HP Compaq 2710p Notebook PC
Maintenance and Service Guide

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Safety warning notice

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

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1 Product description

Category	Description
Branding	HP Compaq 2710p Notebook PC
Processors	Intel® Core™ Duo Ultra-Low-Voltage (ULV) processors: • U7600 1.20-GHz processor with 533-MHz Front Side Bus (FSB) and 2-MB L2 cache • U7500 1.06-GHz processor with 533-MHz FSB and 2-MB L2 cache
Chipsets	• Northbridge: Intel Crestline GM • Southbridge: Intel ICH8-M enhanced
Graphics	Intel Graphics Media Accelerator DX10, supports 64-bit memory bus
Panels	• 12.1" WXGA WVA (1280 × 800) LED display panel with outdoor viewing, camera, business card reader/holder, 3 wireless local area network (WLAN) antennas, and 2 (wireless wide area network) WWAN antennas • 12.1" WXGA WVA (1280 × 800) LED display panel with camera, business card reader/holder, 3 WLAN antennas, and 2 WWAN antennas • 12.1" WXGA WVA (1280 × 800) LED display panel with outdoor viewing, 3 WLAN antennas, and 2 WWAN antennas • 12.1" WXGA WVA (1280 × 800) LED display panel with 3 WLAN antennas and 2 WWAN antennas • Digitizer with pen support • Sparkle-free glass
Memory	• 2 SODIMM slots, customer accessible/upgradable • PC2-5300, 667-MHz, DDRII (the computer operates at a maximum of 533 MHz with 667-MHz memory modules installed) • Supports dual-channel memory • Supported configurations: ◦ 4096-MB total system memory (2048 MB × 1) ◦ 2048-MB total system memory (2048 × 1) ◦ 2048-MB total system memory (1024 × 2) ◦ 1536-MB total system memory (1024 MB + 512 MB) ◦ 1024-MB total system memory (1024 MB × 1) ◦ 1024-MB total system memory (512 MB × 2)

Category	Description
	◦ 768-MB total system memory (512 MB + 256 MB) ◦ 512-MB total system memory (512 MB × 1)
Hard drives	• Supports all 1.8-inch hard drives • Parallel ATA • HP 3D DriveGuard • The following hard drives are available: ◦ 100-GB, 4200-rpm ◦ 80-GB, 4200-rpm ◦ 60-GB, 4200-rpm
Optical drives	Optical drives supported only through the HP 3-in-1 NAS Docking Station, HP Advanced Docking Station, HP Docking Station, and HP External USB 2.0 MultiBay II Cradle (all required software is preinstalled on the computer)
Diskette drive	• Supports an external Universal Serial Bus (USB) diskette drive only • Supports boot from USB device
Audio	• Azalia ADI1981HD • Single speaker • Integrated dual-array monoaural microphone • Headphone and microphone jacks
Modem	• 56K, v.92, data/fax modem (MDC1.5) • Modem cable included in Brazil, the Czech Republic, France, Greece, Hungary, Israel, Latin America, Poland, Russia, Saudi Arabia, Slovakia, Slovenia, South Africa, Turkey, and the United Kingdom
Ethernet	• Intel 10/100/1000 Ethernet • Network interface card (NIC) power-down • S4/S5 wake on LAN (on AC power only)
Wireless	**Integrated wireless options by way of wireless module**
	WLAN options: • Broadcom 802.11a/b/g/n • Broadcom 802.11a/b/g • Broadcom 802.11b/g • Intel 802.11a/b/g/n with iAMT support • Intel 802.11a/b/g with iAMT support • Intel 802.11b/g • Supports no-WLAN option • Two dual-band 2.4-/5.0-GHz WLAN antennas built into display panel

Category	Description
	WWAN options: • Evolution-Data Optimized (EV-DO) Rev. A WWAN module • High-Speed Downlink Packet Access (HSDPA) WWAN module • Subscriber identity module (SIM) • Two 5-band antennas built into display panel
	Wireless personal area network (WPAN) options: • Bluetooth® module • Supports no-WPAN option
External media card	• One 54-mm ExpressCard slot • Integrated SD flash media slot (SD/MMC support)
Ports	• 1394a port • Digital erase pen • Docking connector for HP 3-in-1 NAS Docking Station, HP Advanced Docking Station, HP Docking Station, and HP External USB 2.0 MultiBay II Cradle • Headphone connector • Microphone connector • Primary battery connector • RJ-11 modem port • RJ-45 Ethernet port • SD card slot (SD/MMC support) • Smart AC adapter connector • Travel battery connector • USB ports (2 ports; one port is powered and is not available when the computer is docked) • VGA port (Dsub 15-pin) supporting 1600 × 1200 external resolution @ 75 Hz, hot plug/unplug, and auto detect
Docking	Docking support through HP Compaq 2710p-specific expansion base
Keyboard/ pointing devices	• Spill-resistant keyboard with embedded numeric keypad, pointing stick, and fingerprint reader • Full-size, 19.05-mm pitch, 4.5-mm height keyboard • One-way scrolling (vertical) • Windows Vista® hardware Start button • Durable key caps
Power requirements	Primary batteries: • 6-cell, 44-Wh, Li-ion battery with fuel gauge • Supports the HP 2700 Ultra-Slim Battery (which can also be used while the computer is docked)

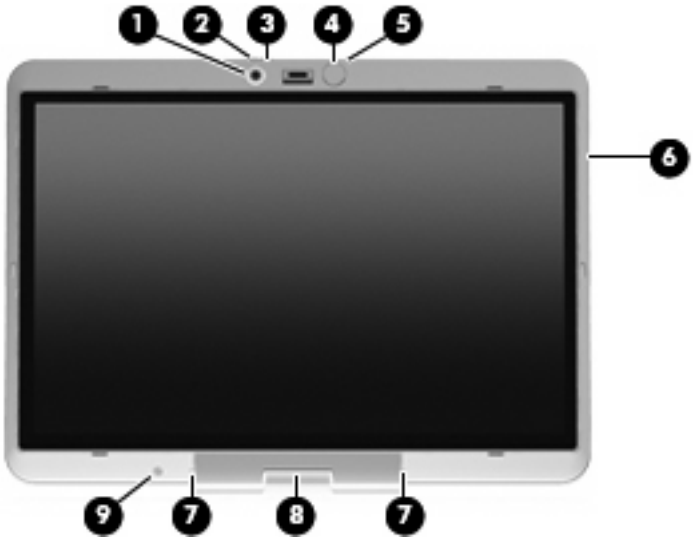
Category	Description
	65-watt Smart AC adapter with localized cable plug support and 3-wire plug
Security	• Support for Kensington security lock • Optional integrated active smart card reader (installed in the ExpressCard slot) • Integrated Infineon TPM 1.2 chip (soldered to PCB) • Integrated USB-based fingerprint reader
Operating system	**Preinstalled:** • Windows Vista Business (32- and 64-bit) with Office 2007 Ready + One Note • Windows Vista Business (32- and 64-bit) with Office 2007 Ready • Windows Vista Business (32- and 64-bit) with Office 2007 Personal • Windows® XP Tablet with Office 2007 Ready + One Note • Windows XP Tablet with Office 2007 Ready • Windows XP Tablet with Office 2007 Personal **Restore media:** • Windows Vista Business (32-bit) • Windows Vista Business (64-bit) • Windows XP Tablet PC Edition 2005 • DRDVD XP • DRDVD Vista **Preinstalled with Office:** • Windows Vista Business (32-bit) • Windows Vista Business (64-bit) • Windows XP Tablet PC Edition 2005 • DRDVD XP • DRDVD Vista **Web support:** Windows Vista Enterprise 32 and Windows Vista Enterprise 64 **Certified:** Linux
Serviceability	**End-user replaceable parts:** • AC adapter • Battery • Hard drive • Memory module • Power cord

Category	Description
	• SIM • Wireless modules

2 External component identification

Top components

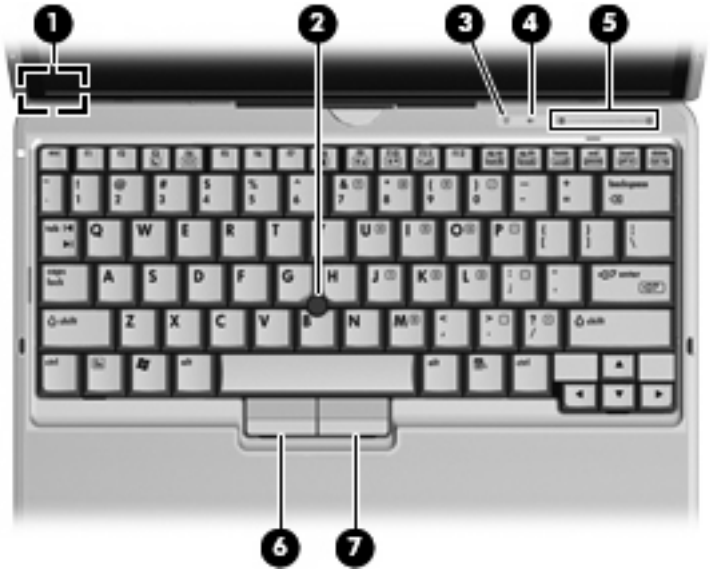
Display components



Item	Component	Description
(1)	Integrated camera (select models only)	Records video, captures still photographs, and transmits streaming video for video conferencing.
(2)	Camera light (select models only)	On: The camera is recording or streaming video or capturing a still photograph.
(3)	Camera mode switch	• To use macro mode, slide the switch to the left. Macro mode uses a focal length of approximately 10 cm for capturing close-up images. • To use normal mode, slide the switch to the right. Normal mode uses a focal length of approximately 50 cm for capturing images within a standard range of distance from the camera.
(4)	Keyboard light	Illuminates the keyboard in low-light conditions when the keyboard light button is pressed.
(5)	Keyboard light button	Opens and turns on the keyboard light.
(6)	HP Fingerprint Sensor (fingerprint reader)	Allows a fingerprint logon to Windows instead of a password logon.

Item	Component	Description
(7)	Internal microphones (2)	Record sound and transmit sound for video conferencing.
(8)	Convertible hinge	Swivels the display and converts the computer from traditional notebook mode into tablet mode or vice versa.
(9)	Ambient light sensor	Automatically adjusts the display brightness based on the lighting conditions in your environment.

Buttons, switches, and pointing devices



Item	Component	Function
(1)	Internal display switch	Turns off the display if the display is closed while the power is on.
(2)	Pointing stick*	Moves the pointer and selects or activates items on the screen.
(3)	Presentation button	Starts the presentation feature.
(4)	Volume mute button	Mutes and restores speaker sound.
(5)	Volume scroll zone	Adjusts speaker volume: • To decrease volume, slide your finger across the volume scroll zone from right to left. You can also tap or press the left half of the volume scroll zone. • To increase volume, slide your finger across the volume scroll zone from left to right. You can also tap or press the right half of the volume scroll zone.
(6)	Left pointing stick button*	Functions like the left button on an external mouse.

Item	Component	Function
(7)	Right pointing stick button*	Functions like the right button on an external mouse.

*This table describes factory settings. View or change pointing device preferences as follows:

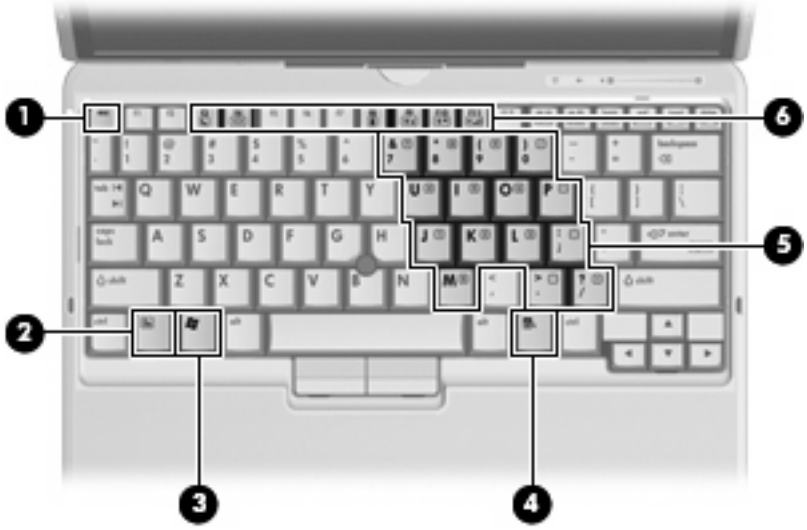
- In Windows Vista, select **Start > Control Panel > Hardware and Sound > Mouse**.
- In Windows XP, select **Start > Control Panel > Printers and Other Hardware > Mouse**.

Lights

Item	Component	Function
(1)	Power light	• On: The computer is on. • Blinking: The computer is in the Sleep state (Windows Vista) or in Standby (Windows XP). • Blinking rapidly: An AC adapter with a higher power rating should be connected. • Off: The computer is off or in Hibernation.
(2)	Battery light	• Amber: A battery is charging. • Green: A battery is close to full charge capacity. • Blinking amber: A battery that is the only available power source has reached a low battery level. When the battery reaches a critical battery level, the battery light begins blinking rapidly. • Off: If the computer is plugged into an external power source, the light turns 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.

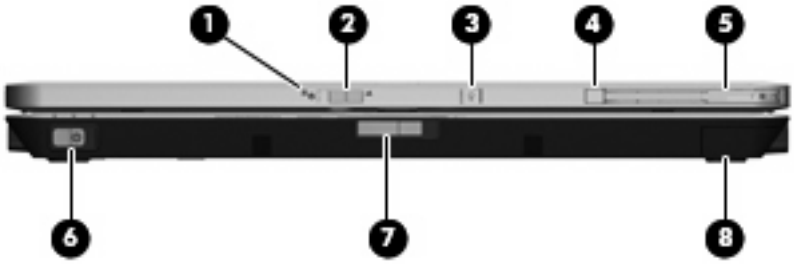
Item	Component	Function
(3)	Drive light	• Blinking green: The hard drive is being accessed. • Amber: HP 3D DriveGuard has temporarily parked the internal hard drive.
(4)	Caps lock light	On: Caps lock is on.
(5)	Volume mute light	• Off: Computer sound is on. • On: Computer sound is off.
(6)	Volume down 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.

Keys



Item	Component	Description
(1)	esc key	Displays system information when pressed in combination with the fn key.
(2)	fn key	Executes frequently used system functions when pressed in combination with a function key or the esc key.
(3)	Windows logo key	Displays the Windows Start menu.
(4)	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.

Front components



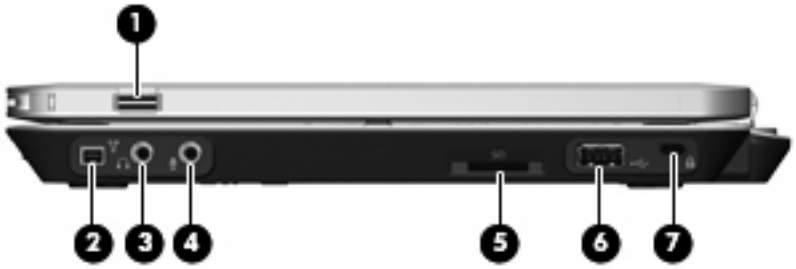
Item	Component	Function
(1)	Camera light (select models only)	On: The camera is recording or streaming video or capturing a still photograph.
(2)	Camera mode switch	• To use macro mode, slide the switch to the left. Macro mode uses a focal length of approximately 10 cm for capturing close-up images. • To use normal mode, slide the switch to the right. Normal mode uses a focal length of approximately 50 cm for capturing images within a standard range of distance from the camera.
(3)	Keyboard light button	Opens and turns on the keyboard light.
(4)	External WWAN antenna button	Opens the external WWAN antenna.
(5)	External WWAN antenna	Sends and receives wireless signals to communicate with a WWAN.
(6)	Power switch	• When the computer is off, slide the switch to the right to turn on the computer. • When the computer is on, slide the switch to the right to shut down the computer. • When the computer is in the Sleep state (Windows Vista) or in Standby (Windows XP), slide the switch to the right briefly to exit Sleep or Standby. • When the computer is in Hibernation, slide the switch to the right briefly to exit Hibernation. If the computer has stopped responding and Windows® shutdown procedures are ineffective, slide the switch to the right and hold for at least 5 seconds to turn off the computer. To learn more about your power settings, follow these steps: • In Windows Vista, select **Start > Control Panel > System and Maintenance > Power Options**. • In Windows XP, select **Start > Control Panel > Performance and Maintenance > Power Options**.
(7)	Display release latch	Opens the computer.
(8)	Bluetooth® compartment	Contains an optional Bluetooth device.

Rear components

Item	Component	Function
(1)	Rotate button	Rotates the screen image clockwise into 4 orientations: landscape primary, landscape secondary, portrait primary, and portrait secondary.
(2)	Windows security button*	• While Windows is running, press the button with the pen to enter the ctrl+alt+delete command. • While the Computer Setup utility is running, press the button with the pen to enter the reset command. The computer resets and all unsaved information is lost. The reset function can be used to restore functionality when the system has become unresponsive.
(3)	RJ-11 (modem) jack	Connects a modem cable.
(4)	RJ-45 (network) jack	Connects a network cable.
(5)	External monitor port	Connects an external VGA monitor or projector.
(6)	Power connector	Connects an AC adapter.

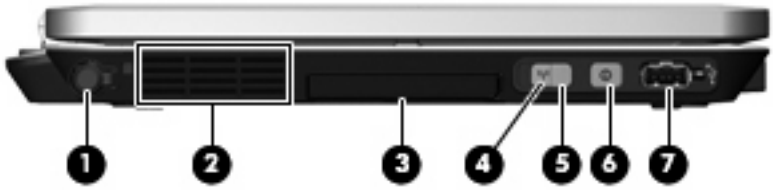
*To protect your work and the system, the ctrl+alt+delete command cannot be entered using the ctrl, alt, and del keys on the on-screen keyboard.

Right-side components



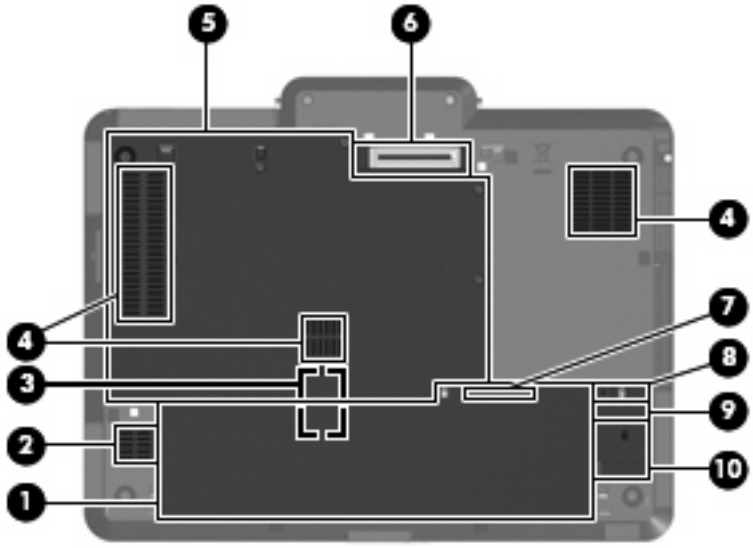
Item	Component	Function
(1)	HP Fingerprint Sensor (fingerprint reader)	Allows a fingerprint logon to Windows instead of a password logon.
(2)	1394 port	Connects an optional IEEE 1394 or 1394a device, such as a camcorder.
(3)	Audio-out (headphone) jack	Produces computer sound when connected to optional powered stereo speakers, headphones, ear buds, a headset, or television audio.
(4)	Audio-in (microphone) jack	Connects an optional computer headset microphone, stereo array microphone, or monaural microphone.
(5)	Media Card Reader	Supports the following optional digital card formats: Secure Digital (SD) Memory Card and MultiMediaCard (MMC).
(6)	USB port	Connects an optional USB device.
(7)	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.

Left-side components



Item	Component	Description
(1)	Pen slot	Stores the pen.
(2)	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.
(3)	ExpressCard slot (select models only)	Supports optional ExpressCards.
	Smart card reader (select models only)	Supports smart cards and Java™ cards.
(4)	Wireless light	• Blue: An integrated wireless device, such as a wireless local area network (WLAN) device, the HP Broadband Wireless Module, and/or a Bluetooth device, is on. • Amber: All wireless devices are off.
(5)	Wireless switch	Turns the wireless feature on or off, but does not create a wireless connection. **NOTE:** A wireless network must be set up in order to establish a wireless connection.
(6)	Info button	Launches Info Center, which enables you to open various software solutions.
(7)	Powered USB port	Provides power to a USB device, such as an optional external MultiBay, if used with a powered USB cable.

Bottom components

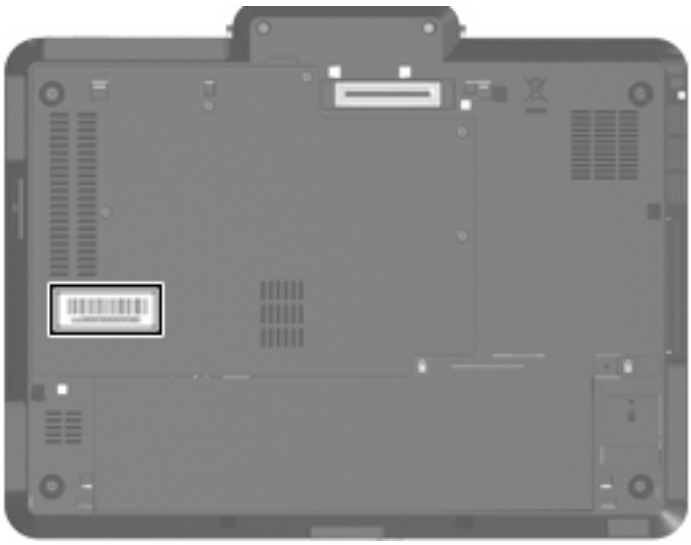


Item	Component	Function
(1)	Battery bay	Holds the battery.
(2)	Speaker	Produces sound.
(3)	SIM slot	Contains a SIM. The SIM slot is located inside the battery bay.
(4)	Vents (3)	Enable airflow to cool internal components. **NOTE:** The computer fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation.
(5)	Hard drive compartment	Holds the hard drive, memory module slots, WLAN module (select models only) and WWAN module (select models only). **CAUTION:** To prevent an unresponsive system, replace the wireless module only with a wireless module authorized for use in the computer by the governmental agency that regulates wireless devices in your country or region. If you replace the module and then receive a warning message, remove the module to restore computer functionality, and then contact technical support through Help and Support.
(6)	Docking connector	Connects an optional docking device.
(7)	Charge level indicator	Displays the approximate remaining battery charge.
(8)	Battery release latch	Releases the battery from the battery bay.
(9)	Accessory battery connector	Connects an optional accessory battery.
(10)	Accessory battery connector door	Slides open to expose the accessory battery connector.

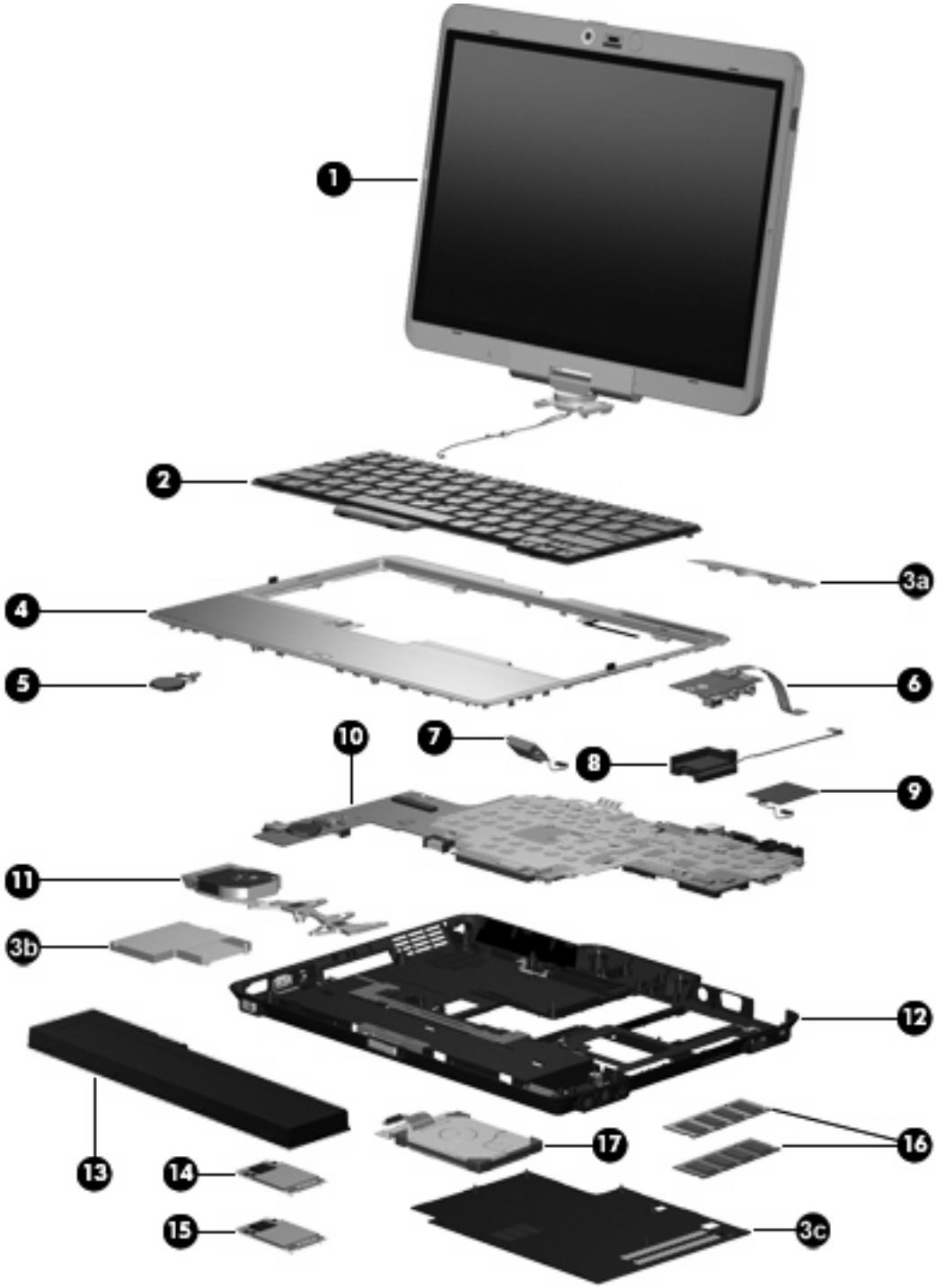
3 Illustrated parts catalog

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)	**12.1-inch, WXGA, WVA display assemblies** (include ambient light sensor, fingerprint reader, microphones, WLAN antenna cables, and WWAN antenna cables)	
	Display assembly with camera and keyboard light	454679-001

Item	Description	Spare part number
	Display assembly with camera	454675-001
	Display assembly with keyboard light	454677-001
	Display assembly	454676-001
	Display internal components (not illustrated):	
	Fingerprint reader board	454693-001
	Microphones (includes 2 receivers and cables)	454694-001
	External WWAN antenna	454688-001
(2)	**Keyboards** (include pointing stick and pointing stick cable)	
	Belgium	454696-A41
	Brazil	454696-201
	The Czech Republic	454696-221
	Denmark	454696-081
	France	454696-041
	French Canada	454696-121
	Germany	454696-041
	Greece	454696-DJ1
	Hungary	454696-211
	Iceland	454696-DD1
	Israel	454696-BB1
	Italy	454696-061
	Japan	454696-291
	Latin America	454696-161
	The Netherlands and Europe	454696-B31
	Norway	454696-091
	Portugal	454696-131
	Russia	454696-251
	Saudi Arabia	454696-171
	Slovakia	454696-231
	Slovenia	454696-BA1
	South Korea	454696-AD1
	Spain	454696-071
	Sweden and Finland	454696-B71
	Switzerland	454696-111
	Taiwan	454696-AB1

Item	Description	Spare part number
	Thailand	454696-281
	Turkey	454696-141
	The United Kingdom	454696-031
	The United States	454696-001
	Plastics Kit (see Plastics Kit on page 23 for more Plastics Kit spare part information):	454685-001
(3a)	**Hinge cover**	
(3b)	**ExpressCard slot bezel**	
(3c)	**Hard drive compartment cover** (includes 6 captive screws, secured by C-clips)	
	Bluetooth module cover (not illustrated)	
(4)	**Top cover** (includes LED board and cable and display alignment guides)	454683-001
(5)	**RTC battery** (includes double-sided tape)	454689-001
(6)	**Audio connector board** (includes cable)	454690-001
(7)	**Bluetooth module** (includes cable)	454691-001
(8)	**Speaker**	454695-001
(9)	**Modem modules** (include cable)	
	For use only in Australia and New Zealand	443899-011
	For use only in Brazil	443900-001
	For use only in North America	443899-001
(10)	**System boards** (include replacement thermal material)	
	Equipped with Intel Core Duo U7600 (1.20-GHz) processor (533-MHz FSB and 2-MB L2 cache)	455083-001
	Equipped with Intel Core Duo U7500 (1.06-GHz) processor (533-MHz FSB and 2-MB L2 cache)	455082-001
	Equipped with Intel Celeron-M ULV processor	455081-001
(11)	**Fan/heat sink assembly** (includes replacement thermal material)	454692-001
(12)	**Base enclosure** (includes display release latch and rubber feet)	455080-001
	Rubber Kit (not illustrated; includes 4 rubber feet, 5 Mylar screw covers, and 2 display alignment guides)	454686-001
(13)	**6-cell, 4.4-Wh battery**	454668-001
(14)	**WLAN modules**	
	Broadcom 802.11a/b/g/n WLAN modules:	
	• For use in Canada, the Cayman Islands, Guam, Puerto Rico, the U.S. Virgin Islands, and the United States	436255-001
	• For use in Afghanistan, Albania, Algeria, Andorra, Angola, Antigua & Barbuda, Argentina, Armenia, Aruba, Australia, Austria, Azerbaijan, the Bahamas, Bahrain, Bangladesh, Barbados, Belgium, Belize, Benin, Bermuda, Bolivia, Bosnia & Herzegovina, Botswana, Brazil, the British Virgin Islands, Brunei, Bulgaria, Burkina Faso, Burundi, Cameroon, Cape Verde, the Cayman Islands, the Central African Republic, Chad, Chile, Colombia, Comoros, the Congo, Costa Rica, Croatia, Cyprus, the Czech Republic,	436256-001

Item	Description	Spare part number
	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, Guam, Guatemala, Guinea, Guinea-Bissa, Guyana, Haiti, Honduras, Hong Kong, Hungary, Iceland, India, Ireland, Italy, the Ivory Coast, Jamaica, Jordan, Kenya, Kiribati, Kyrgyzstan, Laos, Latvia, Lesotho, Liberia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Madagascar, Malawi, the Maldives, Mali, Malta, the Marshall Islands, Martinique, Mauritania, Mauritius, Mexico, Micronesia, Monaco, Mongolia, Montenegro, Morocco, Mozambique, Namibia, Nauru, Nepal, the Netherlands, New Zealand, Nicaragua, Niger, Nigeria, Norway, Oman, Pakistan, Palau, Panama, Papua New Guinea, Paraguay, the People's Republic of China, Peru, the Philippines, Poland, Portugal, Puerto Rico, 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, Spain, Sri Lanka, St. Kitts & Nevis, St. Lucia, St. Vincent & Grenada, Suriname, Swaziland, Sweden, Switzerland, Taiwan, Tajikistan, Tanzania, Togo, Tonga, Trinidad & Tobago, Tunisia, Turkey, Turkmenistan, Tuvalu, Uganda, the United Arab Emirates, the United Kingdom, Uruguay, Uzbekistan, Venezuela, Vietnam, Yemen, Zaire, Zambia, and Zimbabwe	
	• For use in Japan	436255-291
	Intel 802.11a/b/g/n WLAN modules:	
	• For use in Antigua and 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
	• For use in Australia, New Zealand, Pakistan, the People's Republic of China, and South Korea	441086-003
	• For use in Japan	441086-291
	• For use in South Korea	441086-AD1
	Broadcom 802.11a/b/g WLAN modules:	
	• For use in Canada, Cayman Islands, Guam, Puerto Rico, the U.S. Virgin Islands, and the United States	441075-001
	• For use in Afghanistan, Albania, Algeria, Andorra, Angola, Antigua and Barbuda, Argentina, Armenia, Aruba, Australia, Austria, Azerbaijan, the Bahamas, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Belize, Benin, Bermuda, Bhutan, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, the British Virgin Islands, Brunei, Bulgaria, Burkina Faso, Burundi, Cameroon, Cape Verde, the Central African Republic, Chad, Chile, the People's Republic of China, Colombia, Comoros, the Congo, Costa Rica, Croatia, Cyprus, the Czech Republic, Denmark, Djibouti, Dominica, the Dominican Republic, East Timor, Ecuador, Egypt, El Salvador, 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, Ireland, Israel, Italy, the Ivory Coast, Jamaica, Jordan, Kazakhstan, Kenya, Kiribati, Kyrgyzstan, Laos, Latvia, Lebanon, Lesotho, Liberia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Madagascar, Malawi, Malaysia, the	441075-002

Item	Description	Spare part number
	Maldives, Mali, Malta, the Marshall Islands, Martinique, Mauritania, Mauritius, Mexico, Micronesia, Monaco, Mongolia, Montenegro, Morocco, Mozambique, Namibia, Nauru, Nepal, the Nether Antilles, the Netherlands, New Zealand, Nicaragua, Niger, Nigeria, Norway, Oman, Pakistan, Palau, Panama, Papua New Guinea, Paraguay, Peru, the Philippines, Poland, Portugal, the Republic of Moldova, Romania, Russia, Rwanda, Samoa, San Marino, Sao Tome & 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, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Turkmenistan, Tuvalu, Uganda, Ukraine, the United Arab Emirates, the United Kingdom, Uruguay, Uzbekistan, Vanuatu, Venezuela, Vietnam, Yemen, Zaire, Zambia, and Zimbabwe	
	• For use in Japan	441075-291
	Intel 802.11a/b/g 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, the United States, Uruguay, Venezuela, and Vietnam	409407-001 and 441082-001
	• 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	409407-002 and 441082-002
	• For use in Australia, New Zealand, Pakistan, the People's Republic of China, and South Korea	409497-001 and 441082-003
	• For use in Japan	409497-291 and 441082-291
	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.	441090-002

Item	Description	Spare part number
	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	409407-004
(15)	**WWAN modules**	
	Cingular HSDPA WWAN module	448673-002
	Qualcomm EV-DO WWAN module	441866-001
	Sprint EV-DO WWAN module	451132-001
	Verizon EV-DO WWAN module	451131-001
	Vodafone HSDPA WWAN module	448672-002
(16)	**Memory modules** (PC2-5300, 667-MHz, DDR2)	
	2048-MB	454673-001
	1024-MB	454672-001
	512-MB	454674-001
(17)	**Hard drives** (include isolator and connector cable)	
	100-GB, 4200-rpm	454671-001
	80-GB, 4200-rpm	454670-001
	60-GB, 4200-rpm	454669-001
	Cable Kit (not illustrated, includes Bluetooth module cable and audio connector board cable)	454682-001
	Smart card reader module (not illustrated, inserts into ExpressCard slot)	454680-001

Plastics Kit

Item	Description	Spare part number
	Plastics Kit:	454685-001
(1)	Hinge cover	
(2)	ExpressCard slot bezel	
(3)	Hard drive compartment cover (includes 6 captive screws, secured by C-clips)	
(4)	Bluetooth module cover	

Miscellaneous parts

Description	Spare part number
65-watt AC adapter (HP Smart AC Adapter)	417220-001
External MultiBay II	366143-001
External MultiBay II power cable and stand	366144-001
HP 2700 Ultra-Slim Expansion Base	455953-001
Label Kit	454684-001
MultiBay 8X DVD-ROM Drive	373314-001
MultiBay 24X DVD/CD-RW Combo Drive	373315-001
Nylon carrying case	325814-001
Stylus pen with tether	454681-001
USB 1.1 diskette drive	359118-001
Power cords:	
For use in Asia Pacific countries and regions	383496-371
For use in Australia	383496-011
For use in Brazil	383496-201

Description	Spare part number
For use in Denmark	383496-081
For use in Europe, the Middle East, and Africa	383496-021
For use in India	383496-D61
For use in Israel	383496-BB1
For use in Italy	383496-061
For use in Japan	383496-291
For use in the People's Republic of China	383496-AA1
For use in South Africa	383496-AR1
For use in South Korea	383496-AD1
For use in Switzerland	383496-111
For use in Thailand	383496-281
For use in the United Kingdom	383496-031
For use the United States	383496-001
Screw Kit • Phillips PM2.5×7.0 captive screw • Phillips PM2.5×7.0 screw • Phillips PM2.5×4.0 screw • Black Phillips PM2.0×6.0 screw • Silver Phillips PM2.0×6.0 screw • Phillips PM2.0×5.0 captive screw • Phillips PM2.0×5.0 screw • Phillips PM2.0×4.0 screw • Phillips PM2.0×3.0 screw • Torx T8M2.0×8.0 screw • Torx T8M2.0×5.0 screw	454687-001

Sequential part number listing

Spare part number	Description
383496-001	Power cord for use in the United States
383496-011	Power cord for use in Australia
383496-021	Power cord for use in Europe
383496-031	Power cord for use in the United Kingdom
383496-061	Power cord for use in Italy
383496-081	Power cord for use in Denmark
383496-111	Power cord for use in Switzerland
383496-201	Power cord for use in Brazil
383496-281	Power cord for use in Thailand
383496-291	Power cord for use in Japan
383496-371	Power cord for use in Asia Pacific countries and regions
383496-AA1	Power cord for use in the People's Republic of China
383496-AD1	Power cord for use in South Korea
383496-AR1	Power cord for use in South Africa
383496-BB1	Power cord for use in Israel
383496-D61	Power cord for use in India
409407-001	Intel 802.11a/b/g 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, the United States, Uruguay, Venezuela, and Vietnam
409407-002	Intel 802.11a/b/g 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
409407-004	Intel 802.11a/b/g WLAN module for use in Thailand
409497-291	Intel 802.11a/b/g WLAN module for use in Japan
417220-001	65-watt AC adapter (HP Smart AC Adapter)
436255-001	Broadcom 802.11a/b/g/n WLAN module for use in Canada, the Cayman Islands, Guam, Puerto Rico, the U.S. Virgin Islands, and the United States
436255-291	Broadcom 802.11a/b/g/n WLAN module for use in Japan
436256-001	Broadcom 802.11a/b/g/n WLAN module for use in Afghanistan, Albania, Algeria, Andorra, Angola, Antigua & Barbuda, Argentina, Armenia, Aruba, Australia, Austria, Azerbaijan, the Bahamas, Bahrain, Bangladesh, Barbados, Belgium, Belize, Benin, Bermuda, Bolivia, Bosnia & Herzegovina, Botswana, Brazil, the British Virgin Islands, Brunei, Bulgaria, Burkina Faso, Burundi, Cameroon, Cape Verde, the Cayman Islands, 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,

Spare part number	Description
	Germany, Ghana, Gibraltar, Greece, Grenada, Guadeloupe, Guam, Guatemala, Guinea, Guinea-Bissa, Guyana, Haiti, Honduras, Hong Kong, Hungary, Iceland, India, Ireland, Italy, the Ivory Coast, Jamaica, Jordan, Kenya, Kiribati, Kyrgyzstan, Laos, Latvia, Lesotho, Liberia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Madagascar, Malawi, the Maldives, Mali, Malta, the Marshall Islands, Martinique, Mauritania, Mauritius, Mexico, Micronesia, Monaco, Mongolia, Montenegro, Morocco, Mozambique, Namibia, Nauru, Nepal, the Netherlands, New Zealand, Nicaragua, Niger, Nigeria, Norway, Oman, Pakistan, Palau, Panama, Papua New Guinea, Paraguay, the People's Republic of China, Peru, the Philippines, Poland, Portugal, Puerto Rico, 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, Spain, Sri Lanka, St. Kitts & Nevis, St. Lucia, St. Vincent & Grenada, Suriname, Swaziland, Sweden, Switzerland, Taiwan, Tajikistan, Tanzania, Togo, Tonga, Trinidad & Tobago, Tunisia, Turkey, Turkmenistan, Tuvalu, Uganda, the United Arab Emirates, the United Kingdom, Uruguay, Uzbekistan, Venezuela, Vietnam, Yemen, Zaire, Zambia, and Zimbabwe
441075-001	Broadcom 802.11a/b/g WLAN module for use in Canada, Cayman Islands, Guam, Puerto Rico, the U.S. Virgin Islands, and the United States
441075-002	Broadcom 802.11a/b/g WLAN module for use in Afghanistan, Albania, Algeria, Andorra, Angola, Antigua and Barbuda, Argentina, Armenia, Aruba, Australia, Austria, Azerbaijan, the Bahamas, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Belize, Benin, Bermuda, Bhutan, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, the British Virgin Islands, Brunei, Bulgaria, Burkina Faso, Burundi, Cameroon, Cape Verde, the Central African Republic, Chad, Chile, the People's Republic of China, Colombia, Comoros, the Congo, Costa Rica, Croatia, Cyprus, the Czech Republic, Denmark, Djibouti, Dominica, the Dominican Republic, East Timor, Ecuador, Egypt, El Salvador, Equitorial Guinea, Eritrea, Estonia, Ethiopia, Fiji, Finland, France, French Guiana, Gabon, Gambia, Georgia, Germany, Ghana, Gibraltar, Greece, Grenada, Guadeloupe, Guatemala, Guinea, Guinea-Bissa, Guyana, Haiti, Honduras, Hong Kong, Hungary, Iceland, India, Ireland, Israel, Italy, the Ivory Coast, Jamaica, Jordan, Kazakhstan, Kenya, Kiribati, Kyrgyzstan, Laos, Latvia, Lebanon, Lesotho, Liberia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Madagascar, Malawi, Malaysia, the Maldives, Mali, Malta, the Marshall Islands, Martinique, Mauritania, Mauritius, Mexico, Micronesia, Monaco, Mongolia, Montenegro, Morocco, Mozambique, Namibia, Nauru, Nepal, the Nether Antilles, the Netherlands, New Zealand, Nicaragua, Niger, Nigeria, Norway, Oman, Pakistan, Palau, Panama, Papua New Guinea, Paraguay, Peru, the Philippines, Poland, Portugal, the Republic of Moldova, Romania, Russia, Rwanda, Samoa, San Marino, Sao Tome & 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, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Turkmenistan, Tuvalu, Uganda, Ukraine, the United Arab Emirates, the United Kingdom, Uruguay, Uzbekistan, Vanuatu, Venezuela, Vietnam, Yemen, Zaire, Zambia, and Zimbabwe
441075-291	Broadcom 802.11a/b/g WLAN module for use in Japan
441082-001	Intel 802.11a/b/g 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, the United States, Uruguay, Venezuela, and Vietnam
441082-002	Intel 802.11a/b/g 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
441082-003	Intel 802.11a/b/g WLAN module for use in Australia, New Zealand, Pakistan, the People's Republic of China, and South Korea
441082-291	Intel 802.11a/b/g WLAN module for use in Japan
441086-001	Intel 802.11a/b/g/n WLAN module for use in Antigua and 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

Spare part number	Description
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
441090-001	Broadcom 802.11b/g WLAN module for use in Canada, the Cayman Islands, Guam, Puerto Rico, the U.S. Virgin Islands, and the United States
441090-002	Broadcom 802.11b/g WLAN module 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
441090-291	Broadcom 802.11b/g WLAN module for use in Japan
441866-001	Qualcomm EV-DO WWAN module
443899-001	Modem module for use in North America (includes modem module cable)
443899-011	Modem module for use in Australia and New Zealand (includes modem module cable)
443900-001	Modem module for use in Brazil (includes modem module cable)
448672-002	Vodafone HSDPA WWAN module
448673-002	Cingular HSDPA WWAN module
451131-001	Verizon EV-DO WWAN module
451132-001	Sprint EV-DO WWAN module
454668-001	6-cell, 4.4-Wh battery
454669-001	60-GB, 4200-rpm hard drive (includes isolator and connector cable)
454670-001	80-GB, 4200-rpm hard drive (includes isolator and connector cable)
454671-001	100-GB, 4200–rpm hard drive (includes isolator and connector cable)

Spare part number	Description
454672-001	1024-MB memory module (PC2-5300, 667-MHz, DDR2)
454673-001	2048-MB memory module (PC2-5300, 667-MHz, DDR2)
454674-001	512-MB memory module (PC2-5300, 667-MHz, DDR2)
454675-001	12.1-inch, WXGA, WVA display assembly with camera module (includes ambient light sensor, fingerprint reader, microphones, WLAN antenna cables, and WWAN antenna cables)
454676-001	12.1-inch, WXGA, WVA display assembly (includes ambient light sensor, fingerprint reader, microphones, WLAN antenna cables, and WWAN antenna cables)
454677-001	12.1-inch, WXGA, WVA display assembly with keyboard light (includes ambient light sensor, fingerprint reader, microphones, WLAN antenna cables, and WWAN antenna cables)
454679-001	12.1-inch, WXGA, WVA display assembly with camera module and keyboard light (includes ambient light sensor, fingerprint reader, microphones, WLAN antenna cables, and WWAN antenna cables)
454680-001	Smart card reader module (inserts into ExpressCard slot)
454681-001	Stylus pen with tether
454682-001	Cable Kit (includes Bluetooth module cable and audio connector board cable)
454683-001	Top cover (includes LED board and cable and display alignment guides)
454684-001	Label Kit
454685-001	Plastics Kit (see Plastics Kit on page 23 for more Plastics Kit spare part information)
454686-001	Rubber Kit (includes 4 rubber feet, 5 Mylar screw covers, and 2 display alignment guides)
454687-001	Screw Kit
454688-001	External WWAN antenna
454689-001	RTC battery (includes double-sided tape)
454690-001	Audio connector board (includes cable)
454691-001	Bluetooth module (includes cable)
454692-001	Fan/heat sink assembly (includes replacement thermal material)
454693-001	Fingerprint reader
454694-001	Microphone
454695-001	Speaker
454696-001	Keyboard for use in the United States
454696-031	Keyboard for use in the United Kingdom
454696-041	Keyboard for use in France
454696-051	Keyboard for use in Germany
454696-061	Keyboard for use in Italy
454696-071	Keyboard for use in Spain
454696-081	Keyboard for use in Denmark
454696-091	Keyboard for use in Norway

Spare part number	Description
454696-111	Keyboard for use in Switzerland
454696-121	Keyboard for use in French Canada
454696-131	Keyboard for use in Portugal
454696-141	Keyboard for use in Turkey
454696-161	Keyboard for use in Latin America
454696-171	Keyboard for use in Saudi Arabia
454696-201	Keyboard for use in Brazil
454696-211	Keyboard for use in Hungary
454696-221	Keyboard for use in the Czech Republic
454696-231	Keyboard for use in Slovakia
454696-251	Keyboard for use in Russia
454696-281	Keyboard for use in Thailand
454696-291	Keyboard for use in Japan
454696-A41	Keyboard for use in Belgium
454696-AB1	Keyboard for use in Taiwan
454696-AD1	Keyboard for use in South Korea
454696-B31	Keyboard for use in the Netherlands
454696-B71	Keyboard for use in Sweden and Finland
454696-BA1	Keyboard for use in Slovenia
454696-BB1	Keyboard for use in Israel
454696-DD1	Keyboard for use in Iceland
454696-DJ1	Keyboard for use in Greece
455080-001	Base enclosure (includes display release latch and rubber feet)
455081-001	System board equipped with Intel Celeron-M ULV processor (includes replacement thermal material)
455082-001	System board equipped with Intel Core 2 Duo U7500 1.06-MHz processor (includes replacement thermal material)
455083-001	System board equipped with Intel Core 2 Duo U7600 1.20-MHz processor (includes replacement thermal material)
455953-001	HP 2700 Ultra-Slim Expansion Base

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
- Magnetic screwdriver
- Phillips P0 and P1 screwdrivers
- Torx T8 screwdriver

Service considerations

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

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

Plastic parts

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.

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 37).
5. Remove the real-time clock (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.

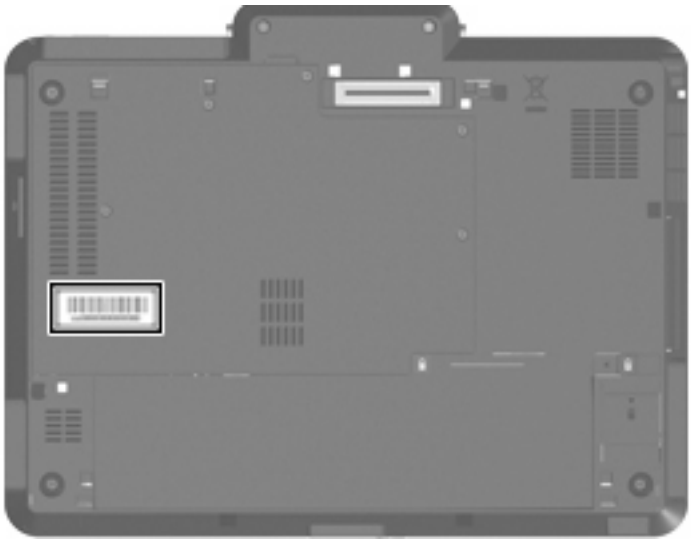
Component replacement procedures

This chapter provides removal and replacement procedures.

There are as many as 44 screws, in 11 different sizes, that must be removed, replaced, or loosened when servicing the computer. Make special note of each screw size and location during removal and replacement.

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.



Computer feet

The computer feet are adhesive-backed rubber pads. The feet are included in the Rubber Kit, spare part number 454686-001. There are 4 rubber feet that attach to the base enclosure in the locations illustrated below.

Battery

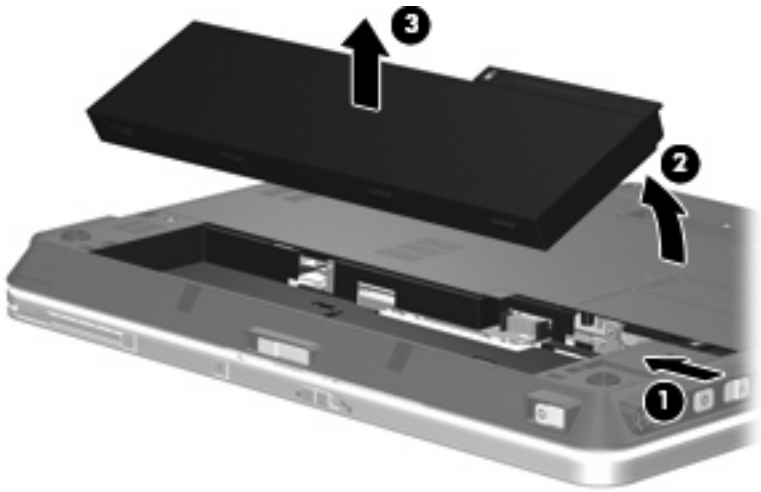
Description	Spare part number
6-cell, 4.4-Wh battery	454668-001

Before disassembling the computer, follow these steps:

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

Remove the battery:

1. Turn the computer upside down on a flat surface, with the battery bay toward you.
2. Slide the battery release latch **(1)** to release the battery.
3. Pivot the battery upward **(2)** and remove it from the computer **(3)**.



Install the battery by inserting it into the battery bay until you hear a click.

SIM

NOTE: This section applies only to computer models with WWAN capability.

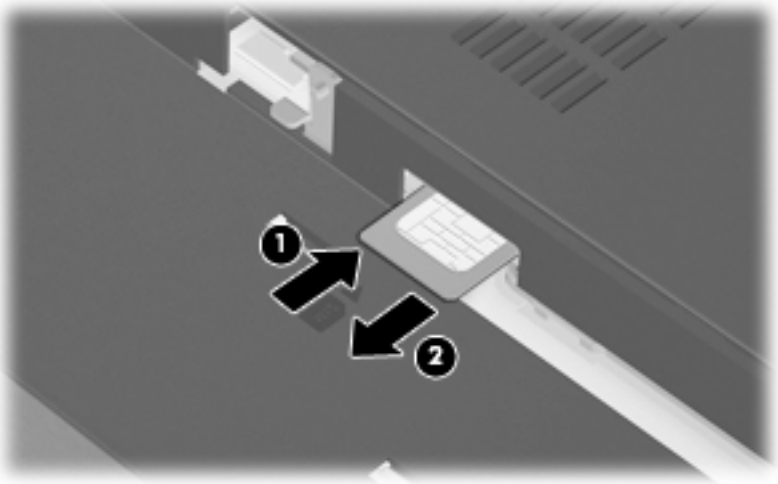
NOTE: If there is a SIM inserted in the SIM slot, it must be removed before disassembling the computer. Be sure that the SIM is reinserted in the SIM slot after reassembling the computer.

Before removing the SIM, 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 37).

Remove the SIM:

1. Press in on the SIM **(1)**. (The module is partially ejected from the SIM slot.)
2. Remove the SIM **(2)** from the SIM slot.



Reverse this procedure to install the SIM.

Hard drive

NOTE: All hard drive spare part kits include an isolator and connector cable.

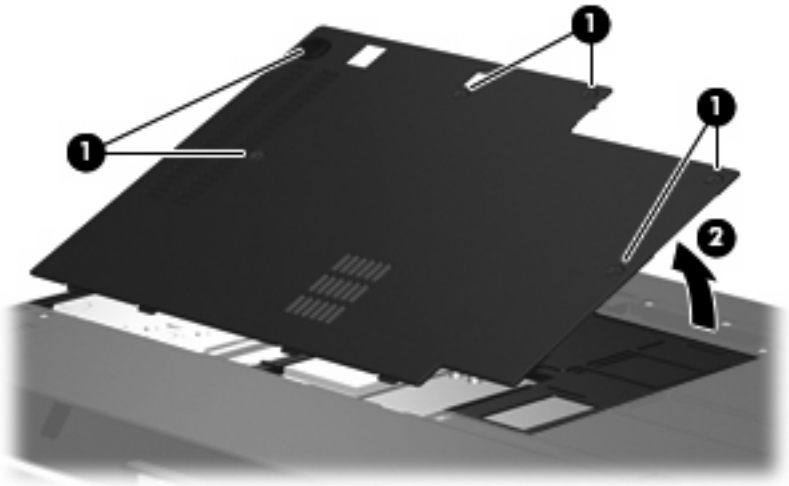
Description	Spare part number
100-GB, 4200-rpm hard drive	454671-001
80-GB, 4200-rpm hard drive	454670-001
60-GB, 4200-rpm hard drive	454669-001

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 37).

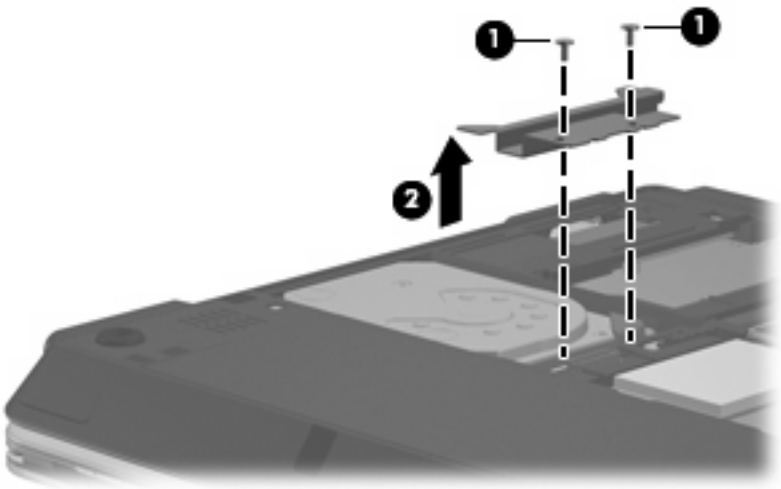
Remove the hard drive:

1. Loosen the six Phillips PM2.0×5.0 captive screws **(1)** that secure the hard drive compartment cover to the computer.
2. Lift the rear edge of the hard drive compartment cover **(2)**, swing it up and forward, and remove the cover. The hard drive compartment cover is included in the Plastics Kit, spare part number 454685-001.

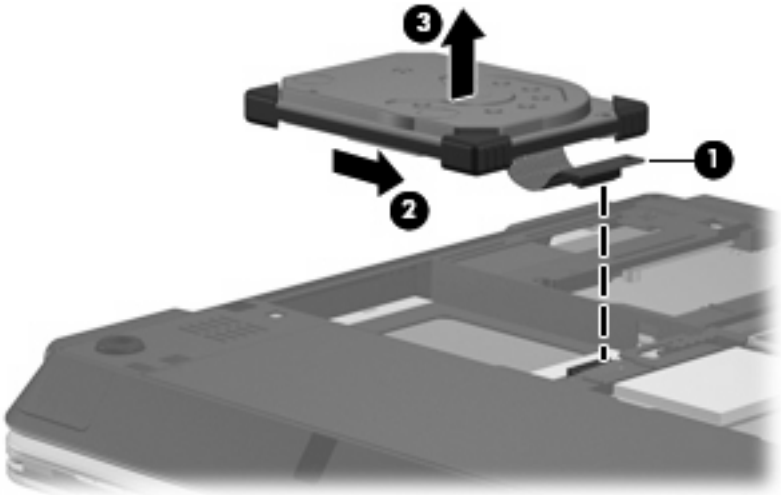


3. Remove the two Phillips PM2.0×3.0 screws **(1)** that secure the hard drive bracket to the computer.

4. Remove the hard drive bracket **(2)**.



5. Disconnect the hard drive connector **(1)** from the system board.
6. Release the hard drive **(2)** by sliding it to the right.
7. Lift the hard drive **(3)** straight up to remove it from the hard drive compartment.



Reverse this procedure to install the hard drive.

WLAN module

△ **CAUTION:** The WLAN module and the WWAN module are not interchangeable.

Description	Spare part number
Broadcom 802.11a/b/g/n WLAN modules:	
• For use in Canada, the Cayman Islands, Guam, Puerto Rico, the U.S. Virgin Islands, and the United States	436255-001
• For use in Afghanistan, Albania, Algeria, Andorra, Angola, Antigua & Barbuda, Argentina, Armenia, Aruba, Australia, Austria, Azerbaijan, the Bahamas, Bahrain, Bangladesh, Barbados, Belgium, Belize, Benin, Bermuda, Bolivia, Bosnia & Herzegovina, Botswana, Brazil, the British Virgin Islands, Brunei, Bulgaria, Burkina Faso, Burundi, Cameroon, Cape Verde, the Cayman Islands, 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, Guam, Guatemala, Guinea, Guinea-Bissa, Guyana, Haiti, Honduras, Hong Kong, Hungary, Iceland, India, Ireland, Italy, the Ivory Coast, Jamaica, Jordan, Kenya, Kiribati, Kyrgyzstan, Laos, Latvia, Lesotho, Liberia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Madagascar, Malawi, the Maldives, Mali, Malta, the Marshall Islands, Martinique, Mauritania, Mauritius, Mexico, Micronesia, Monaco, Mongolia, Montenegro, Morocco, Mozambique, Namibia, Nauru, Nepal, the Netherlands, New Zealand, Nicaragua, Niger, Nigeria, Norway, Oman, Pakistan, Palau, Panama, Papua New Guinea, Paraguay, the People's Republic of China, Peru, the Philippines, Poland, Portugal, Puerto Rico, 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, Spain, Sri Lanka, St. Kitts & Nevis, St. Lucia, St. Vincent & Grenada, Suriname, Swaziland, Sweden, Switzerland, Taiwan, Tajikistan, Tanzania, Togo, Tonga, Trinidad & Tobago, Tunisia, Turkey, Turkmenistan, Tuvalu, Uganda, the United Arab Emirates, the United Kingdom, Uruguay, Uzbekistan, Venezuela, Vietnam, Yemen, Zaire, Zambia, and Zimbabwe	436256-002
• For use in Japan	436255-291
Intel 802.11a/b/g/n WLAN modules:	
• For use in Antigua and 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
• For use in Australia, New Zealand, Pakistan, the People's Republic of China, and South Korea	441086-003
• For use in Japan	441086-291
• For use in South Korea	441086-AD1
Broadcom 802.11a/b/g WLAN modules:	
• For use in Canada, Cayman Islands, Guam, Puerto Rico, the U.S. Virgin Islands, and the United States	441075-001
• For use in Afghanistan, Albania, Algeria, Andorra, Angola, Antigua and Barbuda, Argentina, Armenia, Aruba, Australia, Austria, Azerbaijan, the Bahamas, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Belize, Benin, Bermuda, Bhutan, Bolivia, Bosnia and Herzegovina, Botswana,	441075-002

Description	Spare part number
Brazil, the British Virgin Islands, Brunei, Bulgaria, Burkina Faso, Burundi, Cameroon, Cape Verde, the Central African Republic, Chad, Chile, the People's Republic of China, Colombia, Comoros, the Congo, Costa Rica, Croatia, Cyprus, the Czech Republic, Denmark, Djibouti, Dominica, the Dominican Republic, East Timor, Ecuador, Egypt, El Salvador, Equitorial Guinea, Eritrea, Estonia, Ethiopia, Fiji, Finland, France, French Guiana, Gabon, Gambia, Georgia, Germany, Ghana, Gibraltar, Greece, Grenada, Guadeloupe, Guatemala, Guinea, Guinea-Bissa, Guyana, Haiti, Honduras, Hong Kong, Hungary, Iceland, India, Ireland, Israel, Italy, the Ivory Coast, Jamaica, Jordan, Kazakhstan, Kenya, Kiribati, Kyrgyzstan, Laos, Latvia, Lebanon, Lesotho, Liberia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Madagascar, Malawi, Malaysia, the Maldives, Mali, Malta, the Marshall Islands, Martinique, Mauritania, Mauritius, Mexico, Micronesia, Monaco, Mongolia, Montenegro, Morocco, Mozambique, Namibia, Nauru, Nepal, the Nether Antilles, the Netherlands, New Zealand, Nicaragua, Niger, Nigeria, Norway, Oman, Pakistan, Palau, Panama, Papua New Guinea, Paraguay, Peru, the Philippines, Poland, Portugal, the Republic of Moldova, Romania, Russia, Rwanda, Samoa, San Marino, Sao Tome & 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, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Turkmenistan, Tuvalu, Uganda, Ukraine, the United Arab Emirates, the United Kingdom, Uruguay, Uzbekistan, Vanuatu, Venezuela, Vietnam, Yemen, Zaire, Zambia, and Zimbabwe	
• For use in Japan	441075-291
Intel 802.11a/b/g 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, the United States, Uruguay, Venezuela, and Vietnam	441082-001 and 409407-001
• 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	441082-002 and 409407-002
• For use in Australia, New Zealand, Pakistan, the People's Republic of China, and South Korea	441082-003 and 409407-003
• For use in Japan	441082-291 and 409407-291
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,	441090-002

Description	Spare part number
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	409407-004

Before removing the WLAN module, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see Battery on page 37).
5. Remove the hard drive compartment cover (see Hard drive on page 39).

Remove the WLAN module:

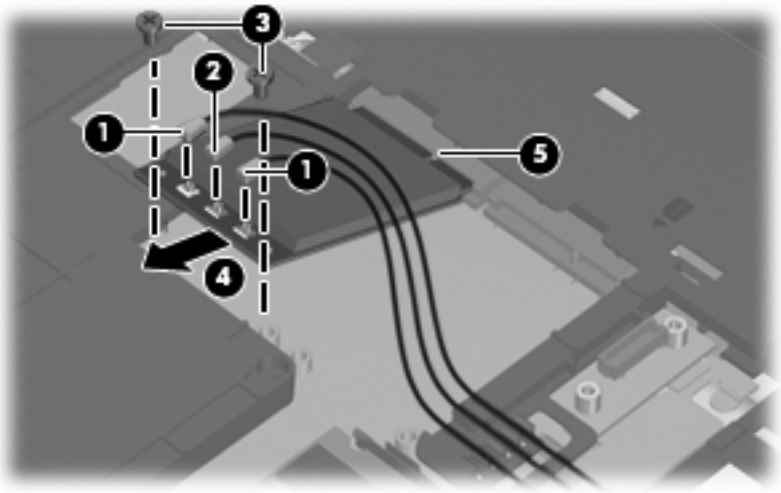
1. Disconnect the WLAN antenna cables **(1)** from the terminals on the WLAN module.

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. If the computer is equipped with an 802.11a/b/g/n WLAN module, a yellow WLAN antenna cable **(2)** is connected to the middle terminal on the WLAN module. Disconnect this cable.

2. Remove the two Phillips PM2.5×4.0 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 the module away from the slot at an angle.

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



Reverse this procedure to install the WLAN module.

WWAN module

△ **CAUTION:** The WLAN module and the WWAN module are not interchangeable.

Description	Spare part number
Cingular HSDPA WWAN module	448673-002
Qualcomm EV-DO WWAN module	441866-001
Sprint EV-DO WWAN module	451132-001
Verizon EV-DO WWAN module	451131-001
Vodafone HSDPA WWAN module	448672-002

Before removing the WWAN 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 37).
5. Remove the hard drive compartment cover (see Hard drive on page 39).

Remove the WWAN module:

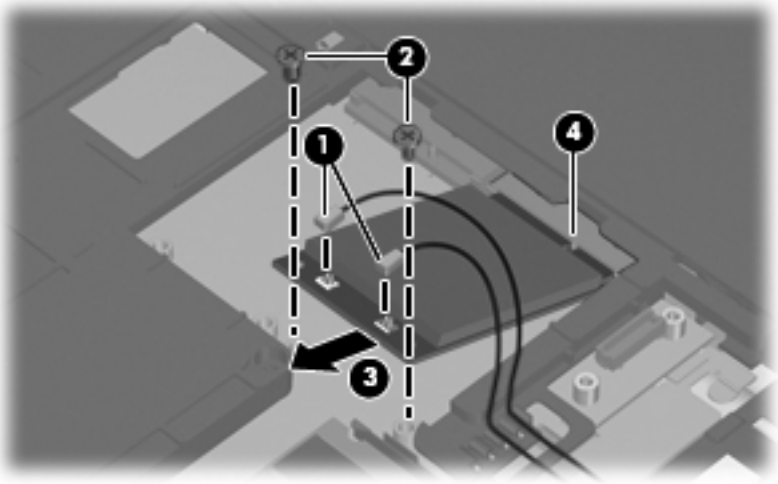
1. Disconnect the WWAN antenna cables **(1)** from the terminals on the WWAN module.

NOTE: The red WWAN antenna cable is connected to the WWAN module "Main" terminal. The blue WWAN antenna cable is connected to the WWAN module "Aux" terminal.

2. Remove the two Phillips PM2.5×4.0 screws **(2)** that secure the WWAN module to the computer. (The edge of the module opposite the slot rises away from the computer.)

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

NOTE: WWAN modules are designed with a notch **(4)** to prevent incorrect installation.



Reverse this procedure to install the WWAN module.

Memory module

Description	Spare part number
2048-MB (PC2-5300, 667-MHz, DDR2)	454673-001
1024-MB (PC2-5300, 667-MHz, DDR2)	454672-001
512-MB (PC2-5300, 667-MHz, DDR2)	454674-001

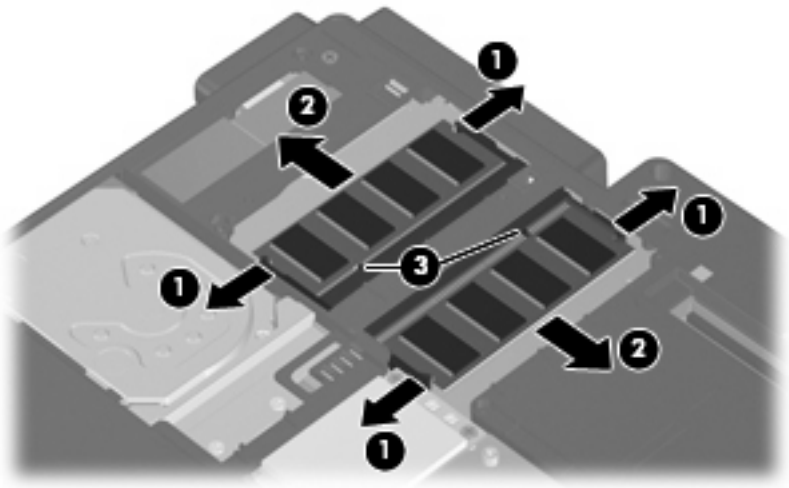
Before removing the memory module, follow these steps:

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 37).
5. Remove the hard drive compartment cover (see Hard drive on page 39).

Remove the memory module:

1. 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.)
2. Remove the memory module **(2)** by pulling the module 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 the memory module.

Keyboard

For use in:	Spare part number	For use in:	Spare part number
Belgium	454696-A41	Norway	454696-091
Brazil	454696-201	Portugal	454696-131
The Czech Republic	454696-221	Russia	454696-251
Denmark	454696-081	Saudi Arabia	454696-171
France	454696-051	Slovakia	454696-231
French Canada	454696-121	Slovenia	454696-BA1
Germany	454696-041	South Korea	454696-AD1
Greece	454696-DJ1	Spain	454696-071
Hungary	454696-211	Sweden and Finland	454696-B71
Iceland	454696-DD1	Switzerland	454696-111
Israel	454696-BB1	Taiwan	454696-AB1
Italy	454696-061	Thailand	454696-281
Japan	454696-291	Turkey	454696-141
Latin America	454696-161	The United Kingdom	454696-031
The Netherlands and Europe	454696-B31	The United States	454696-001

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 37).
5. Remove the hard drive compartment cover (see Hard drive on page 39).

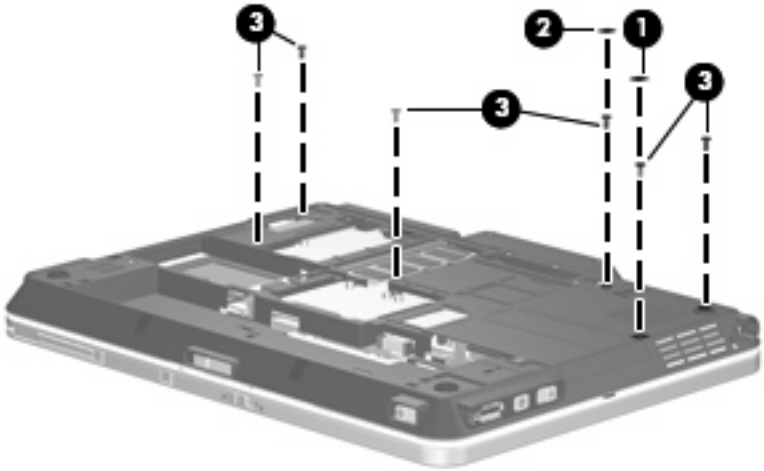
Remove the keyboard:

1. Remove the following:

   (1) One small Mylar screw cover. The screw covers detailed in this section are available in the Rubber Kit, spare part number 454686-001.

   (2) One medium Mylar screw cover.

   (3) Six Torx T8M2.0×8.0 screws.



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 keyboard **(1)** and slide it **(2)** back until the pointing stick cable is accessible.
5. Release the zero insertion force (ZIF) connector **(3)** to which the pointing stick cable is attached, and disconnect the pointing stick cable **(4)** from the system board.

6. Swing the top edge of the keyboard **(1)** up and forward until it rests upside down on the palm rest.

7. Release the ZIF connector **(2)** to which the keyboard cable is attached, and disconnect the keyboard cable **(3)** from the system board.

8. Remove the keyboard.

Reverse this procedure to install the keyboard.

Hinge cover

NOTE: The hinge cover is included in the Plastics Kit, spare part number 454685-001.

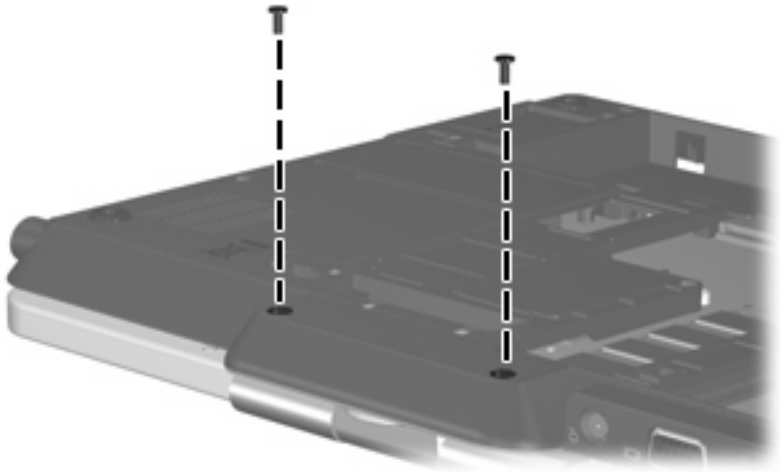
Before removing the hinge cover, follow these steps:

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 37).
5. Remove the hard drive compartment cover (see Hard drive on page 39).
6. Remove the keyboard (see Keyboard on page 48).

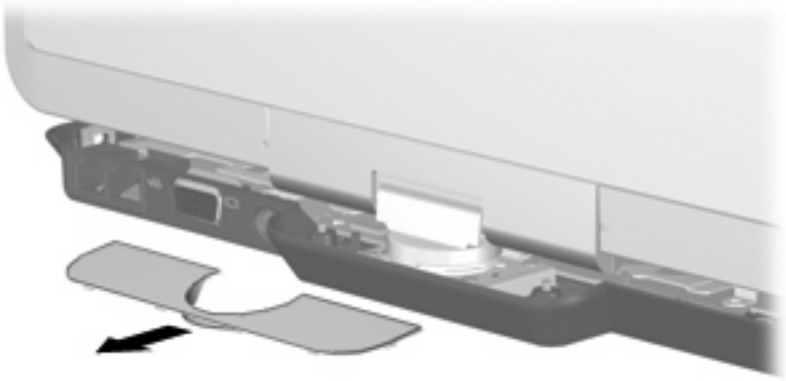
Remove the hinge cover:

1. Turn the computer upside down, with the rear panel toward you.

2. Remove the two Torx T8M2.0×5.0 screws that secure the hinge cover to the computer.



3. Turn the computer right-side up, with the rear panel toward you.
4. Open the computer to an upright position.
5. Remove the hinge cover by pulling it away from the computer.



Reverse this procedure to install the hinge cover.

Top cover

Description	Spare part number
Top cover (includes LED board and cable and display alignment guides)	454683-001

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 37).
5. Remove the following components:
   a. Hard drive compartment cover (see Hard drive on page 39)
   b. Keyboard (see Keyboard on page 48)
   c. Hinge cover (see Hinge cover on page 50)

Remove the top cover:

1. Turn the computer upside down, with the front toward you.

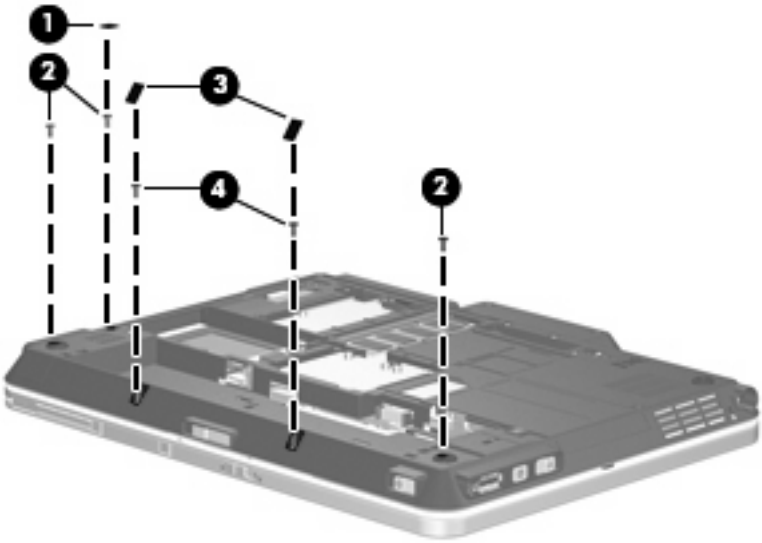
2. Remove the following:

   (1) One small Mylar screw cover. All Mylar screw covers detailed in this section are included in the Rubber Kit, spare part number 454686-001.

   (2) Three Torx T8M2.0×8.0 screws.

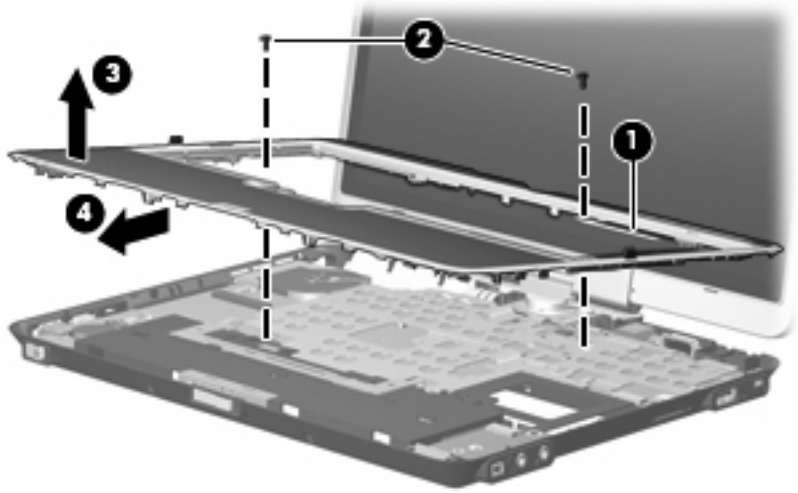
   (3) Two large Mylar screw covers. The screw covers detailed in this section are included in the Rubber Kit, spare part number 454686-001.

   (4) Two Torx T8M2.0×4.0 screws.



3. Turn the computer right-side up, with the front toward you.
4. Open the computer as far as possible.
5. Release the ZIF connector **(1)** to which the LED board cable is connected and disconnect the LED board cable from the system board.
6. Remove the two Phillips PM2.0×5.0 screws **(2)** that secure the top cover to the computer.
7. Lift the front edge of the top cover **(3)** until it rests at an angle.

8. Remove the top cover **(4)** by pulling it away from the computer at an angle.



Reverse this procedure to install the top cover.

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.

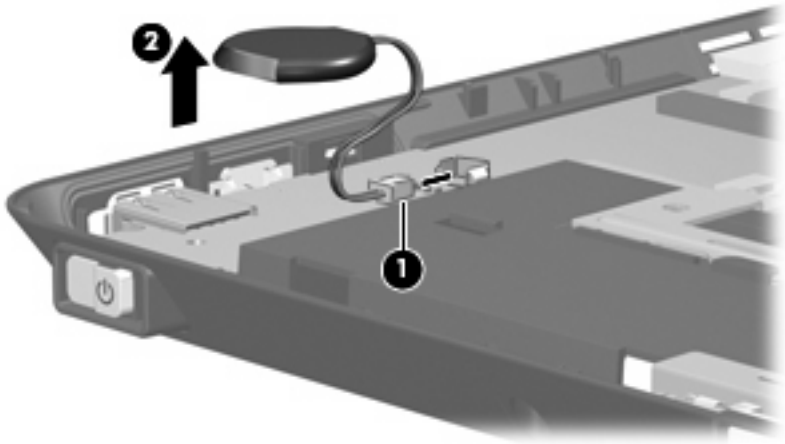
Description	Spare part number
RTC battery (includes double-sided tape)	454689-001

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 37).
5. Remove the following components:
   a. Hard drive compartment cover (see Hard drive on page 39)
   b. Keyboard (see Keyboard on page 48)
   c. Hinge cover (see Hinge cover on page 50)
   d. Top cover (see Top cover on page 52)

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.

Audio connector board

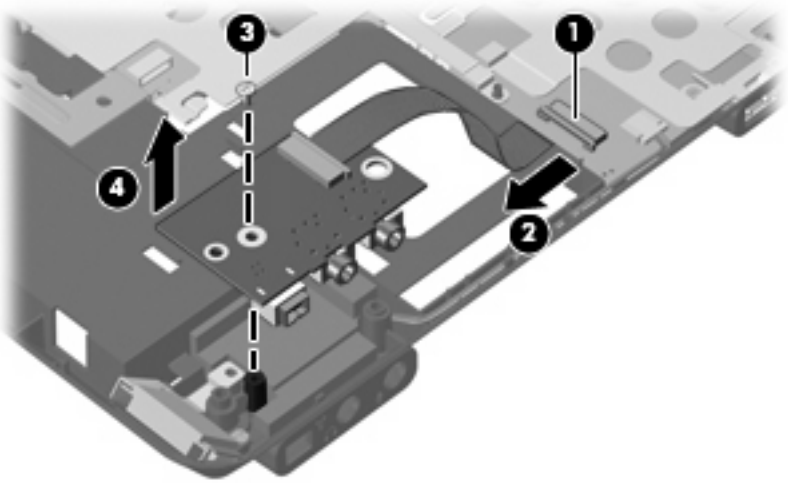
Description	Spare part number
Audio connector board (includes cable)	454690-001

Before removing the audio 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 37).
5. Remove the following components:
   a. Hard drive compartment cover (see Hard drive on page 39)
   b. Keyboard (see Keyboard on page 48)
   c. Hinge cover (see Hinge cover on page 50)
   d. Top cover (see Top cover on page 52)

Remove the audio connector board:

1. Release the ZIF connector **(1)** to which the audio connector board cable is connected and disconnect the audio connector board cable **(2)** from the system board. The audio connector board cable is included with the audio connector board and is also available in the Cables Kit, spare part number 454682-001.
2. Remove the Phillips PM2.0×5.0 screw **(3)** that secures the audio connector board to the base enclosure.
3. Remove the audio connector board and cable **(4)**.



Reverse this procedure to install the audio connector board.

Bluetooth module

Description	Spare part number
Bluetooth (includes cable)	454691-001

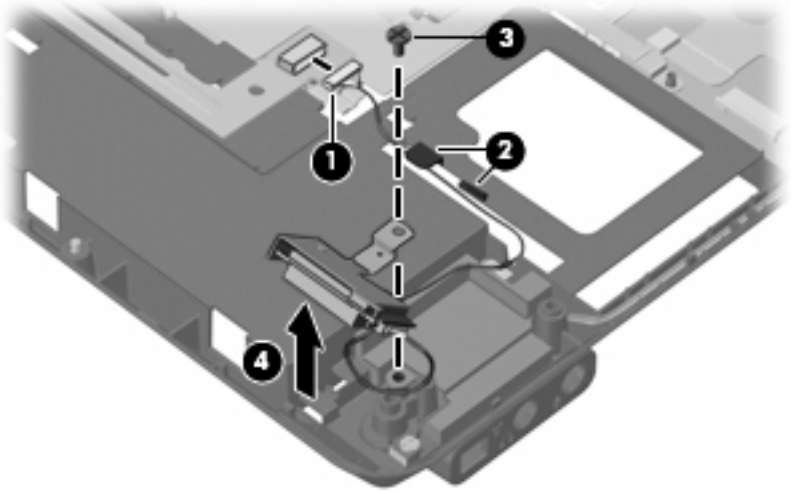
Before removing the Bluetooth module, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see Battery on page 37).
5. Remove the following components:
   a. Hard drive compartment cover (see Hard drive on page 39)
   b. Keyboard (see Keyboard on page 48)
   c. Hinge cover (see Hinge cover on page 50)
   d. Top cover (see Top cover on page 52)
   e. Audio connector board (see Audio connector board on page 56)

Remove the Bluetooth® module:

1. Disconnect the Bluetooth module cable **(1)** from the system board.
2. Remove the Bluetooth module cable from the clips **(2)** built into the base enclosure. The Bluetooth module cable is included with the Bluetooth module and is also available in the Cables Kit, spare part number 454682-001.
3. Remove the Phillips PM2.0×5.0 screw **(3)** that secures the Bluetooth module to the base enclosure.

4. Remove the Bluetooth module and cable **(4)** from the base enclosure.



Reverse this procedure to install the Bluetooth module.

Speaker

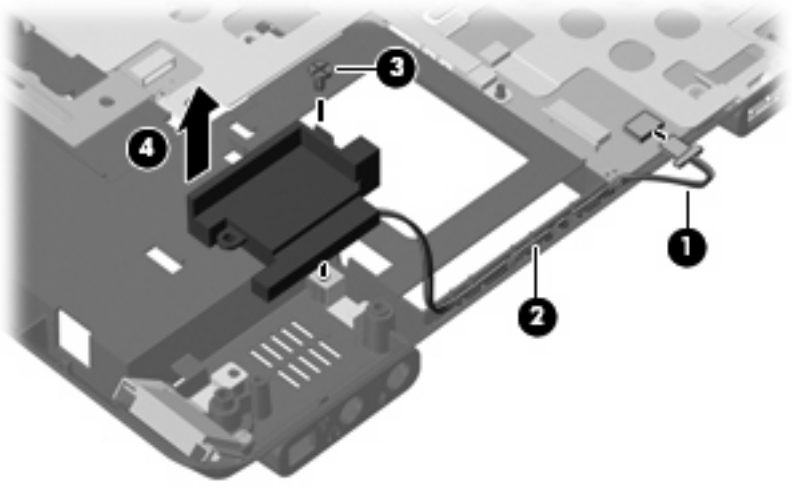
Description	Spare part number
Speaker	454695-001

Before removing the speaker, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see Battery on page 37).
5. Remove the following components:
   a. Hard drive compartment cover (see Hard drive on page 39)
   b. Keyboard (see Keyboard on page 48)
   c. Hinge cover (see Hinge cover on page 50)
   d. Top cover (see Top cover on page 52)
   e. Audio connector board (see Audio connector board on page 56)
   f. Bluetooth module (see Bluetooth module on page 57)

Remove the speaker:

1. Disconnect the speaker cable **(1)** from the system board.
2. Remove the speaker cable **(2)** from the clip built into the base enclosure.
3. Remove the Phillips PM2.0×6.0 screw **(3)** that secures the speaker to the base enclosure.
4. Remove the speaker **(4)** from the base enclosure.



Reverse this procedure to install the speaker.

Display assembly

NOTE: All display assembly spare part kits include an ambient light sensor, fingerprint reader, microphones, WLAN antenna cables, and WWAN antenna cables

Description	Spare part number
Display assembly with camera and keyboard light	454679-001
Display assembly with camera	454675-001
Display assembly with keyboard light	454677-001
Display assembly	454676-001

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 37).
5. Disconnect the wireless antenna cables from the WLAN module (see WLAN module on page 41) and the WWAN module (see WWAN module on page 45).
6. Remove the following components:
   a. Hard drive compartment cover (see Hard drive on page 39)
   b. Keyboard (see Keyboard on page 48)
   c. Hinge cover (see Hinge cover on page 50)
   d. Top cover (see Top cover on page 52)

Remove the display assembly:

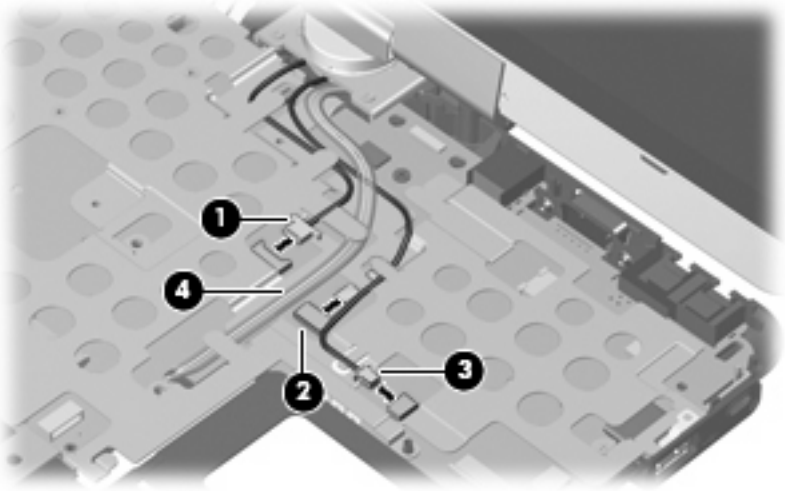
1. Place the display into an upright position.
2. Disconnect the following cables from the system board:

   (1) Fingerprint reader board cable

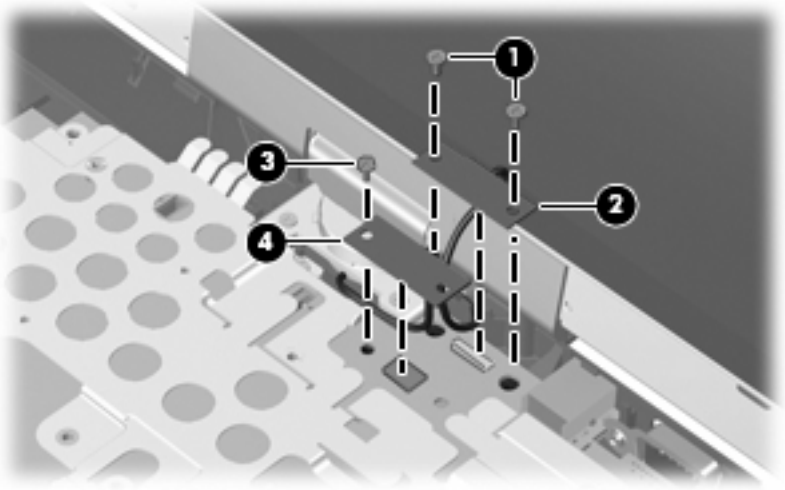
   (2) Camera cable

   (3) Keyboard light cable

3. Remove the wireless antenna cables **(4)** from the hole in the system board and remove the cables from the clips built into the system board shield.



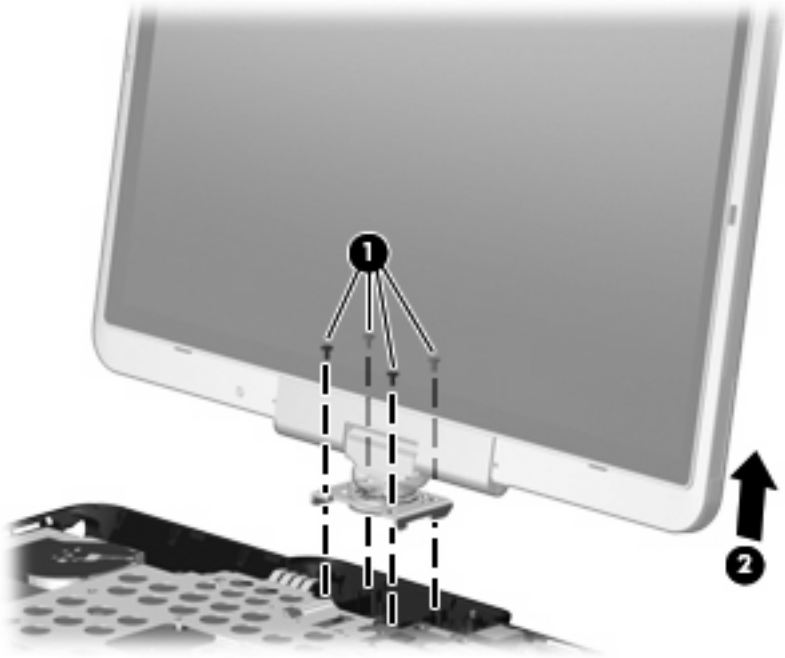
4. Remove the two Phillips PM2.0×6.0 screws **(1)** that secure the display panel cable to the system board.
5. Disconnect the display panel cable **(2)** from the system board.
6. Remove the Phillips PM2.0×4.0 screw **(3)** that secures the display converter cable to the system board.
7. Disconnect the display converter cable **(4)** from the system board.



△ **CAUTION:** The display assembly will be unsupported when the following screws are removed. To prevent damage to the display assembly, support it before removing the screws.

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

9. Lift the display assembly straight up and remove it **(2)**.



Reverse this procedure to install the display assembly.

System board

NOTE: All system board spare part kits include replacement thermal material.

Description	Spare part number
Equipped with Intel Core Duo U7600 (1.20-GHz) processor (533-MHz FSB and 2-MB L2 cache)	455083-001
Equipped with Intel Core Duo U7500 (1.06-GHz) processor (533-MHz FSB and 2-MB L2 cache)	455082-001
Equipped with Intel Celeron-M ULV processor	455081-001

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 37).
5. Remove the following components:
   a. Hard drive compartment cover (see Hard drive on page 39)
   b. Keyboard (see Keyboard on page 48)
   c. Hinge cover (see Hinge cover on page 50)
   d. Top cover (see Top cover on page 52)
   e. Display assembly (see Display assembly on page 60)

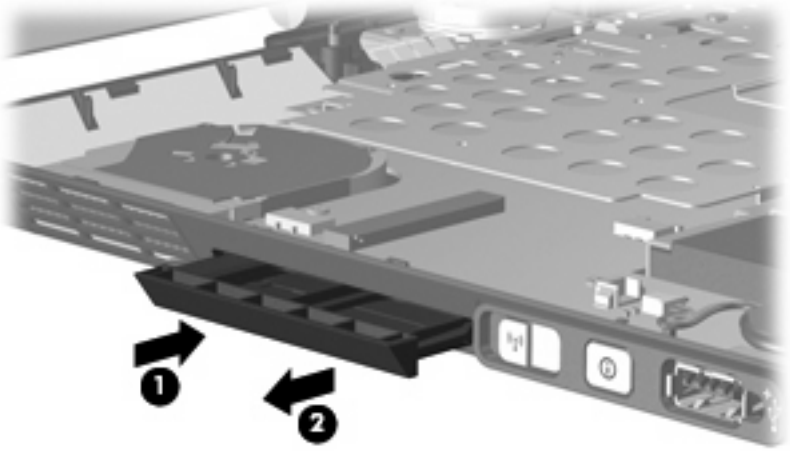
When replacing the system board, be sure that the following components are removed from the defective system board and installed on the replacement system board:

- SIM (see SIM on page 38)
- Memory modules (see Memory module on page 47)
- RTC battery (see RTC battery on page 55)
- Fan/heat sink assembly (see Fan/heat sink assembly on page 65)
- Modem module (see Modem module on page 68)

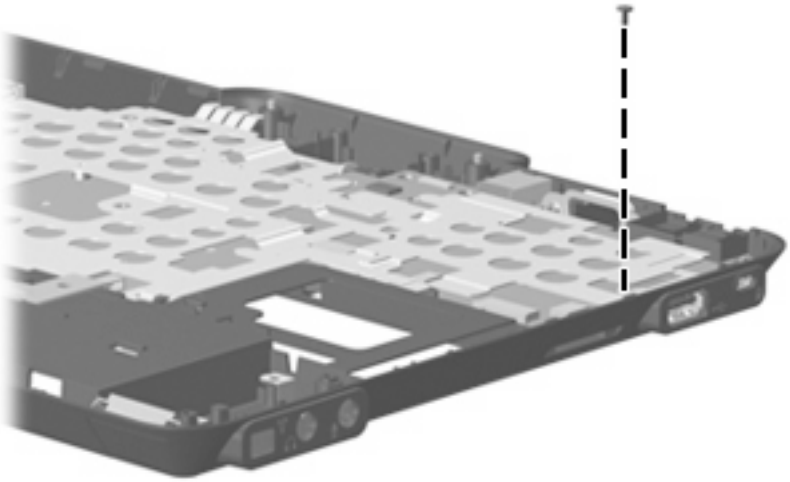
Remove the system board:

1. Position the computer with the left side toward you.
2. Press the ExpressCard slot bezel **(1)** to release it from the ExpressCard slot. (The ExpressCard slot bezel is partially ejected from the ExpressCard slot.) The ExpressCard slot bezel is included in the Plastics Kit, spare part number 454685-001.

3. Remove the ExpressCard slot bezel **(2)**.

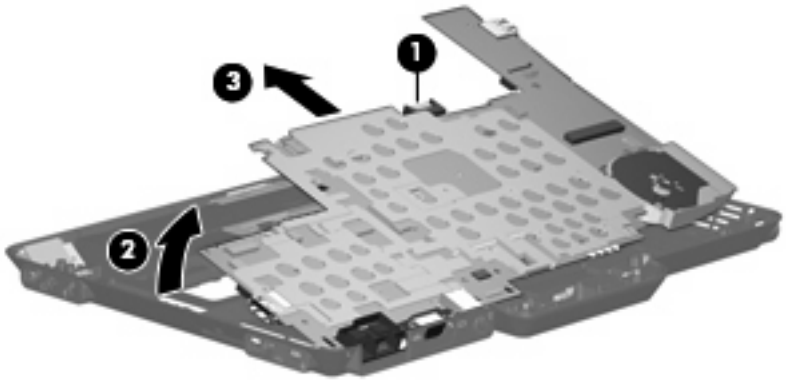


4. Position the computer with the front toward you.
5. Remove the Phillips PM2.0×5.0 screw that secures the system board to the base enclosure.



6. Position the computer with the rear panel toward you.
7. Use the optical drive connector **(1)** to lift the front edge of the system board **(2)** until it rests at an angle.

8. Remove the system board **(3)** by sliding it away from the base enclosure at an angle.



Reverse the preceding procedure to install the system board.

Fan/heat sink assembly

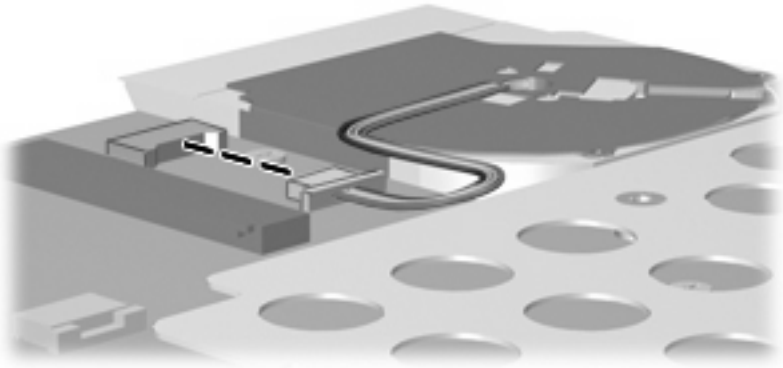
Description	Spare part number
Fan/heat sink assembly (includes replacement thermal material)	454692-001

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 37).
5. Remove the following components:
   a. Hard drive compartment cover (see Hard drive on page 39)
   b. Keyboard (see Keyboard on page 48)
   c. Hinge cover (see Hinge cover on page 50)
   d. Top cover (see Top cover on page 52)
   e. Display assembly (see Display assembly on page 60)
   f. System board (see System board on page 63)

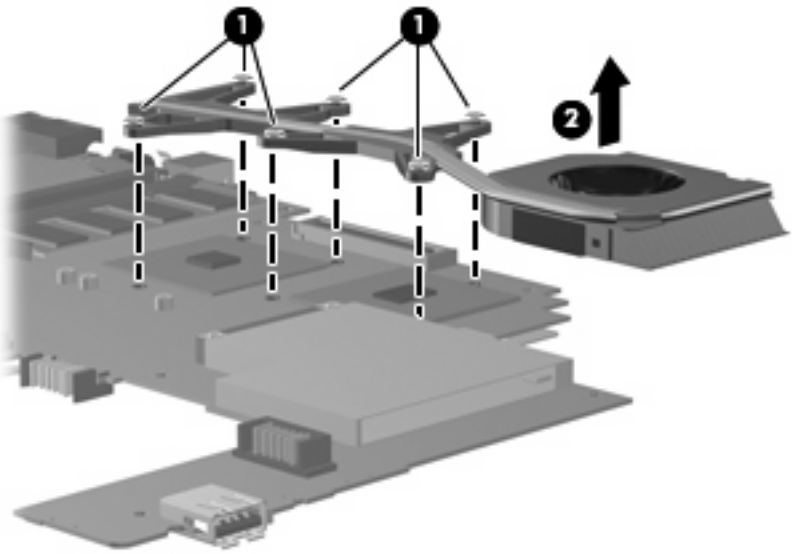
Remove the fan/heat sink assembly:

1. Disconnect the fan cable from the system board.

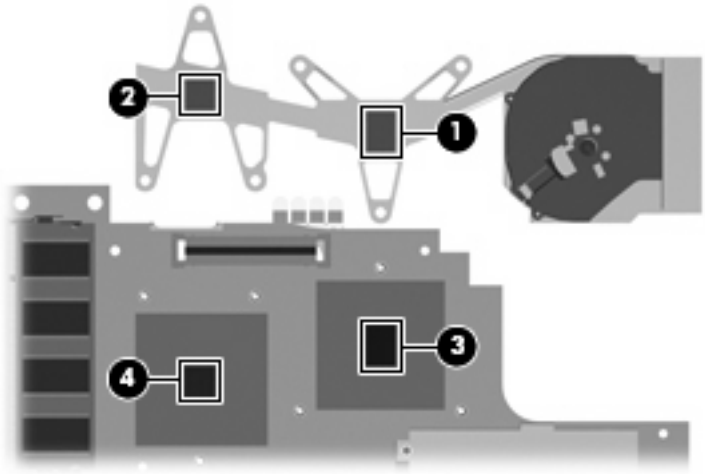


2. Turn the system board upside down with the front toward you.
3. Loosen the six Phillips PM2.5×7.0 captive screws **(1)** that secure the fan/heat sink assembly to the base enclosure in the 1, 2, 3, 4, 5, 6 sequence stamped into the fan/heat sink assembly.
4. Remove the fan/heat sink assembly **(2)**.

NOTE: Due to the adhesive quality of the thermal material located between the processor heat sink and system board components, it may be necessary to move the processor heat sink from side to side to detach it.



NOTE: The thermal material must be thoroughly cleaned from the surfaces of the heat sink **(1)** and **(2)**, the processor **(3)**, and graphics system component **(4)** each time the heat sink is removed. Replacement thermal material is included with all system board and fan/heat sink assembly spare part kits.



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

NOTE: To properly ventilate the computer, allow at least a 7.6-cm (3-inch) clearance on the left side of the computer.

The computer uses an electric fan for ventilation. The fan is controlled by a temperature sensor and is designed to turn on automatically when high temperature conditions exist. These conditions are affected by high external temperatures, system power consumption, power management/battery conservation configurations, battery fast charging, and software requirements. Exhaust air is displaced through the ventilation grill located on the left side of the computer.

Modem module

NOTE: All modem module spare part kits include a modem module cable.

Description	Spare part number
For use in all countries and regions except Australia, Brazil, and New Zealand	443899-001
For use only in Australia and New Zealand	443899-011
For use only in Brazil	443900-001

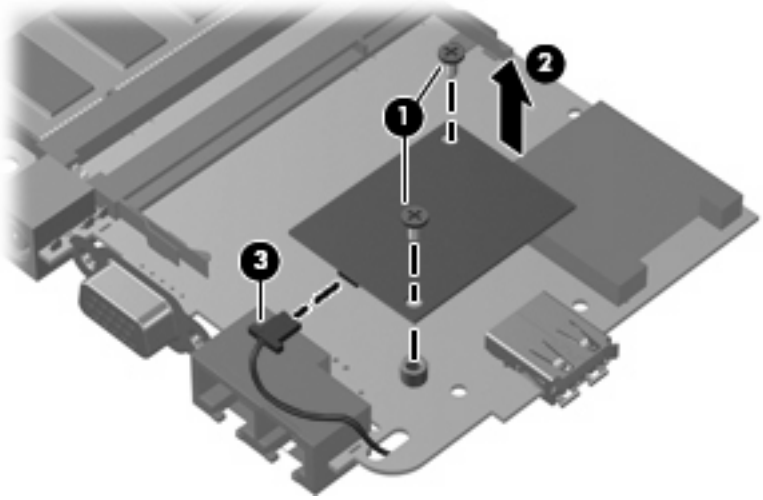
Before removing the modem module, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see Battery on page 37).
5. Remove the following components:
   a. Hard drive compartment cover (see Hard drive on page 39)
   b. Keyboard (see Keyboard on page 48)
   c. Hinge cover (see Hinge cover on page 50)
   d. Top cover (see Top cover on page 52)
   e. Display assembly (see Display assembly on page 60)
   f. System board (see System board on page 63)

Remove the modem module:

1. Turn the system board upside down, with the front toward you.
2. Remove the two Phillips PM2.5×4.0 screws **(1)** that secure the modem module to the system board.
3. Lift the modem module **(2)** straight up to disconnect it from the system board.

4. Disconnect the modem module cable **(3)** from the modem module.



Reverse this procedure to install the modem module.

5 Computer Setup

Starting Computer Setup

Computer Setup is a preinstalled, ROM-based utility that can be used even when the operating system is not working or will not load.

NOTE: Some of the Computer Setup menu items listed in this guide may not be supported by your computer.

NOTE: Pointing devices are not supported in Computer Setup. You must use the keyboard to navigate and make selections.

NOTE: An external keyboard connected by USB can be used with Computer Setup only if USB legacy support is enabled.

To start Computer Setup, follow these steps:

1. Turn on or restart the computer.
2. Before Windows® opens and while the "F10 = ROM Based Setup" message is displayed in the lower-left corner of the screen, press f10.

Using Computer Setup

Navigating and selecting in Computer Setup

The information and settings in Computer Setup are accessed from the File, Security, Diagnostics, and System Configuration menus.

1. Open Computer Setup by turning on or restarting the computer, and then pressing f10 while the "F10 = ROM Based Setup" message is displayed in the lower-left corner of the screen.

   Because Computer Setup 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 select an item, press enter.
   - To close open dialog boxes and return to the main Computer Setup screen, press esc.
   - To view navigation information, press f1.
   - To change the language, press f2.

2. Select the **File, Security, Diagnostics,** or **System Configuration** menu.

3. To exit Computer Setup, choose one of the following methods:

   - To exit Computer Setup without saving your preferences, use the arrow keys to select **File > Ignore Changes and Exit**. Then follow the instructions on the screen.
   - To save your preferences and exit Computer Setup, use the arrow keys to select **File > Save Changes and Exit**. Then follow the instructions on the screen.

Your preferences go into effect when the computer restarts.

Restoring factory settings in Computer Setup

To return all settings in Computer Setup to the values that were set at the factory, follow these steps:

1. Open Computer Setup by turning on or restarting the computer, and then pressing f10 while the "F10 = ROM Based Setup" message is displayed in the lower-left corner of the screen.
2. Use the arrow keys to select **File > Restore** defaults, and then press enter.
3. When the confirmation dialog box opens, press f10.
4. To save your preferences and exit Computer Setup, use the arrow keys to select **File > Save Changes and Exit**. Then follow the instructions on the screen.

Your preferences go into effect when the computer restarts.

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

Computer Setup menus

The menu tables in this section provide an overview of Computer Setup options.

NOTE: Some of the Computer Setup menu items listed in this chapter may not be supported by your computer.

File menu

Select	To do this
System information	• View identification information for the computer and the batteries in the system. • View specification information for the processor, cache and memory size, system ROM, video revision, and keyboard controller version.
Restore defaults	Replace the configuration settings in Computer Setup with the original factory settings. (Password settings and security settings are not changed when you restore the factory settings.)
Ignore changes and exit	Cancel any changes entered during the current session. Then exit and restart the computer.
Save changes and exit	Save any changes entered during the current session. Then exit and restart the computer. Your changes go into effect when the computer restarts.

Security menu

Select	To do this
Setup password	Enter, change, or delete a setup password.
Power-On password	Enter, change, or delete a power-on password.
Password options	• Enable/disable stringent security. • Enable/disable password requirement on computer restart.
DriveLock passwords	• Enable/disable DriveLock on any computer hard drive and on optional MultiBay hard drives. • Change a DriveLock user password or master password. **NOTE:** DriveLock settings are accessible only when you enter Computer Setup by turning on (not restarting) the computer.
Smart Card security	Enable/disable support for smart card and Java™ Card power-on authentication. **NOTE:** Power-on authentication for smart cards is supported only on computers with optional smart card readers. **NOTE:** You must have an administrator password to change this setting.
TPM Embedded Security	Enable/disable support for Trusted Platform Module (TPM) Embedded Security, which protects the computer from unauthorized access to owner functions available in Embedded Security for ProtectTools. For more information, refer to the ProtectTools software Help. **NOTE:** You must have a setup password to change this setting.
System IDs	Enter user-defined computer asset tracking number and ownership tag.
Disk Sanitizer	Run Disk Sanitizer to destroy all existing data on the primary hard drive. The following options are available: • Fast: Runs the Disk Sanitizer erase cycle once. • Optimum: Runs the Disk Sanitizer erase cycle 3 times. • Custom: Allows you to select the desired number of Disk Sanitizer erase cycles from a list. **CAUTION:** If you run Disk Sanitizer, the data on the primary hard drive is destroyed permanently.

Diagnostics menu

Select	To do this
Hard Drive Self-Test options	Run a comprehensive self-test on any hard drive in the system or on any optional MultiBay hard drive.
Memory Check	Run a comprehensive check on system memory.
Startup Check (select models only)	Verify the system components needed for starting the computer.

System Configuration menu

NOTE: Some of the listed System Configuration options may not be supported by your computer.

Select	To do this
Language (or press f2)	Change the Computer Setup language.
Boot options	• Set f9, f10, and f12 delay when starting up. • Enable/disable CD-ROM boot. • Enable/disable floppy boot. • Enable/disable internal network adapter boot and set the boot mode (PXE or RPL). • Enable/disable MultiBoot, which sets a boot order that can include most boot devices in the system. • Set the Express Boot Popup delay in seconds. • Set the boot order.
Device configurations	• Swap the functions of the fn key and left ctrl key. • Enable/disable multiple standard pointing devices at startup. (To set the computer to support only a single, usually nonstandard, pointing device at startup, select **Disable**.) • Enable/disable USB legacy support. When enabled, USB legacy support allows the following: ◦ Use of a USB keyboard, mouse, and hub in Computer Setup even when a Windows operating system is not running. ◦ Startup from bootable USB devices, including a hard drive, diskette drive, or optical drive connected by a USB port to the computer or to an optional docking device (select models only). • Select a parallel port mode: EPP (Enhanced Parallel Port), standard, bidirectional, or ECP (Enhanced Capabilities Port). • Enable/disable BIOS DMA data transfers. • Enable/disable fan always on while connected to an AC outlet. • Enable/disable Intel® Data Execution Prevention or AMD® PSAE Execution Disable. When enabled, the processor can disable some virus code execution, which helps to improve computer security. • Enable/disable LAN Power Save. When enabled, saves power by turning off the LAN when not in use. • Enable/disable SATA Native Mode. • Enable/disable Dual Core CPU. • Enable/disable Secondary Battery Fast Charge. • Choose Bit-shift or LBA assisted HDD Translation Mode. • Enable/disable Windows direct application launcher. • Enable/disable HP Lockout.

Select	To do this
Built-In Device Options	• Enable/disable embedded WWAN Device Radio. • Enable/disable embedded WLAN Device Radio. • Enable/disable embedded Bluetooth® Device Radio. • Enable/disable LAN/WLAN Switching. When enabled, switches to a WLAN when a LAN is either unavailable or disconnected. • Enable/disable Wake on LAN from Off. • Enable/disable the ambient light sensor.
Port Options	• Enable/disable the serial port. • Enable/disable the parallel port. • Enable/disable the flash media reader. • Enable/disable the USB port. **CAUTION:** Disabling the USB port also disables MultiBay devices and ExpressCard devices on the advanced port replicator. • Enable/disable the 1394 port. • Enable/disable the cardbus slot. • Enable/disable the ExpressCard slot. • Enable/disable the infrared port. • Enable/disable the optical disk drive. • Enable/disable the network controller.

6 Specifications

Computer specifications

	Metric	U.S.
Dimensions		
Length	21.21 cm	8.35 in
Width	29.01 cm	11.42 in
Height (front to rear)	2.82 cm	1.11 in
Weight (equipped with 512-MB memory module, hard drive, 6-cell battery, WLAN module, and modem module)	1.63 kg	3.6 lbs
Input power		
Operating voltage	19.0 V dc @ 4.74 A – 65 W	
Operating current	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.

12.1-inch, WXGA display specifications

	Metric	U.S.
Dimensions		
Height	16.9 cm	6.7 in
Width	26.2 cm	10.3 in
Diagonal	30.8 cm	12.1 in
Number of colors	Up to 16.8 million	
Contrast ratio	250:1 (typical)	
Brightness	180 nits (typical)	
Pixel resolution		
Pitch	0.279 × 0.279 mm	
Format	1280 × 800	
Configuration	RGB vertical stripe	
Backlight	Edge lit	
Character display	80 × 25	
Total power consumption	4.0 W	
Viewing angle	+/-40 horizontal, +120/–40° vertical (typical)	

Hard drive specifications

	100-GB*	80-GB*	60-GB*
Dimensions			
Height	9.5 mm	9.5 mm	9.5 mm
Width	70 mm	70 mm	70 mm
Weight	101 g	101 g	101 g
Interface type	SATA	SATA	SATA
Transfer rate	100 MB/sec	100 MB/sec	100 MB/sec
Security	ATA security	ATA security	ATA security
Seek times (typical read, including setting)			
Single track	3 ms	3 ms	3 ms
Average	13 ms	13 ms	13 ms
Maximum	24 ms	24 ms	24 ms
Logical blocks	195,350,400	156,280,320	117,210,240
Disc rotational speed	4200 rpm	4200 rpm	4200 rpm
Operating temperature	5°C to 55°C (41°F to 131°F)		

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

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

System DMA specifications

Hardware DMA	System function
DMA0	Not applicable
DMA1*	Not applicable
DMA2*	Not applicable
DMA3	Not applicable
DMA4	Direct memory access controller
DMA5*	Available for PC Card
DMA6	Not assigned
DMA7	Not assigned

*PC Card controller can use DMA 1, 2, or 5.

System interrupt specifications

Hardware IRQ	System function
IRQ0	System timer
IRQ1	Standard 101-/102-Key or Microsoft® Natural Keyboard
IRQ2	Cascaded
IRQ3	Intel 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 configuration; audio possible 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 I/O address specifications

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)

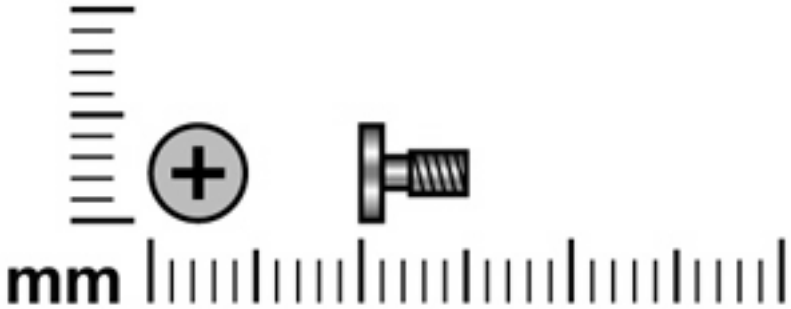
System memory map specifications

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

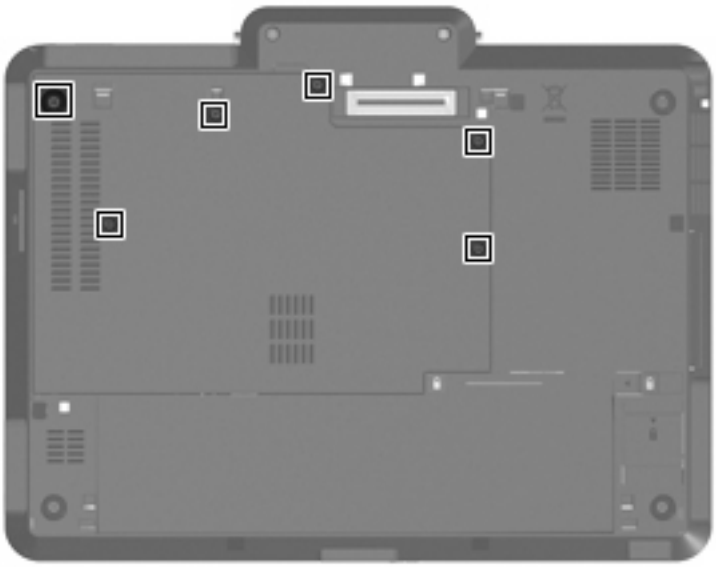
7 Screw listing

This section provides specification and reference information for the screws and screw locks used in the computer. All screws listed in this section are available in the Screw Kit, spare part number 454687-001.

Phillips PM2.0×5.0 captive screw



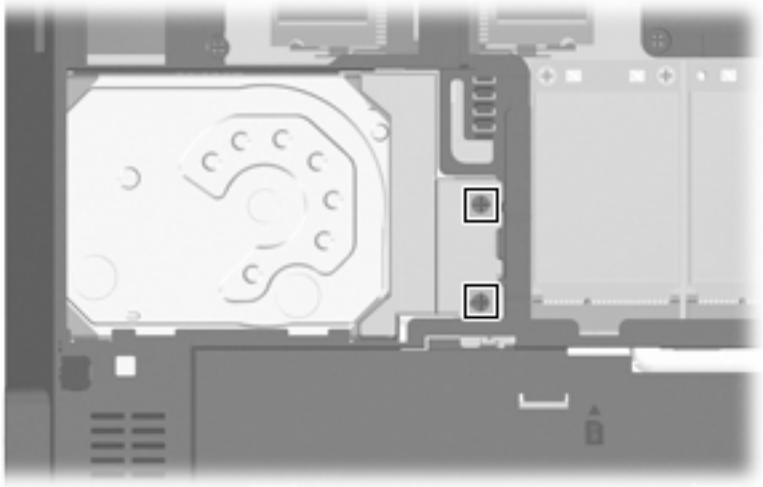
Color	Quantity	Length	Thread	Head diameter
Black	6	5.0 mm	2.0 mm	5.0 mm



Where used: 6 captive screws that secure the hard drive compartment cover to the computer (screws are captured on the cover by C-clips)

Phillips PM2.0×3.0 screw

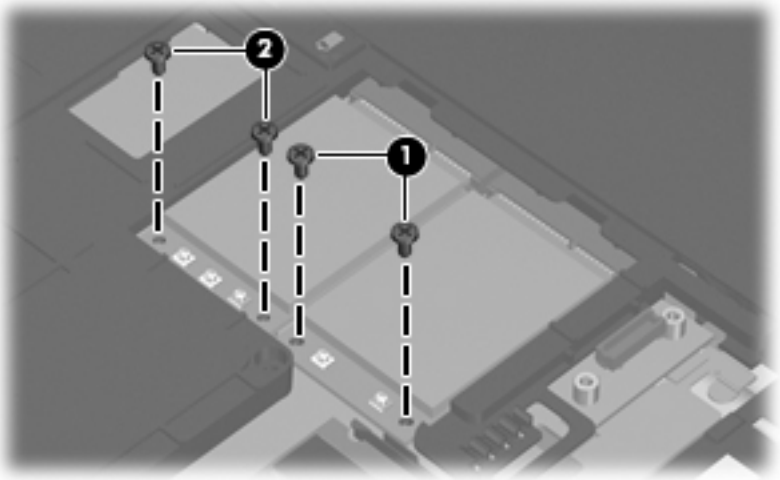
Color	Quantity	Length	Thread	Head diameter
Black	2	3.0 mm	2.0 mm	4.5 mm



Where used: 2 screws that secure the hard drive bracket to the system board

Phillips PM2.5×4.0 screw

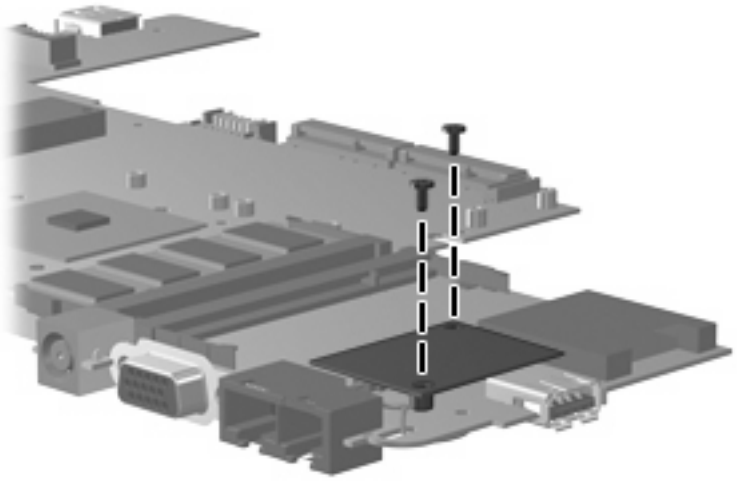
Color	Quantity	Length	Thread	Head diameter
Black	6	4.0 mm	2.5 mm	5.0 mm



Where used:

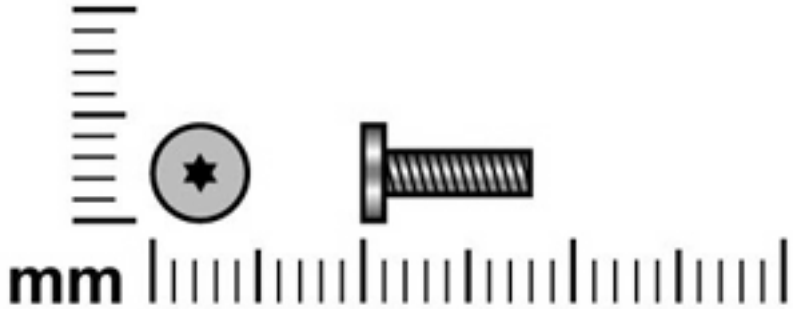
(1) Two screws that secure the WLAN module to the system board

(2) Two screws that secure the WWAN module to the system board

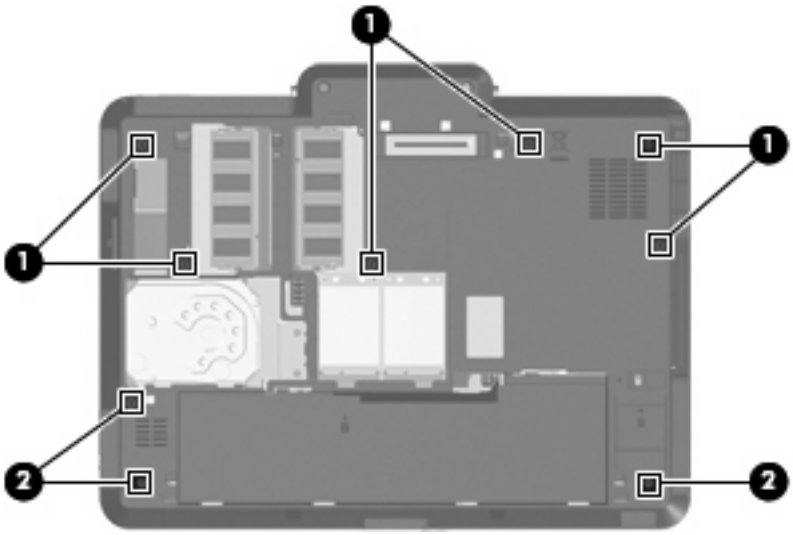


Where used: 2 screws that secure the modem module to the system board

Torx T8M2.0×8.0 screw



Color	Quantity	Length	Thread	Head diameter
Black	9	8.0 mm	2.0 mm	5.0 mm

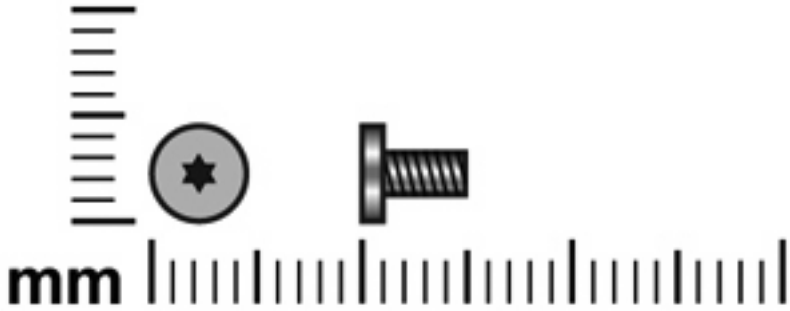


Where used:

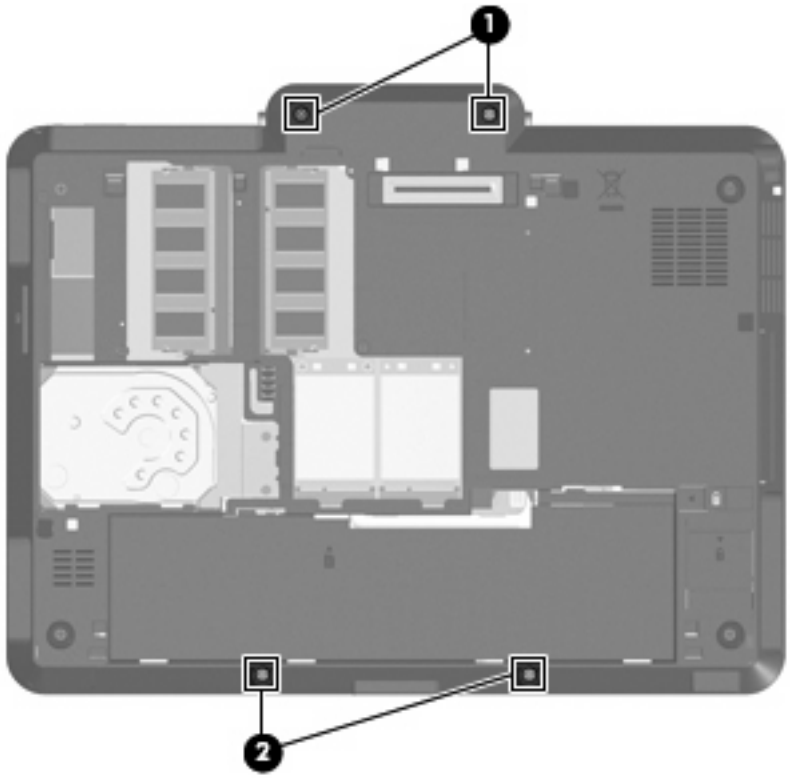
(1) Six screws that secure the keyboard to the computer

(2) Three screws that secure the top cover to the base enclosure

Torx T8M2.0×5.0 screw



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

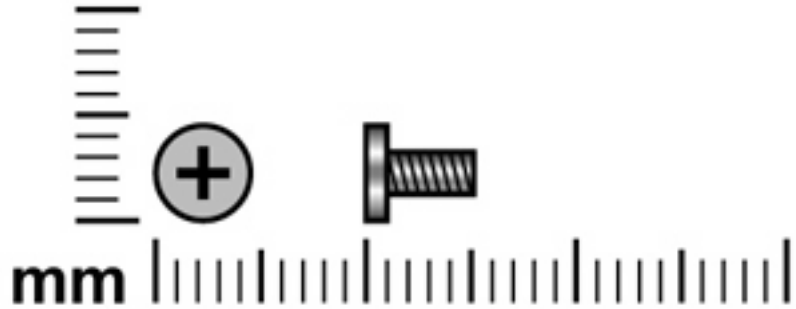


Where used:

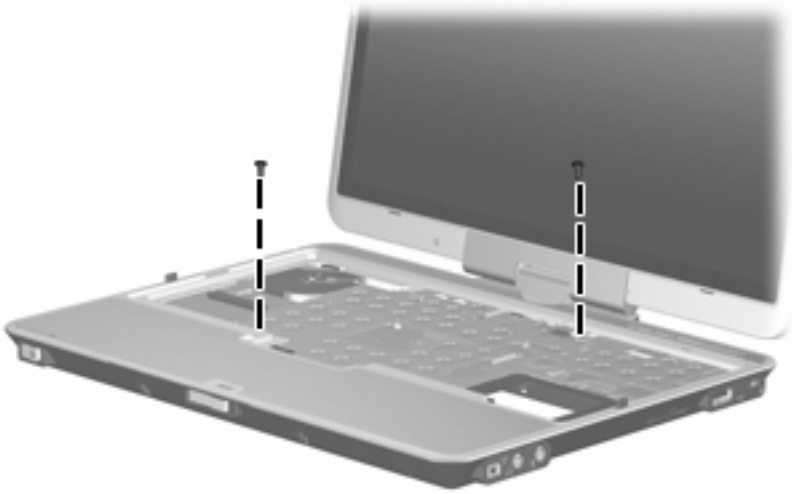
(1) Two screws that secure the hinge cover to the base enclosure

(2) Two screws that secure the top cover to the base enclosure

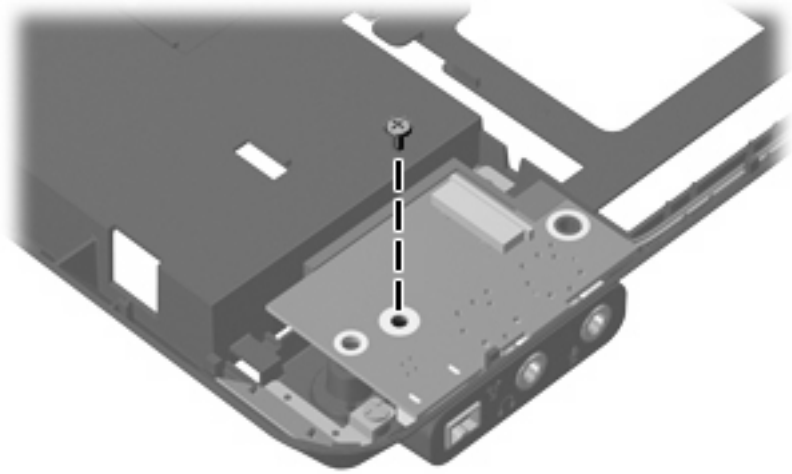
Phillips PM2.0×5.0 screw



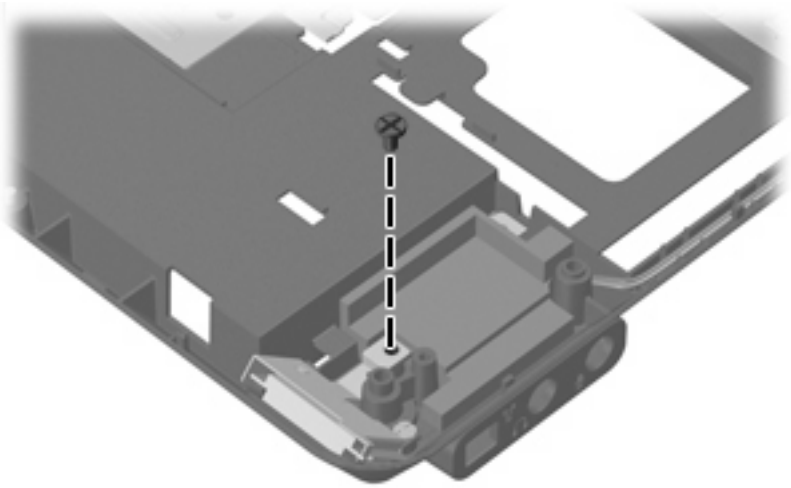
Color	Quantity	Length	Thread	Head diameter
Black	5	5.0 mm	2.0 mm	5.0 mm



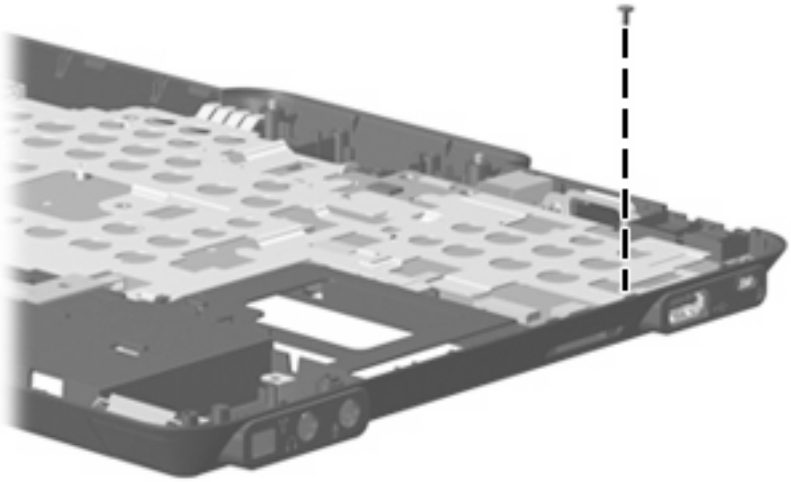
Where used: 2 screws that secure the top cover to the base enclosure



Where used: One screw that secures the audio connector board to the base enclosure

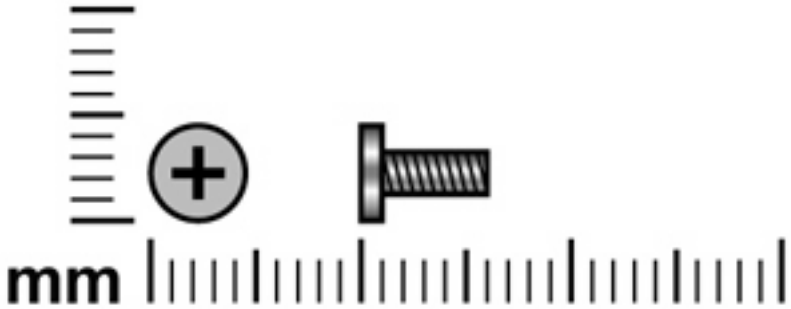


Where used: One screw that secures the Bluetooth module to the base enclosure

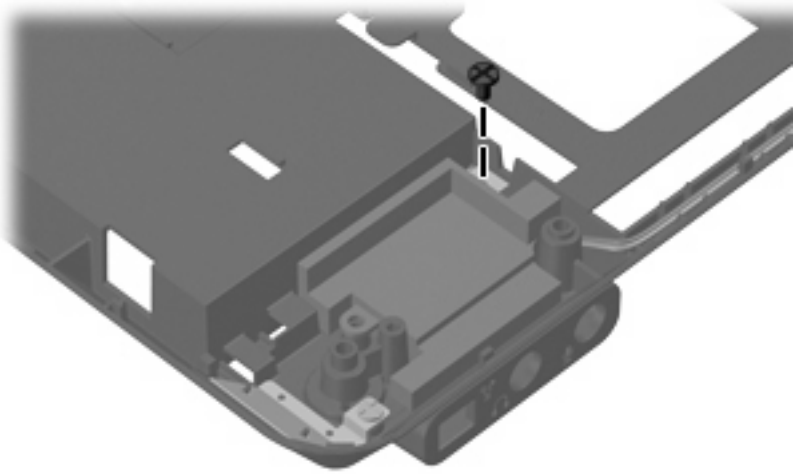


Where used: One screw that secures the system board to the base enclosure

Black Phillips PM2.0×6.0 screw

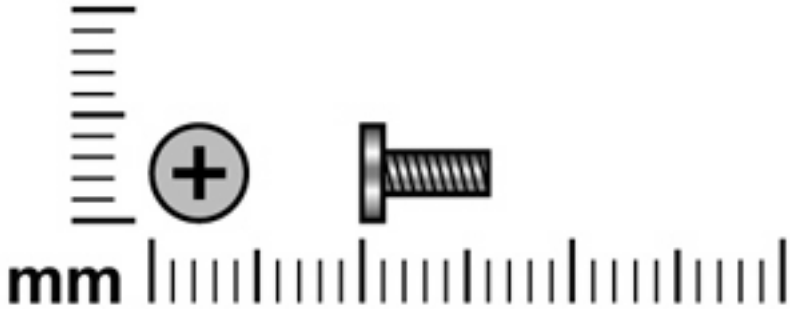


Color	Quantity	Length	Thread	Head diameter
Black	1	6.0 mm	2.0 mm	5.0 mm

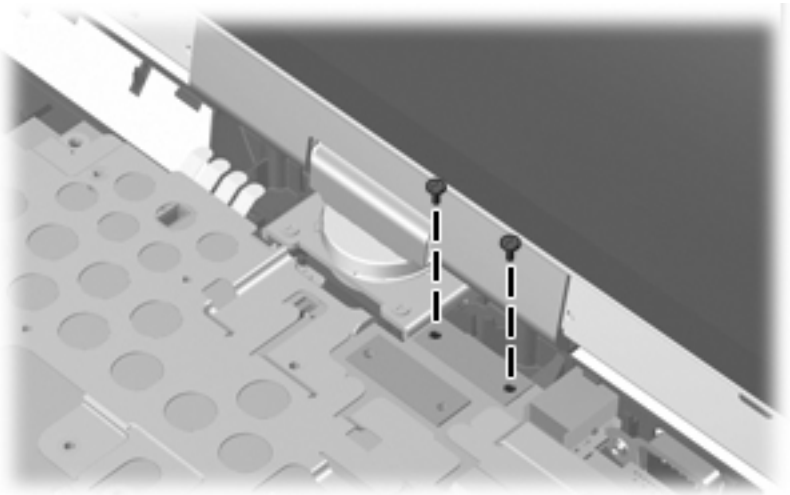


Where used: One screw that secures the speaker to the base enclosure

Silver Phillips PM2.0×6.0 screw

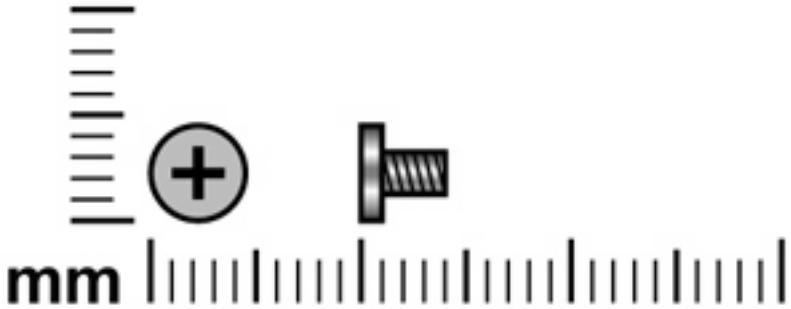


Color	Quantity	Length	Thread	Head diameter
Silver	2	6.0 mm	2.0 mm	5.0 mm

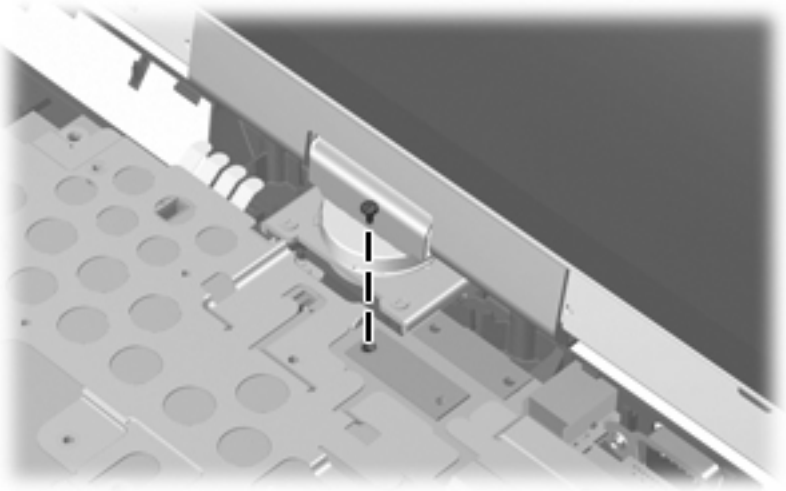


Where used: 2 screws that secure the display panel cable to the system board

Phillips PM2.0×4.0 screw

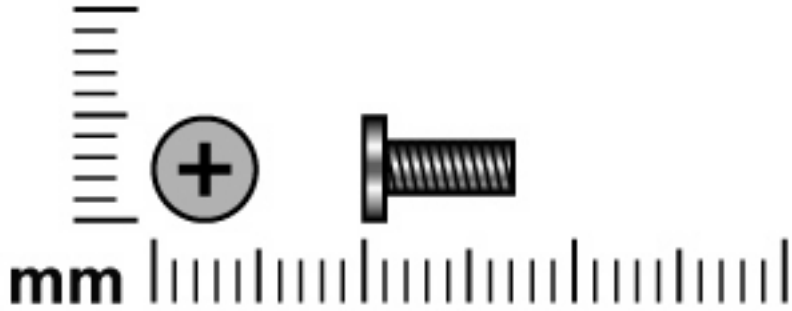


Color	Quantity	Length	Thread	Head diameter
Black	1	4.0 mm	2.0 mm	4.5 mm

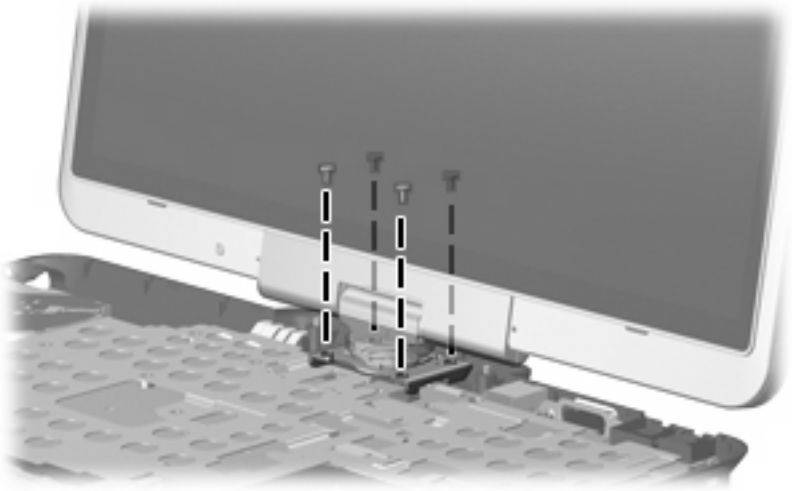


Where used: One screw that secures the display converter cable to the system board

Phillips PM2.5×7.0 screw

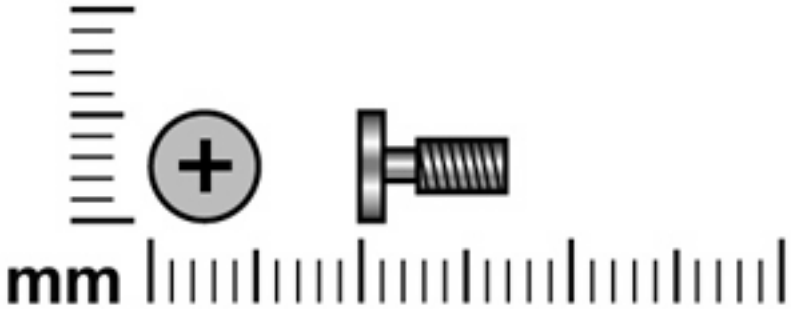


Color	Quantity	Length	Thread	Heat width
Silver	4	7.0 mm	2.5 mm	5.0 mm

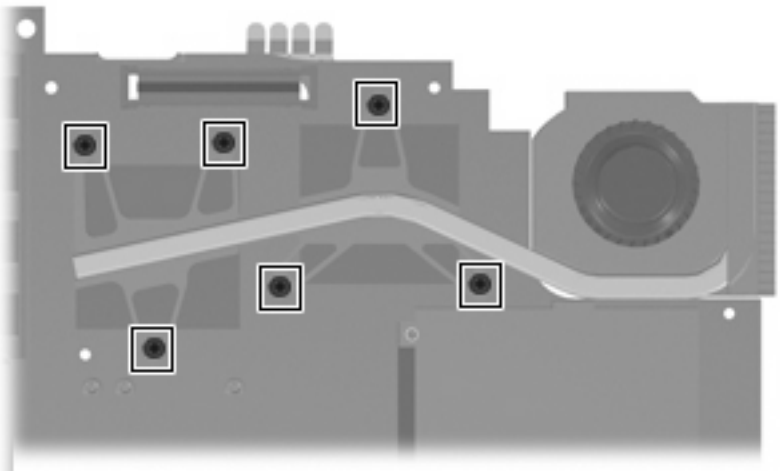


Where used: 4 screws that secure the display assembly to the base enclosure

Phillips PM2.5×7.0 captive screw



Color	Quantity	Length	Thread	Head diameter
Silver	6	7.0 mm	2.5mm	5.0 mm



Where used: 6 captive screws that secure the fan/heat sink assembly to the system board (screws are captured on the fan/heat sink assembly by C-clips)

8 Backup and recovery in Windows Vista

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 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 HP Backup & Recovery Manager software.

- The computer must be connected to AC power during the process.
- Only one set of the recovery discs can be created per computer.
- Number each disc before inserting it into the optical drive of the computer.
- If necessary, you can cancel the disc creation before you have finished creating the recovery discs. The next time you select **Create a set of recovery discs (Recommended)**, you will be prompted to continue the disc creation.

To create a set of recovery discs:

1. Select **Start > All Programs > HP Backup & Recovery > Backup & Recovery Manager**.
2. Click **Next**.
3. Click **Create a set of recovery discs (Recommended)**, and then click **Next**.
4. Follow the on-screen instructions.

Backing up your information

NOTE: You can only recover files that you have previously backed up. HP recommends that you use HP Backup & Recovery Manager to create an entire drive backup as soon as you set up your computer.

With HP Backup & Recovery Manager, you can perform the following tasks:

- Backing up your information regularly to protect your important system files
- Creating system recovery points that allow you to reverse undesireable changes to your computer by restoring the computer to an earlier state
- Scheduling backups at specific intervals or events

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 HP Backup & Recovery Manager.
- Create system recovery points using HP Backup & Recovery Manager, 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:

  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**.

NOTE: Before you can perform backup and recovery procedures, the computer must be connected to external power.

NOTE: Drivers, utilities, and software installed by HP can be copied to a CD or to a DVD using HP Backup & Recovery Manager.

Backing up specific files or folders

You can back up specific files or folders to the recovery partition on the hard drive, to an optional external hard drive, or to optical discs (CDs or DVDs).

NOTE: This process will take several minutes, depending on the file size and the speed of the computer.

To back up specific files or folders:

1. Select **Start > All Programs > HP Backup & Recovery > Backup & Recovery Manager**.
2. Click **Next**.
3. Click **Create or manage backups**, and then click **Next**.
4. Click **Back up user created files and folders**, and then click **Next**.
5. Follow the on-screen instructions.

Backing up the entire hard drive

When you perform a complete backup of the hard drive, you are saving the full factory image, including the Windows® operating system, software, and all personal files and folders.

NOTE: A copy of the entire hard drive image can be stored on another hard drive, on a network drive, or on recovery discs that you create.

NOTE: This process may take over an hour, depending on your computer speed and the amount of data being stored.

To back up your entire hard drive:

1. Select **Start > All Programs > HP Backup & Recovery > Backup & Recovery Manager**.
2. Click **Next**.
3. Click **Create or manage backups**, and then click **Next**.
4. Click **Create or manage Entire Drive Backups**, and then click **Next**.
5. Follow the on-screen instructions.

Creating recovery points

When you back up modifications since your last backup, you are creating system recovery points. This allows you to save 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: The first system recovery point, a snapshot of the entire image, is automatically created the first time you perform a backup. Subsequent recovery points make copies of changes made after that time.

HP recommends that you create recovery points at the following times:

- Before you add or extensively modify software or hardware
- Periodically, whenever the system is performing optimally

NOTE: Recovering to an earlier recovery point does not affect data files or e-mails created since that recovery point.

To create a system recovery point:

1. Select **Start > All Programs > HP Backup & Recovery > Backup & Recovery Manager**.
2. Click **Next**.
3. Click **Create or manage backups**, and then click **Next**.
4. Click **Create or manage Recovery Points**, and then click **Next**.
5. Follow the on-screen instructions.

Scheduling backups

Use HP Backup Scheduler to schedule backups for the entire system, for recovery points, or for specific files and folders. With this tool, you can schedule backups at specific intervals (daily, weekly, or monthly) or at specific events, such as at system restart or when you dock to an optional docking station (select models only).

To schedule backups:

1. Select **Start > All Programs > HP Backup & Recovery > HP Backup Scheduler**.
2. 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 HP Backup & Recovery Manager to create an entire drive backup as soon as you set up your computer.

HP Backup & Recovery Manager helps you with the following tasks for safeguarding your information and restoring it in case of a system failure:

- Recovering important files—This feature helps you reinstall important files without performing a full system recovery.
- Performing a full system recovery—With HP Backup & Recovery Manager, you can recover your full factory image if you experience system failure or instability. HP Backup & Recovery Manager works from a dedicated recovery partition on the hard drive or from recovery discs you create.

Performing a recovery from the recovery discs

To perform a recovery from the recovery discs, follow these steps:

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.

Performing a recovery from the hard drive

There are 2 ways to initiate a recovery from the hard drive:

- From within Windows
- From the recovery partition

Initiating a recovery in Windows

To initiate a recovery in Windows, follow these steps:

1. Back up all personal files.
2. Select **Start > All Programs > HP Backup & Recovery > Backup & Recovery Manager**.
3. Click **Next**.
4. Click **Perform a recovery**, and then click **Next**.
5. Follow the on-screen instructions.

Initiating a recovery from the hard drive recovery partition

To initiate a recovery from the hard drive recovery partition, follow these steps:

1. Back up all personal files.
2. Restart the computer, and then press f11 before the Windows operating system loads.
3. Click a recovery option, and then click **Next**.
4. Follow the on-screen instructions.

9 Backup and recovery in Windows XP

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 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 HP Backup and Recovery Manager software.

- The computer must be connected to AC power during the process.
- Only one set of the recovery discs can be created per computer.
- Number each disc before inserting it into the optical drive of the computer.
- If necessary, you can cancel the disc creation before you have finished creating the recovery discs. The next time you select **Create factory software recovery CDs or DVDs to recover the system (Highly recommended)**, you will be prompted to continue the disc creation.

To create a set of recovery discs:

1. Select **Start > All Programs > HP Backup & Recovery > HP Backup and Recovery Manager**.
2. Click **Next**.
3. Click **Create factory software recovery CDs or DVDs to recover the system (Highly recommended)**, and then click **Next**.
4. Follow the on-screen instructions.

Backing up your information

NOTE: You can only recover files that you have previously backed up. HP recommends that you use HP Backup and Recovery Manager to create an entire drive backup as soon as you set up your computer.

With HP Backup and Recovery Manager, you can perform the following tasks:

- Backing up your information regularly to protect your important system files
- Creating system recovery points that allow you to reverse undesireable changes to your computer by restoring the computer to an earlier state
- Scheduling backups at specific intervals or events

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 HP Backup and Recovery Manager.
- Create system recovery points using HP Backup and Recovery Manager, and periodically copy them to disc.
- Store personal files in the My 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:

  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**.

NOTE: Before you can perform backup and recovery procedures, the computer must be connected to external power.

NOTE: Drivers, utilities, and software installed by HP can be copied to a CD or to a DVD using HP Backup and Recovery Manager.

Backing up specific files or folders

You can back up specific files or folders to the recovery partition on the hard drive, to an optional external hard drive, or to optical discs (CDs or DVDs).

NOTE: This process will take several minutes, depending on the file size and the speed of the computer.

To back up specific files or folders:

1. Select **Start > All Programs > HP Backup & Recovery > HP Backup and Recovery Manager**.
2. Click **Next**.
3. Click **Back up to protect system settings and important data files**, and then click **Next**.
4. Click **Back up individual files and folders**, and then click **Next**.
5. Follow the on-screen instructions.

Backing up the entire hard drive

When you perform a complete backup of the hard drive, you are saving the full factory image, including the Windows® operating system, software, and all personal files and folders.

NOTE: A copy of the entire hard drive image can be stored on another hard drive, on a network drive, or on recovery discs that you create.

NOTE: This process may take over an hour, depending on your computer speed and the amount of data being stored.

To back up your entire hard drive:

1. Select **Start > All Programs > HP Backup & Recovery > HP Backup and Recovery Manager**.
2. Click **Next**.
3. Click **Back up to protect system settings and important data files**, and then click **Next**.
4. Click **Back up entire hard drive**, and then click **Next**.
5. Follow the on-screen instructions.

Creating recovery points

When you back up modifications since your last backup, you are creating system recovery points. This allows you to save 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: The first system recovery point, a snapshot of the entire image, is automatically created the first time you perform a backup. Subsequent recovery points make copies of changes made after that time.

HP recommends that you create recovery points at the following times:

- Before you add or extensively modify software or hardware
- Periodically, whenever the system is performing optimally

NOTE: Recovering to an earlier recovery point does not affect data files or e-mails created since that recovery point.

To create a system recovery point:

1. Select **Start > All Programs > HP Backup & Recovery > HP Backup and Recovery Manager**.
2. Click **Next**.
3. Click **Back up to protect system settings and important data files**, and then click **Next**.
4. Click **Create or manage Recovery Points**, and then click **Next**.
5. Follow the on-screen instructions.

Scheduling backups

Use HP Backup Scheduler to schedule backups for the entire system, for recovery points, or for specific files and folders. With this tool, you can schedule backups at specific intervals (daily, weekly, or monthly) or at specific events, such as at system restart or when you dock to an optional docking station (select models only).

To schedule backups:

1. Select **Start > All Programs > HP Backup & Recovery > HP Backup Scheduler**.
2. 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 HP Backup and Recovery Manager to create an entire drive backup as soon as you set up your computer.

HP Backup and Recovery Manager helps you with the following tasks for safeguarding your information and restoring it in case of a system failure:

- Recovering important files—This feature helps you reinstall important files without performing a full system recovery.
- Performing a full system recovery—With HP Backup and Recovery Manager, you can recover your full factory image if you experience system failure or instability. HP Backup and Recovery Manager works from a dedicated recovery partition on the hard drive or from recovery discs you create.

Performing a recovery from the recovery discs

To perform a recovery from the recovery discs, follow these steps:

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.

Performing a recovery from the hard drive

There are 2 ways to initiate a recovery from the hard drive:

- From within Windows
- From the recovery partition

Initiating a recovery in Windows

To initiate a recovery in Windows, follow these steps:

1. Back up all personal files.
2. Select **Start > All Programs > HP Backup & Recovery > HP Backup and Recovery Manager**.
3. Click **Next**.
4. Click **Recover important files or the entire system**, and then click **Next**.
5. Follow the on-screen instructions.

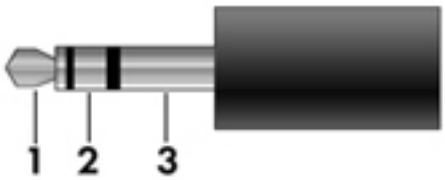
Initiating a recovery from the hard drive recovery partition

To initiate a recovery from the hard drive recovery partition, follow these steps:

1. Back up all personal files.
2. Restart the computer, and then press f11 before the Windows operating system loads.
3. Click a recovery option, and then click **Next**.
4. Follow the on-screen instructions.

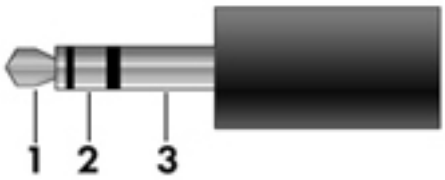
10 Connector pin assignments

Audio-out (headphone)



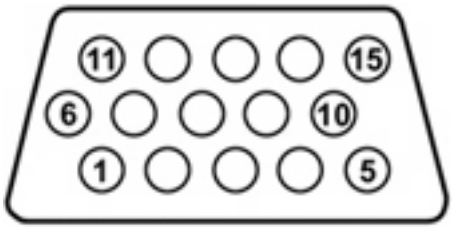
Pin	Signal
1	Audio out, left channel
2	Audio out, right channel
3	Ground

Audio-in (microphone)



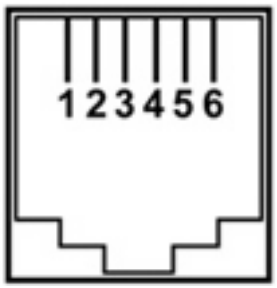
Pin	Signal
1	Audio signal in
2	Audio signal in
3	Ground

External monitor



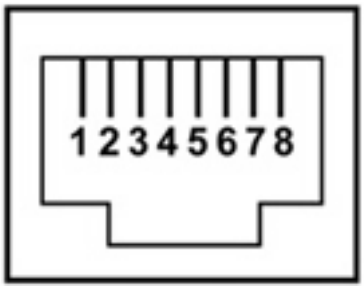
Pin	Signal
1	Red analog
2	Green analog
3	Blue analog
4	Not connected
5	Ground
6	Ground analog
7	Ground analog
8	Ground analog
9	+5 VDC
10	Ground
11	Monitor detect
12	DDC 2B data
13	Horizontal sync
14	Vertical sync
15	DDC 2B clock

RJ-11 (modem)



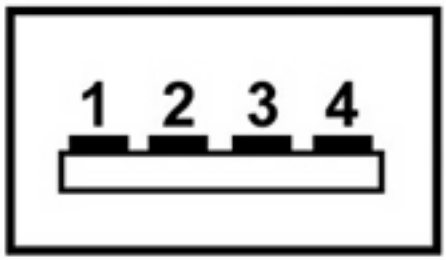
Pin	Signal
1	Unused
2	Tip
3	Ring
4	Unused
5	Unused
6	Unused

RJ-45 (network)



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

Universal Serial Bus



Pin	Signal
1	+5 VDC
2	Data -
3	Data +
4	Ground

11 Power cord set requirements

The wide range input feature of the computer permits it to operate from any line voltage from 100 to 120 volts AC or from 220 to 240 volts AC.

The 3-conductor power cord set included with the computer meets the requirements for use in the country or region where the equipment is purchased.

Power cord sets for use in other countries and regions must meet the requirements of the country or region where the computer is used.

Requirements for all countries and regions

The requirements listed below are applicable to all countries and regions:

- The length of the power cord set must be at least 1.5 m (5.0 ft) and no more than 2.0 m (6.5 ft).
- All power cord sets must be approved by an acceptable accredited agency responsible for evaluation in the country or region where the power cord set will be used.
- The power cord sets must have a minimum current capacity of 10 amps and a nominal voltage rating of 125 or 250 V AC, as required by the power system of each country or region.
- The appliance coupler must meet the mechanical configuration of an EN 60 320/IEC 320 Standard Sheet C13 connector for mating with the appliance inlet on the back of the computer.

Requirements for specific countries and regions

Country/region	Accredited agency	Applicable note number
Australia	EANSW	1
Austria	OVE	1
Belgium	CEBC	1
Canada	CSA	2
Denmark	DEMKO	1
Finland	FIMKO	1
France	UTE	1
Germany	VDE	1
Italy	IMQ	1
Japan	METI	3
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.

12 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. Exercise caution 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. When you remove these components, handle them carefully.

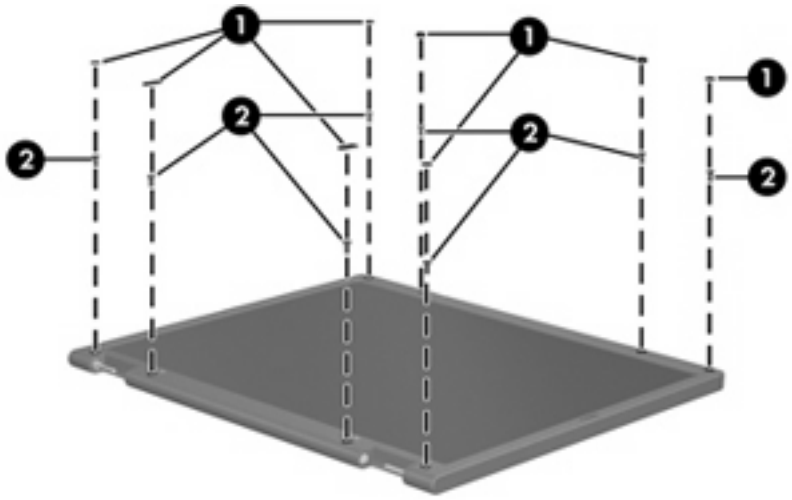
NOTE: **Materials Disposal**. This HP product contains mercury in the backlight in the display assembly that might require special handling at end-of-life. Disposal of mercury may be regulated because of environmental considerations. For disposal or recycling information, contact your local authorities,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

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

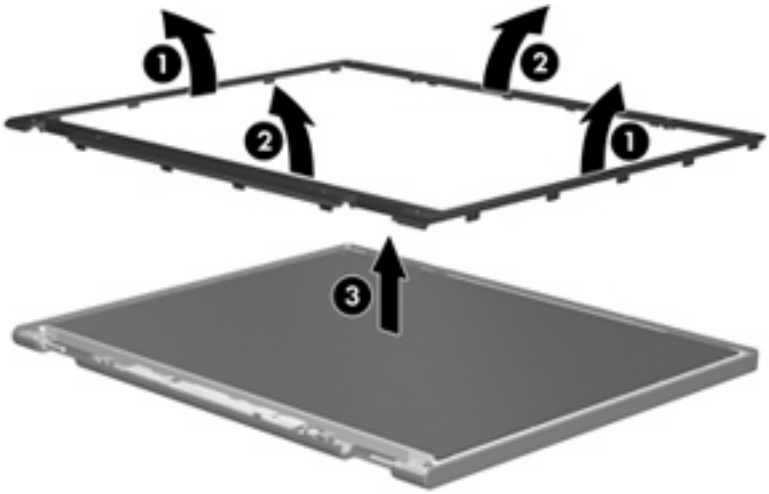
NOTE: The procedures provided in this appendix are general disassembly instructions. Specific details, such as screw sizes, quantities, and locations, and component shapes and sizes, can vary from one computer model to another.

Perform the following steps to disassemble the display assembly:

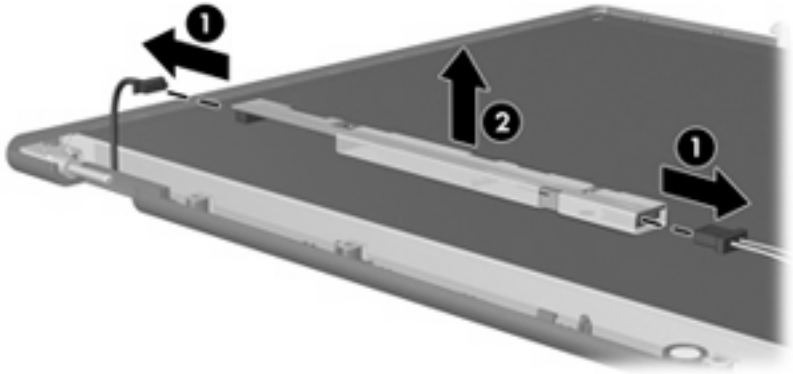
1. Remove all screw covers **(1)** and screws **(2)** that secure the display bezel to the display assembly.



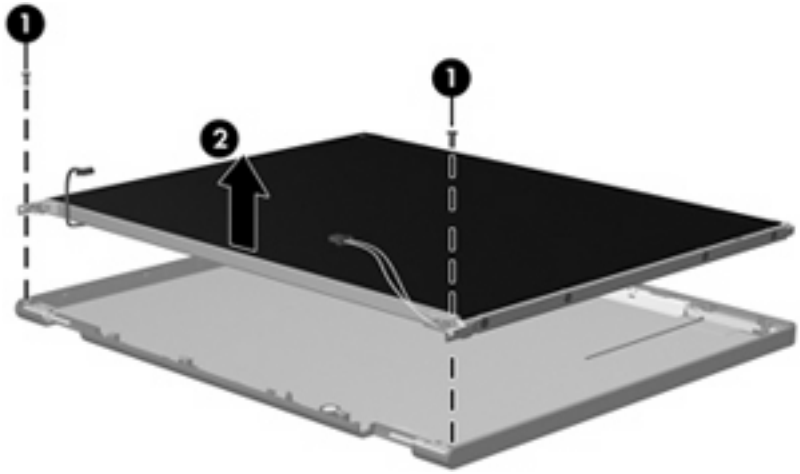
2. Lift up and out on the left and right inside edges **(1)** and the top and bottom inside edges **(2)** of the display bezel until the bezel disengages from the display assembly.
3. Remove the display bezel **(3)**.



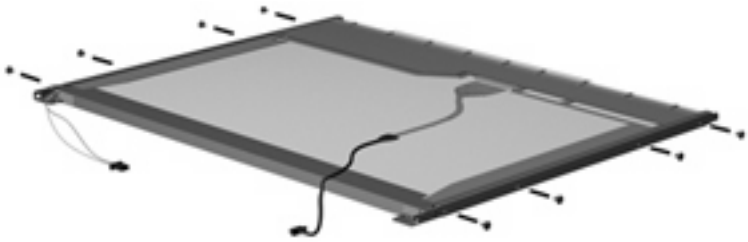
4. Disconnect all display panel cables **(1)** from the display inverter and remove the inverter **(2)**.



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.

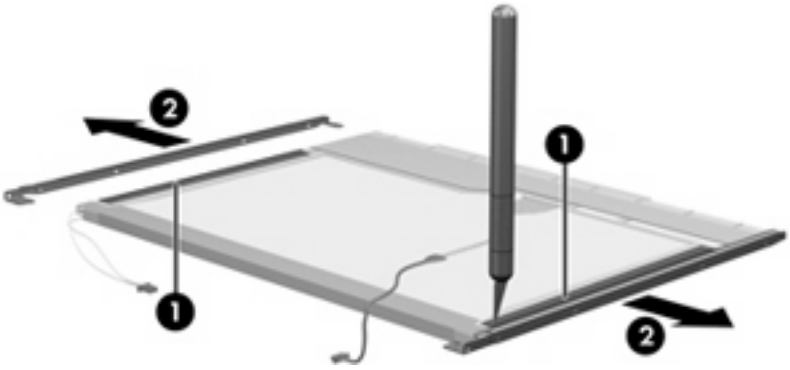


7. Turn the display panel assembly upside down.
8. Remove all screws that secure the display panel frame to the display panel.

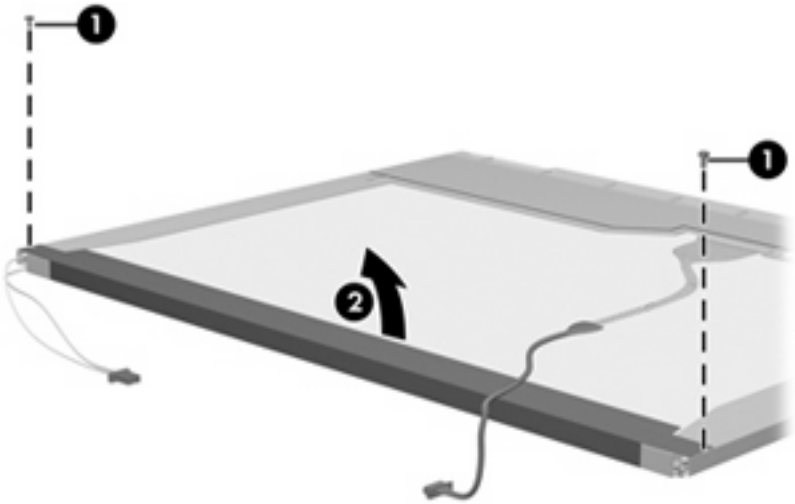


9. Use a sharp-edged tool to cut the tape **(1)** that secures the sides of the display panel to the display panel frame.

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

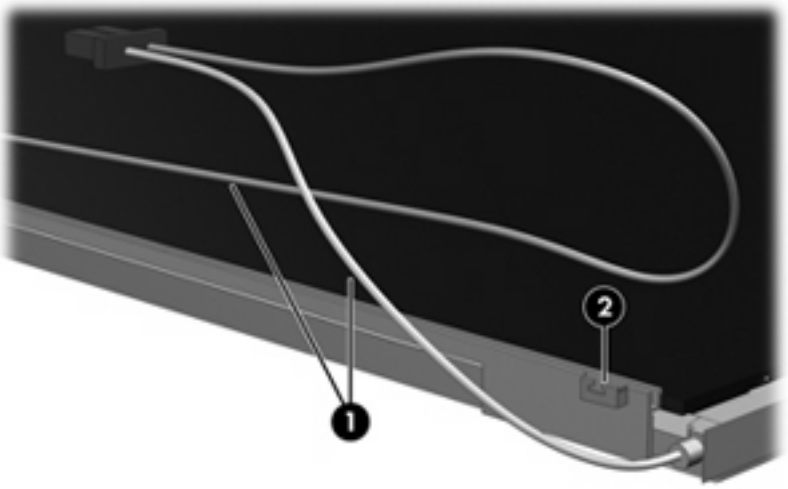


11. Remove the screws **(1)** that secure the backlight cover to the display panel.
12. Lift the top edge of the backlight cover **(2)** and swing it outward.



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

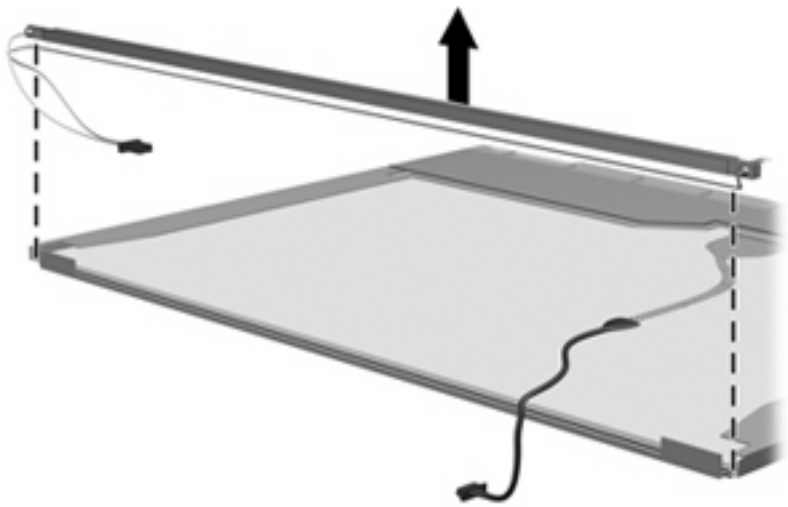
15. Remove the backlight cables **(1)** from the clip **(2)** in the display panel.



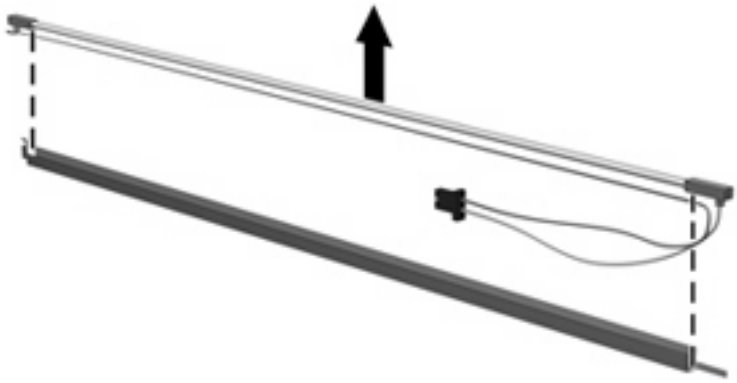
16. Turn the display panel upside down.

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

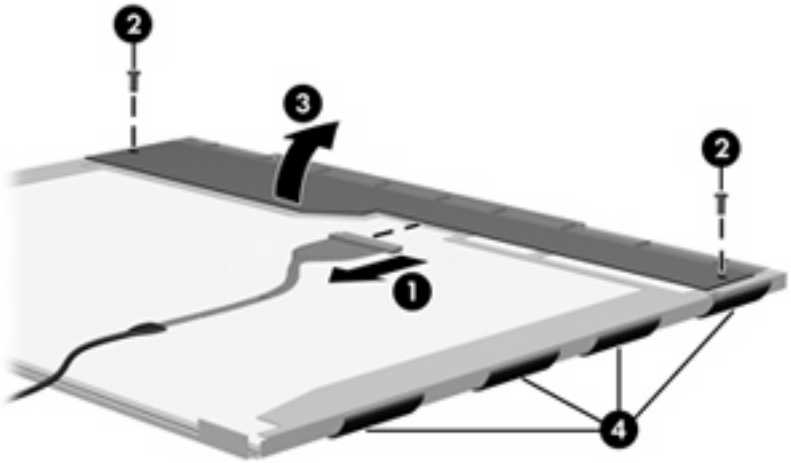
17. Remove the backlight frame from the display panel.



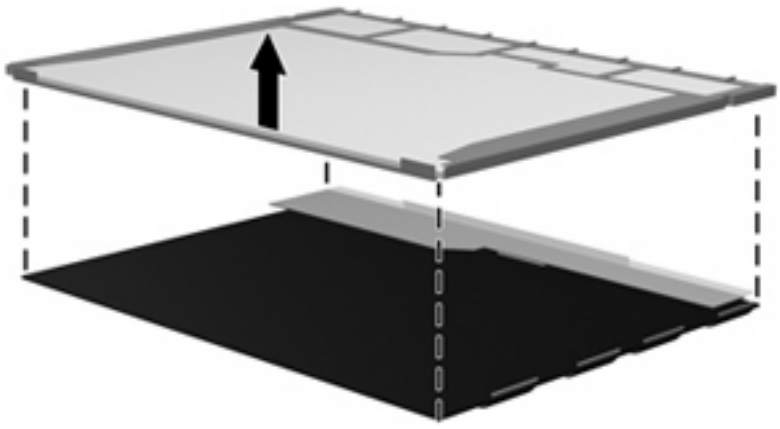
18. Remove the backlight from the backlight frame.



19. Disconnect the display panel 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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