

# Memory Modules

## User Guide

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#### **Product notice**

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

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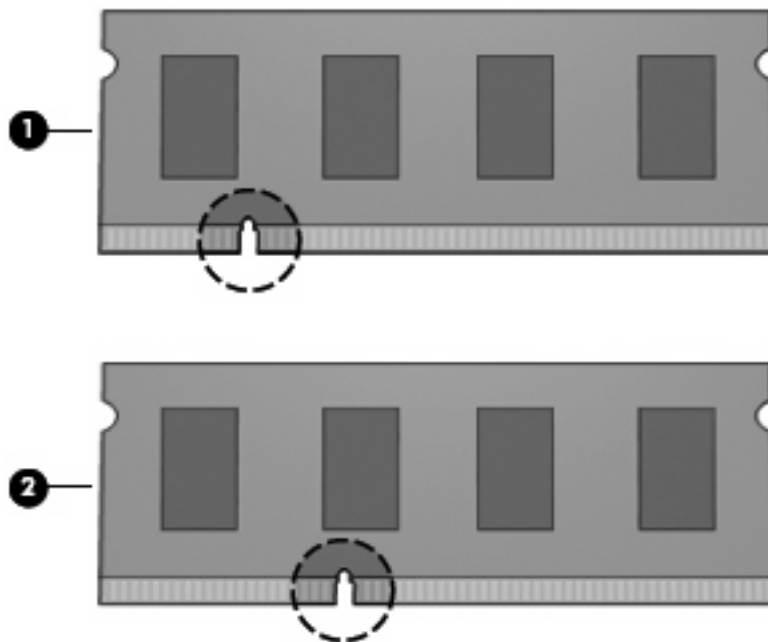
# Adding or replacing memory modules

The computer has one memory module compartment, which is located under the keyboard. The memory capacity of the computer can be upgraded by adding a memory module to the vacant expansion memory module slot or by upgrading the existing memory module in the primary memory module slot.

Your computer may support either DDR2 memory or DDR3 memory. DDR2 and DDR3 memory modules are not interchangeable—all memory modules installed in the computer must be the same type.


When upgrading memory capacity, verify that the upgrade modules are the same as those already installed in the computer.

To prevent the use of incompatible components, *the positioning notches are different on DDR2 (1) and DDR3 (2) memory modules as shown in the illustrations below*. Be sure to check the location of the notch on new modules before opening the protective packaging. *Open packages of memory modules cannot be returned.*



△ **WARNING!** To reduce the risk of electric shock and damage to the equipment, unplug the power cord and remove all batteries before installing a memory module.

△ **CAUTION:** Electrostatic discharge (ESD) can damage electronic components. Before beginning any procedure, touch a grounded metal object to be sure that you are discharged of static electricity.

 **NOTE:** To use a dual-channel configuration when adding a second memory module, be sure that both memory modules are the same size and type.

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To add or replace a memory module:

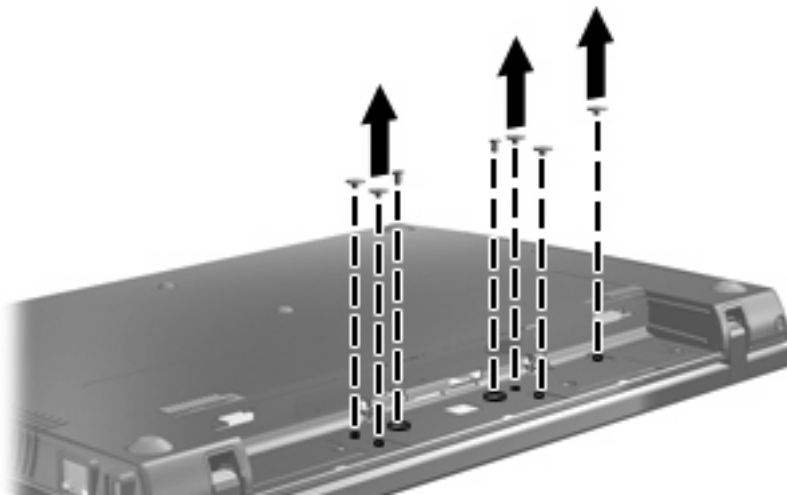
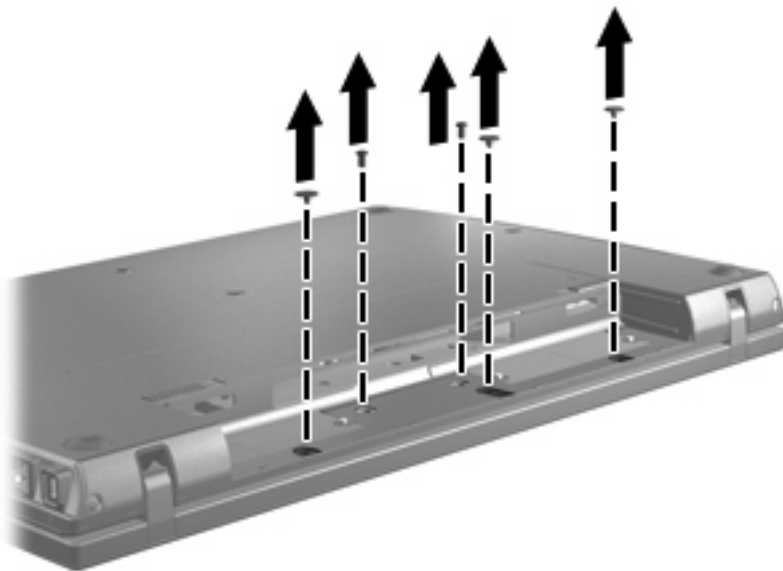
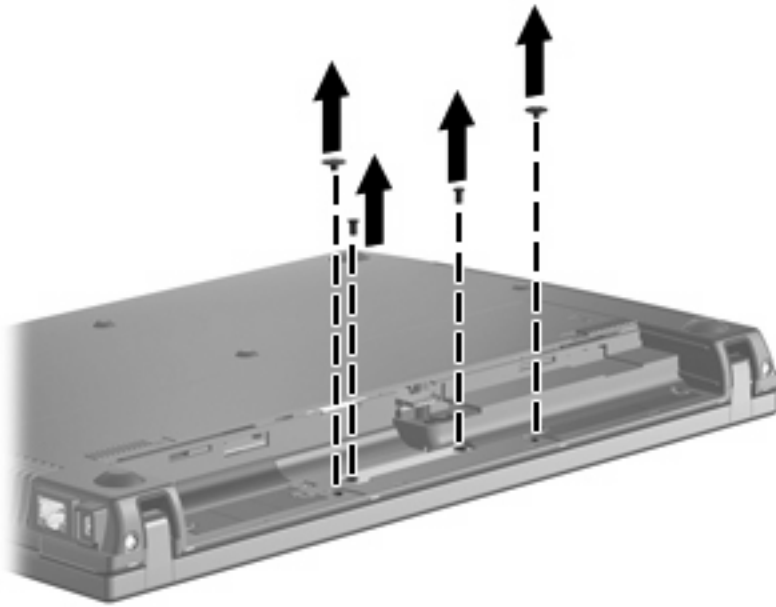
1. Save your work.
2. Shut down the computer and close the display.

If you are not sure whether the computer is off or in Hibernation, turn the computer on by briefly press the power button. Then shut down the computer through the operating system.

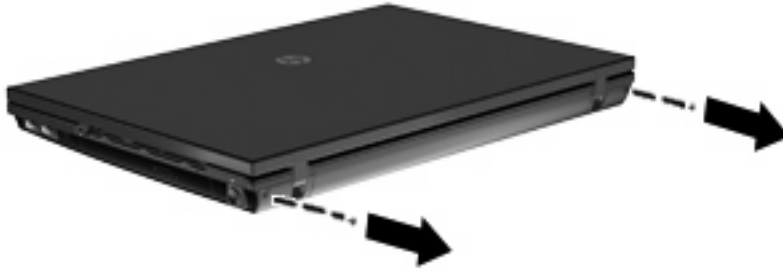
3. Disconnect all external devices connected to the computer.
4. Unplug the power cord.
5. Turn the computer upside down on a flat surface, with the battery bay toward you.
6. Remove the battery from the computer.

7. Remove the screws from the battery area. Your computer has 4, 5, or 7 screws that need to be removed.

 **NOTE:** Refer to the illustration that most closely matches your computer.



8. Turn the computer display-side up, and then remove the 2 screw covers and screws from the back edge of the computer.



9. Open the computer as far as possible.


△ **CAUTION:** Do not use excessive force to open the computer beyond the limits of the display hinges. Forcing extension beyond these limits will cause damage to the display.

10. Slide the switch cover straight back towards the display, and then remove the switch cover.

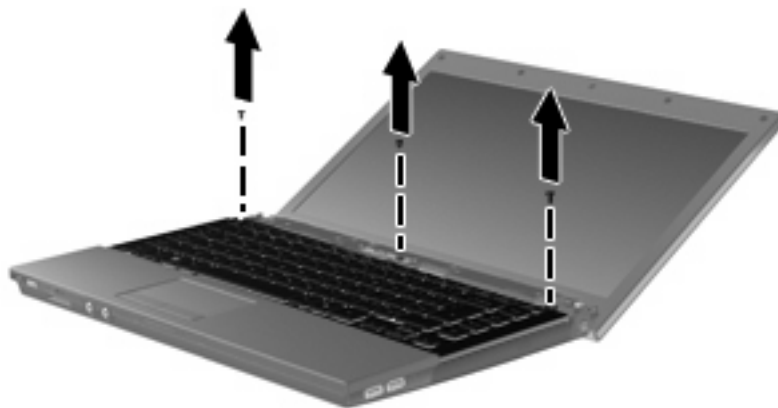
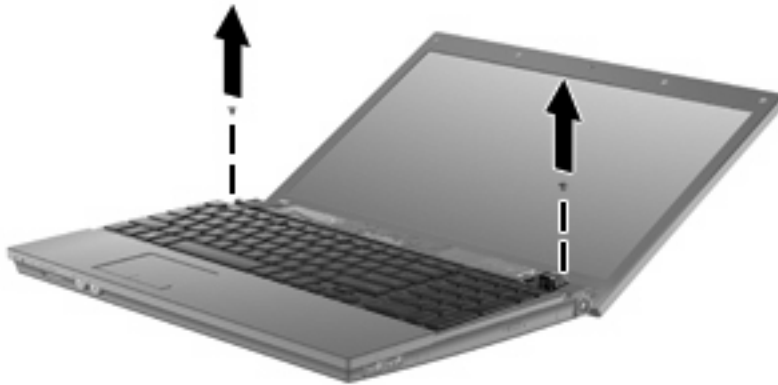




11. Remove the screws from the keyboard. Your computer has either 2 or 3 screws that need to be removed.

 **NOTE:** Refer to the illustration that most closely matches your computer.

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12. For 15- and 17-inch computers, slide the keyboard back toward the display (1), and then rotate it forward (2) to gain access to the keyboard cable connector.

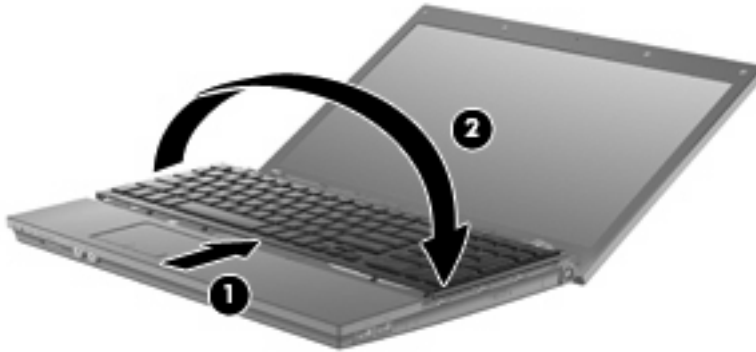


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△ **CAUTION:** Do not tear the keyboard cable.

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For 14-inch computers, slide the keyboard back toward the display (1), and then rotate it to the right-side (2) to gain access to the keyboard cable connector.



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△ **CAUTION:** Do not tear the keyboard cable.

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13. If you are replacing a memory module, remove the existing memory module:

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△ **CAUTION:** To prevent damage to the memory module, hold the memory module by the edges only. Do not touch the components on the memory module.

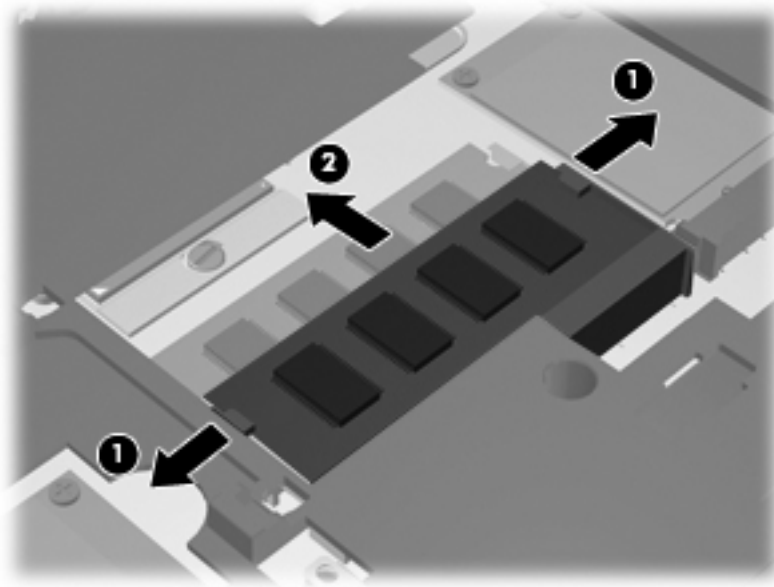
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- a. Pull away the retention clips (1) on each side of the memory module.

The memory module tilts up.

- b.** Grasp the edge of the memory module **(2)**, and gently pull the module out of the memory module slot.

To protect a memory module after removal, place it in an electrostatic-safe container.



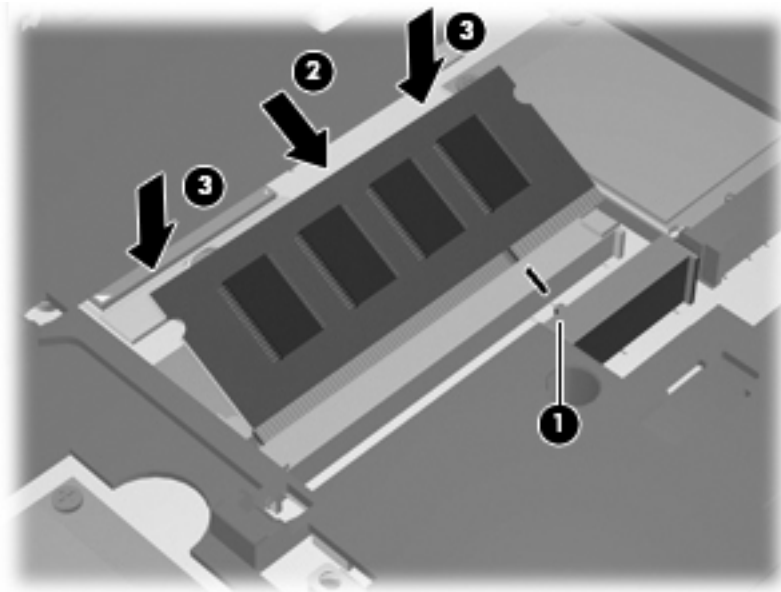
**14.** Insert a new memory module:

△ **CAUTION:** To prevent damage to the memory module, hold the memory module by the edges only. Do not touch the components on the memory module.

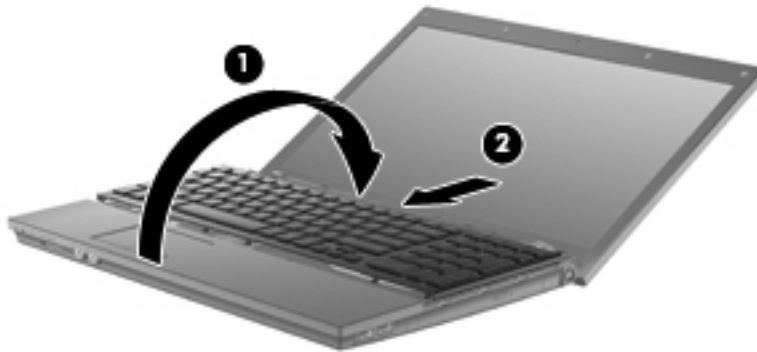
- a.** Align the notched edge **(1)** of the memory module with the tab in the memory module slot.
- b.** With the memory module at a 45-degree angle from the surface of the memory module compartment, press the module **(2)** into the memory module slot until it is seated.

△ **CAUTION:** To prevent damage to the memory module, do not bend the memory module.

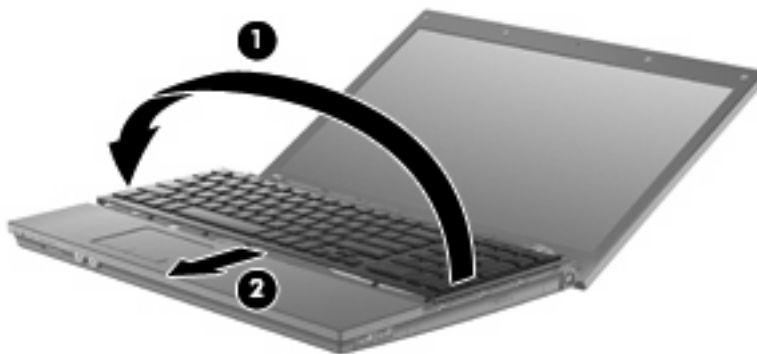
- c. Gently press the memory module (3) down, applying pressure to both the left and right edges of the memory module, until the retention clips snap into place.




- 15. For 15- and 17-inch computers, turn over the keyboard (1) into the keyboard tray, and then slide the keyboard into place (2).



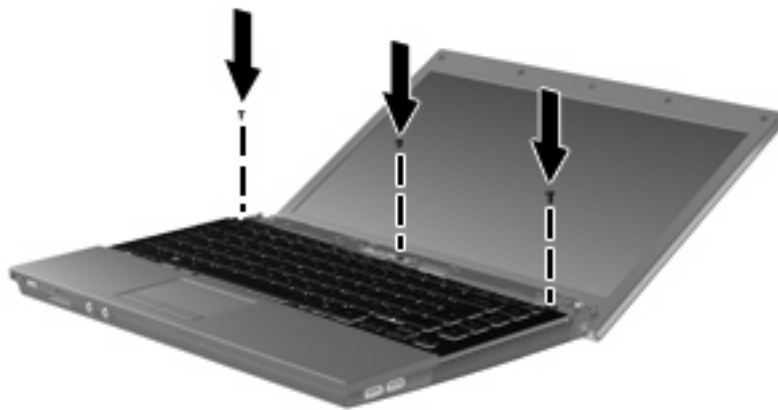
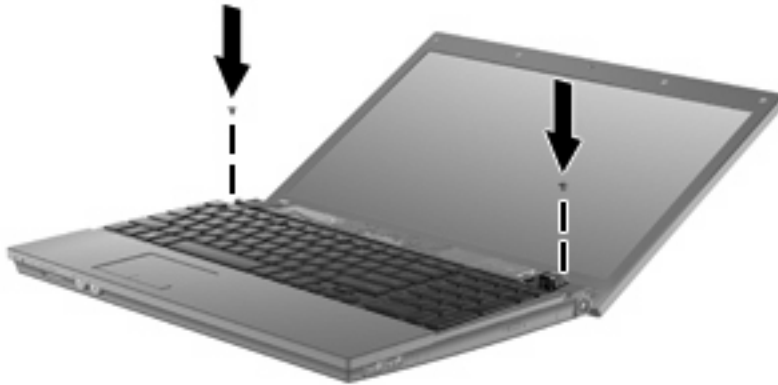
For 14-inch computers, turn over the keyboard (1) into the keyboard tray, and then slide the keyboard into place (2).



16. Replace the screws on the keyboard. Your computer has either 2 or 3 screws that need to be replaced.

 **NOTE:** Refer to the illustration that most closely matches your computer.

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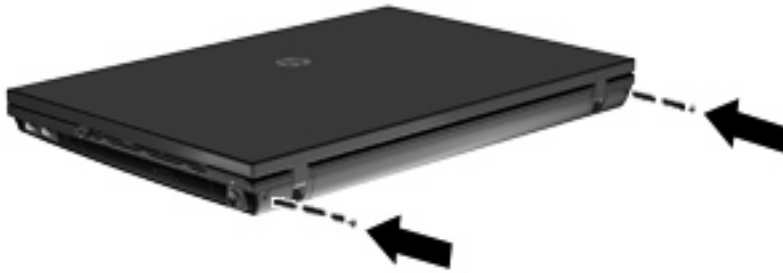


17. Slide the switch cover into place.




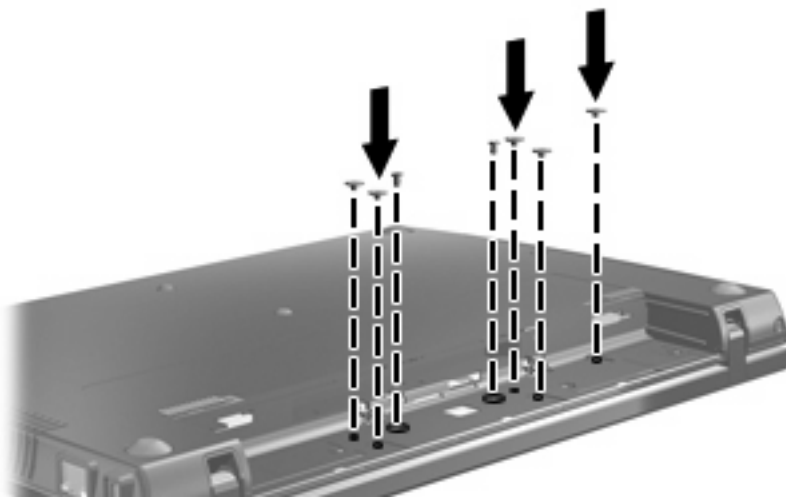
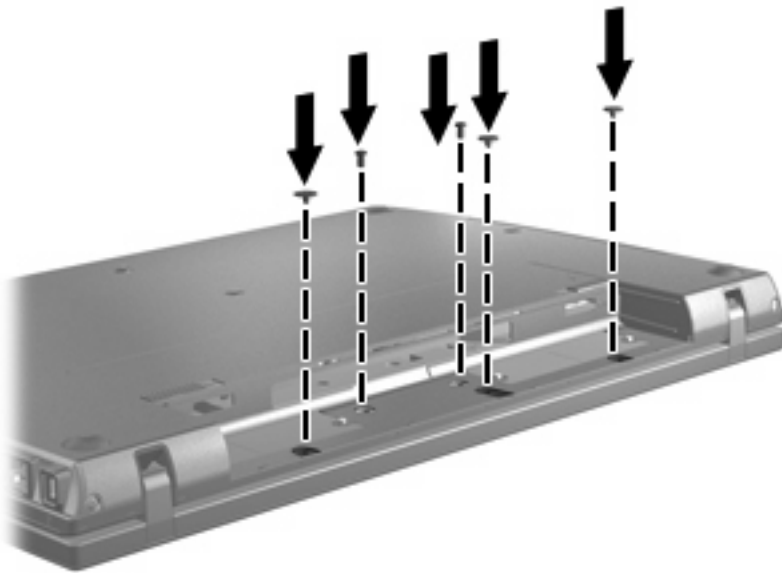
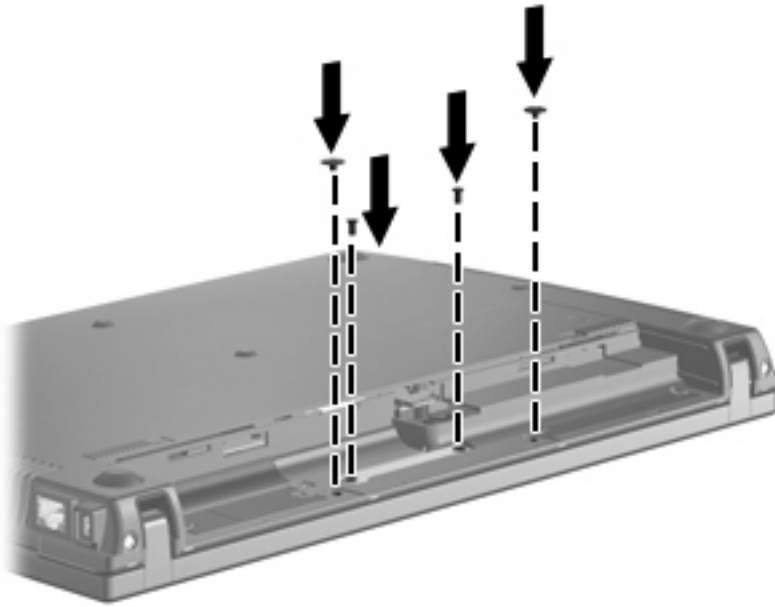
18. Close the computer display.

19. Replace the 2 screws and their covers on the back edge of the computer.



20. Replace the screws in the battery area. Your computer has 4, 5, or 7 screws that need to be replaced.

 **NOTE:** Refer to the illustration that most closely matches your computer.



21. Turn the computer upside down on a flat surface, and then replace the battery.
22. Reconnect external power and external devices.
23. Turn on the computer.



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