



Maintenance and Service Guide

HP ENVY x360 15m Convertible PC and HP ENVY x360
15 Convertible PC

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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 or versions of Windows. Systems may require upgraded and/or separately purchased hardware, drivers, software or BIOS update to take full advantage of Windows functionality. Windows 10 is automatically updated, which is always enabled. ISP fees may apply and additional requirements may apply over time for updates. Go to <http://www.microsoft.com> for details.

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For any further information or to request a full refund of the price of the computer, please contact your seller.

Safety warning notice

⚠ WARNING! To reduce the possibility of heat-related injuries or of overheating the device, do not place the device directly on your lap or obstruct the device air vents. Use the device only on a hard, flat surface. Do not allow another hard surface, such as an adjoining optional printer, or a soft surface, such as pillows or rugs or clothing, to block airflow. Also, do not allow the AC adapter to contact the skin or a soft surface, such as pillows or rugs or clothing, during operation. The device and the AC adapter comply with the user-accessible surface temperature limits defined by the International Standard for Safety of Information Technology Equipment (IEC 60950-1).

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1 Product description

Category	Description	Model 15-bq0xx	Model 15m-bq0xx	Models 15-bq1xx and 15m-bq1xx	Models 15-bq2xx and 15m-bq2xx
Product Name	HP ENVY x360 15 Convertible PC (model numbers 15-bq0xx, 15-bq1xx, and 15-bq2xx)	√		√	√
	HP ENVY x360 15m Convertible PC (model numbers 15m-bq0xx, 15m-bq1xx, and 15m-bq2xx)		√	√	√
Processors	AMD® Ryzen5™ 2500U processor			√	√
	AMD FX-9800P 2.70-GHz (turbo up to 3.60-GHz) quad core processor (1866-MHz FSB, 2.0-MB L2 cache, 15-W)	√			
	AMD A12-9720P 2.70-GHz (turbo up to 3.60-GHz) quad core processor (1866-MHz FSB, 2.0-MB L2 cache, 15-W)	√			
	AMD A9-9420 3.00-GHz (turbo up to 3.60-GHz) dual core processor (2133-MHz FSB, 1.0-MB L2 cache, 15-W)		√		
Chipset	AMD Integrated soldered-on-circuit (SoC) fusion controller hub (FCH)				
Graphics	Internal graphics:				
	Support for HD decode, DX12, and high-definition multimedia interface (HDMI)				
	AMD Radeon™ Vega Graphics (only on computer models equipped with an AMD FX-9800P or AMD A12-9720P processor)			√	√
	AMD Radeon R7 Graphics (only on computer models equipped with an AMD FX-9800P or AMD A12-9720P processor)		√		
	AMD Radeon R5 Graphics (only on computer models equipped with an AMD A9-9420 processor)	√			
Panel	15.6-in, full high-definition (FHD), white light-emitting diode (WLED), BrightView (1920×1080), slim-flat (3.2-mm), UWVA, eDP 1.3, 220 nits, 16:9 ultra wide aspect ratio, TouchScreen display assembly				
Memory	Two SODIMM memory module slots, non-customer-accessible/non-upgradable				
	Supports up to 16-GB of system memory (select models only)				
	Supports the following configurations:				
	DDR4-2666 dual channel support				
	4096-MB (4096-MB × 1)			√	√
	DDR4-2400 dual channel support (DDR4-2666 downgrade to DDR4-2400)				
	16384-MB (8192-MB × 2)			√	√
	12288-MB (8192-MB + 4096-MB)			√	√
8192-MB (8192-MB × 1)			√		

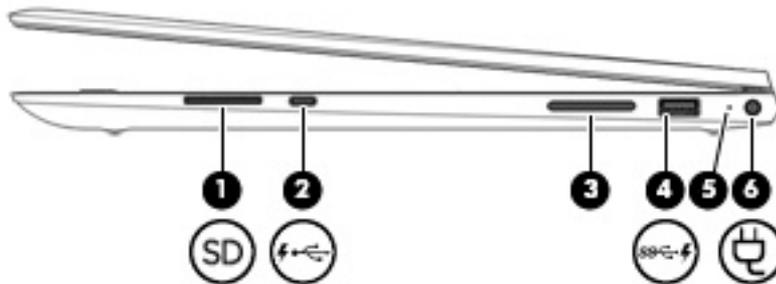
Category	Description	Model 15-bq0xx	Model 15m-bq0xx	Models 15-bq1xx and 15m-bq1xx	Models 15-bq2xx and 15m-bq2xx
	8192-MB (8192-MB × 1 or 4096-MB × 2)			√	√
	DDR4-2133 dual channel support (DDR4-2400 downgrade to DDR4-2133)				
	8192-MB (8192-MB × 1)		√		
	DDR4-1866 dual channel support (DDR4-2400 downgrade to DDR4-1866)				
	16384-MB (8192-MB × 2)	√			
	12288-MB (8192-MB + 4096-MB)	√			
	8192-MB (8192-MB × 1 or 4096-MB × 2)	√			
Storage (continued)	Hard drive:				
	Support for hard drive and solid-state drive	√	√	√	√
	Support for 6.35-cm (2.5-in) hard drives in 7.0- and 7.2-mm (.28 in) and 9.5-mm (.37 in) thicknesses (all hard drives use the same bracket)				
	Support for Accelerometer hard drive protection				
	Support for a 1-TB, 7200-rpm, 9.5-mm hard drive				
	Solid-state drive:				
	1-TB, 2280 M.2, Peripheral Component Interconnect Express (PCIe) 3×4, SuperSpeed (SS), Non-Volatile Memory Express (NVMe) solid-state drive with triple level cell (TLC)	√	√	√	√
	512-GB, 2280 M.2, PCIe-3×4, NVMe, self-encrypted OPAL 2 solid state drive with TLC	√	√	√	√
	512-GB, 2280 M.2, PCIe-3×4, SS, NVMe solid-state drive with TLC	√			
	512-GB, 2280, PCIe-3×4, NVMe solid-state drive	√	√	√	√
	360-GB, 2280 M.2, PCIe3×4, SS, NVMe solid-state drive with TLC	√	√		
	360-GB, 2280 M.2, PCIe3×4, SS, NVMe, self-encrypted OPAL 2 solid-state drive	√	√	√	
	256-GB, 2280 M.2, PCIe3×4, SS, NVMe solid-state drive with TLC	√	√	√	√
	256-GB, 2280, PCIe, NVMe solid-state drive	√	√	√	√
	Dual-storage configurations:				
	1-TB, 7200-rpm, 9.5-mm hard drive + 256-GB, PCIe, NVMe solid-state drive with TLC	√	√	√	√
	1-TB, 7200-rpm, 9.5-mm hard drive + 256-GB, 2280, PCIe, NVMe solid-state drive			√	√
	1-TB, 7200-rpm, 9.5-mm hard drive + 128-GB, M.2 SATA-3 solid-state drive with TLC	√	√	√	√
	1-TB, 7200-rpm, 9.5-mm hard drive + 128-GB, SATA-3 solid-state drive	√	√		
	1-TB, 5400-rpm, 9.5-mm superspeed hard drive + 8-GB NAND module			√	√

Category	Description	Model 15-bq0xx	Model 15m-bq0xx	Models 15-bq1xx and 15m-bq1xx	Models 15-bq2xx and 15m-bq2xx
Optical drive	HP external DVD±RW DL SuperMulti Drive				
Audio and video	<p>Audio:</p> <p>Bang & Olufsen</p> <p>Support for Bang & Olufsen Audio Control</p> <p>Support for dual speakers</p> <p>Support for HP Audio Boost 2.0 (with discrete amplifier)</p> <p>Camera:</p> <p>HP Wide Vision FHD infrared camera with indicator light, 2 infrared lights, USB 2.0, FHD Hybrid BSI sensor, f2.2, wide dynamic range (WDR), 88° WFOV, 1080p by 30 frames per second</p> <p>Support for Windows Hello 3.0</p> <p>Microphones: Dual array digital microphones with appropriate beam-forming, echo-cancellation, noise-suppression software</p>				
Sensors	<ul style="list-style-type: none"> Accelerometer (2: 1 for hard drive protection/CoolSense , 1 for display panel rotation detection to lock keyboard and ClickPad function; STMicro HP2DCTR×2) Gyroscope / E-compass / Accelerometer (ST Micro HP9DS1TR) Sensor hub (integrated in SoC) 				
Wireless	<p>WLAN:</p> <p>Integrated wireless local area network (WLAN) options by way of wireless module</p> <p>Dual M.2/PCIe WLAN antennas built into display assembly</p> <p>Integrated wireless personal area network (PAN) supported by Bluetooth® 4.2 combo card</p> <p>Support for the Intel Dual Band Wireless-AC 7265 802.11 AC 2×2 WiFi + Bluetooth 4.2 Combo Adapter (non-vPro) and Realtek RTL8822BE 802.11 AC 2×2 WiFi + Bluetooth 4.2 Combo Adapter (MU-MIMO supported) WLAN formats</p> <p>Compatible with Miracast-certified devices</p>				
External media cards	Micro-Secure Digital (SD®) media reader slot				
Ports	<ul style="list-style-type: none"> AC Smart Pin adapter plug Audio-out (headphone)/audio-in (microphone) combo jack HDMI v1.4 supporting up to 1920×1080 @ 60Hz USB 3.x ports (2) USB Type-C port 				
Keyboard/ pointing devices	<p>Full-sized, backlit, island-style keyboard with numeric keypad</p> <p>TouchPad requirements:</p> <ul style="list-style-type: none"> ClickPad with image sensor MultiTouch gestures enabled Support for Modern TrackPad gestures 				

Category	Description	Model 15-bq0xx	Model 15m-bq0xx	Models 15-bq1xx and 15m-bq1xx	Models 15-bq2xx and 15m-bq2xx
	<ul style="list-style-type: none"> Taps enabled as default 				
Power requirements	<p>Support for a 3-cell, 55-WHr, 4.8-AHr, Li-ion battery</p> <p>Support for 65-W HP Smart AC adapter (non-PFC, EM, RC, 4.5-mm) and 45-W HP Smart AC adapter (non-PFC, EM, RC, 4.5-mm) AC adapters</p> <p>Support for a 1.00-m power cord with a C5 connector in 5 countries/regions.</p>				
Security	Support for Trusted Platform Module (TPM) 2.0				
Operating system	<p>Preinstalled: Windows 10</p> <p>For developed market (ML): Windows 10 Home Plus ML</p> <p>For emerging market (EM/SL): Windows 10 Home Plus EM/SL</p>				
Serviceability	End user replaceable part: AC adapter				

2 External component identification

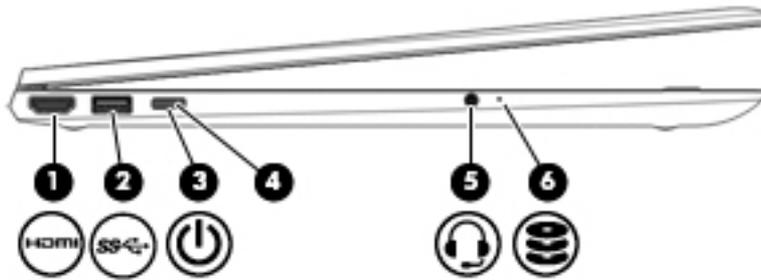
Right side



Item	Icon	Component	Description
(1)	SD	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"> 1. Hold the card label-side up, with connectors facing the computer. 2. Insert the card into the memory card reader, and then press in on the card until it is firmly seated. <p>To remove a card:</p> <ul style="list-style-type: none"> ▲ Press in on the card, and then remove it from the memory card reader.
(2)		USB Type-C port with HP Sleep and Charge	<p>Connects a USB device that has a Type-C connector, provides data transfer, and even when the computer is off, charges most products such as a cell phone, camera, activity tracker, or smartwatch.</p> <p>– and –</p> <p>Connects a display device that has a USB Type-C connector, providing DisplayPort output.</p> <p>NOTE: Cables and/or adapters (purchased separately) may be required.</p>
(3)		Volume button	Controls speaker volume on the computer.
(4)		USB port with HP Sleep and Charge	Connects a USB device, provides high-speed data transfer, and even when the computer is off, charges most products such as a cell phone, camera, activity tracker, or smartwatch.
(5)		AC adapter and battery light	<ul style="list-style-type: none"> • White: The AC adapter is connected and the battery is fully charged. • Blinking white: The AC adapter is disconnected and the battery has reached a low battery level. • Amber: The AC adapter is connected and the battery is charging.

Item	Icon	Component	Description
			<ul style="list-style-type: none">• Off: The battery is not charging.
(6)		Power connector	Connects an AC adapter.

Left side



Item	Icon	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 High-Definition Multimedia Interface (HDMI) device.
(2)		USB SuperSpeed port	Connects a USB device, such as a cell phone, camera, activity tracker, or smartwatch, and provides high-speed data transfer.
(3)		Power button	<ul style="list-style-type: none"> When the computer is off, press the button to turn on the computer. When the computer is on, press the button briefly to initiate Sleep. When the computer is in the Sleep state, press the button briefly to exit Sleep (select products only). When the computer is in Hibernation, press the button briefly to exit Hibernation. <p>CAUTION: Pressing and holding down the power button results in the loss of unsaved information.</p> <p>If the computer has stopped responding and shutdown procedures are ineffective, press and hold the power button down for at least 5 seconds to turn off the computer.</p> <p>To learn more about your power settings, see your power options:</p> <ul style="list-style-type: none"> ▲ Right-click the Power icon , and then select Power Options.
(4)		Power light	<ul style="list-style-type: none"> On: The computer is on. Blinking: The computer is in the Sleep state, a power-saving state. The computer shuts off power to the display and other unneeded components. Off: The computer is off or in Hibernation. Hibernation is a power-saving state that uses the least amount of power.
(5)		Audio-out (headphone)/Audio-in (microphone) combo 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 standalone microphones.

Item	Icon	Component	Description
(6)		Drive light	<p>WARNING! To reduce the risk of personal injury, adjust the volume before putting on headphones, earbuds, or a headset. For additional safety information, refer to the <i>Regulatory, Safety, and Environmental Notices</i>.</p> <p>To access this guide:</p> <ul style="list-style-type: none"> ▲ Select the Start button, select HP Help and Support, and then select HP Documentation. <p>NOTE: When a device is connected to the jack, the computer speakers are disabled.</p> <ul style="list-style-type: none"> • Blinking white: The hard drive is being accessed.

Display



Item	Component	Description
(1)	WLAN antennas*	Send and receive wireless signals to communicate with wireless local area networks (WLANs).
(2)	Internal microphones	Record sound.
(3)	Camera light(s)	On: One or more cameras are in use.
(4)	Camera light	On: The camera is in use.
(5)	Camera(s)	Allow(s) you to video chat, record video, and record still images. Some cameras also allow a facial recognition logon to Windows, instead of a password logon. NOTE: Camera functions vary depending on the camera hardware and software installed on your product.

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

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

To access this guide:

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

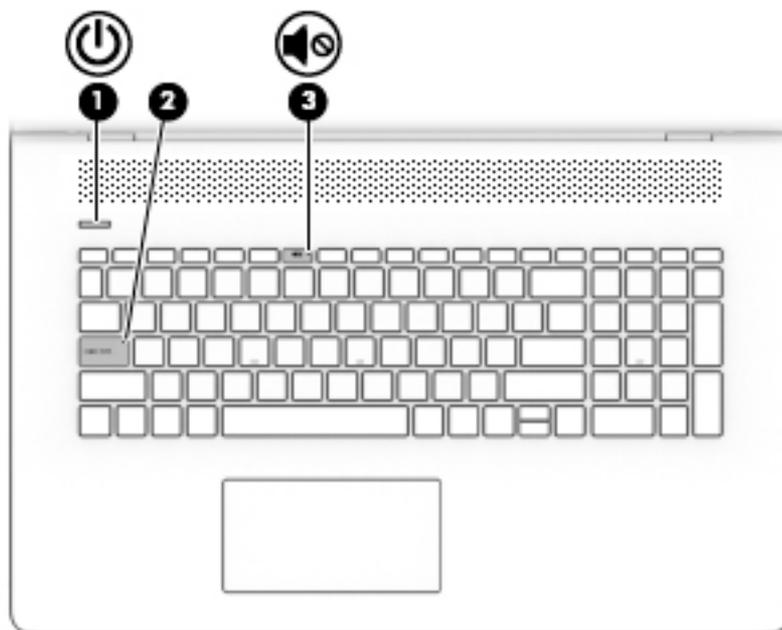
Keyboard area

ClickPad



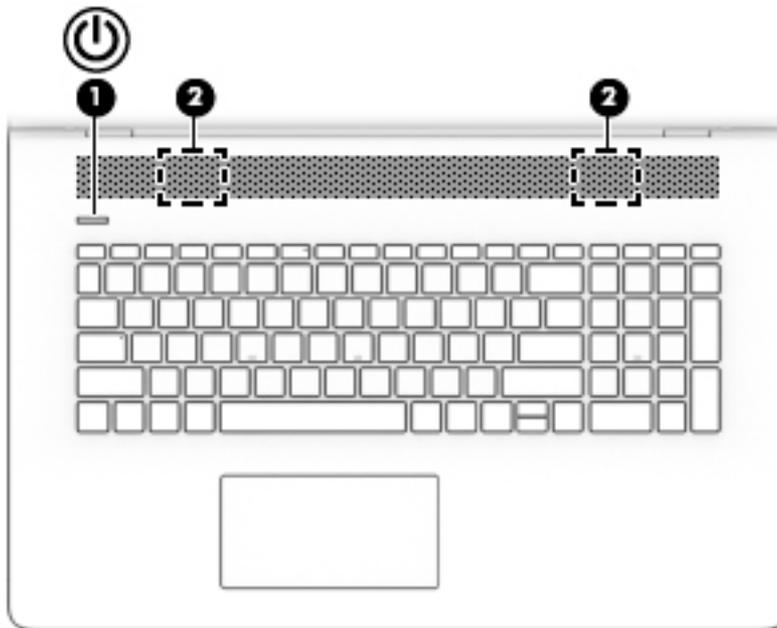
Item	Component	Description
(1)	ClickPad zone	Reads your finger gestures to move the pointer or activate items on the screen.
(2)	Left ClickPad button	Functions like the left button on an external mouse.
(3)	Right ClickPad button	Functions like the left button on an external mouse.

Lights



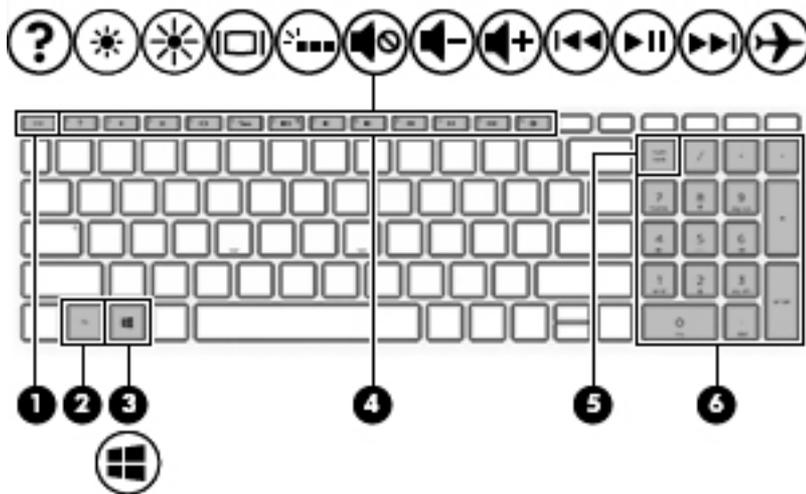
Item	Icon	Component	Description
(1)		Power light	<ul style="list-style-type: none">• On: The computer is on.• Blinking: The computer is in the Sleep state, a power-saving state. The computer shuts off power to the display and other unneeded components.• Off: The computer is off or in Hibernation. Hibernation is a power-saving state that uses the least amount of power.
(2)		Caps lock light	On: Caps lock is on, which switches the key input to all capital letters.
(3)		Mute light	<ul style="list-style-type: none">• On: Computer sound is off.• Off: Computer sound is on.

Buttons and speakers



Item	Icon	Component	Description
(1)		Power button	<ul style="list-style-type: none">• When the computer is off, press the button to turn on the computer.• When the computer is on, press the button briefly to initiate Sleep.• When the computer is in the Sleep state, press the button briefly to exit Sleep (select products only).• When the computer is in Hibernation, press the button briefly to exit Hibernation.
(2)		Speakers (2)	Produce sound.

Special keys

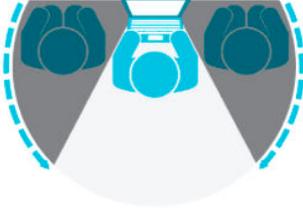


Component	Description
(1) esc key	Displays system information when pressed in combination with the fn key.
(2) fn key	Executes specific functions when pressed in combination with another key.
(3)  Windows key	Opens the Start menu. NOTE: Pressing the Windows key again will close the Start menu.
(4) Action keys	Execute frequently used system functions. NOTE: On select products, the f5 action key turns the keyboard backlight feature off or on.
(5) num lock key	Alternates between the navigational and numeric functions on the integrated numeric keypad.
(6) Integrated numeric keypad	A separate keypad to the right of the alphabet keyboard. When num lock is pressed, the keypad can be used like an external numeric keypad. NOTE: If the keypad function is active when the computer is turned off, that function is reinstated when the computer is turned back on.

Action keys

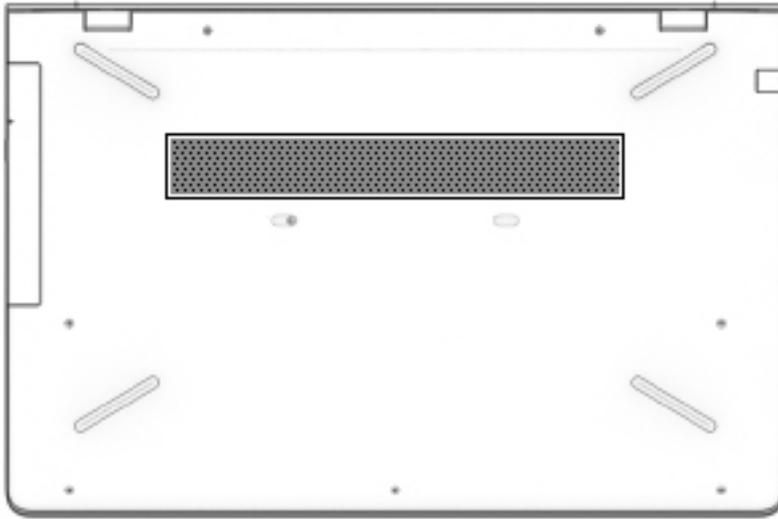
An action key performs the function indicated by the icon on the key. To determine which keys are on your product, see [Special keys on page 13](#).

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

Icon	Description
	Helps prevent side-angle viewing from onlookers. If needed, decrease or increase brightness for well-lit or darker environments. Press the key again to turn off the privacy screen.
	
	Decreases the screen brightness incrementally as long as you hold down the key.
	Increases the screen brightness incrementally as long as you hold down the key.
	Opens the “How to get help in Windows 10” webpage.
	Switches the screen image between display devices connected to the system. For example, if a monitor is connected to the computer, repeatedly pressing this key alternates the screen image from the computer display to the monitor display to a simultaneous display on both the computer and the monitor.
	Turns the keyboard backlight off or on. On select products, you can adjust the brightness of the keyboard backlight. Press the key repeatedly to adjust the brightness from high (when you first start up the computer), to low, to off. After you adjust the keyboard backlight setting, the backlight will revert to your previous setting each time you turn on the computer. The keyboard backlight will turn off after 30 seconds of inactivity. To turn the keyboard backlight back on, press any key or tap the TouchPad (select products only). To conserve battery power, turn off this feature.
	Plays the previous track of an audio CD or the previous section of a DVD or a Blu-ray Disc (BD).
	Starts, pauses, or resumes playback of an audio CD, a DVD, or a BD.
	Plays the next track of an audio CD or the next section of a DVD or a BD.
	Stops audio or video playback of a CD, a DVD, or a BD.
	Decreases speaker volume incrementally while you hold down the key.
	Increases speaker volume incrementally while you hold down the key.

Icon	Description
	Mutes or restores speaker sound.
	Turns the airplane mode and wireless feature on or off. NOTE: The airplane mode key is also referred to as the wireless button. NOTE: A wireless network must be set up before a wireless connection is possible.

Bottom



Component	Description
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Vent

Enables airflow to cool internal components.

NOTE: The computer fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation.

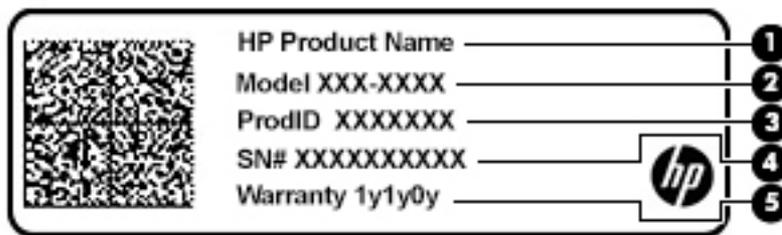
Labels

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

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

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

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



Component

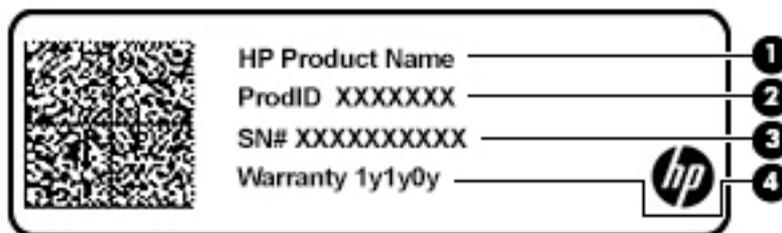
-
- (1) HP product name

 - (2) Model number

 - (3) Product ID

 - (4) Serial number

 - (5) Warranty period
-



Component

-
- (1) HP product name

 - (2) Product ID
-

Component

(3) Serial number

(4) Warranty period

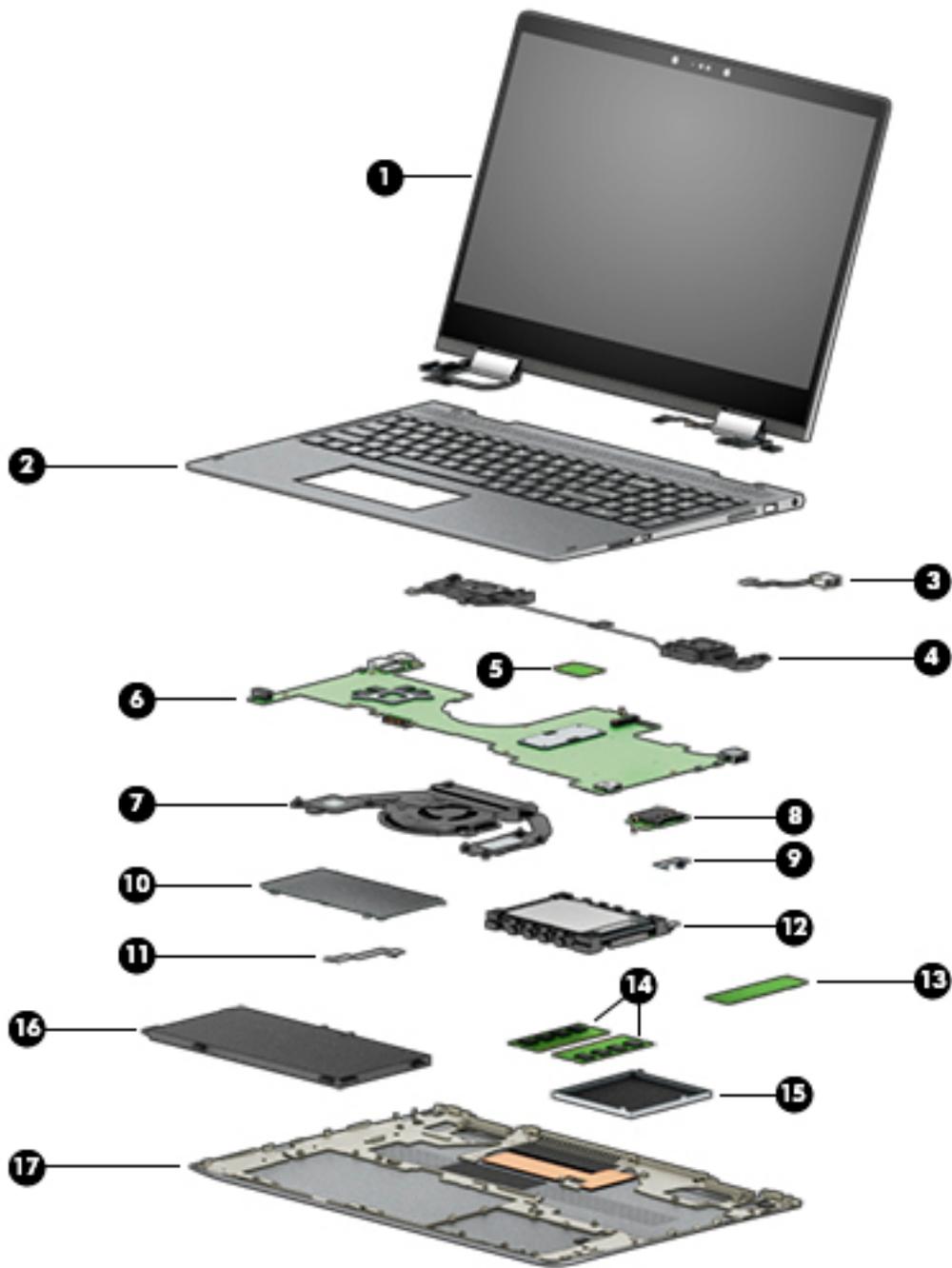
- Regulatory label(s)—Provide(s) regulatory information about the computer.
- Wireless certification label(s)—Provide(s) information about optional wireless devices and the approval markings for the countries or regions in which the devices have been approved for use.

3 Illustrated parts catalog

Computer major components

 **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.

 **NOTE:** Details about your computer, including model, serial number, product key, and length of warranty, are on the service tag at the bottom of your computer. See [Labels on page 17](#) for details.

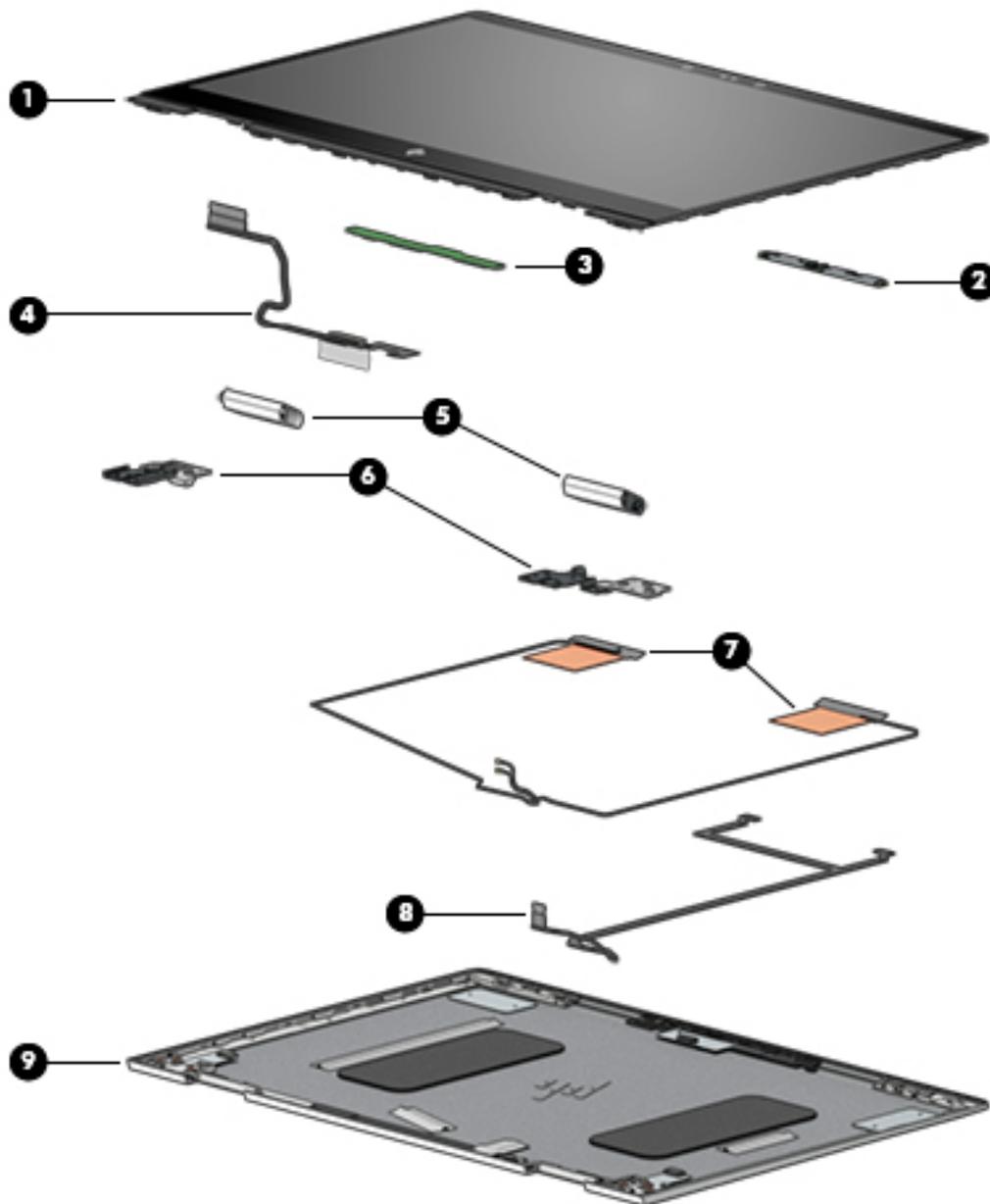


Item	Component	Spare part number
(1)	Display assembly: The display assembly is spared at the subcomponent level only. For more display assembly spare part information, see Display assembly subcomponents on page 23 .	
(2)	Keyboard/top cover (includes backlight cable and keyboard cable):	
	For use in Belgium	L22413-A41
	For use in Canada	L22413-DB1
	For use in the Czech Republic and Slovakia	L22413-FL1
	For use in Denmark, Finland, and Norway	L22413-DH1

Item	Component	Spare part number
	For use in Germany	L22413-041
	For use in Italy	L22413-061
	For use in the Netherlands	L22413-B31
	For use in Russia	L22413-251
	For use in Switzerland	L22413-BG1
	For use in the United Kingdom	L22413-031
	For use in the United States	L22413-001
(3)	Power connector cable	933523-001
(4)	Speakers (includes cables and four rubber isolators)	924343-001
(5)	WLAN module:	
	Intel Dual Band Wireless-AC 7265 802.11 AC 2x2 WiFi + Bluetooth 4.2 Combo Adapter (non-vPro)	901229-855
	Realtek RTL8822BE 802.11 AC 2x2 WiFi + Bluetooth 4.2 Combo Adapter	924813-855
(6)	System board (includes processor and replacement thermal material):	
	For use only on computer models with model numbers 15m-bq1xx, 15-bq1xx, 15m-bq2xx, and 15-bq2xx:	
	Equipped with an AMD Ryzen5 2500U processor, an AMD Radeon R7 Graphics subsystem with UMA video memory, and the Windows 10 operating system	L34922-601
	Equipped with an AMD Ryzen5 2500U processor, an AMD Radeon R7 Graphics subsystem with UMA video memory, and a non-Windows operating system	L34922-001
	For use only computer models with model numbers 15m-bq0xx and 15-bq0xx:	
	Equipped with an AMD FX-9800P 2.70-GHz (turbo up to 3.60-GHz) quad core processor (1866-MHz FSB, 2.0-MB L2 cache, 15-W), an AMD Radeon R7 Graphics subsystem with UMA video memory, and the Windows 10 operating system	924315-601
	Equipped with an AMD FX-9800P 2.70-GHz (turbo up to 3.60-GHz) quad core processor (1866-MHz FSB, 2.0-MB L2 cache, 15-W), an AMD Radeon R7 Graphics subsystem with UMA video memory, and a non-Windows operating system	924315-001
	Equipped with an AMD A12-9720P 2.70-GHz (turbo up to 3.60-GHz) quad core processor (1866-MHz FSB, 2.0-MB L2 cache, 15-W), an AMD Radeon R7 Graphics subsystem with UMA video memory, and the Windows 10 operating system	924316-601
	Equipped with an AMD A12-9720P 2.70-GHz (turbo up to 3.60-GHz) quad core processor (1866-MHz FSB, 2.0-MB L2 cache, 15-W), an AMD Radeon R7 Graphics subsystem with UMA video memory, and a non-Windows operating system	924316-001
	Equipped with an AMD A9-9420 3.00-GHz (turbo up to 3.60-GHz) dual core processor (2133-MHz FSB, 1.0-MB L2 cache, 15-W), an AMD Radeon R5 Graphics subsystem with UMA video memory, and the Windows 10 operating system	924317-601
	Equipped with an AMD A9-9420 3.00-GHz (turbo up to 3.60-GHz) dual core processor (2133-MHz FSB, 1.0-MB L2 cache, 15-W), an AMD Radeon R5 Graphics subsystem with UMA video memory, and a non-Windows operating system	924317-001
(7)	Fan/heat sink assembly (includes replacement thermal material):	
	For use only on computer models equipped with an AMD Ryzen5 processor	L00161-001
	For use only on computer models equipped with an AMD FX, A12, or A9 processor	924328-001

Item	Component	Spare part number
(8)	Memory card reader board (includes memory card reader slot; does not include cable):	
	For use only on computer models with model numbers 15m-bq1xx, 15-bq1xx, 15m-bq2xx, and 15-bq2xx	L01917-001
	For use only on computer models with model numbers 15m-bq0xx and 15-bq0xx	924336-001
(9)	Memory card reader board cable (includes double-sided adhesive)	924325-001
(10)	ClickPad (does not include ClickPad bracket or ClickPad cable):	
	For use only on computer models with model numbers 15m-bq1xx, 15-bq1xx, 15m-bq2xx, and 15-bq2xx	L00657-001
	For use only on computer models with model numbers 15m-bq0xx and 15-bq0xx	924341-001
	ClickPad bracket (not illustrated)	924352-001
(11)	ClickPad cable (includes double-sided adhesive)	924351-001
(12)	1-TB, 7200-rpm, SATA, 9.5-mm hard drive (does not include hard drive bracket or hard drive cable)	766457-857
	NOTE: The hard drive bracket is available using spare part number 924350-001. The hard drive cable is available using spare part number 924326-001.	
(13)	Solid-state drive:	
	For use on all computer models:	
	1-TB, 2280 M.2, PCIe3×4, SS, NVMe with TLC	908359-003
	512-GB, 2280 PCIe, SS, NVMe	L01301-002
	256-GB, 2280 M.2, PCIe3×4, SS, NVMe with TLC	847109-018
	128-GB, 2280 M.2, SATA3, PCIe, SS, NVMe with TLC (for use only in dual-storage configurations)	759848-028
	For use only on computer models with model numbers 15m-bq0xx and 15-bq0xx:	
	512-GB, 2280 M.2, PCIe3×4, SS, NVMe with TLC	847110-015
	256-GB, 2280 PCIe, SS, NVMe	L01300-002
	128-GB, 2280 PCIe, SS, NVMe (for use only in dual-storage configurations)	827560-038
	Solid-state drive gasket (not illustrated)	936448-001
	(14)	Memory modules (2, SODIMM, DDR4-2400, 1.2-V):
8-MB		862398-855
4-MB		862397-855
(15)	Memory module shield	924355-001
(16)	Battery (3-cell, 55-WHr, 4.8-AHr, Li-ion)	916814-855
(17)	Bottom cover	924322-001
	Rubber Foot Kit (not illustrated, includes bottom cover rear foot strip)	933265-001

Display assembly subcomponents



Item	Component	Spare part number
(1)	Display panel assembly (15.6-in, FHD, WLED, BrightView (1920×1080), UWVA, slim-flat (3.2-mm), eDP1.3 TouchScreen; includes display panel and display bezel)	925736-001
(2)	Webcam/microphone module (includes double-sided adhesive)	933520-001
(3)	Touchscreen control board (includes double-sided adhesive)	932790-001
(4)	Display panel cable (includes TouchScreen control board cable)	924323-001
(5)	Hinge covers (2):	
	Left hinge cover	924331-001

Item	Component	Spare part number
	Right hinge cover	924332-001
(6)	Hinges (2, include left and right display hinges)	925202-001
(7)	Wireless Antenna Kit (includes left and right wireless antenna cables and transceivers)	924314-001
(8)	Webcam/microphone module cable (includes double-sided adhesive)	924324-001
(9)	Display back cover (includes rubber padding and shielding)	924321-001

Miscellaneous parts

Component	Spare part number
AC adapter:	
65-W HP Smart AC adapter (non-PFC, 4.5-mm, with mount)	854117-850
45-W HP Smart AC adapter (non-PFC, 4.5-mm, with mount)	L24008-001
HP external DVD±RW DL SuperMulti Drive	747080-001
HP HDMI-to-VGA adapter	701943-001
HP USB-to-Gigabit RJ45 adapter	829941-001
HP USB Type-C adapter:	
USB Type-C-to-HDMI adapter	831752-001
USB Type-C-to-HDMI 2.0 adapter	935325-001
USB Type-C-to-MultiPort hub	919666-001
USB Type-C-to-RJ45 adapter	855560-001
USB Type-C-to-USB Type-A dongle	833960-001
USB Type-C-to-USB Type-A hub	916838-001
USB Type-C-to-VGA adapter	831751-001
System board mylar (for use only on models with model numbers 15m-bq0xx and 15-b0xx)	L22645-001
Power cord (C5 connector, 1.00-m):	
For use in Australia	213356-013
For use in Denmark	213353-013
For use in Europe	213350-014
For use in North America	213349-015
For use in Switzerland	213354-013
For use in the United Kingdom	213351-013
Rubber Foot Kit (includes bottom cover rear foot strip)	933265-001
Screw Kit	924342-001
Stylus (active pen)	920241-001

4 Removal and replacement procedures preliminary requirements

Tools required

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

- Flat-bladed screwdriver
- Magnetic screwdriver
- 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.

Plastic parts

 **CAUTION:** Using excessive force during disassembly and reassembly can damage plastic parts. Use care when handling the plastic

Cables and connectors

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

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

Drive handling

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

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

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

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

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

Avoid dropping drives from any height onto any surface.

After removing a hard drive or an optical drive, place it in a static-proof bag.

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

Avoid exposing a drive to temperature extremes or liquids.

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

Workstation guidelines

Follow these grounding workstation guidelines:

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

Equipment guidelines

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

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

The following grounding equipment is recommended to prevent electrostatic damage:

- Antistatic tape
- Antistatic smocks, aprons, and sleeve protectors
- Conductive bins and other assembly or soldering aids
- Nonconductive foam
- Conductive tabletop workstations with ground cords of one megohm resistance
- Static-dissipative tables or floor mats with hard ties to the ground
- Field service kits
- Static awareness labels
- Material-handling packages
- Nonconductive plastic bags, tubes, or boxes
- Metal tote boxes
- Electrostatic voltage levels and protective materials

The following table lists the shielding protection provided by antistatic bags and floor mats.

Material	Use	Voltage protection level
Antistatic plastics	Bags	1,500 V
Carbon-loaded plastic	Floor mats	7,500 V
Metallized laminate	Floor mats	5,000 V

Electrostatic discharge damage

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

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

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

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

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

Before touching an electronic component, discharge static electricity by using the guidelines described in this section.

Avoid touching pins, leads, and circuitry. Handle electronic components as little as possible.

If you remove a component, place it in an electrostatic-safe container.

The following table shows how humidity affects the electrostatic voltage levels generated by different activities.

CAUTION: A product can be degraded by as little as 700 V.

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

Packaging and transporting guidelines

Follow these grounding guidelines when packaging and transporting equipment:

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

5 Removal and replacement procedures

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

CAUTION: This computer does not have user-replaceable parts. Only HP authorized service providers should perform the removal and replacement procedures described here. Accessing an internal part could damage the computer or void the warranty.

Component replacement procedures

 **NOTE:** Details about your computer, including model, serial number, product key, and length of warranty, are on the service tag at the bottom of your computer. See [Labels on page 17](#) for details.

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

There are as many as 55 screws that must be removed, replaced, and/or loosened when servicing the parts described in this chapter. Make special note of each screw size and location during removal and replacement.

Bottom cover

Description	Spare part number
Bottom cover	924322-001

Before disassembling the computer, follow these steps:

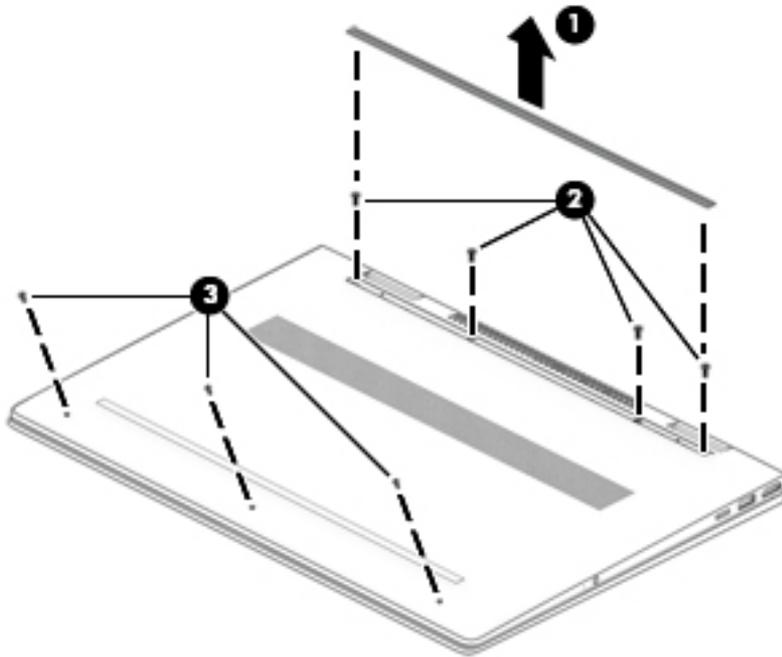
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord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

Remove the bottom cover:

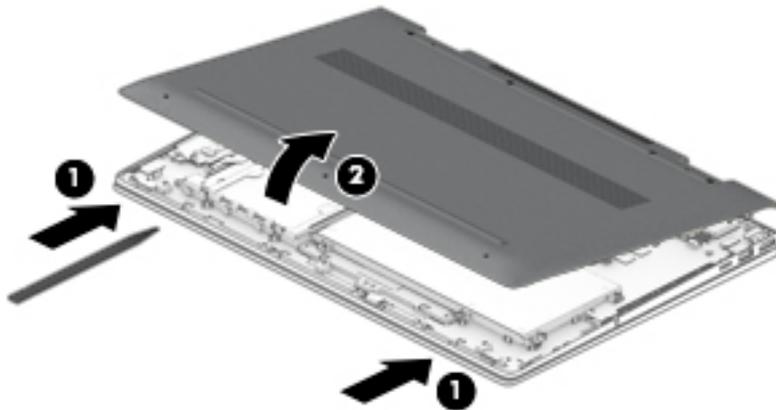
1. Remove the computer rear rubber foot strip **(1)**.

The rubber foot is included in the Rubber Foot Kit, spare part number 933265-001.

2. Remove the following screws that secure the bottom cover to the computer:
 - (2) Four Torx5 M2.5×6.7 screws under the rear rubber foot strip
 - (3) Three Phillips PM2.0×5.2 screws on the front edge



3. Insert a case utility tool (1) or similar thin, plastic tool between the front edge of the bottom cover and the keyboard/top cover.
4. Remove the bottom cover (2).



Reverse this procedure to install the bottom cover.

Battery

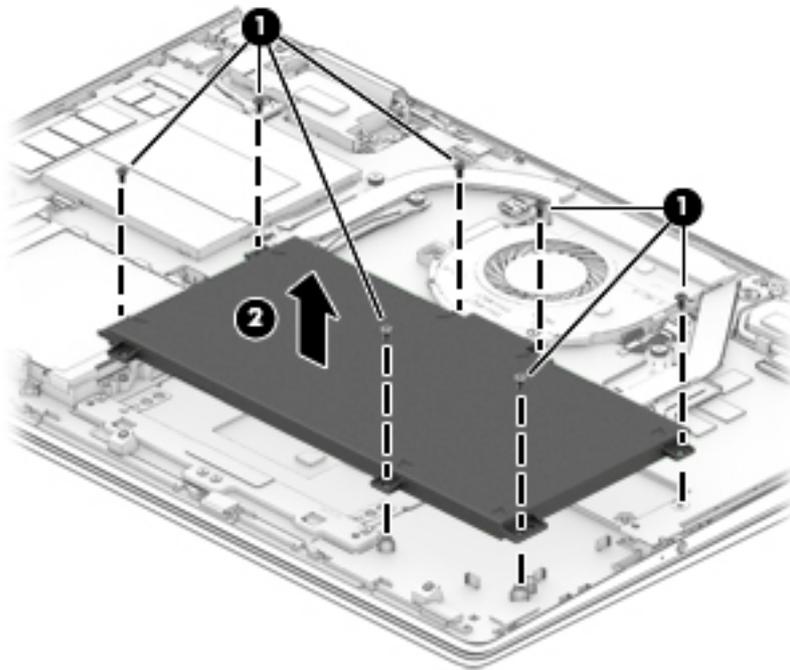
Description	Spare part number
3-cell, 55-WHr, 4.8-AHr, Li-ion battery	916814-855

Before removing the battery, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet, and then unplugging the AC adapter from the computer.
4. Remove the bottom cover (see [Bottom cover on page 29](#)).

Remove the battery:

1. Remove the seven Phillips PM2.0×4.7 screws (1) that secure the battery to the keyboard/top cover.
2. Remove the battery (2).



Reverse this procedure to install the battery.

Hard drive



NOTE: The hard drive spare part kit does not include the hard drive bracket or the hard drive cable. The hard drive bracket is available using spare part number 924350-001. The hard drive cable is available using spare part number 924326-001.

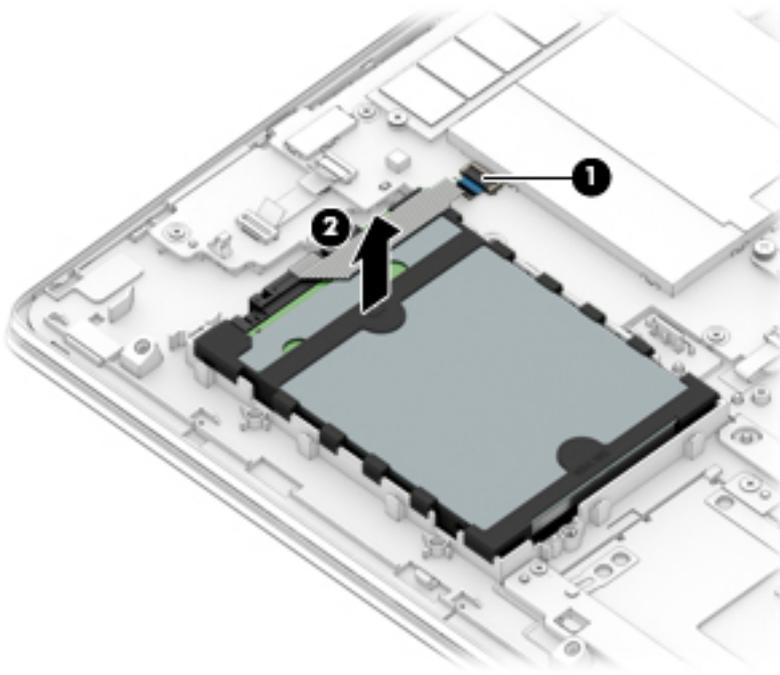
Description	Spare part number
1-TB, 7200-rpm, SATA, 9.5-mm hard drive	766457-857

Before removing the hard drive, follow these steps:

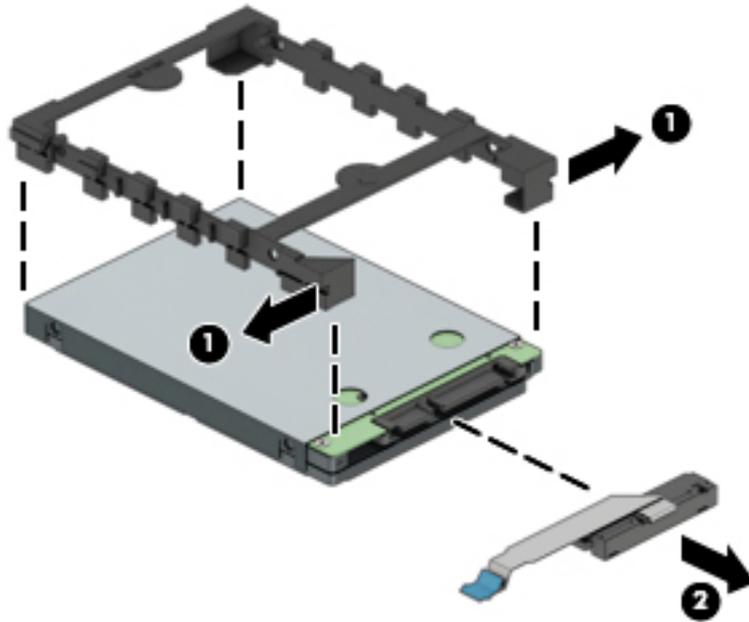
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet, and then unplugging the AC adapter from the computer.
4. Remove the bottom cover (see [Bottom cover on page 29](#)).
5. Remove the battery (see [Battery on page 31](#)).

Remove the hard drive:

1. Release the zero insertion force (ZIF) connector (**1**) to which the hard drive cable is connected, and then disconnect the hard drive cable from the system board.
2. Use the tab built into the hard drive rubber sleeve to remove the hard drive (**2**).



3. If it is necessary to disassemble the hard drive, remove the hard drive rubber sleeve (1) from the hard drive, and then disconnect the hard drive cable (2) from the hard drive.



Reverse this procedure to reassemble and install the hard drive.

Solid-state drive

Description	Spare part number
For use only on computer models with model numbers 15m-bq1xx and 15-bq1xx:	
512-GB, 2280 PCIe, SS, NVMe	L01301-002
256-GB, 2280 PCIe, SS, NVMe	L01300-002
For use only on computer models with model numbers 15m-bq1xx and 15-bq1xx:	
1-TB, 2280 M.2, PCIe3×4, SS, NVMe with TLC	908359-003
512-GB, 2280 M.2, PCIe3×4, SS, NVMe with TLC	847110-015
360-GB, 2280 M.2, PCIe3×4, SS, NVMe with TLC	917818-002
256-GB, 2280 M.2, PCIe3×4, SS, NVMe with TLC	847109-018
256-GB, 2280 M.2, SATA-3, with TLC	759848-028
128-GB, 2280 M.2, SATA-3	827560-038

Before removing the solid-state drive, follow these steps:

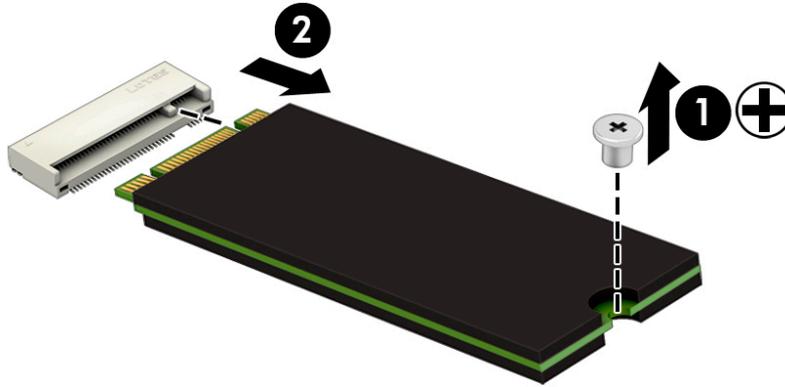
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet, and then unplugging the AC adapter from the computer.
4. Remove the bottom cover (see [Bottom cover on page 29](#)).
5. Remove the battery (see [Battery on page 31](#)).

Remove the solid-state drive:

1. Remove the Phillips PM2.0×2.4 broad head screw **(1)** that secures the solid-state drive to the system board.

2. Remove the solid-state drive (2) by pulling it away from the connector.

 **NOTE:** Solid-state drives are designed with notches to prevent incorrect insertion.



Reverse this procedure to reassemble and install the solid-state drive.

Memory module

 **NOTE:** Primary and expansion memory is installed in a side-by-side configuration on the system board. If only one memory module is installed, it must be installed in the socket labeled 1.

Description	Spare part number
8-MB, SODIMM, DDR4-2400, 1.2-V	862398-855
4-MB, SODIMM, DDR4-2400, 1.2-V	862397-855

Update BIOS before adding memory modules

Before adding new memory, make sure you update the computer to the latest BIOS.

 **CAUTION:** Failure to update the computer to the latest BIOS prior to installing new memory may result in various system problems.

To update BIOS:

1. Navigate to www.hp.com.
2. Click **Support & Drivers**, and then click **Drivers & Software**.
3. In the **Enter a product name/number** box, type the computer model information, and then click **Search**.
4. Click the link for the computer model.
5. Select the operating system, and then click **Next**.
6. Under **Step 2: Select a Download**, click the **BIOS** link.
7. Click the link for the most recent BIOS.
8. Click the **Download** button, and then follow the on-screen instructions.

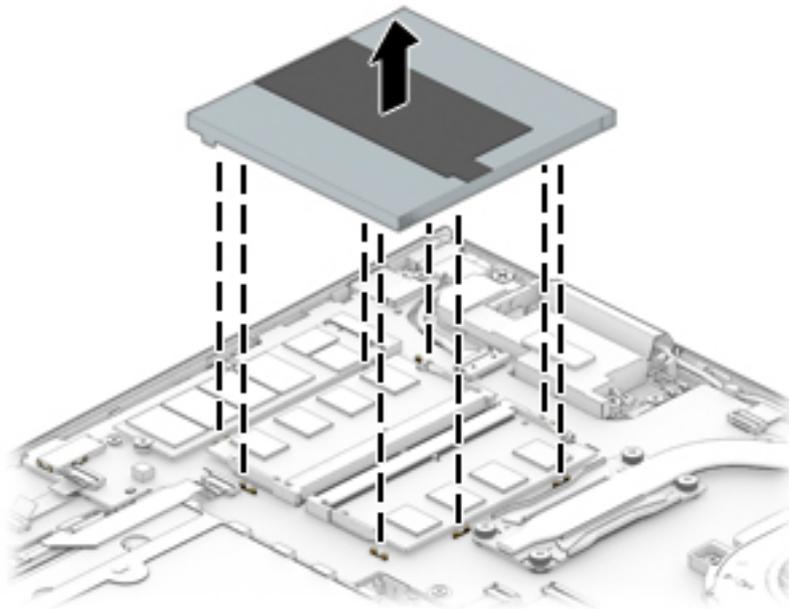
Before removing the memory module, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by first unplugging the power cord from the AC outlet, and then unplugging the AC adapter from the computer.
3. Disconnect all external devices from the computer.
4. Remove the bottom cover (see [Bottom cover on page 29](#)).
5. Remove the battery (see [Battery on page 31](#)).

Remove the memory module:

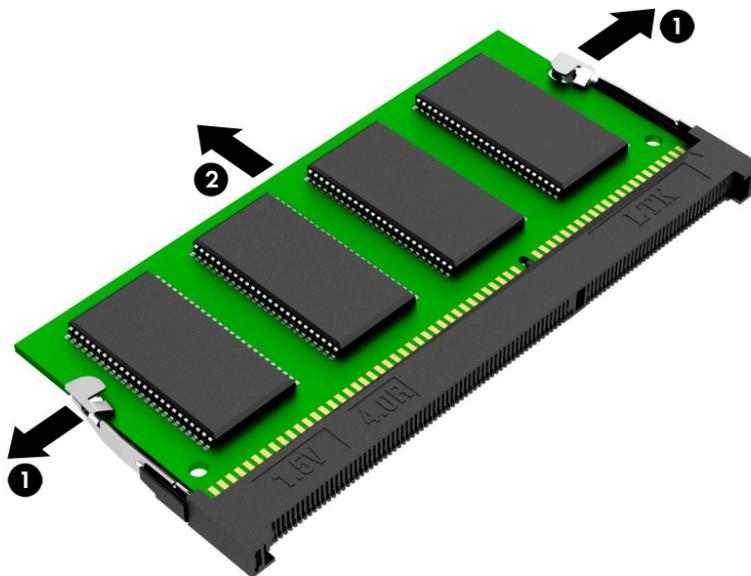
1. Remove the memory module shield.

The memory module shield is available using spare part number 924355-001.



2. Spread the retaining tabs **(1)** on each side of the memory module slot to release the memory module. (The edge of the module opposite the slot rises away from the computer.)
3. Remove the memory module **(2)** by pulling the module away from the slot at an angle.

 **NOTE:** Memory modules are designed with a notch to prevent incorrect insertion.



Reverse this procedure to install a memory module.

Memory card reader board cable

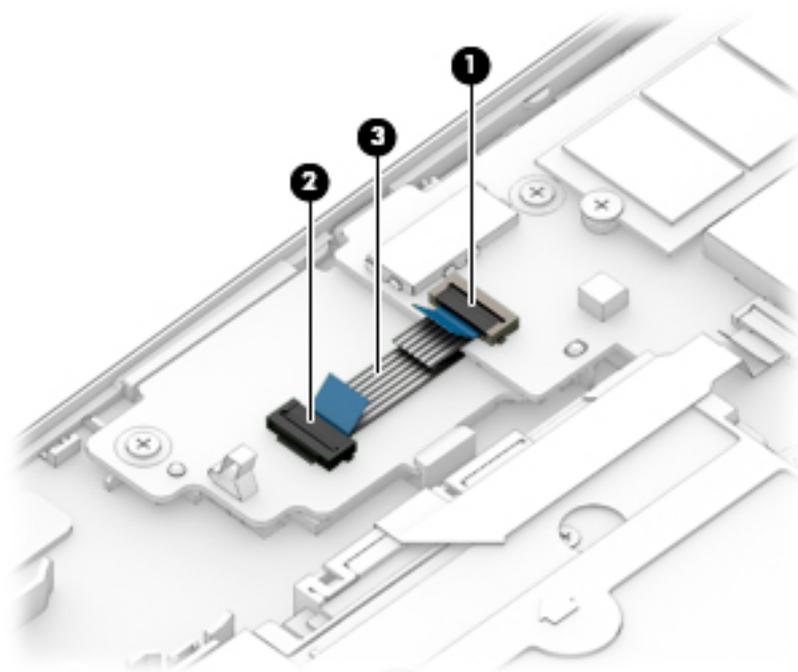
 **NOTE:** The memory card reader board spare part kit does not include the memory card reader board cable. The memory card reader board cable is available using spare part number 924325-001.

Before removing the memory card reader board cable, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet, and then unplugging the AC adapter from the computer.
4. Remove the bottom cover (see [Bottom cover on page 29](#)).
5. Remove the battery (see [Battery on page 31](#)).

Remove the memory card reader board cable:

1. Release the ZIF connector **(1)** to which memory card reader board cable is connected, and then disconnect the memory card reader board cable from the system board.
2. Release the ZIF connector **(2)** to which memory card reader board cable is connected, and then disconnect the memory card reader board cable from the memory card reader board.
3. Detach the memory card reader board cable **(3)** from the keyboard/top cover. (The memory card reader board cable is attached to the keyboard/top cover with double-sided adhesive.)



4. Remove the memory card reader board cable.

Reverse this procedure to install the memory card reader board cable.

ClickPad cable

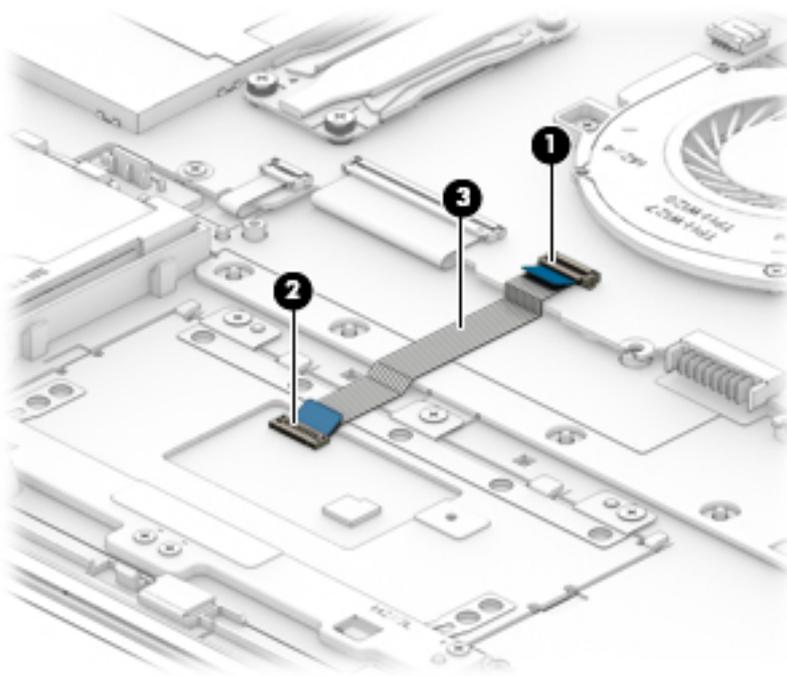
 **NOTE:** The ClickPad spare part kit does not include the ClickPad cable. The ClickPad cable is available using spare part number 924351-001.

Before removing the ClickPad cable, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet, and then unplugging the AC adapter from the computer.
4. Remove the bottom cover (see [Bottom cover on page 29](#)).
5. Remove the battery (see [Battery on page 31](#)).

Remove the ClickPad cable:

1. Release the ZIF connector **(1)** to which ClickPad cable is connected, and then disconnect the ClickPad cable from the system board.
2. Release the ZIF connector **(2)** to which ClickPad cable is connected, and then disconnect the ClickPad cable from the ClickPad.
3. Detach the ClickPad cable **(3)** from the keyboard/top cover. (The ClickPad cable is attached to the keyboard/top cover with double-sided adhesive.)



4. Remove the ClickPad cable.

Reverse this procedure to install the ClickPad cable.

ClickPad



NOTE: The ClickPad spare part kit does not include the ClickPad bracket or ClickPad cable. The ClickPad bracket is available using spare part number 924352-001. The ClickPad cable is available using spare part number 924351-001.

Description	Spare part number
For use only on computer models with model numbers 15m-bq1xx and 15-bq1xx	L00657-001
For use only on computer models with model numbers 15m-bq0xx and 15-bq0xx	924341-001

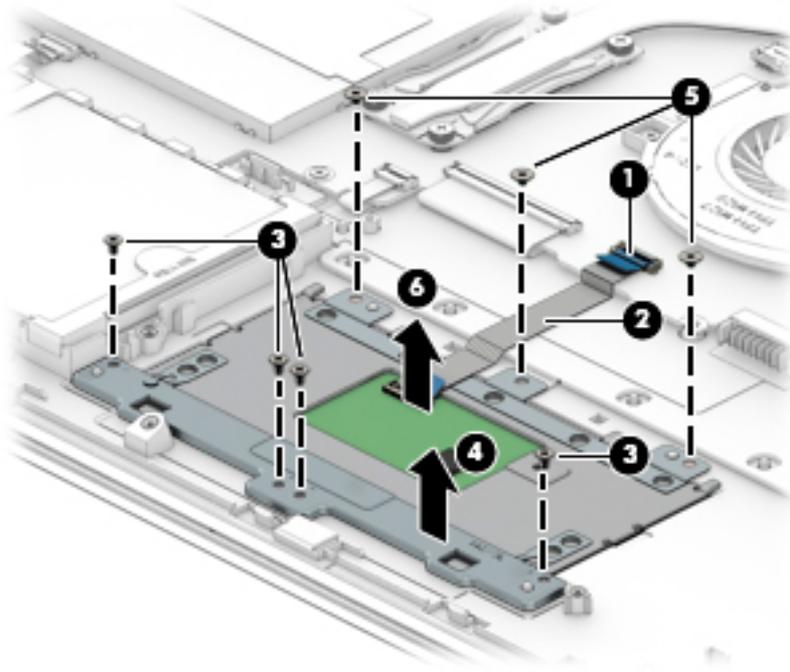
Before removing the ClickPad, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet, and then unplugging the AC adapter from the computer.
4. Remove the bottom cover (see [Bottom cover on page 29](#)).
5. Remove the battery (see [Battery on page 31](#)).

Remove the ClickPad:

1. Release the ZIF connector **(1)** to which ClickPad cable is connected, and then disconnect the ClickPad cable from the system board.
2. Detach the ClickPad cable **(2)** from the keyboard/top cover. (The ClickPad cable is attached to the keyboard/top cover with double-sided adhesive.)
3. Remove the four Phillips PM2.0×3.4 **(3)** that secure the ClickPad bracket to the keyboard/top cover.
4. Remove the ClickPad bracket **(4)**.
5. Remove the three Phillips PM2.0×2.2 broad head screws **(5)** that secure the ClickPad to the keyboard/top cover.

6. Remove the ClickPad (6).



Reverse this procedure to install the ClickPad.

System board



NOTE: All system board spare part kits include a processor and replacement thermal material.

Description	Spare part number
For use only on computer models with model numbers 15m-bq1xx and 15-bq1xx:	
Equipped with an AMD Ryzen5 2500U processor, an AMD Radeon R7 Graphics subsystem with UMA video memory, and the Windows 10 operating system	935101-601
Equipped with an AMD Ryzen5 2500U processor, an AMD Radeon R7 Graphics subsystem with UMA video memory, and a non-Windows operating system	935101-001
For use on all computer models:	
Equipped with an AMD FX-9800P 2.70-GHz (turbo up to 3.60-GHz) quad core processor (1866-MHz FSB, 2.0-MB L2 cache, 15-W), an AMD Radeon R7 Graphics subsystem with UMA video memory, and the Windows 10 operating system	924315-601
Equipped with an AMD FX-9800P 2.70-GHz (turbo up to 3.60-GHz) quad core processor (1866-MHz FSB, 2.0-MB L2 cache, 15-W), an AMD Radeon R7 Graphics subsystem with UMA video memory, and a non-Windows operating system	924315-001
Equipped with an AMD A12-9720P 2.70-GHz (turbo up to 3.60-GHz) quad core processor (1866-MHz FSB, 2.0-MB L2 cache, 15-W), an AMD Radeon R7 Graphics subsystem with UMA video memory, and the Windows 10 operating system	924316-601
Equipped with an AMD A12-9720P 2.70-GHz (turbo up to 3.60-GHz) quad core processor (1866-MHz FSB, 2.0-MB L2 cache, 15-W), an AMD Radeon R7 Graphics subsystem with UMA video memory, and a non-Windows operating system	924316-001
Equipped with an AMD A9-9420 3.00-GHz (turbo up to 3.60-GHz) dual core processor (2133-MHz FSB, 1.0-MB L2 cache, 15-W), an AMD Radeon R5 Graphics subsystem with UMA video memory, and the Windows 10 operating system	924317-601
Equipped with an AMD A9-9420 3.00-GHz (turbo up to 3.60-GHz) dual core processor (2133-MHz FSB, 1.0-MB L2 cache, 15-W), an AMD Radeon R5 Graphics subsystem with UMA video memory, and a non-Windows operating system	924317-001

Before removing the system board, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet, and then unplugging the AC adapter from the computer.
4. Remove the bottom cover (see [Bottom cover on page 29](#)).
5. Remove the battery (see [Battery on page 31](#)).

When replacing the system board, be sure to remove the following components from the defective system board and install them on the replacement system board:

- Memory module (see [Memory module on page 36](#))
- Fan/heat sink assembly (see [Fan/heat sink assembly on page 45](#))
- WLAN module (see [WLAN module on page 47](#))

Remove the system board:

1. Disconnect the following cables from the system board:

(1) Power connector cable

(2) WLAN antenna cables



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) Webcam/microphone module ZIF connector cable

(4) Display panel ZIF connector cable

(5) Speaker cable

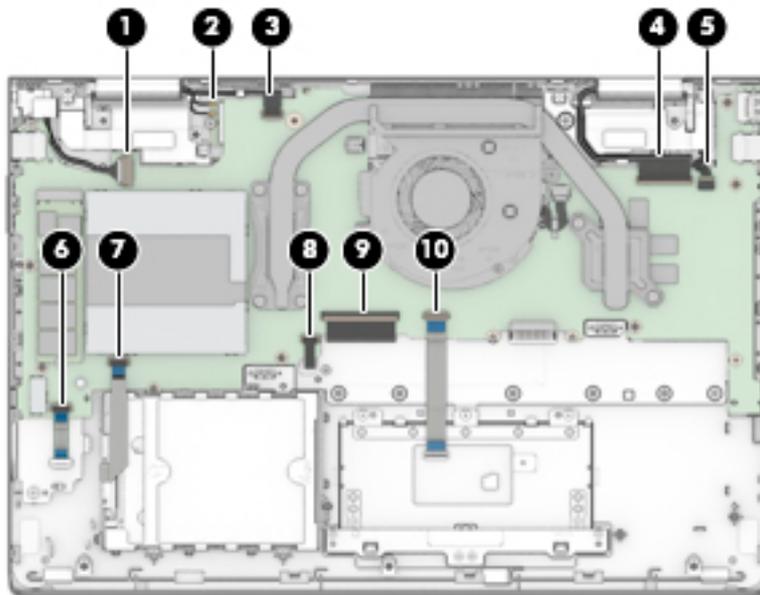
(6) memory card reader board ZIF connector cable

(7) Hard drive ZIF connector cable

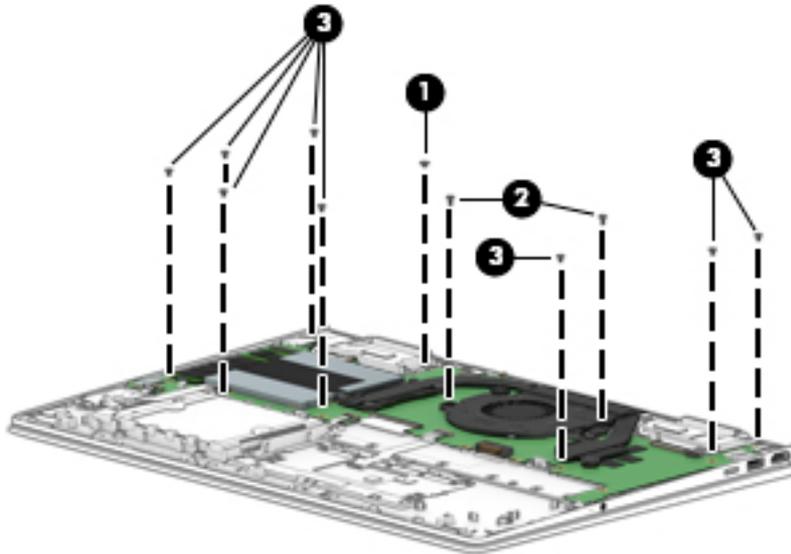
(8) Backlight ZIF connector cable

(9) Keyboard ZIF connector cable

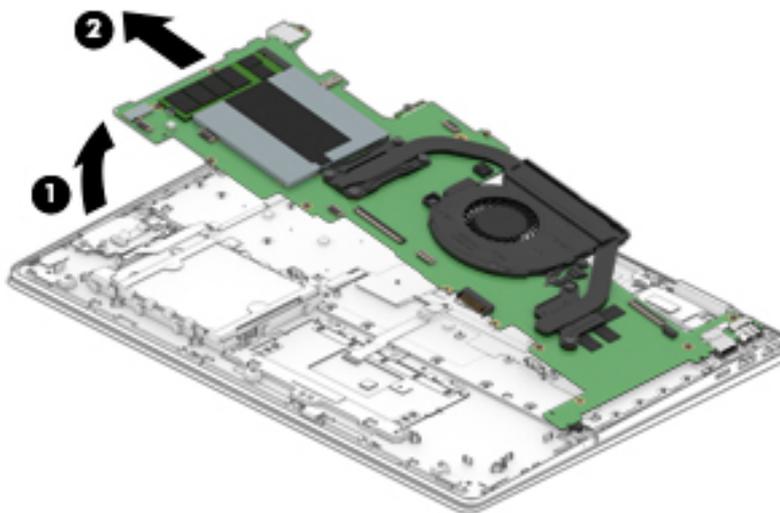
(10) ClickPad ZIF connector cable



2. Remove the following screws:
 - (1) One Phillips PM2.0×2.2 broad head screw that secures the WLAN module to the keyboard/top cover
 - (2) Two Phillips PM2.0×4.6 screws that secure the system board to the keyboard/top cover
 - (3) Eight Phillips PM2.0×3.3 screws that secure the system board to the keyboard/top cover



3. Lift the left side of the system board (1) until it rests at an angle.
4. Remove the system board (2) by sliding it up and to the left at an angle.



Reverse this procedure to install the system board.

Fan/heat sink assembly



NOTE: The fan/heat sink assembly spare part kit includes the fan cable and replacement thermal material.

Description	Spare part number
For use only on computer models equipped with an AMD Ryzen5 processor	L00161-001
For use only on computer models equipped with an AMD FX, A12, or A9 processor	924328-001

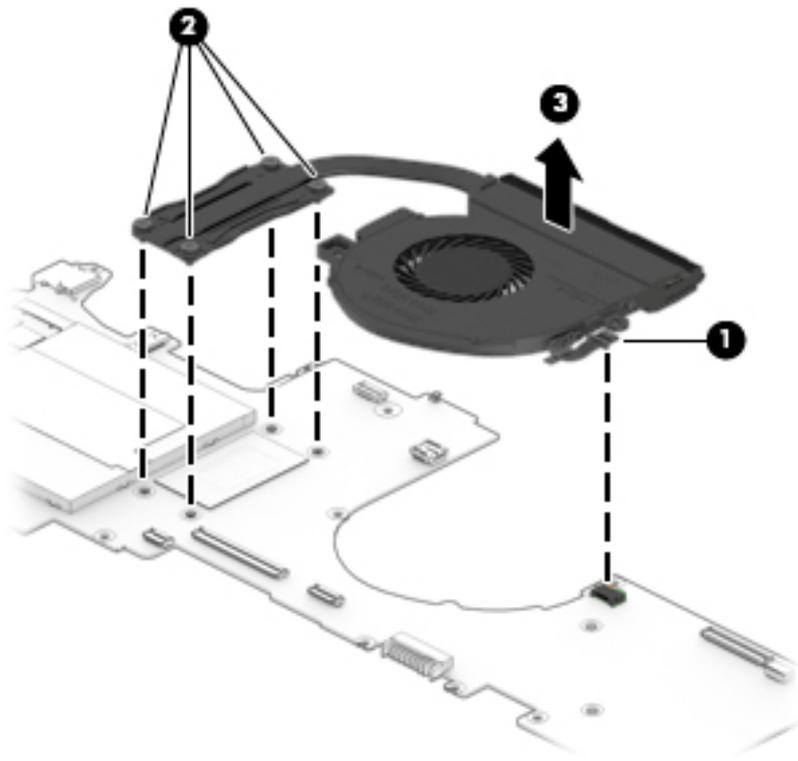
Before removing the fan/heat sink assembly, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by first unplugging the power cord from the AC outlet, and then unplugging the AC adapter from the computer.
3. Disconnect all external devices from the computer.
4. Remove the bottom cover (see [Bottom cover on page 29](#)).
5. Remove the battery (see [Battery on page 31](#)).
6. Remove the system board (see [System board on page 42](#)).

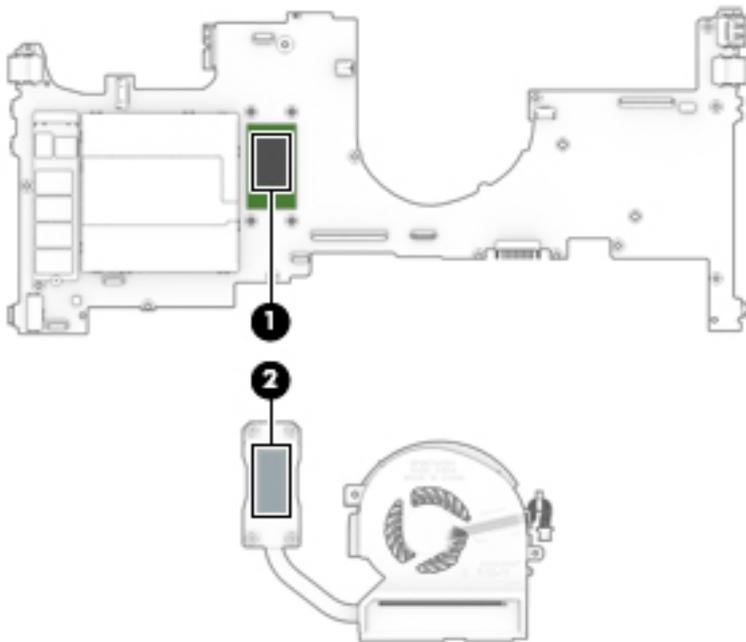
Remove the fan/heat sink assembly:

1. Disconnect the fan cable **(1)** from the system board.
2. Loosen the four Phillips PM2.0×6.2 captive screws **(2)** that secure the fan/heat sink assembly to the system board.

3. Remove the fan/heat sink assembly (2).



NOTE: The thermal material must be thoroughly cleaned from the surfaces of the fan/heat sink assembly and the system board components each time the fan/heat sink assembly is removed. Replacement thermal material is included with the fan/heat sink assembly and system board spare part kits.



Reverse this procedure to install the fan/heat sink assembly.

WLAN module

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

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

Before removing the WLAN module, follow these steps:

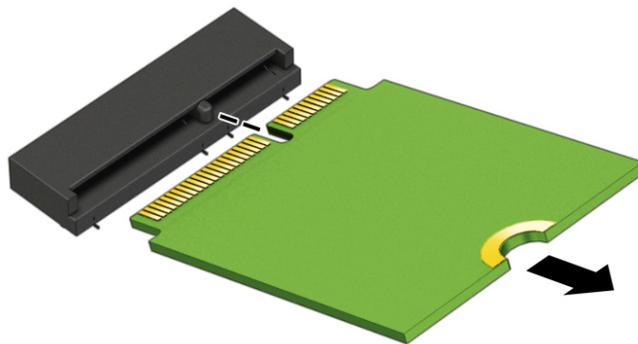
1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by first unplugging the power cord from the AC outlet, and then unplugging the AC adapter from the computer.
3. Disconnect all external devices from the computer.
4. Remove the bottom cover (see [Bottom cover on page 29](#)).
5. Remove the battery (see [Battery on page 31](#)).
6. Remove the system board (see [System board on page 42](#)).

Remove the WLAN module:

1. Turn the system board upside down with the front facing toward you.
2. Remove the WLAN module by pulling the module away from the slot at an angle.



NOTE: WLAN modules are designed with a notch to prevent incorrect insertion.



Reverse this procedure to install the WLAN module.

Memory card reader board

 **NOTE:** The memory card reader board includes the memory card reader slot. The memory card reader board spare part kit does not include the memory card reader board cable. The memory card reader board cable is available using spare part number 924325-001.

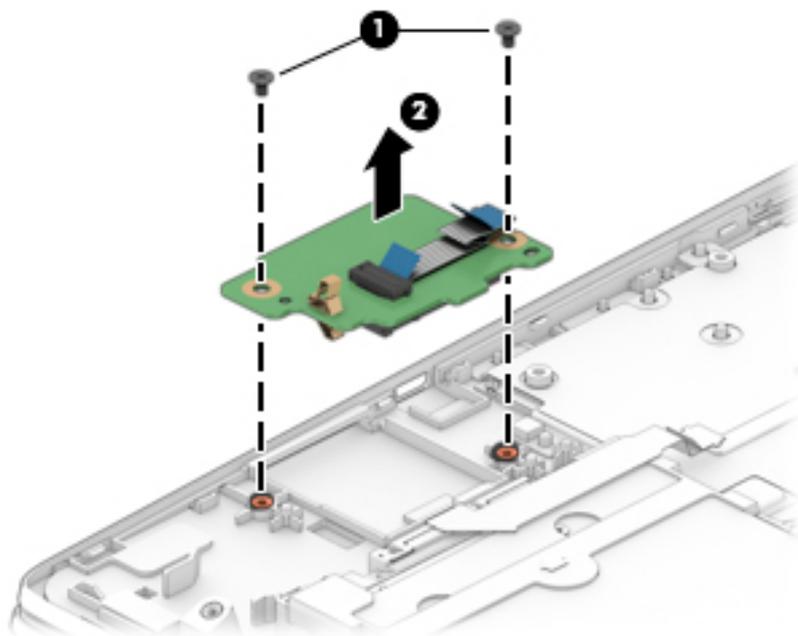
Description	Spare part number
For use only on computer models with model numbers 15m-bq1xx and 15-bq1xx	L01917-001
For use only on computer models with model numbers 15m-bq0xx and 15-bq0xx	924336-001

Before removing the memory card reader board, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet, and then unplugging the AC adapter from the computer.
4. Remove the bottom cover (see [Bottom cover on page 29](#)).
5. Remove the battery (see [Battery on page 31](#)).
6. Remove the system board (see [System board on page 42](#)).

Remove the memory card reader board:

1. Remove the two Phillips PM2.0×3.3 screws (1) that secure the memory card reader board to the keyboard/top cover.
2. Remove the memory card reader board (2).



Reverse this procedure to install the memory card reader board.

Speakers

Description	Spare part number
Speakers (includes cables and four rubber isolators)	924343-001

Before removing the speakers, follow these steps:

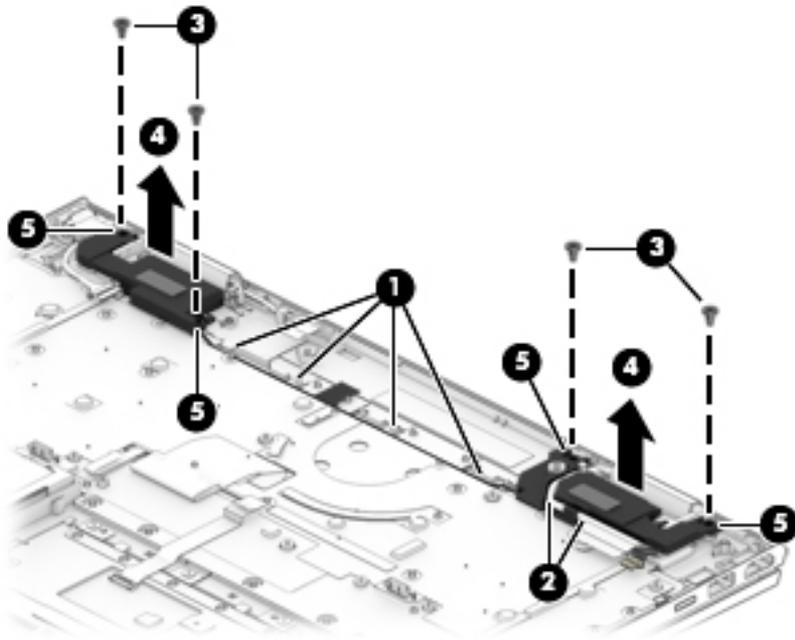
1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by first unplugging the power cord from the AC outlet, and then unplugging the AC adapter from the computer.
3. Disconnect all external devices from the computer.
4. Remove the bottom cover (see [Bottom cover on page 29](#)).
5. Remove the battery (see [Battery on page 31](#)).
6. Remove the system board (see [System board on page 42](#)).

Remove the speakers:

1. Release the speaker cable from the retention clips **(1)** and routing channel built into the keyboard/top cover.
2. Remove the display panel cable from the retention clips **(2)** and routing channel built into the left speaker.
3. Remove the four Phillips PM2.0×6.3 broad head shoulder screws **(3)** that secure the speakers to the keyboard/top cover.

4. Remove the speakers (4).

 **IMPORTANT:** When removing the speakers, make note of the location of the four rubber isolators (5). Failure to properly install or damage to these isolators can result in degraded speaker performance.



Reverse this procedure to install the speakers.

Display assembly

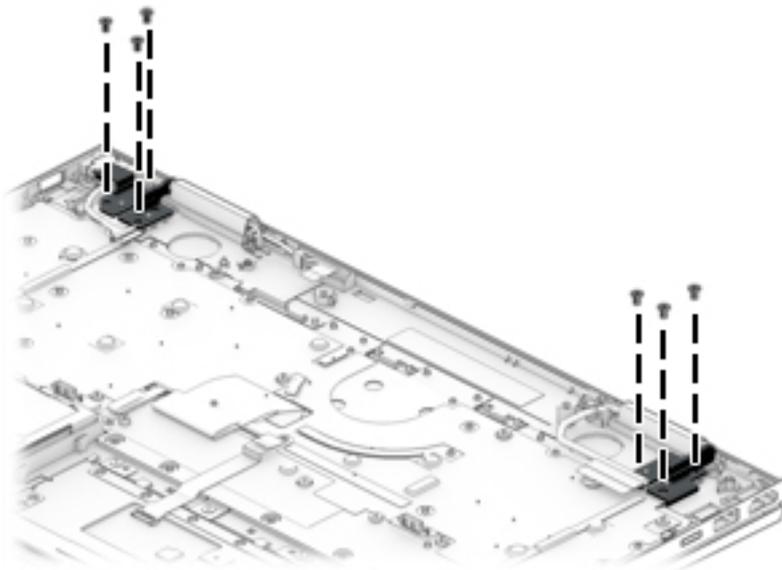
 **NOTE:** The display assembly is spared at the subcomponent level. For display assembly spare part information, see the individual removal subsections.

Before removing the display assembly, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet, and then unplugging the AC adapter from the computer.
4. Remove the bottom cover (see [Bottom cover on page 29](#)), and then remove the following components:
 - a. Battery (see [Battery on page 31](#))
 - b. System board (see [System board on page 42](#))
 - c. Speakers (see [Speakers on page 49](#))

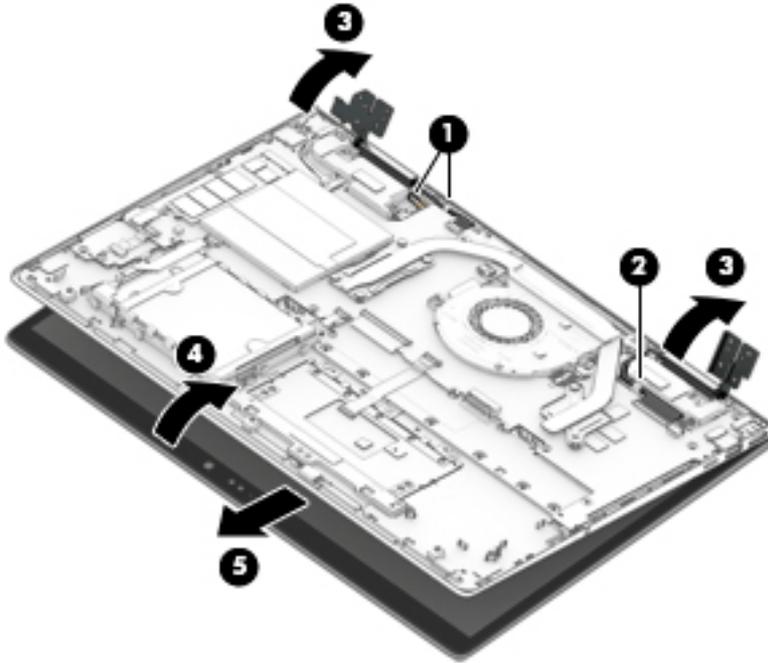
Remove the display assembly:

1. Remove the six Phillips PM2.5×4.3 screws that secure the display assembly to the keyboard/top cover.



2. Release the WLAN antenna cables **(1)** and the webcam/microphone module cable from the retention clip built into the keyboard/top cover.
3. Release the display panel cable **(2)** from the retention clip built into the keyboard/top cover.
4. Swing the display hinges **(3)** up and back.
5. Swing the keyboard/top cover **(4)** up and back until it separates from the display assembly.

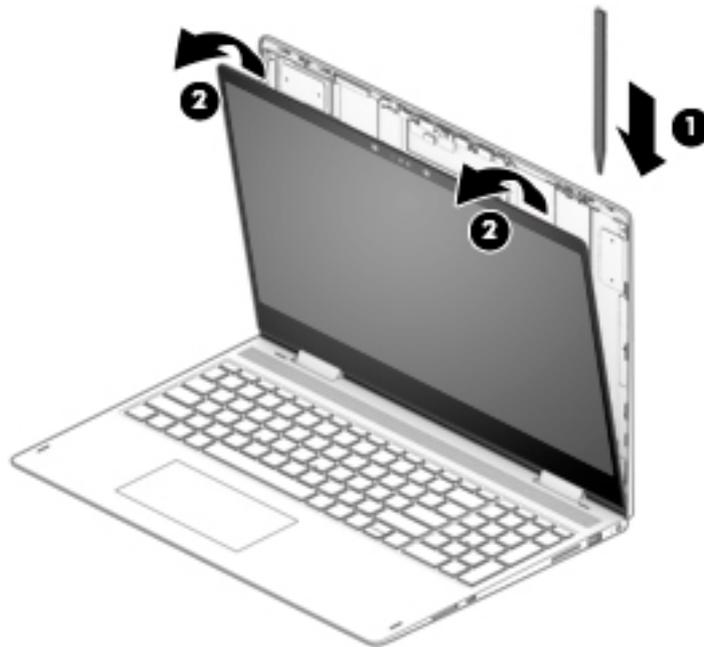
- Slide the keyboard/top cover (5) up and away at an angle and separate it from the display assembly.



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

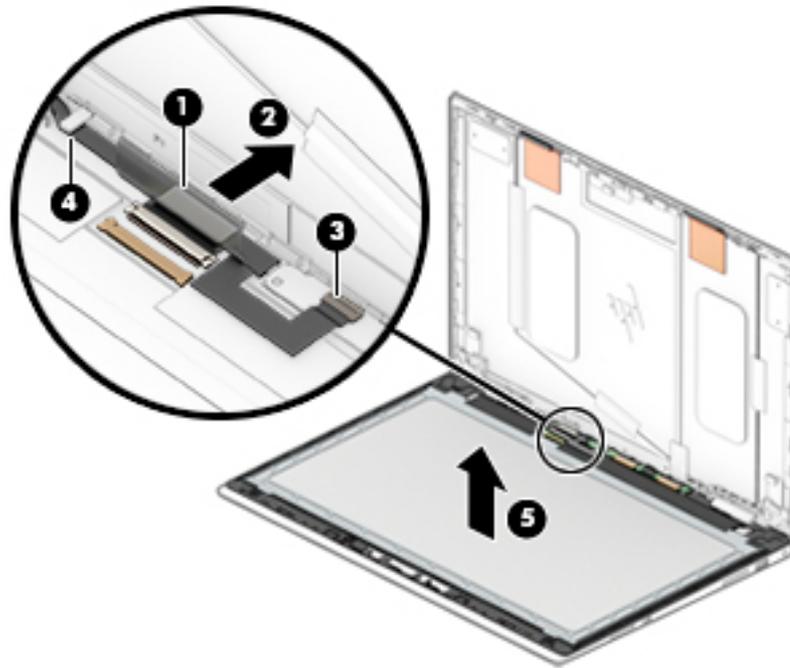
 **NOTE:** The display panel assembly can be removed and replaced without removing the display assembly from the keyboard/top cover.

- Insert a case utility tool (1) or similar thin, plastic tool between the top edge of the display panel assembly and the back cover.
- Swing the display panel assembly (2) forward until it rests on the keyboard.



- 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 assembly.
- e. Release the ZIF connector **(3)** to which the TouchScreen control board cable is connected, and then disconnect the TouchScreen control board cable from the TouchScreen control board.
- f. Release the display panel cable **(4)** from the retention clip built into the display panel assembly.
- g. Remove the display panel assembly **(5)**.

The display panel assembly is available using spare part number 925736-001.

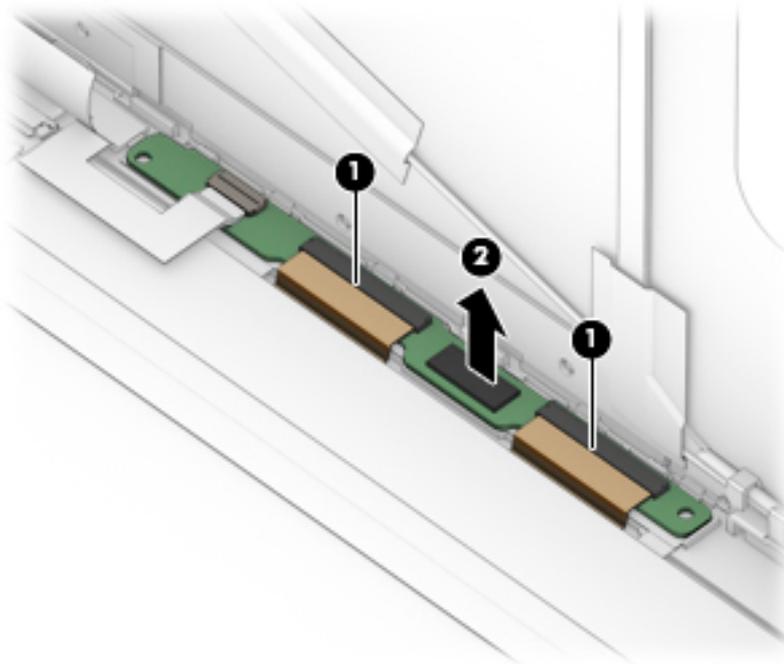


- 8. If it is necessary to replace the TouchScreen control board:

 **NOTE:** The TouchScreen control board can be removed and replaced without removing the display assembly from the keyboard/top cover.

- a. Remove the display panel assembly.
- b. Release the ZIF connectors **(1)** to which the TouchScreen control board cables are connected, and then disconnect the TouchScreen control board cables from the TouchScreen control board.

- c. Detach the TouchScreen control board **(2)** from the display panel assembly. (The TouchScreen control board is attached to the display panel assembly with double-sided adhesive.)



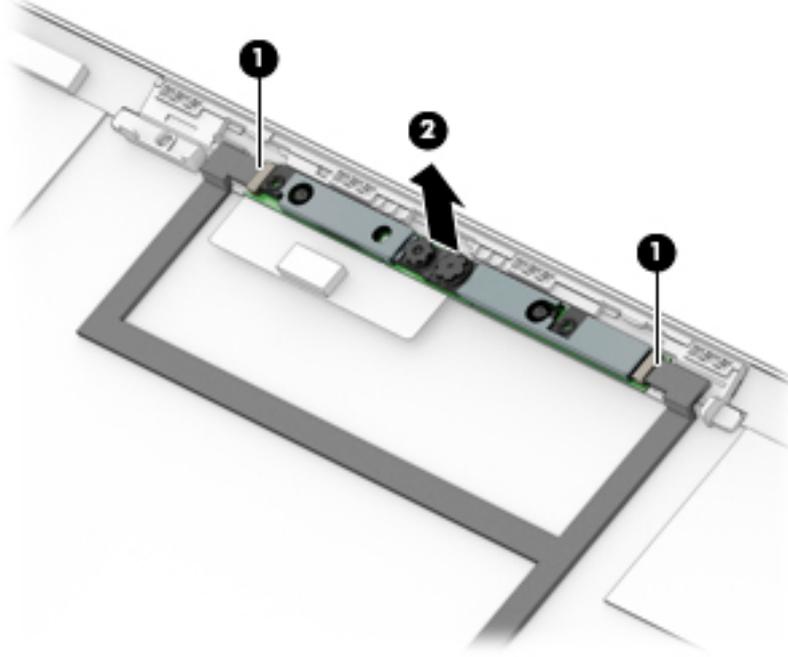
- d. Remove the TouchScreen control board.
The TouchScreen control board is available using spare part number 932790-001.

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

 **NOTE:** The webcam/microphone module can be removed and replaced without removing the display assembly from the keyboard/top cover.

- a. Remove the display panel assembly.
- b. Disconnect the webcam/microphone module cables **(1)** from the webcam/microphone module.

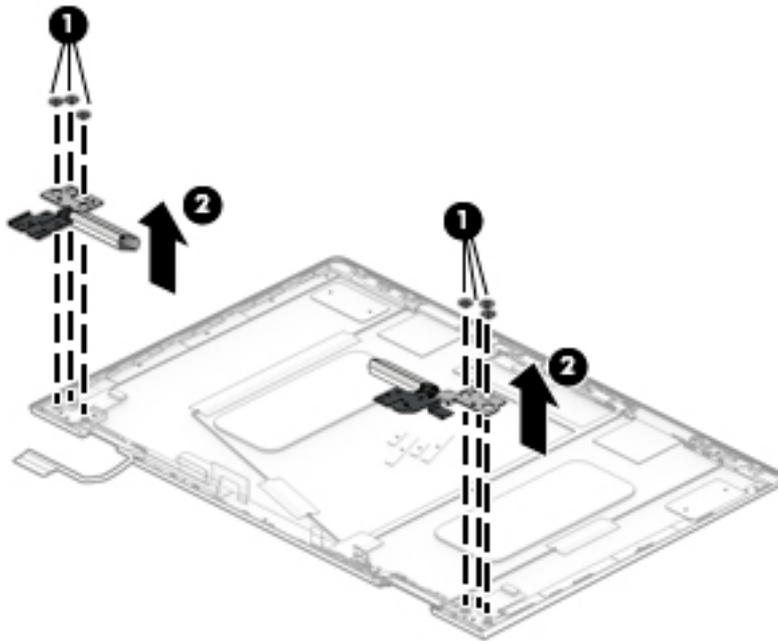
- c. Detach the webcam/microphone module **(2)** from the display back cover. (The webcam/microphone module is attached to the display back cover with double-sided adhesive.)



- d. Remove the webcam/microphone module.
The webcam/microphone module is available using spare part number 933520-001.
- 10.** If it is necessary to replace the display hinges:
- a. Remove the display panel assembly.
 - b. Remove the six Phillips PM2.5×3.0 broad head screws **(1)** that secure the hinges to the display back cover.

- c. Remove the display hinges (2).

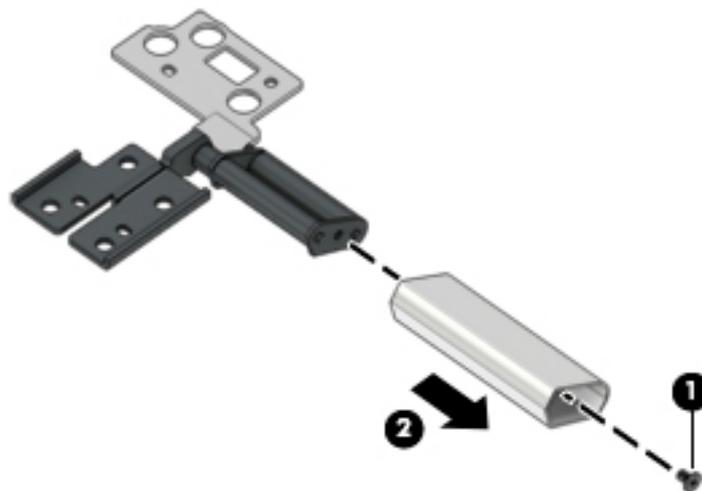
The display hinges are available using spare part number 925202-001.



11. If it is necessary to replace the display hinge covers:

- a. Remove the display panel assembly.
- b. Remove the display hinges.
- c. Remove the two Phillips PM2.0×3.3 screws (1) that secure the hinge covers to the display hinge.
- d. Remove the display hinge covers (2).

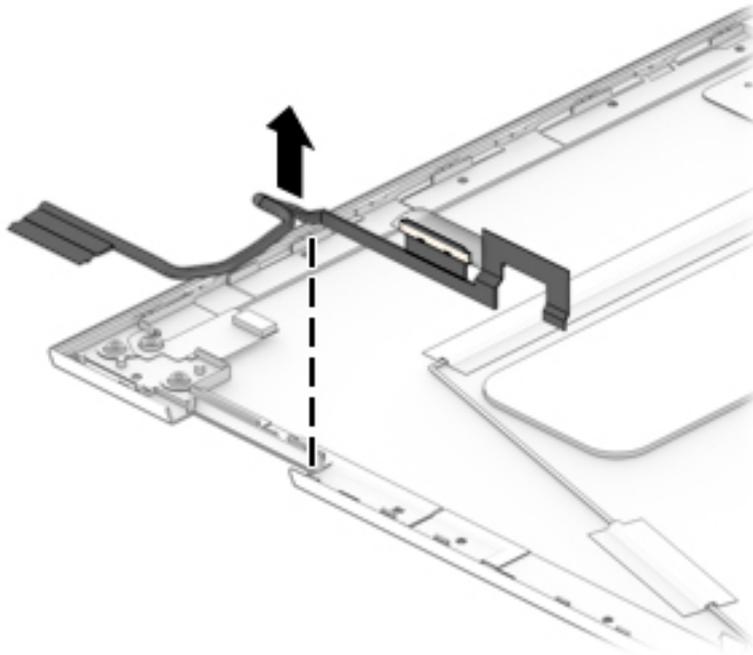
The display hinge covers are available using spare part numbers 924331-001 (left hinge cover) and 924332-001 (right hinge cover).



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

- a.** Remove the display panel assembly.
- b.** Remove the display hinges.
- c.** Remove the display panel cable.

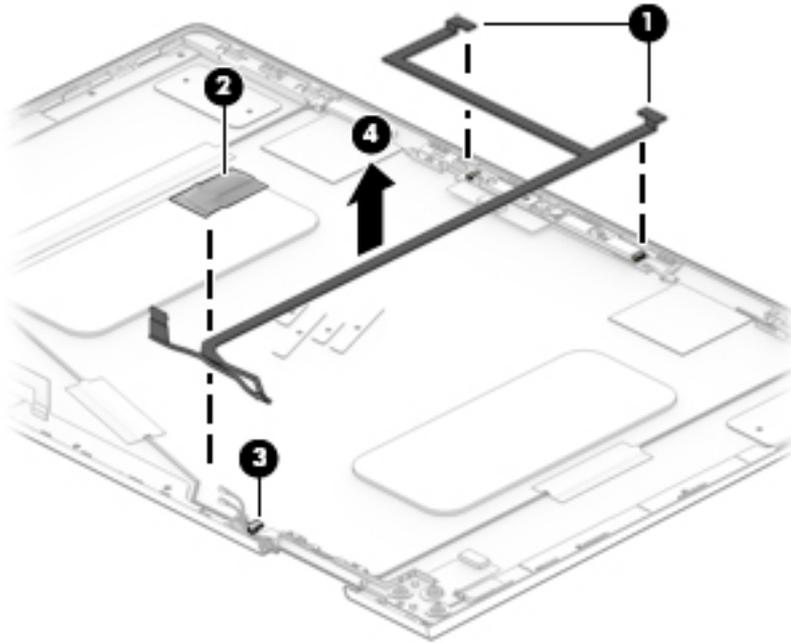
The display panel cable is available using spare part number 924323-001.



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

- a.** Remove the display panel assembly.
- b.** Remove the display hinges.
- c.** Disconnect the webcam/microphone module cables **(1)** from the webcam/microphone module.
- d.** Remove the shielding material **(2)** that secures the webcam/microphone module cable to the display back cover.
- e.** Release the webcam/microphone module cable from the retention clips **(3)** built into the display back cover.

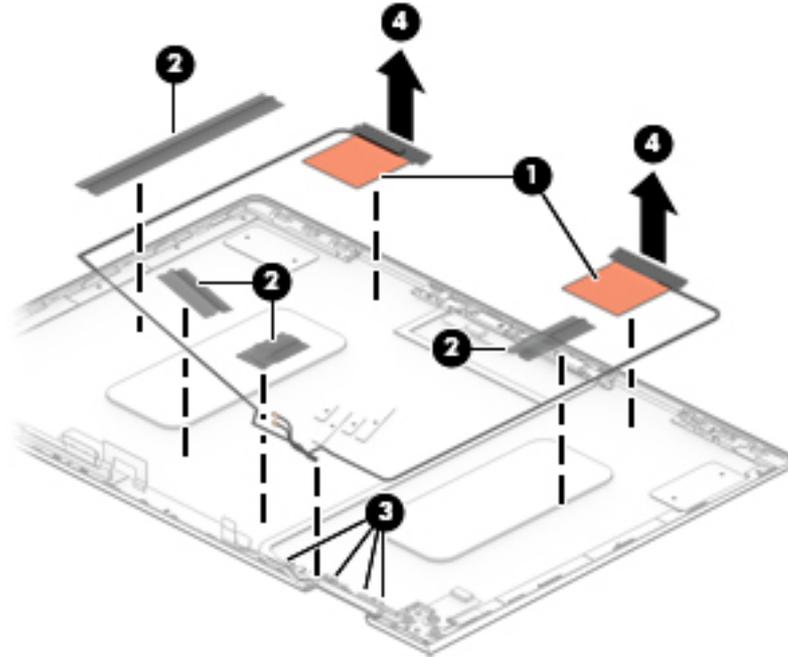
- f. Detach the webcam/microphone module cable **(4)** from the display back cover. (The webcam/microphone module cable is attached to the display back cover with double-sided adhesive.)



- g. Remove the webcam/microphone module cable.
The webcam/microphone module cable is available using spare part number 924324-001.
- 14.** If it is necessary to replace the wireless antenna cables and transceivers:
- a. Remove the display panel assembly.
 - b. Remove the display hinges.
 - c. Detach the wireless antenna transceivers **(1)** from the display back cover. (The wireless antenna transceivers are attached to the display back cover with double-sided adhesive.)
 - d. Detach the four pieces of grounding tape **(2)** that secure the wireless antenna cables to the display back cover.
 - e. Release the wireless antenna cables from the retention clips **(3)** built into the bottom edge of the display back cover.

- f. Remove the wireless antenna cables and transceivers (4).

The wireless antenna cables and transceivers are available using spare part number 924314-001.



Reverse this procedure to reassemble and install the display assembly.

Power connector cable

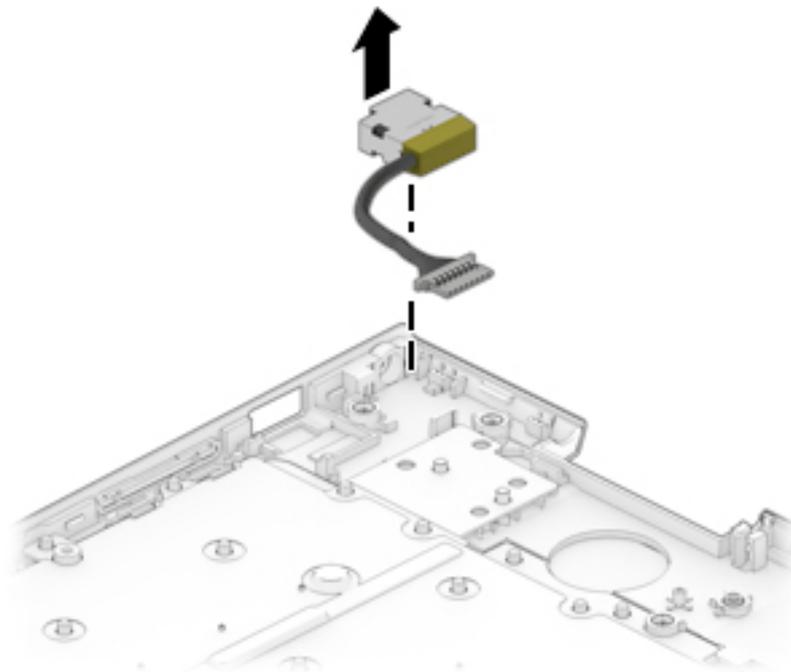
Description	Spare part number
Power connector cable	933523-001

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 bottom cover (see [Bottom cover on page 29](#)), and then remove the following components:
 - a. Battery (see [Battery on page 31](#))
 - b. System board (see [System board on page 42](#))
 - c. Speakers (see [Speakers on page 49](#))
 - d. Display assembly (see [Display assembly on page 51](#))

Remove the power connector cable:

- ▲ Remove the power connector cable.



Reverse this procedure to install the power connector cable.

6 Using Setup Utility (BIOS)

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

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

Starting Setup Utility (BIOS)

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

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

Updating Setup Utility (BIOS)

Updated versions of Setup Utility (BIOS) may be available on the HP website.

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

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

Determining the BIOS version

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

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

- HP Support Assistant
 1. Type `support` in the taskbar search box, and then select the **HP Support Assistant** app.
– or –
Select the question mark icon in the taskbar.
 2. Select **My notebook**, and then select **Specifications**.
- Setup Utility (BIOS)
 1. Start Setup Utility (BIOS) (see [Starting Setup Utility \(BIOS\) on page 61](#)).
 2. Select **Main**, and then make note of the BIOS version.
 3. Select **Exit**, select one of the options, and then follow the on-screen instructions.

To check for later BIOS versions, see [Downloading a BIOS update on page 62](#).

Downloading a BIOS update

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

- Do not disconnect power from the computer by unplugging the power cord from the AC outlet.
- Do not shut down the computer or initiate Sleep.
- Do not insert, remove, connect, or disconnect any device, cable, or cord.

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

1. Type `support` in the taskbar search box, and then select the **HP Support Assistant** app.
– or –
Select the question mark icon in the taskbar.
2. Select **Updates**, and then select **Check for updates and messages**.
3. Follow the on-screen instructions.
4. At the download area, follow these steps:
 - a. Identify the most recent BIOS update and compare it to the BIOS version currently installed on your computer. If the update is more recent than your BIOS version, make a note of the date, name, or other identifier. You may need this information to locate the update later, after it has been downloaded to your hard drive.
 - b. Follow the on-screen instructions to download your selection to the hard drive.

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

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

1. Type `file` in the taskbar search box, and then select **File Explorer**.
2. Select your hard drive designation. The hard drive designation is typically Local Disk (C:).
3. Using the hard drive path you recorded earlier, open the folder that contains the update.
4. Double-click the file that has an `.exe` extension (for example, `filename.exe`).

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

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

7 Backing up, restoring, and recovering

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

Windows provides tools to back up your personal information, restore your computer from a backup, and recover the computer to its original state. See [Using Windows tools for backing up, restoring, and recovering your computer on page 63](#).

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

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

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

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

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

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

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

Creating backups

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

To create a backup:

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

Restoring and recovering

Windows offers several options for restoring from backup, refreshing the computer, and resetting the computer to its original state.

To restore your system:

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

Creating HP Recovery media (select products only)

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

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

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

On select products, you can use the HP Cloud Recovery Download Tool to create HP Recovery media on a bootable USB flash drive. For more information, see [Using the HP Cloud Recovery Download Tool to create recovery media on page 65](#).

Using HP Recovery Manager to create recovery media

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

Before you begin

Before you begin, note the following:

- Only one set of recovery media can be created. Handle these recovery tools carefully, and keep them in a safe place.
- HP Recovery Manager examines the computer and determines the required media storage capacity.
- To create recovery media, use one of the following options:

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

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

Creating the recovery media

To create HP Recovery media using HP Recovery Manager:

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

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

If you need to recover the system, see [Recovering using HP Recovery Manager on page 66](#).

Using the HP Cloud Recovery Download Tool to create recovery media

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

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

Restoring and recovery

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

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

Restoring, resetting, and refreshing using Windows tools

Windows offers several options for restoring, resetting, and refreshing the computer. For details, see [Using Windows tools for backing up, restoring, and recovering your computer on page 63](#).

Restoring using HP Recovery Manager and the HP Recovery partition

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

- **Resolving problems with preinstalled applications or drivers**—To correct a problem with a preinstalled application or driver:
 1. Type `recovery` in the taskbar search box, and then select **HP Recovery Manager**.
 2. Select **Reinstall drivers and/or applications**, and then follow the on-screen instructions.
- **Using System Recovery**—To recover the Windows partition to original factory content, select the **System Recovery** option from the HP Recovery partition (select products only) or use the HP Recovery media. For more information, see [Recovering using HP Recovery Manager on page 66](#). If you have not already created recovery media, see [Creating HP Recovery media \(select products only\) on page 64](#).
- **Using Factory Reset** (select products only)—Restores the computer to its original factory state by deleting all information from the hard drive and recreating the partitions and then reinstalling the operating system and the software that was installed at the factory (select products only). To use the **Factory Reset** option, you must use HP Recovery media. If you have not already created recovery media, see [Creating HP Recovery media \(select products only\) on page 64](#).

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

Recovering using HP Recovery Manager

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

If you have not already created HP Recovery media, see [Creating HP Recovery media \(select products only\) on page 64](#).

 **IMPORTANT:** HP Recovery Manager does not automatically provide backups of your personal data. Before beginning recovery, back up any personal data that you want to retain. See [Using Windows tools for backing up, restoring, and recovering your computer on page 63](#).

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

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

Before you begin, note the following:

- HP Recovery Manager recovers only software that was installed at the factory. For software not provided with this computer, you must either download the software from the manufacturer's website or reinstall the software from the media provided by the manufacturer.
- If the computer hard drive fails, HP Recovery media must be used. This media is created using HP Recovery Manager. See [Creating HP Recovery media \(select products only\) on page 64](#).
- If your computer does not allow the creation of HP Recovery media or if the HP Recovery media does not work, contact support to obtain recovery media. Go to <http://www.hp.com/support>, select your country or region, and then follow the on-screen instructions.

Recovering using the HP Recovery partition (select products only)

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

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

To start HP Recovery Manager from the HP Recovery partition:

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

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

– or –

For computers or tablets with keyboards attached:

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

For tablets without keyboards:

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

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

 **NOTE:** If your computer does not automatically restart in HP Recovery Manager, change the computer boot order, and then follow the on-screen instructions. See [Changing the computer boot order on page 67](#).

Recovering using HP Recovery media

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

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

 **NOTE:** If your computer does not automatically restart in HP Recovery Manager, change the computer boot order, and then follow the on-screen instructions. See [Changing the computer boot order on page 67](#).

Changing the computer boot order

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

To change the boot order:

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

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

For computers or tablets with keyboards attached:

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

For tablets without keyboards:

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

– or –

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

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

Removing the HP Recovery partition (select products only)

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

 **IMPORTANT:** After you remove the HP Recovery partition, you will not be able to perform System Recovery or create HP Recovery media. Before removing the Recovery partition, create HP Recovery media. See [Creating HP Recovery media \(select products only\) on page 64](#).

Follow these steps to remove the HP Recovery partition:

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

8 Using HP PC Hardware Diagnostics

Using HP PC Hardware Diagnostics Windows (select products only)

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

If HP PC Hardware Diagnostics Windows is not installed on your computer, first you must download and install it. To download HP PC Hardware Diagnostics Windows, see [Downloading HP PC Hardware Diagnostics Windows on page 68](#).

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

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

– or –

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

- a. Type `support` in the taskbar search box, and then select the **HP Support Assistant** app.
 - or –
 - Select the question mark icon in the taskbar.
 - b. Select **Troubleshooting and fixes**.
 - c. Select **Diagnostics**, and then select **HP PC Hardware Diagnostics Windows**.
2. When the tool opens, select the type of diagnostic test you want to run, and then follow the on-screen instructions.

 **NOTE:** If you need to stop a diagnostic test at any time, select **Cancel**.

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

Downloading HP PC Hardware Diagnostics Windows

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

Downloading the latest HP PC Hardware Diagnostics Windows version

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

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

The tool is downloaded to the selected location.

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

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

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

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

The tool is downloaded to the selected location.

Installing HP PC Hardware Diagnostics Windows

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

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

Using HP PC Hardware Diagnostics UEFI

 **NOTE:** For Windows 10 S computers, you must use a Windows computer and a USB flash drive to download and create the HP UEFI support environment because only .exe files are provided. For more information, see [Downloading HP PC Hardware Diagnostics UEFI to a USB flash drive on page 70](#).

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

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

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

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

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

Starting HP PC Hardware Diagnostics UEFI

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

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

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

- a. Connected USB flash drive



NOTE: To download the HP PC Hardware Diagnostics UEFI tool to a USB flash drive, see [Downloading the latest HP PC Hardware Diagnostics UEFI version on page 70](#).

- b. Hard drive

- c. BIOS

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

Downloading HP PC Hardware Diagnostics UEFI to a USB flash drive

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

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



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

Downloading the latest HP PC Hardware Diagnostics UEFI version

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

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

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



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

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

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

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

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

Downloading Remote HP PC Hardware Diagnostics UEFI

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

Downloading the latest Remote HP PC Hardware Diagnostics UEFI version

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

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

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

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

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

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

Customizing Remote HP PC Hardware Diagnostics UEFI settings

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

- Set a schedule for running diagnostics unattended. You can also start diagnostics immediately in interactive mode by selecting **Execute Remote HP PC Hardware Diagnostics**.
- Set the location for downloading the diagnostic tools. This feature provides access to the tools from the HP website or from a server that has been preconfigured for use. Your computer does not require the traditional local storage (such as a disk drive or USB flash drive) to run remote diagnostics.
- Set a location for storing the test results. You can also set the user name and password settings used for uploads.
- Display status information about the diagnostics run previously.

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

1. Turn on or restart the computer, and when the HP logo appears, press **f10** to enter Computer Setup.
2. Select **Advanced**, and then select **Settings**.

3. Make your customization selections.
4. Select **Main**, and then **Save Changes and Exit** to save your settings.

Your changes take effect when the computer restarts.

9 Specifications

Computer specifications

	Metric	U.S.
Computer dimensions		
Width	35.9 cm	14.2 in
Depth	24.9 cm	9.8 in
Height	1.9 cm	0.8 in
Weight	2.1 kg	4.6 lbs
Computer models equipped with a hard drive	2.2 kg	4.8 lbs
Computer models equipped with a solid-state drive	2.1 kg	4.6 lbs
Temperature		
Operating	5°C to 35°C	41°F to 95°F
Nonoperating	-20°C to 60°C	-4°F to 140°F
Relative humidity (noncondensing)		
Operating	10% to 90%	
Nonoperating	5% to 95%	
Maximum altitude (unpressurized)		
Operating	-15 m to 3,048 m	-50 ft to 10,000 ft
Nonoperating	-15 m to 12,192 m	-50 ft to 40,000 ft
NOTE: Applicable product safety standards specify thermal limits for plastic surfaces. The device operates well within this range of temperatures.		

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 V ac, or from 220 to 240 V ac.

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

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

Requirements for all countries

The following requirements are applicable to all countries and regions:

- The length of the power cord set must be at least **1.0 m** (3.3 ft) and no more than **2.0 m** (6.5 ft).
- All power cord sets must be approved by an acceptable accredited agency responsible for evaluation in the country or region where the power cord set will be used.
- The power cord sets must have a minimum current capacity of 10 A and a nominal voltage rating of 125 or 250 V ac, as required by the power system of each country or region.
- The appliance coupler must meet the mechanical configuration of an EN 60 320/IEC 320 Standard Sheet C13 connector for mating with the appliance inlet on the back of the computer.

Requirements for specific countries and regions

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

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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