



## HP Stream Laptop PC 14

Maintenance and Service Guide

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## **Product notice**

This guide describes features that are common to most models. Some features may not be available on your computer.

Not all features are available in all editions of Windows. This computer may require upgraded and/or separately purchased hardware, drivers, and/or software to take full advantage of Windows functionality. See <http://www.microsoft.com> for details.


## **Software terms**

By installing, copying, downloading, or otherwise using any software product preinstalled on this computer, you agree to be bound by the terms of the HP End User License Agreement (EULA). If you do not accept these license terms, your sole remedy is to return the entire unused product (hardware and software) within 14 days for a refund subject to the refund policy of your place of purchase.

For any further information or to request a full refund of the computer, please contact your local point of sale (the seller).

## Safety warning notice

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 **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 60950-1).

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# 1 Product description

Category	Description
Product Name	<b>HP Stream Laptop PC</b>
	Model numbers (Windows 10): 14-ax1XX
	Model numbers (Windows 10S): 14-cb1XX
	CTO model number (Windows 10): 14t-ax100
	CTO model number (Windows 10S): 14t-cb100
Processor	Intel Celeron® N4000 (1.1 GHz, turbo up to 2.6 GHz), 2400 MHz/4 MB L2 cache), Dual SDP, 4.8 W
Graphics	<b>Internal graphics</b>
	Intel UHD Graphics 600
	Support for DX12, HD decode, and HDMI
Panel	<b>16:9 ultra-wide aspect ratio</b>
	14.0-in, high-definition (HD)(1366×768), BrightView, light-emitting diode (LED), SVA, slim 3.0 mm, eDP, 220 nits
	14.0-in, full high-definition (FHD)(1920×1080), BrightView, light-emitting diode (LED), UWVA, slim-flat 3.0 mm, eDP, 220 nits
Memory	<b>On-board system memory</b>
	DDR4-2400MHz single channel support
	Supports up to 2 GB maximum on-board system memory
	<b>One SODIMM slot-non-accessible/non-upgradeable</b>
	DDR4-2400MHz single channel support
Hard drive	Supports up to 4 GB maximum system memory
	<b>eMMC configuration</b>
	64 MB
Optical drive	32 MB
	External, 9.5-mm tray load, SATA, USB, DVD±RW DL SuperMulti Drive
Camera and microphone	HP Webcam: VGA camera - indicator light, USB 2.0, 640×480 by 24 frames per second
	Single digital microphone
	HP Noise Cancellation enabled
Audio	Dual speakers
Wireless	<b>Integrated Wireless options with dual antennas (M.2/PCIe)</b>
	Realtek RTL8822BE 802.11 ac 2x2 WiFi + Bluetooth 4.2 Combo Adapter (MU-MIMO supported)

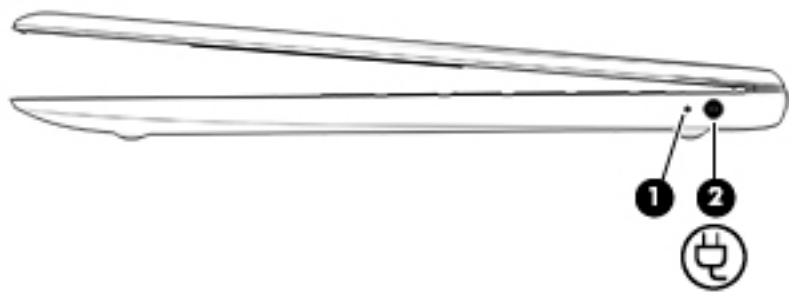
Category	Description
	Intel Dual Band Wireless-AC 7265 802.11 AC 2x2 WiFi + Bluetooth 4.2 Combo Adapter (non-vPro) D1
	Compatible with Miracast-certified devices
<b>External card expansion</b>	<b>HP Multi-Format Digital Media Card Reader</b>
	Support for SD/SDHC/SDXC
	Push-pull insertion/removal
<b>Internal card expansion</b>	One M.2 card slot for WLAN
<b>Ports</b>	Hot Plug/unplug and auto detect for correct output to wide-aspect vs standard aspect video (auto adjust panel resolution to fit embedded panel and external monitor connected)
	AC Smart Pin adapter plug
	Audio-out (headphone)/audio-in (microphone) combo jack
	High-definition multimedia interface (HDMI) v.1.4, supporting 1920×1080 at 60 Hz
	USB 3.0 (2)
	USB 2.0 (1)
<b>Keyboard/pointing devices</b>	<b>Keyboard</b>
	Full-size, textured island keyboard (no numeric keypad)
	Standard keyboard > 1.5 mm travel distance
	<b>TouchPad requirements</b>
	TouchPad with image sensor
	Taps enabled as default
	Multitouch gestures enabled
	Default on for 2-finger scroll, pinch, rotate, 2-finger click, 3-finger flick
<b>Power requirements</b>	<b>Battery</b>
	3-cell, 41-WHr, Li-ion battery
	Battery life enhancement
	<b>AC adapter</b>
	45-W
	<b>Power cord</b>
	1 meter conventional power cord (C5)
<b>Security</b>	Mini security cable slot
	Trusted Platform Module (fTPM) 2.0
<b>Operating system</b>	<b>Preinstalled</b>
	Windows 10
	Windows 10 Home in S Mode (Entry)
	Windows 10 Home in S Mode (Value)


Category	Description
	<b>For Emerging Market (EM/SL)</b>
	Windows 10 Home Value NB EM/SL (Compact)
	Windows 10 Home Entry NB EM/SL (Compact)
<b>Serviceability</b>	<b>End user replaceable part</b>
	AC adapter

# 2 Getting to know your computer

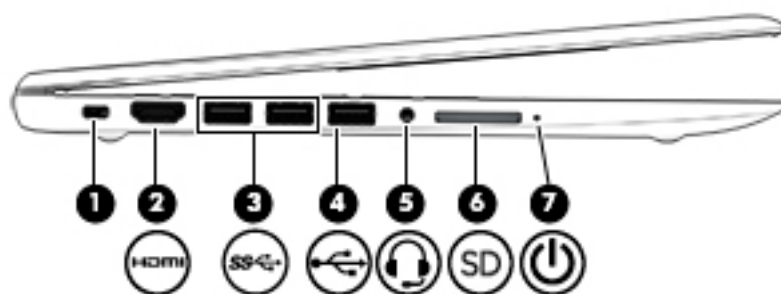
Your computer features top-rated components. This chapter provides details about your components, where they're located, and how they work.







## Right side



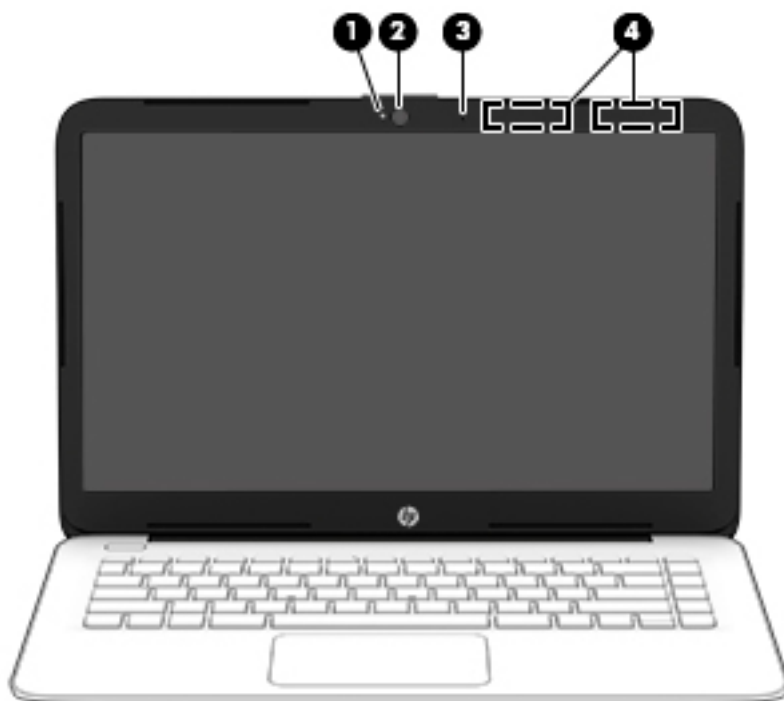
Component		Description
(1)	AC adapter and battery light	<ul style="list-style-type: none"><li>• White: The AC adapter is connected and the battery is fully charged.</li><li>• Blinking white: The AC adapter is disconnected and the battery has reached a low battery level.</li><li>• Amber: The AC adapter is connected and the battery is charging.</li><li>• Off: The battery is not charging.</li></ul>
(2)	 Power connector	Connects an AC adapter.

## Left side



Component		Description
(1)	Security cable slot	<p>Attaches an optional security cable to the computer.</p> <p><b>NOTE:</b> The security cable is designed to act as a deterrent, but it may not prevent the computer from being mishandled or stolen.</p>
(2)	 HDMI port	<p>Connects an optional video or audio device, such as a high-definition television, any compatible digital or audio component, or a high-speed High-Definition Multimedia Interface (HDMI) device.</p>
(3)	 USB SuperSpeed ports (2)	<p>Connect a USB device, such as a cell phone, camera, activity tracker, or smartwatch, and provide high-speed data transfer.</p>
(4)	 USB port	<p>Connects a USB device, such as a cell phone, camera, activity tracker, or smartwatch, and provides data transfer.</p>
(5)	 Audio-out (headphone)/ Audio-in (microphone) combo jack	<p>Connects optional powered stereo speakers, headphones, earbuds, a headset, or a television audio cable. Also connects an optional headset microphone. This jack does not support optional standalone microphones.</p> <p><b>WARNING!</b> To reduce the risk of personal injury, adjust the volume before putting on headphones, earbuds, or a headset. For additional safety information, refer to the <i>Regulatory, Safety, and Environmental Notices</i>.</p> <p>To access this guide:</p> <ul style="list-style-type: none"> <li>▲ Select the <b>Start</b> button, select <b>HP Help and Support</b>, and then select <b>HP Documentation</b>.</li> </ul> <p><b>NOTE:</b> When a device is connected to the jack, the computer speakers are disabled.</p>
(6)	 Memory card reader	<p>Reads optional memory cards that enable you to store, manage, share, or access information.</p> <p>To insert a card:</p> <ol style="list-style-type: none"> <li>1. Hold the card label-side up, with connectors facing the computer.</li> <li>2. Insert the card into the memory card reader, and then press in on the card until it is firmly seated.</li> </ol> <p>To remove a card:</p> <ul style="list-style-type: none"> <li>▲ Pull the card out of the memory card reader.</li> </ul>
(7)	 Power light	<ul style="list-style-type: none"> <li>• On: The computer is on.</li> <li>• Blinking: The computer is in the Sleep state, a power-saving state. The computer shuts off power to the display and other unneeded components.</li> <li>• Off: The computer is off or in Hibernation. Hibernation is a power-saving state that uses the least amount of power.</li> </ul>

## Display



Component		Description
(1)	Camera light	On: The camera is in use.
(2)	Camera	Allows you to video chat, record video, and record still images. Some cameras also allow a facial recognition logon to Windows, instead of a password logon. <b>NOTE:</b> Camera functions vary depending on the camera hardware and software installed on your product.
(3)	Internal microphone	Records sound.
(4)	WLAN antennas* (1 or 2 depending on model)	Send and receive wireless signals to communicate with wireless local area networks (WLANs).

\*The antennas are not visible from the outside of the computer. For optimal transmission, keep the areas immediately around the antennas free from obstructions.

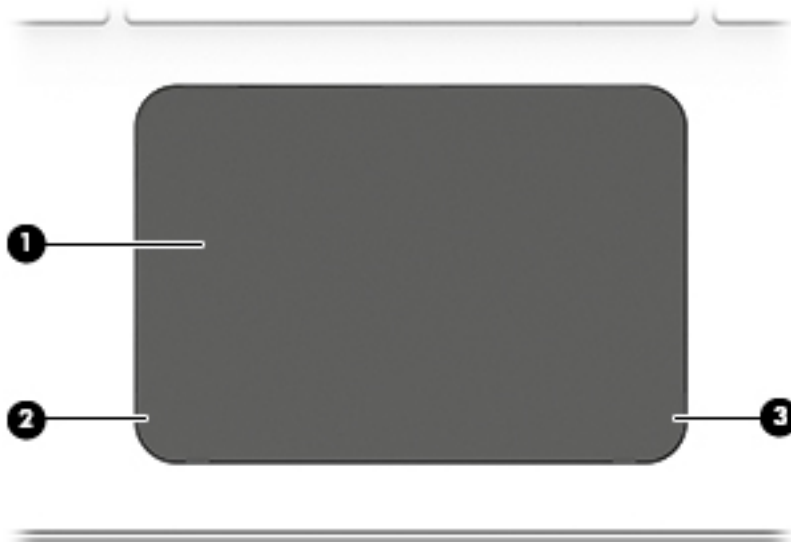
For wireless regulatory notices, see the section of the *Regulatory, Safety, and Environmental Notices* that applies to your country or region.

To access this guide:

- ▲ Select the **Start** button, select **HP Help and Support**, and then select **HP Documentation**.

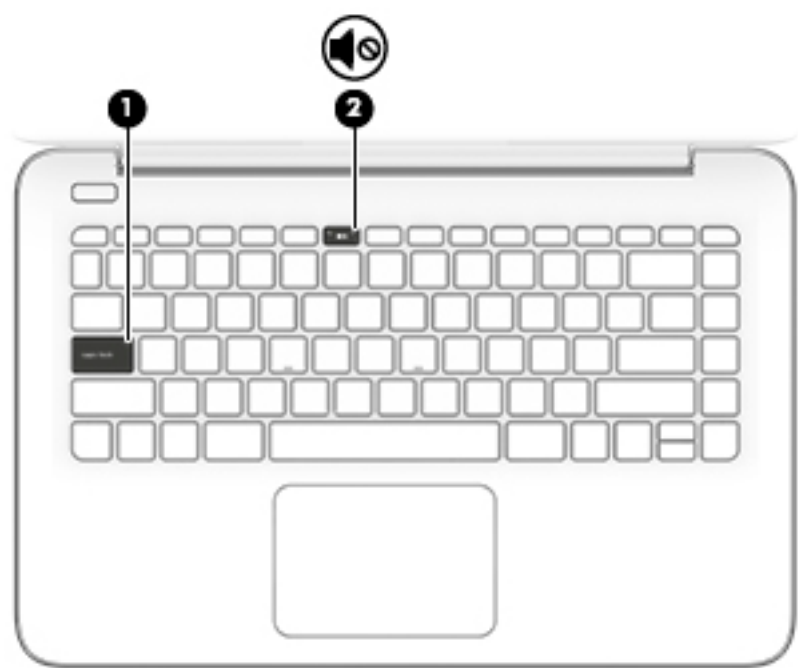
# Keyboard area


## TouchPad



Component		Description
(1)	TouchPad zone	Reads your finger gestures to move the pointer or activate items on the screen.
(2)	Left control zone	Textured area that allows you to perform additional gestures.
(3)	Right control zone	Textured area that allows you to perform additional gestures.

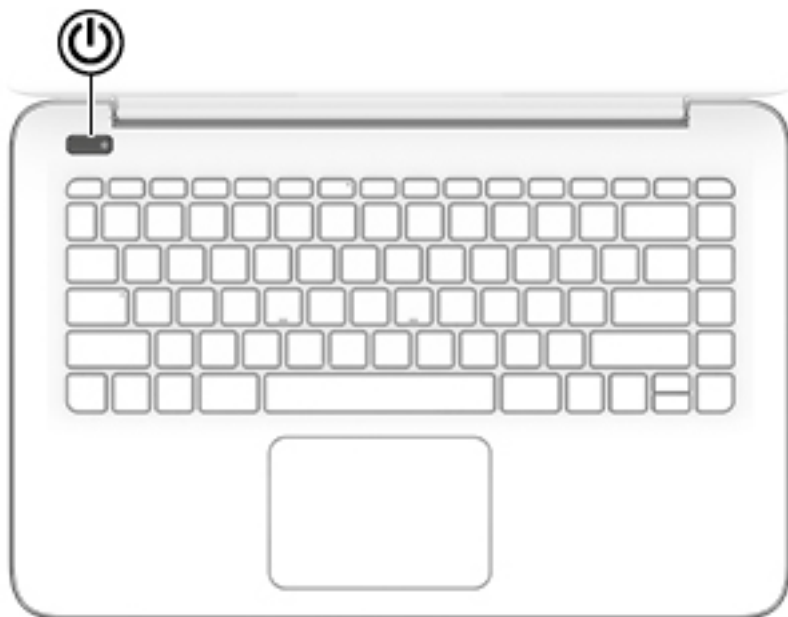
# Lights





Component		Description
(1)	Caps lock light	On: Caps lock is on, which switches the key input to all capital letters.
(2)	 Mute light	<ul style="list-style-type: none"><li>On: Computer sound is off.</li><li>Off: Computer sound is on.</li></ul>

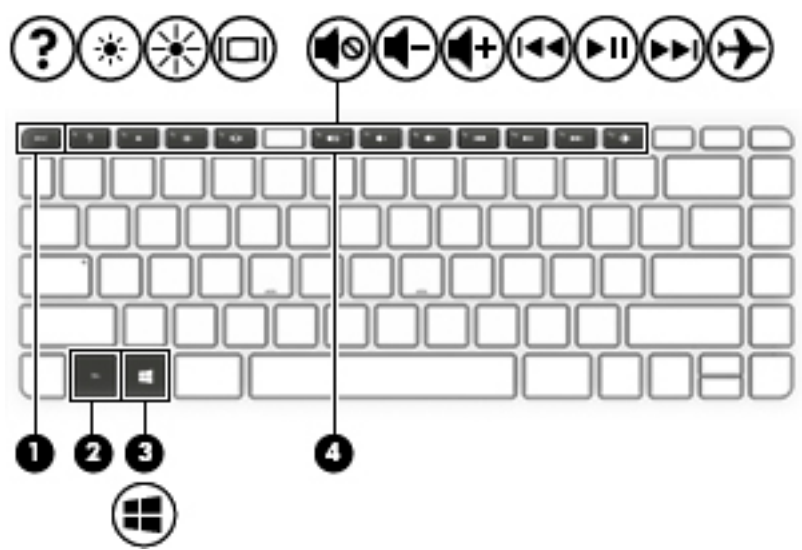



## Button



Component	Description
 Power button	<ul style="list-style-type: none"><li>• When the computer is off, press the button to turn on the computer.</li><li>• When the computer is on, press the button briefly to initiate Sleep.</li><li>• When the computer is in the Sleep state, press the button briefly to exit Sleep.</li><li>• When the computer is in Hibernation, press the button briefly to exit Hibernation.</li></ul> <p><b>CAUTION:</b> Pressing and holding down the power button results in the loss of unsaved information.</p> <p>If the computer has stopped responding and shutdown procedures are ineffective, press and hold the power button down for at least 5 seconds to turn off the computer.</p> <p>To learn more about your power settings, see your power options:</p> <p>▲ Right-click the <b>Power</b> icon , and then select <b>Power Options</b>.</p>

Special keys














Component		Description
(1)	esc key	Displays system information when pressed in combination with the fn key.
(2)	fn key	Executes specific functions when pressed in combination with another key.
(3)	 Windows key	Opens the <b>Start</b> menu. <b>NOTE:</b> Pressing the Windows key again will close the <b>Start</b> menu.
(4)	Action keys	Execute frequently used system functions. <b>NOTE:</b> On select products, the f5 action key turns the keyboard backlight feature off or on.

## Action keys

An action key performs the function indicated by the icon on the key. To determine which keys are on your product, see [Special keys on page 10](#).

▲ To use an action key, press and hold the key.

Icon	Description
	Opens the “How to get help in Windows 10” webpage.
	Decreases the screen brightness incrementally as long as you hold down the key.
	Increases the screen brightness incrementally as long as you hold down the key.
	Switches the screen image between display devices connected to the system. For example, if a monitor is connected to the computer, repeatedly pressing this key alternates the screen image from the computer display to the monitor display to a simultaneous display on both the computer and the monitor.
	Mutes or restores speaker sound.
	Decreases speaker volume incrementally while you hold down the key.
	Increases speaker volume incrementally while you hold down the key.
	Plays the previous track of an audio CD or the previous section of a DVD or a Blu-ray Disc (BD).
	Starts, pauses, or resumes playback of an audio CD, a DVD, or a BD.
	Plays the next track of an audio CD or the next section of a DVD or a BD.
	Turns the airplane mode and wireless feature on or off. <b>NOTE:</b> The airplane mode key is also referred to as the wireless button. <b>NOTE:</b> A wireless network must be set up before a wireless connection is possible.


# Bottom



Component	Description
Speakers (2)	Produce sound.

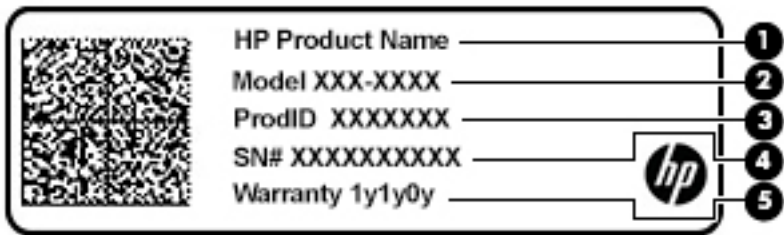
# Labels

The labels affixed to the computer provide information you may need when you troubleshoot system problems or travel internationally with the computer. Labels may be in paper form or imprinted on the product.

 **IMPORTANT:** Check the following locations for the labels described in this section: the bottom of the computer, inside the battery bay, under the service door, on the back of the display, or on the bottom of a tablet kickstand.

- Service label—Provides important information to identify your computer. When contacting support, you may be asked for the serial number, the product number, or the model number. Locate this information before you contact support.

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



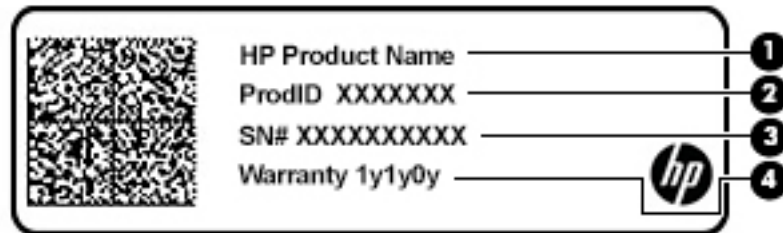
Component
(1) HP product name
(2) Model number

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**Component**

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- |     |                 |
|-----|-----------------|
| (3) | Product ID      |
| (4) | Serial number   |
| (5) | Warranty period |
- 



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**Component**

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- |     |                 |
|-----|-----------------|
| (1) | HP product name |
| (2) | Product ID      |
| (3) | Serial number   |
| (4) | Warranty period |
- 

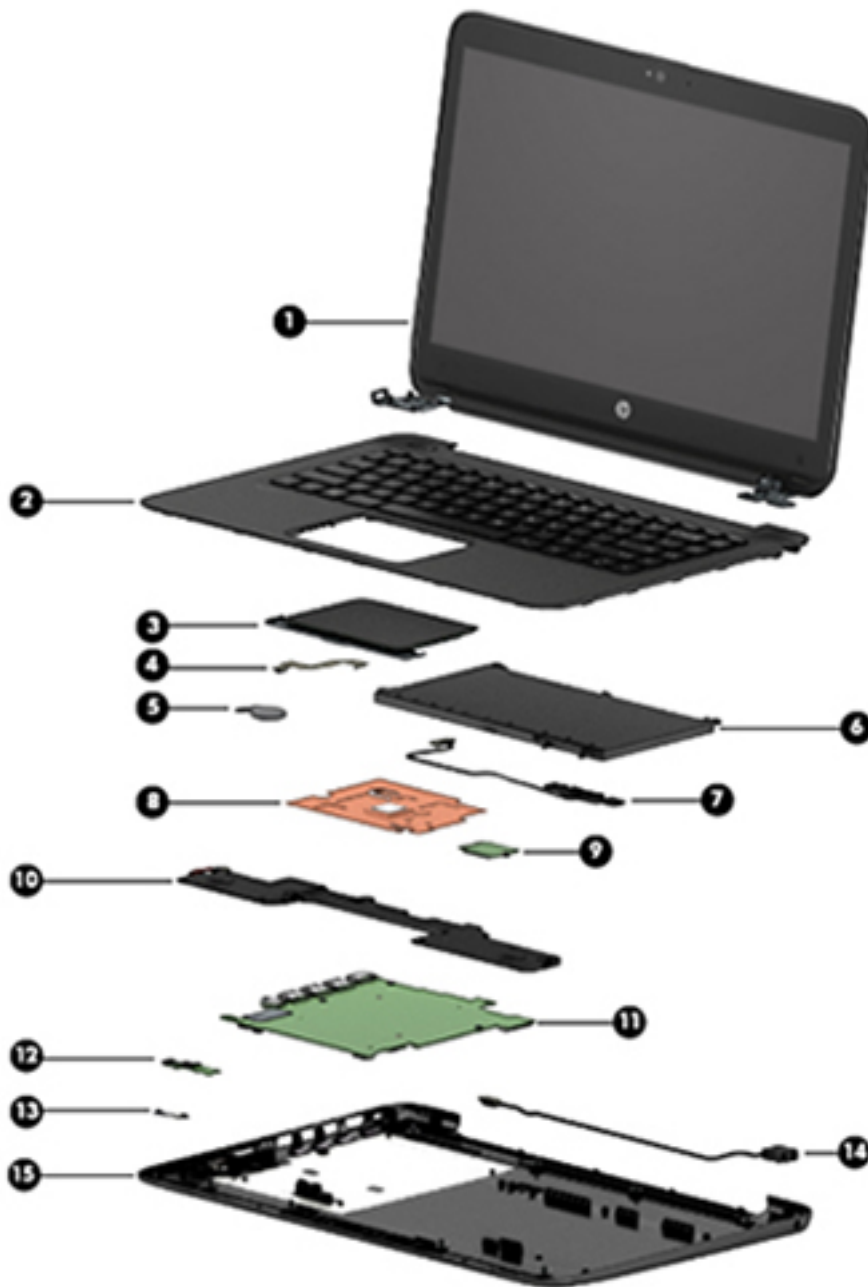
- Regulatory label(s)—Provide(s) regulatory information about the computer.
- Wireless certification label(s)—Provide(s) information about optional wireless devices and the approval markings for the countries or regions in which the devices have been approved for use.

## 3 Illustrated parts catalog



**NOTE:** HP continually improves and changes product parts. For complete and current information on supported parts for your computer, go to <http://partsurfer.hp.com>, select your country or region, and then follow the on-screen instructions.

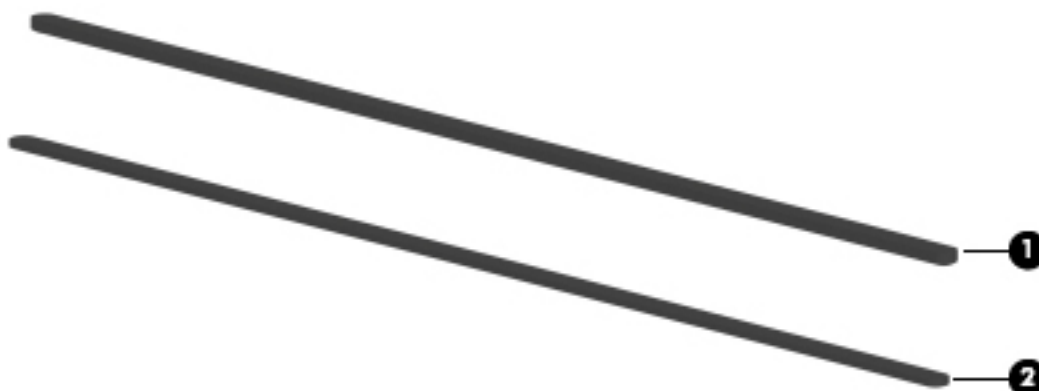
### Computer major components



Item	Component	Spare part number
(1)	<b>Display assembly:</b> The display assembly is spared at the subcomponent level only. For more display assembly spare part information, see <a href="#">Display assembly components on page 17</a> .	
(2)	<b>Keyboard/top cover</b> (includes keyboard cable):  For a list of keyboard country codes, see <a href="#">Keyboard/top cover on page 45</a> or <a href="#">Keyboard/top cover on page 45</a> .	
	For use in blue models	905569-xx1
	For use in white models	910180-xx1
	For use in gray models	933583-xx1
	For use in pink models	L16698-xx1
	For use in purple models	L16699-xx1
	Black models (only available for -001 United States)	928419-001
(3)	<b>TouchPad</b>	
	For use in blue models	905691-001
	For use in white models	910178-001
	For use in black models	928421-001
	For use in gray models	933606-001
	For use in pink models	L16703-001
	For use in purple models	L16708-001
(4)	<b>TouchPad cable</b>	905563-001
(5)	<b>RTC battery</b>	857380-001
(6)	<b>Battery</b> , 3-cell, 41-WHr, 3.615-AHr, Li-ion	844203-855
(7)	<b>Battery cable</b>	905566-001
(8)	<b>Heat sink</b>	907105-001
(9)	<b>WLAN module</b>	
	Intel Dual Band Wireless-AC 7265 802.11 AC 2x2 WiFi + Bluetooth 4.2 Combo Adapter (non-vPro) D1	901229-855
	Realtek RTL8822BE 802.11 ac 2x2 WiFi + Bluetooth 4.2 Combo Adapter (MU-MIMO supported)	924813-855
(10)	<b>Speakers</b> (includes cable)	905565-001
(11)	<b>System board</b> (includes a graphics subsystem with UMA memory, thermal grease, and thermal pads):	
	Intel Celeron N4000 processor, 2 GB system memory, 32 GB eMMC hard drive, and a non-Windows operating system	L16633-001
	Intel Celeron N4000 processor, 2 GB system memory, 32 GB eMMC hard drive, and the Windows 10 operating system	L16633-601
	Intel Celeron N4000 processor, 32 GB eMMC hard drive, and a non-Windows operating system	L16634-001
	Intel Celeron N4000 processor, 32 GB eMMC hard drive, and the Windows 10 operating system	L16634-601
	Intel Celeron N4000 processor, 64 GB eMMC hard drive, and a non-Windows operating system	L16637-001
	Intel Celeron N4000 processor, 64 GB eMMC hard drive, and the Windows 10 operating system	L16637-601

Item	Component	Spare part number
(12)	<b>Power button board</b>	905579-001
(13)	<b>Power button board cable</b>	905562-001
(14)	<b>Power connector (DC in) cable</b>	810327-004
(15)	<b>Base enclosure</b>	
	For use in blue models	911362-001
	For use in white models	911364-001
	For use in black models	928417-001
	For use in gray models	933581-001
	For use in pink models	L16701-001
	For use in purple models	L16706-001
	<b>Memory module, 4 GB</b> (DDR4, 2666-MHz; not illustrated))	L10598-855

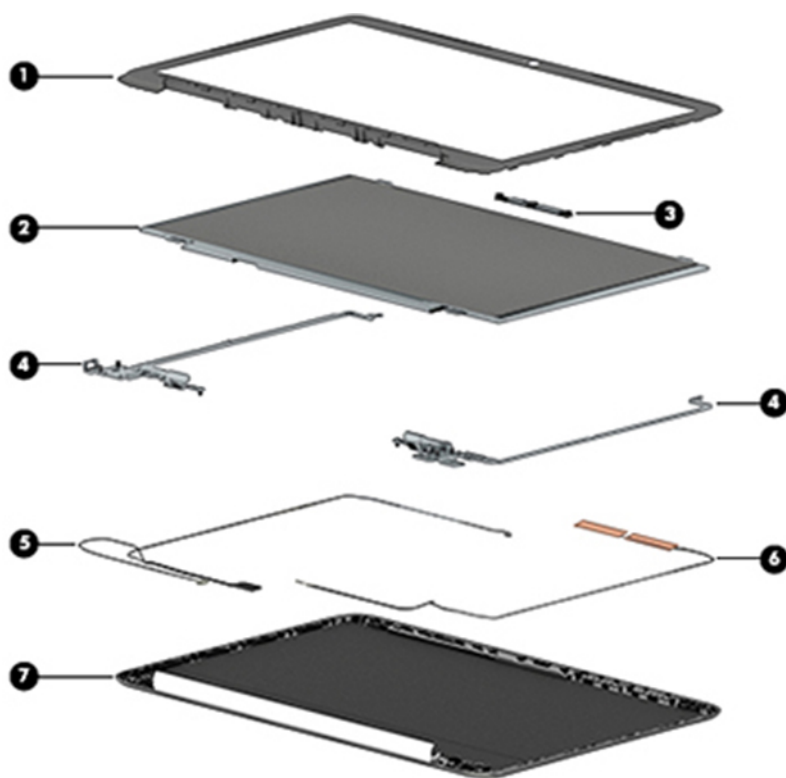
## Rubber Kit



Item	Description	Spare part number
	<b>Rubber Kit</b>	
	For use in blue models	905567-001
	For use in white models	910179-001
	For use in black models	928420-001
	For use in gray models	933607-001
	For use in pink models	L16704-001
	For use in purple models	L16709-001
(1)	<b>Top rubber foot/strip</b>	
(2)	<b>Bottom rubber foot/strip</b>	



## Display assembly components



Item	Description	Spare part number
<b>(1)</b>	<b>Display bezel</b>	
	For use in blue models	905559-001
	For use in white models	910177-001
	For use in black models	928418-001
	For use in gray models	933582-001
	For use in pink models	L16702-001
	For use in purple models	L16707-001
<b>(2)</b>	<b>Raw display panel</b>	
	HD panel	847664-005
	FHD panel	847660-010
<b>(3)</b>	<b>Webcam/microphone module</b>	766523-025
<b>(4)</b>	<b>Display Hinge Kit</b> (includes left and right display hinges)	905560-001
<b>(5)</b>	<b>Display panel cable</b>	905561-001
<b>(6)</b>	<b>Antenna Kit</b> (includes wireless antenna cable with transceiver)	906173-001
<b>(7)</b>	<b>Display back cover</b>	
	For use in blue models	905558-001
	For use in white models	910175-001

Item	Description	Spare part number
	For use in black models	928416-001
	For use in gray models	933579-001
	For use in pink models	L16700-001
	For use in purple models	L16705-001

## Miscellaneous parts

Component	Spare part number
<b>HP Smart AC adapter</b> , 45-W, non-PFC, RC, 4.5-mm	741553-850
<b>HP Smart AC adapter</b> , 45-W, non-PFC, RC, 4.5-mm, for use in Argentina	741553-852
<b>HP HDMI-to-VGA adapter</b>	701943-001
<b>HP USB to Gigabit RJ-45 adapter</b>	829941-001
<b>HP USB external DVD±RW DL SuperMulti Drive</b>	747080-001
<b>Power cord</b> (3-pin, black, 1.00-m):	
Argentina	401300-007
Australia	213356-008
Denmark	213353-008
Europe	213350-009
Israel	398063-003
Italy	213352-008
North America	213349-009
Switzerland	213354-008
The United Kingdom and Singapore	213351-008
<b>Rubber Kit</b> (includes top and bottom rubber feet/strips)	
For use in blue models	905567-001
For use in white models	910179-001
For use in black models	928420-001
For use in gray models	933607-001
For use in pink models	L16704-001
For use in purple models	L16709-001
<b>Screw Kit</b>	905568-001

---

## 4 Removal and replacement procedures preliminary requirements

### Tools required


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

- Flat-bladed screw driver
- Magnetic screw driver
- Phillips P0 screw driver

### 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 tablet, place the subassembly (and all accompanying screws) away from the work area to prevent damage.

---

### Plastic parts


---

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

---

### Cables and connectors

---

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

---

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.

## 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 tablet 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, screw drivers, 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 Authorized Service Provider parts



**NOTE:** 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.



**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 12](#) for details.



**NOTE:** HP continually improves and changes product parts. For complete and current information on supported parts for your computer, go to <http://partsurfer.hp.com>, select your country or region, and then follow the on-screen instructions.

---

### Component replacement procedures

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

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

## Bottom cover

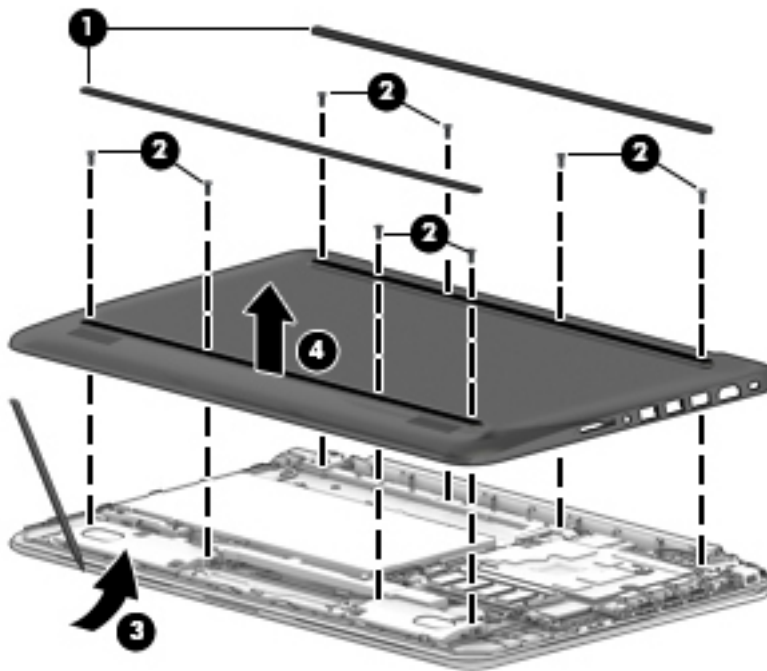
Description	Spare part number
Bottom cover for use in blue models	911362-001
Bottom cover for use in white models	911364-001
Bottom cover for use in black models	928417-001
Bottom cover for use in gray models	933581-001
Bottom cover for use in pink models	L16701-001
Bottom cover for use in purple models	L16706-001

Before removing the bottom cover, 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 bottom cover:

1. Position the computer upside down.
2. Peel the two rubber strips off the bottom cover **(1)** to gain access to the screws underneath.
3. Remove eight Phillips PM2.5×6.0 screws **(2)** that secure the bottom cover to the computer.
4. Pry around the edges to disengage the bottom cover from the computer **(3)**.
5. Lift the bottom cover from the computer **(4)**.



Reverse this procedure to install the bottom cover.



## Battery

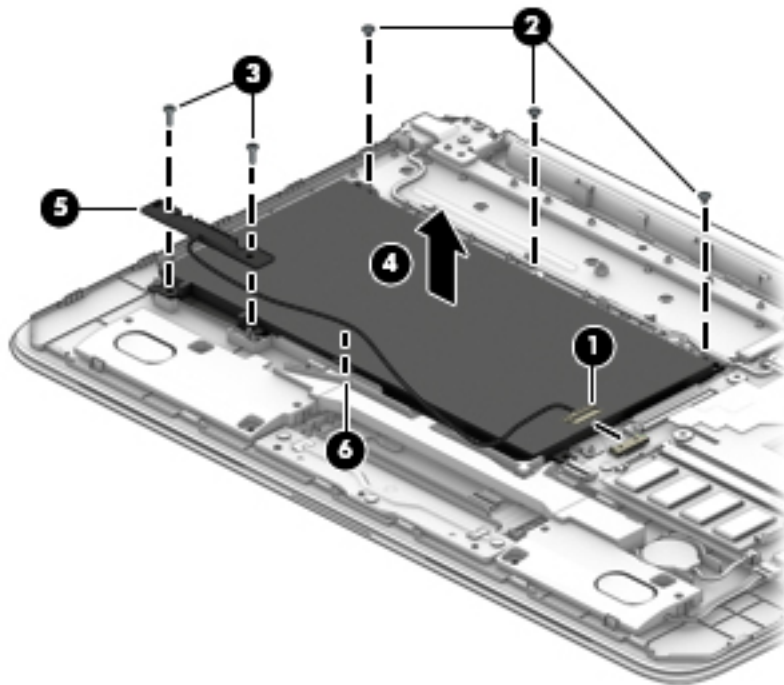
Description	Spare part number
Battery, 3-cell, 41-WHr, 3.615-AHr, Li-ion	844203-855
Battery cable	905566-001

Before removing the battery, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the bottom cover (see [Bottom cover on page 24](#)).

Remove the battery:

1. Disconnect the battery cable from the system board **(1)**.
2. Remove the three PM2.0×2.5 screws **(2)** that secure the battery to the computer.
3. Remove the two PM2.0×6.0 screws **(3)** that secure the connector to the computer.
4. Lift the battery and the connector from the computer **(4)**.
5. Disconnect the connector from the battery **(5)**.
6. If replacing the battery cable, remove the cable from its routing path in the computer **(6)**.



Reverse this procedure to install the battery.

## Memory module

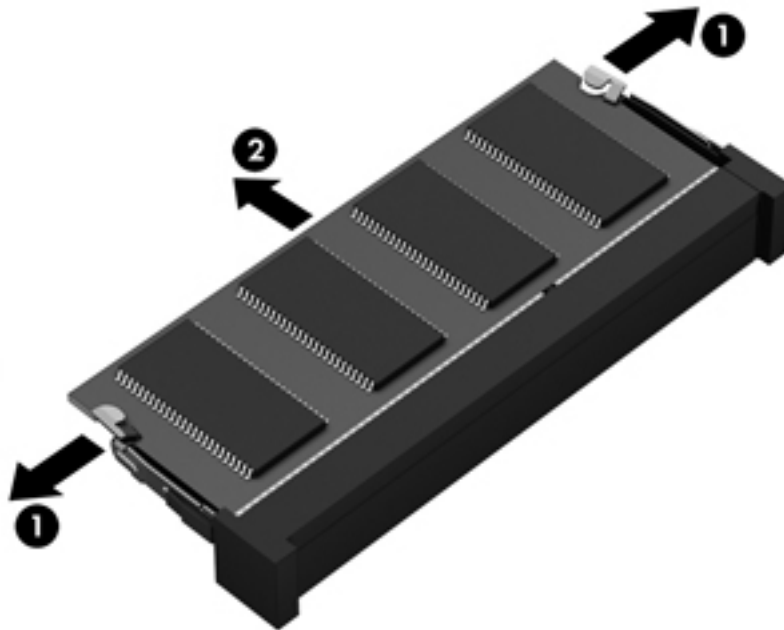
Description	Spare part number
Memory module, 4 GB (DDR4, 2666-MHz)	L10598-855

Before removing a memory module, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the bottom cover (see [Bottom cover on page 24](#)).
5. Disconnect the battery cable from the system board (see [Battery on page 25](#)).

To remove a memory module:


1. Spread the 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 an angle.



Reverse this procedure to install a memory module.

## WLAN module

Description	Spare part number
Intel Dual Band Wireless-AC 7265 802.11 AC 2x2 WiFi + Bluetooth 4.2 Combo Adapter (non-vPro) D1	901229-855
Realtek RTL8822BE 802.11 ac 2x2 WiFi + Bluetooth 4.2 Combo Adapter (MU-MIMO supported)	924813-855

 **CAUTION:** To prevent an unresponsive system, replace the wireless module only with a wireless module authorized for use in the computer by the governmental agency that regulates wireless devices in your country or region. If you replace the module and then receive a warning message, remove the module to restore device functionality, and then contact technical support.

Before removing the WLAN module, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the bottom cover (see [Bottom cover on page 24](#)).
5. Disconnect the battery cable from the system board (see [Battery on page 25](#)).

Remove the WLAN module:

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

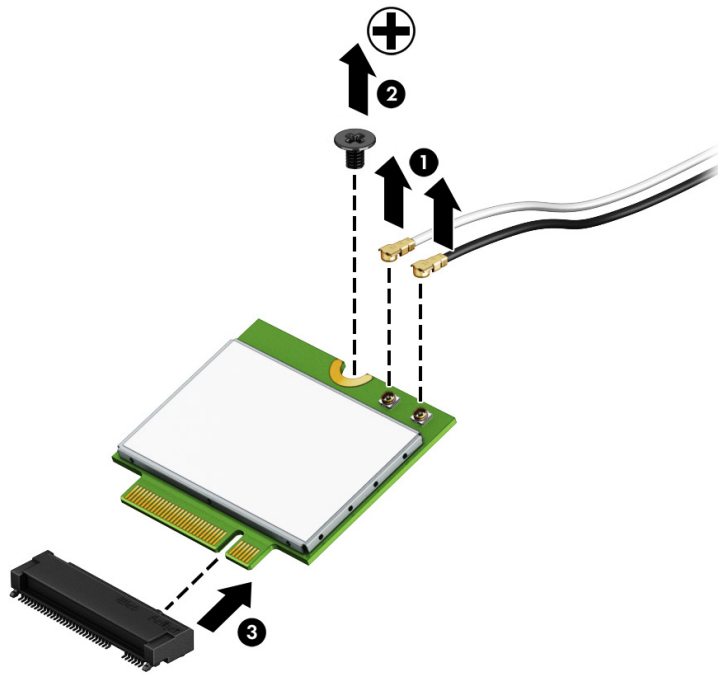


**NOTE:** The 1/black WLAN antenna cable is connected to the WLAN module 1/Main terminal.

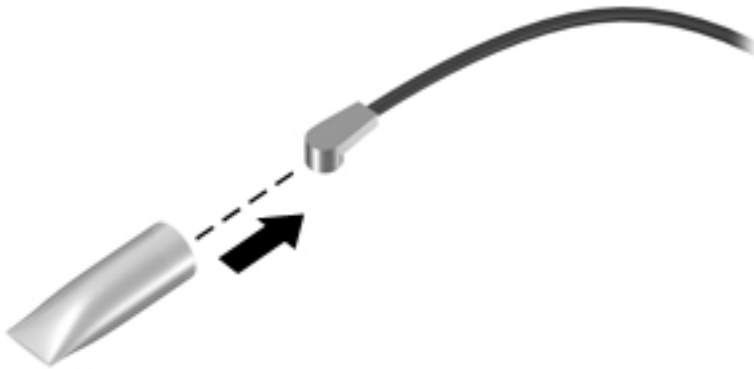
Either one or two antennas may be connected to the module.

2. Remove the Phillips PM2.0×3.0 screw **(2)** that secures the WLAN module to the computer. (The WLAN module tilts up.)

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



**NOTE:** If the WLAN antenna is not connected to the terminal on the WLAN module, a protective sleeve must be installed on the antenna connector, as shown in the following illustration.



Reverse this procedure to install the WLAN module.

## RTC battery

Description	Spare part number
RTC battery	857380-001

Before removing the RTC battery, follow these steps:

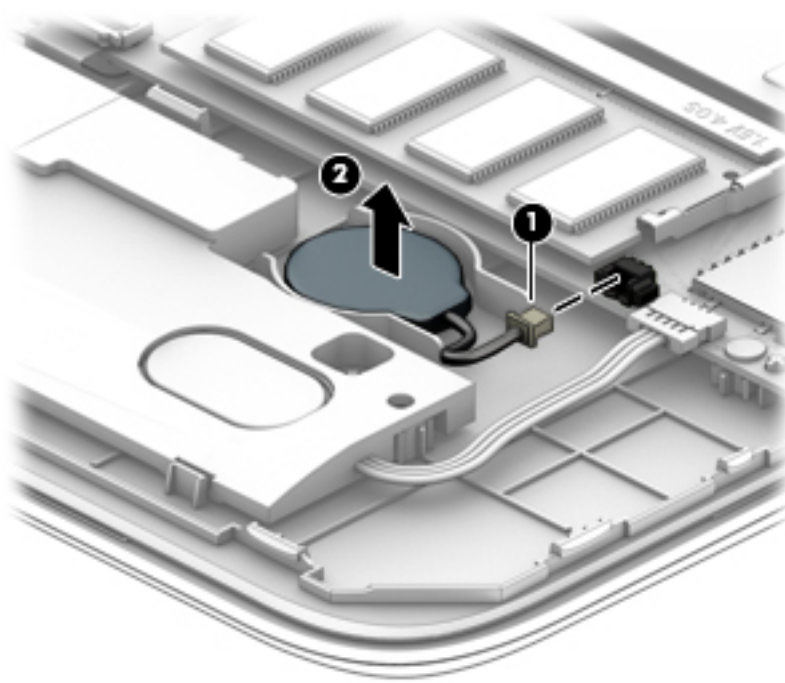
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the bottom cover (see [Bottom cover on page 24](#)).
5. Disconnect the battery cable from the system board (see [Battery on page 25](#)).

To remove the RTC battery:

- ▲ Disconnect the RTC battery cable from the system board **(1)**, and then lift the RTC battery from the computer **(2)**.



**NOTE:** The RTC battery is secured with double-sided tape.



Reverse this procedure to install the RTC battery.

## Heat sink

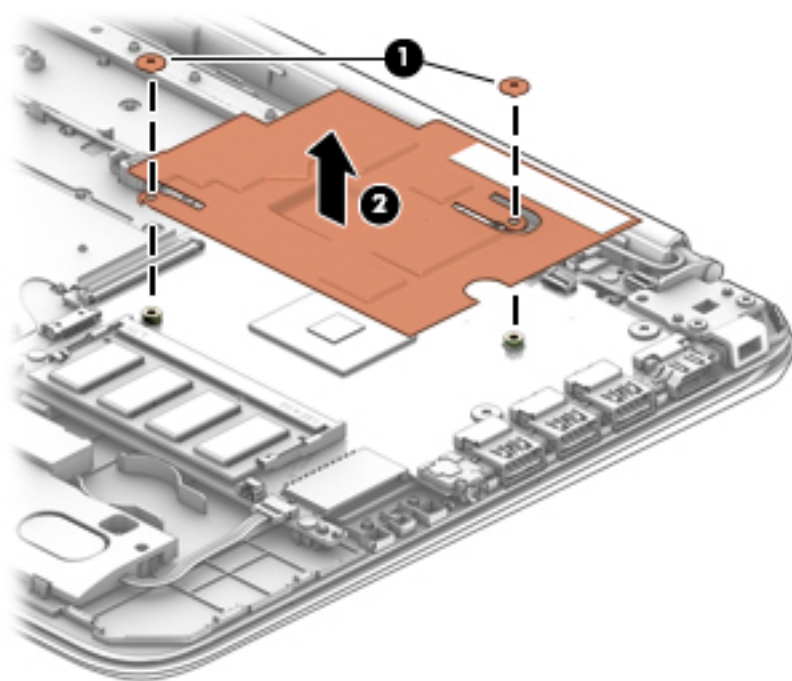
Description	Spare part number
Heat sink	907105-001

Before removing the heat sink, follow these steps:

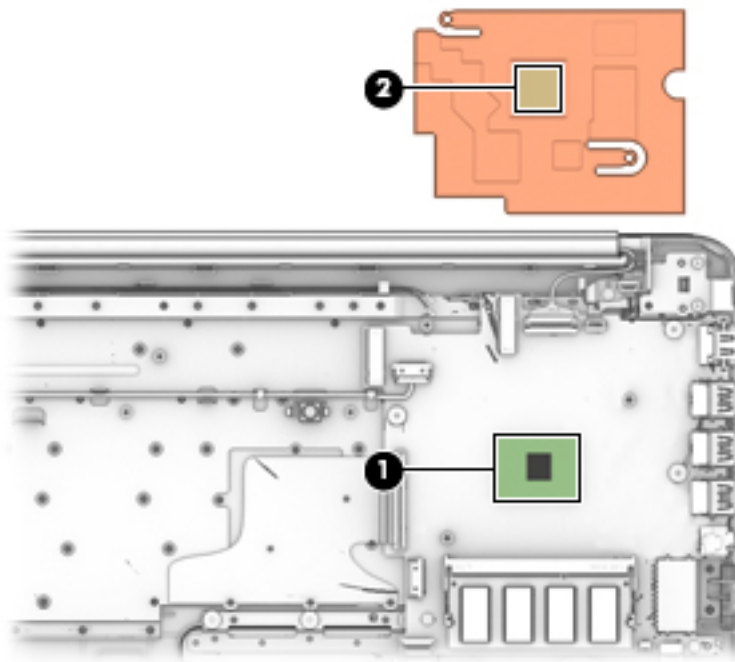
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the bottom cover (see [Bottom cover on page 24](#)).
5. Disconnect the battery cable from the system board (see [Battery on page 25](#)).

Remove the heat sink:

1. Remove the two Phillips broad head PM2.0×2.0 screws **(1)** that secure the heat sink to the system board.
2. Lift the heat sink off the system board **(2)**.



**NOTE:** The thermal material must be thoroughly cleaned from the surfaces of the heat sink and the system board each time the heat sink is removed. Thermal material is used on the processor **(1)** and the heat sink section **(2)** that services it.



Reverse this procedure to install the heat sink.

## Speakers

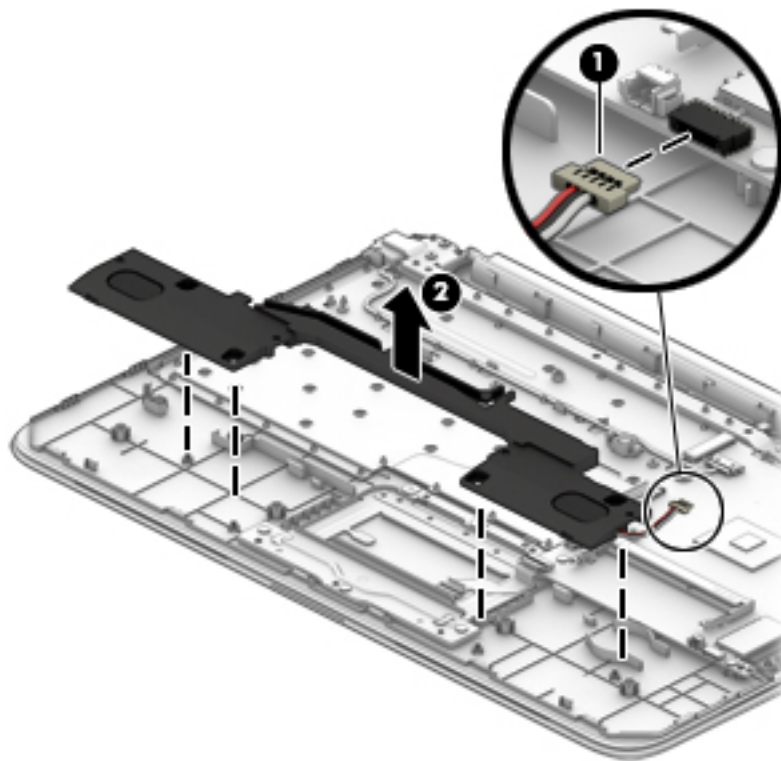
Description	Spare part number
Speakers (includes cable)	905565-001

Before removing the speakers, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the bottom cover (see [Bottom cover on page 24](#)).
5. Remove the battery (see [Battery on page 25](#)).

Remove the speakers:

1. Disconnect the speaker cable **(1)** from the system board.
2. Lift the speakers from the computer **(2)**.



Reverse this procedure to install the speakers.



## System board

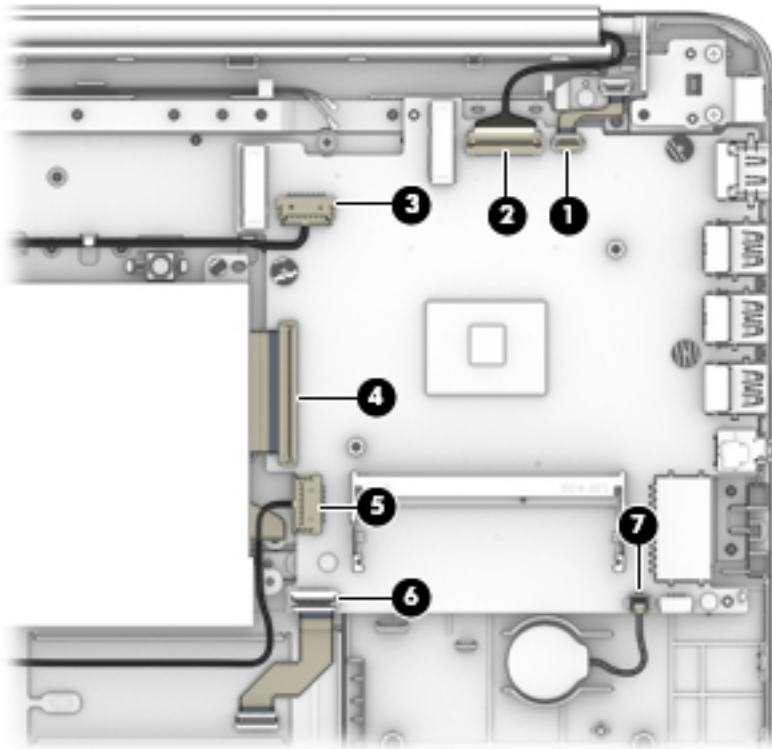
Description	Spare part number
Intel Celeron N4000 processor, 2 GB system memory, 32 GB eMMC hard drive, and a non-Windows operating system	L16633-001
Intel Celeron N4000 processor, 2 GB system memory, 32 GB eMMC hard drive, and the Windows 10 operating system	L16633-601
Intel Celeron N4000 processor, 32 GB eMMC hard drive, and a non-Windows operating system	L16634-001
Intel Celeron N4000 processor, 32 GB eMMC hard drive, and the Windows 10 operating system	L16634-601
Intel Celeron N4000 processor, 64 GB eMMC hard drive, and a non-Windows operating system	L16637-001
Intel Celeron N4000 processor, 64 GB eMMC hard drive, and the Windows 10 operating system	L16637-601

Before removing the system board, follow these steps:

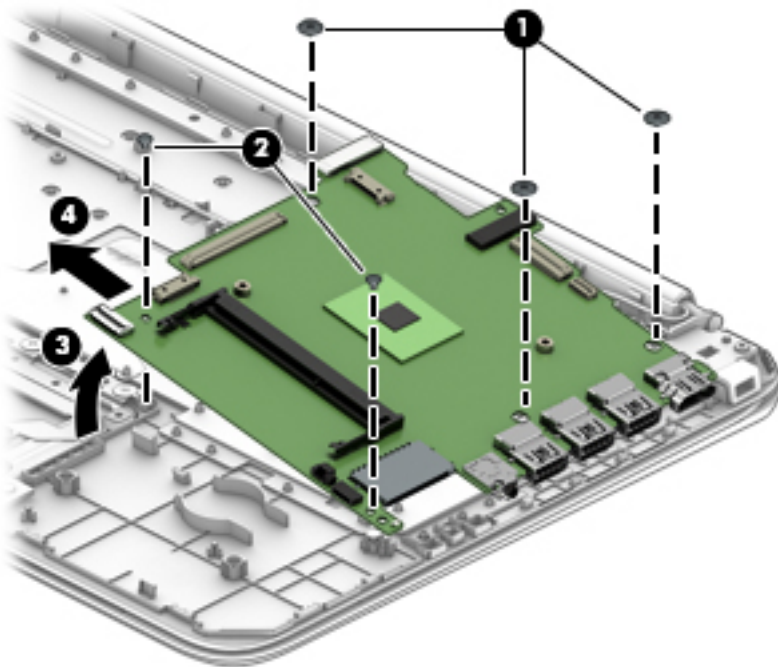
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the bottom cover (see [Bottom cover on page 24](#)).
5. Remove the WLAN module (see [WLAN module on page 27](#)).
6. Remove the heat sink (see [Heat sink on page 30](#)).

Remove the system board:

1. Disconnect the following cables from the system board:
  - (1): Power button board cable
  - (2): Display cable
  - (3): Power connector cable
  - (4): Keyboard cable
  - (5): Battery cable
  - (6): TouchPad cable
  - (7): RTC battery cable



2. Remove the three black Phillips broad head PM2.0×2.5 screws **(1)** that secure the system board to the computer.
3. Remove the two silver Phillips PM2.0×2.5 screws **(2)** that secure the system board to the computer.
4. Lift up the left side of the system board **(3)**, and then pull the system board toward the left to remove it from the computer **(4)**.



Reverse this procedure to install the system board.

## TouchPad

Description	Spare part number
TouchPad for use in blue models	905691-001
TouchPad for use in white models	910178-001
TouchPad for use in black models	928421-001
TouchPad for use in gray models	933606-001
TouchPad for use in pink models	L16703-001
TouchPad for use in purple models	L16708-001
TouchPad cable	905563-001

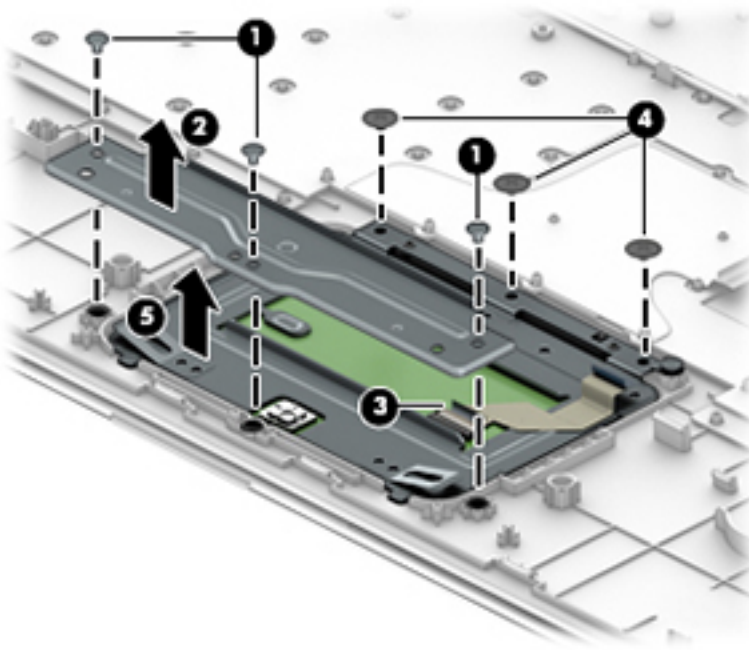
Before removing the TouchPad, follow these steps:

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 bottom cover (see [Bottom cover on page 24](#)).
5. Disconnect the battery cable from the system board (see [Battery on page 25](#)).
6. Remove the system board (see [System board on page 33](#)).

Remove the TouchPad:


1. Remove the three Phillips PM2.0×3.0 screws **(1)** that secure the TouchPad bracket to the computer, and then lift the bracket from the computer **(2)**.
2. Disconnect the cable from the TouchPad **(3)**.

3. Remove the three Phillips PM2.0×3.0 screws (4) that secure the TouchPad to the computer, and the lift the Touchpad from the computer (5).



Reverse this procedure to install the TouchPad.

## Display assembly

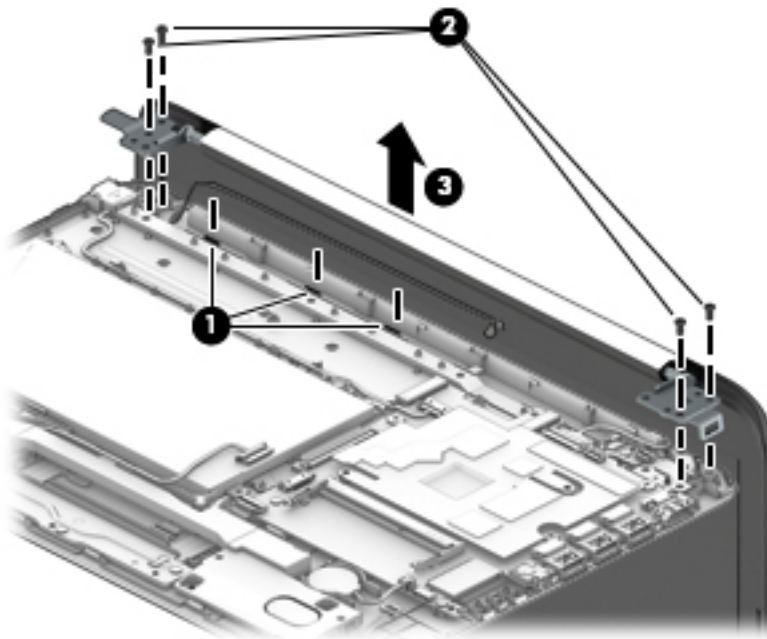
 **NOTE:** The display assembly is spared at the subcomponent level only. For display assembly spare part information, see the individual removal subsections.

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 bottom cover (see [Bottom cover on page 24](#)).
5. Disconnect the battery cable from the system board (see [Battery on page 25](#)).

Remove the display assembly:

1. Remove the WLAN antennas from the routing path in the computer **(1)**.
2. Remove the four Phillips PM2.5×5.0 screws **(2)** that secure the display assembly to the computer.
3. Lift the display assembly from the computer **(3)**.



4. If it is necessary to replace the display bezel:
  - a. Flex the inside edges of the top edge **(1)**, the left and right sides **(2)**, and the bottom edge **(3)** of the display bezel until the bezel disengages from the display back cover.
  - b. Remove the display bezel **(4)**.

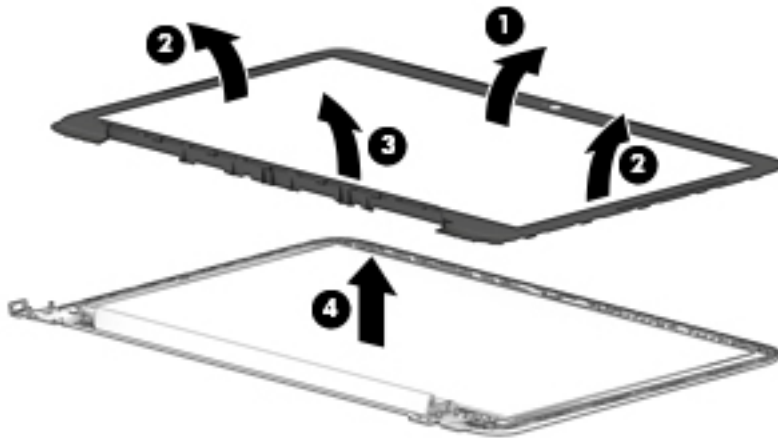
The display bezel is available using the following spare part numbers:

905559-001 for blue models

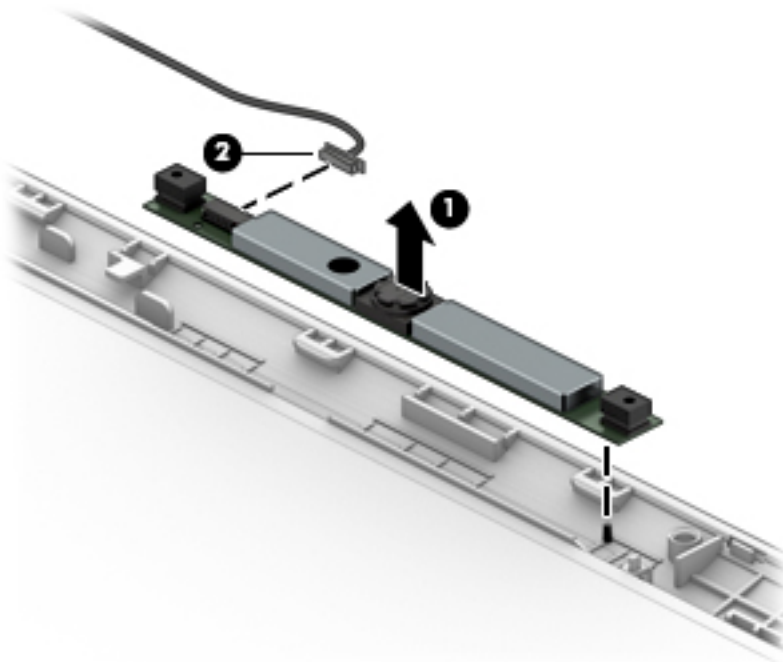
910177-001 for white models

928418-001 for black models

933582-001 for gray models  
L16702-001 for pink models  
L16707-001 for purple models



5. If it is necessary to replace the webcam/microphone module:
- Detach and lift the module **(1)** from the display back cover. (The webcam/microphone module is attached to the display back cover with double-sided adhesive.)
  - Disconnect the webcam/microphone module cable **(2)** from the module.
- The webcam/microphone module is available using spare part number 766523-025.

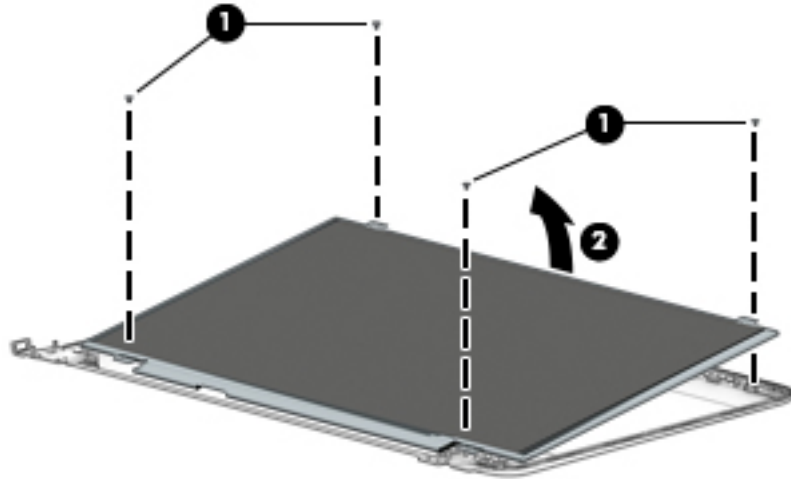


6. If it is necessary to replace the display panel:
- Remove the four Phillips PM2.0×3.0 screws **(1)** that secure the display panel to the display back cover.

**⚠ CAUTION:** Before turning the display panel upside down, make sure the work surface is clear of tools, screws, and any other foreign objects. Failure to follow this caution can result in damage to the display panel.

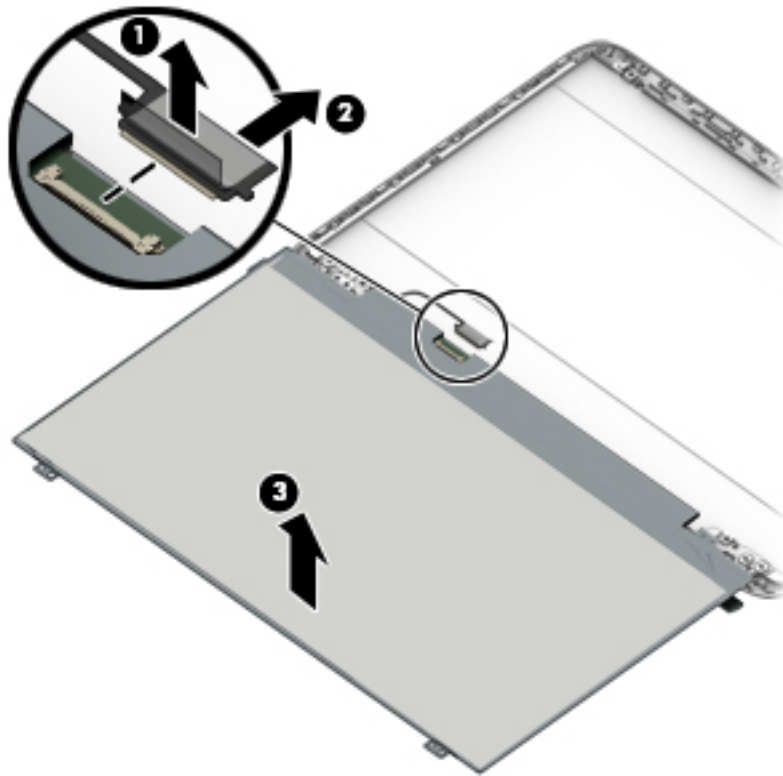
- b.** Lift the top edge of the display panel **(2)** and swing it up and forward until it rests upside down in front of the display back cover.

The raw display panel is available using spare part number 847664-005 for an HD panel and 847660-010 for an FHD display.



- c.** Release the adhesive strip **(1)** that secures the display panel cable connector to the display panel.
- d.** Disconnect the display panel cable **(2)** from the display panel.

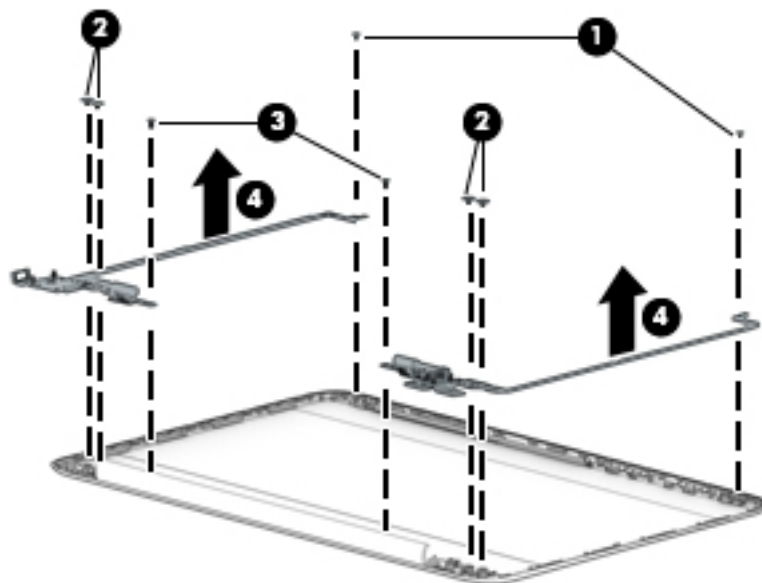
- e. Remove the display panel from the computer **(3)**.



7. If it is necessary to replace the display hinges:

- a. Remove the two Phillips PM2.0×3.0 screws **(1)** on the top of the hinges.
- b. Remove the four Phillips PM2.5×2.5 screws **(2)** on the outside bottom of the hinges and the two Phillips PM2.5×4.0 screws **(3)** at the inside bottom of the hinges.
- c. Remove the display hinges **(4)**.

The display hinges are included in the Display Hinge Kit, spare part number 905560-001.




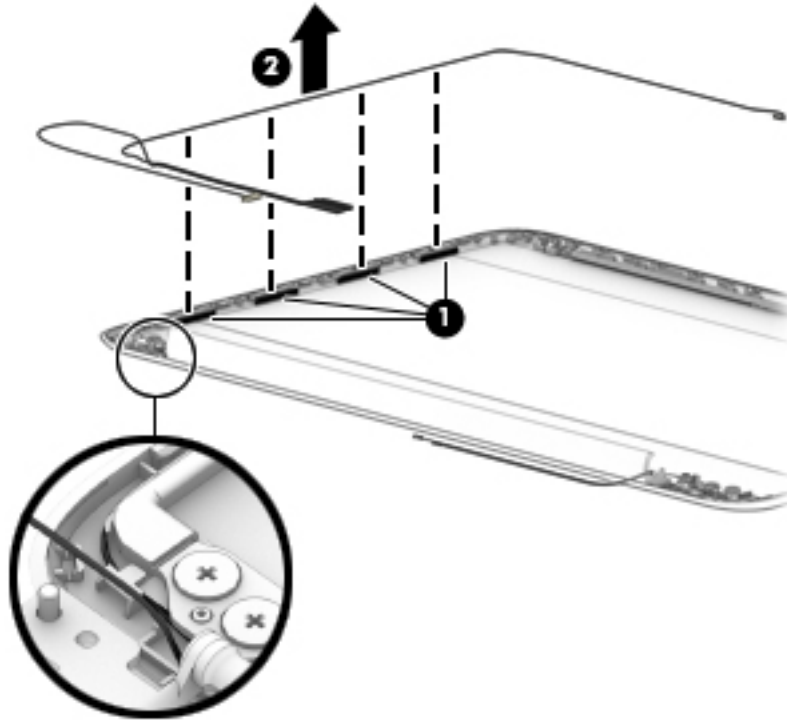


8. If it is necessary to replace the display panel cable:

- a. Release the display panel cable from the retention clips **(1)** and channel built into the left side of the display back cover.
- b. Remove the display panel cable **(2)**.

The display panel cable includes the webcam/microphone module cable and is available using spare part number 905561-001.

 **IMPORTANT:** Be sure to note the way the cable routes into the display hinge, as shown in the following image.



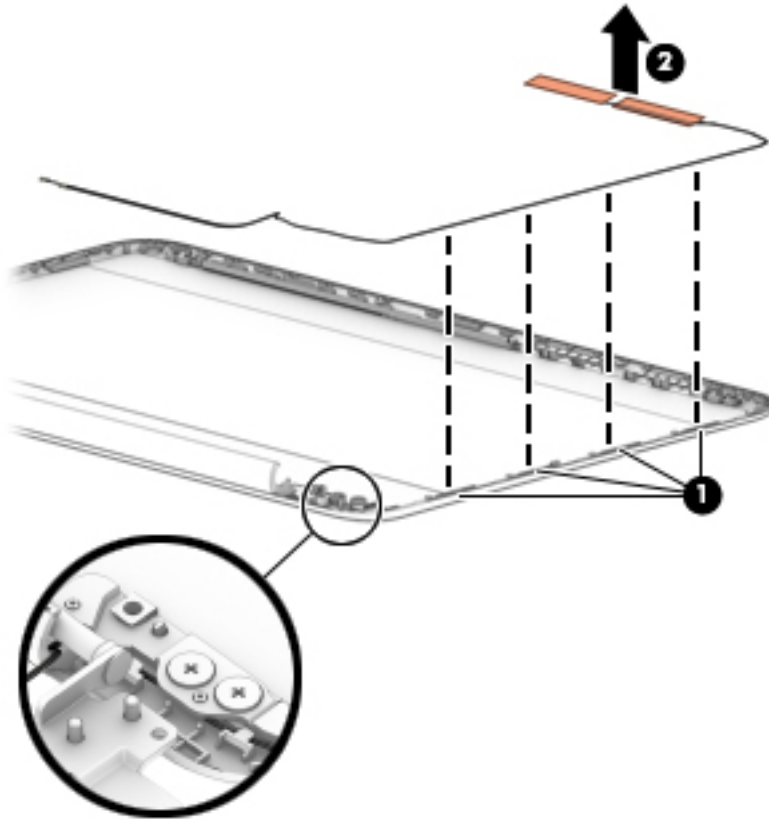
9. If it is necessary to replace the WLAN antenna cable and transceiver:

- a. Release the antenna cable from the retention clips **(1)** and channel built into the right side of the display back cover.

- b. Peel the antenna transceivers from the top of the display enclosure, and then remove the antennas from the enclosure **(2)**.

The antenna cables and transceivers are included in the WLAN Antenna Kit, spare part number 906173-001.

 **IMPORTANT:** Be sure to note the way the antenna cable routes into the display hinge, as shown in the following image.



Reverse this procedure to reassemble and install the display assembly.

## Power button board

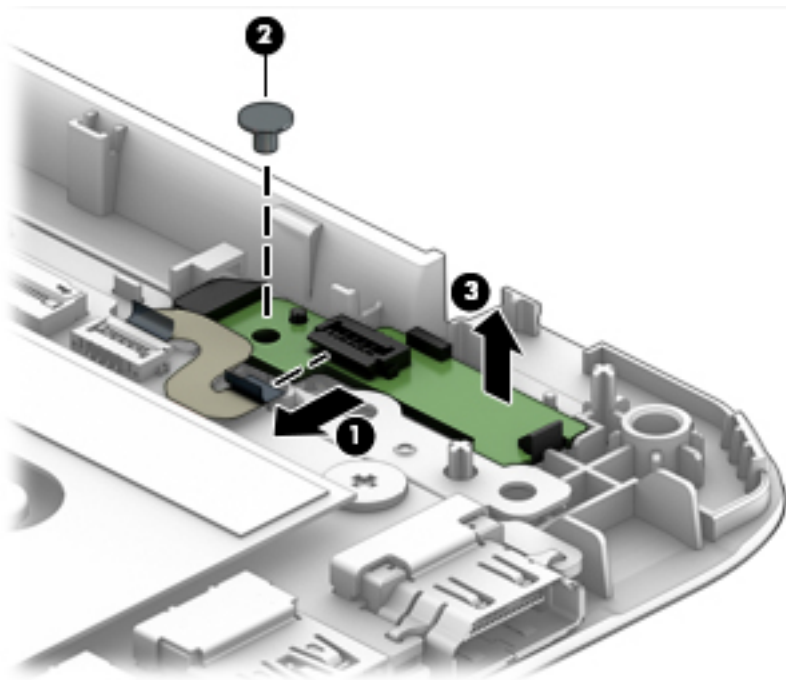
Description	Spare part number
Power button board	905579-001
Power button board cable	905562-001

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 bottom cover (see [Bottom cover on page 24](#)).
5. Disconnect the battery cable from the system board (see [Battery on page 25](#)).
6. Remove the display assembly (see [Display assembly on page 37](#)).

Remove the power button board:

1. Disconnect the cable from the power button board **(1)**.
2. Remove the PM2.0×3.0 screw **(2)** that secures the power button board to the computer.
3. Lift the board from the computer **(3)**.



Reverse this procedure to install the power button board.

## Power connector cable

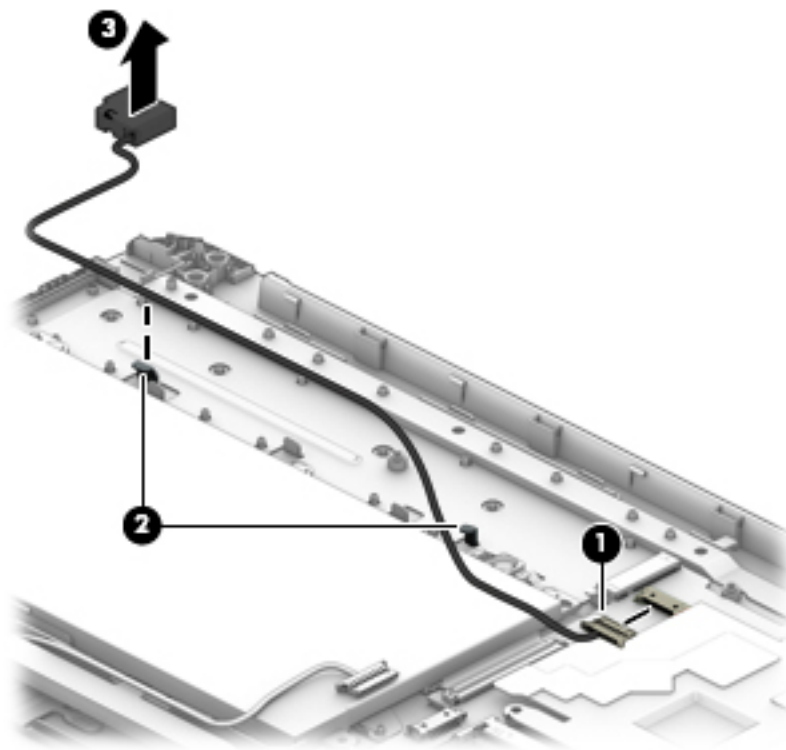
Description	Spare part number
Power connector cable	810327-004

Before removing the power connector cable, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the bottom cover (see [Bottom cover on page 24](#)).
5. Disconnect the battery cable from the system board (see [Battery on page 25](#)).
6. Remove the display assembly (see [Display assembly on page 37](#)).

Remove the power connector cable:

1. Disconnect the power connector cable **(1)** from the system board.
2. Release the power connector **(2)** from the retention clips built into the bottom cover.
3. Remove the power connector cable **(3)**.



Reverse this procedure to install the power connector cable.

## Keyboard/top cover

The top cover/keyboard spare part remains after all other spare parts have been removed.

In this section, the first table provides the main spare part number for the keyboards. The second table provides the country codes.

Description	Spare part number
Blue models	905569-xx1
White models	910180-xx1
Gray models	933583-xx1
Pink models	L16698-xx1
Purple models	L16699-xx1
Jet black models (only available for -001 United States)	928419-001

For use in country or region	Spare part number	For use in country or region	Spare part number	For use in country or region	Spare part number
Belgium	-A41	Hungary	-211	Saudi Arabia	-171
Bulgaria	-261	Israel	-BB1	Slovenia	-BA1
Canada	-DB1	Italy	-061	Spain	-071
Czech Republic and Slovakia	-FL1	Latin America	-161	Switzerland	-BG1
Denmark, Finland, and Norway	-DH1	The Netherlands	-B31	Turkey	-141
France	-051	Portugal	-131	United Kingdom	-031
Germany	-041	Romania	-271	United States	-001
Greece	-151	Russia	-251		

## 6 Using Setup Utility (BIOS)

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.



**NOTE:** To start Setup Utility on convertible computers, your computer must be in notebook mode and you must use the keyboard attached to your notebook.

### Starting Setup Utility (BIOS)



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

- ▲ Turn on or restart the computer, quickly press **esc**, and then press **f10**.

### Updating Setup Utility (BIOS)

Updated versions of Setup Utility (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 decide whether you need to update Setup Utility (BIOS), first determine the BIOS version on your computer.

To reveal the BIOS version information (also known as *ROM date* and *System BIOS*), use one of these options.


- HP Support Assistant
  1. Type **support** in the taskbar search box, and then select the **HP Support Assistant** app.  
– or –  
Click the question mark icon in the taskbar.
  2. Select **My PC**, and then select **Specifications**.
- Setup Utility (BIOS)
  1. Start Setup Utility (BIOS) (see [Starting Setup Utility \(BIOS\) on page 46](#)).
  2. Select **Main**, select **System Information**, and then make note of the BIOS version.
  3. Select **Exit**, select **No**, and then follow the on-screen instructions.

To check for later BIOS versions, see [Downloading a BIOS update on page 47](#).

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

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

1. Type `support` in the taskbar search box, and then select the **HP Support Assistant** app.  
– or –  
Click the question mark icon in the taskbar.
2. Click **Updates**, and then click **Check for updates and messages**.
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 version, 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.

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

1. Type `file` in the taskbar search box, 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 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.

## 7 Backing up, restoring, and recovering

This chapter provides information about creating backups and restoring and recovering your system.

Windows provides robust tools to back up your personal information, restore your computer from a backup, and recover the computer to its original state. See [Using Windows tools for backing up, restoring, and recovering your computer on page 48](#).

In addition to the Windows tools, depending on the operating system preinstalled on your computer, your computer may also include tools provided by HP for additional functionality.



**IMPORTANT:** If you will be performing recovery procedures on a tablet, the tablet battery must be at least 70% charged before you start the recovery process.

**IMPORTANT:** For a tablet with a detachable keyboard, connect the tablet to the keyboard base before beginning any recovery process.

### Using Windows tools for backing up, restoring, and recovering your computer



**IMPORTANT:** Windows is the only option that allows you to back up your personal information. Schedule regular backups to avoid information loss.

You can use Windows tools to back up personal information and create system restore points and recovery media, allowing you to restore from backup, refresh the computer, and reset the computer to its original state.



**NOTE:** If computer storage is 32 GB or less, Microsoft System Restore is disabled by default.

### Creating backups

You can create recovery media, system restore points, and backups of personal information using Windows tools. For more information and steps, see the Get Help app.

- Select the **Start** button, and then select the **Get Help** app.



**NOTE:** You must be connected to the Internet to access the Get Help app.

1. Select **Start**, select **Settings**, then select **Update & Security**.
2. Select **Backup**, and then follow the on-screen instructions.

### Restoring and recovering

Windows offers several options for restoring from backup, refreshing the computer, and resetting the computer to its original state. For more information see the Get Help app.

- Select the **Start** button, and then select the **Get Help** app.



**NOTE:** You must be connected to the Internet to access the Get Help app.

1. Select **Start**, select **Settings**, then select **Update & Security**.
2. Select **Recovery**, and then follow the on-screen instructions.



## Creating HP Recovery media (select products only)

After you have successfully set up the computer, use HP Recovery Manager to create a backup of the HP Recovery partition on the computer. This backup is called HP Recovery media. In cases where the hard drive is corrupted or has been replaced, the HP Recovery media can be used to reinstall the original operating system.

To check for the presence of the Recovery partition in addition to the Windows partition, right-click the **Start** button, select **File Explorer**, and then select **This PC**.



**NOTE:** If your computer does not list the Recovery partition in addition to the Windows partition, contact support to obtain recovery discs. Go to <http://www.hp.com/support>, select your country or region, and then follow the on-screen instructions.

On select products, you can use the HP Cloud Recovery Download Tool to create HP Recovery media on a bootable USB flash drive. For more information, see [Using the HP Cloud Recovery Download Tool to create recovery media on page 50](#).

## Using HP Recovery Manager to create recovery media



**NOTE:** If you cannot create recovery media yourself, contact support to obtain recovery discs. Go to <http://www.hp.com/support>, select your country or region, and then follow the on-screen instructions.

### Before you begin

Before you begin, note the following:

- Only one set of 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 media storage capacity.
- To create recovery media, use one of the following options:



**NOTE:** If the computer does not have a recovery partition, HP Recovery Manager displays the Windows Create a Recovery Drive feature. Follow the on-screen instructions to create a recovery image on a blank USB flash drive or hard drive.

- If your computer has an optical drive with DVD writer capability, be sure to use only high-quality blank DVD-R, DVD+R, DVD-R DL, or 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, which are not compatible with HP Recovery Manager software.
- If your computer does not include an integrated optical drive with DVD writer capability, you can use an external optical drive (purchased separately) to create recovery discs, as described above. If an external optical drive is used, you must connect it directly to a USB port on the computer. It cannot be connected to a USB port on an external device, such as a USB hub.
- To create a recovery flash drive, use a high-quality blank USB flash drive.
- Be sure that the computer is connected to AC power before you begin creating the recovery media.
- The creation process can take an hour or more. Do not interrupt this process.
- If necessary, you can exit the program before you have finished creating all of the recovery media. HP Recovery Manager will finish the current DVD or flash drive. The next time you start HP Recovery Manager, you will be prompted to continue.

## Creating the recovery media

To create HP Recovery media using HP Recovery Manager:



**IMPORTANT:** For a tablet with a detachable keyboard, connect the tablet to the keyboard base before beginning these steps.

1. Type `recovery` in the taskbar search box, and then select **HP Recovery Manager**.
2. Select **Create recovery media**, and then follow the on-screen instructions.

If you need to recover the system, see [Recovering using HP Recovery Manager on page 51](#).

## Using the HP Cloud Recovery Download Tool to create recovery media

To create HP Recovery media using the HP Cloud Recovery Download Tool:

1. Go to <http://www.hp.com/support>.
2. Select **Software and Drivers**, and then follow the on-screen instructions.

## Restoring and recovery

Restoring and recovery can be performed using one or more of the following options: Windows tools, HP Recovery Manager, or the HP Recovery partition.



**IMPORTANT:** HP Recovery Manager and the HP Recovery partition are not available for Windows 10 S products.

## Restoring, resetting, and refreshing using Windows tools

Windows offers several options for restoring, resetting, and refreshing the computer. For details, see [Using Windows tools for backing up, restoring, and recovering your computer on page 48](#).

## Restoring using HP Recovery Manager and the HP Recovery partition

You can use HP Recovery Manager and the HP Recovery partition (select products only) to restore the computer to the original factory state:

- **Resolving problems with preinstalled applications or drivers**—To correct a problem with a preinstalled application or driver:
  1. Type `recovery` in the taskbar search box, and then select **HP Recovery Manager**.
  2. Select **Reinstall drivers and/or applications**, and then follow the on-screen instructions.
- **Using System Recovery**—To recover the Windows partition to original factory content, select the **System Recovery** option from the HP Recovery partition (select products only) or use the HP Recovery media. For more information, see [Recovering using HP Recovery Manager on page 51](#). If you have not already created recovery media, see [Creating HP Recovery media \(select products only\) on page 49](#).
- **Using Factory Reset** (select products only)—Restores the computer to its original factory state by deleting all information from the hard drive and recreating the partitions and then reinstalling the operating system and the software that was installed at the factory (select products only). To use the **Factory Reset** option, you must use HP Recovery media. If you have not already created recovery media, see [Creating HP Recovery media \(select products only\) on page 49](#).



**NOTE:** If you have replaced the hard drive in the computer, you can use the Factory Reset option to install the operating system and the software that was installed at the factory.

## Recovering using HP Recovery Manager

You can use HP Recovery Manager software to recover the computer to its original factory state by using the HP Recovery media that you either created or that you obtained from HP, or by using the HP Recovery partition (select products only).

If you have not already created HP Recovery media, see [Creating HP Recovery media \(select products only\) on page 49](#).



**IMPORTANT:** HP Recovery Manager does not automatically provide backups of your personal data. Before beginning recovery, back up any personal data that you want to retain. See [Using Windows tools for backing up, restoring, and recovering your computer on page 48](#).

**IMPORTANT:** Recovery through HP Recovery Manager should be used as a final attempt to correct computer issues.



**NOTE:** When you start the recovery process, only the options available for your computer are displayed.

Before you begin, note the following:

- 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.
- If the computer hard drive fails, HP Recovery media must be used. This media is created using HP Recovery Manager. See [Creating HP Recovery media \(select products only\) on page 49](#).
- If your computer does not allow the creation of HP Recovery media or if the HP Recovery media does not work, contact support to obtain recovery media. Go to <http://www.hp.com/support>, select your country or region, and then follow the on-screen instructions.

## Recovering using the HP Recovery partition (select products only)

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

The HP Recovery partition (select products only) allows System Recovery only.

To start HP Recovery Manager from the HP Recovery partition:



**IMPORTANT:** For a tablet with a detachable keyboard, connect the tablet to the keyboard base before beginning these steps (select products only).

1. Type `recovery` in the taskbar search box, select **HP Recovery Manager**, and then select **Windows Recovery Environment**.

– or –

For computers or tablets with keyboards attached:


- ▲ Press **f11** while the computer boots, or press and hold **f11** as you press the power button.

For tablets without keyboards:

- ▲ Turn on or restart the tablet, quickly hold down the volume up button, and then select **f11**.

2. Select **Troubleshoot** from the boot options menu.
3. Select **Recovery Manager**, and then follow the on-screen instructions.

---

 **NOTE:** If your computer does not automatically restart in HP Recovery Manager, change the computer boot order, and then follow the on-screen instructions. See [Changing the computer boot order on page 52](#).


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## Recovering using HP Recovery media

If your computer does not have an HP Recovery partition or if the hard drive is not working properly, you can use HP Recovery media to recover the original operating system and software programs that were installed at the factory.

- ▲ Insert the HP Recovery media, and then restart the computer.

---

 **NOTE:** If your computer does not automatically restart in HP Recovery Manager, change the computer boot order, and then follow the on-screen instructions. See [Changing the computer boot order on page 52](#).


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## Changing the computer boot order

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

To change the boot order:

---

 **IMPORTANT:** For a tablet with a detachable keyboard, connect the tablet to the keyboard base before beginning these steps.

---

1. Insert the HP Recovery media.
2. Access the system **Startup** menu.

For computers or tablets with keyboards attached:

- ▲ Turn on or restart the computer or tablet, quickly press **esc**, and then press **f9** for boot options.

For tablets without keyboards:

- ▲ Turn on or restart the tablet, quickly hold down the volume up button, and then select **f9**.

– or –


Turn on or restart the tablet, quickly hold down the volume down button, and then select **f9**.

3. Select the optical drive or USB flash drive from which you want to boot, and then follow the on-screen instructions.

## Removing the HP Recovery partition (select products only)

HP Recovery Manager software allows you to remove the HP Recovery partition (select products only) to free up hard drive space.

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 **IMPORTANT:** After you remove the HP Recovery partition, you will not be able to perform System Recovery or create HP Recovery media. Before removing the Recovery partition, create HP Recovery media. See [Creating HP Recovery media \(select products only\) on page 49](#).


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Follow these steps to remove the HP Recovery partition:

1. Type `recovery` in the taskbar search box, and then select **HP Recovery Manager**.
2. Select **Remove Recovery Partition**, and then follow the on-screen instructions.

## 8 Using HP PC Hardware Diagnostics

### Using HP PC Hardware Diagnostics Windows (select products only)

 **NOTE:** Depending on the operating system preinstalled on your computer, HP PC Hardware Diagnostics may not be supported.

HP PC Hardware Diagnostics Windows is a Windows-based utility that allows you to run diagnostic tests to determine whether the computer hardware is functioning properly. The tool runs within the Windows operating system in order to diagnose hardware failures.

If HP PC Hardware Diagnostics Windows is not installed on your computer, first you must download and install it. To download HP PC Hardware Diagnostics Windows, see [Downloading HP PC Hardware Diagnostics Windows on page 53](#).

After HP PC Hardware Diagnostics Windows is installed, follow these steps to access it from HP Help and Support or HP Support Assistant.

1. To access HP PC Hardware Diagnostics Windows from HP Help and Support:
    - a. Select the **Start** button, and then select **HP Help and Support**.
    - b. Right-click **HP PC Hardware Diagnostics Windows**, select **More**, and then select **Run as administrator**.


– or –

To access HP PC Hardware Diagnostics Windows from HP Support Assistant:

    - a. Type `support` in the taskbar search box, and then select the **HP Support Assistant** app.

– or –

Select the question mark icon in the taskbar.

    - b. Select **Troubleshooting and fixes**.
    - c. Select **Diagnostics**, and then select **HP PC Hardware Diagnostics Windows**.
  2. When the tool opens, select the type of diagnostic test you want to run, and then follow the on-screen instructions.
-  **NOTE:** If you need to stop a diagnostic test at any time, select **Cancel**.
3. When HP PC Hardware Diagnostics Windows detects a failure that requires hardware replacement, a 24-digit Failure ID code is generated. For assistance in correcting the problem, contact support, and then provide the Failure ID code.

### Downloading HP PC Hardware Diagnostics Windows

- The HP PC Hardware Diagnostics Windows download instructions are provided in English only.
- You must use a Windows computer to download this tool because only .exe files are provided.

## Downloading the latest HP PC Hardware Diagnostics Windows version


To download HP PC Hardware Diagnostics Windows, follow these steps:

1. Go to <http://www.hp.com/go/techcenter/pcdiags>. The HP PC Diagnostics home page is displayed.
2. In the **HP PC Hardware Diagnostics** section, select **Download**, and then select a location on your computer or a USB flash drive.

The tool is downloaded to the selected location.

## Downloading HP Hardware Diagnostics Windows by product name or number (select products only)

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 **NOTE:** For some products, it may be necessary to download the software to a USB flash drive by using the product name or number.

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To download HP PC Hardware Diagnostics Windows by product name or number, follow these steps:

1. Go to <http://www.hp.com/support>.
2. Select **Get software and drivers**, select your type of product, and then enter the product name or number in the search box that is displayed.
3. In the **HP PC Hardware Diagnostics** section, select **Download**, and then select a location on your computer or a USB flash drive.

The tool is downloaded to the selected location.


## Installing HP PC Hardware Diagnostics Windows

To install HP PC Hardware Diagnostics Windows, follow these steps:

- ▲ Navigate to the folder on your computer or the flash drive where the .exe file was downloaded, double-click the .exe file, and then follow the on-screen instructions.

## Using HP PC Hardware Diagnostics UEFI

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 **NOTE:** For Windows 10 S computers, you must use a Windows computer and a USB flash drive to download and create the HP UEFI support environment because only .exe files are provided. For more information, see [Downloading HP PC Hardware Diagnostics UEFI to a USB flash drive on page 55](#).


---

HP PC Hardware Diagnostics UEFI (Unified Extensible Firmware Interface) allows you to run diagnostic tests to determine whether the computer hardware is functioning properly. The tool runs outside the operating system so that it can isolate hardware failures from issues that are caused by the operating system or other software components.

If your PC will not boot into Windows, you can use HP PC Hardware Diagnostics UEFI to diagnose hardware issues.

When HP PC Hardware Diagnostics UEFI detects a failure that requires hardware replacement, a 24-digit Failure ID code is generated. For assistance in correcting the problem, contact support, and provide the Failure ID code.

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 **NOTE:** To start diagnostics on a convertible computer, your computer must be in notebook mode, and you must use the attached keyboard.

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 **NOTE:** If you need to stop a diagnostic test, press **esc**.

---

## Starting HP PC Hardware Diagnostics UEFI

 **NOTE:** For Windows 10 S computers, see [Downloading HP PC Hardware Diagnostics UEFI to a USB flash drive on page 55](#).

To start HP PC Hardware Diagnostics UEFI, follow these steps:

1. Turn on or restart the computer, and quickly press [esc](#).
2. Press [f2](#).

The BIOS searches three places for the diagnostic tools, in the following order:

- a. Connected USB flash drive



**NOTE:** To download the HP PC Hardware Diagnostics UEFI tool to a USB flash drive, see [Downloading the latest HP PC Hardware Diagnostics UEFI version on page 55](#).


- b. Hard drive
- c. BIOS

3. When the diagnostic tool opens, select the type of diagnostic test you want to run, and then follow the on-screen instructions.

## Downloading HP PC Hardware Diagnostics UEFI to a USB flash drive

Downloading HP PC Hardware Diagnostics UEFI to a USB flash drive can be useful in the following situations:

- HP PC Hardware Diagnostics UEFI is not included in the preinstall image.
- HP PC Hardware Diagnostics UEFI is not included in the HP Tool partition.
- The hard drive is damaged.


 **NOTE:** The HP PC Hardware Diagnostics UEFI download instructions are provided in English only, and you must use a Windows computer to download and create the HP UEFI support environment because only .exe files are provided.

## Downloading the latest HP PC Hardware Diagnostics UEFI version

To download the latest HP PC Hardware Diagnostics UEFI version to a USB flash drive:

1. Go to <http://www.hp.com/go/techcenter/pcdiags>. The HP PC Diagnostics home page is displayed.
2. In the **HP PC Hardware Diagnostics UEFI** section, select **Download UEFI Diagnostics**, and then select **Run**.

## Downloading HP PC Hardware Diagnostics UEFI by product name or number (select products only)

 **NOTE:** For some products, it may be necessary to download the software to a USB flash drive by using the product name or number.

To download HP PC Hardware Diagnostics UEFI by product name or number (select products only) to a USB flash drive:

1. Go to <http://www.hp.com/support>.
2. Enter the product name or number, select your computer, and then select your operating system.
3. In the **Diagnostics** section, follow the on-screen instructions to select and download the specific UEFI Diagnostics version for your computer.

## Using Remote HP PC Hardware Diagnostics UEFI settings (select products only)

Remote HP PC Hardware Diagnostics UEFI is a firmware (BIOS) feature that downloads HP PC Hardware Diagnostics UEFI to your computer. It can then execute the diagnostics on your computer, and it may upload results to a preconfigured server. For more information on Remote HP PC Hardware Diagnostics UEFI, go to <http://www.hp.com/go/techcenter/pcdiags>, and then select **Find out more**.

### Downloading Remote HP PC Hardware Diagnostics UEFI



**NOTE:** HP Remote PC Hardware Diagnostics UEFI is also available as a Softpaq that can be downloaded to a server.

### Downloading the latest Remote HP PC Hardware Diagnostics UEFI version

To download the latest Remote HP PC Hardware Diagnostics UEFI version, follow these steps:

1. Go to <http://www.hp.com/go/techcenter/pcdiags>. The HP PC Diagnostics home page is displayed.
2. In the **HP PC Hardware Diagnostics UEFI** section, select **Download Remote Diagnostics**, and then select **Run**.

### Downloading Remote HP PC Hardware Diagnostics UEFI by product name or number



**NOTE:** For some products, it may be necessary to download the software by using the product name or number.

To download HP Remote PC Hardware Diagnostics UEFI by product name or number, follow these steps:

1. Go to <http://www.hp.com/support>.
2. Select **Get software and drivers**, select your type of product, enter the product name or number in the search box that is displayed, select your computer, and then select your operating system.
3. In the **Diagnostics** section, follow the on-screen instructions to select and download the **Remote UEFI** version for the product.

### Customizing Remote HP PC Hardware Diagnostics UEFI settings

Using the Remote HP PC Hardware Diagnostics setting in Computer Setup (BIOS), you can perform the following customizations:

- Set a schedule for running diagnostics unattended. You can also start diagnostics immediately in interactive mode by selecting **Execute Remote HP PC Hardware Diagnostics**.
- Set the location for downloading the diagnostic tools. This feature provides access to the tools from the HP website or from a server that has been preconfigured for use. Your computer does not require the traditional local storage (such as a disk drive or USB flash drive) to run remote diagnostics.



- Set a location for storing the test results. You can also set the user name and password settings used for uploads.
- Display status information about the diagnostics run previously.

To customize Remote HP PC Hardware Diagnostics UEFI settings, follow these steps:

1. Turn on or restart the computer, and when the HP logo appears, press **f10** to enter Computer Setup.
2. Select **Advanced**, and then select **Settings**.
3. Make your customization selections.
4. Select **Main**, and then **Save Changes and Exit** to save your settings.

Your changes take effect when the computer restarts.

## 9 Specifications

### Computer specifications

	Metric	U.S.
Width	337 mm	13.27 in
Depth	225.5 mm	8.88 in
Height	17.9 mm	0.71 in
Weight	1439 g	3.17 lbs
<b>Input power</b>		
Operating voltage and current	19.5 V dc @ 2.31 A – 45 W	
	19.5 V dc @ 3.33 A – 65 W (select models only)	
<b>Temperature</b>		
Operating	5°C to 35°C	41°F to 95°F
Nonoperating	-20°C to 60°C	-4°F to 140°F
<b>Relative humidity</b> (noncondensing)		
Operating	10% to 90%	
Nonoperating	5% to 95%	
<b>Maximum altitude</b> (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
<b>NOTE:</b> Applicable product safety standards specify thermal limits for plastic surfaces. The device operates well within this range of temperatures.		

## 35.56-cm (14.0-in), HD display specifications

	<b>Metric</b>	<b>U.S.</b>
Active diagonal size	35.56-cm	14.0-in
Resolution	1366x768 (HD)	
Width	3.0 mm	
Surface treatment	BrightView	
Brightness	220 nits (typical)	
Viewing angle	SVA	
Backlight	LED	

## 10 Power cord set requirements

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

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

Power cord sets for use in other countries 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 1.0 m (3.3 ft) and no more than 2.0 m (6.5 ft).
- All power cord sets must be approved by an acceptable accredited agency responsible for evaluation in the country or region where the power cord set will be used.
- The power cord sets must have a minimum current capacity of 10 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 all countries 113

### 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
The People's Republic of China	COC	5

Country/region	Accredited agency	Applicable note number
South Korea	EK	4
Sweden	CEMKO	1
Switzerland	SEV	1
Taiwan	BSMI	4
The United Kingdom	BSI	1
The United States	UL	2

1. The flexible cord must be Type H05VV-F, 3-conductor, 1.0-mm<sup>2</sup> 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-mm<sup>2</sup> 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-mm<sup>2</sup> 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-mm<sup>2</sup> 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.

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# 11 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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