



**HP Chromebook (model numbers 11-2200 through 11-2299), HP Chromebook 11 G4 and HP Chromebook 11 G4 EE**

**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 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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# Table of contents

<b>1 Product description .....</b>	<b>1</b>
<b>2 External component identification .....</b>	<b>4</b>
Display .....	4
Button .....	5
TouchPad .....	6
Left side .....	7
Right side .....	8
Bottom .....	9
<b>3 Illustrated parts catalog .....</b>	<b>10</b>
Locating the serial number, model number, product number, and warranty information .....	10
Computer major components .....	11
Display assembly subcomponents .....	15
Miscellaneous parts .....	17
<b>4 Removal and replacement preliminary requirements .....</b>	<b>18</b>
Tools required .....	18
Service considerations .....	18
Plastic parts .....	18
Cables and connectors .....	18
Drive handling .....	19
Grounding guidelines .....	20
Electrostatic discharge damage .....	20
Packaging and transporting guidelines .....	21
Workstation guidelines .....	21
<b>5 Removal and replacement procedures .....</b>	<b>23</b>
Component replacement procedures .....	23
Computer feet .....	23
Keyboard/top cover .....	24
Heat sink .....	30
TouchPad board .....	31
Battery .....	32
WWAN module .....	34
Connector board .....	35

WLAN module .....	36
Power connector cable .....	38
System board .....	39
Speakers .....	42
Display assembly .....	43
<b>6 Specifications .....</b>	<b>53</b>
<b>7 Power cord set requirements .....</b>	<b>54</b>
Requirements for all countries .....	54
Requirements for specific countries and regions .....	54
<b>8 Recycling .....</b>	<b>56</b>
<b>Index .....</b>	<b>57</b>

# 1 Product description

Category	Description	HP Chromebook 11 G4 and HP Chromebook 11 G4 EE	HP Chromebook (model numbers 11-2200 through 11-2299)
<b>Product Name</b>	HP Chromebook 11 G4	√	
	HP Chromebook (model numbers 11-2200 through 11-2299)		√
<b>Processor</b>	Intel® Celeron™ N2940 1.83-GHz (SC turbo up to 2.25-GHz) quad core processor (1.0-GB L2 cache, 1333-MHz FSB, 4.5 W)		√
	Intel Celeron N2840 2.16-GHz (SC turbo up to 2.58-GHz) dual core processor (1.0-GB L2 cache, 1333-MHz FSB, 4.5 W)	√	√
<b>Chipset</b>	Integrated soldered-on-circuit (SoC) platform controller hub (PCH)	√	√
<b>Graphics</b>	<b>Internal Graphics:</b> Intel HD Graphics	√	√
	Supports HD decode, DX11, and HDMI		
<b>Panel</b>	11.6-in, high-definition (HD), AntiGlare, (1366×768), UWVA, light-emitting diode (LED), slim (3.0-mm); 16:9 aspect ratio; typical brightness: 220 nits, eDP;	√	√
	11.6-in, HD, AntiGlare, (1366×768), SVA, white light-emitting diode (WLED), flat (3.6-mm); 16:9 aspect ratio; typical brightness: 220 nits, eDP;		
	Supports low-voltage differential signaling (LVDS)		
<b>Memory</b>	Supports DDR3L-1600	√	√
	Supports up to 4096-MB maximum on-board system memory (8 pieces of 256-MB × 16)		
<b>Storage</b>	Supports 16-GB (32-GB for 6U) embedded MultiMedia Controller (eMMC)	√	√
<b>Audio and video</b>	Fixed (no tilt) integrated HP TrueVision HD webcam	√	√

Category	Description	HP Chromebook 11 G4 and HP Chromebook 11 G4 EE	HP Chromebook (model numbers 11-2200 through 11-2299)
<b>Audio and video</b> <i>(continued)</i>	<p>1280×720 by 30 frames per second with LED</p> <p>Single digital microphone with appropriate echo-cancellation, noise-suppression software</p> <p>Two speakers</p>	✓	✓
<b>Sensors</b>	Trusted platform module (TPM)	✓	✓
<b>Wireless</b>	<p>Integrated wireless local area network (WLAN) options by way of wireless module</p> <p>Two built-in WLAN antennas</p> <p>Supports the following WLAN modules:</p> <ul style="list-style-type: none"> <li>• Intel Dual Band Wireless-AC 7260 802.11 ac 2×2 WiFi + Bluetooth 4.0 Combo Adapter</li> <li>• Intel Dual Band Wireless-N 7260AN 802.11 a/b/g/n 2×2 WiFi + Bluetooth 4.0 Combo Adapter</li> </ul>	✓	✓
	<p>Integrated wireless wide area network (WWAN) options by way of wireless module (select models only)</p> <p>Two built-in WWAN antennas</p> <p>Supports the HP lt4110 LTE/HSPA+ 4G WWAN Module</p>	✓	
<b>Ports</b>	<p>Headphone/microphone combo jack</p> <p>USB 2.0 ports (2)</p> <ul style="list-style-type: none"> <li>• HP Smart Plug AC adapter (4.5-mm barrel)</li> <li>• Headphone/microphone combo jack</li> <li>• High-definition multimedia interface (HDMI) v.1.4b, supporting up to 1080b, 1920×1080 at 60 Hz</li> <li>• USB 3.0 port</li> <li>• USB 2.0 port</li> </ul>	✓	✓
<b>Keyboard/pointing devices</b>	<p>Full-sized, textured, island-style, Google keyboard</p> <p><b>Touchpad requirements:</b></p>	✓	✓



Category	Description	HP Chromebook 11 G4 and HP Chromebook 11 G4 EE	HP Chromebook (model numbers 11-2200 through 11-2299)
	Multitouch gestures enabled		
	Taps enabled as default		
<b>Power requirements</b>	Supports a 3-cell, 36-WHr, 3.25-WHr, Li-Ion battery	√	√
	Supports a 65-W HP Smart AC adapter (non-PFC, EM, 4.5-mm) and 45-W HP Smart AC adapter (non-PFC, RC, 4.5-mm) AC adapter		
<b>Operating system</b>	<b>Preinstalled:</b> Google Chrome operating system	√	√
<b>Serviceability</b>	<b>End user replaceable parts:</b> AC adapter	√	√

# 2 External component identification

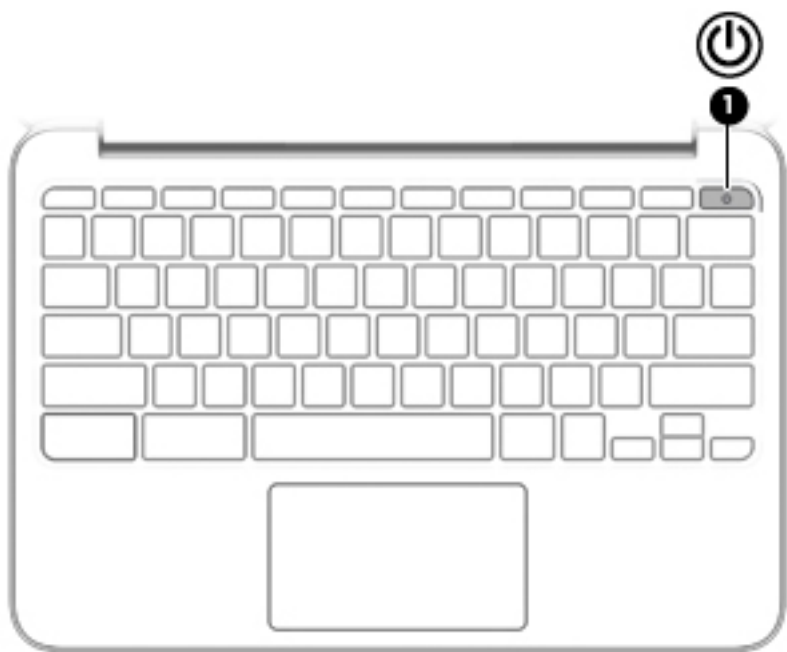
## Display



Item	Component	Description
(1)	WLAN antennas (2)*	Send and receive wireless signals to communicate with WLANs. <b>NOTE:</b> The position of the WLAN antennas may differ, depending on model.
(2)	Internal microphone	Records sound.
(3)	Webcam	Records video, captures still photographs, and allows video conferences and online chat by means of streaming video.
(4)	Webcam light	On: The webcam is in use.
(5)	Internal display switch	Turns off the display or initiates Sleep if the display is closed while the power is on. <b>NOTE:</b> The display switch is not visible from the outside of the computer.

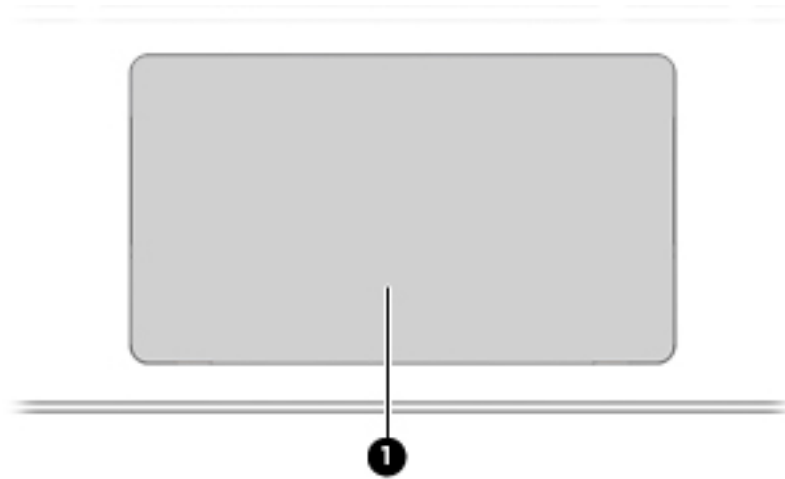
\*The antennas, IR emitters (select models only), and sensors are not visible from the outside of the computer. For optimal transmission, keep the areas immediately around the antennas, IR emitters, and sensors free from obstructions. For wireless regulatory notices, see the section of the *Regulatory, Safety, and Environmental Notices* that applies to your country or region.

# Button



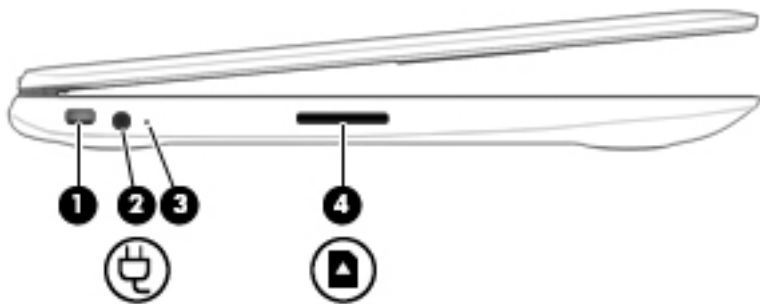
Item	Component	Description
(1)	Power button	<ul style="list-style-type: none"><li>When the computer is off, press the button to turn on the computer.</li><li>When the computer is in the Sleep state, press the button briefly to exit Sleep.</li><li>When the computer is on and you want to lock the screen, press the power button until you see the sign-in screen appear. Pressing the power button during screen-lock mode turns off the computer.</li><li>When the computer is on and you want to turn it off, press and hold the power.</li></ul>

## TouchPad



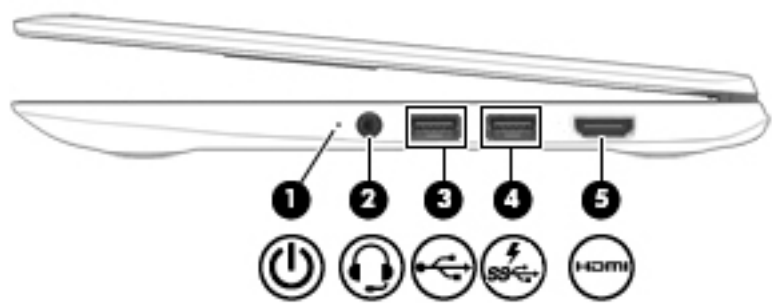
Item	Component	Description
(1)	TouchPad zone	Moves the on-screen pointer and selects or activates items on the screen.

# Left side



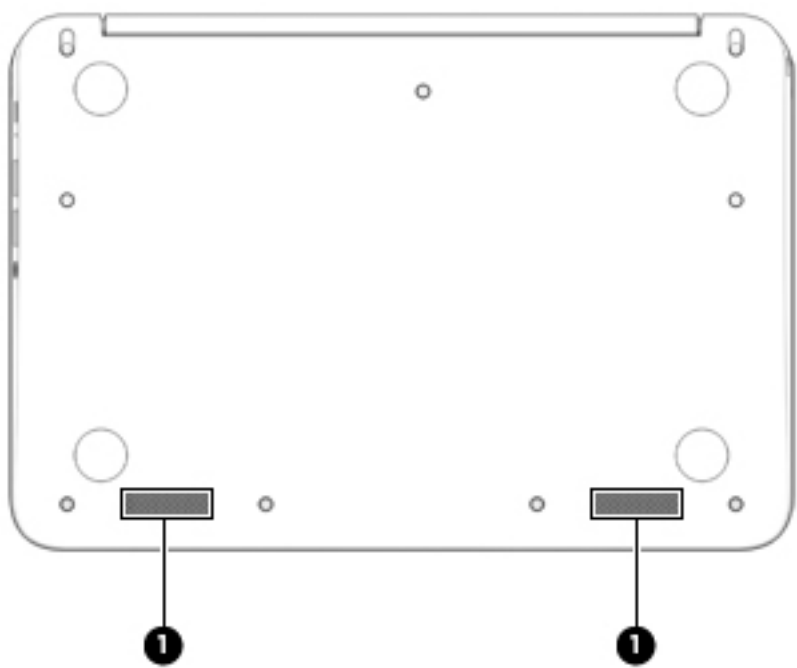
Item	Component	Description
(1)	Security cable slot	Attaches an optional security cable to the computer. <b>NOTE:</b> The security cable is designed to act as a deterrent, but it may not prevent the computer from being mishandled or stolen.
(2)	Power connector	Connects an AC adapter.
(3)	AC adapter light	<ul style="list-style-type: none"><li>White: The AC adapter is connected and the battery is charged.</li><li>Amber: The AC adapter is connected and the battery is charging.</li><li>Off: The computer is using battery power.</li></ul>
(4)	Memory card reader	Reads optional memory cards that store, manage, share, or access information.  To insert a card: <ul style="list-style-type: none"><li>▲ Hold the card label-side up, with connectors facing the slot, insert the card into the slot, and then push in on the card until it is firmly seated.</li></ul> To remove a card: <ul style="list-style-type: none"><li>▲ Press in on the card it until it pops out.</li></ul>

# Right side



Item	Component	Description
(1)	Power light	<ul style="list-style-type: none"><li>• White: Computer is on.</li><li>• Blinking white: Computer is in Sleep mode.</li><li>• Off: The computer is off.</li></ul>
(2)	Audio-out (headphone)/Audio-in (microphone) 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 microphone-only devices.</p> <p><b>WARNING!</b> To reduce the risk of personal injury, adjust the volume before putting on headphones, earbuds, or a headset.</p> <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 4-conductor connector that supports both audio-out (headphone) and audio-in (microphone).</p>
(3)	USB 2.0 port	Connect optional USB devices, such as a keyboard, mouse, external drive, printer, scanner or USB hub.
(4)	USB 3.0 charging (powered) port	Connects an optional USB device, such as a keyboard, mouse, external drive, printer, scanner or USB hub. Standard USB ports will not charge all USB devices or will charge using a low current. Some USB devices require power and require you to use a powered port.
(5)	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 High-Definition Multimedia Interface (HDMI) device.

Bottom



Item	Component	Description
(1)	Speakers (2)	Produce sound.

## 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.

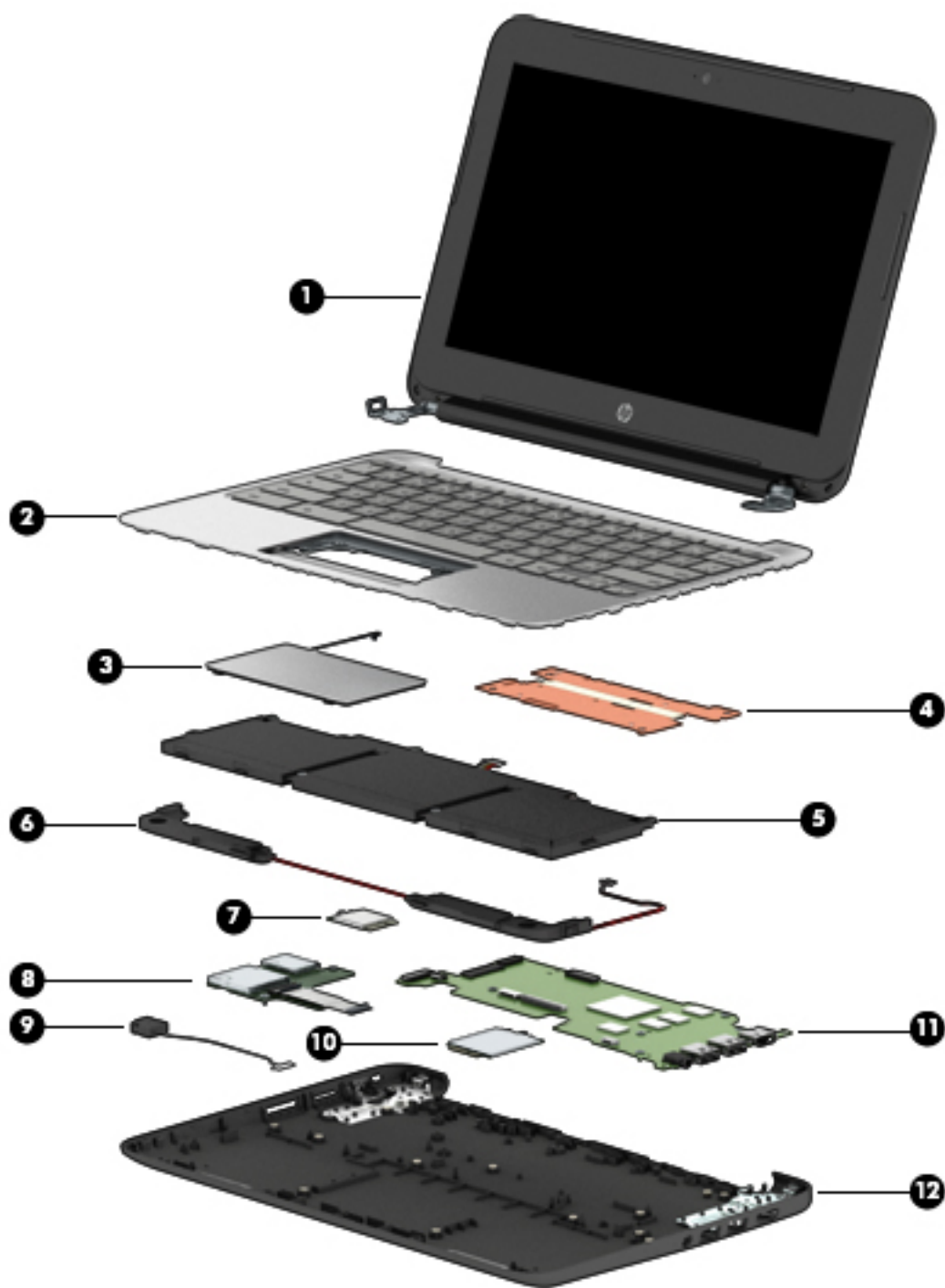
### Locating the serial number, model number, product number, and warranty information

The serial number **(1)**, model number **(2)**, product number **(3)**, and warranty information **(4)** are located on the bottom of the computer. This information may be needed when travelling internationally or when contacting 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 subcomponents on page 15</a> .	
(2)	<b>Keyboard/top cover</b> (includes keyboard cable):	

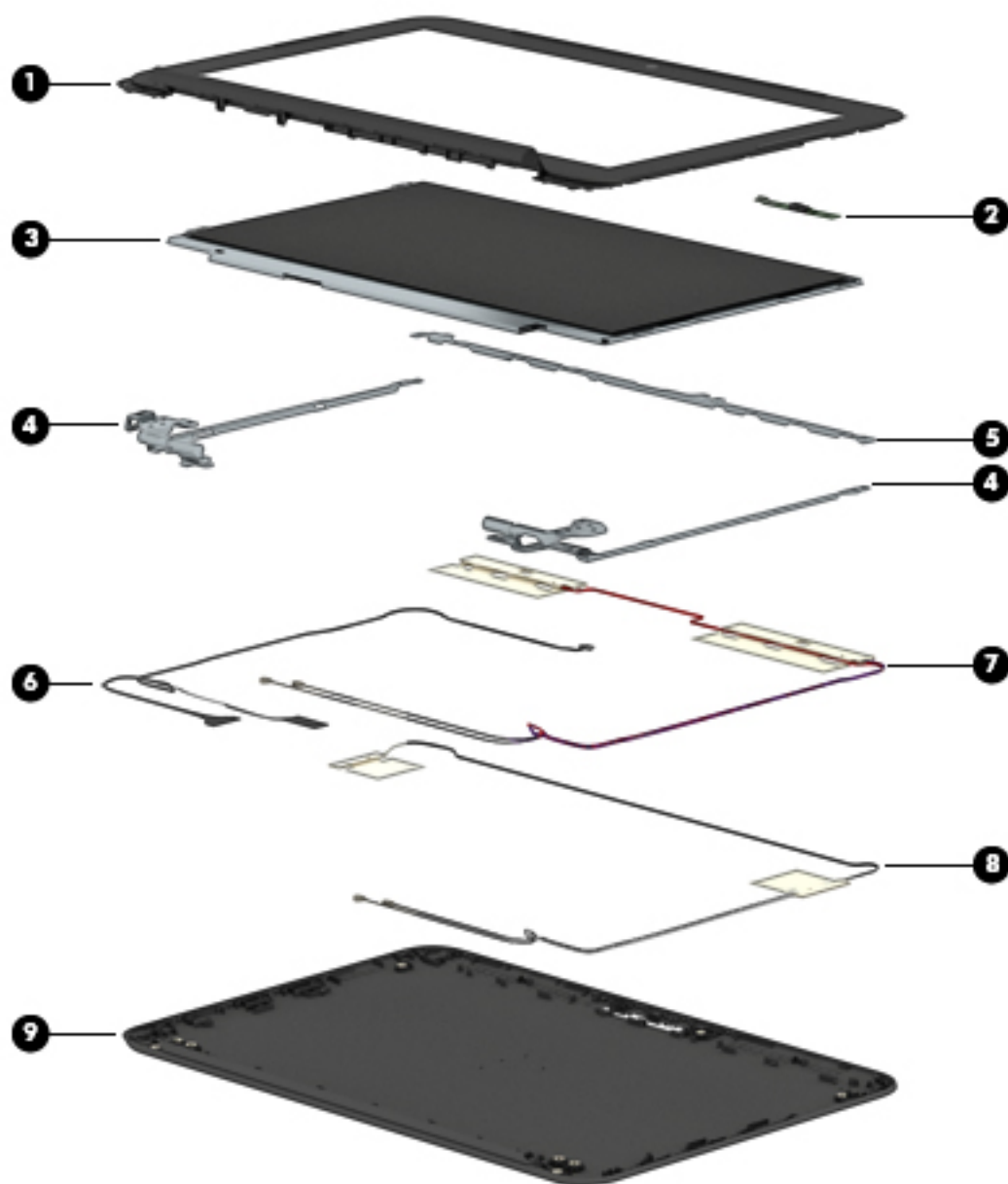
In snow white finish for use only on HP Chromebook 11 G4 computer models:

Item	Component	Spare part number
	<b>NOTE:</b> Keyboard/top cover spare part kits with spare part numbers 851145-xxx are only to be used with TouchPad board spare part kit 851139-001.	
	For use in Belgium	851145-A41
	For use in Canada	851145-DB1
	For use in the Czech Republic and Slovenia	851145-FL1
	For use in Denmark, Finland, and Norway	851145-DH1
	For use in France	851145-051
	For use in Germany	851145-041
	For use in Israel	851145-BB1
	For use in Italy	851145-061
	For use in Japan	851145-291
	For use in Latin America	851145-161
	For use in the Netherlands	851145-B31
	For use in Russia	851145-251
	For use in Saudi Arabia	851145-171
	For use in Spain	851145-071
	For use in Switzerland	851145-BG1
	For use in Taiwan	851145-AB1
	For use in Thailand	851145-281
	For use in the United Kingdom	851145-031
	For use in the United States	851145-001
	In anodized silver finish for use only on HP Chromebook computer models equipped with WWAN capability:	
	<b>NOTE:</b> Keyboard/top cover spare part kits with spare part numbers 822639-xxx are only to be used with TouchPad board spare part kit 822628-001.	
	For use in Belgium	822639-A41
	For use in Canada	822639-DB1
	For use in Denmark, Finland, and Norway	822639-DH1
	For use in France	822639-051
	For use in Germany	822639-041
	For use in Italy	822639-061
	For use in Latin America	822639-161
	For use in the Netherlands	822639-B31
	For use in Russia	822639-251
	For use in Spain	822639-071
	For use in Switzerland	822639-BG1

Item	Component	Spare part number
	For use in the United Kingdom	822639-031
	For use in the United States	822639-001
	In anodized silver finish for use only on HP Chromebook computer models not equipped with WWAN capability: <b>NOTE:</b> Keyboard/top cover spare part kits with spare part numbers 783090-xxx are only to be used with TouchPad board spare part kit 783086-001.	
	For use in Belgium	783090-A41
	For use in Canada	783090-DB1
	For use in Denmark, Finland, and Norway	783090-DH1
	For use in France	783090-051
	For use in Germany	783090-041
	For use in Italy	783090-061
	For use in Latin America	783090-161
	For use in the Netherlands	783090-B31
	For use in Russia	783090-251
	For use in Spain	783090-071
	For use in Switzerland	783090-BG1
	For use in the United Kingdom	783090-031
	For use in the United States	783090-001
<b>(3)</b>	<b>TouchPad board</b> (includes cable and double-sided adhesive)	
	For use only with keyboard/top cover spare part kits with spare part number 851139-001	851145-001
	For use only with keyboard/top cover spare part kits with spare part numbers 822639-xxx.	822628-001
<b>(4)</b>	<b>Heat sink</b> (includes replacement thermal material)	825376-001
<b>(5)</b>	<b>Battery</b> (3-cell, 36-WHr, 3.25-AHr, Li-ion; includes cable)	767068-005
<b>(6)</b>	<b>Speaker Kit</b> (includes left and right speakers and cables)	788555-001
<b>(7)</b>	<b>WLAN module:</b>	
	Intel Dual Band Wireless-AC 7260 802.11 ac 2x2 WiFi + Bluetooth 4.0 Combo Adapter	784645-005
	Intel Dual Band Wireless-N 7260AN 802.11 a/b/g/n 2x2 WiFi + Bluetooth 4.0 Combo Adapter	784647-005
<b>(8)</b>	<b>Connector board:</b>	
	For use only on computer models equipped with WWAN capability (includes SD Card Reader slot, SIM slot, and cable)	785884-001
	For use only on computer models not equipped with WWAN capability (includes SD Card Reader slot and cable)	783087-001
<b>(9)</b>	<b>Power connector cable</b>	787922-001
<b>(10)</b>	<b>HP lt4110 LTE/HSPA+ 4G WWAN Module</b>	755529-005
<b>(11)</b>	<b>System board</b> (includes replacement thermal material):	
	For use only on HP Chromebook 11 G4 computer models:	

Item	Component	Spare part number
	Equipped with an Intel Celeron N2840 2.16-GHz (SC turbo up to 2.58-GHz) dual core processor (1.0-GB L2 cache, 1333-MHz FSB, 4.5 W), 4.0-GB of system memory, and 32-GB of eMMC system storage	825645-001
	Equipped with an Intel Celeron N2840 2.16-GHz (SC turbo up to 2.58-GHz) dual core processor (2.0-GB L2 cache, 1333-MHz FSB, 4.5 W), 4.0-GB of system memory, and 16-GB of eMMC system storage	851142-001
	Equipped with an Intel Celeron N2840 2.16-GHz (SC turbo up to 2.58-GHz) dual core processor (4.0-GB L2 cache, 1333-MHz FSB, 4.5 W), 4.0-GB of system memory, and 16-GB of eMMC system storage	851143-001
	Equipped with an Intel Celeron N2840 2.16-GHz (SC turbo up to 2.58-GHz) dual core processor (4.0-GB L2 cache, 1333-MHz FSB, 4.5 W), 4.0-GB of system memory, and 32-GB of eMMC system storage	851144-001
	For use only on HP Chromebook computer models:	
	Equipped with an Intel Celeron N2940 1.83-GHz (SC turbo up to 2.25-GHz) quad core processor (1.0-GB L2 cache, 1333-MHz FSB, 4.5 W), 4.0-GB of system memory, and 16-GB of eMMC system storage	822638-001
	For use on all computer models:	
	Equipped with an Intel Celeron N2840 2.16-GHz (SC turbo up to 2.58-GHz) dual core processor (1.0-GB L2 cache, 1333-MHz FSB, 4.5 W), 4.0-GB of system memory, and 16-GB of eMMC system storage	822636-001
	Equipped with an Intel Celeron N2840 2.16-GHz (SC turbo up to 2.58-GHz) dual core processor (1.0-GB L2 cache, 1333-MHz FSB, 4.5 W), 2.0-GB of system memory, and 16-GB of eMMC system storage	822635-001
<b>(12)</b>	<b>Base enclosure:</b>	
	<b>For use only on HP Chromebook 11 G4 computer models:</b>	
	Ash silver texture plastic with Jack Black rubber	851131-001
	Ash silver texture plastic with Electric Green rubber	851132-001
	In Jack Black finish for use only on computer models equipped with WLAN capability	851133-001
	In Jack Black finish for use only on computer models equipped with WWAN capability	851134-001
	In Electric Green finish for use only on computer models equipped with WLAN capability	851135-001
	In Electric Green finish for use only on computer models equipped with WWAN capability	851136-001
	<b>For use only on HP Chromebook computer models:</b>	
	In sky blue finish for use only on computer models equipped with WWAN capability	822621-001
	In turbo silver finish for use only on computer models equipped with WWAN capability	822622-001
	In smoke silver finish for use only on computer models not equipped with WWAN capability	822620-001
	<b>Rubber Kit</b> (not illustrated, includes 2 display bezel screw covers, 4 rubber feet, and 2 rubber screw covers):	
	For use only on HP Chromebook 11 G4 computer models	773211-001
	For use only on HP Chromebook computer models in sky blue finish	822632-001
	For use only on HP Chromebook computer models in turbo silver finish	822633-001
	For use only on HP Chromebook computer models in smoke silver finish	822631-001

## Display assembly subcomponents



Item	Component	Spare part number
<b>(1)</b>	<b>Display bezel:</b>	
	For use only on HP Chromebook 11 G4 computer models	851137-001
	For use only on HP Chromebook computer models in sky blue finish	822625-001
	For use only on HP Chromebook computer models in turbo silver finish	822626-001
	For use only on HP Chromebook computer models in smoke silver finish	822624-001
<b>(2)</b>	<b>Webcam/microphone module</b> (includes double-sided adhesive)	783088-001
<b>(3)</b>	<b>Display panel:</b>	

Item	Component	Spare part number
	11.6-in, HD, AntiGlare, (1366×768), UWVA, LED, slim (3.0-mm) display panel	822629-001
	11.6-in, HD, AntiGlare, (1366×768), SVA, WLED, flat (3.6-mm) display panel	822630-001
(4)	<b>Display Hinge Kit</b> (includes left and right display hinges)	851138-001
(5)	<b>Display panel bracket</b>	783085-001
(6)	<b>Display panel cable</b> (includes webcam/microphone module cable):	
	For use only on computer models equipped with WWAN capability	792091-001
	For use only on computer models not equipped with WWAN capability	783083-001
(7)	<b>WWAN antenna</b> (includes left and right WWAN cables and transceivers)	783076-001
(8)	<b>WLAN antenna</b> (includes left and right WLAN cables and transceivers)	783075-001
(9)	<b>Display enclosure</b> (includes rubber padding and shielding):	
	For use only on HP Chromebook 11 G4 computer models:	851137-001
	In anodized silver finish for use only on computer models equipped with WWAN capability	794732-001
	In Jack Black finish for use only on computer models not equipped with WWAN capability	807427-001
	For use only on HP Chromebook computer models:	
	In sky blue finish for use only on computer models equipped with WWAN capability	822618-001
	In turbo silver finish for use only on computer models equipped with WWAN capability	822619-001
	In smoke silver finish for use only on computer models not equipped with WWAN capability	822617-001

## Miscellaneous parts

Component	Spare part number
<b>AC adapter:</b>	
65-W HP Smart AC adapter (non-PFC, EM, 4.5-mm)	714657-001
45-W HP Smart AC adapter (non-PFC, RC, 4.5-mm)	741727-001
<b>HP HDMI-to-VGA adapter</b>	701943-001
<b>HP RJ45-to-USB adapter dongle</b>	539614-001
<b>Power cord:</b>	
For use in Australia	755530-011
For use in Denmark	755530-081
For use in Europe	755530-021
For use in India	755530-D61
For use in Italy	755530-061
For use in Japan	755530-291
For use in North America	755530-001
For use in Switzerland	755530-111
For use in the United Kingdom and Singapore	755530-031
<b>Rubber Kit</b> (includes 2 display bezel screw covers, 4 rubber feet, and 2 rubber screw covers):	
For use only on HP Chromebook 11 G4 computer models	851140-001
For use only on HP Chromebook computer models in sky blue finish	822632-001
For use only on HP Chromebook computer models in turbo silver finish	822633-001
For use only on HP Chromebook computer models in smoke silver finish	822631-001
<b>Screw Kit</b>	851141-001

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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.



**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



**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



**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

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## 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.

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### Component replacement procedures

There are as many as 54 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.

#### Computer feet

The computer feet are included in the Rubber Kit, available using the following spare part numbers:

- 773211-001 — For use only on HP Chromebook 11 G4 computer models
- 822632-001 — For use only on HP Chromebook computer models in sky blue finish
- 822633-001 — For use only on HP Chromebook computer models in turbo silver finish
- 822631-001 — For use only on HP Chromebook computer models in smoke silver finish

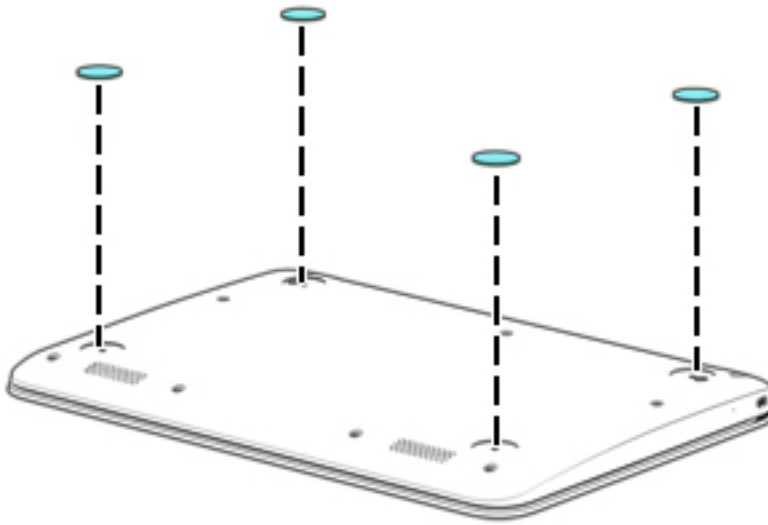
Before replacing the computer feet, follow these steps:

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 computer feet:

1. Close the computer.
2. Turn the computer upside down with the front toward you.

3. Remove the 4 rubber feet.



To install the rubber feet, remove the protective backing from the rubber feet and install them in the locations indicated in the above illustration.

## Keyboard/top cover

Description	Spare part number	Description	Spare part number
Keyboard/top cover in snow white finish for use only on HP Chromebook 11 G4 computer models (includes keyboard cable):		For use in Latin America	788639-161
<b>NOTE:</b> Keyboard/top cover spare part kits with spare part numbers 851145-xxx are only to be used with TouchPad board spare part kit 851145-001.			
For use in Belgium	851145-A41	For use in the Netherlands	851145-B31
For use in Canada	851145-DB1	For use in Russia	851145-251
For use in the Czech Republic and Slovenia	851145-FL1	For use in Saudi Arabia	851145-171
For use in Denmark, Finland, and Norway	851145-DH1	For use in Spain	851145-071
For use in France	851145-051	For use in Switzerland	851145-BG1
For use in Germany	851145-041	For use in Taiwan	851145-AB1
For use in Israel	851145-BB1	For use in Thailand	851145-281
For use in Italy	851145-061	For use in the United Kingdom	851145-031
For use in Japan	851145-291	For use in the United States	851145-001
In anodized silver finish for use only on HP Chromebook computer models equipped with WWAN capability:		For use in Latin America	822639-161
<b>NOTE:</b> Keyboard/top cover spare part kits with spare part numbers 822639-xxx are only to be used with TouchPad board spare part kit 822628-001.			

Description	Spare part number	Description	Spare part number
For use in Belgium	822639-A41	For use in the Netherlands	822639-B31
For use in Canada	822639-DB1	For use in Russia	822639-251
For use in Denmark, Finland, and Norway	822639-DH1	For use in Spain	822639-071
For use in France	822639-051	For use in Switzerland	822639-BG1
For use in Germany	822639-041	For use in the United Kingdom	822639-031
For use in Italy	822639-061	For use in the United States	822639-001
In anodized silver finish for use only on HP Chromebook computer models not equipped with WWAN capability:		For use in Latin America	783090-161
<b>NOTE:</b> Keyboard/top cover spare part kits with spare part numbers 783090-xxx are only to be used with TouchPad board spare part kit 783086-001.			
For use in Belgium	783090-A41	For use in the Netherlands	783090-B31
For use in Canada	783090-DB1	For use in Russia	783090-251
For use in Denmark, Finland, and Norway	783090-DH1	For use in Spain	783090-071
For use in France	783090-051	For use in Switzerland	783090-BG1
For use in Germany	783090-041	For use in the United Kingdom	783090-031
For use in Italy	783090-061	For use in the United States	783090-001

Before removing the keyboard/top 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.
4. Remove the 2 rear computer feet (see [Computer feet on page 23](#)).



**NOTE:** When replacing the keyboard/top cover, be sure that the heat sink (see [Heat sink on page 30](#)) and TouchPad (see [TouchPad board on page 31](#)) are removed from the defective keyboard/top cover and installed on the replacement keyboard/top cover.

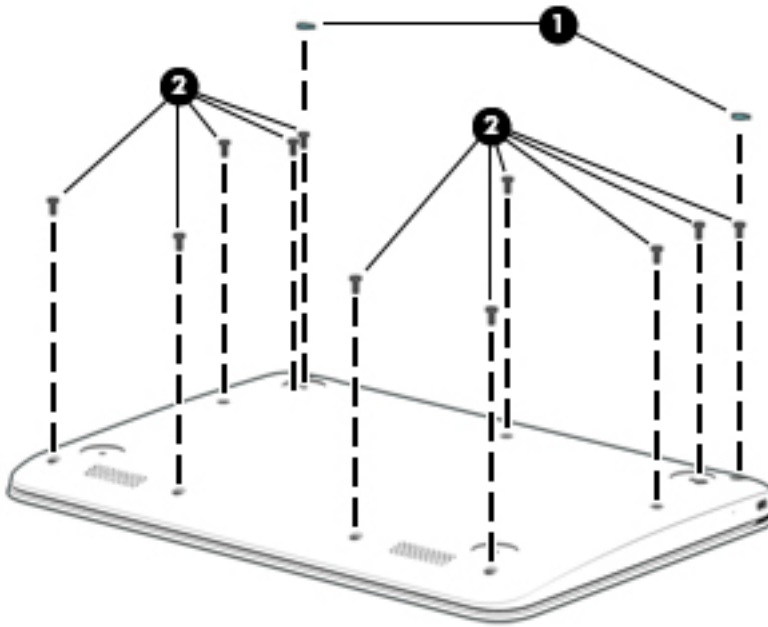
Remove the keyboard/top cover:

1. Remove the two rubber screw covers (1).

The rubber screw covers are included in the Rubber Kit, available using the following spare part numbers:

- 851140-001 — For use only on HP Chromebook 11 G4 computer models
- 822632-001 — For use only on HP Chromebook computer models in sky blue finish
- 822633-001 — For use only on HP Chromebook computer models in turbo silver finish
- 822631-001 — For use only on HP Chromebook computer models in smoke silver finish

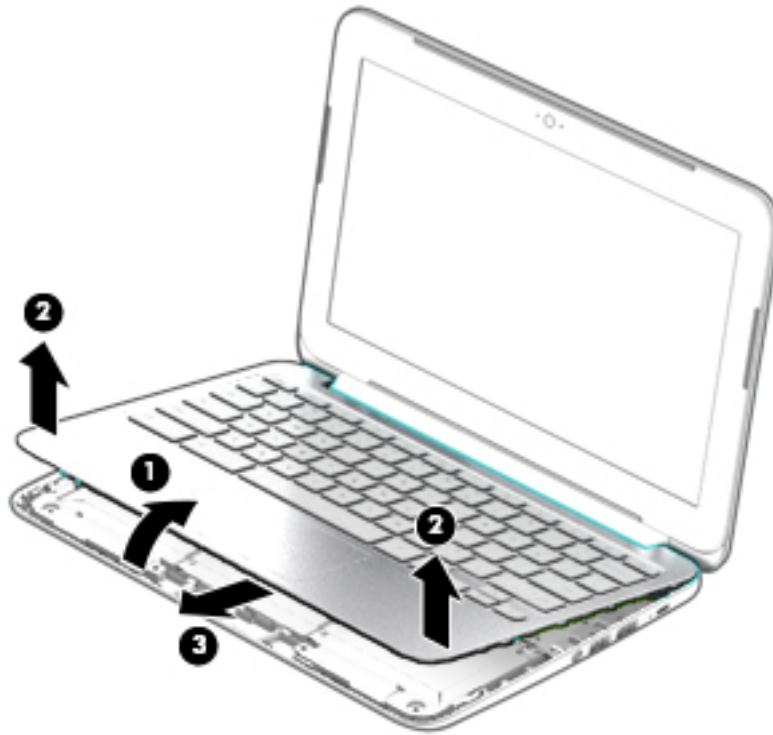
2. Remove the eleven Phillips PM1.9×6.7 screws (**2**) that secure the keyboard/top cover to the base enclosure.



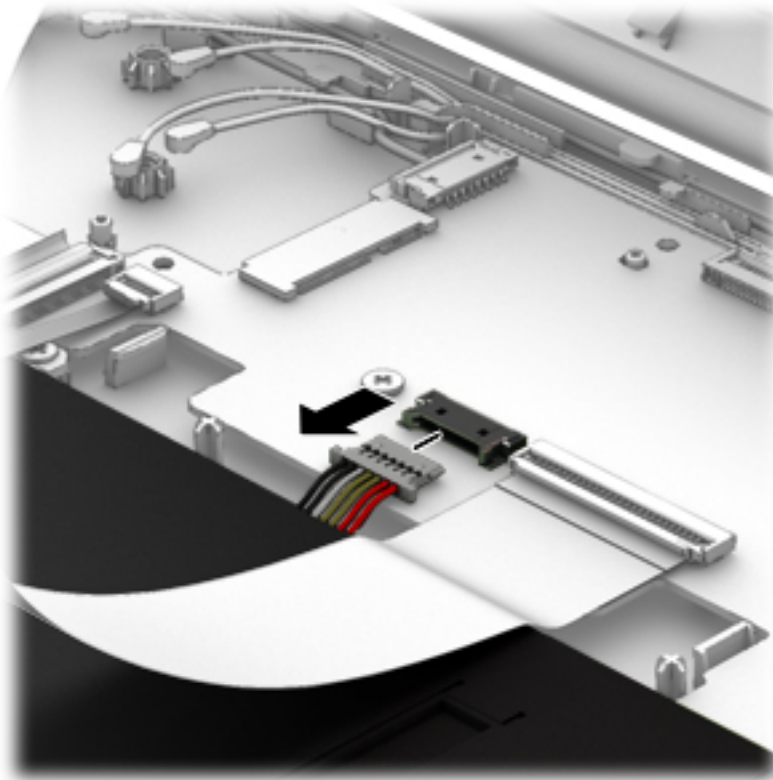
3. Turn the computer right side up with the front toward you.
4. Open the computer as far as it will open.
5. Lift the front edge (**1**) of the keyboard/top cover until it separates from the front edge of the base enclosure.
6. Lift the left (**2**) and right sides of the keyboard/top cover until they separate from the left and right sides of the base enclosure.



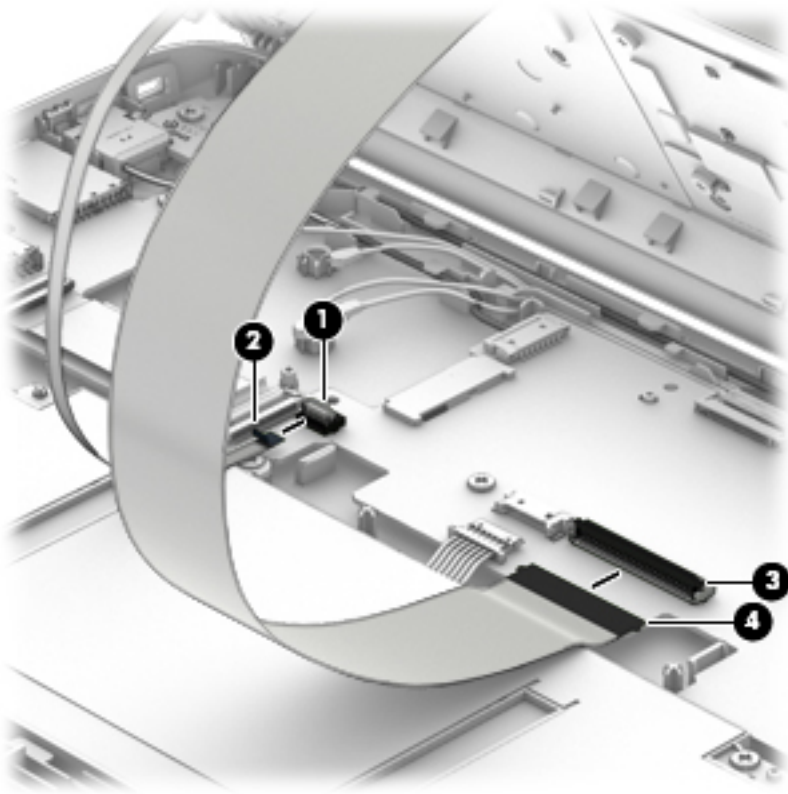
7. Slide the keyboard/top cover **(3)** forward until the battery, TouchPad, and keyboard cables are accessible.



8. Disconnect the battery cable from the system board.



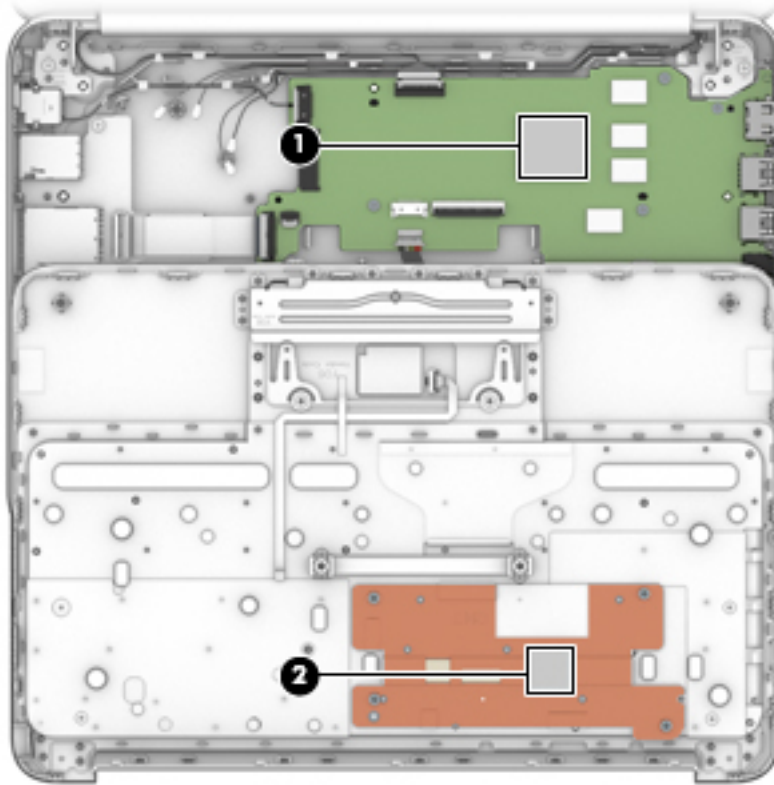
9. Release the zero insertion force (ZIF) connector **(1)** to which the TouchPad cable is attached, and then disconnect the TouchPad cable **(2)** from the system board.
10. Release the ZIF connector **(3)** to which the keyboard cable is attached, and then disconnect the keyboard cable **(4)** from the system board.



**11.** Remove the keyboard/top cover.



**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.

## Heat sink

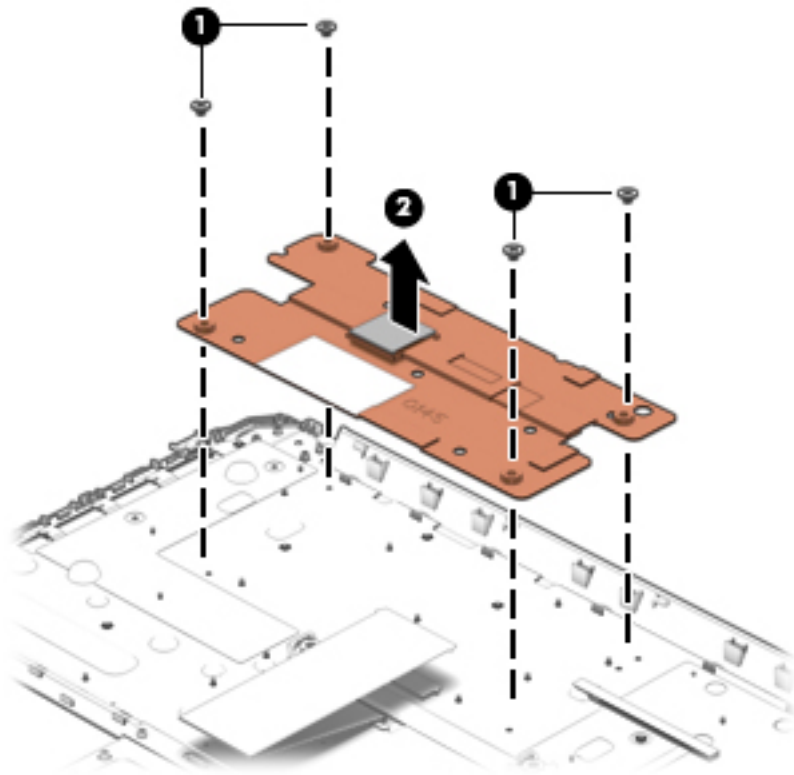
Description	Spare part number
Heat sink (includes replacement thermal material)	825376-001

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 24](#)).

Remove the heat sink:

1. Turn the keyboard/top cover upside down with the front toward you.
2. Remove the four Phillips PM1.9×2.3 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.

## TouchPad board



**NOTE:** The TouchPad board spare part kit includes the cable and double-sided adhesive.

Description	Spare part number
For use only with keyboard/top cover spare part kits with spare part numbers 788639-xxx and 783090-xxx.	783086-001
For use only with keyboard/top cover spare part kits with spare part numbers 822639-xxx.	822628-001

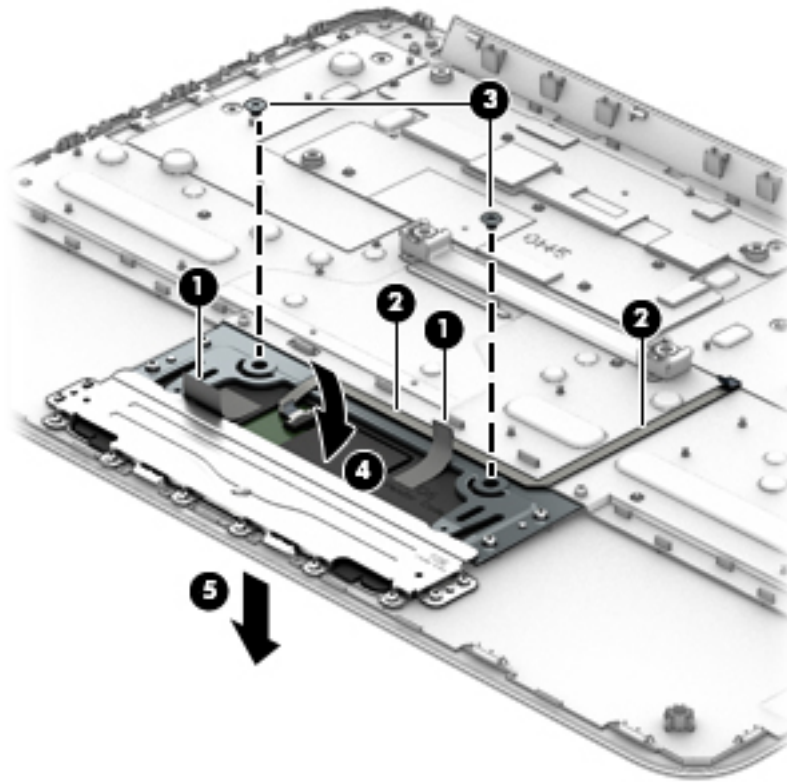
Before removing the TouchPad board, follow these steps:

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 24](#)).

Remove the TouchPad button board:

1. Turn the keyboard/top cover upside down with the front toward you.
2. Release the two pieces of grounding tape **(1)** 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 at two locations.)
4. Remove the two Phillips PM1.9×2.3 screws **(3)** that secure the TouchPad board to the top cover.
5. Release the TouchPad board **(4)** by pressing it through the opening in the keyboard/top cover.

6. Remove the TouchPad board **(5)** and cable.



Reverse this procedure to install the TouchPad board.

## Battery

Description	Spare part number
Battery (3-cell, 36-WHr, 3.25-AHr, Li-ion; includes cable)	767068-001

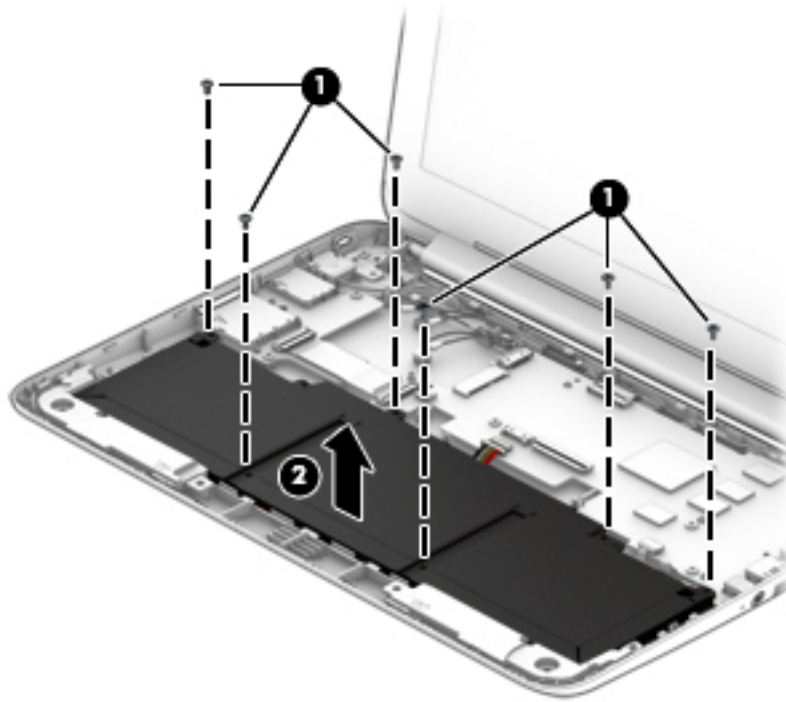
Before removing the battery, follow these steps:

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 24](#)).

Remove the battery:

1. Remove the six Phillips PM1.9×4.2 screws **(2)** that secure the battery to the base enclosure.

2. Remove the battery (2).



Reverse this procedure to install the battery.

## WWAN module

Description	Spare part number
HP It4110 LTE/HSPA+ 4G WWAN Module	755529-005

**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 WWAN module, follow these steps:

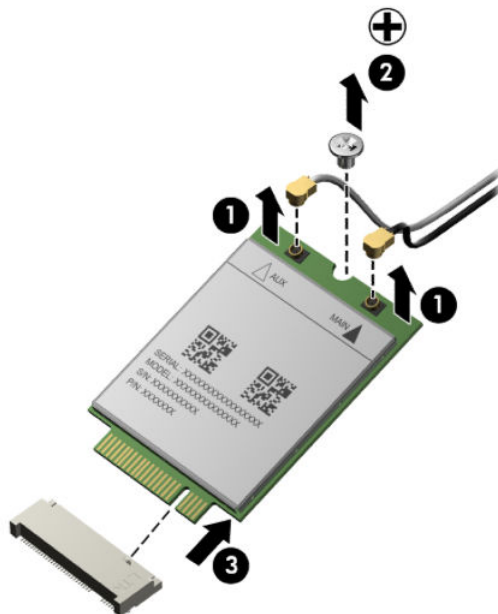
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord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

Remove the WWAN module:


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

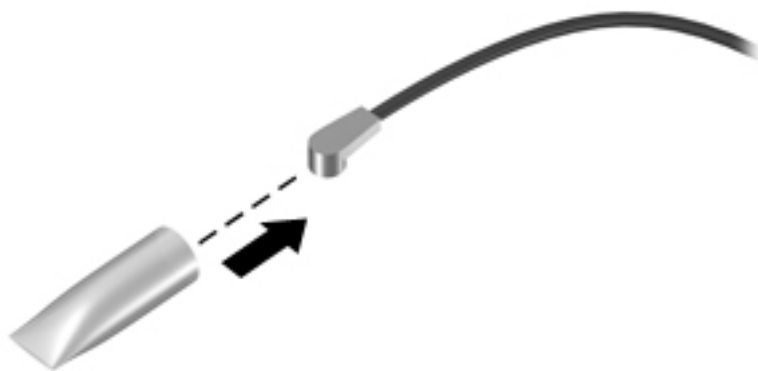
**NOTE:** The #5/red WWAN antenna cable connects to the WWAN module #5/Main terminal. The #6/blue WWAN antenna cable connects to the WWAN module #6/Aux terminal.

2. Remove the Phillips PM1.9×4.2 screw (2) that secures the WWAN module to the base enclosure. (The WWAN module tilts up.)
3. Remove the WWAN module (3) by pulling the module away from the slot at an angle.





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



Reverse this procedure to install the WWAN module.

## Connector board

Description	Spare part number
For use only on computer models equipped with WWAN capability (includes SD Card Reader slot, SIM slot, and cable)	785884-001
For use only on computer models not equipped with WWAN capability and HP Chromebook computer models (includes SD Card Reader slot and cable)	783087-001

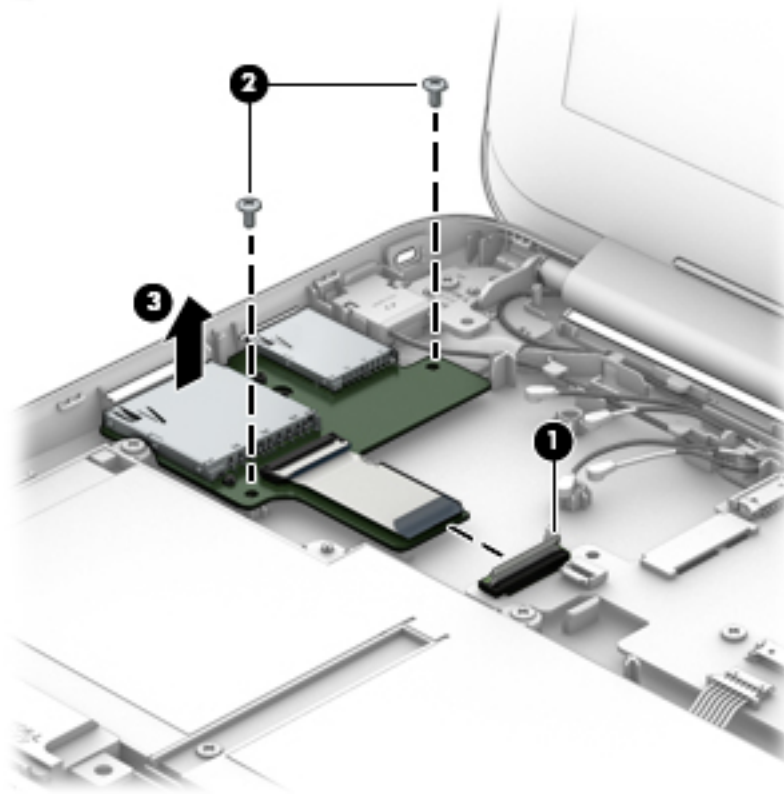
Before removing the connector board, follow these steps:

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 24](#)).
5. Remove the WWAN module (select models only, see [WWAN module on page 34](#)).

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. Remove the two Phillips PM1.9×4.2 screws **(2)** that secure the connector board to the base enclosure.

3. Remove the connector board (3).



Reverse this procedure to install the connector board.

## WLAN module

Description	Spare part number
Intel Dual Band Wireless-AC 7260 802.11 ac 2×2 WiFi + Bluetooth 4.0 Combo Adapter	784645-005
Intel Dual Band Wireless-N 7260AN 802.11 a/b/g/n 2×2 WiFi + Bluetooth 4.0 Combo Adapter	784647-005

**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 24](#)).

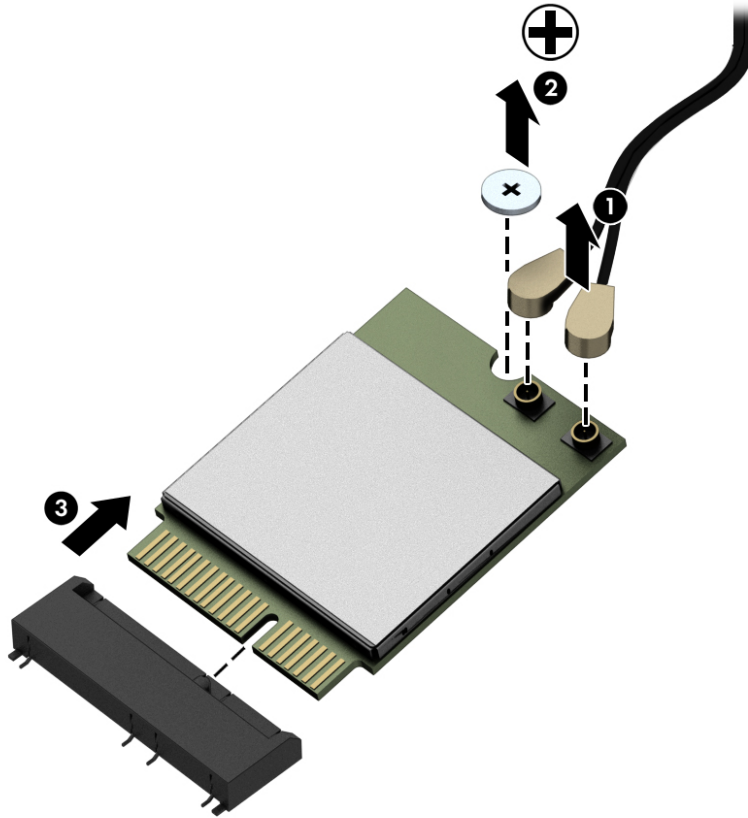
Remove the WLAN module:

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

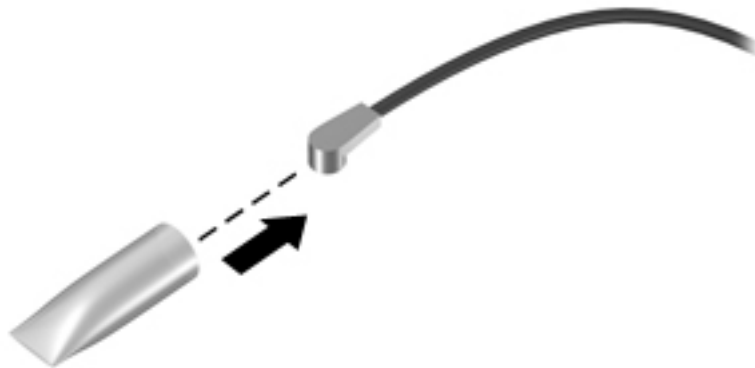


**NOTE:** The #1/white WLAN antenna cable connects to the WLAN module #1/Main terminal. The #2/black WLAN antenna cable connects to the WLAN module #1/Aux terminal.

2. Remove the Phillips PM1.9×4.2 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.



**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.

## Power connector cable

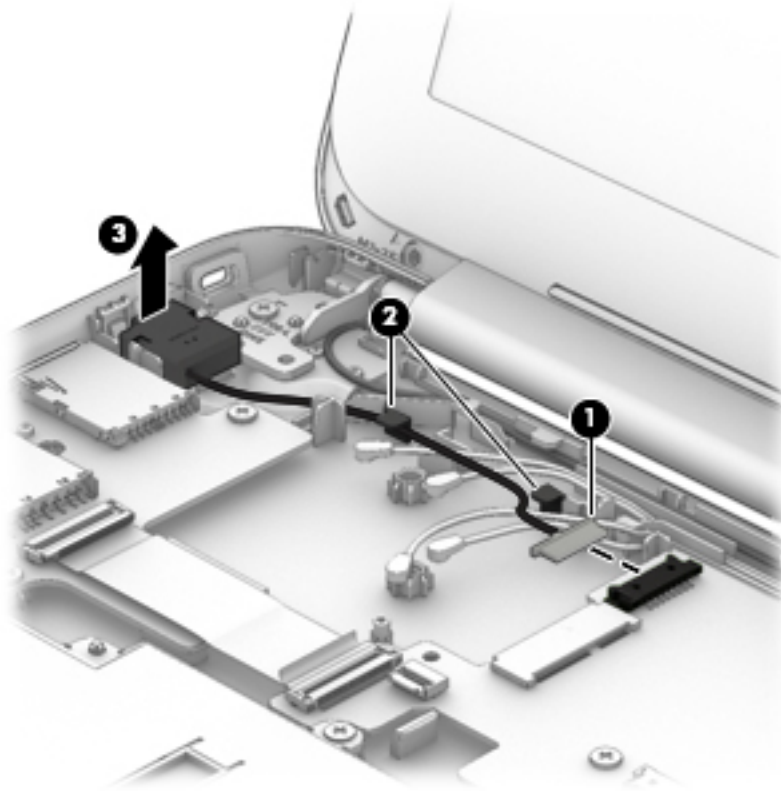
Description	Spare part number
Power connector cable	787922-001

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 24](#)).

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 molding built into the base enclosure.



4. Remove the power connector cable.

Reverse this procedure to install the power connector cable.

## System board



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

Description	Spare part number
For use only on HP Chromebook 11 G4 computer models:	
Equipped with an Intel Celeron N2840 2.16-GHz (SC turbo up to 2.58-GHz) dual core processor (1.0-GB L2 cache, 1333-MHz FSB, 4.5 W), 4.0-GB of system memory, and 32-GB of eMMC system storage	851144-001
Equipped with an Intel Celeron N2840 2.16-GHz (SC turbo up to 2.58-GHz) dual core processor (1.0-GB L2 cache, 1333-MHz FSB, 4.5 W), 2.0-GB of system memory, and 32-GB of eMMC system storage	851143-001
For use only on HP Chromebook computer models:	
Equipped with an Intel Celeron N2940 1.83-GHz (SC turbo up to 2.25-GHz) quad core processor (1.0-GB L2 cache, 1333-MHz FSB, 4.5 W), 4.0-GB of system memory, and 16-GB of eMMC system storage	822638-001
For use on all computer models:	
Equipped with an Intel Celeron N2840 2.16-GHz (SC turbo up to 2.58-GHz) dual core processor (1.0-GB L2 cache, 1333-MHz FSB, 4.5 W), 4.0-GB of system memory, and 16-GB of eMMC system storage	822636-001
Equipped with an Intel Celeron N2840 2.16-GHz (SC turbo up to 2.58-GHz) dual core processor (1.0-GB L2 cache, 1333-MHz FSB, 4.5 W), 2.0-GB of system memory, and 16-GB of eMMC system storage	851142-001

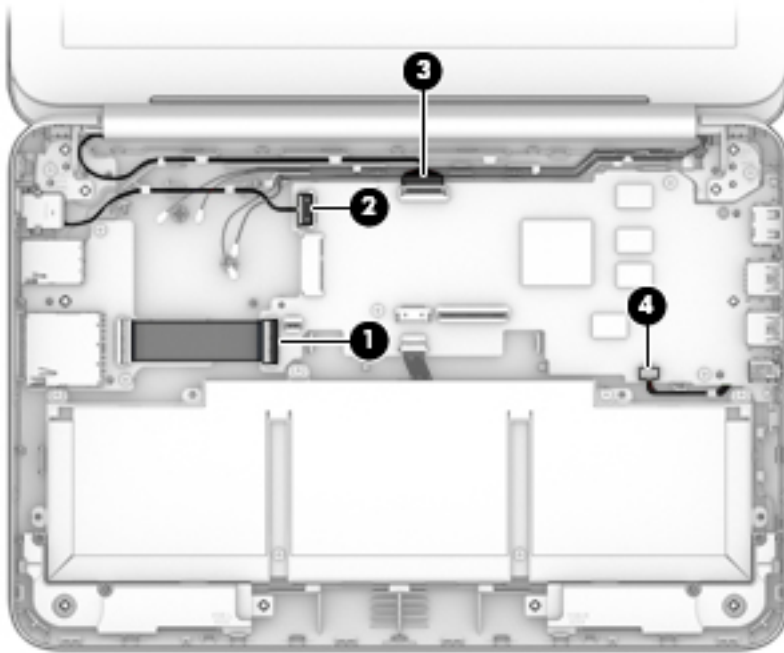
Before removing the system board, follow these steps:

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 24](#)).
5. Remove the WLAN module (see [WLAN module on page 36](#)).

Remove the system 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. Disconnect the power connector cable **(2)** from the system board.
3. Release the ZIF connector **(3)** to which the display panel cable is attached, and then disconnect the display panel cable from the system board.

4. Disconnect the speaker cable **(4)** from the system board.



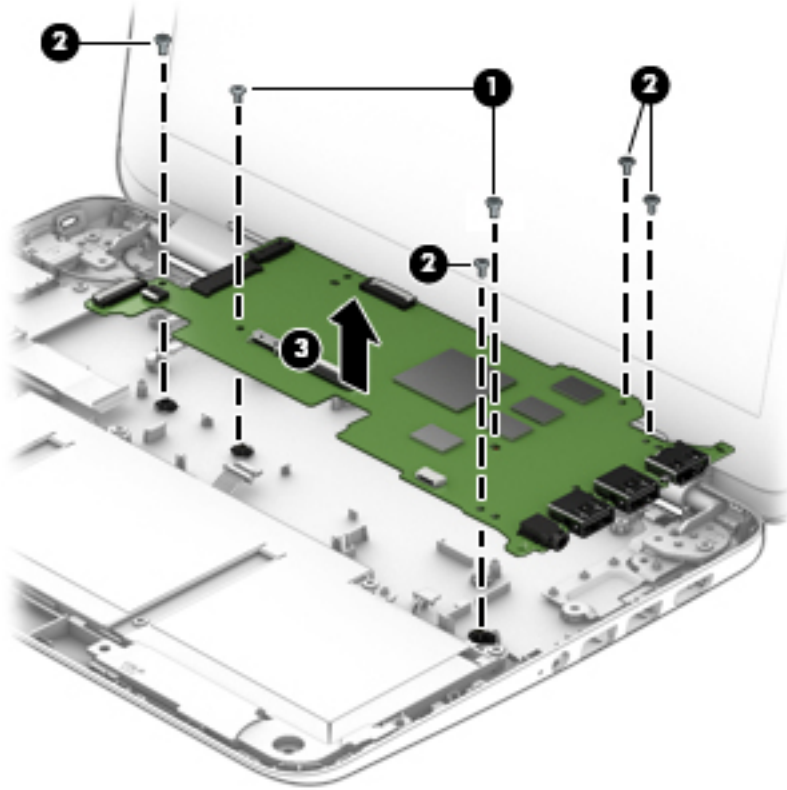
5. Remove the two Phillips PM2.5×3.7 broad head firmware screws **(1)** that secure the system board to the base enclosure.



**IMPORTANT:** The firmware screws must be installed in the locations shown in the following image. These screws have specific properties that ensure the proper operation of the computer.

6. Remove the four Phillips PM1.9×4.2 screws **(2)** that secure the system board to the base enclosure.

7. Remove the system board (3).



Reverse this procedure to install the system board.

## Speakers

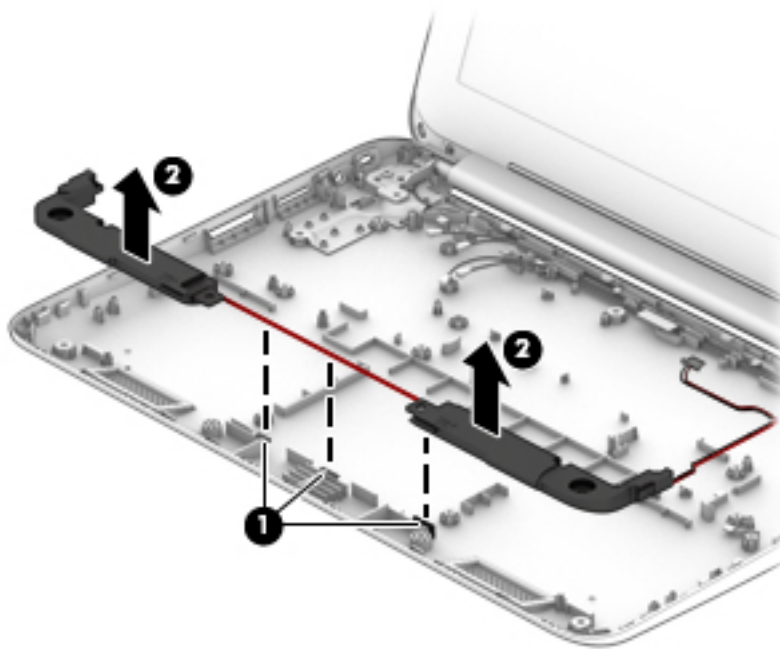
Description	Spare part number
Speaker Kit (includes left and right speakers and cables)	788555-001

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 24](#)).
5. Remove the system board (see [System board on page 39](#)).

Remove the speakers:


1. Release the speaker cables from the routing clips (1) and channels built into the base enclosure.
2. Remove the speakers (2).



Reverse this procedure to install the speakers.



## 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 24](#)).

Remove the display assembly:

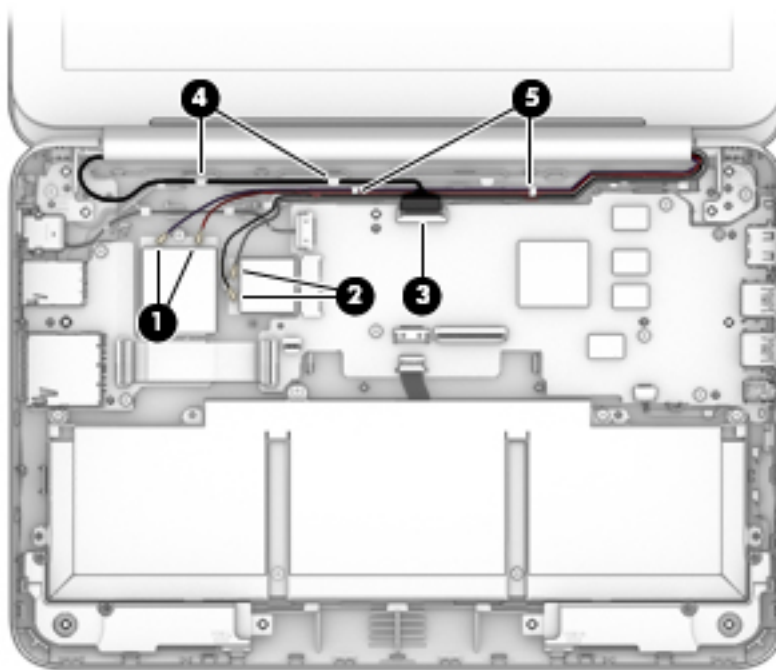
1. Disconnect the WWAN antenna cables **(1)** from the terminals on the WWAN module (select models only).

 **NOTE:** The #5/red WWAN antenna cable connects to the WWAN module #5/Main terminal. The #6/blue WWAN antenna cable connects to the WWAN module #6/Aux terminal.

2. Disconnect the WLAN antenna cables **(2)** from the terminals on the WLAN module.

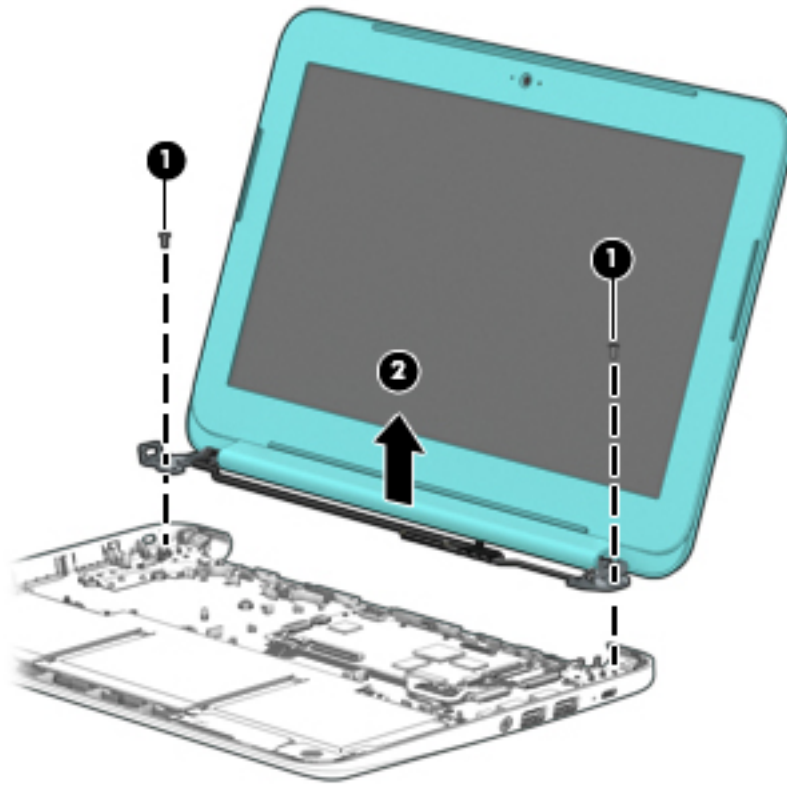
 **NOTE:** The #1/white WLAN antenna cable connects to the WLAN module #1/Main terminal. The #2/black WLAN antenna cable connects to the WLAN module #2/Aux terminal.

3. Release the ZIF connector **(3)** to which the display panel cable is attached, and then disconnect the display panel cable from the system board.
4. Release the display panel cable from the routing clips **(4)** and channel built into the base enclosure.
5. Release the WLAN antenna cables from the routing clips **(5)** and channel built into the base enclosure.



6. Remove the two Phillips PM2.4×5.7 screws **(1)** that secure the display assembly to the base enclosure.

7. Remove the display assembly (2).



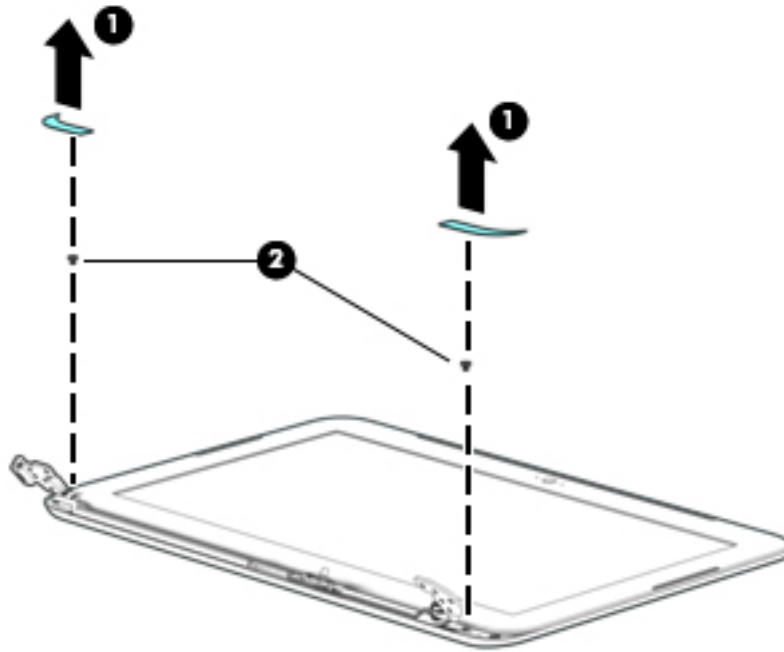
8. If it is necessary to replace the display bezel or any of the display assembly subcomponents:

- a. Remove the two display bezel screw covers (1).

The display bezel screw covers are included in the Rubber Kit, available using the following spare part numbers:

- 773211-001 — For use only on HP Chromebook 11 G4 computer models
- 822632-001 — For use only on HP Chromebook computer models in sky blue finish
- 822633-001 — For use only on HP Chromebook computer models in turbo silver finish
- 822631-001 — For use only on HP Chromebook computer models in smoke silver finish

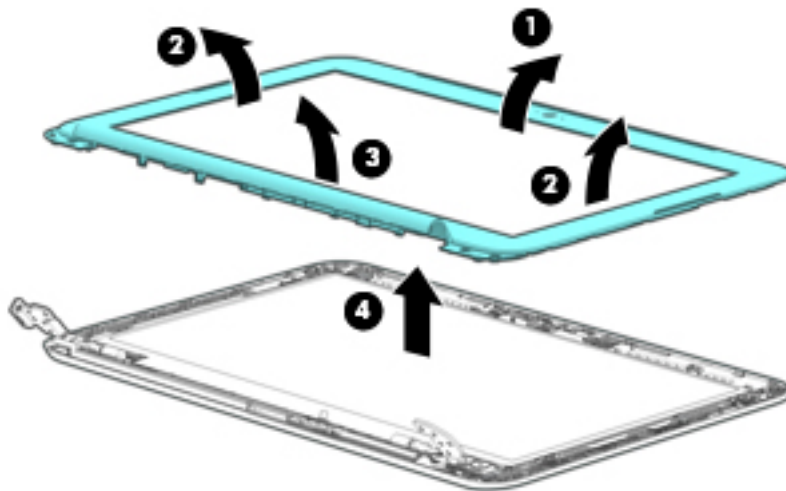
- b. Remove the two Phillips PM1.9×2.3 screws **(2)** that secure the display bezel to the display assembly.



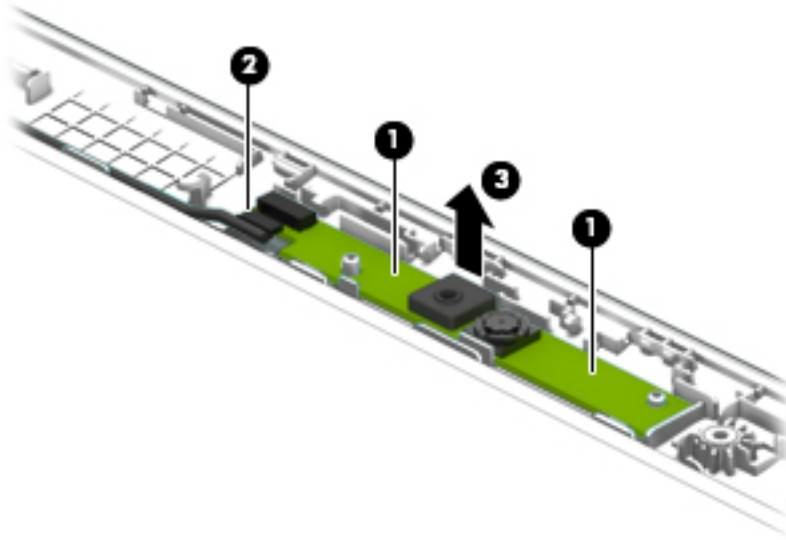
- c. Flex the inside edges of the top edge **(1)**, the left and right sides **(2)**, and the bottom edge **(3)** of the display bezel until the bezel disengages from the display enclosure.
- d. Remove the display bezel **(4)**.

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

- 773210-001 — For use only on HP Chromebook 11 G4 computer models
- 822625-001 — For use only on HP Chromebook computer models in sky blue finish
- 822626-001 — For use only on HP Chromebook computer models in turbo silver finish
- 822624-001 — For use only on HP Chromebook computer models in smoke silver finish



9. If it is necessary to replace the webcam/microphone module:
- 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.)
  - Disconnect the webcam/microphone module cable **(2)** from the webcam/microphone module.
  - Remove the webcam/microphone module **(3)**.



- Remove the webcam/microphone module.

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

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

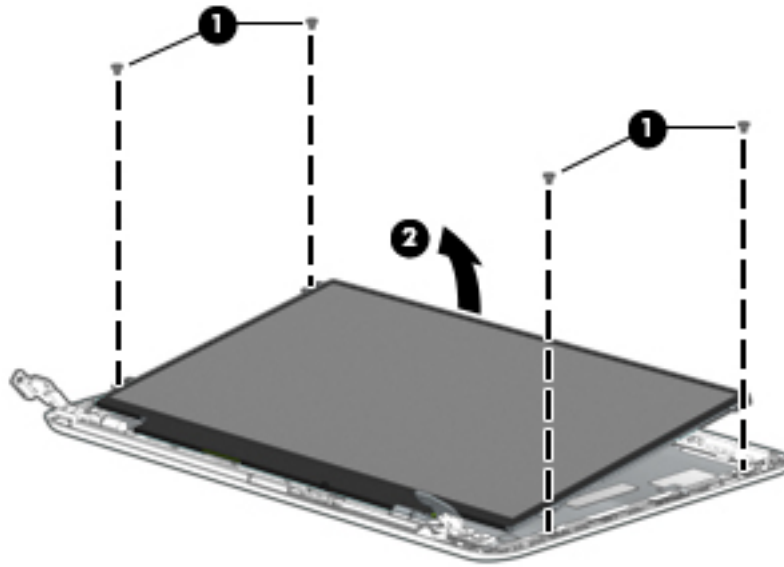
- Remove the four Phillips PM1.9×3.4 screws **(1)** that secure the display panel to the display enclosure.

---

**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.

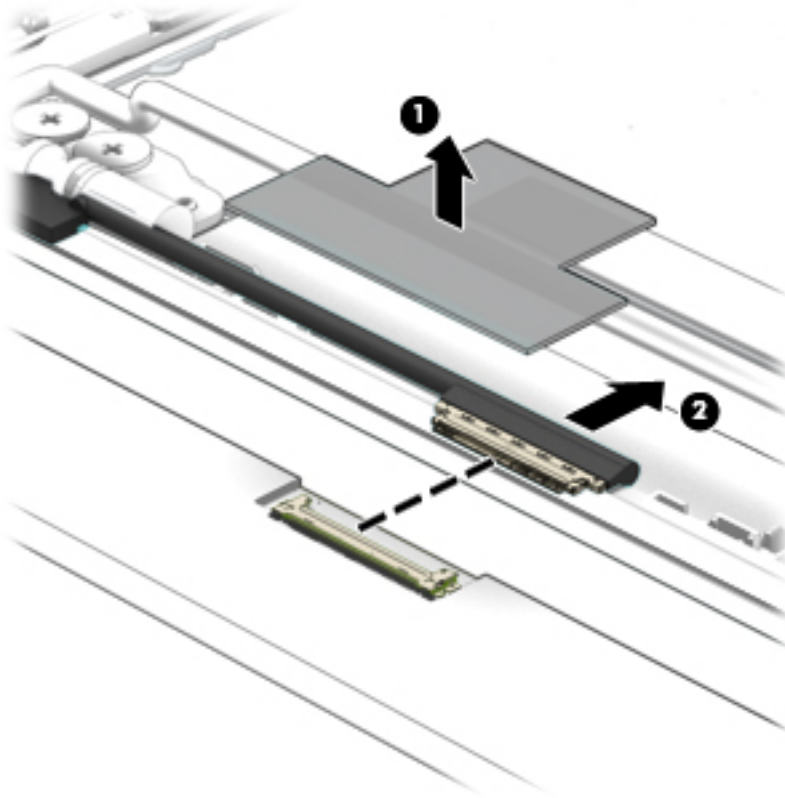
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- b. Lift the top edge of the display panel **(2)** and swing it up and forward until it rests upside down in front of the display enclosure.



- 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.



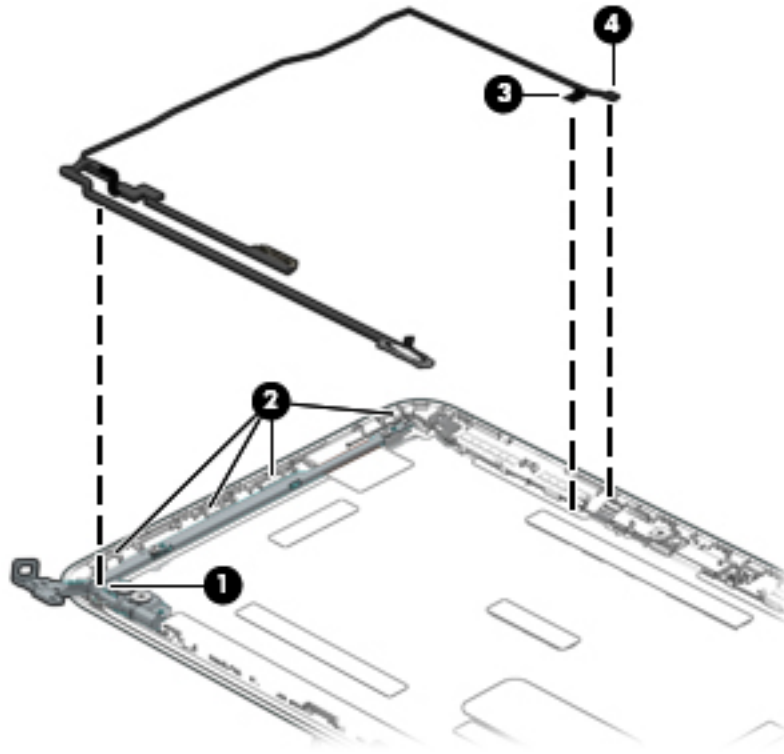
- e. Remove the display panel.

The display panel is available using spare part numbers 822629-001 (11.6-in, HD, AntiGlare, (1366×768), UWVA, LED, slim [3.0-mm]) and 822630-001 (11.6-in, HD, AntiGlare, (1366×768), SVA, WLED, flat [3.6-mm]).

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

- a. Release the display panel cable from the retention clip **(1)** built into the left hinge.
- b. Release the display panel cable from the retention clips **(2)** and routing channel built into the left side of the display enclosure.
- c. Release the grounding tape **(3)** that secures the display panel cable to the display enclosure.

- d. Disconnect the display panel cable **(4)** from the webcam/microphone module.



- e. Remove the display panel cable.

The display panel cable is available using spare part numbers 792091-001 (for use only on computer models equipped with WWAN capability) and 783083-001 (for use only on computer models not equipped with WWAN capability) and includes the webcam/microphone module cable.

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

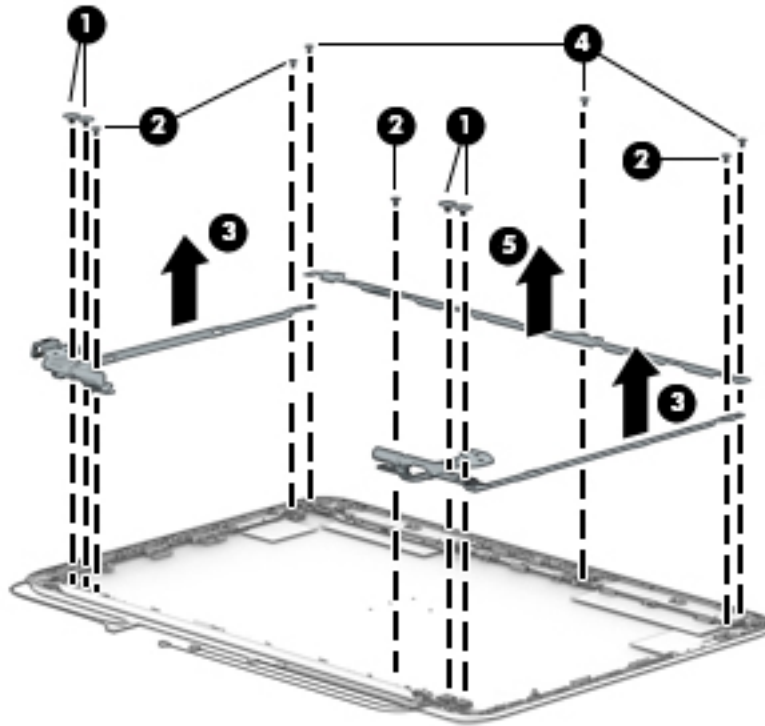
- a. Remove the four Phillips PM2.4×3.6 broad head screws **(1)** and the four Phillips PM1.9×3.4 screws **(2)** that secure the display hinges to the display enclosure.
- b. Remove the display hinges **(3)**.

The display hinges are included in the Display Hinge Kit, spare part number 761972-001.

- c. Remove the three Phillips PM1.9×3.4 screws **(4)** that secure the display panel bracket to the display enclosure.

- d. Remove the display panel bracket **(5)**.

The display panel bracket is available using spare part number 783085-001.

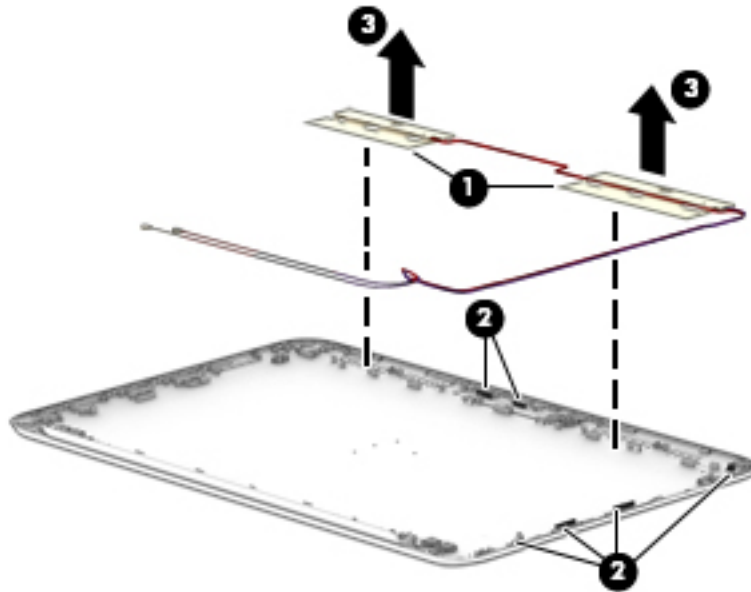


- 13. If it is necessary to replace the WWAN antenna cables and transceivers:
  - a. Detach the WWAN antenna transceivers **(1)** from the display enclosure. (The WWAN antenna transceivers are attached to the display enclosure with double-sided adhesive.)
  - b. Release the WWAN antenna cables from the clips **(2)** and routing channel built into the top and right edges of the display enclosure.



- c. Remove the WWAN antenna cables and transceivers **(3)**.

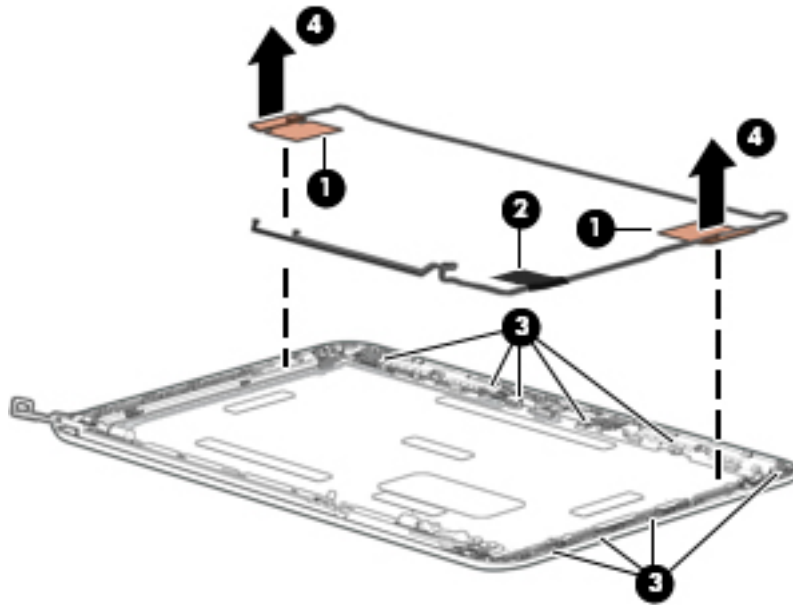
The WWAN antenna cables and transceivers are available using spare part number 783076-001.



- 14. If it is necessary to replace the WLAN antenna cables and transceivers:
  - a. Detach the WLAN antenna transceivers **(1)** from the display enclosure. (The WLAN antenna transceivers are attached to the display enclosure with double-sided adhesive.)
  - b. Release the grounding tape **(2)** that secures the wireless antenna cable to the display enclosure near the right hinge.
  - c. Release the WLAN antenna cables from the clips **(3)** and routing channel built into the top edge of the display enclosure.

- d. Remove the WLAN antenna cables and transceivers **(4)**.

The WLAN antenna cables and transceivers are available using spare part number 783075-001.



Reverse this procedure to reassemble install the display assembly.

## 6 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	<b>2.1 cm</b>	0.8 in
Weight	<b>1.3 kg</b>	2.9 lbs
<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.		

## 7 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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## 8 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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# Index

## A

AC adapter, spare part numbers 17  
antenna  
    location 4  
    removal 50, 51  
    spare part number 52  
    spare part numbers 16, 51  
audio, product description 1, 2  
audio-in jack 8  
audio-out jack 8

## B

base enclosure, spare part numbers 14  
battery  
    removal 32  
    spare part number 13, 32  
bottom component 9  
button component 5

## C

cables, service considerations 18  
chipset, product description 1  
components  
    bottom 9  
    button 5  
    display 4  
    left side 7  
    right side 8  
    TouchPad 6  
computer major components 11  
connector board  
    removal 35  
    spare part numbers 13, 35  
connectors, service considerations 18

## D

display assembly  
    removal 43  
    subcomponents 15  
display bezel  
    removal 44  
    spare part numbers 15, 45  
display components 4

display enclosure, spare part number 16  
Display Hinge Kit, spare part number 16, 49  
display panel  
    product description 1  
    removal 46  
    spare part numbers 15, 48  
display panel bracket  
    removal 50  
    spare part number 16, 50  
display panel cable  
    removal 48  
    spare part numbers 16, 49  
display switch 4  
drives  
    precautions 19  
    preventing damage 19

## E

electrostatic discharge 20  
equipment guidelines 22

## F

feet  
    removal 23  
    spare part numbers 23

## G

graphics, product description 1  
grounding guidelines 20  
guidelines  
    equipment 22  
    grounding 20  
    packaging 21  
    transporting 21  
    workstation 21

## H

HDMI port 8  
HDMI-to-VGA adapter, spare part number 17  
headphone jack 8

heat sink  
    removal 30  
    spare part number 13, 30  
hinge  
    removal 49  
    spare part number 16, 49

## J

jacks  
    audio-in 8  
    audio-out 8  
    headphone 8  
    microphone 8

## K

keyboard/top cover  
    removal 24  
    spare part numbers 11, 24, 25

## L

left-side component 7  
lights  
    power 8  
    webcam 4

## M

memory, product description 1  
microphone  
    location 4  
    product description 1, 2  
microphone jack 8  
model name 1

## O

operating system, product description 3

## P

packaging guidelines 21  
plastic parts, service considerations 18  
ports  
    HDMI 8  
    product description 2  
    USB 8

- power button 5
- power connector cable
  - removal 38
  - spare part number 13, 38
- power cord
  - set requirements 54
- power light 8
- power requirements, product
  - description 2, 3
- processor, product description 1
- product description
  - audio 1, 2
  - chipset 1
  - display panel 1
  - graphics 1
  - memory 1
  - microphone 1, 2
  - operating system 3
  - ports 2
  - power requirements 2, 3
  - processors 1
  - product name 1
  - sensors 2
  - serviceability 3
  - storage 1
  - video 1, 2
  - wireless 2
- product name 1

**R**

- removal/replacement procedures 23
- right-side components 8
- RJ45-to-USB adapter dongle, spare
  - part number 17
- Rubber Kit, spare part numbers 14, 17, 23, 25, 44

**S**

- Screw Kit, spare part number 17
- security cable slot 7
- sensors, product description 2
- service considerations
  - cables 18
  - connectors 18
  - plastic parts 18
- serviceability, product description 3
- Speaker Kit, spare part number 13, 42

- speakers
  - locations 9
  - removal 42
  - spare part number 13, 42
- storage, product description 1
- system board
  - removal 39
  - spare part numbers 13, 39

**T**

- tools required 18
- TouchPad board
  - removal 31
  - spare part numbers 13, 31
- TouchPad component 6
- TouchPad zone 6
- transporting guidelines 21

**U**

- USB port 8

**V**

- video, product description 1, 2

**W**

- webcam light 4
- webcam, location 4
- webcam/microphone module
  - removal 46
  - spare part number 15, 46
- wireless antenna
  - location 4
  - removal 50, 51
  - spare part number 52
  - spare part numbers 16, 51
- wireless, product description 2
- WLAN antenna
  - location 4
  - removal 51
  - spare part number 16, 52
- WLAN module
  - removal 36
  - spare part numbers 13, 36
- workstation guidelines 21
- WWAN antenna
  - removal 50
  - spare part number 16, 51
- WWAN module
  - removal 34
  - spare part number 13, 34