

# Memory Modules

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User Guide

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# 1 Adding or replacing memory modules

The computer has two memory module compartments. The primary memory module compartment is located under the keyboard. The expansion memory module compartment is located on the bottom of the computer.

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.



**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.

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**CAUTION** Electrostatic discharge (ESD) can damage electronic components. Before beginning any procedure, ensure that you are discharged of static electricity by touching a grounded metal object.

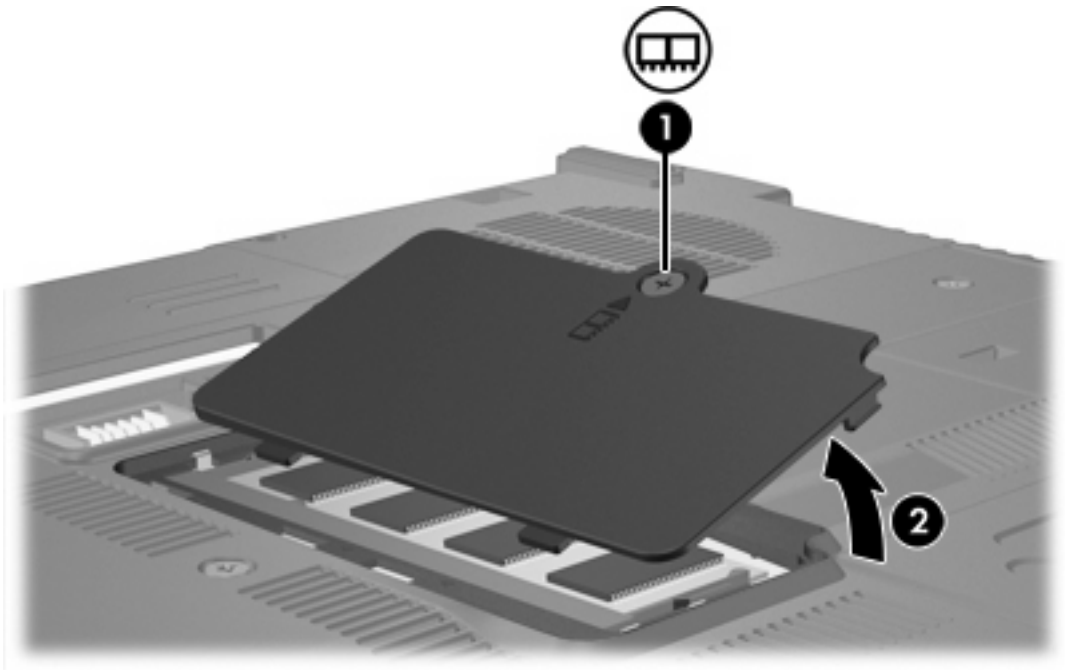
**CAUTION** To prevent damage to a memory module, hold the memory module by the edges only.

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## Adding a memory module to the expansion memory module slot

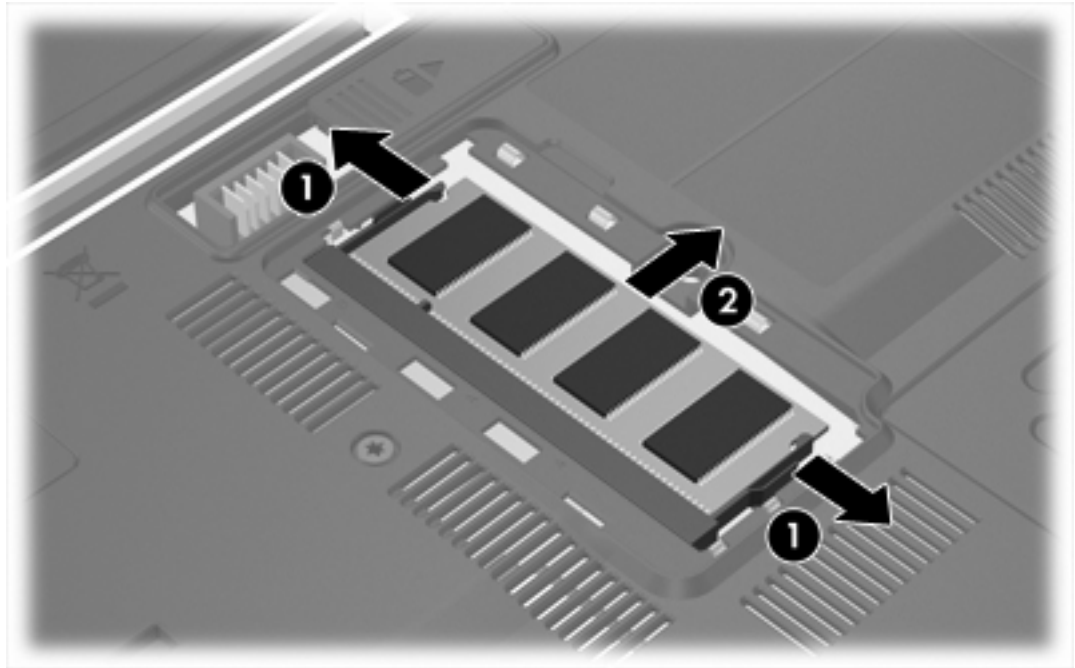
To add or replace a memory module in the expansion memory module slot:

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 pressing 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 from the AC outlet.
5. Turn the computer upside down on a flat surface.
6. Remove the battery from the computer.
7. Loosen the memory module compartment cover screw (1).
8. Lift the memory module compartment cover (2) away from the computer.



9. To remove a memory module:
  - 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.)



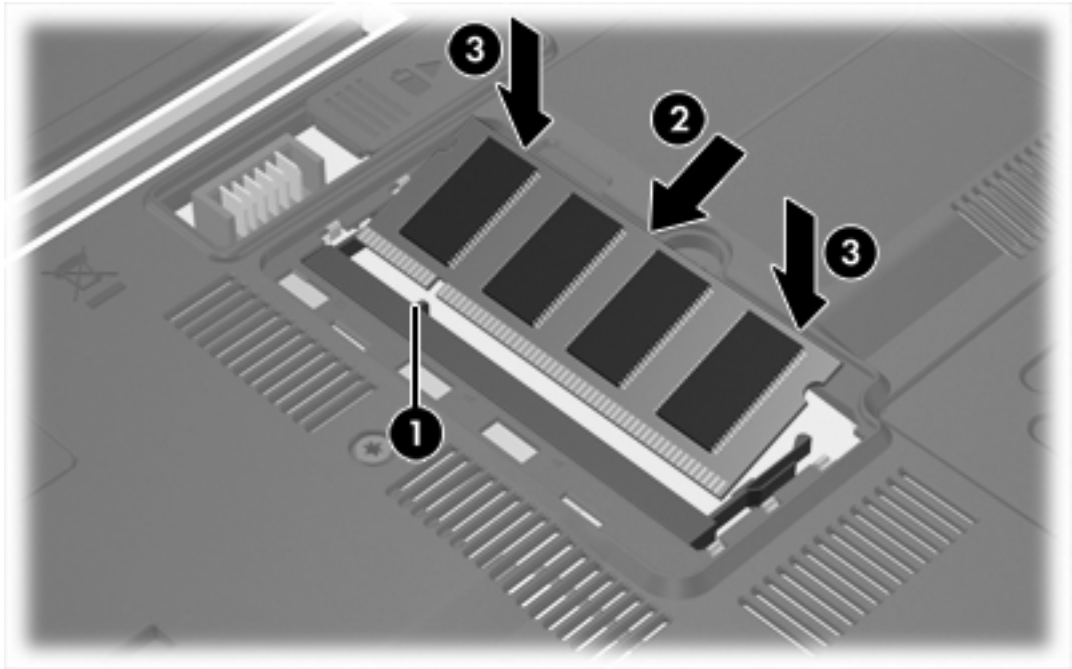
10. To insert a memory module:



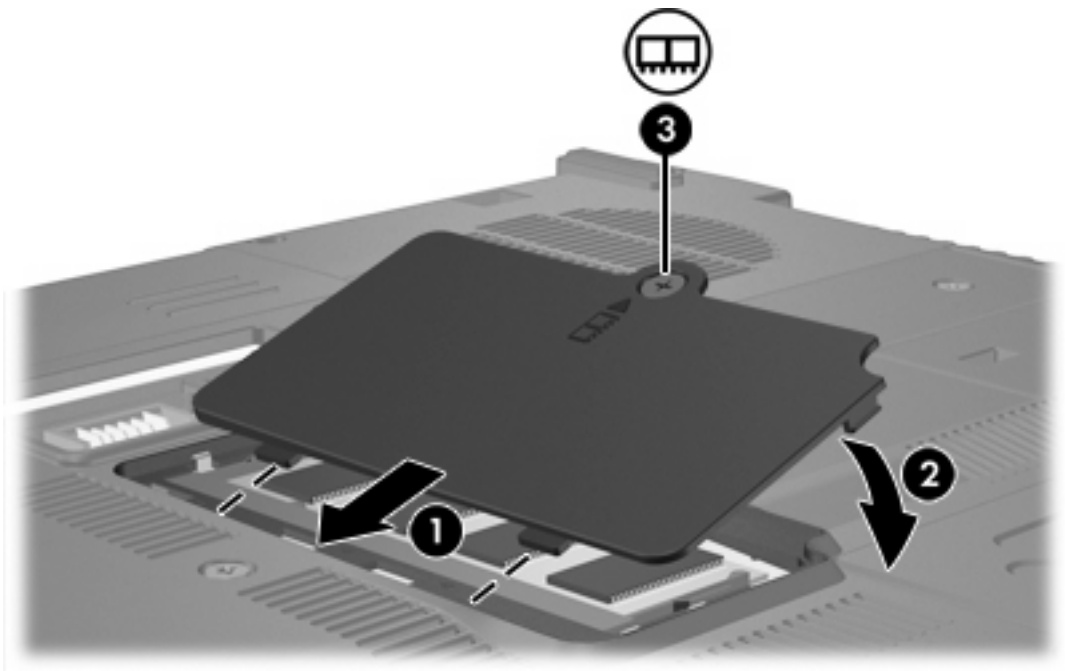
**CAUTION** To prevent damage to the memory module, be sure that you do not bend the memory module.

- 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.

- c. 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.



- 11. Align the tabs **(1)** on the memory module compartment cover with the notches on the computer.
- 12. Close the cover **(2)**.
- 13. Tighten the memory module compartment cover screw **(3)**.



- 14. Replace the battery.

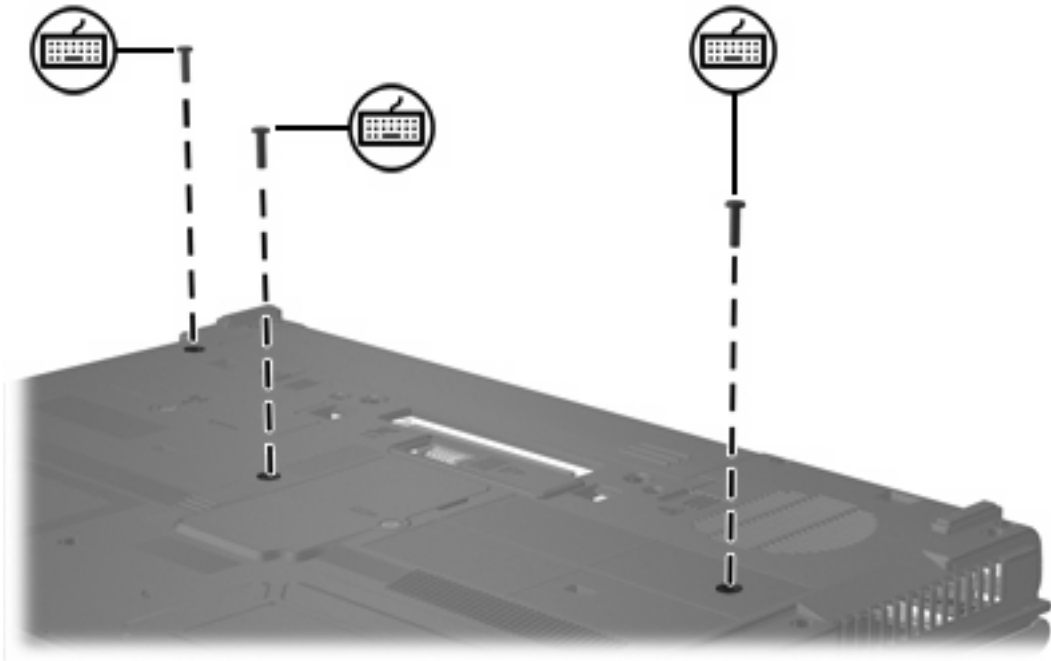


15. Reconnect external power and external devices.
16. Turn on the computer.

## Upgrading a memory module in the primary memory module slot

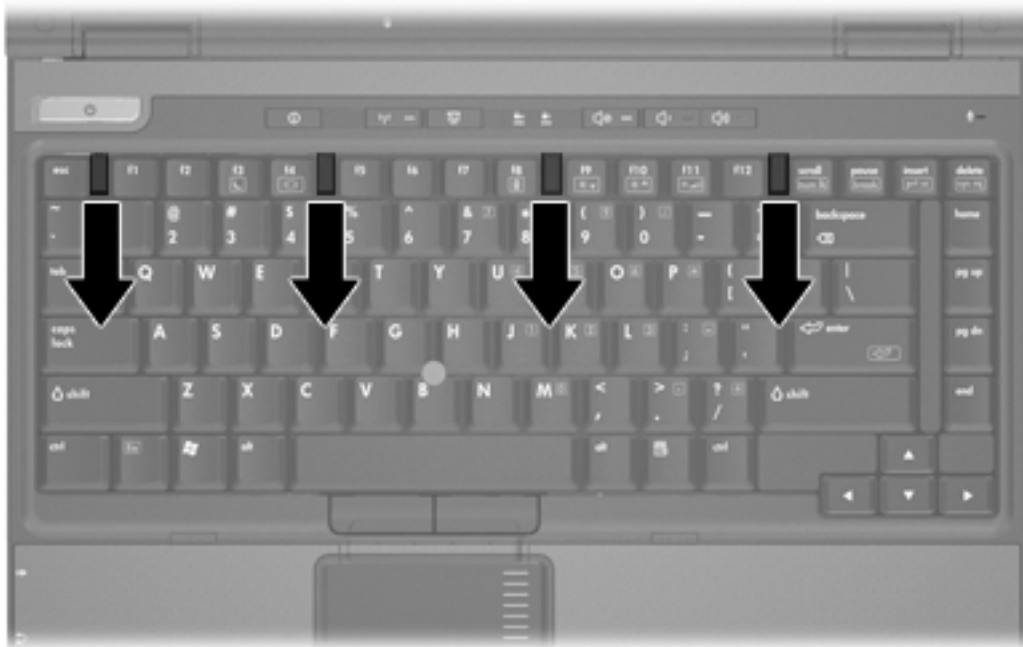
To upgrade a memory module in the primary memory module slot:

1. Save your work.
2. Shut down the computer. (If you are not sure whether the computer is off or in hibernation, turn the computer on by pressing 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 from the AC outlet.
5. Turn the computer upside down on a flat surface.
6. Remove the battery from the computer.
7. Remove the 3 keyboard screws.



8. Turn the computer over and open it.

- Slide the 4 keyboard release latches to release the keyboard.

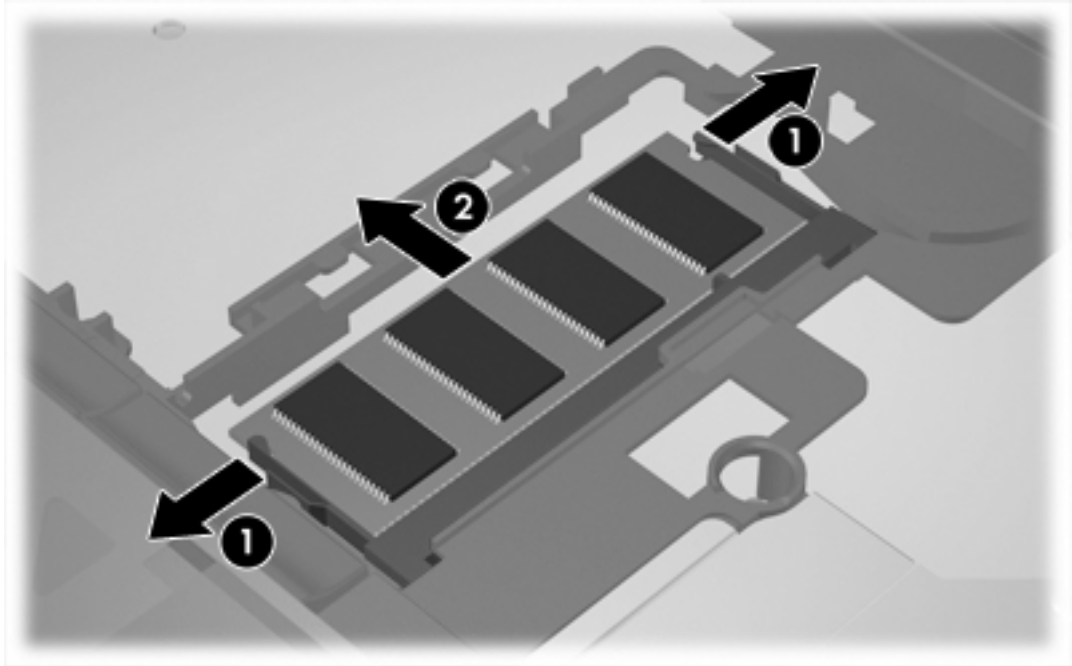


- Gently lift the top edge of the keyboard and tilt the keyboard over until it rests on the palm rest of the computer.



- Remove the memory module from the memory module slot:
  - 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.)



- 12. To insert a memory module:



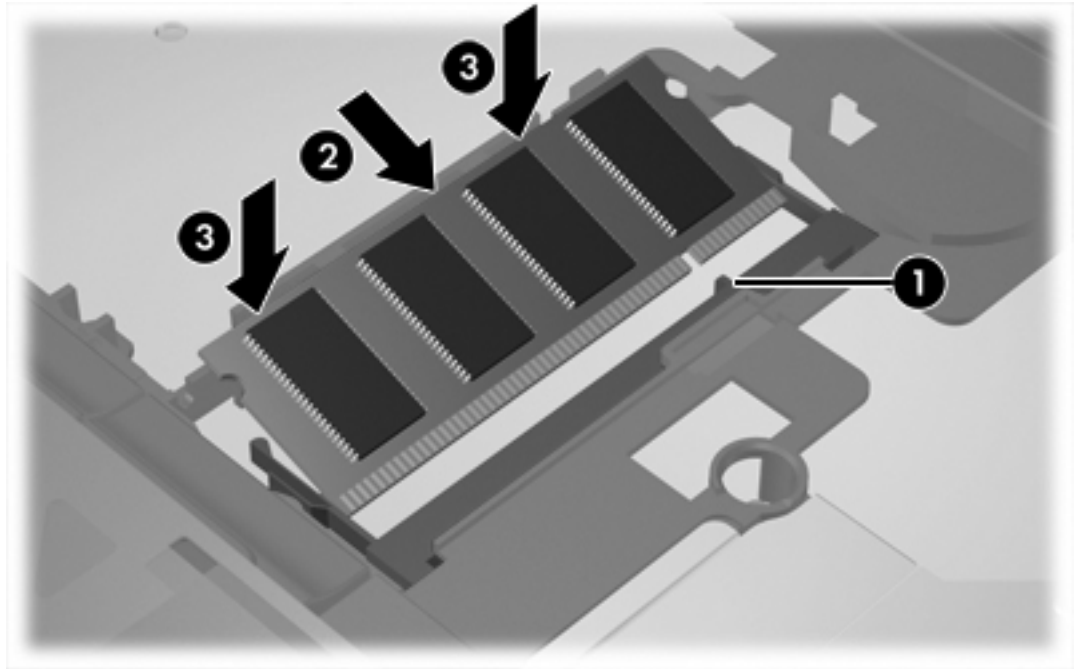
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**CAUTION** To prevent damage to the memory module, be sure that you do not bend the memory module.

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- 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.

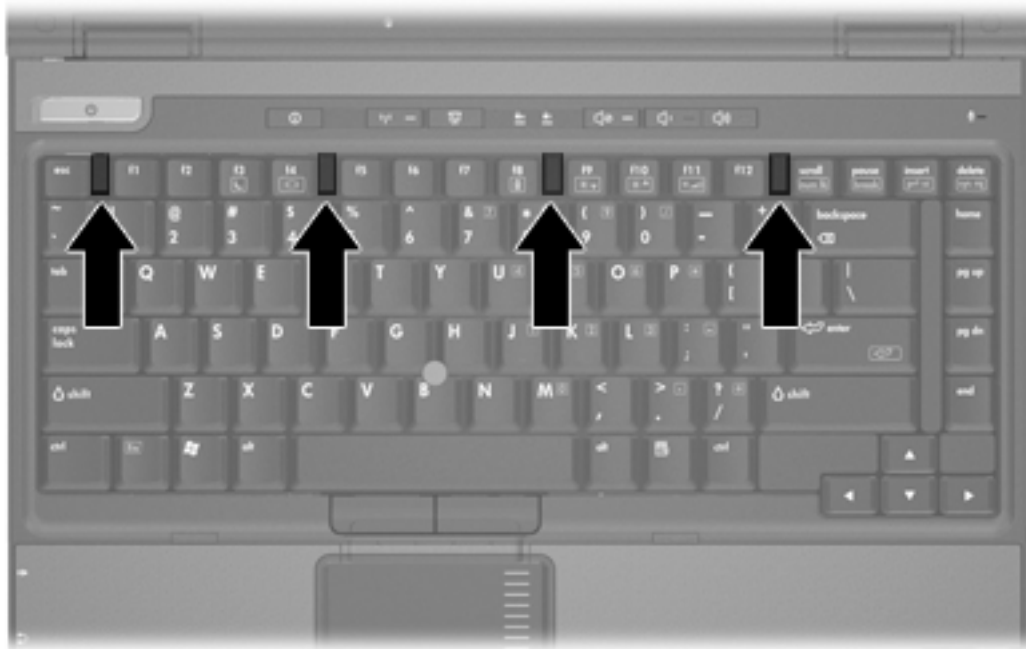
- c. Press the memory module (3) down, applying pressure to both the left and right edges of the memory module, until the retention clips snap into place.



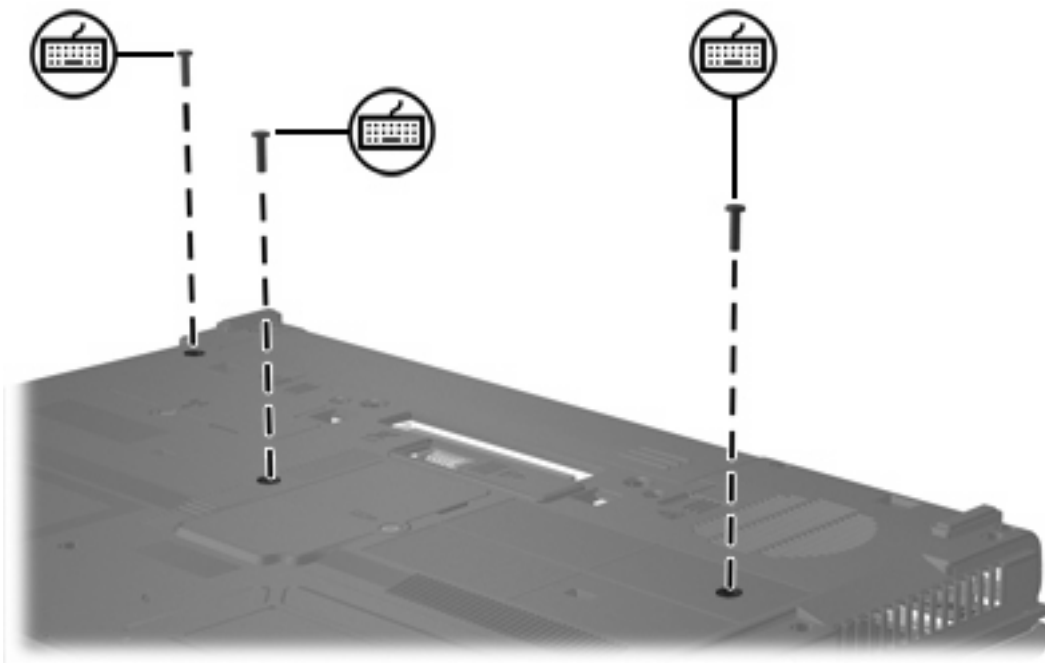
13. Return the keyboard to its previous position.



- Slide the 4 keyboard release latches to lock the keyboard.



- Turn the computer upside down on a flat surface.
- Replace the keyboard screws.



- Replace the battery.
- Reconnect external power and external devices.
- Turn on the computer.

## 2 Effects of increasing memory

When random access memory (RAM) increases, the operating system increases the hard drive space reserved for the hibernation file.

If you experience problems with hibernation after increasing memory, verify that the hard drive has enough free space to accommodate a larger hibernation file.

To display the amount of space required by the hibernation file:

- ▲ Select **Start > Control Panel > Performance and Maintenance > Power Options > Hibernate** tab.

To display the amount of memory in the system:

- Select **Start > Control Panel > Performance and Maintenance > System > General** tab.

–or–

- Press **fn + esc**.

To display the amount of free space on the hard drive:

1. Select **Start > My Computer**.
2. Right-click the primary hard drive listing, and then click **Properties**.





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