HP Pavilion dv6500, dv6600, and dv6700 Entertainment PCs

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	Discrete graphics, AMD	UMA graphics, AMD	Full-featured, Intel	Defeatured Intel
Product Name	**HP Pavilion dv6500, dv6600, and dv6700 Entertainment PCs**	√	√	√	√
Processors	**Intel® Core™ 2 Duo processors**				
	2.20-GHz processor, 4-MB L2 cache, 800-MHz front side bus (FSB)			√	√
	2.00-GHz processor, 2-MB L2 cache, 800-MHz FSB			√	√
	1.86-GHz processor, 1-MB L2 cache, 533-MHz FSB			√	√
	1.50-GHz processor, 2-MB L2 cache, 667-MHz FSB			√	√
	Intel Core Duo processors				
	T7300 2.0-GHz processor, 4-MB L2 cache, 800-MHz FSB			√	√
	T7100 1.8-GHz processor 2-MB L2 cache, 800-MHz FSB			√	√
	T5250 1.5-GHz processor 2-MB L2 cache, 667-MHz FSB			√	√
	T2330 1.6-GHz processor 1-MB L2 cache, 533-MHz FSB			√	√
	T2310 1.46-GHz processor 1-MB L2 cache, 533-MHz FSB			√	√
	Intel Celeron® processor				
	M530 1.73-GHz processor 1-MB L2 cache, 533-MHz FSB			√	√
	AMD processors				
	Turion™ MK-38 (2.2-GHz, 512-MB L2 cache)	√	√		
	Turion TL-66 (2.3 -GHz, 1-MB L2 cache)	√	√		
	Turion TL-60 (2.0 -GHz, 1-MB L2 cache)	√	√		
	Turion TL-58 (1.9 -GHz, 1-MB L2 cache)	√	√		

Category	Description	Discrete graphics, AMD	UMA graphics, AMD	Full-featured, Intel	Defeatured Intel
	Turion TL-56 (1.8 -GHz, 1-MB L2 cache)	√	√		
	Athlon™ TK-53 (1.7-GHz. 512-MB L2 cache)	√	√		
Chipset	Northbridge: Intel PM965			√	
	Northbridge: Intel GM965				√
	Southbridge: Intel ICH8m			√	√
	Northbridge/Southbridge: nVidia MCP67D	√			
	Northbridge/Southbridge: nVidia MCP67M		√		
Graphics	**nVidia Discrete PCI Express x 16 Graphics** nVidia NB8M-SE -GS with 128-MB of dedicated video memory (16M × 16 DDR2 × 4 PCs) with: • 192 MB of video memory on computer models with 512-MB system random access memory (RAM) (128-MB + 64-MB Turbo Cache) • 383 MB of video memory on computer models with 1-GB system RAM (128-MB + 255-MB Turbo Cache) • 895 MB of video memory on computer models with 2-GB system RAM (128-MB + 767-MB Turbo Cache) • 1919 MB of video memory on computer models with 4-GB system RAM (128-MB + 1535-MB Turbo Cache) System design supports up to 55 W GPU requirement.	√		√	
	Intel Extreme Graphics (Mobile Intel Graphics Media Accelerator X3100) UMA (integrated) with shared video memory, and: • Up to 64 MB on computer models with 512 MB of system RAM • or, Up to 256 MB on computer models with 1024 MB or more of system RAM Memory size is a dynamic change.				√

Category	Description	Discrete graphics, AMD	UMA graphics, AMD	Full-featured, Intel	Defeatured Intel
	UMA nVidia MCP67M with shared video memory, and: • Up to 128 MB on computer models with 512 MB of system RAM • Up to 287 MB on computer models with 1024 MB of system RAM • Up to 559 MB on computer models with 2048 MB of system RAM • Up to 559 MB on computer models with 4096 MB of system RAM Memory size is dynamically allocated.		√		
Panel	15.4-inch, WXGA BrightView	√	√	√	√
Memory	2 SODIMM slots	√	√	√	√
	Customer-accessible/upgradable	√	√	√	√
	Supports up to 4 GB of system RAM	√	√	√	√
	PC2-5300, DDRII (667-MHz)	√	√	√	√
	Supports the following configurations: • 4096 (2048 × 2) • 2048 (2048 × 1, 1024 × 2) • 1536 (1024 + 512) • 1024 (1024 × 1, 512 × 2) • 512 (512 × 1)	√	√	√	√
Hard drives	Supports 9.5-mm, 2.5-inch hard drives	√	√	√	√
	Serial ATA	√	√	√	√
	Supports the following drives: • 250-GB, 5400-rpm • 200-GB, 4200-rpm • 160-GB, 5400-rpm • 120-GB, 5400-rpm • 80-GB, 5400-rpm	√	√	√	√
Optical drives	Fixed (removal of 1 screw required)	√	√	√	√
	Parallel ATA	√	√	√	√
	12.7-mm tray load	√	√	√	√

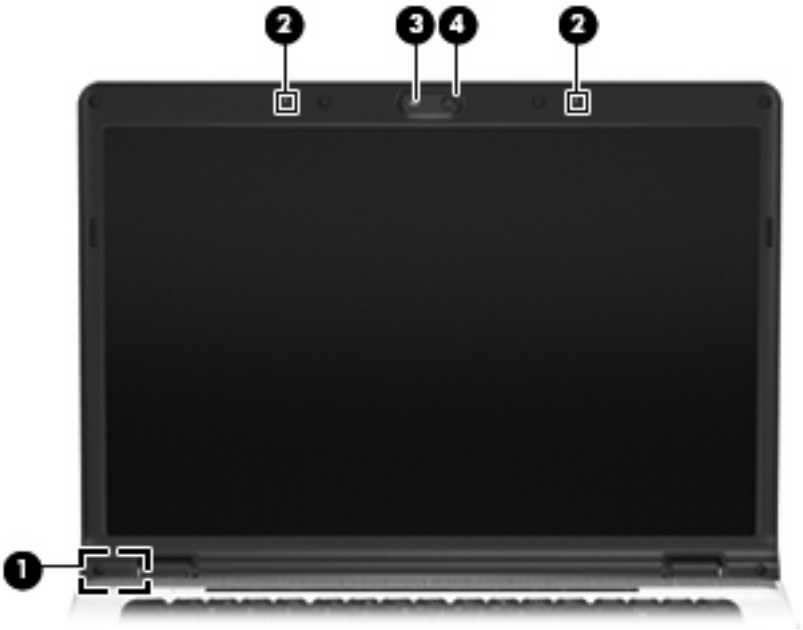
Category	Description	Discrete graphics, AMD	UMA graphics, AMD	Full-featured, Intel	Defeatured Intel
	Supports the following drives: • HD-ROM Drive	√			
	• DVD±RW and CD-RW SuperMulti Double-Layer Combo Drive with LightScribe	√	√	√	√
	• DVD±RW and CD-RW SuperMulti Double-Layer Combo Drive	√	√	√	√
	• DVD-CD/RW Combo Drive	√	√	√	√
	• Blu-ray Disc ROM Drive with SuperMulti DVD±R/RW Double-Layer (DL) support (select models only)			√	
Diskette drive	Supports external USB drive only	√	√	√	√
Camera	1.3-megapixel, low-light, VGA camera - fixed (no tilt)	√	√	√	√
Microphone	2 omnidirectional, dual-array microphones, with beam-forming, echo-cancellation, noise-suppression software	√	√	√	√
Audio	HD audio - Realtek ALC861-VD-GR		√	√	√
	HD Audio - Conexant CX20549-12	√			
	Supports Windows Vista® Premium Logo requirements	√	√	√	√
	Pavilion-branded Altec Lansing speakers	√	√	√	√
Modem	56K V.92 data/fax modem	√	√	√	√
	Supports all world-wide certification requirements	√	√	√	√
	Modem cable not included	√	√	√	√
Ethernet	Integrated Realtek 10/100 network interface card (NIC)		√	√	√
	10/100/1000 (Gigabit Ethernet, RTL8211B)	√			
	Ethernet cable not included	√	√	√	√
Wireless	**Integrated wireless local area network (WLAN) options by way of wireless module:**				
	Intel PRO Wireless 3945 802.11a/b/g and 802.11b/g with 2 antennae integrated into the display assembly			√	√
	Intel PRO Wireless 4965 802.11a/b/g/n with 3 antennae integrated into the display assembly @ 2.4 and 5.0 GHz			√	√
	Intel WLAN + Bluetooth®			√	√

Category	Description	Discrete graphics, AMD	UMA graphics, AMD	Full-featured, Intel	Defeatured Intel
	Broadcom 4321AGN Wi-Fi Adapter (802.11 a/b/g/ draft-n) + Bluetooth w/2 antennas	√	√		
	Broadcom 4321AGN Wi-Fi Adapter (802.11 a/b/g/ draft-n) w/2 antennas	√	√		
External media card	One ExpressCard54 slot	√	√	√	√
	Digital Media Slot, supports SD, MMC, SDIO, MS, MSpro, xD	√	√	√	√
Ports	Audio-in (mono microphone)	√	√	√	√
	Audio-out (stereo headphone)	√	√	√	√
	Audio-out (stereo headphone with S/PDIF)	√	√	√	
	Consumer infrared	√	√	√	√
	RJ-11 (modem)	√	√	√	√
	RJ-45 (Ethernet, includes link and activity lights)	√	√	√	√
	S-Video-out	√	√	√	√
	HDMI v1.2 supporting 1080p with HDCP key	√			
	USB (3)	√	√	√	
	USB (1)				√
	VGA (Dsub 15-pin)	√	√	√	√
	1394	√	√	√	
	2-pin AC power	√	√	√	√
Docking	Expansion port 3 supports HP xb3000 Notebook Expansion Base and HP Notebook QuickDock	√	√	√	√
Keyboard/ pointing devices	15.4-inch keyboard	√	√	√	√
	TouchPad with 2 buttons and two-way scroll (taps enabled as default)	√	√	√	√
Power requirements	12-cell 2.20-Ah Li-ion battery	√	√	√	√
	6-cell 2.55-Ah Li-ion battery	√	√	√	√
	6-cell 2.20-Ah Li-ion battery	√	√	√	√
	65-W AC adapter with localized cable plug support (2-wire plug with ground pin, supports 2-pin DC connector)	√	√	√	√
	90-W (PFC only)	√			

Category	Description	Discrete graphics, AMD	UMA graphics, AMD	Full-featured, Intel	Defeatured Intel
Security	Security cable slot	√	√	√	√
	Fingerprint reader	√	√	√	√
Operating system	**Preinstalled:**				
	Windows Vista Business (32-bit)	√	√	√	√
	Windows Vista Ultimate (64-bit)		√	√	√
	Windows Vista Premium (32- and 64-bit)	√	√	√	√
	Windows Vista Home Basic (32-bit)	√	√	√	√
Serviceability	**End-user replaceable parts:**				
	AC adapter	√	√	√	√
	Battery (system)	√	√	√	√
	Hard drive	√	√	√	√
	Memory module	√	√	√	√
	Optical drive	√	√	√	√
	WLAN module	√	√	√	√

2 External component identification

Display components



Item	Component	Description
(1)	Internal display switch*	Turns off the display if the display is closed while the computer is on.
(2)	Internal microphones (2) (select models only)	Record sound. **NOTE:** If there is a microphone icon next to each microphone opening, the computer has internal microphones.
(3)	Integrated camera light (select models only)	On: The integrated camera is in use.
(4)	Integrated camera (select models only)	Records video and captures still photographs.

*The location of the internal display switch varies by computer model.

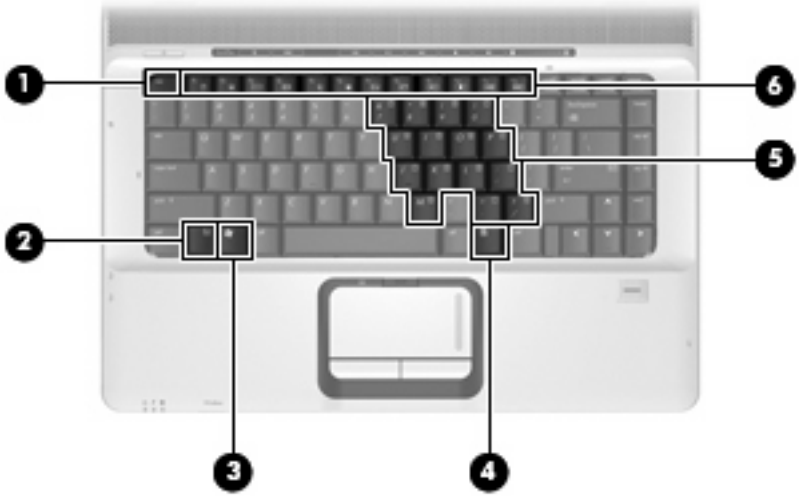
Top components

Lights

Item	Component	Description
(1)	Power lights (2)*	• On: The computer is on. • Blinking: The computer is in the Sleep state. • Off: The computer is off or in Hibernation.
(2)	Battery light	• On: A battery is charging. • Blinking: A battery that is the only available power source has reached a low battery level or a critical battery level. • 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	Blinking: The hard drive or optical drive is being accessed.
(4)	Caps lock light	On: Caps lock is on.
(5)	Volume mute light	• Blue: Computer sound is turned on. • Amber: Computer sound is turned off.
(6)	Volume down light	Blinking: The volume scroll zone is being used to decrease speaker volume.
(7)	Volume up light	Blinking: The volume scroll zone is being used to increase speaker volume.
(8)	Num lock light	On: Num lock is on or the embedded numeric keypad is enabled.

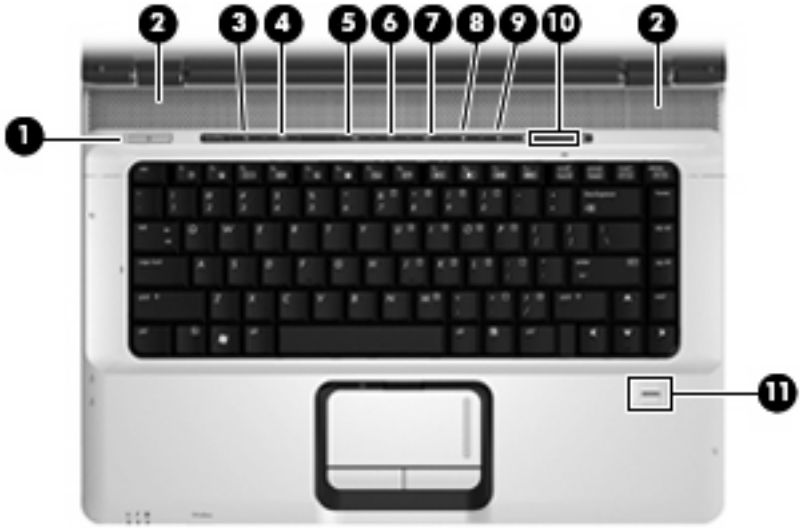
*The 2 power lights display the same information. The light on the power button is visible only when the computer is open. The power light on the front of the computer is visible whether the computer is open or closed.

Keys



Item	Component	Function
(1)	esc key	Displays system information when pressed in combination with the fn key.
(2)	fn key	Executes frequently used system functions when pressed in combination with a function key or the esc key.
(3)	Windows logo key	Displays the Windows® Start menu.
(4)	Windows applications key	Displays a shortcut menu for items beneath the pointer.
(5)	Embedded 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.

Buttons, speakers, and fingerprint reader



Item	Component	Description
(1)	Power button*	• When the computer is off, press the button to turn on the computer. • When the computer is on, press the button 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. 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. To learn more about power settings, select **Start > Control Panel > System and Maintenance > Power Options**.
(2)	Speakers (2)	Produce sound.
(3)	Media button	Opens the QuickPlay program. **NOTE:** If the computer has been set up to require a logon password, you may be asked to log on to Windows. QuickPlay opens after you log on. Refer to the QuickPlay software Help for more information.
(4)	DVD button	Opens the DVD playback feature of the QuickPlay program. **NOTE:** If the computer has been set up to require a logon password, you may be asked to log on to Windows. QuickPlay opens after you log on. Refer to the QuickPlay software Help for more information.
(5)	Previous/rewind button	• Plays the previous track or chapter when pressed once. • Rewinds media when pressed simultaneously with the fn key.

Item	Component	Description
(6)	Play/pause button	Plays or pauses the disc.
(7)	Next/fast forward button	• Plays the next track or chapter when pressed once. • Fast forwards media when pressed simultaneously with the fn key.
(8)	Stop button	Stops the disc.
(9)	Volume mute button	Mutes and restores the speaker sound.
(10)	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.
(11)	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.

TouchPad

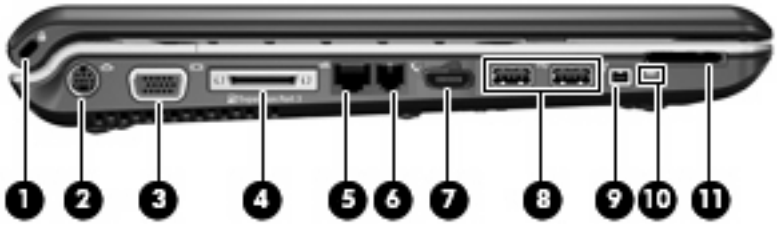
Item	Component	Function
(1)	TouchPad light	• Blue: TouchPad is enabled. • Amber: TouchPad is disabled.
(2)	TouchPad*	Moves the pointer and selects or activates items on the screen.
(3)	Left TouchPad button*	Functions like the left button on an external mouse.
(4)	TouchPad on/off button	Enables/disables the TouchPad.
(5)	TouchPad scroll zone	Scrolls up or down.
(6)	Right TouchPad button*	Functions like the right button on an external mouse.

*This table describes factory settings. To view or change pointing device preferences, select **Start > Control Panel > Hardware and Sound > Mouse**.

Front components

Item	Component	Function
(1)	Power light	• On: The computer is on. • Blinking: The computer is in the Sleep state. • Off: The computer is off or in Hibernation.
(2)	Battery light	• On: A battery is charging. • Blinking: A battery that is the only available power source has reached a low battery level or a critical battery level. • 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	Blinking: The hard drive or optical drive is being accessed.
(4)	Wireless switch	Turns the wireless feature on or off, but does not create a wireless connection. **NOTE:** To establish a wireless connection, a wireless network must already be set up.
(5)	Wireless light	• Blue: An integrated wireless device, such as a WLAN device and/or a Bluetooth® device, is turned on. • Amber: An integrated wireless device is turned off.
(6)	Consumer infrared lens	Receives a signal from a remote control device, such as the HP Remote Control.
(7)	Audio-in (microphone) jack	Connects an optional computer headset microphone, stereo array microphone, or monaural microphone.
(8)	Audio-out (headphone) jack	Produces sound when connected to optional powered stereo speakers, headphones, ear buds, a headset, or television audio.
(9)	Audio-out (headphone) S/PDIF jack (select models only)	Produces sound when connected to optional powered stereo speakers, headphones, ear buds, a headset, or television audio.

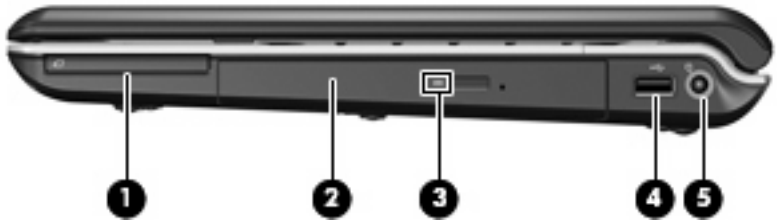
Left-side components



Item	Component	Function
(1)	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.
(2)	S-Video-out jack	Connects an optional S-Video device such as a television, VCR, camcorder, overhead projector, or video capture card.
(3)	External monitor port	Connects an external VGA monitor or projector.
(4)	Expansion port 3	Connects the computer to an optional docking device or expansion product. **NOTE:** The computer has only one expansion port. The term *expansion port 3* describes the type of expansion port.
(5)	RJ-45 (network) jack	Connects a network cable. **NOTE:** On select computer models, the network jack provides Gigabit Ethernet functionality.
(6)	RJ-11 (modem) jack	Connects a modem cable.
(7)	HDMI port (select models only)	Connects an optional video or audio device such as a high-definition television, set-top box, DVD player, or any compatible digital or audio device.
(8)	USB ports (1 or 2, depending on computer model)	Connect optional USB devices.
(9)	1394 port (select models only)	Connects an optional IEEE 1394 or 1394a device, such as a camcorder.
(10)	Digital Media Slot light (select models only)	On: A digital card is being accessed.
(11)	Digital Media Slot (select models only)	Supports the following optional digital card formats: • Memory Stick (MS) • Memory Stick Pro (MSP) • MultiMediaCard (MMC) • Secure Digital Input/Output (SD I/O) • Secure Digital (SD) Memory Card • xD-Picture Card (XD)

Item	Component	Function
		• xD-Picture Card (XD) Type H • xD-Picture Card (XD) Type M

Right-side components

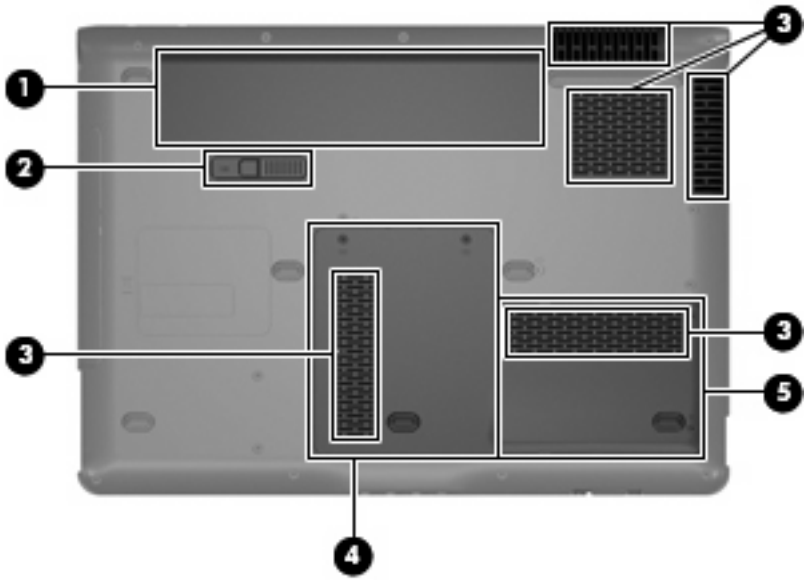


Item	Component	Function
(1)	ExpressCard slot	Supports optional ExpressCard/54 cards.
(2)	Optical drive	Reads optical discs, and, on select models, also writes to optical discs.
(3)	Optical drive light	Blinking: The optical drive is being accessed.
(4)	USB port (select models only)	Connects an optional USB device.
(5)	Power connector	Connects an AC adapter.

Rear component

Component	Description
Vent	Enables airflow to cool internal components. **NOTE:** The computer fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation.

Bottom components

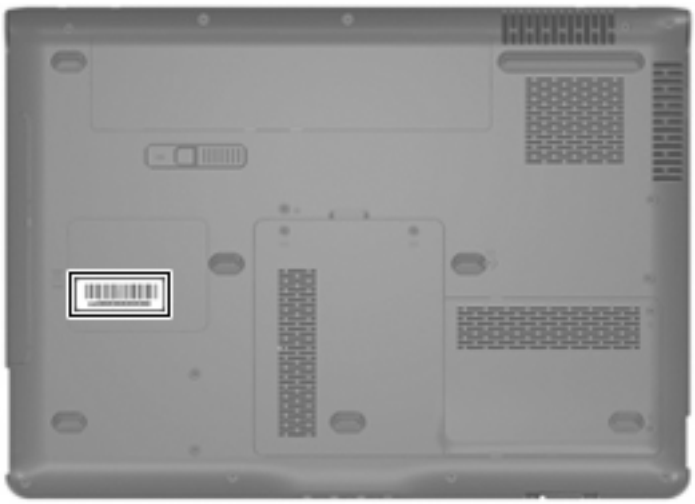


Item	Component	Function
(1)	Battery bay	Holds the battery.
(2)	Battery release latch	Releases the battery from the battery bay.
(3)	Vents (5)	Enable airflow to cool internal components. **NOTE:** The computer fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation.
(4)	Memory/WLAN module compartment	Contains the memory module slots, the WLAN module slot, and the RTC battery. **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)	Hard drive bay	Holds the hard drive.

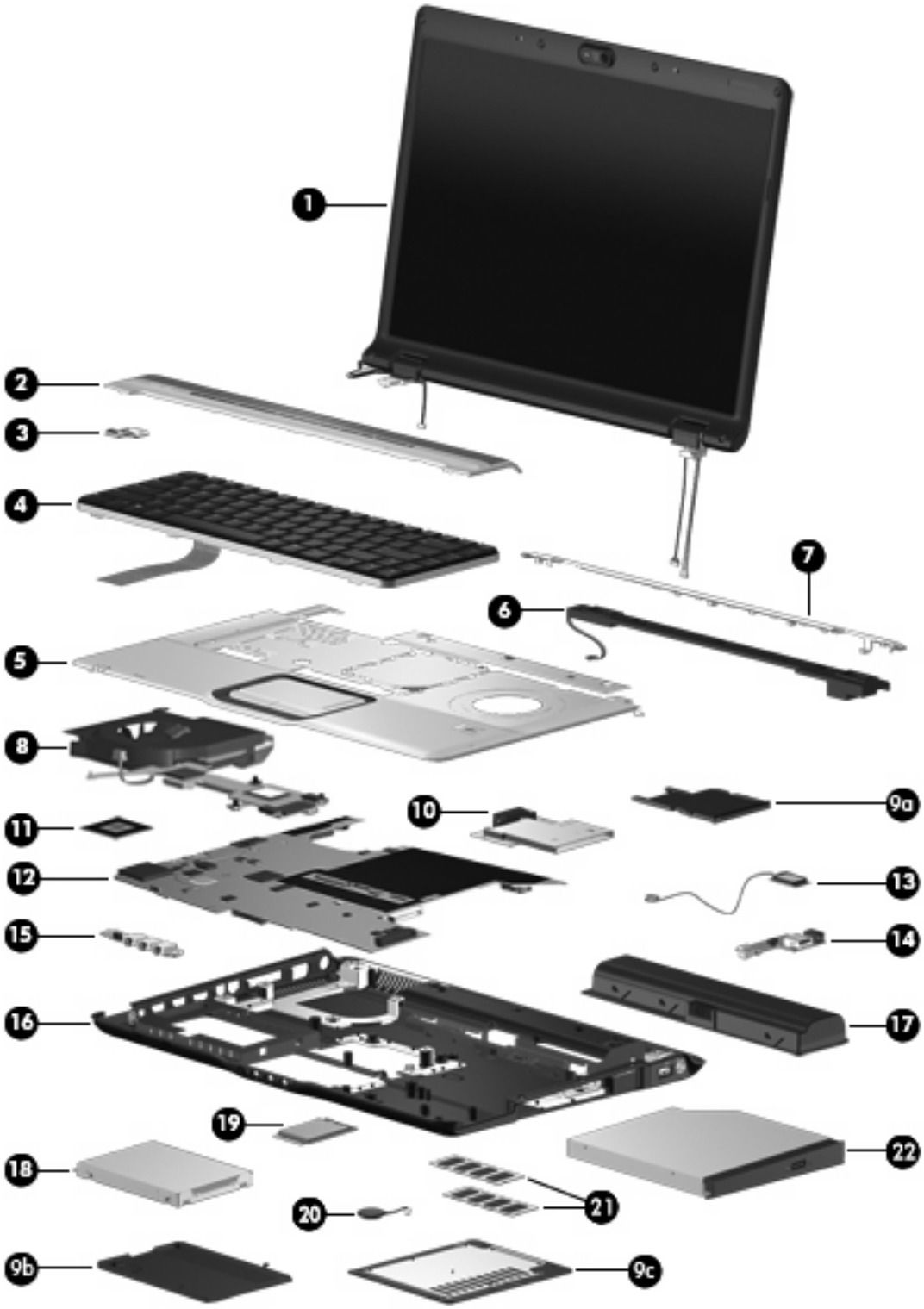
3 Illustrated parts catalog

Serial number location

When ordering parts or requesting information, provide the computer serial number and model number located on the bottom of the computer.



Computer major components



Item	Description	Spare part number
(1)	**Display assemblies**	

Item	Description	Spare part number
	15.4-inch, WXGA, BrightView, display assembly for use only with computer models equipped with a camera (includes camera, microphones, and WLAN transceivers and antenna cables)	446481-001
	15.4-inch, WXGA, BrightView, display assembly for use only with computer models not equipped with a camera (includes microphones and WLAN transceivers and antenna cables)	446482-001
	15.4-inch, WXGA, BrightView, display assembly for use only with Best Buy computer models equipped with a camera, microphones, and a fingerprint reader (includes camera, microphones, and WLAN transceivers and antenna cables)	455311–001
	15.4-inch, WXGA, BrightView, display assembly for use only with Best Buy computer models equipped with a camera (includes camera, microphones, and WLAN transceivers and antenna cables)	455312-001
	NOTE: See Display assembly components on page 25 for more information on display assembly spare part numbers.	
(2)	**Switch cover** (includes LED board and cable)	446512-001
(3)	**Power button board** (includes power button board cable)	431437-001
(4)	**Keyboards**	
	For use with HP Pavilion dv6500, dv6600, and dv6700 Entertainment PC computer models:	
	• Belgium	441427-A41
	• The Czech Republic	441427-221
	• Denmark	441427-081
	• Finland, Norway, and Sweden	441427-DH1
	• France	441427-051
	• French Canada	441427-121
	• Germany	441427-041
	• Greece	441427-151
	• Israel	441427-BB1
	• Italy	441427-061
	• Japan	441427-291
	• Latin America	441426-161
	• South Korea	441427-AD1
	• The Netherlands and Europe	441427-B31
	• Portugal	441427-131
	• Russia	441427-251
	• Saudi Arabia	441427-171
	• Spain	441427-071
	• Switzerland	441427-111
	• Taiwan	441427-AB1
	• Thailand	441427-281
	• Turkey	441427-141

Item	Description	Spare part number
	• The United Kingdom	441427-031
	• The United States	441427-001
	For use only with Best Buy computer models:	
	• Finland, Norway, and Sweden	443689-DH1 and 452636-DH1
	• French Canada	443689-121 and 452636-121
	• The Netherlands and Europe	443689-B31 and 452636-B31
	• Italy	443689-061 and 452636-061
	• Germany	443698–041
	• Russia	443689–251
	• Thailand	443689–281
	• Japan	443689–291
	• Belgium	443689–A41
	• Taiwan	443689–AB1
	• South Korea	443689–AD1
	• Portugal	443689-131 and 452636-131
	• Saudi Arabia	443689-171 and 452636-171
	• Spain	443689-071 and 452636-071
	• Turkey	443689-141 and 452636-141
	• The United Kingdom	443689-031 and 452636-031
	• The United States	441426-001 and 452636-001
(5)	**Top covers** (include TouchPad and cable)	
	For use only in computer models with Intel processors:	
	• Equipped with a fingerprint reader (includes fingerprint reader board and cable)	446509-001
	• Not equipped with a fingerprint reader	446508-001
	• Only with Best Buy computer models equipped with a fingerprint reader (includes fingerprint reader board and cable)	452635-001
	• Only with Best Buy models not equipped with a fingerprint reader	452634-001
	• **Fingerprint reader board** (not illustrated; includes fingerprint reader board cable)	446511-001
	For use only in computer models with AMD processors:	

Item	Description	Spare part number
	• In full-featured models equipped with a fingerprint reader (includes TouchPad, TouchPad cable, fingerprint reader board, and fingerprint reader board cable)	449942-001
	• In defeatured models equipped with a fingerprint reader (includes TouchPad, TouchPad cable, fingerprint reader board, and fingerprint reader board cable)	451408-001
	• Only with Best Buy computer models equipped with a fingerprint reader (includes TouchPad and cable and fingerprint reader board and cable)	458603–001
	• **Fingerprint reader board** (not illustrated; includes fingerprint reader board cable)	449944-001
(6)	**Speaker assembly**	431447-001
(7)	**Top cover trim**	
	For use only in full-featured models	431421-001
	For use only in defeatured models	431420-001
(8)	**Fan/heat sink assemblies** (include thermal material)	
	For use only in computer models with Intel processors:	
	• Equipped with discrete graphics subsystem memory	434986-001 and 450933-001
	• Equipped with UMA graphics subsystem memory	446521-001
	For use only in computer models with AMD processors:	
	• Equipped with discrete graphics subsystem memory	449960-001
	• Equipped with UMA graphics subsystem memory	451860-001
	Plastics Kit (see Plastics Kit on page 27 for more Plastics Kit component information):	438368-001
(9a)	ExpressCard slot bezel	
(9b)	Hard drive cover (includes 2 captive screws, secured by C-clips)	
(9c)	Memory/WLAN module compartment cover (includes 2 captive screws, secured by C-clips)	
	HDMI port cover (not illustrated)	
(10)	**ExpressCard assembly**	431439-001
(11)	**Processors**	
	Intel Core 2 Duo processors:	
	• 2.20-GHz processor (4-MB L2 cache, 800-MHz FSB)	453771-001
	• 2.00-GHz processor (2-MB L2 cache, 800-MHz FSB)	455515-001
	• 1.86-GHz processor (1-MB L2 cache, 533-MHz FSB)	453773–001
	• 1.50-GHz processor (2-MB L2 cache, 667-MHz FSB)	453772-001
	Intel Core Duo processors:	
	• T7300 2.0-GHz processor (4-MB L2 cache, 800-MHz FSB)	446478-001
	• T7100 1.8-GHz processor (2-MB L2 cache, 800-MHz FSB)	446479-001
	• T5250 1.5-GHz processor (2-MB L2 cache, 667-MHz FSB)	453033-001
	• T2330 1.6-GHz processor (1-MB L2 cache, 533-MHz FSB)	455944–001

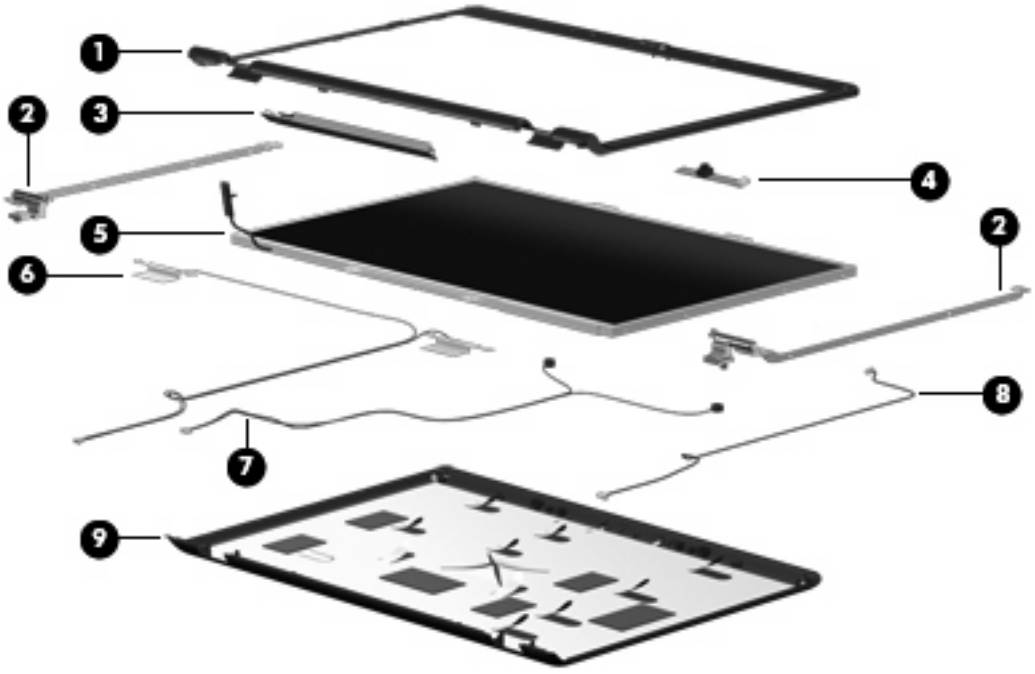
Item	Description	Spare part number
	• T2310 1.46-GHz processor (1-MB L2 cache, 533-MHz FSB)	455943–001
	Intel Celeron processor:	
	• M530 1.73-GHz processor (1-MB L2 cache, 533-MHz FSB)	457315–001
	AMD processors:	
	• Turion MK-38 (2.2-GHz, 512-MB L2 cache)	449904-001
	• Turion TL-66 (2.3 -GHz, 1-MB L2 cache)	450804-001
	• Turion TL-60 (2.0 -GHz, 1-MB L2 cache)	450803-001
	• Turion TL-58 (1.9 -GHz, 1-MB L2 cache)	450802-001
	• Turion TL-56 (1.8 -GHz, 1-MB L2 cache)	450801-001
	• Athlon TK-53 (1.7-GHz. 512-MB L2 cache)	451013-001
	Processor bracket (not illustrated)	
	For use with 7.9 processors	450370-001
	For use with 8.1 processors	450371-001
(12)	**System boards** (include modem cable and thermal material)	
	For use only with computer models with Intel processors:	
	• Equipped with discrete graphics subsystem memory (includes 128 MB of discrete graphics subsystem memory)	446476-001
	• In full-featured models equipped with UMA graphics subsystem memory	446477-001
	• In defeatured models equipped with UMA graphics subsystem memory	453769–001
	For use only with computer models with AMD processors:	
	• In full-featured models equipped with discrete graphics subsystem memory	449902-001
	• In full-featured models equipped with UMA graphics subsystem memory	449903-001
(13)	**Bluetooth module** (includes Bluetooth module cable)	412766-002
(14)	**USB/power connector boards** (include USB/power connector board cable)	
	For use only with computer models using 90-W AC adapters	446524-001
	For use only with computer models using 65-W AC adapters	449454-001
(15)	**Audio board** (includes infrared lens and audio board cable)	
	For use with full-featured models	446523-001
	For use with defeatured models	449967-001
(16)	**Base enclosures** (include wireless on/off switch)	
	For use only with full-featured computer models that use discrete graphics subsystem memory	446513-001
	For use only with full-featured computer models with Intel processors that use UMA graphics subsystem memory	448342-001
	For use only with defeatured computer models with AMD processors	454172-001

Item	Description	Spare part number
	Rubber Kit (not illustrated; includes base enclosure rubber feet and display bezel screw covers)	431430-001
(17)	**Batteries**	
	12-cell, 8.80-Ah	451864-001
	6-cell, 2.55-Ah	446507-001
	6-cell, 2.20-Ah	446506-001
(18)	**Hard drives** (include hard drive bracket and hard drive connector)	
	250-GB, 5400-rpm	453775-001
	200-GB, 4200-rpm	451863-001
	160-GB, 5400-rpm	451462-001
	120-GB, 5400-rpm	446498-001
	80-GB, 5400-rpm	446497-001
	60-GB, 5400-rpm	446496-001
(19)	**WLAN modules**	
	Intel 802.11a/b/g/n WLAN modules:	
	• For use in Antigua & Barbuda, Argentina, Aruba, the Bahamas, Barbados, Bermuda, Brunei, Canada, the Cayman Islands, Chile, Colombia, Costa Rica, the Dominican Republic, Ecuador, El Salvador, Guam, Guatemala, Haiti, Honduras, Hong Kong, India, Indonesia, Malaysia, Mexico, Panama, Paraguay, Peru, Saudi Arabia, Taiwan, Uruguay, the United States, Venezuela, and Vietnam	441086-001
	• For use in Austria, Azerbaijan, Bahrain, Belgium, Brazil, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Egypt, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Latvia, Lebanon, Liechtenstein, Lithuania, Luxembourg, Malta, Monaco, the Netherlands, Norway, Oman, the Philippines, Poland, Portugal, Qatar, Romania, Russia, Serbia and Montenegro, Singapore, Slovakia, Slovenia, South Africa, Spain, Sri Lanka, Sweden, Switzerland, Turkey, Ukraine, the United Kingdom, and Uzbekistan	441086-002 and 441087-002
	• For use in Australia, New Zealand, Pakistan, the People's Republic of China, and South Korea	441086-003 and 441088-003
	• For use in Japan	441086-291 and 441089-291
	• For use in South Korea	441086-AD1
	Intel 802.11a/b/g WLAN modules:	
	• For use in Antigua & Barbuda, Argentina, Australia, the Bahamas, Barbados, Brunei, Canada, Chile, the Dominican Republic, Guam, Guatemala, Hong Kong, India, Indonesia, Malaysia, Mexico, New Zealand, Panama, Paraguay, Saudi Arabia, Taiwan, the United States, and Vietnam	451861-001
	• For use in Aruba, Austria, Azerbaijan, Bahrain, Belgium, Bermuda, Brazil, Bulgaria, the Cayman Islands, Colombia, Croatia, Cyprus, the Czech Republic, Denmark, Egypt, El Salvador, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Italy, Jordan, Latvia, Lebanon, Liechtenstein, Lithuania, Luxembourg, Malta, Monaco, the Netherlands, Norway, Oman, the Philippines, Poland, Portugal, Romania, Russia, Serbia and Montenegro, Singapore, Slovakia, Slovenia, South Africa, Spain, Sri Lanka, Sweden, Switzerland, Turkey, the United Kingdom, and Uzbekistan	451861-002

Item	Description	Spare part number
	• For use in Ecuador, Haiti, Honduras, Pakistan, the People's Republic of China, Peru, Qatar, South Korea, Uruguay, and Venezuela	451861-003
	• For use in Japan	451861-291
	Broadcom 802.11b/g WLAN modules:	
	• For use in Canada, the Cayman Islands, Guam, Puerto Rico, the U.S. Virgin Islands, and the United States	441090-001
	• For use in Afghanistan, Albania, Algeria, Andorra, Angola, Antigua & Barbuda, Argentina, Armenia, Aruba, Australia, Austria, Azerbaijan, the Bahamas, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Belize, Benin, Bermuda, Bhutan, Bolivia, Bosnia & Herzegovina Botswana, Brazil, the British Virgin Islands, Brunei, Bulgaria, Burkina Faso, Burundi, Cambodia, Cameroon, Cape Verde, the Central African Republic, Chad, Chile, Colombia, Comoros, the Congo, Costa Rica, Croatia, Cyprus, the Czech Republic, Denmark, Djibouti, Dominica, the Dominican Republic, East Timor, Ecuador, Egypt, El Salvador, Equitorial Guinea, Eritrea, Estonia, Ethiopia, Fiji, Finland, France, French Guiana, Gabon, Gambia, Georgia, Germany, Ghana, Gibraltar, Greece, Grenada, Guadeloupe, Guatemala, Guinea, Guinea-Bissa, Guyana, Haiti, Honduras, Hong Kong, Hungary, Iceland, India, Indonesia, Ireland, Israel, Italy, the Ivory Coast, Jamaica, Jordan, Kazakhstan, Kenya, Kiribati, Kuwait, Kyrgyzstan, Laos, Latvia, Lebanon, Lesotho, Liberia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Madagascar, Malawi, Malaysia, the Maldives, Mali, Malta, the Marshall Islands, Martinique, Mauritania, Mauritius, Mexico, Micronesia, Monaco, Mongolia, Montenegro, Morocco, Mozambique, Namibia, Nauru, Nepal, the Nether Antilles, the Netherlands, New Zealand, Nicaragua, Niger, Nigeria, Norway, Oman, Palau, Panama, Papua New Guinea, Paraguay, the People's Republic of China, Peru, the Philippines, Poland, Portugal, Qatar, the Republic of Moldova, Romania, Russia, Rwanda, Samoa, San Marino, Sao Tome & Principe, Saudi Arabia, Senegal, Serbia and Montenegro, the Seychelles, Sierra Leone, Singapore, Slovakia, Slovenia, the Solomon Islands, Somalia, South Africa, South Korea, Spain, Sri Lanka, St. Kitts & Nevis, St. Lucia, St. Vincent & Grenada, Suriname, Swaziland, Sweden, Switzerland, Taiwan, Tajikistan, Tanzania, Thailand, Togo, Tonga, Trinidad & Tobago, Tunisia, Turkey, Turkmenistan, Tuvalu, Uganda, Ukraine, the United Arab Emirates, the United Kingdom, Uruguay, Uzbekistan, Vanuatu, Venezuela, Vietnam, Yemen, Zaire, Zambia, and Zimbabwe	441090-002
	• For use in Japan	441090-291
	Intel 802.11b/g WLAN module for use in Thailand	451861-004
	Broadcom 4311AG 802.11a/b/g modules:	
	• For use in the United States and Canada	441075-001
	• For use in France, Germany, Italy, the Netherlands, Spain, the United Kingdom, Nordic region, and India	441075-002
	Broadcom 4321AGN 802.11a/b/g/n modules:	
	• For use in the United States and Canada	434661-001
	• For use in France, Germany, Italy, the Netherlands, Spain, the United Kingdom, Nordic region, and India	434661-002
(20)	**RTC battery** (includes 2-sided tape)	446518-001 and 449729-001
(21)	**Memory modules** (667-MHz, PC2-5300, 1-DIMM)	
	2048-MB	453774-001 and 457437–001
	1024-MB	446495-001

Item	Description	Spare part number
	512-MB	446494-001
(22)	**Optical drives** (include bezel)	
	For use in computers with Intel processors:	
	• Blu-ray Disc ROM Drive with SuperMulti DVD±R/RW Double-Layer (DL) support	462453-001
	• HD-ROM Drive	446502-001
	• DVD±RW and CD-RW SuperMulti Double-Layer Combo Drive with LightScribe	446501-001
	• DVD±RW and CD-RW SuperMulti Double-Layer Combo Drive	446500-001
	• DVD/CD-RW Combo Drive	446499-001
	For use in computers with AMD processors:	
	• DVD±RW and CD-RW SuperMulti Double-Layer Combo Drive	448004-001
	• DVD±RW and DVD-ROM SuperMulti Drive with LightScribe	449935-001
	• HD DVD-ROM Drive with SuperMulti DVD±R/RW Double Layer support with LightScribe	448006-001
	• CD-RW and DVD-ROM Combo Drive	449937-001
	Cable Kit (not illustrated; see Cable Kit on page 28 for more Cable Kit component information)	446519-001

Display assembly components



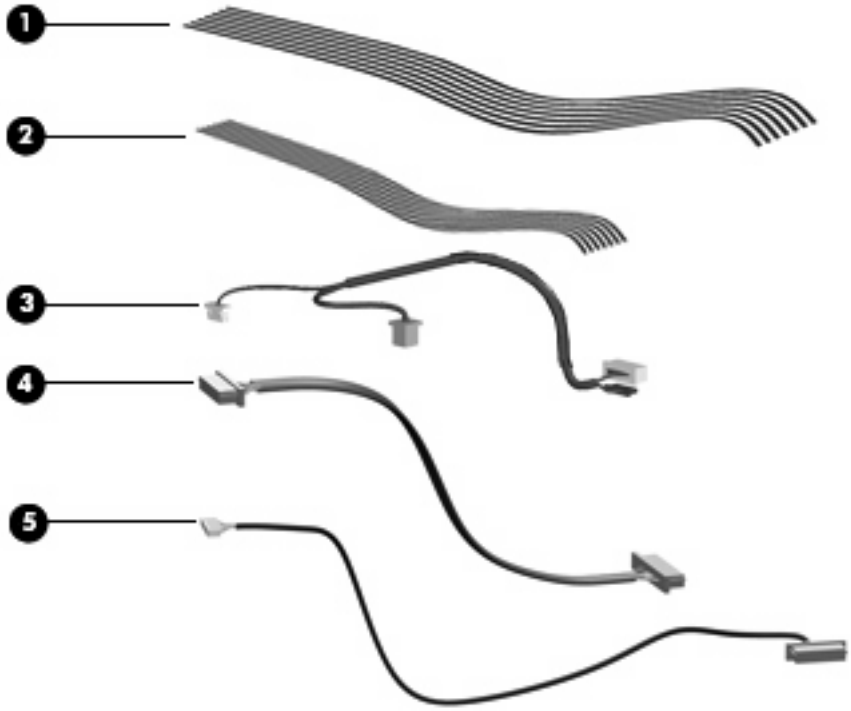
Item	Description	Spare part number
(1)	**Display bezels**	

Item	Description	Spare part number
	For use only with computer models equipped with a camera (includes openings for camera and microphones)	446483-001
	For use only with computer models not equipped with a camera (includes openings for microphones)	436260-001
	For use only with Best Buy computer models equipped with a camera (includes openings for camera and microphones)	436260-001
	For use only with Best Buy computer models not equipped with a camera (includes openings for microphones)	455313-001
(2)	**Display Hinge Kit** (includes left and right display hinges)	431395-001
(3)	**Display inverter** (includes Mylar shield)	431391-001
(4)	**Camera module** (includes 2-sided tape)	446486-001
(5)	**Display panel** (15.4-inch, WXGA, BrightView; includes display panel cable and camera cable)	446480-001
(6)	**Wireless Antenna Kits**	
	For use only with computer models equipped with an 802.11a/b/g/n WLAN module (includes 3 transceivers and cables)	449727-001
	For use only with computer models equipped with an 802.11a/b/g or 802.11b/g WLAN module (includes 2 transceivers and cables)	431398-001
(7)	**Microphone**	431393-001
(8)	**Display Cable Kit** (includes camera module cable)	431394-001
(9)	**Display enclosures** (include logo and WLAN wireless antenna transceivers and cables)	
	For use only with HP Pavilion dv6500, dv6600, and dv6700 Entertainment PC computer models	446487-001
	For use only with Best Buy computer models	436261-001
	Display hinge covers (not illustrated)	
	For use only with full-featured computer models	431396-001
	For use only with defeatured computer models	433289-001
	Display Label Kit (not illustrated)	
	For use with computer models with Intel processors	446525-001
	For use with computer models with AMD processors	449972-001
	Display Screw Kit (not illustrated)	431399-001

Plastics Kit

Item	Description	Spare part number
	Plastics Kit:	438368-001
(1)	ExpressCard slot bezel	
(2)	Hard drive cover (includes 2 captive screws, secured by C-clips)	
(3)	Memory/WLAN module compartment cover (includes 2 captive screws, secured by C-clips)	

Cable Kit



Item	Description	Spare part number
	Cable Kit:	446519-001
(1)	LED board cable	
(2)	Power button board cable	
(3)	USB/power connector board cable	
(4)	Audio board cable	
(5)	Bluetooth module cable	

Mass storage devices

Item	Description	Spare part number
(1)	**Hard drives** (include hard drive bracket)	
	250-GB, 5400-rpm	453775-001
	200-GB, 4200-rpm	451863-001
	160-GB, 5400-rpm	451862-001
	120-GB, 5400-rpm	446498-001
	80-GB, 5400-rpm	446497-001
	60-GB, 5400-rpm	446496-001
(2)	**Optical drives** (include bezel and bracket)	
	For use in computer models with Intel processors:	
	• Blu-ray Disc ROM Drive with SuperMulti DVD±R/RW Double-Layer (DL) support	462453–001
	• HD-ROM Drive	446502-001
	• DVD±RW and CD-RW SuperMulti Double-Layer Combo Drive with LightScribe	446501-001
	• DVD±RW and CD-RW SuperMulti Double-Layer Combo Drive	446500-001
	• DVD/CD-RW Combo Drive	446499-001
	For use in computer models with AMD processors:	
	• DVD±RW and CD-RW SuperMulti Double-Layer Combo Drive	448004-001
	• CD-RW and DVD-ROM Combo Drive	449937-001
	• DVD±RW and DVD-ROM SuperMulti Drive with LightScribe	449935-001
	• HD DVD-ROM Drive with SuperMulti DVD±R/RW Double Layer support with LightScribe	448006-001

Miscellaneous parts

Description	Spare part number
AC adapters:	
90-W non-PFC AC adapter	432309-001
90-W PFC AC adapter	453198-001
65-W non-PFC AC adapter	402018-001
65-W PFC AC adapter	453199-001
ATSC/NTSC TV tuner antenna	439131-001
ATSC/NTSC/PAL TV tuner	439130-001
Composite video cable	407939-001
DVB-T tuner	412175-001
DVB-T antenna adapter	412176-001
ExpressCard Kit (includes software CD)	445170-001
HP backpack	405527-001
HP carrying case	418162-001
HP Remote Control	435743-001
Infrared emitter with cable	439129-001
Optical wired mouse	436238-001
RF input adapter cable (without ferrite)	407940-001
USB digital drive	364727-002
Windows Vista remote control (fits into ExpressCard slot)	439128-001
Windows Vista remote control (does not fit into ExpressCard slot)	439254-001
Wired headset	371693-001
Wireless laser mouse with cable adapter	430958-001
Power cords:	
Australia and New Zealand	394279-011
Belgium, Europe, Finland, France, Germany, Greece, the Netherlands, Norway, Portugal, Spain, and Sweden	394279-021
Canada, French Canada, Latin America, Thailand, and the United States	394279-001
Denmark	394279-081
India	394279-D61
Israel	394279-BB1
Italy	394279-061
Japan	394279-291
South Africa	394279-AR1

Description	Spare part number
South Korea	394279-AD1
The People's Republic of China	394279-AA1
Switzerland	394279-BG1
Taiwan	394279-AB1
The United Kingdom and Hong Kong	394279-031
Screw Kit • Hex HM5.0×9.0 standoff • Phillips PM3.0×4.0 screw • Phillips PM2.5×7.0 screw • Phillips PM2.5×5.0 screw • Phillips PM2.5×5.0 captive screw • Phillips PM2.5×4.0 screw • Phillips PM2.5×4.0 captive screw • Phillips PM2.5×2.0 screw • Phillips PM2.0×5.0 captive screw • Phillips PM2.0×3.0 screw • Phillips PM2.0×2.0 screw	434747-001

Sequential part number listing

Spare part number	Description
364727-002	USB digital drive
371693-001	Wired headset with volume control
394279-001	Power cord for use in the United States
394279-011	Power cord for use in Australia
394279-021	Power cord for use in Europe
394279-031	Power cord for use in the United Kingdom
394279-061	Power cord for use in Italy
394279-081	Power cord for use in Denmark
394279-BG1	Power cord for use in Switzerland
394279-291	Power cord for use in Japan
394279-AA1	Power cord for use in the People's Republic of China
394279-AB1	Power cord for use in Taiwan

Spare part number	Description
394279-AD1	Power cord for use in South Korea
394279-AR1	Power cord for use in South Africa
394279-BB1	Power cord for use in Israel
394279-D61	Power cord for use in India
402018-001	65-watt non-PFC AC adapter
405527-001	HP backpack
407939-001	Composite video cable
407940-001	RF input adapter cable (without ferrite)
412175-001	DVB-T tuner
412176-001	DVB-T antenna adapter
412766-002	Bluetooth module (includes Bluetooth module cable)
418162-001	HP carrying case
430958-001	Wireless laser mouse (includes cable adapter)
431391-001	Display inverter
431393-001	Microphone (includes receiver and cable)
431394-001	Display Cable Kit
431395-001	Display Hinge Kit (includes left and right display hinges)
431396-001	Display Hinge Cover Kit for use with full-featured computer models
431398-001	Wireless Antenna Kit for use only with computer models equipped with an 802.11a/b/g or 802.11b/g WLAN module (includes 2 transceivers and cables)
431399-001	Display Screw Kit
431420-001	Top cover trim for use with defeatured models
431421-001	Top cover trim for use with full-featured models
431430-001	Rubber Kit
431437-001	Power button board (includes power button board cable)
431439-001	ExpressCard assembly
431447-001	Speaker assembly
432309-001	90-watt non-PFC AC adapter
433281-001	Display bezel for use with computer models equipped with microphones
433289-001	Display hinge covers for use with defeatured computer models
434661-001	Broadcom 4321AGN 802.11a/b/g/n module for use in the MOW
434661-002	Broadcom 4321AGN 802.11a/b/g/n module for use in France, Germany, Italy, the Netherlands, Spain, the United Kingdom, Nordic region, and India
434747-001	Screw Kit

Spare part number	Description
434896-001	Fan/heat sink assembly for use only with computer models equipped with discrete graphics subsystem memory (includes thermal material)
435743-001	HP Remote Control
436238-001	Optical wired mouse
436260-001	Display bezel for use with Best Buy computer models equipped with camera and microphones
436261-001	Display enclosure for use with Best Buy computer models
438368-001	Plastics Kit (see Plastics Kit on page 27 for more Plastics Kit component information)
439128-001	Windows Vista remote control (fits into ExpressCard slot)
439129-001	Infrared emitter with cable
439130-001	ATSC/NTSC/PAL TV tuner
439131-001	ATSC/NTSC TV tuner antenna
439254-001	Windows Vista remote control (does not fit into ExpressCard slot)
441075-001	Broadcom 4311AG 802.11a/b/g module for use in the United States and Canada
441075-002	Broadcom 4311AG 802.11a/b/g module for use in for use in France, Germany, Italy, the Netherlands, Spain, the United Kingdom, Nordic region, India
441086-001	Intel 802.11a/b/g/n WLAN module for use in Antigua & Barbuda, Argentina, Aruba, the Bahamas, Barbados, Bermuda, Brunei, Canada, the Cayman Islands, Chile, Colombia, Costa Rica, the Dominican Republic, Ecuador, El Salvador, Guam, Guatemala, Haiti, Honduras, Hong Kong, India, Indonesia, Malaysia, Mexico, Panama, Paraguay, Peru, Saudi Arabia, Taiwan, Uruguay, the United States, Venezuela, and Vietnam
441086-002	Intel 802.11a/b/g/n WLAN module for use in Austria, Azerbaijan, Bahrain, Belgium, Brazil, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Egypt, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Latvia, Lebanon, Liechtenstein, Lithuania, Luxembourg, Malta, Monaco, the Netherlands, Norway, Oman, the Philippines, Poland, Portugal, Qatar, Romania, Russia, Serbia and Montenegro, Singapore, Slovakia, Slovenia, South Africa, Spain, Sri Lanka, Sweden, Switzerland, Turkey, Ukraine, the United Kingdom, and Uzbekistan
441086-003	Intel 802.11a/b/g/n WLAN module for use in Australia, New Zealand, Pakistan, the People's Republic of China, and South Korea
441086-291	Intel 802.11a/b/g/n WLAN module for use in Japan
441086-AD1	Intel 802.11a/b/g/n WLAN module for use in South Korea
441087-002	Intel 802.11a/b/g/n WLAN module for use in Austria, Azerbaijan, Bahrain, Belgium, Brazil, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Egypt, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Latvia, Lebanon, Liechtenstein, Lithuania, Luxembourg, Malta, Monaco, the Netherlands, Norway, Oman, the Philippines, Poland, Portugal, Qatar, Romania, Russia, Serbia and Montenegro, Singapore, Slovakia, Slovenia, South Africa, Spain, Sri Lanka, Sweden, Switzerland, Turkey, Ukraine, the United Kingdom, and Uzbekistan
441088-003	Intel 802.11a/b/g/n WLAN module for use in Australia, New Zealand, Pakistan, the People's Republic of China, and South Korea
441089-291	Intel 802.11a/b/g/n WLAN module for use in Japan
441090-001	Broadcom 802.11b/g WLAN module for use in MOW
441090-002	Broadcom 802.11b/g WLAN module for use in ROW
441090-291	Broadcom 802.11b/g WLAN module for use in Japan

Spare part number	Description
441426-001	Keyboard for use in the United States with Best Buy computer models
441426-161	Keyboard for use in Latin America
441427-001	Keyboard for use in the United States
441427-031	Keyboard for use in the United Kingdom
441427-041	Keyboard for use in Germany
441427-051	Keyboard for use in France
441427-061	Keyboard for use in Italy
441427-071	Keyboard for use in Spain
441427-081	Keyboard for use in Denmark
441427-111	Keyboard for use in Switzerland
441427-121	Keyboard for use in French Canada
441427-131	Keyboard for use in Portugal
441427-141	Keyboard for use in Turkey
441427-151	Keyboard for use in Greece
441427-171	Keyboard for use in Saudi Arabia
441427–201	Keyboard for use in Brazil
441427-221	Keyboard for use in the Czech Republic
441427-251	Keyboard for use in Russia
441427-281	Keyboard for use in Thailand
441427-291	Keyboard for use in Japan
441427-A41	Keyboard for use in Belgium
441427-AB1	Keyboard for use in Taiwan
441427-AD1	Keyboard for use in South Korea
441427-B31	Keyboard for use in the Netherlands and Europe
441427-BB1	Keyboard for use in Israel
441427-DH1	Keyboard for use in Finland, Norway, and Sweden
443689-031	Keyboard for use in the United Kingdom with Best Buy computer models
443689-041	Keyboard for use in Germany with Best Buy computer models
443689-051	Keyboard for use in France with Best Buy computer models
443689-061	Keyboard for use in Italy with Best Buy computer models
443689-071	Keyboard for use in Spain with Best Buy computer models
443689-131	Keyboard for use in Portugal with Best Buy computer models
443689-141	Keyboard for use in Turkey with Best Buy computer models
443689-171	Keyboard for use in Saudi Arabia with Best Buy computer models

Spare part number	Description
443689–251	Keyboard for use in Russia with Best Buy computer models
443689-281	Keyboard for use in Thailand with Best Buy computer models
443689-291	Keyboard for use in Japan with Best Buy computer models
443689-A41	Keyboard for use in Belgium with Best Buy computer models
443689-AB1	Keyboard for use in Taiwan with Best Buy computer models
443689–AD1	Keyboard for use in South Korea with Best Buy computer models
443689-B31	Keyboard for use in the Netherlands and Europe with Best Buy computer models
443689-DH1	Keyboard for use in Finland, Norway, and Sweden with Best Buy computer models
445170-001	ExpressCard Kit (includes software CD)
446476-001	System board for use only with computer models with Intel processors equipped with discrete graphics subsystem memory (includes 128 MB of graphics subsystem memory and thermal material)
446477-001	System board for use only with computer models with Intel processors equipped with UMA graphics subsystem memory
446478-001	Intel Core Duo T7300 2.0-GHz processor (4-MB L2 cache; includes thermal material)
446479-001	Intel Core Duo T7100 1.8-GHz, processor (2-MB L2 cache; includes thermal material)
446480-001	15.4-inch, WXGA, BrightView display panel for use only with Best Buy computer models
446481-001	15.4-inch, WXGA, BrightView display assembly for use only with computer models equipped with a camera and microphones
446482-001	15.4-inch, WXGA, BrightView display assembly for use only with computer models not equipped with a camera
446483-001	Display bezel for use only with computer models equipped with a camera
446486-001	Camera module (includes 2-sided tape)
446487-001	Display enclosure
446494-001	512-MB memory module (667-MHz, PC2-5300, 1-DIMM)
446495-001	1024-MB memory module (667-MHz, PC2-5300, 1-DIMM)
446496-001	60-GB, 5400-rpm hard drive (includes hard drive bracket)
446497-001	80-GB, 5400-rpm hard drive (includes hard drive bracket)
446498-001	120-GB, 5400-rpm hard drive (includes hard drive bracket)
446499-001	DVD/CD-RW Combo Drive for use in computer models with Intel processors
446500-001	DVD±RW and CD-RW SuperMulti Double-Layer Combo Drive for use in computer models with Intel processors
446501-001	DVD±RW and CD-RW SuperMulti Double-Layer Combo Drive with LightScribe for use in computer models with Intel processors
446502-001	HD-ROM Drive for use in computer models with Intel processors
446506-001	6-cell, 2.20-Ah battery
446507-001	6-cell, 2.55-Ah battery

Spare part number	Description
446508-001	Top cover for use only with computer models not equipped with a fingerprint reader (includes TouchPad and cable)
446509-001	Top cover for use only with computer models equipped with a fingerprint reader (includes TouchPad and cable and fingerprint reader board and cable)
446511-001	Fingerprint reader board for use in computer models with Intel processors (includes fingerprint reader board cable)
446512-001	Switch cover (includes LED board and cable)
446513-001	Base enclosure for use only with full-featured models that use discrete graphics subsystem memory (includes wireless switch actuator and infrared lens)
446518-001	RTC battery (includes 2-sided tape)
446519-001	Cable Kit (see Cable Kit on page 28 for more Cable Kit component information)
446521-001	Fan/heat sink assembly for use only with computer models with Intel processor and equipped with UMA graphics subsystem memory (includes thermal material)
446523-001	Audio board for use with full-featured models (includes audio connectors, audio board cable, and infrared lens)
446524-001	USB/power connector board for use only with computer models that use a 90-watt AC adapter (includes USB/power connector board cable)
446525-001	Display Label Kit for use with computer models with Intel processors
448004-001	DVD±RW and CD-RW SuperMulti Double-Layer Combo Drive for use in computer models with AMD processors
448006-001	HD DVD-ROM Drive with SuperMulti DVD±R/RW Double Layer support with LightScribe for use in computer models with AMD processors
448342-001	Base enclosure for use only with full-featured computer models with Intel processors that use UMA graphics subsystem memory (includes wireless switch actuator and infrared lens)
449454-001	USB/power connector board for use only with computer models that use a 65-watt AC adapter (includes USB/power connector board cable)
449727-001	Wireless Antenna Kit for use only with computer models equipped with an 802.11a/b/g/n WLAN module (includes 3 transceivers and cables)
449729-001	RTC battery (includes 2-sided tape)
449902-001	System board (includes modem cable and thermal material) for use only in full-featured computer models with AMD processors equipped with discrete graphics subsystem memory
449903-001	System board (includes modem cable and thermal material) for use only in full-featured computer models with AMD processors equipped with UMA graphics subsystem memory
449904-001	AMD Turion MK-38 processor (2.2-GHz, 512-MB L2 cache)
449935-001	DVD±RW and DVD-ROM SuperMulti Drive with LightScribe for use in computer models with AMD processors
449937-001	CD-RW and DVD-ROM Combo Drive for use in computer models with AMD processors
449942-001	Top cover for use only in full-featured computer models with AMD processors equipped with a fingerprint reader (includes TouchPad, TouchPad cable, fingerprint reader board, and fingerprint reader board cable)
449944-001	Fingerprint reader board for use in computer models with AMD processors (includes fingerprint reader board cable)

Spare part number	Description
449955-001	Cable Kit (see Cable Kit on page 28 for more Cable Kit component information)
449960-001	Fan/heat sink assembly for use only with computer models with AMD processors and equipped with discrete graphics subsystem memory (includes thermal material)
449967-001	Audio board for use with defeatured models (includes audio connectors, audio board cable, and infrared lens)
449972-001	Display Label Kit for use with computer models with AMD processors
450370-001	Processor bracket for use with 7.9 processors
450371-001	Processor bracket for use with 8.1 processors
450801-001	AMD Turion TL-56 processor (1.8-GHz, 1-MB L2 cache)
450802-001	AMD Turion TL-58 processor (1.9-GHz, 1-MB L2 cache)
450803-001	AMD Turion TL-60 processor (2.0-GHz, 1-MB L2 cache)
450804-001	AMD Turion TL-66 processor (2.3-GHz, 1-MB L2 cache)
450933-001	Fan/heat sink assembly for use only with computer models with Intel processors and equipped with discrete graphics subsystem memory (includes thermal material)
451013-001	AMD Athlon TK-53 processor (1.7-GHz. 512-MB L2 cache)
451408-001	Top cover for use only in defeatured computer models with AMD processors equipped with a fingerprint reader (includes TouchPad, TouchPad cable, fingerprint reader board, and fingerprint reader board cable)
451860-001	Fan/heat sink assembly for use only with computer models with AMD processors and equipped with UMA graphics subsystem memory (includes thermal material)
451861-001	Intel 802.11a/b/g WLAN module for use in Antigua & Barbuda, Argentina, Australia, the Bahamas, Barbados, Brunei, Canada, Chile, the Dominican Republic, Guam, Guatemala, Hong Kong, India, Indonesia, Malaysia, Mexico, New Zealand, Panama, Paraguay, Saudi Arabia, Taiwan, the United States, and Vietnam
451861-002	Intel 802.11a/b/g WLAN module for use in Aruba, Austria, Azerbaijan, Bahrain, Belgium, Bermuda, Brazil, Bulgaria, the Cayman Islands, Colombia, Croatia, Cyprus, the Czech Republic, Denmark, Egypt, El Salvador, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Italy, Jordan, Latvia, Lebanon, Liechtenstein, Lithuania, Luxembourg, Malta, Monaco, the Netherlands, Norway, Oman, the Philippines, Poland, Portugal, Romania, Russia, Serbia and Montenegro, Singapore, Slovakia, Slovenia, South Africa, Spain, Sri Lanka, Sweden, Switzerland, Turkey, the United Kingdom, and Uzbekistan
451861-003	Intel 802.11a/b/g WLAN module for use in Ecuador, Haiti, Honduras, Pakistan, the People's Republic of China, Peru, Qatar, South Korea, Uruguay, and Venezuela
451861-004	Intel 802.11b/g WLAN module for use in Thailand
451861-291	Intel 802.11a/b/g WLAN module for use in Japan
451862-001	160-GB, 5400-rpm hard drive (includes hard drive bracket)
451863-001	200-GB, 4200-rpm hard drive (includes hard drive bracket)
451864-001	12-cell, 8.80-Ah battery
452634-001	Top cover for use only with Best Buy computer models not equipped with a fingerprint reader (includes TouchPad and cable)
452635-001	Top cover for use only with Best Buy computer models equipped with a fingerprint reader (includes TouchPad and cable and fingerprint reader board and cable)

Spare part number	Description
452636-001	Keyboard for use in the United States with Best Buy computer models
452636-031	Keyboard for use in the United Kingdom with Best Buy computer models
452636-051	Keyboard for use in France with Best Buy computer models
452636-061	Keyboard for use in Italy with Best Buy computer models
452636-071	Keyboard for use in Spain with Best Buy computer models
452636-131	Keyboard for use in Portugal with Best Buy computer models
452636-141	Keyboard for use in Turkey with Best Buy computer models
452636-171	Keyboard for use in the United Kingdom with Best Buy computer models
452636-B31	Keyboard for use in the Netherlands and Europe with Best Buy computer models
452636-DH1	Keyboard for use in Finland, Norway, and Sweden with Best Buy computer models
453033-001	Intel Core Duo T5250 1.5-GHz processor (2-MB L2 cache; includes thermal material)
453198-001	90-watt PFC AC adapter
453199-001	65-watt PFC AC adapter
453769–001	System board for use only with computer models with Intel processors equipped with UMA graphics subsystem memory (includes thermal material)
453771-001	Intel Core 2 Duo 2.2-GHz processor (4-MB L2 cache, 800-MHz FSB; includes thermal material)
453772-001	Intel Core 2 Duo 1.5-GHz processor (2-MB L2 cache, 667-MHz FSB; includes thermal material)
453772–001	Intel Core 2 Duo 1.86-GHz processor (1-MB L2 cache, 553-MHz FSB; includes thermal material)
453774-001	2048-MB memory module (PC2-5300, DDR2, 667-MHz)
453775-001	250-GB, 5400-rpm hard drive (includes hard drive bracket)
454172-001	Base enclosure for use only in defeatured models with AMD processors (includes wireless switch actuator and infrared lens)
455311–001	15.4-inch, WXGA, BrightView display panel for use only with Best Buy computer models equipped with a camera, microphones, and a fingerprint reader
455312-001	15.4-inch, WXGA, BrightView display panel for use only with Best Buy computer models equipped with a camera and microphones
455313-001	Display bezel for use only with Best Buy computer models not equipped with a camera (includes openings for microphones)
455515-001	Intel Core 2 Duo 2.0-GHz processor (2-MB L2 cache, 800-MHz FSB; includes thermal material)
455943–001	Intel Core Duo T2310 1.46-GHz processor (1-MB L2 cache, 533-MHz FSB)
455944–001	Intel Core Duo T2330 1.6-GHz processor (1-MB L2 cache, 533-MHz FSB)
457315–001	Intel Celeron M530 1.73-GHz processor (1-MB L2 cache, 533-MHz FSB)
457437–001	2048-MB memory module (PC2-5300, 667-MHz)
458603–001	Top cover for use only with Best Buy computer models equipped with a fingerprint reader (includes TouchPad and cable and fingerprint reader board and cable)
462453–001	Blu-ray Disc ROM Drive with SuperMulti DVD±R/RW Double-Layer (DL) support (select models only)

4 Removal and replacement procedures

Preliminary replacement requirements

Tools required

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

- Flat-bladed screwdriver
- Hex 5.0-mm nut driver
- Magnetic screwdriver
- Phillips P0 and P1 screwdrivers

Service considerations

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

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

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 area 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

	Relative humidity		
Event	**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 ±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 46).
5. Remove the RTC battery (see RTC battery on page 55).
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.

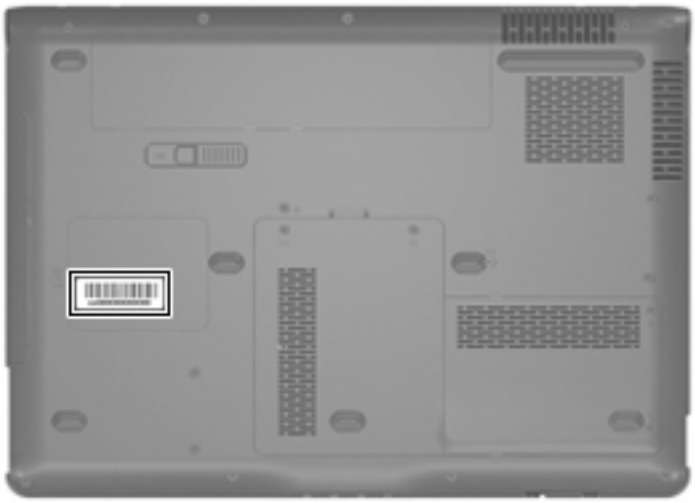
Component replacement procedures

This chapter provides removal and replacement procedures.

There are as many as 83 screws and standoffs, in 12 different sizes, that must be removed, replaced, or loosened when servicing the computer. Make special note of each screw and standoff size and location during removal and replacement.

Serial number

Report the computer serial number to HP when requesting information or ordering spare parts. The serial number is located on the bottom of the computer.



Battery

Description	Spare part number
12-cell, 8.80-Ah Li-ion battery	451864-001
6-cell, 2.55-Ah Li-ion battery	446507-001
6-cell, 2.20-Ah Li-ion battery	446506-001

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.

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

Camera module

NOTE: If it has been determined that the camera 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 camera module. For information on replacing the display assembly and other display assembly internal components, see Display assembly on page 68.

Description	Spare part number
Camera module (includes 2-sided tape)	446486-001

Before removing the camera module, follow these steps:

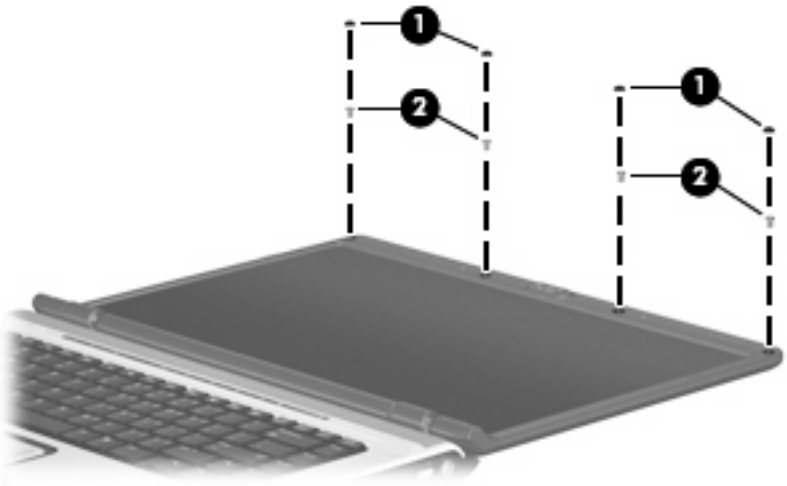
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see Battery on page 46).

Remove the camera module:

1. Turn the computer display-side up, with the front toward you.
2. Open the computer as far as possible.
3. Remove the four rubber screw covers **(1)** on the display bezel top edge.

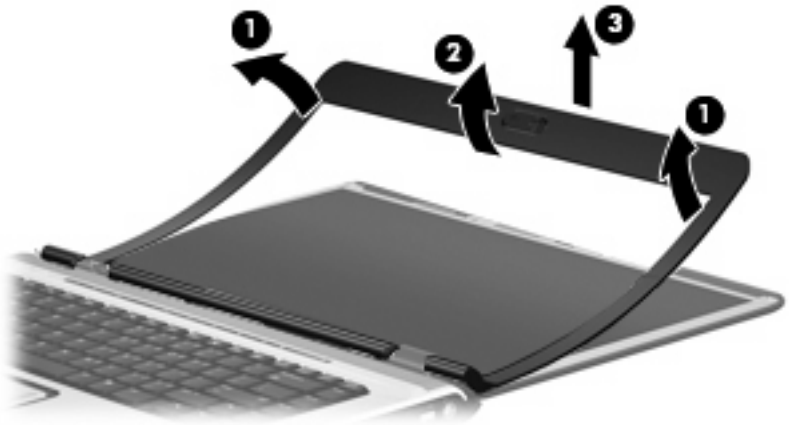
NOTE: The display rubber screw covers are included in the Display Screw Kit, spare part number 431399-001.

4. Remove the four Phillips PM2.5×5.0 screws **(2)** on the display bezel top edge.

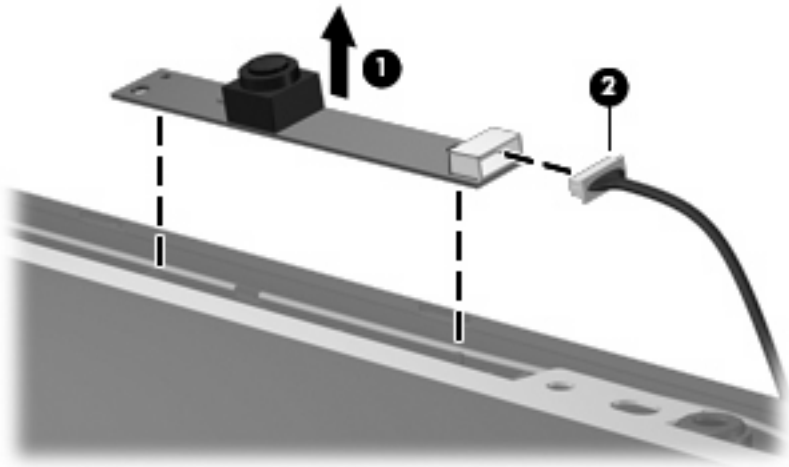


5. Flex the inside edges of the left and right sides **(1)** and the top edge **(2)** of the display bezel until the bezel disengages from the display enclosure.

6. Release the display bezel top edge **(3)**.



7. Release the camera module **(1)** from the display enclosure as far as the camera module cable allows.
8. Disconnect the camera module cable **(2)** from the camera module.



9. Remove the camera module.

Reverse this procedure to install the camera module.

Display inverter

NOTE: If it has been determined that the display inverter 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 display inverter. For information on replacing the display assembly and other display assembly internal components, see Display assembly on page 68.

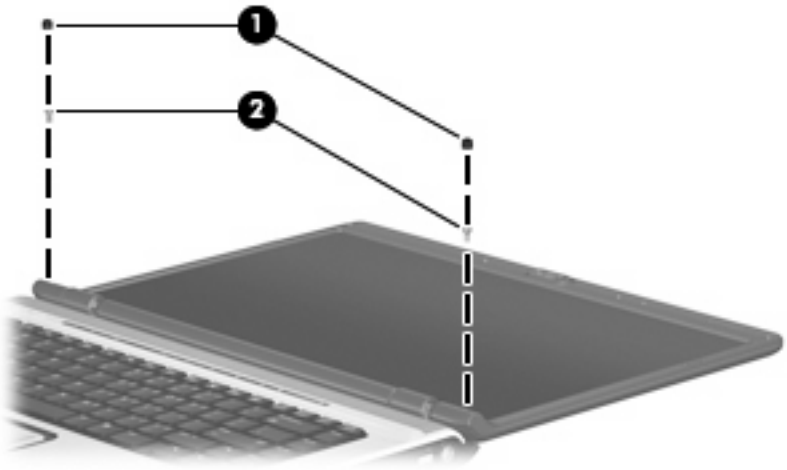
Description	Spare part number
Display inverter (includes 2-sided tape)	431391-001

Before removing the display inverter, 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 46).

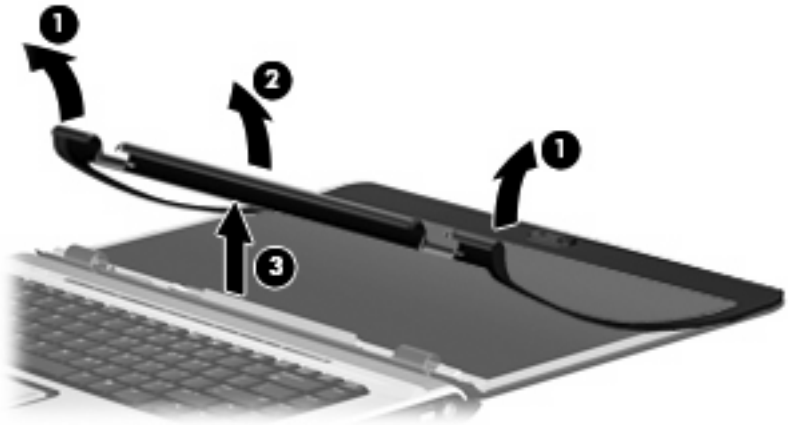
Remove the display inverter:

1. Turn the computer display-side up, with the front toward you.
2. Open the computer as far as possible.
3. Remove the two rubber screw covers **(1)** on the display bezel bottom edge. The display rubber screw covers are included in the Display Screw Kit, spare part number 431399-001.
4. Remove the two Phillips PM2.5×5.0 screws **(2)** that secure the display bezel bottom edge to the display assembly.

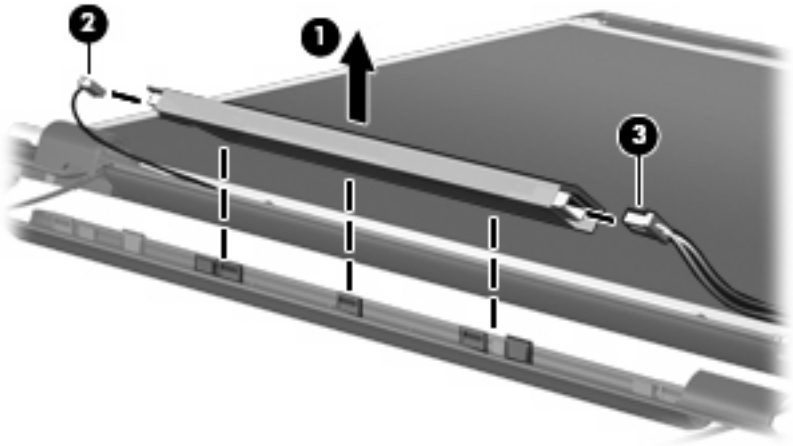


5. Flex the inside edges of the left and right sides **(1)** and the bottom edge **(2)** of the display bezel until the bezel disengages from the display enclosure.

6. Release the display bezel bottom edge **(3)**.



7. Release the display inverter **(1)** as far as the display panel cable and the backlight cable allow.
8. Disconnect the display panel cable **(2)** and the backlight cable **(3)** from the display inverter.



9. Remove the display inverter.

Reverse this procedure to install the display inverter.

Hard drive

NOTE: All hard drive spare part kits include a hard drive bracket.

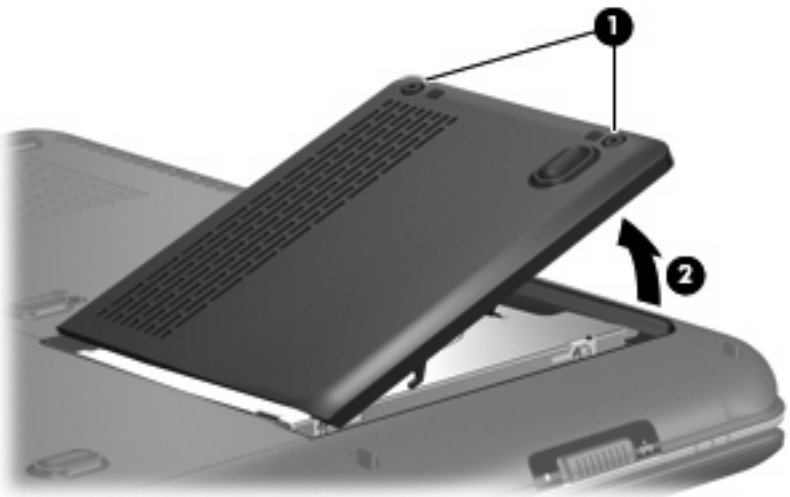
Description	Spare part number
250-GB, 5400-rpm	453775-001
200-GB, 4200-rpm	451863-001
160-GB, 5400-rpm	451862-001
120-GB, 5400-rpm	446498-001
80-GB, 5400-rpm	446497-001
60-GB, 5400-rpm	446496-001

Before removing the hard drive, follow these steps:

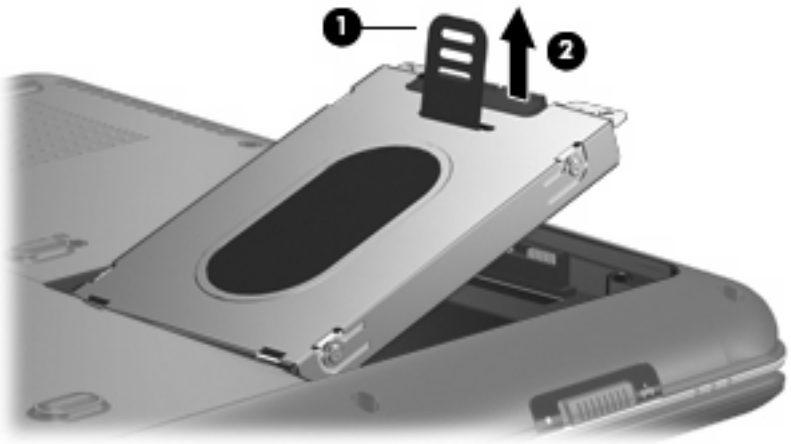
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see Battery on page 46).

Remove the hard drive:

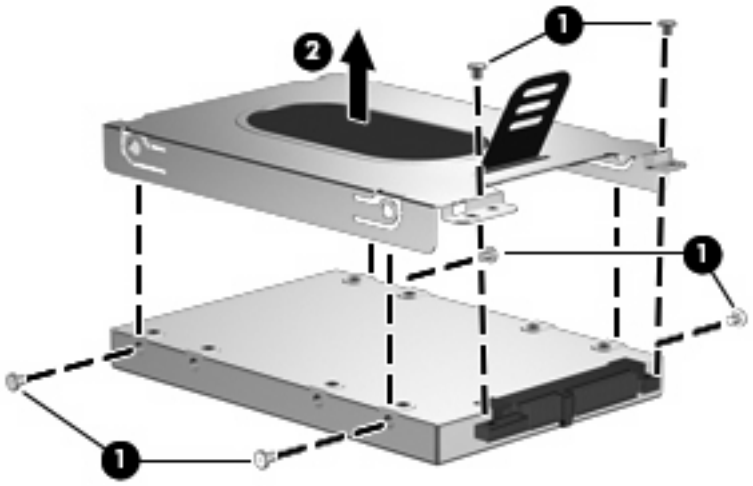
1. Position the computer with the front toward you.
2. Loosen the two Phillips PM2.0×5.0 screws **(1)** that secure the hard drive cover to the computer.
3. Lift the right side of the hard drive cover **(2)**, swing it to left, and remove the cover. The hard drive cover is included in the Plastics Kit, spare part number 438368-001.



4. Use the Mylar tab **(1)** to lift the hard drive **(2)** until it disconnects from the computer.



5. Remove the hard drive from the hard drive bay.
6. If it is necessary to remove the hard drive bracket, remove the four Phillips PM3.0×3.0 hard drive bracket screws **(1)** that secure the hard drive bracket to the hard drive.
7. Lift the bracket **(2)** straight up to remove it from the hard drive.

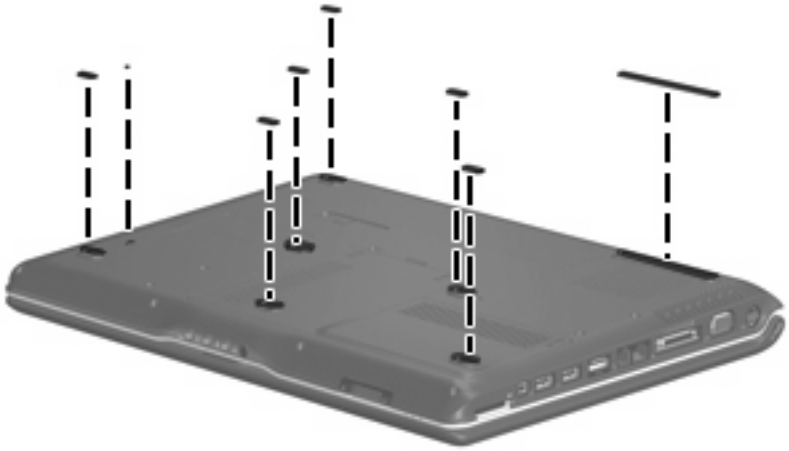


Reverse this procedure to reassemble and install the hard drive.

Computer feet

Description	Spare part number
Rubber Kit (includes base enclosure rubber feet and display bezel screw covers)	431430-001

The computer feet are adhesive-backed rubber pads. The feet attach to the base enclosure in the locations illustrated below.



Memory module

Description	Spare part number
2048-MB (PC2-5300, 667-MHz, DDR2)	453774-001 and 457437–001
1024-MB (PC2-5300, 667-MHz, DDR2)	446495-001
512-MB (PC2-5300, 667-MHz, DDR2)	446494-001

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 46).

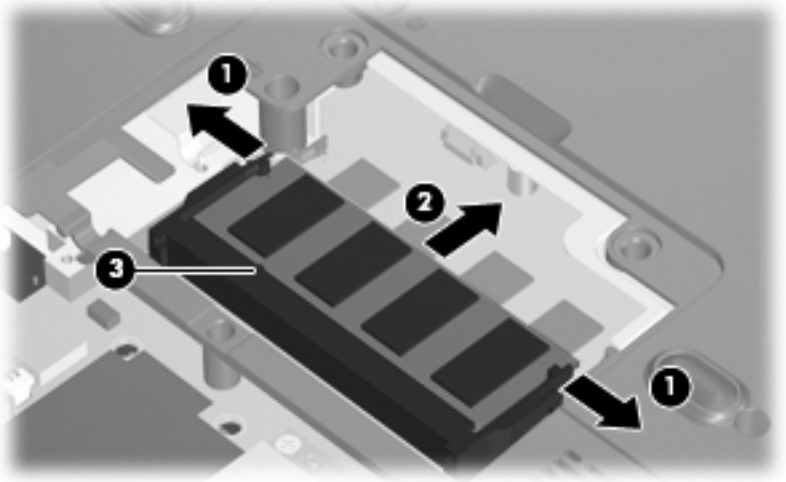
Remove the memory module:

1. Position the computer with the front toward you.
2. Loosen the two Phillips PM2.0×5.0 screws **(1)** that secure the memory/WLAN module compartment cover to the computer.

3. Lift the left side of the cover **(2)**, swing it to the right, and remove the cover. The memory/WLAN module compartment cover is included in the Plastics Kit, spare part number 438368-001.

4. Spread the retaining tabs **(1)** on each side of the memory module slot to release the memory module. (The edge of the module opposite the slot rises away from the computer.)
5. Remove the module **(2)** by pulling it away from the slot at an angle.

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



Reverse this procedure to install a memory 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.

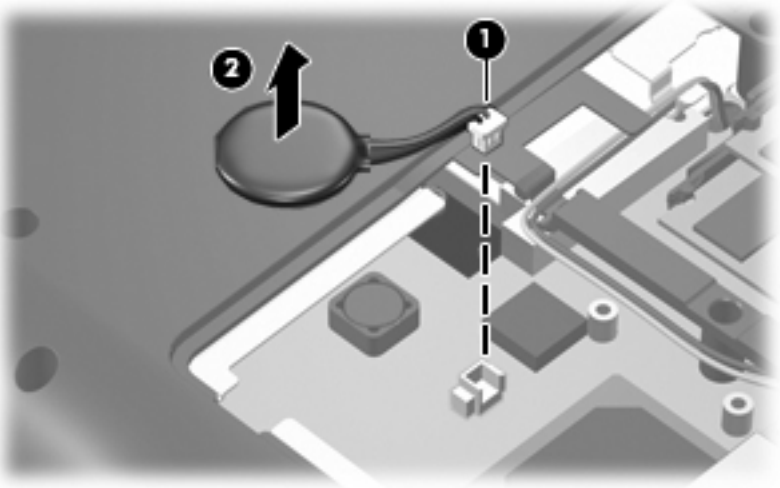
Description	Spare part number
RTC battery (includes 2-sided tape)	446518-001 and 449729-001

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 46).
5. Remove the memory/WLAN module compartment cover (see Memory module on page 53).

Remove the RTC battery:

1. Disconnect the RTC battery cable **(1)** from the system board.
2. Remove the RTC battery **(2)**.



Reverse this procedure to install the RTC battery.

WLAN module

Description	Spare part number
Intel 802.11a/b/g/n WLAN modules:	
• For use in Antigua & Barbuda, Argentina, Aruba, the Bahamas, Barbados, Bermuda, Brunei, Canada, the Cayman Islands, Chile, Colombia, Costa Rica, the Dominican Republic, Ecuador, El Salvador, Guam, Guatemala, Haiti, Honduras, Hong Kong, India, Indonesia, Malaysia, Mexico, Panama, Paraguay, Peru, Saudi Arabia, Taiwan, Uruguay, the United States, Venezuela, and Vietnam	441086-001
• For use in Austria, Azerbaijan, Bahrain, Belgium, Brazil, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Egypt, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Latvia, Lebanon, Liechtenstein, Lithuania, Luxembourg, Malta, Monaco, the Netherlands, Norway, Oman, the Philippines, Poland, Portugal, Qatar, Romania, Russia, Serbia and Montenegro, Singapore, Slovakia, Slovenia, South Africa, Spain, Sri Lanka, Sweden, Switzerland, Turkey, Ukraine, the United Kingdom, and Uzbekistan	441086-002 and 441087-002
• For use in Australia, New Zealand, Pakistan, and the People's Republic of China	441086-003 and 441088-003
• For use in Japan	441086-291 and 441089-291
• For use in South Korea	441086-AD1
Intel 802.11a/b/g WLAN modules:	
• For use in Antigua & Barbuda, Argentina, Australia, the Bahamas, Barbados, Brunei, Canada, Chile, the Dominican Republic, Guam, Guatemala, Hong Kong, India, Indonesia, Malaysia, Mexico, New Zealand, Panama, Paraguay, Saudi Arabia, Taiwan, the United States, and Vietnam	451861-001
• For use in Aruba, Austria, Azerbaijan, Bahrain, Belgium, Bermuda, Brazil, Bulgaria, the Cayman Islands, Colombia, Croatia, Cyprus, the Czech Republic, Denmark, Egypt, El Salvador, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Italy, Jordan, Latvia, Lebanon, Liechtenstein, Lithuania, Luxembourg, Malta, Monaco, the Netherlands, Norway, Oman, the Philippines, Poland, Portugal, Romania, Russia, Serbia and Montenegro, Singapore, Slovakia, Slovenia, South Africa, Spain, Sri Lanka, Sweden, Switzerland, Turkey, the United Kingdom, and Uzbekistan	451861-002
• For use in Ecuador, Haiti, Honduras, Pakistan, the People's Republic of China, Peru, Qatar, South Korea, Uruguay, and Venezuela	451861-003
• For use in Japan	451861-291
Broadcom 802.11b/g WLAN modules:	
• For use in Canada, the Cayman Islands, Guam, Puerto Rico, the U.S. Virgin Islands, and the United States	441090-001
• For use in Afghanistan, Albania, Algeria, Andorra, Angola, Antigua & Barbuda, Argentina, Armenia, Aruba, Australia, Austria, Azerbaijan, the Bahamas, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Belize, Benin, Bermuda, Bhutan, Bolivia, Bosnia & Herzegovina Botswana, Brazil, the British Virgin Islands, Brunei, Bulgaria, Burkina Faso, Burundi, Cambodia, Cameroon, Cape Verde, the Central African Republic, Chad, Chile, Colombia, Comoros, the Congo, Costa Rica, Croatia, Cyprus, the Czech Republic, Denmark, Djibouti, Dominica, the Dominican Republic, East Timor, Ecuador, Egypt, El Salvador, Equitorial Guinea, Eritrea, Estonia, Ethiopia, Fiji, Finland, France, French Guiana, Gabon, Gambia, Georgia, Germany, Ghana, Gibraltar, Greece, Grenada, Guadeloupe, Guatemala, Guinea, Guinea-Bissa, Guyana, Haiti, Honduras, Hong Kong, Hungary, Iceland, India, Indonesia, Ireland, Israel, Italy, the Ivory Coast, Jamaica, Jordan, Kazakhstan, Kenya, Kiribati, Kuwait, Kyrgyzstan, Laos, Latvia, Lebanon, Lesotho, Liberia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Madagascar, Malawi, Malaysia, the Maldives, Mali, Malta, the Marshall Islands, Martinique, Mauritania, Mauritius, Mexico, Micronesia, Monaco, Mongolia, Montenegro, Morocco, Mozambique, Namibia, Nauru,	441090-002

Description	Spare part number
Nepal, the Nether Antilles, the Netherlands, New Zealand, Nicaragua, Niger, Nigeria, Norway, Oman, Palau, Panama, Papua New Guinea, Paraguay, the People's Republic of China, Peru, the Philippines, Poland, Portugal, Qatar, the Republic of Moldova, Romania, Russia, Rwanda, Samoa, San Marino, Sao Tome & Principe, Saudi Arabia, Senegal, Serbia and Montenegro, the Seychelles, Sierra Leone, Singapore, Slovakia, Slovenia, the Solomon Islands, Somalia, South Africa, South Korea, Spain, Sri Lanka, St. Kitts & Nevis, St. Lucia, St. Vincent & Grenada, Suriname, Swaziland, Sweden, Switzerland, Taiwan, Tajikistan, Tanzania, Thailand, Togo, Tonga, Trinidad & Tobago, Tunisia, Turkey, Turkmenistan, Tuvalu, Uganda, Ukraine, the United Arab Emirates, the United Kingdom, Uruguay, Uzbekistan, Vanuatu, Venezuela, Vietnam, Yemen, Zaire, Zambia, and Zimbabwe	
• For use in Japan	441090-291
Intel 802.11b/g WLAN module for use in Thailand	451861-004
Broadcom 4311AG 802.11a/b/g modules:	
• For use in the United States and Canada	441075-001
• For use in France, Germany, Italy, the Netherlands, Spain, the United Kingdom, Nordic region, and India	441075-002
Broadcom 4321AGN 802.11a/b/g/n modules:	
• For use in the United States and Canada	434661-001
• For use in France, Germany, Italy, the Netherlands, Spain, the United Kingdom, Nordic region, and India	434661-002

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 46).
5. Remove the memory/WLAN module compartment cover (see Memory module on page 53).

Remove the WLAN module:

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

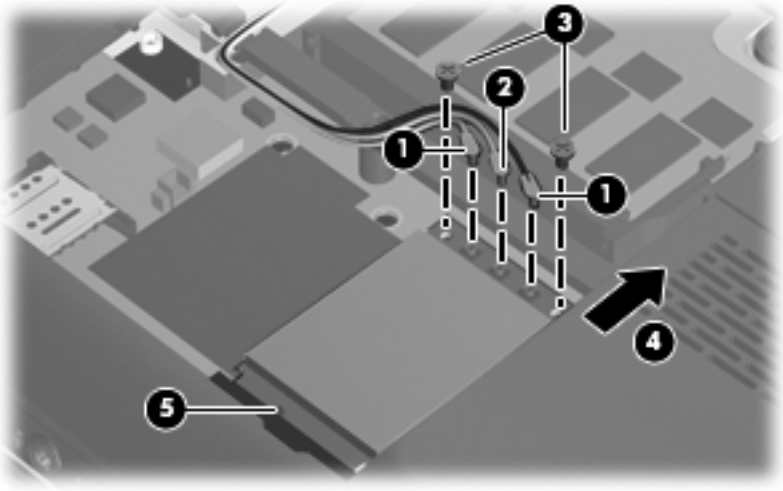
NOTE: The black WLAN antenna cable is connected to the WLAN module "Main" terminal. The white WLAN antenna cable is connected to the WLAN module "Aux" terminal.

NOTE: Computer models equipped with an 802.11a/b/g/n WLAN module will have an additional wireless antenna cable **(2)**, yellow in color.

2. Remove the two Phillips PM2.0×3.0 screws **(3)** that secure the WLAN module to the computer. (The edge of the module opposite the slot rises away from the computer.)

3. Remove the WLAN module **(4)** by pulling it away from the slot at an angle.

NOTE: WLAN modules are designed with a notch **(5)** to prevent incorrect installation into the WLAN module slot.



Reverse this procedure to install a WLAN module.

Optical drive

NOTE: All optical drive spare part kits include an optical drive bezel.

Description	Spare part number
For use in computer models with Intel processors:	
Blu-ray Disc ROM Drive with SuperMulti DVD±R/RW Double-Layer (DL) support	462453-001
HD-ROM Drive	446502-001
DVD±RW and CD-RW SuperMulti Double-Layer Combo Drive with LightScribe	446501-001
DVD±RW and CD-RW SuperMulti Double-Layer Combo Drive	446500-001
DVD/CD-RW Combo Drive	446499-001
For use in computer models with AMD processors:	
CD-RW and DVD-ROM Combo Drive	449937-001
DVD±RW and DVD-ROM SuperMulti Drive with LightScribe	449935-001
HD DVD-ROM Drive with SuperMulti DVD±R/RW Double Layer support with LightScribe	448006-001
DVD±RW and CD-RW SuperMulti Double-Layer Combo Drive	448004-001

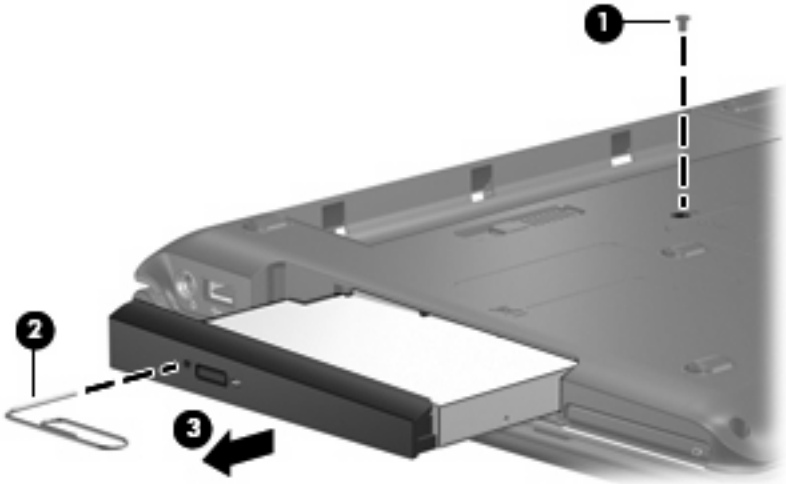
Before removing the optical drive, follow these steps:

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 46).

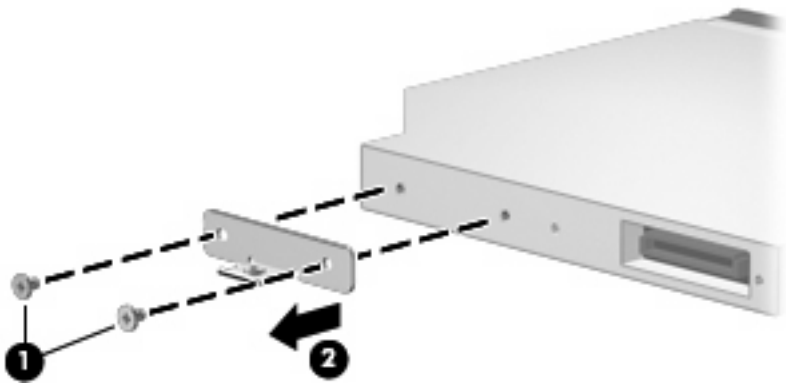
Remove the optical drive:

1. Position the computer with right side toward you.
2. Remove the Phillips PM2.5×7.0 screw **(1)** that secures the optical drive to the computer.
3. Insert a thin tool, such as a paper clip **(2)**, into the release access. (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. If it is necessary to replace the optical drive bracket, position the optical drive with the optical drive bracket toward you.
6. Remove the two Phillips PM2.0×3.0 screws **(1)** that secure the optical drive bracket to the optical drive.
7. Remove the optical drive bracket **(2)**.



Reverse the above procedure to reassemble and install the optical drive.

Switch cover

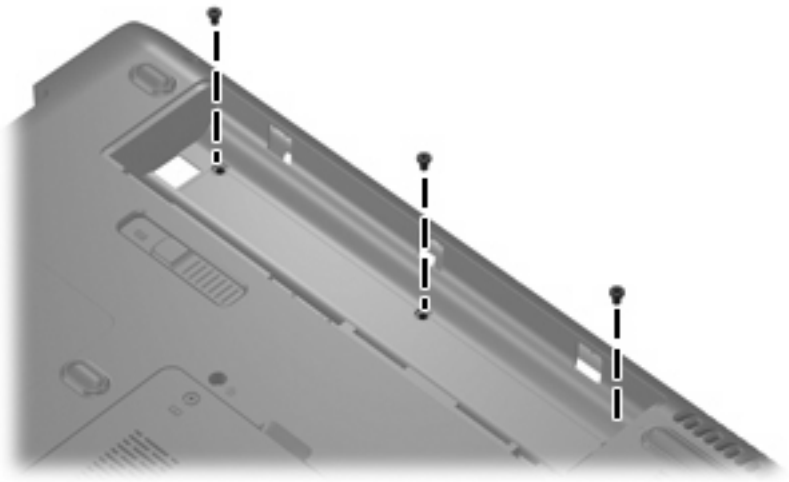
Description	Spare part number
Switch cover (includes LED board and cable)	446512-001

Before removing the switch 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 46).

Remove the switch cover:

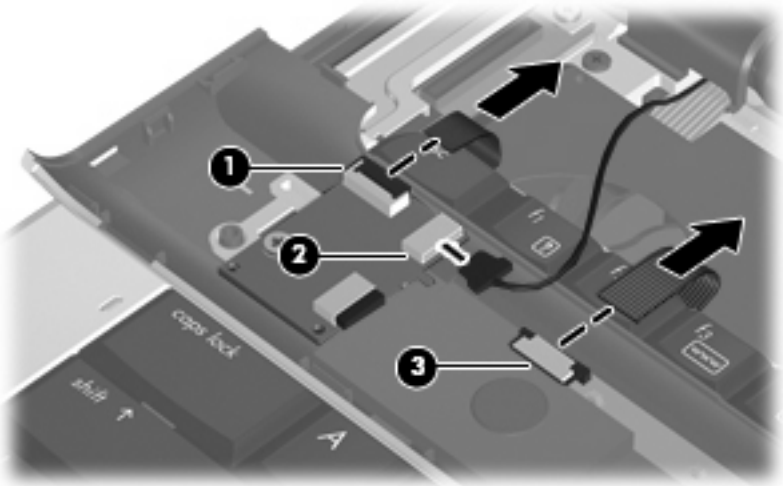
1. Remove the three Phillips PM2.5×5.0 screws that secure the switch cover to the computer.



2. Turn the computer display-side up, with the front toward you.
3. Open the computer as far as possible.

4. Lift the rear edge of the switch cover and swing it forward until it rests on the keyboard.

5. Release the zero insertion force (ZIF) connector **(1)** to which the power button board is connected, and disconnect the cable from the power button board.
6. Disconnect the microphone cable **(2)** from the power button board.
7. Release the ZIF connector **(3)** to which the LED board is connected and disconnect the cable from the power button board.



8. Remove the switch cover.

Reverse this procedure to install the switch cover.

Speaker assembly

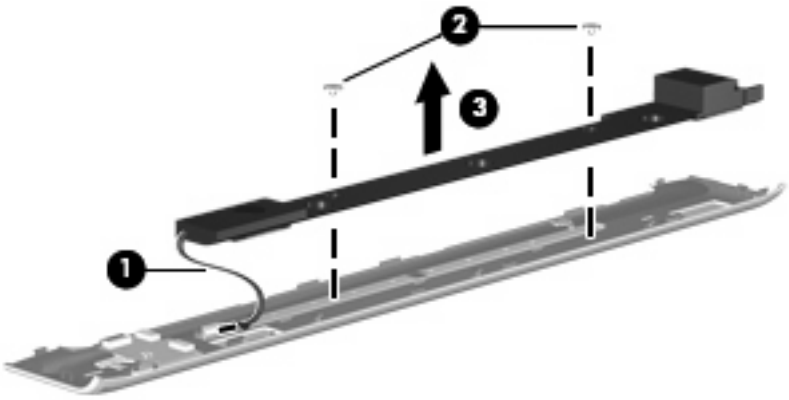
Description	Spare part number
Speaker assembly	431447-001

Before removing the speaker assembly, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see Battery on page 46).
5. Remove the switch cover (see Switch cover on page 61).
6. Remove the keyboard (see Keyboard on page 65).

Remove the speaker assembly:

1. Disconnect the speaker assembly cable **(1)** from the power button board.
2. Remove the two Phillips PM2.5×2.0 screws **(2)** that secure the speaker assembly to the computer.
3. Remove the speaker assembly **(3)**.



Reverse this procedure to install the speaker assembly.

Power button board

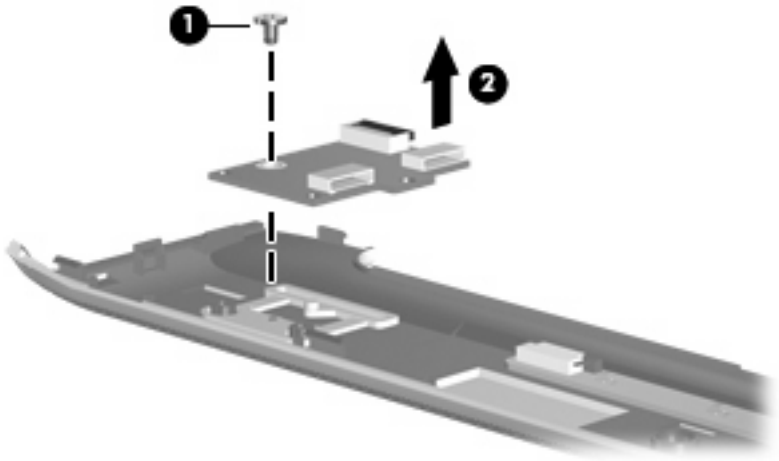
Description	Spare part number
Power button board (includes power button board cable)	431437-001

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 46).
5. Remove the switch cover (see Switch cover on page 61).
6. Remove the keyboard (see Keyboard on page 65).

Remove the power button board:

1. Remove the Phillips PM2.0×3.0 screw **(1)** that secures the power button board to the fan/heat sink assembly.
2. Remove the power button board **(2)** from the switch cover.



3. Remove the power button board.

Reverse this procedure to install the power button board.

Keyboard

For use only with computer models not sold at Best Buy:			
Belgium	441427-A41	The Netherlands and Europe	441427-B3
The Czech Republic	441427-211	Portugal	441427-131
Denmark	441427-081	Russia	441427-251
Finland, Norway, and Sweden	441427-DH1	Saudi Arabia	441427-171
France	441427-051	South Korea	441427-AD1
French Canada	441427-121	Spain	441427-071
Germany	441427-041	Switzerland	441427-111
Greece	441427-151	Taiwan	441427-AB1
Israel	441427-BB1	Thailand	441427-281
Italy	441427-061	Turkey	441427-141
Japan	441427-291	The United Kingdom	441427-031
Latin America	441426-161	The United States	441427-001
For use only with computer models sold at Best Buy:			
Finland, Norway, and Sweden	443689-DH1 and 452636-DH1	Saudi Arabia	443689-171 and 452636-171
France	443689-051 and 452636-051	Spain	443689-071 and 452636-071
Italy	443689-061 and 452636-061	Turkey	443689-141 and 452636-141
The Netherlands and Europe	443689-B31 and 452636-B31	The United Kingdom	443689-031 and 452636-031
Portugal	443689-131 and 452636-131	The United States	441426-001 and 452636-001
Germany	443689–041	Belgium	443689–A41
Russia	443689–251	Taiwan	443689–AB1
Thailand	443689–281	South Korea	443689–AD1
Japan	443689–291		

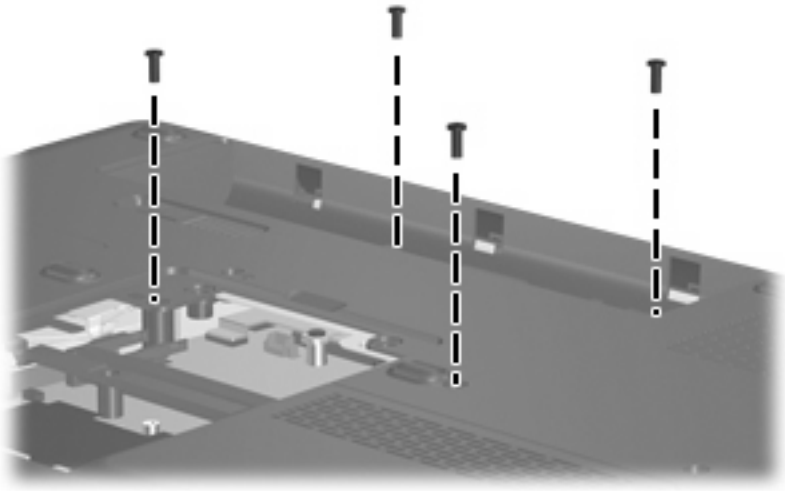
Before removing the keyboard, follow these steps:

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

3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see Battery on page 46).
5. Remove the switch cover (see Switch cover on page 61).

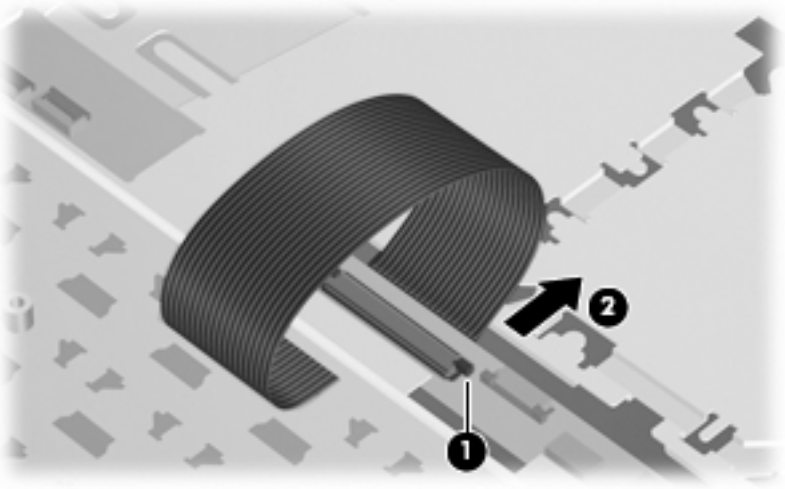
Remove the keyboard:

1. Turn the computer upside down, with the front toward you.
2. Remove the four Phillips PM2.5×7.0 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 keyboard **(1)** until it rests at an angle.
6. Release the keyboard **(2)** by sliding it back to disengage the tabs on the front edge of the keyboard from the top cover.
7. Swing the keyboard **(3)** up and forward until it rests on the palm rest.

8. Release the ZIF connector **(1)** to which the keyboard cable is attached and disconnect the keyboard cable **(2)** from the system board.



9. Remove the keyboard.

Reverse this procedure to install the keyboard.

NOTE: The power button board cable and LED board cable are included in the Cable Kit, spare part number 446519-001.

Display assembly

Description	Spare part number
15.4-inch, WXGA, BrightView, display assembly for use only with computer models equipped with a camera (includes camera, microphones, and WLAN transceivers and antenna cables)	446481-001
15.4-inch, WXGA, BrightView, display assembly for use only with computer models not equipped with a camera (includes microphones and WLAN transceivers and antenna cables)	446482-001
15.4-inch, WXGA, BrightView, display assembly for use only with Best Buy computer models equipped with a camera, microphones, and a fingerprint reader (includes camera, microphones, and WLAN transceivers and antenna cables)	455311–001
15.4-inch, WXGA, BrightView, display assembly for use only with Best Buy computer models equipped with a camera (includes camera, microphones, and WLAN transceivers and antenna cables)	455312-001

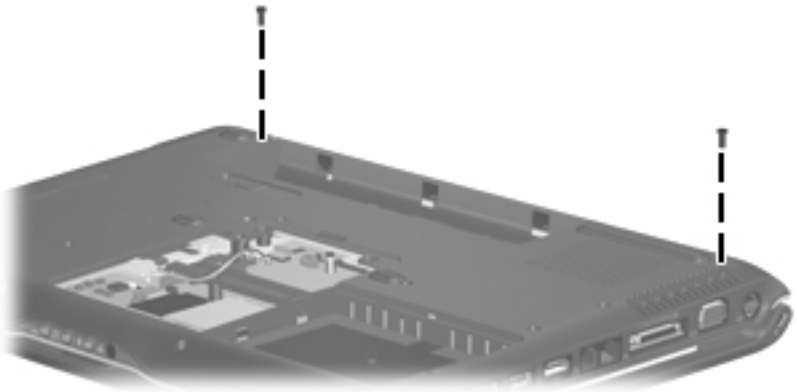
Before removing the display assembly, follow these steps:

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 46).
5. Remove the memory/WLAN module compartment cover (see Memory module on page 53).
6. Disconnect the wireless antenna cables from the WLAN module (see WLAN module on page 56).
7. Remove the following components:
   a. Keyboard (see Keyboard on page 65)
   b. Switch cover (see Switch cover on page 61)
   c. Speaker assembly (see Speaker assembly on page 63)

Remove the display assembly:

1. Close the computer and turn it upside down, with the rear panel toward you.

2. Remove the Phillips PM2.5×7.0 screws that secure the display assembly to the computer.

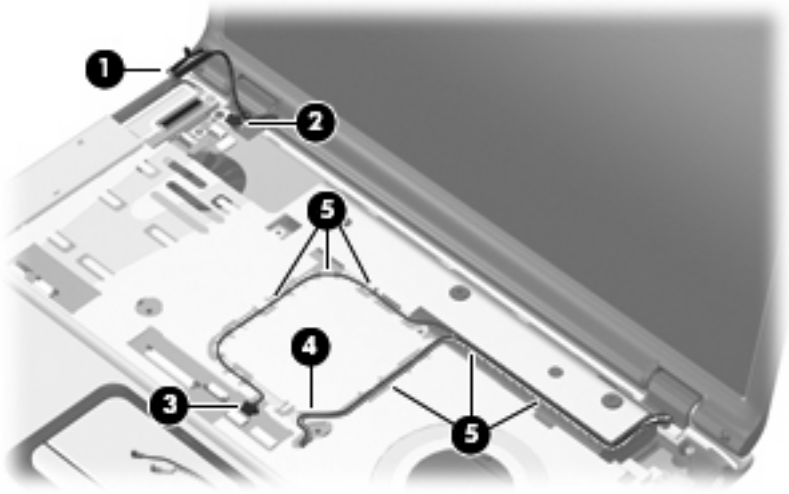


3. Turn the computer display-side up, with the front toward you.
4. Open the computer to an upright position.
5. Disconnect the following cables:

   (1) Display panel cable

   (2) Microphone cable

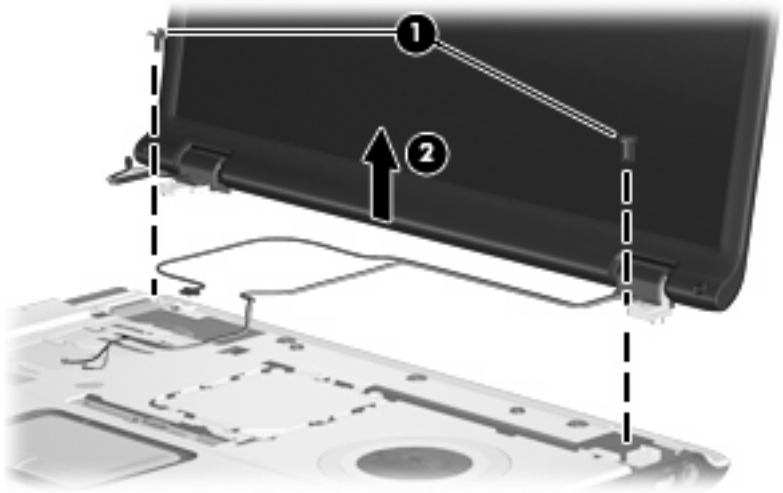
   (3) Camera cable
6. Remove the wireless antenna cables **(4)** from the routing channels **(5)** built into the top cover.



△ **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.

7. Remove the two Phillips PM2.5×7.0 screws **(1)** that secure the display assembly to the computer.

8. Remove the display assembly **(2)**.



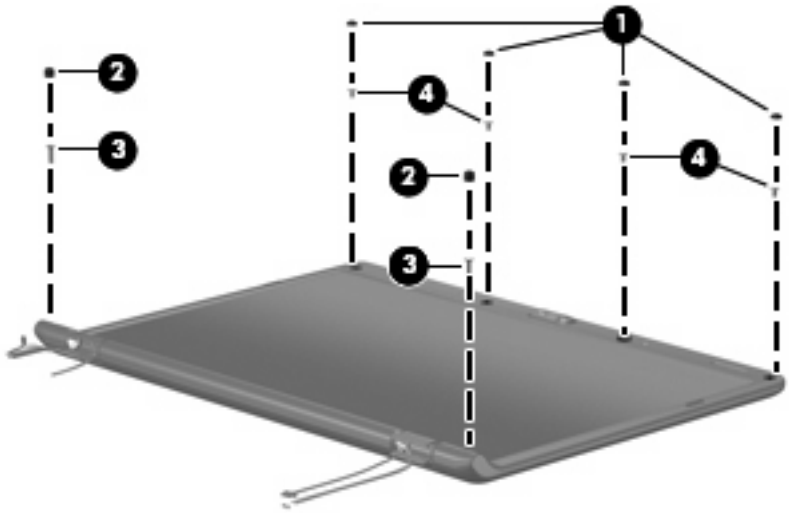
9. If it is necessary to replace the display bezel or any of the display assembly internal components, remove the following:

   (1) Four rubber screw covers on the display bezel top edge

   (2) Two rubber screw covers on the display bezel bottom edge

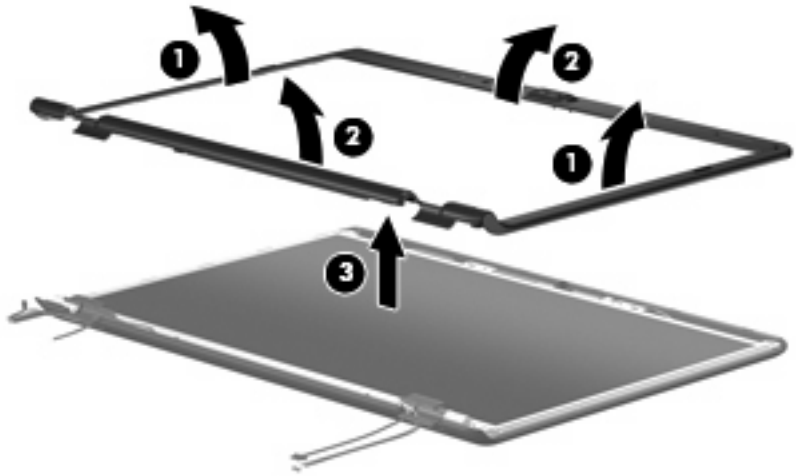
   (3) Six Phillips PM2.5×5.0 screws

NOTE: The display rubber screw covers are included in the Display Screw Kit, spare part number 431399-001.



10. Flex the inside edges of the left and right sides **(1)** and the top and bottom sides **(2)** of the display bezel until the bezel disengages from the display enclosure.

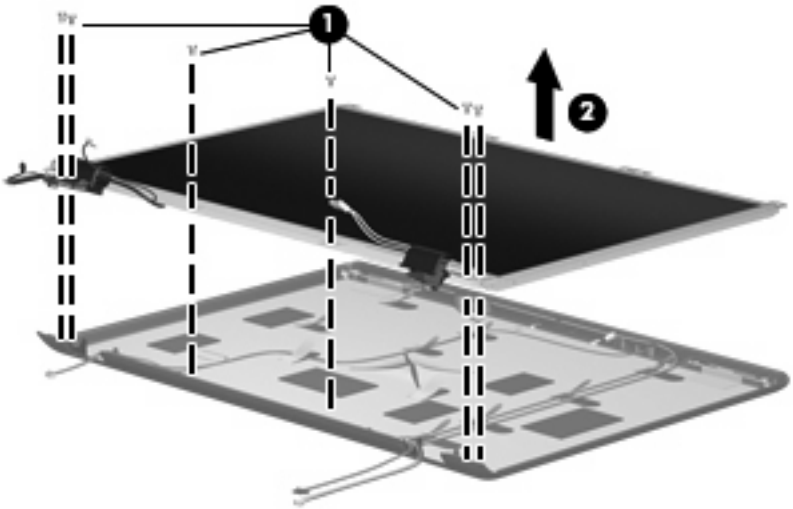
11. Remove the display bezel **(3)**. Display bezels are available using spare part numbers 446483-001 (for use only with computer models equipped with a camera), 433281-001 (for use only with computer models not equipped with a camera), 436260-001 (for use only with Best Buy computer models equipped with a camera), and 455313-001 (for use only with Best Buy computer models not equipped with a camera).



NOTE: See Camera module on page 47 for camera module replacement instructions. See Display inverter on page 49 for display inverter replacement instructions.

12. If it is necessary to replace the display panel, remove the six Phillips PM2.5×4.0 screws **(1)** that secure the display panel to the display enclosure.

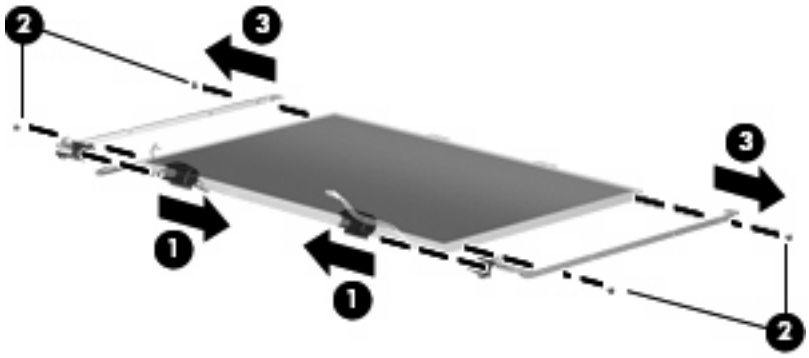
13. Remove the display panel **(2)**. The display panel is available using the spare part number 446480-001.



14. If it is necessary to replace the display hinges, remove the left and right hinge covers **(1)** by sliding them off the display hinges. The display hinge covers are available using spare part number 431396-001 for full-featured models or 433289-001 for defeatured models.

15. Remove the two Phillips PM2.0×3.0 screws that secure each display hinge **(2)** to the display panel.

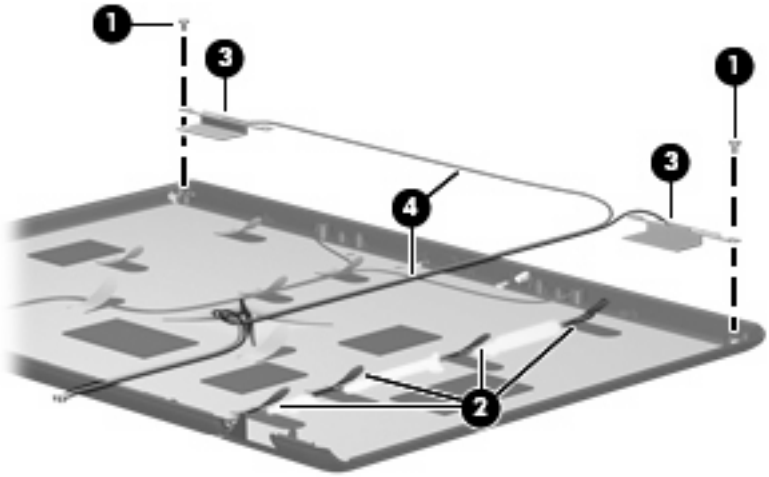
16. Remove the display hinges **(3)**. The display hinges are available using spare part number 431395-001.



17. If it is necessary to replace the wireless antenna transceivers and cables, remove the Phillips PM2.0×3.0 screw **(1)** that secures each transceiver to the display enclosure.

18. Remove the wireless antenna cables from the clips **(2)** built into the display enclosure.

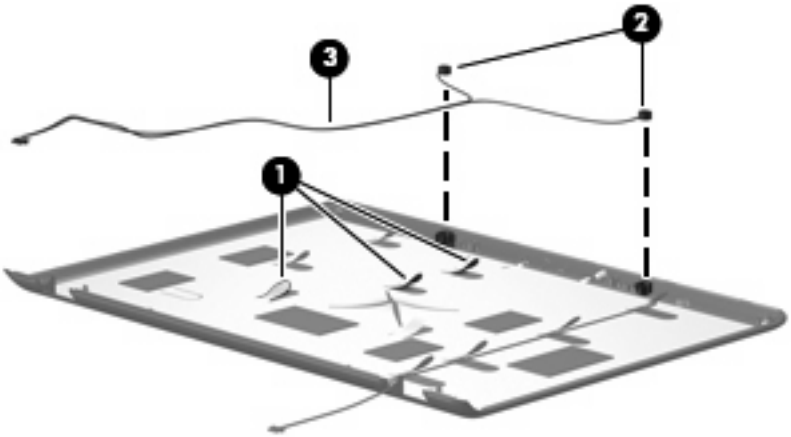
19. Detach the wireless antenna transceivers **(3)** from the display enclosure and remove the transceivers and cables **(4)**. The wireless antenna transceivers and cables are available using the following spare part numbers 449727-001 (for use only with computer models equipped with an 802.11a/b/g/n WLAN module) and 431398-001 (for use only with computer models equipped with an 802.11a/b/g or 802.11b/g WLAN module).



20. If it is necessary to replace the microphones and cables, release the retention tabs **(1)** built into the display enclosure that secure the microphone cables to the display enclosure

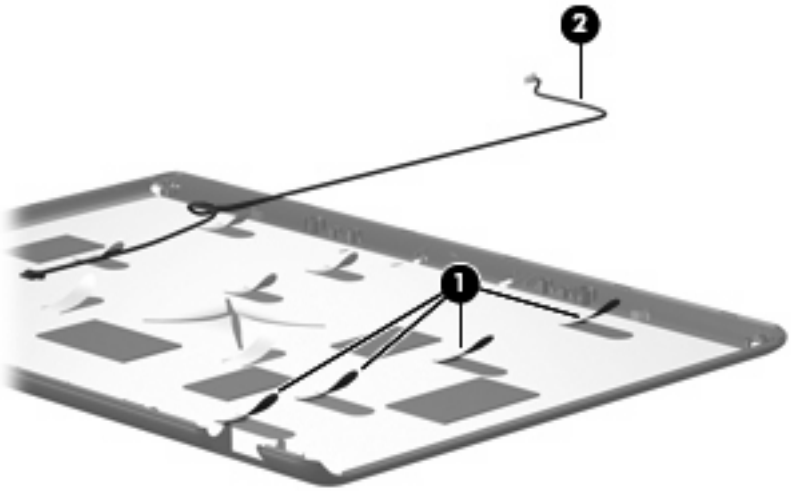
21. Remove the microphone receivers **(2)** from the clips in the display enclosure.

22. Remove the microphone cables **(3)** from the display enclosure. The microphones and cables are available using spare part number 431393-001.



23. If it is necessary to replace the camera cable, release the retention tabs **(1)** built into the display enclosure that secure the camera cable to the display enclosure.

24. Remove the camera cable **(2)** from the display enclosure. The camera cable is included in the Display Cable Kit, spare part number 431394-001.



Reverse this procedure to reassemble and install the display assembly.

Top cover

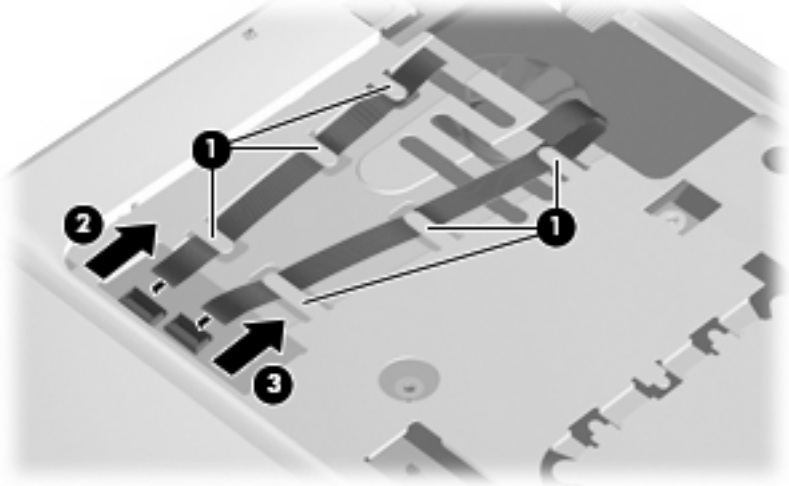
Description	Spare part number
For use only in computer models with Intel processors:	
• Equipped with a fingerprint reader (includes TouchPad and cable and fingerprint reader board and cable)	446509-001
• Not equipped with a fingerprint reader (includes TouchPad and cable)	446508-001
• Sold at Best Buy equipped with a fingerprint reader (includes TouchPad and cable and fingerprint reader board and cable)	452635-001
• Sold at Best Buy not equipped with a fingerprint reader (includes TouchPad and cable)	452634-001
• Fingerprint reader board (includes fingerprint reader board cable)	446511-001
For use only in computer models with AMD processors:	
• In full-featured models equipped with a fingerprint reader (includes TouchPad, TouchPad cable, fingerprint reader board, and fingerprint reader board cable)	449942-001
• In defeatured models equipped with a fingerprint reader (includes TouchPad, TouchPad cable, fingerprint reader board, and fingerprint reader board cable)	451408-001
• Sold at Best Buy equipped with a fingerprint reader (includes TouchPad, TouchPad cable, fingerprint reader board, and fingerprint reader board cable)	458603–001
• Fingerprint reader board (includes fingerprint reader board cable)	449944-001

Before removing the top cover, follow these steps:

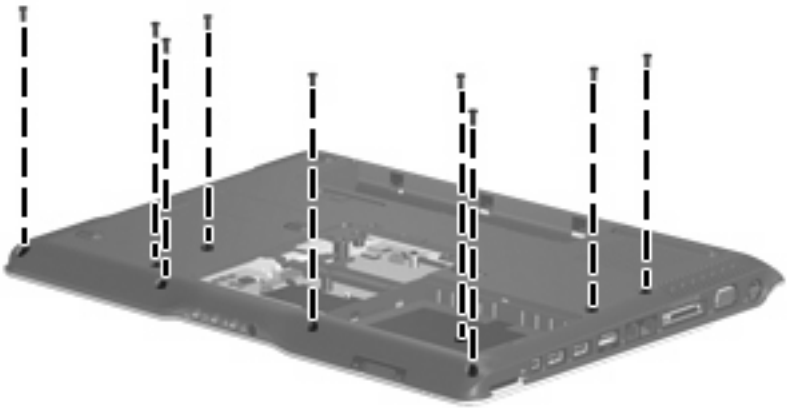
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see Battery on page 46).
5. Disconnect the power button board cable and the LED board cables from the system board (see Keyboard on page 65).
6. Remove the following components:
   a. Hard drive (see Hard drive on page 51)
   b. Optical drive (see Optical drive on page 59)
   c. Switch cover (see Switch cover on page 61)
   d. Keyboard (see Keyboard on page 65)
   e. Speaker assembly (see Speaker assembly on page 63)
   f. Display assembly (see Display assembly on page 68)

Remove the top cover:

1. Remove the power button board cable and LED button board cable from the clips **(1)** built into the top cover.
2. Disconnect the power button board cable **(2)** and the LED button board cable **(3)** from the low insertion force (LIF) connectors on the system board.



3. Remove the power button board cable and LED board cable.
4. Turn the computer upside down, with the front toward you.
5. Remove the nine Phillips PM2.5×7.0 screws that secure the top cover to the computer.



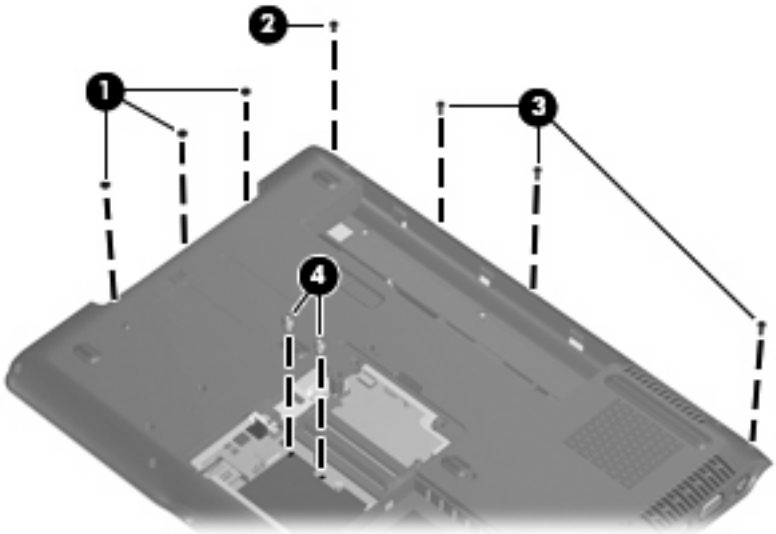
6. Remove the following:

   (1) Three Phillips PM2.5×2.0 screws in the optical drive bay

   (2) One Phillips PM2.5×5.0 screw on the rear edge of the base enclosure

   (3) Three Phillips PM2.5×7.0 screws on the rear edge of the base enclosure that secure the top cover trim to the computer

   (4) Two HM5.0×9.0 standoffs in the memory/WLAN module compartment

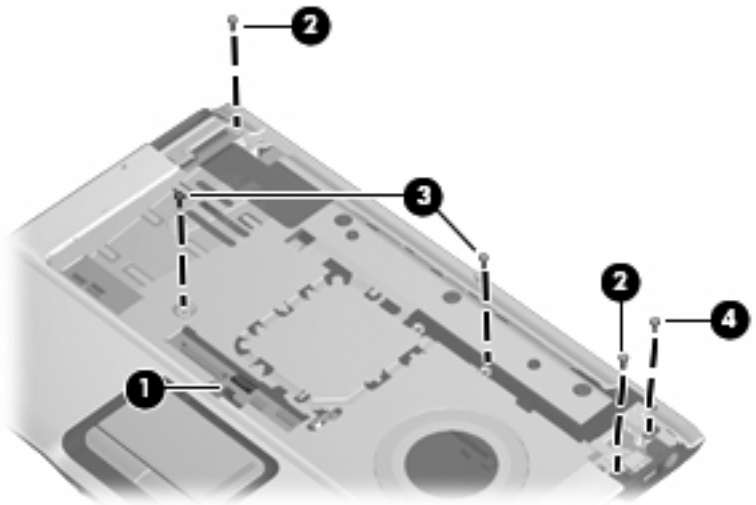


7. Turn the computer right-side up, with the front toward you.
8. Release and disconnect the TouchPad cable **(1)** from the ZIF connector on the system board.
9. Remove the following screws:

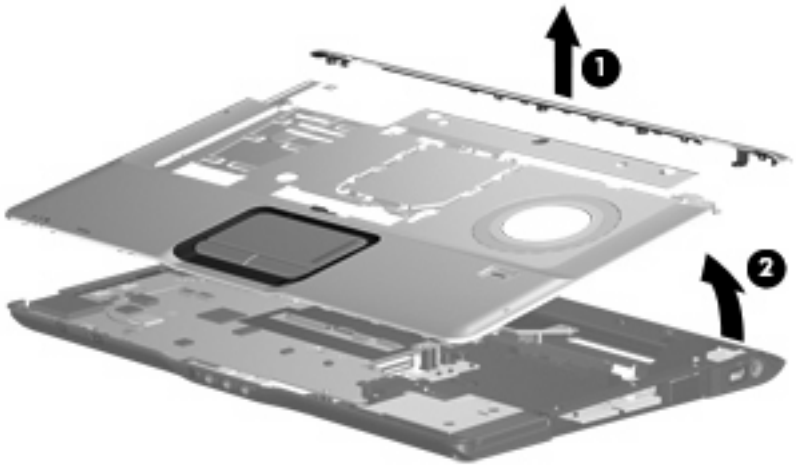
   (2) Two Phillips PM2.5×7.0 screws

   (3) Two Phillips PM2.5×4.0 screws

   (4) One Phillips PM2.5×5.0 screw that secures the top cover trim to the computer



10. Remove the top cover trim **(1)**. The top cover trim is available using spare part number 431421-001.
11. Lift the rear edge of the top cover **(2)** until it disengages from the computer.



12. Remove the top cover.

Reverse this procedure to install the top cover and top cover trim.

Bluetooth module

Description	Spare part number
Bluetooth module (includes Bluetooth module cable)	412766-002

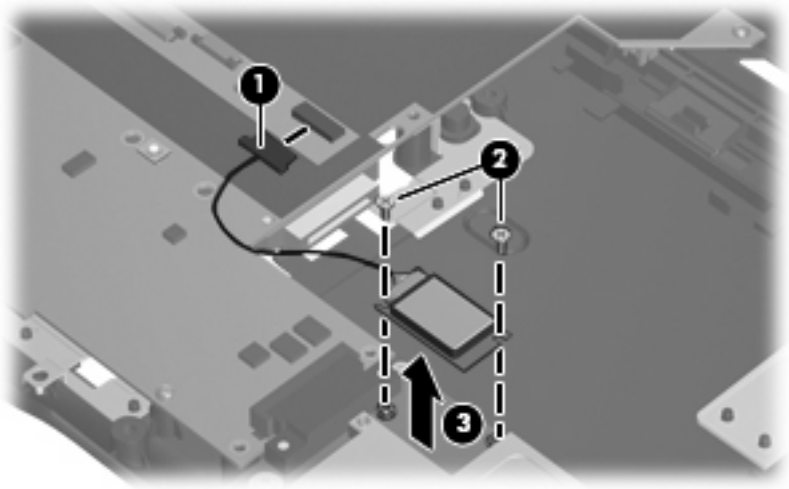
Before removing the Bluetooth module, follow these steps:

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 46).
5. Remove the following components:
   a. Hard drive (see Hard drive on page 51)
   b. Optical drive (see Optical drive on page 59)
   c. Switch cover (see Switch cover on page 61)
   d. Keyboard (see Keyboard on page 65)
   e. Speaker assembly (see Speaker assembly on page 63)
   f. Display assembly (see Display assembly on page 68)
   g. Top cover (see Top cover on page 74)

Remove the Bluetooth module:

1. Disconnect the Bluetooth module cable **(1)** from the system board.
2. Remove the two Phillips PM2.0×2.0 screws **(2)** that secure the Bluetooth module to the system board.

3. Remove the Bluetooth module **(3)**.



Reverse this procedure to install the Bluetooth module.

ExpressCard assembly

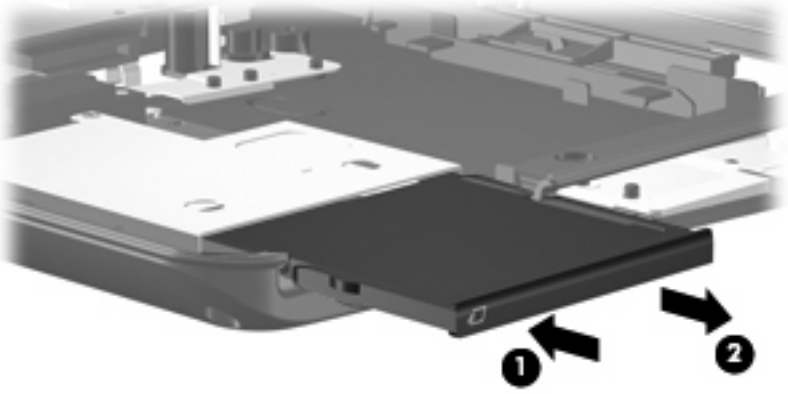
Description	Spare part number
ExpressCard assembly	431439-001

Before removing the ExpressCard assembly, follow these steps:

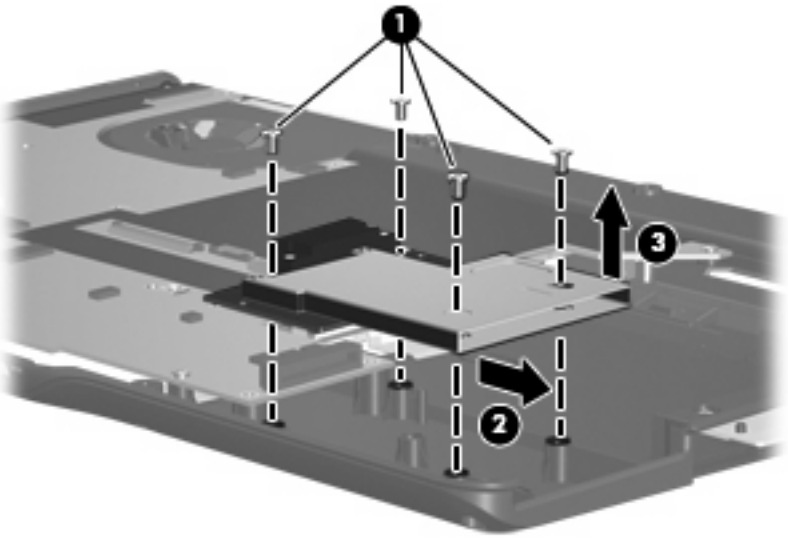
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see Battery on page 46).
5. Remove the following components:
   a. Hard drive (see Hard drive on page 51)
   b. Optical drive (see Optical drive on page 59)
   c. Switch cover (see Switch cover on page 61)
   d. Keyboard (see Keyboard on page 65)
   e. Speaker assembly (see Speaker assembly on page 63)
   f. Display assembly (see Display assembly on page 68)
   g. Top cover (see Top cover on page 74)

Remove the ExpressCard assembly:

1. Press the ExpressCard slot bezel **(1)** to release the bezel from the ExpressCard slot.
2. Remove the ExpressCard slot bezel **(2)**. The ExpressCard slot bezel is included in the Plastics Kit, spare part number 438368-001.



3. Remove the four Phillips PM2.5×4.0 screws **(1)** that secure the ExpressCard assembly to the system board.
4. Disconnect the ExpressCard assembly **(2)** from the system board by sliding to the right.
5. Remove the ExpressCard assembly **(3)**.



Reverse this procedure to install the ExpressCard assembly.

USB/power connector board

Description	Spare part number
For use only with computer models using a 90-watt AC adapter	446524-001
For use only with computer models using a 65-watt AC adapter	449454-001

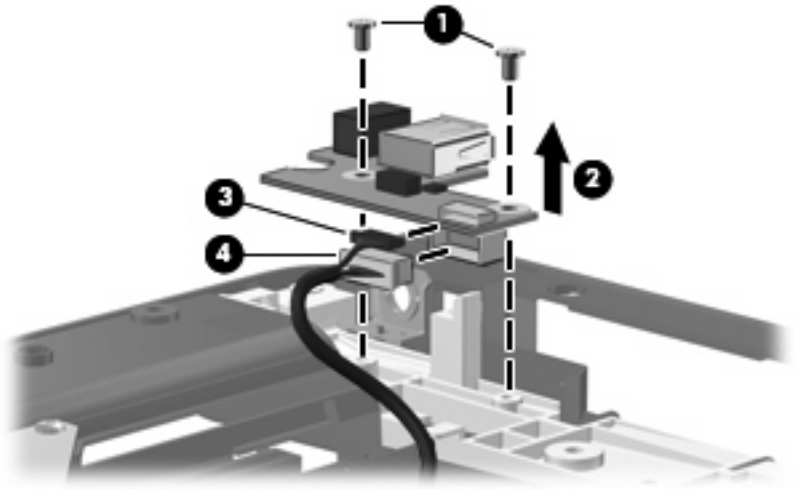
Before removing the USB/power connector board, follow these steps:

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 46).
5. Remove the following components:
   a. Hard drive (see Hard drive on page 51)
   b. Optical drive (see Optical drive on page 59)
   c. Switch cover (see Switch cover on page 61)
   d. Keyboard (see Keyboard on page 65)
   e. Speaker assembly (see Speaker assembly on page 63)
   f. Display assembly (see Display assembly on page 68)
   g. Top cover (see Top cover on page 74)

Remove the USB/power connector board:

1. Remove the two Phillips PM2.5×4.0 screws **(1)** that secure the USB/power connector board to the computer.
2. Release the USB/power connector board **(2)** as far as the USB/power connector board cable will allow.

3. Disconnect the USB cable **(3)** and the power connector cable **(4)** from the USB/power connector board.



4. Remove the USB/power connector board.

Reverse this procedure to install the USB/power connector board.

System board

NOTE: All system board spare part kits include a modem cable and replacment thermal material.

Description	Spare part number
For use only in computer models with Intel processors:	
• Equipped with discrete graphics subsystem memory (includes 128 MB of discrete graphics subsystem memory)	446476-001
• In full-featured models equipped with UMA graphics subsystem memory	446477-001
• In defeatured models equipped with UMA graphics subsystem memory	453769–001
For use only in computer models with AMD processors:	
• In full-featured models equipped with discrete graphics subsystem memory	449902-001
• In full-featured models equipped with UMA graphics subsystem memory	449903-001

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 46).
5. Remove the following components:

a. Hard drive (see Hard drive on page 51)

b. Optical drive (see Optical drive on page 59)

c. Switch cover (see Switch cover on page 61)

d. Keyboard (see Keyboard on page 65)

e. Speaker assembly (see Speaker assembly on page 63)

f. Display assembly (see Display assembly on page 68)

g. Top cover (see Top cover on page 74)

h. Audio board (see Audio board on page 85)

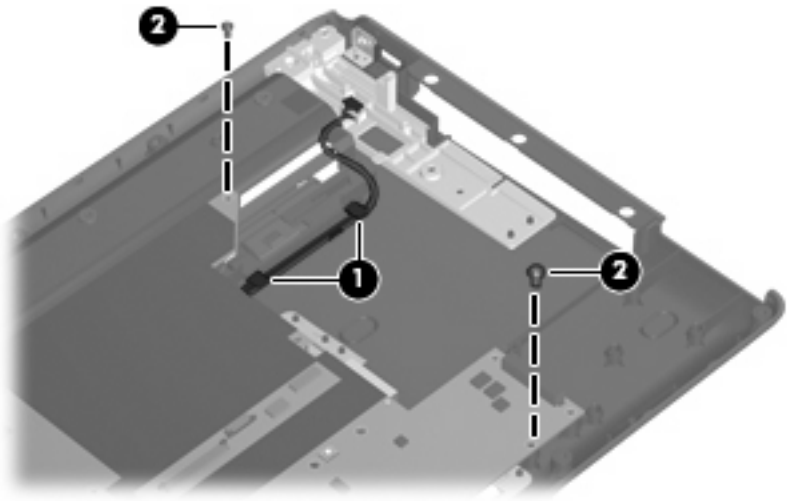
i. USB/power connector board (see USB/power connector board on page 81)

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:

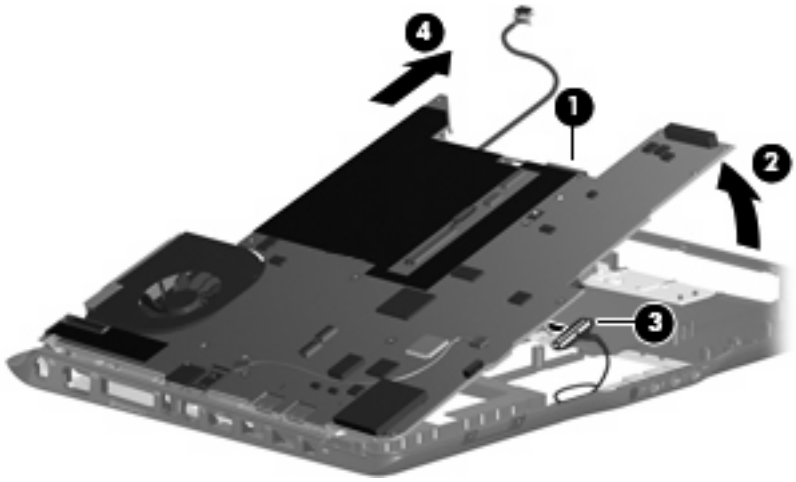
- Memory modules (see Memory module on page 53)
- RTC battery (see RTC battery on page 55)
- WLAN module (see WLAN module on page 56)
- Bluetooth module (see Bluetooth module on page 78)
- ExpressCard assembly (see ExpressCard assembly on page 79)
- Fan/heat sink assembly (see Fan/heat sink assembly on page 86)
- Processor (see Processor on page 88)

Remove the system board:

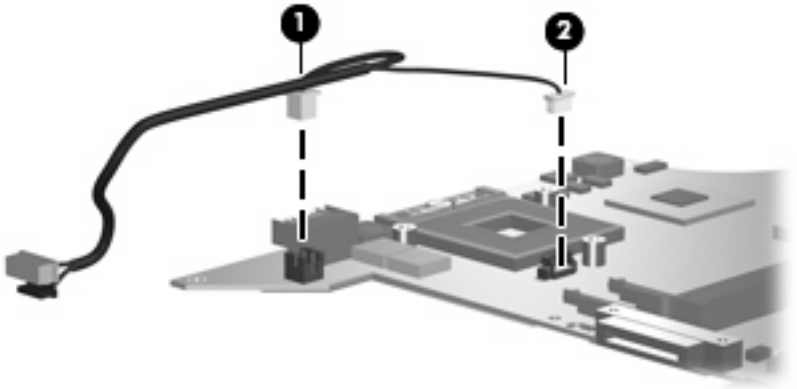
1. Remove the USB/power connector board cable **(1)** from the clips built into in the base enclosure.
2. Remove the two Phillips PM2.5×4.0 screws **(2)** that secure the system board to the base enclosure.



3. Use the optical drive connector **(1)** to lift the right side of the system board **(2)** until it rests at an angle.
4. Disconnect the audio board cable **(3)** from the system board.
5. Release the system board **(4)** by sliding it to the right until the connectors on the left side of the system board disengage from the base enclosure.



6. Remove the system board.
7. If it is necessary to replace the USB/power connector board cable, turn the system board upside down with the expansion port 3 toward you.
8. Disconnect the power connector cable **(1)** and the USB board cable **(2)** from the system board. The USB/power connector board cable is included in the Cable Kit, spare part number 446519-001.



Reverse the above procedure to install the system board and USB/power connector board cable.

Audio board

Description	Spare part number
For use in full-featured models (includes audio connectors, audio board cable, and infrared lens)	446523-001
For use in defeatured models (includes audio connectors, audio board cable, and infrared lens)	449967-001

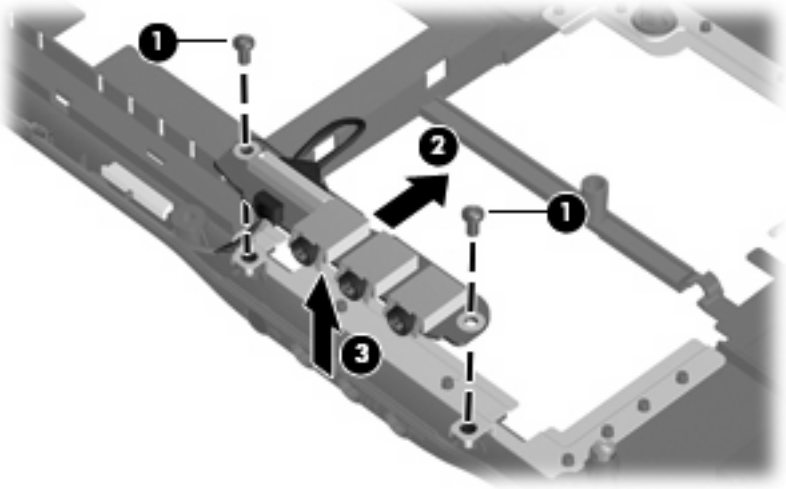
Before removing the audio board, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see Battery on page 46).
5. Remove the following components:
   a. Hard drive (see Hard drive on page 51)
   b. Optical drive (see Optical drive on page 59)
   c. Switch cover (see Switch cover on page 61)
   d. Keyboard (see Keyboard on page 65)
   e. Speaker assembly (see Speaker assembly on page 63)
   f. Display assembly (see Display assembly on page 68)
   g. Top cover (see Top cover on page 74)
   h. System board (see System board on page 82)

Remove the audio board:

1. Remove the two Phillips PM2.5×4.0 screws **(1)** that secure the audio board to the computer.
2. Release the audio board **(2)** by sliding it back to disengage the audio connectors from the openings in the base enclosure.

3. Remove the audio board **(3)** by lifting it straight up.



Reverse this procedure to install the audio board.

Fan/heat sink assembly

NOTE: All fan/heat sink assembly spare part kits include replacement thermal material.

Description	Spare part number
For use only in computer models with Intel processors:	
• Equipped with discrete graphics subsystem memory and 8.1 processors	450933-001
• Equipped with discrete graphics subsystem memory and 7.9 processors	434986-001
• Equipped with UMA graphics subsystem memory	446521-001
For use only in computer models with AMD processors:	
• Equipped with discrete graphics subsystem memory	449960-001
• Equipped with UMA graphics subsystem memory	451860-001

NOTE: When replacing the fan/heat sink assembly, be sure that the power button board is removed from the defective fan/heat sink assembly and installed on the replacement fan/heat sink assembly. See Power button board on page 64 for power button board removal information.

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 applications. 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:

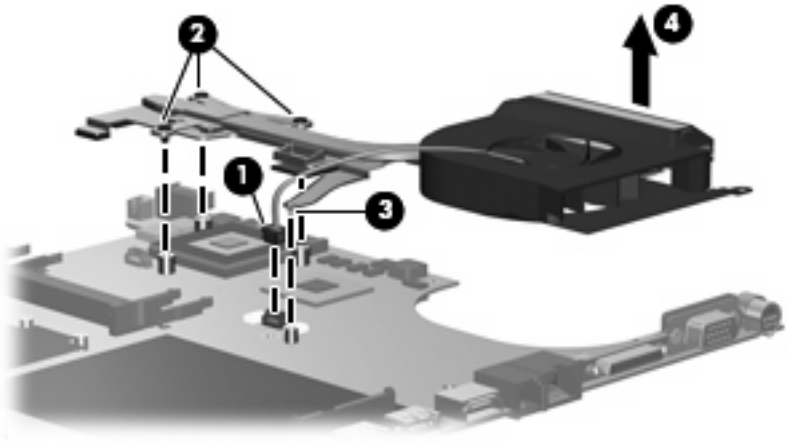
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see Battery on page 46).
5. Remove the following components:
   a. Hard drive (see Hard drive on page 51)
   b. Optical drive (see Optical drive on page 59)
   c. Switch cover (see Switch cover on page 61)
   d. Keyboard (see Keyboard on page 65)
   e. Speaker assembly (see Speaker assembly on page 63)
   f. Display assembly (see Display assembly on page 68)
   g. Top cover (see Top cover on page 74)
   h. Audio board (see Audio board on page 85)
   i. USB/power connector board (see USB/power connector board on page 81)
   j. System board (see System board on page 82)

Remove the fan/heat sink assembly:

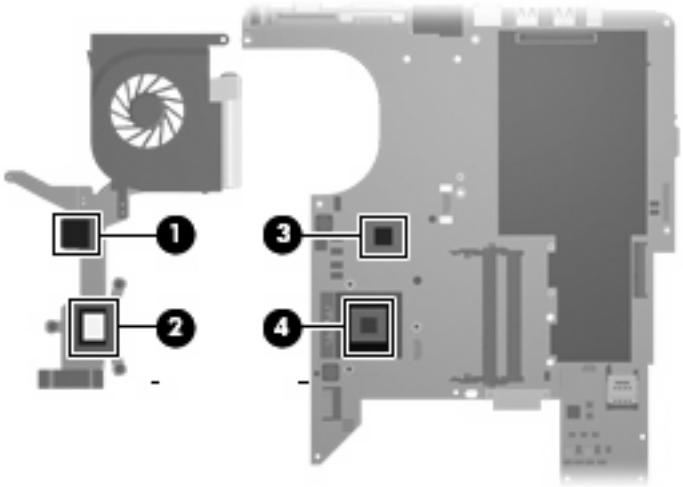
1. Turn the system board upside down with the expansion port 3 and external monitor port toward you.
2. Disconnect the fan cable **(1)** from the system board.
3. Loosen the three Phillips PM2.5×5.0 screws **(2)** and the Phillips PM2.5×4.0 screw **(3)** that secure the fan/heat sink assembly to the system board.

4. Remove the fan/heat sink assembly **(4)**.

NOTE: Due to the adhesive quality of the thermal paste and thermal pads 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 **(1)** and **(2)**, the processor **(3)**, and the system board component **(4)** each time the fan/heat sink assembly is removed. Thermal material must be installed on all surfaces before the fan/heat sink assembly is reinstalled. 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: All processor spare part kits include thermal paste.

Description	Spare part number
Intel Core 2 Duo processors:	
2.20-GHz processor (4-MB L2 cache, 800-MHz FSB)	453771-001

Description	Spare part number
2.00-GHz processor (2-MB L2 cache, 800-MHz FSB)	455515-001
1.86-GHz processor (1-MB L2 cache, 533-MHz FSB)	453773–001
1.50-GHz processor (2-MB L2 cache, 667-MHz FSB)	453772-001
Intel Core Duo processors:	
T7300 2.00-GHz processor (2-MB L2 cache)	446478-001
T7100 1.80-GHz processor (2-MB L2 cache)	446479-001
T5250 1.50-GHz processor (2-MB L2 cache)	453033-001
T2330 1.6-GHz processor (1-MB L2 cache, 533-MHz FSB)	455944–001
T2310 1.46-GHz processor (1-MB L2 cache, 533-MHz FSB)	455943–001
Intel Celeron processor:	
M530 1.73-GHz processor (1-MB L2 cache, 533-MHz FSB)	457315–001
AMD processors:	
Turion MK-38 (2.2-GHz, 512-MB L2 cache)	449904-001
Turion TL-66 (2.3 -GHz, 1-MB L2 cache)	450804-001
Turion TL-60 (2.0 -GHz, 1-MB L2 cache)	450803-001
Turion TL-58 (1.9 -GHz, 1-MB L2 cache)	450802-001
Turion TL-56 (1.8 -GHz, 1-MB L2 cache)	450801-001
Athlon TK-53 (1.7-GHz. 512-MB L2 cache)	451013-001
Processor bracket	
For use with 7.9 processors	450370-001
For use with 8.1 processors	450371-001

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 46).
5. Remove the following components:
   a. Hard drive (see Hard drive on page 51)
   b. Optical drive (see Optical drive on page 59)
   c. Switch cover (see Switch cover on page 61)

d. Keyboard (see Keyboard on page 65)

e. Speaker assembly (see Speaker assembly on page 63)

f. Display assembly (see Display assembly on page 68)

g. Top cover (see Top cover on page 74)

h. Audio board (see Audio board on page 85)

i. USB/power connector board (see USB/power connector board on page 81)

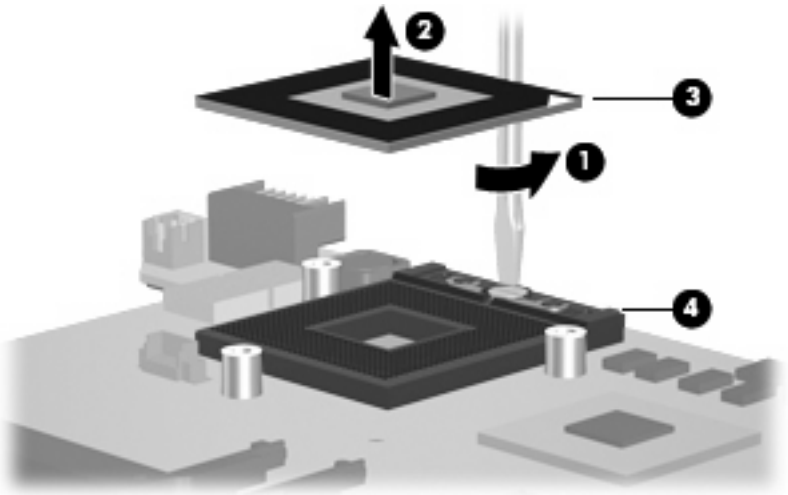
j. System board (see System board on page 82)

k. Fan/heat sink assembly (see Fan/heat sink assembly on page 86)

Remove the processor:

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

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 or will not load.

NOTE: The fingerprint reader (select models only) does not work when accessing the Setup Utility.

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

To start the Setup Utility:

1. Turn on or restart the computer.
2. Before Windows opens and while “Press <F10> to enter setup” is displayed in the lower-left corner of the screen, 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. To start the Setup Utility, turn on or restart the computer, and then press f10 while "Press <F10> to enter setup" is displayed in the lower-left corner of the screen.
2. Use the arrow keys to select **System Configuration > Language**, and then press enter.
3. Press f5 or f6 (or use the arrow keys) to select a language, and then press enter to select a language.
4. When a confirmation prompt with your preference selected is displayed, press enter to save your preference.
5. To set your preferences and exit the Setup Utility, press f10 and then follow the instructions on the screen.

Your preferences go into effect when the computer restarts in Windows.

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 drop-down 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. To start the Setup Utility, turn on or restart the computer, and then press f10 while "Press <F10> to enter setup" is displayed in the lower-left corner of the screen.
2. Access the system information by using the **Main** menu.
3. To exit the Setup Utility without changing any settings, use the arrow keys to select **Exit > Exit Discarding Changes**, and then press enter. (The computer restarts in Windows.)

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. To start the Setup Utility, turn on or restart the computer, and then press f10 while "Press <F10> to enter setup" is displayed in the lower-left corner of the screen.
2. Select **Exit > Load Setup Defaults**, and then press enter.
3. When the Setup Confirmation is displayed, press enter to save your preferences.
4. To set your preferences and exit the Setup Utility, press f10, and then follow the instructions on the screen.

The Setup Utility default settings are set when you exit the Setup Utility and go into effect when the computer restarts.

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

Using advanced Setup Utility features

This guide describes the Setup Utility features recommended for all users. For more information about the Setup Utility features recommended for advanced users only, refer to Help and Support, which is accessible only when the computer is in Windows.

The Setup Utility features available for advanced users include a hard drive self-test, a Network Service Boot, and settings for boot order preferences.

The "<F12> to boot from LAN" message that is displayed in the lower-left corner of the screen each time the computer is started or restarted in Windows is the prompt for a Network Service Boot.

The "Press <F9> to change boot order" message that is displayed in the lower-left corner of the screen each time the computer is started or restarted in Windows is the prompt to change the boot order.

Closing the Setup Utility

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

- To close the Setup Utility and save your changes from the current session, use either of the following procedures:
  - Press f10, and then follow the instructions on the screen.

    – or –
  - 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.

    When you use the f10 procedure, you are offered an option to return to the Setup Utility. When you use the Exit Saving Changes procedure, the Setup Utility closes when you press enter.
- To close 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 the Setup Utility closes, 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	• 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.
Boot Options	Set the following boot options: • f10 and f12 Delay (sec.)—Set the delay for the f10 and f12 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 Floppy. • Internal Network Adapter boot—Enable/disable boot from Internal Network Adapter. • Boot Order—Set the boot order for: ◦ USB Floppy ◦ ATAPI CD/DVD ROM Drive ◦ Hard drive ◦ USB Diskette on Key ◦ USB Hard drive ◦ Network adapter
Button Sound (select models only)	Enable/disable the Quick Launch Button tapping sound.
Virtualization Technology	Enable/disable the processor Virtualization Technology.
Processor C4 State	Enable/disable the processor C4 sleep state.

Diagnostics menu

Select	To Do This
Hard Disk Self Test	Run a comprehensive self-test on the hard drive. **NOTE:** On models with two hard drives, this menu option is called the **Primary Hard Disk Self Test**.
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		
Height (front to back)	4.09 cm	1.61 in
Width	35.71 cm	14.06 in
Depth	25.71 cm	10.12 in
Weight (with optical drive, hard drive, and battery)	2.86 kg	6.31 lbs
Input power		
Operating voltage	18.5 V dc —19.0 V dc	
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 (14.7 to 10.1 psia)	-15 m to 3,048 m	-50 ft to 10,000 ft
Nonoperating (14.7 to 4.4 psia)	-15 m to 12,192 m	-50 ft to 40,000 ft
Shock		
Operating	125 g, 2 ms, half-sine	
Nonoperating	200 g, 2 ms, half-sine	
Random vibration		
Operating	0.75 g zero-to-peak, 10 Hz to 500 Hz, 0.25 oct/min sweep rate	

	Metric	U.S.
Nonoperating	1.50 g zero-to-peak, 10 Hz to 500 Hz, 0.5 oct/min sweep rate	

NOTE: Applicable product safety standards specify thermal limits for plastic surfaces. The computer operates well within this range of temperatures.

15.4-inch, WXGA, BrightView display specifications

	Metric	U.S.
Dimensions		
Height	20.7 cm	8.15 in
Width	33.1 cm	13.03 in
Diagonal	39.1 cm	15.39 in
Number of colors	Up to 16.8 million	
Contrast ratio	200:1 (typical)	
Brightness	150 nits (typical)	
Pixel resolution		
Pitch	0.259 × 0.259 mm	
Format	1280 × 800	
Configuration	RGB vertical stripe	
Backlight	Edge lit	
Character display	80 × 25	
Total power consumption	4 W	
Viewing angle	+/-65° horizontal, +/-50° vertical (typical)	

Hard drive specifications

	250-GB*	200-GB*	160-GB*	120-GB*	80-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	102 g	102 g	102 g	102 g	102 g
Interface type	SATA	SATA	SATA	SATA	SATA
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	488,379,125	390,706,000	312,560,480	234,433,260	156,280,320
Disk rotational speed	5400 rpm	4200 rpm	5400 rpm	5400 rpm	5400 rpm
Operating temperature	5°C to 55°C (41°F to 131°F)				

NOTE: Certain restrictions and exclusions apply. Consult technical support for details.

*1 GB = 1 billion bytes when referring to hard drive storage capacity. Accessible capacity is less. Actual drive specifications may differ slightly.

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

Applicable disc	**Read:**	**Write:**
	CD-DA, CD+(E)G, CD-MIDI, CD-TEXT, CD-ROM, CD-ROM XA, MIXED MODE CD, CD-I, CD-I Bridge (Photo-CD, Video CD), Multisession CD (Photo-CD, CD-EXTRA, Portfolio, CD-R, CD-RW), CD-R, CD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), DVD-R, DVD-RW, DVD+R, DVD+RW, DVD-RAM	CD-R and CD-RW DVD+R, DVD+RW, DVD-R, DVD-RW, DVD-RAM
Access time	**CD**	**DVD**
Random	< 175 ms	< 230 ms
Cache buffer	2 MB	
Data transfer rate		
24X CD-ROM	3,600 KB/sec	
8X DVD	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	

HD DVD-ROM Drive with SuperMulti DVD±R/RW Double Layer support specifications

Applicable disc	**Read:**	**Write:**	
	CD-DA, CD+(E)G, CD-MIDI, CD-TEXT, CD-ROM, CD-ROM XA, MIXED MODE CD, CD-I, CD-I Bridge (Photo-CD, Video CD), Multisession CD (Photo-CD, CD-EXTRA, Portfolio, CD-R, CD-RW), CD-R, CD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), DVD-R, DVD-RW, DVD+R, DVD+RW, DVD-RAM, 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		
16X CD-R	2,400 KB/sec		
10X CD-RW	1,500 KB/sec		
4X DVD+R	5,400 KB/sec		
4X DVD+RW	5,400 KB/sec		
4X DVD-R	5,400 KB/sec		
4X DVD-RW	5,400 KB/sec		
2.4X DVD+R(9)	2,700 KB/sec		
3X DVD-RAM	4,056 KB/sec		
1X HD-DVD-ROM	4,460 KB/sec		
Transfer mode	Multiword DMA Mode		

Blu-ray Disc ROM Drive with SuperMulti DVD±R/RW Double-Layer (DL) support specifications

Applicable disc	**Read:**	**Write:**	
	CD-DA, CD+(E)G, CD-MIDI, CD-TEXT, CD-ROM, CD-ROM XA, MIXED MODE CD, CD-I, CD-I Bridge (Photo-CD, Video CD), Multisession CD (Photo-CD, CD-EXTRA, Portfolio, CD-R, CD-RW), CD-R, CD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), DVD-R, DVD-RW, DVD+R, DVD+RW, DVD-RAM, BD-ROM, BD-RE. BD-R	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**	**Blu-ray**
Random	150 ms	180 ms	300 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		

System DMA specifications, Intel

Hardware DMA	System function
DMA0	Not applicable
DMA1*	Not applicable
DMA2*	Not applicable
DMA3	Not applicable
DMA4	Direct memory access controller
DMA5*	Available for PC Card
DMA6	Not assigned
DMA7	Not assigned
*PC Card controller can use DMA 1, 2, or 5.	

System DMA specifications, AMD discrete and UMA graphics

Hardware DMA	System function
DMA4	Direct memory access controller

System interrupt specifications, Intel

Hardware IRQ	System function
IRQ0	System timer
IRQ1	Standard 101-/102-Key or Microsoft® Natural Keyboard
IRQ2	Cascaded
IRQ3	Intel 82801DB/DBM USB2 Enhanced Host Controller—24CD
IRQ4	COM1
IRQ5*	Conexant AC—Link Audio Intel 82801DB/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 configurations are IRQ5, IRQ7, IRQ9, IRQ10, or none.	
NOTE: PC Cards may assert IRQ3, IRQ4, IRQ5, IRQ7, IRQ9, IRQ10, IRQ11, or IRQ15. Either the infrared or the serial port may assert IRQ3 or IRQ4.	

System interrupt specifications, AMD discrete graphics

Hardware	IRQ System function
IRQ0	High precision event timer
IRQ1	Standard 101-/102-Key or Microsoft® Natural PS/2 Keyboard
IRQ5	RICOH OHCI Compliant IEEE 1394 Host Controller
IRQ7	Ricoh Memory Stick Controller
	Ricoh SD/MMC Host Controller
	Ricoh XD-Picture Card Controller
	SDA Standard Compliant SD Host Controller
IRQ8	High precision event timer
IRQ10	nVidia nForce PCI System Management
IRQ11	nVidia nForce System Management Controller
IRQ12	Synaptics PS/2 Port TouchPad
IRQ13	Numeric data processor
IRQ14	ATA Channel 0
IRQ15	ATA Channel 1
IRQ16	Broadcom WLAN adapter
IRQ17	Standard Enhanced PCI to USB Host Controller
IRQ18	Standard OpenHCD USB Host Controller
IRQ19	nVidia GeForce8400M GS
IRQ20	nVidia nForce Networking Controller
IRQ21	HDA Controller
IRQ23	Standard Dual Channel PCI IDE Controller

System interrupt specifications, AMD UMA graphics

Hardware	IRQ System function
IRQ0	High precision event timer
IRQ1	Standard 101-/102-Key or Microsoft® Natural PS/2 Keyboard
IRQ5	RICOH OHCI Compliant IEEE 1394 Host Controller
IRQ7	Ricoh Memory Stick Controller
	Ricoh SD/MMC Host Controller
	Ricoh XD-Picture Card Controller
	SDA Standard Compliant SD Host Controller
IRQ8	High precision event timer
IRQ10	nVidia nForce PCI System Management
IRQ11	nVidia nForce System Management Controller
IRQ12	Synaptics PS/2 Port TouchPad
IRQ13	Numeric data processor
IRQ14	ATA Channel 0
IRQ15	ATA Channel 1
IRQ16	nVidia MCP67M
IRQ18	Standard OpenHCD USB Host Controller
	Standard OpenHCD USB Host Controller
IRQ19	Broadcom WLAN adapter
IRQ21	HDA Controller
IRQ22	Standard Enhanced PCI to USB Host Controller
	Standard Enhanced PCI to USB Host Controller
IRQ23	Standard Dual Channel PCI IDE Controller

System I/O address specifications, Intel

I/O address (hex)	System function (shipping configuration)
000 - 00F	DMA controller no. 1
010 - 01F	Unused
020 - 021	Interrupt controller no. 1
022 - 024	Opti chipset configuration registers
025 - 03F	Unused
02E - 02F	87334 “Super I/O” configuration for CPU
040 - 05F	Counter/timer registers
044 - 05F	Unused
060	Keyboard controller
061	Port B
062 - 063	Unused
064	Keyboard controller
065 - 06F	Unused
070 - 071	NMI enable/RTC
072 - 07F	Unused
080 - 08F	DMA page registers
090 - 091	Unused
092	Port A
093 - 09F	Unused
0A0 - 0A1	Interrupt controller no. 2
I/O Address (hex)	System Function (shipping configuration)
0A2 - 0BF	Unused
0C0 - 0DF	DMA controller no. 2
0E0 - 0EF	Unused
0F0 - 0F1	Coprocessor busy clear/reset
0F2 - 0FF	Unused
100 - 16F	Unused
170 - 177	Secondary fixed disk controller
178 - 1EF	Unused
1F0 - 1F7	Primary fixed disk controller
1F8 - 200	Unused
201	JoyStick (decoded in ESS1688)
202 - 21F	Unused

I/O address (hex)	System function (shipping configuration)
220 - 22F	Entertainment audio
230 - 26D	Unused
26E - 26	Unused
278 - 27F	Unused
280 - 2AB	Unused
2A0 - 2A7	Unused
2A8 - 2E7	Unused
2E8 - 2EF	Reserved serial port
2F0 - 2F7	Unused
2F8 - 2FF	Infrared port
300 - 31F	Unused
320 - 36F	Unused
370 - 377	Secondary diskette drive controller
378 - 37F	Parallel port (LPT1/default)
380 - 387	Unused
388 - 38B	FM synthesizer—OPL3
38C - 3AF	Unused
3B0 - 3BB	VGA
3BC - 3BF	Reserved (parallel port/no EPP support)
3C0 - 3DF	VGA
3E0 - 3E1	PC Card controller in CPU
3E2 - 3E3	Unused
3E8 - 3EF	Internal modem
3F0 - 3F7	“A” diskette controller
3F8 - 3FF	Serial port (COM1/default)
CF8 - CFB	PCI configuration index register (PCIDIVO-1)
CFC - CFF	PCI configuration data register (PCIDIVO-1)

System I/O address specifications, AMD discrete and UMA graphics

I/O address (hex)	System function (shipping configuration)
0000 - 0008	DMA controller
000A - 000F	DMA controller
0020 - 0021	Programmable interrupt controller
0040 - 0043	System timer
0060 - 0060	Standard 101-/102-Key or Microsoft® Natural PS/2 Keyboard
0061 - 0061	System speaker
0062 - 0062	Microsoft ACPI-Compliant Embedded Controller
0064 - 0064	Standard 101-/102-Key or Microsoft® Natural PS/2 Keyboard
0066 - 0066	Microsoft ACPI-Compliant Embedded Controller
0070 - 0071	System CMOS/real time clock
0081 - 0083	DMA controller
0087 - 0087	DMA controller
0089 - 008B	DMA controller
008F - 008F (UMA only)	DMA controller
00A0 - 00A1	Programmable interrupt controller
00C0 - 00D1	DMA controller
00D4 - 00DF	DMA controller
00F0 - 00F1	Numeric data processor
0170 - 0177	ATA Channel 1
01F0 - 01F7	ATA Channel 0
0376 - 0376	ATA Channel 1
03B0 - 03BB	nVidia GeForce8400M GS (discrete) nVidia MCP67M (UMA)
03B0 - 03BB (discrete only)	PCI standard PCI-to-PCI bridge
03C0 - 03DF	nVidia GeForce8400M GS (discrete) nVidia MCP67M (UMA)
03C0 - 03DF (discrete only)	PCI standard PCI-to-PCI bridge
03F6 - 03F6	ATA Channel 0
3000 - 303F	nVidia nForce PCI System Management
3040 - 307F	nVidia nForce PCI System Management
3080 - 30BF	nVidia nForce PCI System Management
30C0 - 30CF	Standard Dual Channel PCI IDE Controller

I/O address (hex)	System function (shipping configuration)
30D0 - 30DF	Standard Dual Channel PCI IDE Controller
30E0 - 30E3 (UMA only)	Standard Dual Channel PCI IDE Controller
30E8 - 30EB	Standard Dual Channel PCI IDE Controller
30EC - 30EF	Standard Dual Channel PCI IDE Controller
30F0 - 30F7	Standard Dual Channel PCI IDE Controller
30F8 - 30FF (discrete only)	Standard Dual Channel PCI IDE Controller
4000 - 407F (discrete only)	nVidia GeForce8400M GS
4000 - 4FFF	PCI standard PCI-to-PCI bridge
5000 - 5FFF (discrete only)	PCI standard PCI-to-PCI bridge

System memory map specifications, Intel

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

System memory map specifications, AMD discrete graphics

Size	Memory address	System function
128 KB	000A0000-000BFFFF	nVidia GeForce8400M GS
16 KB	B0000000-B0003FFF	HDA Controller
8 KB	B0004000-B0005FFF	Standard Dual Channel PCI IDE Controller
4 KB	B0006000-B0006FFF	Standard OpenHCD USB Host Controller
256 B	B0007000-B00070FF	Standard Enhanced PCI to USB Host Controller
4 KB	B0008000-B0008FFF	nVidia nForce Networking Controller
512 KB	B0080000-B00FFFFF	nVidia nForce System Management Controller
2 KB	B0100000-B01007FF	RICOH OHCI Compliant IEEE 1394 Host Controller
256 B	B0100800-B01008FF	SDA Standard Compliant SD Host Controller
256 B	B0100C00-B0100CFF	Ricoh SD/MMC Host Controller
256 B	B0101000-B01010FF	Ricoh Memory Stick Controller
256 B	B0101400-B01014FF	Ricoh XD-Picture Card Controller
16 KB	B0200000-B0203FFF	Broadcom WLAN adapter
16 MB	B1000000-B1FFFFFF	nVidia GeForce8400M GS
32 MB	B2000000-B3FFFFFF	nVidia GeForce8400M GS
1 MB	B6000000-B60FFFFF	Broadcom WLAN adapter
256 MB	C0000000-CFFFFFFF	nVidia GeForce8400M GS
1 KB	FED00000-FED003FF	High precision event timer

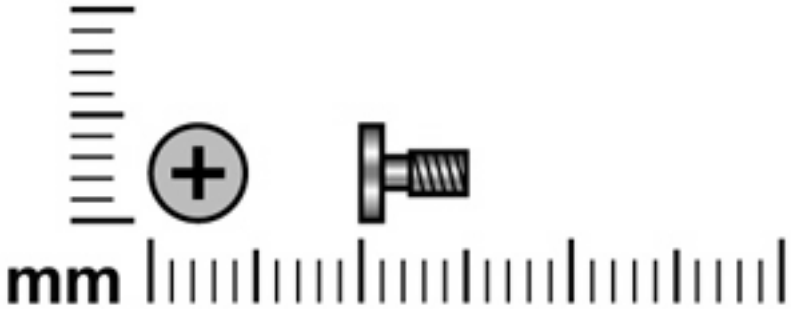
System memory map specifications, AMD UMA graphics

Size	Memory address	System function
128 KB	000A0000-000BFFFF	nVidia MCP67M
16 KB	B0000000-B0003FFF	HDA Controller
8 KB	B0004000-B0005FFF	Standard Dual Channel PCI IDE Controller
4 KB	B0006000-B0006FFF	Standard OpenHCD USB Host Controller
256 B	B0007000-B00070FF	Standard Enhanced PCI to USB Host Controller
256 B	B0007400-B00074FF	Standard Enhanced PCI to USB Host Controller
16 B	B0007800-B000780F	nVidia nForce Networking Controller
256 B	B0007C00-B0007CFF	nVidia nForce Networking Controller
4 KB	B0008000-B0008FFF	Standard OpenHCD USB Host Controller
4 KB	B0009000-B0009FFF	nVidia nForce Networking Controller
512 KB	B0080000-B00FFFFF	nVidia nForce System Management Controller
16 MB	B1000000-B1FFFFFF	nVidia MCP67M
16 MB	B2000000-B2FFFFFF	nVidia MCP67M
2 KB	B3000000-B30007FF	RICOH OHCI Compliant IEEE 1394 Host Controller
256 B	B3000800-B30008FF	SDA Standard Compliant SD Host Controller
256 B	B3000C00-B3000CFF	Ricoh SD/MMC Host Controller
256 B	B3001000-B30010FF	Ricoh Memory Stick Controller
256 B	B3001400-B30014FF	Ricoh XD-Picture Card Controller
16 KB	B6000000-B6003FFF	Broadcom WLAN adapter
256 KB	C0000000-CFFFFFFF	nVidia MCP67M
1 KB	FED00000-FED003FF	High precision event timer

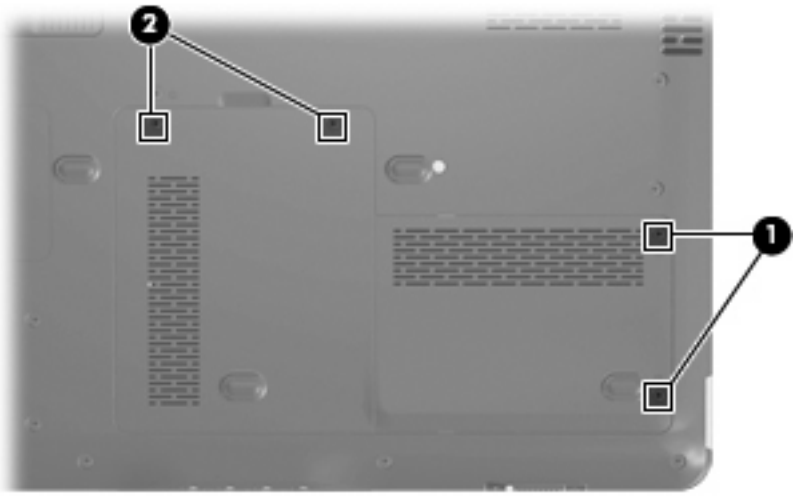
7 Screw listing

This section provides specification and reference information for the screws and standoffs used in the computer. All screws and standoffs listed in this section are available in the Screw Kit, spare part number 434747-001, and the Display Screw Kit, spare part number 431399-001.

Phillips PM2.0×5.0 captive screw



Color	Quantity	Length	Thread	Head width
Black	4	5.0 mm	2.0 mm	5.0 mm

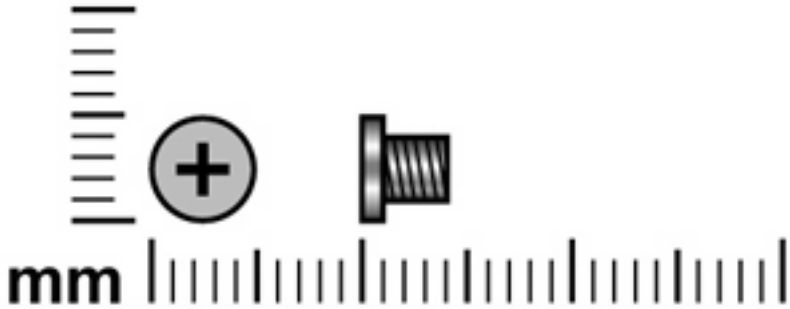


Where used:

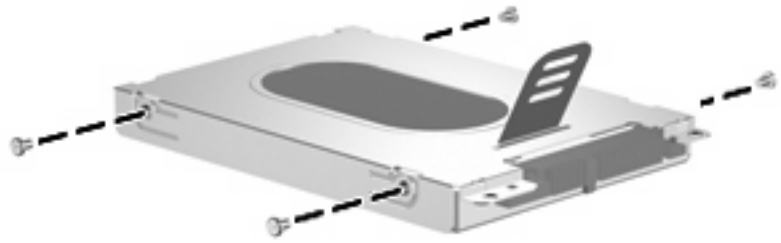
(1) Two screws (secured by C-clips) that secure the hard drive cover to the computer

(2) Two screws (secured by C-clips) that secure the memory/WLAN module compartment cover to the computer

Phillips PM3.0×4.0 screw



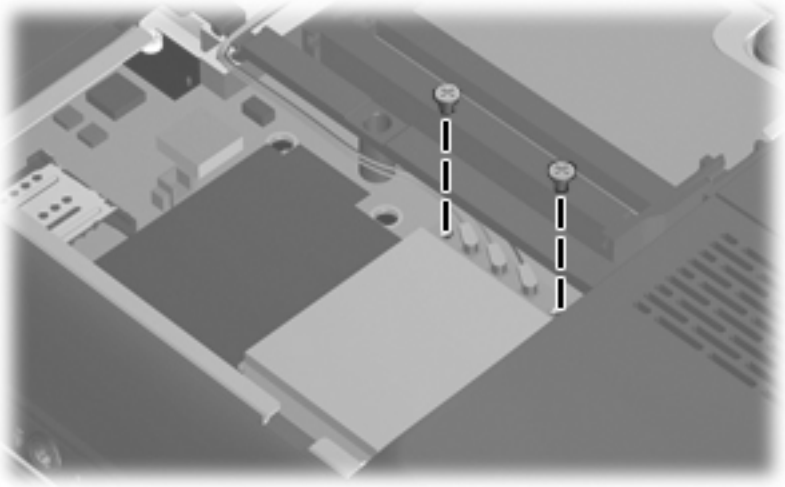
Color	Quantity	Length	Thread	Head width
Silver	4	4.0 mm	3.0 mm	5.0 mm



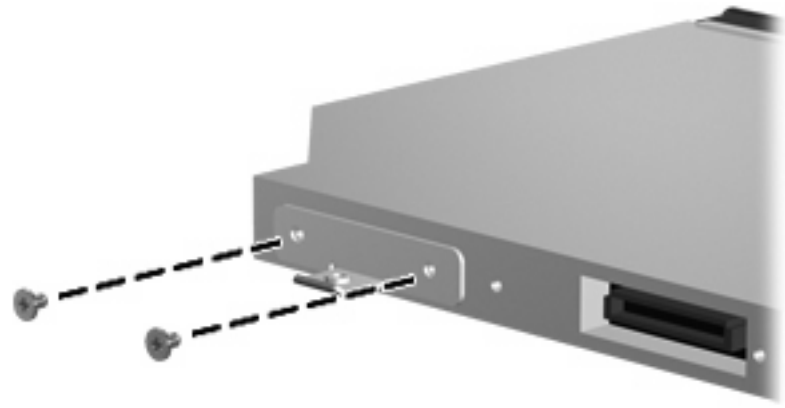
Where used: 4 screws that secure the hard drive bracket to the hard drive

Phillips PM2.0×3.0 screw

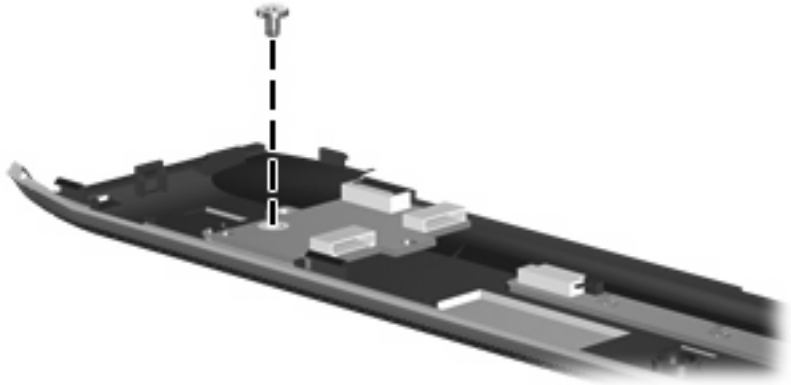
Color	Quantity	Length	Thread	Head width
Silver	11	3.0 mm	2.0 mm	4.5 mm



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

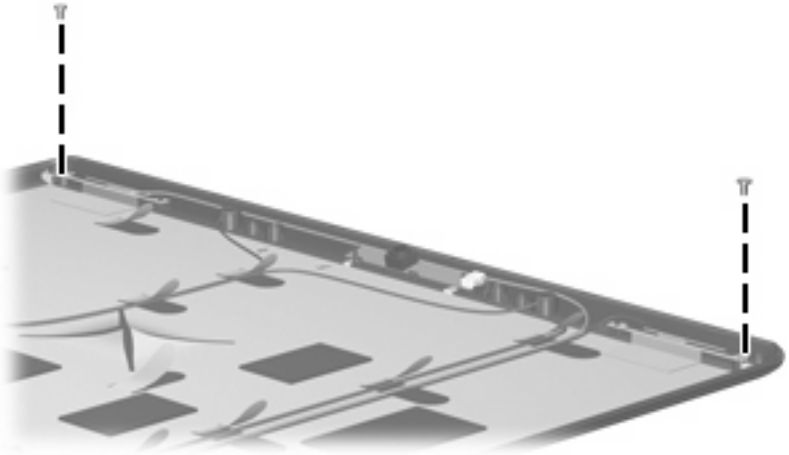


Where used: 2 screws that secure the optical drive bracket to the optical drive



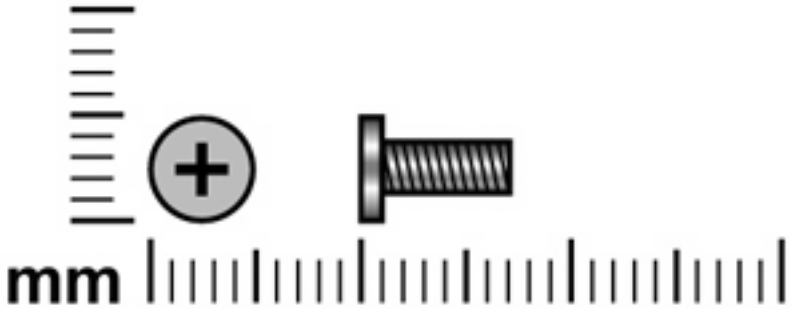
Where used: One screw that secures the power button board to the fan/heat sink assembly

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

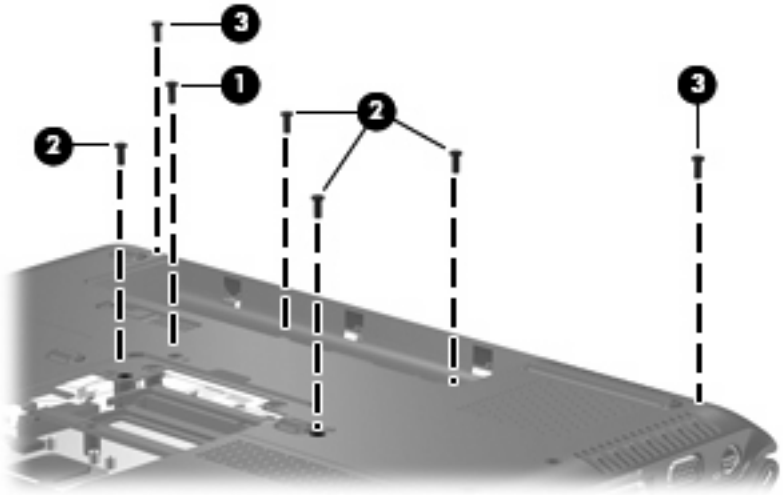


Where used: 2 screws that secure the wireless antenna transceivers to the display enclosure

Phillips PM2.5×7.0 screw



Color	Quantity	Length	Thread	Head width
Black	23	7.0 mm	2.5 mm	5.0 mm

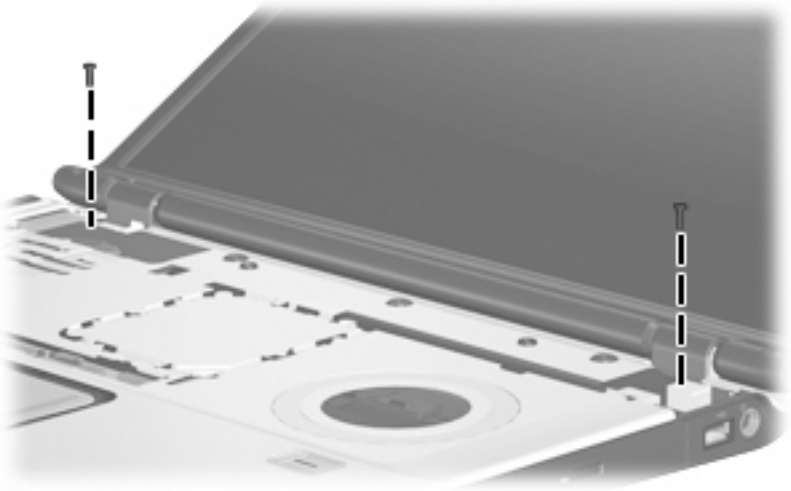


Where used:

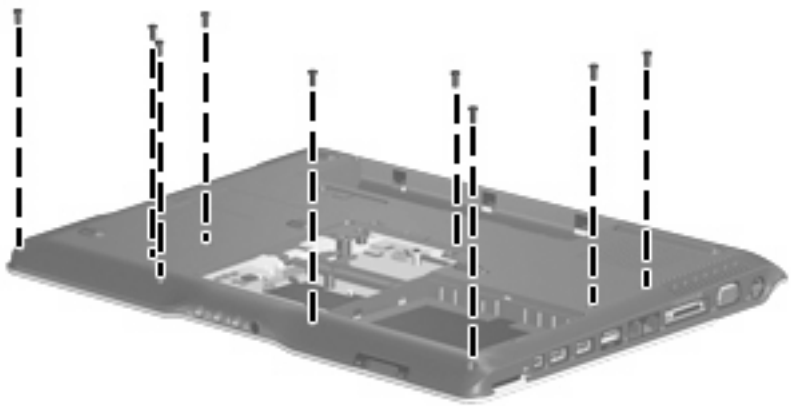
(1) One screw that secures the optical drive to the computer

(2) Four screws that secure the keyboard to the computer

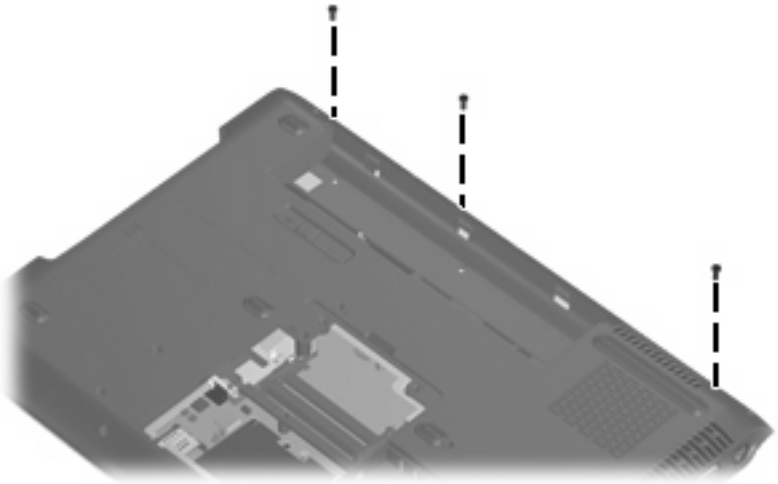
(3) Two screws that secure the display assembly to the computer



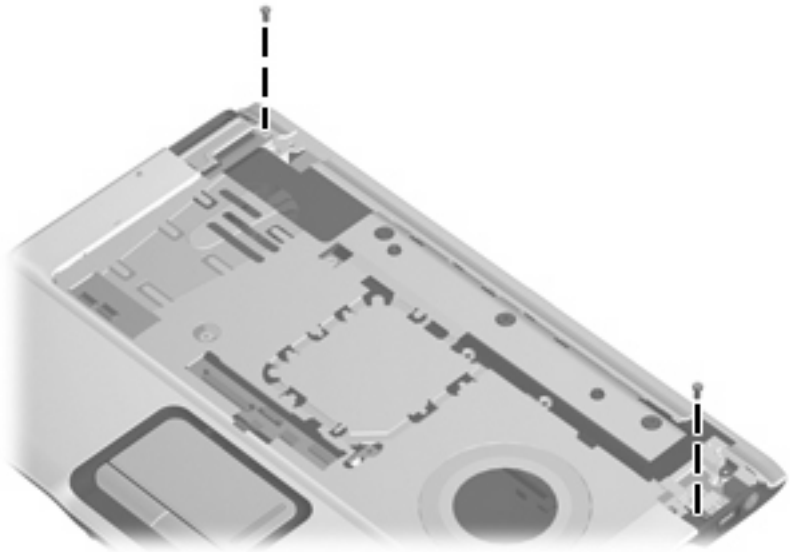
Where used: 2 screws that secure the display assembly to the computer



Where used: 9 screws that secure the top cover to the computer

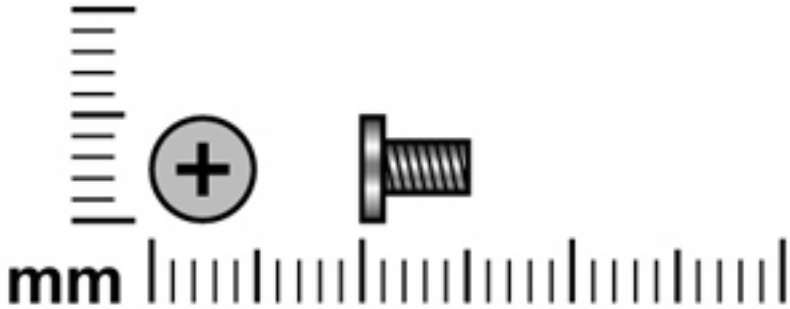


Where used: 3 screws that secure the top cover trim to the computer

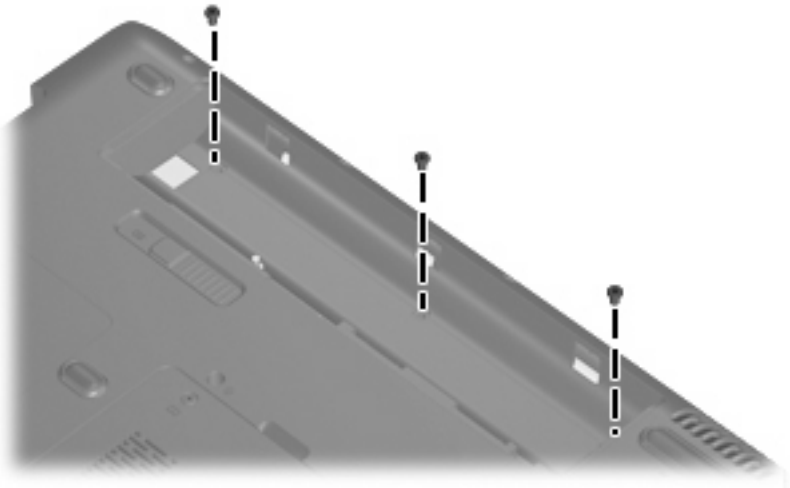


Where used: 2 screws that secure the top cover to the computer

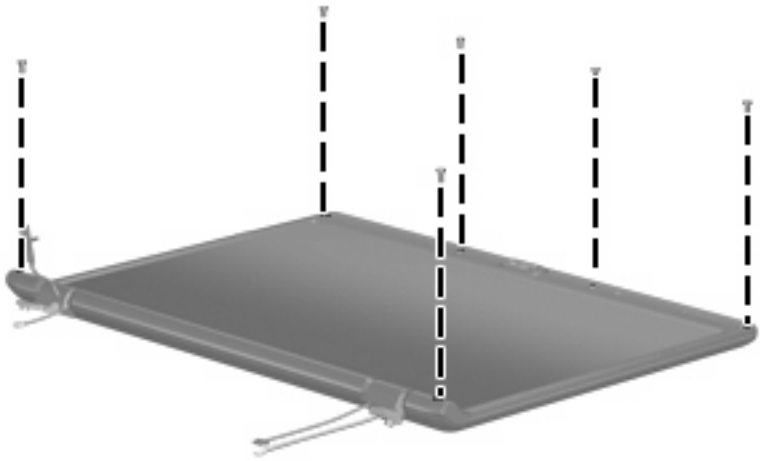
Phillips PM2.5×5.0 screw



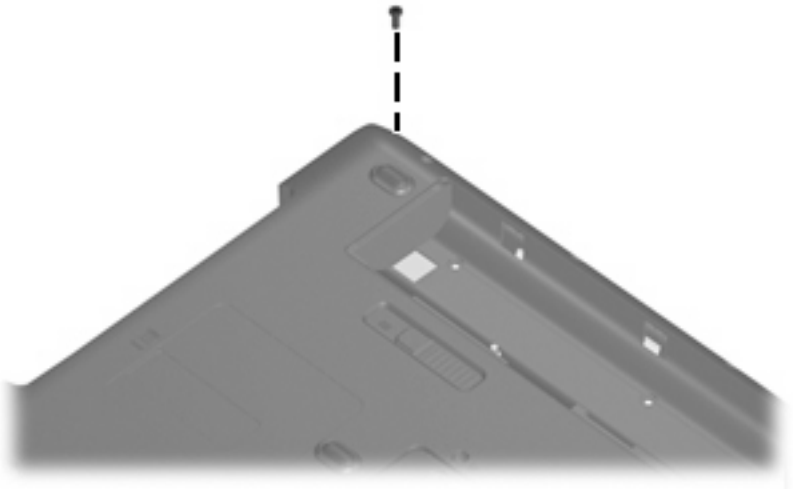
Color	Quantity	Length	Thread	Head width
Black	11	5.0 mm	2.5 mm	5.0 mm



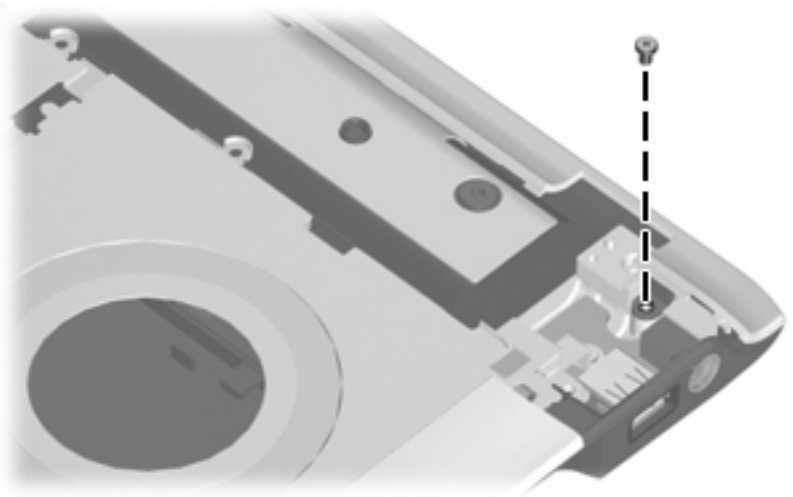
Where used: 3 screws that secure the switch cover to the computer



Where used: 6 screws that secure the display bezel to the display assembly

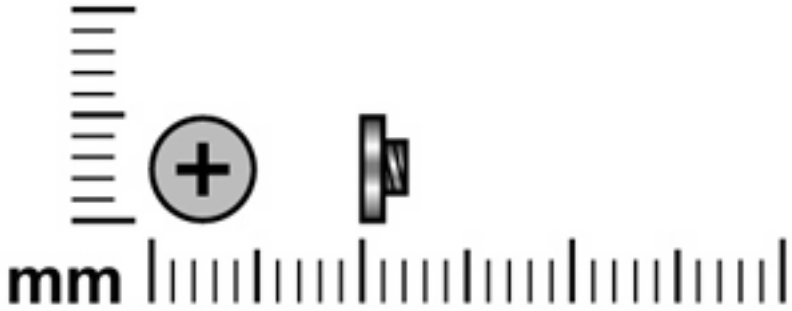


Where used: One screw that secures the top cover to the computer

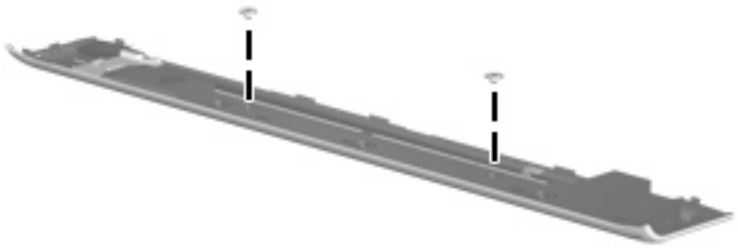


Where used: One screw that secures the top cover to the computer

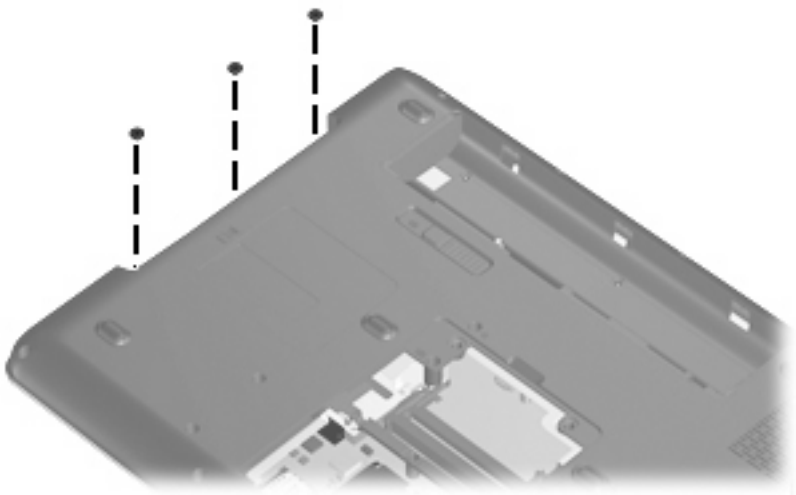
Phillips PM2.5×2.0 screw



Color	Quantity	Length	Thread	Head width
Silver	5	2.0 mm	2.5 mm	7.0 mm

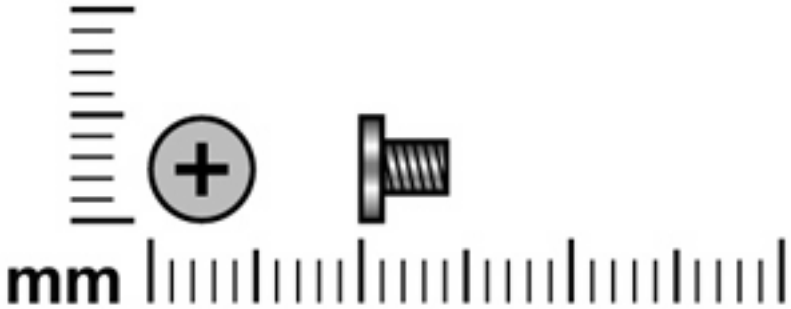


Where used: 2 screws that secure the speaker assembly to the computer

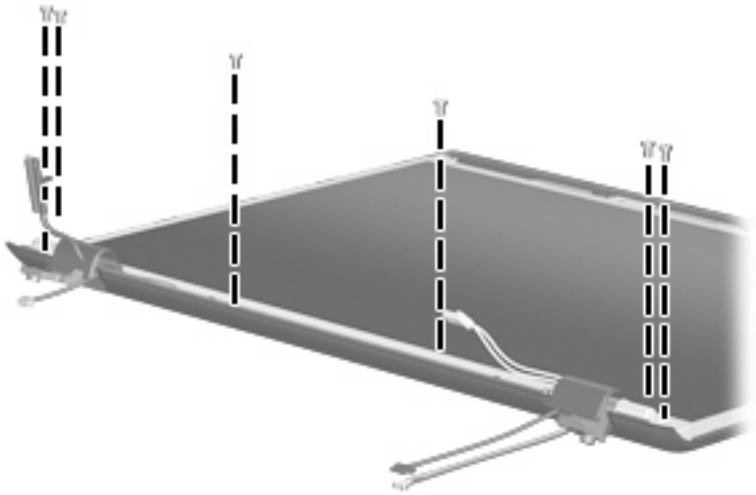


Where used: 3 screws that secure the top cover to the computer

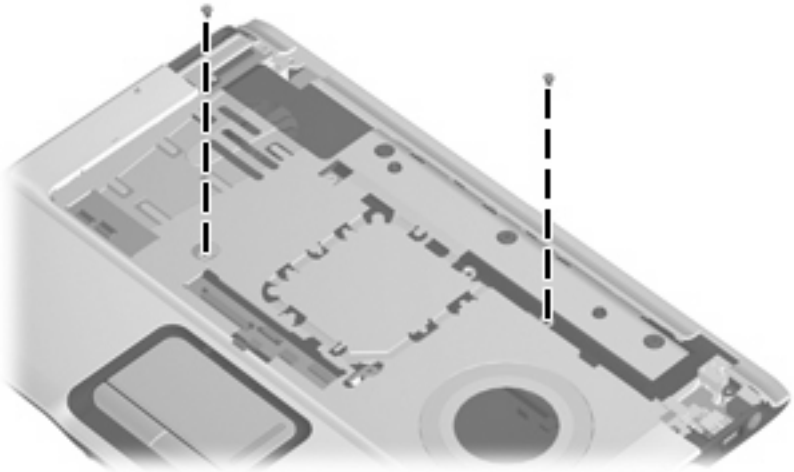
Phillips PM2.5×4.0 screw



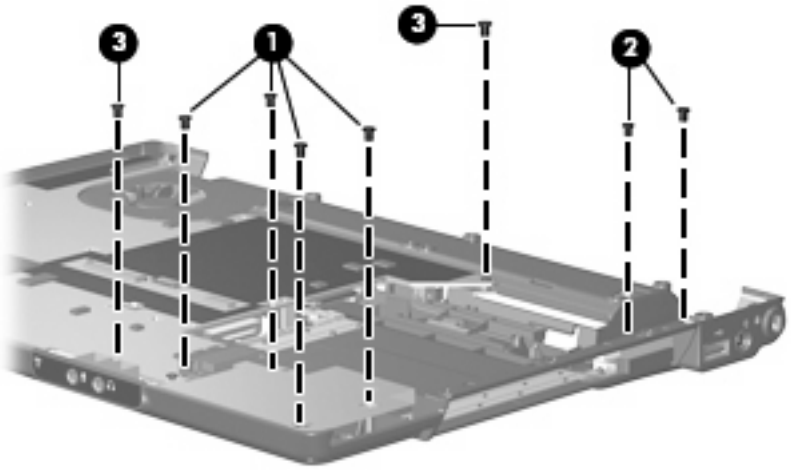
Color	Quantity	Length	Thread	Head width
Silver	18	4.0 mm	2.5 mm	5.0 mm



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



Where used: 2 screws that secure the top cover to the computer

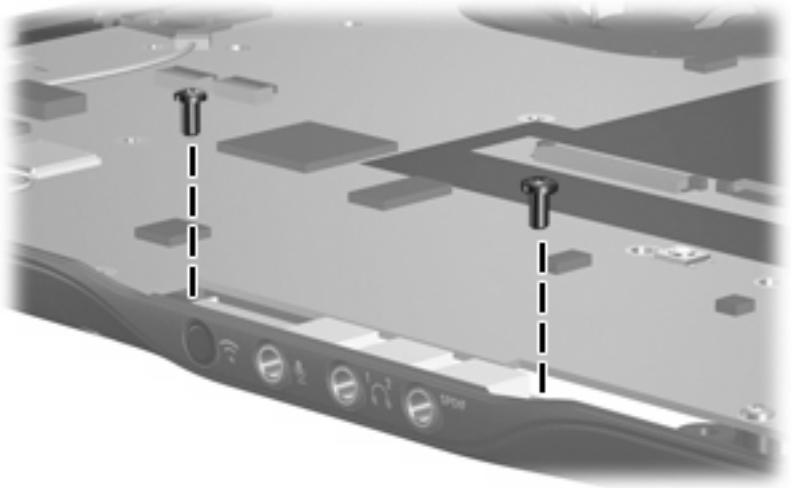


Where used:

(1) Four screws that secure the ExpressCard assembly to the computer

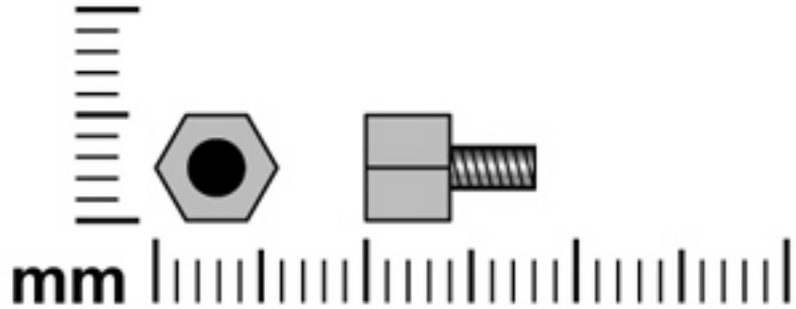
(2) Two screws that secure the USB/power connector board to the computer

(3) Two screws that secure the system board to the computer

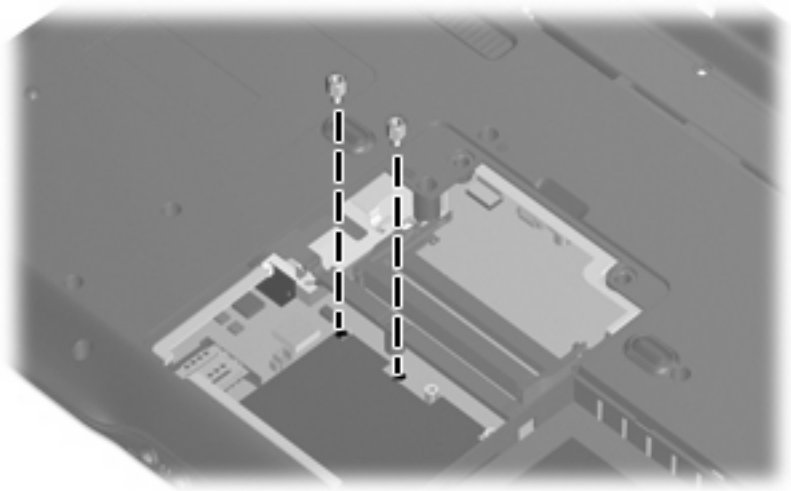


Where used: 2 screws that secure the audio board to the computer

Hex HM5.0×9.0 standoff



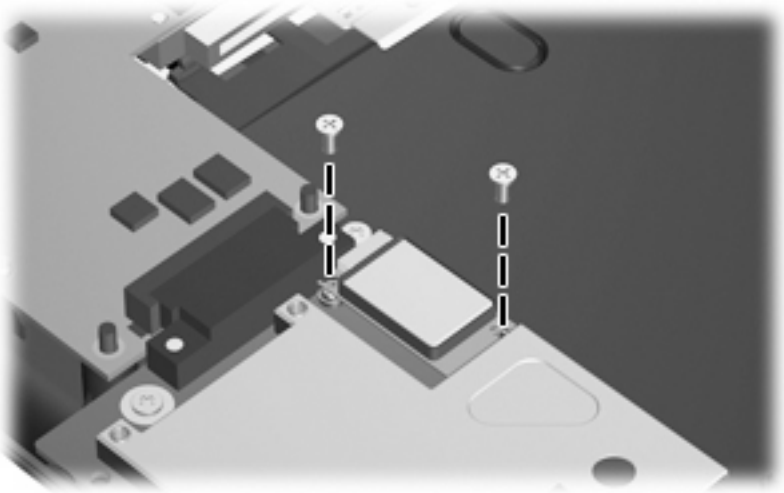
Color	Quantity	Length	Thread	Head width
Silver	2	9.0 mm	2.5 mm	5.0 mm



Where used: 2 standoffs that secure the top cover to the computer

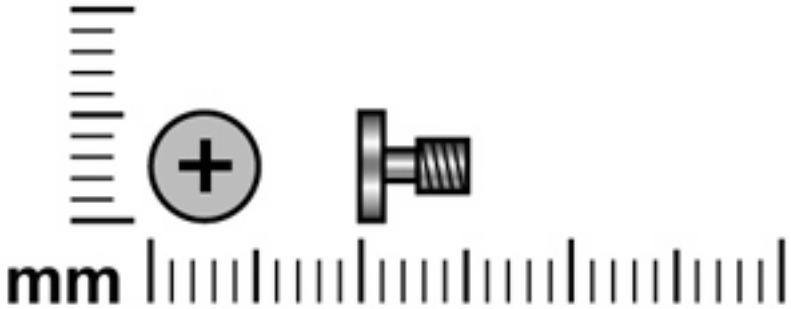
Phillips PM2.0×2.0 screw

Color	Quantity	Length	Thread	Head width
Silver	2	2.0 mm	2.0 mm	4.0 mm

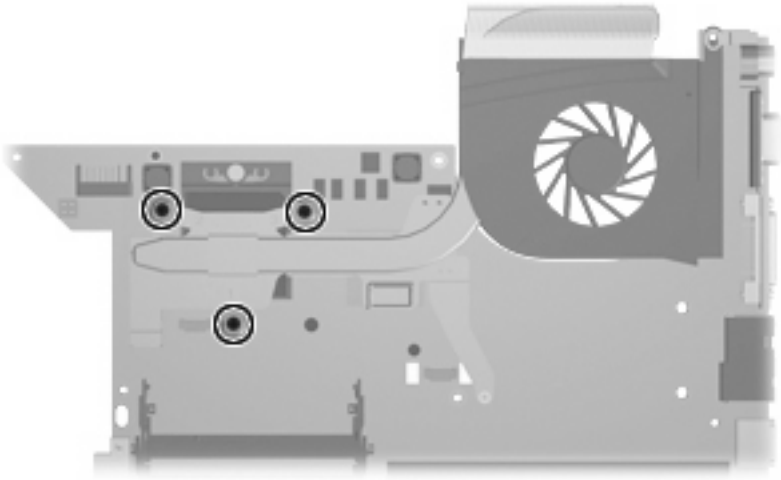


Where used: 2 screws that secure the Bluetooth module to the system board

Phillips PM2.5×5.0 captive screw

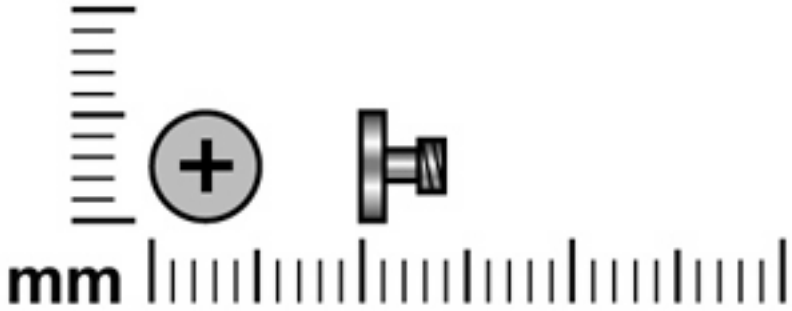


Color	Quantity	Length	Thread	Head width
Black	3	5.0 mm	2.5 mm	5.0 mm

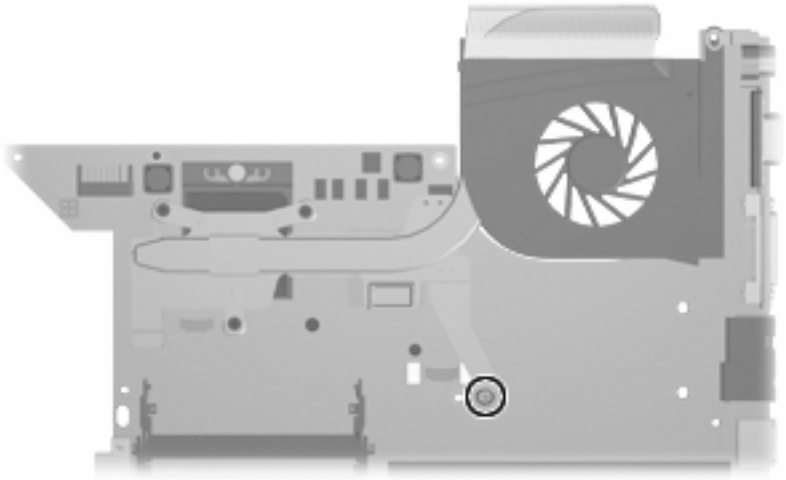


Where used: 3 screws that secure the fan/heat sink to the computer

Phillips 2.5×4.0 captive screw



Color	Quantity	Length	Thread	Head width
Silver	1	4.0 mm	2.5 mm	5.0 mm



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

8 Backup and recovery

Recovering system information

Tools provided by the operating system and 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:

- Backing up your information regularly to protect your important system files.
- Making 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.
- 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 on the hard drive or from recovery discs you create.

Creating recovery discs

After setting up the computer for the first time, be sure to create a set of recovery discs of the full factory image. The recovery discs are used to start up (boot) the computer and recover the operating system and software to factory settings in case of system instability or failure.

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

Note the following guidelines before creating recovery discs:

- Use any of the following types of discs: CD-R, DVD+R, DVD+R DL, DVD-R or DVD-R DL (purchased separately). The discs you use will depend on the type of optical drive installed in your computer. Because DVDs store more information than CDs, DVDs and DVDs with double-layer (DL) support reduce the number of discs required.

  NOTE: Read-write discs, such as CD-RW, DVD+RW, and DVD-RW, are not compatible with the Recovery Manager software.

- The computer must be connected to AC power during this process.
- Only one set of recovery discs can be created per computer.

- Number each disc before inserting it into the computer optical drive.
- If necessary, you can exit the program before you have finished creating the recovery discs. The next time you open Recovery Manager, you will be prompted to continue the disc creation process.

To create a set of recovery discs:

1. Select **Start > All Programs > Recovery Manager > Recovery Manager**.

   Recovery Manager opens.

2. Click **Advanced Options**.

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

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

Backing up your information

When to back up

- On a regularly scheduled basis

NOTE: Set reminders to back up your information periodically.

- Before the computer is repaired or restored
- Before you add or modify hardware or software

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 these folders 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 only recover files that you have previously backed up. HP recommends that you use Recovery Manager to create an entire drive backup as soon as you set up your computer.

Recovery Manager software allows you to repair or restore the system if you experience system failure or instability. Recovery Manager works from recovery discs that you create or from a dedicated recovery partition on the hard drive.

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 partition on the hard drive

You can perform a recovery from the partition on the hard drive from either the Start button or f11.

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**.

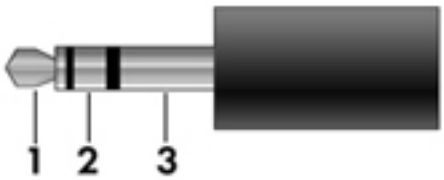
     –or–

   - 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.

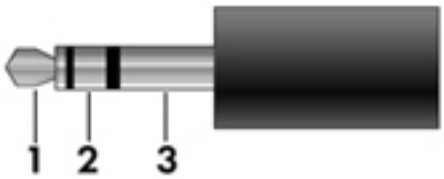
9 Connector pin assignments

Audio-in (microphone)



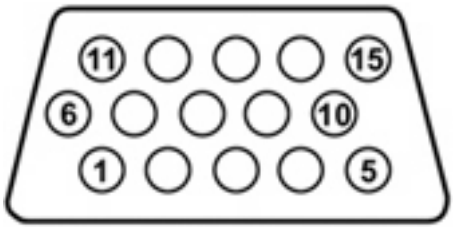
Pin	Signal
1	Audio signal in
2	Audio signal in
3	Ground

Audio-out (headphone)



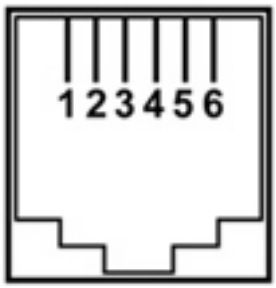
Pin	Signal
1	Audio out, left channel
2	Audio out, right channel
3	Ground

External monitor



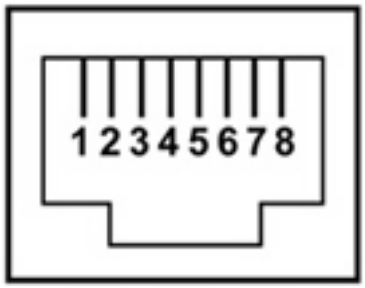
Pin	Signal
1	Red analog
2	Green analog
3	Blue analog
4	Not connected
5	Ground
6	Ground analog
7	Ground analog
8	Ground analog
9	+5 VDC
10	Ground
11	Monitor detect
12	DDC 2B data
13	Horizontal sync
14	Vertical sync
15	DDC 2B clock

RJ-11 (modem)



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

RJ-45 (network)

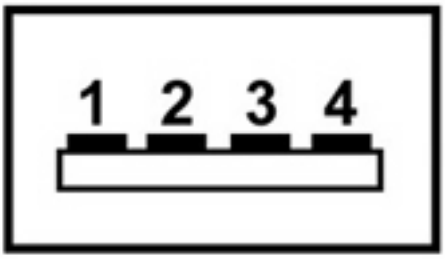


Pin	Signal
1	Transmit +
2	Transmit -
3	Receive +
4	Unused
5	Unused
6	Receive -
7	Unused
8	Unused

S-Video-out

Pin	Signal
1	S-VHS color (C) signal
2	Composite video signal
3	S-VHS intensity (Y) signal
4	S-VHS color ground
5	TV-CD
6	S-VHS intensity ground
7	Composite video ground

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's power system.
- 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/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
South Korea	EK	4
The Netherlands	KEMA	1
Norway	NEMKO	1
The People's Republic of China	CCC	5
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 appendix can result in damage to display components. The only components intended for recycling purposes are the liquid crystal display (LCD) panel and the backlight. Careful handling must be exercised when removing these components.

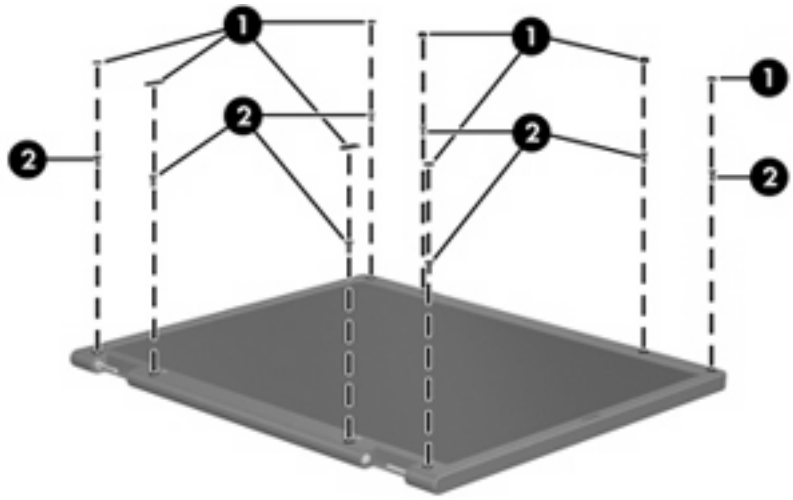
NOTE: **Materials Disposal**. This HP product contains mercury in the backlight in the display assembly that might require special handling at end-of-life. Disposal of mercury may be regulated because of environmental considerations. For disposal or recycling information, contact your local authorities,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

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

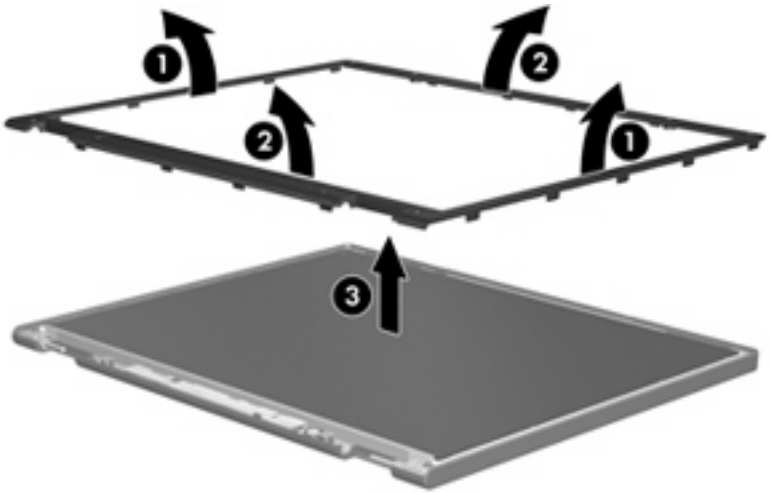
NOTE: The procedures provided in this appendix are general disassembly instructions. Specific details, such as screw sizes, quantities, and locations, and component shapes and sizes, can vary from one computer model to another.

Perform the following steps to disassemble the display assembly:

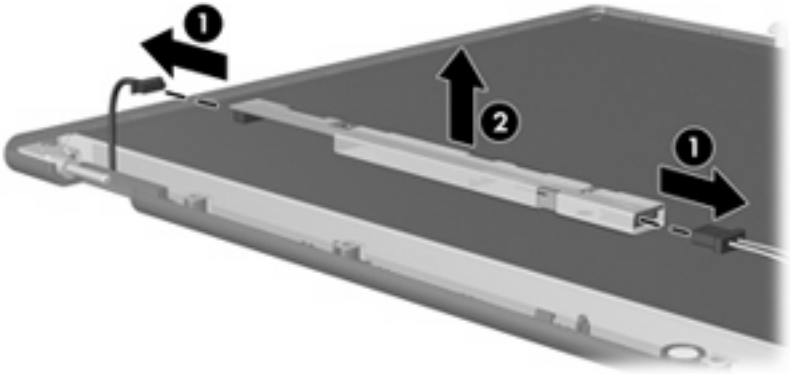
1. Remove all screw covers **(1)** and screws **(2)** that secure the display bezel to the display assembly.



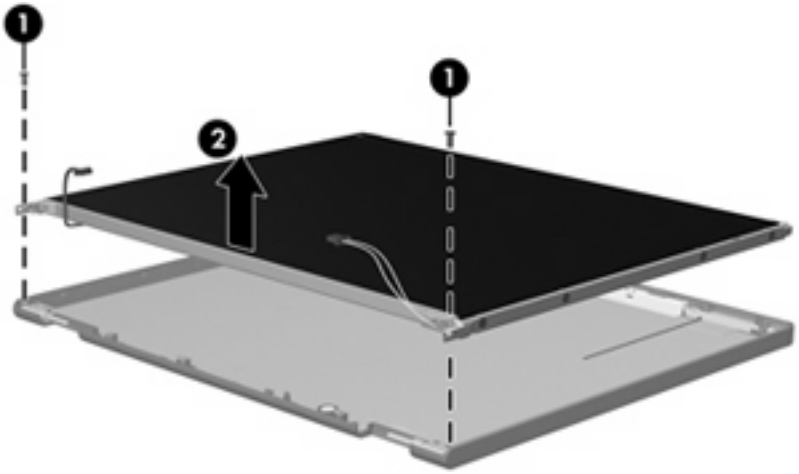
2. Lift up and out on the left and right inside edges **(1)** and the top and bottom inside edges **(2)** of the display bezel until the bezel disengages from the display assembly.
3. Remove the display bezel **(3)**.



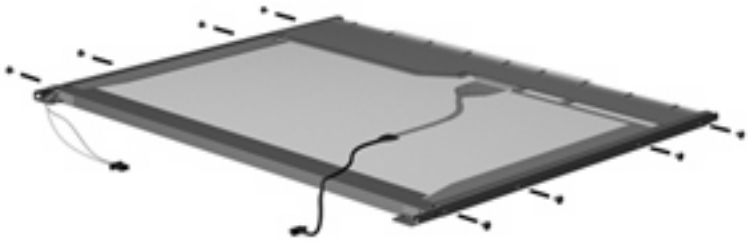
4. Disconnect all display panel cables **(1)** from the display inverter and remove the inverter **(2)**.



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.

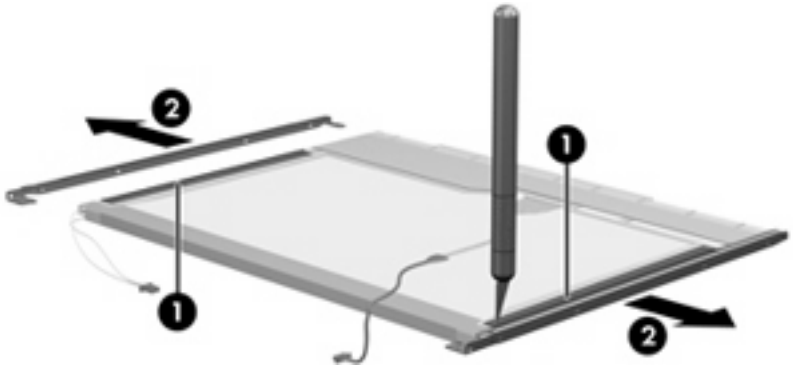


7. Turn the display panel assembly upside down.
8. Remove all screws that secure the display panel frame to the display panel.

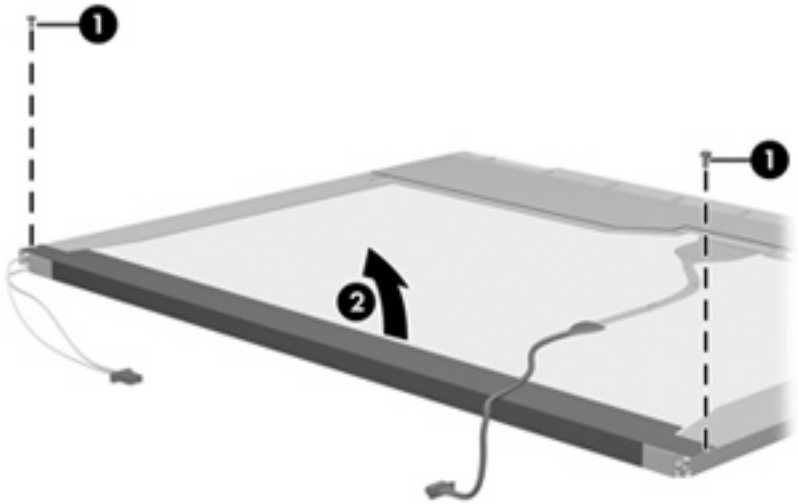


9. Use a sharp-edged tool to cut the tape **(1)** that secures the sides of the display panel to the display panel frame.

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

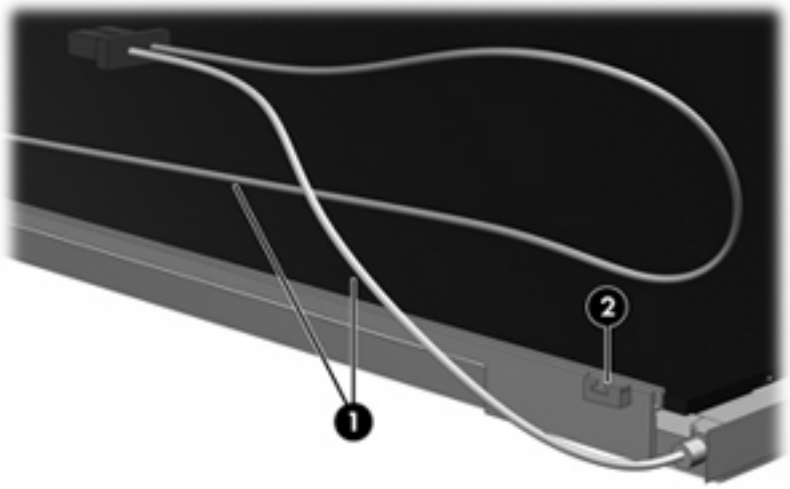


11. Remove the screws **(1)** that secure the backlight cover to the display panel.
12. Lift the top edge of the backlight cover **(2)** and swing it outward.



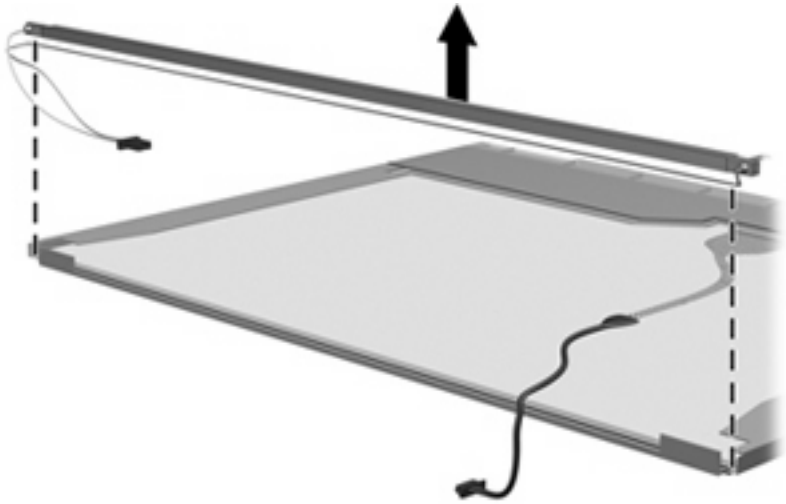
13. Remove the backlight cover.
14. Turn the display panel right-side up.

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



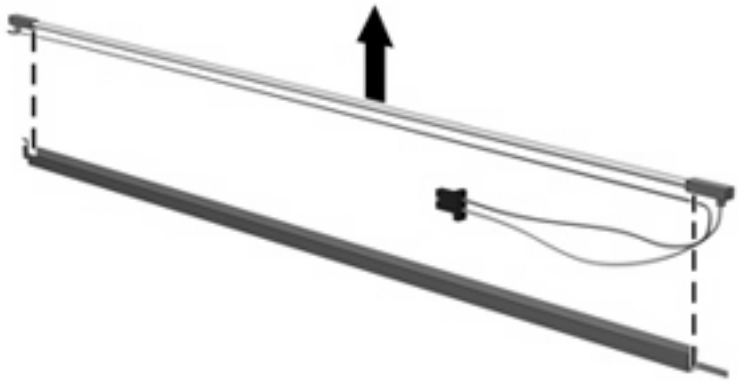
16. Turn the display panel upside down.

17. Remove the backlight frame from the display panel.

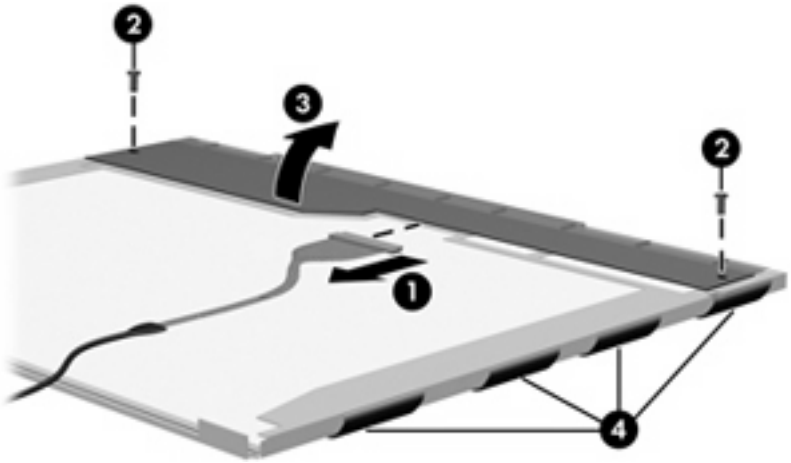


⚠ **WARNING!** The backlight contains mercury. Exercise caution when removing and handling the backlight to avoid damaging this component and causing exposure to the mercury.

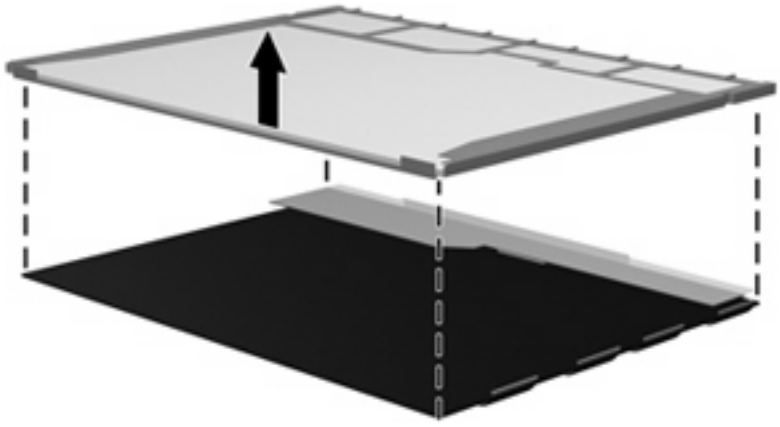
18. Remove the backlight from the backlight frame.



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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