

GATEWAY NOTEBOOK

SERVICEGUIDE



Contents

Replacing Notebook Components	1
Identifying the notebook model	2
Identifying components	3
Preparing your work space	4
Preventing static electricity discharge	5
Tape	5
Preparing the notebook	6
Removing the battery	6
Adding or replacing memory modules	7
Replacing the DVD drive	11
Replacing the cooling assembly	14
Replacing the processor	19
Replacing the IEEE 802.11 wireless card	22
Replacing the hard drive	26
Replacing the keyboard cover	29
Replacing the keyboard	31
Replacing the CMOS battery	36
Replacing the LCD panel assembly	38
Replacing the LCD panel inverter	42
Replacing the LCD panel	46
Replacing the LCD panel assembly lid	51
Replacing the palm rest	56
Replacing the modem card	59
Replacing the Bluetooth module	62
Replacing the system board	64
Replacing the external video board	67
Replacing the speakers	69

Replacing Notebook Components

- Identifying the notebook model
- Identifying components
- Preparing your work space
- Preventing static electricity discharge
- Preparing the notebook
- Adding or replacing memory modules
- Replacing the DVD drive
- Replacing the cooling assembly
- Replacing the processor
- Replacing the IEEE 802.11 wireless card
- Replacing the hard drive
- Replacing the keyboard cover
- Replacing the keyboard
- Replacing the CMOS battery
- Replacing the LCD panel assembly
- Replacing the LCD panel inverter
- Replacing the LCD panel
- Replacing the LCD panel assembly lid
- Replacing the palm rest
- Replacing the modem card
- Replacing the Bluetooth module
- Replacing the system board
- Replacing the external video board
- Replacing the speakers



Important

The photographs in this guide may vary in appearance from the notebook. These variations may include color and finishing of the case and the shape of the touchpad.



Important

This service guide is not intended to be provided to individual users or consumers. It cannot be provided to anyone other than an authorized service provider.



Important

For information on the notebook's general maintenance, technical support, safety notices, and regulatory notices, see the notebook's user guide.



Tip

If you have suggestions regarding the content of this guide, send an e-mail with the subject "Service Guide Comments" to channel.services@gateway.com.

Use this service guide to help plan maintenance tasks for the following Gateway notebooks:

- 6000 series
- 6100 series
- 6500 series
- 6600 series
- M360
- MX6000 series
- MX6100 series
- MX6200 series
- MX6400 series
- MX6500 series
- MX6600 series
- MX6900 series
- NX500 series

All tasks covered in this guide can be performed by an **authorized field technician** without jeopardizing the notebook's warranty.

Identifying the notebook model



Caution

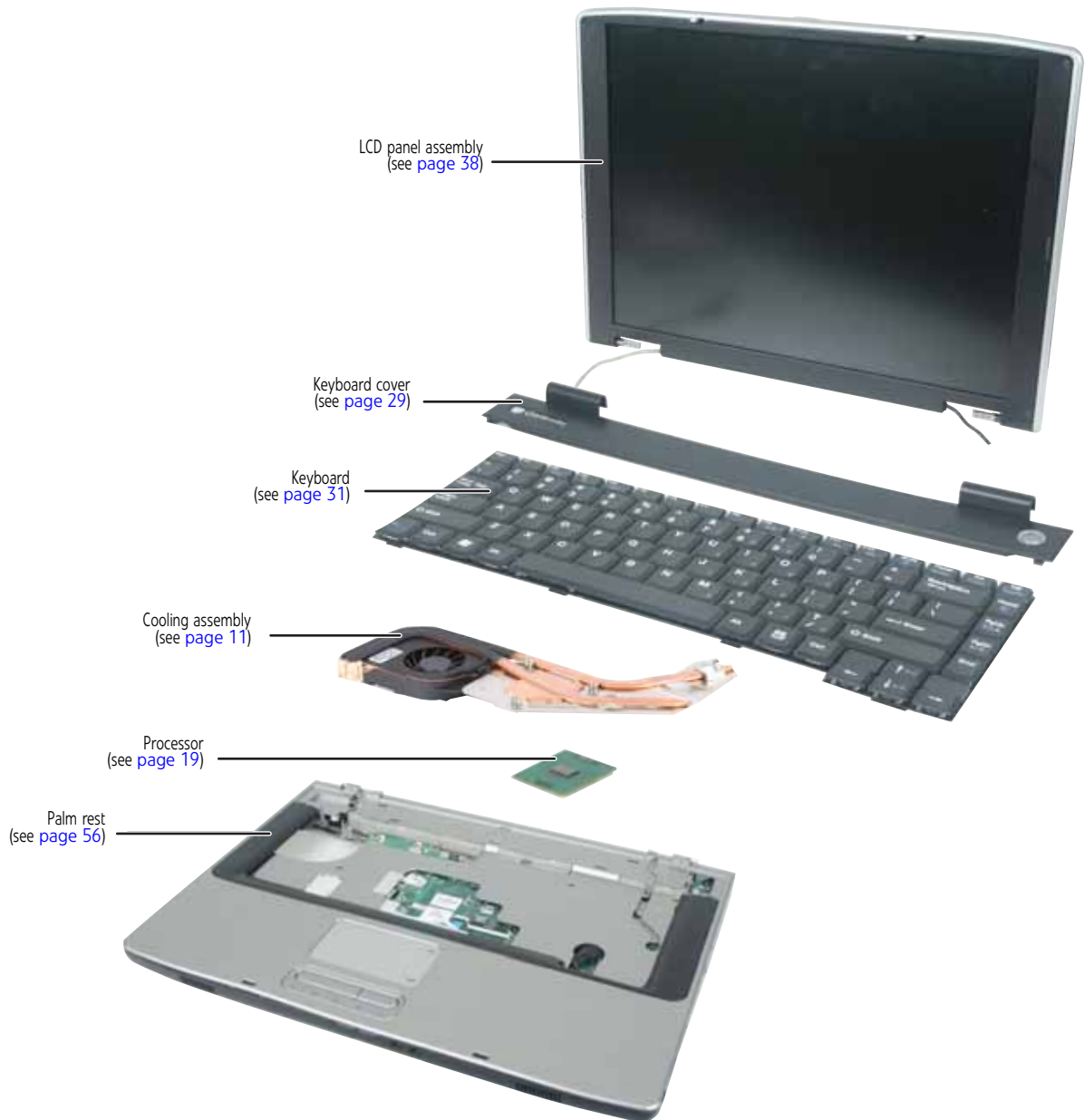
It is important that you use the correct service guide for the notebook. Failure to follow the approved tasks for the notebook model may result in damage to the notebook.

The label on the bottom of the notebook contains information that identifies the notebook model and its features.



Identifying components

Use this chart to identify the main components of the notebook. For a complete list of replaceable parts, see ["Contents" on page i](#).



Preparing your work space

Before performing maintenance on the notebook, make sure that your work space and the notebook are correctly prepared.

- Wear a grounding (ESD) wrist strap, and use a grounded or dissipative work mat.
- Use a stable and strong table, and make sure that the table top is large enough to hold each component as you remove it.
- Use bright lighting to make part identification easier.
- Keep your work surface free from clutter and dust that may damage components.
- Use a magnetized screwdriver for removing screws.
- When removing components that are attached to the notebook by a cable, unplug the cable before removing the screws, when possible, to avoid damaging the cable.
- As you remove components and screws, lay them toward the rear of your work surface (behind the notebook) or far enough to the side that your arms do not accidentally brush them onto the floor.
- To help keep track of screws, try the following:
 - Place each component's screws in their own section of a parts sorter.
 - Place each component's screws next to the component on your work surface.
 - Print the first page of each task, then place the page toward the rear of your work surface. As you remove screws, place the screws in their respective boxes on the page.
 - After loosening screws that are deeply recessed in a hole (for example, on the bottom of the base assembly), you can leave the screws in the holes if you place small pieces of masking tape over the hole openings. When reassembling the component, just remove the tape and tighten the screws.
 - When you place flat-headed screws on your work surface, stand them on their heads to prevent the screws from rolling off the table.

Preventing static electricity discharge



Warning

To avoid exposure to dangerous electrical voltages and moving parts, turn off the notebook, remove the battery, and unplug the power cord, modem cable, and network cable before opening the case.



Warning

To prevent risk of electric shock, do not insert any object into the vent holes of the notebook.



Important

Before performing maintenance on the notebook, you should read and understand the information in this section.

The components inside the notebook are extremely sensitive to static electricity, also known as *electrostatic discharge* (ESD).

Before performing maintenance on the notebook, follow these guidelines:

- Avoid static-causing surfaces such as carpeted floors, plastic, and packing foam.
- Remove components from their antistatic bags only when you are ready to use them. Do not lay components on the outside of antistatic bags because only the inside of the bags provide electrostatic protection.
- Always hold components by their edges. Avoid touching the edge connectors. Never slide components over any surface.
- Wear a grounding wrist strap (available at most electronics stores) and attach it to a bare metal part of your workbench or other grounded connection.
- Touch a bare metal surface on your workbench or other grounded object.

Tape

Some of the procedures in this guide involve removing tape that holds cables or components. Two types of tape are used in this Gateway notebook:

- Mylar, non-conductive tape is typically transparent, with a red or brown tint.
- Conductive tape is typically grey or silver.

If the existing tape cannot be reused, replace it with the same type (conductivity) of tape. Both types of replacement tape should be non-ESD generating tape.

Do not use cellophane tape.

Preparing the notebook



Warning

To avoid exposure to dangerous electrical voltages and moving parts, turn off the notebook, remove the battery, and unplug the power cord, modem cable, and network cable before opening the case. Replace the cover before you restore power or reconnect the modem and network cables.

► To prepare the notebook for maintenance:

- 1 Make sure that the DVD drive does not contain a disc.
- 2 Disconnect all peripheral devices and remove any PC Cards and memory cards.
- 3 Turn off the notebook and unplug the power cord, modem cable, and network cable.
- 4 Remove the battery. For more information, see ["Removing the battery" on page 6](#).



Removing the battery

► To remove the battery:

- 1 Turn the notebook over so the bottom is facing up.
- 2 Slide the battery lock to the unlock position.



- 3 Slide and hold the battery release latch, then slide the battery out of the notebook.



Adding or replacing memory modules



Important

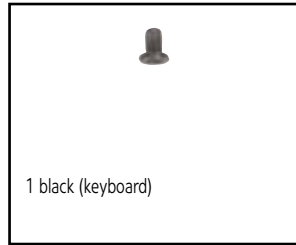
Use only memory modules designed for this Gateway notebook.

Tools you need to complete this task:



Phillips #0 screwdriver

Screws removed during this task:



1 black (keyboard)

Memory bay



► To add or replace memory modules:

- 1 Complete the steps in ["Preparing the notebook" on page 6](#).

2 Remove the keyboard screw.



Tip

The screw hole is marked with a K.

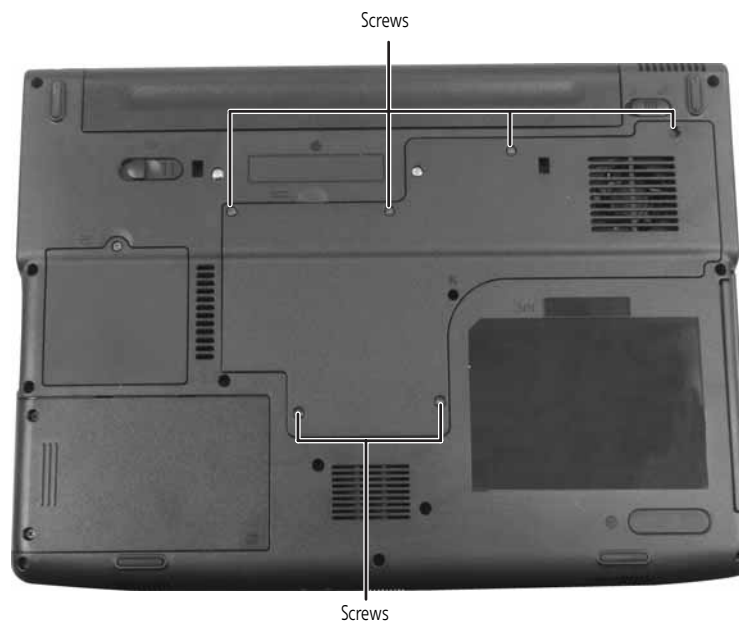


3 Loosen the six memory bay cover screws (these screws cannot be removed).



Tip

Depending on your model, not all screws may be captive.



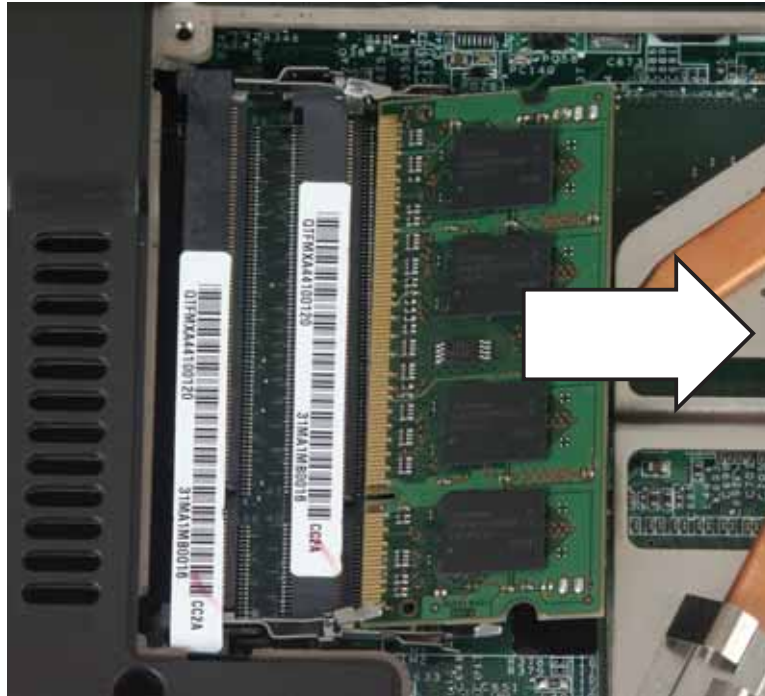
- 4 Use the thumb notch to lift the memory bay cover, then remove it. Be careful not to break off the tabs located on the end of the cover opposite of the thumb notch.



- 5 If you are removing a module, gently press outward on the clip at each end of the memory module until the module tilts up.



- 6 Pull the memory module out of the slot.



- 7 Hold the new or replacement module at a 30-degree angle and press it into the empty memory slot. This module is keyed so it can only be inserted in one direction. If the module does not fit, make sure that the notch in the module lines up with the tab in the memory bay.
- 8 Replace the memory bay cover, then tighten the cover screws.
- 9 Replace the keyboard screw.



Tip

The screw hole is marked with a K.



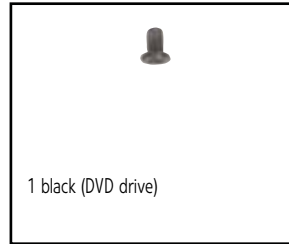
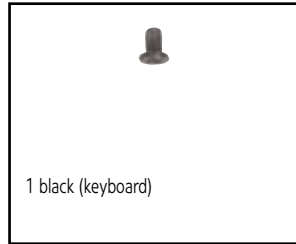
Replacing the DVD drive

Tools you need to complete this task:



Phillips #0 screwdriver

Screws removed during this task:



► **To replace the DVD drive:**

- 1 Complete the steps in ["Preparing the notebook" on page 6.](#)
- 2 Remove the keyboard screw.



Tip

The screw hole is marked with a K.

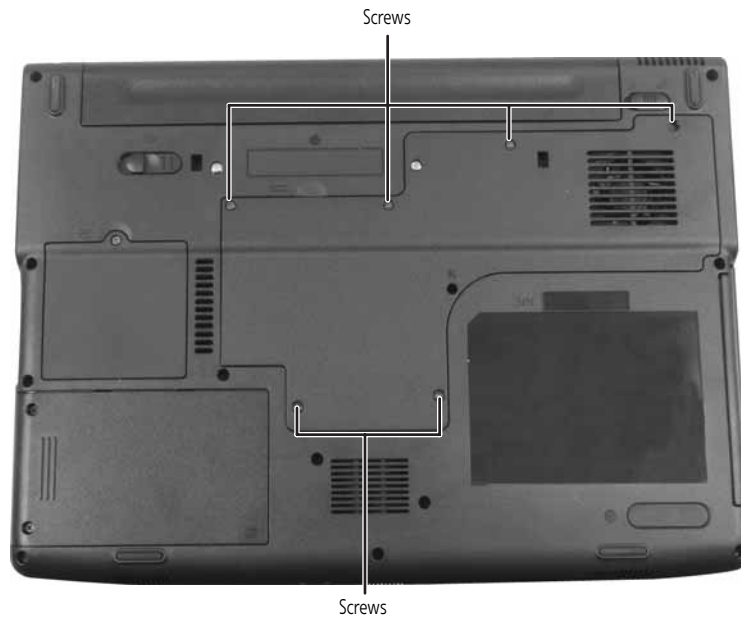


- 3 Loosen the six memory bay cover screws (these screws cannot be removed).



Tip

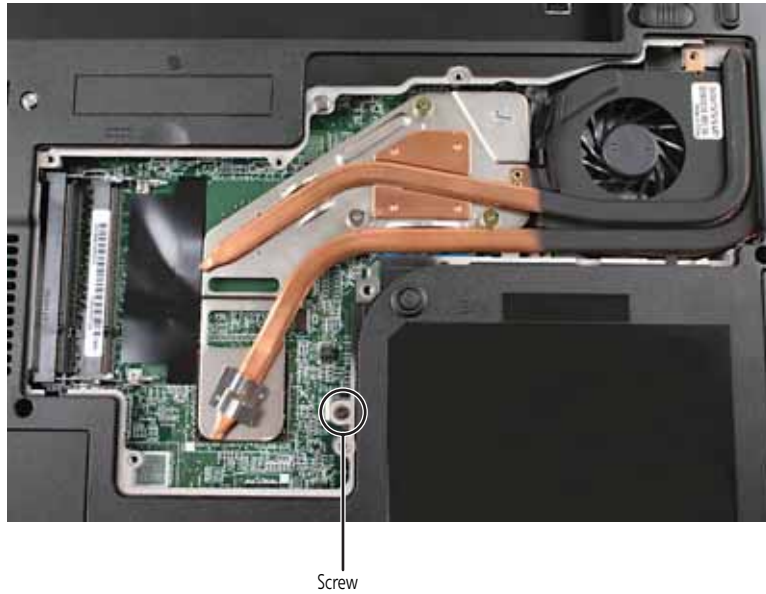
Depending on your model, not all screws may be captive.



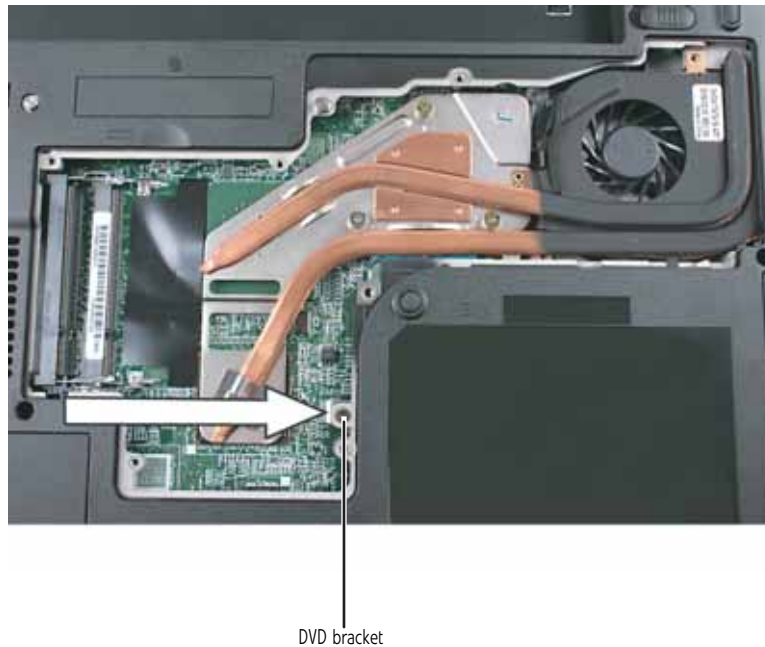
- 4 Use the thumb notch to lift the memory bay cover, then remove it. Be careful not to break off the tabs located on the end of the cover opposite of the thumb notch.



- 5 Remove the DVD drive screw.



- 6 Slide the DVD drive out of the drive bay by pushing on the DVD bracket.



- 7 Slide the new DVD drive into the drive bay. Make sure that the drive fits securely in the bay.
- 8 Secure the DVD drive with the screw removed in [Step 5](#).
- 9 Replace the memory bay cover, then tighten the cover screws.
- 10 Replace the keyboard screw.



Tip

The screw hole is marked with a K.

Replacing the cooling assembly

Tools you need to complete this task:

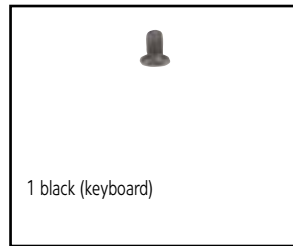


Phillips #0 screwdriver

Additional materials you may need to complete this task:

- X-23-7762 thermal grease

Screws removed during this task:



► **To replace the cooling assembly:**

- 1 Complete the steps in ["Preparing the notebook" on page 6](#).
- 2 Remove the keyboard screw.



Tip

The screw hole is marked with a K.

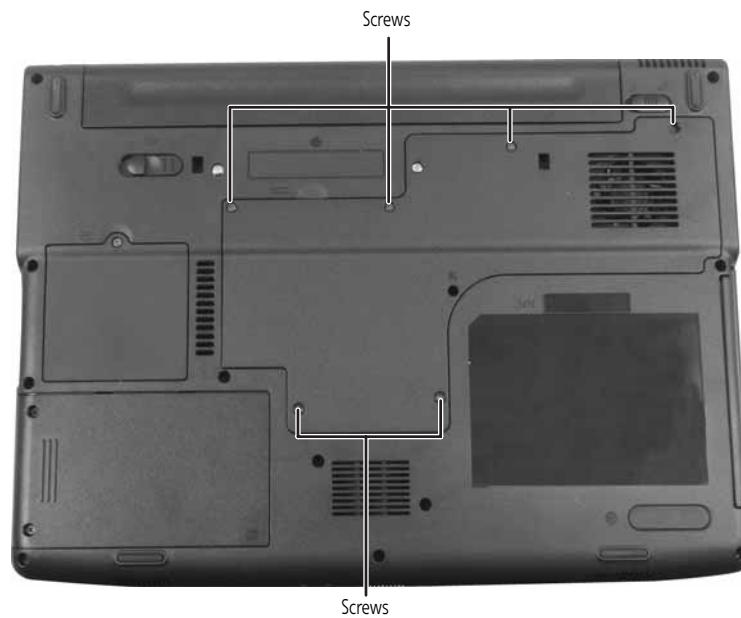


- 3 Loosen the six memory bay cover screws (these screws cannot be removed).



Tip

Depending on your model, not all screws may be captive.



- 4 Use the thumb notch to lift the memory bay cover, then remove it. Be careful not to break off the tabs located on the end of the cover opposite of the thumb notch.



- 5 Loosen the three or four screws (these screws cannot be removed) that secure the cooling assembly to the system board. Use the numbers stamped in the metal next to each screw and loosen the screws in reverse numerical order (start with 4, then 3, then 2, then 1).



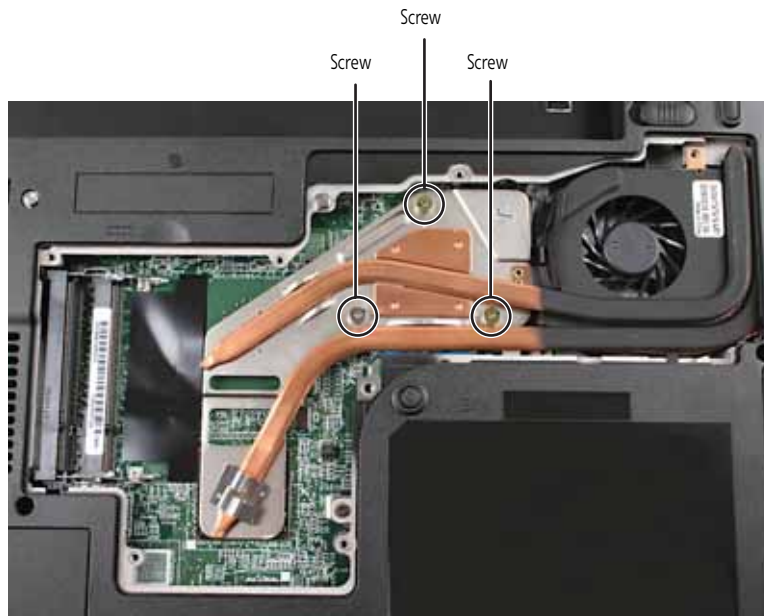
Caution

When loosening the cooling assembly's screws in the numbered holes, loosen them in reverse numerical order.

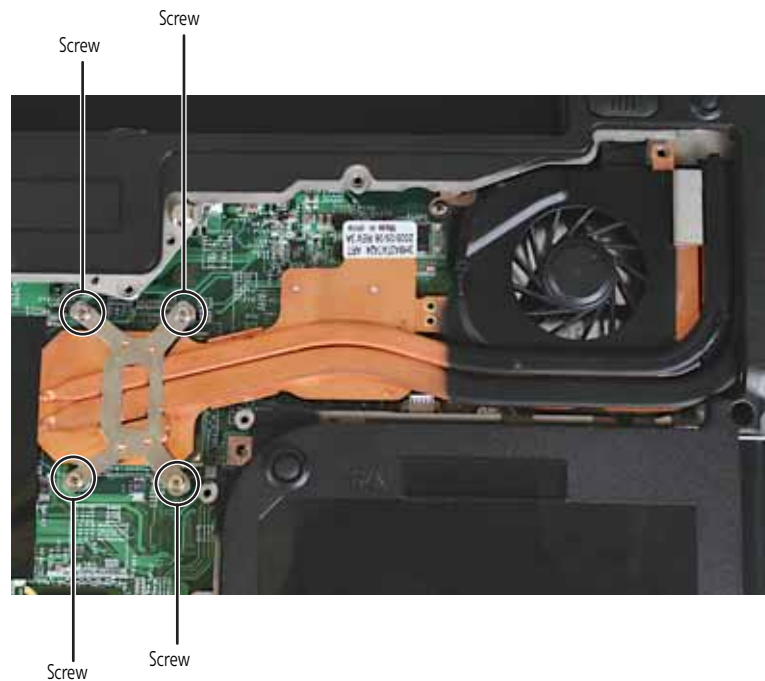


Important

The number of screws varies by model.



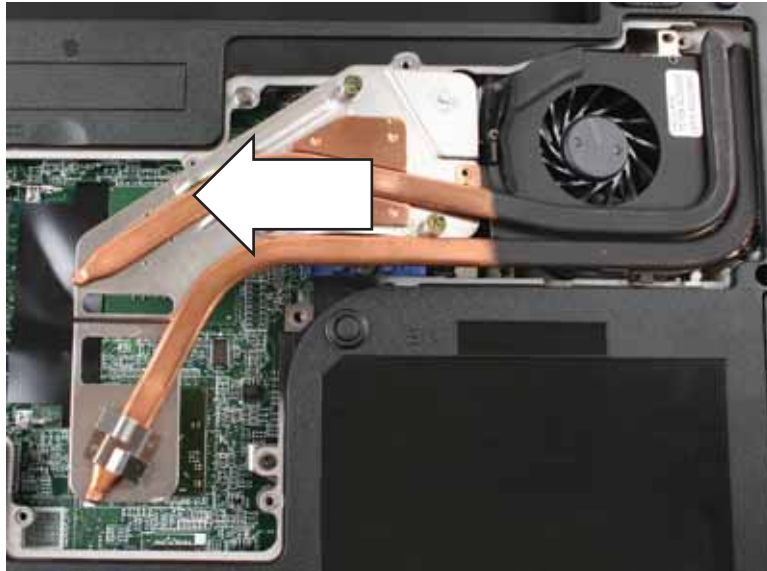
-OR-



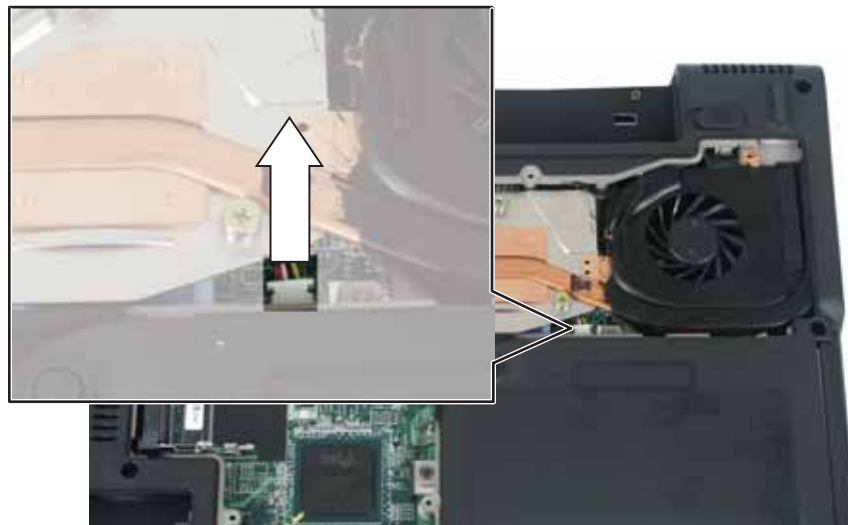
- 6 At the same time as you lift, move the cooling assembly away from the side of the notebook, then remove it. The cooling assembly cable is attached to the system board at this point. Be careful not to break the cable.

**Caution**

The cooling assembly cable is attached to the system board at this point. Be careful not to break the cable.



- 7 Unplug the old cooling fan.



- 8 If your cooling assembly uses a thermal pad, go to [Step 10](#).
-OR-
If your cooling assembly uses thermal grease, remove any thermal grease residue from the processor using a soft cloth and isopropyl alcohol.
- 9 If the new cooling assembly did not ship to you with thermal grease already applied, place new thermal grease on the processor. Use only enough to cover the CPU die.
- 10 Plug in the new cooling fan.
- 11 Insert the new cooling assembly into the notebook.

- 12 Tighten the three or four screws, in numerical order, in the holes that are stamped with the numbers 1 through 4 next to them.

**Caution**

When tightening the cooling assembly's screws in the numbered holes, tighten them in numerical order.

**Important**

The number of screws varies by model.

- 13 Replace the memory bay cover, then tighten the cover screws.
- 14 Replace the keyboard screw.

**Tip**

The screw hole is marked with a K.



Replacing the processor

Tools you need to complete this task:

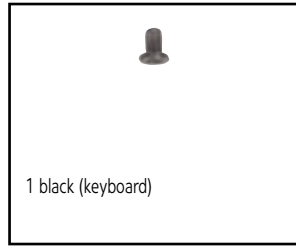


Phillips #0 screwdriver

Additional materials you may need to complete this task:

- X-23-7762 thermal grease

Screws removed during this task:



1 black (keyboard)

► **To replace the processor:**

- 1 Complete the steps in ["Preparing the notebook" on page 6](#).
- 2 Remove the cooling assembly by following the instructions in ["Replacing the cooling assembly" on page 14](#).

- 3 Use a flat-blade screwdriver to turn the processor lock screw $\frac{1}{4}$ -turn counter-clockwise.

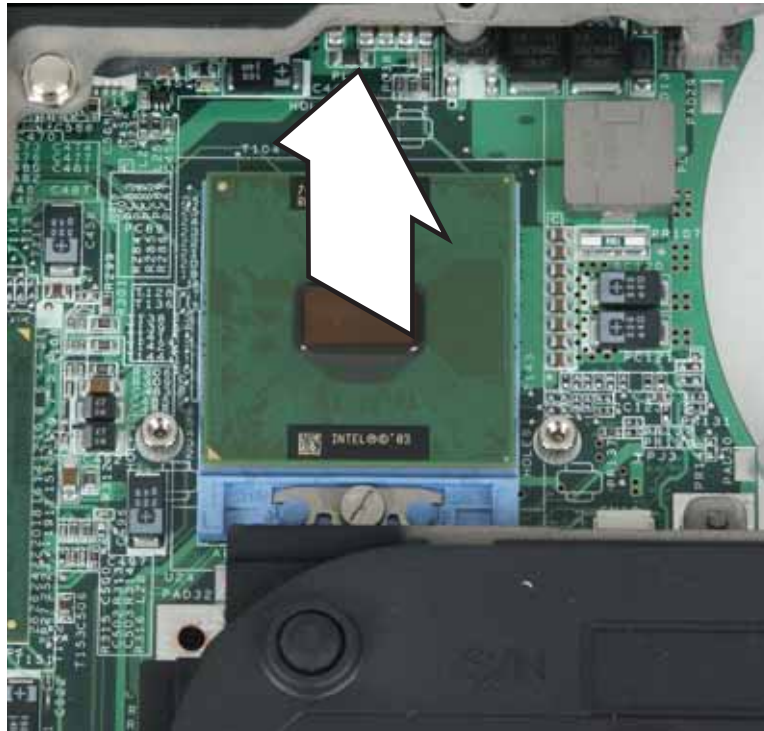


-OR-

Use a flat-blade screwdriver to turn the processor lock screw $\frac{1}{2}$ -turn counter-clockwise. You will hear a click when the processor lock is unlocked.



- 4 Remove the old processor from the system board.



- 5 Install the new processor onto the system board making sure that Pin 1 on the processor (indicated by the silk-screened arrow on the corner of the processor) aligns with Pin 1 on the processor socket (indicated by the absence of a pin hole in the processor socket), then use a flat-blade screwdriver to turn the processor lock screw 1/4-turn to 1/2-turn clockwise.
- 6 If your cooling assembly uses a thermal pad, go to [Step 8](#).
-OR-
If your cooling assembly uses thermal grease, remove any thermal grease residue from the cooling assembly using a soft cloth and isopropyl alcohol.
- 7 Place new thermal grease on the processor. Use only enough to cover the CPU die.
- 8 Replace the cooling assembly by following the instructions in ["Replacing the cooling assembly" on page 14](#).

■

Replacing the IEEE 802.11 wireless card



Caution

By law, only approved wireless modules provided by Gateway, or a Gateway authorized representative, explicitly for this Gateway notebook may be installed in this notebook.



Caution

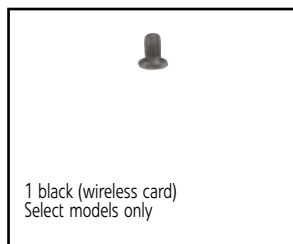
Legal requirements dictate the wireless cover be in place during any and all operation of the notebook's wireless feature.

Tools you need to complete this task:



Phillips #0 screwdriver

Screws removed during this task:



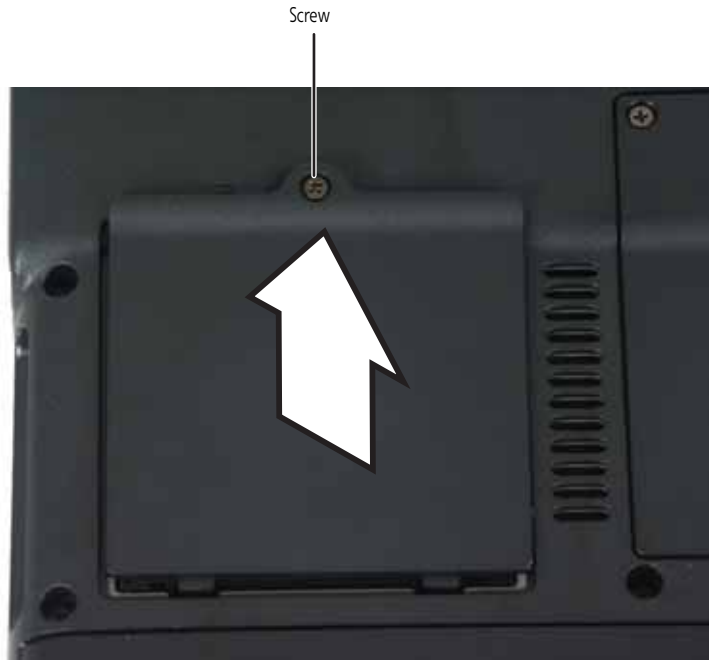
Wireless bay



► To replace the 802.11 wireless card:

- 1 Complete the steps in ["Preparing the notebook"](#) on page 6.

- 2 Loosen the wireless bay cover screw (this screw cannot be removed), then remove the wireless bay cover.



- 3 Unplug the two antenna cables.



- 4 Move the antenna cables out of the way.

- 5 If the wireless card is held by clips, press outward on the clip at each side of the card until the card tilts up.



-OR-

If the wireless card is held by a screw, remove the screw.



- 6 Pull the old card out of the slot.



- 7 Hold the new card at a 30-degree angle and slide it into the empty slot. This card is keyed so it can only be inserted in one direction. If the card does not fit, make sure that the notch in the card lines up with the tab in the card slot.
- 8 Move the antenna cables out of the way.
- 9 If the wireless card is held by clips, press the card down until it clicks into place.
-OR-
If the wireless card is held by a screw, replace the screw.
- 10 Reattach the light gray antenna cable to the connector labelled MAIN or M, then reattach the black antenna cable to the connector labelled AUX or A.



- 11 Replace the wireless bay cover, then tighten the screw.

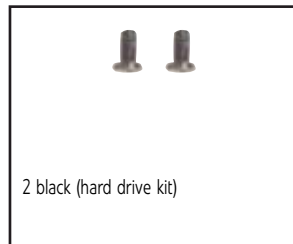
Replacing the hard drive

Tools you need to complete this task:

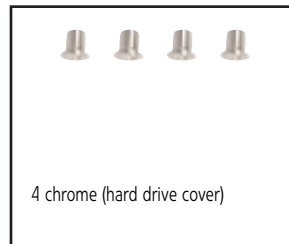


Phillips #0 screwdriver

Screws removed during this task:



2 black (hard drive kit)



4 chrome (hard drive cover)



► **To replace the hard drive:**

- 1 Complete the steps in ["Preparing the notebook" on page 6](#).
- 2 Remove the two hard drive kit screws.

- 3 Slide the old hard drive kit out of the notebook.



- 4 If the hard drive shipped to you already attached to a new cover, go to [Step 8](#).

-OR-

If the hard drive shipped to you without a new cover, remove the four screws that secure the hard drive to the hard drive bay cover.



- 5 Remove the cover from the old drive.

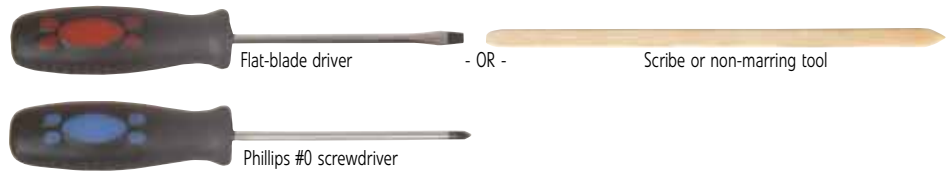


- 6 Place the new drive, label side up, onto the cover so the screw holes line up.
- 7 Replace the screws that secure the cover to the drive.
- 8 Slide the new hard drive kit into the notebook, then replace the kit screws.

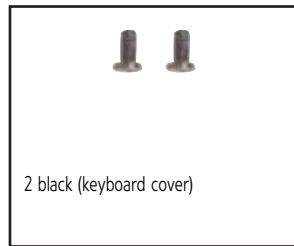


Replacing the keyboard cover

Tools you need to complete this task:



Screws removed during this task:



► To replace the keyboard cover:

- 1 Complete the steps in ["Preparing the notebook"](#) on page 6.
- 2 Turn the notebook over so the top is facing up.
- 3 Remove the two keyboard cover screws.



- 4 Insert the small flat-blade screwdriver under the bottom of each hinge cover and gently pry it up.
- 5 Carefully open the LCD panel to the fully opened position.

- 6 Insert the small, flat-blade screwdriver or non-marring tool under the bottom of the right hinge cover, then gently pry it up.



- 7 Pull the old cover off the notebook. You will hear small snapping sounds as the cover comes away from the notebook.



- 8 Place the new cover on the notebook, then press down on the cover in several places until it clicks in place. The cover is correctly mounted when you can run your finger along the cover and find no loose spots. The cover should be flat all the way across.



Caution

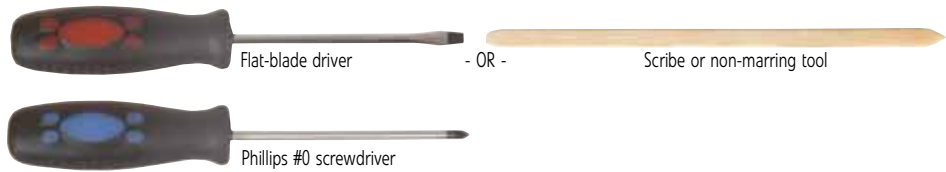
If the cover is not correctly replaced, the notebook could be damaged when you try to close the LCD panel.

- 9 Close the LCD panel.
- 10 Press down on the hinge covers, then replace the two keyboard cover screws.

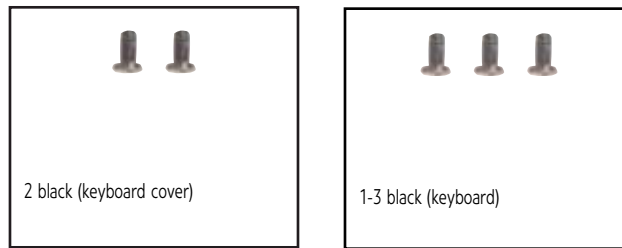


Replacing the keyboard

Tools you need to complete this task:



Screws removed during this task:



► To replace the keyboard:

- 1 Complete the steps in ["Preparing the notebook" on page 6.](#)
- 2 Remove the keyboard cover by following the instructions in ["Replacing the keyboard cover" on page 29.](#)
- 3 Remove the keyboard screw.



Tip

The screw hole is marked with a K.



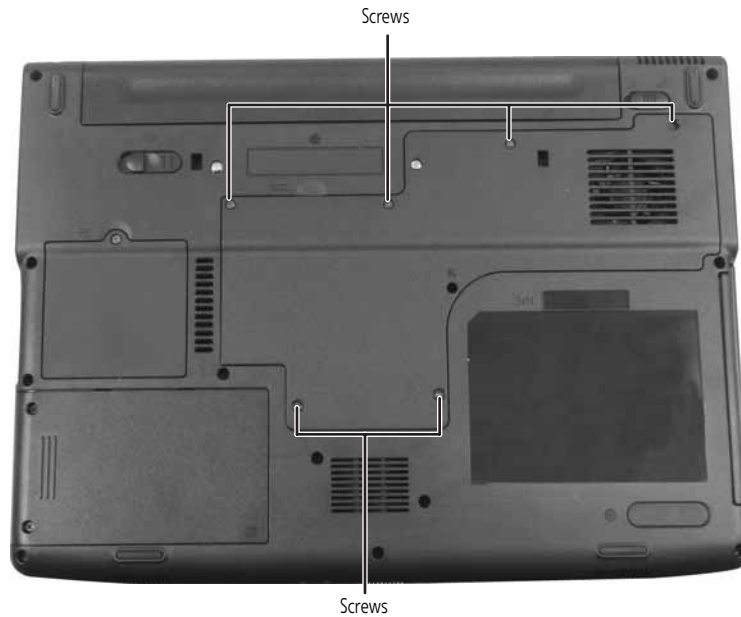
- 4 Gently lift the back edge of the keyboard.
 - If the keyboard does not lift, go to [Step 5.](#)
 - If the keyboard lifts, go to [Step 10.](#)

- 5 Close the LCD panel, turn the notebook over so the bottom is facing up, then loosen the six memory bay cover screws (these screws cannot be removed).

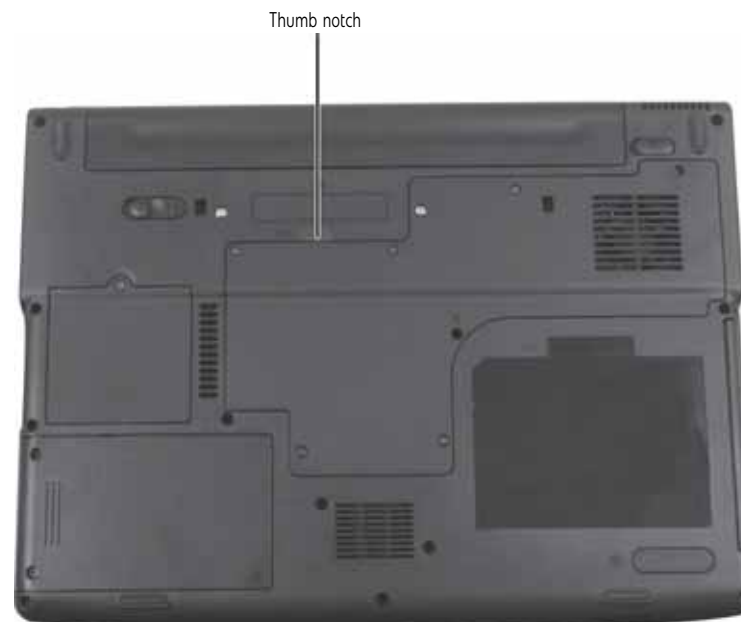


Tip

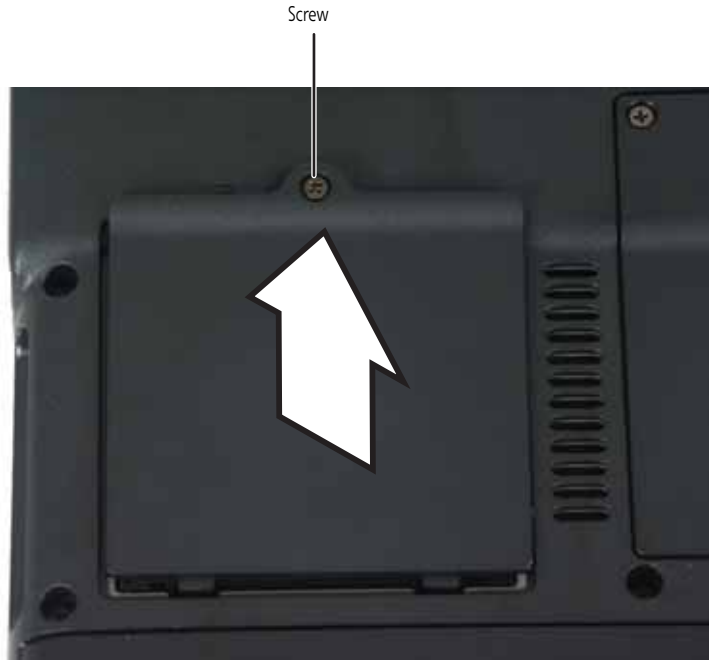
Depending on your model, not all screws may be captive.



- 6 Use the thumb notch to lift the memory bay cover, then remove it. Be careful not to break off the tabs located on the end of the cover opposite of the thumb notch.



- 7 Loosen the wireless bay cover screw (this screw cannot be removed), then remove the wireless bay cover.

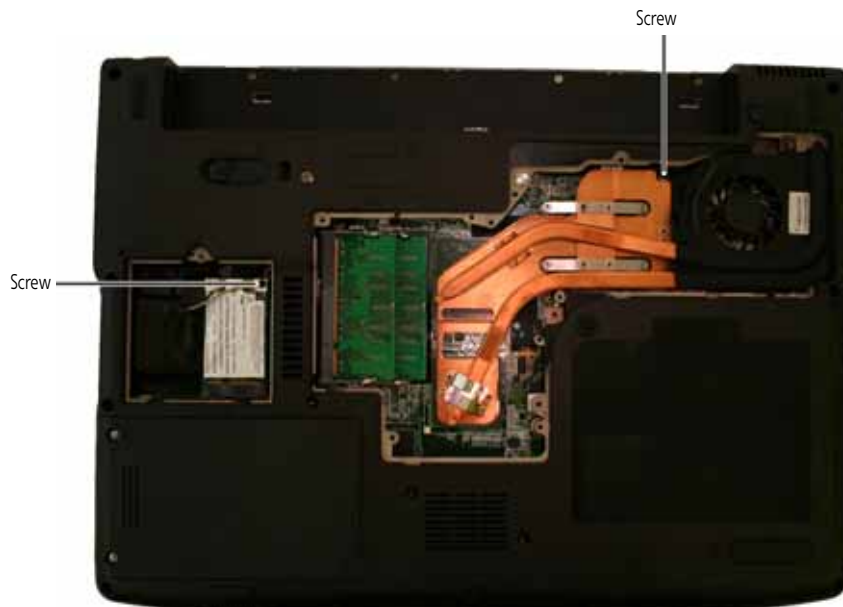


- 8 Remove the two optional keyboard screws.



Tip

Depending on the keyboard features, one or both of these screws may be absent.

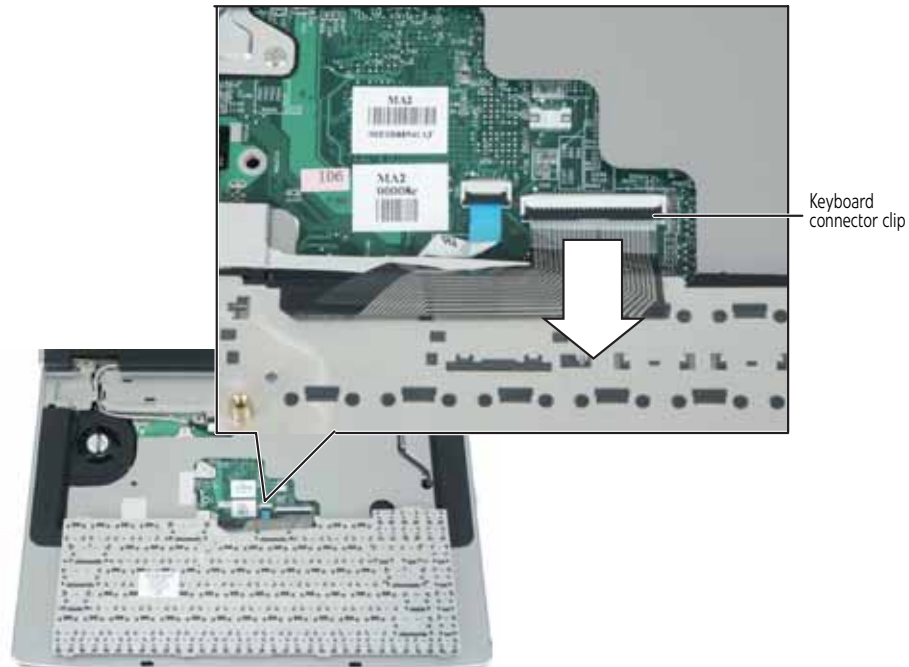


- 9 Turn the notebook over so the top is facing up, then open the LCD panel to the fully opened position.
- 10 With the back edge of the keyboard raised, carefully push it toward the LCD panel to release the keyboard retaining tabs. Be careful not to damage the LCD panel.

- 11 Carefully rotate the keyboard toward you so it lies **keys-down** on top of the notebook. Be careful not to damage the LCD panel.



- 12 Lift the black keyboard connector clip, then remove the cable. Be careful not to touch or damage any other components.



- 13 Lift the old keyboard away from the notebook. The keyboard is now completely detached from the notebook.
- 14 Place the new keyboard **keys-down** on the notebook with the space bar away from you.
- 15 Make sure the black keyboard connector clip is fully raised, insert the cable into the connector, then lower the black connector clip to lock the cable in place.



Important

The keyboard cable is correctly oriented if the cable is not twisted.

- 16 Rotate the keyboard toward the LCD panel until the keyboard is almost face-up.

- 17 Insert the tabs on the front edge of the keyboard into the slot under the palm rest. You may need to press down on the keyboard keys along the front edge of the keyboard to seat the retaining tabs into their corresponding slots.



- 18 Gently press the keyboard down until it is flat all the way across. The keyboard should easily fall into place. Be careful not to damage the LCD panel.
- 19 Reattach the keyboard cover by following the instructions in ["Replacing the keyboard cover" on page 29](#).
- 20 Turn the notebook over so the bottom is facing up, then replace the keyboard screws removed in [Step 8](#).
- 21 Replace the memory bay cover and wireless network bay cover.
- 22 Replace the keyboard screw removed in [Step 3](#).



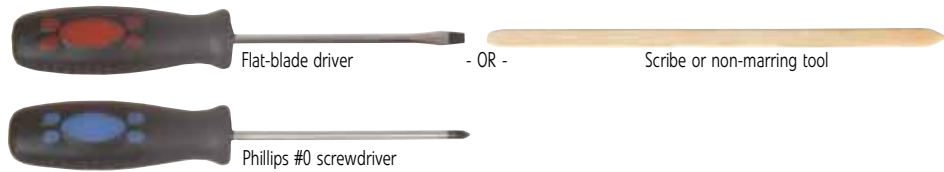
Tip

The screw hole is marked with a K.

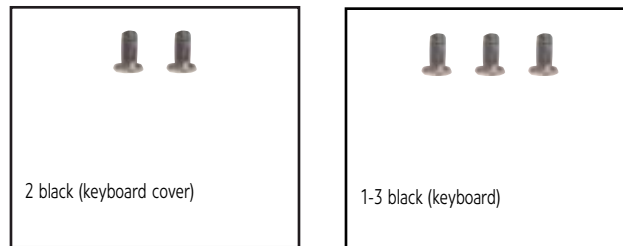


Replacing the CMOS battery

Tools you need to complete this task:



Screws removed during this task:



► To replace the CMOS battery:

- 1 Complete the steps in [“Preparing the notebook”](#) on page 6.
- 2 Remove the keyboard cover by following the instructions in [“Replacing the keyboard cover”](#) on page 29.
- 3 Open the keyboard compartment by following the instructions in [“Replacing the keyboard”](#) on page 31.



Tip

You do not need to unplug the keyboard from the notebook.

- 4 Locate the old battery on the system board. If you have access to the battery connector on the system board, go to [Step 5](#).

-OR-

If you do not have access to the battery connector on the system board, complete the following:

- a Remove the LCD panel by following the instructions in [“Replacing the LCD panel assembly”](#) on page 38.
- b Remove the palm rest by following the instructions in [“Replacing the palm rest”](#) on page 56, then go to [Step 5](#).

- 5 Use your fingers to unplug the CMOS battery connector from the system board. Be careful not to touch or damage any other components.



- 6 Plug the new battery into the system board.



Important

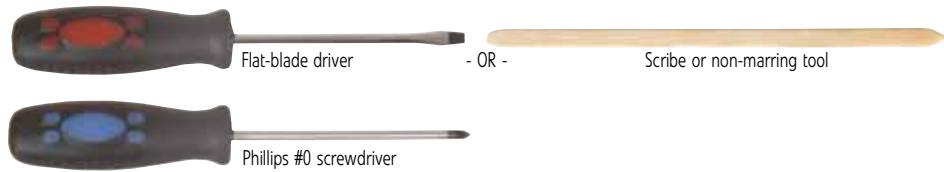
Use only CMOS batteries designed for this Gateway notebook. The non-conductive sleeve and wires are not reusable.

- 7 Replace the palm rest (if removed) by following the instructions in ["Replacing the palm rest" on page 56.](#)
- 8 Remove the LCD panel (if removed) by following the instructions in ["Replacing the LCD panel assembly" on page 38.](#)
- 9 Close the keyboard compartment by following the instructions in ["Replacing the keyboard" on page 31.](#)
- 10 Replace the keyboard cover by following the instructions in ["Replacing the keyboard cover" on page 29.](#)

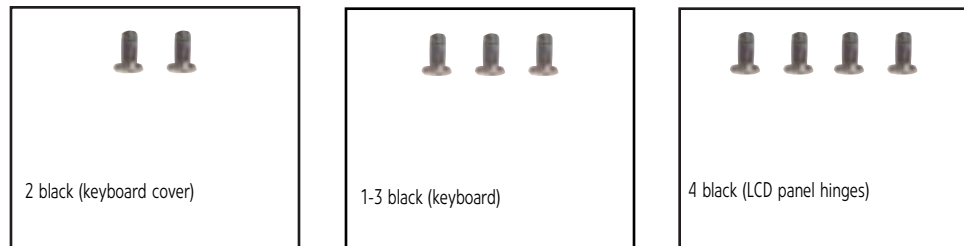


Replacing the LCD panel assembly

Tools you need to complete this task:



Screws removed during this task:



► To replace the LCD panel assembly:

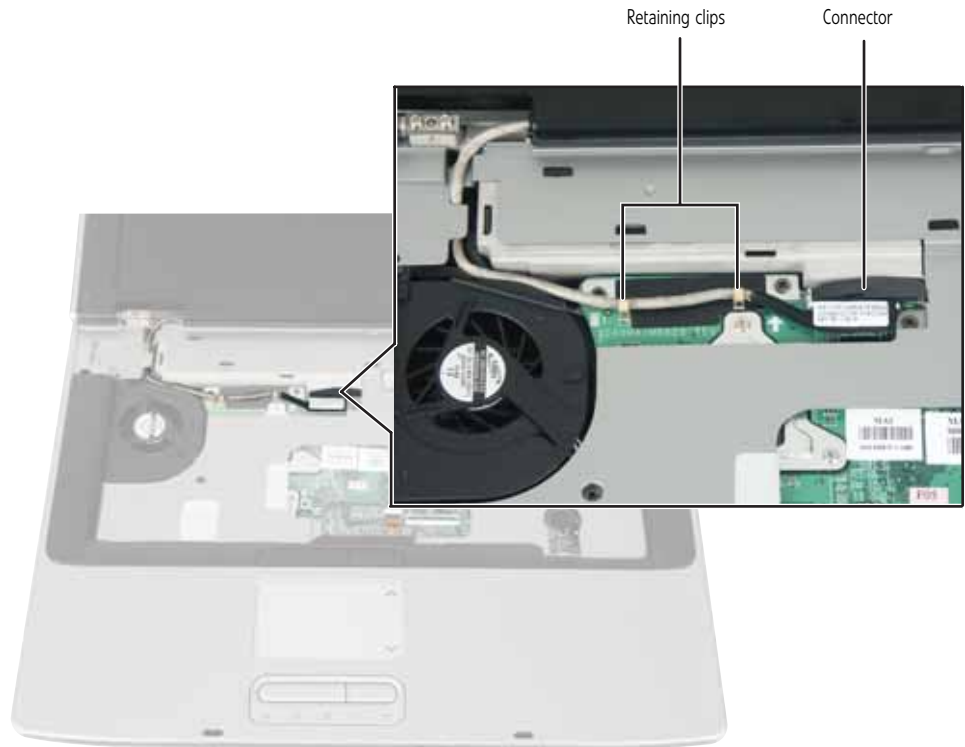
- 1 Complete the steps in ["Preparing the notebook" on page 6](#).
- 2 If the notebook has IEEE 802.11 wireless networking built in, unplug the antenna cables from the IEEE 802.11 wireless card by following the instructions in ["Replacing the IEEE 802.11 wireless card" on page 22](#).
- 3 Remove the keyboard cover by following the instructions in ["Replacing the keyboard cover" on page 29](#).
- 4 Open the keyboard compartment by following the instructions in ["Replacing the keyboard" on page 31](#).



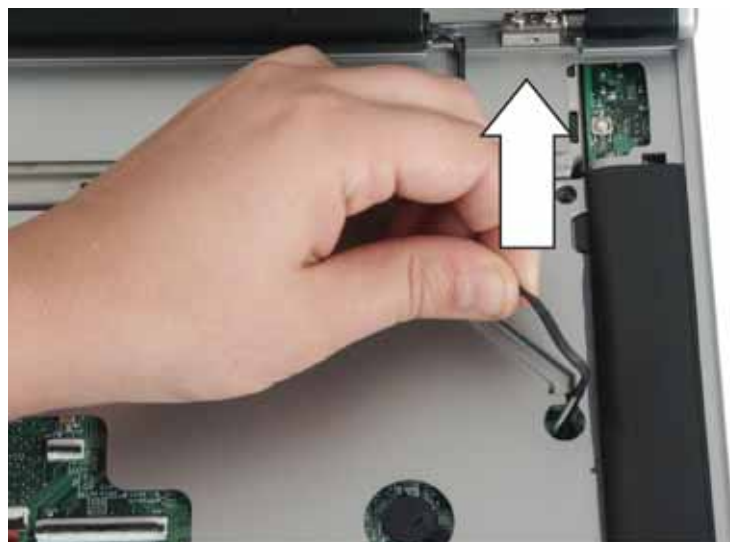
Tip

You do not need to unplug the keyboard from the notebook.

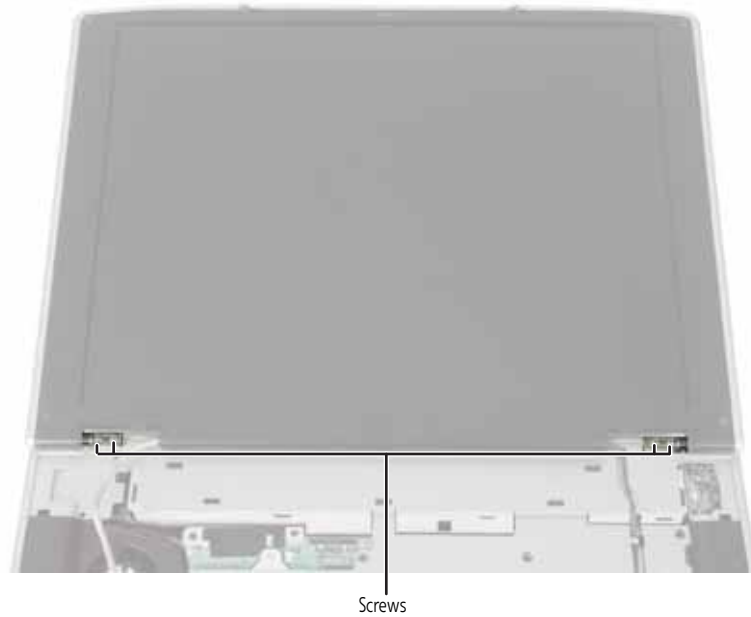
- 5 Carefully unplug the LCD video cable from the notebook. Make sure you grasp the connector, not the cable.



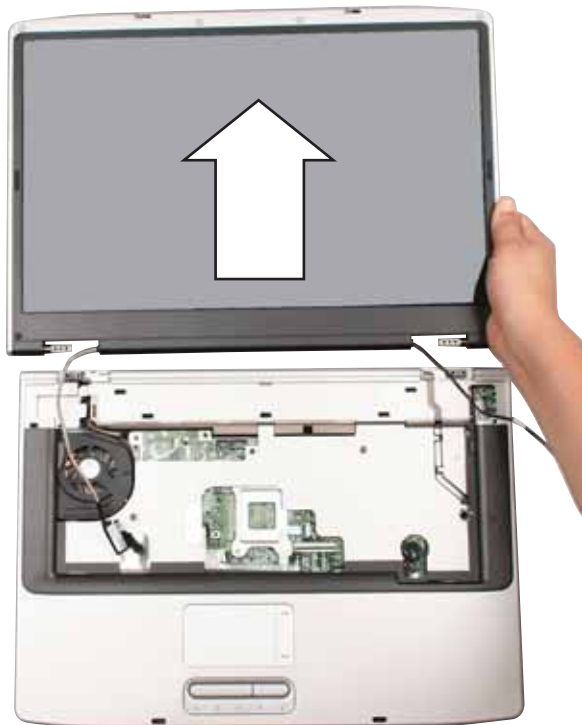
- 6 Lift up on the video cable retaining clips slightly, then slide the video cable out from under the clips.
- 7 Taking care to note the cables' routing and positions as they are installed from Gateway, pull the antenna wires out from under the system board, then slide the wires out from under the retaining clips.



- 8** Remove the four hinge screws that secure the LCD panel to the notebook.

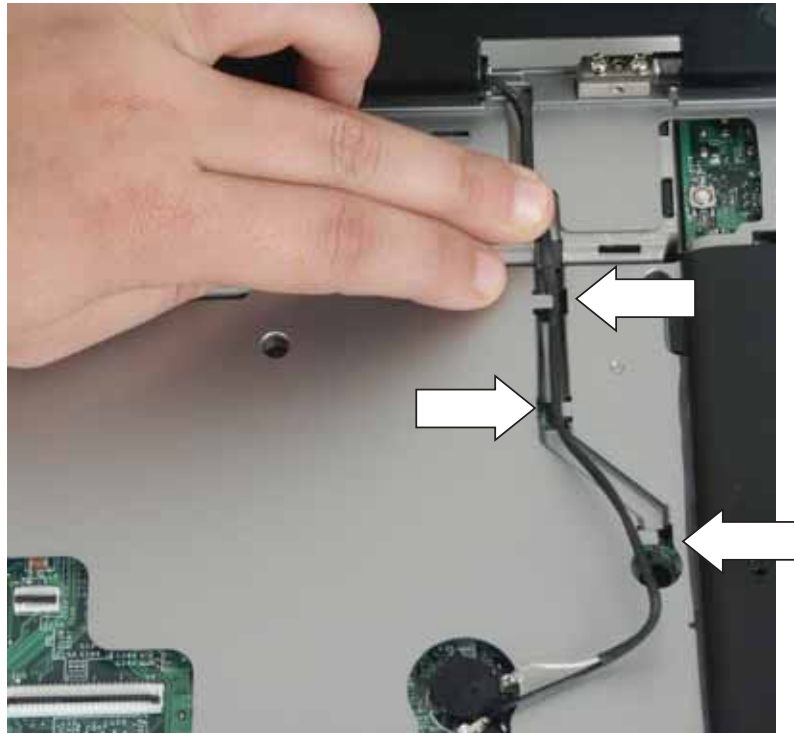


- 9** Lift the LCD panel assembly away from the notebook. The LCD panel assembly is now completely detached from the notebook.

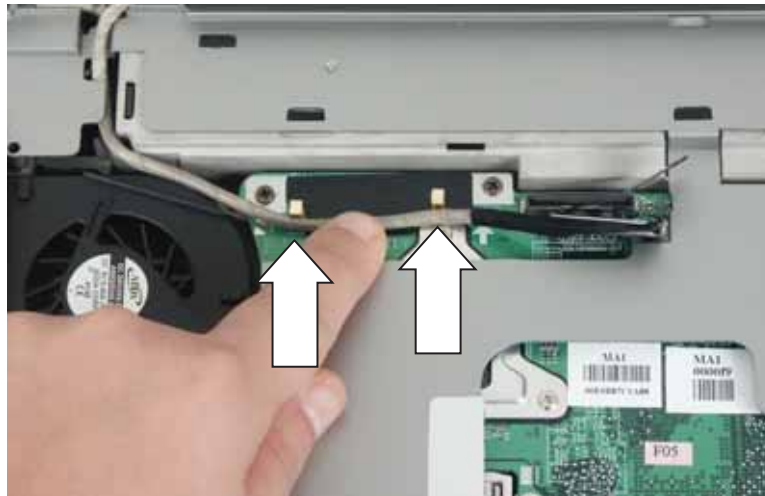


- 10** Place the new LCD panel assembly onto the notebook, then replace the four hinge screws.

- 11 Slide the antenna cables through the retaining clips, under the system board, then into the wireless card area.



- 12 Slide the LCD video cable under the retaining clips, then plug the LCD video connector into the notebook.

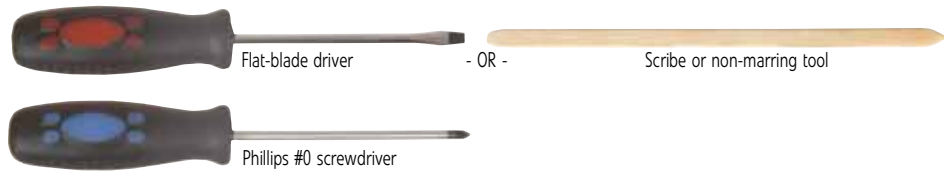


- 13 Close the keyboard compartment by following the instructions in ["Replacing the keyboard" on page 31](#).
- 14 Replace the keyboard cover by following the instructions in ["Replacing the keyboard cover" on page 29](#).
- 15 Plug the antenna cables into the IEEE 802.11 wireless card, then replace the wireless bay cover.

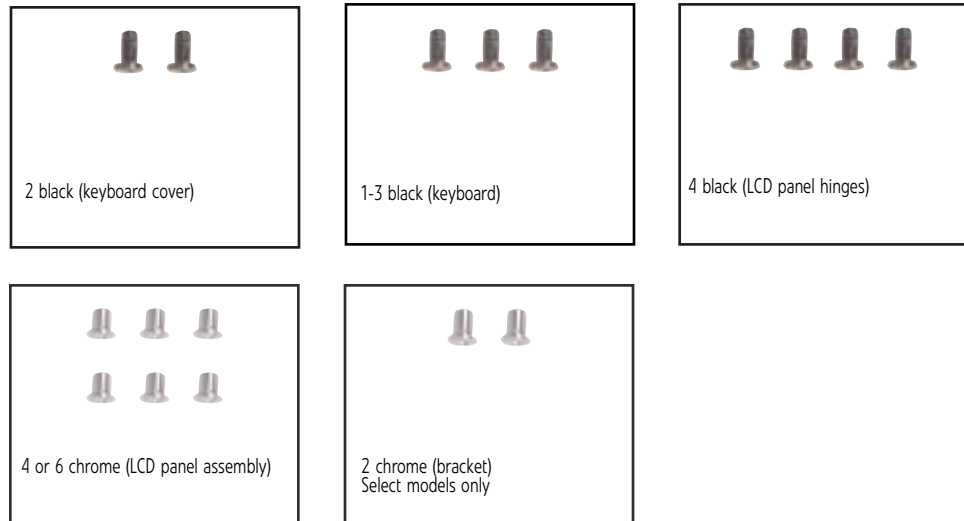
■

Replacing the LCD panel inverter

Tools you need to complete this task:



Screws removed during this task:



► To replace the LCD panel inverter:

- 1 Complete the steps in [“Preparing the notebook”](#) on page 6.
- 2 If the notebook has IEEE 802.11 wireless networking built in, unplug the antenna cables from the IEEE 802.11 wireless card by following the instructions in [“Replacing the IEEE 802.11 wireless card”](#) on page 22.
- 3 Remove the keyboard cover by following the instructions in [“Replacing the keyboard cover”](#) on page 29.
- 4 Open the keyboard compartment by following the instructions in [“Replacing the keyboard”](#) on page 31.

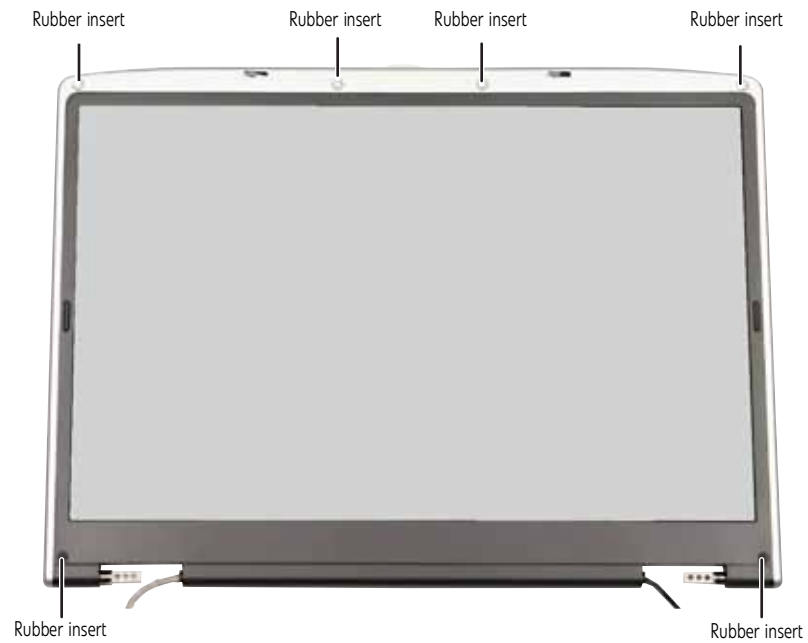


Tip

You do not need to unplug the keyboard from the notebook.

- 5 Remove the LCD panel by following the instructions in [“Replacing the LCD panel assembly”](#) on page 38.

6 Remove the four or six rubber inserts from the front of the LCD panel assembly.

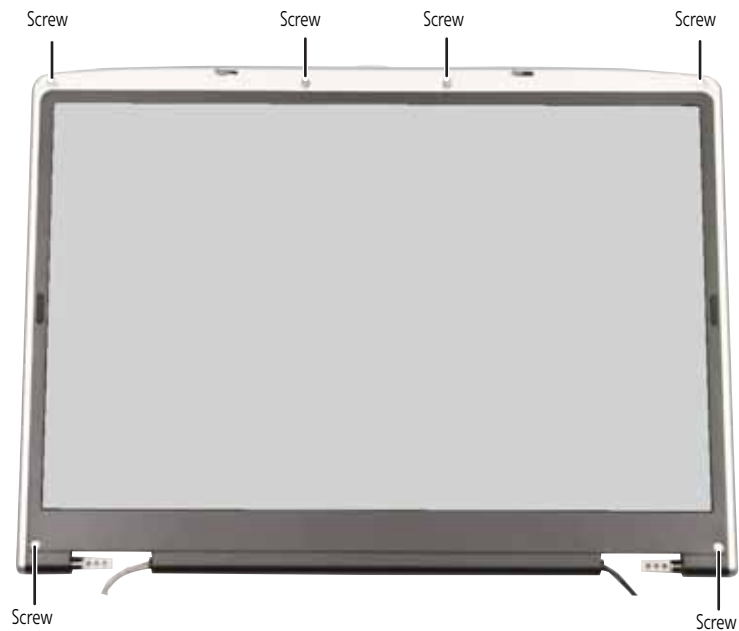


7 Remove the four or six screws from the front of the LCD panel assembly.



Tip

On select models, you may be able to access the inverter by removing only the bottom two screws.



8 Carefully separate the front and back of the LCD panel assembly.



Tip

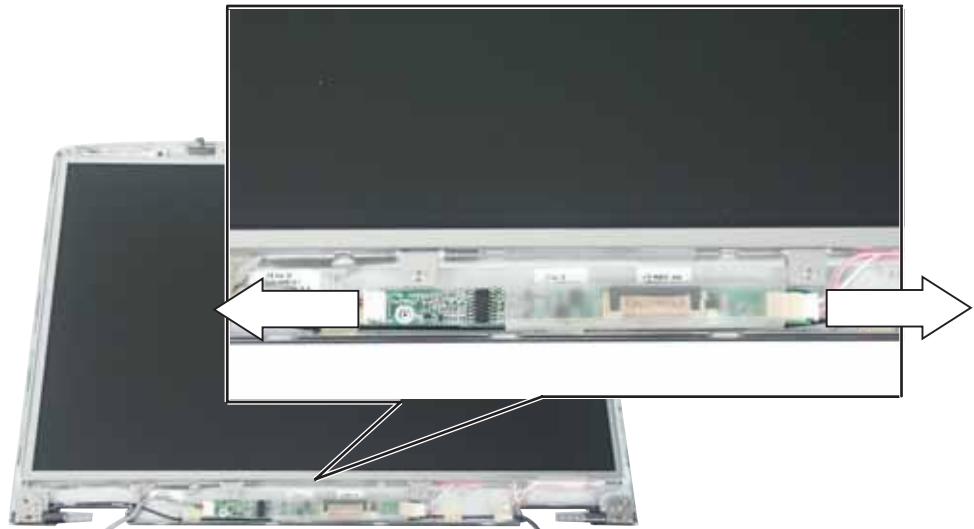
If you only removed the bottom two screws in the previous step, separate only the lower half of the LCD panel assembly.



9 Locate the inverter. Depending on LCD panel size, it is either at the bottom or side of the LCD panel assembly. If the inverter is located at the bottom of the LCD panel assembly, you may need to remove the two screws holding the bracket to the LCD panel assembly, then remove the bracket.



- 10 Unplug both cables from the inverter.



- 11 Remove the old inverter, then insert the new one.
12 Connect the cables to the new inverter.
13 If you removed the bracket in [Step 9](#), replace it, then replace the two screws.
14 Press the front and back of the LCD panel together in several places until they click in place. You should find no loose spots or spots where the two halves do not meet.

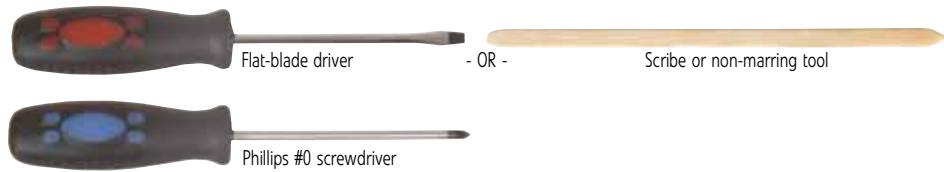


- 15 Replace the four or six screws from the front of the LCD panel assembly removed in [Step 7](#).
16 Replace the four or six rubber inserts onto the front of the LCD panel assembly.
17 Replace the LCD panel assembly onto the notebook by following the instructions in ["Replacing the LCD panel assembly" on page 38](#).
18 Close the keyboard compartment by following the instructions in ["Replacing the keyboard" on page 31](#).
19 Replace the keyboard cover by following the instructions in ["Replacing the keyboard cover" on page 29](#).
20 Plug the antenna cables into the IEEE 802.11 wireless card, then replace the wireless bay cover.

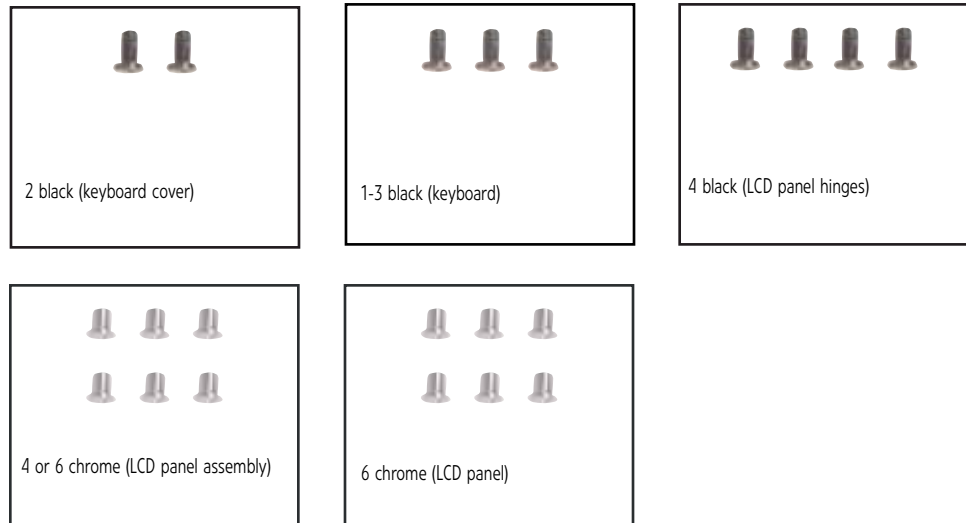
■

Replacing the LCD panel

Tools you need to complete this task:



Screws removed during this task:



► To replace the LCD panel:

- 1 Complete the steps in [“Preparing the notebook”](#) on page 6.
- 2 If the notebook has IEEE 802.11 wireless networking built in, unplug the antenna cables from the IEEE 802.11 wireless card by following the instructions in [“Replacing the IEEE 802.11 wireless card”](#) on page 22.
- 3 Remove the keyboard cover by following the instructions in [“Replacing the keyboard cover”](#) on page 29.
- 4 Open the keyboard compartment by following the instructions in [“Replacing the keyboard”](#) on page 31.

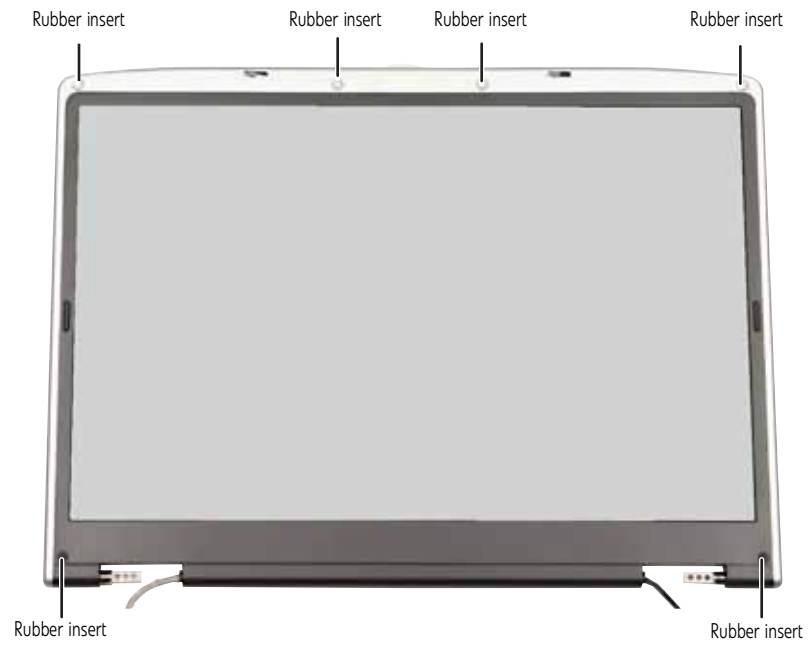


Tip

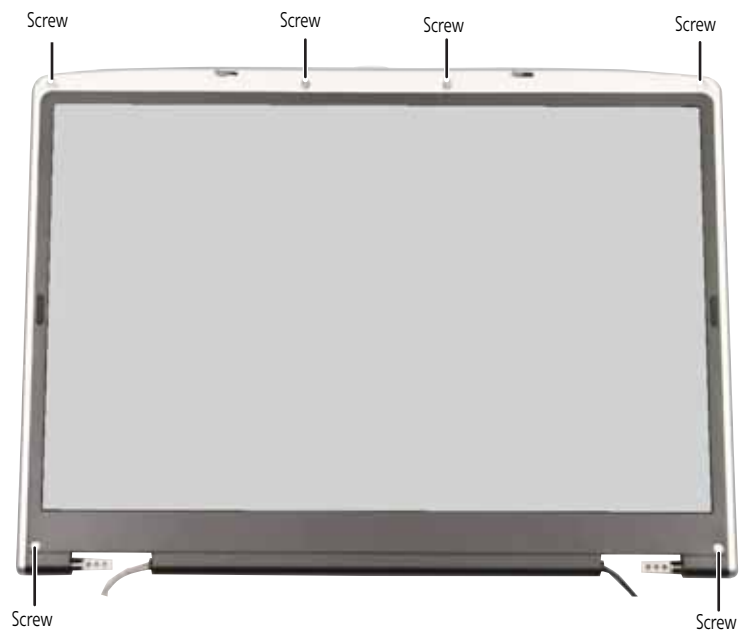
You do not need to unplug the keyboard from the notebook.

- 5 Remove the LCD panel by following the instructions in [“Replacing the LCD panel assembly”](#) on page 38.

- 6** Remove the four or six rubber inserts from the front of the LCD panel assembly.



- 7** Remove the four or six screws from the front of the LCD panel assembly.



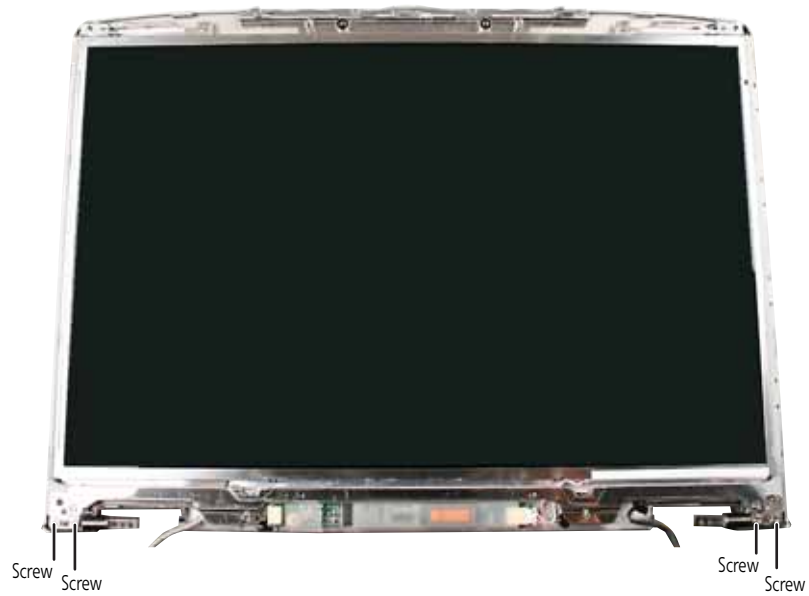
- 8 Carefully separate the front and back of the LCD panel assembly.



- 9 Remove the two screws holding the bracket to the LCD panel assembly, then remove the bracket.



- 10** Remove the four screws connecting the LCD panel to the LCD panel assembly.



- 11** Remove the LCD panel from the LCD panel assembly.

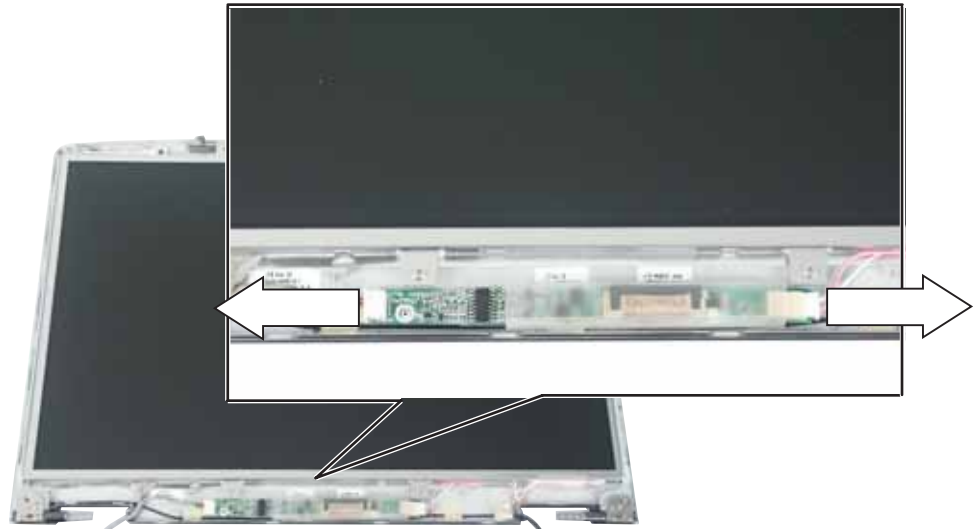


- 12 Unplug both cables from the LCD panel inverter on the old panel, then transfer the inverter to the new panel. Plug both cables into the inverter.



Important

The inverter may be either at the side of the LCD panel or at the bottom.



- 13 Place the new LCD panel into the existing LCD panel assembly lid.
- 14 Replace the four screws removed in [Step 10](#).
- 15 Replace the bracket and the two screws removed in [Step 9](#).
- 16 Press the front and back of the LCD panel together in several places until they click in place. You should find no loose spots or spots where the two halves do not meet.



- 17 Replace the four or six LCD panel assembly screws.
- 18 Replace the four or six rubber inserts.
- 19 Replace the LCD panel assembly onto the notebook by following the instructions in ["Replacing the LCD panel assembly" on page 38](#).
- 20 Close the keyboard compartment by following the instructions in ["Replacing the keyboard" on page 31](#).
- 21 Replace the keyboard cover by following the instructions in ["Replacing the keyboard cover" on page 29](#).
- 22 Plug the antenna cables into the IEEE 802.11 wireless card, then replace the wireless bay cover.



Replacing the LCD panel assembly lid



Caution

LCD panel assembly lids vary by model. Do not force a new lid to connect to an existing LCD front if the new lid does not match. You may need to order a different lid.

Tools you need to complete this task:



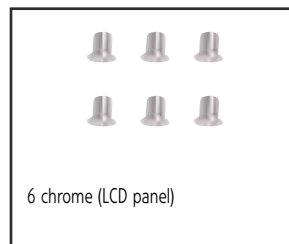
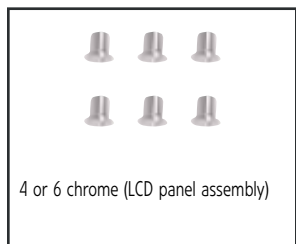
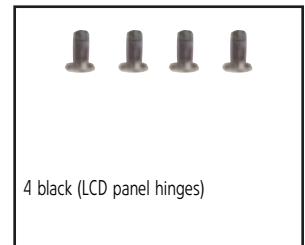
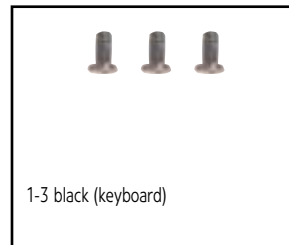
Flat-blade driver

- OR -

Scribe or non-marring tool

Phillips #0 screwdriver

Screws removed during this task:



► To replace the LCD panel assembly lid:

- 1 Complete the steps in ["Preparing the notebook" on page 6](#).
- 2 If the notebook has IEEE 802.11 wireless networking built in, unplug the antenna cables from the IEEE 802.11 wireless card by following the instructions in ["Replacing the IEEE 802.11 wireless card" on page 22](#).
- 3 Remove the keyboard cover by following the instructions in ["Replacing the keyboard cover" on page 29](#).
- 4 Open the keyboard compartment by following the instructions in ["Replacing the keyboard" on page 31](#).

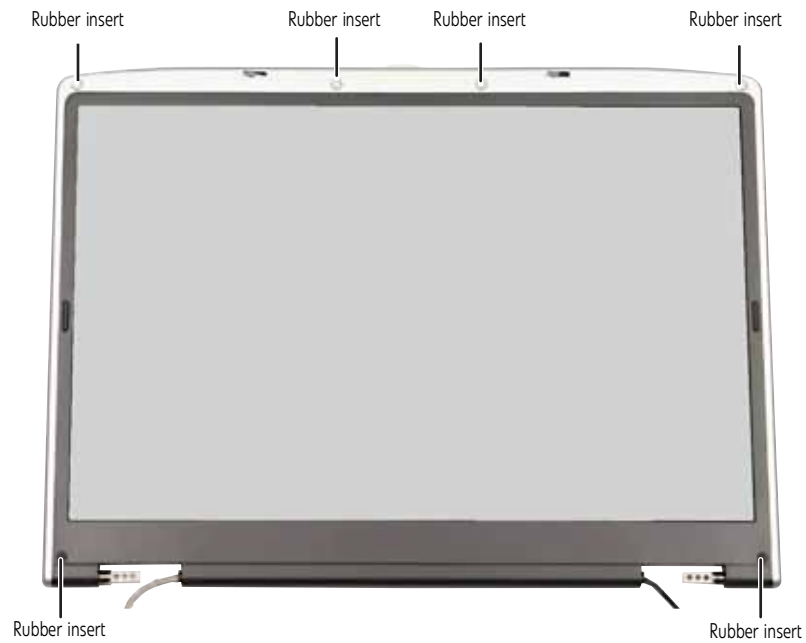


Tip

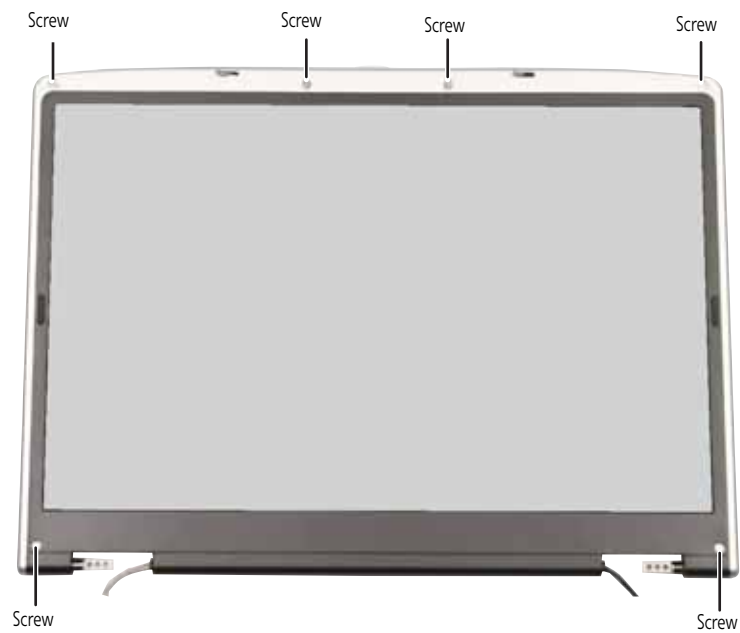
You do not need to unplug the keyboard from the notebook.

- 5 Remove the LCD panel by following the instructions in ["Replacing the LCD panel assembly" on page 38](#).

- 6** Remove the four or six rubber inserts from the front of the LCD panel assembly.



- 7** Remove the four or six screws from the front of the LCD panel assembly.



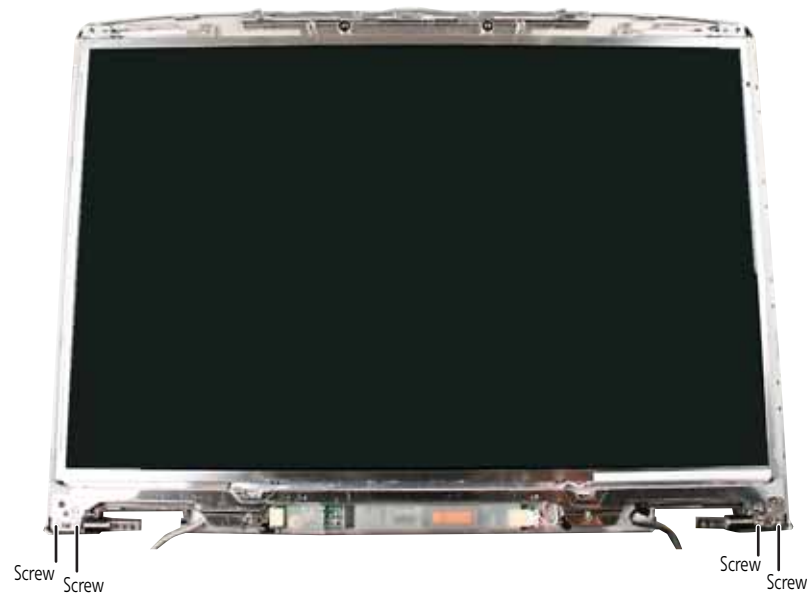
- 8 Carefully separate the front and back of the LCD panel assembly.



- 9 Remove the two screws holding the bracket to the LCD panel assembly, then remove the bracket.



- 10** Remove the four screws connecting the LCD panel to the LCD panel assembly.



- 11** Remove the LCD panel from the LCD panel assembly.



- 12** Place the LCD panel into the new LCD panel assembly lid.
13 Replace the four screws removed in [Step 10](#).
14 Replace the bracket and the two screws removed in [Step 9](#).

- 15 Press the front and back of the LCD panel together in several places until they click in place. You should find no loose spots or spots where the two halves do not meet.

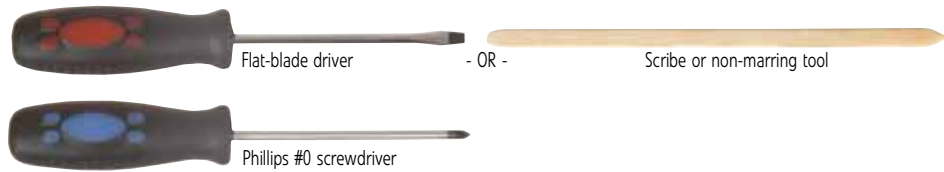


- 16 Replace the four or six LCD panel assembly screws.
- 17 Replace the four or six rubber inserts.
- 18 Replace the LCD panel assembly onto the notebook by following the instructions in ["Replacing the LCD panel assembly" on page 38](#).
- 19 Close the keyboard compartment by following the instructions in ["Replacing the keyboard" on page 31](#).
- 20 Replace the keyboard cover by following the instructions in ["Replacing the keyboard cover" on page 29](#).
- 21 Plug the antenna cables into the IEEE 802.11 wireless card, then replace the wireless bay cover.

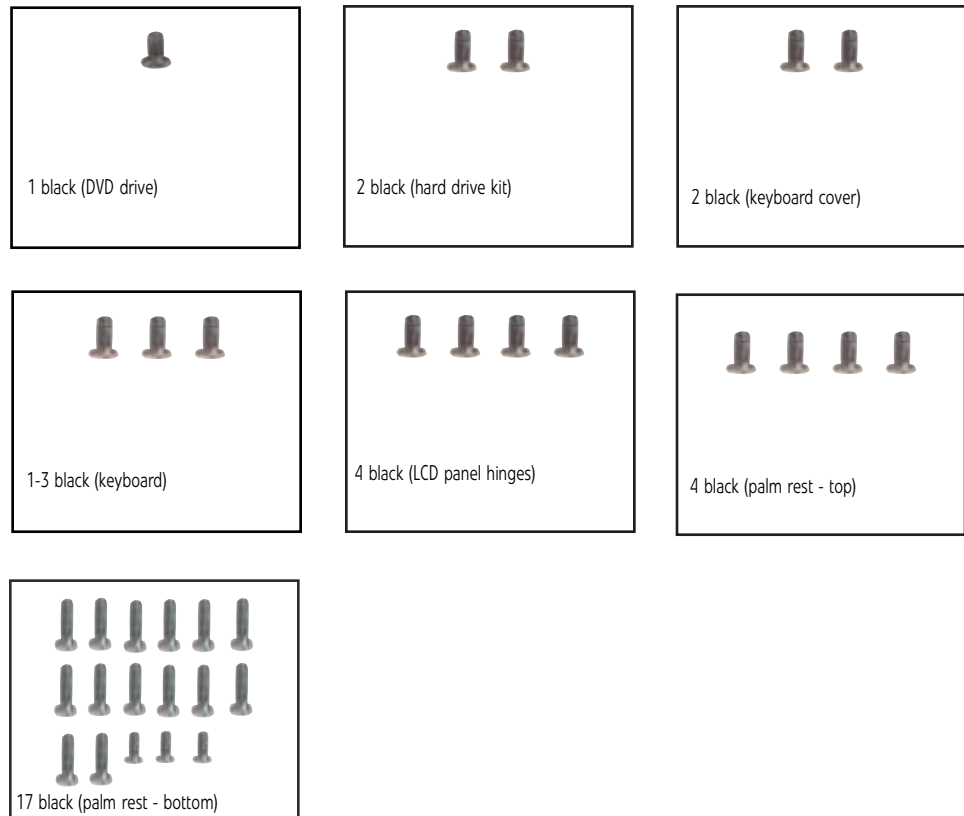


Replacing the palm rest

Tools you need to complete this task:



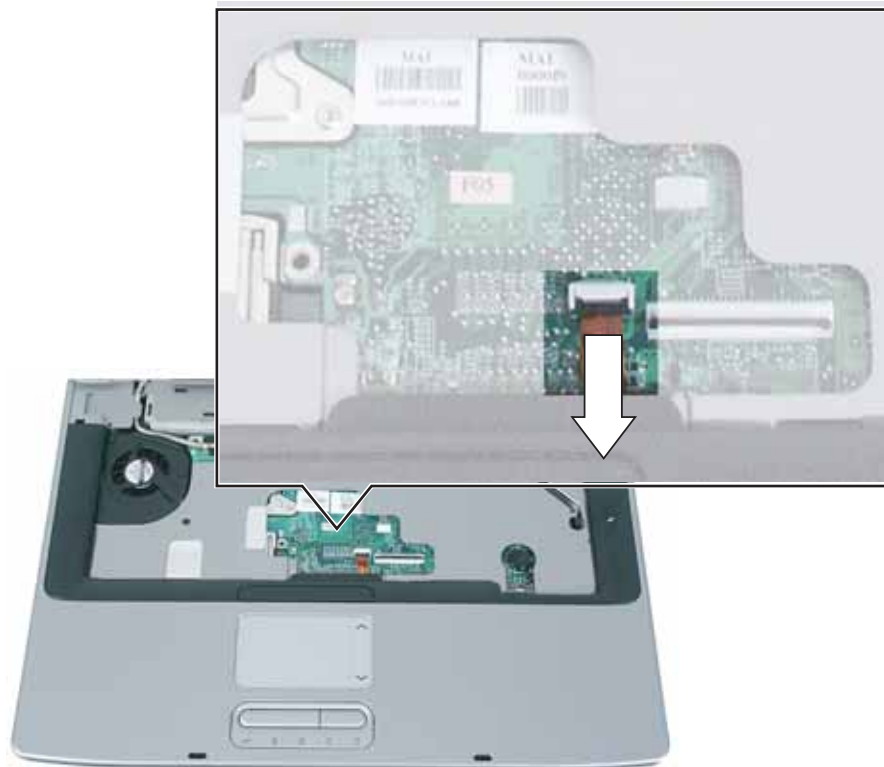
Screws removed during this task:



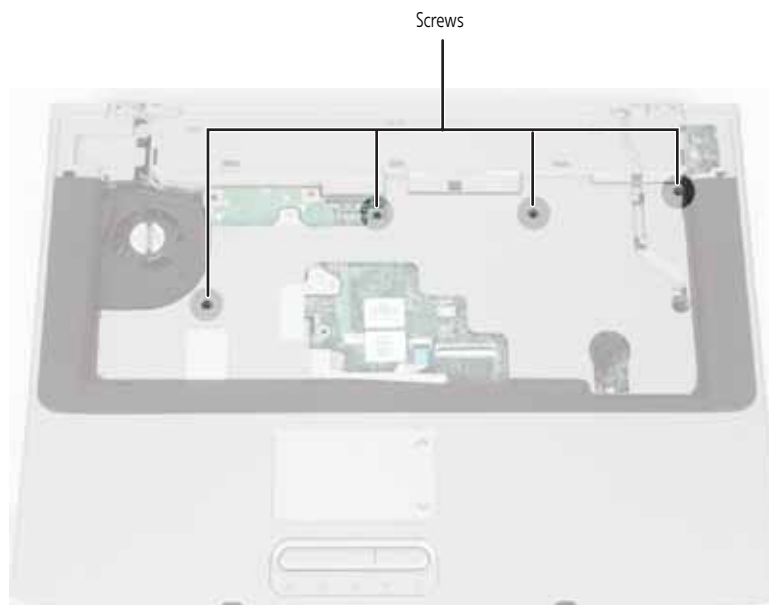
► To replace the palm rest:

- 1 Complete the steps in [“Preparing the notebook”](#) on page 6.
- 2 Remove the DVD drive by following the instructions in [“Replacing the DVD drive”](#) on page 11.
- 3 If the notebook has IEEE 802.11 wireless networking built in, unplug the antenna cables from the IEEE 802.11 wireless card by following the instructions in [“Replacing the IEEE 802.11 wireless card”](#) on page 22.
- 4 Remove the hard drive kit by following the instructions in [“Replacing the hard drive”](#) on page 26.
- 5 Remove the keyboard cover by following the instructions in [“Replacing the keyboard cover”](#) on page 29.
- 6 Remove the keyboard by following the instructions in [“Replacing the keyboard”](#) on page 31.
- 7 Remove the LCD panel by following the instructions in [“Replacing the LCD panel assembly”](#) on page 38.

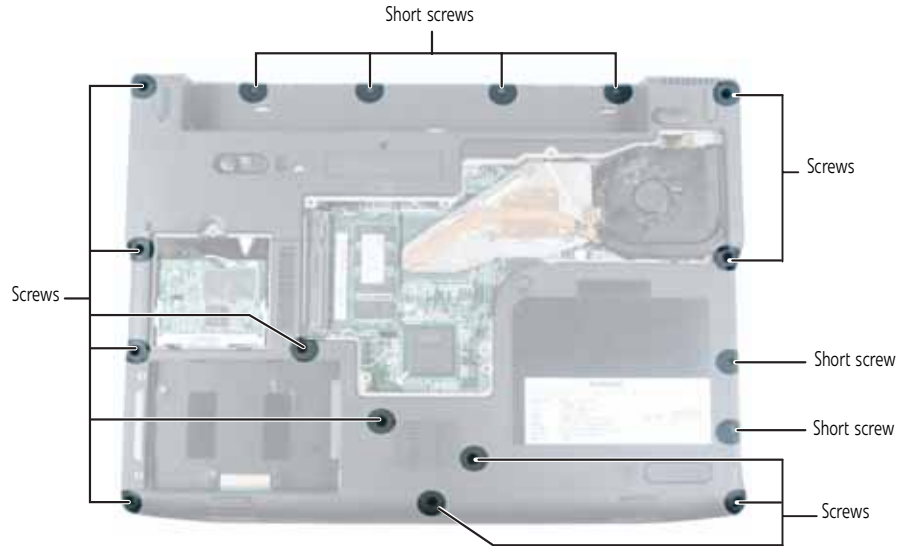
- 8 Lift the black touchpad connector clip, then remove the touchpad cable. Be careful not to touch or damage any other components.



- 9 Remove the four screws from the top of the palm rest.



- 10 Turn the notebook over so the bottom is facing up. Remove the 17 bottom palm rest screws. Note the location of the six short screws.



- 11 Turn the notebook over so the top is facing up, then lift the palm rest assembly completely from the notebook.



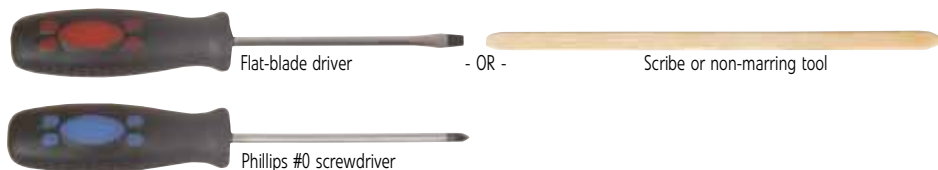
- 12 Place the new palm rest assembly onto the notebook, then snap the assembly into place.
- 13 Replace all of the palm rest screws.
- 14 Replace the LCD panel assembly onto the notebook by following the instructions in ["Replacing the LCD panel assembly" on page 38](#).
- 15 Replace the keyboard by following the instructions in ["Replacing the keyboard" on page 31](#).
- 16 Replace the keyboard cover by following the instructions in ["Replacing the keyboard cover" on page 29](#).
- 17 Replace the hard drive kit by following the instructions in ["Replacing the hard drive" on page 26](#).
- 18 Replace the DVD drive by following the instructions in ["Replacing the DVD drive" on page 11](#).
- 19 Plug the antenna cables into the IEEE 802.11 wireless card, then replace the wireless bay cover.



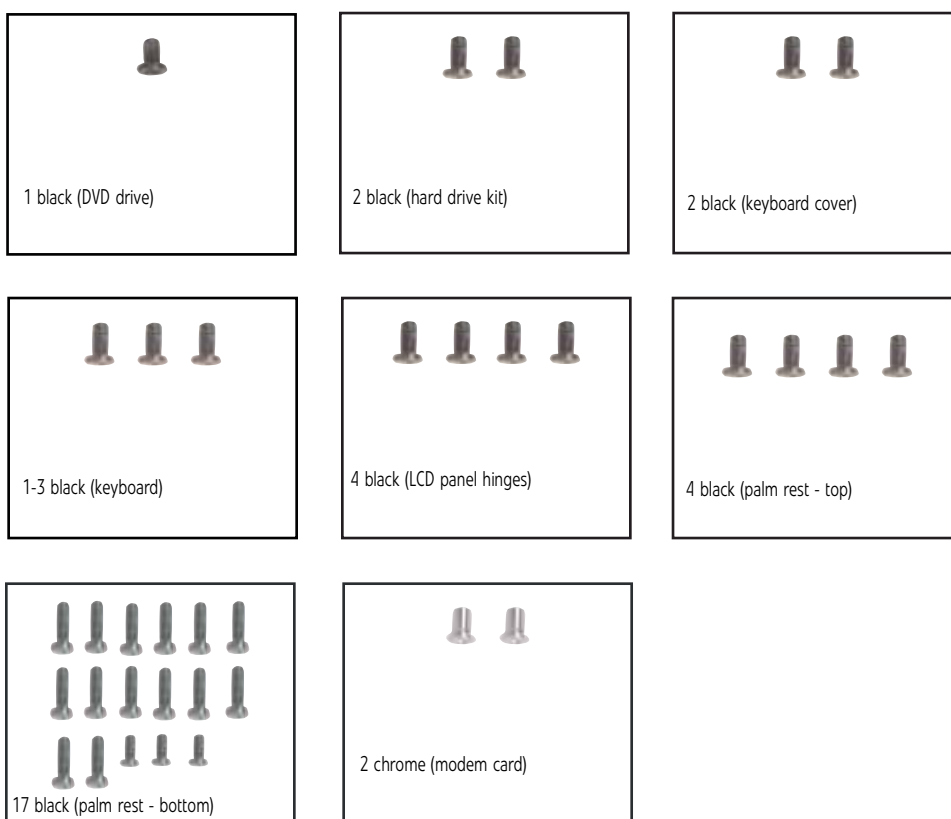
Replacing the modem card

This procedure applies to select models only. Some models of the notebook have the modem built into the system board. To replace the modem on these models, you must replace the system board. For more information, see [“Replacing the system board” on page 64](#).

Tools you need to complete this task:



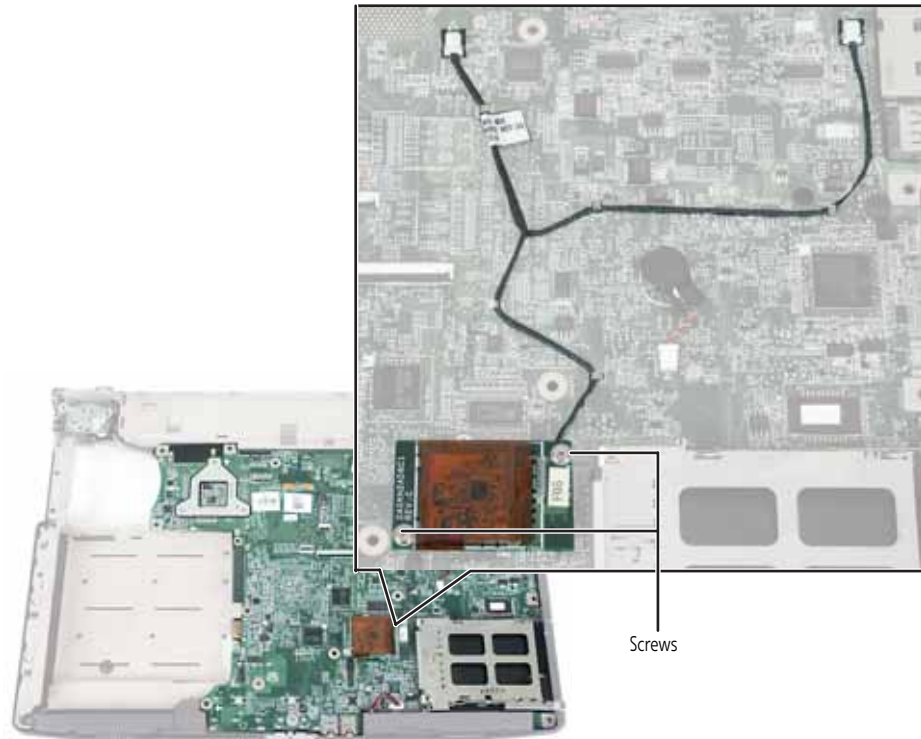
Screws removed during this task:



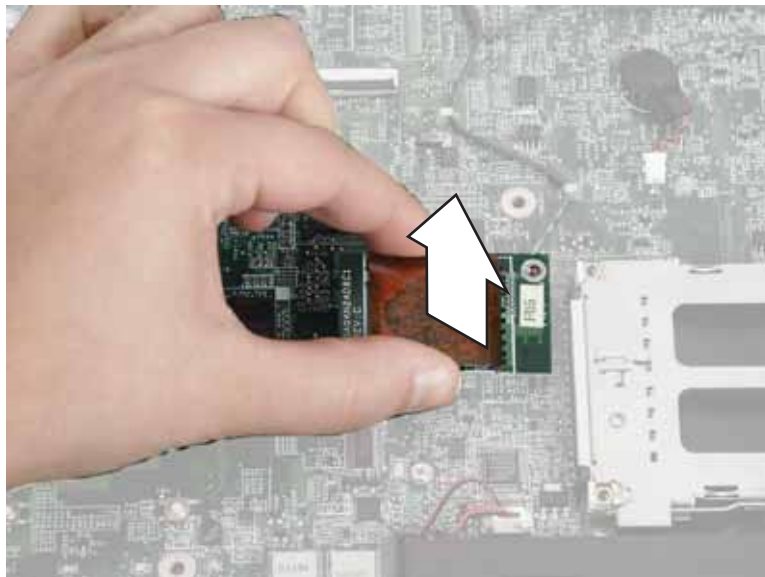
► To replace the modem card:

- 1 Complete the steps in [“Preparing the notebook” on page 6](#).
- 2 Remove the DVD drive by following the instructions in [“Replacing the DVD drive” on page 11](#).
- 3 If the notebook has IEEE 802.11 wireless networking built in, unplug the antenna cables from the IEEE 802.11 wireless card by following the instructions in [“Replacing the IEEE 802.11 wireless card” on page 22](#).
- 4 Remove the hard drive kit by following the instructions in [“Replacing the hard drive” on page 26](#).
- 5 Remove the keyboard cover by following the instructions in [“Replacing the keyboard cover” on page 29](#).
- 6 Remove the keyboard by following the instructions in [“Replacing the keyboard” on page 31](#).

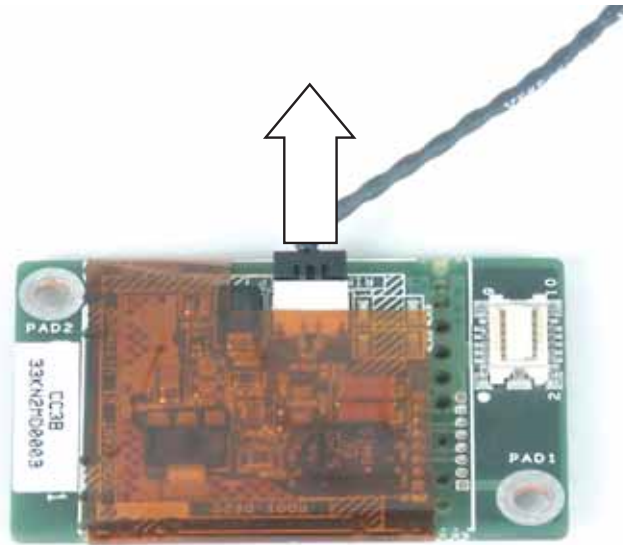
- 7 Remove the LCD panel by following the instructions in [“Replacing the LCD panel assembly” on page 38](#).
- 8 Remove the palm rest by following the instructions in [“Replacing the palm rest” on page 56](#).
- 9 Remove the two screws that secure the modem card to the system board.



- 10 Lift the modem card from the system board.



- 11 Unplug the modem cable from the old modem card and plug it into the new modem card.

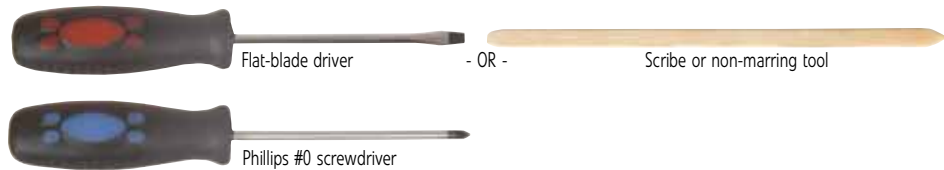


- 12 Install the new modem card onto the system board.
- 13 Replace the palm rest by following the instructions in ["Replacing the palm rest" on page 56](#).
- 14 Replace the LCD panel assembly onto the notebook by following the instructions in ["Replacing the LCD panel assembly" on page 38](#).
- 15 Replace the keyboard by following the instructions in ["Replacing the keyboard" on page 31](#).
- 16 Replace the keyboard cover by following the instructions in ["Replacing the keyboard cover" on page 29](#).
- 17 Replace the hard drive kit by following the instructions in ["Replacing the hard drive" on page 26](#).
- 18 Replace the DVD drive by following the instructions in ["Replacing the DVD drive" on page 11](#).
- 19 Plug the antenna cables into the IEEE 802.11 wireless card, then replace the wireless bay cover.

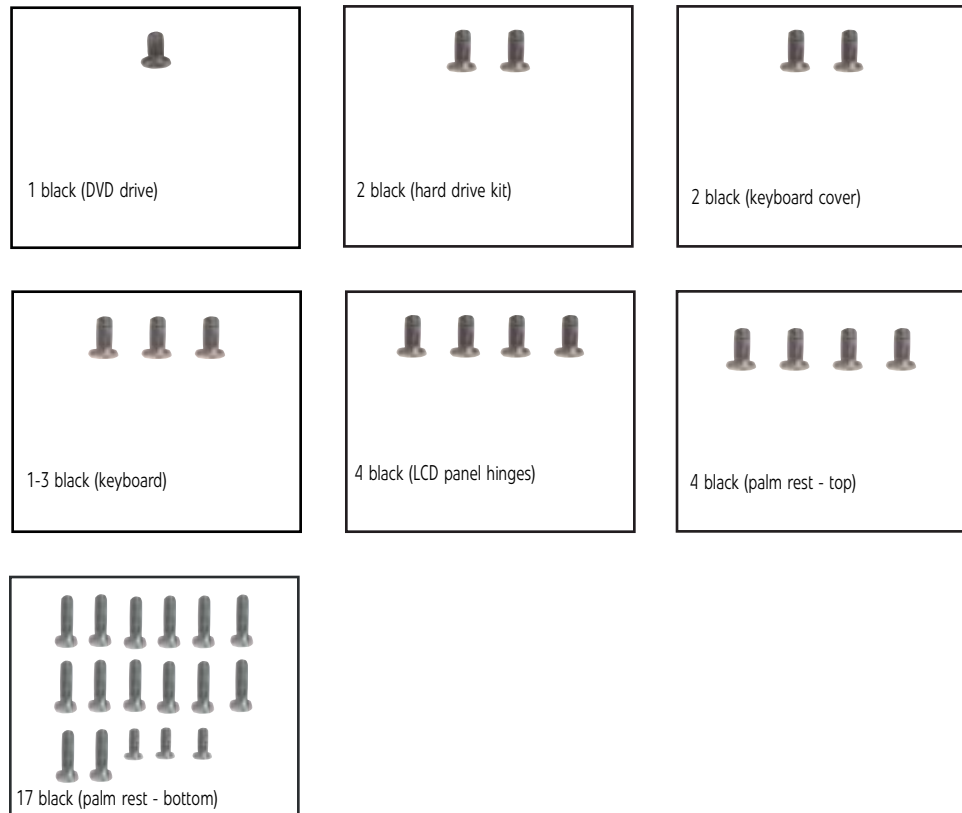


Replacing the Bluetooth module

Tools you need to complete this task:



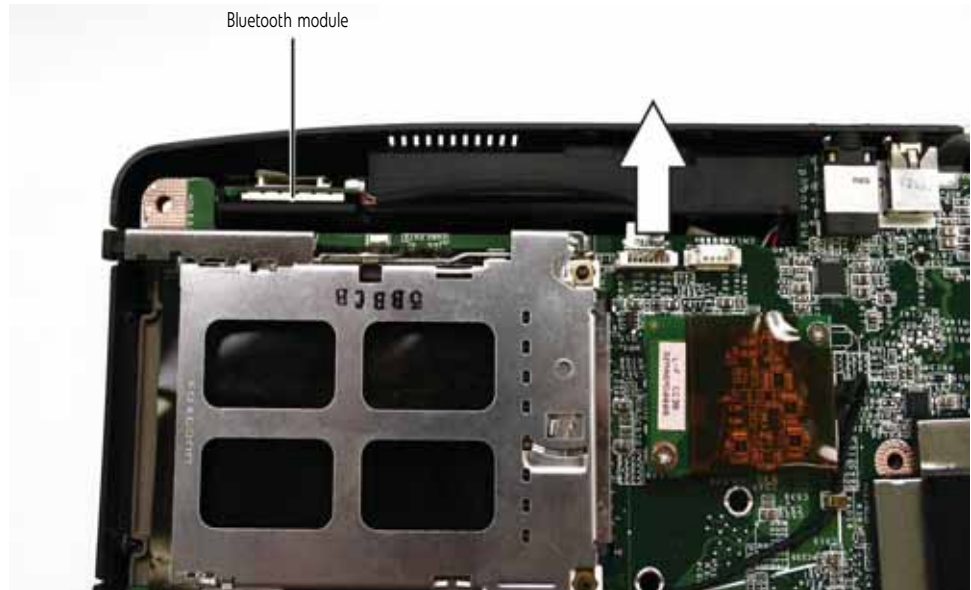
Screws removed during this task:



► To replace the Bluetooth module:

- 1 Complete the steps in [“Preparing the notebook”](#) on page 6.
- 2 Remove the DVD drive by following the instructions in [“Replacing the DVD drive”](#) on page 11.
- 3 If the notebook has IEEE 802.11 wireless networking built in, unplug the antenna cables from the IEEE 802.11 wireless card by following the instructions in [“Replacing the IEEE 802.11 wireless card”](#) on page 22.
- 4 Remove the hard drive kit by following the instructions in [“Replacing the hard drive”](#) on page 26.
- 5 Remove the keyboard cover by following the instructions in [“Replacing the keyboard cover”](#) on page 29.
- 6 Remove the keyboard by following the instructions in [“Replacing the keyboard”](#) on page 31.
- 7 Remove the LCD panel by following the instructions in [“Replacing the LCD panel assembly”](#) on page 38.
- 8 Remove the palm rest by following the instructions in [“Replacing the palm rest”](#) on page 56.

- 9 Disconnect the Bluetooth cable from the system board, then slide the Bluetooth module from the notebook.

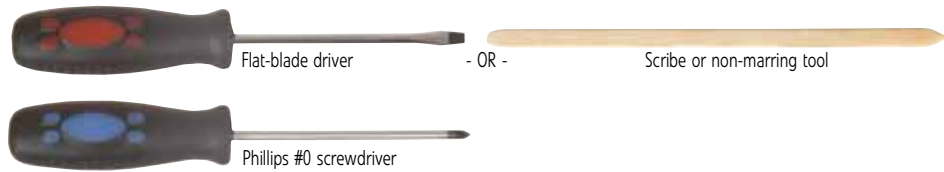


- 10 Slide the new Bluetooth module into the notebook.
- 11 Connect the Bluetooth cable to the system board.
- 12 Replace the palm rest by following the instructions in ["Replacing the palm rest" on page 56.](#)
- 13 Replace the LCD panel assembly onto the notebook by following the instructions in ["Replacing the LCD panel assembly" on page 38.](#)
- 14 Replace the keyboard by following the instructions in ["Replacing the keyboard" on page 31.](#)
- 15 Replace the keyboard cover by following the instructions in ["Replacing the keyboard cover" on page 29.](#)
- 16 Replace the hard drive kit by following the instructions in ["Replacing the hard drive" on page 26.](#)
- 17 Replace the DVD drive by following the instructions in ["Replacing the DVD drive" on page 11.](#)
- 18 Plug the antenna cables into the IEEE 802.11 wireless card, then replace the wireless bay cover.



Replacing the system board

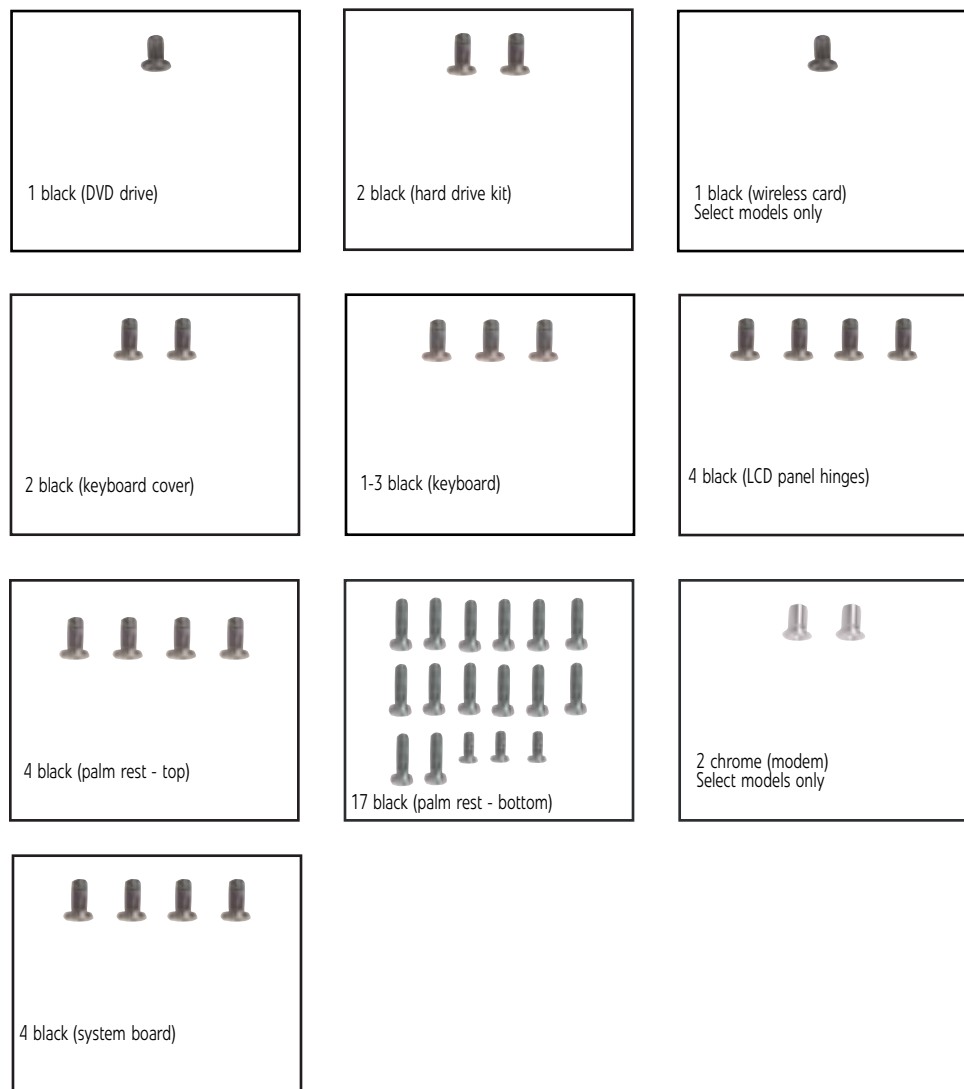
Tools you need to complete this task:



Additional materials you may need to complete this task:

- X-23-7762 thermal grease

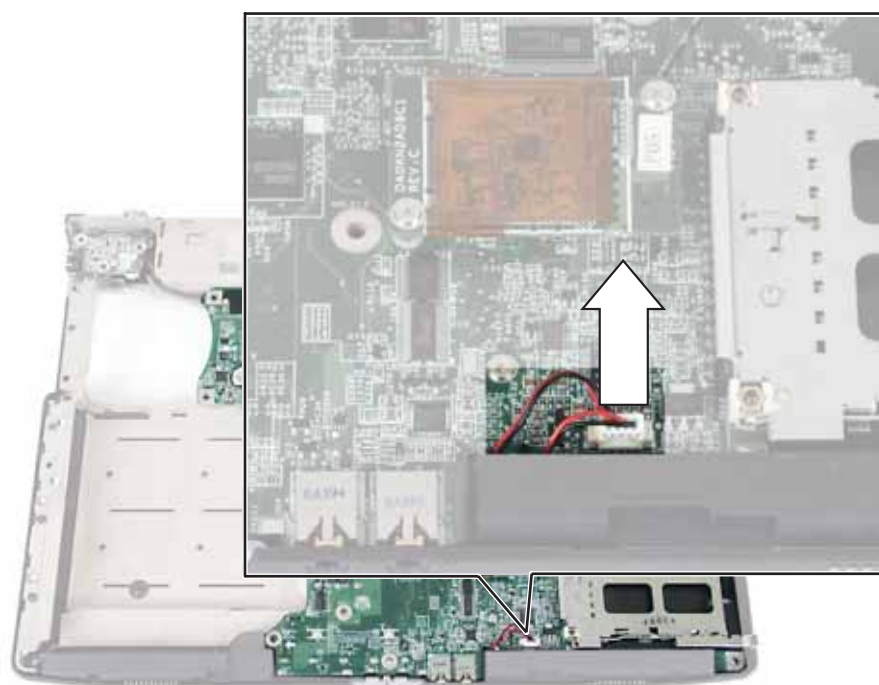
Screws removed during this task:



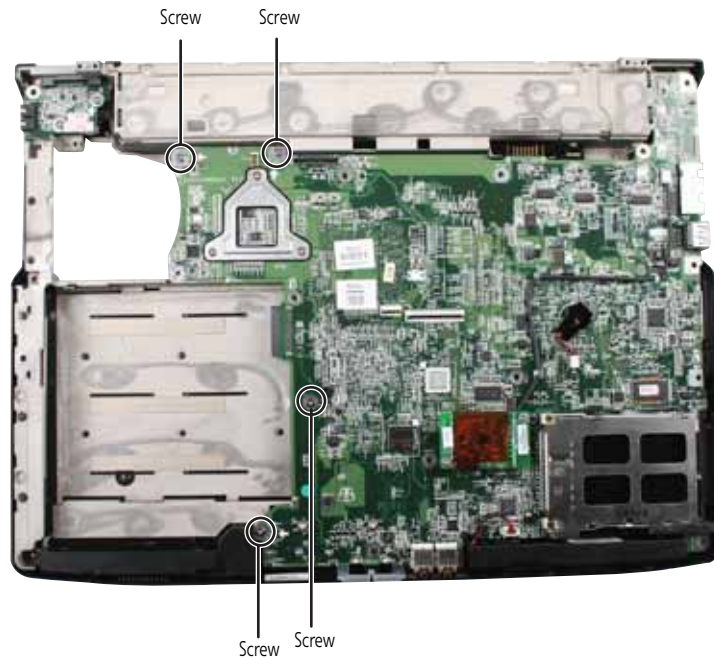
► To replace the system board:

- 1 Complete the steps in [“Preparing the notebook”](#) on page 6.
- 2 Remove the memory from the old system board and install it on the new system board by following the instructions in [“Adding or replacing memory modules”](#) on page 7.

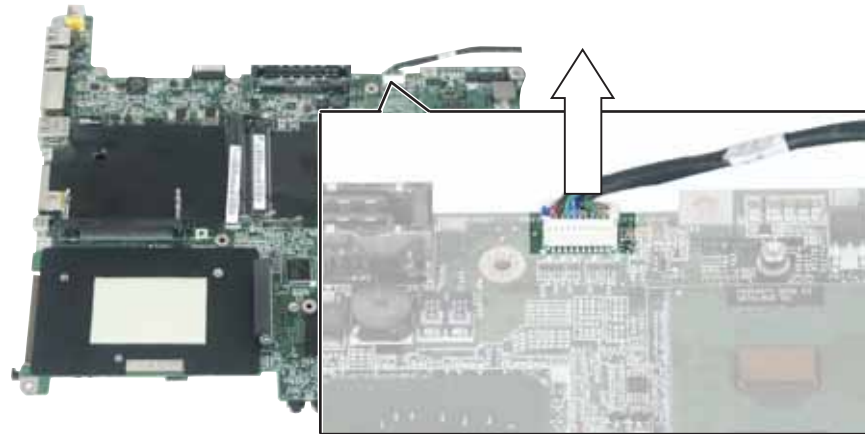
- 3 Remove the DVD drive by following the instructions in ["Replacing the DVD drive" on page 11.](#)
- 4 Remove the cooling assembly by following the instructions in ["Replacing the cooling assembly" on page 14.](#)
- 5 If your new system board does not include a processor, remove the processor from the old system board and install it on the new system board by following the instructions in ["Replacing the processor" on page 19.](#)
- 6 If the notebook has IEEE 802.11 wireless networking built in, remove the IEEE 802.11 wireless card from the old system board and install it on the new system board by following the instructions in ["Replacing the IEEE 802.11 wireless card" on page 22.](#)
- 7 Remove the hard drive kit by following the instructions in ["Replacing the hard drive" on page 26.](#)
- 8 Remove the keyboard cover by following the instructions in ["Replacing the keyboard cover" on page 29.](#)
- 9 Remove the keyboard by following the instructions in ["Replacing the keyboard" on page 31.](#)
- 10 Remove the LCD panel by following the instructions in ["Replacing the LCD panel assembly" on page 38.](#)
- 11 Remove the palm rest by following the instructions in ["Replacing the palm rest" on page 56.](#)
- 12 If your new system board does not have a built-in modem and did not ship to you with a new modem card (see [page 60](#) for a picture of a modem card), remove the modem card from the old system board and install it on the new system board by following the instructions in ["Replacing the modem card" on page 59.](#)
- 13 Disconnect the Bluetooth module by following the instructions in ["Replacing the Bluetooth module" on page 62.](#)
- 14 Disconnect the speakers.



- 15 Remove the four screws that secure the system board to the notebook.



- 16 Turn the system board over and disconnect the external video board cable from the old system board and connect it to the new system board.

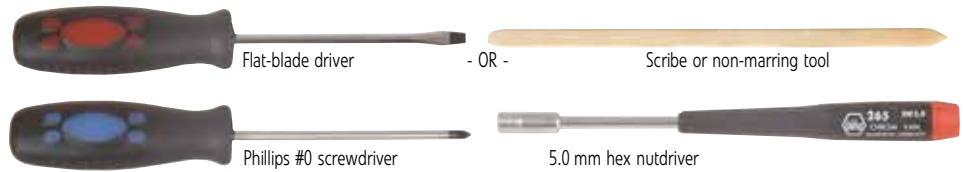


- 17 Install the new system board into the notebook, then replace the screws you removed in [Step 15](#).
- 18 Replace the palm rest by following the instructions in ["Replacing the palm rest" on page 56](#).
- 19 Replace the LCD panel assembly onto the notebook by following the instructions in ["Replacing the LCD panel assembly" on page 38](#).
- 20 Replace the keyboard by following the instructions in ["Replacing the keyboard" on page 31](#).
- 21 Replace the keyboard cover by following the instructions in ["Replacing the keyboard cover" on page 29](#).
- 22 Replace the hard drive kit by following the instructions in ["Replacing the hard drive" on page 26](#).
- 23 Replace the DVD drive by following the instructions in ["Replacing the DVD drive" on page 11](#).
- 24 Plug the antenna cables into the IEEE 802.11 wireless card, then replace the wireless bay cover.

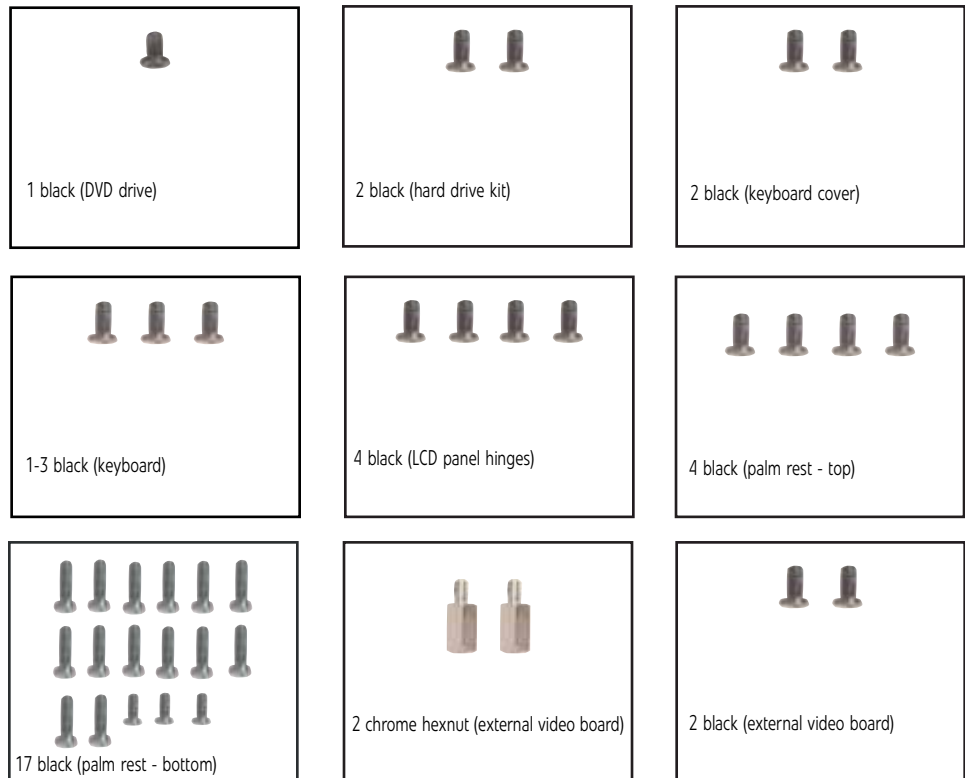


Replacing the external video board

Tools you need to complete this task:



Screws removed during this task:



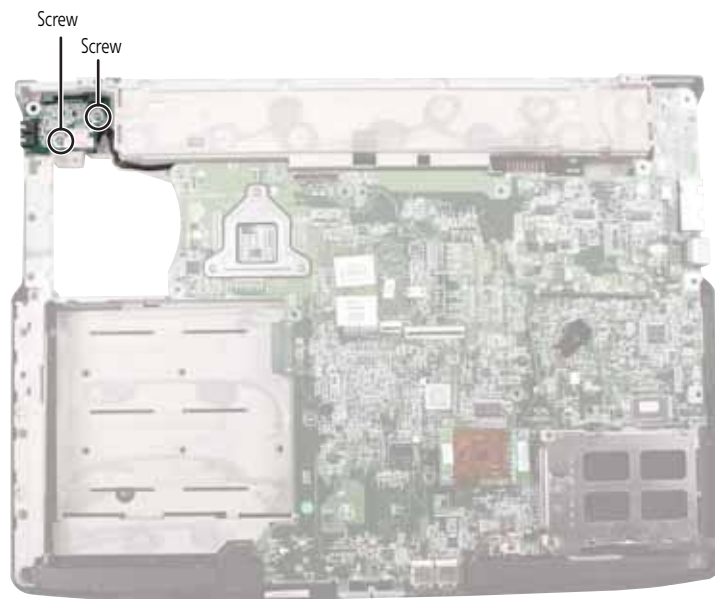
► To replace the external video board:

- 1 Complete the steps in ["Preparing the notebook" on page 6.](#)
- 2 Remove the DVD drive by following the instructions in ["Replacing the DVD drive" on page 11.](#)
- 3 Remove the cooling assembly by following the instructions in ["Replacing the cooling assembly" on page 14.](#)
- 4 If the notebook has IEEE 802.11 wireless networking built in, unplug the antenna cables from the IEEE 802.11 wireless card by following the instructions in ["Replacing the IEEE 802.11 wireless card" on page 22.](#)
- 5 Remove the hard drive kit by following the instructions in ["Replacing the hard drive" on page 26.](#)
- 6 Remove the keyboard cover by following the instructions in ["Replacing the keyboard cover" on page 29.](#)
- 7 Remove the keyboard by following the instructions in ["Replacing the keyboard" on page 31.](#)
- 8 Remove the LCD panel by following the instructions in ["Replacing the LCD panel assembly" on page 38.](#)

- 9 Remove the palm rest by following the instructions in [“Replacing the palm rest” on page 56.](#)
- 10 Remove the two hex nuts that secure the external video board to the notebook.



- 11 Remove the two screws that secure the external video board to the notebook.

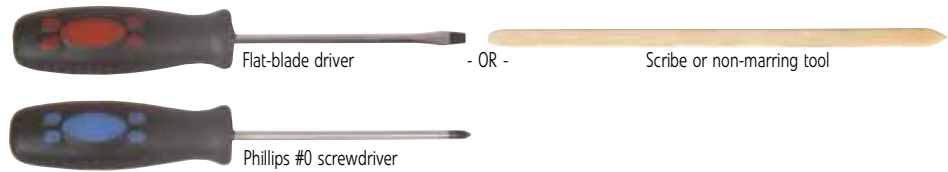


- 12 Install the new external video board into the notebook, then replace the screws removed in [Step 11.](#)
- 13 Replace the two hex nuts removed in [Step 10.](#)
- 14 Replace the palm rest by following the instructions in [“Replacing the palm rest” on page 56.](#)
- 15 Replace the LCD panel assembly onto the notebook by following the instructions in [“Replacing the LCD panel assembly” on page 38.](#)
- 16 Replace the keyboard by following the instructions in [“Replacing the keyboard” on page 31.](#)
- 17 Replace the keyboard cover by following the instructions in [“Replacing the keyboard cover” on page 29.](#)
- 18 Replace the hard drive kit by following the instructions in [“Replacing the hard drive” on page 26.](#)
- 19 Replace the DVD drive by following the instructions in [“Replacing the DVD drive” on page 11.](#)
- 20 Plug the antenna cables into the IEEE 802.11 wireless card, then replace the wireless bay cover.

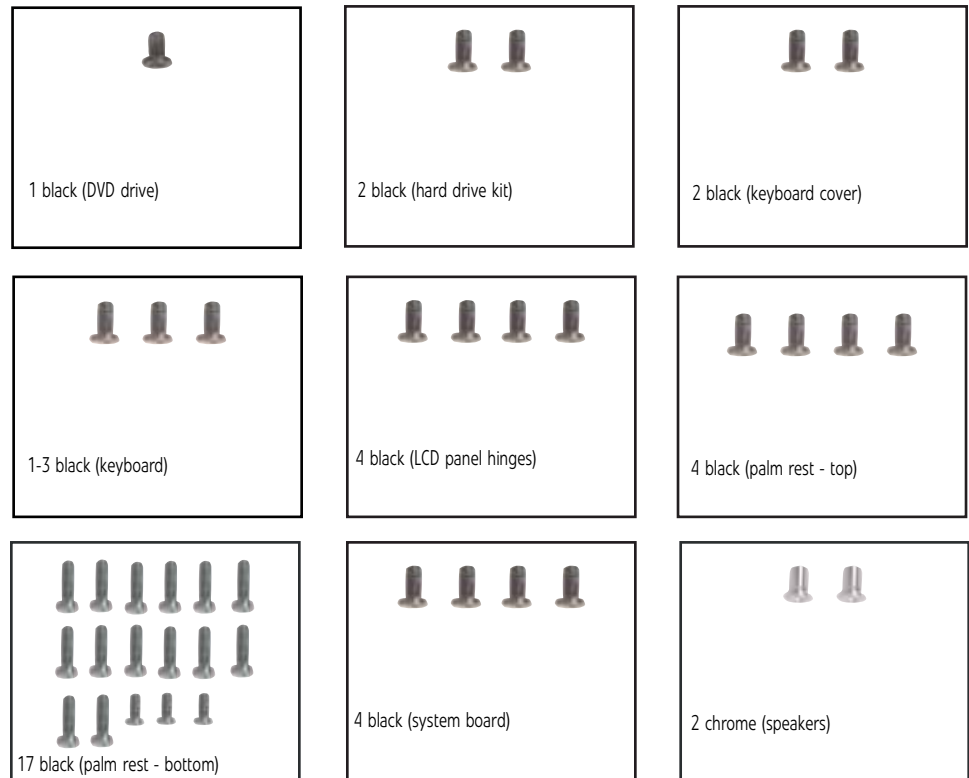


Replacing the speakers

Tools you need to complete this task:



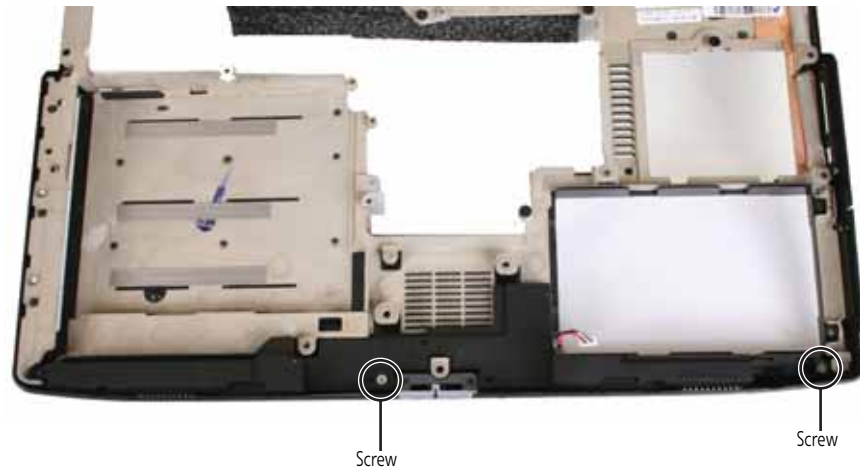
Screws removed during this task:



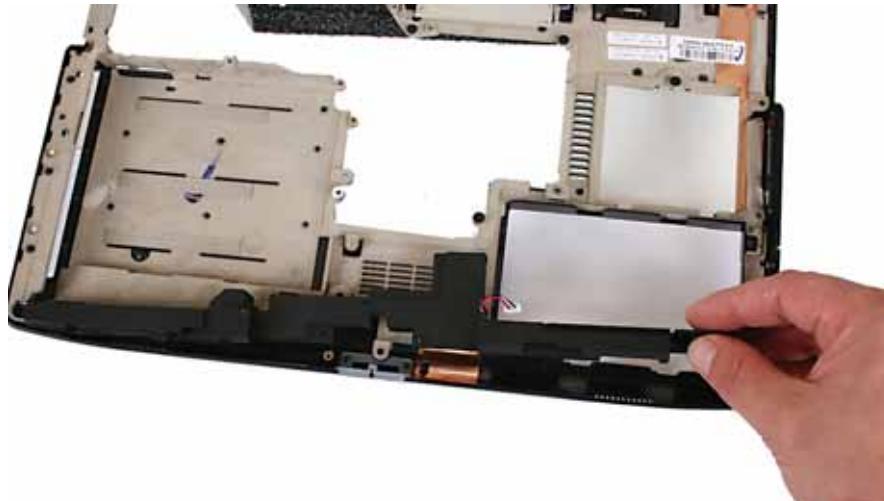
► To replace the speakers:

- 1 Complete the steps in ["Preparing the notebook" on page 6.](#)
- 2 Remove the DVD drive by following the instructions in ["Replacing the DVD drive" on page 11.](#)
- 3 Remove the cooling assembly by following the instructions in ["Replacing the cooling assembly" on page 14.](#)
- 4 If the notebook has IEEE 802.11 wireless networking built in, unplug the antenna cables from the IEEE 802.11 wireless card by following the instructions in ["Replacing the IEEE 802.11 wireless card" on page 22.](#)
- 5 Remove the hard drive kit by following the instructions in ["Replacing the hard drive" on page 26.](#)
- 6 Remove the keyboard cover by following the instructions in ["Replacing the keyboard cover" on page 29.](#)
- 7 Remove the keyboard by following the instructions in ["Replacing the keyboard" on page 31.](#)
- 8 Remove the LCD panel by following the instructions in ["Replacing the LCD panel assembly" on page 38.](#)

- 9 Remove the palm rest by following the instructions in [“Replacing the palm rest” on page 56](#).
- 10 Remove the system board by following the instructions in [“Replacing the system board” on page 64](#).
- 11 Remove the two screws that secure the speakers to the notebook.



- 12 Lift the speakers out of the notebook.



- 13 Install the new speakers into the notebook, then replace the screws removed in [Step 11](#).
- 14 Replace the system board by following the instructions in [“Replacing the system board” on page 64](#).
- 15 Replace the palm rest by following the instructions in [“Replacing the palm rest” on page 56](#).
- 16 Replace the LCD panel assembly onto the notebook by following the instructions in [“Replacing the LCD panel assembly” on page 38](#).
- 17 Replace the keyboard by following the instructions in [“Replacing the keyboard” on page 31](#).
- 18 Replace the keyboard cover by following the instructions in [“Replacing the keyboard cover” on page 29](#).
- 19 Replace the hard drive kit by following the instructions in [“Replacing the hard drive” on page 26](#).
- 20 Replace the DVD drive by following the instructions in [“Replacing the DVD drive” on page 11](#).
- 21 Plug the antenna cables into the IEEE 802.11 wireless card, then replace the wireless bay cover.



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