove the following components:
 - ❑ Optical drive ([Section 5.8](#))
 - ❑ Switch cover ([Section 5.9](#))
 - ❑ Keyboard ([Section 5.10](#))
 - ❑ Display assembly ([Section 5.11](#))
 - ❑ Base enclosure ([Section 5.12](#))
 - ❑ USB/S-Video board ([Section 5.13](#))

2. Turn the USB/S-Video board upside down with the USB port facing you.
3. Remove the two PM1.5×3.5 screws ❶ that secure the Bluetooth module to the USB/S-Video board.
4. Disconnect the Bluetooth module cable ❷ from the USB/S-Video board.
5. Remove the Bluetooth module ❸.



Removing the Bluetooth Module

Reverse the above procedure to install the Bluetooth module.

5.15 Speaker Assembly

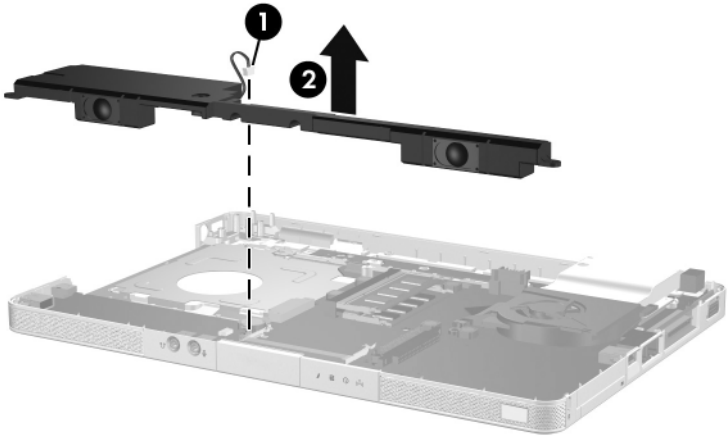
Speaker Assembly Spare Part Number Information

Speaker assembly

394373-001

1. Prepare the computer for disassembly ([Section 5.3](#)) and remove the following components:
 - ❑ Optical drive ([Section 5.8](#))
 - ❑ Switch cover ([Section 5.9](#))
 - ❑ Keyboard ([Section 5.10](#))
 - ❑ Display assembly ([Section 5.11](#))
 - ❑ Base enclosure ([Section 5.12](#))

2. Disconnect the speaker cable **1** from the system board.
3. Lift the speaker **2** straight up to remove it from the top cover.



Removing the Speaker Assembly

Reverse the above procedure to install the speaker assembly.

5.16 RTC Battery

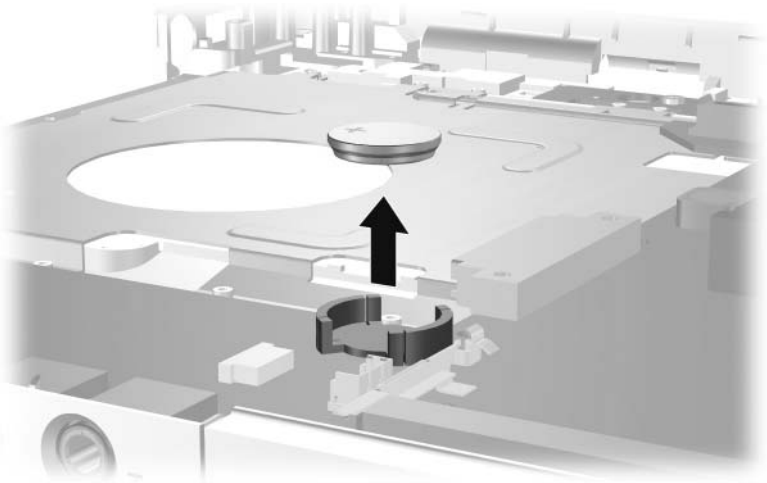
RTC Battery Spare Part Number Information

RTC battery

412390-001

1. Prepare the computer for disassembly ([Section 5.3](#)) and remove the following components:
 - ❑ Optical drive ([Section 5.8](#))
 - ❑ Switch cover ([Section 5.9](#))
 - ❑ Keyboard ([Section 5.10](#))
 - ❑ Display assembly ([Section 5.11](#))
 - ❑ Base enclosure ([Section 5.12](#))

2. Remove the RTC battery from the socket on the system board.



Removing the RTC Battery

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

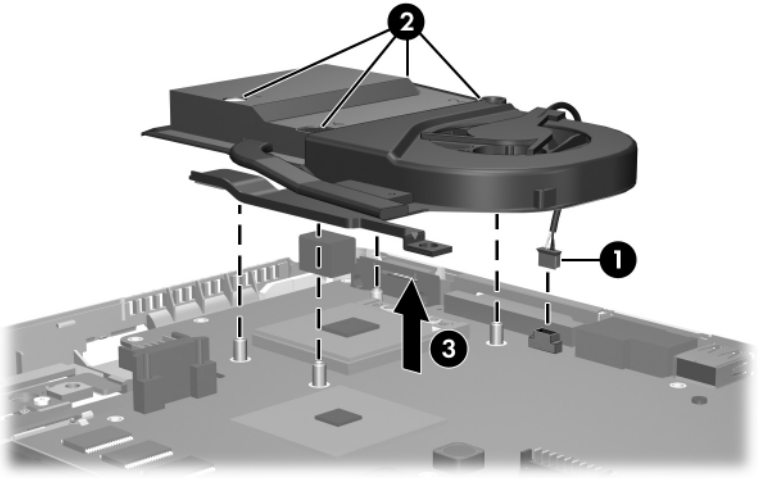
5.17 Fan/Heat Sink Assembly

Fan/Heat Sink Assembly Spare Part Number Information

| | |
|---|------------|
| Fan/heat sink assembly (includes thermal pad) | 412397-001 |
|---|------------|

1. Prepare the computer for disassembly ([Section 5.3](#)) and remove the following components:
 - ❑ Optical drive ([Section 5.8](#))
 - ❑ Switch cover ([Section 5.9](#))
 - ❑ Keyboard ([Section 5.10](#))
 - ❑ Display assembly ([Section 5.11](#))
 - ❑ Base enclosure ([Section 5.12](#))
2. Turn the computer upside down with the front toward you.

3. Disconnect the fan cable **1** from the system board.
4. Loosen the four Phillips PM2.5×5.0 screws **2** that secure the fan/heat sink assembly to the top cover.
5. Remove the fan/heat sink assembly **3**.



Removing the Fan/Heat Sink Assembly

Reverse the above procedure to install the fan/heat sink assembly.

5.18 Processor

Processor Spare Part Number Information

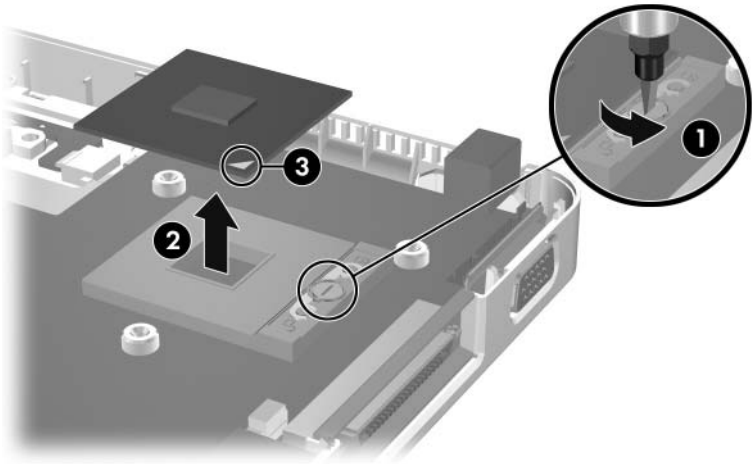
| | |
|----------------------------------|------------|
| Intel Core Duo T2500 (2.00-GHz) | 412333-001 |
| Intel Core Duo T2400 (1.83-GHz) | 412334-001 |
| Intel Core Duo T2300 (1.66-GHz) | 412335-001 |
| Intel Core Solo T1300 (1.66-GHz) | 412332-001 |

1. Prepare the computer for disassembly ([Section 5.3](#)) and remove the following components:
 - ❑ Optical drive ([Section 5.8](#))
 - ❑ Switch cover ([Section 5.9](#))
 - ❑ Keyboard ([Section 5.10](#))
 - ❑ Display assembly ([Section 5.11](#))
 - ❑ Base enclosure ([Section 5.12](#))
 - ❑ Fan/heat sink assembly([Section 5.17](#))

2. Turn the processor locking screw **1** one-half turn counterclockwise until you feel a click.
3. Lift the processor **2** straight up and remove it.



The gold triangle **3** on the processor should be aligned in the front right corner when you install the processor.



Removing the Processor

Reverse the above procedure to install a processor.

5.19 System Board

System Board Spare Part Number Information

945GM

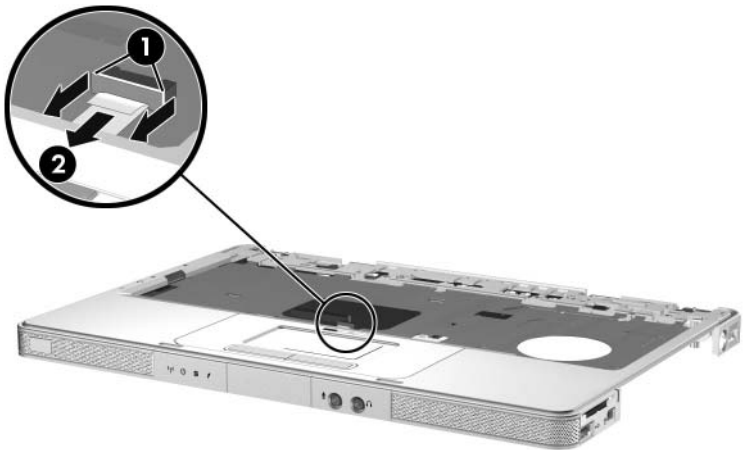
412240-001



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

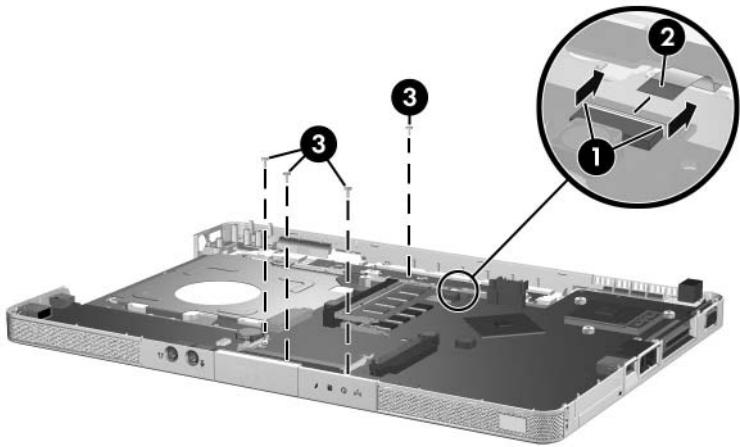
- Memory modules ([Section 5.6](#))
 - Mini Card module ([Section 5.7](#))
 - RTC battery ([Section 5.16](#))
 - Fan/heat sink assembly ([Section 5.17](#))
 - Processor ([Section 5.18](#))
-

1. Prepare the computer for disassembly ([Section 5.3](#)) and remove the following components:
 - ❑ Hard drive ([Section 5.4](#))
 - ❑ Optical drive ([Section 5.8](#))
 - ❑ Switch cover ([Section 5.9](#))
 - ❑ Keyboard ([Section 5.10](#))
 - ❑ Display assembly ([Section 5.11](#))
 - ❑ Base enclosure ([Section 5.12](#))
 - ❑ USB/S-Video board ([Section 5.13](#))
 - ❑ Speaker assembly ([Section 5.15](#))
2. Turn the top cover right side up with the front toward you.
3. Release the ZIF connector ❶ to which the TouchPad cable is connected and disconnect the cable ❷ from the system board.



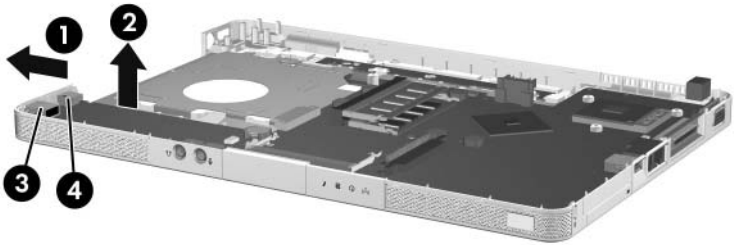
Disconnecting the TouchPad Cable

4. Turn the top cover upside down with the front toward you.
5. Release the ZIF connector **1** to which the LED board cable is connected and disconnect the cable **2** from the system board.
6. Remove the three silver Phillips PM2.0x5.0 screws **3** that secure the system board to the top cover.



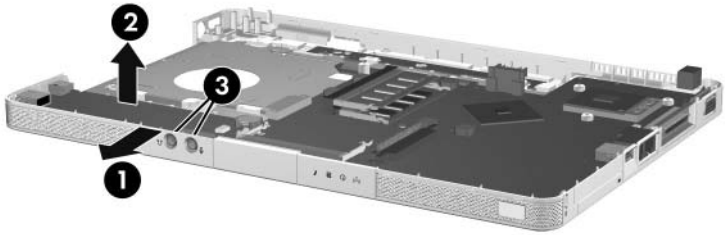
Disconnecting the LED Board Cable and Removing the System Board Screws

7. Flex and hold the left side of the top cover ❶.
8. Lift the left side of the system board ❷ until the USB ❸ and 1394 connectors ❹ clear the top cover.



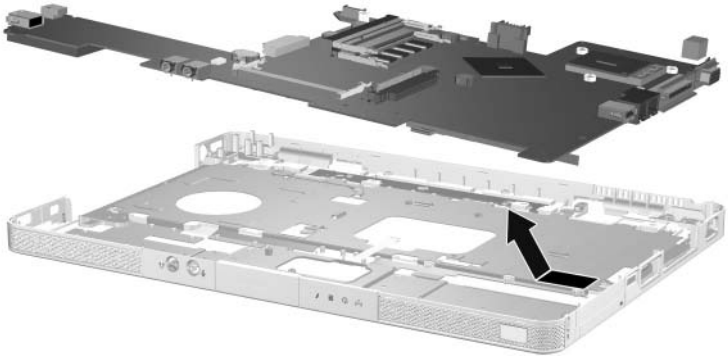
Releasing the System Board, Part 1

9. Flex and hold the front edge of the top cover **1**.
10. Lift the system board **2** until the audio connectors **3** clear the top cover.



Releasing the System Board, Part 2

11. Slide the system board to the left at an angle and remove it from the top cover.



Removing the System Board

Reverse the above procedure to install the system board.

5.20 LED Board

LED Board Spare Part Number Information

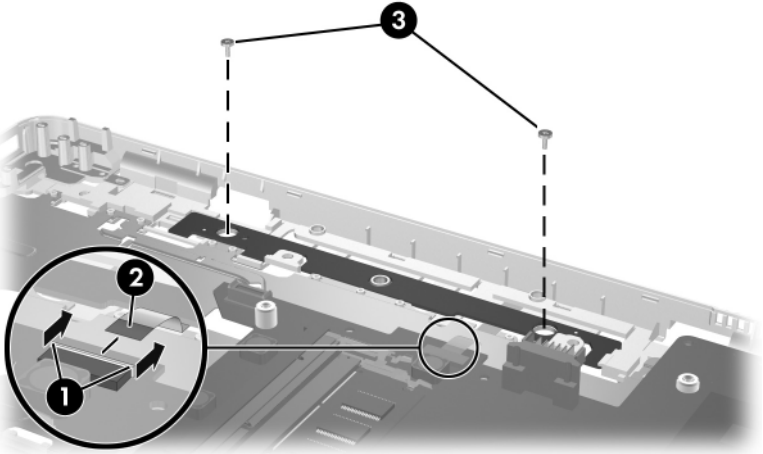
LED board

412400-001

1. Prepare the computer for disassembly ([Section 5.3](#)) and remove the following components:
 - ❑ Optical drive ([Section 5.8](#))
 - ❑ Switch cover ([Section 5.9](#))
 - ❑ Keyboard ([Section 5.10](#))
 - ❑ Display assembly ([Section 5.11](#))
 - ❑ Base enclosure ([Section 5.12](#))
 - ❑ USB/S-Video board ([Section 5.13](#))
 - ❑ Speaker assembly ([Section 5.15](#))
 - ❑ System board ([Section 5.19](#))

2. Turn the computer upside down with the front panel toward you.

3. Release the ZIF connector **1** to which the LED board cable is connected and disconnect the cable **2** from the system board.
4. Remove the two Phillips PM2.0×3.0 screws **3** that secure the LED board to the top cover.



Removing the LED Board Screws

5. Remove the LED board.
- Reverse the above procedure to install the LED board.

5.21 ExpressCard Assembly

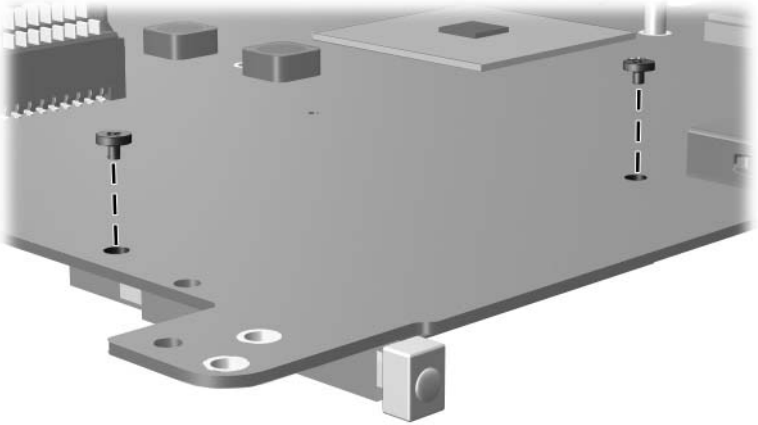
ExpressCard Assembly Spare Part Number Information

ExpressCard assembly

412331-001

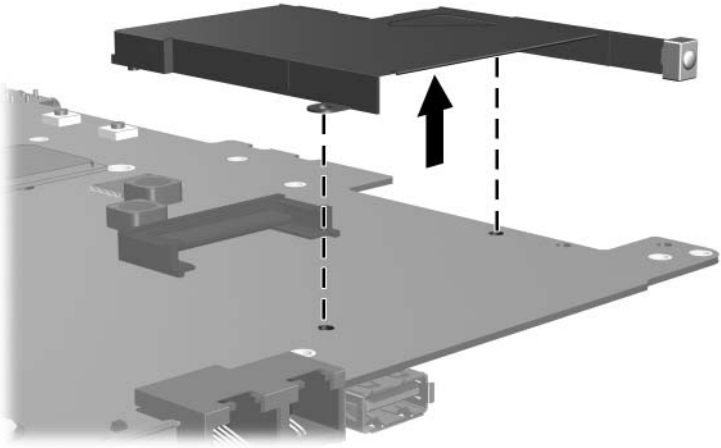
1. Prepare the computer for disassembly ([Section 5.3](#)) and remove the following components:
 - ❑ Optical drive ([Section 5.8](#))
 - ❑ Switch cover ([Section 5.9](#))
 - ❑ Keyboard ([Section 5.10](#))
 - ❑ Display assembly ([Section 5.11](#))
 - ❑ Base enclosure ([Section 5.12](#))
 - ❑ USB/S-Video board ([Section 5.13](#))
 - ❑ Speaker assembly ([Section 5.15](#))
 - ❑ System board ([Section 5.19](#))
2. Turn the computer upside down with the ExpressCard eject button toward you.

3. Remove the two Phillips PM2.0×2.0 screws that secure the ExpressCard assembly to the system board.



Removing the ExpressCard Assembly Screws

4. Turn the system board right side up with the ExpressCard eject button toward you.
5. Lift the back of the ExpressCard assembly to disconnect it from the system board.



Removing the ExpressCard Assembly

Reverse the above procedure to install the ExpressCard assembly.

6

Specifications

This chapter provides physical and performance specifications.

Table 6-1
Computer

| Dimensions | | |
|--|--|---------------------|
| Height (varies from front to back) | 3.29 cm to 3.89 cm | 1.30 in to 1.53 in |
| Width | 23.06 cm | 9.08 in |
| Depth | 33.40 cm | 13.15 in |
| Weight (varies by configuration) | 2.39 kg | 5.26 lb |
| Stand-alone power requirements | | |
| Operating voltage | 18.5 V dc to 19.0 V dc | |
| Operating current | 3.5 A or 4.74 A | |
| Peak operating power | 65 W | |
| 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% | |
| Nonoperating | 5% to 95%, 38.7°C (101.6°F) maximum wet bulb temperature | |
| 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 |

Table 6-1
Computer (Continued)

Shock

| | |
|--------------|------------------------|
| Operating | 125 g, 2 ms, half-sine |
| Nonoperating | 200 g, 2 ms, half-sine |

Random Vibration

| | |
|--------------|--|
| Operating | 0.75 g zero-to-peak, 10 Hz to 500 Hz, 0.25 oct/min sweep rate |
| Nonoperating | 1.50 g zero-to-peak, 10 Hz to 500 Hz, 0.5 oct/min sweep rate |



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

Table 6-2
14.0-inch, WXGA, SVA Display

| | | |
|--------------------------------|--|---------|
| Dimensions | | |
| Height | 27.94 cm | 11.0 in |
| Width | 20.83 cm | 8.2 in |
| Diagonal | 35.56 cm | 14.0 in |
| Number of colors | Up to 16.8 million | |
| Contrast ratio | 250:1 | |
| Brightness | 180 nits typical | |
| Pixel resolution | | |
| Pitch | 0.279 × 0.279 mm | |
| Format | 1280 × 768 | |
| Configuration | RGB vertical stripe | |
| Backlight | Edge lit | |
| Character display | 80 × 25 | |
| Total power consumption | 4 W | |
| Viewing angle | +/-40° horizontal, +20/-40° vertical typical | |

Table 6-3
Hard Drives

| | 80-GB | 60-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 | 102 g | 99 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 | 117,210,240 | 78,140,160 |
| Disk rotational speed | 5400 rpm | 5400 rpm | 4200 rpm | 4200 rpm |
| Operating temperature | 5°C to 55°C (41°F to 131°F) | | | |



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

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

[†]Actual drive specifications may differ slightly.

Table 6-4
Primary 6-cell, Li-Ion Battery Pack

Dimensions

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

Energy

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

Temperature

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

Table 6-5
DVD/CD-RW Combo Drive

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

Table 6-5
DVD/CD-RW Combo Drive (Continued)

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

Table 6-6
DVD±RW/R and
CD-RW Double-Layer Combo Drive

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

Table 6-6
DVD±RW/R and
CD-RW Double-Layer Combo Drive (Continued)

| | | |
|---------------------------|---|-----------|
| Disc thickness | 1.2 mm (0.047 in) | |
| Track pitch | 0.74 μm | |
| Access time | CD media | DVD media |
| 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 ExpressCard |
| 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



ExpressCard 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 PC1xx21/x515 Cardbus Controller |
| IRQ20 | TI OHCI Compliant IEEE 1394 Host Controller |
| IRQ21 | TI Integrated PC1xx21 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



ExpressCard 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 PC1xx21/x515 Cardbus Controller |
| 0x0000FE00-0x0000FEFF | Texas Instruments PC1xx21/x515 Cardbus Controller |

Table 6-10
System Memory Map

| Memory Map Address (hex) | System Function (shipping configuration) |
|---------------------------------|---|
| 0xD4100000-0xD41FFFFFF | PCI standard PCI-to-PCI bridge |
| 0xD4100000-0xD41FFFFFF | ATI MOBILITY RADEON Xpress 200 Series |
| 0xD8000000-0xDBFFFFFFF | PCI standard PCI-to-PCI bridge |
| 0xD8000000-0xDBFFFFFFF | ATI MOBILITY RADEON Xpress 200 Series |
| 0xFAC00000-0xFEBFFFFFF | PCI standard PCI-to-PCI bridge |
| 0xF6C00000-0xFABFFFFFF | PCI standard PCI-to-PCI bridge |
| 0xD4000000-0xD400FFF | 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 |
| 0xFFFF80000-0xFFFFFFFF | System board |
| 0xE0000000-0xE03FFFFFF | System board |
| 0xE0000000-0xE03FFFFFF | 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 |
| 0xFFE00000-0xFFE00000 | Texas Instruments PCIxx21/x515 Cardbus Controller |
| 0xFFE00000-0xFFE00000 | 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 |

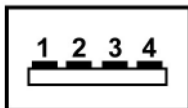
Table 6-10
System Memory Map (Continued)

| 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

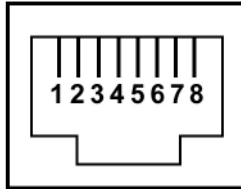
Connector Pin Assignments

Table A-1
Universal Serial Bus



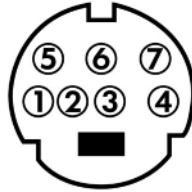
| Pin | Signal | Pin | Signal |
|------------|---------------|------------|---------------|
| 1 | +5 VDC | 3 | Data + |
| 2 | Data - | 4 | Ground |

Table A-2
RJ-45 (Network)



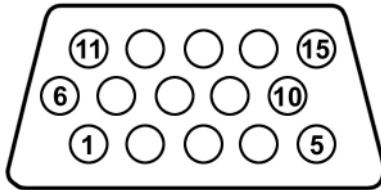
| Pin | Signal | Pin | Signal |
|------------|---------------|------------|---------------|
| 1 | Transmit + | 5 | Unused |
| 2 | Transmit – | 6 | Receive – |
| 3 | Receive + | 7 | Unused |
| 4 | Unused | 8 | Unused |

Table A-3
S-Video-Out



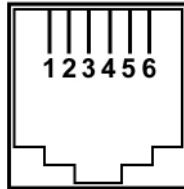
| Pin | Signal | Pin | Signal |
|------------|---------------|------------|---------------|
| 1 | TV-Ground | 5 | TV-CD |
| 2 | TV-CVBS | 6 | TV-Ground |
| 3 | TV-Ground | 7 | TV-YD |
| 4 | TV-Ground | | |

Table A-4
External Monitor



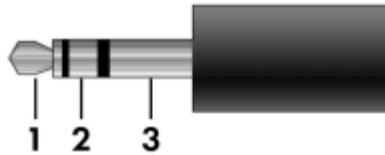
| Pin | Signal | Pin | Signal |
|-----|---------------|-----|-----------------|
| 1 | Red analog | 9 | +5 VDC |
| 2 | Green analog | 10 | Ground |
| 3 | Blue analog | 11 | Monitor detect |
| 4 | Not connected | 12 | DDC 2B data |
| 5 | Ground | 13 | Horizontal sync |
| 6 | Ground analog | 14 | Vertical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

Table A-5
RJ-11 (Modem)



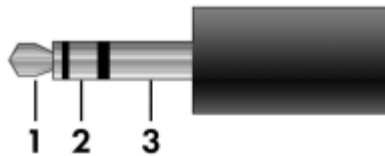
| Pin | Signal | Pin | Signal |
|------------|---------------|------------|---------------|
| 1 | Unused | 4 | Unused |
| 2 | Tip | 5 | Unused |
| 3 | Ring | 6 | Unused |

Table A-6
Audio-In (Microphone)



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

Table A-7
Audio-Out (Headphone)



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

Power Cord Set Requirements

3-Conductor Power Cord Set

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

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

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

General Requirements

The requirements listed below are applicable to all countries.

- The length of the power cord set must be at least 1.5 m (5.0 ft) and a maximum of 2.0 m (6.5 ft).
- All power cord sets must be approved by an acceptable accredited agency responsible for evaluation in the country where the power cord set will be used.
- The power cord sets must have a minimum current capacity of 10 amps and a nominal voltage rating of 125 or 250 V AC, as required by each country's power system.
- The appliance coupler must meet the mechanical configuration of an EN 60 320/IEC 320 Standard Sheet C13 connector for mating with the appliance inlet on the back of the computer.

Country-Specific Requirements

3-Conductor Power Cord Set Requirements

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

Notes:

1. The flexible cord must be <HAR> Type HO5VV-F, 3-conductor, 1.0 mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country where it will be used.
2. The flexible cord must be Type SPT-3 or equivalent, No. 18 AWG, 3-conductor. The wall plug must be a two-pole grounding type with a NEMA 5-15P (15 A, 125 V) or NEMA 6-15P (15 A, 250 V) configuration.
3. The appliance coupler, flexible cord, and wall plug must bear a “T” mark and registration number in accordance with the Japanese Dentori Law. The flexible cord must be Type VCT or VCTF, 3-conductor, 1.00 mm² conductor size. The wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (7 A, 125 V) configuration.

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

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

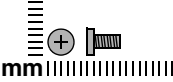
Notes:

1. The flexible cord must be <HAR> Type HO5VV-F, 3-conductor, 1.0 mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country where it will be used.
 2. The flexible cord must be Type SPT-3 or equivalent, No. 18 AWG, 3-conductor. The wall plug must be a two-pole grounding type with a NEMA 5-15P (15 A, 125 V) or NEMA 6-15P (15 A, 250 V) configuration.
 3. The appliance coupler, flexible cord, and wall plug must bear a "T" mark and registration number in accordance with the Japanese Dentori Law. The flexible cord must be Type VCT or VCTF, 3-conductor, 1.00 mm² conductor size. The wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (7 A, 125 V) configuration.
 4. The flexible cord must be Type RVV, 3-conductor, 0.75 mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country where it will be used.
 5. The flexible cord must be Type VCTF, 3-conductor, 0.75 mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country where it will be used.
-

Screw Listing

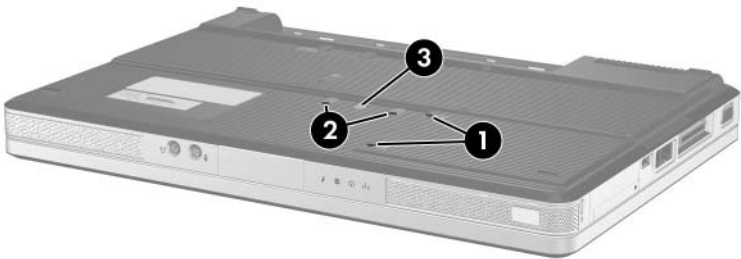
This appendix provides specification and reference information for the screws used in the computer. All screws listed in this appendix are available in the Screw Kit, spare part number 412387-001, and the Display Screw Kit, spare part number 417713-001.

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

|  | Color | Qty. | Length | Thread | Head Width |
|---|-------|------|--------|--------|------------|
| | Black | 11 | 5.0 mm | 2.0 mm | 4.0 mm |

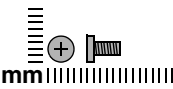
Where used:

- ❶ Two screws that secure the hard drive cover to the computer (screws are captured on the cover by C clips; documented in [Section 5.3](#))
- ❷ Two screws that secure the memory module compartment cover to the computer (screws are captured on the cover by C clips; documented in [Section 5.6](#))
- ❸ One screw that secures the Mini Card compartment cover to the computer (screw is captured on the cover by a C clip; documented in [Section 5.7](#))



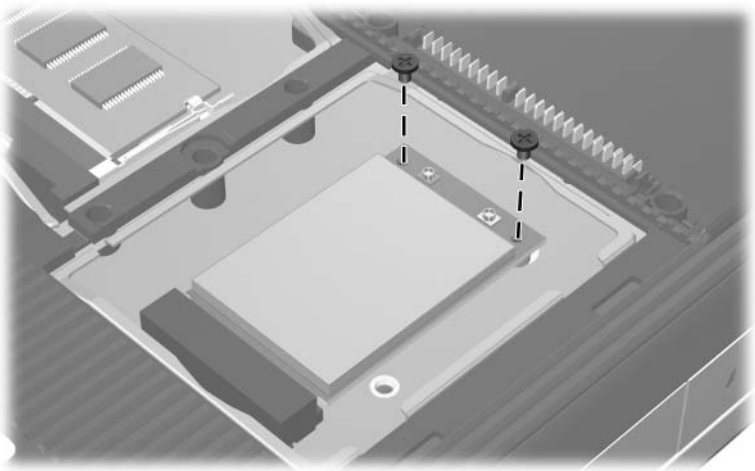
Black Phillips PM2.0x5.0 Screw Locations

Table C-1
Black Phillips PM2.0×5.0 Screw (Continued)

|  | Color | Qty. | Length | Thread | Head Width |
|---|-------|------|--------|--------|------------|
| | Black | 11 | 5.0 mm | 2.0 mm | 4.0 mm |

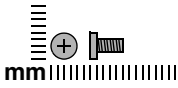
Where used:

2 screws that secure the Mini Card module to the computer (documented in [Section 5.7](#))



Black Phillips PM2.0×5.0 Screw Locations

Table C-1
Black Phillips PM2.0×5.0 Screw (Continued)



| Color | Qty. | Length | Thread | Head Width |
|-------|------|--------|--------|------------|
| Black | 11 | 5.0 mm | 2.0 mm | 4.0 mm |

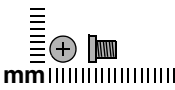
Where used:

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



Black Phillips PM2.0×5.0 Screw Locations

Table C-2
Phillips PM2.5×4.0 Screw

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

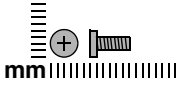
Where used:

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



Phillips PM2.5×4.0 Screw Locations

Table C-3
Phillips PM2.0x8.5 Screw



| Color | Qty. | Length | Thread | Head Width |
|-------|------|--------|--------|------------|
| Black | 16 | 8.5 mm | 2.0 mm | 4.0 mm |

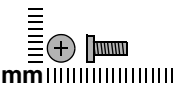
Where used:

One screw that secures the optical drive to the computer (documented in [Section 5.8](#))



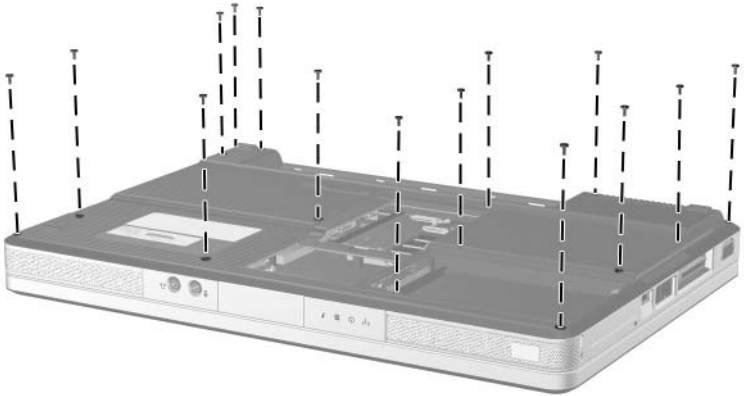
Phillips PM2.0x8.5 Screw Location

Table C-3
Phillips PM2.0×8.5 Screw (Continued)

|  | Color | Qty. | Length | Thread | Head Width |
|---|-------|------|--------|--------|------------|
| | Black | 16 | 8.5 mm | 2.0 mm | 4.0 mm |

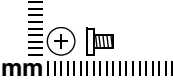
Where used:

15 screws that secure the base enclosure to the computer (documented in [Section 5.12](#))



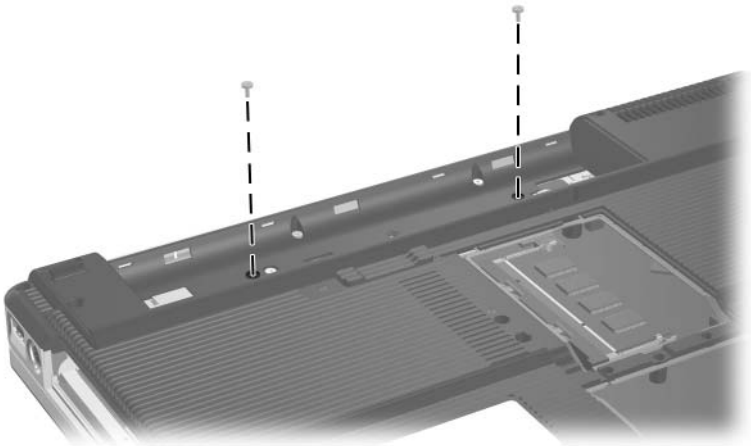
Phillips PM2.0×8.5 Screw Locations

Table C-4
Silver Phillips PM2.0x5.0 Screw

|  | Color | Qty. | Length | Thread | Head Width |
|---|--------|------|--------|--------|------------|
| | Silver | 14 | 5.0 mm | 2.0 mm | 4.0 mm |

Where used:

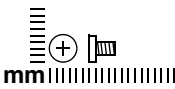
2 screws that secure the switch cover to the computer (documented in [Section 5.9](#))



Silver Phillips PM2.0x5.0 Screw Locations

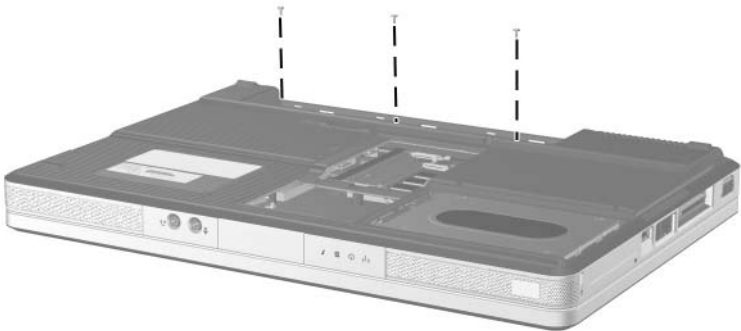
Table C-4

Silver Phillips PM2.0×5.0 Screw (Continued)

|  | Color | Qty. | Length | Thread | Head Width |
|---|--------|------|--------|--------|------------|
| | Silver | 14 | 5.0 mm | 2.0 mm | 4.0 mm |

Where used:

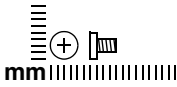
3 screws that secure the base enclosure to the computer (documented in [Section 5.12](#))



Silver Phillips PM2.0×5.0 Screw Locations

Table C-4

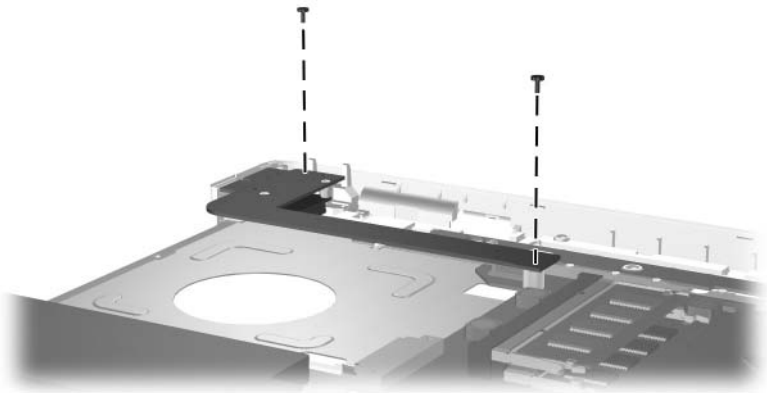
Silver Phillips PM2.0×5.0 Screw (Continued)



| Color | Qty. | Length | Thread | Head Width |
|--------|------|--------|--------|------------|
| Silver | 14 | 5.0 mm | 2.0 mm | 4.0 mm |

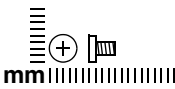
Where used:

2 screws that secure the USB/S-Video board to the computer (documented in [Section 5.13](#))



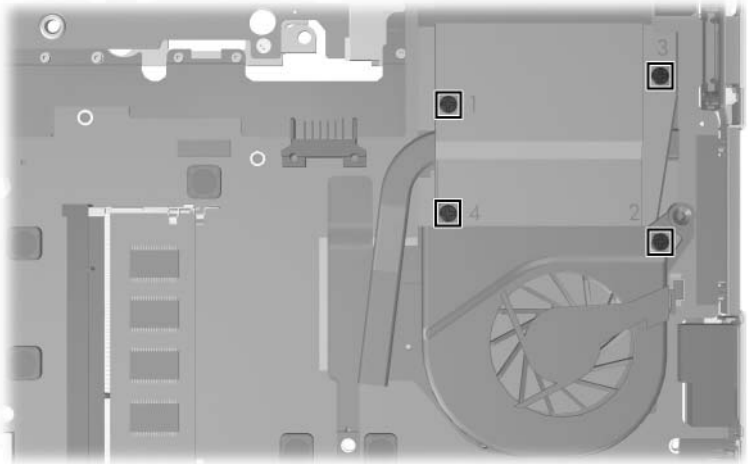
Silver Phillips PM2.0×5.0 Screw Locations

Table C-4
Silver Phillips PM2.0×5.0 Screw (Continued)

|  | Color | Qty. | Length | Thread | Head Width |
|---|--------|------|--------|--------|------------|
| | Silver | 14 | 5.0 mm | 2.0 mm | 4.0 mm |

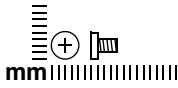
Where used:

4 screws that secure the fan/heat sink assembly to the computer (documented in [Section 5.17](#))



Silver Phillips PM2.0×5.0 Screw Locations

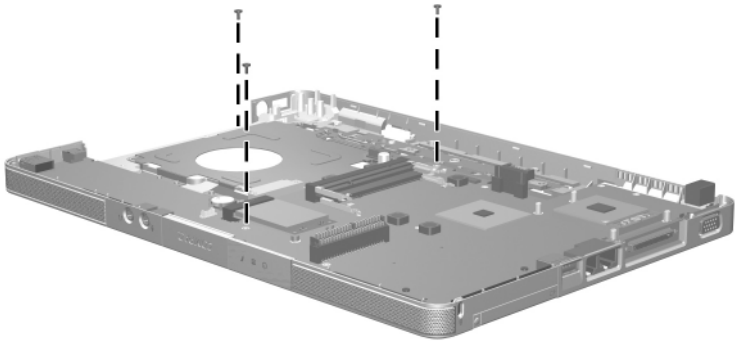
Table C-4
Silver Phillips PM2.0x5.0 Screw (Continued)



| Color | Qty. | Length | Thread | Head Width |
|--------|------|--------|--------|------------|
| Silver | 14 | 5.0 mm | 2.0 mm | 4.0 mm |

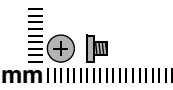
Where used:

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



Silver Phillips PM2.0x5.0 Screw Locations

Table C-5
Phillips PM2.0×3.0 Screw

|  | Color | Qty. | Length | Thread | Head Width |
|---|-------|------|--------|--------|------------|
| | Black | 15 | 3.0 mm | 2.0 mm | 4.0 mm |

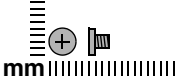
Where used:

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



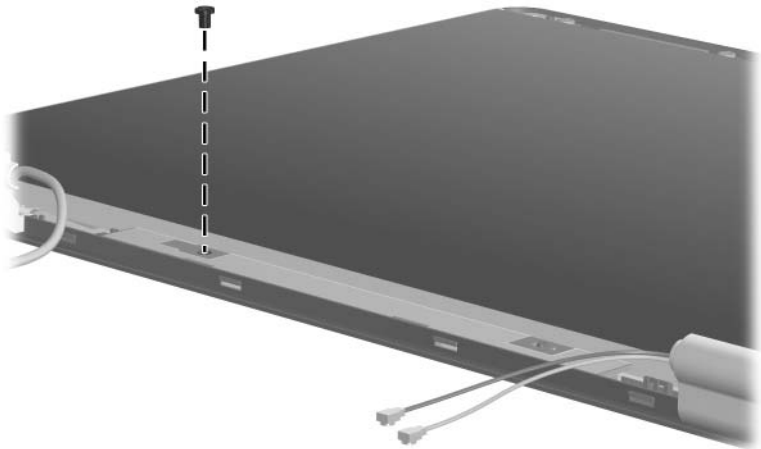
Phillips PM2.0×3.0 Screw Locations

Table C-5
Phillips PM2.0x3.0 Screw (Continued)

|  | Color | Qty. | Length | Thread | Head Width |
|---|-------|------|--------|--------|------------|
| | Black | 15 | 3.0 mm | 2.0 mm | 4.0 mm |

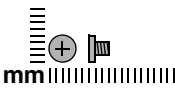
Where used:

One screw that secures the display inverter to the display assembly (documented in [Section 5.11](#))



Phillips PM2.0x3.0 Screw Location

Table C-5
Phillips PM2.0x3.0 Screw (Continued)

|  | Color | Qty. | Length | Thread | Head Width |
|---|-------|------|--------|--------|------------|
| mm | Black | 15 | 3.0 mm | 2.0 mm | 4.0 mm |

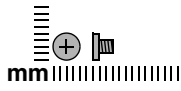
Where used:

4 screws that secure the display hinges to the display assembly (documented in [Section 5.11](#))



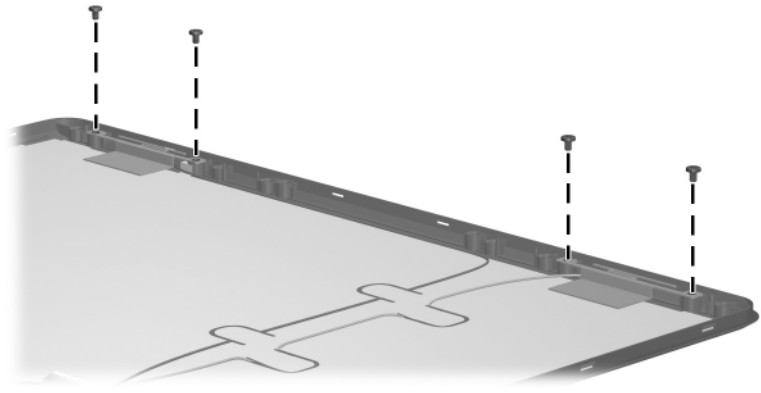
Phillips PM2.0x3.0 Screw Locations

Table C-5
Phillips PM2.0x3.0 Screw (Continued)

|  mm | Color | Qty. | Length | Thread | Head Width |
|--|-------|------|--------|--------|------------|
| | Black | 15 | 3.0 mm | 2.0 mm | 4.0 mm |

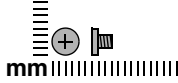
Where used:

4 screws that secure the wireless antenna transceivers to the display enclosure (documented in [Section 5.20](#))



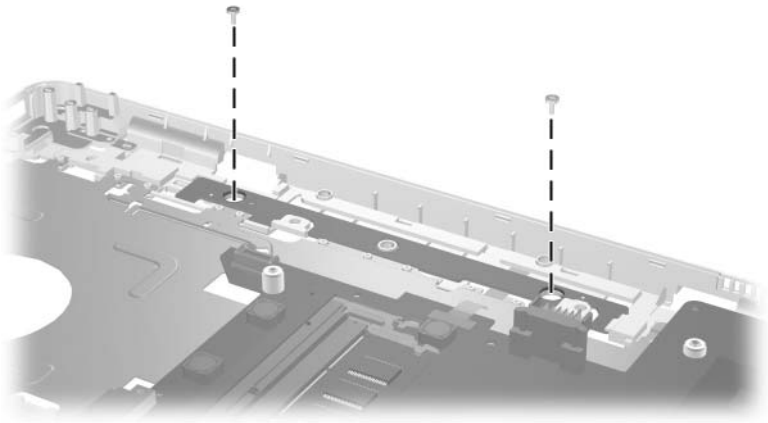
Phillips PM2.0x3.0 Screw Locations

Table C-5
Phillips PM2.0x3.0 Screw (Continued)

|  | Color | Qty. | Length | Thread | Head Width |
|---|-------|------|--------|--------|------------|
| | Black | 15 | 3.0 mm | 2.0 mm | 4.0 mm |

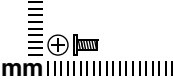
Where used:

2 screws that secure the LED board to the computer (documented in [Section 5.20](#))



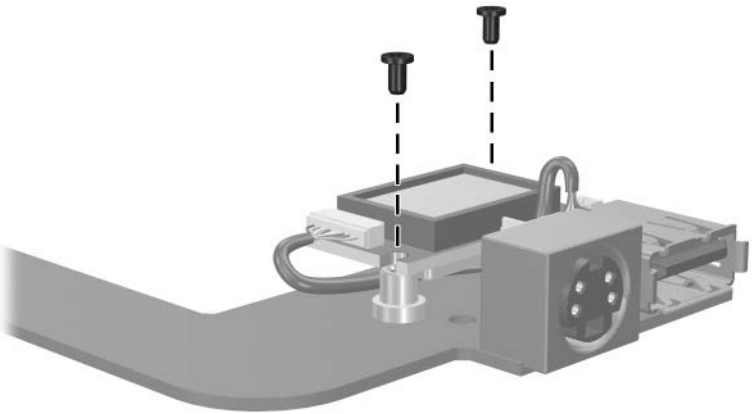
Phillips PM2.0x3.0 Screw Locations

Table C-6
Phillips PM1.5x3.5 Screw

|  | Color | Qty. | Length | Thread | Head Width |
|---|--------|------|--------|--------|------------|
| mm | Silver | 2 | 3.5 mm | 1.5 mm | 3.0 mm |

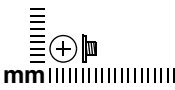
Where used:

2 screws that secure the Bluetooth board to the USB/S-Video board (documented in [Section 5.14](#))



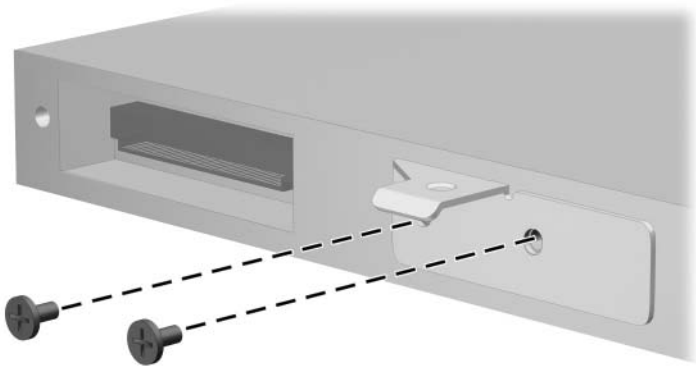
Phillips PM1.5x3.5 Screw Locations

Table C-7
Phillips PM2.0×2.0 Screw

|  | Color | Qty. | Length | Thread | Head Width |
|---|--------|------|--------|--------|------------|
| | Silver | 4 | 2.0 mm | 2.0 mm | 3.0 mm |

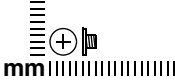
Where used:

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



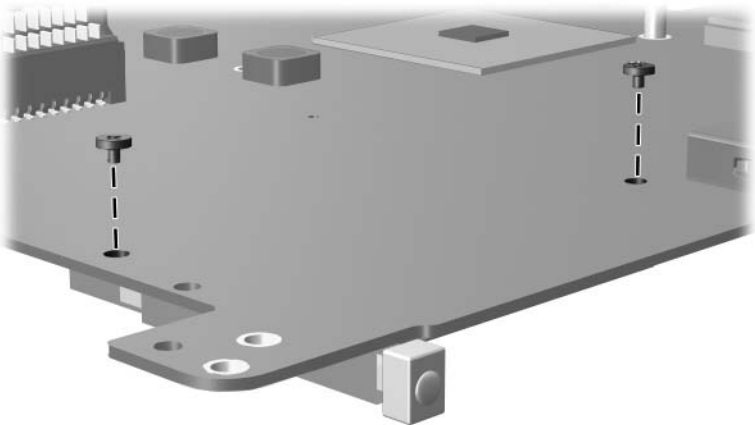
Phillips PM2.0×2.0 Screw Locations

Table C-7
Phillips PM2.0x2.0 Screw (Continued)

|  | Color | Qty. | Length | Thread | Head Width |
|---|--------|------|--------|--------|------------|
| | Silver | 4 | 2.0 mm | 2.0 mm | 3.0 mm |

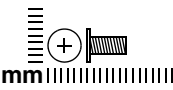
Where used:

2 screws that secure the ExpressCard assembly to the system board (documented in [Section 5.21](#))



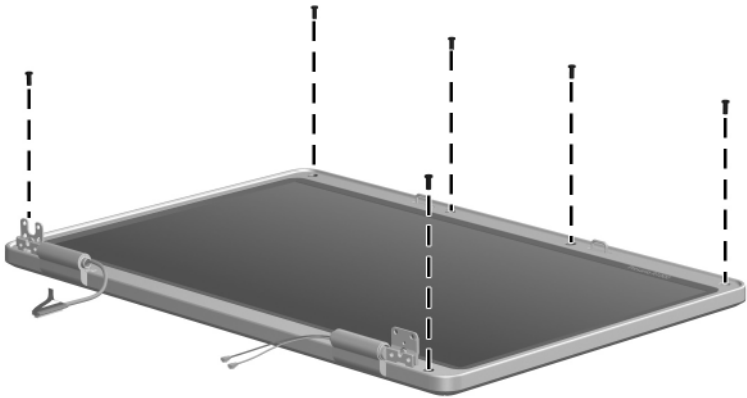
Phillips PM2.0x2.0 Screw Locations

Table C-8
Phillips PM2.5x6.0 Screw

|  | Color | Qty. | Length | Thread | Head Width |
|---|--------|------|--------|--------|------------|
| | Silver | 16 | 6.0 mm | 2.5 mm | 5.0 mm |

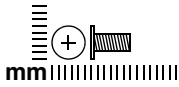
Where used:

6 screws that secure the display bezel to the display assembly (documented in [Section 5.11](#))



Phillips PM2.5x6.0 Screw Locations

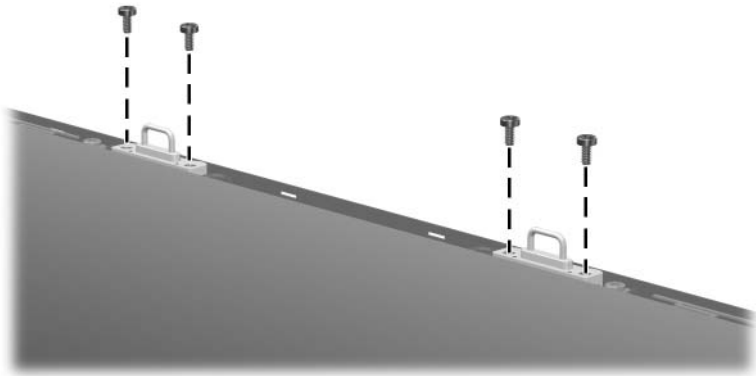
Table C-8
Phillips PM2.5x6.0 Screw (Continued)



| Color | Qty. | Length | Thread | Head Width |
|--------|------|--------|--------|------------|
| Silver | 16 | 6.0 mm | 2.5 mm | 5.0 mm |

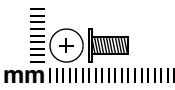
Where used:

4 screws that secure the display release hooks to the display enclosure (documented in [Section 5.11](#))



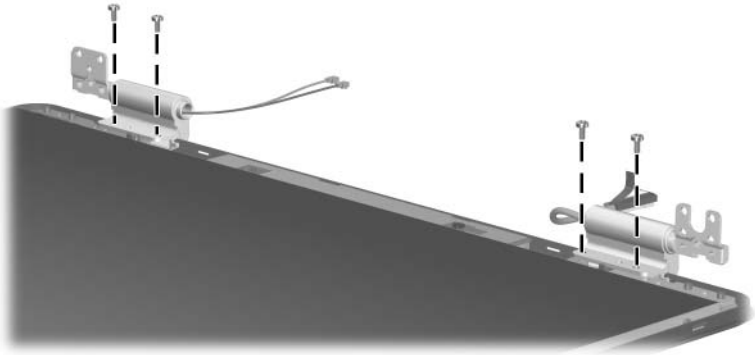
Phillips PM2.5x6.0 Screw Locations

Table C-8
Phillips PM2.5×6.0 Screw (Continued)

|  | Color | Qty. | Length | Thread | Head Width |
|---|--------|------|--------|--------|------------|
| | Silver | 16 | 6.0 mm | 2.5 mm | 5.0 mm |

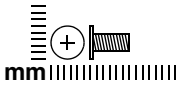
Where used:

4 screws that secure the display hinge covers to the display enclosure (documented in [Section 5.11](#))



Phillips PM2.5×6.0 Screw Locations

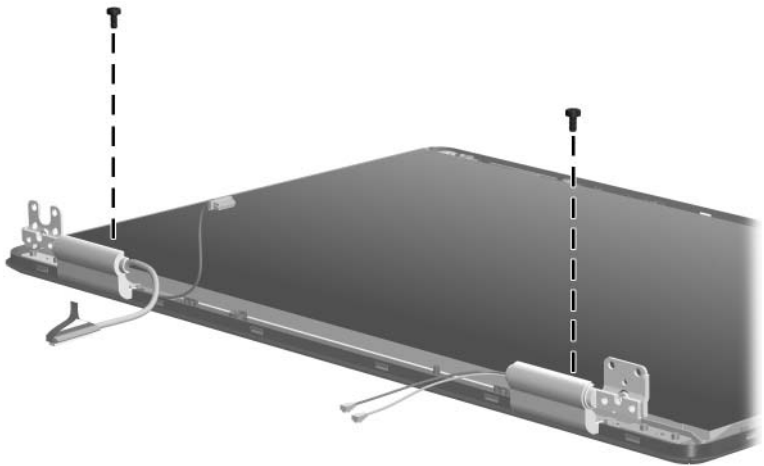
Table C-8
Phillips PM2.5x6.0 Screw (Continued)



| Color | Qty. | Length | Thread | Head Width |
|--------|------|--------|--------|------------|
| Silver | 16 | 6.0 mm | 2.5 mm | 5.0 mm |

Where used:

2 screws that secure the display panel to the display enclosure (documented in [Section 5.11](#))



Phillips PM2.5x6.0 Screw Locations

Display Component Recycling



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



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



Materials Disposal

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

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

This appendix provides disassembly instructions for the display assembly. The display assembly must be disassembled to gain access to the backlight ❶ and the LCD panel ❷.

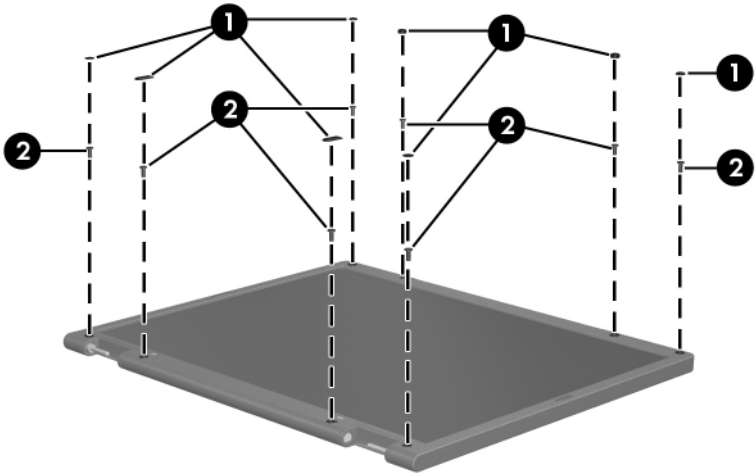


Disassembly procedures differ from one display assembly to another. The procedures provided in this appendix are general disassembly instructions. Specific details, such as screw sizes, quantities, and locations, and component shapes and sizes, can vary from one computer model to another.

Refer to [Section 5.11, “Display Assembly,”](#) for display assembly disassembly steps.

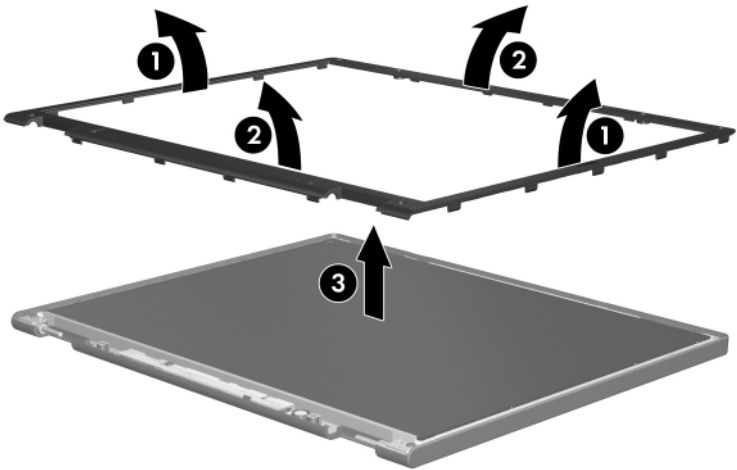
Perform the following steps to disassemble the display assembly:

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



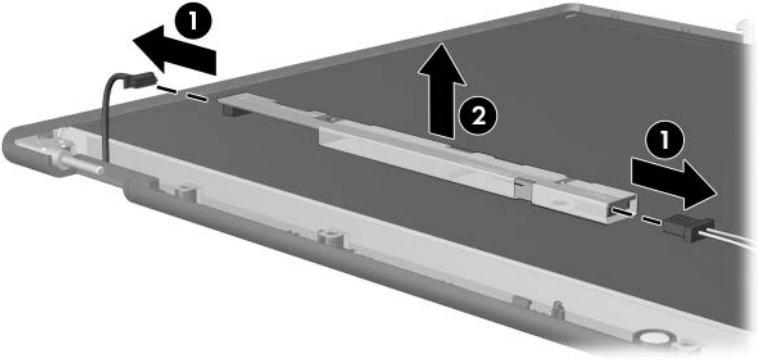
Removing the Display Bezel Screw Covers and Screws

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



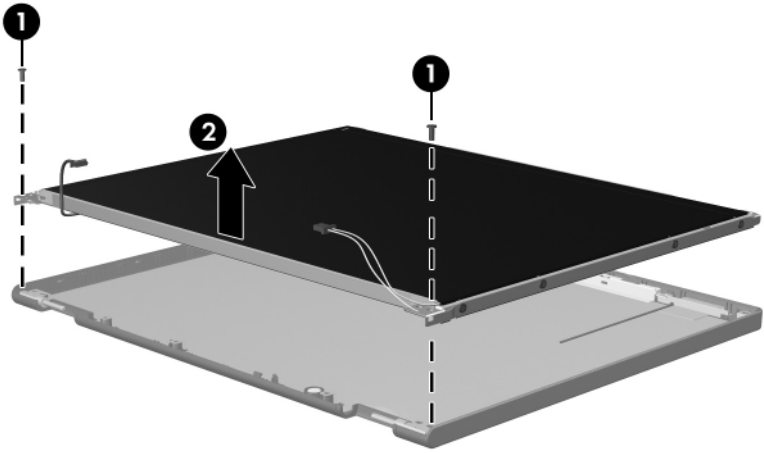
Removing the Display Bezel

4. Disconnect all LCD panel cables ❶ from the display inverter board and remove the inverter board ❷.



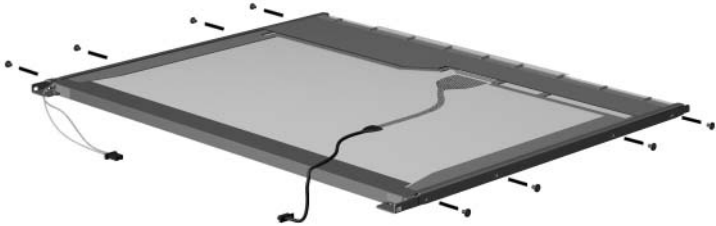
Removing the Display Inverter Board

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



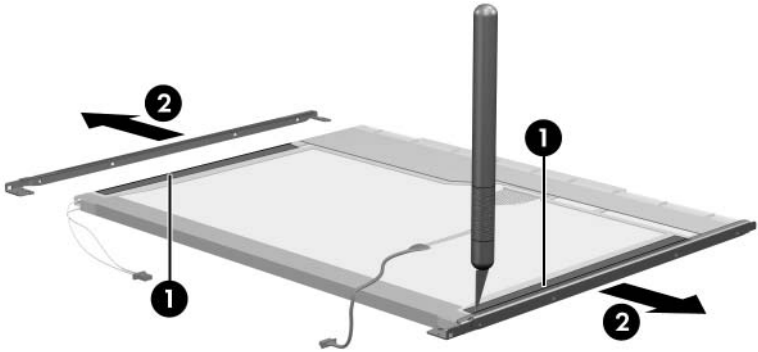
Removing the LCD Panel

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



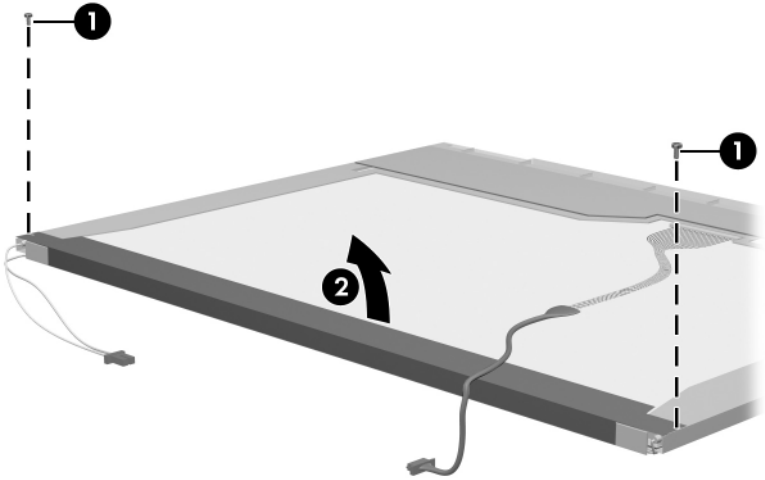
Removing the LCD Panel Frame Screws

9. Use a sharp-edged tool to cut the tape **1** that secures the side of the LCD panel to the LCD panel frame.
10. Remove the LCD panel frame **2** from the display panel.



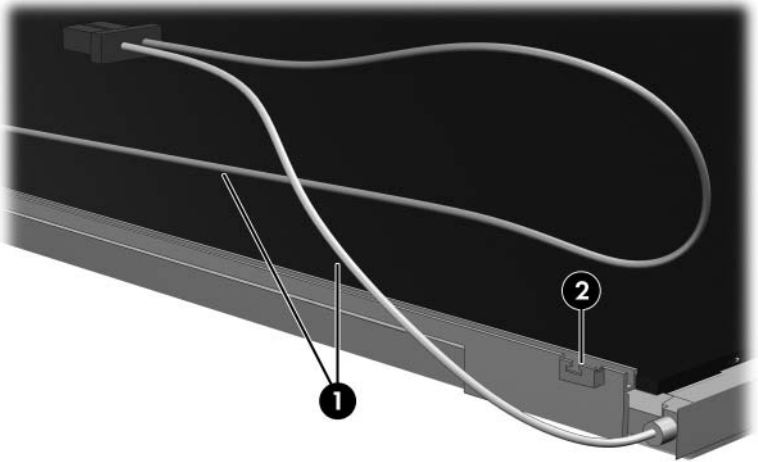
Removing the LCD Panel Frame

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



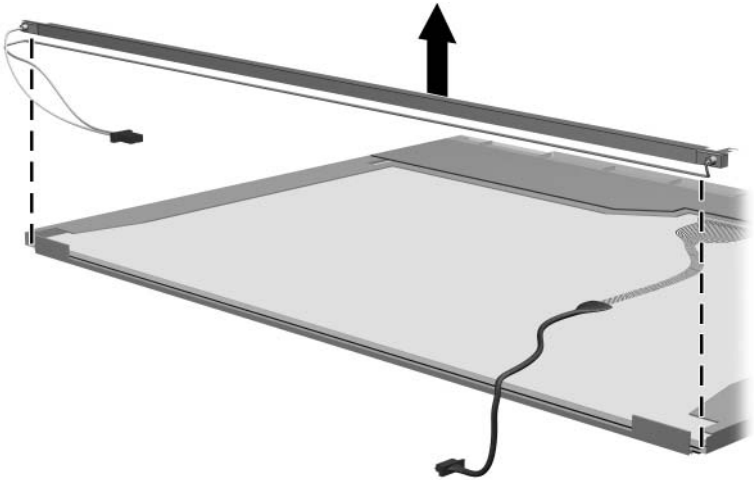
Removing the Backlight Cover

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



Releasing the Backlight Cables

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

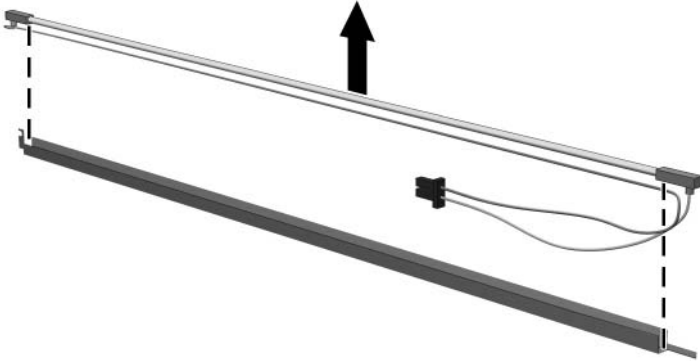


Removing the Backlight Frame



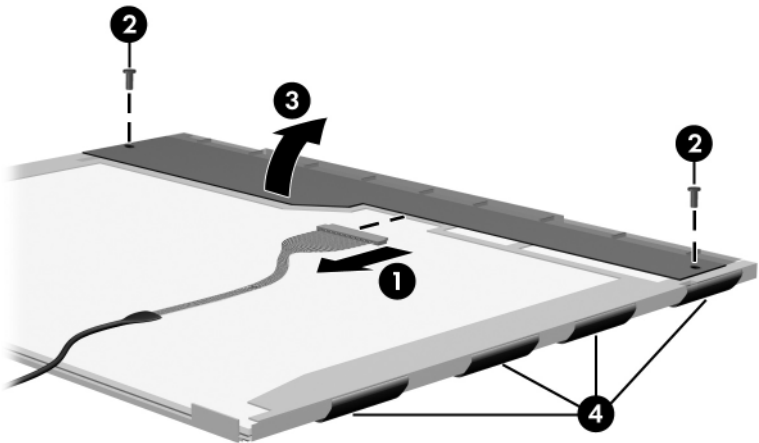
WARNING: The backlight contains mercury. Caution should be exercised when removing and handling the backlight to avoid damaging this component and causing exposure to the mercury.

18. Slide the backlight out of the backlight frame.



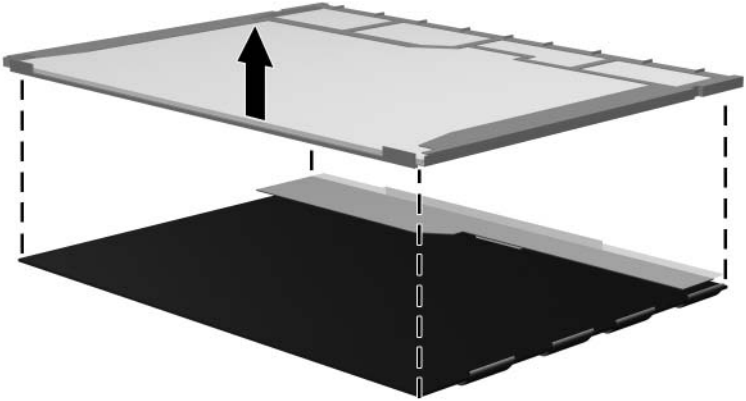
Removing the Backlight

19. Disconnect the display cable ❶ from the LCD panel.
20. Remove the screws ❷ that secure the LCD panel to the LCD rear panel.
21. Release the LCD panel ❸ from the LCD rear panel.
22. Release the tape ❹ that secures the LCD panel to the LCD rear panel.



Releasing the LCD Panel

23. Remove the LCD panel.



Removing the LCD Panel

24. Recycle the backlight and LCD panel.

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