



SERVICE GUIDE

Gateway Notebook



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Replacing Gateway Notebook Components

- Identifying the notebook model
- Identifying components
- Preparing your work space
- Preventing static electricity discharge
- Preparing the notebook

 **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.

 **Important**

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:

- M460
- M465-E
- MX6700

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**

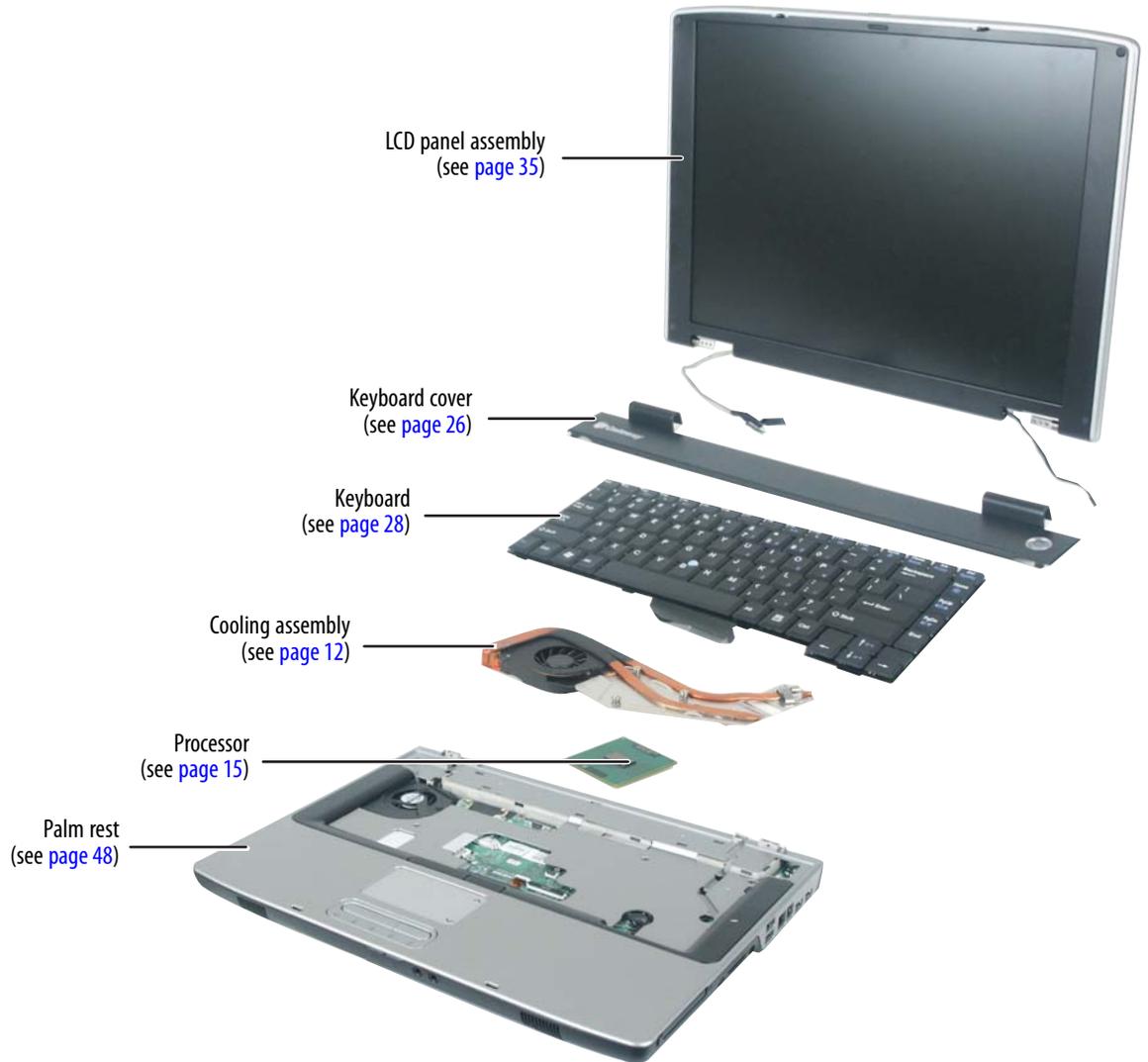
It is important that you use the correct service guide for the notebook. Failure to follow the approved tasks for the notebook model may result in damage to the notebook.

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 your notebook, remove the batteries, 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 your 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

To prepare the notebook for maintenance:

- 1 Make sure that the disc drive is empty.
- 2 Turn off the notebook.
- 3 Disconnect from the optional port replicator. For more information, see [“Disconnecting from the port replicator” on page 6](#).
- 4 Disconnect the AC adapter, modem cable, and network cable if they are connected to the notebook.
- 5 Disconnect all peripheral devices connected to the notebook and remove any PC cards.
- 6 Remove the main battery and optional secondary battery. For more information, see [“Removing the batteries” on page 6](#).



Disconnecting from the port replicator

▶ To separate the notebook from the port replicator:

- 1 Press down on the docking release latch. The notebook will spring up slightly.



- 2 Lift the notebook off of the port replicator.



Removing the batteries

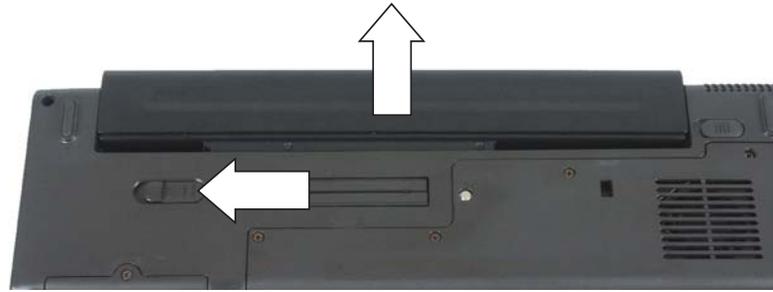
Removing the main battery

▶ To remove the main battery:

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



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



Removing the optional secondary battery

- ▶ **To remove the optional secondary battery:**

- 1 Remove the security screw if your notebook has one.



- 2 Slide the bay module release latch. The secondary battery moves out slightly.
- 3 Slide the secondary battery out.



Adding or replacing memory modules



Important

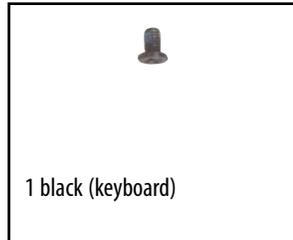
Use only memory modules designed for this Gateway notebook.

Tools you need to complete this task:



Phillips #0 screwdriver

Screws removed during this task:



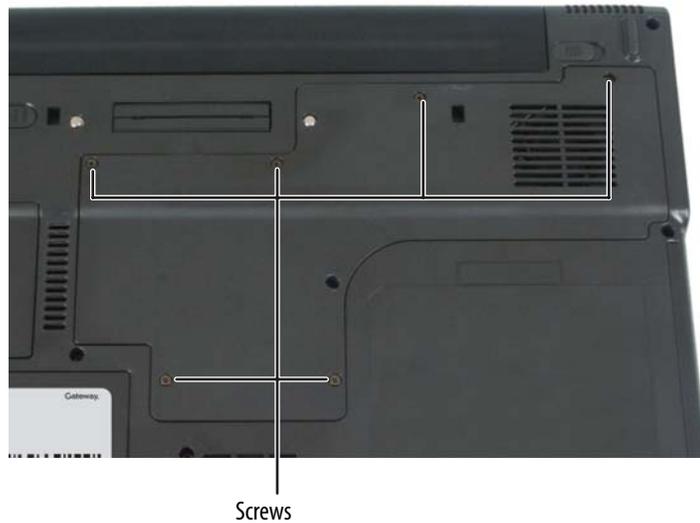
To add or replace memory modules:

- 1 Complete the steps in "Preparing the notebook" on page 5.
- 2 Remove the keyboard screw.

 **Tips & Tricks**
The screw hole is marked with a K.

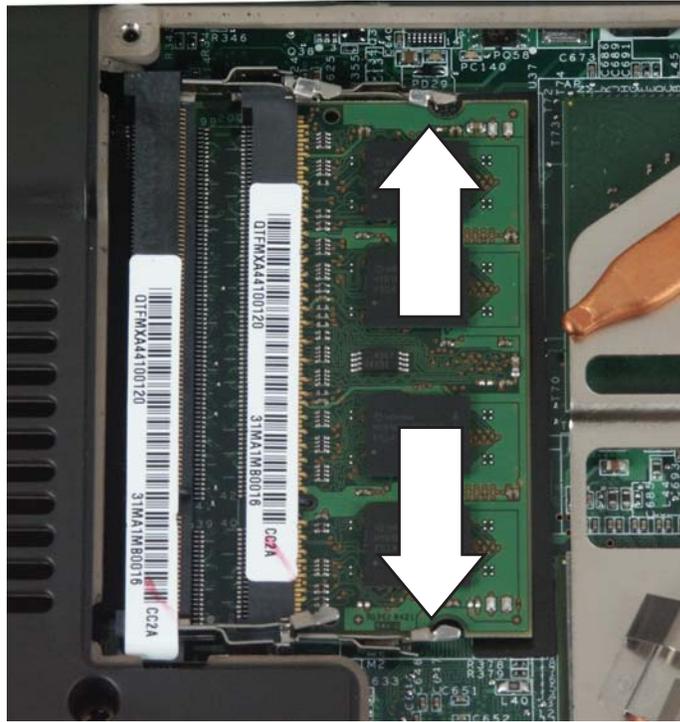


- 3 Loosen the six memory bay cover screws (these screws cannot be removed).

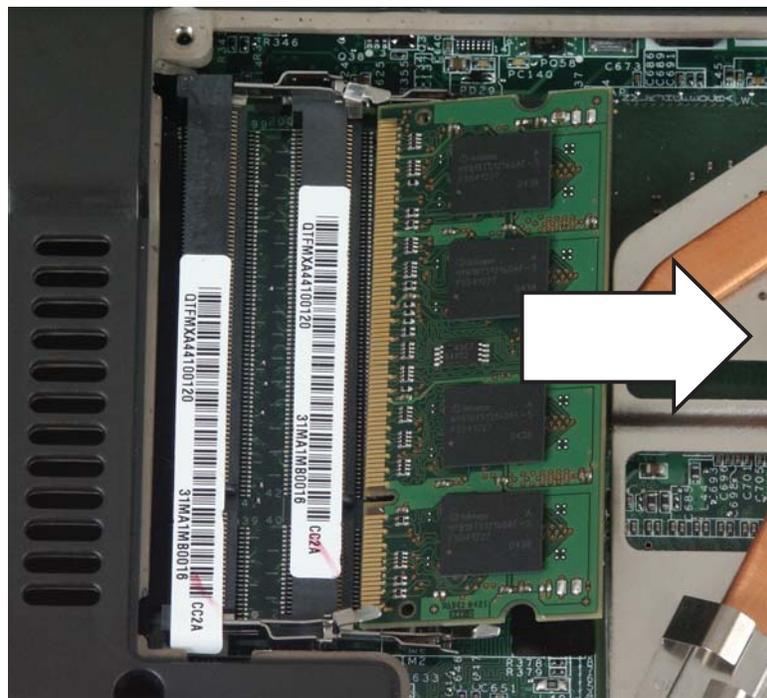


- 4 Use the thumb notch to lift the memory bay cover, then remove it. Be careful not to break off the tabs located on the end of the cover opposite of the thumb notch.

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



- 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.



 **Tips & Tricks**
The screw hole is marked with a K.

Replacing the cooling assembly

Tools you need to complete this task:

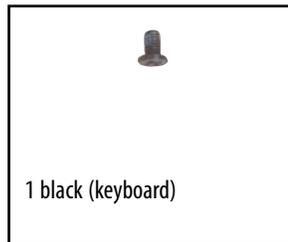


Phillips #0 screwdriver

Additional materials you need to complete this task:

- X-23-7762 thermal grease

Screws removed during this task:



1 black (keyboard)

▶ To replace the cooling assembly:

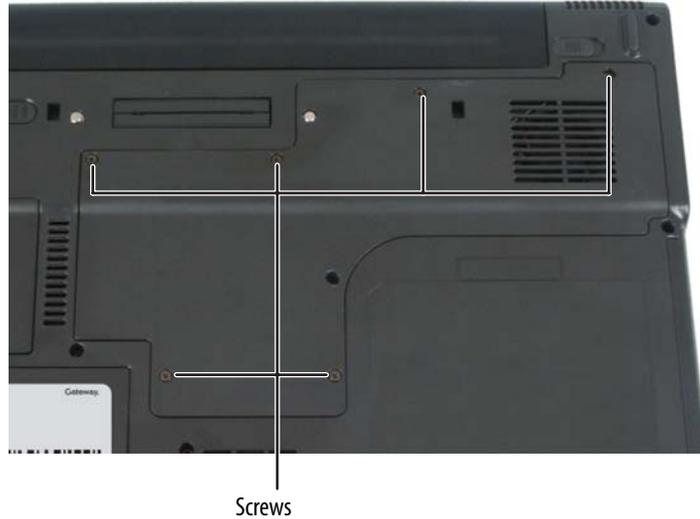
- 1 Complete the steps in [“Preparing the notebook” on page 5](#).
- 2 Remove the keyboard screw.

Tips & Tricks

The screw hole is marked with a K.



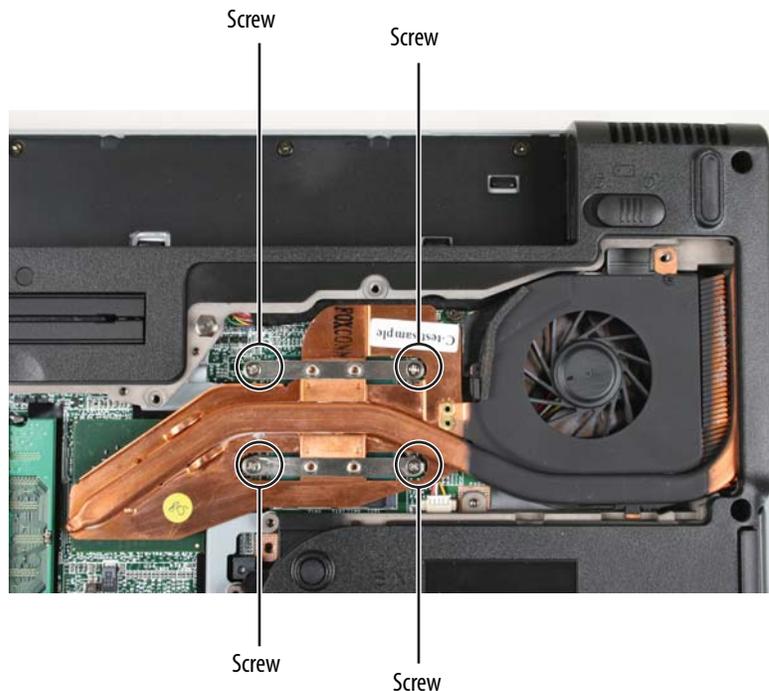
- 3 Loosen the six memory bay cover screws (these screws cannot be removed), then remove the memory bay cover.



- 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.



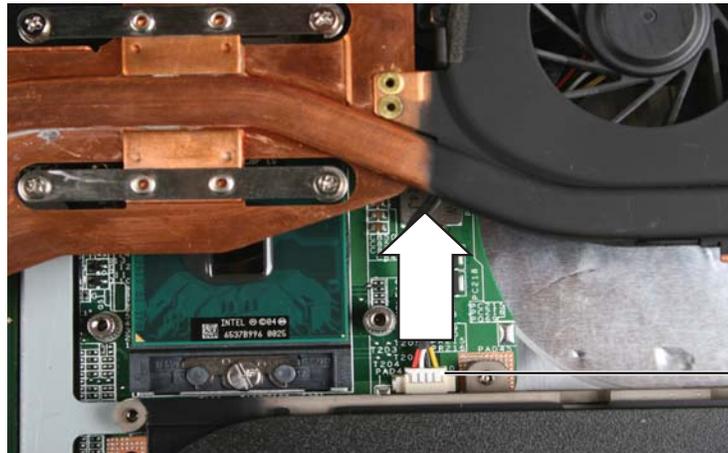
Caution

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

- At the same time as you lift, move the cooling assembly away from the side of the notebook.



- Unplug the old cooling fan, then remove the cooling assembly.



- Remove any thermal grease residue from the processor using a soft cloth and isopropyl alcohol.
- Place new thermal grease on the processor. Use only enough to cover the CPU die.
- Plug in the new cooling fan.
- Insert the new cooling assembly into the notebook.
- Tighten the three or four screws that secure the cooling assembly to the system board. Use the numbers stamped in the metal next to each screw and tighten the screws in numerical order (start with 1, then 2, then 3, then 4).
- Replace the memory bay cover, then tighten the cover screws.
- Replace the keyboard screw.



Caution

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

Tips & Tricks

The screw hole is marked with a K.

Replacing the processor

Tools you need to complete this task:

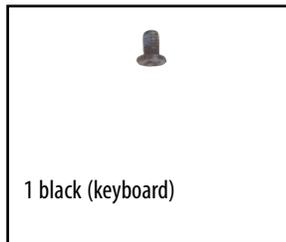


Phillips #0 screwdriver

Additional materials you need to complete this task:

- X-23-7762 thermal grease

Screws removed during this task:



▶ To replace the processor:

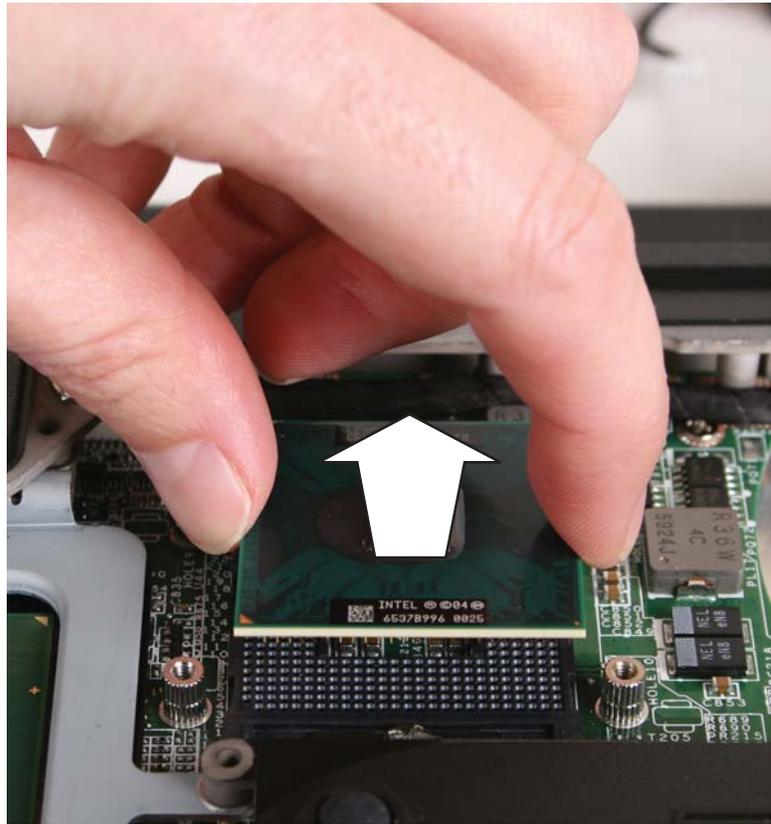
- 1 Complete the steps in [“Preparing the notebook” on page 5](#).
- 2 Remove the cooling assembly by following the instructions in [“Replacing the cooling assembly” on page 12](#).

- 3 Use a flat-blade screwdriver to turn the processor lock screw 1/4-turn counter-clockwise.



Screw

- 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 clockwise.
- 6 Place the thermal grease on the processor. Use only enough to cover the CPU die.
- 7 Remove any thermal grease residue from the cooling assembly using a soft cloth and isopropyl alcohol.
- 8 Reassemble the notebook.



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:

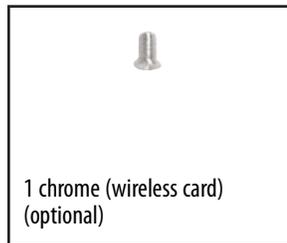


Phillips #0 screwdriver

Wireless bay



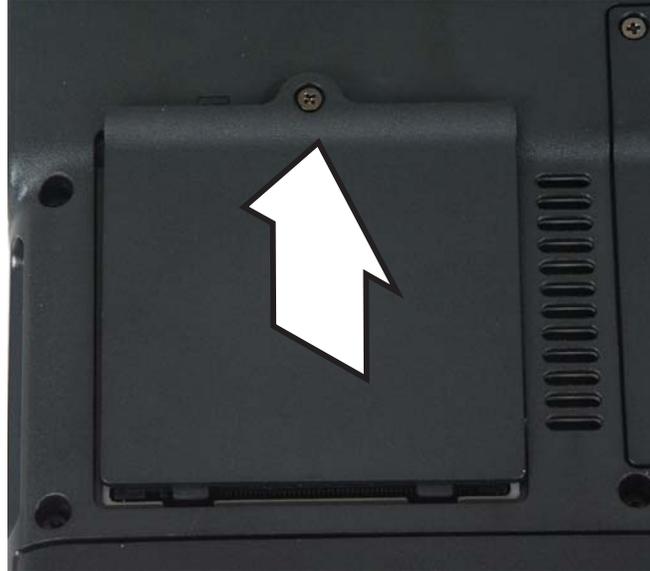
Screws removed during this task:



1 chrome (wireless card)
(optional)

➤ **To replace the 802.11 wireless card:**

- 1 Complete the steps in [“Preparing the notebook”](#) on page 5.
- 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 upward.



-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.

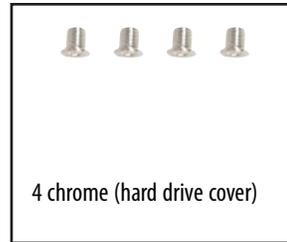


Replacing the hard drive kit

Tools you need to complete this task:



Screws removed during this task:



To replace the hard drive kit:

- 1 Complete the steps in [“Preparing the notebook”](#) on page 5.
- 2 Remove the two hard drive kit screws.

- 3 Slide the old hard drive bay kit, then remove it.



- 4 Remove the four screws that secure the hard drive to the hard drive cover.



- 5 Remove the cover from the old drive.

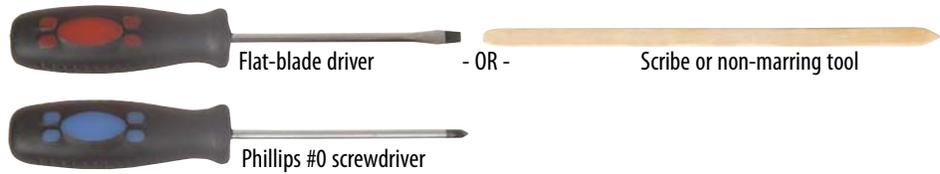


- 6 Place the new drive, label side up, onto the cover so the screw holes line up.
- 7 Replace the screws that secure the cover to the drive.
- 8 Slide the new hard drive kit into your notebook, then replace the kit screws.



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 5.
- 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 or non-marring tool under the bottom each LCD panel hinge and gently pry it up.



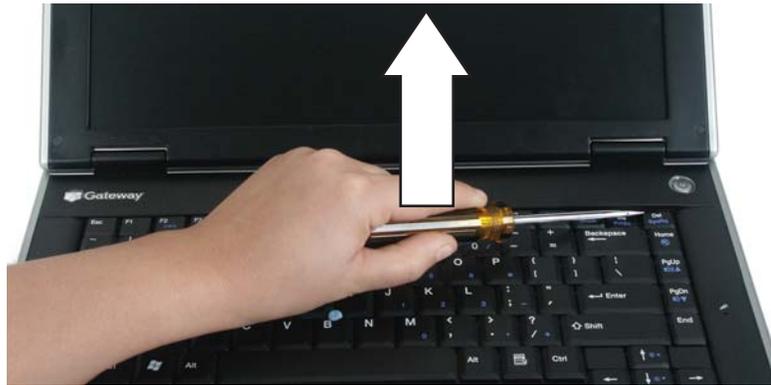
- 5 Carefully open the LCD panel to the fully opened position.



Tips & Tricks

Inserting a piece of cloth between the screwdriver and keyboard will help prevent damage to the notebook.

- 6 Insert the small flat-blade screwdriver or non-marring tool under the right end of the keyboard cover and 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.



Caution

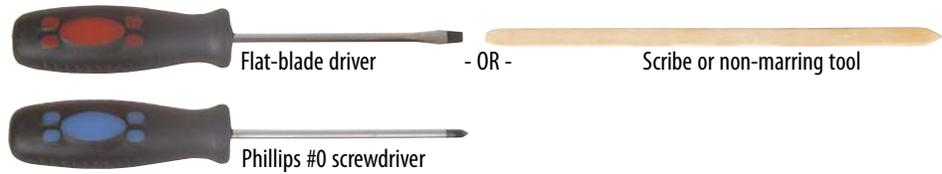
If the cover is not correctly replaced, the notebook could be damaged when you try to close the LCD panel.

- 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.
- 9 Close the LCD panel.
- 10 Replace the two keyboard cover screws.

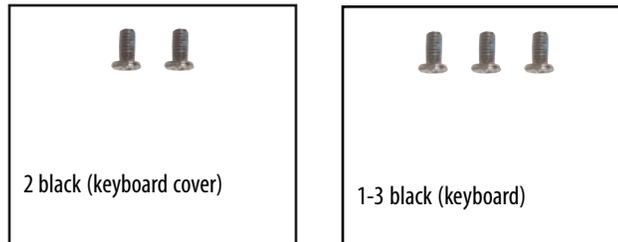


Replacing the keyboard

Tools you need to complete this task:



Screws removed during this task:



To replace the keyboard:

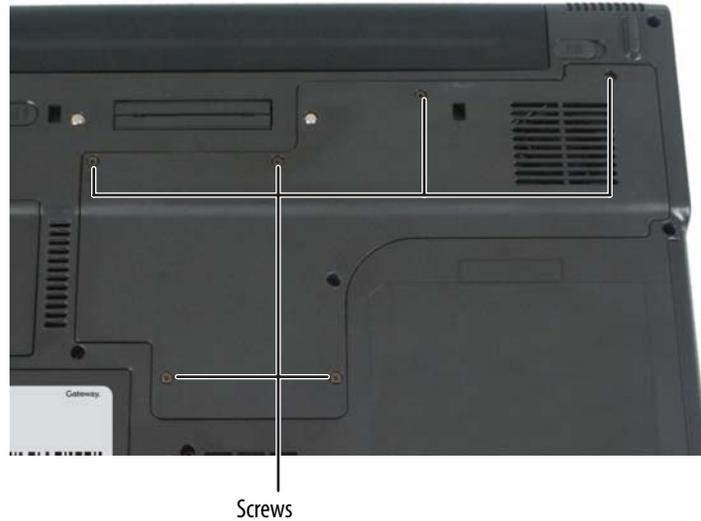
- 1 Complete the steps in [“Preparing the notebook” on page 5](#).
- 2 Remove the keyboard cover by following the instructions in [“Replacing the keyboard cover” on page 26](#).
- 3 Turn the notebook over so the bottom is facing up.
- 4 Remove the keyboard screw.

Tips & Tricks

The screw hole is marked with a K.



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



- 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.





Important

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

- 8 Remove the two optional keyboard screws.

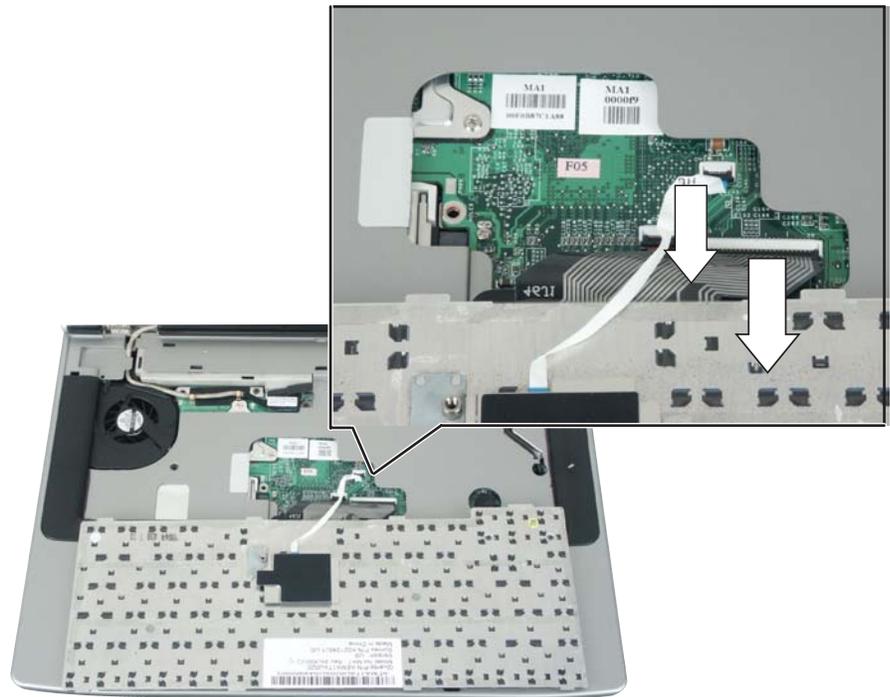


- 9 Turn your notebook over so the top is facing up, then open the LCD panel to the fully opened position.
- 10 Lift the back edge of the keyboard slightly, then carefully push it toward the LCD panel to release the keyboard retaining tabs. Be careful not to damage the LCD panel.



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

- 12 Lift the black keyboard connector clip and optional EZ Point clip, then remove the cables. Be careful not to touch or damage any other components.



- 13 Lift the old keyboard away from the notebook.
- 14 Place the new keyboard **keys-down** on your notebook with the space bar away from you.
- 15 Make sure the black keyboard connector clip and optional EZ Point clip are fully raised, insert the cables into the connectors, then lower the black connector clips back to lock the connectors in place.
- 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 slots under the palm rest. It may be necessary to press down on the keyboard keys along the front edge of the keyboard to seat the retaining tabs into their corresponding slots.

 **Important**
The keyboard cable is correctly oriented if the cable is not twisted. The EZ Point cable is correctly oriented if the blue side is up.



- 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 Reinstall the keyboard cover by following the instructions in ["Replacing the keyboard cover"](#) on page 26.
- 20 Turn the notebook over so the bottom is facing up.
- 21 Replace the screws removed in [Step 8](#).
- 22 Replace the wireless cover, then tighten the screw.
- 23 Replace the memory bay cover, then tighten the six screws.
- 24 Replace the keyboard screw.
- 25 Reassemble the notebook.

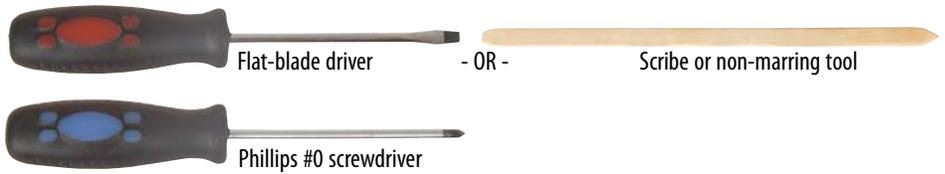
 **Tips & Tricks**

The screw hole is marked with a K.

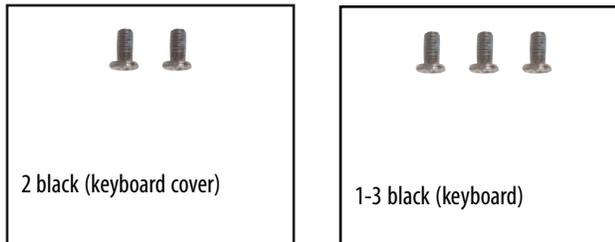


Replacing the CMOS battery

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 5](#).
- 2 Remove the keyboard cover by following the instructions in [“Replacing the keyboard cover” on page 26](#).
- 3 Open the keyboard compartment by following the instructions in [“Replacing the keyboard” on page 28](#).
- 4 Locate the old battery on the system board.



Tips & Tricks

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

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



 **Important**

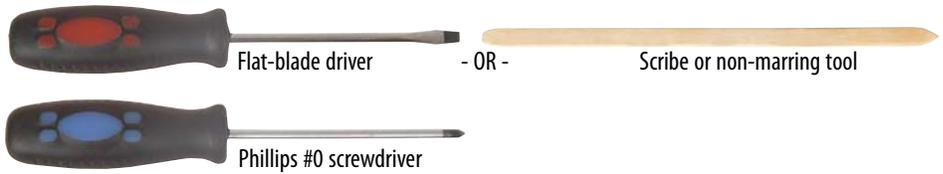
Use only CMOS batteries designed for your Gateway notebook. The non-conductive sleeve and wires are not reusable.

- 6 Plug the new battery into the system board.
- 7 Reassemble the notebook.

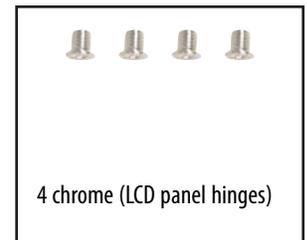
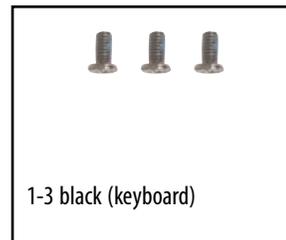


Replacing the LCD panel assembly

Tools you need to complete this task:



Screws removed during this task:



▶ To replace the LCD panel assembly:

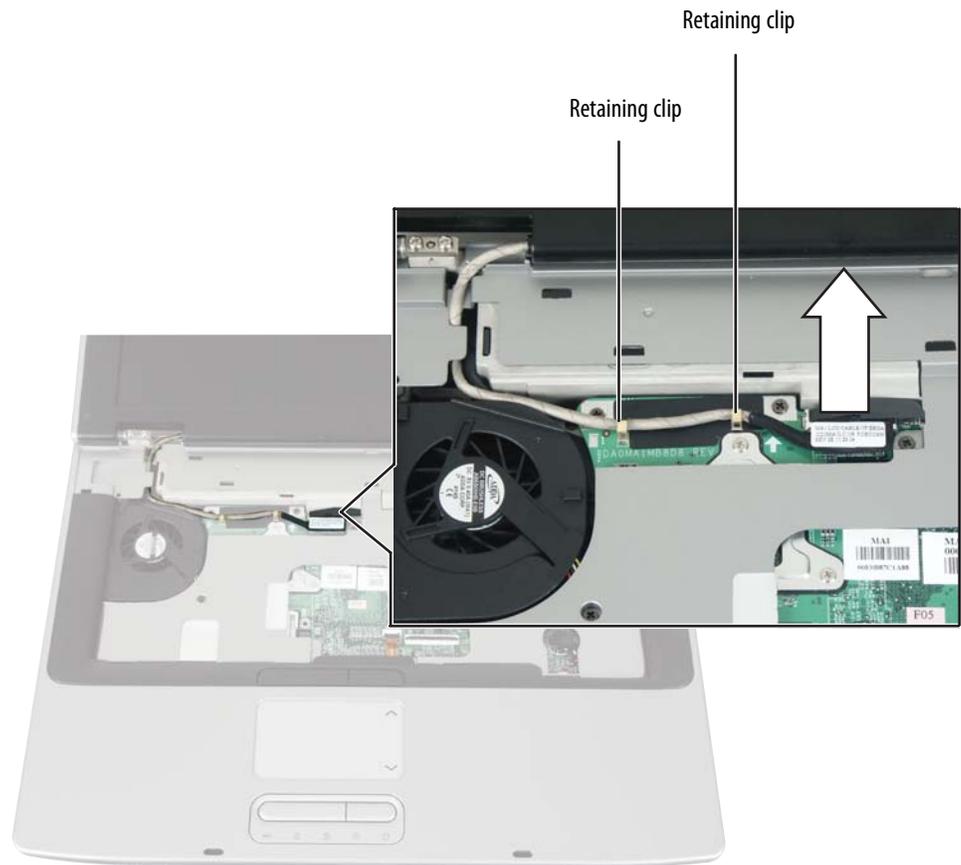
- 1 Complete the steps in [“Preparing the notebook” on page 5](#).
- 2 If the notebook has IEEE 802.11 wireless networking built in, unplug the antenna from the IEEE 802.11 wireless card by following the instructions in [“Replacing the IEEE 802.11 wireless card” on page 18](#).
- 3 Remove the keyboard cover by following the instructions in [“Replacing the keyboard cover” on page 26](#).
- 4 Open the keyboard compartment by following the instructions in [“Replacing the keyboard” on page 28](#).



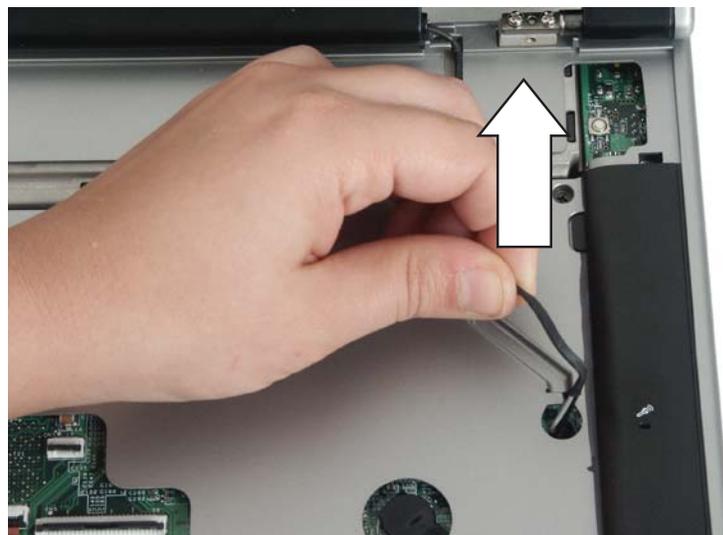
Tips & Tricks

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

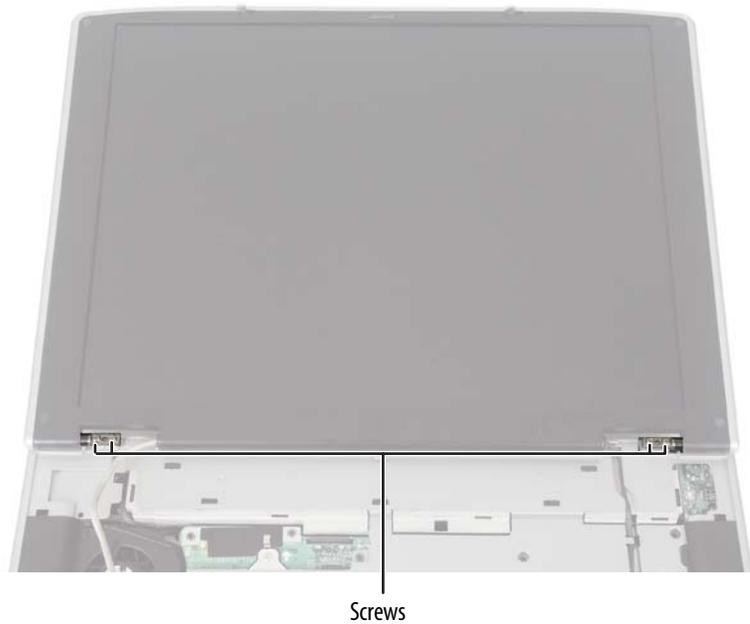
- 5 Carefully unplug the LCD video cable from the notebook. Make sure you grasp the connector, not the cable.



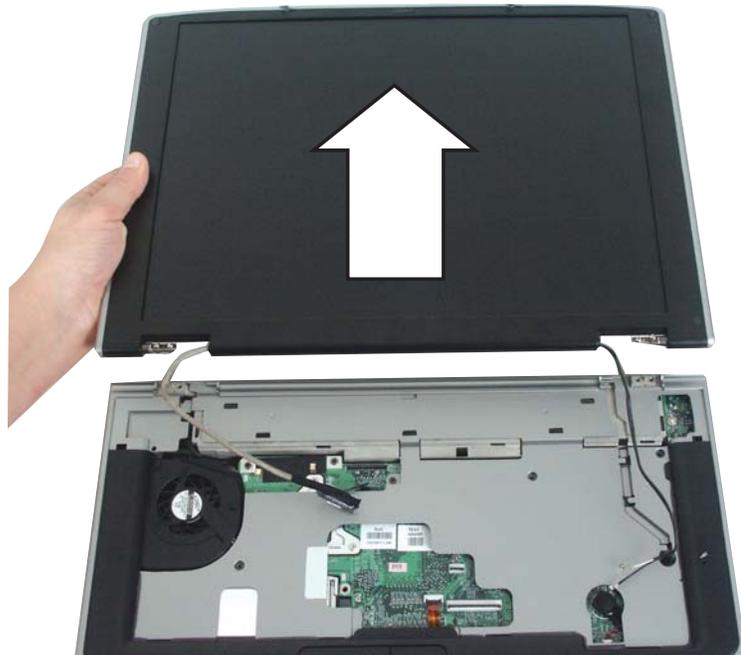
- 6 Lift up on the video cable retaining clips slightly, then slide the video cable from under the clips.
- 7 Taking care to note the cable routing and positions as they are installed from Gateway, pull the antenna wires out from under the system board, then slide the wires from under the retaining clips.



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

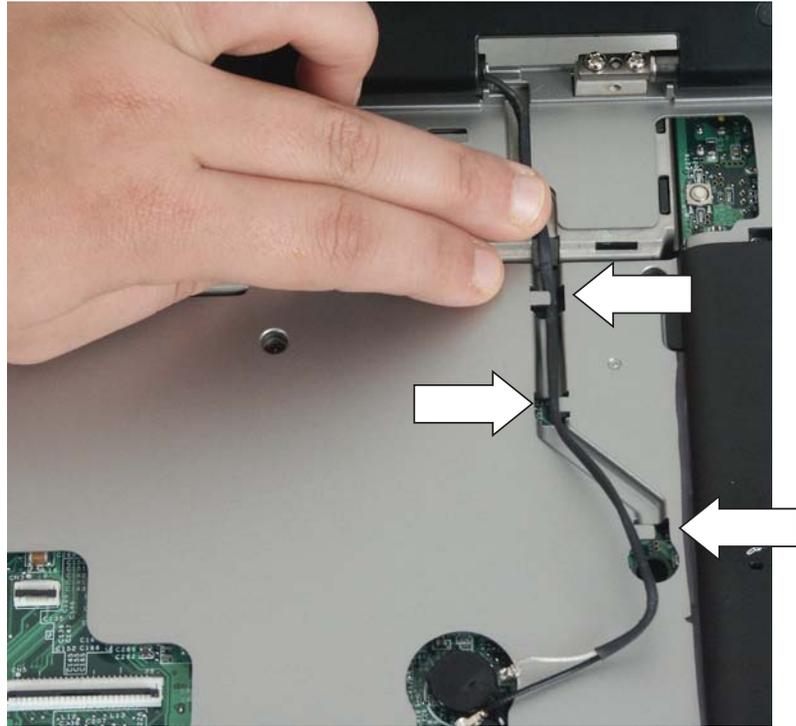


- 9 Lift the LCD panel assembly away from the notebook. The LCD panel assembly is now completely detached from the notebook.

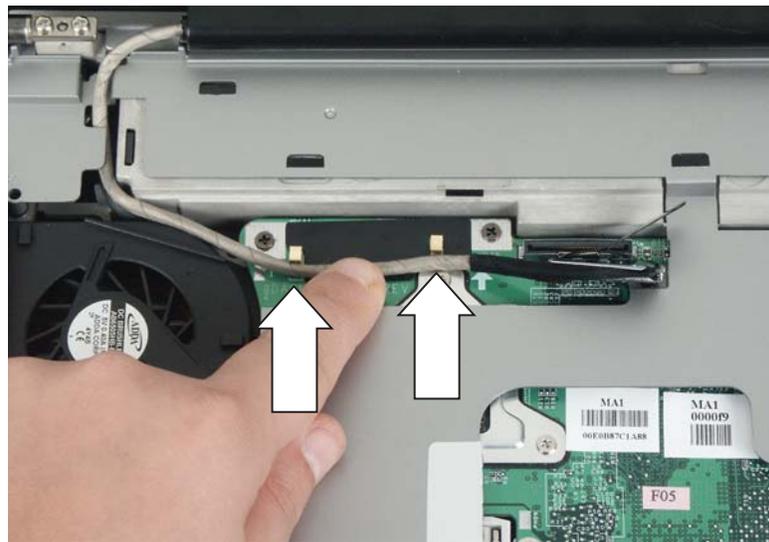


- 10 Place the new LCD panel assembly onto the notebook, then replace the four hinge screws.

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



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

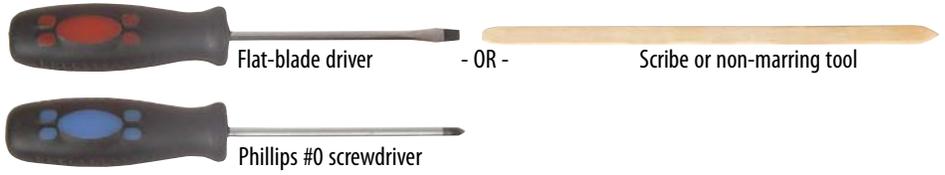


- 13 Close the keyboard compartment by following the instructions in ["Replacing the keyboard"](#) on page 28.
- 14 Reconnect the antenna to the IEEE 802.11 wireless card.
- 15 Reassemble the notebook.

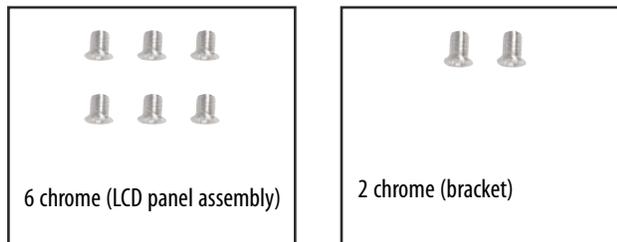


Replacing the LCD panel inverter

Tools you need to complete this task:

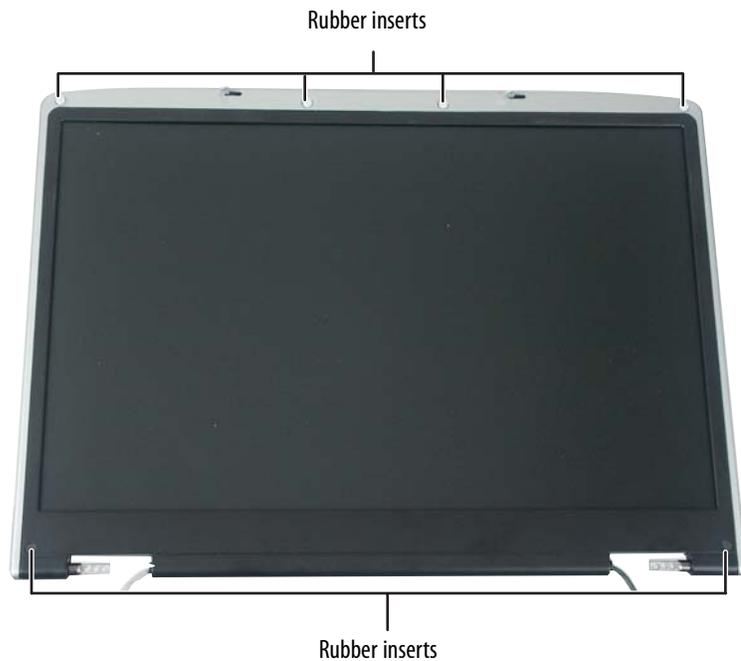


Screws removed during this task:

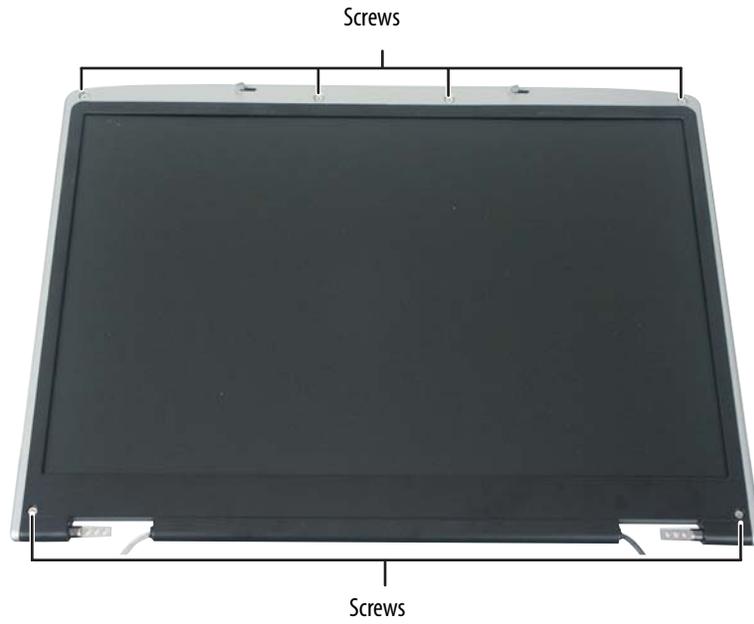


▶ To replace the LCD panel inverter:

- 1 Complete the steps in [“Preparing the notebook” on page 5](#).
- 2 Open the LCD panel to the fully open position.
- 3 Remove the six rubber inserts from the front of the LCD panel assembly.



- 4 Remove the six screws from the front of the LCD panel assembly.



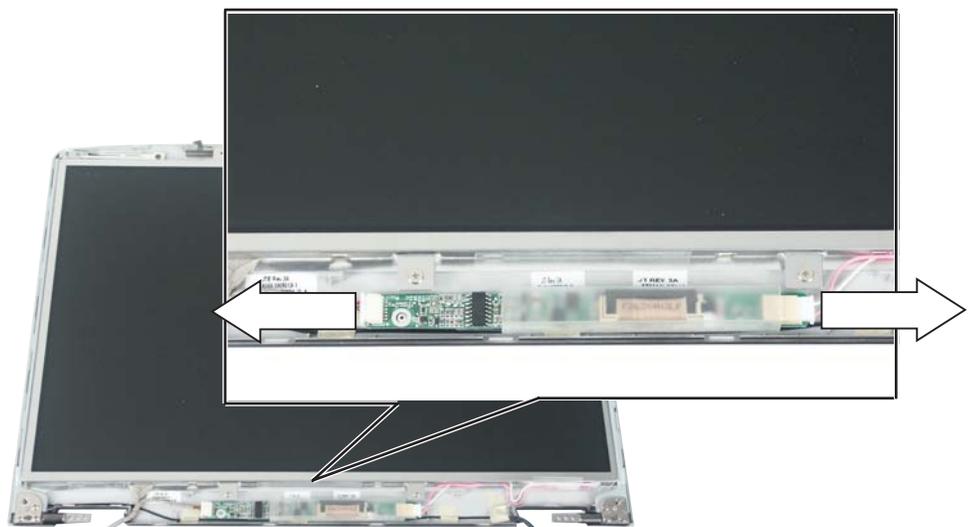
- 5 Carefully separate the front and back of the LCD panel assembly.



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



- 7 Unplug both cables from the inverter.

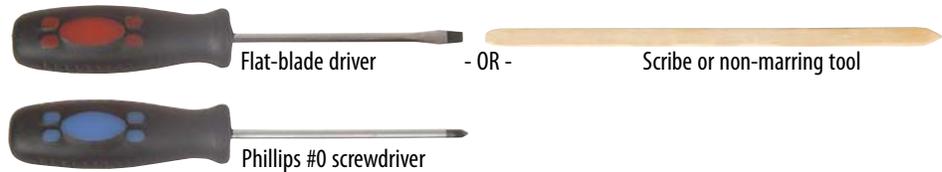


- 8 Remove the old inverter, then insert the new one.
- 9 Connect the cables to the new inverter.
- 10 Replace the bracket, then replace the two screws removed in [Step 6](#).
- 11 Reassemble the notebook.

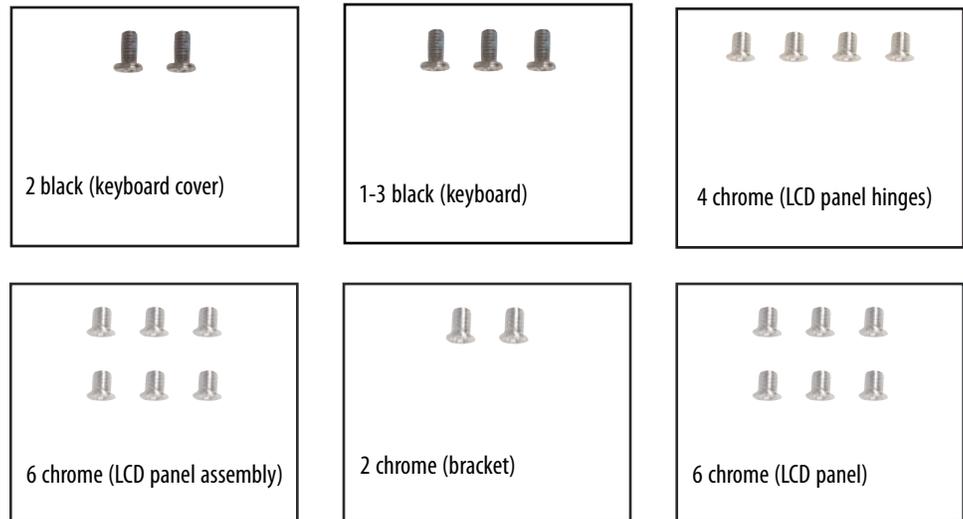


Replacing the LCD panel or LCD panel assembly lid

Tools you need to complete this task:



Screws removed during this task:



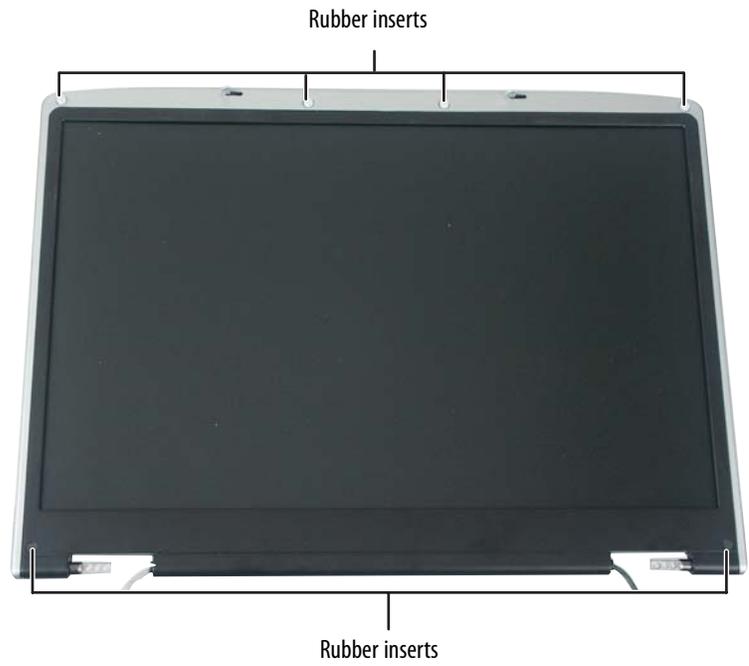
▶ To replace the LCD panel:

- 1 Complete the steps in [“Preparing the notebook”](#) on page 5.
- 2 If the notebook has IEEE 802.11 wireless networking built in, unplug the antenna from the IEEE 802.11 wireless card by following the instructions in [“Replacing the IEEE 802.11 wireless card”](#) on page 18.
- 3 Remove the keyboard cover by following the instructions in [“Replacing the keyboard cover”](#) on page 26.
- 4 Open the keyboard compartment by following the instructions in [“Replacing the keyboard”](#) on page 28.
- 5 Remove the LCD panel by following the instructions in [“Replacing the LCD panel assembly”](#) on page 35.

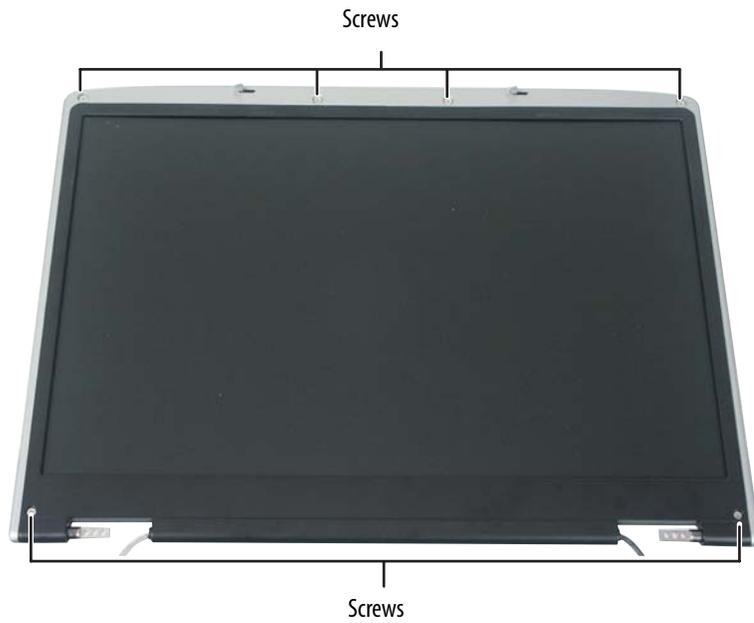
Tips & Tricks

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

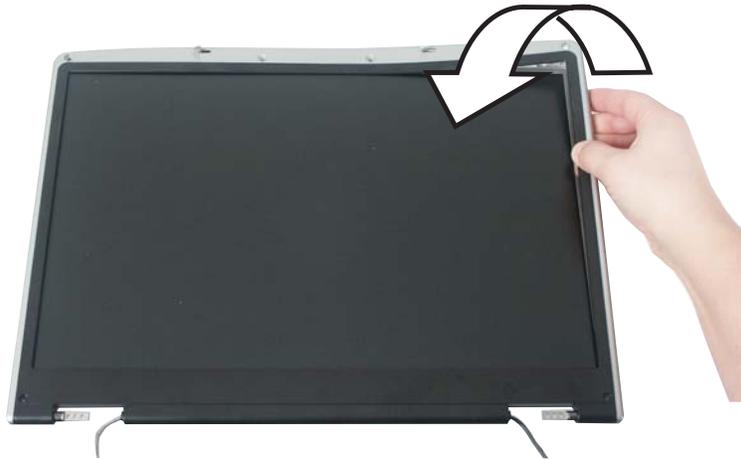
- 6 Remove the six rubber inserts from the front of the LCD panel assembly.



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



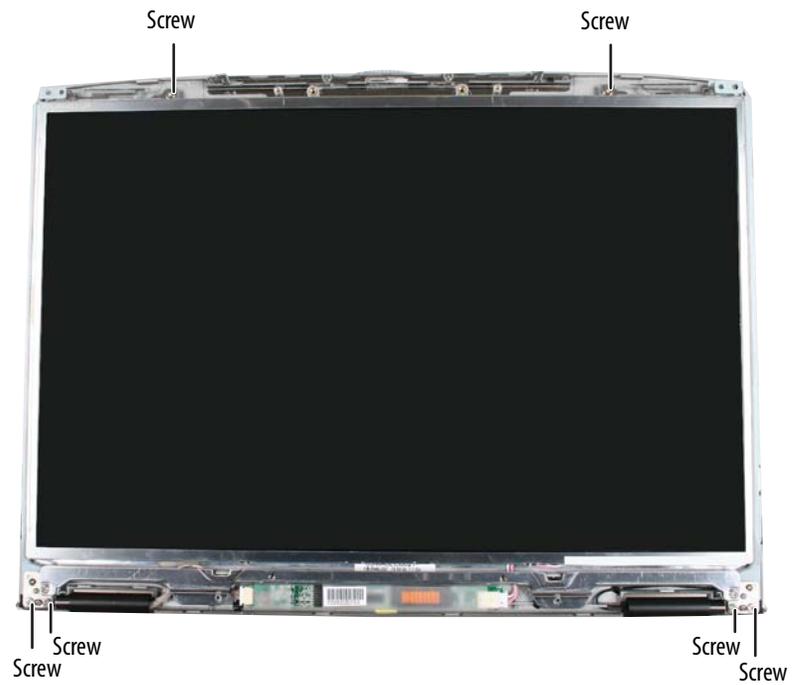
- 8 Carefully separate the front and back of the LCD panel assembly.



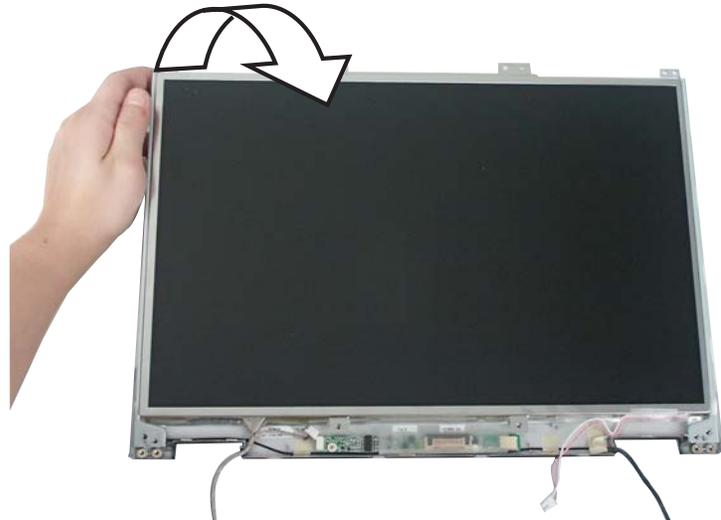
- 9 Remove the two screws holding the bracket to the LCD panel assembly, then remove the bracket.



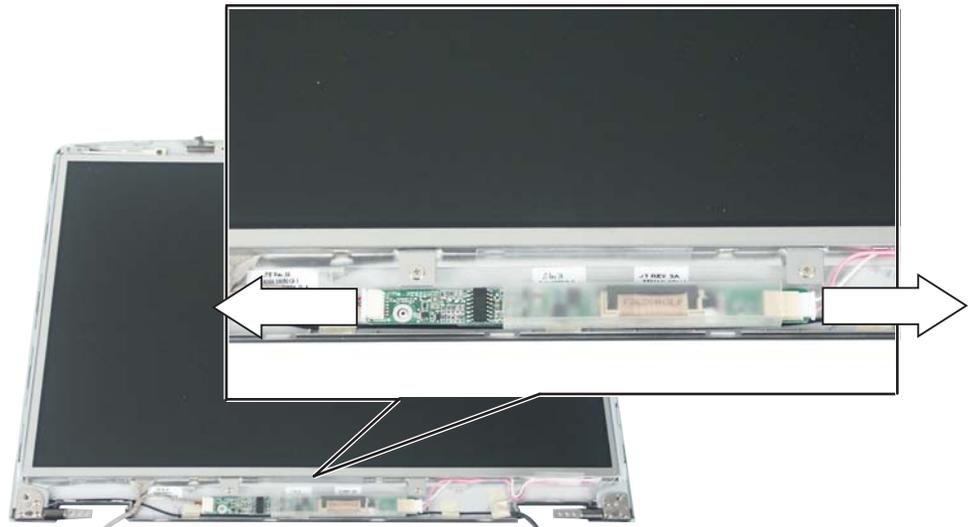
- 10 Remove the six screws connecting the LCD panel to the LCD panel assembly.



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



- 12** If you are replacing the LCD panel into an existing lid and you need to transfer the existing LCD panel inverter to the new panel, unplug both cables from the inverter, then plug them into the new LCD panel.

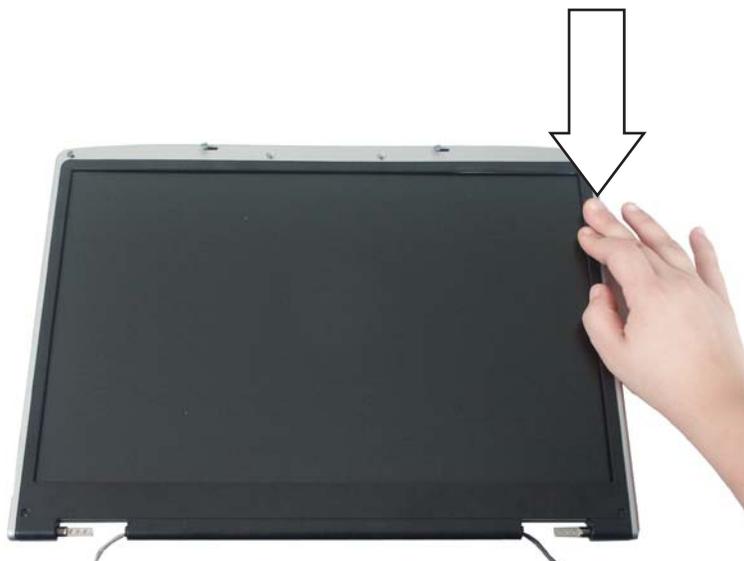


- 13** Place the new LCD panel into the existing LCD panel assembly lid.

-OR-

Place the existing LCD panel into the new LCD panel assembly lid.

- 14** Replace the six screws removed in [Step 10](#).
- 15** Replace the bracket, then replace the two screws removed in [Step 9](#).
- 16** Press the two halves of the LCD panel front and back together in several places until they click in place. You should find no loose spots or spots where the two halves do not meet.

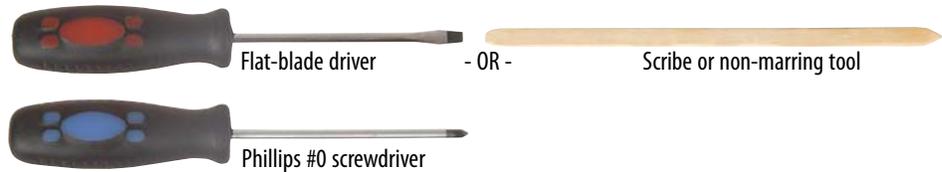


- 17** Replace the six LCD panel assembly screws.
- 18** Replace the six rubber inserts.
- 19** Reassemble the notebook.

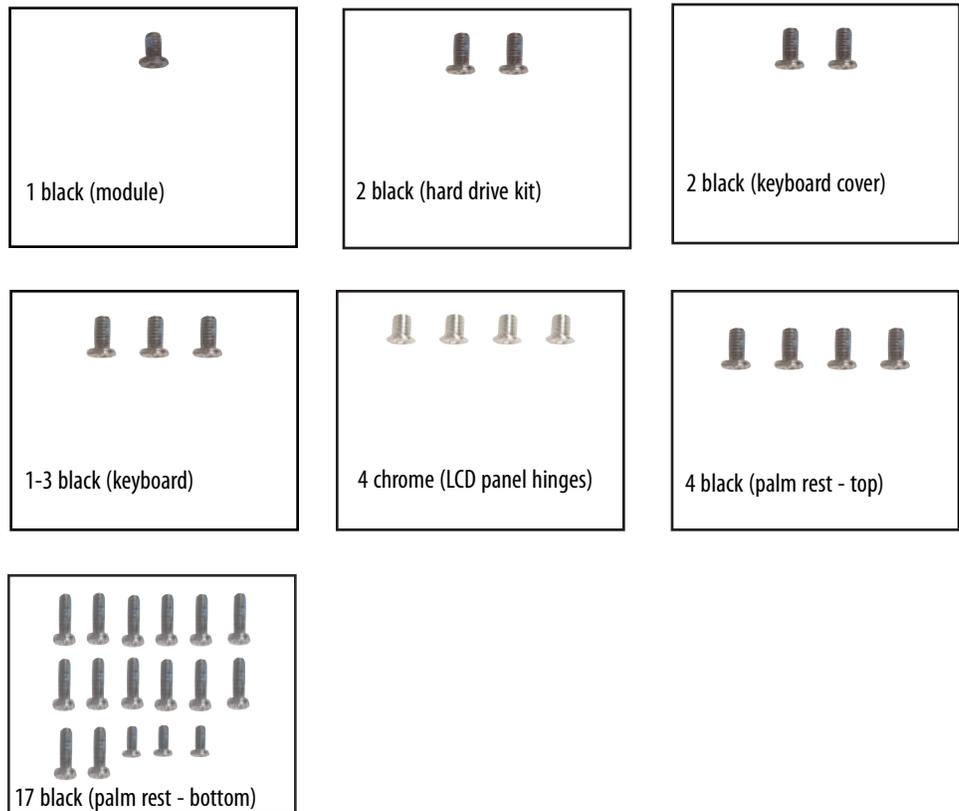


Replacing the palm rest

Tools you need to complete this task:



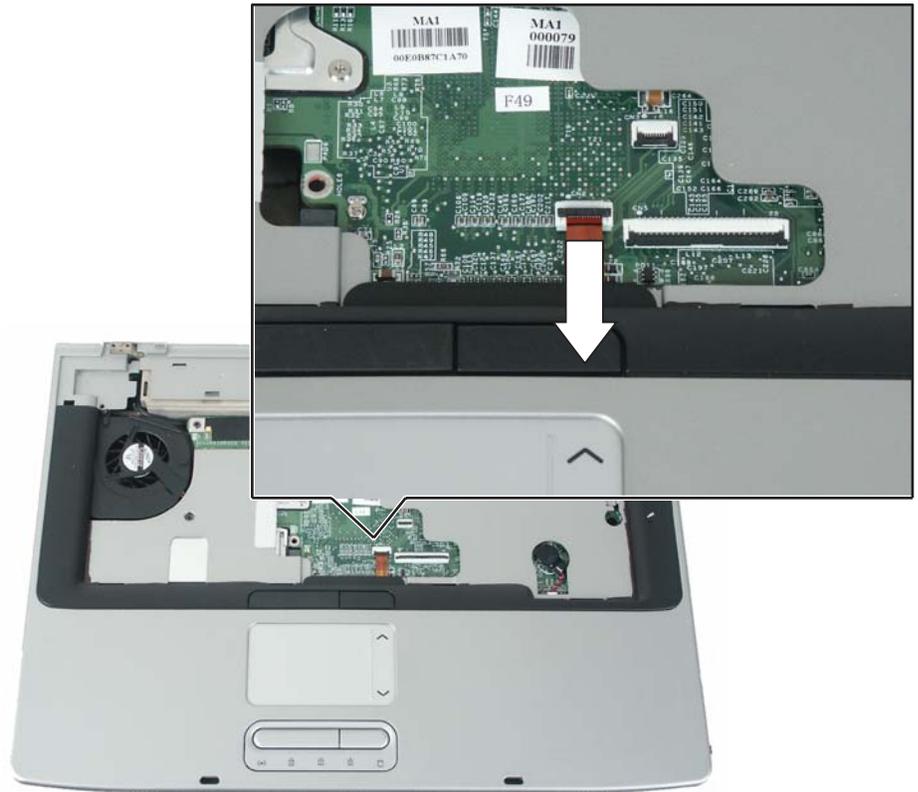
Screws removed during this task:



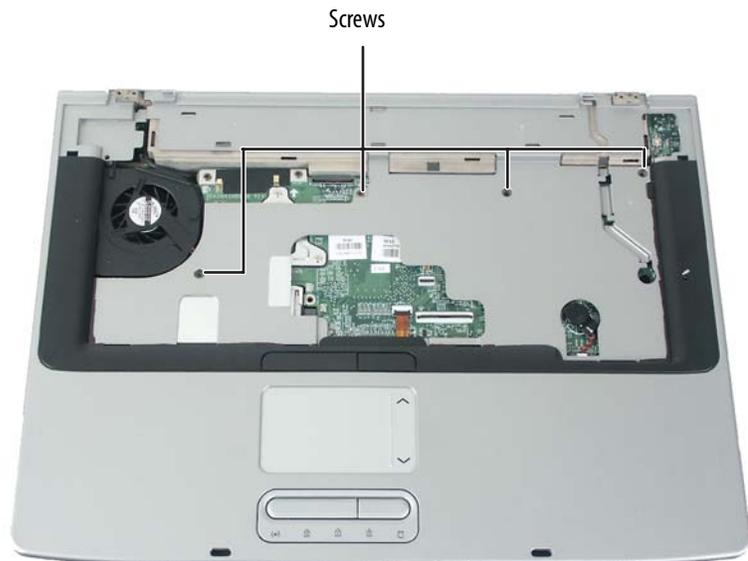
To replace the palm rest:

- 1 Complete the steps in [“Preparing the notebook”](#) on page 5.
- 2 If your notebook has a module in the modular bay, remove it by following the instructions in [“Removing the optional secondary battery”](#) on page 7.
- 3 If the notebook has IEEE 802.11 wireless networking built in, unplug the antenna from the IEEE 802.11 wireless card by following the instructions in [“Replacing the IEEE 802.11 wireless card”](#) on page 18.
- 4 Remove the hard drive kit by following the instructions in [“Replacing the hard drive kit”](#) on page 23.
- 5 Remove the keyboard cover by following the instructions in [“Replacing the keyboard cover”](#) on page 26.

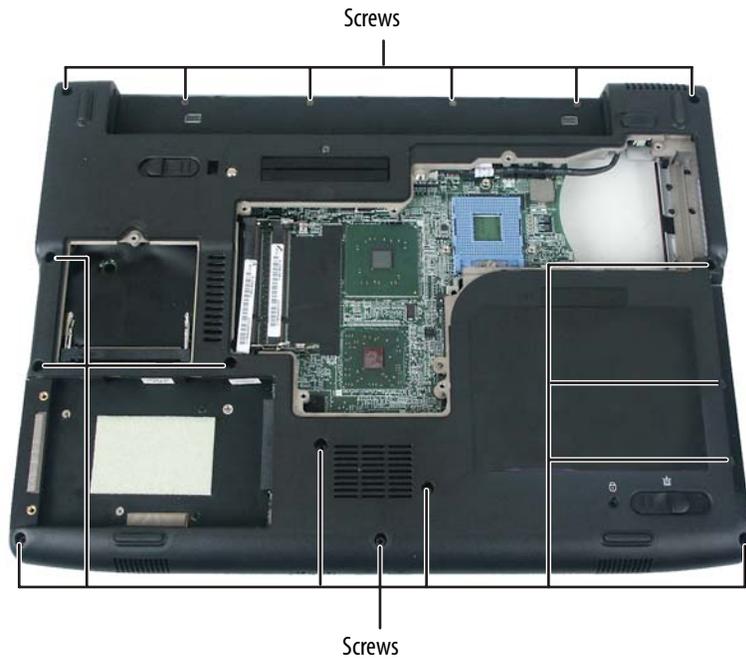
- 6 Remove the keyboard by following the instructions in [“Replacing the keyboard”](#) on page 28.
- 7 Remove the LCD panel by following the instructions in [“Replacing the LCD panel assembly”](#) on page 35.
- 8 Lift the black touchpad connector clip, then remove the cable. Be careful not to touch or damage any other components.



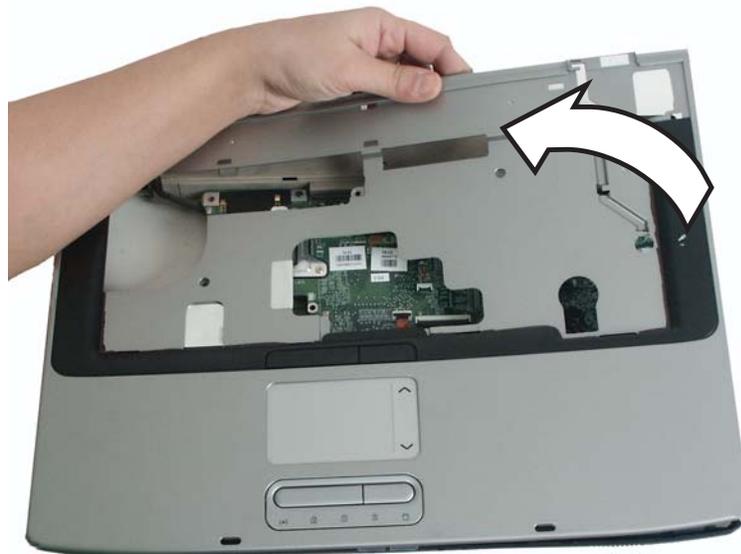
- 9 Remove the four screws from the top of the palm rest.



- 10 Turn the notebook over so the bottom is facing up. Remove the 17 screws shown in the following picture. Note the location of the six short screws.



- 11 Lift the palm rest assembly completely from the notebook.

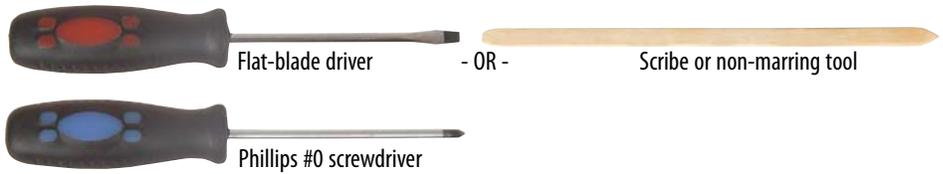


- 12 Place the new palm rest assembly onto the notebook, then snap the assembly into place.
- 13 Replace all of the palm rest screws.
- 14 Reassemble the notebook.

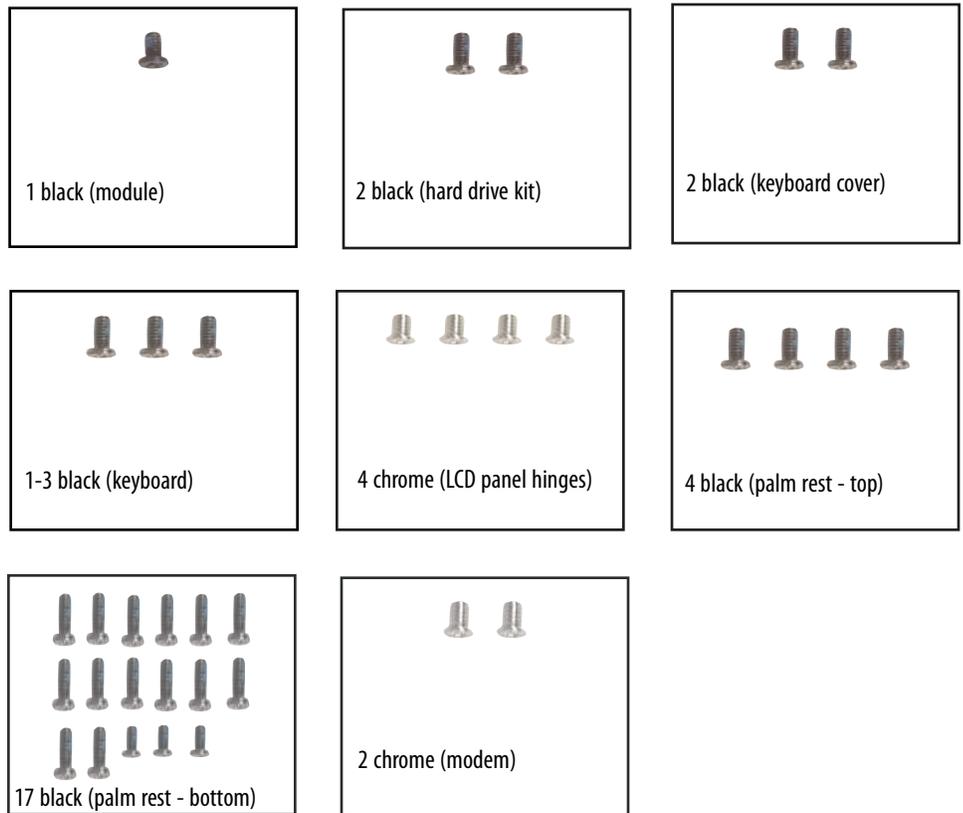


Replacing the modem

Tools you need to complete this task:



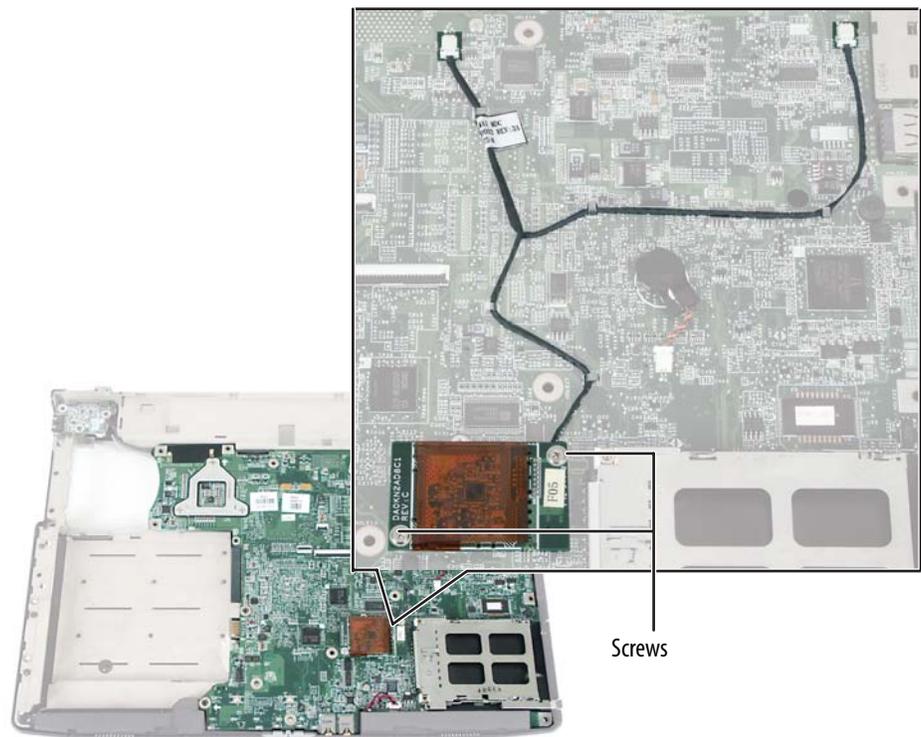
Screws removed during this task:



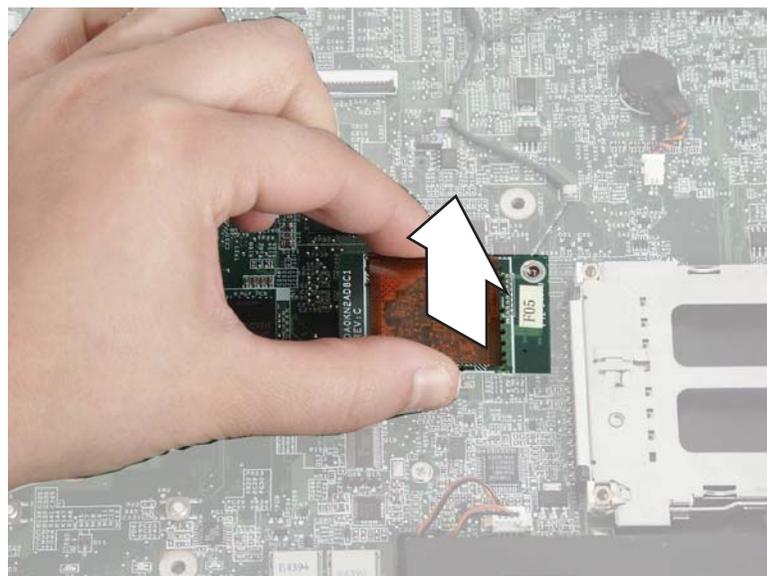
To replace the modem:

- 1 Complete the steps in [“Preparing the notebook”](#) on page 5.
- 2 If your notebook has a module in the modular bay, remove it by following the instructions in [“Removing the optional secondary battery”](#) on page 7.
- 3 If the notebook has IEEE 802.11 wireless networking built in, unplug the antenna from the IEEE 802.11 wireless card by following the instructions in [“Replacing the IEEE 802.11 wireless card”](#) on page 18.
- 4 Remove the hard drive kit by following the instructions in [“Replacing the hard drive kit”](#) on page 23.
- 5 Remove the keyboard cover by following the instructions in [“Replacing the keyboard cover”](#) on page 26.

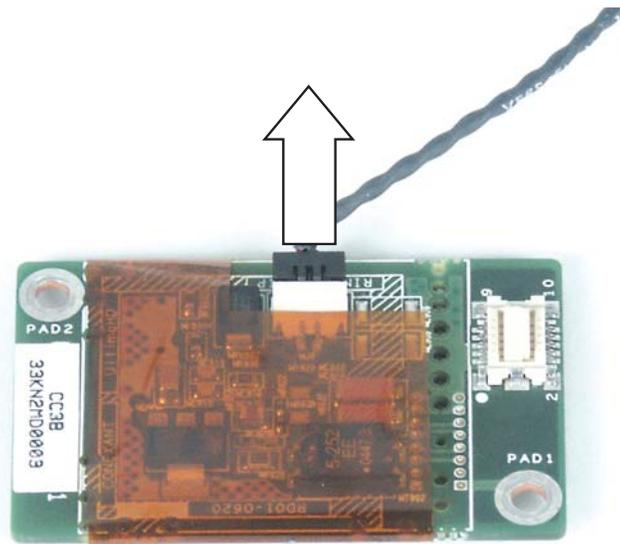
- 6 Remove the keyboard by following the instructions in [“Replacing the keyboard” on page 28.](#)
- 7 Remove the LCD panel by following the instructions in [“Replacing the LCD panel assembly” on page 35.](#)
- 8 Remove the palm rest by following the instructions in [“Replacing the palm rest” on page 48.](#)
- 9 Remove the two screws that secure the modem to the system board.



- 10 Lift the modem from the system board.



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

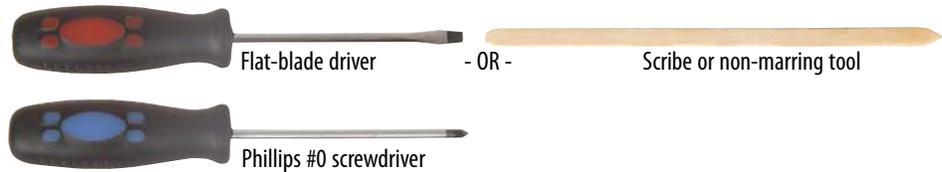


- 12 Install the new modem onto the system board.
- 13 Replace the modem screws removed in [Step 9](#).
- 14 Reassemble the notebook.

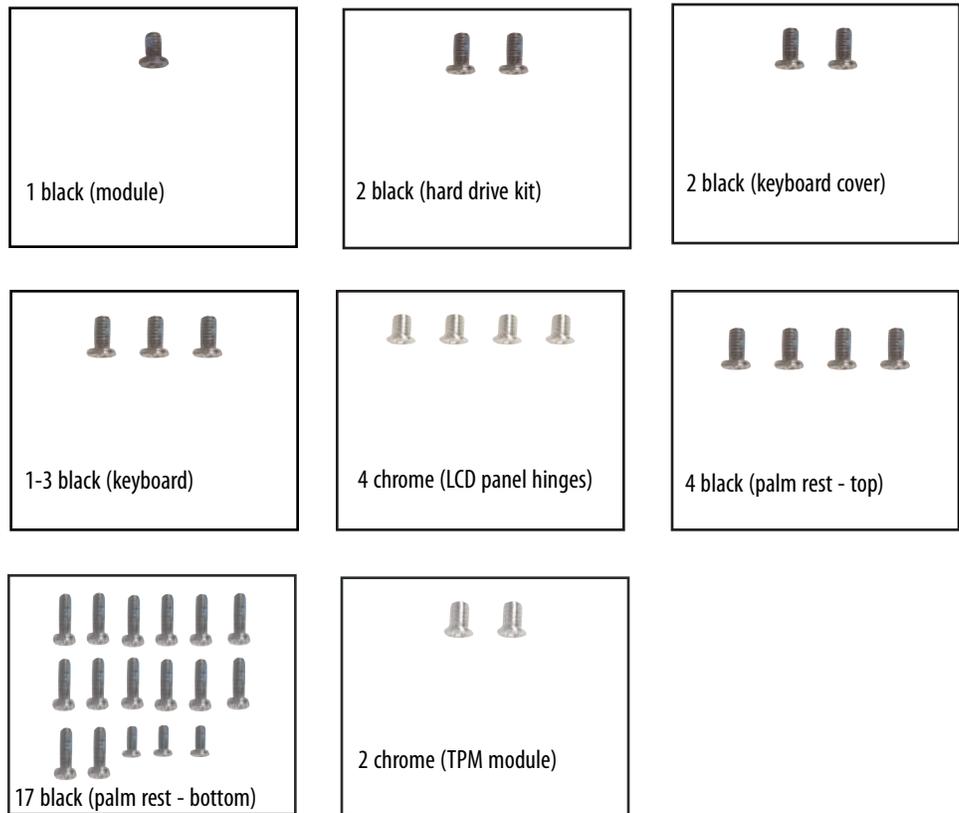


Replacing the TPM module

Tools you need to complete this task:



Screws removed during this task:

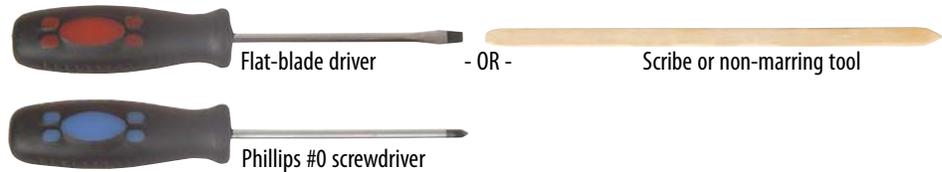


To replace the TPM module:

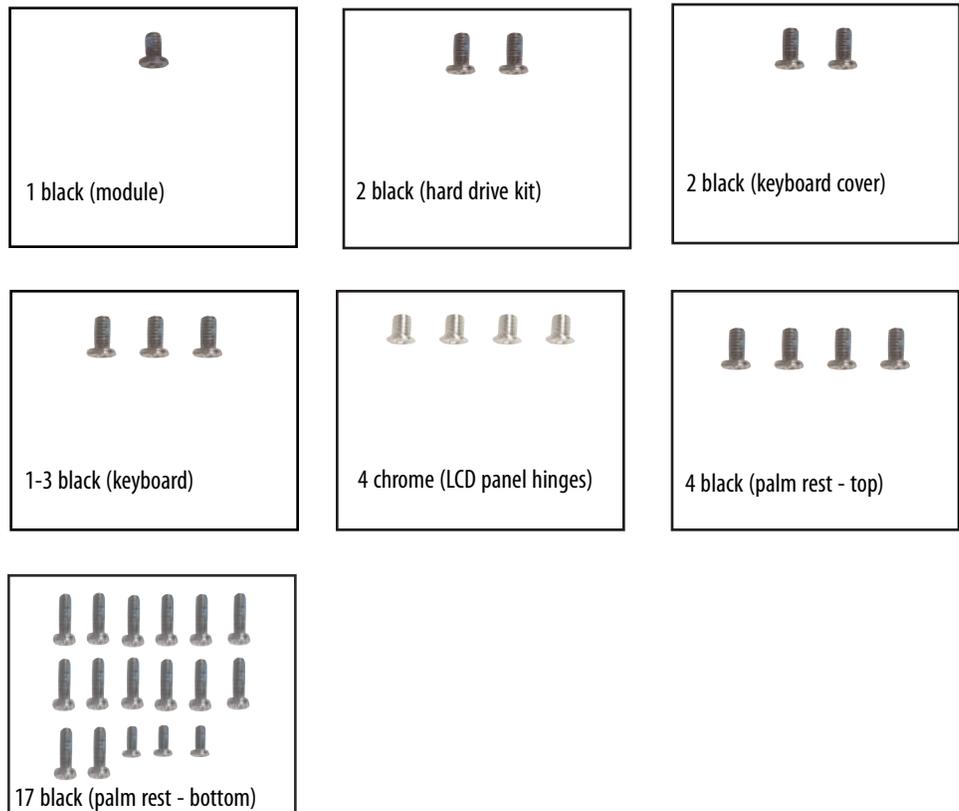
- 1 Complete the steps in [“Preparing the notebook”](#) on page 5.
- 2 If your notebook has a module in the modular bay, remove it by following the instructions in [“Removing the optional secondary battery”](#) on page 7.
- 3 If the notebook has IEEE 802.11 wireless networking built in, unplug the antenna from the IEEE 802.11 wireless card by following the instructions in [“Replacing the IEEE 802.11 wireless card”](#) on page 18.
- 4 Remove the hard drive kit by following the instructions in [“Replacing the hard drive kit”](#) on page 23.
- 5 Remove the keyboard cover by following the instructions in [“Replacing the keyboard cover”](#) on page 26.

Replacing the Bluetooth module

Tools you need to complete this task:



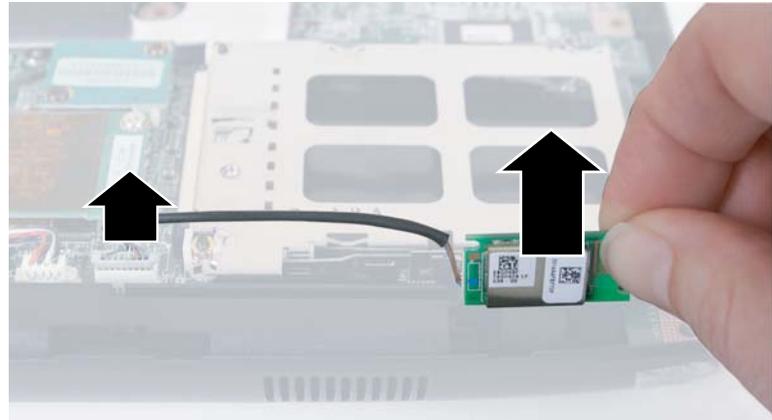
Screws removed during this task:



▶ To replace the Bluetooth module:

- 1 Complete the steps in [“Preparing the notebook”](#) on page 5.
- 2 If your notebook has a module in the modular bay, remove it by following the instructions in [“Removing the optional secondary battery”](#) on page 7.
- 3 If the notebook has IEEE 802.11 wireless networking built in, unplug the antenna from the IEEE 802.11 wireless card by following the instructions in [“Replacing the IEEE 802.11 wireless card”](#) on page 18.
- 4 Remove the hard drive kit by following the instructions in [“Replacing the hard drive kit”](#) on page 23.
- 5 Remove the keyboard cover by following the instructions in [“Replacing the keyboard cover”](#) on page 26.

- 6 Remove the keyboard by following the instructions in [“Replacing the keyboard” on page 28](#).
- 7 Remove the LCD panel by following the instructions in [“Replacing the LCD panel assembly” on page 35](#).
- 8 Remove the palm rest by following the instructions in [“Replacing the palm rest” on page 48](#).
- 9 Disconnect the Bluetooth cable from the system board, then slide the Bluetooth module from the notebook.

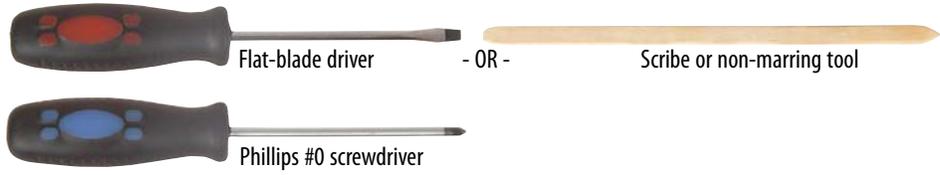


- 10 Slide the new Bluetooth module into the notebook.
- 11 Connect the Bluetooth cable to the system board.
- 12 Reassemble the notebook.



Replacing the system board

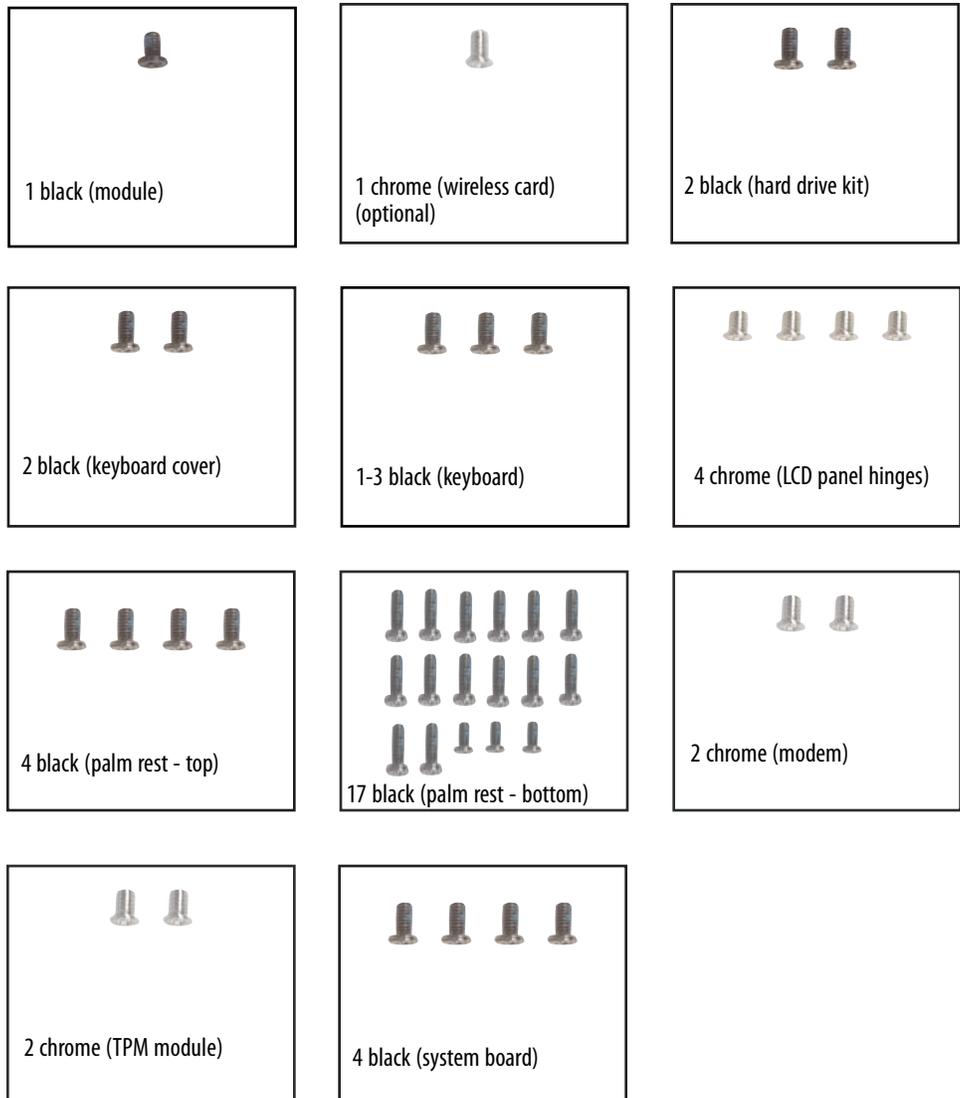
Tools you need to complete this task:



Additional materials you need to complete this task:

- X-23-7762 thermal grease

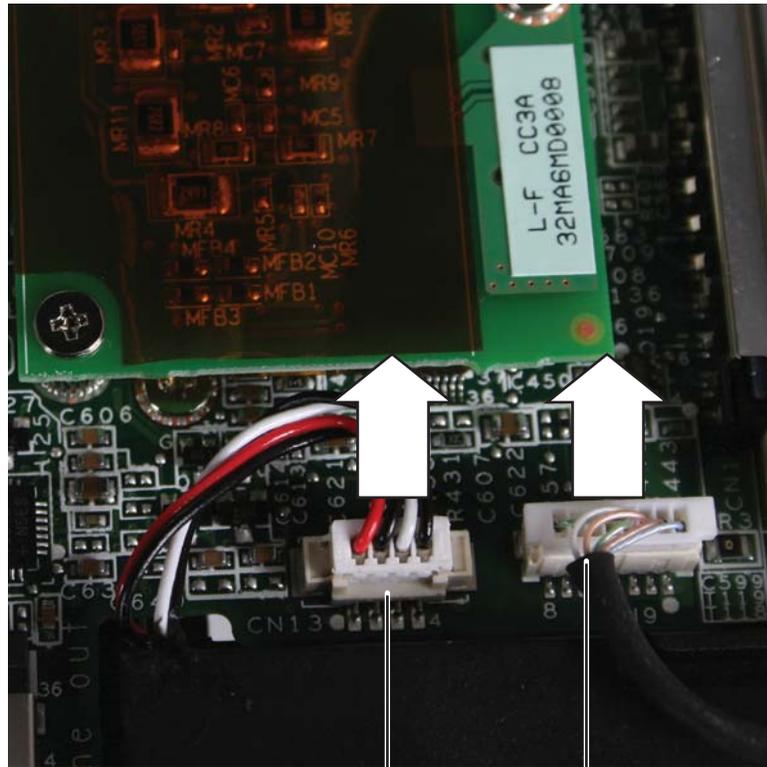
Screws removed during this task:



 **To replace the system board:**

- 1 Complete the steps in [“Preparing the notebook” on page 5](#).
- 2 If your notebook has a module in the modular bay, remove it by following the instructions in [“Removing the optional secondary battery” on page 7](#).
- 3 Remove the memory by following the instructions in [“Adding or replacing memory modules” on page 8](#).
- 4 Remove the cooling assembly by following the instructions in [“Replacing the cooling assembly” on page 12](#).
- 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 15](#).
- 6 If the notebook has IEEE 802.11 wireless networking built in, remove the IEEE 802.11 wireless card by following the instructions in [“Replacing the IEEE 802.11 wireless card” on page 18](#).
- 7 Remove the hard drive kit by following the instructions in [“Replacing the hard drive kit” on page 23](#).
- 8 Remove the keyboard cover by following the instructions in [“Replacing the keyboard cover” on page 26](#).
- 9 Remove the keyboard by following the instructions in [“Replacing the keyboard” on page 28](#).
- 10 Remove the LCD panel by following the instructions in [“Replacing the LCD panel assembly” on page 35](#).
- 11 Remove the palm rest by following the instructions in [“Replacing the palm rest” on page 48](#).
- 12 If your new system board does not include a modem, remove the modem from the old system board and install it on the new system board by following the instructions in [“Replacing the modem” on page 51](#).
- 13 If your old system board includes a TPM module, remove the module from the old system board and install it on the new system board by following the instructions in [“Replacing the TPM module” on page 54](#).
- 14 If your old system board includes a Bluetooth module, remove the module from the old system board and install it on the new system board by following the instructions in [“Replacing the Bluetooth module” on page 56](#).

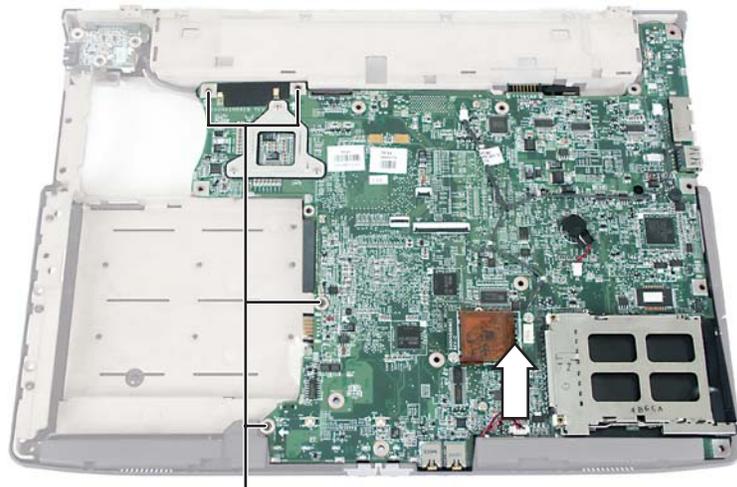
- 15** Disconnect the speakers and the Bluetooth card.



Speaker connector

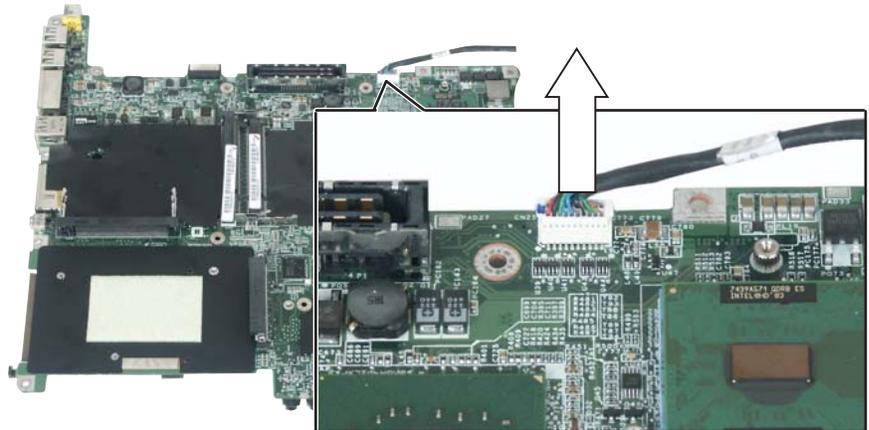
Bluetooth connector

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



Screws

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



- 18 Install the new system board into your notebook, replacing the screws you removed in [Step 16](#).
- 19 Reassemble the notebook.



Replacing the external video board

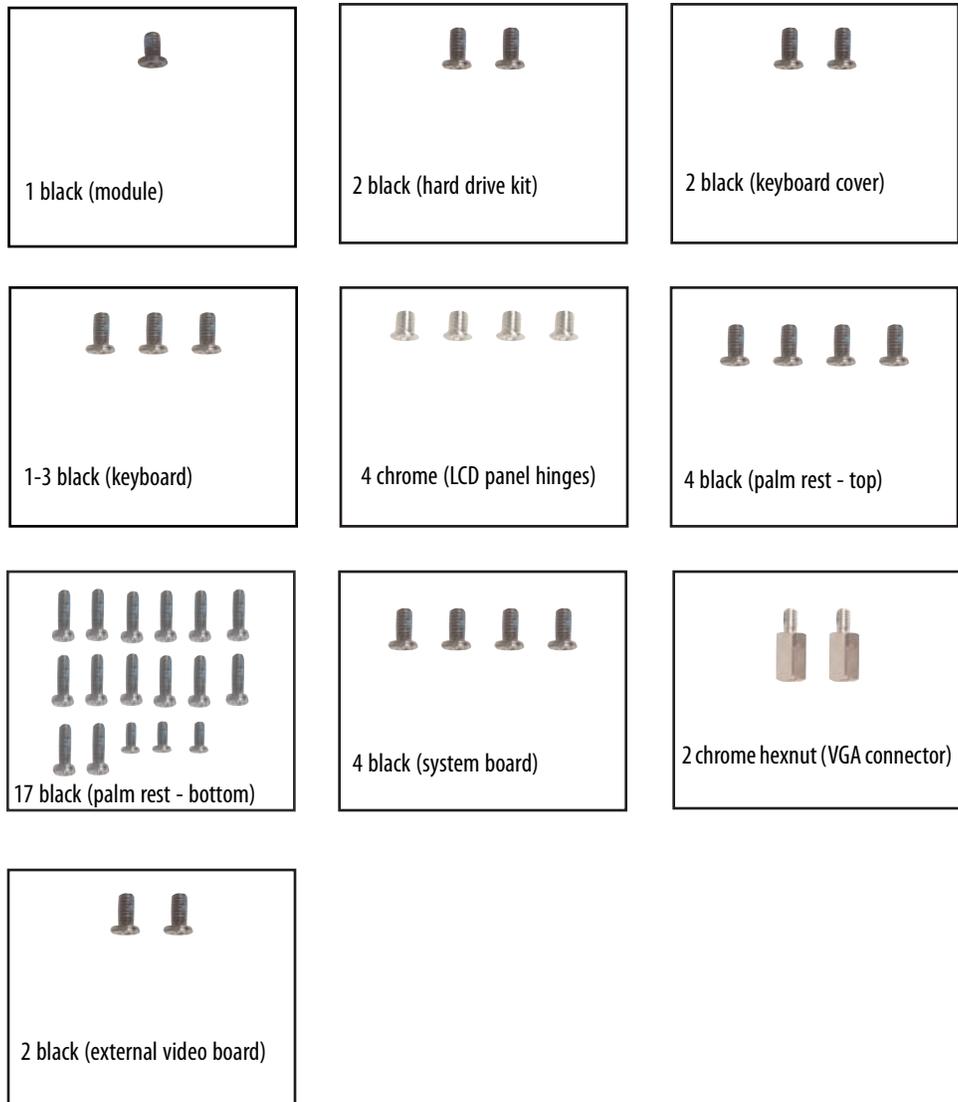
Tools you need to complete this task:



Additional materials you need to complete this task:

- X-23-7762 thermal grease

Screws removed during this task:

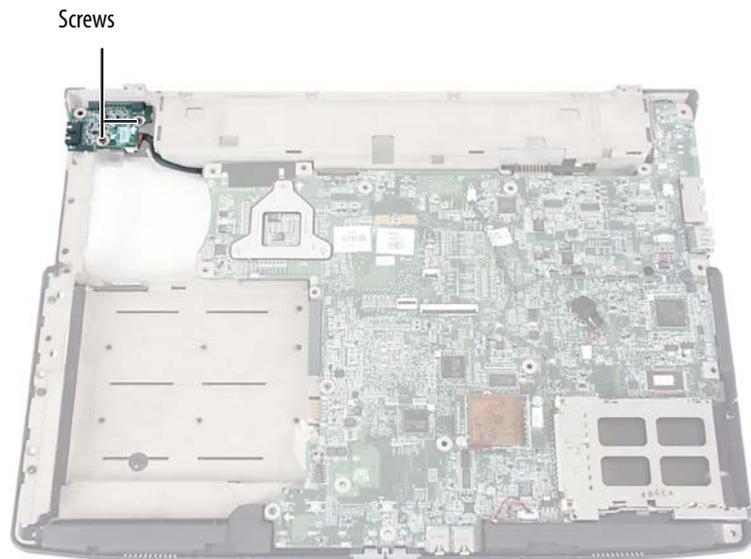


➤ **To replace the external video board:**

- 1 Complete the steps in [“Preparing the notebook” on page 5](#).
- 2 If your notebook has a module in the modular bay, remove it by following the instructions in [“Removing the optional secondary battery” on page 7](#).
- 3 Remove the cooling assembly by following the instructions in [“Replacing the cooling assembly” on page 12](#).
- 4 If the notebook has IEEE 802.11 wireless networking built in, unplug the antenna from the IEEE 802.11 wireless card by following the instructions in [“Replacing the IEEE 802.11 wireless card” on page 18](#).
- 5 Remove the hard drive kit by following the instructions in [“Replacing the hard drive kit” on page 23](#).
- 6 Remove the keyboard cover by following the instructions in [“Replacing the keyboard cover” on page 26](#).
- 7 Remove the keyboard by following the instructions in [“Replacing the keyboard” on page 28](#).
- 8 Remove the LCD panel by following the instructions in [“Replacing the LCD panel assembly” on page 35](#).
- 9 Remove the palm rest by following the instructions in [“Replacing the palm rest” on page 48](#).
- 10 Remove the system board by following the instructions in [“Replacing the system board” on page 58](#).
- 11 Remove the hex nuts that secure the external video board to the notebook.



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



- 13 Disconnect the cable from the old external video board, then connect the cable to the new video board.
- 14 Install the new external video board into your notebook, replacing the screws removed in [Step 12](#).
- 15 Reassemble the notebook.



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