



# Maintenance and Service Guide

## SUMMARY

This guide provides information about spare parts, removal and replacement of parts, security, backing up, and more.

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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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# Table of contents

|   |           |
|---|-----------|
| <b>1 Product description .....</b>  | <b>1</b>  |
| <b>2 Components .....</b>   | <b>3</b>  |
| Right .....   | 3         |
| Left .....  | 4         |
| Display.....  | 4         |
| Special keys.....   | 5         |
| <b>3 Illustrated parts catalog.....</b>   | <b>7</b>  |
| Computer major components.....  | 7         |
| Display assembly subcomponents.....   | 9         |
| Miscellaneous parts .....   | 11        |
| <b>4 Removal and replacement procedures preliminary requirements.....</b>               | <b>12</b> |
| Tools required.....   | 12        |
| Service considerations.....   | 12        |
| Plastic parts.....  | 12        |
| Cables and connectors .....   | 12        |
| Drive handling.....   | 12        |
| Electrostatic discharge information .....   | 13        |
| Generating static electricity .....   | 13        |
| Preventing electrostatic damage to equipment.....                                       | 14        |
| Personal grounding methods and equipment .....  | 14        |
| Grounding the work area.....  | 15        |
| Recommended materials and equipment.....  | 15        |
| Cleaning your computer .....  | 16        |
| Enabling HP Easy Clean (select products only).....                                      | 16        |
| Removing dirt and debris from your computer .....                                       | 16        |
| Cleaning your computer with a disinfectant .....  | 17        |
| Caring for wood veneer (select products only).....                                      | 18        |
| Packaging and transporting guidelines .....   | 18        |
| Accessing support information .....   | 18        |
| <b>5 Removal and replacement procedures for authorized service provider parts .....</b> | <b>21</b> |
| Component replacement procedures .....  | 21        |

|  |           |
|--|-----------|
| Preparation for disassembly .....                    | 21        |
| Bottom cover.....                                    | 21        |
| Battery .....  | 23        |
| Speakers .....                                       | 23        |
| System board .....                                   | 24        |
| Heat sink .....                                      | 26        |
| Display assembly.....                                | 27        |
| Touchpad cable .....                                 | 33        |
| Touchpad .....                                       | 34        |
| Connector board cable.....                           | 36        |
| Connector board.....                                 | 36        |
| <b>6 Specifications.....</b>                         | <b>38</b> |
| Computer specifications.....                         | 38        |
| 29.6 cm (11.6 in) display specifications.....        | 39        |
| <b>7 Power cord set requirements .....</b>           | <b>40</b> |
| Requirements for all countries.....                  | 40        |
| Requirements for specific countries and regions..... | 40        |
| <b>8 Recycling .....</b>                             | <b>43</b> |
| <b>Index.....</b>                                    | <b>44</b> |

# 1 Product description

This table provides detailed product information.

**Table 1-1 Product components and their descriptions**

| Category                 | Description  |
|--------------------------|--|
| <b>Product Name</b>      | HP Chromebook™ 11.6 inch Notebook Computer<br>Model number: 11a-ne0xxx   |
| <b>Processor</b>         | Mediatek Arm Cortex-A MT8183 2.0 GHz processor (eight cores)   |
| <b>Chipset</b>           | Mediatek MT6358 PMIC   |
| <b>Graphics</b>          | Mediatek integrated unified memory architecture (UMA) internal graphics  |
| <b>Display</b>           | 29.6 cm (11.6 in), liquid crystal display (LCD), high definition (HD) (1366 × 768), antiglare, white light-emitting display (WLED), ultra wide viewing area (UWVA), 50% National Television System Committee (NTSC), embedded DisplayPort™ (eDP) 1.2 without Panel Self Refresh (PSR), touchscreen display panel with slim bezel; typical brightness: 220 nits<br>29.6 cm (11.6 in), LCD, HD (1366 × 768), antiglare, WLED, super vertical alignment (SVA), 45% NTSC, eDP, non-touchscreen display panel with slim bezel; typical brightness: 220 nits |
| <b>Memory</b>            | Integrated (not customer-accessible nonupgradeable) memory module slots supporting LPDDR4X 3733 MHz and 4266 MHz on-board, system runs at 3200 MHz 4 GB (32Gb × 1 piece)   |
| <b>Primary storage</b>   | <b>On-board embedded MultiMedia Controller (eMMC v5.0)</b><br>64 GB<br>32 GB M0-276  |
| <b>Audio and video</b>   | Dual speakers<br>One-piece, fixed, integrated, USB 2.0, HD camera, 720p<br>Dual-array microphone   |
| <b>Wireless</b>          | <b>Integrated wireless local area network (WLAN)</b><br>Qualcomm® Atheros™ ac 2×2 + Bluetooth® 4.2 MU-MIMO non-vPro® WW with 2 antenna   |
| <b>Media card reader</b> | HP MultiFormat microSD media card reader supporting microSD™, SDHC™, SDXC™<br>Push-push insertion/removal  |
| <b>Ports</b>             | Hot plug/unplug and autodetect for correct output to wide-aspect vs. standard aspect video<br>Audio-out (headphone)/audio-in (microphone) combo jack<br>USB® Type-C power connector and port (right side)<br>USB port with HP Sleep and Charge (left side)   |

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

| Category                  | Description  |
|---------------------------|--|
| Keyboard/pointing devices | <b>Keyboard</b>  |
|                           | Standard notebook keyboard, not backlit, island style, in ash gray finish                            |
|                           | <b>Touchpad</b>  |
|                           | Clickpad with image sensor   |
|                           | Multitouch gestures enabled  |
|                           | Precision touchpad support   |
|                           | Taps enabled as default  |
| Power requirements        | 2 cell, 37 Whr, polymer, HP Long Life battery  |
|                           | 45-W AC adapter (non-Power Factor Correction (nPFC), standard USB Type-C®, straight, 1.8 m [6.0 ft]) |
|                           | C5, 1.0 m (3.3 ft), conventional with sticker power cord   |
| Security                  | Supports H1 Secure Microcontroller   |
| Operating system          | Google® Chrome™ 64   |
| Serviceability            | <b>End user replaceable part:</b> 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.

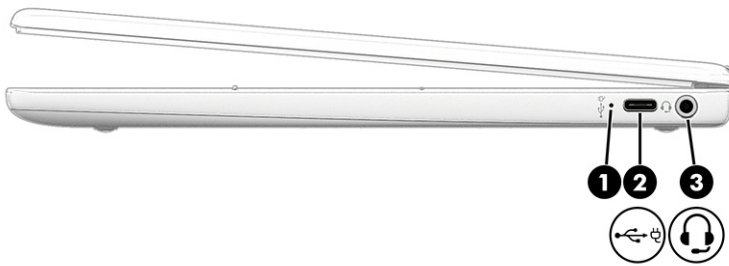


Table 2-1 Right-side components and their descriptions



| Component | Description  |
|-----------|--|
| (1)       | <p>AC adapter and battery light</p> <ul style="list-style-type: none"><li>• White: The AC adapter is connected and the battery is fully charged.</li><li>• Amber: The AC adapter is connected and the battery is charging.</li><li>• Blinking amber: The battery has an error.</li><li>• Off: The battery is not charging.</li></ul>   |
| (2)       | <p> USB Type-C power connector and port</p> <p>Connects 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>Connects a USB device, provides data transfer, and (for select products) charges small devices (such as a smartphone) when the computer is on or in Sleep mode.</p> <p><b>NOTE:</b> Use a standard USB Type-C charging cable or cable adapter (purchased separately) when charging a small external device.</p> |



Table 2-1 Right-side components and their descriptions (continued)


| Component  | Description  |
|--|--|
| (3)  Audio-out (headphone)/Audio-in (microphone) combo jack | <p>Connects optional powered stereo speakers, headphones, earbuds, a headset, or a television audio cable. Also connects an optional headset microphone. This jack does not support optional standalone microphones.</p> <p><b>WARNING!</b> To reduce the risk of personal injury, adjust the volume before putting on headphones, earbuds, or a headset. For additional safety information, see the <i>Regulatory, Safety, and Environmental Notices</i>.</p> <p><b>NOTE:</b> When a device is connected to the jack, the computer speakers are disabled.</p> |

## Left

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

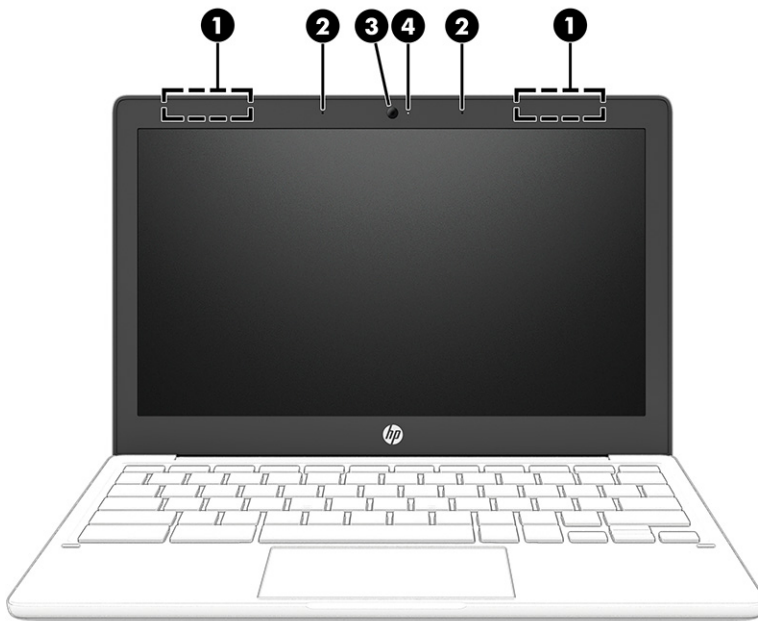


Table 2-2 Left-side components and their descriptions

| Component   | Description   |
|---|---|
| (1)  USB port with HP Sleep and Charge | <p>Connects a USB device, provides high-speed data transfer, and charges small devices (such as a smartphone), even when the computer is off.</p> <p><b>NOTE:</b> Use a standard USB Type-A charging cable or cable adapter (purchased separately) when charging a small external device.</p> |

## Display

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



**Table 2-3** Display components and their descriptions

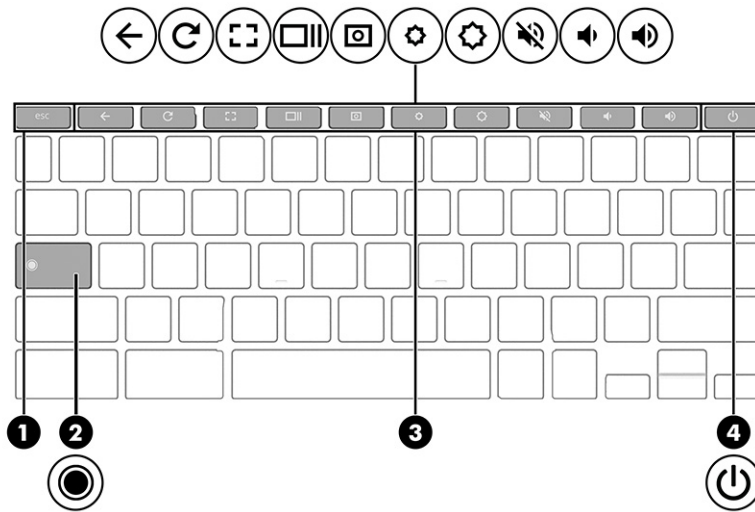
| Component                | Description   |
|--------------------------|---|
| (1) WLAN antennas*       | Send and receive wireless signals to communicate with WLANs.  |
| (2) Internal microphones | Record sound.   |
| (3) Camera               | Allows you to video chat, record video, and record still images.<br><br><b>NOTE:</b> Camera functions vary depending on the camera hardware and software installed on your product. |
| (4) Camera light         | On (white): The camera is in use.<br><br>On (amber): The camera is turned off by the switch.<br><br>Off: The camera is turned off by the software.                                  |

\*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.

## Special keys

Use the illustration and table to locate the special keys.



**Table 2-4** 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 <code>tab</code> or <code>shift</code> .  |
| (2) Search key           | Opens a search box.   |
| (3) Action keys          | Execute frequently used system functions.   |
| (4) Power key            | <ul style="list-style-type: none"> <li>When the computer is off, press the button briefly to turn on the computer.</li> <li>When the computer is on, press and hold the button for 10 seconds to turn off the computer.</li> </ul> <p><b>IMPORTANT:</b> Pressing and holding down the power button results in the loss of unsaved information.</p> <p>If the computer has stopped responding and shutdown procedures are ineffective, press and hold the power button for at least 10 seconds to turn off the computer.</p> |

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## 3 Illustrated parts catalog


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

### Computer major components

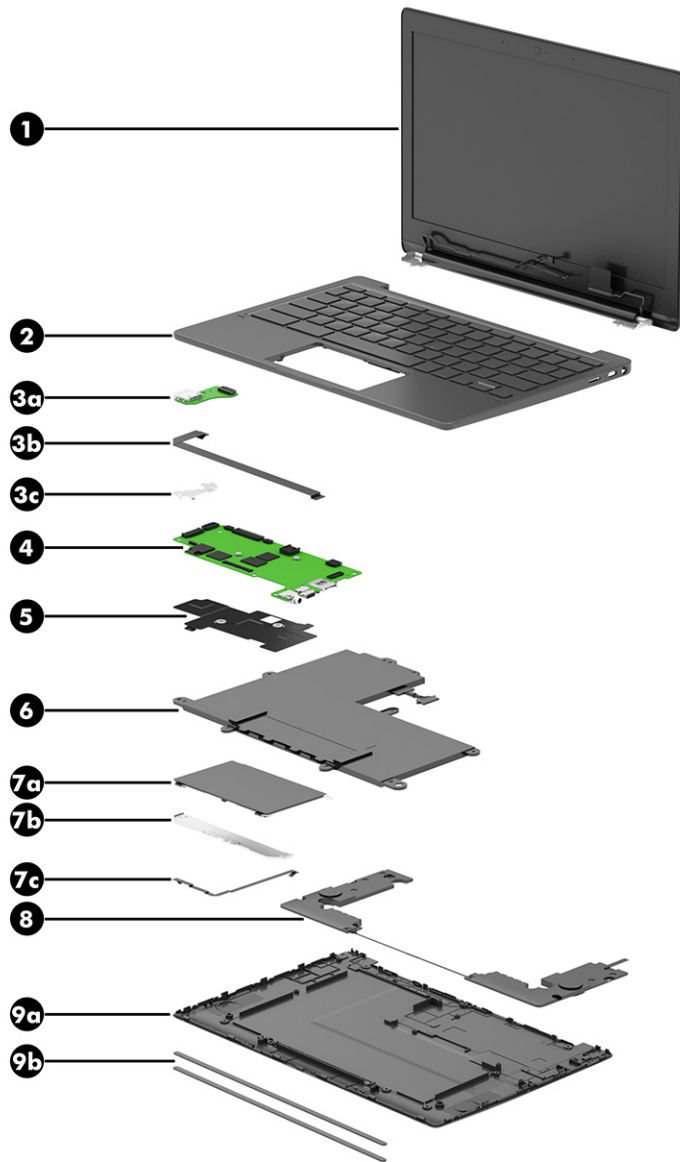
To identify the computer major components, use this illustration and table.

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 **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.

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

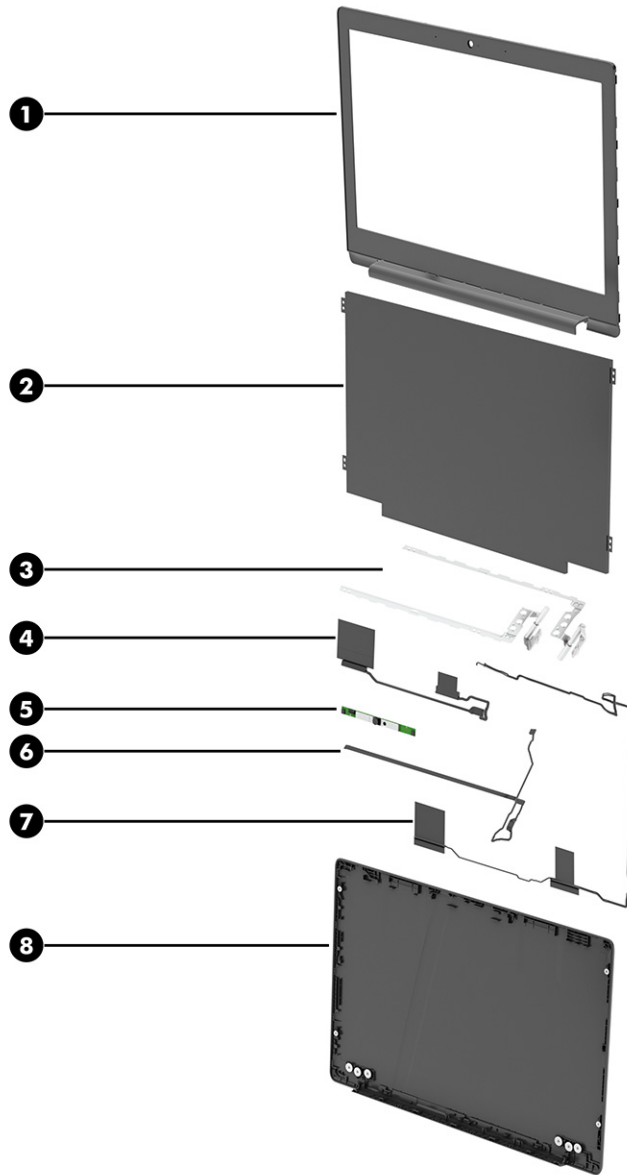
| Item | Component  | Spare part number |
|------|--|-------------------|
| (1)  | Display assembly   |                   |
|      | <b>NOTE:</b> Display spare parts are available only as subcomponents, not as whole units. Display subcomponent spare parts are available. For spare part information, see <a href="#">Display assembly subcomponents on page 9</a> . |                   |
| (2)  | Top cover/keyboard in ash gray finish  |                   |
|      | For use in the United Kingdom  | M86245-031        |
|      | For use in the United States   | M86245-001        |
| (3a) | Connector board (includes USB connector)   | M15716-001        |
|      | <b>NOTE:</b> The connector board spare part kit does not include the connector board cable. The connector board cable is available as spare part number M97112-001.  |                   |

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

| Item | Component   | Spare part number |
|------|---|-------------------|
| (3b) | Connector board cable   | M97112-001        |
| (3c) | I/O bracket (not available as a spare part component)   |                   |
| (4)  | <b>System board:</b> includes an integrated Mediatek Arm Cortex-A MT8183 2.0 GHz processor (8 cores), 4GB of system memory, a graphics subsystem with UMA memory, the Google Chrome operating system, and replacement thermal material.                       |                   |
|      | Equipped with 64 GB of eMMC storage   | M87607-001        |
|      | Equipped with 32 GB of eMMC storage   | M87606-001        |
| (5)  | Heat sink (includes replacement thermal material)   | M15731-001        |
| (6)  | Battery (2 cell, 37 Whr, 4.96 Ahr, includes cable)  | L97355-005        |
| (7a) | Touchpad in ash gray finish   | M97113-001        |
|      | <b>NOTE:</b> The touchpad spare part kit does not include the touchpad bracket rubber or the touchpad cable. The touchpad bracket rubber is available using spare part number M16563-001. The touchpad cable is available using spare part number M15710-001. |                   |
| (7b) | Touchpad bracket rubber   | M16563-001        |
| (7c) | Touchpad cable  | M97111-001        |
| (8)  | Speakers (include left and right speakers and cables)   | M15724-001        |
| (9a) | Bottom cover in ash gray finish   | M86240-001        |
| (9b) | Rubber Feet Kit (includes front and rear rubber foot strips)  | M97114-001        |

## 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 in jet black finish  | M86241-001        |
| (2)  | Display panel:   |                   |
|      | 29.5 cm (11.6 in), LCD, HD (1366×768), antiglare, WLED, UWVA, 50% CG, eDP 1.2 without PSR, touchscreen display panel; typical brightness: 220 nits | M15718-001        |
|      | 29.5 cm (11.6 in), LCD, HD (1366×768), antiglare, WLED, SVA, 45% CG, eDP, non-touchscreen display panel; typical brightness: 220 nits              | M15719-001        |
| (3)  | Display hinges (2, include left and right hinges)  | M15712-001        |
| (4)  | Display panel cable:   |                   |
|      | For use only on computer models equipped with a touchscreen display assembly   | M86242-001        |

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

| Item | Component  | Spare part number |
|------|--|-------------------|
|      | For use only on computer models equipped with a non-touchscreen display assembly                 | M86243-001        |
| (5)  | <b>Webcam/microphone module</b> (includes double-sided adhesive)                                 | M15727-001        |
| (6)  | <b>Webcam/microphone module cable</b>  | M15709-001        |
| (7)  | <b>Wireless antenna cables and transceivers</b>  | M15696-001        |
| (8)  | <b>Display back cover in ash gray finish</b> (includes wireless antenna cables and transceivers) | M86239-001        |

## Miscellaneous parts

To identify the miscellaneous parts, use this table.

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

| Component  | Spare part number |
|--|-------------------|
| <b>45 W AC adapter (non-PFC, USB Type-C, 1.8 m [6.0 ft])</b>   | L43407-001        |
| <b>Power cord</b> (C5, 1.0 m [3.3 ft], sticker, conventional): |                   |
| For use in North America                                       | L19367-001        |
| For use in the United Kingdom                                  | L19373-001        |
| <b>Screw Kit</b>   | M15723-001        |



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# 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 P1 screwdriver

## Service considerations

The following sections include some of the considerations that you must keep in mind during disassembly and assembly procedures.



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**NOTE:** As you remove each subassembly from the computer, place the subassembly (and all accompanying screws) away from the work area to prevent damage.

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## Plastic parts

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

## Cables and connectors

Handle cables with extreme care to avoid damage.



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**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.


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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."


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## 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 [Personal grounding methods and equipment on page 14](#).

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.

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## 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 DIPs (dual in-line packages) 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 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.
- **Heel straps/Toe straps/Boot straps** can be used at standing workstations and are compatible with most types of shoes or boots. On conductive floors or dissipative floor mats, use 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 16](#) 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 17](#) 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 18](#).

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 17](#) 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 16](#), [Caring for wood veneer \(select products only\) on page 18](#), 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 16](#) 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 17](#) for sanitizing guidelines to help prevent the spread of harmful bacteria and viruses.

## Packaging and transporting guidelines

Follow these grounding guidelines when packaging and transporting equipment.

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

## Accessing support information

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

**Table 4-3 Support information locations**


| Service consideration  | Path to access information   |
|--|--|
| <p>Records of reported failure incidents stored on the computer</p>                | <p><b>Windows:</b></p> <p>Pre-operating system failures are logged in the BIOS Event Log. To view the BIOS Event Log:</p> <ol style="list-style-type: none"> <li>1. Press the power button.</li> <li>2. Immediately and repeatedly press <b>esc</b> when the power button light turns white.</li> </ol> <p><b>NOTE:</b> If you do not press <b>esc</b> at the appropriate time, you must restart the computer and again repeatedly press <b>esc</b> when the power button light turns white to access the utility.</p> <ol style="list-style-type: none"> <li>3. Press <b>f10</b> to enter the BIOS setup.</li> <li>4. (On commercial products) Under the <b>Main</b> tab, select <b>BIOS event log</b>, and then select <b>View BIOS Event Log</b>.</li> </ol> <p>- or -</p> <p>(On consumer products) Under the <b>Main</b> tab, select <b>System Log</b>.</p> <p>Post operating system failures are logged in the Event Viewer.</p> <ol style="list-style-type: none"> <li>1. Turn on the computer and allow the operating system to open.</li> <li>2. Click the search icon  in the taskbar.</li> <li>3. Type <code>Event Viewer</code>, and then press <b>enter</b>.</li> <li>4. Select the log from the left panel. Details display in the right panel.</li> </ol> <p><b>Chrome:</b></p> <ol style="list-style-type: none"> <li>1. Go to <a href="http://support.google.com/chrome">support.google.com/chrome</a>.</li> <li>2. Search <code>collect Chrome device logs</code>.</li> </ol> |
| <p>Technical bulletins</p>   | <p>To locate technical bulletins:</p> <ol style="list-style-type: none"> <li>1. Go to <a href="http://www.hp.com">www.hp.com</a>.</li> <li>2. Place the cursor over <b>Problem solving</b> to display more options.</li> <li>3. Select <b>Support &amp; Troubleshooting</b>.</li> <li>4. Type the serial number, product number, or product name to go to the product support page.</li> <li>5. Select <b>Advisories</b> to view technical bulletins.</li> </ol>   |
| <p>Repair professionals</p>  | <p>To locate repair professionals:</p> <ol style="list-style-type: none"> <li>1. Go to <a href="http://www.hp.com">www.hp.com</a>.</li> <li>2. Place the cursor over <b>Support resources</b> to display more options.</li> <li>3. Select <b>Authorized service providers</b>.</li> </ol>  |
| <p>Component and diagnosis information, failure detection, and required action</p> | <p>To locate diagnosis information and actions:</p> <ol style="list-style-type: none"> <li>1. Go to <a href="http://www.hp.com/go/techcenter/pcdiags">http://www.hp.com/go/techcenter/pcdiags</a>.</li> <li>2. Select <b>Get Support</b>.</li> </ol>   |




Table 4-3 Support information locations (continued)


| Service consideration | Path to access information  |
|-----------------------|---|
|                       | <ol style="list-style-type: none"><li data-bbox="679 247 1439 304">3. Near the bottom of the window, select <b>Notebook PCs</b>, and then select your location.</li></ol> |

---

# 5 Removal and replacement procedures for authorized service provider parts

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

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

 **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 these procedures.

 **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.

---

You must remove, replace, or loosen as many as 47 screws when you service the parts described in this chapter. 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.

See [Removal and replacement procedures preliminary requirements on page 12](#) for initial safety procedures.

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.

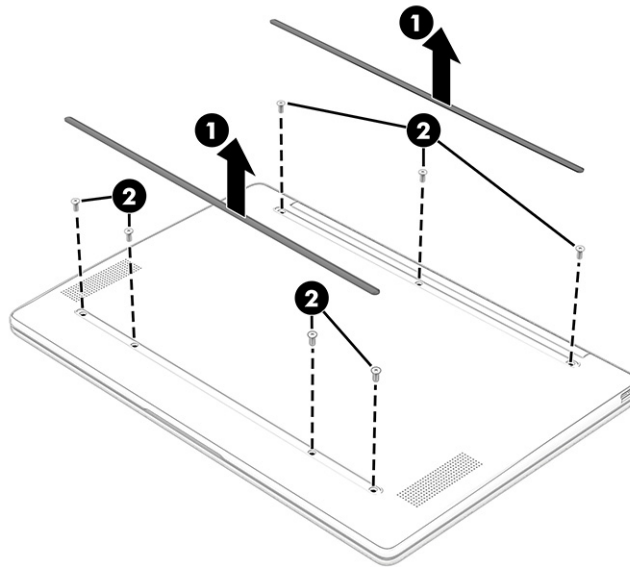
**Table 5-1** Bottom cover description and part number

| Description  | Spare part number |
|--------------|-------------------|
| Bottom cover | M86240-001        |

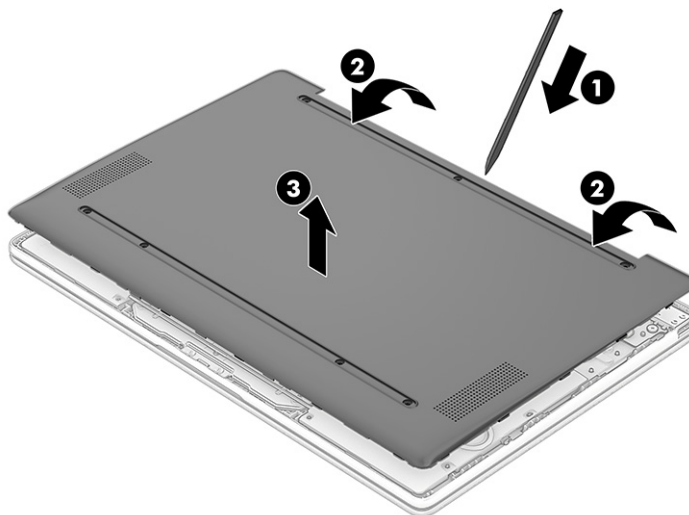
Before removing the bottom cover, prepare the computer for disassembly (see [Preparation for disassembly on page 21](#)).

Remove the bottom cover:

1. Remove the front **(1)** and rear rubber foot strips.  
The rubber foot strips are available in the Rubber Feet Kit, spare part number M97114-001.
2. Remove the seven Phillips M2.0 × 5.6 screws **(2)** that secure the bottom cover to the computer.



3. Insert a nonmarking, nonconductive tool **(1)** into the rear edge of the computer.
4. Separate the rear edge of the bottom cover **(2)** from the top cover/keyboard.
5. Remove the bottom cover **(3)** from the computer.



To replace 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**

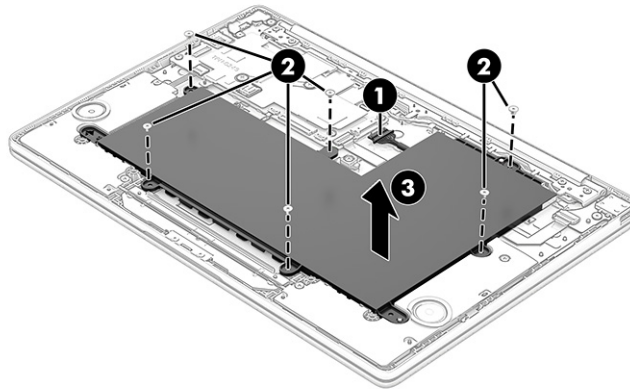
| Description  | Spare part number |
|--|-------------------|
| Battery (2 cell, 37 Whr, 4.96 Ahr, includes cable) | L97355-005        |

Before removing the battery, follow these steps:

1. Prepare the computer for disassembly (see [Preparation for disassembly on page 21](#)).
2. Remove the bottom cover (see [Bottom cover on page 21](#)).

Remove the battery:

1. Disconnect the battery cable **(1)** from the system board.
2. Remove the six Phillips M2.0 × 2.9 screws **(2)** that secure the battery to the computer.
3. Remove the battery **(3)** from the computer.



Reverse this procedure to install the battery.

## Speakers

To remove the speakers, use this procedure and illustration.

**Table 5-3 Speakers description and part number**

| Description   | Spare part number |
|---|-------------------|
| Speakers (include left and right speakers and cables) | M15724-001        |

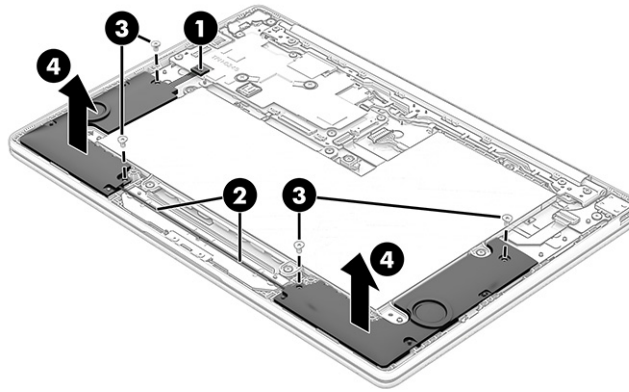
Before removing the speakers, follow these steps:

1. Prepare the computer for disassembly (see [Preparation for disassembly on page 21](#)).

2. Remove the bottom cover (see [Bottom cover on page 21](#)).
3. Disconnect the battery cable from the system board (see [Battery on page 23](#)).

Remove the speakers:

1. Disconnect the speaker cable (1) from the system board.
2. Release the tape that secures the speaker cable (2) to the touchpad bracket.
3. Remove the four Phillips M2.0 × 4.1 screws (3) that secure the speakers to the computer.
4. Remove the speakers (4) from the computer.



Reverse this procedure to install the speakers.

## System board

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

**Table 5-4 System board descriptions and part numbers**

| Description   | Spare part number |
|---|-------------------|
| System board: includes an integrated Mediatek Arm Cortex-A MT8183 2.0 GHz processor (8 cores), 4 GB of system memory, a graphics subsystem with UMA memory, the Google Chrome operating system, and replacement thermal material. |                   |
| Equipped with 64 GB of eMMC storage   | M87607-001        |
| Equipped with 32 GB of eMMC storage   | M87606-001        |

Before removing the system board, follow these steps:


1. Prepare the computer for disassembly (see [Preparation for disassembly on page 21](#)).
2. Remove the bottom cover (see [Bottom cover on page 21](#)).
3. Disconnect the battery cable from the system board (see [Battery on page 23](#)).

When you replace the system board, be sure to remove the heat sink (see [Heat sink on page 26](#)) from the defective system board and install it on the replacement system board.

Remove the system board:

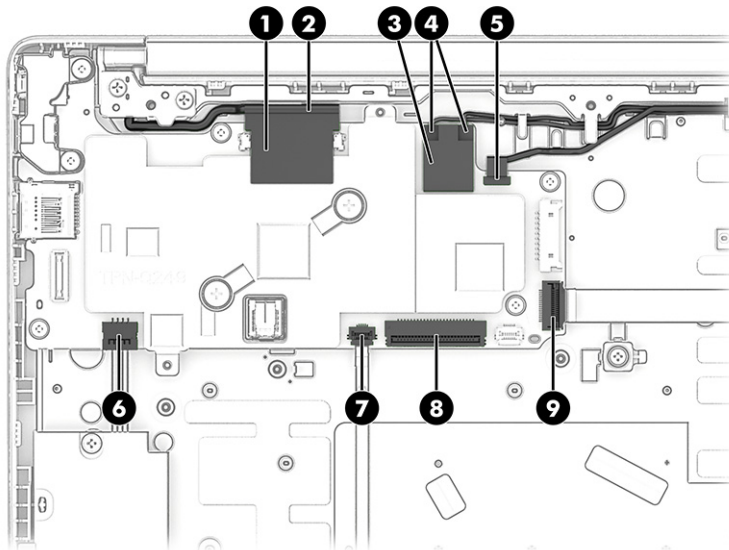
1. Release the adhesive support tape that secures the display panel cable **(1)** to the system board.
2. Disconnect the display panel cable **(2)** from the system board.
3. Remove the WLAN module shield **(3)** from the integrated WLAN module.
4. Carefully disconnect the two wireless antenna cables **(4)** from the integrated WLAN module.

---

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

---

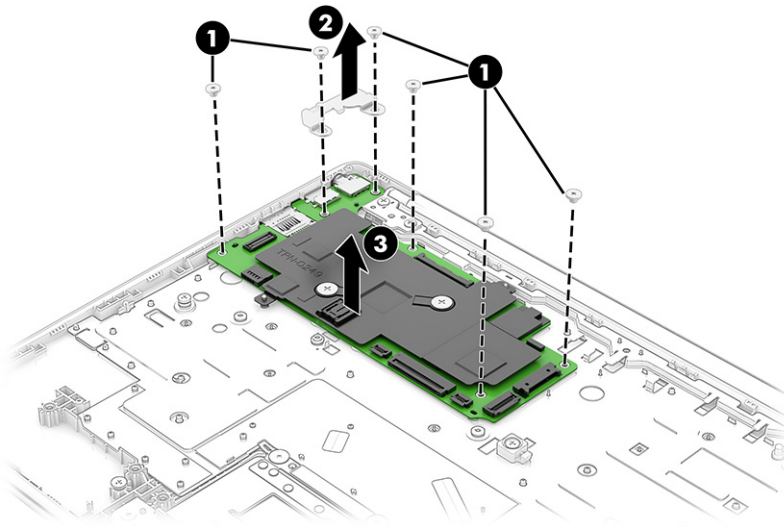
5. Disconnect the webcam/microphone module cable **(5)** from the system board.
6. Disconnect the speaker cable **(6)** from the system board.
7. Release the zero insertion force (ZIF) connector **(7)** to which the touchpad cable is connected, and then disconnect the touchpad cable from the system board.
8. Release the ZIF connector **(8)** to which the keyboard cable is connected, and then disconnect the keyboard cable from the system board.
9. Release the ZIF connector **(9)** to which the connector board cable is connected, and then disconnect the connector board cable from the system board.



10. Remove the six Phillips M2.0 × 2.7 screws **(1)** that secure the system board to the computer.
11. Remove the system board I/O bracket **(2)**.

The system board I/O bracket is not available as a spare part component.

12. Remove the system board (3).



Reverse this procedure to install the system board.

## Heat sink

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

**Table 5-5** Heat sink descriptions and part numbers

| Description                                       | Spare part number |
|---|-------------------|
| Heat sink (includes replacement thermal material) | M15731-001        |

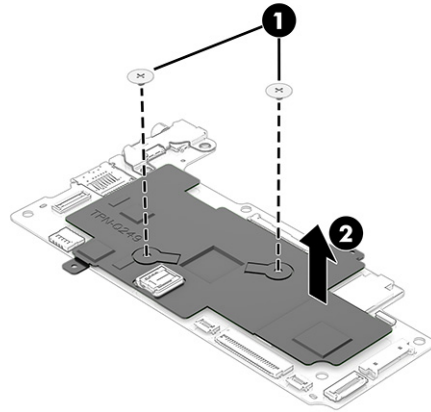
Before removing the heat sink, follow these steps:

1. Prepare the computer for disassembly (see [Preparation for disassembly on page 21](#)).
2. Remove the bottom cover (see [Bottom cover on page 21](#)).
3. Disconnect the battery cable from the system board (see [Battery on page 23](#)).
4. Remove the system board (see [System board on page 24](#)).

Remove the heat sink:

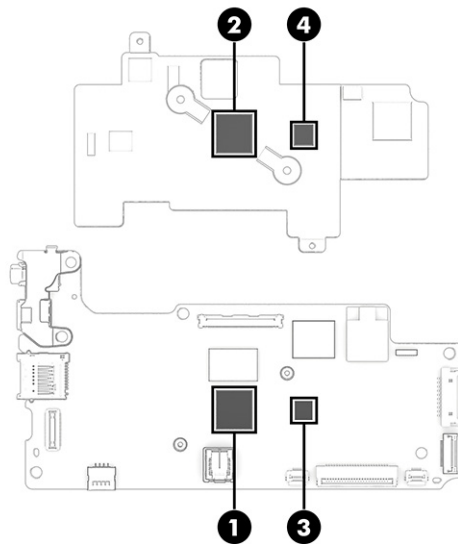
1. Remove the two Phillips M2.0 × 2.7 screws (1) that secure the heat sink to the system board.

2. Remove the heat sink **(2)** from the system board.



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

Thermal paste is used on the processor **(1)** and heat sink component **(2)** that services the processor. A thermal pad is used elsewhere on the system board **(3)** and on the heat sink component **(4)** that services this component.



Reverse this procedure to install the heat sink.

## Display assembly

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

Full hinge-up displays are not available as spare parts. Spare parts for displays are available only at the subcomponent level.



Before removing the display panel, follow these steps:

1. Prepare the computer for disassembly (see [Preparation for disassembly on page 21](#)).
2. Remove the bottom cover (see [Bottom cover on page 21](#)).
3. Disconnect the battery cable from the system board (see [Battery on page 23](#)).

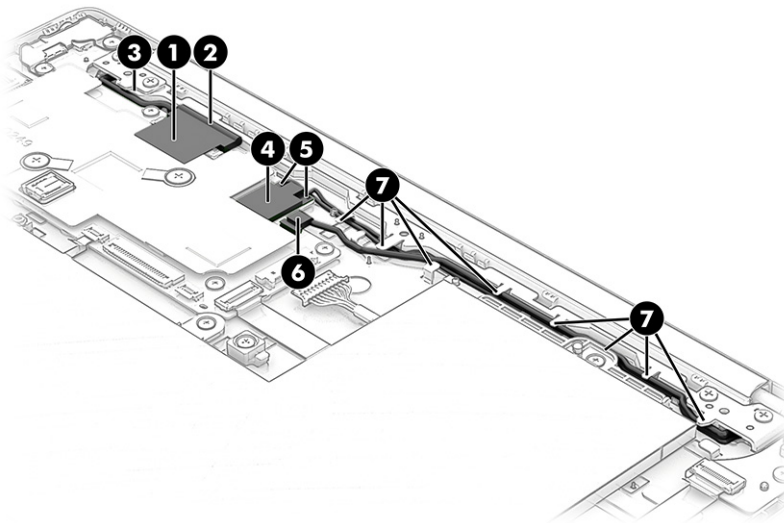
Remove the display assembly:

1. Release the adhesive support tape that secures the display panel cable **(1)** to the system board.
2. Disconnect the display panel cable **(2)** from the system board.
3. Release the display panel cable from the retention clip **(3)** built into the right display hinge.
4. Remove the WLAN module shield **(4)** from the integrated WLAN module.
5. Carefully disconnect the two wireless antenna cables **(5)** from the integrated WLAN module.

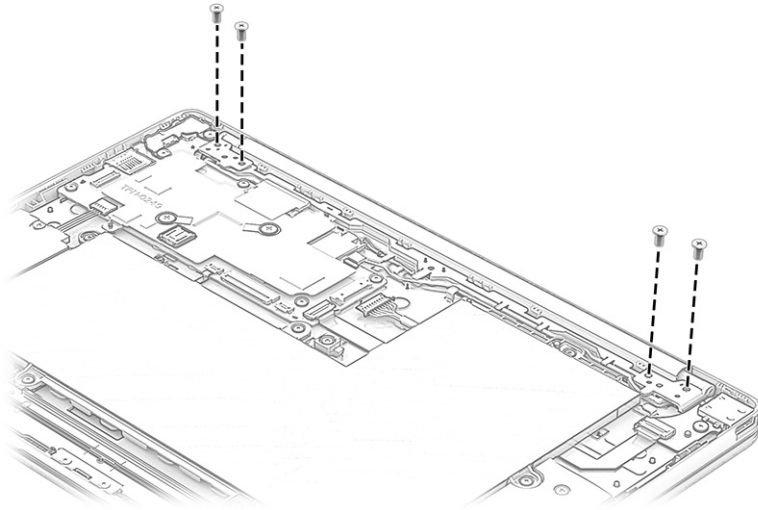


**NOTE:** Models have either one or two WLAN antennas. On models with two antennas, the #1 white WLAN antenna cable connects to the WLAN module #1 Main terminal. The #2 black WLAN antenna cable connects to the WLAN module #1 Aux terminal.

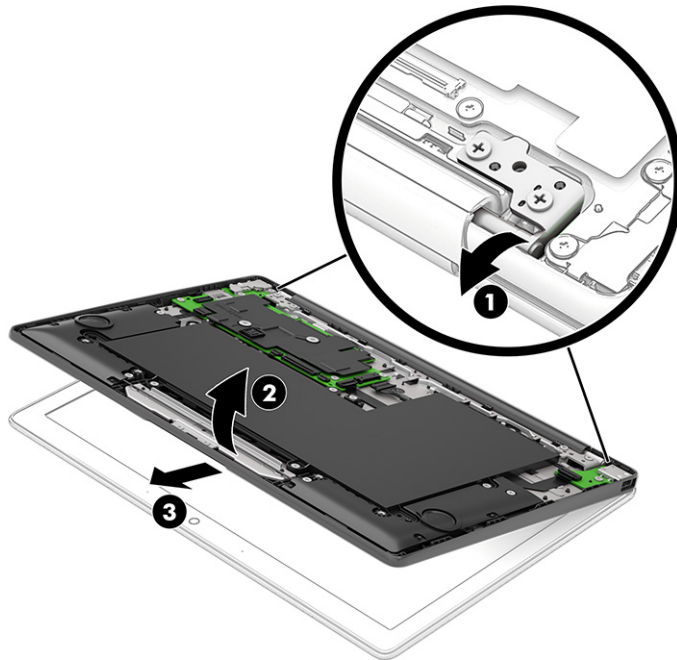
6. Disconnect the webcam/microphone module cable **(6)** from the system board.
7. Release the wireless antenna cables and the webcam/microphone module cable from the retention clips **(7)** built into the top cover/keyboard.



8. Remove the four Phillips M2.5 × 5.7 screws that secure the display assembly to the computer.

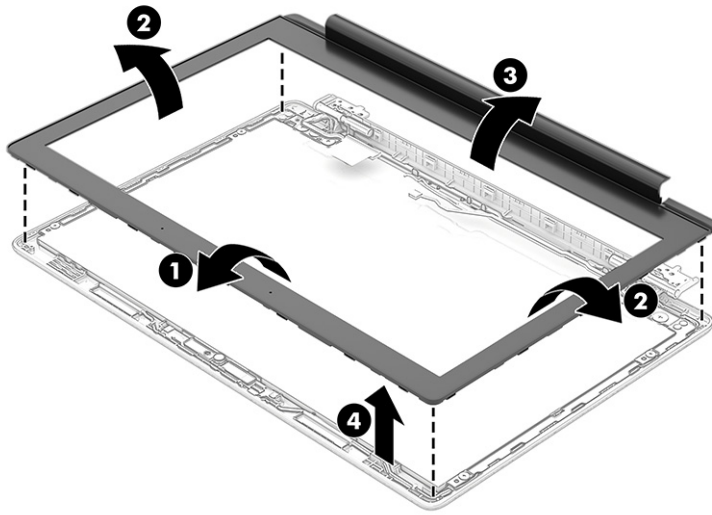


9. Swing the display hinges **(1)** up and back as far as they will go.
10. Swing the front edge of the computer **(2)** up and back.
11. Separate the computer **(3)** from the display assembly by sliding it up and forward at an angle.



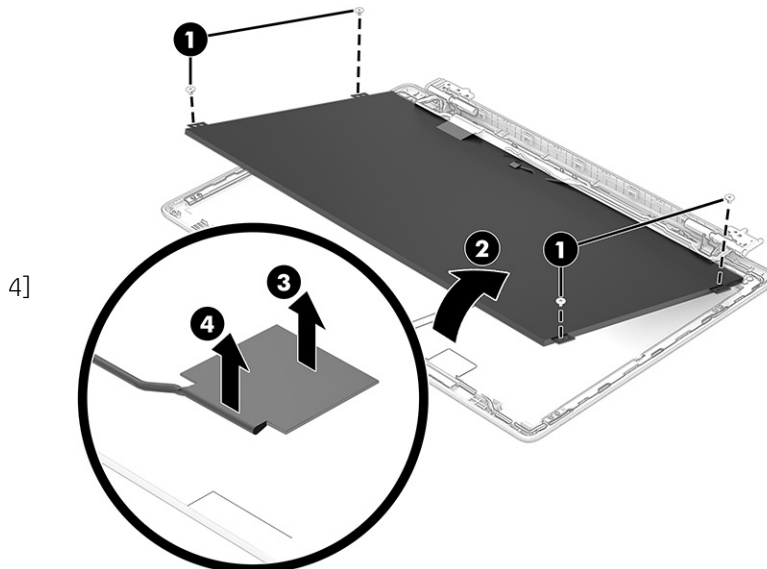
12. If you need to replace the display bezel or any of the display assembly subcomponents:
  - a. Flex the top inside edge **(1)**, left **(2)** and right inside edges, and the bottom inside edge **(3)** of the bezel to release it from the display assembly.
  - b. Remove the display bezel **(4)** from the display assembly.

The display bezel is available using spare part number M86241-001.



13. If you need to remove the display panel:

- a. Remove the display bezel.
- b. Remove the four Phillips M2.0 × 3.0 screws (1) that secure the display panel to the display back cover.
- c. Lift the top edge of the display panel (2) and swing it up and forward until the display panel cable connector is accessible.
- d. Release the grounding tape (3) that secures the display panel cable to the display panel.
- e. Disconnect the display panel cable (4) from the display panel.



- f. Remove the display panel.

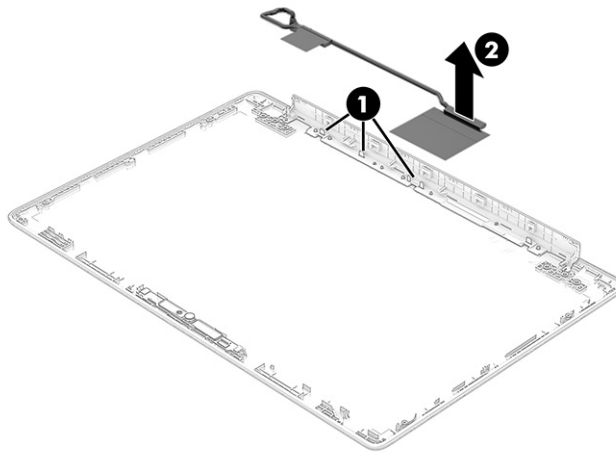
The display panel is available using spare part numbers M15718-001 (29.5 cm (11.6 in), LCD, HD (1366×768), antiglare, WLED, UWVA, 50% CG, eDP 1.2 without PSR, touchscreen display panel; typical

brightness: 220 nits) and M15719-001 (29.5 cm (11.6 in), LCD, HD (1366×768), antiglare, WLED, SVA, 45% CG, eDP, non-touchscreen display panel; typical brightness: 220 nits).

**14.** If you need to remove the display panel cable:

- a. Remove the display bezel.
- b. Remove the display panel.
- c. Release the display panel cable from the retention clips **(1)** built into the display back cover.
- d. Remove the display panel cable **(2)**.

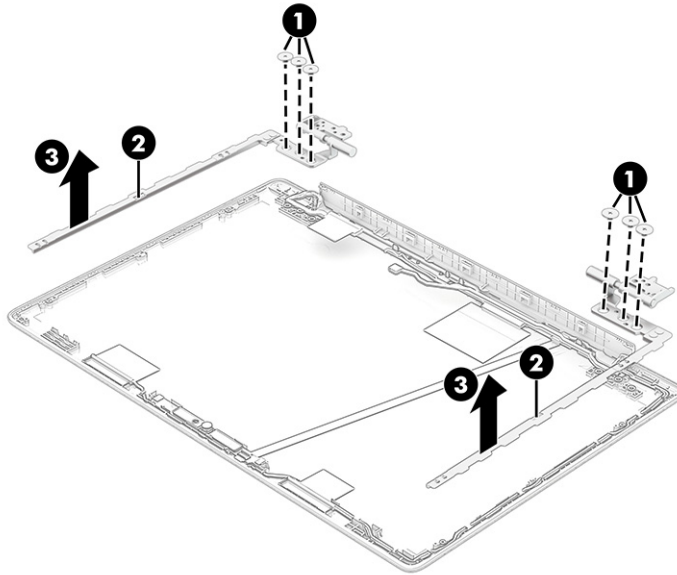
The display panel cable is available using spare part numbers M86242-001 (for use only on computer models equipped with a touchscreen display assembly) and M86243-001 (for use only on computer models equipped with a non-touchscreen display assembly).



**15.** If you need to remove the hinges:

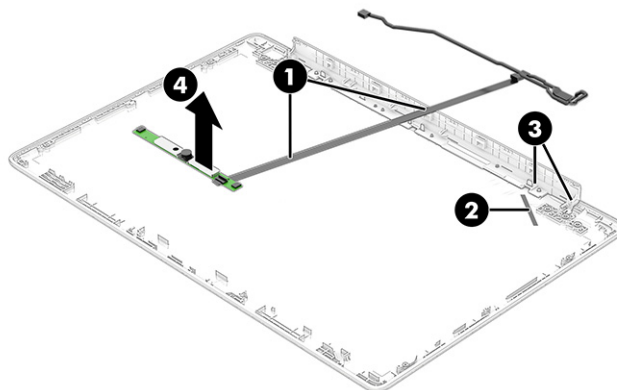
- a. Remove the display bezel.
- b. Remove the display panel.
- c. Remove the six Phillips M2.0 × 3.0 broad head screws **(1)** that secure the hinges to the display back cover.
- d. Release the tab on the display back cover from the slot on the display hinge bracket **(2)**.
- e. Remove the hinges **(3)** from the display back cover.

The display hinges are available using spare part number M15712-001.



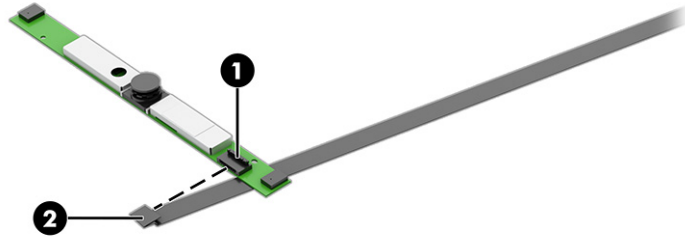
16. If you need to remove the webcam/microphone module and cable:

- a. Remove the display bezel.
- b. Remove the display panel.
- c. Remove the hinges.
- d. Release the webcam/microphone module cable (1) from the display back cover. (The webcam/microphone module cable is attached to the display back cover with double-sided adhesive.)
- e. Release the grounding tape (2) that secures the webcam/microphone module cable to the display back cover.
- f. Release the webcam/microphone module cable from the retention clips (3) built into the display back cover.
- g. Release the webcam/microphone module (4) from the display back cover. (The webcam/microphone module is attached to the display back cover with double-sided adhesive.)



- h. Release the ZIF connector (1) to which the webcam/microphone module cable is connected, and then disconnect the webcam/microphone module cable (2) from the webcam/microphone module.

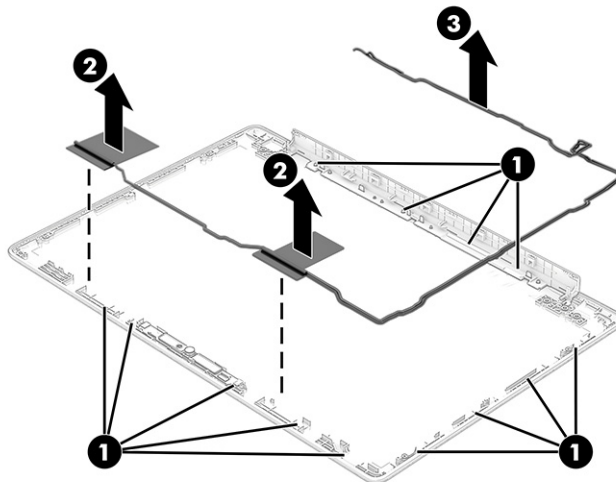
The webcam/microphone module is available using spare part number M15727-001. The webcam/microphone module cable is available using spare part number M15709-001.



- 17. If you need to remove the wireless antenna:
  - a. Release the wireless antenna cables from the retention clips (1) and routing channels built into the top, left, and bottom edges of the display back cover.
  - b. Detach the wireless antenna transceivers (2) from the display back cover. (The wireless antenna transceivers are attached to the display back cover with double-sided adhesive.)
  - c. Remove the wireless antenna cables and transceivers (3).

The wireless antenna are available using spare part number M15696-001.

The display back cover is available using spare part number M86239-001.



Reverse this procedure to reassemble and replace the display assembly.

## Touchpad cable

To remove the touchpad cable, use this procedure and illustration.

**Table 5-6** Touchpad cable description and part number

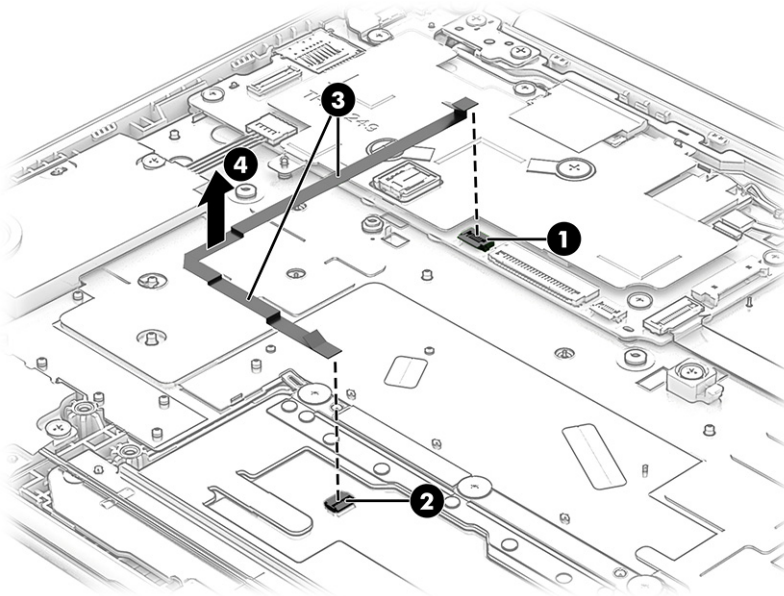
| Description    | Spare part number |
|----------------|-------------------|
| Touchpad cable | M97111-001        |

Before removing the touchpad cable, follow these steps:

1. Prepare the computer for disassembly (see [Preparation for disassembly on page 21](#)).
2. Remove the bottom cover (see [Bottom cover on page 21](#)).
3. Remove the battery (see [Battery on page 23](#)).

Remove the touchpad cable:

1. Release the ZIF connector **(1)** to which the touchpad cable is connected, and then disconnect the touchpad cable from the system board.
2. Release the ZIF connector **(2)** to which the touchpad cable is connected, and then disconnect the touchpad cable from the touchpad.
3. Detach the touchpad cable **(3)** from the top/keyboard. (The touchpad cable is attached to the top cover/keyboard with double-sided adhesive.)
4. Remove the touchpad cable **(4)**.



Reverse this procedure to install the touchpad cable.

## Touchpad

To remove the touchpad, use this procedure and illustration.

**Table 5-7 Touchpad description and part number**

| Description | Spare part number |
|-------------|-------------------|
| Touchpad    | M97113-001        |

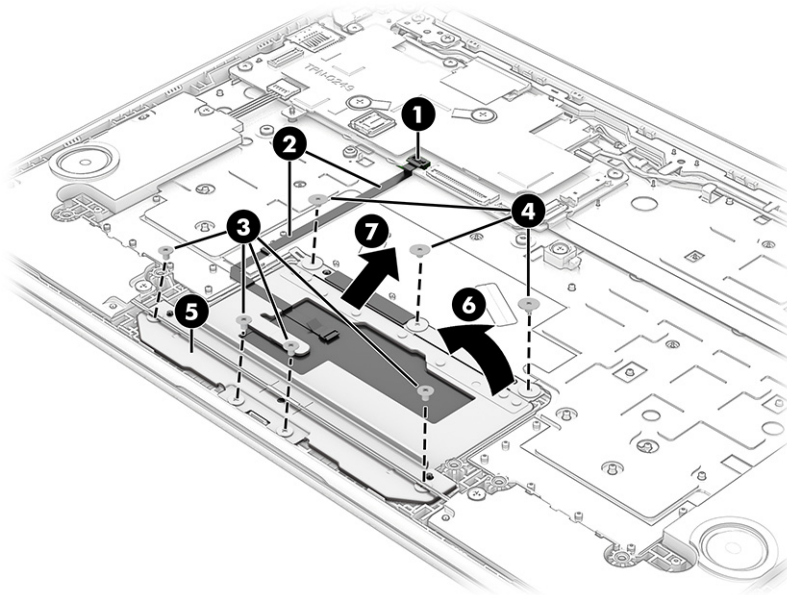
**NOTE:** The touchpad spare part kit does not include the touchpad bracket rubber or the touchpad cable. The touchpad bracket rubber is available using spare part number M16563-001. The touchpad cable is available using spare part number M97111-001.

Before removing the touchpad, follow these steps:

1. Prepare the computer for disassembly (see [Preparation for disassembly on page 21](#)).
2. Remove the bottom cover (see [Bottom cover on page 21](#)).
3. Remove the battery (see [Battery on page 23](#)).

Remove the touchpad:

1. Release the ZIF connector **(1)** to which the touchpad cable is connected, and then disconnect the touchpad cable from the system board.
2. Detach the touchpad cable **(2)** from the top/keyboard. (The touchpad cable is attached to the top cover/keyboard with double-sided adhesive.)
3. Remove the four Phillips M2.0 × 2.9 screws **(3)** that secure the touchpad and touchpad bracket to the computer.
4. Remove the three Phillips M2.0 × 2.3 broad head screws **(4)** that secure the touchpad to the computer.
5. Remove the touchpad bracket **(5)**.
6. Swing the top edge of the touchpad **(6)** up and forward.
7. Remove the touchpad **(7)** by sliding it up and away from the computer at an angle.





Reverse this procedure to install the touchpad.

## Connector board cable

To remove the connector board cable, use this procedure and illustration.

**Table 5-8 Connector board cable description and part number**

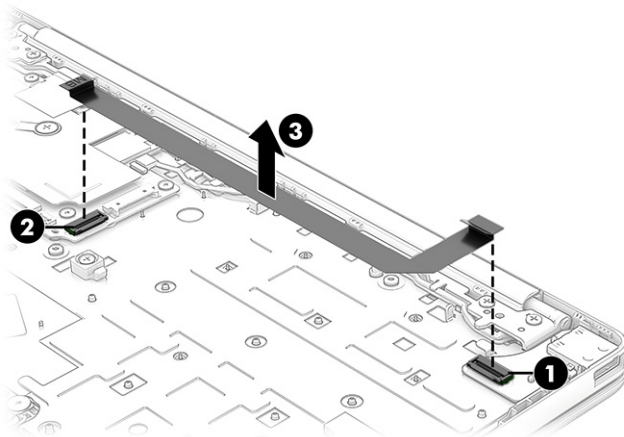
| Description           | Spare part number |
|-----------------------|-------------------|
| Connector board cable | M97112-001        |

Before removing the connector board cable, follow these steps:

1. Prepare the computer for disassembly (see [Preparation for disassembly on page 21](#)).
2. Remove the bottom cover (see [Bottom cover on page 21](#)).
3. Remove the battery (see [Battery on page 23](#)).

Remove the connector board cable:

1. Release the ZIF connector (1) to which the connector board cable is connected, and then disconnect the connector board cable from the connector board.
2. Release the ZIF connector (2) to which the connector board cable is connected, and then disconnect the connector board cable from the system board.
3. Remove the connector board cable (3).



Reverse this procedure to install the connector board cable.

## Connector board

To remove the connector board, use this procedure and illustration.

**Table 5-9 Connector board description and part number**

| Description                              | Spare part number |
|--|-------------------|
| Connector board (includes USB connector) | M15716-001        |

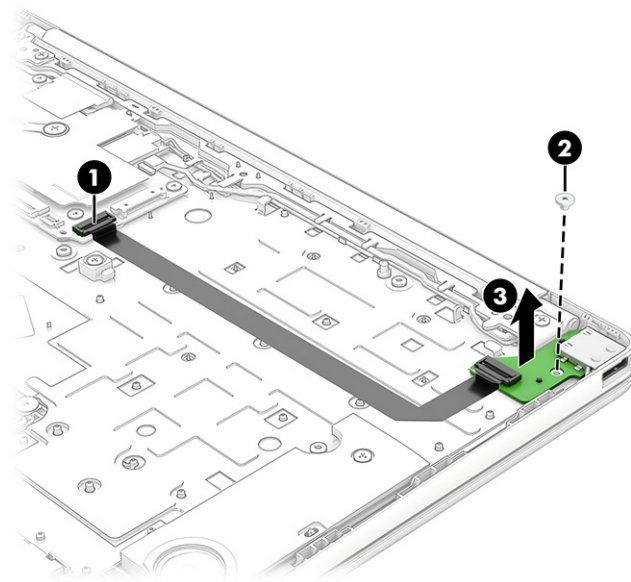
**NOTE:** The connector board spare part kit does not include the connector board cable. The connector board cable is available as spare part number M97112-001.

Before removing the connector board, follow these steps:

1. Prepare the computer for disassembly (see [Preparation for disassembly on page 21](#)).
2. Remove the bottom cover (see [Bottom cover on page 21](#)).
3. Remove the battery (see [Battery on page 23](#)).

Remove the connector board:

1. Release the ZIF connector **(1)** to which the connector board cable is connected, and then disconnect the connector board cable from the system board.
2. Remove the Phillips M2.0 × 2.7 screw **(2)** that secures the connector board to the computer.
3. Remove the connector board **(3)** from the computer.



Reverse this procedure to install the connector board.

# 6 Specifications

This chapter provides specifications for your computer.

## Computer specifications

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

**Table 6-1 Computer specifications**

|  | Metric                     | U.S.                |
|--|----------------------------|---------------------|
| <b>Dimensions</b>                        |                            |                     |
| Width                                    | 28.5 cm                    | 11.2 in             |
| Depth                                    | 19.4 cm                    | 7.7 in              |
| Height (front to back)                   | 1.7 mm                     | 0.67 in             |
| <b>Weight</b>                            |                            |                     |
|  | 2.43 kg                    | 4.95 lb             |
| <b>Input power</b>                       |                            |                     |
| Operating voltage and current            | 19.5 V dc @ 2.31 A – 45 W  |                     |
|  | 19.5 V dc @ 3.33 A – 65 W  |                     |
|  | 19.5 V dc @ 4.62 A – 90 W  |                     |
|  | 19.5 V dc @ 7.70 A – 150 W |                     |
|  | 19.5 V dc @ 10.3 A – 200 W |                     |
| <b>Temperature</b>                       |                            |                     |
| Operating                                | 5°C to 35°C                | 41°F to 95°F        |
| Nonoperating                             | –20°C to 60°C              | –4°F to 140°F       |
| <b>Relative humidity (noncondensing)</b> |                            |                     |
| Operating                                | 10% to 90%                 |                     |
| Nonoperating                             | 5% to 95%                  |                     |
| <b>Maximum altitude (unpressurized)</b>  |                            |                     |
| 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 |

**Table 6-1 Computer specifications (continued)**

|   | Metric | U.S. |
|---|--------|------|
| <b>NOTE:</b> Applicable product safety standards specify thermal limits for plastic surfaces. The device operates well within this range of temperatures. |        |      |

## 29.6 cm (11.6 in) display specifications

This section provides specifications for your display.

**Table 6-2 Display specifications**

|                         | Metric   | U.S.    |
|-------------------------|--|---------|
| Active diagonal size    | <b>29.6 cm</b>   | 11.6 in |
| Resolution              | 1366 × 768 (HD)  |         |
| Surface treatment       | Antiglare (HD panel)   |         |
| Brightness              | 220 nits (HD, 50% NTSC panel)<br>220 nits (HD, 45% NTSC panel) |         |
| Viewing angle           | UWVA<br>SVA  |         |
| Backlight               | WLED   |         |
| Display panel interface | eDP 1.2 without PSR<br>eDP                                     |         |

# 7 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 7-1** 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                      |

**Table 7-1 Power cord requirements for specific countries and regions (continued)**

| Country/region             | Accredited agency | Applicable note number |
|----------------------------|-------------------|------------------------|
| Chile                      | IMQ               | 1                      |
| Denmark                    | DEMKO             | 1                      |
| Finland                    | FIMKO             | 1                      |
| France                     | UTE               | 1                      |
| 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 mm<sup>2</sup> conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country or region where it will be used.
2. The flexible cord must be Type 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 mm<sup>2</sup> or 1.25 mm<sup>2</sup> conductor size. The wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (7 A, 125 V ac) configuration.
4. The flexible cord must be Type RVV, three-conductor, 0.75 mm<sup>2</sup> 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 mm<sup>2</sup> 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 mm<sup>2</sup> conductor size. Power cord set fittings (appliance coupler, cable, and wall plug) must bear the BSMI certification mark.

**Table 7-1** Power cord requirements for specific countries and regions (continued)

| Country/region | Accredited agency   | Applicable note number |
|----------------|---|------------------------|
| 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 mm <sup>2</sup> or 1.00 mm <sup>2</sup> conductor size, with plug BS 1363/A with BSI or ASTA marks. |                        |

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## 8 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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# Index

- A**
  - AC adapter light 3
  - AC adapters, spare part numbers 11
  - action keys
    - identifying 5
  - antenna
    - illustrated 9
    - location 5
    - removal 33
    - spare part number 9, 33
  - audio-in (microphone) jack 4
  - audio-out (headphone) jack 4
  - audio, product description 1
- B**
  - battery
    - illustrated 9
    - spare part number 9
  - battery light 3
  - bottom cover
    - illustrated 9
    - removal 21
    - spare part number 9, 21
- C**
  - camera 5
    - location 5
  - camera light 5
  - caring for your computer 16
  - cautions
    - electrostatic discharge 12, 13
  - chipset
    - product description 1
  - cleaning your computer 16
    - caring for wood veneer 18
    - disinfecting 17
    - HP Easy Clean 16
    - removing dirt and debris 16
  - components
    - display 4
    - left side 4
    - right side 3
  - computer major components 7
  - computer specifications 38
  - connector board
    - illustrated 8
    - removal 36
    - spare part number 8, 36
  - connector board cable
    - illustrated 9
    - removal 36
    - spare part number 9, 36
  - connectors
    - USB Type-C power 3
- D**
  - display
    - specifications 38, 39
  - display assembly
    - subcomponents 9
  - display back cover
    - illustrated 9
    - spare part number 9, 33
  - display bezel
    - illustrated 9
    - removal 29
    - spare part number 9, 30
  - display panel
    - illustrated 9
    - product description 1
    - removal 30
    - spare part numbers 9, 31
  - display panel cable
    - illustrated 9
    - removal 31
    - spare part numbers 9, 31
- E**
  - electrostatic discharge (ESD) 12, 13
    - preventing damage 12-14
  - esc key, identifying 5
- G**
  - graphics, product description 1
  - grounding methods 12-14
  - guidelines
    - packaging 12, 18
    - transporting 12, 18
    - workstation 12
- H**
  - hard drive
    - product description 1
    - specifications 38
  - headphone (audio-out) jack 4
  - heat sink
    - illustrated 9
    - removal 26
    - spare part number 9, 26
  - hinge
    - illustrated 9
    - removal 31
    - spare part number 9, 31
- I**
  - illustrated parts catalog 7
  - internal microphones 5
- J**
  - jacks
    - audio-in (microphone) 4
    - audio-out (headphone) 4
- K**
  - keyboard
    - product description 2
  - keys
    - esc 5
- L**
  - lights
    - AC adapter 3
    - battery 3
    - camera 5

## M

- media card reader, product description 1
- memory
  - product description 1
- microphone
  - product description 1
- microphone (audio-in) jack 4
- model name 1

## O

- operating system, product description 2

## P

- packaging guidelines 12, 18
- pointing device, product description 2
- ports
  - product description 1
  - USB port with HP Sleep and Charge 4
  - USB Type-C power 3
- power cord
  - requirements for all countries 40
  - requirements for specific countries and regions 40
  - set requirements 40
- power cords, spare part numbers 11
- power requirements, product description 2
- primary storage
  - product description 1
- processor
  - product description 1
- product description
  - audio 1
  - chipset 1
  - display panel 1
  - graphics 1
  - hard drive 1
  - keyboard 2
  - media card reader 1
  - memory 1
  - microphone 1
  - operating system 2
  - pointing device 2
  - ports 1
  - power requirements 2
  - primary storage 1
  - processor 1
  - product name 1

- security 2
- serviceability 2
- solid-state drive 1
- video 1
- wireless 1

product name 1

## R

- removal and replacement procedures 21
- Rubber Feet Kit, spare part number 22
- rubber foot strip
  - removal 22
  - spare part number 22

## S

- Screw Kit, spare part number 11
- security, product description 2
- serviceability, product description 2
- solid-state drive
  - product description 1
- speakers
  - illustrated 9
  - removal 23
  - spare part number 9, 23
- specifications
  - computer 38
  - display 38, 39
  - hard drive 38
- static electricity 12, 13
- support information 18
- system board
  - illustrated 9
  - removal 24
  - spare part numbers 9, 24
- system board I/O bracket
  - removal 25

## T

- top cover/keyboard
  - illustrated 8
  - spare part numbers 8
- touchpad
  - illustrated 9
  - removal 34
  - spare part number 9, 34
- touchpad bracket rubber
  - illustrated 9
  - removal 34
  - spare part number 9, 34
- touchpad cable
  - illustrated 9

- removal 33
- spare part number 9, 33, 34
- transporting guidelines 12, 18

## U

- USB port with HP Sleep and Charge, identifying 4
- USB Type-C power connector and port 3

## V

- video, product description 1

## W

- webcam/microphone module
  - removal 32
  - spare part number 33
- webcam/microphone module cable
  - removal 32
  - spare part number 33
- wireless antenna
  - illustrated 9
  - location 5
  - removal 33
  - spare part number 9, 33
- wireless, product description 1
- WLAN antenna
  - illustrated 9
  - location 5
  - removal 33
  - spare part number 9, 33
- WLAN module shield
  - removal 25, 28
- workstation guidelines 12