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Printed in

## Upgrading and Servicing Guide







## Removing and Replacing the Front Panel



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# Removing and Replacing the Front Panel



10–20 minutes

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## Before You Begin

Observe the following requirements before removing and replacing the front panel.



### Tools Needed

- Flathead screwdriver

You can use a flathead screwdriver with the following screw (torque screw).



**CAUTION:** Static electricity can damage the electronic components inside the computer. Discharge static electricity by touching the metal cage of the computer before touching any internal parts or electronic components.

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### WARNING:

- **Never open the cover with the power cord attached or power applied. You may damage your computer or be injured from the spinning fan blades.**
  - **Avoid touching sharp edges inside the computer.**
- 

**NOTE:** Computer features may vary by model.

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## Removing the Front Panel

- 1 Remove the Pocket Media Drive, if it is present.



- 2 Turn off the computer.
- 3 Disconnect all peripherals and cables from the front and the back of the computer. Disconnect the power cord last.



- 4 Loosen the side panel thumbscrew on the back of the computer.



- 6 Tilt out the top of the side panel, and then lift the panel from the computer.



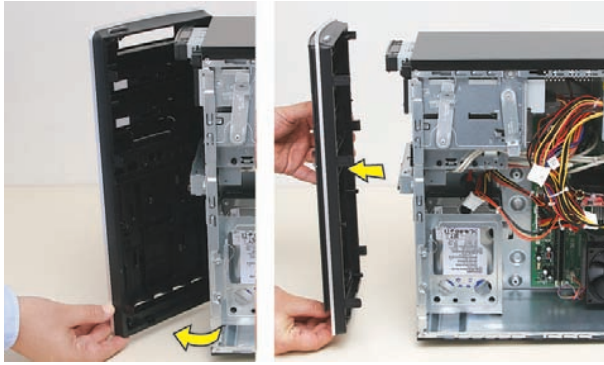
- 5 Grasp the handle, and pull the side panel about 2.5 cm (1 inch) toward the back of the computer to release it.



- 7 Locate the three tabs that secure the front panel to the computer. Pull each of the tabs out slightly, away from the computer, to release the panel.



- 8 Swing the front panel open toward the left, and then lift it off the computer.

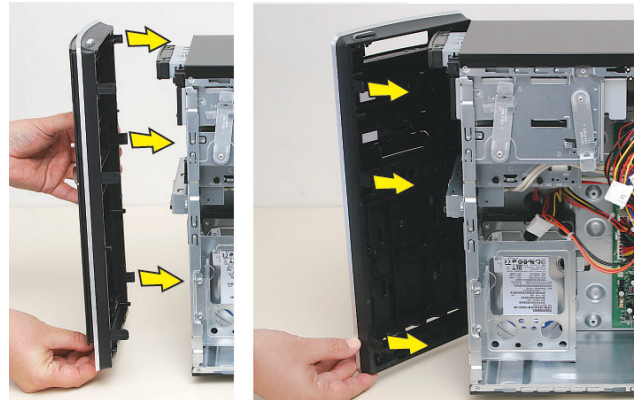


**REMOVAL COMPLETED**

## Replacing the Front Panel

**IMPORTANT:** The new (replacement) part may not look the same as the original part, due to different manufacturers or models. Hewlett-Packard always provides quality parts that meet or exceed your original computer specifications.

- 1 Hold the front panel over the front of the computer, and then press the left side of the front panel, inserting the tabs into the computer holes. Swing the right side of the panel toward the computer, inserting the panel tabs, and then press it into the computer.



- 2 Hold the side panel over the side of the computer with the front edge of the panel about 2.5 cm (1 inch) from the front of the computer.



- 3 Place the bottom of the panel on the computer, inserting the tabs on the inside of the panel into the rail slots on the computer. Swing the top of the panel toward the computer, inserting the top tabs into the rail slots.



- 4 Slide the side panel toward the front of the computer and into place.



- 5 Tighten the side panel thumbscrew on the back of the computer.



- 6 Reconnect all peripherals and cables, and then turn on the computer.



**REPLACEMENT COMPLETED**







## Removing and Replacing an Optical Disc Drive



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# Removing and Replacing an Optical Disc Drive



15–25 minutes

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## Before You Begin

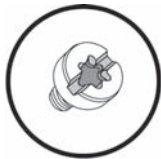
Observe the following requirements before removing and replacing the optical disc drive.



### Tools Needed

- Flathead screwdriver

You can use a flathead screwdriver with the following screw (torque screw).



**CAUTION:** Static electricity can damage the electronic components inside the computer. Discharge static electricity by touching the metal cage of the computer before touching any internal parts or electronic components.

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### WARNING:

- **Never open the cover with the power cord attached or power applied. You may damage your computer or be injured from the spinning fan blades.**
  - **Avoid touching sharp edges inside the computer.**
- 

**NOTE:** Computer features may vary by model.

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## Removing an Optical Disc Drive

- 1 Before you begin servicing the computer, press the Eject button, and remove any CD or DVD from the optical disc drive tray.



**2** Remove the Pocket Media Drive, if it is present.



**5** Loosen the side panel thumbscrew on the back of the computer.



**3** Turn off the computer.

**4** Disconnect all peripherals and cables from the front and the back of the computer. Disconnect the power cord last.



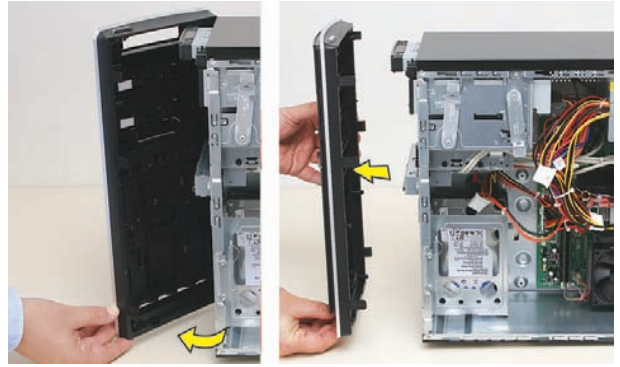
**6** Grasp the handle, and pull the side panel about 2.5 cm (1 inch) toward the back of the computer to release it.



- 7** Tilt out the top of the side panel, and then lift the panel from the computer.



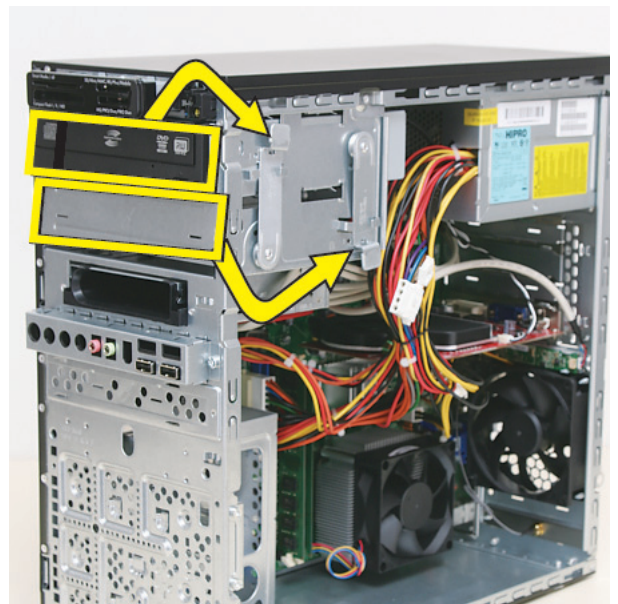
- 9** Swing the front panel open toward the left, and then lift it off the computer.



- 8** Locate the three tabs that secure the front panel to the computer. Pull each of the tabs out slightly, away from the computer, to release the panel.



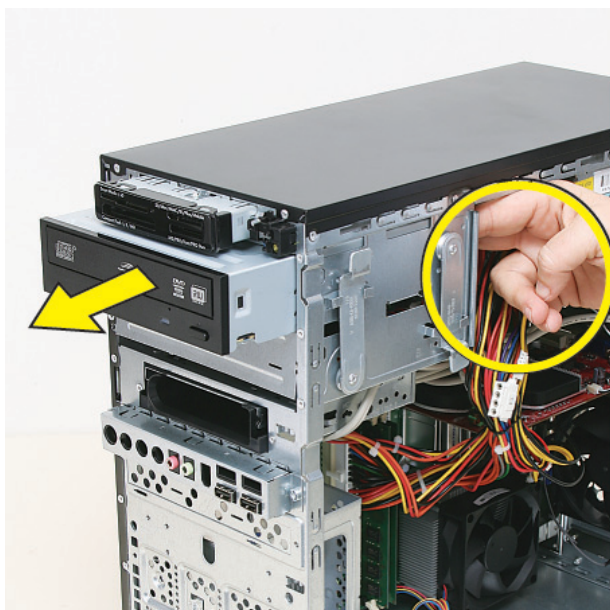
- 10** Locate the optical disc drive you want to replace (and also the drive latch for it).



- 11** Pull out the optical drive latch (1), and then swing it to the left until it is in the center position (2).



- 12** Push the drive partway out through the front of the computer.

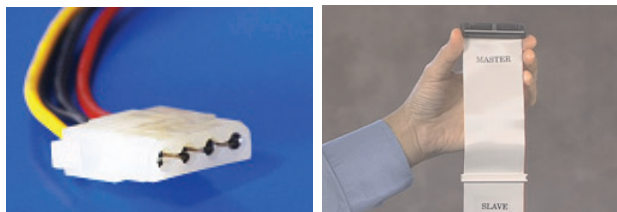


- 13** Disconnect the cables from the drive:

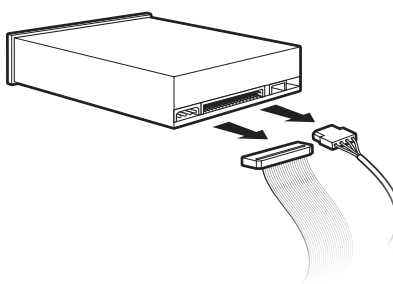
The plugs on the cables are keyed and can be inserted only when aligned properly with the connector on the drive.

In addition, some plugs have a latch that must be pressed or squeezed to release the plug while pulling it from the connector.

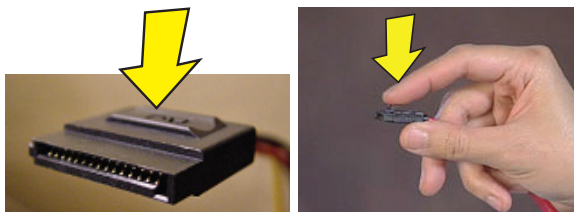
- Plugs without a latch:



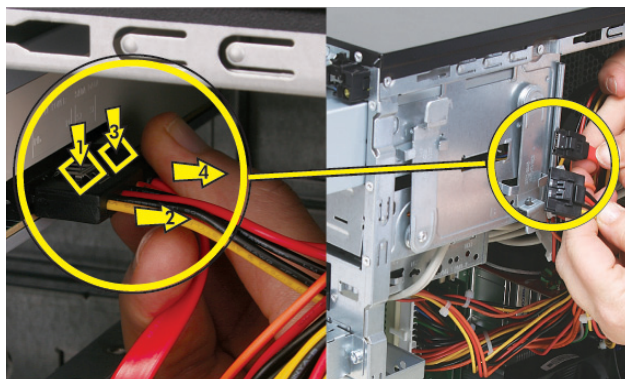
For plugs without a latch, pull the plug straight out from the connector.



- Plugs with a latch:



For plugs with a latch, press the latch (1 or 3) in the center of each plug, and then pull the plug (2 or 4) from the connector.



- 14 Pull the drive completely out through the front of the computer.



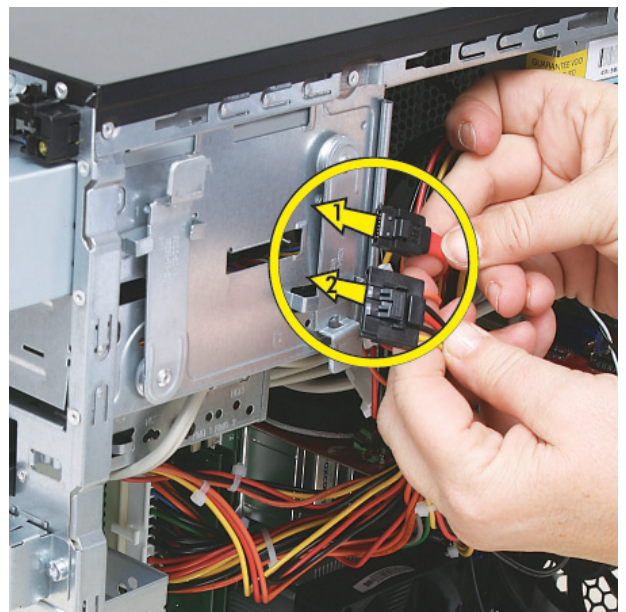
## Replacing an Optical Disc Drive

**IMPORTANT:** The new (replacement) part may not look the same as the original part, due to different manufacturers or models. Hewlett-Packard always provides quality parts that meet or exceed your original computer specifications.

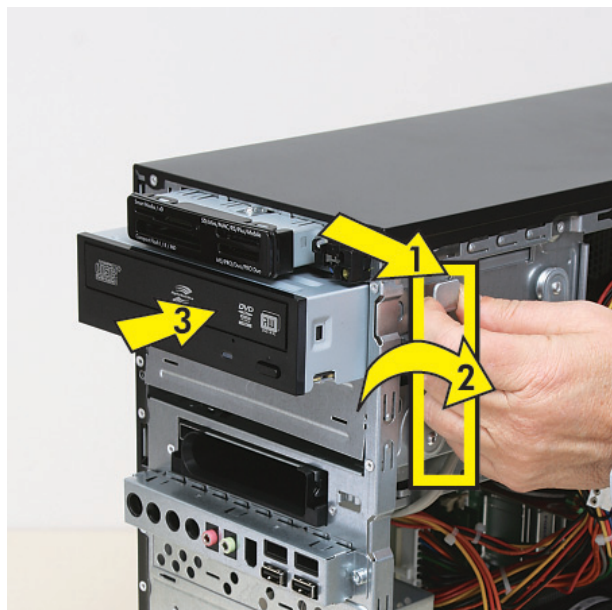
- 1 Insert the drive partway into the computer bay.



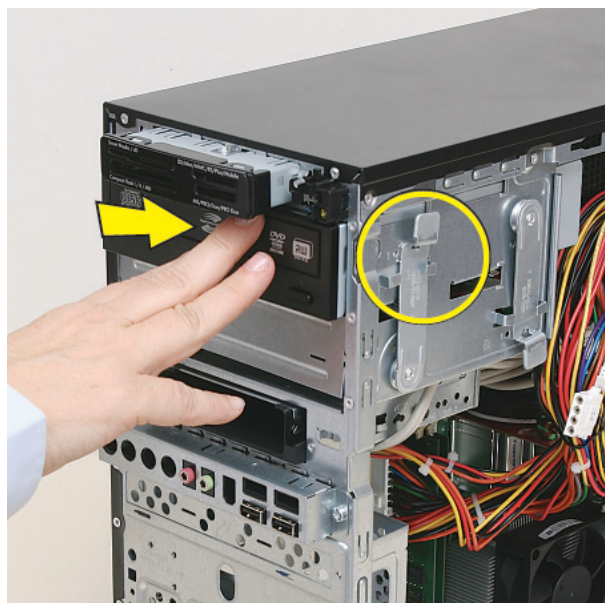
- 2 Connect the data (1) and power (2) cables to the back of the drive.



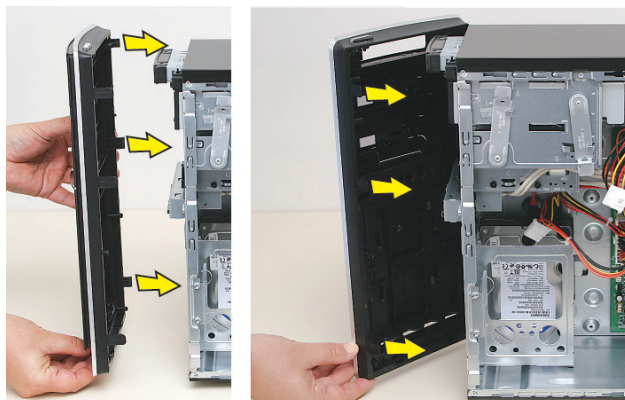
- 3** Pull out the optical drive latch (1), swing it to the right (2), and release it into the hole labeled 2 on the computer; then, push in the drive (3).



- 4** Push the drive completely into the computer, until the optical drive latch locks it into place in the hole labeled 2 on the computer.



- 5** Hold the front panel over the front of the computer, and then press the left side of the front panel, inserting the tabs into the computer holes. Swing the right side of the panel toward the computer, inserting the panel tabs, and then press it into the computer.



- 6** Hold the side panel over the side of the computer with the front edge of the panel about 2.5 cm (1 inch) from the front of the computer.



- 7 Place the bottom of the panel on the computer, inserting the tabs on the inside of the panel into the rail slots on the computer. Swing the top of the panel toward the computer, inserting the top tabs into the rail slots.



- 8 Slide the side panel toward the front of the computer and into place.



- 9 Tighten the side panel thumbscrew on the back of the computer.



- 10 Reconnect all peripherals and cables, and then turn on the computer.



**REPLACEMENT COMPLETED**





## Removing and Replacing a Hard Disk Drive



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# Removing and Replacing a Hard Disk Drive



25–45 minutes

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## Before You Begin

Observe the following requirements before removing and replacing a hard disk drive.

After you replace the operating system hard disk drive, you may need to perform a system recovery. For detailed system recovery steps, refer to the documentation that came with your computer.

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**IMPORTANT:** A hard disk drive is extremely sensitive to shock impact. Do not bang or drop it. Do not touch the circuit board. Static electricity can damage the drive.

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### Tools Needed



- Flathead screwdriver

You can use a flathead screwdriver with the following screw (torque screw).



**CAUTION:** Static electricity can damage the electronic components inside the computer. Discharge static electricity by touching the metal cage of the computer before touching any internal parts or electronic components.

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### WARNING:



- **Never open the cover with the power cord attached or power applied. You may damage your computer or be injured from the spinning fan blades.**
  - **Avoid touching sharp edges inside the computer.**
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**NOTE:** Computer features may vary by model.

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## Removing a Hard Disk Drive

- 1 Before you begin servicing the computer, remove the Pocket Media Drive, if it is present.



- 2 Turn off the computer.

- 3** Disconnect all peripherals and cables from the front and the back of the computer. Disconnect the power cord last.



- 5** Grasp the handle, and pull the side panel about 2.5 cm (1 inch) toward the back of the computer to release it.



- 4** Loosen the side panel thumbscrew on the back of the computer.



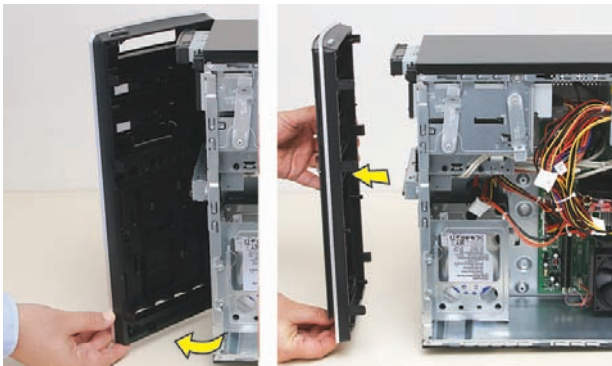
- 6** Tilt out the top of the side panel, and then lift the panel from the computer.



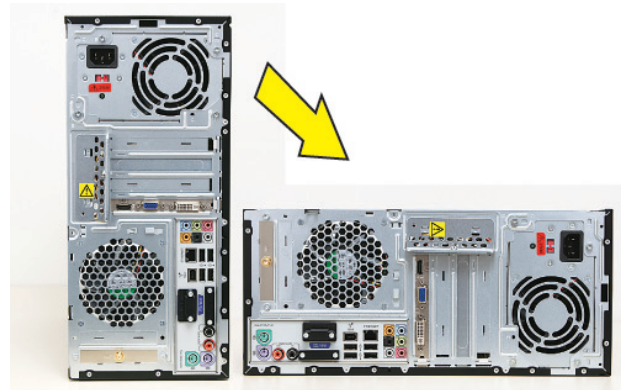
- 7** Locate the three tabs that secure the front panel to the computer. Pull each of the tabs out slightly, away from the computer, to release the panel.



- 8** Swing the front panel open toward the left, and then lift it off the computer.



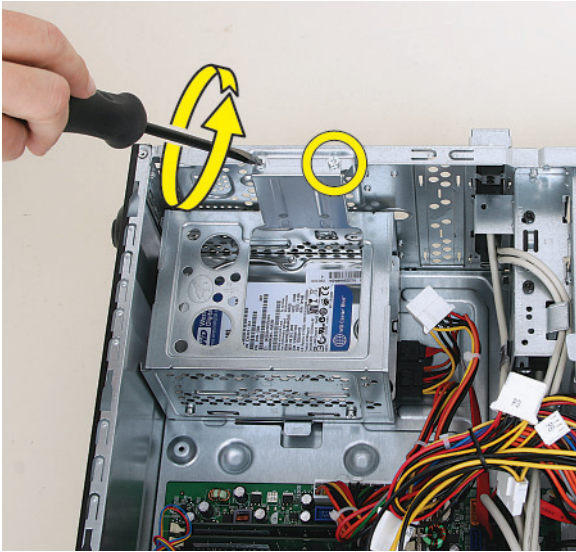
- 9** Lay the computer on the side.



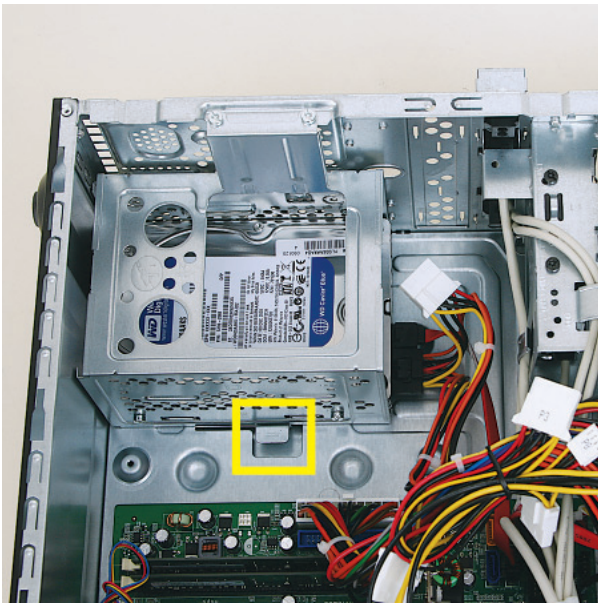
- 10** Locate the hard disk drive cage inside the computer.



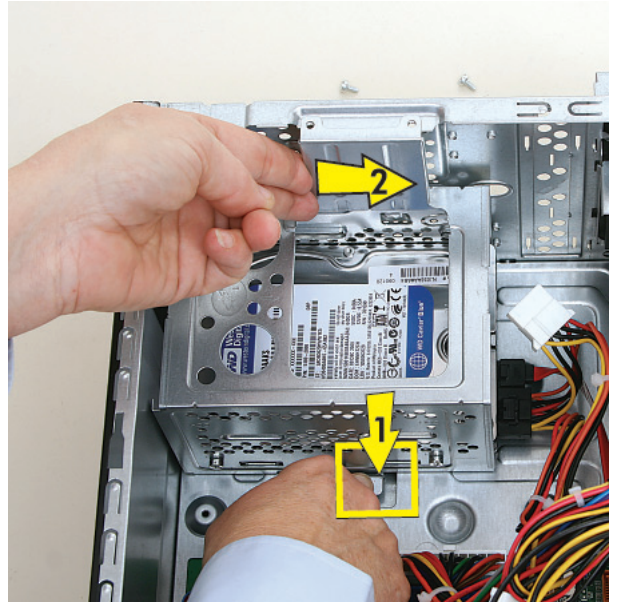
- 11** Remove the two screws that secure the hard disk drive cage in the computer.



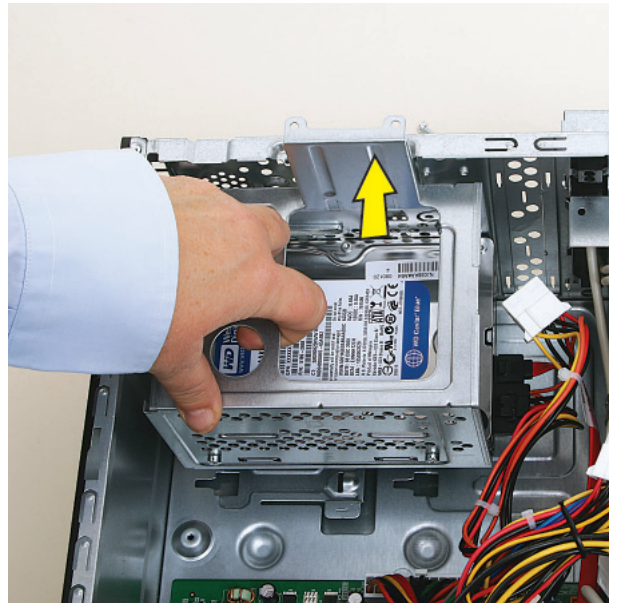
- 12** Locate the latch for the hard disk drive cage inside the computer.



- 13** Press the cage latch (1), and slide the hard disk drive cage toward the top of the computer (2) to release it.



- 14** Lift the cage partway out of the computer.

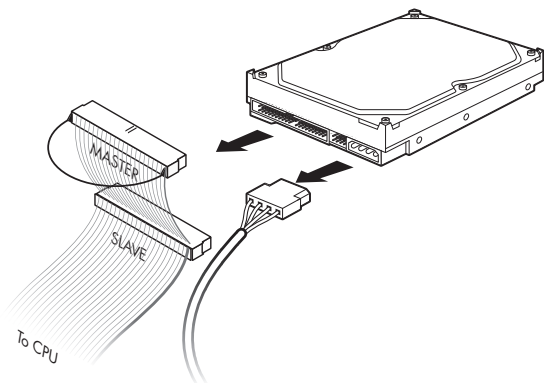


- 15** Disconnect the cables from the hard disk drive in the cage:

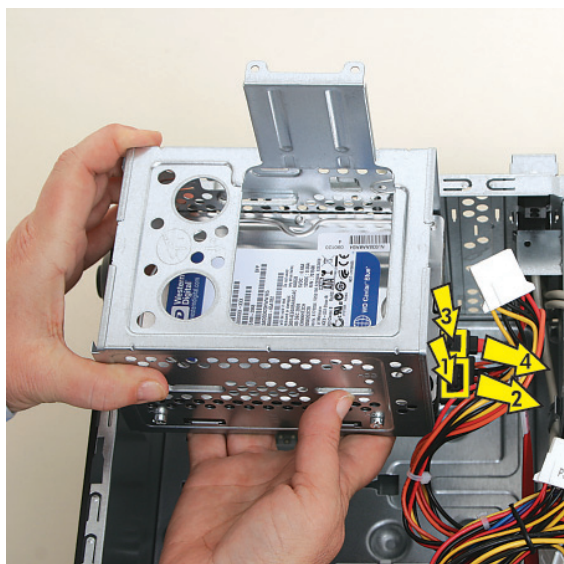
The plugs on the cables are keyed and can be inserted only when aligned properly with the connector on the drive.

In addition, some plugs have a latch that must be pressed or squeezed to release the plug while pulling it from the connector.

- For plugs without a latch, pull the plug straight out from the connector.



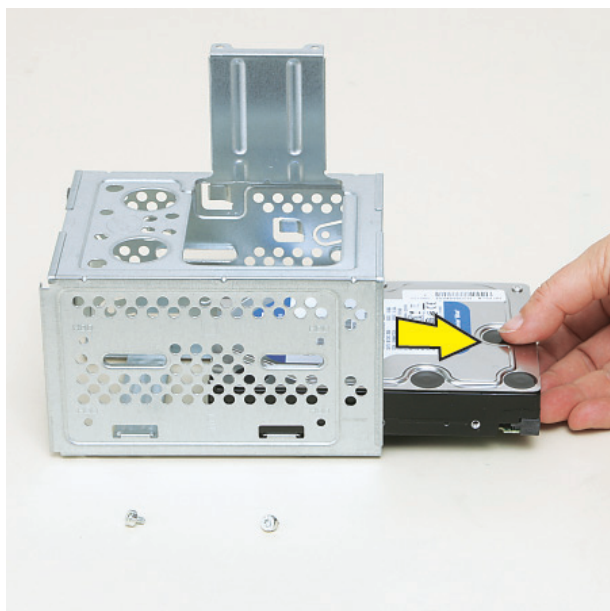
- For plugs with a latch, press the latch (**1** or **3**) in the center of each plug, and then pull the plug (**2** or **4**) from the connector.



- 16** Remove the four screws (two on each side) that secure the drive in the cage:



- 17** Slide the drive out of the cage.

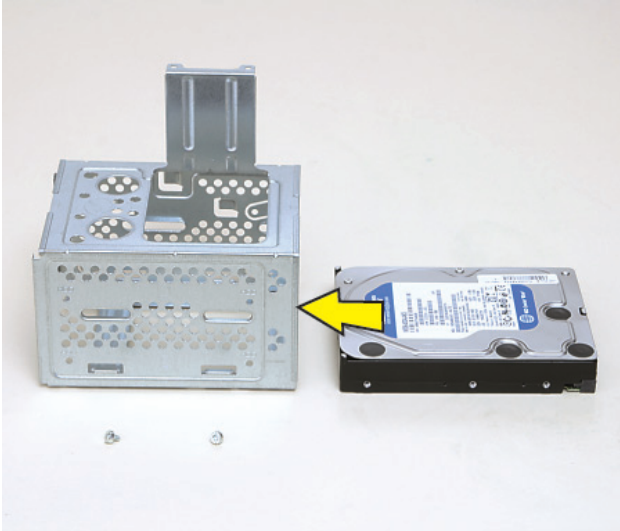


**REMOVAL COMPLETED**

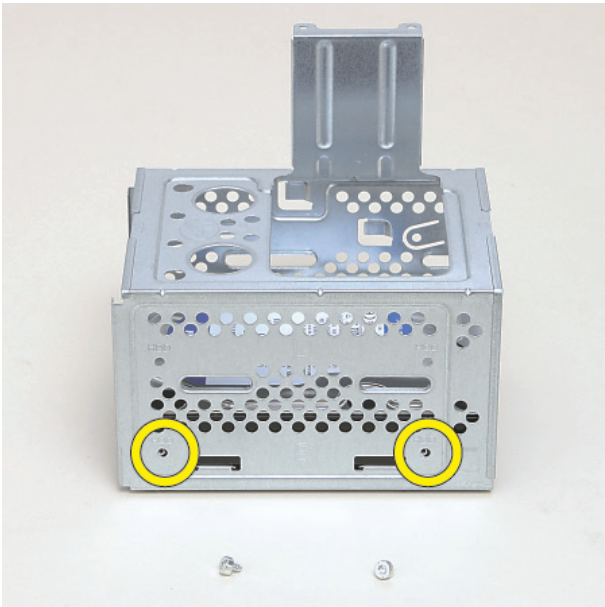
# Replacing a Hard Disk Drive

**IMPORTANT:** The new (replacement) part may not look the same as the original part, due to different manufacturers or models. Hewlett-Packard always provides quality parts that meet or exceed your original computer specifications.

- 1 Slide the replacement drive into the hard disk drive cage, with the label facing up and the connectors toward the right (the top of the cage).



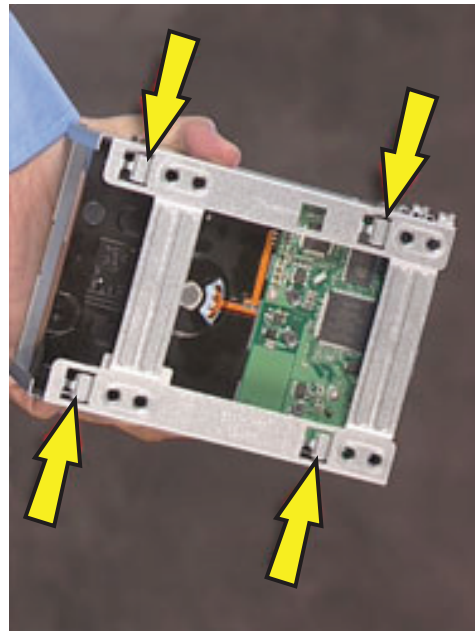
- 2 Slide the drive into the cage until the four screw holes in the sides of the drive align with the holes in the cage.



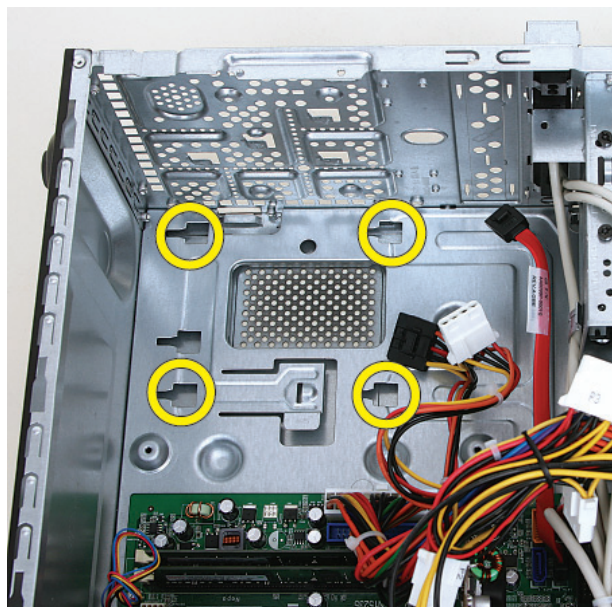
- 3 Insert and tighten the four screws that secure the drive in the cage.



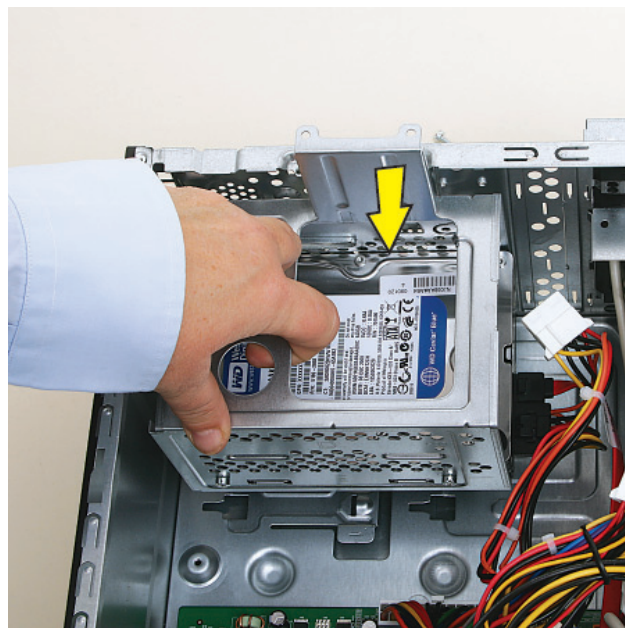
- 4 Tip up the hard disk drive cage, and locate the four tabs on the bottom.



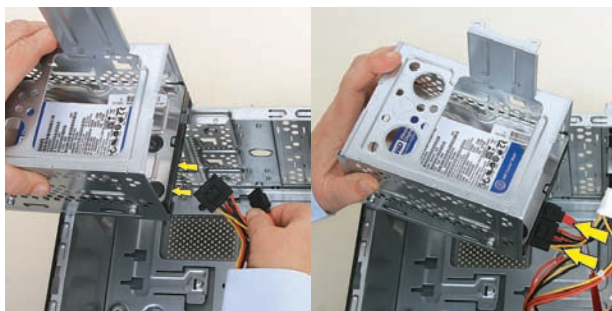
- 5 Locate the four slots inside the computer that match the tabs on the bottom of the hard disk drive cage.



- 7 Lower the cage into the computer, inserting the four tabs on the bottom of the cage into the computer slots.



- 6 Hold the cage over the computer, and connect the hard disk drive power and data cables.

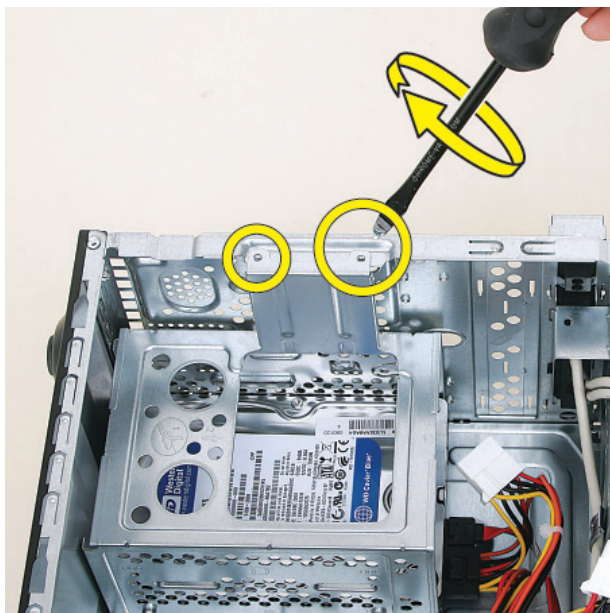


- 8 Slide the cage toward the bottom of the computer until it locks into place.

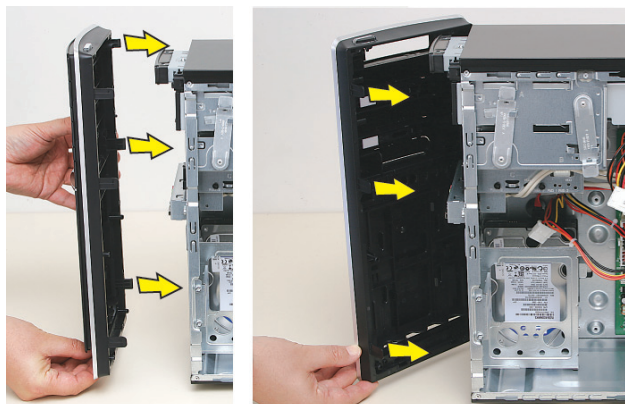




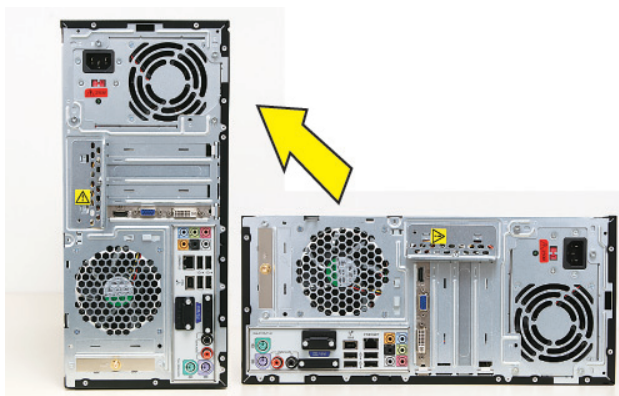
- 9 Insert and tighten the two screws that secure the cage in the computer.



- 11 Hold the front panel over the front of the computer, and then press the left side of the front panel, inserting the tabs into the computer holes. Swing the right side of the panel toward the computer, inserting the panel tabs, and then press it into the computer.



- 10 Set the computer upright.



- 12 Hold the side panel over the side of the computer with the front edge of the panel about 2.5 cm (1 inch) from the front of the computer.



**13** Place the bottom of the panel on the computer, inserting the tabs on the inside of the panel into the rail slots on the computer. Swing the top of the panel toward the computer, inserting the top tabs into the rail slots.



**14** Slide the side panel toward the front of the computer and into place.



**15** Tighten the side panel thumbscrew on the back of the computer.



**16** Reconnect all peripherals and cables, and then turn on the computer.



**REPLACEMENT COMPLETED**





## Removing and Replacing an Add-In Card



# Removing and Replacing an Add-In Card



15–25 minutes

## Before You Begin

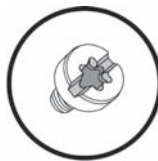
Observe the following requirements before removing and replacing an add-in card.



### Tools Needed

- Flathead screwdriver

You can use a flathead screwdriver with the following screw (torque screw).



**CAUTION:** Static electricity can damage the electronic components inside the computer. Discharge static electricity by touching the metal cage of the computer before touching any internal parts or electronic components.



### WARNING:

- **Never open the cover with the power cord attached or power applied. You may damage your computer or be injured from the spinning fan blades.**
- **Avoid touching sharp edges inside the computer.**

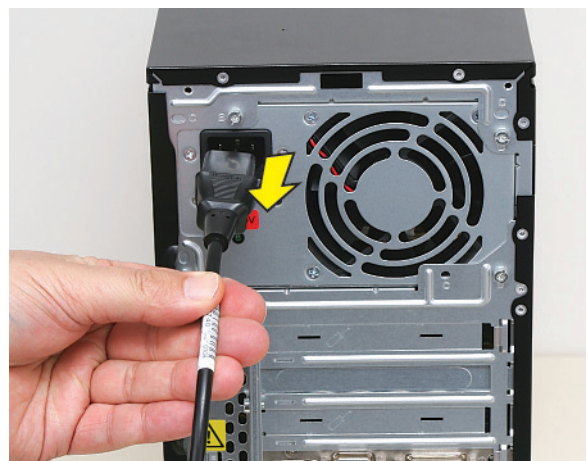
**NOTE:** Computer features may vary by model.

## Removing an Add-In Card

- 1 Before you begin servicing the computer, remove the Pocket Media Drive, if it is present.



- 2 Turn off the computer.
- 3 Disconnect all peripherals and cables from the front and the back of the computer. Disconnect the power cord last.



- 4 Loosen the side panel thumbscrew on the back of the computer.



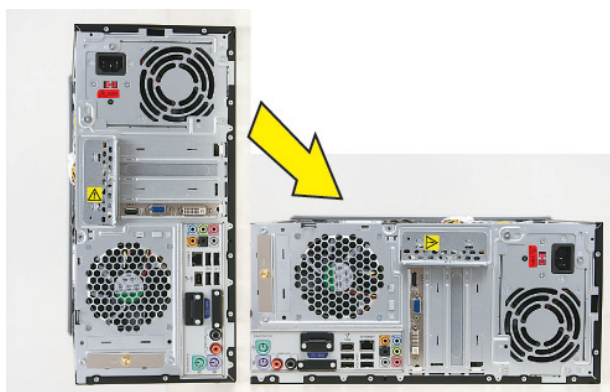
- 6 Tilt out the top of the side panel, and then lift the panel from the computer.



- 5 Grasp the handle, and pull the side panel about 2.5 cm (1 inch) toward the back of the computer to release it.



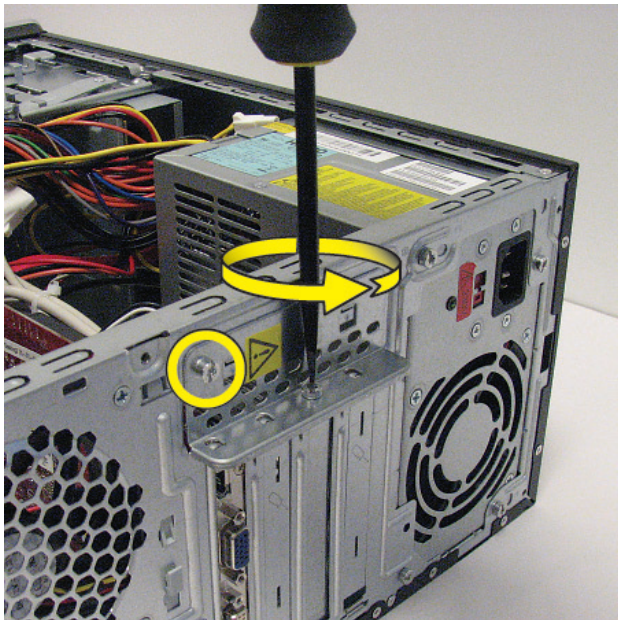
- 7 Lay the computer on the side.



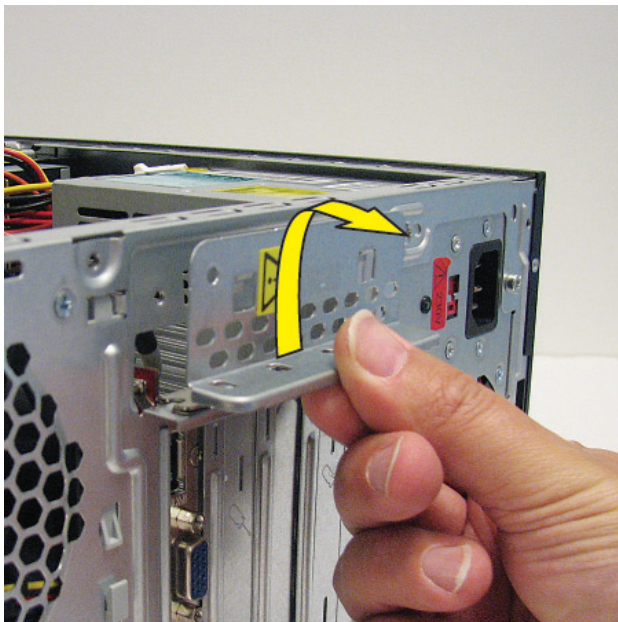
- 8 Locate the add-in cards on the back of the computer. Identify the one you want to replace.



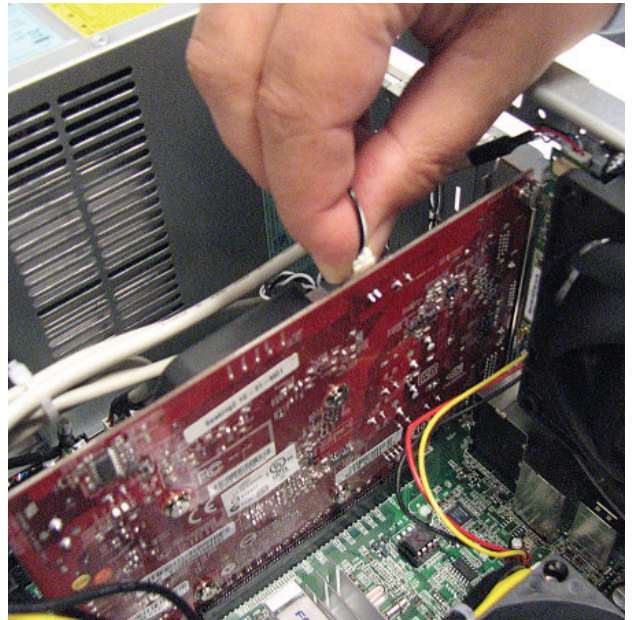
- 9 On the back of the computer, remove the screw from the bracket cover for the add-in cards. If it is present, also remove the additional screw that secures a large graphics card.



- 10 Lift off the bracket cover.

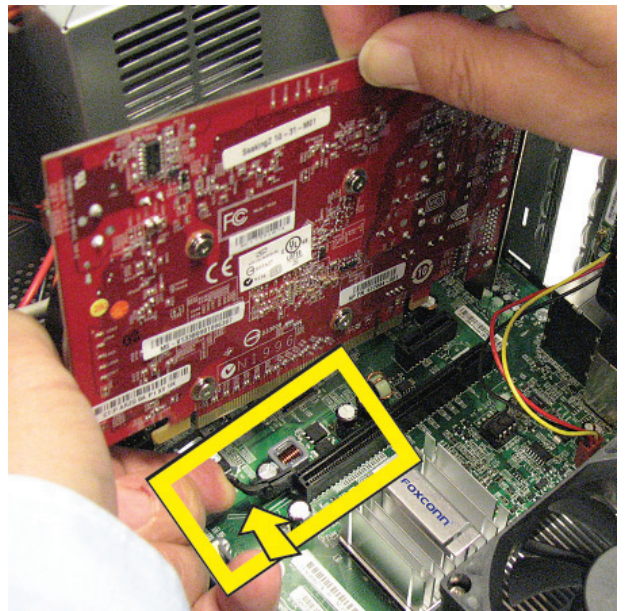


- 11 If present, disconnect any cables connected to the card.



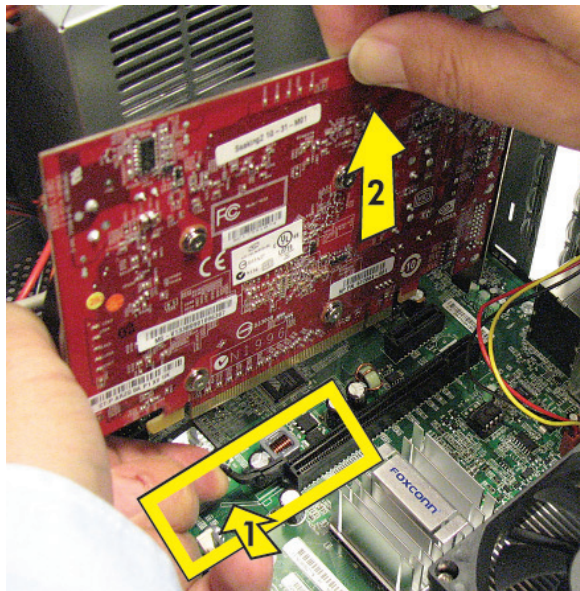
- 12 Look at the add-in card socket for a release lever, which is present on some sockets.

**IMPORTANT:** Some sockets have a release lever that must be disengaged to remove the card from the socket. The release lever style may vary.

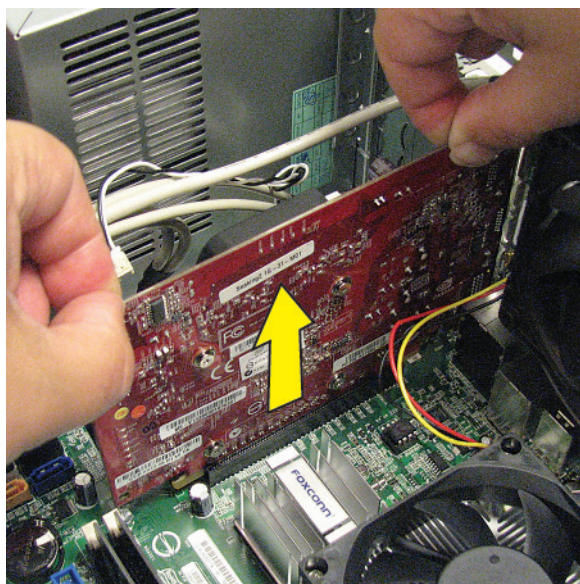


### 13 Remove the card:

- If there is a release lever, place your finger between the lever and the card, and then push the lever out (1) as you lift the card (2) from the socket.



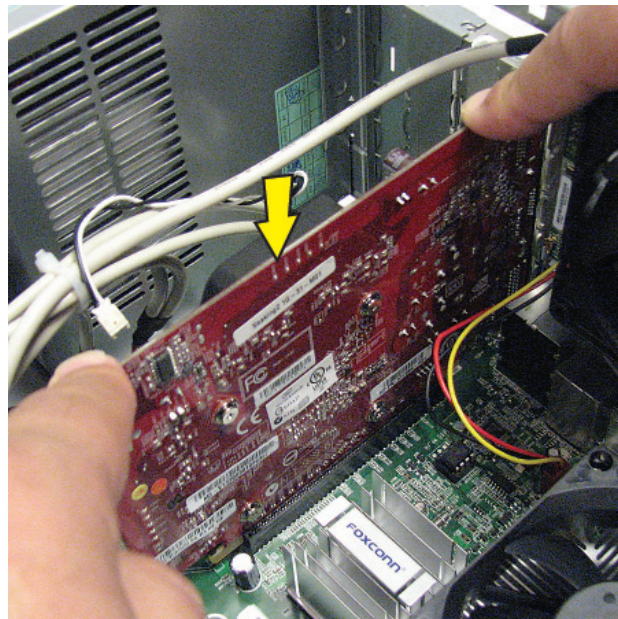
- If there is no release lever, rock the card to free it, and then lift the card from the socket.



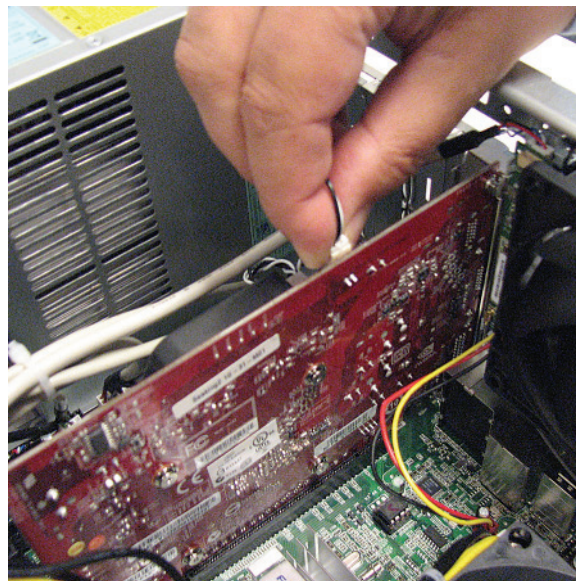
## Replacing an Add-In Card

**IMPORTANT:** The new (replacement) part may not look the same as the original part, due to different manufacturers or models. Hewlett-Packard always provides quality parts that meet or exceed your original computer specifications.

- 1 Align the edge of the add-in card with the slot in the computer, and then press the card straight down until it is fully seated in the socket.



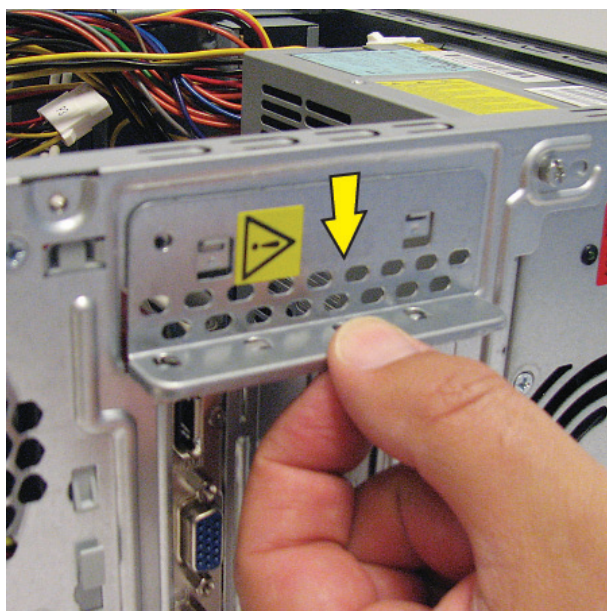
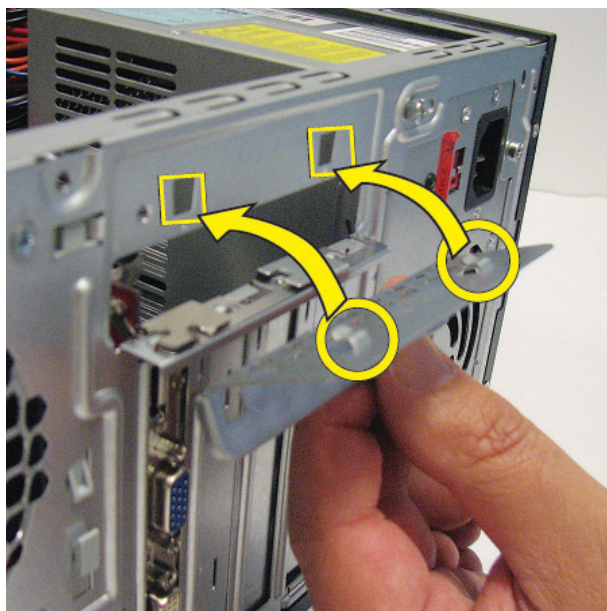
- 2 Connect any cables to the card.



- 3 Look at the bracket cover for the two hooks that fit over the two slots on the back of the computer.

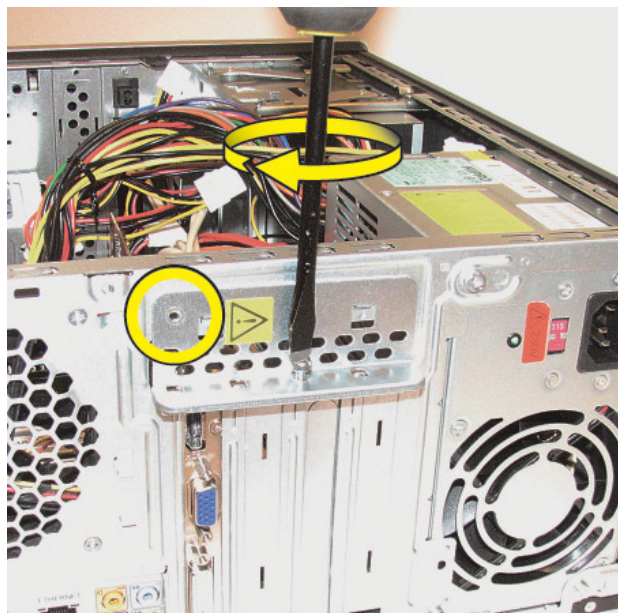


- 4 Replace the bracket cover onto the back of the computer: Align the bracket cover hooks over the slots on the computer, and then slide the bracket cover into place against the add-in cards.

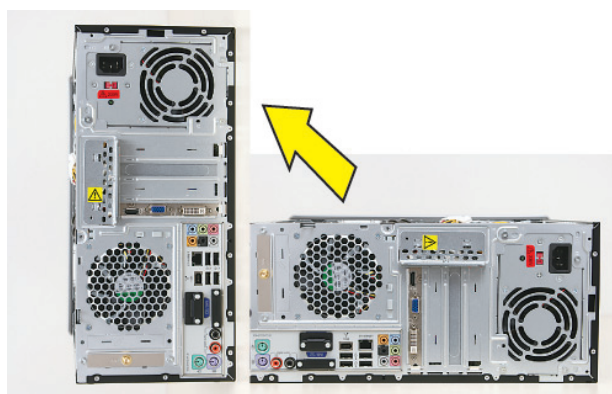




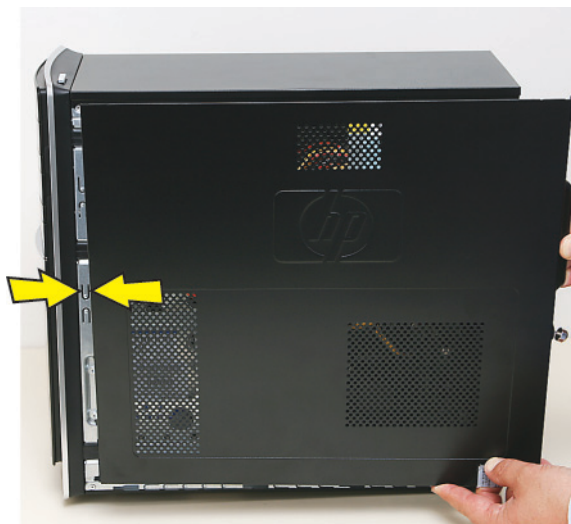
- 5 Insert and tighten the bracket cover screw. If it is present, also insert and tighten the additional screw that secures a large graphics card.



- 6 Set the computer upright.



- 7 Hold the side panel over the side of the computer with the front edge of the panel about 2.5 cm (1 inch) from the front of the computer.



- 8 Place the bottom of the panel on the computer, inserting the tabs on the inside of the panel into the rail slots on the computer. Swing the top of the panel toward the computer, inserting the top tabs into the rail slots.



**9** Slide the side panel toward the front of the computer and into place.



**11** Reconnect all peripherals and cables, and then turn on the computer.



**REPLACEMENT COMPLETED**

**10** Tighten the side panel thumbscrew on the back of the computer.





## Removing and Replacing the Memory Card Reader



# Removing and Replacing the Memory Card Reader



15–25 minutes

## Before You Begin

Observe the following requirements before removing and replacing the memory card reader.



### Tools Needed

- Flathead screwdriver

You can use a flathead screwdriver with the following screw (torque screw).



**CAUTION:** Static electricity can damage the electronic components inside the computer. Discharge static electricity by touching the metal cage of the computer before touching any internal parts or electronic components.



### WARNING:

- **Never open the cover with the power cord attached or power applied. You may damage your computer or be injured from the spinning fan blades.**
- **Avoid touching sharp edges inside the computer.**

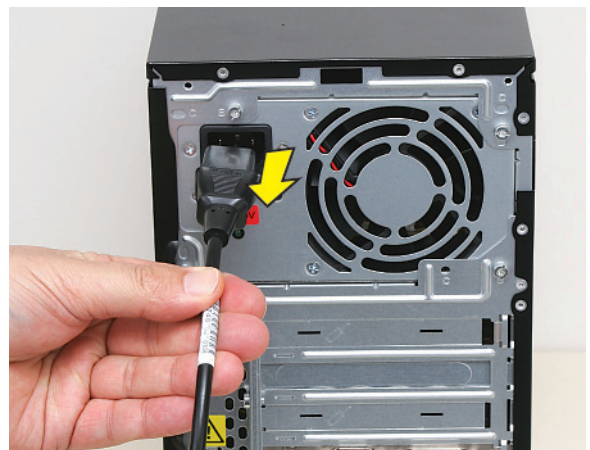
**NOTE:** Computer features may vary by model.

## Removing the Memory Card Reader

- 1 Before you begin servicing the computer, remove the Pocket Media Drive, if it is present.



- 2 Turn off the computer.
- 3 Disconnect all peripherals and cables from the front and the back of the computer. Disconnect the power cord last.



- 4 Loosen the side panel thumbscrew on the back of the computer.



- 6 Tilt out the top of the side panel, and then lift the panel from the computer.



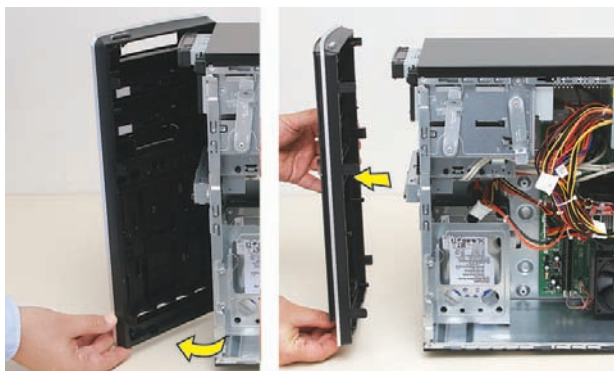
- 5 Grasp the handle, and pull the side panel about 2.5 cm (1 inch) toward the back of the computer to release it.



- 7 Locate the three tabs that secure the front panel to the computer. Pull each of the tabs out slightly, away from the computer, to release the panel.



**8** Swing the front panel open toward the left, and then lift it off the computer.



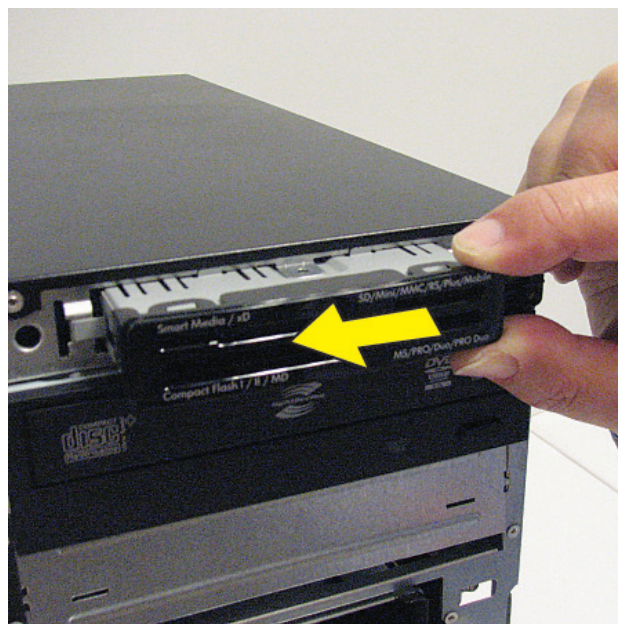
**9** Locate the memory card reader at the top of the front of the computer.



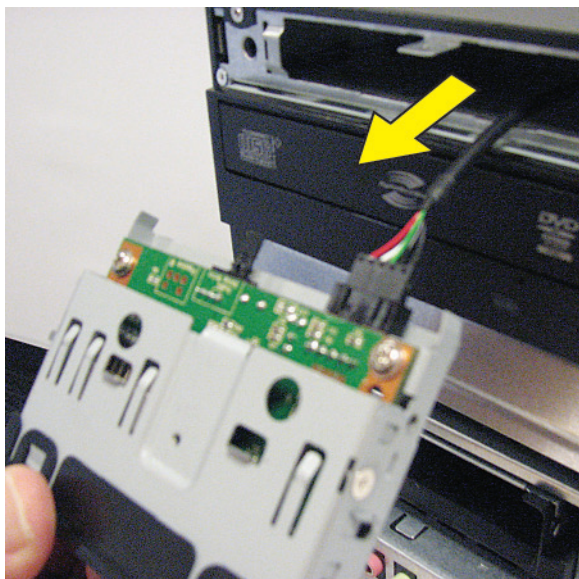
**10** Remove the screw that secures the reader in the computer.



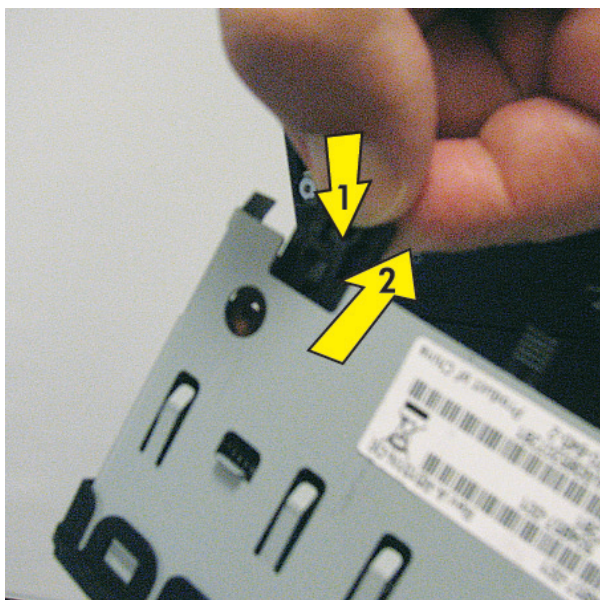
**11** Push the reader slightly to the left to release it.



- 12** Pull the reader partway out through the front of the computer.



- 13** Turn over the reader, press the latch in the center of the plug (1), and then pull the plug (2) from the connector.



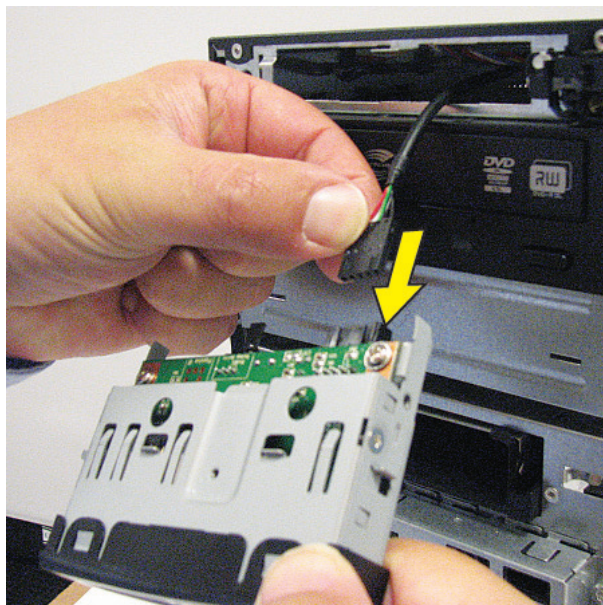
## Replacing the Memory Card Reader

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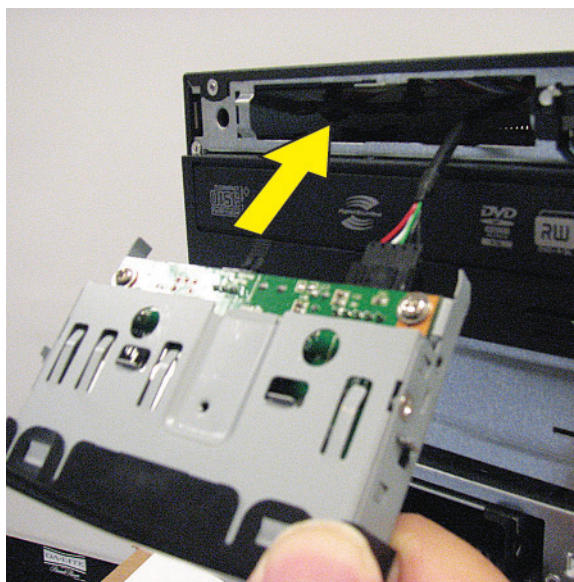
**IMPORTANT:** The new (replacement) part may not look the same as the original part, due to different manufacturers or models. Hewlett-Packard always provides quality parts that meet or exceed your original computer specifications.

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- 1** Connect the cable to the back of the reader.

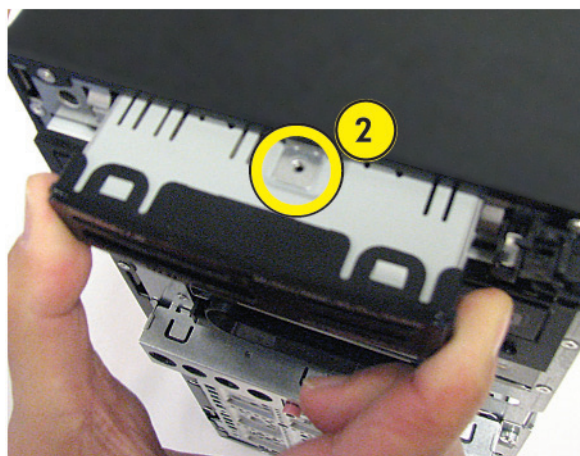
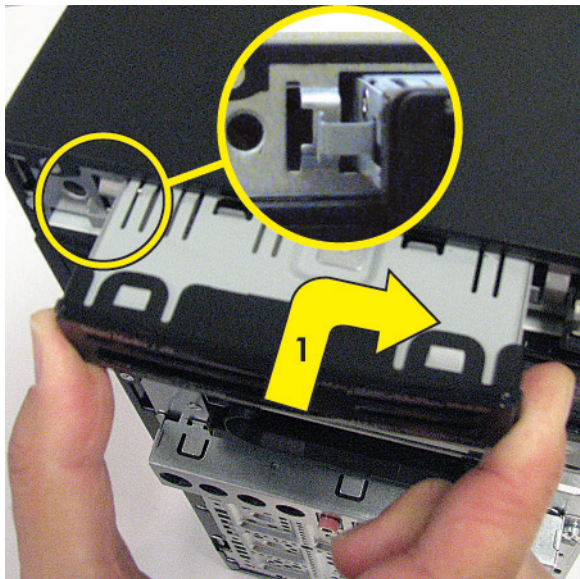


- 2** Insert the reader into the computer.

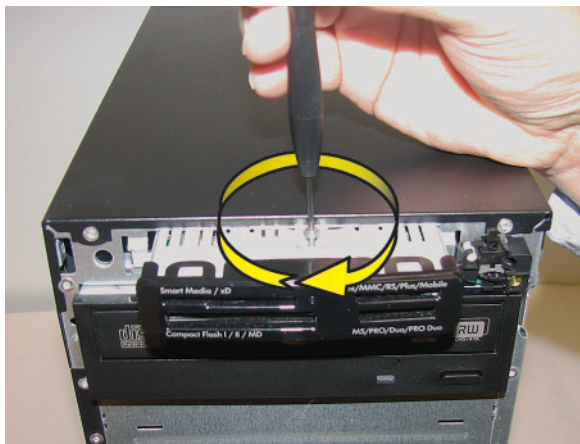


**REMOVAL COMPLETED**

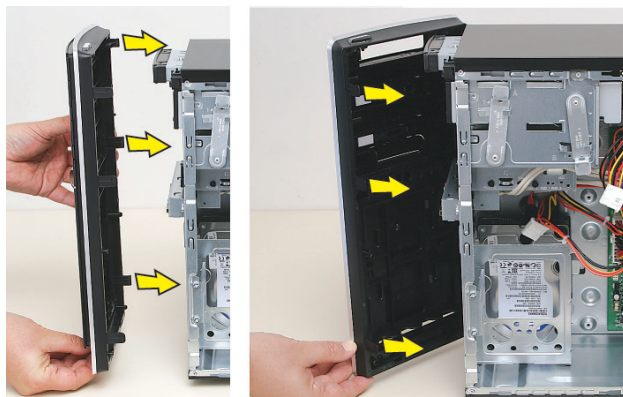
- 3** Slide the reader in and slightly to the right to lock the tab into the slot **(1)** and to align the screw hole on the top of the reader with the computer screw hole **(2)**.



- 4** Insert and tighten the screw that secures the reader in the computer.



- 5** Hold the front panel over the front of the computer, and then press the left side of the front panel, inserting the tabs into the computer holes. Swing the right side of the panel toward the computer, inserting the panel tabs, and then press it into the computer.



- 6** Hold the side panel over the side of the computer with the front edge of the panel about 2.5 cm (1 inch) from the front of the computer.





- 7** Place the bottom of the panel on the computer, inserting the tabs on the inside of the panel into the rail slots on the computer. Swing the top of the panel toward the computer, inserting the top tabs into the rail slots.



- 8** Slide the side panel toward the front of the computer and into place.



- 9** Tighten the side panel thumbscrew on the back of the computer.



- 10** Reconnect all peripherals and cables, and then turn on the computer.



**REPLACEMENT COMPLETED**







## Removing and Replacing Memory



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# Removing and Replacing Memory



15–25 minutes

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## Before You Begin

Use the product specification for your model to find the correct type of DIMM (dual in-line memory module) for your computer and the maximum memory amount.

Memory upgrades may not be needed. Many computers already have the maximum amount of memory installed.

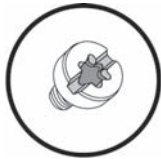
Observe the following requirements before removing and replacing memory.



### Tools Needed

- Flathead screwdriver

You can use a flathead screwdriver with the following screw (torque screw).



**CAUTION:** Static electricity can damage the electronic components inside the computer. Discharge static electricity by touching the metal cage of the computer before touching any internal parts or electronic components.

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### WARNING:



- **Never open the cover with the power cord attached or power applied. You may damage your computer or be injured from the spinning fan blades.**
  - **Avoid touching sharp edges inside the computer.**
- 

**NOTE:** Computer features may vary by model.

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## Removing Memory

- 1 Before you begin servicing the computer, remove the Pocket Media Drive, if it is present.



- 2 Turn off the computer.

- 3** Disconnect all peripherals and cables from the front and the back of the computer. Disconnect the power cord last.



- 5** Grasp the handle, and pull the side panel about 2.5 cm (1 inch) toward the back of the computer to release it.



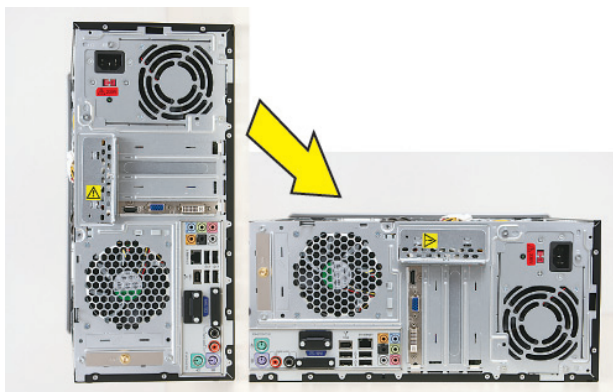
- 4** Loosen the side panel thumbscrew on the back of the computer.



- 6** Tilt out the top of the side panel, and then lift the panel from the computer.

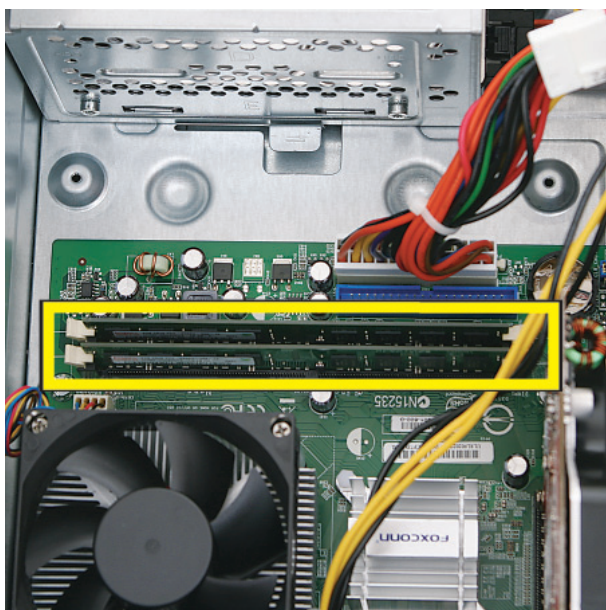


7 Lay the computer on the side.

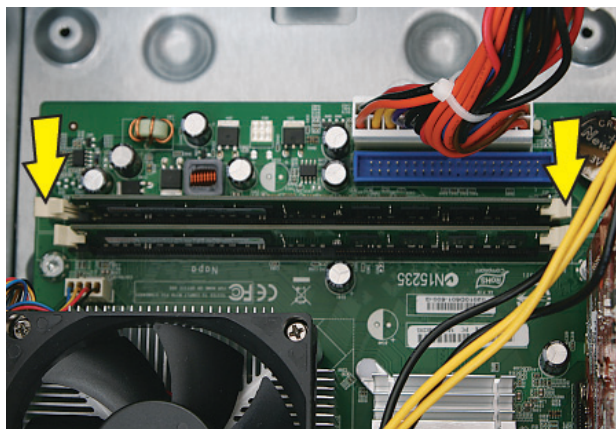


8 Locate the memory sockets on your computer motherboard.

**NOTE:** The location and number of memory sockets may vary with the motherboard model in your computer.



9 Push down the retaining clip on each end of the memory socket to release the memory module.



10 Touching only the top edge of the memory module, lift it out of the socket.



**REMOVAL COMPLETED**

# Replacing Memory

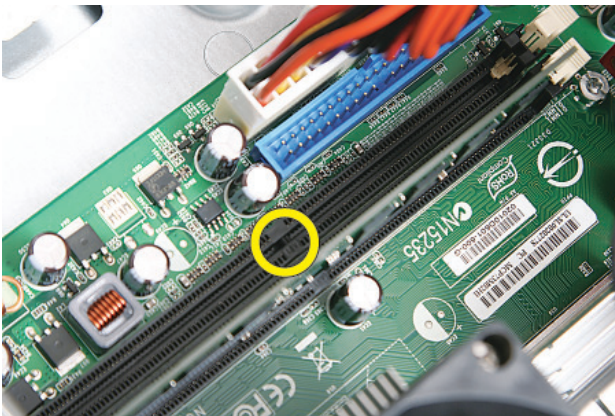
**IMPORTANT:** The new (replacement) part may not look the same as the original part, due to different manufacturers or models. Hewlett-Packard always provides quality parts that meet or exceed your original computer specifications.

- 1 Touching only the top edge of the memory module, locate the notch on the bottom edge.

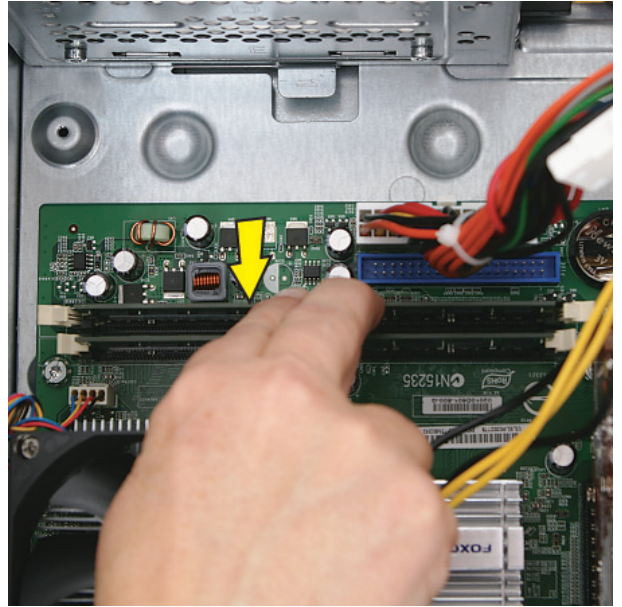
**NOTE:** Each type of memory has a different notch position. Incompatible memory modules cannot be installed in the memory socket.



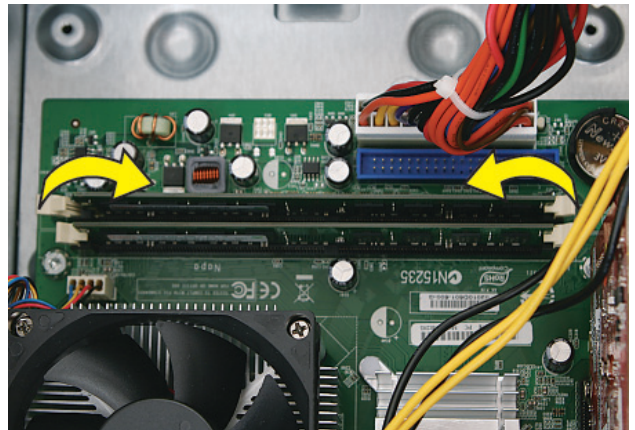
- 2 Look at the memory module socket for the tab that matches the notch on the memory module.



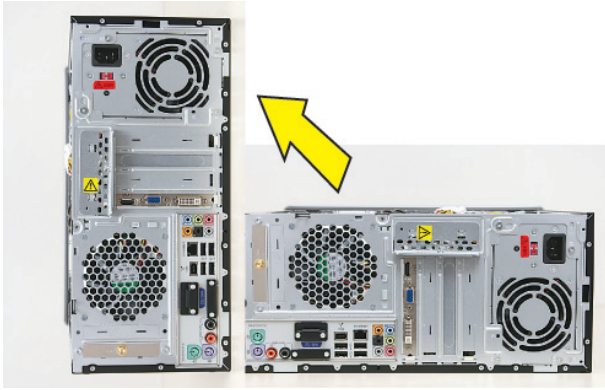
- 3 Position the memory module over the socket, aligning the notch with the tab in the socket, and then firmly press the module down into the socket...



...until the retaining clips at the ends of the socket lock the module into place.



- 4 Set the computer upright.



- 5 Hold the side panel over the side of the computer with the front edge of the panel about 2.5 cm (1 inch) from the front of the computer.



- 6 Place the bottom of the panel on the computer, inserting the tabs on the inside of the panel into the rail slots on the computer. Swing the top of the panel toward the computer, inserting the top tabs into the rail slots.



- 7 Slide the side panel toward the front of the computer and into place.





8 Tighten the side panel thumbscrew on the back of the computer.



9 Reconnect all peripherals and cables, and then turn on the computer.



**REPLACEMENT COMPLETED**

