Maintenance and Service Guide

HP Chromebook 14 inch
Model number: 14a-nf0xxx

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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First Edition: March 2024

Document Part Number: N91108-001

Product notice

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

To access the latest user guides, go to http://www.hp.com/support, and follow the instructions to find your product. Then select **Manuals**.

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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

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 computer, do not place the computer directly on your lap or obstruct the computer air vents. Use the 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 or rugs or clothing, to block airflow. Also, do not allow the AC adapter to come into contact with the skin or a soft surface, such as pillows or rugs or clothing, during operation. The computer and the AC adapter comply with the user-accessible surface temperature limits defined by applicable safety standards.

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1 Product description

This table provides detailed product information.

Table 1-1 Product components and their descriptions

Category	Description
Product Name	**HP Chromebook™ 14 inch**
	Model number: 14a-nf0xxx
	CTO number: 14at-nf000
Processors	Intel® Core™ i3-N305 (up to 3.8 GHz with Intel Turbo Boost Technology, 6 MB Intel Smart Cache, 8 cores, 15 W)
	Intel N200 (up to 3.7 GHz with Intel Turbo Boost Technology, 6 MB Intel Smart Cache, 4 cores, 6 W)
	Intel N100 (up to 3.4 GHz with Intel Turbo Boost Technology, 6 MB Intel Smart Cache, 4 cores, 6 W)
Graphics	**Internal graphics**
	Intel UHD Graphics
Display panel	**14.0 in (35.6 cm)**
	Full high definition (FHD) (1920 × 1080), ultrawide viewing angle (UWVA), antiglare, 45% NTSC, embedded DisplayPort™ (eDP) 1.2 without panel self-refresh (PSR), low power, 300 nits
	FHD, UWVA, antiglare, 45% NTSC, eDP without PSR, 250 nits, touch screen
	High definition (HD) (1366 × 768), standard viewing angle (SVA), antiglare, 45% NTSC, eDP without PSR, 250 nits (only for use with models with an Intel N200/N100 processor)
	(6 W models only) HD, SVA, 45% NTSC, eDP 1.2 without PSR, 250 nits, touch screen
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
	Universal Flash Storage (UFS) 3.1 (onboard)
	256 GB
	128 GB
Audio	Dual speakers
Video	**HP True Vision HD Camera - indicator LED, USB2.0, HD BSI sensor, f2.0** (for use in models with an Intel N200/N100 processor)
	HP True Vision FHD Camera - indicator LED, USB2.0, FHD BSI sensor, f2.0 (for use in models with an Intel Core i3-N305 processor)
Wireless	**Wireless Local Area Network (WLAN)**

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

Category	Description
	Intel AX211 Wi-Fi® 6E + Bluetooth® 5.3
	MediaTek MT7921 Wi-Fi 6 + Bluetooth 5.3
Ports	**15 W models**
	USB 3.2 Gen 1 Type-C® (2) (left and right side), supports: • power delivery • data transfer • DisplayPort 1.4 output up to 4 K (60 Hz) and HDMI 1.4 out using adapter
	6 W models
	USB 3.2 Gen 1 Type-C® (left side), supports: • power delivery • data transfer • DisplayPort 1.4 output up to 4 K (60 Hz) and HDMI 1.4 out using adapter
	USB 3.1 Gen 1 Type-A (right side)
	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
Power requirements	**Battery**
	47 Whr, 2 cell
	Long life
	Smart AC adapter (USB Type-C)
	45 W, nPFC, straight, 1.8 m (6 ft)
	Power cord
	C5, conventional, 1.0 m (3.3 ft) power cord with sticker
	C5, 1.0 m (3.3 ft) power cord with sticker and plug adapter
Security	H1 Secure Microcontroller
	Camera privacy door
Operating system	Google Chrome™ Plus (Intel i3-N305 processor)
	Google Chrome (Intel N200/N100 processor)
Serviceability	**End user replaceable parts**

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

Category	Description
	AC adapter

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 components on the right side of the computer.

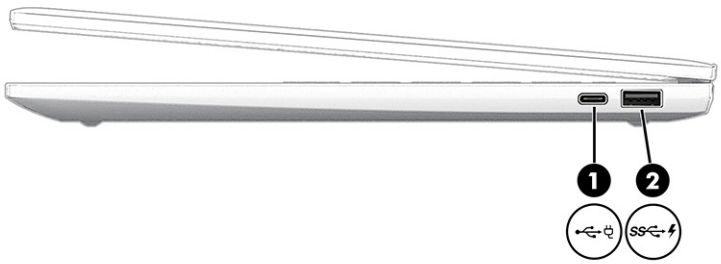


Table 2-1 Right-side components and their descriptions

		Component	Description
(1)		USB Type-C® power connector port*	Connects a USB device, provides data transfer, and charges small devices. NOTE: Cables, adapters, or both (purchased separately) might be required.
(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.

Left

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

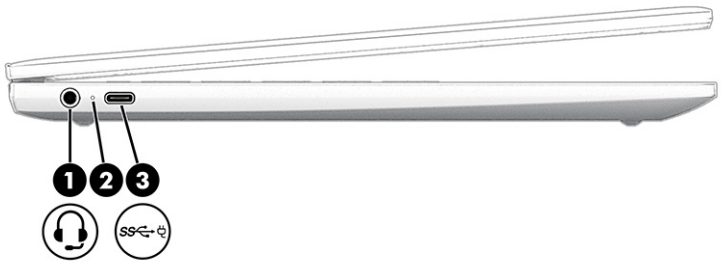


Table 2-2 Left-side components and their descriptions

		Component	Description
(1)		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 *Regulatory, Safety, and Environmental Notices*. NOTE: When a device is connected to the jack, the computer speakers are disabled.
(2)		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.
(3)		USB Type-C® power connector port	Connects a USB device, provides data transfer, and charges small devices. NOTE: Only select products have a second USB Type-C power connector port. Cables, adapters, or both (purchased separately) might be required.

Display

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

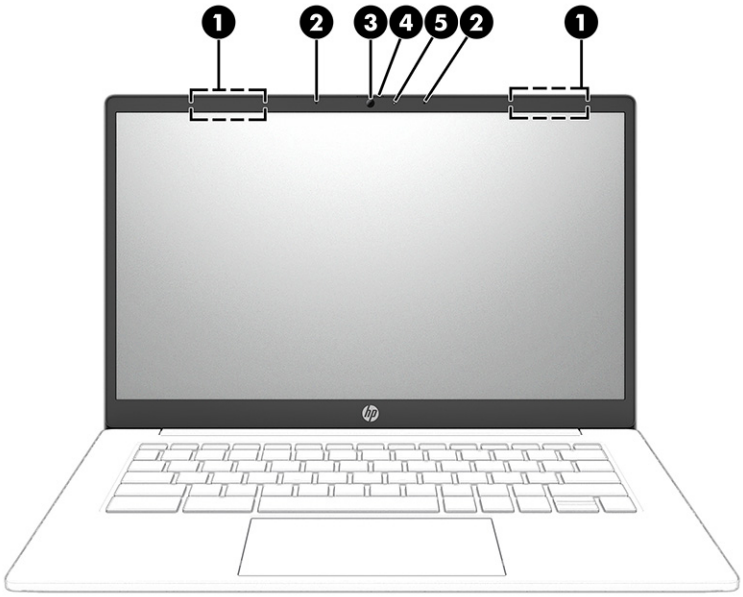


Table 2-3 Display components and their descriptions

	Component	Description
(1)	WLAN antennas* (2)	Send and receive wireless signals to communicate with wireless local area networks (WLANs).
(2)	Internal microphones (2)	Record sound.
(3)	Camera	Allows 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.
(4)	Camera privacy cover	By default, the camera lens is uncovered, but you can slide the camera privacy cover to block the camera's view. To use the camera, slide the camera privacy cover in the opposite direction to reveal the lens. NOTE: If you have both front-facing and rear-facing cameras, when one camera lens is revealed and ready to use, the other is concealed.
(5)	Camera light	On (white): The camera is in use. Off: The camera is turned off by the software.

Keyboard area

Keyboards can vary by language.

Touchpad

The touchpad settings and components are described here.

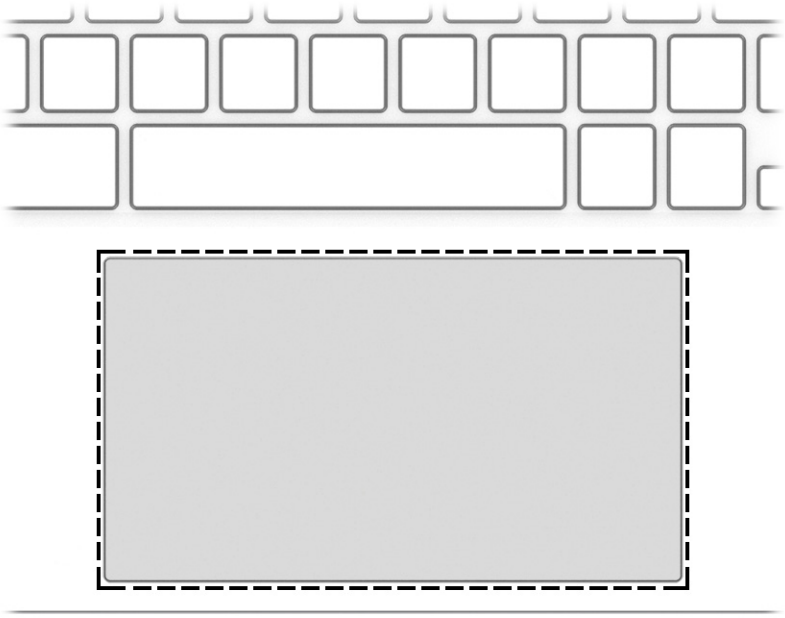


Table 2-4 Touchpad component and description

Component	Description
Touchpad zone	Reads your finger gestures to move the pointer or activate items on the screen.

Speakers

Speakers are located on the right and left of the keyboard.

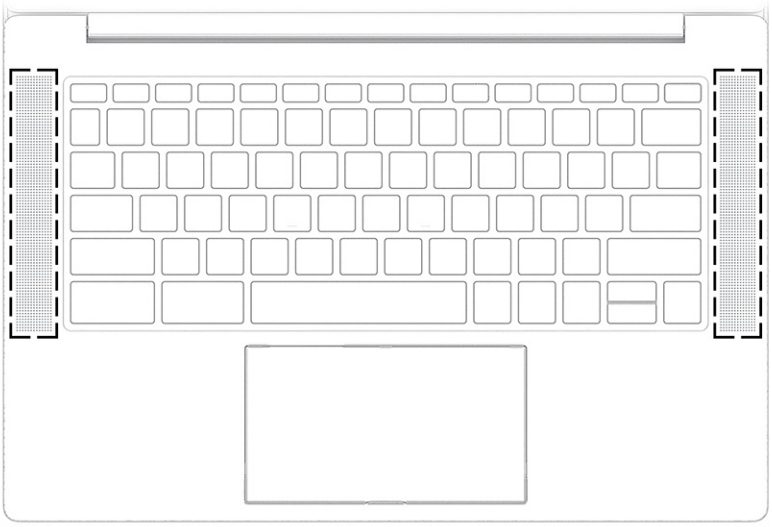


Table 2-5 Speakers and their description

Component	Description
Speakers	Produce sound.

Special keys

Use the illustration and table to locate the special keys.

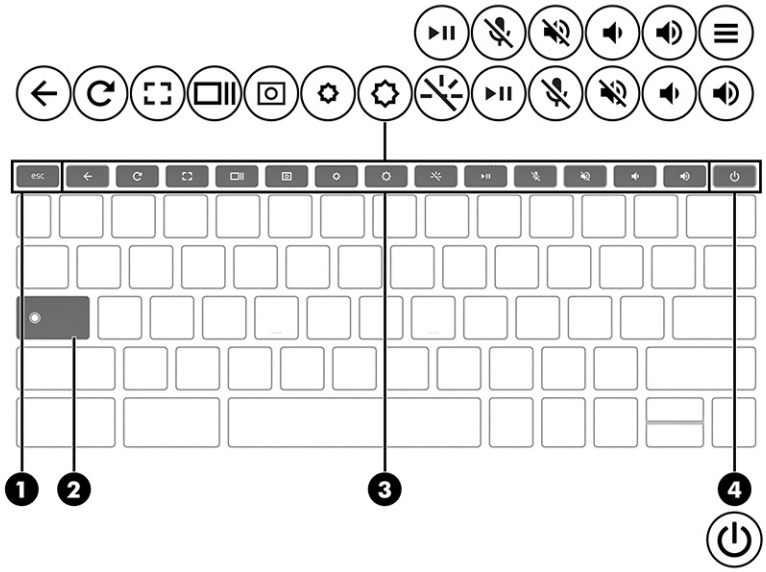


Table 2-6 Special keys and their descriptions

	Component	Description
(1)	esc key	Activates certain computer functions when pressed in combination with other keys, such as tab or shift.
(2)	Search key	Press to search your apps and the web from your apps list.
(3)	Action keys	Execute frequently used system functions. NOTE: The specific action keys shown depend on the product.
(4)	Power key	• When the computer is off, press the key briefly to turn on the computer. • When the computer is on, press and hold the key for 10 seconds to turn off the computer. IMPORTANT: Pressing and holding down the power key results in the loss of unsaved information. If the computer has stopped responding and shutdown procedures are ineffective, press and hold the power key for at least 10 seconds to turn off the computer.

Bottom

Use the illustration and table to identify the bottom components.

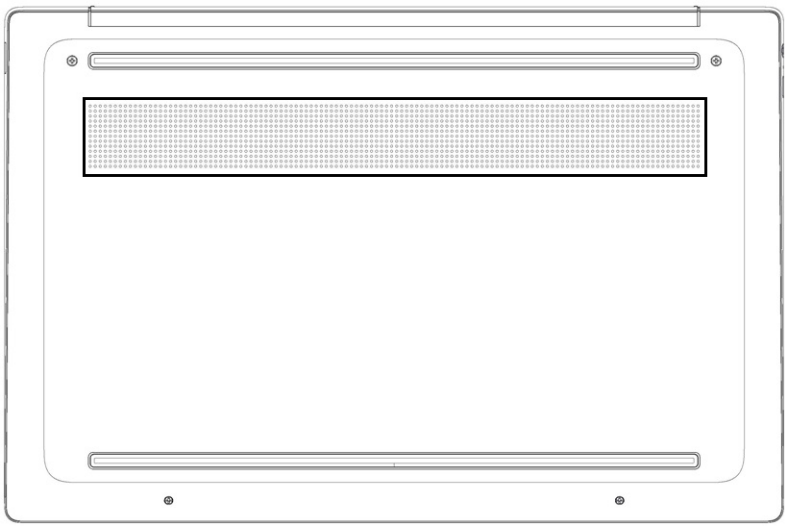


Table 2-7 Bottom component and description

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.

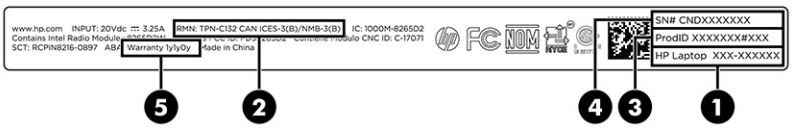


Table 2-8 Service label components

Component	
(1)	HP product name

Table 2-8 Service label components (continued)

Component	
(2)	Regulatory model number
(3)	Product ID
(4)	Serial number
(5)	Warranty period

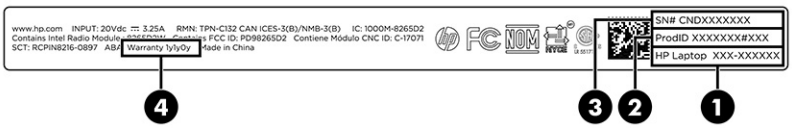


Table 2-9 Service label components

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

- 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.

Chromebook major components

To identify the Chromebook major components, use this illustration and table.

NOTE: HP continually improves and changes product parts. For complete and current information about 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.

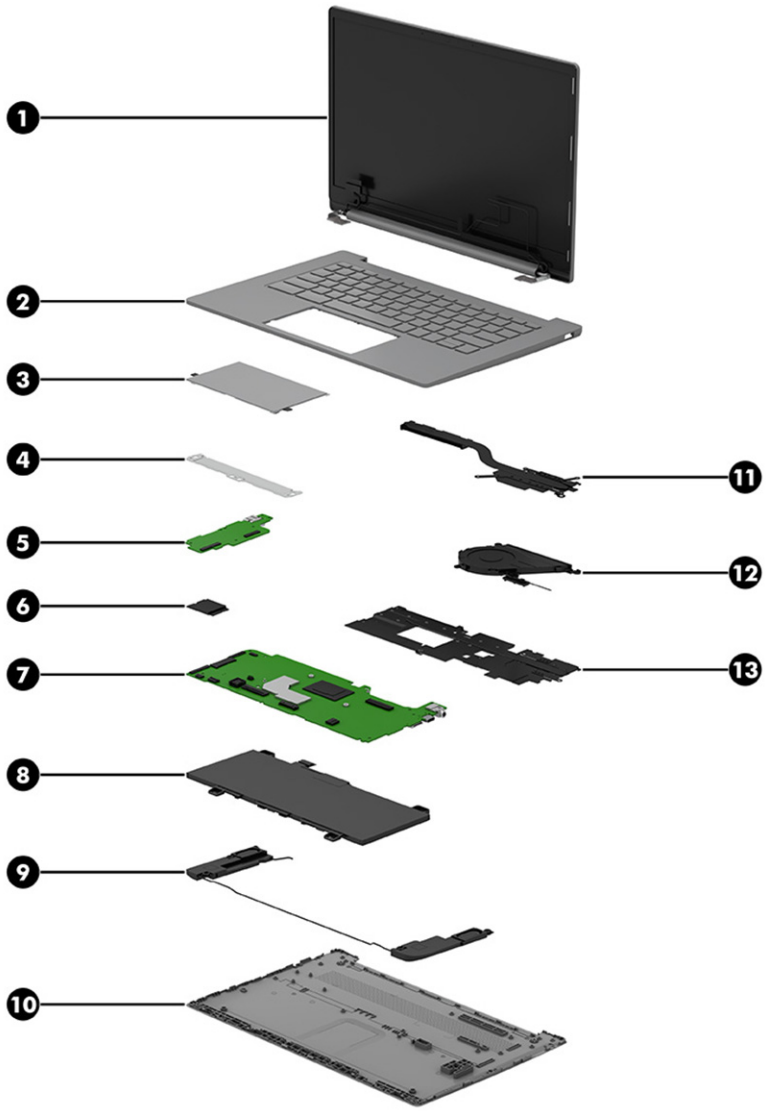


Table 3-1 **Chromebox major component descriptions and part numbers**

Item	Component	Spare part number
(1)	**Display assembly** **NOTE:** Display assemblies are offered as spare parts only at a subcomponent level. For more information, see Display assembly subcomponents on page 13.	
(2)	**Top cover with keyboard** For a detailed list of country codes, see Top cover with keyboard on page 53.	
	Chalkboard gray top cover, jet black keyboard, not backlit	N93392-xx1
	Chalkboard gray top cover, jet black keyboard, backlit	N93393-xx1
	Sky blue top cover, darker sky blue opaque keyboard, not backlit	N93394-xx1
	Sky blue top cover, darker sky blue opaque keyboard, backlit	N93395-xx1
	Lilac lavender top cover, darker lilac lavender opaque keyboard, not backlit	N93396-xx1
	Lilac lavender top cover, darker lilac lavender opaque keyboard, backlit	N93397-xx1
	Glacier silver top cover, soft gray keyboard, not backlit	N93398-xx1
	Glacier silver top cover, soft gray keyboard, backlit	N93399-xx1
	Meteor silver top cover, soft gray keyboard, not backlit	N93400-xx1
	Meteor silver top cover, soft gray keyboard, backlit	N93401-xx1
(3)	**Touchpad** **NOTE:** The touchpad cable is available as spare part number N93356-001.	
	Chalkboard gray	N93351-001
	Sky blue	N93352-001
	Lilac lavender	N93353-001
	Glacier silver	N93354-001
	Meteor silver	N93355-001
(4)	**Touchpad bracket**	not available as a spare part
(5)	**USB board** **NOTE:** USB board cables are available as spare part number N93349-001 for models with an Intel N200/N100 processor (6 W) and N93350-001 for models with an Intel Core i3-N305 processor (15 W).	
	Models with an Intel N200/N100 processor (6 W)	N93347-001
	Models with an Intel Core i3-N305 processor.(15 W)	N93348-001
(6)	**WLAN module**	
	Intel AX211 Wi-Fi 6E Bluetooth 5.3 WLAN	M53366-005
	MediaTek MT7921 Wi-Fi 6 + Bluetooth 5.3	M74879-005
(7)	**System board** (includes processor, replacement thermal material, and the Chrome operating system)	
	Intel Core i3-N305 processor, 8 GB system memory, 256 GB UFS memory	N93334-001

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

Item	Component	Spare part number
	Intel Core i3-N305 processor, 8 GB system memory, 128 GB UFS memory	N93333-001
	Intel N200 processor, 8 GB system memory, 256 GB UFS memory	N93338-001
	Intel N200 processor, 8 GB system memory, 128 GB UFS memory	N93337-001
	Intel N200 processor, 4 GB system memory, 128 GB UFS memory	N93336-001
	Intel N200 processor, 4 GB system memory, 64 GB eMMC memory	N93335-001
	Intel N100 processor, 8 GB system memory, 128 GB UFS memory	N93341-001
	Intel N100 processor, 4 GB system memory, 128 GB UFS memory	N93340-001
	Intel N100 processor, 4 GB system memory, 64 GB eMMC memory	N93339-001
(8)	**Battery**	N93346-001
(9)	**Speakers** (left and right)	N93365-001
(10)	**Bottom cover** (includes rubber feet)	
	Chalkboard gray	N93360-001
	Sky blue	N93361-001
	Lilac lavender	N93362-001
	Glacier silver	N93363-001
	Meteor silver	N93364-001
(11)	**Heat sink** (for use in models with an Intel Core N305 processor ([15 W])	N93358-001
(12)	**Fan** (for use in models with an Intel Core i3-N305 processor [15 w])	N93359-001
(13)	**Heat sink** (For use in models with an Intel N200/N100 processor [6 W])	N93357-001

Display assembly subcomponents

To identify the display assembly subcomponents, use this illustration and table.

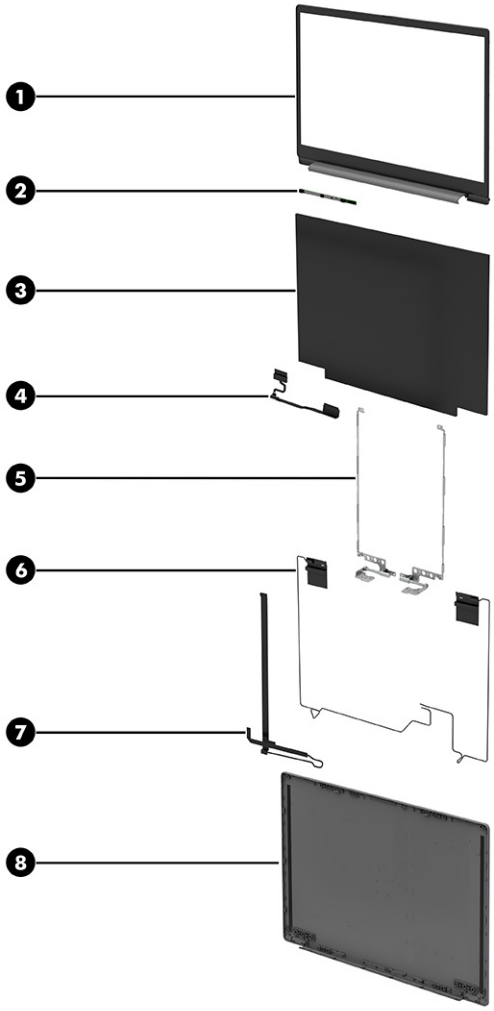


Table 3-2 Display component descriptions and part numbers

Item	Component	Spare part number
(1)	**Display bezel** (includes hinge covers) NOTE: Bezel adhesive is available in the Adhesive Kit as spare part number N93380-001.	
	Chalkboard gray	N93368-001
	Sky blue	N93369-001
	Lilac lavender	N93370-001
	Glacier silver	N93371-001
	Meteor silver	N93372-001
(2)	**Camera module with microphone** (includes rubber bumpers and bezel adhesive)	
	HD	N93374-001
	FHD	N93373-001
(3)	**Display panel** (includes bezel and panel adhesive) NOTE: Panel adhesive is available in the Adhesive Kit as spare part number N93380-001.	

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

Item	Component	Spare part number
	HD, touch screen	N93342-001
	HD, non-touch	N93343-001
	FHD, touch screen	N93344-001
	FHD, non-touch	N93345-001
(4)	**Display cable** (includes panel and bezel adhesive and sponge)	
	For use in models without a touch screen	N93375-001
	For use in models with a touch screen	N93376-001
(5)	**Hinges** (includes left and right display hinges and bezel and panel adhesive)	
	For use with a 250 nit display	N93378-001
	For use with a 300 nit display	N93379-001
(6)	**WLAN antennas and cables** (includes bezel and panel adhesive)	
	For use in models with a MediaTek MT7921 Wi-Fi 6 + Bluetooth 5.3 WLAN module	N93366-001
	For use in models with an Intel AX211 Wi-Fi 6E + Bluetooth 5.3 WLAN module	N93367-001
(7)	**Camera cable** (includes panel and bezel adhesive)	N93377-001
(8)	**Display back cover** (includes wireless antennas and bezel adhesive)	
	For use in models with a MediaTek MT7921 Wi-Fi 6 + Bluetooth 5.3 WLAN module	
	• Chalkboard gray	N93382-001
	• Sky blue	N93383-001
	• Lilac lavender	N93384-001
	• Glacier silver	N93385-001
	• Meteor silver	N93386-001
	For use in models with an Intel AX211 Wi-Fi 6E + Bluetooth 5.3 WLAN module	
	• Chalkboard gray	N93387-001
	• Sky blue	N93388-001
	• Lilac lavender	N93389-001
	• Glacier silver	N93390-001
	• Meteor silver	N93391-001

Miscellaneous parts

To identify the miscellaneous parts, use this table.

Table 3-3 **Miscellaneous part descriptions and part numbers**

Component	Spare part number
AC adapter (45 W, non-PFC, 1.8 m [6 ft], USB Type-C)	L43407-001

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

Component	Spare part number
Screw Kit	N93381-001
HP 14 Reversible Geo Sleeve	L67189-001
HP 220 Wireless Mouse	N15023-002
Power cord (C5, 1.0 m [3.3 ft], conventional)	
Australia	L19358-001
Denmark	L19360-001
Europe	L19361-001
India	L19363-001
Japan	L19365-001
North America	L19367-001
South America	L19369-001
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:

- Nonconductive, nonmarking pry tool
- Magnetic Phillips P2 screwdriver
- Tweezers
- Suction cups

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, 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 19.
- 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**

	Relative humidity		
Event	**55%**	**40%**	**10%**
Walking across carpet	7,500 V	15,000 V	35,000 V
Walking across vinyl floor	3,000 V	5,000 V	12,000 V
Motions of bench worker	400 V	800 V	6,000 V
Removing dual in-line packages (DIPs) from plastic tube	400 V	700 V	2,000 V
Removing DIPs from vinyl tray	2,000 V	4,000 V	11,500 V
Removing DIPs from polystyrene foam	3,500 V	5,000 V	14,500 V
Removing bubble pack from PCB (printed circuit board)	7,000 V	20,000 V	26,500 V
Packing PCBs in foam-lined box	5,000 V	11,000 V	21,000 V

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

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 MΩ ±10% resistance in the ground cords. To provide proper ground, a strap must be worn snug against bare skin. The ground cord must be connected and fit 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 MΩ ±10% resistance between the operator and ground.

Table 4-2 **Static shielding protection levels**

Static shielding protection levels	
Method	**Voltage**
Antistatic plastic	1,500
Carbon-loaded plastic	7,500
Metallized 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 MΩ ±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 MΩ ±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**.

     – or –

   - Select the **HP Easy Clean** icon in the taskbar.

     – or –

   - 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 21 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 22 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 23.

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 22 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 21, Caring for wood veneer (select products only) on page 23, 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 21 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 22 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

To find the HP support that you need, use this information.

Table 4-3 Support information locations

Service consideration	Path to access information
Records of reported failure incidents stored on the computer	**Windows®:** Preoperating 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. (On commercial products) Under the **Main** tab, select **BIOS event log**, and then select **View BIOS Event Log**. - or - (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 `Event Viewer`, and then press enter. 4. Select the log from the left panel. Details display in the right panel. **Chrome™:** 1. Go to support.google.com/chrome. 2. Search `collect Chrome device logs`.

Table 4-3 Support information locations (continued)

Service consideration	Path to access information
Technical bulletins	To locate technical bulletins: 1. Go to www.hp.com. 2. Place the cursor over **Problem solving** to display more options. 3. Select **Support & Troubleshooting**. 4. Type the serial number, product number, or product name to go to the product support page. 5. Select **Advisories** to view technical bulletins.
Repair professionals	To locate repair professionals: 1. Go to www.hp.com. 2. Place the cursor over **Support resources** to display more options. 3. Select **Authorized service providers**.
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 **Get Support**. 3. Near the bottom of the window, select **Notebook PCs**, and then select your location.

5 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.

Component replacement procedures

To remove and replace computer components, use the procedures described in this section.

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/partsurfer/, 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

To remove and replace computer components, use these procedures:

For initial safety procedures, see Removal and replacement procedures preliminary requirements on page 17.

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

Bottom cover

To remove the bottom cover, use this procedure and illustration.

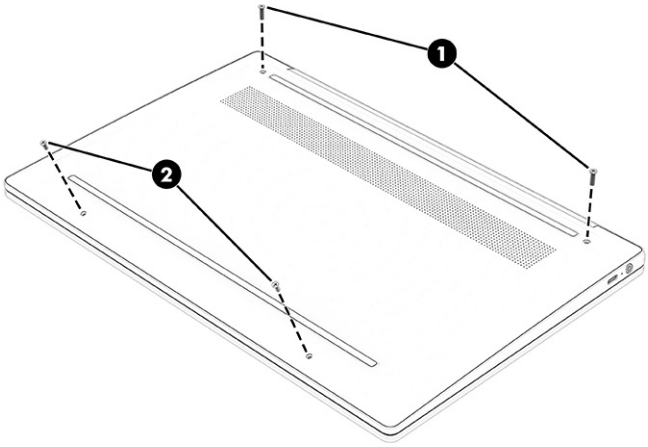
Table 5-1 Bottom cover description and part number

Description	Spare part number
Chalkboard gray	N93360-001
Sky blue	N93361-001
Lilac lavender	N93362-001
Glacier silver	N93363-001
Meteor silver	N93364-001

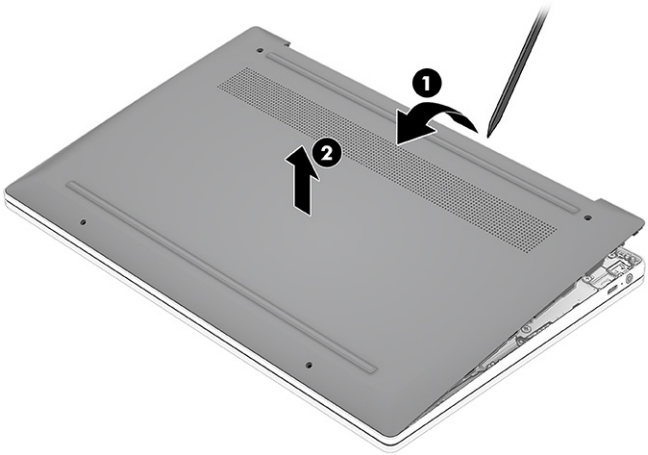
Before removing the bottom cover, prepare the computer for disassembly (Preparation for disassembly on page 26).

Remove the bottom cover:

1. Position the computer upside down with the front toward you.
2. Remove the two Phillips M2.5 × 8.5 screws **(1)** and the two Phillips PM2.0 × 4.5 screws **(2)** that secure the bottom cover to the computer.



3. Use a case utility tool or similar thin plastic tool **(1)** to separate the top edge of the bottom cover from the computer.
4. Remove the bottom cover **(2)**.



To install the bottom cover, reverse the removal procedures.

Battery

To remove the battery, use this procedure and illustration.

Table 5-2 **Battery description and part number**

Description	Spare part number
2 cell, 47 Whr, Li-ion battery	N93346-001

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. Punctures can cause a short inside the battery, which 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 to 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.

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).

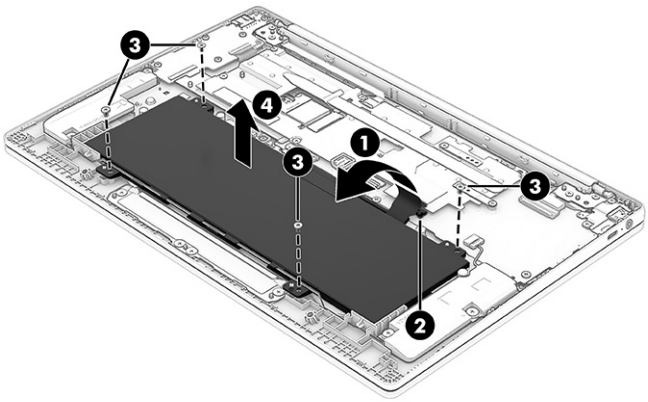
WARNING! To reduce potential safety issues, use only the user-replaceable battery provided with the computer, a replacement battery provided by HP, or a compatible battery purchased from HP.

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. Lift the tape **(1)** off the system board battery connector, and then disconnect the battery cable **(2)** from the system board.
2. Remove the four Phillips M2.0 × 3.5 screws **(3)** that secure the battery to the computer.

3. Remove the battery from the computer **(4)**.



To replace the battery, reverse the removal procedures.

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

Speakers

To remove the speaker, use this procedure and illustration.

Table 5-3 Speakers description and part number

Description	Spare part number
Speakers	N93365-001

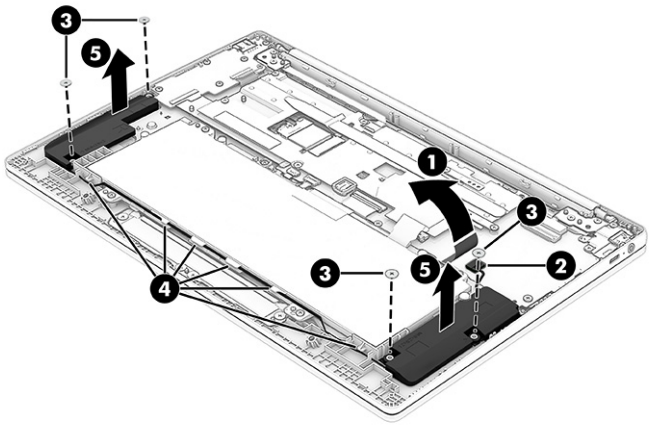
Before removing the speakers, follow these steps:

1. Prepare the computer for disassembly (Preparation for disassembly on page 26).
2. Remove the bottom cover (see Bottom cover on page 26).
3. Disconnect the battery cable from the system board (see Battery on page 27).

Remove the speakers:

1. Lift the tape **(1)** that covers the system board speaker connector, and then disconnect the cable **(2)** from the system board.
2. Remove the two Phillips M1.6 × 2.5 screws **(3)** from each speaker.
3. Remove the speaker cable from the clips **(4)** along the bottom of the battery.

4. Remove the speakers **(5)** from the computer.



To install the speakers, reverse this procedure.

Fan (15 W models only)

To remove the fan, use these procedures and illustrations. The fan is used only on models with a 15 W Intel Core i3-N305 processor.

Table 5-4 Fan description and part number

Description	Spare part number
Fan (for use in models with an Intel Core i3-N305 processor [15 W])	N93359-001

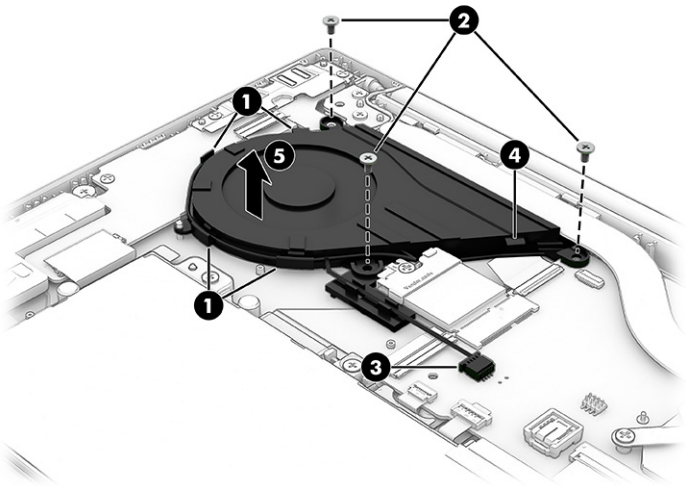
Before removing the fan, follow these steps:

1. Prepare the computer for disassembly (Preparation for disassembly on page 26).
2. Remove the bottom cover (see Bottom cover on page 26).
3. Disconnect the battery cable from the system board (see Battery on page 27).

Remove the fan:

1. Remove the antenna cable from the clips **(1)** around the side of the fan.
2. Remove the three Phillips M2.0 × 4.0 screws **(2)** from the fan.
3. Disconnect the fan cable **(3)** from the system board.
4. Remove the antenna cable from the clip **(4)** on the right side of the fan.

5. Remove the fan **(5)** from the computer.



To install the fan, reverse this procedure.

WLAN module

To remove the WLAN module, use this procedure and illustration.

Table 5-5 WLAN module description and part number

Description	Spare part number
Intel AX211 Wi-Fi 6E Bluetooth 5.3 WLAN	M53366-005
MediaTek MT7921 Wi-Fi 6 + Bluetooth 5.3	M74879-005

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:

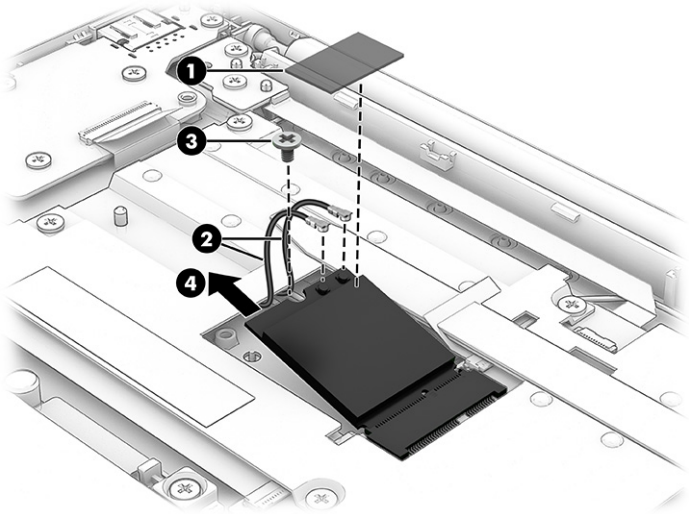
1. Prepare the computer for disassembly (Preparation for disassembly on page 26).
2. Remove the bottom cover (see Bottom cover on page 26).
3. Disconnect the battery cable from the system board (see Battery on page 27).

Remove the WLAN module:

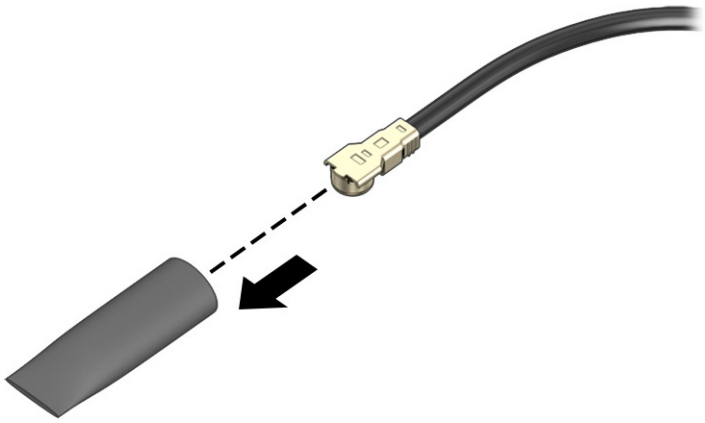
1. Remove the protective tape **(1)** that covers the antenna cables.
2. Disconnect the antenna cables **(2)** from the module terminals.
3. Remove the Phillips M2.0 × 3.0 screw **(3)** that secures the module.

4. Remove the module **(4)** by pulling the it away from the slot at an angle.

NOTE: WLAN modules are notched to prevent incorrect installation.



5. If the WLAN antenna is not connected to the terminal on the WLAN module, install a protective sleeve on the antenna connector, as shown in the following illustration.



To install the WLAN module, reverse this procedure.

Heat sink, 15 W models

To remove the heat sink, use these procedures and illustrations.

NOTE: You can remove the system board with the heat sink attached.

Table 5-6 Heat sink description and part number

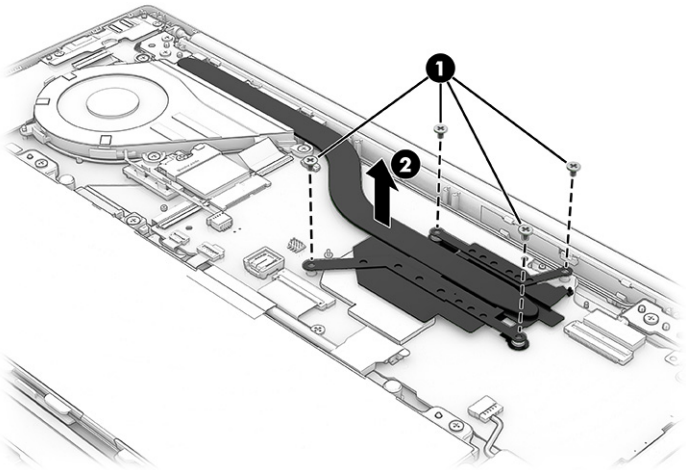
Description	Spare part number
For use in models with an Intel Core N305 processor (15 W)	N93358-001

Before removing the heat sink, follow these steps:

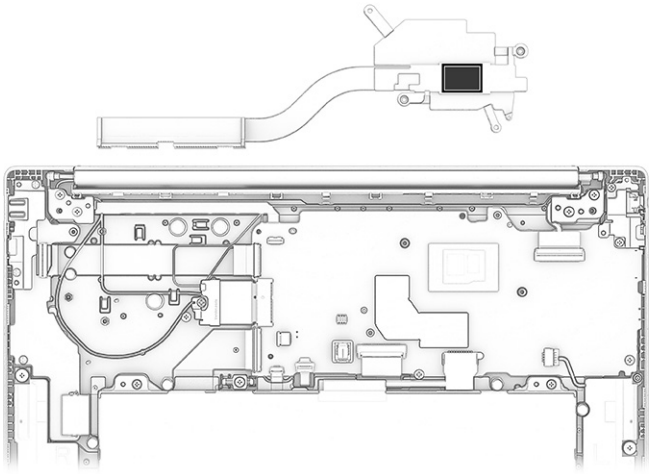
1. Prepare the computer for disassembly (Preparation for disassembly on page 26).
2. Remove the bottom cover (see Bottom cover on page 26).
3. Disconnect the battery cable from the system board (see Battery on page 27).

Remove the heat sink:

1. Remove the four Phillips M2.0 × 3.0 screws **(1)** that secure the heat sink to the system board.
2. Remove the heat sink **(2)**.



3. Thoroughly clean and replace the thermal material from the surface of the heat sink. Replacement thermal material is included with the heat sink and system board spare part kits.



Reverse this procedure to install the heat sink.

Heat sink, 6 W models

To remove the heat sink, use these procedures and illustrations.

Table 5-7 **Heat sink description and part number**

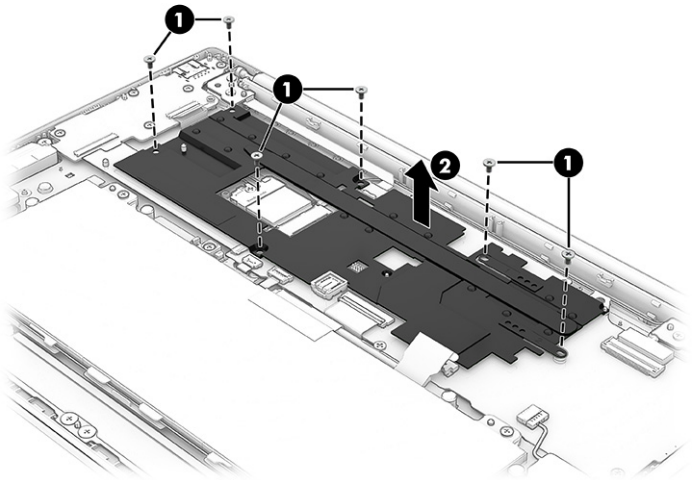
Description	Spare part number
For use in models with an Intel N200/N100 processor (6 W)	N93357-001
For use in models with an Intel Core N305 processor (15 W)	N93358-001

Before removing the heat sink, follow these steps:

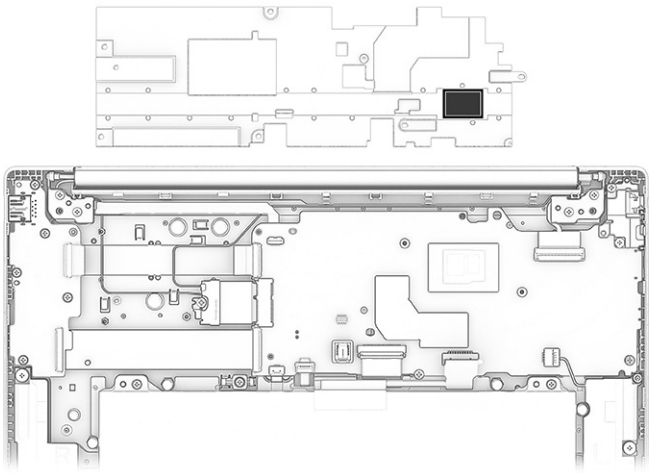
1. Prepare the computer for disassembly (Preparation for disassembly on page 26).
2. Remove the bottom cover (see Bottom cover on page 26).
3. Disconnect the battery cable from the system board (see Battery on page 27).

Remove the heat sink:

1. Remove the six Phillips M2.0 × 3.5 screws **(1)** that secure the heat sink to the system board.
2. Remove the heat sink **(2)**.



3. Each time the heat sink is removed, thoroughly clean and replace the thermal material from the surface of the heat sink. Replacement thermal material is included with the heat sink and system board spare part kits.



Reverse this procedure to install the heat sink.

System board, 15 W models

To remove the system board, use these procedures and illustrations.

Table 5-8 **System board descriptions and part numbers**

Description	Spare part number
System board (includes the processor, replacement thermal material, and the Chrome operating system)	
Intel Core i3-N305 processor, 8 GB system memory, 256 GB UFS memory	N93334-001
Intel Core i3-N305 processor, 8 GB system memory, 128 GB UFS memory	N93333-001

Before removing the system board, follow these steps:

1. Prepare the computer for disassembly (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 27).
4. Remove the fan (see Fan (15 W models only) on page 30).
5. Remove the WLAN module (see WLAN module on page 31).

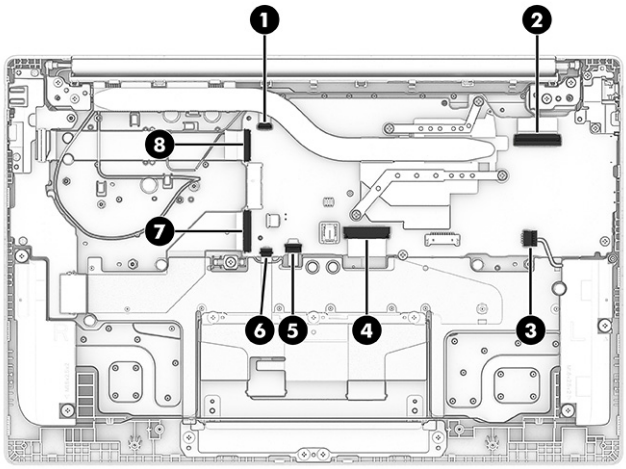
Remove the system board:

1. Disconnect the following cables from the system board:

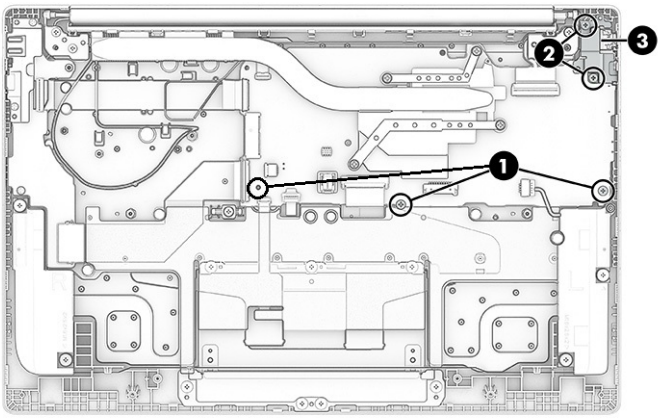
NOTE: A protective cover protects most system board connectors. The cover is secured to the system board with double-sided tape. Lift the cover to access the connectors.

- Camera cable (ZIF) **(1)**

- Display cable (ZIF) **(2)**
- Speaker cable **(3)**
- Keyboard cable (ZIF) **(4)**
- Backlight cable (ZIF) **(5)**
- Touchpad cable (ZIF) **(6)**
- USB board cable (reverse ZIF) from the USB board **(7)**
- USB board cable (reverse ZIF) from the USB board **(8)**

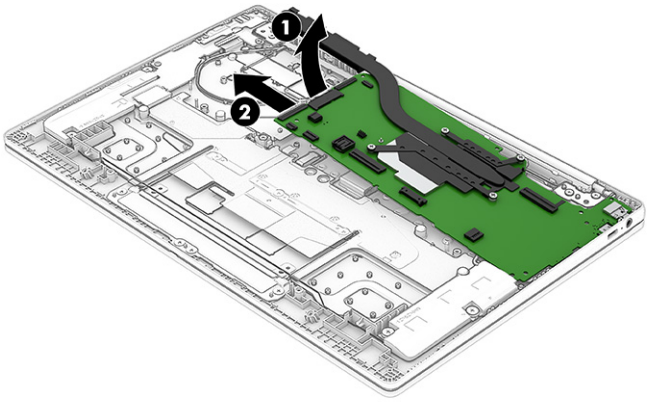


2. Remove the three Phillips M2.0 × 3.0 screws **(1)** that secure the system board to the computer.
3. Remove the two Phillips M2.0 × 3.5 screws **(2)** that secure the USB bracket and system board to the computer.
4. Remove the USB bracket **(3)** from the computer.

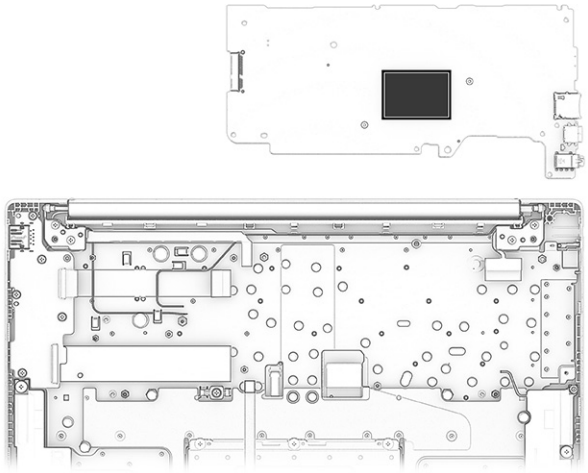


5. Lift the left side of the system board **(1)** until it rests at an angle.

6. Remove the system board **(2)** by pulling it left and out of the computer.



7. When replacing the system board, be sure to install a thermal pad onto the new system board at the location shown in the following illustration.



To install the system board, reverse this procedure.

System board, 6 W models

To remove the system board, use these procedures and illustrations.

Table 5-9 System board descriptions and part numbers

Description	Spare part number
System board (includes the processor, replacement thermal material, and the Chrome operating system)	
Intel N200 processor, 8 GB system memory, 256 GB UFS memory	N93338-001
Intel N200 processor, 8 GB system memory, 128 GB UFS memory	N93337-001
Intel N200 processor, 4 GB system memory, 128 GB UFS memory	N93336-001
Intel N200 processor, 4 GB system memory, 64 GB eMMC memory	N93335-001

Table 5-9 System board descriptions and part numbers (continued)

Description	Spare part number
Intel N100 processor, 8 GB system memory, 128 GB UFS memory	N93341-001
Intel N100 processor, 4 GB system memory, 128 GB UFS memory	N93340-001
Intel N100 processor, 4 GB system memory, 64 GB eMMC memory	N93339-001

Before removing the system board, follow these steps:

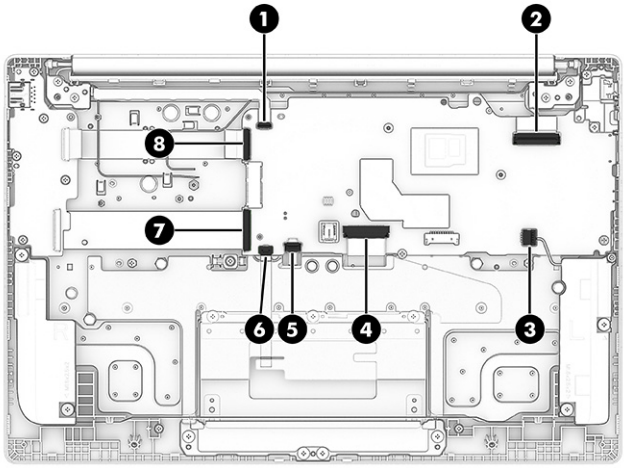
1. Prepare the computer for disassembly (Preparation for disassembly on page 26).
2. Remove the bottom cover (see Bottom cover on page 26).
3. Remove the battery (see Battery on page 27).
4. Remove the fan (see Fan (15 W models only) on page 30).
5. Remove the WLAN module (see WLAN module on page 31).
6. Remove the heat sink (see Heat sink, 6 W models on page 33).

Remove the system board:

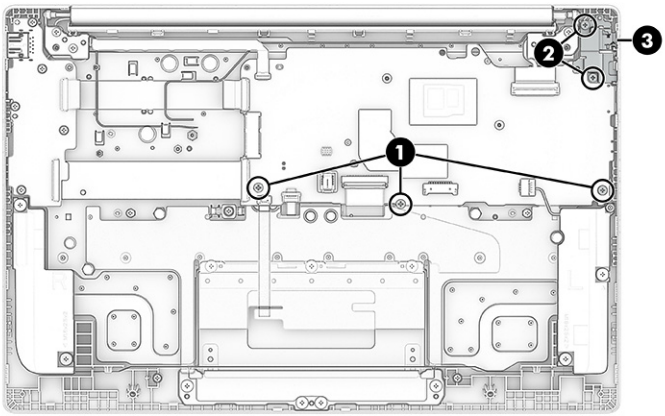
1. Disconnect the following cables from the system board:

NOTE: A protective cover protects most system board connectors. The cover is secured to the system board with double-sided tape. Lift the cover to access the connectors.

- Camera cable (ZIF) **(1)**
- Display cable (ZIF) **(2)**
- Speaker cable **(3)**
- Keyboard cable (ZIF) **(4)**
- Backlight cable (ZIF) **(5)**
- Touchpad cable (ZIF) **(6)**
- USB board cable (reverse ZIF) from the USB board **(7)**
- USB board cable (reverse) from the USB board **(8)**

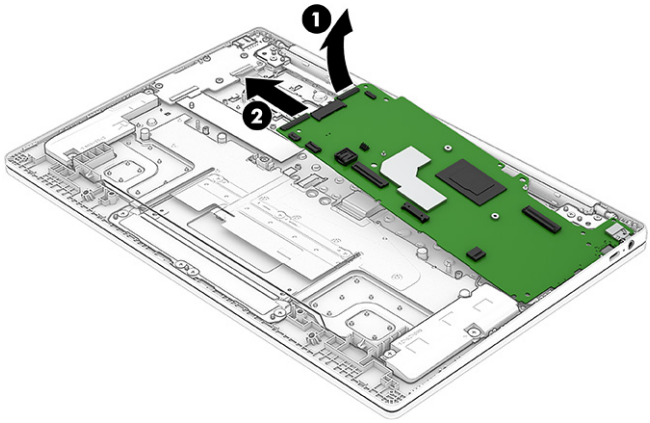


2. Remove the three Phillips M2.0 × 3.0 screws **(1)** that secure the system board to the computer.
3. Remove the two Phillips M2.0 × 3.5 screws **(2)** that secure the USB bracket and system board to the computer.
4. Remove the USB bracket **(3)** from the computer.

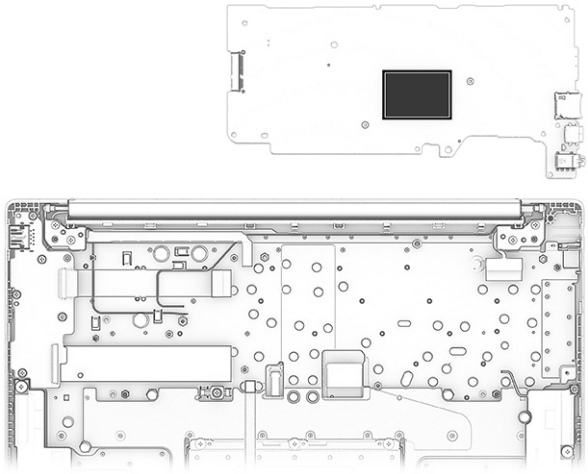


5. Lift the left side of the system board **(1)** until it rests at an angle.

6. Remove the system board **(2)** by pulling it left and out of the computer.



7. When replacing the system board, be sure to install a thermal pad onto the new system board at the location shown in the following illustration.



To install the system board, reverse this procedure.

USB board, 15 W models

To remove the USB board, use these procedures and illustrations.

Table 5-10 USB board description and part number

Description	Spare part number
USB board for use in models with an Intel Core i3-N305 processor (15 W)	N93350-001
USB board cable for use in models with an Intel Core i3-N305 processor (15 W)	N84812-001

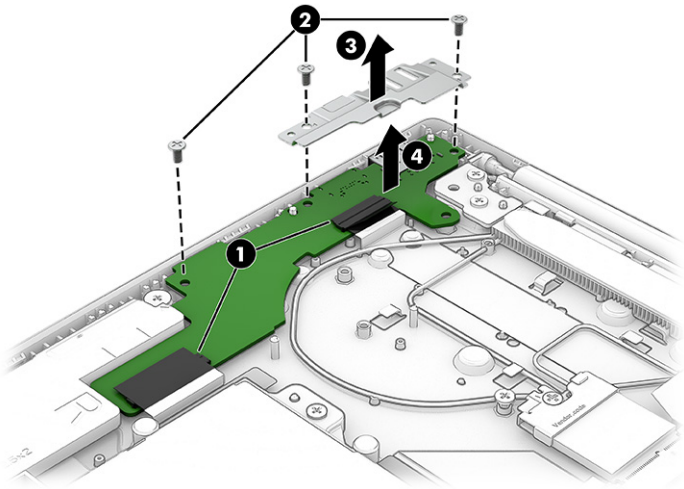
Before removing the USB board, follow these steps:

1. Prepare the computer for disassembly (Preparation for disassembly on page 26).

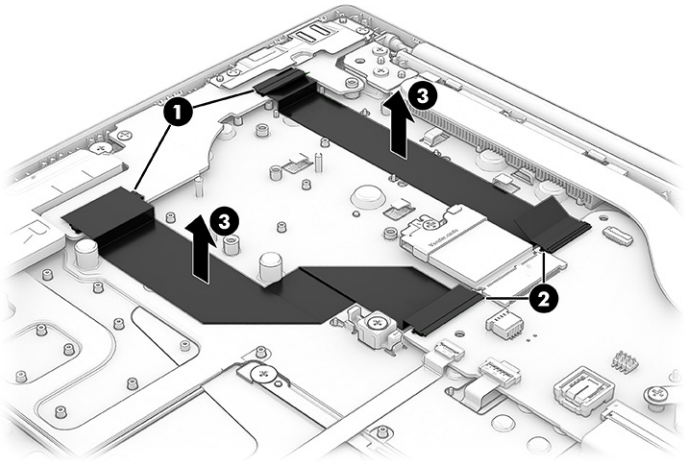
2. Remove the bottom cover (see Bottom cover on page 26).
3. Disconnect the battery cable from the system board (see Battery on page 27).
4. Remove the fan (see Fan (15 W models only) on page 30).

Remove the USB board:

1. Disconnect the cables from the two ZIF connectors **(1)** on the board.
2. Remove the three Phillips M2.0 × 4.0 screws **(2)** from the bracket and board.
3. Remove the bracket **(3)** from the board.
4. Remove the board **(4)** from the computer.



5. To replace the USB cables, remove the fan (see Fan (15 W models only) on page 30).
6. Disconnect the USB cables from the ZIF connectors **(1)** on the USB board and from the ZIF connectors **(2)** on the system board.
7. Peel the cables **(3)** off the computer. The cables are secured with adhesive.



To install the USB board, reverse this procedure.

USB board, 6 W models

To remove the USB board, use these procedures and illustrations.

Table 5-11 **USB board description and part number**

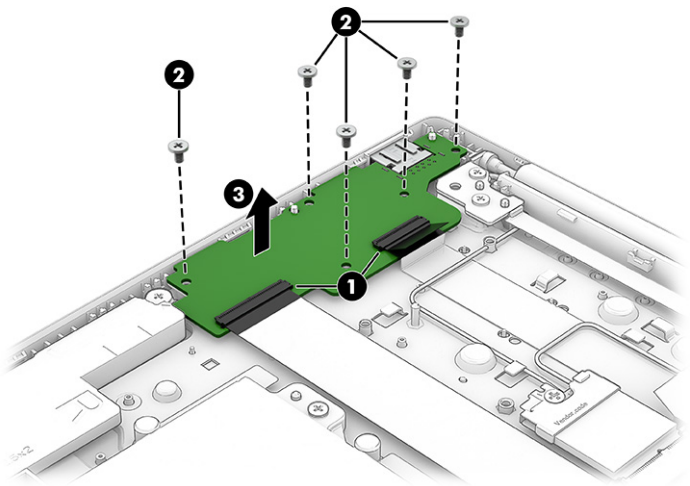
Description	Spare part number
USB board for use in models with an Intel N200/N100 processor (6 W)	N93349-001
USB board cable for use in models with an Intel N200/N100 processor (6 W)	N84811-001

Before removing the USB board, follow these steps:

1. Prepare the computer for disassembly (Preparation for disassembly on page 26).
2. Remove the bottom cover (see Bottom cover on page 26).
3. Disconnect the battery cable from the system board (see Battery on page 27).

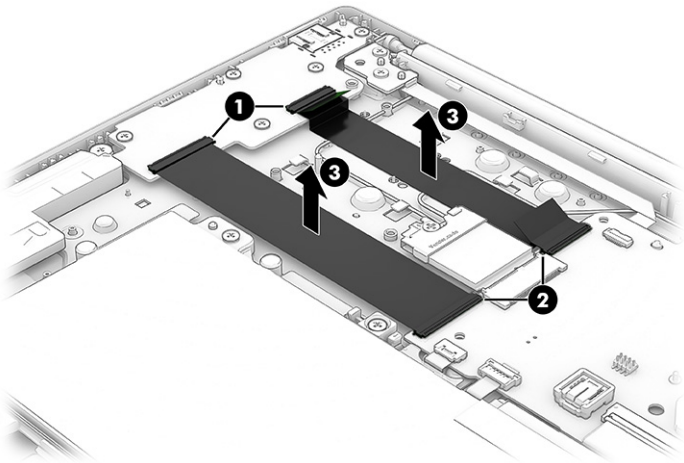
Remove the USB board:

1. Disconnect the cables from the two ZIF connectors **(1)** on the board.
2. Remove the five Phillips M2.0 × 3.5 screws **(2)** from the bracket and board.
3. Remove the board **(3)** from the computer.



4. To replace the USB cables, remove the heat sink (see Heat sink, 15 W models on page 32).
5. Remove the antenna cable that routes over the USB cables. For more information, see Display assembly on page 45.
6. Disconnect the USB cables from the ZIF connectors **(1)** on the USB board and from the ZIF connectors **(2)** on the system board.

7. Peel the cables **(3)** off the computer. The cables are secured with adhesive.



To install the USB board, reverse this procedure.

Touchpad

To remove the touchpad, use this procedure and illustration.

Table 5-12 Touchpad descriptions and part numbers

Description	Spare part number
Touchpad, chalkboard gray	N93351-001
Touchpad, sky blue	N93352-001
Touchpad, lilac lavender	N93353-001
Touchpad, glacier silver	N93354-001
Touchpad, meteor silver	N93355-001
Touchpad cable	N93356-001

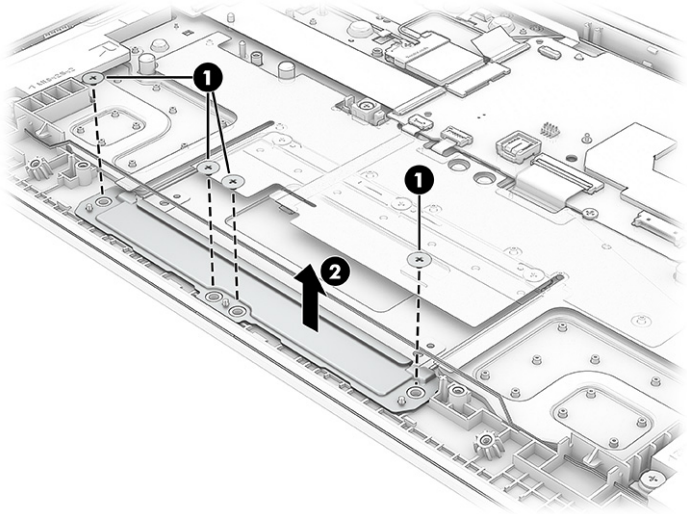
Before removing the touchpad, follow these steps:

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 27).

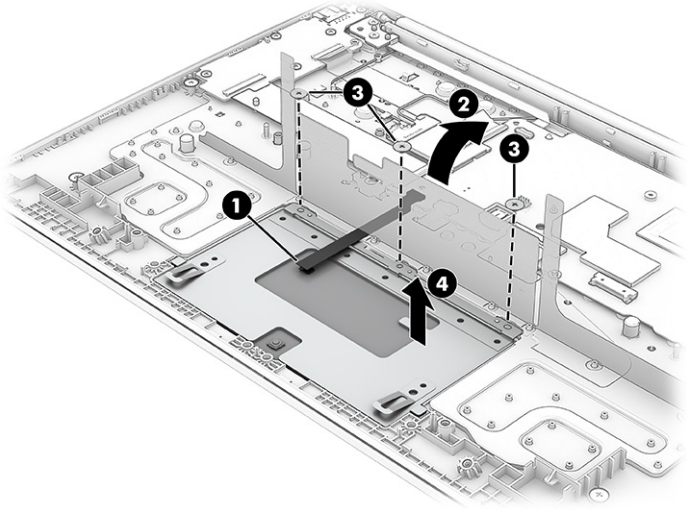
Remove the touchpad:

1. Remove the four Phillips M2.0 × 2.0 screws **(1)** from the touchpad bracket.

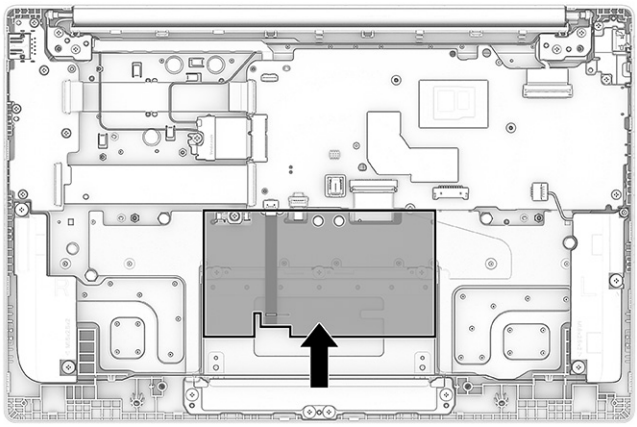
2. Remove the bracket **(2)**.



3. Disconnect the cable from the ZIF connector **(1)** on the touchpad, and then lift the protective cover **(2)** off the top of the touchpad.
4. Remove the three Phillips M2.0 × 2.0 screws **(3)** from the touchpad.
5. Remove the touchpad **(4)** from the computer.



6. When installing a new touchpad, be sure to install new protective tape at the location as shown in the following illustration.



To install the touchpad, reverse this procedure.

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.

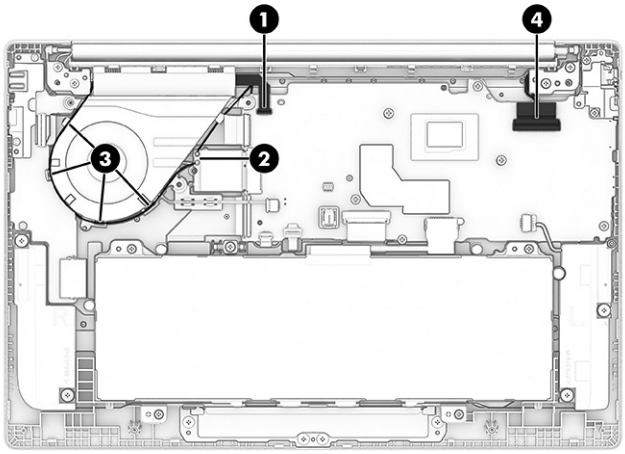
Before removing the display panel, follow these steps:

1. Prepare the computer for disassembly (Preparation for disassembly on page 26).
2. Remove the bottom cover (see Bottom cover on page 26).
3. Disconnect the battery cable from the system board (see Battery on page 27).

Remove the display assembly:

1. To disconnect the display cables on 15 W models:
   a. Remove the heat sink (see Heat sink, 15 W models on page 32).
   b. Disconnect the camera cable from the system board ZIF connector **(1)**.
   c. Disconnect the antenna cables **(2)** from the WLAN module.
   d. Remove the wireless antennas from the clips **(3)** around the fan.

e. Disconnect display cable from the system board ZIF connector **(4)**.



2. To disconnect the display cables on 6 W models:

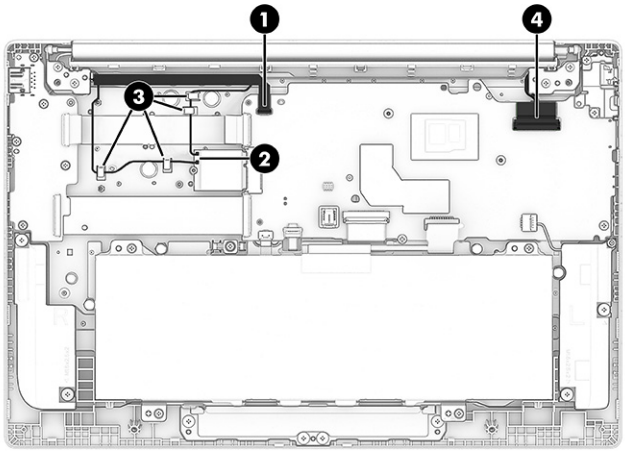
   a. Remove the heat sink (see Heat sink, 6 W models on page 33).

   b. Disconnect the camera cable from the system board ZIF connector **(1)**.

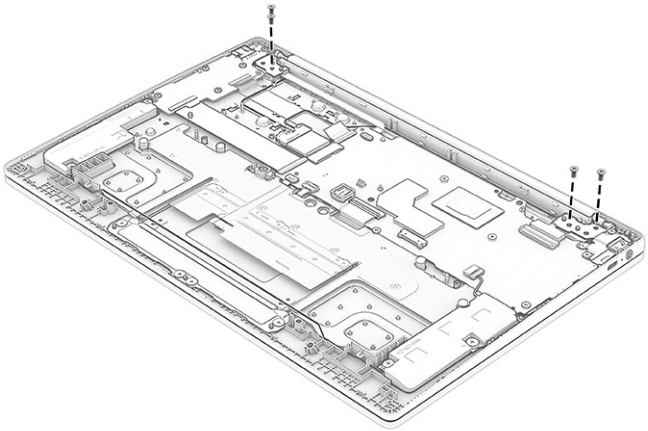
   c. Disconnect the antenna cables **(2)** from the WLAN module.

   d. Remove the wireless antennas from the clips **(3)** in the computer.

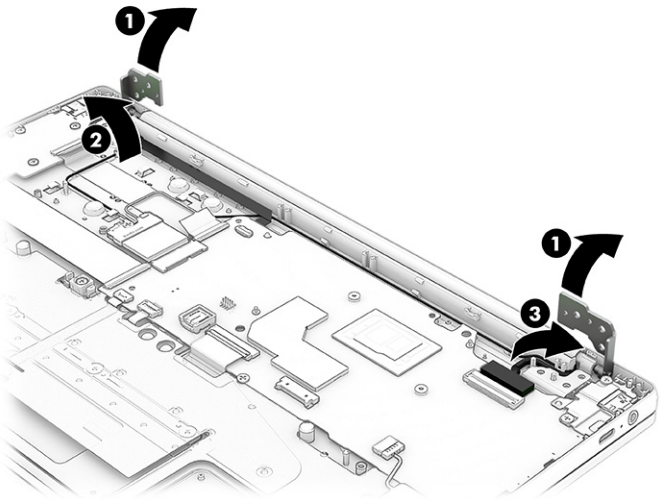
   e. Disconnect display cable from the system board ZIF connector **(4)**.



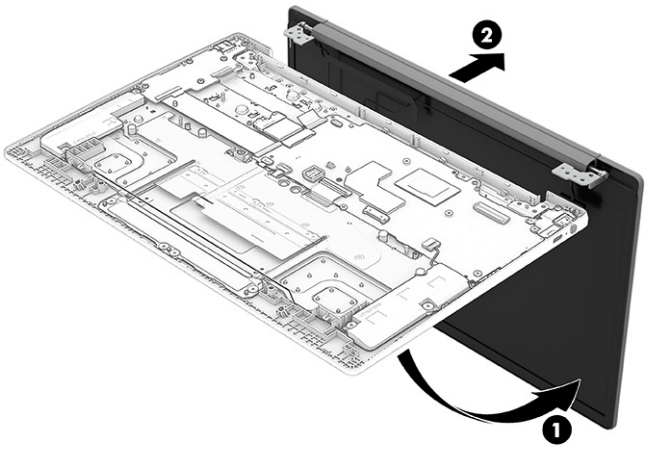
3. Remove the four Phillips M2.5 × 5.0 screws that secure the display assembly to the computer.



4. Lift up both hinges **(1)** as far as they can open.
5. Remove the camera cable and antenna cable **(2)** from the routing clips.
6. Remove the display cable and antenna cable **(3)** from the routing clips.



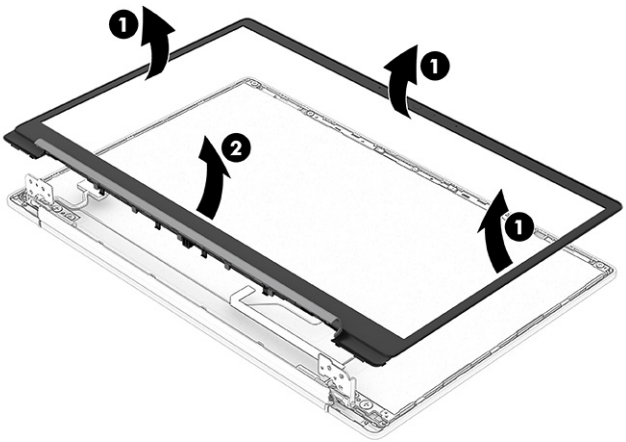
7. Open the display to 90° **(1)**, and then separate the display **(2)** from the computer.



8. 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.



Display bezels are available using the following spare part numbers:

N93368-001: Chalkboard gray

N93369-001: Sky blue

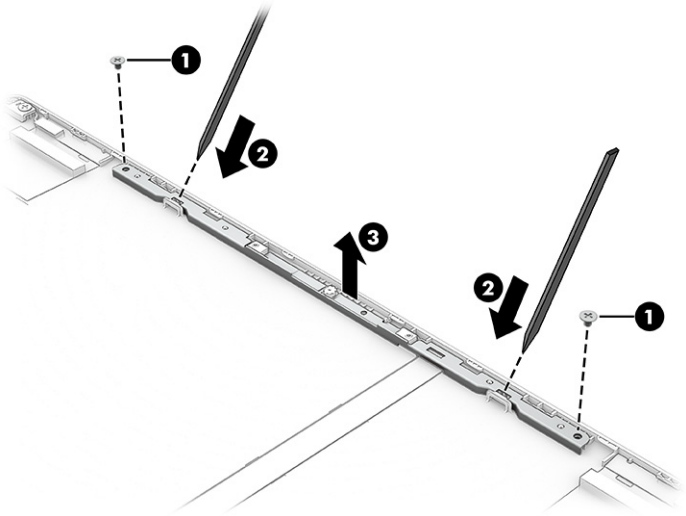
N93370-001: Lilac lavender

N93371-001: Glacier silver

N93372-001: Meteor silver

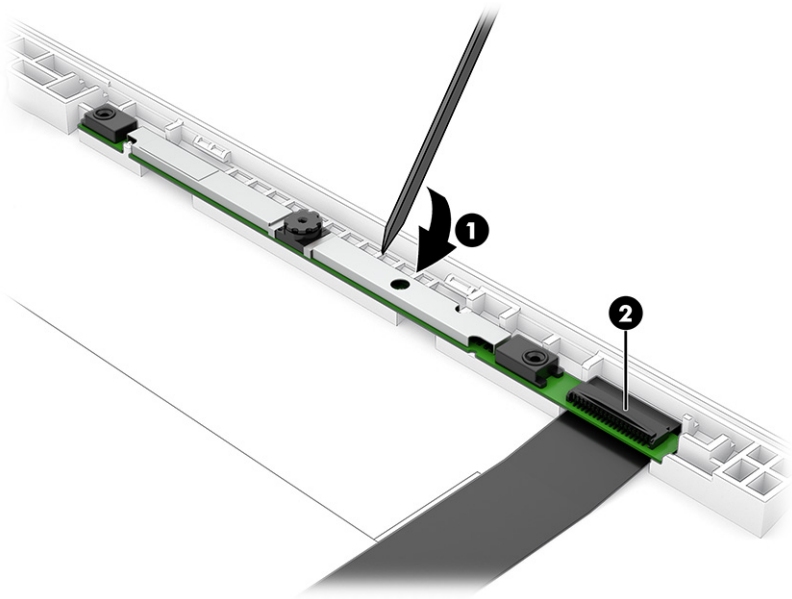
Bezel adhesive is available in the Adhesive Kit as spare part number N93380-001.

c. Remove the two Phillips M2.0 × 2.5 screws **(1)** from the top bracket. Use a tool **(2)** to release the bracket at the two hooks, and then remove the bracket **(3)**.



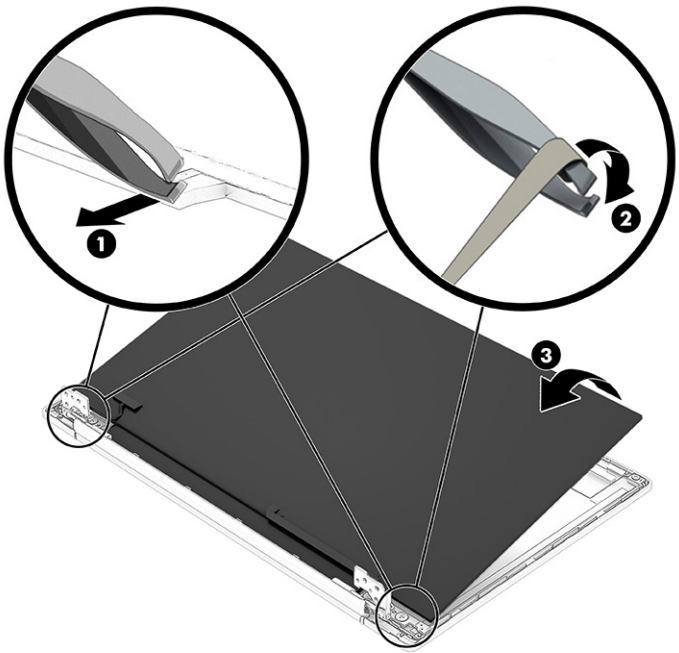
d. To remove the camera module, use a thin pry tool **(1)** to release the module. Disconnect the cable from the ZIF connector **(2)** on the camera module.

NOTE: The camera module is available as spare part number N93374-001 for HD models and N93373-001 for FHD models.

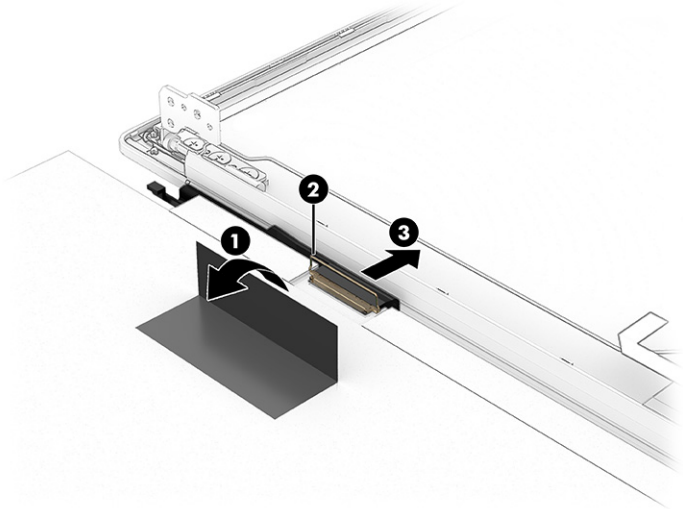


e. The display panel is secured to the display enclosure with tape that is installed in two locations under the panel. To remove the panel, use tweezers to grasp the end of each piece of tape **(1)**. While wrapping the tape around the tweezers **(2)**, pull the tape out from behind the display panel.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



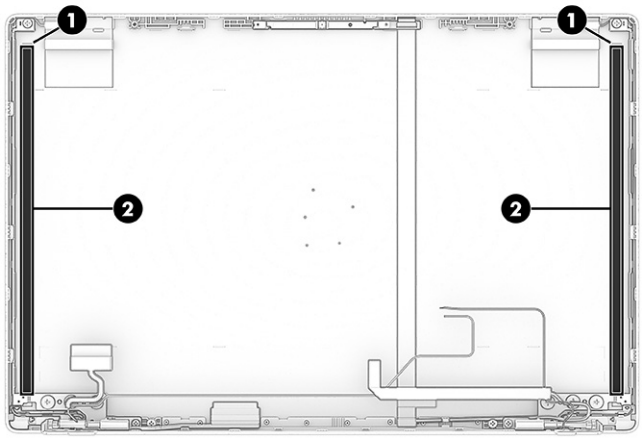
f. Peel back (do not remove) the conductive tape **(1)** from the connector on the bottom of the panel. Lift the locking bar **(2)**, and then disconnect the cable **(3)** from the panel.



g. When installing a display panel, locate the tape installation lines **(1)** on the inside of the display rear cover, and install the tape **(2)** below the lines. Be sure that the end of the tape is visible and accessible, and extends out slightly from under the installed display panel.

NOTE: Install the stretchable tape **below** the installation lines **(1)**. Do not cover the lines.

Stretchable tape is available in the Adhesive Kit as spare part number N93380-001.



Display panels are available as the following spare part numbers:

N93342-001: HD, touch screen

N93343-001: HD, non-touch

N93344-001: FHD, touch screen

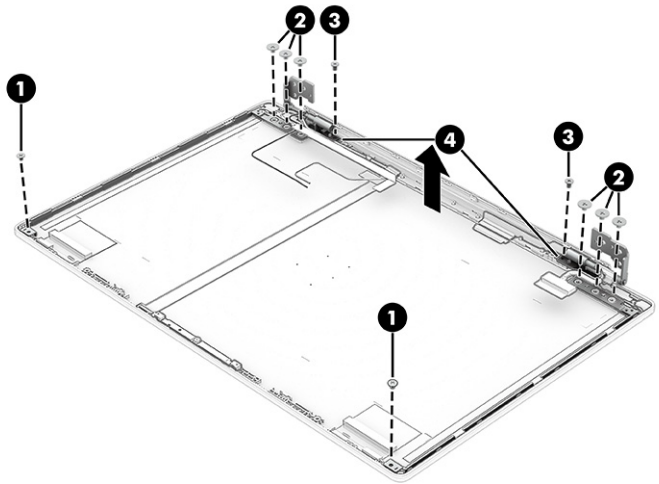
N93345-001: FHD, non-touch

9. To remove the hinges and hinge covers from the display rear cover:

   a. Remove the Phillips M2.0 × 2.5 screw **(1)** from the top of each hinge.

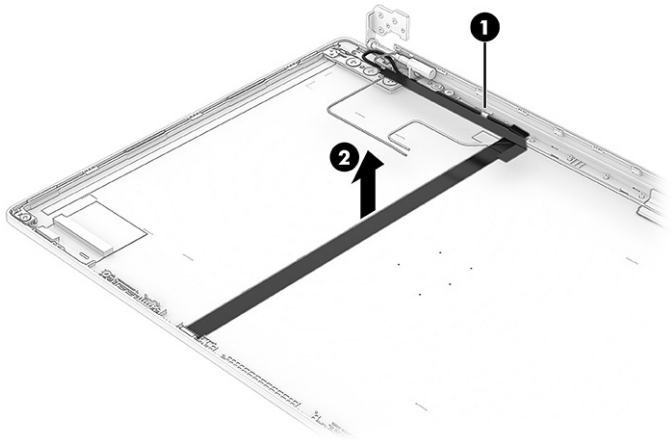
   b. Remove the three Phillips M2.5 × 3.0 screws **(2)** and the Phillips M2.5 × 3.5 screw **(3)** from the bottom of each hinge.

   c. Remove the hinges **(4)** from the display back cover.

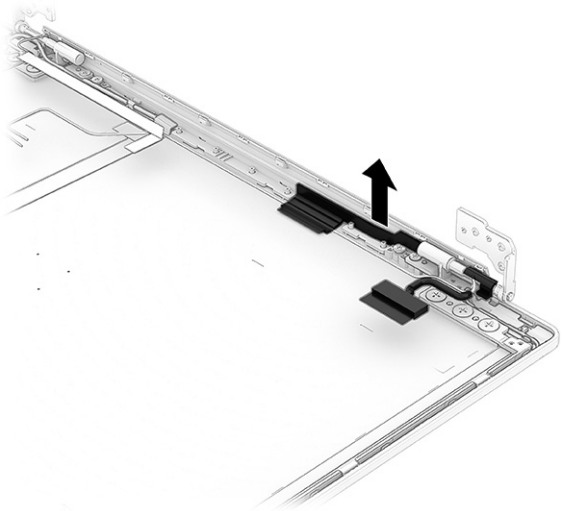


The display hinges are available as spare part number N93378-001 for models with a 250 nit display and N93379-001 for models with a 300 nit display.

10. To remove the camera cable remove the cable from the clip **(1)** at the bottom of the rear cover. Peel the cable **(2)** up off the inside of the display rear cover.



11. To remove the display cable, pull the cable out of its routing along the bottom of the display rear cover.

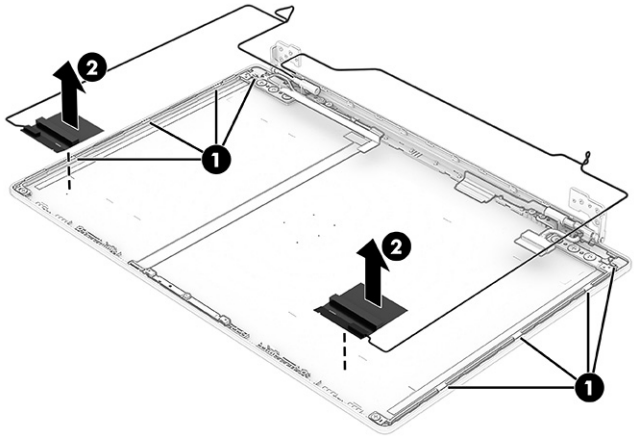


The display cable is available as spare part number N93375-001 for models without a touch screen and N93376-001 for models with a touch screen.

12. 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 N93366-001 for models with a MediaTek MT7921 Wi-Fi 6 + Bluetooth 5.3 WLAN module and N93367-001 for models with a Intel AX211 Wi-Fi 6E + Bluetooth 5.3 WLAN module. 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.

Top cover with keyboard

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 number for the top covers with keyboards. The second table provides the country codes.

Table 5-13 Top cover with keyboard descriptions and part numbers

Description	Spare part number
Chalkboard gray top cover, jet black keyboard, not backlit	N93392-xx1
Chalkboard gray top cover, jet black keyboard, backlit	N93393-xx1
Sky blue top cover, darker sky blue opaque keyboard, not backlit	N93394-xx1
Sky blue top cover, darker sky blue opaque keyboard, backlit	N93395-xx1
Lilac lavender top cover, darker lilac lavender opaque keyboard, not backlit	N93396-xx1
Lilac lavender top cover, darker lilac lavender opaque keyboard, backlit	N93397-xx1
Glacier silver top cover, soft gray keyboard, not backlit	N93398-xx1
Glacier silver top cover, soft gray keyboard, backlit	N93399-xx1
Meteor silver top cover, soft gray keyboard, not backlit	N93400-xx1
Meteor silver top cover, soft gray keyboard, backlit	N93401-xx1

Table 5-14 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	Germany	-041	Portugal	-131
Denmark, Finland, and Norway	-DH1	Italy	-061	Spain	-071
French Canada	-DB1	Japan	-291	United Kingdom	-031
France	-051	The Netherlands	-B31	United States	-001

6 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 Chrome OS™ 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 “Chrome OS 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 “Chrome OS 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 , click **Chromebook Recovery Utility** from the Apps list, and 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 fl ash 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 "Chrome OS 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 Chrome OS 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.

7 Specifications

This chapter provides specifications for your computer system.

Computer specifications

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

Table 7-1 Computer specifications

	Metric	U.S.
Dimensions		
Width	325.7 mm	12.8 in
Depth	215.5 mm	8.5 in
Height, rear (6 W models)	18.2 mm	0.7 in
Height, rear (15 W models)	19.6 mm	0.8 in
Weight		
6 W models	1450 g	3.2 lb
15 W models	1500 g	3.3 lbs
Input power		
Operating voltage and current	5 V DC @ 2 A / 12 V DC @ 3 A /15 V DC @ 3 A - 45 W USB-C 5 V DC @ 3 A / 9 V DC @ 3 A / 12 V DC @ 3.75 A /15 V DC @ 3 A - 45 W USB-C 5 V DC @ 3 A / 9 V DC @ 3 A / 10 V DC @ 3.75 A / 12 V DC @ 3.75 A / 15 V DC @ 3 A / 20 V DC @ 2.25 A - 45 W USB-C	
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

Table 7-1 Computer specifications (continued)

	Metric	U.S.
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 7-2 Display specifications

	Metric	U.S.
Active diagonal size	35.6 cm	14.0 in
Resolution	1920 × 1080 (FHD) 1366 × 768 (HD)	
Brightness	300 nits (FHD) 250 nits (FHD, HD)	
Backlight	WLED	
Display panel interface	eDP	

8 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 three-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 8-1 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 8-1 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
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, three-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, three-conductor. The wall plug must be a two-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, three-conductor, 0.75 mm² or 1.25 mm² conductor size. The wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (7 A, 125 V AC) configuration.
4. The flexible cord must be Type RVV, three-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 H05VV-F three-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 three-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 three-conductor, 0.75 mm² or 1.00 mm² conductor size, with plug BS 1363/A with BSI or ASTA marks.

9 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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