



# HP Mini 100e Education Edition

## Maintenance and Service Guide

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## Safety warning notice

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- ⚠ **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 Product description

Category	Description
<b>Product Name</b>	HP Mini 100e Education Edition
<b>Processor</b>	Intel® Atom™ N455 1.66-GHz processor, 512-KB Level 2 cache
<b>Chipset</b>	Intel NM10 Express
<b>Graphics</b>	Intel® Graphics Media Accelerator 950 Universal Memory Architecture (UMA) graphics subsystem
<b>Display panel</b>	<b>25.65-cm</b> (10.1-in) Wide Super VGA (WSVGA) 1024x600 LCD
<b>Memory</b>	One customer-accessible/upgradable memory module slot (SODIMM 667-MHz, DDR3) Supports up to 2 GB of system memory PC3-10600, 667-MHz, DDR3, shared Supports the following configurations: <ul style="list-style-type: none"><li>• 1024-MB total system memory (1024 × 1)</li><li>• 2048-MB total system memory (2048 × 1)</li></ul>
<b>Hard drive</b>	Supports <b>9.5-mm</b> (0.37-in), <b>6.35-cm</b> (2.5-in) parallel SATA hard drives 160-GB, 5400-RPM
<b>Optical drive</b>	Supports external USB optical drives only
<b>Diskette drive</b>	Supports external USB diskette drives only
<b>Audio/Visual</b>	High-definition (HD) audio Integrated monaural speaker Fixed integrated digital microphone Fixed integrated VGA webcam
<b>Modem</b>	56K data/fax modem
<b>Ethernet</b>	Integrated Realtek RTL8105E-GR 10/100M network interface card (NIC)
<b>Wireless</b>	WLAN antenna built into display assembly Integrated WLAN by way of 802.11b/g/n WLAN module

Category	Description
<b>External media cards</b>	SD Card Reader supporting: <ul style="list-style-type: none"> <li>• MultiMediaCard (MMC)</li> <li>• Secure Digital High Capacity (SDHC) Memory Card</li> </ul>
<b>Ports</b>	Audio-in (stereo microphone)
	Audio-out (headphone)
	RJ-45 (Ethernet, includes link and activity lights)
	2 USB 2.0 (1 powered)
	3-pin AC power
	VGA, supporting up to 1400x1050 external resolution @ 60Hz, hot plug/unplug, and auto detection for correct output to wide-aspect vs. standard
<b>Keyboard/pointing device</b>	92% keyboard
	TouchPad, with 2 TouchPad buttons and 2-way scrolling (taps enabled as default)
<b>Power requirements</b>	40-watt adapter, RC/V 2W
	AC adapter connector on cable
	6-cell lithium-ion (Li-ion) battery (2.2-Ah, 47-Wh)
	3-cell lithium-ion (Li-ion) battery (2.55-Ah, 28-Wh)
<b>Security</b>	Security cable slot
<b>Operating system</b>	<b>Preinstalled:</b>
	Windows® XP Home SP3
	Windows 7 Starter (Basic)
	Novel SuSE Linux Enterprise Desktop (SLED) 11
<b>Serviceability</b>	<b>End-user replaceable parts:</b>
	AC adapter
	Battery (system)
	Hard drive
	Keyboard
	Memory module

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## 2 External component identification

### Top

#### Top cover

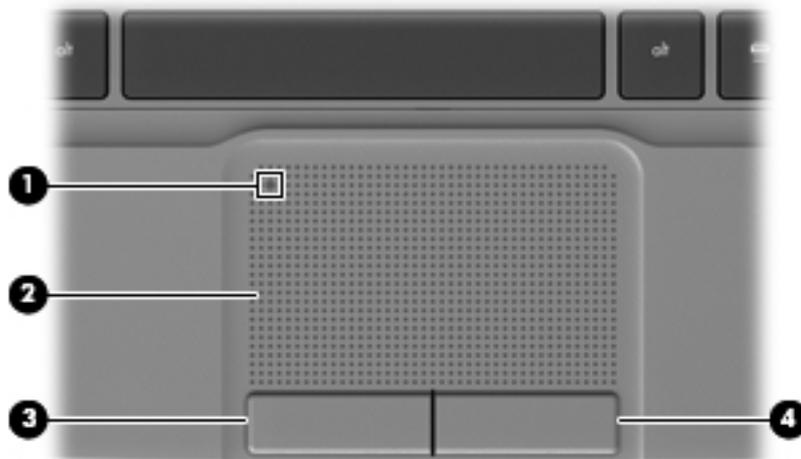


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Component	Description
Network light	Off: All network functions are off.  On: The computer is connected to a wired network or an integrated wireless device, such as a wireless local area network (WLAN) device, is on.

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## TouchPad



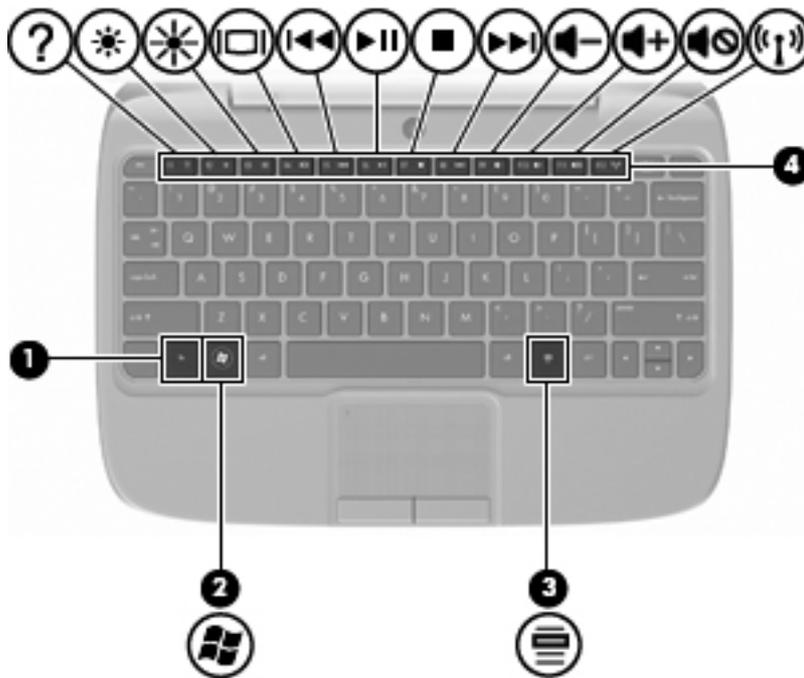
Component	Description
(1)  TouchPad off indicator	Turns the TouchPad on and off. Quickly double-tap the TouchPad off indicator to turn the TouchPad on and off.
(2) TouchPad zone	Moves the pointer and selects or activates items on the screen.
(3) Left TouchPad button	Functions like the left button on an external mouse.
(4) Right TouchPad button	Functions like the right button on an external mouse.

## Lights



Component	Description
(1) TouchPad off indicator	<ul style="list-style-type: none"><li>On: The TouchPad is off.</li><li>Off: The TouchPad is on.</li></ul>
(2) Caps lock light	<ul style="list-style-type: none"><li>On: Caps lock is on.</li><li>Off: Caps lock is off.</li></ul>
(3)  Power light	<ul style="list-style-type: none"><li>On: The computer is on.</li><li>Blinking: The computer is in the Sleep, Standby, or Suspend state.</li><li>Off: The computer is off or in Hibernation.</li></ul>
(4)  Mute light	<ul style="list-style-type: none"><li>On: Computer sound is off.</li><li>Off: Computer sound is on.</li></ul>
(5)  Wireless light	<ul style="list-style-type: none"><li>Off: All wireless devices are off.</li><li>On: An integrated wireless device, such as a wireless local area network (WLAN) device, is on.</li></ul>

## Keys



Component	Description
(1) <code>fn</code> key	Executes frequently used system functions when pressed in combination with a function key.
(2)  Windows logo key	Displays the Windows Start menu.
(3)  Windows applications key	Displays a shortcut menu for items beneath the pointer.
(4) Function keys	Execute frequently used system functions when pressed in combination with the <code>fn</code> key.

## Power button



Component	Description
 Power button	<ul style="list-style-type: none"><li>• When the computer is off, press the button to turn on the computer.</li><li>• When the computer is on, press the button briefly to initiate Sleep (Windows) or Suspend (Linux).</li><li>• When the computer is in the Sleep or Suspend state, press the button briefly to exit Sleep or Suspend.</li><li>• When the computer is in Hibernation, press the button briefly to exit Hibernation.</li></ul> <p>If the computer has stopped responding and operating system shutdown procedures are ineffective, press and hold the power button for at least 5 seconds to turn off the computer.</p> <p>To learn more about your power settings, select <b>Start &gt; Control Panel &gt; System and Security &gt; Power Options</b>, or refer to the <i>HP Notebook Reference Guide</i> (Windows) or <b>Computer &gt; Control Center &gt; System &gt; Power Management</b> (Linux).</p>

## Front



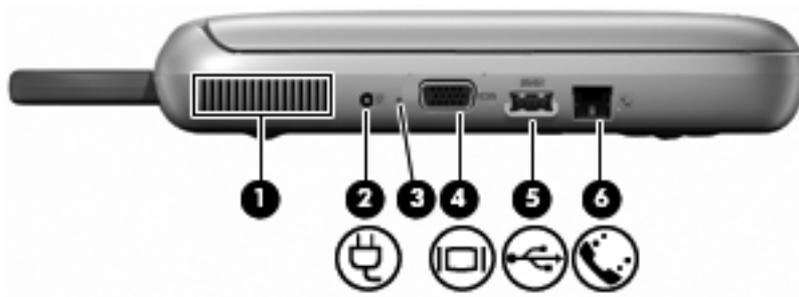
Component	Description
(1) Vent	Enables airflow to cool internal components.  <b>NOTE:</b> The computer fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation.
(2) Speaker	Produces sound.

## Right side



Component	Description
(1) 	<p>Audio-out (headphone) jack</p> <p>Connects optional powered stereo speakers, headphones, earbuds, a headset, or television audio.</p> <p><b>WARNING!</b> To reduce the risk of personal injury, adjust the volume before putting on headphones, earbuds, or a headset. For additional safety information, refer to the <i>Regulatory, Safety, and Environmental Notices</i>.</p> <p><b>NOTE:</b> When a device is connected to the jack, the computer speaker is disabled.</p>
(2) 	<p>Audio-in (microphone) jack</p> <p>Connects an optional external microphone.</p>
(3)	<p>SD Card Reader</p> <p>Supports the following digital card formats:</p> <ul style="list-style-type: none"> <li>• MultiMediaCard (MMC)</li> <li>• Secure Digital High Capacity (SDHC) Card</li> </ul>
(4) 	<p>USB port</p> <p>Connects an optional USB device. When this port is the only USB port in use, it functions as a powered USB port.</p>
(5)	<p>Network activity light</p> <p>Blinking amber: Data is being transmitted over the network.</p>
(6) 	<p>RJ-45 (network) jack</p> <p>Connects a network cable.</p>
(7)	<p>Network connection light</p> <p>Green: The computer is connected to the network.</p>
(8) 	<p>Security cable slot</p> <p>Attaches an optional security cable to the computer.</p> <p><b>NOTE:</b> The security cable is designed to act as a deterrent, but it may not prevent the computer from being mishandled or stolen.</p>

## Left side



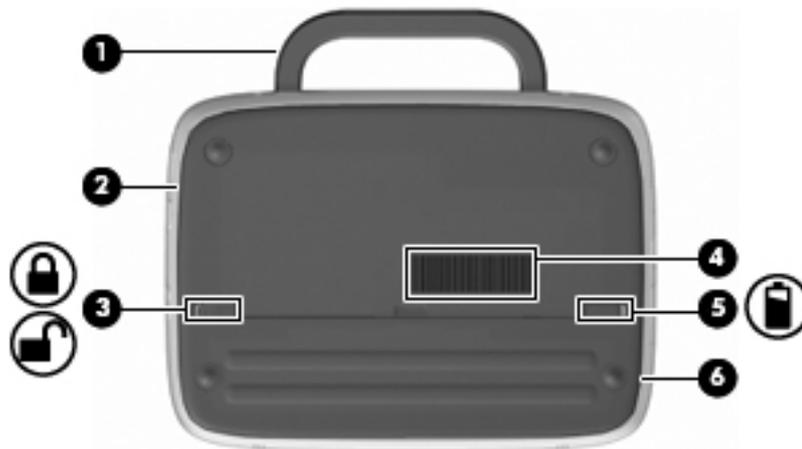
Component	Description
(1) Vent	Enables airflow to cool internal components.  <b>NOTE:</b> The computer fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation.
(2)  Power connector	Connects an AC adapter.
(3) Battery light	<ul style="list-style-type: none"><li>• Off: The computer is running on battery power.</li><li>• Amber: The battery has reached a low or critical level or there is a battery error.</li><li>• White: The computer is connected to external power and the battery is charged.</li></ul>
(4)  External monitor port	Connects an external VGA monitor or projector.
(5)  USB port	Connects an optional USB device. When this port is the only USB port in use, it functions as a powered USB port.
(6)  RJ-11 (modem) jack	Connects an optional modem cable.

# Display



Component	Description
(1) Internal microphone	Records sound.
(2) Webcam light	On: The webcam is in use.
(3) Webcam	Records video and captures still photographs.

## Bottom



Component	Description
(1) Computer handle (select models only)	Allows you to carry the computer. <b>CAUTION:</b> To reduce the risk of damaging the computer, close the computer before picking it up by the handle.
(2) Service access cover	Provides access to the hard drive bay, a memory module slot, and the wireless local area network (WLAN) module.
(3)  Battery locking latch	Locks the battery into the battery bay.
(4) Vent	Enables airflow to cool internal components. <b>NOTE:</b> The computer fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation.
(5)  Battery release latch	Releases the battery from the battery bay.
(6) Battery bay	Holds the battery.

## Wireless antenna



Component	Description
WLAN antenna*	Sends and receives wireless signals to communicate with wireless local area networks (WLAN).

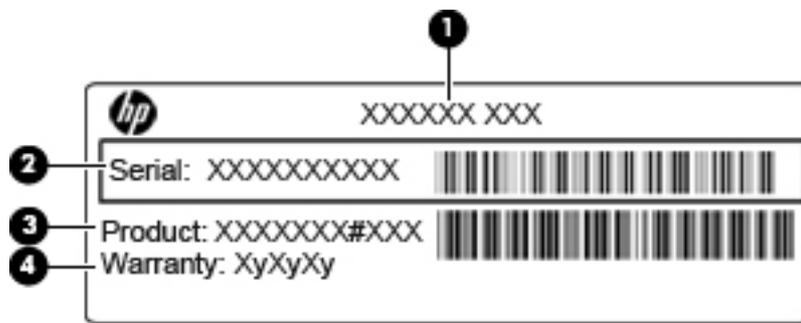
\*The antenna is not visible from the outside of the computer. For optimal transmission, keep the areas immediately around the antenna free from obstructions. To see wireless regulatory notices, refer to the section of the *Regulatory, Safety, and Environmental Notices* that applies to your country or region.

## 3 Illustrated parts catalog

### Serial number label location

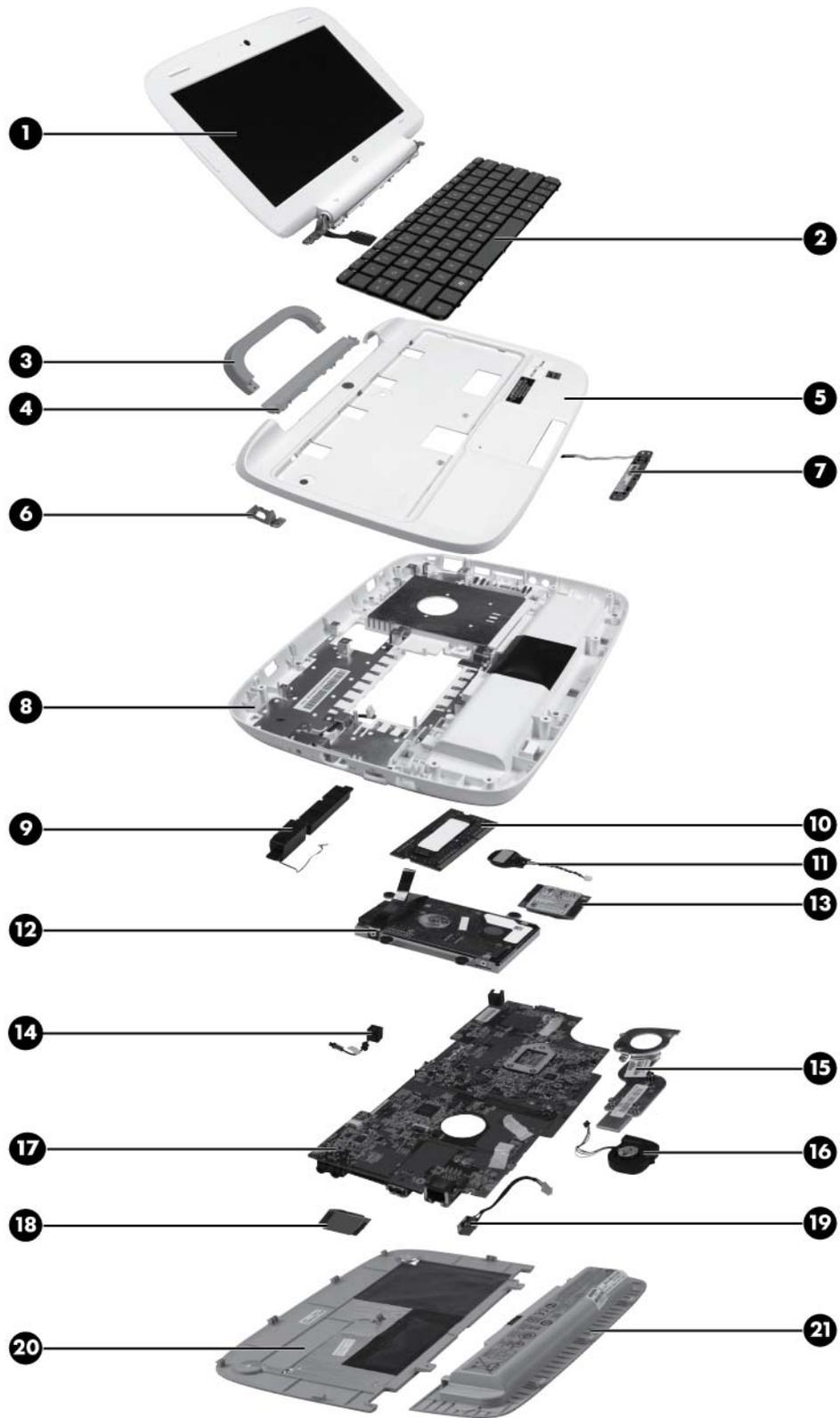
When you order parts or request information, the serial number label, affixed to the bottom of the computer, provides important information that you may need when contacting technical support.

 **NOTE:** The serial number label may vary according to model.



	Component	Description
(1)	Part number	The number that provides specific information about the product's hardware components. The part number helps a service technician to determine what components and parts are needed.
(2)	Serial number	An alphanumeric number that is unique to each product.
(3)	Product name	The product name affixed to the front of your computer.
(4)	Warranty period	The duration of the warranty period for this computer.

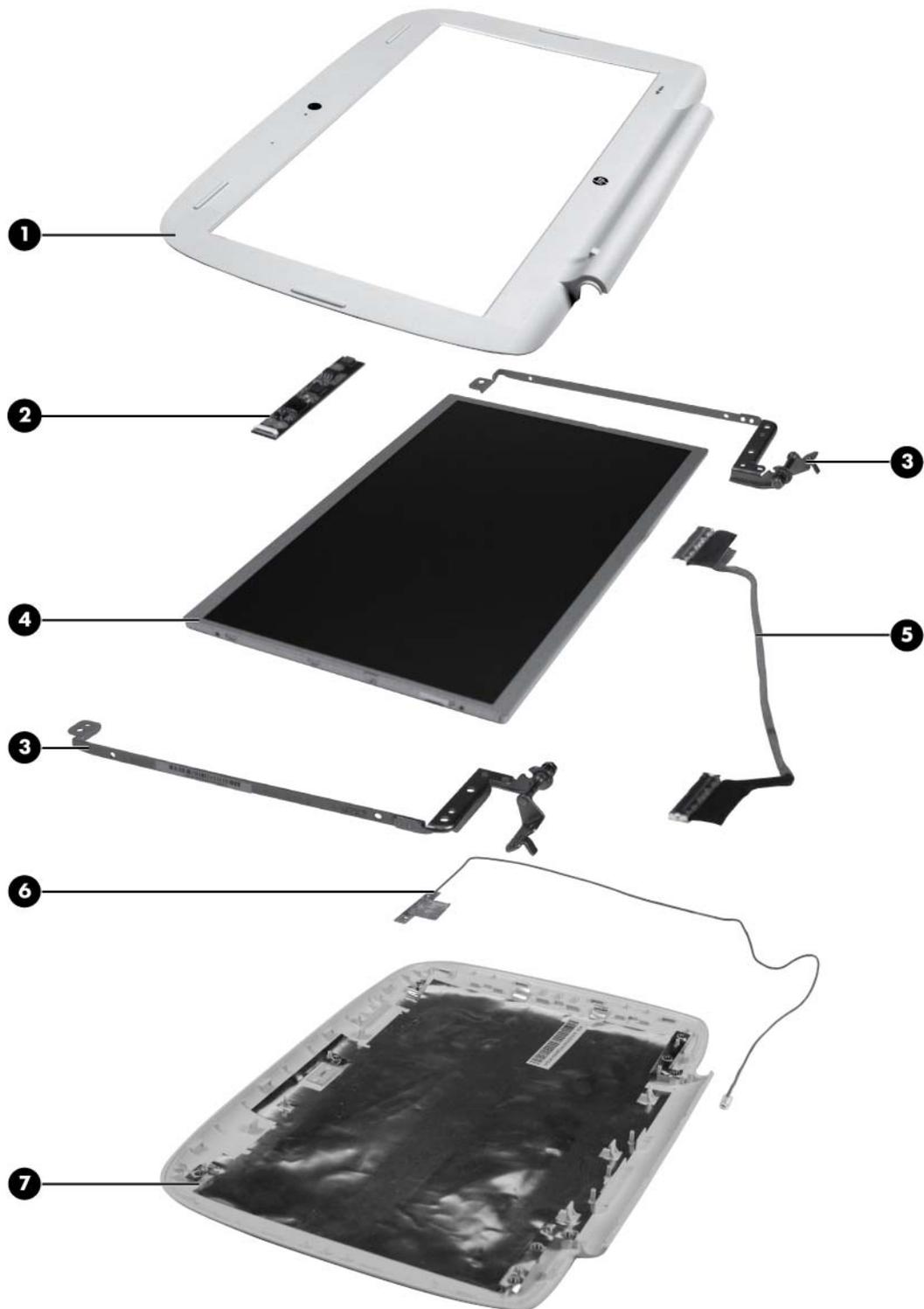
# Computer major components



Item	Description	Spare part number
(1)	<b>Display panel—25.65-cm</b> (10.1-in) Wide Super VGA (WSVGA) 1024x600 LCD  See <a href="#">Display assembly components on page 18</a> for a comprehensive list of display assembly spare parts.	615968-001
(2)	<b>Keyboard</b>	
	• For use in Brazil	615967-201
	• For use in France	615967-051
	• For use in French Canada	615967-121
	• For use in Germany	615967-041
	• For use in Italy	615967-061
	• For use in Latin America	615967-161
	• For use in Portugal	615967-131
	• For use in Spain	615967-071
	• For use in Thailand	615967-281
	• For use in the United Kingdom	615967-031
	• For use in the United States	615967-001
(3)	<b>Handle</b>  <b>NOTE:</b> The handle is included in the Handle Kit, spare part number 615966-001.	
(4)	<b>Handle bracket</b>  <b>NOTE:</b> The handle bracket is included in the Handle Kit, spare part number 615966-001.	
(5)	<b>Top cover</b> (includes TouchPad and security cable bracket)	615965-001
(6)	<b>Security cable slot bracket</b> (included in the top cover kit, spare part number 615965-001)	
(7)	<b>TouchPad buttons</b> (includes TouchPad board and cables)	619572-001
(8)	<b>Base enclosure</b>	
	For models with a handle	615960-001
	For models without a handle	626121-001
(9)	<b>Speaker</b>	619573-001
(10)	<b>Memory module</b> (PC3-10600, 667-MHz, DDR3, shared)	
	1-GB	621563-001
	2-GB	621567-001
(11)	<b>RTC battery</b>	619570-001
(12)	<b>Hard drive</b> (160-GB, 5400-RPM)  <b>NOTE:</b> The hard drive spare part kit includes a bracket, screws, grommets, and Mylar tape.  See <a href="#">Mass storage devices on page 20</a> for a comprehensive list of hard drive spare parts.	621406-001

Item	Description	Spare part number
(13)	<b>WLAN module</b> (4312 802.11b/g/n)	625054-001
(14)	<b>Modem cable</b>  <b>NOTE:</b> The modem cable is included in the Cable Kit, spare part number 615961-001.	
	<b>Fan and heat sink assembly</b> (includes replacement thermal material)	619576-001
(15)	Heat sink assembly	
(16)	Fan	
(17)	<b>System board</b> (includes Intel Atom N455, 1.66-GHz processor, 512-KB L2 cache, and replacement thermal material)	615969-001
(18)	<b>Modem</b>	620340-001
(19)	<b>Power connector</b> (includes cable)  <b>NOTE:</b> The power connector is included in the base enclosure, spare part number 615960-001.	
(20)	<b>Battery</b>	
	6-cell lithium-ion (Li-ion) battery (2.2-Ah, 47-Wh)	611708-001
	3-cell lithium-ion (Li-ion) battery (2.55-Ah, 28-Wh)	611707-001
(21)	<b>Service access cover</b>  <b>NOTE:</b> The service access cover is included in the Plastics Kit, spare part number 619575-001 (for use in all countries and regions except Brazil) and spare part number 627093-001 (for use only in Brazil).	

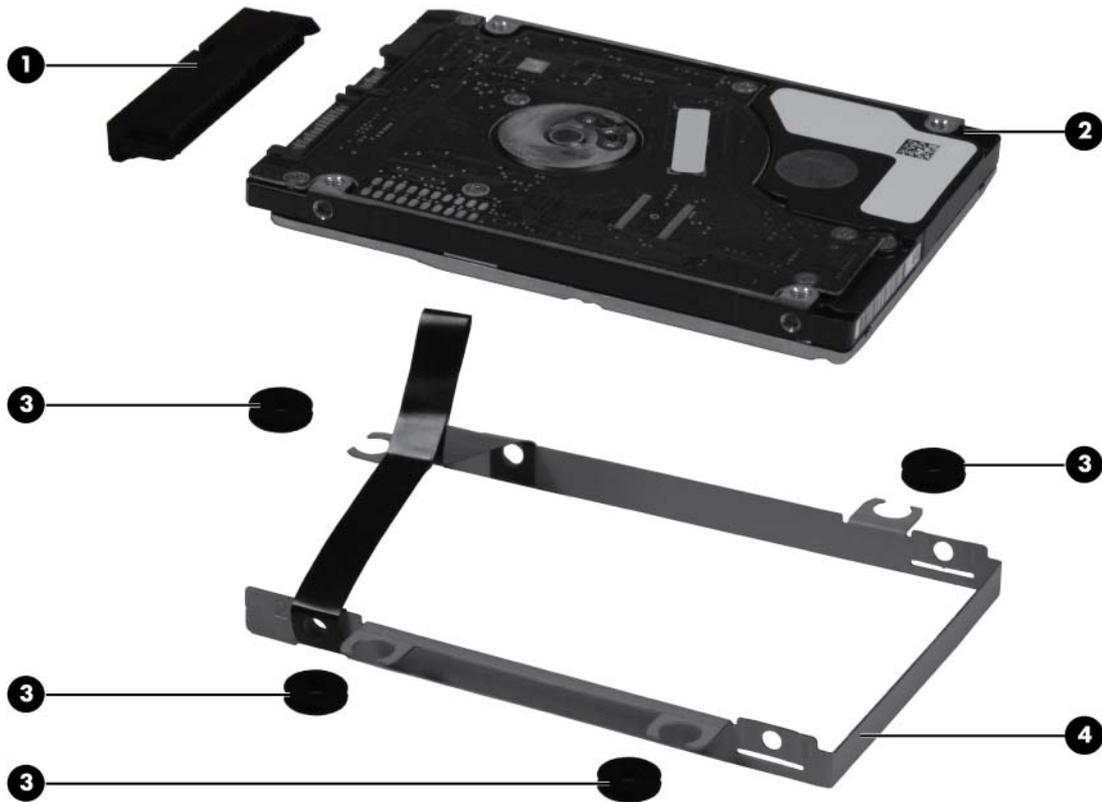
## Display assembly components



Item	Description	Spare part number
(1)	Display bezel	619578-001

<b>Item</b>	<b>Description</b>	<b>Spare part number</b>
(2)	<b>Webcam module</b>	622745-001
(3)	<b>Display Hinge Kit</b> (Includes left and right display panel hinges, brackets, and screws)	619574-001
(4)	<b>Display panel—25.65-cm</b> (10.1-in) Wide Super VGA (WSVGA) 1024x600 LCD	615968-001
(5)	<b>Display cable</b> (included in the Cable Kit, spare part number 615961-001)	
(6)	<b>WLAN antenna and cable</b> (included in the Cable Kit, spare part number 615961-001)	
(7)	<b>Display back cover</b> (includes logo and shielding)	
	For models with a handle	619577-001
	For models without a handle (not illustrated)	626122-001

## Mass storage devices



 **NOTE:** The hard drive spare part kit includes a bracket, screws, grommets, and Mylar tape.

Item	Description	Spare part number
(1)	Hard drive connector	619571-001
(2)	Hard drive (160-GB, 5400-RPM)	621406-001
(3)	Grommets (included in the hard drive kit)	
(4)	Bracket (included in the hard drive kit)	

## Miscellaneous parts

Description	Spare part number
<b>40-watt adapter, RC/V 2W</b>	609949-001
<b>Power cords</b>	
For use in Brazil	490371-201
For use in Europe	490371-021
For use in Italy	490371-061
For use in Japan	490371-291
For use in North America	490371-001
For use in The People's Republic of China	490371-AA1
For use in Singapore and the United Kingdom	490371-031
For use in South Korea	490371-AD1
For use in Taiwan	490371-AB1
<b>Cable Kit</b> (includes LCD display cable, webcam cable, modem cable, wireless cable, RJ-11 cable, and TouchPad cable)	615961-001
<b>Rubber Kit</b> (includes 4 LCD display bezel bumpers)	615963-001
<b>Screw Kit</b>	615962-001
<b>56K modem</b>	620340-001

## Sequential part number listing

Spare part number	Description
490371-001	Power cord for use in North America
490371-021	Power cord for use in Europe
490371-031	Power cord for use in Singapore and the United Kingdom
490371-061	Power cord for use in Italy
490371-201	Power cord for use in Brazil
490371-291	Power cord for use in Japan
490371-AA1	Power cord for use in The People's Republic of China
490371-AB1	Power cord for use in Taiwan
490371-AD1	Power cord for use in South Korea
609949-001	40-watt adapter RC/V 2W
611707-001	3-cell lithium-ion (Li-ion) battery (2.55-Ah, 28-Wh)
611708-001	6-cell lithium-ion (Li-ion) battery (2.2-Ah, 47-Wh)
615960-001	Base enclosure (for models with a handle)
615961-001	Cable Kit (includes LCD display cable, webcam cable, modem cable, wireless cable, RJ-11 cable, and TouchPad cable)
615962-001	Screw Kit
615963-001	Rubber Kit (includes 4 LCD display bezel bumpers)
615965-001	Top cover (includes TouchPad and security cable slot bracket)
615966-001	Handle Kit (includes bracket and screws) (10 Handle Kits per package)
615967-001	Keyboard for use in the United States
615967-031	Keyboard for use in the United Kingdom
615967-041	Keyboard for use in Germany
615967-051	Keyboard for use in France
615967-061	Keyboard for use in Italy
615967-071	Keyboard for use in Spain
615967-121	Keyboard for use in French Canada
615967-131	Keyboard for use in Portugal
615967-161	Keyboard for use in Latin America
615967-201	Keyboard for use in Brazil
615967-281	Keyboard for use in Thailand
615968-001	Display panel— <b>25.65-cm</b> (10.1-in) Wide Super VGA (WSVGA) 1024x600 LCD
615969-001	System board (includes Intel Atom N455, 1.66-GHz processor, 512-KB L2 cache, and replacement thermal material)

<b>Spare part number</b>	<b>Description</b>
619570-001	RTC battery
619571-001	Hard drive connector
619572-001	TouchPad buttons (includes TouchPad board and cables)
619573-001	Speaker
619574-001	Display Hinge Kit (includes left and right display panel hinges, brackets, and screws)
619575-001	Plastics Kit (includes keyboard frame and service access cover for use in all countries and regions except Brazil)
619576-001	Fan and heatsink assembly (includes thermal replacement material)
619577-001	Display back cover (for models with a handle)
619578-001	Display bezel
620340-001	56K modem
621406-001	160-GB, 5400-RPM hard drive
621563-001	1-GB memory module (PC3-10600, 667-MHz, DDR3, shared)
621567-001	2-GB memory module (PC3-10600, 667-MHz, DDR3, shared)
622745-001	Webcam module
625054-001	4312 802.11b/g/n WLAN module
626121-001	Base enclosure (for models without a handle)
626122-001	Display back cover (for models without a handle)
627093-001	Service access cover (for use in Brazil only)

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# 4 Removal and replacement procedures

## Preliminary replacement requirements

### Tools required

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

- Flat flexible tool
- Magnetic screwdriver
- Phillips P0 and P1 screwdrivers

### Service considerations

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

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

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### Plastic parts

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△ **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.

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### Cables and connectors

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

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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.

## Drive handling

- △ **CAUTION:** Drives are fragile components that must be handled with care. To prevent damage to the device, damage to a drive, or loss of information, observe these precautions:

Before removing or inserting a hard drive, shut down the device. If you are unsure whether the device is off or in Hibernation, turn the device on, and then shut it down through the operating system.

Before handling a drive, be sure that you are discharged of static electricity. While handling a drive, avoid touching the connector.

Handle drives on surfaces covered with at least one inch of shock-proof foam.

Avoid dropping drives from any height onto any surface.

After removing a hard drive, an optical drive, or a diskette drive, place it in a static-proof bag.

Avoid exposing a hard drive to products that have magnetic fields, such as monitors or speakers.

Avoid exposing a drive to temperature extremes or liquids.

If a drive must be mailed, place the drive in a bubble pack mailer or other suitable form of protective packaging and label the package "FRAGILE."

---

## 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 device 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.

Use nonmagnetic tools.

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, screwdrivers, 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 strips 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 plastic	Bags	1,500 V
Carbon-loaded plastic	Floor mats	7,500 V
Metallized laminate	Floor mats	5,000 V

# Component replacement procedures

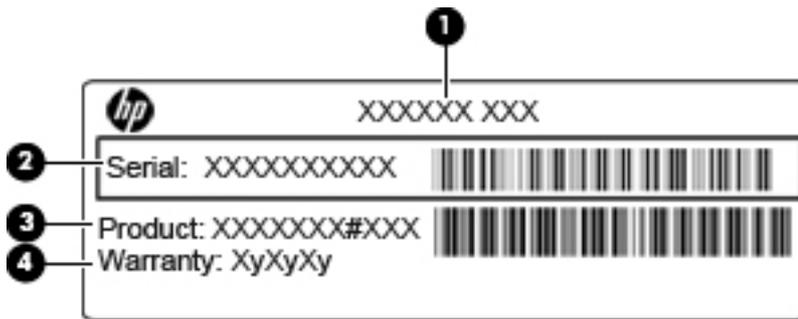
This chapter provides removal and replacement procedures.

There are as many as 65 screws, in 9 different sizes, that must be removed, replaced, or loosened when servicing the computer. Make special note of each screw size and location during removal and replacement.

## Service tag

When you order parts or request information, provide the computer serial number and model number provided on the service tag, affixed to the bottom of the computer.

 **NOTE:** The service tag label may vary according to model.



	Component	Description
(1)	Part number	The number that provides specific information about the product's hardware components. The part number helps a service technician to determine what components and parts are needed.
(2)	Serial number	An alphanumeric number that is unique to each product.
(3)	Product name	The product name affixed to the front of your computer.
(4)	Warranty period	The duration of the warranty period for this computer.

## Battery

Description	Spare part number
6-cell lithium-ion (Li-ion) battery (2.2-Ah, 47-Wh)	611708-001
3-cell lithium-ion (Li-ion) battery (2.55-Ah, 28-Wh)	611707-001

Before removing the battery, follow these steps:

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

Remove the battery:

△ **CAUTION:** Removing a battery that is the sole power source for the computer can cause loss of information. To prevent loss of information, save your work and initiate Hibernation or shut down the computer through the operating system before removing the battery.

1. Turn the computer upside-down on a flat surface, with the battery bay toward you.
2. Slide the battery locking latch (1) to unlock the battery.
3. Slide the battery release latch (2) to release the battery from the computer.
4. Lift the inner edge (3) of the battery, and remove the battery from the computer.



Reverse this procedure to install the battery.

## Service access cover

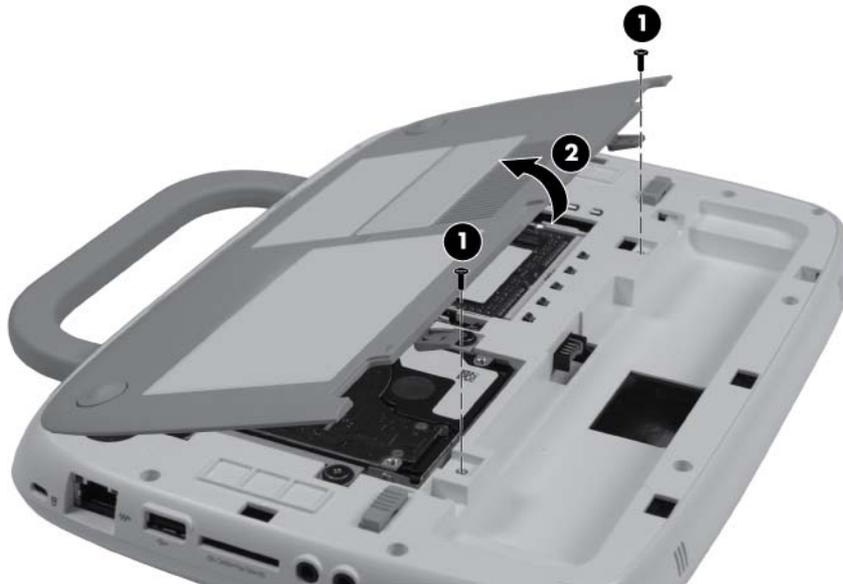
Description	Spare part number
<b>Service access cover</b> (included in the Plastics Kit)	
For use in all countries and regions except Brazil	619575-001
For use in Brazil	627093-001

Before removing the service access cover, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 30](#))

Remove the service access cover:

1. Remove the 2 Phillips 2.0x4.0 screws (1) that secure the service access cover to the computer.
2. Lift the service access cover (2) from the middle to release the tabs along the sides and top edge, and then remove the service access cover.



Reverse this procedure to install the service access cover.

## Memory module

Description	Spare part number
<b>Memory module</b> (PC3-10600, 667-MHz, DDR3, shared)	
1-GB	621563-001
2-GB	621567-001

The computer has one memory module slot, which contains either a 1-GB memory module or a 2-GB memory module. If your computer has a 1-GB module, you can upgrade the capacity of the computer by replacing the 1-GB module with a 2-GB module.

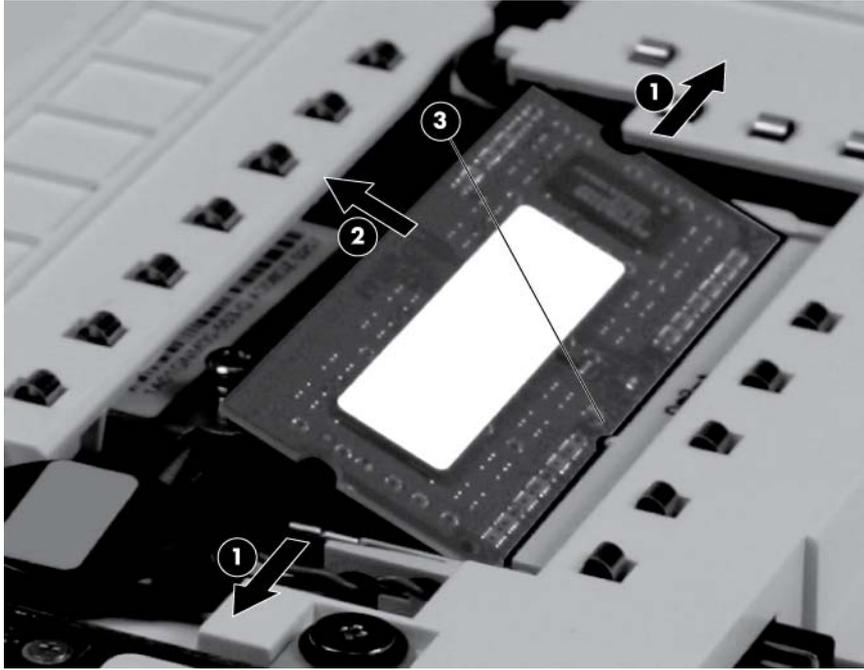
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the following components:
  - a. Battery (see [Battery on page 30](#))
  - b. Service access cover (see [Service access cover on page 31](#))

Remove the memory module:

1. Spread the retaining tabs **(1)** on each side of the memory module to release the memory module. (The memory module tilts up.)
- △ **CAUTION:** To prevent damage to the memory module, hold it by the edges only. Do not touch the components on the memory module.

2. Remove the memory module (2) by pulling the module away from the slot at an angle.

 **NOTE:** Memory modules are designed with a notch (3) to prevent incorrect insertion into the memory module slot.



Reverse this procedure to install a memory module.

## RTC battery

Description	Spare part number
RTC battery	619570-001

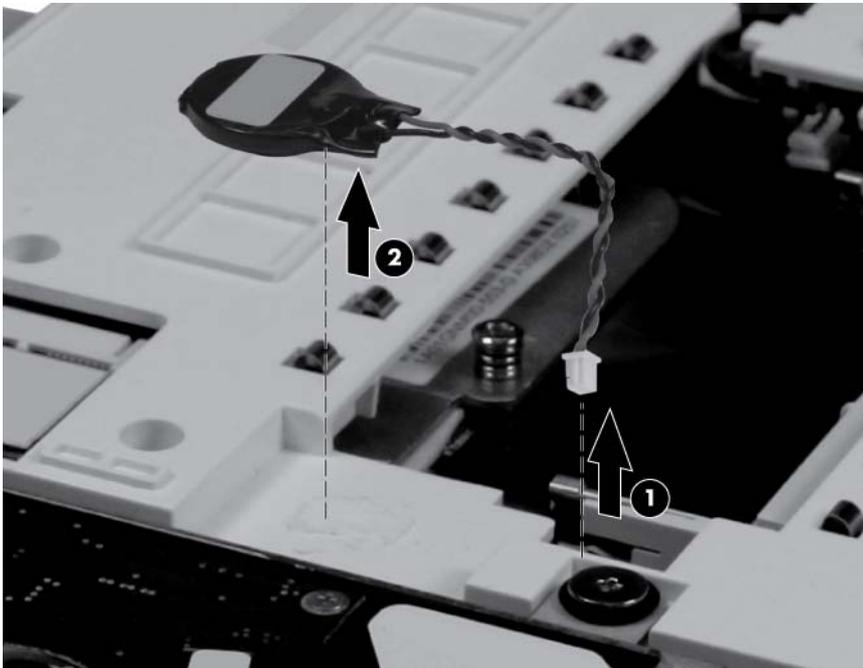
Before removing the real-time clock (RTC) battery, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the following components:
  - a. Battery (see [Battery on page 30](#))
  - b. Service access cover (see [Service access cover on page 31](#))

Remove the RTC battery:

1. Disconnect the RTC battery cable (1) from the system board.
2. Detach the RTC battery (2) from the system board.

 **NOTE:** The RTC battery is secured to the system board with double-sided tape.



Reverse this procedure to install the RTC battery.

## WLAN module

Description	Spare part number
802.11b/g/n WLAN module	625054-001

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

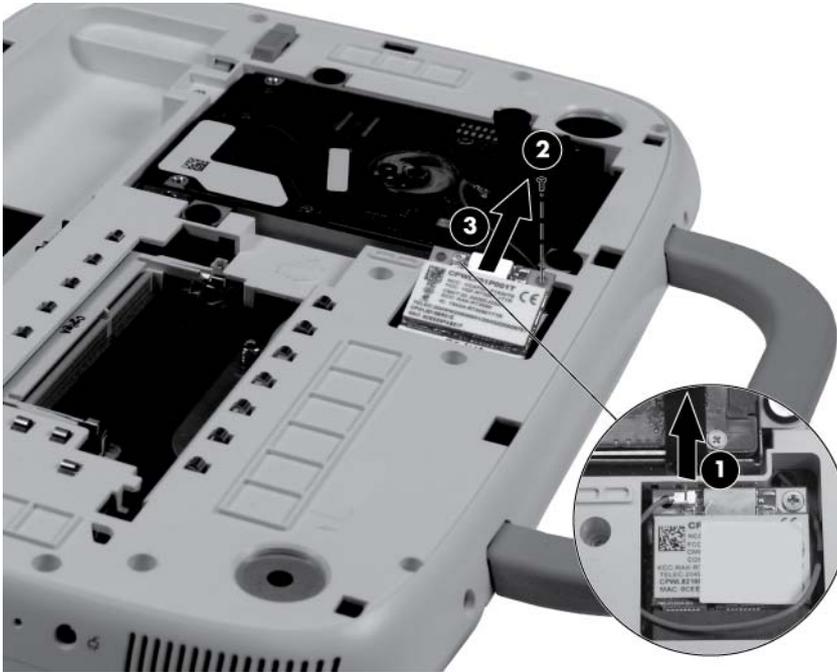
Before removing the WLAN module, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the following components:
  - a. Battery (see [Battery on page 30](#))
  - b. Service access cover (see [Service access cover on page 31](#))

Remove the WLAN module:

1. Disconnect the wireless antenna cable **(1)** from the terminal on the WLAN module.
2. Remove the Phillips PM2.0×4.0 screw **(2)** that secures the WLAN module to the system board. (The edge of the module opposite the slot rises away from the device.)

3. Remove the WLAN module (3) by pulling the module away from the slot at an angle.



Reverse this procedure to install the WLAN module.

## Hard drive assembly

-  **NOTE:** The hard drive assembly spare part kit includes a bracket, screws, rubber grommets, and Mylar tape.

Description	Spare part number
Hard drive assembly (160-GB, 5400-RPM)	621406-001
Hard drive connector	619571-001

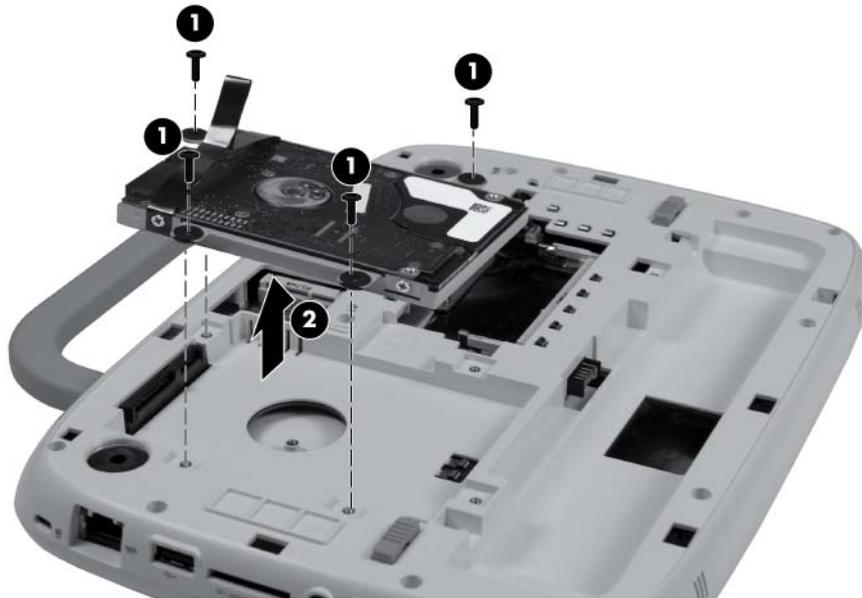
Before removing the hard drive assembly, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the following components:
  - a. Battery (see [Battery on page 30](#))
  - b. Service access cover (see [Service access cover on page 31](#))

Remove the hard drive assembly:

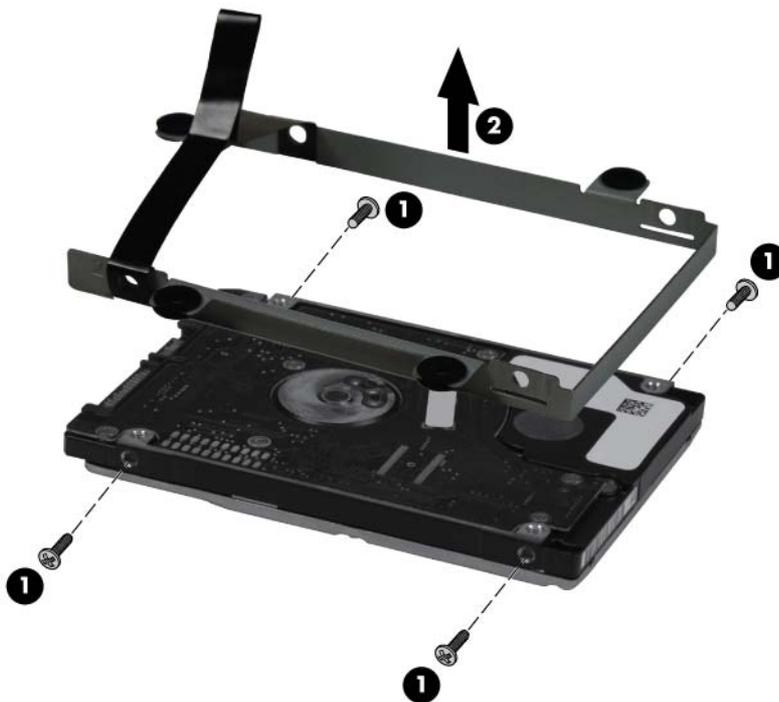
1. Remove the 4 Phillips 2.0x5.0 screws (1) that secure the assembly to the computer.

2. Use the Mylar tab (2) to pull the assembly straight up to disconnect it, and then remove the assembly.

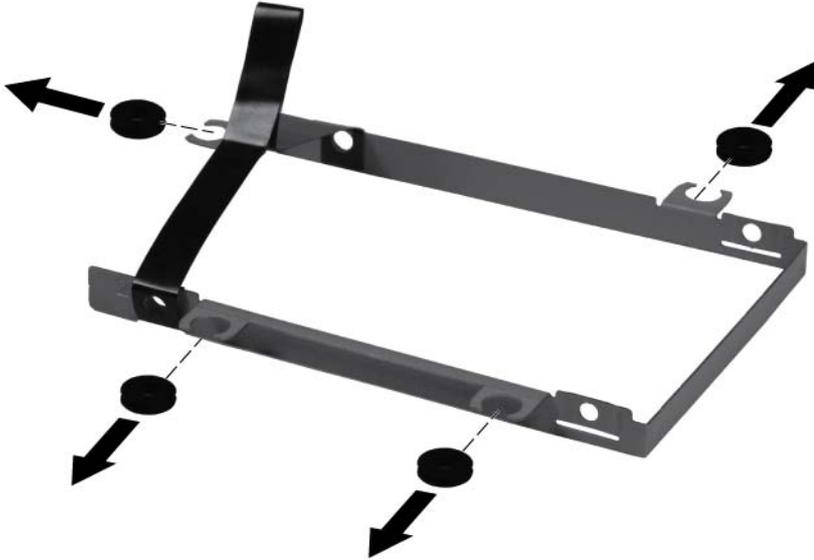


If it is necessary to replace the hard drive bracket, follow these steps:

1. Remove the 4 Phillips 3.0x3.0 screws (1) that secure the hard drive bracket to the hard drive.
2. Using the Mylar tab, lift the bracket (2) away from the hard drive.



If it is necessary to replace the hard drive bracket grommets, remove the grommets from the hard drive bracket.



If it is necessary to replace the hard drive connector, remove the hard drive connector from the hard drive.



Reverse this procedure to install the hard drive assembly.

## Keyboard

Description	Spare part number
• For use in Brazil	615967-201
• For use in France	615967-051
• For use in French Canada	615967-121
• For use in Germany	615967-041
• For use in Italy	615967-061

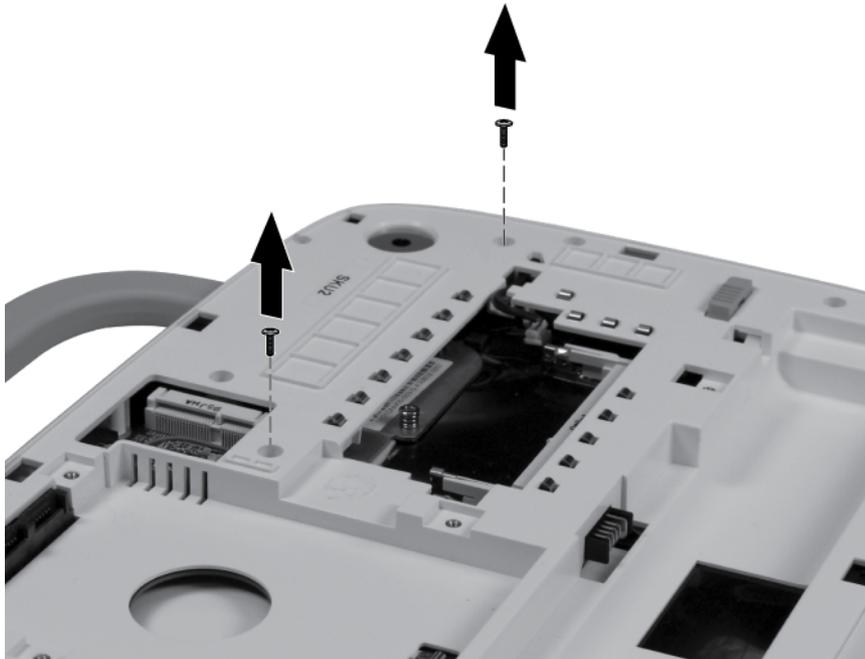
Description	Spare part number
<ul style="list-style-type: none"><li>• For use in Latin America</li></ul>	615967-161
<ul style="list-style-type: none"><li>• For use in Portugal</li></ul>	615967-131
<ul style="list-style-type: none"><li>• For use in Spain</li></ul>	615967-071
<ul style="list-style-type: none"><li>• For use in Thailand</li></ul>	615967-281
<ul style="list-style-type: none"><li>• For use in the United Kingdom</li></ul>	615967-031
<ul style="list-style-type: none"><li>• For use in the United States</li></ul>	615967-001

Before removing the keyboard, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the following components:
  - a. Battery (see [Battery on page 30](#)).
  - b. Service access cover (see [Service access cover on page 31](#))

Remove the keyboard:

1. Remove the 2 Phillips 2.0x5.5 screws that secure the keyboard to the computer.



2. Turn the computer right-side up, and then open the display as far as possible.

3. Using a flexible tool, gently pry up the keyboard cover starting under the space bar (1) and then along the outside edges of the keyboard to release the plastic tabs.
4. Remove the keyboard cover (2).

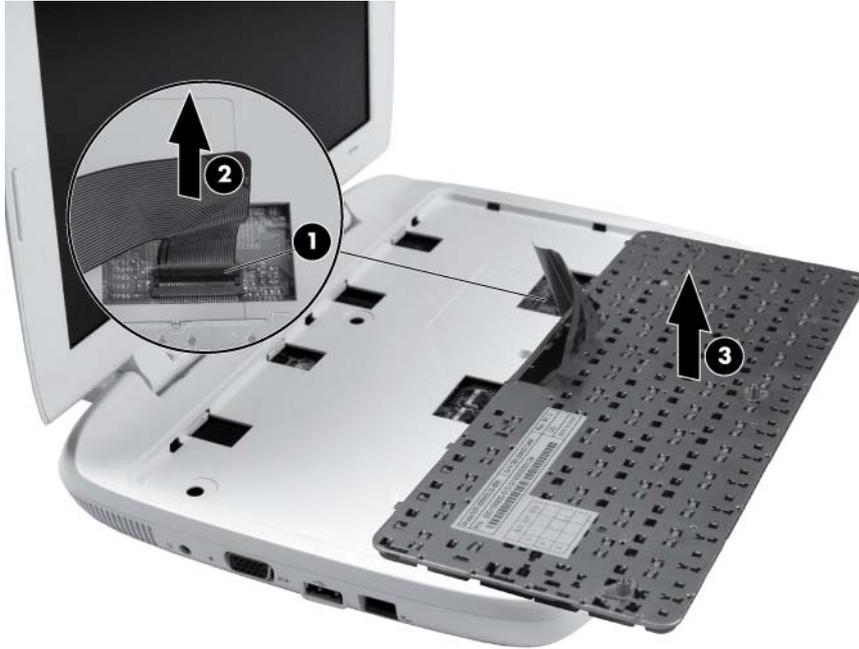


5. Lift up on the top edge of the keyboard and hold it at an angle.



6. Release the zero insertion force (ZIF) connector (1) to which the keyboard cable is attached.

7. Disconnect the cable (2), and then remove the keyboard (3).



Reverse this procedure to install the keyboard.

## Top cover

Description	Spare part number
<b>Top cover</b> (includes TouchPad and security cable slot bracket)	615965-001

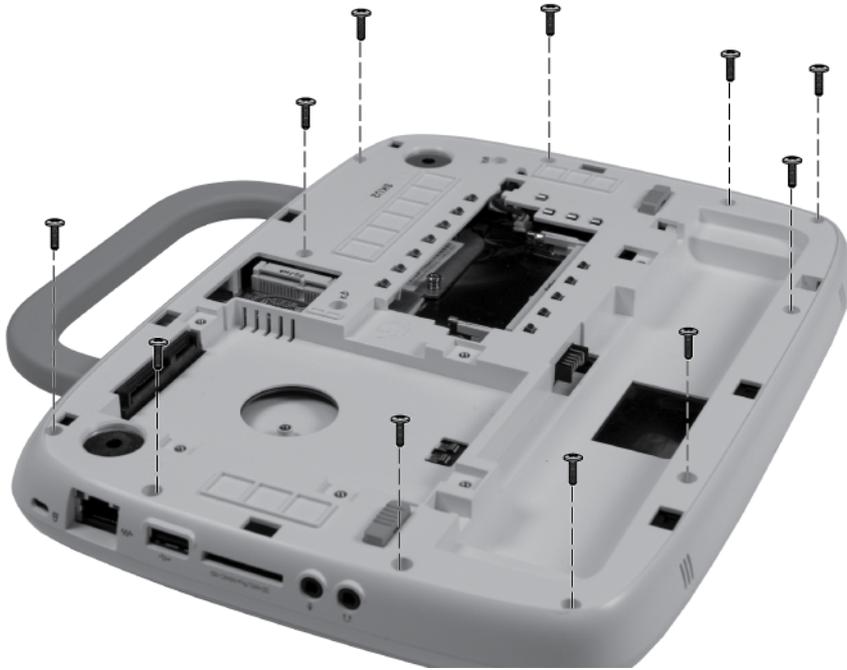
Before removing the top cover, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the following components:
  - a. Battery (see [Battery on page 30](#)).
  - b. Service access cover (see [Service access cover on page 31](#)).
  - c. Keyboard (see [Keyboard on page 38](#))

Remove the top cover:

1. Turn the computer upside down, with the front toward you.

2. Remove the 11 Phillips 2.0x5.5 screws (1) that secure the top cover to the base enclosure.

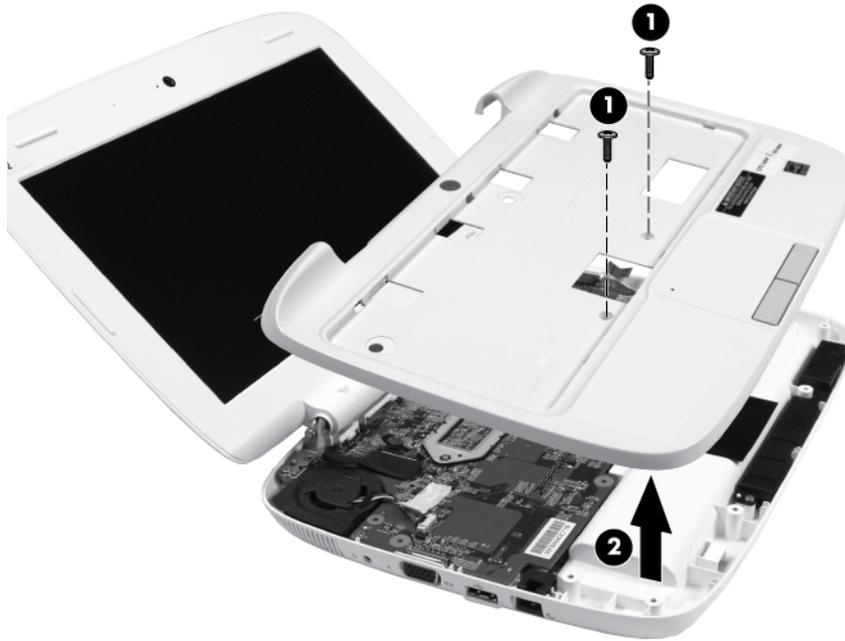


3. Turn the computer right-side up, with the front toward you.
4. Open the computer as far as possible.
5. Release the zero insertion force (ZIF) connectors (1) to which the TouchPad and TouchPad button cables are connected.
6. Remove the cables (2).



7. Remove the 2 Phillips PM2.0x5.5 screws (1) that secure the top cover to the base enclosure.

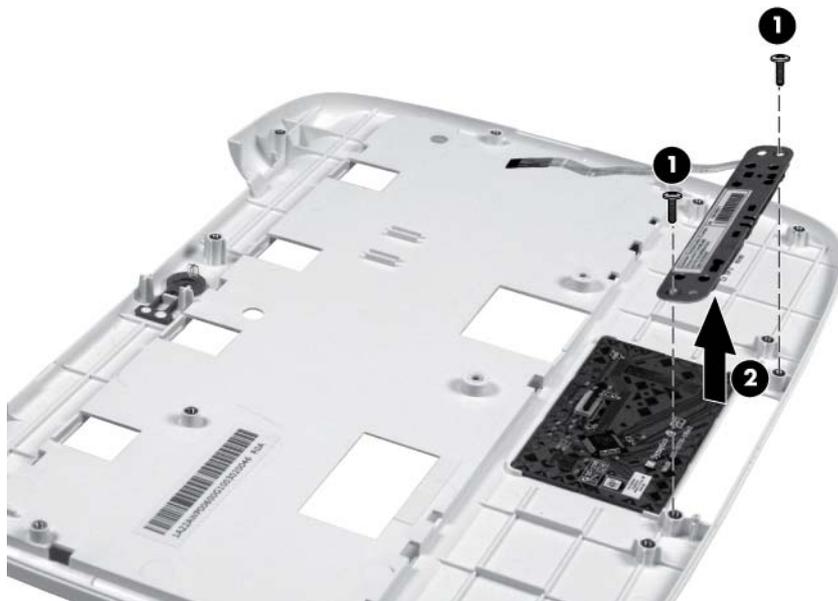
8. Lift the top cover (2) straight up to remove it from the base enclosure.



If it is necessary to replace the TouchPad buttons, follow these steps:

 **NOTE:** The TouchPad buttons and cables are available using spare part number 615967-001.

1. Remove the 2 Phillips 2.0x4.0 screws (1) that secure the TouchPad buttons to the top cover.
2. Remove the TouchPad buttons (2) from the top cover.



If it is necessary to replace the TouchPad cable, follow these steps:

 **NOTE:** The TouchPad cable is available in the Cable Kit, spare part number 615961-001. For more information about the Cable Kit, see [Miscellaneous parts on page 21](#).

1. Release the ZIF connector **(1)** to which the TouchPad cable is connected.
2. Disconnect the TouchPad cable **(2)** from the TouchPad.

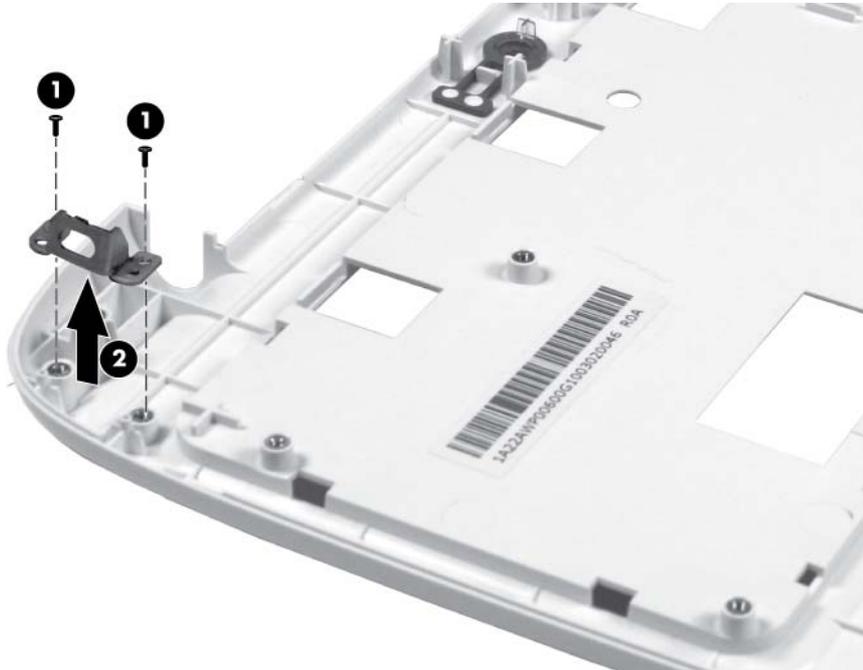


If it is necessary to replace the security cable slot bracket, follow these steps:

 **NOTE:** The security cable slot bracket is available in the top cover kit, spare part number 615965-001.

1. Remove the 2 Phillips 2.0x4.0 screws **(1)** that secure the security cable slot bracket to the top cover.

2. Remove the security cable slot bracket (2) from the top cover.



Reverse this procedure to reassemble and install the top cover.

## Speaker

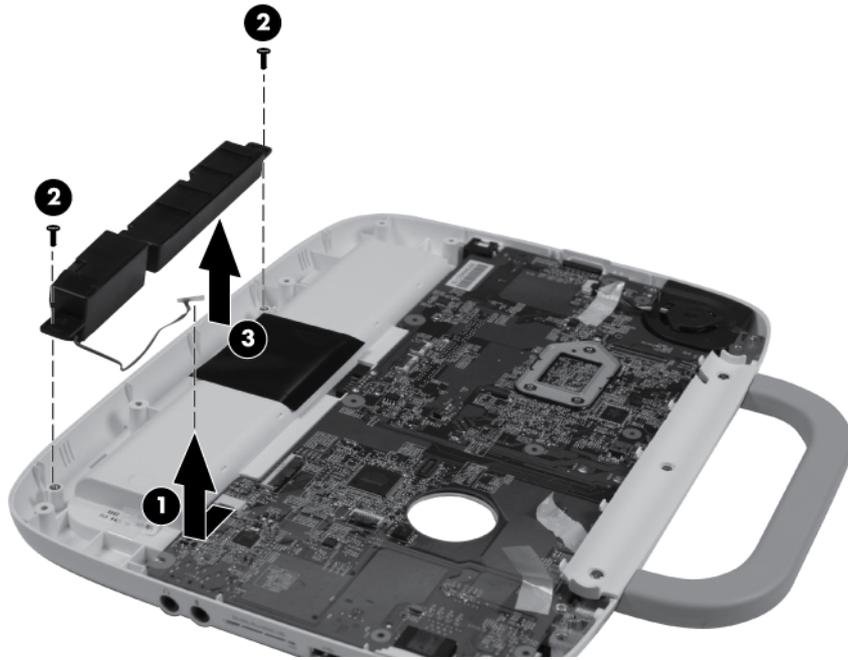
Description	Spare part number
Speaker	619573-001

Before removing the speaker, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the following components:
  - a. Battery (see [Battery on page 30](#))
  - b. Service access cover (see [Service access cover on page 31](#))
  - c. Keyboard (see [Keyboard on page 38](#))
  - d. Top cover (see [Top cover on page 41](#))

Remove the speaker:

1. Disconnect the speaker cable (1) from the system board.
2. Remove the 2 Phillips 2.0x5.5 screws (2) that secure the speaker to the base enclosure.
3. Remove the speaker (3) from the base enclosure.



Reverse this procedure to install the speaker.

## Display assembly

Description	Spare part number
<b>Display panel</b> — <b>25.65-cm</b> (10.1-in) Wide Super VGA (WSVGA) 1024x600 LCD	615968-001
See <a href="#">Display assembly components on page 18</a> for a comprehensive list of display assembly spare parts.	
<b>Display Hinge Kit</b> (includes left and right display panel hinges, brackets, and screws)	619574-001
<b>Speaker</b>	619573-001
<b>Display back cover</b> (includes shielding)	
For models with a handle	619577-001
For models without a handle	626122-001
<b>Display bezel</b>	619578-001

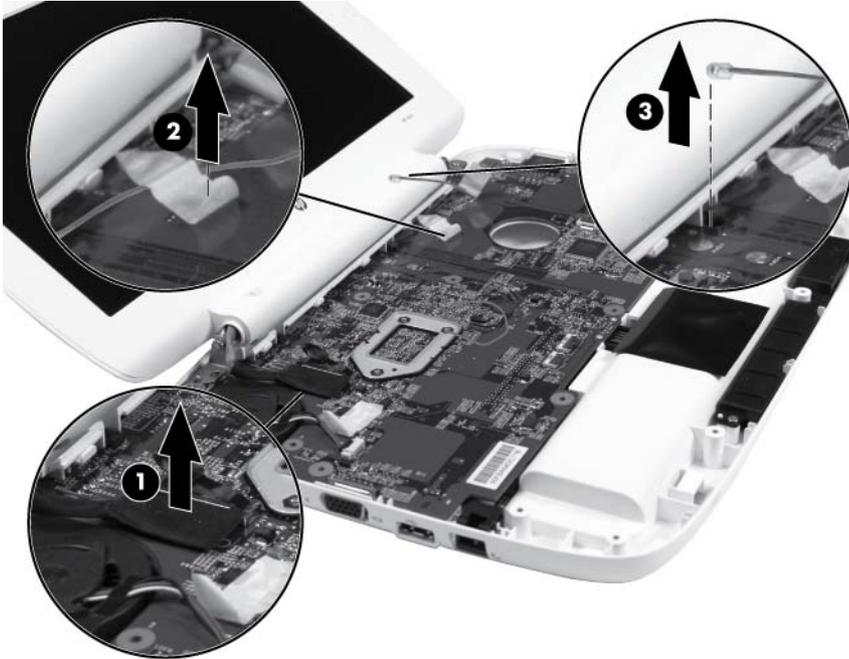
Before removing the display assembly, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the following components:
  - a. Battery (see [Battery on page 30](#))
  - b. Service access cover (see [Service access cover on page 31](#))
  - c. Keyboard (see [Keyboard on page 38](#))
  - d. Top cover (see [Top cover on page 41](#))

Remove the display assembly:

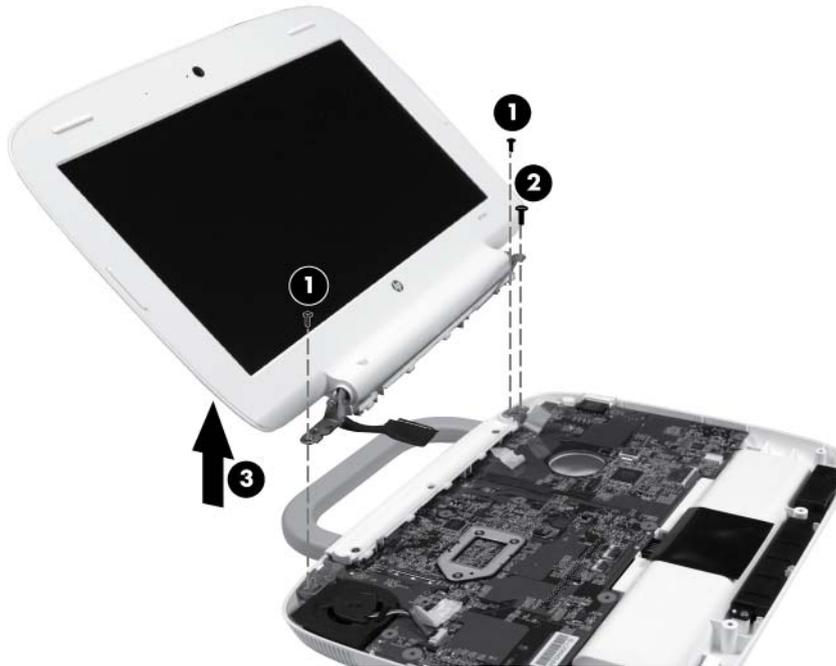
1. Disconnect the display cable **(1)** from the system board.
2. Release the tape **(2)** securing the WLAN antenna.

3. Remove the WLAN antenna from the routing channel (3) on the system board.



△ **CAUTION:** Support the display assembly when removing the following screws. Failure to support the display assembly can result in damage to the display assembly and other device components.

4. Remove the 2 Phillips 2.0×4.0 screws (1) and the Phillips 2.0×5.5 screw (2) that secure the display assembly to the computer.
5. Remove the display assembly (3).



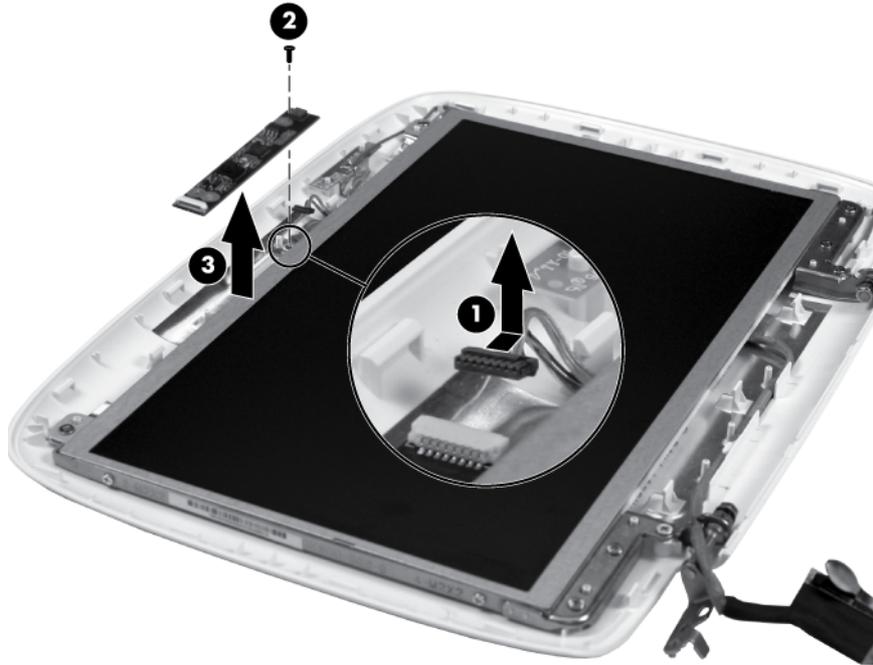
6. If it is necessary to replace the rubber bumpers on the display bezel, pry them off with a flexible tool and peel them away from the bezel. The rubber bumpers are available in the Rubber Kit, spare part number 615963-001.



7. If it is necessary to replace the display bezel, follow these steps:
  - a. Flex the inside edges of the top (1), the left and right sides (2), and then the bottom (3) of the display bezel, until the bezel disengages from the display back cover.
  - b. Remove the display bezel (4).

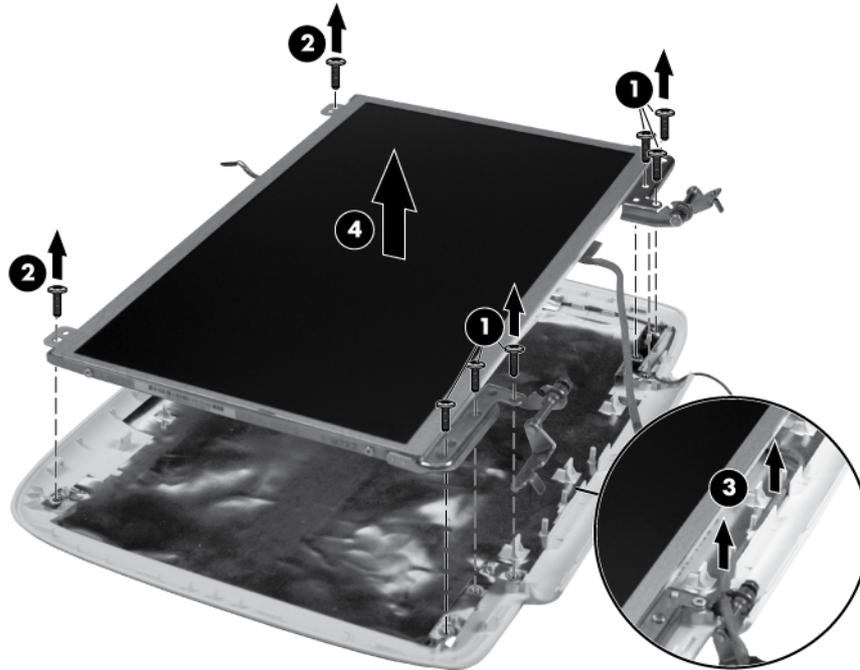


8. If it is necessary to replace the webcam module, follow these steps:
  - a. Disconnect the webcam cable (1) from the webcam.
  - b. Remove the Phillips 2.0x3.0 screw (2) that secures the webcam module to the display back cover.
  - c. Remove the webcam (3).



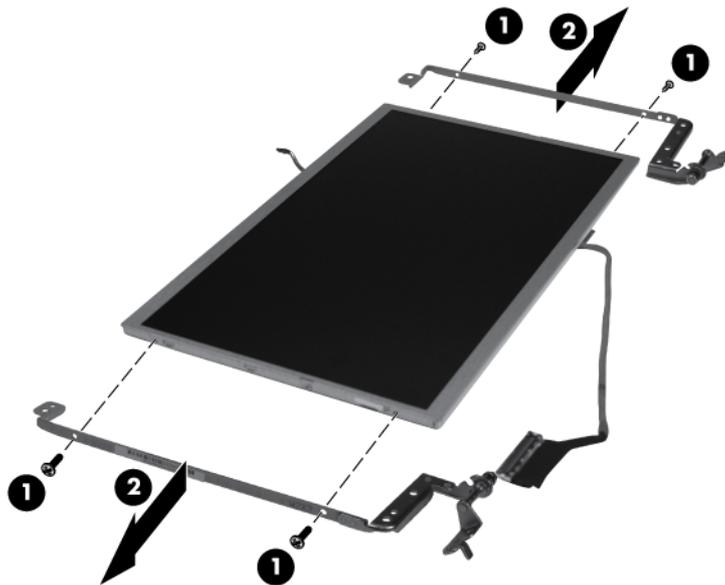
9. If it is necessary to replace the display panel, follow these steps:
  - a. Remove the 6 Phillips 2.5x5.0 screws (1) and the 2 Phillips 2.0x3.0 screws (2) that secure the display panel to the display back cover.
  - b. Remove the display cable from the routing channel (3) on the back cover.

- c. Remove the display panel (4) from the display back cover.



10. If it is necessary to replace the display hinges, follow these steps:

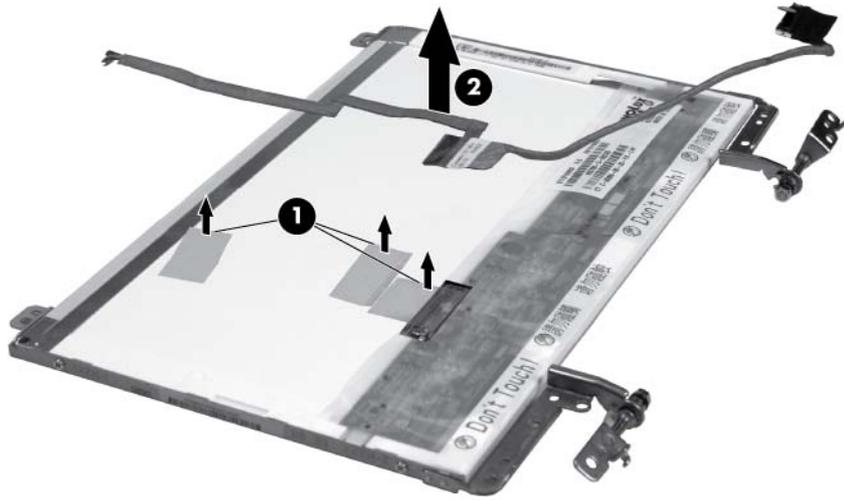
- a. Remove the 2 Phillips 2.0×2.0 screws (1) that secure each hinge to the display back cover.  
b. Remove the hinges (2).



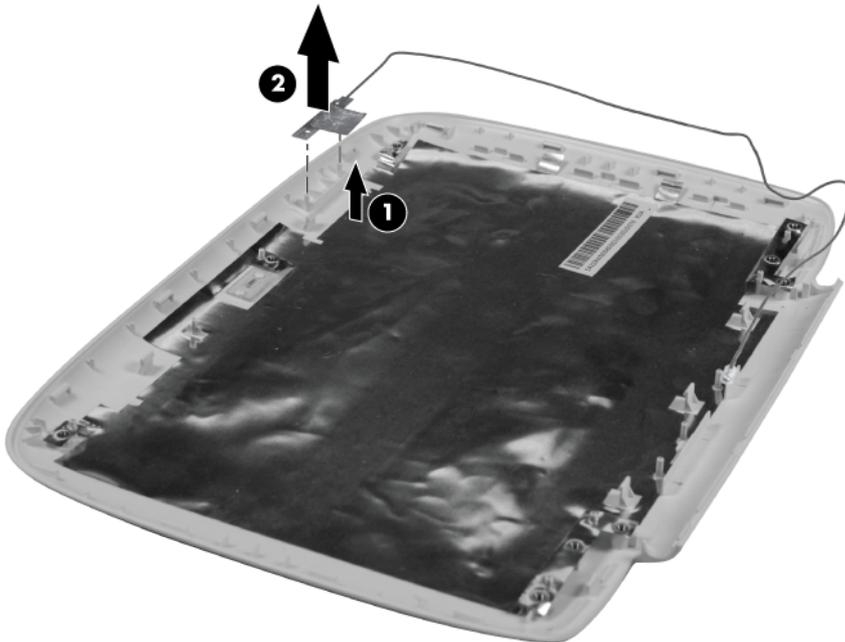
11. If it is necessary to replace the display panel cable, follow these steps:

- a. Peel back the Mylar protection on the back of the display panel (1).

- b. Disconnect the display panel cable (2).



12. If it is necessary to replace the wireless antenna transceiver and cable, detach the cable from the adhesive (1) that secures it to the display back cover, and then remove the cable (2).



Reverse this procedure to reassemble and install the display assembly.

## Handle (select models only)

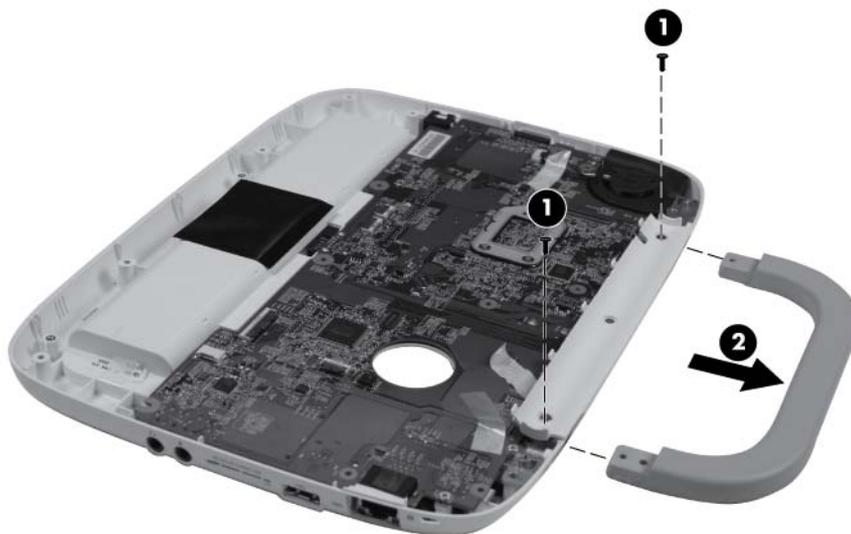
Description	Spare part number
Handle Kit (includes brackets and screws) (10 Handle Kits per package)	615966-001

Before removing the handle, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the following components:
  - a. Battery (see [Battery on page 30](#))
  - b. Service access cover (see [Service access cover on page 31](#))
  - c. Keyboard (see [Keyboard on page 38](#))
  - d. Top cover (see [Top cover on page 41](#))
  - e. Display assembly (see [Display assembly on page 47](#))

Remove the handle:

1. Remove the 2 Phillips 2.0x9.0 screws (1) that secure the handle bracket and handle to the base enclosure.
2. Remove the handle (2).



3. Remove the Phillips 2.0×6.0 screw (1) that secures the handle bracket to the base enclosure.
4. Remove the handle bracket (2).



Reverse this procedure to install the handle.

## System board

Description	Spare part number
<b>System board</b> (includes Intel Atom N455, 1.66-GHz processor, 512-KB L2 cache, and replacement thermal material)	615969-001

Before removing the system board, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the following components:
  - a. Battery (see [Battery on page 30](#))
  - b. Service access cover (see [Service access cover on page 31](#))
  - c. RTC battery (see [RTC battery on page 34](#))
  - d. Memory module (see [Memory module on page 32](#))
  - e. WLAN module (see [WLAN module on page 35](#))

- f. Hard drive (see [Hard drive assembly on page 36](#))
- g. Keyboard (see [Keyboard on page 38](#))
- h. Top cover (see [Top cover on page 41](#))
- i. Display assembly (see [Display assembly on page 47](#))
- j. Speaker (see [Speaker on page 45](#))
- k. Handle (see [Handle \(select models only\) on page 53](#))

When replacing the system board, be sure that the following components are removed from the defective system board and installed on the replacement system board:

- WLAN module (see [WLAN module on page 35](#))
- Memory module (see [Memory module on page 32](#))
- RTC battery (see [RTC battery on page 34](#))
- Fan and heat sink assembly (see [Fan and heat sink assembly on page 59](#))

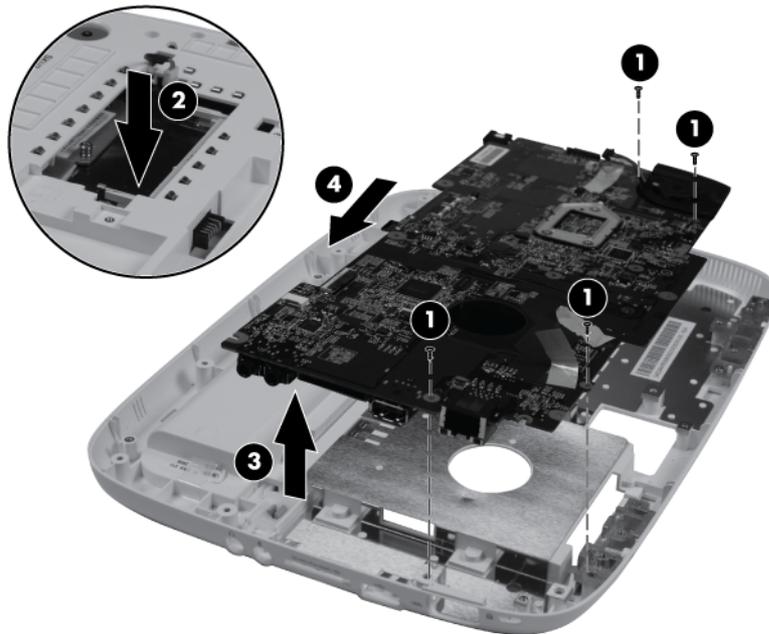
Remove the system board:

1. Disconnect the power connector from the system board on the bottom of the computer.



2. Remove the 4 Phillips 2.0x6.0 screws **(1)** that secure the system board to the base enclosure.
3. Place your fingers underneath the system board in the empty memory module slot **(2)** and gently apply pressure to slightly flex the system board while lifting the left edge **(3)**.

4. Remove the system board (4).



Reverse this procedure to install the system board.

## Modem

Description	Spare part number
56K modem	620340-001

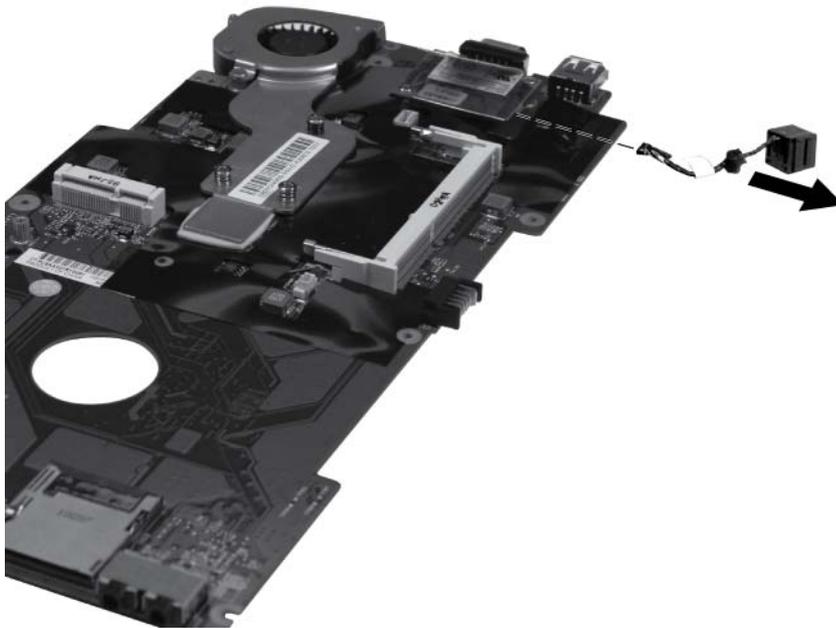
Before removing the modem, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the following components:
  - a. Battery (see [Battery on page 30](#))
  - b. Service access cover (see [Service access cover on page 31](#))
  - c. RTC battery (see [RTC battery on page 34](#))
  - d. Memory module (see [Memory module on page 32](#))
  - e. WLAN module (see [WLAN module on page 35](#))
  - f. Hard drive (see [Hard drive assembly on page 36](#))

- g. Keyboard (see [Keyboard on page 38](#))
- h. Top cover (see [Top cover on page 41](#))
- i. Display assembly (see [Display assembly on page 47](#))
- j. Speaker (see [Speaker on page 45](#))
- k. Handle (see [Handle \(select models only\) on page 53](#))
- l. System board (see [System board on page 54](#))

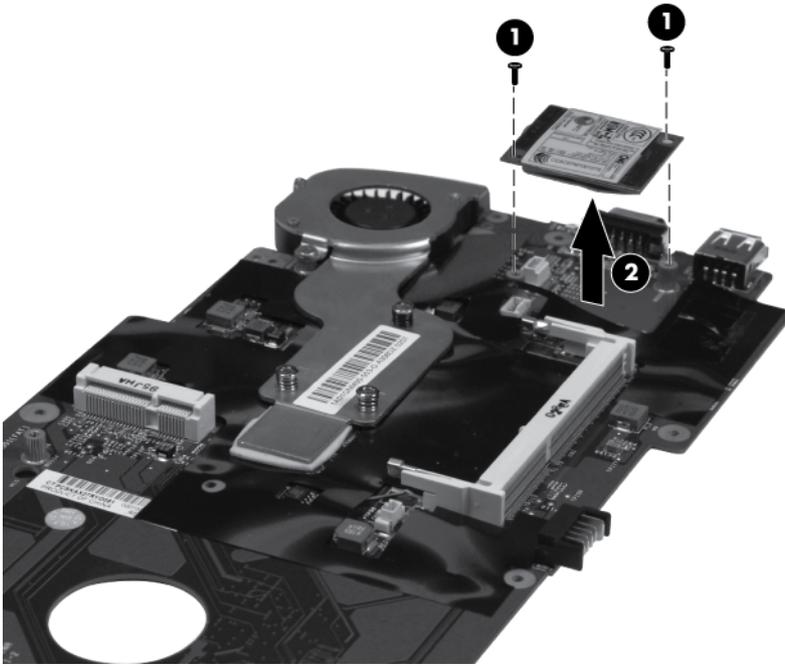
Remove the modem:

1. Disconnect the modem jack cable.



2. Remove the 2 Phillips 2.0×3.0 screws (1) that secure the modem to the system board.

3. Remove the modem (2).



Reverse this procedure to install the modem.

## Fan and heat sink assembly

Description	Spare part number
<b>Fan and heat sink assembly</b> (includes replacement thermal material)	619576-0011

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

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the following components:
  - a. Battery (see [Battery on page 30](#))
  - b. Service access cover (see [Service access cover on page 31](#))
  - c. RTC battery (see [RTC battery on page 34](#))
  - d. Memory module (see [Memory module on page 32](#))
  - e. WLAN module (see [WLAN module on page 35](#))
  - f. Hard drive (see [Hard drive assembly on page 36](#))
  - g. Keyboard (see [Keyboard on page 38](#))
  - h. Top cover (see [Top cover on page 41](#))
  - i. Display assembly (see [Display assembly on page 47](#))
  - j. Speaker (see [Speaker on page 45](#))
  - k. Handle (see [Handle \(select models only\) on page 53](#))
  - l. System board (see [System board on page 54](#))

Remove the fan and heat sink assembly:

1. Disconnect the fan cable from the bottom of the system board.



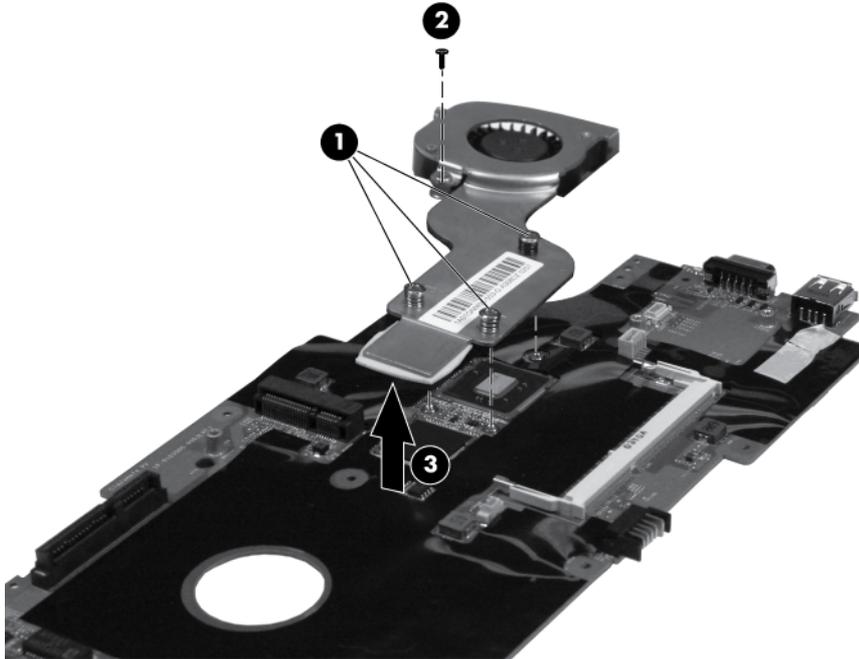
2. Loosen the 3 captive Phillips 2.0x9.0 screws **(1)** that secure the heat sink to the system board.

 **NOTE:** The screws are numbered 1 through 3. Follow this order when loosening the screws.

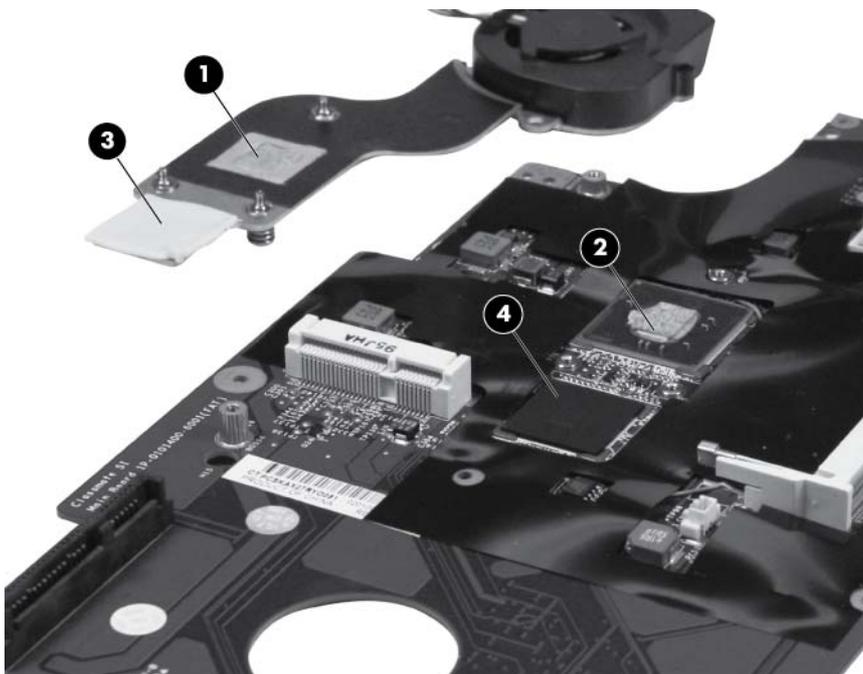
3. Remove the Phillips 2.0x2.5 screw **(2)** that secures the heat sink to the system board.

4. Remove the heat sink assembly (3).

 **NOTE:** Due to the adhesive quality of the thermal material located between the heat sink assembly and system board components, it may be necessary to move the heat sink assembly from side to side to detach the assembly.



 **NOTE:** The thermal material must be thoroughly cleaned from the surfaces of the heat sink assembly and the system board each time the heat sink assembly is removed. Thermal paste (1) is used on the processor (2), and thermal tape (3) is used on the Northbridge chip (4). Replacement thermal material is included with the heat sink assembly and system board spare part kits.



Reverse this procedure to install the fan and heat sink assembly.

---

## 5 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 includes settings for the types of peripherals installed, the startup sequence of the computer, and the amount of system and extended memory.

---

△ **CAUTION:** Use extreme care when making changes in Setup Utility. Errors can prevent the computer from operating properly.

---

### Starting Setup Utility

- Turn on or restart the computer. While the “Press the ESC key for Startup Menu” message is displayed in the lower-left corner of the screen, press **esc**. When the Startup Menu is displayed, press **f10**.

### Using Setup Utility

#### Changing the language of Setup Utility

1. Start Setup Utility.
2. Use the arrow keys to select **System Configuration > Language**, and then press **enter**.
3. Use the arrow keys to select a language, and then press **enter**.
4. When a confirmation prompt with your language selected is displayed, press **enter**.
5. To save your change and exit Setup Utility, use the arrow keys to select **Exit > Exit Saving Changes**, and then press **enter**.

Your change takes effect immediately.

#### Navigating and selecting in Setup Utility

Setup Utility does not support the TouchPad. Navigation and selection are by keystroke.

- To choose a menu or a menu item, use the arrow keys.
- To choose an item in a list or to toggle a field—for example an Enable/Disable field—use either the arrow keys or **f5** and **f6**.
- To select an item, press **enter**.

- To close a text box or return to the menu display, press **esc**.
- To display additional navigation and selection information while Setup Utility is open, press **f1**.

## Displaying system information

1. Start Setup Utility.
2. Select the **File** menu. System information such as the system time and date, and identification information about the computer is displayed.
3. To exit Setup Utility without changing any settings, use the arrow keys to select **Exit > Exit Discarding Changes**, and then press **enter**.

## Restoring factory default settings in Setup Utility

1. Start Setup Utility.
2. Use the arrow keys to select **Exit > Load Setup Defaults**, and then press **enter**.
3. When the Setup Confirmation is displayed, press **enter**.
4. To save your change and exit Setup Utility, use the arrow keys to select **Exit > Exit Saving Changes**, and then press **enter**.

The Setup Utility factory settings take effect when the computer restarts.



---

**NOTE:** Your password, security, and language settings are not changed when you restore the factory settings.

---

## Exiting Setup Utility

- To exit Setup Utility and save your changes from the current session:  
If the Setup Utility menus are not visible, press **esc** to return to the menu display. Then use the arrow keys to select **Exit > Exit Saving Changes**, and then press **enter**.
- To exit Setup Utility without saving your changes from the current session:  
If the Setup Utility menus are not visible, press **esc** to return to the menu display. Then use the arrow keys to select **Exit > Exit Discarding Changes**, and then press **enter**.

## Updating the BIOS

Updated versions of the BIOS may be available on the HP Web site.

Most BIOS updates on the HP Web site 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 the BIOS needs to be updated, you must compare the BIOS version information to the version information of the available updates.

To determine the BIOS version on the computer (also known as *ROM date* and *System BIOS*), start Setup Utility.

If the version information is not displayed, use the arrow keys to select the **File** menu. BIOS and other system information is displayed.

To exit Setup Utility, use the arrow keys to select **Exit > Exit Discarding Changes**, and then press **enter**.

## Downloading a BIOS update

---

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

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

Do not shut down the computer or initiate Suspend or Hibernation.

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

---

1. Access the page on the HP Web site that provides software for your computer.
2. Follow the on-screen instructions to identify your computer and access the BIOS update you want to download.
3. At the download area, follow these steps:
  - a. Identify the most current BIOS update. If it is later than the BIOS version currently installed on your computer, 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.

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 computer 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 displayed on the screen after the download is complete.

---

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

---

# 6 Specifications

## Computer specifications

	Metric	U.S.
<b>Dimensions</b>		
Depth with handle	250.6 mm	9.87 in
Depth without handle	206 mm	8.11 in
Width	276 mm	10.87 in
Height	39.8 mm	1.57 in
<b>Weight</b>		
10.1-in. LCD, equipped with a 3-cell battery, hard drive, 1-GB memory, WLAN module, and 1 wireless antenna	1.46 kg	3.2 lb
10.1-in. LCD, equipped with a 6-cell battery, hard drive, 1-GB memory, WLAN module, and 1 wireless antenna	1.57 kg	3.5 lb
<b>Input power</b>		
Operating voltage	19.5 V dc @ 2.05 A	19.5 V dc @ 2.05 A
Operating current	1.58 A	1.58 A
<b>Temperature</b>		
Operating	5°C to 35°C	41°F to 95°F
Nonoperating	-20° to 60°C	-4 to 140° F
<b>Relative humidity (noncondensing)</b>		
Operating	10% to 90%	10% to 90%
Nonoperating	5% to 95%	5% to 95%
<b>Maximum altitude (unpressurized)</b>		
Operating	-15 m to 3,048 m	-50 to 10,000 ft
Nonoperating	-15 m to 12,192 m	-50 to 40,000 ft
<b>NOTE:</b> Applicable product safety standards specify thermal limits for plastic surfaces. The device operates well within this range of temperatures.		

## 25.65-cm (10.1-in), Wide Super VGA (WSVGA) display specifications

	Metric	U.S.
<b>Dimensions</b>		
Height	23.44 cm	9.23 in
Width	25.65 cm	10.1 in
Diagonal	25.53 cm	10.05 in
<b>Number of colors</b>	262,144	
<b>Contrast ratio</b>	500:1 (typical)	
<b>Brightness</b>	200 nits (typical)	
<b>Pixel resolution</b>		
Pitch	0.2175 × 0.2088 mm	
Format	1024x600	
<b>Configuration</b>	RGB vertical stripe	
<b>Backlight</b>	White LED	
<b>Viewing angle</b>	+/-45° horizontal, +20/-45° vertical (typical)	

## Hard drive specifications

	160-GB*	
<b>Dimensions</b>		
Height	9.5 mm	
Width	70 mm	
Weight	93.5 g	
<b>Interface type</b>		SATA
<b>Transfer rate</b>		1175 MB/sec (maximum)
<b>Security</b>		ATA security
<b>Seek times</b> (typical read, including setting)		
Single track	1 ms	
Average	14 ms	
Maximum	30 ms	
<b>Disc rotational speed</b>		5400 rpm
*1 GB = 1 billion bytes when referring to hard drive storage capacity. Actual accessible capacity is less. Actual drive specifications may differ slightly.		
<b>NOTE:</b> Certain restrictions and exclusions apply. Contact technical support for details.		

---

# 7 Backup and recovery

Recovery after a system failure is as good as your most recent backup. As you add new software and data files, you should continue to back up your system on a regular basis to maintain a reasonably current backup.

Select the section in this chapter that applies to the operating system installed on your computer.

## Windows 7 backup and recovery

To protect your information, use Windows Backup and Restore to back up individual files and folders, back up your entire hard drive (select models only), or create system image discs. In case of system failure, you can use the backup files to restore the contents of your computer.

Windows Backup and Restore provides the following options:

- Backing up individual files and folders
- Creating a system image (select models only)
- Scheduling automatic backups (select models only)
- Recovering individual files
- Restoring the computer to its factory state

---

 **NOTE:** For detailed instructions, perform a search for these topics in Help and Support.

**NOTE:** In case of system instability, HP recommends that you print the recovery procedures and save them for later use.

---

### Backing up your information

Recovery after a system failure is as complete as your most current backup. You should create system image discs (select models only) and your initial backup immediately after software setup. As you add new software and data files, you should continue to back up your system on a regular basis to maintain a reasonably current backup. Your initial and subsequent backups allow you to restore your data and settings if a failure occurs.

You can back up your information to optical discs, using an external USB optical drive (purchased separately), to an optional external hard drive, or to a network drive.

Note the following when backing up:

- Store personal files in the Documents library, and back it up regularly.
- Back up templates that are stored in their associated programs.
- Save customized settings that appear in a window, toolbar, or menu bar by taking a screen shot of your settings. The screen shot can be a time-saver if you have to reset your preferences.

To create a screen shot:

1. Display the screen you want to save.
2. Copy the screen image:  
  
To copy only the active window, press **alt+prt sc**.  
  
To copy the entire screen, press **shift+prt sc**.
3. Open a word-processing document, and then select **Edit > Paste**.  
  
The screen image is added to the document.
4. Save the document.

- When backing up to discs, use any of the following types of discs (purchased separately): CD-R, CD-RW, DVD+R, DVD+R DL, DVD-R, DVD-R DL, or DVD±RW. The discs you use will depend on the type of external optical drive attached to your computer.

---

 **NOTE:** DVDs and DVDs with double-layer (DL) support store more information than CDs, so using them for backup reduces the number of recovery discs required.

---

- When backing up to discs, number each disc before inserting it into the external optical drive attached to your computer.

To create a backup using Backup and Restore, follow these steps:

---

 **NOTE:** Be sure that the computer is connected to AC power before you start the backup process.

---

**NOTE:** The backup process may take over an hour, depending on file size and the speed of the computer.

---

1. Select **Start > All Programs > Maintenance > Backup and Restore**.
2. Follow the on-screen instructions to set up your backup schedule and to create system image discs.

---

 **NOTE:** Windows includes the User Account Control feature to improve the security of your computer. You may be prompted for your permission or password for tasks such as installing software, running utilities, or changing Windows settings. Refer to Windows Help and Support for more information.

---

## Performing a recovery

In case of system failure or instability, the computer provides Windows Backup and Restore to recover information you have previously backed up.

---

 **NOTE:** If you are unable to boot (start up) your computer and you cannot use the system image discs you previously created (select models only), you may use the System Recovery disc that came with the unit by inserting the System Recovery disc into an external optical drive and booting from the external optical drive. You may need to change boot order via F10–setup to complete this operation.

---

**NOTE:** The use of optical discs requires an external USB optical drive (purchased separately).

---

## Using the Windows recovery tools

To recover information you previously backed up, follow these steps:

1. Select **Start > All Programs > Maintenance > Backup and Restore**.
2. Follow the on-screen instructions to recover your system settings, your computer (select models only), or your files.

---

 **NOTE:** Windows includes the User Account Control feature to improve the security of your computer. You may be prompted for your permission or password for tasks such as installing software, running utilities, or changing Windows settings. Refer to Windows Help and Support for more information.

---

## Using a Windows 7 operating system DVD (purchased separately)

If you are unable to boot (start up) your computer and you cannot use the system image discs you created immediately after setup, or the System Recovery disc that came with the unit, you must

purchase a Windows 7 operating system DVD to reboot the computer and repair the operating system. Make sure that your most recent backup (stored on discs or on an external drive) is easily accessible. To order a Windows 7 operating system DVD, go to <http://www.hp.com/support>, select your country or region, and then follow the on-screen instructions. You can also order the DVD by calling technical support. For contact information, refer to the *Worldwide Telephone Numbers* booklet included with the computer.

---

△ **CAUTION:** Using a Windows 7 operating system DVD completely erases hard drive contents and reformats the hard drive. All files you have created and any software installed on the computer are permanently removed. When reformatting is complete, the recovery process helps you restore the operating system, as well as drivers, software, and utilities.

---

To initiate recovery using a Windows 7 operating system DVD, follow these steps:

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📝 **NOTE:** This process takes several minutes. Before rebooting, make sure you have changed the legacy boot order in the F10 utility so that the USB CD-ROM drive is the first choice.

---

1. If possible, back up all personal files.
2. Restart the computer, and then insert the Windows 7 operating system DVD into the external optical drive before the Windows operating system loads.
3. When prompted, press any keyboard key.
4. Follow the on-screen instructions.
5. Click **Next**.
6. Select **Repair your computer**.
7. Follow the on-screen instructions.

# Windows XP backup and recovery

To protect your information, back up files and folders regularly. In case of system failure, you can use the backup files to restore your personal information.

Windows provides the following options:

- Creating restore points
- Restoring your system configuration to a previous state

---

 **NOTE:** For detailed instructions, perform a search for these topics in Help and Support.

**NOTE:** In case of system instability, HP recommends that you print the recovery procedures and save them for later use.

---

## Backing up your information

Recovery after a system failure is as complete as your most current backup. You should create your initial backup immediately after software setup. As you add new software and data files, you should continue to back up your system on a regular basis to maintain a reasonably current backup.

You can back up individual files or folders to an optional external hard drive or to a network drive.

Note the following when backing up:

- Store personal files in the My Documents folder, and back it up periodically.
- Back up templates stored in their associated programs.
- Save customized settings that appear in a window, toolbar, or menu bar by taking a screen shot of your settings. The screen shot can be a time saver if you have to reset your preferences.

To copy the screen and paste it into a word-processing document:

- a. Display the screen you want to save.
- b. Copy the screen image:  
To copy only the active window, press **alt+prt sc**.  
To copy the entire screen, press **shift+prt sc**.
- c. Open a word-processing document and click **Edit > Paste**.  
The screen image is added to the document.
- d. Save the document.

---

 **NOTE:** Be sure that the computer is connected to AC power before you start the backup process.

**NOTE:** The backup process may take over an hour, depending on file size and the speed of the computer.

---

To create a system restore point, follow these steps:

1. Select **Start > All Programs > Accessories > System Tools > System Restore**.
2. Follow the on-screen instructions to create a restore point.

## Performing a recovery

In case of system failure or instability, you can use the *System Recovery* disc (included with your computer) to recover your operating system and programs installed at the factory.

### Restoring your computer to an earlier state

To restore the computer to an earlier state, follow these steps:

1. If possible, back up all personal files.
2. Click **Start > All Programs > Accessories > System Tools > System Restore**.

The System Restore Wizard opens.

3. Click **Next** and select a restore point.
4. Follow the on-screen instructions.

---

 **NOTE:** For additional information on initiating a recovery in Windows, perform a search for this topic in [Help and Support](#).

---

### Recovering the operating system and programs

 **CAUTION:** The recovery process reformats and completely erases the hard drive. All files you have created and any software installed on the computer are permanently removed. The recovery process reinstalls the original operating system as well as software and drivers. Software, drivers, and updates not installed by HP must be manually reinstalled. Personal files must be restored from a backup.

---

To recover your operating system and programs, follow these steps:

1. If possible, back up all personal files.
2. Insert the *Operating System* disc into the optical drive.
3. Shut down the computer.
4. Turn on the computer and boot from the external optical drive.

---

 **NOTE:** The boot order may need to be changed via F10-Setup.

---

5. Follow the on-screen instructions to install the original factory image.

# Linux backup and recovery

## Backing up your information

You should back up your computer files on a regular schedule to maintain a current backup. You can manually back up your information to an optional external drive, a network drive, or discs. Back up your system at the following times:

- At regularly scheduled times
- Before the computer is repaired or restored
- Before you add or modify hardware or software

## Performing a system recovery

Recovery allows you to repair or restore the computer to its original factory state. Recovery works from a dedicated recovery partition on the hard drive. This type of recovery restores the computer to its factory condition without using recovery discs.

---

△ **CAUTION:** Using Recovery completely erases hard drive contents and reformats the hard drive. All files you have created and any software installed on the computer are permanently removed. The recovery tool reinstalls the original operating system and HP programs and drivers that were installed at the factory. Software, drivers, and updates not installed by HP must be manually reinstalled. Personal files must be restored from a backup.

---

To restore the computer from the partition, follow these steps:

1. If possible, back up all personal files.
2. Restart the computer.
3. Using the arrow keys, select **Recovery**, and then press **enter**.
4. Follow the on-screen instructions.

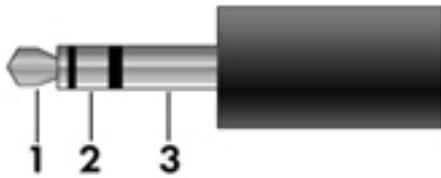
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📄 **NOTE:** If you are unable to boot (start up) your computer from the hard drive partition with the primary operating system or from the recovery partition, you must purchase a *SUSE Linux Enterprise Desktop Operating System* DVD to reinstall the operating system. For additional information, refer to the *Worldwide Telephone Numbers* booklet.

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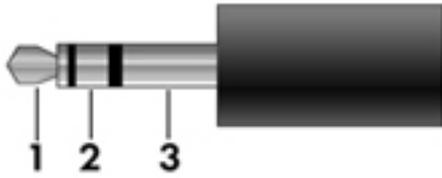
## 8 Connector pin assignments

### Audio-in (microphone)



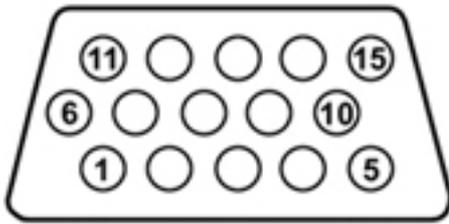
Pin	Signal
1	Audio signal in
2	Audio signal in
3	Ground

## Audio-out (headphone)



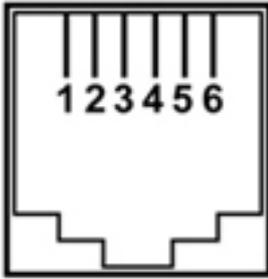
Pin	Signal
1	Audio out, left channel
2	Audio out, right channel
3	Ground

## External monitor



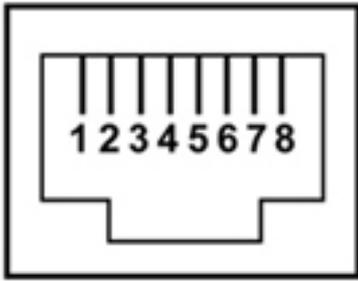
Pin	Signal
1	Red analog
2	Green analog
3	Blue analog
4	Not connected
5	Ground
6	Ground analog
7	Ground analog
8	Ground analog
9	+5 VDC
10	Ground
11	Monitor detect
12	DDC 2B data
13	Horizontal sync
14	Vertical sync
15	DDC 2B clock

## RJ-11 (modem)



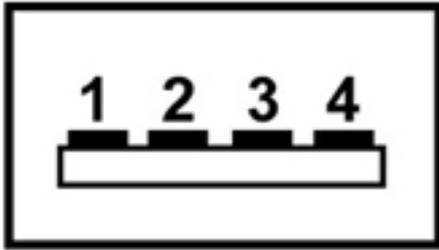
Pin	Signal
1	Unused
2	Tip
3	Ring
4	Unused
5	Unused
6	Unused

## RJ-45 (network)



Pin	Signal
1	Transmit +
2	Transmit -
3	Receive +
4	Unused
5	Unused
6	Receive -
7	Unused
8	Unused

# Universal Serial Bus



Pin	Signal
1	+5 VDC
2	Data -
3	Data +
4	Ground

---

## 9 Power cord set requirements

The wide range input feature of the device 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 device 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 device is used.

### Requirements for all countries and regions

The requirements listed below are applicable to all countries and regions:

- The length of the power cord set must be at least 1.5 m (5.0 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 device.

## 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	CCC	5
South Korea	EK	4
Sweden	SEMKO	1
Switzerland	SEV	1
Taiwan	BSMI	4
The United Kingdom	BSI	1
The United States	UL	2

1. The flexible cord must be Type HO5VV-F, 3-conductor, 1.0-mm<sup>2</sup> conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country or region where it will be used.
2. The flexible cord must be Type 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-mm<sup>2</sup> conductor size. The wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (7 A, 125 V) configuration.
4. The flexible cord must be Type RVV, 3-conductor, 0.75-mm<sup>2</sup> conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country or region where it will be used.
5. The flexible cord must be Type VCTF, 3-conductor, 0.75-mm<sup>2</sup> conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country or region where it will be used.

---

# 10 Recycling

## Battery

When a 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 computer battery disposal.

## Display

- 
- ⚠ **WARNING!** The backlight contains mercury. Exercise caution when removing and handling the backlight to avoid damaging this component and causing exposure to the mercury.
  - ⚠ **CAUTION:** The procedures in this chapter can result in damage to display components. The only components intended for recycling purposes are the liquid crystal display (LCD) panel and the backlight. When you remove these components, handle them carefully.
  - 📄 **NOTE: Materials Disposal.** This HP product contains mercury in the backlight in the display assembly that might require special handling at end-of-life. Disposal of mercury may be regulated because of environmental considerations. For disposal or recycling information, contact your local authorities, or see the Electronic Industries Alliance (EIA) Web site at <http://www.eiae.org>.
- 

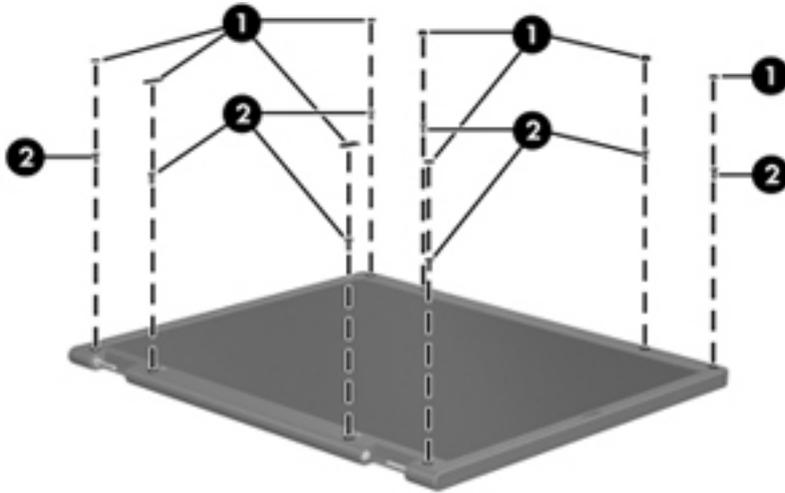
This section provides disassembly instructions for the display assembly. The display assembly must be disassembled to gain access to the backlight **(1)** and the liquid crystal display (LCD) panel **(2)**.



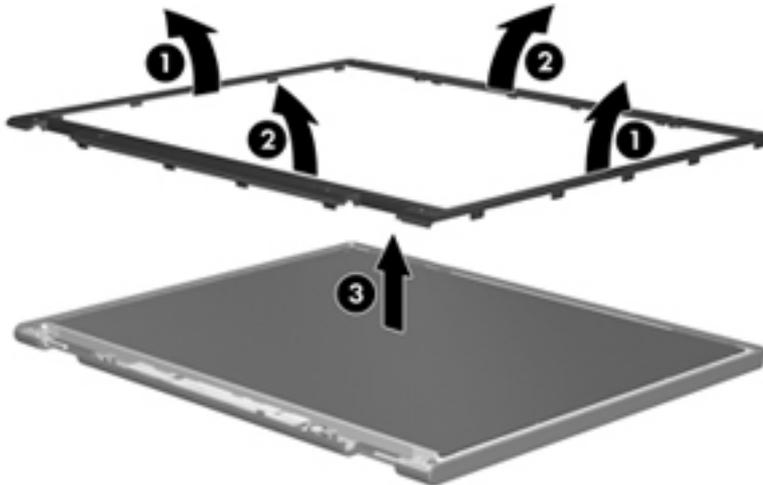
- 
- 📄 **NOTE:** The procedures provided in this chapter are general disassembly instructions. Specific details, such as screw sizes, quantities, and locations, and component shapes and sizes, can vary from one computer model to another.
-

Perform the following steps to disassemble the display assembly:

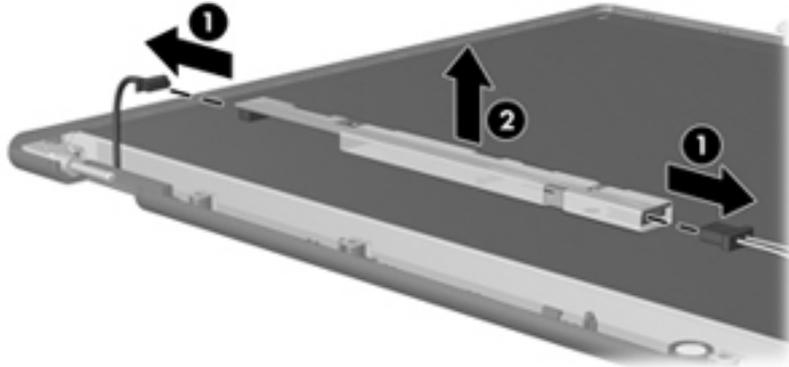
1. Remove all screw covers (1) and screws (2) that secure the display bezel to the display assembly.



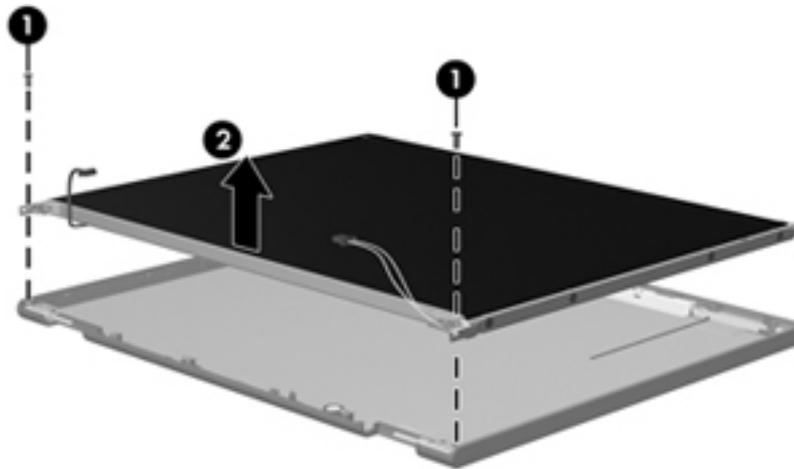
2. Lift up and out on the left and right inside edges (1) and the top and bottom inside edges (2) of the display bezel until the bezel disengages from the display assembly.
3. Remove the display bezel (3).



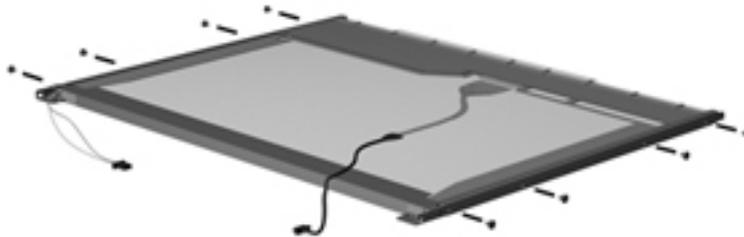
4. Disconnect all display panel cables (1) from the display inverter and remove the inverter (2).



5. Remove all screws (1) that secure the display panel assembly to the display back cover.
6. Remove the display panel assembly (2) from the display back cover.

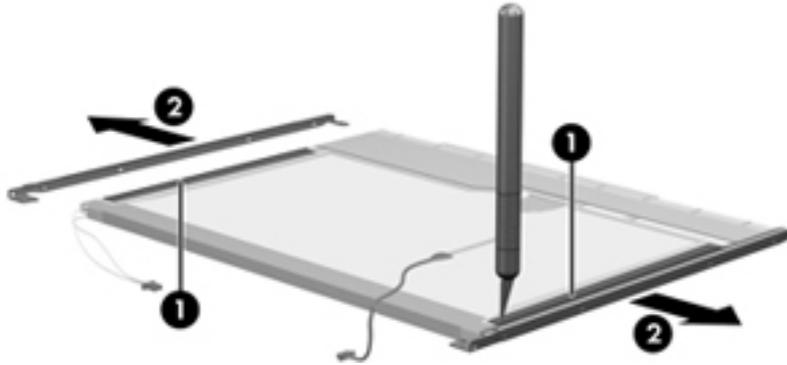


7. Turn the display panel assembly upside down.
8. Remove all screws that secure the display panel frame to the display panel.

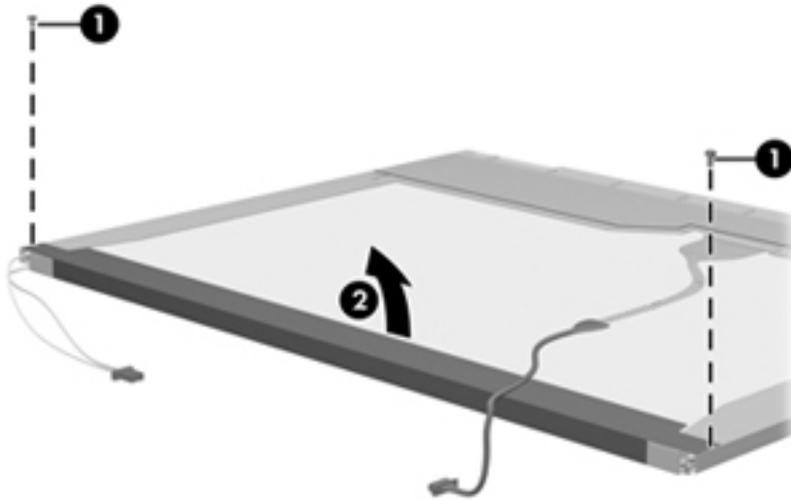


9. Use a sharp-edged tool to cut the tape (1) that secures the sides of the display panel to the display panel frame.

10. Remove the display panel frame (2) from the display panel.

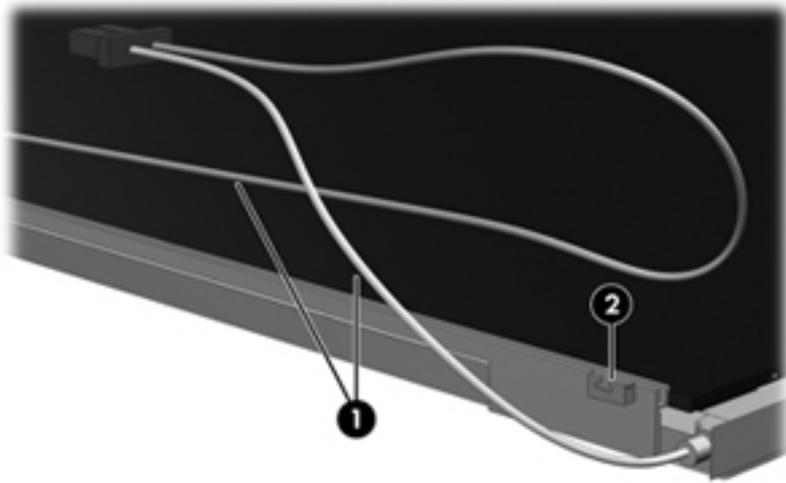


11. Remove the screws (1) that secure the backlight cover to the display panel.
12. Lift the top edge of the backlight cover (2) and swing it outward.



13. Remove the backlight cover.
14. Turn the display panel right-side up.

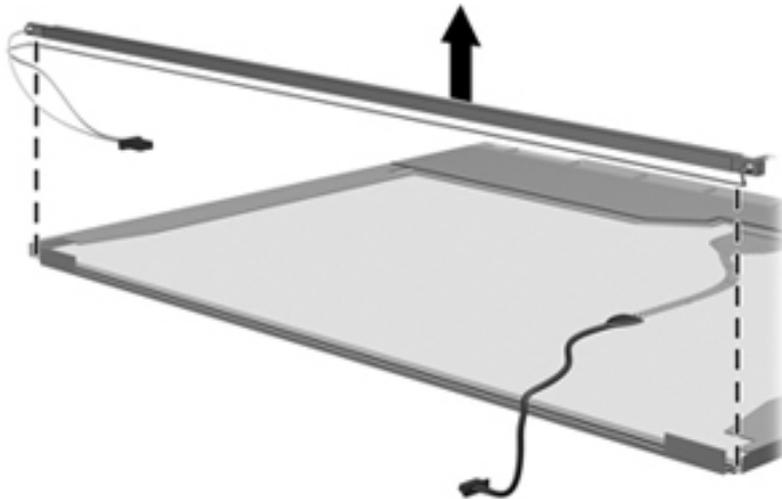
15. Remove the backlight cables (1) from the clip (2) in the display panel.



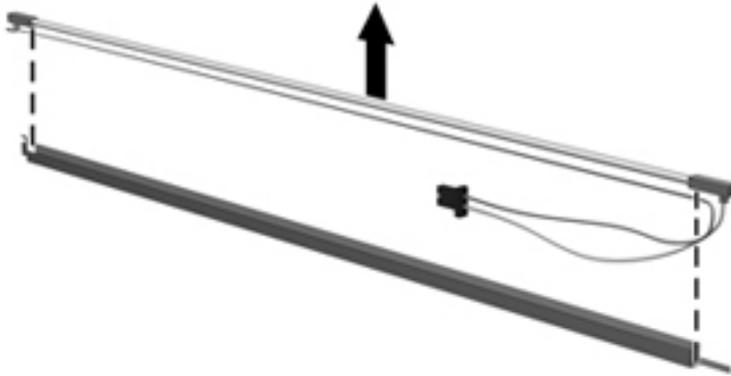
16. Turn the display panel upside down.

**⚠ WARNING!** The backlight contains mercury. Exercise caution when removing and handling the backlight to avoid damaging this component and causing exposure to the mercury.

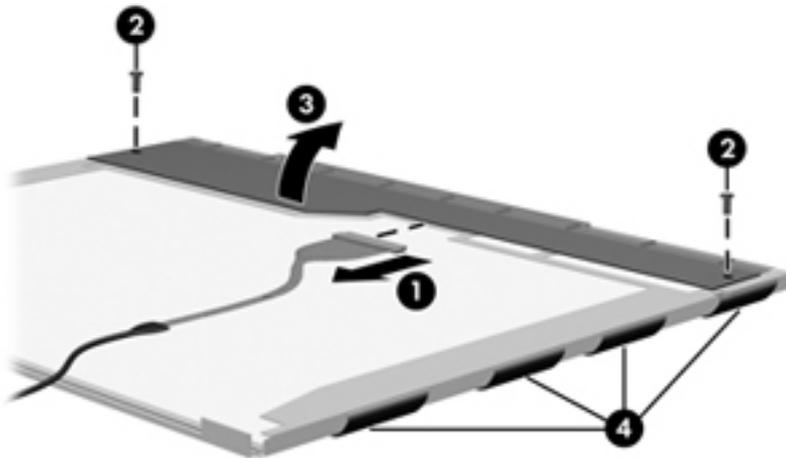
17. Remove the backlight frame from the display panel.



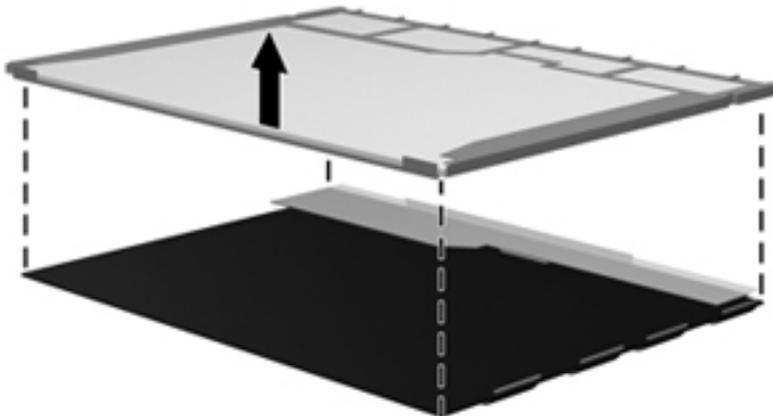
18. Remove the backlight from the backlight frame.



19. Disconnect the display panel cable (1) from the LCD panel.  
20. Remove the screws (2) that secure the LCD panel to the display rear panel.  
21. Release the LCD panel (3) from the display rear panel.  
22. Release the tape (4) that secures the LCD panel to the display rear panel.



23. Remove the LCD panel.



24. Recycle the LCD panel and backlight.

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