HP Pavilion TouchSmart Sleekbook 15 and HP Pavilion 15 Sleekbook

Maintenance and Service Guide

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Safety warning notice

⚠ **WARNING!** To reduce the possibility of heat-related injuries or of overheating the device, do not place the device directly on your lap or obstruct the device air vents. Use the device 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 device 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).

Table of contents

1 Product description 1

2 External component identification 5

Finding your hardware and software information 5

Locating hardware 5

Display 6

Buttons and speakers 7

Keys 8

Lights 9

Left side 10

Right side 11

Bottom 13

3 Illustrated parts catalog 14

Service label 14

Computer major components 15

Display assembly subcomponents 19

Miscellaneous parts 20

Sequential part number listing 21

4 Removal and replacement procedures 25

Preliminary replacement requirements 25

Tools required 25

Service considerations 25

Plastic parts 26

Cables and connectors 26

Drive handling 26

Grounding guidelines 27

Electrostatic discharge damage 27

Packaging and transporting guidelines 28

Component replacement procedures 30

Battery 30
Computer feet 31
Keyboard 31
Top cover 35
Power button board 38
Hard drive 39
USB board 41
WLAN module 42
System board 45
Memory module 49
RTC battery 51
PCH heat sink 52
Heat sink 54
Fan 57
Speaker assembly 58
RJ-45 cover 59
Display assembly 60
Power connector cable 66

5 Using Setup Utility (BIOS) and System Diagnostics 68
Starting Setup Utility (BIOS) 68
Updating the BIOS 68
Determining the BIOS version 68
Downloading a BIOS update 69
Using System Diagnostics 70

6 Specifications 71
Computer specifications 71
15.6-in display specifications 72
Hard drive specifications 73

7 Backing up, restoring, and recovering 74
Creating recovery media and backups 75
Creating HP Recovery media 76
Restore and recovery 77
Using Windows Refresh for quick and easy recovery 78
Remove everything and reinstall Windows 78
Recovering using HP Recovery Manager 79
What you need to know 79
Using the HP Recovery partition to recover a minimized image 80

Using HP Recovery media to recover 80
Changing the computer boot order 80
Removing the HP Recovery partition 81

8 Power cord set requirements 82
Requirements for all countries 82
Requirements for specific countries and regions 83

9 Recycling 85

Index 86

1 Product description

Category	Description
Product Name	HP Pavilion TouchSmart Sleekbook 15 HP Pavilion 15 Sleekbook
Processors	• AMD® A8-4555M 1.60-/2.40-GHz processor (1333-MHz FSB, DDR3, 1.0-MB of L2 cache, quad core, 19 W) • AMD A6-4455M 2.10-/2.60-GHz processor (1333-MHz FSB, DDR3, 1.0-MB of L2 cache, dual core, 17 W) • AMD A4-4355M 1.90-/2.40-GHz processor (1333-MHz FSB, DDR3, 1.0-MB of L2 cache, dual core, 17 W)
Chipset	AMD A70M fusion controller hub (FCH) A14
Graphics	**Internal graphics:** • AMD Radeon™ HD 7600G graphics on computer models equipped with an AMD A8-4555M processor • AMD Radeon HD 7500G graphics on computer models equipped with an AMD A6-4455M processor • AMD Radeon HD 7400G graphics on computer models equipped with an AMD A4-4355M processor **Switchable discrete graphics:** • AMD Mars Pro with up to 1024-MB of discrete video memory (128M×16 DDR3@900-MHz×4 PCs) • 64-bit S3 package • Supports HD decode, DX11, and HDMI • No support for dual graphics

Category	Description
Display panel	• 15.6-in, high-definition (HD), white light-emitting diode (WLED), SVA, BrightView (1366×768) display • Touchscreen, Multitouch enabled (only on HP Pavilion TouchSmart Sleekbook 15 computer models) • Typical brightness: 200 (nits) • All display assemblies include two wireless local area network (WLAN) antenna cables • Supports 16:9 ultra-wide aspect ratio
Memory	Two SODIMM memory module slots Customer accessible and upgradeable DDR3L-1600-MHz Dual channel support DDR3-1333-MHz Dual channel support (DDR3L-1600 downgraded to DDR3-1333) Supports up to 8192-MB of system RAM in the following configurations: • 8192-MB (4096-MB×2) • 6144-MB (4096-MB×1 + 2048-MB×1) • 4096-MB (4096-MB×1 or 2048-MB×2) • 2048-MB (2048-MB×1)
Hard drives	Supports **6.35 cm** (2.5 in) hard drives in **9.5 mm** (.37 in) and **7.0 mm** (.28 in) thicknesses Serial ATA (SATA) Supports Accelerometer / HDD protection Supports the following single hard drive configurations: • 1-TB, 5400-rpm, 9.5-mm • 750-GB, 7200- and 5400-rpm, 9.5-mm • 640-GB, 5400-rpm, 9.5-mm • 500-GB, 7200- and 5400-rpm, 9.5- and 7.0-mm • 300-GB, 5400-rpm, 9.5-mm
Audio and video	One digital microphone HD audio Supports Dolby Advanced Audio 2 Altec Lansing speakers Supports Microsoft® Premium requirements HP TrueVision HD camera (fixed, no tilt) with activity LED, USB 2.0, M-JPEG, 1280x720 by 30 frames per second

Category	Description
Ethernet	Integrated 10/100 network interface card (NIC)
Wireless	Integrated wireless local area network (WLAN) options by way of wireless module Two WLAN antennas built into display assembly Support for the following WLAN formats: • Qualcomm Atheros AR9485 802.11 b/g/n 1×1 WiFi Adapter • Ralink RT3290LE 802.11 b/g/n 1x1 WiFi and Bluetooth 4.0 Combo Adapter • Ralink RT5390R 802.11 b/g/n 1×1 WiFi Adapter
External media card	HP Multi-Format Digital Media Reader slot with push-push technology, supporting the following digital card formats: • Secure Digital (SD) Memory Card • Secure Digital High Capacity (SDHC) Memory Card • Secure Digital Extended Capacity (SDXC) Memory Card • MultiMediaCard (MMC)
Ports	• Audio-in/audio-out (combination headphone/microphone) • HDMI v1.4 supporting up to 1920×1200 @ 60Hz • HP AC power adapter • RJ-45 (Ethernet, includes link and activity lights) • USB 3.0 (2 ports) • USB 2.0 (1 port)
Keyboard/pointing devices	Island-style keyboard with numeric keypad TouchPad with two buttons with the following features: • Taps, 2-finger scroll, and pinch enabled by default • Supports edge-swipe gestures • Supports Windows 8 Modern trackpad gestures
Power requirements	**AC adapter:** 65-W, RC, V non-Smart AC adapter with localized cable plug support (3-wire plug with ground pin, supports 3-pin DC connector) 1.0-m (3.3-ft) length **Battery:** 4-cell, 37-WHr, 2.55-AHr, Li-ion battery Supports fast charge
Security	Security cable slot

Category	Description
Operating system	**Preinstalled:** • Windows 8 Professional • Windows 8 Standard • FreeDOS 2.0
Serviceability	**End-user replaceable parts:** • AC adapter • Battery • Keyboard

2 External component identification

Finding your hardware and software information

Locating hardware

To find out what hardware is installed on your computer:

- From the Start screen, type c, and then select **Control Panel**.

Display

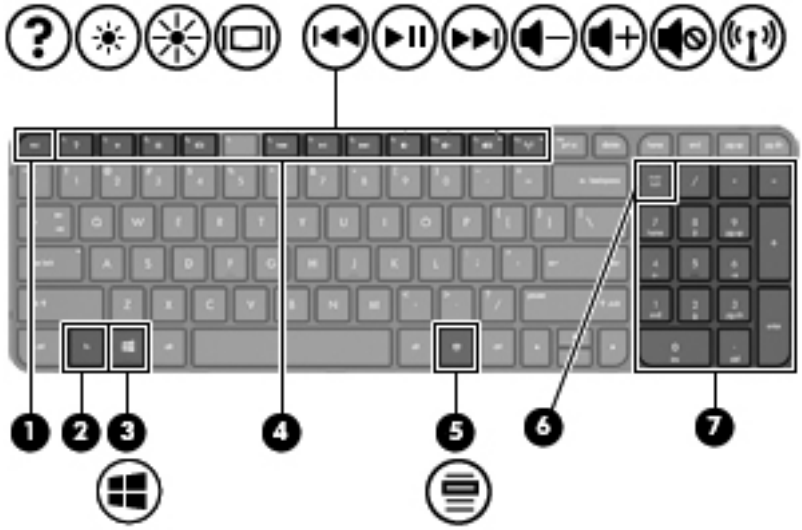
Item	Component	Description
(1)	WLAN antennas (2)*	Send and receive wireless signals to communicate with WLANs.
(2)	Webcam light	On: The webcam is in use.
(3)	HP TrueVision HD Webcam	Records video, captures still photographs, and allows you to video conference and chat online using streaming video. To use the webcam, from the Start screen type c, and then select CyberLink YouCam from the list of apps.
(4)	Internal microphone	Records sound.

*The antennas are not visible from the outside of the computer. For optimal transmission, keep the areas immediately around the antennas free from obstructions. For wireless regulatory notices, see the section of the *Regulatory, Safety and Environmental Notices* that applies to your country or region. To access this guide, select the **HP Support Assistant** app on the Start screen, select **My computer**, and then select **User guides**.

Buttons and speakers

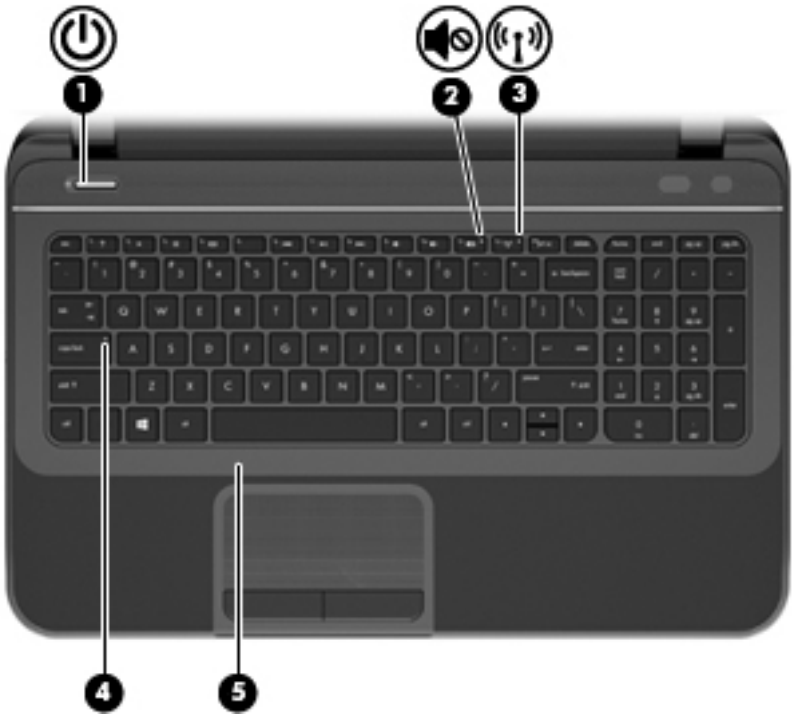
Item	Component	Description
(1)	Power button	• When the computer is off, press the button to turn on the computer. • When the computer is on, press the button briefly to initiate Sleep (disabled by default). • When the computer is in the Sleep state, press the button briefly to exit Sleep. • When the computer is in Hibernation, press the button briefly to exit Hibernation. **CAUTION:** Pressing and holding the power button will result in the loss of unsaved information. If the computer has stopped responding and Microsoft Windows shutdown procedures are ineffective, press and hold the power button for at least 5 seconds to turn off the computer. **NOTE:** For select models, the Intel Rapid Start Technology feature is enabled at the factory. Rapid Start Technology allows your computer to resume quickly from inactivity. For more information, see Intel Rapid Start Technology (select models only) on page 34 To learn more about your power settings: 1. From the Start screen, type `power`. 2. Select **Settings**, and then select **Power options**.
(2)	Speakers (2)	Produce sound.

Keys



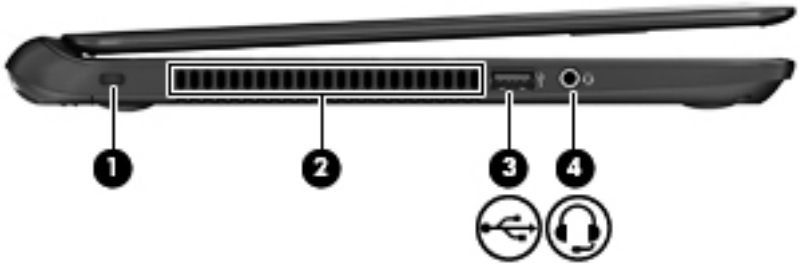
Item	Component	Description
(1)	esc key	Displays system information when pressed in combination with the fn key.
(2)	fn key	Displays system information when pressed in combination with the esc key.
(3)	Windows key	Returns you to the Start screen from an open app or the Desktop. **NOTE:** Pressing the Windows key again will return you to the previous screen.
(4)	Action keys	Execute frequently-used system functions.
(5)	num lock key	Controls the function of the integrated numeric keypad. Press the key to alternate between the standard numeric function of an external keypad (selected at the factory) and the navigational function (indicated by the directional arrows on the keys). **NOTE:** The keypad function that is active when the computer is turned off is reinstated when the computer is turned back on.
(6)	Integrated numeric keypad	Set at the factory to function like an external numeric keypad. To alternate between this numeric function and the navigational function (indicated by the directional arrows on the keys), press the num lock key.

Lights



Item	Component	Description
(1)	Power light	• White: The computer is on. • Blinking white: The computer is in the Sleep state, which is an energy-saving mode. The computer shuts off power to the display and other unneeded components. • Off: The computer is off or in Hibernation. Hibernation is an energy-saving mode that uses the least amount of power. **NOTE:** For select models, the Intel Rapid Start Technology feature is enabled at the factory. Rapid Start Technology allows your computer to resume quickly from inactivity.
(2)	Mute light	• Amber: Computer sound is off. • Off: Computer sound is on.
(3)	Wireless light	• White: An integrated wireless device, such as a wireless local area network (WLAN) device and/or a Bluetooth device, is on. • Amber: All wireless devices are off.
(4)	Caps lock light	White: Caps lock is on, which switches the keys to all capital letters.
(5)	TouchPad light	• Amber: The TouchPad is off. • Off: The TouchPad is on.

Left side



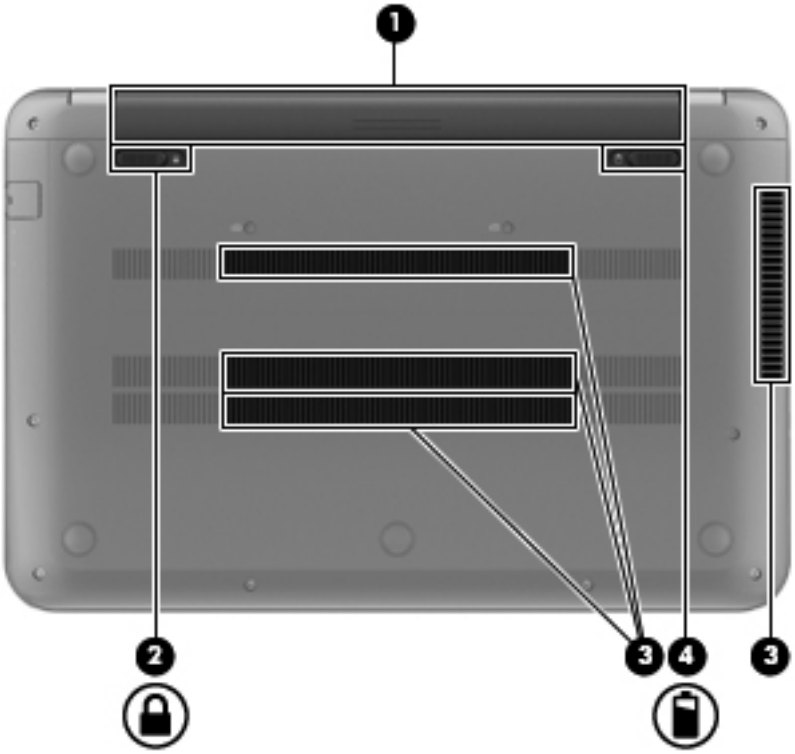
Item	Component	Description
(1)	Security cable slot	Attaches an optional security cable to the computer. **NOTE:** The security cable is designed to act as a deterrent, but it may not prevent the computer from being mishandled or stolen.
(2)	Vent	Enables airflow to cool internal components. **NOTE:** 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)	USB 2.0 port	Connects an optional USB 2.0 device.
(4)	Audio-out (headphone) jack/Audio-in (microphone) jack	Connects optional powered stereo speakers, headphones, earbuds, a headset, or a television audio cable. The jack does not support optional microphone-only devices. **WARNING!** To reduce the risk of personal injury, adjust the volume before using headphones, earbuds, or a headset. For additional safety information, see the Regulatory, Safety and Environmental Notices. **NOTE:** When a device is connected to the jack, the computer speakers are disabled. **NOTE:** Be sure that the device cable has a 4-conductor connector that supports both audio-out (headphone) and audio-in (microphone).

Right side

Item	Component	Description
(1)	Power light	• White: The computer is on. • Blinking white: The computer is in the Sleep state, which is an energy-saving mode. The computer shuts off power to the display and other unneeded components. • Off: The computer is off or in Hibernation. Hibernation is an energy-saving mode that uses the least amount of power. **NOTE:** For select models, the Intel Rapid Start Technology feature is enabled at the factory. Rapid Start Technology allows your computer to resume quickly from inactivity.
(2)	Hard drive light	• Blinking white: The hard drive is being accessed. • Amber: HP 3D DriveGuard has temporarily parked the hard drive.
(3)	Digital Media Slot	Supports the following digital card formats: • Secure Digital (SD) Memory Card • Secure Digital Extended Capacity (SDxC) Memory Card • Secure Digital High Capacity (SDHC) Memory Card • MultiMediaCard (MMC)
(4)	USB 3.0 ports (2)	Connect optional USB 3.0 devices and provide enhanced USB power performance.
(5)	HDMI port	Connects an optional video or audio device, such as a high-definition television, or any compatible digital or audio device.
(6)	RJ-45 (network) jack lights	• White: Computer is connected to a network. • Blinking amber: Data is being transferred. **NOTE:** When both lights are off the computer is not connected to a network.
(7)	RJ-45 (network) jack	Connects a network cable.

Item	Component	Description
(8)	AC adapter light	Supports the following digital card formats: • White: The AC adapter is connected and the battery is charged. • Blinking white: The battery has reached a low battery level. • Amber: The AC adapter is connected and the battery is charging. • Off: The computer is using DC power.
(9)	Power connector	Connects an AC adapter.

Bottom



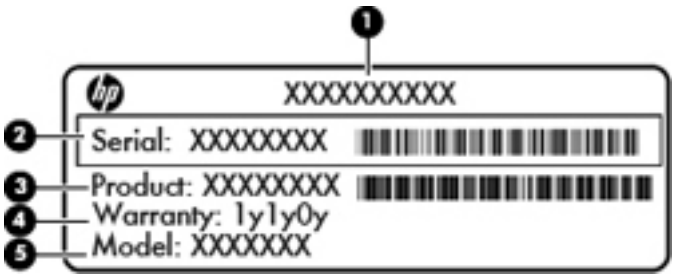
Item	Component	Description
(1)	Battery bay	Holds the battery.
(2)	Battery lock	Locks and unlocks the battery.
(3)	Vents (4)	Enable airflow to cool internal components. **NOTE:** The computer fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal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

3 Illustrated parts catalog

Service label

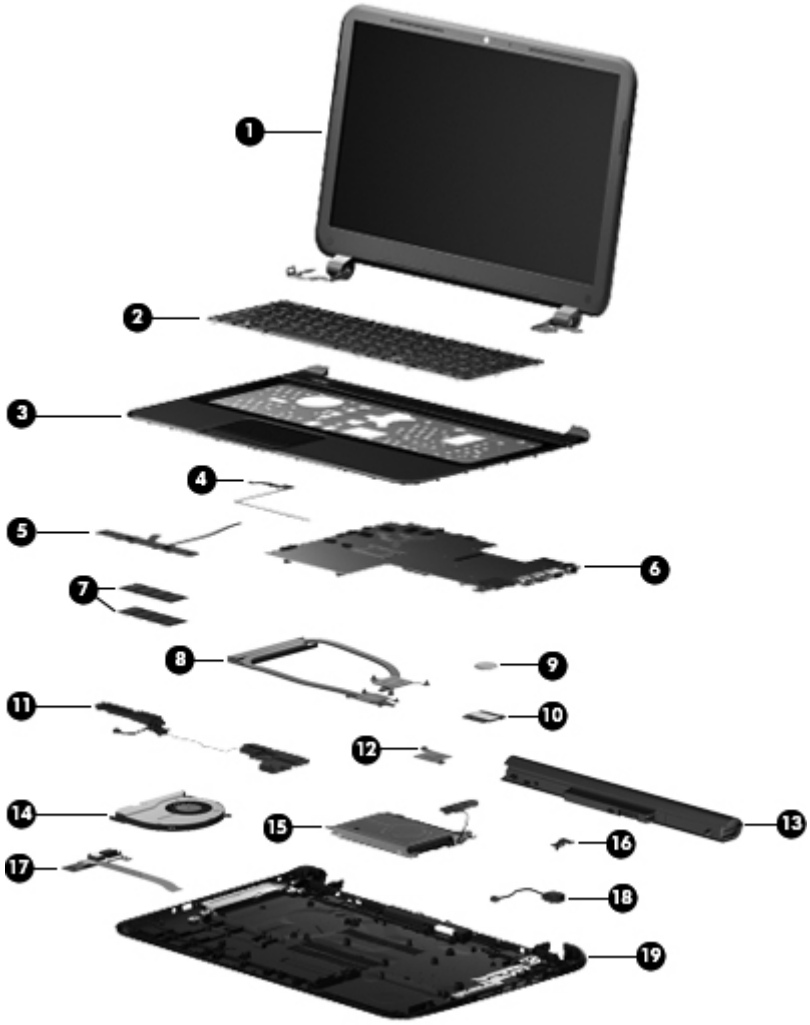
When ordering parts or requesting information, provide the computer serial number and model description provided on the service label. The service label is located on the bottom of the computer.

NOTE: Your label may look slightly different from the illustration in this section.



Item	Description	Function
(1)	Product name	This is the model name for the computer.
(2)	Serial number	This is an alphanumeric identifier that is unique to each product.
(3)	Product part number	This number provides specific information about the product's hardware components. The part number helps a service technician to determine what components and parts are needed.
(4)	Warranty period	This number describes the duration of the warranty period for the computer.
(5)	Model description	This is the alphanumeric identifier needed to locate documents, drivers, and support for the computer.

Computer major components



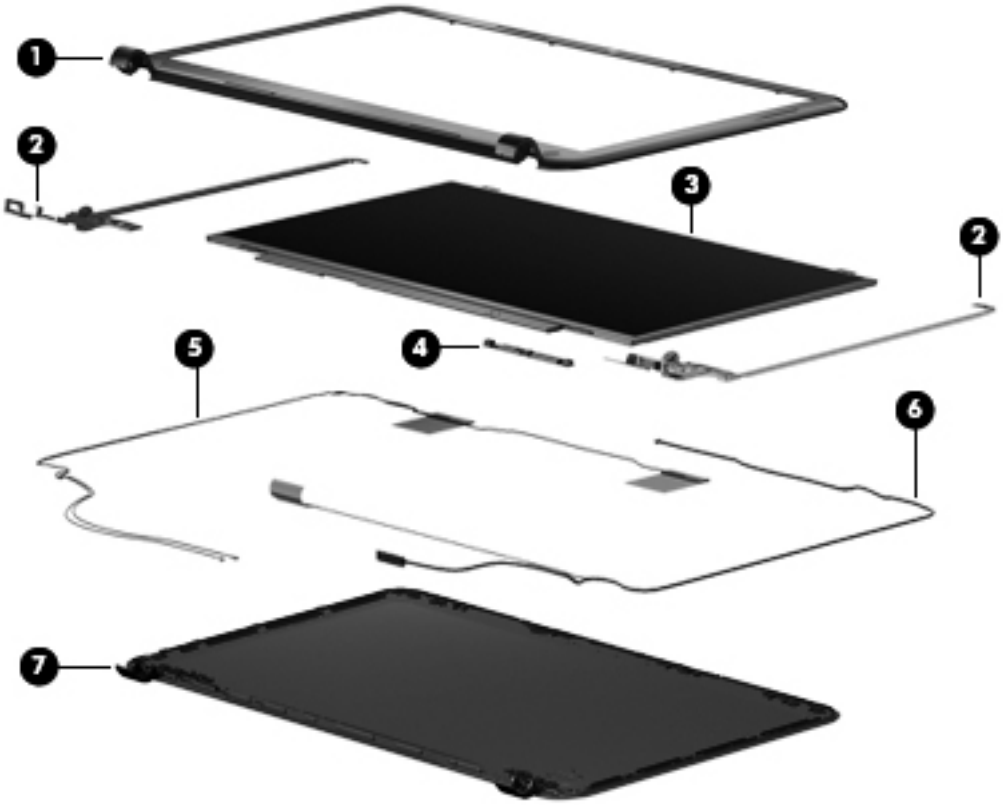
Item	Component	Spare part number
(1)	**Display assembly**: TouchScreen and non-TouchScreen display assemblies are available. The TouchScreen display assembly is spared only as a whole unit replacement component. The non-TouchScreen display assembly is spared only at the subcomponent level. For display assembly subcomponent spare part information, see Display assembly subcomponents on page 19.	
	15.6-in, WLED, SVA, HD, BrightView, TouchScreen display assembly in sparkling black finish (includes display panel cable, webcam/microphone module, and 2 wireless antenna cables)	709171-001
(2)	**Keyboard** (includes keyboard cable):	
	For use in Belgium	701684-A41
	For use in Bulgaria	701684-261
	For use in Canada	701684-DB1
	For use in the Czech Republic and Slovakia	701684-FL1

Item	Component	Spare part number
	For use in Denmark, Finland,and Norway	701684-DH1
	For use in France	701684-051
	For use in Germany	701684-041
	For use in Greece	701684-151
	For use in Hungary	701684-211
	For use in Israel	701684-BB1
	For use in Italy	701684-061
	For use in Latin America	701684-161
	For use in the Netherlands	701684-B31
	For use in Portugal	701684-131
	For use in Romania	701684-271
	For use in Russia	701684-251
	For use in Saudi Arabia	701684-171
	For use in Slovenia	701684-BA1
	For use in South Korea	701684-AD1
	For use in Spain	701684-071
	For use in Switzerland	701684-BG1
	For use in Turkey	701684-141
	For use in the United Kingdom and Singapore	701684-031
	For use in the United States	701684-001
(3)	**Top cover** (includes TouchPad and cable):	
	In ruby red finish	701703-001
	In sparkling black finish	701704-001
	In winter blue finish	709177-001
(4)	**Power button board** (includes cable)	701686-001
(5)	**TouchPad button board**	701685-001
(6)	**System board** (includes processor and replacement thermal material):	
	Equipped with an AMD A8-4555M 1.60-/2.40-GHz processor (1333-MHz FSB, DDR3, 1.0-MB of L2 cache, quad core, 19 W), a graphics subsystem with 1.0-GB of discrete memory, and the Windows 8 Professional operating system	709176-601
	Equipped with an AMD A8-4555M 1.60-/2.40-GHz processor (1333-MHz FSB, DDR3, 1.0-MB of L2 cache, quad core, 19 W), a graphics subsystem with 1.0-GB of discrete memory, and the Windows 8 Standard operating system	709176-501

Item	Component	Spare part number
	Equipped with an AMD A8-4555M 1.60-/2.40-GHz processor (1333-MHz FSB, DDR3, 1.0-MB of L2 cache, quad core, 19 W), a graphics subsystem with 1.0-GB of discrete memory, and the Windows 7 operating system	709176-001
	Equipped with an AMD A8-4555M 1.60-/2.40-GHz processor (1333-MHz FSB, DDR3, 1.0-MB of L2 cache, quad core, 19 W), a graphics subsystem with UMA memory, and the Windows 8 Professional operating system	709175-601
	Equipped with an AMD A8-4555M 1.60-/2.40-GHz processor (1333-MHz FSB, DDR3, 1.0-MB of L2 cache, quad core, 19 W), a graphics subsystem with UMA memory, and the Windows 8 Standard operating system	709175-501
	Equipped with an AMD A8-4555M 1.60-/2.40-GHz processor (1333-MHz FSB, DDR3, 1.0-MB of L2 cache, quad core, 19 W), a graphics subsystem with UMA memory, and the Windows 7 operating system	709175-001
	Equipped with an AMD A6-4455M 2.10-/2.60-GHz processor (1333-MHz FSB, DDR3, 1.0-MB of L2 cache, dual core, 17 W), a graphics subsystem with UMA memory, and the Windows 8 Professional operating system	709174-601
	Equipped with an AMD A6-4455M 2.10-/2.60-GHz processor (1333-MHz FSB, DDR3, 1.0-MB of L2 cache, dual core, 17 W), a graphics subsystem with UMA memory, and the Windows 8 Standard operating system	709174-501
	Equipped with an AMD A6-4455M 2.10-/2.60-GHz processor (1333-MHz FSB, DDR3, 1.0-MB of L2 cache, dual core, 17 W), a graphics subsystem with UMA memory, and the Windows 7operating system	709174-001
	Equipped with an AMD A4-4355M 1.90-/2.40-GHz processor (1333-MHz FSB, DDR3, 1.0-MB of L2 cache, dual core, 17 W), a graphics subsystem with UMA memory, and the Windows 8 Professional operating system	709173-601
	Equipped with an AMD A4-4355M 1.90-/2.40-GHz processor (1333-MHz FSB, DDR3, 1.0-MB of L2 cache, dual core, 17 W), a graphics subsystem with UMA memory, and the Windows 8 Standard operating system	709173-501
	Equipped with an AMD A4-4355M 1.90-/2.40-GHz processor (1333-MHz FSB, DDR3, 1.0-MB of L2 cache, dual core, 17 W), a graphics subsystem with UMA memory, and the Windows 7 operating system	709173-001
(7)	**Memory modules** (2, DDR3, 1600-MHz, PC3, 12800):	
	4-GB	641369-005
	2-GB	652972-005
(8)	**Heat sink** (includes replacement thermal material):	
	For use only on computer models equipped with a graphics subsystem with discrete memory	717148-001
	For use only on computer models equipped with a graphics subsystem with UMA memory	697915-001
(9)	**RTC battery**	697917-001
(10)	**Hard drive** (SATA; does not include hard drive bumpers, bracket, or cable):	
	1-TB, 5400-rpm, 9.5-mm	676521-005
	750-GB, 7200-rpm, 9.5-mm	633252-005

Item	Component	Spare part number
	750-GB, 5400-rpm, 9.5-mm	634250-005
	640-GB, 5400-rpm, 9.5-mm	669300-005
	500-GB, 7200-rpm, 9.5-mm	634925-005
	500-GB, 5400-rpm, 9.5-mm	669299-005
	500-GB, 5400-rpm, 7.0-mm	669299-005
	300-GB, 5400-rpm, 9.5-mm	622643-005
	Hard Drive Hardware Kit, not illustrated, (includes hard drive bracket, hard drive connector cable, 2 rubber isolators, and screws)	701945-001
(11)	**WLAN module:**	
	Qualcomm Atheros AR9485 802.11 b/g/n 1×1 WiFi Adapter	675794-005
	Ralink RT3290LE 802.11 b/g/n 1x1 WiFi and Bluetooth 4.0 Combo Adapter	690020-005
	Ralink RT5390R 802.11 b/g/n 1×1 WiFi Adapter	691415-005
(12)	**Platform controller hub (PCH) heat sink**	699248-001
(13)	**Speaker assembly** (includes left and right speakers and cable)	701690-001
(14)	**Battery**, 4-cell. 37-Whr, 2.55-Ah	695192-001
(15)	**Fan**	697914-001
(16)	**RJ-45 cover**	703075-001
(17)	**Power connector cable**	701682-001
(18)	**USB board** (includes cable and audio-in/audio-out jack)	701687-001
(19)	**Base enclosure:**	
	Includes Japanese certification mark	719555-001
	Does not include Japanese certification mark	717147-001
	Counterweight (not illustrated)	717149-001
	Rubber Feet Kit (not illustrated, includes 4 rubber feet)	697906-001

Display assembly subcomponents



Item	Component	Spare part number
(1)	**Display bezel**	701680-001
(2)	**Display Hinge Kit** (includes left and right display hinges and brackets)	701683-001
(3)	**15.6-in, WLED, SVA, HD, BrightView, TouchScreen display panel**	701688-001
(4)	**Webcam/microphone module**	707767-001
(5)	**Antenna Kit** (includes left and right wireless antenna cables and transceivers)	701676-001
(6)	**Display Panel Cable Kit** (includes display panel cable and webcam/ microphone module cable)	701681-001
(7)	**Display enclosure:**	
	In ruby red finish	701677-001
	In sparkling black finish	701678-001
	In winter blue finish	709169-001

Miscellaneous parts

Component	Spare part number
65-W, RC, V AC adapter	693715-001
Power cord (3-pin, black, 1.83-m):	
For use in Australia	490371-011
For use in Denmark	490371-081
For use in Europe	490371-021
For use in India	490371-D61
For use in Israel	490371-BB1
For use in North America	490371-001
For use in South Africa	490371-AR1
For use in South Korea	490371-AD1
For use in Switzerland	490371-111
For use in the United Kingdom and Singapore	490371-031
External DVD±RW Super Multi Double-Layer Combination Drive (includes bezel and bracket):	659940-001
Screw Kit	701689-001
Thermal Material Kit	680571-001

Sequential part number listing

Spare part number	Description
490371-001	Power cord for use in North America (black, 3-pin, 1.83-m)
490371-011	Power cord for use in Australia (black, 3-pin, 1.83-m)
490371-021	Power cord for use in Europe (black, 3-pin, 1.83-m)
490371-031	Power cord for use in the United Kingdom and Singapore (black, 3-pin, 1.83-m)
490371-081	Power cord for use in Denmark (black, 3-pin, 1.83-m)
490371-111	Power cord for use in Switzerland (black, 3-pin, 1.83-m)
490371-AD1	Power cord for use in South Korea (black, 3-pin, 1.83-m)
490371-AR1	Power cord for use in South Africa (black, 3-pin, 1.83-m)
490371-BB1	Power cord for use in Israel (black, 3-pin, 1.83-m)
490371-D61	Power cord for use in India (black, 3-pin, 1.83-m)
622643-005	320-GB hard drive (5400-rpm, 9.5-mm, SATA; does not include hard drive bumpers, bracket, or cable)
633252-005	750-GB hard drive (7200-rpm, 9.5-mm, SATA; does not include hard drive bumpers, bracket, or cable)
634250-005	750-GB hard drive (5400-rpm, 9.5-mm, SATA; does not include hard drive bumpers, bracket, or cable)
634925-005	500-GB hard drive (7200-rpm, 9.5-mm, SATA; does not include hard drive bumpers, bracket, or cable)
641369-005	4-GB memory module (DDR3, 1600-MHz, PC3, 12800)
652972-005	2-GB memory module (DDR3, 1600-MHz, PC3, 12800)
659940-001	External DVD±RW Super Multi Double-Layer Combination Drive
669299-005	500-GB hard drive (5400-rpm, 9.5-mm, SATA; does not include hard drive bumpers, bracket, or cable)
669300-005	640-GB hard drive (5400-rpm, 9.5-mm, SATA; does not include hard drive bumpers, bracket, or cable)
675794-005	Qualcomm Atheros AR9485 802.11 b/g/n 1×1 WiFi Adapter
676521-005	1-TB hard drive (5400-rpm, 9.5-mm, SATA; does not include hard drive bumpers, bracket, or cable)
680571-001	Thermal Material Kit (includes replacement thermal paste and pads)
690020-005	Ralink RT3290LE 802.11 b/g/n 1x1 WiFi and Bluetooth 4.0 Combo Adapter
691415-005	Ralink RT5390R 802.11 b/g/n 1×1 WiFi Adapter
693715-001	65-W RC, V AC adapter
695192-001	4-cell, 37-Whr, 2.55-Ah, Li-ion battery

Spare part number	Description
697906-001	Rubber Feet Kit (includes 4 rubber feet)
697914-001	Fan
697915-001	Heat sink for use only on computer models equipped with a graphics subsystem with UMA memory (includes replacement thermal material)
697917-001	RTC battery
699248-001	PCH heat sink
701676-001	Antenna Kit (includes left and right wireless antenna cables and transceivers)
701677-001	Display enclosure in ruby red finish
701678-001	Display enclosure in sparkling black finish
701680-001	Display bezel (includes webcam/microphone module)
701681-001	Display Panel Cable Kit (includes display panel cable and webcam/microphone module cable)
701682-001	Power connector cable
701683-001	Display Hinge Kit (includes left and right display hinges and brackets)
701684-001	Keyboard in black finish for use in the United States (includes cable)
701684-031	Keyboard in black finish for use in the United Kingdom and Singapore (includes cable)
701684-041	Keyboard in black finish for use in Germany (includes cable)
701684-051	Keyboard in black finish for use in France (includes cable)
701684-061	Keyboard in black finish for use in Italy (includes cable)
701684-071	Keyboard in black finish for use in Spain (includes cable)
701684-131	Keyboard in black finish for use in Portugal (includes cable)
701684-141	Keyboard in black finish for use in Turkey (includes cable)
701684-151	Keyboard in black finish for use in Greece (includes cable)
701684-161	Keyboard in black finish for use in Latin America (includes cable)
701684-171	Keyboard in black finish for use in Saudi Arabia (includes cable)
701684-211	Keyboard in black finish for use in Hungary (includes cable)
701684-251	Keyboard in black finish for use in Russia (includes cable)
701684-261	Keyboard in black finish for use in Bulgaria (includes cable)
701684-271	Keyboard in black finish for use in Romania (includes cable)
701684-A41	Keyboard in black finish for use in Belgium (includes cable)
701684-AD1	Keyboard in black finish for use in South Korea (includes cable)
701684-B31	Keyboard in black finish for use in the Netherlands (includes cable)
701684-BA1	Keyboard in black finish for use in Slovenia (includes cable)
701684-BB1	Keyboard in black finish for use in Israel (includes cable)

Spare part number	Description
701684-BG1	Keyboard in black finish for use in Switzerland (includes cable)
701684-DB1	Keyboard in black finish for use in Canada (includes cable)
701684-DH1	Keyboard in black finish for use in Denmark, Finland, and Norway (includes cable)
701684-FL1	Keyboard in black finish for use in the Czech Republic and Slovakia (includes cable)
701685-001	TouchPad button board
701686-001	Power button board (includes cable)
701687-001	USB board (includes cable and audio-out/audio-in jack)
701688-001	15.6-in, WLED, SVA, HD, BrightView, TouchScreen display panel
701689-001	Screw Kit
701690-001	Speaker assembly (includes left and right speakers and cable)
701703-001	Top cover in ruby red finish (includes TouchPad and cable)
701704-001	Top cover in sparkling black finish (includes TouchPad and cable)
701945-001	Hard Drive Hardware Kit (includes hard drive bracket, hard drive connector cable, 2 rubber isolators, and screws)
703075-001	RJ-45 cover
707767-001	Webcam/microphone module
709169-001	Display enclosure in winter blue finish
709171-001	15.6-in, WLED, SVA, HD, BrightView, TouchScreen display assembly in sparkling black finish (includes display panel cable, webcam/microphone module, and 2 wireless antenna cables)
709173-001	System board equipped with an AMD A4-4355M 1.90-/2.40-GHz processor (1333-MHz FSB, DDR3, 1.0-MB of L2 cache, dual core, 17 W), a graphics subsystem with UMA memory, and the Windows 7 operating system (includes replacement thermal material)
709173-501	System board equipped with an AMD A4-4355M 1.90-/2.40-GHz processor (1333-MHz FSB, DDR3, 1.0-MB of L2 cache, dual core, 17 W), a graphics subsystem with UMA memory, and the Windows 8 Standard operating system (includes replacement thermal material)
709173-601	System board equipped with an AMD A4-4355M 1.90-/2.40-GHz processor (1333-MHz FSB, DDR3, 1.0-MB of L2 cache, dual core, 17 W), a graphics subsystem with UMA memory, and the Windows 8 Professional operating system (includes replacement thermal material)
709174-001	System board equipped with an AMD A6-4455M 2.10-/2.60-GHz processor (1333-MHz FSB, DDR3, 1.0-MB of L2 cache, dual core, 17 W), a graphics subsystem with UMA memory, and the Windows 7 operating system (includes replacement thermal material)
709174-501	System board equipped with an AMD A6-4455M 2.10-/2.60-GHz processor (1333-MHz FSB, DDR3, 1.0-MB of L2 cache, dual core, 17 W), a graphics subsystem with UMA memory, and the Windows 8 Standard operating system (includes replacement thermal material)
709174-601	System board equipped with an AMD A6-4455M 2.10-/2.60-GHz processor (1333-MHz FSB, DDR3, 1.0-MB of L2 cache, dual core, 17 W), a graphics subsystem with UMA memory, and the Windows 8 Professional operating system (includes replacement thermal material)

Spare part number	Description
709175-001	System board equipped with an AMD A8-4555M 1.60-/2.40-GHz processor (1333-MHz FSB, DDR3, 1.0-MB of L2 cache, quad core, 19 W), a graphics subsystem with UMA memory, and the Windows 7 operating system (includes replacement thermal material)
709175-501	System board equipped with an AMD A8-4555M 1.60-/2.40-GHz processor (1333-MHz FSB, DDR3, 1.0-MB of L2 cache, quad core, 19 W), a graphics subsystem with UMA memory, and the Windows 8 Standard operating system (includes replacement thermal material)
709175-601	System board equipped with an AMD A8-4555M 1.60-/2.40-GHz processor (1333-MHz FSB, DDR3, 1.0-MB of L2 cache, quad core, 19 W), a graphics subsystem with UMA memory, and the Windows 8 Professional operating system (includes replacement thermal material)
709176-001	System board equipped with an AMD A8-4555M 1.60-/2.40-GHz processor (1333-MHz FSB, DDR3, 1.0-MB of L2 cache, quad core, 19 W), a graphics subsystem with 1.0-GB of discrete memory, and the Windows 7 operating system (includes replacement thermal material)
709176-501	System board equipped with an AMD A8-4555M 1.60-/2.40-GHz processor (1333-MHz FSB, DDR3, 1.0-MB of L2 cache, quad core, 19 W), a graphics subsystem with 1.0-GB of discrete memory, and the Windows 8 Standard operating system (includes replacement thermal material)
709176-601	System board equipped with an AMD A8-4555M 1.60-/2.40-GHz processor (1333-MHz FSB, DDR3, 1.0-MB of L2 cache, quad core, 19 W), a graphics subsystem with 1.0-GB of discrete memory, and the Windows 8 Professional operating system (includes replacement thermal material)
709177-001	Top cover in winter blue finish (include TouchPad and cable)
717147-001	Base enclosure without Japanese certification mark
717148-001	Heat sink for use only on computer models equipped with a graphics subsystem with discrete memory (includes replacement thermal material)
717149-001	Counterweight
719555-001	Base enclosure with Japanese certification mark

4 Removal and replacement procedures

IMPORTANT: The user-replaceable parts for this computer are:

- AC adapter
- Battery
- Keyboard

For all parts that are **not** user-replaceable, only HP authorized service providers should perform the removal and replacement procedures described here. Accessing the internal part could damage the computer or void the warranty.

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

Service considerations

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

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

Plastic parts

CAUTION: Using excessive force during disassembly and reassembly can damage plastic parts. Use care when handling the plastic parts. Apply pressure only at the points designated in the maintenance instructions.

Cables and connectors

CAUTION: When servicing the computer, be sure that cables are placed in their proper locations during the reassembly process. Improper cable placement can damage the computer.

Cables must be handled with extreme care to avoid damage. Apply only the tension required to unseat or seat the cables during removal and insertion. Handle cables by the connector whenever possible. In all cases, avoid bending, twisting, or tearing cables. Be sure that cables are routed in such a way that they cannot be caught or snagged by parts being removed or replaced. Handle flex cables with extreme care; these cables tear easily.

Drive handling

CAUTION: Drives are fragile components that must be handled with care. To prevent damage to the computer, damage to a drive, or loss of information, observe these precautions:

Before removing or inserting a hard drive, shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.

Before handling a drive, be sure that you are discharged of static electricity. While handling a drive, avoid touching the connector.

Before removing a diskette drive, 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, or a diskette drive, place it in a static-proof bag.

Avoid exposing an internal hard drive to products that have magnetic fields, such as monitors or speakers.

Avoid exposing a drive to temperature extremes or liquids.

If a drive must be mailed, place the drive in a bubble pack mailer or other suitable form of protective packaging and label the package “FRAGILE.”

Grounding guidelines

Electrostatic discharge damage

Electronic components are sensitive to electrostatic discharge (ESD). Circuitry design and structure determine the degree of sensitivity. Networks built into many integrated circuits provide some protection, but in many cases, ESD contains enough power to alter device parameters or melt silicon junctions.

A discharge of static electricity from a finger or other conductor can destroy static-sensitive devices or microcircuitry. Even if the spark is neither felt nor heard, damage may have occurred.

An electronic device exposed to ESD may not be affected at all and can work perfectly throughout a normal cycle. Or the device may function normally for a while, then degrade in the internal layers, reducing its life expectancy.

⚠ **CAUTION:** To prevent damage to the computer when you are removing or installing internal components, observe these precautions:

Keep components in their electrostatic-safe containers until you are ready to install them.

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 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 plastics	Bags	1,500 V
Carbon-loaded plastic	Floor mats	7,500 V
Metallized laminate	Floor mats	5,000 V

Component replacement procedures

This chapter provides removal and replacement procedures.

There may be as many as 79 screws that must be removed, replaced, or loosened when servicing the computer. Make special note of each screw and screw lock size and location during removal and replacement.

Battery

Description	Spare part number
4-cell, 37-Whr, 2.55-Ah Li-ion battery	695192-001

Before disassembling the computer, follow these steps:

1. Shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.

Remove the battery:

1. Turn the computer upside down on a flat surface.
2. Slide the battery release lock **(1)** far enough that it rests in the unlocked position.
3. Slide the battery release latch **(2)** to release the battery.
4. Slide the battery **(3)** from the middle to remove it from the computer.

To insert the battery reverse these procedures.

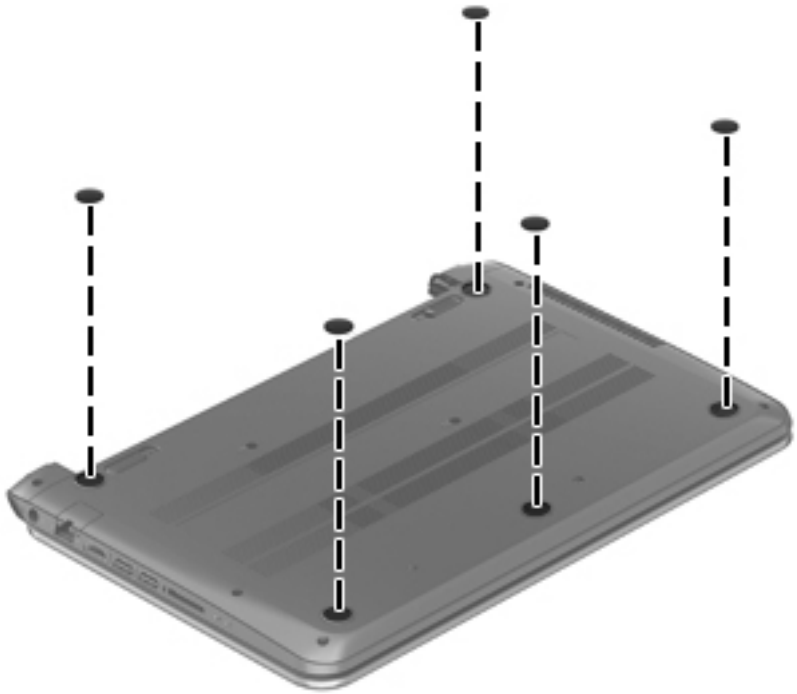
NOTE: The battery release latch will automatically lock into place.

Reset the battery release lock to the locked position.

Computer feet

Description	Spare part number
Rubber Feet Kit	697906-001

The computer feet are adhesive-backed rubber pads. There are 5 rubber feet that attach to the base enclosure in the locations illustrated below.



Keyboard

NOTE: The keyboard spare part kit includes a keyboard cable.

For use in	Spare part number	For use in	Spare part number
For use in Belgium	701684-A41	For use in the Netherlands	701684-B31
For use in Bulgaria	701684-261	For use in Portugal	701684-131
For use in Canada	701684-DB1	For use in Romania	701684-271
For use in the Czech Republic and Slovakia	701684-FL1	For use in Russia	701684-251
For use in Denmark, Finland,and Norway	701684-DH1	For use in Saudi Arabia	701684-171
For use in France	701684-051	For use in Slovenia	701684-BA1
For use in Germany	701684-041	For use in South Korea	701684-AD1

For use in	Spare part number	For use in	Spare part number
For use in Greece	701684-151	For use in Spain	701684-071
For use in Hungary	701684-211	For use in Switzerland	701684-BG1
For use in Israel	701684-BB1	For use in Turkey	701684-141
For use in Italy	701684-061	For use in the United Kingdom and Singapore	701684-031
For use in Latin America	701684-161	For use in the United States	701684-001

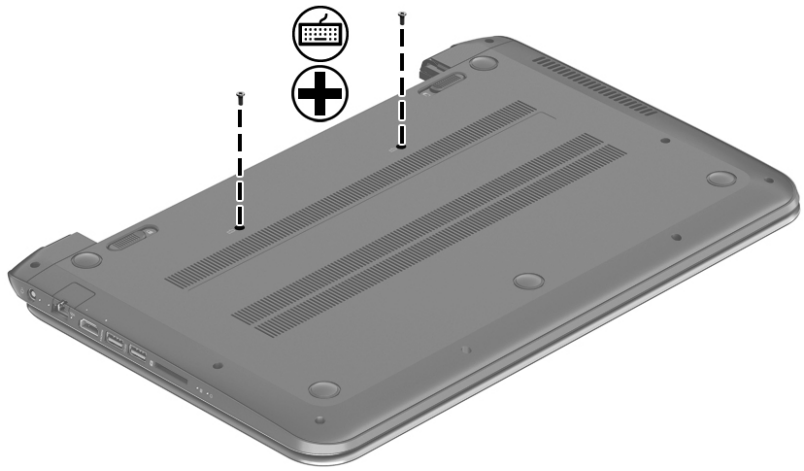
IMPORTANT: Make special note of each screw and screw lock size and location during removal and replacement.

Before removing the keyboard, follow these steps:

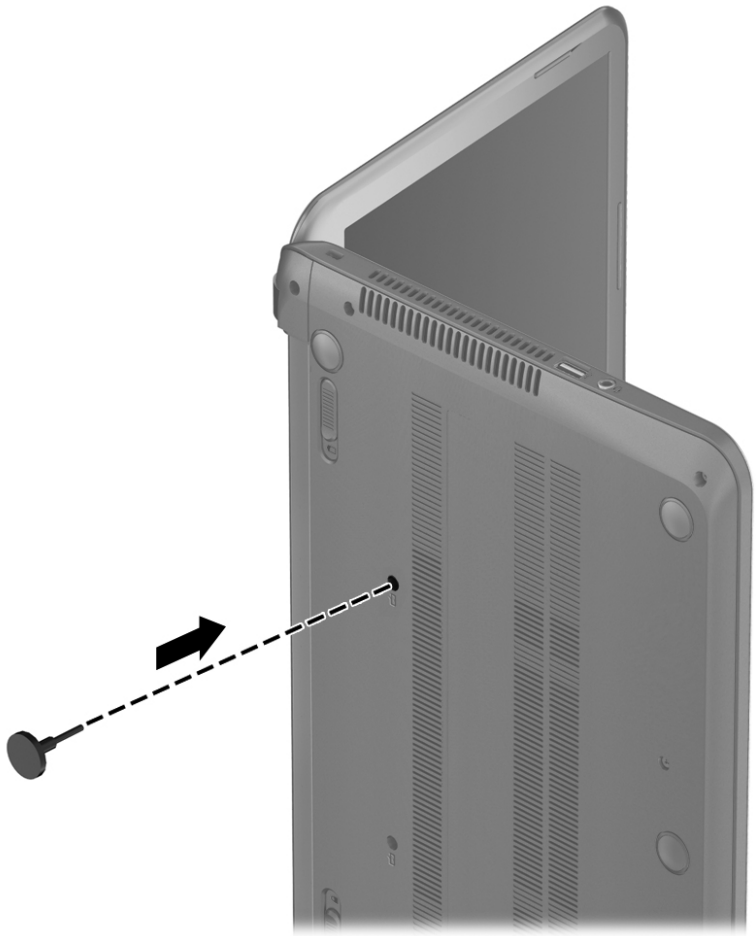
1. Shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see Battery on page 30).

Remove the keyboard:

1. Remove the two Phillips screws that secure the keyboard to the computer.



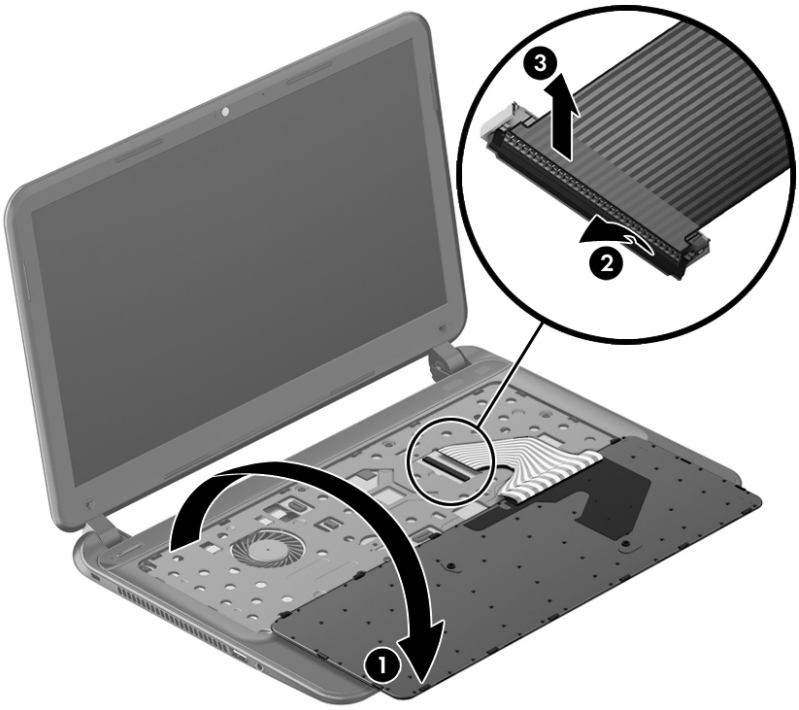
2. Turn the computer right-side up with the front toward you. Open the display and stand the computer on its right side. Insert a thin tool through the keyboard access hole. (The keyboard icon indicates the keyboard access hole.) Push firmly on the bottom of the keyboard until it disengages from the computer.



3. Turn the computer right-side up with the front toward you and open the display.

4. Gently slide your finger along the top edge of the keyboard to release the keyboard clips. Lift up on the rear of the keyboard.

5. Tilt the keyboard forward **(1)** onto the palm rest. Release the zero insertion force (ZIF) connector **(2)** to which the keyboard cable is attached, and then disconnect the keyboard cable **(3)** from the system board.



6. Remove the keyboard.

Reverse this procedure to install the keyboard.

Top cover

NOTE: The top cover spare part kit includes the TouchPad support, TouchPad board and TouchPad cable.

Description	Spare part number
In ruby red finish	701703-001
In sparkling black finish	701704-001
In winter blue finish	709177-001
TouchPad button board	701685-001

IMPORTANT: Make special note of each screw and screw lock size and location during removal and replacement.

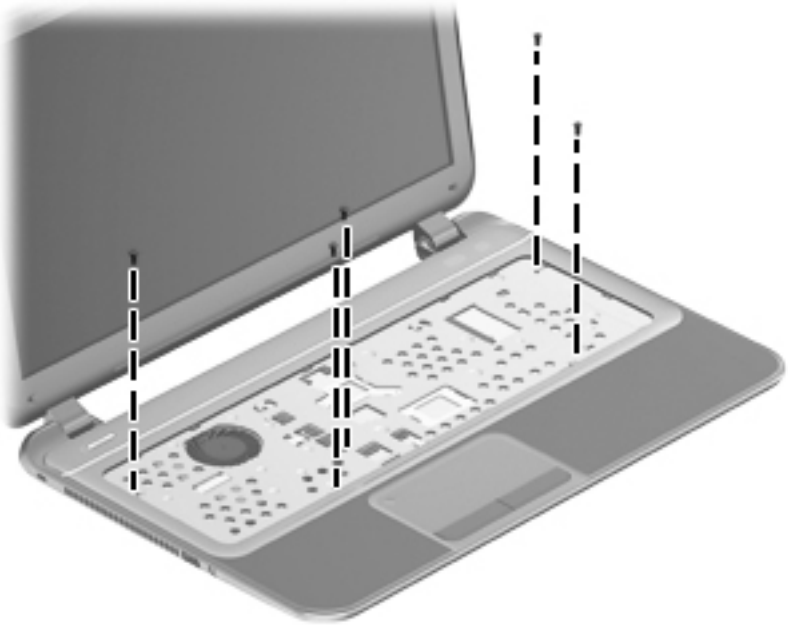
Before removing the top cover, follow these steps:

1. Shut down the computer.
2. Disconnect all external devices connected to the computer.

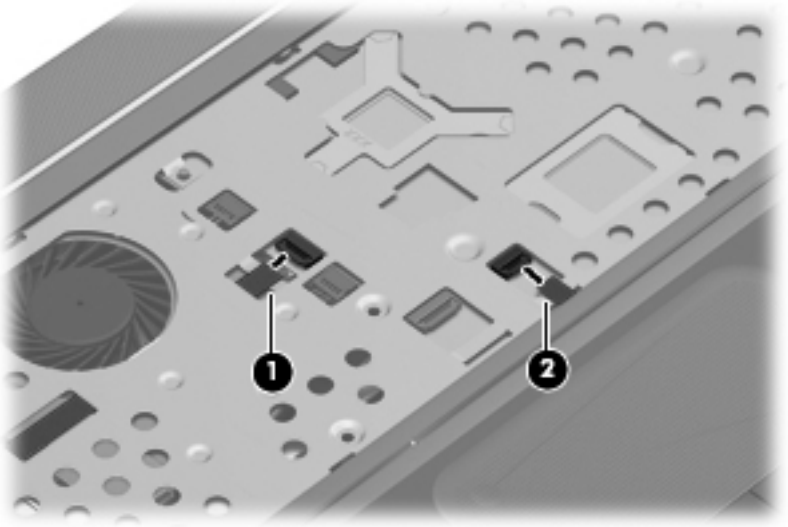
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see Battery on page 30).
5. Remove the keyboard (see Keyboard on page 31).

Remove the top cover:

1. Remove the five Phillips screws that secure the top cover to the base enclosure.

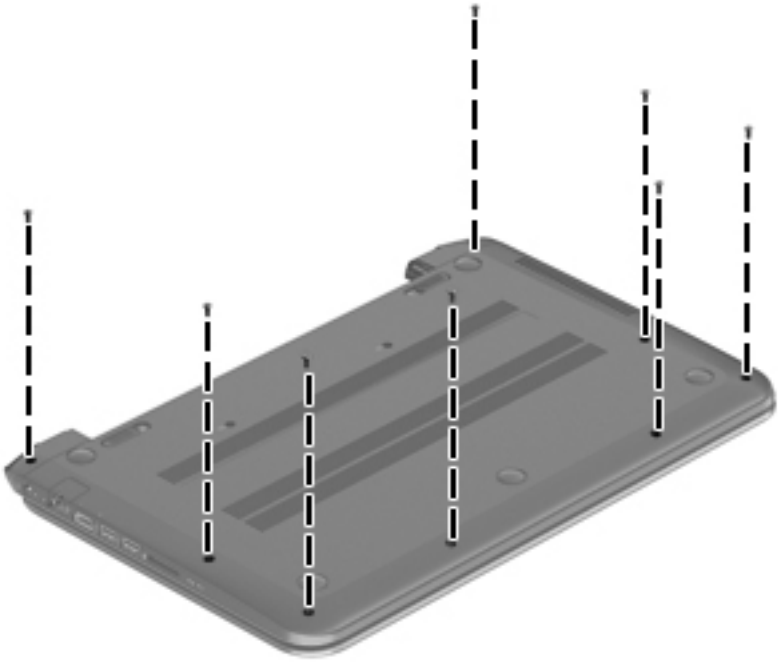


2. Disconnect the power button cable **(1)** and the TouchPad cable **(2)**.

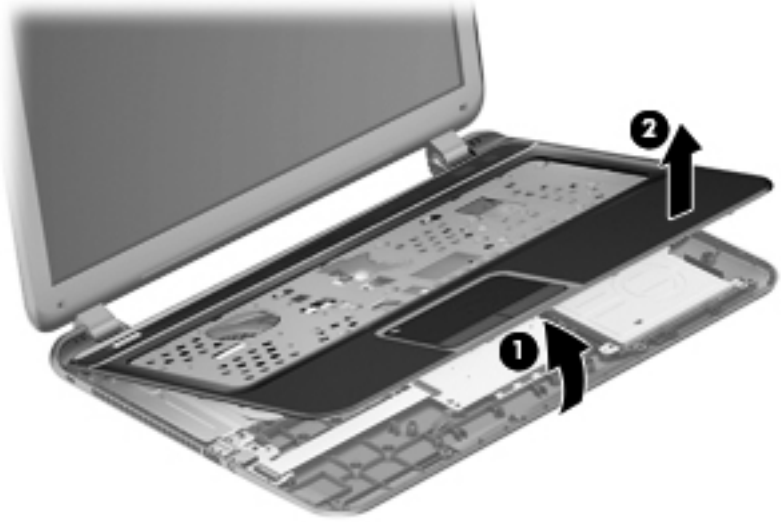


3. Close the display and turn the computer upside down.

4. Remove the eight Phillips screws from the bottom of the computer.



5. Turn the computer over and open the display.
6. Gently lift around the edges of the top cover **(1)** and lift to remove the top cover **(2)**.



When replacing the top cover, be sure that the power button board and cable (see Power button board on page 38) are removed from the defective top cover and installed on the replacement top cover.

Reverse this procedure to install the top cover.

Power button board

Description	Spare part number
Power button board (includes cable)	701686-001

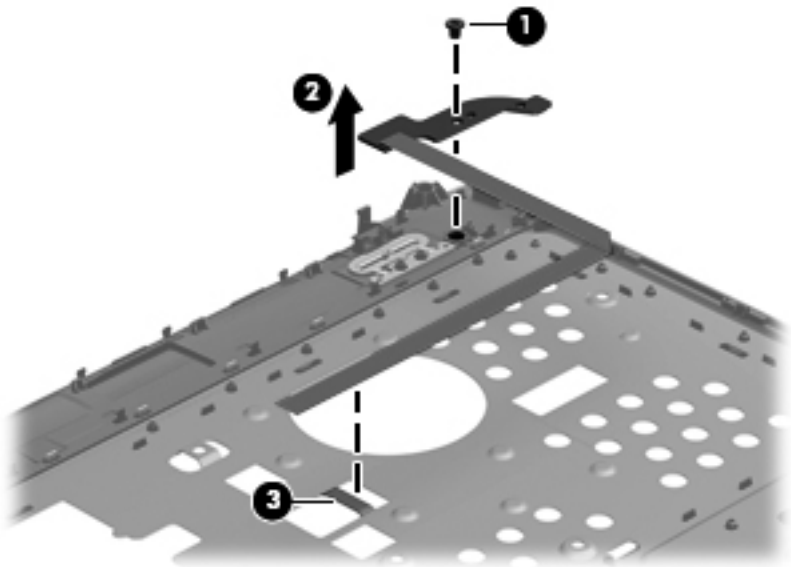
IMPORTANT: Make special note of each screw and screw lock size and location during removal and replacement.

Before removing the power button board, follow these steps:

1. Shut down the computer.
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 30).
5. Remove the keyboard (see Keyboard on page 31).
6. Remove the top cover (see Top cover on page 35).

Remove the power button board:

1. Turn the top cover upside down, with the front toward you.
2. Remove the Phillips screw **(1)** and tape that secure the power button board to the top cover.
3. Release the clips, lift the power button board **(2)**, and carefully slide the power button cable out from the guides **(3)** to remove the power button board.



Reverse this procedure to install the power button board.

Hard drive

NOTE: The hard drive spare part kit does not include the hard drive connector cable, or hard drive bracket and screws.

Description	Spare part number
1-TB, 5400-rpm, 9.5-mm	676521-005
750-GB, 7200-rpm, 9.5-mm	633252-005
750-GB, 5400-rpm, 9.5-mm	634250-005
640-GB, 5400-rpm, 9.5-mm	669300-005
500-GB, 7200-rpm, 9.5-mm	634925-005
500-GB, 5400-rpm, 9.5-mm	669299-005
500-GB, 5400-rpm, 7.0-mm	669299-005
300-GB, 5400-rpm, 9.5-mm	622643-005
Hard Drive Hardware Kit (includes hard drive bracket, hard drive connector cable, 2 rubber isolators, and screws)	701945-001

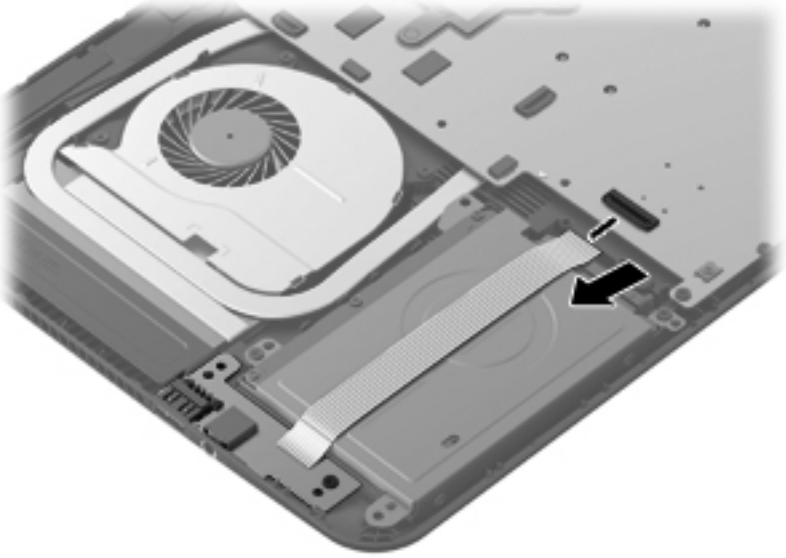
IMPORTANT: Make special note of each screw and screw lock size and location during removal and replacement.

Before removing the hard drive, follow these steps:

1. Shut down the computer.
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 30).
5. Remove the keyboard (see Keyboard on page 31).
6. Remove the top cover (see Top cover on page 35).

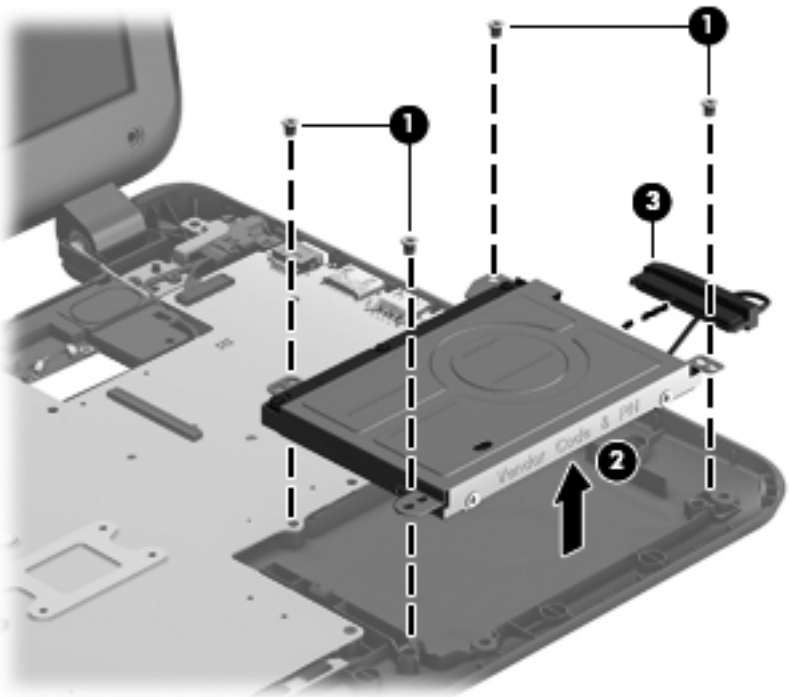
Remove the hard drive:

1. Disconnect the USB cable on top of the hard drive from the computer.

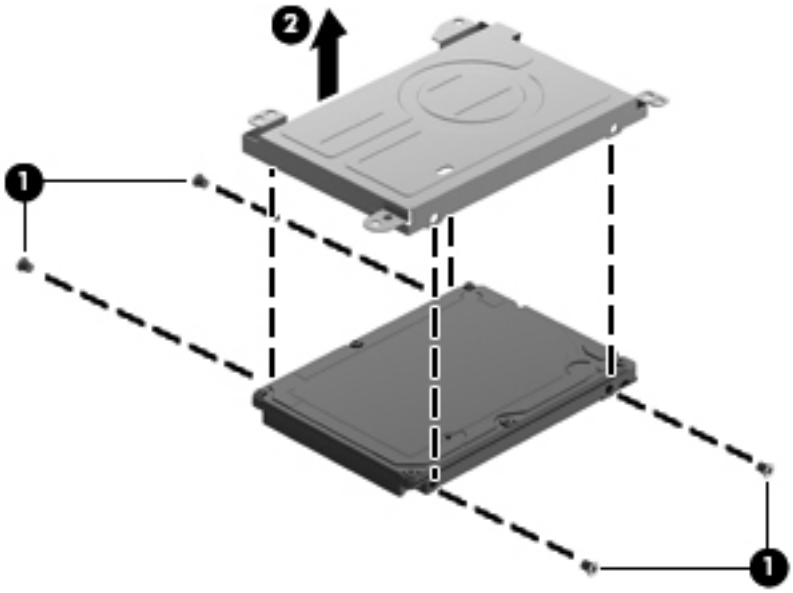


NOTE: If it is necessary to replace the hard drive connector cable, see System board on page 45.

2. Remove the two Phillips screws **(1)**. Lift the hard drive **(2)** to remove and disconnect the hard drive connector cable **(3)**.



3. Remove the four Phillips screws **(1)**, and then remove the bracket **(2)** from the hard drive.



To install a hard drive, reverse the removal procedure.

USB board

Description	Spare part number
USB board (includes cable and audio-out/audio-in jack)	701687-001

IMPORTANT: Make special note of each screw and screw lock size and location during removal and replacement.

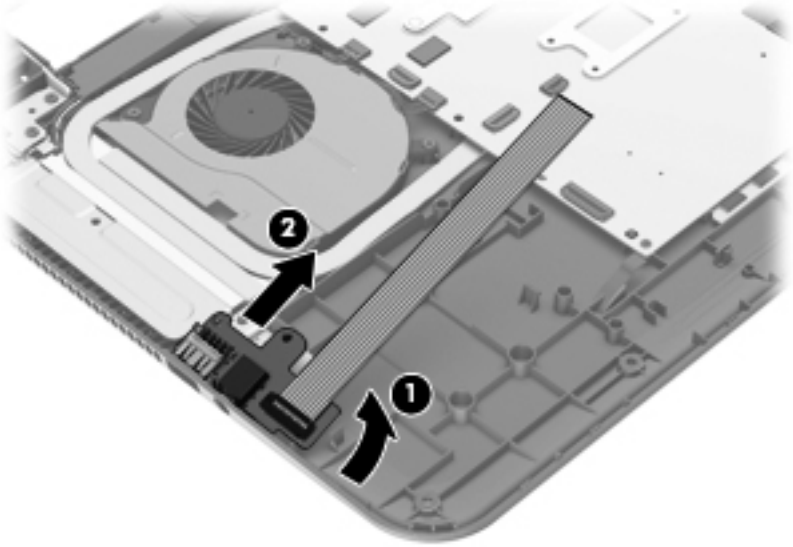
Before removing the USB board, follow these steps:

1. Shut down the computer.
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 30).
5. Remove the keyboard (see Keyboard on page 31).
6. Remove the top cover (see Top cover on page 35).
7. Remove the hard drive (see Hard drive on page 39).

Remove the USB board:

NOTE: One side of the USB cable lays across the hard drive. It is disconnected during the hard drive removal process.

1. Lift the inside edge of the USB board **(1)** to release it from the clips built into the base enclosure.
2. Remove the USB board **(2)** and cable.



Reverse this procedure to install the USB board.

WLAN module

Description	Spare part number
Qualcomm Atheros AR9485 802.11 b/g/n 1×1 WiFi Adapter	675794-005
Ralink RT3290LE 802.11 b/g/n 1x1 WiFi and Bluetooth 4.0 Combo Adapter	690020-005
Ralink RT5390R 802.11 b/g/n 1×1 WiFi Adapter	691415-005

IMPORTANT: Make special note of each screw and screw lock size and location during removal and replacement.

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 device functionality, and then contact technical support.

Before removing the WLAN module, follow these steps:

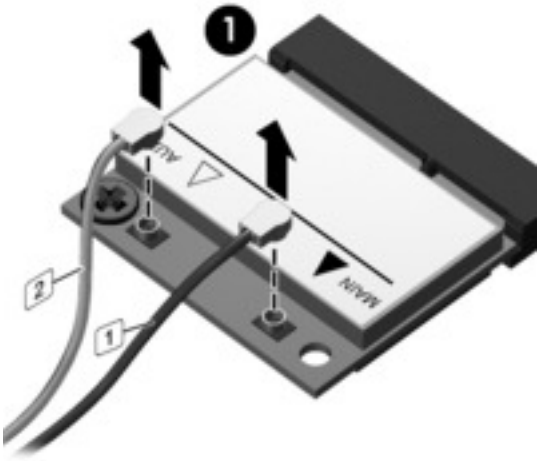
1. Shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.

4. Remove the battery (see Battery on page 30).
5. Remove the keyboard (see Keyboard on page 31).
6. Remove the top cover (see Top cover on page 35).

Remove the WLAN module:

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

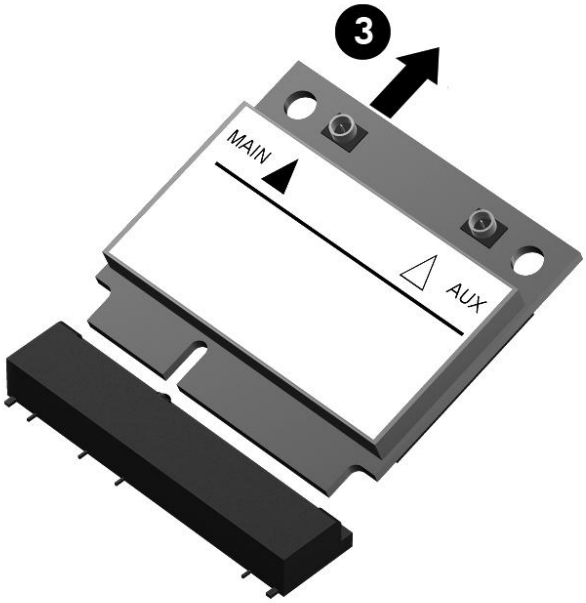
NOTE: The 1/black WLAN antenna cable is connected to the WLAN module 1/Main terminal. The 2/white WLAN antenna cable is connected to the WLAN module 2/Aux terminal.



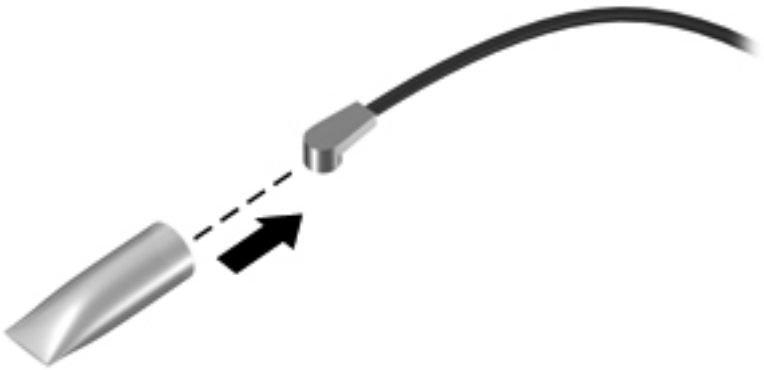
2. Remove the Phillips screw **(2)** that secures the WLAN module to the system board. (The WLAN module tilts up.)

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

NOTE: The WLAN module is designed with a notch to prevent incorrect installation into the WLAN module socket.



NOTE: If the WLAN antennas are not connected to the terminals on the WLAN module, the protective sleeves should be installed on the antenna connectors, as shown in the following illustration.



Reverse this procedure to install the WLAN module.

System board

NOTE: The system board Thermal Material Kit, part number 680571-001, includes replacement thermal paste and pads.

Description	Spare part number
Equipped with an AMD A8-4555M 1.60-/2.40-GHz processor (1333-MHz FSB, DDR3, 1.0-MB of L2 cache, quad core, 19 W), a graphics subsystem with 1.0-GB of discrete memory, and the Windows 8 Professional operating system	709176-601
Equipped with an AMD A8-4555M 1.60-/2.40-GHz processor (1333-MHz FSB, DDR3, 1.0-MB of L2 cache, quad core, 19 W), a graphics subsystem with 1.0-GB of discrete memory, and the Windows 8 Standard operating system	709176-501
Equipped with an AMD A8-4555M 1.60-/2.40-GHz processor (1333-MHz FSB, DDR3, 1.0-MB of L2 cache, quad core, 19 W), a graphics subsystem with 1.0-GB of discrete memory, and the Windows 7 operating system	709176-001
Equipped with an AMD A8-4555M 1.60-/2.40-GHz processor (1333-MHz FSB, DDR3, 1.0-MB of L2 cache, quad core, 19 W), a graphics subsystem with UMA memory, and the Windows 8 Professional operating system	709175-601
Equipped with an AMD A8-4555M 1.60-/2.40-GHz processor (1333-MHz FSB, DDR3, 1.0-MB of L2 cache, quad core, 19 W), a graphics subsystem with UMA memory, and the Windows 8 Standard operating system	709175-501
Equipped with an AMD A8-4555M 1.60-/2.40-GHz processor (1333-MHz FSB, DDR3, 1.0-MB of L2 cache, quad core, 19 W), a graphics subsystem with UMA memory, and the Windows 7 operating system	709175-001
Equipped with an AMD A6-4455M 2.10-/2.60-GHz processor (1333-MHz FSB, DDR3, 1.0-MB of L2 cache, dual core, 17 W), a graphics subsystem with UMA memory, and the Windows 8 Professional operating system	709174-601
Equipped with an AMD A6-4455M 2.10-/2.60-GHz processor (1333-MHz FSB, DDR3, 1.0-MB of L2 cache, dual core, 17 W), a graphics subsystem with UMA memory, and the Windows 8 Standard operating system	709174-501
Equipped with an AMD A6-4455M 2.10-/2.60-GHz processor (1333-MHz FSB, DDR3, 1.0-MB of L2 cache, dual core, 17 W), a graphics subsystem with UMA memory, and the Windows 7operating system	709174-001
Equipped with an AMD A4-4355M 1.90-/2.40-GHz processor (1333-MHz FSB, DDR3, 1.0-MB of L2 cache, dual core, 17 W), a graphics subsystem with UMA memory, and the Windows 8 Professional operating system	709173-601
Equipped with an AMD A4-4355M 1.90-/2.40-GHz processor (1333-MHz FSB, DDR3, 1.0-MB of L2 cache, dual core, 17 W), a graphics subsystem with UMA memory, and the Windows 8 Standard operating system	709173-501
Equipped with an AMD A4-4355M 1.90-/2.40-GHz processor (1333-MHz FSB, DDR3, 1.0-MB of L2 cache, dual core, 17 W), a graphics subsystem with UMA memory, and the Windows 7 operating system	709173-001

IMPORTANT: Make special note of each screw and screw lock size and location during removal and replacement.

Before removing the system board, follow these steps:

1. Shut down the computer.
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 30).
5. Remove the keyboard (see Keyboard on page 31).
6. Remove the top cover (see Top cover on page 35).
7. Remove the hard drive (see Hard drive on page 39).
8. Remove the USB board (see USB board on page 41).
9. Remove the WLAN (see WLAN module on page 42).

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

- Memory module (see Memory module on page 49)
- RTC battery (see RTC battery on page 51)
- Heat sink (see Heat sink on page 54)
- PCH heat sink (see PCH heat sink on page 52)

Remove the system board:

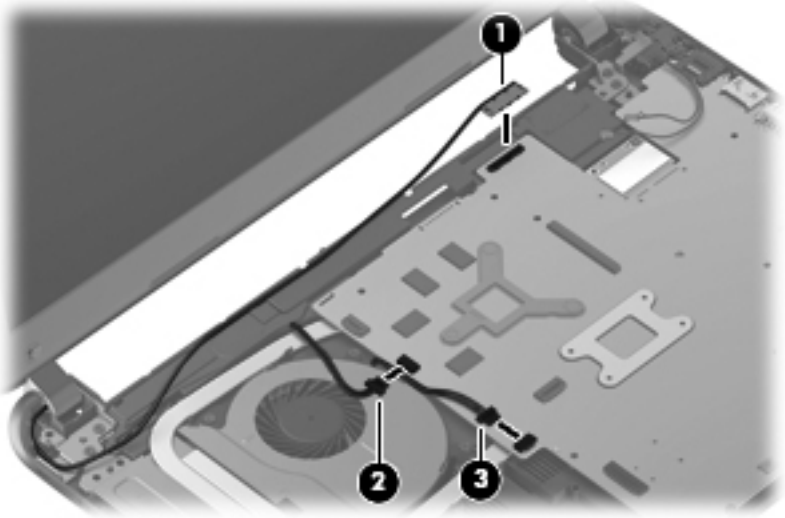
NOTE: The heat sink on your system board may appear different from the heat sink shown.

1. Disconnect the following cables from the system board:

   (1) Display panel cable

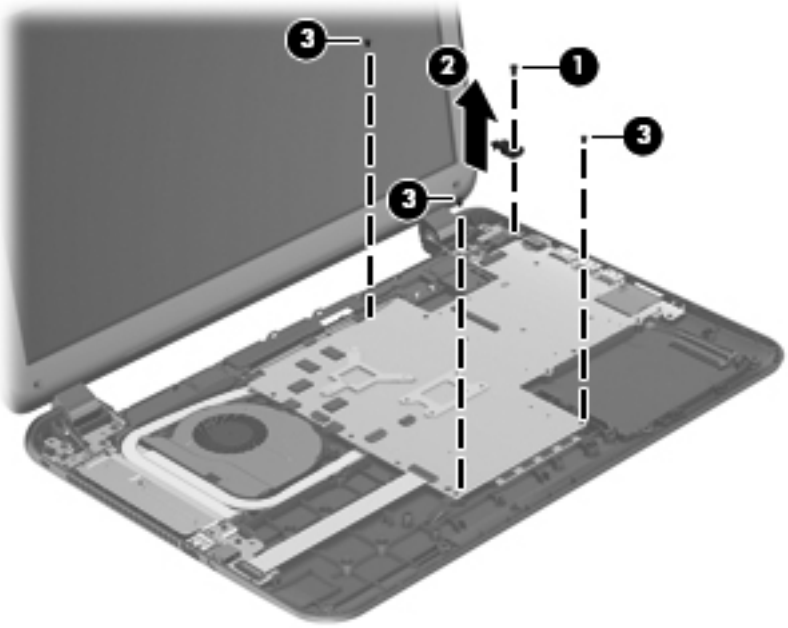
   (2) Speaker cable

   (3) Fan power connector cable



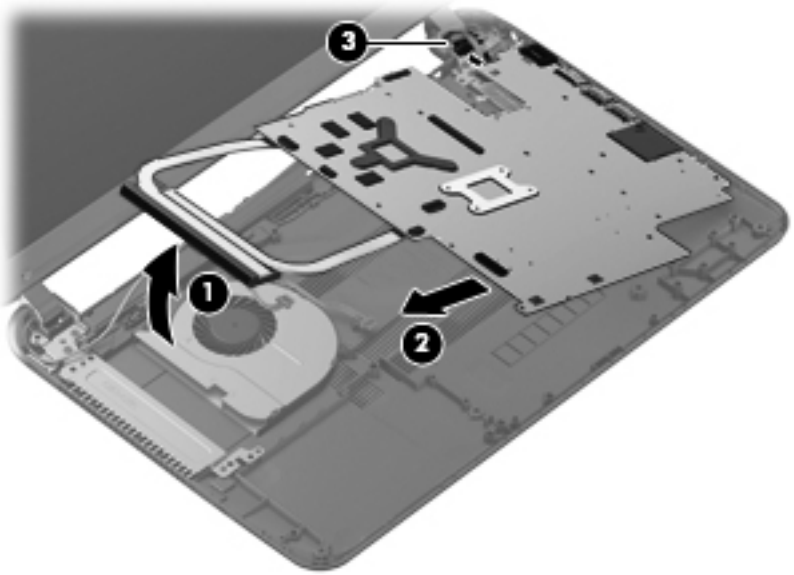
2. Remove the power connector cable bracket Phillips screw **(1)** and remove the power connector cable bracket **(2)**.

3. Remove the two Phillips screws **(3)** that secure the system board to the base enclosure.



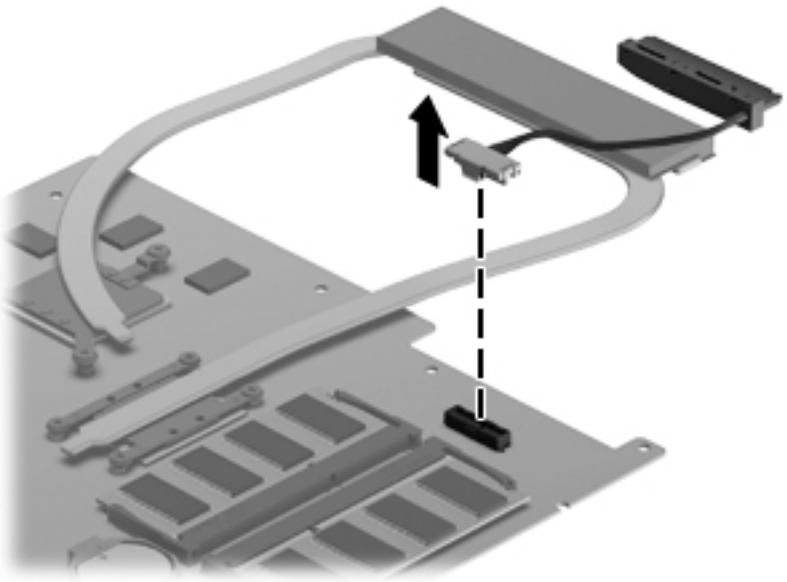
4. Lift the left side of the system board **(1)** until it rests at an angle.

5. Remove the system board by sliding it up and to the left at an angle **(2)**.
6. Disconnect the power connector cable cable **(3)**.



7. Remove the hard drive connector cable:
   a. Turn the system board upside down, with the front toward you.
   b. Disconnect the hard drive connector cable from the system board.

      The hard drive connector cable is included in the Hard Drive Hardware Kit, spare part number 701945-001.



Reverse this procedure to install the system board.

Memory module

WARNING! To reduce the risk of electric shock and damage to the equipment, unplug the power cord and remove all batteries before installing a memory module.

CAUTION: Electrostatic discharge (ESD) can damage electronic components. Before beginning any procedure, ensure that you are discharged of static electricity by touching a grounded metal object.

Description	Spare part number
4-GB (DDR3, 1600-MHz, PC3, 12800)	641369-005
2-GB (DDR3, 1600-MHz, PC3, 12800)	652972-005

IMPORTANT: Make special note of each screw and screw lock size and location during removal and replacement.

Before removing a memory module, follow these steps:

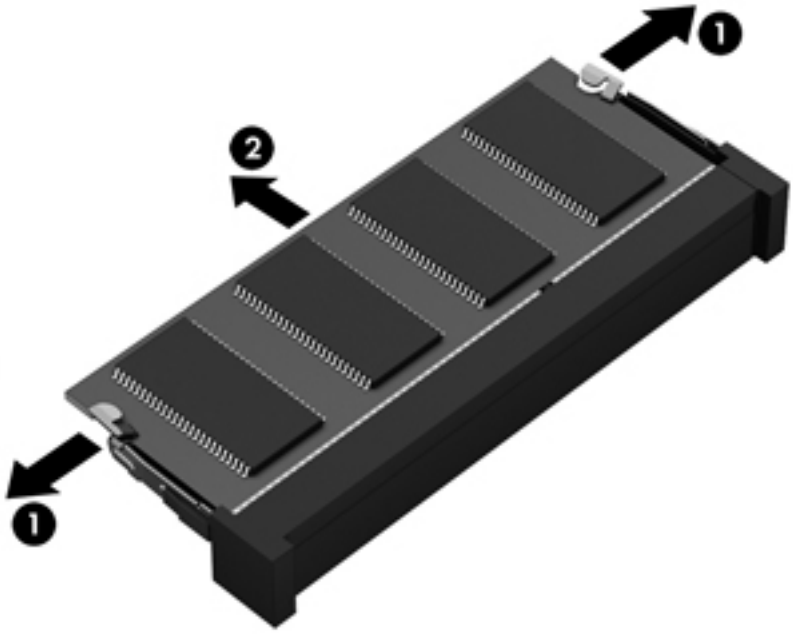
1. Shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see Battery on page 30).
5. Remove the keyboard (see Keyboard on page 31).
6. Remove the top cover (see Top cover on page 35).
7. Remove the hard drive (see Hard drive on page 39).
8. Remove the USB board (see USB board on page 41).
9. Remove the WLAN (see WLAN module on page 42).
10. Remove the system board (see System board on page 45).

To add or replace a memory module:

1. Turn the system board upside down to access the memory module.
2. Spread the retention clips **(1)** on each side of the memory module slot to release the memory module. (The memory module tilts up.)

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

⚠ **CAUTION:** To prevent damage to the memory module, hold the memory module by the edges only. Do not touch the components on the memory module.



⚠ **CAUTION:** To protect a memory module after removal, place it in an electrostatic-safe container.

Reverse these procedures to replace the memory module.

RTC battery

Description	Spare part number
RTC battery	697917-001

IMPORTANT: Make special note of each screw and screw lock size and location during removal and replacement.

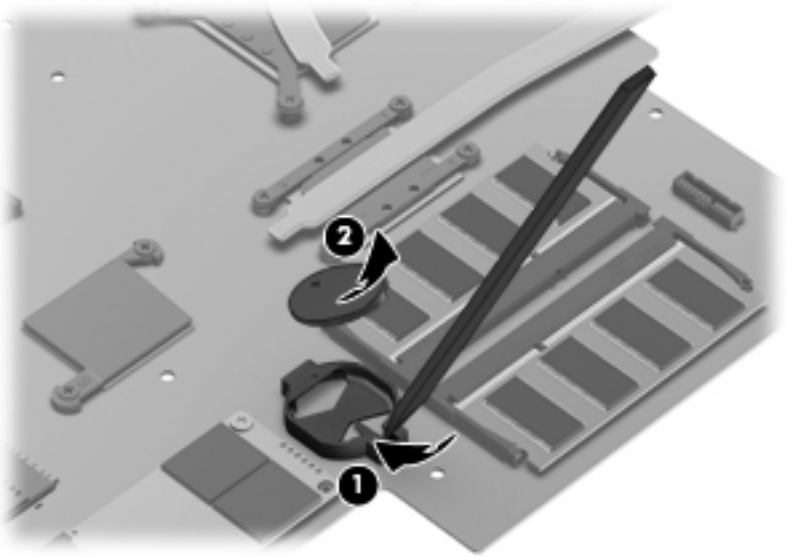
Before removing the RTC battery, follow these steps:

1. Shut down the computer.
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 30).
5. Remove the keyboard (see Keyboard on page 31).
6. Remove the top cover (see Top cover on page 35).
7. Remove the hard drive (see Hard drive on page 39).
8. Remove the USB board (see USB board on page 41).
9. Remove the WLAN (see WLAN module on page 42).
10. Remove the system board (see System board on page 45).

Remove the RTC battery:

1. Turn the system board upside down, with the front toward you.

2. Remove the RTC battery **(1)** by pressing down with a thin plastic tool or your finger. The battery is spring loaded and will pop up. Lift and remove the RTC battery **(2)**.



Reverse this procedure to install the RTC battery.

PCH heat sink

Description	Spare part number
PCH heat sink (includes replacement thermal material)	699248-001

IMPORTANT: Make special note of each screw and screw lock size and location during removal and replacement.

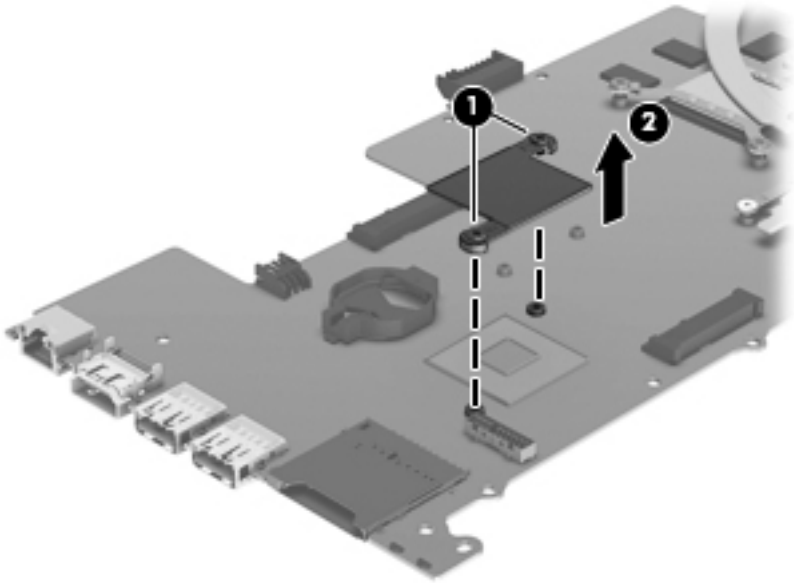
Before removing the PCH heat sink, follow these steps:

1. Shut down the computer.
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 30).
5. Remove the keyboard (see Keyboard on page 31).
6. Remove the top cover (see Top cover on page 35).
7. Remove the hard drive (see Hard drive on page 39).
8. Remove the USB board (see USB board on page 41).

9. Remove the WLAN (see WLAN module on page 42).
10. Remove the system board (see System board on page 45).

Remove the PCH heat sink:

1. Turn the system board upside down, with the front toward you.
2. Remove the two Phillips screws **(1)** and lift off the PCH heat sink **(2)**.



Reverse this procedure to install the PCH heat sink onto a replacement system board.

Heat sink

NOTE: The heat sink spare part kit includes replacement thermal material.

Description	Spare part number
For use only on computer models equipped with a graphics subsystem with discrete memory	717148-001
For use only on computer models equipped with a graphics subsystem with UMA memory	697915-001

IMPORTANT: Make special note of each screw and screw lock size and location during removal and replacement.

Before removing the heat sink, follow these steps:

1. Shut down the computer.
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 30).
5. Remove the keyboard (see Keyboard on page 31).
6. Remove the top cover (see Top cover on page 35).
7. Remove the hard drive (see Hard drive on page 39).
8. Remove the USB board (see USB board on page 41).
9. Remove the WLAN (see WLAN module on page 42).
10. Remove the system board (see System board on page 45).

Remove the heat sink:

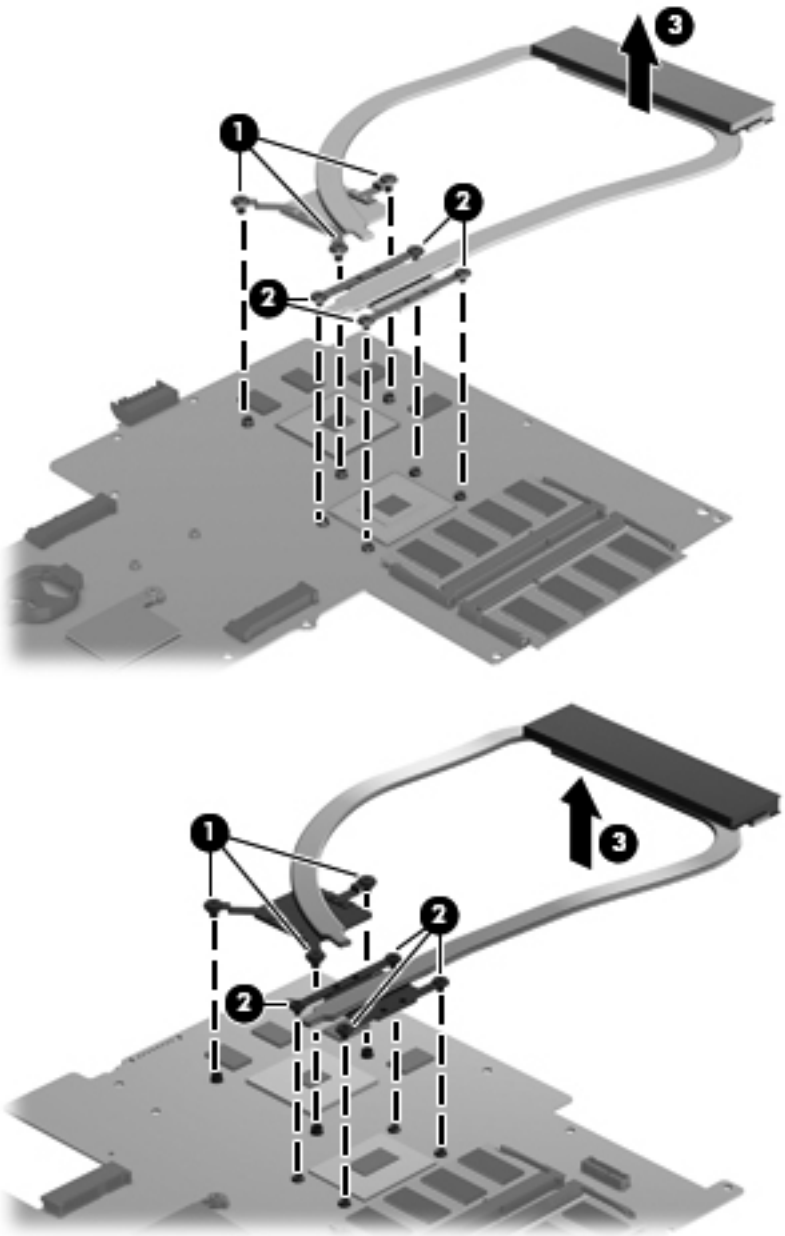
1. Turn the system board upside down, with the front toward you.

NOTE: Computer models with UMA graphics and switchable discrete graphics have different types of heat sinks depending on the computer model.

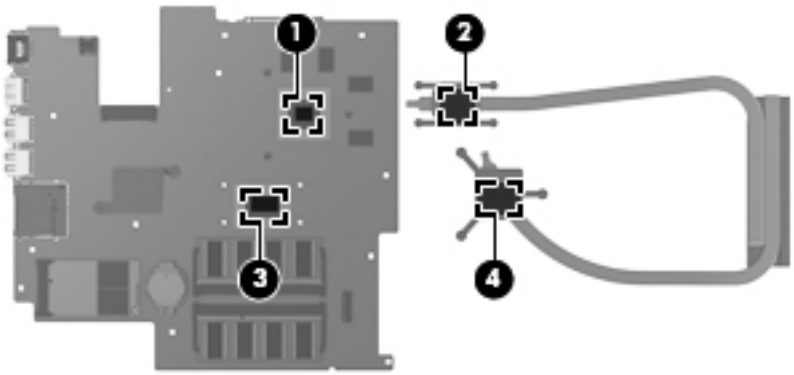
2. Remove the heat sink. If you have an UMA graphics heat sink, go to step c.

   a. Loosen all of the captive screws **(1)** and **(2)** and then lift the switchable discrete graphics heat sink **(3)** from the system board.

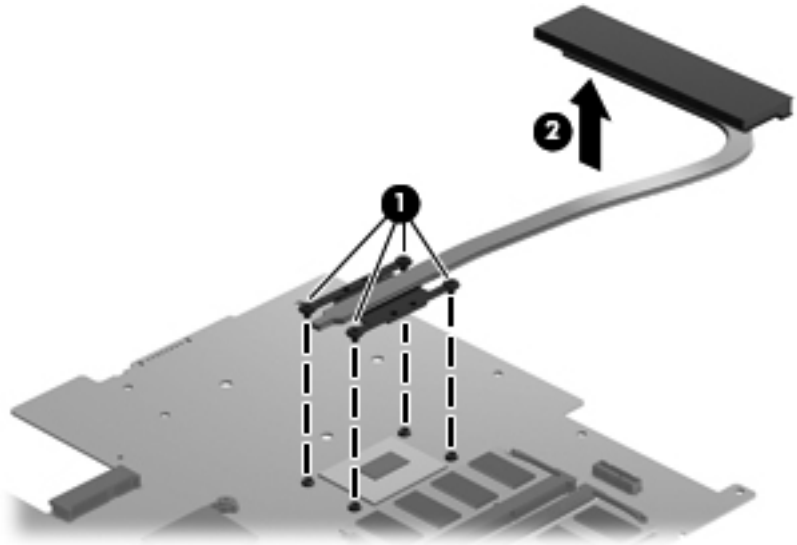
   CAUTION: To prevent damage to the cooling tubes, do not lift the assembly by the cooling tubes.



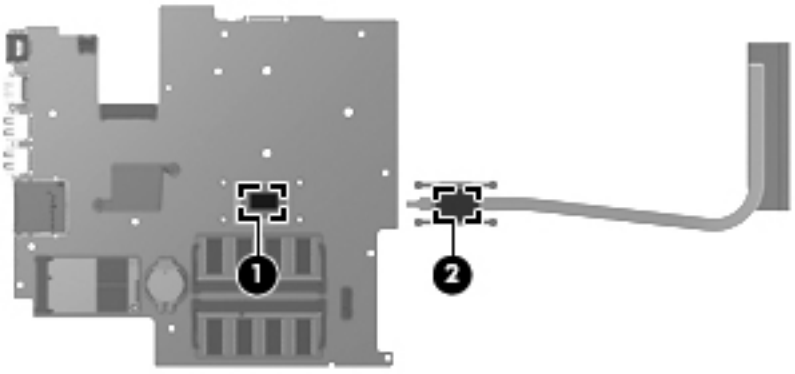
b. Thoroughly clean the thermal connections **(1)** and **(3)** on the system board and the heat sink **(2)** and **(4)** before replacing a heat sink onto the system board. Continue to step 3.



c. Loosen the captive screws **(1)** and lift the UMA graphics heat sink **(2)** from the system board.



d. Thoroughly clean the thermal connections **(1)** on the system board and the heat sink **(2)** before replacing a heat sink onto a system board.



3. Reverse this procedure to replace the heat sink. Replace the thermal material that ships with the replacement heat sink.

Fan

Description	Spare part number
Fan	697914-001

IMPORTANT: Make special note of each screw and screw lock size and location during removal and replacement.

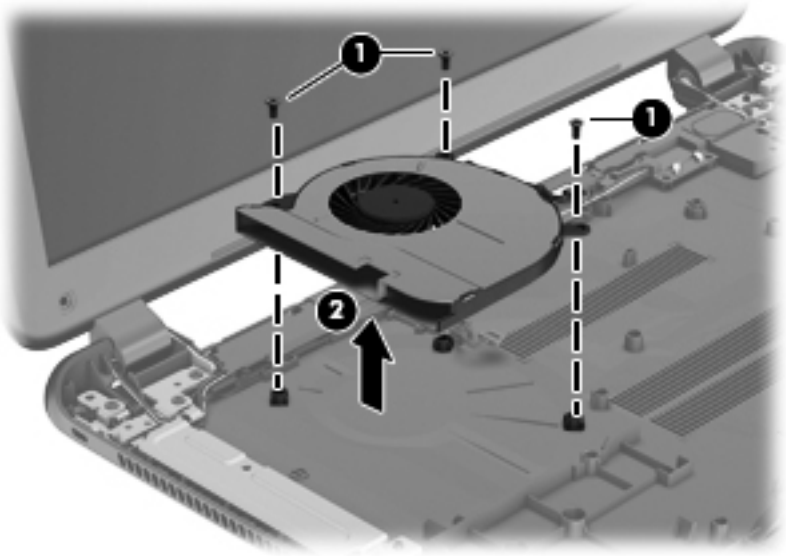
Before removing the fan, follow these steps:

1. Shut down the computer.
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 30).
5. Remove the keyboard (see Keyboard on page 31).
6. Remove the top cover (see Top cover on page 35).
7. Remove the hard drive (see Hard drive on page 39).
8. Remove the USB board (see USB board on page 41).
9. Remove the WLAN (see WLAN module on page 42).
10. Remove the system board (see System board on page 45).

To remove the fan from the base enclosure:

1. Disconnect the fan cable.

2. Remove the three Phillips screws **(1)** from the fan **(2)** and lift up to remove the fan.



Reverse this procedure to install the cooling fan in the base enclosure.

Speaker assembly

Description	Spare part number
Speaker assembly	701690-001

IMPORTANT: Make special note of each screw and screw lock size and location during removal and replacement.

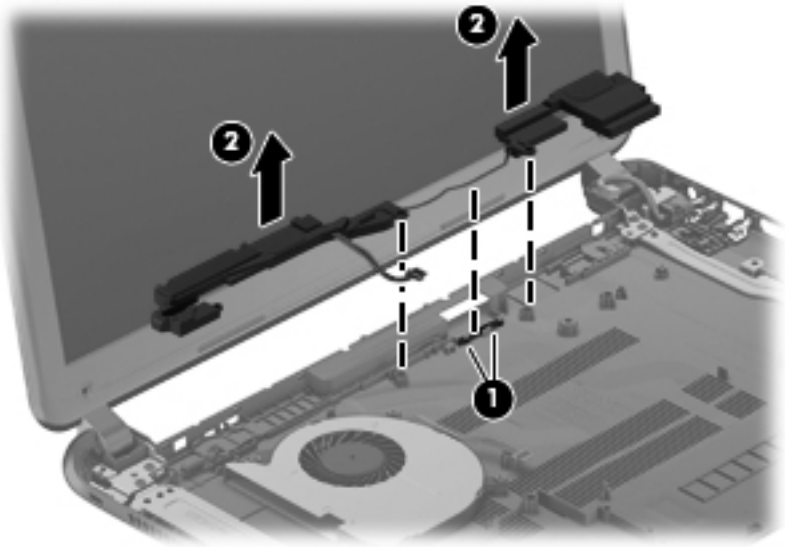
Before removing the speaker assembly, follow these steps:

1. Shut down the computer.
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 30).
5. Remove the keyboard (see Keyboard on page 31).
6. Remove the top cover (see Top cover on page 35).
7. Remove the hard drive (see Hard drive on page 39).
8. Remove the USB board (see USB board on page 41).
9. Remove the WLAN (see WLAN module on page 42).
10. Remove the system board (see System board on page 45).

Remove the speaker assembly:

NOTE: The screws securing the speaker assembly are removed during the top cover removal process.

1. Release the speaker cables **(1)** from the clips built into the base enclosure.
2. Remove the speaker assembly **(2)**.



Reverse this procedure to install the speaker assembly.

RJ-45 cover

Description	Spare part number
RJ-45 cover	703075-001

IMPORTANT: Make special note of each screw and screw lock size and location during removal and replacement.

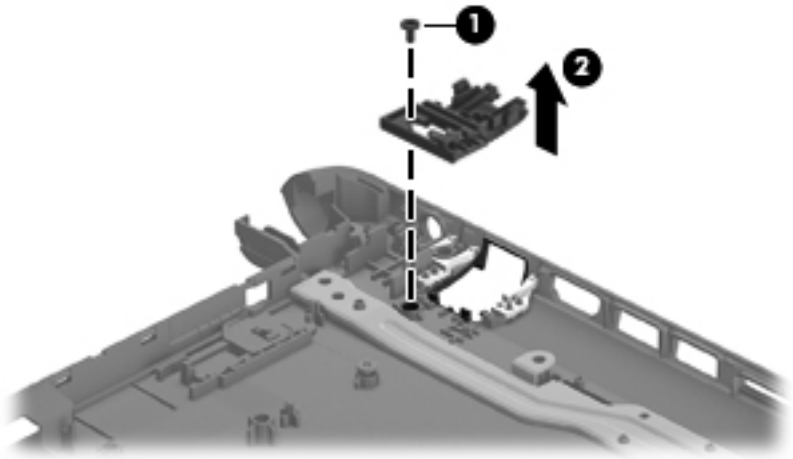
Before removing the RJ-45 cover, follow these steps:

1. Shut down the computer.
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 30).
5. Remove the keyboard (see Keyboard on page 31).
6. Remove the top cover (see Top cover on page 35).
7. Remove the hard drive (see Hard drive on page 39).

8. Remove the USB board (see USB board on page 41).
9. Remove the WLAN (see WLAN module on page 42).
10. Remove the system board (see System board on page 45).

Remove the RJ-45 cover:

1. Remove the screw **(1)** that secures the RJ-45 cover to the base enclosure.
2. Remove the RJ-45 cover **(2)** from the base enclosure.



Reverse these procedures to replace the RJ-45 cover.

Display assembly

Description	Spare part number
Display assembly: TouchScreen and non-TouchScreen display assemblies are available. The TouchScreen display assembly is spared only as a whole unit replacement component. The non-TouchScreen display assembly is spared only at the subcomponent level. For non-TouchScreen display assembly spare part information, see the individual removal subsections.	
15.6-in, WLED, SVA, HD, BrightView, TouchScreen display assembly in sparkling black finish (includes display panel cable, webcam/microphone module, and 2 wireless antenna cables)	709171-001

IMPORTANT: Make special note of each screw and screw lock size and location during removal and replacement.

Before removing the display assembly, follow these steps:

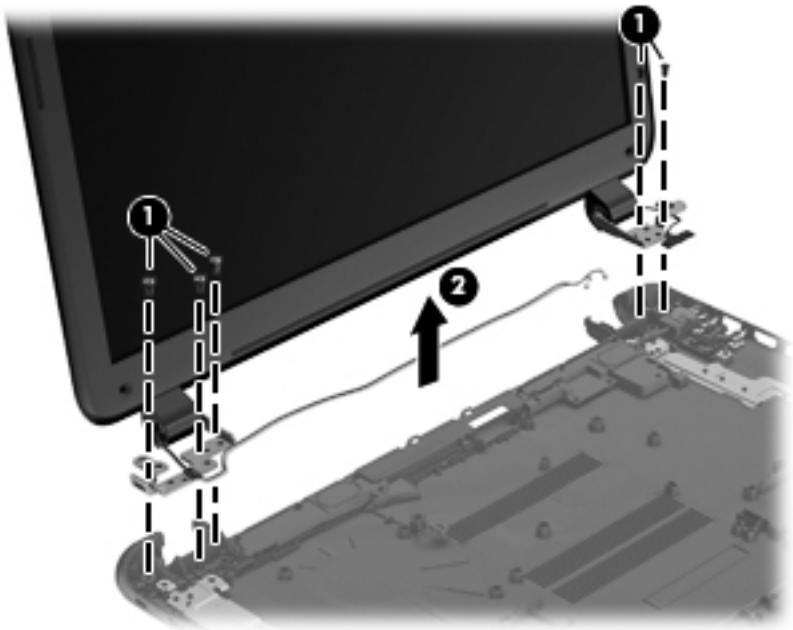
1. Shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see Battery on page 30).

5. Remove the keyboard (see Keyboard on page 31).
6. Remove the top cover (see Top cover on page 35).
7. Remove the hard drive (see Hard drive on page 39).
8. Remove the USB board (see USB board on page 41).
9. Remove the WLAN (see WLAN module on page 42).
10. Remove the system board (see System board on page 45).

Remove the display assembly:

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

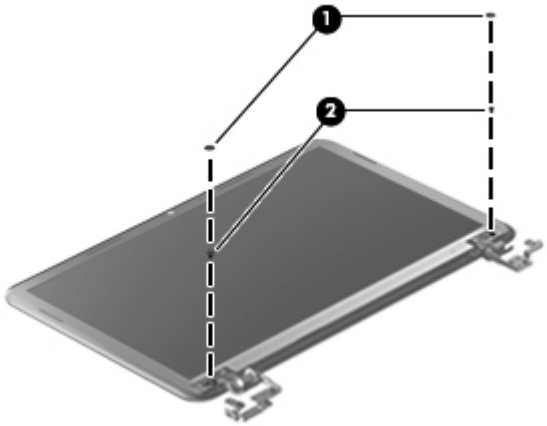
1. Remove the five Phillips screws **(1)** that secure the display assembly to the base enclosure.
2. Remove the display assembly **(2)**.



NOTE: Steps 3 through 8 apply only to non-TouchScreen display assemblies.

3. If it is necessary to replace the display bezel or any of the display assembly subcomponents:
   a. Remove the screw covers **(1)**.

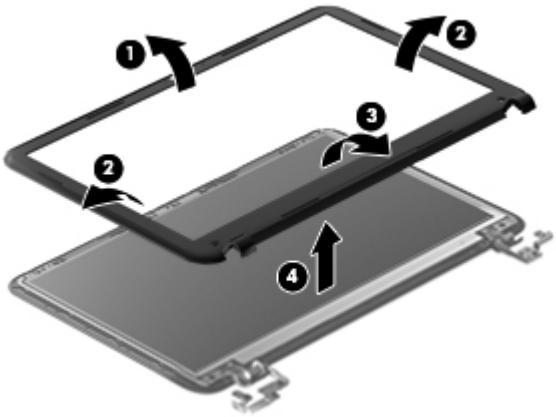
b. Remove the two Phillips screws **(2)** that secure the display bezel to the display assembly.



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

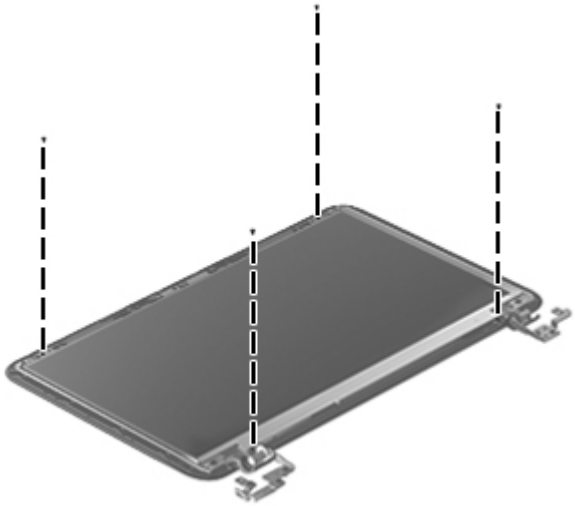
d. Remove the display bezel **(4)**.

The display bezel is available using spare part number 701680-001.



4. If it is necessary to remove the display panel:

   a. Remove the four Phillips screws that secure the display panel to the display enclosure.



   b. Lift the top edge of the display panel, and swing it **(1)** up and forward toward the keyboard.

   NOTE: Support the display panel as you lean the panel forward.

   c. Release the adhesive support strip **(2)** that secures the display panel cable to the display panel.

   d. Disconnect the display panel cable **(3)** from the display panel.

   e. Remove the display panel **(4)**.

      The display panel is available using spare part number 701688-001.

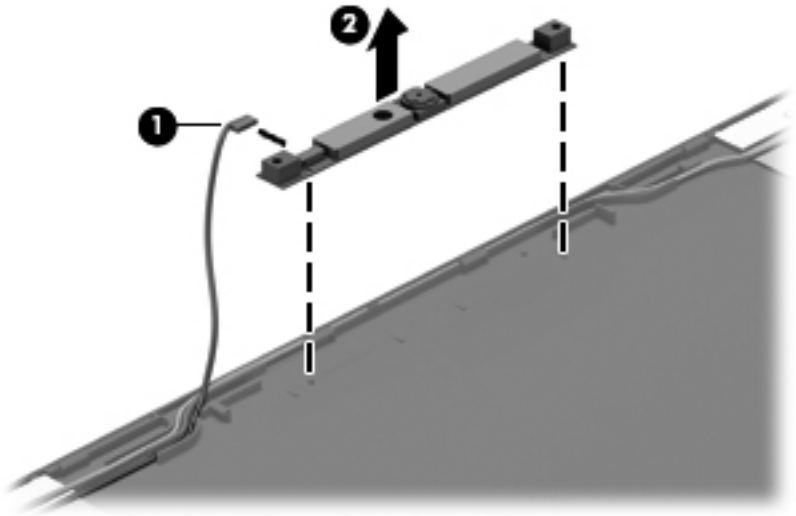
5. If it is necessary to replace the webcam/microphone module:

   a. Detach and release the webcam/microphone module as far as the webcam/microphone module cable allows. (The webcam/microphone module is attached to the display enclosure with double-sided tape.)

   b. Disconnect the webcam/microphone cable **(1)** from the webcam/microphone module.

   c. Remove the webcam/microphone module **(2)**.

      The webcam/microphone is available using spare part number 707767-001.

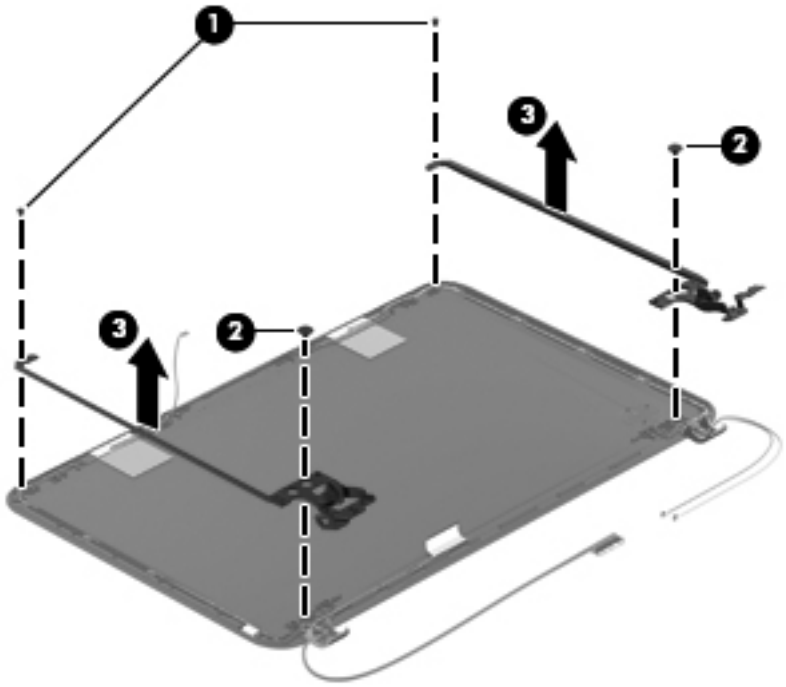


6. If it is necessary to remove the display hinges:

   a. Remove the two top screws **(1)** and two bottom screws **(2)** that secure the display hinges to the display enclosure.

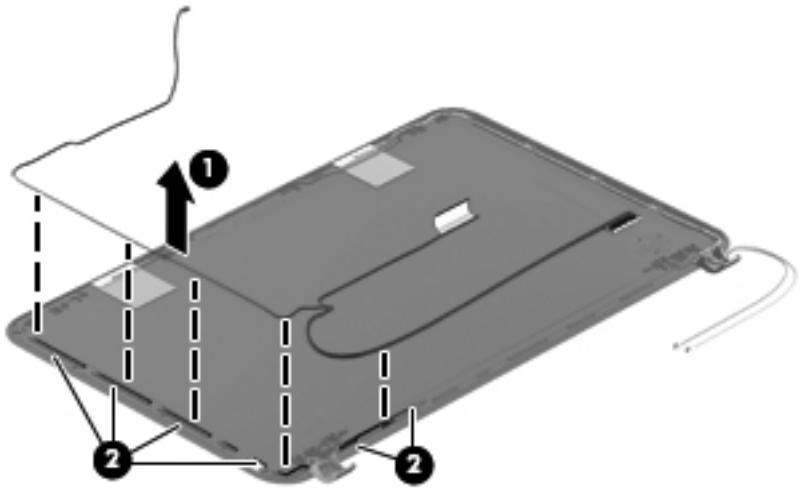
   b. Remove the display hinges **(3)**.

      The display hinges are included in the Display Hinge Kit, spare part number 701683-001.



7. If it is necessary to replace the display panel cable:

   a. Release the display panel cable **(1)** from the routing clips **(2)** built into the left side and the bottom edge of the display enclosure.



   b. Remove the display panel cable.

      The display panel cable is included in the Display Panel Cable Kit, spare part number 701681-001.

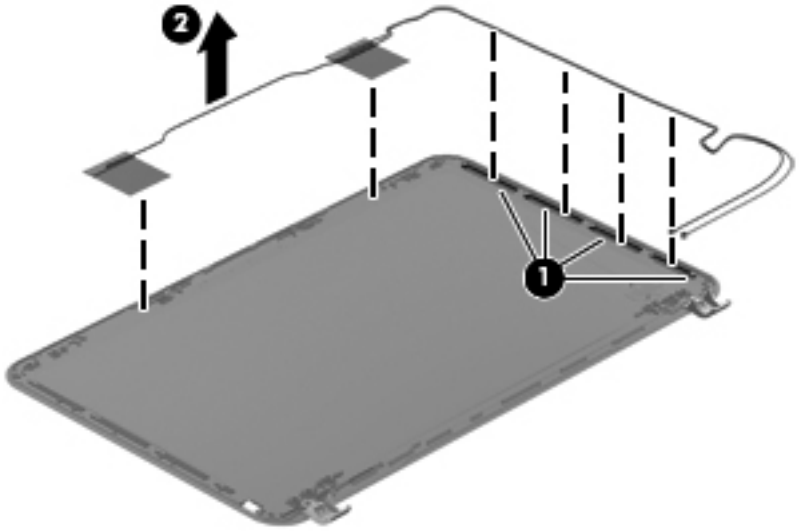
8. If it is necessary to replace the wireless antenna cables and transceivers:

   a. Release the wireless antenna cables from the clips **(1)** built into the display enclosure.

   b. Release the wireless antenna transceivers **(2)** from the display enclosure. (The wireless antenna transceivers are attached to the display enclosure with double-sided tape.)

c. Remove the wireless antenna cables and transceivers.

The wireless antennas are available using spare part number 701676-001.



Reverse this procedure to reassemble and install the display assembly.

Power connector cable

Description	Spare part number
Power connector cable	701682-001

IMPORTANT: Make special note of each screw and screw lock size and location during removal and replacement.

Before removing the power connector cable, follow these steps:

1. Shut down the computer.
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 30).
5. Remove the keyboard (see Keyboard on page 31).
6. Remove the top cover (see Top cover on page 35).
7. Remove the hard drive (see Hard drive on page 39).
8. Remove the USB board (see USB board on page 41).

9. Remove the WLAN (see WLAN module on page 42).

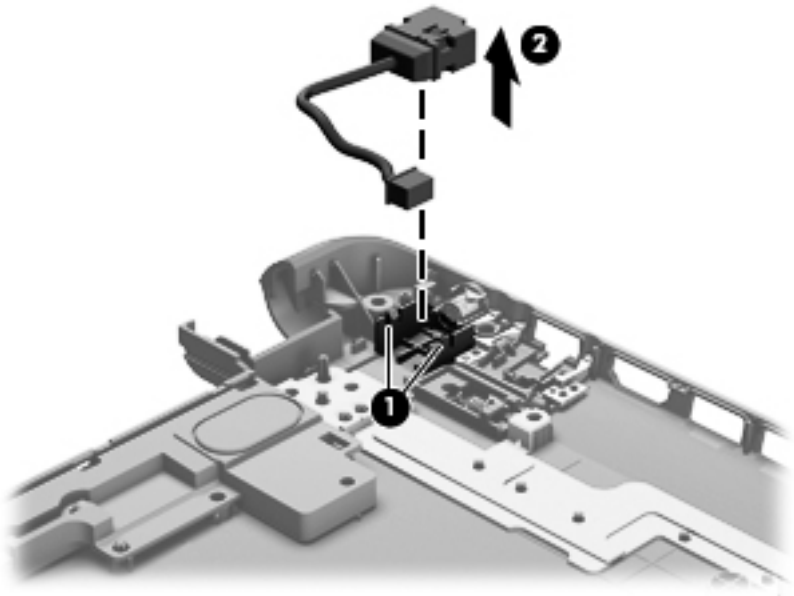
10. Remove the system board (see System board on page 45).

Remove the power connector cable:

NOTE: The power connector cable screw and bracket were removed during the process to remove the system board.

1. Release the power connector cable **(1)**.

2. Lift out the power connector cable **(2)** to remove it from the base enclosure.



Reverse these procedures to replace the power connector cable.

5 Using Setup Utility (BIOS) and System Diagnostics

Setup Utility, or Basic Input/Output System (BIOS), controls communication between all the input and output devices on the system (such as disk drives, display, keyboard, mouse, and printer). Setup Utility (BIOS) includes settings for the types of devices installed, the startup sequence of the computer, and the amount of system and extended memory.

Starting Setup Utility (BIOS)

To start Setup Utility (BIOS), turn on or restart the computer, quickly press esc, and then press f10.

Information about how to navigate in Setup Utility (BIOS) is located at the bottom of the screen.

NOTE: Use extreme care when making changes in Setup Utility (BIOS). Errors can prevent the computer from operating properly.

Updating the BIOS

Updated versions of the BIOS may be available on the HP website.

Most BIOS updates on the HP website are packaged in compressed files called *SoftPaqs*.

Some download packages contain a file named Readme.txt, which contains information regarding installing and troubleshooting the file.

Determining the BIOS version

To determine whether available BIOS updates contain later BIOS versions than those currently installed on the computer, you need to know the version of the system BIOS currently installed.

BIOS version information (also known as *ROM date* and *System BIOS*) can be displayed by pressing fn +esc (if you are already in Windows) or by using Setup Utility (BIOS).

1. Start Setup Utility (BIOS).
2. Use the arrow keys to select **Main**.
3. To exit Setup Utility (BIOS) without saving your changes, use the arrow keys to select **Exit**, select **Exit Discarding Changes**, and then press enter.

Downloading a BIOS update

CAUTION: To reduce the risk of damage to the computer or an unsuccessful installation, download and install a BIOS update only when the computer is connected to reliable external power using the AC adapter. Do not download or install a BIOS update while the computer is running on battery power, docked in an optional docking device, or connected to an optional power source. During the download and installation, follow these instructions:

Do not disconnect power from the computer by unplugging the power cord from the AC outlet.

Do not shut down the computer or initiate Sleep (Suspend).

Do not insert, remove, connect, or disconnect any device, cable, or cord.

1. From the Start screen, select the **HP Support Assistant** app.
2. Click **Updates and tune-ups**, and then click **Check for HP updates now**.
3. Follow the on-screen instructions.
4. At the download area, follow these steps:
   a. Identify the most recent BIOS update and compare it to the BIOS version currently installed on your computer. If the update is more recent than your BIOS, make a note of the date, name, or other identifier. You may need this information to locate the update later, after it has been downloaded to your hard drive.
   b. Follow the on-screen instructions to download your selection to the hard drive.

      Make a note of the path to the location on your hard drive where the BIOS update is downloaded. You will need to access this path when you are ready to install the update.

NOTE: If you connect your computer to a network, consult the network administrator before installing any software updates, especially system BIOS updates.

BIOS installation procedures vary. Follow any instructions that are displayed on the screen after the download is complete. If no instructions are displayed, follow these steps:

1. From the Start screen, type e, and then select **File Explorer**.
2. Click your hard drive designation. The hard drive designation is typically Local Disk (C:).
3. Using the hard drive path you recorded earlier, open the folder on your hard drive that contains the update.
4. Double-click the file that has an .exe extension (for example, *filename*.exe).

   The BIOS installation begins.
5. Complete the installation by following the on-screen instructions.

NOTE: After a message on the screen reports a successful installation, you can delete the downloaded file from your hard drive.

Using System Diagnostics

System Diagnostics allows you to run diagnostic tests to determine if the computer hardware is functioning properly.

To start System Diagnostics:

1. Turn on or restart the computer, quickly press esc, and then press f2.
2. Click the diagnostic test you want to run, and then follow the on-screen instructions.

NOTE: If you need to stop a diagnostic test while it is running, press esc.

6 Specifications

Computer specifications

	Metric	U.S.
Dimensions:		
Width	**38.57 cm**	15.19 in
Depth	**25.90 cm**	10.20 in
Height	**2.10 cm**	0.83 in
Weight:	**2.08 kg**	4.59 lbs
Input power		
Operating voltage and current	19.5 V dc @ 3.33 A – 65 W – or – 18.5 V dc @ 3.50 A – 65 W	
Temperature		
Operating (writing to optical disc)	**5°C to 35°C**	41°F to 95°F
Nonoperating	**-20°C to 60°C**	-4°F to 140°F
Relative humidity		
Operating	10% to 90%	
Nonoperating	5% to 95%	
Maximum altitude (unpressurized)		
Operating (14.7 to 10.1 psia)	**-15 m to 3,048 m**	-50 ft to 10,000 ft
Nonoperating (14.7 to 4.4 psia)	**-15 m to 12,192 m**	-50 ft to 40,000 ft
Shock		
Operating	125 g, 2 ms, half-sine	
Nonoperating	200 g, 2 ms, half-sine	
Random vibration		
Operating	0.75 g zero-to-peak, 10 Hz to 500 Hz, 0.25 oct/min sweep rate	

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

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

15.6-in display specifications

	Metric	U.S.
Dimensions		
Width	**34.7 cm**	13.66 in
Height	**19.6 cm**	7.72 in
Diagonal	**39.8 cm**	15.67 in
Number of colors	Up to 16.8 million	
Contrast ratio	200:1 (typical)	
Brightness	200 nits (typical)	
Backlight	WLED	
Total power consumption	3.46 W (max)	
Viewing angle	±65° horizontal, +50° vertical (typical)	

Hard drive specifications

	1 TB*	750 GB*	640 GB*	500 GB*	300 GB*
Dimensions					
Height	9.5 mm	9.5 mm	9.5 mm	9.5 mm and 7.0 mm	9.5 mm
Width	70 mm	70 mm	70 mm	70 mm	70 mm
Weight	107 g max	107 g max	107 g max	107 g max	107 g max
Interface type	SATA	SATA	SATA	SATA	SATA
Transfer rate	300 MB/sec	300 MB/sec	300 MB/sec	300 MB/sec	300 MB/sec
Security	ATA security	ATA security	ATA security	ATA security	ATA security
Seek times (typical read, including setting)					
Single track	1.5 ms	1.0 ms	1.0 ms	1.5 ms	2.0 ms
Average	11.0 ms	14.0 ms	14.0 ms	12.0 ms	12.0 ms
Maximum	22.0 ms	24.0 ms	22.0 ms	22.0 ms	22.0 ms
Logical blocks	1,953,525,168	1,465,128,359	1,250,242,867	976,752,240	625,121,433
Disk rotational speed	5400 rpm	7200 and 5400 rpm	5400 rpm	7200 and 5400 rpm	5400 rpm
Operating temperature	5°C to 55°C (41°F to 131°F)				

*Size refers to hard drive storage capacity. Actual accessible capacity is less. Actual drive specifications may differ slightly.

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

7 Backing up, restoring, and recovering

Your computer includes tools provided by HP and the operating system to help you safeguard your information and retrieve it if you ever need to. These tools will help you return your computer to a proper working state or even back to the original factory state, all with simple steps.

NOTE: For Ubuntu Linux backup, restore, and recovery steps, refer to the *User Guide* provided. Double-click the **HP Documents** icon on the desktop to access this documentation.

This chapter provides information about the following processes:

- Creating recovery media and backups
- Restoring and recovering your system

NOTE: This guide describes an overview of backing up, restoring and recovering options. For more details about the tools provided, see Help and Support. From the Start screen, type `h`, and then select **Help and Support**.

Creating recovery media and backups

Recovery after a system failure is only as good as your most recent backup.

1. After you successfully set up the computer, create HP Recovery media. This step creates a backup of the HP Recovery partition on the computer. The backup can be used to reinstall the original operating system in cases where the hard drive is corrupted or has been replaced.

   HP Recovery media you create will provide the following recovery options:

   - System Recovery—Reinstalls the original operating system and the programs that were installed at the factory.
   - Minimized Image Recovery—Reinstalls the operating system and all hardware-related drivers and software, but not other software applications.
   - Factory Reset—Restores the computer to the state its original factory state by deleting all information from the hard drive and re-creating the partitions. Then it reinstalls the operating system and the software that was installed at the factory.

   See Creating HP Recovery media on page 76.

2. As you add hardware and software programs, create system restore points. A system restore point is a snapshot of certain hard drive contents saved by Windows System Restore at a specific time. A system restore point contains information that Windows uses, such as registry settings. Windows creates a system restore point for you automatically during a Windows update and during other system maintenance (such as a software update, security scanning, or system diagnostics). You can also manually create a system restore point at any time. For more information and steps for creating specific system restore points, see Windows Help and Support. From the Start screen, type `h`, and then select **Help and Support**.

3. As you add photos, video, music, and other personal files, create a backup of your personal information. Windows File History can be set to regularly and automatically back up files from libraries, desktop, contacts, and favorites. If files are accidentally deleted from the hard drive and they can no longer be restored from the Recycle Bin, or if files become corrupted, you can restore the files that you backed up using File History. Restoring files is also useful if you ever choose to reset the computer by reinstalling Windows or choose to recover using HP Recovery Manager.

   NOTE: File History is not enabled by default, so you must turn it on.

   For more information and steps for enabling Windows File History, see Windows Help and Support. From the Start screen, type `h`, and then select **Help and Support**.

Creating HP Recovery media

HP Recovery Manager is a software program that offers a way to create recovery media after you successfully set up the computer. HP Recovery media can be used to perform system recovery if the hard drive becomes corrupted. System recovery reinstalls the original operating system and the software programs installed at the factory, and then configures the settings for the programs. HP Recovery media can also be used to customize the system or aid in the replacement of a hard drive.

- Only one set of HP Recovery media can be created. Handle these recovery tools carefully, and keep them in a safe place.
- HP Recovery Manager examines the computer and determines the required storage capacity for the blank USB flash drive or the number of blank DVD discs that will be required.
- To create recovery discs, your computer must have an optical drive with DVD writer capability, and you must use only high-quality blank DVD-R, DVD+R, DVD-R DL, DVD+R DL discs. Do not use rewritable discs such as CD±RW, DVD±RW, double-layer DVD±RW, or BD-RE (rewritable Blu-ray) discs; they are not compatible with HP Recovery Manager software. Or instead you can use a high-quality blank USB flash drive.
- If your computer does not include an integrated optical drive with DVD writer capability, but you would like to create DVD recovery media, you can use an external optical drive (purchased separately) to create recovery discs, or you can obtain recovery discs for your computer from the HP website. For U.S. support, go to http://www.hp.com/go/contactHP. For worldwide support, go to http://welcome.hp.com/country/us/en/wwcontact_us.html. If you use an external optical drive, it must be connected directly to a USB port on the computer; the drive cannot be connected to a USB port on an external device, such as a USB hub.
- Be sure that the computer is connected to AC power before you begin creating the recovery media.
- The creation process can take up to an hour or more. Do not interrupt the creation process.
- If necessary, you can exit the program before you have finished creating all of the recovery DVDs. HP Recovery Manager will finish burning the current DVD. The next time you start HP Recovery Manager, you will be prompted to continue, and the remaining discs will be burned.

To create HP Recovery media:

1. From the Start screen, type `recovery`, and then select **HP Recovery Manager**.
2. Select **Recovery Media Creation**, and follow the on-screen instructions to continue.

If you ever need to recover the system, see Recovering using HP Recovery Manager on page 79.

Restore and recovery

There are several options for recovering your system. Choose the method that best matches your situation and level of expertise:

- If you need to restore your personal files and data, you can use Windows File History to restore your information from the backups you created. For more information and steps for using File History, see Windows Help and Support. From the Start screen, type `h`, and then select **Help and Support**.
- If you need to correct a problem with a preinstalled application or driver, use the Drivers and Applications Reinstall option of HP Recovery Manager to reinstall the individual application or driver.

  From the Start screen, type `recovery`, select **HP Recovery Manager**, and then select **Drivers and Applications Reinstall**, and follow the on-screen instructions.
- If you want to restore the system to a previous state without losing any personal information, Windows System Restore is an option. System Restore allows you to restore without the requirements of Windows Refresh or a reinstallation. Windows creates system restore points automatically during a Windows update and other system maintenance events. Even if you did not manually create a restore point, you can choose to restore to a previous point, automatically created. For more information and steps for using Windows System Restore, see Windows Help and Support. From the Start screen, type `h`, and then select **Help and Support**.
- If you want a quick and easy way to recover the system without losing your personal information, settings, or apps that came preinstalled on your computer or were purchased from the Windows Store, consider using Windows Refresh. This option does not require backing up data to another drive. See Using Windows Refresh for quick and easy recovery on page 78.
- If you want to reset your computer to its original state, Windows provides an easy way to remove all personal data, apps, and settings, and reinstall Windows.

  For more information, see Remove everything and reinstall Windows on page 78.
- If you want to reset your computer using a minimized image, you can choose the HP Minimized Image Recovery option from the HP Recovery partition or HP Recovery media. Minimized Image Recovery installs only drivers and hardware-enabling applications. Other applications included in the image continue to be available for installation through the Drivers and Applications Reinstall option in HP Recovery Manager.

  For more information, see Recovering using HP Recovery Manager on page 79.
- If you want to recover the computer's original factory partitioning and content, you can choose the System Recovery option from the HP Recovery media. For more information, see Recovering using HP Recovery Manager on page 79.
- If you have replaced the hard drive, you can use the Factory Reset option of HP Recovery media to restore the factory image to the replacement drive. For more information, see Recovering using HP Recovery Manager on page 79.
- If you wish to remove the recovery partition to reclaim hard drive space, HP Recovery Manager offers the Remove Recovery Partition option.

For more information, see Removing the HP Recovery partition on page 81.

Using Windows Refresh for quick and easy recovery

When your computer is not working properly and you need to regain system stability, the Windows Refresh option allows you to start fresh and keep what is important to you.

IMPORTANT: Refresh removes any traditional applications that were not originally installed on the system at the factory.

NOTE: During Refresh, a list of removed traditional applications will be saved so that you have a quick way to see what you might need to reinstall. See Help and Support for instructions on reinstalling traditional applications. From the Start screen, type h, and then select **Help and Support**.

NOTE: You may be prompted for your permission or password when using Refresh. See Windows Help and Support for more information. From the Start screen, type h, and then select **Help and Support**.

To start Refresh:

1. On the Start screen, point to the far-right upper or lower corner of the screen to display the charms.
2. Click **Settings**.
3. Click **Change PC settings** in the bottom-right corner of the screen, and then select **General** from the PC settings screen.
4. Under **Refresh your PC without affecting your files**, select **Get started**, and follow the on-screen instructions.

Remove everything and reinstall Windows

Sometimes you want to perform detailed reformatting of your computer, or you want to remove personal information before you give away or recycle your computer. The process described in this section provides a speedy, simple way to return the computer to its original state. This option removes all personal data, apps, and settings from your computer, and reinstalls Windows.

IMPORTANT: This option does not provide backups of your information. Before using this option, back up any personal information you wish to retain.

You can initiate this option by using the f11 key or from the Start screen.

To use the f11 key:

1. Press f11 while the computer boots.

   – or –

   Press and hold f11 as you press the power button.
2. Select **Troubleshoot** from the boot options menu.
3. Select **Reset your PC**, and follow the on-screen instructions.

To use the Start screen:

1. On the Start screen, point to the far-right upper or lower corner of the screen to display the charms.
2. Click **Settings**.
3. Click **Change PC settings** in the bottom-right corner of the screen, and then select **General** from the PC settings screen.
4. Under **Remove everything and reinstall Windows**, select **Get started**, and follow the on-screen instructions.

Recovering using HP Recovery Manager

HP Recovery Manager software allows you to recover the computer to its original factory state. Using the HP Recovery media you created, you can choose from one of the following recovery options:

- System Recovery—Reinstalls the original operating system, and then configures the settings for the programs that were installed at the factory.
- Minimized Image Recovery—Reinstalls the operating system and all hardware-related drivers and software, but not other software applications.
- Factory Reset—Restores the computer to the state its original factory state by deleting all information from the hard drive and re-creating the partitions. Then it reinstalls the operating system and the software that was installed at the factory.

The HP Recovery partition allows Minimized Image Recovery.

What you need to know

- HP Recovery Manager recovers only software that was installed at the factory. For software not provided with this computer, you must either download the software from the manufacturer's website or reinstall the software from the media provided by the manufacturer.
- Recovery through HP Recovery Manager should be used as a final attempt to correct computer issues.
- HP Recovery media must be used if the computer hard drive fails.
- To use the Factory Reset or System Recovery options, you must use HP Recovery media.
- If the HP Recovery media do not work, you can obtain recovery media for your system from the HP website. For U.S. support, go to http://www.hp.com/go/contactHP. For worldwide support, go to http://welcome.hp.com/country/us/en/wwcontact_us.html.

IMPORTANT: HP Recovery Manager does not automatically provide backups of your personal data. Before beginning recovery, back up any personal data you wish to retain.

Using the HP Recovery partition to recover a minimized image

The HP Recovery partition allows you to perform a minimized image recovery without the need for recovery discs or a recovery USB flash drive. This type of recovery can only be used if the hard drive is still working.

To start HP Recovery Manager from the HP Recovery partition:

1. Press f11 while the computer boots.

   – or –

   Press and hold f11 as you press the power button.
2. Select **Troubleshoot** from the boot options menu.
3. Select **HP Recovery Manager**, and follow the on-screen instructions.

Using HP Recovery media to recover

You can use HP Recovery media to recover the original system. This method can be used if your system does not have an HP Recovery partition or if the hard drive is not working properly.

1. If possible, back up all personal files.
2. Insert the first HP Recovery disc you created into the optical drive on your computer or into an optional external optical drive, and then restart the computer.

   – or –

   Insert the HP Recovery USB flash drive you created into a USB port on your computer, and then restart the computer.

   NOTE: If the computer does not automatically restart in HP Recovery Manager, change the computer boot order. See Changing the computer boot order on page 80.
3. Follow the on-screen instructions.

Changing the computer boot order

If computer does not restart in HP Recovery Manager, you can change the computer boot order, which is the order of devices listed in BIOS where the computer looks for startup information. You can change the selection for an optical drive or a USB flash drive.

To change the boot order:

1. Insert the HP Recovery media you created.
2. Restart the computer.
3. Press and hold esc while the computer is restarting, and then press f9 for boot options.
4. Select the optical drive or USB flash drive you want to boot from.
5. Follow the on-screen instructions.

Removing the HP Recovery partition

HP Recovery Manager software allows you to remove the HP Recovery partition to free up hard drive space.

IMPORTANT: Removing the HP Recovery partition means you can no longer use Windows Refresh, the Windows Remove everything and reinstall Windows option, or the HP Recovery Manager option for minimized image recovery. Create HP Recovery media before removing the Recovery partition to ensure you have recovery options; see Creating HP Recovery media on page 76.

Follow these steps to remove the HP Recovery partition:

1. From the Start screen, type `recovery`, and then select **HP Recovery Manager**.
2. Select **Remove Recovery Partition**, and follow the on-screen instructions to continue.

8 Power cord set requirements

The wide-range input feature of the computer permits it to operate from any line voltage from 100 to 120 V ac, or from 220 to 240 V ac.

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

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

Requirements for all countries

The following requirements are applicable to all countries and regions:

- The length of the power cord set must be at least **1.0 m** (3.3 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 A 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
Argentina	IRAM	1
Australia	SAA	1
Austria	OVE	1
Belgium	CEBEC	1
Brazil	ABNT	1
Canada	CSA	2
Chile	IMQ	1
Denmark	DEMKO	1
Finland	FIMKO	1
France	UTE	1
Germany	VDE	1
India	ISI	1
Israel	SII	1
Italy	IMQ	1
Japan	JIS	3
The Netherlands	KEMA	1
New Zealand	SANZ	1
Norway	NEMKO	1
The People's Republic of China	CCC	4
Saudi Arabia	SASO	7
Singapore	PSB	1
South Africa	SABS	1
South Korea	KTL	5
Sweden	SEMKO	1
Switzerland	SEV	1
Taiwan	BSMI	6
Thailand	TISI	1
The United Kingdom	ASTA	1

Country/region	Accredited agency	Applicable note number
The United States	UL	2

1. The flexible cord must be Type HO5VV-F, 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.
2. The flexible cord must be Type SVT/SJT 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 ac) or NEMA 6-15P (15 A, 250 V ac) configuration. CSA or C-UL mark. UL file number must be on each element.
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 VCTF, 3-conductor, 0.75 mm² or 1.25 mm² conductor size. The wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (7 A, 125 V ac) 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 CCC certification mark.
5. The flexible cord must be Type H05VV-F 3-conductor, 0.75 mm² conductor size. KTL logo and individual approval number must be on each element. Corset approval number and logo must be printed on a flag label.
6. The flexible cord must be Type HVCTF 3-conductor, 1.25 mm² conductor size. Power cord set fittings (appliance coupler, cable, and wall plug) must bear the BSMI certification mark.
7. For 127 V ac, the flexible cord must be Type SVT or SJT 3-conductor, 18 AWG, with plug NEMA 5-15P (15 A, 125 V ac), with UL and CSA or C-UL marks. For 240 V ac, the flexible cord must be Type H05VV-F 3-conductor, 0.75 mm² or 1.00 mm2 conductor size, with plug BS 1363/A with BSI or ASTA marks.

9 Recycling

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 battery disposal. HP encourages customers to recycle used electronic hardware, HP original print cartridges, and rechargeable batteries.

For more information about recycling programs, see the HP website at www.hp.com/recycle.

Index

A

AC adapter light 12
AC adapter, spare part number 20, 21
action keys 8
antenna
  locations 6
  removal 65
  spare part number 19, 22, 66
Antenna Kit, spare part number 19, 22, 66
audio, product description 2
audio-in jack 10
audio-out jack 10

B

backups 74
base enclosure, spare part numbers 18, 24
battery
  removal 30
  spare part number 18, 21, 30
battery bay 13
battery lock 13
battery release latch 13
BIOS
  determining version 68
  downloading an update 69
  updating 68
boot order
  changing HP Recovery Manager 80
bottom components 13
button components 7

C

cables, service considerations 26
caps lock light 9
chipset, product description 1
components
  bottom 13
  buttons 7
  display 6
  keys 8
  left side 10
  lights 9
  right side 11
  speakers 7
computer feet
  locations 31
  spare part number 18, 22, 31
computer major components 15
computer reset 78
computer specifications 71
connectors, service considerations 26
counterweight, spare part number 18, 24

D

deleted files, restoring 77
Digital Media Slot 11
display assembly
  removal 60
  spare part number 15, 23, 60
  subcomponents 19
display bezel
  removal 61
  spare part number 19, 22, 62
display components 6
display enclosure, spare part numbers 19, 22, 23
display hinge
  removal 64
  spare part number 19, 22, 64
Display Hinge Kit, spare part number 19, 22
display panel
  product description 2
  removal 63
  spare part number 19, 23, 63
display panel cable
  removal 65
  spare part number 19, 22, 65
Display Panel Cable Kit, spare part number 19, 22, 65
display specifications 72
drives, preventing damage 26
DVD±RW Super Multi Double-Layer Combination Drive
  precautions 26
  spare part number 20, 21

E

electrostatic discharge 27
equipment guidelines 29
esc key 8
Ethernet, product description 3
external media cards, product description 3

F

fan
  removal 57
  spare part number 18, 22, 57
feet
  locations 31
  spare part number 18, 22, 31
fn key 8

G

graphics, product description 1
grounding guidelines 27
guidelines
  equipment 29
  grounding 27

packaging 28
transporting 28
workstation 28

H

hard drive
precautions 26
product description 2
removal 39
spare part numbers 17, 21, 39
specifications 73
hard drive connector cable
removal 48
spare part number 48
Hard Drive Hardware Kit, spare part number 18, 23, 39
hard drive lights 11
HDMI port 11
headphone jack 10
heat sink
removal 54
spare part numbers 17, 22, 24, 54
HP Recovery Manager 79
correcting boot problems 80
starting 80
HP Recovery media, recovery 80
HP Recovery partition 80
recovery 80
removing 81

J

jacks
audio-in 10
audio-out 10
headphone 10
microphone 10
network 11
RJ-45 11

K

key components 8
keyboard
product description 3
removal 31
spare part numbers 15, 22, 23, 31
keys
action 8
esc 8
fn 8
num.lock 8
numeric keypad 8
Windows 8

L

left-side components 10
light components 9
lights
AC adapter 12
caps lock 9
hard drive 11
mute 9
network jack 11
power 9, 11
RJ-45 jack 11
TouchPad 9
webcam 6
wireless 9

M

mass storage device
precautions 26
removal 39
spare part numbers 39
memory module
product description 2
removal 49
spare part numbers 17, 21, 49
microphone
location 6
product description 2
microphone jack 10
minimized image
creating 79
recovery 80
model name 1
mute light 9

N

network jack 11
network jack lights 11
num lock key 8
numeric keypad 8

O

operating system, product description 4
optical drive, precautions 26
original system recovery 79

P

packaging guidelines 28
PCH heat sink
removal 52
spare part number 18, 22, 52
plastic parts, service considerations 26
pointing device, product description 3
ports
HDMI 11
USB 2.0 10
USB 3.0 port 11
ports, product description 3
power button 7
power button board
removal 38
spare part number 16, 23, 38
power connector 12
power connector cable
removal 66
spare part number 18, 22, 66
power cord
requirements for all countries 82
requirements for specific countries and regions 83
set requirements 82
spare part numbers 20, 21
power light 9, 11
power requirements, product description 3
processors, product description 1
product description
audio 2
chipset 1
display panel 2
drives 2
Ethernet 3
external media cards 3
graphics 1
keyboard 3
memory module 2
microphone 2
operating system 4
pointing device 3
ports 3
power requirements 3
processors 1
product name 1

security 3
serviceability 4
video 2
wireless 3
product name 1

R
recovery 77, 78
discs 76, 80
HP Recovery Manager 79
media 80
starting 80
supported discs 76
system 79
USB flash drive 80
using HP Recovery media 76
recovery media, creating using HP Recovery Manager 76
recovery partition 80
removing 81
recycle computer 77, 78
recycling 85
refresh 78
computer 77
removal/replacement
preliminaries 25
procedures 30
remove everything and reinstall Windows 78
reset
computer 77, 78
steps 78
restore Windows File History 77
right-side components 11
RJ-45 cover
removal 59
spare part number 18, 23, 59
RJ-45 jack 11
RJ-45 jack lights 11
RTC battery
removal 51
spare part number 17, 22, 51
Rubber Feet Kit, spare part number 18, 22, 31

S
Screw Kit, spare part number 20, 23
security cable slot 10
security, product description 3
service considerations
cables 26
connectors 26
plastic parts 26
service label 14
serviceability, product description 4
speaker assembly
removal 58
spare part number 18, 23, 58
speaker components 7
speakers
location 7
spare part number 18, 23
specifications
computer 71
display 72
hard drive 73
supported discs
recovery 76
system board
removal 45
spare part numbers 16, 23, 24, 45
system recovery 79
system restore point
restoring 77

T
Thermal Material Kit, spare part number 20, 21
tools required 25
top cover
removal 35
spare part numbers 16, 23, 24, 35
TouchPad button board
spare part number 16
TouchPad button board, spare part number 23, 35
TouchPad light 9
transporting guidelines 28

U
USB 2.0 port 10
USB board
removal 41
spare part number 18, 23
USB port 11

V
vents 10, 13
video, product description 2

W
webcam light 6
webcam, location 6
webcam/microphone module
removal 64
spare part number 19, 23, 64
Windows
File History 77
Refresh 77, 78
reinstall 77, 78
remove everything and reinstall option 78
reset 78
restoring files 77
system restore point 77
Windows key 8
wireless antenna
locations 6
removal 65
spare part number 19, 22, 66
wireless light 9
wireless, product description 3
WLAN module
removal 42
spare part numbers 18, 21, 42
workstation guidelines 28