



Maintenance and Service Guide

SUMMARY

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

Legal information

© Copyright 2023 HP Development Company, L.P.

Chrome, ChromeOS, Chromebook, Google, and Google Drive are trademarks of Google LLC. Intel, Core, Iris, and Thunderbolt are trademarks of Intel Corporation or its subsidiaries in the U.S. and/or other countries. Microsoft and Windows are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries. USB Type-C® and USB-C® are registered trademarks of USB Implementers Forum. DisplayPort™ and the DisplayPort™ logo are trademarks owned by the Video Electronics Standards Association (VESA®) in the United States and other countries.

The information contained herein is subject to change without notice. The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

First Edition: February 2023

Document Part Number: N50035-001

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**.

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 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.

Table of contents

1 Product description.....	1
2 Components.....	2
Right.....	2
Left.....	3
Display	3
Keyboard area.....	4
Touchpad	5
Speakers.....	5
Special keys.....	6
Labels	7
3 Illustrated parts catalog	10
Computer major components.....	10
Miscellaneous parts.....	12
4 Removal and replacement procedures preliminary requirements.....	13
Tools required	13
Service considerations.....	13
Plastic parts.....	13
Cables and connectors.....	13
Drive handling	13
Electrostatic discharge information.....	14
Generating static electricity.....	14
Preventing electrostatic damage to equipment	15
Personal grounding methods and equipment.....	15
Grounding the work area.....	16
Recommended materials and equipment.....	16
Cleaning your computer	17
Enabling HP Easy Clean (select products only).....	17
Removing dirt and debris from your computer.....	17
Cleaning your computer with a disinfectant.....	18
Caring for wood veneer (select products only).....	19
Packaging and transporting guidelines.....	19
Accessing support information.....	20
5 Removal and replacement procedures for authorized service provider parts.....	22
Component replacement procedures	22
Preparation for disassembly.....	22
Bottom cover	22
Battery	24

Heat sink and fan assembly	26
WLAN antenna.....	27
Display assembly.....	28
Touchpad	30
RGB board.....	31
USB board.....	32
System board	33
Fingerprint reader board.....	35
Top cover with keyboard	36
6 Backing up, resetting, and recovering.....	38
Backing up	38
Resetting.....	38
Recovering.....	38
Option 1: Recovering using an internet connection	39
Option 2: Installing the Chromebook Recovery Utility.....	39
Creating recovery media	40
Recovering the Chrome operating system with recovery media.....	40
Setting up your computer after a reset or recovery	40
Erasing and reformatting the recovery media	41
7 Specifications.....	42
Computer specifications.....	42
35.6 cm (14.0 in) display specifications	42
8 Power cord set requirements	44
Requirements for all countries	44
Requirements for specific countries and regions.....	44
9 Recycling.....	46
Index.....	47

1 Product description

This table provides detailed product information.

Table 1-1 Product components and their descriptions

Category	Description
Product Name	HP Dragonfly Pro Chromebook
Processors	12th generation Intel® Core™ processor Intel Core i5-1235U (3.3 GHz [4.4 GHz max turbo], 12 MB cache, 10 cores, 15 W)
Graphics	Internal graphics Intel Iris® Xe Graphics
Display	14.0 in (35.6 cm), liquid crystal display (LCD), 16:10 (2560 × 1600), in-plane switching (IPS), 100% sRGB, 1200 nits
Memory	Integrated, not customer accessible or upgradeable 16 GB, LPDDR5x
Primary storage	Integrated, not customer accessible or upgradeable 256 GB, PCIe, NVMe
Audio and video	Four speakers (two up-firing, two down-firing) Audio by B&O 8MP camera
Wireless	Wireless Local Area Network (WLAN) Wi-Fi 6E; BTLE 5.2
Ports	(4) Thunderbolt™ 4/USB 4, USB Type-C® ports, supporting: - power delivery - data transfer
Keyboard	Keyboard (full size, RGB backlit)
Power requirements	Battery 4 cell, 51.3 Whr, li-ion polymer, HP Long Life HP Fast Charge Technology Smart AC adapters (USB Type-C, non power factor correction [nPFC], PD 3.0) 96 W
Operating system	Chrome™
Serviceability	End user replaceable parts 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.

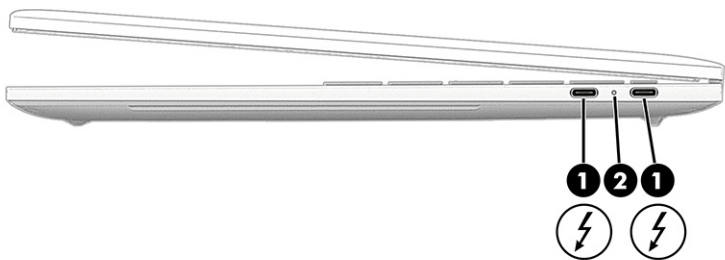


Table 2-1 Right-side components and their descriptions

Component		Description
(1)	USB Type-C® power connector and Thunderbolt™ ports with Sleep and Charge and DisplayPort™ output (2)	<p>Connect an AC adapter that has a USB Type-C connector, supplying power to the computer and, if needed, charging the computer battery.</p> <p>- and -</p> <p>Connect USB devices, provide high-speed data transfer, and charge small devices (such as a smartphone).</p> <p>NOTE: Use a standard USB Type-C charging cable or cable adapter (purchased separately) when charging a small external device.</p> <p>- and -</p> <p>Connect display devices that have a USB Type-C connector, providing DisplayPort output.</p> <p>NOTE: Your computer might also support a Thunderbolt docking station.</p>
(2)	AC adapter and battery light	<ul style="list-style-type: none">• 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.

Left

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

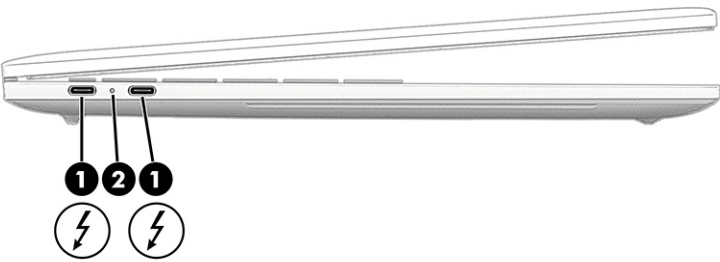


Table 2-2 Left-side components and their descriptions

Component		Description
(1)	USB Type-C power connector and Thunderbolt ports with Sleep and Charge and DisplayPort output (2)	<p>Connect an AC adapter that has a USB Type-C connector, supplying power to the computer and, if needed, charging the computer battery.</p> <p>- and -</p> <p>Connect USB devices, provide high-speed data transfer, and charge small devices (such as a smartphone).</p> <p>NOTE: Use a standard USB Type-C charging cable or cable adapter (purchased separately) when charging a small external device.</p> <p>- and -</p> <p>Connect display devices that have a USB Type-C connector, providing DisplayPort output.</p> <p>NOTE: Your computer might also support a Thunderbolt docking station.</p>
(2)	AC adapter and battery light	<ul style="list-style-type: none">• 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.

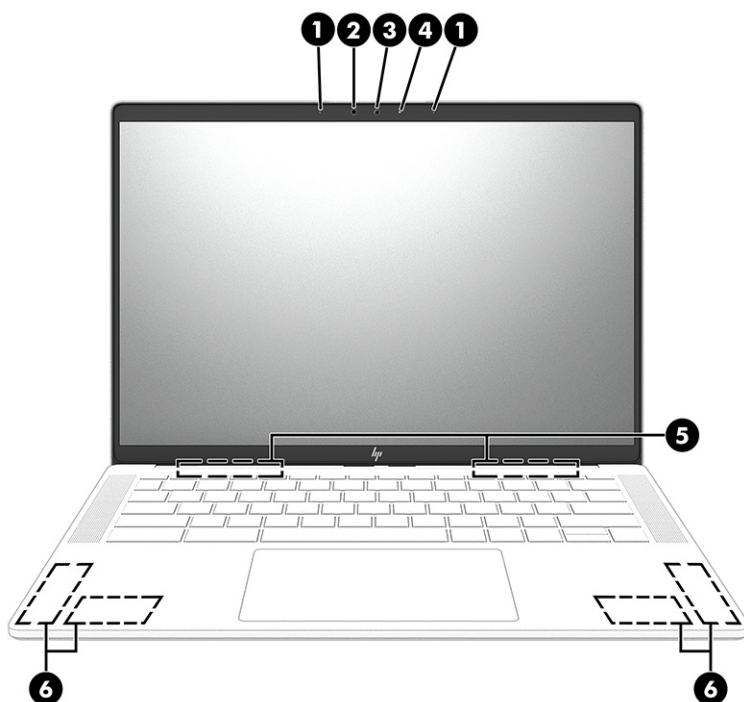


Table 2-3 Display components and their descriptions

Component		Description
(1)	Internal microphones (2)	Record sound.
(2)	Ambient light sensor	Adjusts the brightness of the display, depending on the ambient light.
(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 light	On: The camera is in use. Off: The camera is off.
(5)	WLAN antennas*	Send and receive wireless signals to communicate with wireless local area networks (WLANs).
(6)	WWAN antennas* (select products only)	Send and receive wireless signals to communicate with wireless wide area networks (WWANs).

*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.

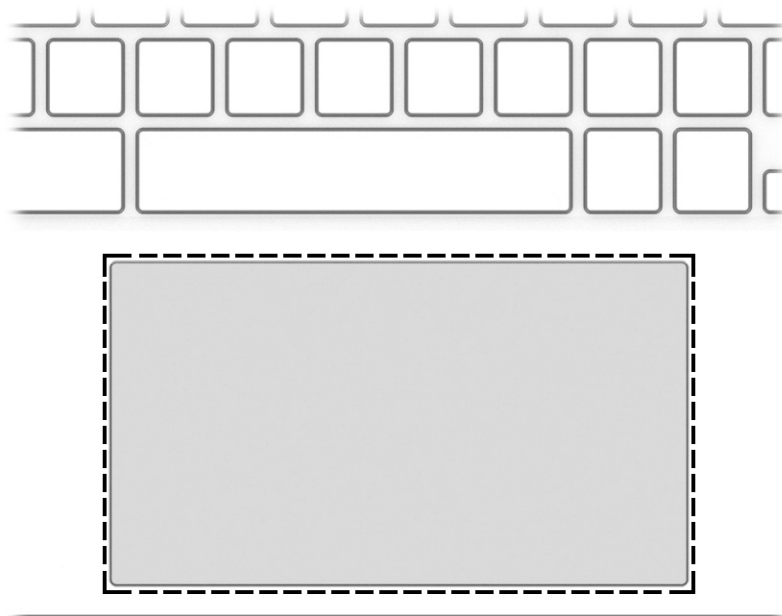


Table 2-4 Touchpad component and description

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

Speakers

Use the illustration and table to locate the speakers.

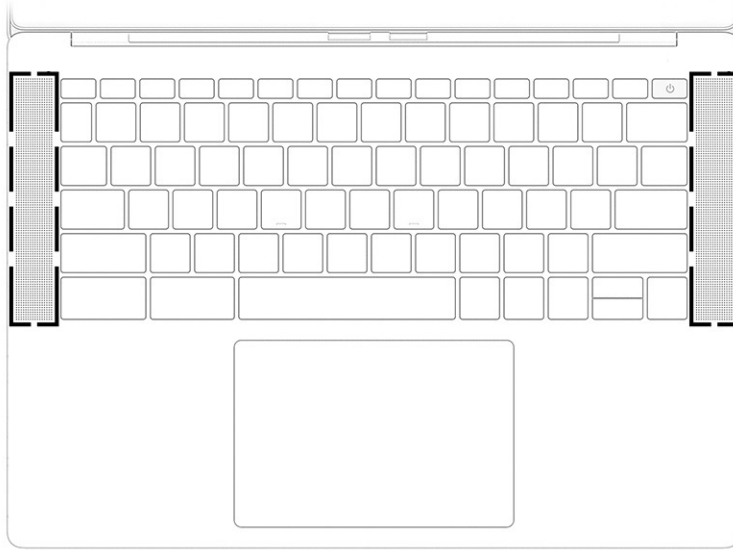


Table 2-5 Speakers and their description

Component	Description
Speakers (2)	Produce sound.

Special keys

Use the illustration and table to locate the special keys.

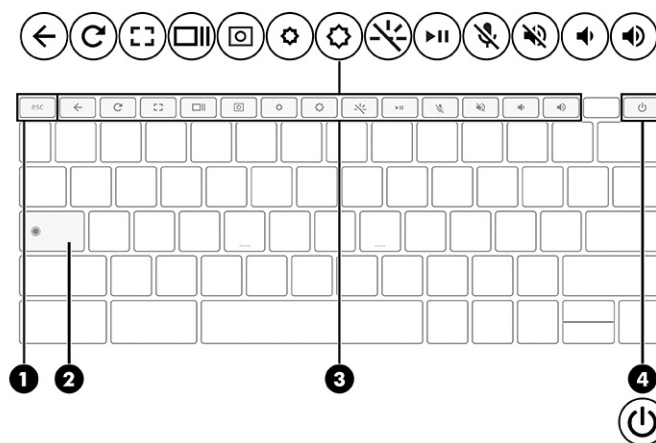


Table 2-6 Special keys and their descriptions

Component	Description
(1) <code>esc</code> key	Activates certain computer functions when pressed in combination with other keys, such as tab or shift .
(2) Search key	Opens a search box.

Table 2-6 Special keys and their descriptions (continued)

Component		Description
(3)	Action keys	Execute frequently used system functions.
(4)	 Power key	<ul style="list-style-type: none"> When the computer is off, press the key briefly to turn on the computer. When the computer is on, press the key briefly to initiate Sleep. When the computer is in the Sleep state, press the key briefly to exit Sleep (select products only). <p>IMPORTANT: Pressing and holding down the power key results in the loss of unsaved information.</p> <p>If the computer has stopped responding and shutdown procedures are ineffective, press and hold the power key for at least 10 seconds to turn off the computer.</p>

Labels

The labels affixed to the computer provide information that you might need when you troubleshoot system problems or travel internationally with the computer. Labels can 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 2-7 Service label components

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

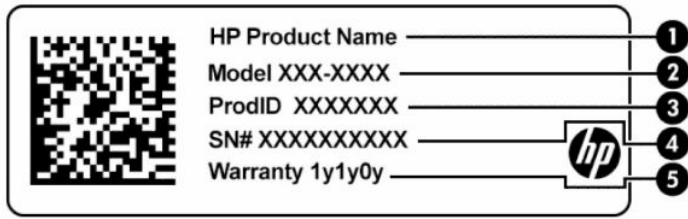


Table 2-8 Service label components

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

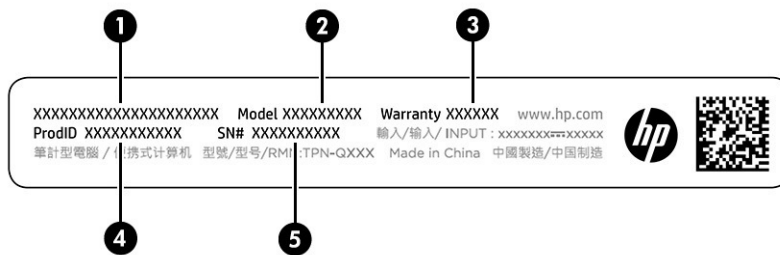


Table 2-9 Service label components

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

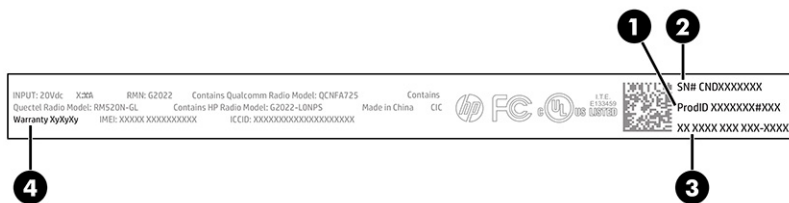


Table 2-10 Service label components

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

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

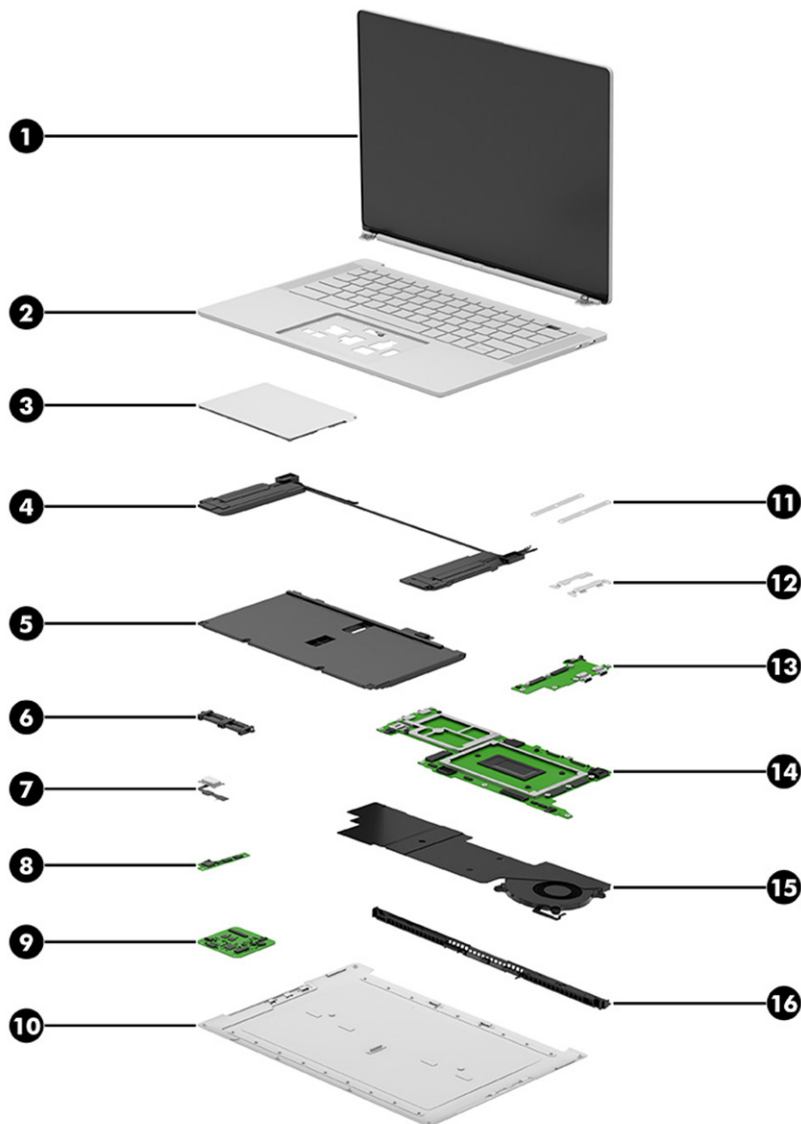


Table 3-1 Computer major component descriptions and part numbers

Item	Component	Spare part number
(1)	Display assembly NOTE: Display assemblies are available only as a whole unit.	
	Black	N48840-001
	White	N48841-001
(2)	Top cover with keyboard (includes speakers)	
	Black	N46527-001
	White	N46528-001
(3)	Touchpad NOTE: The touchpad cables are included in the Cable Kit as spare part number N48839-001.	
	Black	N46532-001
	White	N46533-001
(4)	Speakers	not available as a spare part
(5)	Battery NOTE: Battery stretchable tape is available in the Cable Kit as spare part number N48839-001.	N46556-001
(6)	Display cable guide	not available as a spare part
(7)	Fingerprint module	
	Black	N46539-001
	White	N46540-001
(8)	Fingerprint board NOTE: The fingerprint reader cable is available in the Cable Kit as spare part number N48839-001.	N46538-001
(9)	RGB board NOTE: The RGB board cable is available in the Cable Kit as spare part number N48839-001.	N46530-001
(10)	Bottom cover	
	Black	N46525-001
	White	N46526-001
(11)	USB board cables brackets	not available as a spare part
(12)	USB port brackets (on system board)	not available as a spare part
(13)	USB board NOTE: The USB board cables are available in the Cable Kit as spare part number N48839-001.	N46523-001

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

Item	Component	Spare part number
(14)	System board (includes processor) NOTE: The system board repair kit is available as spare part number N32019-888.	N46522-001
(15)	Heat sink (includes fan)	N46537-001
(16)	WLAN antenna	N46536-001

Miscellaneous parts

To identify the miscellaneous parts, use this table.

Table 3-2 Miscellaneous part descriptions and part numbers

Component	Spare part number
AC adapter (USB Type-C, 96 W)	
White	N26872-001
Black	N26873-001
Hall sensor cable	N46542-001
Cable Kit (includes the following cables: fingerprint reader, USB HS, USB LS, touchpad HP, touchpad CP, keyboard, battery adhesive)	N48839-001
Miscellaneous Parts Kit (includes battery gasket and top LED rubber)	N46559-001
Screw Kit	N46558-001

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
- Magnetic Phillips P0 screwdriver
- Magnetic Torx T5 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, 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 15](#).
 - 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	Relative humidity		
	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
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, 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 $1\text{ M}\Omega \pm 10\%$ 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 $1\text{ M}\Omega \pm 10\%$ 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**.
 - 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 17](#) 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 18](#) 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 19](#).

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 18](#) 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 17](#), [Caring for wood veneer \(select products only\) on page 19](#), 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 17](#) 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 18](#) 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	<p>Windows®:</p> <p>Preoperating system failures are logged in the BIOS Event Log. To view the BIOS Event Log:</p> <ol style="list-style-type: none"> 1. Press the power button. 2. Immediately and repeatedly press esc when the power button light turns white. <p>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.</p> <ol style="list-style-type: none"> 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. <p>- or -</p> <p>(On consumer products) Under the Main tab, select System Log.</p> <p>Post-operating system failures are logged in the Event Viewer.</p> <ol style="list-style-type: none"> 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. <p>Chrome:</p> <ol style="list-style-type: none"> 1. Go to support.google.com/chrome. 2. Search <code>collect Chrome device logs</code>.
Technical bulletins	<p>To locate technical bulletins:</p> <ol style="list-style-type: none"> 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.

Table 4-3 Support information locations (continued)

Service consideration	Path to access information
Repair professionals	To locate repair professionals: <ol style="list-style-type: none">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: <ol style="list-style-type: none">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 <http://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

To remove and replace computer components, use these procedures:

For initial safety procedures, see [Removal and replacement procedures preliminary requirements on page 13](#).

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 and replace the bottom cover, use this procedure and illustration.

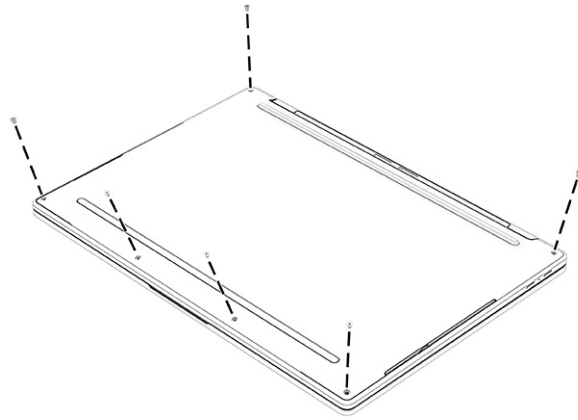
Table 5-1 Bottom cover description and part number

Description	Spare part number
Bottom cover, black	N46525-001
Bottom cover, white	N46526-001

Before removing the bottom cover, prepare the computer for disassembly (see [Preparation for disassembly on page 22](#)).

Remove the bottom cover:

1. Remove the six Torx T5 2.0 × 3.0 screws from the bottom cover.

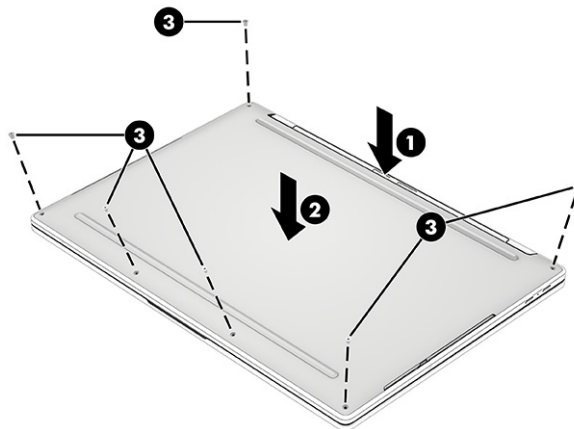


2. Lift up on the bottom cover between the hinges (1) to release it.
3. Remove the bottom cover (2).



4. To replace the bottom cover, position the bottom cover on the computer (1).
5. Press down on the center of the bottom cover to secure the internal hook to the computer (2).

6. Install the six screws (3).



Battery

To remove the battery, use this procedure and illustration.

Table 5-2 Battery description and part number

Description	Spare part number
Battery	N46556-001
Battery stretchable tape (available in the Cable Kit)	N48839-001

⚠ 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 22](#)).

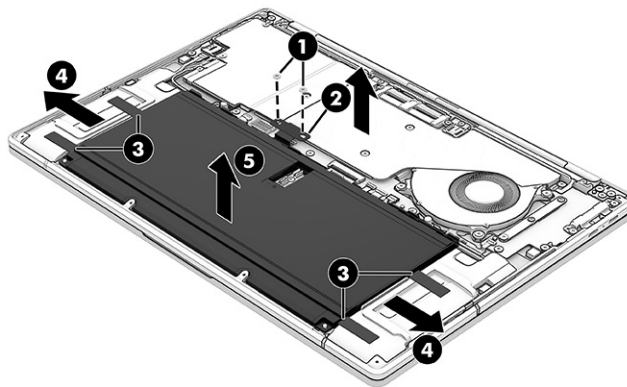
2. Remove the bottom cover (see [Bottom cover on page 22](#)).

⚠ 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.

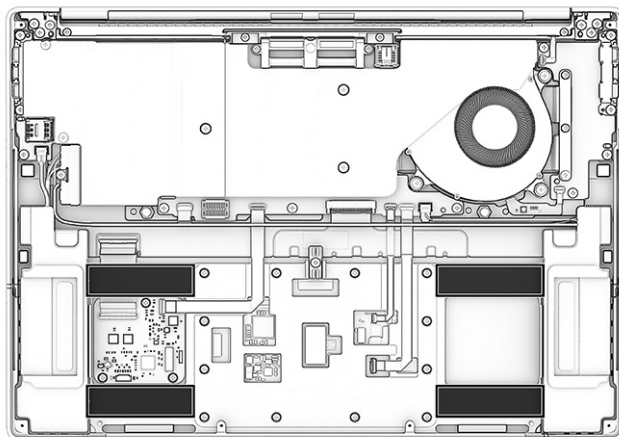
📌 IMPORTANT: Removing a battery that is the sole power source for the computer can cause loss of information. To prevent loss of information, save your work or shut down the computer through Windows before you remove the battery.

Remove the battery:

1. Remove the two Phillips M2.0 × 2.0 screws (1) from the battery connector.
2. Disconnect the battery cable from the system board (2).
3. The battery is secured by stretchable tape, accessible from two locations on both the left and right sides of the battery (3). Carefully pull all four strips of tape out from under the battery (4).
4. Remove the battery from the computer (5).



5. When installing a new battery, install stretchable tape onto the computer in the four locations shown in the following illustration.



To replace the battery, reverse the removal procedures.

Heat sink and fan assembly

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

Table 5-3 Heat sink and fan assembly descriptions and part numbers

Description	Spare part number
Heat sink and fan assembly	N46537-001

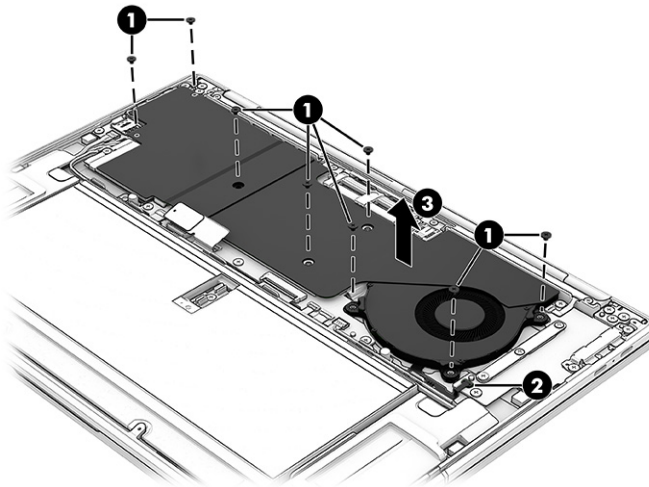
Before removing the heat sink and fan assembly, follow these steps:

1. Prepare the computer for disassembly (see [Preparation for disassembly on page 22](#)).
2. Remove the bottom cover (see [Bottom cover on page 22](#)).
3. Disconnect the battery cable from the system board (see [Battery on page 24](#)).

Remove the heat sink and fan assembly:

1. In the order indicated on the heat sink, remove the eight Phillips M2.0 × 2.0 screws **(1)** that secure the heat sink and fan assembly to the system board.
2. Disconnect the fan cable from the ZIF connector on the system board **(2)**.

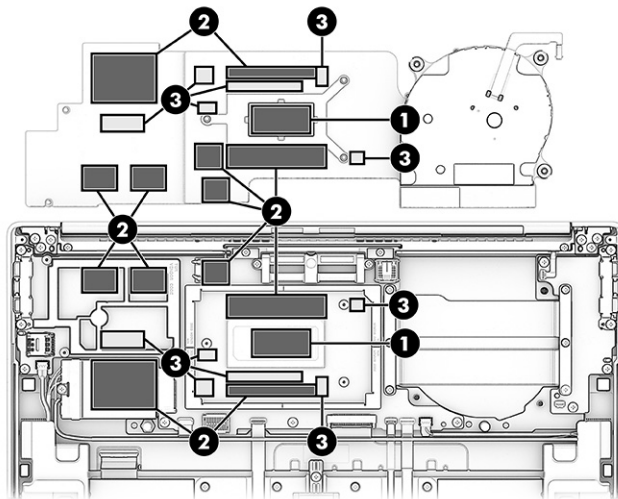
3. Lift the assembly off the system board (3).



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.

Install thermal grease and pads on the heat sink in the locations as shown in the following illustration:

- (1) Gray thermal grease
- (2) White thermal grease
- (3) Thermal pads



To install the heat sink and fan assembly, reverse this procedure.

WLAN antenna

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

Table 5-4 WLAN antenna descriptions and part numbers

Description	Spare part number
WLAN antenna	N46536-001

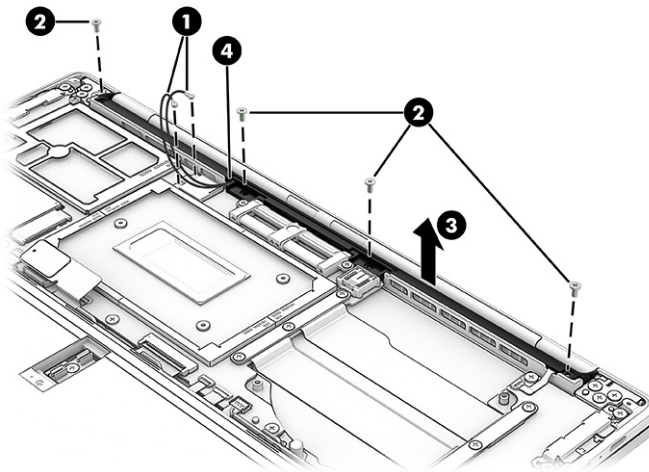
 **IMPORTANT:** To prevent an unresponsive system, replace the wireless antenna only with a wireless antenna authorized for use in the computer by the governmental agency that regulates wireless devices in your country or region. If you replace the antenna and then receive a warning message, remove the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

Before removing the WLAN antenna, follow these steps:

1. Prepare the computer for disassembly (see [Preparation for disassembly on page 22](#)).
2. Remove the bottom cover (see [Bottom cover on page 22](#)).
3. Disconnect the battery cable from the system board (see [Battery on page 24](#)).
4. Remove the heat sink and fan assembly (see [Heat sink and fan assembly on page 26](#)).

Remove the WLAN antenna:

1. Carefully disconnect the antenna cables from the WLAN module that is integrated into the system board (1).
2. Remove the four Phillips M2.0 × 2.5 screws (2) that secure the WLAN antenna to the top of the computer.
3. Remove the WLAN antenna (3) while pulling the antenna through the hole in the computer (4).



To install the WLAN antenna, reverse this procedure.

Display assembly

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

Table 5-5 Display assembly description and part number

Description	Spare part number
Display assembly, black	N48840-001
Display assembly, white	N48841-001



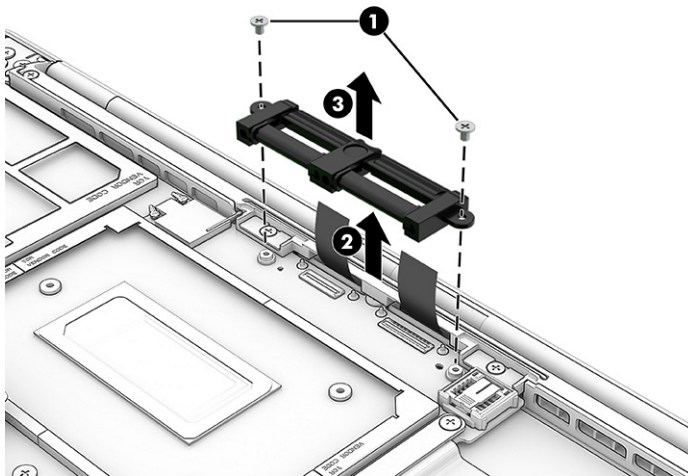
NOTE: Display assemblies are available only as a whole unit.

Before removing the display assembly, follow these steps:

1. Prepare the computer for disassembly (see [Preparation for disassembly on page 22](#)).
2. Remove the bottom cover (see [Bottom cover on page 22](#)).
3. Disconnect the battery cable from the system board (see [Battery on page 24](#)).
4. Remove the heat sink and fan assembly (see [Heat sink and fan assembly on page 26](#)).

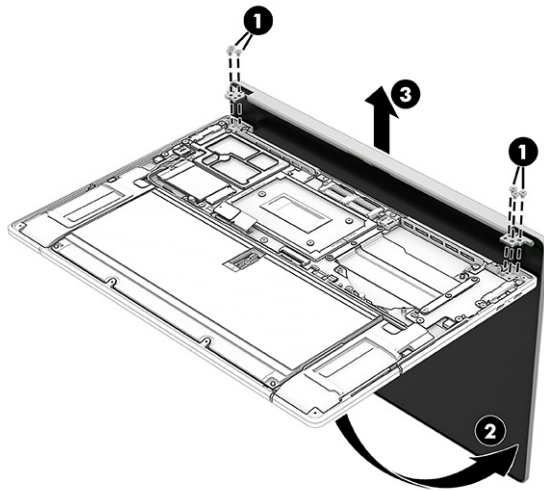
Remove the display assembly:

1. Remove the cable guide by removing the two Phillips M2.0 × 2.5 screws (1), disconnecting both display cables from the system board (2), and then removing the cable guide bracket (3).



2. Remove the six Phillips M2.5 × 4.0 screws (1) that secure the display assembly to the computer.
3. Open the display to as far as possible to open the hinges (2).

4. Separate the display from the computer (3).



To replace the display assembly, reverse this procedure.

Touchpad

To remove the touchpad, use this procedure and illustration.

Table 5-6 Touchpad description and part number

Description	Spare part number
Touchpad, black	N46532-001
Touchpad, white	N46533-001
Touchpad cables (included in the Cable Kit)	N48839-001

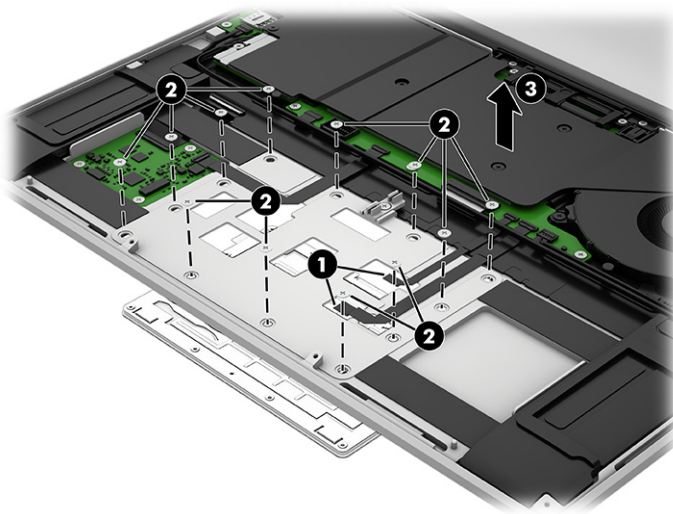
Before removing the touchpad, follow these steps:

1. Prepare the computer for disassembly (see [Preparation for disassembly on page 22](#)).
2. Remove the bottom cover (see [Bottom cover on page 22](#)).
3. Remove the battery (see [Battery on page 24](#)).

Remove the touchpad:

1. Disconnect the two cables from the ZIF connectors on the touchpad (1).
2. Remove the 12 Phillips M1.0 × 1.2 screws (2) from the touchpad.

3. Lift the computer up to release the touchpad (3).



To install the touchpad, reverse this procedure.

RGB board

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

Table 5-7 RGB board description and part number

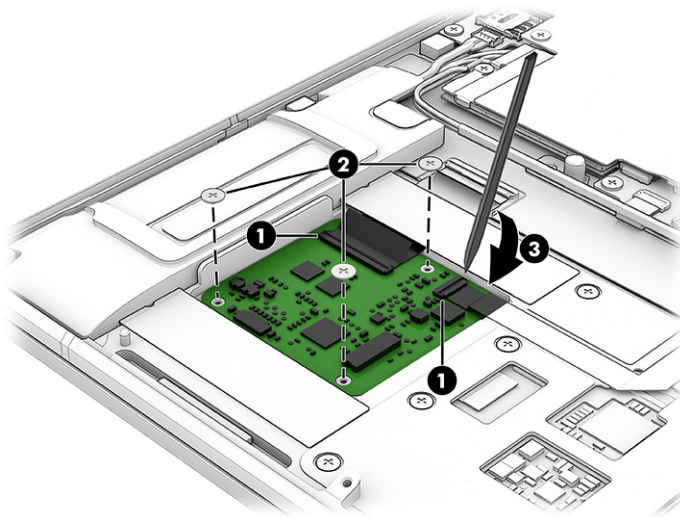
Description	Spare part number
RGB board	N46529-001
RGB board cable	N46530-001

Before removing the RGB board, follow these steps:

1. Prepare the computer for disassembly (see [Preparation for disassembly on page 22](#)).
2. Remove the bottom cover (see [Bottom cover on page 22](#)).
3. Remove the battery (see [Battery on page 24](#)).

Remove the RGB board:

1. Disconnect the two cables from the ZIF connectors on the RGB board (1).
2. Remove the three Phillips M1.0 × 1.2 screws (2) that secure the board to the computer.
3. Use a thin tool to remove the board from the computer (3).



To install the RGB board, reverse this procedure.

USB board

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

Table 5-8 USB board description and part number

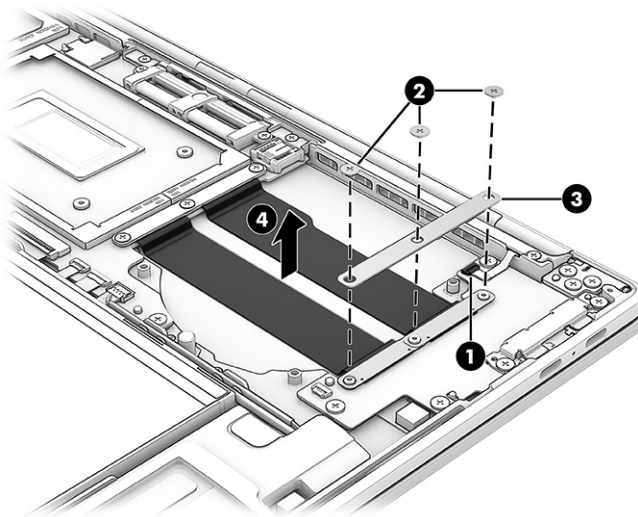
Description	Spare part number
USB board	N46523-001
USB board cables (available in the Cable Kit)	N48839-001

Before removing the USB board, follow these steps:

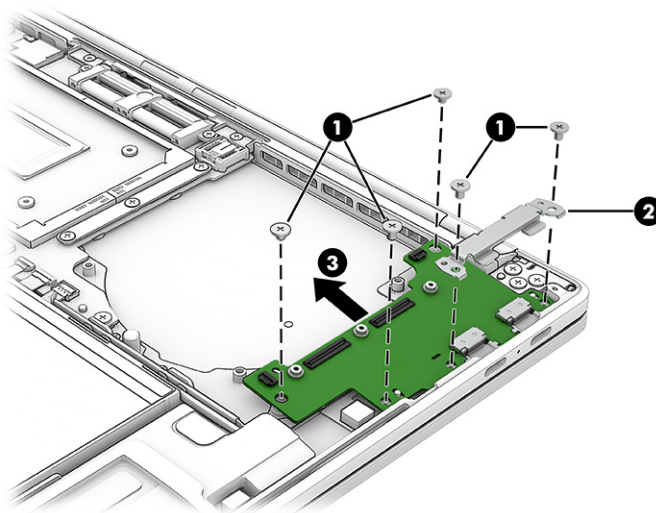
1. Prepare the computer for disassembly (see [Preparation for disassembly on page 22](#)).
2. Remove the bottom cover (see [Bottom cover on page 22](#)).
3. Disconnect the battery cable from the system board (see [Battery on page 24](#)).
4. Remove the heat sink and fan assembly (see [Heat sink and fan assembly on page 26](#)).

Remove the USB board:

1. Disconnect the small cable from the ZIF connector on the USB board (1).
2. Remove the three Phillips M1.0 × 1.2 screws (2) that secure the cable bracket, and then remove the bracket (3).
3. Disconnect the two cables from the USB board and lift the cables up enough so that you can remove the USB board (4).



4. Remove the five Phillips M2.0 × 2.0 screws (1) from the board.
5. Remove the USB board bracket (2).
6. Lift the inside of the board up, and then pull the board into the computer to remove it (3).



To install the USB board, reverse this procedure.

System board

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

Table 5-9 System board descriptions and part numbers

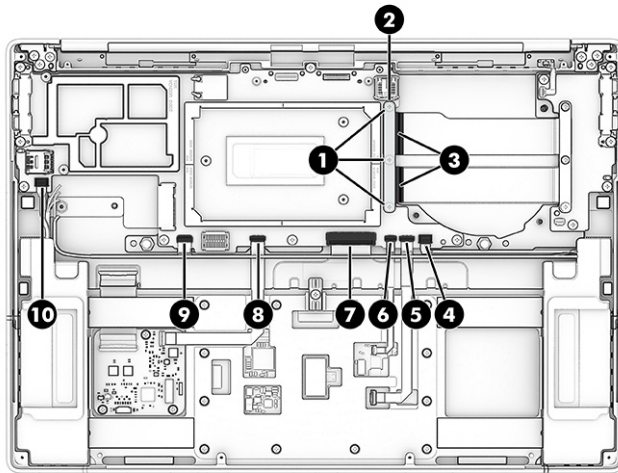
Description	Spare part number
System board (includes processor)	N46522-001
System board repair kit	N32019-888

Before removing the system board, follow these steps:

1. Prepare the computer for disassembly (see [Preparation for disassembly on page 22](#)).
2. Remove the bottom cover (see [Bottom cover on page 22](#)).
3. Remove the battery (see [Battery on page 24](#)).
4. Remove the heat sink and fan assembly (see [Heat sink and fan assembly on page 26](#)).
5. Remove the WLAN antenna (see [WLAN antenna on page 27](#)).
6. Remove the display cable guide and disconnect the display cables (see [Display assembly on page 28](#)).

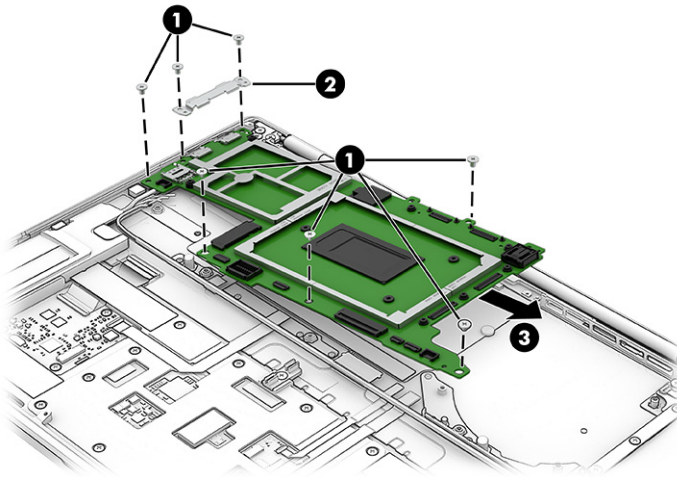
Remove the system board:

1. Remove three screws from USB cable bracket **(1)**, and then remove the bracket **(2)**.
2. Disconnect the following cables from the system board:
 - Two USB cables **(3)**
 - Left speaker cable **(4)**
 - Touchpad cable (ZIF) **(5)**
 - Touchpad cable (ZIF) **(6)**
 - Keyboard cable (ZIF) **(7)**
 - RGB board cable (ZIF) **(8)**
 - Fingerprint reader cable (ZIF) **(9)**
 - Right speaker cable **(10)**



3. Remove the seven Phillips M2.0 × 2.0 screws **(1)** from the system board.
4. Remove the USB port bracket **(2)**.

5. Lift the right side of the board up to about 40°, and then pull the board to the right and out of the computer (3).



To install the system board, reverse this procedure.

Fingerprint reader board

To remove the fingerprint reader board, use this procedure and illustration.

Table 5-10 Fingerprint reader board description and part number

Description	Spare part number
Fingerprint reader board	N46538-001
Fingerprint module, black	N46539-001
Fingerprint module, white	N46540-001
Fingerprint reader board cable (available in the Cable Kit)	N48839-001

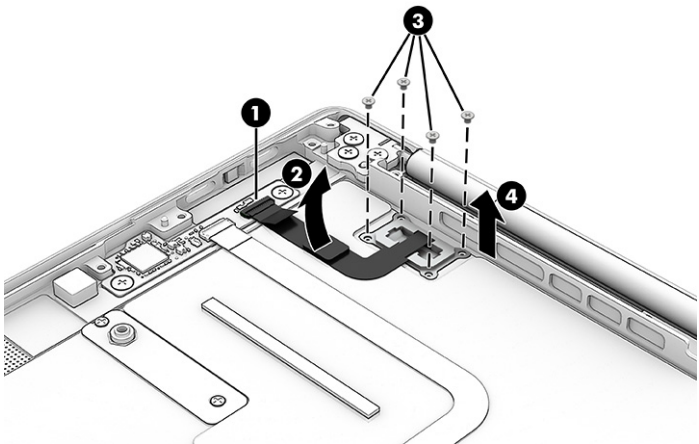
Before removing the fingerprint reader board, follow these steps:

1. Prepare the computer for disassembly (see [Preparation for disassembly on page 22](#)).
2. Remove the bottom cover (see [Bottom cover on page 22](#)).
3. Remove the battery (see [Battery on page 24](#)).
4. Remove the heat sink and fan assembly (see [Heat sink and fan assembly on page 26](#)).
5. Remove the WLAN antenna (see [WLAN antenna on page 27](#)).
6. Remove the display cable guide and disconnect the display cables (see [Display assembly on page 28](#)).
7. Remove the system board (see [System board on page 33](#)).

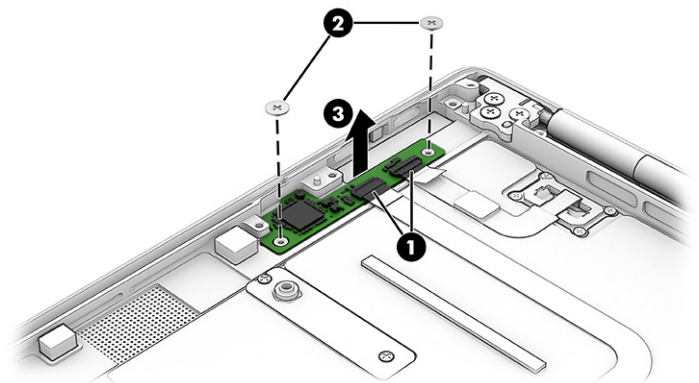
Remove the fingerprint reader board:

1. Disconnect the cable from the ZIF connector on the fingerprint reader board (1).

- 2. Peel the cable off the computer (2).
- 3. Remove the four Phillips M1.0 × 1.2 screws (3), and then remove the fingerprint reader key (4).



- 4. Disconnect the two cables from the ZIF connectors on the fingerprint reader board (1).
- 5. Remove the two Phillips M1.0 × 1.2 screws (2) from the board.
- 6. Remove the fingerprint reader board from the computer (3).



Reverse this procedure to install the fingerprint reader board.

Top cover with keyboard

The top cover with keyboard remains after removing all other spare parts from the computer.

Table 5-11 Top cover with keyboard descriptions and part numbers

Description	Spare part number
Top cover with keyboard, black (includes speakers)	N46527-001

Table 5-11 Top cover with keyboard descriptions and part numbers (continued)

Description	Spare part number
Top cover with keyboard, white (includes speakers)	N46528-001

6 Backing up, resetting, and recovering

This chapter provides information about the standard procedures of backing up your personal data, resetting your computer to original factory conditions, and recovering your operating system.

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 the information on your computer hard drive, including files in the Downloads folder. Before you reset, back up your files to an optional USB flash drive, to an SD memory card, or through Google Drive. The factory reset will not delete your files at these locations.

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 restarted your computer, and it still doesn't work properly.
- You want to change the owner of your computer.

To reset your computer:

1. Under the **Settings** menu, select **Advanced**.
2. In the **Powerwash** section, select **Powerwash**.
3. Select **Restart**.
4. In the window that appears, select **Powerwash**, and then select **Continue**.
5. Follow the on-screen instructions to reset your computer, and sign in with your Google Account.



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

6. After you complete the reset, you can set up your computer and check to see whether the problem is fixed.

Recovering

When your ChromeOS™ doesn't work properly, you can perform a recovery. A recovery reinstalls the operating system, software programs, and original factory settings. It deletes locally saved files and

saved networks for all accounts. A system recovery does not affect Google Accounts and data synced to Google Drive.



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



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

Before you begin the recovery process, you need the following prerequisites:

- 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 all files from the device before you begin.
- A computer with internet access. You must also have administrative rights to the computer.
- A 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.

Option 1: Recovering using an internet connection

Use these instructions to recover the Chrome operating system on your computer without recovery media:

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 the **esc+f3** keys, and then press the power button. When the “ChromeOS is missing or damaged” screen appears, select **Recover using internet connection** and follow the on-screen instructions.



NOTE: The computer must have internet access.

3. When the “System Recovery is complete” message appears, reboot your computer.

The computer restarts with ChromeOS reinstalled.

Option 2: Installing the Chromebook Recovery Utility

The Chromebook™ Recovery Utility recovers 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.



NOTE: Use this option if you do not have Internet access on your computer.

To install the Chromebook Recovery Utility:

- Open the Chrome Web Store, search for `chrome recovery`, select **Chromebook Recovery Utility** from the Apps list, and follow the on-screen instructions.

Creating recovery media

You can use recovery media to recover the original operating system and software programs that were installed at the factory.

To create recovery media:

1. Turn on a computer that has internet access.



NOTE: You must have administrative rights to the computer.

2. Select the **Launcher** icon, and then select **All Apps**.
3. In the Apps window, select **Recovery**, and then select **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 with recovery media

Use these instructions to recover the Chrome operating system on your computer using the recovery media that 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 appears, 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 is displayed, 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 appears, 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 about setting up the computer, go to <http://www.support.google.com>.

Erasing and reformatting the recovery media

When you create recovery media, the USB flash drive or SD memory card is formatted as a recovery tool. After recovery, you must erase the recovery media to reuse your storage device. Follow these steps to use the Chromebook Recovery Utility to erase the recovery media.

1. Select the **Launcher** icon, and then select **All Apps**.
2. In the apps window, select **Recovery**.
3. Select the **Settings** icon, and then select **Erase recovery media**.
4. Select the USB flash drive or SD memory card that you inserted, select **Continue**, and then select **Erase now**.
5. After the recovery media is erased, select **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	315.0 mm	12.4 in
Depth	220.9 mm	8.7 in
Front height	17.7 mm	0.7 in
Rear height	17.9 mm	0.71 in
Weight	1511 g	3.33 lbs
Input power		
Operating voltage and current	5 V DC @ 3 A/9V DC @ 3 A/15 V DC @ 3 A/20 V DC @ 4.8 A - 96 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 3,048 m	-50 ft to 10,000 ft
Nonoperating	-15 m to 12,192 m	-50 ft to 40,000 ft
NOTE: Applicable product safety standards specify thermal limits for plastic surfaces. The device operates well within this range of temperatures.		

35.6 cm (14.0 in) 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	2560 × 1600	
Refresh rate	60 Hz	
Brightness	1500 nits	
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 H05VV-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>.

Index

A

- AC adapter light 2, 3
- AC adapters, spare part numbers 12
- action keys
 - identifying 6
- ambient light sensor,
 - identifying 4
- audio, product description 1

B

- backing up 38
- battery
 - illustrated 11
 - light 2, 3
 - removal and replacement 24
 - spare part numbers 11, 24
- bottom cover
 - illustrated 11
 - removal and replacement 22
 - spare part numbers 11, 22
- buttons
 - power 7

C

- camera 4
 - identifying 4
- camera light, identifying 4
- caring for your computer 17
- cautions
 - electrostatic discharge 13, 14
- Chromebook Recovery Utility,
 - installing 39
- cleaning your computer 17
 - caring for wood veneer 19
 - disinfecting 18
 - HP Easy Clean 17
 - removing dirt and debris 17
- components
 - display 3
 - keyboard area 4
 - left side 3
 - right side 2
- computer major components 10
- computer specifications 42
- connectors
 - power 2, 3

D

- display
 - specifications 42
- display panel
 - product description 1

E

- electrostatic discharge (ESD) 13, 14
 - preventing damage 13-15
- esc key, identifying 6

F

- fingerprint module
 - illustrated 11
 - spare part numbers 11
- fingerprint reader
 - illustrated 11
 - spare part numbers 11
- fingerprint reader board
 - removal 35
 - spare part numbers 35

G

- graphics, product description 1
- grounding methods 13-15
- guidelines
 - packaging 13, 19
 - transporting 13, 19
 - workstation 13

H

- hard drive
 - specifications 42
- heat sink
 - illustrated 12
 - spare part numbers 12
- heat sink and fan assembly
 - removal and replacement 26
 - spare part numbers 26

I

- illustrated parts catalog 10
- internal microphones,
 - identifying 4

K

- keyboard
 - product description 1
- keyboard country codes 36
- keys
 - esc 6
 - power 7
 - search 6

L

- labels
 - regulatory 7
 - serial number 7
 - service 7
 - wireless certification 7
 - WLAN 7
- lights
 - AC adapter and battery 2, 3
 - camera 4

M

- memory
 - product description 1
- microphone
 - product description 1
- model name 1

O

- operating system, product description 1

P

- packaging guidelines 13, 19
- ports
 - product description 1
 - USB Type-C power connector and Thunderbolt port with HP Sleep and Charge and DisplayPort output 2, 3
- power connector
 - identifying 2, 3
- power cord
 - requirements for all countries 44
 - requirements for specific countries and regions 44

- set requirements 44
- power cords, spare part numbers 12
- power key, identifying 7
- power requirements, product description 1
- primary storage
 - product description 1
- processor
 - product description 1
- product description
 - audio 1
 - display panel 1
 - graphics 1
 - keyboard 1
 - memory 1
 - microphone 1
 - operating system 1
 - ports 1
 - power requirements 1
 - primary storage 1
 - processors 1
 - product name 1
 - serviceability 1
 - video 1
 - wireless 1
- product name 1
- product name and number, computer 7

R

- recovery media
 - creating 40
 - erase 41
- recovery, performing 38
- regulatory information
 - regulatory label 7
 - wireless certification labels 7
- removal and replacement
 - battery 24
 - bottom cover 22
 - heat sink and fan assembly 26
 - procedures 22
 - RGB board 31
 - system board 33
 - touchpad 30
 - USB board 32
 - WLAN antenna 27
- resetting 38
- RGB board
 - removal and replacement 31
 - spare part numbers 31

S

- Screw Kit, spare part number 12
- search key, identifying 6
- serial number, computer 7
- service labels, locating 7
- serviceability, product description 1
- spare part numbers
 - battery 24
 - bottom cover 22
 - heat sink and fan assembly 26
 - RGB board 31
 - system board 33
 - touchpad 30
 - USB board 32
 - WLAN antenna 27
- speaker
 - illustrated 11
- speakers, identifying 5
- specifications
 - computer 42
 - display 42
 - hard drive 42
- static electricity 13, 14
- support information 20
- system board
 - illustrated 12
 - removal and replacement 33
 - spare part numbers 12, 33
- system recovery
 - Chrome operating system 40
 - Chromebook Recovery Utility 39
 - internet connection 39
 - recovery media 40

T

- top cover with keyboard
 - illustrated 11
 - spare part numbers 11, 36
- touchpad
 - illustrated 11
 - removal and replacement 30
 - spare part numbers 11, 30
- touchpad zone, identifying 5
- transporting guidelines 13, 19
- traveling with the computer 7

U

- USB board
 - illustrated 11
 - removal and replacement 32

- spare part numbers 11, 32
- USB Type-C power connector and Thunderbolt port with HP Sleep and Charge and DisplayPort output, identifying 2, 3

V

- video, product description 1

W

- wireless certification label 7
- wireless, product description 1
- WLAN antenna
 - removal and replacement 27
 - spare part numbers 27
- WLAN antennas, identifying 4
- WLAN device 7
- WLAN label 7
- workstation guidelines 13