

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



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

Category	Description	Presario CQ61 (UMA)	HP G61 (UMA)	Presario CQ61 (Discrete)
Product name	Compaq Presario CQ61 Notebook PC	✓		✓
	HP G61 Notebook PC		✓	
Processor	AMD Turion™ X2 Ultra Dual-Core Mobile Processor: M600 2.4-GHz processor, 2-MB L2 cache, 3.6 GT/s HyperTransport speed	✓	✓	✓
	AMD Turion X2 Dual-Core Mobile Processors:	✓	✓	✓
	■ M520 2.3-GHz processor, 1-MB L2 cache, 3.6 GT/s HyperTransport speed			
	■ M500 2.2-GHz processor, 1-MB L2 cache, 3.6 GT/s HyperTransport speed			
	AMD Athlon™ X2 Dual-Core Processors for Notebook PCs:	✓	✓	✓
■ M320 2.1-GHz processor, 1-MB L2 cache, 3.2 GT/s HyperTransport speed				
■ M300 2.0-GHz processor, 1-MB L2 cache, 3.2 GT/s HyperTransport speed				
	AMD Sempron™ Processor for Notebook PCs: M100 2.0-GHz processor, 512-KB L2 cache, 3.2 GT/s HyperTransport speed	✓	✓	✓
Chipset	Northbridge: ATI RS880M	✓	✓	
	Northbridge: ATI RX881			✓
	Southbridge: AMD SB710	✓	✓	✓
Graphics	ATI Radeon™ HD 4200 unified memory architecture (UMA, integrated) with shared video memory:	✓	✓	
	<ul style="list-style-type: none"> ■ Up to 126 MB when system memory = 1024 MB ■ Up to 638 MB when system memory ≥ 2048 MB ■ Up to 1150 MB when system memory ≥ 3072 MB ■ Up to 1534 MB when system memory ≥ 4096 MB (32-bit OS) ■ Up to 1662 MB when system memory ≥ 4096 MB (64-bit OS) 			
	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)
Panel	15.6-in, white light-emitting diode (LED) backlit, high-definition (HD), BrightView display panel (1366 × 768) 16:9 wide aspect ratio (1600×900) Typical brightness: 200 nits	✓	✓	✓
	15.6-in, cold-cathode fluorescent lamp (CCFL), HD, BrightView display panel (1366 × 768) 16:9 wide aspect ratio (1600 × 900) Typical brightness: 200 nits	✓	✓	✓
Memory	2 SODIMM slots Customer-accessible/upgradable PC2-6400, 800-MHz, DDR2 Supports dual-channel memory Supports up to 8 GB of system RAM, in the following configurations: <ul style="list-style-type: none"> ■ 8192 MB (4096 × 2) ■ 4096 MB (2048 × 2) ■ 3072 MB (2048 × 1 + 1024 × 1) ■ 2048 MB (2048 × 1) ■ 2048 MB (1024 × 2) ■ 1024 MB (1024 × 1) 	✓	✓	✓
Hard drive	Supports 9.50-mm, 6.35-cm (2.50-in) hard drives Serial ATA (SATA) Customer-accessible Single hard drive configurations: <ul style="list-style-type: none"> ■ 500 GB, 5400 rpm ■ 320 GB, 7200 and 5400 rpm ■ 250 GB, 7200 and 5400 rpm ■ 160 GB, 7200 and 5400 rpm 	✓	✓	✓
Optical drive	Fixed (removal of one screw required) Serial ATA (SATA) 12.7-mm tray load Customer-accessible Supports the following drives: <ul style="list-style-type: none"> ■ Blu-ray ROM with LightScribe DVD±R/RW SuperMulti Double-Layer Drive ■ DVD±RW and CD-RW SuperMulti Double-Layer Combo Drive with LightScribe 	✓	✓	✓
Webcam (select models only)	VGA camera Fixed angle (no tilt) 640 × 480 by 22.5 frames per second Activity light	✓	✓	✓
Microphone	Single analog microphone	✓	✓	✓
Audio	High-definition audio Supports Microsoft® premium requirements 2 Altec Lansing Presario-branded speakers	✓	✓	✓

(Continued)

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

(Continued)

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

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"> ■ White: TouchPad is enabled. ■ Amber: TouchPad is disabled.
(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**.

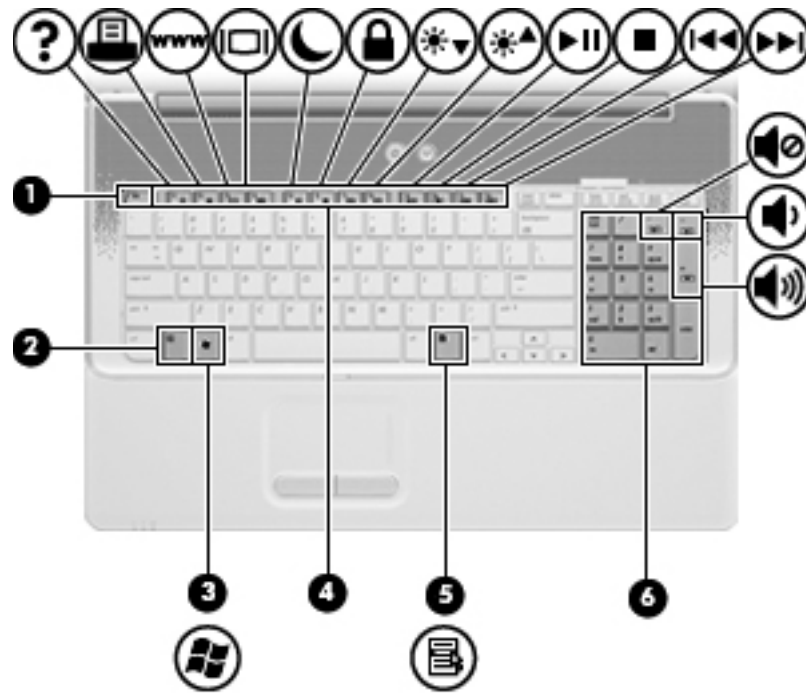
Lights



Item	Component	Description
(1)	Caps lock light	On: Caps lock is on.
(2)	Power lights (2)*	<ul style="list-style-type: none"> ■ On: The computer is on. ■ Blinking: The computer is in the Sleep state. ■ Off: The computer is off or in Hibernation.
(3)	Wireless light	<ul style="list-style-type: none"> ■ Blue: An integrated wireless device, such as a wireless local area network (WLAN) device and/or a Bluetooth® device, is on. ■ Amber: All wireless devices are off.
(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"> ■ On: A battery is charging. ■ 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. ■ 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.
(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)	esc key	Displays system information when pressed in combination with the fn key.
(2)	fn key	Executes frequently used system functions when pressed in combination with a function key or the esc key.
(3)	Windows logo key	Displays the Windows Start menu.
(4)	Function keys	Execute frequently used system functions when pressed in combination with the fn 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"> ■ Can be used like the keys on an external numeric keypad. ■ Adjusts system volume when the asterisk (*), minus sign (-), or plus sign (+) is pressed in combination with the fn key.

Buttons and speakers



Item	Component	Description
(1)	Speakers (2)	Produce sound.
(2)	Power button*	<ul style="list-style-type: none"> ■ When the computer is off, press the button to turn on the computer. ■ When the computer is on, press the button briefly to initiate Sleep. ■ When the computer is in the Sleep state, press the button briefly to exit Sleep. ■ When the computer is in Hibernation, press the button briefly to exit Hibernation. <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 Start > Control Panel > System and Security > Power Options.</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



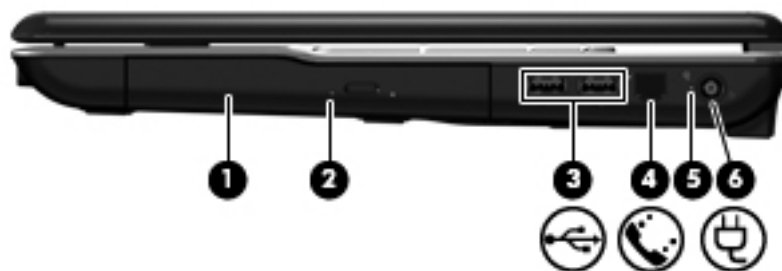
Item	Component	Description
(1)	Audio-in (microphone) jack	Connects an optional computer headset microphone, stereo array microphone, or monaural microphone.
(2)	Audio-out (headphone) jack	Produces sound when connected to optional powered stereo speakers, headphones, ear buds, a headset, or television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



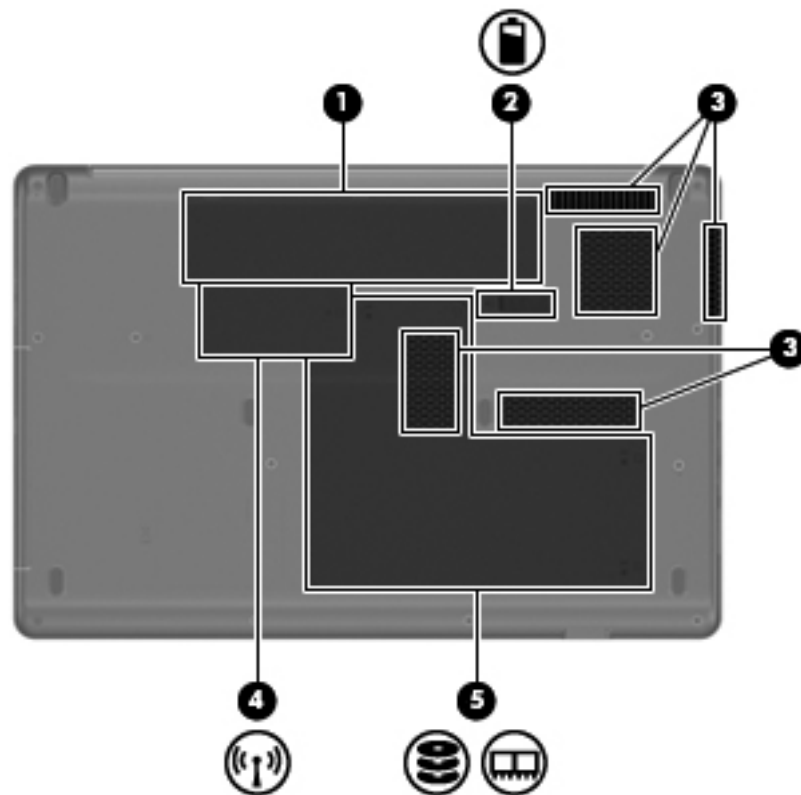
Item	Component	Description
(1)	Optical drive	Reads and writes to optical discs.
(2)	Optical drive light	Blinking: The optical drive is being accessed.
(3)	USB ports (2)	Connect optional USB devices.
(4)	RJ-11 (modem) jack (select models only)	Connects a modem cable.
(5)	AC adapter light	<ul style="list-style-type: none"> ■ On: The computer is connected to external power. ■ Off: The computer is not connected to external power.
(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.  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.  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)	Enable airflow to cool internal components.  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.
(4)	Wireless module compartment	Holds a wireless LAN module.  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.
(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.



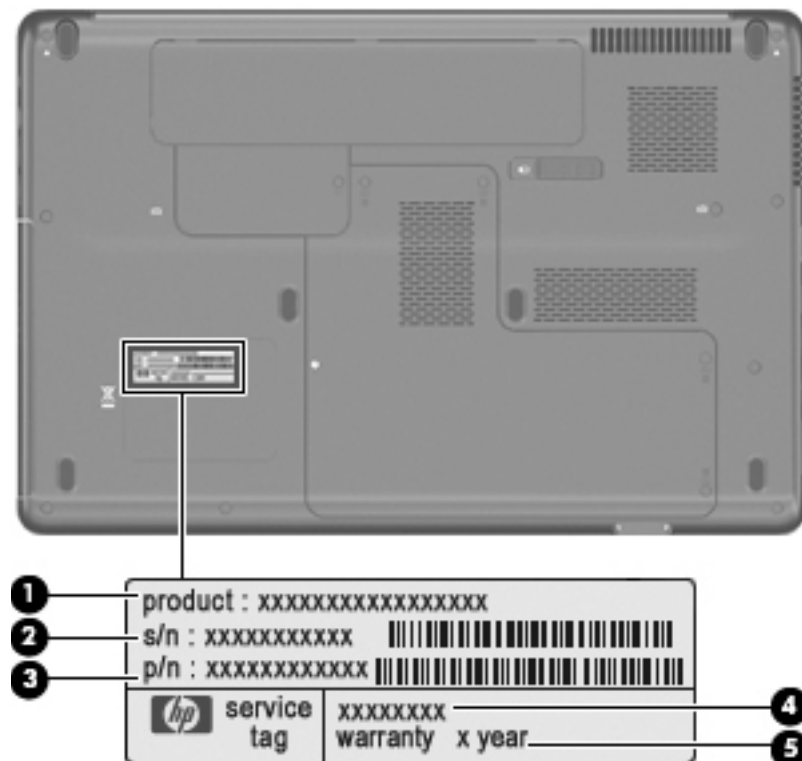
The antennas are not visible from the outside of the computer. For optimal transmission, keep the areas immediately around the antennas free from obstructions.

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

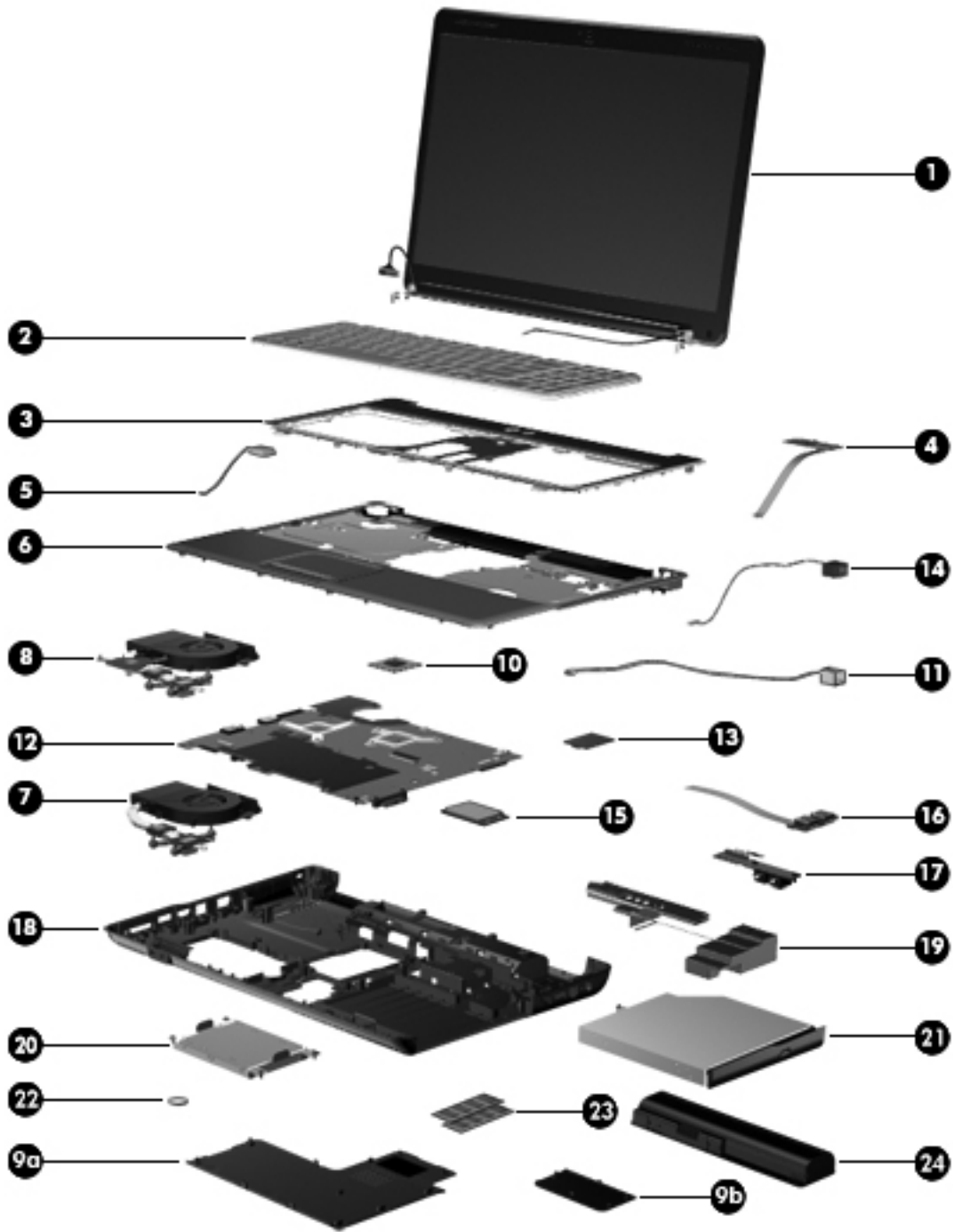
Service tag

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)	Display assembly (includes 2 wireless antennas, display panel/webcam cable, and enclosure with logo; see “Display assembly subcomponents” on page 3-8 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)	Keyboard	
	■ 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
	Keyboard (Continued)	
	■ For use in Turkey	517865-141
	■ For use in the United Kingdom	517865-031
	■ For use in the United States	517865-001
(3)	Keyboard cover	
	■ For use with the CQ61 and black HP G61	531207-001
	■ For use with the silver HP G61	534997-001
(4)	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.	
(5)	Bluetooth module and cable (select models only)	
	■ Bluetooth module	537921-001
	■ Bluetooth module cable	582757-001
(6)	Top cover (includes TouchPad)	
	■ For use with the CQ61 and black HP G61	531206-001
	■ For use with the silver HP G61	534996-001
	Fan/heat sink assembly (includes replacement thermal material)	
(7)	■ For use with UMA systems	580718-001
(8)	■ For use with discrete systems	580719-001
	Plastics Kit (see "Plastics Kit" on page 3-9 for more spare part information)	531517-001
(9a)	Hard drive cover	
(9b)	Wireless module compartment cover	
(10)	Processor (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)	RJ-11 (modem) connector (select models only; includes cable)	
	 The RJ-11 (modem) connector is included in the Cable Kit, spare part number 531211-001.	
(12)	System board (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)	Modem (select models only)  The modem spare part kit does not include a cable. See the RJ-11 (modem) connector above. <ul style="list-style-type: none"> ■ For use in all countries and regions except Australia and New Zealand ■ For use in Australia and New Zealand only 	 461749-001 461749-011
(14)	Power connector (includes cable)	533465-001
(15)	WLAN module <ul style="list-style-type: none"> ■ 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 ■ 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 	 518436-001 518436-002

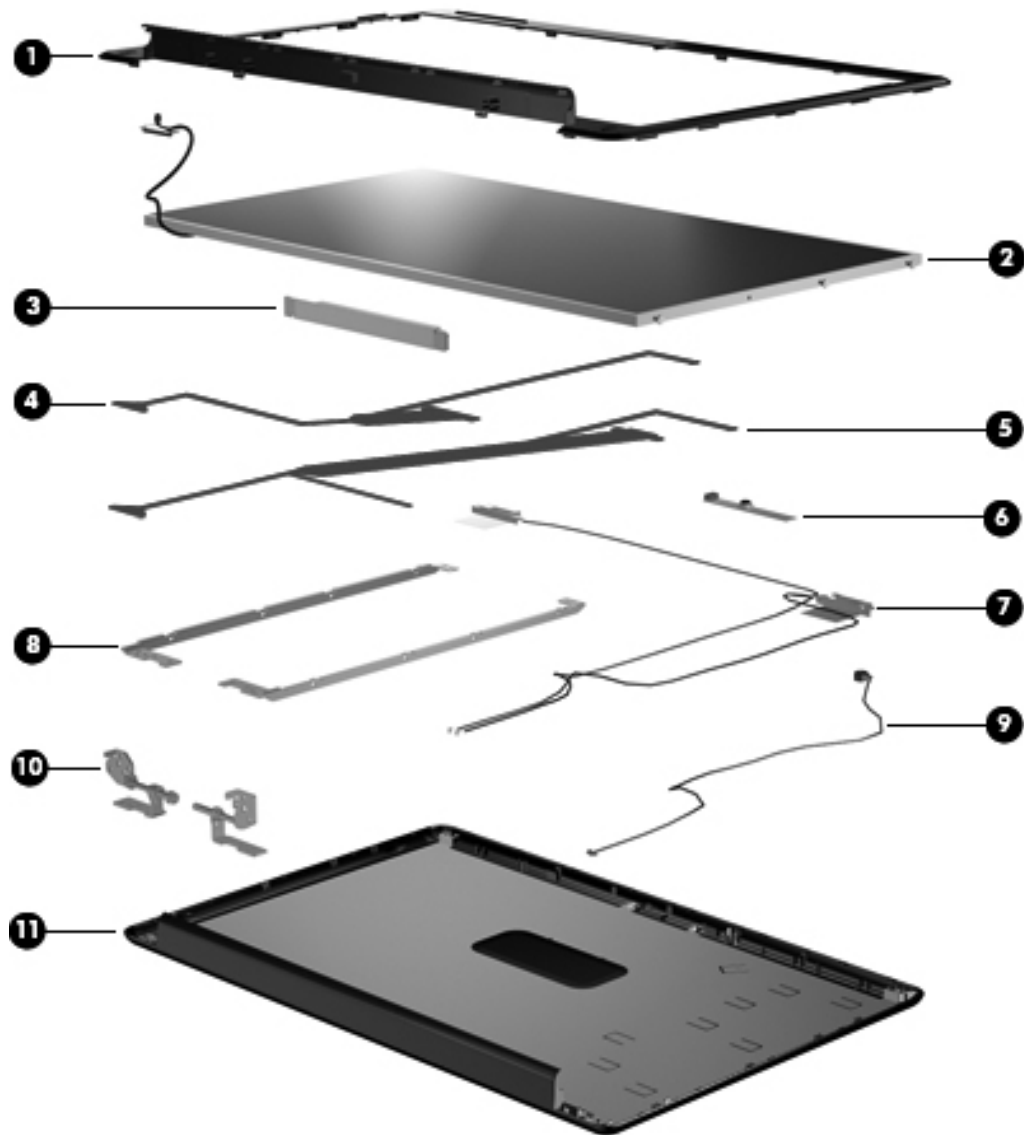
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Item	Description	Spare Part Number
	WLAN module (Continued)	
	■ Atheros AR5009 802.11a/b/g/n for use in Canada, the Cayman Islands, Guam, Puerto Rico, the United States, and the U.S. Virgin Islands	518437-001
	■ Atheros AR5009 802.11a/b/g/n for use 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)	USB board (includes cable)	531866-001
(17)	Audio board  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)	Base enclosure	
	■ 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
	Rubber Feet Kit (not illustrated, includes six rubber computer feet)	531213-001
(19)	Speaker assembly (includes left and right speakers and cables)	531209-001
(20)	Hard drive (includes bracket; see "Mass storage devices" 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
	Hard Drive Hardware Kit (not illustrated, includes hard drive bracket and screws)	531204-001

(Continued)


Item	Description	Spare Part Number
(21)	Optical drive (includes bezel and bracket; see “Mass storage devices” on page 3-10 for more spare part information)	
	■ 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
(22)	Real-time clock (RTC) battery	449729-001
(23)	Memory modules (PC2-6400, 800-MHz, DDR2)	
	■ 4 GB (CQ61 only)	575566-005
	■ 2 GB	573722-006
	■ 1 GB	573721-006
(24)	Battery	
	■ 6-cell, 2.55 Ah (55 Wh) Li-ion	484171-001
	■ 6-cell, 2.2 Ah (47 Wh) Li-ion	484170-001

Display assembly subcomponents



Item	Description	Spare part number
(1)	Display bezel	
	■ 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
	Display Rubber Kit (not illustrated, includes display bezel screw covers and bumper pads)	530999-001
(2)	Display panel	
	■ 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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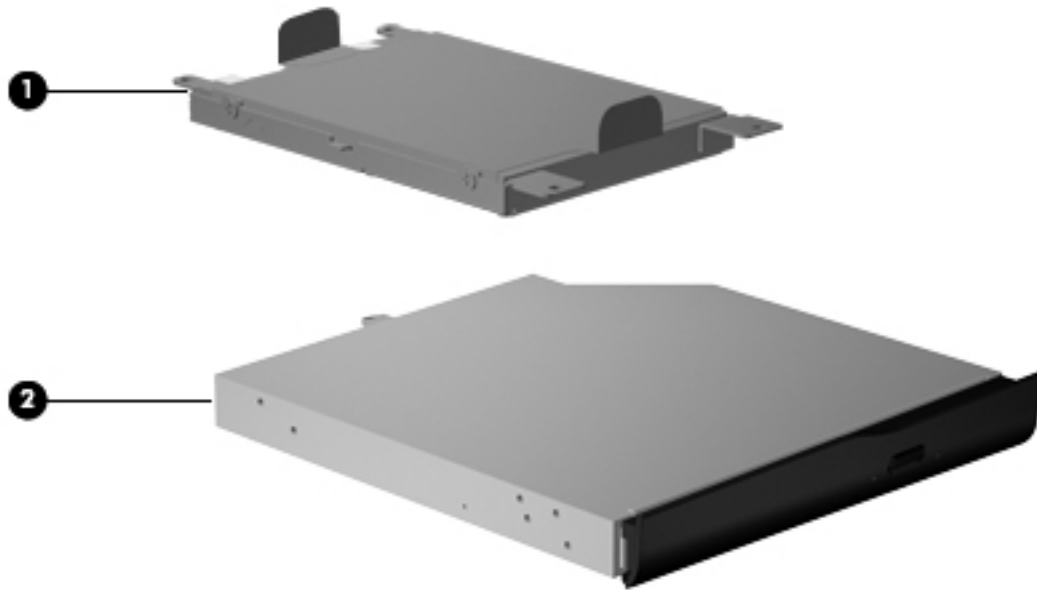
Item	Description	Spare part number
(3)	Display inverter (for use with CCFL display panels only)	577278-001
	Display Cable Kits	
(4)	■ For use with LED display panels (includes cables for both left and right panel connections)	534077-001
(5)	■ For use with CCFL display panels	579598-001
(6)	Webcam (select models only)  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)	Wireless antennas (include 2 transceivers and cables)	582068-001
(8)	Display Bracket Kit (includes left and right display brackets) ■ For use with LED display panels ■ For use with CCFL display panels	530995-001 579597-001
(9)	Microphone (includes cable)	531203-001
(10)	Display Hinge Kit (includes left and right display hinges) Display Screw Kit (not illustrated)	530993-001 531201-001
(11)	Display enclosure (includes logo) ■ For use with the HP G61 ■ For use with the CQ61	589031-001 589030-001

Plastics Kit



Item	Description	Spare part number
	Plastics Kit	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)	Hard drive (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
	Hard Drive Hardware Kit (not illustrated, includes hard drive bracket and screws)	531204-001
(2)	Optical drive (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
AC adapters	
■ 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
Cable Kit	
	531211-001
■ Audio board cable	
■ Num lock cable	
■ Power button board cable	
■ RJ-11 (modem) connector	
■ TouchPad cable	
■ USB board cable	
Power cords	
■ 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
Screw Kit	
	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

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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

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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)

Spare part number	Description
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)

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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

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.



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

Plastic parts



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.


Cables and connectors



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.

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

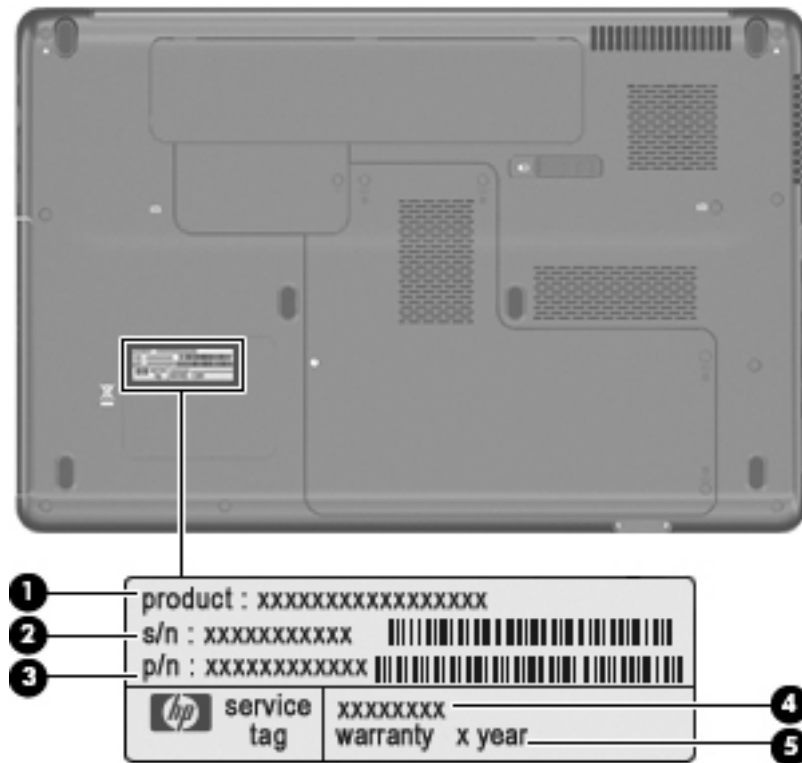
Component replacement procedures

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

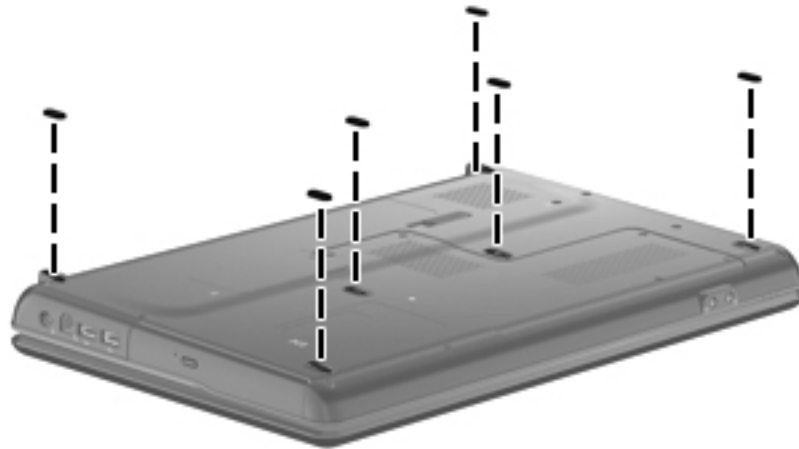
When ordering parts or requesting information, provide the computer serial number and model description provided on the service tag.



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:

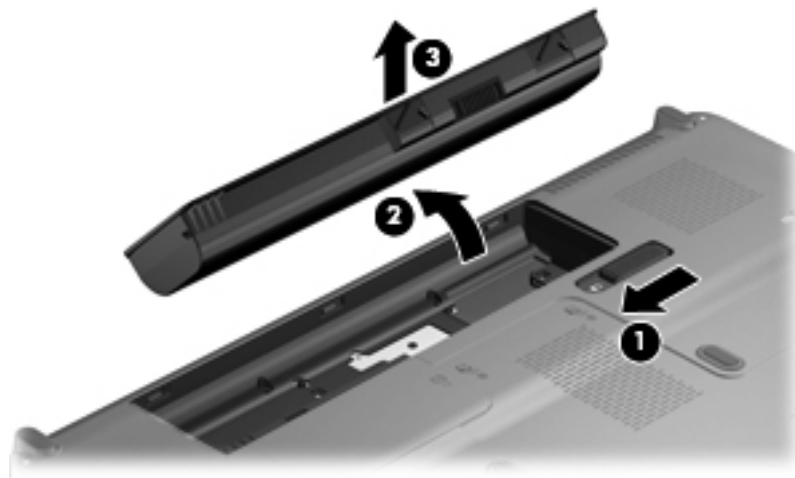
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord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

 The battery release latch automatically returns to its original position.

3. Pivot the battery ❷ upward and lift it out of the base enclosure ❸.



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:

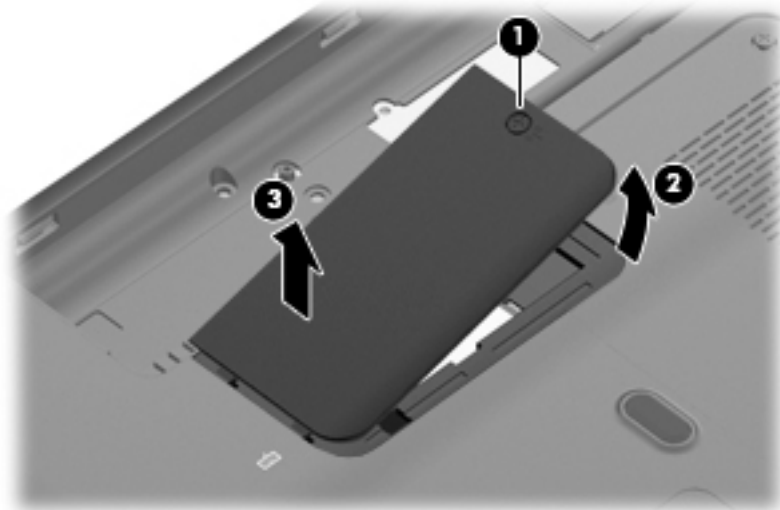
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord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

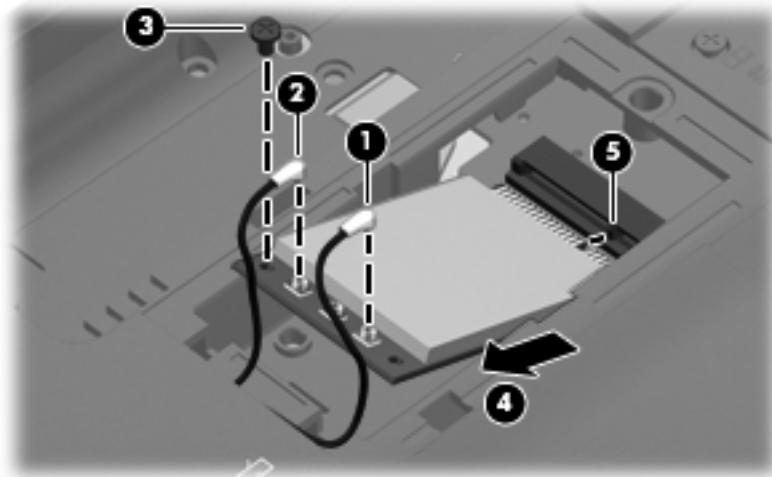
 The black WLAN antenna cable ① is connected to the WLAN module “Main” terminal. The gray WLAN antenna cable ② is connected to the WLAN module “Aux” terminal.

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.

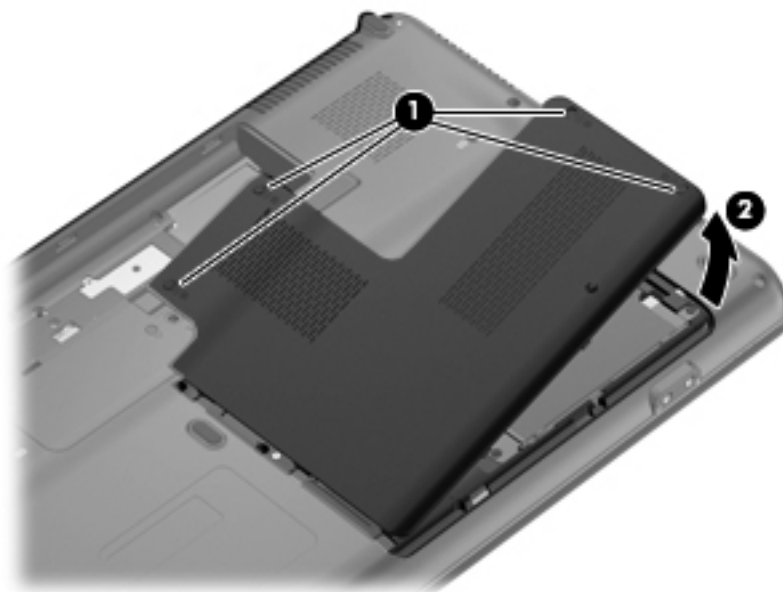
Description	Spare part number
500 GB, 5400 rpm	577086-001
320 GB, 7200 rpm	575599-001
320 GB, 5400 rpm	577084-001
250 GB, 7200 rpm	575598-001
250 GB, 5400 rpm	577082-001
160 GB, 7200 rpm	580528-001
160 GB, 5400 rpm	577080-001
Hard Drive Hardware Kit (includes hard drive bracket and screws)	531204-001

Before removing the hard drive, follow these steps:

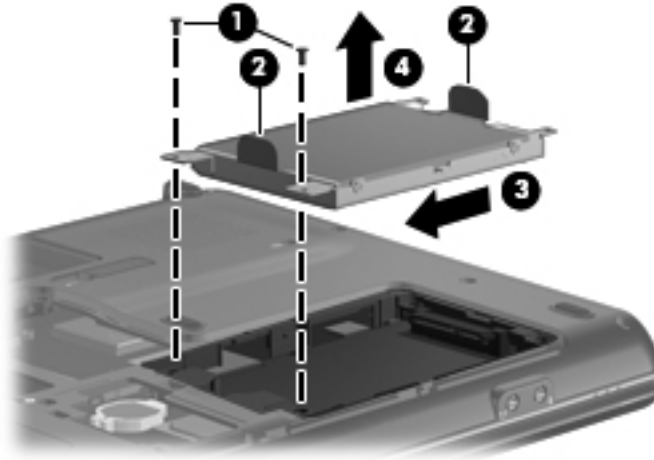
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord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

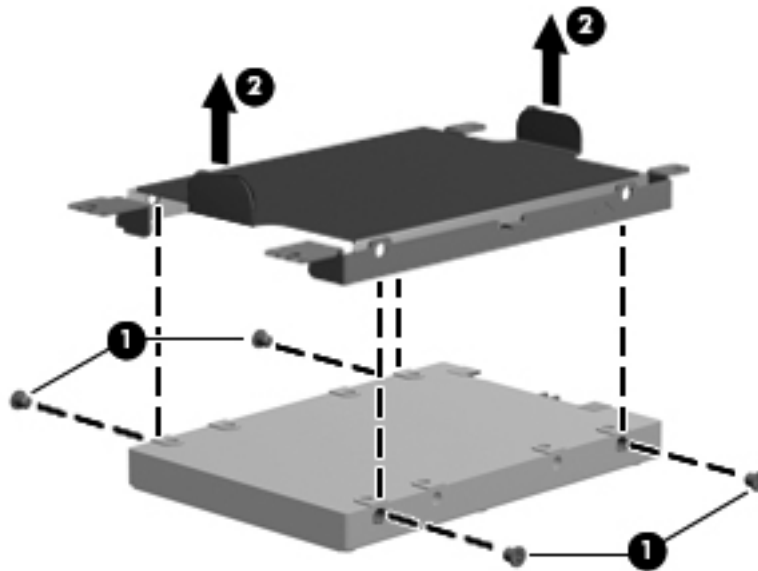
1. Loosen the four Phillips PM2.5×5.5 captive screws ❶ that secure the hard drive cover to the base enclosure.
2. Lift the right side of the cover ❷, swing it up and to the left, and then remove the cover. The hard drive cover is included in the Plastics Kit, spare part number 531517-001.



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.

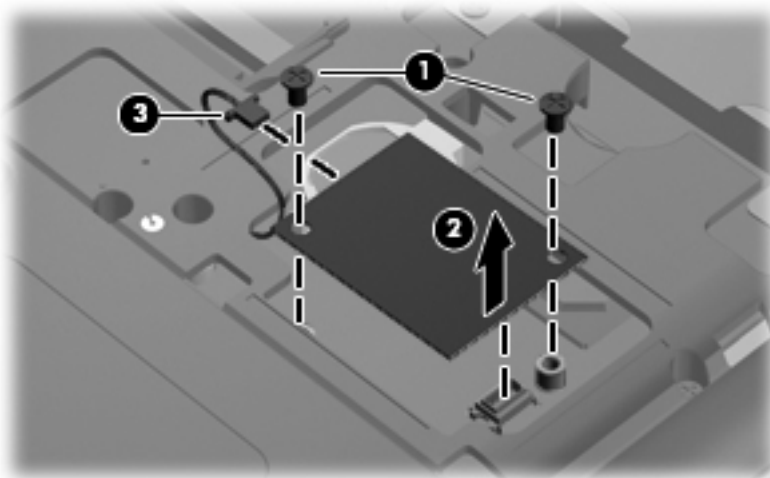
Description	Spare part number
For use in all countries and regions except Australia and New Zealand	461749-001
For use in Australia and New Zealand only	461749-011

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

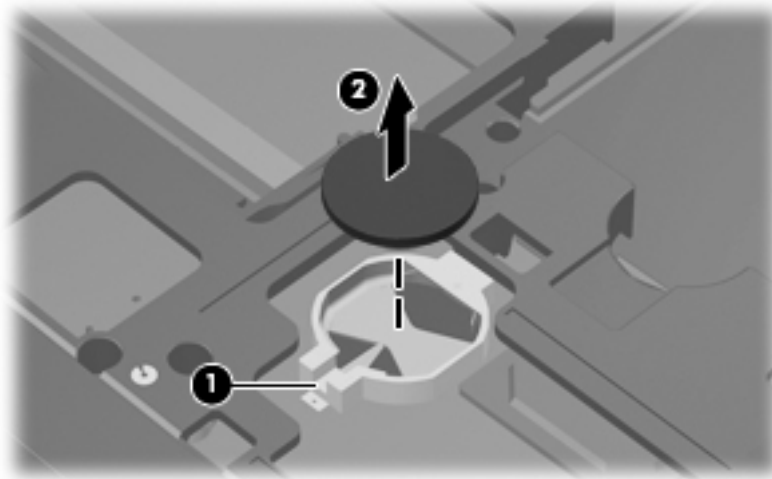
Description	Spare part number
RTC battery	449729-001

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).

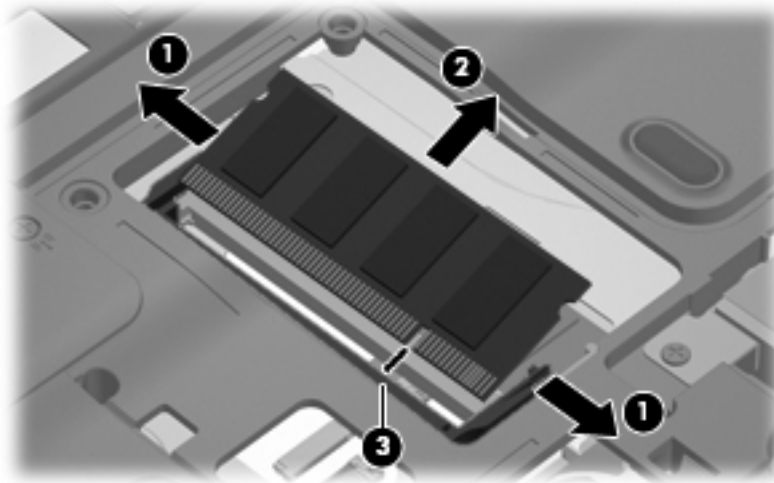
Remove the memory module:

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.

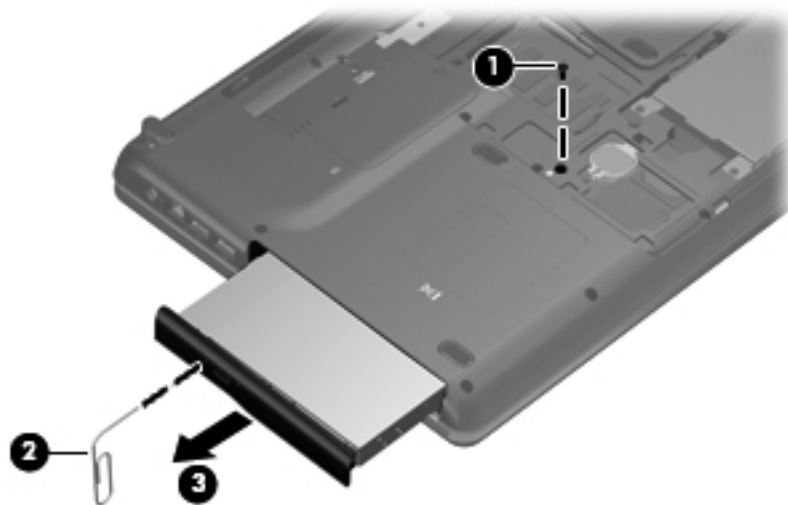
Description	Spare part number
Blu-ray ROM with LightScribe DVD±R/RW SuperMulti Double-Layer Drive	517852-001
DVD±RW and CD-RW SuperMulti Double-Layer Combo Drive with LightScribe	517850-001

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



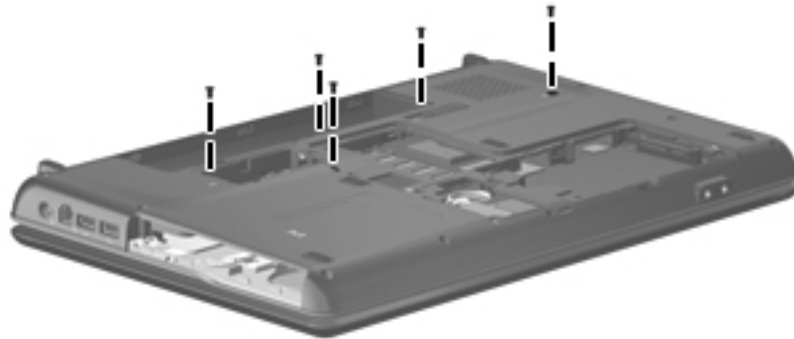
For a comprehensive list of keyboard spare part numbers, see [“Computer major components” on page 3-2](#).

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:

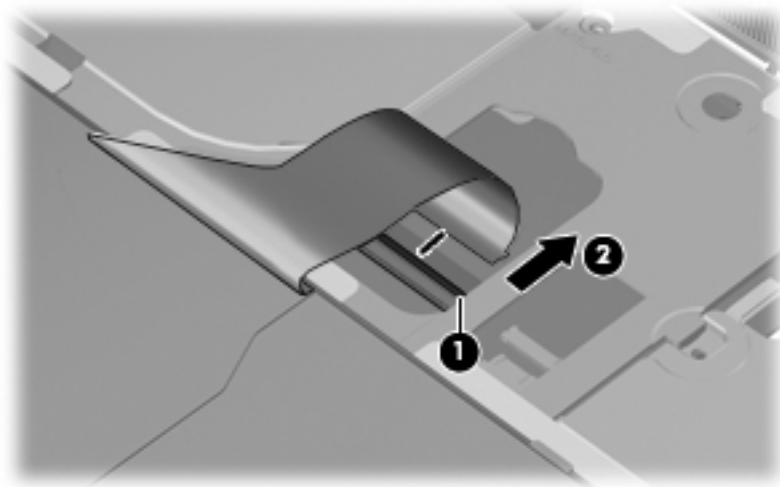
1. Remove the five Phillips PM2.5×6.5 screws that secure the keyboard to the base enclosure. The keyboard screws are identified by a keyboard icon embossed on the base enclosure.



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

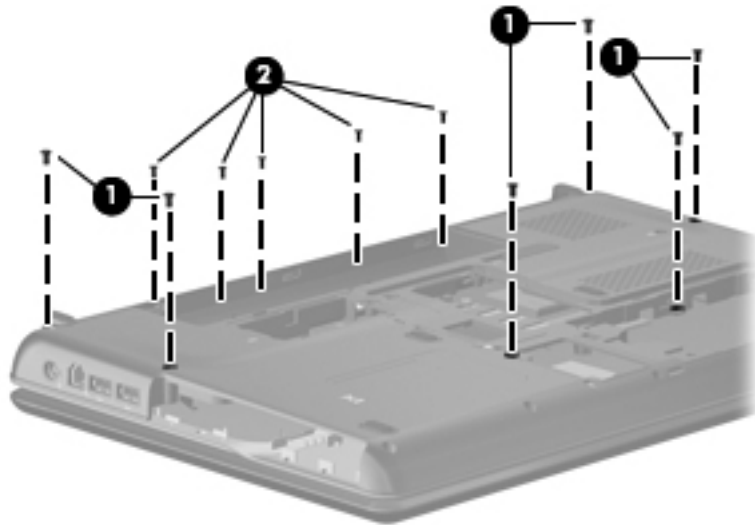
Description	Spare part number
For use with the CQ61 and black HP G61	531207-001
For use with the silver HP G61	534997-001

Before removing the keyboard cover, follow these steps:

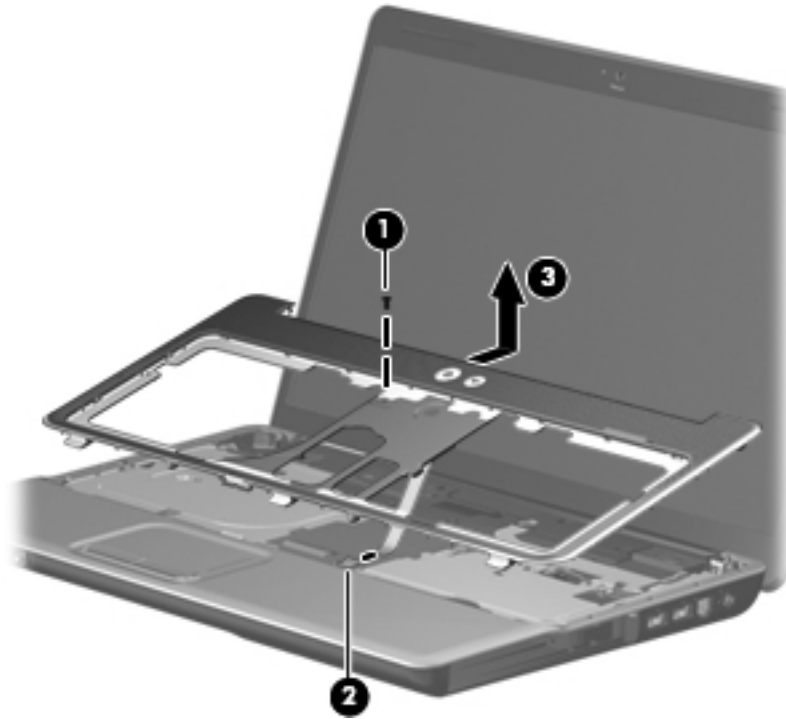
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord 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 **1** and the five Phillips PM2.0×3.0 screws **2** 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

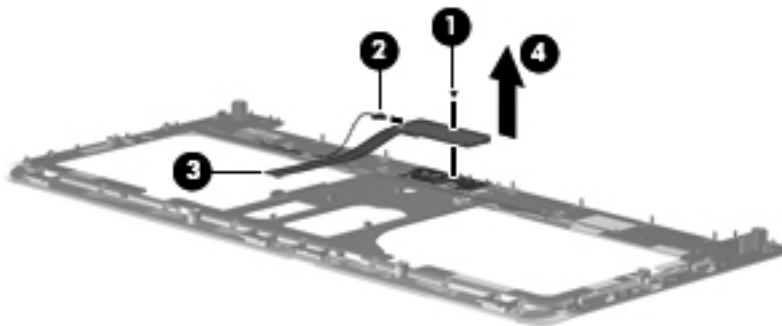
Description	Spare part number
Power button board	531215-001
 The power button board spare part kit does not include a cable. The power button board cable is included in the Cable Kit, spare part number 531211-001.	

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

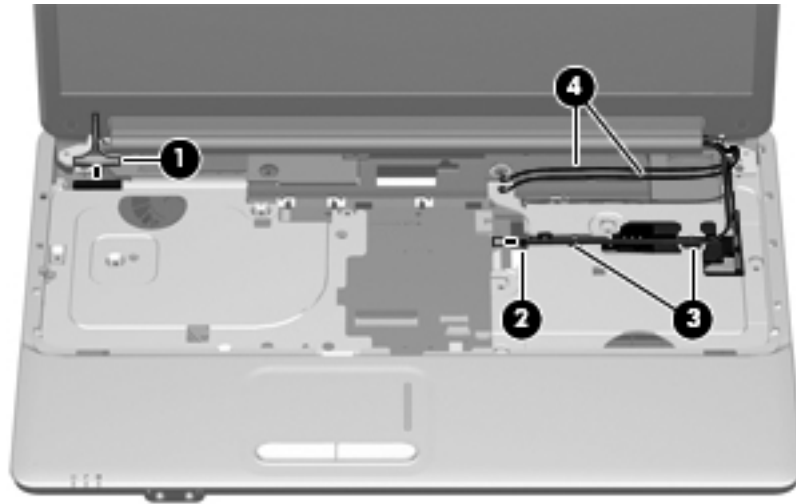
Description	Spare part number
15.6-in LED BrightView display assembly (includes 2 wireless antennas, display panel/webcam cable, and enclosure with logo):	
■ With webcam and microphone, for use with the CQ61	577079-001
■ With webcam and microphone, for use with the black HP G61	577075-001
■ With webcam 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](#)).

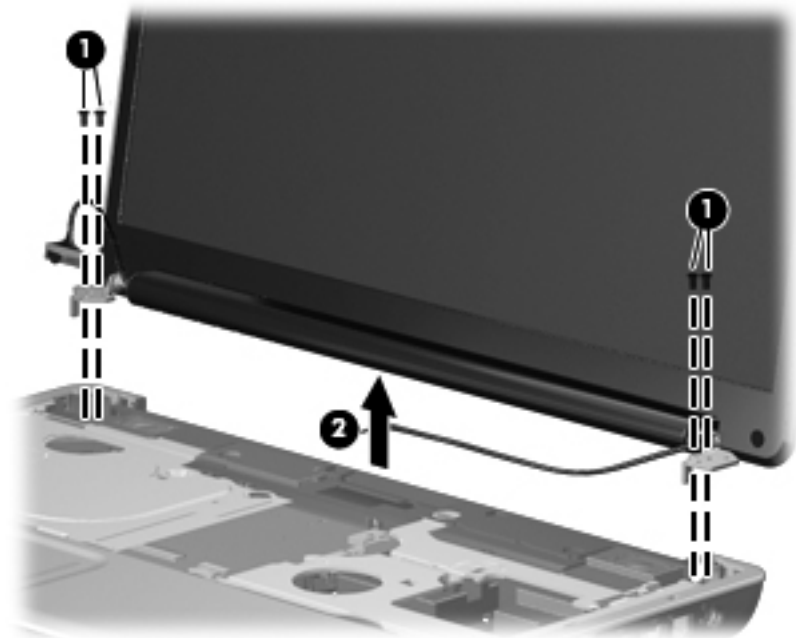
Remove the display assembly:

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.

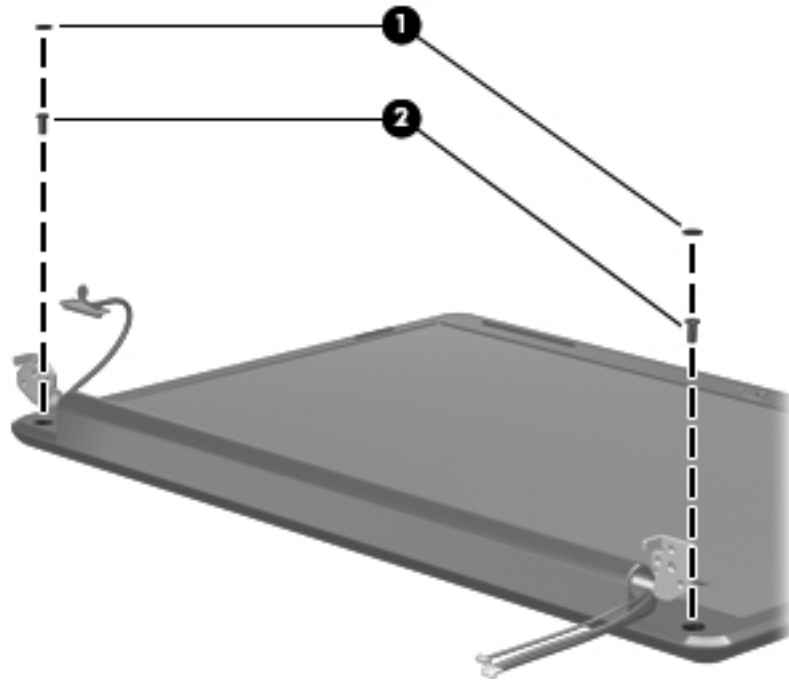


CAUTION: Support the display assembly when removing the following screws. Failure to support the display assembly can result in damage to the display assembly and other computer components.

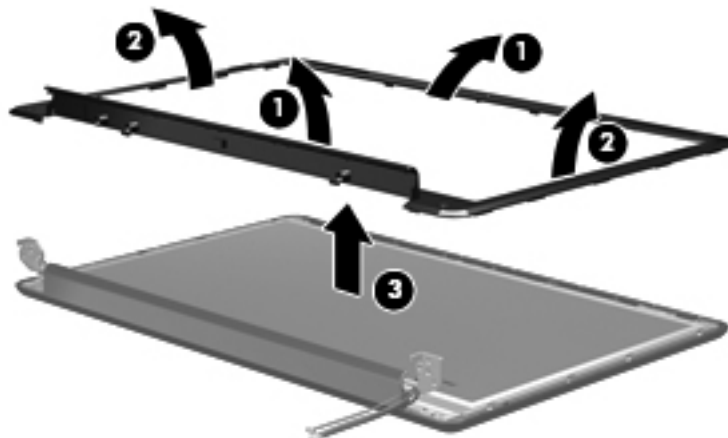
5. Remove the four Phillips PM2.5×6.5 screws ❶ that secure the display assembly to the base enclosure.
6. Lift the display assembly ❷ straight up.



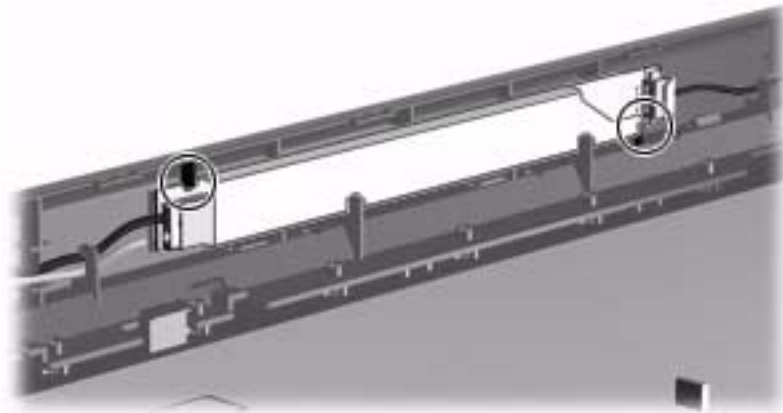
7. If it is necessary to replace any of the display assembly internal components, remove the two round Mylar screw covers **1** on the display bezel bottom edge. The screw covers are included in the Display Rubber Kit, spare part number 530999-001.
8. Remove the two Phillips PM2.5×6.5 screws **2** that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



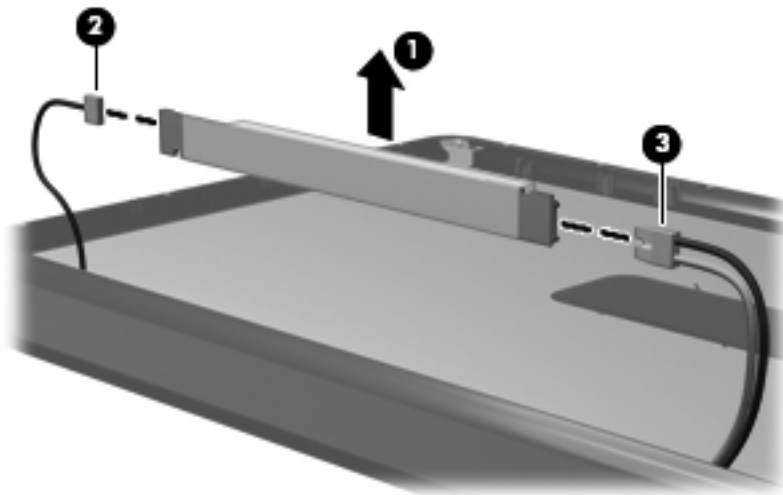
9. Flex the inside of the top and bottom edges **1** and the left and right sides **2** of the display bezel until it disengages from the display enclosure.
10. Remove the display bezel **3**. The bezel is available using one of the following spare part numbers:
 - 530992-001—with webcam and microphone,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



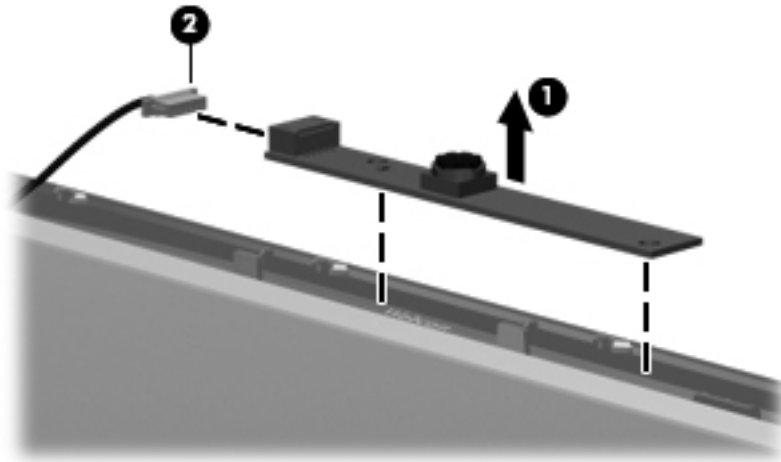
11. If it is necessary to replace the display inverter (CCFL display panels only), release the inverter from the clips built into the display enclosure, and then detach the inverter from the display enclosure. The inverter is secured with double-sided tape.



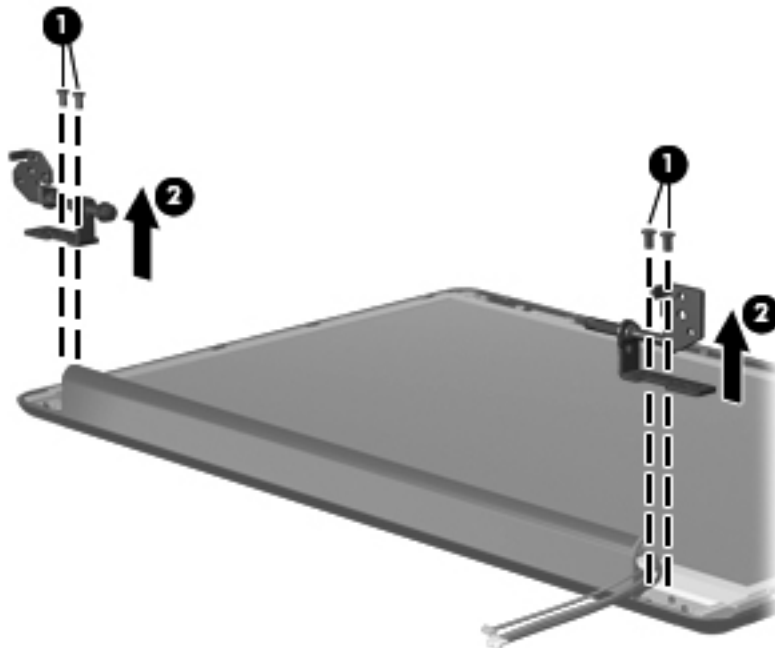
12. Lift the display inverter **1** as far from the display enclosure as the cables allow.
13. Disconnect the low-voltage system board cable **2** and the high-voltage display panel cable **3** from the display inverter. The display inverter is available using spare part number 577278-001.



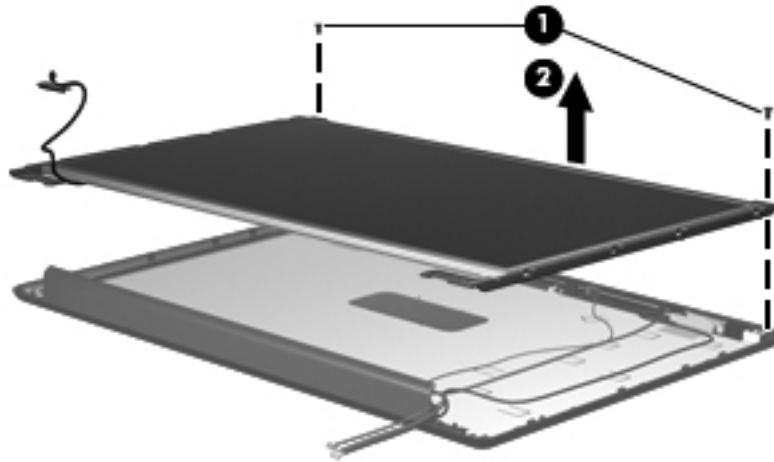
14. If it is necessary to replace the webcam (select models only), lift the webcam ❶ as far from the display enclosure as the cable allows. The webcam is secured with double-sided tape and is available using spare part number 531202-001.
15. Disconnect the display panel/webcam cable ❷ from the webcam.



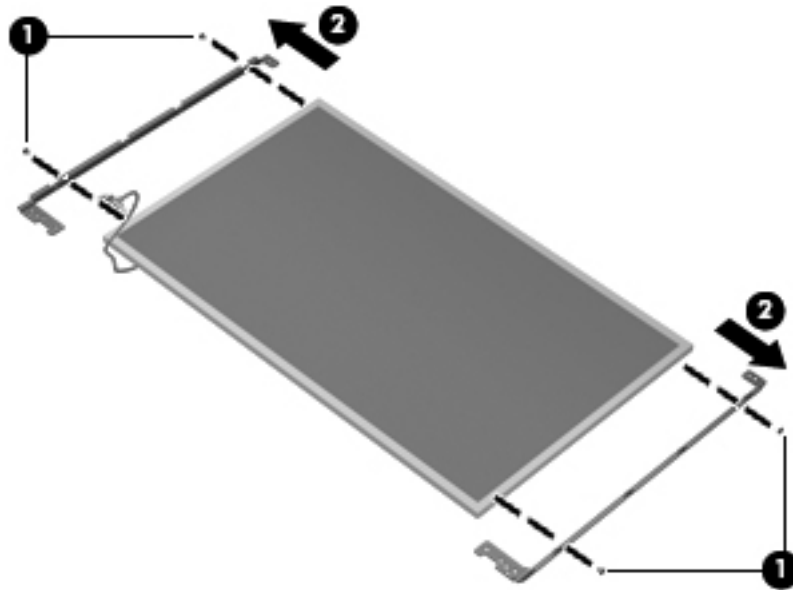
16. If it is necessary to replace the display hinges, remove the two Phillips PM2.5×5.0 screws ❶ that secure each hinge to the display panel.
17. Remove the display hinges ❷. The Display Hinge Kit is available using spare part number 530993-001.



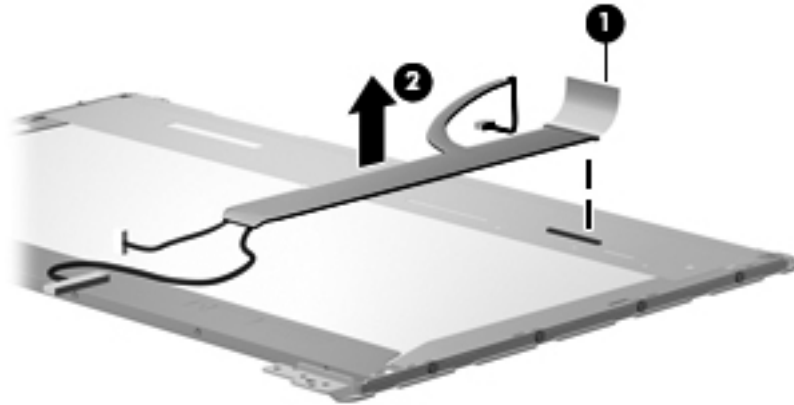
18. If it is necessary to replace the display panel, remove the two Phillips PM2.5×5.0 screws ❶ that secure the display panel to the enclosure, and then remove the panel ❷. The display panel is available using spare part number 577070-001 (LED) or 577068-001 (CCFL).



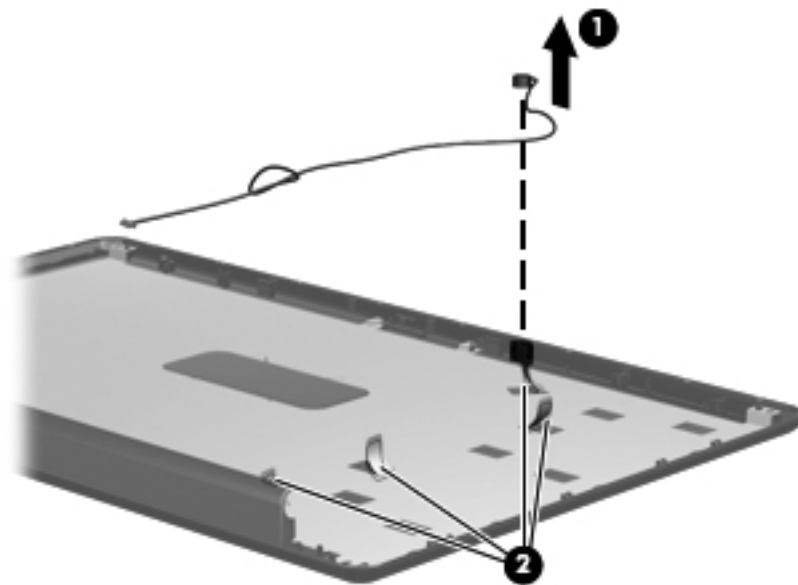
19. If it is necessary to replace the display panel brackets, remove the two Phillips PM2.0×30 screws ❶ that secure each bracket to the display panel, and then remove the brackets ❷. The Display Bracket Kit is available using spare part number 530995-001 (LED) or 579597-001 (CCFL).



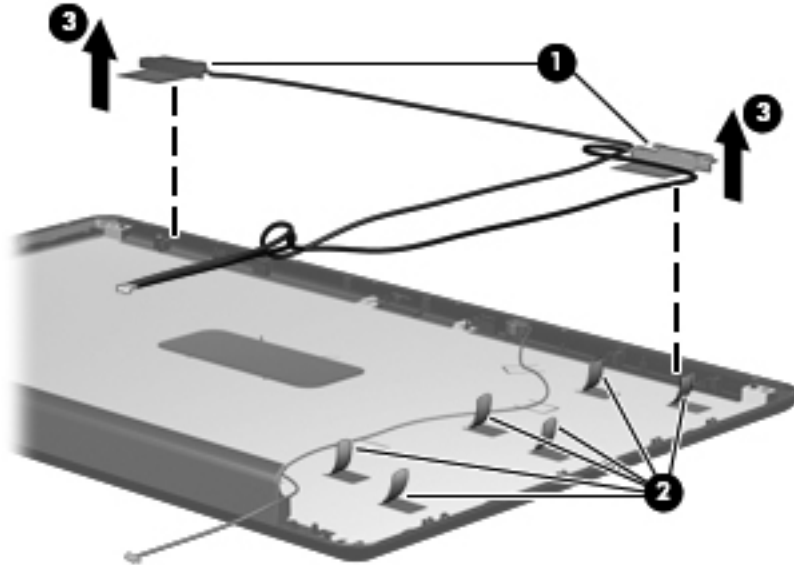
20. If it is necessary to replace the display panel/webcam cable, which is attached to the back of the display panel with clear adhesive tape, remove the tape ❶ to release the cable from its connector, and then remove the cable ❷. The display panel/webcam cable is available in the Display Cable Kit, 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. The microphone is available using spare part number 531203-001.



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

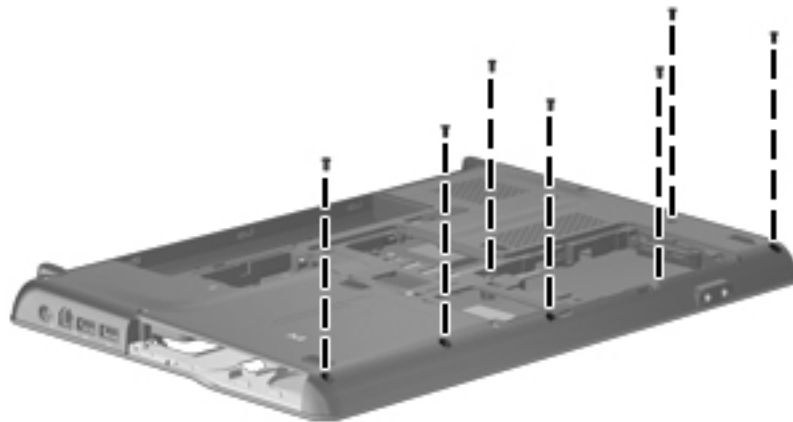
Description	Spare part number
For use with the CQ61 and black HP G61	531206-001
For use with the silver HP G61	534996-001

Before removing the top cover, follow these steps:

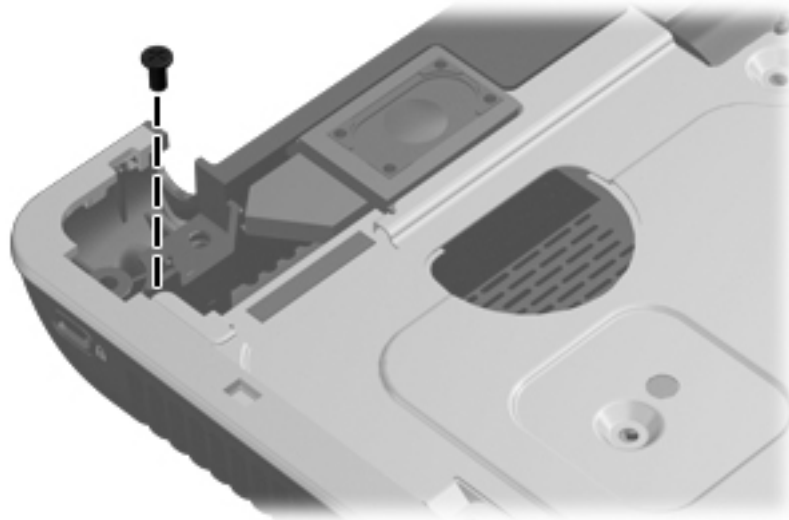
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord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

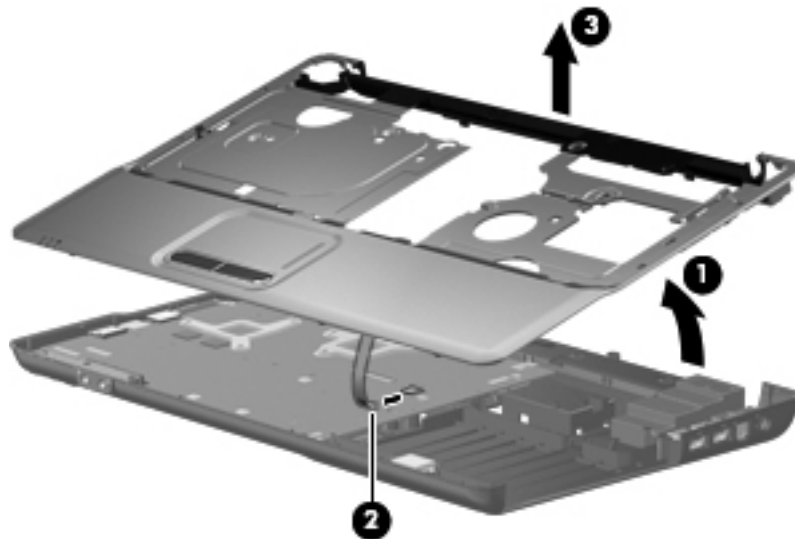
1. Turn the computer upside down, with the front toward you.
2. Remove the seven Phillips PM2.5×6.5 screws that secure the top cover to the base enclosure.



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

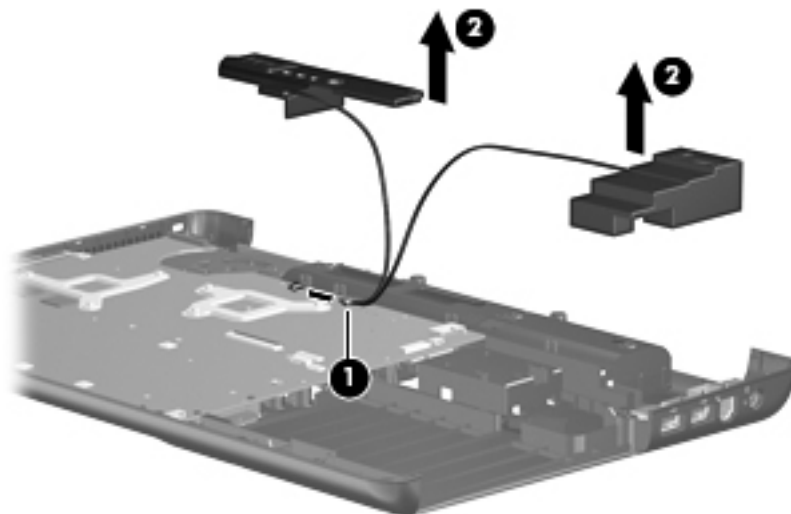
Description	Spare part number
Speaker assembly (includes left and right speakers and cables)	531209-001

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)

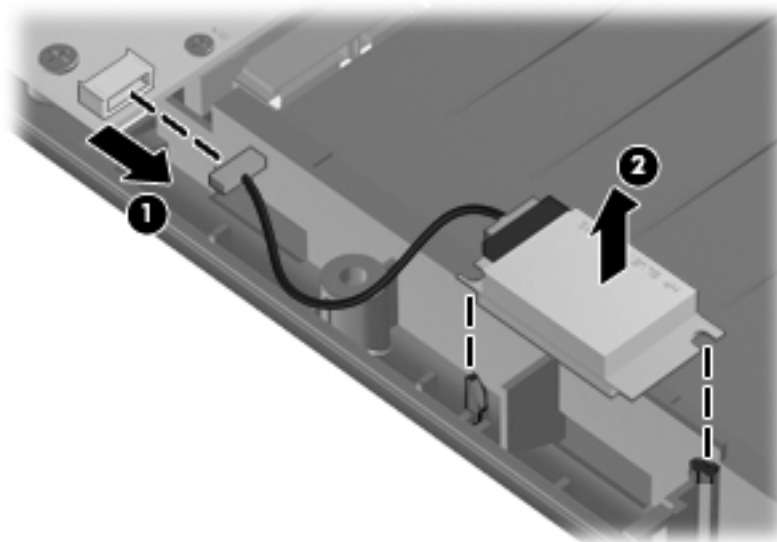
Description	Spare part number
Bluetooth module	537921-001
Bluetooth module cable	582757-001

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

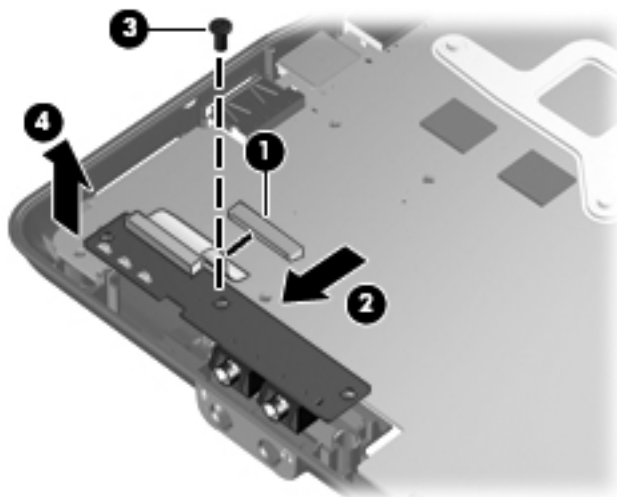
Description	Spare part number
Audio board	531208-001
 The audio board spare part kit does not include a cable. The audio board cable is included in the Cable Kit, spare part number 531211-001.	

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

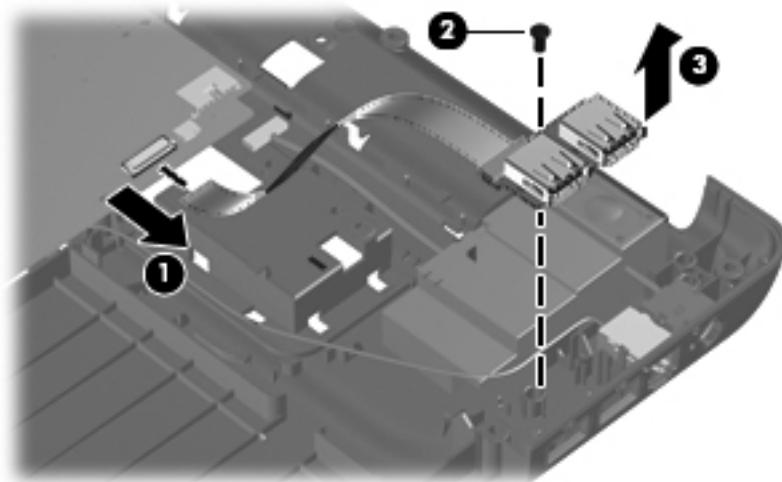
Description	Spare part number
USB board (includes cable)	531866-001

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

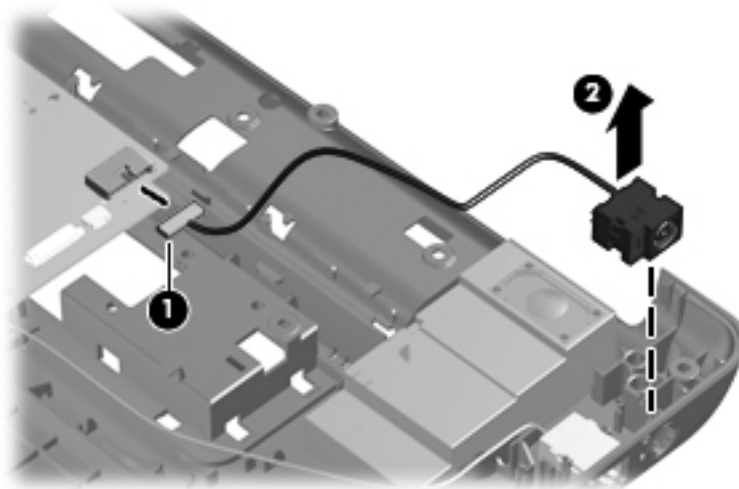
Description	Spare part number
Power connector (includes cable)	533465-001

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](#)).

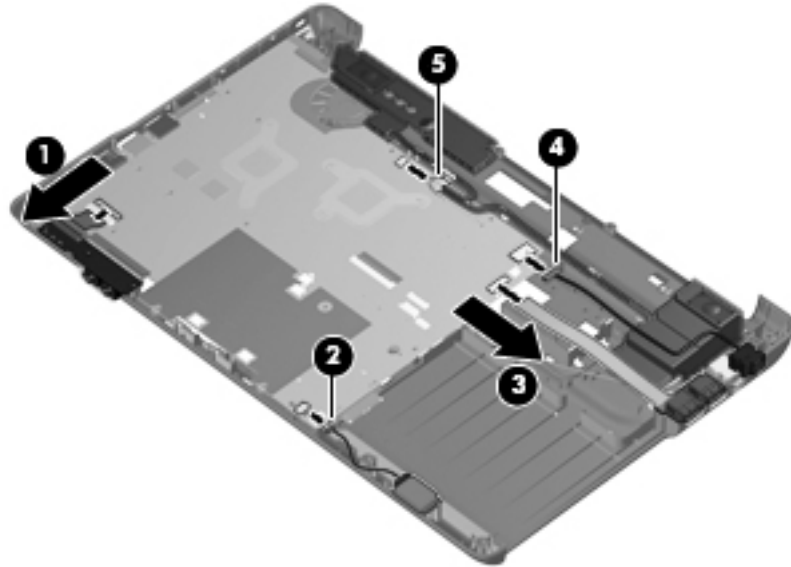
When replacing the system board, be sure that the following additional components are removed from the defective system board and installed on the replacement system board:

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

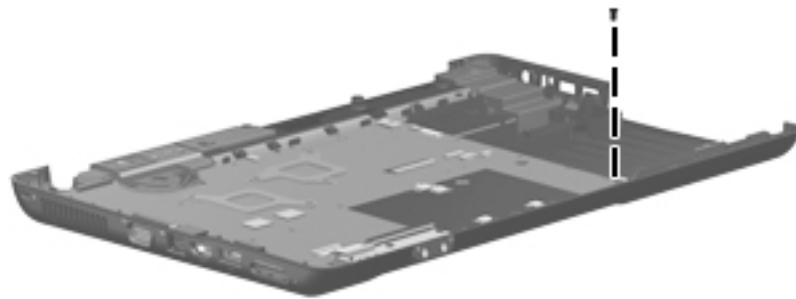
Remove the system board:

1. Disconnect the following cables from the system board:

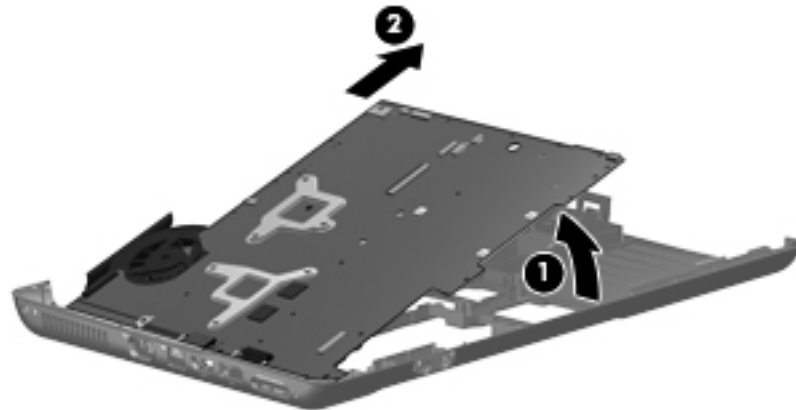
- ❶ Audio board cable
- ❷ Bluetooth module cable (select models only)
- ❸ USB board cable
- ❹ Power connector cable
- ❺ Speaker cable



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](#)).

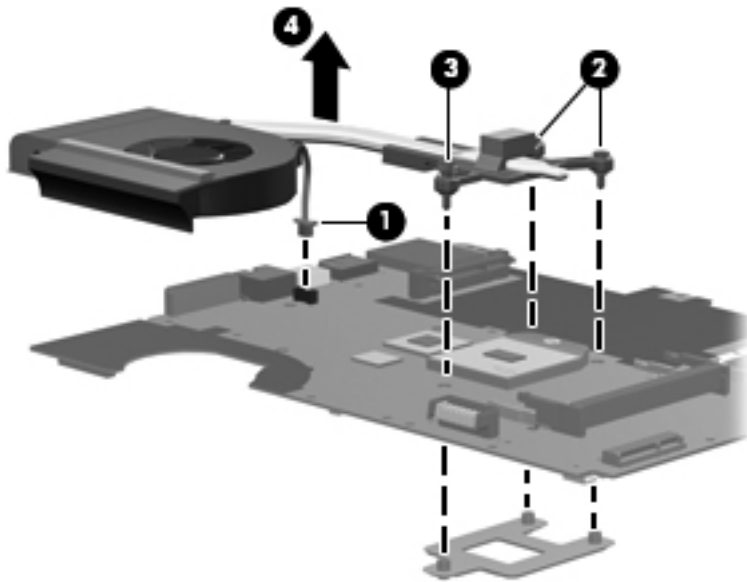
Remove the UMA fan/heat sink assembly:

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.

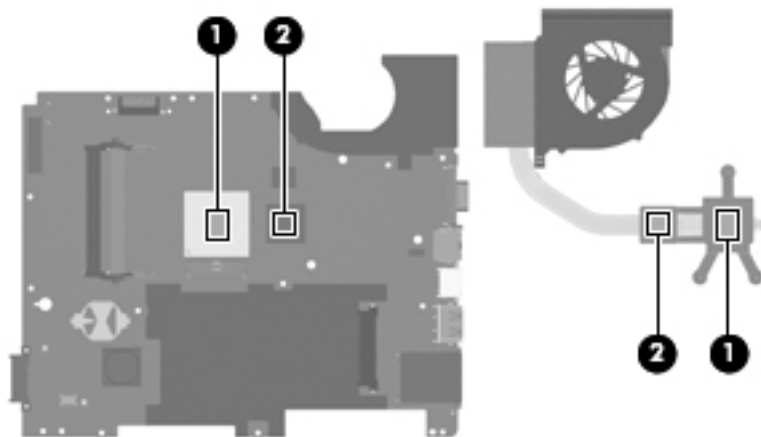
△ Loosen the screws in the order indicated on the fan/heat sink assembly to ensure consistent pressure over the processor board.

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.

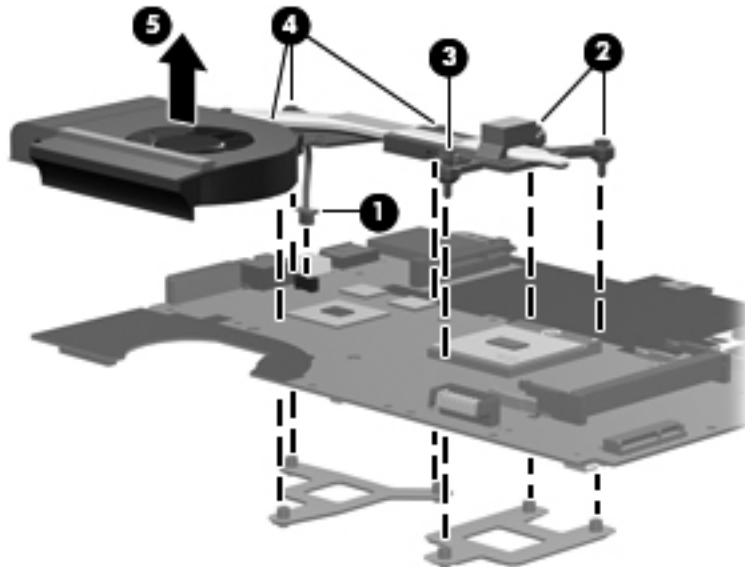
Remove the discrete fan/heat sink assembly:

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.

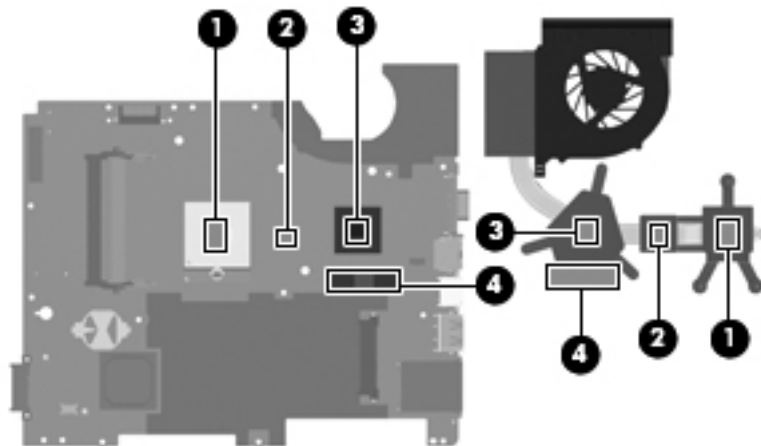
△ Loosen the screws in the order indicated on the fan/heat sink assembly to ensure consistent pressure over the processor board.

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

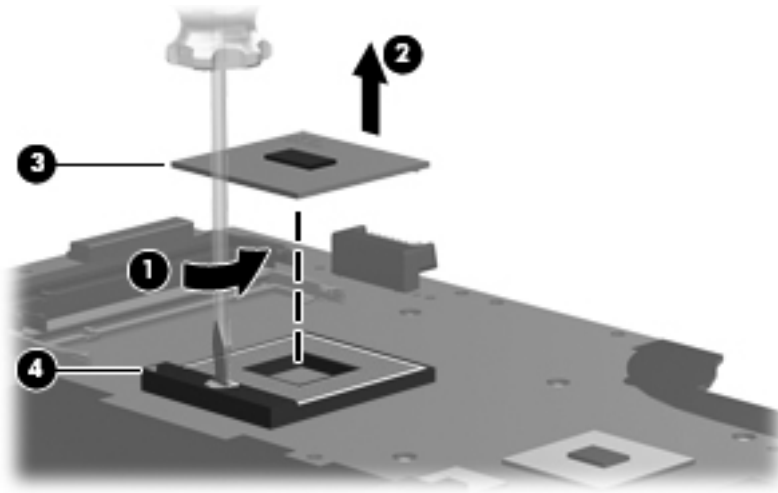
Before removing the processor, follow these steps:

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)



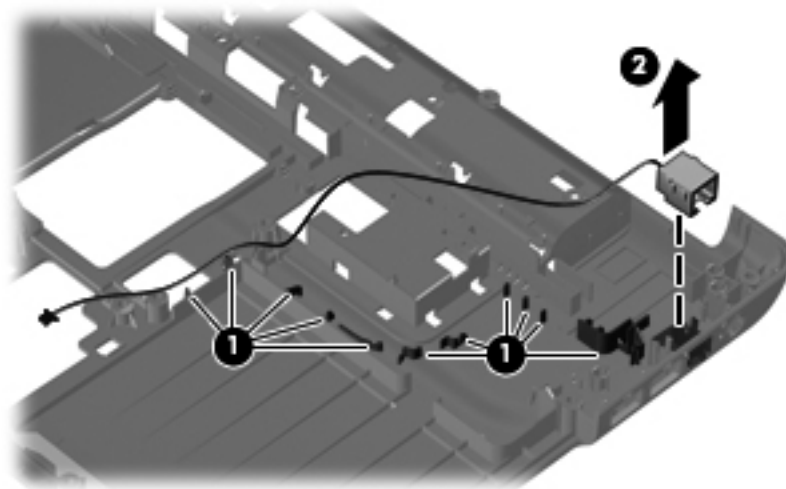
The RJ-11 (modem) connector is included in the Cable Kit, spare part number 531211-001.

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"> ■ View and change the system time and date. ■ View identification information about the computer. ■ View specification information about the processor, memory size, system BIOS, and keyboard controller version (select models only).


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"> ■ f9 and f10 Delay (seconds)—Set the delay for the f9 and f10 functions of Setup Utility in intervals of 5 seconds each (0, 5, 10, 15, 20). ■ CD-ROM boot—Enable/disable boot from CD-ROM. ■ Floppy boot—Enable/disable boot from diskette. ■ Internal Network Adapter boot—Enable/disable boot from Internal Network Adapter. ■ Boot Order—Set the boot order for: <ul style="list-style-type: none"> <input type="checkbox"/> USB Floppy <input type="checkbox"/> Internal CD/DVD ROM drive <input type="checkbox"/> USB CD/DVD ROM drive <input type="checkbox"/> Hard drive <input type="checkbox"/> USB Diskette on Key <input type="checkbox"/> USB hard drive <input type="checkbox"/> Network adapter

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.
Dimensions		
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
Weight (lowest weight configuration)	2.75 kg	6.06 lbs
Input power		
Operating voltage	18.5 V dc @ 3.5 A - 65 W (UMA models) 19.0 V dc @ 4.74 A - 90 W (discrete models)	
Operating current	3.5 A (UMA models) 4.74 A (discrete models)	
Temperature		
Operating (not writing to optical disc)	0°C to 35°C	32°F to 95°F
Operating (writing to optical disc)	5°C to 35°C	41°F to 95°F
Nonoperating	-20°C to 60°C	-4°F to 140°F
Relative humidity (noncondensing)		
Operating	10% to 90%	
Nonoperating	5% to 95%	
Maximum altitude (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.
Dimensions		
Height	21.0 cm	8.3 in
Width	35.9 cm	14.1 in
Diagonal	39.5 cm	15.6 in
Number of colors	Up to 16.8 million	
Contrast ratio	500:1	
Brightness	200 nits (typical)	
Pixel resolution		
Pitch	0.259×0.259 mm	
Format	1366×768	
Configuration	RGB vertical stripe	
Backlight	LED	
Character display	80×25	
Total power consumption	6.5 W or 9.0 W	
Viewing angle	±45° horizontal, +15°/-35° vertical (typical)	

15.6-inch CCFL BrightView display specifications

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

Hard drive specifications

	500 GB*	320 GB*	250 GB*	160 GB*
Dimensions				
Height	9.5 mm	9.5 mm	9.5 mm	9.5 mm
Width	70 mm	70 mm	70 mm	70 mm
Weight				
5400-rpm	101 g	101 g	101 g	101 g
7200-rpm		115 g	115 g	115 g
Interface type				
	SATA	SATA	SATA	SATA
Transfer rate, synchronous (maximum)				
	100 MB/s	100 MB/s	100 MB/s	100 MB/s
Security				
	ATA security	ATA security	ATA security	ATA security
Seek times (typical read, including setting)				
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
Logical blocks				
	976,773,168	625,142,448	488,397,168	312,581,808
Disk rotational speed				
	5400 rpm	7200 or 5400 rpm	7200 or 5400 rpm	7200 or 5400 rpm
Operating temperature				
	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
Interface	SATA	
Access time	CD	DVD
Random	< 150 ms	< 160 ms
Max data transfer rate		
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	
Max media capacity (read)	8.5 GB	
Max media capacity (write)	8.5 GB	
Transport	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	
Interface	SATA		
Access time	CD	DVD	BD
Random	< 190 ms	< 190 ms	< 230 ms
Max data transfer rate			
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		
Max media capacity (read)	50.0 GB		
Max media capacity (write)	8.5 GB		
Transport	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

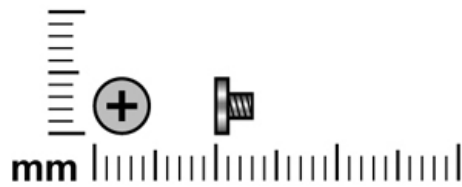
(Continued)

I/O address (hex)	System function (shipping configuration)
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.

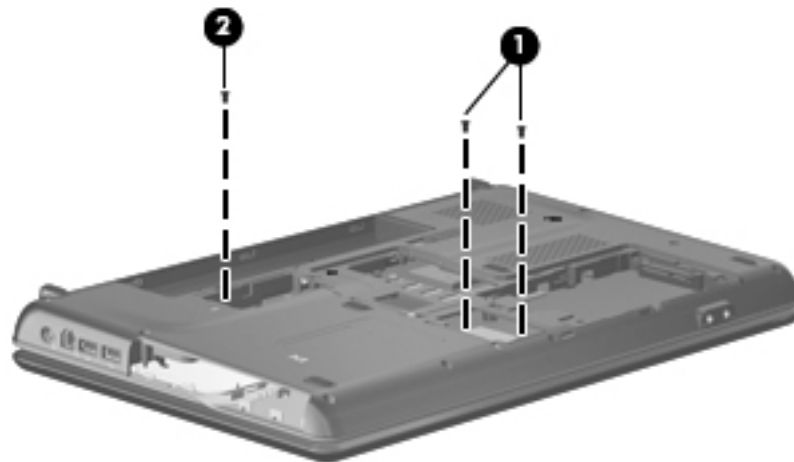
Phillips PM2.0×3.0 screws



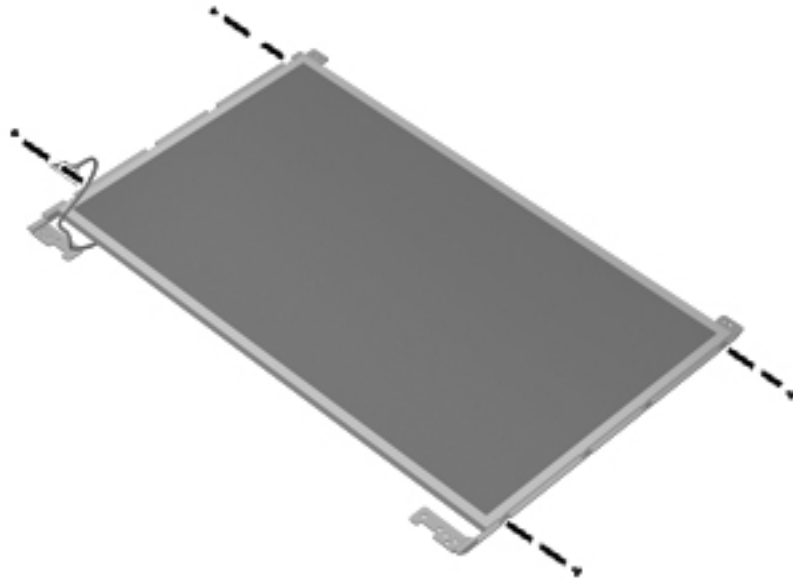
Color	Quantity	Length	Thread	Head diameter
Black	7	3.0 mm	2.0 mm	4.0 mm

Where used:

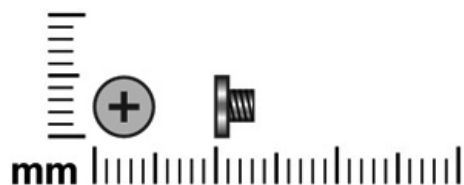
- ❶ Two screws that secure the modem to the base enclosure
- ❷ One screw that secures the WLAN module to the base enclosure



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

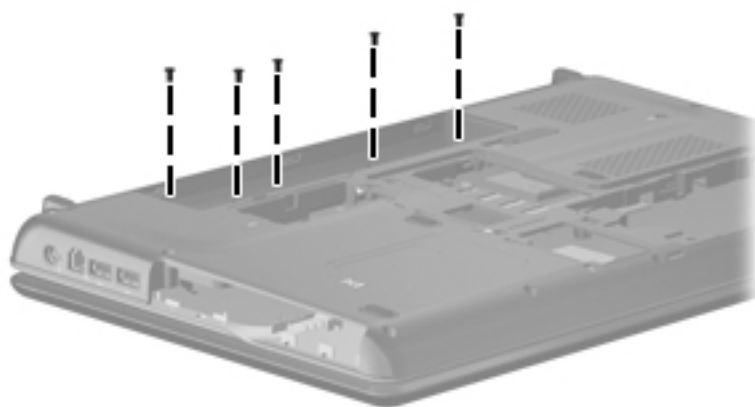


Phillips PM2.5×3.0 screws

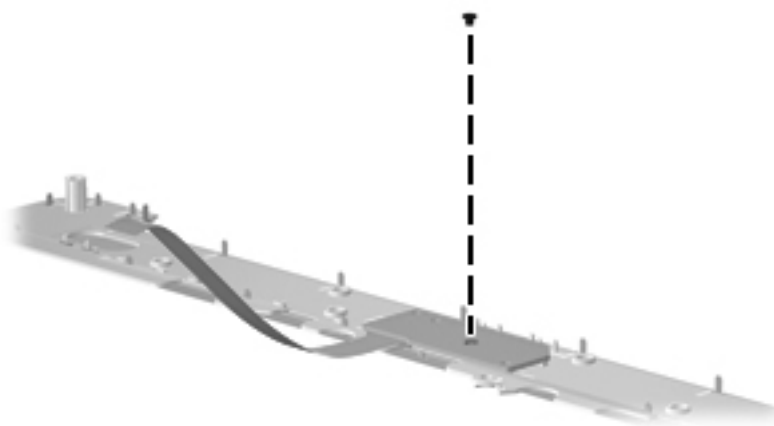


Color	Quantity	Length	Thread	Head diameter
Black	6	3.0 mm	2.5 mm	4.5 mm

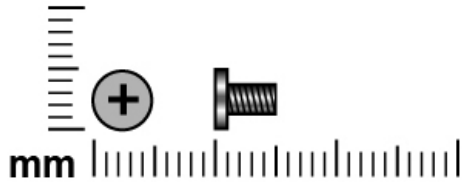
Where used: 5 screws that secure the keyboard cover to the base enclosure



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

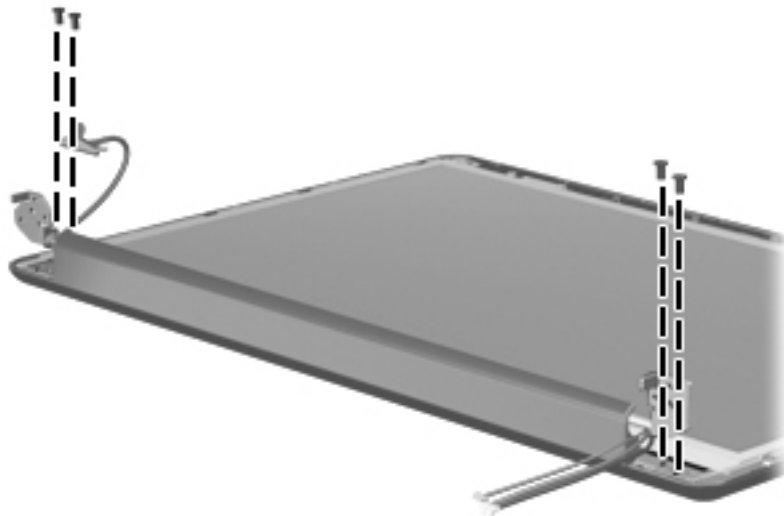


Phillips PM2.5×5.0 screws

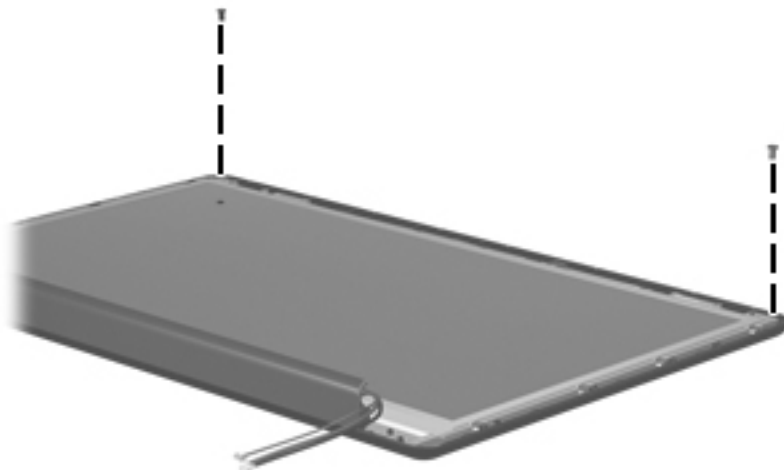


Color	Quantity	Length	Thread	Head diameter
Black	6	5.0 mm	2.5 mm	4.5 mm

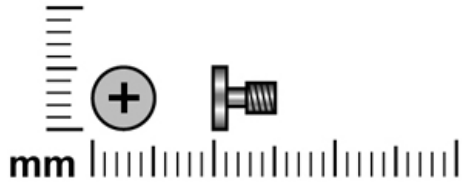
Where used: 4 screws that secure the display hinges to the display enclosure



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

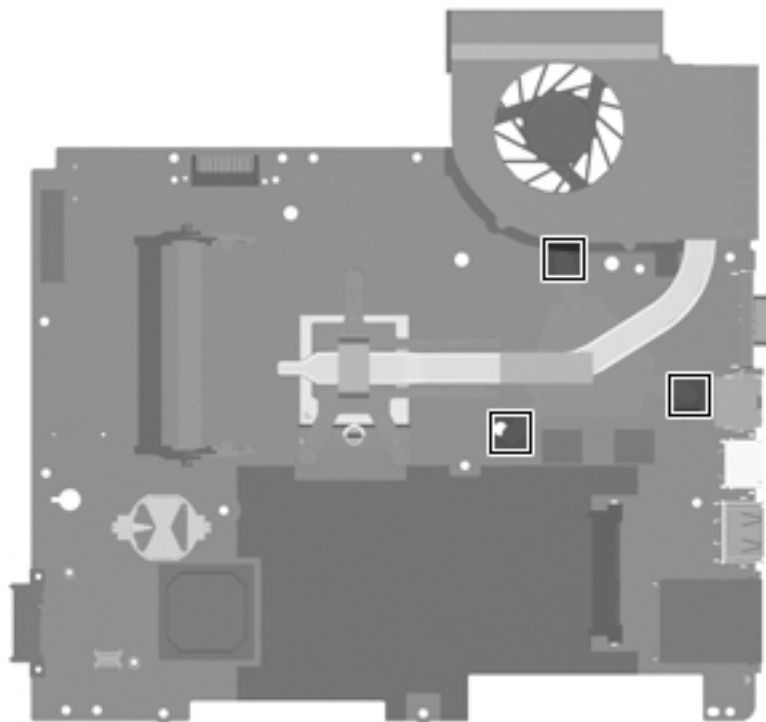


Phillips PM2.5×5.0 captive screws

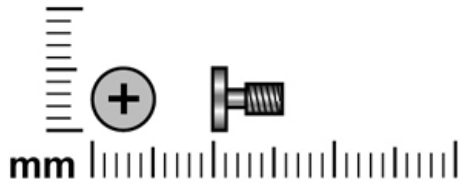


Color	Quantity	Length	Thread	Head diameter
Black	3	5.0 mm	2.5 mm	4.5 mm

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



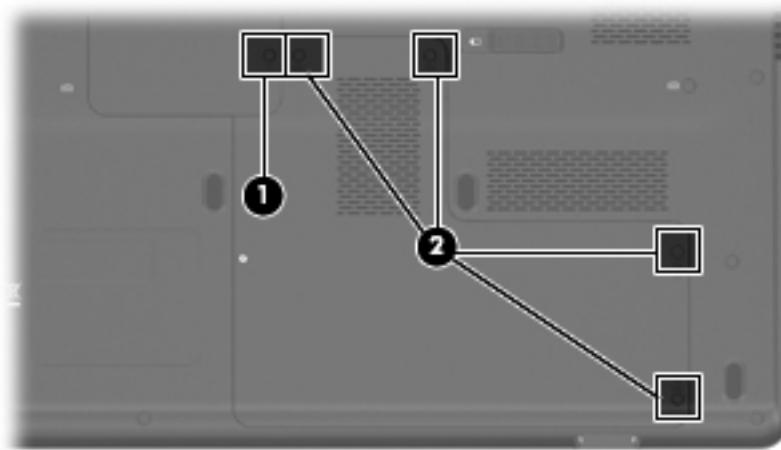
Phillips PM2.5×5.5 captive screws



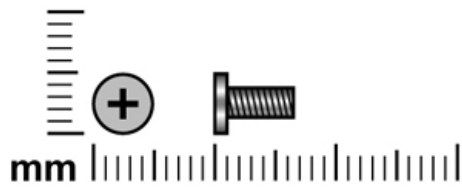
Color	Quantity	Length	Thread	Head diameter
Black	5	5.5 mm	2.5 mm	4.4 mm

Where used:

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

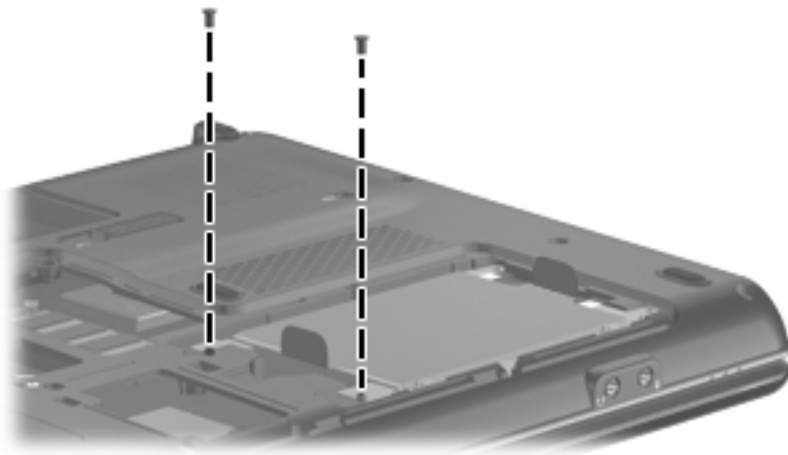


Phillips PM2.5×6.5 screws



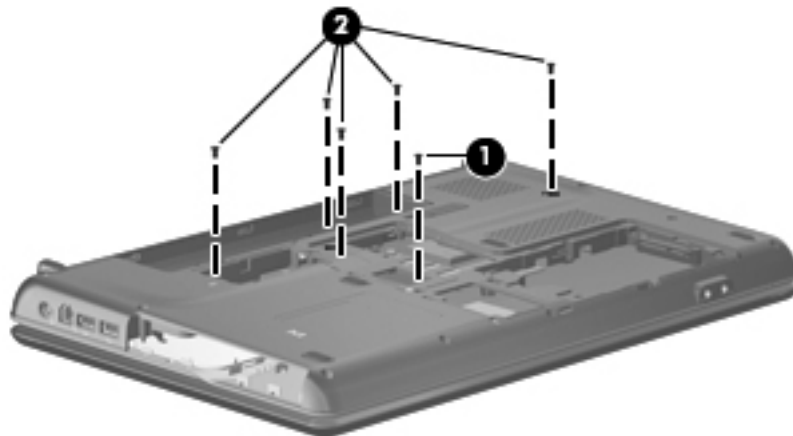
Color	Quantity	Length	Thread	Head diameter
Black	32	6.5 mm	2.5 mm	4.4 mm

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

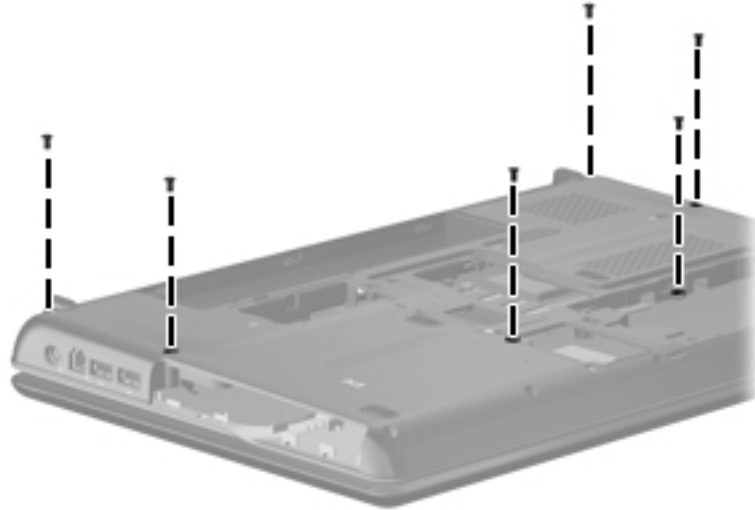


Where used:

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

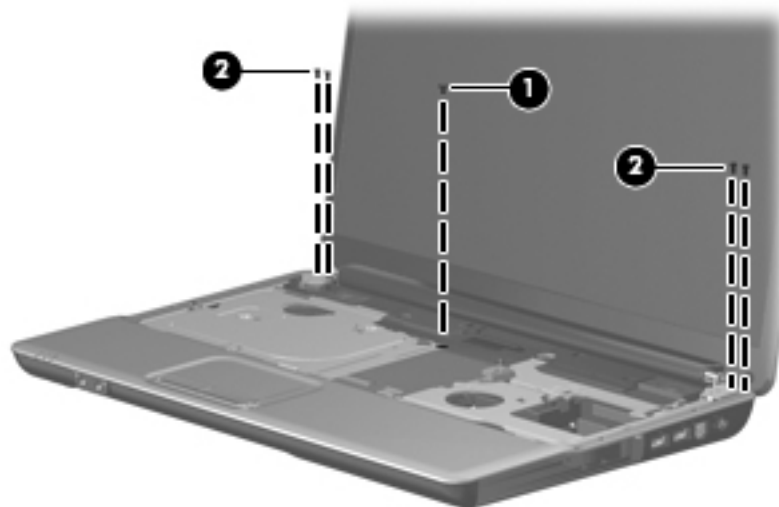


Where used: 6 screws that secure the keyboard cover to the base enclosure

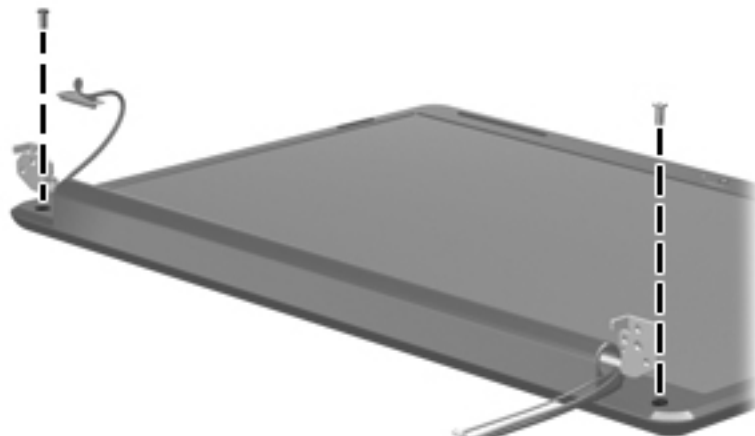


Where used:

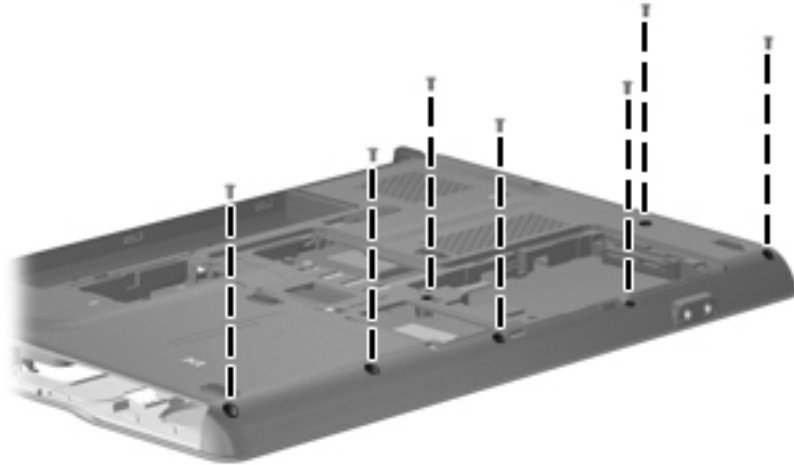
- ❶ One screw that secures the keyboard cover to the base enclosure
- ❷ Four screws that secure the display assembly to the base enclosure



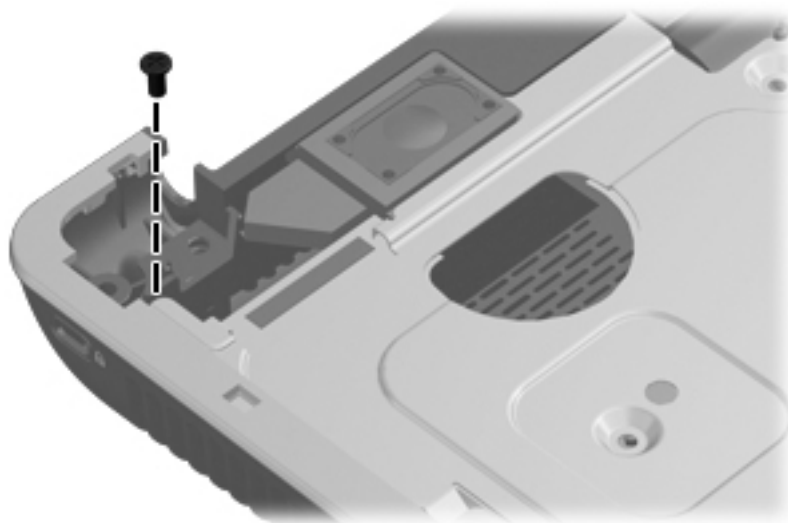
Where used: 2 screws that secure the display bezel to the display enclosure



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

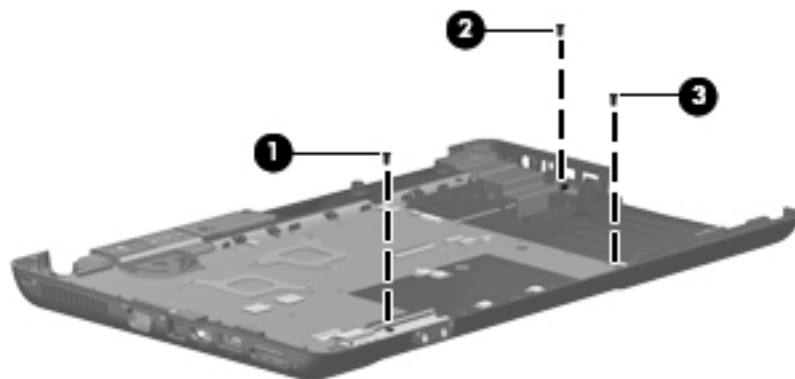


Where used: One screw that secures the top cover to the base enclosure

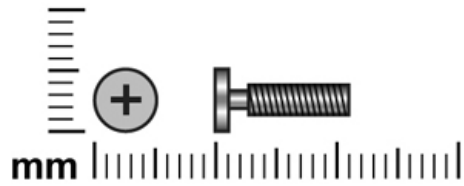


Where used:

- 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

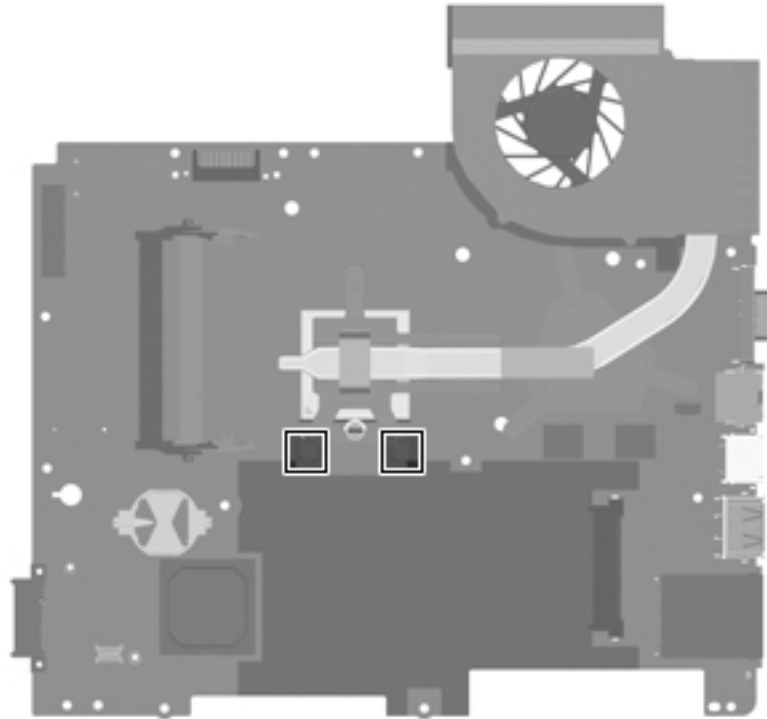


Color	Quantity	Length	Thread	Head diameter
Silver	2	11.0 mm	2.5 mm	4.5 mm

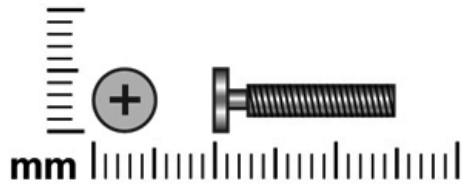
Where used: 2 captive screws (secured by C-clips) that secure the UMA heat sink to the system board



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

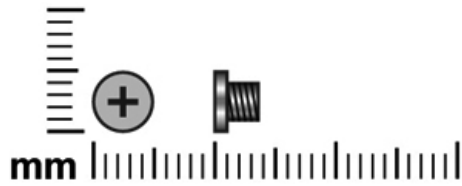
Where used: One captive screw (secured by a C-clip) that secures the UMA heat sink to the system board



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

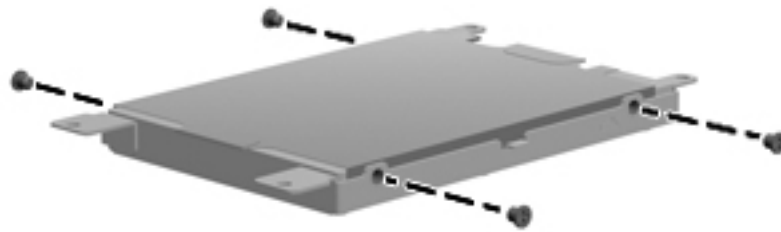


Phillips PM3.0×3.5 screws



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



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.



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.

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.



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)



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.

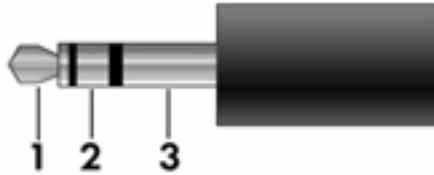
On some models, you can perform a recovery from the partition on the hard drive, accessed by pressing either the Start button or **f11**. This restores the computer to its factory condition.

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.

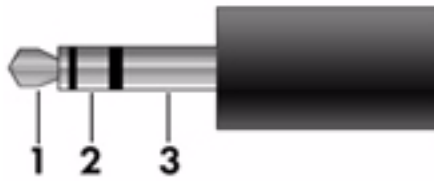
Connector pin assignments

Audio-in (microphone)



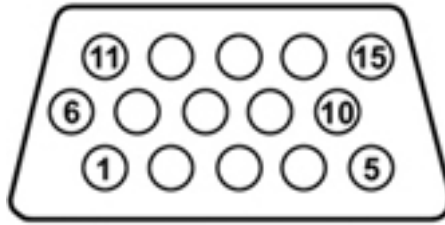
Pin	Signal
1	Audio signal in
2	Audio signal in
3	Ground

Audio-out (headphone)



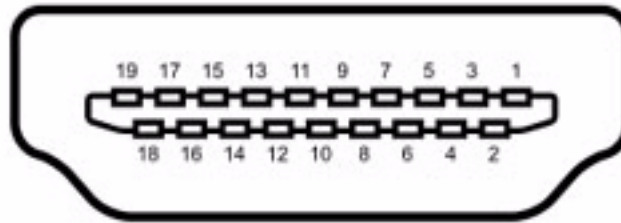
Pin	Signal
1	Audio out, left channel
2	Audio out, right channel
3	Ground

External monitor



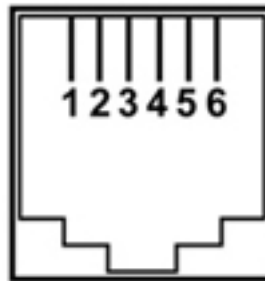
Pin	Signal
1	Red analog
2	Green analog
3	Blue analog
4	Not connected
5	Ground
6	Ground analog
7	Ground analog
8	Ground analog
9	+5 VDC
10	Ground
11	Monitor detect
12	DDC 2B data
13	Horizontal sync
14	Vertical sync
15	DDC 2B clock

HDMI (select models only)



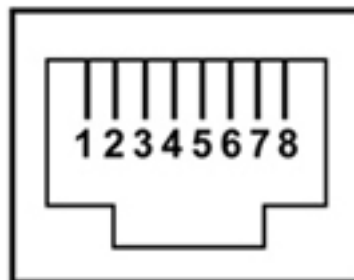
Pin	Signal
1	Transition minimized differential signal (TDMS) data 2+
2	TDMS data 2 shield
3	TDMS data 2-
4	TDMS data 1+
5	TDMS data 1 shield
6	TDMS data 1 shield
7	TDMS data 0+
8	TDMS data 0 shield
9	TDMS data 0-
10	TDMS clock +
11	TDMS data clock shield
12	TDMS data clock-
13	Consumer electronics control
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)



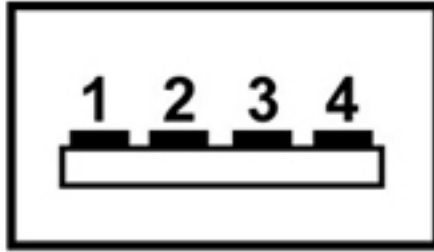
Pin	Signal
1	Unused
2	Tip
3	Ring
4	Unused
5	Unused
6	Unused

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-mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country 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-mm² conductor size. The wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (7 A, 125 V) configuration.
4. The flexible cord must be Type RVV, 3-conductor, 0.75-mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country or region where it will be used.
5. The flexible cord must be Type VCTF, 3-conductor, 0.75-mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country 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>.

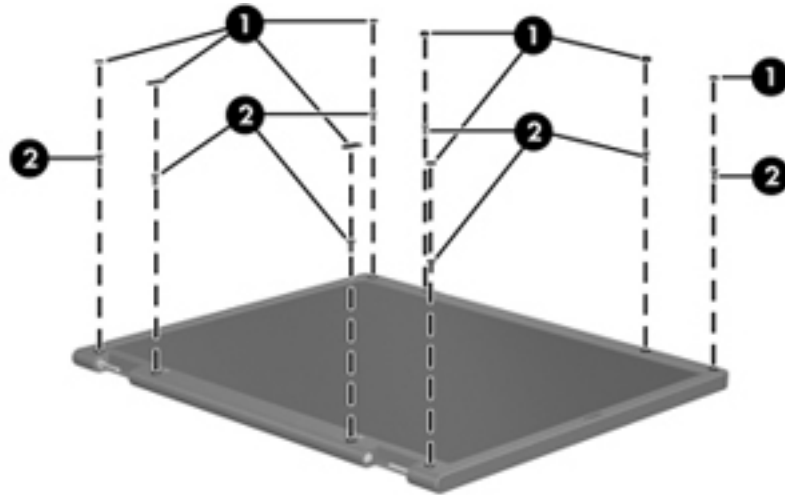
This section provides disassembly instructions for the display assembly. The display assembly must be disassembled to gain access to the backlight ❶ and the liquid crystal display (LCD) panel ❷.



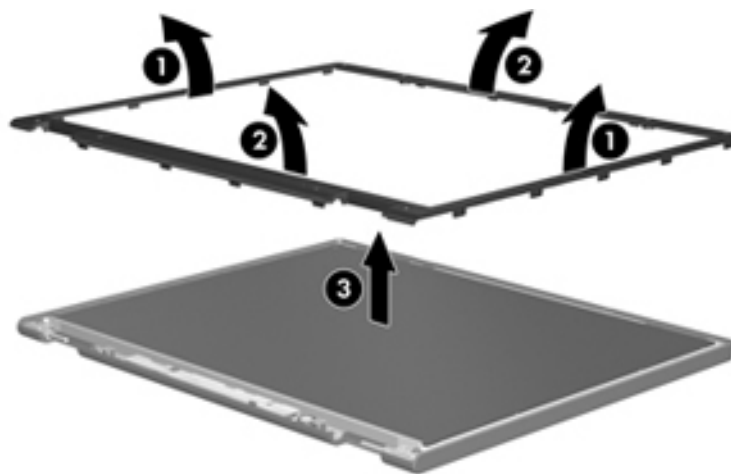
 The procedures provided in this chapter are general disassembly instructions. Specific details, such as screw sizes, quantities, and locations, and component shapes and sizes, can vary from one computer model to another.

Perform the following steps to disassemble the display assembly:

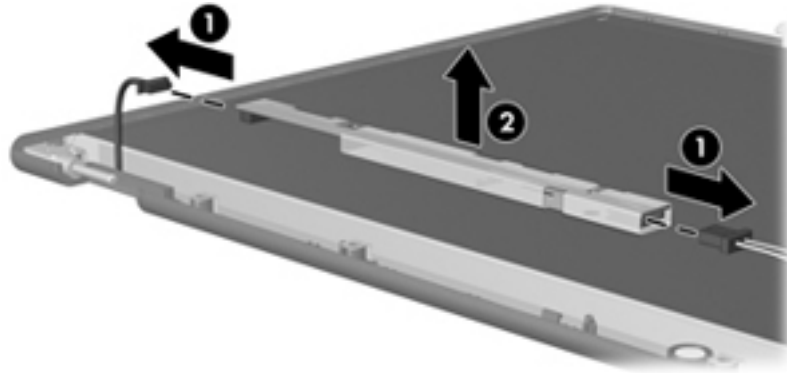
1. Remove all screw covers ❶ and screws ❷ that secure the display bezel to the display assembly.



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

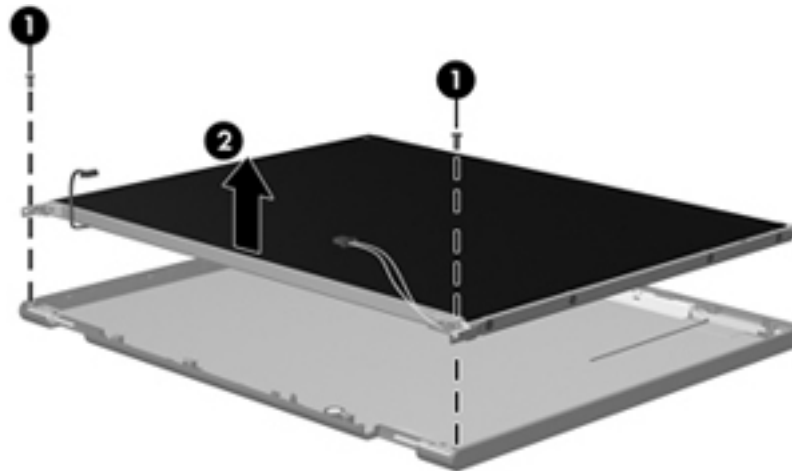


4. Disconnect all display panel cables ❶ from the display inverter and remove the inverter ❷.



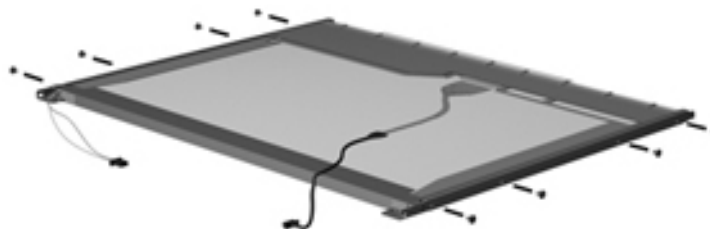
5. Remove all screws ❶ that secure the display panel assembly to the display enclosure.

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

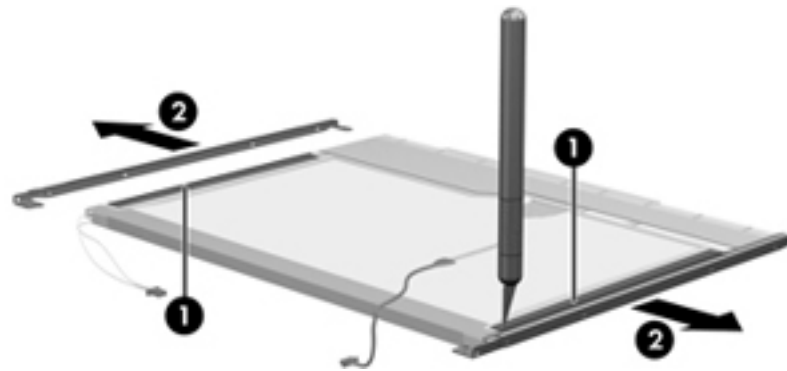


7. Turn the display panel assembly upside down.

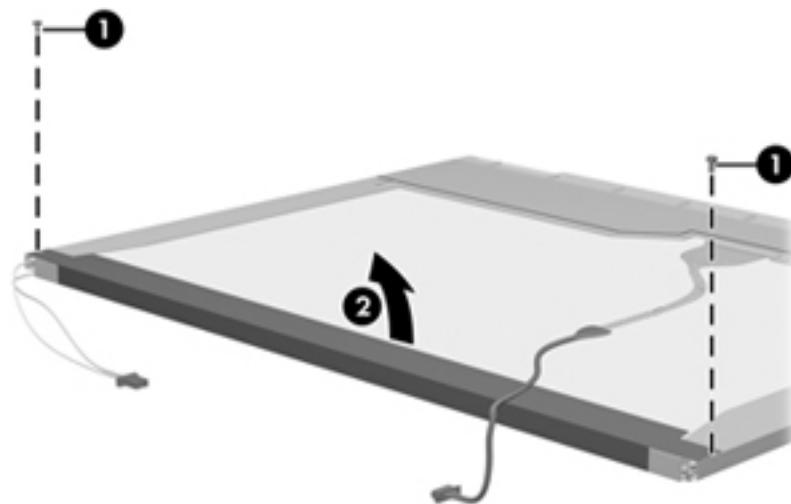
8. Remove all screws that secure the display panel frame to the display panel.



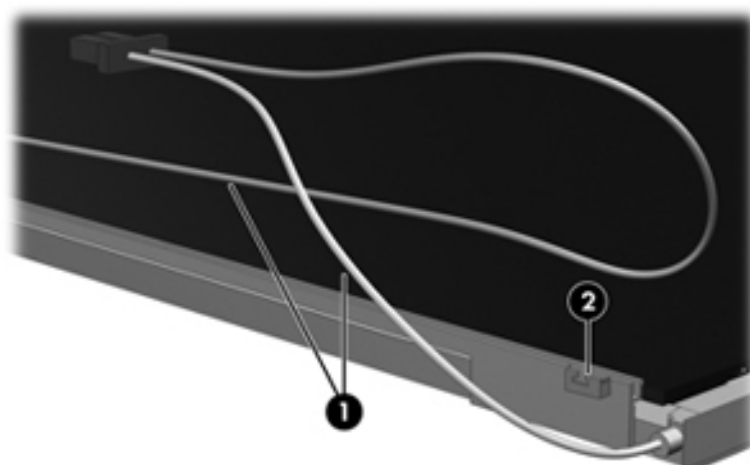
9. Use a sharp-edged tool to cut the tape ❶ that secures the sides of the display panel to the display panel frame.
10. Remove the display panel frame ❷ from the display panel.



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.



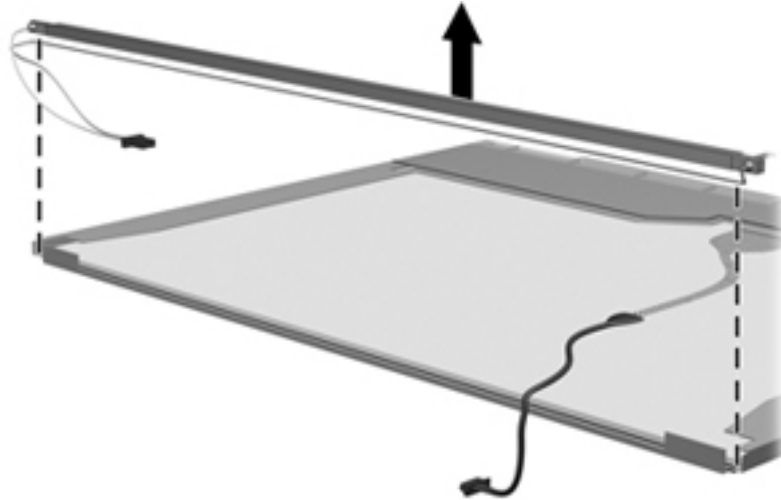
13. Remove the backlight cover.
14. Turn the display panel right-side up.
15. Remove the backlight cables ❶ from the clip ❷ in the display panel.



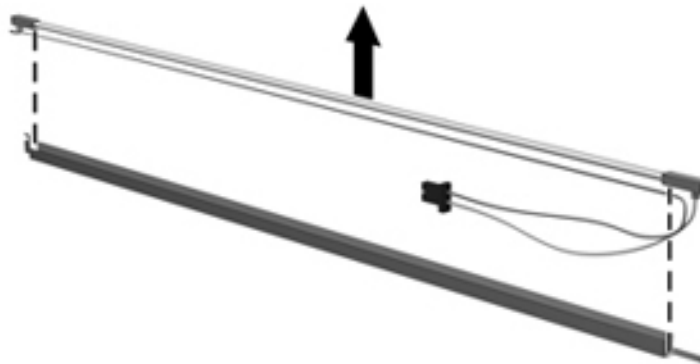
16. Turn the display panel upside down.
17. Remove the backlight frame from the display panel.



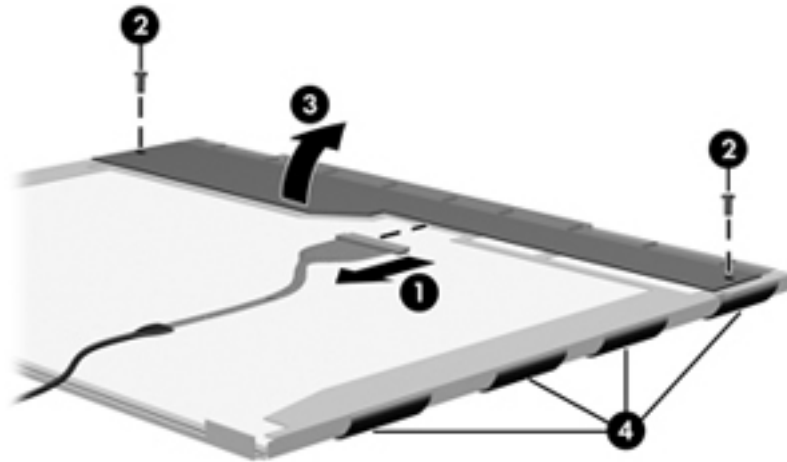
WARNING: The backlight contains mercury. Exercise caution when removing and handling the backlight to avoid damaging this component and causing exposure to the mercury.



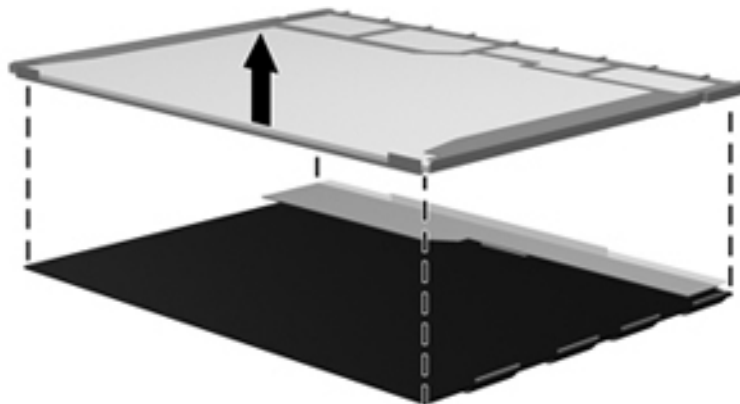
18. Remove the backlight from the backlight frame.



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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