



Maintenance and Service Guide

HP Chromebook 14 inch

HP Chromebook Plus 14 inch

SUMMARY

This guide provides maintenance information about such topics as spare parts, removal and replacement of parts, security, and backing up.

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

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If your product ships with Windows in S

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To access the latest user guides, go to <http://www.hp.com/support>, and follow the instructions to find your product. Then select **Setup & User Guides**.

Software terms

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

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

Safety warning notice

Reduce the possibility of heat-related injuries or of overheating the computer by following the practices described.

 **WARNING!** To reduce the possibility of heat-related injuries or of overheating the mobile computer, do not place the mobile computer directly on your lap or obstruct the computer air vents. Use the mobile computer 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, 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 computer and AC adapter provided by HP comply with the user-accessible surface temperature limits defined by applicable safety standards.

Important notice about Customer Self-Repair parts

Your computer includes Customer Self-Repair parts and parts that should be accessed only by an authorized service provider.



IMPORTANT: See [Removal and replacement procedures for Customer Self-Repair parts on page 26](#) for details.

Accessing parts described in [Removal and replacement procedures for authorized service provider parts on page 36](#) can damage the computer or void your warranty.

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1 Product description

This table provides detailed product information.



NOTE: For the latest specifications related to your computer, go to <http://www.hp.com/support> and follow the instructions to find your product. Select **Specifications & Accessories**, select **Product information**, and then select the specifications link.

Table 1-1 Product components and their descriptions

Category	Description
Product Name	HP Chromebook™ 14 inch
	Model number: 14a-nk000
	CTO number: 14at-nk000
	HP Chromebook Plus 14 inch
	Model number: 14c-na000
	CTO number: 14ct-na000
Processors	Intel® Core™ 3 N355 (up to 3.9 GHz, 6 MB Intel Smart Cache, 8 cores, 15 W)
	Intel N150 (up to 3.6 GHz, 6 MB Intel Smart Cache, 4 cores, 6 W)
	Intel N250 (up to 3.8 GHz, 6 MB Intel Smart Cache, 4 cores, 6 W)
Graphics	Internal graphics
	Intel UHD Graphics
Display	14.0 in (35.6 cm)
	Widescreen Ultra Extended Graphics Array (WUXGA) (1920 × 1200), ultrawide viewing angle (UWVA), antiglare, sRGB 62.5%, embedded DisplayPort™ (eDP) 1.2 without panel self-refresh (PSR), 300 nits, touch
	WUXGA 1900 x 1200, UWVA, antiglare, antiglare, sRGB 62.5%, eDP 1.2 without PSR, 300 nits
Memory	Onboard, not accessible or upgradeable
	Supports the following configurations:
	• 8 GB, LPDDR5-4800
	• 4 GB, LPDDR5-4800
Primary storage	Embedded MultiMedia Controller (eMMC) 5.0 (onboard)
	64 GB
	32 GB
	Universal Flash Storage (UFS) 3.x (onboard)
	256 GB
	128 GB
	PCIe M.2 2280 solid-state drives (SSD)
	512 GB value, NVMe

Table 1-1 Product components and their descriptions (continued)

Category	Description
	256 GB value, NVMe, Gen3
Audio	Dual speakers
Video	HP True Vision FHD Camera - indicator LED, USB 2.0, FHD BSI sensor, f2.0 (for use in models with an Intel N150/N250, Intel Core 3 N355)
Wireless	Wireless Local Area Network (WLAN)
	Intel Wi-Fi® 6E AX211 + Bluetooth® 5.3, non-vPro
Ports	15 W models
	USB 3.2 Type-C ports (2) support • DisplayPort™ 1.4 out up to 4 K @ 60 Hz and HDMI 2.0 out with adapter • Power delivery (v3.1) • Data transfer • HP Sleep & Charge
	USB 3.2 Type-A port
	Audio-out (headphone)/audio-in (microphone) combo jack
	6 W models
	USB 3.2 Type-C port supports • DisplayPort™ 1.4 out up to 4 K @ 60 Hz and HDMI 2.0 out with adapter • Power delivery (v3.1) • Data transfer • HP Sleep & Charge
	USB 3.2 Type-A port
	Audio-out (headphone)/audio-in (microphone) combo jack
Keyboard/pointing devices	Keyboard with clickpad (backlit or not backlit)
	Full size, island style
	Clickpad requirements
	Clickpad with image sensor
	Multitouch gestures enabled
	Taps enabled as default
	Precision touchpad support
Power requirements	Battery
	41 Whr, 3 cell
	Long life
	Smart AC adapter (USB Type-C®)
	45 W Type-C GaN AC adapter

Table 1-1 Product components and their descriptions (continued)

Category	Description
	Power cord
	C5, conventional, 1.0 m (3.3 ft) power cord with sticker
Security	H1 Secure Microcontroller
	Microphone mute
	Camera privacy door
Operating system	Google Chrome™ AI (Intel Core 3-N355 processor)
	Google Chrome (Intel N250/N150 processor)
Serviceability	End user replaceable parts

2 Components

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

Right

Use the illustration and table to identify the component on the right side of the computer.

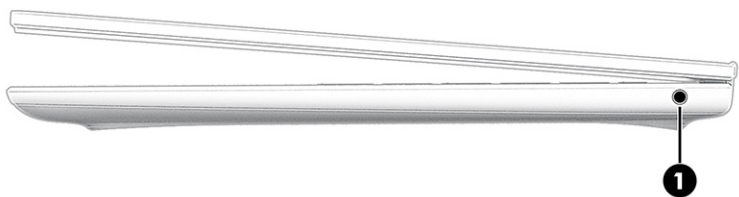


Table 2-1 Right-side component and description

	Component	Description
(1)	 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. WARNING! To reduce the risk of personal injury, adjust the volume before putting on headphones, earbuds, or a headset. For additional safety information, see the <i>Regulatory, Safety, and Environmental Notices</i>. NOTE: When a device is connected to the jack, the computer speakers are disabled.

Left

Use the illustration and table to identify the components on the left side of the computer.

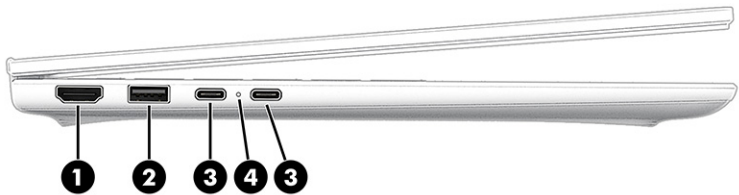


Table 2-2 Left-side components and their descriptions

	Component	Description
(1)	 HDMI port (select products only)	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 charging port	Connects a USB device, provides data transfer, and (for select products) charges small devices when the computer is on or in sleep mode.
(3)	 USB Type-C power connector ports (2*) *Select products only	Connect a USB device, provide data transfer, and charge small devices when the computer is on or in sleep mode. NOTE: Second connector port on select products only. Cables, adapters, or both (purchased separately) might be required.
(4)	 AC adapter and battery light	• White: The AC adapter is connected and the battery is fully charged. • Amber: The AC adapter is connected and the battery is charging. • Blinking amber: The battery has an error. • Off: The battery is not charging.

Display

Use the illustration and table to identify the components on the display.

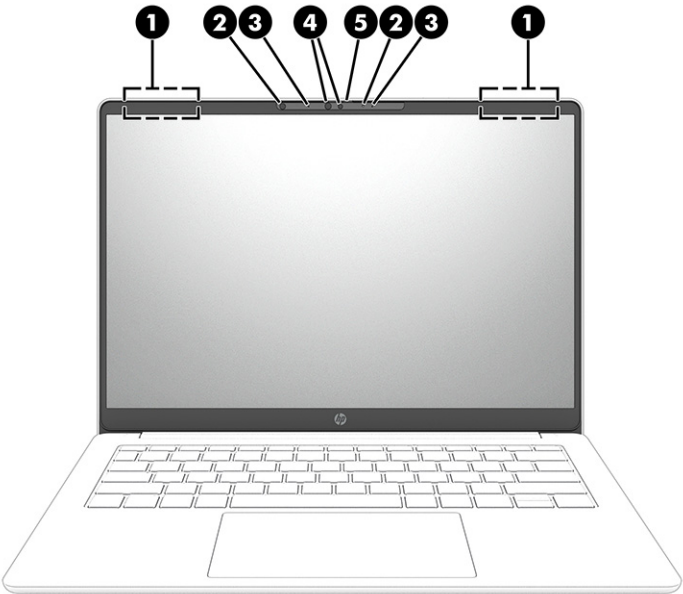


Table 2-3 Display components and their descriptions

	Component	Description
(1)	WLAN antennas* (2)	Send and receive wireless signals to communicate with wireless local area networks (WLANs).
(2)	Camera lights (2)	On (white): The camera is in use. On (amber): The camera is turned off by the switch. Off: The camera is turned off by the software.
(3)	Internal microphones (2)	Record sound.
(4)	Cameras (2)	Allow you to video chat, record video, and record still images. NOTE: Camera functions vary depending on the camera hardware and software installed on your product.
(5)	Manual camera shutter	Physically blocks video and all recorded images.

*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.

Keyboard area

Keyboards can vary by language.

Touchpad

The touchpad settings and components are described here.

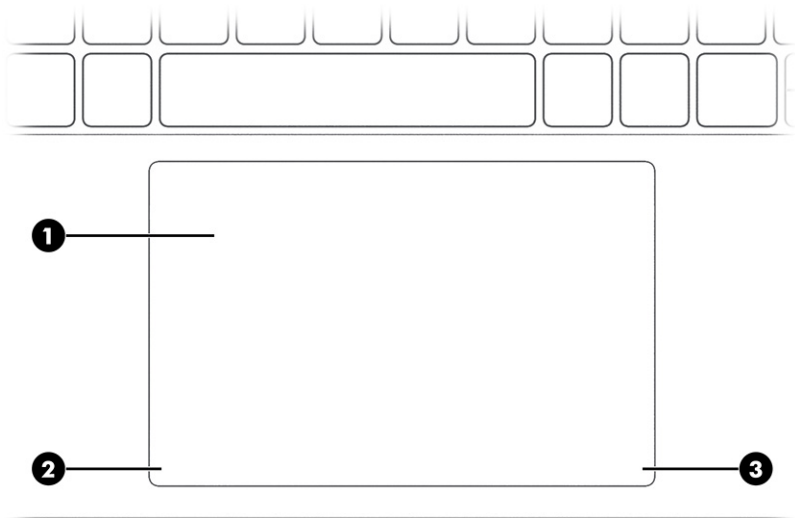


Table 2-4 Touchpad component and description

Component	Description
(1)	Reads your finger gestures to move the pointer or activate items on the screen.
(2)	Left button: Press to click.
(3)	Right button: Press to click.

Special keys

Use the illustration and table to locate the special keys.

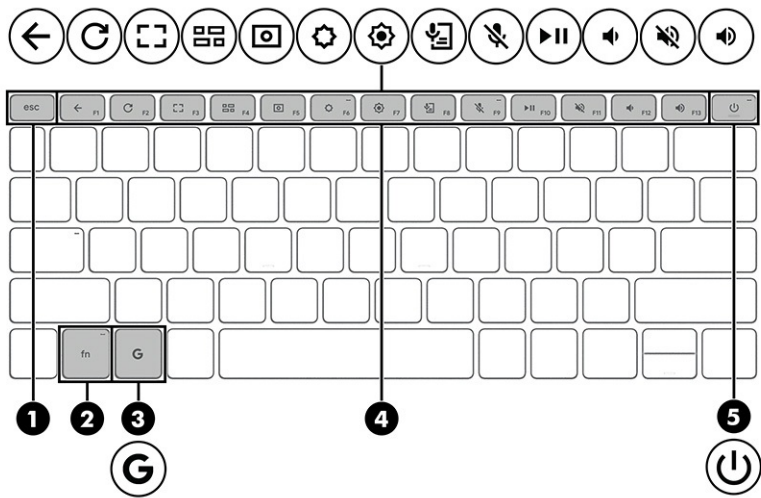


Table 2-5 Special keys and their descriptions

Component	Description
(1) esc key	Activates certain computer functions when pressed in combination with other keys, such as tab or shift .
(2) fn key	Executes frequently used system functions when pressed in combination with another key.
(3) Google search key	Opens Google search.
(4) Action keys	Execute frequently used system functions. NOTE: Exact action keys depends on product.
(5) Power key	- When the computer is off, press the key briefly to turn on the computer. - After system goes to sleep in tablet mode, user will not be able to wake up the system by touching the screen. - With the Power key disabled in tablet mode, flip the hinge to wake up the system.

Top lights

Use the illustration and table to locate the special keys.

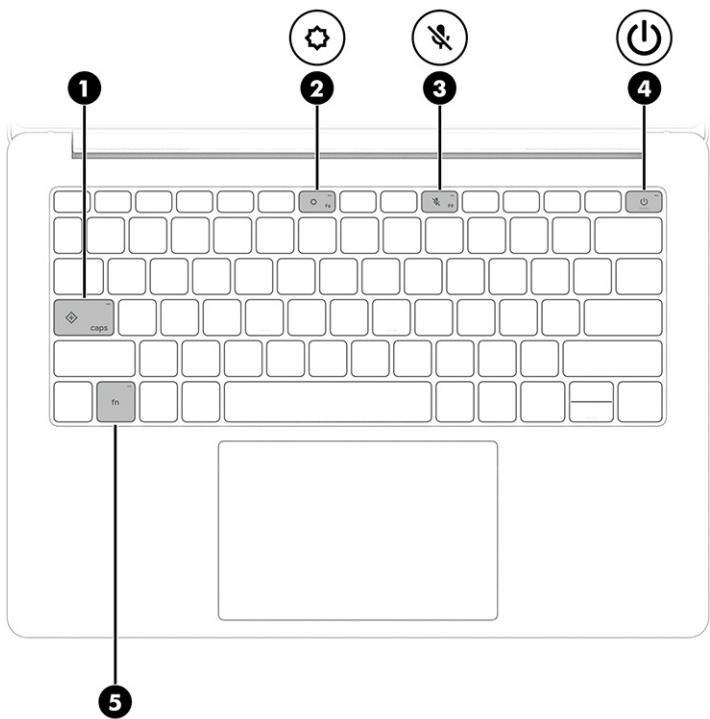


Table 2-6 Top lights and their descriptions

Component	Description
(1) caps lock key	Capital letters locked.
(2) brightness key	Screen set at maximum brightness.
(3) mute key	Microphone muted.
(4) power key	Power on.
NOTE: Exact action keys depends on product.	
(5) fn key	Special function locked on.

Bottom

Use the illustration and table to identify the bottom component.



Table 2-7 Bottom component and description

Component	Description
Vent	Enables airflow to cool internal components. NOTE: The computer fan starts 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 might need when you troubleshoot system problems or travel internationally with the computer. Labels might 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 might 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 following examples. Refer to the illustration that most closely matches the service label on your computer.

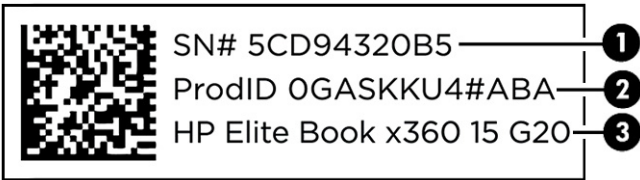


Table 2-8 Service label components

Component	
(1)	Serial number
(2)	Product ID
(3)	HP product name

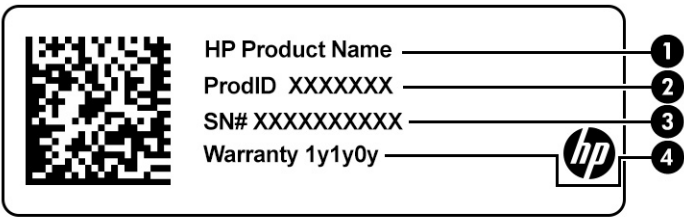


Table 2-9 Service label components

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

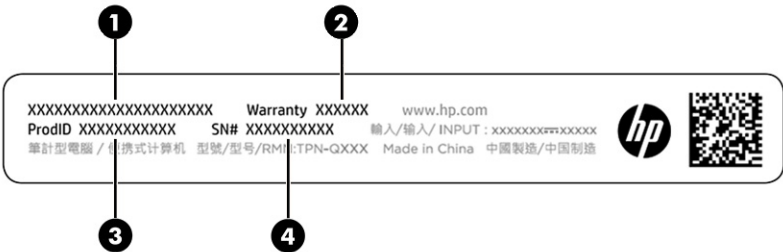


Table 2-10 Service label components

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

- Regulatory labels—Provide regulatory information about the computer.
- Wireless certification labels—Provide information about optional wireless devices and the approval markings for the countries or regions where the devices have been approved for use.

3 Illustrated parts catalog

Use this chapter to determine the spare parts that are available for the computer.

Computer major components

Use this illustration and table to identify the computer major components.

 **NOTE:** HP continually improves and changes product parts. For complete and current information about supported parts for your computer, go to <https://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.

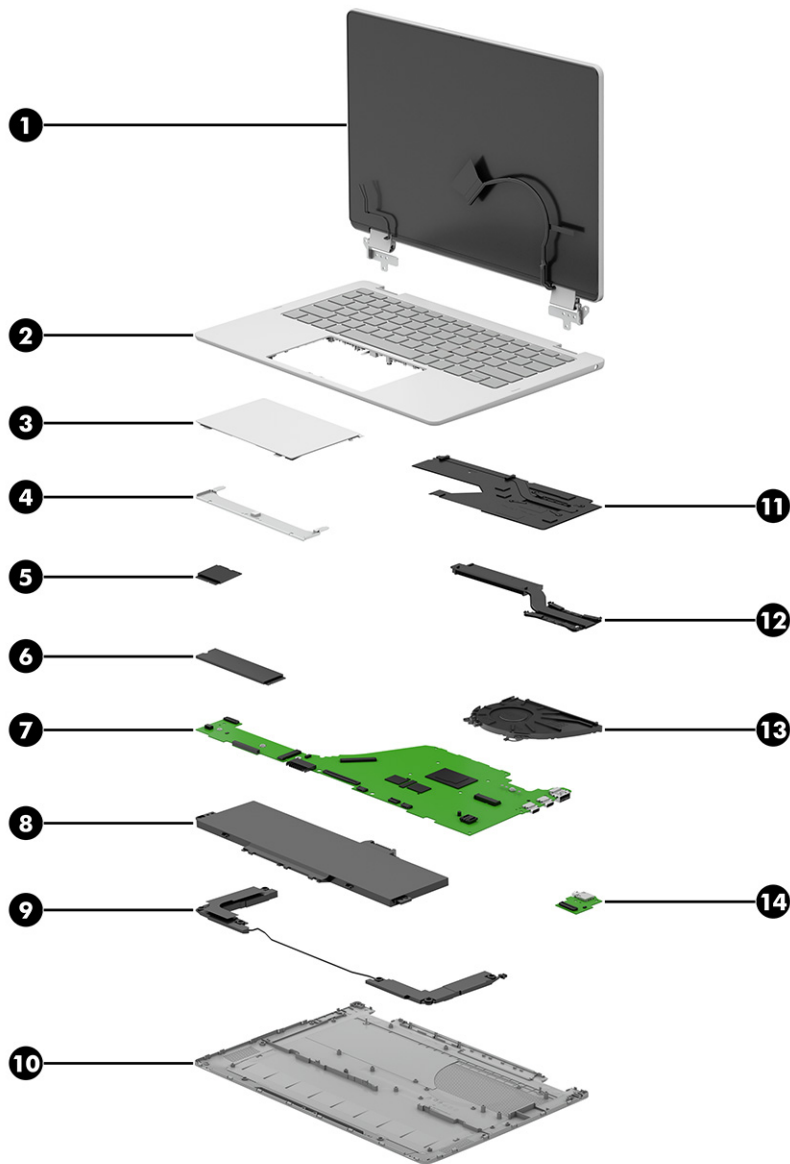


Table 3-1 Computer major component descriptions and part numbers

Item	Component	Spare part number
(1)	Display assembly NOTE: Display spare parts are available as subcomponents, not as whole units. Display subcomponent spare parts are available. For spare part information, see Display assembly subcomponents on page 14 .	not available as a spare part
(2)	Top cover with keyboard NOTE: For a detailed list of country codes, see Keyboard with top cover on page 57 .	
	Aquatic blue top cover, aquatic blue keyboard, not backlit, 6 W	P84805-xx1
	Aloe green top cover, aloe green keyboard, not backlit, 6 W	P84806-xx1
	Glacier silver top cover, canvas gray keyboard, backlit, 6 W	P84807-xx1

Table 3-1 Computer major component descriptions and part numbers (continued)

Item	Component	Spare part number
	Glacier silver top cover, canvas gray keyboard, not backlit, 6 W	P84808-xx1
	Concrete gray top cover, concrete gray keyboard, not backlit, 6 W	P84809-xx1
	Sky blue top cover, iron gray keyboard, backlight, 6 W	P84810-xx1
	Meteor silver top cover, meteor silver keyboard, backlit, 6 W	P84811-xx1
	Glacier silver top cover, canvas gray keyboard, backlit, 15 W	P84812-xx1
	Glacier silver top cover, canvas gray keyboard, not backlit, 15 W	P84813-xx1
	Meteor silver top cover, meteor silver keyboard, backlit, 15 W	P84814-xx1
(3)	Touchpad	xxxxxx-xx1
	Glacier silver	P84742-001
	Meteor silver	P84742-002
	Sky blue	P84742-003
	Aquatic blue	P84742-004
	Aloe green	P84742-005
	Concrete gray	P84742-006
(4)	Touchpad bracket	not available as a spare part
(5)	WLAN module	
	Intel AX211 Wi-Fi 6E + Bluetooth 5.3	P89611-005
(6)	Solid-state drive (SSD)	
	512 GB value, NVMe	P89610-005
	256 GB value, NVMe, Gen3	P93951-001
(7)	System board (includes integrated processor)	
	NOTE: All system board spare part kits include replacement thermal material.	
	Intel Core 3, N355 processor, 8 GB system memory, 256 GB UFS memory	P80707-601
	Intel Core 3, N355 processor, 8 GB system memory, 128 GB UFS memory	P80705-601
	Intel Core 3, N355 processor, 8 GB system memory	P80706-601
	Intel Processor N250, 8 GB system memory, 256 GB UFS memory	P80713-601
	Intel Processor N150, 8 GB system memory, 128 GB UFS memory	P80710-601
	Intel Processor N250, 8 GB system memory, 128 GB UFS memory	P80712-601
	Intel Processor N150, 8 GB system memory, 64 GB eMMC memory	P80714-601
	Intel Processor N250, 4 GB system memory, 128 GB UFS memory	P80711-601
	Intel Processor N150, 4 GB system memory, 128 GB UFS memory	P80708-601
	Intel Processor N150, 4 GB system memory, 64 GB eMMC memory	P80709-601
(8)	Battery (3 cell, 41 Whr)	P92638-001

Table 3-1 Computer major component descriptions and part numbers (continued)

Item	Component	Spare part number
(9)	Speakers	P84822-001
(10)	Bottom cover	
	Glacier silver	P84743-001
	Meteor silver	P84743-002
	Sky blue	P84743-003
	Aquatic blue	P84743-004
	Aloe green	P84743-005
	Concrete gray	P84743-006
(11)	Heat sink, 6 W (includes replacement thermal material)	P84720-001
(12)	Heat sink, 15 W (includes replacement thermal material)	P84303-001
13)	Fan	P80877-001
(14)	Audio jack board	P84821-001

Display assembly subcomponents

Use this illustration and table to identify the display assembly subcomponents.

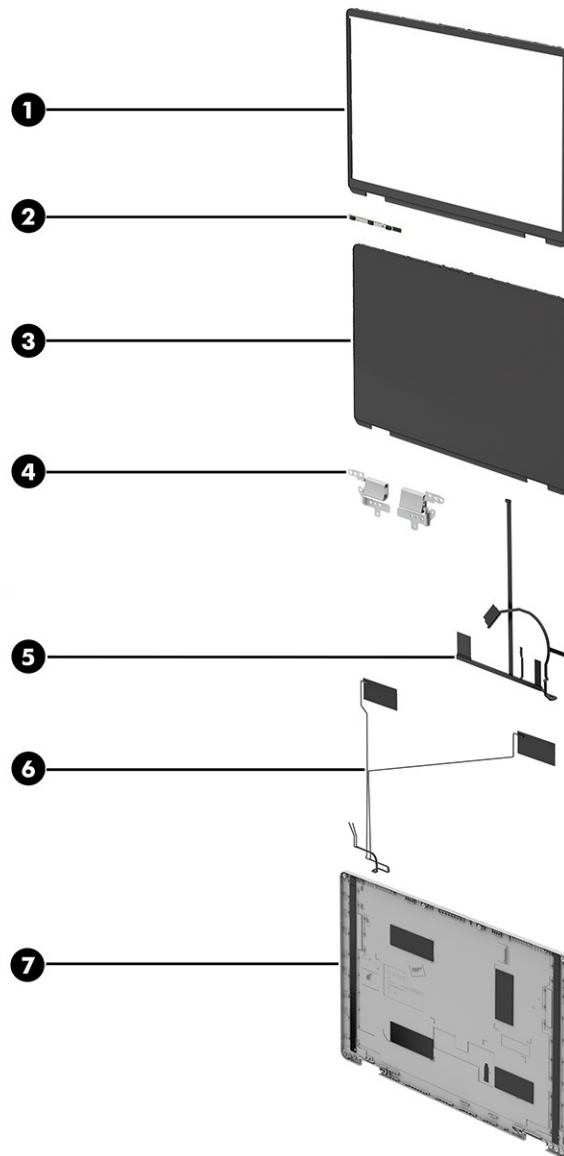


Table 3-2 Display component descriptions and part numbers

Item	Component	Spare part number
(1)	Display bezel	xxxxxx-001
	Glacier silver	P84741-001
	Meteor silver	P84741-002
	Sky blue	P84741-003
	Aquatic blue	P84741-004
	Aloe green	P84741-005
	Concrete gray	P84741-006
(2)	Camera module	P99212-001

Table 3-2 Display component descriptions and part numbers (continued)

Item	Component	Spare part number
(3)	Display panel	
	For use in models with a touch screen	P84827-001
	For use in models without a touch screen	P84826-001
(4)	Hinges	P80884-001
(5)	Display cable (included with display panel spare part)	
(6)	WLAN antennas and cables	P89612-005
(7)	Display back cover	
	Glacier silver, 6 W, with antenna	P84740-001
	Glacier silver, 15 W, with antenna	P84740-002
	Meteor silver, 6 W, with antenna	P84740-003
	Meteor silver, 15 W, with antenna	P84740-004
	Sky blue, 6 W, with antenna	P84740-005
	Aquatic blue, 6 W, with antenna	P84740-006
	Aloe green, 6 W, with antenna	P84740-007
	Concrete gray, 6 W, with antenna	P84740-008

Miscellaneous parts

To identify the miscellaneous parts, use this table.

Table 3-3 Miscellaneous part descriptions and part numbers

Component	Spare part number
AC adapters	
AC adapter (45 W, GaN USB Type-C, straight)	P38778-001
Screw Kit	P84825-001
HP 14 Reversible Geo Sleeve	L67189-001
HP 220 Wireless Mouse	N15023-002
Cable kit, LCD	P84823-001
Cable kit and antenna	P84824-001
Power cords (C5, 1.0 m)	
Australia	L19358-001
Denmark	L19360-001
Europe	L19361-001
Japan	L19365-001
North America	L19367-001

Table 3-3 Miscellaneous part descriptions and part numbers (continued)

Component	Spare part number
Switzerland	L19370-001
The United Kingdom	L19373-001

4 Removal and replacement procedures preliminary requirements

Use this information to properly prepare to disassemble and reassemble the computer.

Tools required

You need the following tools to complete the removal and replacement procedures.

- Tweezers
- Nonconductive, nonmarking pry tool
- Magnetic Phillips P1 screwdriver

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

Using excessive force during disassembly and reassembly can damage plastic parts.

Cables and connectors

Handle cables with extreme care to avoid damage.



IMPORTANT: 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.

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 so that they cannot be caught or snagged as you remove or replace parts. Handle flex cables with extreme care; these cables tear easily.

Drive handling

Note the following guidelines when handling drives.



IMPORTANT: Drives are fragile components. Handle them 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 or sleep mode, 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 2.54 cm (1 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."
-

Electrostatic discharge information

A sudden discharge of static electricity from your finger or other conductor can destroy static-sensitive devices or microcircuitry. Often the spark is neither felt nor heard, but damage occurs. An electronic device exposed to electrostatic discharge (ESD) might not appear to be affected at all and can work perfectly throughout a normal cycle. The device might function normally for a while, but it has been degraded in the internal layers, reducing its life expectancy.

Networks built into many integrated circuits provide some protection, but in many cases, the discharge contains enough power to alter device parameters or melt silicon junctions.



IMPORTANT: To prevent damage to the device when you remove or install 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 [Personal grounding methods and equipment on page 20](#).
 - 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.
-

Generating static electricity

Follow these static electricity guidelines.

- Different activities generate different amounts of static electricity.
- Static electricity increases as humidity decreases.

Table 4-1 Static electricity occurrence based on activity and humidity

Event	55% relative humidity	40% relative humidity	10% relative humidity
Walking across carpet	7500 V	15,000 V	35,000 V
Walking across vinyl floor	3000 V	5000 V	12,000 V
Motions of bench worker	400 V	800 V	6000 V
Removing dual in-line packages (DIPs) from plastic tube	400 V	700 V	2000 V
Removing DIPs from vinyl tray	2000 V	4000 V	11,500 V
Removing DIPs from polystyrene foam	3500 V	5000 V	14,500 V
Removing bubble pack from PCB (printed circuit board)	7000 V	20,000 V	26,500 V
Packing PCBs in foam-lined box	5000 V	11,000 V	21,000 V



NOTE: Multiple electric components can be packaged together in plastic tubes, trays, or polystyrene foam.



NOTE: As little as 700 V of static electricity can degrade a product.

Preventing electrostatic damage to equipment

Many electronic components are sensitive to ESD. Circuitry design and structure determine the degree of sensitivity.

The following packaging and grounding precautions are necessary to prevent static electricity damage to electronic components:

- To avoid hand contact, transport products in static-safe containers such as tubes, bags, or boxes.
- Protect all electrostatic parts and assemblies with conductive or approved containers or packaging.
- Keep electrostatic-sensitive parts in their containers until they arrive at static-free stations.
- Place items on a grounded surface before removing them from their container.
- Always be properly grounded when touching a sensitive component or assembly.
- Avoid contact with pins, leads, or circuitry.
- Place reusable electrostatic-sensitive parts from assemblies in protective packaging or conductive foam.

Personal grounding methods and equipment

Using certain equipment can prevent static electricity damage to electronic components.

- **Wrist straps** are flexible straps with a maximum of $1\text{ M}\Omega \pm 10\%$ resistance in the ground cords. To provide proper ground, wear a strap snug against bare skin. Verify that the ground cord is connected and fits snugly into the banana plug connector on the grounding mat or workstation.
- You can use **heel straps, toe straps, and boot straps** at standing workstations. These straps are compatible with most types of shoes or boots. On conductive floors or dissipative floor mats, use them on both feet with a maximum of $1\text{ M}\Omega \pm 10\%$ resistance between the operator and ground.

Table 4-2 Static shielding protection levels

Method	Voltage
Antistatic plastic	1500
Carbon-loaded plastic	7500
Metalized laminate	15,000

Grounding the work area

To prevent static damage at the work area, follow these precautions.

- Cover the work surface with approved static-dissipative material.
- Use a wrist strap connected to a properly grounded work surface and use properly grounded tools and equipment.
- Use static-dissipative mats, foot straps, or air ionizers to give added protection.
- Handle electrostatic sensitive components, parts, and assemblies by the case or PCB laminate. Handle them only at static-free work areas.
- Turn off power and input signals before inserting and removing connectors or test equipment.
- Use fixtures made of static-safe materials when fixtures must directly contact dissipative surfaces.
- Keep the work area free of nonconductive materials, such as ordinary plastic assembly aids and polystyrene foam.
- Use conductive field service tools, such as cutters, screwdrivers, and vacuums.
- Avoid contact with pins, leads, or circuitry.

Recommended materials and equipment

HP recommends certain materials and equipment to prevent static electricity.

- Antistatic tape
- Antistatic smocks, aprons, or sleeve protectors
- Conductive bins and other assembly or soldering aids
- Conductive foam
- Conductive tabletop workstations with ground cord of $1\text{ M}\Omega \pm 10\%$ resistance
- Static-dissipative table or floor mats with hard tie to ground
- Field service kits
- Static awareness labels
- Wrist straps and footwear straps providing $1\text{ M}\Omega \pm 10\%$ resistance
- Material handling packages
- Conductive plastic bags

- Conductive plastic tubes
- Conductive tote boxes
- Opaque shielding bags
- Transparent metallized shielding bags
- Transparent shielding tubes

Cleaning your computer

Cleaning your computer regularly removes dirt and debris so that your device continues to operate at its best. Use the following information to safely clean the external surfaces of your computer.

Enabling HP Easy Clean (select products only)

HP Easy Clean helps you to avoid accidental input while you clean the computer surfaces. This software disables devices such as the keyboard, touch screen, and touchpad for a preset amount of time so that you can clean all computer surfaces.

1. Start HP Easy Clean in one of the following ways:
 - Select the **Start** menu, and then select **HP Easy Clean**.
 - Select the **HP Easy Clean** icon in the taskbar.
 - Select **Start**, and then select the **HP Easy Clean** tile.
2. Now that your device is disabled for a short period, see [Removing dirt and debris from your computer on page 22](#) for the recommended steps to clean the high-touch, external surfaces on your computer. After you remove the dirt and debris, you can also clean the surfaces with a disinfectant. See [Cleaning your computer with a disinfectant on page 23](#) for guidelines to help prevent the spread of harmful bacteria and viruses.

Removing dirt and debris from your computer

Here are the recommended steps to clean dirt and debris from your computer.

For computers with wood veneer, see [Caring for wood veneer \(select products only\) on page 24](#).

1. Wear disposable gloves made of latex (or nitrile gloves, if you are latex-sensitive) when cleaning the surfaces.
2. Turn off your device and unplug the power cord and other connected external devices. Remove any installed batteries from items such as wireless keyboards.

 **CAUTION:** To prevent electric shock or damage to components, never clean a product while it is turned on or plugged in.

3. Moisten a microfiber cloth with water. The cloth should be moist, but not dripping wet.

 **IMPORTANT:** To avoid damaging the surface, avoid abrasive cloths, towels, and paper towels.

4. Wipe the exterior of the product gently with the moistened cloth.

 **IMPORTANT:** Keep liquids away from the product. Avoid getting moisture in any openings. If liquid makes its way inside your HP product, it can cause damage to the product. Do not spray liquids directly on the product. Do not use aerosol sprays, solvents, abrasives, or cleaners containing hydrogen peroxide or bleach that might damage the finish.

5. Start with the display (if applicable). Wipe carefully in one direction, and move from the top of the display to the bottom. Finish with any flexible cables, like power cord, keyboard cable, and USB cables.
6. Be sure that surfaces have completely air-dried before turning the device on after cleaning.
7. Discard the gloves after each cleaning. Clean your hands immediately after you remove the gloves.

See [Cleaning your computer with a disinfectant on page 23](#) for recommended steps to clean the high-touch, external surfaces on your computer to help prevent the spread of harmful bacteria and viruses.

Cleaning your computer with a disinfectant

The World Health Organization (WHO) recommends cleaning surfaces, followed by disinfection, as a best practice for preventing the spread of viral respiratory illnesses and harmful bacteria.

After cleaning the external surfaces of your computer using the steps in [Removing dirt and debris from your computer on page 22](#), [Caring for wood veneer \(select products only\) on page 24](#), or both, you might also choose to clean the surfaces with a disinfectant. A disinfectant that is within HP's cleaning guidelines is an alcohol solution consisting of 70% isopropyl alcohol and 30% water. This solution is also known as rubbing alcohol and is sold in most stores.

Follow these steps when disinfecting high-touch, external surfaces on your computer:

1. Wear disposable gloves made of latex (or nitrile gloves, if you are latex-sensitive) when cleaning the surfaces.
2. Turn off your device and unplug the power cord and other connected external devices. Remove any installed batteries from items such as wireless keyboards.

 **CAUTION:** To prevent electric shock or damage to components, never clean a product while it is turned on or plugged in.

3. Moisten a microfiber cloth with a mixture of 70% isopropyl alcohol and 30% water. The cloth should be moist, but not dripping wet.

 **CAUTION:** Do not use any of the following chemicals or any solutions that contain them, including spray-based surface cleaners: bleach, peroxides (including hydrogen peroxide), acetone, ammonia, ethyl alcohol, methylene chloride, or any petroleum-based materials, such as gasoline, paint thinner, benzene, or toluene.

 **IMPORTANT:** To avoid damaging the surface, avoid abrasive cloths, towels, and paper towels.

4. Wipe the exterior of the product gently with the moistened cloth.

 **IMPORTANT:** Keep liquids away from the product. Avoid getting moisture in any openings. If liquid makes its way inside your HP product, it can cause damage to the product. Do not spray liquids directly on the product. Do not use aerosol sprays, solvents, abrasives, or cleaners containing hydrogen peroxide or bleach that might damage the finish.

5. Start with the display (if applicable). Wipe carefully in one direction, and move from the top of the display to the bottom. Finish with any flexible cables, like power cord, keyboard cable, and USB cables.
6. Be sure that surfaces have completely air-dried before turning the device on after cleaning.
7. Discard the gloves after each cleaning. Clean your hands immediately after you remove the gloves.

Caring for wood veneer (select products only)

Your product might feature high-quality wood veneer. As with all natural wood products, proper care is important for best results over the life of the product. Because of the nature of natural wood, you might see unique variations in the grain pattern or subtle variations in color, which are normal.

- Clean the wood with a dry, static-free microfiber cloth or chamois.
- Avoid cleaning products containing substances such as ammonia, methylene chloride, acetone, turpentine, or other petroleum-based solvents.
- Do not expose the wood to sun or moisture for long periods of time.
- If the wood becomes wet, dry it by dabbing with an absorbent, lint-free cloth.
- Avoid contact with any substance that might dye or discolor the wood.
- Avoid contact with sharp objects or rough surfaces that might scratch the wood.

See [Removing dirt and debris from your computer on page 22](#) for the recommended steps to clean the high-touch, external surfaces on your computer. After you remove the dirt and debris, you can also clean the surfaces with a disinfectant. See [Cleaning your computer with a disinfectant on page 23](#) for sanitizing guidelines to help prevent the spread of harmful bacteria and viruses.

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.

Accessing support information

Use this information to find the HP support that you need.

Table 4-3 Support information locations

Service consideration	Path to access information
Records of reported failure incidents stored on the computer	Windows®: Pre-operating system failures are logged in the BIOS Event Log. To view the BIOS Event Log: 1. Press the power button. 2. Immediately and repeatedly press esc when the power button light turns white. NOTE: If you do not press esc at the appropriate time, you must restart the computer and again repeatedly press esc when the power button light turns white to access the utility. 3. Press f10 to enter the BIOS setup. 4. Complete one of these tasks: • (On commercial products) Under the Main tab, select BIOS event log, and then select View BIOS Event Log. • (On consumer products) Under the Main tab, select System Log. Post-operating system failures are logged in the Event Viewer. 1. Turn on the computer and allow the operating system to open. 2. Select the search icon  in the taskbar. 3. Type <code>Event Viewer</code>, and then press enter. 4. Select the log from the left panel. Details display in the right panel. ChromeOS™: 1. Go to support.google.com/chrome. 2. Search <code>collect Chrome device logs</code>.
Technical bulletins and alerts	To find technical bulletins, alerts, guides, and whitepapers: 1. Go to www.hp.com/support. 2. Follow the instructions to find your product. 3. Select Bulletins and Alerts to view technical bulletins.
Repair professionals	To locate repair professionals: 1. Go to www.hp.com. 2. Select Authorized service providers. 3. Select your location.
Component and diagnosis information, failure detection, and required action	To locate diagnosis information and actions: 1. Go to http://www.hp.com/go/techcenter/pcdiags. 2. Select the issue you want to diagnose.

5 Removal and replacement procedures for Customer Self-Repair parts

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

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

 **NOTE:** The [HP Support YouTube Channel](#) (in English) has videos that provide step-by-step removal and replacement instructions for many common parts and models.

Component replacement procedures

Use these procedures to remove and replace computer components.

 **NOTE:** Details about your computer, including model, serial number, product key, and length of warranty, are on the service tag at the bottom of your computer.

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

Make special note of each screw size and location during removal and replacement.

Preparation for disassembly

Use these procedures to remove and replace computer components.

For initial safety procedures, see [Removal and replacement procedures preliminary requirements on page 18](#).

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

Bottom cover

Use these procedures and illustrations to remove the bottom cover.

Table 5-1 Bottom cover descriptions and part numbers

Description	Spare part number
Glacier silver	P84743-001
Meteor silver	P84743-002
Sky blue	P84743-003

Table 5-1 Bottom cover descriptions and part numbers (continued)

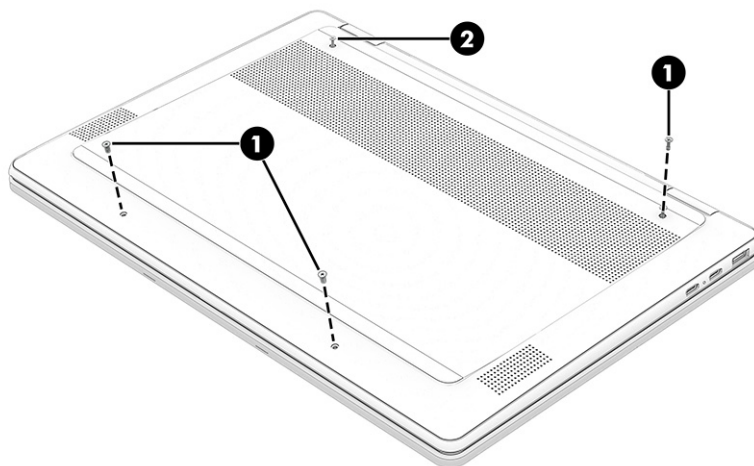
Description	Spare part number
Aquatic blue	P84743-004
Aloe green	P84743-005
Concrete gray	P84743-006

Before removing the bottom cover, prepare the computer for disassembly (see [Preparation for disassembly on page 26](#)).

Remove the bottom cover:

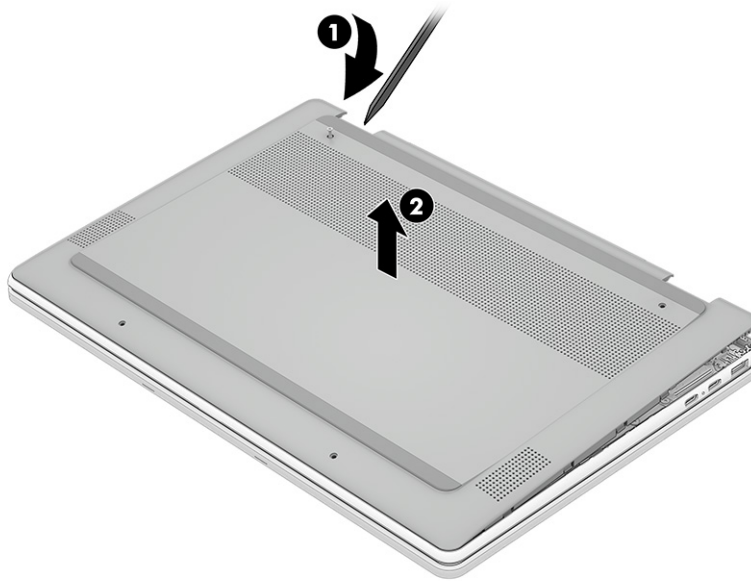
1. Remove the three Phillips M2.0 × 4.5 screws (1) and loosen the one captive Phillips M2.5 × 8.5 screw (2) that secures the bottom cover to the computer.

 **NOTE:** The bottom cover includes a captive (not removable) screw that causes the cover to pop up when you loosen the screw. **After the cover pops up, do not continue to loosen the captive screw.**



2. Use a nonmarking, nonconductive tool (1) to release the edges of the bottom cover from the computer.

3. Remove the bottom cover (2) from the computer.



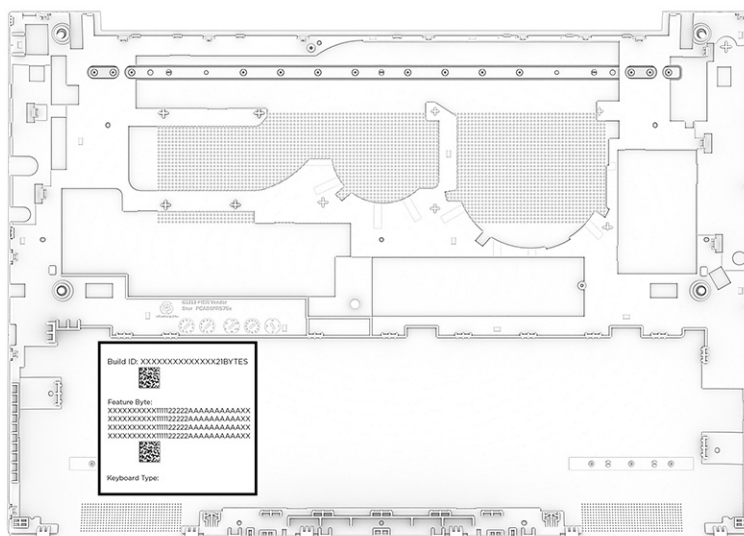
Reverse the removal procedures to replace the bottom cover.

When replacing the bottom cover, remove the Feature Byte label from the inside of the old bottom cover and place it on the inside of the new bottom cover. Be sure to keep this label with the computer, because the label is required for any future repairs.

You can locate product labels:

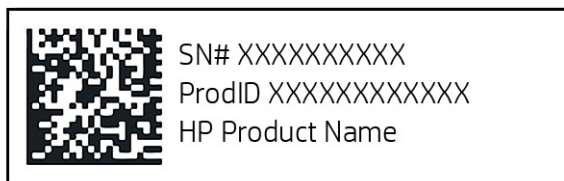
- Laser etched on the old bottom cover.
- In HP System Information by pressing **fn + esc** when you turn on the computer.

 **NOTE:** Bottom cover appearance might vary.

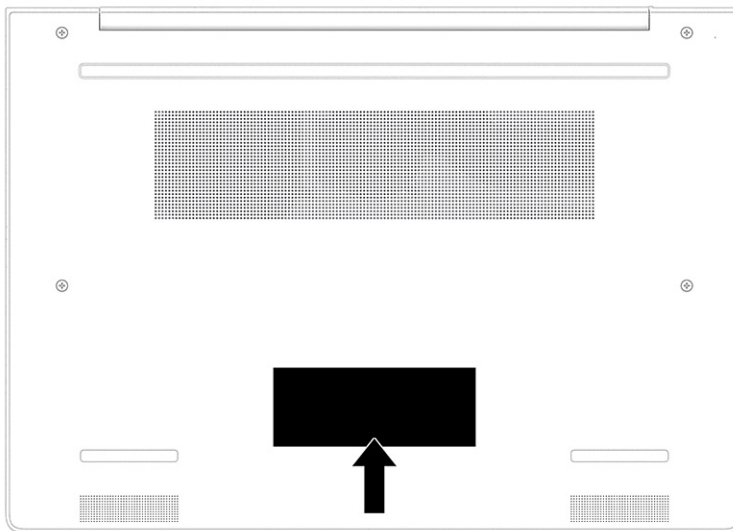


Hand write the product information onto the label of the new bottom cover. Use a ballpoint pen or marker to avoid smudging.

Example of label information



New bottom cover label location



Battery

The battery removal procedure differs depending on whether you are removing and replacing the existing battery or installing a new battery. To install a new battery, you must use a revive kit.

- To remove and replace the existing battery, see [Removing and reinstalling the same battery on page 29](#).
- To install a new battery, see [Installing a new battery on page 31](#).

Removing and reinstalling the same battery

Use this procedure and illustration to remove the battery.

⚠ WARNING! To avoid personal injury and damage to the product:

- Do *not* puncture, twist, or crack the battery.
- Do *not* cause an external puncture or rupture to the battery, which can cause a short inside the battery that can result in battery thermal runaway.

- Do *not* handle or touch the battery enclosure with sharp objects such as tweezers or pliers, which might puncture the battery.
- Do *not* compress or squeeze the battery case with tools or heavy objects stacked on top of the case. These actions can apply undue force on the battery.
- Do *not* touch the connectors with any metallic surface or object, such as metal tools, screws, or coins, which can cause shorting across the connectors.

For additional battery information, see the *Regulatory, Safety, and Environmental Notices*. To access this guide, select the **Search** icon in the taskbar, type **HP Documentation** in the search box, and then select **HP Documentation**.

Before removing the battery, follow these steps:

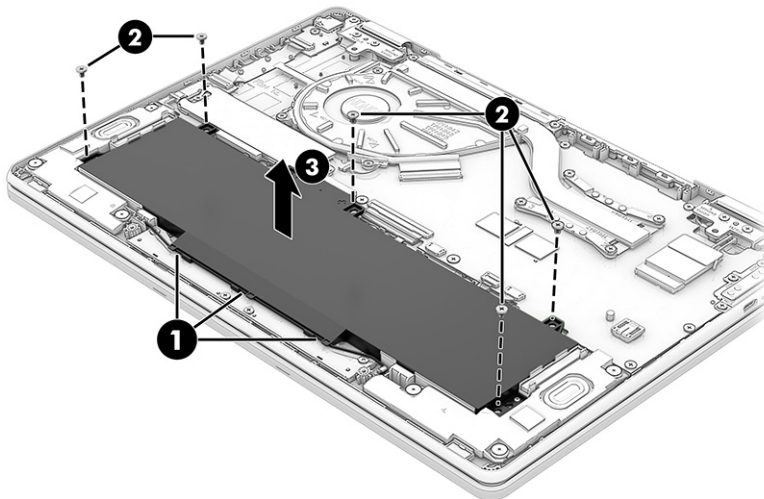
1. Prepare the computer for disassembly (see [Preparation for disassembly on page 26](#)).
2. Remove the bottom cover (see [Bottom cover on page 26](#)).

⚠ WARNING! To reduce potential safety issues, use only the user-replaceable battery provided with the computer, a replacement battery provided by HP, or a compatible battery purchased from HP.

📌 IMPORTANT: Removing a battery that is the sole power source for the computer can cause loss of information. To prevent loss of information, save your work or shut down the computer through Windows before you remove the battery.

Remove the battery:

1. Remove the speaker cable **(1)** from the channel on the bottom of the battery.
2. Remove the five Phillips M2.0 × 4.0 screws **(2)** that secure the battery to the computer.
3. Remove the battery from the computer **(3)** by lifting it at an angle from the top of the battery, and then sliding it out.



Reverse this procedure to install the battery.



NOTE: When reinstalling the battery, be sure to completely reassemble the computer and plug in the AC adapter before turning the computer on.

Installing a new battery

Use these procedures and illustrations to install the battery. You must use a revive kit to remove the old battery and install a new one. The revive kit includes an empty containment tray and a containment tray with a battery preinstalled.

Table 5-2 Battery description and part number

Description	Spare part number
3 cell, 41 Whr	P92638-001

Before starting this replacement procedure:

- Ensure other individuals are sufficiently clear of your workspace.
- Ensure your workspace is clear of any flammable material such as paper or oils.
- Locate the nearest ABC dry chemical fire extinguisher for use in an emergency.



WARNING! This procedure requires removing the battery or disconnecting the battery cable. Use care to avoid bending, twisting, or puncturing the battery regardless of its condition. Failure to follow this replacement guide or to use HP recommended tools might damage the system and/or cause a safety hazard.

- Do *not* remove the battery from the containment tray.
- Do *not* handle or touch the battery enclosure with sharp objects such as tweezers or pliers, which might puncture the battery.
- Do *not* touch the connectors with any metallic surface or object, such as metal tools, screws, or coins, which can cause shorting across the connectors.

Should a part become stuck or difficult to remove when opening a unit where a swollen battery is suspected, or if the battery becomes stuck in the unit, stop and contact HP Support for assistance. Do not try to remove a battery by force.



NOTE: Screw locations, latch locations, and internal components might vary.

Before removing the battery, follow these steps:

1. Prepare the computer for disassembly (see [Preparation for disassembly on page 26](#)).
2. Remove the bottom cover (see [Bottom cover on page 26](#)).

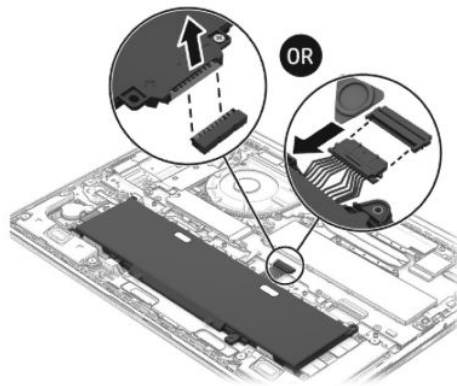


WARNING! To reduce potential safety issues, use only the user-replaceable battery provided with the computer, a replacement battery provided by HP, or a compatible battery purchased from HP.



IMPORTANT: Removing a battery that is the sole power source for the computer can cause loss of information. To prevent loss of information, save your work or shut down the computer through Windows before you remove the battery.

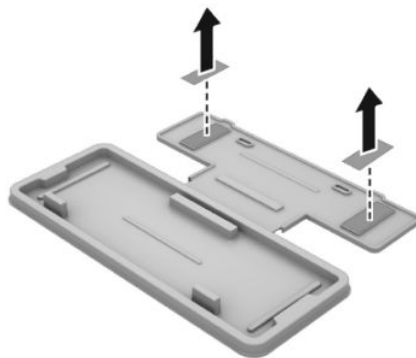
1. Remove the battery using the revive kit:
 - a. Disconnect the battery cable from the system board. The connector location might vary.



- b. Open the empty battery containment tray.

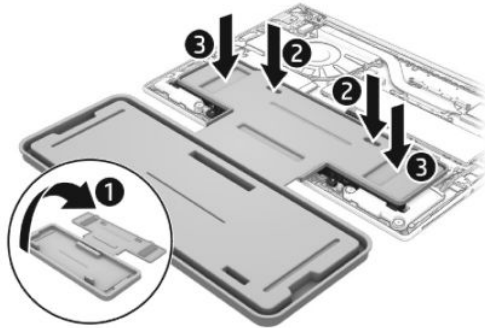


- c. Remove the paper backing layer from the adhesive on the tray.

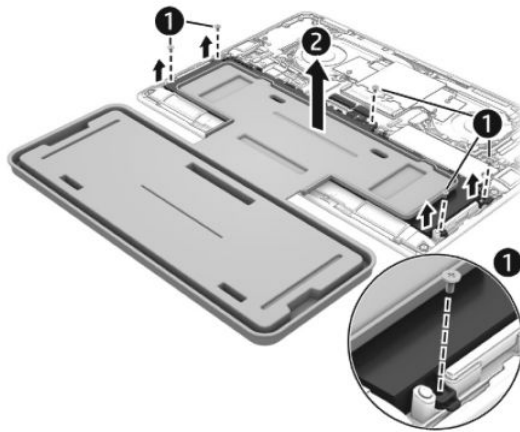


- d. Turn the tray (1) over so that the adhesive is facing down.

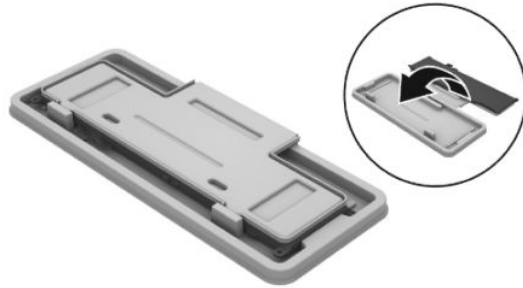
- e. Place the tray **(2)** centered on the battery.
- f. Press down on the indentations on the tray **(3)** to adhere it to the battery.



- g. Remove the Phillips screws **(1)** that secure the battery to the computer. Number of screws and screw locations might vary.
- h. Lift the top of the tray **(2)** to remove the battery from the computer.

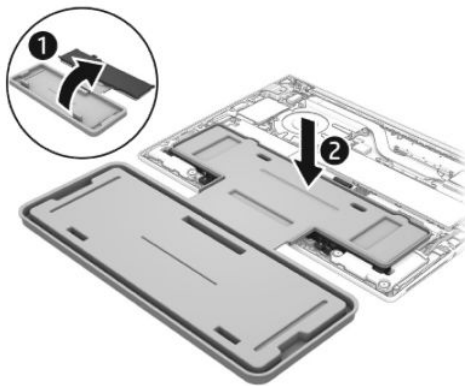


- i. Rotate the battery up and over into the cavity of the containment tray.



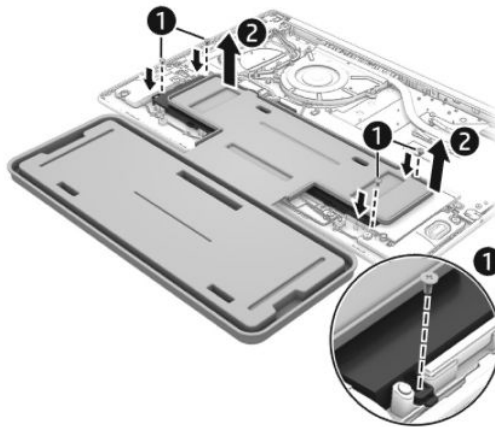
NOTE: Please recycle responsibly. For more information about recycling programs, see the HP website at <http://www.hp.com/recycle>.

2. Install the battery using the revive kit:
 - a. Open the containment tray that includes the new battery.
 - b. Turn the tray (1) over so the battery is facing downward, and then insert the battery (2) into the computer. Adhesive secures the battery to the tray.

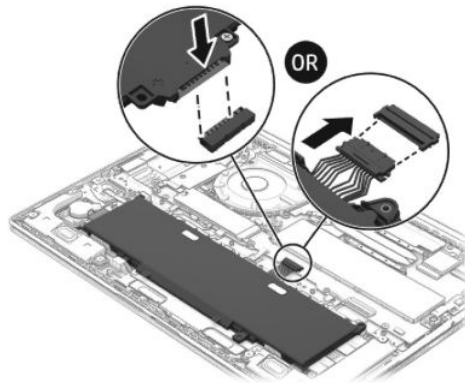


- c. Install the Phillips screws (1) to secure the battery. Number of screws and screw locations might vary.

- d. Lift the containment tray (2) off the battery.



- e. Connect the battery cable to the system board. The connector location might vary.



NOTE: When replacing the battery, be sure to completely reassemble the computer and plug in the AC adapter before turning the computer on.

6 Removal and replacement procedures for authorized service provider parts

This chapter provides removal and replacement procedures for authorized service provider parts.

 **IMPORTANT:** Only an authorized service provider should access the components described in this chapter. Accessing these parts can damage the computer or void the warranty.

 **NOTE:** Details about your computer, including model, serial number, product key, and length of warranty, are on the service tag at the bottom of your computer.

 **NOTE:** The [HP Support YouTube Channel](#) (in English) has videos that provide step-by-step removal and replacement instructions for many common parts and models.

Component replacement procedures

Use the procedures described in this section to remove and replace computer components.

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

Make special note of each screw size and location during removal and replacement.

Speakers

Use this procedure and illustration to remove the speakers.

Table 6-1 Speaker description and part number

Description	Spare part number
Speaker kit	P84822-001

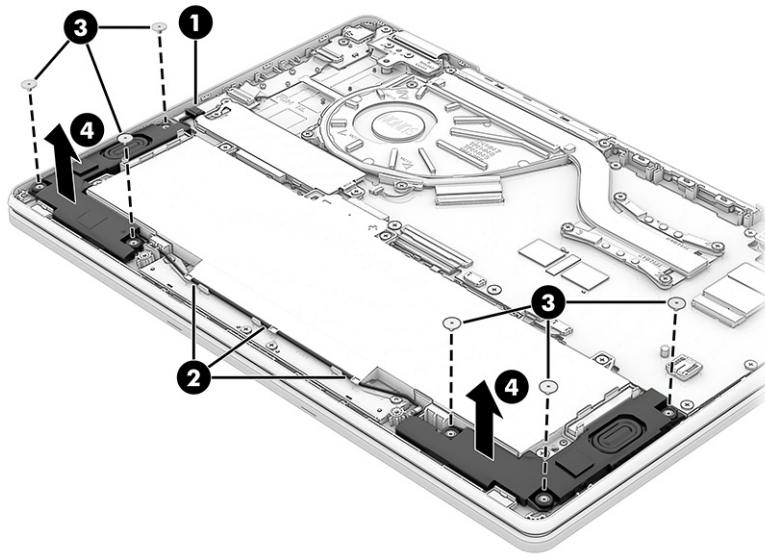
Before removing the speakers, follow these steps:

1. Prepare the computer for disassembly (see [Preparation for disassembly on page 26](#)).
2. Remove the bottom cover (see [Bottom cover on page 26](#)).
3. Remove the battery (see [Battery on page 29](#)).

Remove the speakers:

1. Disconnect the speaker cable **(1)** from the system board.
2. Remove the speaker cable **(2)** from the routing channel on the battery.
3. Remove the three Phillips M2.0 × 4.0 screws **(3)** that secure each speaker to the computer.

4. Remove the speakers (4) from the computer.



Reverse this procedure to install the speakers.

Fan (15 W model only)

Use this procedure and illustration to remove the fan.

Table 6-2 Fan description and part number

Description	Spare part number
Fan assembly	P80877-001

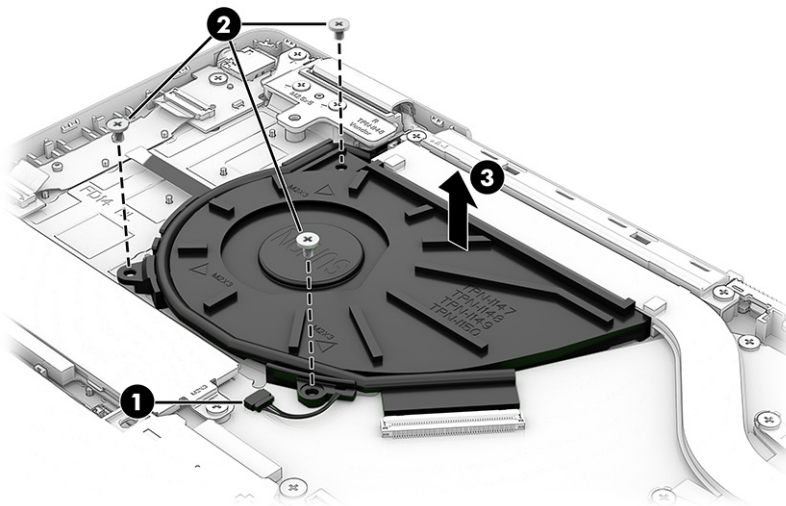
Before removing the fan, follow these steps:

1. Prepare the computer for disassembly (see [Preparation for disassembly on page 26](#)).
2. Remove the bottom cover (see [Bottom cover on page 26](#)).
3. Remove the battery (see [Battery on page 29](#)).

Remove the fan assembly:

1. Disconnect the fan cable (1) from the system board.

2. Remove the three Phillips M2.0 × 5.0 screws (2) that secure the fan to the computer, and then remove the fan (3) from the computer.



Reverse this procedure to install the fan.

WLAN module

Use this procedure and illustration to install the WLAN module.

Table 6-3 WLAN module descriptions and part numbers

Description	Spare part number
Intel AX211 Wi-Fi 6E + Bluetooth 5.3	P89611-005

 **IMPORTANT:** 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:

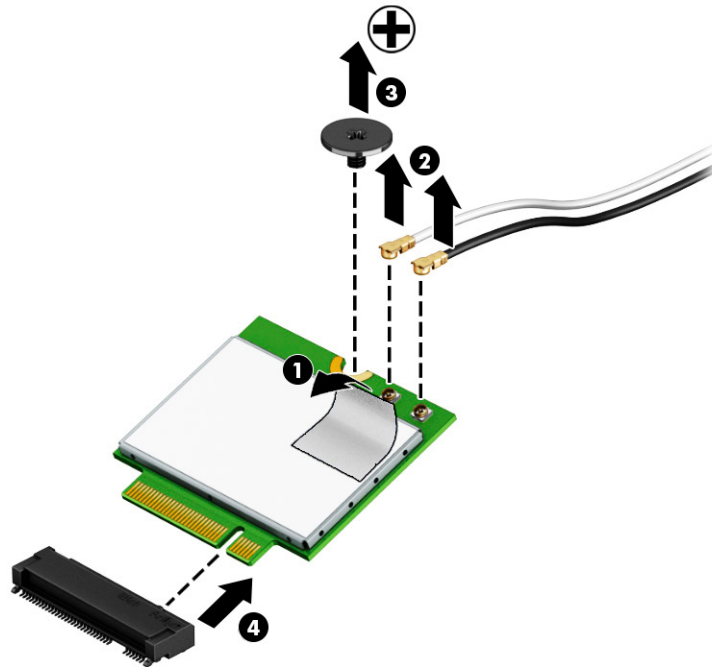
1. Prepare the computer for disassembly (see [Preparation for disassembly on page 26](#)).
2. Remove the bottom cover (see [Bottom cover on page 26](#)).
3. Remove the battery (see [Battery on page 29](#)).

Remove the WLAN module:

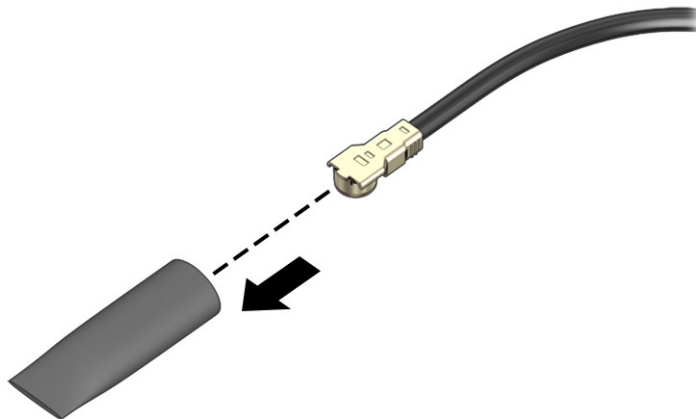
1. Remove the tape (1) covering the cable connectors.
2. Carefully disconnect the two antenna cables (2) from the module.

3. Remove the Phillips M2.0 × 2.5 screw (3), and then remove the WLAN module (4).

 **NOTE:** Models have either one or two WLAN antennas. On models with two antennas, the #1 white WLAN antenna cable connects to the WLAN module #1 Main terminal. The #2 black WLAN antenna cable connects to the WLAN module #1 Aux terminal.



4. If the WLAN antennas are not connected to the terminals on the WLAN module, install a protective sleeve on the antenna connectors, as shown in the following illustration.



Reverse this procedure to install the WLAN module.

Heat sink (15 W)

Use these procedures and illustrations to remove the heat sink.

Table 6-4 Heat sink descriptions and part numbers

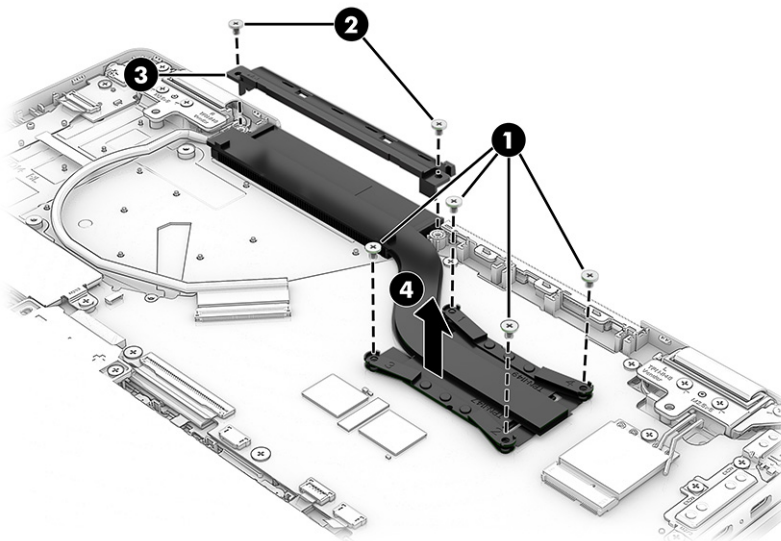
Description	Spare part number
Heat sink, 15 W (includes replacement thermal material)	P84303-001

Before removing the heat sink, follow these steps:

1. Prepare the computer for disassembly (see [Preparation for disassembly on page 26](#)).
2. Remove the bottom cover (see [Bottom cover on page 26](#)).
3. Remove the battery (see [Battery on page 29](#)).

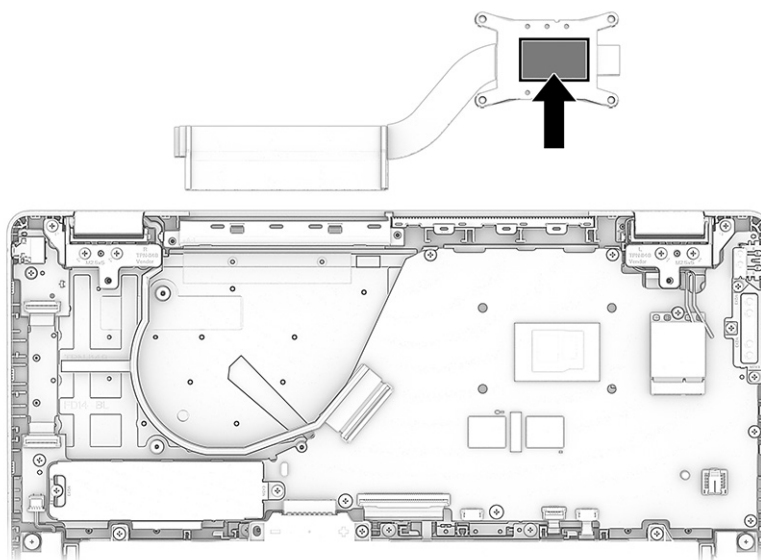
Remove the heat sink:

1. In the order indicated on the heat sink, remove the four Phillips M2.0 × 4.0 screws **(1)** that secure the heat sink to the computer.
2. Remove the two Phillips M2.0 × 4.0 screws **(2)** from the bracket that secures the heatsink, and then remove the bracket **(3)**.
3. Remove the heat sink **(4)** from the computer.



4. Thoroughly clean the thermal material from the surfaces of the heat sink and the system board components each time the heat sink is removed. Replacement thermal material is included with the heat sink and system board spare part kits. The following illustration shows the replacement thermal material locations.

Thermal paste is used on the system board components and on the heat sink areas that service them.



Reverse this procedure to install the heat sink.

Heat sink (6 W)

Use these procedures and illustrations to remove the heat sink.

Table 6-5 Heat sink descriptions and part numbers

Description	Spare part number
Heat sink, 6 W (includes replacement thermal material)	P84720-001

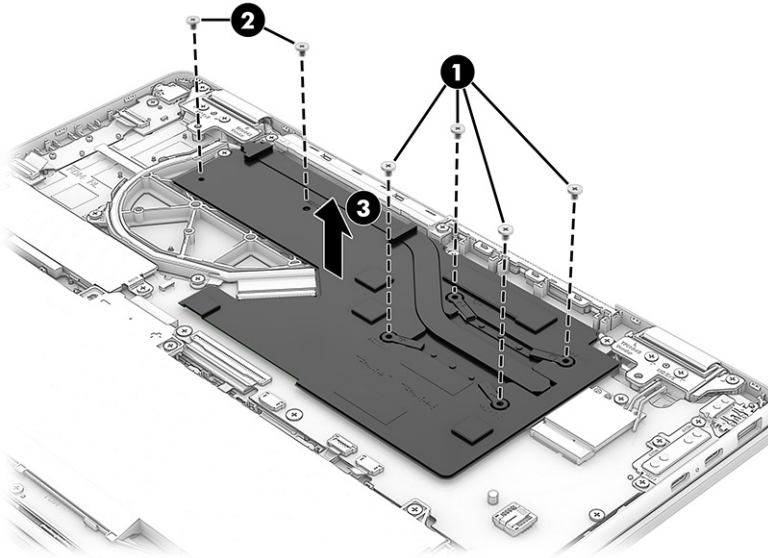
Before removing the heat sink, follow these steps:

1. Prepare the computer for disassembly (see [Preparation for disassembly on page 26](#)).
2. Remove the bottom cover (see [Bottom cover on page 26](#)).
3. Remove the battery (see [Battery on page 29](#)).

Remove the heat sink:

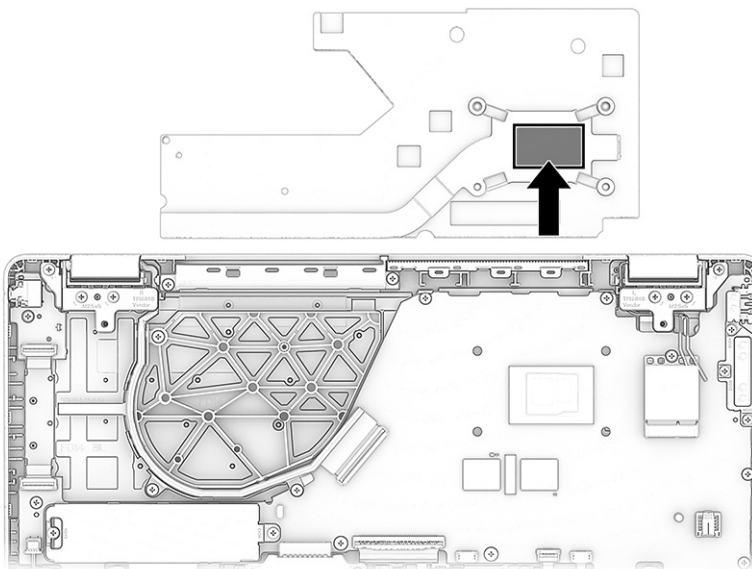
1. In the order indicated on the heat sink, remove the four Phillips M2.0 × 4.0 screws **(1)** that secure the heat sink to the computer.
2. Remove the two additional Phillips M2.0 × 4.0 screws **(2)** that secure the heat sink to the computer.

3. Remove the heat sink (3) from the computer.



4. Thoroughly clean the thermal material from the surfaces of the heat sink and the system board components each time the heat sink is removed. Replacement thermal material is included with the heat sink and system board spare part kits. The following illustration shows the replacement thermal material locations.

Thermal paste is used on the system board components and on the heat sink areas that service them.



Reverse this procedure to install the heat sink.

Audio jack board

Use this procedure and illustration to remove the audio jack board.

Table 6-6 USB board description and part number

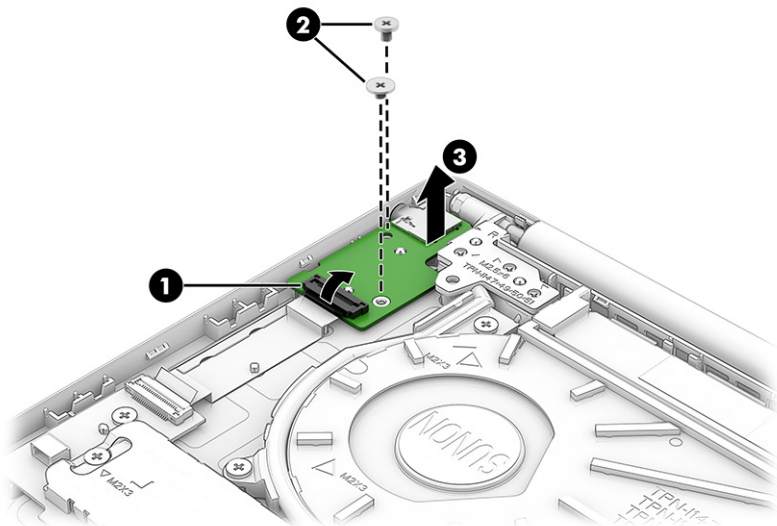
Description	Spare part number
Audio jack board	P84821-001

Before removing the USB board, follow these steps:

1. Prepare the computer for disassembly (see [Preparation for disassembly on page 26](#)).
2. Remove the bottom cover (see [Bottom cover on page 26](#)).
3. Remove the battery (see [Battery on page 29](#)).

Remove the USB board:

1. Disconnect the cable from the system board ZIF connector (1).
2. Remove the two Phillips M2.0 × 3.0 screws (2) that secure the board to the computer.
3. Remove the board (3) from the computer.



Reverse this procedure to install the audio jack board.

Solid-state drive

Use this procedure and illustration to remove the SSD.

Table 6-7 SSD descriptions and part numbers

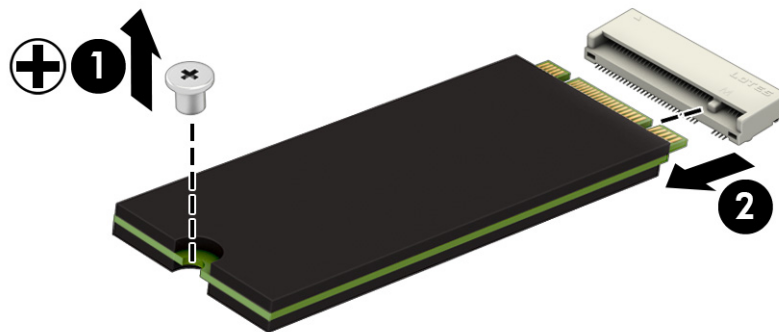
Description	Spare part number
512 GB value, NVMe	P89610-005
256 GB value, NVMe, Gen3	P93951-001

Before removing the SSD, follow these steps:

1. Prepare the computer for disassembly (see [Preparation for disassembly on page 26](#)).
2. Remove the bottom cover (see [Bottom cover on page 26](#)).
3. Remove the battery (see [Battery on page 29](#)).

Remove the SSD:

1. Remove the Phillips M2.0 × 2.5 screw (1) that secures the drive to the computer.
2. Pull the drive (2) away from the socket to remove it.



Reverse this procedure to install the SSD.

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

System board (15 W)

Use these procedures and illustrations to remove the system board.

Table 6-8 System board descriptions and part numbers

Description	Spare part number
System board (includes integrated processor)	
NOTE: All system board spare part kits include replacement thermal material.	
Intel Core 3, N355 processor, 8 GB system memory, 256 GB UFS memory	P80707-601
Intel Core 3, N355 processor, 8 GB system memory, 128 GB UFS memory	P80705-601
Intel Core 3, N355 processor, 8 GB system memory	P80706-601
Intel Processor N250, 8 GB system memory, 256 GB UFS memory	P80713-601
Intel Processor N150, 8 GB system memory, 128 GB UFS memory	P80710-601
Intel Processor N250, 8 GB system memory, 128 GB UFS memory	P80712-601
Intel Processor N150, 8 GB system memory, 64 GB eMMC memory	P80714-601

Table 6-8 System board descriptions and part numbers (continued)

Description	Spare part number
Intel Processor N250, 4 GB system memory, 128 GB UFS memory	P80711-601
Intel Processor N150, 4 GB system memory, 128 GB UFS memory	P80708-601
Intel Processor N150, 4 GB system memory, 64 GB eMMC memory	P80709-601

Before removing the system board, follow these steps:

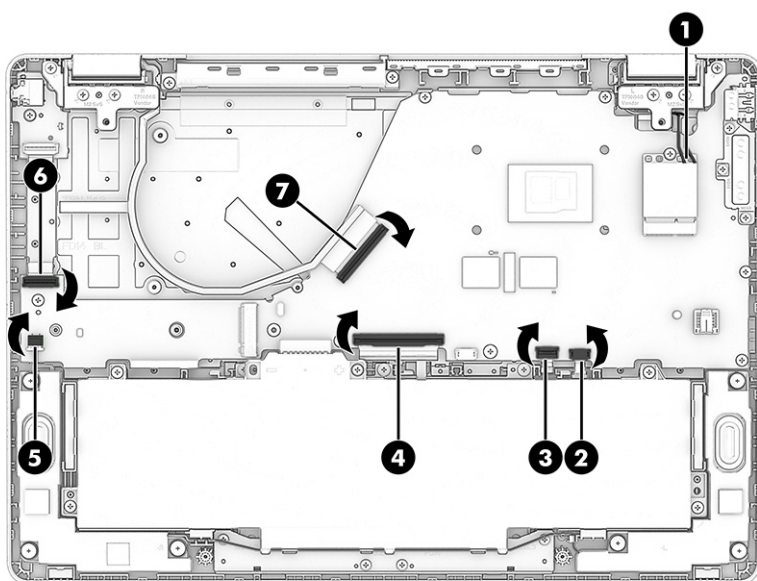
1. Prepare the computer for disassembly (see [Preparation for disassembly on page 26](#)).
2. Remove the bottom cover (see [Bottom cover on page 26](#)).
3. Remove the battery (see [Battery on page 29](#)).
4. Remove the fan (see [Fan \(15 W model only\) on page 37](#)).

When you replace the system board, be sure to remove the following components (as applicable) from the defective system board and install them on the replacement system board:

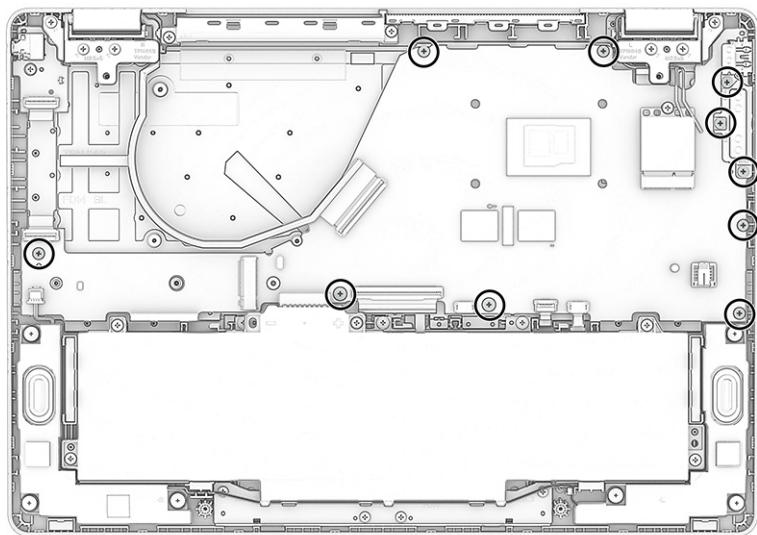
- SSD (see [Solid-state drive on page 43](#)).
- WLAN module (see [WLAN module on page 38](#)).
- Heat sink (see [Heat sink \(15 W\) on page 39](#)).

Remove the system board:

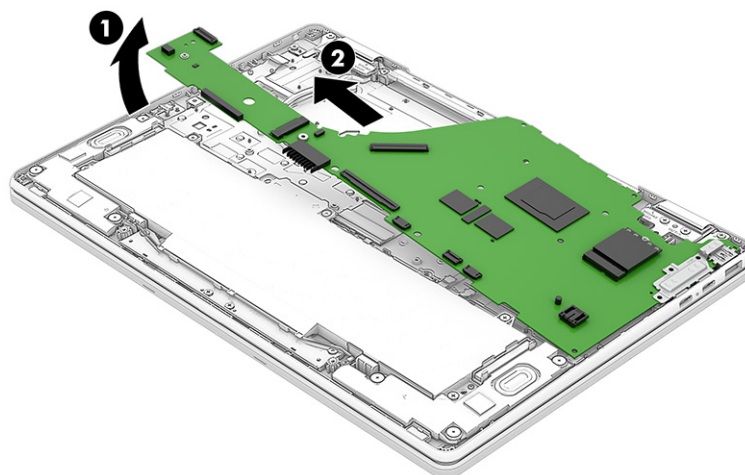
1. Disconnect the following cables from the system board:
 - WLAN cables **(1)**
 - Touchpad cable (ZIF) **(2)**
 - Backlight cable (ZIF) **(3)**
 - Keyboard cable (ZIF) **(4)**
 - Speaker cable **(5)**
 - Audio jack board cable (ZIF) **(6)**
 - Display cable (ZIF) **(7)**



2. Remove the 10 Phillips M2.0 × 5.0 screws that secure the system board to the computer.



3. Lift the left side of the system board (1) until it rests at an angle, and then remove the system board (2).



Reverse this procedure to install the system board.

System board (6 W)

Use these procedures and illustrations to remove the system board.

Table 6-9 System board descriptions and part numbers

Description	Spare part number
System board (includes integrated processor)	
NOTE: All system board spare part kits include replacement thermal material.	
Intel Core 3, N355 processor, 8 GB system memory, 256 GB UFS memory	P80707-601
Intel Core 3, N355 processor, 8 GB system memory, 128 GB UFS memory	P80705-601
Intel Core 3, N355 processor, 8 GB system memory	P80706-601
Intel Processor N250, 8 GB system memory, 256 GB UFS memory	P80713-601
Intel Processor N150, 8 GB system memory, 128 GB UFS memory	P80710-601
Intel Processor N250, 8 GB system memory, 128 GB UFS memory	P80712-601
Intel Processor N150, 8 GB system memory, 64 GB eMMC memory	P80714-601
Intel Processor N250, 4 GB system memory, 128 GB UFS memory	P80711-601
Intel Processor N150, 4 GB system memory, 128 GB UFS memory	P80708-601
Intel Processor N150, 4 GB system memory, 64 GB eMMC memory	P80709-601

Before removing the system board, follow these steps:

1. Prepare the computer for disassembly (see [Preparation for disassembly on page 26](#)).
2. Remove the bottom cover (see [Bottom cover on page 26](#)).

3. Remove the battery (see [Battery on page 29](#)).

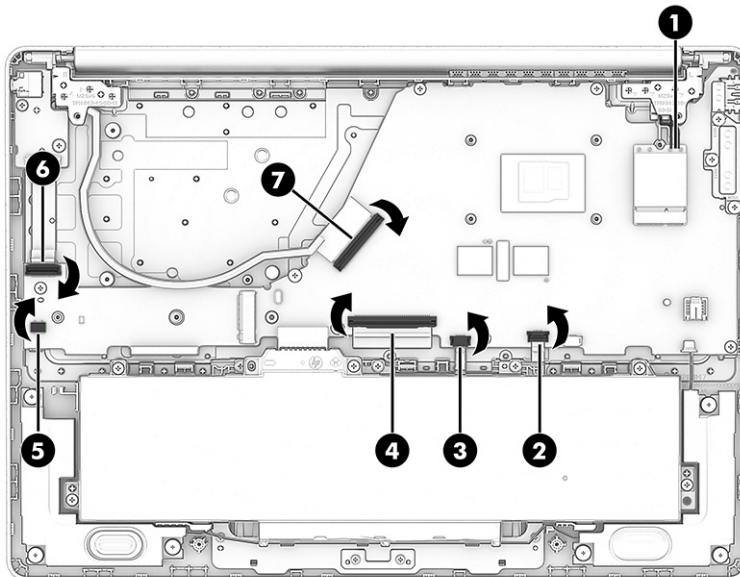
When you replace the system board, be sure to remove the following components (as applicable) from the defective system board and install them on the replacement system board:

- SSD (see [Solid-state drive on page 43](#)).
- WLAN module (see [WLAN module on page 38](#)).
- Heat sink (see [Heat sink \(6 W\) on page 41](#)).

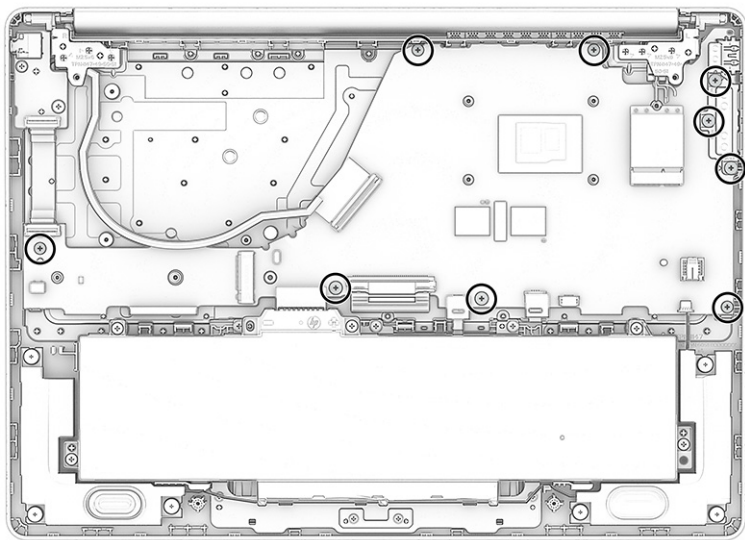
Remove the system board:

1. Disconnect the following cables from the system board:

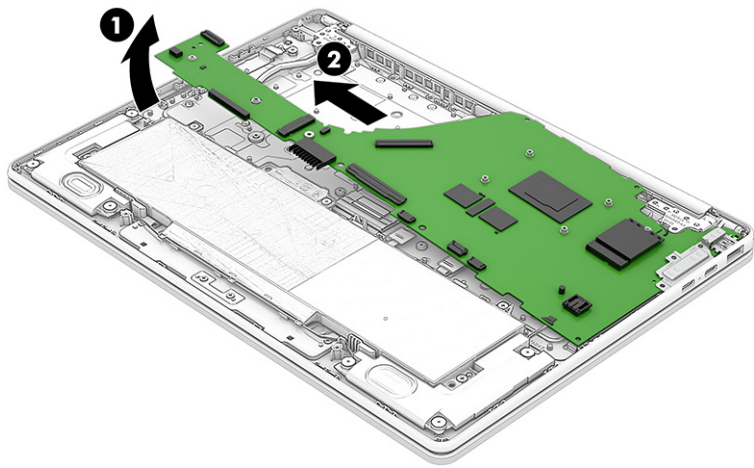
- WLAN cables **(1)**
- Touchpad cable (ZIF) **(2)**
- Backlight cable (ZIF) **(3)**
- Keyboard cable (ZIF) **(4)**
- Speaker cable **(5)**
- Audio jack board cable (ZIF) **(6)**
- Display cable (ZIF) **(7)**



2. Remove the nine Phillips M2.0 × 5.0 screws that secure the system board to the computer.



3. Lift the left side of the system board (1) until it rests at an angle, and then remove the system board (2).



Reverse this procedure to install the system board.

Touchpad

Use this procedure and illustration to remove the touchpad.

Table 6-10 Touchpad descriptions and part numbers

Description	Spare part number
Glacier silver	P84742-001
Meteor silver	P84742-002
Sky blue	P84742-003

Table 6-10 Touchpad descriptions and part numbers (continued)

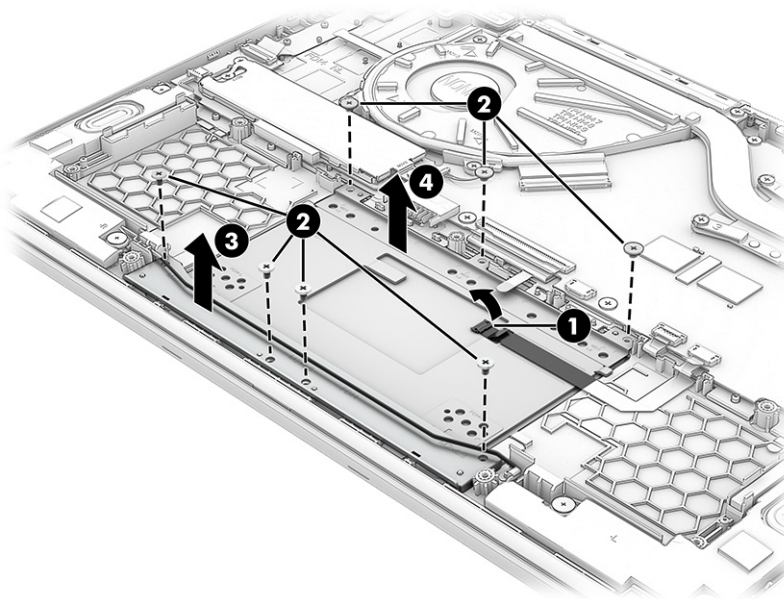
Description	Spare part number
Aquatic blue	P84742-004
Aloe green	P84742-005
Concrete gray	P84742-006

Before removing the touchpad, follow these steps:

1. Prepare the computer for disassembly (see [Preparation for disassembly on page 26](#)).
2. Remove the bottom cover (see [Bottom cover on page 26](#)).
3. Remove the battery (see [Battery on page 29](#)).

Remove the touchpad:

1. Disconnect the cable from the ZIF connector (1) on the touchpad.
2. Remove the seven Phillips M2.0 × 3.0 screws (2) that secure the touchpad bracket to the computer.
3. Remove the touchpad bracket from the computer (3).
4. Remove the touchpad (4) from the computer.



Reverse this procedure to install the touchpad.

Display assembly

To remove and disassemble the display assembly, use these procedures and illustrations.



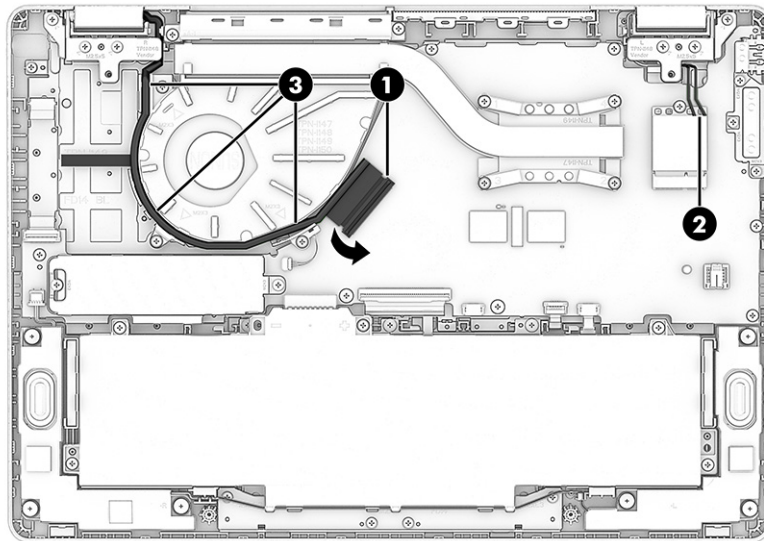
NOTE: The display assembly is spared at the subcomponent level. For display assembly spare part information, see the individual removal subsections.

Before removing the display panel, follow these steps:

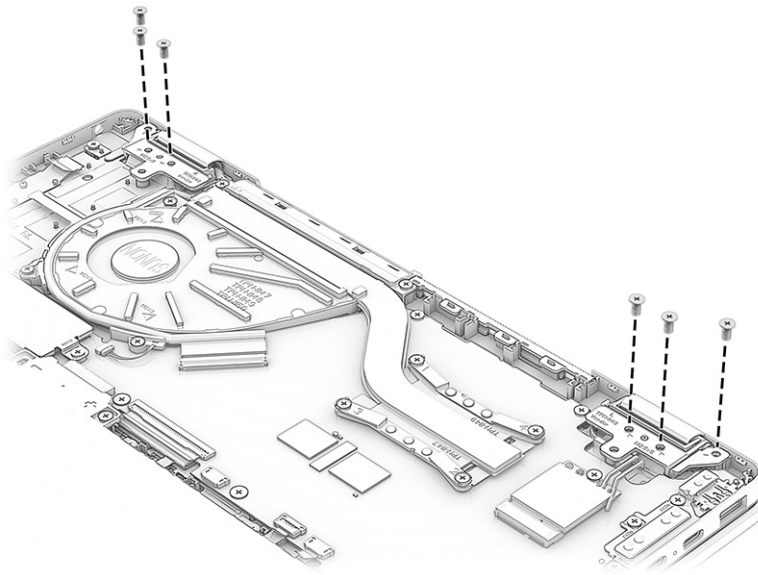
1. Prepare the computer for disassembly (see [Preparation for disassembly on page 26](#)).
2. Remove the bottom cover (see [Bottom cover on page 26](#)).
3. Remove the battery (see [Battery on page 29](#)).

Remove the display assembly:

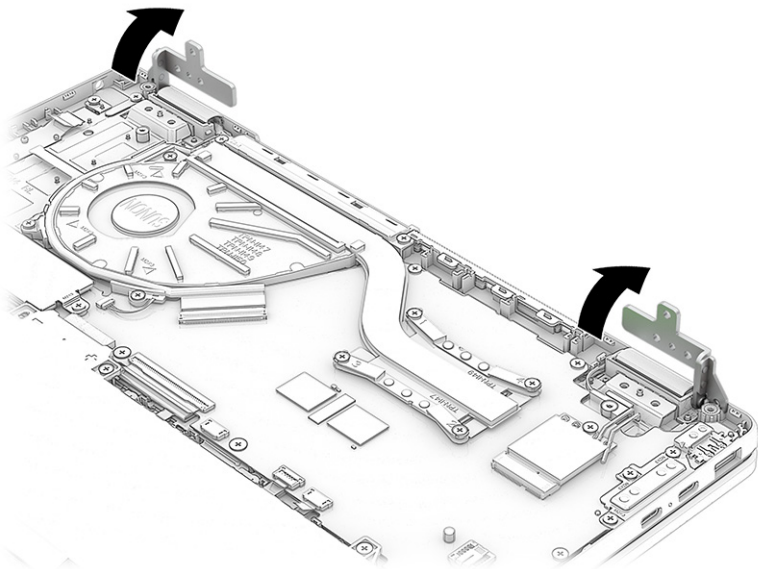
1. To disconnect the display cables:
 - a. Disconnect display cable from the system board ZIF connector **(1)**.
 - b. Disconnect the antenna cables **(2)** from the WLAN module.
 - c. Remove the display cable from the clips **(3)** around the fan.



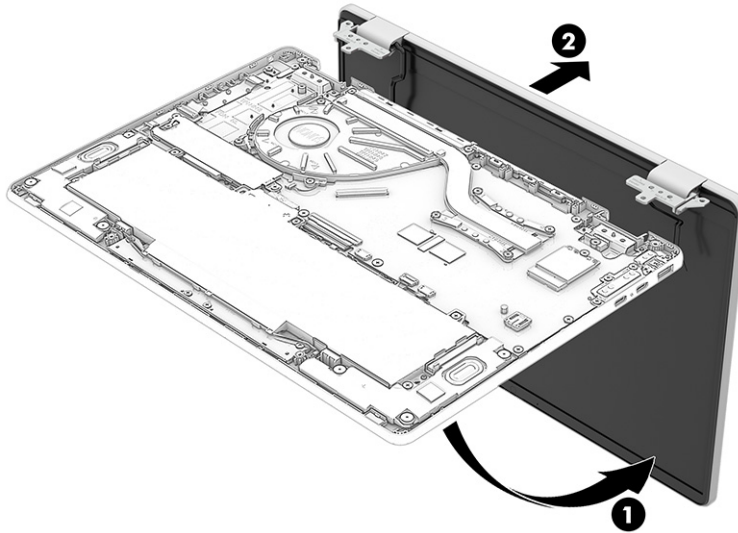
2. Remove the six Phillips M2.5 × 5.0 screws that secure the display assembly to the computer.



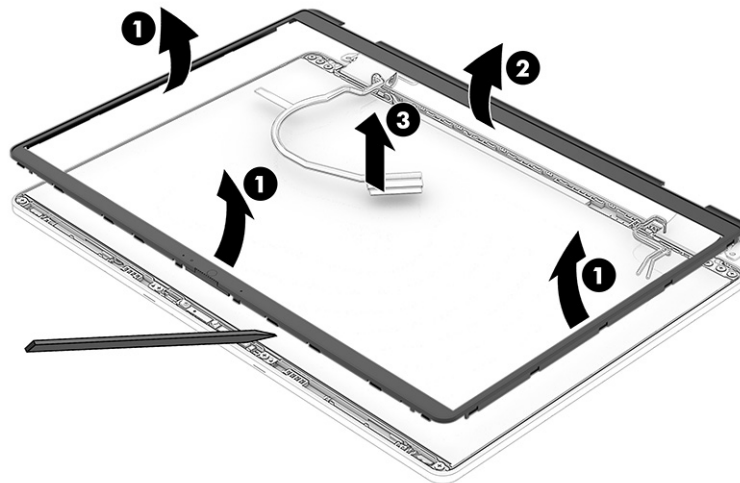
3. Lift up both hinges as far as they can open.
4. Remove the display cable from the routing clips.



5. Open the display to 90° (1), and then separate the display (2) from the computer.



6. To remove the display panel from the display assembly:
- a. Release the top, left, and right sides (1) of the bezel from the display.
 - b. Release the bottom (2) of the bezel from the display.
 - c. Move the display cable away from the bezel (3).



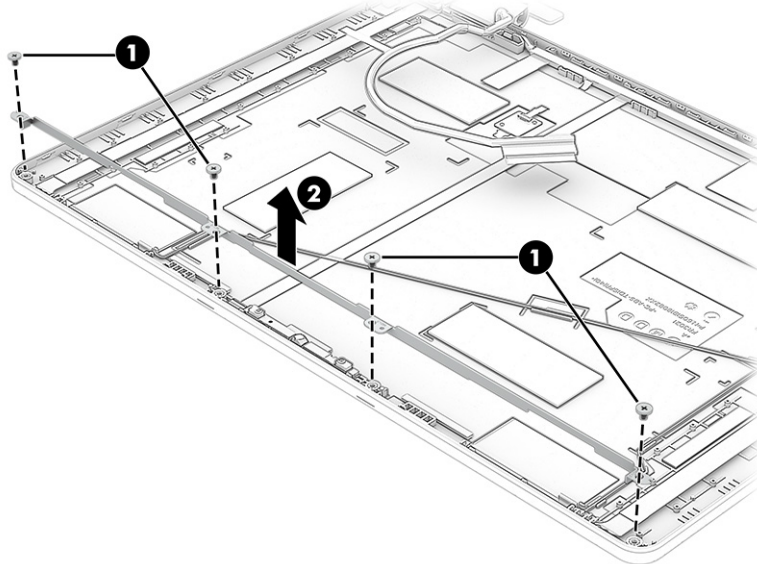
Display bezels are available using the following spare part numbers:

- P84741-001: Glacier silver
- P84741-002: Meteor silver
- P84741-003: Sky blue
- P84741-004: Aquatic blue

P84741-005: Aloe green

P84741-006: Concrete gray

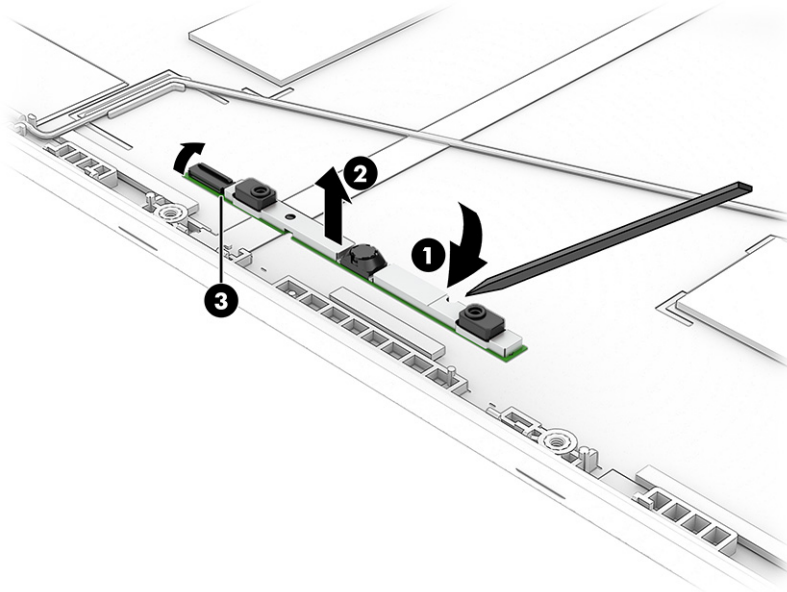
- d. Remove the four Phillips M2.0 × 2.5 screws (1) from the top bracket. Use a tool to carefully release the bracket, and then remove the bracket (2).



- e. To remove the camera module, use a thin pry tool (1) to release the module. Lift up the camera module (1), and then disconnect the cable from the ZIF connector (3) on the camera module.



NOTE: The camera module is available as spare part number P99212-001.

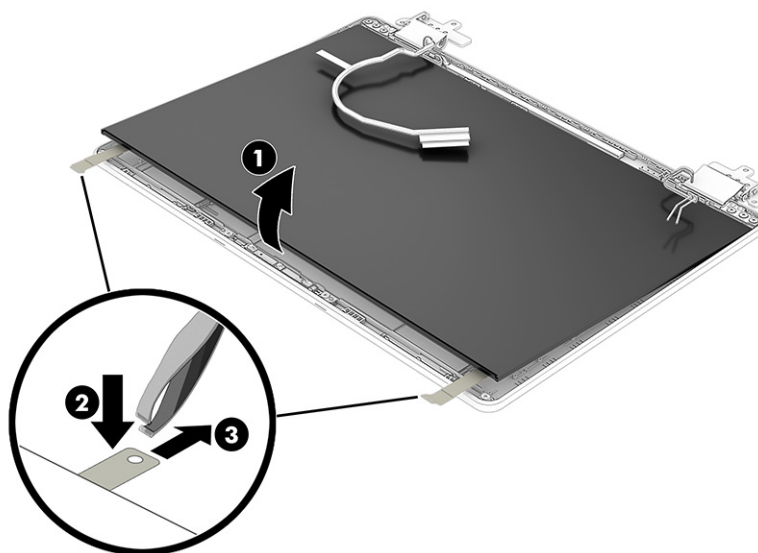


- f. The display panel is secured to the display enclosure with tape that is installed in two locations under the panel. To remove the panel, lift the panel (1), and then use tweezers to grasp the end of each piece of tape (2). While wrapping the tape around the tweezers, pull the tape out from behind the display panel (3). You must pull the tape multiple times before it is

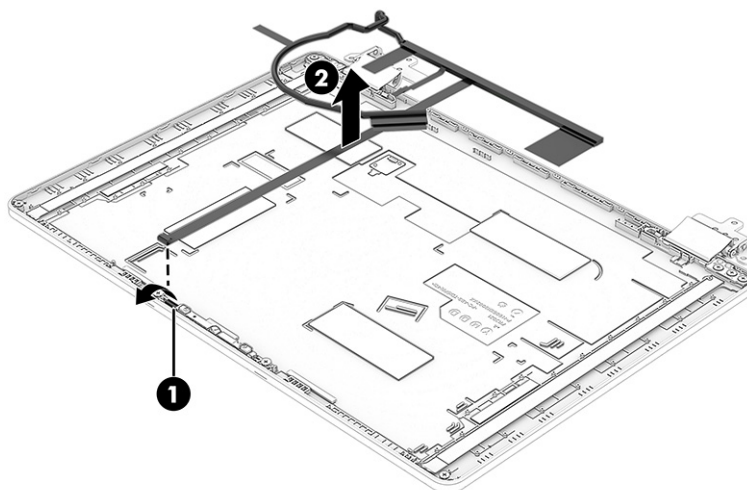
completely removed. Rotate the top of the panel up and over and place it next to the display rear cover.



NOTE: Pull the tape out slowly and evenly to prevent it from breaking prematurely.

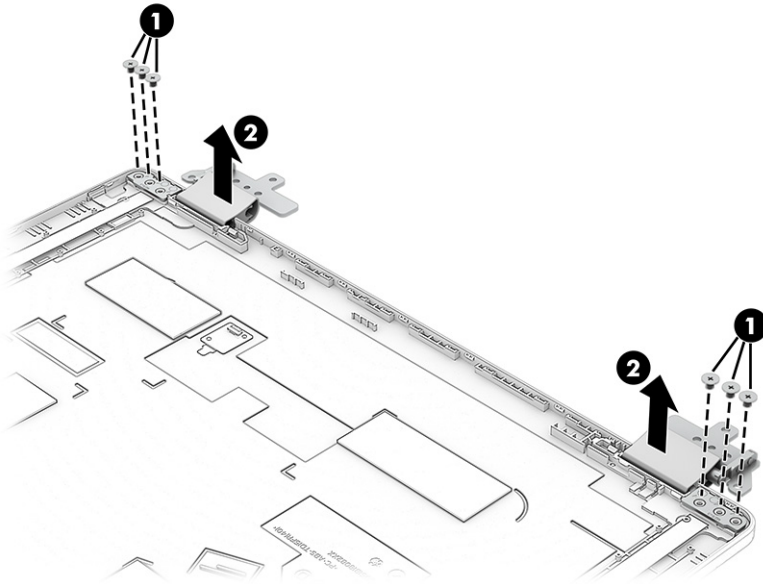


- g. Disconnect the display cable from the connector (1) and then remove it from the bottom cover (2).

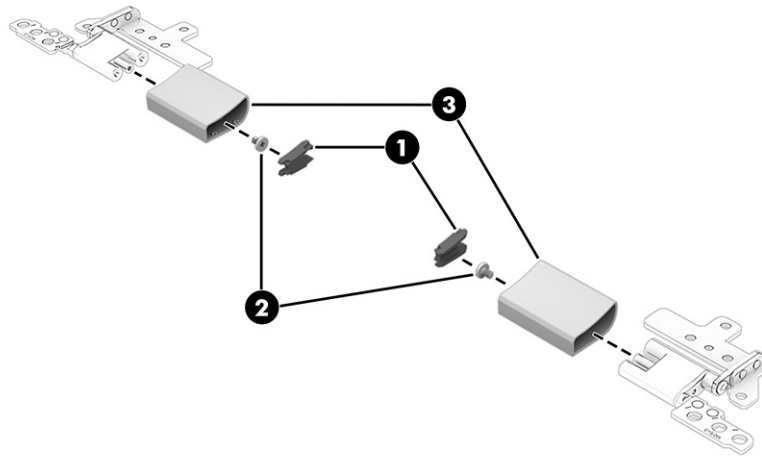


7. To remove the hinges and hinge covers from the display rear cover:
- a. Remove three six Phillips M2.0 × 2.5 screws (1) from the top of each hinge.

- b. Remove the hinges from the computer (2). The display hinges are available as spare part number P80884-001.



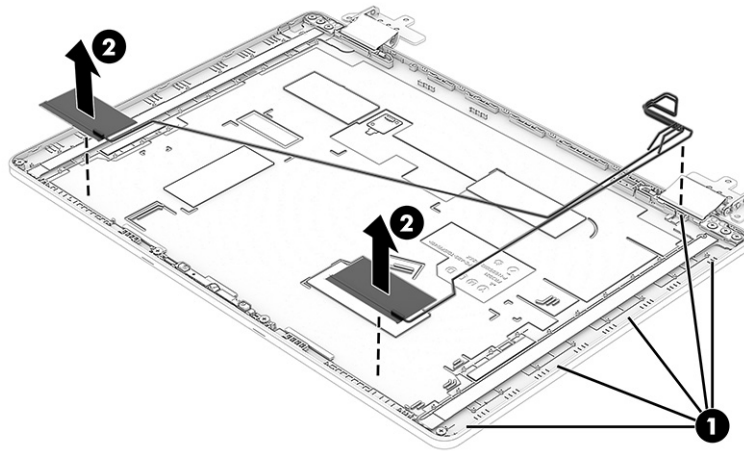
- c. Remove the screw cover (1) and screw (2) from the end of each hinge cover, and then remove the hinge covers from the hinges (3).



8. To remove the WLAN antennas and cables:

- a. Remove the cables from the clips (1) along the sides of the display rear cover.

- b. Peel the antennas (2) off the display rear cover.



The WLAN wireless cables and antennas are available as spare part number P89612-005. The wireless cables and antennas are also included in the display rear cover spare part kit.

To reassemble and replace the display assembly, reverse these procedures.



NOTE: When installing the tape onto the display rear cover, be sure that the end of the tape is visible and accessible, and extends out slightly from under the installed display panel.

Keyboard with top cover

The top cover with keyboard remains after removing all other spare parts from the computer. In this section, the first table provides the main spare part numbers for the top cover with keyboards. The second table provides the country codes.

Table 6-11 Keyboard with top cover descriptions and part numbers

Description	Spare part number
Aquatic blue top cover, aquatic blue keyboard, not backlit, 6 W	P84805-xx1
Aloe green top cover, aloe green keyboard, not backlit, 6 W	P84806-xx1
Glacier silver top cover, canvas gray keyboard, backlit, 6 W	P84807-xx1
Glacier silver top cover, canvas gray keyboard, not backlit, 6 W	P84808-xx1
Concrete gray top cover, concrete gray keyboard, not backlit, 6 W	P84809-xx1
Sky blue top cover, iron gray keyboard, backlit, 6 W	P84810-xx1
Meteor silver top cover, meteor silver keyboard, backlit, 6 W	P84811-xx1
Glacier silver top cover, canvas gray keyboard, backlit, 15 W	P84812-xx1
Glacier silver top cover, canvas gray keyboard, not backlit, 15 W	P84813-xx1
Meteor silver top cover, meteor silver keyboard, backlit, 15 W	P84814-xx1

Table 6-12 Spare part country codes

For use in country or region	Spare part number	For use in country or region	Spare part number	For use in country or region	Spare part number
Belgium	-A41	Italy	-061	South Korea	-AD1
Denmark, Finland, and Norway	-DH1	Japan	-291	Spain	-071
French Canada	-DB1	The Netherlands	-B31	Switzerland	-BG1
France	-051	Portugal	-131	United Kingdom	-031
Germany	-041	Romania	-271	United States	-001

7 Backing up, resetting, and recovering

This chapter provides information about processes that are standard procedure for most products.

Backing up

You can back up your data to an optional USB flash drive or SD™ memory card or through Google Drive™.

For detailed information about creating a backup, go to <http://www.support.google.com>.

Resetting

A factory reset erases all the information on your computer hard drive, including all the files in the Downloads folder. Before you reset, back up your files to an optional USB flash drive, SD memory card, or through Google Drive. The factory reset will not delete any of your files on Google Drive or an external storage device.

 **IMPORTANT:** Resetting permanently erases everything on your computer hard drive, including your downloaded files. If possible, back up your files before you reset your computer.

You might want to reset your computer in the following circumstances:

- You see the message "Reset this Chrome device."
- You are having problems with your user profile or settings.
- You have tried restarting your computer, and it is still not working properly.
- You want to change the owner of your computer.

To reset your computer:

1. Under the **Settings** menu, click **Advanced**.
2. In the **Powerwash** section, click **Powerwash**.
3. Click **Restart**, and then sign in with your Google Account.

 **NOTE:** The account you sign in with after you reset your computer will be recognized as the owner account.

4. Follow the on-screen instructions to reset your computer.
5. Once you complete the reset, you can set up your computer and check to see whether the problem is fixed.

Recovering

When your ChromeOS™ operating system is not working properly, you can perform a recovery. A recovery reinstalls the operating system and software programs and restores the original factory

settings. Locally saved files and saved networks are deleted for all accounts. Your Google Accounts and any data synced to your Google Drive™ storage are not affected by a system recovery.



NOTE: For more information about performing a system recovery on your computer, go to <http://www.support.google.com>

Before beginning the recovery process, you need the following:

- A USB flash drive or SD memory card with a capacity of 4 GB or greater. All data is erased from this storage device when the recovery media is created, so back up any files from the device before you begin.
- A computer with internet access. You must also have administrative rights to the computer.
- Computer AC adapter. The computer must be plugged into AC power during recovery.
- The “ChromeOS is missing or damaged” screen displaying on your computer. If this message is not already displayed:
 - Turn on the computer, press and hold the **esc** + **f3** keys, and then press the power button. The computer restarts, and the screen shows the “ChromeOS is missing or damaged” screen.

Installing the Chromebook Recovery Utility

The Chromebook™ Recovery Utility is an app used to recover the original operating system and software programs that were installed at the factory. You can install this utility from the Chrome Web Store on any computer.

To install the Chromebook Recovery Utility:

- Open the Chrome Web Store, search for **Recovery**, click **Chromebook Recovery Utility** from the Apps list, and then follow the on-screen instructions.

Creating recovery media

Recovery media is used to recover the original operating system and software programs that were installed at the factory.

To create recovery media:

1. Turn on a computer with Internet access.



NOTE: You must have administrative rights to the computer.

2. Click the **Launcher** icon, and then click **All Apps**.
3. In the Apps window, click **Recovery**, and then click **Get started**.
4. Follow the on-screen instructions to create the recovery media.



NOTE: All data and partitions on your recovery media will be deleted. Do not remove the USB flash drive or SD memory card until the process is complete.

Recovering the Chrome operating system

To recover the Chrome operating system on your computer using the recovery media you created:

1. Disconnect any external devices connected to your computer, plug in the power cord, and then turn on the computer.
2. To enter recovery mode, press and hold **esc + f3**, and then press the power button. When the “ChromeOS is missing or damaged” screen displays, insert the recovery media into your computer. The recovery process begins immediately.
3. Wait while Chrome verifies the integrity of the recovery media.



NOTE: If you need to cancel the recovery during the verification process, press and hold the power button until the computer turns off. Do not disrupt the system recovery process after the verification step is complete.



NOTE: If an error message displays, you might need to run the Chrome Recovery Utility again, or use a different USB flash drive or SD memory card.

4. When the “System Recovery is complete” message displays, remove the recovery media.
The computer restarts with ChromeOS reinstalled.

Setting up your computer after a reset or recovery

After a reset or recovery is complete, perform the initial setup process.

For details on setting up the computer, go to <http://www.support.google.com>.

Erase and reformat the recovery media

During the process of creating recovery media, the USB flash drive or SD memory card is formatted for use as a recovery tool. After you recover your computer, you must to erase the recovery media if you want to reuse your USB flash drive or SD memory card to store other files. Use the steps in this section to erase the recovery media using the Chromebook Recovery Utility.

1. Click the **Launcher** icon, and then click **All Apps**.
2. In the apps window, click **Recovery**.
3. Click the **Settings** icon, and then click **Erase recovery media**.
4. Select the USB flash drive or SD memory card you inserted, click **Continue**, and then click **Erase now**.
5. After the recovery media is erased, click **Done** to close the Chromebook Recovery Utility, and then remove the USB flash drive or SD memory card.

The media is ready to be formatted using a formatting tool provided by your operating system.

8 Specifications

This chapter provides specifications for your computer system.

Computer specifications

This section provides specifications for your computer. When you travel with your computer, the computer dimensions and weights, as well as input power ratings and operating specifications, provide helpful information.

Table 8-1 Computer specifications

	Metric	U.S.
Dimensions		
Width	385.0 mm	15.2 in
Depth	258.0 mm	10.2 in
Height (front to back)	23.0 mm	0.9 in
Weight	2.1 kg	4.6 lb
Input power		
Operating voltage and current	19.5 V DC @ 2.31 A - 45 W	
	19.5 V DC @ 3.33 A - 65 W	
	19.5 V DC @ 4.62 A - 90 W	
	19.5 V DC @ 7.70 A - 150 W	
	19.5 V DC @ 10.3 A - 200 W	
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 3048 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.

Display specifications

This section provides specifications for your display.

Table 8-2 Display specifications

	Metric	U.S.
Active diagonal size	39.6 cm	15.6 in
Resolution	1920 × 1080 (FHD) 3840 × 2160 (UHD)	
Surface treatment	Antiglare (FHD, UHD panels) Brightview (OLED panel)	
Brightness	250 nits (FHD, 45% NTSC panel) 300 nits (FHD, 72% NTSC/100% sRGB panels) 400 nits (UHD panel)	
Viewing angle	UWVA	
Backlight	WLED AMOLED	
Display panel interface	eDP	

Hard drive specifications

This section provides specifications for your hard drives.

Table 8-3 Hard drive specifications

	500 GB*	750 GB*
Dimensions		
Height	9.5 mm	9.5 mm
Width	70 mm	70 mm
Weight	107 g max	102 g max
Interface type	SATA	SATA
Transfer rate	300 MBps	300 MBps
Security	ATA security	ATA security
Seek times (typical read, including setting)		
Single track	1.5 ms	1.1 ms
Average	12.0 ms	12.0 ms
Maximum	22.0 ms	21.0 ms
Logical blocks	976,752,240	1,465,149,168
Disk rotational speed	5400 rpm	5400 rpm

Table 8-3 Hard drive specifications (continued)

	500 GB*	750 GB*
Operating temperature	0°C to 60°C (0°F to 140°F)	0°C to 60°C (0°F to 140°F)



NOTE: *Size refers to hard drive storage capacity. Actual accessible capacity is less. Actual drive specifications can differ slightly.

Certain restrictions and exclusions apply. Contact support for details.

Solid-state drive specifications

This section provides specifications for your SSDs.

Table 8-4 SSD specifications

	256 GB*	256 GB OPAL2*	512 GB*	512 GB TLC*	1 TB/2 TB*
Dimensions					
Height	2.3 mm	2.3 mm	2.3 mm	2.3 mm	2.3 mm
Length	80 mm	80 mm	80 mm	80 mm	80 mm
Width	22 mm	22 mm	22 mm	22 mm	22 mm
Weight	< 10 g	< 10 g	< 10 g	< 10 g	< 10 g
Interface type					
Ready time, maximum (to not busy)	1.0 ms	1.0 ms	< 1.0 ms	< 1.0 ms	1.0 ms
Access times, logical	0.1 ms	0.1 ms	0.1 ms	0.1 ms	0.1 ms
Transfer rate					
Sequential read	Up to 3100 MBps	Up to 3100 MBps	Up to 3500 MBps	Up to 6450 MBps	Up to 6400 MBps
Random read	Up to 300,000 IOPs	Up to 300,000 IOPs	Up to 300,000 IOPs	Up to 300,000 IOPs	Up to 300,000 IOPs
Sequential write	Up to 1200 MBps	Up to 1200 MBps	Up to 1600 MBps	Up to 3500 MBps	Up to 5000 MBps
Random write	Up to 100,000 IOPs	Up to 100,000 IOPs	Up to 100,000 IOPs	Up to 100,000 IOPs	Up to 100,000 IOPs
Total logical sectors	500,118,192	1,000,215,216	1,000,215,216	1,000,215,216	1 TB: 2,000,409,264
					2 TB: 4,000,797,360
Operating temperature	0°C to 70°C (32°F to 158°F)	0°C to 70°C (32°F to 158°F)	0°C to 70°C (32°F to 158°F)	0°C to 70°C (32°F to 158°F)	0°C to 70°C (32°F to 158°F)

*Actual accessible capacity is less. Actual drive specifications might differ slightly.



NOTE: Certain restrictions and exclusions apply. Contact support for details.

9 Power cord set requirements

This chapter provides power cord requirements for countries and regions.

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

These power cord 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 V AC 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

To determine power cord requirements for specific countries and regions, use this table.

Table 9-1 Power cord requirements for specific countries and regions

Country/region	Accredited agency	Applicable note number
Argentina	IRAM	1
Australia	SAA	1
Austria	OVE	1
Belgium	CEBEC	1
Brazil	ABNT	1
Canada	CSA	2
Chile	IMQ	1
Denmark	DEMKO	1
Finland	FIMKO	1
France	UTE	1

Table 9-1 Power cord requirements for specific countries and regions (continued)

Country/region	Accredited agency	Applicable note number
Germany	VDE	1
India	BIS	1
Israel	SII	1
Italy	IMQ	1
Japan	JIS	3
Netherlands	KEMA	1
New Zealand	SANZ	1
Norway	NEMKO	1
The People's Republic of China	CCC	4
Saudi Arabia	SASO	7
Singapore	PSB	1
South Africa	SABS	1
South Korea	KTL	5
Sweden	SEMKO	1
Switzerland	SEV	1
Taiwan	BSMI	6
Thailand	TISI	1
United Kingdom	ASTA	1
United States	UL	2

1. The flexible cord must be Type HO5VV-F, 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.
2. The flexible cord must be Type SVT/SJT or equivalent, No. 18 AWG, 3-conductor. The wall plug must be a 2-pole grounding type with a NEMA 5-15P (15 A, 125 V AC) or NEMA 6-15P (15 A, 250 V AC) configuration. CSA or C-UL mark. UL file number must be on each element.
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 VCTF, 3-conductor, 0.75 mm² or 1.25 mm² conductor size. The wall plug must be a 2-pole grounding type with a Japanese Industrial Standard C8303 (7 A, 125 V AC) 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 CCC certification mark.
5. The flexible cord must be Type HO5VV-F 3-conductor, 0.75 mm² conductor size. KTL logo and individual approval number must be on each element. Approval number and logo must be printed on a flag label.
6. The flexible cord must be Type HVCTF 3-conductor, 1.25 mm² conductor size. Power cord set fittings (appliance coupler, cable, and wall plug) must bear the BSMI certification mark.

7. For 127 V AC, the flexible cord must be Type SVT or SJT 3-conductor, 18 AWG, with plug NEMA 5-15P (15 A, 125 V AC), with UL and CSA or C-UL marks. For 240 V AC, the flexible cord must be Type H05VV-F 3-conductor, 0.75 mm² or 1.00 mm² conductor size, with plug BS 1363/A with BSI or ASTA marks.

10 Recycling

When a nonrechargeable 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 website at <http://www.hp.com/recycle>.

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