

HP Pavilion dv6 Entertainment PC Maintenance and Service Guide



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Safety warning notice

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

Category	Description	Computers with discrete graphics	Computers UMA graphics
Product Name	HP Pavilion dv6 Entertainment PC	√	√
Processors	AMD Turion™ ZM-87, 2.4-GHz with 2-MB L2 cache	√	√
	AMD Turion ZM-86, 2.4-GHz with 2-MB L2 cache	√	√
	AMD Turion ZM-85, 2.3-GHz with 2-MB L2 cache	√	√
	AMD Turion ZM-84, 2.3-GHz with 2-MB L2 cache	√	√
	AMD Turion ZM-82, 2.2-GHz with 2-MB L2 cache	√	√
	AMD Turion RM-77, 2.3-GHz with 2-MB L2 cache	√	√
	AMD Turion RM-75, 2.2-GHz with 2-MB L2 cache	√	√
	AMD Turion RM-74, 2.2-GHz with 2-MB L2 cache	√	√
	AMD Athlon™ QL-67, 2.2-GHz with 1-MB L2 cache	√	√
	AMD Athlon QL-65, 2.1-GHz with 1-MB L2 cache	√	√
	AMD Athlon QL-64, 2.1-GHz with 1-MB L2 cache	√	√
	AMD Sempron™ SI-42, 2.1-GHz with 512-KB L2 cache	√	√
Chipset	Northbridge: AMD M780G Chipset	√	
	Northbridge: AMD M770 Chipset		√
	Southbridge: SB700	√	√
Graphics	ATI Mobility Radeon™ HD 4650 (M96) with 1 GB of dedicated video memory (64 MB × 16 DDR3 × 8 PCs)	√	
	ATI Mobility Radeon HD 4530 (M92) with 512 MB of dedicated video memory (64 MB × 16 DDR3 × 4 PCs)	√	
	AMD internal graphics with 64-MB SidePort video memory (32 MB × 16)		√
	Unified memory architecture (UMA) with shared video memory (ATI Radeon HD 3200 graphics):		√
	<ul style="list-style-type: none"> • Up to 251 MB for = 1024-MB system RAM • Up to 358 MB for > 2048-MB system RAM • Memory size is dynamic change 		

Category	Description	Computers with discrete graphics	Computers with UMA graphics
	Support for BD playback with HD Decode, and DX10	√	√
Panels	• 15.6-inch WXGA (1366 × 768) BrightView LED	√	√
	• 15.6-inch WXGA (1366 × 768) AntiGlare LED	√	√
	• 16.0-inch WXGA (1366 × 768) BrightView LED	√	√
	• 16.0-inch WXGA (1366 × 768) AntiGlare LED	√	√
	• 15.6-inch cold cathode fluorescent lamps (CCFL) panel	√	√
	• 16.0-inch CCFL panel	√	√
	• AntiGlare glass panel cover support	√	√
	• Support for lighted logo on display enclosure	√	√
	• Typical brightness 160 nits	√	√
Memory	2 SODIMM slots	√	√
	Customer-accessible/upgradable	√	√
	PC2-6400, 800-MHz, DDR2	√	√
	Dual-channel support	√	√
	Supports up to 8-GB system memory	√	√
	• 1024-MB total system memory (1024 MB × 1, dual-channel)		
	• 2048-MB total system memory (1024 MB × 2, dual-channel)		
	• 2048-MB total system memory (2048 MB × 1, dual-channel)		
• 3072-MB total system memory (2048 MB + 1024 MB)			
• 4096-MB total system memory (2048 MB × 2, dual-channel)			
• 6144-MB total system memory (2048 MB + 4096 MB)			
• 8192-MB total system memory (4096 MB × 2, dual-channel)			
Hard drives	Supports all Serial ATA (SATA) 9.5-mm, 6.35-cm (2.50-in) hard drives	√	√
	Supports one hard drive	√	√
	Support for HP ProtectSmart Hard Drive Protection	√	√

Category	Description	Computers with discrete graphics	Computers with UMA graphics
	Single hard drive configurations: <ul style="list-style-type: none"> • 160 GB (5400 rpm) • 250 GB (7200 rpm) (select models only) • 250 GB (5400 rpm) • 320 GB (7200 rpm) (select models only) • 320 GB (5400 rpm) • 500 GB (5400 rpm) 	√	√
Optical drives	12.7-mm tray load	√	√
	Serial ATA (SATA)	√	√
	Fixed (removal of one screw required)	√	√
	Supports the following optical 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 	√	√
Webcam	Standard VGA camera	√	√
	Fixed (no tilt)	√	√
	Activity LED	√	√
	640 × 480 by 24 frames per second	√	√
Microphone	2 omnidirectional digital 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	√	√
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:		
	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 BCM4312 802.11b/g + Bluetooth	√	√
TV tuner	Integrated DVB-T TV tuner (select models only)	√	√

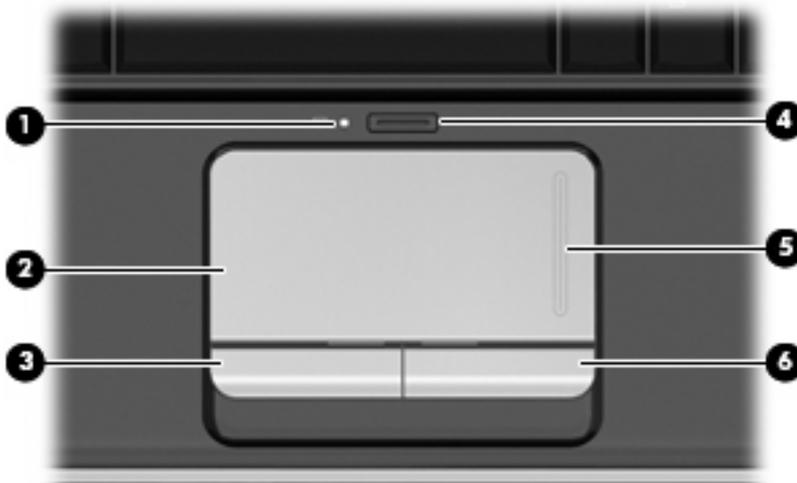
Category	Description	Computers with discrete graphics	Computers UMA graphics
	Support for TV tuner antennas for both DVB-T and ATSC/NTSC	√	
External media card	One ExpressCard 54 slot	√	√
	Digital Media Slot, supports SD, MMC, MS, MSP, xD. Supports mini versions of SD, MMC, MS Duo with adapter (adapter is not included)	√	√
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	√	√
	UV painted keyboard (select models only)	√	√
	Textured (non-painted) keyboard (select models only)	√	√
	TouchPad supports 2-way scrolling	√	√
	Taps enabled as default	√	√
Power requirements	6-cell 2.55-Ah Li-ion battery with target life of 2.5 hours	√	
	6-cell 2.55-Ah Li-ion battery with target life of 3 hours		√
	6-cell 2.20-Ah Li-ion battery with target life of 2.2 hours	√	

Category	Description	Computers with discrete graphics	Computers with UMA graphics
	6-cell 2.20-Ah Li-ion battery with target life of 2.25 hours		√
	12-cell 8.80-Ah Li-ion battery with target life of 4 hours	√	
	12-cell 8.80-Ah Li-ion battery with target life of 5 hours		√
	90-W AC adapter	√	
	65-W AC adapter		√
Security	Security cable slot	√	√
	Fingerprint reader (select models only)	√	√
Operating system	Preinstalled:		
	Windows Vista® Business (32-bit) Service Pack 2	√	√
	Windows Vista Home Basic (32-bit) Service Pack 2	√	√
	Windows Vista Premium (32-bit and-64 bit) Service Pack 2	√	√
	Windows Vista Ultimate (64-bit) Service Pack 2	√	√
Serviceability	AC adapter	√	√
	Battery (system)	√	√
	Hard drive	√	√
	Memory module	√	√
	Optical drive	√	√
	Mini Card components	√	√

2 External component identification

Top components

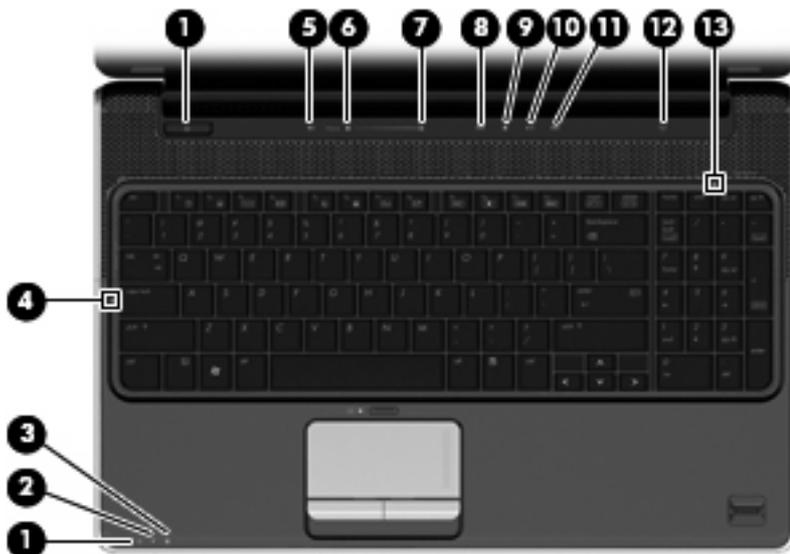
TouchPad



Component	Description
(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 and change TouchPad preferences, select **Start > Control Panel > Hardware and Sound > Mouse**.

Lights

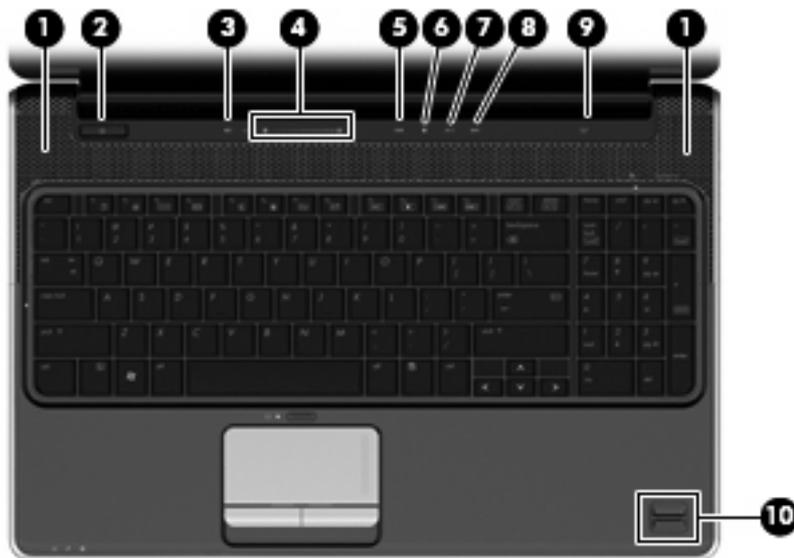


Component	Description
(1) Power lights* (2)	<ul style="list-style-type: none"> On: The computer is on. Blinking: The computer is in the Sleep state. Off: The computer is off or in Hibernation.
(2) Battery light	<ul style="list-style-type: none"> On: A battery is charging. Blinking: A battery that is 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.
(3) 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.
(4) Caps lock light	On: Caps lock is on.
(5) Volume mute light	<ul style="list-style-type: none"> White: Computer sound is turned on. Amber: Computer sound is turned off.
(6) Volume down light	On: The volume scroll zone is being used to decrease speaker volume.
(7) Volume up light	On: The volume scroll zone is being used to increase speaker volume.
(8) Previous/rewind light (select models only)	On: The previous/rewind button has been pressed.
(9) Play/pause light (select models only)	On: The play/pause button has been pressed.
(10) Next/fast forward light (select models only)	On: The next/fast forward button has been pressed.

Component	Description
(11) Stop light (select models only)	On: The stop button has been pressed.
(12) Wireless light	<ul style="list-style-type: none"> <li data-bbox="817 275 1444 352">• Blue: An integrated wireless device, such as a wireless local area network (WLAN) device and/or a Bluetooth® device, is turned on. <li data-bbox="817 373 1444 403">• Amber: All wireless devices are turned off.
(13) 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

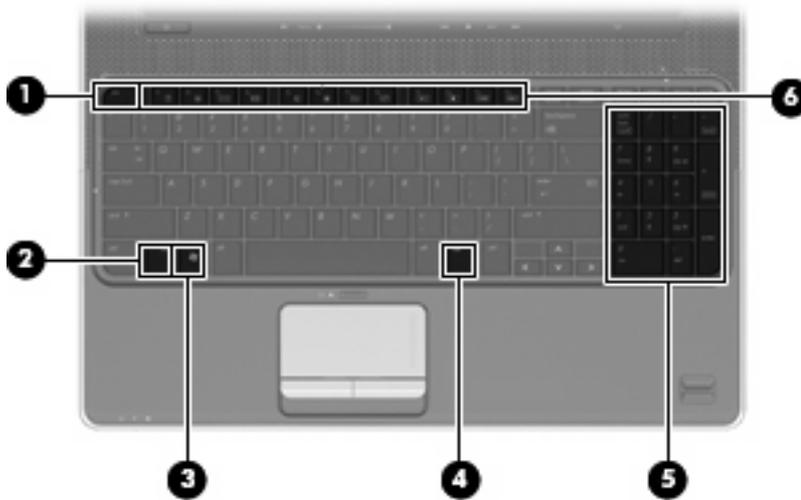


Component	Description
(1) Speakers (2)	Produce sound.
(2) Power button*	<ul style="list-style-type: none"> When the computer is off, press the button to turn on the computer. When the computer is on, press the button briefly to initiate Sleep. When the computer is in the Sleep state, press the button briefly to exit Sleep. When the computer is in Hibernation, press the button briefly to exit Hibernation. <p>If the computer has stopped responding and Windows® shutdown procedures are ineffective, press and hold the power button for at least 5 seconds to turn off the computer.</p> <p>To learn more about your power settings, select Start > Control Panel > System and Maintenance > Power Options.</p>
(3) Volume mute button	Mutes and restores speaker sound.
(4) 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.
(5) Previous/rewind button (select models only)	<ul style="list-style-type: none"> Plays the previous track or chapter when the button is pressed once. Rewinds media when the button is pressed simultaneously with the fn key.
(6) Play/pause button (select models only)	Plays or pauses media.

Component	Description
(7) Next/fast forward button (select models only)	<ul style="list-style-type: none"> <li data-bbox="815 222 1430 275">• Plays the next track or chapter when the button is pressed once. <li data-bbox="815 300 1430 352">• Fast forwards media when pressed simultaneously with the fn key.
(8) Stop button (select models only)	Stops playback.
(9) Wireless button	<p data-bbox="815 426 1441 478">Turns the wireless feature on or off, but does not create a wireless connection.</p> <p data-bbox="815 501 1441 556">NOTE: A wireless network must be set up in order to establish a wireless connection.</p>
(10) 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



Component	Description
(1) <code>esc</code> key	Displays system information about your computer when pressed in combination with the <code>fn</code> key.
(2) <code>fn</code> key	Executes frequently used system functions when pressed in combination with a function key or the <code>esc</code> 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 <code>fn</code> key.

Front components



Component	Description
(1) 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.
(2) 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.
(3) 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.
(4) Consumer infrared lens	Receives a signal from the remote control.
(5) Audio-in (microphone) jack	Connects an optional computer headset microphone, stereo array microphone, or monaural microphone.
(6) Audio-out (headphone) jacks (2)	Produce sound when connected to optional powered stereo speakers, headphones, ear buds, a headset, or television audio.

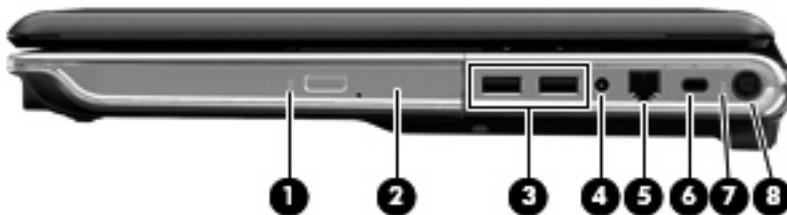
NOTE: This table describes factory settings. For information about changing factory settings, refer to the user guides located in Help and Support.

Rear component



Component	Description
Vent	Enables airflow to cool internal components. NOTE: 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.

Right-side components



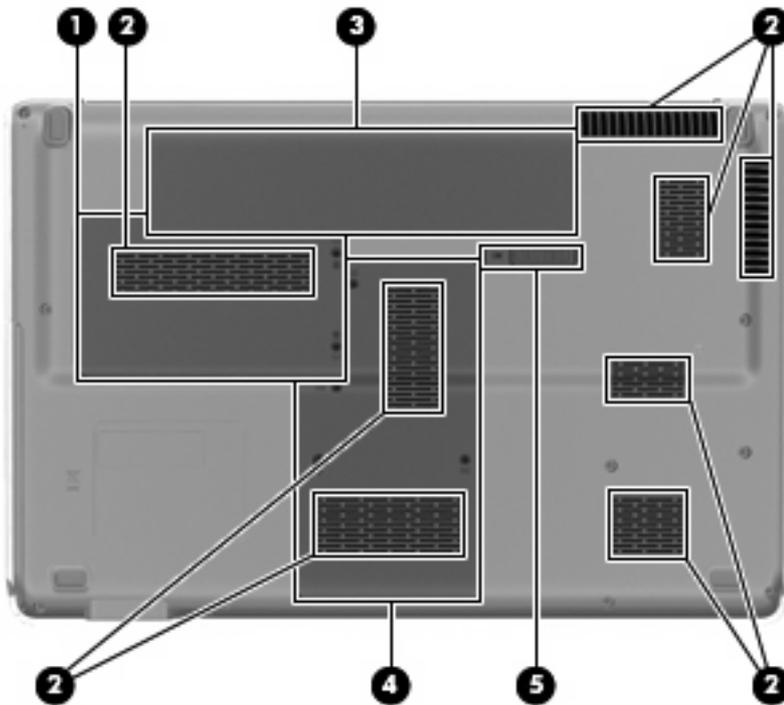
Component	Description
(1) Optical drive light	Blinking: The optical drive is being accessed.
(2) Optical drive	Reads optical discs and, on select models, also writes to optical discs.
(3) USB ports (2)	Connect optional USB devices.
(4) TV antenna/cable jack (select models only)	Connects a TV antenna, a digital cable device, or a satellite device that receives standard or high-definition TV broadcasts.
(5) RJ-11 (modem) jack (select models only)	Connects a modem cable.
(6) Security cable slot	Attaches an optional security cable to the computer. NOTE: The security cable is designed to act as a deterrent, but it may not prevent the computer from being mishandled or stolen.
(7) AC adapter light	<ul style="list-style-type: none"> On: The computer is connected to external power. Off: The computer is not connected to external power.
(8) Power connector	Connects an AC adapter.

Left-side components



Component	Description
(1) External monitor port	Connects an external VGA monitor or projector.
(2) Expansion port 3	Connects the computer to an optional docking device or an optional expansion product. NOTE: The computer has only one expansion port. The term <i>expansion port 3</i> describes the type of expansion port.
(3) RJ-45 (network) jack	Connects a network cable.
(4) HDMI port	Connects an optional video or audio device, such as a high-definition television, or any compatible digital or audio component.
(5) 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. NOTE: Depending on your computer model, the computer may include a USB port only.
(6) USB port	Connects an optional USB device.
(7) 1394 port (select models only)	Connects an optional IEEE 1394 or 1394a device, such as a camcorder.
(8) Digital Media Slot light	Blinking: The media card is being accessed.
(9) ExpressCard slot	Supports optional ExpressCard/54 cards.
(10) Digital Media Slot	Supports the following optional digital card formats: <ul style="list-style-type: none">• Memory Stick (MS)• Memory Stick Pro (MSP)• MultiMediaCard (MMC)• Secure Digital (SD) Memory Card• xD-Picture Card (XD)• xD-Picture Card (XD) Type H• xD-Picture Card (XD) Type M

Bottom components



Component	Description
(1) Hard drive bay	Holds the hard drive.
(2) Vents (8)	Enable airflow to cool internal components. NOTE: The computer fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation.
(3) Battery bay	Holds the battery.
(4) 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). 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.
(5) Battery release latch	Releases the battery from the battery bay.

Display components



Component	Description
(1) Internal display switch	Turns off the display and initiates Sleep if the display is closed while the power is on.
(2) Internal microphones (2)	Record sound.
(3) Webcam light	On: The webcam is in use.
(4) Integrated webcam	Records audio and video and captures still photographs.

Cleaning the display

△ **CAUTION:** To prevent permanent damage to the computer, never spray water, cleaning fluids, or chemicals on the display.

To remove smudges and lint, frequently clean the display with a soft, damp, lint-free cloth. If the screen requires additional cleaning, use premoistened antistatic wipes or an antistatic screen cleaner.

Wireless antennas (select models only)

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



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

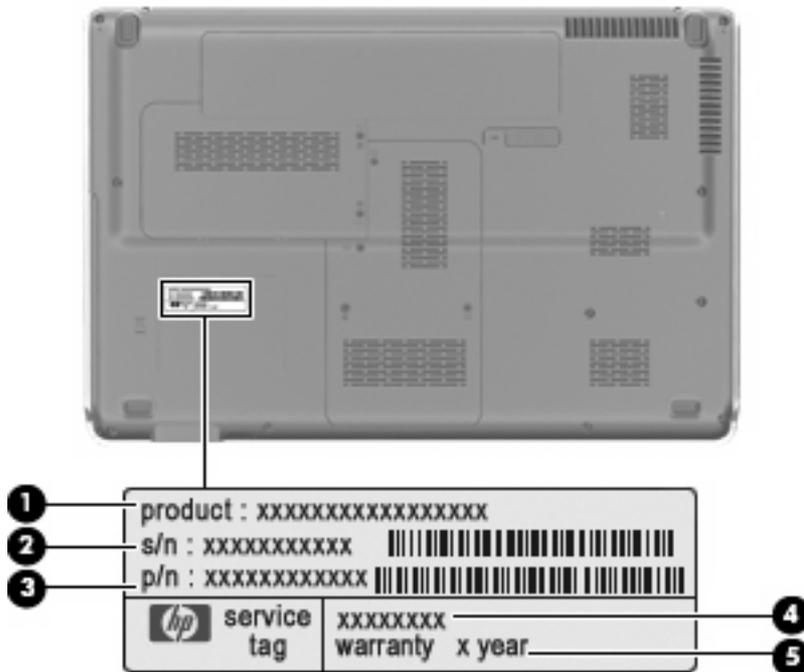
To see wireless regulatory notices, refer to the section of the *Regulatory, Safety and Environmental Notices* that applies to your country or region. These notices are located in Help and Support.

3 Illustrated parts catalog

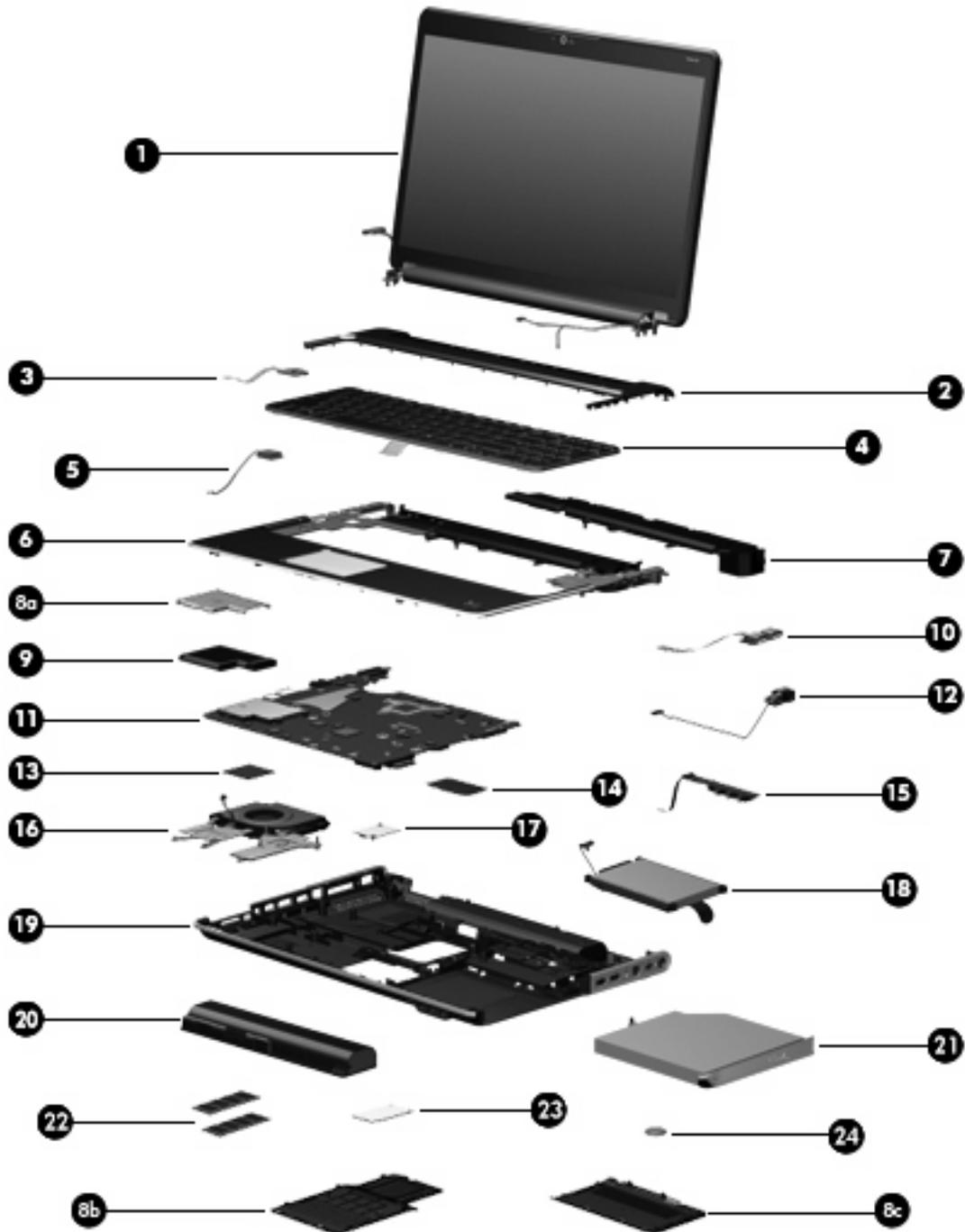
Service tag

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

- (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 major components



Item	Description	Spare part number
(1)	Display assembly (includes webcam, 2 microphones, and 2 wireless antenna transceivers and cables)	
	16.0-inch WXGA BrightView display assemblies:	
	<ul style="list-style-type: none"> For use in white computers 	512357-001
	<ul style="list-style-type: none"> For use in black computers 	512358-001

Item	Description	Spare part number
	• LED display for use in white computers	538349-001
	• LED display for use in black computers	538351-001
	• LED display for use in MTV2 artist edition computers	518771-001
	16.0-inch WXGA AntiGlare display assemblies:	
	• For use in white computers	518772-001
	• For use in black computers	573304-001
	• LED display assembly for use in white computers	538355-001
	• LED display assembly for use in black computers	538313-001
	• LED display assembly for use in MTV2 artist edition computers	538315-001
	15.6-inch WXGA BrightView display assemblies:	
	• For use in white computers	517862-001
	• For use in black computers	518775-001
	• LED display for use in white computers	538348-001
	• LED display for use in black computers	538350-001
	15.6-inch WXGA AntiGlare display assemblies:	
	• For use in white computers	518776-001
	• For use in black computers	518777-001
	• LED display for use in white computers	538312-001
	• LED display for use in black computers	538314-001
	• LED display for use in MTV2 artist edition computers	538354-001
	NOTE: See Display assembly component on page 26 for more information on display assembly spare part numbers.	
(2)	Switch cover (includes LED board and cable)	
	For use in white computers	518110-001
	For use in black computers	518790-001
	For use in MTV2 artist edition computers	570205-001
(3)	Power button board (includes cable)	512834-001
(4)	Keyboard (includes keyboard cable)	
	NOTE: For a detailed list of available keyboards, see Sequential part number listing on page 31 .	
	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	483113-001

Item	Description	Spare part number
(6)	Top cover (includes TouchPad and TouchPad buttons)	
	For use only with white computers equipped with a fingerprint reader	518109-001
	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	518789-001
	For use only with black computers not equipped with a fingerprint reader	518788-001
	For use only with MTV2 artist edition computers	570206-001
(7)	Speaker assembly	533865-001
	Plastics Kit , includes:	511890-001
(8a)	ExpressCard slot bezel	
(8b)	Memory module cover	
(8c)	Hard drive cover	
	NOTE: See Plastics Kit on page 28 for more information.	
(9)	ExpressCard module	464793-002
(10)	USB board (includes cable)	516497-001
(11)	System board (includes replacement thermal material)	
	For use with computers equipped with UMA graphics subsystem memory	509449-001
	For use with computers equipped with discrete graphics subsystem memory with 1 GB of dedicated memory	509450-001
	For use with computers equipped with discrete graphics subsystem memory with 512 MB of dedicated memory	509451-001
	For use with computers equipped with SidePort memory	570379-001
(12)	Power connector cable	533465-001
(13)	Processor (includes replacement thermal material)	
	AMD Turion Ultra ZM-87, 2.40-GHz with 2-MB L2 cache	572564-001
	AMD Turion Ultra ZM-86, 2.40-GHz with 2-MB L2 cache	507974-001
	AMD Turion Ultra ZM-85, 2.30-GHz with 2-MB L2 cache	532119-001
	AMD Turion Ultra ZM-84, 2.30-GHz with 2-MB L2 cache	507975-001
	AMD Turion Ultra ZM-82, 2.20-GHz with 2-MB L2 cache	507973-001
	AMD Turion RM-77, 2.30-GHz with 1-MB L2 cache	572565-001
	AMD Turion RM-75, 2.20-GHz with 1-MB L2 cache	532120-001
	AMD Turion RM-74, 2.20-GHz with 1-MB L2 cache	507979-001
	AMD Athlon QL-67, 2.20-GHz with 1-MB L2 cache	572566-001
	AMD Athlon QL-65, 2.10-GHz with 1-MB L2 cache	532121-001
	AMD Athlon QL-64, 2.10-GHz with 1-MB L2 cache	506053-001
	AMD Sempron SI-42, 2.1-GHz with 512-KB L2 cache	508102-001

Item	Description	Spare part number
(14)	WLAN module	
	Atheros 9285G 802.11b/g WiFi Adapter for use in Canada, the Cayman Islands, Guam, Puerto Rico, the United States, and the U.S. Virgin Islands	518436-001
	Atheros 9285G 802.11b/g WiFi Adapter 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 WiFi Adapter for use in Canada, the Cayman Islands, Guam, Puerto Rico, the United States, and the U.S. Virgin Islands	518437-001
	Atheros 9280AGN 802.11a/b/g/n WiFi Adapter 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

Item	Description	Spare part number
	Broadcom BCM4312 802.11b/g WLAN module 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	504593-001
	Broadcom BCM4312 802.11b/g WLAN module 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	504593-002
	Broadcom BCM4312 802.11b/g WLAN module 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	504664-001

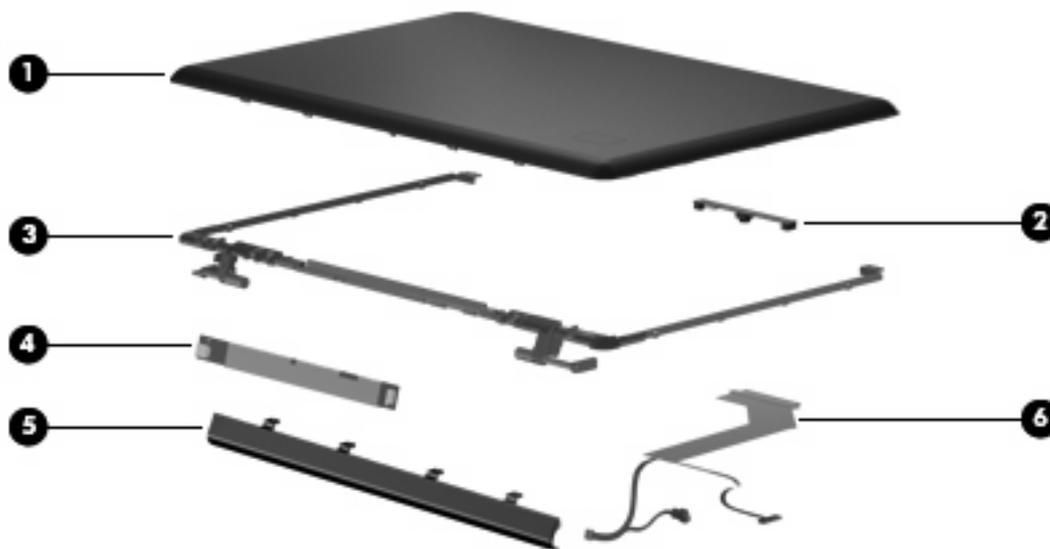
Item	Description	Spare part number
	Broadcom BCM4312 802.11b/g WLAN module for use only with computers in Afghanistan, Albania, Algeria, Andorra, Angola, Antigua and Barbuda, Argentina, Armenia, Aruba, Australia, Austria, Azerbaijan, the Bahamas, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Belize, 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	504664-002
(15)	Audio/infrared board (includes cable)	511892-001
(16)	Fan/heat sink assembly (includes replacement thermal material)	
	For use only with computers equipped with discrete graphics subsystems	532141-001
	For use only with computers equipped with UMA graphics subsystems	532142-001
(17)	Modem module	
	NOTE: 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 29 .	
	For use in all countries and regions except Australia and New Zealand	510100-001
	For use only in Australia and New Zealand	510100-011
(18)	Hard drive (includes left and right bracket rails, connector cable, Mylar cover with tab, and four rubber isolators)	
	160-GB, 5400-rpm	537950-001
	250-GB, 7200-rpm (select models only)	509412-002
	250-GB, 5400-rpm	509414-002
	320-GB, 7200-rpm (select models only)	509413-002
	320-GB, 5400-rpm	509415-002
	500-GB, 5400-rpm	509417-002
	Hard Drive Hardware Kit (not illustrated, includes left and right bracket rails, connector cable, Mylar cover with tab, and 4 rubber isolators)	483862-001
(19)	Base enclosure (includes rubber feet)	

Item	Description	Spare part number
	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
(20)	Battery	
	12-cell, 95-Wh, 8.8-Ah Li-ion battery	509460-001
	6-cell, 55-Wh, 2.55-Ah Li-ion battery	509459-001
	6-cell, 47-Wh, 2.20-Ah Li-ion battery	509458-001
(21)	Optical drive (includes bezel and bracket)	
	DVD±RW and CD-RW SuperMulti Double-Layer Combo Drive	509419-002
	Blu-ray ROM DVD±R/RW SuperMulti Double-Layer Drive	509420-002
	Blu-ray ROM with LightScribe DVD±R/RW SuperMulti Double-Layer Drive	509421-002
(22)	Memory modules (DDR2, 800 MHz, PC2-6400, 1 DIMM):	
	4 GB	509409-002
	2 GB	509410-002
	1 GB	509411-002
(23)	TV tuner module	
	NOTE: 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 (not illustrated)	
	With PAL jack	482900-002
(24)	RTC battery	449729-001

Display assembly components

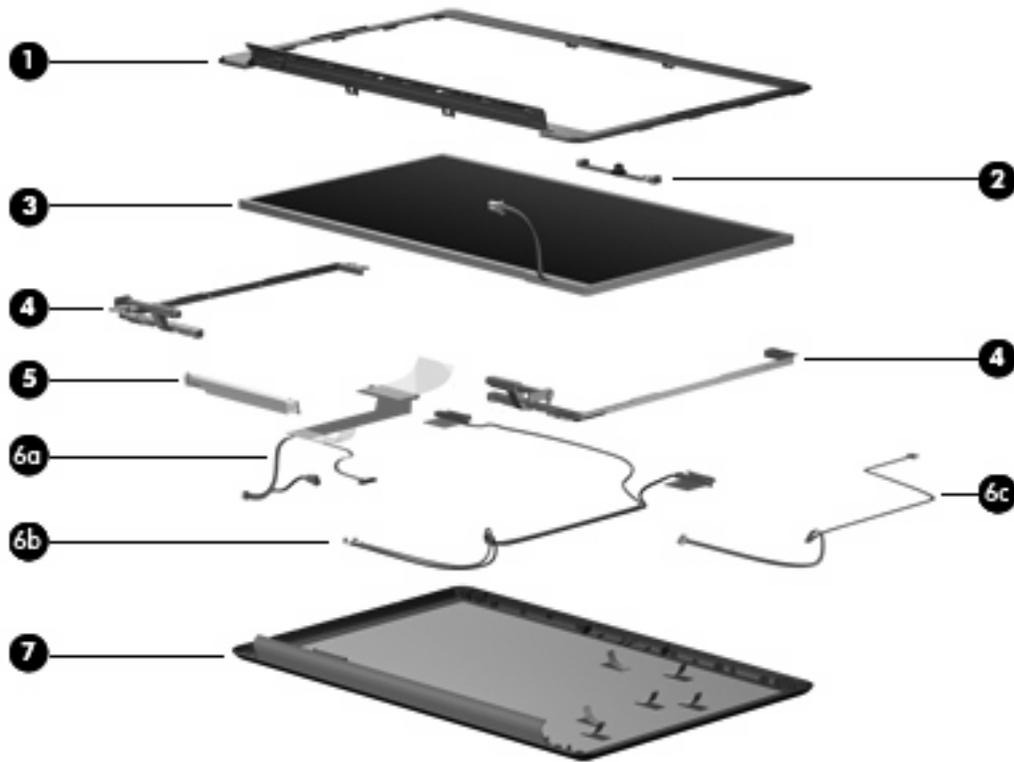
The HP Pavilion dv6 Entertainment PC offers two types of display assemblies. Component spare parts are listed in this section for AntiGlare display assemblies and BrightView display assemblies.

AntiGlare display assembly spare parts



Item	Description	Spare part number
(1)	Display enclosure (includes wireless antenna transceivers and cables)	
	For use in white computers without LED displays	517861-001
	For use in black computers without LED display	518774-001
	For use in white computers with LED displays	570392-001
	For use in black computers with LED displays	570393-001
	For use in MTV2 artist edition computers	570394-001
(2)	Webcam/microphone module (includes cable)	512827-001
(3)	Display Hinge Kit (includes left and right hinges)	
	For use in computers with a 16.0-inch display	513477-001
	For use in computers with a 15.6-inch display	519209-001
(4)	Display inverter	488317-001
(5)	Display inverter cover	533464-001
(6)	Display cable	512825-001
	Display Rubber Kit (not illustrated, includes display bezel rubber screw covers)	513479-001
	Display Screw Kit (not illustrated)	512362-001

BrightView display assembly spare parts



Item	Description	Spare part number
(1)	Display bezel (includes logo and display lid switch actuator magnet)	
	For use with computers equipped with 16-inch displays	512359-001
	For use with computers equipped with 15.6-inch displays	512364-001
(2)	Webcam/microphone module (includes cable)	512827-001
(3)	BrightView display panel (includes display panel cable)	
	For use only with computers equipped with 16-inch non-LED display panels	511868-001
	For use only with computers equipped with 15.6-inch non-LED display panels	512363-001
	For use only with computers equipped with 16-inch LED display panels	570094-001
	For use only with computers equipped with 15.6-inch LED display panels	570095-001
(4)	Display Hinge Kit (includes left and right hinges)	
	For use only with computers equipped with 16-inch display panels	512360-001
	For use only with computers equipped with 15.6-inch display panels	512365-001
(5)	Display inverter	488317-001
(6a)	Display cable	512825-001
(6b)	Wireless antenna cable (included with display enclosure)	
(6c)	Webcam/microphone cable (included with webcam/microphone module)	

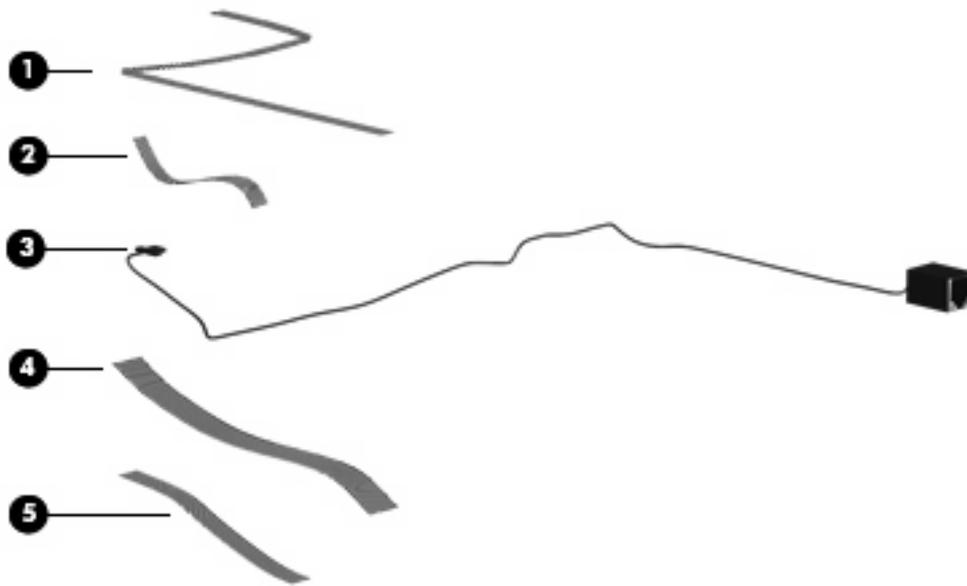
Item	Description	Spare part number
(7)	Display enclosure (includes wireless antenna transceivers and cables and logo LED board and cable)	
	For use in white computers	517860-001
	For use in black computers	518773-001
	For use in white computers with LED displays	570390-001
	For use in black computers with LED displays	570391-001
	For use in MTV2 artist edition computers	573305-001
	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
Notebook sleeve, 16-inch, white	533534-001
AC adapters	
65-W AC adapter	463958-001
90-W AC adapter	463955-001
Power cords:	
Argentina	490371-D01
Australia and New Zealand	490371-011
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
Brazil	490371-201
Asia/Pacific region, French Canada, Latin America, Thailand, and the United States	490371-001
Denmark	490371-081
India	490371-D61
Italy	490371-061
Japan	490371-291
South Africa	490371-AR1
South Korea	490371-AD1
Switzerland	490371-111
Taiwan	490371-AB1
The United Kingdom and Hong Kong	490371-031
Remote controls	
Full-function remote control with teletext	465541-001
Headset, wired with volume control	371693-001

Description	Spare part number
Wireless laser mouse	430958-001
Screw Kit	516498-001
<ul style="list-style-type: none"> • Phillips PM2.0×3.0 screws • Phillips PM2.0×14.0 captive screws • Phillips PM2.5×3.0 screws • Phillips PM2.5×4.0 screws • Phillips PM2.5×5.0 screws • Phillips PM2.5×5.0 captive screws • Phillips PM2.5×5.5 captive screws • Phillips PM2.5×6.5 screws • Phillips PM3.0×3.5 screws 	

Sequential part number listing

Spare part number	Description
371693-001	Headset, wired with volume control
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 (for use only with computers equipped with discrete graphics memory)
482900-002	TV tuner external antenna cable with PAL jack
483113-001	Bluetooth module
483862-001	Hard Drive Hardware Kit (includes left and right bracket rails, connector cable, Mylar cover with tab, and 4 rubber isolators)
488317-001	Display inverter
489822-001	Bluetooth cable
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

Spare part number	Description
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
490371-201	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
504593-001	Broadcom BCM4312 802.11b/g WLAN module 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
504593-002	Broadcom BCM4312 802.11b/g WLAN module 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
504664-001	Broadcom BCM4312 802.11b/g WLAN module 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

Spare part number	Description
504664-002	Broadcom BCM4312 802.11b/g WLAN module 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
506053-001	AMD Athlon QL-64, 2.10-GHz processor with 1-MB L2 cache
507973-001	AMD Turion Ultra ZM-82, 2.20-GHz processor with 2-MB L2 cache
507974-001	AMD Turion Ultra ZM-86, 2.40-GHz processor with 2-MB L2 cache
507975-001	AMD Turion Ultra ZM-84, 2.30-GHz processor with 2-MB L2 cache
507979-001	AMD Turion RM-74, 2.20-GHz processor with 1-MB L2 cache
508102-001	AMD Sempron SI-42, 2.10-GHz processor with 512-KB L2 cache
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
509420-002	Blu-ray ROM DVD±R/RW SuperMulti Double-Layer Drive
509421-002	Blu-ray ROM with LightScribe DVD±R/RW SuperMulti Double-Layer Drive
509449-001	System board for use with computers equipped with UMA graphics subsystem memory (includes replacement thermal material)

Spare part number	Description
509450-001	System board for use with computers equipped with discrete graphics subsystem memory and 1 GB of dedicated memory (includes replacement thermal material)
509451-001	System board for use with computers equipped with discrete graphics subsystem memory and 512 MB of dedicated memory (includes replacement thermal material)
509458-001	6-cell, 47-Wh, 2.20-Ah Li-ion battery
509459-001	6-cell, 55-Wh, 2.55-Ah Li-ion battery
509460-001	12-cell, 95-Wh, 8.8-Ah Li-ion battery
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
511868-001	BrightView display panel for use only with computers equipped with 16-inch non-LED display panels (includes display panel cable)
511890-001	Plastics Kit (see Plastics Kit on page 28)
511892-001	Audio/infrared board
512357-001	16.0-inch WXGA BrightView display assembly for use in white computers (includes webcam, 2 microphones, and 2 antenna transceivers)
512358-001	16.0-inch WXGA AntiGlare display assembly for use in white computers (includes webcam, 2 microphones, and 2 antenna transceivers)
512359-001	Display bezel for use with computers equipped with 16-inch displays
512360-001	Display Hinge Kit for use only with computers equipped with 16.0-inch BrightView display panels (includes left and right hinges)
512361-001	Display Rubber Kit for BrightView displays (includes display bezel rubber screw covers)
512362-001	Display Screw Kit
512363-001	BrightView display panel for use only with computers equipped with 15.6-inch non-LED display panels (includes display panel cable)
512364-001	Display bezel for use with computers equipped with 15.6-inch BrightView displays (includes logo and display lid switch actuator magnet)
512365-001	Display Hinge Kit for use only with computers equipped with 15.6-inch BrightView display panels (includes left and right hinges)
512825-001	Display cable
512827-001	Webcam/microphone module (includes cable)
512834-001	Power button board (includes cable)
513477-001	Display Hinge Kit for 16-inch AntiGlare displays (includes left and right hinges)
513479-001	Display Rubber Kit for AntiGlare displays (includes display bezel rubber screw covers)
516497-001	USB board (includes cable)
516498-001	Screw Kit
516499-001	Rubber Feet Kit
517860-001	Display enclosure for use only with white computers equipped with BrightView display panels (includes wireless antenna transceivers and cables and logo LED board and cable)

Spare part number	Description
517861-001	Display enclosure for use in white computers equipped with AntiGlare display panels (includes wireless antenna transceivers and cables)
517862-001	15.6-inch WXGA BrightView display assembly for use in white computers (includes webcam, 2 microphones, and 2 antenna transceivers)
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
517863-201	White molded keyboard for use in Brazil
517863-211	White molded keyboard for use in Hungary
517863-251	White molded keyboard for use in Russia
517863-A41	White molded keyboard for use in Belgium
517863-AB1	White molded keyboard for use in Taiwan
517863-B31	White molded keyboard for use internationally
517863-DJ1	White molded keyboard for use in Greece
517864-001	White painted keyboard for use in the United States
517864-031	White painted keyboard for use in the United Kingdom
517864-041	White painted keyboard for use in Germany
517864-051	White painted keyboard for use in France
517864-061	White painted keyboard for use in Italy
517864-071	White painted keyboard for use in Spain
517864-111	White painted keyboard for use in Switzerland
517864-121	White painted keyboard for use in French Canada
517864-131	White painted keyboard for use in Portugal
517864-141	White painted keyboard for use in Turkey
517864-161	White painted keyboard for use in Latin America
517864-171	White painted keyboard for use in Saudi Arabia
517864-211	White painted keyboard for use in Hungary

Spare part number	Description
517864-221	White painted keyboard for use in the Czech Republic
517864-251	White painted keyboard for use in Russia
517864-281	White painted keyboard for use in Thailand
517864-291	White painted keyboard for use in Japan
517864-A41	White painted keyboard for use in Belgium
517864-AB1	White painted keyboard for use in Taiwan
517864-AD1	White painted keyboard for use in South Korea
517864-B31	White painted keyboard for use internationally
517864-DH1	White painted keyboard for use in the Netherlands
517864-DJ1	White painted keyboard for use in Greece
518108-001	Top cover for use only with white computers not equipped with a fingerprint reader
518109-001	Top cover for use only with white computers equipped with a fingerprint reader
518110-001	Switch cover for use in white computers (includes LED board and cable)
518436-001	Atheros 9285G 802.11b/g WiFi Adapter 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 WiFi Adapter 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 WiFi Adapter for use in Canada, the Cayman Islands, Guam, Puerto Rico, the United States, and the U.S. Virgin Islands

Spare part number	Description
518437-002	Atheros 9280AGN 802.11a/b/g/n WiFi Adapter 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
518771-001	16.0-inch WXGA BrightView display assembly for use in black computers (includes webcam, 2 microphones, and 2 antenna transceivers)
518772-001	16.0-inch WXGA AntiGlare display assembly for use in black computers (includes webcam, 2 microphones, and 2 antenna transceivers)
518773-001	Display enclosure for use only with black computers equipped with BrightView display panels (includes wireless antenna transceivers and cables and logo LED board and cable)
518774-001	Display enclosure for use in black computers with AntiGlare display panels (includes wireless antenna transceivers and cables)
518775-001	15.6-inch WXGA AntiGlare display assembly for use in white computers (includes webcam, 2 microphones, and 2 antenna transceivers)
518776-001	15.6-inch WXGA BrightView display assembly for use in black computers (includes webcam, 2 microphones, and 2 antenna transceivers)
518777-001	15.6-inch WXGA AntiGlare display assembly for use in black computers (includes webcam, 2 microphones, and 2 antenna transceivers)
518788-001	Top cover for use only with black computers not equipped with a fingerprint reader (includes TouchPad and TouchPad buttons)
518789-001	Top cover for use only with black computers equipped with a fingerprint reader (includes TouchPad and TouchPad buttons)
518790-001	Switch cover for use in black computers (includes LED board and cable)
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

Spare part number	Description
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
518965-201	Black molded keyboard for use in Brazil
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-A41	Black molded keyboard for use internationally
518965-AB1	Black molded keyboard for use in Taiwan
518965-DJ1	Black molded keyboard for use in Greece
518966-121	Black painted keyboard for use in French Canada
518966-171	Black painted keyboard for use in Saudi Arabia
518966-281	Black painted keyboard for use in Thailand
518966-291	Black painted keyboard for use in Japan
518966-AD1	Black painted keyboard for use in South Korea
518966-DH1	Black painted keyboard for use in the Netherlands
519209-001	Display Hinge Kit for 15.6-inch AntiGlare displays (includes left and right hinges)
532119-001	AMD Turion Ultra ZM-85 2.30-GHz processor with 2-MB L2 cache
532120-001	AMD Turion RM-75 2.20-GHz processor with 1-MB L2 cache
532121-001	AMD Athlon QL-65 2.10-GHz processor with 1-MB L2 cache
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)
533464-001	Display inverter cover for use in computers with AntiGlare displays
533465-001	Power connector cable
533466-001	Cable Kit (see Cable Kit on page 29)
533534-001	Notebook sleeve, 16-inch, white
533865-001	Speaker assembly
537950-001	160-GB, 5400-rpm hard drive (includes left and right bracket rails, connector cable, Mylar cover with tab, and four rubber isolators) (select models only)
538312-001	15.6-inch WXGA BrightView LED display assembly for use in black computers

Spare part number	Description
538313-001	16.0-inch WXGA BrightView LED display assembly for use in black computers
538314-001	15.6-inch WXGA AntiGlare LED display assembly for use in black computers
538315-001	16.0-inch WXGA AntiGlare LED display assembly for use in black computers
538348-001	15.6-inch WXGA BrightView LED display assembly for use in white computers
538349-001	16.0-inch WXGA BrightView LED display assembly for use in white computers
538350-001	15.6-inch WXGA AntiGlare LED display assembly for use in white computers
538351-001	16.0-inch WXGA AntiGlare LED display assembly for use in white computers
538354-001	15.6-inch WXGA AntiGlare LED display assembly for use in MTV2 artist edition computers
538355-001	16.0-inch WXGA AntiGlare LED display assembly for use in MTV2 artist edition computers
570094-001	BrightView display panel for use only with computers equipped with 16-inch LED display panels (includes display panel cable)
570095-001	BrightView display panel for use only with computers equipped with 15.6-inch LED display panels (includes display panel cable)
570205-001	Switch cover for use in MTV2 artist edition computers (includes LED board and cable)
570206-001	Top cover for use only with MTV2 artist edition computers
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

Spare part number	Description
570228-A41	Black textured keyboard for use in Belgium
570228-DJ1	Black textured keyboard for use in Greece
570228-AB1	Black textured keyboard for use in Taiwan
570228-AD1	Black textured keyboard for use in South Korea
570228-DH1	Black textured keyboard for use in the Netherlands
570379-001	System board for use with computers equipped with SidePort memory
570390-001	Display enclosure for use only with white computers equipped with BrightView LED display panels (includes wireless antenna transceivers and cables and logo LED board and cable)
570391-001	Display enclosure for use only with black computers equipped with BrightView LED display panels (includes wireless antenna transceivers and cables and logo LED board and cable)
570392-001	Display enclosure for use in white computers with LED displays
570393-001	Display enclosure for use in black computers with LED displays
570394-001	Display enclosure for use in MTV2 artist edition computers
572564-001	AMD Turion Ultra ZM-87, 2.40-GHz processor with 2-MB L2 cache
572565-001	AMD Turion RM-77, 2.30-GHz processor with 1-MB L2 cache
572566-001	AMD Athlon QL-67, 2.20-GHz processor with 1-MB L2 cache
573304-001	16.0-inch WXGA BrightView LED display assembly for use in MTV2 artist edition computers
573305-001	Display enclosure for use only with MTV2 artist edition computers (includes wireless antenna transceivers and cables and logo LED board and cable)

4 Removal and replacement procedures

Preliminary replacement requirements

Tools required

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

- Phillips P0 and P1 screwdrivers
- Flat-bladed screwdriver

Service considerations

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

 **NOTE:** 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 can work perfectly throughout a normal cycle. Or the device may function normally for a while, then degrade in the internal layers, reducing its life expectancy.

△ **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

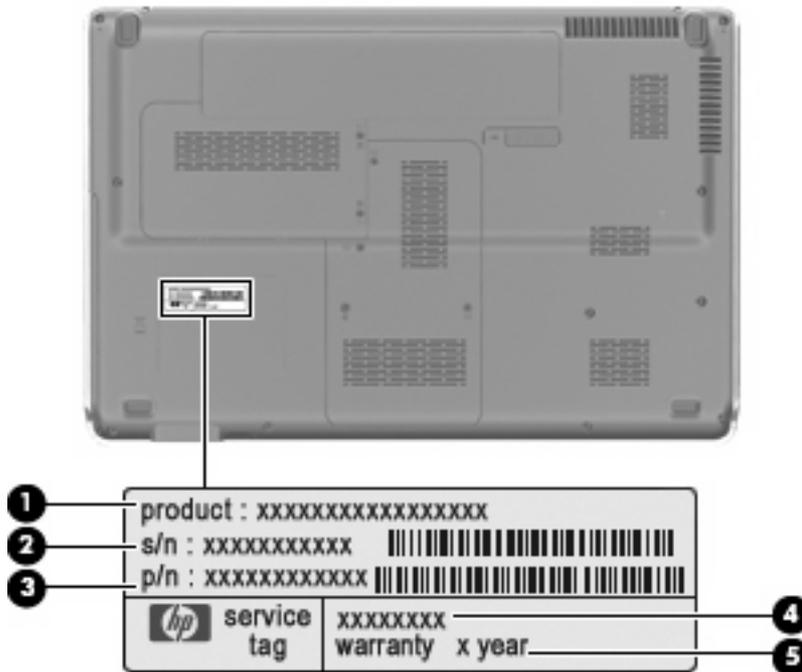
This chapter provides removal and replacement procedures.

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

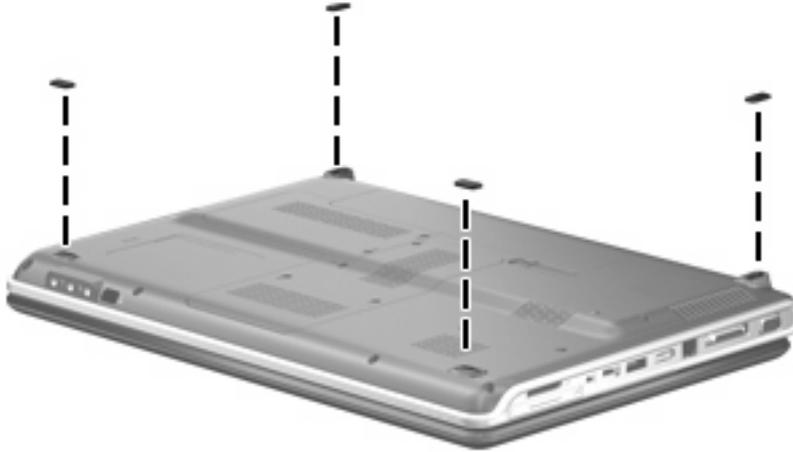
When ordering parts or requesting information, provide the computer serial number and model description provided on the service tag.

- (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	509460-001
6-cell, 55-Wh, 2.55-Ah Li-ion battery	509459-001
6-cell, 47-Wh, 2.20-Ah Li-ion battery	509458-001

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

 **NOTE:** This section applies only to computers equipped with BrightView display assemblies. See [Display assembly on page 68](#) for webcam/microphone module removal instructions for computers equipped with AntiGlare display assemblies.

NOTE: If it has been determined that the webcam/microphone module is the component that must be replaced to complete the computer repair, 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 68](#).

Description	Spare part number
Webcam/microphone module for use only with computers equipped with BrightView display assemblies (includes cable)	512827-001

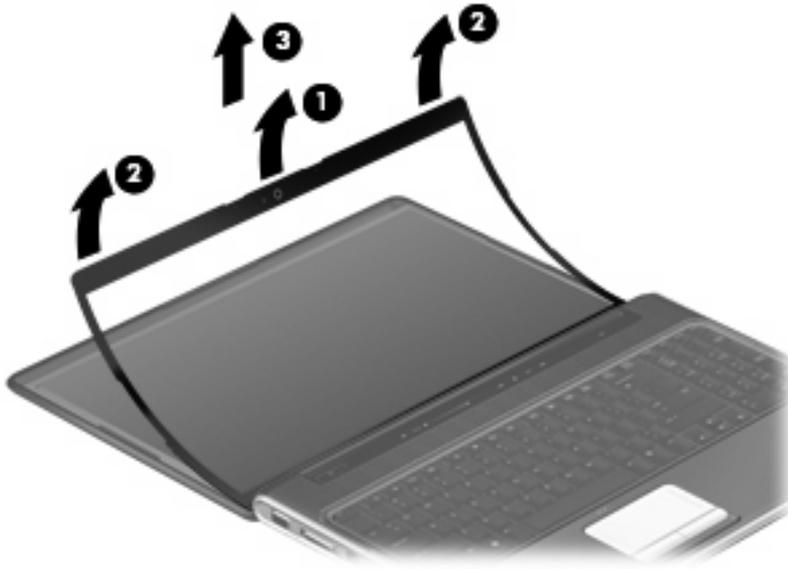
Before removing the webcam/microphone module, follow these steps:

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 48](#)).

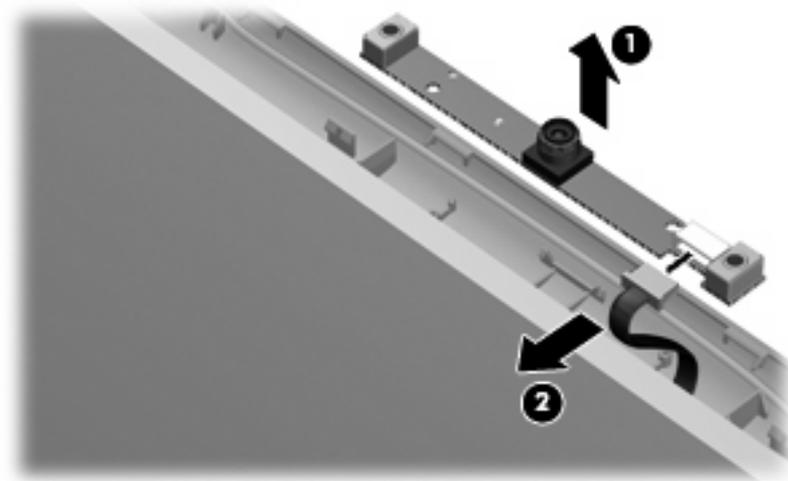
Remove the webcam/microphone module:

1. Turn the computer display-side up, with the front toward you.
2. Open the computer as far as possible.
3. Flex the inside edges of the top edge **(1)** and the left and right upper corners **(2)** of the display bezel until the bezel disengages from the display enclosure.

4. Release the display bezel top edge (3) from the display enclosure.



5. Release the webcam/microphone module (1) from the display enclosure as far as the webcam/microphone module cable allows.
6. Disconnect the webcam/microphone module cable (2) from the webcam/microphone module.



7. Remove the webcam/microphone module.

Reverse this procedure to install the webcam/microphone module.

Optical drive

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

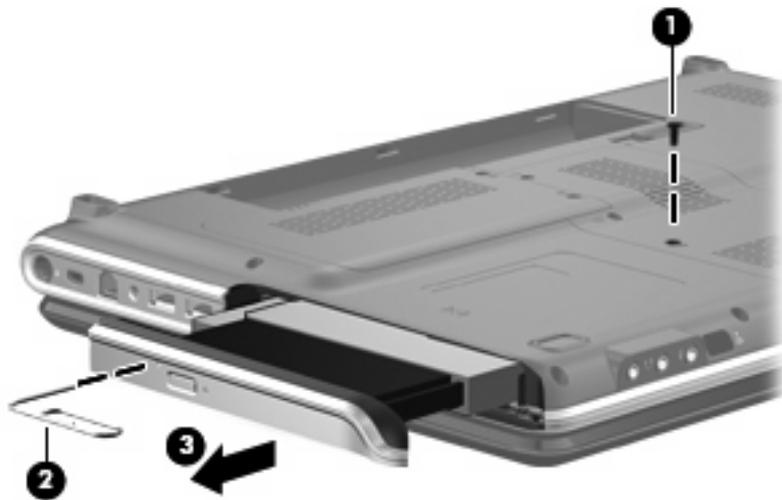
Description	Spare part number
Blu-ray ROM DVD±R/RW SuperMulti Double-Layer Drive	509420-002
Blu-ray ROM with LightScribe DVD±R/RW SuperMulti Double-Layer Drive	509421-002
DVD±RW and CD-RW SuperMulti Double-Layer Combo Drive	509419-002

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 48](#)).

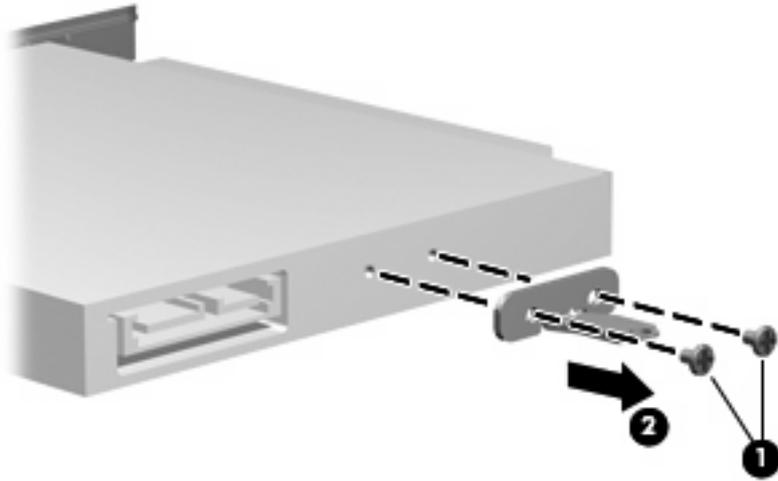
Remove the optical drive:

1. Position the computer with the front toward you.
2. Remove the Phillips PM2.5×6.5 screw (1) that secures the optical drive to the computer.
3. Insert a thin tool, such as a paper clip, into the disc tray release access hole (2). (The optical drive disc tray is partially ejected from the optical drive.)
4. Use the disc tray frame to slide the optical drive (3) out of the computer.



5. Remove the optical drive.
6. If it is necessary to replace the optical drive bracket, position the optical drive with the optical drive bracket toward you.

7. Remove the two Phillips PM2.0×3.0 screws (1) that secure the optical drive bracket to the optical drive.
8. Remove the optical drive bracket (2).



Reverse this procedure to reassemble and install the optical drive.

Memory module

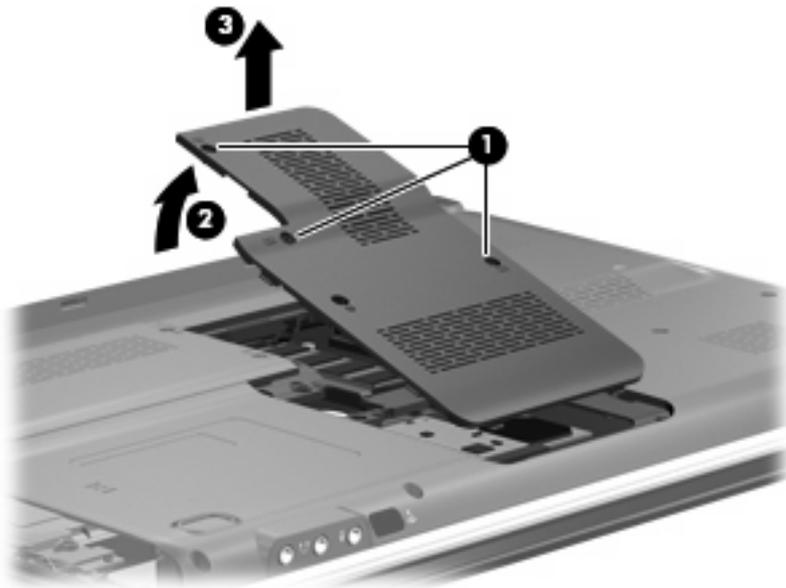
Description	Spare part number
4 GB memory module (DDR2, 800-MHz, PC2-6400, 1-DIMM)	509409-002
2 GB memory module (DDR2, 800-MHz, PC2-6400, 1-DIMM)	509410-002
1 GB memory module (DDR2, 800-MHz, PC2-6400, 1-DIMM)	509411-001

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 48](#)).

Remove the memory module:

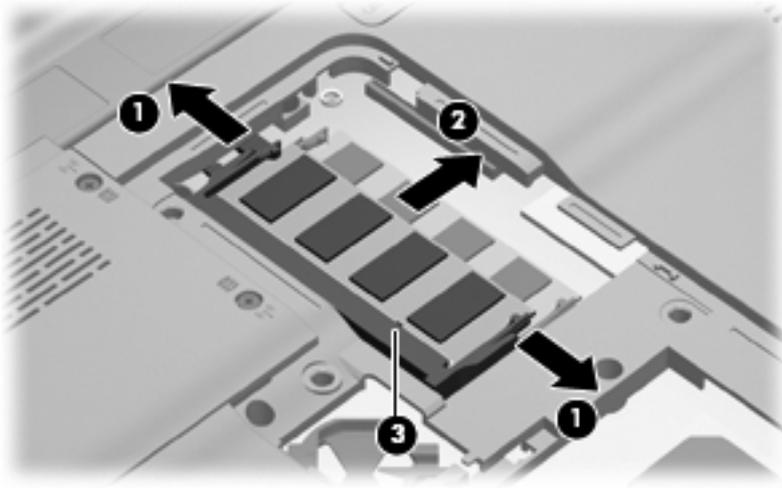
1. Position the computer with the front toward you.
2. Loosen the three Phillips PM2.5×5.5 captive screws **(1)** that secure the memory module compartment cover to the computer.
3. Lift the rear edge **(2)** of the cover, swing it up and to the front, and remove the cover **(3)**. The memory module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



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

5. Remove the module (2) by pulling it away from the slot at an angle.

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



Reverse this procedure to install a memory module.

TV tuner module

 **NOTE:** 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.

NOTE: The TV tuner external antenna cable with PAL back is available using spare part number 482900-002.

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

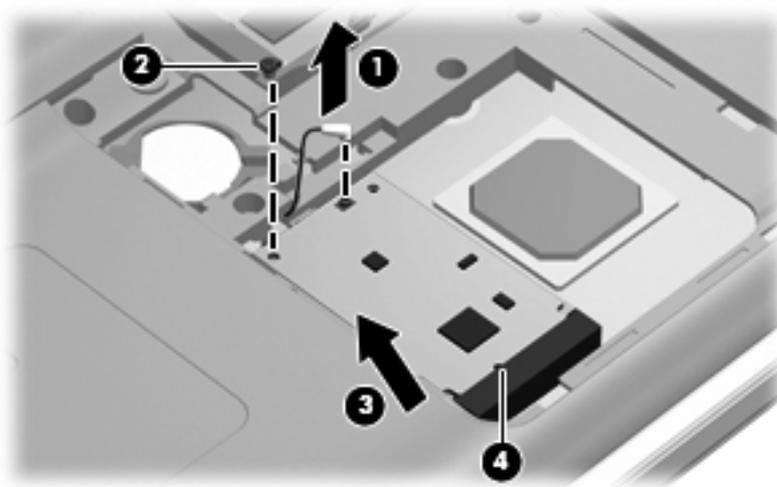
Before removing the TV tuner module, follow these steps:

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 48](#)).
5. Remove the memory module compartment cover (see [Memory module on page 53](#)).

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.

 **NOTE:** 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

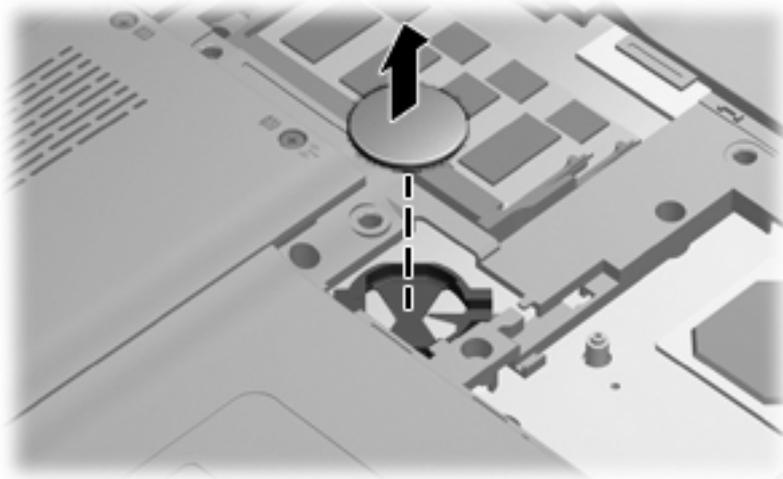
Description	Spare part number
RTC battery	449729-001

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 48](#)).
5. Remove the memory module compartment cover (see [Memory module on page 53](#)).

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 installed with the “+” sign facing up.

Hard drive

 **NOTE:** 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
160-GB, 5400-rpm	537950-001
250-GB, 7200-rpm (select models only)	509412-002
250-GB, 5400-rpm	509414-002
320-GB, 7200-rpm (select models only)	509413-002
320-GB, 5400-rpm	509415-002
500-GB, 5400-rpm	509417-002
Hard Drive Hardware Kit (includes left and right bracket rails, connector cable, Mylar cover with tab, and 4 rubber isolators)	483862-001

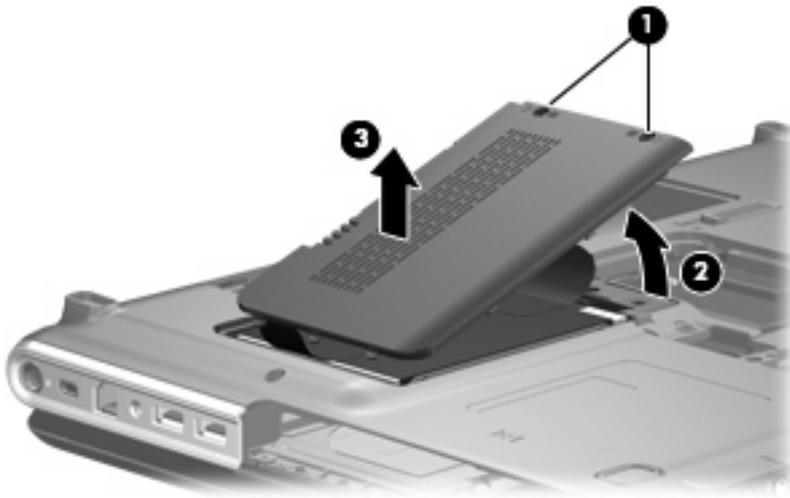
Before removing the hard drive, follow these steps:

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 48](#)).

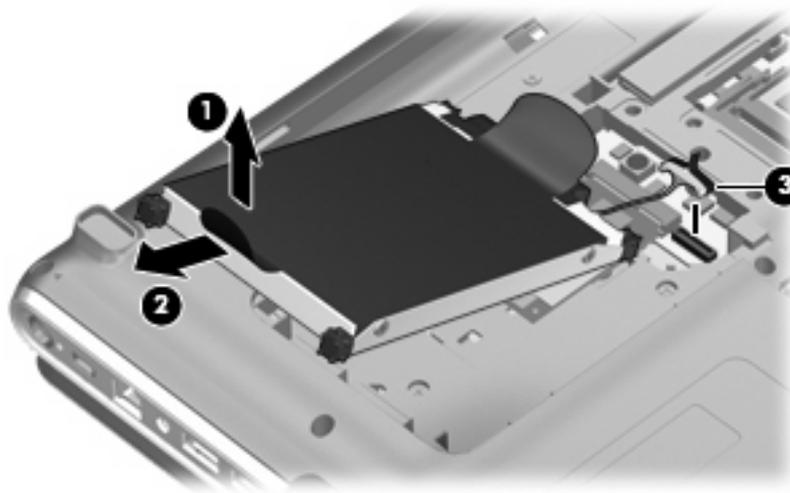
Remove the hard drive:

1. Position the computer with the front toward you.
2. Loosen the two Phillips PM2.5×5.5 captive screws **(1)** that secure the hard drive cover to the computer.

3. Lift the right side (2) of the hard drive cover, swing it up and to the left, and remove the cover (3). The hard drive cover is included in the Plastics Kit, spare part number 511890-001.



4. Use the Mylar tab (1) to lift the hard drive up, and then slide it to the left (2) to release it from the hard drive bay.
5. Disconnect the hard drive adapter cable (3) from the system board.



6. Remove the hard drive from the hard drive bay.

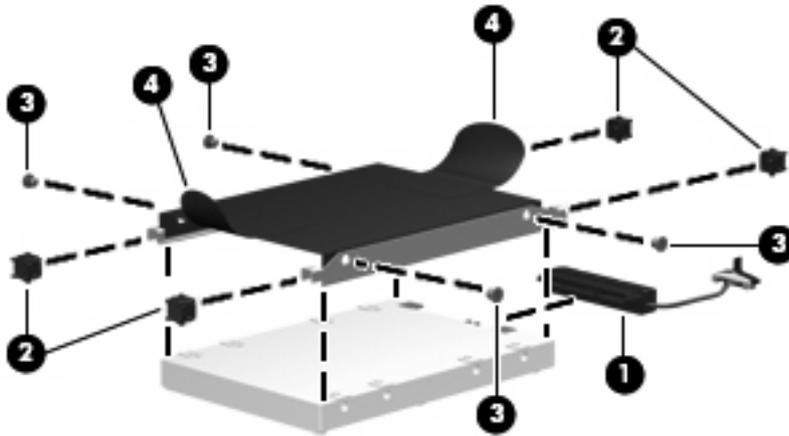
7. If it is necessary to replace the hard drive bracket or any of the hard drive bracket components, remove the following:

(1) Hard drive adapter cable

(2) Four rubber isolators

(3) Four Phillips PM3.0×3.5 screws that secure the hard drive bracket rails and Mylar cover to the hard drive

(4) 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 WiFi Adapter for use in Canada, the Cayman Islands, Guam, Puerto Rico, the United States, and the U.S. Virgin Islands	518436-001
Atheros 9285G 802.11b/g WiFi Adapter 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 WiFi Adapter for use in Canada, the Cayman Islands, Guam, Puerto Rico, the United States, and the U.S. Virgin Islands	518437-001
Atheros 9280AGN 802.11a/b/g/n WiFi Adapter 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 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	504593-001

Description	Spare part number
Broadcom BCM4312 802.11b/g WLAN module 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	504593-002
Broadcom BCM4312 802.11b/g WLAN module 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	504664-001
Broadcom BCM4312 802.11b/g WLAN module 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	504664-002

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 48](#)).
5. Remove the hard drive (see [Hard drive on page 57](#)).

Remove the WLAN module:

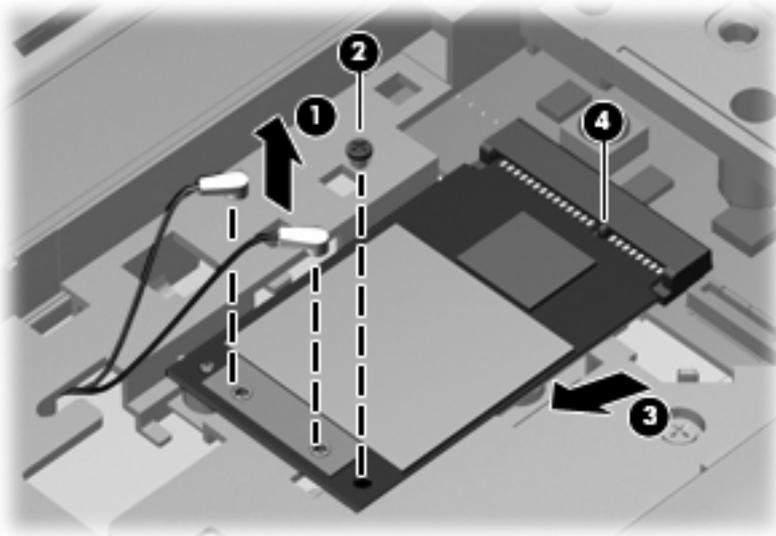
△ **CAUTION:** To prevent an unresponsive system, replace the wireless module only with a wireless module authorized for use in the computer by the governmental agency that regulates wireless devices in your country or region. If you replace the module and then receive a warning message, remove the module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

1. Disconnect the WLAN antenna cables (1) from the WLAN module.

📝 **NOTE:** 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 (2) that secures the WLAN module to the computer.
3. Remove the WLAN module (3) by pulling it away from the slot at an angle.

📝 **NOTE:** WLAN modules are designed with a notch (4) to prevent incorrect insertion into the WLAN module slot.



Reverse this procedure to install a WLAN module.

Switch cover and keyboard

 **NOTE:** Only select models are equipped with media buttons on the switch cover.

Description	Spare part number
Switch cover for use in white computers (includes LED board and cable)	518110-001
Switch cover for use in black computers (includes LED board and cable)	518790-001
Switch cover for use in MTV2 artist edition computers	570205-001

Keyboards	Spare part number
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

NOTE: For a detailed list of available keyboards, see [Sequential part number listing on page 31](#).

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 48](#)).

Remove the switch cover and keyboard:

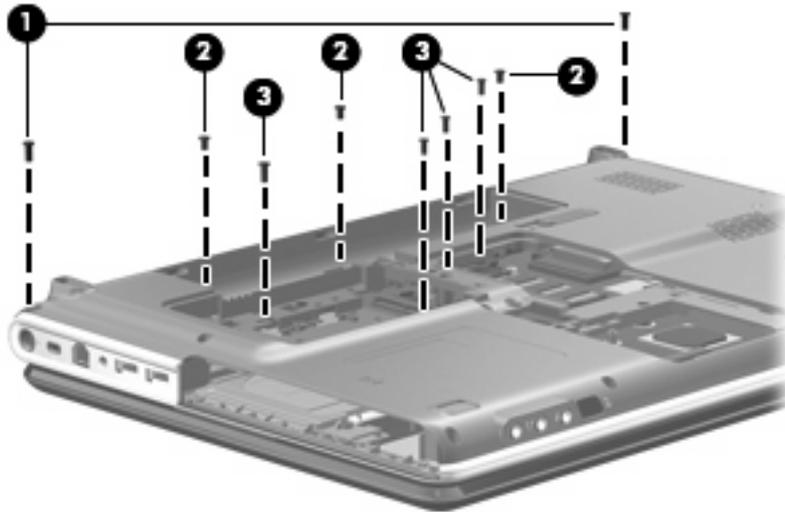
1. Position the computer upside down with the front toward you.

2. Remove the following screws:

(1) Two Phillips PM2.5×6.5 screws that secure the switch cover to the computer

(2) Three Phillips PM2.5×5.0 screws that secure the switch cover to the computer (inside the battery bay)

(3) Four Phillips PM2.5×6.5 screws that secure the keyboard to the computer



3. Turn the computer display-side up, with the front toward you.

4. Open the computer as far as possible.

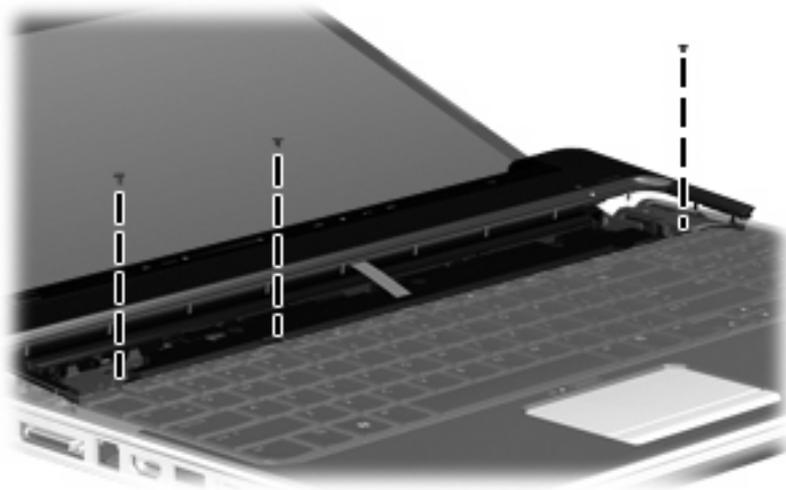
5. Lift the rear edge of the switch cover until it detaches from the computer.



6. Move the switch cover back so it rests on the display.



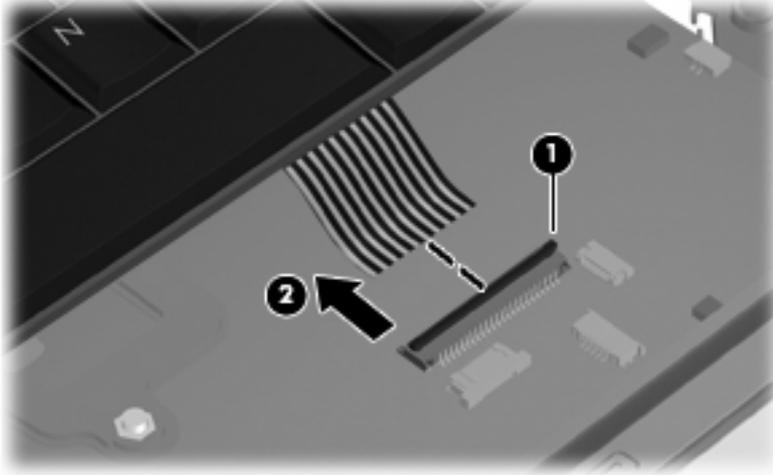
7. Remove the three Phillips PM2.0×3.0 screws that secure the keyboard to the computer.



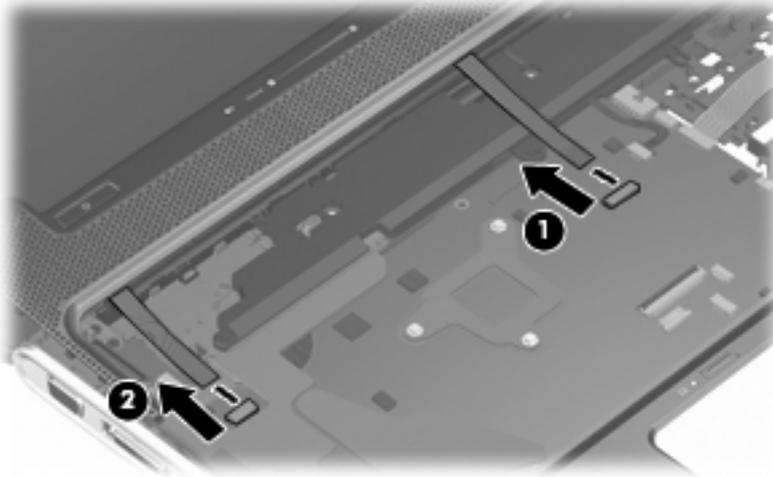
8. Lift the rear edge (1) of the keyboard.
9. Slide the keyboard (2) back until the keyboard connector on the system board is accessible.



10. Release the zero insertion force (ZIF) connector (1) to which the keyboard cable is connected and disconnect the cable (2) from the system board.



11. Remove the keyboard.
12. Disconnect the power button board cable (1) from the low insertion force (LIF) connector on the system board.
13. Disconnect the LED board cable (2) from the LIF connector on the system board.



14. Remove the switch cover.

Reverse this procedure to install the switch cover and keyboard.

Power button board

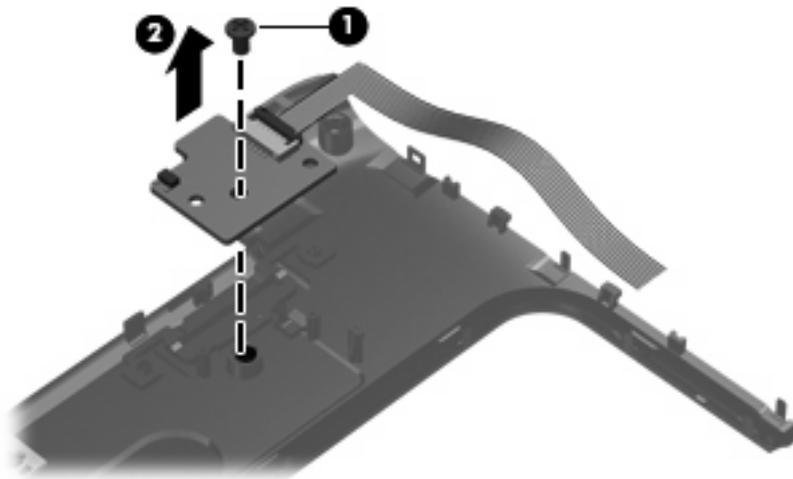
Description	Spare part number
Power button board (includes cable)	512834-001

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 48](#)).
5. Remove the switch cover and keyboard (see [Switch cover and keyboard on page 63](#)).

Remove the power button board:

1. Turn the switch cover upside down with the front toward you.
2. Remove the Phillips PM2.5×4.0 screw (1) that secures the power button board to the switch cover.
3. Remove the power button board (2) and cable.



Reverse this procedure to install the power button board.

Display assembly

 **NOTE:** The display assembly includes a webcam, 2 microphones, and 2 wireless antenna transceivers and cables.

Description	Spare part number
16.0-inch WXGA BrightView display assemblies:	
Non-LED for use in white computers	512358-001
Non-LED for use in black computers	512357-001
LED for use in white computers	538349-001
LED for use in black computers	538351-001
LED for use in MTV2 artist edition computers	573304-001
16.0-inch WXGA AntiGlare display assemblies:	
Non-LED for use in white computers	538355-001
Non-LED for use in black computers	518771-001
LED assembly for use in white computers	518772-001
LED assembly for use in black computers	538313-001
LED assembly for use in MTV2 artist edition computers	538315-001
15.6-inch WXGA BrightView display assemblies:	
Non-LED for use in white computers	518775-001
Non_LED for use in black computers	517862-001
LED for use in white computers	538348-001
LED for use in black computers	538350-001
15.6-inch WXGA AntiGlare display assemblies:	
Non LED for use in white computers	518776-001
Non-LED for use in black computers	518777-001
LED for use in white computers	538312-001
LED for use in black computers	538314-001
LED for use in MTV2 artist edition computers	538354-001

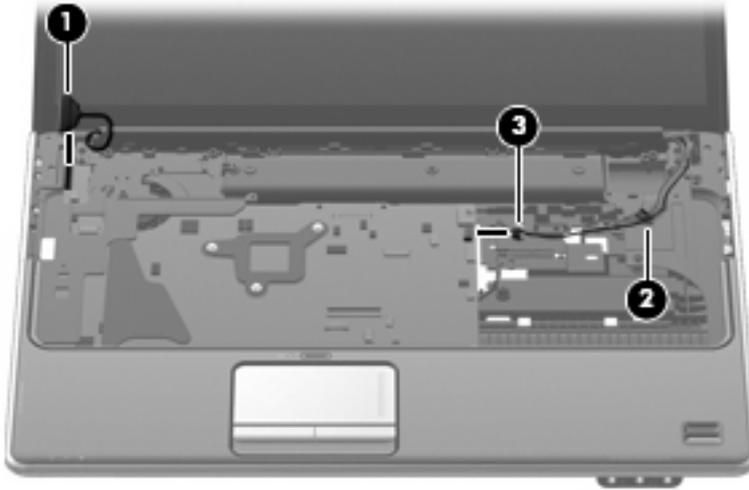
Before removing the display assembly, follow these steps:

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 48](#)).

5. Disconnect the wireless antenna cables from the WLAN module (see [WLAN module on page 60](#)).
6. Remove the switch cover and keyboard (see [Switch cover and keyboard on page 63](#)).

Remove the display assembly:

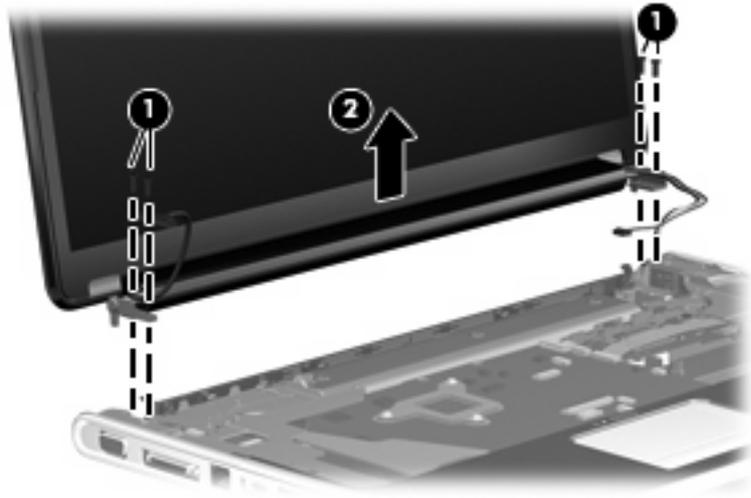
1. Disconnect the display panel cable (1) and the webcam/microphone cable (2) from the system board.
2. Remove the WLAN antenna cables from the clip (3) built into the top cover.



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

3. Remove the four Phillips PM2.5×6.5 screws (1) that secure the display assembly to the computer.

4. Remove the display assembly (2).



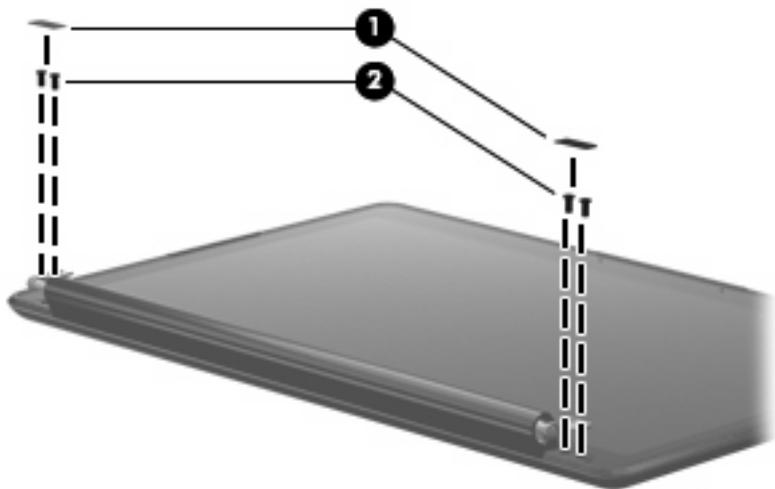
NOTE: Steps 5 through 27 provide display assembly internal component removal information for computers equipped with AntiGlare display assemblies. See steps 28 through 38 for display assembly internal component removal information for computers equipped with BrightView display assemblies.

NOTE: See [Webcam/microphone module on page 49](#) for webcam/microphone module replacement instructions for computers equipped with BrightView display assemblies.

5. If it is necessary to replace the display enclosure or any of the display assembly internal components, remove the following screw covers and screws:

(1) Two plastic screw covers on the display bezel bottom edge. The display plastic screw covers are included in the Display Rubber Kit, spare part number 513479-001.

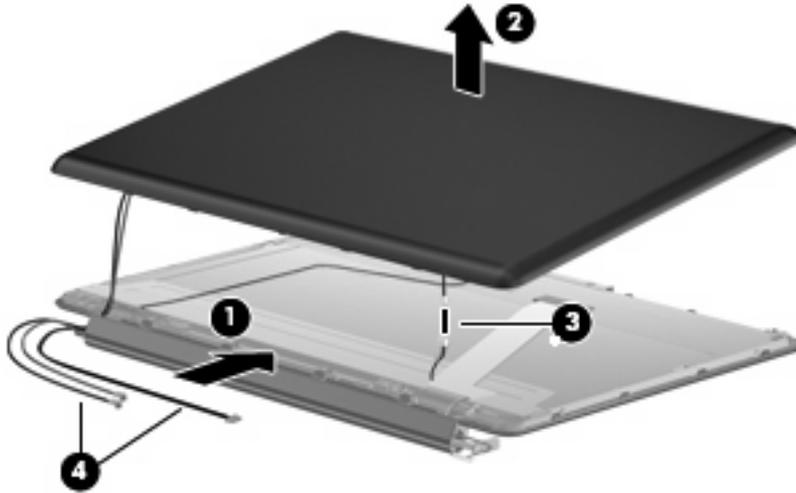
(2) Four Phillips PM2.5×7.0 screws.



6. Turn the display assembly upside down, with the bottom edge toward you.
7. Disconnect the display assembly from the display enclosure by prying them apart from one another along the bottom edge (1).
8. Lift the display enclosure (2) as far as the display logo cable allows.

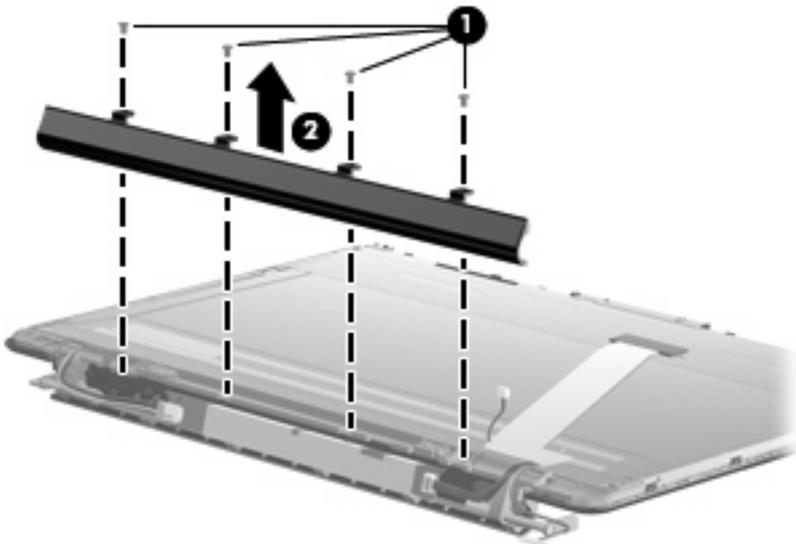
9. Disconnect the display logo cable (3) from the display panel cable.
10. Remove the WLAN antenna cables and the webcam cable (4) from the left hinge.

 **NOTE:** You may have to flex the display hinge cover to remove the WLAN cables.



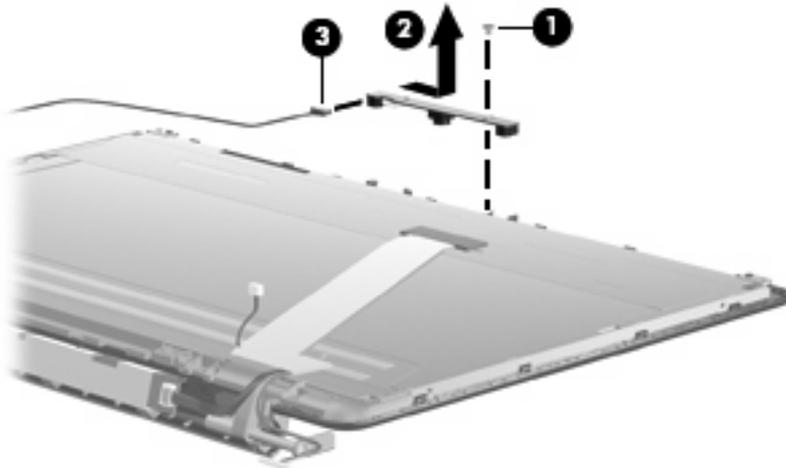
11. If it is necessary to replace the display inverter, remove the four Phillips PM2.5×5.0 screws (1) that secure the display inverter cover to the display bezel. The display inverter cover is available using spare part number 533464-001.
12. Remove the display inverter cover (2) by lifting it straight up.

 **NOTE:** You must remove the display inverter cover to free the antenna cables.

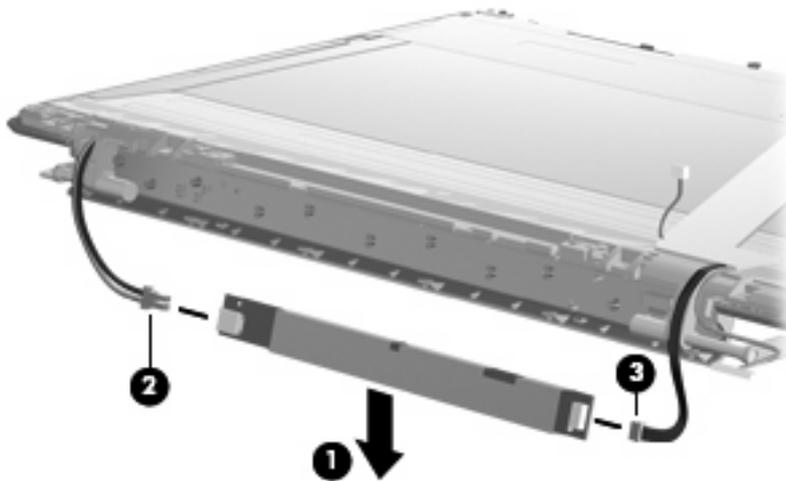


13. Remove the display enclosure. The display enclosure is available using spare part number 517861-001 for white computers, and 518774-001 for black computers, and includes the display logo LED board and the wireless antenna transceivers and cables.
14. If it is necessary to replace the webcam/microphone module, remove the PM2.0x3.0 screw (1) that secures the webcam/microphone module to the display.

15. Slide the webcam/microphone module to the right, and then lift it from the display (2).
16. Disconnect the webcam/microphone module cable (3) from the webcam/microphone module.

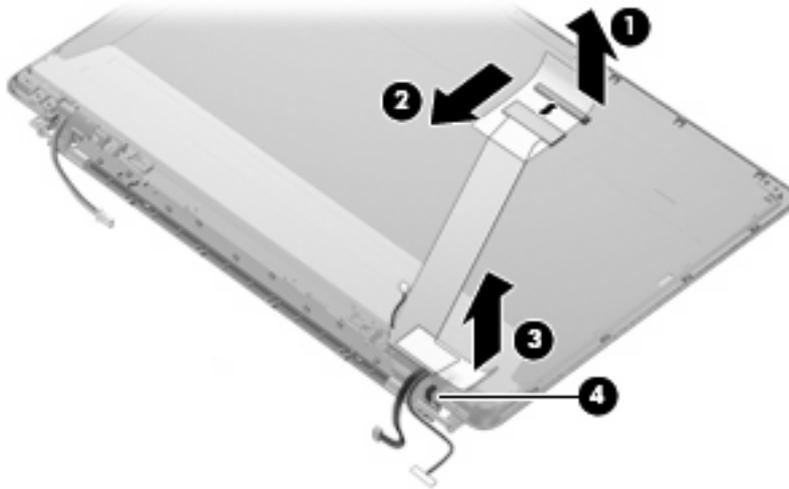


17. Remove the webcam/microphone module. The webcam/microphone module is available using spare part number 512827-001.
18. Disconnect the display inverter from the double-sided tape securing it to the display, and then release the display inverter (1) as far from the display bezel as the display panel cable and backlight cable allow.
19. Disconnect the backlight cable (2) and display panel cable (3) from the display inverter.

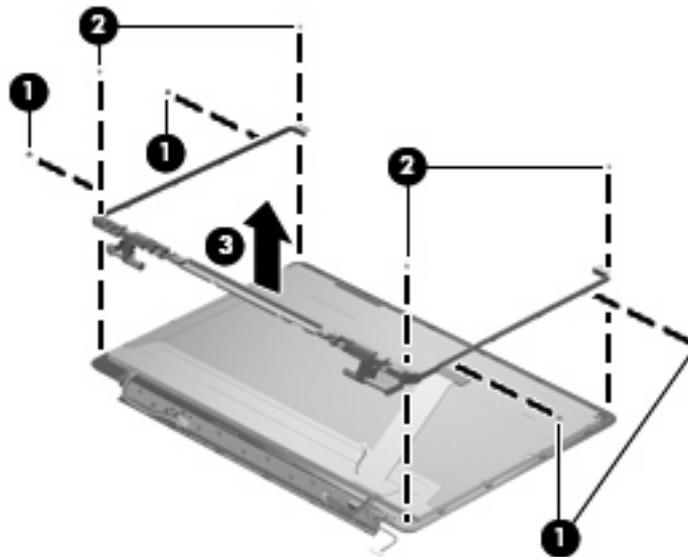


20. Remove the display inverter. The display inverter is available using spare part number 488317-001.
21. If it is necessary to remove the display panel cable, remove the adhesive reinforcement strip (1) from the connector, and then disconnect the cable from the connector (2).
22. Remove the tape that secures the display panel cable to the bottom of the display (3).

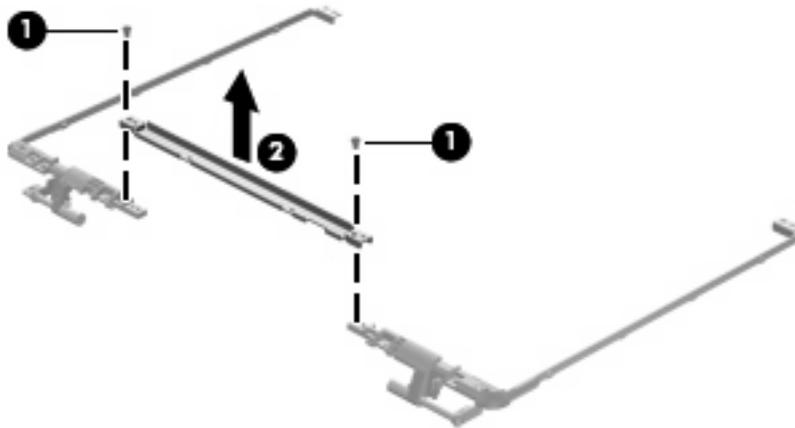
23. Remove the cable from the clip on the right display hinge (4).



24. If it is necessary to replace the display hinges, remove the four Phillips PM2.5×5.0 screws (1) that horizontally secure the display hinge bracket to the display panel.
25. Remove the four Phillips PM2.5×5.0 screws (2) that vertically secure the display hinge bracket to the display panel.
26. Remove the display hinge bracket (3). The Display Hinge Kit is available using spare part number 513477-001 for computers with 15.6-inch displays and 519209-001 for computers with 16-inch displays.



27. If you need to remove the horizontal bracket from the vertical hinge brackets, remove the two Phillips PM2.0×5.0 screws (1) that connect the brackets together, and then disconnect the brackets (2).



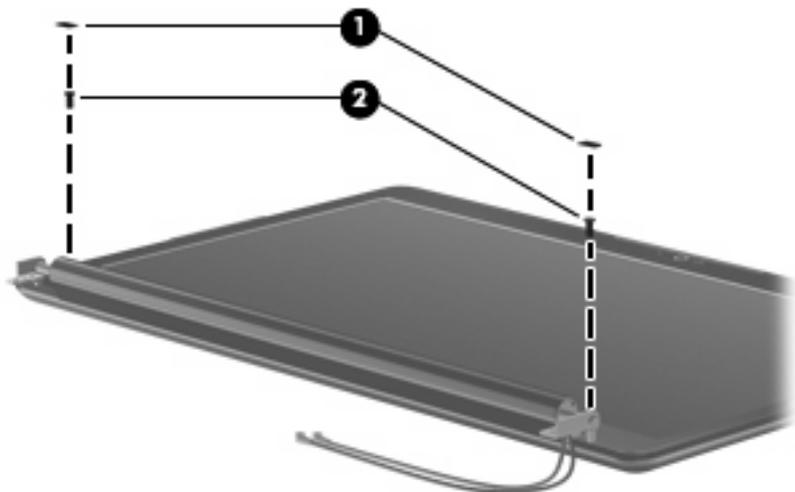
 **NOTE:** Steps 28 through 38 provide display assembly internal component removal information for computers equipped with BrightView display assemblies. See steps 5 through 27 for display assembly internal component removal information for computers equipped with AntiGlare display assemblies.

NOTE: See [Webcam/microphone module on page 49](#) for webcam/microphone module replacement instructions for computers equipped with BrightView display assemblies.

28. If it is necessary to replace the display bezel or any of the display assembly internal components, remove the following screw covers and screws:

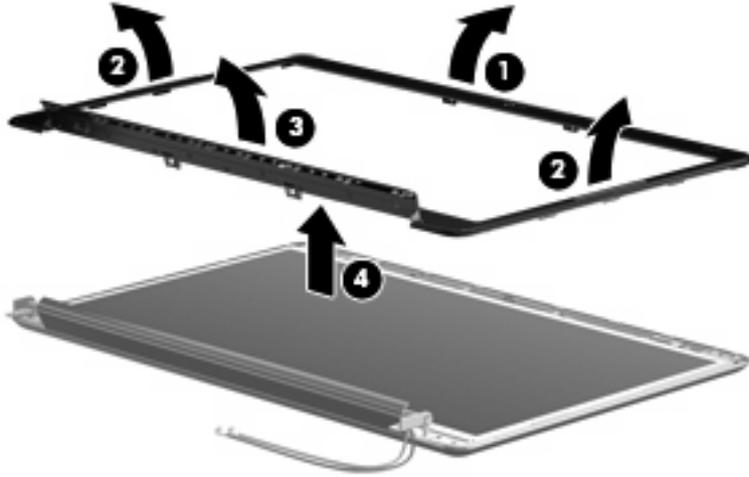
(1) Two Mylar screw covers on the display bezel bottom edge. The display rubber screw covers are included in the Display Rubber Kit, spare part number 512361-001.

(2) Two Phillips PM2.5×6.5 screws.

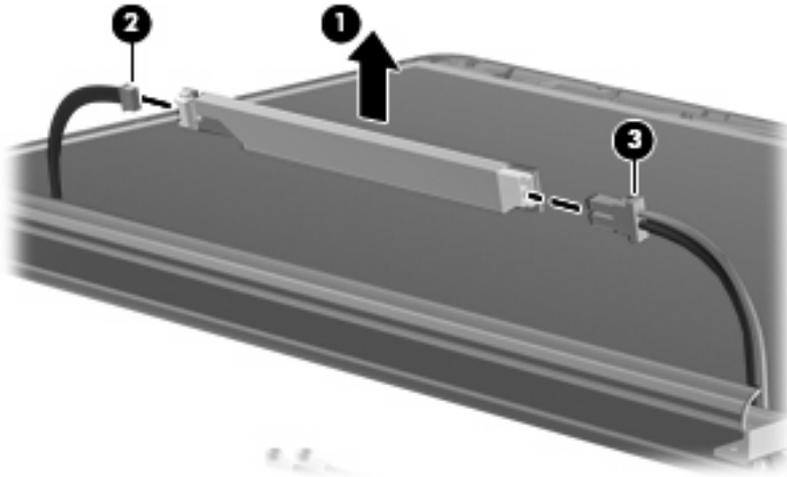


29. Flex the inside edges of the top edge (1), the left and right sides (2), and the bottom edge of the display bezel (3) until the bezel disengages from the display enclosure.

- 30.** Remove the display bezel (4). The display bezel is available using spare part number 512359-001 (16-inch display) or 512364-001 (15.6-inch display).

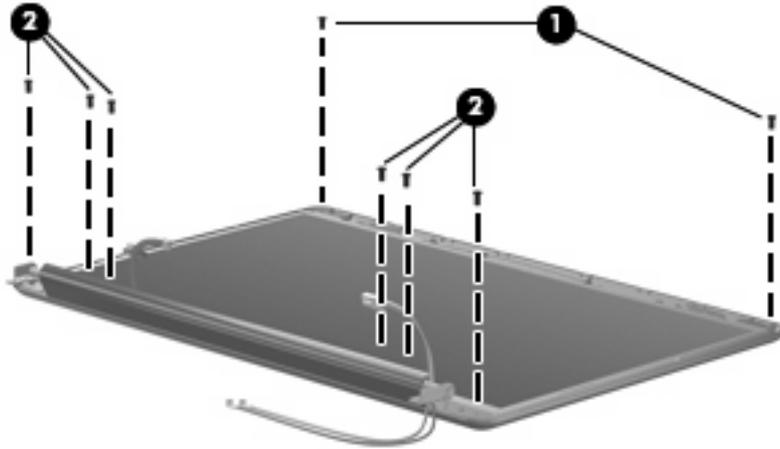


- 31.** If it is necessary to replace the display inverter, disconnect the display inverter from the double-sided tape securing it to the display, and then release the display inverter (1) as far from the display enclosure as the display panel cable and backlight cable allow.
- 32.** Disconnect the display panel cable (2) and the backlight cable (3) from the display inverter.

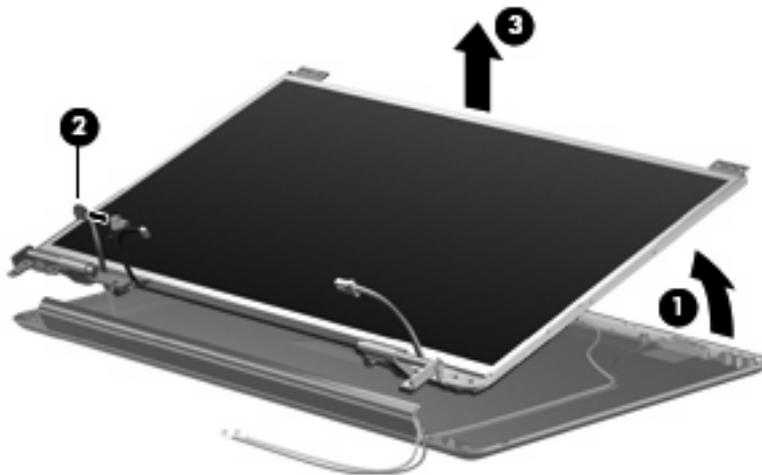


- 33.** Remove the display inverter. The display inverter is available using spare part number 488317-001.

34. 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.

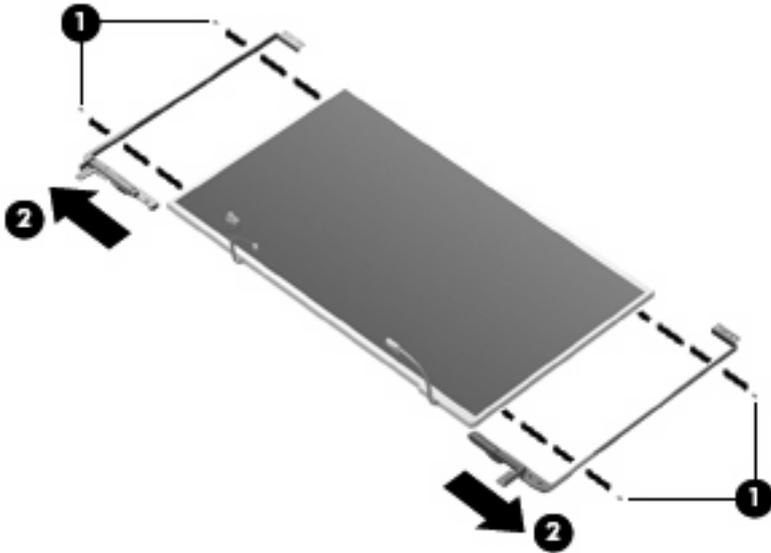


35. Flex the bottom of the display panel (1) back and release the display hinges. Disconnect the display LED cable (2) from the display panel cable. Remove the display panel (3). Display panels are available using spare part numbers 511868-001 (16-inch non-LED display), 570094-001 (16-inch LED display), 512363-001 (15.6-inch non-LED display), and 570095-001 (15.6-inch LED display).

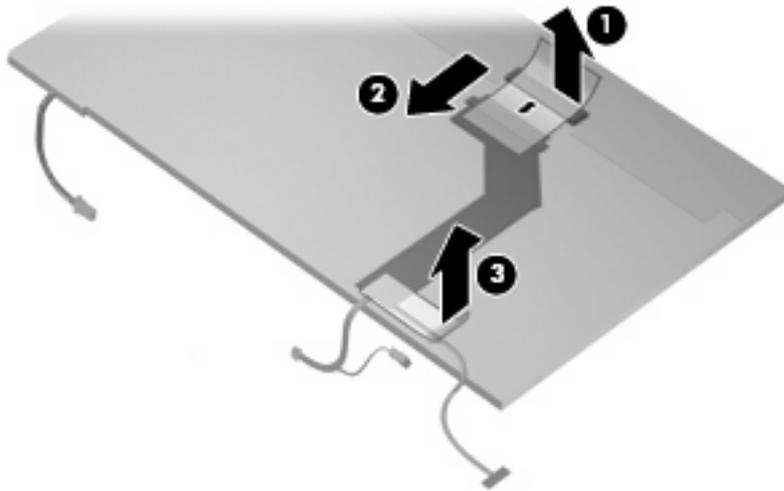


36. If it is necessary to replace the display hinges, remove the two Phillips PM2.0×3.0 screws (1) that secure each display hinge to the display panel.

37. Remove the display hinges (2). The display hinges are available in the Display Hinge Bracket Kit, spare part 512360-001 (16-inch display) or 512365-001 (15.6-inch display). The display hinge screws are available in the Display Screw Kit, spare part number 512362-001.



38. 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 512825-001.



Reverse this procedure to reassemble and install the display assembly.

Speaker

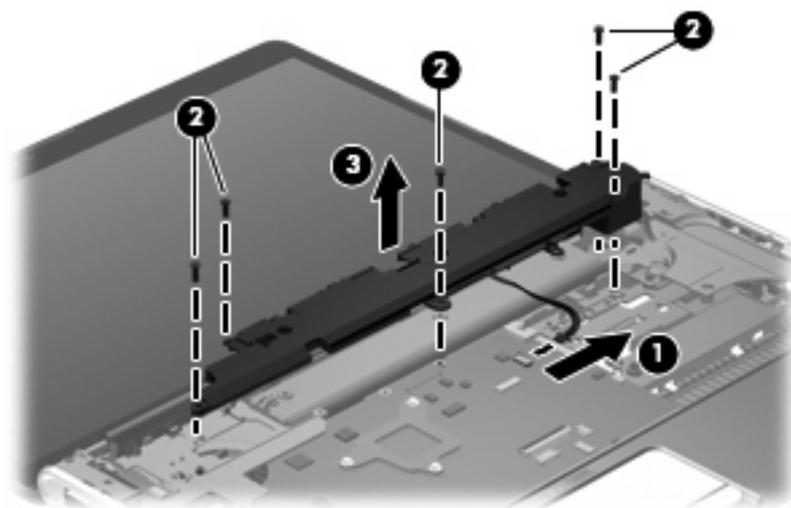
Description	Spare part number
Speaker	533865-001

Before removing the speaker, 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 48](#)).
5. Remove the following components:
 - a. Hard drive (see [Hard drive on page 57](#))
 - b. Optical drive (see [Optical drive on page 51](#))
 - c. Switch cover and keyboard (see [Switch cover and keyboard on page 63](#))
 - d. Display assembly (see [Display assembly on page 68](#))

Remove the speaker:

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



Reverse this procedure to install the speaker.

Bluetooth module

 **NOTE:** The Bluetooth module spare part kit does not include a Bluetooth module cable. The Bluetooth module cable is available using spare part number 489822-001.

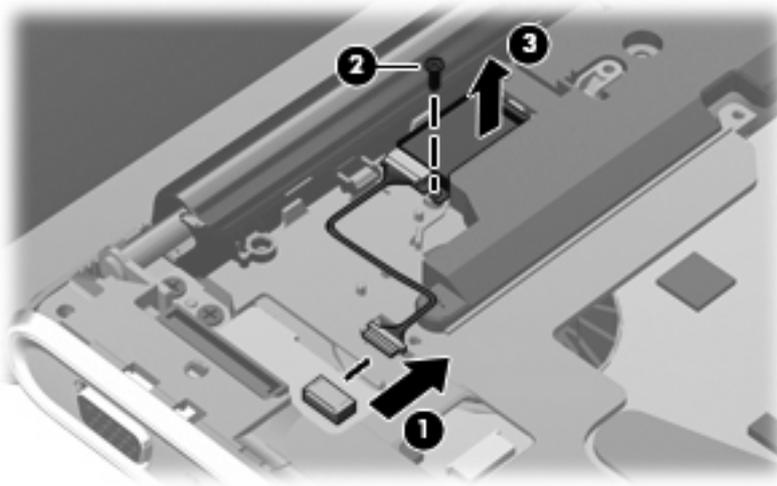
Description	Spare part number
Bluetooth module	483113-001

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 48](#)).
5. Remove the switch cover and keyboard (see [Switch cover and keyboard on page 63](#)).

Remove the Bluetooth module:

1. Disconnect the Bluetooth module cable (1) from the system board.
2. Remove the Phillips PM2.0×3.0 screw (2) that secures the Bluetooth module to the top cover.
3. Remove the Bluetooth module from the top cover (3).



4. Remove the Bluetooth module.

Reverse this procedure to install the Bluetooth module.

Top cover

Description	Spare part number
For use only with white computers equipped with a fingerprint reader	518109-001
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	518789-001
For use only with black computers not equipped with a fingerprint reader	518788-001
For use only with MTV2 artist edition computers	570206-001

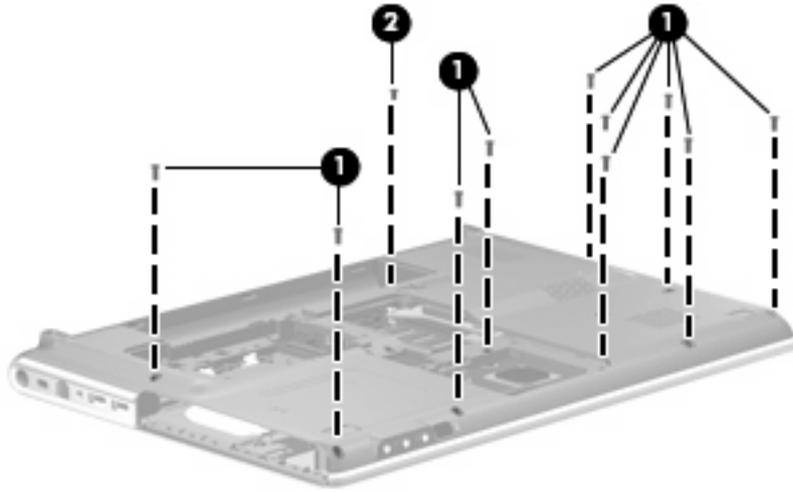
Before removing the top cover, follow these steps:

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 48](#)).
5. Remove the following components:
 - a. Hard drive (see [Hard drive on page 57](#))
 - b. Optical drive (see [Optical drive on page 51](#))
 - c. Switch cover and keyboard (see [Switch cover and keyboard on page 63](#))
 - d. Display assembly (see [Display assembly on page 68](#))

Remove the top cover:

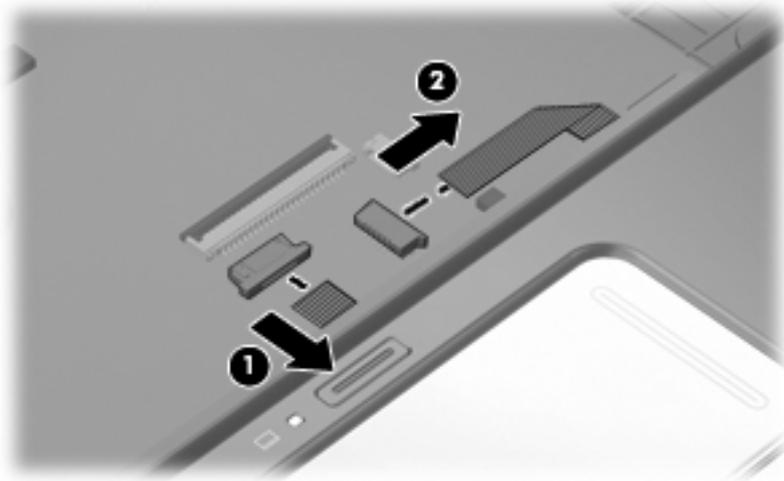
1. Turn the computer upside down, with the front toward you.
2. Remove the 10 Phillips PM2.5×7.0 screws **(1)** that secure the top cover to the computer.

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.

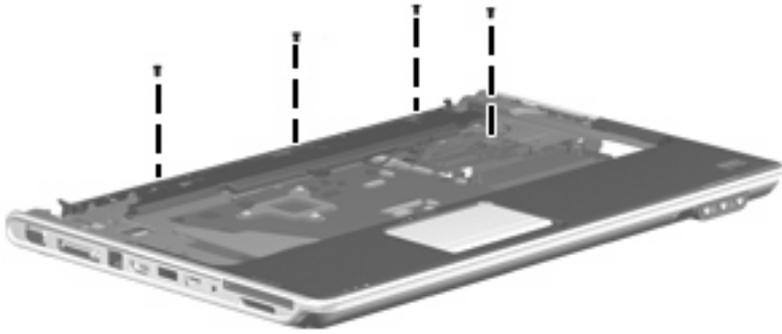


4. Turn the computer right-side up, with the front toward you.
5. Disconnect the following cables from the system board:
 - (1) TouchPad cable
 - (2) Fingerprint reader board cable

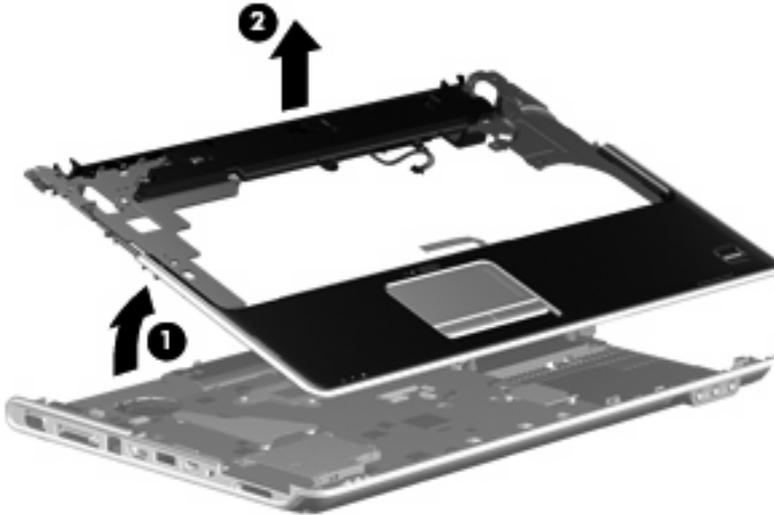
 **NOTE:** This cable connects to a LIF connector on the system board.



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



7. Lift the rear edge (1) of the top cover until it rests at an angle.
8. Remove the top cover (2) by lifting it straight up.



Reverse this procedure to install the top cover.

Modem module

 **NOTE:** 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 29](#) 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

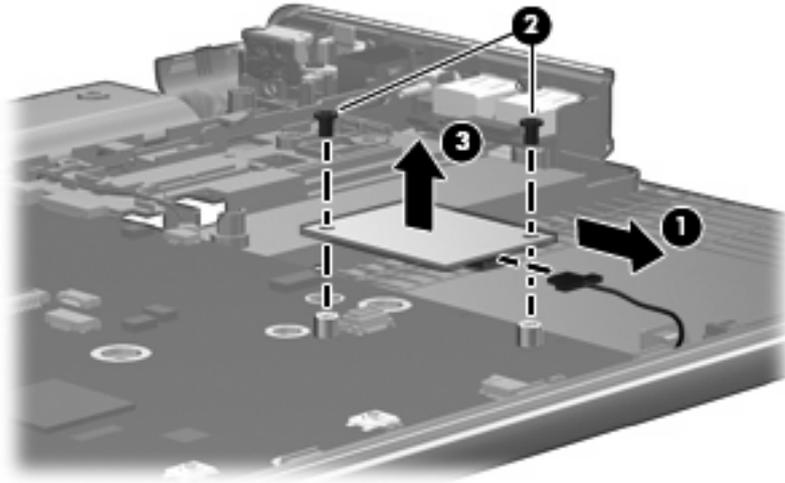
Before removing the modem module, follow these steps:

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 48](#)).
5. Remove the following components:
 - a. Hard drive (see [Hard drive on page 57](#)).
 - b. Optical drive (see [Optical drive on page 51](#)).
 - c. Switch cover and keyboard (see [Switch cover and keyboard on page 63](#)).
 - d. Display assembly (see [Display assembly on page 68](#)).
 - e. Top cover (see [Top cover on page 80](#)).

Remove the modem module:

1. Disconnect the modem module cable **(1)** from the modem module.
2. Remove the two Phillips PM2.5×3.0 screws **(2)** that secure the modem module to the system board.

3. Lift the modem module (3) straight up to disconnect it from the system board.



Reverse this procedure to install the modem module.

Audio/infrared board

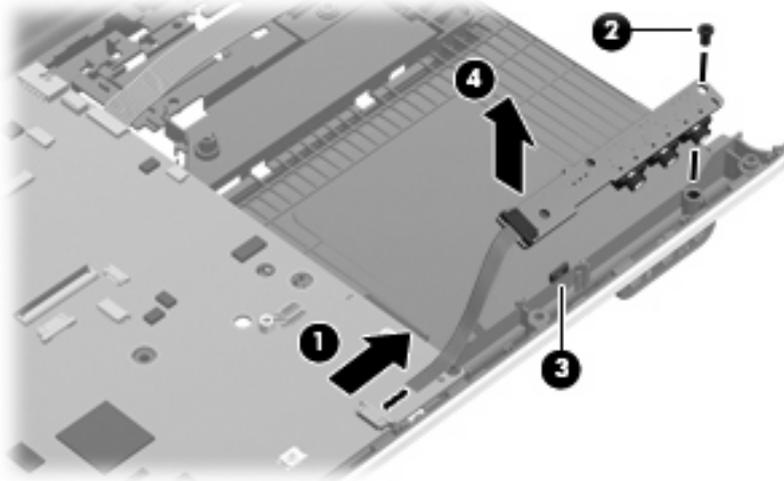
Description	Spare part number
Audio/infrared board for use with computers equipped with discrete graphics memory (includes cable)	512836-001
Audio/infrared board for use with computers equipped with UMA graphics memory (includes cable)	511892-001

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 48](#)).
5. Remove the following components:
 - a. Hard drive (see [Hard drive on page 57](#)).
 - b. Optical drive (see [Optical drive on page 51](#)).
 - c. Switch cover and keyboard (see [Switch cover and keyboard on page 63](#)).
 - d. Display assembly (see [Display assembly on page 68](#)).
 - e. Top cover (see [Top cover on page 80](#)).

Remove the audio/infrared board:

1. Disconnect the audio/infrared board cable (1) from the LIF connector on the system board.
2. Remove the Phillips PM2.5x7.0 screw (2) that secures the audio/infrared board to the base enclosure.
3. Release the clip (3) built into the base enclosure that secures the audio/infrared board.
4. Lift the audio/infrared board (4) 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

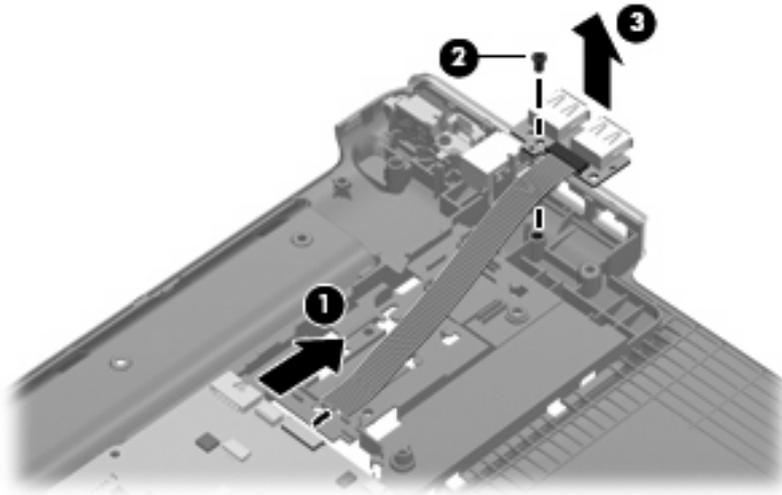
Before removing the USB board, follow these steps:

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 48](#)).
5. Remove the following components:
 - a. Hard drive (see [Hard drive on page 57](#)).
 - b. Optical drive (see [Optical drive on page 51](#)).
 - c. Switch cover and keyboard (see [Switch cover and keyboard on page 63](#)).

- d. Display assembly (see [Display assembly on page 68](#)).
- e. Top cover (see [Top cover on page 80](#)).

Remove the USB board:

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



Reverse this procedure to install the USB board.

Power connector cable

Description	Spare part number
Power connector cable	533465-001

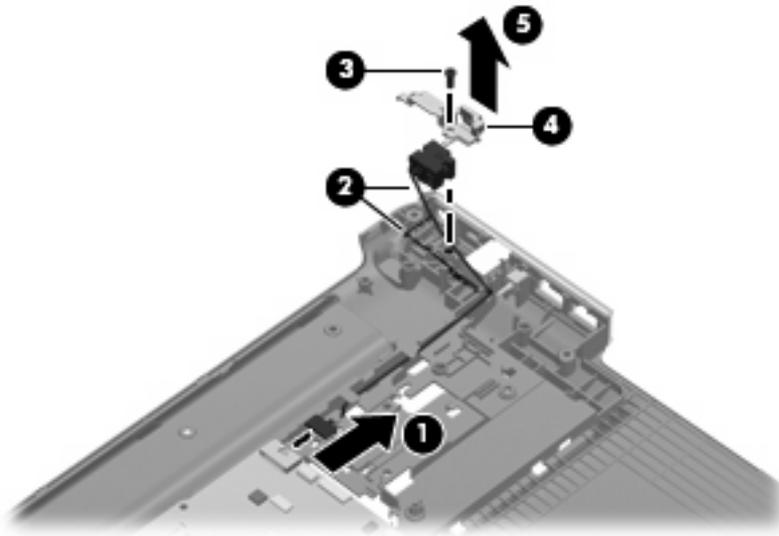
Before removing the power connector cable, follow these steps:

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 48](#)).
5. Remove the following components:
 - a. Hard drive (see [Hard drive on page 57](#)).
 - b. Optical drive (see [Optical drive on page 51](#)).
 - c. Switch cover and keyboard (see [Switch cover and keyboard on page 63](#)).

- d. Display assembly (see [Display assembly on page 68](#)).
- e. Top cover (see [Top cover on page 80](#)).
- f. USB board (see [USB board on page 85](#)).
- g. System board (see [System board on page 88](#)).

Remove the power connector cable:

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



Reverse this procedure to install the power connector cable.

System board

 **NOTE:** 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	509450-001
For use with computers equipped with discrete graphics subsystem memory and 512 MB of dedicated memory	509451-001
For use with computers equipped with UMA graphics subsystem memory	509449-001
For use with computers equipped with SidePort memory	570379-001

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 48](#)).
5. Remove the following components:
 - a. Hard drive (see [Hard drive on page 57](#))
 - b. Optical drive (see [Optical drive on page 51](#))
 - c. Switch cover (see [Switch cover and keyboard on page 63](#))
 - d. Display assembly (see [Display assembly on page 68](#))
 - e. Top cover (see [Top cover on page 80](#))

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

- TV tuner module (see [TV tuner module on page 55](#))
- RTC battery (see [RTC battery on page 56](#))
- Memory module (see [Memory module on page 53](#))
- Bluetooth module (see [Bluetooth module on page 79](#))
- WLAN module (see [WLAN module on page 60](#))
- Modem module (see [Modem module on page 83](#))
- Processor (see [Processor on page 96](#))

Remove the system board:

1. Disconnect the modem module cable **(1)** from the modem module.

2. Disconnect the following cables from the system board:

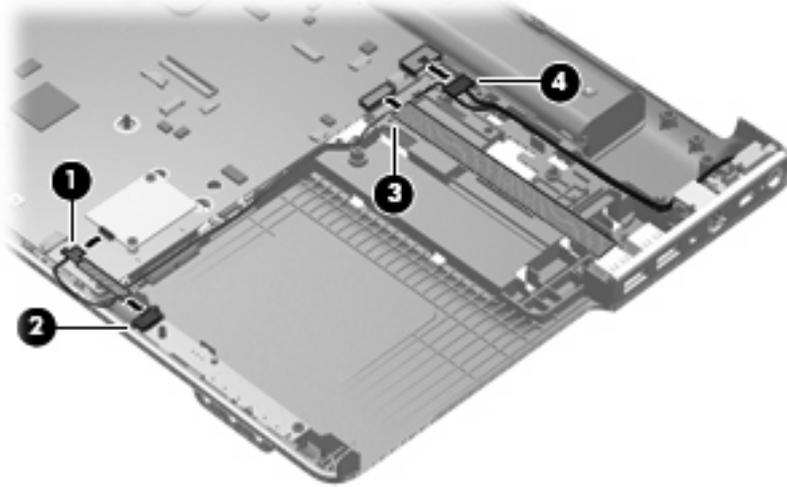
(2) Audio/infrared board cable

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

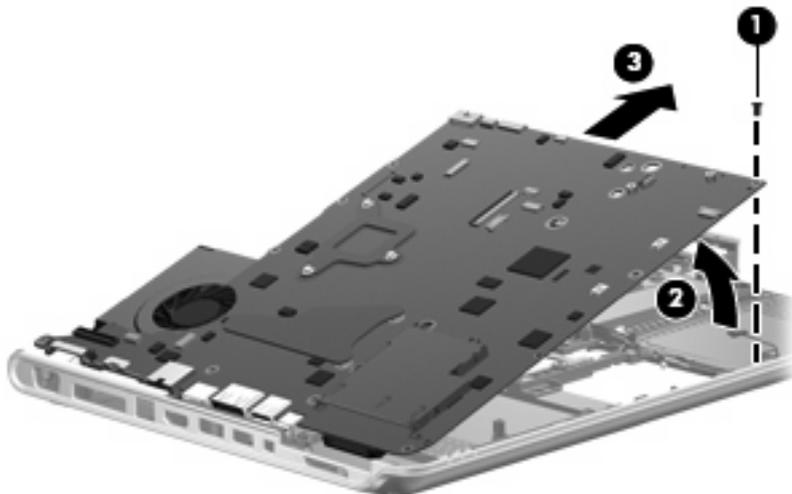
(3) USB board cable

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

(4) Power connector cable



3. Remove the Phillips PM2.5×7.0 screw (1) that secures the system board to the base enclosure.
4. Lift the right side (2) of the system board until it rests at an angle.
5. Remove the system board (3) by sliding it up and to the right at an angle.



Reverse this procedure to install the system board.

TV tuner module cable

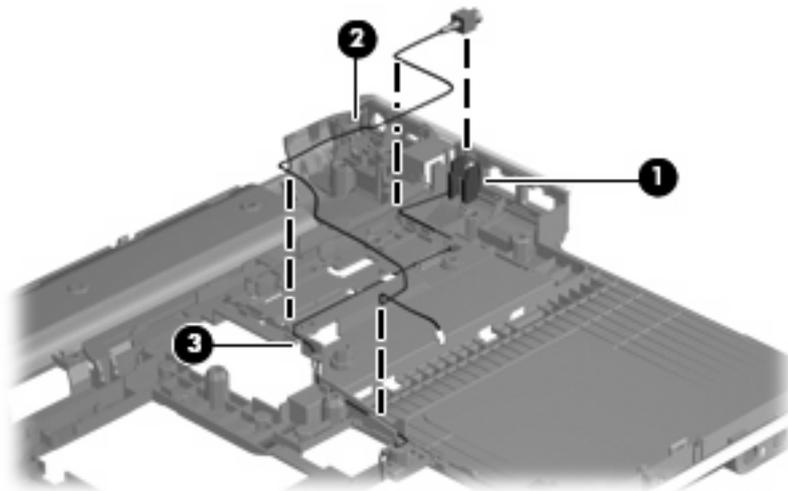
 **NOTE:** The TV tuner module cable is available in the Cable Kit, spare part number 533466-001.

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 48](#)).
5. Remove the following components:
 - a. Hard drive (see [Hard drive on page 57](#)).
 - b. Optical drive (see [Optical drive on page 51](#)).
 - c. Switch cover and keyboard (see [Switch cover and keyboard on page 63](#)).
 - d. Display assembly (see [Display assembly on page 68](#)).
 - e. Top cover (see [Top cover on page 80](#)).
 - f. USB board (see [USB board on page 85](#)).
 - g. System board (see [System board on page 88](#)).

Remove the TV tuner module cable:

1. Remove the TV tuner antenna connector 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

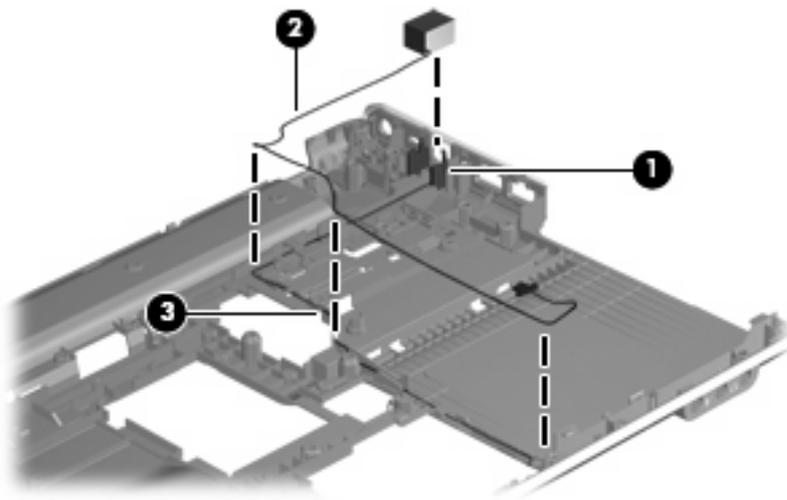
 **NOTE:** The modem module cable is available in the Cable Kit, spare part number 533466-001. The modem module cable includes the RJ-11 jack.

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 48](#)).
5. Remove the following components:
 - a. Hard drive (see [Hard drive on page 57](#)).
 - b. Optical drive (see [Optical drive on page 51](#)).
 - c. Switch cover and keyboard (see [Switch cover and keyboard on page 63](#)).
 - d. Display assembly (see [Display assembly on page 68](#)).
 - e. Top cover (see [Top cover on page 80](#)).
 - f. USB board (see [USB board on page 85](#)).
 - g. System board (see [System board on page 88](#)).

Remove the modem module cable:

1. Remove the RJ-11 jack 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 assembly

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

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

 **NOTE:** 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 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 48](#)).
5. Remove the following components:
 - a. Hard drive (see [Hard drive on page 57](#)).
 - b. Optical drive (see [Optical drive on page 51](#)).
 - c. Switch cover and keyboard (see [Switch cover and keyboard on page 63](#)).
 - d. Display assembly (see [Display assembly on page 68](#)).
 - e. Top cover (see [Top cover on page 80](#)).
 - f. USB board (see [USB board on page 85](#)).
 - g. System board (see [System board on page 88](#)).

Remove the fan/heat sink assembly:

 **NOTE:** 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 3 and external monitor port toward you.
2. Disconnect the fan cable **(1)** from the system board.
3. Loosen the three Phillips PM2.5×14.0 spring-loaded, captive screws **(2)**, **(3)**, and **(4)** that secure the fan/heat sink assembly to the system board.

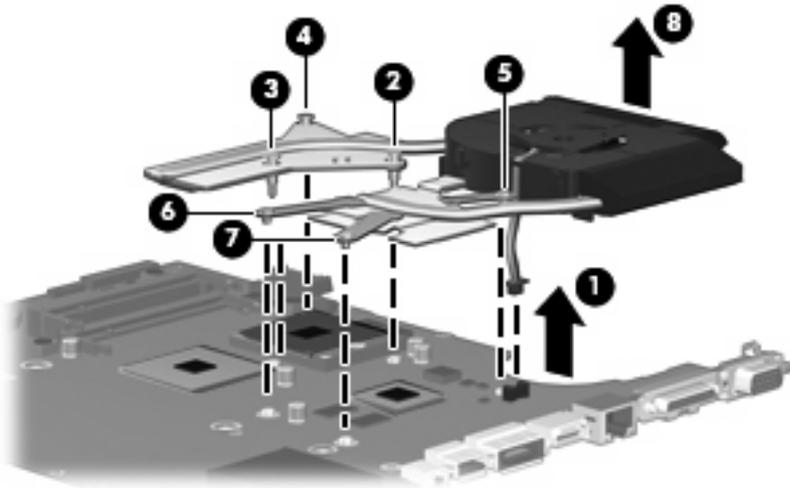
△ **CAUTION:** Loosen the screws in the order indicated by the callouts to ensure consistent pressure over the processor board.

4. Loosen the three Phillips PM2.5×5.0 captive screws (5), (6), and (7) 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.

5. Remove the fan/heat sink assembly (8).

📄 **NOTE:** 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.



📄 **NOTE:** 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), (5) and (6). Replacement thermal material is included with all fan/heat sink assembly, system board, and processor spare part kits.



📄 **NOTE:** 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.

6. Turn the system board upside down, with the expansion port 3 and external monitor port toward you.
7. Disconnect the fan cable **(1)** from the system board.
8. Loosen the three Phillips PM2.5×14.0 spring-loaded, captive screws **(2)**, **(3)**, and **(4)** that secure the fan/heat sink assembly to the system board.

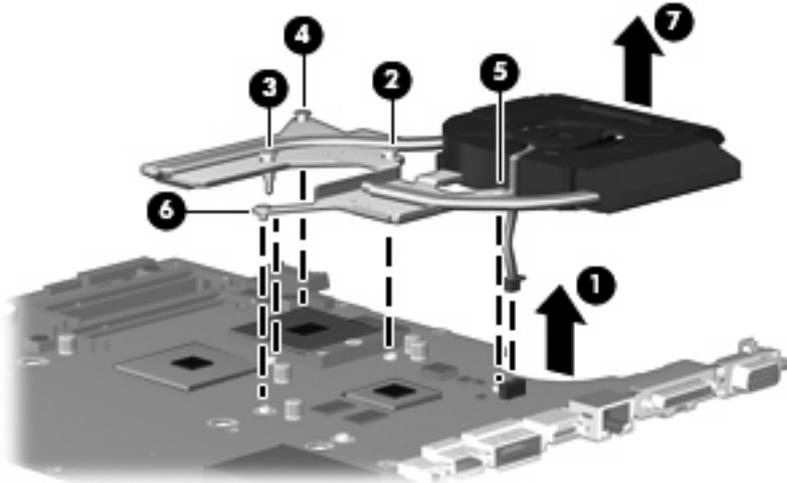
△ **CAUTION:** Loosen the screws in the order indicated by the callouts to ensure consistent pressure over the processor board.

9. Loosen the two Phillips PM2.5×5.0 captive screws **(5)** and **(6)** that secure the fan/heat sink assembly to the system board.

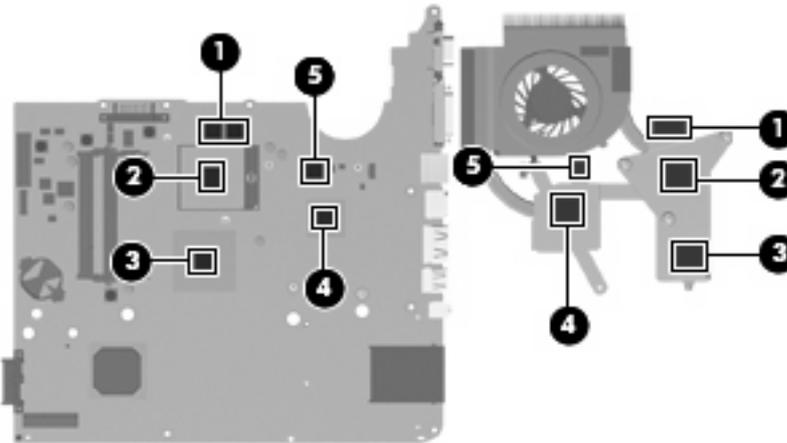
△ **CAUTION:** Loosen the screws in the order indicated by the callouts to ensure consistent pressure over the processor board.

10. Remove the fan/heat sink assembly (7).

 **NOTE:** 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.



 **NOTE:** 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.



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

Processor

 **NOTE:** The processor spare part kit includes thermal material.

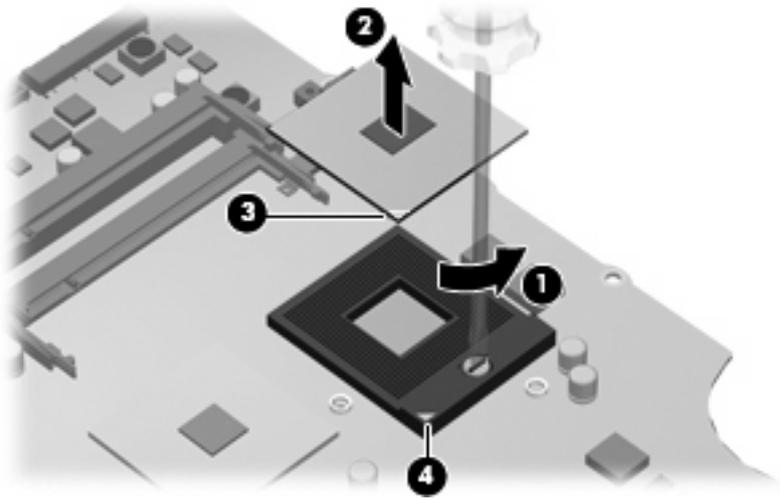
Description	Spare part number
AMD Turion Ultra ZM-87, 2.40-GHz with 2-MB L2 cache	572564-001
AMD Turion Ultra ZM-86, 2.40-GHz with 2-MB L2 cache	507974-001
AMD Turion Ultra ZM-85, 2.30-GHz with 2-MB L2 cache	532119-001
AMD Turion Ultra ZM-84, 2.30-GHz with 2-MB L2 cache	507975-001
AMD Turion Ultra ZM-82, 2.20-GHz with 2-MB L2 cache	507973-001
AMD Turion RM-77, 2.30-GHz with 1-MB L2 cache	572565-001
AMD Turion RM-75, 2.20-GHz with 1-MB L2 cache	532120-001
AMD Turion RM-74, 2.20-GHz with 1-MB L2 cache	507979-001
AMD Athlon QL-67, 2.20-GHz with 1-MB L2 cache	572566-001
AMD Athlon QL-65, 2.10-GHz with 1-MB L2 cache	532121-001
AMD Athlon QL-64, 2.10-GHz with 1-MB L2 cache	506053-001
AMD Sempron SI-42, 2.1-GHz with 512-KB L2 cache	508102-001

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 48](#)).
5. Remove the following components:
 - a. Hard drive (see [Hard drive on page 57](#)).
 - b. Optical drive (see [Optical drive on page 51](#)).
 - c. Switch cover and keyboard (see [Switch cover and keyboard on page 63](#)).
 - d. Display assembly (see [Display assembly on page 68](#)).
 - e. Top cover (see [Top cover on page 80](#)).
 - f. USB board (see [USB board on page 85](#)).
 - g. System board (see [System board on page 88](#)).
 - h. Fan/heat sink assembly (see [Fan/heat sink assembly on page 92](#)).
1. Turn the processor locking screw (1) one-half turn counterclockwise until you hear a click.

2. Lift the processor (2) straight up and remove it.

 **NOTE:** The gold triangle (3) on the processor must be aligned with the triangle icon (4) embossed on the processor socket when you install the processor.



Reverse this procedure to install the processor.

5 Setup Utility

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

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.

📝 NOTE: 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 for Startup Menu” message is displayed in the lower-left corner of the screen, press **esc**. When the Startup Menu is displayed, press **f10**.

2. Select the **Main** menu. 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.

 **NOTE:** 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.

 **NOTE:** 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.

Select	To do this
Fan Always On	Enable/disable Fan Always On. When enabled, the computer fan will always be on.
Boot Options	<p>Set the following boot options:</p> <ul style="list-style-type: none"> • f9 and f10 Delay (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"> ◦ USB Floppy ◦ Internal CD/DVD ROM drive ◦ USB CD/DVD ROM drive ◦ Hard drive ◦ USB Diskette on Key ◦ USB Hard drive ◦ Network adapter

Diagnostics menu

Select	To do this
Hard Disk Self Test	<p>Run a comprehensive self-test on the hard drive.</p> <p>NOTE: 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.

6 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	1.34
Weight – BrightView (with optical drive and hard drive)	3.18 kg	7.00 lbs
Weight – AntiGlare (with optical drive and hard drive)	3.31 kg	7.30 lbs
Input power		
Operating voltage	18.5 V dc @ 3.5 A - 65 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
NOTE: 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)	

16.0-inch WXGA BrightView display specifications

	Metric	U.S.
Dimensions		
Height	21.4 cm	8.4 in
Width	36.5 cm	14.4 in
Diagonal	40.6 cm	16 in
Number of colors	Up to 262,000	
Contrast ratio	600:1	
Brightness	200 nits typical	
Pitch resolution		
Pitch	0.259 × 0.259 mm	
Format	1366 × 768	
Configuration	RGB vertical stripe	
Backlight	Edge lit	
Character display	80 × 25	
Total power consumption	4.5 W	
Viewing angle	±45° horizontal, ±20° upper vertical, ±45° lower vertical (typical)	

16.0-inch WXGA AntiGlare display specifications

	Metric	U.S.
Dimensions		
Height	21.4 cm	8.4 in
Width	36.5 cm	14.4 in
Diagonal	40.6 cm	16 in
Number of colors	Up to 262,000	
Contrast ratio	600:1	
Brightness	200 nits typical	
Pitch resolution		
Pitch	0.259 × 0.259 mm	
Format	1366 × 768	
Configuration	RGB vertical stripe	
Backlight	Edge lit	
Character display	80 × 25	
Total power consumption	4.5 W	
Viewing angle	±45° horizontal, ±20° upper vertical, ±45° lower vertical (typical)	

Hard drive specifications

	500-GB*	320-GB*	250-GB*	160-GB*
Dimensions				
Height	9.5 mm	9.5 mm	9.5 mm	9.5 mm
Width	70 mm	70 mm	70 mm	70 mm
Weight	101 g	101 g	101 g	101 g
Interface type	ATA-7	ATA-7	ATA-7	ATA-7
Transfer rate				
Synchronous (maximum)	100 MB/sec	100 MB/sec	100 MB/sec	100 MB/sec
Security	ATA security	ATA security	ATA security	ATA security
Seek times (typical read, including setting)				
Single track	3 ms	3 ms	3 ms	3 ms
Average	13 ms	13 ms	13 ms	13 ms
Maximum	24 ms	24 ms	24 ms	24 ms
Logical blocks	976,773,168	625,141,400	488,397,168	312,560,640
Disc rotational speed	5400-rpm	7200-rpm and 5400-rpm	7200-rpm and 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.				
NOTE: Certain restrictions and exclusions apply. Contact technical support for details.				

Blu-ray ROM DVD±R/RW SuperMulti Double-Layer 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, 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, HD-ROM (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 SuperMulti Double-Layer Combo Drive specifications

Applicable disc	Read:	Write:
	CD-DA, CD+(E)G, CD-MIDI, CD-TEXT, CD-ROM, CD-ROM XA, MIXED MODE CD, CD-I, CD-I Bridge (Photo-CD, Video CD), Multisession CD (Photo-CD, CD-EXTRA, Portfolio, CD-R, CD-RW), CD-R, CD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), DVD-R, DVD-RW, DVD+R, DVD+RW, DVD-RAM	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-ROM	10,800 KB/sec	
24X CD-R	3,600 KB/sec	
16X CD-RW	2,400 KB/sec	
8X DVD+R	10,800 KB/sec	
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
DMA0	Not applicable
DMA1*	Not applicable
DMA2*	Not applicable
DMA3	Not applicable
DMA4	Direct memory access controller
DMA5*	Available for PC Card
DMA6	Not assigned
DMA7	Not assigned

*ExpressCard controller can use DMA 1, 2, or 5.

System interrupt specifications

Hardware IRQ	System function
IRQ0	System timer
IRQ1	Standard 101-/102-Key or Microsoft® Natural Keyboard
IRQ2	Cascaded
IRQ3	Intel 82801 DB/DBM USB2 Enhanced Host Controller—24CD
IRQ4	COM1
IRQ5*	Conexant AC—Link Audio Intel 82801 DB/DBM SMBus Controller—24C3 Data Fax Modem with SmartCP
IRQ6	Diskette drive
IRQ7*	Parallel port
IRQ8	System CMOS/real-time clock
IRQ9*	Microsoft ACPI-compliant system
IRQ10*	Intel USB UHCI controller—24C2 Intel 82852/82855 GM/GME Graphic Controller Realtek RTL8139 Family PCI Fast Ethernet Controller
IRQ11	Intel USB EHCI controller—24CD Intel USB UHCI controller—24C4 Intel USB UHCI controller—24C7 Intel Pro/Wireless 2200BG TI OHCI 1394 host controller TI PCI1410 CardBus controller
IRQ12	Synaptics PS/2 TouchPad
IRQ13	Numeric data processor
IRQ14	Primary IDE channel
IRQ15	Secondary IDE channel

*Default configuration; audio possible configurations are IRQ5, IRQ7, IRQ9, IRQ10, or none.

NOTE: ExpressCards may assert IRQ3, IRQ4, IRQ5, IRQ7, IRQ9, IRQ10, IRQ11, or IRQ15. Either the infrared or the serial port may assert IRQ3 or IRQ4.

System I/O address specifications

I/O address (hex)	System function (shipping configuration)
00-1F	DMA Controller Channel 0-3
CF7	PCI Bus on MS ACPI-Compliant System
20 - 21	Programmable Interrupt Controller (Master Controller)
24 - 25	Programmable Interrupt Controller (Aliases)
28 - 29	Programmable Interrupt Controller (Aliases)
2C - 2D	Programmable Interrupt Controller (Aliases)
2E -2F	M/B Resource (LPC Controller)
30 - 31	Programmable Interrupt Controller (Aliases)
34 - 35	Programmable Interrupt Controller (Aliases)
38 - 39	Programmable Interrupt Controller (Aliases)
3C - 3D	Programmable Interrupt Controller (Aliases)
40 - 43	System Timer
4E - 4F	M/B Resource (LPC Controller)
50 - 53	System Timer
60	EC
61	LPC
62	EC
63	LPC
64	EC
65	LPC
66	EC
67	LPC
70 - 77	System CMOS/Real Time Clock
81 - 91	DMA Controller Channel 2
92	LPC
A0 - A1	Programmable Interrupt Controller (Slave Controller)
A4 - A5	Programmable Interrupt Controller (Aliases)
A8 - A9	Programmable Interrupt Controller (Aliases)
AC - AD	Programmable Interrupt Controller (Aliases)
B0 - B1	Programmable Interrupt Controller (Aliases)
B2 - B3	LPC
B4 - B5	Programmable Interrupt Controller (Aliases)
B8 - B9	Programmable Interrupt Controller (Aliases)

I/O address (hex)	System function (shipping configuration)
BC - BD	Programmable Interrupt Controller (Aliases)
C0 - DF	DMA Controller Channel 4-7
F0	Numeric data processor
380 - 383	ENE CIR Receiver
384 - 38E	EC
3B0 - 3BB	VGA
3C0 - 3DF	VGA
400 - 47F	LPC
4D0 - 4D1	Programmable Interrupt Controller
500 - 53F	LPC
600 - 60F	LPC
610	LPC
800 - 80F	LPC
810 - 817	LPC
820 - 823	LPC
D00 - FFFF	PCI Bus on MS ACPI-Compliant System
164E - 164F	LPC
2000 - 2FFF	ICH9 Family PCI Express Root Port 6 (B0/D28/F5)
3000 - 3FFF	ICH9 Family PCI Express Root Port 5 (B0/D28/F4)
4000 - 4FFF	ICH9 Family PCI Express Root Port 4 (B0/D28/F3)
5000 - 50FF	Realtek RTL8168C/8111C PCI-E Gigabit Ethernet NIC (B3/D0/F0)
6000 - 6FFF	ICH9 Family PCI Express Root Port 1 (B0/D28/F0)
7000 - 70FF	VGA
7000 - 7FFF	PCI-E Root Port (B0/D1/F0)
8000 - 801F	SMBus Controller
8020 - 803F	SATA AHCI Controller - 2929
8040 - 805F	USB UHCI Controller - 2939
8060 - 807F	USB UHCI Controller - 2936
8080 - 809F	USB UHCI Controller - 2935
80A0 - 80BF	USB UHCI Controller - 2934
80C0 - 80DF	USB UHCI Controller - 3938
80E0 - 80FF	USB UHCI Controller - 2937
8100 - 8117	SATA AHCI Controller - 2929

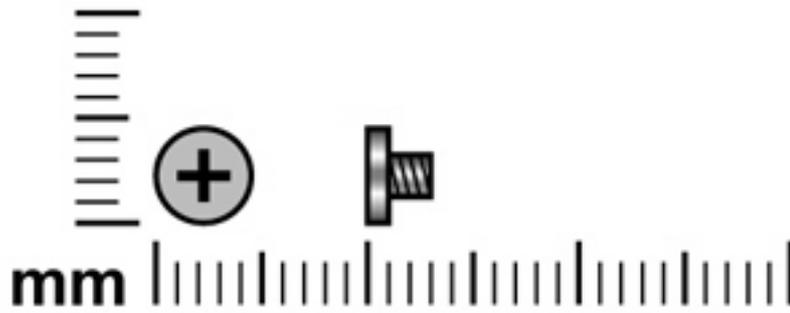
System memory map specifications

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

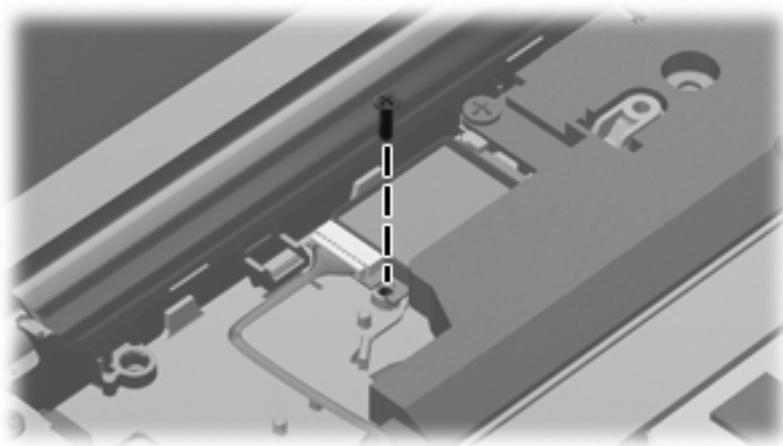
7 Screw listing

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

Phillips PM2.0×3.0 screw



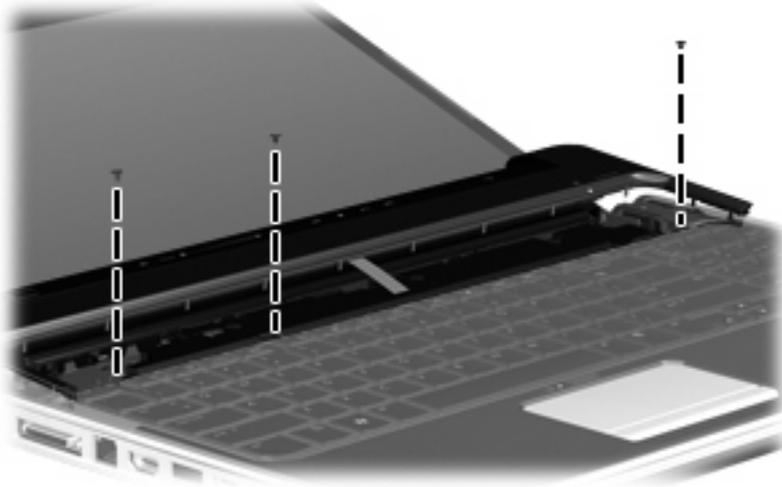
Color	Quantity	Length	Thread	Head diameter
Silver	23	3.0 mm	2.0 mm	4.5 mm



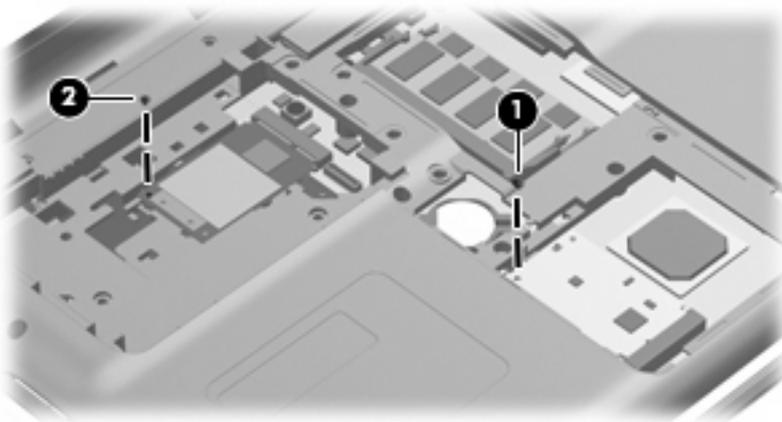
Where used: One screw that secures the Bluetooth module to the top cover.



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

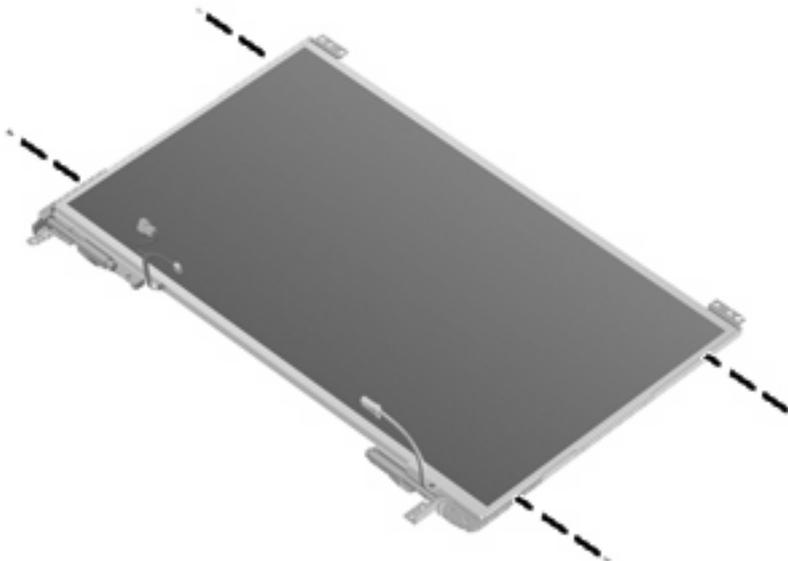


Where used: 3 screws that secure the keyboard to the computer

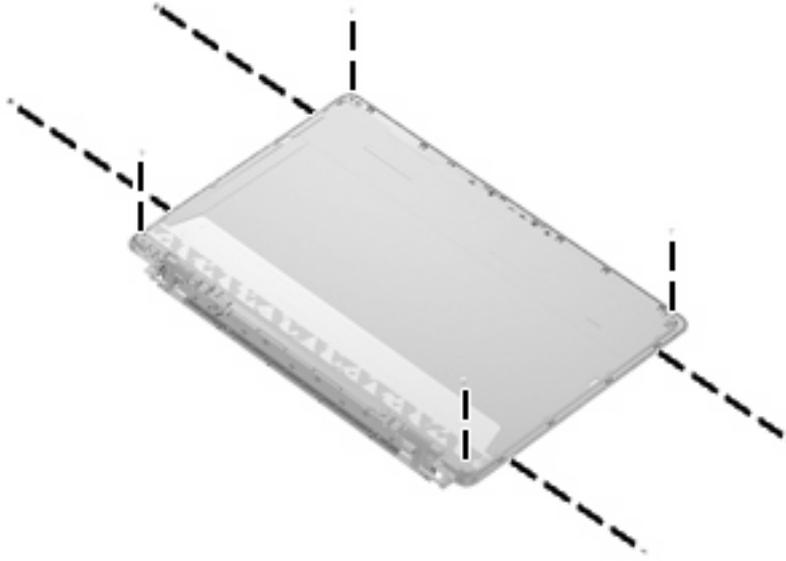


Where used:

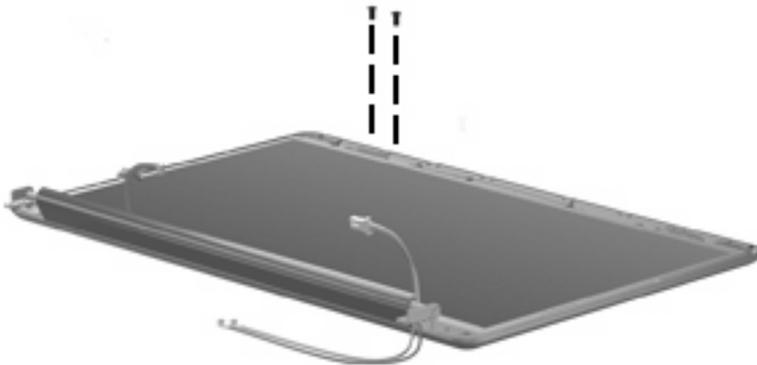
- (1) One screw that secures the WLAN module to the system board
- (2) One screw that secures the TV tuner module to the system board



Where used: 4 screws that secure the display hinges to the display bezel on computers equipped with BrightView display assemblies



Where used: 8 screws that secure the display hinges to the display bezel on computers equipped with AntiGlare display assemblies

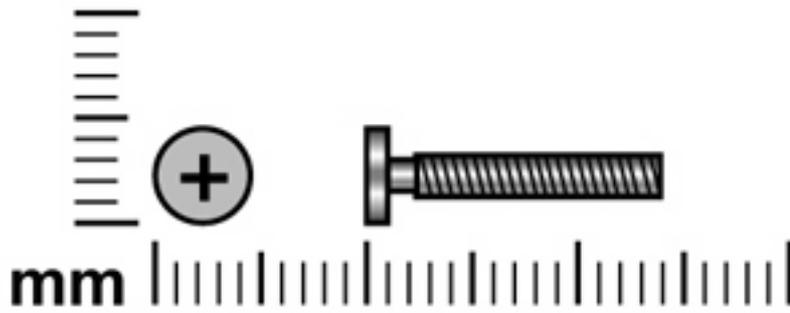


Where used: 2 screws that secure the wireless antennas to the display cover on computers equipped with BrightView display assemblies

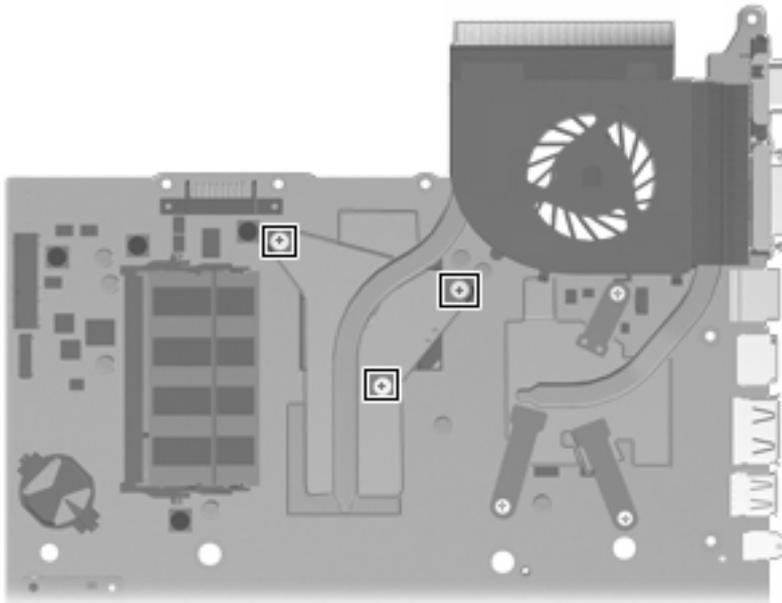


Where used: One screw that secures the webcam to the display cover on computers equipped with AntiGlare display assemblies

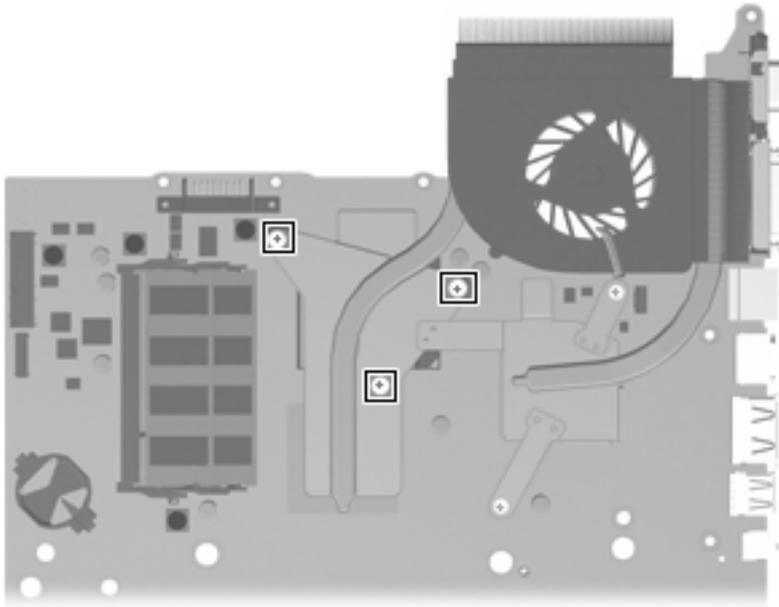
Phillips PM2.0×14.0 captive screw



Color	Quantity	Length	Thread	Head diameter
Silver	6	14.0 mm	2.0 mm	4.5 mm

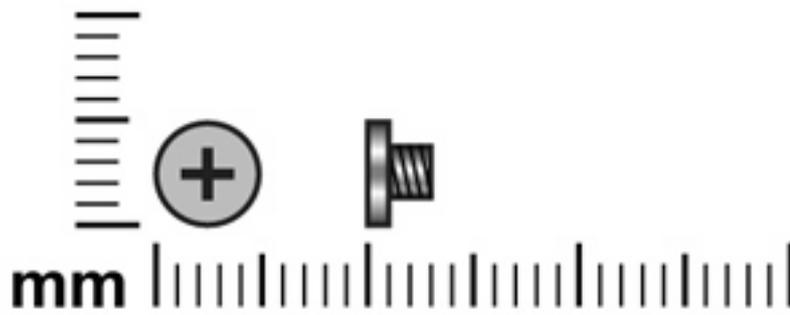


Where used: 3 screws (secured by C-clips) that secure the discrete fan and heat sink to the system board

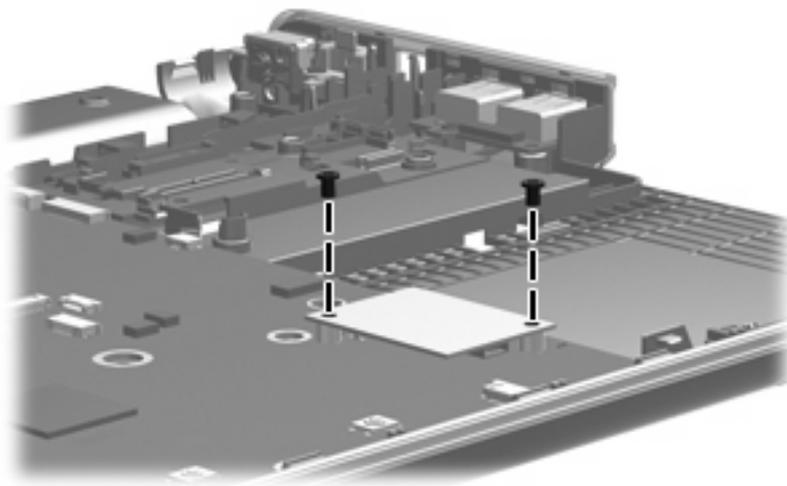


Where used: 3 screws (secured by C-clips) that secure the UMA fan and heat sink to the system board

Phillips PM2.5×3.0 screw

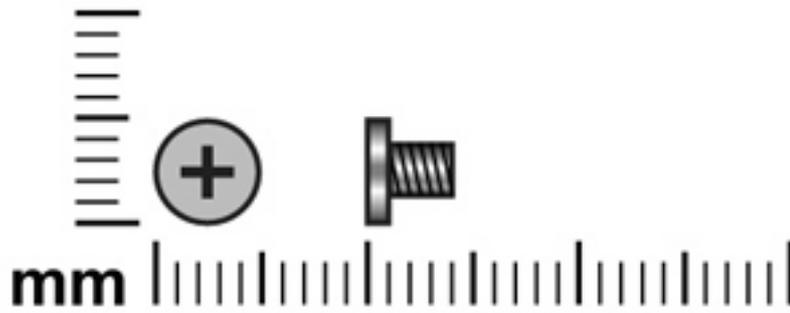


Color	Quantity	Length	Thread	Head diameter
Black	2	3.0 mm	2.5 mm	4.5 mm

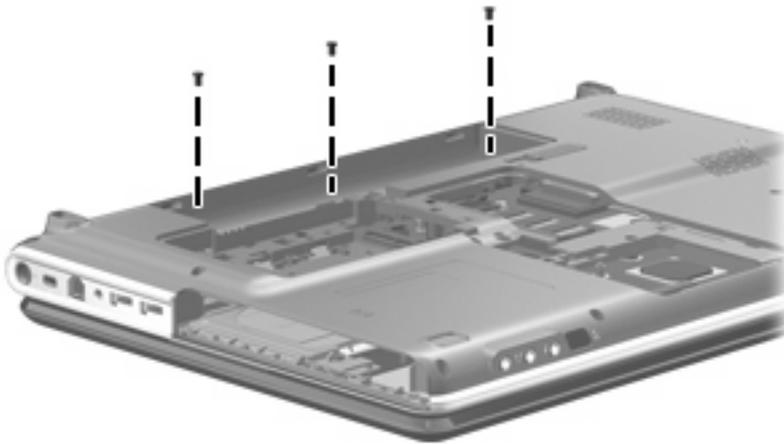


Where used: 2 screws that secure the modem module to the system board

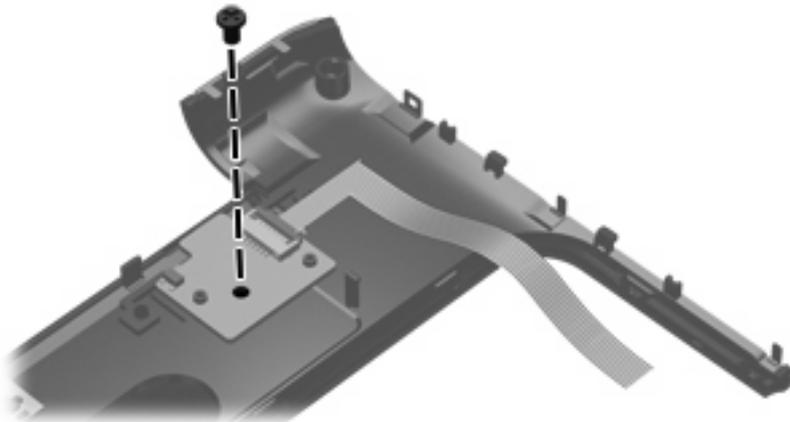
Phillips PM2.5×4.0 screw



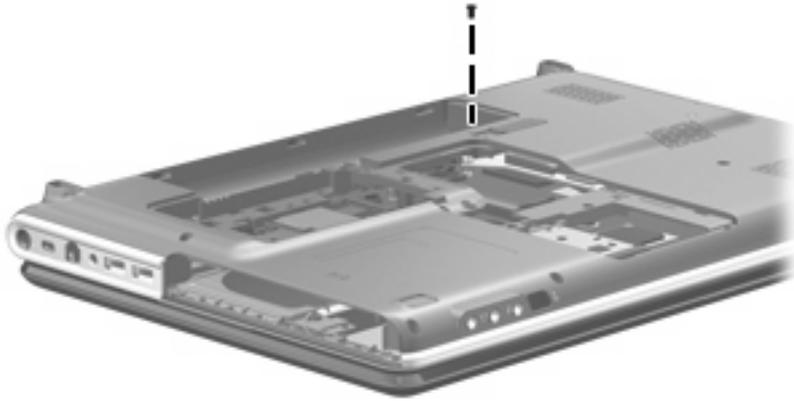
Color	Quantity	Length	Thread	Head diameter
Black	17	4.0 mm	2.5 mm	4.5 mm



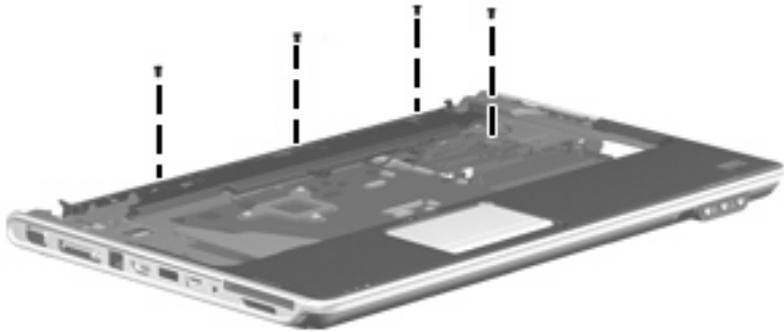
Where used: 3 screws that secure the switch cover to the keyboard



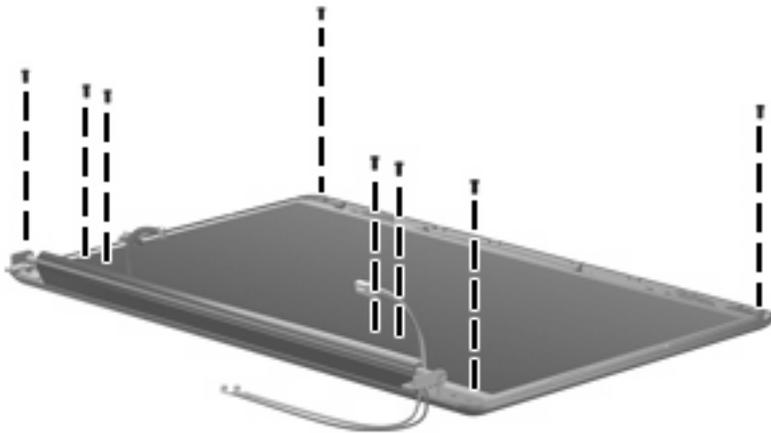
Where used: One screw that secures the power button board to the switch cover



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

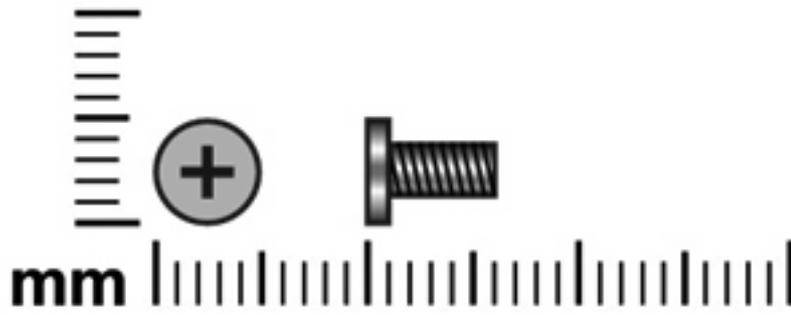


Where used: 4 screws that secure the top cover to the computer

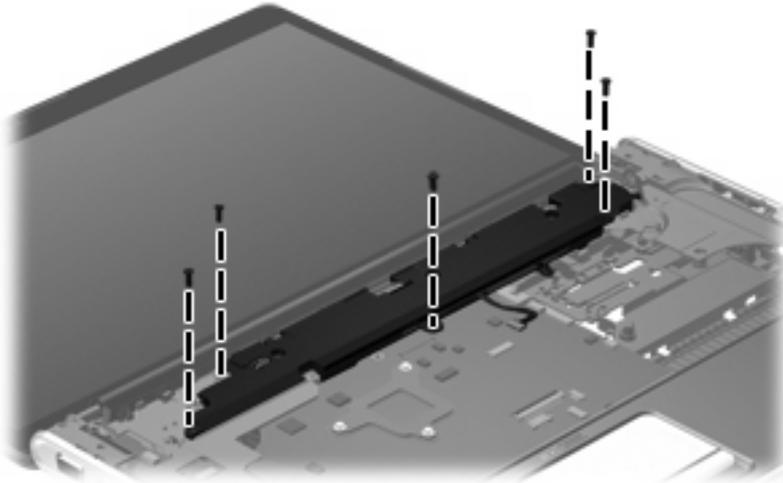


Where used: 8 screws that secure the display panel on computers equipped with BrightView display assemblies

Phillips PM2.5×6.0 screw

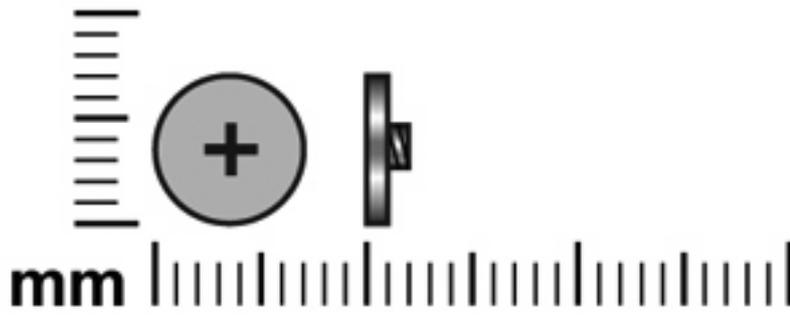


Color	Quantity	Length	Thread	Head diameter
Black	5	6.0 mm	2.5 mm	4.5 mm

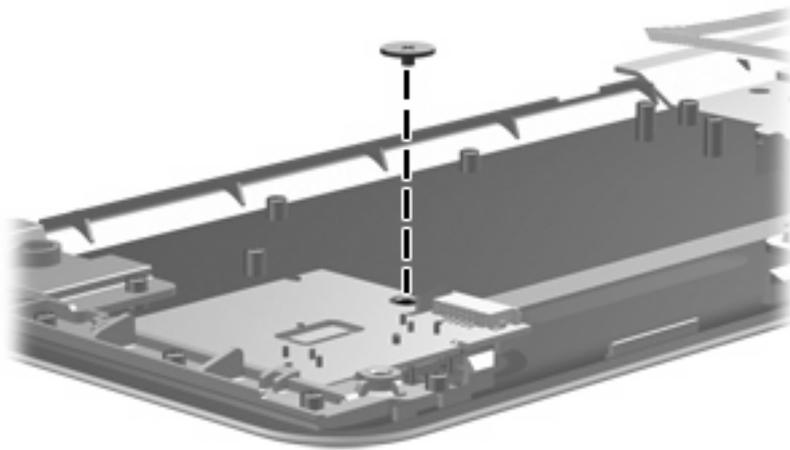


Where used: 5 screws that secure the speaker to the top cover

Phillips PM2.0×2.0 broadhead screw

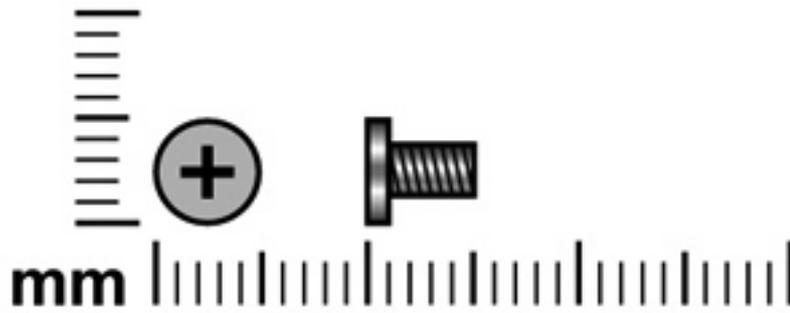


Color	Quantity	Length	Thread	Head diameter
Black	1	2.0 mm	2.0 mm	7.0 mm

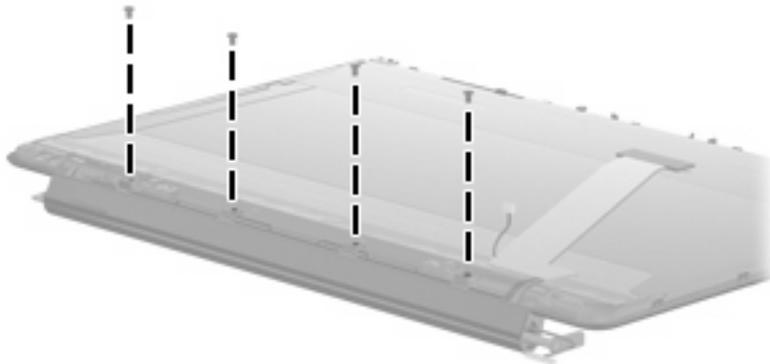


Where used: One screw that secures the fingerprint reader board to the top cover

Phillips PM2.5×5.0 screw



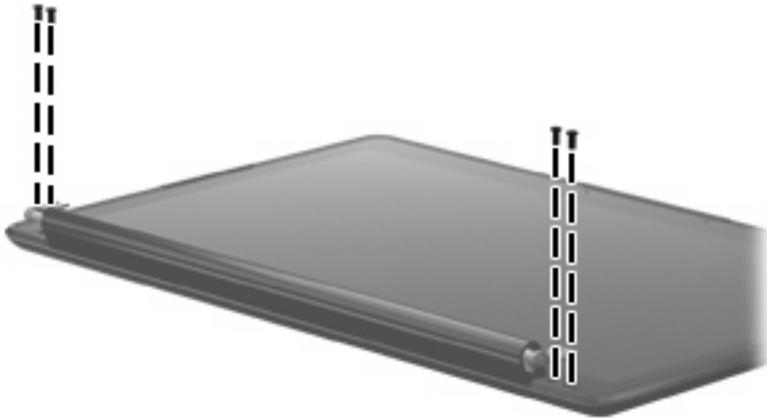
Color	Quantity	Length	Thread	Head diameter
Black	18	5.0 mm	2.5 mm	4.4 mm



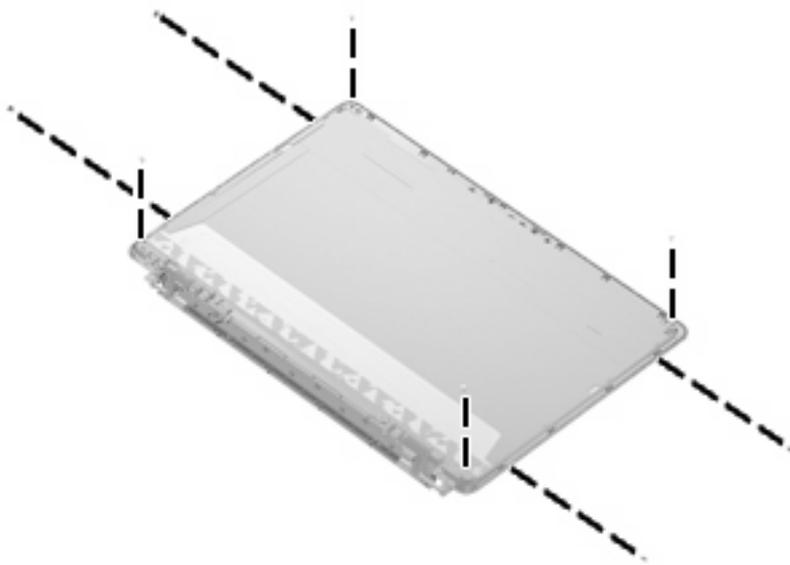
Where used: 4 screws that secure the display inverter cover to the display bezel on computers equipped with AntiGlare display assemblies



Where used: 2 screws that secure the display hinge bracket to the display bezel on computers equipped with AntiGlare display assemblies

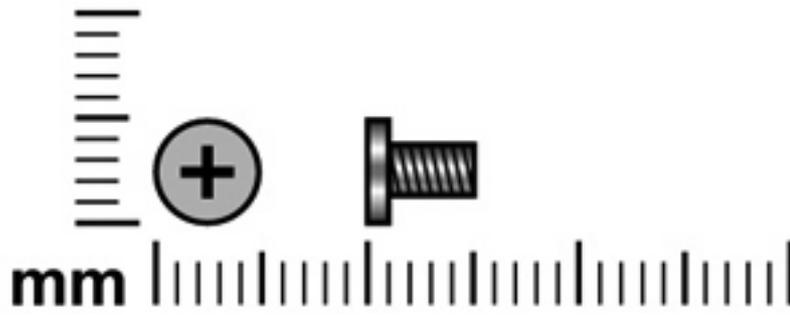


Where used: 4 screws that secure the display enclosure to the display bezel on computers equipped with AntiGlare display assemblies

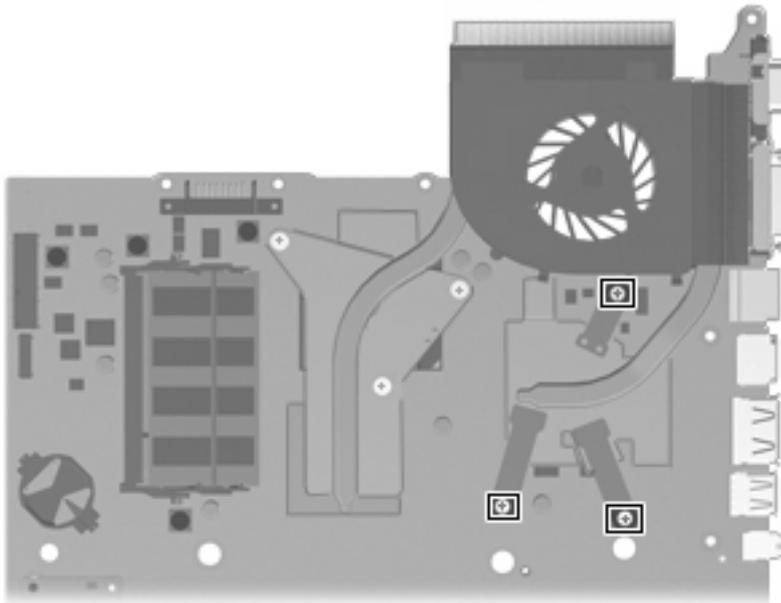


Where used: 8 screws that secure the display panel brackets to the display panel enclosure

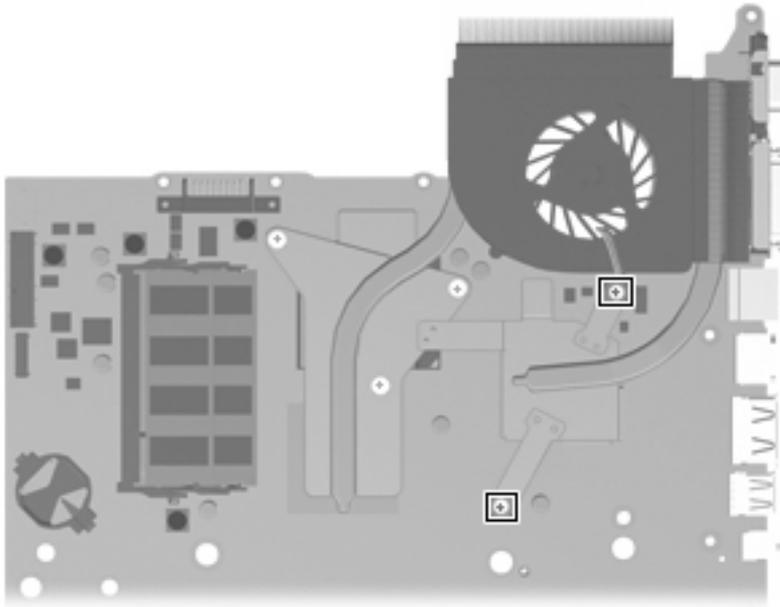
Phillips PM2.5×5.0 captive screw



Color	Quantity	Length	Thread	Head diameter
Black	5	5.0 mm	2.5 mm	4.5 mm

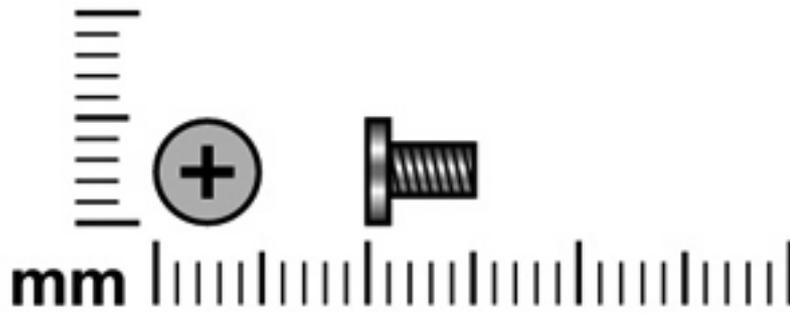


Where used: 3 screws (secured by C-clips) that secure the discrete fan and heat sink to the system board

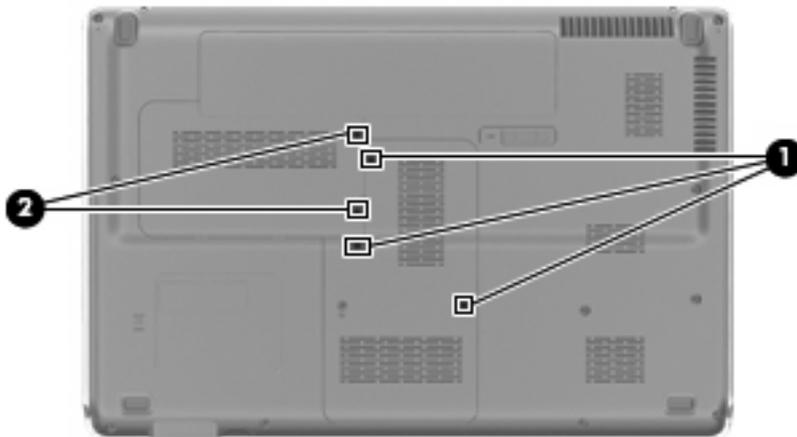


Where used: 2 screws (secured by C-clips) that secure the UMA fan and heat sink to the system board

Phillips PM2.5×5.5 captive screw



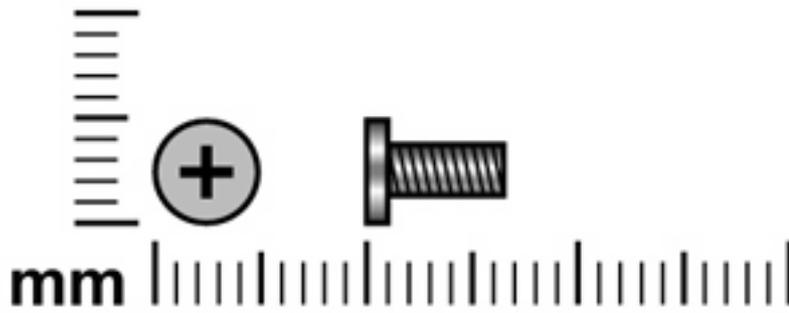
Color	Quantity	Length	Thread	Head diameter
Black	5	5.5 mm	2.5 mm	4.4 mm



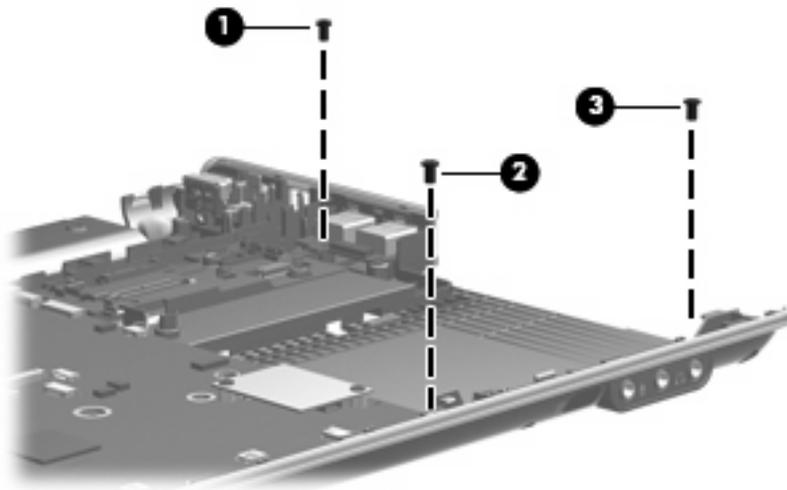
Where used:

- (1) 3 captive screws that secure the memory module compartment cover to the computer (screws are secured by C-clips)
- (2) 2 captive screws that secure the hard drive cover to the computer (screws are secured by C-clips)

Phillips PM2.5×7.0 screw

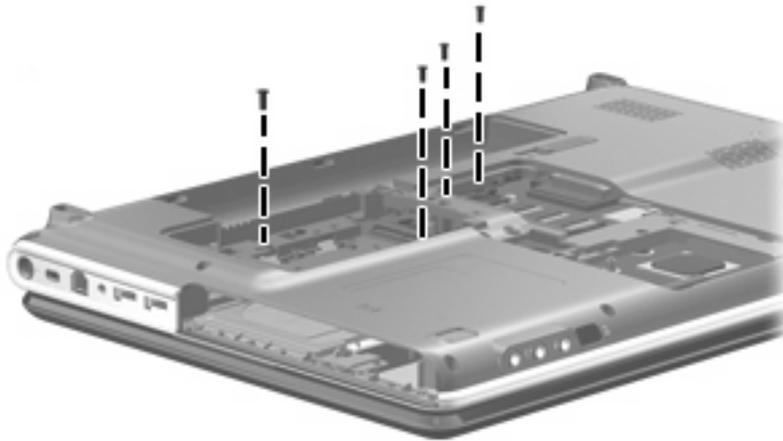


Color	Quantity	Length	Thread	Head diameter
Black	26	7.0 mm	2.5 mm	4.4 mm

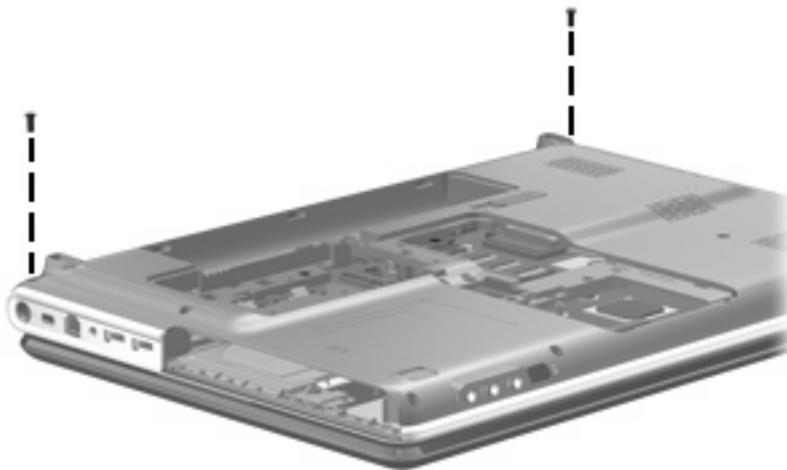


Where used:

- (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



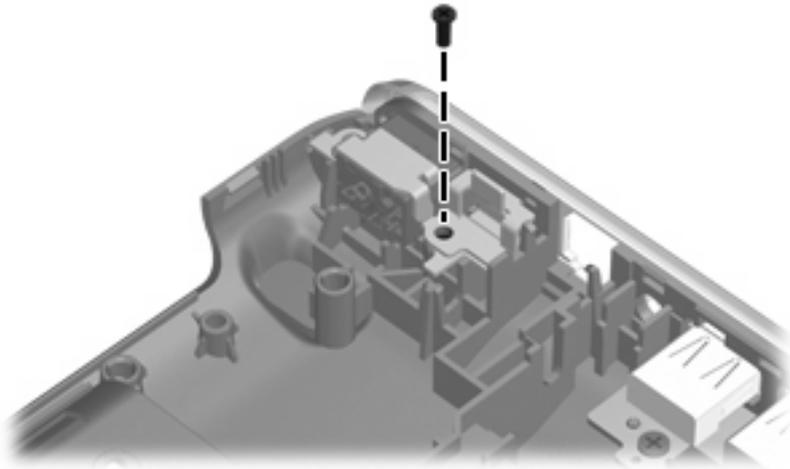
Where used: 4 screws that secure the keyboard to the computer



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



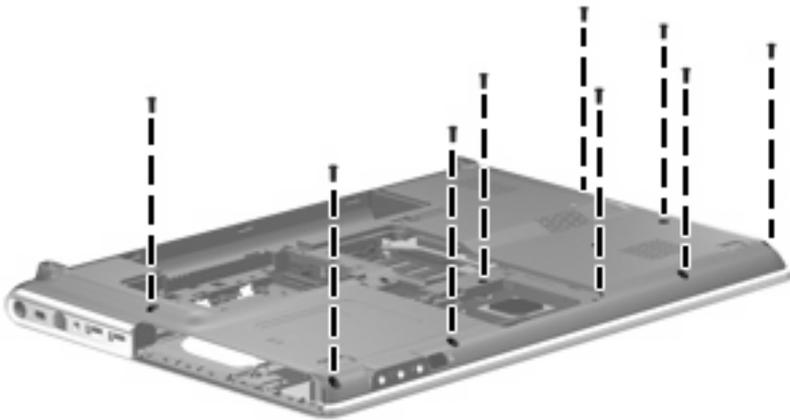
Where used: 4 screws that secure the display assembly to the computer



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

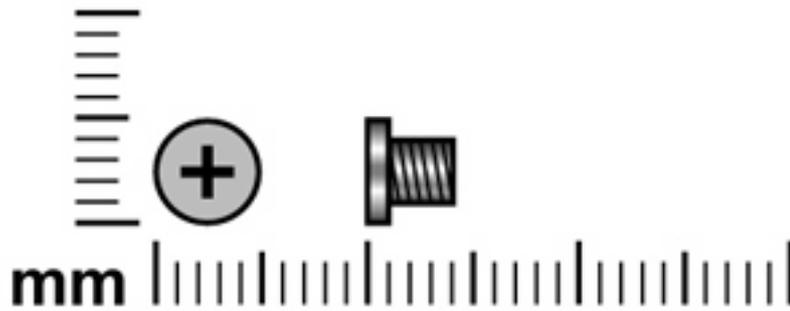


Where used: 9 screws that secure the top cover to the base enclosure



Where used: 2 screws that secure the display bezel to the display on computers equipped with BrightView display assemblies

Phillips PM3.0×3.5 screw



Color	Quantity	Length	Thread	Head diameter
Silver	4	3.5 mm	3.0 mm	4.8 mm



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

8 Backup and Recovery

Recovering system information

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.

 **NOTE:** If your computer includes a solid-state drive (SSD), you 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 > Computer**. If the partition is present, an HP Recovery drive is listed in the Hard Disk Drives section of the window.

Creating recovery discs

 **NOTE:** 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.

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

Note the following guidelines before creating recovery discs:

- You will need high-quality DVD-R, double-layer DVD-R, DVD+R, double-layer 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.

 **NOTE:** 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. Select **Start > All Programs > Recovery Manager > Recovery Manager**.

Recovery Manager opens.

2. Click **Advanced Options**.

 **NOTE:** If you are operating the computer on battery power, you will be prompted to connect to AC power before you can go to the next step.

3. Click **Recovery disc creation**, and then click **Next**.
4. Follow the on-screen instructions.

Backing up your information

When to back up

- On a regularly scheduled basis
-
- Before the computer is repaired or restored
 - Before you add or modify hardware or software

 **NOTE:** Set reminders to back up your information periodically.

Backup suggestions

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

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

- 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**.

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.

 **NOTE:** 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

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

Create a system restore point

1. Select **Start > Control Panel > System and Maintenance > System**.
2. In the left pane, click **System Protection**.
3. Click the **System Protection** tab.
4. Under **Automatic restore points**, select the disk for which you want to create a restore point.
5. Click **Create**.

The System Protection window opens.

6. Follow the on-screen instructions.

Restore to a previous date and time

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

1. Select **Start > Control Panel > System and Maintenance > System**.
2. In the left pane, click **System protection**.
3. Click the **System Protection** tab.
4. Click the **System Restore** button, and then click **Next**.

The System Restore window opens.

5. Follow the on-screen instructions.

Performing a recovery

 **NOTE:** You can recover only files that you have previously backed up. HP recommends that you use Recovery Manager to create an 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, if your computer includes a solid-state drive (SSD), you may not have a recovery partition. If that is the case, recovery discs have been included with your computer. Use these discs to recover your operating system and software.

 **NOTE:** Windows has its own built-in repair features, such as System Restore and driver roll-back capabilities. If you have not already tried these features, try them before using Recovery Manager.

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

Recovering from the recovery discs

To restore the system from the recovery discs:

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

Recovering from the dedicated recovery partition (select models only)

 **NOTE:** If your computer includes an SSD, you may 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 from either the Start button or **f11**. This restores the computer to its factory condition.

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

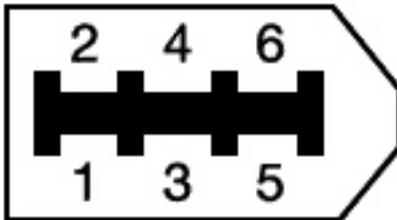
1. Access Recovery Manager in either of the following ways:
 - Select **Start > All Programs > Recovery Manager > Recovery Manager**.
 - or–
 - Restart the computer and press **f11** while the “Press <F11> for recovery” message is displayed on the screen. Then select **Recovery Manager**.

Recovery Manager opens.

2. Click **Advanced Options**.
3. Click **System recovery**, and then click **Next**.
4. Follow the on-screen instructions.

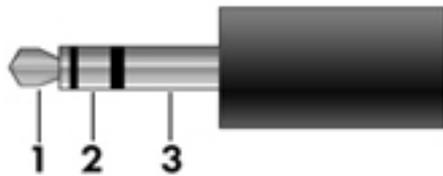
9 Connector pin assignments

1394



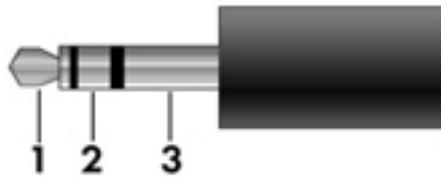
Pin	Signal
1	Power
2	Ground
3	TPB-
4	TPB+
5	TPA-
6	TPA+

Audio-in (microphone)



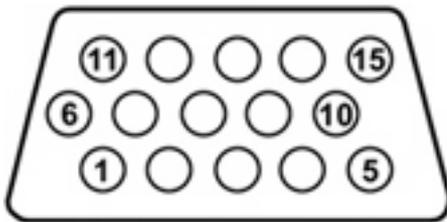
Pin	Signal
1	Audio signal in
2	Audio signal in
3	Ground

Audio-out (headphone)



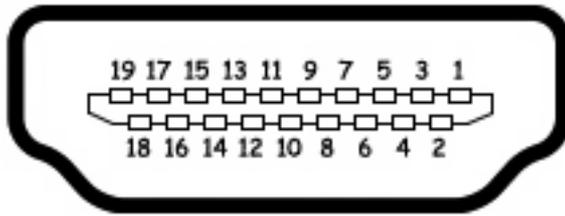
Pin	Signal
1	Audio out, left channel
2	Audio out, right channel
3	Ground

External monitor



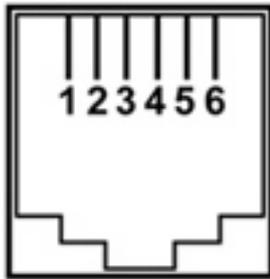
Pin	Signal
1	Red analog
2	Green analog
3	Blue analog
4	Not connected
5	Ground
6	Ground analog
7	Ground analog
8	Ground analog
9	+5 VDC
10	Ground
11	Monitor detect
12	DDC 2B data
13	Horizontal sync
14	Vertical sync
15	DDC 2B clock

HDMI



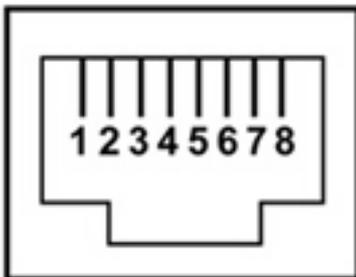
Pin	Signal
1	Transition minimized differential signal (TMDS) data 2+
2	TMDS data 2 shield
3	TMDS data 2-
4	TMDS data 1+
5	TMDS data 1 shield
6	TMDS data 1-
7	TMDS data 0+
8	TMDS data 0 shield
9	TMDS data 0-
10	TMDS clock+
11	TMDS clock shield
12	TMDS clock-
13	Consumer electronic control (CEC)
14	Not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

RJ-11 (modem)



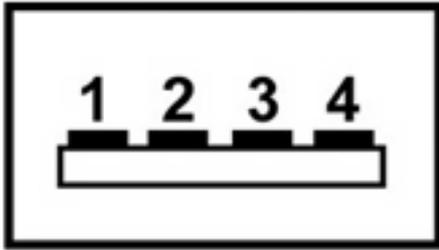
Pin	Signal
1	Unused
2	Tip
3	Ring
4	Unused
5	Unused
6	Unused

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

10 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 or regions must meet the requirements of the country or region where the computer is used.

Requirements for all countries or regions

The requirements listed below are applicable to all countries or 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 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 or regions

Country or 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.

11 Recycling

Battery

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

Display

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

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

📄 **NOTE: 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>.

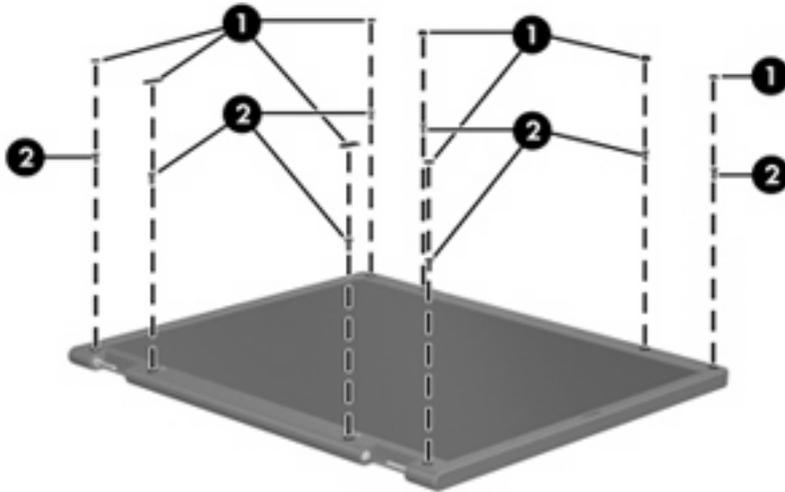
This section provides disassembly instructions for the display assembly. The display assembly must be disassembled to gain access to the backlight (1) and the liquid crystal display (LCD) panel (2).



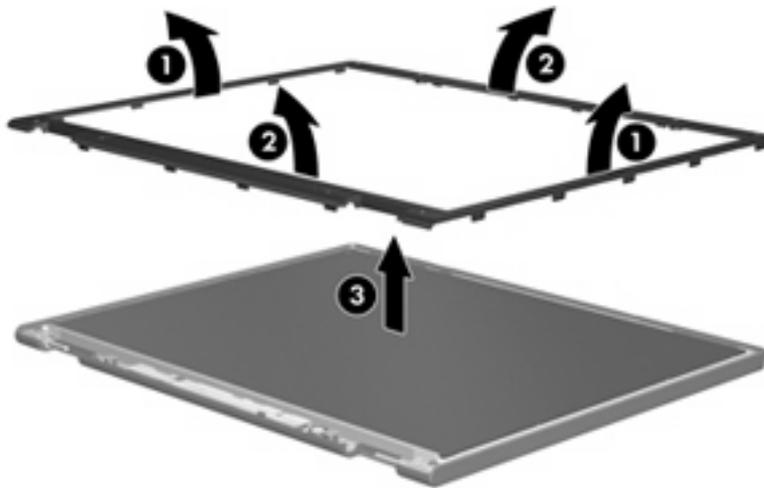
📄 **NOTE:** The procedures provided in this chapter are general disassembly instructions. Specific details, such as screw sizes, quantities, and locations, and component shapes and sizes, can vary from one computer model to another.

Perform the following steps to disassemble the display assembly:

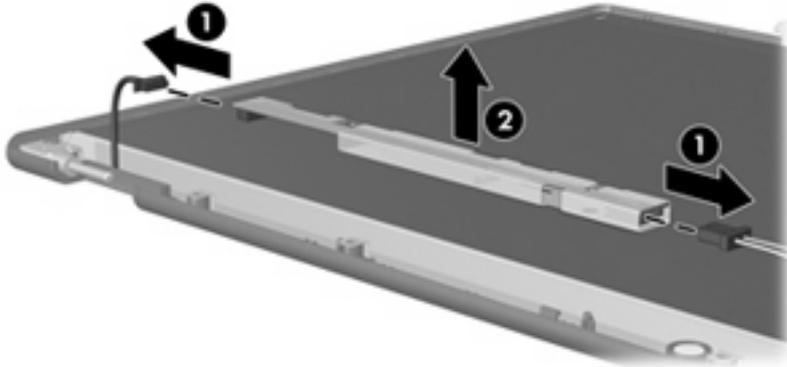
1. Remove all screw covers (1) and screws (2) that secure the display bezel to the display assembly.



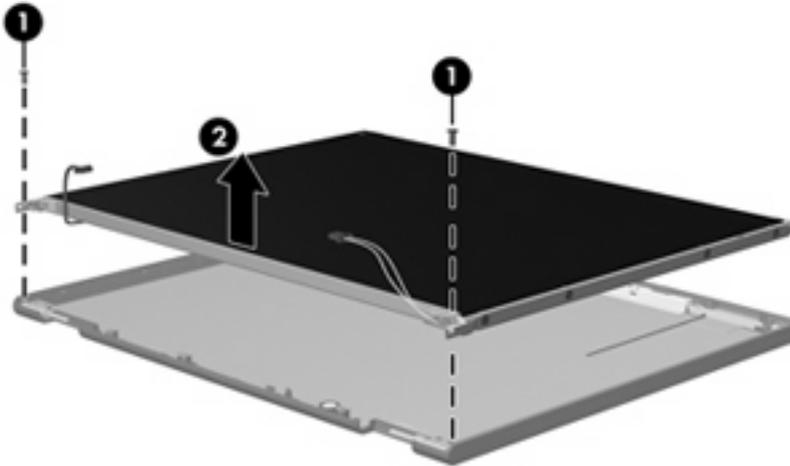
2. Lift up and out on the left and right inside edges (1) and the top and bottom inside edges (2) of the display bezel until the bezel disengages from the display assembly.
3. Remove the display bezel (3).



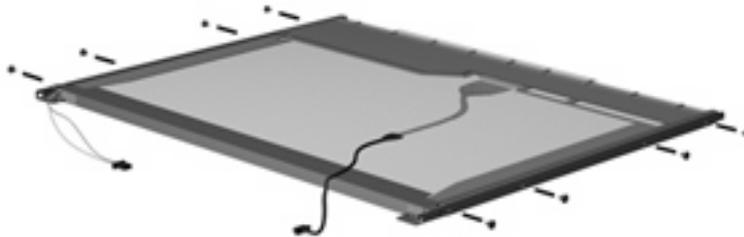
4. Disconnect all display panel cables (1) from the display inverter and remove the inverter (2).



5. Remove all screws (1) that secure the display panel assembly to the display enclosure.
6. Remove the display panel assembly (2) from the display enclosure.

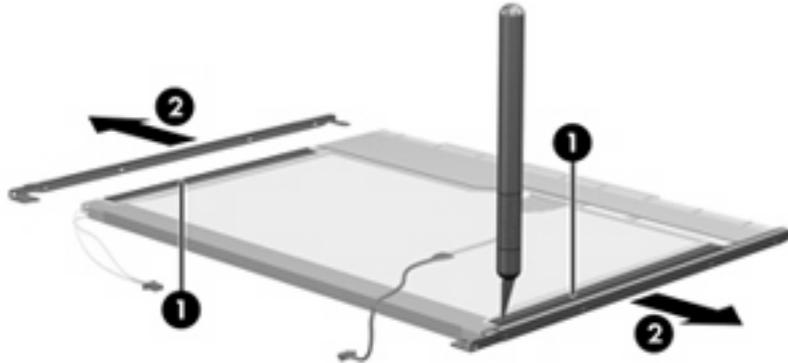


7. Turn the display panel assembly upside down.
8. Remove all screws that secure the display panel frame to the display panel.

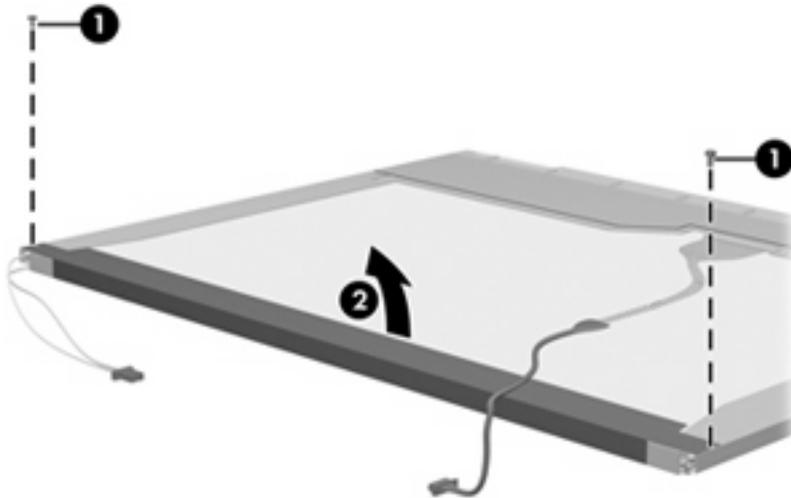


9. Use a sharp-edged tool to cut the tape (1) that secures the sides of the display panel to the display panel frame.

10. Remove the display panel frame (2) from the display panel.

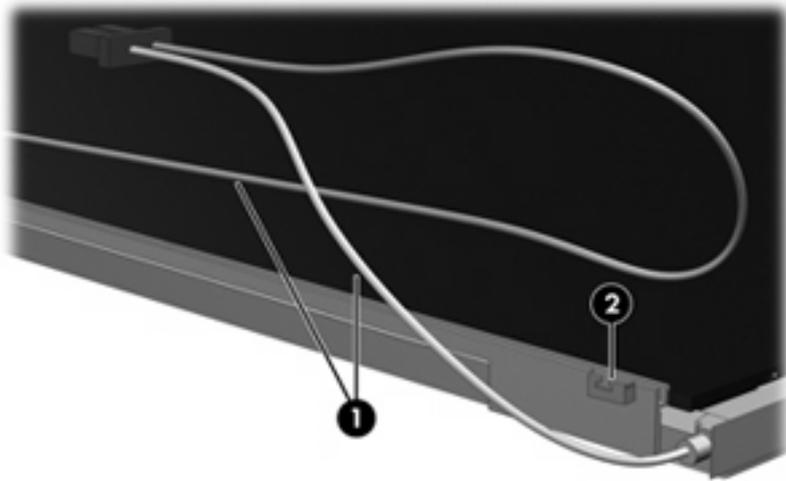


11. Remove the screws (1) that secure the backlight cover to the display panel.
12. Lift the top edge of the backlight cover (2) and swing it outward.



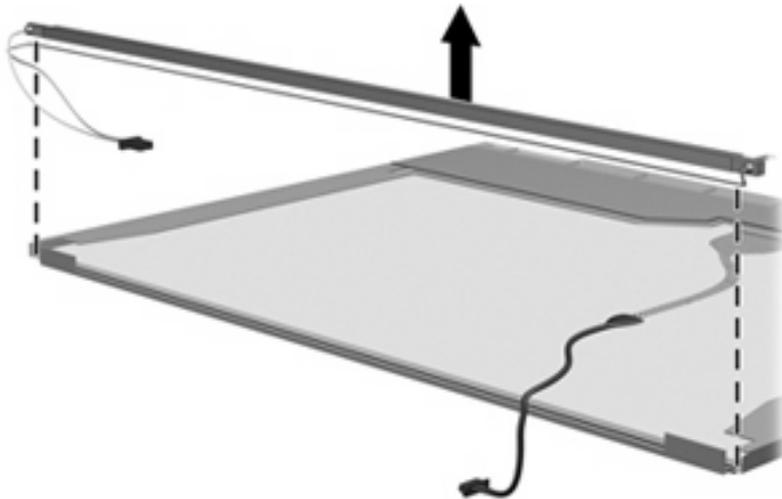
13. Remove the backlight cover.
14. Turn the display panel right-side up.

15. Remove the backlight cables (1) from the clip (2) in the display panel.

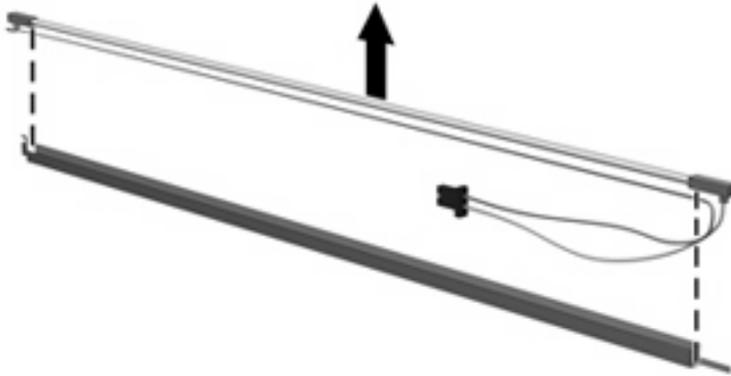


16. Turn the display panel upside down.
17. Remove the backlight frame from the display panel.

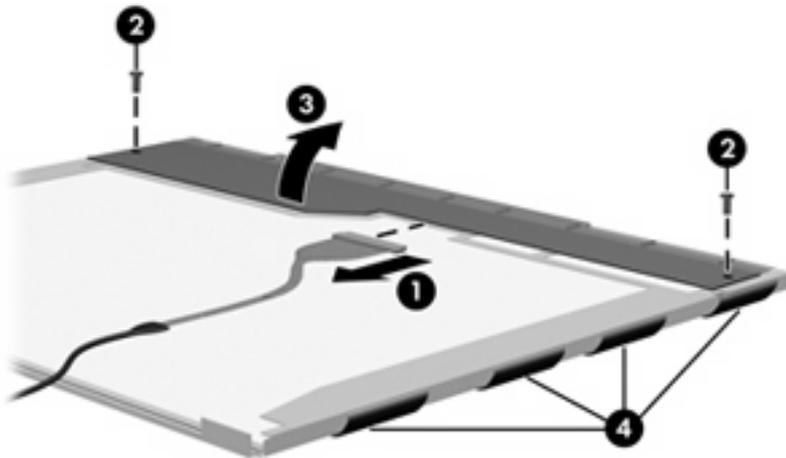
⚠ WARNING! The backlight contains mercury. Exercise caution when removing and handling the backlight to avoid damaging this component and causing exposure to the mercury.



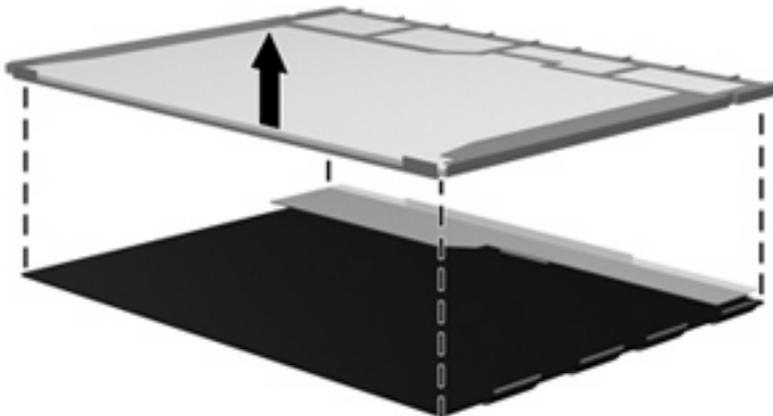
18. Remove the backlight from the backlight frame.



19. Disconnect the display cable (1) from the LCD panel.
20. Remove the screws (2) that secure the LCD panel to the display rear panel.
21. Release the LCD panel (3) from the display rear panel.
22. Release the tape (4) 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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