



HP Pavilion dv6 Entertainment PC

Maintenance and Service Guide

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September 2009

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	Computers with discrete graphics	Computers with UMA graphics
Product Name	HP Pavilion dv6 Entertainment PC		
Processors	AMD Turion™ II Ultra Dual-Core Mobile processors:		
	M640, 2.6-GHz with 2-MB L2 cache	✓	✓
	M620, 2.5-GHz with 2-MB L2 cache	✓	✓
	M600, 2.4-GHz with 2-MB L2 cache	✓	✓
	AMD Turion II Dual-Core Mobile processors:		
	M520, 2.3-GHz with 1-MB L2 cache	✓	✓
	M500, 2.2-GHz with 1-MB L2 cache	✓	✓
	AMD Athlon™ II Dual-Core Processor for Notebook PCs		
	M320, 2.1-GHz with 1-MB L2 cache	✓	✓
	M300, 2.0-GHz with 1-MB L2 cache	✓	✓
	AMD Sempron™ processor:		
	M100, 2.0-GHz with 512-GB L2 cache	✓	✓
Chipset	Northbridge: AMD RX881 Chipset	✓	
	Northbridge: AMD RX880M Chipset		✓
	Southbridge: SB710	✓	✓
Graphics	ATI Mobility Radeon™ HD 4650 (M96) with 1 GB of dedicated video memory	✓	
	ATI Mobility Radeon HD 4530 (M92) with 512 MB of dedicated video memory	✓	
	AMD internal graphics with 128-MB SidePort video memory		✓
	Unified memory architecture (UMA) with shared video memory (ATI Radeon HD 4200 graphics):		✓
	■ Up to 251 MB for = 1024-MB system RAM		
	■ Up to 358 MB for > 2048-MB system RAM		
	■ Memory size changes dynamically		
	■ Support for BD playback with HD Decode, and DX10	✓	✓
Panel	15.6-inch WXGA (1366 × 768) BrightView LED	✓	✓
	Support for lighted logo on display enclosure	✓	✓
	Typical brightness 200 nits	✓	✓

(Continued)

Category	Description	Computers with discrete graphics	Computers with UMA graphics
Webcam	Standard VGA camera	✓	✓
	Fixed (no tilt)	✓	✓
	Activity LED	✓	✓
	640 × 480 by 24 frames per second	✓	✓
Memory	2 customer-accessible/upgradeable memory module slots	✓	✓
	Supports dual-channel memory	✓	✓
	PC2-6400, 800-MHz, DDR2	✓	✓
	Supports up to 8 GB of system RAM in the following configurations: <ul style="list-style-type: none"> ■ 8192-MB total system memory (4096 MB × 2, dual-channel) ■ 6144-MB total system memory (2048 MB × 1 + 4096 MB × 1) ■ 4096-MB total system memory (2048 × 2, dual-channel) ■ 3072-MB total system memory (2048 × 1024) ■ 2048-MB total system memory (1024 × 2, dual-channel) ■ 2048-MB total system memory (2048 × 1) ■ 1024-MB total system memory (1024 × 1) 	✓	✓
Hard drives	Supports all Serial ATA (SATA) 9.5-mm, 6.35-cm (2.50-inch) hard drives	✓	✓
	Supports one hard drive	✓	✓
	Support for HP ProtectSmart Hard Drive Protection	✓	✓
	Single hard drive configurations: <ul style="list-style-type: none"> ■ 500-GB, 7200-rpm ■ 500-GB, 5400-rpm ■ 320-GB, 7200-rpm ■ 320-GB, 5400-rpm ■ 250-GB, 7200-rpm ■ 250-GB, 5400-rpm 	✓	✓
Optical drives	Fixed (removal of 1 screw required)	✓	✓
	12.7-mm tray load	✓	✓
	Serial ATA	✓	✓
	Supports the following drives: <ul style="list-style-type: none"> ■ DVD±RW and CD-RW SuperMulti Double-Layer Combo Drive ■ Blu-ray ROM with LightScribe DVD±R/RW SuperMulti Double-Layer Drive 	✓	✓
Microphone	2 omnidirectional microphones, dual-array with appropriate software (supports beam forming, echo cancellation, and noise suppression)	✓	✓
Audio	HD Audio	✓	✓
	Supports Microsoft® Premium Requirements	✓	✓
	Pavilion-branded Altec Lansing speakers	✓	✓
Modem	56K V.92 data/fax modem (select models only)	✓	✓
	Supports all worldwide certification requirements	✓	✓

(Continued)

Category	Description	Computers with discrete graphics	Computers with UMA graphics
Ethernet	Integrated Realtek 10/100/1000 network interface card (NIC)	✓	
	Integrated Realtek 10/100 NIC		✓
Wireless	Integrated wireless local area network (WLAN) options by way of wireless module: <ul style="list-style-type: none"> ■ Atheros 9285G 802.11b/g + Bluetooth® with two antennas ■ Broadcom BCM4312 802.11b/g + Bluetooth with two antennas ■ Atheros 9280AGN 802.11a/b/g/n + Bluetooth ■ Broadcom 4322 AGN 802.11a/b/g/draft-n WLAN module (plus Bluetooth) ■ Intel Wi-Fi Link 5100 802.11a/b/g WLAN module ■ Intel Wi-Fi Link 5100 802.11a/b/g/n WLAN module 	✓	✓
TV Tuner	Integrated DVB-T TV tuner (select models only)	✓	
	Support for TV tuner antennas for both DVB-T and ATSC/NTSC	✓	✓
External media card	One ExpressCard 54 slot	✓	✓
	Digital Media Slot supports SD, MMC, MS, MSP, xD. Supports mini versions of SD, MMC, MS Duo with adapter (purchased separately)	✓	✓
Internal card expansion	Two Mini Card slots <ul style="list-style-type: none"> ■ One slot for WLAN ■ One slot for TV tuner 		
Ports	VGA, 15-pin supporting 1920 × 1200 resolution at 75Hz	✓	
	VGA, 15-pin supporting 1600 × 1200 resolution at 75Hz		✓
	Hot Plug/Unplug and auto-detect for correct output to wide-aspect vs. standard-aspect video	✓	✓
	High-Definition Multimedia Interface (HDMI) v1.3b supporting 1080p with HDCP key	✓	✓
	eSATA port combo with fourth USB port	✓	✓
	Four USB 2.0 ports	✓	✓
	IEEE 1394a	✓	
	RJ-11 modem (select models only)	✓	✓
	RJ-45 Ethernet	✓	✓
	Consumer infrared	✓	✓
	MCX connector for TV antennas (select models only)	✓	✓
	Two stereo headphone jacks (audio-out)	✓	✓
	Microphone input (audio-in)	✓	✓
	AC adapter plug	✓	✓
	Docking	Expansion port 3 supports the HP Notebook Expansion Base and HP Notebook QuickDock	✓
Keyboard/pointing devices	16-inch full-size keyboard with numeric keypad	✓	✓
	Standard IMR keyboard	✓	✓
	TouchPad supports 2-way scrolling	✓	✓

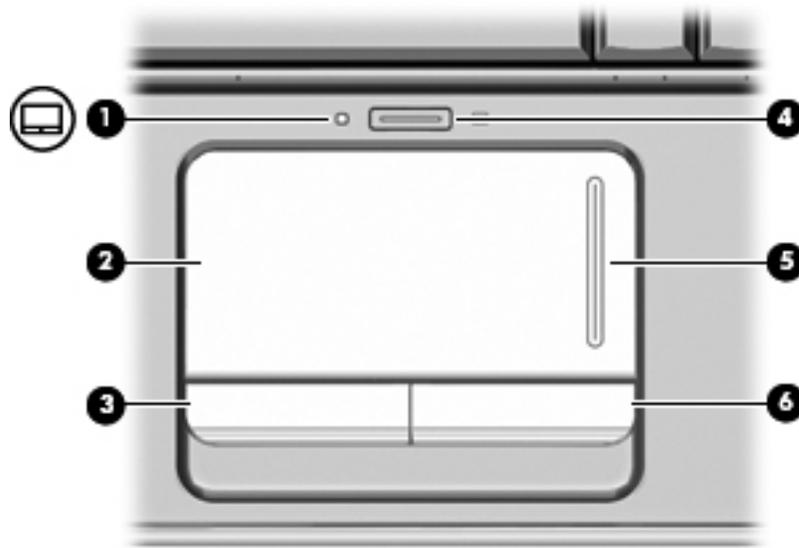
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Category	Description	Computers with discrete graphics	Computers with UMA graphics
	UV painted keyboard (select models only)	✓	✓
	Textured (non-painted) keyboard (select models only)	✓	✓
	Taps enabled as default	✓	✓
Power requirements	90-W AC adapter	✓	
	65-W AC adapter		✓
	6-cell 2.55-Ah Li-ion battery with target life of 2.75 hours	✓	
	6-cell 2.55-Ah Li-ion battery with target life of 3.5 hours		✓
	6-cell 2.20-Ah Li-ion battery with target life of 2.2 hours	✓	
	6-cell 2.20-Ah Li-ion battery with target life of 3 hours		✓
	12-cell 8.80-Ah Li-ion battery with target life of 4.5 hours	✓	
	12-cell 8.80-Ah Li-ion battery with target life of 6 hours		✓
Security	Security cable slot	✓	✓
	Fingerprint reader (select models only)	✓	✓
Operating system	Preinstalled:		
	Windows® 7	✓	✓
	Windows 7 Basic (32 bit)	✓	✓
	Windows 7 Basic (64 bit)	✓	✓
	Windows 7 Home Premium (32 bit)	✓	✓
	Windows 7 Home Premium (64 bit)	✓	✓
	Windows 7 Professional (64 bit)	✓	✓
Serviceability	End-user replaceable parts:		
	AC adapter	✓	✓
	Battery (system)	✓	✓
	Hard drive	✓	✓
	Memory module	✓	✓
	Optical drive	✓	✓
	Mini Card components	✓	✓

External component identification

Top components

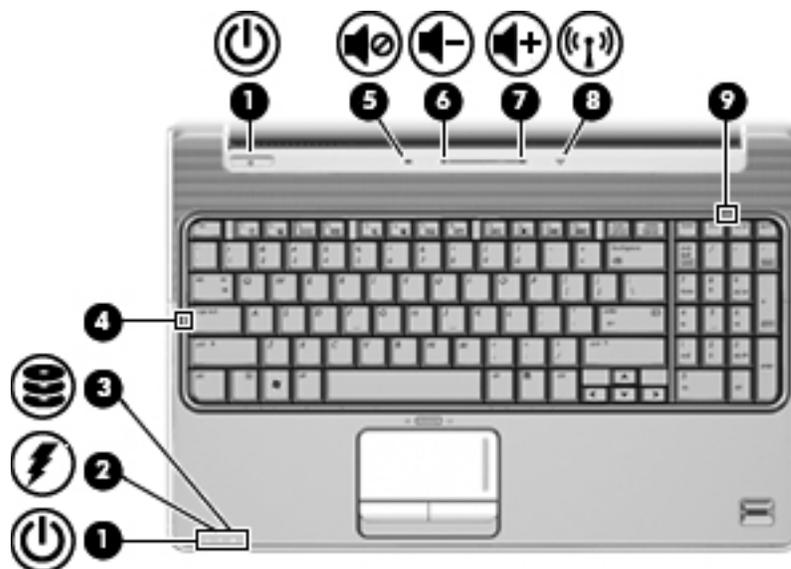
TouchPad



Item	Component	Function
①	TouchPad light	<ul style="list-style-type: none"> ■ White: TouchPad is enabled. ■ Amber: TouchPad is disabled.
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 on/off button	Enables/disables the TouchPad.
⑤	TouchPad vertical 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 device preferences, select **Start > Devices and Printers**. Then, right-click the device representing your computer, and select **Mouse settings**.

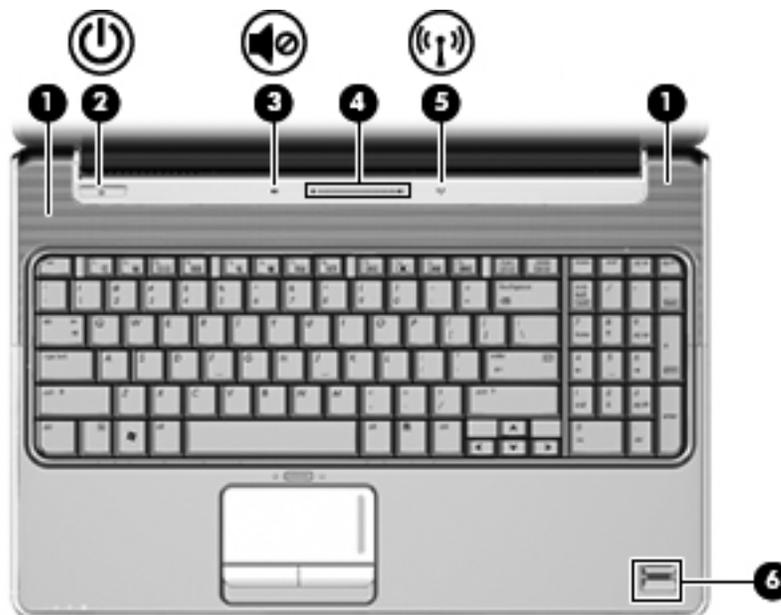
Lights



Item	Component	Description
❶	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.
❷	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 battery level, the battery light begins blinking 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.
❸	Drive light	<ul style="list-style-type: none"> ■ Blinking: The hard drive or optical drive is being accessed. ■ Amber: HP ProtectSmart Hard Drive Protection has temporarily parked the hard drive.
❹	Caps lock light	On: Caps lock is on.
❺	Volume mute light	<ul style="list-style-type: none"> ■ White: Computer sound is on. ■ Amber: Computer sound is off.
❻	Volume down light	On: The volume scroll zone is being used to decrease speaker volume.
❼	Volume up light	On: The volume scroll zone is being used to increase speaker volume.
❽	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 turned on. ■ Amber: All wireless devices are turned off.
❾	Num lock light	On: The integrated numeric keypad is enabled, or num lock is enabled on a connected optional numeric keypad.

*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.

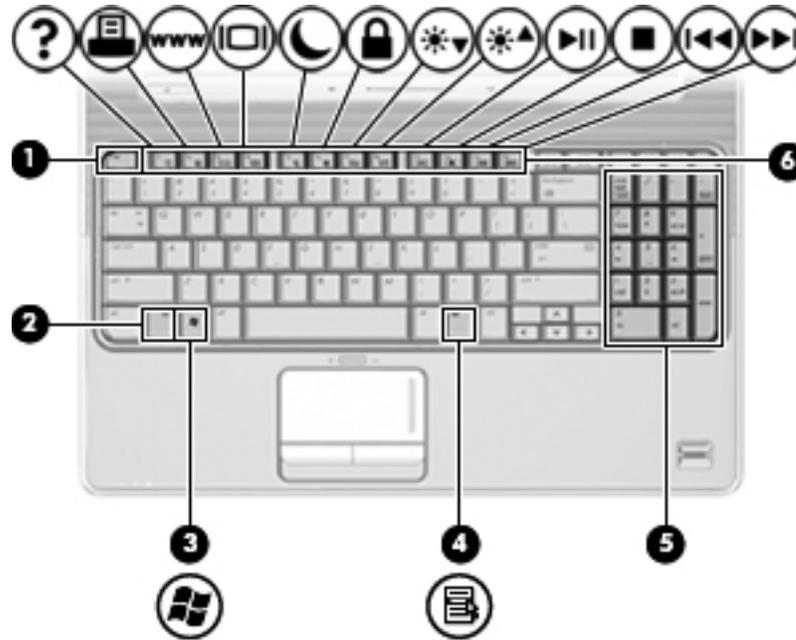
Buttons, speakers, and fingerprint reader



Item	Component	Description
❶	Speakers (2)	Produce sound.
❷	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 power settings, select Start > Control Panel > System and Security > Power Options.</p>
❸	Volume mute button	Mutes and restores speaker sound.
❹	Volume scroll zone	Adjusts speaker volume. Slide your finger to the left to decrease volume and to the right to increase volume. You can also tap the minus (-) sign on the scroll zone to decrease volume, or tap the plus (+) sign on the scroll zone to increase volume.
❺	Wireless button	<p>Turns the wireless feature on or off, but does not establish a wireless connection.</p> <p> A wireless network must be set up in order to establish a wireless connection.</p>
❻	Fingerprint reader (select models only)	Allows a fingerprint logon to Windows, instead of a password logon.

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

Keys



Item	Component	Function
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	Windows applications key	Displays a shortcut menu for items beneath the pointer.
5	Integrated numeric keypad keys	Can be used like the keys on an external numeric keypad.
6	Function keys	Execute frequently used system functions when pressed in combination with the fn key.

Front components



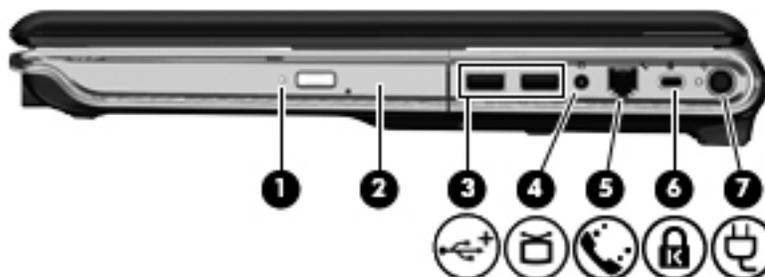
Item	Component	Description
❶	Power light	<ul style="list-style-type: none"> ■ On: The computer is on. ■ Blinking: The computer is in the Sleep state. ■ Off: The computer is off or in Hibernation.
❷	Battery light	<ul style="list-style-type: none"> ■ On: A battery is charging. ■ Blinking: A battery that is the only available power source has reached a low battery level. When the battery reaches a critical battery level, the battery light begins blinking 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.
❸	Drive light	<ul style="list-style-type: none"> ■ Blinking: The hard drive or optical drive is being accessed. ■ Amber: HP ProtectSmart Hard Drive Protection has temporarily parked the hard drive.
❹	Consumer infrared lens	Receives a signal from the remote control.
❺	Audio-in (microphone) jack	Connects an optional computer headset microphone, stereo array microphone, or monaural microphone.
❻	Audio-out (headphone) jacks (2)	Produce sound when connected to optional powered stereo speakers, headphones, ear buds, a headset, or television audio.
	This table describes factory settings. For information about changing factory settings, refer to the user guides located in Help and Support.	

Rear component



Component	Function
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



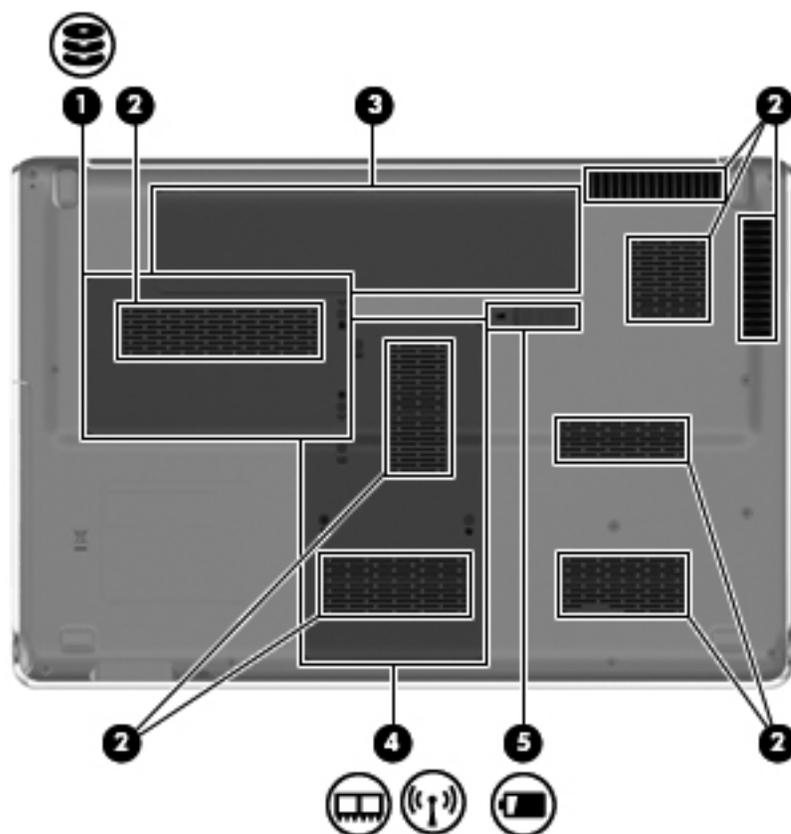
Item	Component	Function
❶	Optical drive light	Blinking: The optical drive is being accessed.
❷	Optical drive	Reads optical discs and, on select models, also writes to optical discs.
❸	USB ports (2)	Connect optional USB devices.
❹	TV antenna/cable jack (select models only)	Connects a TV antenna, a digital cable device, or a satellite device that receives standard or high-definition TV broadcasts.
❺	RJ-11 (modem) jack (select models only)	Connects a modem cable.
❻	Security cable slot	<p>Attaches an optional security cable to the computer.</p> <p> The security cable is designed to act as a deterrent, but it may not prevent the computer from being mishandled or stolen.</p>
❼	Power connector	Connects an AC adapter.

Left-side components



Item	Component	Function
❶	External monitor port	Connects an external VGA monitor or projector.
❷	Expansion port 3	Connects the computer to an optional docking device or an optional expansion product.  The computer has only one expansion port. The term <i>expansion port 3</i> describes the type of expansion port.
❸	RJ-45 (network) jack	Connects a network cable.
❹	HDMI port	Connects an optional video or audio device, such as a high-definition television or any compatible digital or audio component.
❺	eSATA/USB port (select models only)	Connects an optional high-performance eSATA component, such as an eSATA external hard drive, or connects an optional USB device.  Depending on your computer model, the computer may include a USB port only.
❻	USB port	Connects an optional USB device.
❼	1394 port (select models only)	Connects an optional IEEE 1394 or 1394a device, such as a camcorder.
❽	ExpressCard slot	Supports optional ExpressCard/54 cards.
❾	Digital Media Slot	Supports the following optional digital card formats: <ul style="list-style-type: none"> ■ Memory Stick (MS) ■ Memory Stick Pro (MSP) ■ MultiMedia Card (MMC) ■ Secure Digital (SD) Memory Card ■ Secure Digital High Capacity (SDHC) Memory Card ■ xD-Picture Card (XD) ■ xD-Picture Card (XD) Type H ■ xD-Picture Card (XD) Type M

Bottom components



Item	Component	Function
❶	Hard drive bay	Holds the hard drive.
❷	Vents (8)	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.
❸	Battery bay	Holds the battery.
❹	Memory module compartment	Contains the memory module slots. Also holds the WLAN module, TV tuner card (select models only), and the Intel® Turbo Memory card (select models only).  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.
❺	Battery release latch	Releases the battery from the battery bay.

Display components



Item	Component	Description
❶	Internal display switch	Turns off the display and initiates Sleep if the display is closed while the power is on.
❷	Internal microphones (2)	Record sound.
❸	Integrated webcam light	On: The integrated webcam is in use.
❹	Integrated webcam	Records audio and video and captures still photographs.

Wireless antennas (select models only)

On select computer models, at least 2 antennas send and receive signals from one or more wireless devices. These 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.

Additional hardware components

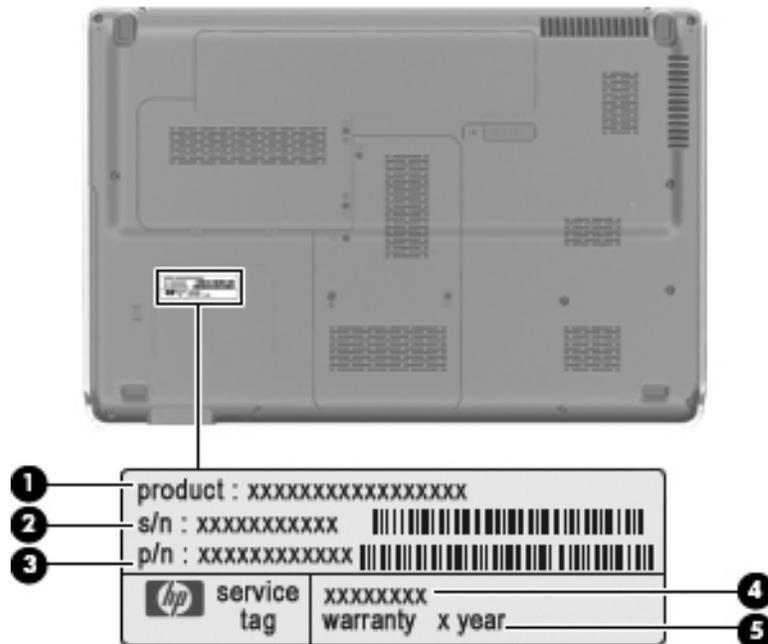


Item	Component	Description
❶	Power cord*	Connects an AC adapter to an AC outlet.
❷	AC adapter	Converts AC power to DC power.
❸	Battery*	Powers the computer when the computer is not plugged into external power.

*Batteries and power cords vary in appearance by country or region.

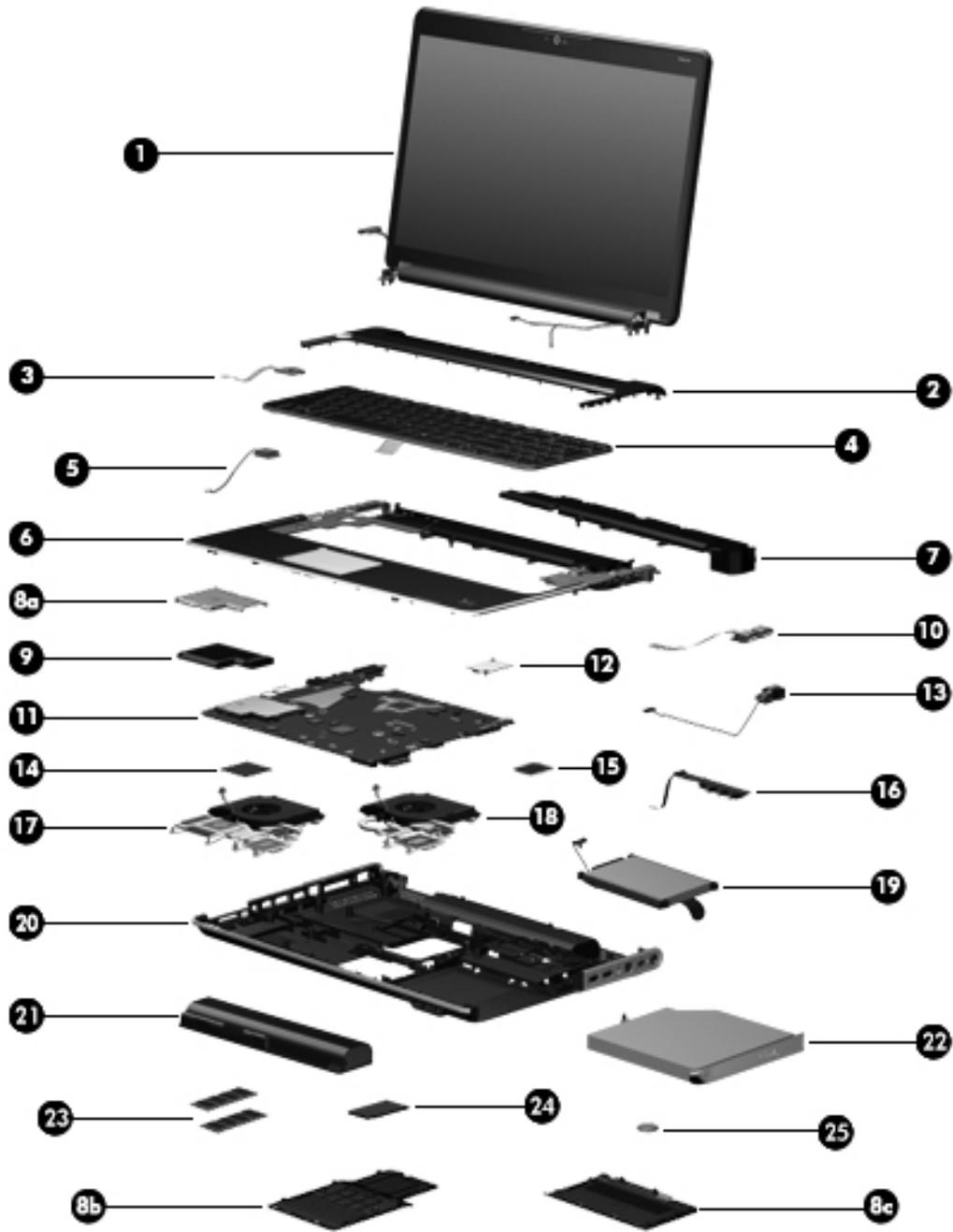
Service tag

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



Component	Description
❶ Product name	This is the product name affixed to the front of the computer.
❷ Serial number (s/n)	This is an alphanumeric identifier that is unique to each product.
❸ 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 what components and parts are needed.
❹ Model description	This is the alphanumeric identifier used to locate documents, drivers, and support for the computer.
❺ Warranty period	This number describes the duration of the warranty period for the computer.

Computer major components



Item	Description	Spare Part Number
(1)	Display assembly, 15.6-inch WXGA BrightView (includes webcam, 2 microphones, and 2 wireless antenna transceivers and cables)	
	For use in white computers	578257-001
	For use in black computers	578256-001
(2)	Switch cover (includes LED board and cable)	
	For use in white computers	571747-001
	For use in black computers	571757-001
(3)	Power button board (includes cable)	512834-001
(4)	Keyboard (includes keyboard cable)	
	 For a detailed list of available keyboards, see “Sequential part number listing” on page 3-12 .	
	White painted keyboard	517864-xxx
	White molded keyboard	517863-xxx
	Black painted keyboard	518965-xxx
	Black molded keyboard	518966-xxx
	Black textured keyboard	570228-xxx
(5)	Bluetooth module	537921-001
	 The Bluetooth module cable is available using spare part number 579161-001.	
(6)	Top cover (includes TouchPad and TouchPad buttons)	
	For use only with white computer models equipped with a fingerprint reader	579159-001
	For use only with white computer models not equipped with a fingerprint reader	518108-001
	For use only with black computer models equipped with a fingerprint reader	579160-001
	For use only with black computer models not equipped with a fingerprint reader	518788-001
(7)	Speaker assembly	533865-001
	Plastics Kit , includes:	511890-001
(8a)	ExpressCard slot bezel	
(8b)	Memory module compartment cover	
(8c)	Hard drive cover	
	 See “Plastics Kit” on page 3-9 for more information.	
(9)	ExpressCard module	464793-002
(10)	USB board (includes cable)	516497-001
(11)	System board (includes replacement thermal material)	
	For use in computers equipped with UMA graphics subsystem memory	571186-001
	For use in computers equipped with discrete graphics with 1 GB of dedicated memory	571187-001
	For use in computers equipped with discrete graphics with 512 MB of dedicated memory	571188-001
(12)	Modem module	
	 The modem module spare part kit does not include a modem module cable. The modem module cable is included in the Cable Kit, spare part number 533466-001. For more information, see “Cable Kit” on page 3-10 .	
	For use in all countries and regions except Australia and New Zealand	510100-001
	For use only in Australia and New Zealand	510100-011

(Continued)

Item	Description	Spare Part Number
(13)	Power connector cable	533465-001
(14)	Processor (includes replacement thermal material)	
	AMD Turion II Ultra Dual-Core Mobile Processor (2-MB L2 cache)	
	■ M640, 2.60-GHz	576256-001
	■ M620, 2.50-GHz	576255-001
	■ M600, 2.40-GHz	576254-001
	AMD Turion II Dual-Core Mobile Processor (1-MB L2 cache)	
	■ M520, 2.30-GHz	583055-001
	■ M500, 2.20-GHz	576253-001
	AMD Athlon II Dual-Core Processor for Notebook PCs (1-MB L2 cache)	
	■ M320, 2.10-GHz	576252-001
	■ M300, 2.00-GHz	578024-001
	AMD Sempron Processor (512-KB L2 cache)	
	■ M100, 2.00-GHz	576251-001
(15)	WLAN module	
	Intel Wi-Fi Link 5100 802.11a/b/g WLAN module for use in all countries and regions	482957-001
	Intel Wi-Fi Link 5100 802.11a/b/g/n WLAN module for use in all countries and regions	480985-001
	Atheros 9285G 802.11b/g (plus Bluetooth, with antennas)	
	■ For use in Canada, the Cayman Islands, Guam, Puerto Rico, the United States, and the U.S. Virgin Islands	518436-001
	■ 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, 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, 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	518436-002

(Continued)

Item	Description	Spare Part Number
Atheros 9280AGN 802.11a/b/g/n (plus Bluetooth)		
■	For use in Canada, the Cayman Islands, Guam, Puerto Rico, the United States, and the U.S. Virgin Islands	518437-001
■	For use in Canada, the Cayman Islands, Guam, Puerto Rico, the United States, and the U.S. Virgin Islands 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, 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, 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
Broadcom BCM4312 802.11b/g WLAN module (plus Bluetooth with two antennas)		
■	For use only with computers in Antigua and Barbuda, Barbados, Belize, Canada, the Cayman Islands, Guam, Puerto Rico, Trinidad and Tobago, the U.S. Virgin Islands, and the United States	504593-003
■	For use only with computers 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, Cameroon, Cape Verde, the Central African Republic, Chad, Chile, the People's Republic of China, 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, Ireland, Israel, Italy, the Ivory Coast, Jamaica, Jordan, Kazakhstan, Kenya, Kiribati, 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, Peru, the Philippines, Poland, Portugal, 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, Taiwan, Tajikistan, Tanzania, 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	504593-004

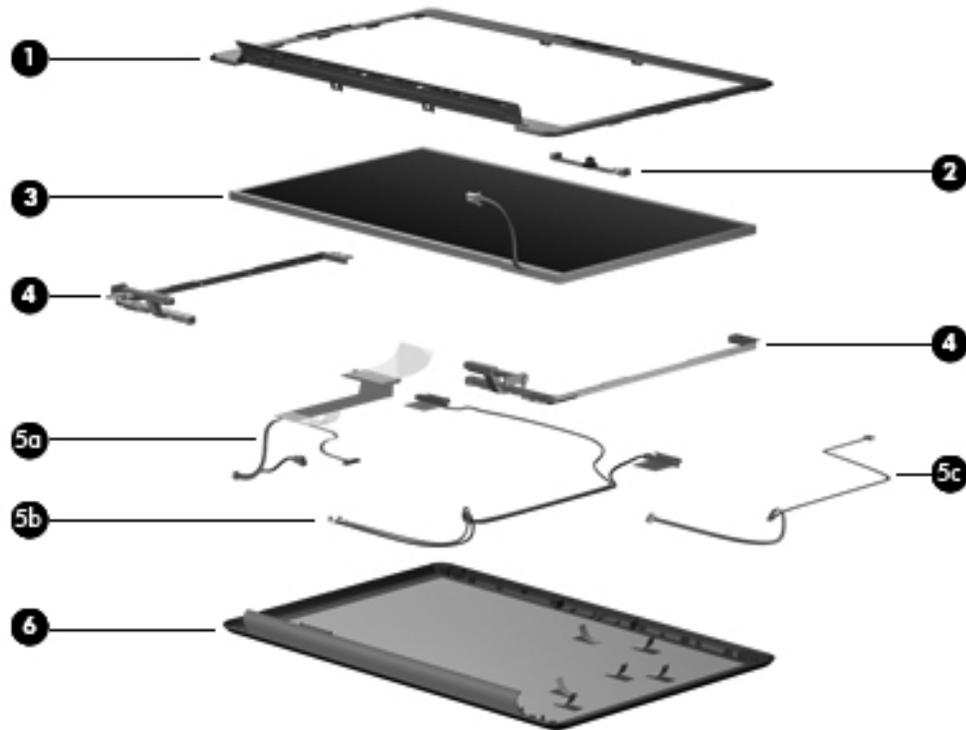
(Continued)

Item	Description	Spare Part Number
	Broadcom 4322 AGN 802.11a/b/g/draft-n WLAN module (plus Bluetooth)	
	■ For use in Antigua and Barbuda, Barbados, Belize, Canada, the Cayman Islands, Guam, Puerto Rico, Trinidad and Tobago, the U.S. Virgin Islands, and the United States	518434-001
	■ 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, Cameroon, Cape Verde, the Central African Republic, Chad, Chile, the People's Republic of China, 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, Ireland, Israel, Italy, the Ivory Coast, Jamaica, Jordan, Kazakhstan, Kenya, Kiribati, 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, Peru, the Philippines, Poland, Portugal, 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, Taiwan, Tajikistan, Tanzania, 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	518434-002
(16)	Audio/infrared board (includes cable)	511892-001
	Fan/heat sink assembly (includes replacement thermal material)	
(17)	For use only with computers equipped with discrete graphics subsystems	532141-001
(18)	For use only with computers equipped with UMA graphics subsystems	532142-001
(19)	Hard drive (includes left and right bracket rails, connector cable, Mylar cover with tab, and 4 rubber isolators)	
	500-GB, 7200-rpm	575476-001
	500-GB, 5400-rpm	509417-002
	320-GB, 7200-rpm (select models only)	509413-002
	320-GB, 5400-rpm	509415-002
	250-GB, 7200-rpm (select models only)	509412-002
	250-GB, 5400-rpm	509414-002
	Hard Drive Hardware Kit (not illustrated; includes left and right bracket rails, connector cable, Mylar cover with tab, and 4 rubber isolators)	483862-001
(20)	Base enclosure (includes rubber feet)	
	For use in computers with discrete graphics subsystems	532139-001
	For use in computers with UMA graphics subsystems	532140-001
	Rubber Feet Kit (not illustrated, includes 4 base enclosure rubber feet)	516499-001

(Continued)

Item	Description	Spare Part Number
(21)	Battery	
	12-cell, 95-Wh, 8.8-Ah Li-ion	484172-001
	6-cell, 55-Wh, 2.55-Ah Li-ion	484171-001
	6-cell, 47-Wh, 2.20-Ah Li-ion	484170-001
(22)	Optical drive (includes bezel and bracket)	
	Blu-ray ROM with LightScribe DVD±R/RW SuperMulti Double-Layer Drive	509421-002
	DVD±RW and CD-RW SuperMulti Double-Layer Combo Drive	509419-002
(23)	Memory modules (PC2-6400, 800-MHz, DDR2)	
	4-GB	509409-002
	2-GB	509410-002
	1-GB	509411-002
(24)	TV tuner module	
	 The TV tuner module spare part kit does not include a TV tuner module cable. The TV tuner module cable is included in the Cable Kit, spare part number 533466-001.	
	DVB-T TV tuner module (for use only with computers equipped with discrete graphics memory)	482899-003
	TV tuner external antenna cable with PAL jack (not illustrated)	482900-002
(25)	RTC battery	449729-001

Display assembly components



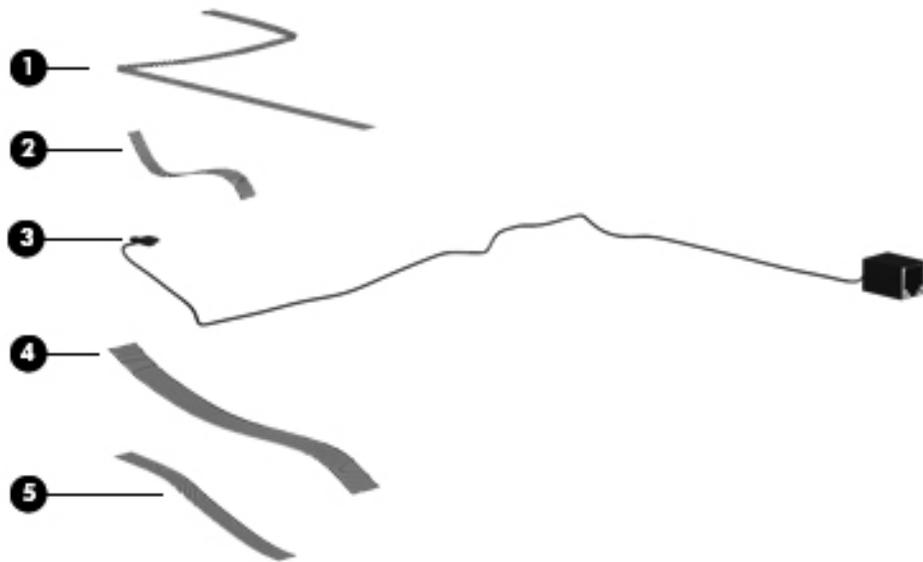
Item	Description	Spare part number
(1)	Display bezel (includes logo and internal display switch actuator magnet)	512364-001
(2)	Webcam/microphone module (includes cable)	571742-001
(3)	Display panel, 15.6-in WXGA BrightView (includes display panel cable)	570095-001
(4)	Display Hinge Kit (includes right and left hinges)	574556-001
(5a)	Display cable	574554-001
(5b)	Wireless antenna cable (included with display enclosure)	
(5c)	Webcam/microphone cable (included with webcam/microphone module)	
(6)	Display enclosure (includes wireless antenna transceivers and cables and logo LED board and cable)	
	For use in white computers	570390-001
	For use in black computers	570391-001
	Display Rubber Kit (not illustrated, includes display bezel rubber screw covers)	512361-001
	Display Screw Kit (not illustrated)	512362-001

Plastics Kit



Item	Description	Spare part number
	Plastics Kit	511890-001
(1)	ExpressCard slot bezel	
(2)	Hard drive cover (includes 2 captive screws secured by C-clips)	
(3)	Memory module compartment cover (includes 3 captive screws secured by C-clips)	

Cable Kit



Item	Description	Spare part number
	Cable Kit	533466-001
(1)	Fingerprint reader cable	
(2)	Audio/Infrared module cable	
(3)	Modem module cable (includes RJ-11 jack)	
(4)	USB cable	
(5)	TV tuner module cable	

Miscellaneous parts

Description	Spare part number
AC adapters:	
90-W AC adapter	463955-001
65-W AC adapter	463958-001
Power cords:	
For use in Argentina	490371-D01
For use in Australia and New Zealand	490371-011
For use in Belgium, Bulgaria, the Czech Republic, Finland, France, Germany, Greece, Hungary, Iceland, the Netherlands, northwest Africa, Norway, Poland, Portugal, Russia, Slovakia, Spain, Sweden, and Turkey	490371-021
For use in Brazil	490371-202
For use in the Asia/Pacific region, French Canada, Latin America, Thailand, and the United States	490371-001
For use in India	490371-D61
For use in Israel	490371-BB1
For use in Italy	490371-061
For use in Japan	490371-291
For use in South Africa	490371-AR1
For use in South Korea	490371-AD1
For use in Switzerland	490371-111
For use in Taiwan	490371-AB1
For use in the United Kingdom and Hong Kong	490371-031
HP carrying case	418162-001
Wireless laser mouse	430958-001
Screw Kit	516498-001
■ Phillips PM2.0x3.0 screws	
■ Phillips PM2.0x14.0 captive screws	
■ Phillips PM2.5x3.0 screws	
■ Phillips PM2.5x4.0 screws	
■ Phillips PM2.5x5.0 screws	
■ Phillips PM2.5x5.0 captive screws	
■ Phillips PM2.5x5.5 captive screws	
■ Phillips PM2.5x6.5 screws	
■ Phillips PM3.0x3.5 screws	

Sequential part number listing

Spare part number	Description
418162-001	HP carrying case
430958-001	Wireless laser mouse
449729-001	RTC battery
463955-001	90-W AC adapter
463958-001	65-W AC adapter
464793-002	ExpressCard module
465541-001	Full-function remote control with teletext
482899-003	DVB-T TV tuner module  The TV tuner module spare part kit does not include a TV tuner module cable. The TV tuner module cable is included in the Cable Kit, spare part number 501891-001.
482900-002	TV tuner external antenna cable with PAL jack
483862-001	Hard Drive Hardware Kit (includes left and right bracket rails, connector cable, Mylar cover with tab, and 4 rubber isolators)
484170-001	6-cell, 47-Wh, 2.20-Ah Li-ion battery
484171-001	6-cell, 55-Wh, 2.50-Ah Li-ion battery
484172-001	12-cell, 95-Wh, 8.8-Ah Li-ion battery
490371-001	Power cord for use in the Asia/Pacific region, French Canada, Latin America, Thailand, and the United States
490371-011	Power cord for use in Australia and New Zealand
490371-021	Power cord for use in Belgium, Bulgaria, the Czech Republic, Finland, France, Germany, Greece, Hungary, Iceland, the Netherlands, northwest Africa, Norway, Poland, Portugal, Russia, Slovakia, Spain, Sweden, and Turkey
490371-031	Power cord for use in the United Kingdom and Hong Kong
490371-061	Power cord for use in Italy
490371-081	Power cord for use in Denmark
490371-111	Power cord for use in Switzerland
490371-202	Power cord for use in Brazil
490371-291	Power cord for use in Japan
490371-AB1	Power cord for use in Taiwan
490371-AD1	Power cord for use in South Korea
490371-AR1	Power cord for use in South Africa
490371-D01	Power cord for use in Argentina
490371-D61	Power cord for use in India
504593-003	Broadcom BCM4312 802.11b/g WLAN module plus Bluetooth plus 2 antennas for use in Antigua and Barbuda, Barbados, Belize, Canada, the Cayman Islands, Guam, Puerto Rico, Trinidad and Tobago, the U.S. Virgin Islands, and the United States

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Spare part number	Description
504593-004	Broadcom BCM4312 802.11b/g WLAN module plus Bluetooth plus 2 antennas 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, Cameroon, Cape Verde, the Central African Republic, Chad, Chile, the People's Republic of China, 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, Ireland, Israel, Italy, the Ivory Coast, Jamaica, Jordan, Kazakhstan, Kenya, Kiribati, 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, Peru, the Philippines, Poland, Portugal, 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, Taiwan, Tajikistan, Tanzania, 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
509409-002	4-GB memory module (DDR2, 800-MHz, PC2-6400, 1-DIMM)
509410-002	2-GB memory module (DDR2, 800-MHz, PC2-6400, 1-DIMM)
509411-002	1-GB memory module (DDR2, 800-MHz, PC2-6400, 1-DIMM)
509412-002	250-GB, 7200-rpm hard drive (includes left and right bracket rails, connector cable, Mylar cover with tab, and four rubber isolators) (select models only)
509413-002	320-GB, 7200-rpm hard drive (includes left and right bracket rails, connector cable, Mylar cover with tab, and four rubber isolators) (select models only)
509414-002	250-GB, 5400-rpm hard drive (includes left and right bracket rails, connector cable, Mylar cover with tab, and four rubber isolators)
509415-002	320-GB, 5400-rpm hard drive (includes left and right bracket rails, connector cable, Mylar cover with tab, and four rubber isolators)
509417-002	500-GB, 5400-rpm hard drive (includes left and right bracket rails, connector cable, Mylar cover with tab, and four rubber isolators)
509419-002	DVD±RW and CD-RW SuperMulti Double-Layer Combo Drive
509421-002	Blu-ray ROM with LightScribe DVD±R/RW SuperMulti Double-Layer Drive
510100-001	Modem module for use in all countries and regions except Australia and New Zealand
510100-011	Modem module for use only in Australia and New Zealand
511890-001	Plastics Kit (see "Plastics Kit" on page 3-9)
511892-001	Audio/infrared board
512361-001	Display Rubber Kit (includes display bezel rubber screw covers)
512362-001	Display Screw Kit
512364-001	Display bezel (includes logo and internal display switch actuator magnet)
512834-001	Power button board (includes cable)
516497-001	USB board (includes cable)

(Continued)

Spare part number	Description
516498-001	Screw Kit
516499-001	Rubber Feet Kit
517863-001	White molded keyboard for use in the United States
517863-031	White molded keyboard for use in the United Kingdom
517863-041	White molded keyboard for use in Germany
517863-051	White molded keyboard for use in France
517863-061	White molded keyboard for use in Italy
517863-071	White molded keyboard for use in Spain
517863-111	White molded keyboard for use in Switzerland
517863-131	White molded keyboard for use in Portugal
517863-141	White molded keyboard for use in Turkey
517863-161	White molded keyboard for use in Latin America
517863-171	White molded keyboard for use in Saudi Arabia
517863-201	White molded keyboard for use in Brazil
517863-211	White molded keyboard for use in Hungary
517863-221	White molded keyboard for use in the Czech Republic
517863-251	White molded keyboard for use in Russia
517863-281	White molded keyboard for use in Thailand
517863-291	White molded keyboard for use in Japan
517863-A41	White molded keyboard for use in Belgium
517863-AB1	White molded keyboard for use in Taiwan
517863-AD1	White molded keyboard for use in South Korea
517863-BA1	White molded keyboard for use in Slovenia
517863-B31	White molded keyboard for use internationally
517863-DH1	White molded keyboard for use in the Netherlands
517863-DJ1	White molded keyboard for use in Greece
517864-121	White painted keyboard for use in French Canada
517864-201	White painted keyboard for use in Brazil
518108-001	Top cover for use only with white computers not equipped with a fingerprint reader
518434-001	Broadcom 4322 AGN 802.11a/b/g/draft-n WLAN module (plus Bluetooth) for use in Antigua and Barbuda, Barbados, Belize, Canada, the Cayman Islands, Guam, Puerto Rico, Trinidad and Tobago, the U.S. Virgin Islands, and the United States

(Continued)

Spare part number	Description
518434-002	Broadcom 4322 AGN 802.11a/b/g/draft-n WLAN module (plus Bluetooth) 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, Cameroon, Cape Verde, the Central African Republic, Chad, Chile, the People's Republic of China, 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, Ireland, Israel, Italy, the Ivory Coast, Jamaica, Jordan, Kazakhstan, Kenya, Kiribati, 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, Peru, the Philippines, Poland, Portugal, 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, Taiwan, Tajikistan, Tanzania, 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
518436-001	Atheros 9285G 802.11b/g WLAN module for use in Canada, the Cayman Islands, Guam, Puerto Rico, the United States, and the U.S. Virgin Islands
518436-002	Atheros 9285G 802.11b/g 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, 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, 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
518437-001	Atheros 9280AGN 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

(Continued)

Spare part number	Description
518437-002	Atheros 9280AGN 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 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, 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, 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
518788-001	Top cover for use only with black computers not equipped with a fingerprint reader (includes TouchPad and TouchPad buttons)
518965-001	Black molded keyboard for use in the United States
518965-031	Black molded keyboard for use in the United Kingdom
518965-041	Black molded keyboard for use in Germany
518965-051	Black molded keyboard for use in France
518965-061	Black molded keyboard for use in Italy
518965-071	Black molded keyboard for use in Spain
518965-111	Black molded keyboard for use in Switzerland
518965-131	Black molded keyboard for use in Portugal
518965-141	Black molded keyboard for use in Turkey
518965-161	Black molded keyboard for use in Latin America
518965-171	Black molded keyboard for use in Saudi Arabia
518965-211	Black molded keyboard for use in Hungary
518965-221	Black molded keyboard for use in the Czech Republic
518965-251	Black molded keyboard for use in Russia
518965-291	Black molded keyboard for use in Japan
518965-A41	Black molded keyboard for use internationally
518965-AB1	Black molded keyboard for use in Taiwan
518965-B31	Black molded keyboard for use internationally
518965-BA1	Black molded keyboard for use in Slovenia
518965-DH1	Black molded keyboard for use in the Netherlands
518965-DJ1	Black molded keyboard for use in Greece

(Continued)

Spare part number	Description
518966-121	Black painted keyboard for use in French Canada
518966-171	Black painted keyboard for use in Saudi Arabia
518966-201	Black painted keyboard for use in Brazil
518966-281	Black painted keyboard for use in Thailand
518966-AD1	Black painted keyboard for use in South Korea
532139-001	Base enclosure for use in computers with discrete graphics subsystems (includes rubber feet)
532140-001	Base enclosure for use in computers with UMA graphics subsystems (includes rubber feet)
532141-001	Fan/heat sink assembly for use only with computers equipped with graphics subsystems with discrete graphics memory (includes replacement thermal material)
532142-001	Fan/heat sink assembly for use only with computers equipped with graphics subsystems with UMA graphics memory (includes replacement thermal material)
533465-001	Power connector cable
533466-001	Cable Kit (see "Cable Kit" on page 3-10)
533865-001	Speaker assembly
537921-001	Bluetooth module for use only with computer models equipped with Intel processors (does not include a Bluetooth module cable)  The Bluetooth module cable is available using spare part number 579161-001.
570095-001	15.6-in WXGA BrightView display panel (includes display panel cable)
570228-001	Black textured keyboard for use in the United States
570228-031	Black textured keyboard for use in the United Kingdom
570228-041	Black textured keyboard for use in Germany
570228-051	Black textured keyboard for use in France
570228-061	Black textured keyboard for use in Italy
570228-071	Black textured keyboard for use in Spain
570228-111	Black textured keyboard for use in Switzerland
570228-121	Black textured keyboard for use in French Canada
570228-131	Black textured keyboard for use in Portugal
570228-141	Black textured keyboard for use in Turkey
570228-161	Black textured keyboard for use in Latin America
570228-171	Black textured keyboard for use in Saudi Arabia
570228-201	Black textured keyboard for use in Brazil
570228-211	Black textured keyboard for use in Hungary
570228-221	Black textured keyboard for use in the Czech Republic
570228-251	Black textured keyboard for use in Russia
570228-281	Black textured keyboard for use in Thailand
570228-291	Black textured keyboard for use in Japan
570228-B31	Black textured keyboard for use internationally
570228-A41	Black textured keyboard for use in Belgium
570228-AB1	Black textured keyboard for use in Taiwan

(Continued)

Spare part number	Description
570228-AD1	Black textured keyboard for use in South Korea
570228-BA1	Black textured keyboard for use in Slovenia
570228-DH1	Black textured keyboard for use in the Netherlands
570228-DJ1	Black textured keyboard for use in Greece
570390-001	Display enclosure for use only with white computer models (includes wireless antenna transceivers and cables and logo LED board and cable)
570391-001	Display enclosure for use only with black computer models (includes wireless antenna transceivers and cables and logo LED board and cable)
571186-001	System board for use with computers equipped with UMA graphics subsystem memory (includes replacement thermal material)
571187-001	System board for use with computers equipped with discrete graphics subsystem memory and 1 GB of dedicated memory (includes replacement thermal material)
571188-001	System board for use with computers equipped with discrete graphics subsystem memory and 512 MB of dedicated memory (includes replacement thermal material)
571742-001	Webcam/microphone module (includes cable)
571747-001	Switch cover for use in white computers (includes LED board and cable)
571757-001	Switch cover for use in black computers (includes LED board and cable)
574554-001	Display cable
574556-001	Display Hinge Kit (includes right and left hinges)
575476-001	500-GB, 7200-rpm hard drive (includes left and right bracket rails, connector cable, Mylar cover with tab, and four rubber isolators)
576251-001	AMD Sempron M100, 2.00-GHz processor with 512-KB L2 cache
576252-001	AMD Athlon II Dual-Core M320, 2.10-GHz processor with 1-MB L2 cache
576253-001	AMD Turion II Dual-Core M500, 2.20-GHz processor with 1-MB L2 cache
576254-001	AMD Turion II Ultra Dual-Core M600, 2.40-GHz processor with 2-MB L2 cache
576255-001	AMD Turion II Ultra Dual-Core M620, 2.50-GHz processor with 2-MB L2 cache
576256-001	AMD Turion II Ultra Dual-Core M640, 2.60-GHz processor with 2-MB L2 cache
578024-001	AMD Athlon II Dual-Core M300, 2.00-GHz processor with 1-MB L2 cache
578256-001	15.6-inch WXGA BrightView display assembly for use in black computers (includes webcam, 2 microphones, and 2 antenna transceivers and cables)
578257-001	15.6-inch WXGA BrightView display assembly for use in white computers (includes webcam, 2 microphones, and 2 antenna transceivers and cables)
579159-001	Top cover for use in white computers (includes TouchPad and fingerprint reader)
579160-001	Top cover for use in black computers (includes TouchPad and fingerprint reader)
579161-001	Bluetooth cable
583055-001	AMD Turion II Dual-Core M520, 2.30-GHz processor with 1-MB L2 cache

Removal and replacement procedures

Preliminary replacement requirements

Tools required

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

- Flat-bladed screwdriver
- 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 nonmagnetic 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 112 screws, in 11 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

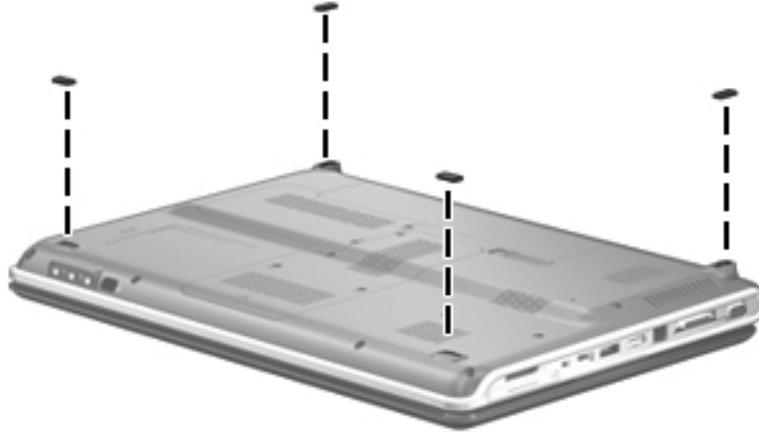
When ordering parts or requesting information, provide the computer serial number and model description provided on the service tag.



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 what components and parts are needed.
4 Model description	This is the alphanumeric identifier used to locate documents, drivers, and support for the computer.
5 Warranty period	This number describes the duration of the warranty period for the computer.

Computer feet

The computer feet are adhesive-backed rubber pads. The feet are included in the Rubber Feet Kit, spare part number 516499-001. There are 4 rubber feet that attach to the base enclosure in the locations illustrated below.



Battery

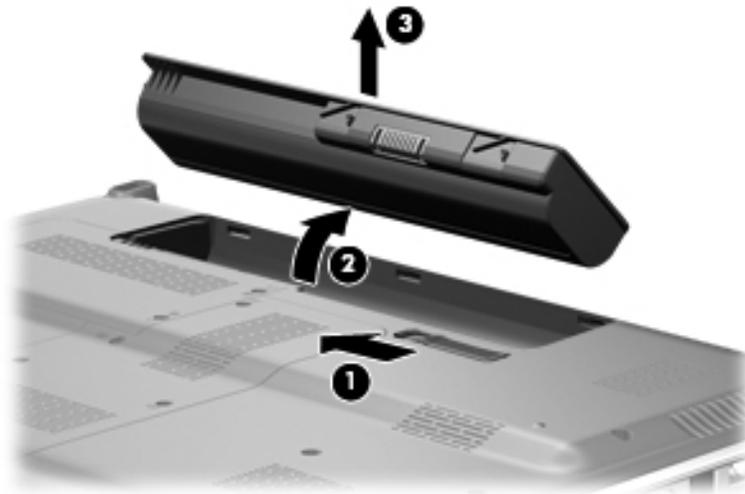
Description	Spare part number
12-cell, 95-Wh, 8.8-Ah Li-ion battery	484172-001
6-cell, 55-Wh, 2.55-Ah Li-ion battery	484171-001
6-cell, 47-Wh, 2.20-Ah Li-ion battery	484170-001

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.
2. Slide the battery release latch **1** to release the battery.
3. Pivot the battery **2** upward and remove it from the computer **3**.



To insert the battery, insert the rear edge of the battery into the battery bay and pivot the front edge of the battery downward until it is seated. The battery release latch automatically locks the battery into place.

Webcam/microphone module



If the webcam/microphone module must be replaced, the display assembly does not have to be removed. Follow the procedures in this section to replace the webcam/microphone module. For information on replacing the display assembly and other display assembly internal components, see [“Display assembly” on page 4-25](#).

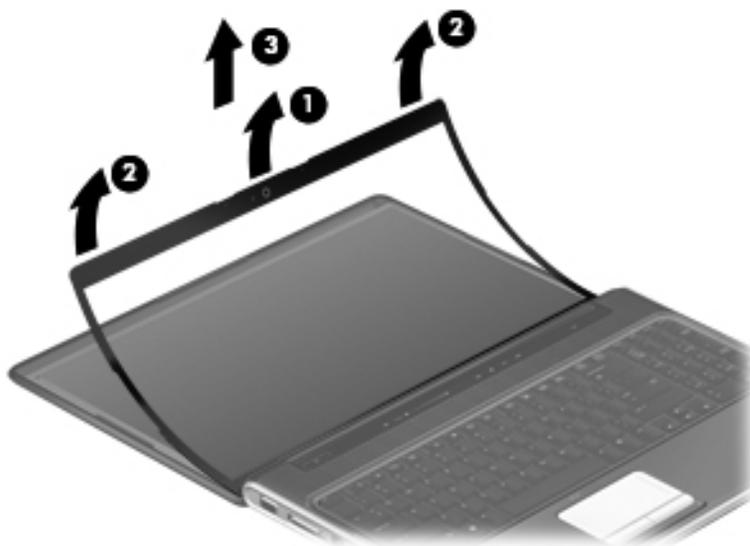
Description	Spare part number
Webcam/microphone module (includes cable)	571742-001

Before disassembling the computer, follow these steps:

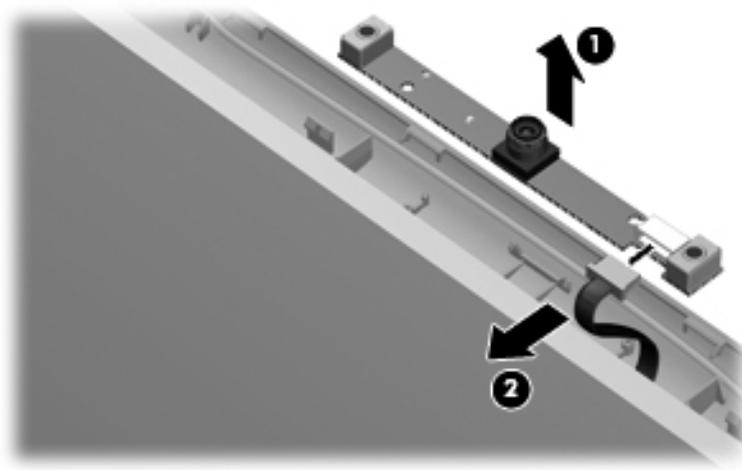
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord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

Remove the webcam/microphone module:

1. Turn the computer upside-down on a flat surface.
2. Open the computer as far as possible.
3. Flex the inside edges of the top edge ❶ and the left and right upper corners ❷ of the display bezel until the bezel disengages from the display enclosure.
4. Release the display bezel top edge ❸ from the display enclosure.



5. Release the webcam/microphone module ❶ from the display enclosure as far as the webcam/microphone module cable allows.
6. Disconnect the webcam/microphone module cable ❷ from the webcam/microphone module.



7. Remove the webcam/microphone module.

Reverse this procedure to install the webcam/microphone 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	509421-002
DVD±RW and CD-RW SuperMulti Double-Layer Combo Drive	509419-002

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](#)).

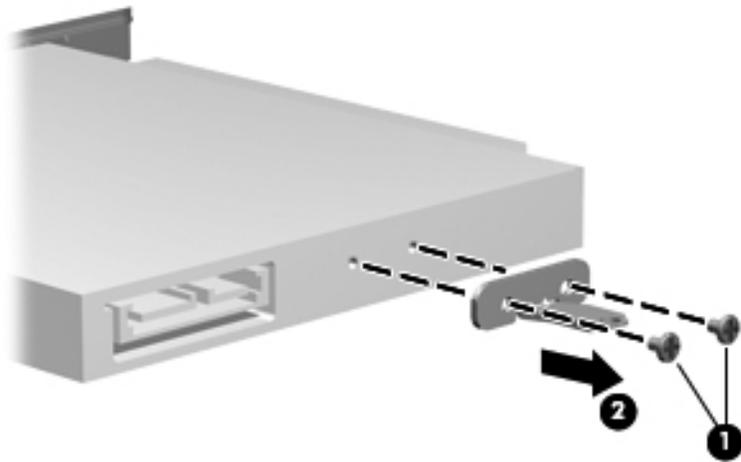
Remove the optical drive:

1. Position the computer with the front toward you.
2. Remove the Phillips PM2.5×6.5 screw ❶ that secures the optical drive to the computer.
3. Use the disc tray frame to slide the optical drive ❷ out of the computer.



4. If it is necessary to replace the optical drive bracket, follow these steps:

- a. Position the optical drive with the rear toward you.
- b. Remove the two Phillips PM2.0×3.0 screws ❶ that secure the optical drive bracket to the optical drive.
- c. Remove the optical drive bracket ❷.



Reverse this procedure to reassemble and install an optical drive.

Memory module

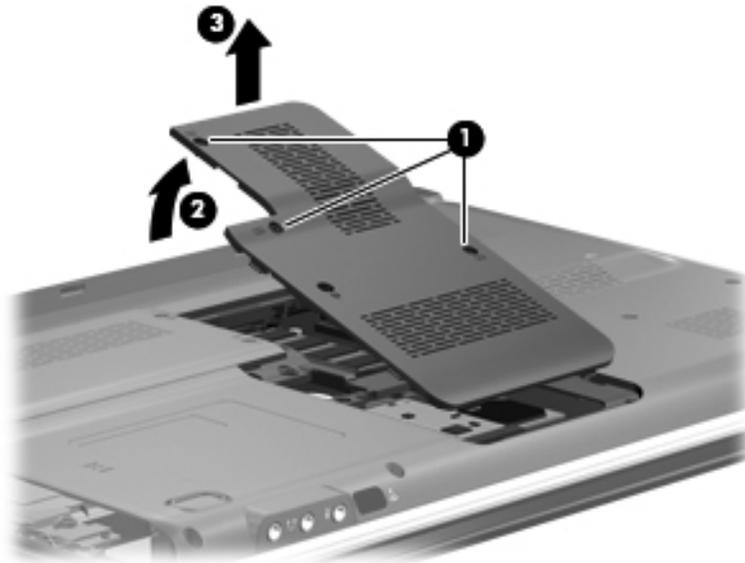
Description	Spare part number
4-GB (PC2-6400, 800-MHz, DDR2)	509409-002
2-GB (PC2-6400, 800-MHz, DDR2)	509410-002
1-GB (PC2-6400, 800-MHz, DDR2)	509411-002

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).

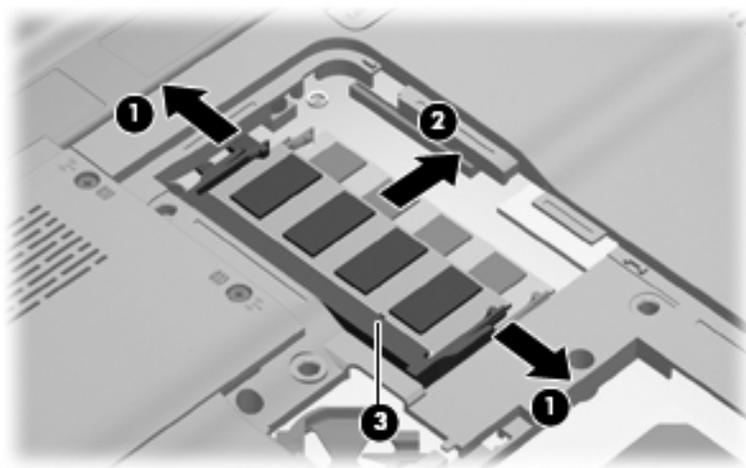
Remove the memory module:

1. Position the computer with the front toward you.
2. Loosen the three Phillips PM2.5×5.5 captive screws ❶ that secure the memory module compartment cover to the computer.
3. Lift the rear edge ❷ of the cover, swing it up and to the front, and remove the cover ❸. The memory module compartment cover is included in the Plastics Kit, spare part number 511890-001.



4. Spread the retaining tabs ❶ on each side of the memory module to release the memory module. (The edge of the module opposite the slot rises away from the computer.)
5. Remove the memory module ❷ by pulling the module away from the slot at an angle.

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



Reverse this procedure to install a memory module.

TV tuner module

 The TV tuner module spare part kit does not include a TV tuner module cable. The TV tuner module cable is included in the Cable Kit, spare part number 533466-001.

 The TV tuner external antenna cables are available using spare part numbers 482900-002 (with PAL jack).

Description	Spare part number
DVB-T TV tuner module (for use only with computers equipped with discrete graphics memory)	482899-003

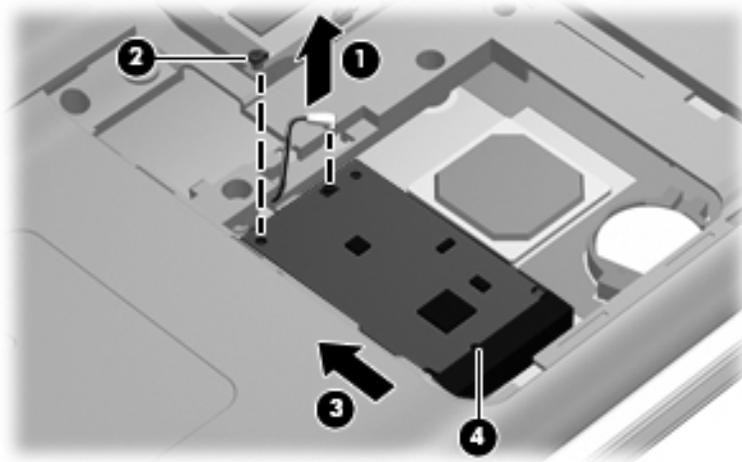
Before removing the TV tuner module, follow these steps:

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 memory module compartment cover (see [“Memory module” on page 4-11](#)).

Remove the TV tuner module:

1. Disconnect the TV tuner module antenna cable **1** from the terminal on the TV tuner module.
2. Remove the Phillips PM2.0×3.0 screw **2** that secures the TV tuner module to the computer.
3. Lift the edge of the TV tuner module **3**, and pull the module away from the slot at an angle.

 The TV tuner module is designed with a notch **4** to prevent incorrect insertion into the TV tuner module slot.



Reverse this procedure to install the TV tuner module.

RTC battery

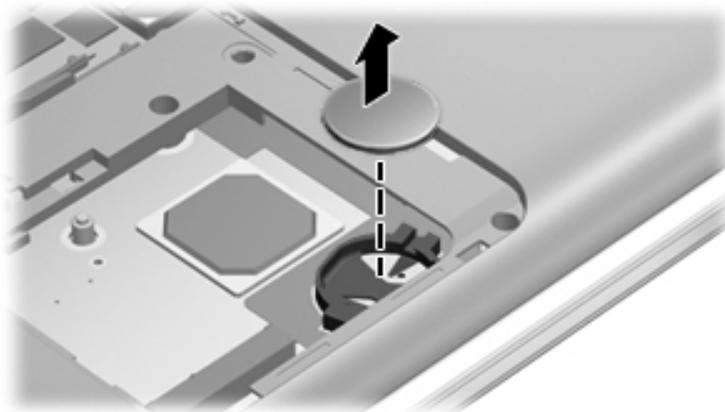
Description	Spare part number
RTC battery	449729-001

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 memory module compartment cover (see [“Memory module” on page 4-11](#)).

Remove the RTC battery:

- » Use a non-conductive pointed tool to pry the RTC battery from the socket on the system board.



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

Hard drive



The hard drive spare part kit includes left and right bracket rails, a connector cable, Mylar cover with tab, and 4 rubber isolators.

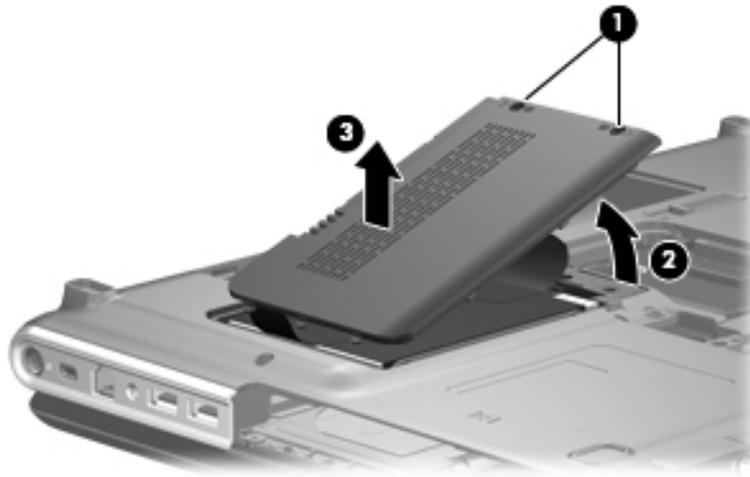
Description	Spare part number
500-GB, 7200-rpm hard drive	575476-001
500-GB, 5400-rpm hard drive	509417-002
320-GB, 7200-rpm hard drive (select models only)	509413-002
320-GB, 5400-rpm hard drive	509415-002
250-GB, 7200-rpm hard drive (select models only)	509412-002
250-GB, 5400-rpm hard drive	509414-002
Hard Drive Hardware Kit (includes left and right bracket rails, connector cable, Mylar cover with tab, and 4 rubber isolators)	483862-001

Before removing the hard drive, follow these steps:

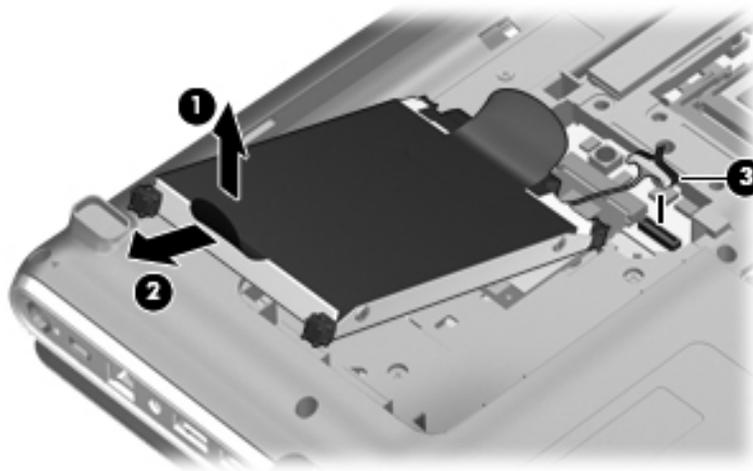
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord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

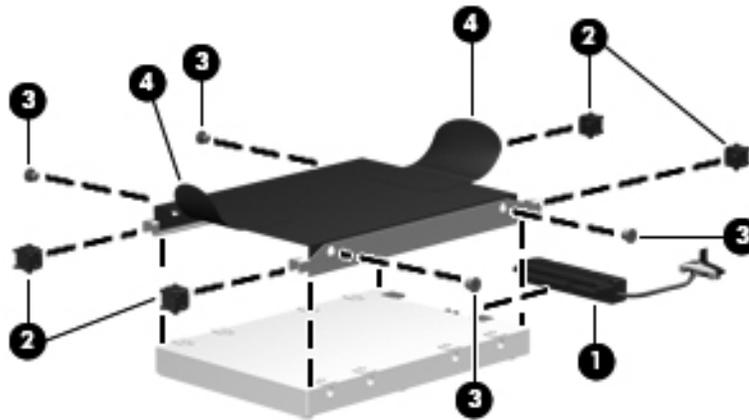
1. Position the computer with the front toward you.
2. Loosen the two Phillips PM2.5×5.5 captive screws ❶ that secure the hard drive cover to the computer.
3. Lift the right side ❷ of the hard drive cover, swing it up and to the left, and remove the cover ❸.



4. Use the Mylar tab ❶ to slide the hard drive to the left ❷ to release it from the hard drive bay.
5. Disconnect the hard drive cable ❸ from the system board.



6. Remove the hard drive from the hard drive bay.
7. If it is necessary to replace the hard drive bracket or any of the hard drive bracket components, remove the following:
 - ❶ Hard drive adapter cable
 - ❷ Four rubber isolators
 - ❸ Four Phillips PM3.0x3.5 screws that secure the hard drive bracket rails and Mylar cover to the hard drive
 - ❹ Left and right hard drive bracket rails with Mylar cover



Reverse this procedure to reassemble and install the hard drive.

WLAN module

Description	Spare part number
Atheros 9285G 802.11b/g WLAN modules:	
■ For use in Canada, the Cayman Islands, Guam, Puerto Rico, the United States, and the U.S. Virgin Islands	518436-001
■ 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, 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, 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	518436-002
Atheros 9280AGN 802.11a/b/g/n WLAN modules:	
■ For use in Canada, the Cayman Islands, Guam, Puerto Rico, the United States, and the U.S. Virgin Islands	518437-001
■ For use in Canada, the Cayman Islands, Guam, Puerto Rico, the United States, and the U.S. Virgin Islands 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, 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, 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

Description	Spare part number
Broadcom 4322 AGN 802.11a/b/g/draft-n WLAN modules:	
■ For use in Antigua and Barbuda, Barbados, Belize, Canada, the Cayman Islands, Guam, Puerto Rico, Trinidad and Tobago, the U.S. Virgin Islands, and the United States	518434-001
■ 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, Cameroon, Cape Verde, the Central African Republic, Chad, Chile, the People's Republic of China, 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, Ireland, Israel, Italy, the Ivory Coast, Jamaica, Jordan, Kazakhstan, Kenya, Kiribati, 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, Peru, the Philippines, Poland, Portugal, 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, Taiwan, Tajikistan, Tanzania, 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	518434-002
Broadcom BCM4312 802.11b/g WLAN modules:	
■ For use in Antigua and Barbuda, Barbados, Belize, Canada, the Cayman Islands, Guam, Puerto Rico, Trinidad and Tobago, the U.S. Virgin Islands, and the United States	504593-003
■ 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, Cameroon, Cape Verde, the Central African Republic, Chad, Chile, the People's Republic of China, 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, Ireland, Israel, Italy, the Ivory Coast, Jamaica, Jordan, Kazakhstan, Kenya, Kiribati, 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, Peru, the Philippines, Poland, Portugal, 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, Taiwan, Tajikistan, Tanzania, 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	504593-004

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).
5. Remove the hard drive (see “[Hard drive](#)” on page 4-15).

Remove the WLAN module:



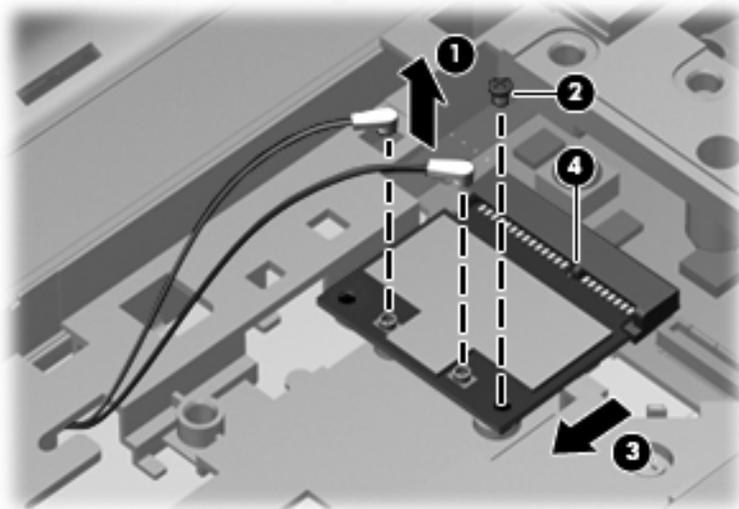
CAUTION: To prevent an unresponsive system, replace the wireless module only with a wireless module authorized for use in the computer by the governmental agency that regulates wireless devices in your country or region. If you replace the module and then receive a warning message, remove the module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

1. Disconnect the WLAN antenna cables ❶ from the WLAN module.

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

2. Remove the Phillips PM2.0×3.0 screw ❷ that secures the WLAN module to the computer.
3. Remove the WLAN module ❸ by pulling it away from the slot at an angle.

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



Reverse this procedure to install the WLAN module.

Switch cover and keyboard

Description:	Spare part number
Switch cover for use in white computers (includes LED board and cable)	571747-001
Switch cover for use in black computers (includes LED board and cable)	571757-001
White painted keyboard	517864-xxx
White molded keyboard	517863-xxx
Black painted keyboard	518966-xxx
Black molded keyboard	518965-xxx
Black textured keyboard	570228-xxx

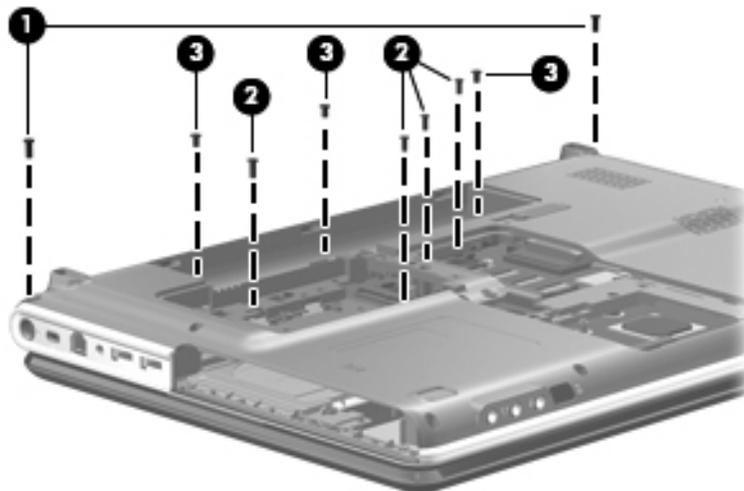
 For a detailed list of available keyboards, see [“Sequential part number listing” on page 3-12](#).

Before removing the switch cover and 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 memory module compartment cover (see [“Memory module” on page 4-11](#)).
6. Remove the hard drive cover (see [“Hard drive” on page 4-15](#)).

Remove the switch cover and keyboard:

1. Position the computer upside-down, with the front toward you.
2. Remove the following screws:
 - ❶ Two Phillips PM2.5×6.5 screws that secure the switch cover to the computer
 - ❷ Four Phillips PM2.5×6.5 screws that secure the keyboard to the computer
 - ❸ Three Phillips PM2.5×5.0 screws that secure the switch cover to the computer (inside the battery bay)



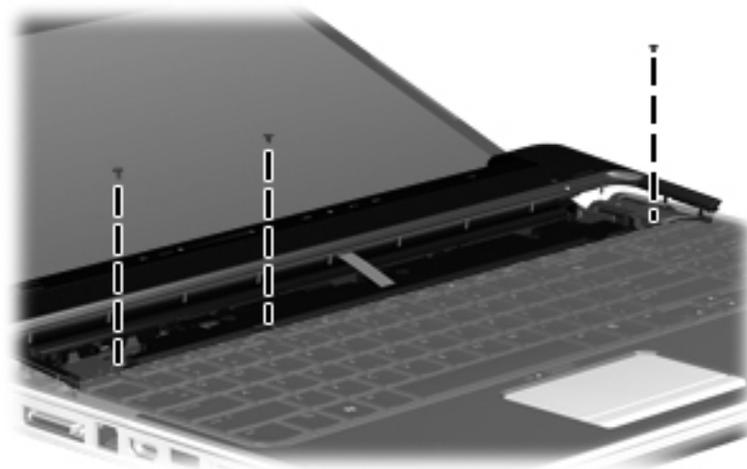
3. Turn the computer display-side up, with the front toward you, and open the computer as far as possible.
4. Lift the rear edge of the switch cover until it detaches from the computer.



5. Move the switch cover back so that it rests on the display.



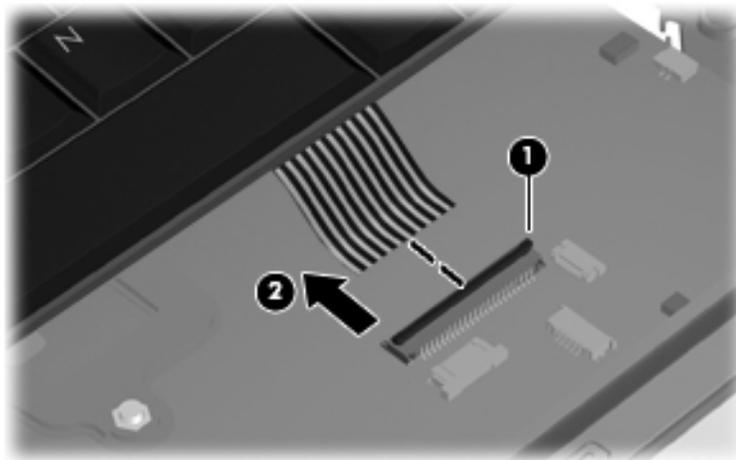
6. Remove the three Phillips PM2.0×3.0 screws that secure the keyboard to the computer.



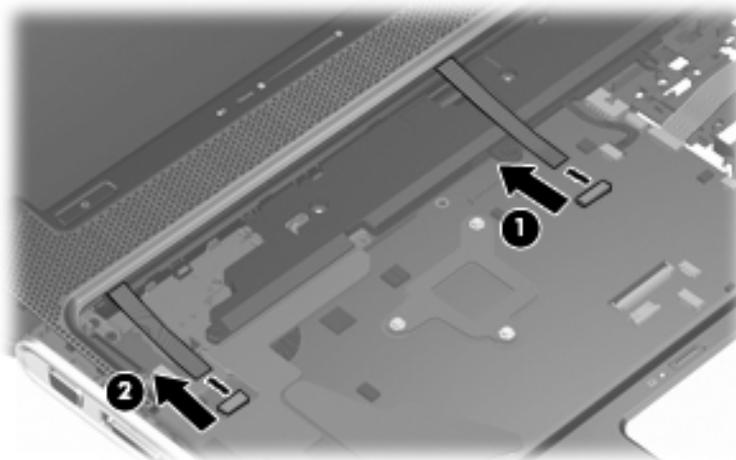
7. Lift the rear edge ❶ of the keyboard.
8. Slide the keyboard ❷ back until the keyboard connector on the system board is accessible.



9. Release the zero insertion force (ZIF) connector ❶ to which the keyboard cable is connected and disconnect the cable ❷ from the system board.



10. Remove the keyboard.
11. Disconnect the power button board cable ❶ from the low insertion force (LIF) connector on the system board.
12. Disconnect the LED board cable ❷ from the LIF connector on the system board.



13. Remove the switch cover.
- Reverse this procedure to install the switch cover and keyboard.

Power button board

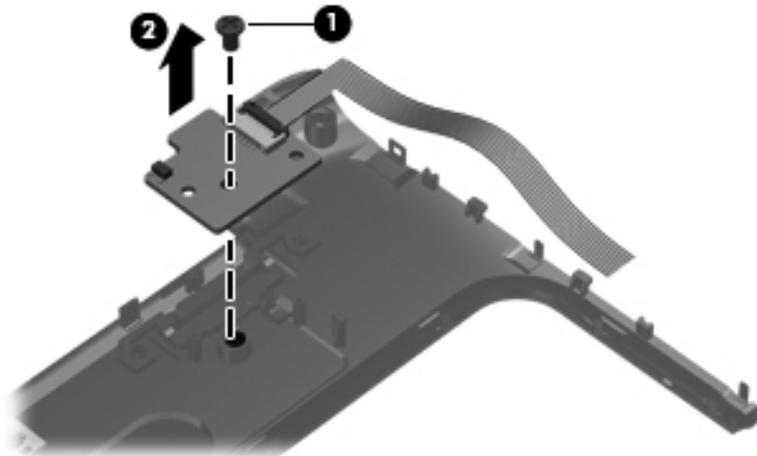
Description	Spare part number
Power button board (includes cable)	512834-001

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 switch cover and keyboard (see [“Switch cover and keyboard” on page 4-20](#)).

Remove the power button board:

1. Turn the switch cover upside down, with the front toward you.
2. Remove the Phillips PM2.0×4.0 screw ❶ that secures the power button board to the switch cover.
3. Remove the power button board ❷ and cable.



Reverse this procedure to install the power button board.

Bluetooth module



The Bluetooth module spare part kit does not include a Bluetooth module cable. The Bluetooth module cable is available using spare part number 579161-001.

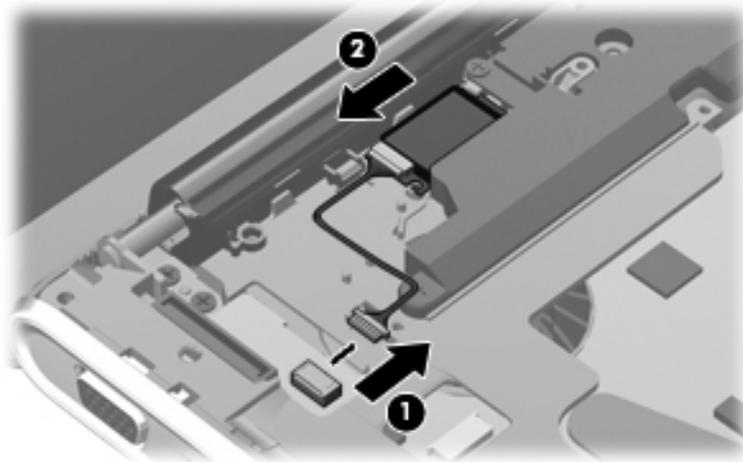
Description	Spare part number
Bluetooth module	537921-001

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 switch cover and keyboard (see [“Switch cover and keyboard” on page 4-20](#)).

Remove the Bluetooth module:

1. Disconnect the Bluetooth module cable ❶ from the system board.
2. Slide the Bluetooth module out of the holder ❷.
3. Remove the module from the computer ❸.



Reverse this procedure to install the Bluetooth module.

Display assembly

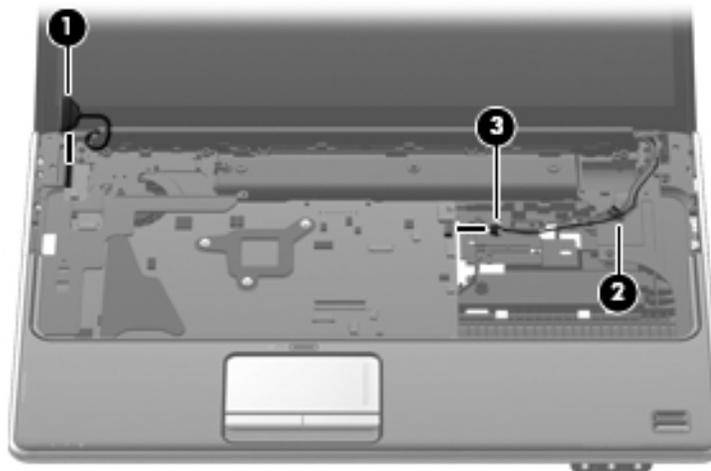
Description	Spare part number
15.6-inch WXGA BrightView display assembly for use in white computers (includes webcam, 2 microphones, and 2 wireless antenna transceivers and cables)	578257-001
15.6-inch WXGA BrightView display assembly for use in black computers (includes webcam, 2 microphones, and 2 wireless antenna transceivers and cables)	578256-001

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. Remove the following components:
 - a. Disconnect the wireless antenna cables from the WLAN module (see [“WLAN module” on page 4-17](#)).
 - b. Switch cover and keyboard (see [“Switch cover and keyboard” on page 4-20](#)).

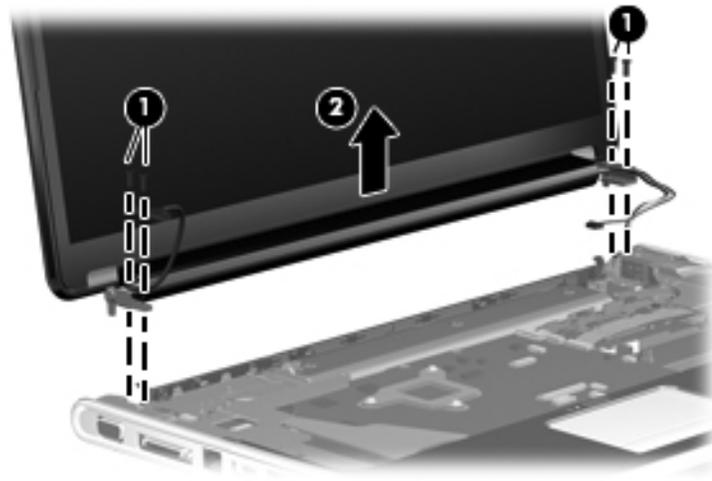
Remove the display assembly:

1. Disconnect the display panel cable ❶ from the system board.
2. Remove the WLAN antenna cables and the microphone cable from the clips ❷ built into the top cover.
3. Disconnect the webcam/microphone cable ❸ from the system board.

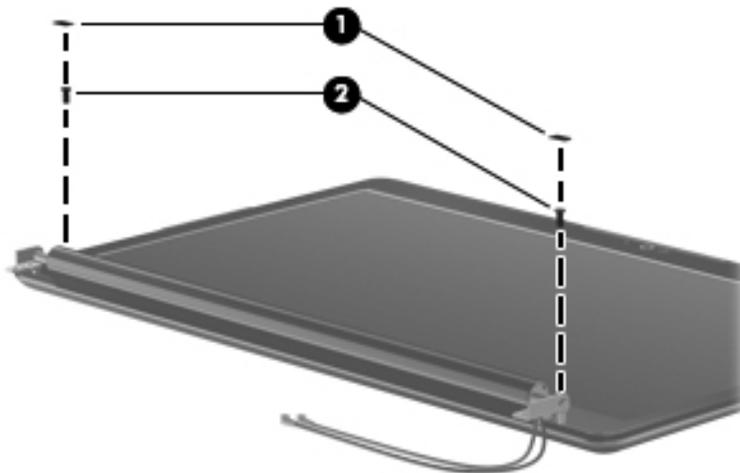


△ Support the display assembly when removing the following screws. Failure to support the display assembly can result in damage to the display assembly and other computer components.

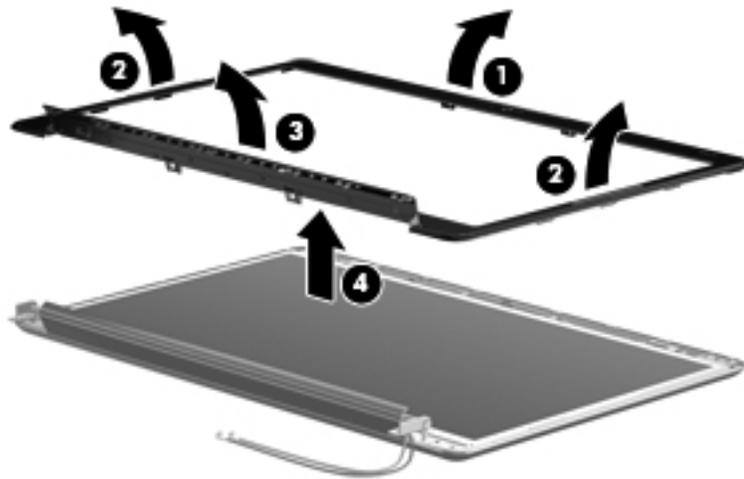
4. Remove the four Phillips PM2.5×6.5 screws ❶ that secure the display assembly to the computer.
5. Lift the display assembly ❷ straight up and remove it.



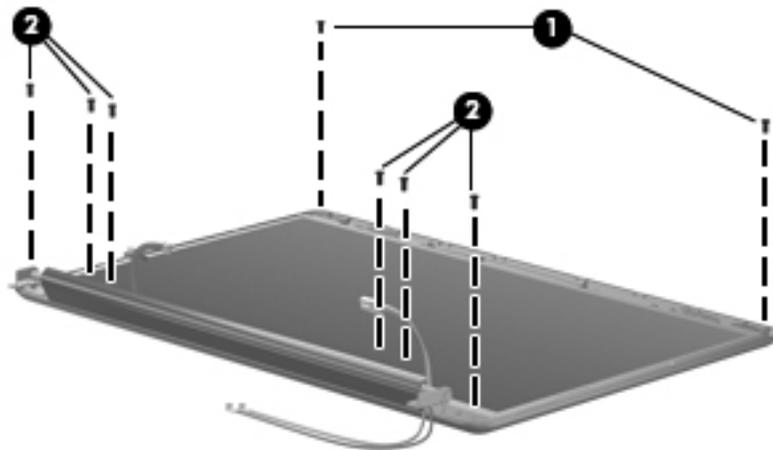
6. If it is necessary to replace the display bezel or any of the display assembly internal components, remove the following screw covers and screws:
- ❶ Two Mylar screw covers on the display bezel bottom edge. The display rubber screw covers are included in the Display Rubber Kit, spare part number 512361-001.
 - ❷ Two Phillips PM2.5×6.5 screws.



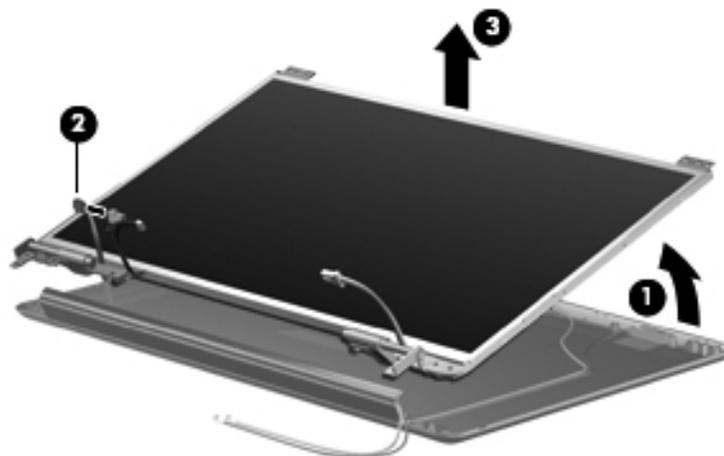
7. Flex the inside edges of the top edge ❶, the left and right sides ❷, and the bottom edge of the display bezel ❸ until the bezel disengages from the display enclosure.
8. Remove the display bezel ❹. The display bezel is available using the spare part number 512364-001.



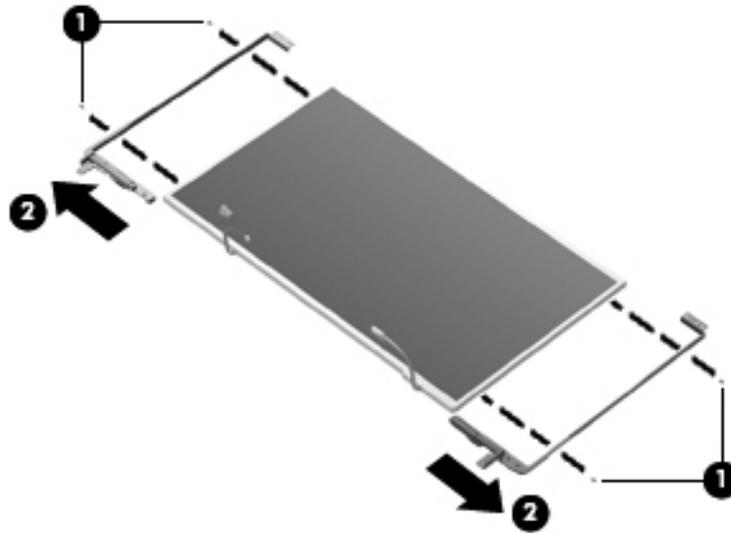
9. If it is necessary to replace the display panel, remove the two Phillips PM2.5×5.0 screws **1** from the top corners and the six Phillips PM2.5×5.0 screws **2** from the display hinges.



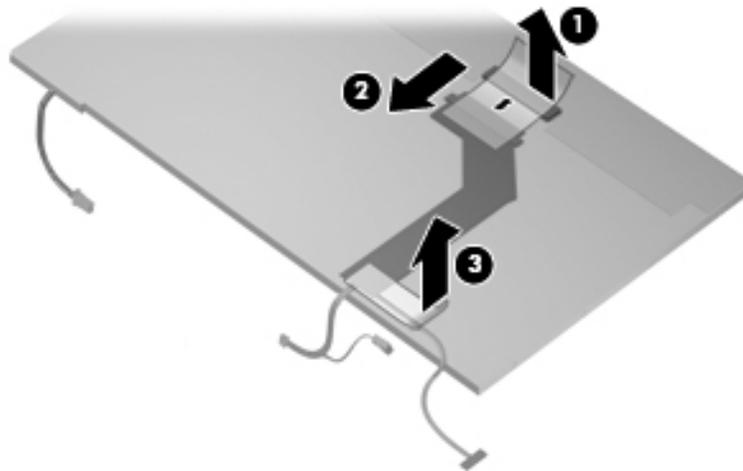
10. Flex the bottom of the display panel **1** back and release the display hinges. Disconnect the display LED cable **2** from the display panel cable. Remove the display panel **3**. Display panels are available using spare part number 570095-001.



11. If it is necessary to replace the display hinges, remove the two Phillips PM2.0×3.0 screws **1** that secure each display hinge to the display panel.
12. Remove the display hinges **2**. The display hinges are available in the Display Hinge Bracket Kit, spare part 574556-001. The display hinge screws are available in the Display Screw Kit, spare part number 512362-001.



13. If it is necessary to remove the display panel cable, remove the adhesive reinforcement strip **1** from the display panel cable, and disconnect the display panel cable **2**. Remove the tape **3** that secures the cable to the display panel. The display panel cable is available using spare part number 574554-001.



Reverse this procedure to reassemble and install the display assembly.

Speaker

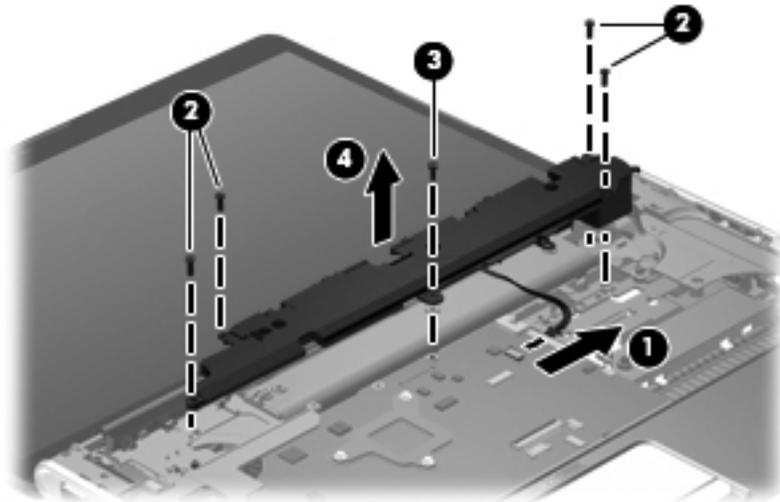
Description	Spare part number
Speaker assembly	533865-001

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. Optical drive (see [“Optical drive” on page 4-9](#))
 - b. Hard drive (see [“Hard drive” on page 4-15](#))
 - c. Switch cover and keyboard (see [“Switch cover and keyboard” on page 4-20](#)).
 - d. Display assembly (see [“Display assembly” on page 4-25](#))

Remove the speaker:

1. Turn the computer right side up, with the front toward you.
2. Disconnect the speaker cable from the system board **1**.
3. Remove the four Phillips PM2.5×6.0 screws **2** that secure the speaker to the top cover.
4. Remove the Phillips PM2.5×4.0 screw **3** that secures the speaker to the top cover.
5. Lift the speaker up and off the top cover **4**.



Reverse this procedure to install the speaker.

Top cover

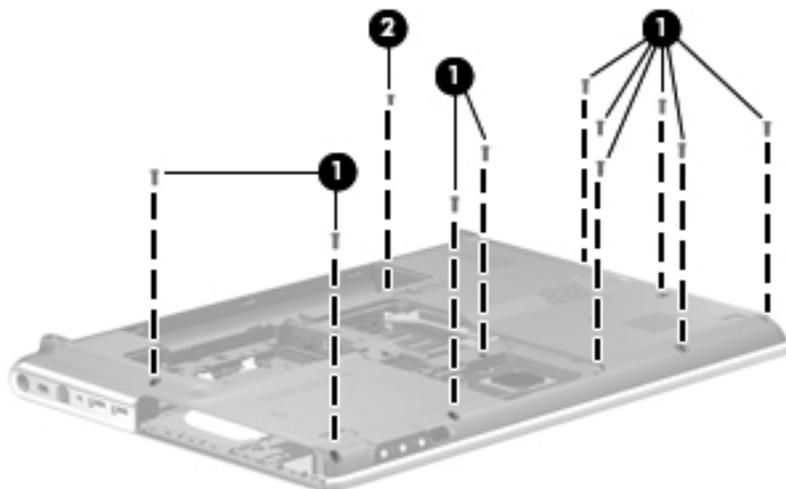
Description	Spare part number
For use only with white computers equipped with a fingerprint reader	579159-001
For use only with white computers not equipped with a fingerprint reader	518108-001
For use only with black computers equipped with a fingerprint reader	579160-001
For use only with black computers not equipped with a fingerprint reader	518788-001

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. Optical drive (see [“Optical drive” on page 4-9](#))
 - b. Hard drive (see [“Hard drive” on page 4-15](#))
 - c. Switch cover and keyboard (see [“Switch cover and keyboard” on page 4-20](#))
 - d. Display assembly (see [“Display assembly” on page 4-25](#))

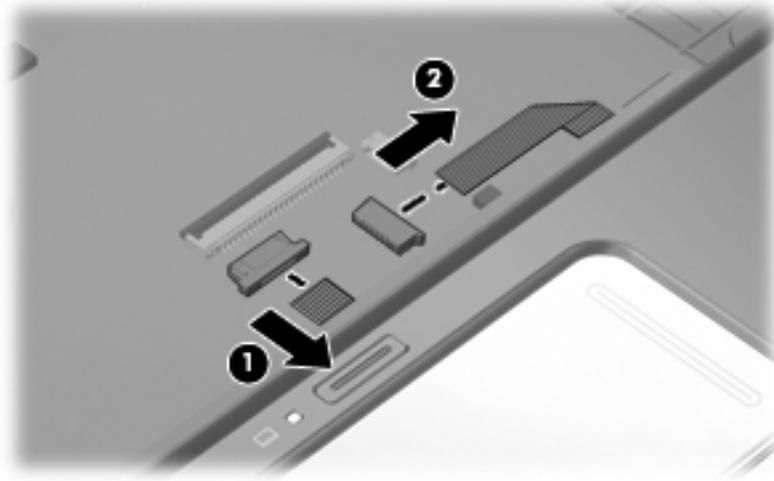
Remove the top cover:

1. Turn the computer upside-down, with the front toward you.
2. Remove the 10 Phillips PM2.5×7.0 screws **1** that secure the top cover to the computer.
3. Remove the Phillips PM2.5×4.0 screw **2** that secures the top cover to the computer. This screw is in the battery bay.

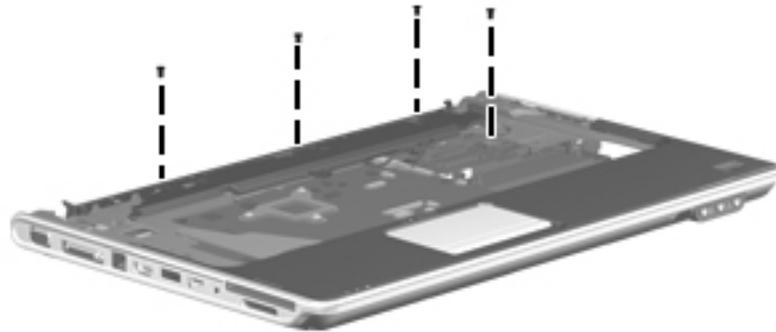


4. Turn the computer right-side up, with the front toward you.
5. Disconnect the following cables from the system board:
 - ❶ TouchPad board cable
 - ❷ Fingerprint reader board cable

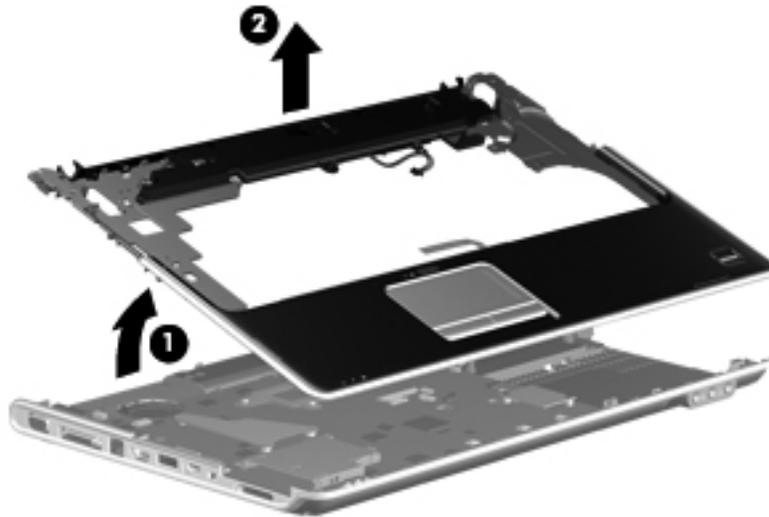
 The cable connects to a LIF connector on the system board.



6. Remove the four Phillips PM2.5×4.0 screws that secure the top cover to the computer.



7. Lift the rear edge ❶ of the top cover until it rests at an angle.
8. Remove the top cover ❷ by lifting it straight up.



Reverse this procedure to install the top cover.

Modem module



The modem module spare part kit does not include a modem module cable. The modem module cable is included in the Cable Kit, spare part number 533466-001. See [“Cable Kit” on page 3-10](#) for more Cable Kit spare part number information.

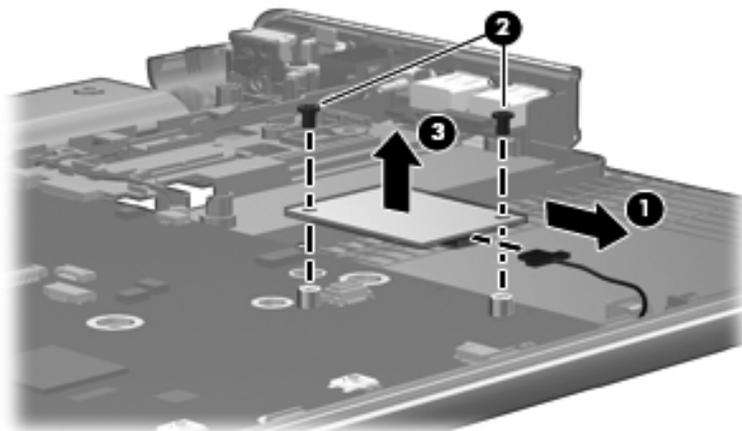
Description	Spare part number
Modem module for use in all countries and regions except Australia and New Zealand	510100-001
Modem module for use only in Australia and New Zealand	510100-011

Before removing the modem 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. Optical drive (see [“Optical drive” on page 4-9](#))
 - b. Hard drive (see [“Hard drive” on page 4-15](#))
 - c. Switch cover and keyboard (see [“Switch cover and keyboard” on page 4-20](#))
 - d. Display assembly (see [“Display assembly” on page 4-25](#))
 - e. Top cover (see [“Top cover” on page 4-30](#))

Remove the modem module:

1. Disconnect the modem module cable ❶ from the modem module.
2. Remove the two Phillips PM2.5×3.0 screws ❷ that secure the modem module to the system board.
3. Lift the modem module ❸ straight up to disconnect it from the system board.



Reverse this procedure to install the modem module.

Audio/infrared board

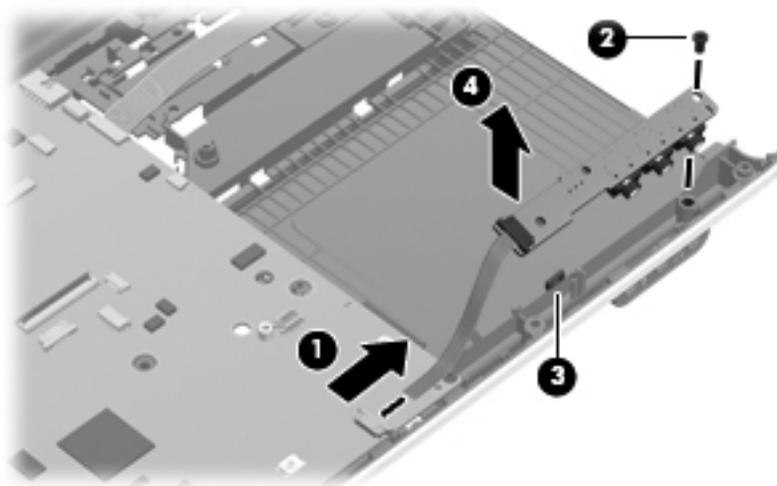
Description	Spare part number
Audio/infrared board for use in computers with discrete graphics subsystems (includes cable)	512836-001
Audio/infrared board for use in computers with UMA graphics subsystems (includes cable)	511892-001

Before removing the audio/infrared 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. Optical drive (see [“Optical drive” on page 4-9](#))
 - b. Hard drive (see [“Hard drive” on page 4-15](#))
 - c. Switch cover and keyboard (see [“Switch cover and keyboard” on page 4-20](#))
 - d. Display assembly (see [“Display assembly” on page 4-25](#))
 - e. Top cover (see [“Top cover” on page 4-30](#))

Remove the audio/infrared board:

1. Disconnect the audio/infrared board cable ❶ from the LIF connector on the system board.
2. Remove the Phillips PM2.5x7.0 screw ❷ that secures the audio/infrared board to the base enclosure.
3. Release the clip ❸ built into the base enclosure that secures the audio/infrared board.
4. Lift the audio/infrared board ❹ straight up to remove it from the base enclosure.



Reverse this procedure to install the audio/infrared board.

USB board

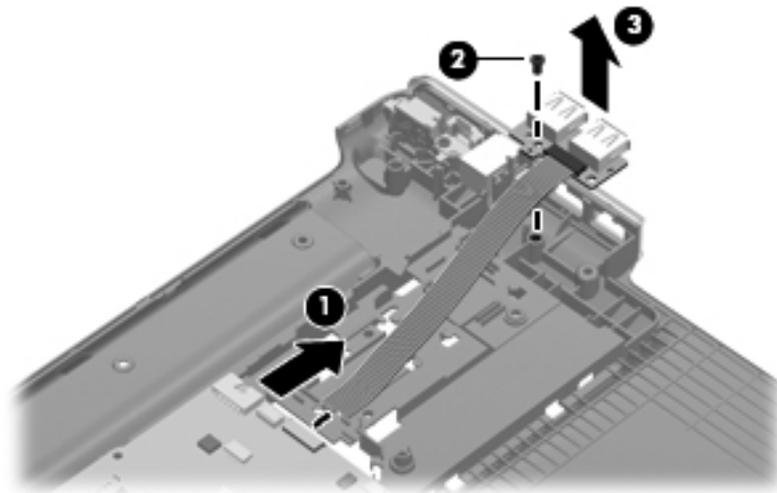
Description	Spare part number
USB board (includes cable)	516497-001

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. Optical drive (see [“Optical drive” on page 4-9](#))
 - b. Hard drive (see [“Hard drive” on page 4-15](#))
 - c. Switch cover and keyboard (see [“Switch cover and keyboard” on page 4-20](#))
 - d. Display assembly (see [“Display assembly” on page 4-25](#))
 - e. Top cover (see [“Top cover” on page 4-30](#))

Remove the USB board:

1. Disconnect the USB board cable ❶ from the LIF connector on the system board.
2. Remove the Phillips PM2.5×7.0 screw ❷ that secures the USB board to the base enclosure.
3. Remove the USB board ❸ from the base enclosure.



Reverse this procedure to install the USB board.

Power connector cable

Description	Spare part number
Power connector cable	533465-001

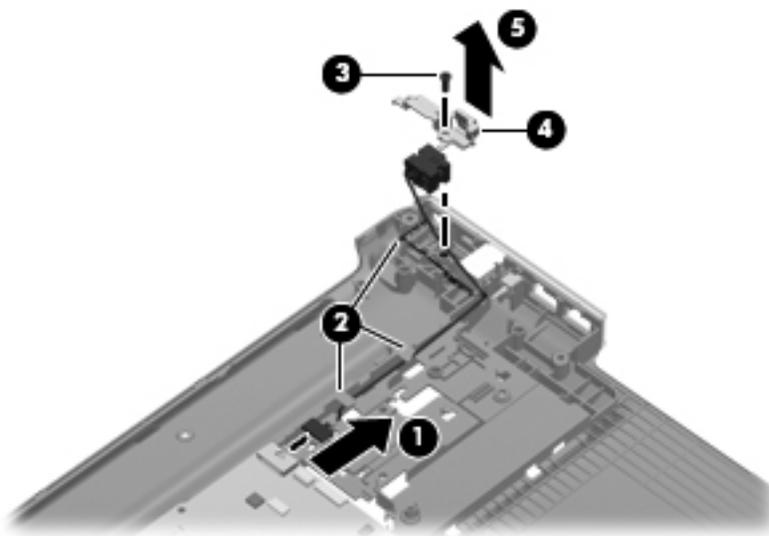


Before removing the power connector cable, follow these steps:

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. Optical drive (see [“Optical drive” on page 4-9](#))
 - b. Hard drive (see [“Hard drive” on page 4-15](#))
 - c. Switch cover and keyboard (see [“Switch cover and keyboard” on page 4-20](#))
 - d. Display assembly (see [“Display assembly” on page 4-25](#))
 - e. Top cover (see [“Top cover” on page 4-30](#))
 - f. USB board (see [“USB board” on page 4-35](#))

Remove the power connector cable:

1. Remove the power connector cable ❶ from the clips and routing channel ❷ built into the base enclosure.
2. Remove the Phillips PM2.5×7.0 screw ❸ that secures the power connector and bracket to the base enclosure.
3. Remove the power connector bracket ❹.
4. Remove the power connector cable assembly ❺.



Reverse this procedure to install the power connector cable.

System board



The system board spare kit includes replacement thermal material.

Description	Spare part number
For use with computers equipped with discrete graphics subsystem memory and 1 GB of dedicated memory	571187-001
For use with computers equipped with discrete graphics subsystem memory and 512 MB of dedicated memory	571188-001
For use with computers equipped with UMA graphics subsystem memory	571186-001

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. Optical drive (see [“Optical drive” on page 4-9](#))
 - b. Hard drive (see [“Hard drive” on page 4-15](#))
 - c. Switch cover (see [“Switch cover and keyboard” on page 4-20](#))
 - d. Display assembly (see [“Display assembly” on page 4-25](#))
 - e. Top cover (see [“Top cover” on page 4-30](#))

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:

- TV tuner module (see [“TV tuner module” on page 4-13](#))
- Memory module (see [“Memory module” on page 4-11](#))
- RTC battery (see [“RTC battery” on page 4-14](#))
- WLAN module (see [“WLAN module” on page 4-17](#))
- Bluetooth module (see [“Bluetooth module” on page 4-24](#))
- Modem module (see [“Modem module” on page 4-33](#))
- Processor (see [“Processor” on page 4-44](#))

Remove the system board:

1. Disconnect the following cables from the system board:

❶ Modem module cable

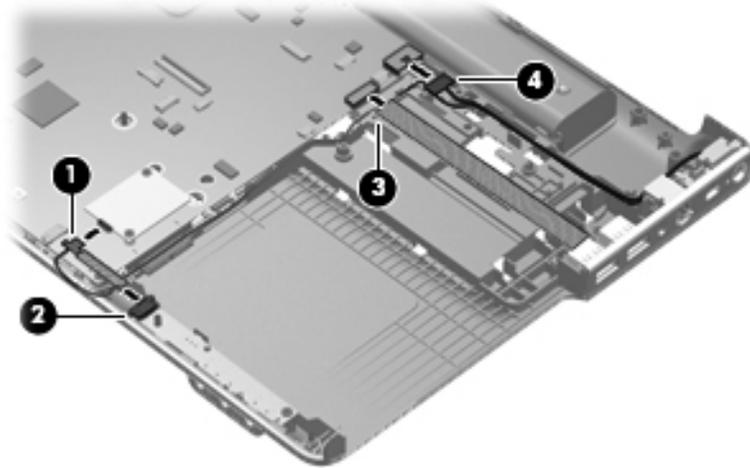
❷ Audio/infrared board cable

 The audio/infrared board cable connects to a LIF connector on the system board.

❸ USB board cable

 The USB board cable connects to a LIF connector on the system board.

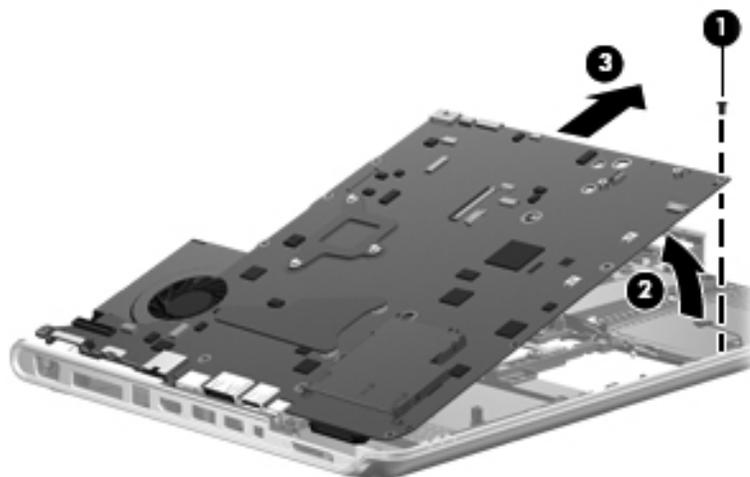
❹ Power connector cable



2. Remove the Phillips PM2.5×7.0 screw ❶ that secures the system board to the base enclosure.

3. Lift up on the right side ❷ of the system board until it rests at approximately a 45-degree angle.

4. Lift the system board to the right and up and out of the base enclosure ❸.



Reverse this procedure to install the system board.

TV tuner module cable



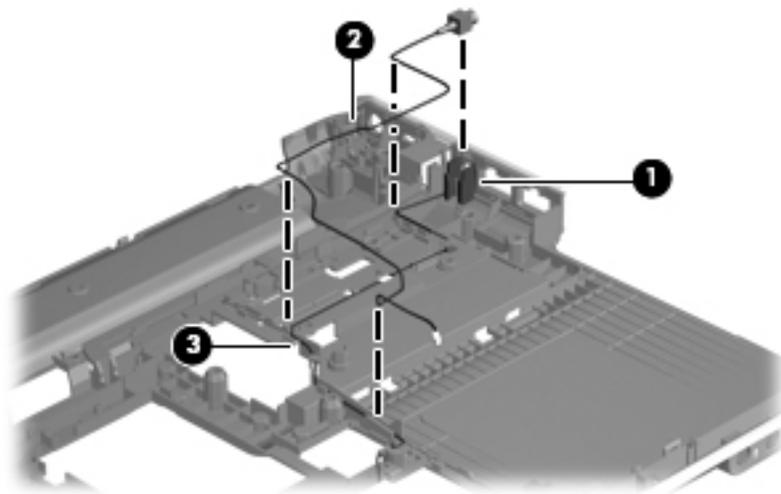
The TV tuner module cable is available in the Cable Kit, spare part number 533466-001.

Before removing the TV tuner module 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. Optical drive (see [“Optical drive” on page 4-9](#))
 - b. Hard drive (see [“Hard drive” on page 4-15](#))
 - c. Switch cover and keyboard (see [“Switch cover and keyboard” on page 4-20](#))
 - d. Display assembly (see [“Display assembly” on page 4-25](#))
 - e. Top cover (see [“Top cover” on page 4-30](#))
 - f. USB board (see [“USB board” on page 4-35](#))
 - g. System board (see [“System board” on page 4-37](#))

Remove the TV tuner module cable:

1. Remove the TV tuner module cable from the clips **1** built into the base enclosure.
2. Remove the TV tuner module cable **2** from the clips and routing channel **3** built into the base enclosure.



Reverse this procedure to install the TV tuner module cable.

Modem module cable



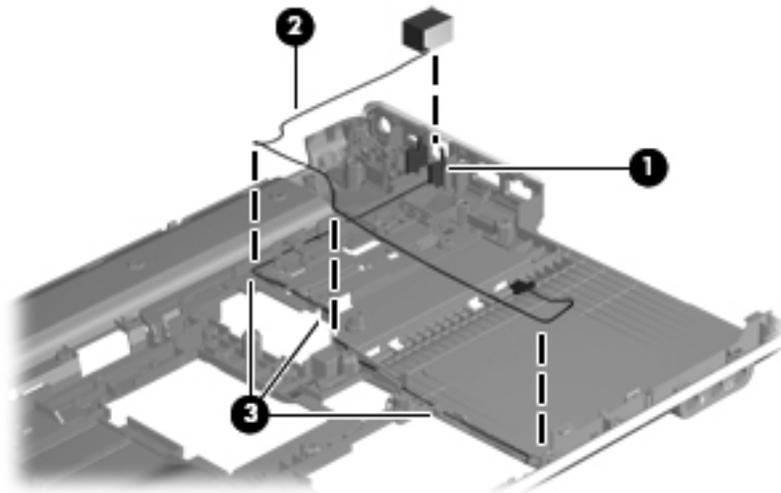
The modem module cable is available in the Cable Kit, spare part number 533466-001. The modem module cable includes the RJ-11 jack.

Before removing the modem module 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. Optical drive (see “[Optical drive](#)” on page 4-9)
 - b. Hard drive (see “[Hard drive](#)” on page 4-15)
 - c. Switch cover and keyboard (see “[Switch cover and keyboard](#)” on page 4-20)
 - d. Display assembly (see “[Display assembly](#)” on page 4-25)
 - e. Top cover (see “[Top cover](#)” on page 4-30)
 - f. USB board (see “[USB board](#)” on page 4-35)
 - g. System board (see “[System board](#)” on page 4-37)

Remove the modem module cable:

1. Release the cable from the clips **1** built into the base enclosure.
2. Remove the modem module cable **2** from the clips and routing channel **3** built into the base enclosure.



Reverse this procedure to install the modem module cable.

Fan/heat sink



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

Description	Spare part number
For use only with computer models equipped with discrete graphics subsystems	532141-001
For use only with computer models equipped with UMA graphics subsystems	532142-001



To properly ventilate the computer, allow at least a 7.6-cm (3-inch) clearance on the right side and rear panel 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, 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. Optical drive (see [“Optical drive” on page 4-9](#))
 - b. Hard drive (see [“Hard drive” on page 4-15](#))
 - c. Switch cover and keyboard (see [“Switch cover and keyboard” on page 4-20](#))
 - d. Display assembly (see [“Display assembly” on page 4-25](#))
 - e. Top cover (see [“Top cover” on page 4-30](#))
 - f. USB board (see [“USB board” on page 4-35](#))
 - g. System board (see [“System board” on page 4-37](#))

Remove the fan/heat sink:



Steps 1 through 5 apply only to models with discrete subsystem memory on the system board. Steps 6 through 10 apply only to models with UMA subsystem memory on the system board.

1. Turn the system board upside down, with the expansion port and external monitor port toward you.
2. Loosen the six Phillips PM2.5×14.0 spring-loaded, captive screws ❶ through ❷ that secure the fan/heat sink assembly to the system board.

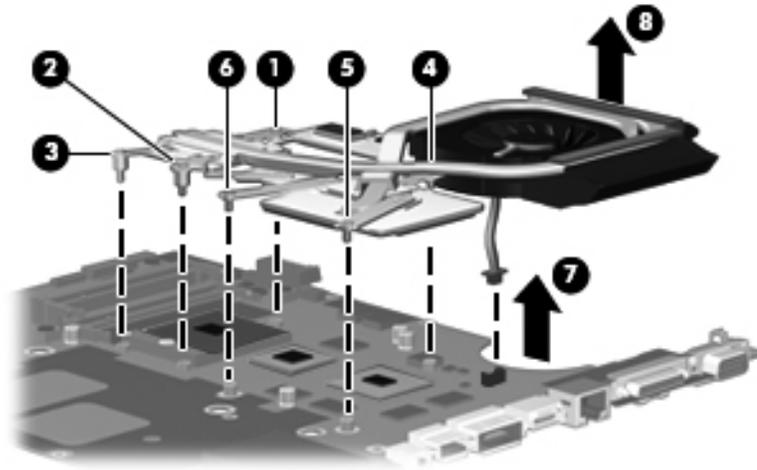


CAUTION: Loosen the screws in the order indicated by the callouts to ensure consistent pressure over the processor board.

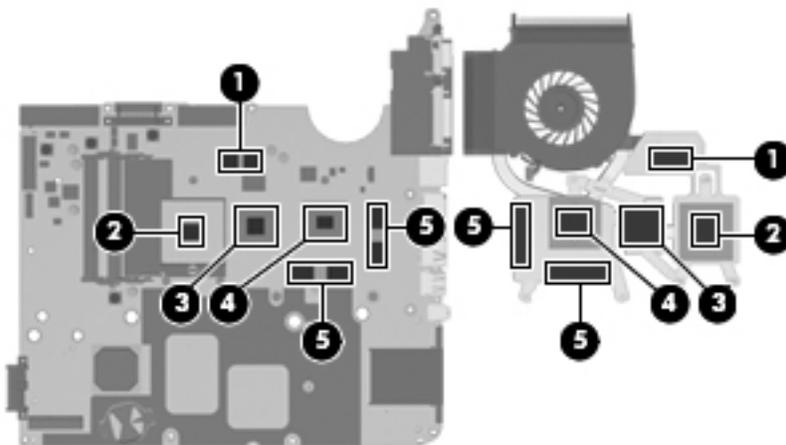
3. Disconnect the fan cable ❸ from the system board.
4. Remove the fan/heat sink assembly ❹.



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 paste is applied to the fan/heat sink assembly to correspond with components on the system board as follows: capacitors and their contacts ① the processor and contact ②, the graphics subsystem chip and contact ③, and capacitors and their contacts ④ and ⑤. Replacement thermal material is included with all fan/heat sink assembly, system board, and processor spare part kits.



Steps 6 through 10 apply only to models with UMA subsystem memory on the system board. Steps 1 through 5 apply only to models with discrete subsystem memory on the system board.

5. Turn the system board upside down, with the expansion port and external monitor port toward you.

6. Loosen the four Phillips PM2.5×14.0 spring-loaded, captive screws ① through ④ that secure the fan/heat sink assembly to the system board.



CAUTION: Loosen the screws in the order indicated by the callouts to ensure consistent pressure over the processor board.



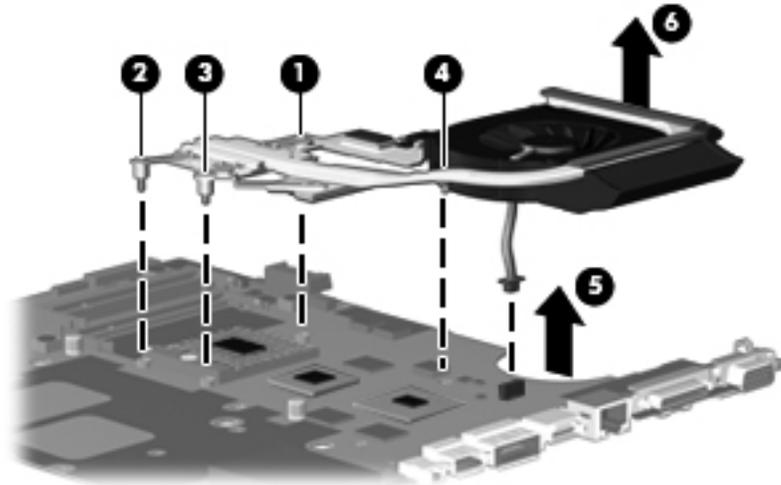
CAUTION: Loosen the screws in the order indicated by the callouts to ensure consistent pressure over the processor board.

7. Disconnect the fan cable ⑤ from the system board.

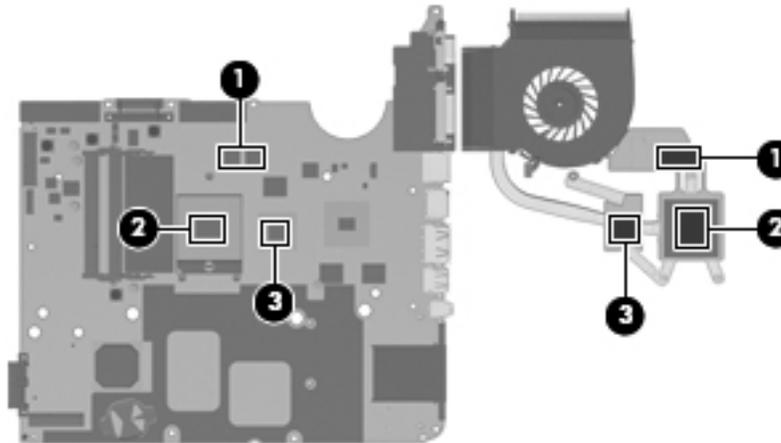
8. Remove the fan/heat sink assembly ⑥.



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 paste is applied to the fan/heat sink assembly to correspond with components on the system board as follows: capacitors and their contacts ①, the processor and contact ②, and the graphics subsystem chip and contact ③. Replacement thermal material is included with all fan/heat sink assembly, system board, and processor spare part kits.



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

Processor



All processor spare part kits include replacement thermal material.

Description	Spare part number
AMD Turion II Ultra Dual-Core Mobile Processor (2-MB L2 cache)	
■ M640, 2.60-GHz	576256-001
■ M620, 2.50-GHz	576255-001
■ M600, 2.40-GHz	576254-001
AMD Turion II Dual-Core Mobile Processor (1-MB L2 cache)	
■ M520, 2.30-GHz	583055-001
■ M500, 2.20-GHz	576253-001
AMD Athlon II Dual-Core Processor for Notebook PCs (1-MB L2 cache)	
■ M320, 2.10-GHz	576252-001
■ M300, 2.00-GHz	578024-001
AMD Sempron Processor (512-KB L2 cache)	
■ M100, 2.00-GHz	576251-001

Before removing the processor, follow these steps:

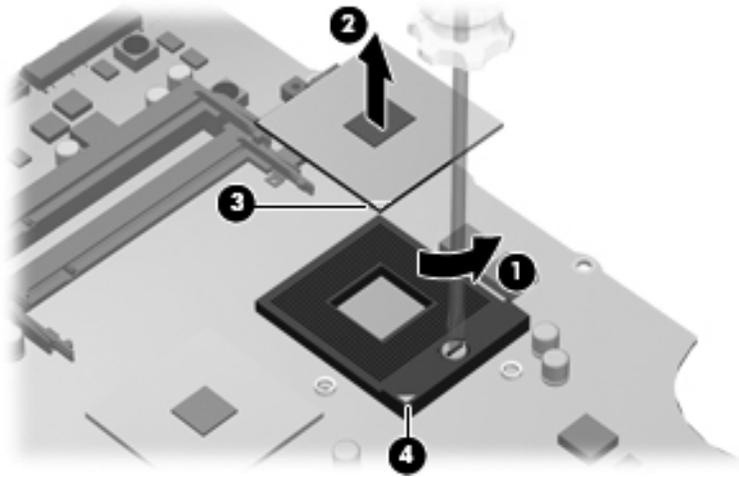
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord 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. Optical drive (see [“Optical drive” on page 4-9](#))
 - b. Hard drive (see [“Hard drive” on page 4-15](#))
 - c. Switch cover and keyboard (see [“Switch cover and keyboard” on page 4-20](#))
 - d. Display assembly (see [“Display assembly” on page 4-25](#))
 - e. Top cover (see [“Top cover” on page 4-30](#))
 - f. USB board (see [“USB board” on page 4-35](#))
 - g. System board (see [“System board” on page 4-37](#))
 - h. Fan/heat sink (see [“Fan/heat sink” on page 4-41](#))

Remove the processor:

1. Use a flat-bladed screwdriver to turn the processor locking screw ❶ one-half turn counterclockwise until you hear a click.
2. Lift the processor ❷ straight up and remove it.



When you install the processor, the gold triangle ❸ on the processor must be aligned with the triangle icon ❹ embossed on the processor socket.



Reverse this procedure to install the processor.

Starting the Setup Utility

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



The fingerprint reader (select models only) cannot be used to access the Setup Utility.

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

To start the Setup Utility:

- » Open the 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 the 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 the Setup Utility

Changing the language of the Setup Utility

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

1. Open the 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 the 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 the 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 the Setup Utility

Because the 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 the Setup Utility is open, press **f1**.

Displaying system information

The following procedure explains how to display system information in the Setup Utility. If the Setup Utility is not open, begin at step 1. If the Setup Utility is open, begin at step 2.

1. Open the 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 the Setup Utility by turning on or restarting the computer. While the “Press the ESC key from 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. System information such as the system time and date, and identification information about the computer is displayed.
3. To exit the Setup Utility without changing any settings, use the arrow keys to select **Exit > Exit Discarding Changes**, and then press **enter**.

Restoring default settings in the Setup Utility

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

1. Open the 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 the 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 the 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 the Setup Utility

You can exit the Setup Utility with or without saving changes.

- To exit the 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 the 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 Setup Utility language.
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"> ■ f10 and f12 Delay (sec.)—Set the delay for the f9 and f10 functions of the 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"/> Hard drive <input type="checkbox"/> Internal CD/DVD ROM drive <input type="checkbox"/> USB Diskette on Key <input type="checkbox"/> USB CD/DVD ROM drive <input type="checkbox"/> USB Floppy <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		
Width	37.85 cm	14.9 in
Depth	25.8 cm	10.12 in
Height (front to back)	3.4 cm	1.34 in
Weight		
BrightView (with optical drive and hard drive)	3.18 kg	7.00 lbs
Input power		
Operating voltage	18.5 V dc @ 3.5 A - 65 W or 18.5 V dc @ 4.74 A - 90 W	
Operating current	3.5 A or 4.74 A	
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		
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 WXGA display specifications

	Metric	U.S.
Dimensions		
Height	21.0 cm	8.27 in
Width	35.9 cm	14.1 in
Diagonal	39.5 cm	15.6 in
Number of colors	Up to 262,000	
Contrast ratio	500:1 (typical)	
Brightness	220 nits (typical)	
Pixel resolution		
Pitch	0.255 × 0.255 mm	
Format	1366 × 768	
Configuration	RGB vertical stripe	
Backlight	Edge lit	
Character display	80 × 25	
Total power consumption	6.5 W	
Viewing angle	+/-45° horizontal, +/-15° upper vertical, +/-35° lower vertical (typical)	

Hard drive specifications

	500-GB*	320-GB*	250-GB*
Dimensions			
Height	9.5 mm	9.5 mm	9.5 mm
Width	70 mm	70 mm	70 mm
Weight	101 g	101 g	101 g
Interface type	SATA	SATA	SATA
Transfer rate	100 MB/sec	100 MB/sec	100 MB/sec
Security	ATA security	ATA security	ATA security
Seek times (typical read, including setting)			
Single track	3 ms	3 ms	3 ms
Average	13 ms	13 ms	13 ms
Maximum	24 ms	24 ms	24 ms
Logical blocks	1,048,576,000	625,142,448	488,397,168
Disc rotational speed	5400 rpm	5400 rpm	5400 rpm
Operating temperature	5°C to 55°C (41°F to 131°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.

Blu-ray ROM DVD±R/RW SuperMulti DL Drive specification

Applicable disc	Read:	Write:	
	CD-DA, CD+(E)G, CD-MIDI, CDTEXT, 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, DVDROM (DVD-5, DVD-9, DVD-10, DVD-18), DVD-R, DVD-RW, DVD+R, DVD+RW, DVD-RAM, HDROM (Single Layer), HD-ROM (Dual Layer), HD DVD-R, HD DVD-R for Dual Layer, HD DVD-RW, BD-ROM, BD-R, BD-RE	CD-R and CD-RW, DVD+R, DVD+R(9), DVD+RW, DVD-R, DVD-R(9), DVD-RW, DVD-RAM	
Access time	CD	DVD	HD
Random	< 170 ms	< 170 ms	< 230 ms
Cache buffer	8 MB		
Data transfer rate			
24X CD-ROM	3,600 KB/sec		
8X DVD	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		
4X DVD+RW	5,400 KB/sec		
8X DVD-R	10,800 KB/sec		
4X DVD-RW	5,400 KB/sec		
2.4X DVD+R(9)	2,700 KB/sec		
5X DVD-RAM	6,750 KB/sec		
1X BD-ROM	4,500 KB/sec		
1X BD-R read	4,500 KB/sec		
1X BD-RE read	4,500 KB/sec		
Transfer mode	Multiword DMA Mode		

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

Applicable disc	Read:	Write:
	CD-DA, CD+(E)G, CD-MIDI, CDTEXT, CD-ROM, CD-ROM XA, MIXED MODE CD, CD-I, CD-I Bridge (Photo- CD, Video CD), Multisession CD (Photo-CD, CD-EXTRA, Portfolio, CDR, CD-RW), CD-R, CD-RW, DVDROM (DVD-5, DVD-9, DVD-10, DVD-18), DVD-R, DVD-RW, DVD+R, DVD+RW, DVD-RAM	CD-R and CD-RW, DVD+R, DVD+RW, DVD-R, DVD-RW, DVD-RAM
Access time	CD	DVD
Random	< 175 ms	< 230 ms
Cache buffer	2 MB	
Data transfer rate		
24X CD-ROM	3,600 KB/sec	
8X DVD	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	
4X DVD+RW	5,400 KB/sec	
8X DVD-R	10,800 KB/sec	
4X DVD-RW	5,400 KB/sec	
2.4X DVD+R(9)	2,700 KB/sec	
5X DVD-RAM	6,750 KB/sec	
Transfer mode	Multiword DMA Mode	

System DMA specifications

Hardware	DMA System function
DMA4	Direct memory access controller

System interrupt specifications

Hardware IRQ	System function
ISA00	High precision event timer
ISA01	Standard 101-/102-Key or Microsoft® Natural Keyboard
ISA04	ENE COR Receiver
ISA08	High precision event timer
ISA12	Synaptics PS/2 Port TouchPad
ISA13	Numeric data processor
ISA23	HP Mobile Data Protection Sensor
ISA81 - ISA190	Microsoft ACPI-compliant system
PCI16	High Definition Audio Controller
PCI16	PCI standard PCI-to-PCI bridge
PCI16	Standard OpenHCD USB Host Controller
PCI16	Standard OpenHCD USB Host Controller
PCI17	Atheros AR9285 802.11b/g WiFi Adapter
PCI17	PCI standard PCI-to-PCI bridge
PCI17	Standard Enhanced PCI to USB Host Controller
PCI18	PCI standard PCI-to-PCI bridge
PCI18	PCI standard PCI-to-PCI bridge
PCI18	PCI standard PCI-to-PCI bridge
PCI18	Standard OpenHCD USB Host Controller
PCI18	Standard OpenHCD USB Host Controller
PCI19	High Definition Audio Controller
PCI19	Standard Enhanced PCI to USB Host Controller
PCI22	Standard AHCI1.0 Serial ATA Controller
PCI-3	Realtek RTL8168D/8111D Family PCI-E GBE NIC
PCI-2	ATI Mobility Radeon HD 4650 Series

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	Program interrupt controller
02E-02F	Motherboard resources
040-043	System timer
060	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard with HP QLB
061	System speaker
062	Microsoft ACPI-Compliant Embedded Controller
064	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard with HP QL
066	Microsoft ACPI-Compliant Embedded Controller
070-071	System CMOS/real time clock
072-073	Motherboard resources
080	Motherboard resources
081-08F	Direct memory access controller
092	Motherboard resources
0A0-0A1	Program interrupt controller
0B0-0B1	Motherboard resources
0C0-0DF	Direct memory access controller
0F0-0FE	Numeric data processor
380-387	ENE CIR Receiver
380-387	Motherboard resources
3B0-3BB	ATI Mobility Radeon HD 4650 Series
3B0-3BB	PCI Standard PCI-to-PCI Bridge
3C0-3DF	ATI Mobility Radeon HD 4650 Series
3C0-3DF	PCI Standard PCI-to-PCI Bridge
400-4CF	Motherboard resources
4D0-4D1	Motherboard resources
4D6	Motherboard resources
680-6FF	Motherboard resources
77A	Motherboard resources
C00-C01	Motherboard resources
C14	Motherboard resources
C50-C52	PCI Bus on MS ACPI-Compliant System
C6C	Motherboard resources
C6F	Motherboard resources

(Continued)

I/O address (hex)	System function (shipping configuration)
CD0-CD8	Motherboard resources
0D00-FFFF	PCI bus
2000-20FF	Realtek RTL8168D/8111D Family PCI-E GBE NIC
2000-2FFF	PCI Standard PCI-to-PCI Bridge
3000-6FFF	PCI Standard PCI-to-PCI Bridge
7000-70FF	ATI Mobility Radeon HD 4650 Series
7000-7FFF	PCI Standard PCI-to-PCI Bridge
8010-801F	Standard AHCI1.0 Serial ATA Controller
8030-8037	Standard AHCI1.0 Serial ATA Controller
8038-803F	Standard AHCI1.0 Serial ATA Controller
8048-804B	Standard AHCI1.0 Serial ATA Controller
804C-804F	Standard AHCI1.0 Serial ATA Controller

System memory map specifications

Memory address	System function
000A0000-000BFFFF	ATI Mobility Radeon HD 4650 Series
000A0000-000BFFFF	PCI bus
000A0000-000BFFFF	PCI standard PCI-to-PCI bridge
000C0000-000C3FFF	PCI bus
000C4000-000C7FFF	PCI bus
000C8000-000CBFFF	PCI bus
000CC000-000CFFFF	PCI bus
000D0000-000D3FFF	PCI bus
000D4000-000D7FFF	PCI bus
000D8000-000DBFFF	PCI bus
000DC000-000DFFFF	PCI bus
000E0000-000E3FFF	PCI bus
000E0000-000EFFFF	System board
000E4000-000E7FFF	PCI bus
000E8000-000EBFFF	PCI bus
000EC000-000EFFFF	PCI bus
C0000000-CFFFFFFF	ATI Mobility Radeon HD 4650 Series
C0000000-CFFFFFFF	PCI standard PCI-to-PCI bridge
C0000000-F6FFFFFF	PCI bus
D0000000-D0FFFFFF	PCI standard PCI-to-PCI bridge
D1000000-D1003FFF	Realtek RTL8168D/8111D Family PCI-E GBE NIC
D1000000-D10FFFFFF	PCI standard PCI-to-PCI bridge

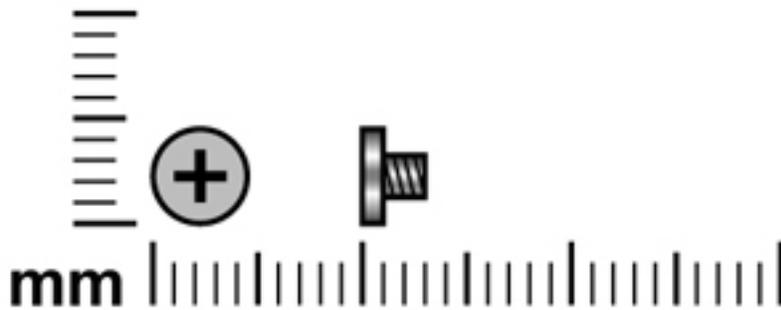
(Continued)

Memory address	System function
D1004000-D1004FFF	Realtek RTL8168D/8111D Family PCI-E GBE NIC
D1100000-D11FFFFFF	PCI standard PCI-to-PCI bridge
D1200000-D120FFFF	Atheros AR9285 802.11b/g WiFi Adapter
D1200000-D12FFFFFF	PCI standard PCI-to-PCI bridge
D1300000-D22FFFFFF	PCI standard PCI-to-PCI bridge
D2300000-D230FFFF	ATI Mobility Radeon HD 4650 Series
D2300000-D23FFFFFF	PCI standard PCI-to-PCI bridge
D2310000-D2313FFF	High Definition Audio Controller
D2400000-D2403FFF	High Definition Audio Controller
D2404000-D2404FFF	Standard OpenHCD USB Host Controller
D2405000-D2405FFF	Standard OpenHCD USB Host Controller
D2406000-D2406FFF	Standard OpenHCD USB Host Controller
D2407000-D2407FFF	Standard OpenHCD USB Host Controller
D2408000-D24083FF	Standard AHCI1.0 Serial ATA Controller
D2408400-D24084FF	Standard Enhanced PCI to USB Host Controller
D2408500-D24085FF	Standard Enhanced PCI to USB Host Controller
F7000000-F7FFFFFF	Motherboard resources
F8000000-FFFFFFFF	PCI bus
FEC00000-FEC00FFF	Motherboard resources
FED00000-FED003FF	High precision event timer
FEE00000-FEE00FFF	Motherboard resources
FFE00000-FFFFFFFF	System board

Screw listing

This section provides specification and reference information for the screws used in the computer. All screws except the display screws listed in this section are available in the Screw Kit, spare part number 516498-001. Display screw are available in the Display Screw Kit, spare part number 512362-001.

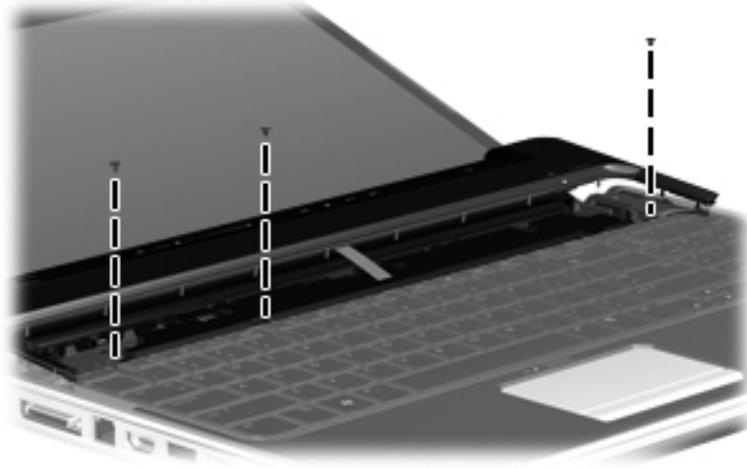
Phillips PM2.0×3.0 screw



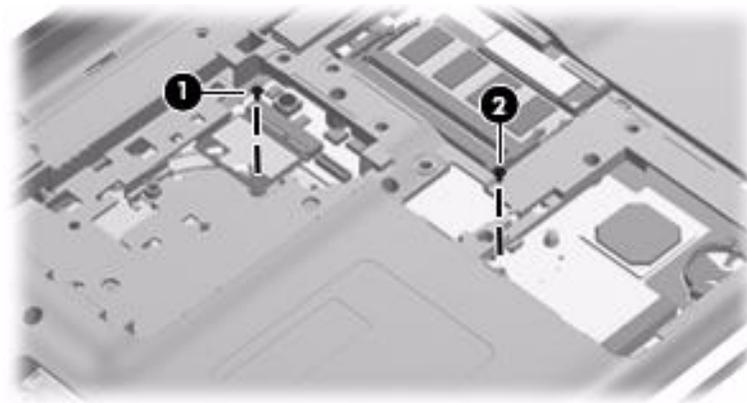
Color	Quantity	Length	Thread	Head diameter
Silver	13	3.0 mm	2.0 mm	5.0 mm



Where used: 2 screws that secure the optical drive bracket to the computer.

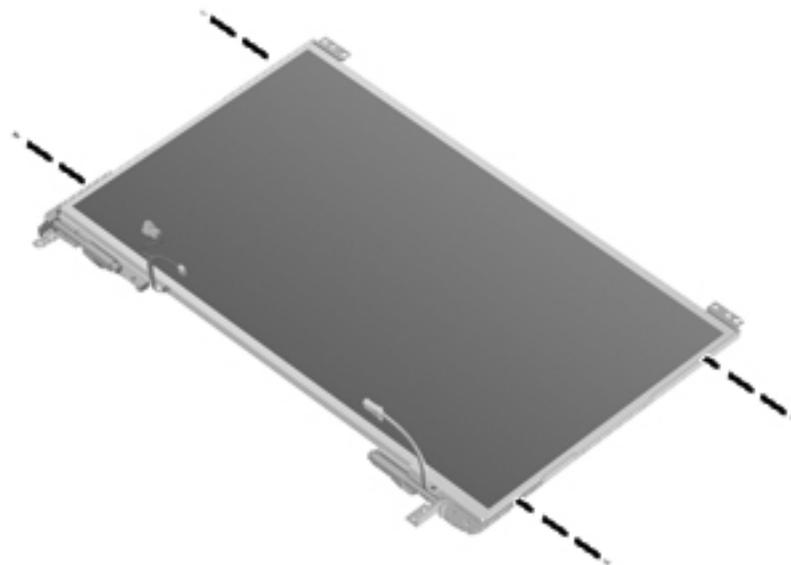


Where used: 3 screws that secure the keyboard to the computer

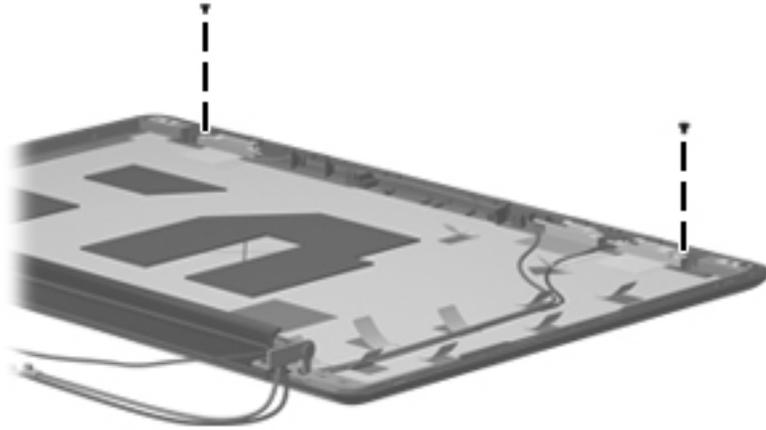


Where used:

- (1) One screw that secures the WLAN module to the system board
- (2) One screw that secures the TV tuner module to the system board



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

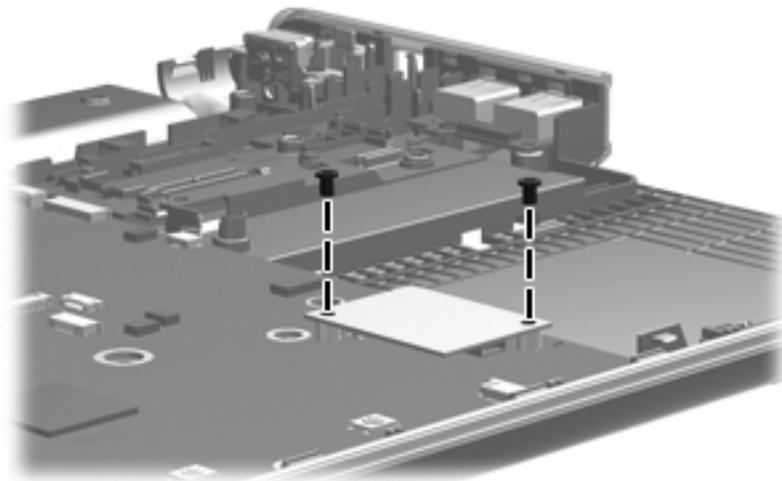


Where used: 2 screws that secure the wireless antennas to the display cover

Phillips PM2.5×3.0 screw

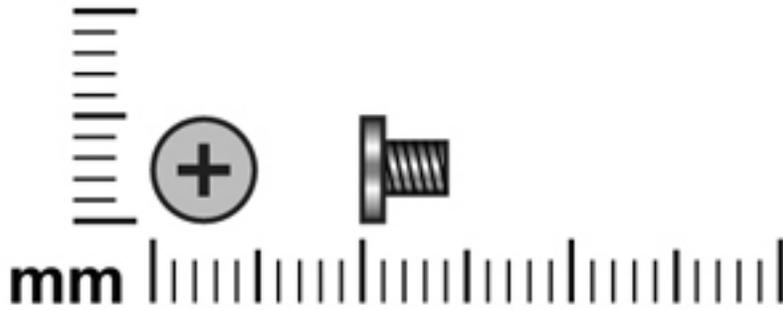


Color	Quantity	Length	Thread	Head diameter
Black	2	3.0 mm	2.5 mm	5.0 mm

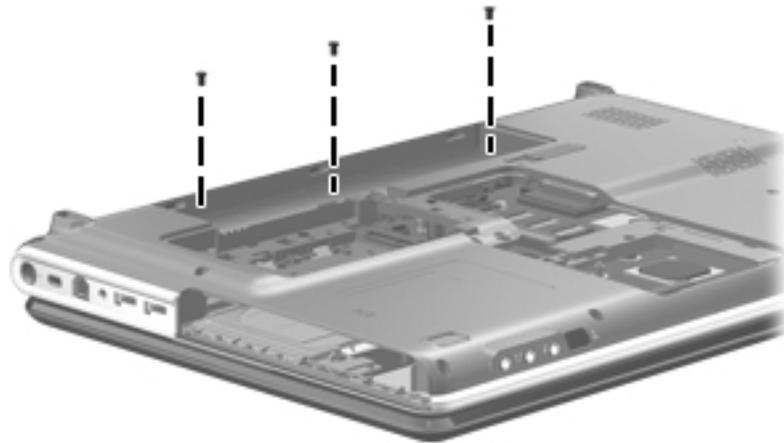


Where used: 2 screws that secure the modem to the system board

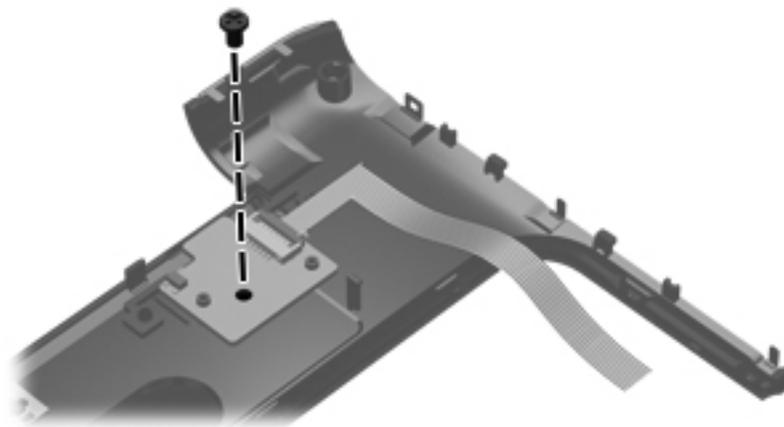
Phillips PM2.5×4.0 screw



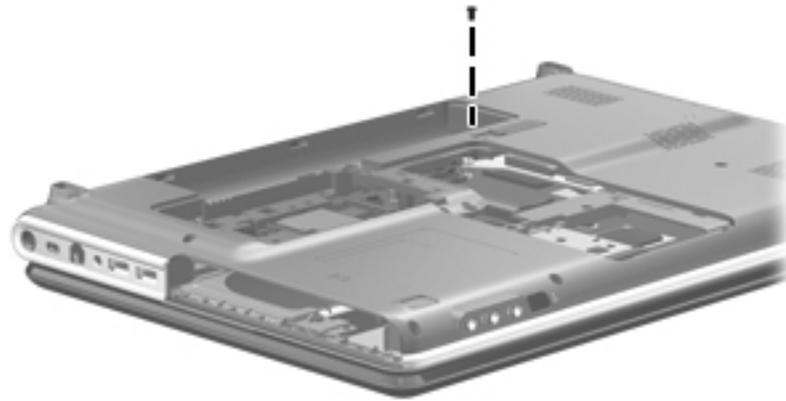
Color	Quantity	Length	Thread	Head diameter
Black	16	4.0 mm	2.5 mm	5.0 mm



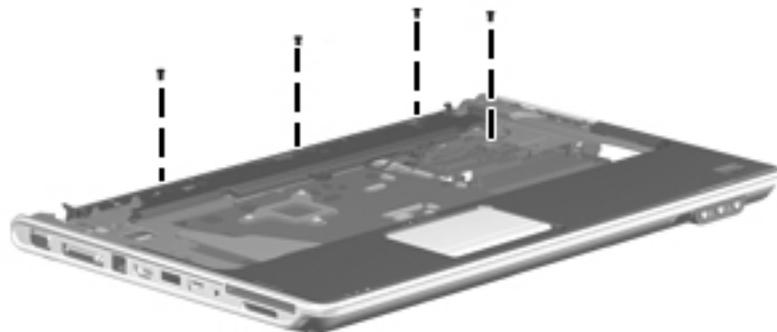
Where used: 3 screws that secure the switch cover to the keyboard



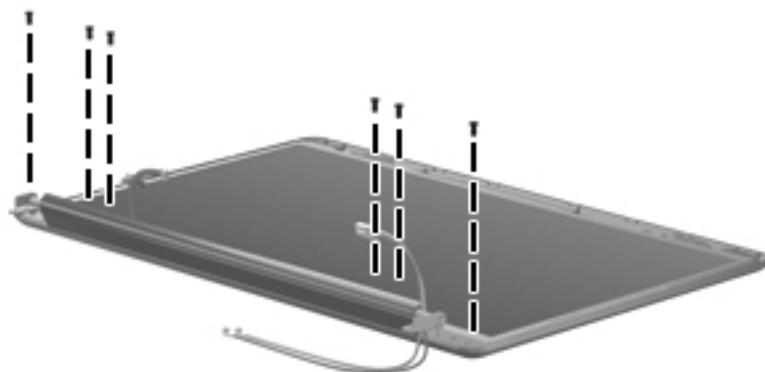
Where used: One screw that secures the power button board to the switch cover



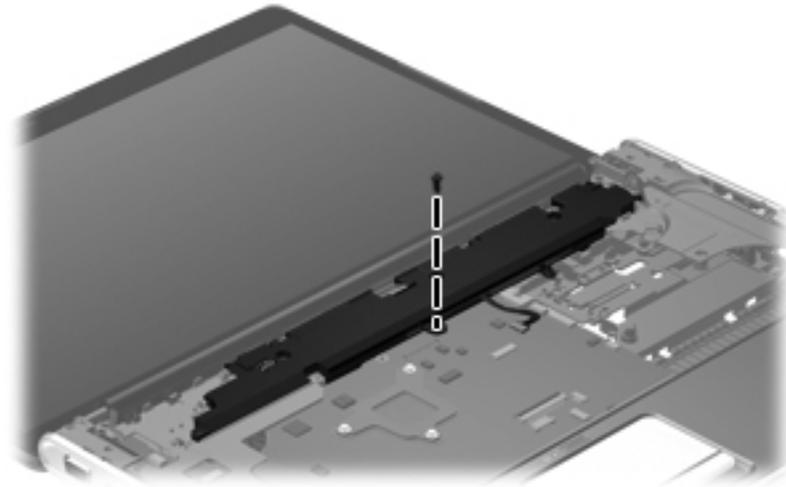
Where used: One screw that secures the top cover to the computer



Where used: 4 screws that secure the top cover to the computer

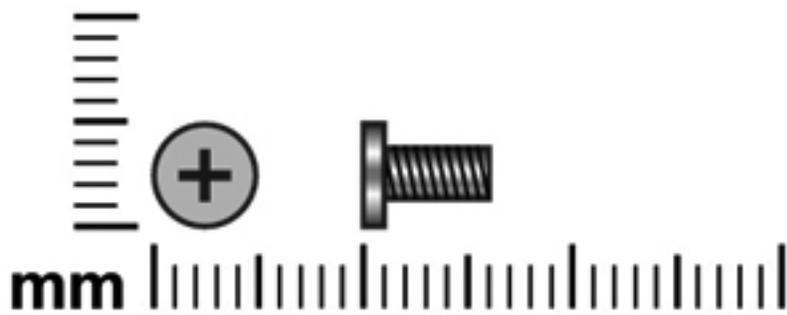


Where used: 6 screws that secure the display panel to the display enclosure

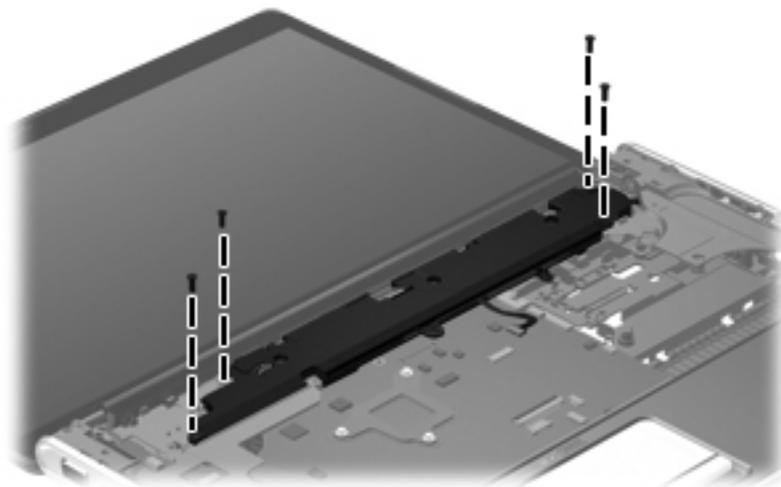


Where used: One screw that secures the speaker to the computer

Phillips PM2.5×6.0 screw

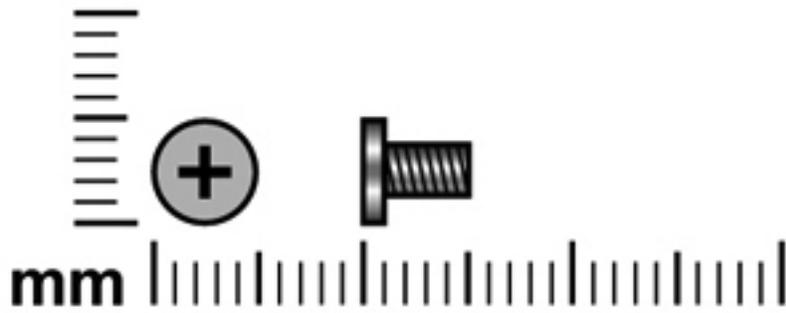


Color	Quantity	Length	Thread	Head diameter
Silver	4	6.0 mm	2.5 mm	5.0 mm

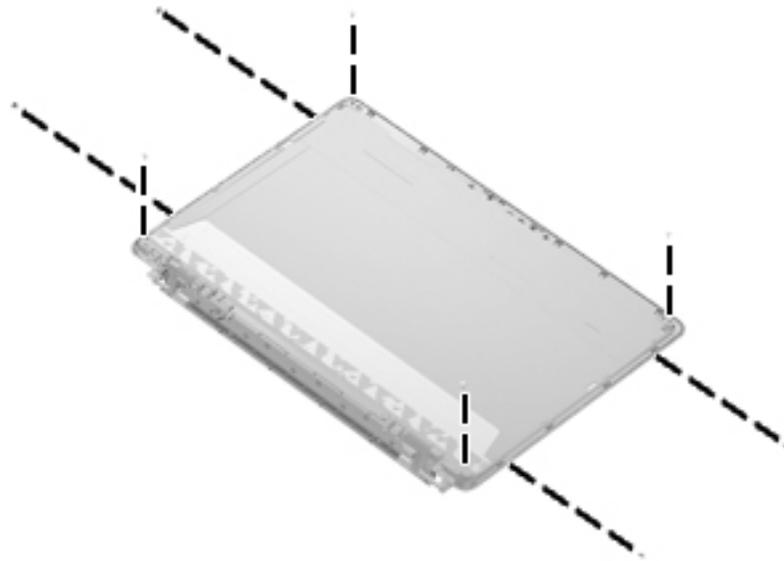


Where used: 4 screws that secure the speaker to the top cover

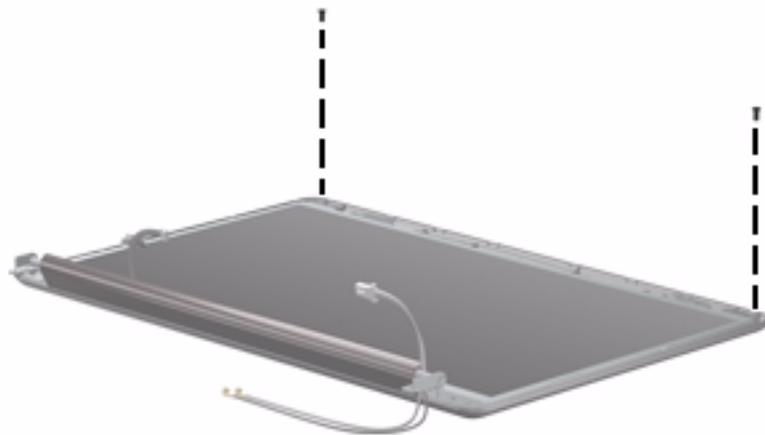
Phillips PM2.5×5.0 screw



Color	Quantity	Length	Thread	Head diameter
Silver	10	5.0 mm	2.5 mm	5.0 mm

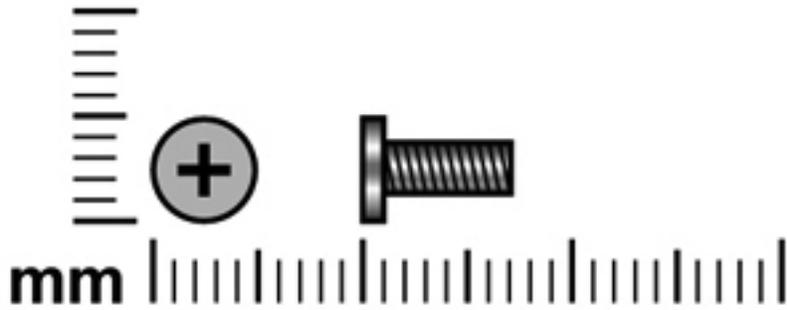


Where used: 8 screws that secure the display panel brackets to the display panel enclosure

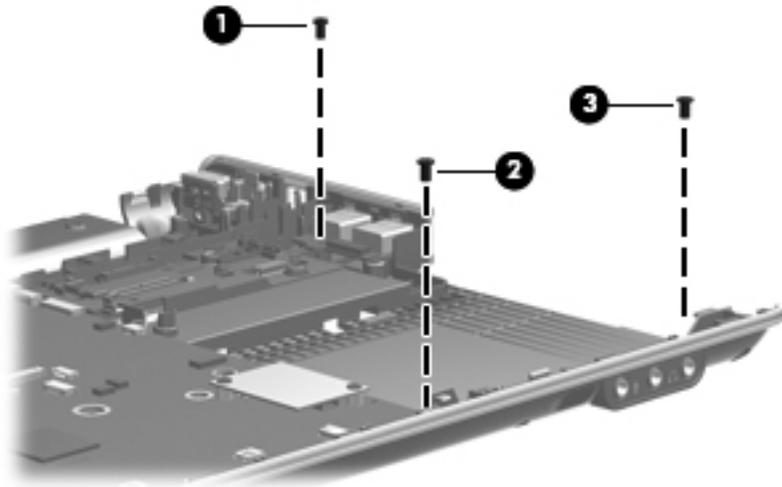


Where used: 2 screws that secure the display panel to the display panel enclosure

Phillips PM2.5×7.0 screw

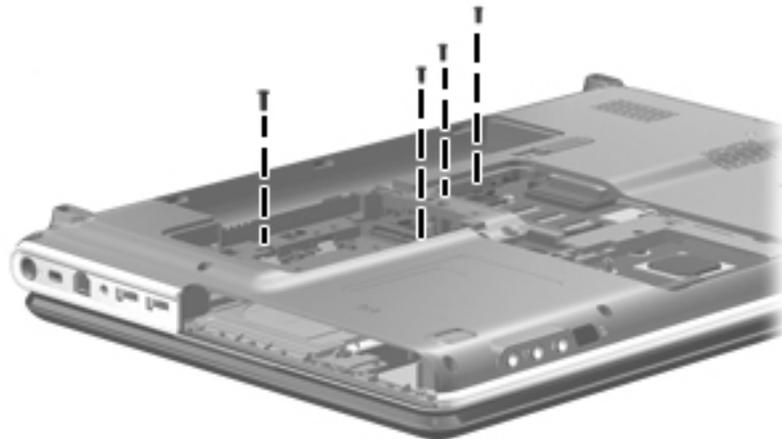


Color	Quantity	Length	Thread	Head diameter
Silver	26	7.0 mm	2.5	5.0 mm

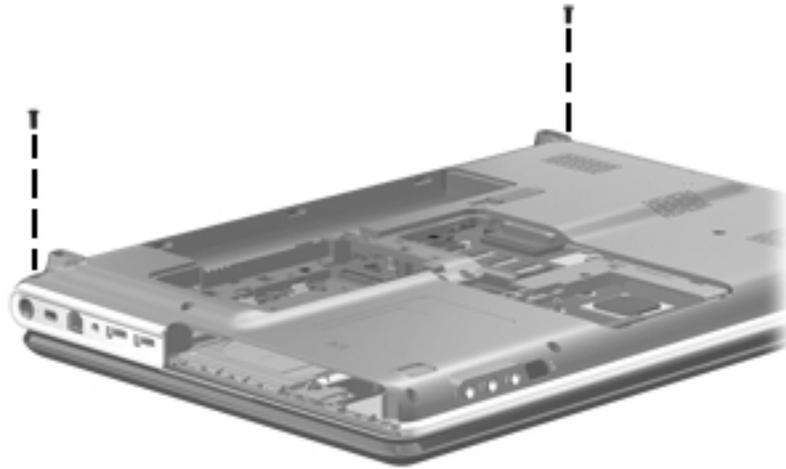


Where used:

- (1) One screw that secures the USB board to the system board
- (2) One screw that secures the system board to the computer
- (3) One screw that secures the audio/infrared board to the computer



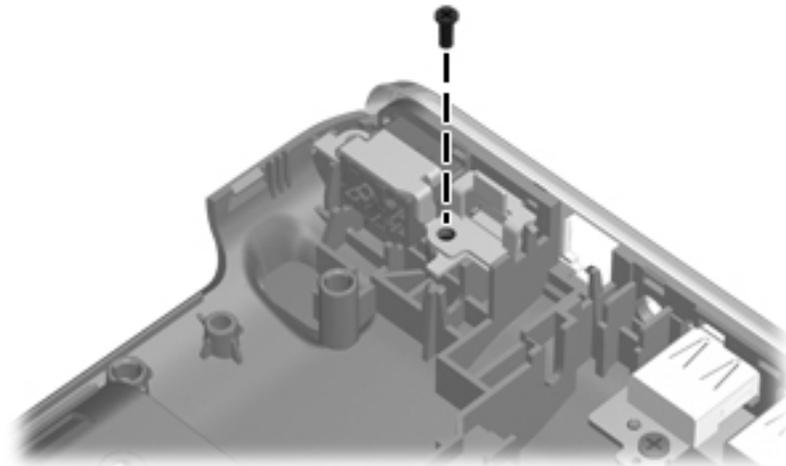
Where used: 4 screws that secure the keyboard to the computer



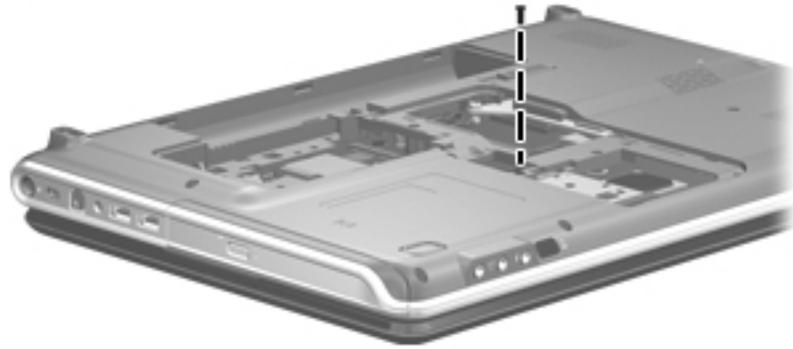
Where used: 2 screws that secure the switch cover to the keyboard



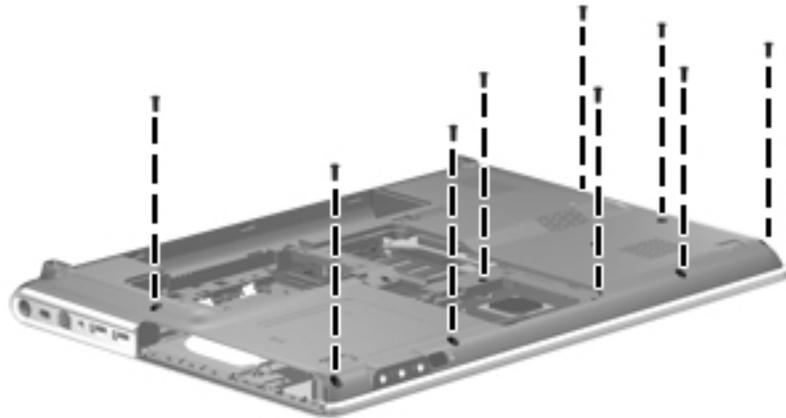
Where used: 4 screws that secure the display assembly to the computer



Where used: One screw that secures the power connector bracket to the base enclosure



Where used: One screw that secures the optical drive to the computer

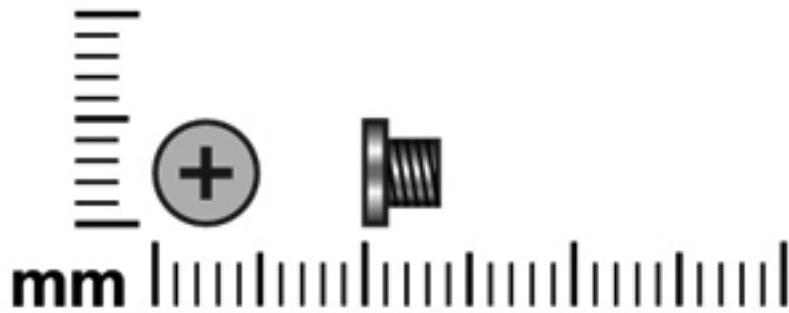


Where used: 9 screws that secure the top cover to the base enclosure



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

Phillips PM3.0×3.5 screw



Color	Quantity	Length	Thread	Head diameter
Black	4	3.5 mm	3.0	5.0 mm



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

Backup and Recovery

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, 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 computer 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. Click **Start > All Programs > Recovery Manager > Recovery Disc Creation**. Recovery Manager opens.
2. Follow the on-screen instructions.

Backing up your information

As you add 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 a 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 the customized settings in a window, toolbar, or menu bar by taking a screen shot of the settings. The screen shot can be a time-saver if you have to reset your preferences.

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

- a. Display the screen.
 - b. Copy the screen:
 - To copy only the active window, press **alt+fn+prt sc**.
 - To copy the entire screen, press **fn+prt sc**.
 - c. Open a word-processing document, and then select **Edit > Paste**.
 - d. 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 the 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. Click **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. Click **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 Recovery Manager to create an 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 that you create or from a dedicated recovery partition (select models only) on the hard drive. However, computers that include a solid-state drive (SSD) 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 using 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 using the partition on the hard drive (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.

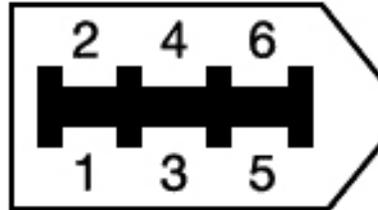
On some models, you can perform a recovery from the partition on the hard drive, accessed by pressing either the Start button or **f11**. This restores the computer to its factory condition.

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 –
 - a. 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.

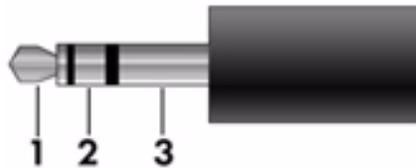
Connector pin assignments

1394



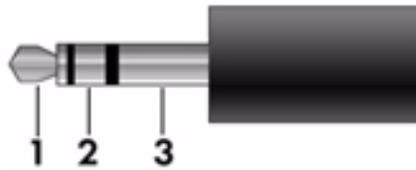
Pin	Signal
1	Power
2	Ground
3	TPB-
4	TPB+
5	TPA-
6	TPA+

Audio-in (microphone)



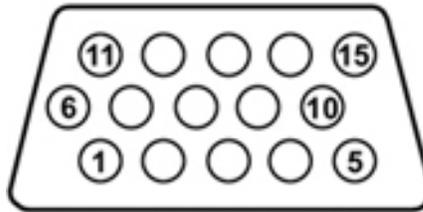
Pin	Signal
1	Audio signal in
2	Audio signal in
3	Ground

Audio-out (headphone)



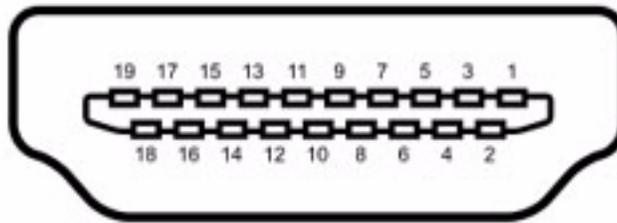
Pin	Signal
1	Audio out, left channel
2	Audio out, right channel
3	Ground

External monitor



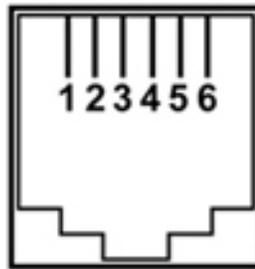
Pin	Signal
1	Red analog
2	Green analog
3	Blue analog
4	Not connected
5	Ground
6	Ground analog
7	Ground analog
8	Ground analog
9	+5 VDC
10	Ground
11	Monitor detect
12	DDC 2B data
13	Horizontal sync
14	Vertical sync
15	DDC 2B clock

HDMI



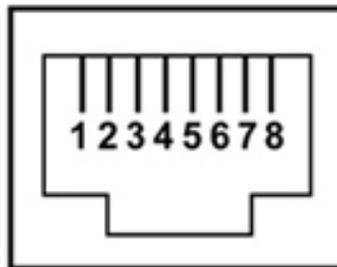
Pin	Signal
1	Transition minimized differential signal (TDMS) data 2+
2	Transition minimized differential signal (TDMS) data 2 shield
3	Transition minimized differential signal (TDMS) data 2-
4	Transition minimized differential signal (TDMS) data 1+
5	Transition minimized differential signal (TDMS) data 1 shield
6	Transition minimized differential signal (TDMS) data 1 shield
7	Transition minimized differential signal (TDMS) data 0+
8	Transition minimized differential signal (TDMS) data 0 shield
9	Transition minimized differential signal (TDMS) data 0-
10	Transition minimized differential signal (TDMS) Clock +
11	Transition minimized differential signal (TDMS) data clock shield
12	Transition minimized differential signal (TDMS) data clock-
13	Consumer electronics control (CEC)
14	No connected
15	Display data channel (DDC) clock
16	Display data channel (DDC) data
17	Ground
18	+5V Power
19	Hot plug detect

RJ-11 (modem)



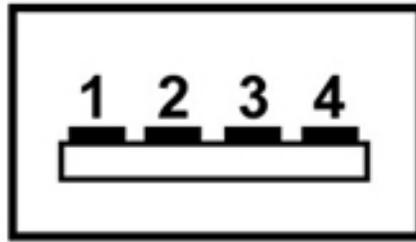
Pin	Signal
1	Unused
2	Tip
3	Ring
4	Unused
5	Unused
6	Unused

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

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

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

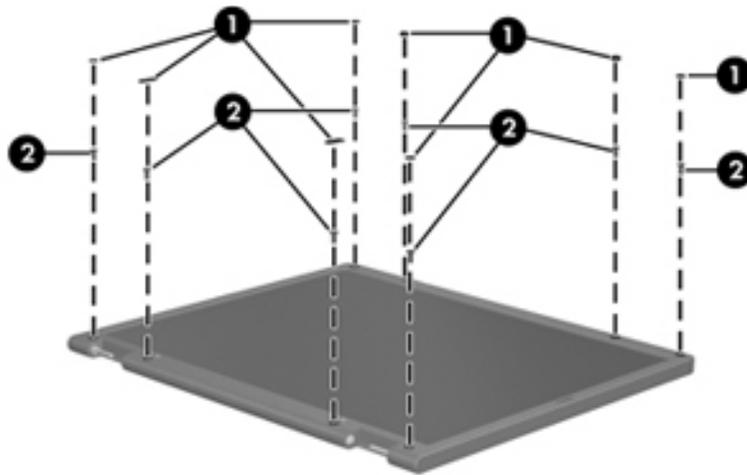
This section provides disassembly instructions for the display assembly. The display assembly must be disassembled to gain access to the backlight ❶ and the liquid crystal display (LCD) panel ❷.



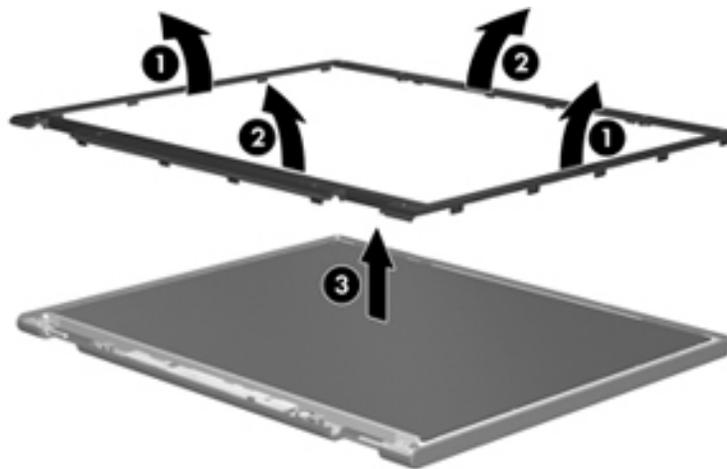
 The procedures provided in this chapter are general disassembly instructions. Specific details, such as screw sizes, quantities, and locations, and component shapes and sizes, can vary from one computer model to another.

Perform the following steps to disassemble the display assembly:

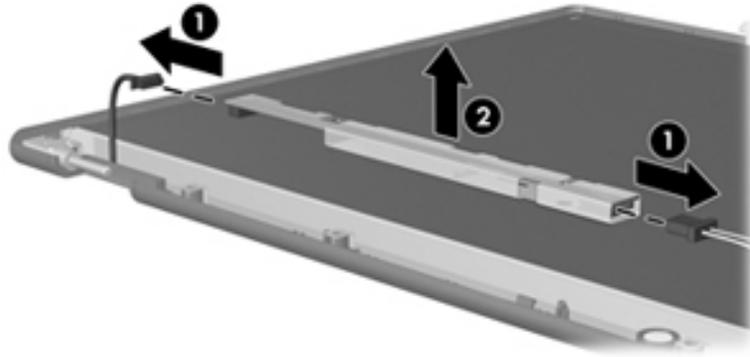
1. Remove all screw covers ① and screws ② that secure the display bezel to the display assembly.



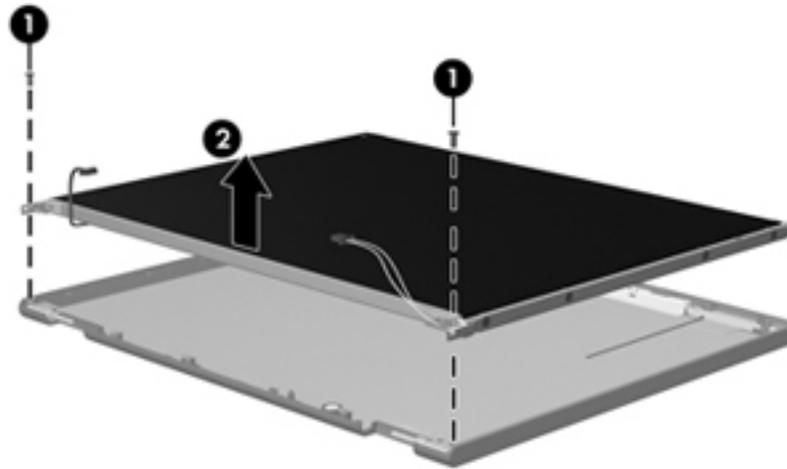
2. Lift up and out on the left and right inside edges ① and the top and bottom inside edges ② of the display bezel until the bezel disengages from the display assembly.
3. Remove the display bezel ③.



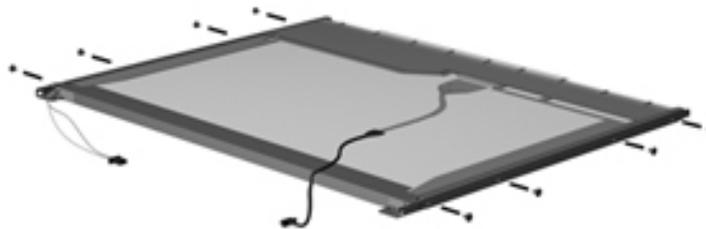
4. Disconnect all display panel cables ❶ from the display inverter and remove the inverter ❷.



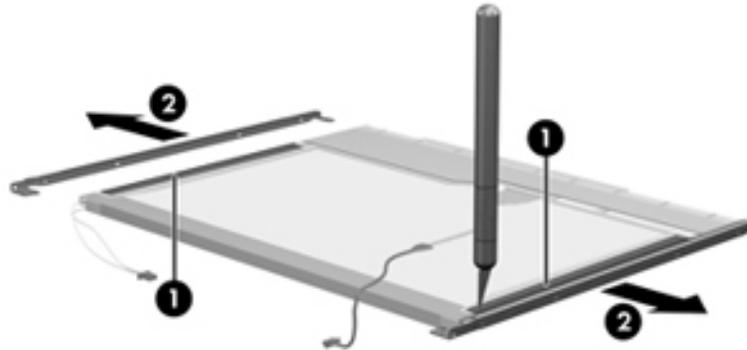
5. Remove all screws ❶ that secure the display panel assembly to the display enclosure.
6. Remove the display panel assembly ❷ from the display enclosure.



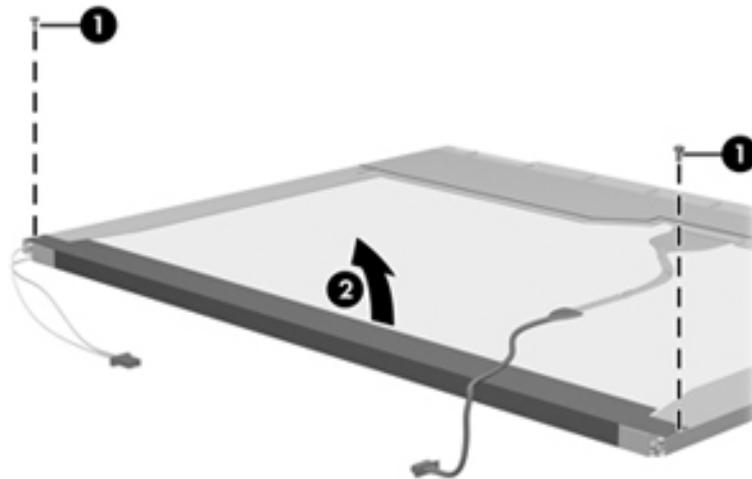
7. Turn the display panel assembly upside down.
8. Remove all screws that secure the display panel frame to the display panel.



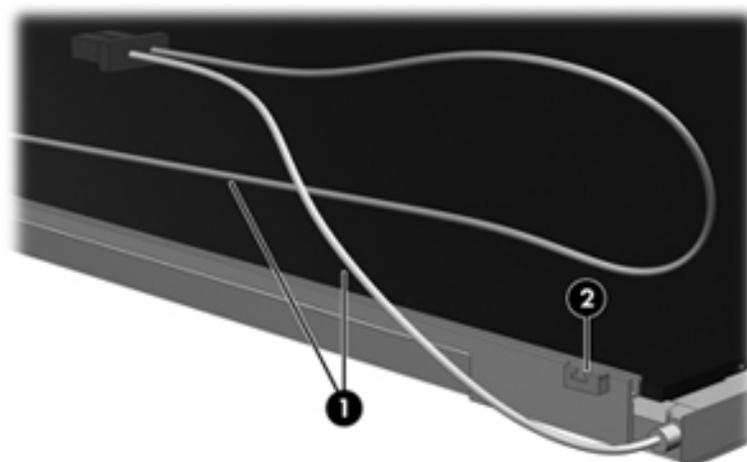
9. Use a sharp-edged tool to cut the tape ❶ that secures the sides of the display panel to the display panel frame.
10. Remove the display panel frame ❷ from the display panel.



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



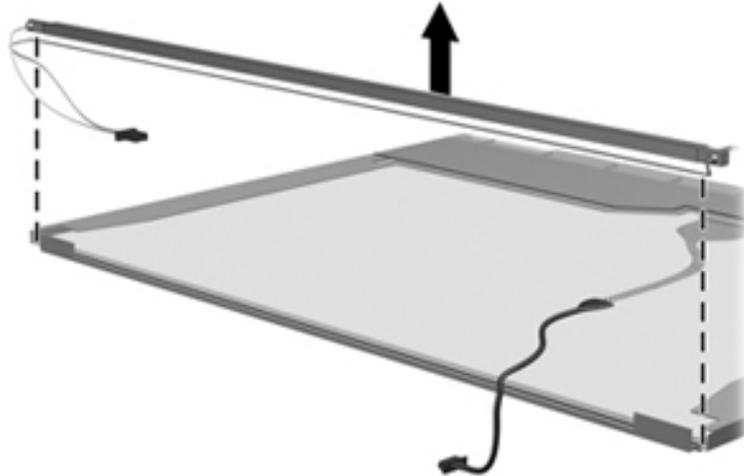
13. Remove the backlight cover.
14. Turn the display panel right-side up.
15. Remove the backlight cables ❶ from the clip ❷ in the display panel.



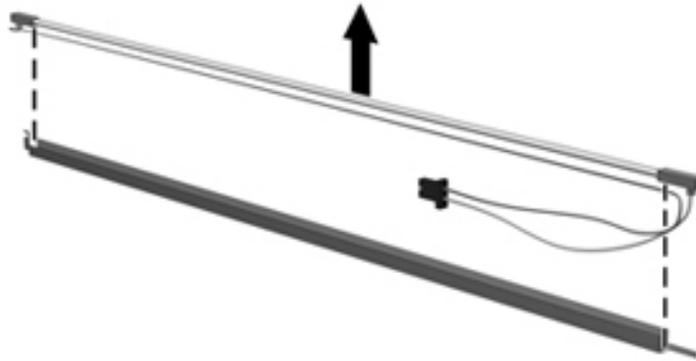
16. Turn the display panel upside down.
17. Remove the backlight frame from the display panel.



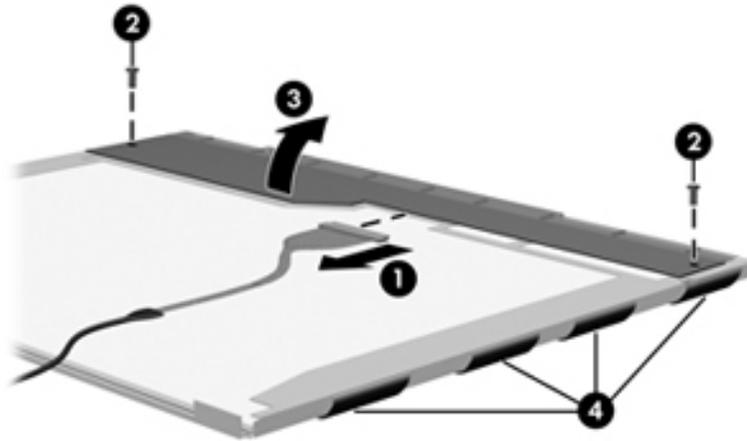
WARNING: The backlight contains mercury. Exercise caution when removing and handling the backlight to avoid damaging this component and causing exposure to the mercury.



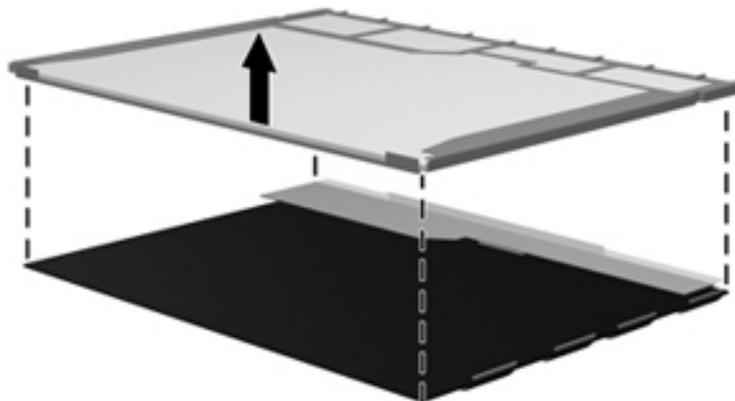
18. Remove the backlight from the backlight frame.



19. Disconnect the display panel 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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