



HP Pavilion 15 Notebook PC

HP Pavilion TouchSmart 15 Notebook PC

Maintenance and Service Guide

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Important Notice about Customer Self-Repair Parts

⚠ CAUTION: Your computer includes Customer Self-Repair parts and parts that should only be accessed by an authorized service provider. See Chapter 5, "Removal and replacement procedures for Customer Self-Repair parts," for details. Accessing parts described in Chapter 6, "Removal and replacement procedures for Authorized Service Provider only parts," can damage the computer or void your warranty.

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).

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1 Product description

Category	Description
Product Name	HP Pavilion 15 Notebook PC HP Pavilion TouchSmart 15 Notebook PC
Processors	Processors are attached to the system board. <ul style="list-style-type: none">• Intel® Core® i7-4500U 1.8 GHz processor (4.0 MB L3 cache, 15 W)• Intel Core i5-4200U 1.6 GHz processor (3.0 MB L3 cache, 15 W)• Intel Core i3-4005U 1.7 GHz processor (3.0 MB L3 cache, 15 W)• Intel Core i3-3217U 1.8 GHz processor (3.0 MB L3 cache, 17 W)• Intel Pentium 2117U DC 1.8 GHz processor (2.0 MB L3 cache, 17 W)• Intel Celeron 1007U DC 1.5 GHz processor (2.0 MB L3 cache, 17 W)• AMD™ A10-5745M 2.9 GHz/2.1 GHz processor (4 MB L2, 1333MHz DDR3L) Quad 25 W• AMD A8-5545M 2.7 GHz/1.7 GHz (4 MB L2, 1333MHz DDR3L) Quad 19 W• AMD A10-4655M 2.8 GHz/2.0 GHz (4 MB L2, 1600MHz DDR3L) Quad 25 W• AMD A8-4555M (2.4 GHz/1.6 GHz, 4 MB L2, 1600MHz DDR3L) Quad 19 W• AMD A6-5200 2.0 GHz (2 MB L2, 1600MHz DDR3L), Quad 25 W• AMD A4-5000 1.5 GHz (2 MB L2, 1600MHz DDR3L), Quad 15 W• AMD E2-3000 1.65 GHz (1 MB L2, 1600MHz DDR3L), Dual 15 W• AMD E1-2500 1.4 GHz (1 MB L2, 1600MHz DDR3L), Dual 15 W
Chipset	Intel Lynx Point-LP PCH (Integrated in MCP), (ULT one chip solution) Intel Panther Point PCH, Intel HM76 Express Chipset, (ULV two chip solution) AMD A76M FCH AMD Integrated SoC FCH

Category	Description
Graphics	<p>Internal graphics:</p> <p>Intel graphics:</p> <p>Intel HD Graphics 4400 (Intel Haswell)</p> <p>Intel HD Graphics 4000 (Intel Ivy Bridge), (on computer models equipped with an Intel Core i7/i5/i3 3000-series processor)</p> <p>Intel HD Graphics (for use with Intel Pentium and Celeron processors)</p> <p>AMD graphics:</p> <ul style="list-style-type: none"> • AMD Radeon HD 8610G • AMD Radeon HD 8510G • AMD Radeon HD 8400G • AMD Radeon HD 8330 • AMD Radeon HD 8280 • AMD Radeo HD 8240 • AMD Radeon HD 7620G • AMD Radeon HD 7600G <p>Switchable discrete graphics:</p> <ul style="list-style-type: none"> • NVIDIA N14P-GV2 GeForce GT R 740M with 2 GB of dedicated video memory (258 MBx16 DDR3 900-MHzx4 PCs) • AMD Sun XT Radeon HD with 1024 MB of dedicated video memory (128Mx16 DDR3 1GHz x • AMD Sun XT (Radeon™ HD 8670M) with 1 GB of dedicated video memory (256Mx16 DDR3 1 GHz x 4 pcs) • AMD Sun XT (Radeon™ HD 8670M) with 2 GB of dedicated video memory (256Mx16 DDR3 1 GHz x 4 pcs) <p>Support HD decode, DX11/11.1, HDMI, and Optimus. Supports Px5.5</p> <p>AMD Start Now (AMD IOIC) 1.0 and AMD Start Now (AMD IOIC) 2.0</p> <p>Dual Graphics:</p> <ul style="list-style-type: none"> • AMD Radeon HD 8610G + HD 8670M • AMD Radeon HD 8510G + HD 8670M • AMD Radeon HD 7620G + HD 8670M • AMD Radeon HD 7600G + HD 8670M
Panel	<p>15.6 in, light-emitting diode (LED), SVA, high-definition (HD), BrightView (1366x768) display, 3.6-mm; typical brightness: 200 nits</p> <p>15.6 in, SVA, high-definition (HD), BrightView (1366x768) display, 3.0-mm; typical brightness: 200 nits SVA + eTP touch + Mutto G1F/GIS OGS (Multitouch)</p> <p>All display assemblies include 2 wireless local area network (WLAN) antenna cables</p> <p>16:9 Ultra Wide Aspect Ratio</p>

Category	Description
Memory	<p>Two SODIMM customer-accessible/upgradable memory module slots</p> <p>DDR3L-1600-MHz dual channel support</p> <p>DDR3L-1600-MHz single channel support</p> <p>Supports up to 12 GB max system memory (DDR3L-1600MHz module), (select models only)</p> <p>Supports the following system RAM configurations:</p> <ul style="list-style-type: none"> • 12288 MB (8192 MB x 1 + 4096 MB x 1) • 8192 MB (8192 MBx1 or 4096 MBx2; not supported on computer models equipped with a 32-bit operating system) • 6144 MB (4096 MBx1 + 2048 MBx1; not supported on computer models equipped with a 32-bit operating system) • 4096 MB (4096 MBx1 or 2048 MBx2) • 2048 MB (2048 MBx1)
Hard drive	<p>Supports 6.35-cm (2.5-in) hard drives in 9.5-mm (.37-in) and 7.0-mm (.28-in) thicknesses (all hard drives use the same bracket)</p> <p>Customer-accessible</p> <p>Serial ATA</p> <p>Accelerometer protection support</p> <p>Supports the following hard drives:</p> <ul style="list-style-type: none"> • 1 TB, 5400 rpm, 9.5 mm • 750 GB, 5400 rpm, 9.5 mm • 500 GB, 5400 rpm, 9.5 mm and 7.0 mm <p>Supports 24 GB mSATA solid-state drive with system memory up to 8 GB (for use with select computer models with Intel processors and switchable discrete graphics)</p>
Optical drive	<p>Fixed</p> <p>Serial ATA</p> <p>9.5 mm tray load</p> <ul style="list-style-type: none"> • DVD±RW Double-Layer SuperMulti Drive <p>Zero power Optical drive.</p>
Audio and video	<p>HD audio</p> <p>Dual speakers</p> <p>Supports Nuance Voice Recognition</p> <p>HP TrueVision HD webcam (fixed, no tilt with activity LED; 1280×720 by 30 frames per second)</p> <p>Two dual array, digital microphones with appropriate beam-forming, echo-cancellation, noise-reduction software</p> <p>USB 2.0, M-jpeg</p>
Ethernet	<p>Integrated 10/100 NIC</p>

Category	Description
Wireless	<p>Integrated wireless local area network (WLAN) options by way of wireless module</p> <p>One half-size mini card slot.</p> <p>Two WLAN antennas built into display assembly</p> <hr/> <p>Support for the following WLAN formats:</p> <ul style="list-style-type: none"> • Realtek RTL8188EE 802.11bgn 1x1 Wi-Fi Adapter • Ralink RT3290LE 802.11bgn 1x1 Wi-Fi + BT 4.0 Combo Adapter • Mediatek MT7630E 802.11bgn 1x1 Wi-Fi + BT4.0 Combo Adapter • Intel-N 7260BN 802.11 bgn 2x2 WiFi + BT 4.0 combo adapter WLAN module WIDI support • Qualcomm Atheros AR9485 802.11bgn 1x1 Wi-Fi Adapter <p>Intel Smart Connect Technology 4.1</p> <p>Wireless display support (WiFi direct)</p>
External media cards	<p>HP Multi-Format Memory Card Reader slot with push-push technology, supporting the following digital card formats:</p> <ul style="list-style-type: none"> • Secure Digital (SD) Memory Card • Secure Digital High Capacity (SDHC) Memory Card
Ports	<ul style="list-style-type: none"> • AC Smart Pin adapter plug (4.5 mm barrel) • Combination audio-out (stereo headphone)/audio-in (mono microphone) • HDMI 1.4 output supporting 1920x1200 @ 60Hz Hot Plug / Unplug and auto detect for correct output to wide-aspect vs. standard aspect video • RJ-45 (Ethernet) • USB 3.0 (2 ports), USB 2.0 (1 port)
Keyboard/pointing devices	<p>Full-size (15.0-in), black textured Island-style, with numeric keypad with black keyboard frame.</p> <p>Full-size (15.0-in.), white painted Island-style, with numeric keypad with white keyboard frame.</p> <p>Multitouch gestures enabled.</p> <p>Supports Windows 8 Modern TrackPad Gestures</p> <p>Support PS/2 interface</p>
Power requirements	<p>65 W HP Smart AC adapter (RC, V, EM, 3-wire)</p> <p>65 W Slim Travel Adapter (Smart-Pin)</p> <p>90 W Smart AC adapter</p> <p>90 W Smart AC adapter</p> <p>1M length power cord</p> <p>Supports battery fast charge</p>

Category	Description
	Supports the following batteries (battery is user-removable) <ul style="list-style-type: none">• 4 Cell battery - 41 Whr (2.8 AH)
Security	Security cable lock Intel IPT support Intel AT-p Ready support
Operating system	Preinstalled: <ul style="list-style-type: none">• Windows 8 Standard 64-bit• Windows 8 Professional 64-bit FreeDOS 2.0 Ubuntu Linux
Serviceability	End user replaceable parts: <ul style="list-style-type: none">• AC adapter• Battery• Keyboard (select model replacement only)• Memory module• Optical drive• WLAN module

2 External component identification

Finding your hardware and software information

Locating hardware

To find out what hardware is installed on your computer:

1. From the Start screen, type **c**, and then select **Control Panel**.
2. Select **System and Security**, and then in the **System** area, click **Device Manager**.

A list reveals all the devices installed on your computer.

Locating software

To find out what software is installed on your computer:

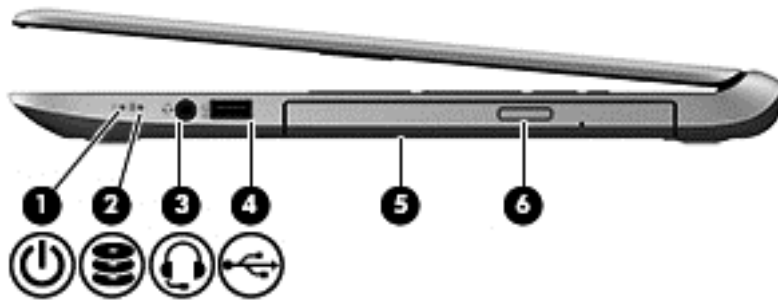
1. From the Start screen, right-click using the mouse.





– or –

Swipe from the top of the TouchPad to reveal all apps.

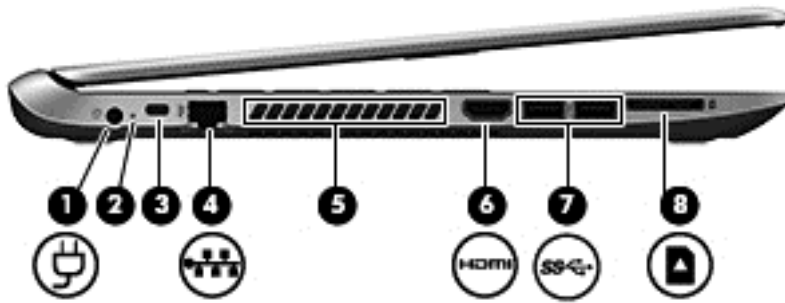
2. Select the **All apps** icon.







Right side



Component	Description
(1)  Power light	<ul style="list-style-type: none"> On: The computer is on. Blinking: The computer is in the Sleep state, a power-saving state. The computer shuts off power to the display and other unneeded components. Off: The computer is off or in Hibernation. Hibernation is a power-saving state that uses the least amount of power. <p>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.</p>
(2)  Hard drive light	<ul style="list-style-type: none"> Blinking white: The hard drive is being accessed.
(3)  Audio-out (headphone)/Audio-in (microphone) jack	<p>Connects optional powered stereo speakers, headphones, earbuds, a headset, or a television audio cable.</p> <p>WARNING! To reduce the risk of personal injury, adjust the volume before using headphones, earbuds, or a headset. For additional safety information, see the <i>Regulatory, Safety and Environmental Notices</i>. To access this guide, from the Start screen, type <code>support</code>, select the HP Support Assistant app, select My computer, and then select User guides.</p> <p>NOTE: When a device is connected to a headphone jack, the computer speakers are disabled.</p>
(4)  USB 2.0 port	<p>Connects an optional USB device, such as a keyboard, mouse, external drive, printer, scanner or USB hub.</p>
(5) Optical drive	<p>Reads and writes (select models only) to an optical disc.</p>
(6) Optical drive eject button	<p>Opens the optical drive.</p>

Left side



Component	Description
(1)	Power connector Connects an AC adapter.
(2) 	AC adapter light <ul style="list-style-type: none"> White: The AC adapter is connected and the battery is charged. Amber: The AC adapter is connected and the battery is charging. Off: The computer is using battery power.
(3) 	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.
(4) 	RJ-45 (network) jack Connects a network cable. RJ-45 (network) status lights (2) RJ-45 status lights White: The network is connected. Amber: Activity is occurring on the network.
(5)	Vent 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.
(6) 	HDMI port Connects an optional video or audio device, such as a high-definition television, any compatible digital or audio component, or a high-speed HDMI device.
(7) 	USB 3.0 ports (2) Connect optional USB devices.
(8) 	Memory card reader Reads data from and writes data to memory cards such as Secure Digital (SD).

Display

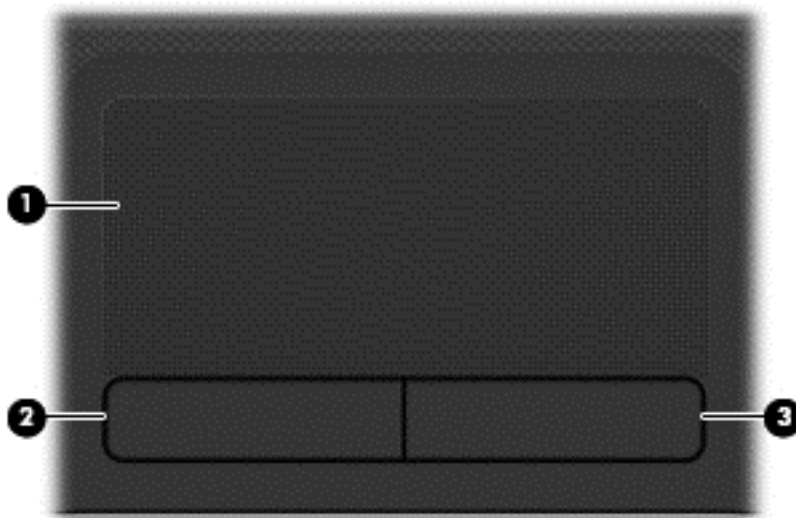


Component	Description
(1) WLAN antennas (2)*	Send and receive wireless signals to communicate with wireless local area networks (WLANs).
(2) Internal microphones (2)	Records sound.
(3) Webcam light	On: The webcam is in use.
(4) Webcam	Records video, captures still photographs, and provides access to video conferences and online chat by means of streaming video. To use the webcam, from the Start screen, type c , and then select CyberLink YouCam from the list of applications.

*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.

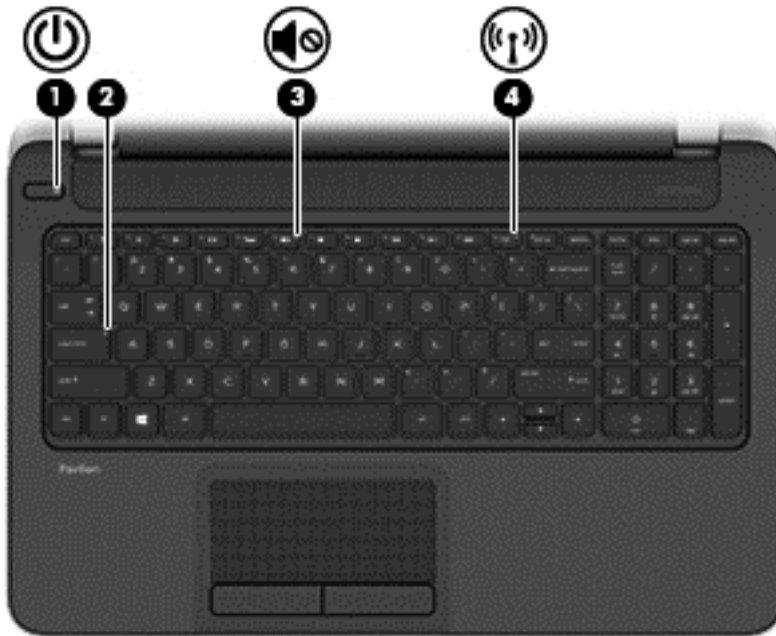
Top




TouchPad



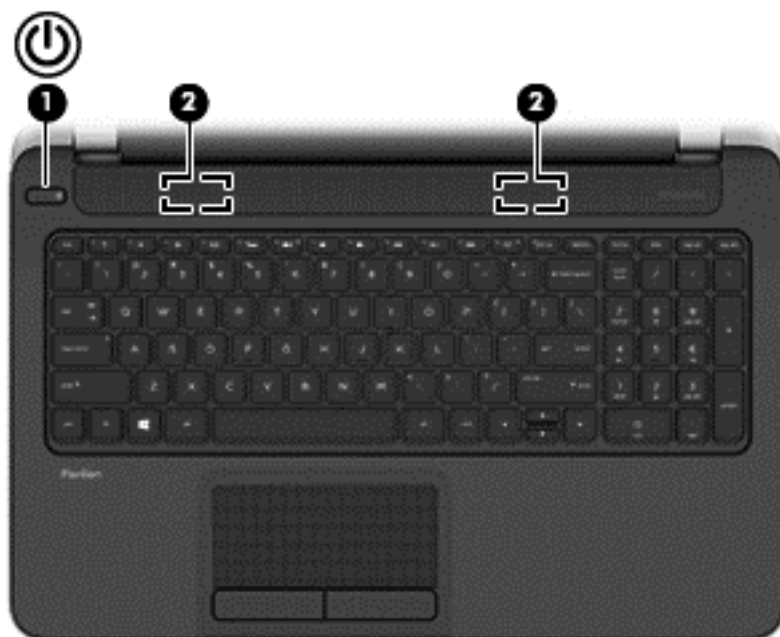
Component	Description
(1) TouchPad zone	Moves the on-screen pointer and selects or activates items on the screen. NOTE: The TouchPad also supports edge-swipe gestures.
(2) Left TouchPad button	Functions like the left button on an external mouse.
(3) Right TouchPad button	Functions like the right button on an external mouse.


Lights



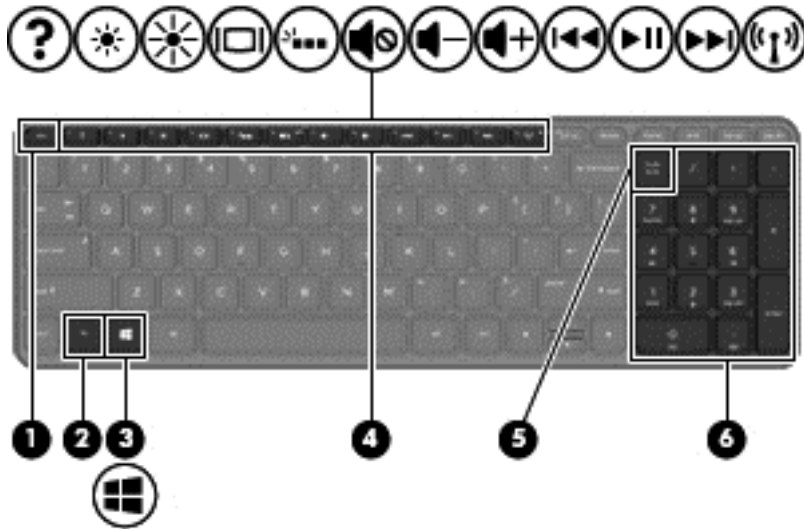
Component	Description
(1)  Power light	<ul style="list-style-type: none">• On: The computer is on.• Blinking: The computer is in the Sleep state, a power-saving state. The computer shuts off power to the display and other unneeded components.• Off: The computer is off or in Hibernation. Hibernation is a power-saving state that uses the least amount of power. <p>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.</p>
(2) Caps lock light	On: Caps lock is on, which switches the keys to all capital letters.
(3)  Mute light	<ul style="list-style-type: none">• Amber: Computer sound is off.• Off: Computer sound is on.
(4)  Wireless light	On: An integrated wireless device, such as a wireless local area network (WLAN) device is on. <p>NOTE: On some models, the wireless light is amber when all wireless devices are off.</p>

Buttons and speakers



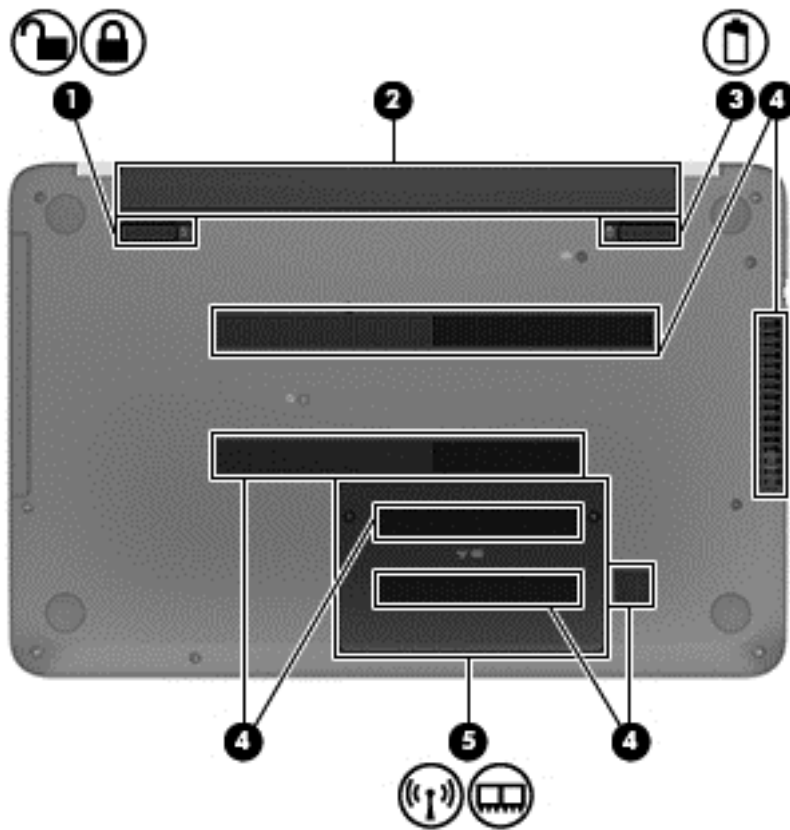
Component	Description
<p>(1)  Power button</p>	<ul style="list-style-type: none">• When the computer is off, press the button to turn on the computer.• When the computer is on, press the button briefly to initiate Sleep.• When the computer is in the Sleep state, press the button briefly to exit Sleep.• When the computer is in Hibernation, press the button briefly to exit Hibernation. <p>CAUTION: Pressing and holding down the power button will result in the loss of unsaved information.</p> <p>If the computer has stopped responding and Microsoft® Windows® shutdown procedures are ineffective, press and hold the power button down for at least 5 seconds to turn off the computer.</p> <p>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.</p> <p>To learn more about your power settings, see your power options. From the Start screen, type <code>power</code>, select Settings, and then select Power Options from the list of applications.</p>
<p>(2) Speakers (2)</p>	<p>Produce sound.</p>



Keys





Component	Description
(1) esc key	Reveals system information when pressed in combination with the fn key.
(2) fn key	Executes frequently used system functions when pressed in combination with the esc key.
(3) Windows key	Returns you to the Start screen from an open app or the Windows desktop. NOTE: Pressing the Windows key again will return you to the previous screen.
(4) Action keys	Execute frequently used system functions. NOTE: On select models, the f5 action key turns the radiance backlight keyboard feature off or on.
(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 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.

Bottom




Component	Description
(1) 	Battery lock latch Unlocks the battery.
(2)	Battery bay Holds the battery.
(3) 	Battery release latch Releases the battery from the battery bay, after the battery lock latch has been released.

Component	Description
(4) Vents (6)	Enable airflow to cool internal components. NOTE: The computer fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation.
(5)  	Service door Provides access to the wireless LAN (WLAN) module slot and the memory module slots. CAUTION: To prevent an unresponsive system, replace the wireless module only with a wireless module authorized for use in the computer by the governmental agency that regulates wireless devices in your country or region. If you replace the module and then receive a warning message, remove the module to restore computer functionality, and then contact support through Help and Support. From the Start screen, type h, and then select Help and Support .


Labels

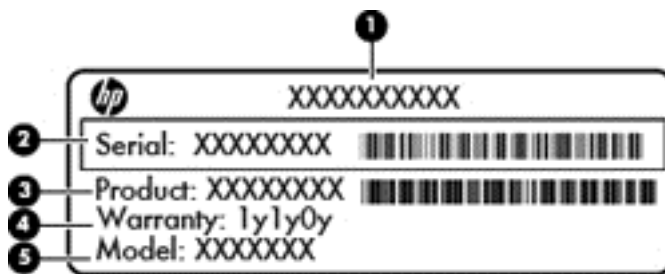
The labels affixed to the computer provide information you may need when you troubleshoot system problems or travel internationally with the computer.

 **IMPORTANT:** All labels described in this section will be located in one of 3 places depending on your computer model: Affixed to the bottom of the computer, located in the battery bay, or under the service door.

For help finding these locations, refer to [Bottom on page 14](#).

- Service label—Provides important information to identify your computer. When contacting support, you will probably be asked for the serial number, and possibly for the product number or the model number. Locate these numbers before you contact support.

 **NOTE:** Your service labels will resemble one of the examples shown below. Refer to the illustration that most closely matches the service label on your computer.



Component

- (1) Product name
- (2) Serial number
- (3) Product number

Component

(4) Warranty period

(5) Model number (select models only)



Component

(1) Serial number

(2) Product number

(3) Warranty period


(4) Model number (select models only)

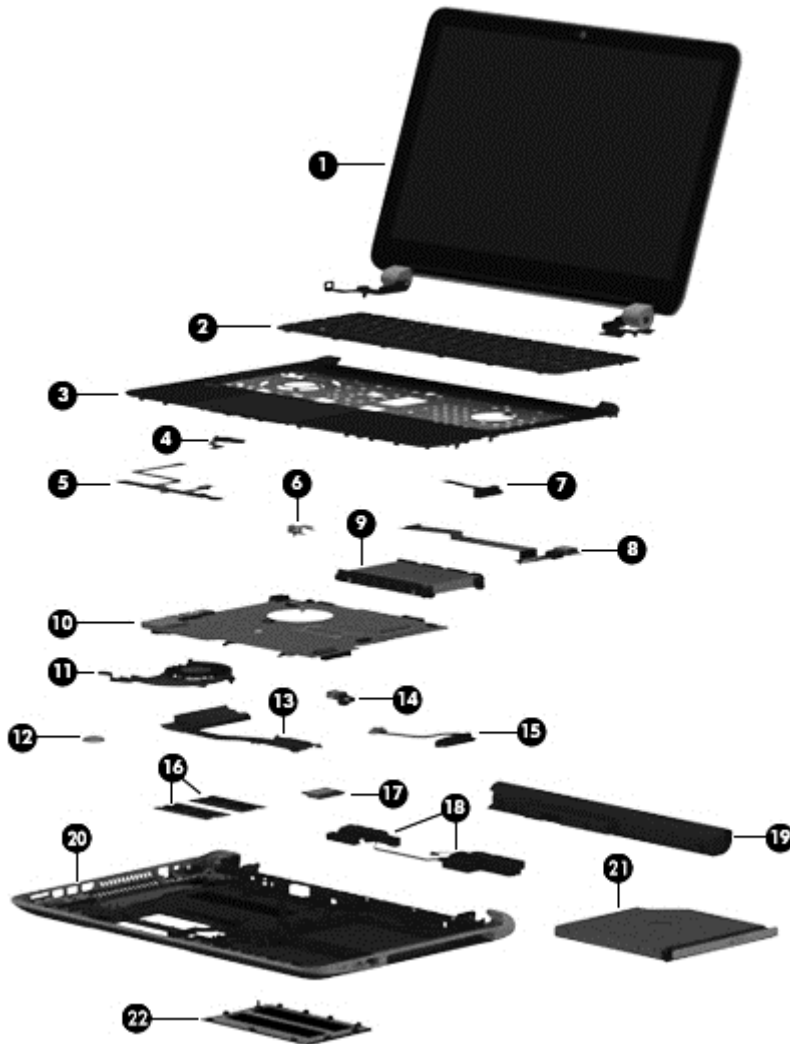
(5) Revision number

- Regulatory label(s)—Provide(s) regulatory information about the computer.
- Wireless certification label(s)—Provide(s) information about optional wireless devices and the approval markings for the countries or regions in which the devices have been approved for use.

3 Illustrated parts catalog

Computer major components

 **NOTE:** Details about your computer, including model, serial number, product key, and length of warranty, are on the service tag at the bottom of your computer. See [Labels on page 15](#) for details.



Item	Component	Spare part number
(1)	Display assembly: The display assembly is spared at the subcomponent level only. For more display assembly spare part information, see Display assembly subcomponents on page 25 .	
(2)	Keyboard (includes keyboard cable): Textured island style black finish for use in Canada	719853-DB1

Item	Component	Spare part number
	Textured island style black finish for use in the United States	719853-001
	Textured island style black finish for use in Japan	719853-291
	Textured island style black finish for use in United Kingdom	719853-031
	Textured island style black finish for use in South Korea	719853-AD1
	Textured island style black finish for use in Taiwan	719853-AB1
	Textured island style black finish for use in Thailand	719853-281
	Textured island style black finish for use in Germany	719853-041
	Textured island style black finish for use in France	719853-051
	Textured island style black finish for use in Italy	719853-061
	Textured island style black finish for use in Spain	719853-071
	Textured island style black finish for use in Portugal	719853-131
	Textured island style black finish for use in Turkey	719853-141
	Textured island style black finish for use in Greece	719853-151
	Textured island style black finish for use in Saudi Arabia	719853-171
	Textured island style black finish for use in Hungary	719853-211
	Textured island style black finish for use in Russian	719853-251
	Textured island style black finish for use in Bulgaria	719853-261
	Textured island style black finish for use in Romania	719853-271
	Textured island style black finish for use in Belgium	719853-A41
	Textured island style black finish for International use	719853-B31
	Textured island style black finish for use in Slovenia	719853-BA1
	Textured island style black finish for use in Israel	719853-BB1
	Textured island style black finish for use in Switzerland	719853-BG1
	Textured island style black finish for use in Nordic regions	719853-DH1
	Textured island style black finish for use in Czech Republic and Slovakia	719853-FL1
	Textured island style black finish for use in Northwest Africa	719853-FP1
	Painted island style white finish for use in the United States	720597-001
	Painted island style white finish for use in the United Kingdom	720597-031
	Painted island style white finish for use in Greece	720597-041
	Painted island style white finish for use in France	720597-051
	Painted island style white finish for use in Italy	720597-061
	Painted island style white finish for use in Spain	720597-071

Item	Component	Spare part number
	Painted island style white finish for use in Portugal	720597-131
	Painted island style white finish for use in Turkey	720597-141
	Painted island style white finish for use in Greece	720597-151
	Painted island style white finish for use in Saudi Arabia	720597-171
	Painted island style white finish for use in Hungary	720597-211
	Painted island style white finish for use in Russia	720597-251
	Painted island style white finish for use in Bulgaria	720597-261
	Painted island style white finish for use in Romania	720597-271
	Painted island style white finish for use in Thailand	720597-281
	Painted island style white finish for use in Japan	720597-291
	Painted island style white finish for use in Belgium	720597-A41
	Painted island style white finish for use in Taiwan	720597-AB1
	Painted island style white finish for use in South Korea	720597-AD1
	Painted island style white finish for International use	720597-B31
	Painted island style white finish for use in Slovenia	720597-BA1
	Painted island style white finish for use in Israel	720597-BB1
	Painted island style white finish for use in Switzerland	720597-BG1
	Painted island style white finish for use in Canada	720597-DB1
	Painted island style white finish for use in Nordic regions	720597-DH1
	Painted island style white finish for use in the Czech Republic and Slovakia	720597-FL1
	Painted island style white finish for use in Northwest Africa	720597-FP1
(3)	Top cover (includes TouchPad board and cable):	
	In pearl white finish	732091-001
	In flyer red finish	732092-001
	In revolutionary blue finish	732093-001
	In regal purple finish	732094-001
	In sparkling black finish	732095-001
	In aluminium metal finish	732096-001
	In mineral black finish	737178-001
	In Goji berry finish	737179-001
	In hazel berry finish	737180-001
	In raspberry finish	737181-001

Item	Component	Spare part number
(4)	Power button board (includes cable)	732076-001
(5)	TouchPad button board (includes cable)	732078-001
(6)	Power connector bracket is available with the power connector, (spare part number 732067-001)	
(7)	Optical drive connector cable is available with the optical drive, (spare part number 732075-001)	
(8)	Audio/USB port	732077-001
(9)	Hard drive (does not include hard drive connector cable or hard drive rubber bracket):	
	1 TB, 5400 rpm, 7.0 mm/9.5 mm	676521-005
	750 GB, 5400 rpm, 7.0 mm/9.5 mm	634250-005
	500 GB, 5400 rpm, 7.0 mm	683802-005
	500 GB, 5400 rpm, 9.5 mm	669299-005
	Hard Drive Hardware Kit (not illustrated, includes hard drive rubber bracket, 2 hard drive retention brackets, and hard drive connector cable).	732071-001
(10)	System board (includes replacement thermal material):	
	For computer models equipped with Intel UMA processors	
	4th generation	
	Intel Core i5-4200U 1.6 GHz processor (3 MB L3 cache, 15 W) for use with FreeDOS and Ubuntu	732086-001
	Intel Core i5-4200U 1.6 GHz processor (3 MB L3 cache, 15 W) for use with Windows Standard	732086-501
	Intel Core i5-4200U 1.6 GHz processor (3 MB L3 cache, 15 W) for use with Windows Professional	732086-601
	Intel Core i3-4005U 1.7 GHz processor (3 MB L3 cache, 15 W) for use with FreeDOS and Ubuntu	732087-001
	Intel Core i3-4005U 1.7 GHz processor (3 MB L3 cache, 15 W) for use with Windows Standard	732087-501
	Intel Core i3-4005U 1.7 GHz processor (3 MB L3 cache, 15 W) for use with Windows Professional	732087-601
	For computer models equipped with Intel UMA processors	
	3rd generation	
	Intel Pentium 2117U DC HM76 1.8 GHz (2 MB L3 Cache, 1600MHz DDR3, 17 W) for use with FreeDOS and Ubuntu	737980-001
	Intel Pentium 2117U DC HM76 1.8 GHz (2 MB L3 Cache, 1600MHz DDR3, 17 W) for use with Windows Standard	737980-501
	Intel Pentium 2117U DC HM76 (1.8-GHz, 2-MB L3 Cache, 1600MHz DDR3, 17 W) for use with Windows Professional	737980-601
	Intel Celeron 1007U DC HM76 1.5-GHz (2 MB L3 Cache, 1600MHz DDR3, 17 W) for use with FreeDOS and Ubuntu.	737981-001

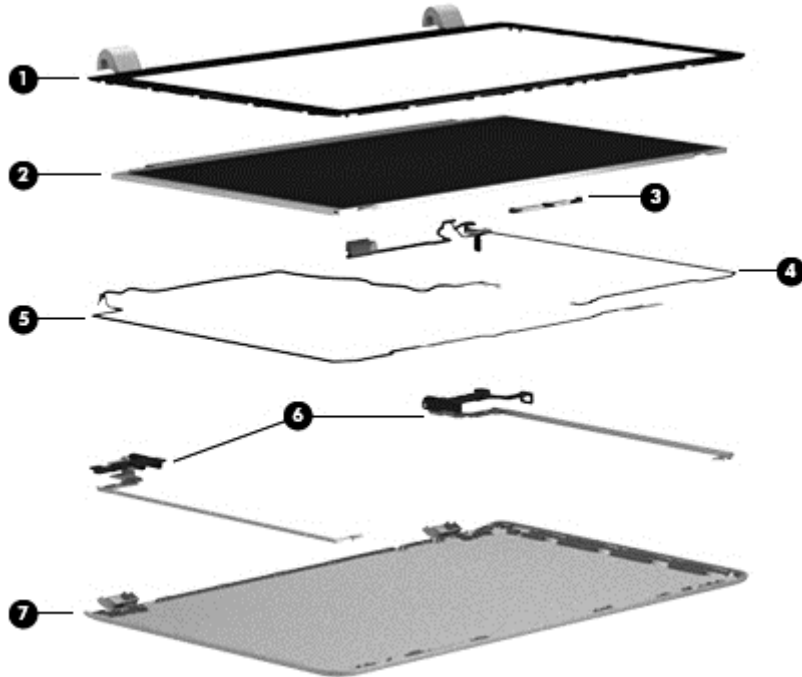
Item	Component	Spare part number
	Intel Celeron 1007U DC HM76 1.5-GHz (2 MB L3 Cache, 1600MHz DDR3, 17 W) for use with Windows Standard.	737981-501
	Intel Celeron 1007U DC HM76 1.5-GHz (2 MB L3 Cache, 1600MHz DDR3, 17 W) for use with Windows Professional	737981-601
	Intel Core i3-3217U DC 1.8-GHz (3 MB L3 Cache, 1600MHz DDR3, 17 W) for use with FreeDOS and Ubuntu	737982-001
	Intel Core i3-3217U DC 1.8-GHz (3 MB L3 Cache, 1600MHz DDR3, 17 W) for use with Windows Standard.	737982-501
	Intel Core i3-3217U DC 1.8-GHz (3 MB L3 Cache, 1600MHz DDR3, 17 W) for use with Windows Professional	737982-601
For computer models equipped with Intel Discrete processors		
4th generation		
	Intel Core i7-4500U 1.8-GHz (2 GB DC BGA 15 W) for use with FreeDOS and Ubuntu	737986-001
	Intel Core i7-4500U 1.8-GHz (2 GB DC BGA 15 W) for use with Windows Standard	737986-501
	Intel Core i7-4500U 1.8-GHz (2 GB DC BGA 15 W) for use with Windows Professional.	737986-601
	Intel Core i5-4200U 740M 1.6-GHz (2 GB DC BGA 15 W) for use with FreeDOS and Ubuntu	736377-001
	Intel Core i5-4200U 740M 1.6-GHz (2 GB DC BGA 15 W) for use with Windows Standard	736377-501
	Intel Core i5-4200U 740M 1.6-GHz (2 GB DC BGA 15 W) for use with Windows Professional	736377-601
	Intel Core i5-4200U 8670M 1 GB (1.6 GHz DC BGA 15 W) for use with FreeDOS and Ubuntu	737669-001
	Intel Core i5-4200U 8670M 1.6 GHz (1 GB DC BGA 15 W) for use with Windows Standard	737669-501
	Intel Core i5-4200U 8670M 1.6 GHz (1 GB DC BGA 15 W) for use with Windows Professional	737669-601
	Intel Core i3-4005U 8670M 1 GB (1.7 GHz DC BGA 15 W) for use with FreeDOS and Ubuntu	732089-001
	Intel Core i3-4005U 8670M 1.7 GHz (1 GB DC BGA 15 W) for use with Windows Standard	732089-501
	Intel Core i3-4005U 8670M 1.7 GHz (1 GB DC BGA 15 W) for use with Windows Professional	732089-601
For computer models equipped with Intel Discrete processors		
3rd generation		
	Intel Core i3-3217U DC 8670M 1 GB HM76 (1.8 GHz, L3 Cache, 1600MHz DDR3, 17 W) for use with FreeDOS and Ubuntu	737984-001

Item	Component	Spare part number
	Intel Core i3-3217U DC 8670M 1.8 GHz HM76 (1 GB L3 Cache, 1600MHz DDR3, 17 W) for use with Windows Standard	737984-501
	Intel Core i3-3217U DC 8670M 1.8 GHz HM76 (1 GB, L3 Cache, 1600MHz DDR3, 17 W) for use with Windows Professional	737984-601
	Intel Core i3-3217U DC 8670M 1.8-GHz HM76 (2 GB, L3 Cache, 1600MHz DDR3, 17 W) for use with FreeDOS and Ubuntu.	737985-001
	Intel Core i3-3217U DC 8670M 1.8-GHz HM76 (2 GB, L3 Cache, 1600MHz DDR3, 17 W) for use with Windows Standard	737985-501
	Intel Core i3-3217U DC 8670M 1.8-GHz HM76 (2 GB, L3 Cache, 1600MHz DDR3, 17 W) for use with Windows Professional	737985-601
	Intel Pentium 2117U DC 8670M 1.8 GHz HM76 (1 GB, L3 Cache, 1600MHz DDR3, 17 W) for use with FreeDOS and Ubuntu	737983-001
	Intel Pentium 2117U DC 8670M 1.8 GHz HM76 (1 GB, L3 Cache, 1600MHz DDR3, 17 W) for use with Windows Standard	737983-501
	Intel Pentium 2117U DC 8670M 1.8 GHz HM76 (1 GB, L3 Cache, 1600MHz DDR3, 17 W) for use with Windows Professional	737983-601
For computer models equipped with AMD UMA processors		
	AMD A4-5000 1.5 GHz (2 MB, L2, 1600MHz DDR3L, Quad 15 W) for use with FreeDOS and Ubuntu	734826-001
	AMD A4-5000 1.5 GHz (2 MB, L2, 1600MHz DDR3L, Quad 15 W) for use with Windows Standard	734826-501
	AMD A4-5000 1.5 GHz (2 MB, L2, 1600MHz DDR3L, Quad 15 W) for use with Windows Professional	734826-601
	AMD A6-5000 1.5 GHz (2 MB, L2, 1600MHz DDR3L, Quad 15 W) for use with FreeDOS and Ubuntu	734827-001
	AMD A6-5000 1.5 GHz (2 MB, L2, 1600MHz DDR3L, Quad 15 W) for use with Windows Standard	734827-501
	AMD A6-5000 1.5 GHz (2 MB, L2, 1600MHz DDR3L, Quad 15 W) for use with Windows Professional	734827-601
	AMD A8-5545M A76M 2.7-GHz/1.7-GHz (4-MB L2, 1333MHz DDR3L Quad 19 W) for use with FreeDOS and Ubuntu.	734829-001
	AMD A8-5545M A76M 2.7-GHz/1.7-GHz (4-MB L2, 1333MHz DDR3L Quad 19 W) for use with Windows Standard	734829-501
	AMD A8-5545M A76M 2.7-GHz/1.7-GHz (4-MB L2, 1333MHz DDR3L Quad 19 W) for use with Windows Professional.	734829-601
	AMD A8- 4555M 2.4 GHz/1.6 GHz (4 MB, L2, 1600MHz DDR3L Quad 19 W) for use with FreeDOS and Ubuntu	737140-001
	AMD A8- 4555M 2.4 GHz/1.6 GHz (4 MB, L2, 1600MHz DDR3L Quad 19 W) for use with Windows Standard	737140-501
	AMD A8- 4555M 2.4 GHz/1.6 GHz (4 MB, L2, 1600MHz DDR3L Quad 19 W) for use with Windows Professional	737140-601

Item	Component	Spare part number
	AMD E1-2500 1.4 GHz (1 MB, L2, 1600MHz DDR3L, Dual 15 W) for use with FreeDOS and Ubuntu	737141-001
	AMD E1-2500 1.4 GHz (1 MB, L2, 1600MHz DDR3L, Dual 15 W) for use with Windows Standard	737141-501
	AMD E1-2500 1.4 GHz (1 MB, L2, 1600MHz DDR3L, Dual 15 W) for use with Windows Professional	737141-601
	AMD A10-5745M A76M 2.9 GHz/2.1 GHz (4 MB, L2, 1333MHz DDR3L Quad 25 W) for use with FreeDOS and Ubuntu	738124-001
	AMD A10-5745M A76M 2.9 GHz/2.1 GHz (4 MB, L2, 1333MHz DDR3L Quad 25 W) for use with Windows Standard	738124-501
	AMD A10-5745M A76M 2.9 GHz/2.1 GHz (4 MB, L2, 1333MHz DDR3L Quad 25 W) for use with Windows Professional	738124-601
	For computer models equipped with AMD Discrete processors	
	AMD A4-5000 8670M 1.5 GHz (1 GB, L2, 1600MHz DDR3L Quad 15 W) for use with FreeDOS and Ubuntu	734820-001
	AMD A4-5000 8670M 1.5 GHz (1 GB, L2, 1600MHz DDR3L Quad 15 W) for use with Windows Standard	734820-501
	AMD A4-5000 8670M 1.5 GHz (1 GB, L2, 1600MHz DDR3L Quad 15 W) for use with Windows Professional	734820-601
	AMD A6-5200 8670M 2.0 GHz (1 GB, L2, 1600MHz DDR3L, Quad 25 W) for use with FreeDOS and Ubuntu	734821-001
	AMD A6-5200 8670M 2.0 GHz (1 GB, L2, 1600MHz DDR3L, Quad 25 W) for use with Windows Standard	734821-501
	AMD A6-5200 8670M 2.0 GHz, L2 (1 GB, 1600MHz DDR3L, Quad 25 W) for use with Windows Professional	734821-601
	AMD A10-5745M 8670M 2 GB (2.9-GHz/2.1-GHz, L2, 1333MHz DDR3L Quad 25 W) for use with FreeDOS and Ubuntu.	734824-001
	AMD A10-5745M 8670M 2.9 GHz/2.1 GHz (2 GB L2, 1333MHz DDR3L Quad 25 W) for use with Windows Standard.	734824-501
	AMD A10-5745M 8670M 2.9 GHz/2.1 GHz (2 GB L2, 1333MHz DDR3L Quad 25 W) for use with Windows Professional.	734824-601
	AMD A10-4655M 8670M (2.8-GHz/2.0-GHz, 2-GB L2, 1600MHz DDR3L Quad 25 W) for use with FreeDOS and Ubuntu.	737138-001
	AMD A10-4655M 8670M 2.8 GHz/2.0 GHz (2 GB L2, 1600MHz DDR3L Quad 25 W) for use with Windows Standard.	737138-501
	AMD A10-4655M 8670M 2.8 GHz/2.0 GHz (2 GB L2, 1600MHz DDR3L Quad 25 W) for use with Windows Professional.	737138-601
(11)	Fan	732068-001
(12)	RTC battery	697917-001
(13)	Heat sink assembly (includes replacement thermal material):	

Item	Component	Spare part number
	For use only on computer models equipped with a graphics subsystem with Intel discrete memory	732070-001
	For use only on computer models equipped with a graphics subsystem with Intel UMA memory	732069-001
	Heat sink for use only on computer models equipped with a graphics subsystem with AMD UMA memory 19 W	734448-001
	Heat sink for use only on computer models equipped with a graphics subsystem with AMD UMA memory 25 W	734449-001
	Heat sink for use only on computer models equipped with a graphics subsystem with AMD discrete memory 19 W	734450-001
	Heat sink for use only on computer models equipped with a graphics subsystem with AMD discrete memory 25 W	734451-001
(14)	Power connector (includes bracket):	732067-001
(15)	Hard drive connector cable is available in the hardware kit, part number 732071-001	
(16)	Memory modules (2, PC3L, 12800, 1600-MHz):	
	2 GB memory module	691739-001
	4 GB memory module	691740-001
	8 GB memory module PC3L 12800 1600Mhz SHARED	693374-001
	8 GB memory module PC3 12800 1600Mhz SHARED	670034-001
(17)	WLAN module:	
	Ralink RT3290LE 802.11b/g/n 1x1 WiFi and Bluetooth 4.0 Combo Adapter for use on all computer models	690020-001
	Atheros AR9485 802.11b/g/n WiFi Adapter for use on all computer models	675794-001
	Realtek RTL8188EE 802.11bgn Wi-Fi Adapter for use on all computer models	709848-001
	Mediatek MT7630E 802.11bgn Wi-Fi Adapter and Mediatek Bluetooth 4.0 Adapter for use only on computer models equipped with an AMD processor	710418-001
	Intel Centrino Advanced-N 6235 WLAN module for use only on computer models in Japan	717384-001
(18)	Speakers (include, speaker cables, and 4 rubber isolators)	732084-001
(19)	4 cell, 41-Wh, 2.8-Ah, Li-ion battery	728460-001
(20)	Base enclosure (includes battery release latch mechanism and RJ45 cover)	732065-001
(21)	Optical Drive SuperMulti DVD±R/RW Double-Layer Drive (includes bezel and bracket)	732075-001
(22)	Service door (part of the plastics kit 732079-001)	

Display assembly subcomponents



Item	Component	Spare part number
(1)	Display bezel (includes 2 rubber screws)	725617-001
(2)	15.6-in, BrightView, HD, LED, SVA display panel (screws included in the screw kit, spare part number 732082-001)	732080-001
	15.6-in, BrightView, HD, LED, SVA Touchscreen display panel (For Touchscreens, the screws spare part number is 732083-001)	
	In aluminum metal finish	732073-001
	In sparkling black finish	732074-001
	In pearl white finish	737170-001
	In flyer red finish	737171-001
	In revolutionary blue finish	737172-001
	In regal purple finish	737173-001
	In mineral black finish	737174-001
	In Goji berry finish	737175-001
	In hazel berry finish	737176-001
	In raspberry finish	737177-001
(3)	Webcam/microphone module (includes adhesive)	738664-001
(4)	Display panel cable (includes webcam/microphone module cable and two rubber screws)	732066-001

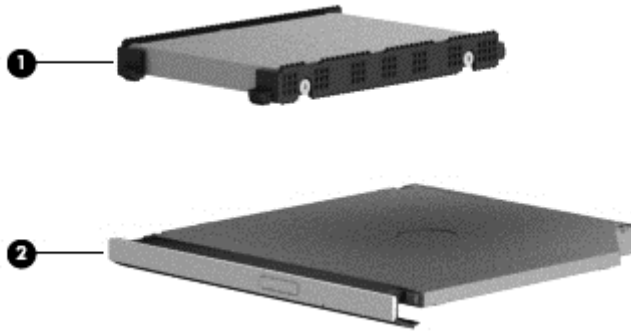
Item	Component	Spare part number
(5)	Antenna Kit (includes left and right wireless antenna cables and transceivers and 2 rubber screws)	732063-001
(6)	Display Hinge Kit (includes left and right hinges and 2 rubber screws):	732072-001
(7)	Display back enclosure (includes 2 rubber screw covers):	
	In pearl white finish	725611-001
	In sparkling black finish	725612-001
	In flyer red finish	725613-001
	In revolutionary blue finish	725614-001
	In regal purple finish	725615-001
	In aluminum metal finish	732064-001
	In mineral black finish	737166-001
	In Goji berry finish	737167-001
	In hazel berry finish	737168-001
	In raspberry finish	737169-001

Miscellaneous parts

Component	Spare part number
AC adapter:	
65-W HP Smart AC adapter (RC, V, EM, 3-wire)	714657-001
65 W HP Smart AC adapter (RC, V, 3-wire)	710412-001
90 W PFC adapter 4.5 mm	710413-001
90 W Smart AC adapter 4.5 mm	710414-001
Power cord (3-pin, black, 1.83-m):	
For use in the United States	490371-001
For use in Australia	490371-011
For use in Europe	490371-021
For use in Denmark	490371-081
For use in Switzerland	490371-111
For use in Japan	490371-291
For use in Taiwan	490371-AB1
For use in the People's Republic of China	490371-AA1

Component	Spare part number
For use in South Korea	490371-AD1
For use in Thailand	490371-201
For use in the United Kingdom and Singapore	490371-031
For use in South Africa	490371-AR1
For use in Israel	490371-BB1
For use in India	490371-D61
Screw Kit for non Touchscreens	732082-001
Screw Kit for Touchscreens	732083-001
HDMI to VGA Adapter	701943-001

Mass storage devices



Item	Component	Spare part number
(1)	Hard drive (does not include the hard drive rubber bracket, hard drive connector cable, or screws)	
	1 TB, 5400 rpm, 9.5 mm	676521-001
	750 GB, 5400 rpm, 9.5 mm	634250-001
	500 GB 5400 rpm, 9.5 mm	669299-005
	500 GB 5400 rpm 7 mm	683802-005
	Hard Drive Hardware Kit , includes:	732071-001
	Hard drive rubber bracket	
	Hard drive connector cable	
	Hard drive screws (2, not illustrated)	
(2)	Optical drive:	
	DVD+/-RW DL SuperMulti - support Zero power ODD (includes optical drive hardware kit with optical drive bezel, bracket and connector cable).	732075-001

Sequential part number listing

Spare part number	Description
490371-001	Power cord for use in North America (3-pin, black, 1.83-m)
490371-011	Power cord for use in Australia (3-pin, black, 1.83-m)
490371-021	Power cord for use in Europe (3-pin, black, 1.83-m)
490371-031	Power cord for use in the United Kingdom and Singapore (3-pin, black, 1.83-m)
490371-081	Power cord for use in Denmark (3-pin, black, 1.83-m)
490371-111	Power cord for use in Switzerland (3-pin, black, 1.83-m)
490371-201	Power cord for use in Thailand (3-pin, black, 1.83-m)

Spare part number	Description
490371-291	Power cord for use in Japan (3-pin, black, 1.83-m)
490371-AA1	Power cord for use in the People's Republic of China (3-pin, black, 1.83-m)
490371-AB1	Power cord for use in Taiwan (3-pin, black, 1.83-m)
490371-AD1	Power cord for use in South Korea (3-pin, black, 1.83-m)
490371-AR1	Power cord for use in South Africa (3-pin, black, 1.83-m)
490371-BB1	Power cord for use in Israel (3-pin, black, 1.83-m)
490371-D61	Power cord for use in India (3-pin, black, 1.83-m)
634250-005	750-GB, 5400-rpm hard drive (SATA, 9.5-mm, does not include hard drive rubber bracket, 2 hard drive retention brackets, or hard drive connector cable)
669299-005	500-GB, 5400-rpm hard drive (SATA, 9.5-mm, does not include hard drive rubber bracket, 2 hard drive retention brackets, hard drive connector cable, or screws)
670034-001	Memory 8 GB PC3 12800 1600Mhz SHARED
675794-001	Atheros AR9485 802.11b/g/n WiFi Adapter for use on all computer models
676521-001	1-TB, 5400-rpm hard drive (SATA, 12.7-mm, does not include hard drive rubber bracket, 2 hard drive retention brackets, hard drive connector cable, or screws)
683802-005	500-GB, 5400-rpm hard drive (SATA, 7.0-mm, does not include hard drive rubber bracket, 2 hard drive retention brackets, hard drive connector cable, or screws)
690020-001	Ralink RT3290LE 802.11b/g/n 1x1 WiFi and Bluetooth 4.0 Combo Adapter for use on all computer models
691739-001	2-GB memory module (PC3, 12800, 1600-MHz)
691740-001	4-GB memory module (PC3, 12800, 1600-MHz)
693374-001	8-GB memory module (PC3, 12800, 1600-MHz)
697917-001	RTC battery
701943-001	HDMI to VGA adapter
709848-001	Realtek RTL8188EE 802.11bgn Wi-Fi Adapter for use on all computer models
710412-001	65-W HP Smart AC adapter (RC, V, EM, 3-wire)
710413-001	65-W HP AC adapter (RC, V, 3-wire)
710414-001	65 W HP Smart AC adapter (RC, V, 3-wire)
710418-001	Mediatek MT7630E 802.11bgn Wi-Fi Adapter and Mediatek Bluetooth 4.0 Adapter for use only on computer models equipped with an AMD processor
714657-001	65 W HP Smart AC adapter (RC, V, EM, 3-wire)
717384-001	Intel Centrino Advanced-N 6235 WLAN module for use only on computer models in Japan
719853-001	Keyboard in black finish for use in the United States (includes keyboard cable)
719853-031	Keyboard in black finish for use in the United Kingdom (includes keyboard cable)
719853-041	Keyboard in black finish for use in Germany (includes keyboard cable)

Spare part number	Description
719853-051	Keyboard in black finish for use in France (includes keyboard cable)
719853-061	Keyboard in black finish for use in Italy (includes keyboard cable)
719853-071	Keyboard in black finish for use in Spain (includes keyboard cable)
719853-131	Keyboard in black finish for use in Portugal (includes keyboard cable)
719853-141	Keyboard in black finish for use in Turkey (includes keyboard cable)
719853-151	Keyboard in black finish for use in Greece (includes keyboard cable)
719853-171	Keyboard in black finish for use in Saudi Arabia (includes keyboard cable)
719853-211	Keyboard in black finish for use in Hungary (includes keyboard cable)
719853-251	Keyboard in black finish for use in Russia (includes keyboard cable)
719853-261	Keyboard in black finish for use in Bulgaria (includes keyboard cable)
719853-271	Keyboard in black finish for use in Romania (includes keyboard cable)
719853-281	Keyboard in black finish for use in Thailand (includes keyboard cable)
719853-291	Keyboard in black finish for use in Japan (includes keyboard cable)
719853-A41	Keyboard in black finish for use in Belgium (includes keyboard cable)
719853-AB1	Keyboard in black finish for use in Taiwan (includes keyboard cable)
719853-AD1	Keyboard in black finish for us in South Korea (includes keyboard cable)
719853-B31	Keyboard in black finish for International use (includes keyboard cable)
719853-BA1	Keyboard in black finish for use in Slovenia (includes keyboard cable)
719853-BB1	Keyboard in black finish for use in Israel (includes keyboard cable)
719853-BG1	Keyboard in black finish for use in Switzerland (includes keyboard cable)
719853-DB1	Keyboard in black finish for use in Canada (includes keyboard cable)
719853-DH1	Keyboard in black finish for use in Nordic regions (includes keyboard cable)
719853-FL1	Keyboard in black finish for use in Czech regions (includes keyboard cable)
719853-FP1	Keyboard in black finish for use in Northwest Africa (includes keyboard cable)
720597-001	Keyboard in black finish for use in the United States (includes keyboard cable)
720597-031	Keyboard in black finish for use in United Kingdom (includes keyboard cable)
720597-041	Keyboard in painted island style pearl white finish for use in Germany (includes keyboard cable)
720597-051	Keyboard in painted island style pearl white finish for use in France (includes keyboard cable)
720597-061	Keyboard in painted island style pearl white finish for use in Italy (includes keyboard cable)
720597-071	Keyboard in painted island style pearl white finish for use in Spain (includes keyboard cable)
720597-131	Keyboard in painted island style pearl white finish for use in Portugal (includes keyboard cable)
720597-141	Keyboard in painted island style pearl white finish for use in Turkey (includes keyboard cable)

Spare part number	Description
720597-151	Keyboard in painted island style pearl white finish for use in Greece (includes keyboard cable)
720597-171	Keyboard in painted island style pearl white finish for use in Saudi Arabia (includes keyboard cable)
720597-211	Keyboard in painted island style pearl white finish for use in Hungarian (includes keyboard cable)
720597-251	Keyboard in painted island style pearl white finish for use in Russian (includes keyboard cable)
720597-261	Keyboard in linen white finish for use in Bulgaria (includes keyboard cable)
720597-271	Keyboard in painted island style pearl white finish for use in Romania (includes keyboard cable)
720597-281	Keyboard in painted island style pearl white finish for use in (includes keyboard cable)
720597-291	Keyboard in painted island style pearl white finish for use in Japan (includes keyboard cable)
720597-A41	Keyboard in painted island style pearl white finish for use in Belgium (includes keyboard cable)
720597-AB1	Keyboard in painted island style pearl white finish for use in Taiwan (includes keyboard cable)
720597-AD1	Keyboard in painted island style pearl white finish for use in Korea (includes keyboard cable)
720597-B31	Keyboard in painted island style pearl white finish for International use (includes keyboard cable)
720597-BA1	Keyboard in painted island style pearl white finish for use in Slovenia (includes keyboard cable)
720597-BB1	Keyboard in painted island style pearl white finish for use in Israel (includes keyboard cable)
720597-BG1	Keyboard in painted island style pearl white finish for use in Switzerland (includes keyboard cable)
720597-DB1	Keyboard in painted island style pearl white finish for use in (includes keyboard cable)
720597-DH1	Keyboard in painted island style pearl white finish for use in Nordic regions (includes keyboard cable)
720597-FL1	Keyboard in painted island style pearl white finish for use in the Czech Republic (includes keyboard cable)
720597-FP1	Keyboard in painted island style pearl white finish for use in the (includes keyboard cable)
725611-001	Display enclosure in pearl white
725612-001	Display enclosure in sparkling black
725613-001	Display enclosure in flyer red
725614-001	Display enclosure in revolutionary blue
725615-001	Display enclosure in regal purple
725617-001	Display bezel (includes 2 rubber screw covers and rubber bumpers)
728460-001	4 cell, 41 Wh, 2.8-Ah, Li-ion battery
732063-001	Antenna Kit (includes left and right wireless antenna cables and transceivers and 2 rubber screw covers)
732064-001	Display enclosure in aluminum metal finish (includes 2 rubber screw covers)
732065-001	Base enclosure (includes battery release latch mechanism and RJ45 cover)

Spare part number	Description
732066-001	Display panel cable (includes webcam/microphone module cable and 2 rubber screw covers)
732067-001	Power connector cable (includes bracket)
732068-001	Fan
732069-001	Heat sink assembly for use only on computer models equipped with a graphics subsystem with UMA memory (includes replacement thermal material)
732070-001	Heat sink assembly for use only on computer models equipped with a graphics subsystem with discrete memory (includes replacement thermal material)
732071-001	Hard Drive Hardware Kit (includes hard drive rubber bracket, 2 hard drive retention brackets, 2 hard drive retention screws, and hard drive connector cable)
732072-001	Display Hinge Kit (includes left and right hinges and 2 rubber screw covers)
732073-001	15.6-in, LED, HD, BrightView display panel in aluminum metal (includes 2 rubber screw covers)
732074-001	15.6-in, LED, HD, BrightView display panel in sparkling black (includes 2 rubber screw covers)
732075-001	DVD±RW Double-Layer SuperMulti Drive (includes bezel and bracket)
732076-001	Power button board (includes cable)
732077-001	Audio/USB port
732078-001	TouchPad button board (includes cable)
732079-001	Cover Kit (includes service door and wireless module compartment cover)
732080-001	15.6-in, LED, HD, BrightView raw display panel (includes 2 rubber screw covers)
732082-001	Screw Kit
732083-001	Screw Kit for TouchSmart models
732084-001	Speakers (include subwoofer, speaker cables, and 4 rubber isolators)
732086-001	System board Intel Core i5-4200U 1.6-GHz processor (3.0 MB L3 cache, 15 W) for use with FreeDOS and Ubuntu
732086-501	System board Intel Core i5-4200U 1.6-GHz processor (3.0 MB L3 cache, 15 W) for use with Windows Standard
732086-601	System board Intel Core i5-4200U 1.6-GHz processor (3.0 MB L3 cache, 15 W) for use with Windows Professional
732087-001	System board Intel Core i3-4005U 1.7-GHz processor (3.0 MB L3 cache, 15 W) for use with FreeDOS and Ubuntu. (includes replacement thermal material)
732087-501	System board Intel Core i3-4005U 1.7-GHz processor (3.0 MB L3 cache, 15 W) for use with Windows Standard. (includes replacement thermal material)
732087-601	System board Intel Core i3-4005U 1.7-GHz processor (3.0 MB L3 cache, 15 W) for use with Windows Professional. (includes replacement thermal material)
732089-001	System board Intel Core i3-4005U 8670M 1 GB (1.7 GHz DC BGA 15W) for use with FreeDOS and Ubuntu.

Spare part number	Description
732089-501	System board Intel Core i3-4005U 8670M 1 GB (1.7 GHz DC BGA 15W) for use with Windows Standard.
732089-601	System board Intel Core i3-4005U 8670M 1 GB (1.7 GHz DC BGA 15W) for use with Windows Professional.
732091-001	Top cover in pearl white finish (includes TouchPad and cable)
732092-001	Top cover in flyer red finish (includes TouchPad and cable)
732093-001	Top cover in revolutionary blue finish (includes TouchPad and cable)
732094-001	Top cover in regal purple finish (includes TouchPad and cable)
732095-001	Top cover in sparkling black finish (includes TouchPad and cable)
732096-001	Top cover in mineral black finish (includes TouchPad and cable)
734448-001	Heat sink for use only on computer models equipped with a graphics subsystem with AMD UMA memory 19 W
734449-001	Heat sink for use only on computer models equipped with a graphics subsystem with AMD UMA memory 25 W
734450-001	Heat sink for use only on computer models equipped with a graphics subsystem with AMD discrete memory 19 W
734451-001	Heat sink for use only on computer models equipped with a graphics subsystem with AMD discrete memory 25 W
734820-001	System board AMD A4-5000 8670M (1.5 GHz, 1 GB L2, 1600MHz DDR3L Quad 15W) for use with FreeDOS and Ubuntu.
734820-501	System board AMD A4-5000 8670M (1.5 GHz, 1 GB L2, 1600MHz DDR3L Quad 15W) for use with Windows Standard.
734820-601	System board AMD A4-5000 8670M (1.5 GHz, 1 GB L2, 1600MHz DDR3L Quad 15W) for use with Windows Professional.
734821-001	System board AMD A6-5200 8670M (2.0 GHz, 1 GB L2, 1600MHz DDR3L, Quad 25W) for use with FreeDOS and Ubuntu.
734821-501	System board AMD A6-5200 8670M (2.0 GHz, 1 GB L2, 1600MHz DDR3L, Quad 25W) for use with Windows Standard.
734821-601	System board AMD A6-5200 8670M (2.0 GHz, 1 GB L2, 1600MHz DDR3L, Quad 25W) for use with Windows Professional.
734824-001	System board AMD A10-5745M 8670M (2.9GHz/2.1GHz, 2 GB L2, 1333MHz DDR3L Quad 25W) for use with FreeDOS and Ubuntu.
734824-501	System board AMD A10-5745M 8670M (2.9 GHz/2.1 GHz, 2 GB L2, 1333MHz DDR3L Quad 25W) for use with Windows Standard.
734824-601	System board AMD A10-5745M 8670M (2.9 GHz/2.1 GHz, 2 GB L2, 1333MHz DDR3L Quad 25W) for use with Windows Professional.
734826-001	System board AMD A4-5000 (1.5 GHz, 2 MB L2, 1600MHz DDR3L, Quad 15W) for use with FreeDOS and Ubuntu.
734826-501	System board AMD A4-5000 (1.5 GHz, 2 MB L2, 1600MHz DDR3L, Quad 15W) for use with Windows Standard.

Spare part number	Description
734826-601	System board AMD A4-5000 (1.5 GHz, 2 MB L2, 1600MHz DDR3L, Quad 15W) for use with Windows Professional.
734827-001	System board AMD A6-5000 (1.5 GHz, 2 MB L2, 1600MHz DDR3L, Quad 15W) for use with FreeDOS and Ubuntu.
734827-501	System board AMD A6-5000 (1.5 GHz, 2 MB L2, 1600MHz DDR3L, Quad 15W) for use with Windows Standard.
734827-601	System board AMD A6-5000 (1.5 GHz, 2 MB L2, 1600MHz DDR3L, Quad 15W) for use with Windows Professional.
734829-001	System board AMD A8-5545M A76M (2.7 GHz/1.7 GHz, 4 MB L2, 1333MHz DDR3L Quad 19W) for use with FreeDOS and Ubuntu.
734829-501	System board AMD A8-5545M A76M (2.7 GHz/1.7G Hz, 4 MB L2, 1333MHz DDR3L Quad 19W) for use with Windows Standard.
734829-601	System board AMD A8-5545M A76M (2.7 GHz/1.7 GHz, 4 MB L2, 1333MHz DDR3L Quad 19W) for use with Windows Professional.
736377-001	System board Intel Core i5-4200U 740M 2 GB (1.6-GHz DC BGA 15 W) for use with FreeDOS and Ubuntu
736377-501	System board Intel Core i5-4200U 740M 2 GB (1.6-GHz DC BGA 15 W) for use with Windows Standard
736377-601	System board Intel Core i5-4200U 740M 2 GB (1.6-GHz DC BGA 15 W) for use with Windows Professional
737138-001	System board AMD A10- 4655M 8670M (2.8 GHz/2.0 GHz, 2 GB L2, 1600MHz DDR3L Quad 25W) for use with FreeDOS and Ubuntu.
737138-501	System board AMD A10- 4655M 8670M (2.8 GHz/2.0 GHz, 2 GB L2, 1600MHz DDR3L Quad 25W) for use with Windows Standard.
737138-601	System board AMD A10- 4655M 8670M (2.8 GHz/2.0 GHz, 2 GB L2, 1600MHz DDR3L Quad 25W) for use with Windows Professional.
737140-001	System board AMD A8- 4555M (2.4 GHz/1.6 GHz, 4 MB L2, 1600MHz DDR3L Quad 19W) for use with FreeDOS and Ubuntu.
737140-501	System board AMD A8- 4555M (2.4 GHz/1.6 GHz, 4 MB L2, 1600MHz DDR3L Quad 19W) for use with Windows Standard.
737140-601	System board AMD A8- 4555M (2.4 GHz/1.6 GHz, 4 MB L2, 1600MHz DDR3L Quad 19W) for use with Windows Professional.
737141-001	System board AMD E1-2500 (1.4 GHz, 1 MB L2, 1600MHz DDR3L, Dual 15W) for use with FreeDOS and Ubuntu.
737141-501	System board AMD E1-2500 (1.4 GHz, 1 MB L2, 1600MHz DDR3L, Dual 15W) for use with Windows Standard.
737141-601	System board AMD E1-2500 (1.4 GHz, 1 MB L2, 1600MHz DDR3L, Dual 15W) for use with Windows Professional.
737166-001	Display enclosure in mineral black finish
737167-001	Display enclosure in Goji berry finish
737168-001	Display enclosure in hazel berry finish

Spare part number	Description
737169-001	Display enclosure in raspberry finish
737170-001	Touchscreen display 15.6 BV HD PRW in pearl white finish
737171-001	Touchscreen display 15.6 BV HD PRW in flyer red finish
737172-001	Touchscreen display 15.6 BV HD PRW in revolutionary blue finish
737173-001	Touchscreen display 15.6 BV HD PRW in regal purple finish
737174-001	Touchscreen display 15.6 BV HD PRW in mineral black finish
737175-001	Touchscreen display 15.6 BV HD PRW in Goji berry finish
737176-001	Touchscreen display 15.6 BV HD PRW in hazel berry finish
737177-001	Touchscreen display 15.6 BV HD PRW in raspberry finish
737178-001	Top cover in mineral black finish
737179-001	Top cover in Goji berry finish
737180-001	Top cover in hazel berry finish
737181-001	Top cover in raspberry finish
737669-001	System board Intel Core i5-4200U 8670M 1 GB (1.6 GHz DC BGA 15W) for use with FreeDOS and Ubuntu.
737669-501	System board Intel Core i5-4200U 8670M 1 GB (1.6 GHz DC BGA 15W) for use with Windows Standard.
737669-601	System board Intel Core i5-4200U 8670M 1 GB (1.6 GHz DC BGA 15W) for use with Windows Professional.
737980-001	System board Intel Pentium 2117U DC HM76 (1.8 GHz, 2 MB L3 Cache, 1600MHz DDR3, 17W) for use with FreeDOS and Ubuntu.
737980-501	System board Intel Pentium 2117U DC HM76 (1.8 GHz, 2 MB L3 Cache, 1600MHz DDR3, 17W) for use with Windows Standard.
737980-601	System board Intel Pentium 2117U DC HM76 (1.8 GHz, 2 MB L3 Cache, 1600MHz DDR3, 17W) for use with Windows Professional.
737981-001	System board Intel Celeron 1007U DC HM76 (1.5 GHz, 2 MB L3 Cache, 1600MHz DDR3, 17W) for use with FreeDOS and Ubuntu.
737981-501	System board Intel Celeron 1007U DC HM76 (1.5 GHz, 2 MB L3 Cache, 1600MHz DDR3, 17W) for use with Windows Standard.
737981-601	System board Intel Celeron 1007U DC HM76 (1.5 GHz, 2 MB L3 Cache, 1600MHz DDR3, 17W) for use with Windows Professional.
737982-001	System board Intel Core i3-3217U DC (1.8GHz, 3 MB L3 Cache, 1600MHz DDR3, 17W) for use with FreeDOS and Ubuntu.
737982-501	System board Intel Core i3-3217U DC (1.8 GHz, 3 MB L3 Cache, 1600MHz DDR3, 17W) for use with Windows Standard.
737982-601	System board Intel Core i3-3217U DC (1.8 GHz, 3 MB L3 Cache, 1600MHz DDR3, 17W) for use with Windows Professional.

Spare part number	Description
737983-001	System board Intel Pentium 2117U DC 8670M 1 GB HM76 (1.8 GHz, L3 Cache, 1600MHz DDR3, 17W) for use with FreeDOS and Ubuntu.
737983-501	System board Intel Pentium 2117U DC 8670M 1 GB HM76 (1.8 GHz, L3 Cache, 1600MHz DDR3, 17W) for use with Windows Standard.
737983-601	System board Intel Pentium 2117U DC 8670M 1 GB HM76 (1.8 GHz, L3 Cache, 1600MHz DDR3, 17W) for use with Windows Professional.
737984-001	System board Intel Core i3-3217U DC 8670M 1 GB HM76 (1.8 GHz, L3 Cache, 1600MHz DDR3, 17W) for use with FreeDOS and Ubuntu.
737984-501	System board Intel Core i3-3217U DC 8670M 1 GB HM76 (1.8 GHz, L3 Cache, 1600MHz DDR3, 17W) for use with Windows Standard
737984-601	System board Intel Core i3-3217U DC 8670M 1 GB HM76 (1.8 GHz, L3 Cache, 1600MHz DDR3, 17W) for use with Windows Professional.
737985-001	System board Intel Core i3-3217U DC 8670M 2 GB HM76 (1.8 GHz, L3 Cache, 1600MHz DDR3, 17W) for use with FreeDOS and Ubuntu.
737985-501	System board Intel Core i3-3217U DC 8670M 2 GB HM76 (1.8 GHz, L3 Cache, 1600MHz DDR3, 17W) for use with Windows Standard.
737985-601	System board Intel Core i3-3217U DC 8670M 2 GB HM76 (1.8 GHz, L3 Cache, 1600MHz DDR3, 17W) for use with Windows Professional.
737986-001	System board Intel Core i7-4500U (1.8 GHz DC BGA 15W) for use with FreeDOS and Ubuntu.
737986-501	System board Intel Core i7-4500U (1.8 GHz DC BGA 15W) for use with Windows Standard.
737986-601	System board Intel Core i7-4500U (1.8 GHz DC BGA 15 W) for use with Windows Professional
738124-001	System board AMD A10-5745M A76M (2.9 GHz/2.1 GHz, 4 MB L2, 1333MHz DDR3L Quad 2 5W) for use with FreeDOS and Ubuntu.
738124-501	System board AMD A10-5745M A76M (2.9 GHz/2.1 GHz, 4 MB L2, 1333MHz DDR3L Quad 25 W) for use with Windows Standard.
738124-601	System board AMD A10-5745M A76M (2.9 GHz/2.1 GHz, 4 MB L2, 1333MHz DDR3L Quad 25 W) for use with Windows Professional.
738664-001	Webcamera/microphone module

4 Removal and replacement procedures preliminary 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

Cables and connectors

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

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

Drive handling

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

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

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

Before removing a diskette drive or optical drive, be sure that a diskette or disc is not in the drive and be sure that the optical drive tray is closed.

Handle drives on surfaces covered with at least one inch of shock-proof foam.

Avoid dropping drives from any height onto any surface.

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

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			
Event	Relative humidity		
	10%	40%	55%
Walking across carpet	35,000 V	15,000 V	7,500 V
Walking across vinyl floor	12,000 V	5,000 V	3,000 V
Motions of bench worker	6,000 V	800 V	400 V
Removing DIPS from plastic tube	2,000 V	700 V	400 V
Removing DIPS from vinyl tray	11,500 V	4,000 V	2,000 V
Removing DIPS from Styrofoam	14,500 V	5,000 V	3,500 V
Removing bubble pack from PCB	26,500 V	20,000 V	7,000 V
Packing PCBs in foam-lined box	21,000 V	11,000 V	5,000 V

Packaging and transporting guidelines

Follow these grounding guidelines when packaging and transporting equipment:

- To avoid hand contact, transport products in static-safe tubes, bags, or boxes.
- Protect ESD-sensitive parts and assemblies with conductive or approved containers or packaging.
- Keep ESD-sensitive parts in their containers until the parts arrive at static-free workstations.
- Place items on a grounded surface before removing items from their containers.
- Always be properly grounded when touching a component or assembly.
- Store reusable ESD-sensitive parts from assemblies in protective packaging or nonconductive foam.
- Use transporters and conveyors made of antistatic belts and roller bushings. Be sure that mechanized equipment used for moving materials is wired to ground and that proper materials are selected to avoid static charging. When grounding is not possible, use an ionizer to dissipate electric charges.

Workstation guidelines

Follow these grounding workstation guidelines:

- Cover the workstation with approved static-shielding material.
- Use a wrist strap connected to a properly grounded work surface and use properly grounded tools and equipment.
- Use conductive field service tools, such as cutters, screwdrivers, and vacuums.
- When fixtures must directly contact dissipative surfaces, use fixtures made only of static safe materials.
- Keep the work area free of nonconductive materials, such as ordinary plastic assembly aids and Styrofoam.
- Handle ESD-sensitive components, parts, and assemblies by the case or PCM laminate. Handle these items only at static-free workstations.
- Avoid contact with pins, leads, or circuitry.
- Turn off power and input signals before inserting or removing connectors or test equipment.

Equipment guidelines

Grounding equipment must include either a wrist strap or a foot strap at a grounded workstation.

- When seated, wear a wrist strap connected to a grounded system. Wrist straps are flexible straps with a minimum of one megohm $\pm 10\%$ resistance in the ground cords. To provide proper ground, wear a strap snugly against the skin at all times. On grounded mats with banana-plug connectors, use alligator clips to connect a wrist strap.
- When standing, use foot straps and a grounded floor mat. Foot straps (heel, toe, or boot straps) can be used at standing workstations and are compatible with most types of shoes or boots. On conductive floors or dissipative floor mats, use foot straps on both feet with a minimum of one megohm resistance between the operator and ground. To be effective, the conductive 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

5 Removal and replacement procedures for Customer Self-Repair parts

 **NOTE:** The Customer Self-Repair program is not available in all locations. Installing a part not supported by the Customer Self-Repair program may void your warranty. Check your warranty to determine if Customer Self-Repair is supported in your location.

Component replacement procedures

 **NOTE:** Please read and follow the procedures described here to access and replace Customer Self-Repair parts successfully.

 **NOTE:** Details about your computer, including model, serial number, product key, and length of warranty, are on the service tag at the bottom of your computer. See [Labels on page 15](#) for details.

This chapter provides removal and replacement procedures for Customer Self-Repair parts.

There are as many as 12 screws that must be removed, replaced, and/or loosened when servicing Customer Self-Repair parts. Make special note of each screw size and location during removal and replacement.

Battery

Description	Spare part number
4 cell, 41-Wh, 2.8-Ah, Li-ion battery	728460-001

Before disassembling the computer, follow these steps:

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

Remove the battery:

1. Turn the computer upside down on a flat surface.
2. Firmly slide the release latch **(1)** to unlock the battery and slide the battery release latch **(2)** to release the battery.
3. Slide the battery **(3)** from the middle to remove it from the computer.



To insert the battery:

CAUTION: Do not slant the battery as you insert it. Slide the battery in straight.

1. Holding the battery in the middle, slide the battery **(1)** straight into the computer until the battery release latch locks into place.

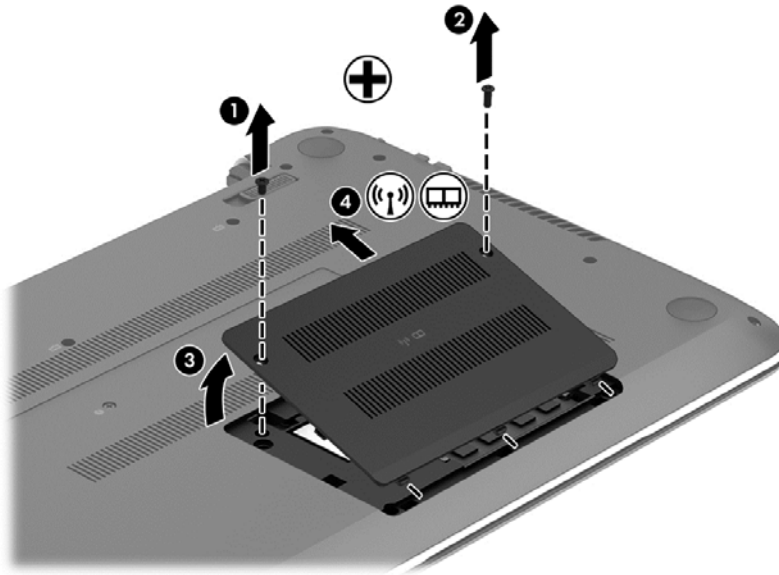
2. Reset the battery lock **(1)** to the locked position.



Service door

Description	Spare part number
Service door is available with the plastics kit.	732079-001

1. Using a small Phillips screwdriver, loosen the service door screws **(1)** and **(2)**.
2. Lift the door **(3)**.
3. Slide the service door **(4)** forward to remove.



Memory module


Description	Spare part number
4 GB memory module (PC3, 12800, 1600-MHz)	691740-001
2 GB memory module (PC3, 12800, 1600-MHz)	691739-001
8 GB memory module PC3L 12800 1600Mhz Shared	693374-001
8 GB memory module PC3 12800 1600Mhz Shared	670034-001

Before removing a memory module, follow these steps:

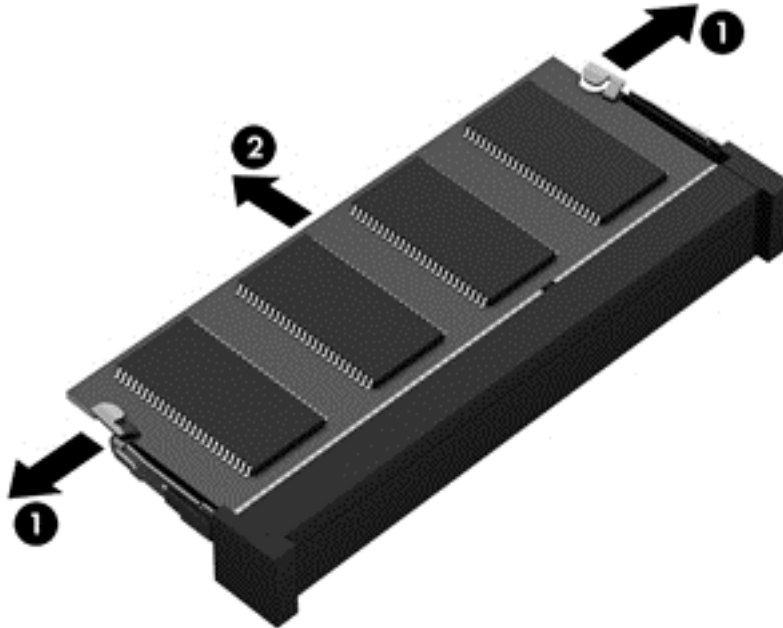
1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.

4. Remove the battery (see [Battery on page 43](#)).
5. Remove the service door (see [Service door on page 45](#)).

Remove the memory module:

 **NOTE:** Note the location of the memory module. If you are replacing it, install the new memory module in the same slot.


1. Spread the two retaining tabs **(1)** on each side of the memory module slot to release the memory module. (The memory module tilts up.)
2. Remove the memory module **(2)** by pulling it away from the slot at a 45 degree angle.



Reverse this procedure to install the memory module.

WLAN module

Description	Spare part number
Atheros AR9485 802.11b/g/n WiFi Adapter for use on all computer models	675794-001
Ralink RT3290LE 802.11b/g/n 1×1 WiFi and Bluetooth 4.0 Combo Adapter for use on all computer models	690020-001
Realtek RTL8188EE 802.11bgn Wi-Fi Adapter for use on all computer models	709848-001
Mediatek MT7630E 802.11bgn Wi-Fi Adapter and Mediatek Bluetooth 4.0 Adapter for use only on computer models equipped with an AMD processor	710418-001
Intel Centrino Advanced-N 6235 WLAN module for use only on computer models in Japan	717384-001

 **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. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the battery (see [Battery on page 43](#)).
5. Remove the service door (see [Service door on page 45](#)).

Remove the WLAN module:

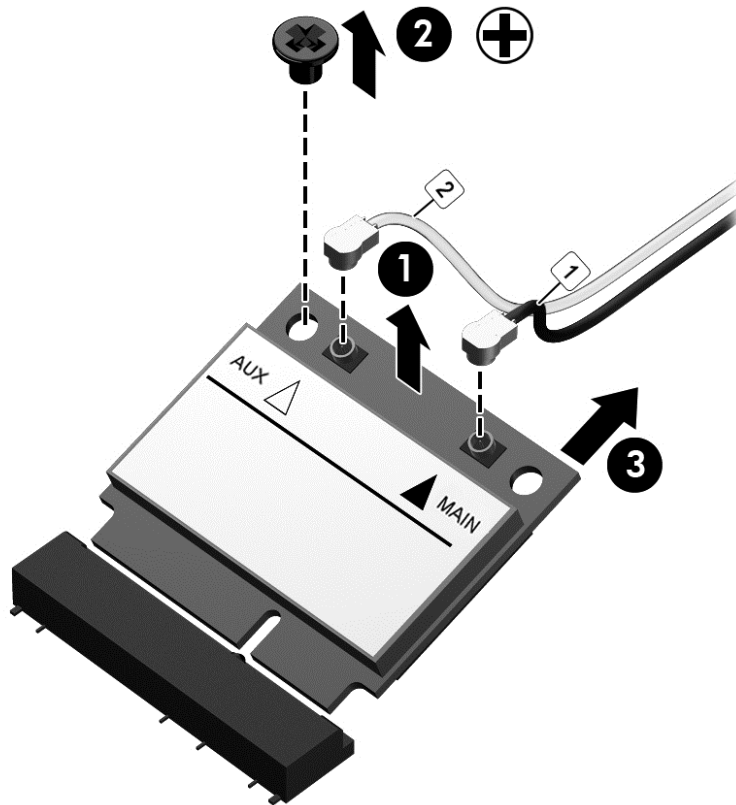
1. Disconnect the WLAN antenna cables **(1)** from the terminals on the WLAN module.



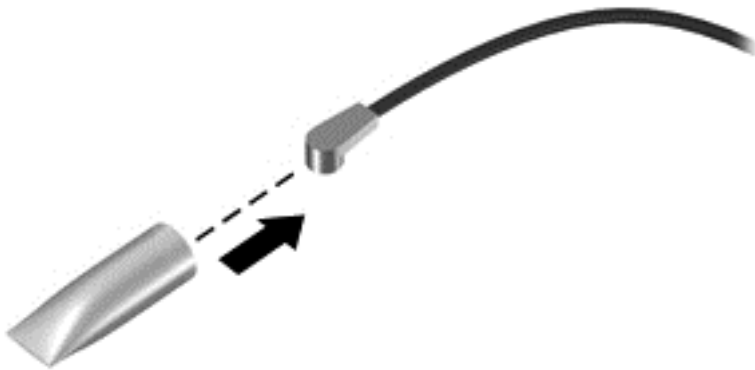
NOTE: The #1 WLAN antenna cable is connected to the WLAN module “Main” terminal.
The #2 WLAN antenna cable is connected to the WLAN module “Aux” terminal.

2. Remove the Phillips M2.0×2.5 screw **(2)** that secures the WLAN module to the system board. (The WLAN module tilts up.)

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



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.

Optical drive

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

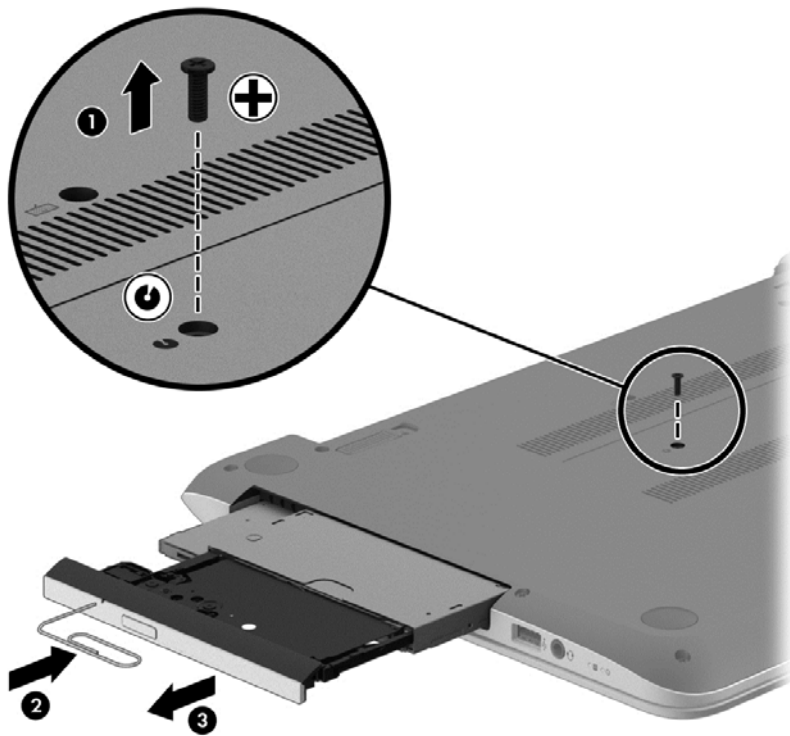
Description	Spare part number
Disc ROM with SuperMulti DVD±R/RW Double-Layer Drive (includes bezel, bracket, and screws)	732075-001

Before removing the optical drive, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the battery (see [Battery on page 43](#)).

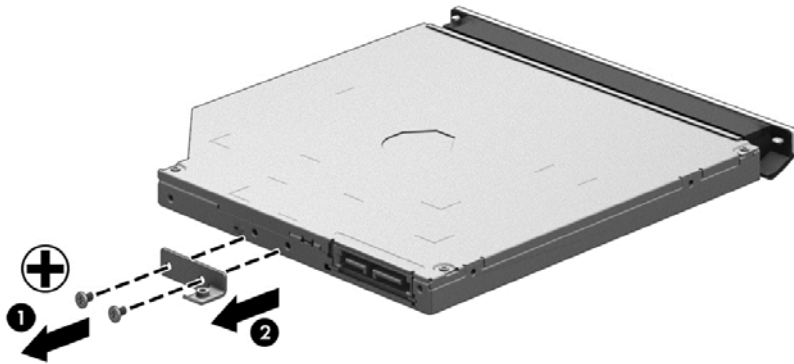
Remove the optical drive:

1. Using a small Phillips screwdriver, remove the Phillips M2.5×6.5 screw that secures the optical drive to the computer **(1)**.
2. Using the screwdriver, push on the rear of the CD/DVD drive to disconnect it from the computer
3. If necessary, use an unbent paperclip and press in gently on the paper clip **(2)** until the disc tray releases. Pull the tray **(3)** out from the front until the optical drive is completely removed from the computer.

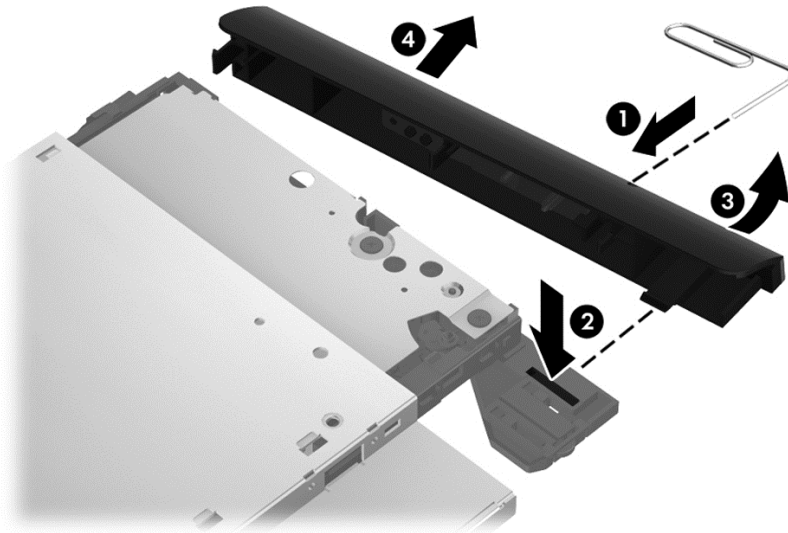


If it is necessary to replace the optical drive bracket and bezel, position the optical drive with the rear panel toward you.

1. Remove the two Phillips screws from the optical drive **(1)** and remove the bracket **(2)**.




2. Use an unbent paperclip and press in gently on the paper clip **(1)** and release from the tab **(2)** until the disc tray releases. Tilt the tray **(3)** and pull the bezel **(4)** to remove it.




Reverse this procedure to reassemble and install the optical drive.

6 Removal and replacement procedures for Authorized Service Provider parts

 **CAUTION:** Components described in this chapter should only be accessed by an authorized service provider. Accessing these parts can damage the computer or void the warranty.


Component replacement procedures

 **NOTE:** Details about your computer, including model, serial number, product key, and length of warranty, are on the service tag at the bottom of your computer. See [Labels on page 15](#) for details.


This chapter provides removal and replacement procedures for Authorized Service Provider only parts.

There are as many as 62 screws that must be removed, replaced, and/or loosened when servicing Authorized Service Provider only parts. Make special note of each screw size and location during removal and replacement.

Display panel

 **NOTE:** These procedures are for replacing the display panel for HP Pavilion Notebook. For procedures to replace the HP Pavilion Notebook display assembly subcomponents, see [Display assembly on page 94](#).

Description	Spare part number
Display bezel	725617-001
Display panel 15.6 in HD WLED BrightView flat panel	732080-001

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

Before removing the display panel, follow these steps:

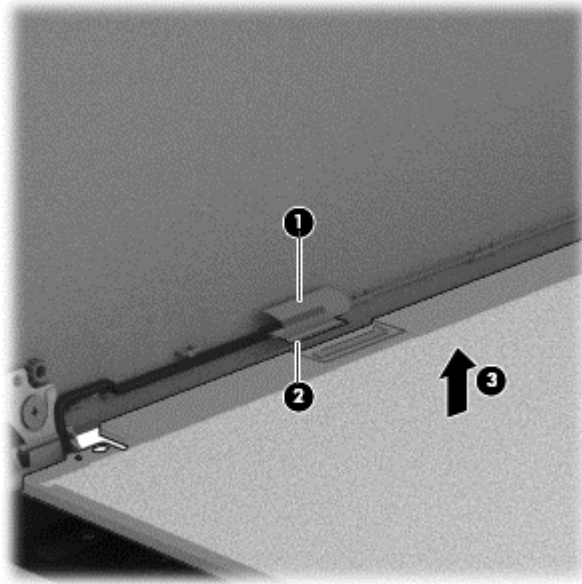
1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the battery (see [Battery on page 43](#)).

Remove the panel:

If it is necessary to replace the display bezel or any of the display assembly subcomponents:

1. Remove the plastic screw covers **(1)** and the two Phillips M2.5×3.0 screws **(2)** that secure the display bezel to the display assembly.
2. If it is necessary to replace the display bezel or any of the display assembly subcomponents:
 - a. Flex the inside edges of the bottom edge **(3)**, the left and right sides **(4)**, and the top edge **(5)** of the display bezel until the bezel disengages from the display enclosure.

- d. Release the tab **(1)** and disconnect the connector **(2)**. Lift the panel **(3)** to remove it.



Reverse this procedure to replace the panel.

Keyboard



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

Description	Spare part number
Textured island style black finish for use in the United States	719853-001
Textured island style black finish for use in United Kingdom	719853-031
Textured island style black finish for use in Germany	719853-041
Textured island style black finish for use in France	719853-051
Textured island style black finish for use in Italy	719853-061
Textured island style black finish for use in Spain	719853-071
Textured island style black finish for use in Portugal	719853-131
Textured island style black finish for use in Turkey	719853-141
Textured island style black finish for use in Greece	719853-151
Textured island style black finish for use in Saudi Arabia	719853-171
Textured island style black finish for use in Hungary	719853-211
Textured island style black finish for use in Russia	719853-251
Textured island style black finish for use in Bulgaria	719853-261
Textured island style black finish for use in Romania	719853-271
Textured island style black finish for use in Thailand	719853-281
Textured island style black finish for use in Japan	719853-291
Textured island style black finish for use in Belgium	719853-A41
Textured island style black finish for use in Taiwan	719853-AB1
Textured island style black finish for use in South Korea	719853-AD1
Textured island style black finish for International use	719853-B31
Textured island style black finish for use in Slovenia	719853-BA1
Textured island style black finish for use in Israel	719853-BB1
Textured island style black finish for use in Switzerland	719853-BG1
Textured island style black finish for use in Canada	719853-DB1
Textured island style black finish for use in Nordic regions	719853-DH1
Textured island style black finish for use in Czech/Slovakia regions	719853-FL1
Textured island style black finish for use in Northwest Africa	719853-FP1
Textured island style black finish for use in Canada	719853-DB1
Painted island style white finish for use in the United States	720597-001

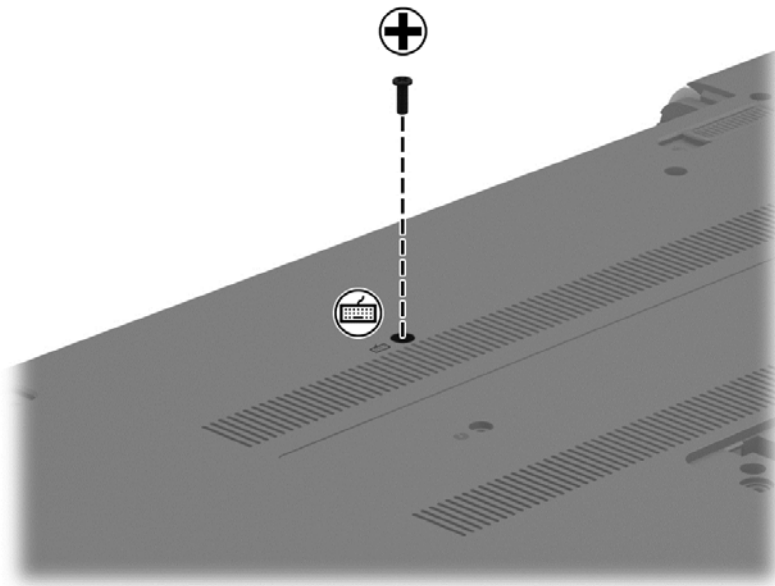
Description	Spare part number
Painted island style white finish for use in the United Kingdom	720597-031
Painted island style white finish for use in Greece	720597-041
Painted island style white finish for use in France	720597-051
Painted island style white finish for use in Italy	720597-061
Painted island style white finish for use in Spain	720597-071
Painted island style white finish for use in Portugal	720597-131
Painted island style white finish for use in Turkey	720597-141
Painted island style white finish for use in Greece	720597-151
Painted island style white finish for use in Saudi Arabia	720597-171
Painted island style white finish for use in Hungary	720597-211
Painted island style white finish for use in Russia	720597-251
Painted island style white finish for use in Bulgaria	720597-261
Painted island style white finish for use in Romania	720597-271
Painted island style white finish for use in Thailand	720597-281
Painted island style white finish for use in Japan	720597-291
Painted island style white finish for use in Belgium	720597-A41
Painted island style white finish for use in Taiwan	720597-AB1
Painted island style white finish for use in South Korea	720597-AD1
Painted island style white finish for International use	720597-B31
Painted island style white finish for use in Slovenia	720597-BA1
Painted island style white finish for use in Israel	720597-BB1
Painted island style white finish for use in Switzerland	720597-BG1
Painted island style white finish for use in Israel	720597-DB1
Painted island style white finish for use in Nordic regions	720597-DH1
Painted island style white finish for use in the Czech Republic and Slovakia	720597-FL1
Painted island style white finish for use in Northwest Africa	720597-FP1

Before removing the keyboard, follow these steps:

- 1.** Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
- 2.** Disconnect the power from the computer by unplugging the power cord from the computer.
- 3.** Disconnect all external devices from the computer.
- 4.** Remove the battery (see [Battery on page 43](#)).

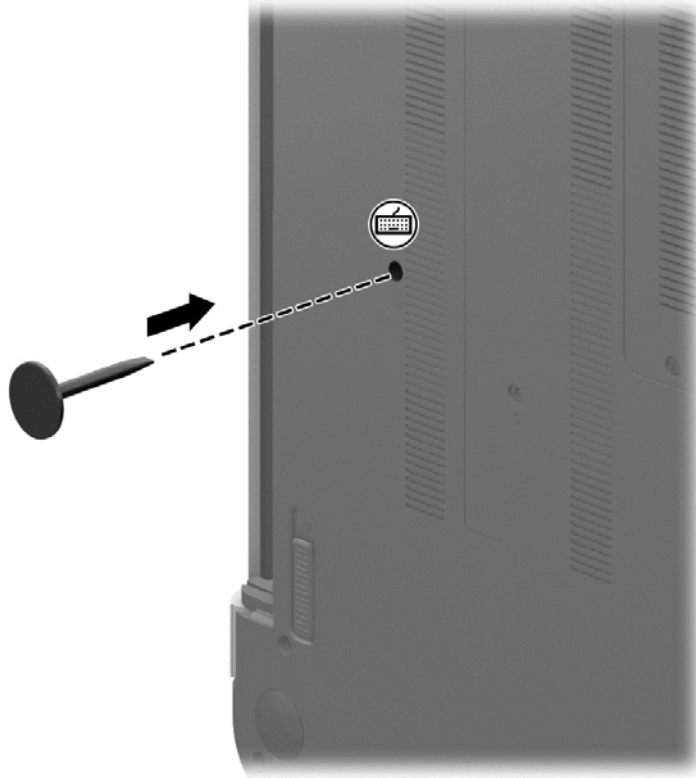
Remove the keyboard:

1. Remove the Phillips M2.5×6.5 screw that secures the keyboard to the computer.



2. Rest the computer on its left side.
3. Open the computer.

4. Insert a thin tool or a keyboard push tool into the keyboard screw hole, and then press on the back of the keyboard until the keyboard disengages from the computer.

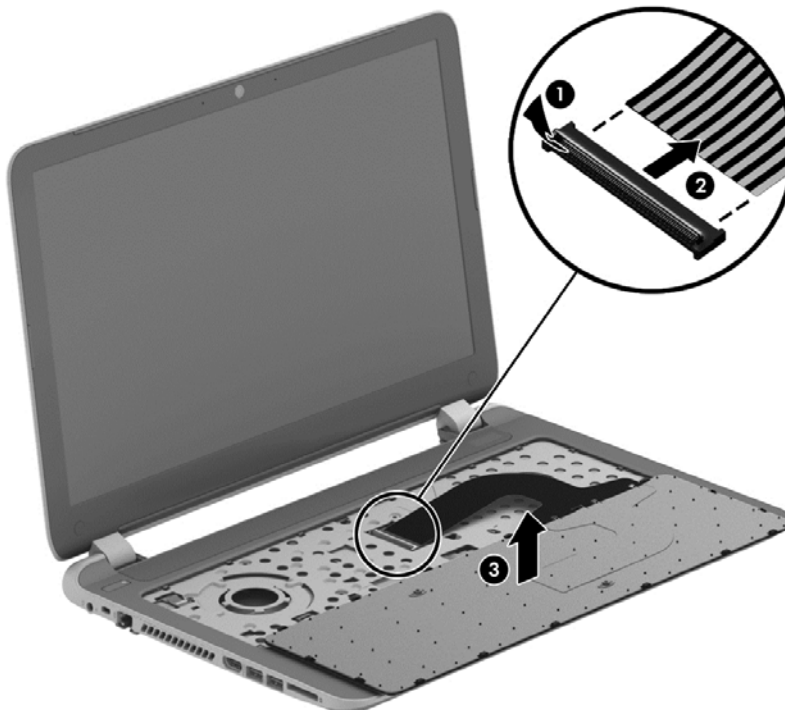


5. Turn the computer right-side up with the front toward you.

6. Gently slide your finger along the top edge of the keyboard to release the keyboard clips **(1)**. Lift the rear edge of the keyboard **(2)**, and then swing the keyboard up and forward until it rests upside down on the palm rest.




7. Release the ZIF connector **(1)** by lifting the connector tab to which the keyboard cable is connected, and then disconnect the keyboard cable **(2)** from the system board.
8. Remove the keyboard **(3)**.




Reverse this procedure to install the keyboard.

Top cover

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

Description	Spare part number
In pearl white finish	732091-001
In flyer red finish	732092-001
In revolutionary blue finish	732093-001
In regal purple finish	732094-001
In sparkling black finish	732095-001
In aluminum metal finish	732096-001
In mineral black finish	737178-001
In Goji berry finish	737179-001
In hazel berry finish	737180-001
In raspberry finish	737181-001

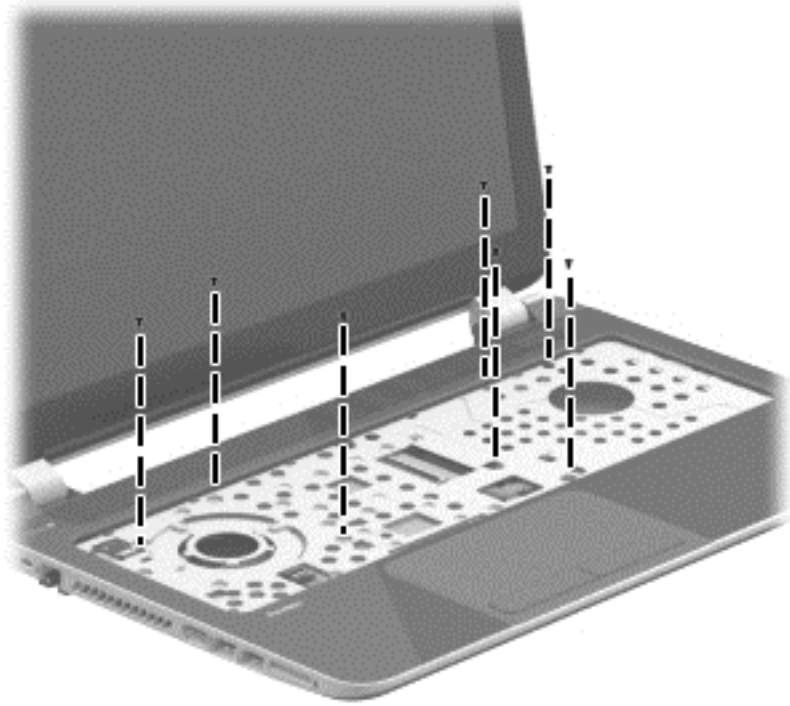
 **IMPORTANT:** Make special note of each screw and screw lock size and location during removal and replacement

Before removing the top cover, follow these steps:

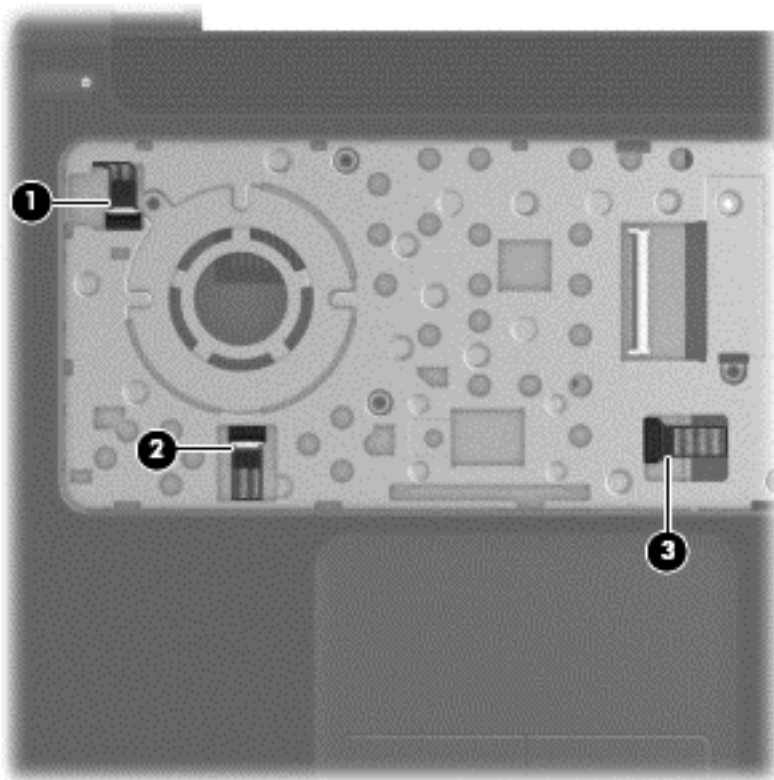
1. Shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 43](#)), and then remove the following components:
 - a. Optical drive (see [Optical drive on page 48](#)).
 - b. Remove the service door (see [Service door on page 45](#)).
 - c. Remove the WLAN module (see [WLAN module on page 47](#)).
 - d. Remove the memory module (see [Memory module on page 45](#)).
 - e. Keyboard (see [Keyboard on page 55](#)).

Remove the top cover:

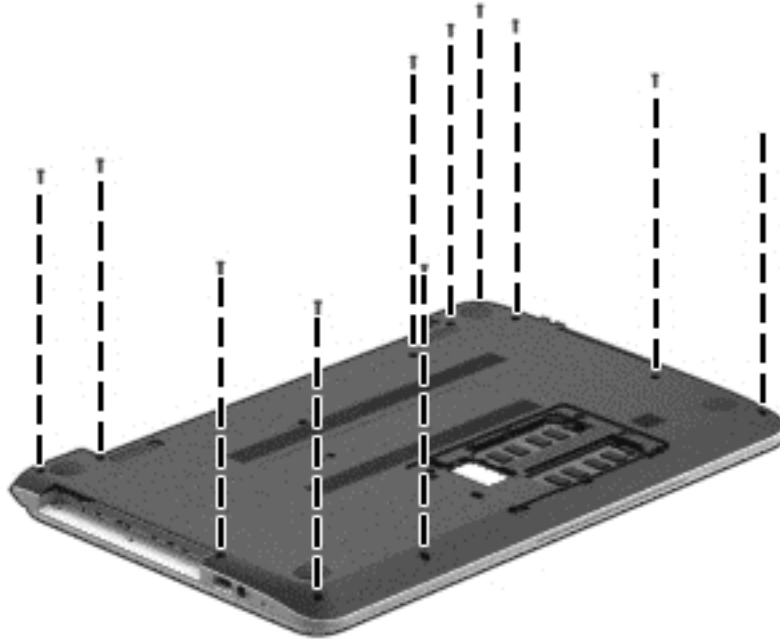
1. Remove the seven Phillips M2.5×3.0 screws that secure the top cover to the base enclosure.



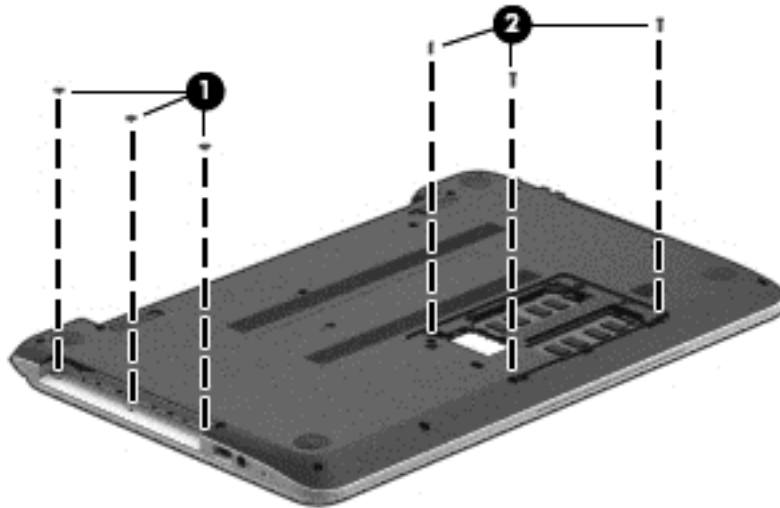
2. Disconnect the power button cable (1), the TouchPad cable (2), and the optical drive cable (3).



3. Close the display and turn the computer upside down.
4. Remove the eleven Phillips M2.5×6.5 screws from the bottom of the computer.

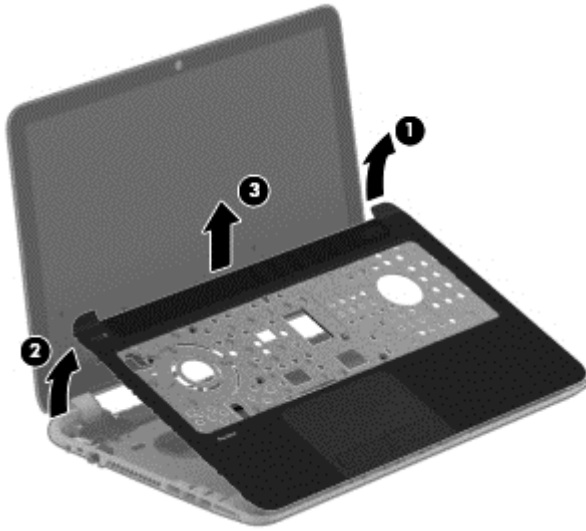


5. Remove the additional three Phillips M2.0×1.5 screws from the optical drive bay **(1)** and the three Phillips M2.5×6.5 screws from under the service door **(2)**.



6. Turn the computer over and open the display.

7. Gently press on the right upper corner **(1)** where the display hinge and top cover meet. Lift around the edges of the top cover **(2)**. Lift to remove the top cover **(3)**.



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

- Power button board and cable (see [Power button board on page 69](#)).
- Optical drive cable, (see [Optical drive on page 48](#)).
- USB/audio board, (see [Hard drive on page 65](#)).

Reverse this procedure to install the top cover.

Hard drive



NOTE: The hard drive spare part kit includes the hard drive rubber bracket and screws. These components are included in the Hard Drive Hardware Kit, spare part number 732071-001.

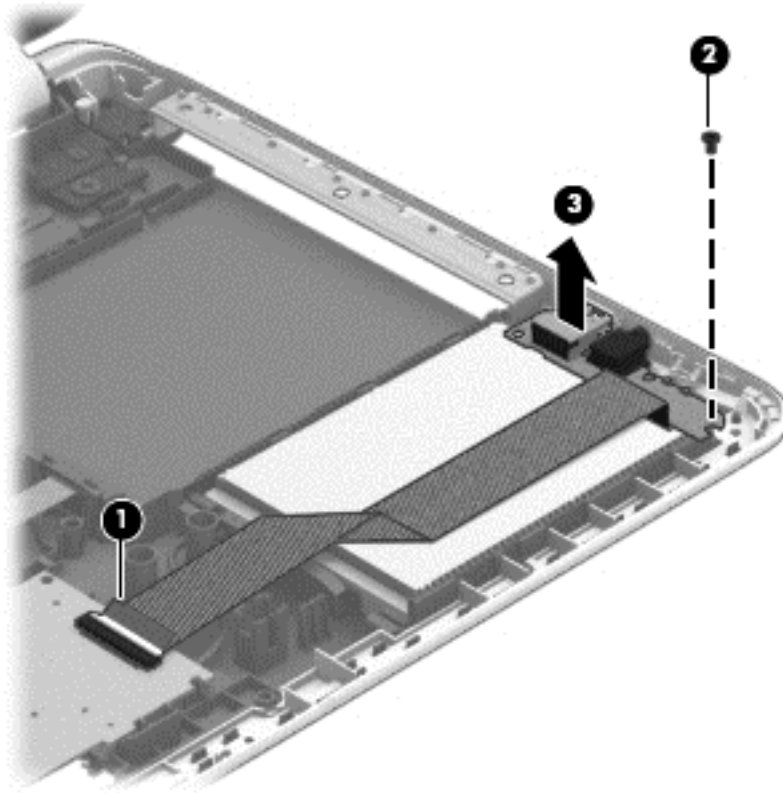
Description	Spare part number
1 TB, 5400 rpm, 7.0 mm/9.5 mm	676521-005
750 GB, 5400 rpm, 9.5 mm	634250-005
500 GB, 5400 rpm, 9.5 mm	669299-005
500 GB, 5400 rpm, 7.0 mm	683802-005

Before removing the hard drive, follow these steps:

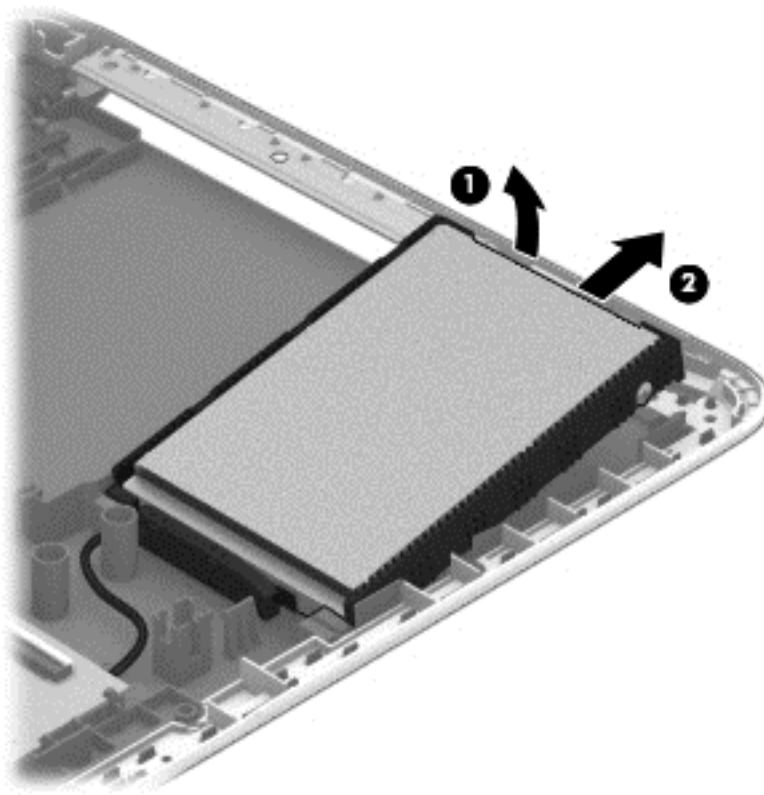
1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the battery (see [Battery on page 43](#)), and then remove the following components:
 - a. Optical drive (see [Optical drive on page 48](#)).
 - b. Service door (see [Service door on page 45](#)).
 - c. WLAN module (see [WLAN module on page 47](#)).
 - d. Memory module (see [Memory module on page 45](#)).
 - e. Keyboard (see [Keyboard on page 55](#)).
 - f. Top cover (see [Top cover on page 61](#)).

Remove the hard drive:


1. Disconnect the USB/audio cable **(1)** by flipping open the ZIF connector and lifting the cable. Remove the USB/audio cable Phillips M 2.5×3.0 screw **(2)** and then lift the USB/audio board **(3)**.

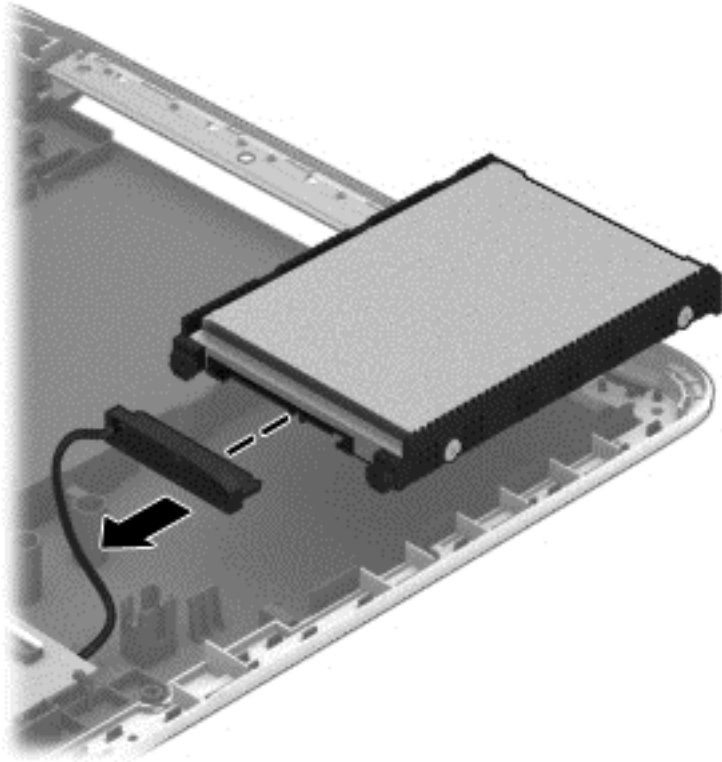


2. Lift the front of the hard drive **(1)** and slide the hard drive **(2)** forward.

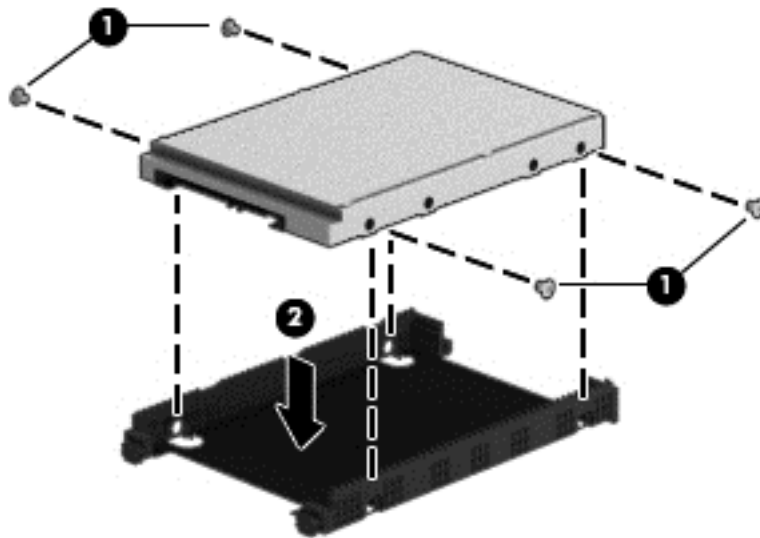


3. Release the hard drive connector cable from the clips.

 **NOTE:** You will disconnect the hard drive connector cable from the system board when you remove the system board.



4. If it is necessary to disassemble the hard drive, perform the following steps:
 - a. Remove the four Phillips M3.0×3.5 screws (1) from the bracket and separate the front edges of the hard drive rubber bracket from the hard drive.
 - b. Remove the hard drive bracket (2) from the hard drive.



Reverse this procedure to reassemble and install the hard drive.

Power button board

Description	Spare part number
Power button board (includes cable)	732076-001

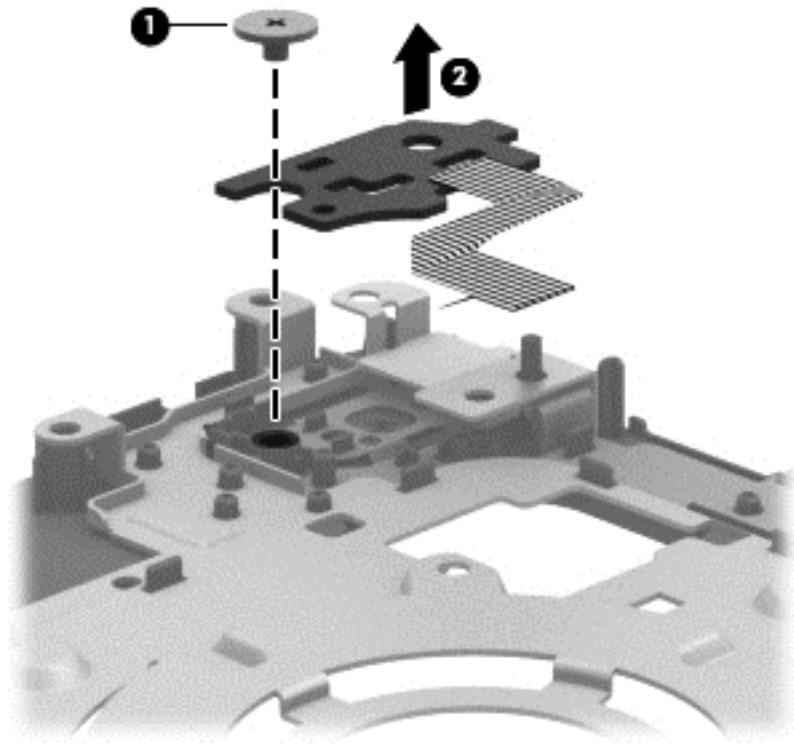
Before removing the power button board, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the battery (see [Battery on page 43](#)), and then remove the following components:
 - a. Optical drive (see [Optical drive on page 48](#)).
 - b. Service door (see [Service door on page 45](#)).
 - c. WLAN module (see [WLAN module on page 47](#)).
 - d. Memory module (see [Memory module on page 45](#)).
 - e. Keyboard (see [Keyboard on page 55](#)).
 - f. Top cover (see [Top cover on page 61](#)).

Remove the power button board:

1. Turn the top cover upside down, with the front toward you.
2. Remove the Phillips M2.5×2.5 screw **(1)** that secures the power button board to the top cover.

3. Remove the power button board **(2)** with cable (the cable was disconnected from the top cover when removing the top cover).



Reverse this procedure to install the power button board.

TouchPad button board

Description	Spare part number
TouchPad button board (includes cable)	732078-001

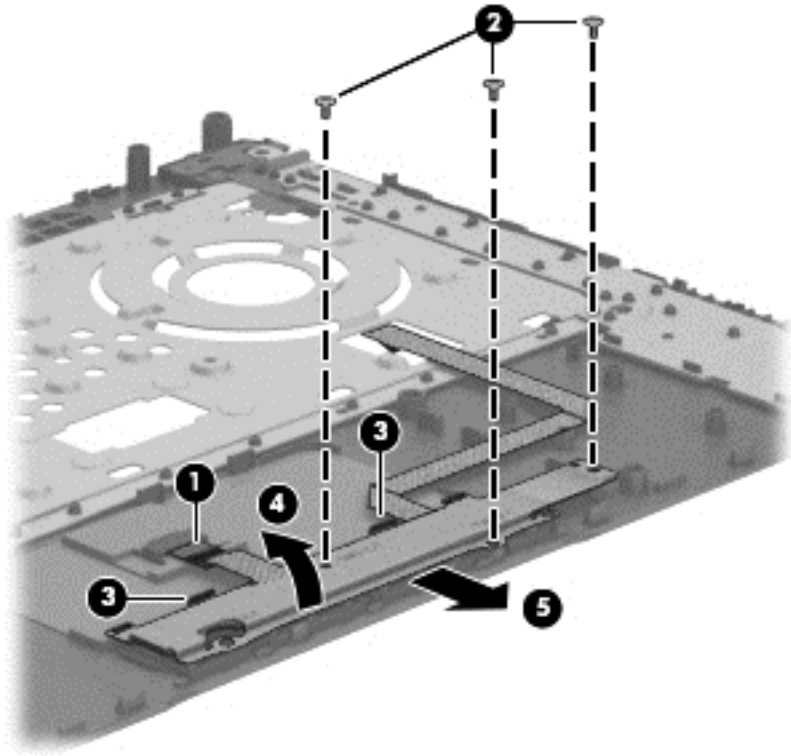
Before removing the TouchPad button board, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the battery (see [Battery on page 43](#)), and then remove the following components:
 - a. Optical drive (see [Optical drive on page 48](#)).
 - b. Service door (see [Service door on page 45](#)).
 - c. WLAN module (see [WLAN module on page 47](#)).
 - d. Memory module (see [Memory module on page 45](#)).
 - e. Keyboard (see [Keyboard on page 55](#)).
 - f. Top cover (see [Top cover on page 61](#)).

Remove the TouchPad button board:

1. Turn the top cover upside down, with the front toward you.
2. Release the TouchPad ZIF connector, and then disconnect the TouchPad button board cable **(1)** from the TouchPad board.
3. Remove the Phillips M2.0×3.5 screw **(2)** that secures the TouchPad button board bracket to the top cover.
4. Remove the TouchPad button board **(3)** carefully lifting the cable from the guides (the cable attached to the top cover was disconnected when removing the top cover).
5. Lift up the TouchPad button board **(4)**.

6. Remove the TouchPad button board (5).



Reverse this procedure to install the TouchPad button board.

Optical drive connector cable



NOTE: The optical drive connector cable is included with the Optical Drive, spare part number 732075-001.

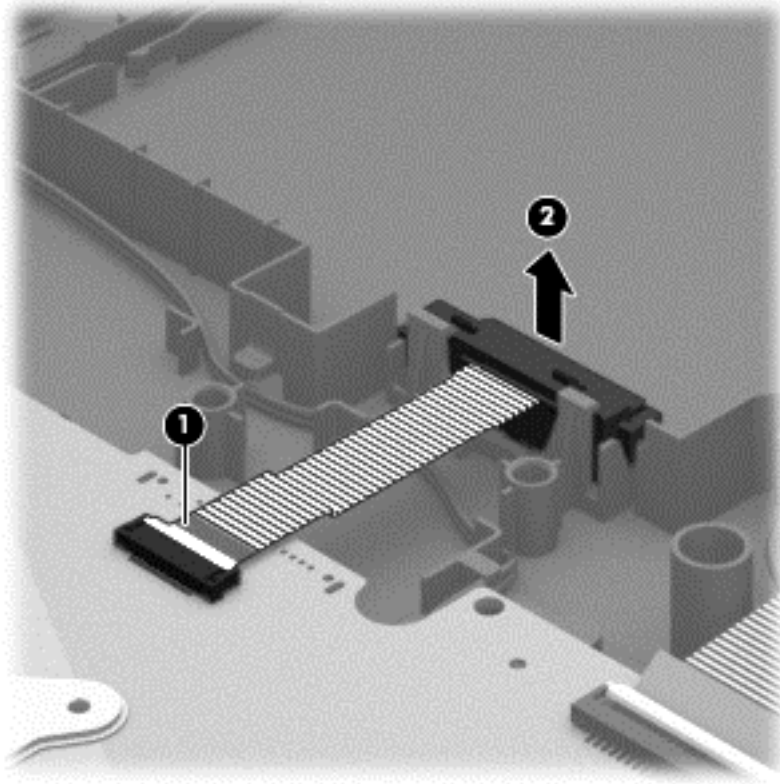
Before removing the optical drive connector cable, follow these steps:

- 1.** Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
- 2.** Disconnect the power from the computer by unplugging the power cord from the computer.
- 3.** Disconnect all external devices from the computer.
- 4.** Remove the battery (see [Battery on page 43](#)), and then remove the following components:
 - a.** Optical drive (see [Optical drive on page 48](#)).
 - b.** Service door (see [Service door on page 45](#)).
 - c.** WLAN module (see [WLAN module on page 47](#)).
 - d.** Memory module (see [Memory module on page 45](#)).
 - e.** Keyboard (see [Keyboard on page 55](#)).
 - f.** Top cover (see [Top cover on page 61](#)).

Remove the optical drive connector cable:

- 1.** Disconnect the optical drive connector cable **(1)** from the system board.
- 2.** Release the optical drive connector cable from the clip **(2)** built into the base enclosure.

3. Remove the optical drive connector cable.



Reverse this procedure to install the optical drive connector cable.

System board



NOTE: The system board spare part kit includes replacement thermal material.

Description	Spare part number
For computer models equipped with Intel UMA processors.	
4th generation	
Intel Core i5-4200U 1.6-GHz processor (3.0 MB L3 cache, 15 W) for use with FreeDOS and Ubuntu.	732086-001
Intel Core i5-4200U 1.6-GHz processor (3.0 MB L3 cache, 15 W) for use with Windows Standard.	732086-501
Intel Core i5-4200U 1.6-GHz processor (3.0 MB L3 cache, 15 W) for use with Windows Professional.	732086-601
Intel Core i3-4005U 1.7-GHz processor (3.0 MB L3 cache, 15 W) for use with FreeDOS and Ubuntu.	732087-001
Intel Core i3-4005U 1.7-GHz processor (3.0 MB L3 cache, 15 W) for use with Windows Standard.	732087-501
Intel Core i3-4005U 1.7-GHz processor (3.0 MB L3 cache, 15 W) for use with Windows Professional.	732087-601
For computer models equipped with Intel UMA processors.	
3rd generation	
Intel Pentium 2117U DC HM76 (1.8 GHz, 2 MB L3 Cache, 1600MHz DDR3, 17W) for use with FreeDOS and Ubuntu.	737980-001
Intel Pentium 2117U DC HM76 (1.8 GHz, 2 MB L3 Cache, 1600MHz DDR3, 17W) for use with Windows Standard.	737980-501
Intel Pentium 2117U DC HM76 (1.8 GHz, 2 MB L3 Cache, 1600MHz DDR3, 17W) for use with Windows Professional.	737980-601
Intel Celeron 1007U DC HM76 (1.5 GHz, 2 MB L3 Cache, 1600MHz DDR3, 17W) for use with FreeDOS and Ubuntu.	737981-001
Intel Celeron 1007U DC HM76 (1.5 GHz, 2 MB L3 Cache, 1600MHz DDR3, 17W) for use with Windows Standard.	737981-501
Intel Celeron 1007U DC HM76 (1.5 GHz, 2 MB L3 Cache, 1600MHz DDR3, 17W) for use with Windows Professional.	737981-601
Intel Core i3-3217U DC (1.8GHz, 3 MB L3 Cache, 1600MHz DDR3, 17W) for use with FreeDOS and Ubuntu.	737982-001
Intel Core i3-3217U DC (1.8 GHz, 3 MB L3 Cache, 1600MHz DDR3, 17W) for use with Windows Standard.	737982-501
Intel Core i3-3217U DC (1.8 GHz, 3 MB L3 Cache, 1600MHz DDR3, 17W) for use with Windows Professional.	737982-601
For computer models equipped with Intel Discrete processors..	
4th generation	

Description	Spare part number
Intel Core i7-4500U (1.8 GHz DC BGA 15W) for use with FreeDOS and Ubuntu.	737986-001
Intel Core i7-4500U (1.8 GHz DC BGA 15W) for use with Windows Standard.	737986-501
Intel Core i7-4500U (1.8 GHz DC BGA 15W) for use with Windows Professional.	737986-601
Intel Core i5-4200U 740M 2 GB (1.6 GHz DC BGA 15W) for use with FreeDOS and Ubuntu.	736377-001
Intel Core i5-4200U 740M 2 GB (1.6 GHz DC BGA 15W) for use with Windows Standard.	736377-501
Intel Core i5-4200U 740M 2 GB (1.6 GHz DC BGA 15W) for use with Windows Professional.	736377-601
Intel Core i5-4200U 8670M 1 GB (1.6 GHz DC BGA 15W) for use with FreeDOS and Ubuntu.	737669-001
Intel Core i5-4200U 8670M 1 GB (1.6 GHz DC BGA 15W) for use with Windows Standard.	737669-501
Intel Core i5-4200U 8670M 1 GB (1.6 GHz DC BGA 15W) for use with Windows Professional.	737669-601
Intel Core i3-4005U 8670M 1 GB (1.7 GHz DC BGA 15W) for use with FreeDOS and Ubuntu.	732089-001
Intel Core i3-4005U 8670M 1 GB (1.7 GHz DC BGA 15W) for use with Windows Standard	732089-501
Intel Core i3-4005U 8670M 1 GB (1.7 GHz DC BGA 15W) for use with Windows Professional.	732089-601
For computer models equipped with Intel Discrete processors.	
3rd generation	
Intel Core i3-3217U DC 8670M 1 GB HM76 (1.8 GHz, L3 Cache, 1600MHz DDR3, 17W) for use with FreeDOS and Ubuntu.	737984-001
Intel Core i3-3217U DC 8670M 1 GB HM76 (1.8 GHz, L3 Cache, 1600MHz DDR3, 17W) for use with Windows Standard.	737984-501
Intel Core i3-3217U DC 8670M 1 GB HM76 (1.8 GHz, L3 Cache, 1600MHz DDR3, 17W) for use with Windows Professional.	737984-601
Intel Core i3-3217U DC 8670M 2 GB HM76 (1.8 GHz, L3 Cache, 1600MHz DDR3, 17W) for use with FreeDOS and Ubuntu.	737985-001
Intel Core i3-3217U DC 8670M 2 GB HM76 (1.8 GHz, L3 Cache, 1600MHz DDR3, 17W) for use with Windows Standard.	737985-501
Intel Core i3-3217U DC 8670M 2 GB HM76 (1.8 GHz, L3 Cache, 1600MHz DDR3, 17W) for use with Windows Professional.	737985-601
Intel Pentium 2117U DC 8670M 1 GB HM76 (1.8 GHz, L3 Cache, 1600MHz DDR3, 17W) for use with FreeDOS and Ubuntu.	737983-001
Intel Pentium 2117U DC 8670M 1 GB HM76 (1.8 GHz, L3 Cache, 1600MHz DDR3, 17W) for use with Windows Standard.	737983-501
Intel Pentium 2117U DC 8670M 1 GB HM76 (1.8 GHz, L3 Cache, 1600MHz DDR3, 17W) for use with Windows Professional.	737983-601
For computer models equipped with AMD UMA processors.	
AMD A4-5000 (1.5 GHz, 2 MB L2, 1600MHz DDR3L, Quad 15W) for use with FreeDOS and Ubuntu.	734826-001
AMD A4-5000 (1.5 GHz, 2 MB L2, 1600MHz DDR3L, Quad 15W) for use with Windows Standard.	734826-501

Description	Spare part number
AMD A4-5000 (1.5 GHz, 2 MB L2, 1600MHz DDR3L, Quad 15W) for use with Windows Professional.	734826-601
AMD A6-5000 (1.5 GHz, 2 MB L2, 1600MHz DDR3L, Quad 15W) for use with FreeDOS and Ubuntu.	734827-001
AMD A6-5000 (1.5 GHz, 2 MB L2, 1600MHz DDR3L, Quad 15W) for use with Windows Standard.	734827-501
AMD A6-5000 (1.5 GHz, 2 MB L2, 1600MHz DDR3L, Quad 15W) for use with Windows Professional.	734827-601
AMD A8-5545M A76M (2.7 GHz/1.7 GHz, 4 MB L2, 1333MHz DDR3L Quad 19W) for use with FreeDOS and Ubuntu.	734829-001
AMD A8-5545M A76M (2.7 GHz/1.7 GHz, 4 MB L2, 1333MHz DDR3L Quad 19W) for use with Windows Standard.	734829-501
AMD A8-5545M A76M (2.7 GHz/1.7 GHz, 4 MB L2, 1333MHz DDR3L Quad 19W) for use with Windows Professional.	734829-601
AMD A8- 4555M (2.4 GHz/1.6 GHz, 4 MB L2, 1600MHz DDR3L Quad 19W) for use with FreeDOS and Ubuntu.	737140-001
AMD A8- 4555M (2.4 GHz/1.6 GHz, 4 MB L2, 1600MHz DDR3L Quad 19W) for use with Windows Standard.	737140-501
AMD A8- 4555M (2.4 GHz/1.6 GHz, 4 MB L2, 1600MHz DDR3L Quad 19W) for use with Windows Professional.	737140-601
AMD E1-2500 (1.4 GHz, 1 MB L2, 1600MHz DDR3L, Dual 15 W) for use with FreeDOS and Ubuntu.	737141-001
AMD E1-2500 (1.4 GHz, 1 MB L2, 1600MHz DDR3L, Dual 15 W) for use with Windows Standard.	737141-501
AMD E1-2500 (1.4 GHz, 1 MB L2, 1600MHz DDR3L, Dual 15 W) for use with Windows Professional.	737141-601
AMD A10-5745M A76M (2.9 GHz/2.1 GHz, 4 MB L2, 1333MHz DDR3L Quad 25W) for use with FreeDOS and Ubuntu.	738124-001
AMD A10-5745M A76M (2.9 GHz/2.1 GHz, 4 MB L2, 1333MHz DDR3L Quad 25W) for use with Windows Standard.	738124-501
AMD A10-5745M A76M (2.9 GHz/2.1 GHz, 4 MB L2, 1333MHz DDR3L Quad 25W) for use with Windows Professional.	738124-601
For computer models equipped with AMD Discrete processors.	
AMD A4-5000 8670M (1.5 GHz, 1 GB L2, 1600MHz DDR3L Quad 15W) for use with FreeDOS and Ubuntu.	734820-001
AMD A4-5000 8670M (1.5 GHz, 1 GB L2, 1600MHz DDR3L Quad 15W) for use with Windows Standard.	734820-501
AMD A4-5000 8670M (1.5 GHz, 1 GB L2, 1600MHz DDR3L Quad 15W) for use with Windows Professional.	734820-601
AMD A6-5200 8670M (2.0 GHz, 1 GB L2, 1600MHz DDR3L, Quad 25W) for use with FreeDOS and Ubuntu.	734821-001

Description	Spare part number
AMD A6-5200 8670M (2.0 GHz, 1 GB L2, 1600MHz DDR3L, Quad 25W) for use with Windows Standard.	734821-501
AMD A6-5200 8670M (2.0 GHz, 1 GB L2, 1600MHz DDR3L, Quad 25W) for use with Windows Professional.	734821-601
AMD A10-5745M 8670M (2.9GHz/2.1GHz, 2 GB L2, 1333MHz DDR3L Quad 25W) for use with FreeDOS and Ubuntu.	734824-001
AMD A10-5745M 8670M (2.9 GHz/2.1 GHz, 2 GB L2, 1333MHz DDR3L Quad 25W) for use with Windows Standard.	734824-501
AMD A10-5745M 8670M (2.9 GHz/2.1 GHz, 2 GB L2, 1333MHz DDR3L Quad 25W) for use with Windows Professional.	734824-601
AMD A10- 4655M 8670M (2.8 GHz/2.0 GHz, 2 GB L2, 1600MHz DDR3L Quad 25W) for use with FreeDOS and Ubuntu.	737138-001
AMD A10- 4655M 8670M (2.8 GHz/2.0 GHz, 2 GB L2, 1600MHz DDR3L Quad 25W) for use with Windows Standard.	737138-501
AMD A10- 4655M 8670M (2.8 GHz/2.0 GHz, 2 GB L2, 1600MHz DDR3L Quad 25W) for use with Windows Professional.	737138-601

Before removing the system board, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the battery (see [Battery on page 43](#)), and then remove the following components:
 - a. Optical drive (see [Optical drive on page 48](#)).
 - b. Service door (see [Service door on page 45](#)).
 - c. WLAN module (see [WLAN module on page 47](#)).
 - d. Memory module (see [Memory module on page 45](#)).
 - e. Keyboard (see [Keyboard on page 55](#)).
 - f. Top cover (see [Top cover on page 61](#)).
 - g. Hard drive (see [Hard drive on page 65](#)).

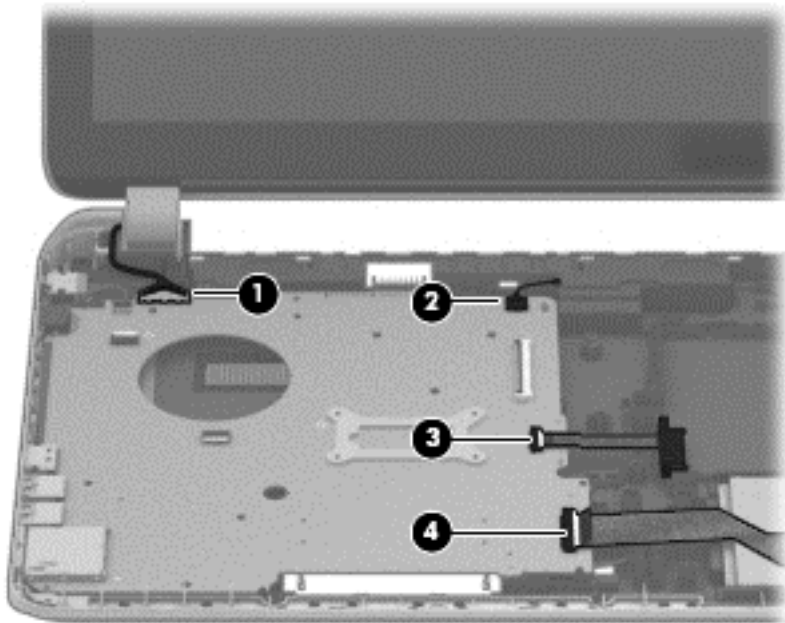
When replacing the system board, be sure that the following components are removed from the defective system board and installed on the replacement system board:

- Hard drive cable
- Power connector cable
- RTC battery (see [RTC battery on page 83](#))

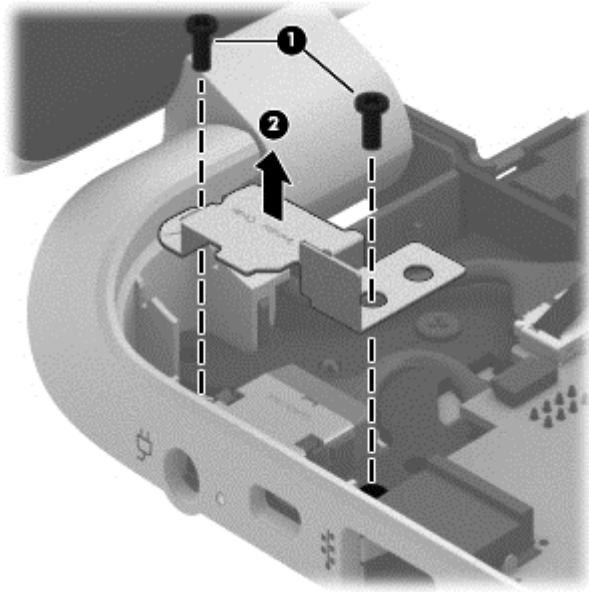
- Fan (see [Heat sink assembly on page 87](#))
- Heat sink assembly (see [Heat sink assembly on page 87](#))

Remove the system board:

1. Disconnect the following cables from the system board:
 - (1) Display panel cable
 - (2) Speaker cable
 - (3) Optical drive connector cable
 - (4) Power connector cable

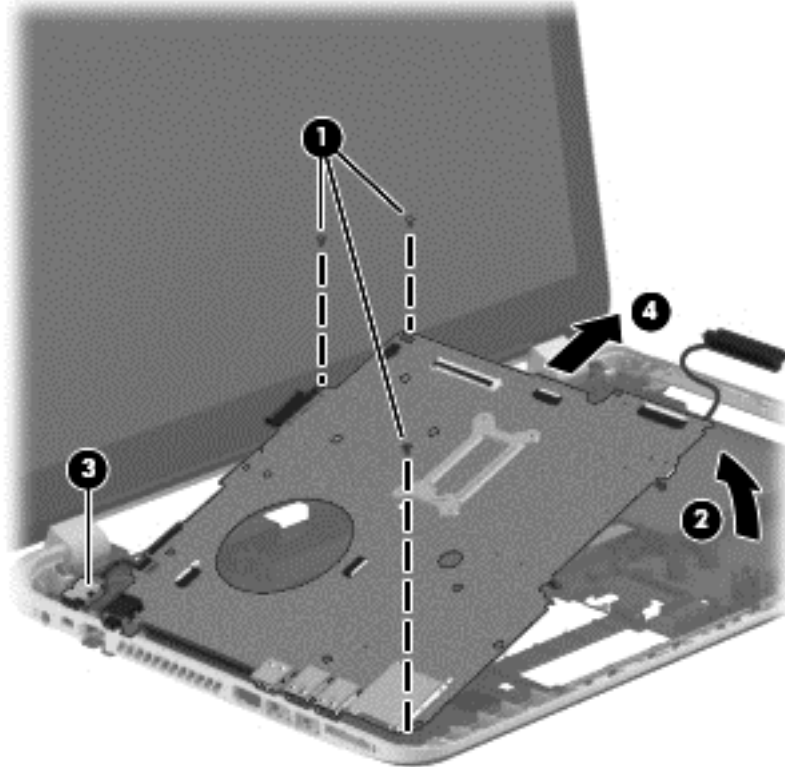


2. Remove the two Phillips M2.5×6.5 and M2.0×5.0 screws **(1)**. Remove the bracket **(2)** that secures the power connector bracket to the base enclosure.



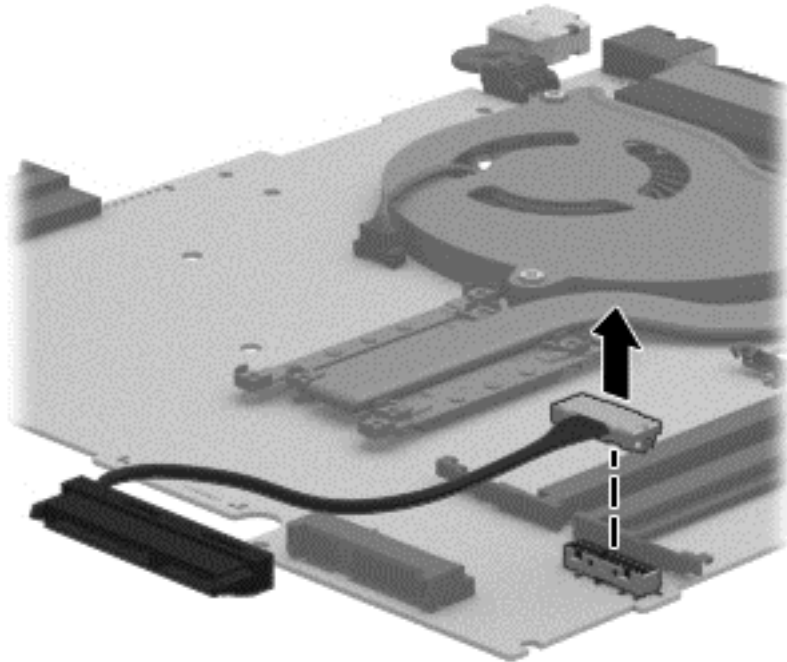
3. Remove the three Phillips M2.5×5.0 screws **(1)** that secure the system board to the base enclosure.
4. Lift the right side of the system board **(2)** until it rests at an angle.

5. Carefully remove from the power connector **(3)**. Remove the system board by sliding it up and to the right at an angle and pull the system board **(4)** carefully to the right.



6. 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 cable is part of the Hard Drive Hardware Kit, part number 732071-001.



Reverse this procedure to install the system board.

RTC battery

Description	Spare part number
RTC battery	697917-001

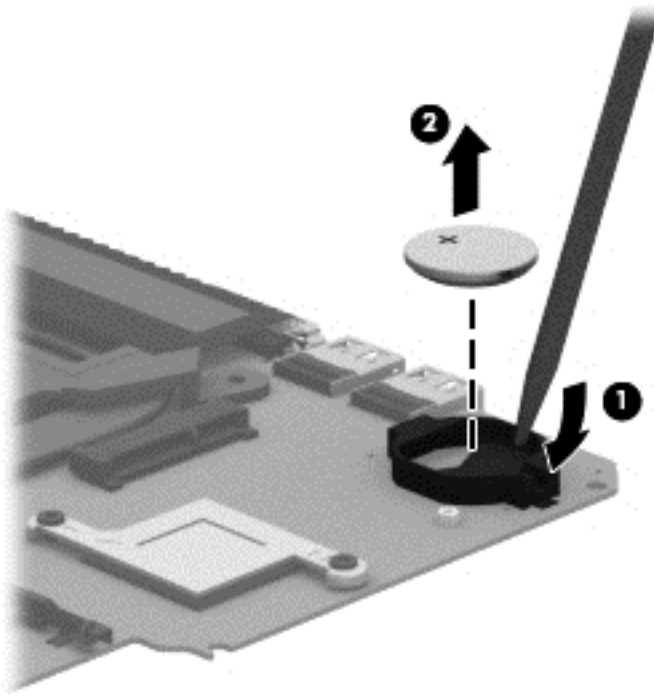
Before removing the RTC battery, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the battery (see [Battery on page 43](#)), and then remove the following components:
 - a. Optical drive (see [Optical drive on page 48](#)).
 - b. Service door (see [Service door on page 45](#)).
 - c. WLAN module (see [WLAN module on page 47](#)).
 - d. Memory module (see [Memory module on page 45](#)).
 - e. Keyboard (see [Keyboard on page 55](#)).
 - f. Top cover (see [Top cover on page 61](#)).
 - g. Hard drive (see [Hard drive on page 65](#)).
 - h. System board (see [System board on page 75](#)).

Remove the RTC battery:

1. Use a flat-bladed, non-metallic tool (**1**) to release the RTC battery from the socket on the system board.


2. Remove the RTC battery **(2)**.



Reverse this procedure to install the RTC battery. When installing the RTC battery, make sure the “+” sign faces up.

Fan

Description	Spare part number
Fan	732068-001

 **NOTE:** To properly ventilate the computer, allow at least 7.6 cm (3 in) of clearance on the left side of the computer. The computer uses an electric fan for ventilation. The fan is controlled by a temperature sensor and is designed to turn on automatically when high temperature conditions exist. These conditions are affected by high external temperatures, system power consumption, power management/battery conservation configurations, battery fast charging, and software requirements. Exhaust air is displaced through the ventilation grill located on the left side of the computer.

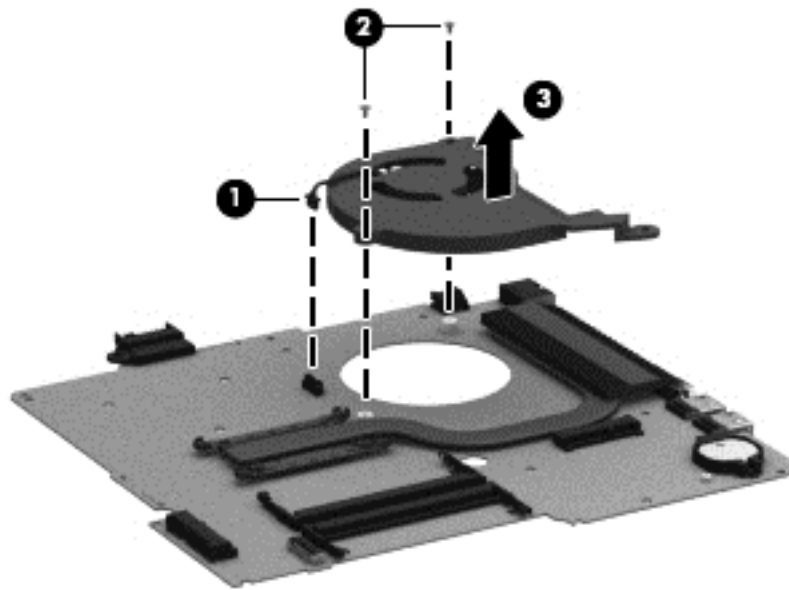
Before removing the fan, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the battery (see [Battery on page 43](#)), and then remove the following components:
 - a. Optical drive (see [Optical drive on page 48](#)).
 - b. Service door (see [Service door on page 45](#)).
 - c. WLAN module (see [WLAN module on page 47](#)).
 - d. Memory module (see [Memory module on page 45](#)).
 - e. Keyboard (see [Keyboard on page 55](#)).
 - f. Top cover (see [Top cover on page 61](#)).
 - g. Hard drive (see [Hard drive on page 65](#)).
 - h. System board (see [System board on page 75](#)).

Remove the fan:

1. Turn the system board upside down, with the front toward you.
2. Disconnect the fan cable **(1)** from the system board.
3. Remove the 2 screws **(2)** that secure the fan to the system board.


4. Remove the fan **(3)** from the system board.



Reverse this procedure to install the fan.

Heat sink assembly

Description	Spare part number
Heat sink assembly for use only on computer models equipped with a graphics subsystem with discrete memory (includes replacement thermal material)	732070-001
Heat sink assembly for use only on computer models equipped with a graphics subsystem with UMA memory (includes replacement thermal material)	732069-001
Heat sink for use only on computer models equipped with a graphics subsystem with AMD UMA memory 19 W	734448-001
Heat sink for use only on computer models equipped with a graphics subsystem with AMD UMA memory 25 W	734449-001
Heat sink for use only on computer models equipped with a graphics subsystem with AMD discrete memory 19 W	734450-001
Heat sink for use only on computer models equipped with a graphics subsystem with AMD discrete memory 25 W	734451-001


 **NOTE:** To properly ventilate the computer, allow at least 7.6 cm (3 in) of clearance on the left side of the computer. The computer uses an electric fan for ventilation. The fan is controlled by a temperature sensor and is designed to turn on automatically when high temperature conditions exist. These conditions are affected by high external temperatures, system power consumption, power management/battery conservation configurations, battery fast charging, and software requirements. Exhaust air is displaced through the ventilation grill located on the left side of the computer.

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


1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the battery (see [Battery on page 43](#)), and then remove the following components:
 - a. Optical drive (see [Optical drive on page 48](#)).
 - b. Service door (see [Service door on page 45](#)).
 - c. WLAN module (see [WLAN module on page 47](#)).
 - d. Memory module (see [Memory module on page 45](#)).
 - e. Keyboard (see [Keyboard on page 55](#)).
 - f. Top cover (see [Top cover on page 61](#)).
 - g. Hard drive (see [Hard drive on page 65](#)).
 - h. System board (see [System board on page 75](#)).

Remove the heat sink assembly:

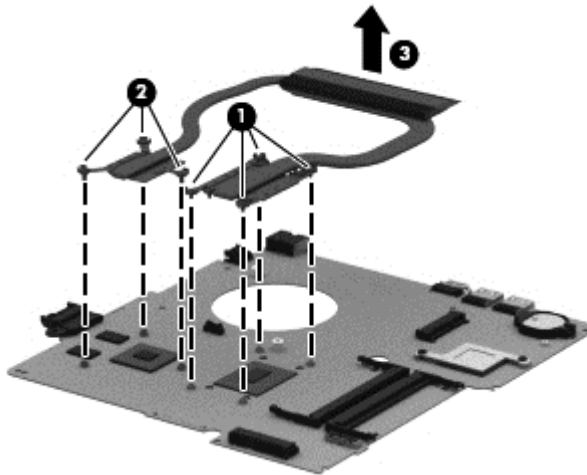
1. Turn the system board upside down, with the front toward you.

 **NOTE:** Steps 3 through 5 apply to computer models equipped with a graphics subsystem with discrete memory. See steps 6 and 8 for fan/heat sink assembly removal information for computer models equipped with a graphics subsystem with UMA memory.


2. Disconnect the fan cable from the system board.

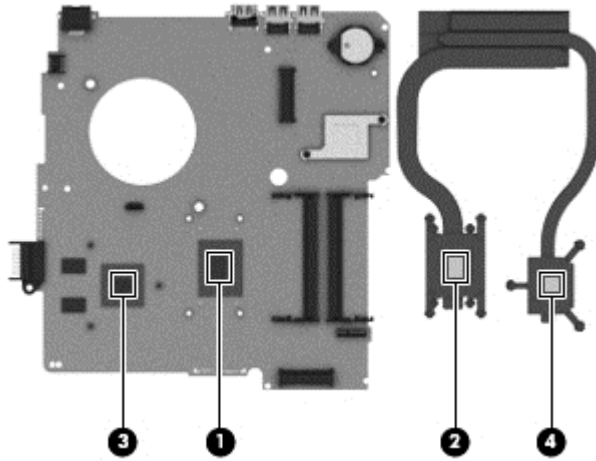
 **NOTE:** Steps 3 through 5 apply to computer models equipped with a graphics subsystem with discrete memory. See steps 6 and 8 for fan/heat sink assembly removal information for computer models equipped with a graphics subsystem with UMA memory.

3. Following the 1, 2, 3, 4, 5, 6, 7 sequence stamped into the fan/heat sink assembly, loosen the four Phillips M2.0×10.0 captive screws **(1)** and the three Phillips M2.0×3.5 captive screws **(2)** that secure the fan/heat sink assembly to the system board.
4. Remove the heat sink assembly **(3)** from the system board.



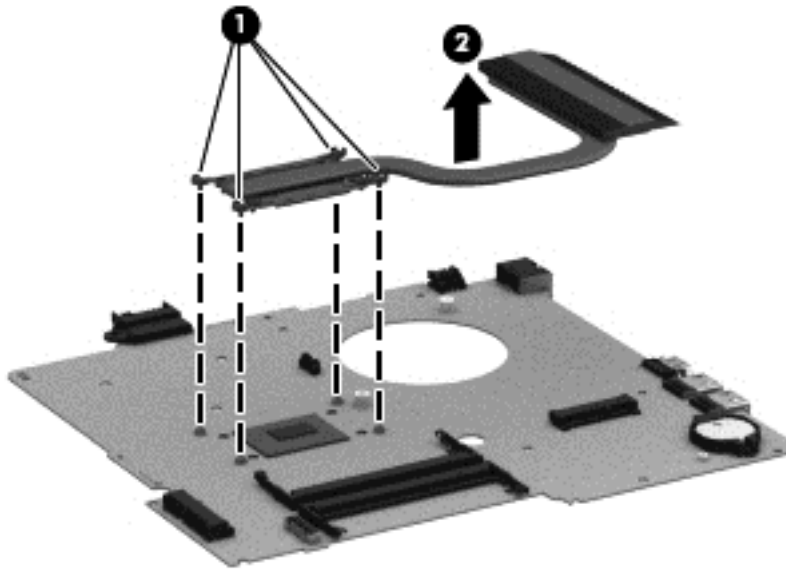
5. Thoroughly clean the thermal connections **(1)** and **(3)** on the system board and the heat sink **(2)** and **(4)** before replacing a heat sink onto a system board. Continue to step 8.

 **NOTE:** The following illustration shows the replacement thermal material locations on a computer model equipped with a graphics subsystem with discrete memory.




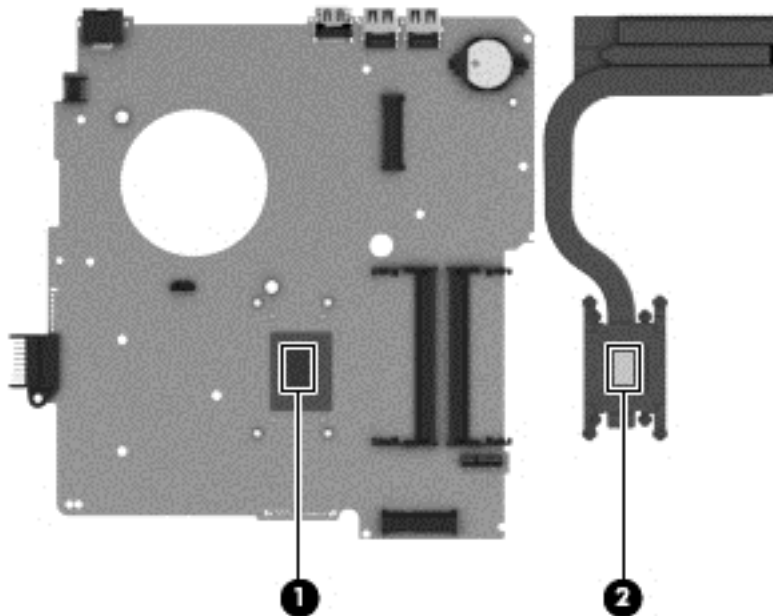
6. Following the 1, 2, 3, 4 sequence stamped into the fan/heat sink assembly, loosen the four Phillips M2.0×10.0 captive screws **(1)** that secure the fan/heat sink assembly to the system board.

7. Remove the heat sink assembly **(2)**.



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

 **NOTE:** The following illustration shows the replacement thermal material locations on a computer model equipped with a graphics subsystem with UMA memory. Thermal paste is used on the processor **(1)** and the fan/heat sink assembly section **(2)** that services it.



8. Reverse this procedure to install the fan/heat sink assembly. Replace the thermal material that ships with the replacement heat sink.

Power connector cable

Description	Spare part number
Power connector cable (includes bracket)	732067-001

Before removing the power connector cable, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the battery (see [Battery on page 43](#)), and then remove the following components:
 - a. Optical drive (see [Optical drive on page 48](#)).
 - b. Service door (see [Service door on page 45](#)).
 - c. WLAN module (see [WLAN module on page 47](#)).
 - d. Memory module (see [Memory module on page 45](#)).
 - e. Keyboard (see [Keyboard on page 55](#)).
 - f. Top cover (see [Top cover on page 61](#)).
 - g. Hard drive (see [Hard drive on page 65](#)).
 - h. System board (see [System board on page 75](#)).

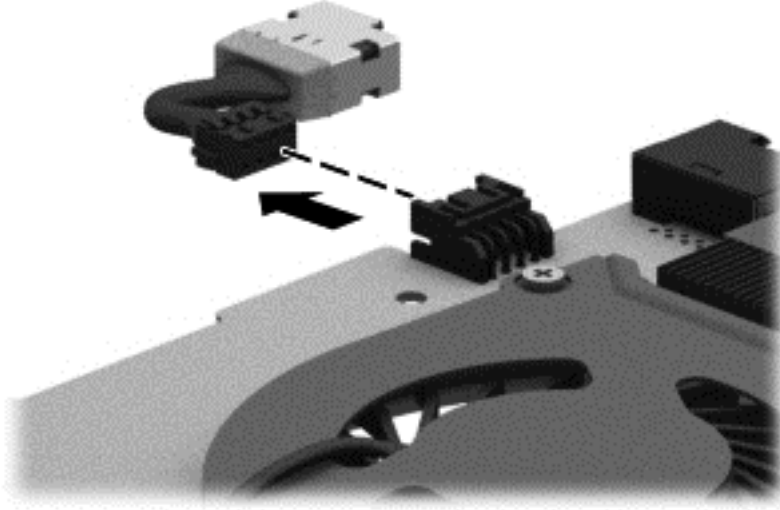
Remove the power connector board:



NOTE: The power connector bracket was removed when removing the system board.

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

2. Release the power connector from the clip built into the system board.



Reverse this procedure to install the power connector cable.

Speakers


Description	Spare part number
Speakers (include, speaker cable, and 4 rubber isolators)	732084-001


Before removing the speakers, follow these steps:

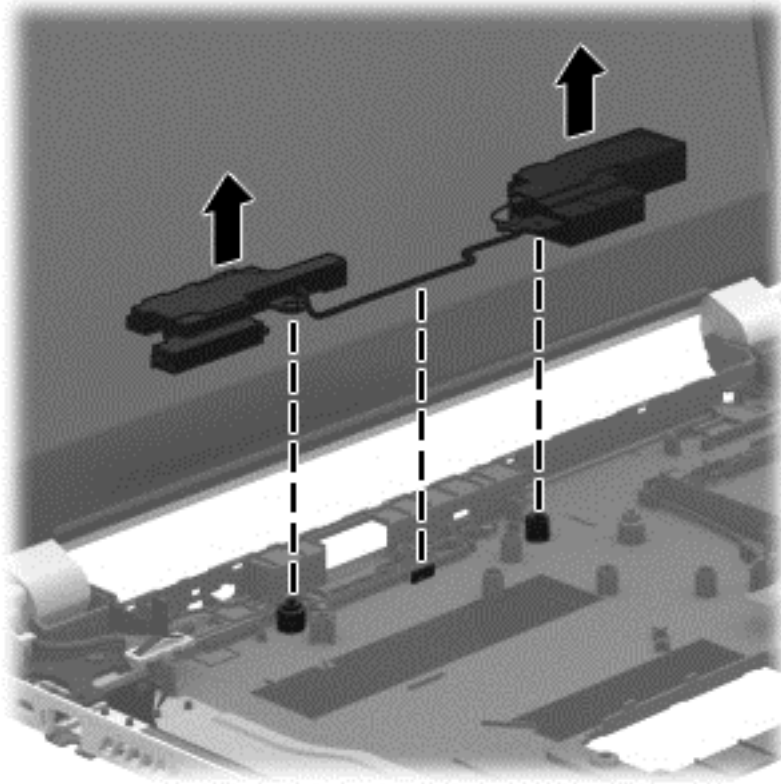
1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the battery (see [Battery on page 43](#)), and then remove the following components:
 - a. Optical drive (see [Optical drive on page 48](#)).
 - b. Service door (see [Service door on page 45](#)).
 - c. WLAN module (see [WLAN module on page 47](#)).
 - d. Memory module (see [Memory module on page 45](#)).
 - e. Keyboard (see [Keyboard on page 55](#)).
 - f. Top cover (see [Top cover on page 61](#)).
 - g. Hard drive (see [Hard drive on page 65](#)).
 - h. System board (see [System board on page 75](#)).

Remove the speakers:

- ▲ Remove the speakers by lifting up on the clip on the right side speaker and lifting the speakers. Carefully and gently lift the speaker wire connecting the left and right speakers.

 **NOTE:** The speaker connection cable was removed when removing the system board.

 **NOTE:** The speakers include rubber isolators that are installed in the screw holes. These isolators are crucial to the performance of the speakers.




Reverse this procedure to install the speaker.

Display assembly

Description	Spare part number
Display bezel (includes 2 rubber screws)	725617-001
15.6-in, BrightView, HD, LED, SVA display panel (screws included in the screw kit, spare part number 732082-001)	732080-001
15.6-in, BrightView, HD, LED, SVA Touchscreen display panel (For Touchscreens, the screws spare part number is 732083-001)	
In aluminum metal finish	732073-001
In sparkling black finish	732074-001
In pearl white finish	737170-001
In flyer red finish	737171-001
In revolutionary blue finish	737172-001

Description	Spare part number
In regal purple finish	737173-001
In mineral black finish	737174-001
In Goji berry finish	737175-001
In hazel berry finish	737176-001
In raspberry finish	737177-001
Webcamera/microphone module (includes adhesive)	738664-001
Display panel cable (includes webcamera/microphone module cable and two rubber screws)	732066-001
Antenna Kit (includes left and right wireless antenna cables and transceivers and 2 rubber screws)	732063-001
Display Hinge Kit (includes 2 rubber screws):	732072-001
Display enclosure (includes 2 rubber screw covers):	
In pearl white finish	725611-001
In sparkling black finish	725612-001
In flyer red finish	725613-001
In revolutionary blue finish	725614-001
In regal purple finish	725615-001
In aluminum metal finish	732064-001
In mineral black finish	737166-001
In Goji berry finish	737167-001
In hazel berry finish	737168-001
In raspberry finish	737169-001

 **NOTE:** The display assembly is spared at the subcomponent level only. For more display assembly spare part information, see the individual removal subsections.

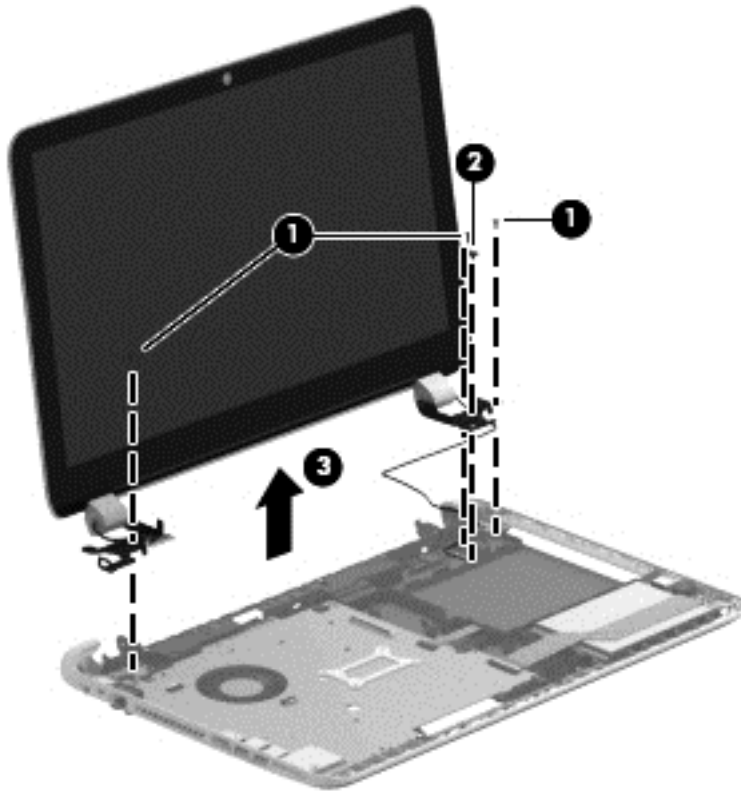
Before removing the display assembly, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the battery (see [Battery on page 43](#)), and then remove the following components:
 - a. Optical drive (see [Optical drive on page 48](#)).
 - b. Service door (see [Service door on page 45](#)).
 - c. WLAN module (see [WLAN module on page 47](#)).

- d. Memory module (see [Memory module on page 45](#)).
- e. Keyboard (see [Keyboard on page 55](#)).
- f. Top cover (see [Top cover on page 61](#)).
- g. Hard drive (see [Hard drive on page 65](#)).
- h. System board (see [System board on page 75](#)).

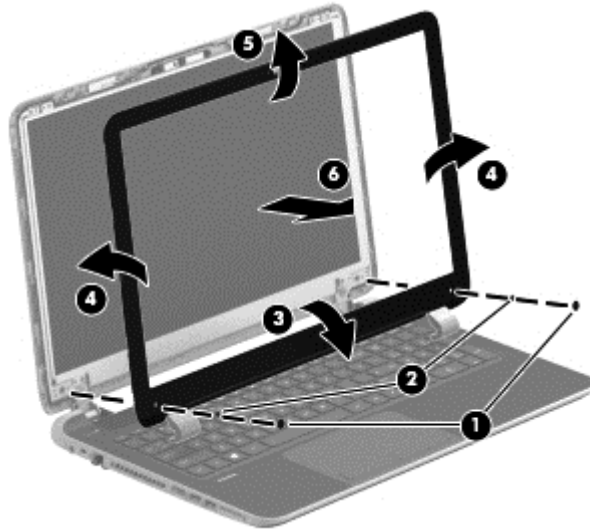
Remove the display assembly:

1. Remove the three Phillips M2.5×6.5 screws **(1)** and **(2)** that secure the display assembly to the base enclosure.
2. Remove the display assembly **(3)**.



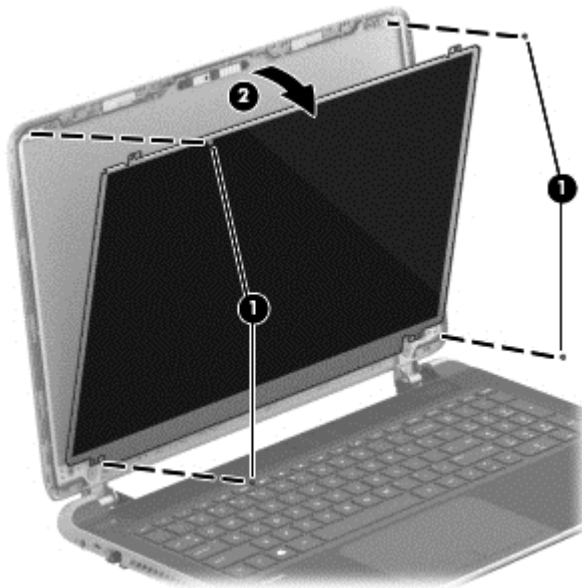
3. If it is necessary to replace the display bezel or any of the display assembly subcomponents:
 - a. Remove the two display bezel screw covers **(1)** and the two Phillips M2.5×5.0 screws **(2)** that secure the display bezel to the display assembly. The display bezel screw covers are included in the display bezel spare part kit, spare part number 676644-001, and in all display assembly subcomponent spare part kits.
 - b. Flex the inside edges of the bottom edge **(3)**, the left and right sides **(4)**, and the top edge **(5)** of the display bezel until the bezel disengages from the display enclosure.

- c. Remove the display bezel **(6)**. The display bezel is available using spare part number 725617-001.



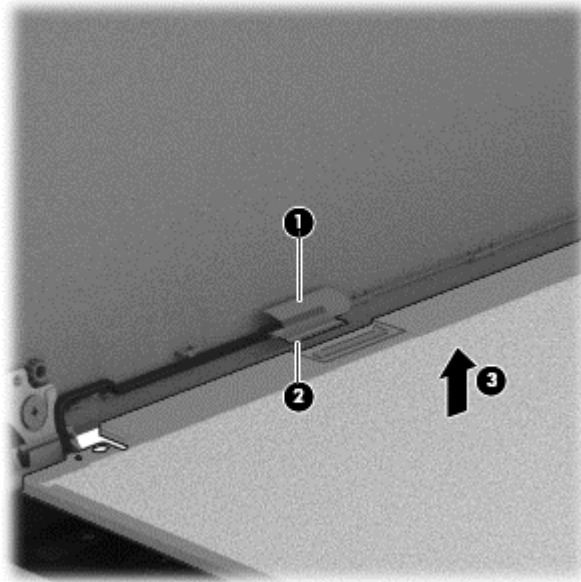
⚠ CAUTION: Be sure the work surface is clear of all tools, screws, and computer components before turning the display panel upside down on the work surface.

- 4. If it is necessary to replace the display panel:
 - a. Remove the four Phillips M2.0×3.5 screws **(1)** that secure the display panel to the display enclosure.
 - b. Lift the top edge of the display panel **(2)** and turn the display panel upside down.

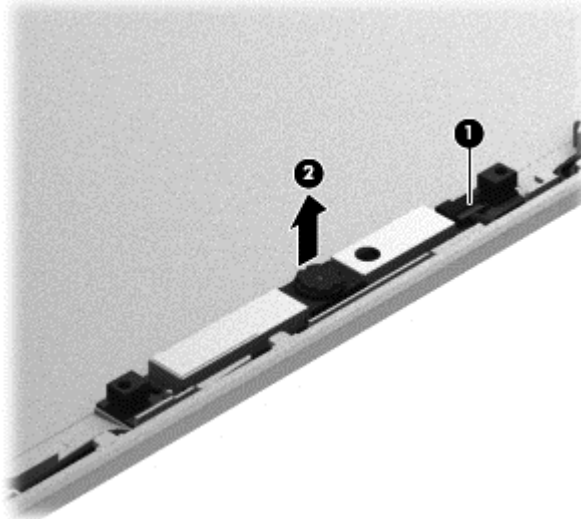


- c. Release the connector **(1)** that secures the display panel cable connector to the display panel.

- d. Disconnect the display panel cable **(2)** from the display panel and remove the panel **(3)**.

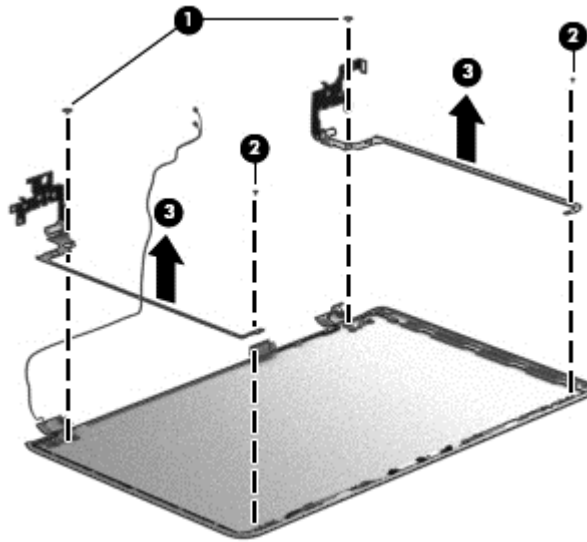


5. If it is necessary to replace the webcam/microphone module:
 - a. Disconnect the webcam/microphone module cable **(1)** from the webcam/microphone module. (The webcam/microphone module cable is part of the display panel cable.)
 - b. Detach the webcam/microphone module **(2)** from the display enclosure.

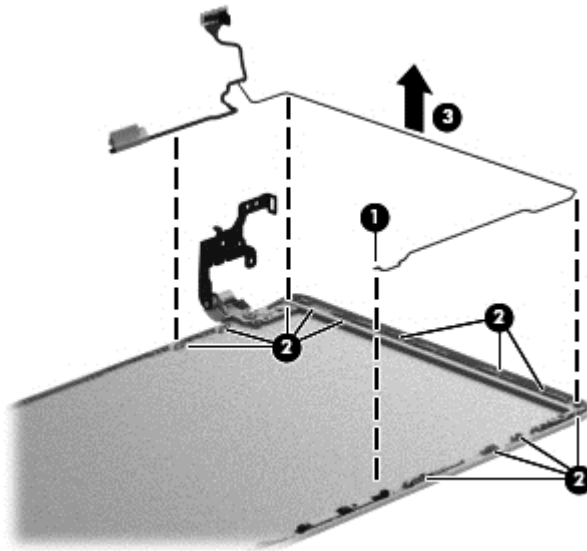


6. If it is necessary to replace the hinges:
 - a. Remove the four Phillips M2.5×4.0 screws **(1)** and **(2)** that secure the hinges to the display enclosure.
 - b. Remove the display hinge covers **(2)**.

- c. Remove the hinges and brackets **(3)** from the display enclosure.

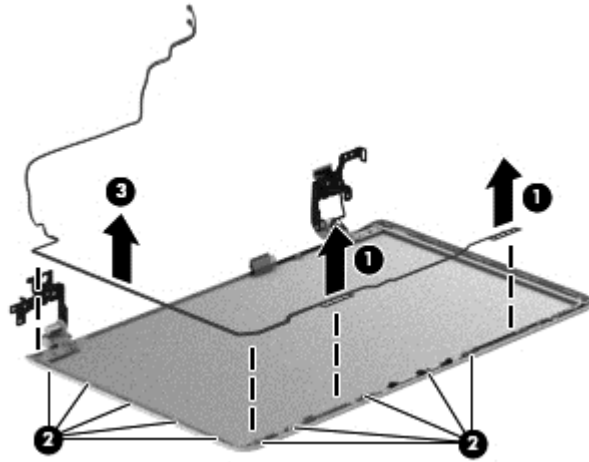


7. If it is necessary to replace the display panel cable:
- a. Release the display panel cable from the clips **(1)** and routing channel built into the display enclosure.
 - b. Carefully release the cable from the channel guides **(2)** and remove the display panel cable **(3)**.



8. If it is necessary to replace the wireless antenna cables and transceivers:
- a. Release the wireless antenna transceivers **(1)** from the display enclosure. (The wireless antenna transceivers are attached to the display enclosure with double-sided tape.)
 - b. Release the wireless antenna cables from the clips **(2)** built into the display enclosure.

- c. Remove the wireless antenna cables and transceivers **(3)**. The wireless antenna cables and transceivers are available in the Antenna Kit, spare part number 732063-001.



Reverse this procedure to install the display assembly.


7 Windows 8 – 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**.

8 Ubuntu Linux – 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 includes settings for the types of peripherals installed, the startup sequence of the computer, and the amount of system and extended memory.

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

Starting Setup Utility

- ▲ Turn on or restart the computer. While the computer is booting press `esc`. When the Startup menu is displayed, press `f10`.

Using Setup Utility

Changing the language of Setup Utility

1. Start Setup Utility.
2. Use the arrow keys to select **System Configuration > Language**, and then press `enter`.
3. Use the arrow keys to select a language, and then press `enter`.
4. When a confirmation prompt with your language selected is displayed, press `enter`.
5. To save your change and exit Setup Utility, use the arrow keys to select **Exit > Exit Saving Changes**, and then press `enter`.

Your change takes effect immediately.

Navigating and selecting in Setup Utility

Setup Utility does not support the TouchPad. Navigation and selection are by keystroke.

- To choose a menu or a menu item, use the arrow keys.
- To choose an item in a list or to toggle a field—for example an Enable/Disable field—use either the arrow keys or `f5` and `f6`.
- To select an item, press `enter`.
- To close a text box or return to the menu display, press `esc`.
- To display additional navigation and selection information while Setup Utility is open, press `f1`.


Displaying system information

1. Start Setup Utility.
2. Select the **Main** menu. System information such as the system time and date, and identification information about the computer is displayed.
3. To exit Setup Utility without changing any settings, use the arrow keys to select **Exit > Exit Discarding Changes**, and then press [enter](#).

Restoring factory default settings in Setup Utility

1. Start Setup Utility.
2. Use the arrow keys to select **Exit > Load Setup Defaults**, and then press [enter](#).
3. When the Setup Confirmation is displayed, press [enter](#).
4. To save your change and exit Setup Utility, use the arrow keys to select **Exit > Exit Saving Changes**, and then press [enter](#).

The Setup Utility factory settings take effect when the computer restarts.

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

Exiting Setup Utility

- To exit Setup Utility and save your changes from the current session:
If the Setup Utility menus are not visible, press [esc](#) to return to the menu display. Then use the arrow keys to select **Exit > Exit Saving Changes**, and then press [enter](#).
- To exit Setup Utility without saving your changes from the current session:
If the Setup Utility menus are not visible, press [esc](#) to return to the menu display. Then use the arrow keys to select **Exit > Exit Discarding Changes**, and then press [enter](#).

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 using Setup Utility.

1. Start Setup Utility.
2. If the system information is not displayed, use the arrow keys to select the **Main** menu. BIOS and other system information is displayed.
3. To exit Setup Utility, use the arrow keys to select **Exit > 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, 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 Suspend or Hibernation.


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

1. Access the page on the HP website that provides software for your computer.
2. Follow the on-screen instructions to identify your computer and access the BIOS update you want to download.
3. At the download area, follow these steps:
 - a. Identify the BIOS update that is later than the BIOS version currently installed on your computer. 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.

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

Using Advanced System Diagnostics


Advanced System Diagnostics allows you to run diagnostic tests to determine if the computer hardware is functioning properly. The following diagnostic tests are available in Advanced System Diagnostics:

- **Start-up test**—This test analyzes the main computer components that are required to start the computer.
- **Run-in test**—This test repeats the start-up test and checks for intermittent problems that the start-up test does not detect.
- **Hard disk test**—This test analyzes the physical condition of the hard drive, and then checks all data in every sector of the hard drive. If the test detects a damaged sector, it attempts to move the data to a good sector.
- **Memory test**—This test analyzes the physical condition of the memory modules. If it reports an error, replace the memory modules immediately.
- **Battery test**—This test analyzes the condition of the battery and calibrates the battery if necessary. If the battery fails the test, contact support to report the issue and purchase a replacement battery.
- **System Tune-Up**—This group of additional tests checks your computer to make sure that the main components are functioning correctly. System Tune-Up runs longer and more comprehensive tests on memory modules, hard drive SMART attributes, the hard drive surface, the battery (and battery calibration), video memory, and the WLAN module status.

You can view system information and error logs in the Advanced System Diagnostics window.

To start Advanced System Diagnostics:

1. Turn on or restart the computer. While the computer is booting press **esc**. When the Startup menu is displayed, 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 diagnostics test while it is running, press **esc**.

9 Specifications

Computer specifications

	Metric	U.S.
Dimensions		
Width	38.56 cm	15.18 in
Depth	25.8 cm	10.15 in
Height (front to back)	2.47 cm	.97 in
Weight	2.33 or 2.56 kg (depending on configuration)	5.14 lb or 5.67 (depending on configuration)
Input power		
Operating voltage and current	19.5 V dc @ 3.33 A – 65 W 19 V dc @ 4.62 A – 90 W 19.5 V dc @ 2.31 – 45 W (select models only)	
Temperature		
Operating	5°C to 35°C	41°F to 95°F
Nonoperating	-20°C to 60°C	-4°F to 140°F
Relative humidity (noncondensing)		
Operating	10% to 90%	
Nonoperating	5% to 95%	
Maximum altitude (unpressurized)		
Operating	-15 m to 3,048 m	-50 ft to 10,000 ft
Nonoperating	-15 m to 12,192 m	-50 ft to 40,000 ft
NOTE: Applicable product safety standards specify thermal limits for plastic surfaces. The device operates well within this range of temperatures.		

15.0-inch display specifications

	Metric	U.S.
Dimensions		
Height	17.6 cm	6.93 in

	Metric	U.S.
Width	31.2 cm	12.28 in
Diagonal	35.7 cm	14.06 in
Number of colors	Up to 16.8 million	
Contrast ratio	200:1 (typical)	
Brightness	200 nits (typical)	
Pixel resolution		
Pitch	0.197 × 0.197 mm	
Format	1366×768)	
Configuration	RGB vertical stripe	
Backlight	LED	
Character display	80 × 25	
Total power consumption	2.0 W	
Viewing angle	±65° horizontal, ±50° vertical (typical)	

Hard drive specifications

	1 TB*	750 GB*	640 GB*	500 GB*	320 GB*
Dimensions					
Height	9.5 mm	9.5 mm	9.5 mm	9.5 mm	7.0 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)				

1 TB*

750 GB*

640 GB*

500 GB*

320 GB*

*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.

10 Windows 8 – 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.

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 112](#).

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 115](#).

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 114](#).
- 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 114](#).

- 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 115](#).


- 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 115](#).
- 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 115](#).
- 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 116](#).

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 116](#).

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 112](#).

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.


11 Ubuntu Linux Backing up, restoring, and recovering

Recovery after a system failure is as good as your most recent backup. As you add new software and data files, you should continue to back up your system on a regular basis to maintain a reasonably current backup.

Performing a system recovery

The Deja Dup Restore Tool allows you to repair or restore the computer to its original factory state. You can create an image restore DVD using a DVD±RW optical drive. You can also create a restore image on a USB storage device.

 **CAUTION:** Using Restore completely erases hard drive contents and reformats the hard drive. All files you have created and any software installed on the computer are permanently removed. The recovery tool reinstalls the original operating system and programs and drivers that were installed at the factory. Software, drivers, and updates not installed at the factory must be manually reinstalled. Personal files must be restored from a backup.

 **NOTE:** HP recommends that you create the image restore in the event of a system failure.


Creating the restore DVDs

The restore creation software creates a set of system restore discs using blank, writable DVDs (DVD-R or DVD+R). HP recommends using blank DVD+R discs from a manufacturer you trust, because these recovery DVDs are so important. You need approximately 3 blank DVD+R discs. The program states how many discs are needed at the beginning of the process.

To create restore DVDs:


1. Click the **System menu** icon at the far right of the top panel, and then click **System Settings > Backup**.
2. Select **Storage** from the panel on the left side of the window, click the down-arrow next to **Backup Location**, and select the DVD from the drop-down list.
3. Select **Overview** from the panel on the left side of the window, and then click **Back Up Now**.
4. Follow the on-screen instructions.

Creating a restore image on a USB device

 **NOTE:** Be sure AC power is connected to the computer you begin.


Verify the exact amount of free space on your storage device before you begin the creation process. For most models, you will need at least 8 GB of free space on the storage device. However, depending

on the drivers and software installed on your computer, you may need slightly more than 8 GB of space. **HP recommends that you use a 16 GB device or above for best results.**

 **IMPORTANT:** Remember to insert your USB device into the USB port on the computer before starting this procedure.


To create the restore image:

1. Click the **System menu** icon at the far right of the top panel, and then click **System Settings > Backup**.
2. Select **Storage** from the panel on the left side of the window, click the down-arrow next to **Backup location**, and select the USB device from the drop-down list.


 **NOTE:** If the USB device is not listed in the drop-down list for Backup Location, select **Local Folder**, and then click the **Choose Folder** button. Select the USB device from the panel on the left side of the Choose Folder window, and click **OK**.

3. Select **Overview** from the panel on the left side of the window, and then click **Backup Now**.
4. Follow the on-screen instructions.

Performing recovery using the restore DVD

 **NOTE:** The following procedure uses the F11 BIOS Recovery feature to perform the recovery.

1. If possible, back up all personal files.
2. Shut down the computer.
3. Be sure the restore DVD or USB device is connected to the computer.
4. Restart the computer.
5. Using the arrow keys, select **Recovery**, and then press **enter**.
6. Follow the on-screen instructions.


 **NOTE:** If you are unable to boot (start up) your computer, and you did not create a system recovery disc, you must purchase an *Ubuntu Operating System* DVD to reinstall the operating system. For additional information, refer to the *Worldwide Telephone Numbers* booklet.

Backing up your information


You should back up your computer files on a regular schedule to maintain a current backup. You can manually back up your information to an optional external drive, a network drive, discs, or the Ubuntu One website. Back up your system at the following times:

- At regularly scheduled times
- Before the computer is repaired or restored
- Before you add or modify hardware or software

To back up your home directory files to the Ubuntu One website using the Deja Dup Backup Tool:


 **NOTE:** Before you back up your information, be sure you have designated a location to save the backup files.

1. Click the **System menu** icon at the far right of the top panel, and then click **System Settings > Backup** icon.
2. Select **Folders** from the panel on the left side of the window, and beneath **Folders to back up**, select the folders to back up.
3. Select **Storage** from the panel on the left side of the window, click the down-arrow next to **Backup Location**, and select **Ubuntu One** from the drop-down list.
4. Select **Overview** from the panel on the left side of the window, and then click **Back Up Now**.

 **NOTE:** The first time you back up your files to Ubuntu One, you will need to create an account to sign into Ubuntu One. Enter your email address and password into the account sign-in boxes and follow the on-screen instructions to complete the sign-in process.

To restore backup files:

1. Click the **System menu** icon at the far right of the top panel, and then click **System Settings > Backup** icon.
2. Click **Restore**, select the location of the backup files and the folder name, and then click **Forward**.
3. Under **Restore from When?**, select the date of the files to be restored, and then click **Forward**.
4. Select the location and folder where the files are to be restored, and then click **Forward**.
5. Follow the instructions on the screen.
6. Click **Restore** to start restoring the files, or click **Cancel** to cancel the operation.

 **NOTE:** You may also back up to cloud storage services provided by various companies. For a small fee, they will keep your backup for you. A cloud service is recommended, since it is an easy way to keep your backups off-site and safe.

12 Power cord set requirements

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

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

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

Requirements for all countries

The following requirements are applicable to all countries and regions:

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

Requirements for specific countries and regions

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

Country/region	Accredited agency	Applicable note number
The People's Republic of China	COC	5
South Korea	EK	4
Sweden	SEMKO	1
Switzerland	SEV	1
Taiwan	BSMI	4
The United Kingdom	BSI	1
The United States	UL	2

- 1.** The flexible cord must be Type HO5VV-F, 3-conductor, 1.0-mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country or region where it will be used.
- 2.** The flexible cord must be Type SPT-3 or equivalent, No. 18 AWG, 3-conductor. The wall plug must be a two-pole grounding type with a NEMA 5-15P (15 A, 125 V) or NEMA 6-15P (15 A, 250 V) configuration.
- 3.** The appliance coupler, flexible cord, and wall plug must bear a "T" mark and registration number in accordance with the Japanese Dentori Law. The flexible cord must be Type VCT or VCTF, 3-conductor, 1.00-mm² conductor size. The wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (7 A, 125 V) configuration.
- 4.** The flexible cord must be Type RVV, 3-conductor, 0.75-mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country or region where it will be used.
- 5.** The flexible cord must be Type VCTF, 3-conductor, 0.75-mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country or region where it will be used.

13 Recycling

When a non-rechargeable or rechargeable 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 Web site at <http://www.hp.com/recycle>.

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