

HP Pavilion dv6 Entertainment PC

Maintenance and Service Guide



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Safety warning notice

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

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1 Product description

Category	Description	Computer models equipped with graphics subsystems with discrete memory	Computer models equipped with graphics subsystems with UMA memory
Product Name	HP Pavilion dv6 Entertainment PC	√	√
Processors	Intel® Core™2 Duo T9800 2.93-GHz with 6-MB L2 cache and 1066-MHz front side bus (FSB)	√	√
	Intel Core2 Duo T9600 2.80-GHz with 6-MB L2 cache and 1066-MHz FSB	√	√
	Intel Core2 Duo T9550 2.66-GHz with 6-MB L2 cache and 1066-MHz FSB	√	√
	Intel Core2 Duo T9400 2.53-GHz with 6-MB L2 cache and 1066-MHz FSB	√	√
	Intel Core2 Duo T6600 2.20-GHz with 2-MB L2 cache and 800-MHz FSB	√	√
	Intel Core2 Duo T6400 2.00-GHz with 2-MB L2 cache and 800-MHz FSB	√	√
	Intel Core2 Duo T5800 2.00-GHz with 2-MB L2 cache and 800-MHz FSB	√	√
	Intel Pentium® Dual-Core T4200 2.0-GHz with 1-MB L2 cache and 800-MHz FSB	√	√
	Intel Pentium Dual-Core T3400 2.16-GHz with 1-MB L2 cache and 667-MHz FSB	√	√
	Intel Core2 Duo P8700 2.53-GHz with 3-MB L2 cache and 1066-MHz FSB	√	√
	Intel Core Duo P8600 2.40-GHz with 3-MB L2 cache and 1066-MHz FSB	√	√
	Intel Core Duo P8400 2.26-GHz with 3-MB L2 cache and 1066-MHz FSB	√	√
	Intel Core Duo P7450 2.13-GHz with 3-MB L2 cache and 1066-MHz FSB	√	√
Chipset	Northbridge: Intel PM45	√	
	Northbridge: Intel GM45		√

Category	Description	Computer models equipped with graphics subsystems with discrete memory	Computer models equipped with graphics subsystems with UMA memory
	Southbridge: Intel ICH9M	√	√
Graphics	nVIDIA GeForce 9200M GS with 512 MB of dedicated video memory (64 MB × 16 DDR2 × 4 PCs)	√	
	<ul style="list-style-type: none"> • Up to 767 MB video memory on computer models equipped with 1 GB of main system memory • Up to 1279 MB video memory on computer models equipped with 2 GB of main system memory • Up to 1791 MB video memory on computer models equipped with 3 GB of main system memory • Up to 1791 MB video memory on computer models equipped with 4 GB of main system memory (32-bit OS) • Up to 2303 MB video memory on computer models equipped with 4 GB of main system memory (64-bit OS) 		
	ATI Discrete PCI Express x 16 Graphics	√	
	<ul style="list-style-type: none"> • ATI Mobility Radeon HD 4650 (M96) with 1 GB dedicated video memory (64MBx16 DDR3 x 8 PCs) • ATI Mobility Radeon HD 4530 (M92) with 512 MB dedicated video memory (64MBx16 DDR3 x 4 PCs) 		
	Intel Extreme Graphics - Intel GMA 4700MHD		√

Category	Description	Computer models equipped with graphics subsystems with discrete memory	Computer models equipped with graphics subsystems with UMA memory
	<p>Unified memory architecture (UMA) with shared video memory:</p> <ul style="list-style-type: none"> • Up to 270 MB of graphics subsystem memory on computer models equipped with 1024 MB of main system memory • Up to 782 MB of graphics subsystem memory on computer models equipped with 2048 MB of main system memory • Up to 1294 MB of graphics subsystem memory on computer models equipped with 3072 MB of main system memory • Up to 1294 MB of graphics subsystem memory on computer models equipped with 4096 MB of main system memory (32-bit OS) • Up to 1759 MB of graphics subsystem memory on computer models equipped with 4096 MB of main system memory (64-bit OS) • Memory size is dynamic change 		✓
Panels	<ul style="list-style-type: none"> • 15.6-inch, WXGA (1366 × 768) BrightView • 16.0-inch, WXGA (1366 × 768) BrightView • 15.6-inch WXGA (1366 × 768) AntiGlare • 16.0-inch, WXGA (1366 × 768) AntiGlare • AntiGlare glass panel cover support • Support for lighted logo on display enclosure • Typical brightness 200 nits 	✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓
Memory	<p>2 SODIMM slots</p> <p>Customer-accessible/upgradable</p> <p>PC2-6400, 800-MHz, DDR2</p> <p>Dual-channel support</p>	✓ ✓ ✓ ✓	✓ ✓ ✓ ✓

Category	Description	Computer models equipped with graphics subsystems with discrete memory	Computer models equipped with graphics subsystems with UMA memory
	<p>Supports up to 8 GB system memory</p> <ul style="list-style-type: none"> • 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 (2.5-inch) hard drives	√	√
	Supports one hard drive	√	√
	Support for HP ProtectSmart Hard Drive Protection	√	√
	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) • 400 GB (5400 rpm) • 500 GB (5400 rpm) (select models only) 		
Optical drives	12.7-mm tray load	√	√
	Serial ATA	√	√
	Fixed (removal of 1 screw required)	√	√
	Supports the following optical drives:	√	√
	<ul style="list-style-type: none"> • DVD±RW and D-RW SuperMulti Double-Layer Combo Drive with • Blu-ray ROM DVD±R/RW SuperMulti Double-Layer Drive • Blu-ray ROM with LightScribe DVD±R/RW SuperMulti Double-Layer Drive 		

Category	Description	Computer models equipped with graphics subsystems with discrete memory	Computer models equipped with graphics subsystems with UMA memory
Webcam	Low-light VGA camera	✓	✓
	Fixed (no tilt)	✓	✓
	Activity LED	✓	✓
	640 × 480 by 24 frames per second	✓	✓
Microphone	2 omnidirectional microphones, dual-array with appropriate software (supports beam forming, echo cancellation, and noise suppression)	✓	✓
Audio	HD Audio (IDT)	✓	✓
	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:		
	Broadcom BCM4312 802.11b/g	✓	✓
	Broadcom BCM4312 802.11b/g + Bluetooth® with two antennas	✓	✓
	Broadcom 4322 802.11a/b/g/n WLAN	✓	✓
	Broadcom 4322 802.11a/b/g/n WLAN + Bluetooth	✓	✓
	Intel Wi-Fi Link 5100 802.11a/b/g/n WLAN module with two antennas	✓	✓
	Intel Wi-Fi Link 5100 802.11a/b/g/n WLAN module + Bluetooth with two antennas	✓	✓
	Intel Wi-Fi Link 5100 802.11a/b/g WLAN module with two antennas	✓	✓
	Intel Wi-Fi Link 5100 802.11a/b/g WLAN module + Bluetooth with two antennas	✓	✓
TV tuner	Integrated NTSC/ATSC/ANG hybrid TV tuner module (select models only)	✓	✓
	Integrated worldwide analog DVB-T/ANG TV tuner module (select models only)	✓	✓
	Integrated DVB-T TV tuner module (select models only)	✓	
	Support for TV tuner antennas for both DVB-T and NTSC/ATSC (select models only)	✓	✓

Category	Description	Computer models equipped with graphics subsystems with discrete memory	Computer models equipped with graphics subsystems with UMA memory
External media card	One ExpressCard 54 slot	√	√
	Digital Media Slot, supports Secure Digital (SD) Memory Card, Multi Media Card (MMC), Memory Stick (MS, Memory Stick Pro (MSP), xD Picture Card (XD))	√	√
Internal card expansion	Two Mini Card slots <ul style="list-style-type: none"> • One slot for WLAN • One slot for TV tuner or other technologies 	√	√
Ports	VGA, 15-pin supporting 1920 × 1200 resolution at 75Hz	√	
	VGA, 15-pin supporting 1600 × 1200 resolution at 75Hz		√
	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)	√	√
	2-pin AC power for 90-W AC adapter	√	√
Docking	Expansion port 3 supports the HP xb3000 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)	√	√
	TouchPad supports 2-way scrolling	√	√
	Taps enabled as default	√	√
Power requirements	6-cell, 47-Wh, 2.55-Ah Li-ion battery	√	
	6-cell, 55-Wh, 2.55-Ah Li-ion battery (Germany only)		√

Category	Description	Computer models equipped with graphics subsystems with discrete memory	Computer models equipped with graphics subsystems with UMA memory
	6-cell, 55-Wh, 2.55-Ah Li-ion battery	√	
	12-cell, 95-Wh, 8.8-Ah Li-ion battery	√	
	90-W AC adapter with localized cable plug support (2-wire plug with ground pin, supports 2-pin DC connector)	√	
	65-W AC adapter with localized cable plug support (2-wire plug with ground pin, supports 2-pin DC connector)		√
Security	Security cable slot	√	√
	Fingerprint reader (select models only)	√	√
Operating system	Preinstalled:		
	Windows Vista® Business (32 bit)	√	√
	Windows Vista Home Basic (32 bit)	√	√
	Windows Vista Premium (32 bit and 64 bit)	√	√
	Windows Vista Ultimate (64 bit)	√	√
Serviceability	AC adapter	√	√
	Battery (system)	√	√
	Hard drive	√	√
	Memory module	√	√
	Optical drive	√	√
	Mini Card components	√	√
	WLAN module	√	√

2 External component identification

Top components

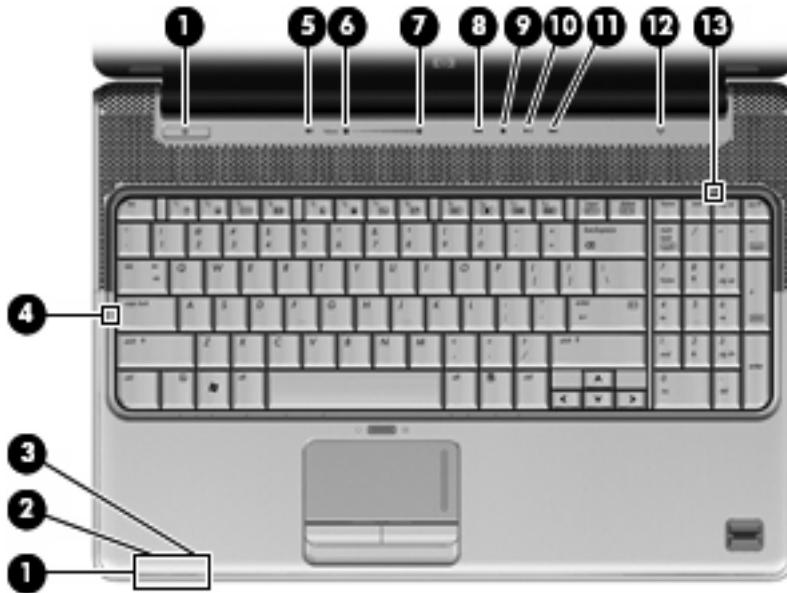
TouchPad



Item	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

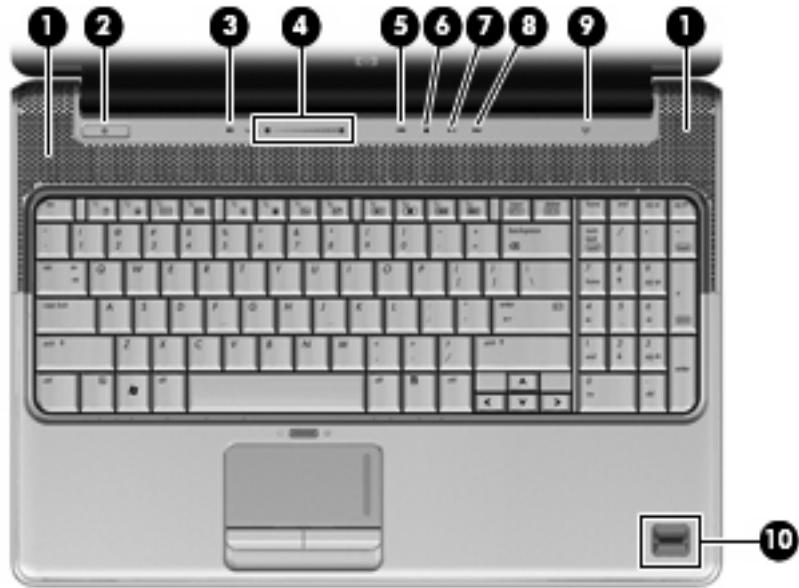


Item	Component	Description
(1)	Power lights* (2)	<ul style="list-style-type: none"> On: The computer is on. Blinking: The computer is in the Sleep state. Off: The computer is off or in Hibernation.
(2)	Battery light	<ul style="list-style-type: none"> On: A battery is charging. Blinking: A battery that 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	On: The previous/rewind button has been pressed.
(9)	Play/pause light	On: The play/pause button has been pressed.
(10)	Next/fast forward light	On: The next/fast forward button has been pressed.

Item	Component	Description
(11)	Stop light	On: The stop button has been pressed.
(12)	Wireless light	<ul style="list-style-type: none"> ● Blue: An integrated wireless device, such as a wireless local area network (WLAN) device and/or a Bluetooth device, is turned on. ● Amber: All wireless devices are turned off.
(13)	Num lock light	On: The integrated numeric keypad is enabled, or num lock is enabled on a connected optional keypad.

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

Buttons, speakers and fingerprint reader



Item	Component	Description
(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	<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	Plays or pauses media.

Item	Component	Description
(7)	Next/fast forward button	<ul style="list-style-type: none"> Plays the next track or chapter when the button is pressed once. Fast forwards media when pressed simultaneously with the fn key.
(8)	Stop button	Stops playback.
(9)	Wireless button	Turns the wireless feature on or off, but does not create a wireless connection. NOTE: A wireless network must be set up in order to establish a wireless connection.
(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



Item	Component	Description
(1)	esc key	Displays system information about your computer when pressed in combination with the fn key.
(2)	fn key	Executes frequently used system functions when pressed in combination with a function key or the esc key.
(3)	Windows logo key	Displays the Windows Start menu.
(4)	Windows applications key	Displays a shortcut menu for items beneath the pointer.
(5)	Integrated numeric keypad keys	Can be used like the keys on an external numeric keypad.
(6)	Function keys	Execute frequently used system functions when pressed in combination with the fn key.

Front components



Item	Component	Description
(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	<p>Enables airflow to cool internal components.</p> <p>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.</p>

Right-side components



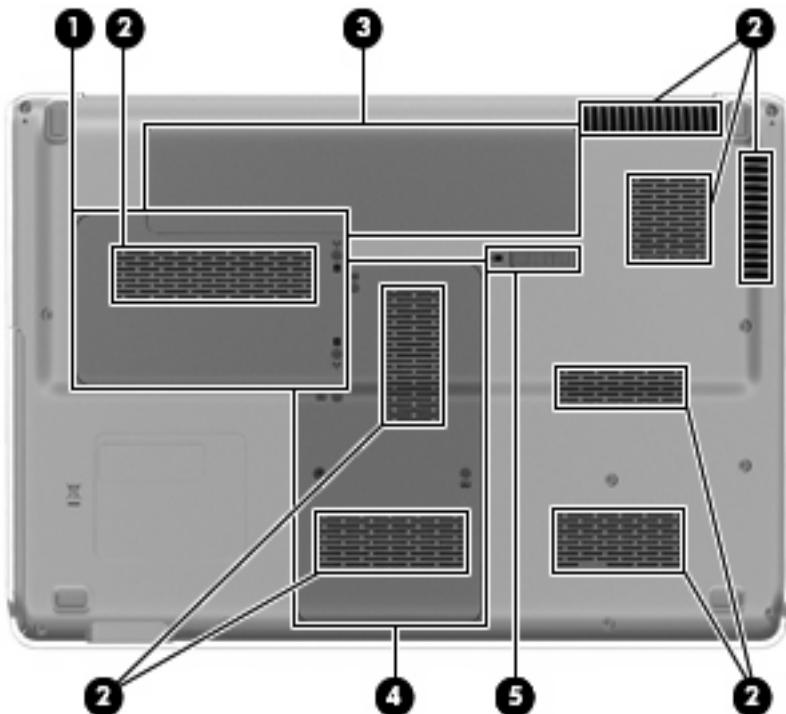
Item	Component	Description
(1)	Optical drive	Reads optical discs and, on select models, also writes to optical discs.
(2)	Optical drive light	Blinking: The optical drive is being accessed.
(3)	USB ports (2)	Connect optional USB devices.
(4)	TV antenna/cable jack (select models only)	Connects a TV antenna, 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)	Activity light for the power connector	Indicates that the power is on.
(8)	Power connector	Connects an AC adapter.

Left-side components



Item	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)	Activity light for the Digital Media Slot	Indicates that the component installed in the Digital Media Slot is operating.
(9)	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 • Secure Digital High Capacity (SDHC) Memory Card • xD-Picture Card (XD) Type H • xD-Picture Card (XD) Type M
(10)	ExpressCard slot	Supports optional ExpressCard/54 cards.

Bottom components



Item	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. 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



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

Wireless antennas (select models only)

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



 **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.

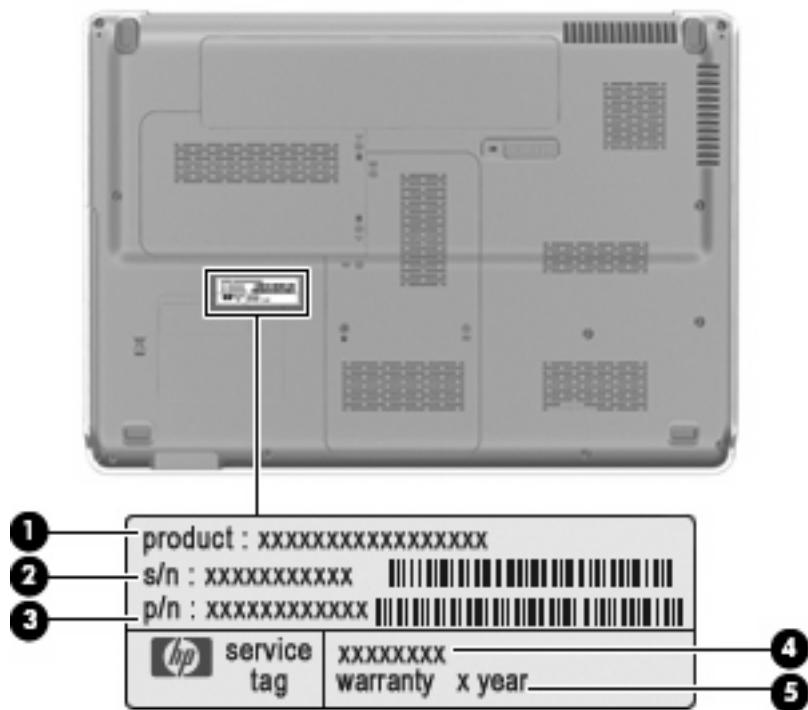
To see wireless regulatory notices, refer to the section of the *Regulatory, Safety and Environmental Notices* that applies to your country or region. These notices are located in Help and Support.

3 Illustrated parts catalog

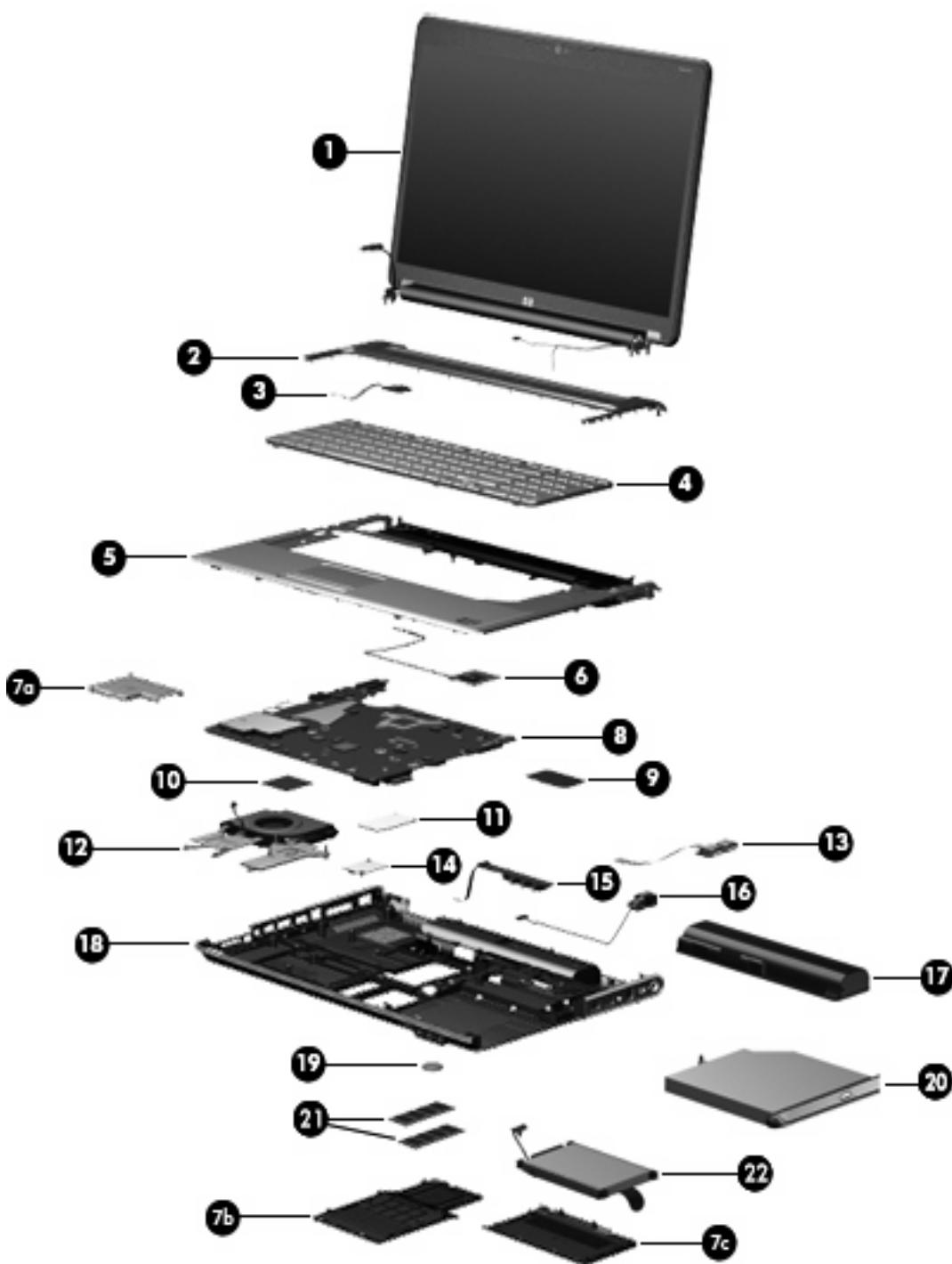
Service tag

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 wireless antenna transceivers and cables)	
	15.6-inch WXGA BrightView display assembly with webcam and 2 microphones, Onyx	511867-001
	15.6-inch WXGA BrightView display assembly with webcam and 2 microphones, Moonlight White	517862-001

Item	Description	Spare part number
	15.6-inch WXGA BrightView display assembly with webcam and 2 microphones, Espresso Black	518776-001
	15.6-inch WXGA AntiGlare display assembly with webcam and 2 microphones, Moonlight White	518775-001
	15.6-inch WXGA AntiGlare display assembly with webcam and 2 microphones, Espresso Black	518777-001
	16.0-inch WXGA BrightView display assembly with webcam and 2 microphones, Onyx	511865-001
	16.0-inch WXGA BrightView display assembly with webcam and 2 microphones, Moonlight White	512357-001
	16.0-inch WXGA BrightView display assembly with webcam and 2 microphones, Espresso Black	518771-001
	16.0-inch WXGA AntiGlare display assembly with webcam and 2 microphones, Onyx	511866-001
	16.0-inch WXGA AntiGlare display assembly with webcam and 2 microphones, Moonlight White	512358-001
	16.0-inch WXGA AntiGlare display assembly with webcam and 2 microphones, Espresso Black	518772-001
NOTE: See Display assembly components on page 31 for more information on display assembly spare part numbers.		
(2)	Switch cover (includes LED board and cable)	
	Onyx	512829-001
	Moonlight White	518110-001
	Espresso Black	518790-001
(3)	Power button board for computers with discrete graphics subsystem memory (includes cable)	512835-001
	Power button board for computers with UMA graphics subsystem memory (includes cable)	512834-001
(4)	Keyboard, Onyx (includes keyboard cable)	
	Belgium	511885-A41
	The Czech Republic	511885-221
	Denmark, Norway, and Sweden	514115-DH1
	France	511885-051
	French Canada	514115-121
	Germany	511885-041
	Greece	511885-DJ1
	Hungary	511885-211
	International	511885-B31
	Israel	511885-BB1
	Italy	511885-061
	Japan	514115-291

Item	Description	Spare part number
	Latin America	511885-161
	Portugal	511885-131
	Russia	511885-251
	Saudi Arabia	514115-171
	South Korea	514115-AD1
	Spain	511885-071
	Switzerland	511885-BG1
	Taiwan	511885-AB1
	Thailand	514115-281
	Turkey	511885-141
	The United Kingdom	511885-031
	The United States	511885-001
(4)	Keyboard, Moonlight White (includes keyboard cable)	
	Belgium	517864-A41
	The Czech Republic	517864-221
	Denmark, Norway, and Sweden	517864-DH1
	France	517864-051
	French Canada	517864-121
	Germany	517864-041
	Greece	517864-DJ1
	Hungary	517864-211
	International	517864-B31
	Israel	517864-BB1
	Italy	517864-061
	Japan	517864-291
	Latin America	517864-161
	Portugal	517864-131
	Russia	517864-251
	Saudi Arabia	517864-171
	South Korea	517864-AD1
	Spain	517864-071
	Switzerland	517864-111
	Taiwan	517864-AB1
	Thailand	517864-281

Item	Description	Spare part number
Turkey		517864-141
The United Kingdom		517864-031
The United States		517864-001
(4) Keyboard, Espresso Black (includes keyboard cable)		
Belgium		518965-A41
The Czech Republic		518965-221
Denmark, Norway, and Sweden		518966-DH1
France		518965-051
French Canada		518966-121
Germany		518965-041
Greece		518965-DJ1
Hungary		518965-211
International		518965-B31
Israel		518965-BB1
Italy		518965-061
Japan		518966-291
Latin America		518965-161
Portugal		518965-131
Russia		518965-251
Saudi Arabia		518966-171
South Korea		518966-AD1
Spain		518965-071
Switzerland		518965-111
Taiwan		518965-AB1
Thailand		518966-281
Turkey		518965-141
The United Kingdom		518965-031
The United States		518965-001
(5) Top cover (includes TouchPad and TouchPad buttons, and speaker assembly):		
For use only with computer models equipped with a fingerprint reader, Onyx		512828-001
For use only with computer models not equipped with a fingerprint reader, Onyx		511888-001
For use only with computer models equipped with a fingerprint reader, Moonlight White	518108-001	
For use only with computer models not equipped with a fingerprint reader, Moonlight White	518109-001	
For use only with computer models equipped with a fingerprint reader, Espresso Black	518788-001	

Item	Description	Spare part number
	For use only with computer models not equipped with a fingerprint reader, Espresso Black	518789-001
(6)	Fingerprint reader board (select models only)	Included with the top cover
	Plastics Kit , includes:	511890-001
	<ul style="list-style-type: none"> • (7a) Express card slot bezel • (7b) Memory module cover • (7c) Hard drive bay cover 	
	NOTE: See Plastics Kit on page 34 for more information.	
(8)	System board (includes replacement thermal material):	
	<ul style="list-style-type: none"> • For use with computer models equipped with UMA graphics subsystem memory 	511863-001
	<ul style="list-style-type: none"> • For use with computer models equipped with discrete graphics subsystem memory 	511864-001
	<ul style="list-style-type: none"> • For use with computer models equipped with ATI Mobility Radeon HD4650 graphics with 1-GB memory 	518431-001
	<ul style="list-style-type: none"> • For use with computer models equipped with ATI Mobility Radeon HD4530 graphics with 512-MB memory 	518432-001
	<ul style="list-style-type: none"> • For use with computer models equipped with UMA graphics and GM47 chipset 	518433-001
(9)	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 512832-001. For more information, see Cable Kit on page 35 .	
	For use in all countries and regions except Australia and New Zealand	461749-001
	For use only in Australia and New Zealand	461749-011
(10)	Processor (includes replacement thermal material):	
	Intel Core2 Duo T9800 2.93-GHz with 6-MB L2 cache and 1066-MHz FSB	507951-001
	Intel Core2 Duo T9600 2.80-GHz with 6-MB L2 cache and 1066-MHz FSB	507955-001
	Intel Core2 Duo T9550 2.66-GHz with 6-MB L2 cache and 1066-MHz FSB	507953-001
	Intel Core2 Duo T9400 2.53-GHz with 6-MB L2 cache and 1066-MHz FSB	507954-001
	Intel Core2 Duo T6600 2.20-GHz with 2-MB L2 cache and 800-MHz FSB	513593-001
	Intel Core2 Duo T6400 2.00-GHz with 2-MB L2 cache and 800-MHz FSB	513592-001
	Intel Core2 Duo T5800 2.00-GHz with 2-MB L2 cache and 800-MHz FSB	515040-001
	Intel Pentium Dual-Core T4200 2.00-GHz with 1-MB L2 cache and 800-MHz FSB	513599-001
	Intel Pentium Dual-Core T3400 2.16-GHz with 1-MB L2 cache and 667-MHz FSB	509549-001
	Intel Core Duo P8700 2.53-GHz with 3-MB L2 cache and 1066-MHz FSB	507960-001
	Intel Core Duo P8600 2.40-GHz with 3-MB L2 cache and 1066-MHz FSB	507961-001
	Intel Core Duo P8400 2.26-GHz with 3-MB L2 cache and 1066-MHz FSB	507962-001
	Intel Core Duo P7450 2.13-GHz with 3-MB L2 cache and 1066-MHz FSB	507122-001

Item	Description	Spare part number
	Intel Celeron T1600 1.66-GHz with 1-MB L2 cache and 667-MHz FSB (for use only with computers equipped with UMA graphics memory subsystems)	501894-001
(11) WLAN module: (Bluetooth supported)		
	Intel Wi-Fi Link 5100 802.11a/b/g/n WLAN module for use with computer models in all countries and regions	480985-001
	Intel Wi-Fi Link 5100 802.11a/b/g WLAN module for use with computer models in all countries and regions	482957-001
	Broadcom 4322 802.11a/b/g/n WLAN module for use only with computer models 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	487330-001
	Broadcom 4322 802.11a/b/g/n WLAN module for use only with computer models 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, Equitorial 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	487330-002
	Broadcom BCM4312 802.11b/g WLAN module for use only with computer models 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	459263-001

Item	Description	Spare part number
	Broadcom BCM4312 802.11b/g WLAN module for use only with computer models 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, Equitorial 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	459263-002
	Broadcom BCM4312 802.11b/g WLAN module for use only with computer models 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 computer models 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, Equitorial 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

Item	Description	Spare part number
	Broadcom BCM4312 802.11b/g WLAN module for use only with computer models 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 computer models 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, Equitorial 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
(12)	Fan/heat sink assembly (includes replacement thermal material):	
	For use only with computer models equipped with ATI Mobility Radeon HD4650 graphics subsystems	518435-001
	For use only with computer models equipped with graphics subsystems with discrete graphics memory	512837-001
	For use only with computer models equipped with graphics subsystems with UMA graphics memory	512830-001
(13)	USB board	
	For use with computer models equipped with graphics subsystems with UMA graphics memory	516497-001
	For use with computer models equipped with graphics subsystems with discrete graphics memory	516855-001
(14)	Bluetooth module	483113-001
	Bluetooth cable (not illustrated)	489822-001
(15)	Audio/infrared board (includes cable):	
	For use with computer models equipped with UMA graphics subsystem memory	511892-001
	For use with computer models equipped with discrete graphics subsystem memory	512836-001

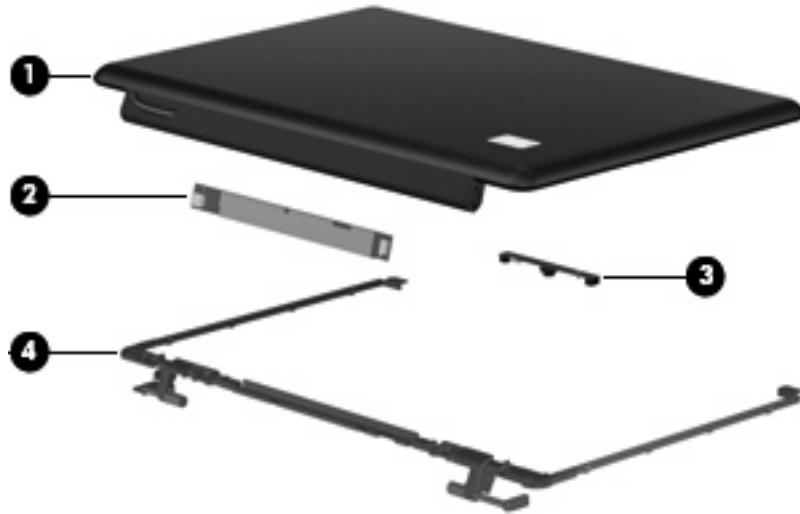
Item	Description	Spare part number
(16)	Power connector cable	
	NOTE: The power connector cable is available in the Cable Kit, spare part number 512832-001. For more information, see Cable Kit on page 35 .	
(17)	Battery	
	12-cell, 95-Wh, 8.8-Ah Li-ion battery for use with all computer models	511884-001
	6-cell, 55-Wh, 2.55-Ah Li-ion battery for use with all computer models	511872-001
	6-cell, 55-Wh, 2.55-Ah Li-ion battery for use only with computers for Germany	511872-002
	6-cell, 47-Wh, 2.55-Ah Li-ion battery for use with all computer models	511883-001
(18)	Base enclosure (includes rubber feet)	511887-001
	Rubber Feet Kit (not illustrated, includes 4 base enclosure rubber feet)	516499-001
(19)	RTC battery	449729-001
	TV tuner module (not illustrated):	
	NOTE: The TV tuner module spare part kits do not include a TV tuner module cable. The TV tuner module cable is included in the Cable Kit, spare part number 512832-001.	
	NTSC/ATSC/ANG hybrid TV tuner module	482899-001
	DVB-T/ANG TV tuner module	482899-002
	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 F-PAL jack	482900-001
	With PAL jack	482900-002
(20)	Optical drive (includes bezel and bracket):	
	DVD±RW and CD-RW SuperMulti Double-Layer Combo Drive	511880-001
	Blu-ray ROM DVD±R/RW SuperMulti Double-Layer Drive	511881-001
	Blu-ray ROM with LightScribe DVD±R/RW SuperMulti Double-Layer Drive	511882-001
(21)	Memory module (DDR2, 800-MHz, PC2-6400, 1-DIMM):	
	4 GB	511871-001
	2 GB	511870-001
	1 GB	511869-001
(22)	Hard drive (includes left and right bracket rails, connector cable, Mylar cover with tab, and four rubber isolators):	
	160 GB, 5400 rpm	511873-001
	250 GB, 7200 rpm (select models only)	511874-001
	250 GB, 5400 rpm	511875-001
	320 GB, 7200 rpm (select models only)	511876-001
	320 GB, 5400 rpm	511877-001

Item	Description	Spare part number
	400 GB, 5400 rpm	511878-001
	500 GB, 5400 rpm	511879-001
	Hard Drive Hardware Kit (not illustrated, includes left and right bracket rails, connector cable, Mylar cover with tab, and 4 rubber isolators)	483862-001

Display assembly components

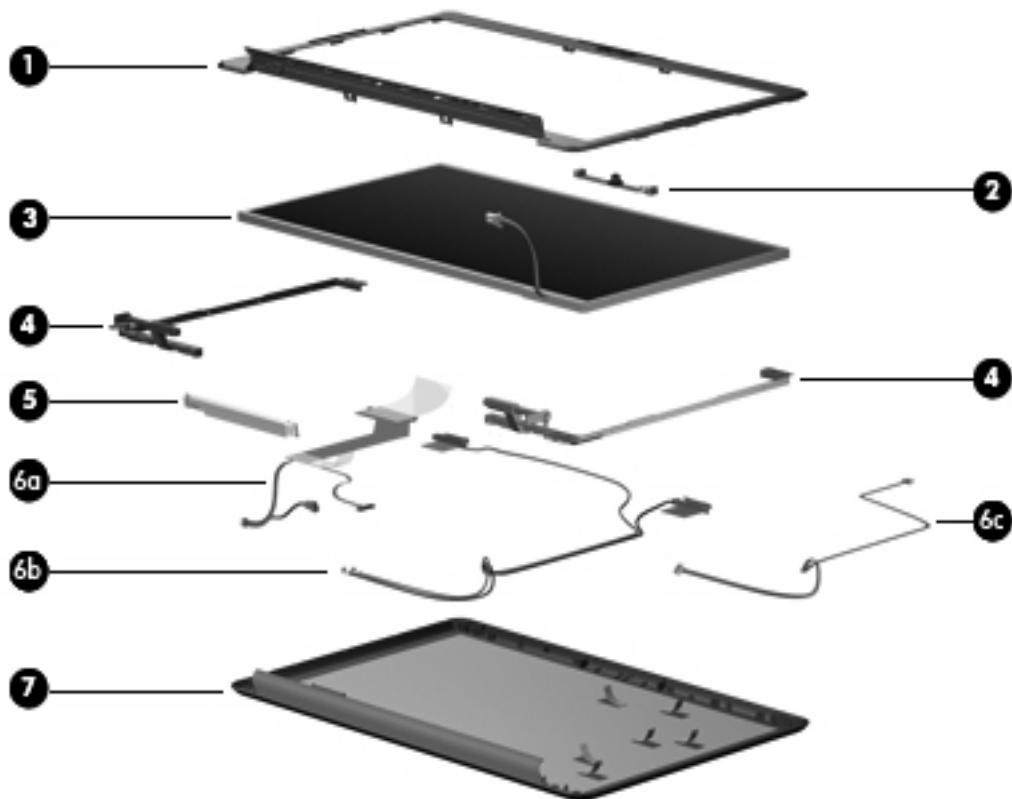
The HP Pavilion dv6 Entertainment PC offers two types of display assemblies. Component spare parts are listed in this section for AntiGlare display assemblies and BrightView display assemblies.

AntiGlare display assembly spare parts



Item	Description	Spare part number
(1)	Display enclosure, Onyx (for 16-inch only) (includes wireless antenna transceivers and cables)	513478-001
	Display enclosure, Moonlight White (for 16-inch only) (includes wireless antenna transceivers and cables)	517861-001
	Display enclosure, Espresso Black (for 16-inch only) (includes wireless antenna transceivers and cables)	518774-001
	Display enclosure, Moonlight White (for 15.6-inch only) (includes wireless antenna transceivers and cables)	518775-001
	Display enclosure, Espresso Black (for 15.6-inch only) (includes wireless antenna transceivers and cables)	518777-001
(2)	Display inverter	488317-001
(3)	Webcam/microphone module (includes cable)	512827-001
(4)	Display Hinge Kit (for 16-inch only) (includes left and right hinges)	513477-001
	Display Hinge Kit (for 15.6-inch only) (includes left and right hinges)	519209-001
	Display Rubber Kit , (for 16-inch only) (not illustrated, includes display bezel rubber screw covers)	512361-001
	Display Rubber Kit , (for 15.6-inch only) (not illustrated, includes display bezel rubber screw covers)	513479-001
	Display Screw Kit (not illustrated)	512362-001
	Display LCD cable (not illustrated)	512825-001

BrightView display assembly spare parts



Item	Description	Spare part number
(1)	Display bezel (includes logo and display lid switch actuator magnet) For use with computer models equipped with 16-inch displays	512359-001
	For use with computer models 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 with computer models equipped with 16-inch display panels	511868-001
	For use with computer models equipped with 15.6-inch display panels	512363-001
(4)	Display Hinge Kit (includes left and right hinges) For use with computer models equipped with 16-inch display panels	512360-001
	For use with computer models equipped with 15.6-inch display panels	512365-001
(5)	Display inverter	488317-001
(6a)	Display cable	512825-001
(6b)	Wireless antenna cable (included in Cable Kit 512832-001)	
(6c)	Webcam/microphone cable (includes module)	512827-001
(7)	Display enclosure, Onyx (includes wireless antenna transceivers and cables and logo LED board and cable) 16-inch Display enclosure, Moonlight White (includes wireless antenna transceivers and cables and logo LED board and cable) 15.6-inch	512824-001 517860-001

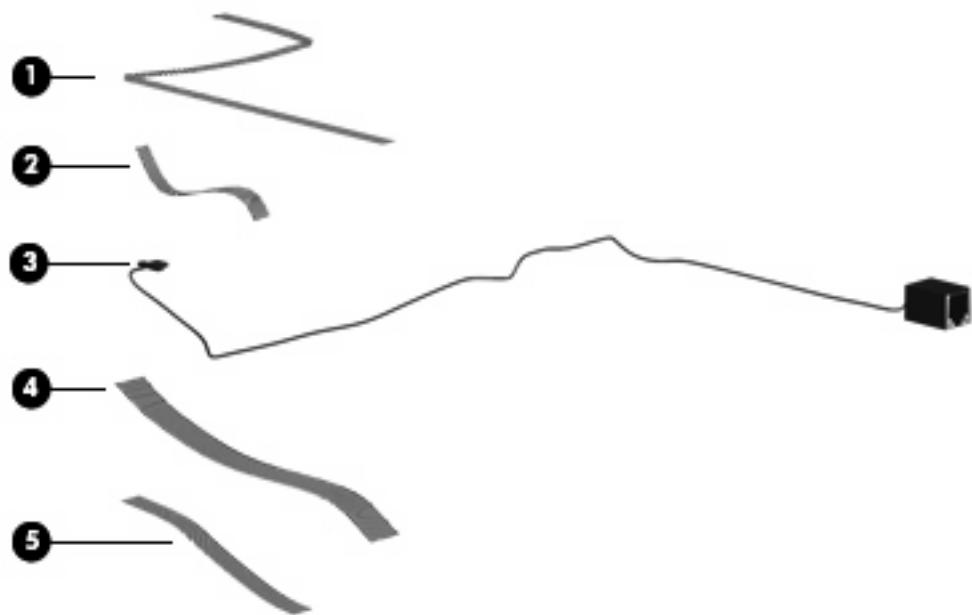
Item	Description	Spare part number
	Display enclosure, Espresso Black (includes wireless antenna transceivers and cables and logo LED board and cable) 16-inch	518773-001
	Display Rubber Kit (not illustrated, includes display bezel rubber screw covers) 15.6-inch	513479-001
	Display Rubber Kit (not illustrated, includes display bezel rubber screw covers) 16-inch	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 bay cover (includes 2 captive screws, secured by C-clips)	
(3)	Memory module compartment cover (includes 1 captive screw, secured by a C-clip)	

Cable Kit



Item	Description	Spare part number
	Cable Kit	512832-001
(1)	Fingerprint reader cable	
(2)	Audio/Infrared module cable	
(3)	Modem module cable (includes RJ-11 jack)	
(4)	USB cable	
(5)	Power connector cable	
TV tuner module cable (not illustrated)		

Miscellaneous parts

Description	Spare part number
AC adapters	
65-W AC adapter	463958-001
90-W AC adapter, PFC	463955-001
90-W AC adapter for use only in Germany	510485-005
Power cords, Black:	
Argentina	490371-D01
Australia and New Zealand	490371-011
Belgium, Europe, Finland, France, Germany, Greece, the Netherlands, Norway, Portugal, Spain, and Sweden	490371-021
Brazil	490371-201
Canada, French Canada, Latin America, Thailand, and the United States	490371-001
Denmark	490371-081
India	490371-D61
Israel	490371-BB1
Italy	490371-061
Japan	490371-291
The People's Republic of China	490371-AA1
South Africa	490371-AR1
South Korea	490371-AD1
Switzerland	490371-111
Taiwan	490371-AB1
The United Kingdom and Hong Kong	490371-031
Bluetooth cable	
Remote controls	
Full-function remote control	465540-001
Full-function remote control with teletext	465541-001
Rubber Kit	
	516499-001

Description	Spare part number
Headphone , black, with volume control and stereo/mono switch	371693-001
Screw Kit	516498-001
<ul style="list-style-type: none"> • Phillips PM2.0×3.0 screw • Phillips PM2.0×14.0 captive screw • Phillips PM2.5×3.0 screw • Phillips PM2.5×4.0 screw • Phillips PM2.5×5.0 screw • Phillips PM2.5×5.0 captive screw • Phillips PM2.5×5.5 captive screw • Phillips PM2.5×6.5 screw • Phillips PM3.0×3.5 screw 	

Sequential part number listing

Spare part number	Description
371693-001	Headphone, black, with volume control and stereo/mono switch
449729-001	RTC battery
459263-001	Broadcom BCM4312 802.11b/g WLAN module for use only with computer models 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
459263-002	Broadcom BCM4312 802.11b/g WLAN module for use only with computer models 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, Equitorial 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
461749-001	Modem module for use in all countries and regions except Australia and New Zealand
461749-011	Modem module for use only in Australia and New Zealand

Spare part number	Description
463955-001	90-W AC adapter, PFC
463958-001	65-W AC adapter
465540-001	Full-function remote control
465541-001	Full-function remote control with teletext
480985-001	Intel Wi-Fi Link 5100 802.11a/b/g/n WLAN module for use with computer models in all countries and regions
482899-001	NTSC/ATSC/ANG hybrid TV tuner module
482899-002	DVB-T/ANG TV tuner module
482899-003	DVB-T TV tuner module (for use only with computers equipped with discrete graphics memory)
482900-001	TV tuner external antenna cable with F-PAL jack
482900-002	TV tuner external antenna cable with PAL jack
482957-001	Intel Wi-Fi Link 5100 802.11a/b/g WLAN module for use with computer models in all countries and regions
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)
487330-001	Broadcom 4322 802.11a/b/g/n WLAN module for use only with computer models 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
487330-002	Broadcom 4322 802.11a/b/g/n WLAN module for use only with computer models 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, Equitorial 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
488317-001	Display inverter
489822-001	Bluetooth cable
490371-001	Power cord for use in Canada, French Canada, Latin America, Thailand, and the United States
490371-011	Power cord for use in Australia and New Zealand

Spare part number	Description
490371-021	Power cord for use in Belgium, Europe, Finland, France, Germany, Greece, the Netherlands, Norway, Portugal, Spain, and Sweden
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-AA1	Power cord for use in the People's Republic of China
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-BB1	Power cord for use in Israel
490371-D01	Power cord for use in Argentina
490371-D61	Power cord for use in India
501894-001	Intel Celeron T1600 1.66-GHz processor with 1-MB L2 cache and 667-MHz FSB (for use only with computers equipped with UMA graphics memory subsystems)
504593-001	Broadcom BCM4312 802.11b/g WLAN module for use only with computer models 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 computer models 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, Equitorial 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 computer models 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 computer models 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, Equitorial 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
507122-001	Intel Core Duo P7450 2.13-GHz processor with 3-MB L2 cache and 1066-MHz FSB
507951-001	Intel Core2 Duo T9800 2.93-GHz processor with 6-MB L2 cache and 1066-MHz FSB
507953-001	Intel Core2 Duo T9550 2.66-GHz processor with 6-MB L2 cache and 1066-MHz FSB
507954-001	Intel Core2 Duo T9400 2.53-GHz processor with 6-MB L2 cache and 1066-MHz FSB
507955-001	Intel Core2 Duo T9600 2.80-GHz processor with 6-MB L2 cache and 1066-MHz FSB
507960-001	Intel Core2 Duo P8700 2.53-GHz processor with 3-MB L2 cache and 1066-MHz FSB
507961-001	Intel Core2 Duo P8600 2.40-GHz processor with 3-MB L2 cache and 1066-MHz FSB
507962-001	Intel Core2 Duo P8400 2.26-GHz processor with 3-MB L2 cache and 1066-MHz FSB
509549-001	Intel Pentium Dual-Core T3400 2.16-GHz processor with 1-MB L2 cache and 667-MHz FSB
510485-005	90-W AC adapter for use only in Germany
511863-001	System board for use with computer models equipped with UMA graphics subsystem memory (includes replacement thermal material)
511864-001	System board for use with computer models equipped with discrete graphics subsystem memory (includes replacement thermal material)
511865-001	16.0-inch WXGA BrightView display assembly with webcam and 2 microphones, Onyx
511866-001	16.0-inch WXGA AntiGlare display assembly with webcam and 2 microphones, Onyx
511867-001	15.6-inch WXGA BrightView display assembly with webcam and 2 microphones, Onyx
511868-001	BrightView display panel for use only with computer models equipped with 16-inch display panels (includes display panel cable)
511869-001	1 GB memory module (DDR2, 800-MHz, PC2-6400, 1-DIMM)
511870-001	2 GB memory module (DDR2, 800-MHz, PC2-6400, 1-DIMM)
511871-001	4 GB memory module (DDR2, 800-MHz, PC2-6400, 1-DIMM)
511872-001	6-cell, 55-Wh, 2.55-Ah Li-ion battery for use with all computer models

Spare part number	Description
511872-002	6-cell, 55-Wh, 2.55-Ah Li-ion battery for use only with computers for Germany
511873-001	160 GB, 5400 rpm hard drive (includes left and right bracket rails, connector cable, Mylar cover with tab, and four rubber isolators)
511874-001	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)
511875-001	250 GB, 5400 rpm hard drive (includes left and right bracket rails, connector cable, Mylar cover with tab, and four rubber isolators)
511876-001	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)
511877-001	320 GB, 5400 rpm hard drive (includes left and right bracket rails, connector cable, Mylar cover with tab, and four rubber isolators)
511878-001	400 GB, 5400 rpm hard drive (includes left and right bracket rails, connector cable, Mylar cover with tab, and four rubber isolators)
511879-001	500 GB, 5400 rpm hard drive (includes left and right bracket rails, connector cable, Mylar cover with tab, and four rubber isolators) (select models only)
511880-001	DVD±RW and CD-ROM Super Multi Double-Layer Combo Drive
511881-001	Blu-ray ROM DVD±R/RW SuperMulti Double-Layer Drive
511882-001	Blu-ray ROM with LightScribe DVD±R/RW SuperMulti Double-Layer Drive
511883-001	6-cell, 47-Wh, 2.55-Ah Li-ion battery for use with all computer models
511884-001	12-cell, 95-Wh, 8.8-Ah Li-ion battery for use with all computer models
511885-001	Keyboard for use in the United States, Onyx
511885-031	Keyboard for use in the United Kingdom, Onyx
511885-041	Keyboard for use in Germany, Onyx
511885-051	Keyboard for use in France, Onyx
511885-061	Keyboard for use in Italy, Onyx
511885-071	Keyboard for use in Spain, Onyx
511885-131	Keyboard for use in Portugal, Onyx
511885-141	Keyboard for use in Turkey, Onyx
511885-161	Keyboard for use in Latin America, Onyx
511885-211	Keyboard for use in Hungary, Onyx
511885-221	Keyboard for use in the Czech Republic, Onyx
511885-251	Keyboard for use in Russia, Onyx
511885-A41	Keyboard for use in Belgium, Onyx
511885-AB1	Keyboard for use in Taiwan, Onyx
511885-B31	Keyboard for use Internationally, Onyx
511885-BB1	Keyboard for use in Israel, Onyx
511885-BG1	Keyboard for use in Switzerland, Onyx

Spare part number	Description
511885-DJ1	Keyboard for use in Greece, Onyx
511887-001	Base enclosure (includes rubber feet)
511888-001	Top cover for use only with computer models not equipped with a fingerprint reader, Onyx (includes TouchPad and TouchPad buttons, and speaker assembly)
511890-001	Plastics Kit (see Plastics Kit on page 34)
511892-001	Audio/infrared board (for use with computer models equipped with UMA graphics subsystem memory)
512357-001	16.0-inch WXGA BrightView display assembly with webcam and 2 microphones, Moonlight White
512358-001	16.0-inch WXGA AntiGlare display assembly with webcam and 2 microphones, Moonlight White
512359-001	Display bezel for use with computer models equipped with 16-inch BrightView displays (includes logo and display lid switch actuator magnet)
512360-001	Display Hinge Kit for use only with computer models equipped with 16-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 computer models equipped with 15.6-inch display panels (includes display panel cable)
512364-001	Display bezel for use with computer models equipped with 15.6-inch BrightView displays (includes logo and display lid switch actuator magnet)
512365-001	Display Hinge Kit for use only with computer models equipped with 15.6-inch BrightView display panels (includes left and right hinges)
512824-001	Display enclosure for 16-inch BrightView displays (includes wireless antenna transceivers and cables), Onyx
512825-001	Display Cable for use with computers models equipped with BrightView display panels
512827-001	Webcam/microphone module (includes cable)
512828-001	Top cover for use only with computer models equipped with a fingerprint reader, Onyx (includes TouchPad and TouchPad buttons, and speaker assembly)
512829-001	Switch cover (includes LED board and cable)
512830-001	Fan/heat sink assembly for use only with computer models equipped with graphics subsystems with UMA graphics memory (includes replacement thermal material)
512832-001	Cable Kit (see Cable Kit on page 35)
512834-001	Power button board for computer models equipped with UMA graphics subsystem memory (includes cable)
512835-001	Power button board for computers with discrete graphics subsystem memory (includes cable)
512836-001	Audio infrared board for use with computer models equipped with graphics subsystems with discrete graphics memory
512837-001	Fan/heat sink assembly for use only with computer models equipped with graphics subsystems with discrete graphics memory (includes replacement thermal material)
513477-001	Display Hinge Kit for 16-inch AntiGlare displays (includes left and right hinges)
513478-001	Display enclosure for 16-inch AntiGlare displays (includes wireless antenna transceivers and cables), Onyx

Spare part number	Description
513479-001	Display Rubber Kit for 15.6-inch AntiGlare displays (includes display bezel rubber screw covers)
513592-001	Intel Core2 Duo T6400 2.00-GHz with 2-MB L2 cache and 800-MHz FSB
513593-001	Intel Core2 Duo T6600 2.20-GHz processor with 2-MB L2 cache and 800-MHz FSB
513599-001	Intel Pentium Dual-Core T4200 2.00-GHz processor with 1-MB L2 cache and 800-MHz FSB
514115-121	Keyboard for use in French Canada, Onyx
514115-171	Keyboard for use in Saudi Arabia, Onyx
514115-281	Keyboard for use in Thailand, Onyx
514115-291	Keyboard for use in Japan, Onyx
514115-AD1	Keyboard for use in South Korea, Onyx
514115-DH1	Keyboard for use in Denmark, Norway, and Sweden, Onyx
515040-001	Intel Core2 Duo T5800 2.00-GHz processor with 2-MB L2 cache and 800-MHz FSB
516497-001	USB board for computer models equipped with graphics subsystems with UMA graphics memory
516498-001	Screw Kit
516499-001	Rubber Feet Kit
516855-001	USB board for computer models equipped with graphics subsystems with discrete graphics memory
517860-001	Display enclosure for 15.6-inch BrightView displays (includes wireless antenna transceivers and cables and logo LED board and cable), Moonlight White
517861-001	Display enclosure for 16-inch AntiGlare displays (includes wireless antenna transceivers and cables), Moonlight White
517862-001	15.6-inch WXGA BrightView display assembly with webcam and 2 microphones, Moonlight White (includes wireless antenna transceiver cables)
517864-001	Keyboard for use in the United States, Moonlight White
517864-031	Keyboard for use in the United Kingdom, Moonlight White
517864-041	Keyboard for use in Germany, Moonlight White
517864-051	Keyboard for use in France, Moonlight White
517864-061	Keyboard for use in Italy, Moonlight White
517864-071	Keyboard for use in Spain, Moonlight White
517864-111	Keyboard for use in Switzerland, Moonlight White
517864-121	Keyboard for use in French Canada, Moonlight White
517864-131	Keyboard for use in Portugal, Moonlight White
517864-141	Keyboard for use in Turkey, Moonlight White
517864-161	Keyboard for use in Latin America, Moonlight White
517864-171	Keyboard for use in Saudi Arabia, Moonlight White
517864-211	Keyboard for use in Hungary, Moonlight White
517864-221	Keyboard for use in The Czech Republic, Moonlight White

Spare part number	Description
517864-251	Keyboard for use in Russia, Moonlight White
517864-281	Keyboard for use in Thailand, Moonlight White
517864-291	Keyboard for use in Japan, Moonlight White
517864-A41	Keyboard for use in Belgium, Moonlight White
517864-AB1	Keyboard for use in Taiwan, Moonlight White
517864-AD1	Keyboard for use in South Korea, Moonlight White
518764-B31	Keyboard for use Internationally, Moonlight White
517864-BB1	Keyboard for use in Israel, Moonlight White
517864-DH1	Keyboard for use in Denmark, Norway, and Sweden, Moonlight White
517864-DJ1	Keyboard for use in Greece, Moonlight White
518108-001	Top cover for use with computer models equipped with fingerprint reader, Moonlight White (includes TouchPad and TouchPad buttons, and speaker assembly)
518109-001	Top cover for use with computer models not equipped with fingerprint reader, Moonlight White (includes TouchPad and TouchPad buttons, and speaker assembly)
518110-001	Switch cover (includes LED board and cable), Moonlight White
518431-001	System board for use with computer models equipped with ATI Mobility Radeon HD 4650 graphics with 1 GB memory (includes replacement thermal material)
518432-001	System board for use with computer models equipped with ATI Mobility Radeon HD 4530 graphics with 512 MB memory (includes replacement thermal material)
518433-001	System board for use with computer models equipped with UMA graphics and GM47 chipset (includes replacement thermal material)
518435-001	Fan/heatsink assembly for use only with computer models equipped with ATI Mobility Radeon HD4650 graphics (includes replacement thermal material)
518771-001	16.0-inch WXGA BrightView display assembly with webcam and 2 microphones, Espresso Black
518772-001	16.0-inch WXGA AntiGlare display assembly with webcam and 2 microphones, Espresso Black
518773-001	Display enclosure for 16-inch BrightView displays (includes wireless antenna transceivers and cables and logo LED board and cable), Espresso Black
518774-001	Display enclosure for 16-inch AntiGlare displays (includes wireless antenna transceivers and cables), Espresso Black
518775-001	15.6-inch WXGA AntiGlare display assembly with webcam and 2 microphones, Moonlight White
518776-001	15.6-inch WXGA AntiGlare display assembly with webcam and 2 microphones, Espresso Black
518777-001	15.6-inch WXGA BrightView display assembly with webcam and 2 microphones, Espresso Black
518778-001	Top cover for use only with computer models not equipped with a fingerprint reader (includes TouchPad and TouchPad buttons and speaker assembly), Espresso Black
518788-001	Top cover for use only with computer models equipped with a fingerprint reader (includes TouchPad and TouchPad buttons and speaker assembly), Espresso Black
518790-001	Switch cover (includes LED board and cable), Espresso Black
518965-001	Keyboard for use in the United States, Espresso Black

Spare part number	Description
518965-031	Keyboard for use in the United Kingdom, Espresso Black
518965-041	Keyboard for use in Germany, Espresso Black
518965-051	Keyboard for use in France, Espresso Black
518965-061	Keyboard for use in Italy, Espresso Black
518965-071	Keyboard for use in Spain, Espresso Black
518965-111	Keyboard for use in Switzerland, Espresso Black
518965-131	Keyboard for use in Portugal, Espresso Black
518965-141	Keyboard for use in Turkey, Espresso Black
518965-161	Keyboard for use in Latin America, Espresso Black
518965-211	Keyboard for use in Hungary, Espresso Black
518965-221	Keyboard for use in the Czech Republic, Espresso Black
518965-251	Keyboard for use in Russia, Espresso Black
518965-A41	Keyboard for use in Belgium, Espresso Black
518965-AB1	Keyboard for use in Taiwan, Espresso Black
518965-B31	Keyboard for use Internationally, Espresso Black
518965-BB1	Keyboard for use in Israel, Espresso Black
518965-DJ1	Keyboard for use in Greece, Espresso Black
518966-121	Keyboard for use in French Canada, Espresso Black
518966-171	Keyboard for use in Saudi Arabia, Espresso Black
518966-281	Keyboard for use in Thailand, Espresso Black
518966-291	Keyboard for use in Japan, Espresso Black
518966-AD1	Keyboard for use in South Korea, Espresso Black
518966-DH1	Keyboard for use in Denmark, Norway, and Sweden, Espresso Black
519209-001	Display Hinge Kit for use only with computer models equipped with 15.6-inch AntiGlare display panels (includes left and right hinges)

4 Removal and replacement procedures

Preliminary replacement requirements

Tools required

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

- Magnetic screwdriver
- Phillips P0 and P1 screwdrivers
- Flat-bladed screwdriver

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

Unknown user password

If the computer you are servicing has an unknown user password, follow these steps to clear the password.

 **NOTE:** These steps also clear CMOS.

Before disassembling the computer, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 54](#)).
5. Remove the RTC battery (see [RTC battery on page 62](#)).
6. Wait approximately 5 minutes.
7. Replace the RTC battery and reassemble the computer.
8. Connect AC power to the computer. Do not reinsert any batteries at this time.
9. Turn on the computer.

All passwords and all CMOS settings have been cleared.

Component replacement procedures

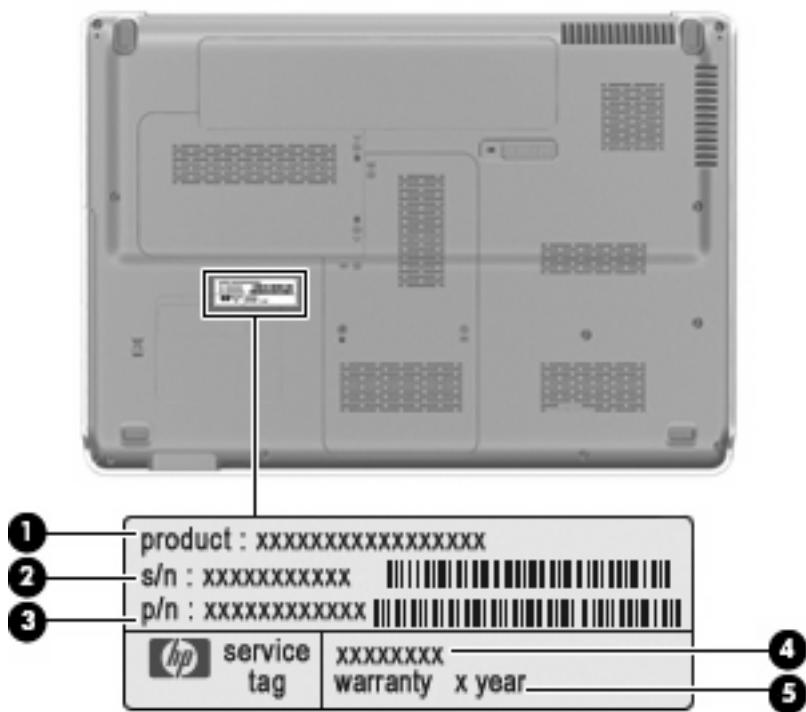
This chapter provides removal and replacement procedures.

There are as many as 89 screws, in 10 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

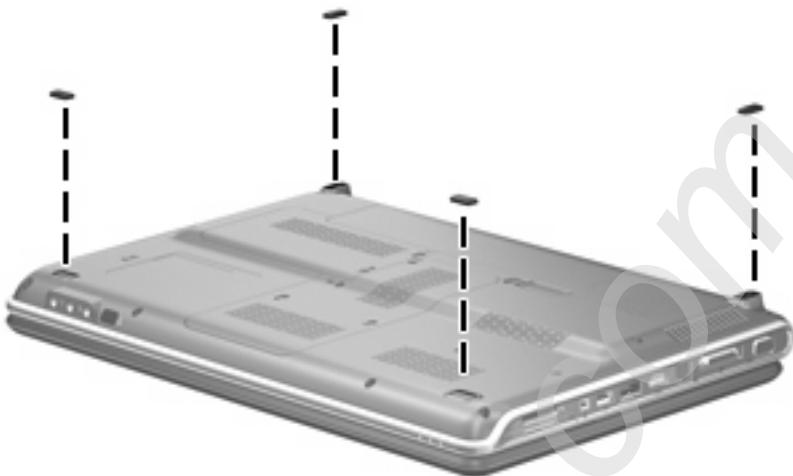
When ordering parts or requesting information, provide the computer serial number and model description provided on the service tag.

- (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 needed 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 for use with all computer models	511884-001
6-cell, 55-Wh, 2.55-Ah Li-ion battery for use with all computer models	511872-001
6-cell, 55-Wh, 2.55-Ah Li-ion battery for use only with computer for Germany	511872-002
6-cell, 47-Wh, 2.55-Ah Li-ion battery for use with all computer models	511883-001

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 computer models equipped with BrightView display assemblies. See [Display assembly on page 75](#) for webcam/microphone module removal instructions for computer models 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 75](#).

Description	Spare part number
Webcam/microphone module for use only with computer models equipped with BrightView display assemblies (includes double-sided tape)	512827-001

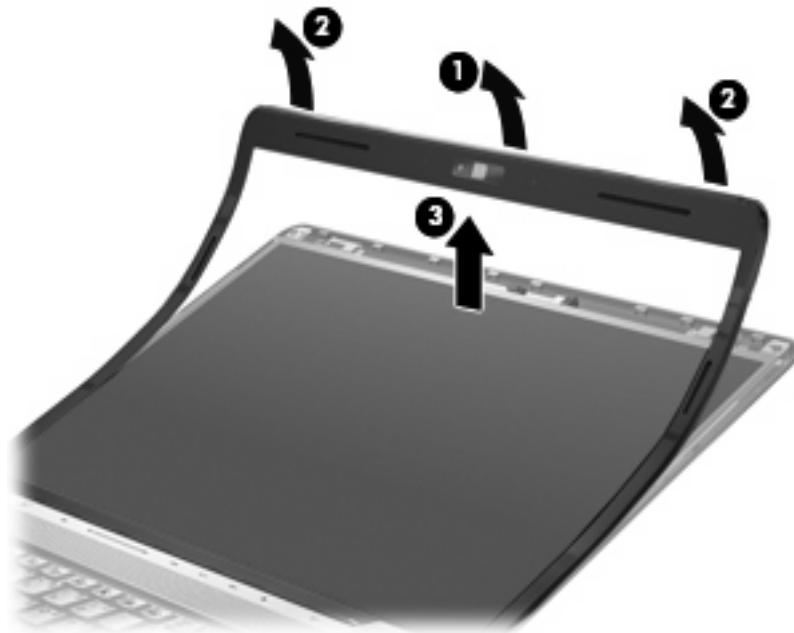
Before removing the webcam/microphone module, follow these steps:

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 54](#)).

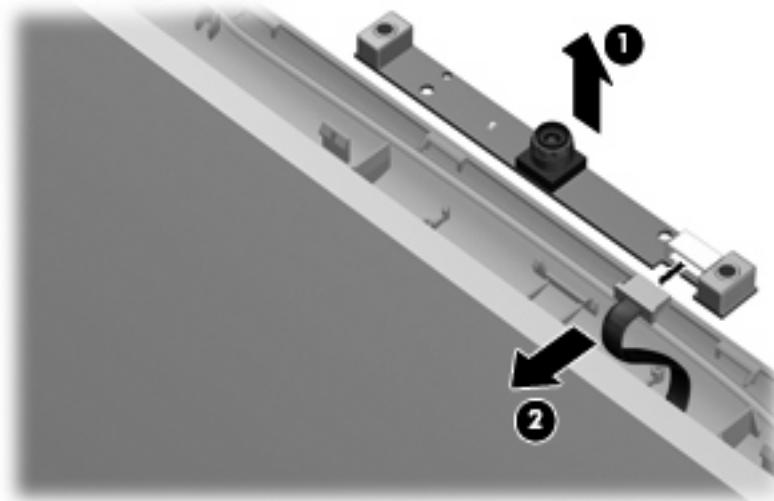
Remove the webcam/microphone module:

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.

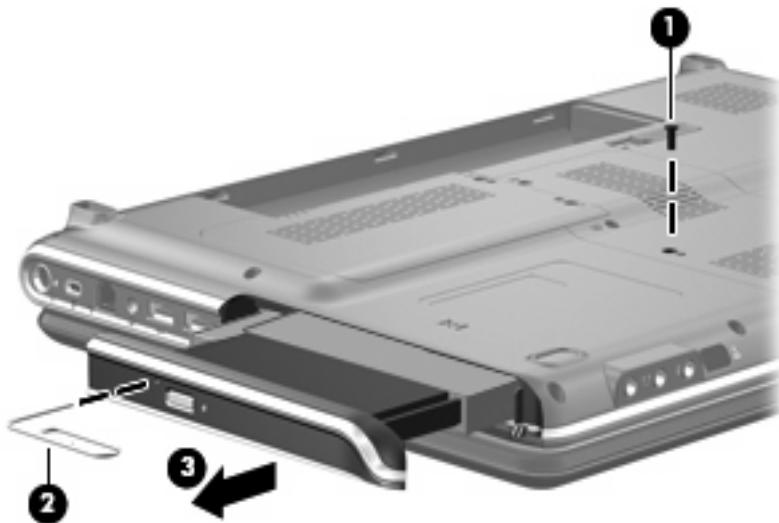
Description	Spare part number
Blu-ray ROM DVD±R/RW SuperMulti Double-Layer Drive	511881-001
Blu-ray ROM with LightScribe DVD±R/RW SuperMulti Double-Layer Drive	511882-001
DVD±RW SuperMulti Double-Layer Combo Drive	511880-001

Before removing the optical drive, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 54](#)).

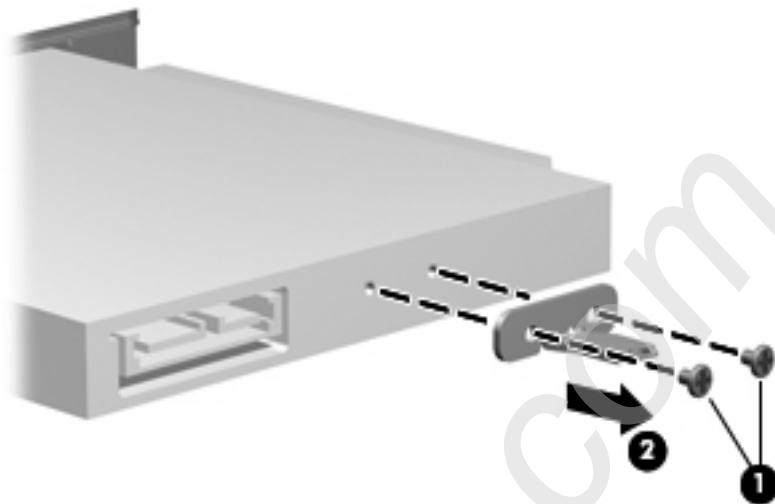
Remove the optical drive:

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

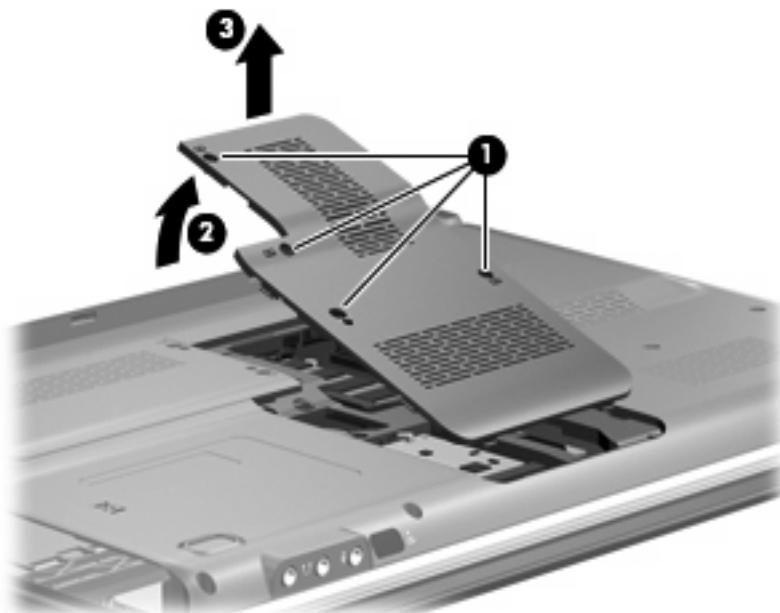
Description	Spare part number
DDR2, 800-MHz, PC2-6400, 1-DIMM:	
4 GB	511871-001
2 GB	511870-001
1 GB	511869-001

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 54](#)).

Remove the memory module:

1. Position the computer with the front toward you.
2. Loosen the four 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.

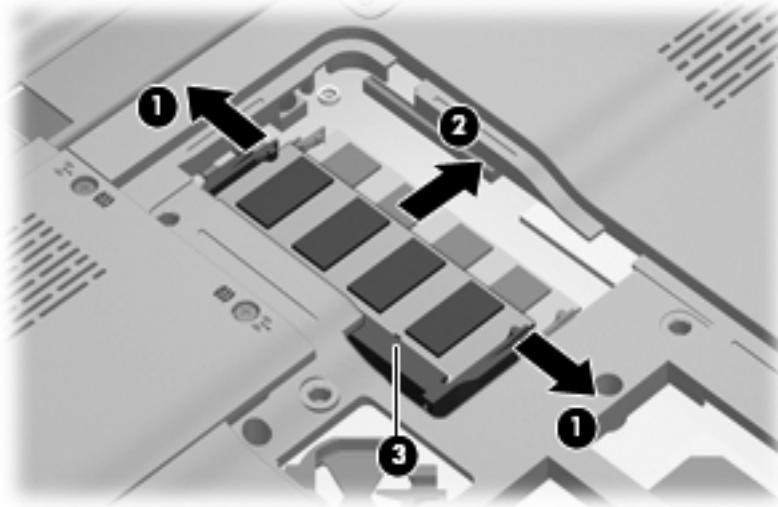


4. Spread the retaining tabs **(1)** on each side of the memory module slot to release the memory module. (The edge of the module opposite the slot rises away from the computer.)

 **NOTE:** If necessary, use a non-conductive pointed tool to spread the retaining tabs.

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 512832-001.

NOTE: The TV tuner external antenna cables are available using spare part numbers 482900-001 (with F-PAL jack) and 482900-002 (with PAL jack).

Description	Spare part number
DVB-T TV tuner module (for use only with computers equipped with discrete graphics memory)	482899-003
DVB-T/ANG TV tuner module	482899-002
NTSC/ATSC/ANG hybrid TV tuner module	482899-001

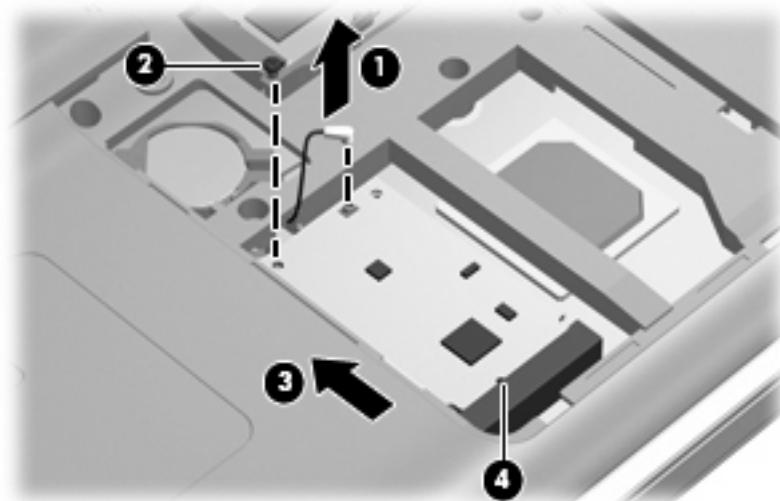
Before removing the TV tuner module, follow these steps:

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 54](#)).
5. Remove the memory module compartment cover (see [Memory module on page 59](#)).

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 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

 **NOTE:** Removing the RTC battery and leaving it uninstalled for 5 or more minutes causes all passwords and CMOS settings to be cleared.

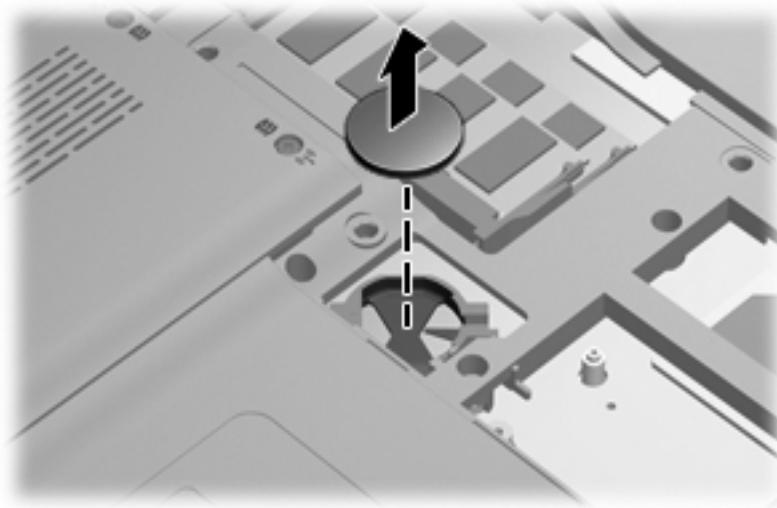
Description	Spare part number
RTC battery	449729-001

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 54](#)).
5. Remove the memory module compartment cover (see [Memory module on page 59](#)).

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	511873-001
250 GB, 7200 rpm (select models only)	511874-001
250 GB, 5400 rpm	511875-001
320 GB, 7200 rpm (select models only)	511876-001
320 GB, 5400 rpm	511877-001
400 GB, 5400 rpm	511878-001
500 GB, 5400 rpm (select models only)	511879-001
Hard Drive Hardware Kit (includes left and right bracket rails, connector cable, Mylar cover with tab, and 4 rubber isolators)	483862-001

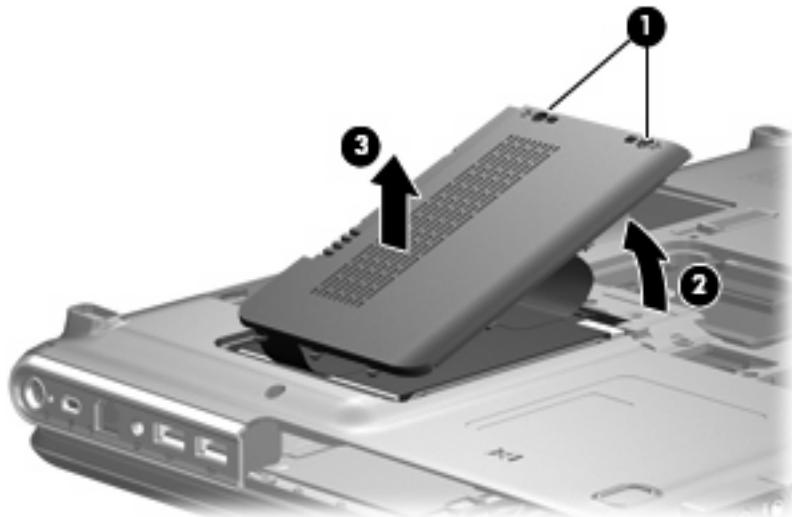
Before removing the hard drive, follow these steps:

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 54](#)).

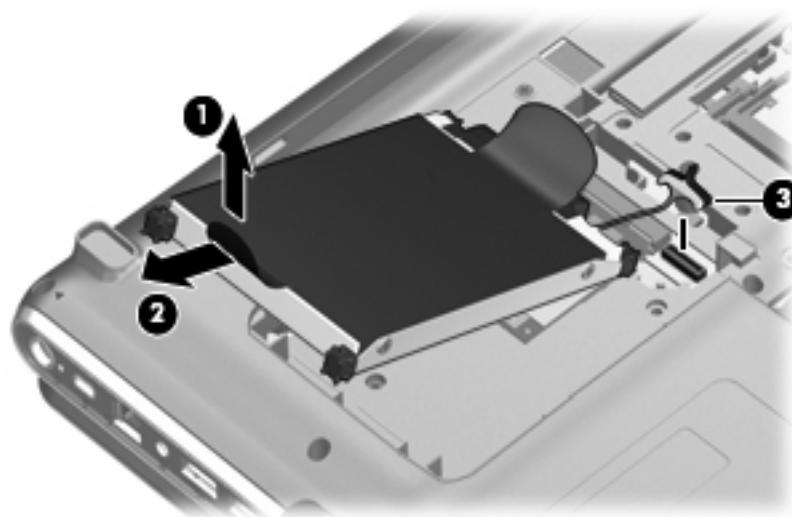
Remove the hard drive:

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 bay cover to the computer.

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

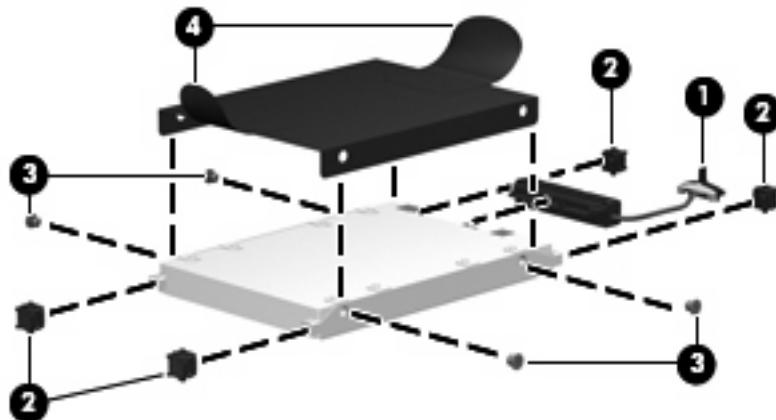


4. Use the Mylar tab (1) to lift the hard drive up, and then slide it to the left (2) to release it from the hard drive bay.
5. Disconnect the hard drive cable (3) from the system board.



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 connector 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 tabs



Reverse this procedure to reassemble and install the hard drive.

WLAN module

Description	Spare part number
Intel Wi-Fi Link 5100 802.11a/b/g/n WLAN module for use with computer models in all countries and regions (Bluetooth supported)	480985-001
Intel Wi-Fi Link 5100 802.11a/b/g WLAN module for use with computer models in all countries and regions (Bluetooth supported)	482957-001
Broadcom 4322 802.11a/b/g/n WLAN module for use only with computer models 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 (Bluetooth supported)	487330-001
Broadcom 4322 802.11a/b/g/n WLAN module for use only with computer models 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, Equitorial 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 (Bluetooth supported)	487330-002
Broadcom BCM4312 802.11b/g WLAN module for use only with computer models 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 (Bluetooth supported)	459263-001

Description	Spare part number
Broadcom BCM4312 802.11b/g WLAN module for use only with computer models 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, Equitorial 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 (Bluetooth supported)	459263-002
Broadcom BCM4312 802.11b/g WLAN module for use only with computer models 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 (Bluetooth supported)	504593-001
Broadcom BCM4312 802.11b/g WLAN module for use only with computer models 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, Equitorial 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 (Bluetooth supported)	504593-002

Description	Spare part number
Broadcom BCM4312 802.11b/g WLAN module for use only with computer models 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 (Bluetooth supported)	504664-001
Broadcom BCM4312 802.11b/g WLAN module for use only with computer models 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, Equitorial 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 (Bluetooth supported)	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 54](#)).
5. Remove the hard drive (see [Hard drive on page 63](#)).

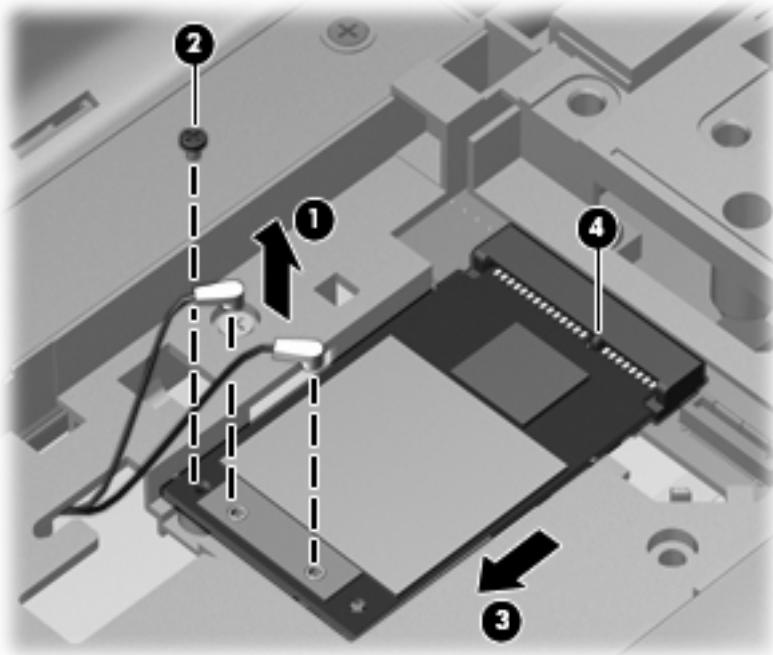
Remove the WLAN module:

△ **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. (The edge of the module opposite the slot rises away from 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

Description	Spare part number
Switch cover (includes LED board and cable), Onyx	512829-001
Switch cover (includes LED board and cable), Moonlight White	518110-001
Switch cover (includes LED board and cable), Espresso Black	518790-001

Keyboards

For a list of all keyboards available for your country or region, see pages 23 to 25.

Before removing the switch cover and keyboard, follow these steps:

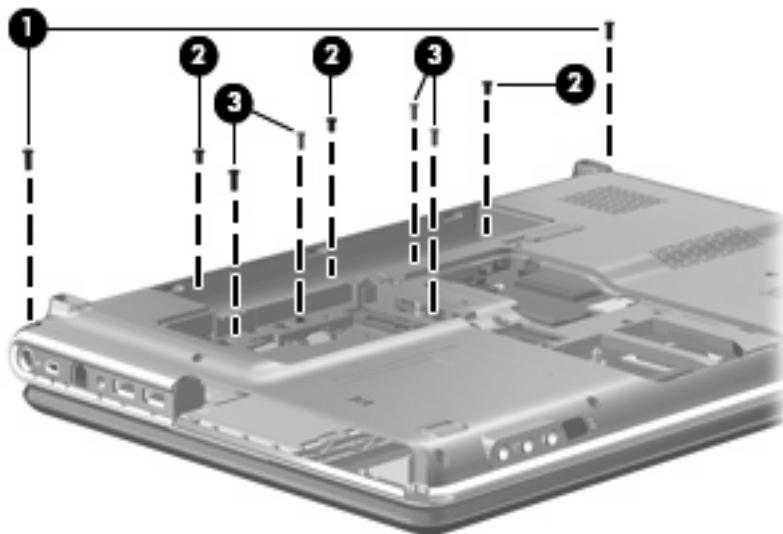
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 54](#)).

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 PM2.5×4.0 screws that secure the switch cover to the computer (these are inside the battery bay)
- (3) Four Phillips PM2.5×6.5 screws that secure the keyboard to the computer



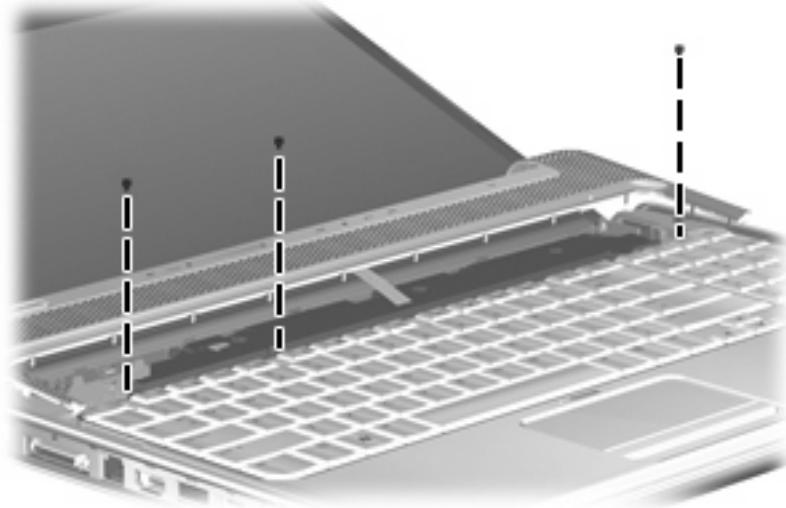
- 3.** Turn the computer display-side up, with the front toward you.
- 4.** Open the computer as far as possible.
- 5.** Lift the rear edge of the switch cover until it detaches from the computer.



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



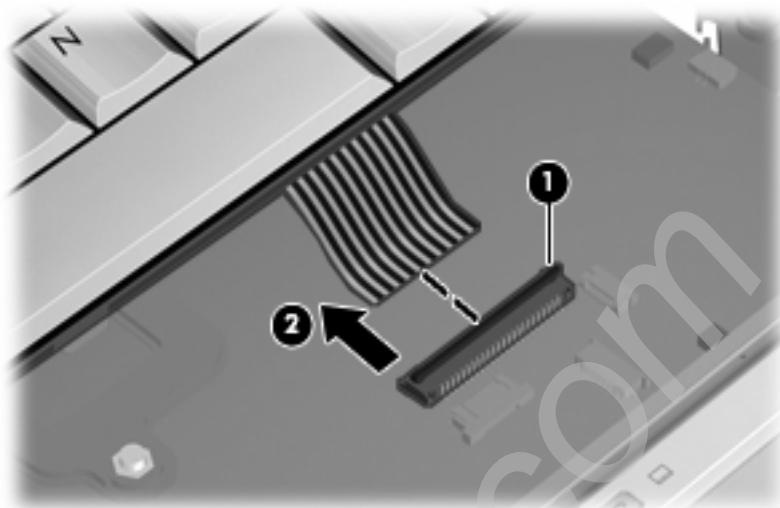
7. Remove the three Phillips PM2.0×3.0 screws that secure the keyboard to the computer.



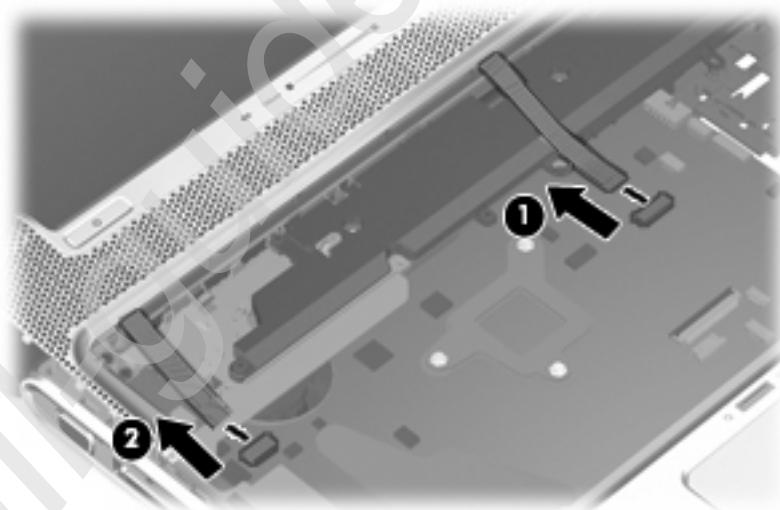
8. Lift the rear edge (1) of the keyboard .
9. Slide the keyboard (2) back until the keyboard connector on the system board is accessible.



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

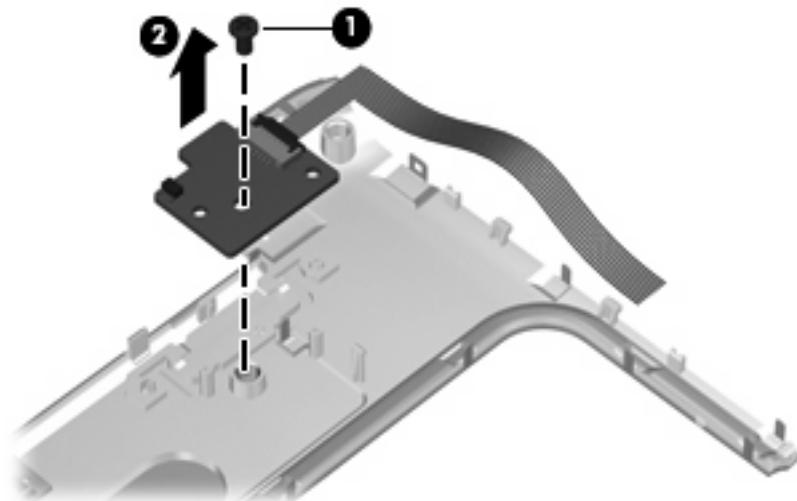
Description	Spare part number
Power button board (includes cable)	512834-001

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 54](#)).
5. Remove the switch cover and keyboard (see [Switch cover and keyboard on page 70](#)).

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
15.6-inch WXGA BrightView display assembly, Onyx	511867-001
15.6-inch WXGA BrightView display assembly, Moonlight White	517862-001
15.6-inch WXGA BrightView display assembly, Espresso Black	517866-001
15.6-inch WXGA AntiGlare display assembly, Moonlight White	518775-001
15.6-inch WXGA AntiGlare display assembly, Espresso Black	518777-001
16.0-inch WXGA BrightView display assembly, Onyx	511865-001
16.0-inch WXGA BrightView display assembly, Moonlight White	512357-001
16.0-inch WXGA BrightView display assembly, Espresso Black	518771-001
16.0-inch WXGA AntiGlare display assembly, Onyx	511866-001
16.0-inch WXGA AntiGlare display assembly, Moonlight White	512358-001
16.0-inch WXGA AntiGlare display assembly, Espresso Black	518772-001

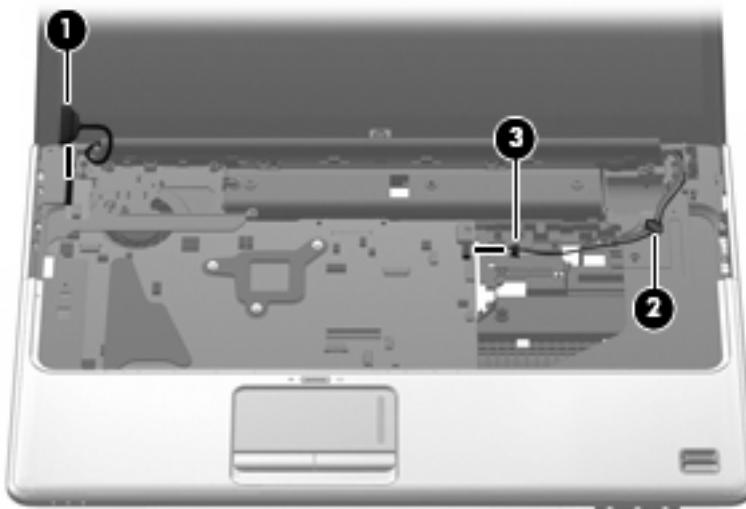
Before removing the display assembly, follow these steps:

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 54](#)).
5. Disconnect the wireless antenna cables from the WLAN module (see [WLAN module on page 66](#)).
6. Remove the switch cover and keyboard (see [Switch cover and keyboard on page 70](#)).

Remove the display assembly:

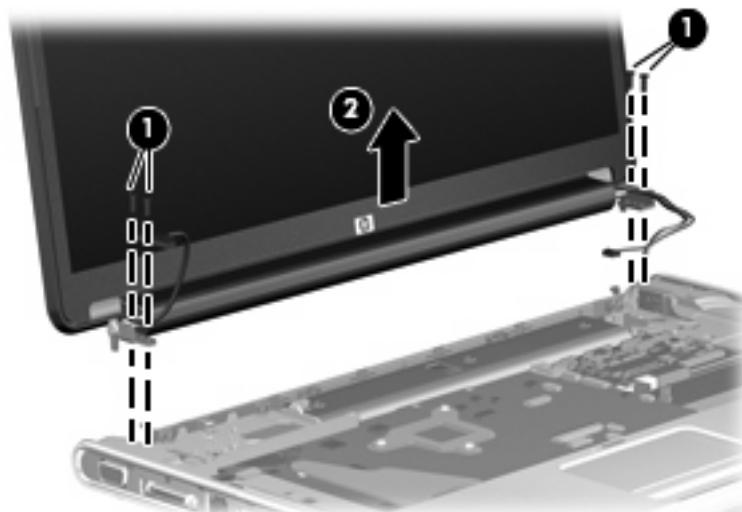
1. Disconnect the display panel cable **(1)** and the webcam/microphone cable **(2)** from the system board.

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.

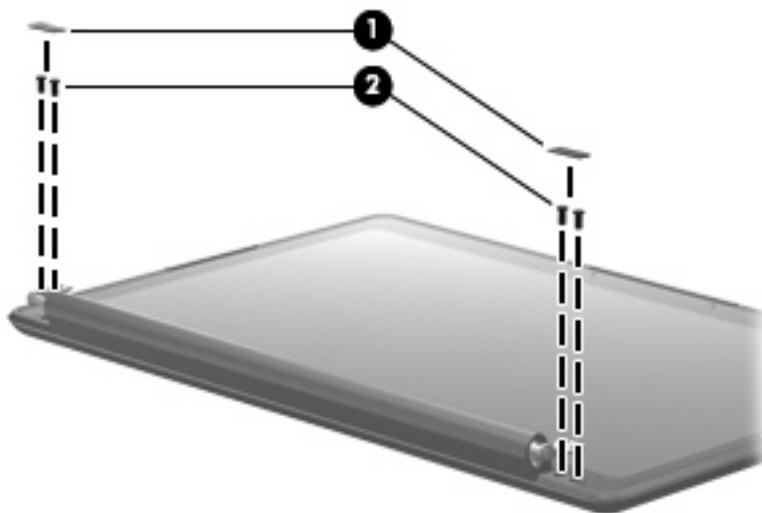
3. Remove the four Phillips PM2.5×6.5 screws (1) that secure the display assembly to the computer.
4. Remove the display assembly (2).



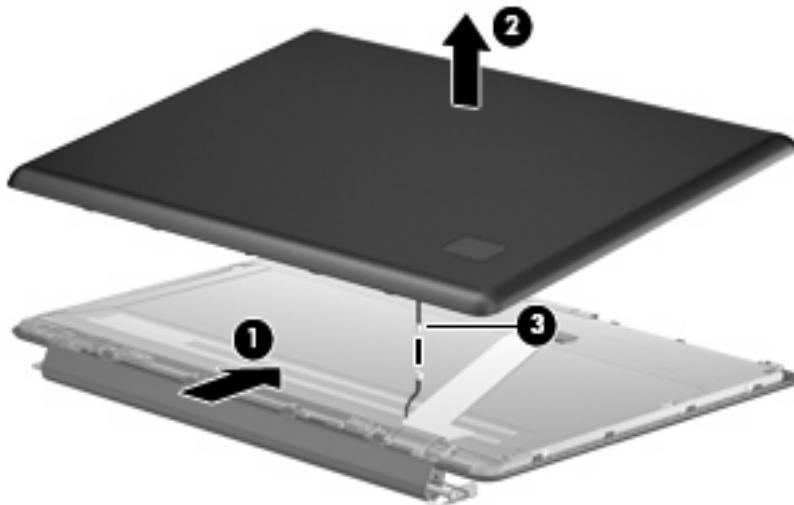
📝 **NOTE:** Steps 5 through 22 provide display assembly internal component removal information for computer models equipped with AntiGlare display assemblies. See steps 23 through 33 for display assembly internal component removal information for computer models equipped with BrightView display assemblies.

NOTE: See [Webcam/microphone module on page 55](#) for webcam/microphone module replacement instructions for computer models 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:
 - a. (1) Four rubber screw covers on the display bezel bottom edge. The display rubber screw covers are included in the Display Rubber Kit, spare part number 513479-001 (15.6-inch displays) or 512361-001 (16.0-inch displays).
 - b. (2) Four Phillips PM2.5×5.0 screws.



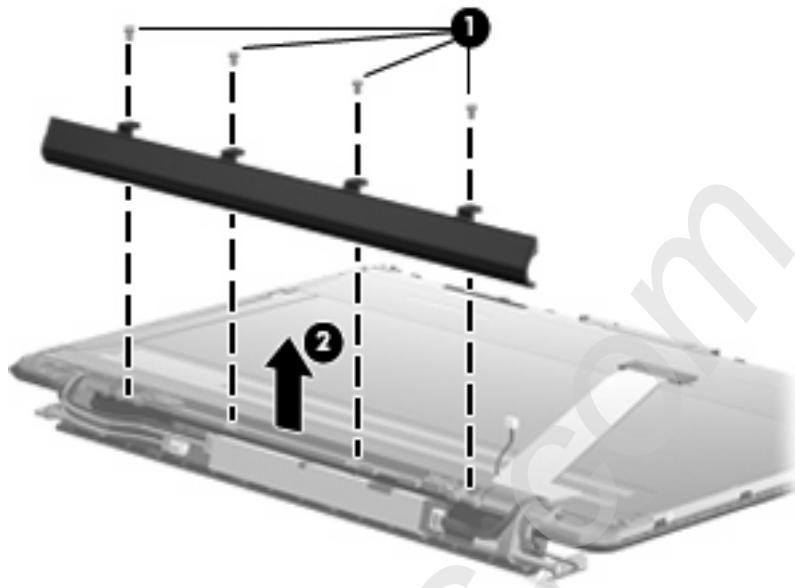
6. Turn the display assembly upside down, with the bottom edge toward you.
7. Release the display enclosure by sliding the enclosure (1) toward the top of the display assembly.
8. Lift the display enclosure (2) as far as the display logo cable allows.
9. Disconnect the display logo cable (3) from the display panel cable.



10. 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.

- 11.** Remove the display inverter cover (2) by lifting it straight up.

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

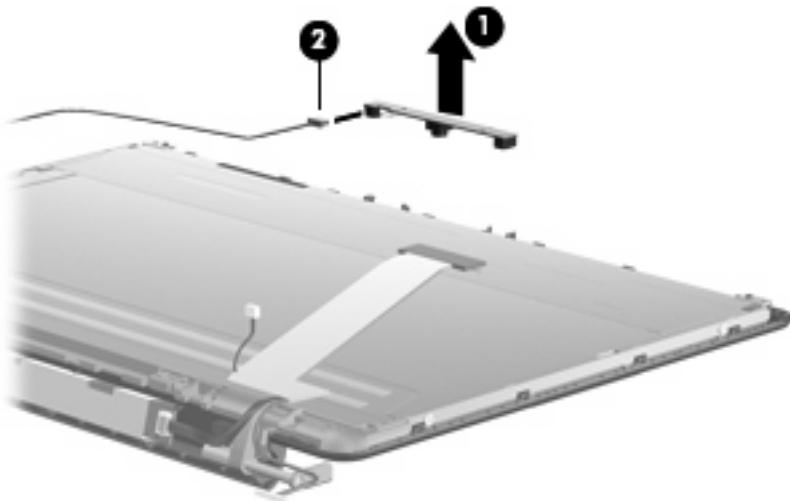


- 12.** Remove the display enclosure. The display enclosure table below identifies the correct part to use for each computer model.

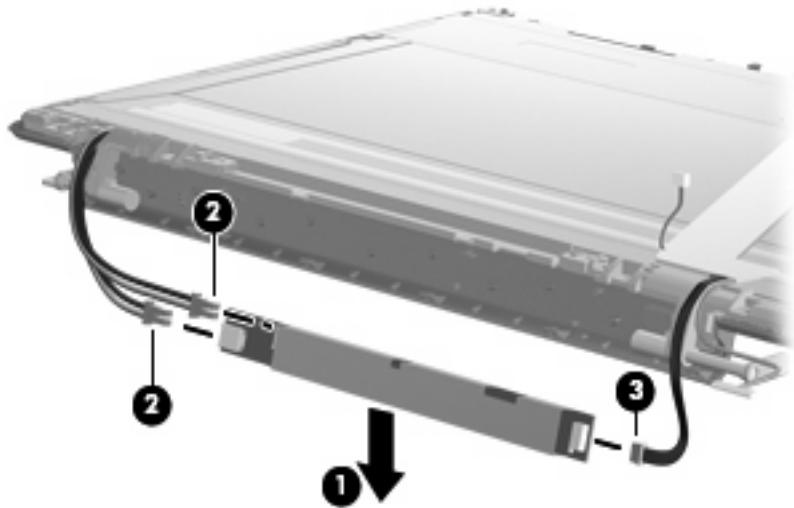
Description	Spare part number
BrightView display enclosure, Onyx (includes wireless antenna transceivers and cables and logo LED board and cable) 16-inch	512824-001
BrightView display enclosure, Moonlight White (includes wireless antenna transceivers and cables and logo LED board and cable) 15.6-inch	517860-001
BrightView display enclosure, Espresso Black (includes wireless antenna transceivers and cables and logo LED board and cable) 16-inch	518773-001
AntiGlare display enclosure, Onyx (includes wireless antenna transceivers and cables) 16-inch	513478-001
AntiGlare display enclosure, Moonlight White (includes wireless antenna transceivers and cables) 16-inch	517861-001
AntiGlare display enclosure, Espresso Black (includes wireless antenna transceivers and cables) 16-inch	518774-001
AntiGlare display enclosure, Moonlight White (includes wireless antenna transceivers and cables) 15.6-inch	518775-001
AntiGlare display enclosure, Espresso Black (includes wireless antenna transceivers and cables) 15.6-inch	518777-001

- 13.** If it is necessary to replace the webcam/microphone module, release the webcam/microphone module (1) as far as the webcam/microphone module cable allows.

14. Disconnect the webcam/microphone module cable (2) from the webcam/microphone module.

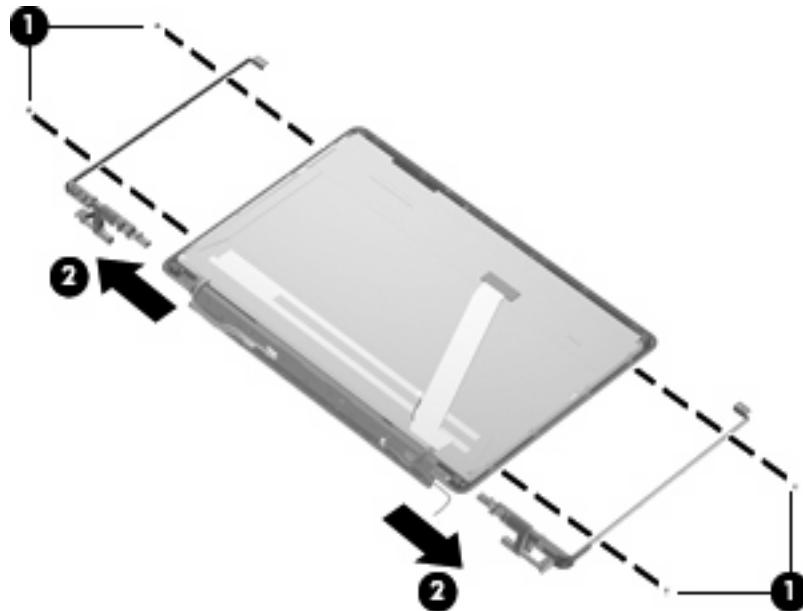


15. Remove the webcam/microphone module. The webcam/microphone module is available using spare part number 512827-001.
16. Release the display inverter (1) as far from the display bezel as the display panel cable and backlight cable allow.
17. Disconnect the backlight cables (2) and display panel cable (3) from the display bezel.

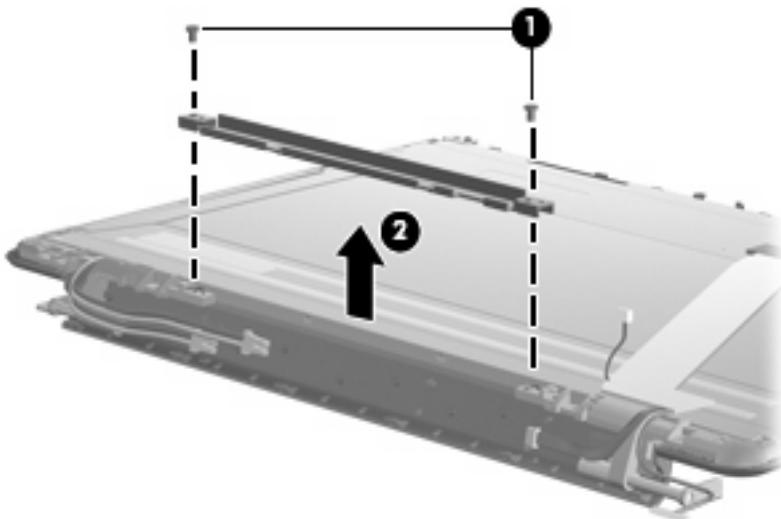


18. Remove the display inverter. The display inverter is available using spare part number 488317-001.
19. If it is necessary to replace the display hinges, remove the four Phillips PM2.5×5.0 screws (1) that secure the display hinge brackets to the display panel.

20. Remove the display hinge brackets (2).



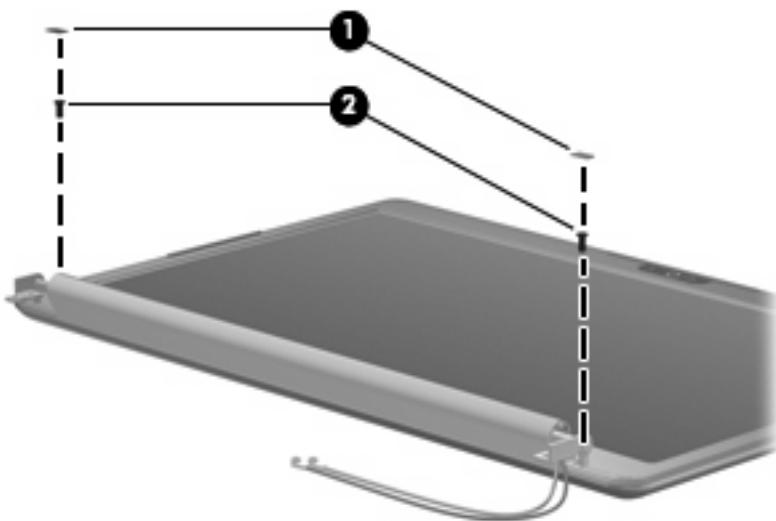
21. Remove the two Phillips PM2.5×5.0 screws (1) that secure the display hinge to the display panel.
22. Remove the display hinge (2). The display hinge is available in the Display Hinge Kit, spare part number 513477-001 (16-inch display) or 519209-001 (15.6-inch display).



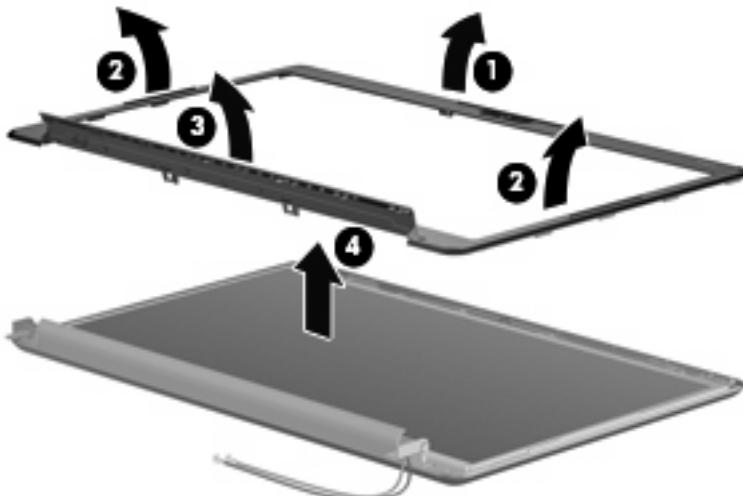
 **NOTE:** Steps 23 through 33 provide display assembly internal component removal information for computer models equipped with BrightView display assemblies. See steps 5 through 22 for display assembly internal component removal information for computer models equipped with AntiGlare display assemblies.

NOTE: See [Webcam/microphone module on page 55](#) for webcam/microphone module replacement instructions for computer models equipped with BrightView display assemblies.

23. 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 rubber 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.

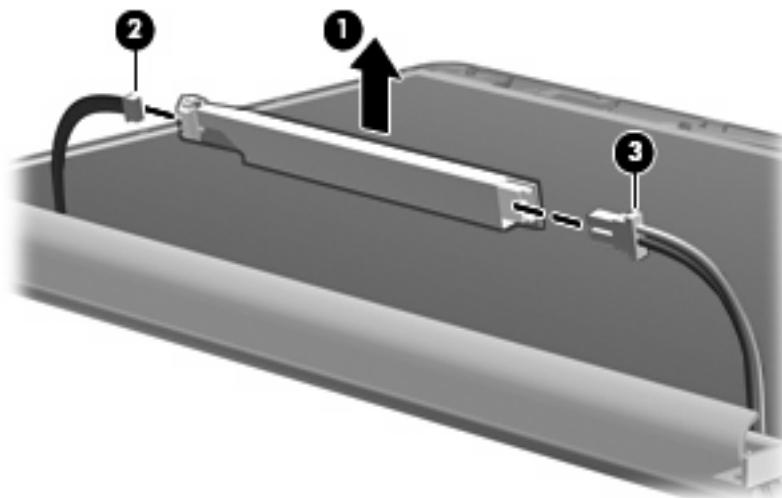


24. Flex the inside edges of the top edge (1), the left and right sides (2), and the bottom edge (3) of the display bezel until the bezel disengages from the display enclosure.
25. Remove the display bezel (4). The display bezel is available using spare part number 512359-001 (16-inch display) or 512364-001 (15.6-inch display).

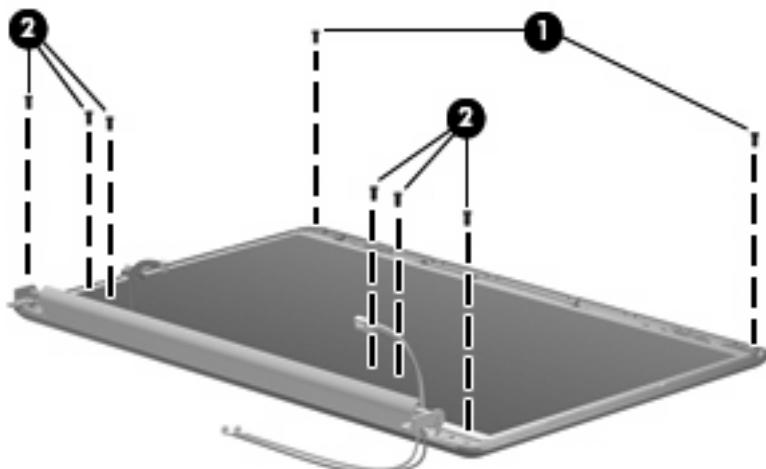


26. If it is necessary to replace the display inverter, release the display inverter (1) as far from the display enclosure as the display panel cable and backlight cable allow.

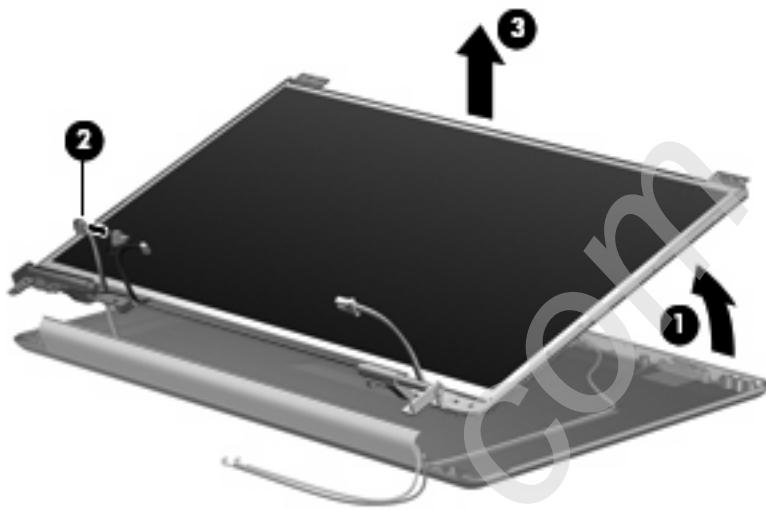
27. Disconnect the display panel cable (2) and the backlight cable (3) from the display inverter.



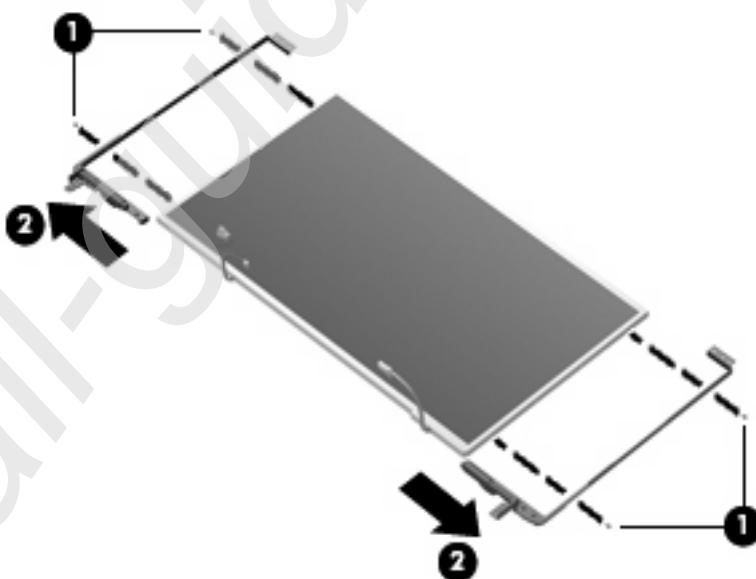
28. Remove the display inverter. The display inverter is available using spare part number 488317-001.
29. If it is necessary to replace the display panel, remove the two Phillips PM2.5×5.0 screws (1) from the top corners and the six Phillips PM2.5×5.0 screws (2) from the display hinges.



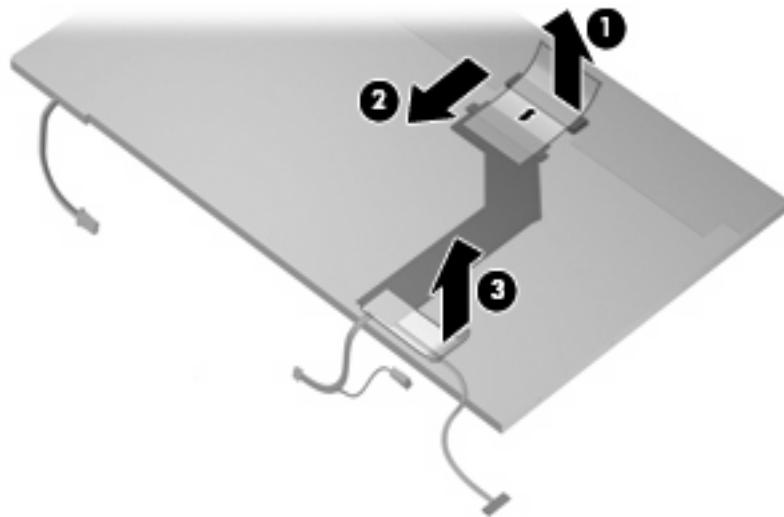
30. Flex the bottom (1) of the display panel back and release the display hinges. Disconnect the display LED cable (2) from the display panel cable. Remove the display panel (3). Display panels are available using spare part number 511868-001 (16-inch WXGA BrightView display panel) or 512363-001 (15.6-inch WXGA BrightView display panel).



31. 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.
32. Remove the display hinges (2). The display hinges are available in the Display Hinge 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.



33. 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 from the top of the display panel (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.

Top cover

 **NOTE:** The top cover spare part kit includes TouchPad and TouchPad buttons, and speaker assembly.

Description	Spare part number
For use only with computer models equipped with a fingerprint reader, Onyx	512828-001
For use only with computer models not equipped with a fingerprint reader, Onyx	511888-001
For use only with computer models equipped with a fingerprint reader, Moonlight White	518108-001
For use only with computer models not equipped with a fingerprint reader, Moonlight White	518109-001
For use only with computer models equipped with a fingerprint reader, Espresso Black	518788-001
For use only with computer models not equipped with a fingerprint reader, Espresso Black	518789-001

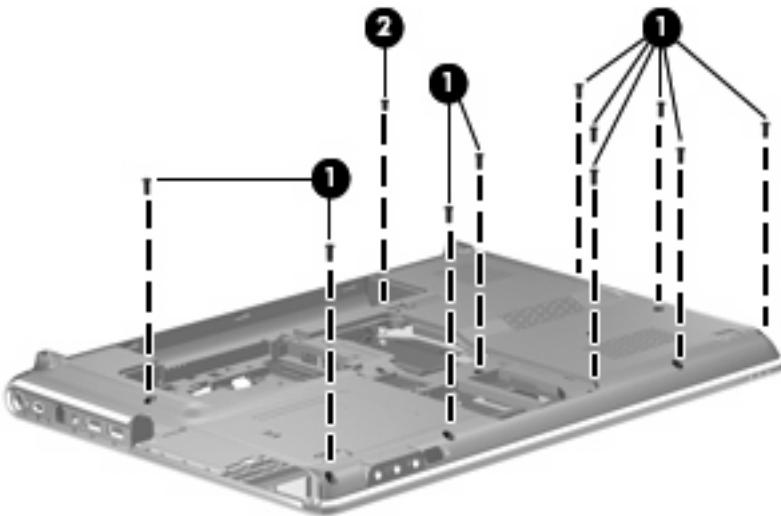
Before removing the top cover, follow these steps:

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 54](#)).
5. Remove the following components:
 - a. Hard drive (see [Hard drive on page 63](#))
 - b. Optical drive (see [Optical drive on page 57](#))
 - c. Switch cover and keyboard (see [Switch cover and keyboard on page 70](#))
 - d. Display assembly (see [Display assembly on page 75](#))

Remove the top cover:

1. Turn the computer upside down, with the front toward you.
2. Remove the 9 Phillips PM2.5×6.5 screws **(1)** that secure the top cover to the computer.

3. Remove one 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:

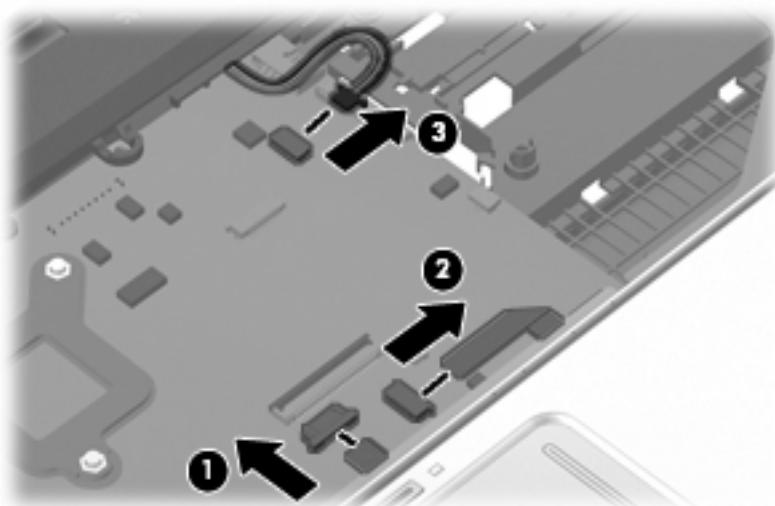
(1) TouchPad cable

NOTE: On computer models equipped with a standard display assembly, this cable connects to a ZIF connector on the system board. On computer models equipped with a Flush Glass display assembly, this cable connects to a LIF connector on the system board.

(2) Fingerprint reader board cable

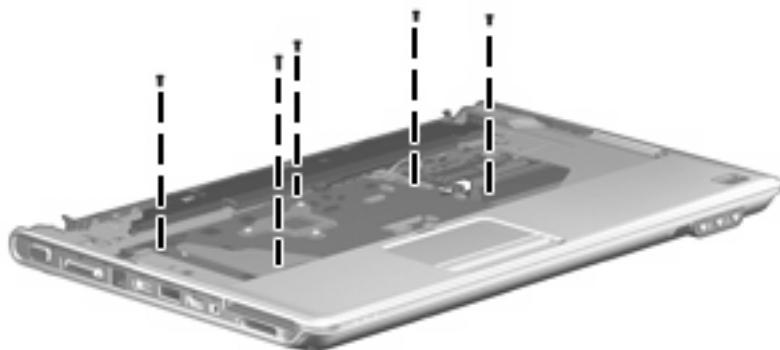
NOTE: This cable connects to a LIF connector on the system board.

(3) Speaker cable

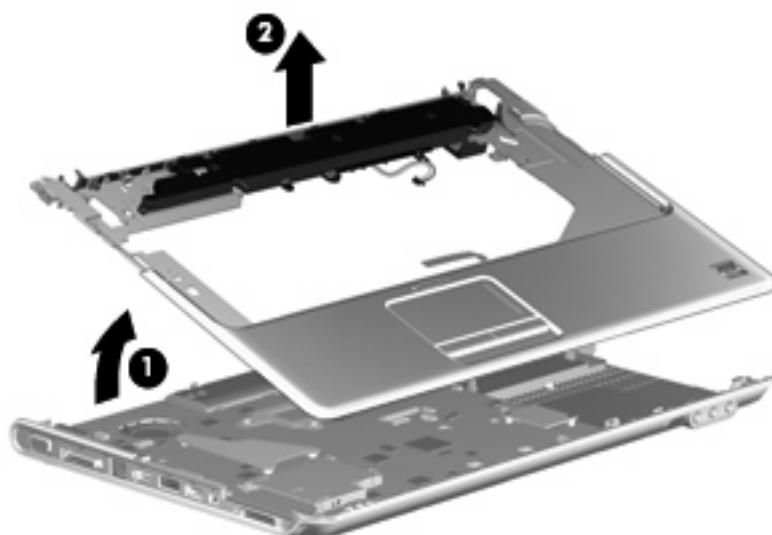


NOTE: Step 6 applies only to computer models equipped with standard display assemblies.

6. Remove the five 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.

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.

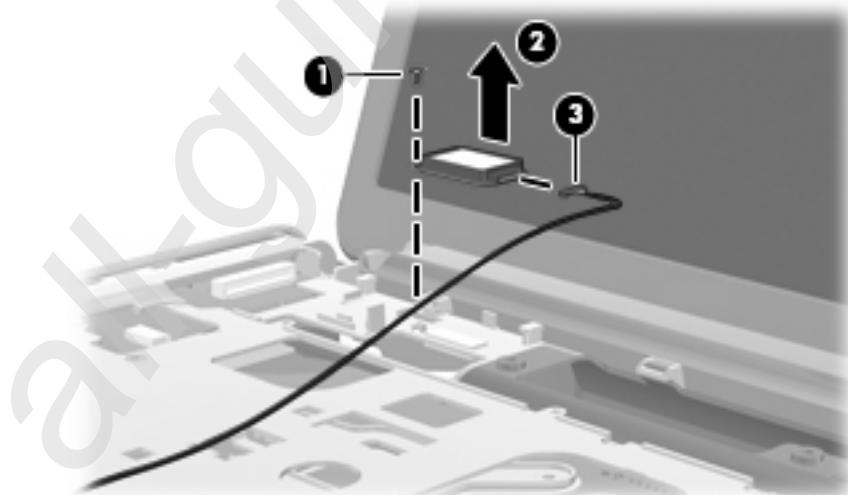
Description	Spare part number
Bluetooth module	483113-001

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 54](#)).
5. Remove the switch cover and keyboard (see [Switch cover and keyboard on page 70](#)).

Remove the Bluetooth module:

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



4. Remove the Bluetooth module.

Reverse this procedure to install the Bluetooth module.

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 501891-001. See [Cable Kit on page 35](#) 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	461749-001
For use only in Australia and New Zealand	461749-011

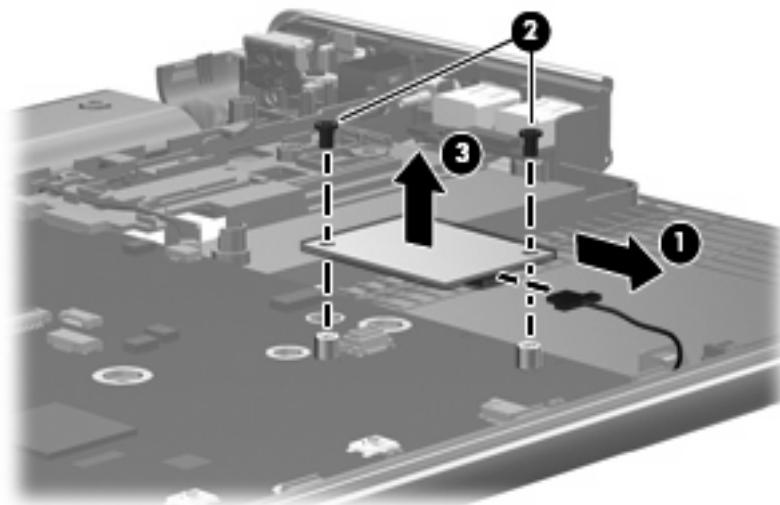
Before removing the modem module, follow these steps:

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 54](#)).
5. Remove the following components:
 - a. Hard drive (see [Hard drive on page 63](#)).
 - b. Optical drive (see [Optical drive on page 57](#)).
 - c. Switch cover and keyboard (see [Switch cover and keyboard on page 70](#)).
 - d. Display assembly (see [Display assembly on page 75](#)).
 - e. Top cover (see [Top cover on page 85](#)).

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 computer models equipped with discrete graphics memory (includes cable)	512836-001
Audio/infrared board for use with computer models equipped with UMA graphics memory (includes cable)	511892-001

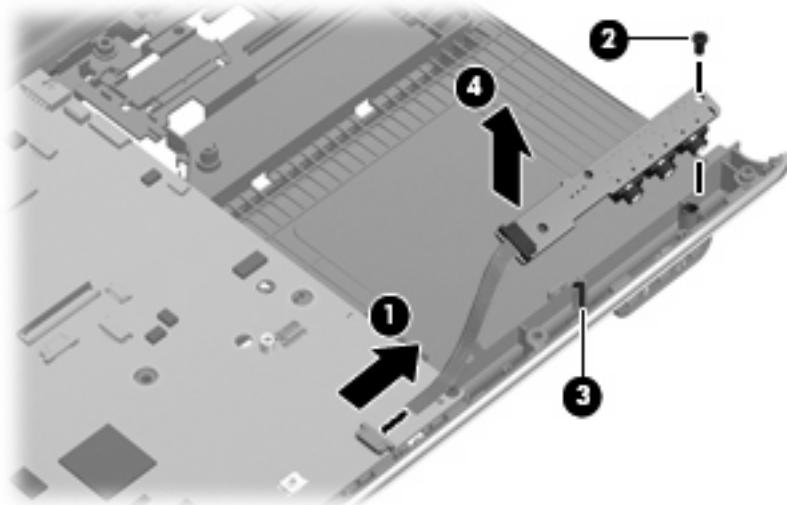
Before removing the audio/infrared board, follow these steps:

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 54](#)).
5. Remove the following components:
 - a. Hard drive (see [Hard drive on page 63](#)).
 - b. Optical drive (see [Optical drive on page 57](#)).
 - c. Switch cover and keyboard (see [Switch cover and keyboard on page 70](#)).
 - d. Display assembly (see [Display assembly on page 75](#)).
 - e. Top cover (see [Top cover on page 85](#)).

Remove the audio/infrared board:

1. Disconnect the audio/infrared board cable (1) from the LIF connector on the system board.
2. Remove one Phillips PM2.5x3.0 screw (2).
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

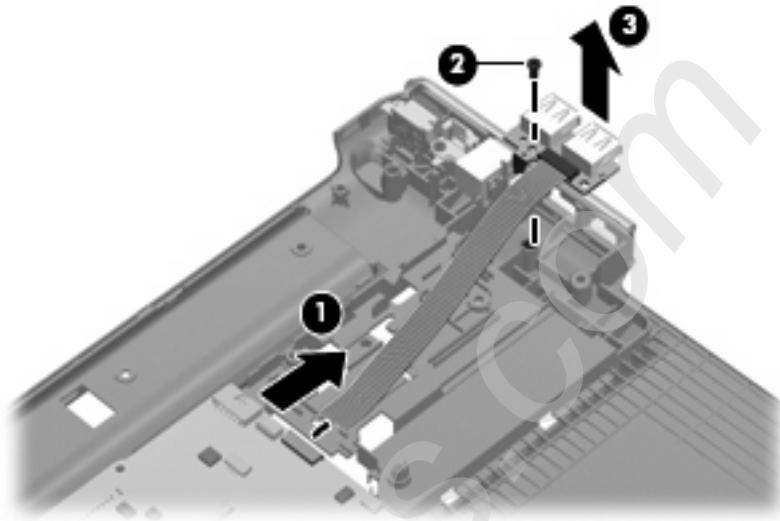
Description	Spare part number
USB board for use with computer models equipped with graphics subsystems with UMA graphics memory (includes cable)	516497-001
USB board for use with computer models equipped with graphics subsystems with discrete graphics memory (includes cable)	516855-001

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 54](#)).
5. Remove the following components:
 - a. Hard drive (see [Hard drive on page 63](#)).
 - b. Optical drive (see [Optical drive on page 57](#)).
 - c. Switch cover and keyboard (see [Switch cover and keyboard on page 70](#)).
 - d. Display assembly (see [Display assembly on page 75](#)).
 - e. Top cover (see [Top cover on page 85](#)).

Remove the USB board:

1. Disconnect the USB board cable (1) from the LIF connector on the system board.
2. Remove the Phillips PM2.5×6.5 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

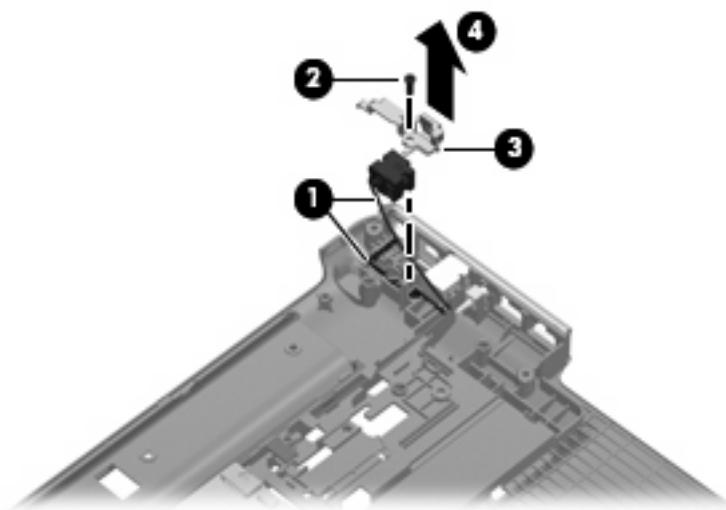
 **NOTE:** The power connector cable is available in the Cable Kit, spare part number 501891-001.

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 54](#)).
5. Remove the following components:
 - a. Hard drive (see [Hard drive on page 63](#)).
 - b. Optical drive (see [Optical drive on page 57](#)).
 - c. Switch cover and keyboard (see [Switch cover and keyboard on page 70](#)).
 - d. Display assembly (see [Display assembly on page 75](#)).
 - e. Top cover (see [Top cover on page 85](#)).
 - f. USB board (see [USB board on page 92](#)).
 - g. System board (see [System board on page 95](#)).

Remove the power connector cable:

1. Remove the power connector cable (1) from the clips and routing channel built into the base enclosure.
2. Remove the Phillips PM2.5×6.5 screw (2) that secures the power connector and bracket to the base enclosure.
3. Remove the power connector bracket (3).
4. Remove the power connector cable (4).



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 computer models equipped with discrete graphics subsystem memory	511864-001
For use with computer models equipped with UMA graphics subsystem memory	511863-001
For use with computer models equipped with ATI Mobility Radeon HD4650 graphics with 1-GB memory	518431-001
For use with computer models equipped with ATI Mobility Radeon HD4530 graphics with 512-MB memory	518432-001
For use with computer models equipped with UMA graphics and GM47 chipset	518433-001

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 54](#)).
5. Remove the following components:
 - a. Hard drive (see [Hard drive on page 63](#))
 - b. Optical drive (see [Optical drive on page 57](#))
 - c. Switch cover (see [Switch cover and keyboard on page 70](#))
 - d. Display assembly (see [Display assembly on page 75](#))
 - e. Top cover (see [Top cover on page 85](#))

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 61](#))
- RTC battery (see [RTC battery on page 62](#))
- Memory module (see [Memory module on page 59](#))
- WLAN module (see [Bluetooth module on page 88](#))
- Modem module (see [WLAN module on page 66](#))
- Fan/heat sink assembly (see [Fan/heat sink assembly on page 99](#))
- Processor (see [Processor on page 101](#))

Remove the system board:

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

2. Disconnect the following cables from the system board:

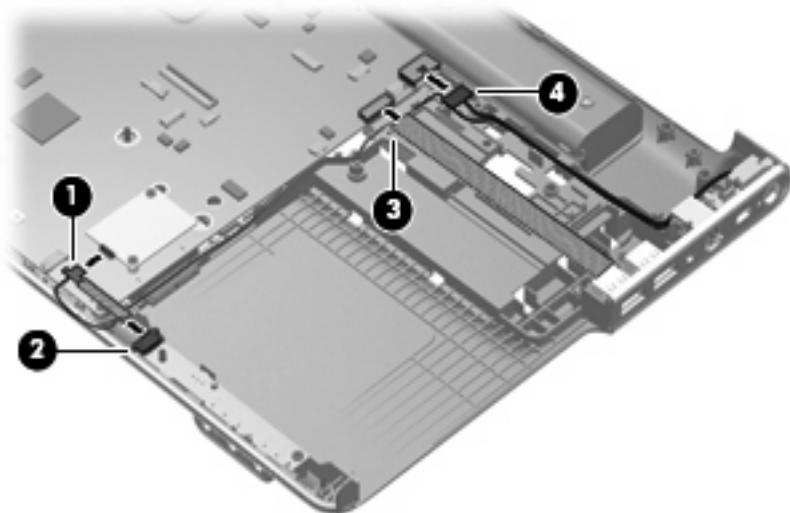
(2) Audio/infrared board cable

 **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.

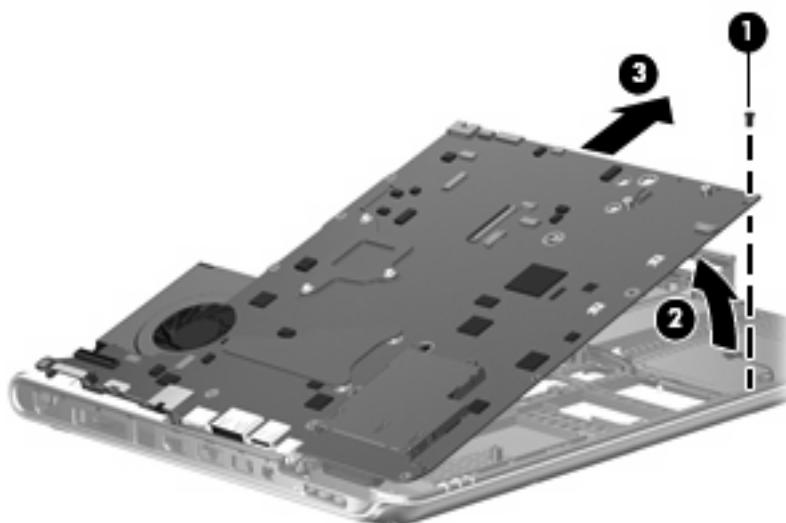
(4) Power connector cable



3. Remove the Phillips PM2.5×6.5 screw (1) that secures the system board to the base enclosure.

4. Use the optical drive connector (2) to lift the right side 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

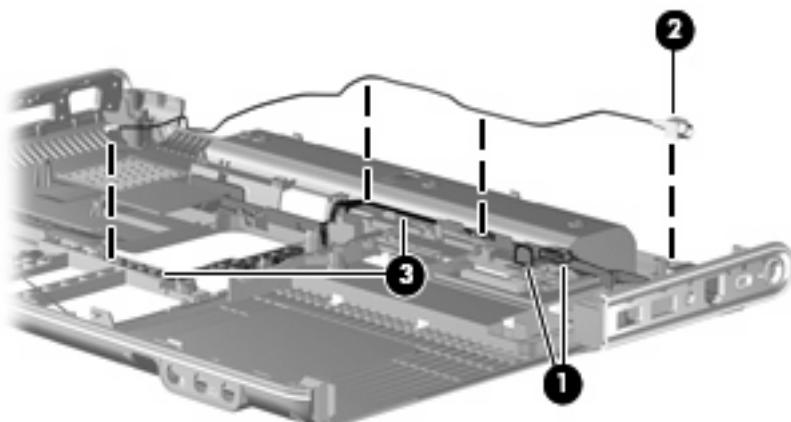
 **NOTE:** The TV tuner module cable is available in the Cable Kit, spare part number 512832-001.

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 54](#)).
5. Remove the following components:
 - a. Hard drive (see [Hard drive on page 63](#)).
 - b. Optical drive (see [Optical drive on page 57](#)).
 - c. Switch cover and keyboard (see [Switch cover and keyboard on page 70](#)).
 - d. Display assembly (see [Display assembly on page 75](#)).
 - e. Top cover (see [Top cover on page 85](#)).
 - f. USB board (see [USB board on page 92](#)).
 - g. System board (see [System board on page 95](#)).

Remove the TV tuner module cable:

1. Release the clips (1) built into the base enclosure that secure the TV tuner antenna connector.
2. Remove the TV tuner antenna connector (2) from the clip built into the base enclosure.
3. Remove the TV tuner module cable (3) from the clips and routing channel built into the base enclosure.



Reverse this procedure to install the TV tuner module cable.

Modem module cable

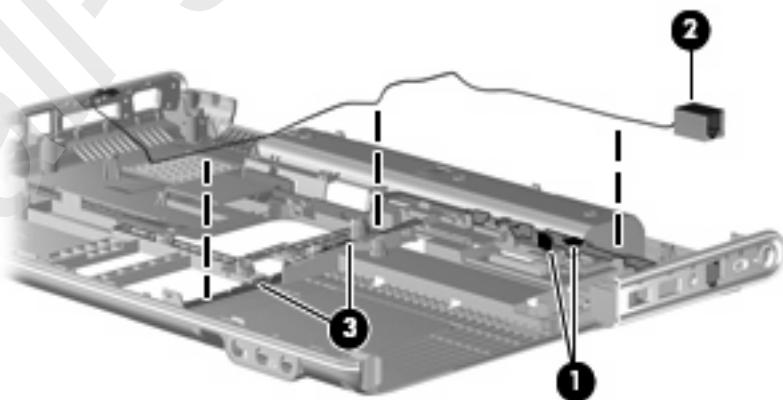
 **NOTE:** The modem module cable is available in the Cable Kit, spare part number 512832-001. The modem module cable includes the RJ-11 jack.

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 54](#)).
5. Remove the following components:
 - a. Hard drive (see [Hard drive on page 63](#)).
 - b. Optical drive (see [Optical drive on page 57](#)).
 - c. Switch cover and keyboard (see [Switch cover and keyboard on page 70](#)).
 - d. Display assembly (see [Display assembly on page 75](#)).
 - e. Top cover (see [Top cover on page 85](#)).
 - f. USB board (see [USB board on page 92](#)).
 - g. System board (see [System board on page 95](#)).

Remove the modem module cable:

1. Release the clips (1) built into the base enclosure that secure the RJ-11 jack.
2. Remove the RJ-11 jack (2) from the clip built into the base enclosure.
3. Remove the modem module cable (3) from the clips and routing channel 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 computer models equipped with graphics subsystems with discrete memory	512837-001
For use only with computer models equipped with graphics subsystems with UMA memory	512830-001
For use only with computer models equipped with ATI Mobility Radeon HD4650 graphics subsystems	518435-001

 **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.

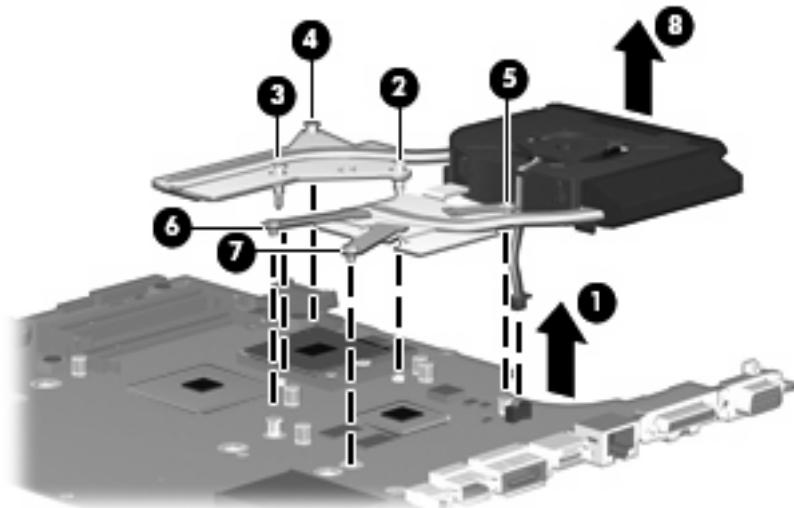
Before removing the fan/heat sink assembly, follow these steps:

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 54](#)).
5. Remove the following components:
 - a. Hard drive (see [Hard drive on page 63](#)).
 - b. Optical drive (see [Optical drive on page 57](#)).
 - c. Switch cover and keyboard (see [Switch cover and keyboard on page 70](#)).
 - d. Display assembly (see [Display assembly on page 75](#)).
 - e. Top cover (see [Top cover on page 85](#)).
 - f. USB board (see [USB board on page 92](#)).
 - g. System board (see [System board on page 95](#)).

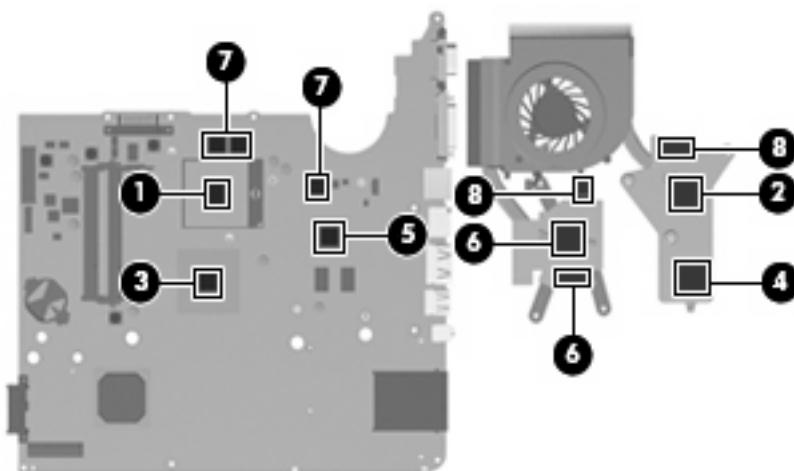
Remove the fan/heat sink assembly:

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:** Remove 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:** Remove 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: the processor **(1)** and **(2)**, the Northbridge chip **(3)** and **(4)**, the graphics subsystem chip **(5)** and **(6)**, and three capacitors **(7)** and **(8)**. 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.

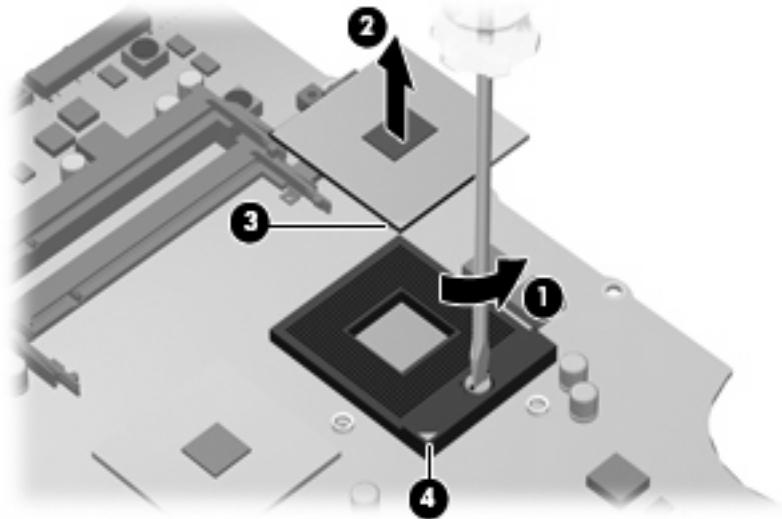
Description	Spare part number
Intel Core2 Duo T9800 2.93 GHz with 6-MB L2 cache and 1066-MHz FSB	507951-001
Intel Core2 Duo T9600 2.80 GHz with 6-MB L2 cache and 1066-MHz FSB	507955-001
Intel Core2 Duo T9550 2.66 GHz with 6-MB L2 cache and 1066-MHz FSB	507953-001
Intel Core2 Duo T9400 2.53 GHz with 6-MB L2 cache and 1066-MHz FSB	507954-001
Intel Core2 Duo T6600 2.20 GHz with 2-MB L2 cache and 800-MHz FSB	513593-001
Intel Core2 Duo T6400 2.00 GHz with 2-MB L2 cache and 800-MHz FSB	513592-001
Intel Core2 Duo T5800 2.00 GHz with 2-MB L2 cache and 800-MHz FSB	515040-001
Intel Pentium Dual-Core T4200 2.00 GHz with 1-MB L2 cache and 800-MHz FSB	513599-001
Intel Pentium Dual-Core T3400 2.16 GHz with 1-MB L2 cache and 1066-MHz FSB	509549-001
Intel Core Duo P8700 2.53 GHz with 3-MB L2 cache and 1066-MHz FSB	507960-001
Intel Core Duo P8600 2.40 GHz with 3-MB L2 cache and 1066-MHz FSB	507961-001
Intel Core Duo P8400 2.26 GHz with 3-MB L2 cache and 1066-MHz FSB	507962-001
Intel Core Duo P7450 2.13 GHz with 3-MB L2 cache and 1066-MHz FSB	507122-001
Intel Celeron T1600 1.66 GHz with 1-MB L2 cache and 667-MHz FSB (for use only with computers equipped with UMA graphics memory subsystems)	501894-001

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 54](#)).
5. Remove the following components:
 - a. Hard drive (see [Hard drive on page 63](#)).
 - b. Optical drive (see [Optical drive on page 57](#)).
 - c. Switch cover and keyboard (see [Switch cover and keyboard on page 70](#)).
 - d. Display assembly (see [Display assembly on page 75](#)).
 - e. Top cover (see [Top cover on page 85](#)).
 - f. USB board (see [USB board on page 92](#)).

- g. System board (see [System board on page 95](#)).
 - h. Fan/heat sink assembly (see [Fan/heat sink assembly on page 99](#)).
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**.

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	Run a comprehensive self-test on the hard drive.
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 to 4.2 cm	1.34 to 1.65 in
Weight (with optical drive, hard drive, and battery)	3.14 kg	6.93 lbs
Camera adds:	0.009 kg	0.02 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 BrightView 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	
Contrast ratio	
Brightness	
Pixel resolution	
Pitch	0.255 × 0.255 mm
Format	1366 × 768
Configuration	RGB vertical stripe
Backlight	
Character display	
Total power consumption	
Viewing angle	

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		
Contrast ratio	Up to 262,000	600:1 (typical)
Brightness	200 nits (typical)	
Pitch resolution		
Pitch	0.259 × 0.259 mm	
Format	1366 × 768	
Configuration	RGB vertical stripe	
Backlight		
Character display	Edge lit	
Total power consumption	80 × 25	4.5 W
Viewing angle	±45° horizontal, ±20° upper vertical, ±45° lower vertical (typical)	

15.6-inch WXGA AntiGlare 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	
Contrast ratio	
Brightness	
Pixel resolution	
Pitch	0.255 × 0.255 mm
Format	1366 × 768
Configuration	RGB vertical stripe
Backlight	
Character display	
Total power consumption	
Viewing angle	

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		
Contrast ratio	Up to 262,000	600:1 (typical)
Brightness	200 nits (typical)	
Pitch resolution		
Pitch	0.259 × 0.259 mm	
Format	1366 × 768	
Configuration	RGB vertical stripe	
Backlight		
Character display	Edge lit	
Total power consumption	80 × 25	4.5 W
Viewing angle	±45° horizontal, ±20° upper vertical, ±45° lower vertical (typical)	

Hard drive specifications

	500-GB*	400-GB*	320-GB*	250-GB*	160-GB*					
Dimensions										
Height	9.5 mm	9.5 mm	9.5 mm	9.5 mm	9.5 mm					
Width	70 mm	70 mm	70 mm	70 mm	70 mm					
Weight	101 g	101 g	101 g	101 g	101 g					
Interface type	ATA-7	ATA-7	ATA-7	ATA-7	ATA-7					
Transfer rate										
Synchronous (maximum)	100 MB/sec	100 MB/sec	100 MB/sec	100 MB/sec	100 MB/sec					
Security	ATA 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	3 ms					
Average	13 ms	13 ms	13 ms	13 ms	13 ms					
Maximum	24 ms	24 ms	24 ms	24 ms	24 ms					
Logical blocks	976,773,168	781,422,768	625,141,400	488,397,168	312,581,808					
Disc rotational speed	5400-rpm	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:	
	BD-ROM, BD-R, BD-RE, 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	CD-R and CD-RW DVD+R, DVD+R(9), DVD+RW, DVD-R, DVD-R(9), DVD-RW, DVD-RAM	
Access time	CD	DVD	HD
Random	<170 ms	<170 ms	<230 ms
Cache buffer	8 MB		
Data transfer rate			
24X CD-ROM	3,600 KB/sec		
8X DVD	10,800 KB/sec		
24X CD-R	3,600 KB/sec		
16X CD-RW	2,400 KB/sec		
8X DVD+R	10,800 KB/sec		
4X DVD+RW	5,400 KB/sec		
8X DVD-R	10,800 KB/sec		
4X DVD-RW	5,400 KB/sec		
2.4X DVD+R(9)	2,700 KB/sec		
5X DVD-RAM	6,750 KB/sec		
1X BD-ROM	4,500 KB/sec		
1X BD-R read	4,500 KB/sec		
1X BD-RE read	4,500 KB/sec		
Transfer mode	Multiword DMA Mode		

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

Applicable disc	Read:	Write:
	BD-ROM, BD-R, BD-RE, 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 ExpressCard
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: ExpressCard 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 Ethernic 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) “A” diskette controller PCI-E Root Port (B0/D1/F0)
8000 - 801F	Serial port (COM1/default)
3F8 - 3FF	SMBus Controller
8000 - 801F	SMBus Controller
8020 - 803F	SATA AHCI Controller - 2929 PCI configuration index register (PCIDIVO-1) SATA AHCI Controller - 2929
8040 - 805F	USB UHCI Controller - 2939
8060 - 807F	USB UHCI Controller - 2936

I/O address (hex)	System function (shipping configuration)
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	USB UHCI Controller - 2929

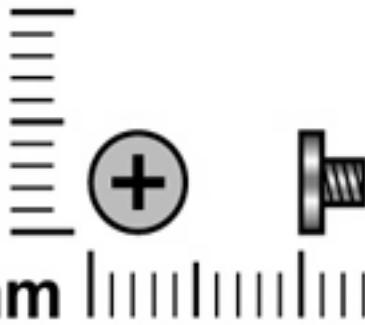
System memory map specifications

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	000E8000-000FFFFFFF	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-FFFFFFFFFF	System BIOS

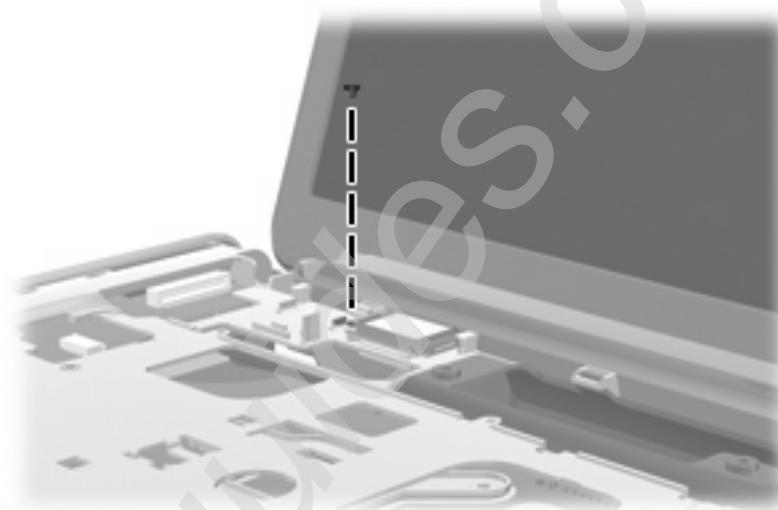
7 Screw listing

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.

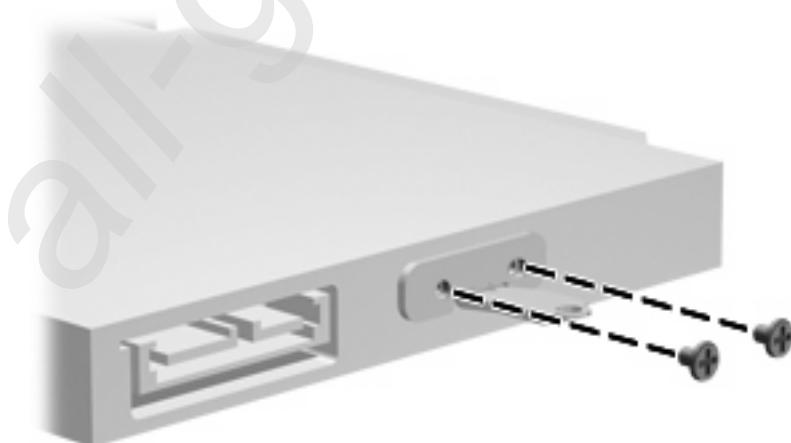
Phillips PM2.0×3.0 screw



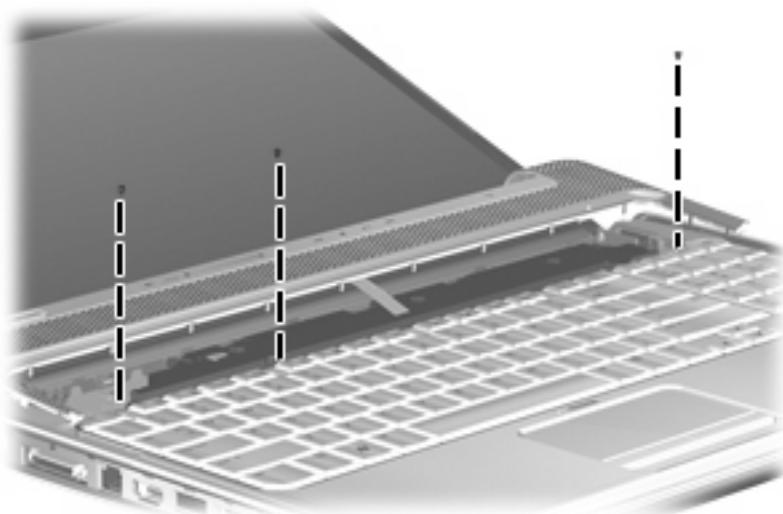
Color	Quantity	Length	Thread	Head diameter
Black	6	3.0 mm	2.0 mm	4.5 mm



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

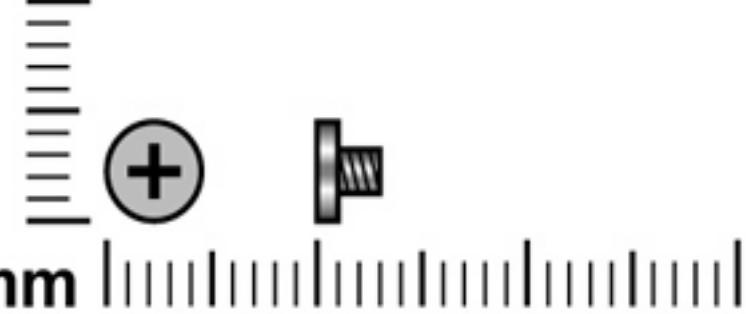


Where used: Two screws that secure the optical drive bracket to the computer.

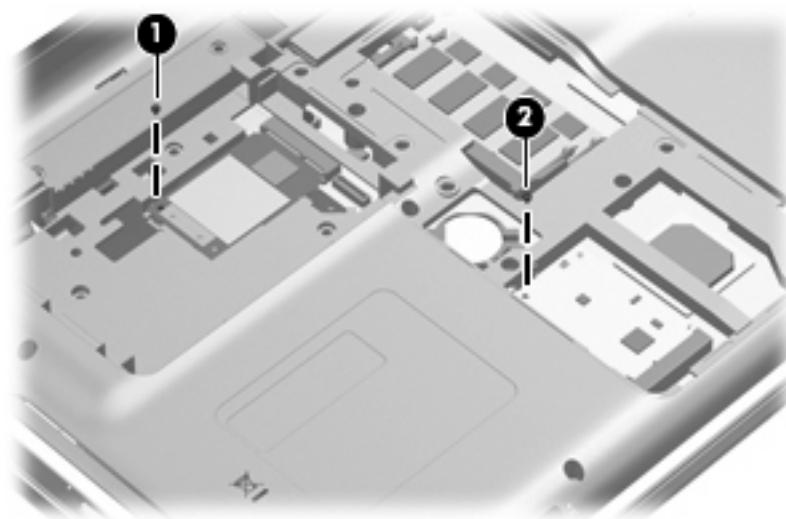


Where used: Three screws that secure the keyboard to the computer

Phillips PM2.0×3.0 screw

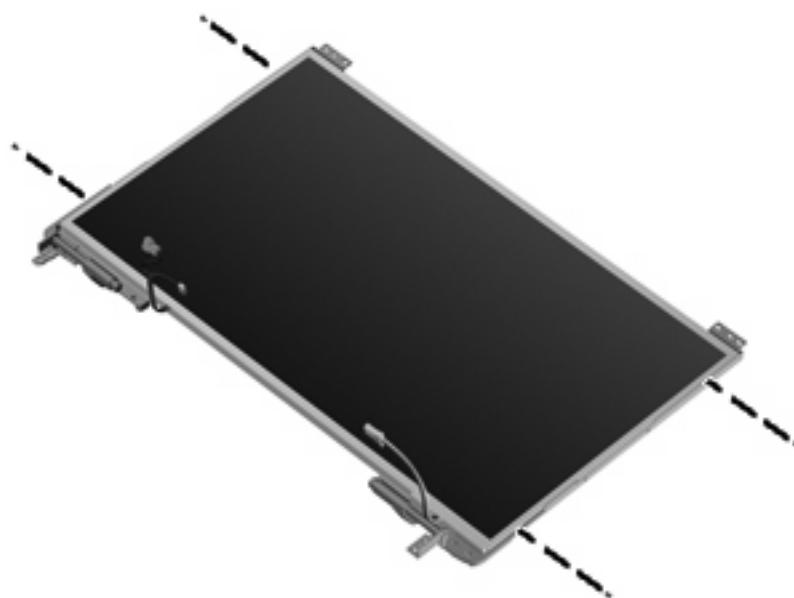


Color	Quantity	Length	Thread	Head diameter
Silver	8	3.0 mm	2.0 mm	4.5 mm

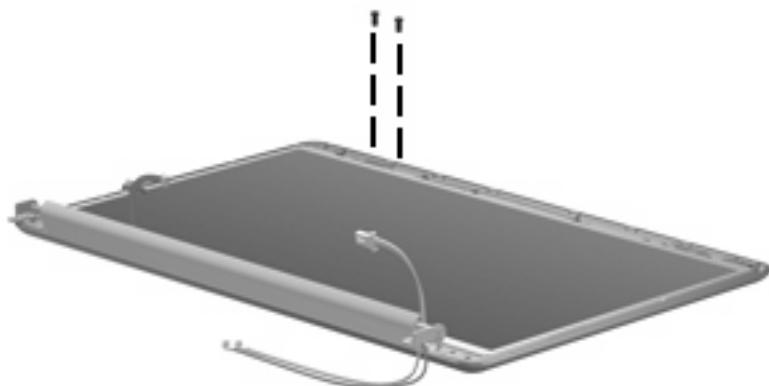


Where used:

- (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

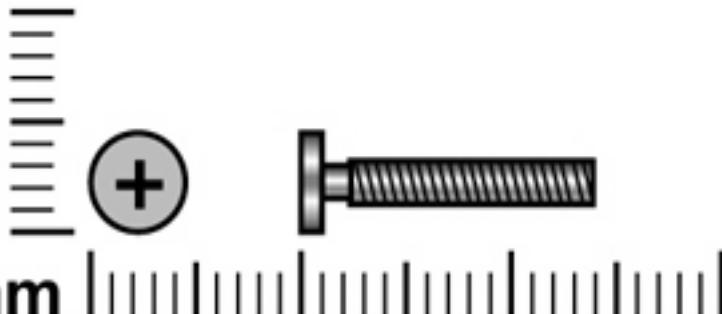


Where used: Four screws that secure the display hinge brackets to the display panel.

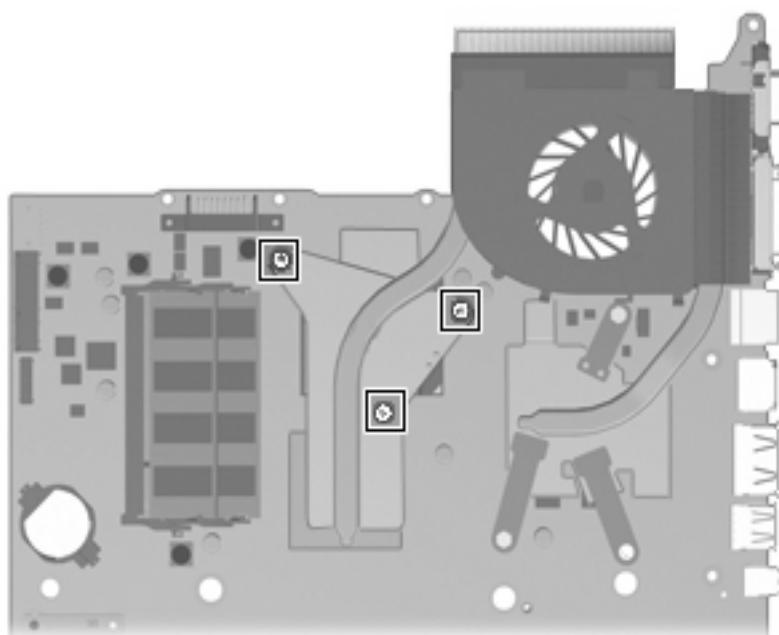


Where used: Two screws that secure the wireless antennas to the display cover

Phillips PM2.0×14.0 captive screw

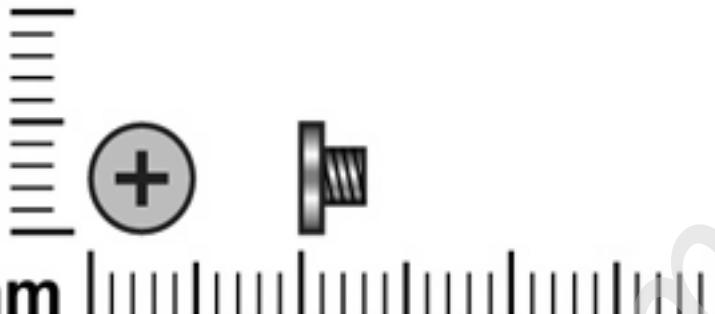


Color	Quantity	Length	Thread	Head diameter
Silver	3	14.0 mm	2.0 mm	4.5 mm

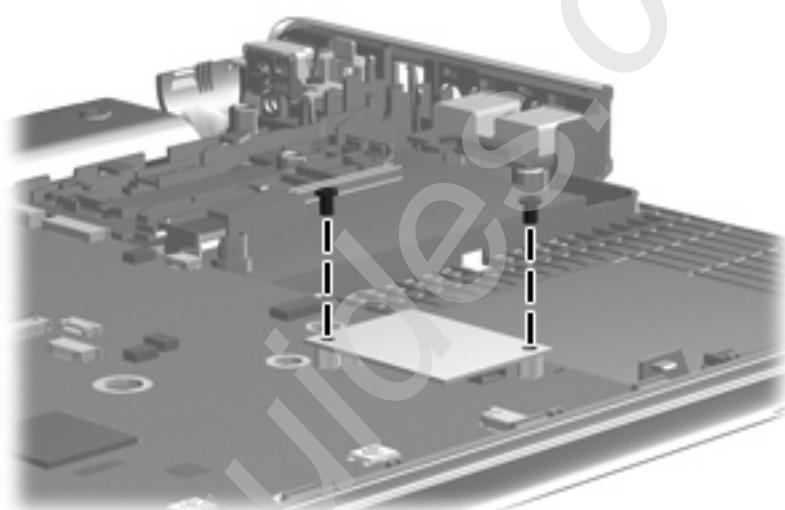


Where used: Three screws that secure the fan and heat sink to the system board

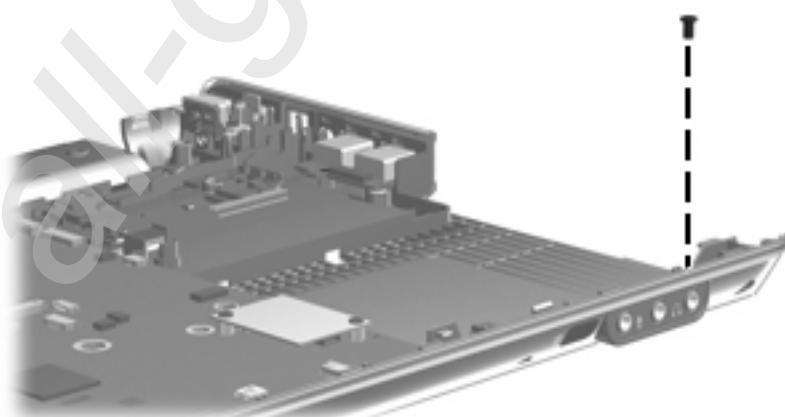
Phillips PM2.5×3.0 screw



Color	Quantity	Length	Thread	Head diameter
Black	3	3.0 mm	2.5 mm	4.5 mm

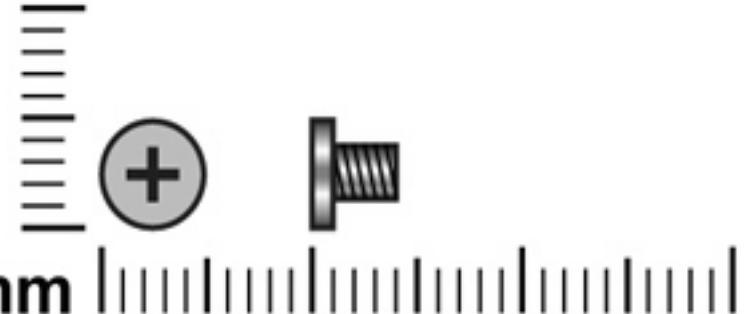


Where used: Two screws that secure the modem module to the system board

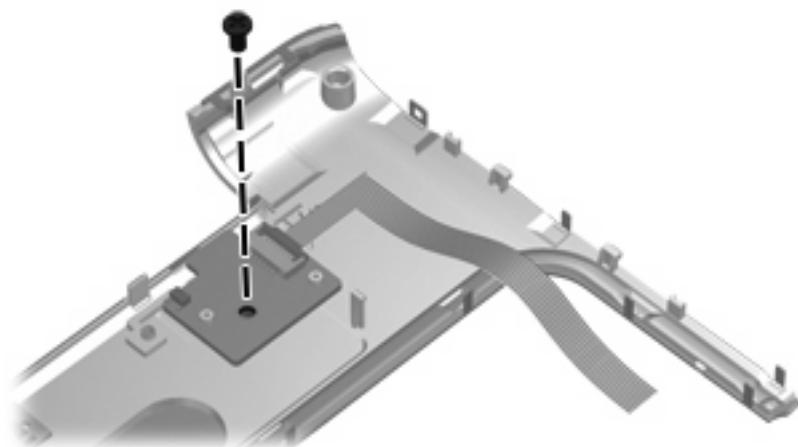


Where used: One screw that secures the audio/infrared board to the system board

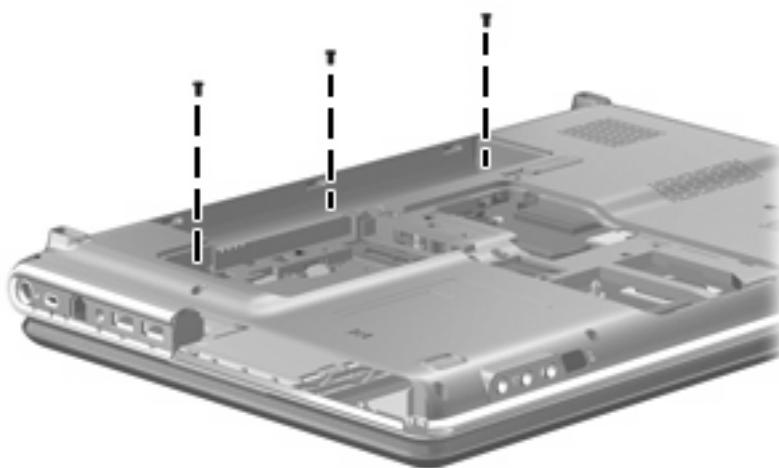
Phillips PM2.5×4.0 screw



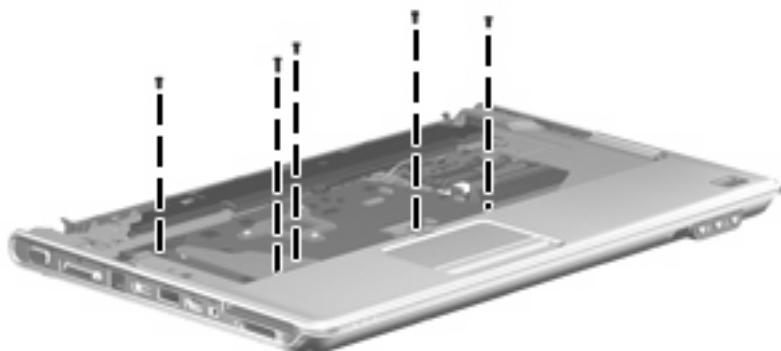
Color	Quantity	Length	Thread	Head diameter
Black	10	4.0 mm	2.5 mm	4.5 mm



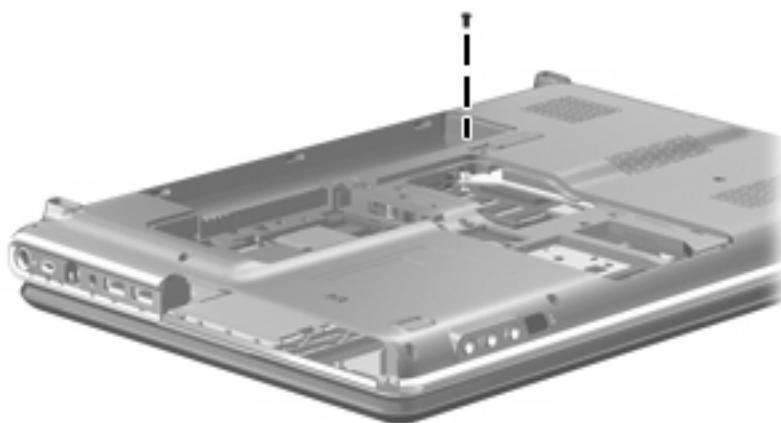
Where used: One screw that secures the power button board to the switch cover



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

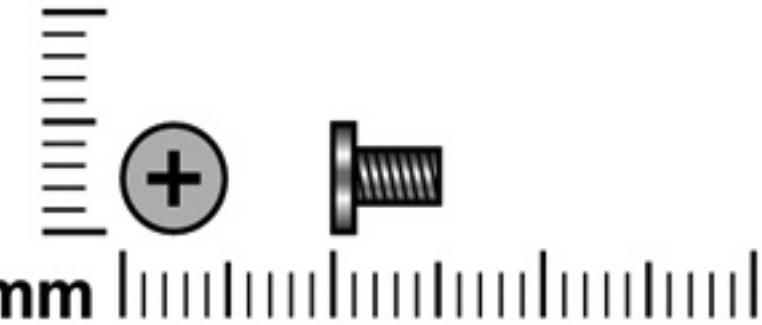


Where used: Five screws that secure the top cover to the computer

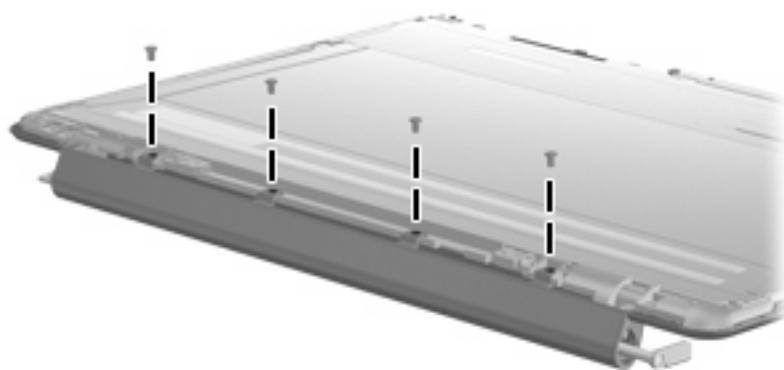


Where used: One screw that secures the top cover to the computer

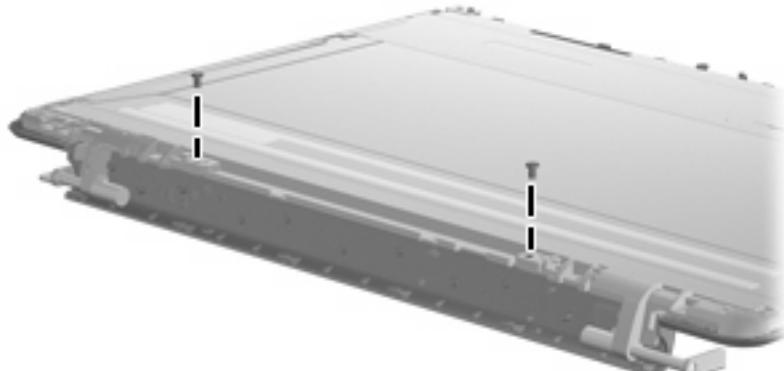
Phillips PM2.5×5.0 screw



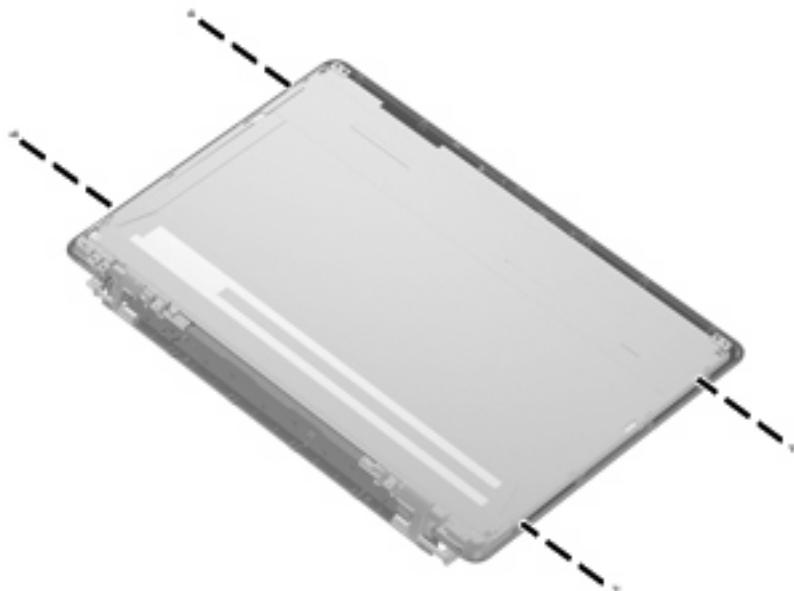
Color	Quantity	Length	Thread	Head diameter
Black	22	5.0 mm	2.5 mm	4.4 mm



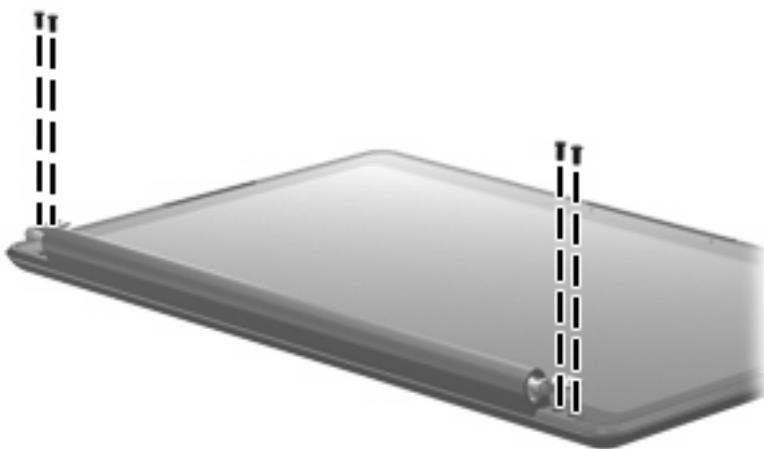
Where used: Four screws that secure the display inverter cover to the display bezel on computer models equipped with AntiGlare display assemblies



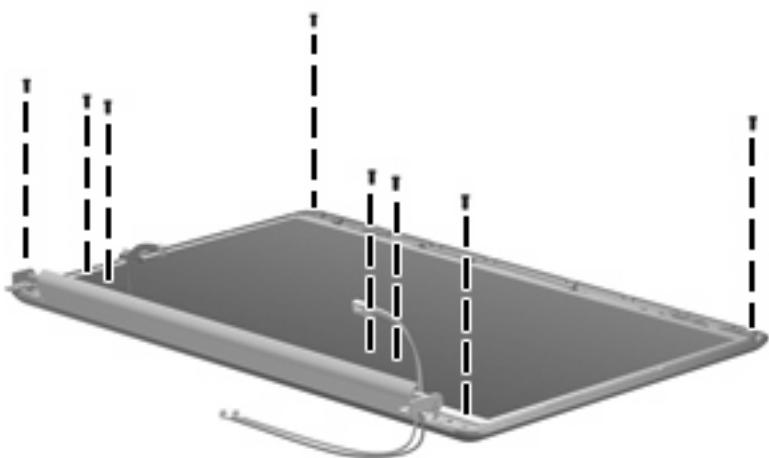
Where used: Two screws that secure the display hinge bracket to the display bezel on computer models equipped with AntiGlare display assemblies



Where used: Four screws that secure the display hinges to the display bezel on computer models equipped with AntiGlare display assemblies

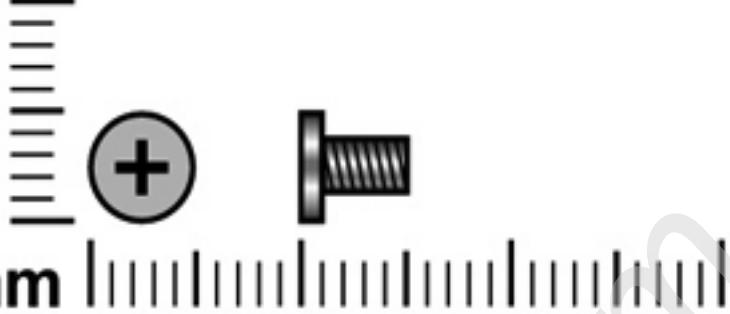


Where used: Four screws that secure the display enclosure to the display bezel on computer models equipped with AntiGlare display assemblies

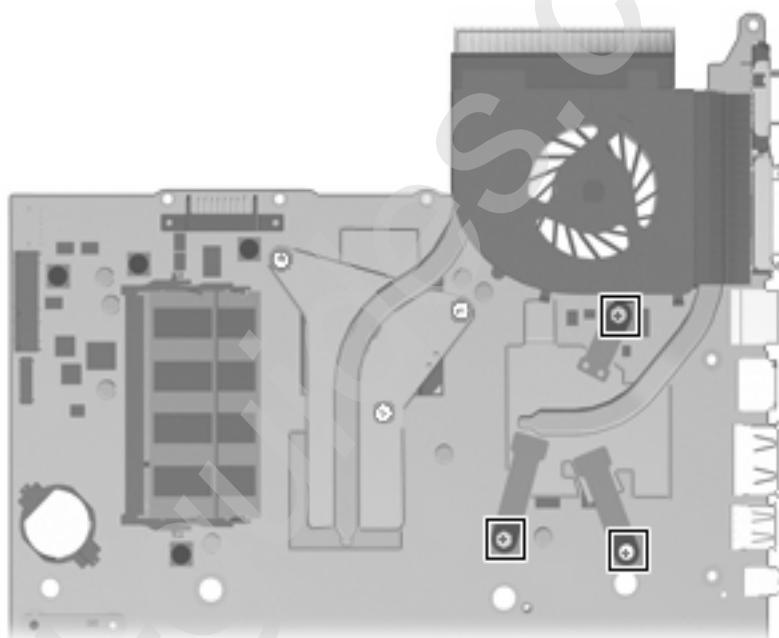


Where used: Eight screws that secure the display panel to the display on computer models equipped with BrightView display assemblies

Phillips PM2.5×5.0 captive screw

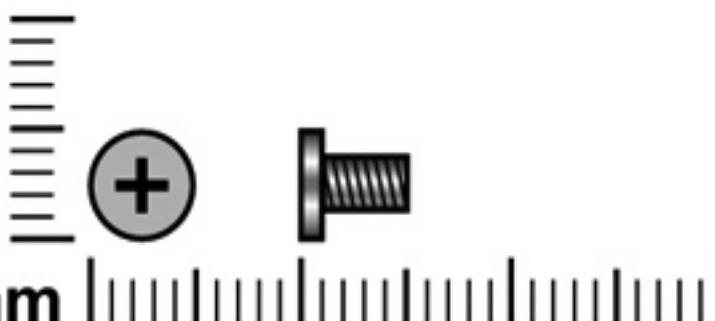


Color	Quantity	Length	Thread	Head diameter
Black	3	5.0 mm	2.5 mm	4.5 mm

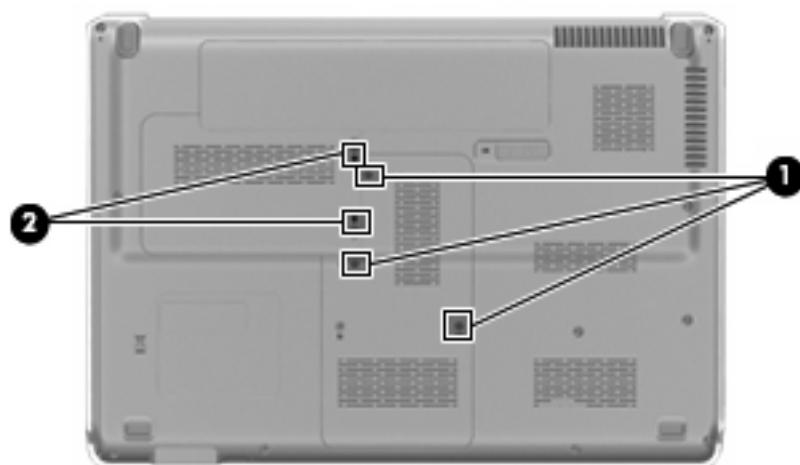


Where used: Three screws that secure the fan and heat sink to the system board

Phillips PM2.5×5.5 captive screw

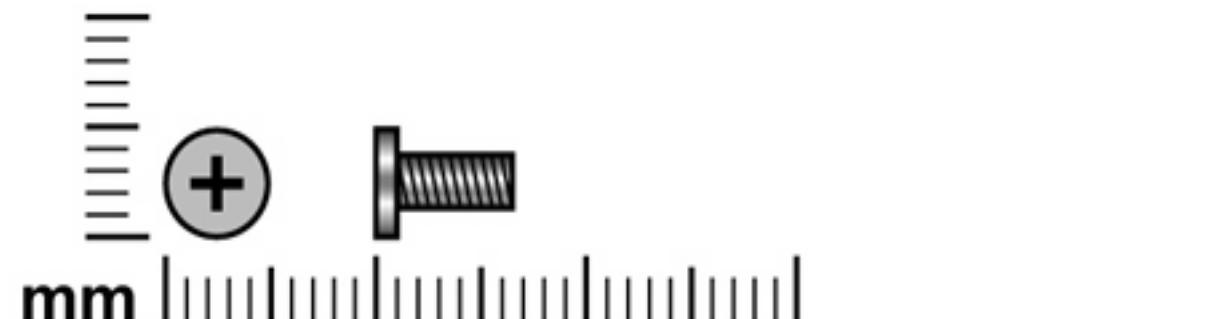


Color	Quantity	Length	Thread	Head diameter
Black	6	5.5 mm	2.5 mm	4.4 mm

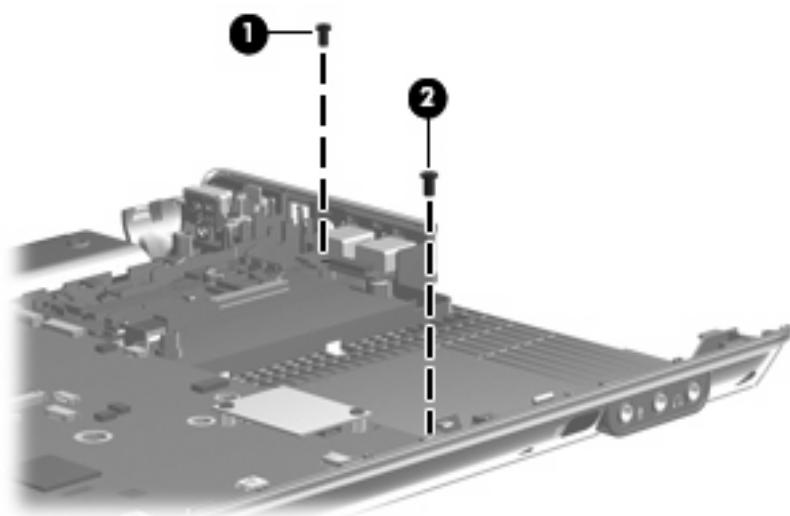
**Where used:**

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

Phillips PM2.5×6.5 screw

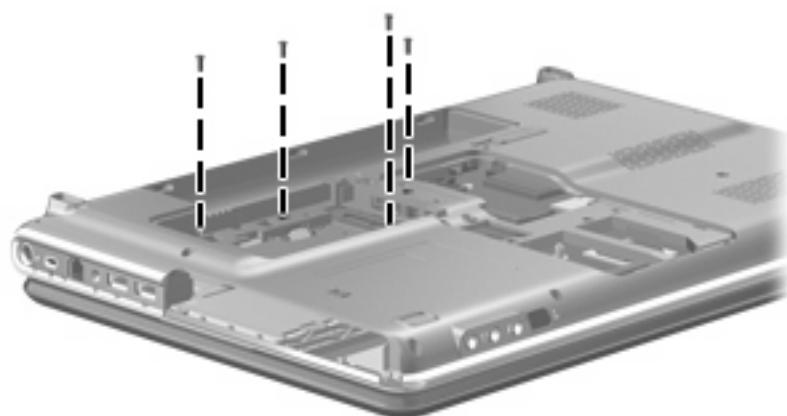


Color	Quantity	Length	Thread	Head diameter
Black	25	6.5 mm	2.5 mm	4.4 mm

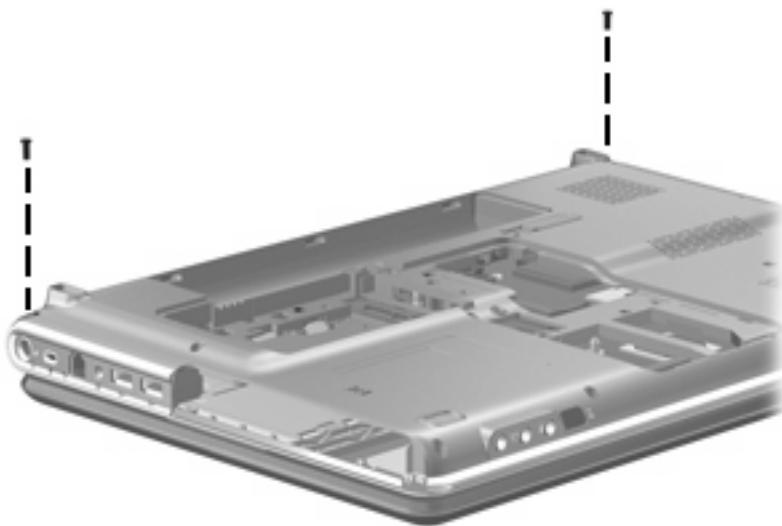


Where used:

- (1) One screw that secures the USB board to the system board
- (2) One screw that secures the system board to the computer



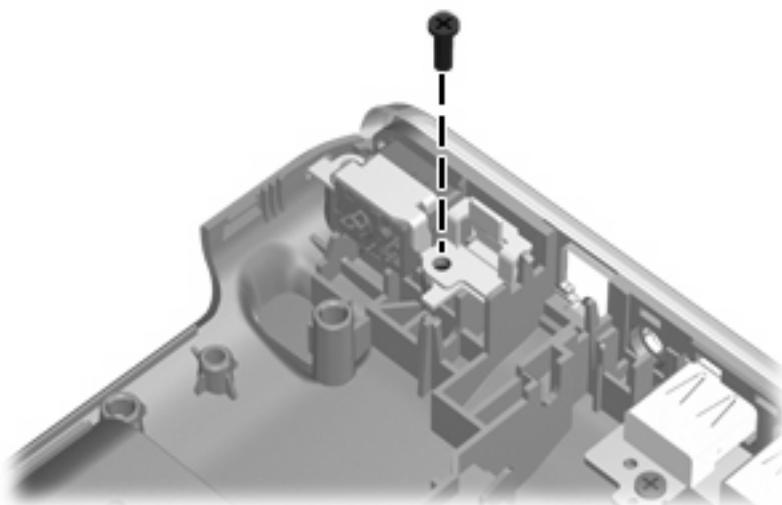
Where used: Four screws that secure the keyboard to the computer



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



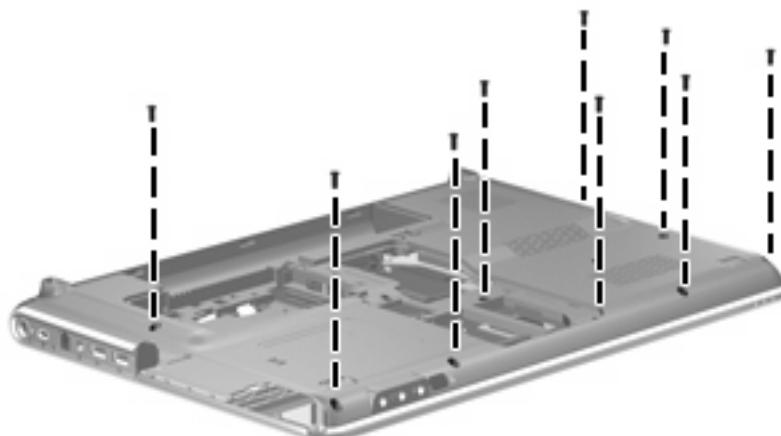
Where used: Four screws that secure the display assembly to the computer



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: Nine screws that secure the top cover to the base enclosure

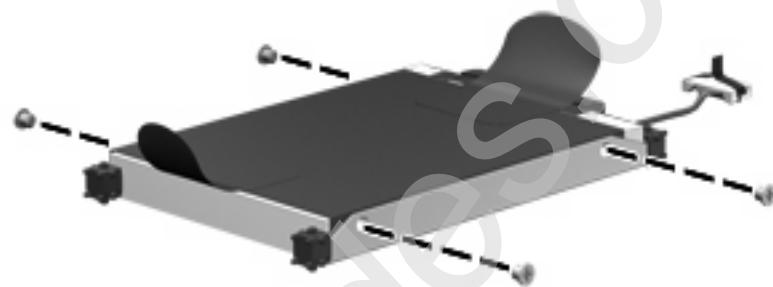


Where used: Two screws that secure the display bezel to the display on computer models equipped with BrightView display assemblies

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

Note the following guidelines before creating recovery discs:

- You will need high-quality DVD-R, 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 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 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:

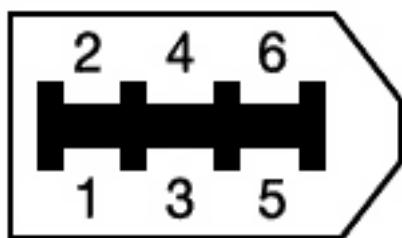
1. Access Recovery Manager in either of the following ways:
 - Select **Start > All Programs > Recovery Manager > Recovery Manager**.
 - or–
 - Restart the computer and press **f11** while the “Press <F11> for recovery” message is displayed on the screen. Then select **Recovery Manager**.

Recovery Manager opens.

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

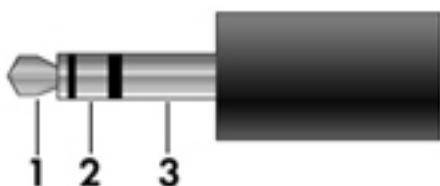
9 Connector pin assignments

1394



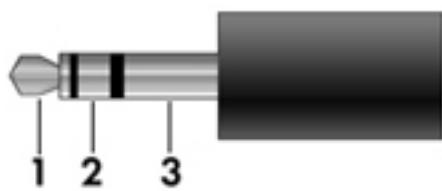
Pin	Signal
1	Power
2	Ground
3	TPB-
4	TPB+
5	TPA-
6	TPA+

Audio-in (microphone)



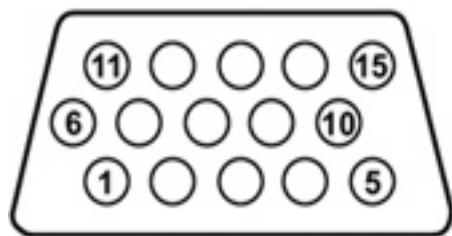
Pin	Signal
1	Audio signal in
2	Audio signal in
3	Ground

Audio-out (headphone)



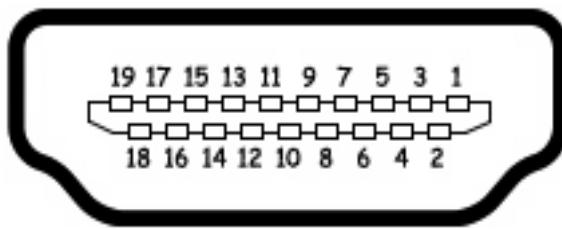
Pin	Signal
1	Audio out, left channel
2	Audio out, right channel
3	Ground

External monitor



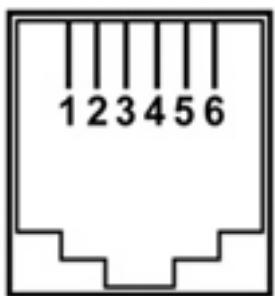
Pin	Signal
1	Red analog
2	Green analog
3	Blue analog
4	Not connected
5	Ground
6	Ground analog
7	Ground analog
8	Ground analog
9	+5 VDC
10	Ground
11	Monitor detect
12	DDC 2B data
13	Horizontal sync
14	Vertical sync
15	DDC 2B clock

HDMI



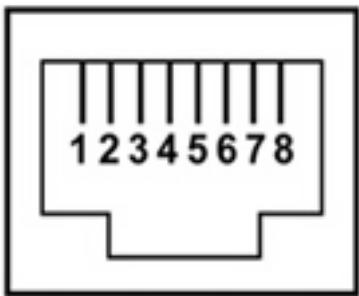
Pin	Signal
1	Transition minimized differential signal (TMDS) data 2+
2	TMDS data 2 shield
3	TMDS data 2-
4	TMDS data 1+
5	TMDS data 1 shield
6	TMDS data 1-
7	TMDS data 0+
8	TMDS data 0 shield
9	TMDS data 0-
10	TMDS clock+
11	TMDS clock shield
12	TMDS clock-
13	Consumer electric control (CEC)
14	Not connected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

RJ-11 (modem)



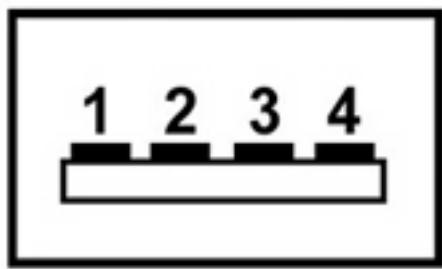
Pin	Signal
1	Unused
2	Tip
3	Ring
4	Unused
5	Unused
6	Unused

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. When you remove these components, handle them carefully.
- 📝 **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>.

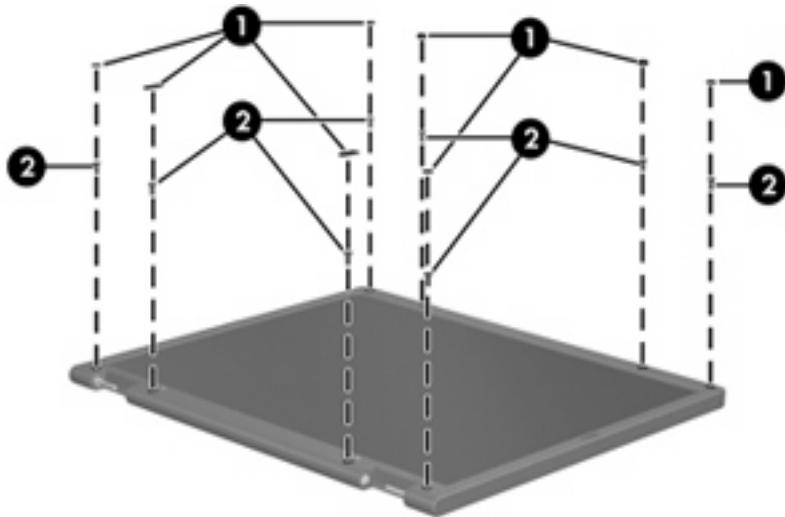
This section provides disassembly instructions for the display assembly. The display assembly must be disassembled to gain access to the backlight (1) and the liquid crystal display (LCD) panel (2).



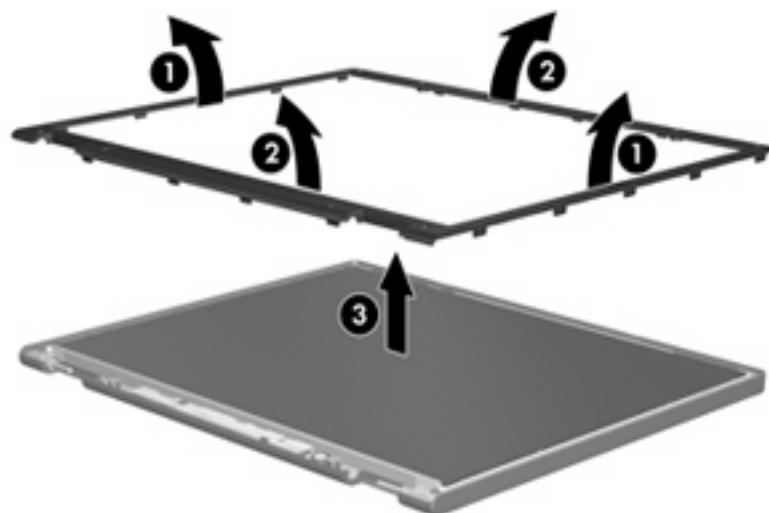
- 📝 **NOTE:** The procedures provided in this chapter are general disassembly instructions. Specific details, such as screw sizes, quantities, and locations, and component shapes and sizes, can vary from one computer model to another.

Perform the following steps to disassemble the display assembly:

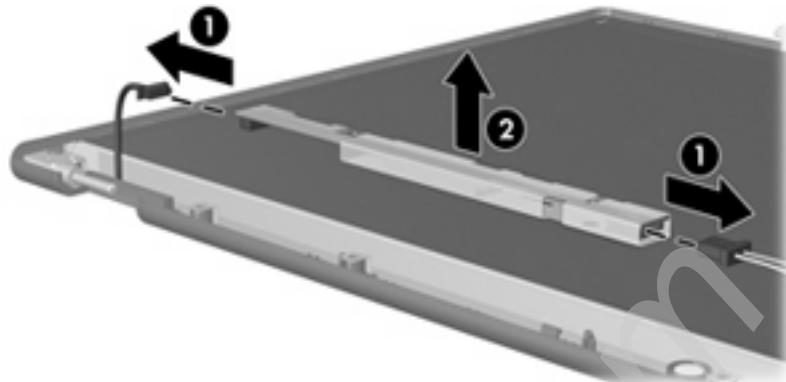
1. Remove all screw covers (1) and screws (2) that secure the display bezel to the display assembly.



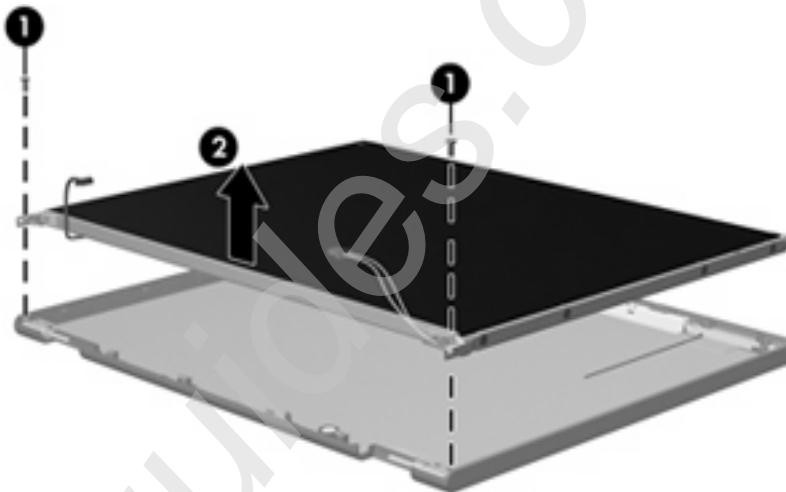
2. Lift up and out on the left and right inside edges (1) and the top and bottom inside edges (2) of the display bezel until the bezel disengages from the display assembly.
3. Remove the display bezel (3).



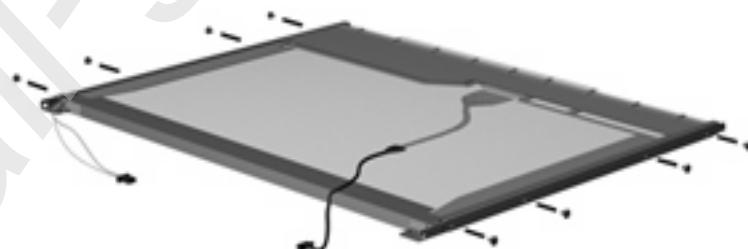
4. Disconnect all display panel cables (1) from the display inverter and remove the inverter (2).



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.

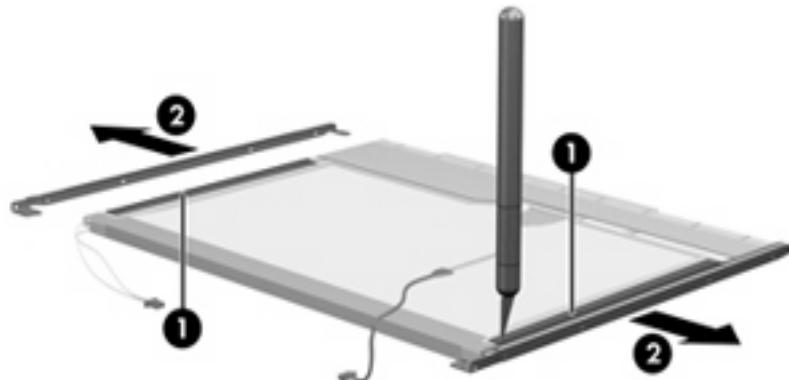


7. Turn the display panel assembly upside down.
8. Remove all screws that secure the display panel frame to the display panel.



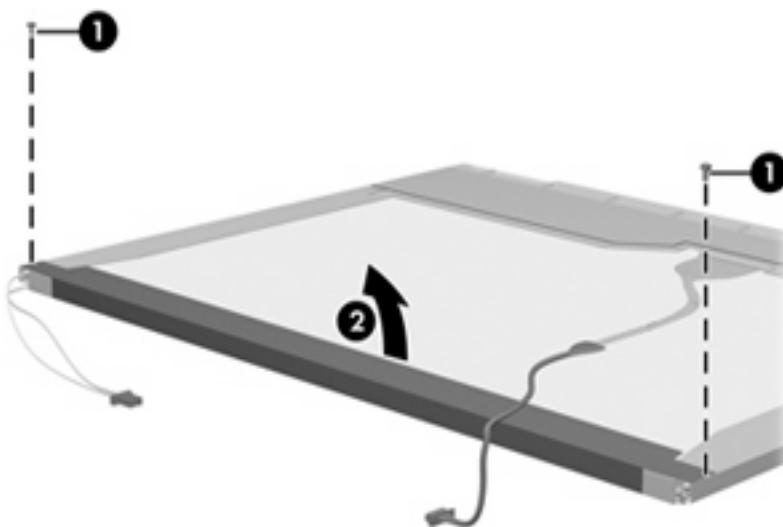
9. Use a sharp-edged tool to cut the tape (1) that secures the sides of the display panel to the display panel frame.

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.

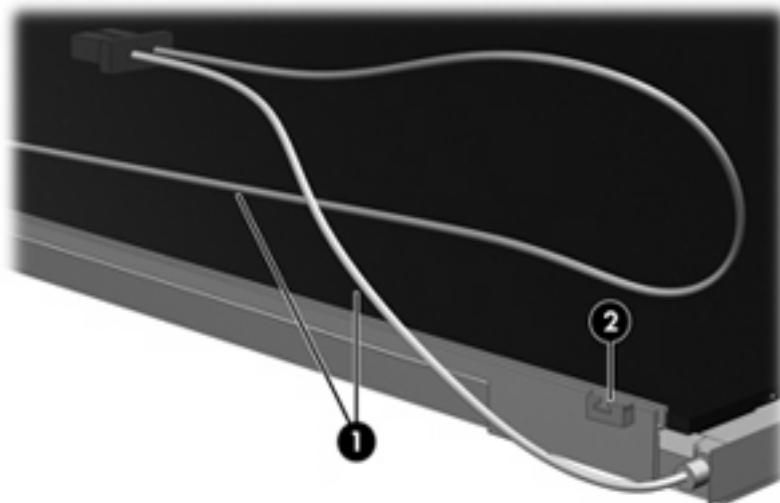
12. Lift the top edge of the backlight cover (2) and swing it outward.



13. Remove the backlight cover.

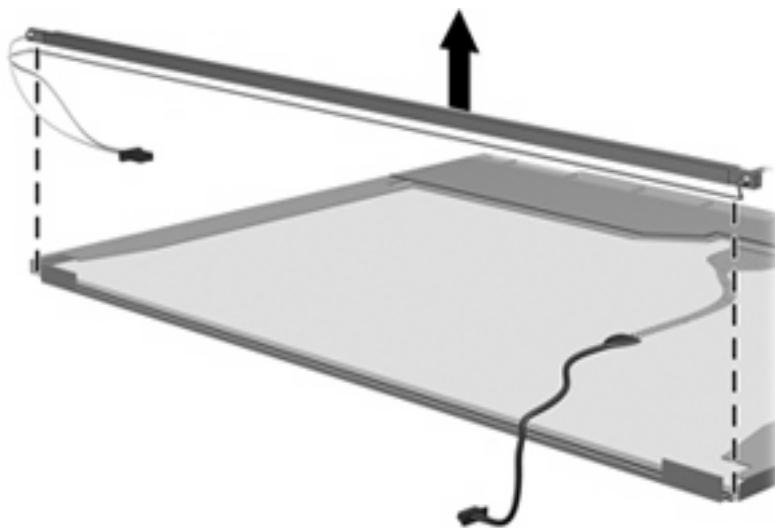
14. Turn the display panel right-side up.

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

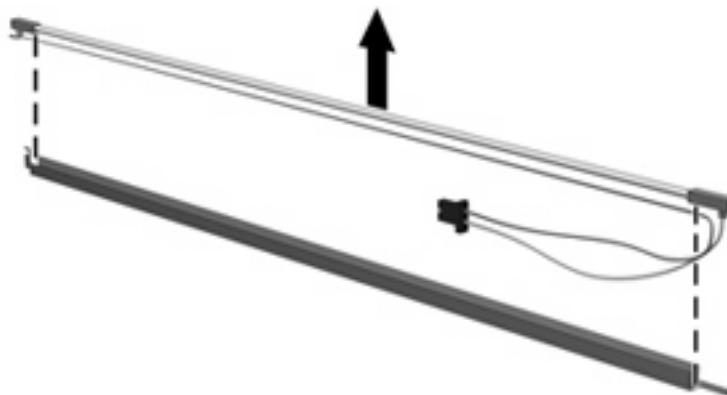


16. Turn the display panel upside down.
17. Remove the backlight frame from the display panel.

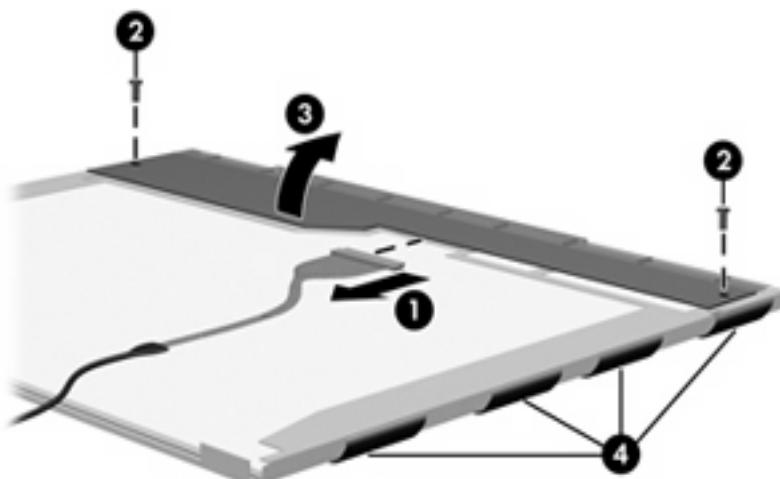
⚠ WARNING! The backlight contains mercury. Exercise caution when removing and handling the backlight to avoid damaging this component and causing exposure to the mercury.



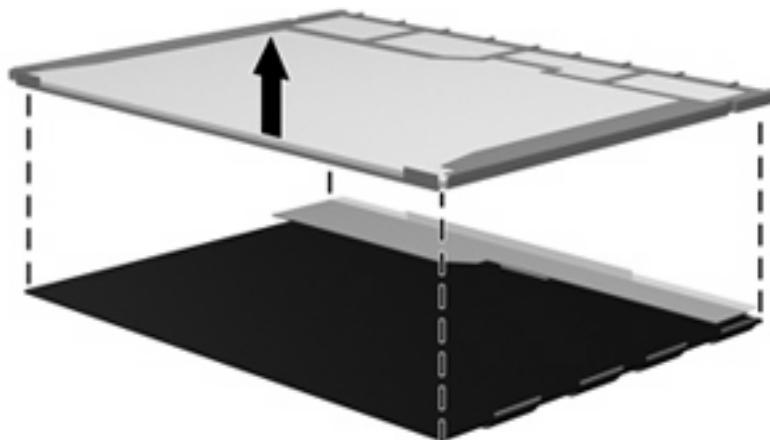
18. Remove the backlight from the backlight frame.



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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