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SECTION 1

## **Removing and Replacing Parts**


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SECTION 2

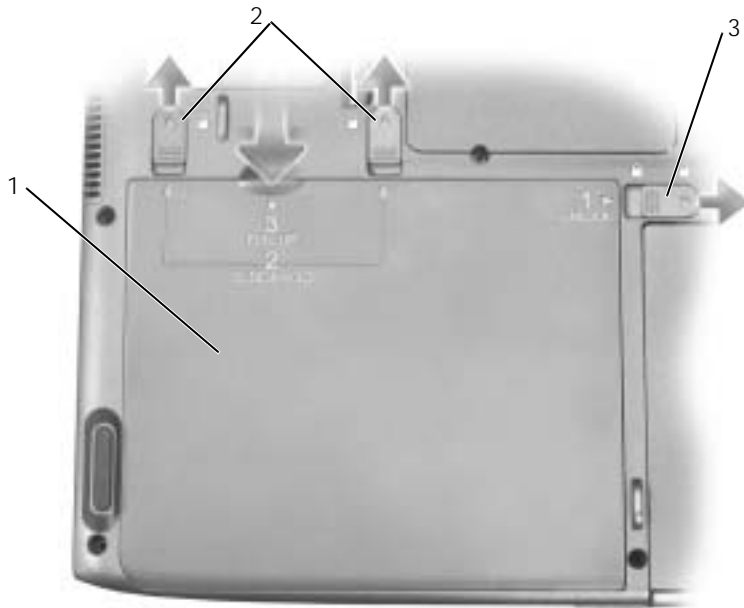
## **Before You Remove or Install Parts**

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 **HINT:** Ensure that the computer is off and not in a power management mode. If you cannot shut down the computer using the computer operating system, press and hold the power button for 4 seconds.

## Preparing to Work Inside the Computer

-  **CAUTION:** Only a certified service technician should perform repairs on your computer. Damage due to servicing that is not authorized by Dell is not covered by your warranty. Read and follow the safety instructions in the Dell *Owner's Manual*.
-  **NOTICE:** To avoid damaging the computer, perform the following steps before you begin working inside the computer.
- 1 Ensure that the work surface is flat and clean to prevent scratching the computer cover.
  - 2 Save any work in progress and exit all open programs.
  - 3 Shut down the computer and turn off all attached devices.
  - 4 Disconnect the computer from the electrical outlet.
  - 5 To avoid possible damage to the system board, wait 10 to 20 seconds and then disconnect any attached devices.
  - 6 Disconnect all other external cables from the computer.
  - 7 Remove any installed PC Cards or blanks from the PC Card slot.
  - 8 Close the display and turn the computer upside down on a flat work surface.
-  **NOTICE:** To avoid damaging the system board, you must remove the battery before you service the computer.



- |   |                       |
|---|-----------------------|
| 1 | battery               |
| 2 | battery latch release |
| 3 | battery lock          |

- 9 Remove the battery:
  - a Slide the battery lock to the unlock position.
  - b Slide the two battery latch releases toward the back of the computer and hold them.
  - c Lift the battery up using the raised tab toward the front of the computer.
  - d Remove the battery from the computer.
- 10 To dissipate any static electricity while you work, use a wrist grounding strap or periodically touch an unpainted metal surface.

- 11 Handle components and cards with care. Do not touch the components or contacts on a card. Hold a card by its edges or by its metal mounting bracket. Hold a component such as a microprocessor by its edges, not by its pins.

## Recommended Tools

The procedures in this document require the following tools:

- #1 magnetized Phillips screwdriver
- ¼-inch flat-blade screwdriver
- Nut driver
- Small plastic scribe
- Microprocessor extractor
- Flash BIOS program update floppy disk

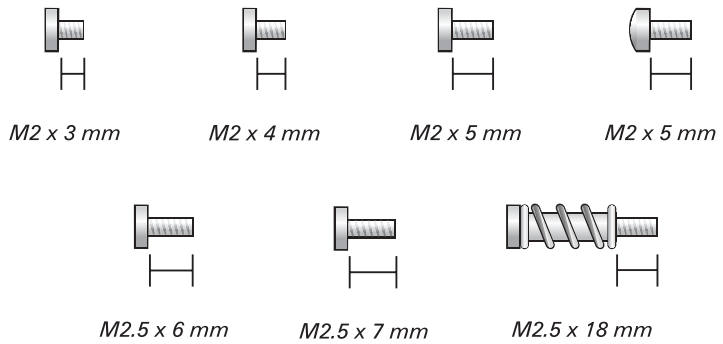
# Computer Orientation






<b>1</b>	back
<b>2</b>	right
<b>3</b>	front
<b>4</b>	left

## Screw Identification

When you are removing and installing components, print the following few pages as a placemat to lay out and keep track of the component screws. The placemat provides the number of screws and the sizes.



**➔ NOTICE:** When reinstalling a screw, you must use a screw of the correct diameter and length. Ensure that the screw is properly aligned with its corresponding hole, and avoid overtightening.

<p><b>Modem to system board:</b> (2 each)</p>  <p><i>M2 x 4 mm</i></p>	<p><b>Hard drive:</b> (4 each)</p>  <p><i>M2.5 x 6 mm</i></p>	<p><b>Keyboard</b> (3 each)</p>  <p><i>M2 x 4 mm</i></p>
---	--	---

**Display to bottom case:**

**(2 each)**



*M2.5 x 7 mm*

**Palm rest shield:**

**(1 each)**



*M2 x 5 mm*

**Display hinges:**

**(2 each)**



*M2.5 x 6 mm*

**(2 each)**















*M2 x 5 mm*

**(1 each)**



*M2 x 5 mm*

<p><b>Display bezel:</b>            large screw bumpers (2 each)            small screw bumpers (2 each)            screw cover (1 each)            (5 each)</p>  <p><i>M2.5 x 6 mm</i></p> <p>(2 each)</p>  <p><i>M2 x 3 mm</i></p> <p>(2 each)</p>  <p><i>M2 x 5 mm</i></p>	<p><b>Display inverter screw:</b>            (1 each)</p>  <p><i>M2.5 x 6 mm</i></p> <p><b>Display hinges screw:</b></p>  <p><i>M2.5 x 6 mm</i></p>	<p><b>Palm rest to bottom case:</b>            (2 each)</p>  <p><i>M2 x 5 mm</i></p> <p>(13 each)</p>  <p><i>M2.5 x 6 mm</i></p> <p>(1 each)</p>  <p><i>M2.5 x 6 mm</i></p> <p>(1 each)</p>  <p><i>M2 x 4 mm</i></p>
<p><b>Floppy drive to system board:</b>            (1 each)</p>  <p><i>M2 x 5 mm</i></p>	<p><b>Thermal assembly to heat sink:</b>            (4 each)</p>  <p><i>M2.5 x 18 mm</i></p>	<p><b>Speaker to bottom case:</b>            (2 each)</p>  <p><i>M2 x 4 mm</i></p>

**Video shield:**

**(4 each)**



*M2 x 5 mm*

**Motherboard shield:**

**(2 each)**



*M2 x 5 mm*

**System board to bottom case:**

**(3 each)**



*M2 x 5 mm*

**(1 each)**



*M2 x 4 mm*

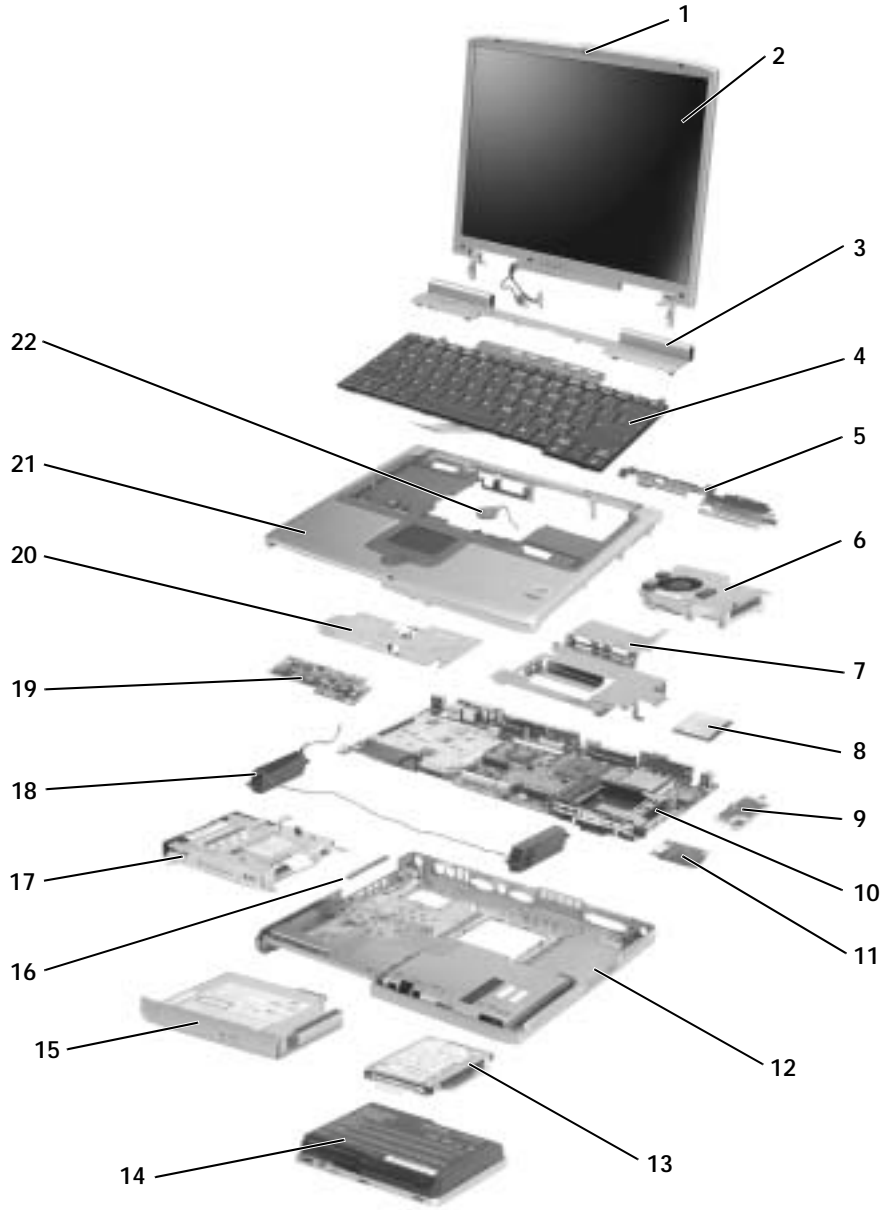


SECTION 3

## **System Components**

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- ➡ **NOTICE:** Only a certified service technician should perform repairs on your computer. Damage due to servicing that is not authorized by Dell is not covered by your warranty.
- ➡ **NOTICE:** Unless otherwise noted, each procedure in this document assumes that a part can be replaced by performing the removal procedure in reverse order.



1	display latch	12	bottom case
2	display	13	hard drive
3	hinge cover	14	battery
4	keyboard	15	optical drive
5	palm rest shield	16	rubber bumper
6	microprocessor thermal-cooling assembly	17	floppy drive
7	system board shield	18	speakers (2)
8	microprocessor module	19	charger board
9	power shield	20	video shield
10	system board	21	palm rest
11	modem	22	reserve battery

SECTION 4

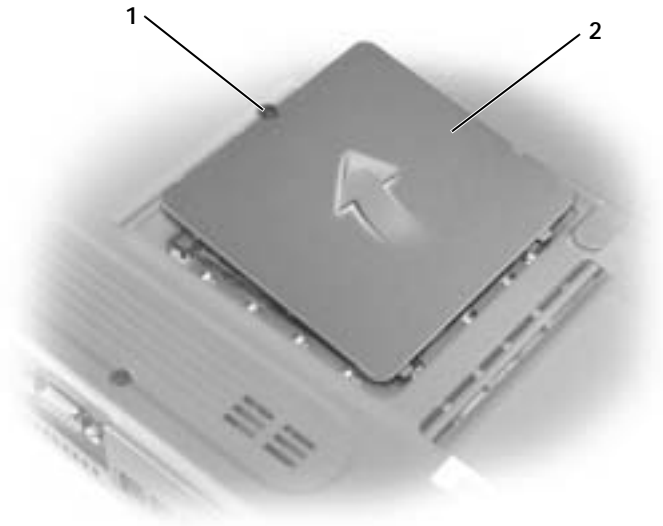
## **Memory Module, Modem, and Optical Drive**

---

# Memory Module

## Removing the Memory Module

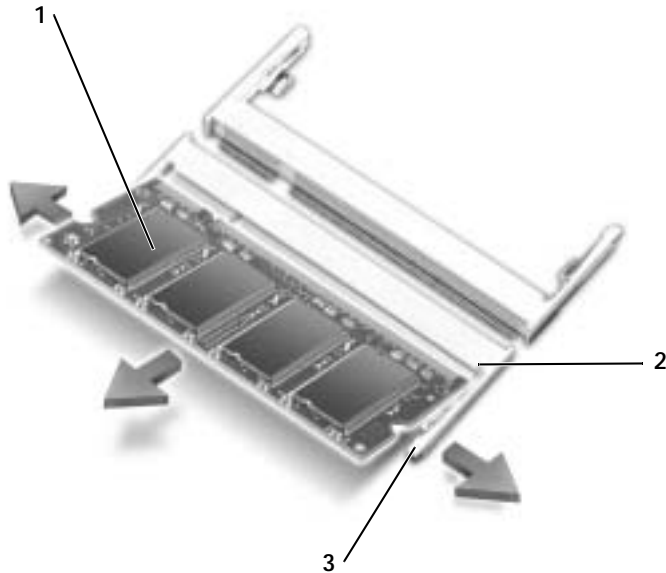
- ➡ **NOTICE:** Disconnect the computer and any attached devices from electrical outlets, and remove any installed battery.
- ➡ **NOTICE:** To avoid ESD, ground yourself by using a wrist grounding strap or by touching an unpainted metal surface on the computer.
- ➡ **NOTICE:** Read "[Preparing to Work Inside the Computer](#)" before performing the following procedure.



1	captive screw
2	memory module cover

- 1 Turn the computer over, and remove the memory module cover:
  - a Loosen the captive screw on the memory module cover.
  - b Lift the door.

- NOTICE:** To prevent damage to the memory module connector, do not use tools to spread securing clips that hold the memory module; use your fingers.



---

1 memory module

---

2 memory module  
connector

---

3 securing clip

---

- 2** If you are installing a memory module, remove the existing module.

- NOTICE:** Handle memory modules by their edges, and do not touch the components on a module.

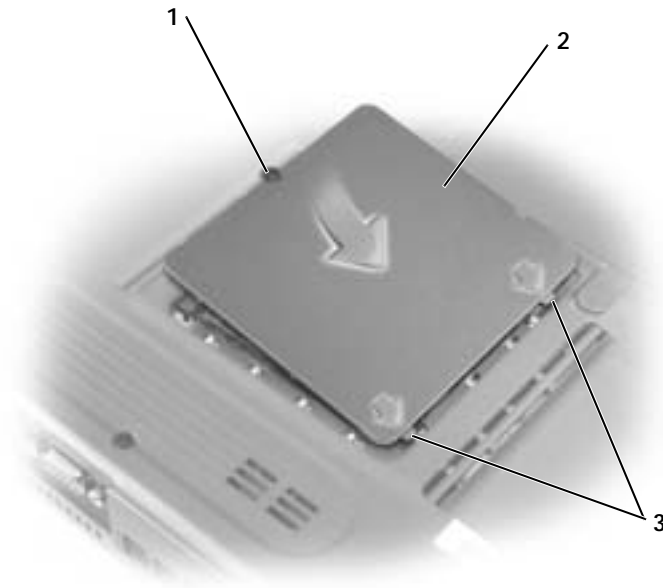
- a Use your fingertips to carefully spread apart the securing clips on each end of the memory module connector. The module normally pops up.
- b Remove the module from the connector.



**HINT:** If you are installing one memory module, install it in the socket labeled "DIMM A." If you are installing a second module, install it in the socket labeled "DIMM B."

**3 Ground yourself and install the new memory module:**

- a Align the notch in the module with the slot in the center of the connector at approximately a 45-degree angle.
- b Slide the edge of the module firmly into the connector, and rotate the module down until it clicks into place. If you do not feel a click, remove the module and reinstall it.



1	captive screw
2	memory module cover
3	tabs

**4** Replace the cover:

- a Place the memory module cover over the memory module compartment so that the tabs on the back of the memory module cover fit into the slots in the bottom case.
- b Rotate the memory module cover down and tighten the captive screw.

**NOTICE:** If the memory module cover is difficult to close, remove the module and reinstall it. Forcing the cover to close may damage your computer.

- 5** Insert the battery into the battery bay, or connect the AC adapter to your computer and an electrical outlet.
- 6** Turn on the computer.

As the computer boots, it detects the additional memory and automatically updates the system configuration information.

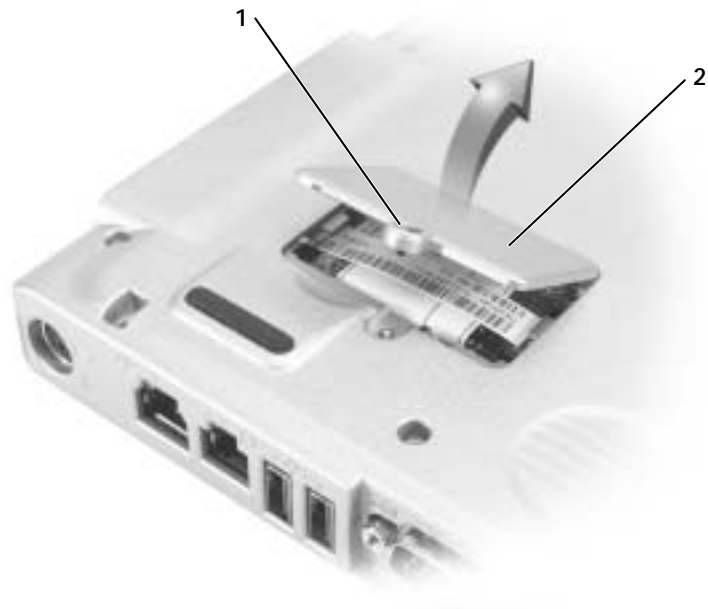
## Modem

**⚠ CAUTION:** Before performing these procedures, shut down the computer, disconnect it from the electrical outlet, and disconnect the modem from the telephone wall jack.

**🔄 NOTICE:** Disconnect any attached devices from electrical outlets, and remove any installed battery.

**🔄 NOTICE:** To avoid ESD, ground yourself by using a wrist grounding strap or by touching an unpainted metal surface on the computer.

**🔄 NOTICE:** Read "[Preparing to Work Inside the Computer](#)" before performing the following procedure.



---

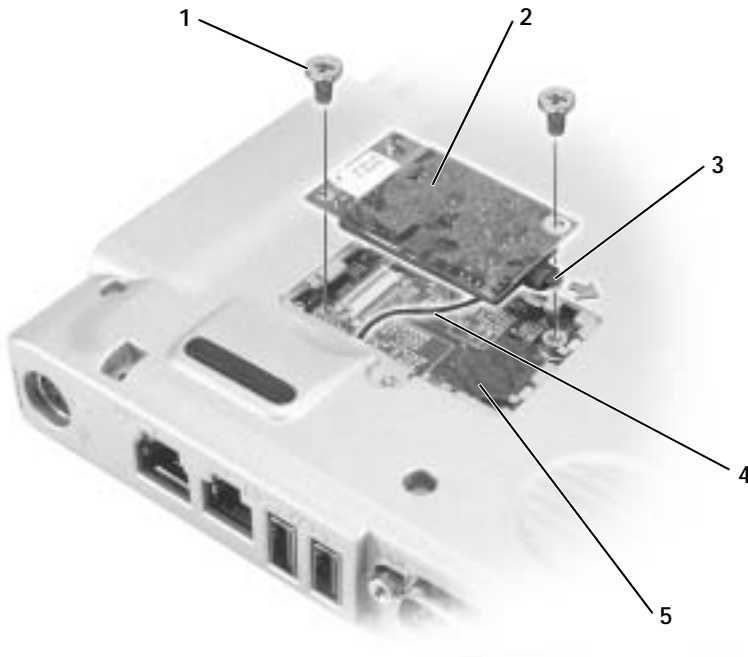
1 captive screw

---

2 modem cover

---

- 1 Turn the computer over, and remove the modem cover:
  - a Loosen the captive screw in the modem cover.
  - b Lift the modem cover away from the computer.

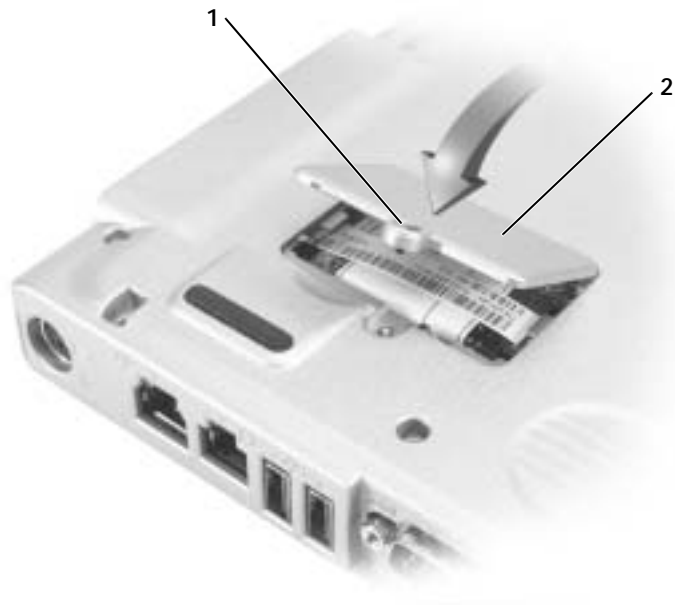


1	M2 x 4-mm screws (2)
2	modem
3	modem cable connector
4	modem cable
5	system board

- 2 Remove the existing modem:

**HINT:** If the modem label is covering the screw, temporarily lift the label so that you can reach the screw.

- a Remove the two flat-headed M2 x 4-mm screws that secure the modem to the system board, and set them aside.
  - b Lift the modem out of its connector, ensuring that you do not pull on the modem cable.
  - c Pull on the modem cable connector to disconnect the cable from the modem.
  - d Lift out the modem.
- 3 Connect the modem cable to the new modem and tuck the cable beneath the modem.
- NOTICE:** The modem cable connector is keyed for correct insertion; do not force the connections.
- 4 Align the modem with the screw holes and press the modem into its connector on the system board.
- 5 Install the two flat-headed M2 x 4-mm screws to secure the modem to the system board.



---

1 captive screw

---

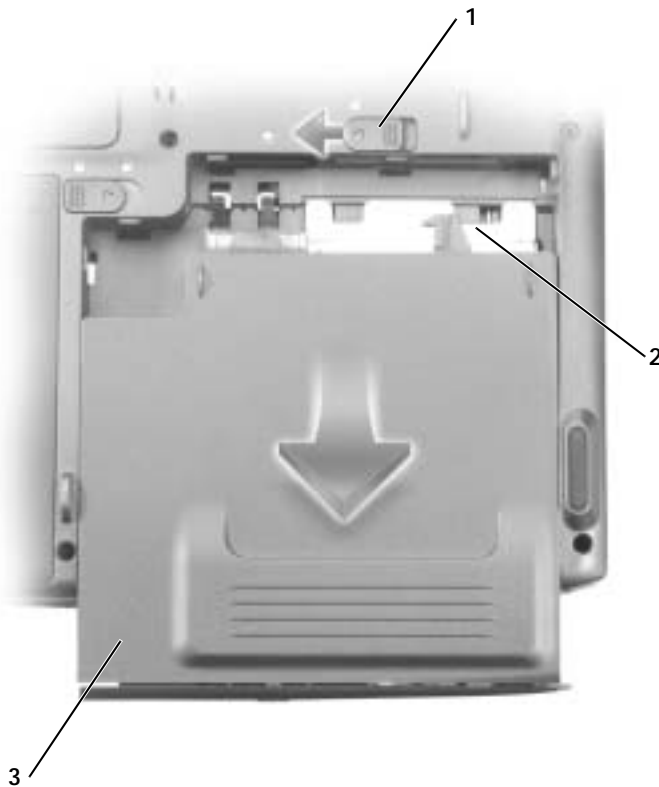
2 modem cover

---

6 Replace the modem cover and tighten the captive screw.

**NOTICE:** Replace the modem cover so that it is seated properly around the edges and does not bulge near the center of the cover. Tightening the modem cover screw when the cover is improperly seated can damage your computer.

## Optical Drive



- |   |                          |
|---|--------------------------|
| 1 | module-bay latch release |
| 2 | module bay               |
| 3 | optical drive            |

Slide the module-bay latch release open while pulling the optical drive straight out of the module bay.


### **Installing an Optical Drive**


- 1 Line up the optical drive with the module bay.
- 2 Push the optical drive straight into the module bay until the drive clicks into place.


SECTION 5


## Hard Drive

## Removing the Hard Drive

 **CAUTION:** If you remove the hard drive from the computer when the drive is hot, *do not touch* the metal housing of the hard drive.


 **NOTICE:** To prevent data loss, shut down the computer before removing the hard drive. Do not remove the hard drive while the computer is on or in a power management mode.


 **NOTICE:** Hard drives are extremely fragile; even a slight bump can damage the drive.

 **NOTICE:** Read "[Preparing to Work Inside the Computer](#)" before performing the following procedure.


**1 Ensure that the work surface is flat and clean to prevent scratching the computer cover.**

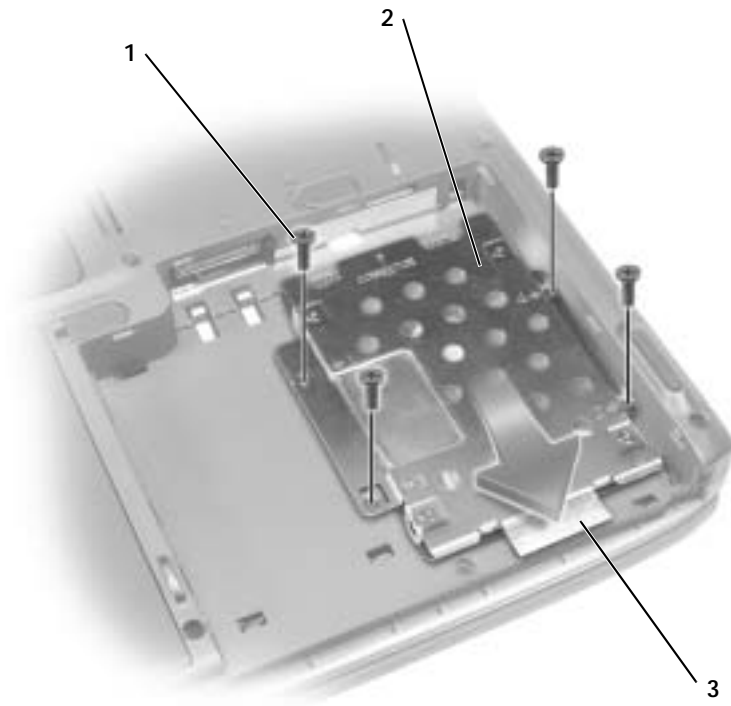
**2 Save and close any open files, exit any open programs, and shut down the computer.**

 **NOTICE:** Disconnect the computer and any attached devices from electrical outlets, and remove any installed battery.

 **NOTICE:** To avoid ESD, ground yourself by using a wrist grounding strap or by touching an unpainted metal surface on the computer.

**3 Turn the computer over and remove the optical drive from the module bay.**

 **NOTICE:** When the hard drive is not installed in the computer, store it in protective antistatic packaging.



---

1 black, numbered M2.5 x 6-mm screws (4)

---

2 hard drive

---

3 pull-tab

---

- 4 Remove the four black, numbered M2.5 x 6-mm screws that attach the hard drive to its base in the module bay. Remove the screws in numerical order.

**NOTICE:** Pushing down on the top of the hard drive can damage the drive.

- 5 Slightly lift the hard drive and remove the drive from the bay by pulling directly on the pull-tab at the front of the drive.

## Installing the Hard Drive

- 1 Remove the new hard drive from its packaging. Save the original packaging for use when storing or shipping the hard drive.



**NOTICE:** Use firm and even pressure to slide the hard drive into place. If you force the drive into place using excessive force, you may damage the connector.

- 2 Lower the hard drive flat into the hard drive bay.
- 3 Push the hard drive toward the back of the computer until the drive engages securely with the connectors at the back of the bay.
- 4 Reinstall the four M2.5 x 6-mm screws in the same order in which they were removed.
- 5 Use the *Operating System* CD to install the operating system for your computer.
- 6 Use the *Drivers and Utilities* CD to install the drivers and utilities for your computer.

# 6

SECTION 6

## Keyboard

## Removing the Keyboard

- ➡ **NOTICE:** Disconnect the computer and any attached devices from electrical outlets, and remove any installed battery.
- ➡ **NOTICE:** To avoid ESD, ground yourself by using a wrist grounding strap or by touching an unpainted metal surface on the computer.
- ➡ **NOTICE:** Read "[Preparing to Work Inside the Computer](#)" before performing the following procedure.



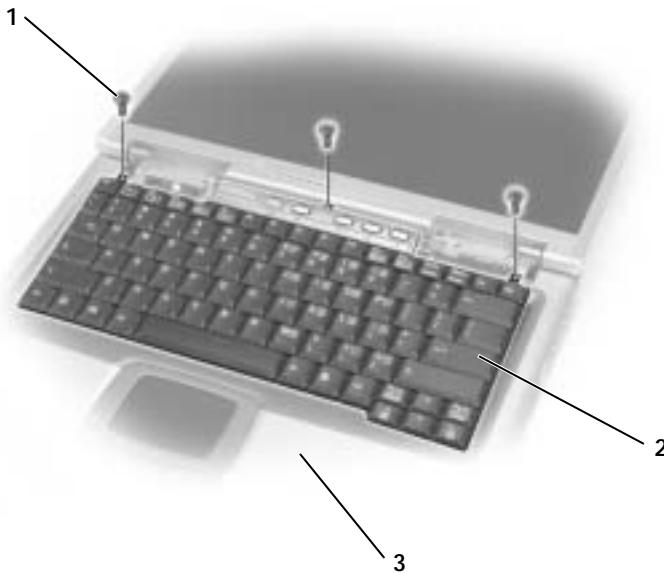
- 
- |   |                              |
|---|------------------------------|
| 1 | hinge cover                  |
| 2 | plastic scribe               |
| 3 | power button cable           |
| 4 | power-button board connector |
-

**1 Remove the hinge cover:**

- a Using a plastic scribe, pry up under each end of the hinge cover until it pops out.

**NOTICE:** Do not pull the hinge cover away from the computer immediately.

- b Remove the power button cable from the power-button board connector located on the back of the hinge cover.
- c Lift the hinge cover away from the computer.



---

1 silver, flat-headed  
M2 x 4-mm screws (3)

---

2 keyboard

---

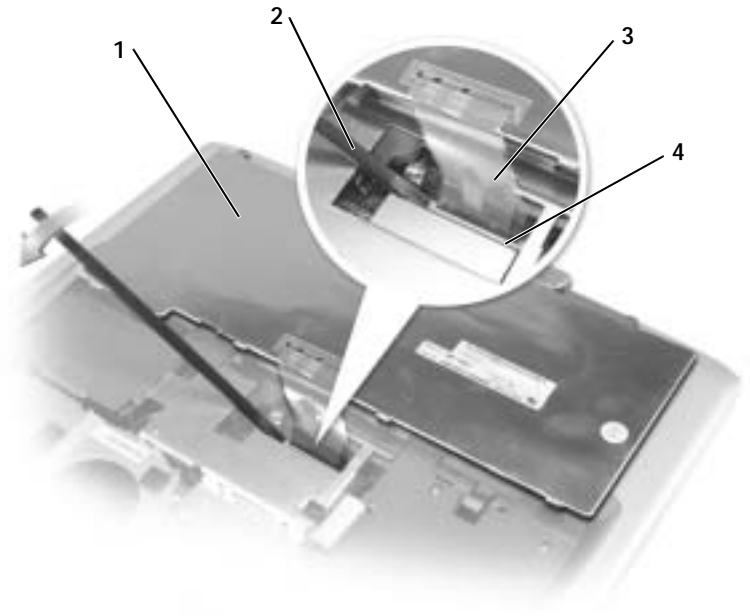
3 palm rest

---

**2 Remove the three silver, flat-headed M2 x 4-mm screws across the top of the keyboard.**

**NOTICE:** The keycaps on the keyboard are fragile, easily dislodged, and time-consuming to replace. Be careful when removing and handling the keyboard.

- 3 Lift the keyboard straight up until it clears the top of the bottom case.
- 4 Rotate the keyboard toward the front of the computer.
- 5 Rest the key face of the keyboard on the palm rest.



---

1 keyboard resting on palm rest

---

2 plastic scribe

---

3 keyboard flex cable

---

4 keyboard flex-cable connector

---

**NOTICE:** Do not pull on the keyboard flex cable.

- 6 Using a plastic scribe, lift both sides of the keyboard flex-cable connector.
- 7 Lift the keyboard out of the bottom case.

## Installing the Keyboard

➡ **NOTICE:** The keycaps on the keyboard are fragile, easily dislodged, and time-consuming to replace. Be careful when handling and installing the keyboard.

- 1 **Place the keyboard on the palm rest at the front of the computer with the keys face down and the keyboard flex-cable connector toward the back of the computer.**

➡ **NOTICE:** To avoid damage to the connector pins, press the keyboard flex-cable connector evenly into the keyboard flex-cable connector on the system board, and do not reverse the keyboard flex-cable connector.

- 2 **Insert the keyboard flex cable into the keyboard flex-cable connector on the system board until the cable is completely inside the connector.**
- 3 **Press down on the two corners of the keyboard flex-cable connector until the keyboard flex cable is secure.**

➡ **NOTICE:** Position the keyboard flex cable so that it is not pinched when you replace the keyboard in the bottom case.

- 4 **Rotate the keyboard forward and fit it into the bottom case, ensuring that the tabs at the bottom of the keyboard fit into place.**

When the keyboard appears to be completely seated, ensure that the front edge of the keyboard is aligned with the edge of the palm rest before proceeding. The keys should be flush with the left and right surfaces of the palm rest.

- 5 **Replace the three M2 x 4-mm screws at the top of the keyboard.**
- 6 **Replace the power button cable from the power button board located on the back of the hinge cover.**
- 7 **Replace the hinge cover, and ensure that the hinge cover is flush with the keyboard.**



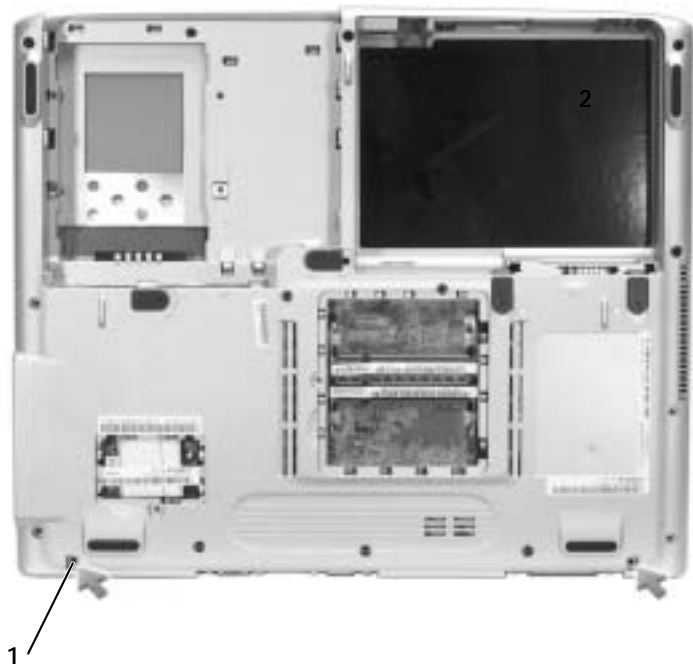
SECTION 7

## **Display Assembly and Display Latch**

---

## Display Assembly

- ➔ **NOTICE:** You must remove the display assembly before you remove the palm rest.
  - ➔ **NOTICE:** Disconnect the computer and any attached devices from electrical outlets, and remove any installed battery.
  - ➔ **NOTICE:** To avoid ESD, ground yourself by using a wrist grounding strap or by touching an unpainted metal surface on the computer.
  - ➔ **NOTICE:** Read "[Preparing to Work Inside the Computer](#)" before performing the following procedure.
- 1 Remove the **keyboard**.
  - 2 Close the display.

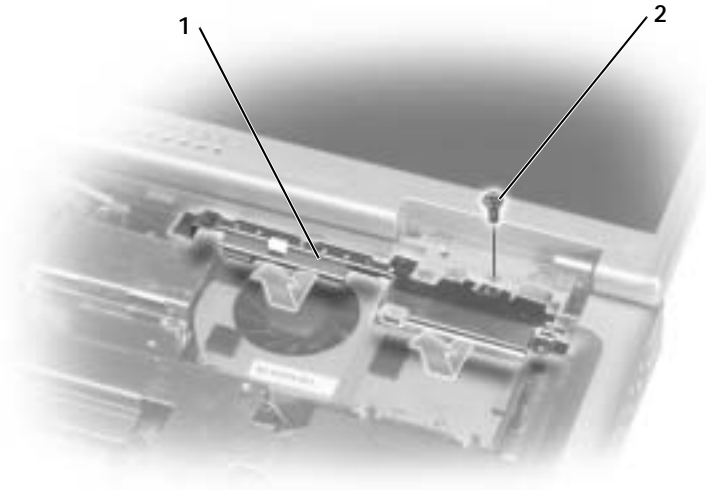


---

1 M2.5 x 7-mm screws (2)

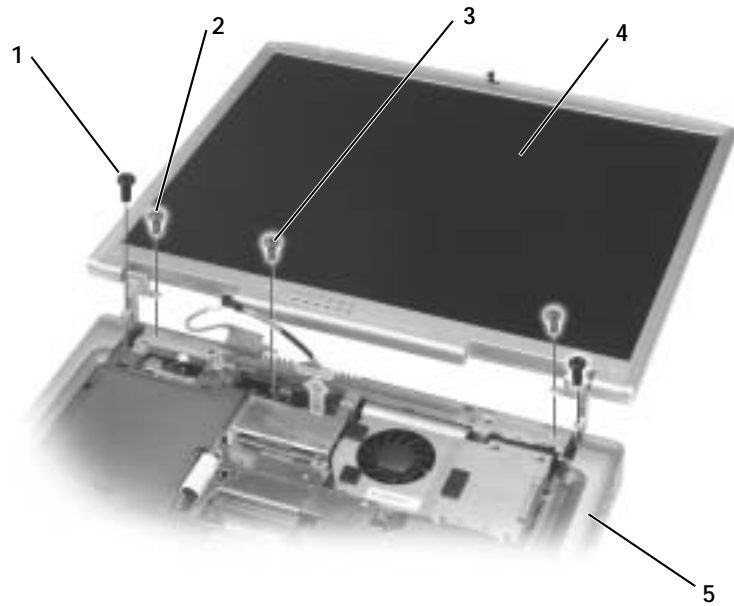
---

- 3 Turn the computer upside down, and remove the two M2.5 x 7-mm screws from the bottom of the computer.



- 
- |   |                              |
|---|------------------------------|
| 1 | palm rest shield             |
| 2 | round-headed M2 x 5-mm screw |
- 

- 4 Turn the computer top side up and remove the round-headed M2 x 5-mm screw that attaches the palm rest shield to the system board.
- 5 Lift the palm rest shield away from the computer.



---

1 black M2.5 x 6-mm screws  
(2)

---

2 silver M2 x 5-mm screws  
(2)

---

3 M2 x 5-mm display cable  
screw

---

4 display

---

5 bottom case

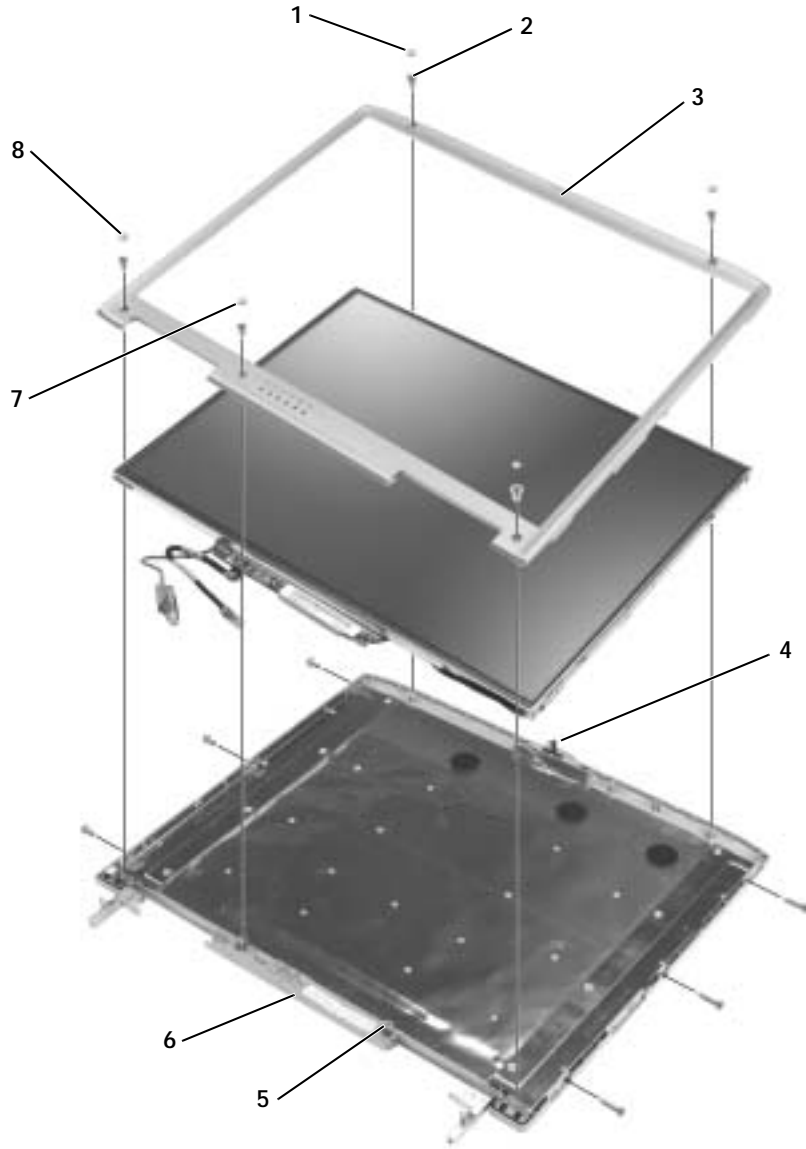
---

- 6 Remove two black M2.5 x 6-screws from the top of the computer.
- 7 Remove the two silver, round-headed M2 x 5-mm screws from the top of the computer.
- 8 Pull up and remove the black display cable from its connector.
- 9 Remove the round-headed M2 x 5-mm screw from the gray display cable, and use the pull-tab to remove the gray cable from its connector. Ensure that the gray cable is clear of the palm rest.

- 10 Lift straight up and remove the display from the bottom case.

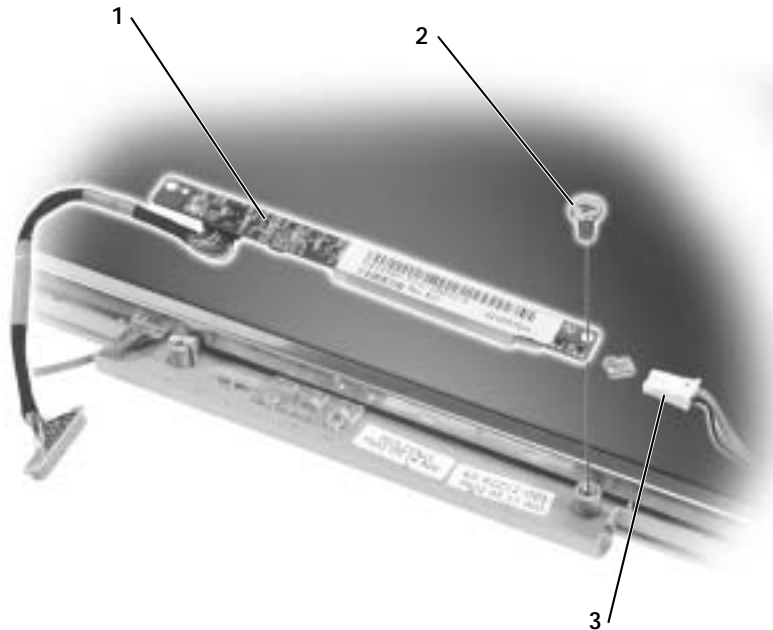
## Display Bezel

- ⓘ **NOTICE:** Disconnect the computer and any attached devices from electrical outlets, and remove any installed battery.
  - ⓘ **NOTICE:** To avoid ESD, ground yourself by using a wrist grounding strap or by touching an unpainted metal surface on the computer.
  - ⓘ **NOTICE:** Read "[Preparing to Work Inside the Computer](#)" before performing the following procedure.
- 1 Remove the [keyboard](#).
  - 2 Remove the [display assembly](#).



1	large screw bumpers (2)	5	M2.5 x 6-mm inverter screw
2	2.5 x 6 mm screws (5)	6	top cover
3	display bezel	7	screw cover (1)
4	display latch	8	small screw bumpers (2)

- 3 Use a plastic scribe to pry the two large screw bumpers, the two small screw bumpers, and the one screw cover out of the screw holes located on the front of the bezel.
- 4 Remove the five M2.5 x 6-screws located on the front of the bezel.
- ➔ **NOTICE:** Carefully separate the bezel from the top cover to avoid damage to the bezel.
- 5 Starting at the bottom of the display panel, use your fingers to separate the bezel from the top cover by lifting the inside of the bezel while pushing in on the outside.

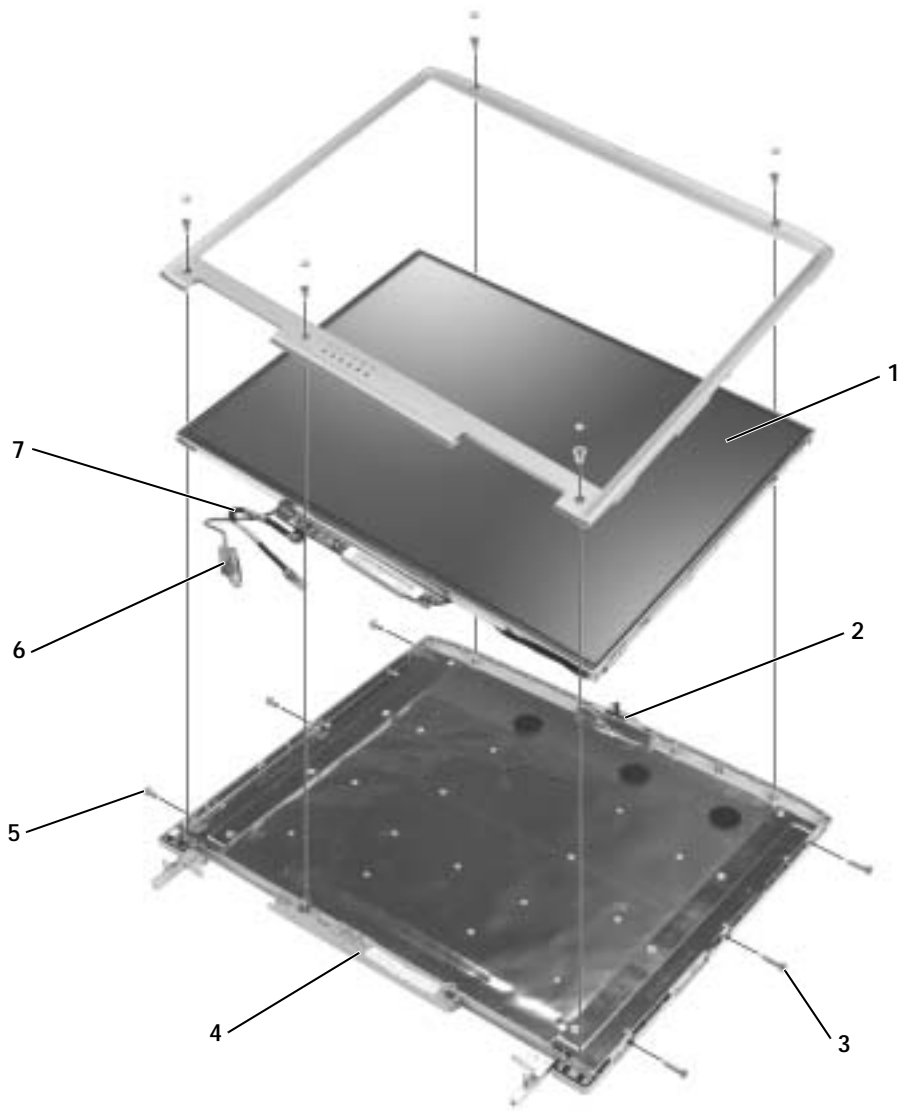


1	inverter
2	M2.5 x 6-mm inverter screw
3	inverter connector cable

- 6 Remove the M2.5 x 6-mm screw holding the display inverter in place.
- 7 Lift the inverter, turn it upside down, and remove the inverter connector cable.

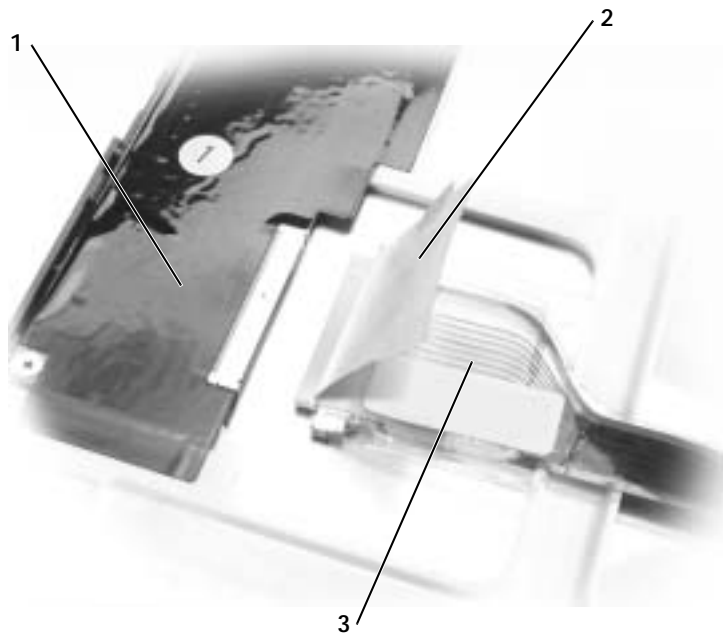
## Display Panel

- ➡ **NOTICE:** Disconnect the computer and any attached devices from electrical outlets, and remove any installed battery.
  - ➡ **NOTICE:** To avoid ESD, ground yourself by using a wrist grounding strap or by touching an unpainted metal surface on the computer.
  - ➡ **NOTICE:** Read "[Preparing to Work Inside the Computer](#)" before performing the following procedure.
- 1 Remove the [keyboard](#).
  - 2 Remove the [display assembly](#).
  - 3 Remove the [display bezel](#).



1	display panel	5	M2 x 5-mm screws
2	display latch	6	display connector
3	M2 x 3-mm screws	7	display cable
4	top cover		



- 4 Remove the three M2 x 3-mm screws.
- 5 Remove the three M2 x 5 screws.
- 6 Lift the display panel away from the top cover of the computer.



1	display flex-cable connector
2	pull-tab
3	display flex cable

- 7 Using the pull-tab, remove the display flex cable from the display flex-cable connector on the back of the display panel.

# Display Latch

-  **NOTICE:** Disconnect the computer and any attached devices from electrical outlets, and remove any installed battery.
-  **NOTICE:** To avoid ESD, ground yourself by using a wrist grounding strap or by touching an unpainted metal surface on the computer.

## Removing the Display Latch

- 1 Remove the [keyboard](#).
- 2 Remove the [display assembly](#).
- 3 Remove the [display bezel](#).
- 4 On the top cover, slide the display latch to the right and lift the latch out, ensuring that you do not lose the latch spring.

## Installing the Display Latch

- 1 Holding the display latch spring in place, insert the display latch into the right side of the latch opening. The peg on the left side of the latch slides into place.
- 2 Replace the [display bezel](#).
- 3 Replace the [display assembly](#).
- 4 Replace the [keyboard](#).

## Removing the Display Hinges

- 1 Remove the [keyboard](#).
- 2 Remove the [display assembly](#).
- 3 Remove the two black M2.5 x 6-mm screws that hold each display hinge in place at the bottom of the display, and lift off the hinges.

## Installing the Display Hinges

- 1 Line up the hinges with their guide pins on each side of the display, and replace the two black M2.5 x 6-mm screws that hold each hinge in place.
- 2 Replace the [display assembly](#).
- 3 Replace the [keyboard](#).



SECTION 8

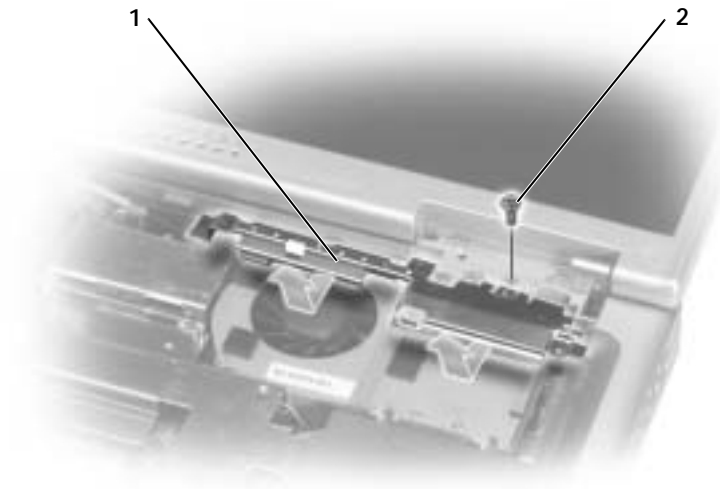
**Reserve Battery and  
Palm Rest**

---

## Reserve Battery

- ➡ **NOTICE:** Disconnect the computer and any attached devices from electrical outlets, and remove any installed battery.
- ➡ **NOTICE:** To avoid ESD, ground yourself by touching an unpainted metal surface on the computer.
- ➡ **NOTICE:** Read "[Preparing to Work Inside the Computer](#)" before performing the following procedure.

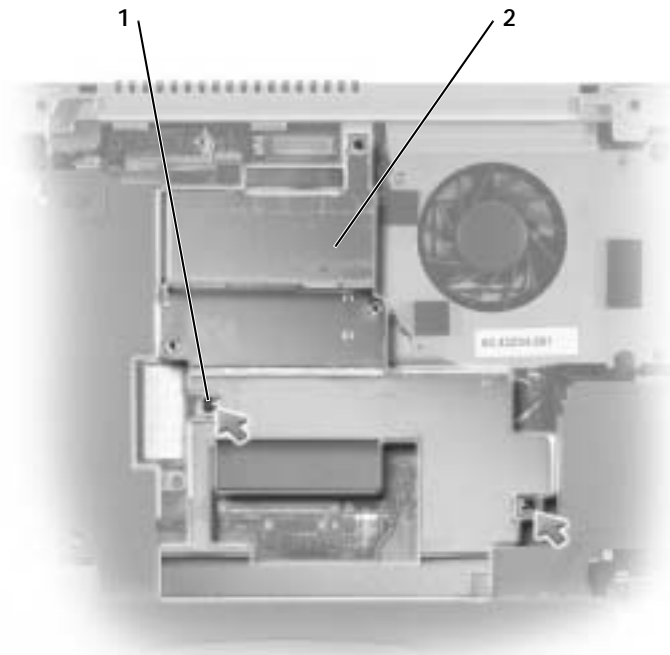
### 1 Remove the **keyboard**.



1	palm rest shield
2	round-headed M2 x 5-mm screw (1)

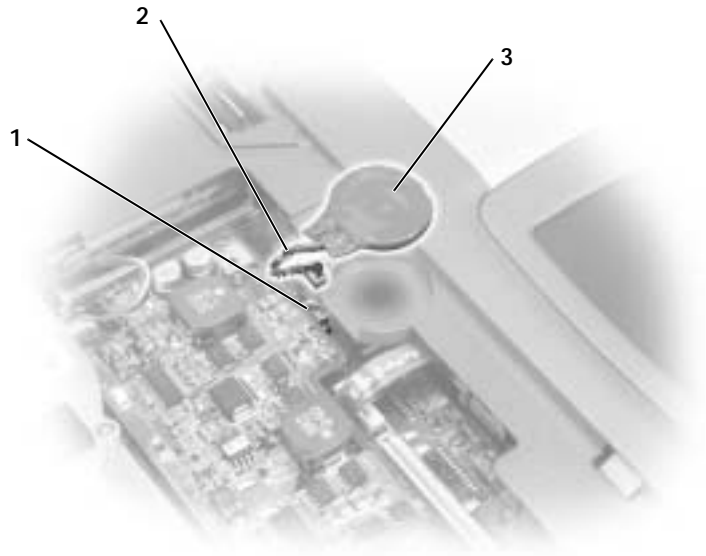
### 2 Remove the palm rest shield:

- a Remove the round-headed M2 x 5-mm screw that attaches the palm rest shield to the system board.
- b Lift the palm rest shield away from the computer.



- 
- 1 silver, round-headed  
M2 x 5-mm screws (2)
  - 2 system board shield
- 

**3** Remove the system board shield by removing the two silver, round-headed M2 x 5-mm screws on each side of the shield.



---

1 reserve battery connector

---

2 reserve battery cable

---

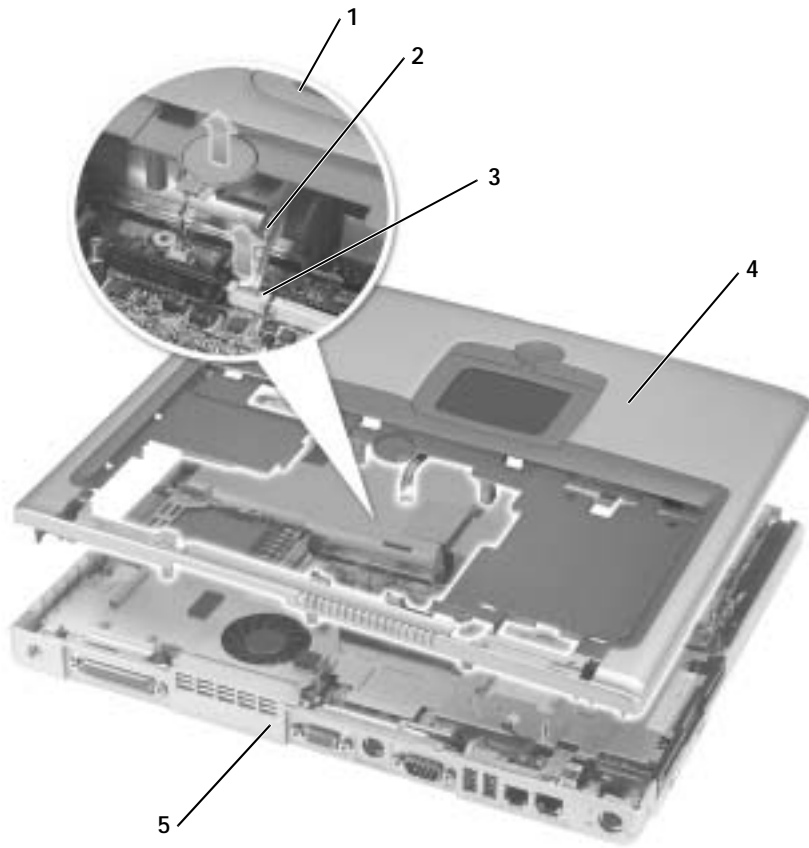
3 reserve battery

---

- 4 Disconnect the reserve battery cable from the reserve battery connector.
- 5 Lift the reserve battery away from the palm rest.

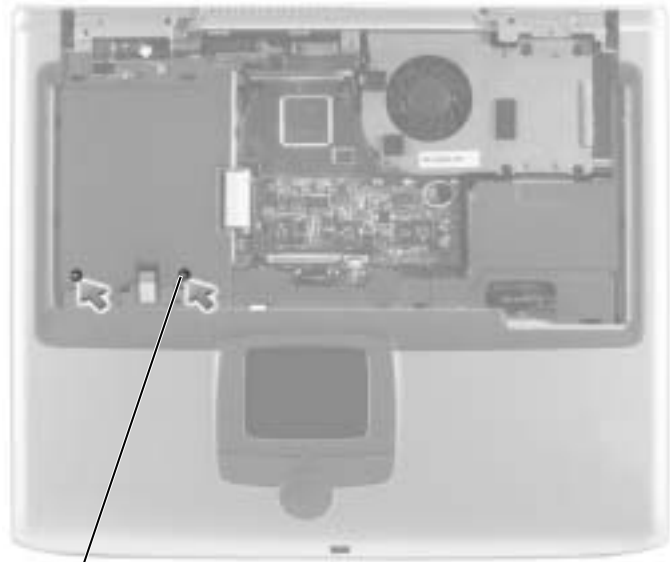
## Palm Rest

- 1 Remove the [keyboard](#).
- 2 Remove the [display assembly](#).
- 3 Remove the [palm rest shield](#).
- 4 Remove the [system board shield](#).
- 5 Disconnect the [reserve battery](#).

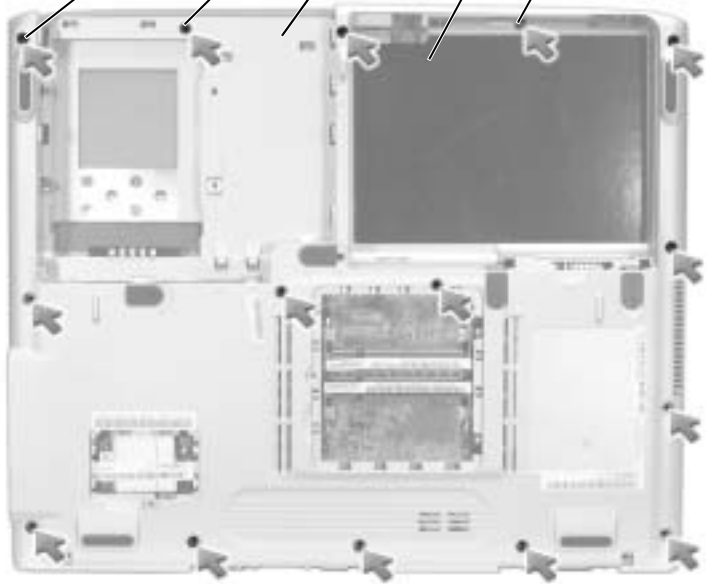


1 touch pad	4 palm rest
2 touch pad cable	5 bottom case
3 touch pad connector	

6 Remove the touch pad cable from the touch pad connector on the system board.



- 1
- 2
- 3
- 4
- 5
- 6



1	silver, round-headed M2 x 5-mm screws (2)	4	module bay
2	black M2.5 x 6-mm screws (13)	5	battery bay
3	black M2.5 x 6-mm screw (1)	6	silver M2 x 4-mm screw (1)

- 7 Remove the two silver, round-headed M2 x 5-mm screws from the left side of the palm rest.
- 8 Turn the computer upside down and remove the 13 black M2.5 x 6-mm screws from the bottom case.
- 9 Remove the black M2.5 x 6-mm screw from the front of the module bay, and remove the silver M2 x 4-mm screw from the front of the battery bay.
- 10 Pull up on the back of the palm rest, releasing the snaps that hold the palm rest to the bottom case.



SECTION 9

## Floppy Drive

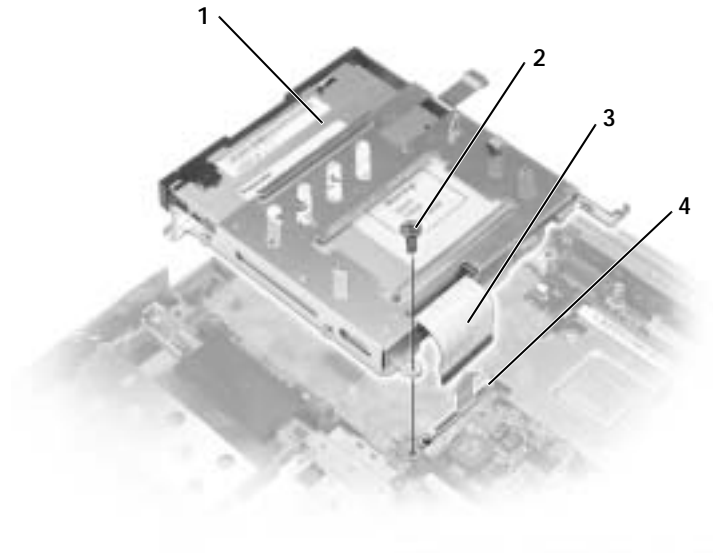
**⚠ CAUTION:** Before performing these procedures, shut down the computer, disconnect it from the electrical outlet, and disconnect the modem from the telephone wall jack.

**🔁 NOTICE:** Disconnect any attached devices from electrical outlets, and remove any installed battery.

**🔁 NOTICE:** To avoid ESD, ground yourself by using a wrist grounding strap or by touching an unpainted metal surface on the computer.

**🔁 NOTICE:** Read "[Preparing to Work Inside the Computer](#)" before performing the following procedure.

**1 Remove the [palm rest](#).**



---

1 floppy drive

---

2 M2 x 5-mm screw (1)

---

3 floppy drive cable

---

4 floppy drive connector

---

**2 Remove the floppy drive cable from the floppy drive connector.**

**3 Remove the M2 x 5-mm screw that secures the floppy drive to the system board, and lift out the drive.**





SECTION 10

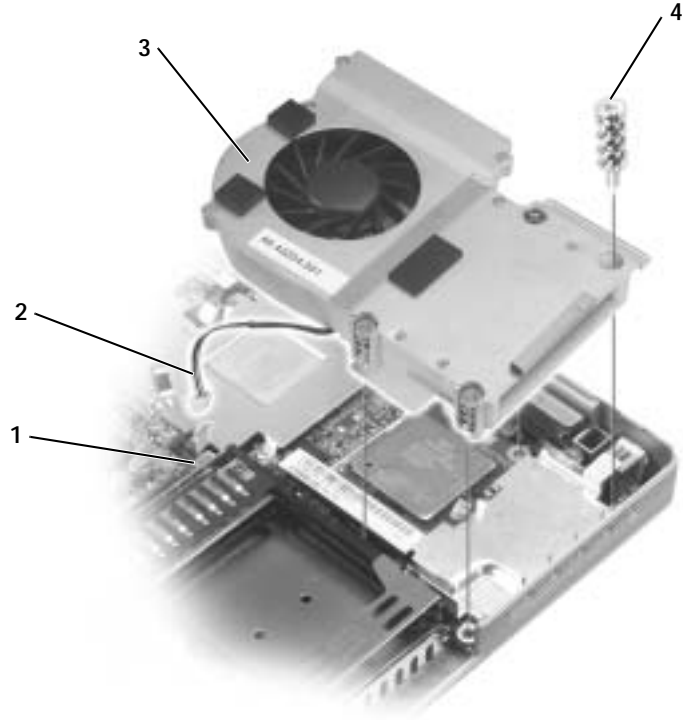
## **Microprocessor Thermal-Cooling Assembly and Microprocessor Module**

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## Microprocessor Thermal-Cooling Assembly


- ➡ **NOTICE:** Disconnect the computer and any attached devices from electrical outlets, and remove any installed battery.
- ➡ **NOTICE:** To avoid ESD, ground yourself by using a wrist grounding strap or by touching an unpainted metal surface on the computer.
- ➡ **NOTICE:** Read "[Preparing to Work Inside the Computer](#)" before performing the following procedure.

- 1 Remove the [display assembly](#).
- 2 Remove the [palm rest](#).



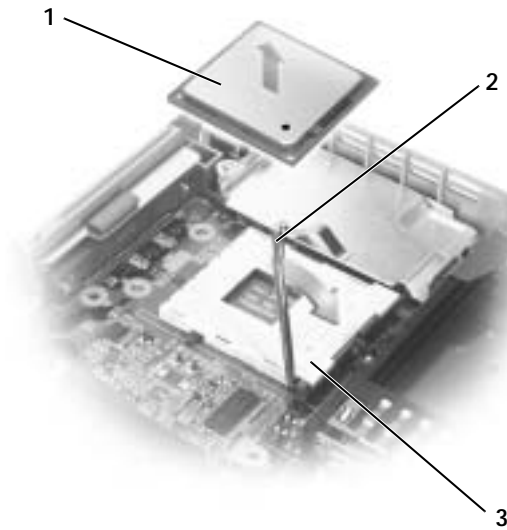
1	fan power-cable connector
2	fan power cable
3	microprocessor thermal-cooling assembly
4	silver, spring-loaded M2.5 x 18-mm screws (4)

- 3 Disconnect the fan power cable from the system board.
- 4 Remove in numerical order the four silver, spring-loaded M2.5 x 18-mm screws that secure the thermal assembly.
- 5 Lift the microprocessor thermal-cooling assembly away from the microprocessor and the system board.

 **HINT:** When you install the microprocessor thermal-cooling assembly, replace the screws in reverse numerical order.

## Microprocessor Module

- ➔ **NOTICE:** Disconnect the computer and any attached devices from electrical outlets, and remove any installed battery.
- ➔ **NOTICE:** To avoid ESD, ground yourself by using a wrist grounding strap or by touching an unpainted metal surface on the computer.
- ➔ **NOTICE:** Read "[Preparing to Work Inside the Computer](#)" before performing the following procedure.
  - 1 Remove the [display assembly](#).
  - 2 Remove the [palm rest](#).
  - 3 Remove the [microprocessor thermal-cooling assembly](#).
- ➔ **NOTICE:** When removing the microprocessor module, pull the module straight up. Be careful not to bend the pins on the microprocessor module.



1	microprocessor module
2	microprocessor locking bar
3	microprocessor connector

- 4 Lift the locking bar next to the microprocessor module.
- 5 Pull gently on the microprocessor module and lift it away from the microprocessor connector on the system board.

**NOTICE:** The microprocessor thermal-cooling assembly and the microprocessor module are a mated pair. Keep the microprocessor module and the microprocessor thermal-cooling assembly together. When you replace the microprocessor module, only use the microprocessor thermal-cooling assembly that came with the new microprocessor module.

SECTION 11

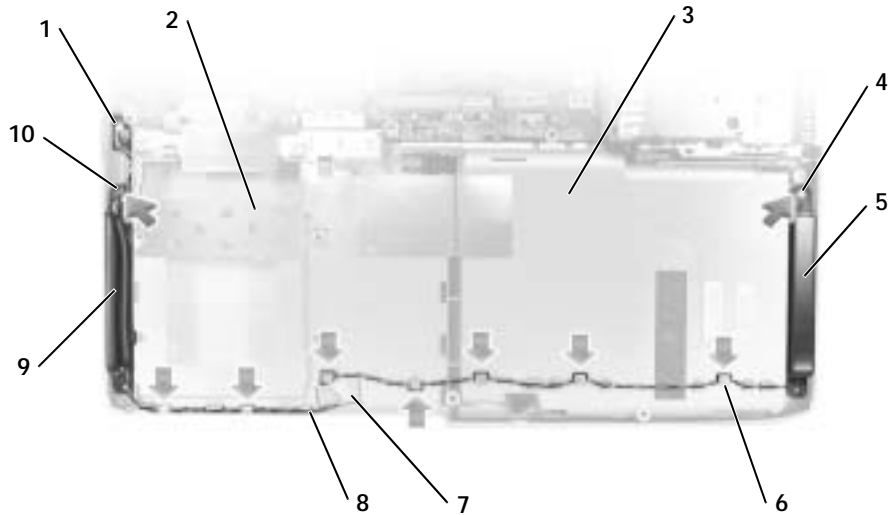
## Speakers

## Removing the Speakers

- ➡ **NOTICE:** Disconnect the computer and any attached devices from electrical outlets, and remove any installed battery.
- ➡ **NOTICE:** To avoid ESD, ground yourself by using a wrist grounding strap or by touching an unpainted metal surface on the computer.
- ➡ **NOTICE:** Read "[Preparing to Work Inside the Computer](#)" before performing the following procedure.

- 1 Remove the [hard drive](#).
- 2 Remove the [keyboard](#).
- 3 Remove the [display assembly](#).
- 4 Remove the [palm rest](#).

The speakers are located at both corners of the front of the bottom case. Take note of the speaker cable routing so that you can replace the cables properly under or between their routing clips.



1 speaker connector	6 cable routing clips (7)
2 battery bay	7 tape
3 module bay	8 speaker cable
4 silver M2 x 4-mm screw (1)	9 left speaker
5 right speaker	10 silver M2 x 4-mm screw (1)

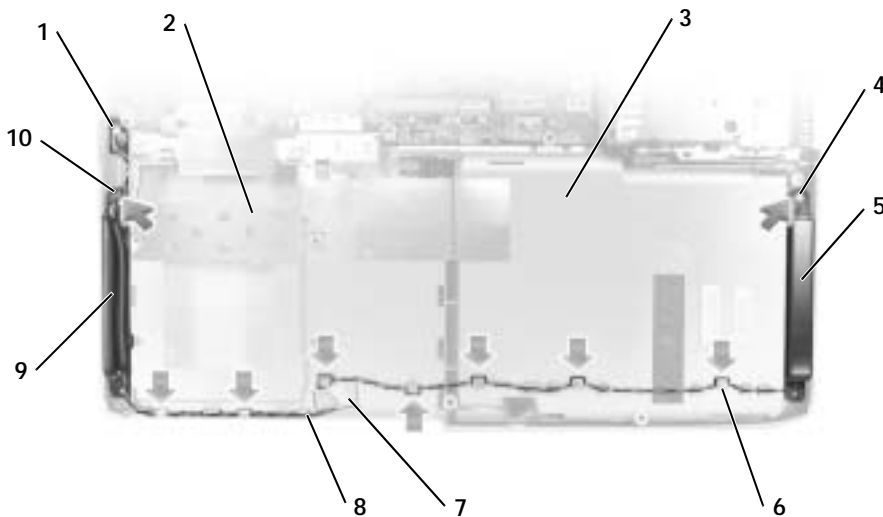
5 Disconnect the speaker cable from the speaker connector on the left side of the system board.

**NOTICE:** Handle the speakers carefully to avoid damaging them.

6 Remove the single silver M2 x 4-mm screw that secures each speaker to the bottom case.

7 Lift the speakers out of the bottom case, and remove the speaker cable from under the cable routing clips and tape. Keep the tape for use it when you install the speakers.

## Installing the Speakers



1	speaker connector	6	cable routing clips (7)
2	battery bay	7	tape
3	module bay	8	speaker cable
4	silver M2 x 4-mm screw	9	left speaker
5	right speaker	10	silver M2 x 4-mm screw (1)




- 1 Place the speakers in their slots on each side of the bottom case and attach the speaker cable from the left speaker to the system board.
- 2 Replace the single, silver M2 x 4-mm screw that secures each speaker to the bottom case.
- 3 Route the speaker cable under or between the cable routing clips, and replace the tape so that the cable lies completely flat.

SECTION 12

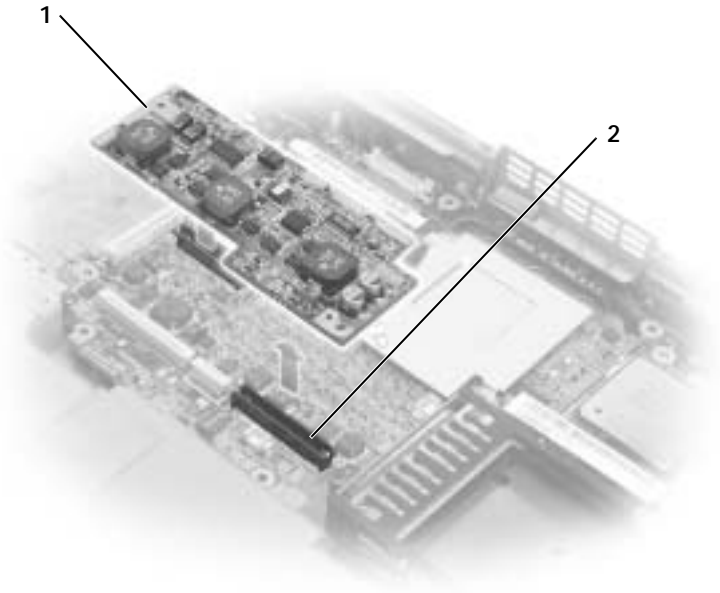
## System Board

## Removing the System Board

The system board's BIOS chip contains the service tag sequence, which is also visible on a bar code label on the bottom of the computer. The replacement kit for the system board includes a CD that provides a utility for transferring the service tag sequence to the replacement system board.

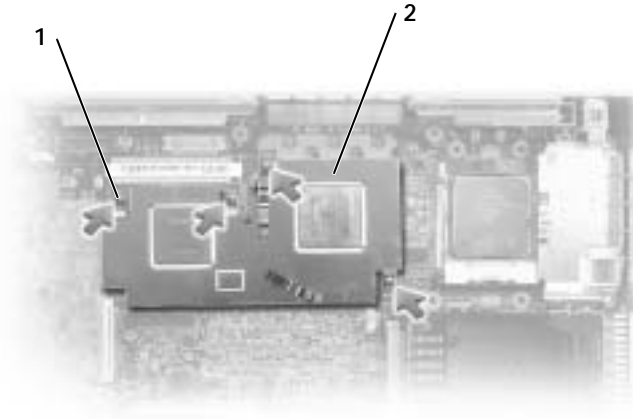
-  **NOTICE:** Disconnect the computer and any attached devices from electrical outlets, and remove any installed battery.
-  **NOTICE:** To avoid ESD, ground yourself by using a wrist grounding strap or by touching an unpainted metal surface on the computer.
-  **NOTICE:** Read "[Preparing to Work Inside the Computer](#)" before performing the following procedure.

- 1 Remove the [battery](#).
- 2 Remove the [optical drive](#).
- 3 Remove the [hard drive](#).
- 4 Remove the [memory module](#).
- 5 Remove the [modem](#).
- 6 Remove the [keyboard](#).
- 7 Remove the [display assembly](#).
- 8 Remove the [palm rest](#).
- 9 Remove the [floppy drive](#).
- 10 Remove the [microprocessor thermal-cooling assembly](#).



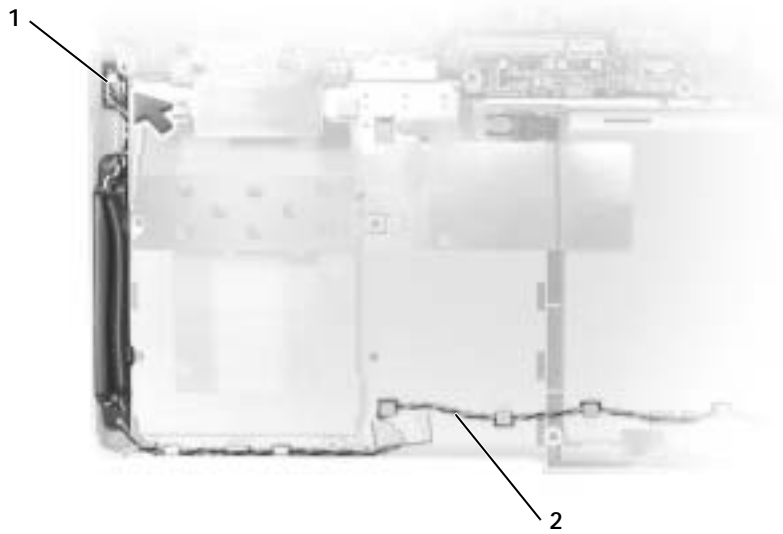
- 
- |   |                                 |
|---|---------------------------------|
| 1 | charger board                   |
| 2 | charger board connectors<br>(2) |
- 

- 11** Remove the charger board from the system board by pulling directly up on the charger board, disconnecting it from the two charger board connectors.



- 
- |   |  |
|---|--|
| 1 | silver, round-headed<br>M2 x 5-mm screws (4) |
|---|--|
- 
- |   |              |
|---|--------------|
| 2 | video shield |
|---|--------------|
- 

- 12** Remove the four silver, round-headed M2 x 5-mm screws that secure the video shield to the system board, and remove the video shield.



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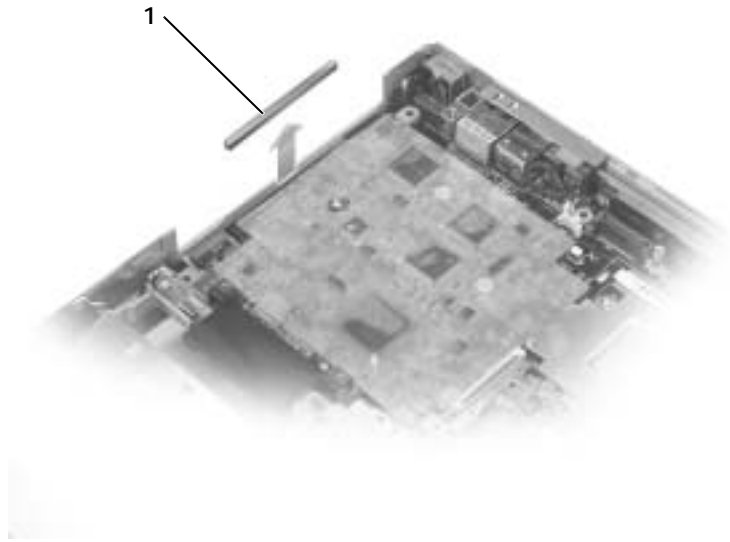
1 speaker connector

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2 speaker cable

---

- 13 Disconnect the speaker cable from the speaker connector.
- 14 Remove the [microprocessor thermal-cooling assembly](#).
- 15 Remove the [microprocessor module](#).

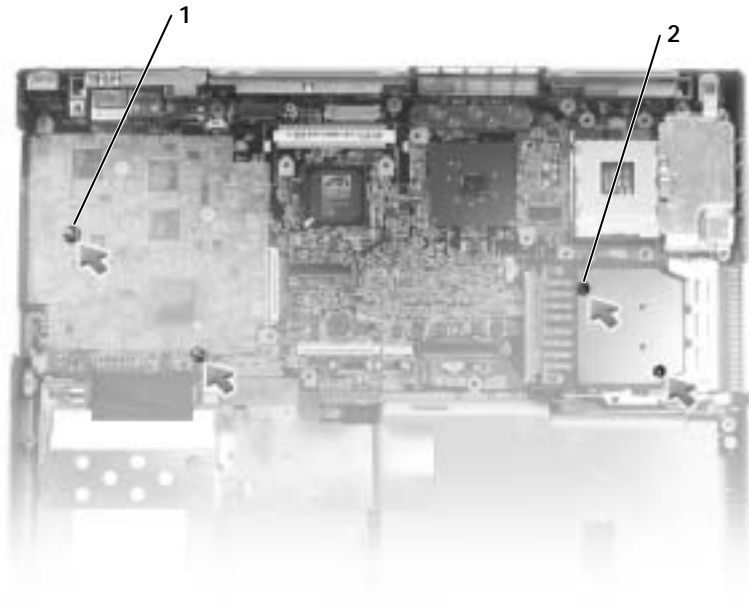


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1 rubber bumper

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- 16 Remove the rubber bumper from the side of the system board near the audio connectors.



---

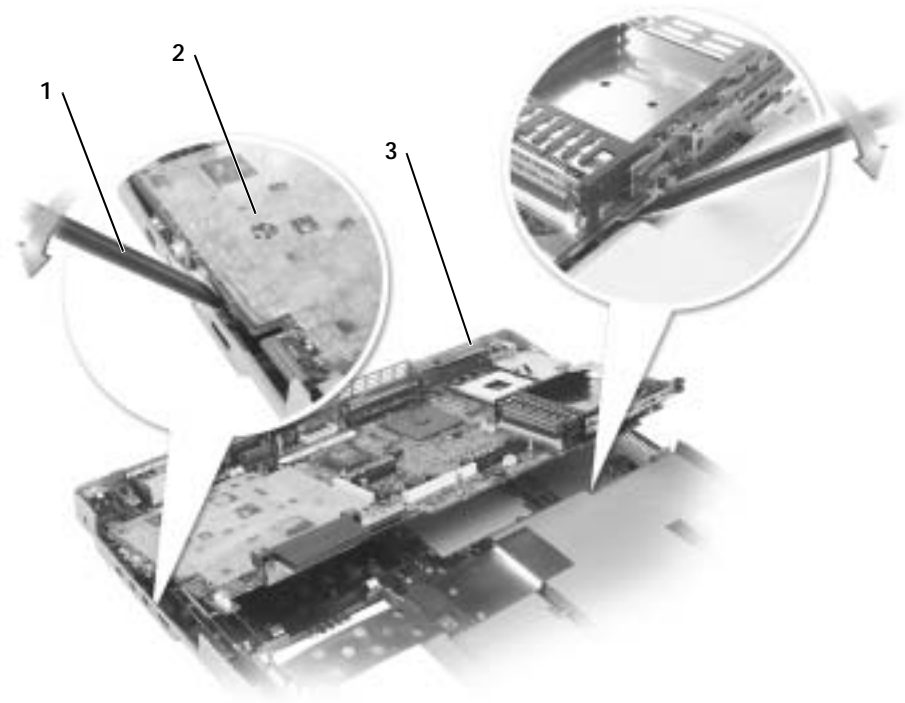
1 silver, round-headed  
M2 x 5-mm screws (3)

---

2 silver, flat-headed  
M2 x 4-mm screw (1)

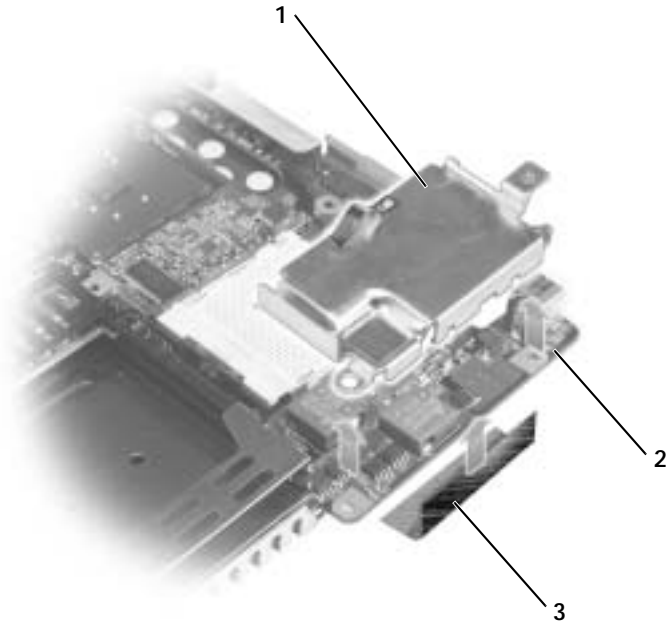
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- 17** Remove the four screws that secure the system board to the bottom case:
- a Remove the silver, round-headed M2 x 5-mm screw and the silver, flat-headed M2 x 4-mm screw from the PC Card cage on the system board.
  - b Remove the two silver, round-headed M2 x 5-mm screws that secure the system board to the bottom case.



1	plastic scribe
2	system board
3	bottom case

- 18 Using a plastic scribe, pry the system board away from the bottom case below the PC Card cage.
- 19 Place the scribe between the audio jack and the volume wheel at the left side of the bottom case and pry the system board away from the bottom case.
- 20 Lift the system board away from the bottom case.




1	power shield
2	system board
3	black tape

- 21 Remove the black tape from the system board and power shield, and save the tape for use when you replace the power shield.
- 22 Lift and remove the power shield from the system board.

### Installing the System Board

- 1 Replace the power shield along with the black tape at the rear-right corner of the bottom case.
- 2 Lower the system board into the back of the bottom case at a 45-degree angle.

- 3 Press down on the system board while using the plastic scribe to pry away the left side of the bottom case near the audio connectors. The system board snaps into place in the bottom case.
- 4 Replace the system board screws and rubber bumper.
- 5 Connect the speaker cable.
- 6 Replace the video shield.
- 7 Replace the [microprocessor](#) and the [microprocessor thermal-cooling assembly](#) that you removed from the old system board.
- 8 Replace the charger board.
- ➡ **NOTICE:** Route cables so that they will not be crimped or pinched when the complete assembly is put back together.
- 9 Replace the video shield that you removed from the old system board.
- 10 Replace the [display assembly](#) and the [keyboard](#).
- 11 Replace the [floppy drive](#), [palm rest](#), [optical drive](#), [modem](#), [memory module](#), and [hard drive](#).
- 12 If applicable, replace the PC Card or blanks in the PC Card slot.
- ➡ **NOTICE:** Before turning on the computer, replace all screws and ensure that no stray screws remain inside the computer. Failure to do so may result in damage to the computer.
- 13 If applicable, replace the battery.
- 14 Insert the CD that accompanied the replacement system board into the appropriate drive, and turn on the computer. Follow the instructions on the screen.

 **HINT:** After installing the system board, enter the computer service tag sequence into the BIOS of the replacement system board.

SECTION 13

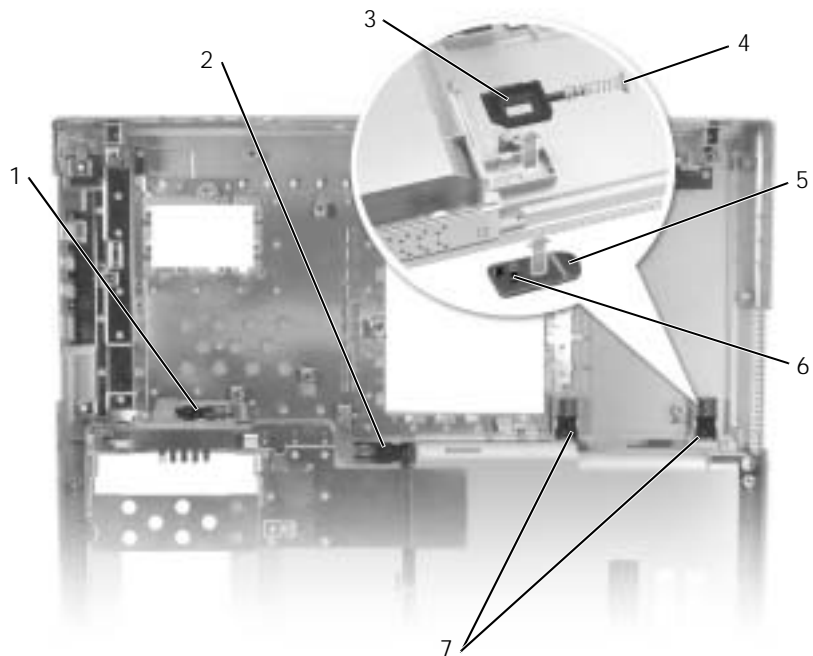
## **Optical Drive Latch and Battery Latch Assemblies**

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## Removing the Optical Drive Latch and Battery Latch Assemblies

- ➡ **NOTICE:** Disconnect the computer and any attached devices from electrical outlets, and remove any installed battery.
- ➡ **NOTICE:** To avoid ESD, ground yourself by using a wrist grounding strap or by touching an unpainted metal surface on the computer.
- ➡ **NOTICE:** Read "[Preparing to Work Inside the Computer](#)" before performing the following procedure.

### 1 Remove the [system board](#).

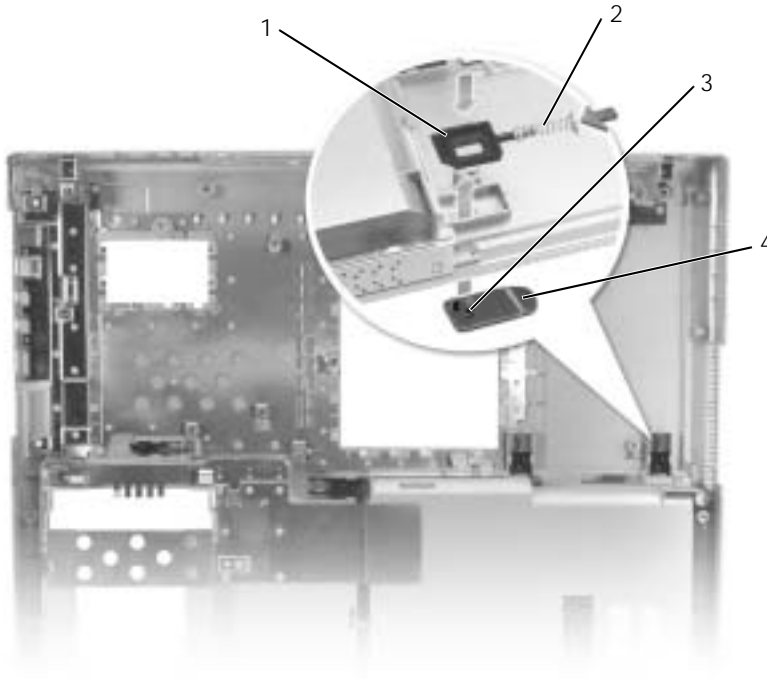


1	module-bay latch release	5	snap tabs
2	battery lock	6	latch knob
3	latch slider	7	battery latch release
4	spring		

### 2 For the optical-drive latch releases, the two battery latch releases, and the battery lock:

- a Pinch together the snap tabs protruding from the latch releases or lock so that the latch knob falls from the bottom case.
- b Lift the latch knob away from the bottom case while you collect the slider and the springs for the latches.

## Installing the Optical Drive Latch and Battery Latch Assemblies



1 latch slider	3 snap tabs
2 spring	4 latch knob

- 1 Load the latch assemblies with their springs and snap them into place with the latch slider on the bottom case.
- 2 Snap the battery lock assembly into place with its slider on the bottom case.

To prevent the latch assemblies from coming loose, apply pressure to the latch button and spring while installing the latch knobs.

**Ensure that the newly installed latch releases and the battery lock move smoothly and freely when pushed and released.**