

# Compaq Presario CQ61 Notebook PC and HP G61 Notebook PC

## Maintenance and Service Guide

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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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## Safety warning notice



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**WARNING:** To reduce the possibility of heat-related injuries or of overheating the computer, do not place the computer directly on your lap or obstruct the computer air vents. Use the computer only on a hard, flat surface. Do not allow another hard surface, such as an adjoining optional printer, or a soft surface, such as pillows or rugs or clothing, to block airflow. Also, do not allow the AC adapter to contact the skin or a soft surface, such as pillows or rugs or clothing, during operation. The computer and the AC adapter comply with the user-accessible surface temperature limits defined by the International Standard for Safety of Information Technology Equipment (IEC 60950).

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## Product description

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|---------------------|---|---------------------|--------------|--------------------------|
| <b>Product name</b> | <b>Compaq Presario CQ61 Notebook PC</b>   | ✓                   |              | ✓                        |
|                     | <b>HP G61 Notebook PC</b>   |                     | ✓            |                          |
| <b>Processor</b>    | <b>AMD Turion™ X2 Ultra Dual-Core Mobile Processor:</b><br>M600 2.4-GHz processor, 2-MB L2 cache, 3.6 GT/s HyperTransport speed   | ✓                   | ✓            | ✓                        |
|                     | <b>AMD Turion X2 Dual-Core Mobile Processors:</b><br><ul style="list-style-type: none"> <li>■ M520 2.3-GHz processor, 1-MB L2 cache, 3.6 GT/s HyperTransport speed</li> <li>■ M500 2.2-GHz processor, 1-MB L2 cache, 3.6 GT/s HyperTransport speed</li> </ul>   | ✓                   | ✓            | ✓                        |
|                     | <b>AMD Athlon™ X2 Dual-Core Processors for Notebook PCs:</b><br><ul style="list-style-type: none"> <li>■ M320 2.1-GHz processor, 1-MB L2 cache, 3.2 GT/s HyperTransport speed</li> <li>■ M300 2.0-GHz processor, 1-MB L2 cache, 3.2 GT/s HyperTransport speed</li> </ul>  | ✓                   | ✓            | ✓                        |
|                     | <b>AMD Sempron™ Processor for Notebook PCs:</b><br>M100 2.0-GHz processor, 512-KB L2 cache, 3.2 GT/s HyperTransport speed   | ✓                   | ✓            | ✓                        |
| <b>Chipset</b>      | Northbridge: ATI RS880M   | ✓                   | ✓            |                          |
|                     | Northbridge: ATI RX881  |                     |              | ✓                        |
|                     | Southbridge: AMD SB710  | ✓                   | ✓            | ✓                        |
| <b>Graphics</b>     | ATI Radeon™ HD 4200 unified memory architecture (UMA, integrated) with shared video memory:<br><ul style="list-style-type: none"> <li>■ Up to 126 MB when system memory = 1024 MB</li> <li>■ Up to 638 MB when system memory ≥ 2048 MB</li> <li>■ Up to 1150 MB when system memory ≥ 3072 MB</li> <li>■ Up to 1534 MB when system memory ≥ 4096 MB (32-bit OS)</li> <li>■ Up to 1662 MB when system memory ≥ 4096 MB (64-bit OS)</li> </ul> | ✓                   | ✓            |                          |
|                     | ATI Mobility Radeon™ HD 4330 discrete graphics processor with 512 MB of dedicated video memory  |                     |              | ✓                        |

(Continued)



| Category                           | Description   | Presario CQ61 (UMA) | HP G61 (UMA) | Presario CQ61 (Discrete) |
|------------------------------------|---|---------------------|--------------|--------------------------|
| <b>Panel</b>                       | 15.6-in, white light-emitting diode (LED) backlit, high-definition (HD), BrightView display panel (1366 × 768)<br>16:9 wide aspect ratio (1600×900)<br>Typical brightness: 200 nits   | ✓                   | ✓            | ✓                        |
|                                    | 15.6-in, cold-cathode fluorescent lamp (CCFL), HD, BrightView display panel (1366 × 768)<br>16:9 wide aspect ratio (1600 × 900)<br>Typical brightness: 200 nits   | ✓                   | ✓            | ✓                        |
| <b>Memory</b>                      | 2 SODIMM slots<br>Customer-accessible/upgradable<br>PC2-6400, 800-MHz, DDR2<br>Supports dual-channel memory<br>Supports up to 8 GB of system RAM, in the following configurations:<br><ul style="list-style-type: none"> <li>■ 8192 MB (4096 × 2)</li> <li>■ 4096 MB (2048 × 2)</li> <li>■ 3072 MB (2048 × 1 + 1024 × 1)</li> <li>■ 2048 MB (2048 × 1)</li> <li>■ 2048 MB (1024 × 2)</li> <li>■ 1024 MB (1024 × 1)</li> </ul> | ✓                   | ✓            | ✓                        |
| <b>Hard drive</b>                  | Supports 9.50-mm, 6.35-cm (2.50-in) hard drives<br>Serial ATA (SATA)<br>Customer-accessible<br>Single hard drive configurations:<br><ul style="list-style-type: none"> <li>■ 500 GB, 5400 rpm</li> <li>■ 320 GB, 7200 and 5400 rpm</li> <li>■ 250 GB, 7200 and 5400 rpm</li> <li>■ 160 GB, 7200 and 5400 rpm</li> </ul>   | ✓                   | ✓            | ✓                        |
| <b>Optical drive</b>               | Fixed (removal of one screw required)<br>Serial ATA (SATA)<br>12.7-mm tray load<br>Customer-accessible<br>Supports the following drives:<br><ul style="list-style-type: none"> <li>■ Blu-ray ROM with LightScribe DVD±R/RW SuperMulti Double-Layer Drive</li> <li>■ DVD±RW and CD-RW SuperMulti Double-Layer Combo Drive with LightScribe</li> </ul>  | ✓                   | ✓            | ✓                        |
| <b>Webcam (select models only)</b> | VGA camera<br>Fixed angle (no tilt)<br>640 × 480 by 22.5 frames per second<br>Activity light  | ✓                   | ✓            | ✓                        |
| <b>Microphone</b>                  | Single analog microphone  | ✓                   | ✓            | ✓                        |
| <b>Audio</b>                       | High-definition audio<br>Supports Microsoft® premium requirements<br>2 Altec Lansing Presario-branded speakers  | ✓                   | ✓            | ✓                        |

(Continued)

| Category  | Description  | Presario CQ61 (UMA) | HP G61 (UMA) | Presario CQ61 (Discrete) |
|---|--|---------------------|--------------|--------------------------|
| <b>Modem<br/>(select models only)</b>               | 56K V.92 data/fax modem<br>Supports all worldwide certification requirements   | ✓                   | ✓            | ✓                        |
| <b>Ethernet</b>                                     | Integrated 10/100 network interface card (NIC)   | ✓                   | ✓            | ✓                        |
| <b>Wireless</b>                                     | 2 wireless antennas built into display assembly<br>Integrated wireless local area network (WLAN) options by way of wireless module:<br><ul style="list-style-type: none"> <li>■ Atheros AR9285 802.11b/g/n WLAN module</li> <li>■ Atheros AR5009 802.11a/b/g/n WLAN module</li> <li>■ Broadcom BCM2070 Bluetooth® 2.1 module (select models only)</li> </ul>   | ✓                   | ✓            | ✓                        |
| <b>External media card<br/>(select models only)</b> | Digital Media Slot supporting Memory Stick (MS), Memory Stick Pro (MSP), MultiMediaCard (MMC), Secure Digital (SD) Memory Card, and xD-Picture Card (XD)<br>Adapter (not included) provides support for mini versions of SD, MMC, and MSP Duo  | ✓                   | ✓            | ✓                        |
| <b>Internal media card</b>                          | One half-sized Mini Card slot  | ✓                   | ✓            | ✓                        |
| <b>Ports</b>  | Audio-out (stereo headphone)<br>Audio-in (stereo microphone)<br>HDMI v. 1.3b supporting 1080p with HDCP key (select models only)<br>RJ-11 (modem, select models only)<br>RJ-45 (Ethernet, includes link and activity lights)<br>USB v. 2.0 (3)<br>HP Smart Adapter power<br>VGA (Dsub 15-pin) supporting:<br><ul style="list-style-type: none"> <li>■ 1920×1200 external resolution at 60 Hz</li> <li>■ 1600×1200 external resolution at 75 Hz</li> <li>■ Hot plug/unplug and auto-detect</li> </ul> | ✓                   | ✓            | ✓                        |
| <b>Keyboard/<br/>pointing devices</b>               | 16-inch full-size keyboard with numeric keypad<br>Synaptics TouchPad with 2 buttons and 2-way scroll (taps enabled as default)   | ✓                   | ✓            | ✓                        |
| <b>Power requirements</b>                           | 90-W HP Smart Adapter with localized cable plug support (3-wire plug with ground pin, supports 3-pin DC connector)   |                     |              | ✓                        |
|   | 65-W HP Smart Adapter with localized cable plug support (3-wire plug with ground pin, supports 3-pin DC connector)   | ✓                   | ✓            |                          |
|   | Battery options:<br><ul style="list-style-type: none"> <li>■ 6-cell, 2.55-Ah (55-Wh) Li-ion battery</li> <li>■ 6-cell, 2.20-Ah (47-Wh) Li-ion battery</li> </ul>   | ✓                   | ✓            | ✓                        |
| <b>Security</b>                                     | Security cable slot  | ✓                   | ✓            | ✓                        |

(Continued)

| Category                               | Description                              | Presario CQ61 (UMA) | HP G61 (UMA) | Presario CQ61 (Discrete) |
|--|--|---------------------|--------------|--------------------------|
| <b>Operating system (preinstalled)</b> | Windows® 7 Home Premium (32- and 64-bit) | ✓                   | ✓            | ✓                        |
|  | Windows 7 Home Basic (64-bit)            | ✓                   |              | ✓                        |
|  | FreeDOS                                  | ✓                   |              | ✓                        |
| <b>Serviceability</b>                  | End-user replaceable parts:              | ✓                   | ✓            | ✓                        |
|  | ■ AC adapter                             |                     |              |                          |
|  | ■ Battery                                |                     |              |                          |
|  | ■ Bluetooth module (select models only)  |                     |              |                          |
|  | ■ Hard drive                             |                     |              |                          |
|  | ■ Memory modules                         |                     |              |                          |
|  | ■ Modem (select models only)             |                     |              |                          |
|  | ■ Optical drive                          |                     |              |                          |
|  | ■ WLAN module                            |                     |              |                          |

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## External component identification

### Top components

### Display components



| Item | Component                         | Description   |
|------|-----------------------------------|---|
| (1)  | Internal display switch           | Turns off the display and initiates Sleep if the display is closed while the power is on. |
| (2)  | Webcam light (select models only) | On: The webcam is in use.   |
| (3)  | Webcam (select models only)       | Records audio and video and captures still photographs.                                   |
| (4)  | Internal microphone               | Records sound.  |

## TouchPad



| Item | Component              | Description   |
|------|------------------------|---|
| (1)  | TouchPad on/off button | Enables/disables the TouchPad.  |
| (2)  | TouchPad*              | Moves the pointer and selects or activates items on the screen.   |
| (3)  | Left TouchPad button*  | Functions like the left button on an external mouse.  |
| (4)  | TouchPad light         | <ul style="list-style-type: none"> <li>■ White: TouchPad is enabled.</li> <li>■ Amber: TouchPad is disabled.</li> </ul> |
| (5)  | TouchPad scroll zone   | Scrolls up or down.   |
| (6)  | Right TouchPad button* | Functions like the right button on an external mouse.   |

\*This table describes factory settings. To view or change pointing device references, select **Start > Devices and Printers**. Then, right-click the device representing your computer, and select **Mouse settings**.

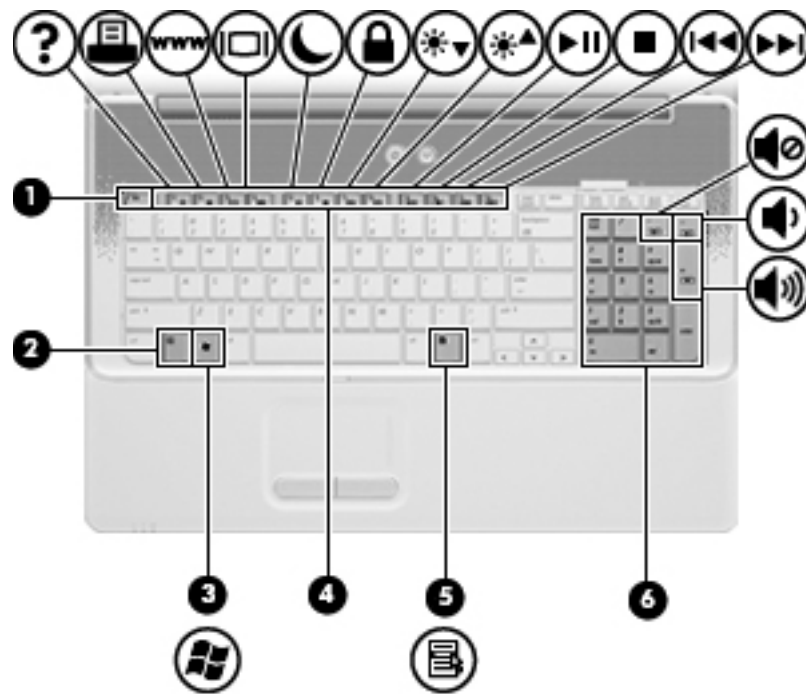
## Lights



| Item | Component         | Description  |
|------|-------------------|--|
| (1)  | Caps lock light   | On: Caps lock is on.   |
| (2)  | Power lights (2)* | <ul style="list-style-type: none"> <li>■ On: The computer is on.</li> <li>■ Blinking: The computer is in the Sleep state.</li> <li>■ Off: The computer is off or in Hibernation.</li> </ul>  |
| (3)  | Wireless light    | <ul style="list-style-type: none"> <li>■ Blue: An integrated wireless device, such as a wireless local area network (WLAN) device and/or a Bluetooth® device, is on.</li> <li>■ Amber: All wireless devices are off.</li> </ul>  |
| (4)  | Num lock light    | <p>On: The integrated numeric keypad is enabled.</p> <p>– or –</p> <p>Num lock is enabled on a connected optional numeric keypad.</p>  |
| (5)  | Battery light     | <ul style="list-style-type: none"> <li>■ On: A battery is charging.</li> <li>■ Blinking: A battery that is the only available power source has reached a low battery level. When the battery reaches a critical low-battery level, the battery light begins blinking more rapidly.</li> <li>■ Off: If the computer is plugged into an external power source, the light is turned off when all batteries in the computer are fully charged. If the computer is not plugged into an external power source, the light stays off until the battery reaches a low battery level.</li> </ul> |
| (6)  | Drive light       | Blinking: The hard drive or optical drive is being accessed.   |

\*The 2 power lights display the same information. The light on the power button is visible only when the computer is open. The power light on the front of the computer is visible whether the computer is open or closed.


## Keys



| Item | Component                                    | Description   |
|------|--|---|
| (1)  | <b>esc</b> key                               | Displays system information when pressed in combination with the <b>fn</b> key.   |
| (2)  | <b>fn</b> key                                | Executes frequently used system functions when pressed in combination with a function key or the <b>esc</b> key.  |
| (3)  | Windows logo key                             | Displays the Windows Start menu.  |
| (4)  | Function keys                                | Execute frequently used system functions when pressed in combination with the <b>fn</b> key.  |
| (5)  | Windows applications key                     | Displays a shortcut menu for items beneath the pointer.   |
| (6)  | Integrated numeric keypad and volume hotkeys | <ul style="list-style-type: none"> <li>■ Can be used like the keys on an external numeric keypad.</li> <li>■ Adjusts system volume when the asterisk (*), minus sign (-), or plus sign (+) is pressed in combination with the <b>fn</b> key.</li> </ul> |

## Buttons and speakers



| Item | Component       | Description  |
|------|-----------------|--|
| (1)  | Speakers (2)    | Produce sound.   |
| (2)  | Power button*   | <ul style="list-style-type: none"> <li>■ When the computer is off, press the button to turn on the computer.</li> <li>■ When the computer is on, press the button briefly to initiate Sleep.</li> <li>■ When the computer is in the Sleep state, press the button briefly to exit Sleep.</li> <li>■ When the computer is in Hibernation, press the button briefly to exit Hibernation.</li> </ul> <p>If the computer has stopped responding and Windows® shutdown procedures are ineffective, press and hold the power button for at least 5 seconds to turn off the computer.</p> <p>To learn more about your power settings, select <b>Start &gt; Control Panel &gt; System and Security &gt; Power Options</b>.</p> |
| (3)  | Wireless button | <p>Turns the wireless feature on or off but does not create a wireless connection.</p> <p> To establish a wireless connection, a wireless network must already be set up.</p>   |

\*This table describes factory settings. For information about changing factory settings, refer to the user guides located in Help and Support.




## Front components



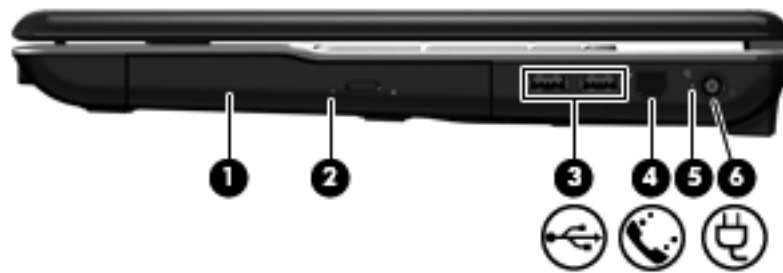
| Item | Component                  | Description  |
|------|----------------------------|--|
| (1)  | Audio-in (microphone) jack | Connects an optional computer headset microphone, stereo array microphone, or monaural microphone.                       |
| (2)  | Audio-out (headphone) jack | Produces sound when connected to optional powered stereo speakers, headphones, ear buds, a headset, or television audio. |

## Rear component



| Component | Description  |
|-----------|--|
| Vent      | <p>Enables airflow to cool internal components.</p> <p> The computer fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation.</p> |



## Right-side components



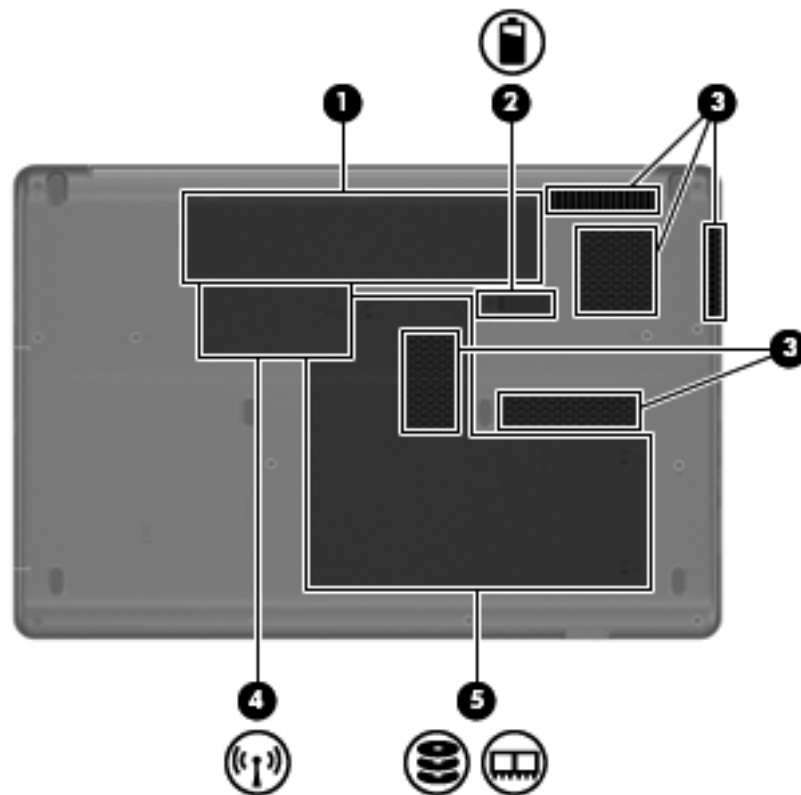
| Item | Component                                  | Description   |
|------|--|---|
| (1)  | Optical drive                              | Reads and writes to optical discs.  |
| (2)  | Optical drive light                        | Blinking: The optical drive is being accessed.  |
| (3)  | USB ports (2)                              | Connect optional USB devices.   |
| (4)  | RJ-11 (modem) jack<br>(select models only) | Connects a modem cable.   |
| (5)  | AC adapter light                           | <ul style="list-style-type: none"> <li>■ On: The computer is connected to external power.</li> <li>■ Off: The computer is not connected to external power.</li> </ul> |
| (6)  | Power connector                            | Connects an AC adapter.   |



## Left-side components



| Item | Component                                     | Description   |
|------|---|---|
| (1)  | Security cable slot                           | Attaches an optional security cable to the computer.<br> The security cable is designed to act as a deterrent, but it may not prevent the computer from being mishandled or stolen.  |
| (2)  | Vent  | Enables airflow to cool internal components.<br> The computer fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation. |
| (3)  | External monitor port                         | Connects an external VGA monitor or projector.  |
| (4)  | RJ-45 (network) jack                          | Connects a network cable.   |
| (5)  | HDMI port (select models only)                | Connects an optional video or audio device, such as a high-definition television, or any compatible digital or audio component.   |
| (6)  | USB port                                      | Connects an optional USB device.  |
| (7)  | Digital Media Slot (select models only)       | Supports the following optional digital card formats: Memory Stick (MS), Memory Stick Pro (MSP), MultiMediaCard (MMC), Secure Digital (SD) Memory Card, xD-Picture Card (XD).   |
| (8)  | Digital Media Slot light (select models only) | On: The Digital Media Slot is in use.   |

## Bottom components



| Item | Component                   | Description  |
|------|-----------------------------|--|
| (1)  | Battery bay                 | Holds the battery.   |
| (2)  | Battery release latch       | Releases the battery from the battery bay.   |
| (3)  | Vents (5)                   | <p>Enable airflow to cool internal components.</p> <p> The computer fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation.</p>  |
| (4)  | Wireless module compartment | <p>Holds a wireless LAN module.</p> <p> To prevent an unresponsive system, replace the wireless module only with a wireless module authorized for use in the computer by the governmental agency that regulates wireless devices in your country or region. If you replace the module and then receive a warning message, remove the module to restore computer functionality, and then contact technical support through Help and Support.</p> |
| (5)  | Hard drive bay              | Holds the hard drive, RTC battery, and modem, and contains the memory module slots.  |

## Wireless antennas

Your computer model has at least 2 antennas that send and receive signals from one or more wireless devices.



The antennas are not visible from the outside of the computer. For optimal transmission, keep the areas immediately around the antennas free from obstructions.

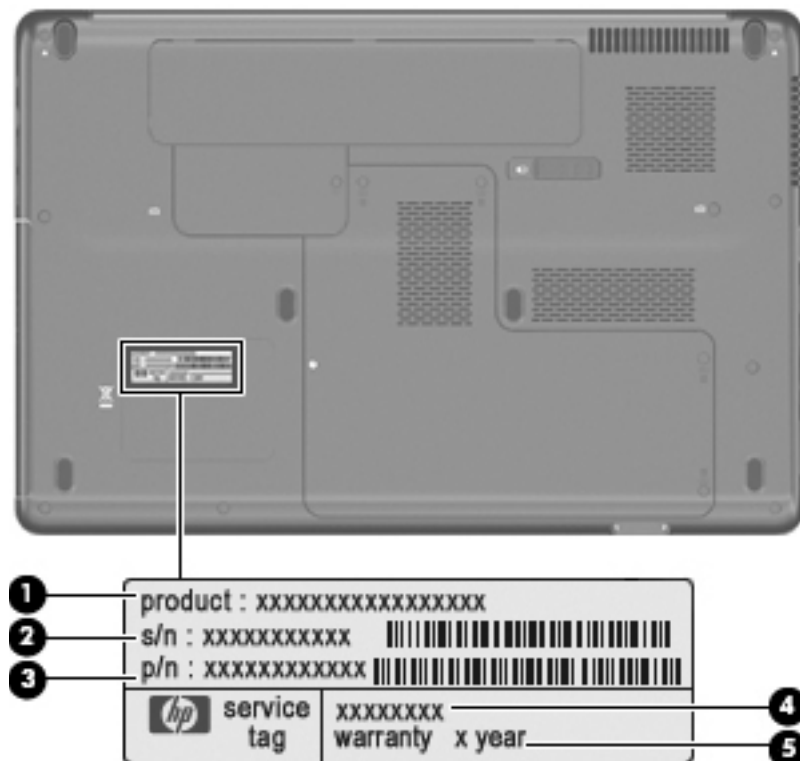
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To see wireless regulatory notices, refer to the section of the *Regulatory, Safety and Environmental Notices* that applies to your country or region. These notices are located in Help and Support.

## Illustrated parts catalog

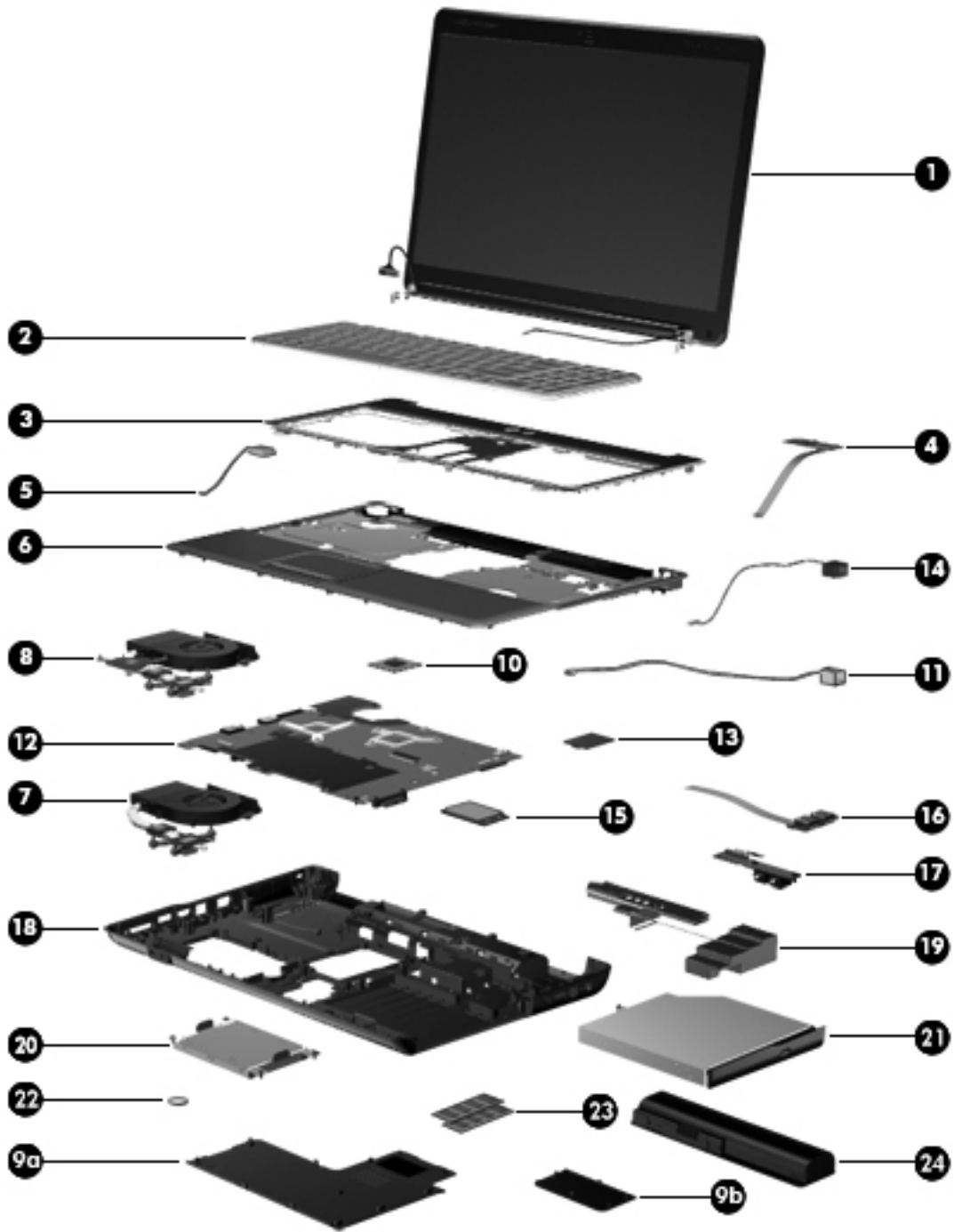
### Service tag

When ordering parts or requesting information, provide the computer serial number and model description provided on the service tag.



| Item | Component                        | Description   |
|------|----------------------------------|---|
| (1)  | Product name                     | This is the product name affixed to the front of the computer.  |
| (2)  | Serial number (s/n)              | This is an alphanumeric identifier that is unique to each product.  |
| (3)  | Part number/Product number (p/n) | This number provides specific information about the product's hardware components. The part number helps a service technician to determine which components and parts are needed. |
| (4)  | Model description                | This is the alphanumeric identifier used to locate documents, drivers, and support for your computer.   |
| (5)  | Warranty period                  | This number describes the duration of the warranty period for this computer.  |



# Computer major components



| Item | Description   | Spare Part Number |
|------|---|-------------------|
| (1)  | <b>Display assembly</b> (includes 2 wireless antennas, display panel/webcam cable, and enclosure with logo; see <a href="#">"Display assembly subcomponents" on page 3-8</a> for more spare part information) |                   |
|      | ■ 15.6-in LED BrightView with webcam and microphone, for use with the CQ61  | 577079-001        |
|      | ■ 15.6-in LED BrightView with webcam and microphone, for use with the black HP G61  | 577075-001        |
|      | ■ 15.6-in LED BrightView with webcam and microphone, for use with the silver HP G61   | 580725-001        |
|      | ■ 15.6-in LED BrightView with microphone only, for use with the CQ61  | 577078-001        |
|      | ■ 15.6-in LED BrightView with microphone only, for use with the black HP G61  | 577074-001        |
|      | ■ 15.6-in LED BrightView with microphone only, for use with the silver HP G61   | 580723-001        |
|      | ■ 15.6-in CCFL BrightView with webcam and microphone, for use with the CQ61   | 577077-001        |
|      | ■ 15.6-in CCFL BrightView with webcam and microphone, for use with the black HP G61   | 577073-001        |
|      | ■ 15.6-in CCFL BrightView with webcam and microphone, for use with the silver HP G61  | 580724-001        |
|      | ■ 15.6-in CCFL BrightView with microphone only, for use with the CQ61   | 577076-001        |
|      | ■ 15.6-in CCFL BrightView with microphone only, for use with the black HP G61   | 577071-001        |
|      | ■ 15.6-in CCFL BrightView with microphone only, for use with the silver HP G61  | 577022-001        |
| (2)  | <b>Keyboard</b>   |                   |
|      | ■ For use in Brazil   | 517865-201        |
|      | ■ For use in the Czech Republic   | 517865-221        |
|      | ■ For use in Europe   | 517865-A41        |
|      | ■ For use in France   | 517865-051        |
|      | ■ For use in French Canada  | 517865-121        |
|      | ■ For use in Germany  | 517865-041        |
|      | ■ For use in Greece   | 517865-151        |
|      | ■ For use in Hungary  | 517865-211        |
|      | ■ For international use   | 517865-B31        |
|      | ■ For use in Israel   | 517865-BB1        |
|      | ■ For use in Italy  | 517865-061        |
|      | ■ For use in Japan  | 517865-291        |
|      | ■ For use in Latin America  | 517865-161        |
|      | ■ For use in Norway   | 517865-091        |
|      | ■ For use in Portugal   | 517865-131        |
|      | ■ For use in Russia   | 517865-251        |
|      | ■ For use in Saudi Arabia   | 517865-171        |
|      | ■ For use in Slovenia   | 517865-BA1        |
|      | ■ For use in South Korea  | 517865-AD1        |
|      | ■ For use in Spain  | 517865-071        |
|      | ■ For use in Switzerland  | 517865-BG1        |
|      | ■ For use in Taiwan   | 517865-AB1        |
|      | ■ For use in Thailand   | 517865-281        |

(Continued)




| Item | Description  | Spare Part Number |
|------|--|-------------------|
|      | <b>Keyboard</b> (Continued)  |                   |
|      | ■ For use in Turkey  | 517865-141        |
|      | ■ For use in the United Kingdom  | 517865-031        |
|      | ■ For use in the United States   | 517865-001        |
| (3)  | <b>Keyboard cover</b>  |                   |
|      | ■ For use with the CQ61 and black HP G61   | 531207-001        |
|      | ■ For use with the silver HP G61   | 534997-001        |
| (4)  | <b>Power button board</b>  | 531215-001        |
|      |  The power button board spare part kit does not include a cable. The power button board cable is included in the Cable Kit, spare part number 531211-001. |                   |
| (5)  | <b>Bluetooth module and cable</b> (select models only)   |                   |
|      | ■ Bluetooth module   | 537921-001        |
|      | ■ Bluetooth module cable   | 582757-001        |
| (6)  | <b>Top cover</b> (includes TouchPad)   |                   |
|      | ■ For use with the CQ61 and black HP G61   | 531206-001        |
|      | ■ For use with the silver HP G61   | 534996-001        |
|      | <b>Fan/heat sink assembly</b> (includes replacement thermal material)  |                   |
| (7)  | ■ For use with UMA systems   | 580718-001        |
| (8)  | ■ For use with discrete systems  | 580719-001        |
|      | <b>Plastics Kit</b> (see <a href="#">"Plastics Kit"</a> on page 3-9 for more spare part information)   | 531517-001        |
| (9a) | Hard drive cover   |                   |
| (9b) | Wireless module compartment cover  |                   |
| (10) | <b>Processor</b> (includes replacement thermal material)   |                   |
|      | ■ M600, 2.4-GHz (2-MB L2 cache, 3.6 GT/s HyperTransport speed)   | 576254-001        |
|      | ■ M520, 2.3-GHz (1-MB L2 cache, 3.6 GT/s HyperTransport speed)   | 583055-001        |
|      | ■ M500, 2.2-GHz (1-MB L2 cache, 3.6 GT/s HyperTransport speed)   | 576253-001        |
|      | ■ M320, 2.1-GHz (1-MB L2 cache, 3.2 GT/s HyperTransport speed)   | 576252-001        |
|      | ■ M300, 2.0-GHz (1-MB L2 cache, 3.2 GT/s HyperTransport speed)   | 578024-001        |
|      | ■ M100, 2.0-GHz (512-KB L2 cache, 3.2 GT/s HyperTransport speed)   | 576251-001        |
| (11) | <b>RJ-11 (modem) connector</b> (select models only; includes cable)  |                   |
|      |  The RJ-11 (modem) connector is included in the Cable Kit, spare part number 531211-001.  |                   |
| (12) | <b>System board</b> (includes replacement thermal material)  |                   |
|      | ■ With media card and HDMI support, for use with UMA systems   | 577065-001        |
|      | ■ With support for media cards but not HDMI, for use with UMA systems  | 577064-001        |
|      | ■ With no media card or HDMI support, for use with UMA systems   | 585923-001        |
|      | ■ With media card and HDMI support, for use with discrete systems  | 577067-001        |
|      | ■ With support for media cards but not HDMI, for use with discrete systems   | 577066-001        |

(Continued)

| Item | Description   | Spare Part Number            |
|------|---|------------------------------|
| (13) | <b>Modem</b> (select models only)<br> The modem spare part kit does not include a cable. See the RJ-11 (modem) connector above. <ul style="list-style-type: none"> <li>■ For use in all countries and regions except Australia and New Zealand</li> <li>■ For use in Australia and New Zealand only</li> </ul>   | <br>461749-001<br>461749-011 |
| (14) | <b>Power connector</b> (includes cable)   | 533465-001                   |
| (15) | <b>WLAN module</b>  |                              |
|      | <ul style="list-style-type: none"> <li>■ Atheros AR9285 802.11b/g/n for use in Canada, the Cayman Islands, Guam, Puerto Rico, the United States, and the U.S. Virgin Islands</li> <li>■ Atheros AR9285 802.11b/g/n for use in Afghanistan, Albania, Algeria, Andorra, Angola, Antigua and Barbuda, Argentina, Armenia, Aruba, Australia, Austria, Azerbaijan, the Bahamas, Bahrain, Barbados, Belgium, Belize, Benin, Bermuda, Bhutan, Bosnia and Herzegovina, Botswana, Brazil, the British Virgin Islands, Brunei, Bulgaria, Burkina Faso, Burundi, Cambodia, Cameroon, Cape Verde, the Central African Republic, Chad, Chile, Colombia, Comoros, the Congo, Costa Rica, Croatia, Cyprus, the Czech Republic, Denmark, Djibouti, Dominica, the Dominican Republic, East Timor, Ecuador, Egypt, El Salvador, Equatorial Guinea, Eritrea, Estonia, Ethiopia, Fiji, Finland, France, French Guiana, Gabon, Gambia, Georgia, Germany, Ghana, Gibraltar, Greece, Grenada, Guadeloupe, Guatemala, Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, Hong Kong, Hungary, Iceland, India, Indonesia, Ireland, Italy, the Ivory Coast, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Kiribati, Kuwait, Kyrgyzstan, Laos, Latvia, Lebanon, Lesotho, Liberia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Madagascar, Malawi, Malaysia, the Maldives, Mali, Malta, the Marshall Islands, Martinique, Mauritania, Mauritius, Mexico, Micronesia, Monaco, Mongolia, Montenegro, Morocco, Mozambique, Namibia, Nauru, Nepal, the Nether Antilles, the Netherlands, New Zealand, Nicaragua, Niger, Nigeria, Norway, Oman, Palau, Panama, Papua New Guinea, Paraguay, the People's Republic of China, Peru, the Philippines, Poland, Portugal, the Republic of Moldova, Romania, Rwanda, Samoa, San Marino, Sao Tome and Principe, Saudi Arabia, Senegal, Serbia, the Seychelles, Sierra Leone, Singapore, Slovakia, Slovenia, the Solomon Islands, Somalia, South Africa, South Korea, Spain, Sri Lanka, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname, Swaziland, Sweden, Switzerland, Syria, Taiwan, Tajikistan, Tanzania, Thailand, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Turkmenistan, Tuvalu, Uganda, the United Arab Emirates, the United Kingdom, Uruguay, Uzbekistan, Vanuatu, Venezuela, Vietnam, Yemen, Zaire, Zambia, and Zimbabwe</li> </ul> | <br>518436-001<br>518436-002 |

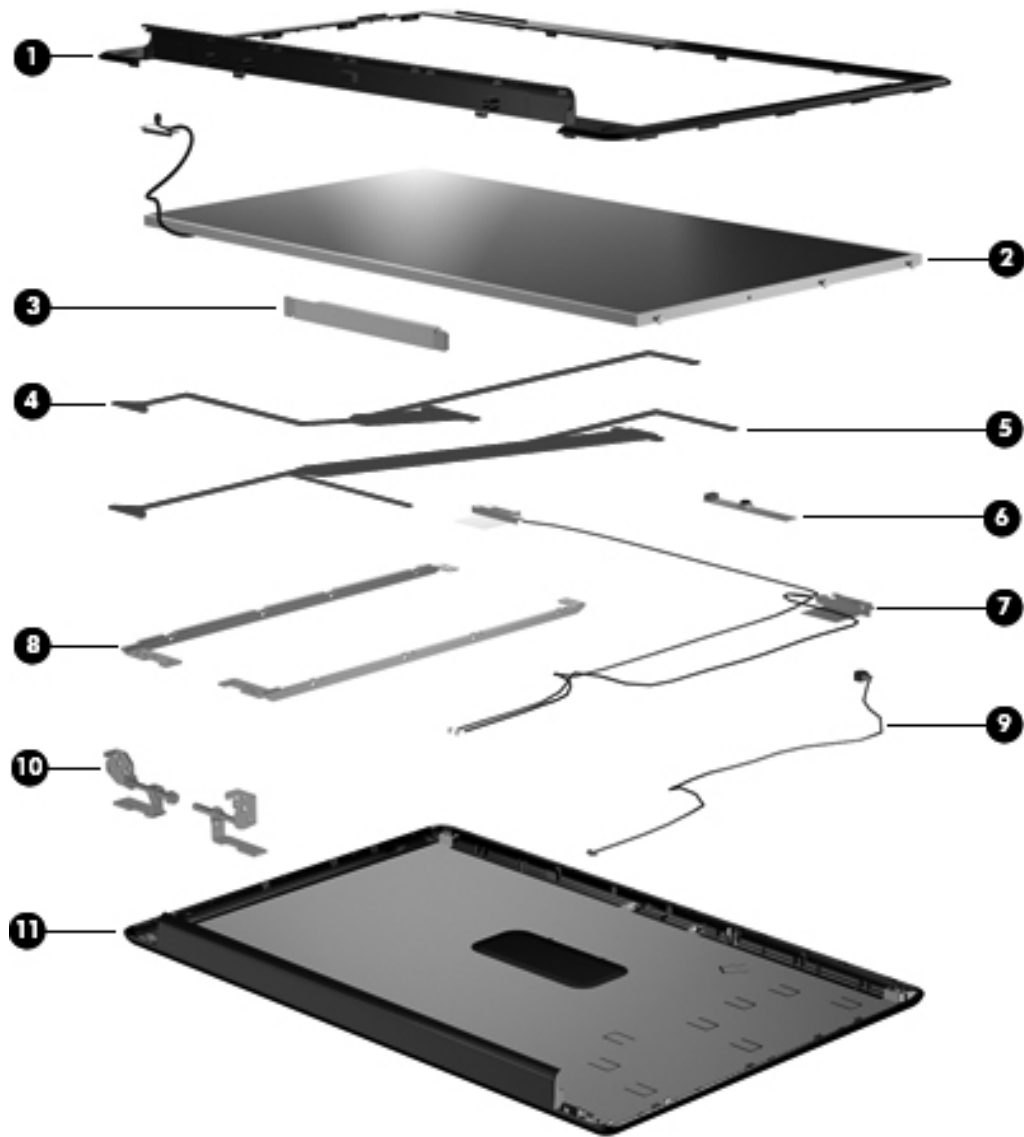
(Continued)

| Item                           | Description  | Spare Part Number |
|--------------------------------|--|-------------------|
| <b>WLAN module</b> (Continued) |  |                   |
|                                | ■ Atheros AR5009 802.11a/b/g/n for use in Canada, the Cayman Islands, Guam, Puerto Rico, the United States, and the U.S. Virgin Islands  | 518437-001        |
|                                | ■ Atheros AR5009 802.11a/b/g/n for use in Afghanistan, Albania, Algeria, Andorra, Angola, Antigua and Barbuda, Argentina, Armenia, Aruba, Australia, Austria, Azerbaijan, the Bahamas, Bahrain, Barbados, Belgium, Belize, Benin, Bermuda, Bhutan, Bosnia and Herzegovina, Botswana, Brazil, the British Virgin Islands, Brunei, Bulgaria, Burkina Faso, Burundi, Cambodia, Cameroon, Cape Verde, the Central African Republic, Chad, Chile, Colombia, Comoros, the Congo, Costa Rica, Croatia, Cyprus, the Czech Republic, Denmark, Djibouti, Dominica, the Dominican Republic, East Timor, Ecuador, Egypt, El Salvador, Equatorial Guinea, Eritrea, Estonia, Ethiopia, Fiji, Finland, France, French Guiana, Gabon, Gambia, Georgia, Germany, Ghana, Gibraltar, Greece, Grenada, Guadeloupe, Guatemala, Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, Hong Kong, Hungary, Iceland, India, Indonesia, Ireland, Israel, Italy, the Ivory Coast, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Kiribati, Kuwait, Kyrgyzstan, Laos, Latvia, Lebanon, Lesotho, Liberia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Madagascar, Malawi, Malaysia, the Maldives, Mali, Malta, the Marshall Islands, Martinique, Mauritania, Mauritius, Mexico, Micronesia, Monaco, Mongolia, Montenegro, Morocco, Mozambique, Namibia, Nauru, Nepal, the Nether Antilles, the Netherlands, New Zealand, Nicaragua, Niger, Nigeria, Norway, Oman, Palau, Panama, Papua New Guinea, Paraguay, the People's Republic of China, Peru, the Philippines, Poland, Portugal, the Republic of Moldova, Romania, Rwanda, Samoa, San Marino, Sao Tome and Principe, Saudi Arabia, Senegal, Serbia, the Seychelles, Sierra Leone, Singapore, Slovakia, Slovenia, the Solomon Islands, Somalia, South Africa, South Korea, Spain, Sri Lanka, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname, Swaziland, Sweden, Switzerland, Syria, Taiwan, Tajikistan, Tanzania, Thailand, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Turkmenistan, Tuvalu, Uganda, the United Arab Emirates, the United Kingdom, Uruguay, Uzbekistan, Vanuatu, Venezuela, Vietnam, Yemen, Zaire, Zambia, and Zimbabwe | 518437-002        |
| (16)                           | <b>USB board</b> (includes cable)  | 531866-001        |
| (17)                           | <b>Audio board</b><br> The audio board spare part kit does not include a cable. The audio board cable is included in the Cable Kit, spare part number 531211-001.   | 531208-001        |
| (18)                           | <b>Base enclosure</b>  |                   |
|                                | ■ With Digital Media Slot, for use with UMA systems  | 580717-001        |
|                                | ■ With no Digital Media Slot, for use with UMA systems   | 587785-001        |
|                                | ■ With Digital Media Slot, for use with discrete systems   | 584254-001        |
|                                | <b>Rubber Feet Kit</b> (not illustrated, includes six rubber computer feet)  | 531213-001        |
| (19)                           | <b>Speaker assembly</b> (includes left and right speakers and cables)  | 531209-001        |
| (20)                           | <b>Hard drive</b> (includes bracket; see <a href="#">"Mass storage devices"</a> on page 3-10 for more spare part information)  |                   |
|                                | ■ 500 GB, 5400 rpm   | 577086-001        |
|                                | ■ 320 GB, 7200 rpm   | 575599-001        |
|                                | ■ 320 GB, 5400 rpm   | 577084-001        |
|                                | ■ 250 GB, 7200 rpm   | 575598-001        |
|                                | ■ 250 GB, 5400 rpm   | 577082-001        |
|                                | ■ 160 GB, 7200 rpm   | 580528-001        |
|                                | ■ 160 GB, 5400 rpm   | 577080-001        |
|                                | <b>Hard Drive Hardware Kit</b> (not illustrated, includes hard drive bracket and screws)   | 531204-001        |

(Continued)


| Item | Description  | Spare Part Number                      |
|------|--|--|
| (21) | <b>Optical drive</b> (includes bezel and bracket; see <a href="#">“Mass storage devices” on page 3-10</a> for more spare part information) <ul style="list-style-type: none"><li>■ DVD±RW and CD-RW SuperMulti Double-Layer Combo Drive with LightScribe</li><li>■ Blu-ray ROM with LightScribe DVD±R/RW SuperMulti Double-Layer Drive</li></ul> | 517850-001<br>517852-001               |
| (22) | <b>Real-time clock (RTC) battery</b>   | 449729-001                             |
| (23) | <b>Memory modules</b> (PC2-6400, 800-MHz, DDR2) <ul style="list-style-type: none"><li>■ 4 GB (CQ61 only)</li><li>■ 2 GB</li><li>■ 1 GB</li></ul>   | 575566-005<br>573722-006<br>573721-006 |
| (24) | <b>Battery</b> <ul style="list-style-type: none"><li>■ 6-cell, 2.55 Ah (55 Wh) Li-ion</li><li>■ 6-cell, 2.2 Ah (47 Wh) Li-ion</li></ul>  | 484171-001<br>484170-001               |

## Display assembly subcomponents



| Item | Description  | Spare part number |
|------|--|-------------------|
| (1)  | <b>Display bezel</b>   |                   |
|      | ■ With webcam and microphone, for use with the HP G61  | 530992-001        |
|      | ■ With webcam and microphone, for use with the CQ61  | 534993-001        |
|      | ■ With microphone only, for use with the HP G61  | 534992-001        |
|      | ■ With microphone only, for use with the CQ61  | 534995-001        |
|      | <b>Display Rubber Kit</b> (not illustrated, includes display bezel screw covers and bumper pads) | 530999-001        |
| (2)  | <b>Display panel</b>   |                   |
|      | ■ 15.6-in LED BrightView (includes cable; see the LED Display Cable Kit below)                   | 577070-001        |
|      | ■ 15.6-in CCFL BrightView (does not include cable; see the CCFL Display Cable Kit below)         | 577068-001        |

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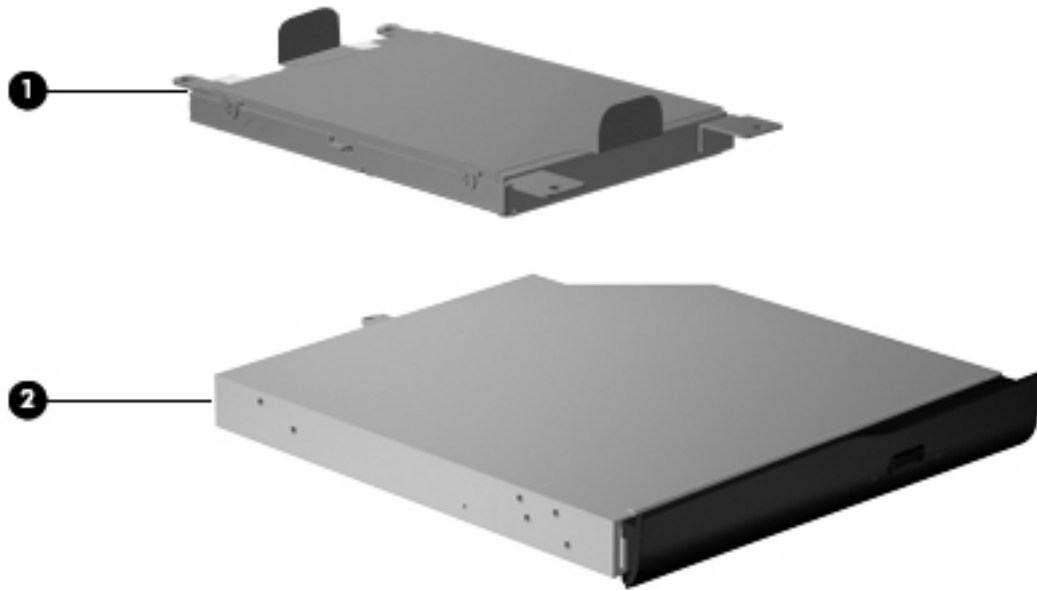
| Item | Description  | Spare part number        |
|------|--|--------------------------|
| (3)  | <b>Display inverter</b> (for use with CCFL display panels only)  | 577278-001               |
|      | <b>Display Cable Kits</b>  |                          |
| (4)  | ■ For use with LED display panels (includes cables for both left and right panel connections)  | 534077-001               |
| (5)  | ■ For use with CCFL display panels   | 579598-001               |
| (6)  | <b>Webcam</b> (select models only)<br> The webcam spare part kit does not include a cable. The display panel/webcam cable is available in the Display Cable Kits above. | 531202-001               |
| (7)  | <b>Wireless antennas</b> (include 2 transceivers and cables)   | 582068-001               |
| (8)  | <b>Display Bracket Kit</b> (includes left and right display brackets)<br>■ For use with LED display panels<br>■ For use with CCFL display panels   | 530995-001<br>579597-001 |
| (9)  | <b>Microphone</b> (includes cable)   | 531203-001               |
| (10) | <b>Display Hinge Kit</b> (includes left and right display hinges)<br><b>Display Screw Kit</b> (not illustrated)  | 530993-001<br>531201-001 |
| (11) | <b>Display enclosure</b> (includes logo)<br>■ For use with the HP G61<br>■ For use with the CQ61   | 589031-001<br>589030-001 |

## Plastics Kit



| Item | Description   | Spare part number |
|------|---|-------------------|
|      | <b>Plastics Kit</b>   | 531517-001        |
| (1)  | Hard drive cover (includes four captive screws, secured by C-clips)                 |                   |
| (2)  | Wireless module compartment cover (includes one captive screw, secured by a C-clip) |                   |

## Mass storage devices



| Item | Description  | Spare part number |
|------|--|-------------------|
| (1)  | <b>Hard drive</b> (includes bracket)   |                   |
|      | ■ 500 GB, 5400 rpm   | 577086-001        |
|      | ■ 320 GB, 7200 rpm   | 575599-001        |
|      | ■ 320 GB, 5400 rpm   | 577084-001        |
|      | ■ 250 GB, 7200 rpm   | 575598-001        |
|      | ■ 250 GB, 5400 rpm   | 577082-001        |
|      | ■ 160 GB, 7200 rpm   | 580528-001        |
|      | ■ 160 GB, 5400 rpm   | 577080-001        |
|      | <b>Hard Drive Hardware Kit</b> (not illustrated, includes hard drive bracket and screws) | 531204-001        |
| (2)  | <b>Optical drive</b> (includes bezel and bracket)  |                   |
|      | ■ DVD±RW and CD-RW SuperMulti Double-Layer Combo Drive with LightScribe                  | 517850-001        |
|      | ■ Blu-ray ROM with LightScribe DVD±R/RW SuperMulti Double-Layer Drive                    | 517852-001        |

## Miscellaneous parts

| Description   | Spare part number |
|---|-------------------|
| <b>AC adapters</b>  |                   |
| ■ 90-W PFC HP Smart Adapter for use with discrete models  | 463955-001        |
| ■ 65-W PFC HP Smart Adapter for use with UMA models       | 463958-001        |
| <b>Cable Kit</b>  |                   |
|   | 531211-001        |
| ■ Audio board cable                                       |                   |
| ■ Num lock cable  |                   |
| ■ Power button board cable                                |                   |
| ■ RJ-11 (modem) connector                                 |                   |
| ■ TouchPad cable  |                   |
| ■ USB board cable   |                   |
| <b>Power cords</b>  |                   |
| ■ For use in Australia (CQ61 only)                        | 490371-011        |
| ■ For use in Denmark (CQ61 only)                          | 490371-081        |
| ■ For use in Europe (CQ61 only)                           | 490371-021        |
| ■ For use in Israel (CQ61 only)                           | 490371-BB1        |
| ■ For use in Italy (CQ61 only)                            | 490371-061        |
| ■ For use in North America                                | 490371-001        |
| ■ For use in South Africa (CQ61 only)                     | 490371-AR1        |
| ■ For use in South Korea (CQ61 only)                      | 490371-AD1        |
| ■ For use in Switzerland (CQ61 only)                      | 490371-111        |
| ■ For use in Taiwan (CQ61 only)                           | 490371-AB1        |
| ■ For use in the United Kingdom and Singapore (CQ61 only) | 490371-031        |
| <b>Screw Kit</b>  |                   |
|   | 531212-001        |
| ■ Phillips PM2.0×3.0 screws                               |                   |
| ■ Phillips PM2.5×3.0 screws                               |                   |
| ■ Phillips PM2.5×5.0 screws                               |                   |
| ■ Phillips PM2.5×5.0 captive screws                       |                   |
| ■ Phillips PM2.5×5.5 captive screws                       |                   |
| ■ Phillips PM2.5×6.5 screws                               |                   |
| ■ Phillips PM2.5×11.0 captive screws                      |                   |
| ■ Phillips PM2.5×15.0 captive screws                      |                   |
| ■ Phillips PM3.0×3.5 screws                               |                   |



## Sequential part number listing

| Spare part number | Description  |
|-------------------|--|
| 449729-001        | RTC battery  |
| 461749-001        | Modem for use in all countries and regions except Australia and New Zealand (select models only; does not include cable) |
| 461749-011        | Modem for use in Australia and New Zealand only (select models only; does not include cable)                             |
| 463955-001        | 90-W PFC HP Smart Adapter for use with discrete models   |
| 463958-001        | 65-W PFC HP Smart Adapter for use with UMA models  |
| 484170-001        | 6-cell, 2.20-Ah (47-Wh) Li-ion battery   |
| 484171-001        | 6-cell, 2.55-Ah (55-Wh) Li-ion battery   |
| 490371-001        | Power cord for use in North America  |
| 490371-011        | Power cord for use in Australia (CQ61 only)  |
| 490371-021        | Power cord for use in Europe (CQ61 only)   |
| 490371-031        | Power cord for use in the United Kingdom and Singapore (CQ61 only)   |
| 490371-061        | Power cord for use in Italy (CQ61 only)  |
| 490371-081        | Power cord for use in Denmark (CQ61 only)  |
| 490371-111        | Power cord for use in Switzerland (CQ61 only)  |
| 490371-AB1        | Power cord for use in Taiwan (CQ61 only)   |
| 490371-AD1        | Power cord for use in South Korea (CQ61 only)  |
| 490371-AR1        | Power cord for use in South Africa (CQ61 only)   |
| 490371-BB1        | Power cord for use in Israel (CQ61 only)   |
| 517850-001        | DVD±RW and CD-RW SuperMulti Double-Layer Combo Drive with LightScribe  |
| 517852-001        | Blu-ray ROM with LightScribe DVD±R/RW SuperMulti Double-Layer Drive  |
| 517865-001        | Keyboard for use in the United States  |
| 517865-031        | Keyboard for use in the United Kingdom   |
| 517865-041        | Keyboard for use in Germany  |
| 517865-051        | Keyboard for use in France   |
| 517865-061        | Keyboard for use in Italy  |
| 517865-071        | Keyboard for use in Spain  |
| 517865-091        | Keyboard for use in Norway   |
| 517865-121        | Keyboard for use in French Canada  |
| 517865-131        | Keyboard for use in Portugal   |
| 517865-141        | Keyboard for use in Turkey   |
| 517865-151        | Keyboard for use in Greece   |
| 517865-161        | Keyboard for use in Latin America  |
| 517865-171        | Keyboard for use in Saudi Arabia   |
| 517865-201        | Keyboard for use in Brazil   |
| 517865-211        | Keyboard for use in Hungary  |

(Continued)

| Spare part number | Description  |
|-------------------|--|
| 517865-221        | Keyboard for use in the Czech Republic   |
| 517865-251        | Keyboard for use in Russia   |
| 517865-281        | Keyboard for use in Thailand   |
| 517865-291        | Keyboard for use in Japan  |
| 517865-A41        | Keyboard for use in Europe   |
| 517865-AB1        | Keyboard for use in Taiwan   |
| 517865-AD1        | Keyboard for use in South Korea  |
| 517865-B31        | Keyboard for international use   |
| 517865-BA1        | Keyboard for use in Slovenia   |
| 517865-BB1        | Keyboard for use in Israel   |
| 517865-BG1        | Keyboard for use in Switzerland  |
| 518436-001        | Atheros AR9285 802.11b/g/n WLAN module for use in Canada, the Cayman Islands, Guam, Puerto Rico, the United States, and the U.S. Virgin Islands  |
| 518436-002        | Atheros AR9285 802.11b/g/n WLAN module for use in Afghanistan, Albania, Algeria, Andorra, Angola, Antigua and Barbuda, Argentina, Armenia, Aruba, Australia, Austria, Azerbaijan, the Bahamas, Bahrain, Barbados, Belgium, Belize, Benin, Bermuda, Bhutan, Bosnia and Herzegovina, Botswana, Brazil, the British Virgin Islands, Brunei, Bulgaria, Burkina Faso, Burundi, Cambodia, Cameroon, Cape Verde, the Central African Republic, Chad, Chile, Colombia, Comoros, the Congo, Costa Rica, Croatia, Cyprus, the Czech Republic, Denmark, Djibouti, Dominica, the Dominican Republic, East Timor, Ecuador, Egypt, El Salvador, Equatorial Guinea, Eritrea, Estonia, Ethiopia, Fiji, Finland, France, French Guiana, Gabon, Gambia, Georgia, Germany, Ghana, Gibraltar, Greece, Grenada, Guadeloupe, Guatemala, Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, Hong Kong, Hungary, Iceland, India, Indonesia, Ireland, Italy, the Ivory Coast, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Kiribati, Kuwait, Kyrgyzstan, Laos, Latvia, Lebanon, Lesotho, Liberia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Madagascar, Malawi, Malaysia, the Maldives, Mali, Malta, the Marshall Islands, Martinique, Mauritania, Mauritius, Mexico, Micronesia, Monaco, Mongolia, Montenegro, Morocco, Mozambique, Namibia, Nauru, Nepal, the Nether Antilles, the Netherlands, New Zealand, Nicaragua, Niger, Nigeria, Norway, Oman, Palau, Panama, Papua New Guinea, Paraguay, the People's Republic of China, Peru, the Philippines, Poland, Portugal, the Republic of Moldova, Romania, Rwanda, Samoa, San Marino, Sao Tome and Principe, Saudi Arabia, Senegal, Serbia, the Seychelles, Sierra Leone, Singapore, Slovakia, Slovenia, the Solomon Islands, Somalia, South Africa, South Korea, Spain, Sri Lanka, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname, Swaziland, Sweden, Switzerland, Syria, Taiwan, Tajikistan, Tanzania, Thailand, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Turkmenistan, Tuvalu, Uganda, the United Arab Emirates, the United Kingdom, Uruguay, Uzbekistan, Vanuatu, Venezuela, Vietnam, Yemen, Zaire, Zambia, and Zimbabwe |

(Continued)

| Spare part number | Description  |
|-------------------|--|
| 518437-001        | Atheros AR5009 802.11a/b/g/n WLAN module for use in Canada, the Cayman Islands, Guam, Puerto Rico, the United States, and the U.S. Virgin Islands  |
| 518437-002        | Atheros AR5009 802.11a/b/g/n WLAN module for use in Afghanistan, Albania, Algeria, Andorra, Angola, Antigua and Barbuda, Argentina, Armenia, Aruba, Australia, Austria, Azerbaijan, the Bahamas, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Belize, Benin, Bermuda, Bhutan, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, the British Virgin Islands, Brunei, Bulgaria, Burkina Faso, Burundi, Cambodia, Cameroon, Cape Verde, the Central African Republic, Chad, Chile, Colombia, Comoros, the Congo, Costa Rica, Croatia, Cyprus, the Czech Republic, Denmark, Djibouti, Dominica, the Dominican Republic, East Timor, Ecuador, Egypt, El Salvador, Equatorial Guinea, Eritrea, Estonia, Ethiopia, Fiji, Finland, France, French Guiana, Gabon, Gambia, Georgia, Germany, Ghana, Gibraltar, Greece, Grenada, Guadeloupe, Guatemala, Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, Hong Kong, Hungary, Iceland, India, Indonesia, Ireland, Israel, Italy, the Ivory Coast, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Kiribati, Kuwait, Kyrgyzstan, Laos, Latvia, Lebanon, Lesotho, Liberia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Madagascar, Malawi, Malaysia, the Maldives, Mali, Malta, the Marshall Islands, Martinique, Mauritania, Mauritius, Mexico, Micronesia, Monaco, Mongolia, Montenegro, Morocco, Mozambique, Namibia, Nauru, Nepal, the Nether Antilles, the Netherlands, New Zealand, Nicaragua, Niger, Nigeria, Norway, Oman, Pakistan, Palau, Panama, Papua New Guinea, Paraguay, the People's Republic of China, Peru, the Philippines, Poland, Portugal, Qatar, the Republic of Moldova, Romania, Russia, Rwanda, Samoa, San Marino, Sao Tome and Principe, Saudi Arabia, Senegal, Serbia, the Seychelles, Sierra Leone, Singapore, Slovakia, Slovenia, the Solomon Islands, Somalia, South Africa, South Korea, Spain, Sri Lanka, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname, Swaziland, Sweden, Switzerland, Syria, Taiwan, Tajikistan, Tanzania, Thailand, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Turkmenistan, Tuvalu, Uganda, Ukraine, the United Arab Emirates, the United Kingdom, Uruguay, Uzbekistan, Vanuatu, Venezuela, Vietnam, Yemen, Zaire, Zambia, and Zimbabwe |
| 530992-001        | Display bezel with webcam and microphone, for use with the HP G61  |
| 530993-001        | Display Hinge Kit (includes left and right display hinges)   |
| 530995-001        | Display Bracket Kit for use with LED display panels (includes left and right display brackets)   |
| 530999-001        | Display Rubber Kit (includes display bezel screw covers and bumper pads)   |
| 531201-001        | Display Screw Kit  |
| 531202-001        | Webcam (select models only; does not include cable)  |
| 531203-001        | Microphone (includes cable)  |
| 531204-001        | Hard Drive Hardware Kit (includes hard drive bracket and screws)   |
| 531206-001        | Top cover for use with the CQ61 and black HP G61 (includes TouchPad)   |
| 531207-001        | Keyboard cover for use with the CQ61 and black HP G61  |
| 531208-001        | Audio board (does not include cable)   |
| 531209-001        | Speaker assembly (includes left and right speakers and cables)   |
| 531211-001        | Cable Kit  |
| 531212-001        | Screw Kit  |
| 531213-001        | Rubber Feet Kit (includes six rubber computer feet)  |
| 531215-001        | Power button board (does not include cable)  |
| 531517-001        | Plastics Kit   |
| 531866-001        | USB board (includes cable)   |
| 533465-001        | Power connector (includes cable)   |
| 534077-001        | LED Display Cable Kit (includes cables for both left and right panel connections)  |
| 534992-001        | Display bezel with microphone only, for use with the HP G61  |

(Continued)

| <b>Spare part number</b> | <b>Description</b>   |
|--------------------------|--|
| 534993-001               | Display bezel with webcam and microphone, for use with the CQ61  |
| 534995-001               | Display bezel with microphone only, for use with the CQ61  |
| 534996-001               | Top cover for use with the silver HP G61 (includes TouchPad)   |
| 534997-001               | Keyboard cover for use with the silver HP G61  |
| 537921-001               | Bluetooth module (select models only, does not include cable)  |
| 573721-006               | 1-GB memory module (PC2-6400, 800-MHz, DDR2)   |
| 573722-006               | 2-GB memory module (PC2-6400, 800-MHz, DDR2)   |
| 575566-005               | 4-GB memory module (CQ61 only; PC2-6400, 800-MHz, DDR2)  |
| 575598-001               | 250-GB, 7200-rpm hard drive (includes bracket)   |
| 575599-001               | 320-GB, 7200-rpm hard drive (includes bracket)   |
| 576251-001               | M100 2.0-GHz processor (512-KB L2 cache, 3.2 GT/s HyperTransport speed, includes replacement thermal material)   |
| 576252-001               | M320 2.1-GHz processor (1-MB L2 cache, 3.2 GT/s HyperTransport speed, includes replacement thermal material)   |
| 576253-001               | M500 2.2-GHz processor (1-MB L2 cache, 3.6 GT/s HyperTransport speed, includes replacement thermal material)   |
| 576254-001               | M600 2.4-GHz processor (2-MB L2 cache, 3.6 GT/s HyperTransport speed, includes replacement thermal material)   |
| 577064-001               | System board with support for media cards but not HDMI, for use with UMA systems (includes replacement thermal material)   |
| 577065-001               | System board with media card and HDMI support, for use with UMA systems (includes replacement thermal material)  |
| 577066-001               | System board with support for media cards but not HDMI, for use with discrete systems (includes replacement thermal material)  |
| 577067-001               | System board with media card and HDMI support, for use with discrete systems (includes replacement thermal material)   |
| 577068-001               | 15.6-in CCFL BrightView display panel (does not include cable)   |
| 577070-001               | 15.6-in LED BrightView display panel (includes cable)  |
| 577071-001               | 15.6-inch CCFL BrightView display assembly with microphone only, for use with the black HP G61 (includes 2 wireless antennas, display panel/webcam cable, and enclosure with logo)       |
| 577073-001               | 15.6-inch CCFL BrightView display assembly with webcam and microphone, for use with the black HP G61 (includes 2 wireless antennas, display panel/webcam cable, and enclosure with logo) |
| 577074-001               | 15.6-inch LED BrightView display assembly with microphone only, for use with the black HP G61 (includes 2 wireless antennas, display panel/webcam cable, and enclosure with logo)        |
| 577075-001               | 15.6-inch LED BrightView display assembly with webcam and microphone, for use with the black HP G61 (includes 2 wireless antennas, display panel/webcam cable, and enclosure with logo)  |
| 577076-001               | 15.6-inch CCFL BrightView display assembly with microphone only, for use with the CQ61 (includes 2 wireless antennas, display panel/webcam cable, and enclosure with logo)               |
| 577077-001               | 15.6-inch CCFL BrightView display assembly with webcam and microphone, for use with the CQ61 (includes 2 wireless antennas, display panel/webcam cable, and enclosure with logo)         |
| 577078-001               | 15.6-inch LED BrightView display assembly with microphone only, for use with the CQ61 (includes 2 wireless antennas, display panel/webcam cable, and enclosure with logo)                |
| 577079-001               | 15.6-inch LED BrightView display assembly with webcam and microphone, for use with the CQ61 (includes 2 wireless antennas, display panel/webcam cable, and enclosure with logo)          |

*(Continued)*

| Spare part number | Description   |
|-------------------|---|
| 577080-001        | 160-GB, 5400-rpm hard drive (includes bracket)  |
| 577082-001        | 250-GB, 5400-rpm hard drive (includes bracket)  |
| 577084-001        | 320-GB, 5400-rpm hard drive (includes bracket)  |
| 577086-001        | 500-GB, 5400-rpm hard drive (includes bracket)  |
| 577278-00         | Display inverter (for use with CCFL display panels only)  |
| 578024-001        | M300 2.0-GHz processor (1-MB L2 cache, 3.2 GT/s HyperTransport speed, includes replacement thermal material)  |
| 579597-001        | Display Bracket Kit for use with CCFL display panels (includes left and right display brackets)   |
| 579598-001        | CCFL Display Cable Kit  |
| 580528-001        | 160-GB, 7200-rpm hard drive (includes bracket)  |
| 580717-001        | Base enclosure with Digital Media Slot, for use with UMA systems  |
| 580718-001        | Fan/heat sink assembly for use with UMA models (includes replacement thermal material)  |
| 580719-001        | Fan/heat sink assembly for use with discrete models (includes replacement thermal material)   |
| 580722-001        | 15.6-inch CCFL BrightView display assembly with microphone only, for use with the silver HP G61 (includes 2 wireless antennas, display panel/webcam cable, and enclosure with logo)       |
| 580723-001        | 15.6-inch LED BrightView display assembly with microphone only, for use with the silver HP G61 (includes 2 wireless antennas, display panel/webcam cable, and enclosure with logo)        |
| 580724-001        | 15.6-inch CCFL BrightView display assembly with webcam and microphone, for use with the silver HP G61 (includes 2 wireless antennas, display panel/webcam cable, and enclosure with logo) |
| 580725-001        | 15.6-inch LED BrightView display assembly with webcam and microphone, for use with the silver HP G61 (includes 2 wireless antennas, display panel/webcam cable, and enclosure with logo)  |
| 582068-001        | Wireless antennas (include 2 transceivers and cables)   |
| 582757-001        | Bluetooth module cable (select models only)   |
| 583055-001        | M520 2.3-GHz processor (1-MB L2 cache, 3.6 GT/s HyperTransport speed, includes replacement thermal material)  |
| 584254-001        | Base enclosure with Digital Media Slot, for use with discrete systems   |
| 585923-001        | System board with no media card or HDMI support, for use with UMA systems (includes replacement thermal material)   |
| 587785-001        | Base enclosure with no Digital Media Slot, for use with UMA systems   |
| 589030-001        | Display enclosure for use with the CQ61   |
| 589031-001        | Display enclosure for use with the HP G61   |

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# Removal and replacement procedures

## Preliminary replacement requirements

### Tools required

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

- Flat nonconductive tool
- Phillips P0 and P1 screwdrivers

### Service considerations

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



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

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### Plastic parts



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**CAUTION:** 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.

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### Cables and connectors




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

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

## Drive handling

 **CAUTION:** Drives are fragile components that must be handled with care. To prevent damage to the computer, damage to a drive, or loss of information, observe these 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 handling a drive, be sure that you are discharged of static electricity. While handling a drive, avoid touching the connector.
  - Before removing a diskette drive or optical drive, be sure that a diskette or disc is not in the drive and be sure that the optical drive tray is closed.
  - Handle drives on surfaces covered with at least one inch of shock-proof foam.
  - Avoid dropping drives from any height onto any surface.
  - After removing a hard drive, an optical drive, or a diskette drive, place it in a static-proof bag.
  - Avoid exposing a hard drive to products that have magnetic fields, such as monitors or speakers.
  - Avoid exposing a drive to temperature extremes or liquids.
  - If a drive must be mailed, place the drive in a bubble pack mailer or other suitable form of protective packaging and label the package "FRAGILE."
- 


## Grounding guidelines

### Electrostatic discharge damage

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, ESD contains enough power to alter device parameters or melt silicon junctions.

A discharge of static electricity from a finger or other conductor can destroy static-sensitive devices or microcircuitry. Even if the spark is neither felt nor heard, damage may have occurred.

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

 **CAUTION:** To prevent damage to the computer when you are removing or installing internal components, observe these precautions:

- Keep components in their electrostatic-safe containers until you are ready to install them.
  - Use non-magnetic tools.
  - Before touching an electronic component, discharge static electricity by using the guidelines described in this section.
  - Avoid touching pins, leads, and circuitry. Handle electronic components as little as possible.
  - If you remove a component, place it in an electrostatic-safe container.
-

The following table shows how humidity affects the electrostatic voltage levels generated by different activities.



**CAUTION:** A product can be degraded by as little as 700 V.

### 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 |

## Packaging and transporting guidelines

Follow these grounding guidelines when packaging and transporting equipment:

- To avoid hand contact, transport products in static-safe tubes, bags, or boxes.
- Protect ESD-sensitive parts and assemblies with conductive or approved containers or packaging.
- Keep ESD-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 component or assembly.
- Store reusable ESD-sensitive parts from assemblies in protective packaging or nonconductive foam.
- Use transporters and conveyors made of antistatic belts and roller bushings. Be sure that mechanized equipment used for moving materials is wired to ground and that proper materials are selected to avoid static charging. When grounding is not possible, use an ionizer to dissipate electric charges.

## Workstation guidelines

Follow these grounding workstation guidelines:

- Cover the workstation with approved static-shielding material.
- Use a wrist strap connected to a properly grounded work surface and use properly grounded tools and equipment.
- Use conductive field service tools, such as cutters, screwdrivers, and vacuums.
- When fixtures must directly contact dissipative surfaces, use fixtures made only of static-safe materials.
- Keep the work area free of nonconductive materials, such as ordinary plastic assembly aids and Styrofoam.
- Handle ESD-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.



## Equipment guidelines

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.

The following grounding equipment is recommended to prevent electrostatic damage:

- 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

The following table lists the shielding protection provided by antistatic bags and floor mats.

| 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                  |

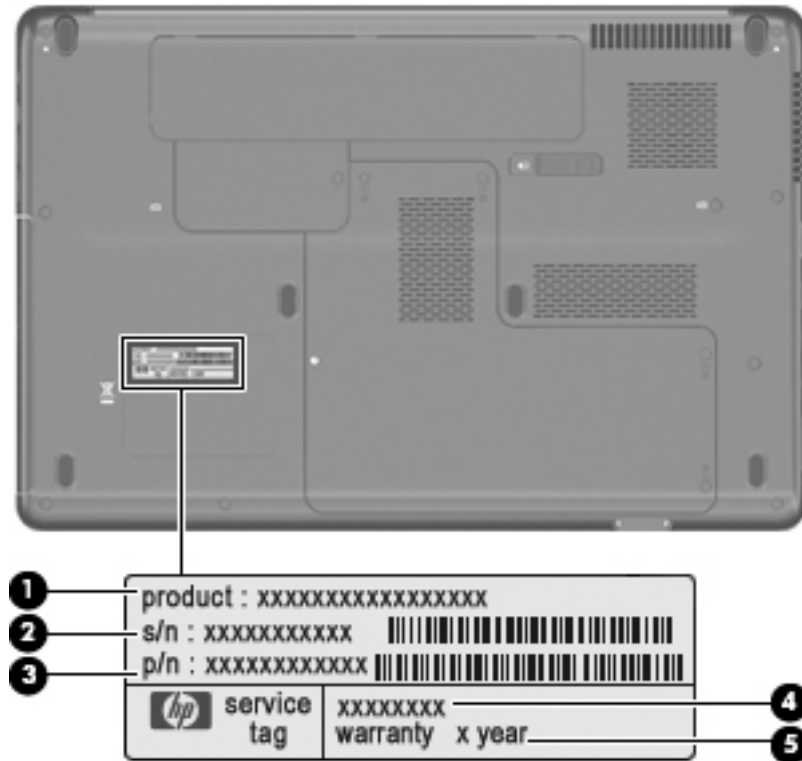
## Component replacement procedures

This chapter provides removal and replacement procedures.

There are as many as 66 screws, in 9 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.

### Service tag

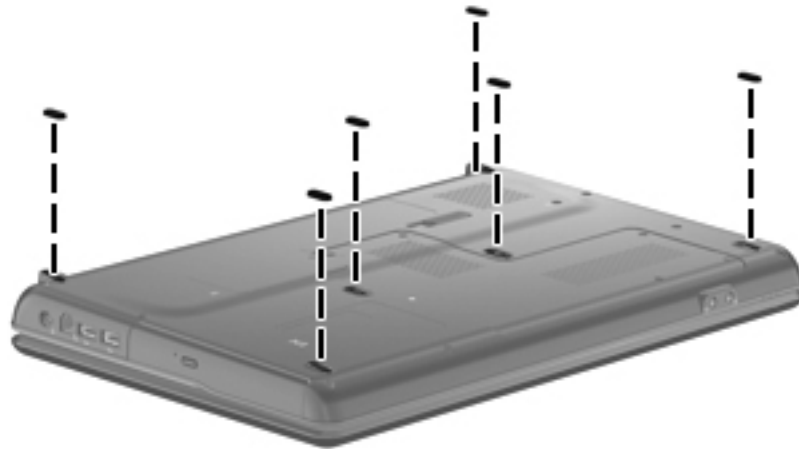
When ordering parts or requesting information, provide the computer serial number and model description provided on the service tag.



| Item | Component                        | Description   |
|------|----------------------------------|---|
| (1)  | Product name                     | This is the product name affixed to the front of the computer.  |
| (2)  | Serial number (s/n)              | This is an alphanumeric identifier that is unique to each product.  |
| (3)  | Part number/Product number (p/n) | This number provides specific information about the product's hardware components. The part number helps a service technician to determine which components and parts are needed. |
| (4)  | Model description                | This is the alphanumeric identifier used to locate documents, drivers, and support for your computer.   |
| (5)  | Warranty period                  | This number describes the duration of the warranty period for this computer.  |

## Computer feet

The computer feet are adhesive-backed rubber pads. The feet are included in the Rubber Kit, spare part number 531213-001. There are 6 rubber feet that attach to the base enclosure in the locations illustrated below.



## Battery


| Description                    | Spare part number |
|--------------------------------|-------------------|
| 6-cell, 2.2 Ah (47 Wh) Li-ion  | 484170-001        |
| 6-cell, 2.55 Ah (55 Wh) Li-ion | 484171-001        |

Before disassembling the computer, follow these steps:

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 from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.

Remove the battery:

1. Turn the computer upside down on a flat surface, with the battery bay toward you.
2. Slide the battery release latch **1** to release the battery.

 The battery release latch automatically returns to its original position.

3. Pivot the battery **2** upward and lift it out of the base enclosure **3**.



To insert the battery, insert the rear edge of the battery into the battery bay, and then press the front edge of the battery forward and down until the battery is seated. The battery release latch automatically locks the battery into place.

## WLAN module



For a comprehensive list of WLAN spare part numbers, see [“Computer major components” on page 3-2](#).

Before removing the WLAN module, follow these steps:

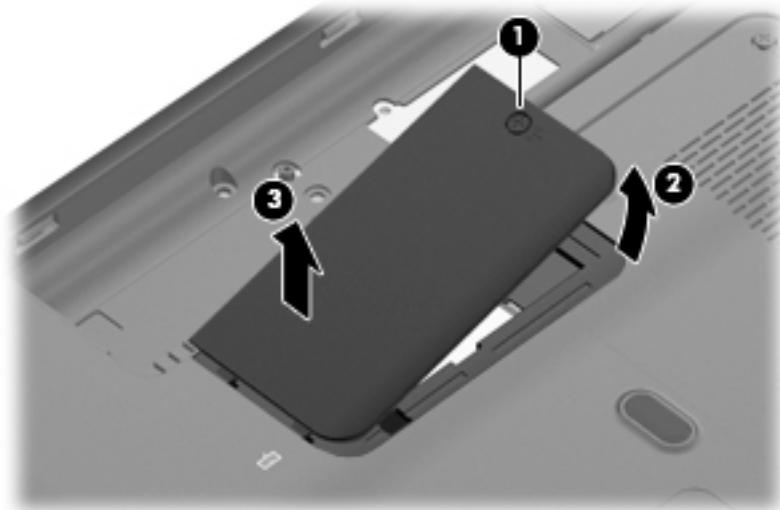
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [“Battery” on page 4-7](#)).

Remove the WLAN module:




**CAUTION:** To prevent an unresponsive system, replace the wireless module only with a wireless module authorized for use in the computer by the governmental agency that regulates wireless devices in your country or region. If you replace the module and then receive a warning message, remove the module to restore computer functionality, and then contact technical support through Help and Support.

1. Loosen the Phillips PM2.5×5.5 captive screw **1** that secures the wireless module compartment cover to the base enclosure.
2. Lift the right side **2** of the cover, swing it up and to the left, and then remove the cover **3**. The wireless module compartment cover is included in the Plastics Kit, spare part number 531517-001.





3. Disconnect the 2 WLAN antenna cables from the WLAN module.

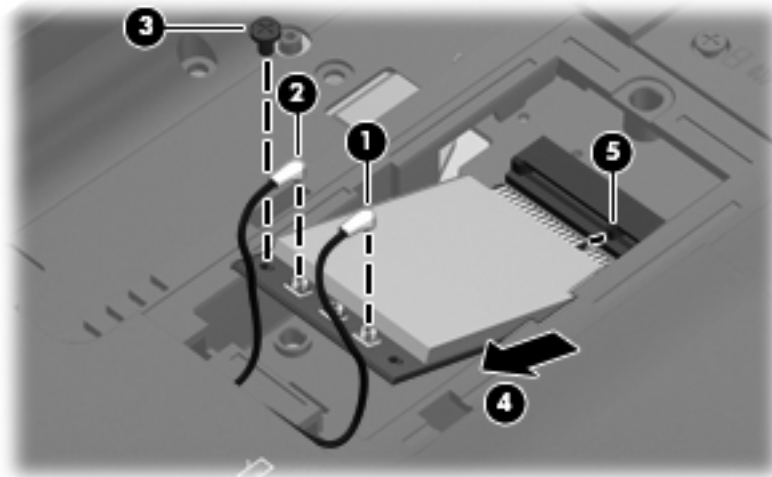
 The black WLAN antenna cable ① is connected to the WLAN module “Main” terminal. The gray WLAN antenna cable ② is connected to the WLAN module “Aux” terminal.

4. Remove the Phillips PM2.0×3.0 screw ③ that secures the WLAN module to the base enclosure. (The edge of the module opposite the slot rises away from the computer.)

5. Remove the WLAN module ④ by pulling it away from the slot at an angle.

 WLAN modules are designed with a notch ⑤ to prevent incorrect insertion into the WLAN module slot.

 The wireless module compartment accepts both full-size and half-size modules.



Reverse this procedure to install the WLAN module.

## Hard drive



The hard drive spare part kit includes a hard drive bracket.

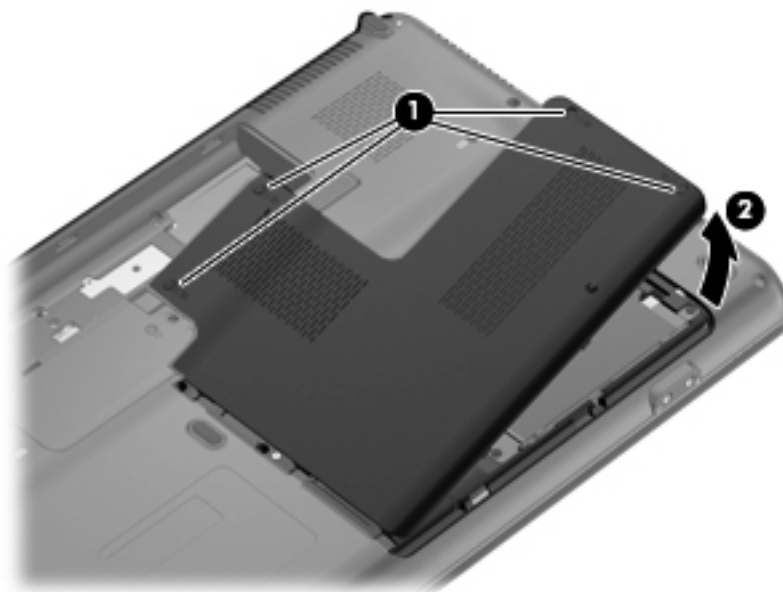
| Description  | Spare part number |
|--|-------------------|
| 500 GB, 5400 rpm   | 577086-001        |
| 320 GB, 7200 rpm   | 575599-001        |
| 320 GB, 5400 rpm   | 577084-001        |
| 250 GB, 7200 rpm   | 575598-001        |
| 250 GB, 5400 rpm   | 577082-001        |
| 160 GB, 7200 rpm   | 580528-001        |
| 160 GB, 5400 rpm   | 577080-001        |
| Hard Drive Hardware Kit (includes hard drive bracket and screws) | 531204-001        |

Before removing the hard drive, follow these steps:

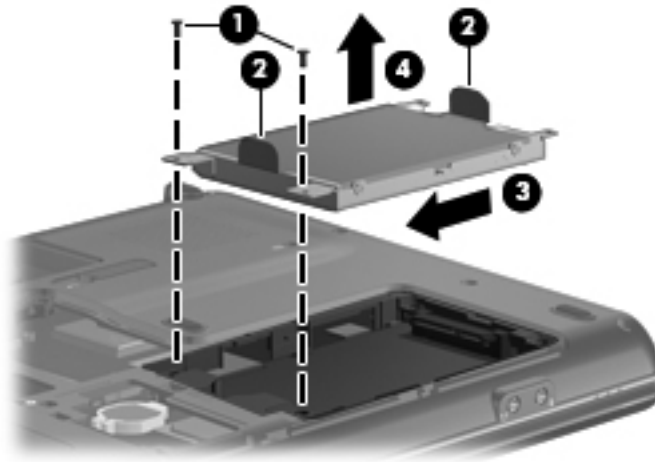
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [“Battery” on page 4-7](#)).

Remove the hard drive:

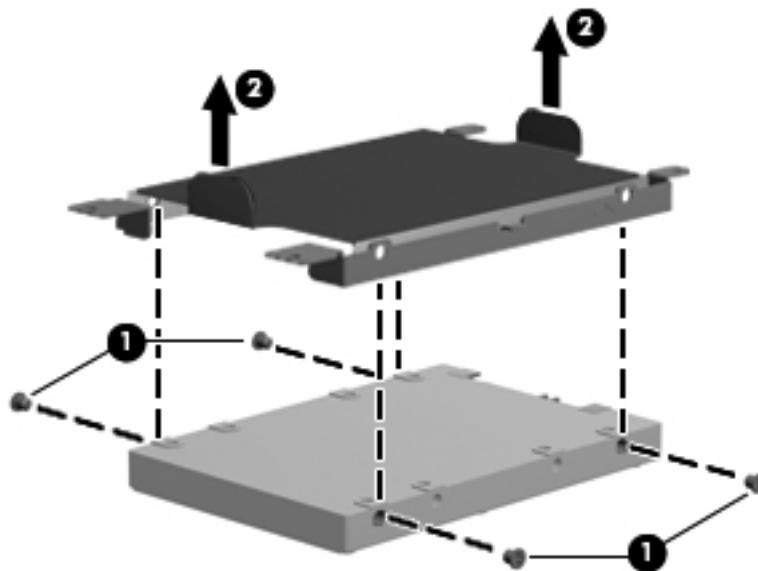
1. Loosen the four Phillips PM2.5×5.5 captive screws ❶ that secure the hard drive cover to the base enclosure.
2. Lift the right side of the cover ❷, swing it up and to the left, and then remove the cover. The hard drive cover is included in the Plastics Kit, spare part number 531517-001.



3. Loosen the two Phillips PM2.5×6.5 screws ❶ that secure the hard drive to the base enclosure.
4. Use the 2 Mylar tabs ❷ to slide the hard drive ❸ to the left until it disconnects from the system board.
5. Use the 2 Mylar tabs to lift the hard drive ❹ straight up.



6. If it is necessary to replace the hard drive bracket, remove the four Phillips PM3.0×3.5 screws ❶ that secure the hard drive bracket to the hard drive.
7. Lift the bracket ❷ straight up.



Reverse this procedure to reassemble and install the hard drive.



## Modem (select models only)



The modem spare part kit does not include a cable. The RJ-11 (modem) connector is included in the Cable Kit, spare part number 531211-001.

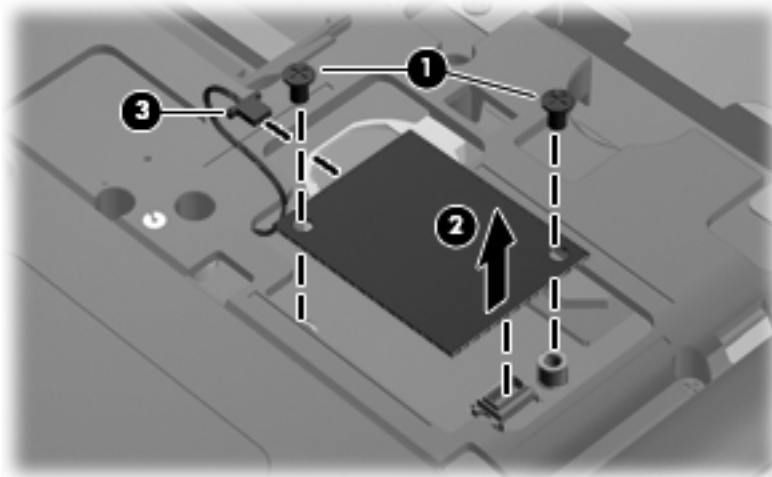
| Description   | Spare part number |
|---|-------------------|
| For use in all countries and regions except Australia and New Zealand | 461749-001        |
| For use in Australia and New Zealand only                             | 461749-011        |

Before removing the modem, follow these steps:

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 from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [“Battery” on page 4-7](#)).
5. Remove the hard drive cover (see [“Hard drive” on page 4-10](#)).

Remove the modem:

1. Remove the two Phillips PM2.0×3.0 screws ❶ that secure the modem to the base enclosure.
2. Lift up the front edge of the module ❷.
3. Disconnect the RJ-11 (modem) connector cable ❸ from the system board.



Reverse this procedure to install the modem.

## RTC battery

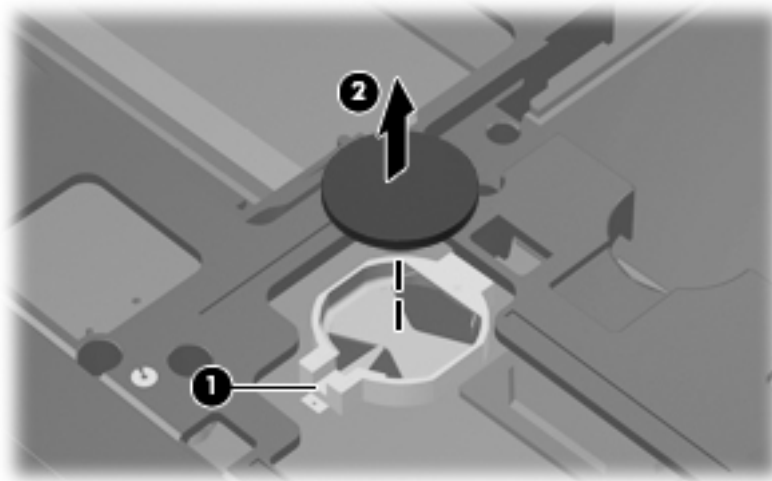
| Description | Spare part number |
|-------------|-------------------|
| RTC battery | 449729-001        |

Before removing the RTC battery, follow these steps:

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 from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see “[Battery](#)” on page 4-7).
5. Remove the hard drive cover (see “[Hard drive](#)” on page 4-10).

Remove the RTC battery:

1. Insert a flat nonconductive tool between the tabs ❶ on the side of the RTC battery holder.
2. Lift up to remove the RTC battery ❷.



Reverse this procedure to install an RTC battery.



Install the RTC battery with the “+” sign facing up.

## Memory module


| Description                               | Spare part number |
|---|-------------------|
| 4 GB (PC2-6400, 800-MHz, DDR2, CQ61 only) | 575566-005        |
| 2 GB (PC2-6400, 800-MHz, DDR2)            | 573722-006        |
| 1 GB (PC2-6400, 800-MHz, DDR2)            | 573721-006        |

Before removing the memory module, follow these steps:


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 from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see “[Battery](#)” on page 4-7).
5. Remove the hard drive cover (see “[Hard drive](#)” on page 4-10).

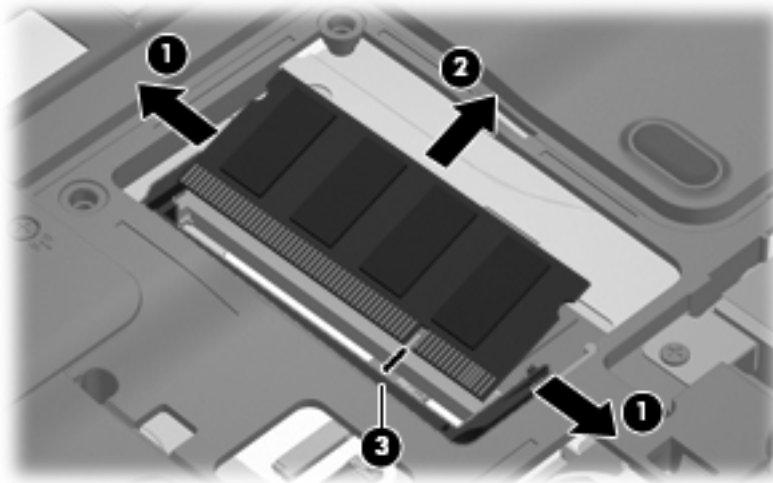
Remove the memory module:

1. Spread the retaining tabs **1** on each side of the memory module to release the module. (The edge of the module opposite the slot rises away from the computer.)

 The top memory module slot is for expansion memory and the bottom slot is for primary memory.

2. Remove the memory module **2** by pulling it away from the slot at an angle.

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



Reverse this procedure to install the memory module.

## Optical drive



The optical drive spare part kit includes an optical drive bezel and bracket.

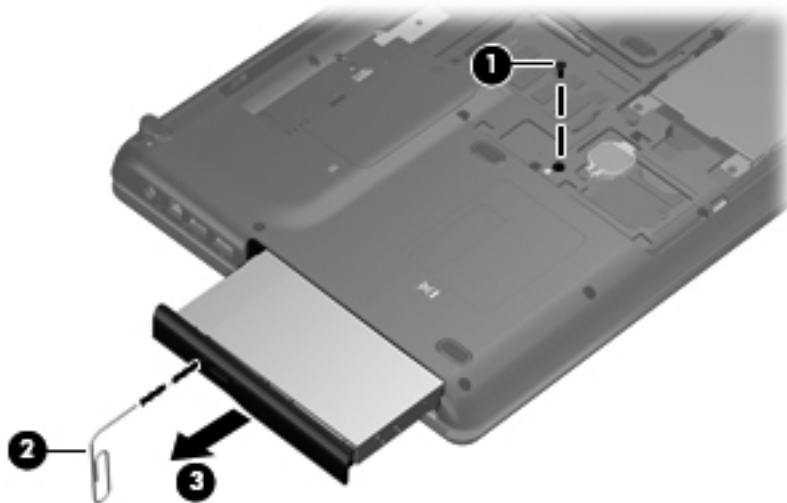
| Description   | Spare part number |
|---|-------------------|
| Blu-ray ROM with LightScribe DVD±R/RW SuperMulti Double-Layer Drive   | 517852-001        |
| DVD±RW and CD-RW SuperMulti Double-Layer Combo Drive with LightScribe | 517850-001        |

Before removing the optical drive, follow these steps:

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 from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [“Battery” on page 4-7](#)).
5. Remove the hard drive cover (see [“Hard drive” on page 4-10](#)).

Remove the optical drive:

1. Remove the Phillips PM2.5×6.5 retention screw ❶ that secures the optical drive to the base enclosure.
2. If needed, insert a thin tool, such as a paper clip ❷, into the release access. (The disc tray is partially ejected from the optical drive.)
3. Grasp the disc tray frame and slide the optical drive ❸ out of the bay.



Reverse this procedure to install an optical drive.

## Keyboard



For a comprehensive list of keyboard spare part numbers, see [“Computer major components” on page 3-2](#).

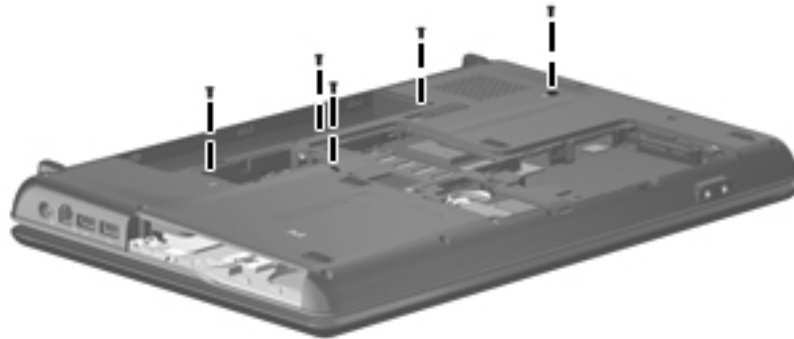
---

Before removing the keyboard, follow these steps:

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 from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [“Battery” on page 4-7](#)).
5. Remove the following components:
  - a. Wireless module compartment cover (see [“WLAN module” on page 4-8](#)).
  - b. Hard drive cover (see [“Hard drive” on page 4-10](#)). HP recommends removing the hard drive.
  - c. Optical drive (see [“Optical drive” on page 4-15](#)), recommended.

Remove the keyboard:

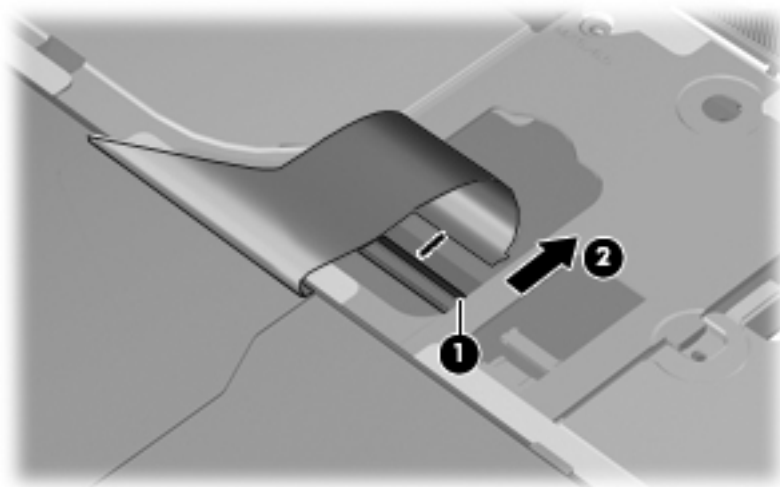
1. Remove the five Phillips PM2.5×6.5 screws that secure the keyboard to the base enclosure. The keyboard screws are identified by a keyboard icon embossed on the base enclosure.



2. Turn the computer right-side up, with the front toward you.
3. Open the computer as far as possible.
4. Lift the rear edge ❶ of the keyboard until it rests at an angle.
5. Slide the keyboard ❷ back until the tabs on the bottom of the keyboard are clear of the keyboard cover.



6. Release the zero insertion force (ZIF) connector ❶ to which the keyboard cable is attached, and then disconnect the keyboard cable ❷ from the system board.



Reverse this procedure to install the keyboard.

## Keyboard cover

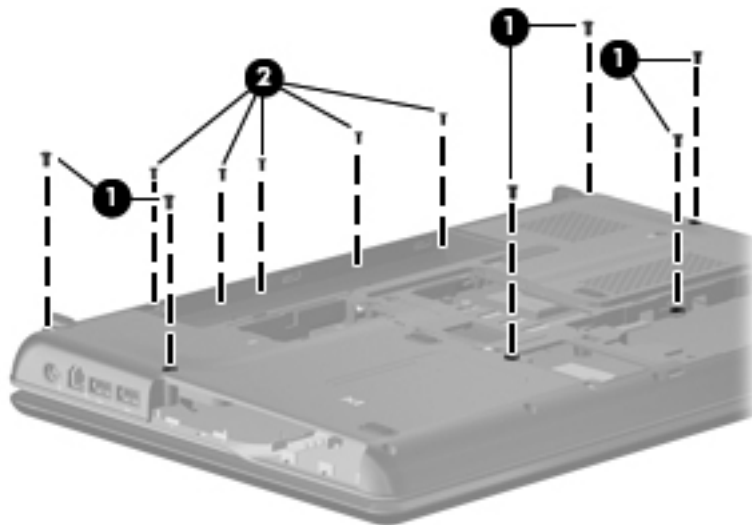
| Description                            | Spare part number |
|--|-------------------|
| For use with the CQ61 and black HP G61 | 531207-001        |
| For use with the silver HP G61         | 534997-001        |

Before removing the keyboard cover, follow these steps:

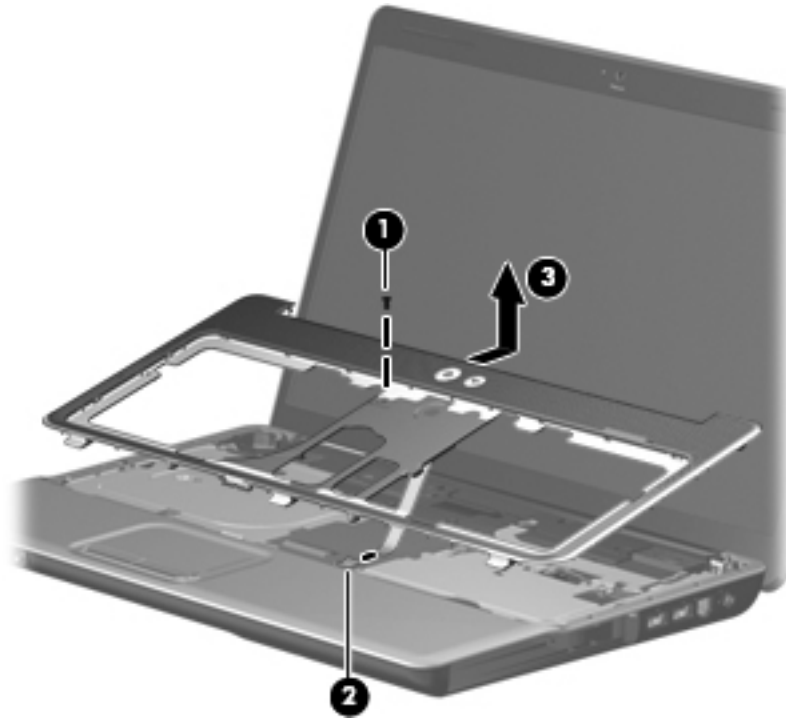
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [“Battery” on page 4-7](#)).
5. Remove the following components:
  - a. Wireless module compartment cover (see [“WLAN module” on page 4-8](#)).
  - b. Hard drive cover (see [“Hard drive” on page 4-10](#)). HP recommends removing the hard drive.
  - c. Optical drive (see [“Optical drive” on page 4-15](#)), recommended.
  - d. Keyboard (see [“Keyboard” on page 4-16](#)).

Remove the keyboard cover:

1. Turn the computer upside down, with the front toward you.
2. Remove the six Phillips PM2.5×6.5 screws ❶ and the five Phillips PM2.0×3.0 screws ❷ that secure the keyboard cover to the base enclosure. The keyboard cover screws are identified by a triangle icon embossed on the base enclosure.




3. Turn the computer right-side up, with the front toward you.
4. Open the computer as far as possible.
5. Remove the remaining Phillips PM2.5×6.5 screw ❶ that secures the keyboard cover to the base enclosure.
6. Disconnect the LED board cable ❷, which is attached to the underside of the keyboard cover, from the system board.
7. Remove the keyboard cover ❸.



Reverse this procedure to install the keyboard cover.



## Power button board

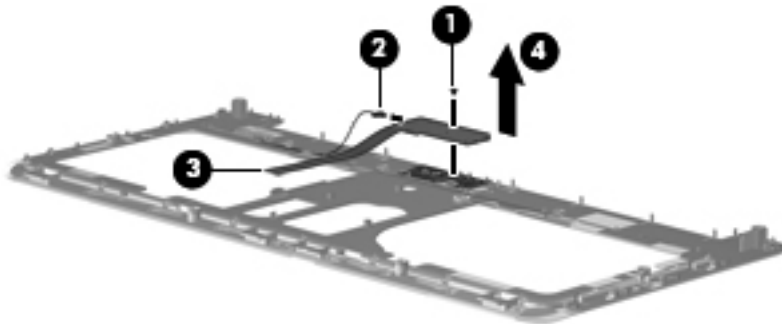
| Description  | Spare part number |
|--|-------------------|
| Power button board   | 531215-001        |
|  The power button board spare part kit does not include a cable. The power button board cable is included in the Cable Kit, spare part number 531211-001. |                   |

Before removing the power button board, follow these steps:

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 from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [“Battery” on page 4-7](#)).
5. Remove the following components:
  - a. Wireless module compartment cover (see [“WLAN module” on page 4-8](#)).
  - b. Hard drive cover (see [“Hard drive” on page 4-10](#)). HP recommends removing the hard drive.
  - c. Optical drive (see [“Optical drive” on page 4-15](#)), recommended.
  - d. Keyboard (see [“Keyboard” on page 4-16](#)).
  - e. Keyboard cover (see [“Keyboard cover” on page 4-18](#)).

Remove the power button board:

1. Turn the keyboard cover upside down.
2. Remove the Phillips PM2.5×3.0 screw **1** that secures the power button board to the keyboard cover.
3. Disconnect the power button board cable **2** from the power button board.
4. Detach the LED board cable **3**, which is secured with double-sided tape, from the keyboard cover.
5. Remove the power button board **4**.



Reverse this procedure to install the power button board.

## Display assembly

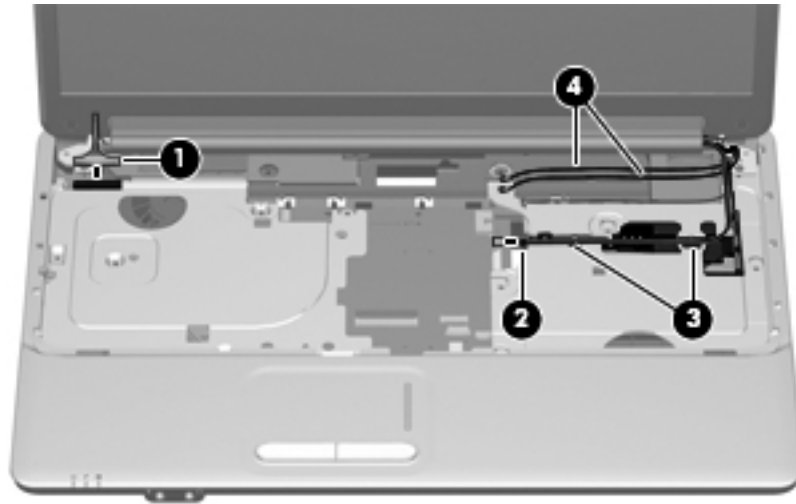
| Description   | Spare part number |
|---|-------------------|
| 15.6-in LED BrightView display assembly (includes 2 wireless antennas, display panel/webcam cable, and enclosure with logo):  |                   |
| ■ With webcam and microphone, for use with the CQ61   | 577079-001        |
| ■ With webcam and microphone, for use with the black HP G61   | 577075-001        |
| ■ With webcam and microphone, for use with the silver HP G61  | 580725-001        |
| ■ With microphone only, for use with the CQ61   | 577078-001        |
| ■ With microphone only, for use with the black HP G61   | 577074-001        |
| ■ With microphone only, for use with the silver HP G61  | 580723-001        |
| 15.6-in CCFL BrightView display assembly (includes 2 wireless antennas, display panel/webcam cable, and enclosure with logo): |                   |
| ■ With webcam and microphone, for use with the CQ61   | 577077-001        |
| ■ With webcam and microphone, for use with the black HP G61   | 577073-001        |
| ■ With webcam and microphone, for use with the silver HP G61  | 580724-001        |
| ■ With microphone only, for use with the CQ61   | 577076-001        |
| ■ With microphone only, for use with the black HP G61   | 577071-001        |
| ■ With microphone only, for use with the silver HP G61  | 577022-001        |

Before removing the display assembly, follow these steps:

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 from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [“Battery” on page 4-7](#)).
5. Disconnect the wireless antenna cables from the WLAN module (see [“WLAN module” on page 4-8](#)) and release the cables through the opening in the top cover.
6. Remove the following components:
  - a. Hard drive cover (see [“Hard drive” on page 4-10](#)). HP recommends removing the hard drive.
  - b. Optical drive (see [“Optical drive” on page 4-15](#)), recommended.
  - c. Keyboard (see [“Keyboard” on page 4-16](#)).
  - d. Keyboard cover (see [“Keyboard cover” on page 4-18](#)).

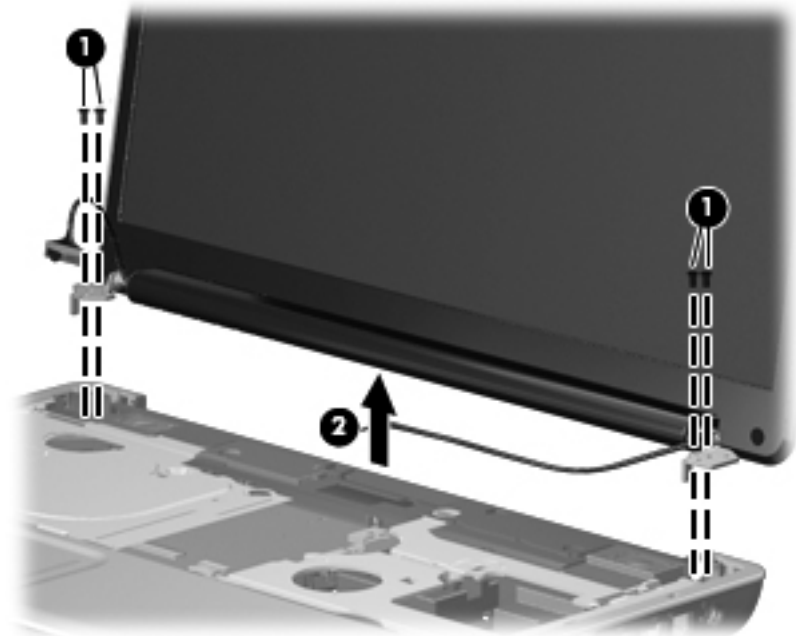
Remove the display assembly:

1. Open the computer as far as possible.
2. Disconnect the display panel/webcam cable ❶ from the system board and remove the cable from the cavity between the system board and the left display hinge.
3. Disconnect the microphone cable ❷ from the system board and remove the cable from the clips and routing channels ❸ built into the top cover.
4. Remove the WLAN antenna cables ❹ from the clips and routing channels built into the top cover.

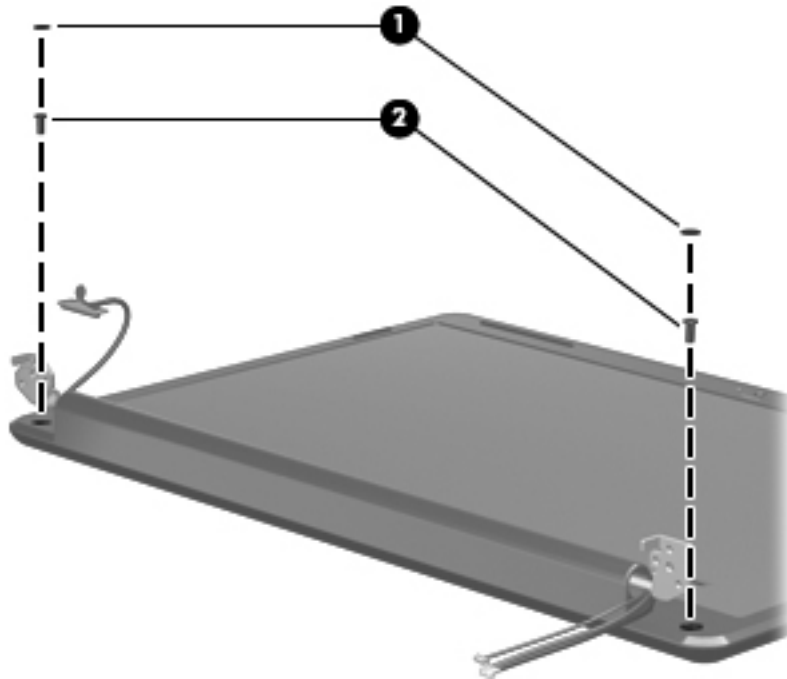


**CAUTION:** Support the display assembly when removing the following screws. Failure to support the display assembly can result in damage to the display assembly and other computer components.

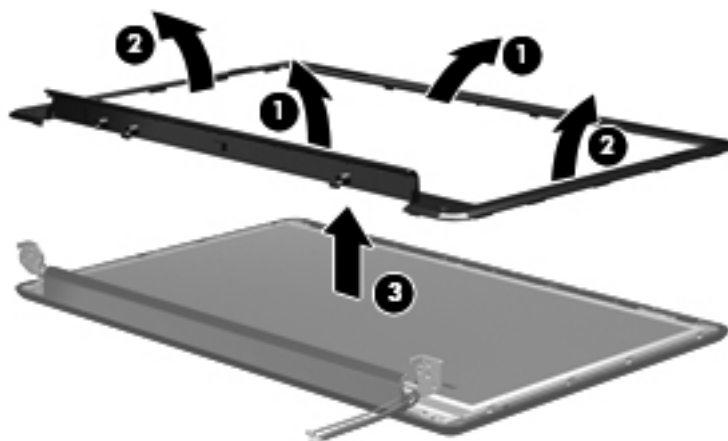
5. Remove the four Phillips PM2.5×6.5 screws ❶ that secure the display assembly to the base enclosure.
6. Lift the display assembly ❷ straight up.



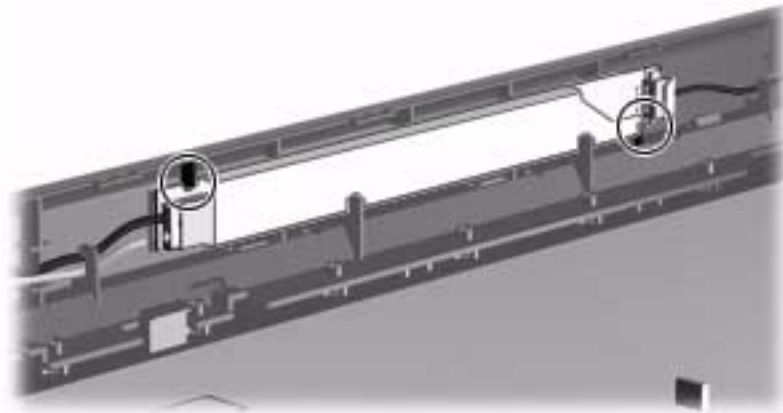
7. If it is necessary to replace any of the display assembly internal components, remove the two round Mylar screw covers **1** on the display bezel bottom edge. The screw covers are included in the Display Rubber Kit, spare part number 530999-001.
8. Remove the two Phillips PM2.5×6.5 screws **2** that secure the bezel to the display assembly.



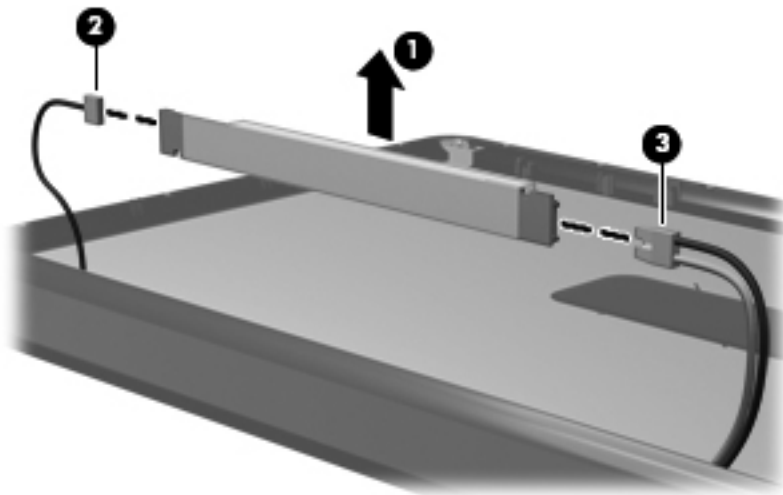
9. Flex the inside of the top and bottom edges **1** and the left and right sides **2** of the display bezel until it disengages from the display enclosure.
10. Remove the display bezel **3**. The bezel is available using one of the following spare part numbers:
  - ❑ 530992-001—with webcam and microphone, for use with the HP G61
  - ❑ 534993-001—with webcam and microphone, for use with the CQ61
  - ❑ 534992-001—with microphone only, for use with the HP G61
  - ❑ 534995-001—with microphone only, for use with the CQ61



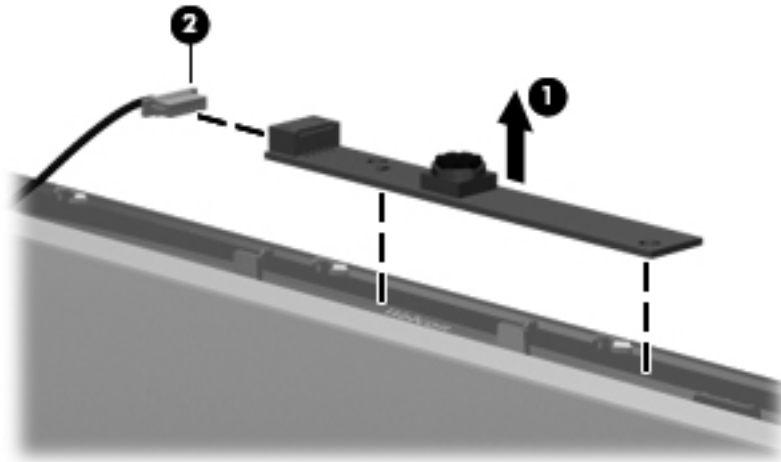
11. If it is necessary to replace the display inverter (CCFL display panels only), release the inverter from the clips built into the display enclosure, and then detach the inverter from the display enclosure. The inverter is secured with double-sided tape.



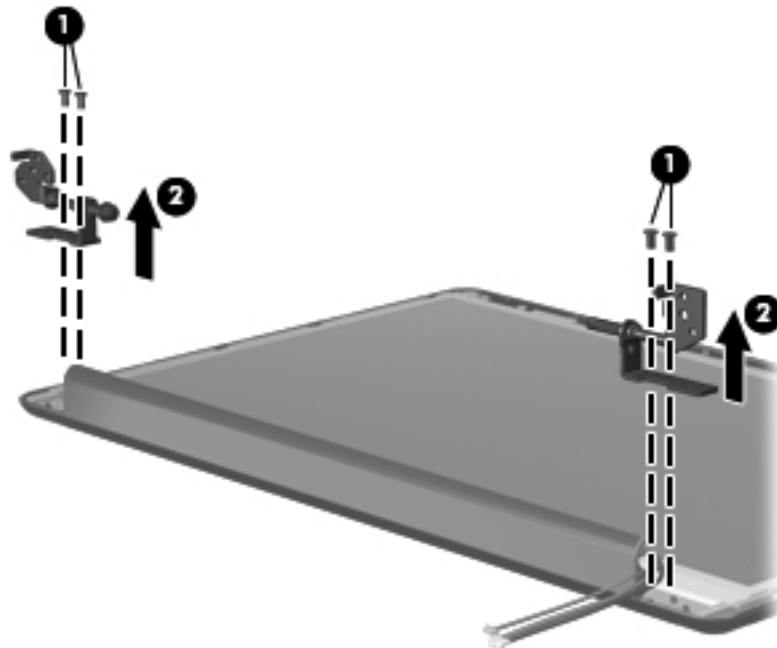
12. Lift the display inverter **1** as far from the display enclosure as the cables allow.
13. Disconnect the low-voltage system board cable **2** and the high-voltage display panel cable **3** from the display inverter. The display inverter is available using spare part number 577278-001.



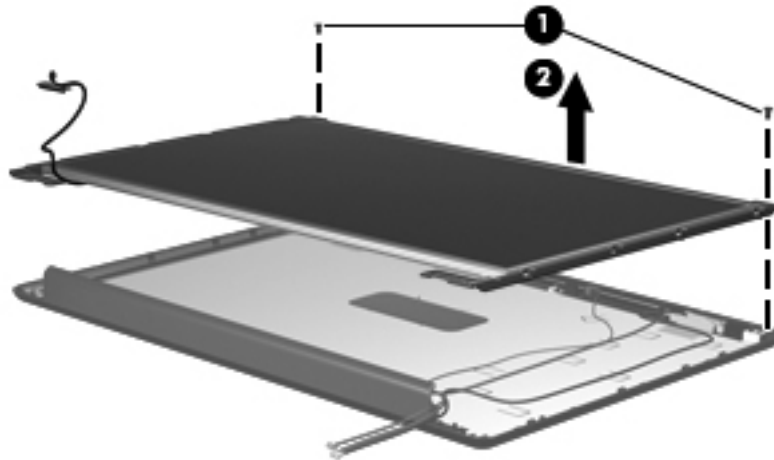
14. If it is necessary to replace the webcam (select models only), lift the webcam ❶ as far from the display enclosure as the cable allows. The webcam is secured with double-sided tape and is available using spare part number 531202-001.
15. Disconnect the display panel/webcam cable ❷ from the webcam.



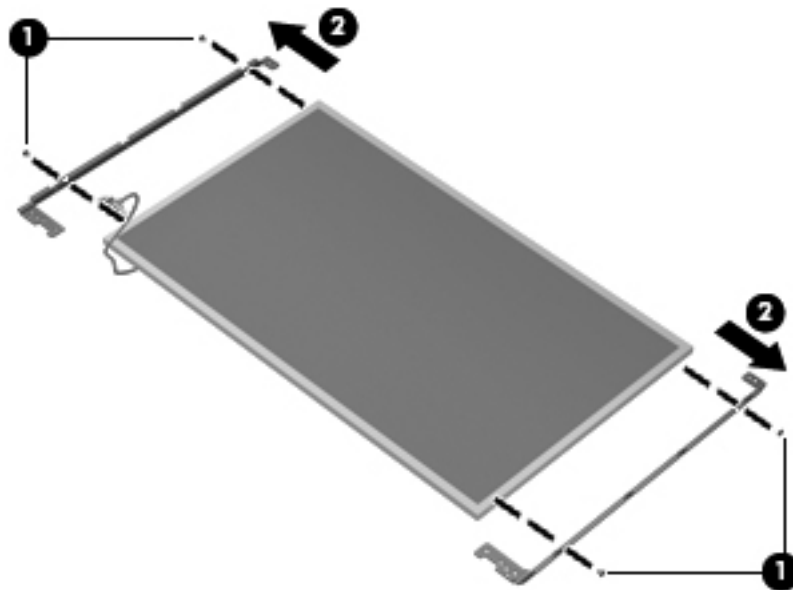
16. If it is necessary to replace the display hinges, remove the two Phillips PM2.5×5.0 screws ❶ that secure each hinge to the display panel.
17. Remove the display hinges ❷. The Display Hinge Kit is available using spare part number 530993-001.



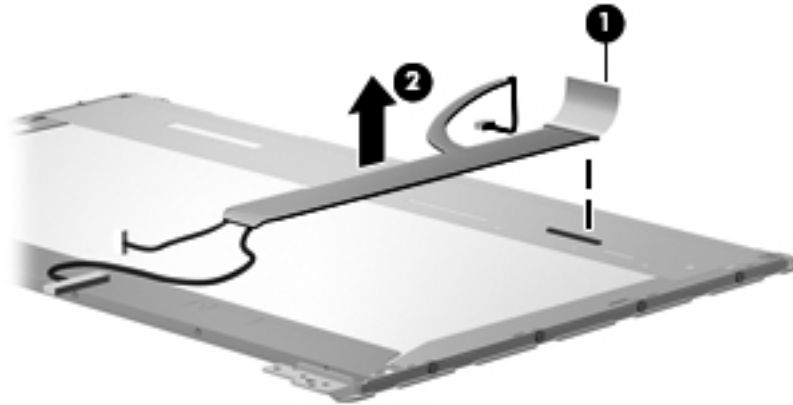
18. If it is necessary to replace the display panel, remove the two Phillips PM2.5×5.0 screws ❶ that secure the display panel to the enclosure, and then remove the panel ❷. The display panel is available using spare part number 577070-001 (LED) or 577068-001 (CCFL).



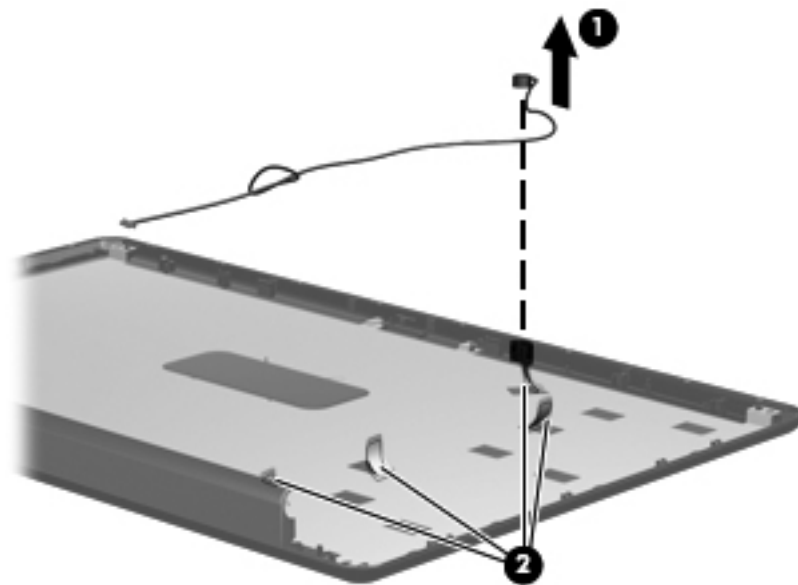
19. If it is necessary to replace the display panel brackets, remove the two Phillips PM2.0×30 screws ❶ that secure each bracket to the display panel, and then remove the brackets ❷. The Display Bracket Kit is available using spare part number 530995-001 (LED) or 579597-001 (CCFL).



20. If it is necessary to replace the display panel/webcam cable, which is attached to the back of the display panel with clear adhesive tape, remove the tape ❶ to release the cable from its connector, and then remove the cable ❷. The display panel/webcam cable is available in the Display Cable Kit, spare part number 534077-001 (LED) or 579598-001 (CCFL).

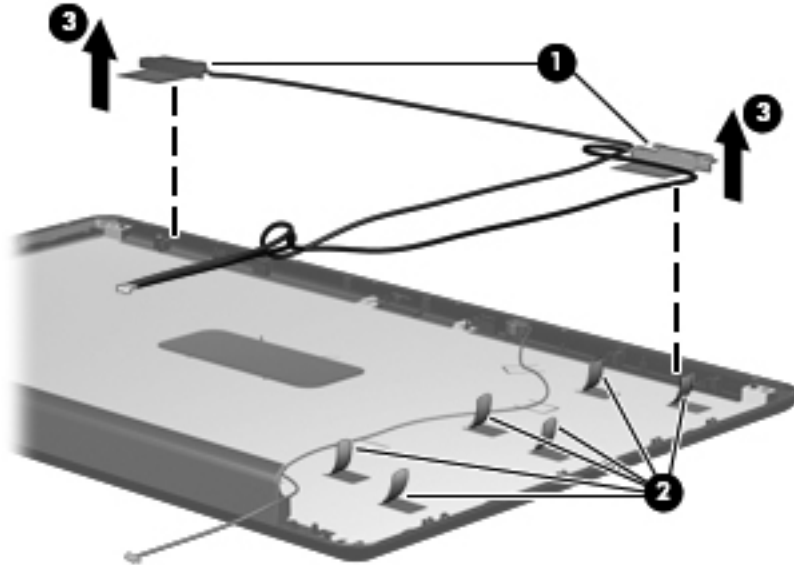


21. If it is necessary to replace the microphone, release the microphone ❶ from its mounting clip, and then release the microphone cable from the tabs ❷ built into the display enclosure shielding.





22. If it is necessary to replace the wireless antennas, detach the wireless antenna transceivers ❶ from the display enclosure. The transceivers are secured with double-sided tape.
23. Release the wireless antenna cables from the tabs ❷ built into the display enclosure shielding.
24. Remove the wireless antenna transceivers and cables ❸ from the display enclosure. The wireless antennas are available using spare part number 582068-001.



Reverse this procedure to reassemble and install the display assembly.

## Top cover

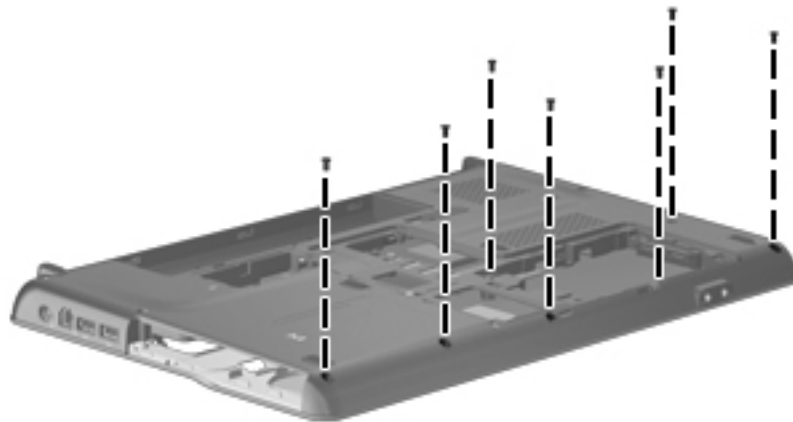
| Description                            | Spare part number |
|--|-------------------|
| For use with the CQ61 and black HP G61 | 531206-001        |
| For use with the silver HP G61         | 534996-001        |

Before removing the top cover, follow these steps:

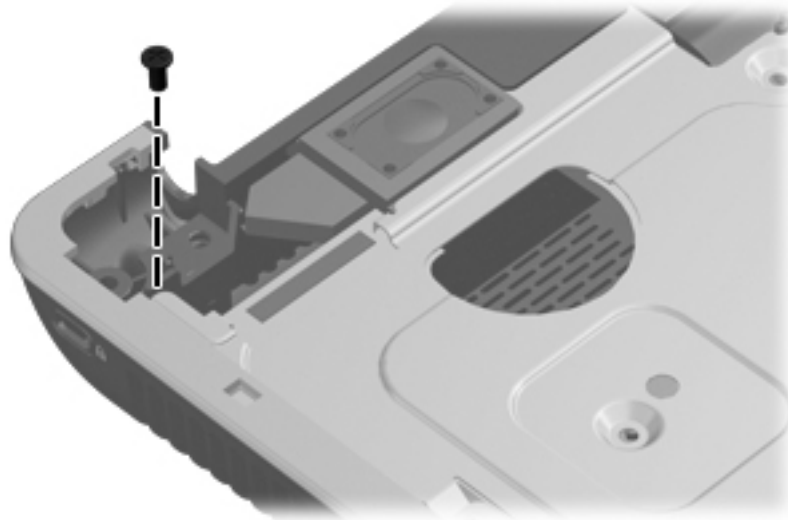
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [“Battery” on page 4-7](#)).
5. Remove the following components:
  - a. Wireless module compartment cover (see [“WLAN module” on page 4-8](#)).
  - b. Hard drive cover (see [“Hard drive” on page 4-10](#)). HP recommends removing the hard drive.
  - c. Optical drive (see [“Optical drive” on page 4-15](#)), recommended.
  - d. Keyboard (see [“Keyboard” on page 4-16](#)).
  - e. Keyboard cover (see [“Keyboard cover” on page 4-18](#)).
  - f. Display assembly (see [“Display assembly” on page 4-21](#)).

Remove the top cover:

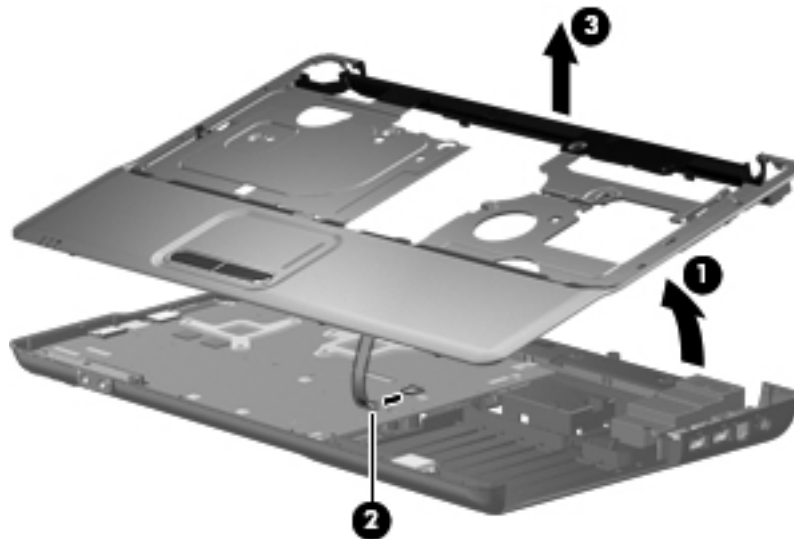
1. Turn the computer upside down, with the front toward you.
2. Remove the seven Phillips PM2.5×6.5 screws that secure the top cover to the base enclosure.



3. Turn the computer right-side up, with the front toward you.
4. Remove the Phillips PM2.5x6.5 screw ❶ located in the top left corner of the base enclosure.



5. Lift the rear edge of the top cover until it disengages from the base enclosure ❶.
6. Disconnect the TouchPad cable ❷ from the system board.
7. Remove the top cover ❸.



Reverse this procedure to install the top cover.

## Speaker assembly

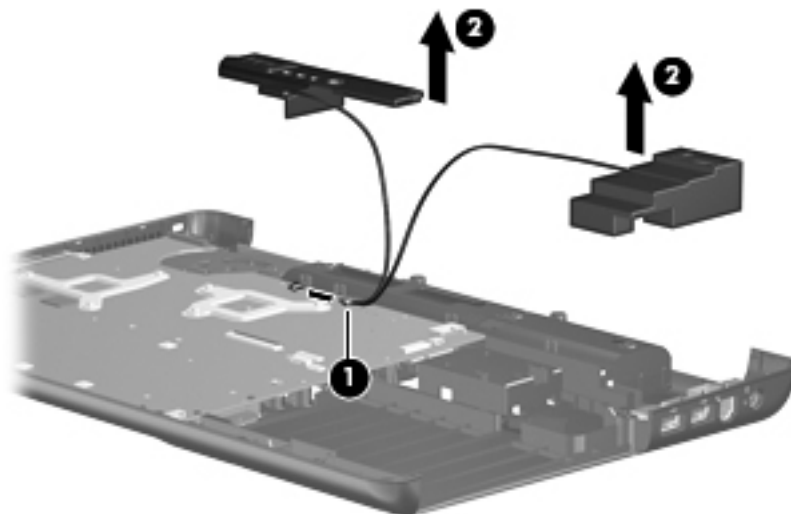
| Description  | Spare part number |
|--|-------------------|
| Speaker assembly (includes left and right speakers and cables) | 531209-001        |

Before removing the speaker assembly, follow these steps:

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 from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [“Battery” on page 4-7](#)).
5. Remove the following components:
  - a. Wireless module compartment cover (see [“WLAN module” on page 4-8](#)).
  - b. Hard drive cover (see [“Hard drive” on page 4-10](#)). HP recommends removing the hard drive.
  - c. Optical drive (see [“Optical drive” on page 4-15](#)), recommended.
  - d. Keyboard (see [“Keyboard” on page 4-16](#)).
  - e. Keyboard cover (see [“Keyboard cover” on page 4-18](#)).
  - f. Display assembly (see [“Display assembly” on page 4-21](#)).
  - g. Top cover (see [“Top cover” on page 4-29](#)).

Remove the speaker assembly:

1. Remove the speaker cables from the clips built into the base enclosure, and then disconnect the cable ❶ from the system board.
2. Remove the speakers ❷ from the base enclosure.



Reverse this procedure to install the speaker assembly.

## Bluetooth module (select models only)

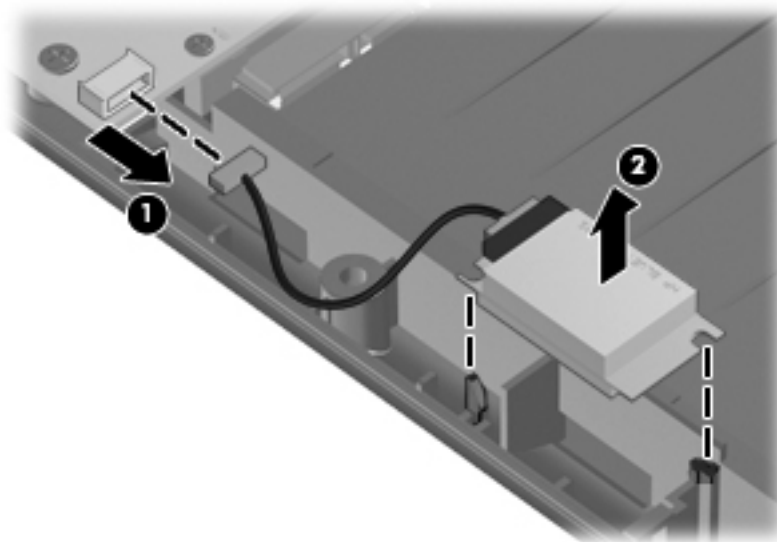
| Description            | Spare part number |
|------------------------|-------------------|
| Bluetooth module       | 537921-001        |
| Bluetooth module cable | 582757-001        |

Before removing the Bluetooth module, follow these steps:

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 from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [“Battery” on page 4-7](#)).
5. Remove the following components:
  - a. Wireless module compartment cover (see [“WLAN module” on page 4-8](#)).
  - b. Hard drive cover (see [“Hard drive” on page 4-10](#)). HP recommends removing the hard drive.
  - c. Optical drive (see [“Optical drive” on page 4-15](#)), recommended.
  - d. Keyboard (see [“Keyboard” on page 4-16](#)).
  - e. Keyboard cover (see [“Keyboard cover” on page 4-18](#)).
  - f. Display assembly (see [“Display assembly” on page 4-21](#)).
  - g. Top cover (see [“Top cover” on page 4-29](#)).


Remove the Bluetooth module:

1. Disconnect the Bluetooth module cable ❶ from the system board.
2. Remove the Bluetooth module ❷ from the base enclosure. The Bluetooth module is secured with double-sided tape.



Reverse this procedure to install the Bluetooth module.

## Audio board

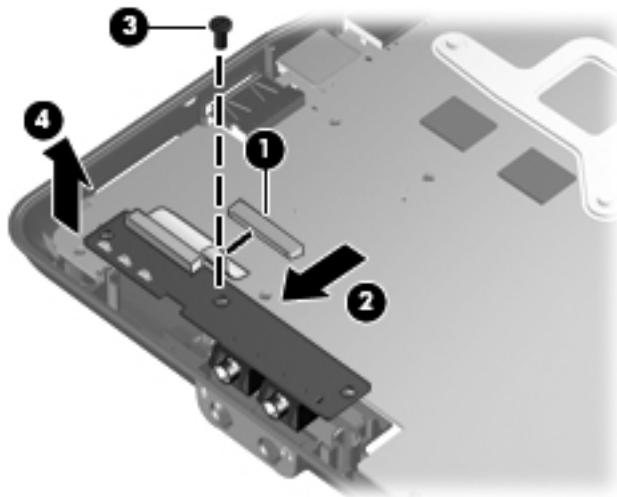
| Description  | Spare part number |
|--|-------------------|
| Audio board  | 531208-001        |
|  The audio board spare part kit does not include a cable. The audio board cable is included in the Cable Kit, spare part number 531211-001. |                   |

Before removing the audio board, follow these steps:

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 from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [“Battery” on page 4-7](#)).
5. Remove the following components:
  - a. Wireless module compartment cover (see [“WLAN module” on page 4-8](#)).
  - b. Hard drive cover (see [“Hard drive” on page 4-10](#)). HP recommends removing the hard drive.
  - c. Optical drive (see [“Optical drive” on page 4-15](#)).
  - d. Keyboard (see [“Keyboard” on page 4-16](#)).
  - e. Keyboard cover (see [“Keyboard cover” on page 4-18](#)).
  - f. Display assembly (see [“Display assembly” on page 4-21](#)).
  - g. Top cover (see [“Top cover” on page 4-29](#)).

Remove the audio board:

1. Release the LIF connector **1** to which the audio board cable is attached, and then disconnect the cable **2** from the system board.
2. Remove the Phillips PM2.5×6.5 screw **3** that secures the audio board to the base enclosure.
3. Remove the audio board **4**.



Reverse this procedure to install an audio board.

## USB board

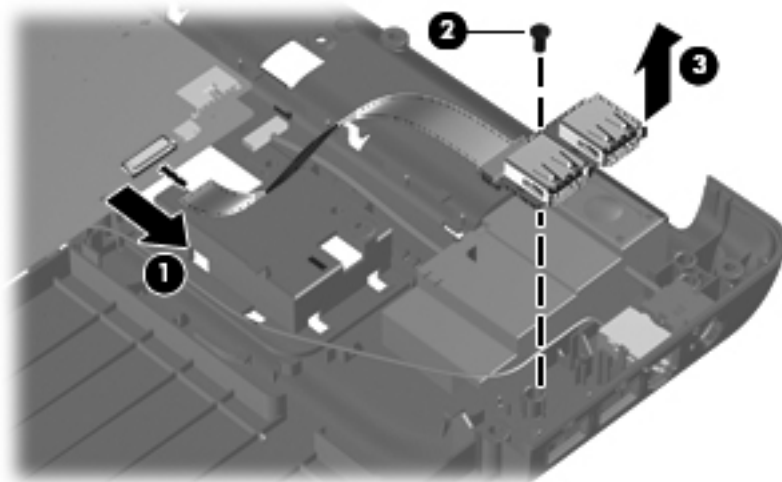
| Description                | Spare part number |
|----------------------------|-------------------|
| USB board (includes cable) | 531866-001        |

Before removing the USB board, follow these steps:

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 from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [“Battery” on page 4-7](#)).
5. Remove the following components:
  - a. Wireless module compartment cover (see [“WLAN module” on page 4-8](#)).
  - b. Hard drive cover (see [“Hard drive” on page 4-10](#)). HP recommends removing the hard drive.
  - c. Optical drive (see [“Optical drive” on page 4-15](#)), recommended.
  - d. Keyboard (see [“Keyboard” on page 4-16](#)).
  - e. Keyboard cover (see [“Keyboard cover” on page 4-18](#)).
  - f. Display assembly (see [“Display assembly” on page 4-21](#)).
  - g. Top cover (see [“Top cover” on page 4-29](#)).

Remove the USB board:

1. Disconnect the USB board cable ❶ from the system board.
1. Remove the Phillips PM2.5×6.5 screw ❷ that secures the USB board to the base enclosure. The USB board is secured with double-sided tape.
2. Remove the USB board ❸.



Reverse this procedure to install the USB board.

## Power connector

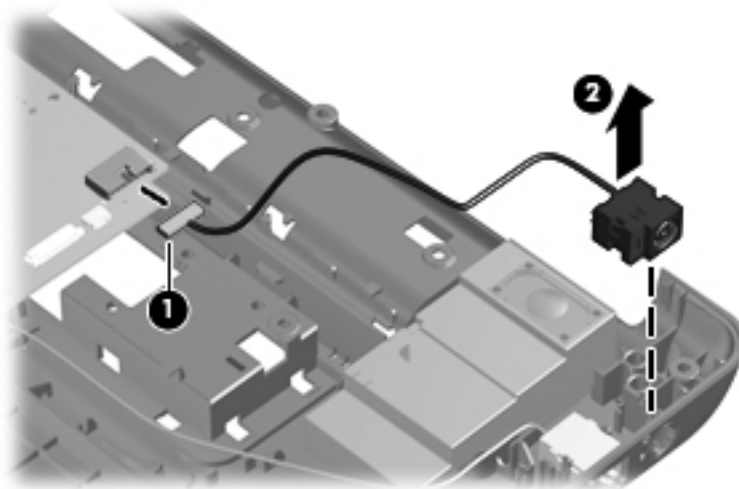
| Description                      | Spare part number |
|----------------------------------|-------------------|
| Power connector (includes cable) | 533465-001        |

Before removing the power connector and cable, follow these steps:

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 from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [“Battery” on page 4-7](#)).
5. Remove the following components:
  - a. Wireless module compartment cover (see [“WLAN module” on page 4-8](#)).
  - b. Hard drive cover (see [“Hard drive” on page 4-10](#)). HP recommends removing the hard drive.
  - c. Optical drive (see [“Optical drive” on page 4-15](#)), recommended.
  - d. Keyboard (see [“Keyboard” on page 4-16](#)).
  - e. Keyboard cover (see [“Keyboard cover” on page 4-18](#)).
  - f. Display assembly (see [“Display assembly” on page 4-21](#)).
  - g. Top cover (see [“Top cover” on page 4-29](#)).

Remove the power connector:

1. Disconnect the power connector cable ❶ from the system board and remove the cable from its routing channel.
2. Release the power connector ❷ from its mounting clip.



Reverse this procedure to install the power connector.



## System board



The system board spare part kit includes replacement thermal material.

| Description  | Spare part number |
|--|-------------------|
| With media card and HDMI support, for use with UMA systems               | 577065-001        |
| With support for media cards but not HDMI, for use with UMA systems      | 577064-001        |
| With no media card or HDMI support, for use with UMA systems             | 585923-001        |
| With media card and HDMI support, for use with discrete systems          | 577067-001        |
| With support for media cards but not HDMI, for use with discrete systems | 577066-001        |

Before removing the system board, follow these steps:

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 from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [“Battery” on page 4-7](#)).
5. Remove the following components:
  - a. Wireless module compartment cover (see [“WLAN module” on page 4-8](#)).
  - b. Hard drive (see [“Hard drive” on page 4-10](#)).
  - c. Optical drive (see [“Optical drive” on page 4-15](#)).
  - d. Keyboard (see [“Keyboard” on page 4-16](#)).
  - e. Keyboard cover (see [“Keyboard cover” on page 4-18](#)).
  - f. Display assembly (see [“Display assembly” on page 4-21](#)).
  - g. Top cover (see [“Top cover” on page 4-29](#)).

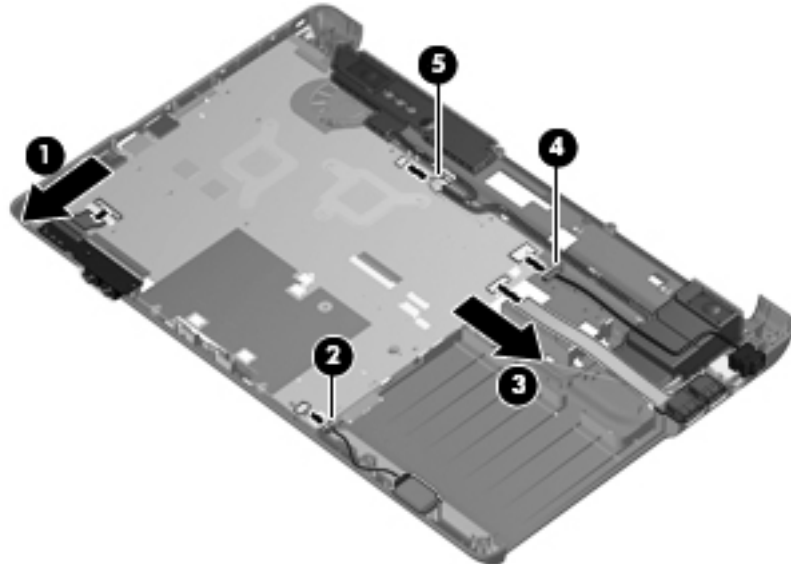
When replacing the system board, be sure that the following additional components are removed from the defective system board and installed on the replacement system board:

- Fan/heat sink assembly (see [“Fan/heat sink assembly” on page 4-39](#))
- Processor (see [“Processor” on page 4-42](#))

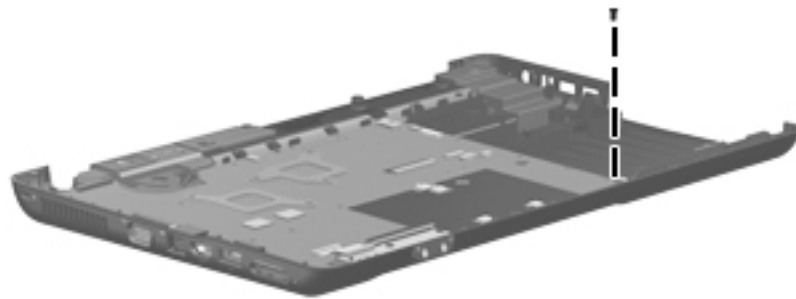
Remove the system board:

1. Disconnect the following cables from the system board:

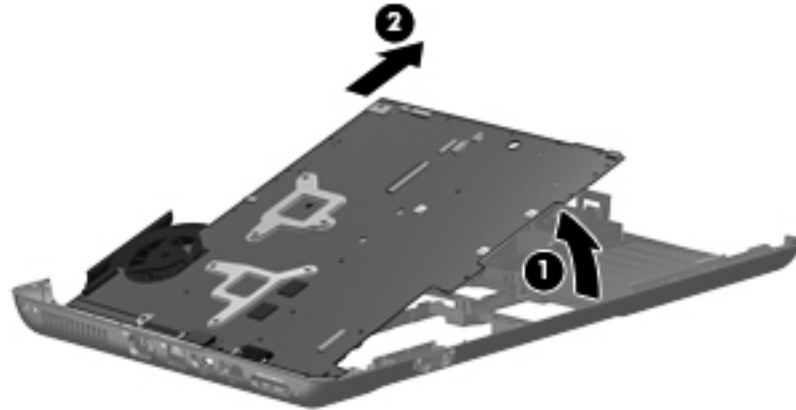
- ❶ Audio board cable
- ❷ Bluetooth module cable (select models only)
- ❸ USB board cable
- ❹ Power connector cable
- ❺ Speaker cable



2. Remove the Phillips PM2.5×6.5 screw that secures the system board to the base enclosure.



3. Lift the right side ❶ of the system board until it rests at an angle.
4. Slide the system board ❷ to the right at an angle until the connectors on the left side of the system board disengage from the base enclosure.



Reverse this procedure to install the system board.

## Fan/heat sink assembly



The fan/heat sink assembly spare part kit includes replacement thermal material.

| Description                   | Spare part number |
|-------------------------------|-------------------|
| For use with discrete systems | 580719-001        |
| For use with UMA systems      | 580718-001        |



To properly ventilate the computer, allow at least a 7.6-cm (3-in) clearance on the left side of the computer. The computer uses an electric fan for ventilation. The fan is controlled by a temperature sensor and is designed to turn on automatically when high temperature conditions exist. These conditions are affected by high external temperatures, system power consumption, power management/battery conservation configurations, battery fast charging, and software requirements. Exhaust air is displaced through the ventilation grill located on the left side of the computer.

Before removing the fan/heat sink assembly, follow these steps:

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 from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [“Battery” on page 4-7](#)).
5. Remove the following components:
  - a. Wireless module compartment cover (see [“WLAN module” on page 4-8](#)).
  - b. Hard drive (see [“Hard drive” on page 4-10](#)).
  - c. Optical drive (see [“Optical drive” on page 4-15](#)).
  - d. Keyboard (see [“Keyboard” on page 4-16](#)).
  - e. Keyboard cover (see [“Keyboard cover” on page 4-18](#)).
  - f. Display assembly (see [“Display assembly” on page 4-21](#)).
  - g. Top cover (see [“Top cover” on page 4-29](#)).
  - h. System board (see [“System board” on page 4-36](#)).

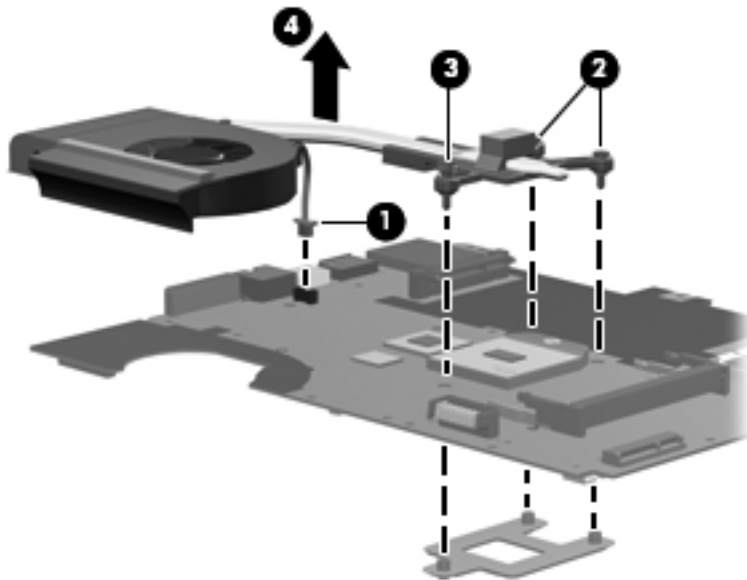
Remove the UMA fan/heat sink assembly:

1. Turn the system board upside down.
2. Disconnect the fan cable ❶ from the system board.
3. Loosen the two Phillips PM2.5×11.0 captive screws ❷ and the Phillips PM2.5×15.0 captive screw ❸ that secure the UMA fan/heat sink assembly to the system board.

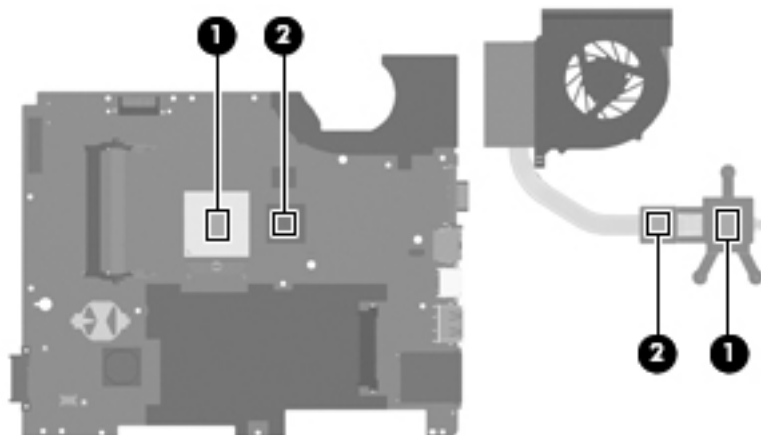
△ Loosen the screws in the order indicated on the fan/heat sink assembly to ensure consistent pressure over the processor board.

4. Remove the fan/heat sink assembly ❹.

✎ Due to the adhesive quality of the thermal material located between the fan/heat sink assembly and system board components, it may be necessary to move the fan/heat sink assembly from side to side to detach the assembly.



✎ The thermal material must be thoroughly cleaned from the surfaces of the fan/heat sink assembly and the system board each time the fan/heat sink assembly is removed. Thermal material is applied to the UMA fan/heat sink assembly to correspond with components on the system board as follows: the processor ❶ and the Northbridge chip ❷. Replacement thermal material is included with all system board, fan/heat sink assembly, and processor spare part kits.



Reverse this procedure to install the UMA fan/heat sink assembly.

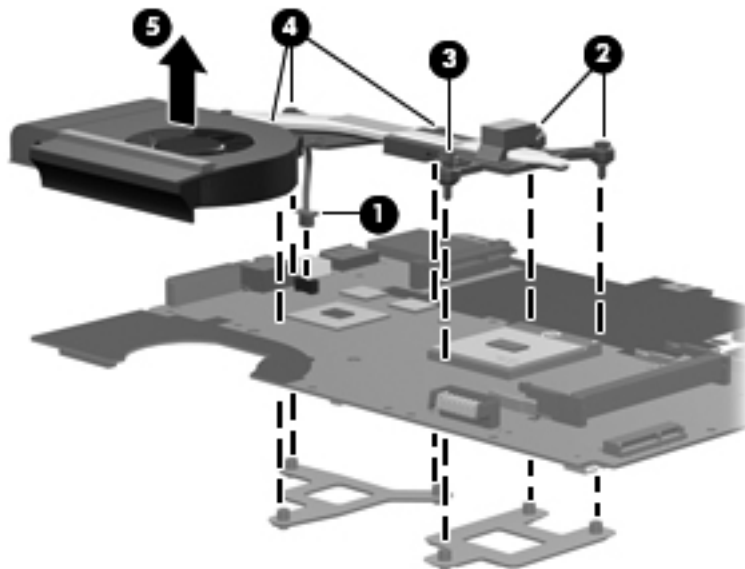
Remove the discrete fan/heat sink assembly:

1. Turn the system board upside down.
2. Disconnect the fan cable ❶ from the system board.
3. Loosen the two Phillips PM2.5×11.0 captive screws ❷, the Phillips PM2.5×15.0 captive screw ❸, and the three Phillips PM2.5×5.0 captive screws ❹ that secure the discrete fan/heat sink assembly to the system board.

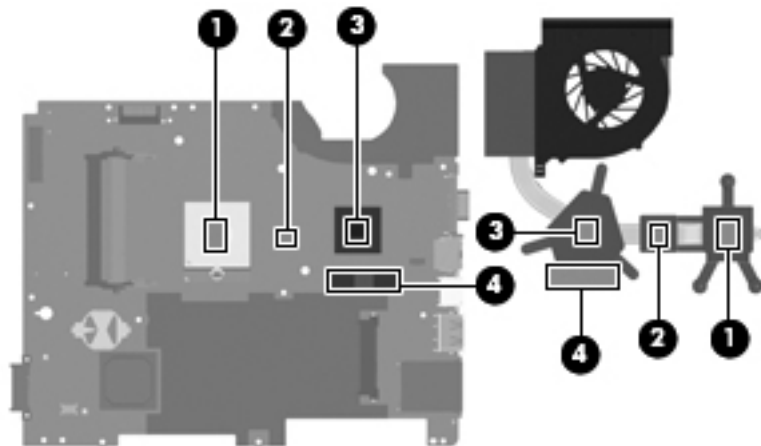
△ Loosen the screws in the order indicated on the fan/heat sink assembly to ensure consistent pressure over the processor board.

4. Remove the fan/heat sink assembly ❺.

✎ Due to the adhesive quality of the thermal material located between the fan/heat sink assembly and system board components, it may be necessary to move the fan/heat sink assembly from side to side to detach the assembly.



✎ The thermal material must be thoroughly cleaned from the surfaces of the fan/heat sink assembly and the system board each time the fan/heat sink assembly is removed. Thermal material is applied to the discrete fan/heat sink assembly to correspond with components on the system board as follows: the processor ❶, the Northbridge chip ❷, the graphics processor ❸, and the capacitors ❹. Replacement thermal material is included with all system board, fan/heat sink assembly, and processor spare part kits.



Reverse this procedure to install the discrete fan/heat sink assembly.

## Processor



The processor spare part kit includes replacement thermal material.


| Description   | Spare part number |
|---|-------------------|
| M600 2.4-GHz processor (2-MB L2 cache, 3.6 GT/s HyperTransport speed)   | 576254-001        |
| M520 2.3-GHz processor (1-MB L2 cache, 3.6 GT/s HyperTransport speed)   | 583055-001        |
| M500 2.2-GHz processor (1-MB L2 cache, 3.6 GT/s HyperTransport speed)   | 576253-001        |
| M320 2.1-GHz processor (1-MB L2 cache, 3.2 GT/s HyperTransport speed)   | 576252-001        |
| M300 2.0-GHz processor (1-MB L2 cache, 3.2 GT/s HyperTransport speed)   | 578024-001        |
| M100 2.0-GHz processor (512-KB L2 cache, 3.2 GT/s HyperTransport speed) | 576251-001        |

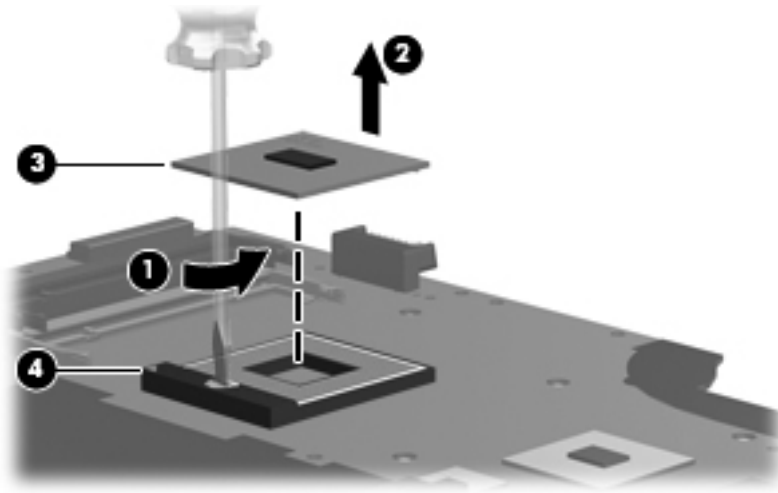
Before removing the processor, follow these steps:

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 from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [“Battery” on page 4-7](#)).
5. Remove the following components:
  - a. Wireless module compartment cover (see [“WLAN module” on page 4-8](#)).
  - b. Hard drive (see [“Hard drive” on page 4-10](#)).
  - c. Optical drive (see [“Optical drive” on page 4-15](#)).
  - d. Keyboard (see [“Keyboard” on page 4-16](#)).
  - e. Keyboard cover (see [“Keyboard cover” on page 4-18](#)).
  - f. Display assembly (see [“Display assembly” on page 4-21](#)).
  - g. Top cover (see [“Top cover” on page 4-29](#)).
  - h. System board (see [“System board” on page 4-36](#)).
  - i. Fan/heat sink assembly (see [“Fan/heat sink assembly” on page 4-39](#)).

Remove the processor:

1. Turn the system board right-side up.
2. Turn the processor locking screw **1** one-half turn counterclockwise until you hear a click.
3. Lift the processor **2** straight up.

 When you install the processor, the gold triangle **3** on the processor must be aligned with the triangle **4** embossed on the processor socket.



Reverse this procedure to install the processor.



## RJ-11 (modem) connector (select models only)



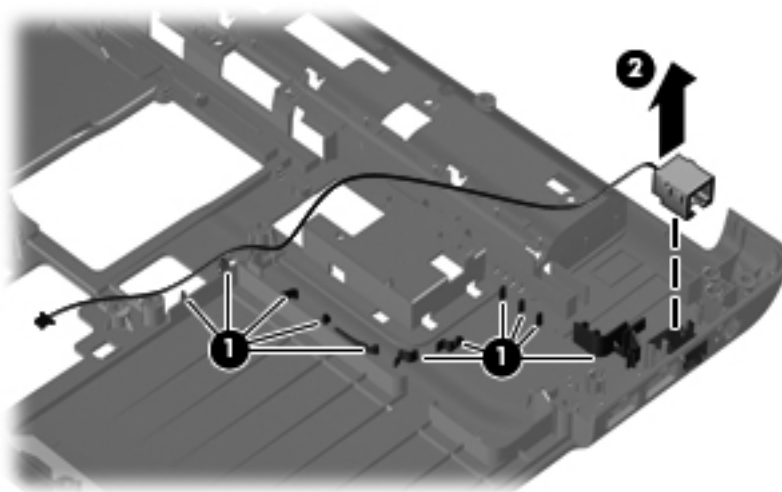
The RJ-11 (modem) connector is included in the Cable Kit, spare part number 531211-001.

Before removing the RJ-11 (modem) connector, follow these steps:

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 from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [“Battery” on page 4-7](#)).
5. Remove the following components:
  - a. Wireless module compartment cover (see [“WLAN module” on page 4-8](#)).
  - b. Hard drive (see [“Hard drive” on page 4-10](#)).
  - c. Optical drive (see [“Optical drive” on page 4-15](#)).
  - d. Keyboard (see [“Keyboard” on page 4-16](#)).
  - e. Keyboard cover (see [“Keyboard cover” on page 4-18](#)).
  - f. Display assembly (see [“Display assembly” on page 4-21](#)).
  - g. Top cover (see [“Top cover” on page 4-29](#)).
  - h. System board (see [“System board” on page 4-36](#)).

Remove the RJ-11 (modem) connector:

1. Remove the RJ-11 (modem) cable from the clips and routing channels **1** built into the base enclosure.
2. Release the connector **2** from its mounting clip.



Reverse this procedure to install an RJ-11 (modem) connector.

## Starting Setup Utility

Setup Utility is a ROM-based information and customization utility that can be used even when your Windows® operating system is not working.

The utility reports information about the computer and provides settings for startup, security, and other preferences.

To start Setup Utility:

- » Open Setup Utility by turning on or restarting the computer. While the “Press the ESC key for Startup Menu” message is displayed in the lower left corner of the screen, press **f10**.
  - or –
  - 1. Open Setup Utility by turning on or restarting the computer. While the “Press the ESC key for Startup Menu” message is displayed in the lower left corner of the screen, press **esc**.
  - 2. When the Startup Menu is displayed, press **f10**.

## Using Setup Utility

### Changing the language of Setup Utility

The following procedure explains how to change the language of Setup Utility. If Setup Utility is not already running, begin at step 1. If Setup Utility is already running, begin at step 2.

1. Open Setup Utility by turning on or restarting the computer. While the “Press the ESC key for Startup Menu” message is displayed in the lower left corner of the screen, press **f10**.
  - or –
  - Open Setup Utility by turning on or restarting the computer. While the “Press the ESC key for Startup Menu” message is displayed in the lower left corner of the screen, press **esc**. When the Startup Menu is displayed, press **f10**.
2. Use the arrow keys to select **System Configuration > Language**, and then press **enter**.
3. Use the arrow keys to select a language, and then press **enter**.
4. When a confirmation prompt with your language selected is displayed, press **enter**.
5. To save your change and exit Setup Utility, use the arrow keys to select **Exit > Exit Saving Changes**, and then press **enter**.

Your change goes into effect immediately.

## Navigating and selecting in Setup Utility

Because Setup Utility is not Windows-based, it does not support the TouchPad. Navigation and selection are by keystroke.

- To choose a menu or a menu item, use the arrow keys.
- To choose an item in a list or to toggle a field, for example an Enable/Disable field, use either the arrow keys or **f5** or **f6**.
- To select an item, press **enter**.
- To close a text box or return to the menu display, press **esc**.
- To display additional navigation and selection information while Setup Utility is open, press **f1**.

## Displaying system information

You can use Setup Utility to view such information as the system time and date and information that identifies the computer. The following procedure explains how to do this. If Setup Utility is not open, begin at step 1. If Setup Utility is open, begin at step 2.

1. Open Setup Utility by turning on or restarting the computer. While the “Press the ESC key for Startup Menu” message is displayed in the lower left corner of the screen, press **f10**.  
– or –  
Open Setup Utility by turning on or restarting the computer. While the “Press the ESC key for Startup Menu” message is displayed in the lower left corner of the screen, press **esc**. When the Startup Menu is displayed, press **f10**.
2. Select the **Main** menu.
3. To exit Setup Utility without changing any settings, use the arrow keys to select **Exit > Exit Discarding Changes**, and then press **enter**.

## Restoring default settings in Setup Utility

The following procedure explains how to restore Setup Utility default settings. If Setup Utility is not already running, begin at step 1. If Setup Utility is already running, begin at step 2.

1. Open Setup Utility by turning on or restarting the computer. While the “Press the ESC key for Startup Menu” message is displayed in the lower left corner of the screen, press **f10**.  
– or –  
Open Setup Utility by turning on or restarting the computer. While the “Press the ESC key for Startup Menu” message is displayed in the lower left corner of the screen, press **esc**. When the Startup Menu is displayed, press **f10**.
2. Use the arrow keys to select **Exit > Load Setup Defaults**, and then press **enter**.
3. When the Setup Confirmation is displayed, press **enter**.
4. To save your change and exit Setup Utility, use the arrow keys to select **Exit > Exit Saving Changes**, and then press **enter**.

The Setup Utility default settings go into effect when the computer restarts.



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

## Exiting Setup Utility

You can exit Setup Utility with or without saving changes.

- To exit Setup Utility and save your changes from the current session:

If the Setup Utility menus are not visible, press **esc** to return to the menu display. Then use the arrow keys to select **Exit > Exit Saving Changes**, and then press **enter**.

- To exit Setup Utility without saving your changes from the current session:

If the Setup Utility menus are not visible, press **esc** to return to the menu display. Then use the arrow keys to select **Exit > Exit Discarding Changes**, and then press **enter**.

After either choice, the computer restarts in Windows.

## Setup Utility menus

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



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

### Main menu

| Select             | To do this  |
|--------------------|---|
| System information | <ul style="list-style-type: none"> <li>■ View and change the system time and date.</li> <li>■ View identification information about the computer.</li> <li>■ View specification information about the processor, memory size, system BIOS, and keyboard controller version (select models only).</li> </ul> |


### Security menu

| Select                 | To do this  |
|------------------------|---|
| Administrator password | Enter, change, or delete an administrator password. |
| Power-On Password      | Enter, change, or delete a power-on password.       |

## System Configuration menu


| Select   | To do this   |
|--|--|
| Language Support                                   | Change the language of Setup Utility.  |
| Button Sound (select models only)                  | Enable/disable the capacitive button tapping sound.  |
| Virtualization Technology (select models only)     | Enable/disable the processor Virtualization Technology.  |
| Processor C6 State (select models only)            | Enable/disable the processor C6 sleep state.   |
| LAN Power Saving (select models only)              | Enable/disable LAN Power Saving. When enabled, saves power when the computer is in DC mode.  |
| Card Reader/1394 Power Saving (select models only) | Enable/disable Card Reader/1394 Power Saving.  |
| Fan Always On                                      | Enable/disable Fan Always On. When enabled, the computer fan will always be on.  |
| Boot Options                                       | <p>Set the following boot options:</p> <ul style="list-style-type: none"> <li>■ <b>f9</b> and <b>f10</b> Delay (seconds)—Set the delay for the <b>f9</b> and <b>f10</b> functions of Setup Utility in intervals of 5 seconds each (0, 5, 10, 15, 20).</li> <li>■ CD-ROM boot—Enable/disable boot from CD-ROM.</li> <li>■ Floppy boot—Enable/disable boot from diskette.</li> <li>■ Internal Network Adapter boot—Enable/disable boot from Internal Network Adapter.</li> <li>■ Boot Order—Set the boot order for: <ul style="list-style-type: none"> <li><input type="checkbox"/> USB Floppy</li> <li><input type="checkbox"/> Internal CD/DVD ROM drive</li> <li><input type="checkbox"/> USB CD/DVD ROM drive</li> <li><input type="checkbox"/> Hard drive</li> <li><input type="checkbox"/> USB Diskette on Key</li> <li><input type="checkbox"/> USB hard drive</li> <li><input type="checkbox"/> Network adapter</li> </ul> </li> </ul> |

## Diagnostics menu

| Select   | To do this   |
|--|--|
| Hard Disk Self Test                                | <p>Run a comprehensive self-test on the hard drive.</p> <p> On models with two hard drives, this menu option is called the Primary Hard Disk Self Test.</p> |
| Secondary Hard Disk Self Test (select models only) | Run a comprehensive self-test on a secondary hard drive.   |
| Memory Test  | Run a diagnostic test on the system memory.  |

# Specifications

## Computer specifications

|  | Metric   | U.S.                |
|--|--|---------------------|
| <b>Dimensions</b>  |  |                     |
| Length   | 37.8 cm  | 14.9 in             |
| Width  | 25.2 cm  | 9.9 in              |
| Height (front to rear)   | 3.5 to 4.1 cm  | 1.4 to 1.6 in       |
| <b>Weight</b> (lowest weight configuration)  | 2.75 kg  | 6.06 lbs            |
| <b>Input power</b>   |  |                     |
| Operating voltage  | 18.5 V dc @ 3.5 A - 65 W (UMA models)<br>19.0 V dc @ 4.74 A - 90 W (discrete models) |                     |
| Operating current  | 3.5 A (UMA models)<br>4.74 A (discrete models)                                       |                     |
| <b>Temperature</b>   |  |                     |
| Operating (not writing to optical disc)  | 0°C to 35°C  | 32°F to 95°F        |
| Operating (writing to optical disc)  | 5°C to 35°C  | 41°F to 95°F        |
| Nonoperating   | -20°C to 60°C  | -4°F to 140°F       |
| <b>Relative humidity</b> (noncondensing)   |  |                     |
| Operating  | 10% to 90%   |                     |
| Nonoperating   | 5% to 95%  |                     |
| <b>Maximum altitude</b> (unpressurized)  |  |                     |
| Operating  | -15 m to 3,048 m   | -50 ft to 10,000 ft |
| Nonoperating   | -15 m to 12,192 m  | -50 ft to 40,000 ft |
|  Applicable product safety standards specify thermal limits for plastic surfaces. The computer operates well within this range of temperatures. |  |                     |


## 15.6-inch LED BrightView display specifications

|                                | Metric  | U.S.    |
|--------------------------------|---|---------|
| <b>Dimensions</b>              |   |         |
| Height                         | 21.0 cm                                       | 8.3 in  |
| Width                          | 35.9 cm                                       | 14.1 in |
| Diagonal                       | 39.5 cm                                       | 15.6 in |
| <b>Number of colors</b>        | Up to 16.8 million                            |         |
| <b>Contrast ratio</b>          | 500:1   |         |
| <b>Brightness</b>              | 200 nits (typical)                            |         |
| <b>Pixel resolution</b>        |   |         |
| Pitch                          | 0.259×0.259 mm                                |         |
| Format                         | 1366×768                                      |         |
| Configuration                  | RGB vertical stripe                           |         |
| <b>Backlight</b>               | LED   |         |
| <b>Character display</b>       | 80×25   |         |
| <b>Total power consumption</b> | 6.5 W or 9.0 W                                |         |
| <b>Viewing angle</b>           | ±45° horizontal, +15°/-35° vertical (typical) |         |

## 15.6-inch CCFL BrightView display specifications

|                                | Metric  | U.S.    |
|--------------------------------|---|---------|
| <b>Dimensions</b>              |   |         |
| Height                         | 21.0 cm                                       | 8.3 in  |
| Width                          | 35.9 cm                                       | 14.1 in |
| Diagonal                       | 39.5 cm                                       | 15.6 in |
| <b>Number of colors</b>        | Up to 16.8 million                            |         |
| <b>Contrast ratio</b>          | 500:1   |         |
| <b>Brightness</b>              | 200 nits (typical)                            |         |
| <b>Pixel resolution</b>        |   |         |
| Pitch                          | 0.259×0.259 mm                                |         |
| Format                         | 1366×768                                      |         |
| Configuration                  | RGB vertical stripe                           |         |
| <b>Backlight</b>               | CCFT  |         |
| <b>Character display</b>       | 80×25   |         |
| <b>Total power consumption</b> | 6.5 W or 9.0 W                                |         |
| <b>Viewing angle</b>           | ±45° horizontal, +15°/-35° vertical (typical) |         |

## Hard drive specifications

|   | 500 GB*                     | 320 GB*             | 250 GB*             | 160 GB*             |
|---|-----------------------------|---------------------|---------------------|---------------------|
| <b>Dimensions</b>   |                             |                     |                     |                     |
| Height  | 9.5 mm                      | 9.5 mm              | 9.5 mm              | 9.5 mm              |
| Width   | 70 mm                       | 70 mm               | 70 mm               | 70 mm               |
| Weight  |                             |                     |                     |                     |
| 5400-rpm  | 101 g                       | 101 g               | 101 g               | 101 g               |
| 7200-rpm  |                             | 115 g               | 115 g               | 115 g               |
| <b>Interface type</b>   |                             |                     |                     |                     |
|   | SATA                        | SATA                | SATA                | SATA                |
| <b>Transfer rate, synchronous (maximum)</b>   |                             |                     |                     |                     |
|   | 100 MB/s                    | 100 MB/s            | 100 MB/s            | 100 MB/s            |
| <b>Security</b>   |                             |                     |                     |                     |
|   | ATA security                | ATA security        | ATA security        | ATA security        |
| <b>Seek times (typical read, including setting)</b>   |                             |                     |                     |                     |
| Single track  |                             |                     |                     |                     |
| 5400-rpm  | 3.0 ms                      | 3.0 ms              | 3.0 ms              | 3.0 ms              |
| 7200-rpm  |                             | 1.5 ms              | 1.5 ms              | 1.5 ms              |
| Average   |                             |                     |                     |                     |
| 5400-rpm  | 13.0 ms                     | 13.0 ms             | 13.0 ms             | 13.0 ms             |
| 7200-rpm  |                             | 11.0 ms             | 11.0 ms             | 11.0 ms             |
| Maximum   |                             |                     |                     |                     |
| 5400-rpm  | 24.0 ms                     | 24.0 ms             | 24.0 ms             | 24.0 ms             |
| 7200-rpm  |                             | 22.0 ms             | 22.0 ms             | 22.0 ms             |
| <b>Logical blocks</b>   |                             |                     |                     |                     |
|   | 976,773,168                 | 625,142,448         | 488,397,168         | 312,581,808         |
| <b>Disk rotational speed</b>  |                             |                     |                     |                     |
|   | 5400 rpm                    | 7200 or<br>5400 rpm | 7200 or<br>5400 rpm | 7200 or<br>5400 rpm |
| <b>Operating temperature</b>  |                             |                     |                     |                     |
|   | 0°C to 60°C (32°F to 140°F) |                     |                     |                     |
| *1 GB = 1 billion bytes when referring to hard drive storage capacity. Actual accessible capacity is less. Actual drive specifications may differ slightly.           |                             |                     |                     |                     |
|  Certain restrictions and exclusions apply. Contact technical support for details. |                             |                     |                     |                     |



## DVD±RW and CD-RW SuperMulti Double-Layer Combo Drive with LightScribe specifications

| Applicable disc                   | Read:  | Write:  |
|-----------------------------------|--|---|
|                                   | CD-DA, CD+(E)G, CD-MIDI, CD-TEXT, CD-ROM, CD-ROM XA, MIXED MODE CD, CD-I, CD-I Bridge (Photo-CD, Video CD), Multisession CD (Photo-CD, CD EXTRA, Portfolio, CD-R, CD-RW), CD-R, CD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), DVD-R, DVD-RW, DVD+R, DVD+RW, DVD-RAM | CD-R, CD-RW, DVD+R, DVD+RW, DVD-R, DVD-RW, DVD-RAM, LightScribe |
| <b>Interface</b>                  | SATA   |   |
| <b>Access time</b>                | <b>CD</b>  | <b>DVD</b>  |
| Random                            | < 150 ms   | < 160 ms  |
| <b>Max data transfer rate</b>     |  |   |
| 24X CD-ROM                        | 3,600 KB/sec   |   |
| 8X DVD-ROM                        | 10,800 KB/sec  |   |
| 24X CD-R                          | 3,600 KB/sec   |   |
| 16X CD-RW                         | 2,400 KB/sec   |   |
| 8X DVD+R                          | 10,800 KB/sec  |   |
| 8x DVD+RW                         | 10,800 KB/sec  |   |
| 8X DVD-R                          | 10,800 KB/sec  |   |
| 6X DVD-RW                         | 8,100 KB/sec   |   |
| 4X DVD-R Dual Layer               | 5,400 KB/sec   |   |
| 4X DVD+R Dual Layer               | 5,400 KB/sec   |   |
| 5X DVD-RAM                        | 6,750 KB/sec   |   |
| <b>Max media capacity (read)</b>  | 8.5 GB   |   |
| <b>Max media capacity (write)</b> | 8.5 GB   |   |
| <b>Transport</b>                  | Tray loading   |   |

## Blu-ray ROM with LightScribe DVD±R/RW SuperMulti Double-Layer Drive specifications

| Applicable disc                   | Read:   | Write:  |           |
|-----------------------------------|---|---|-----------|
|                                   | CD-DA, CD+(E)G, CD-MIDI, CD-TEXT, CD-ROM, CD-ROM XA, MIXED MODE CD, CD-I, CD-I Bridge (Photo-CD, Video CD), Multisession CD (Photo-CD, CD-EXTRA, Portfolio, CD-R, CD-RW), CD-R, CD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), DVD-R, DVD-RW, DVD+R, DVD+RW, DVD-RAM, BD-ROM, BD-R, BD-RE | CD-R, CD-RW, DVD+R, DVD+R(9), DVD+RW, DVD-R, DVD-R(9), DVD-RW, DVD-RAM, LightScribe |           |
| <b>Interface</b>                  | SATA  |   |           |
| <b>Access time</b>                | <b>CD</b>   | <b>DVD</b>  | <b>BD</b> |
| Random                            | < 190 ms  | < 190 ms  | < 230 ms  |
| <b>Max data transfer rate</b>     |   |   |           |
| 24X CD-ROM                        | 3,600 KB/sec  |   |           |
| 8X DVD-ROM                        | 10,800 KB/sec   |   |           |
| 4X BD-ROM                         | 18,000 KB/sec   |   |           |
| 16X CD-R                          | 1,200 KB/sec  |   |           |
| 10X CD-RW                         | 1,500 KB/sec  |   |           |
| 8X DVD+R                          | 10,800 KB/sec   |   |           |
| 8X DVD+RW                         | 10,800 KB/sec   |   |           |
| 8X DVD-R                          | 10,800 KB/sec   |   |           |
| 6X DVD-RW                         | 8,100 KB/sec  |   |           |
| 4X DVD+R Dual Layer               | 5,400 KB/sec  |   |           |
| 4X DVD-R Dual Layer               | 5,400 KB/sec  |   |           |
| 5X DVD-RAM                        | 6,750 KB/sec  |   |           |
| <b>Max media capacity (read)</b>  | 50.0 GB   |   |           |
| <b>Max media capacity (write)</b> | 8.5 GB  |   |           |
| <b>Transport</b>                  | Tray loading  |   |           |

## System DMA specifications

| Hardware | DMA System function             |
|----------|---------------------------------|
| DMA0     | Not applicable                  |
| DMA1     | Not applicable                  |
| DMA2     | Not applicable                  |
| DMA3     | Not applicable                  |
| DMA4     | Direct memory access controller |

## System memory map specifications


| Size   | Memory address    | System function              |
|--------|-------------------|------------------------------|
| 640 KB | 00000000-0009FFFF | Base memory                  |
| 128 KB | 000A0000-000BFFFF | Video memory                 |
| 48 KB  | 000C0000-000CBFFF | Video BIOS                   |
| 160 KB | 000C8000-000E7FFF | Unused                       |
| 64 KB  | 000E8000-000FFFFF | System BIOS                  |
| 15 MB  | 00100000-00FFFFFF | Extended memory              |
| 58 MB  | 04800000-07FFFFFF | Super extended memory        |
| 58 MB  | 04800000-07FFFFFF | Unused                       |
| 2 MB   | 08000000-080FFFFF | Video memory (direct access) |
| 4 MB   | 08200000-082FFFFF | Unused                       |
| 64 MB  | FFFF0000-FFFFFFFF | System BIOS                  |



This table contains default values. The actual resource allocation is determined by the operating system.

## System interrupt specifications

| Hardware IRQ | System function  |
|--------------|--|
| IRQ1         | Standard 101-/102-Key or Microsoft Natural PS/2 Keyboard with HP QLB |
| IRQ4         | ITE consumer infrared (CIR) receiver                                 |
| IRQ12        | Synaptics PS/2 Port TouchPad   |
| IRQ13        | Numeric data processor   |
| IRQ14        | ATA channel 0  |
| IRQ15        | ATA channel 1  |
| IRQ16        | High-definition audio controller                                     |
| IRQ16        | Standard OpenHCD USB host controller                                 |
| IRQ16        | Standard OpenHCD USB host controller                                 |
| IRQ17        | SDA standard compliant SD host controller                            |
| IRQ17        | Standard enhanced PCI to USB host controller                         |
| IRQ18        | Standard OpenHCD USB host controller                                 |
| IRQ18        | Standard OpenHCD USB host controller                                 |
| IRQ18        | WLAN adapter   |
| IRQ19        | High-definition audio controller                                     |
| IRQ19        | Realtek RTL8103 Family PCI-E 10/100 Ethernet NIC (NDIS 6.0)          |
| IRQ19        | Standard enhanced PCI to USB host controller                         |
| IRQ22        | Standard AHCI 1.0 serial ATA controller                              |
| IRQ23        | G-sensor   |

 This table contains default values. The actual resource allocation is determined by the operating system.

## System I/O address specifications

| I/O address (hex) | System function (shipping configuration)                             |
|-------------------|--|
| 000 - 00F         | Direct memory access controller                                      |
| 000 - CF7         | PCI bus  |
| 010 - 01F         | Motherboard resources  |
| 020 - 021         | Programmable interrupt controller                                    |
| 02E - 02F         | Motherboard resources  |
| 040 - 043         | System timer   |
| 060 - 060         | Standard 101-/102-Key or Microsoft Natural PS/2 Keyboard with HP QLB |
| 061 - 061         | System speaker   |
| 062 - 062         | Microsoft ACPI-compliant embedded controller                         |
| 064 - 064         | Standard 101-/102-Key or Microsoft Natural PS/2 Keyboard with HP QLB |
| 066 - 066         | Microsoft ACPI-compliant embedded controller                         |
| 070 - 071         | System CMOS/real-time clock  |

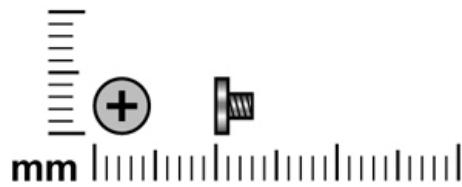
(Continued)

| <b>I/O address (hex)</b> | <b>System function (shipping configuration)</b> |
|--------------------------|---|
| 072 - 073                | Motherboard resources                           |
| 080 - 080                | Motherboard resources                           |
| 081 - 08F                | Direct memory access controller                 |
| 092- 092                 | Motherboard resources                           |
| 0A0 - 0A1                | Programmable interrupt controller               |
| 0B0 - 0B1                | Motherboard resources                           |
| 0C0 - 0DF                | Direct memory access controller                 |
| 0F0 - 0FE                | Numeric data processor                          |
| 380 - 387                | Motherboard resources                           |
| 3B0 - 3BB                | ATI Mobility Radeon HD 4300 series              |
| 3B0 - 3BB                | PCI standard PCI-to-PCI bridge                  |
| 3C0 - 3DF                | ATI Mobility Radeon HD 4300 series              |
| 3C0 - 3DF                | PCI standard PCI-to-PCI bridge                  |
| 400 - 4CF                | Motherboard resources                           |
| 4D0 - 4D1                | Motherboard resources                           |
| 4D6 - 4D6                | Motherboard resources                           |
| 680 - 6FF                | Motherboard resources                           |
| 77A - 77A                | Motherboard resources                           |
| C00 - C01                | Motherboard resources                           |
| C14 - C14                | Motherboard resources                           |
| C50 - C52                | Motherboard resources                           |
| C6C - C6C                | Motherboard resources                           |
| C6F - CGF                | Motherboard resources                           |
| CD0 - CDB                | Motherboard resources                           |
| CD0 - CDB                | PCI bus   |
| 2000 - 20FF              | Realtek RTL8102/8103 Family PCI-E FE NIC        |
| 2000 - 2FFF              | PCI standard PCI-to-PCI bridge                  |
| 3000 - 30FF              | ATI Mobility Radeon HD 4300 series              |
| 3000 -30FF               | PCI standard PCI-to-PCI bridge                  |
| 4010 - 401F              | Standard AHCI 1.0 Serial ATA Controller         |
| 4030 - 4037              | Standard AHCI 1.0 Serial ATA Controller         |
| 4038 - 403F              | Standard AHCI 1.0 Serial ATA Controller         |
| 4048 - 404B              | Standard AHCI 1.0 Serial ATA Controller         |
| 404C - 404F              | Standard AHCI 1.0 Serial ATA Controller         |

## Screw listing

This section provides specification and reference information for the screws used in the computer. All screws listed in this section are available in the Screw Kit, spare part number 531212-001.

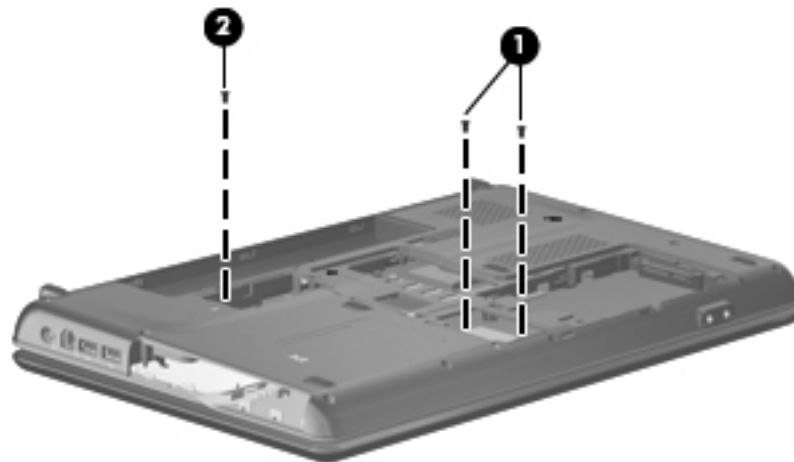
### Phillips PM2.0×3.0 screws



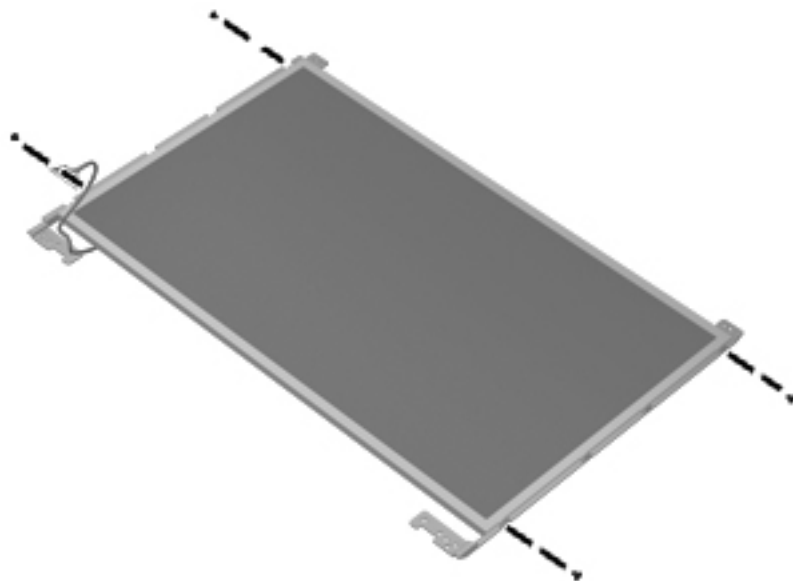
| Color | Quantity | Length | Thread | Head diameter |
|-------|----------|--------|--------|---------------|
| Black | 7        | 3.0 mm | 2.0 mm | 4.0 mm        |

#### Where used:

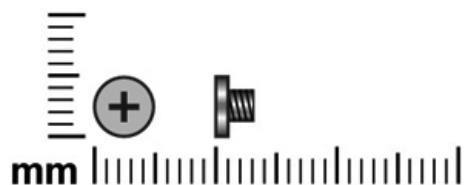
- ❶ Two screws that secure the modem to the base enclosure
- ❷ One screw that secures the WLAN module to the base enclosure



**Where used:** 4 screws that secure the display panel brackets to the display panel

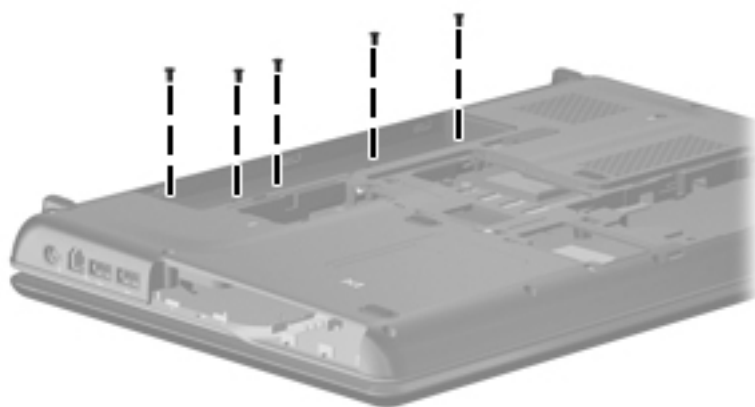


## Phillips PM2.5×3.0 screws

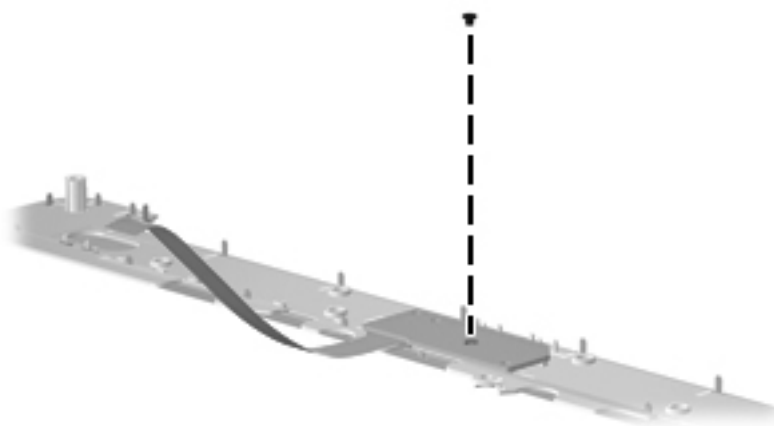


| Color | Quantity | Length | Thread | Head diameter |
|-------|----------|--------|--------|---------------|
| Black | 6        | 3.0 mm | 2.5 mm | 4.5 mm        |

**Where used:** 5 screws that secure the keyboard cover to the base enclosure

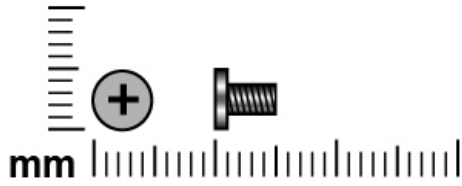


**Where used:** One screw that secures the power button board to the keyboard cover



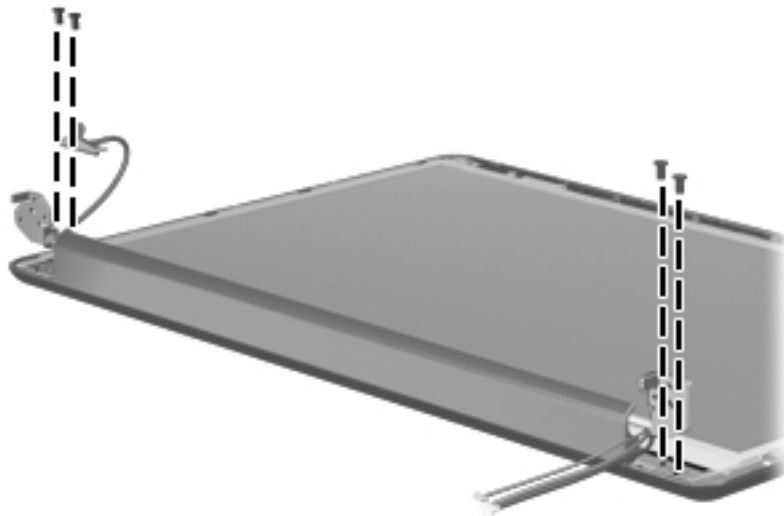


## Phillips PM2.5×5.0 screws

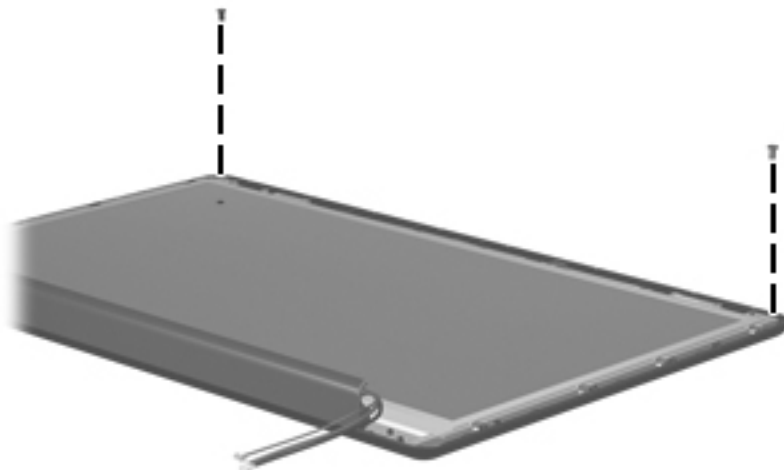


| Color | Quantity | Length | Thread | Head diameter |
|-------|----------|--------|--------|---------------|
| Black | 6        | 5.0 mm | 2.5 mm | 4.5 mm        |

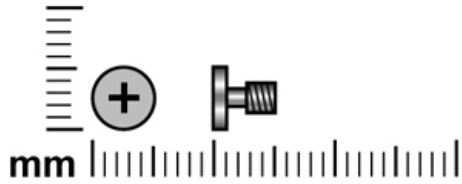
**Where used:** 4 screws that secure the display hinges to the display enclosure



**Where used:** 2 screws that secure the display panel to the display enclosure

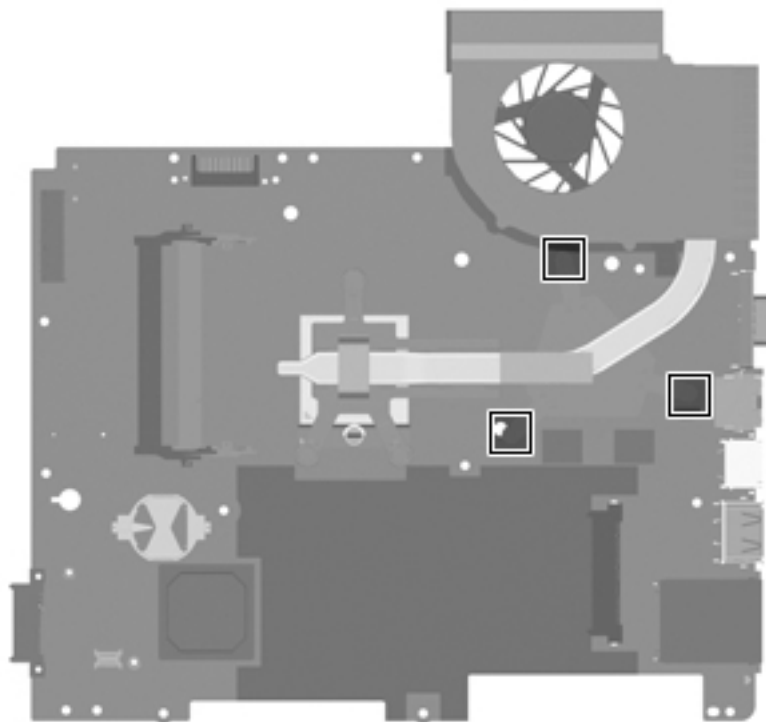


## Phillips PM2.5×5.0 captive screws

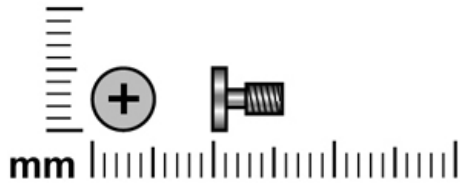


| Color | Quantity | Length | Thread | Head diameter |
|-------|----------|--------|--------|---------------|
| Black | 3        | 5.0 mm | 2.5 mm | 4.5 mm        |

**Where used:** 3 captive screws (secured by C-clips) that secure the discrete heat sink to the system board



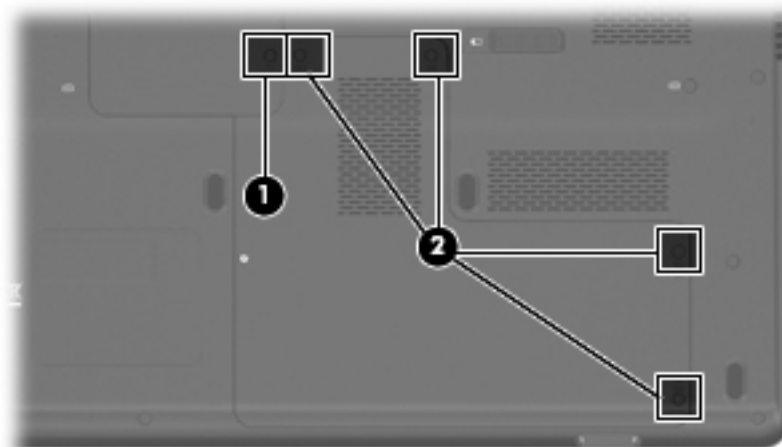
## Phillips PM2.5×5.5 captive screws



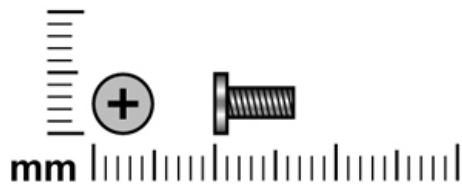
| Color | Quantity | Length | Thread | Head diameter |
|-------|----------|--------|--------|---------------|
| Black | 5        | 5.5 mm | 2.5 mm | 4.4 mm        |

### Where used:

- ① One captive screw (secured by a C-clip) that secures the wireless module compartment cover to the base enclosure
- ② Four captive screws (secured by C-clips) that secure the hard drive cover to the base enclosure

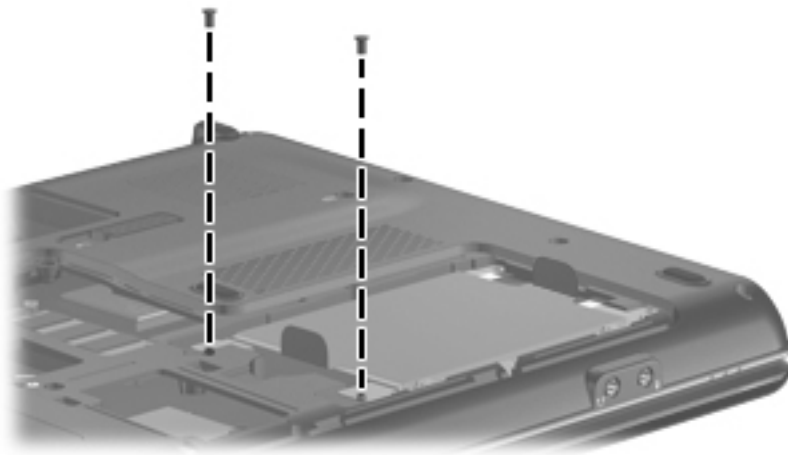


## Phillips PM2.5×6.5 screws



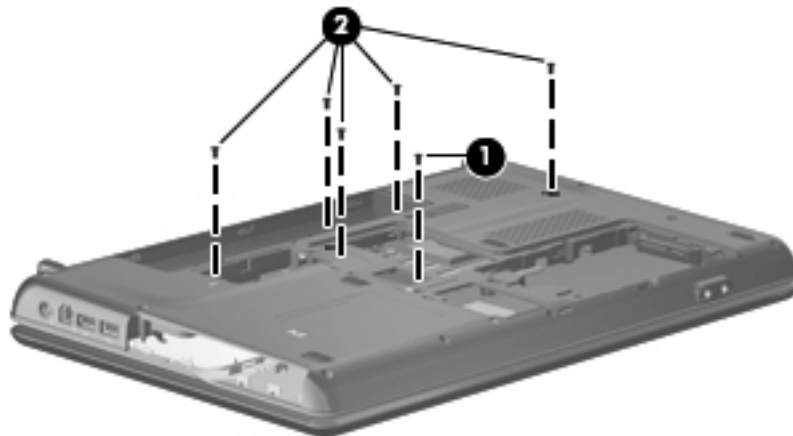
| Color | Quantity | Length | Thread | Head diameter |
|-------|----------|--------|--------|---------------|
| Black | 32       | 6.5 mm | 2.5 mm | 4.4 mm        |

**Where used:** 2 screws that secure the hard drive to the base enclosure

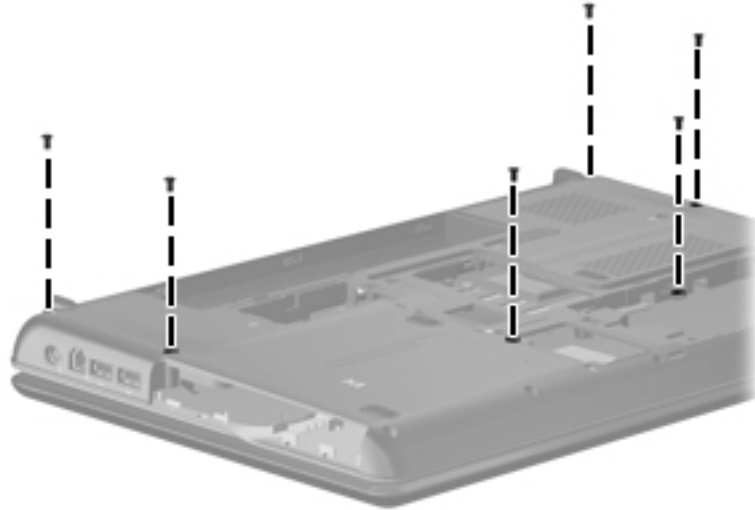


**Where used:**

- ❶ One screw that secures the optical drive to the base enclosure
- ❷ Five screws that secure the keyboard to the base enclosure

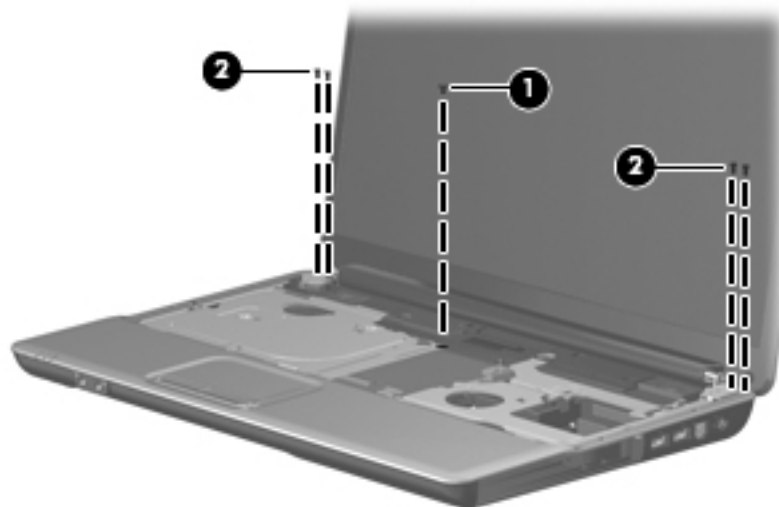


**Where used:** 6 screws that secure the keyboard cover to the base enclosure

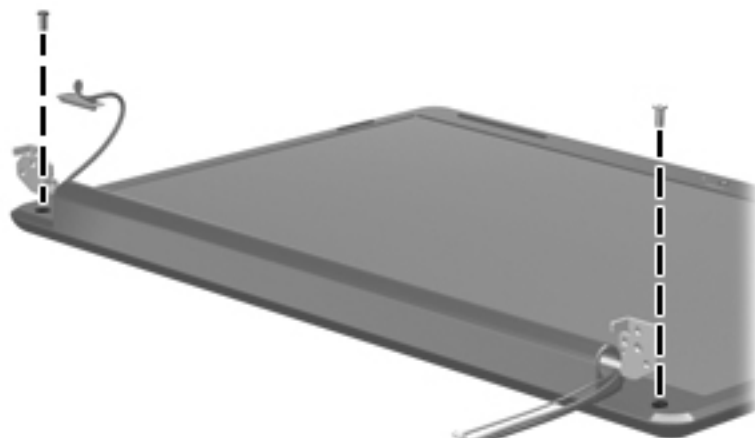


**Where used:**

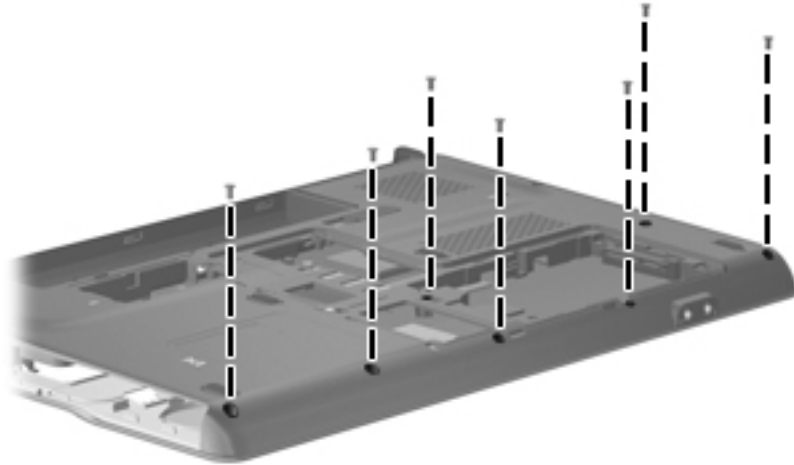
- ❶ One screw that secures the keyboard cover to the base enclosure
- ❷ Four screws that secure the display assembly to the base enclosure



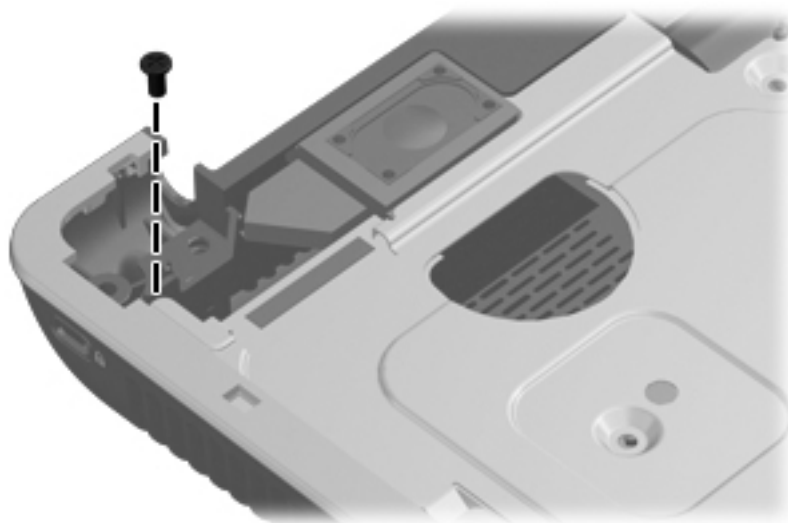
**Where used:** 2 screws that secure the display bezel to the display enclosure



**Where used:** 7 screws that secure the top cover to the base enclosure

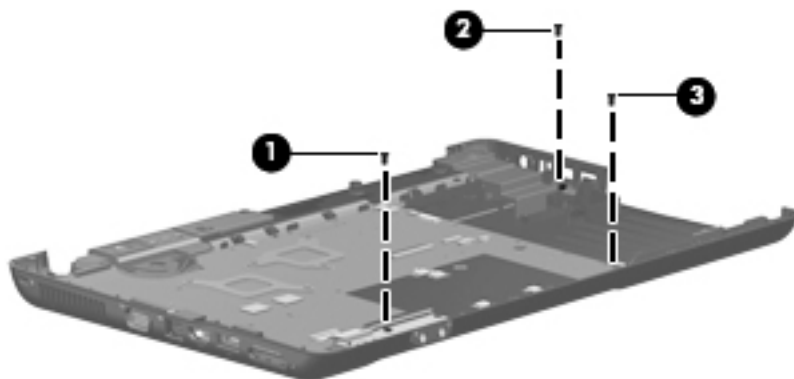


**Where used:** One screw that secures the top cover to the base enclosure

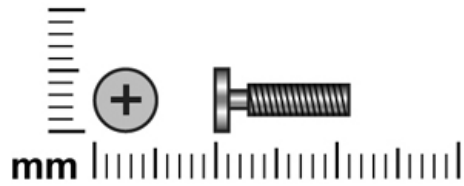


**Where used:**

- ❶ One screw that secures the audio board to the base enclosure
- ❷ One screw that secures the USB board to the base enclosure
- ❸ One screw that secures the system board to the base enclosure



## Phillips PM2.5×11.0 captive screws

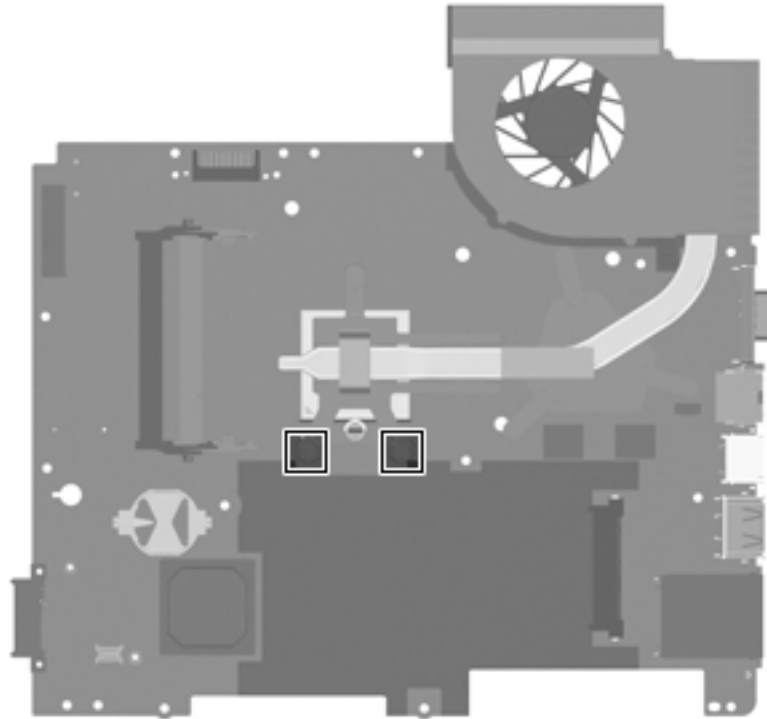


| Color  | Quantity | Length  | Thread | Head diameter |
|--------|----------|---------|--------|---------------|
| Silver | 2        | 11.0 mm | 2.5 mm | 4.5 mm        |

**Where used:** 2 captive screws (secured by C-clips) that secure the UMA heat sink to the system board

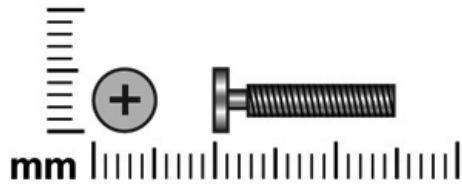


**Where used:** 2 captive screws (secured by C-clips) that secure the discrete heat sink to the system board





## Phillips PM2.5×15.0 captive screws



| Color | Quantity | Length  | Thread | Head diameter |
|-------|----------|---------|--------|---------------|
| Black | 1        | 15.0 mm | 2.5 mm | 4.5 mm        |

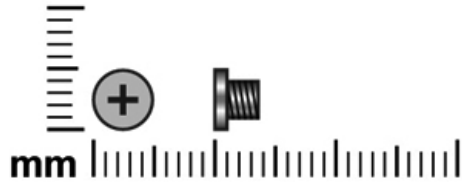
**Where used:** One captive screw (secured by a C-clip) that secures the UMA heat sink to the system board



**Where used:** One captive screw (secured by a C-clip) that secures the discrete heat sink to the system board

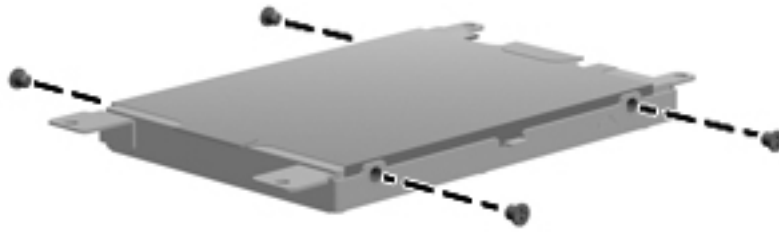


## Phillips PM3.0×3.5 screws



| Color  | Quantity | Length | Thread | Head diameter |
|--------|----------|--------|--------|---------------|
| Silver | 4        | 3.5 mm | 3.0 mm | 4.6 mm        |

**Where used:** 4 screws that secure the hard drive bracket to the hard drive



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# Backup and recovery

## Overview

Recovery after a system failure is as complete as your most current backup. HP recommends that you create recovery discs immediately after software setup. As you add new software and data files, you should continue to back up your system on a regular basis to maintain a reasonably current backup.

Tools provided by the operating system and HP Recovery Manager software are designed to help you with the following tasks for safeguarding your information and restoring it in case of a system failure:

- Creating a set of recovery discs (Recovery Manager software feature). Recovery discs are used to start up (boot) your computer and restore the operating system and software programs to factory settings in case of system failure or instability.
- Backing up your information regularly to protect your important system files.
- Creating system restore points (operating system feature). System restore points allow you to reverse undesirable changes to your computer by restoring the computer to an earlier state.
- Recovering a program or driver (Recovery Manager software feature). This feature helps you reinstall a program or driver without performing a full system recovery.
- Performing a full system recovery (Recovery Manager software feature). With Recovery Manager, you can recover your full factory image if you experience system failure or instability. Recovery Manager works from a dedicated recovery partition (select models only) on the hard drive or from recovery discs you create.



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Computers with a solid-state drive (SSD) may not have a recovery partition. Recovery discs have been included for computers that do not have a partition. Use these discs to recover your operating system and software. To check for the presence of a recovery partition, select **Start**, right-click **Computer**, click **Manage**, and then click **Disk Management**. If the partition is present, an HP Recovery drive is listed in the window.

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## Creating recovery discs

HP recommends that you create recovery discs to be sure that you can restore your system to its original factory state if you experience serious system failure or instability. Create these discs after setting up the computer for the first time.

Handle these discs carefully and keep them in a safe place. The software allows the creation of only one set of recovery discs.




---

If your computer does not include an internal optical drive, you can use an optional external optical drive (purchased separately) to create recovery discs, or you can purchase recovery discs for your computer from the HP Web site.

---

Note the following guidelines before creating recovery discs:


- You will need high-quality DVD-R, DVD+R, BD-R (writable Blu-ray), or CD-R discs. All these discs are purchased separately. DVDs and BDs have a much higher capacity than CDs. If you use CDs, up to 20 discs may be required, whereas only a few DVDs or BDs are required.
  -  Read-write discs, such as CD-RW, DVD±RW, double-layer DVD±RW, and BD-RE (rewritable Blu-ray) discs, are not compatible with the Recovery Manager software.
- The computer must be connected to AC power during this process.
- Only one set of recovery discs can be created per computer.
- Number each disc before inserting it into the optical drive.
- If necessary, you can exit the program before you have finished creating the recovery discs. The next time you open Recovery Manager, you will be prompted to continue the disc creation process.

To create a set of recovery discs:

1. Select **Start > All Programs > Recovery Manager > Recovery Disc Creation**. Recovery Manager opens.
2. Follow the on-screen instructions.

## Backing up your information


As you add new software and data files, you should back up your system on a regular basis to maintain a reasonably current backup. Back up your system at the following times:

- At regularly scheduled times
  -  Set reminders to back up your information periodically.
- Before the computer is repaired or restored
- Before you add or modify hardware or software

Note the following when backing up:

- Create system restore points using the Windows® System Restore feature, and periodically copy them to disc.
- Store personal files in the Documents library and back up this folder periodically.
- Back up templates stored in their associated programs.
- Save customized settings in a window, toolbar, or menu bar by taking a screen shot of your settings. The screen shot can be a time-saver if you have to reset your preferences.

To copy the screen and paste it into a word-processing document, follow these steps:

1. Display the screen.
  2. Copy the screen:
    - To copy only the active window, press **alt+fn+prt sc**.
    - To copy the entire screen, press **fn+prt sc**.
  3. Open a word-processing document, and then select **Edit > Paste**.
  4. Save the document.
- You can back up your information to an optional external hard drive, a network drive, or discs.
  - When backing up to discs, use any of the following types of discs (purchased separately): CD-R, CD-RW, DVD+R, DVD-R, or DVD±RW. The discs you use will depend on the type of optical drive installed in your computer.
    -  DVDs store more information than CDs, so using them for backup reduces the number of recovery discs required.
  - When backing up to discs, number each disc before inserting it into the optical drive of the computer.

## Using Windows Backup and Restore

To create a backup using Windows Backup and Restore, follow these steps:



Be sure that the computer is connected to AC power before you start the backup process.



The backup process may take over an hour, depending on file size and the speed of the computer.

1. Select **Start > All Programs > Maintenance > Backup and Restore**.
2. Follow the on-screen instructions to set up and create a backup.



Windows® includes the User Account Control feature to improve the security of your computer. You may be prompted for your permission or password for tasks such as installing software, running utilities, or changing Windows settings. Refer to Help and Support for more information.

## Using system restore points

When you back up your system, you are creating a system restore point. A system restore point allows you to save and name a snapshot of your hard drive at a specific point in time. You can then recover back to that point if you want to reverse subsequent changes made to your system.



Recovering to an earlier restore point does not affect data files saved or e-mails created since the last restore point.

You also can create additional restore points to provide increased protection for your system files and settings.

## When to create restore points

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



If you revert to a restore point and then change your mind, you can reverse the restoration.

## Create a system restore point

1. Select **Start > Control Panel > System and Security > System**.
2. In the left pane, click **System Protection**.
3. Click the **System Protection** tab.
4. Under **Protection Settings**, select the disk for which you want to create a restore point.
5. Click **Create**.
6. Follow the on-screen instructions.

## Restore to a previous date and time

To revert to a restore point (created at a previous date and time), when the computer was functioning optimally, follow these steps:

1. Select **Start > Control Panel > System and Security > System**.
2. In the left pane, click **System protection**.

3. Click the **System Protection** tab.
4. Click **System Restore**.
5. Follow the on-screen instructions.

## Performing a recovery



---

You can recover only files that you have previously backed up. HP recommends that you use HP Recovery Manager to create a set of recovery discs (entire drive backup) as soon as you set up your computer.

---

Recovery Manager software allows you to repair or restore the system if you experience system failure or instability. Recovery Manager works from recovery discs or from a dedicated recovery partition (select models only) on the hard drive. However, if your computer includes a solid-state drive (SSD), you may not have a recovery partition. If that is the case, recovery discs have been included with your computer. Use these discs to recover your operating system and software.



---

Windows has its own built-in repair features, such as System Restore. If you have not already tried these features, try them before using Recovery Manager.

---



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Recovery Manager recovers only software that was preinstalled at the factory. Software not provided with this computer must be downloaded from the manufacturer's Web site or reinstalled from the disc provided by the manufacturer.

---

## Recovering from the recovery discs

To restore the system from the recovery discs:

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

## Recovering from the dedicated recovery partition (select models only)



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Computers with an SSD may not have a recovery partition. If the computer does not have a recovery partition, you will not be able to recover using this procedure. Recovery discs have been included for computers that do not have a partition. Use these discs to recover your operating system and software.

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On some models, you can perform a recovery from the partition on the hard drive, accessed by pressing either the Start button or **f11**. This restores the computer to its factory condition.

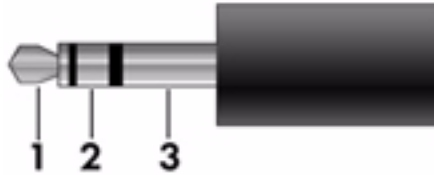
To restore the system from the partition, follow these steps:

1. Access Recovery Manager in either of the following ways:
  - Select **Start > All Programs > Recovery Manager > Recovery Manager**.
  - or –
  - Turn on or restart the computer, and then press **esc** while the “Press the ESC key for Startup Menu” message is displayed at the bottom of the screen. Then, press **f11** while the “Press <F11> for recovery” message is displayed on the screen.
2. Click **System Recovery** in the **Recovery Manager** window.
3. Follow the on-screen instructions.

---

## Connector pin assignments

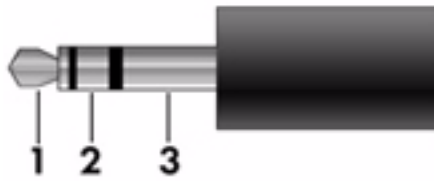
### Audio-in (microphone)



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

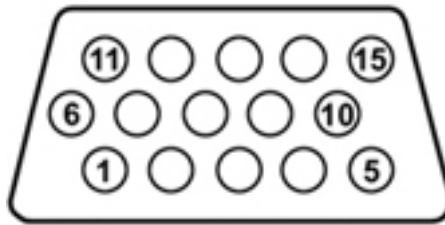


## Audio-out (headphone)



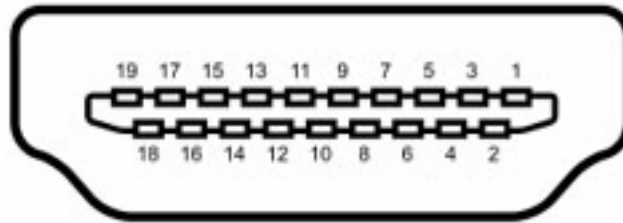
| Pin | Signal                   |
|-----|--------------------------|
| 1   | Audio out, left channel  |
| 2   | Audio out, right channel |
| 3   | Ground                   |

## External monitor



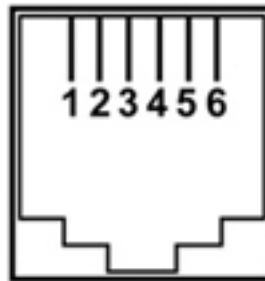
| Pin | Signal          |
|-----|-----------------|
| 1   | Red analog      |
| 2   | Green analog    |
| 3   | Blue analog     |
| 4   | Not connected   |
| 5   | Ground          |
| 6   | Ground analog   |
| 7   | Ground analog   |
| 8   | Ground analog   |
| 9   | +5 VDC          |
| 10  | Ground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

## HDMI (select models only)



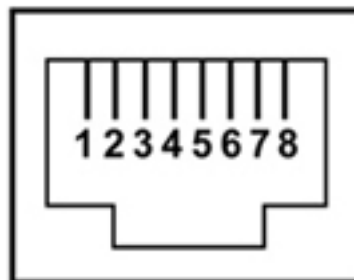
| Pin | Signal  |
|-----|---|
| 1   | Transition minimized differential signal (TDMS) data 2+ |
| 2   | TDMS data 2 shield                                      |
| 3   | TDMS data 2-  |
| 4   | TDMS data 1+  |
| 5   | TDMS data 1 shield                                      |
| 6   | TDMS data 1 shield                                      |
| 7   | TDMS data 0+  |
| 8   | TDMS data 0 shield                                      |
| 9   | TDMS data 0-  |
| 10  | TDMS clock +  |
| 11  | TDMS data clock shield                                  |
| 12  | TDMS data clock-  |
| 13  | Consumer electronics control                            |
| 14  | Not connected   |
| 15  | Display data channel (DDC) clock                        |
| 16  | DDC data  |
| 17  | Ground  |
| 18  | +5V Power   |
| 19  | Hot plug detect   |

## RJ-11 (modem, select models only)



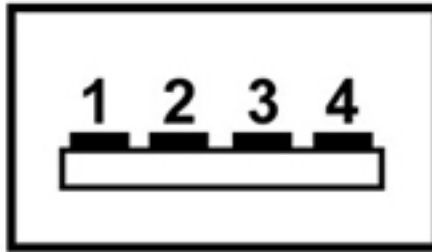
| Pin | Signal |
|-----|--------|
| 1   | Unused |
| 2   | Tip    |
| 3   | Ring   |
| 4   | Unused |
| 5   | Unused |
| 6   | Unused |

## RJ-45 (network)



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

## Universal Serial Bus



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

---

## Power cord set requirements

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

The 3-conductor power cord set included with the computer meets the requirements for use in the country or region where the equipment is purchased.

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

### Requirements for all countries and regions

The requirements listed below are applicable to all countries and regions:

- The length of the power cord set must be at least 1.5 m (5.0 ft) and no more than 2.0 m (6.5 ft).
- All power cord sets must be approved by an acceptable accredited agency responsible for evaluation in the country or region 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 the power system of each country or region.
- 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.

## Requirements for specific countries and regions


| 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                      |
| The Netherlands                | KEMA              | 1                      |
| Norway                         | NEMKO             | 1                      |
| The People's Republic of China | CCC               | 5                      |
| South Korea                    | EK                | 4                      |
| Sweden                         | SEMKO             | 1                      |
| Switzerland                    | SEV               | 1                      |
| Taiwan                         | BSMI              | 4                      |
| The United Kingdom             | BSI               | 1                      |
| The United States              | UL                | 2                      |


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


## Battery

When a battery has reached the end of its useful life, do not dispose of the battery in general household waste. Follow the local laws and regulations in your area for computer battery disposal.

## Display


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

 **CAUTION:** The procedures in this chapter can result in damage to display components. The only components intended for recycling purposes are the liquid crystal display (LCD) panel and the backlight. When you remove these components, handle them carefully.

 **Materials Disposal.** This HP product contains mercury in the backlight in the display assembly that might require special handling at end-of-life. Disposal of mercury may be regulated because of environmental considerations. For disposal or recycling information, contact your local authorities, or see the Electronic Industries Alliance (EIA) Web site at <http://www.eiae.org>.

This section provides disassembly instructions for the display assembly. The display assembly must be disassembled to gain access to the backlight ❶ and the liquid crystal display (LCD) panel ❷.

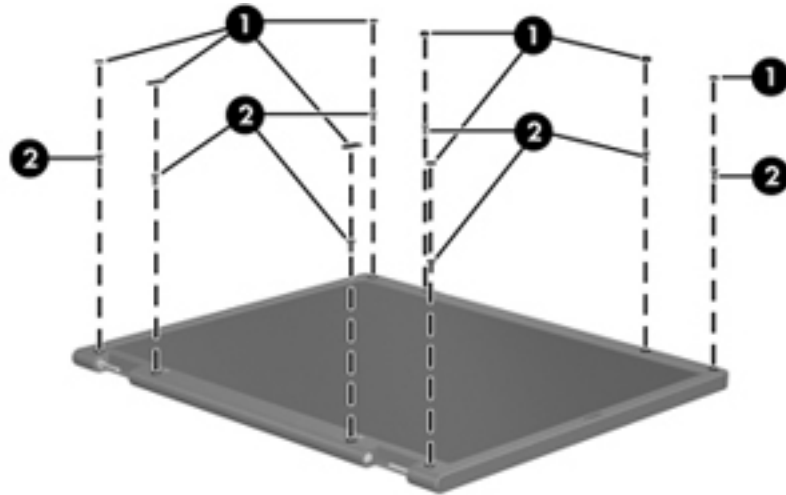


 The procedures provided in this chapter are general disassembly instructions. Specific details, such as screw sizes, quantities, and locations, and component shapes and sizes, can vary from one computer model to another.

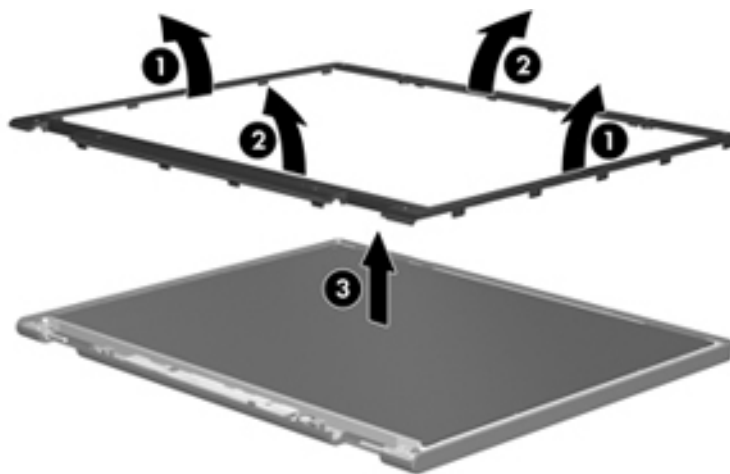


Perform the following steps to disassemble the display assembly:

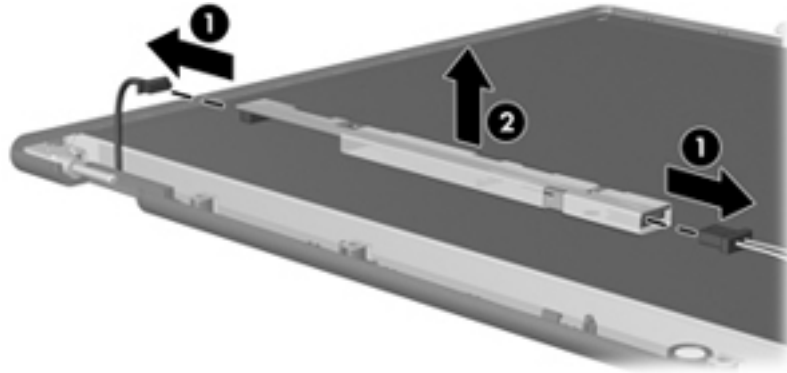
1. Remove all screw covers **1** and screws **2** that secure the display bezel to the display assembly.



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

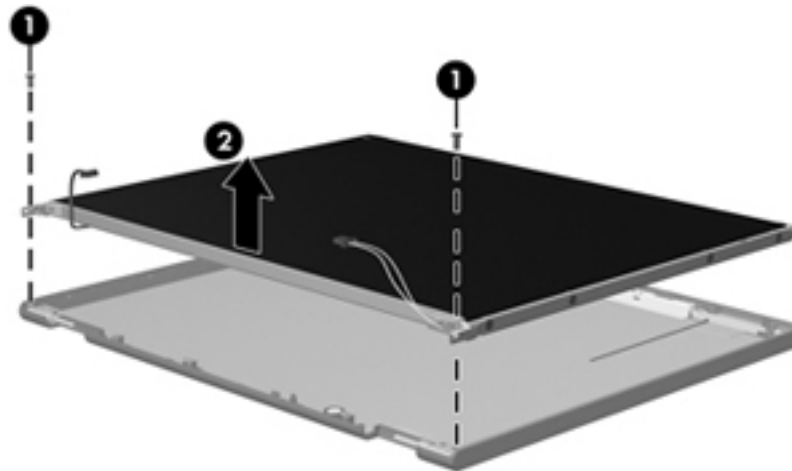


4. Disconnect all display panel cables ❶ from the display inverter and remove the inverter ❷.



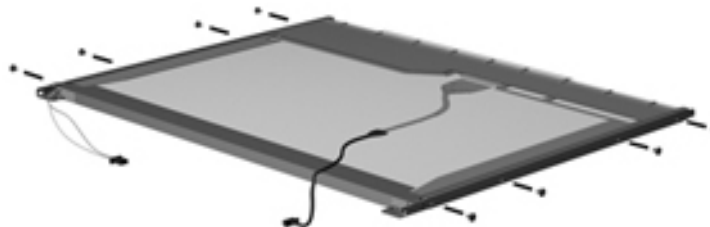
5. Remove all screws ❶ that secure the display panel assembly to the display enclosure.

6. Remove the display panel assembly ❷ from the display enclosure.

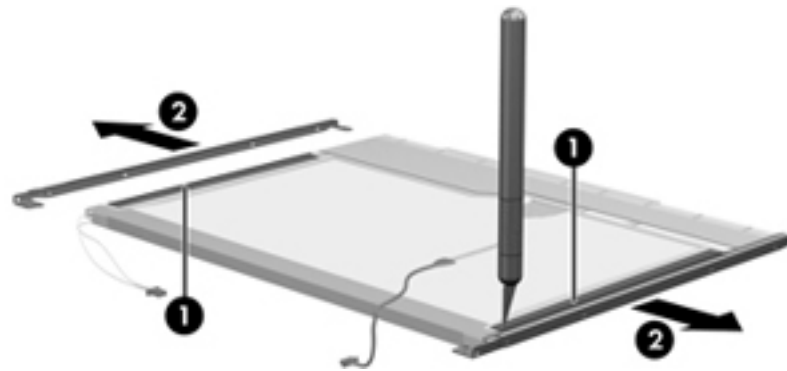


7. Turn the display panel assembly upside down.

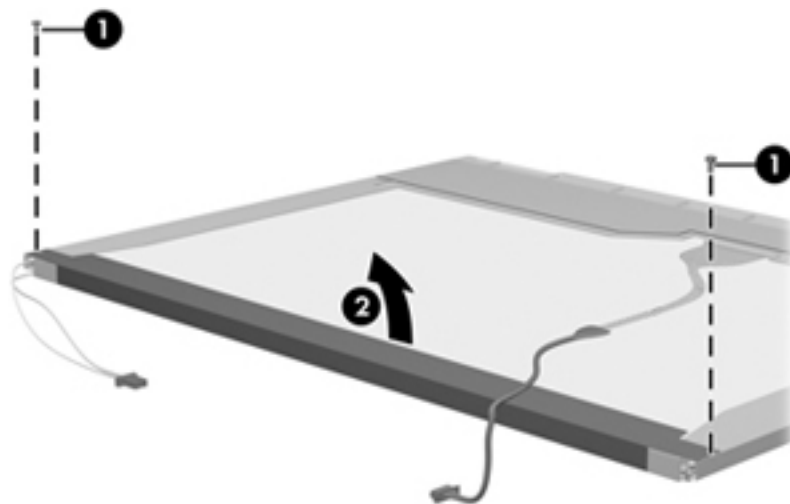
8. Remove all screws that secure the display panel frame to the display panel.



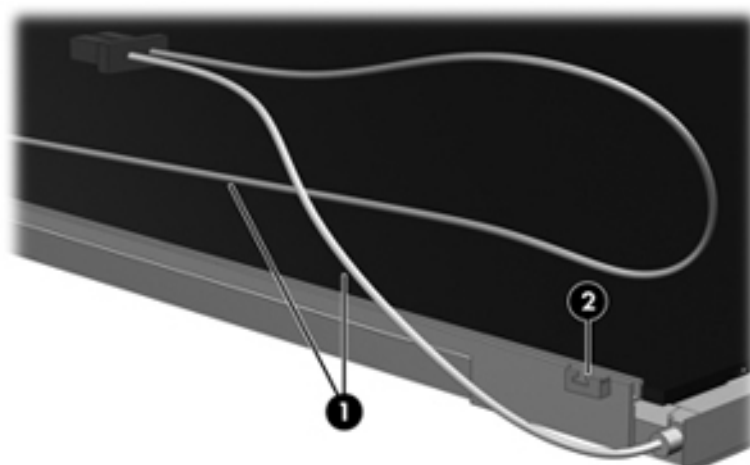
9. Use a sharp-edged tool to cut the tape ❶ that secures the sides of the display panel to the display panel frame.
10. Remove the display panel frame ❷ from the display panel.



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



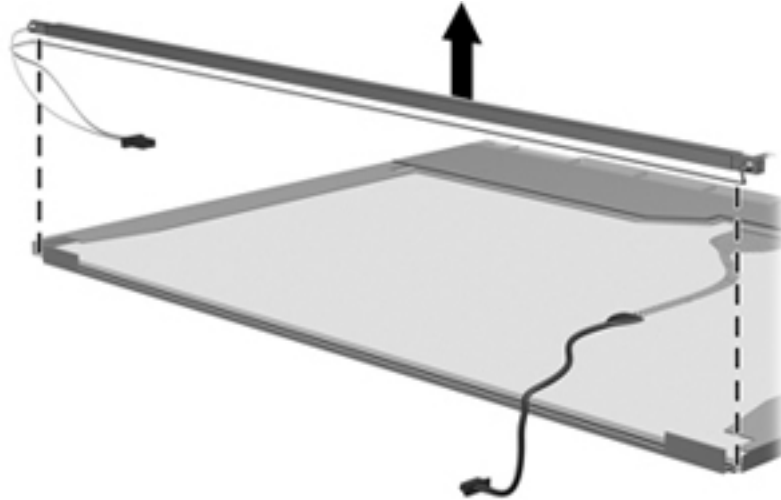
13. Remove the backlight cover.
14. Turn the display panel right-side up.
15. Remove the backlight cables ❶ from the clip ❷ in the display panel.



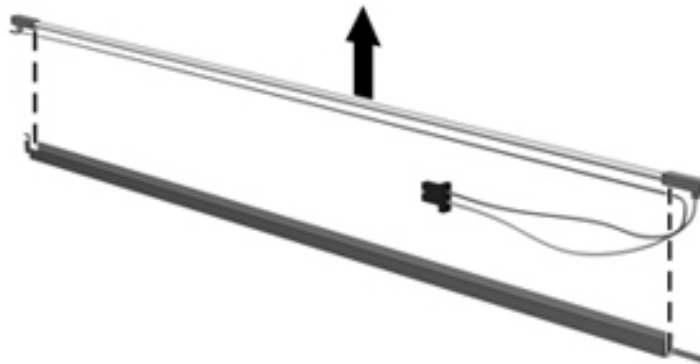
16. Turn the display panel upside down.
17. Remove the backlight frame from the display panel.



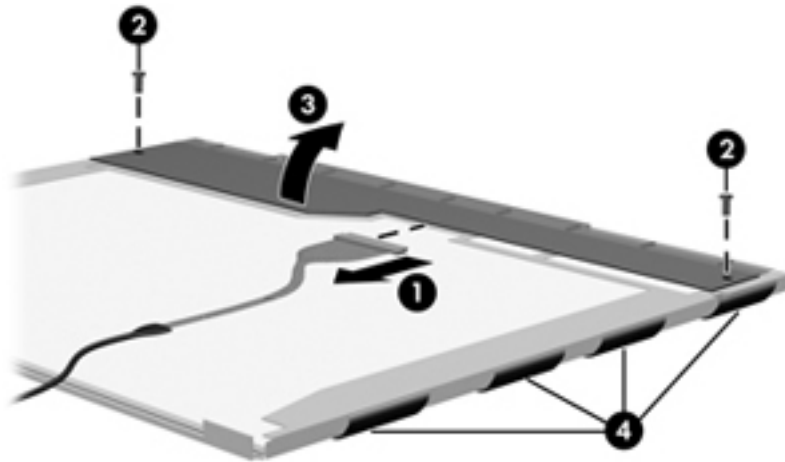
**WARNING:** The backlight contains mercury. Exercise caution when removing and handling the backlight to avoid damaging this component and causing exposure to the mercury.



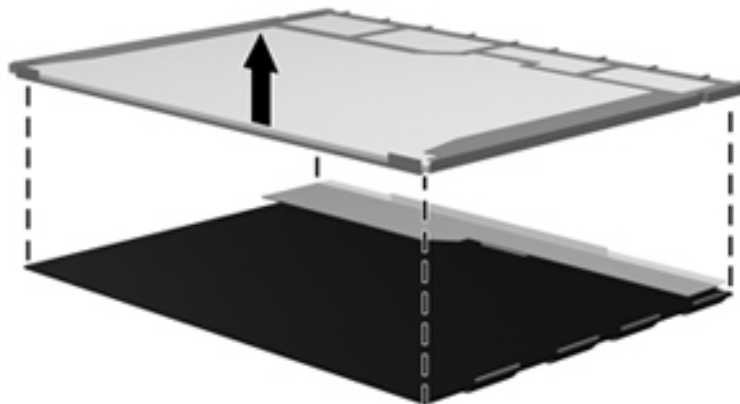
18. Remove the backlight from the backlight frame.



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



23. Remove the LCD panel.



24. Recycle the LCD panel and backlight.

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