



HP TX1 POS Solution

Maintenance and Service Guide

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Second Edition: November 2014

First Edition: September 2014

Document Part Number: 780410-002

Product notice

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

Not all features are available in all editions of Windows 8. This tablet may require upgraded and/or separately purchased hardware, drivers, and/or software to take full advantage of Windows 8 functionality. See for <http://www.microsoft.com> details.

Software terms

By installing, copying, downloading, or otherwise using any software product preinstalled on this tablet, 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 refund subject to the refund policy of your place of purchase.

For any further information or to request a full refund of the tablet, please contact your local point of sale (the seller).

Safety warning notice


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

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1 Setting up the system

1. Set up the tablet. After charging the battery, press and hold the power button for up to 5 seconds until the HP logo is displayed. Follow the on-screen instructions to select a language, a wireless network, and a Microsoft account. Note: If you do not have a Microsoft account, you can create one now. To view the set up video go to www.hp.com/go/pos.

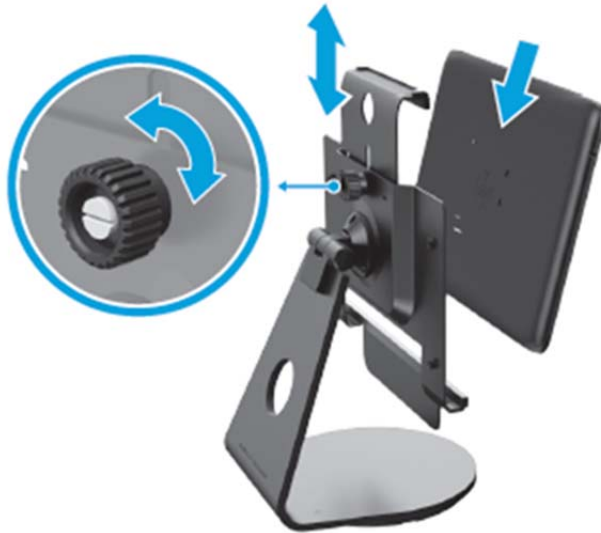
 **NOTE:** After setting up the tablet, you must power off the tablet before connecting the components.



2. Connect the MSR to the right or left side of the stand. (select models)



3. Insert the tablet into the stand.



4. Tilt the stand upwards so you can easily access the micro USB port and the power connector on the bottom of the tablet.



5. Connect the components:

Remove the cable clip (12). Power off tablet.

Connect the tablet to the USB hub

Connect the micro connector of the Micro-to-Mini USB cable to the micro USB port on the tablet (1), and then run the cable through the circular hole in the stand (2). Connect the mini USB connector to the mini USB port on the USB hub (3).

Connect the tablet power cord

Connect the power cord to the power connector on the bottom of the tablet (4), and then run the cable through the circular hole in the stand (2). Connect the adapter to the AC outlet (5).

Connect the MSR USB cable

Connect the USB cable to the MSR (6), run the cable through the circular hold in the stand (2), and then connect the other end to the USB hub (7).

Connect the cash drawer network cable

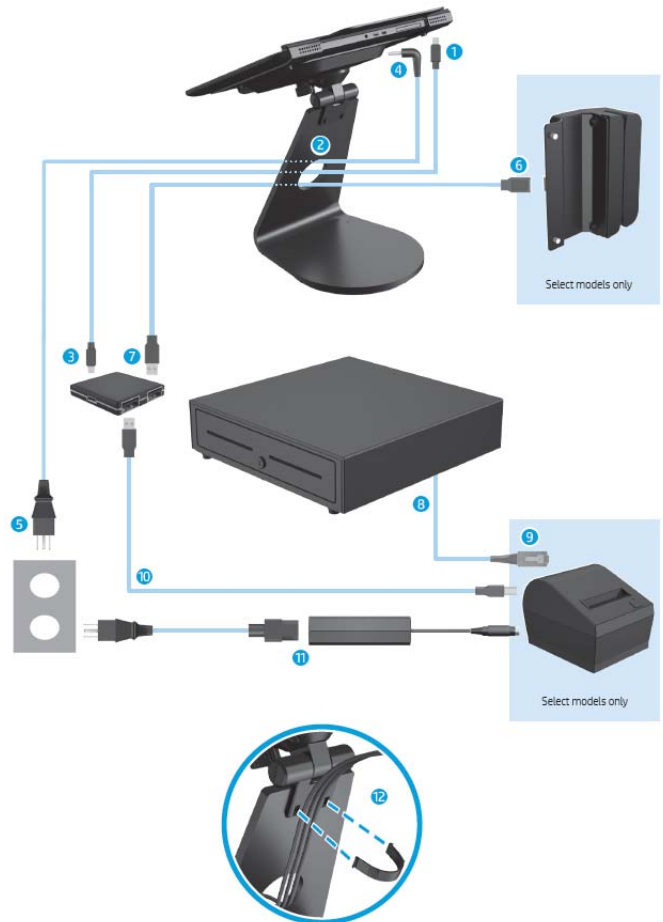
Locate the keys and cable on the underside of the cash drawer (8). Connect the network cable to the back of the printer (9).

Connect the printer USB cable and power cord

Open the connector cover on the rear of the printer to expose the connectors. Connect the USB cable from the back of the printer to the USB hub (10), and then connect the power cord to the AC outlet (11).

Secure the cables

Replace the cable clip to secure the cables running down the tablet stand (12).



2 HP Pro Tablet 610 product description

Category	Description
Product Name	HP Pro Tablet 610
Processor	Intel Quad Core Z3795 1.60-GHz (turbo up to 2.39-GHz) processor Intel Quad Core Z3775 1.46-GHz (turbo up to 2.39-GHz) processor
Panel	10.1-in, AntiGlare (AG), light-emitting display (LED), WUXGA (1920×1200), multitouch, capacitive, Gorilla glass 3 TouchScreen (with antismudge and air-bonding, Windows 8 compliant); .ultraslim; 16:10 aspect ratio, typical brightness: 400 nits; 18-bit color depth with FRC; ≥80/80/80/80 viewing angle; UWVA Dual-link eDP interface
Graphics	Intel Graphics Media Accelerator Support for HD playback, streaming, and recording at 1080p at 30fps Support for DX11
Memory	Support for 2048-MB (1024-MB × 2), 8-GB at 1600-MHz LPDDR3 128M × 32 × 2 memory IC
Mass storage	Support for embedded MultiMediaCard (eMMC) NAND flash (v4.51) Support for 64- or 32-GB eMMC mass storage memory
Audio and video	One digital microphone Stereo speakers 2.0-MP front-facing webcam with webcam activity light 8.0-MP rear-facing webcam with auto-focus
Sensors	<ul style="list-style-type: none">• Ambient light sensor• Accelerometer• eCompass• Gyro• Hall-effect sensor
Wireless networking	Integrated wireless option: Mitsumi DWM-W095A WiFi+BT 4.0 combination module with 2 antenna Bluetooth: Class 1 Bluetooth 4.0+LE Wifi: 802.11a/b/g/n 2×2 multiple-input and multiple-output (MIMO)
External expansion	Integrated micro SD card, support SDXC in DDR50, SDR25 and SDR12 mode
Ports	<ul style="list-style-type: none">• Audio: 3.5-mm headphone/microphone combo jack, support NA type headset only• HDMI type-D connector• Power connector• Micro USB 2.0 type AB connector (support for host mode only)
Keys	<ul style="list-style-type: none">• Power

Category	Description
	<ul style="list-style-type: none">• Volume down• Volume up
Power requirements	Support for 2-cell, 3.10-WHr, 4.19-AHr, Li-ion battery (non-removable) Support for 18-W (12-V/1.5-A) non-PFC AC adapter with DC plug and localized cable plug support
Security	Software-based Trusted Platform Module (TPM) solution
Operating system	Preinstalled: Microsoft Windows 8.1 (32-bit)
Serviceability	End user replaceable part: AC adapter

3 Tablet external component identification

Finding your hardware and software information

Locating hardware

To find out what hardware is installed on the tablet:

1. On the Start screen, type `control panel`, and then select **Control Panel**.
2. Select **System and Security**, and then in the **System** area, tap **Device Manager**. A list displays all the devices installed on the tablet.

Locating software

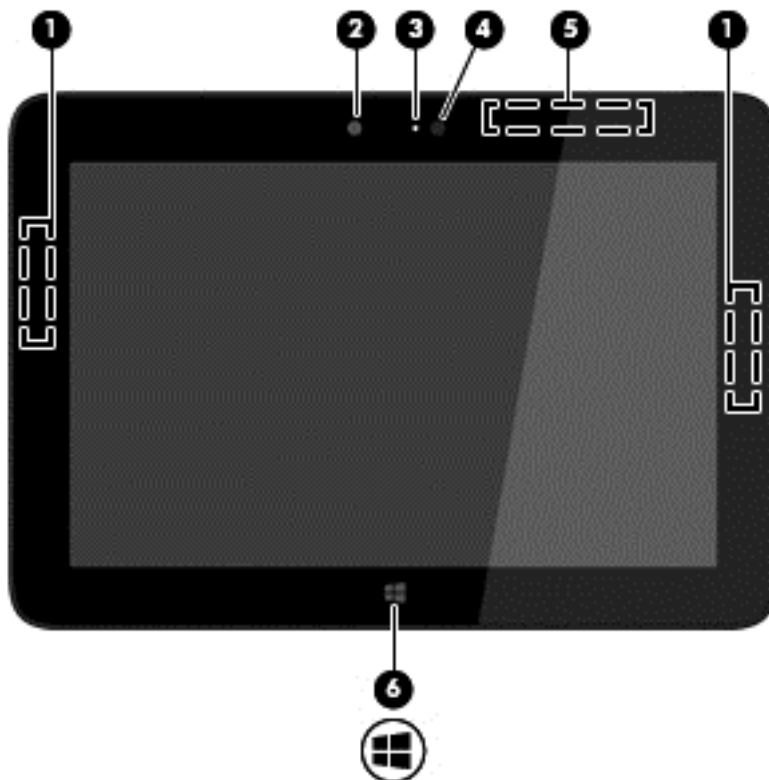
To find out what software is installed on the tablet:

- ▲ Swipe from the left until the arrow appears, and then tap the arrow in the lower-left corner of the screen.

– or –

Swipe up from the bottom to display the Apps screen.

Front



Item	Component	Description
(1)	WLAN antennas (2)*	Send and receive wireless signals to communicate with wireless local area networks.
(2)	Webcamera	Records video and captures photographs. Some models allow you to video conference and chat online using streaming video. To use the webcam, on the Start screen, tap the Camera app.
(3)	Webcamera light	On: The webcam is in use.
(4)	Ambient light sensor	Automatically adjusts the display brightness based on the lighting conditions in your environment.
(5)	WWAN antennas (2)* (select models only)	Send and receive wireless signals to communicate with wireless wide area networks.
(6)	Windows button	Minimizes all open applications and displays the Start screen.

*The antennas are not visible from the outside of the tablet. For optimal transmission, keep the areas immediately around the antennas free from obstructions. For wireless regulatory notices, see the section of the *Regulatory, Safety, and Environmental Notices* that applies to your country or region. To access this guide, on the Start screen, type *support*, select the **HP Support Assistant** app, select **My Computer**, and then select **User guides**.

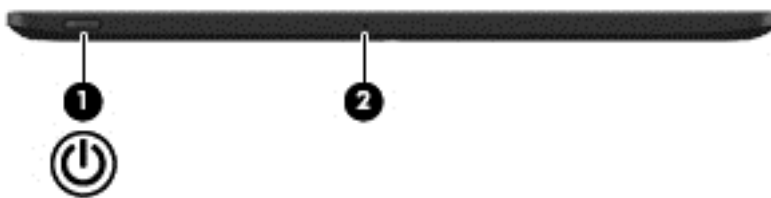
Back



Item	Component	Description
(1)	Volume down button	To decrease speaker volume, press the bottom edge of the button.
(2)	Volume up button	To increase speaker volume, press the top edge of the button.
(3)	Webcamera	Records video and captures photographs. To use the webcam, on the Start screen, tap the Camera app.
(4)	Audio-out (headphone)/ Audio-in (microphone) jack	Connects optional powered stereo speakers, headphones, earbuds, a headset, or a television audio cable. Also connects an optional headset microphone. This jack does not support optional microphone-only devices.

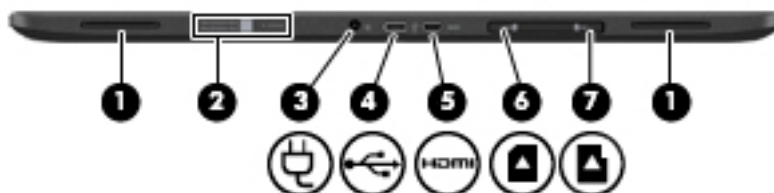
Item	Component	Description
		<p>WARNING! To reduce the risk of personal injury, adjust the volume before putting on headphones, earbuds, or a headset. For additional safety information, refer to the <i>Regulatory, Safety, and Environmental Notices</i>. To access this guide, on the Start screen, type <code>support</code>, select the HP Support Assistant app, select My computer, and then select User guides.</p> <p>NOTE: When a device is connected to the jack, the tablet speakers are disabled.</p> <p>NOTE: Be sure that the device cable has a 4-conductor connector that supports both audio-out (headphone) and audio-in (microphone).</p>

Top edge



Item	Component	Description
(1)	Power button	<ul style="list-style-type: none"> When the tablet is off, press the button to turn on the tablet. When the tablet is on, press the button briefly to initiate Sleep. When the tablet is in the Sleep state, press the button briefly to exit Sleep. When the tablet is in Hibernation, press the button briefly to exit Hibernation. <p>CAUTION: Pressing and holding down the power button will result in the loss of unsaved information.</p> <p>If the tablet has stopped responding and Windows shutdown procedures are ineffective, press and hold the power button down for at least 5 seconds to turn off the tablet.</p> <p>NOTE: For select models, the Intel Rapid Start Technology feature is enabled at the factory. Rapid Start Technology allows your tablet to resume quickly from inactivity.</p> <p>To learn more about your power settings, see your power options. On the Start screen, type <code>power options</code>, and then select Power Options.</p>
(2)	Internal microphone	Records sound.

Back edge



Item	Component	Description
(1)	Speakers (2)	Produce sound.
(2)	Serial number and product number	Provide important information to identify your tablet. When contacting support, you will probably be asked for the serial number, and possibly for the product number or the model number. Locate these numbers before you contact support.
(3)	Power connector	Connects an AC adapter.
(4)	Micro USB 2.0 port	Connects an optional micro USB device.
(5)	Micro HDMI port	Connects an optional video or audio device, such as a high-definition television, any compatible digital or audio component, or a high-speed HDMI device.
(6)	Micro SIM slot	Supports a wireless subscriber identity module (SIM) (select models only).
(7)	Micro memory card reader	Reads optional memory cards that store, manage, share, or access information. To insert a card: Hold the card label-side up, with connectors facing the slot, insert the card into the slot, and then push in on the card until it is firmly seated. To remove a card: Press in on the card it until it pops out.

Labels


The labels affixed to the tablet provide information you may need when you troubleshoot system problems or travel internationally with the tablet.



IMPORTANT: All labels described in this section are located on the back of the tablet.

- Serial number and product number are located on the bottom edge of the tablet and/or affixed to the back of the tablet. When contacting support, you will probably be asked for the serial number, and possibly for the product number or the model number. Locate these numbers before you contact support.
- Regulatory label(s)—Provide(s) regulatory information about the tablet. Regulatory markings for your country or region are located on the back of the tablet. For regulatory identification purposes, your product is assigned a Regulatory Model Number. The regulatory number should not be confused with the marketing name or product numbers. For more information, see the Quick Start guide included with your tablet.
- Wireless certification label(s)—Provide(s) information about optional wireless devices and the approval markings for the countries or regions in which the devices have been approved for use.

4 Illustrated parts catalog

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

HP TX1 POS Solution

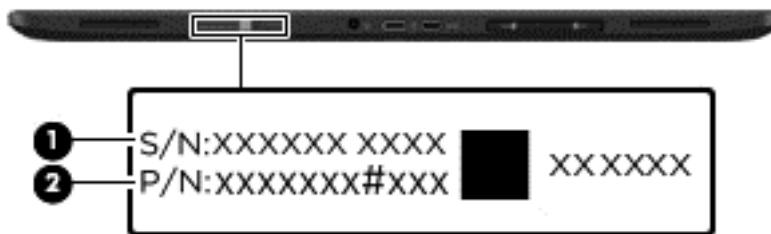


Item	Component	Spare part number
(1)	Serial USB Receipt Printer	753911-001
(2)	HP Pro Tablet 610 G1 (whole unit) NOTE: Spared as a whole unit using an advanced exchange strategy.	
	For use in the United States	792095-001
	For use in the Canada	792095-DB1
(3)	MSR (Magnetic Strip Reader), USB	739189-001
(4)	Stand	779204-001
(5)	HP Standard Duty Cash Drawer	
	EMEA	661843-B31
	APJ	661843-AB1
	Americas	661843-001
(6)	USB hub	779205-001
*	Cable, 1.8 m, HF, USB, female (not illustrated)	779459-001

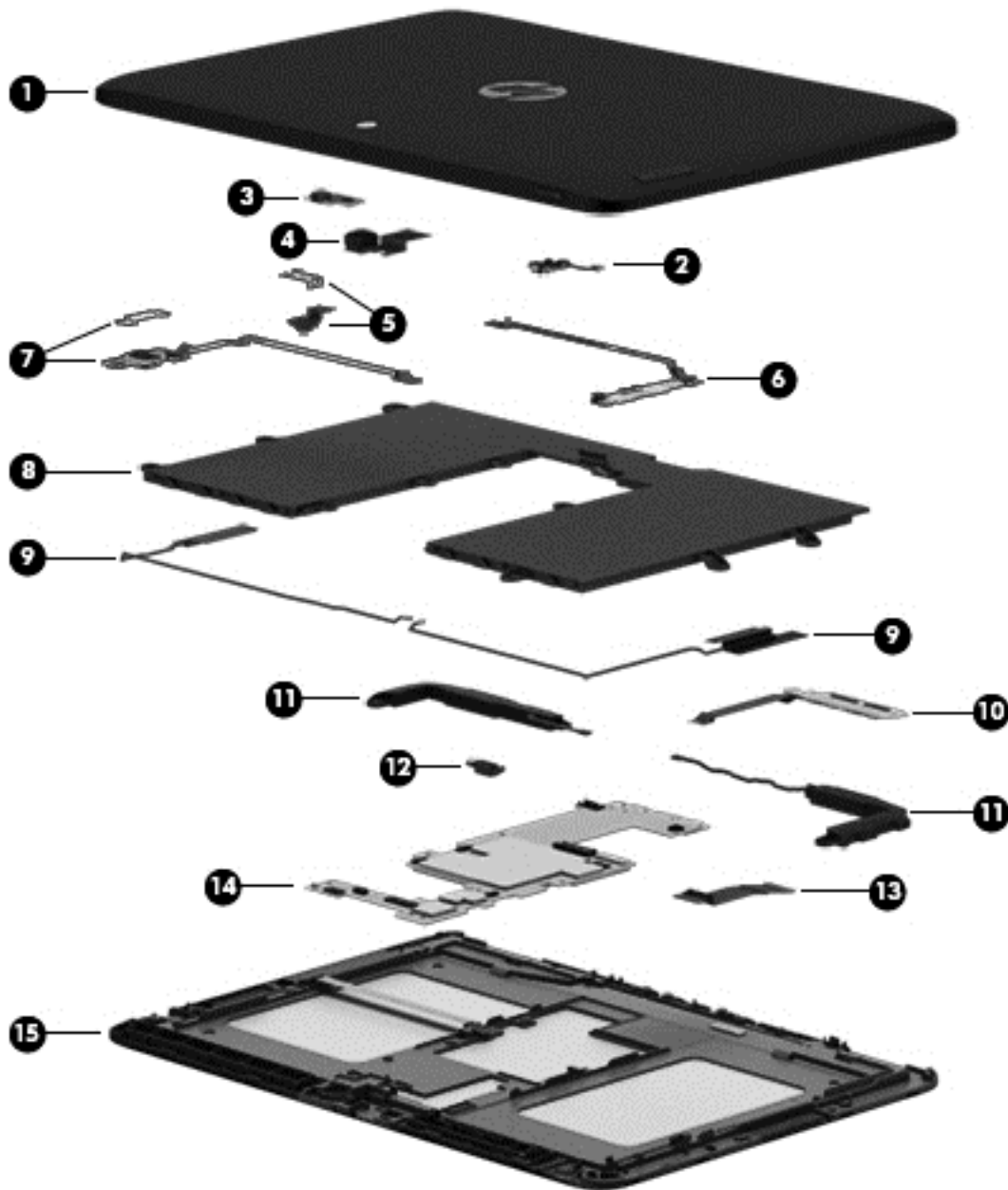
Item	Component	Spare part number
*	Cable, micro A,-mini B, 1.8 m, USB (not illustrated)	779460-001
*	Cable, printer, USB (not illustrated)	753915-001
*	Cable clip, TX120 (not illustrated)	781033-001
*	Screw, TX120 stand (not illustrated)	781032-001

Locating the serial number, product number, and model number

The serial number and product number of your tablet are located on the left edge of the tablet. The model number of your tablet is located on the back of your tablet. You may need the information when you travel internationally or when you contact support.



Tablet major components



Item	Component	Spare part number
(1)	Back cover (includes shielding):	763533-001
(2)	Power button board (includes cable)	739807-001
(3)	Light sensor board (includes double-sided adhesive and microphone)	739810-001
(4)	Front-facing webcam (includes cable and double-sided adhesive)	739815-001
(5)	Rear-facing webcam (includes bracket and cable)	739816-001
(6)	Volume button board (includes cable and double-sided adhesive)	739808-001
(7)	Audio board (includes bracket and cable)	739811-001

Item	Component	Spare part number
(8)	Battery , 2-cell, 3.10-WHr, 4.19-AHr, Li-ion (includes cable)	740479-001
(9)	Antenna Kit (includes left and right wireless antenna cables and transceivers)	744496-001
(10)	SIM/card reader board (includes cable)	739809-001
(11)	Speaker Kit (includes left and right speakers and cables)	739814-001
(12)	Vibrator module (includes cable)	741075-001
(13)	Display panel cable	739817-001
(14)	System board:	
	System board for use only on HP Pro Tablet 610 tablet models equipped with an Intel Quad Core Z3795 1.60-GHz (turbo up to 2.39-GHz) processor, 4.0-GB of system memory, 64-GB eMMC system storage, and a graphics subsystem with UMA memory for use only on tablet models equipped with the Windows 8 Professional operating system	764203-601
	System board for use only on HP Pro Tablet 610 tablet models equipped with an Intel Quad Core Z3795 1.60-GHz (turbo up to 2.39-GHz) processor, 4.0-GB of system memory, 64-GB eMMC system storage, and a graphics subsystem with UMA memory for use only on tablet models equipped with the Windows 8 Standard operating system	764203-501
	System board for use only on HP Pro Tablet 610 tablet models equipped with an Intel Quad Core Z3795 1.60-GHz (turbo up to 2.39-GHz) processor, 4.0-GB of system memory, 64-GB eMMC system storage, and a graphics subsystem with UMA memory for use only on tablet models equipped with the FreeDOS or Linux operating systems	764203-001
	System board for use only on HP Pro Tablet 610 tablet models equipped with an Intel Quad Core Z3775 1.46-GHz (turbo up to 2.39-GHz) processor, 2.0-GB of system memory, 32-GB eMMC system storage, and a graphics subsystem with UMA memory for use only on tablet models equipped with the Windows 8 Professional operating system	764202-601
	System board for use only on HP Pro Tablet 610 tablet models equipped with an Intel Quad Core Z3775 1.46-GHz (turbo up to 2.39-GHz) processor, 2.0-GB of system memory, 32-GB eMMC system storage, and a graphics subsystem with UMA memory for use only on tablet models equipped with the Windows 8 Standard operating system	764202-501
	System board for use only on HP Pro Tablet 610 tablet models equipped with an Intel Quad Core Z3775 1.46-GHz (turbo up to 2.39-GHz) processor, 2.0-GB of system memory, 32-GB eMMC system storage, and a graphics subsystem with UMA memory for use only on tablet models equipped with the FreeDOS or Linux operating systems	764202-001
(15)	10.1-in, AG, LED, WUXGA, TouchScreen, display panel assembly	763536-001
	NOTE: The display assembly does not include the display panel cable. The display panel cable is available using spare part number 739817-001.	

Miscellaneous tablet parts

Component	Spare part number
18-W AC adapter:	
For use only on HP Pro Tablet 610 tablet models in Australia	741855-002
For use on all tablet models in Europe and South Korea	741855-009
For use only on HP Pro Tablet 610 tablet models in India	741855-005
For use on all tablet models in North America	741855-008
For use on all tablet models in the United Kingdom	741855-003
Screw Kit	744498-001

Sequential part number listing

Spare part number	Description
661843-001	HP Standard Duty Cash Drawer for use in EMEA
661843-AB1	HP Standard Duty Cash Drawer for use in APJ
661843-B31	HP Standard Duty Cash Drawer for use in the Americas
739189-001	MSR (Magnetic Strip Reader), USB
739807-001	Power button board (includes cable)
739808-001	Volume button board (includes cable and double-sided adhesive)
739809-001	SIM/card board (includes cable)
739810-001	Light sensor board (includes double-sided adhesive and microphone)
739811-001	Audio board (includes bracket and cable)
739814-001	Speaker Kit (includes left and right speakers and cables)
739815-001	Front-facing webcam (includes cable and double-sided adhesive)
739816-001	Rear-facing webcam (includes bracket and cable)
739817-001	Display panel cable (includes double-sided adhesive)
740479-001	Battery, 2-cell, 3.10-WHr, 4.19-AHr, Li-ion, (includes cable)
741075-001	Vibrator module (includes cable)
741855-002	18-W AC adapter for use only on HP Pro Tablet 610 tablet models in Australia (includes plug)
741855-003	18-W AC adapter for use on all tablet models in the United Kingdom (includes plug)
741855-005	18-W AC adapter for use only on HP Pro Tablet 610 tablet models in India (includes plug)
741855-008	18-W AC adapter for use on all tablet models in North America (includes plug)
741855-009	18-W AC adapter for use on all tablet models in Europe and South Korea (includes plug)
744496-001	Antenna Kit (includes left and right wireless antenna cables and transceivers)
744497-001	Card reader bezel

Spare part number	Description
744498-001	Screw Kit
753911-001	Serial USB Receipt Printer
753915-001	Cable, printer, USB
763533-001	Back cover for use only on HP Pro Tablet 610 tablet models
763536-001	10.1-in, AG, LED, WUXGA, TouchScreen, display panel assembly for use only on HP Pro Tablet 610 tablet models
764202-001	System board for use only on HP Pro Tablet 610 tablet models equipped with an Intel Quad Core Z3775 1.46-GHz (turbo up to 2.39-GHz) processor, 2.0-GB of system memory, 32-GB eMMC system storage, and a graphics subsystem with UMA memory for use only on tablet models equipped with the FreeDOS or Linux operating systems
764202-501	System board for use only on HP Pro Tablet 610 tablet models equipped with an Intel Quad Core Z3775 1.46-GHz (turbo up to 2.39-GHz) processor, 2.0-GB of system memory, 32-GB eMMC system storage, and a graphics subsystem with UMA memory for use only on tablet models equipped with the Windows 8 Standard operating system
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764203-001	System board for use only on HP Pro Tablet 610 tablet models equipped with an Intel Quad Core Z3795 1.60-GHz (turbo up to 2.39-GHz) processor, 4.0-GB of system memory, 64-GB eMMC system storage, and a graphics subsystem with UMA memory for use only on tablet models equipped with the Windows 8 Professional operating system
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779204-001	Stand
779205-001	USB hub
779459-001	Cable, 1.8 m, HF, USB, female
779460-001	Cable, micro A,-mini B, 1.8 m, USB
781032-001	Screw, TX120 stand
781033-001	Cable clip, TX120
792095-001	HP Pro Tablet 610 G1 (whole unit) for use in the United States NOTE: Spared as a whole unit using an advanced exchange strategy.
792095-DB1	HP Pro Tablet 610 G1 (whole unit) for use in Canada NOTE: Spared as a whole unit using an advanced exchange strategy.

5 Removal and replacement preliminary requirements

Tools required

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

- Plastic case utility tool
- Flat-bladed screw driver
- Magnetic screw driver
- Phillips P0 screw driver

Service considerations

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



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

Plastic parts



CAUTION: Using excessive force during disassembly and reassembly can damage plastic parts. Use care when handling the plastic parts. Apply pressure only at the points designated in the maintenance instructions.

Cables and connectors



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

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

Grounding guidelines

Electrostatic discharge damage

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

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

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

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

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

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

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

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

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

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

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

Packaging and transporting guidelines

Follow these grounding guidelines when packaging and transporting equipment:

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

Workstation guidelines

Follow these grounding workstation guidelines:

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

Equipment guidelines

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

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

The following grounding equipment is recommended to prevent electrostatic damage:

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

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

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

6 Removal and replacement procedures – tablet

The HP Pro Tablet 610 G1 is also spared as a whole unit using an advanced exchange strategy using the following spare part numbers: 792095-001 for use in the United States and 792095-DB1 for use in Canada.

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

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

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

There are as many as 19 screws that must be removed, replaced, and/or loosened when servicing the tablet. Make special note of each screw size and location during removal and replacement.

Back cover

Description	Spare part number
Back cover (includes shielding):	763533-001
10.1-in, AG, LED, WUXGA, TouchScreen, display assembly	763536-001

NOTE: The display assembly does not include the display panel cable. The display panel cable is available using spare part number 739817-001.

Before disassembling the tablet, follow these steps:

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

Remove the back cover:

CAUTION: Before turning the display assembly upside down, make sure the work surface is clear of tools, screws, and any other foreign objects. Failure to follow this caution can result in damage to the display assembly.

1. Place the tablet on a flat surface, display panel side down, with the power button toward you.

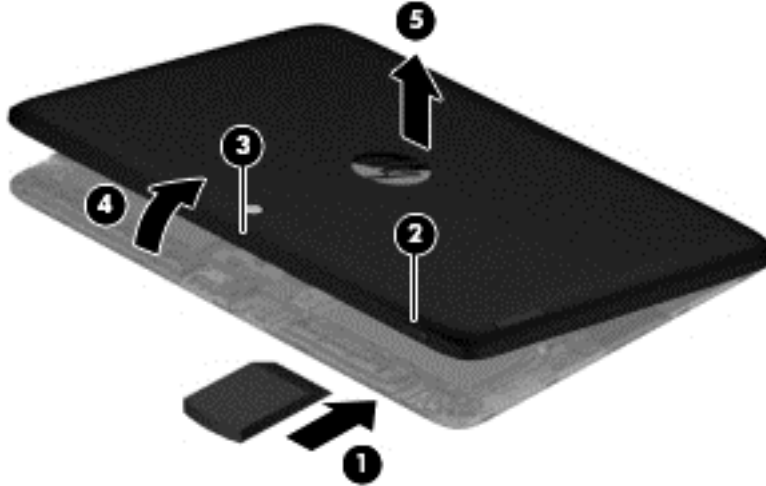
CAUTION: When inserting the plastic tool into the tablet as described in Step 2, make sure not to insert the tool into the power button area. Failure to follow this caution can result in damage to the tablet.

2. Insert a thin, plastic tool **(1)** between the back cover and the display assembly. The first insertion point should be between the power button **(2)** and the middle of the top edge **(3)** of the back cover.

3. Separate the top edge of the back cover (4) from the display assembly.

⚠ CAUTION: When removing the back cover, make sure the bottom edge, opposite the power button, is the last edge removed. Failure to follow this caution can result in damage to the tablet.

4. Remove the back cover (5).



Reverse this procedure to install the back cover.

⚠ CAUTION: When installing the back cover, make sure the bottom edge, opposite the power button, is the first edge installed. Failure to follow this caution can result in damage to the tablet.

Power button board

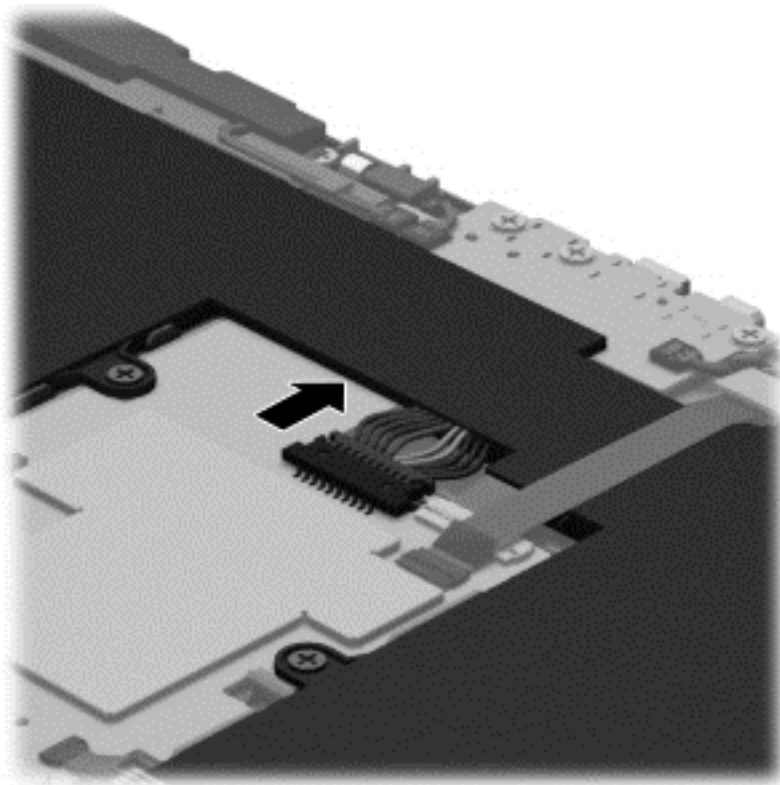
Description	Spare part number
Power button board (includes cable)	739807-001

Before removing the power button board, follow these steps:

1. Turn off the tablet. If you are unsure whether the tablet is off or in Hibernation, turn the tablet on, and then shut it down through the operating system.
2. Disconnect the power from the tablet by unplugging the power cord from the tablet.
3. Disconnect all external devices from the tablet.
4. Remove the back cover (see [Back cover on page 20](#)).

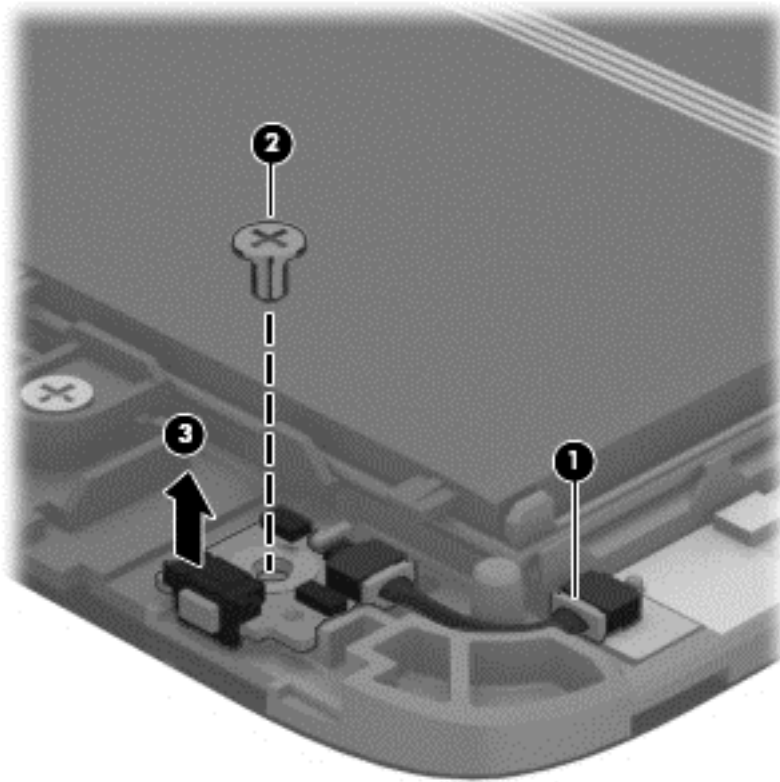
Remove the power button board:

1. Disconnect the battery cable from the system board.



2. Disconnect the power button board cable **(1)** from the volume button board.
3. Remove the Phillips PM2.0×3.0 screw **(2)** that secures the power button board to the display assembly.

4. Remove the power button board **(3)** and cable.



Reverse this procedure to install the power button board.

Volume button board

Description	Spare part number
Volume button board (includes cable)	739808-001

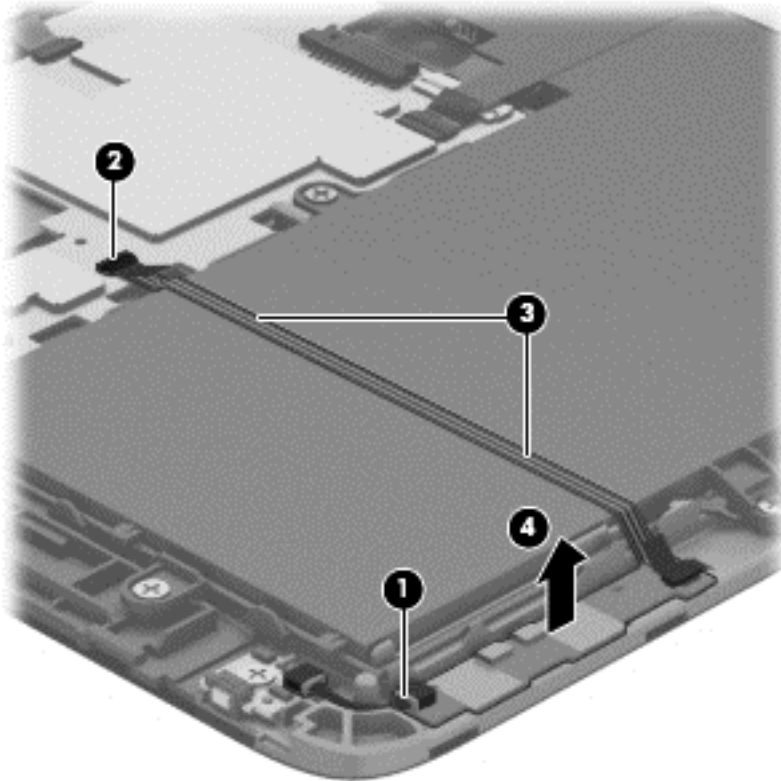
Before removing the volume button board, follow these steps:

1. Turn off the tablet. If you are unsure whether the tablet is off or in Hibernation, turn the tablet on, and then shut it down through the operating system.
2. Disconnect the power from the tablet by unplugging the power cord from the tablet.
3. Disconnect all external devices from the tablet.
4. Remove the back cover (see [Back cover on page 20](#)).
5. Disconnect the battery cable from the system board (see [Power button board on page 22](#)).

Remove the volume button board:

1. Disconnect the power button board cable **(1)** from the volume button board.
2. Release the zero insertion force (ZIF) connector **(2)** to which the volume button board cable is attached, and then disconnect the volume button board cable from the system board.

3. Detach the volume button board cable (3) from the battery. (The volume button board cable is attached to the battery with double-sided adhesive.)
4. Detach the volume button board (4) from the display assembly. (The volume button board is attached to the display assembly with double-sided adhesive.)



5. Remove the volume button board and cable.
Reverse this procedure to install the volume button board.

Front-facing webcam

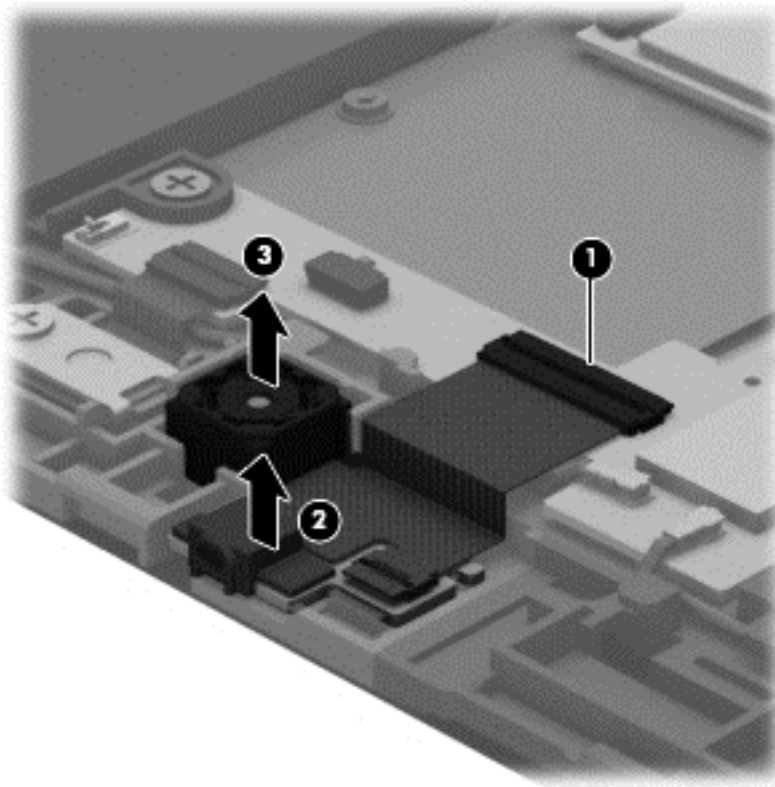
Description	Spare part number
Front-facing webcam (includes cable and double-sided adhesive)	739815-001

Before removing the front-facing webcam, follow these steps:

1. Turn off the tablet. If you are unsure whether the tablet is off or in Hibernation, turn the tablet on, and then shut it down through the operating system.
2. Disconnect the power from the tablet by unplugging the power cord from the tablet.
3. Disconnect all external devices from the tablet.
4. Remove the back cover (see [Back cover on page 20](#)).
5. Disconnect the battery cable from the system board (see [Power button board on page 22](#)).

Remove the front-facing webcam:

1. Release the ZIF connector (1) to which the front-facing webcam cable is attached, and then disconnect the front-facing webcam cable from the system board.
2. Release the microphone (2) from the mold built into the display assembly.
3. Detach the front-facing webcam (3) from the display assembly. (The front-facing webcam is attached to the display assembly with double-sided adhesive.)



4. Remove the front-facing webcam, microphone, and cable.

Reverse this procedure to install the front-facing webcam.

Light sensor board

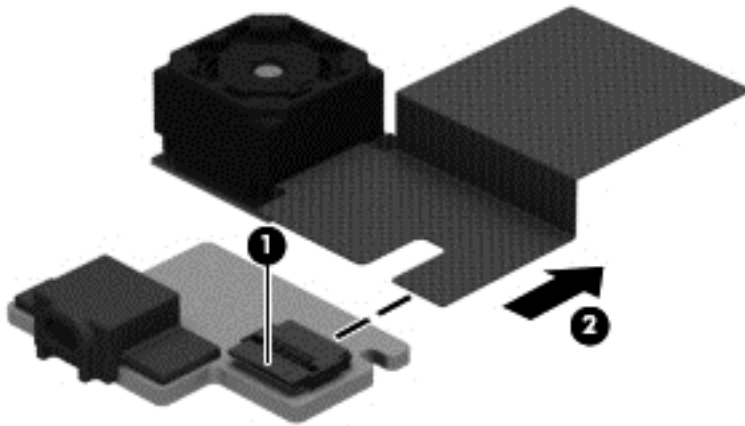
Description	Spare part number
Light sensor board (includes double-sided adhesive and microphone)	739810-001

Before removing the light sensor board, follow these steps:

1. Turn off the tablet. If you are unsure whether the tablet is off or in Hibernation, turn the tablet on, and then shut it down through the operating system.
2. Disconnect the power from the tablet by unplugging the power cord from the tablet.
3. Disconnect all external devices from the tablet.
4. Remove the back cover (see [Back cover on page 20](#)).
5. Disconnect the battery cable from the system board (see [Power button board on page 22](#)).
6. Remove the rear-facing webcam (see [Rear-facing webcam on page 27](#)).

Remove the light sensor board:

1. Release the ZIF connector **(1)** to which the rear-facing webcam cable is attached, and then disconnect the rear-facing webcam cable **(2)** from the light sensor board.



2. Remove the light sensor board.

Reverse this procedure to install the light sensor board.

Rear-facing webcam

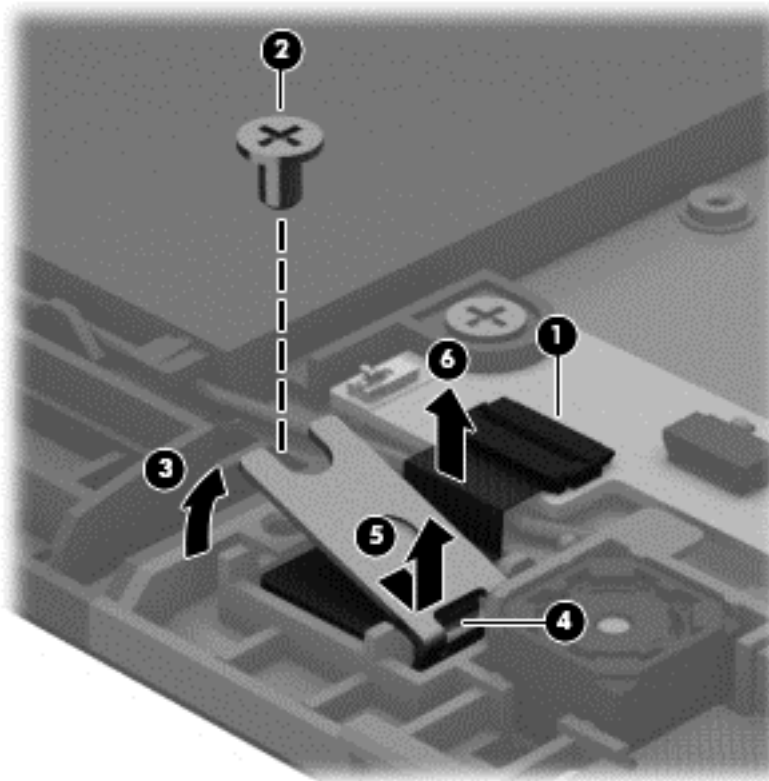
Description	Spare part number
Rear-facing webcam (includes bracket and cable)	739816-001

Before removing the rear-facing webcam, follow these steps:

1. Turn off the tablet. If you are unsure whether the tablet is off or in Hibernation, turn the tablet on, and then shut it down through the operating system.
2. Disconnect the power from the tablet by unplugging the power cord from the tablet.
3. Disconnect all external devices from the tablet.
4. Remove the back cover (see [Back cover on page 20](#)).
5. Disconnect the battery cable from the system board (see [Power button board on page 22](#)).

Remove the rear-facing webcam:

1. Release the ZIF connector (1) to which the rear-facing webcam cable is attached, and then disconnect the rear-facing webcam cable from the system board.
2. Remove the Phillips PM2.0×3.0 screw (2) that secures the rear-facing webcam bracket to the tablet.
3. Lift the left side of the bracket (3) until it releases from the tab (4), and then remove the bracket (5).
4. Remove the rear-facing webcam and cable (6).



Reverse this procedure to install the rear-facing webcam.

Audio board

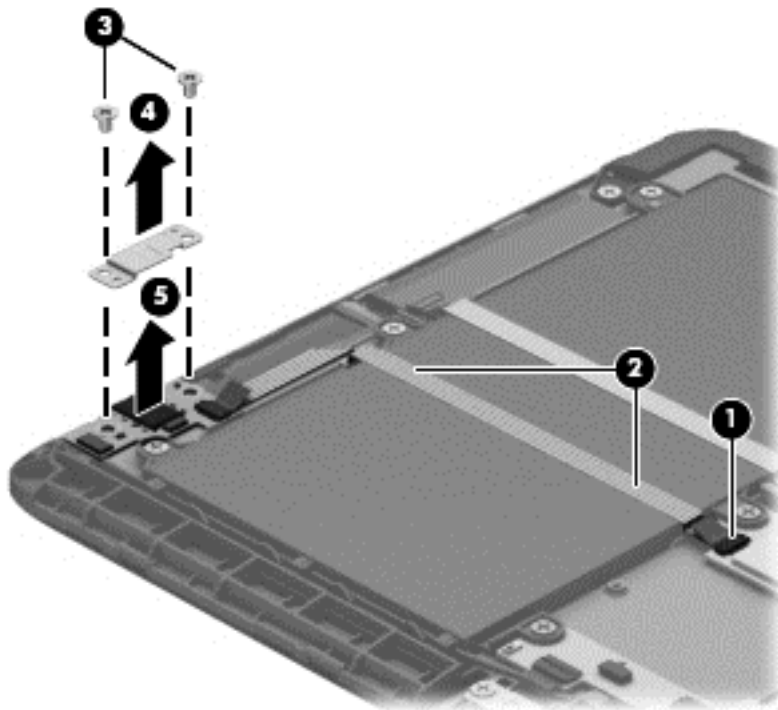
Description	Spare part number
Audio board (includes bracket and cable)	739811-001

Before removing the audio board, follow these steps:

1. Turn off the tablet. If you are unsure whether the tablet is off or in Hibernation, turn the tablet on, and then shut it down through the operating system.
2. Disconnect the power from the tablet by unplugging the power cord from the tablet.
3. Disconnect all external devices from the tablet.
4. Remove the back cover (see [Back cover on page 20](#)).
5. Disconnect the battery cable from the system board (see [Power button board on page 22](#)).

Remove the audio board:

1. Release the ZIF connector **(1)** to which the audio board cable is attached, and then disconnect the audio board cable from the system board.
2. Detach the audio board cable **(2)** from the battery. (The audio board cable is attached to the battery with double-sided adhesive.)
3. Remove the two Phillips PM2.0×3.0 screws **(3)** that secure the audio board and bracket to the display assembly.
4. Remove the audio board bracket **(4)**.
5. Remove the audio board and cable **(5)**.



Reverse this procedure to install the audio board.

Vibrator module

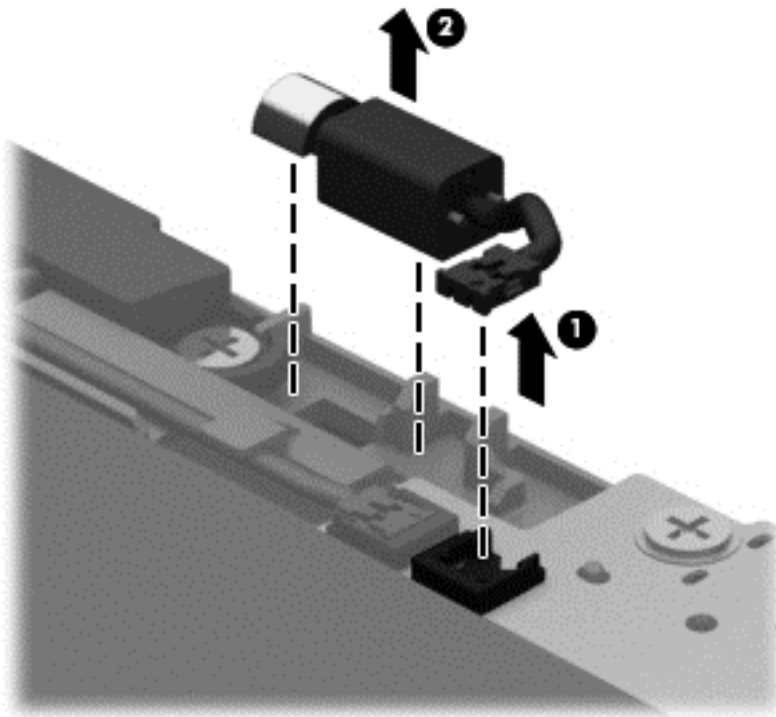
Description	Spare part number
Vibrator module (includes cable)	741075-001

Before removing the vibrator module, follow these steps:

1. Turn off the tablet. If you are unsure whether the tablet is off or in Hibernation, turn the tablet on, and then shut it down through the operating system.
2. Disconnect the power from the tablet by unplugging the power cord from the tablet.
3. Disconnect all external devices from the tablet.
4. Remove the back cover (see [Back cover on page 20](#)).
5. Disconnect the battery cable from the system board (see [Power button board on page 22](#)).

Remove the vibrator module:

1. Disconnect the vibrator module cable (1) from the system board.
2. Release the vibrator module (2) from the clip molded into the display assembly.



3. Remove the vibrator module and cable.


Reverse this procedure to install the vibrator module.


Battery

Description	Spare part number
Battery, 2-cell, 3.10-WHr, 4.19-AHr, Li-ion (includes cable)	739807-001

Before removing the battery, follow these steps:

1. Turn off the tablet. If you are unsure whether the tablet is off or in Hibernation, turn the tablet on, and then shut it down through the operating system.
2. Disconnect the power from the tablet by unplugging the power cord from the tablet.
3. Disconnect all external devices from the tablet.
4. Remove the back cover (see [Back cover on page 20](#)).
5. Disconnect the battery cable from the system board (see [Power button board on page 22](#)).
6. Remove the volume button board (see [Volume button board on page 23](#)).
7. Remove the audio board (see [Audio board on page 28](#)).

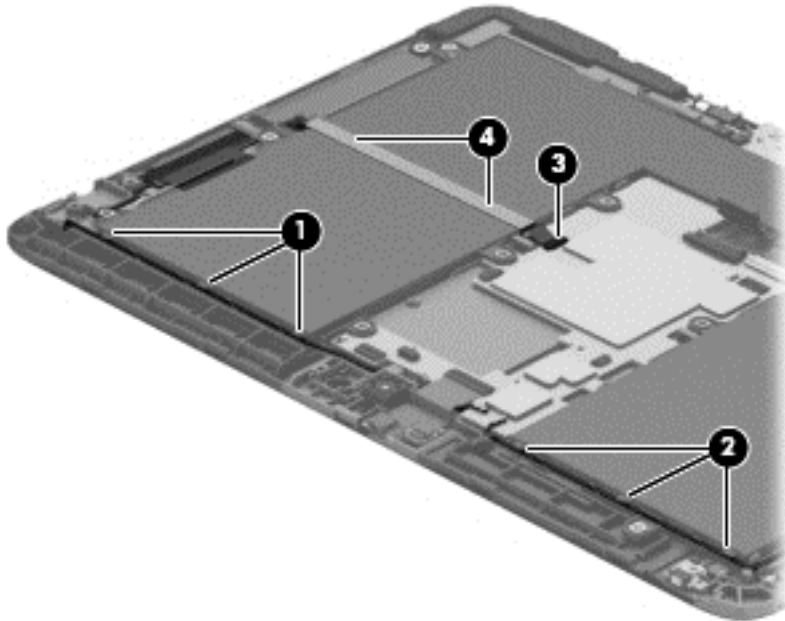
 **WARNING!** To reduce potential safety issues, use only the battery provided with the tablet, a replacement battery provided by HP, or a compatible battery purchased from HP.

 **CAUTION:** Removing a battery that is the sole power source for the tablet can cause loss of information. To prevent loss of information, save your work or shut down the tablet through Windows before removing the battery.

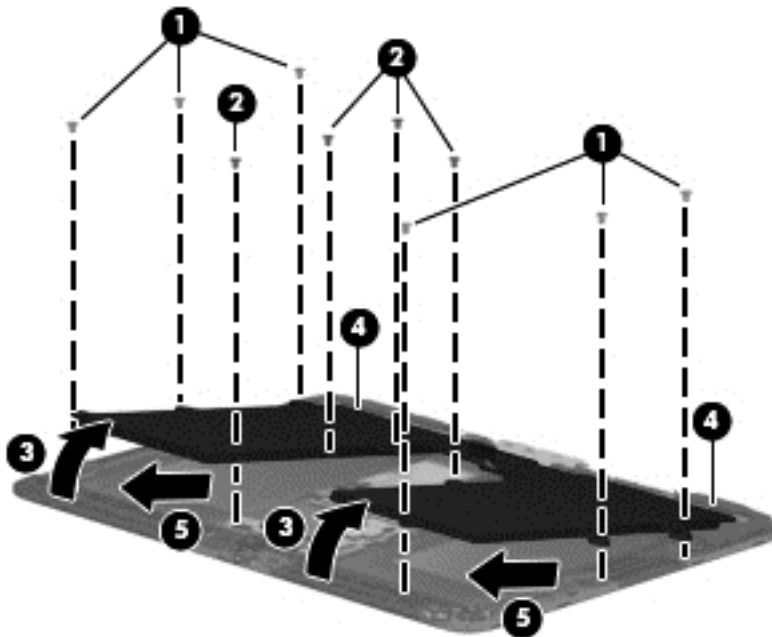
Remove the battery:

1. Release the wireless antenna cables **(1)** and **(2)** from the routing clips and channels built into the battery.
2. Release the ZIF connector **(3)** to which the TouchScreen board cable is attached, and then disconnect the TouchScreen board cable from the system board.

3. Detach the TouchScreen board cable (4) from the battery. (The TouchScreen board cable is attached to the battery with double-sided adhesive.)



4. Remove the six Phillips PM2.0×3.0 screws (1) and the four Phillips PM2.0×3.25 screws (2) that secure the battery to the display assembly.
5. Lift the front edge of the battery (3) until the tabs (4) on the back edge of the battery disengage from the display assembly.
6. Remove the battery (5) by sliding it forward.



Reverse this procedure to install the battery.

Wireless antennas

Description	Spare part number
Antenna Kit (includes WLAN antenna cables and transceivers and WLAN antenna cables and transceivers)	744496-001

Before removing the wireless antenna cables and transceivers, follow these steps:

1. Turn off the tablet. If you are unsure whether the tablet is off or in Hibernation, turn the tablet on, and then shut it down through the operating system.
2. Disconnect the power from the tablet by unplugging the power cord from the tablet.
3. Disconnect all external devices from the tablet.
4. Remove the back cover (see [Back cover on page 20](#)).
5. Disconnect the battery cable from the system board (see [Power button board on page 22](#)), and then remove the following components:
 - a. Volume button board (see [Volume button board on page 23](#))
 - b. Audio board (see [Audio board on page 28](#))
 - c. Battery (see [Battery on page 30](#))

Remove the wireless antenna cables and transceivers:

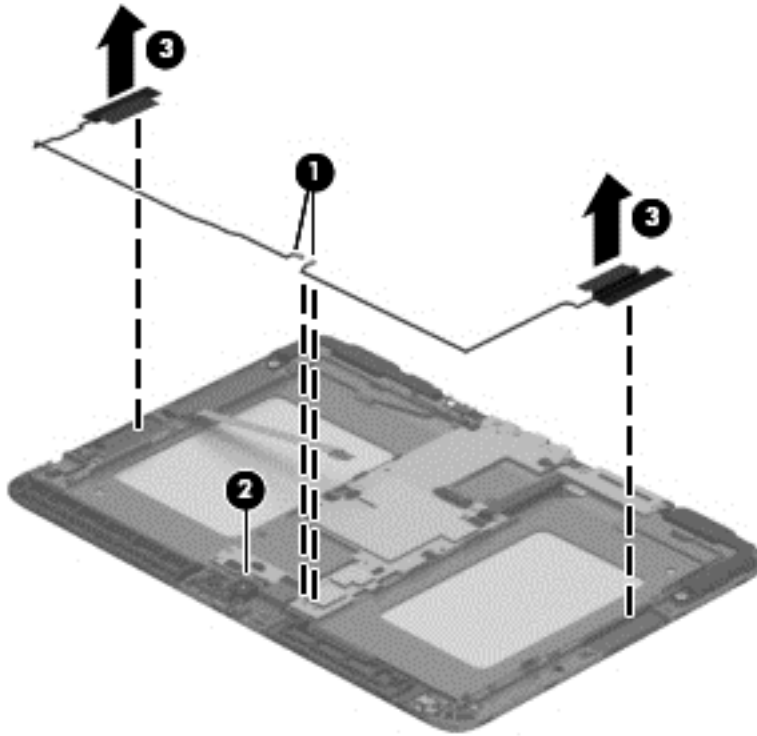
1. Disconnect the wireless antenna cables **(1)** from the system board.



NOTE: The wireless antenna cable labeled “1” connects to the “Main” terminal labeled “1”. The wireless antenna cable labeled “2” connects to the “Aux” terminal labeled “2”.

2. Release the wireless antenna cables from the retention clip **(2)** built into the display assembly.

3. Detach the wireless antenna transceivers **(3)** from the display assembly. (The wireless antenna transceivers are attached to the display assembly with double-sided adhesive.)



4. Remove the wireless antenna cables and transceivers.
Reverse this procedure to install the wireless antenna cables and transceivers.

SIM/card reader board

Description	Spare part number
SIM/card reader board (includes cable)	739809-001

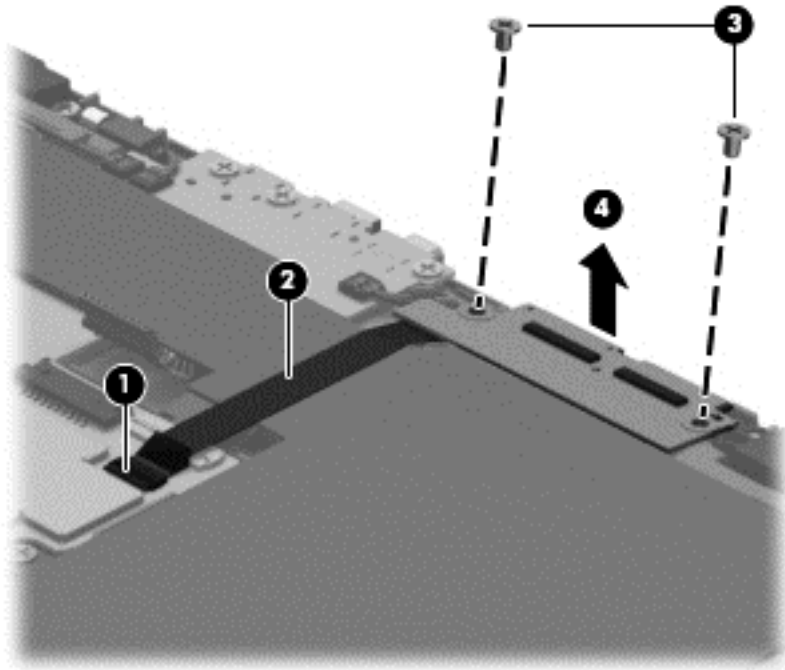
Before removing the SIM/card reader board, follow these steps:

1. Turn off the tablet. If you are unsure whether the tablet is off or in Hibernation, turn the tablet on, and then shut it down through the operating system.
2. Disconnect the power from the tablet by unplugging the power cord from the tablet.
3. Disconnect all external devices from the tablet.
4. Remove the back cover (see [Back cover on page 20](#)).
5. Disconnect the battery cable from the system board (see [Power button board on page 22](#)), and then remove the following components:
 - a. Volume button board (see [Volume button board on page 23](#))
 - b. Audio board (see [Audio board on page 28](#))
 - c. Battery (see [Battery on page 30](#))

Remove the SIM/card reader board:

1. Release the ZIF connector **(1)** to which the SIM/card reader board cable is attached, and then disconnect the SIM/card reader board cable from the system board.
2. Detach the SIM/card reader board **(2)** from the display assembly. (The SIM/card reader board is attached to the display assembly with double-sided adhesive.)
3. Remove the two Phillips PM2.0×3.0 screws **(3)** that secure the SIM/card reader board to the display assembly.

4. Remove the SIM/card reader board (4) and cable.



Reverse this procedure to install the SIM/card reader board.

Speakers

Description	Spare part number
Speaker Kit (includes left and right speakers and cables)	739814-001

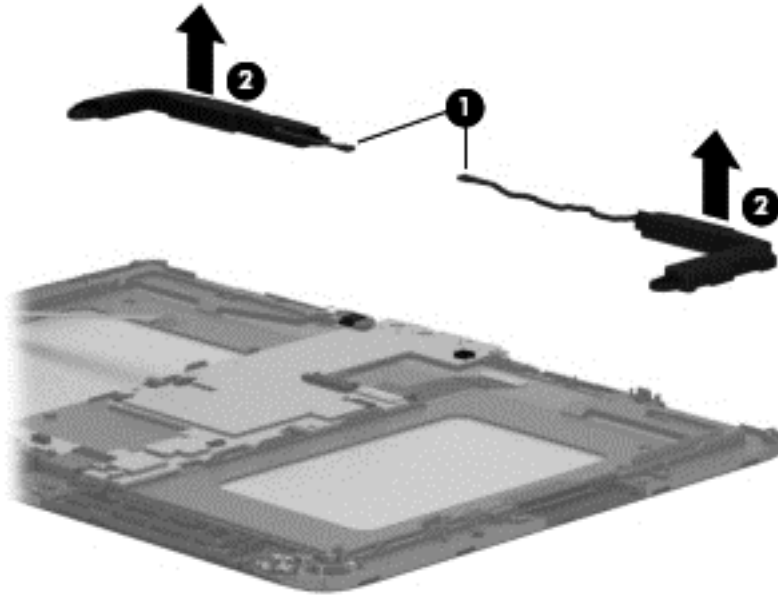
Before removing the speakers, follow these steps:

1. Turn off the tablet. If you are unsure whether the tablet is off or in Hibernation, turn the tablet on, and then shut it down through the operating system.
2. Disconnect the power from the tablet by unplugging the power cord from the tablet.
3. Disconnect all external devices from the tablet.
4. Remove the back cover (see [Back cover on page 20](#)).
5. Disconnect the battery cable from the system board (see [Power button board on page 22](#)), and then remove the following components:
 - a. Volume button board (see [Volume button board on page 23](#))
 - b. Audio board (see [Audio board on page 28](#))
 - c. Battery (see [Battery on page 30](#))
 - d. SIM/card reader board (see [SIM/card reader board on page 34](#))

Remove the speakers:

1. Disconnect the speaker cables (1) from the system board.

2. Remove the speakers (2) and cables.



Reverse this procedure to install the speakers.

Display panel cable

Description	Spare part number
Display panel cable	739817-001

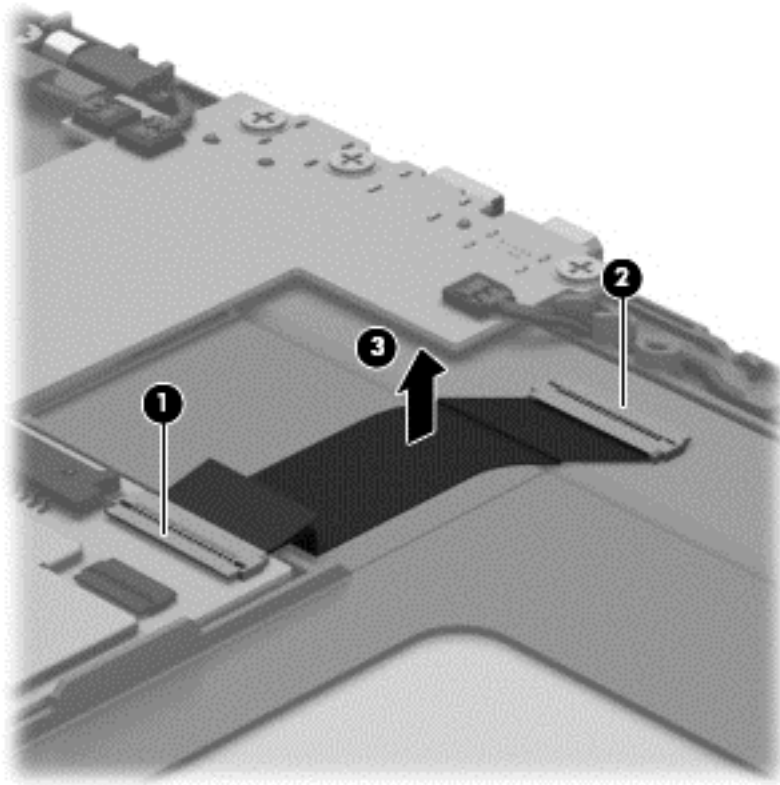
Before removing the display panel cable, follow these steps:

1. Turn off the tablet. If you are unsure whether the tablet is off or in Hibernation, turn the tablet on, and then shut it down through the operating system.
2. Disconnect the power from the tablet by unplugging the power cord from the tablet.
3. Disconnect all external devices from the tablet.
4. Remove the back cover (see [Back cover on page 20](#)).
5. Disconnect the battery cable from the system board (see [Power button board on page 22](#)), and then remove the following components:
 - a. Volume button board (see [Volume button board on page 23](#))
 - b. Audio board (see [Audio board on page 28](#))
 - c. Battery (see [Battery on page 30](#))
 - d. SIM/card reader board (see [SIM/card reader board on page 34](#))

Remove the display panel cable:

1. Release the ZIF connector **(1)** to which the display panel cable is attached, and then disconnect the display panel cable from the system board.
2. Release the ZIF connector **(2)** to which the display panel cable is attached, and then disconnect the display panel cable from the display assembly.

3. Detach the display panel cable (3) from the display assembly. (The display panel cable is attached to the display assembly with double-sided adhesive.)



4. Remove the display panel cable.
Reverse this procedure to install the display panel cable.

System board

Description	Spare part number
System board for use only on HP Pro Tablet 610 tablet models equipped with an Intel Quad Core Z3795 1.60-GHz (turbo up to 2.39-GHz) processor, 4.0-GB of system memory, 64-GB eMMC system storage, and a graphics subsystem with UMA memory for use only on tablet models equipped with the Windows 8 Professional operating system	764203-601
System board for use only on HP Pro Tablet 610 tablet models equipped with an Intel Quad Core Z3795 1.60-GHz (turbo up to 2.39-GHz) processor, 4.0-GB of system memory, 64-GB eMMC system storage, and a graphics subsystem with UMA memory for use only on tablet models equipped with the Windows 8 Standard operating system	764203-501
System board for use only on HP Pro Tablet 610 tablet models equipped with an Intel Quad Core Z3795 1.60-GHz (turbo up to 2.39-GHz) processor, 4.0-GB of system memory, 64-GB eMMC system storage, and a graphics subsystem with UMA memory for use only on tablet models equipped with the FreeDOS or Linux operating systems	764203-001
System board for use only on HP Pro Tablet 610 tablet models equipped with an Intel Quad Core Z3775 1.46-GHz (turbo up to 2.39-GHz) processor, 2.0-GB of system memory, 32-GB eMMC system storage, and a graphics subsystem with UMA memory for use only on tablet models equipped with the Windows 8 Professional operating system	764202-601
System board for use only on HP Pro Tablet 610 tablet models equipped with an Intel Quad Core Z3775 1.46-GHz (turbo up to 2.39-GHz) processor, 2.0-GB of system memory, 32-GB eMMC system storage, and a graphics subsystem with UMA memory for use only on tablet models equipped with the Windows 8 Standard operating system	764202-501
System board for use only on HP Pro Tablet 610 tablet models equipped with an Intel Quad Core Z3775 1.46-GHz (turbo up to 2.39-GHz) processor, 2.0-GB of system memory, 32-GB eMMC system storage, and a graphics subsystem with UMA memory for use only on tablet models equipped with the FreeDOS or Linux operating systems	764202-001


Before removing the system board, follow these steps:

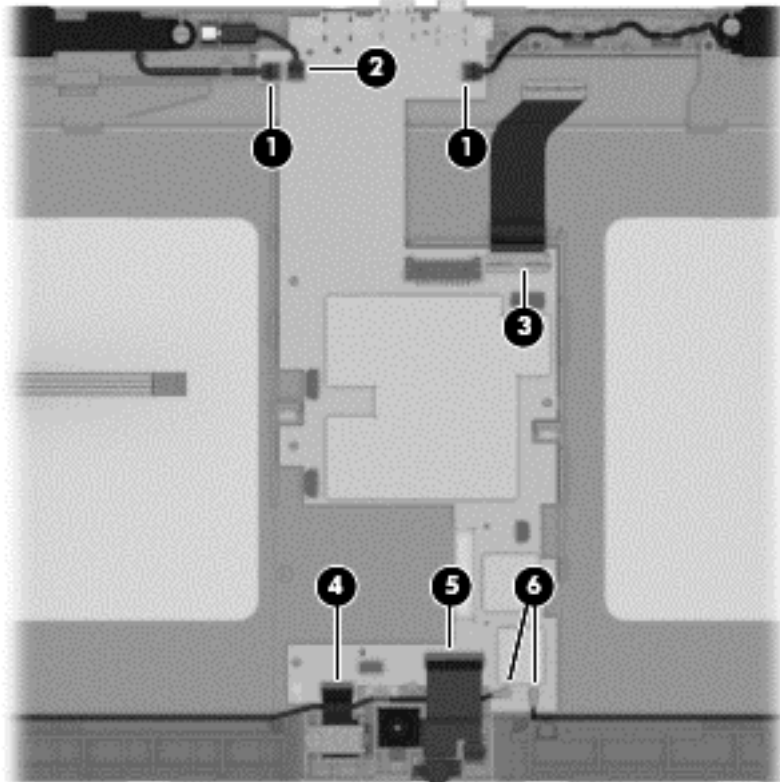
1. Turn off the tablet. If you are unsure whether the tablet is off or in Hibernation, turn the tablet on, and then shut it down through the operating system.
2. Disconnect the power from the tablet by unplugging the power cord from the tablet.
3. Disconnect all external devices from the tablet.
4. Remove the back cover (see [Back cover on page 20](#)).
5. Disconnect the battery cable from the system board (see [Power button board on page 22](#)), and then remove the following components:
 - a. Volume button board (see [Volume button board on page 23](#))
 - b. Audio board (see [Audio board on page 28](#))
 - c. Battery (see [Battery on page 30](#))

Remove the system board:

1. Disconnect the following cables from the system board:
 - (1) Speaker cables
 - (2) Vibrator module cable
 - (3) Display panel cable from the system board ZIF connector

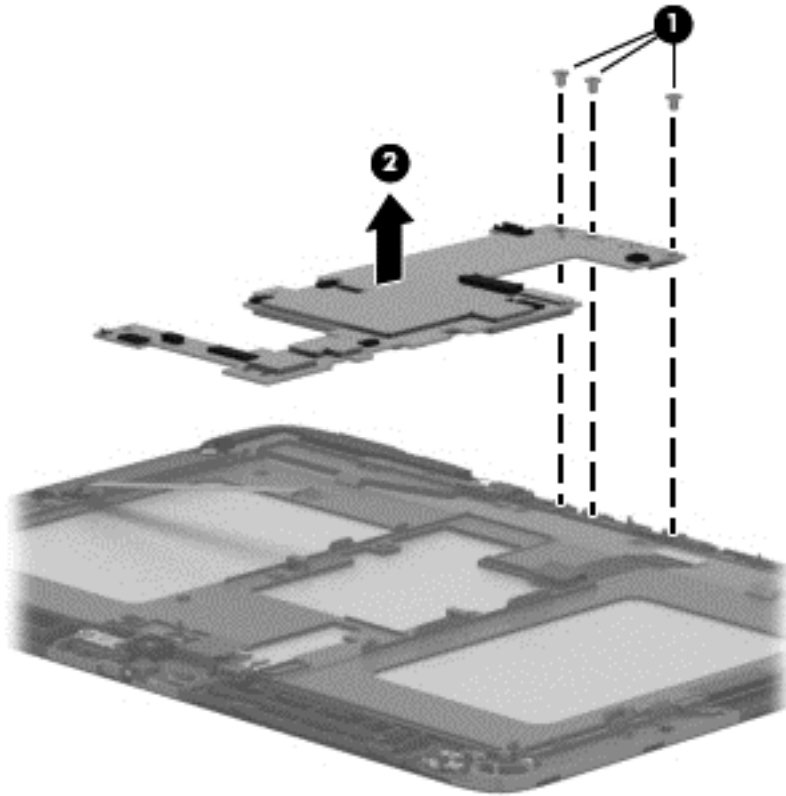
- (4) Rear-facing webcam cable from the system board ZIF connector
- (5) Front-facing webcam cable from the system board ZIF connector
- (6) Wireless antenna cables from the system board terminals

 **NOTE:** The wireless antenna cable labeled “1” connects to the “Main” terminal labeled “1”. The wireless antenna cable labeled “2” connects to the “Aux” terminal labeled “2”.



2. Remove the three Phillips PM2.0×2.5 screws (1) that secure the system board to the display assembly.

3. Remove the system board (2).




Reverse this procedure to install the system board.

7 Using Setup Utility (BIOS)

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

Starting Setup Utility (BIOS)

To start Setup Utility (BIOS), turn on or restart the tablet, quickly press the volume down button, and then press the power button.

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

Updating the BIOS

Updated versions of the BIOS may be available on the HP website.

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

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


Determining the BIOS version

To determine whether available BIOS updates contain later BIOS versions than those currently installed on the tablet, you need to know the version of the system BIOS currently installed.

BIOS version information (also known as *ROM date* and *System BIOS*) can be revealed by pressing **fn+esc** (if you are already in Windows) or by using Setup Utility (BIOS).

1. Start Setup Utility (BIOS).
2. Select **Main**.
3. To exit Setup Utility (BIOS) without saving your changes, tap **Exit**, tap **Exit Discarding Changes**, and then tap **enter**.
4. Tap **Yes**.

Downloading a BIOS update

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

Do not disconnect power from the tablet by unplugging the power cord from the AC outlet.

Do not shut down the tablet or initiate Sleep.

Do not insert, remove, connect, or disconnect any device, cable, or cord.

1. From the Start screen, type `hp support assistant`, and then select the **HP Support Assistant** app.
2. Tap **Updates and tune-ups**, and then tap **Check for HP updates now**.
3. Follow the on-screen instructions.
4. At the download area, follow these steps:
 - a. Identify the most recent BIOS update and compare it to the BIOS version currently installed on your tablet. If the update is more recent than your BIOS, make a note of the date, name, or other identifier. You may need this information to locate the update later, after it has been downloaded to your hard drive.
 - b. Follow the on-screen instructions to download your selection to the hard drive.

If the update is more recent than your BIOS, make a note of the path to the location on your hard drive where the BIOS update is downloaded. You will need to access this path when you are ready to install the update.



NOTE: If you connect your tablet to a network, consult the network administrator before installing any software updates, especially system BIOS updates.

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

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

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



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

8 Tablet specifications


	Metric	U.S.
Dimensions		
Width	25.96 cm	10.22 in
Depth	18.18 cm	7.16 in
Height	0.99 cm	0.39 in
Weight (lowest weight configuration)	0.65 g	1.44 lb
Input power		
Operating voltage and current	12V dc @ 1.5A - 18W	
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 (non-condensing)		
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.		

9 Backing up, restoring, and recovering the tablet

Your tablet includes tools provided by Windows to help you safeguard your information and retrieve it if you ever need to. These tools will help you return your tablet to a proper working state or even back to the original factory state, all with simple steps.


This chapter provides information about the following processes:

- Creating a Microsoft recovery drive (select models only)
- Using Microsoft's Refresh your PC or Remove everything and reinstall Windows options to address issues with your tablet
- Backing up data using File History


 **NOTE:** This chapter describes an overview of backing up, restoring and recovering options. For more details about the tools provided, see Help and Support. On the Start screen, type `help`, and then select **Help and Support**.

Creating a Microsoft recovery drive (select models only)

After you successfully set up the tablet, create a Microsoft recovery drive. The MS recovery drive backs up the recovery partition on the tablet and ensure access to the Refresh your PC and Remove everything and reinstall Windows options even if the recovery partition on the tablet has been corrupted or removed.

 **NOTE:** On select models, a recovery drive can be created on a USB flash drive (purchased separately). A micro USB to USB adapter cable (purchased separately) with a micro USB male (Btype) connector and a USB female (A-type) connector is also required.


1. On the Start screen, type `create recovery drive`, and then select **Create a recovery drive**.


 **IMPORTANT:** Be sure that the check box labeled **Copy the recovery partition from the PC to the recovery drive** is selected.


2. After you have created the recovery drive, a prompt is displayed asking if you want to remove the recovery partition. If you select **No** and later reconsider, you must complete the entire process again before the prompt will be displayed a second time.

Using Windows Refresh for quick and easy recovery

When your tablet is not working properly and you need to regain system stability, the Windows Refresh option allows you to start fresh and keep what is important to you.

 **IMPORTANT:** Refresh removes any traditional applications that were not originally installed on the system at the factory. Any Windows 8 apps that came preinstalled on your tablet and any that were purchased from the Windows Store will be saved.

 **NOTE:** During Refresh, a list of removed traditional applications will be saved so that you have a quick way to see what you might need to reinstall. See Help and Support for instructions on reinstalling traditional applications. From the Start screen, type `h`, and then select **Help and Support**.


 **NOTE:** You may be prompted for your permission or password when using Refresh. See Help and Support for more information. From the Start screen, type `h`, and then select **Help and Support**.

To start Refresh:

1. On the Start screen, type `recover`, and then select **Refresh your PC without affecting your files**.
2. Select **Get started**, and then follow the on-screen instructions.

Removing everything and reinstalling Windows

Sometimes you want to perform detailed reformatting of your tablet, or you want to remove personal information before you give away or recycle your tablet. The process described in this section provides a speedy, simple way to return the tablet to its original state. This option removes all personal data, apps, and settings from your tablet, and reinstalls Windows.

 **IMPORTANT:** This option does not provide backups of your information. Before using this option, back up any personal information you wish to retain.

You can initiate this option from the Start screen:

1. On the Start screen, type `recover`, and then select **Remove everything and reinstall Windows**.
2. Select **Get started**, and then follow the on-screen instructions.

Backing up data using File History

Recovery after a system failure is only as good as your most recent backup.

As you add photos, video, music, and other personal files, create a backup of your personal information. Windows File History can be set to regularly and automatically back up files from libraries, desktop, contacts, and favorites. If files are accidentally deleted from the hard drive and they can no longer be restored from the Recycle Bin, or if files become corrupted, you can restore the files that you backed up using File History. Restoring files is also useful if you ever choose to reset the tablet by reinstalling Windows.

File History is not enabled by default, so you must turn it on as follows:

- ▲ On the Start screen, type `file history`, select **File History**, and then follow the on-screen instructions.

10 HP Cash Drawers for Point of Sale System

Product description

HP Cash Drawers

HP Cash Drawers are designed to work with point of sale system hardware and program applications. The cash drawers feature:

- Deep inner drawer compartment to hold coin rolls and packaged currency with divided areas for separating various bill and coin denominations.
- Functional lock assembly for security.



NOTE: Before using the cash drawer, it is highly recommended that you create a unique and secure lock and key system in accordance with your company's security policy. HP is not responsible for the security of the cash drawer.

- Inner drawer divider assembly kit.
- Two security keys are included with the cash drawer when shipped.
- Removable inner drawer.
- HP POS printer/cash drawer interface cable provided.
- For regulatory and safety notices, refer to the *Product Notices* included with your product.

Identifying Cash Drawer Components



NOTE: The cash drawer's till design will vary by country.

Table 10-1 Cash Drawer Components


1	Media divider that snaps in and out of place for several organizational options.
2	MultiPRO® interface that adapts to most POS platforms or USB interface (located underneath or on the rear of the cash drawer, depending on your model).
3	Functional lock that offers several levels of security: locked closed, locked open, online or manual open depending on model. Refer to Connecting and Locking the Cash Drawer on page 47 .
7	Narrow footprint that saves counter top space.
8	Till for bills and coins. (Bill and coin configuration for tills vary by country. Refer to the Technical specifications on page 52 in this guide for available regional tills and their bill and coin configurations.)


Operating the cash drawer

Connecting and Locking the Cash Drawer

1. Place the cash drawer on a flat surface near your POS work center.
2. Connect the interface cable:

- a. Connect the POS printer interface cable to the MultiPRO® interface underneath or on the rear of the cash drawer, then connect the other end of the cable to the printer.

 **NOTE:** The printer interface cable provided with the cash drawer is designed to work with HP POS printers. If you are connecting the cash drawer to a printer other than HP POS printers, select the appropriate interface cable for your printer model.

 **WARNING!** HP Cash Drawers only support 24 volt. Connecting an HP Cash Drawer to 12 volt may result in unpredictable performance, such as the cash drawer not opening or opening unexpectedly, in addition to the possible damage to the cash drawer and printer.

OR

- b. For the USB cash drawer model, connect one end of the provided USB interface cable to the USB connector underneath the cash drawer and the other end of the cable to the host computer or to a powered USB hub connected to the host computer.
3. Assemble and install the inner drawer divider kit using the installation steps provided in the kit.
 4. Use the security key supplied with the cash drawer to turn the lock to the online position. Refer to the following illustrations for other lock positions for your model.


 **NOTE:** Before using the cash drawer, it is recommended that you create a unique and secure lock and key system in accordance with your company's security policy. HP is not responsible for the security of the cash drawer, damage to the cash drawer, or the replacement of lost keys.

Table 10-2 Lock Options


Select This Lock Option	To Do This
1 Manual Open	Allows manual access to the contents of the cash drawer.
2 Online	Operation of the cash drawer is driven electronically by the printer.
3 Locked Open/Locked Closed	Prevents the cash drawer from being opened or closed by an electrical signal from the printer or USB source (depending on model).

5. Install the printer drivers or the integrated cash drawer drivers if not already installed. Refer to the printer documentation for instructions. The drivers will enable the cash drawer to operate electronically.
6. Open the cash drawer and fill with currency.
7. Turn on the POS computer.

Assembling the Standard Duty Cash Drawer

Removing the Inner Drawer

1. Open the cash drawer and remove the plastic coin and bill tray/till.
2. Grasp the inner drawer by the drawer front and lift the inner drawer up (1) until it stops.
3. Firmly pull the inner drawer out at an inclined angle (2).

 **NOTE:** The drawer stop of the inner drawer must pass over the stop plate (3) in the base for removal and/or reinsertion.

Replacing the Inner Drawer

1. Align the outer slides (mounted to the inner drawer) with the inner slides mounted to the chassis inside the cash drawer.
2. Lift the inner drawer up until it stops and begin to push the inner drawer into the cash drawer housing.
3. When the drawer stop on the back of the inner drawer has cleared the stop plate (3) formed from the base, let the inner drawer rest in the horizontal position.
4. Push the inner drawer to the fully closed position. Expect resistance to the insertion because the ball bearings do not roll until the slides are fully engaged.
5. When the inner drawer is fully inserted, verify that the drawer opens and closes properly using the security key. The drawer should open and close smoothly through the full extent of the slides.

Removing the Case



NOTE: It is recommended that the case be removed only in emergencies, such as when the cash drawer cannot be opened electronically and/or the security key is locked inside the cash drawer.

1. Turn the cash drawer bottom side up with the drawer front opening toward you.
2. Remove the base from the case:
 - To remove the base from the Standard Duty Cash Drawer, use a #2 Phillips screwdriver to remove the six screws that secure the base to the case, then lift the base assembly off the case.
3. Remove the till and inner drawer from the cash drawer.
4. Replace the base by reinserting it from the front of the case and under the case side flanges. Engage the base with the tabs at the rear of the case.
5. Reattach the base and case with the screws. Be sure the drawer front is lined up with the front edge of the case.

Removing the Inner Drawer

1. Lift the inner drawer out of the cash drawer using the two handles located on top of the inner drawer.
2. Remove the locking till cover from the cash drawer by inserting the key into the lock (1) and rotating 90 degrees and lifting the till cover off the cash drawer with the two handles (2).



NOTE: The cash drawer lock and till cover lock may be different styles and/or lock codes.



CAUTION: Breaking coin rolls on the money till may cause the plastic to fracture.

Replacing the Drawer

1. With the drawer front tipped down at an inclined angle, insert the drawer into the case about two inches.
2. Lift the drawer up until it stops, and pull the drawer out until it stops and drops into the operating (horizontal) position.



NOTE: When the inner drawer is fully inserted, verify that the drawer opens and closes properly.

Maintenance Guidelines

To enhance the performance and extend the life of the cash drawer:

- Clean dirt and debris from the slides with a clean, lint free cloth.
- Lubricate the slide assembly and latch assembly periodically with a thin layer of lithium based grease.
- Under heavy use, inspect, clean and lubricate the slide assembly and latch assembly more frequently.
- Do not break coin rolls over the plastic tray or on the drawer front.

Cleaning the Drawer

Every six months the cash drawer slides should be cleaned and lubricated.

1. Using a dry, lint free cloth, wipe out the old grease, along with any accumulated dirt or debris, from the tracks and on the wheels.
2. After the old grease has been removed, apply a thin layer of lithium bearing grease to the front and rear wheels.

Troubleshooting

Solving Common Problems

The following table lists possible problems, the possible cause of each problem, and the recommended solutions.

Table 10-3 Solving Common Problems

Problem	Possible Cause	Solution
Lock assembly does not lock.	Keys may need to be replaced or lock may need repair or replacement.	Order a new cash drawer with keys.
	Wrong key used.	Use the key that came with the cash drawer. NOTE: Match the key number with the lock number.
Cash drawer will not open electronically.	Need to install printer drivers.	Be sure the cash drawer is connected directly to the cash drawer port on the computer and that the security key is in the electrically online position (straight up and down). Install the software drivers that came with the printer and follow the instructions to configure the software to electronically open the cash drawer.
	Cables are loose or unplugged.	Verify that the cash drawer or USB interface cable is fully seated into the connector on the bottom of the cash drawer and cash drawer port on the computer or cash drawer port on the receipt printer.
	Defective cable.	If possible, change the cable that connects the cash drawer to the printer to determine if a different cable has the same condition.
	Defective cash drawer.	If possible, change the non-functioning cash drawer with a functioning one (swap locations) and determine if the problem "follows the drawer."
Cash drawer is sticking or binding when opening and closing.	Drawer slides are dirty.	To clean the drawer slide, remove all dirt and debris from the slide by wiping the ball races of both slide members (the portion of the metal that the ball bearings ride in) with a

Table 10-3 Solving Common Problems (continued)

Problem	Possible Cause	Solution
		clean, dry, and lint-free cloth shop towel. Do not use a paper towel.
	Drawer slides need lubricating.	To lubricate the drawer slides, first clean dirt and debris from the slides. Then, using a clean applicator, apply a light film of grease to the inside of the ball races. Cycle the slides several times to properly coat the ball bearings and spread the grease across the ball races. It is recommended that you use a lithium-based bearing grease as lubrication for the slides. Several manufacturers make appropriate lubricants of this type that are readily available in small quantities from almost any hardware store. CAUTION: Do not use WD-40 or any type of spray lubricant including silicone spray and Petroleum-based lubricants to grease the slides.

Online Technical Support

For the online access to technical support information, self-solve tools, online assistance, community forums or IT experts, broad multivendor knowledge base, monitoring and diagnostic tools, go to <http://h20000.www2.hp.com/bizsupport/TechSupport/Home.jsp>.

Preparing to Call Technical Support

HP provides hardware break/fix support for the product.

If you can not solve a problem using the troubleshooting tips in this section, you may need to call technical support. Refer to the *Support Telephone Numbers* guide on the *Point of Sale System Software and Documentation* disc. Have the following information available when you call:

- If the product is connected to an HP POS computer, provide the serial number of the POS computer.
- Purchase date on invoice.
- The spares part number located on the base of the drawer under the till.
- Condition under which the problem occurred.
- Error messages received.
- Hardware configuration.
- Hardware and software you are using.

Ordering Cash Drawer Accessories

To order HP cash drawer accessories such as interface connectors, cables, regional tills or other mechanical components, contact your regional HP authorized service provider for HP Point of Sale System products.

If you are connecting your cash drawer to a POS printer other than HP POS printers, select the appropriate interface cable for your printer model.

Technical specifications

HP Cash Drawers

Table 10-4 Technical Specifications

Opening and Closing	
Standard Duty	1,000,000 cycles
Dimensions (WxDxH)	
Standard Duty	411 x 415 x 110 mm (16.2 x 16.3 x 4.3 in) (with feet)
Till	
	Bill and coin configurations vary by country.
Media Storage	
	Standard duty cash drawer has dual non-adjustable media slots.
Storage Temperature	
	-30°C to +50°C (-22°F to 122°F)
Operating Temperature Range	
Standard Duty	+5°C to +40°C (+40°F to +105°F)
Relative Humidity (Non-condensing)	
	10% to 95%
Cable Length	
Standard Duty	5 feet

Table 10-5 Regional Cash Drawers (Standard Duty)

Country	Bills	Coins	Order Part Number
Australia	8	8	QT457AA#AB4
Belarus	4	8	QT457AA#ABB
Bosnia	4	8	QT457AA#ABB
Canada	4	8	QT457AA#ABC
China	8	8	QT457AA#AB4
Croatia	4	8	QT457AA#ABB
Egypt	4	8	QT457AA#ABB
Finland	4	8	QT457AA#ABB
France	4	8	QT457AA#ABB
Germany	4	8	QT457AA#ABB
Great Britain/Northern Ireland	4	8	QT457AA#ABB
Hong Kong	8	8	QT457AA#AB4
Hungary	4	8	QT457AA#ABB
India	8	8	QT457AA#AB4
Israel	4	8	QT457AA#ABB
Jordan	4	8	QT457AA#ABB

Table 10-5 Regional Cash Drawers (Standard Duty) (continued)

Country	Bills	Coins	Order Part Number
Kazakhstan	4	8	QT457AA#ABB
Korea	8	8	QT457AA#AB4
KSA	8	8	QT457AA#AB4
Kuwait	4	8	QT457AA#ABB
Kyrgyzstan	4	8	QT457AA#ABB
Latvia	4	8	QT457AA#ABB
Lebanon	4	8	QT457AA#ABB
Lithuania	4	8	QT457AA#ABB
Macedonia	4	8	QT457AA#ABB
Malaysia	8	8	QT457AA#AB4
Morocco	4	8	QT457AA#ABB
Netherlands	4	8	QT457AA#ABB
Norway	4	8	QT457AA#ABB
Oman	4	8	QT457AA#ABB
Romania	4	8	QT457AA#ABB
Russia	4	8	QT457AA#ABB
Singapore	8	8	QT457AA#AB4
Slovakia	4	8	QT457AA#ABB
Slovenia	4	8	QT457AA#ABB
South Africa	4	8	QT457AA#ABB
Spain	4	8	QT457AA#ABB
Sweden	4	8	QT457AA#ABB
Switzerland	4	8	QT457AA#ABB
Taiwan	8	8	QT457AA#AB4
Thailand	8	8	QT457AA#AB4
United Arab Emirates	4	8	QT457AA#ABB
United States	5	5	QT457AA#ABA

To order HP regional tills or for an update on available regional tills, go to <http://www.hp.com> for HP Point of Sales (POS) Systems.

11 HP Value Thermal Printer

Product description

HP Value Thermal Printer

The HP Value Thermal Printer is designed to work with point of sale system hardware and program applications. The printer features include:

- Thermal printing technology that prevents changing a printer ribbon and cartridge
- Powered USB interface model with USB power cable provided or serial/USB interface model with separate power adapter and serial/USB cables provided



NOTE: Some models use a power cable from the POS computer

- Snap open receipt cover and drop-in paper loading
- Software generated indicator beeps
- LED status indicator
- 2MB flash memory, history EEROM, 4k buffer
- 8 dots/mm print resolution with up to 150 mm/second throughput speed
- Selectable 44 (standard) or 56 (compressed) columns of print on 80 mm wide thermal paper
- Paper out sensor
- Software and product documentation provided on the *HP Point of Sale System Software and Documentation* disc

Identifying User Controls

-
- | | |
|---|---|
| 1 | Receipt cover - Snap opens to easily drop the paper roll in place. |
| 2 | Status LED - the green LED indicates basic information about the printer status. A steady green light indicates the printer is on and operating normally. A flashing LED indicates the printer needs operator assistance. |
| 3 | Paper feed button - during normal use the paper feed button advances the paper. It is also used to access the configuration menu. |
-



NOTE: A single beep indicates the printer has successfully completed its startup routine. It should beep after being powered up or reset. If the printer beeps twice, it may be experiencing a problem. Refer to [Troubleshooting on page 61](#) in this guide for more information.

Identifying Rear Connectors

Powered USB Model

-
- | | |
|---|---|
| 1 | USB power connector - connects the printer to the POS computer and provides power to the printer. |
|---|---|
-

2	Configuration switch (DIP switch 1) - allows you to change the configuration settings of the printer.
3	Cash drawer connector - connects the printer to the cash drawer.
4	Connector cover - the connector cover provides protection and strain relief for the printer connectors and cables. This cover should remain on the printer and cables routed as described in Chapter 2.

Serial/USB Model

1	USB connector - connects the printer to the POS computer.
2	Serial connector - connects the printer to the POS computer.
3	Power connector - connects the printer to the power adapter for power. If provided, a power cable can connect directly to the POS computer.
4	Configuration switch (DIP switch 1) - allows you to change the configuration settings of the printer.
5	Cash drawer connector - connects the printer to the cash drawer.
6	Connector cover - the connector cover provides protection and strain relief for the printer connectors and cables. This cover should remain on the printer and cables routed as described in Chapter 2.

NOTE: Only one communication cable (USB or Serial) should be connected at one time.

Setting up the printer

Checking the Packing List

Save the packing materials in case you need to repack the printer for shipping or storage. Before installation, check that all the items listed below have been shipped.

- Printer
- Starter roll of receipt paper
- Test printout
- USB power cable (some models); power cable (some models); power adapter (some models), serial/USB cables (some models)
- *HP Point of Sale System Software and Documentation disc*

Loading or Changing the Receipt Paper

Before setting up the receipt printer, ensure power is turned off to the printer, POS computer and other attached devices.

CAUTION: You must use qualified paper rolls with the HP printers. The list of qualified paper is in [Technical specifications on page 66](#). Using unqualified paper may void the warranty.


You will later use the same procedure to change the receipt paper as you will to load it during installation. The minor difference is noted in the directions below.

1. Open the receipt cover by pushing up on each side of the cover (1) until it unsnaps.

2. **Loading:** Remove the test printout (2) and starter roll thermal paper (3). Slide the supports off the roll (4).


Changing: Remove the used paper roll.


3. Tear a clean edge on the new receipt paper roll, making sure the tape has been completely removed.
4. Place the receipt paper into the paper compartment so it **unrolls from the bottom** (5). Leave a few inches of paper sticking out of the printer.
5. While holding the paper in place, close the receipt cover (6). To test that the paper is loaded correctly, advance the paper with the paper feed button.

 **NOTE:** If the paper jams, be sure the roll is inserted correctly. Refer to the previous illustration in this section for proper paper orientation.

6. Tear the excess paper off against the blade in the cover (7).

Connecting the Cables


 **NOTE:** Place the printer on a level surface and position it in a location that allows access to cables, room to open the cover and away from traffic areas to limit the chance of being bumped or damaged.

 **CAUTION:** Connect cables to the printer before turning on power to the POS computer. The POS computer should always be turned off before connecting the communication cable.

1. Turn off the POS computer.
2. Open the connector cover on the rear of the printer to locate the connectors.
3. For printers with a USB power connector, plug the printer end of the USB power cable into the USB power connector (1) on the printer. Plug the other end of the USB power cable into the 24V powered USB connector on the POS computer.


For printers with serial, USB, and power connectors:

- a. Plug the printer end of the USB cable into the USB connector (1) or the serial cable into the serial connector (2) on the printer. Plug the other end of the cable to the appropriate connector on the POS computer.

 **NOTE:** You can use either the USB cable or the serial cable as the data interface with the POS computer. Do not use both.

If using the serial interface, then a 9-pin female to 9-pin female null modem serial cable must be used between the printer and POS computer.

- b. Plug the printer end of the power cable from the power adapter into the power connector (3) on the printer. If the printer comes without a power adapter and with a separate power cable, plug the cable into the power connector (3) on the printer. Plug the other end of the power cable into the 24V powered USB connector on the POS computer.
 - c. Route the USB cable from the printer through the strain relief tab on the connector cover of the printer.
4. Plug the cash drawer cable into the cash drawer connector (RJ12) on the printer and the other end of the cable (RJ45) into the interface connector on the cash drawer.

 **NOTE:** The cash drawer cable is not included with the printer.

5. Close the connector cover on the rear of the printer, ensuring that all cables are aligned with the slots provided for each connector.

Turning on the Printer

After connecting the cables to the printer and POS computer, turn on the POS computer. If the **Found New Hardware Wizard** pops up, click the **Cancel** button.

The receipt printer will beep and the green LED on the top cover will light up initializing the printer.

Installing the Drivers

The software and documentation disc provided with this product includes OPOS and JPOS printer drivers. Depending on your POS computer's operating system, install the OPOS drivers or the JPOS drivers.

1. Follow the steps in the previous section to connect the printer cables and turn on the POS computer.
2. Insert the *HP Point of Sale System Software and Documentation* disc into the CD or DVD drive on the POS computer.
3. Read and accept the End User License Agreement. The main menu will be displayed.
4. On the main menu, click **HP Receipt Printers**, and then scroll to the menu for your printer model.
5. Select and install the OPOS or JPOS drivers required for your POS application.

 **NOTE:** You can download the latest drivers from <http://www.hp.com>.

Testing the Printer

If the printer is functioning normally, it will beep once. If it responds differently, refer to [Troubleshooting on page 61](#), or contact your regional HP authorized service provider for HP Point of Sale System products.

The printer will arrive for installation pre-configured. The printer's current configuration appears on the test (diagnostics) printout. However, if you would like to run a new print test or check the configurations, you can run a diagnostics printout detailing the current configuration.

To run a diagnostics test:

1. Be sure paper is in the printer (1).
2. Open the receipt cover (2).
3. Press and hold the paper feed button (3).
4. Close the receipt cover, continually holding the paper feed button until the configuration printout begins.

For additional instructions on configuring the printer, refer to [Operating the printer on page 58](#).

Extending Your Character Sets and Fonts

The following character sets and code pages are available for this printer. Most models come with the code preinstalled. To confirm which code pages are resident, print out the Diagnostic form (refer to Chapter 3 for instructions). To download code pages that are not currently resident, go to HP support website at www.hp.com/support.

- Code Page 437 US English
- Code Page 737 Greek
- Code Page 850 Multilingual
- Code Page 852 Multilingual Latin 2
- Code Page 857 Turkish
- Code Page 858 Eurosymbol
- Code Page 860 Portuguese
- Code Page 862 Hebrew
- Code Page 863 French Canadian
- Code Page 865 Nordic
- Code Page 866 Cyrillic
- Code Page 1251 Cyrillic
- Code Page 1252 Windows Latin 1
- Code Page 1255 Hebrew

Operating the printer

Configuring the Printer

The configuration menu allows you to set general printer parameters. The test prints the diagnostics form, which details settings for all functions. The printer will partially cut the paper between each variation.

The test ends with a partial cut of the paper. A complete test printout may require the use of several feet of paper.

Since the printer is usually shipped pre-configured, most users do not need to change the configuration of the printer. If you make adjustments to the configuration, be careful not to inadvertently change settings that may affect the printer's performance. HP does not recommend that users change the printer configuration.



NOTE: The printer is shipped with a test printout that includes the preset configuration. If you run into problems after changing the printer configuration, use the settings as a default.

Entering the Configuration Mode

1. Turn off power to the printer.
2. Open the rear connector cover.
3. Set DIP switch 1 to the ON position (down). DIP switch 2 should be in the OFF position (up).
4. Be sure the receipt paper (1) is loaded in the printer before proceeding (for instructions on loading the receipt paper, refer to [Setting up the printer on page 55](#)).
5. Close the receipt cover (2).
6. Turn on power to the printer and immediately press and hold the paper feed button (3) until the configuration printout begins.

- The printer beeps, then prints the diagnostics form and prints instructions for entering the configuration menu. Follow the instructions.
 - The printer pauses and waits for a main menu selection to be made (see sample printout on the following page in this chapter; short clicks are used, except when answering Yes or validating selection).
7. To communicate with the printer, press the paper feed button using either short or long clicks. Use a long click for “yes” (more than one second) and a short click for “no.” Follow the printed instructions to make selections.
 8. Continue through your menu selections until you are prompted, **Save New Parameters?**. Select “Yes” or “No.”
 - a. If you wish to save, select **Yes**, then return DIP Switch 1 to the OFF position (up).
 - b. Open the receipt cover.
 - c. Press and hold the paper feed button while closing the receipt cover.
 - d. The diagnostic printout verifies your new settings.
 9. If you would like to continue configuring the printer, select **No**. The printer then returns to the configuration menu, where you can set parameters again.

The following is a sample printer configuration menu.

Print test and Configuration menu samples. (Shown approximately 60% of size.)

Short clicks are used in the main menu selections.

Monochrome Paper Print Density (Default)

This function makes it possible to adjust the energy level of the printhead to darken the printout or adjust for paper variations. An adjustment should only be made when necessary. The factory setting is 80%.

⚠ CAUTION: Choose an energy level no higher than necessary to achieve a dark printout. Failure to observe this rule may result in a printer service call or voiding of the printer warranty. Running at a higher energy level will reduce the printhead life.

When the printer prints high-density print lines (text or graphics), it automatically slows down.

To change the print density:

1. Enter the configuration menu. Refer to [Entering the Configuration Mode on page 58](#).
2. Select **Set Hardware Options** from the main menu.
Printer responds, **Hardware Options Menu**, and when scrolled prompts, **Set Print Density?**
3. Select **Yes**.

A warning is printed, followed by the density adjustment selections.

Using the paper feed button, enter clicks for selection, then hold button down at least 1 second to validate.

When to Change the Receipt Paper

Change the paper when it is near the end of the roll or out. When the paper is low, you will want to monitor usage to avoid running out part way through a transaction. When the paper is out, you must load a new roll immediately or data may be lost!

When paper is low:

Colored stripe appears on the receipt paper, (if paper is purchased with stripe) and indicates enough paper remains for a small transaction.

When paper is out:

Green LED flashes quickly indicating the paper must be installed.

CAUTION: Do not try to operate the printer or POS computer if the printer runs out of paper. The printer may continue to accept data from the POS computer even though it is unable to print. Data may be lost as a result.

For instructions on how to change the receipt paper, refer to [Loading or Changing the Receipt Paper on page 55](#).

Preventing Printhead Overheating

There are restrictions on the duty cycle because of the heat generated by the thermal printhead when printing solid blocks (regardless of the length of the block in relation to the print line). The restrictions are ambient temperature, the percentage of time (measured against one minute) of continuous solid printing, and the amount of coverage.

Keep in mind that the ambient temperature may be affected by factors such as direct exposure to sun or close proximity to heating elements.

CAUTION: When the duty cycle exceeds the limits shown in the following table, the receipt printhead will heat up and shut down. This may damage the printhead.

To avoid this problem, do one or a combination of the following:

1. Reduce the amount of coverage.
2. Reduce the time of continuous solid printing.
3. Reduce the ambient temperature.

Allowable duty cycle (measured over one minute of continuous printing)			
Amount of Solid Coverage	Ambient Temperature		
	25°C	35°C	50°C
20%	100%*	50%*	20%*
40%	50%*	25%*	10%*
100%	20%*	10%*	4%*

*Duty Cycle - Percentage of time that the specified “Amount of Solid Coverage” can be printed during a one minute period of time. Example: at 20% solid coverage, 35° C temperature, a 50% duty cycle is to be used, resulting in 30 seconds of printing and 30 seconds without printing.

For reference:

- A typical receipt with text (contains some blank spaces) is approximately 12% dot coverage.
- A full line of text characters (every cell on the line has a character in it) is approximately 25% dot coverage.
- Graphics are approximately 40% dot coverage.

- Barcodes are approximately 50% dot coverage.
- A solid black line is 100% dot coverage.

Maintenance guidelines


Cleaning the Printer


Clean the outside of the cabinet as needed to remove dust and finger marks. Use any household cleaner made for plastics. Test it first on a small unseen area. Clean the printer paper bucket with a clean, damp cloth.

The cabinet materials and finish are durable and resistant to the following items:


- Cleaning solutions
- Cooking oils
- Lubricants
- Ultraviolet light
- Fuels

Cleaning the Thermal Printhead


 **CAUTION:** Do not clean the inside of the printer with any cleaner. Do not allow cleaning spray to come in contact with the thermal printhead. Damage to the internal electronics or thermal printhead could occur.

 **NOTE:** The thermal printhead does not normally require cleaning when recommended paper grades are used. If non-recommended paper is used over an extended period, attempting to clean the printhead will have little effect on the print quality.

1. Turn off the printer and POS computer.
2. Unplug the printer from the POS computer and the cash drawer, if connected.
3. Wipe the printhead with a cotton swab moistened with rubbing alcohol.

 **CAUTION:** Do not use rubbing alcohol to clean any internal parts of the printer other than the printhead. Damage will occur.

If spotty or light printing problems persist after cleaning the thermal printhead, the entire thermal mechanism may need to be replaced.

 **CAUTION:** Using non-recommended paper over an extended period of time can result in printhead failure. Refer to [Technical specifications on page 66](#) for paper specifications.

Troubleshooting

Diagnostics

The printer performs three primary diagnostic tests that provide useful information about the printer's operating status:

- Startup diagnostics, performed during the printer's startup cycle
- Runtime diagnostics
- Remote diagnostics, maintained during normal operation and reported in the print test

Startup Diagnostics

When the printer receives power or performs a hardware reset, it automatically performs the startup diagnostics (also known as level 0 diagnostics) during the startup cycle. The printer:

- Turns off the motors
- Performs boot CRC check of the firmware ROM, test external SRAM, test EEPROM, and test main program CRC

Failure causes startup diagnostics to stop; the printer beeps and the LED flashes a set number of times, indicating the nature of the failure. The following table describes the specific tone and LED sequences.

LED Behavior	Failure
One blink	Boot CRC error
Two blinks	RAM failure
Three blinks	EEPROM failure
Four blinks	Memory initialization failure

To resolve:

- Check if paper is present
- Return the knife to the home position; failure causes a fault condition
- Check if the rear cover is closed; failure does not interrupt the startup cycle

When the startup diagnostics are complete, the printer makes a two-tone beep (low then high frequency), the paper feed button is enabled, and the printer is ready for normal operation.

If the printer has not been turned on before, or a new EEPROM has been installed, the default values for the printer functions will be loaded into the EEPROM during startup.

Runtime Diagnostics

Runtime diagnostics (sometimes called level 2 diagnostics) run during normal printer operation. When the following conditions occur, the printer automatically turns off the appropriate motors and disables printing to prevent damage to the printer.

- Paper out
- Rear cover open
- Knife unable to home
- Printhead too hot
- Voltages out of range

The LED on the operator panel will signal when these conditions occur as well as indicate printer state or mode.

LED Behavior	Printer Status
Off	No power
Fast blink	Firmware download
Fast blink	Level 0 diagnostics (occurs at power on, and on reset); paper out
Slow blink	Temperature error or voltage error
Steady on	All other issues

Remote Diagnostics

Remote diagnostics (sometimes called level 3 diagnostics) keep track of the following tallies and prints them on the receipt during the print test. These tallies can be used to determine the printer's state of health.

- Model number
- Serial number
- CRC number
- Number of lines printed
- Number of knife cuts
- Number of hours the printer has been on
- Number of flash cycles
- Number of cutter jams
- Number of times the cover is opened
- Maximum temperature reached

Solving Common Problems

The following table lists possible problems, the possible cause of each problem, and the recommended solutions.

Problem	Possible Cause	Solution
Green LED, quick continuous flashing.	Paper is out.	Load a new paper roll. Refer to Setting up the printer on page 55 .
	Receipt cover open.	Close the cover.
	Knife unable to home.	Stop using the printer. Check the knife to see if it needs to be replaced. Contact your regional HP authorized service provider for HP Point of Sale System products.
Green LED, slow steady flashing.	Continuous printing of graphics has overheated the printhead.	Reduce the demand on the printer.
	Other problems may be indicated.	Stop using the printer. Contact your regional HP authorized service provider for HP Point of Sale System products.

Problem	Possible Cause	Solution
Continuous flashing of LED	DIP switch is in ON position, indicating flash download mode.	Put the DIP switch in the OFF position for normal operation.
Printer beeps (two-tone - low frequency, high frequency).	Printer has been turned on and is ready to operate.	No action required.
Printer beeps and flashes green LED in various combinations.	Indicates serious conditions.	Stop using the printer. Contact your regional HP authorized service provider for HP Point of Sale System products.
Colored stripe is on the receipt.	Paper is low.	Change the paper roll.
Double beep, double LED flash.	SRAM test failure.	Run the startup diagnostics again. If this does not work, contact your regional HP authorized service provider for HP Point of Sale System products.
Triple beep, triple LED flash.	EEPROM test failure.	Run the startup diagnostics again. If this does not work, contact your regional HP authorized service provider for HP Point of Sale System products.
Two-tone beep (high frequency, low frequency).	Main program CRC test failure.	Run the startup diagnostics again. If this does not work, contact your regional HP authorized service provider for HP Point of Sale System products.
Receipt does not come out all the way.	Paper is jammed.	Open the receipt cover, inspect the knife, and clear the jammed paper.
Printer starts to print, but stops while the receipt is being printed.	Paper is jammed.	Open the receipt cover, inspect the knife, and clear the jammed paper.
Receipt is not cut.	Paper is jammed.	Open the receipt cover, inspect the knife, and clear the jammed paper.
	The knife is not enabled.	Enable the knife in the configuration menu. Refer to Operating the printer on page 58 .
Print is light or spotty.	Paper roll is loaded incorrectly.	Check that the paper is loaded properly.
	Thermal printhead is dirty.	Clean thermal printhead with rubbing alcohol. Use the recommended thermal receipt paper. Refer to Technical specifications on page 66 in this guide for paper specifications and recommendation. NOTE: If paper has been used which is not on the recommend paper list, resulting in a dirty printhead, the printhead may require cleaning prior to switching back to recommended paper. See Technical specifications on page 66 for a list. If non- recommended paper is used over an extended period, attempting to clean the printhead will have little effect on print quality. Do not try to clean within the printer except as indicated in Maintenance guidelines on page 61 .
	Variations in paper.	Increase the print density in “Set Hardware Options” of the printer configuration menu to 110% or 120% as needed.

Problem	Possible Cause	Solution
Inconsistent printing.	Paper type used and paper type setting do not match.	Print the diagnostic form and verify setting paper type setting to type 0.
Vertical column of print is missing.	Printhead is defective or indicates a serious condition with the printer electronics.	Stop using the printer. Contact your regional HP authorized service provider for HP Point of Sale System products.
One side of the receipt is missing.	Printhead is defective or indicates a serious condition with the printer electronics.	Stop using the printer. Contact your regional HP authorized service provider for HP Point of Sale System products.
Printout has missing characters or wrong characters.	Wrong type of serial cable is being used.	You must use a null modem serial cable for the printer to function properly.
Printer does not function when turned on.	The printer is not plugged in.	Check that printer cables are properly connected at both ends. Check that the POS computer is turned on.
	Receipt cover is not fully closed.	Close and latch the receipt cover.
	DIP switch 2 has been left in the ON position.	Return DIP switch 2 to the OFF (up) position.
	Printer is not correctly configured.	Check the printer's configuration and reconfigure if necessary. Refer to Operating the printer on page 58 .
	Power supply voltage is out of range.	Measure the voltage with an AC voltmeter and check measurement against the power supply label: the voltage should be 24V +/-10%.
	Printhead has overheated because operating environment is above recommended temperature.	Adjust room temperature or move the printer to a cooler location.
	Printhead has overheated because of continuous printing or graphics.	Reduce the demand on the printer.
	Printhead has gotten too cool because the operating environment is below recommended temperature.	Adjust the room temperature or move the printer to a warmer location. NOTE: The printer will shut off when it is above or below recommended temperature.
	Interrupted data signal over USB connection.	Ensure the USB cable is not more than 5 meters long, with no extensions; eliminate hubs.
	Faulty USB port.	Plug cable into another USB port on the POS computer.
Faulty serial port.	Plug cable into another serial port on the POS computer.	
Wrong type of serial cable is being used.	You must use a null modem serial cable for the printer to function properly.	
Printer stops functioning.	Printhead has overheated.	Allow printhead to cool down.
	Interrupted data signal over USB connection.	Ensure the standard USB cable is no more than 5 meters long with no extensions; eliminate hubs.

Problem	Possible Cause	Solution
	Faulty USB port.	Plug cable into another USB port on the POS computer.
	Faulty serial port.	Plug cable into another serial port on the POS computer.
Printer goes off-line (red LED on USB connector is on or off).	USB or serial cable is not connected properly.	If printer does not auto-recover after 5-20 seconds, reconnect the USB or serial cable, reset the printer, reboot the POS computer, check that the USB or serial cable is properly connected at both ends.

Online Technical Support

For the online access to technical support information, self-solve tools, online assistance, community forums or IT experts, broad multivendor knowledge base, monitoring and diagnostic tools, go to <http://www.hp.com/support>.

Preparing to Call Technical Support

HP provides hardware break/fix support for this product.

If you can not solve a problem using the troubleshooting tips in this section, you may need to call technical support. Contact your regional HP authorized service provider for HP Point of Sale System products. Refer to the HP Technical Support Phone Numbers on the *HP Point of Sale System Software and Documentation* disc. Have the following information available when you call:

- Serial number of the HP accessory located on the label underneath the product
- Purchase date on invoice
- Spares part number located on the label underneath the product
- Condition under which the problem occurred
- Error messages received
- Hardware configuration
- Hardware and software you are using

Ordering Paper Rolls

To order paper rolls, contact your converter of choice. Refer to [Qualified Paper Grades on page 69](#) for contact information.

Technical specifications

HP Value Thermal Printer

Printer Specifications	
Reliability	
MCBF Printlines	72 million
MCBF Knife Cuts	3 million

Interface	Powered USB (some models) USB or Serial (some models)
Memory	2 MB flash memory, 512K RAM
Dimensions and Weight	
Height	134 mm (5.34")
Width	144 mm (5.66")
Depth	184 mm (7.24")
Weight	1.3 kg (2.9 lbs)
Power Requirements	
Operating Voltage	24Vdc +/- 10% +5 volts for logic circuit
Power Consumption	2.3 Amps maximum current draw
Temperature	
Operating Temperature	5°C to 28°C (41°F to 82°F) 28°C to 45°C (82°F to 113°F)
Operating Humidity	10% to 90% 5% to 40%
Storage:	
Temperature	10°C to 50°C (14°F to 122°F)
Humidity	5% to 90%
Transit:	
Temperature	40°C to 60°C (-40°F to 140°F)
Humidity	5% to 95%
Condensation	Condensation may occur when the printer is moved from cold to warm areas after shipment. The printer's design permits operation after drying out and stabilizing at room temperature.
Printing Specification	
Speed - Monochrome	150 mm/sec
Receipt - columns	44/56
Paper roll size	80 mm (wide) x 90 mm (diameter)
Paper out	Standard
Resolution	203 DPI
Knife	Standard (ceramic, rotary)

Characters Appearance

The appearance of text can be changed using the following available print modes:

- Standard
- Compressed
- Double high
- Double wide
- Upside down
- Rotated
- Underlined
- Bold
- Reverse
- Italic
- Scaled
- Strike-through
- Shading

Print Size

Character sizes for the standard and compressed mode:

- Standard
 - 15.6 characters per inch
 - 44 characters per line
 - 13 x 24 dots cell size
- Compressed
 - 20.3 characters per inch
 - 56 characters per line
 - 10 x 24 dots cell size

Ordering Thermal Paper

The printer requires qualified thermal paper with the following dimensions:

Width	Diameter	Length
80 ± 0.2 mm (3.15 ± 0.01 in.)	90 mm max. (3.54 in.)	98 meters (322 ft.) nominal

The above figures are based on a core diameter of 22 ± 0.5 mm (0.87 in.) outside, 11.5 ± 0.5 mm (0.45 in.) inside.

The paper must not be attached at the core. Use paper with a colored stripe at the end to indicate that the paper is running low, required when the printer is positioned vertically.

Qualified Paper Grades

The following paper grades produced by their respective manufacturers are recommended. There are a number of paper converters qualified to provide this paper, provided the POS rolls are from these recommended grades.

To order paper rolls, contact your converter of choice.

Monochrome (Black Ink) Paper

Qualified Manufacturer	Paper Grade (Density)
Appleton Papers, Inc. (USA)	Optima T1030 (Light)
825 E. Wisconsin Avenue	Optima T1012A (Standard)
Appleton, WI	Optima POS-Plus (Light)
Voice: (800)922-1729	Optima T2162(Light)
Fax: (800)922-1712	Optima Superior (Standard)
	Optima Hi-Yield
Kanzaki Specialty Papers (USA)	P-300 (Light)
20 Cummings St.	P-310 (Standard)
Ware, MA 01082-2002	P-350 (Standard)
Voice: (888)526-9254	P-354 (Standard)
Fax: (413)731-8864	P-390 (Standard)
	TO-260 (Standard)
	TO-381L (Standard)
Jujo Thermal LTD.	AF50KS-E3 (Standard)
P.O. Box 92 FIN-27501	AP62KS-E3 (Standard)
Kauttua, Finland	
Voice: (358)2-8393-2900	
Fax: (358)2-3893-2419	
OJI Paper Company Ltd.	KF-60 (Standard)
5-12-8 Ginza Chuo-ku	PD-170R (Light)
Tokyo 104, Japan	PD-160R (Standard)
Voice: (81)3-5550-3076	
Fax: (81)3-5550-2950	
Koehler UK LTD. (GB)	KT55-F20 (Standard)
Voice: (44)1322-661010	

Print Zones for 80 mm Paper

Specifications of print zone for 80 mm paper:

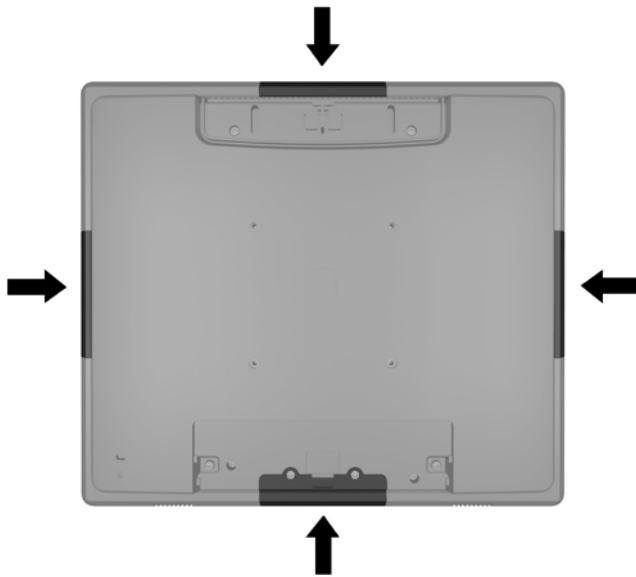
- 576 dots (addressable) @ 8 dots/mm, centered on 80 mm
- Standard Mode minimum margins: 2.0 mm (.079 inches)
- Top margin to manual tear-off: 17.8 mm (0.70 inches)
- Top margin to knife cut: 19.0 mm (0.75 inches)

12 HP Retail Integrated Dual-Head MSR

The drivers for the MSR are available on the CD included with the Retail Touch Monitors and pre-loaded on the HP RP7 Retail Systems. You can also download the latest drivers from www.hp.com.

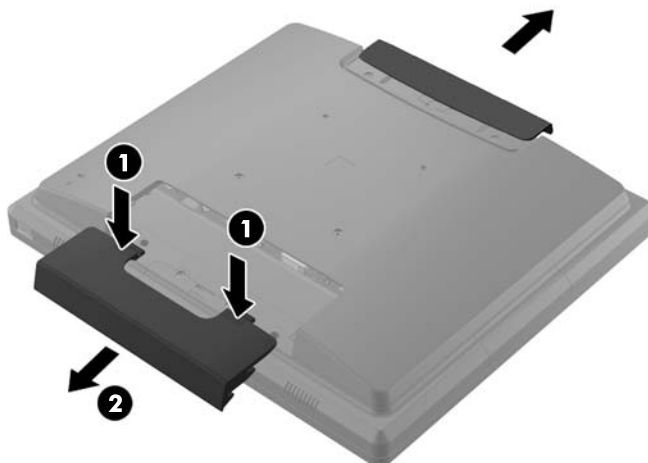
To configure the MSR, insert the CD included with the product and refer to the *HP Point of Sale Configuration Guide* (available in English only).

You can install MSRs in the following locations:

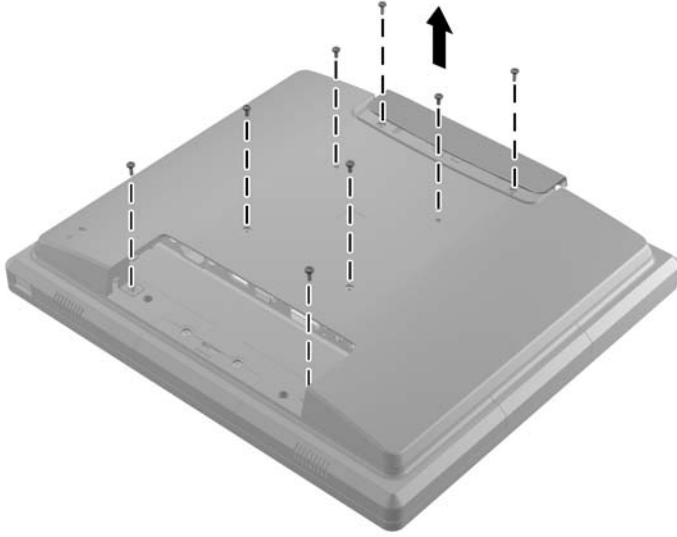


To install MSRs:

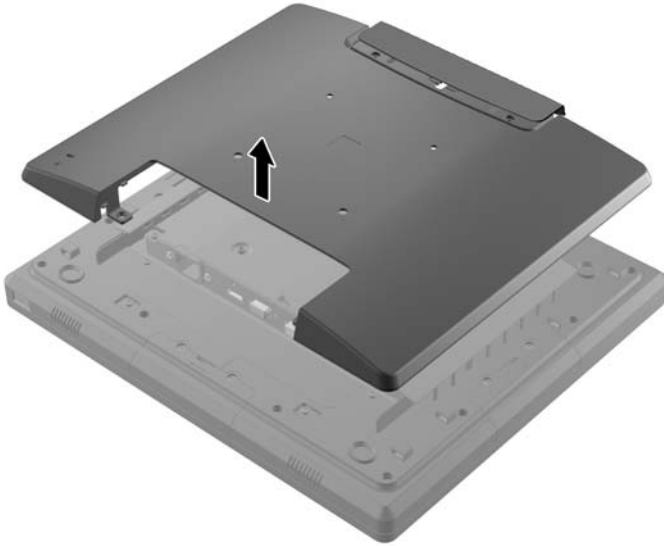
1.



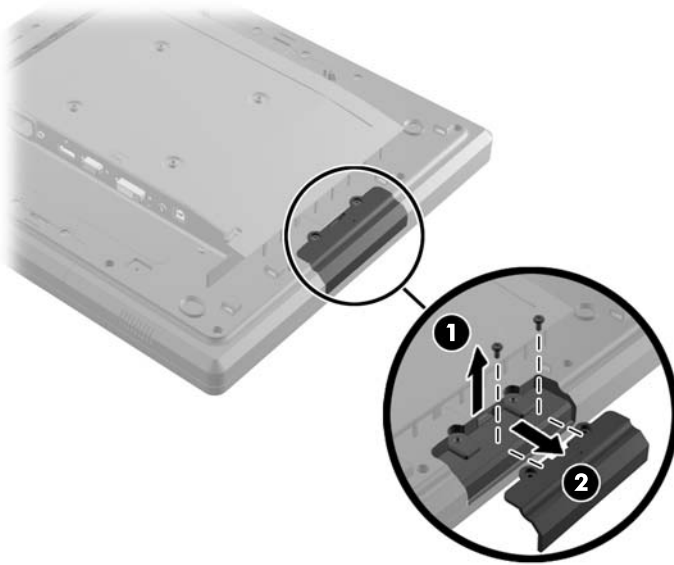
2.



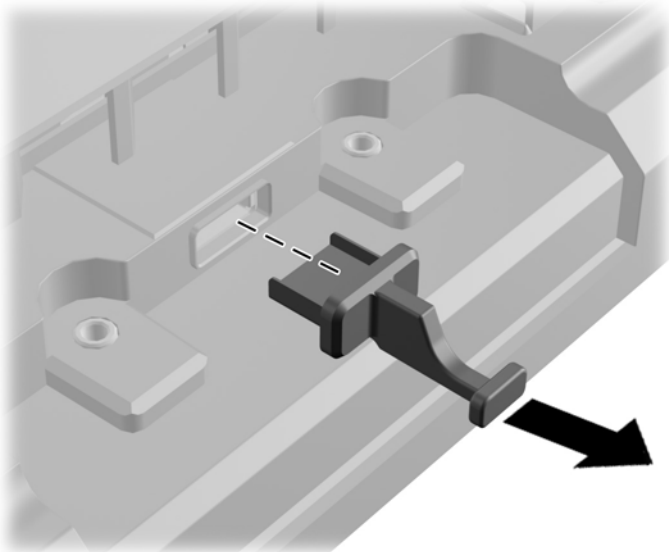
3.



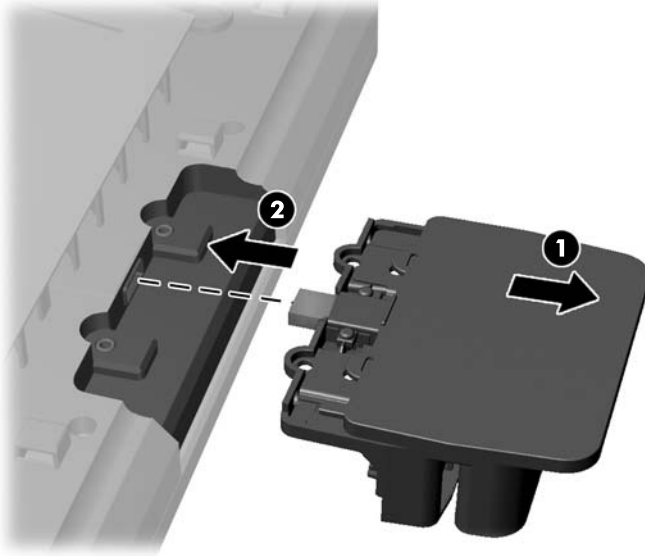
4.



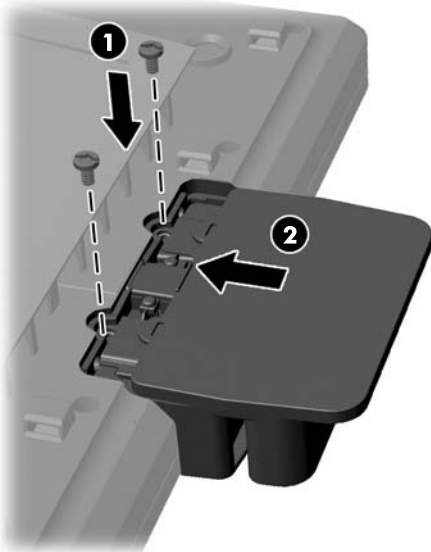
5.



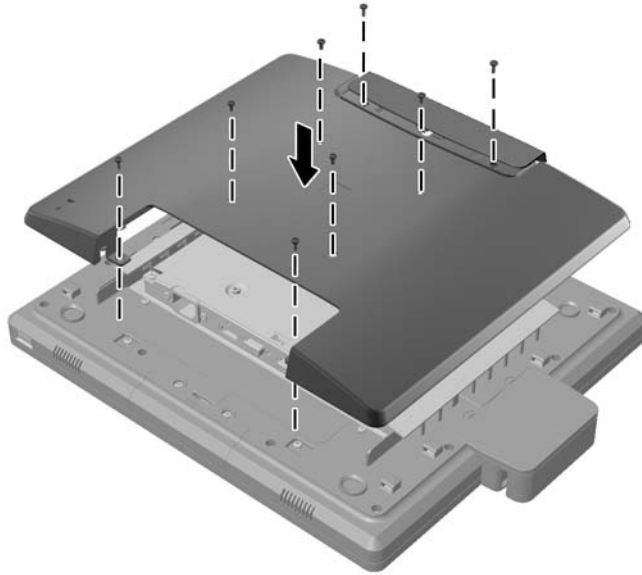
6.



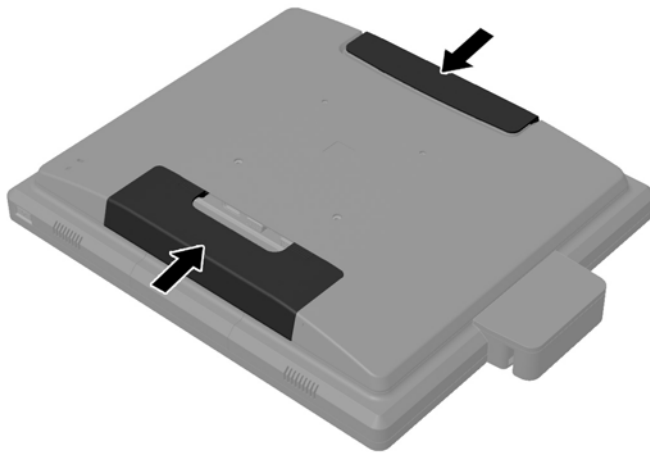
7.



8.



9.



13 Power cord set requirements

The wide-range input feature of the tablet permits it to operate from any line voltage from 100 to 120 volts AC, or from 220 to 240 volts AC.

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

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

Requirements for all countries

The following requirements are applicable to all countries and regions:

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

Requirements for specific countries and regions

Country/region	Accredited agency	Applicable note number
Australia	EANSW	1
Austria	OVE	1
Belgium	CEBC	1
Canada	CSA	2
Denmark	DEMKO	1
Finland	FIMKO	1
France	UTE	1
Germany	VDE	1
Italy	IMQ	1
Japan	METI	3
The Netherlands	KEMA	1
Norway	NEMKO	1
The People's Republic of China	COC	5
South Korea	EK	4

Country/region	Accredited agency	Applicable note number
Sweden	CEMKO	1
Switzerland	SEV	1
Taiwan	BSMI	4
The United Kingdom	BSI	1
The United States	UL	2

1. The flexible cord must be Type H05VV-F, 3-conductor, 1.0-mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country or region where it will be used.
2. The flexible cord must be Type SPT-3 or equivalent, No. 18 AWG, 3-conductor. The wall plug must be a two-pole grounding type with a NEMA 5-15P (15 A, 125 V) or NEMA 6-15P (15 A, 250 V) configuration.
3. The appliance coupler, flexible cord, and wall plug must bear a “T” mark and registration number in accordance with the Japanese Dentori Law. The flexible cord must be Type VCT or VCTF, 3-conductor, 1.00-mm² conductor size. The wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (7 A, 125 V) configuration.
4. The flexible cord must be Type RVV, 3-conductor, 0.75-mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country or region where it will be used.
5. The flexible cord must be Type VCTF, 3-conductor, 0.75-mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country or region where it will be used.

14 Recycling

When a non-rechargeable or rechargeable battery has reached the end of its useful life, do not dispose of the battery in general household waste. Follow the local laws and regulations in your area for battery disposal.

HP encourages customers to recycle used electronic hardware, HP original print cartridges, and rechargeable batteries. For more information about recycling programs, see the HP Web site at <http://www.hp.com/recycle>.

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