



## HP Notebook 11t-f000

**Maintenance and Service Guide**  
**IMPORTANT! This document is intended for**  
**HP authorized service providers only.**

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First Edition: April 2015

Document Part Number: 807286-001


**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 8. This computer may require upgraded and/or separately purchased hardware, drivers, and/or software to take full advantage of Windows 8 functionality. See for <http://www.microsoft.com> details.

## 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).

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# 1 Product description

Category	Description
<b>Product Name</b>	HP Notebook 11t-f000
<b>Processor</b>	Intel™ Celeron® N2840 2.16-GHz processor (1.00-MB L2 cache, dual core, 7.5 W)
<b>Chipset</b>	Integrated soldered-on-circuit (SoC)
<b>Graphics</b>	Intel generation 7 internal graphics Supports Dynamic Graphics Frequency, DX11, Open GL4.0, and Open CL 1.2
<b>Panel</b>	11.6-in (1366×768), high-definition (HD), SVA, white light-emitting diode (WLED), AntiGlare, liquid crystal display (LCD) panel; 16:9 aspect ratio; typical brightness: 220 nits; flat (3.6-mm); eDP (TN)
<b>Memory</b>	Non-accessible, non-upgradeable Supports DDR3L-1333 @ 1.35-V single channel support (DDR3L-1600 downgrade) Supports up to 2048-MB maximum on-board system memory (256-MB × 16 × 4 pieces)
<b>Storage</b>	Supports a 500-GB, 5400-rpm, <b>7.0-mm</b> (2.5-in), SATA hard drive
<b>Audio and video</b>	HP TrueVision HD, VGA webcam (fixed, no tilt with activity light, 1280×720 by 30 frames per second)  Dual, digital microphones with appropriate beam-forming, echo-cancellation, noise-suppression software  Two speakers, 1 W  DTS Studio Sound  ALC3227 audio codec
<b>Ethernet</b>	Integrated 10/100 network interface card (NIC)
<b>Wireless</b>	Integrated wireless local area network (WLAN) options by way of wireless module  One built-in WLAN antenna  Supports the Broadcom B63 802.11 bgn 1×1 Wi-Fi + Bluetooth 4.0 M.2 Combo Adapter WLAN module
<b>External media cards</b>	HP multifunction Micro Digital Media Reader Slot with push-push technology. Reads data from and writes data to digital memory cards such as Secure Digital (SD™).
<b>Ports</b>	<ul style="list-style-type: none"><li>• AC adapter HP Smart plug (4.5mm barrel)</li><li>• Audio: one combo audio-out (headphone)/audio-in (microphone) jack, supports jack auto-detection</li><li>• High-definition multimedia interface (HDMI) v.1.4, 1920×1200 at 60 Hz DVI mode</li><li>• RJ45/Ethernet</li><li>• USB 3.0</li><li>• USB 2.0</li><li>• VGA (Dsub 15-pin) supporting: 1920×1200 external resolution @ 60 Hz, hot plug and unplug and auto-detection for correct output to wide-aspect versus standard-aspect video</li></ul>

<b>Category</b>	<b>Description</b>
<b>Keyboard/pointing devices</b>	11-inch, island-style, keyboard ClickPad
<b>Power requirements</b>	Supports a 2-cell, 32-WHr, 4.2-AHr, Li-ion battery Supports a 45-W HP Smart adapter (non-PFC, RC, 3-wire, 4.5-mm) AC adapter
<b>Security</b>	Supports a security cable lock
<b>Operating system</b>	<p><b>Preinstalled:</b></p> <ul style="list-style-type: none"> <li>• Windows 8.1 with Bing 2015 Single Language</li> <li>• Windows 8.1 with Bing 2015 Multiple Language</li> <li>• Windows 8.1 China/Single Language 64-bit CPPP (available only in the People's Republic of China)</li> <li>• FreeDOS 2.0</li> </ul> <p><b>Driver SoftPak:</b> Windows 8.1 64-bit</p>
<b>Serviceability</b>	<b>End user replaceable parts:</b> AC adapter



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## 2 External component identification

### Locating hardware

To find out what hardware is installed on your computer:

1. From the Start screen, type `control panel`, and then select **Control Panel**.

– or –

From the Windows desktop, right-click the **Start** button, and then select **Control Panel**.

2. Select **System and Security**, select **System**, and then click **Device Manager** in the left column.

A list displays all the devices installed on your computer.

For information about system hardware components and the system BIOS version number, press `fn+esc` (select models only).

### Locating software

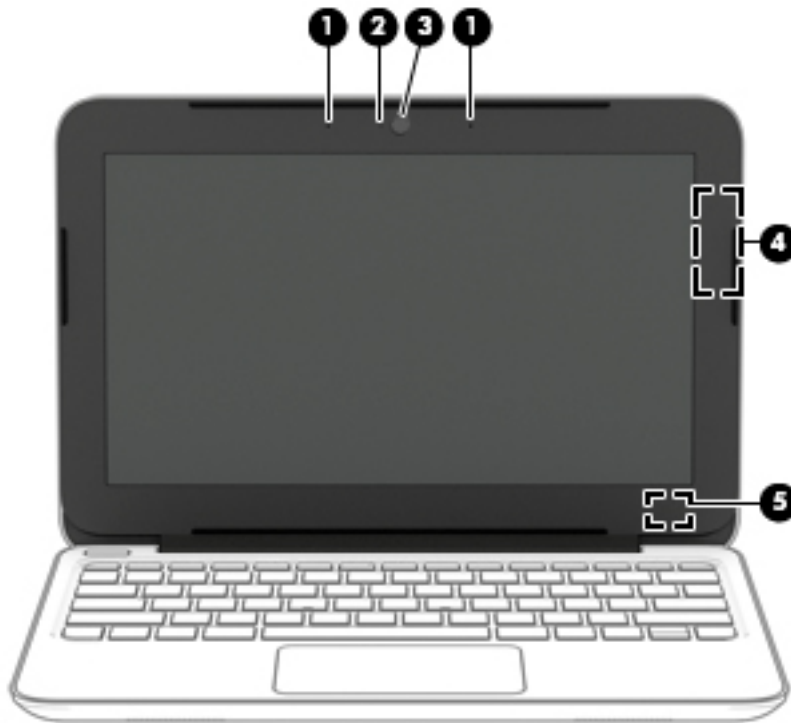
To find out what software is installed on your computer:

- ▲ From the Start screen, click the down arrow in the lower-left corner of the screen.

– or –

From the Windows desktop, right-click the **Start** button, and then select **Programs and Features**.

# Display



Item	Component	Description
(1)	Internal microphone	Record sound.
(2)	Webcam light	On: The webcam is in use.
(3)	Webcam	Records video and captures photographs. Some models allow you to video conference and chat online using streaming video.  To use the webcam:  ▲ From the Start screen, type <code>camera</code> , and then select <b>Camera</b> from the list of applications.
(4)	WLAN antenna	Sends and receives wireless signals to communicate with WLANs.
(5)	Internal display switch	Turns off the display and initiates Sleep if the display is closed while the power is on.  <b>NOTE:</b> The internal display switch is not visible from the outside of the computer.

\*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.

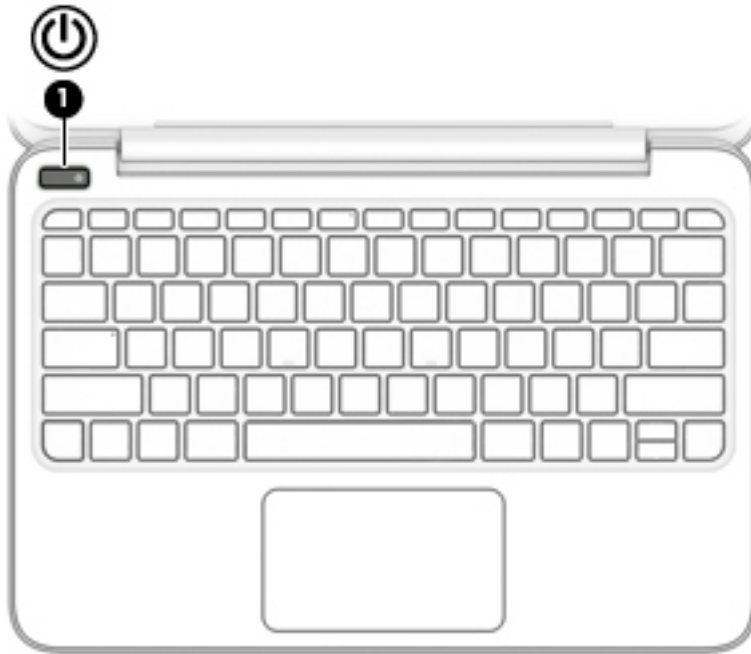
To access this document:

From the Start screen, type `support`, and then select the **HP Support Assistant** app.

– or –

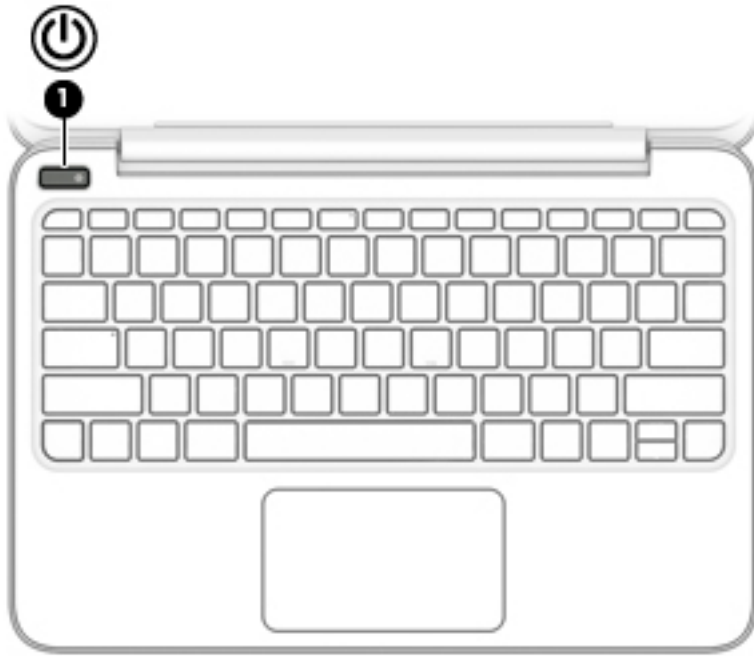
From the Windows desktop, click the question mark icon in the taskbar.

# Button



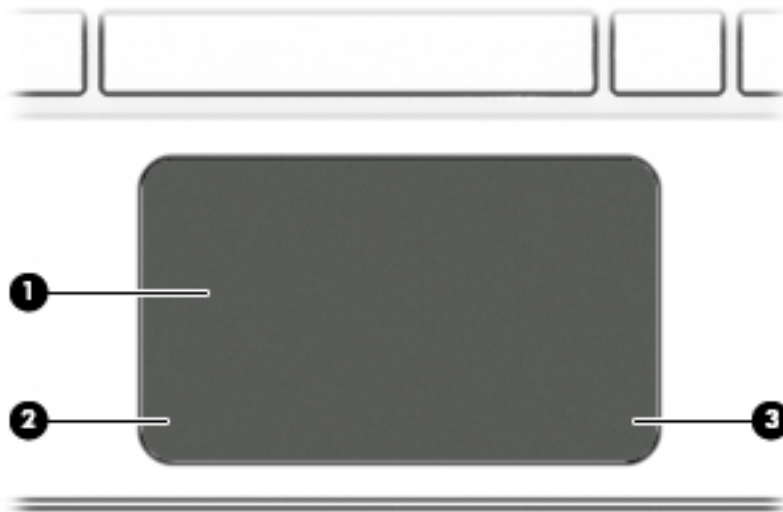
Item	Component	Description
(1)	Power button	<ul style="list-style-type: none"><li>• When the computer is off, press the button to turn on the computer.</li><li>• When the computer is on, press the button briefly to initiate Sleep.</li><li>• When the computer is in the Sleep state, press the button briefly 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 will result in the loss of unsaved information.</p> <p>If the computer has stopped responding and Windows 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> <ul style="list-style-type: none"><li>▲ From the Start screen, type <code>power</code>, select <b>Power and sleep settings</b>, and then select <b>Power and sleep</b> from the list of applications.</li></ul> <p>– or –</p> <p>From the Windows desktop, right-click the <b>Start</b> button, and then select <b>Power Options</b>.</p>

# Keys



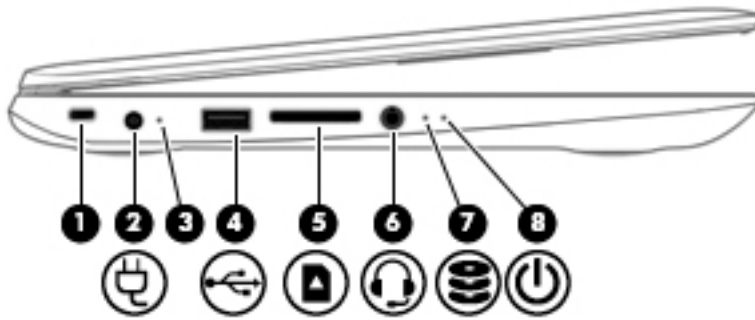
Item	Component	Description
(1)	esc key	Displays system information when pressed in combination with the fn key.
(2)	fn key	Executes frequently used system functions when pressed in combination with the esc key.
(3)	Windows key	Returns you to the Start screen from an open app or the Windows desktop. <b>NOTE:</b> Pressing the Windows key again will return you to the previous screen.
(4)	Action keys	Execute frequently used system functions.

# TouchPad



Item	Component	Description
(1)	TouchPad zone	Reads your finger gestures to move the pointer or activate items on the screen. <b>NOTE:</b> 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.

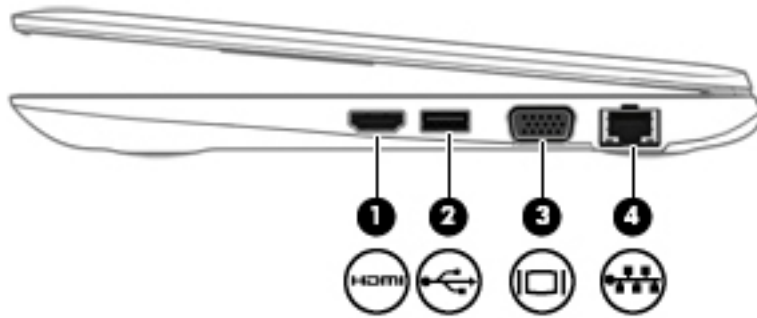
## Left side



Item	Component	Description
(1)	Security cable slot	Attaches an optional security cable to the computer. <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.
(2)	Power connector	Connects an AC adapter.
(3)	AC adapter/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>
(4)	USB 2.0 port	Connects an optional USB device, such as a keyboard, mouse, external drive, printer, scanner or USB hub.
(5)	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>Hold the card label-side up, with connectors facing the computer.</li> <li>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>Press in on the card, and then remove it from the slot.</li> </ul>
(6)	Audio-out (headphone)/Audio-in (microphone) jack	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 microphone-only devices.

Item	Component	Description
	Audio-out (headphone)/Audio-in (microphone) jack <i>(continued)</i>	<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 document:</p> <ul style="list-style-type: none"> <li>▲ From the Start screen, type <code>support</code>, and then select the <b>HP Support Assistant</b> app.</li> <li>– or –</li> <li>From the Windows desktop, click the question mark icon in the taskbar.</li> </ul> <p><b>NOTE:</b> When a device is connected to the jack, the computer speakers are disabled.</p> <p><b>NOTE:</b> Be sure that the device cable has a 4-conductor connector that supports both audio-out (headphone) and audio-in (microphone).</p>
<b>(7)</b>	Hard drive light	<ul style="list-style-type: none"> <li>• Blinking white: The hard drive is being accessed.</li> </ul>
<b>(8)</b>	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 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>


## Right side



Item	Component	Description
(1)	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.
(2)	USB 3.0 port	Connects an optional USB device, such as a keyboard, mouse, external drive, printer, scanner or USB hub.
(3)	External monitor port	Connects an external VGA monitor or projector.
(4)	RJ-45 (network) jack/status lights	Connects a network cable. <ul style="list-style-type: none"><li>• White: The network is connected.</li><li>• Amber: Activity is occurring on the network.</li></ul>

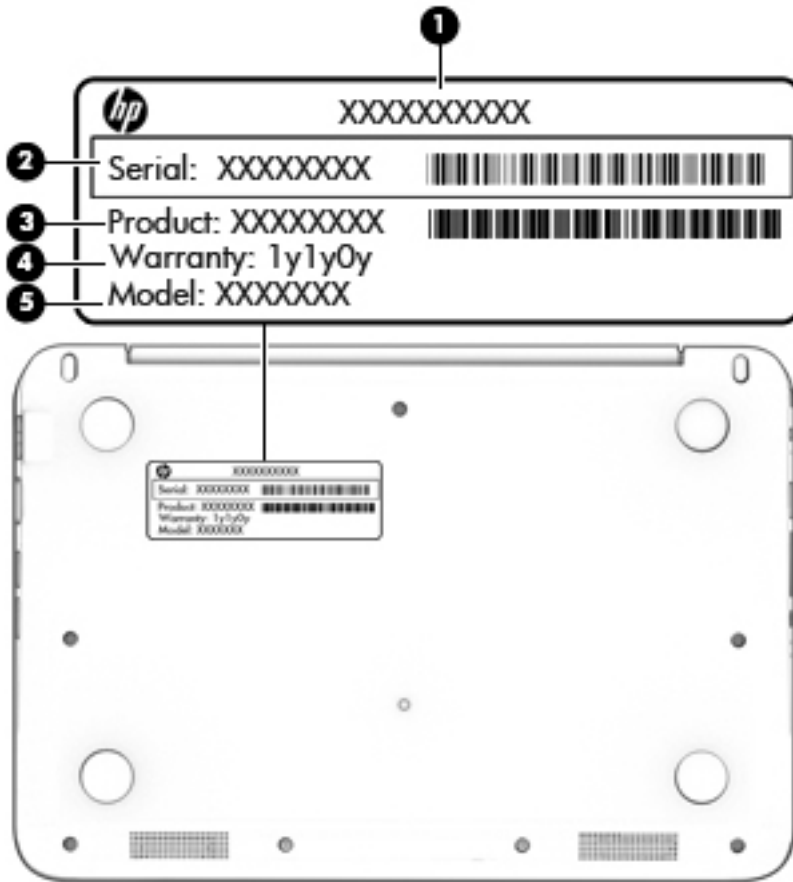


# 3 Illustrated parts catalog

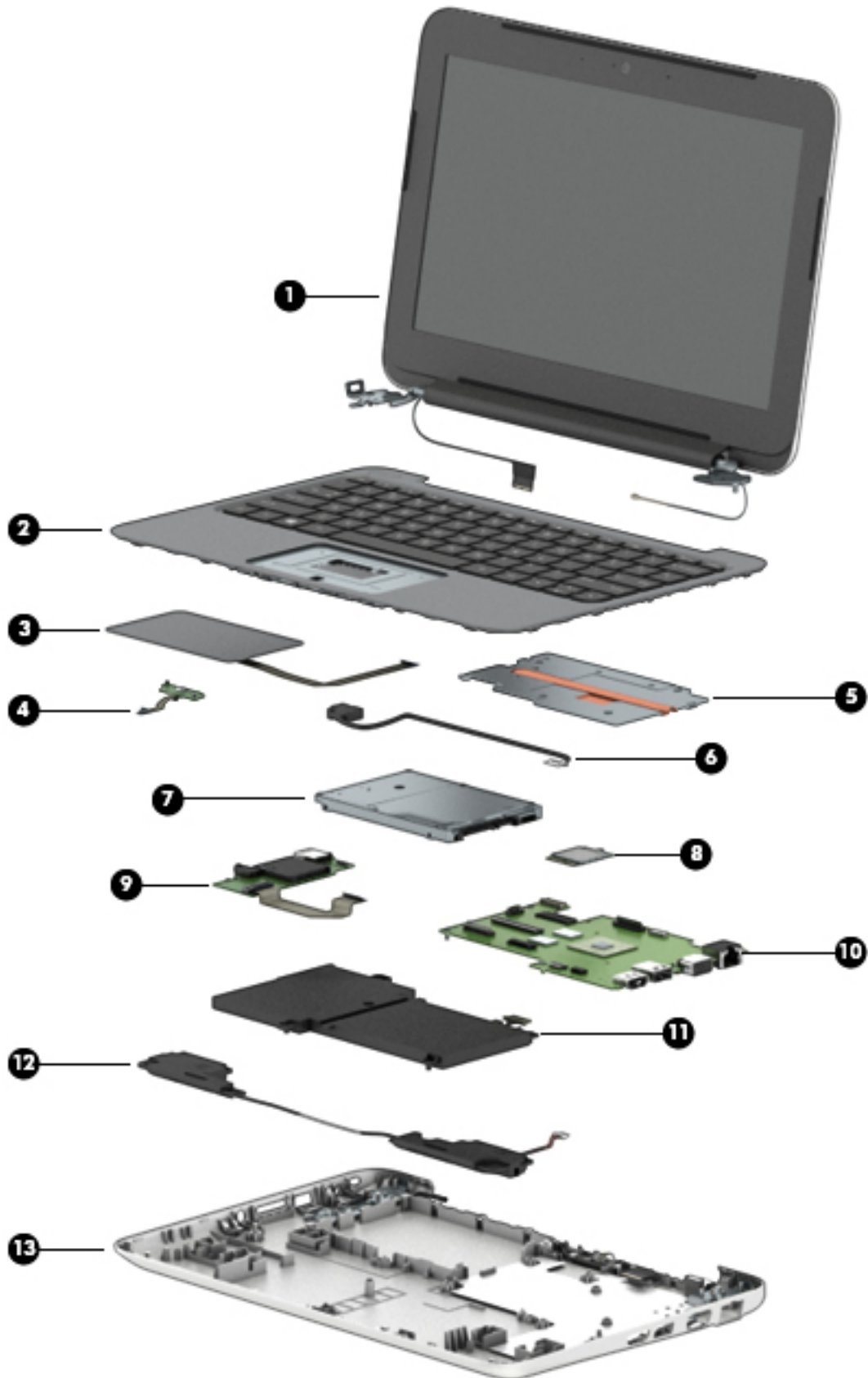
 **NOTE:** HP continually improves and changes product parts. For complete and current information on supported parts for your computer, go to <http://partsurfer.hp.com>, select your country or region, and then follow the on-screen instructions.

## Locating the product name, serial number, product number, warranty information, and model name

The product name (1), serial number (2), product number (3), warranty information (4), and model name (5) are located on the bottom of the computer. You may need this information when you travel internationally or when you contact support.

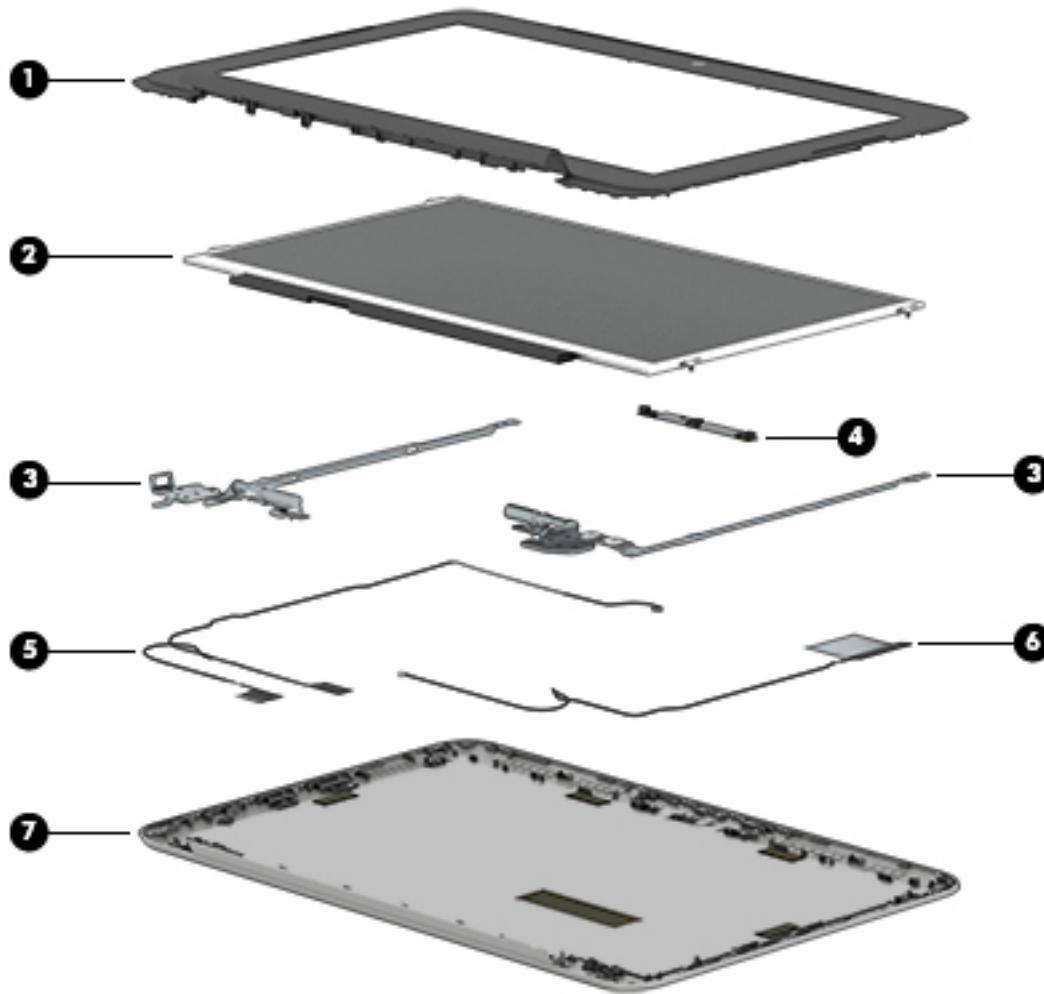


# Computer major components



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 14</a> .	
(2)	<b>Keyboard/top cover</b> (includes keyboard cable):	
	For use in Thailand	809786-281
	For use in the United States	809786-001
(3)	<b>TouchPad board</b> (includes TouchPad board cable and double-sided adhesive)	809789-001
(4)	<b>Power button board</b> (includes cable)	809787-001
(5)	<b>Heat sink</b> (includes replacement thermal material)	809938-001
(6)	<b>Power connector cable</b>	806746-001
(7)	<b>Hard drive</b> , 500-rpm, 5400-rpm, SATA, 7.0-mm, does not include hard drive bracket or hard drive connector adapter	778186-005
	<b>NOTE:</b> The hard drive bracket and hard drive connector adapter are included in the Hard Drive Hardware Kit, spare part number 809784-001.	
(8)	<b>WLAN module</b> , Broadcom B63 802.11 bgn 1×1 Wi-Fi + Bluetooth 4.0 M.2 Combo Adapter	792608-005
(9)	<b>Connector board</b> (includes cable, USB port, memory card reader, audio jack, and double-sided adhesive)	809788-001
(10)	<b>System board</b> (includes a graphics subsystem with UMA memory, 2.0-GB of system memory, and replacement thermal material):	
	Equipped with an Intel Celeron N2840 2.16-GHz processor (1.00-MB L2 cache, dual core, 7.5 W) and the Windows 8 Standard operating system	809793-501
	Equipped with an Intel Celeron N2840 2.16-GHz processor (1.00-MB L2 cache, dual core, 7.5 W) and a non-Windows 8 operating system	809793-001
(11)	<b>Battery</b> , 2-cell, 32-WHr, 4.2-AHr, Li-ion (includes cable)	796355-005
(12)	<b>Speaker Kit</b> (includes left and right speakers and cables)	809792-001
(13)	<b>Base enclosure</b>	809936-001
	<b>Rubber Kit</b> (not illustrated, includes base enclosure rear feet, screw plugs, screws covers, and display bezel screw covers):	809790-001

## Display assembly components



Item	Description	Spare part number
(1)	<b>Display bezel</b>	800057-001
(2)	<b>Display panel</b> (11.6-in, HD (1366×768), AntiGlare, WLED, SVA)	783089-001
(3)	<b>Display Hinge Kit</b> (includes left and right display hinges)	809785-001
(4)	<b>Webcam/microphone module</b> (includes double-sided adhesive)	795114-001
(5)	<b>Display panel cable</b>	809937-001
(6)	<b>Antenna Kit</b> (includes wireless antenna cable and transceiver)	809933-001
(7)	<b>Display enclosure</b>	
	For use only on computer models in twinkling black finish	809934-001
	For use only on computer models in vibrant red finish	809935-001

## Miscellaneous parts

<b>Component</b>	<b>Spare part number</b>
<b>45-W HP Smart adapter (non-PFC, RC, 3-wire, 4.5-mm)</b>	741727-001
<b>Power cord (3-pin, black, 1.00-m):</b>	
For use in Australia	755530-011
For use in Europe	755530-021
For use in North America	755530-001
For use in the People's Republic of China	755530-AA1
For use in Thailand	755530-201
For use in the United Kingdom and Singapore	755530-031
<b>Screw Kit</b>	809791-001

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# 4 Removal and replacement 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.


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

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## Plastic parts


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 **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.

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## Cables and connectors

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 **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.

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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

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

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

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

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

Avoid dropping drives from any height onto any surface.

After removing drive, place it in a static-proof bag.

Avoid exposing a 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."

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# 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, 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 computerop 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

 **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.

 **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


There are as many as 49 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.

### Keyboard/top cover

Description	Spare part number	Description	Spare part number
For use in Thailand	809786-281	For use in the United States	809786-001


Before removing the 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.

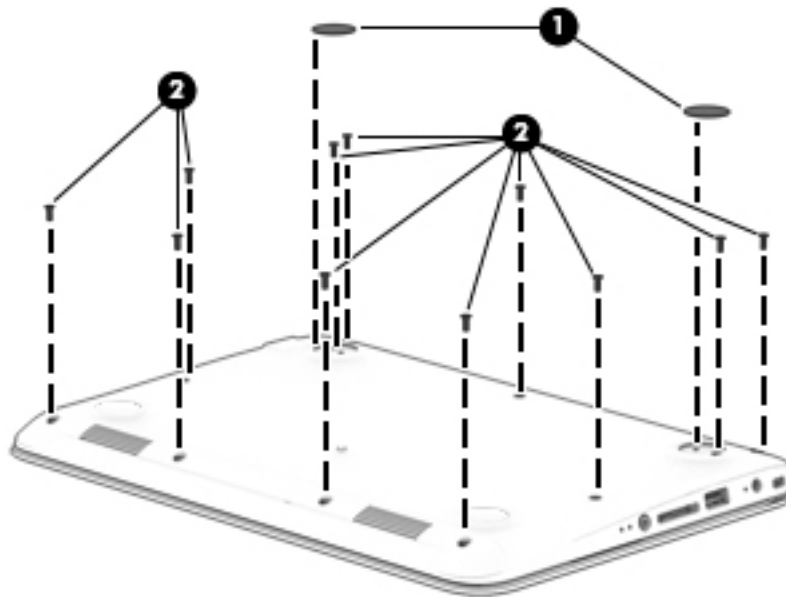
 **NOTE:** When replacing the keyboard/top cover, be sure that the TouchPad (see [TouchPad board on page 24](#)), heat sink (see [Heat sink on page 25](#)), and power button board (see [Power button board on page 26](#)) are removed from the defective keyboard/top cover and installed on the replacement keyboard/top cover.

Remove the keyboard/top cover:

1. Remove the two rear computer feet **(1)**.

 **NOTE:** The rear computer feet are included in the Rubber Kit, spare part number 809790-001.

2. Remove the eleven Phillips PM2.0×5.7 screws **(2)** that secure the keyboard/top cover to the base enclosure.

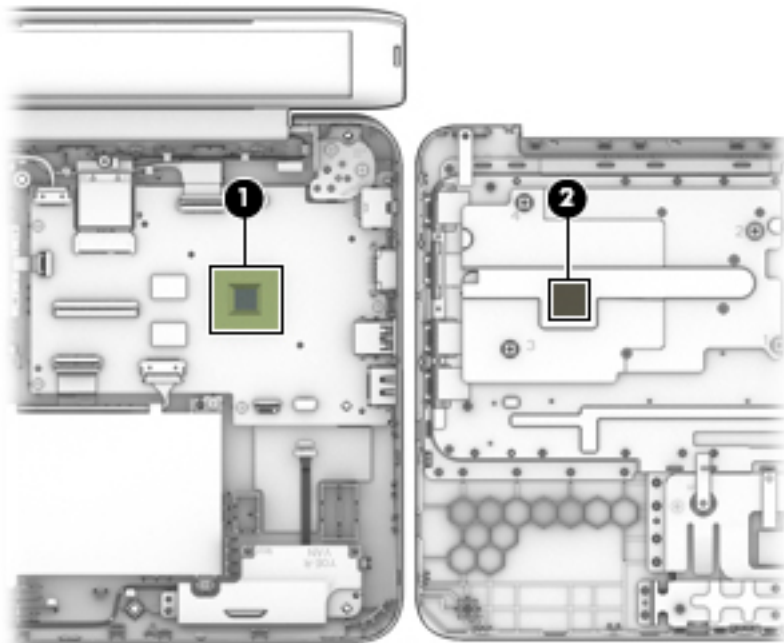


3. Turn the computer right side up with the front toward you.
4. Open the computer as far as it will open.
5. Lift the front edge **(1)** of the keyboard/top cover until it separates from the front edge of the base enclosure.
6. Release the zero insertion force (ZIF) connector **(2)** to which the power button board cable is attached, and then disconnect the power button board cable from the system board.
7. Release the ZIF connector **(3)** to which the keyboard cable is attached, and then disconnect the keyboard cable from the system board.
8. Release the ZIF connector **(4)** to which the TouchPad board cable is attached, and then disconnect the TouchPad board cable from the system board.

9. Remove the keyboard/top cover (5).



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



Reverse this procedure to install the keyboard/top cover.

## TouchPad board

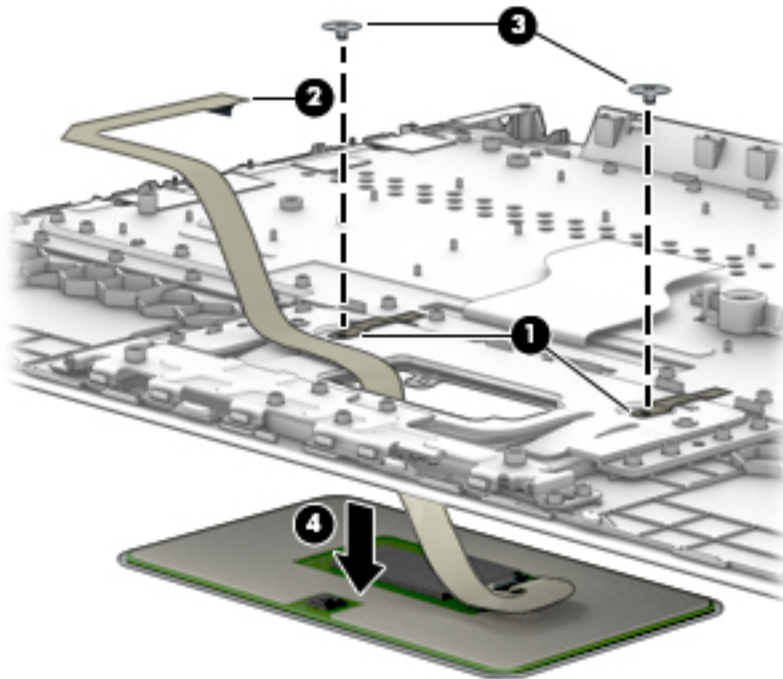
Description	Spare part number
TouchPad board (includes cable and double-sided adhesive)	809789-001

Before removing the TouchPad 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 keyboard/top cover (see [Keyboard/top cover on page 21](#)).

Remove the TouchPad button board:

1. Turn the keyboard/top cover upside down with the front toward you.
2. Release the grounding tape strips **(1)** that conceal the screws that secure the TouchPad board to the keyboard/top cover.
3. Detach the TouchPad board cable **(2)** from the keyboard/top cover. (The TouchPad board cable is attached to the keyboard/top cover with double-sided adhesive.)
4. Remove the two Phillips PM2.0×2.0 broad head screws **(3)** that secure the TouchPad board to the keyboard/top cover.
5. Release the TouchPad board **(4)** by pressing it through the opening in the keyboard/top cover.



6. Remove the TouchPad board and cable.

Reverse this procedure to install the TouchPad board.

## Heat sink

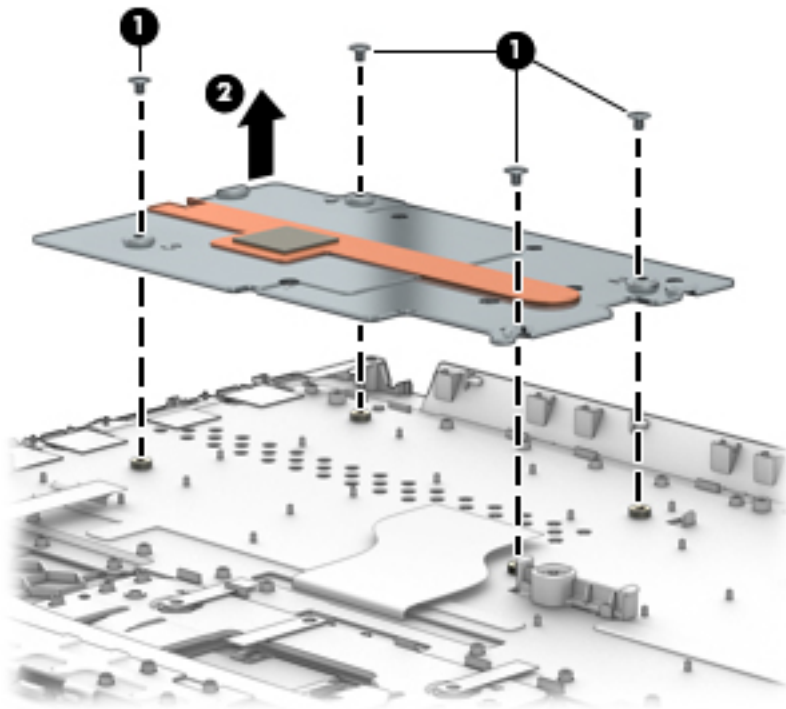
Description	Spare part number
Heat sink (includes replacement thermal material)	809938-001

Before removing the heat sink, 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 keyboard/top cover (see [Keyboard/top cover on page 21](#)).

Remove the heat sink:

1. Turn the keyboard/top cover upside down with the front toward you.
2. Remove the four Phillips PM2.0×2.8 screws **(1)** that secure the heat sink to the keyboard/top cover.
3. Remove the heat sink **(2)**.



Reverse this procedure to install the heat sink.

## Power button board

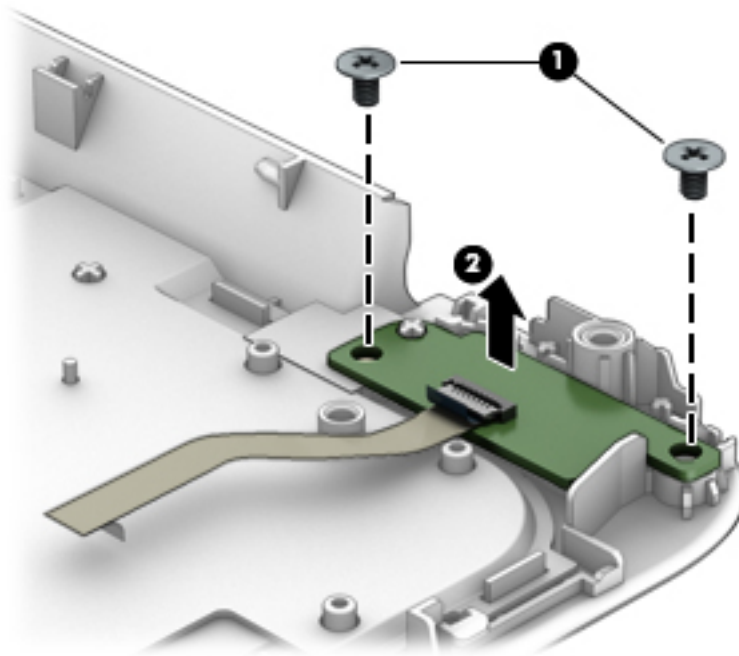
Description	Spare part number
Power button board (includes cable)	809787-001

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 keyboard/top cover (see [Keyboard/top cover on page 21](#)).

Remove the power button board:

1. Turn the keyboard/top cover upside down with the front toward you.
2. Remove the two Phillips PM2.0×3.3 screws **(1)** that secure the power button board to the keyboard/top cover.
3. Remove the power button board **(2)**.



Reverse this procedure to install the power button board.



## Battery

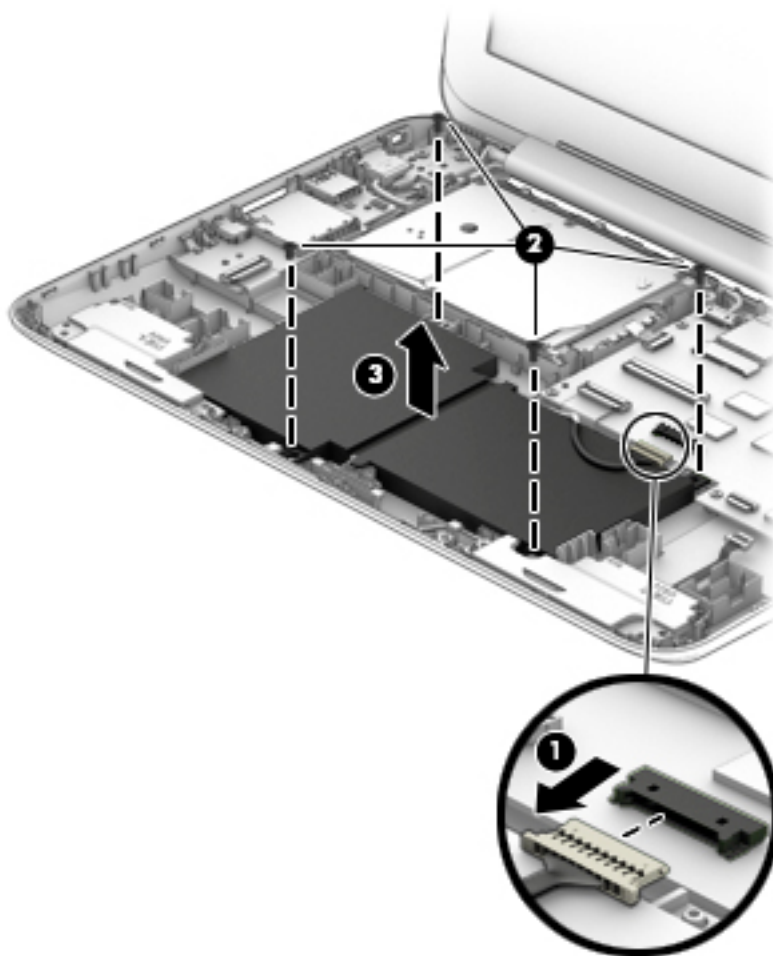
Description	Spare part number
Battery, 2-cell, 32-WHr, 4.2-AHr, Li-ion (includes cable)	796355-005

Before removing the 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 keyboard/top cover (see [Keyboard/top cover on page 21](#)).

Remove the battery:

1. Disconnect the battery cable from the system board (1).
2. Remove the four Phillips PM2.5×4.7 screws (2) that secure the battery to the base enclosure.
3. Remove the battery (3).



Reverse this procedure to install the battery.

## Hard drive



**NOTE:** The hard drive spare kit does not include the hard drive bracket or hard drive connector cable adapter. The hard drive bracket and hard drive connector cable adapter are included in the Hard Drive Hardware Kit, spare part number 809784-001.

Description	Spare part number
500-rpm, 5400-rpm, SATA, 7.0-mm hard drive	778186-005

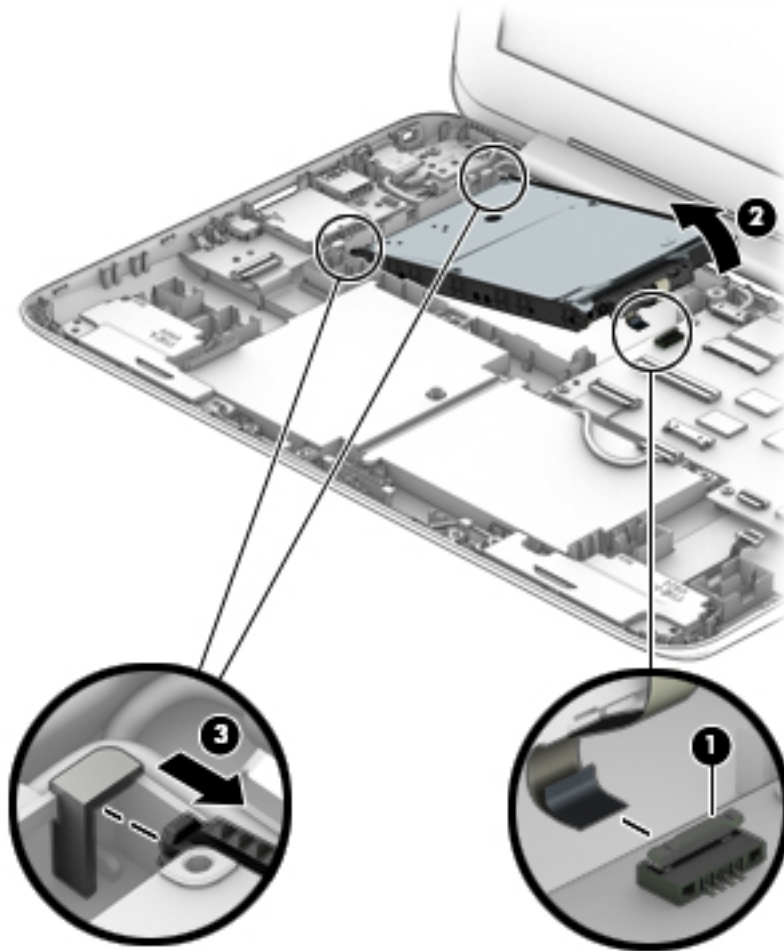
Before removing the hard drive, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the keyboard/top cover (see [Keyboard/top cover on page 21](#)).
5. Disconnect the battery cable from the system board (see [Battery on page 27](#)).

Remove the hard drive:

1. Release the ZIF connector **(1)** to which the hard drive cable is attached, and then disconnect the hard drive cable from the system board.
2. Lift the right side of the hard drive **(2)** until it rests at an angle.

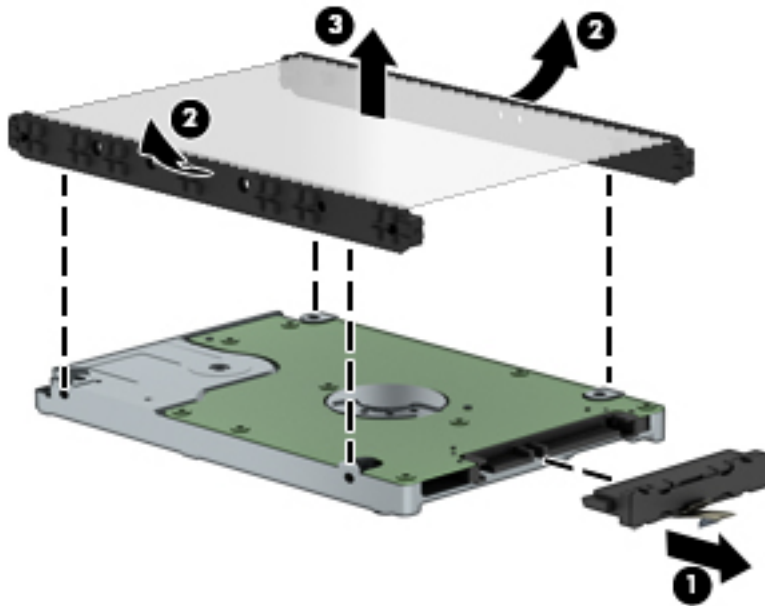
3. Remove the hard drive **(3)** by sliding it up and to the right until the tabs on the rear edge of the hard drive bracket disengage from the slots in the base enclosure.



4. If it is necessary to replace the hard drive connector cable adapter, slide the connector cable adapter **(1)** off of the hard drive.

5. If it is necessary to replace the hard drive bracket, release the left **(2)** and right edges of the bracket off of the hard drive, and then remove the bracket **(3)**.

The hard drive bracket and hard drive connector cable adapter are included in the Hard Drive Hardware Kit, spare part number 809784-001.



Reverse this procedure to reassemble and install the hard drive.

## WLAN module

Description	Spare part number
Broadcom B63 802.11 bgn 1×1 Wi-Fi + Bluetooth 4.0 M.2 Combo Adapter	792608-005

**⚠ 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 keyboard/top cover (see [Keyboard/top cover on page 21](#)).
5. Disconnect the battery cable from the system board (see [Battery on page 27](#)).

Remove the WLAN module:

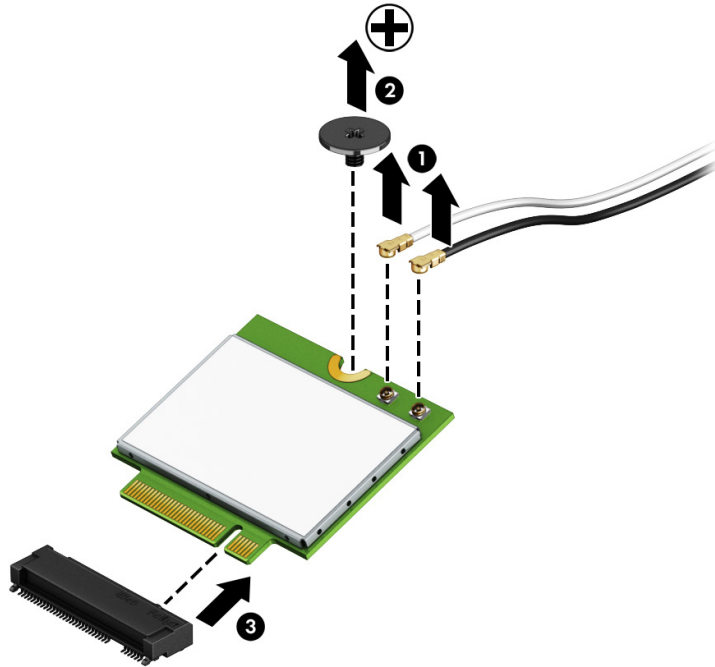
1. Disconnect the WLAN antenna cables **(1)** from the terminals on the WLAN module.

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 **NOTE:** The #1/white WLAN antenna cable connects to the WLAN module #1/Main terminal. The #2/black WLAN antenna cable connects to the WLAN module #1/Aux terminal.

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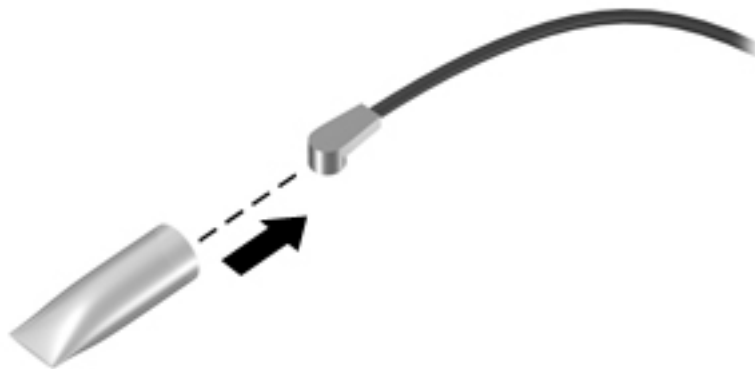
2. Remove the Phillips PM2.0×3.3 screw (2) that secures the WLAN module to the base enclosure. (The WLAN module tilts up.)
3. Remove the WLAN module (3) by pulling the module away from the slot at an angle.



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 **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.

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Reverse this procedure to install the WLAN module.

## Power connector cable

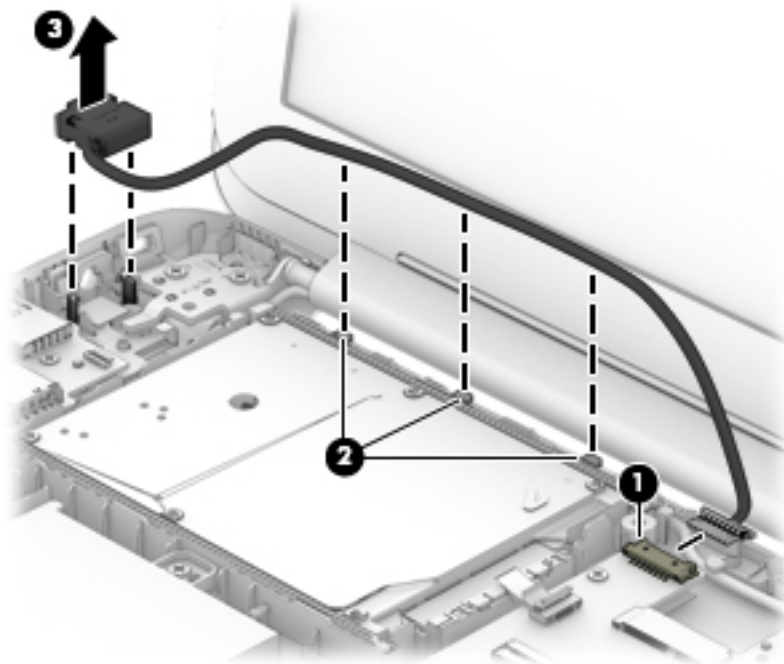
Description	Spare part number
Power connector cable	806746-001

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 keyboard/top cover (see [Keyboard/top cover on page 21](#)).
5. Disconnect the battery cable from the system board (see [Battery on page 27](#)).

Remove the power connector cable:


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



4. Remove the power connector cable.

Reverse this procedure to install the power connector cable.

## Display assembly


 **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:

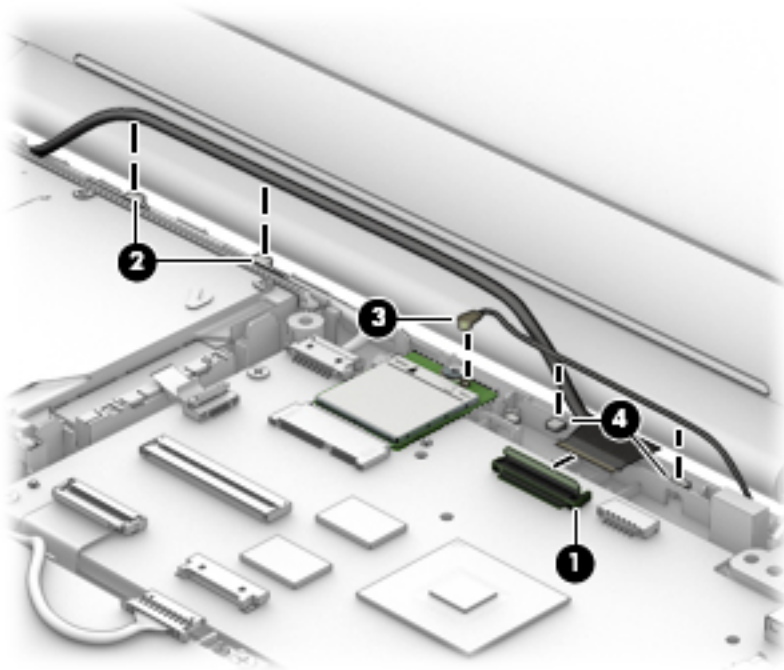
1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the keyboard/top cover (see [Keyboard/top cover on page 21](#)).
5. Disconnect the battery cable from the system board (see [Battery on page 27](#)).

Remove the display assembly:

1. Release the ZIF connector **(1)** to which the display panel cable is attached, and then disconnect the display panel cable from the system board
2. Release the display panel cable from the routing clips **(2)** built into the base enclosure.
3. Disconnect the WLAN antenna cables **(3)** from the terminals on the WLAN module.

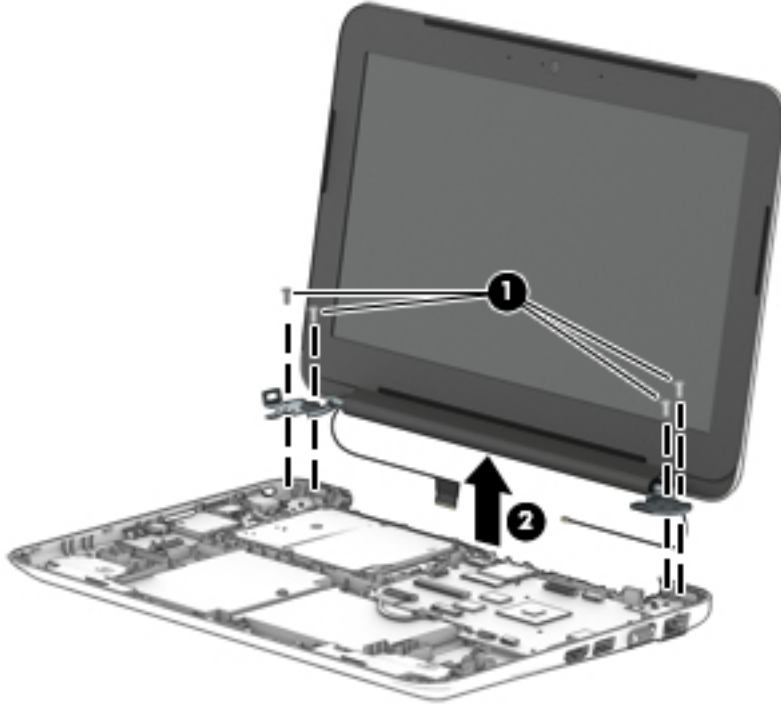
 **NOTE:** The #1/white WLAN antenna cable connects to the WLAN module #1/Main terminal. The #2/black WLAN antenna cable connects to the WLAN module #2/Aux terminal.

4. Release the WLAN antenna cables from the routing clips **(4)** built into the base enclosure.

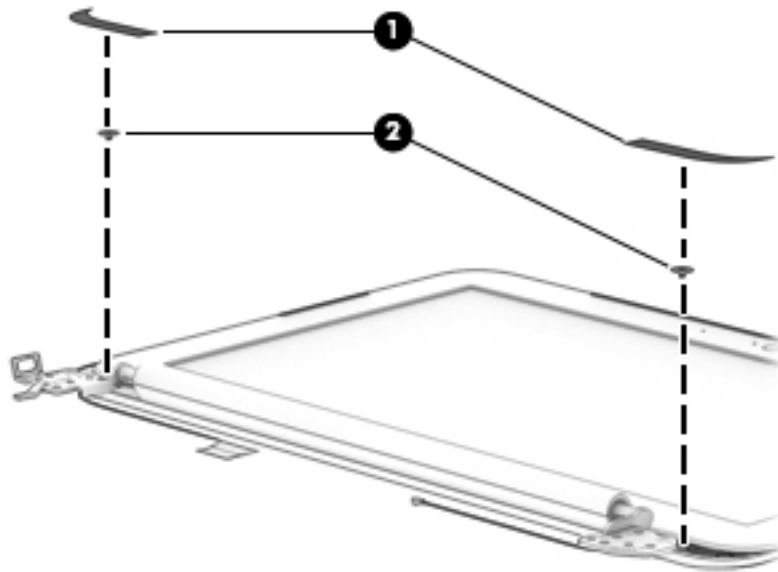


5. Remove the four Phillips PM2.5×4.7 screws **(1)** that secure the display assembly to the base enclosure.

6. Remove the display assembly (2).



7. If it is necessary to replace the display bezel or any of the display assembly subcomponents:
  - a. Remove the two screw covers (1) that conceal the display bezel screws.  
The screw covers are included in the Rubber Kit, spare part number 809790-001.
  - b. Remove the two Phillips PM 2.0×2.2 broad head screws (2) that secure the display bezel to the display assembly.

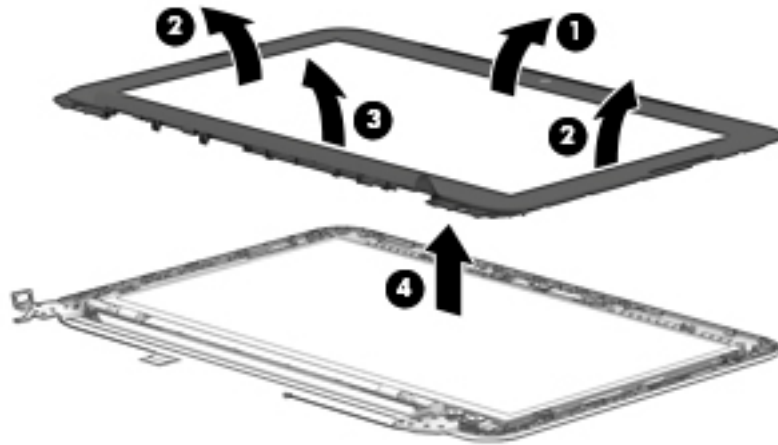


- c. Flex the inside edges of the top edge (1), the left and right sides (2), and the bottom edge (3) of the display bezel until the bezel disengages from the display enclosure.



- d. Remove the display bezel (4).

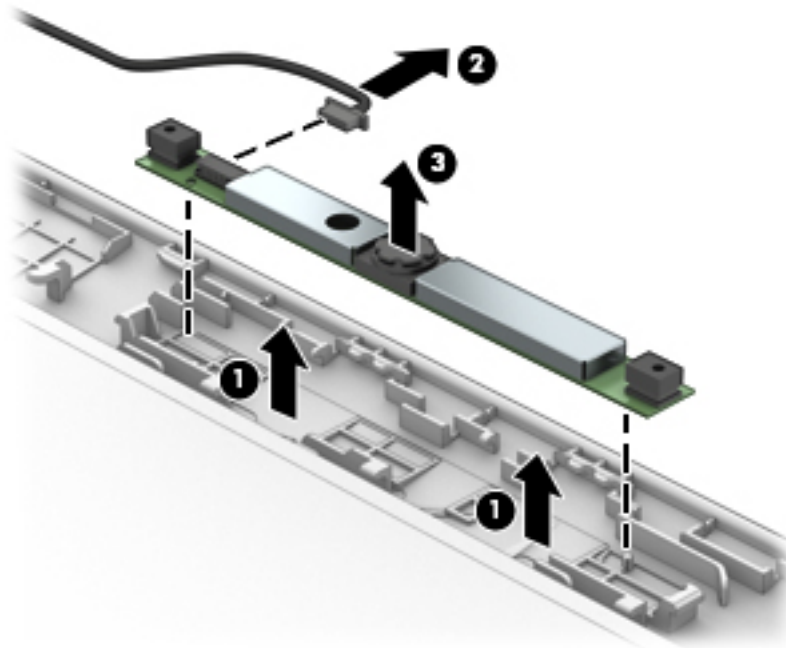
The display bezel is available using spare part number 800057-001.



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

- a. Remove the display bezel.
- b. Detach the webcam/microphone module (1) from the display enclosure. (The webcam/microphone module is attached to the display enclosure with double-sided adhesive at two locations.)
- c. Disconnect the webcam/microphone module cable (2) from the webcam/microphone module.
- d. Remove the webcam/microphone module (3).

The webcam/microphone module is available using spare part number 783088-001.

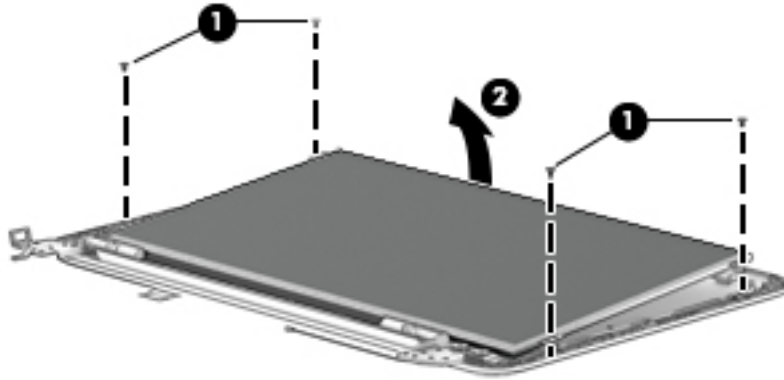


- 9. If it is necessary to replace the display panel:

- a. Remove the display bezel.
- b. Remove the four Phillips PM2.0×2.9 screws **(1)** that secure the display panel to the display enclosure.

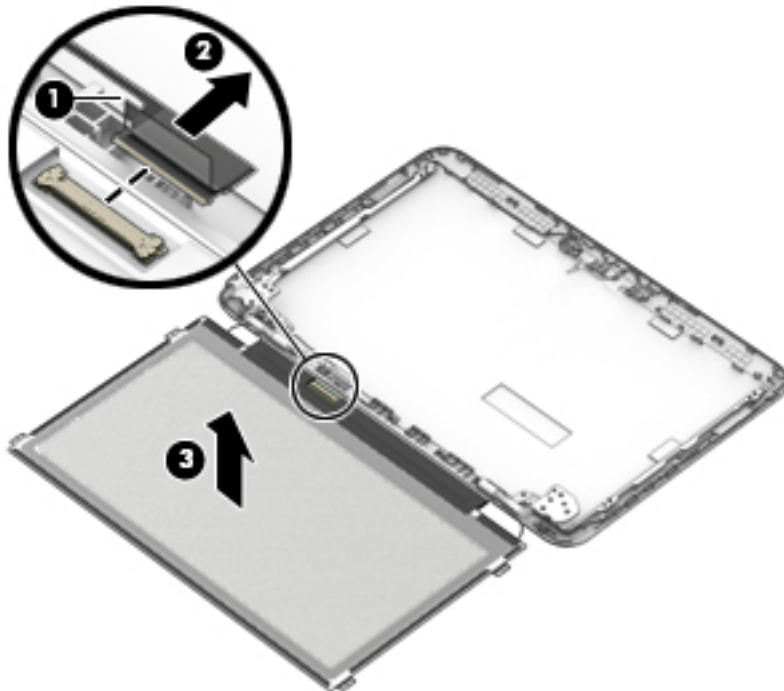
**⚠ CAUTION:** Before turning the display panel upside down, make sure the work surface is clear of tools, screws, and any other foreign objects. Failure to follow this caution can result in damage to the display panel.

- c. 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 enclosure.



- d. Release the adhesive strip **(1)** that secures the display panel cable connector to the display panel.
- e. Disconnect the display panel cable **(2)** from the display panel.
- f. Remove the display panel **(3)**.

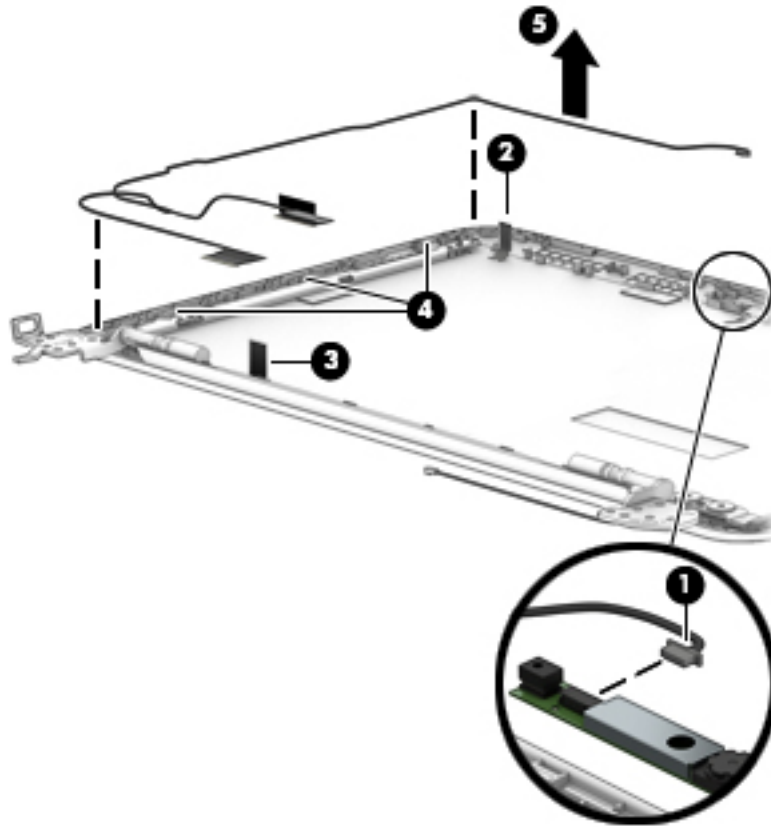
The display panel is available using spare part number 783089-001.



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

- a. Remove the display bezel.
- b. Remove the display panel.
- c. Disconnect the display panel cable (1) from the webcam/microphone module.
- d. Release the grounding tape (2) and (3) that secures the display panel cable to the display enclosure.
- e. Release the display panel cable from the retention clips (4) built into the left edge of the display enclosure.
- f. Remove the display panel cable (5).

The display panel cable is available using spare part number 809937-001.

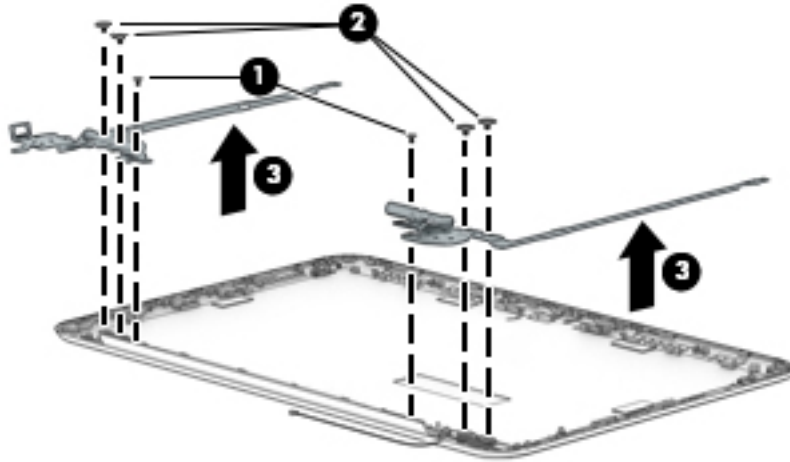


**11.** If it is necessary to replace the display hinges:

- a. Remove the display bezel.
- b. Remove the display panel.
- c. Remove the two Phillips PM2.0×3.3 screws (1) and the four Phillips PM2.5×3.7 broad head screws (2) that secure the display hinges to the display enclosure.

- d. Remove the display hinges (3).

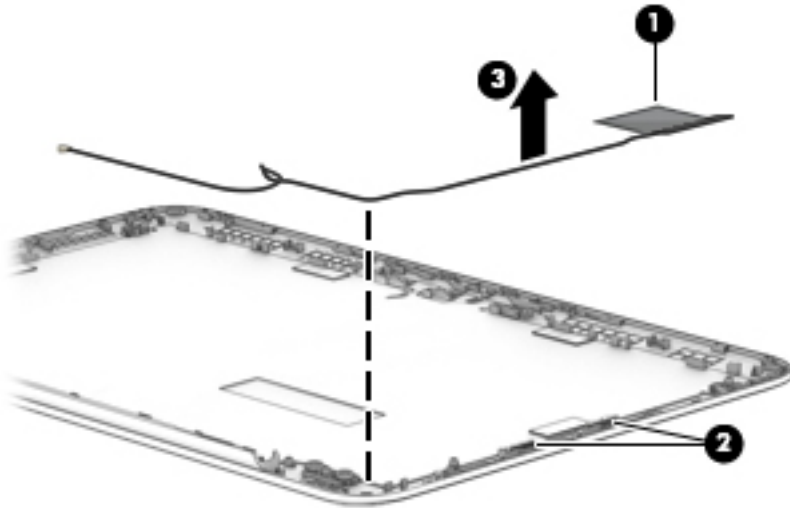
The display hinges are included in the Display Hinge Kit, spare part number 809785-001.



12. If it is necessary to replace the WLAN antenna cables and transceivers:

- a. Detach the WLAN antenna transceiver (1) from the display enclosure. (The WLAN antenna transceiver is attached to the display enclosure with double-sided adhesive.)
- b. Release the WLAN antenna cable from the clips (2) and routing channel built into the right side and bottom edge of the display enclosure.
- c. Remove the WLAN antenna cable and transceiver (3).

The WLAN antenna cable and transceiver is available using spare part number 809933-001.



Reverse this procedure to reassemble install the display assembly.

## System board



**NOTE:** The system board spare part kit includes a graphics subsystem with UMA memory, 2.0-GB of system memory, and replacement thermal material.

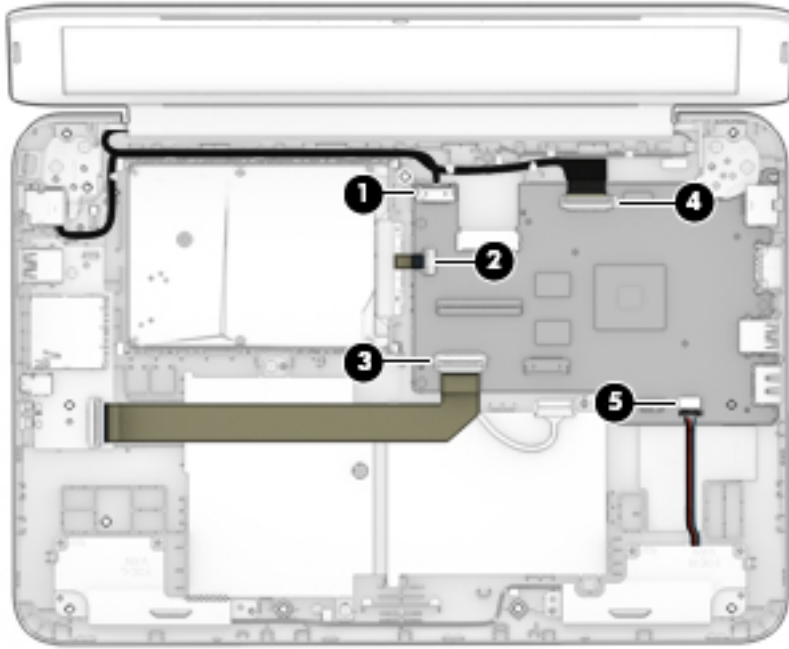
Description	Spare part number
Equipped with an Intel Celeron N2840 2.16-GHz processor (1.00-MB L2 cache, dual core, 7.5 W) and the Windows 8 Standard operating system	809793-501
Equipped with an Intel Celeron N2840 2.16-GHz processor (1.00-MB L2 cache, dual core, 7.5 W) and a non-Windows 8 operating system	809793-001

Before removing the system board, follow these steps:

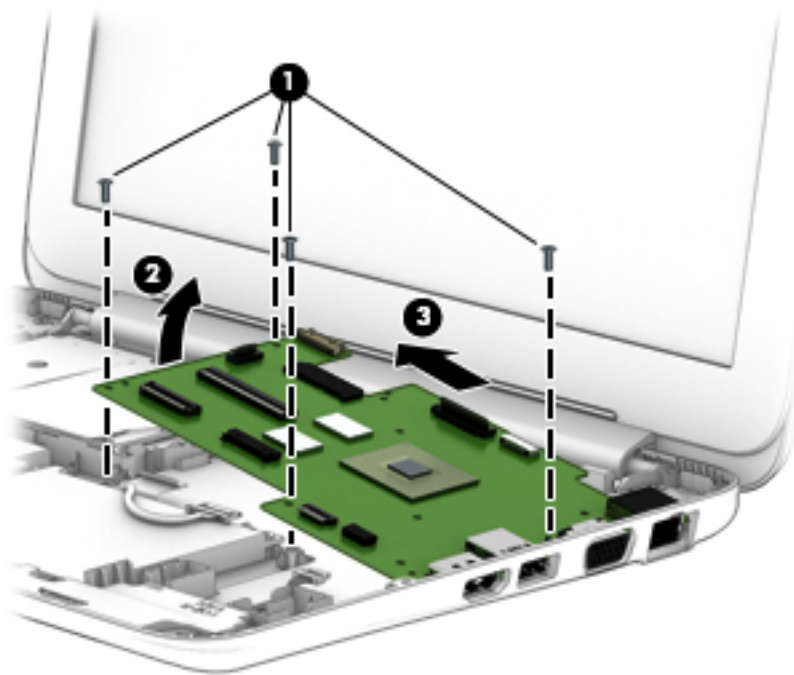
1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the keyboard/top cover (see [Keyboard/top cover on page 21](#)).
5. Disconnect the battery cable from the system board (see [Battery on page 27](#)).
6. Remove the WLAN module (see [WLAN module on page 30](#)).

Remove the system board:

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



2. Remove the six Phillips PM2.0×2.3 screws **(1)** that secure the system board to the base enclosure.
3. Lift the left side of the system board **(2)** until it rests at an angle.
4. Remove the system board **(3)** by sliding it up and to the left at an angle.



Reverse this procedure to install the system board.

## Connector board

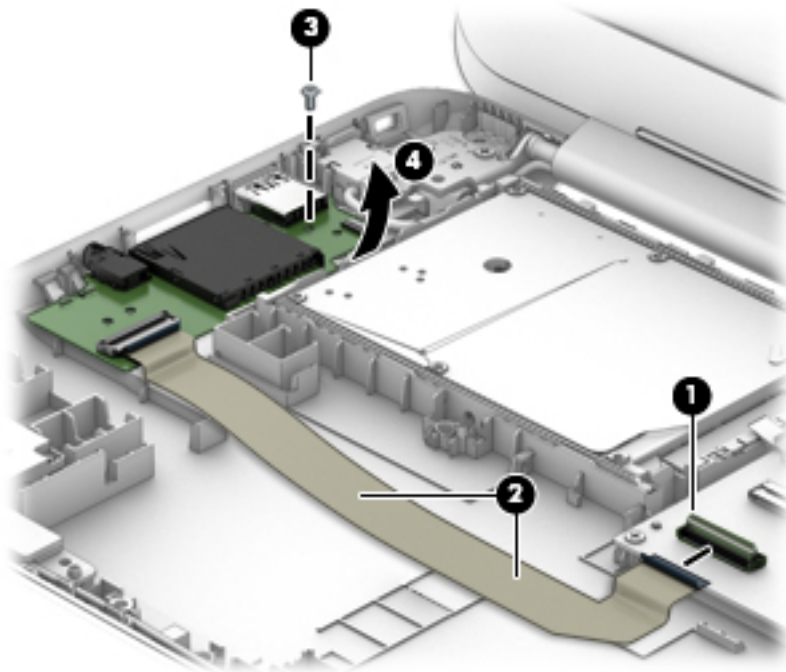
Description	Spare part number
Connector board (includes cable, USB port, memory card reader, audio jack, and double-sided adhesive)	809788-001

Before removing the connector board, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the keyboard/top cover (see [Keyboard/top cover on page 21](#)).
5. Disconnect the battery cable from the system board (see [Battery on page 27](#)).

Remove the connector board:

1. Release the ZIF connector **(1)** to which the connector board cable is attached, and then disconnect the connector board cable from the system board.
2. Detach the connector board cable **(2)** from the base enclosure. (The connector board cable is attached to the base enclosure with double-sided adhesive.)
3. Remove the Phillips PM2.0×3.3 screw **(3)** that secures the connector board to the base enclosure.
4. Remove the connector board **(4)**.



Reverse this procedure to install the connector board.

## Speakers

Description	Spare part number
Speaker Kit (includes left and right speakers and cables)	809792-001

Before removing the speakers, follow these steps:

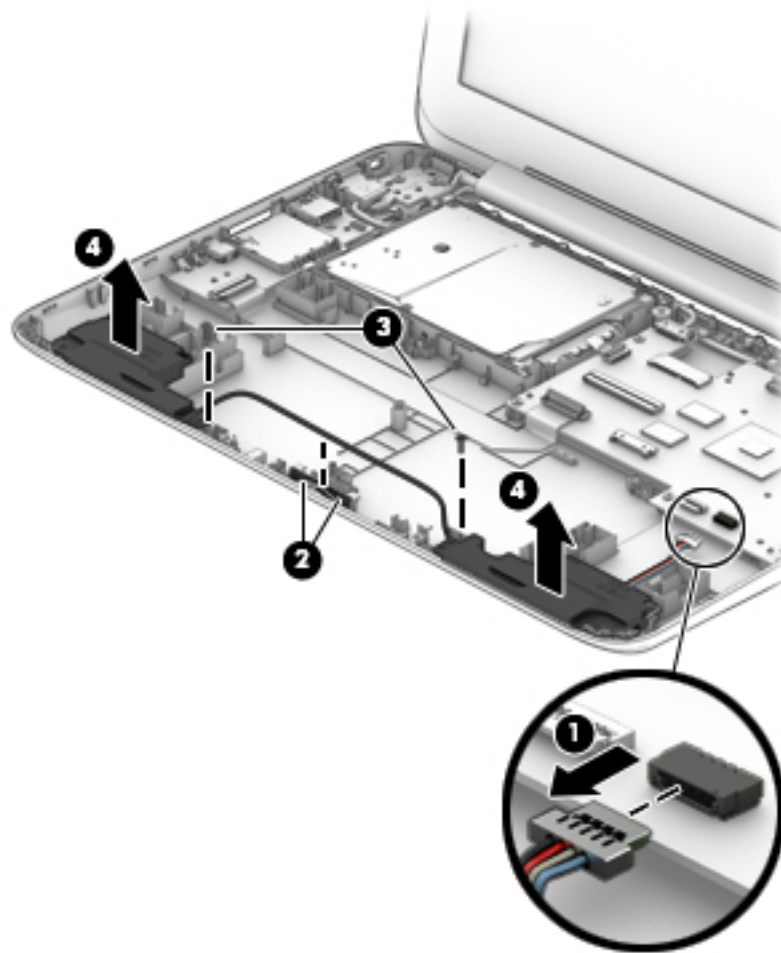
1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the keyboard/top cover (see [Keyboard/top cover on page 21](#)).
5. Disconnect the battery cable from the system board (see [Battery on page 27](#)).

Remove the speakers:

1. Disconnect the speaker cable **(1)** from the system board.
2. Release the speaker cables from the routing clips **(2)** built into the base enclosure.
3. Remove the two Phillips PM2.0×3.3 screws **(3)** that secure the speakers to the base enclosure.



4. Remove the speakers (4).



Reverse this procedure to install the speakers.


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## 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.

### Starting Setup Utility (BIOS)

---

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

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Turn on or restart the computer, quickly press `esc`, and then press `f10`.

### 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 the one currently installed on the computer, you need to know the version of the system BIOS that is installed.

BIOS version information (also known as *ROM date* and *System BIOS*) can be revealed from the Start screen by typing `support`, selecting the **HP Support Assistant** app, selecting **My computer**, and then selecting **System Information**, or by using Setup Utility (BIOS).


1. Start Setup Utility (BIOS) (see [Starting Setup Utility \(BIOS\) on page 44](#)).
2. Select **Main**, and then make note of your BIOS version.
3. Select **Exit**, select **Exit Discarding Changes**, and then follow the on-screen instructions.

### Downloading a BIOS update

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 **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. From the Start screen, type `support`, and then select the **HP Support Assistant** app.  
– or –  
From the Windows desktop, click the question mark icon in the taskbar.
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.  
  
If the update is more recent than your BIOS, 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. From the Start screen, type `file`, and then select **File Explorer**.  
– or –  
From the Windows desktop, right-click the **Start** button, 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.

---

---

# 7 Using HP PC Hardware Diagnostics (UEFI)

HP PC Hardware Diagnostics is a Unified Extensible Firmware Interface (UEFI) utility that 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.

To start HP PC Hardware Diagnostics (UEFI):

1. Turn on or restart the computer, quickly press **esc**.
2. Press or tap **f2**.

The BIOS searches 3 places for the diagnostic tools, in the following order:

- a. Connected USB drive



**NOTE:** To download the HP PC Hardware Diagnostics (UEFI) tool to a USB drive, see [Downloading HP PC Hardware Diagnostics \(UEFI\) to a USB device on page 47](#).

---

- b. Hard drive

- c. BIOS

3. When the diagnostic tool opens, use the keyboard arrow keys to 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, press or tap **esc**.

---

# Downloading HP PC Hardware Diagnostics (UEFI) to a USB device



**NOTE:** Instructions for downloading HP PC Hardware Diagnostics (UEFI) are provided in English only.

There are two options to download HP PC Hardware Diagnostics to a USB device.

## Download the latest UEFI version:

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

## Download any version of UEFI for a specific product:

1. Go to <http://www.hp.com/support>, and then select your country. The HP Support page is displayed.
2. Click **Drivers & Downloads**.
3. In the text box, enter the product name, and then click **Go**.

– or –

Click **Find Now** to let HP automatically detect your product.

4. Select your computer model, and then select your operating system.
5. In the **Diagnostic** section, click **HP UEFI Support Environment**.

– or –

Click **Download**, and then select **Run**.

# 8 Specifications

	Metric	U.S.
<b>Computer dimensions</b>		
Width	<b>30.0 cm</b>	11.8 in
Depth	<b>20.6 cm</b>	8.1 in
Height (front to rear)	<b>2.2 to 2.3 cm</b>	0.8 to 0.9 in
Weight	<b>1.3 kg</b>	2.9 lbs
<b>Operating voltage and current</b>		
	19.5 V dc @ 3.33 A – 65 W	
	19.5 V dc @ 2.31 A – 45 W	
<b>NOTE:</b> This product is designed for IT power systems in Norway with phase-to-phase voltage not exceeding 240 V rms.		
<b>NOTE:</b> The computer operating voltage and current can be found on the system regulatory label.		
<b>Temperature</b>		
Operating	<b>5°C to 35°C</b>	41°F to 95°F
Nonoperating	<b>-20°C to 60°C</b>	-4°F to 140°F
<b>Relative humidity</b> (noncondensing)		
Operating	10% to 90%	
Nonoperating	5% to 95%	
<b>Maximum altitude</b> (unpressurized)		
Operating	<b>-15 m to 3,048 m</b>	-50 ft to 10,000 ft
Nonoperating	<b>-15 m to 12,192 m</b>	-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.		

---

# 9 Backing up, restoring, and recovering

This chapter provides information about the following processes. The information in the chapter is standard procedure for most models.

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

For additional information, refer to Help and Support.

- ▲ From the Start screen, type `help`, and then select **Help and Support**.


## Creating recovery media and backups

The following methods of creating recovery media and backups are available on select models only. Choose the available method according to your computer model.

- Use HP Recovery Manager after you successfully set up the computer to 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. For information on creating recovery media, see [Creating HP Recovery media \(select models only\) on page 49](#). For information on the recovery options that are available using the recovery media, see [Recovering using HP Recovery Manager on page 51](#).
- Use Windows tools to create system restore points and create backups of personal information.


For more information, see [Using Windows tools on page 50](#).

---

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

---

## Creating HP Recovery media (select models only)

 **IMPORTANT:** If your computer does not list a Create recovery media option, you can obtain recovery media for your system from support. See the *Worldwide Telephone Numbers* booklet included with the computer. You can also find contact information from the HP website. Go to <http://www.hp.com/support>, select your country or region, and follow the on-screen instructions.

---

HP Recovery Manager is a software program that allows you 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 restore the factory image if you replace the hard drive.

- 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 storage capacity for the media 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, 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; 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 support. See the *Worldwide Telephone Numbers* booklet included with the computer. You can also find contact information from the HP website. Go to <http://www.hp.com/support>, select your country or region, and follow the on-screen instructions. 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 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 **Create recovery media**, and then follow the on-screen instructions.

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

## Using Windows tools

You can create system restore points and create backups of personal information using Windows tools.



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

For more information and steps, see Help and Support.

- ▲ From the Start screen, type `help`, and then select **Help and Support**.

## Restore and recovery

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



**IMPORTANT:** Not all methods are available on all models.

- Windows offers several options for restoring from backup, refreshing the computer, and resetting the computer to its original state. For more information see Help and Support.
  - ▲ From the Start screen, type `help`, and then select **Help and Support**.
- If you need to correct a problem with a preinstalled application or driver, use the Reinstall drivers and/or applications option of HP Recovery Manager to reinstall the individual application or driver.
  - ▲ From the Start screen, type `recovery`, select **HP Recovery Manager**, select **Reinstall drivers and/or applications**, and then follow the on-screen instructions.
- On select models, 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 Reinstall drivers and/or applications option in HP Recovery Manager.

For more information, see [Recovering using HP Recovery Manager on page 51](#).

- If you want to recover the Windows partition to original factory content, you can choose the System Recovery option from the HP Recovery partition (select models 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 \(select models only\) on page 49](#).
- On select models, if you want to recover the computer's original factory partition and content, or if you have replaced the hard drive, you can use the Factory Reset option of HP Recovery media. For more information, see [Recovering using HP Recovery Manager on page 51](#).
- On select models, if you want 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 \(select models only\) on page 53](#).

## Recovering using HP Recovery Manager

HP Recovery Manager software allows you to recover the computer to its original factory state by using the HP Recovery media that you either created or that you obtained from support, or by using the HP Recovery partition (select models only). If you have not already created recovery media, see [Creating HP Recovery media \(select models only\) on page 49](#).

### What you need to know before you get started

- 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.



---

**IMPORTANT:** 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. If you have not already created recovery media, see [Creating HP Recovery media \(select models only\) on page 49](#).
- To use the Factory Reset option (select models only), you must use HP Recovery media. If you have not already created recovery media, see [Creating HP Recovery media \(select models only\) on page 49](#).
- If your computer does not allow the creation of HP Recovery media or if the HP Recovery media does not work, you can obtain recovery media for your system from support. See the *Worldwide Telephone Numbers* booklet included with the computer. You can also find contact information from the HP website. Go to <http://www.hp.com/support>, select your country or region, and follow the on-screen instructions.



---

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

---

Using HP Recovery media, you can choose from one of the following recovery options:



---

**NOTE:** Only the options available for your computer display when you start the recovery process.

---

- **System Recovery**—Reinstalls the original operating system, and then configures the settings for the programs that were installed at the factory.
- **Minimized Image Recovery (select models only)**—Reinstalls the operating system and all hardware-related drivers and software, but not other software applications.
- **Factory Reset**—Restores the computer to 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 (select models only) allows System Recovery and Minimized Image Recovery (select models only).

## Using the HP Recovery partition (select models only)

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

To start HP Recovery Manager from the HP Recovery partition:

1. From the Start screen, type `recovery`, select **Recovery Manager**, and then select **HP Recovery Environment**.  
- or -  
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 **Recovery Manager**, and then 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 HP Recovery media, 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 52](#).

---

3. Follow the on-screen instructions.

## Changing the computer boot order

If your 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.
2. Start Computer Setup:
  - ▲ Turn on or restart the computer, quickly press `esc`, and then press `f9` for boot options.
3. Select the optical drive or USB flash drive from which you want to boot.
4. Follow the on-screen instructions.

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

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



**IMPORTANT:** After you remove the HP Recovery partition, you can no longer use the Windows Refresh option or the Windows option to remove everything and reinstall Windows. In addition, you will not be able to perform System Recovery or Minimized Image Recovery from the HP Recovery partition. So before you remove the Recovery partition, create HP Recovery media; see [Creating HP Recovery media \(select models only\) on page 49](#).

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 then follow the on-screen instructions.

# 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.

---

# 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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