



Gateway 450 Notebook serviceguide



Customizing

Troubleshooting



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Replacing Gateway 450ROG Components

Important



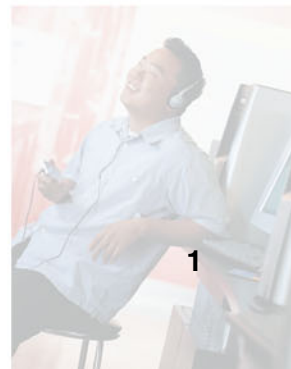
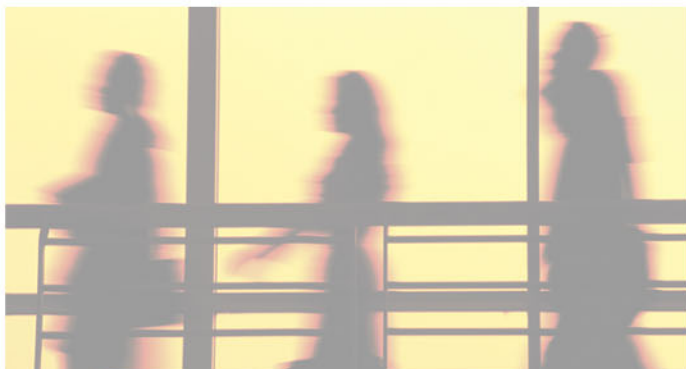
This service guide is not intended to be provided to individual users or consumers. It cannot be provided to anyone other than an authorized service provider.

Use this service guide to help plan your maintenance tasks for the Gateway 450ROG notebook. All tasks covered in this guide can be performed by an **authorized field technician** without jeopardizing the notebook's warranty.

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

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.

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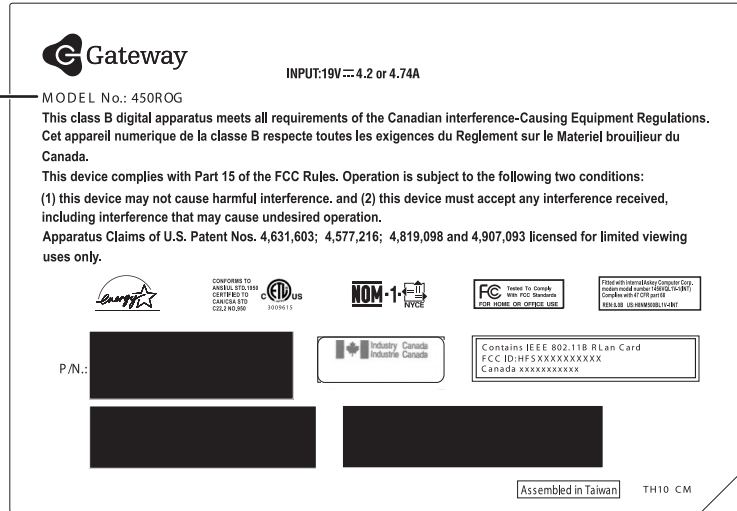
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Identifying the notebook model

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

Gateway
model
number



Warning

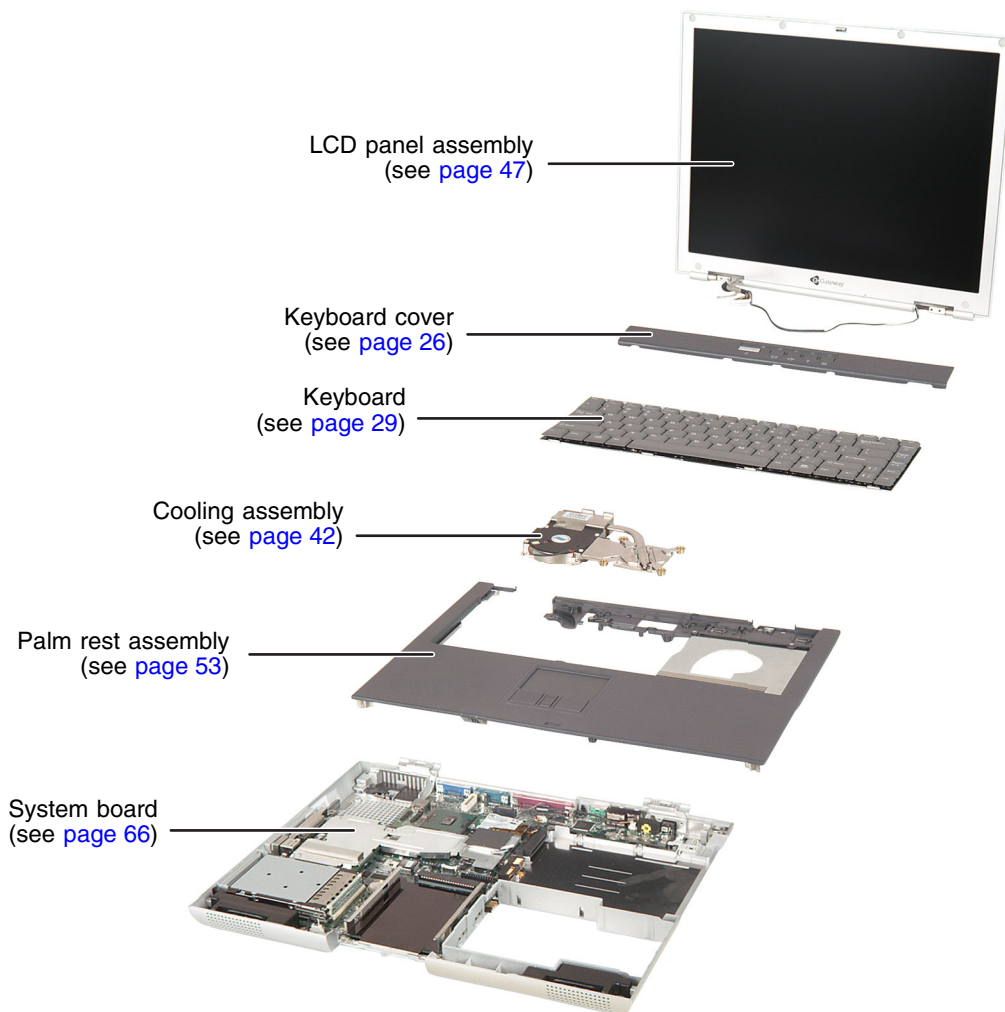


It is important that you use the correct service guide for the notebook. Failure to follow the approved tasks for the notebook model may result in damage to the notebook.

Identifying components

Where screw measurements are shown, the first number indicates screw head width, and the second number indicates screw length.

Use this chart to identify the main components of the notebook. For a complete list of replaceable parts, see the Contents.



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. Where screw measurements are shown, the first number indicates screw head width, and the second number indicates screw length.
 - 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

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

Warning



ESD can permanently damage electrostatic discharge-sensitive components in the notebook. Prevent ESD damage by following ESD guidelines every time you open the notebook case.

Warning



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

Before replacing components, follow these guidelines:

- Turn off the notebook.
- 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.

Warning



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

- Touch a bare metal surface on your workbench or other grounded object.
- Unplug the power cord and the modem and network cables.
- Remove the main and optional secondary batteries. For more information, see [“Removing the batteries” on page 8](#).
- Disconnect all peripheral devices and remove any PC Cards.

Before working with notebook components, 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.

Preparing the notebook

Warning



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

To prepare the notebook for maintenance:

- Make sure that the modular drive is empty.
- Disconnect all peripheral devices and remove any PC Cards.
- Turn off the notebook and unplug the power cord and modem and network cables (if attached).
- Disconnect the notebook from the optional port replicator. For more information see [“Disconnecting from the port replicator” on page 7](#).
- Turn over the notebook and remove the main and optional secondary batteries. For more information see [“Removing the batteries” on page 8](#).

Disconnecting from the port replicator

To separate the notebook from the port replicator:

- 1 Press down on both docking release latches. The notebook will spring up slightly.



- 2 Lift the notebook off of the port replicator.

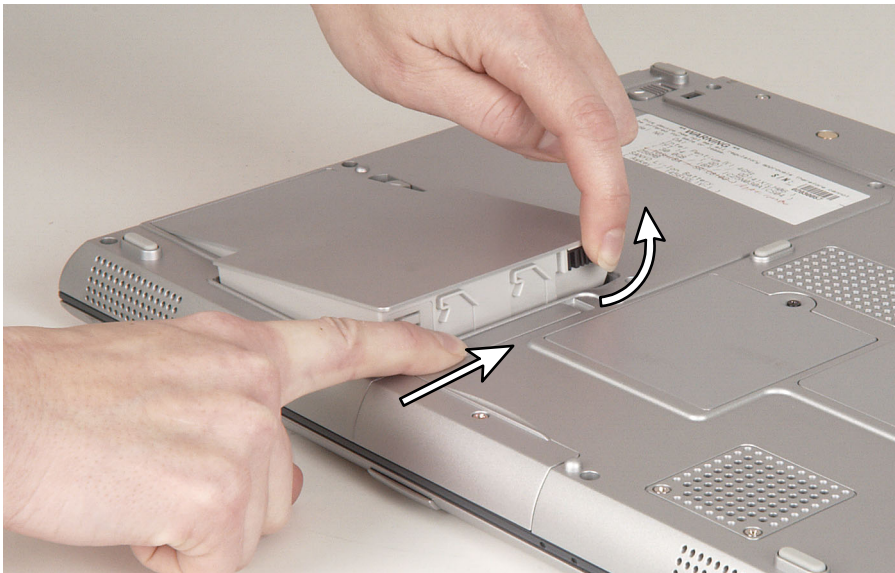


Removing the batteries

Removing the main battery

To remove the main battery:

- 1** Disconnect the AC adapter and modem and network cables and prepare the notebook by following the instructions in [“Preparing the notebook” on page 6](#).
- 2** Disconnect the notebook from the optional port replicator by following the instructions in [“Disconnecting from the port replicator” on page 7](#).
- 3** Turn the notebook over so the bottom is facing up.
- 4** Slide the battery release latch and lift the battery out of the bay.



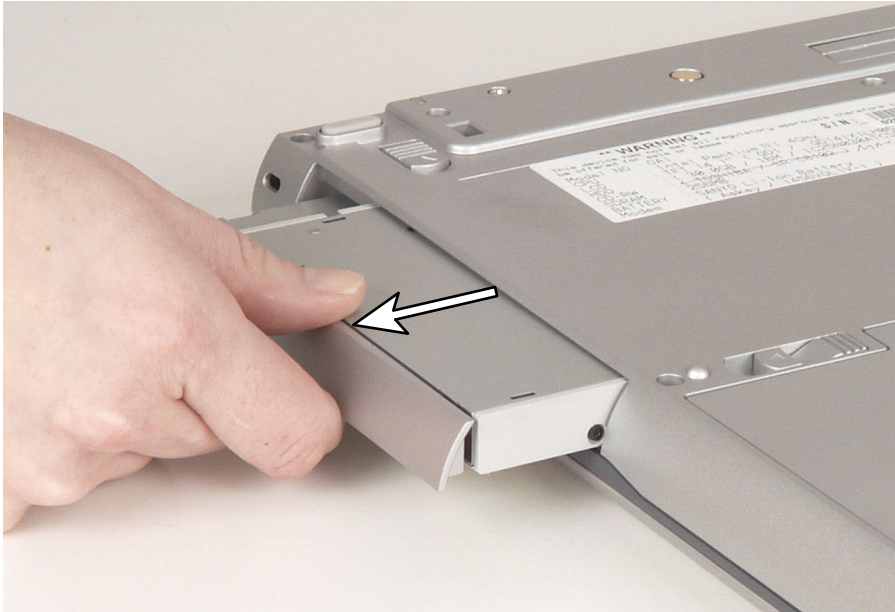
Removing the optional secondary battery

To remove the secondary battery:

- 1** Disconnect the AC adapter and modem and network cables and prepare the notebook by following the instructions in [“Preparing the notebook” on page 6](#).
- 2** Disconnect the notebook from the optional port replicator by following the instructions in [“Disconnecting from the port replicator” on page 7](#).
- 3** Turn the notebook over so the bottom is facing up.
- 4** Slide and hold the modular bay latch closest to the back of the notebook.
- 5** Slide the other modular bay release latch. The battery moves out slightly.



- 6 Slide the battery out.



Adding or replacing memory modules

Tools you need to complete this task:

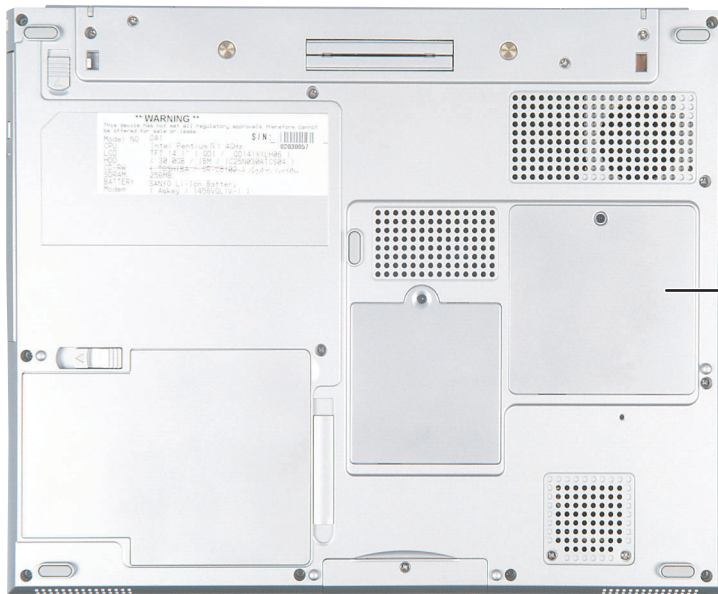


Phillips #0 screwdriver

Important



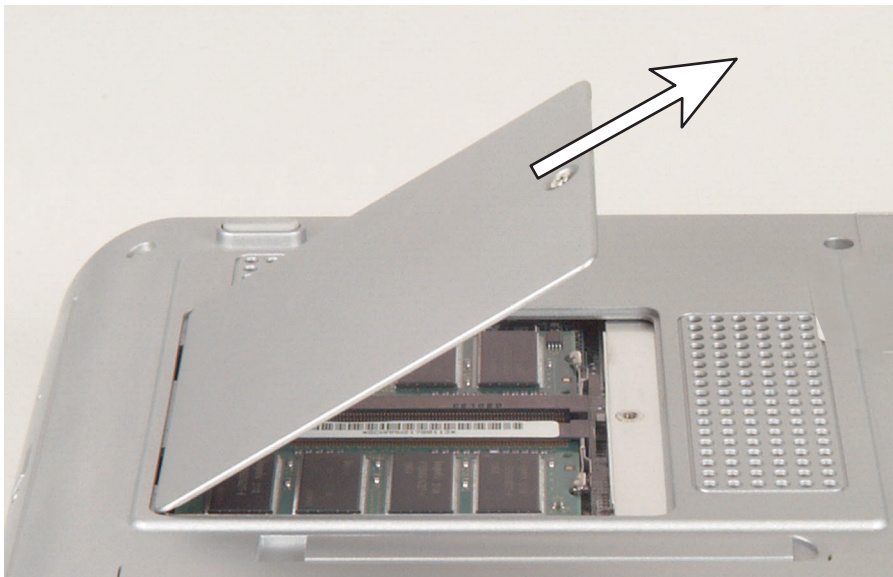
Use only memory modules designed for the Gateway 450ROG.



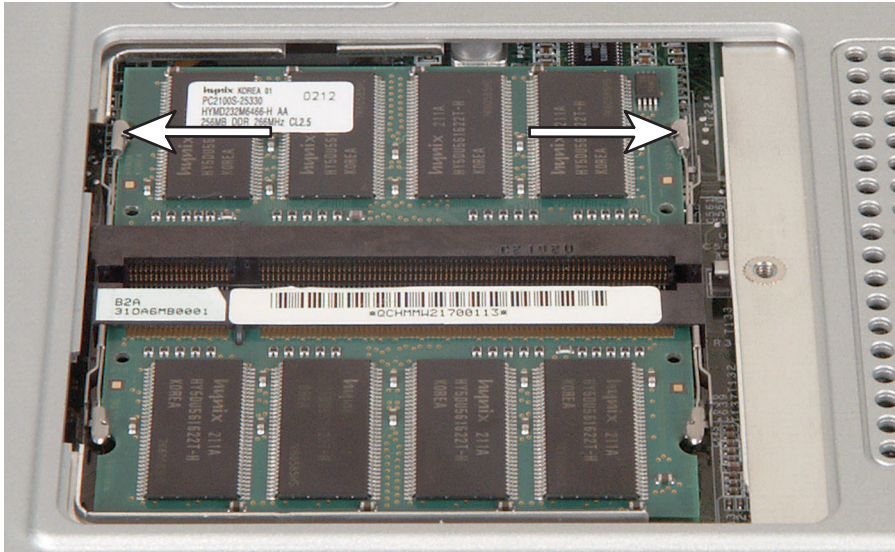


To add or replace memory modules:

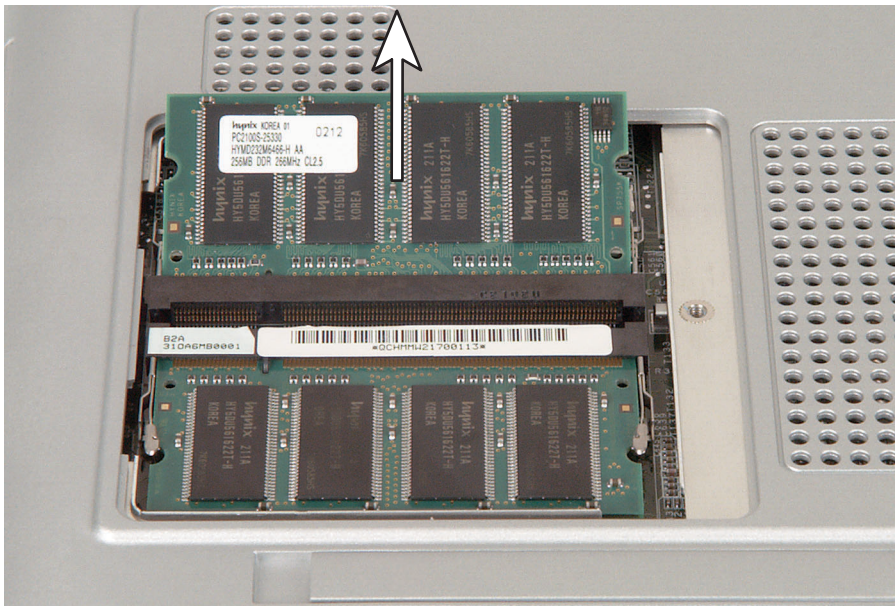
- 1 Disconnect the AC adapter and modem and network cables and prepare the notebook by following the instructions in [“Preparing the notebook” on page 6](#).
- 2 Disconnect the notebook from the optional port replicator by following the instructions in [“Disconnecting from the port replicator” on page 7](#).
- 3 Turn the notebook over so the bottom is facing up.
- 4 Remove the main and optional secondary batteries by following the instructions in [“Removing the batteries” on page 8](#).
- 5 Loosen the captive screw that secures the memory cover. (The screw cannot be removed.)
- 6 Lift the screw side of the cover upward, then slide the cover out.



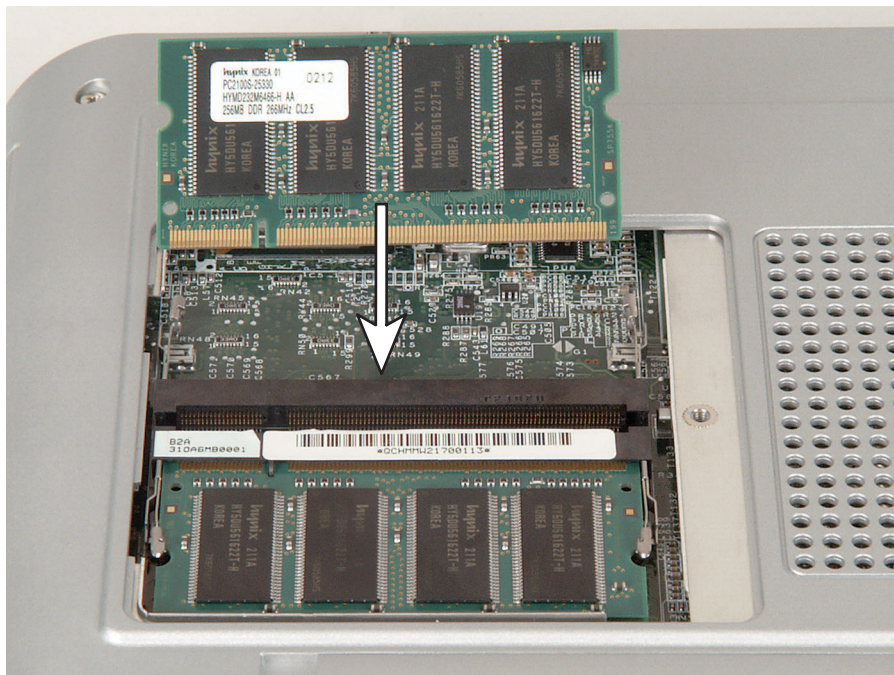
- 7 If you are removing a module, gently press outward on the clip at each end of the memory module until the module tilts upward.



- 8 Pull the memory module out of the slot.



- 9 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 slot.



- 10 Gently push the module down until it clicks in place.
- 11 Replace the memory bay cover and tighten the cover screw.



Replacing the IEEE 802.11 Mini PCI card

Caution



By law, only approved wireless modules provided by Gateway, or a Gateway authorized representative, explicitly for the Gateway 450ROG may be installed in this notebook.

Caution



Legal requirements dictate that a security screw (or other means) be used to attach the mini-PCI cover to the chassis in a manner that restricts end user access. End users are strictly prohibited from having access to the wireless card. Due to manufacturing process changes, Gateway 450ROG notebooks manufactured after August 7, 2003 require a Torx head security screw to attach the mini-PCI cover.

Caution



Legal requirements dictate the mini-PCI 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
-OR-



Torx T8 screwdriver



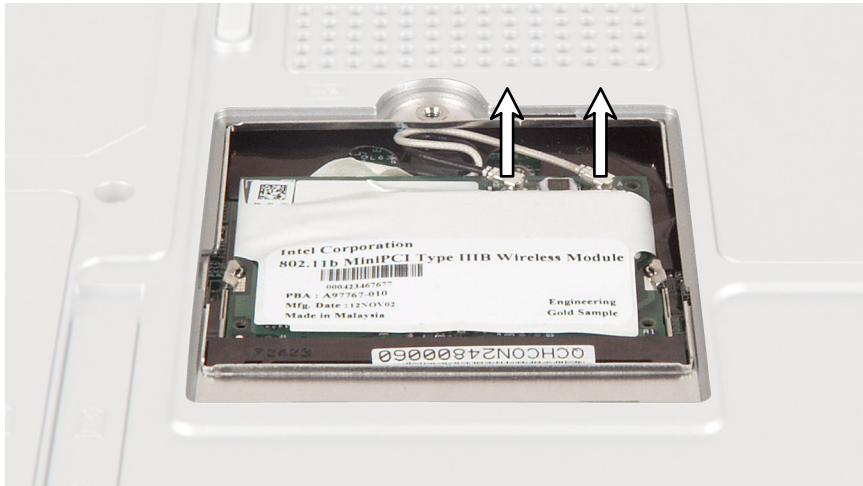
To replace the IEEE 802.11 Mini PCI card:

- 1 Disconnect the AC adapter and modem and network cables and prepare the notebook by following the instructions in [“Preparing the notebook” on page 6](#).
- 2 Disconnect the notebook from the optional port replicator by following the instructions in [“Disconnecting from the port replicator” on page 7](#).
- 3 Turn the notebook over so the bottom is facing up.

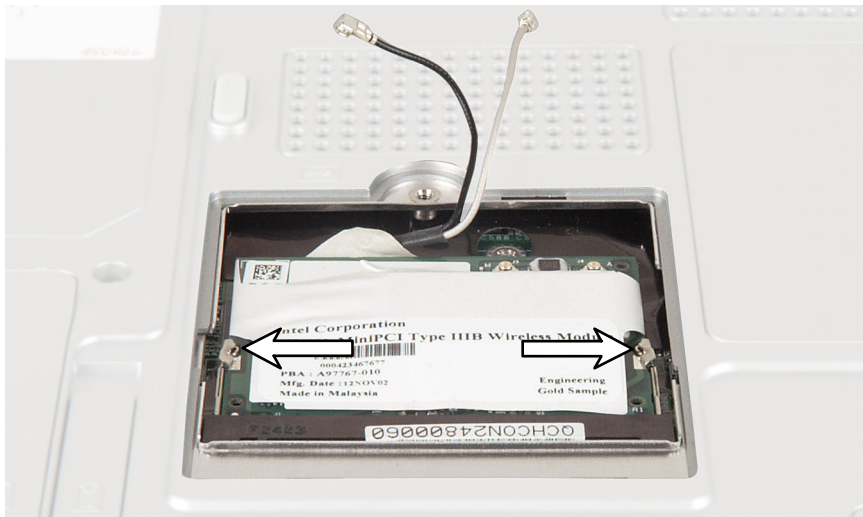
- 4 Remove the main and optional secondary batteries by following the instructions in [“Removing the batteries” on page 8](#).
- 5 If the mini PCI screw is covered by a wireless Ethernet label, remove the label.
- 6 Use the appropriate screwdriver to loosen the captive screw that secures the mini PCI cover. (The screw cannot be removed.)
- 7 Lift the screw side of the cover upward, then slide the cover out.



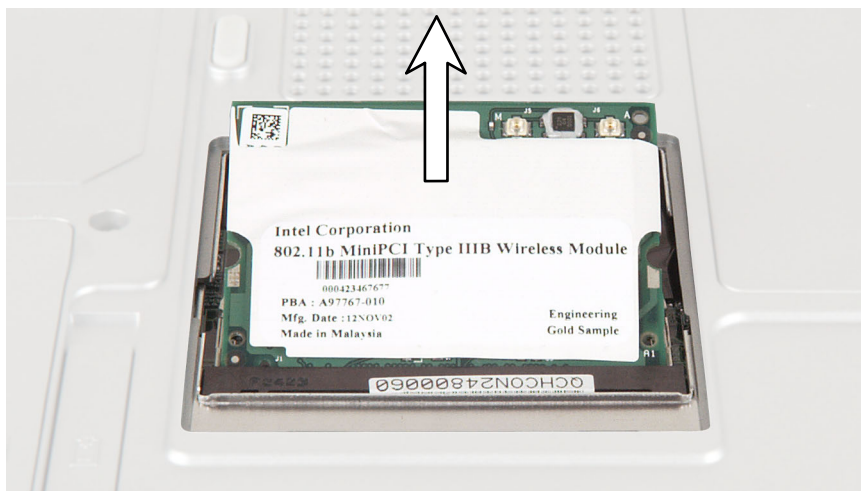
- 8 Unplug the two antenna cables.



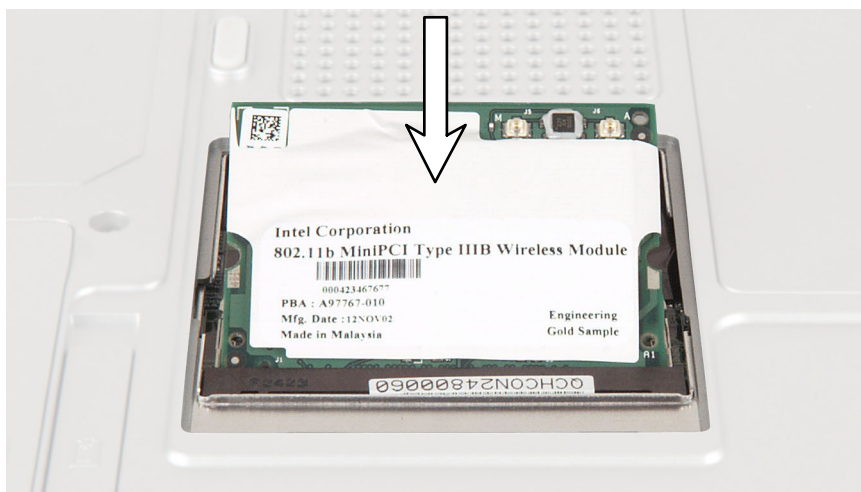
- 9 Move the antenna wires out of the way, then press outward on the clip at each side of the module until the module tilts upward.



- 10** Pull the module out of the slot.



- 11** Hold the new module at a 30-degree angle and press it into the empty 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 module slot.



- 12** Move the antenna wires out of the way, then press the module down until it clicks into place.

- 13** Reattach the black antenna cable to the connector labelled MAIN or M, then reattach the light gray antenna cable to the connector labelled AUX or A.
- 14** Replace the mini PCI cover, then tighten the captive screw.
- 15** If the mini PCI screw was covered by a wireless Ethernet label, replace the label.



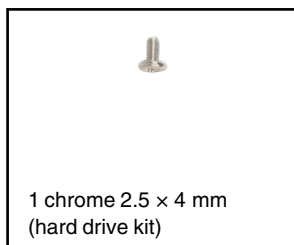
Replacing the hard drive kit

Tools you need to complete this task:

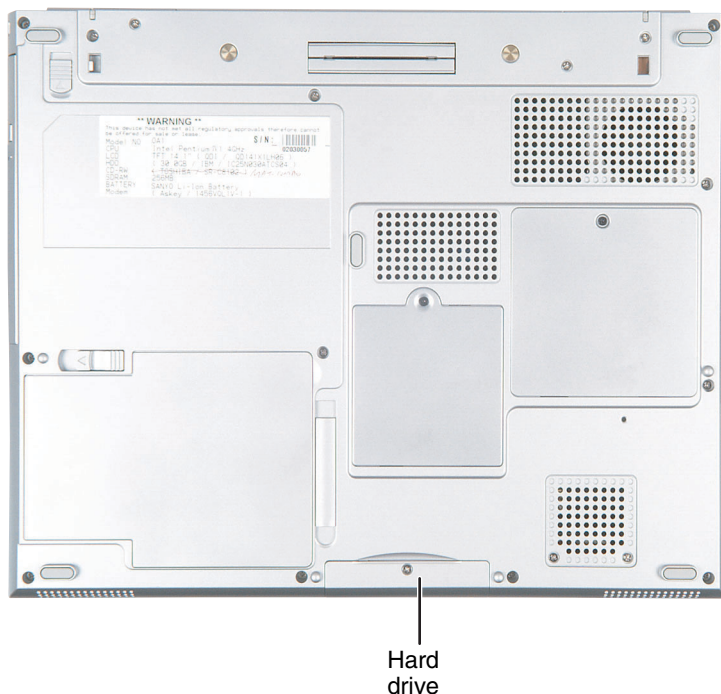


Phillips #0 screwdriver

Screws removed during this task:



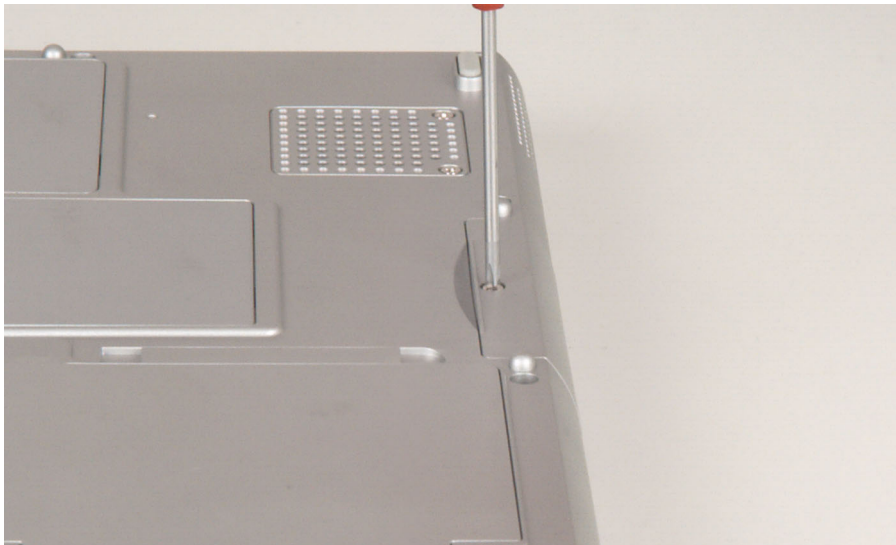
1 chrome 2.5 × 4 mm
(hard drive kit)



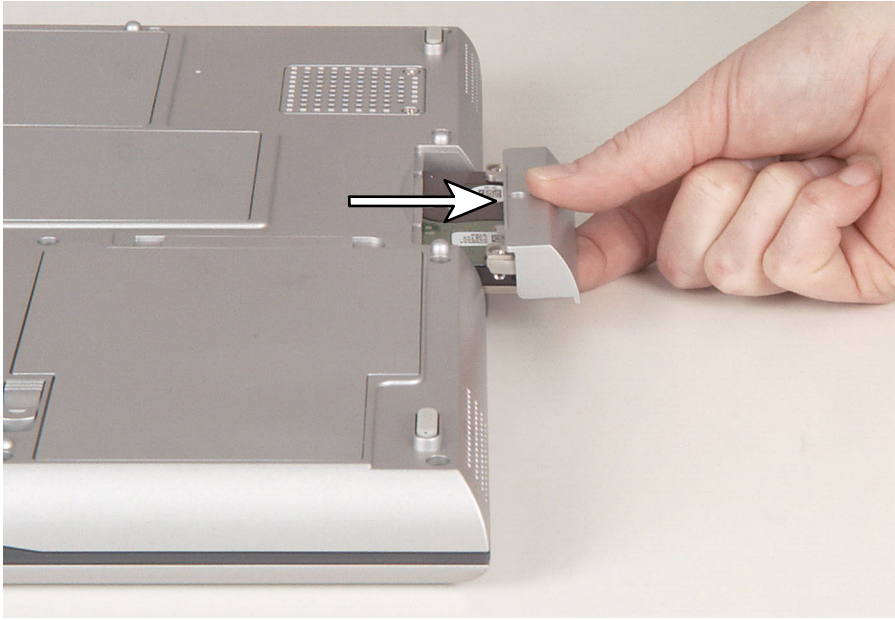


To replace the hard drive kit:

- 1** Disconnect the AC adapter and modem and network cables and prepare the notebook by following the instructions in [“Preparing the notebook” on page 6](#).
- 2** Disconnect the notebook from the optional port replicator by following the instructions in [“Disconnecting from the port replicator” on page 7](#).
- 3** Turn the notebook over so the bottom is facing up.
- 4** Remove the main and optional secondary batteries by following the instructions in [“Removing the batteries” on page 8](#).
- 5** Remove the hard drive kit screw.



- 6** Slide the old hard drive kit out of the notebook.



- 7** Slide the new hard drive kit into the notebook.
- 8** Replace the screw that secures the hard drive kit to the notebook.



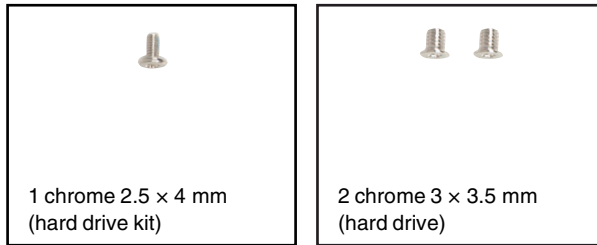
Replacing the hard drive in the hard drive kit

Tools you need to complete this task:



Phillips #0 screwdriver

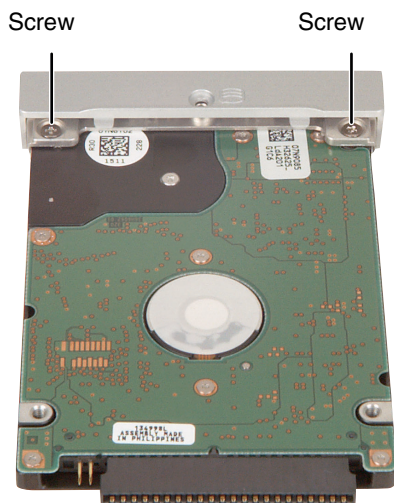
Screws removed during this task:



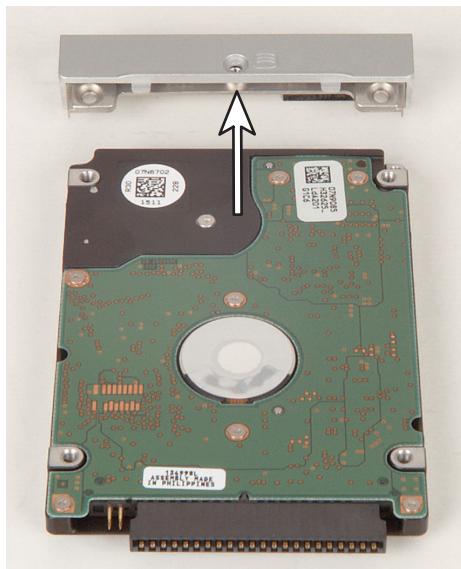
To replace the hard drive in the hard drive kit:

- 1** Disconnect the AC adapter and modem and network cables and prepare the notebook by following the instructions in [“Preparing the notebook” on page 6](#).
- 2** Disconnect the notebook from the optional port replicator by following the instructions in [“Disconnecting from the port replicator” on page 7](#).
- 3** Turn the notebook over so the bottom is facing up.
- 4** Remove the main and optional secondary batteries by following the instructions in [“Removing the batteries” on page 8](#).
- 5** Remove the hard drive kit by following the instructions in [“Replacing the hard drive kit” on page 20](#).

- 6 Remove the two screws that secure the hard drive to the hard drive kit bracket.



- 7 Remove the bracket from the old drive.



- 8 Insert the new drive into the bracket so the screw holes line up and the plastic strip on the top of the bracket is positioned as shown.



- 9 Replace the two screws that secure the bracket to the drive.
- 10 Slide the new hard drive kit into the notebook.
- 11 Replace the screw that secures the hard drive kit to the notebook.



Replacing the keyboard cover

Tools you need to complete this task:



To replace the keyboard cover:

- 1** Disconnect the AC adapter and modem and network cables and prepare the notebook by following the instructions in [“Preparing the notebook” on page 6](#).
- 2** Disconnect the notebook from the optional port replicator by following the instructions in [“Disconnecting from the port replicator” on page 7](#).
- 3** Turn the notebook over so the bottom is facing up.
- 4** Remove the main and optional secondary batteries by following the instructions in [“Removing the batteries” on page 8](#).
- 5** Turn the notebook over so the top is facing up.
- 6** Open the LCD panel to the normal viewing position.

- 7 Insert the small flat-blade screwdriver or non-marring tool under the bottom right corner of the keyboard cover and gently pry it up.

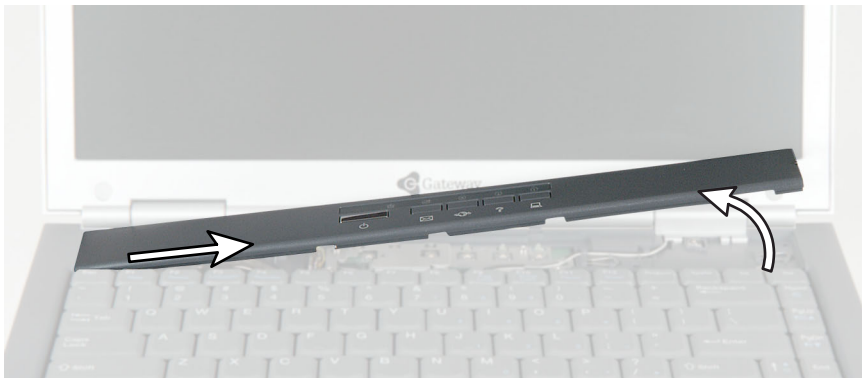
Important



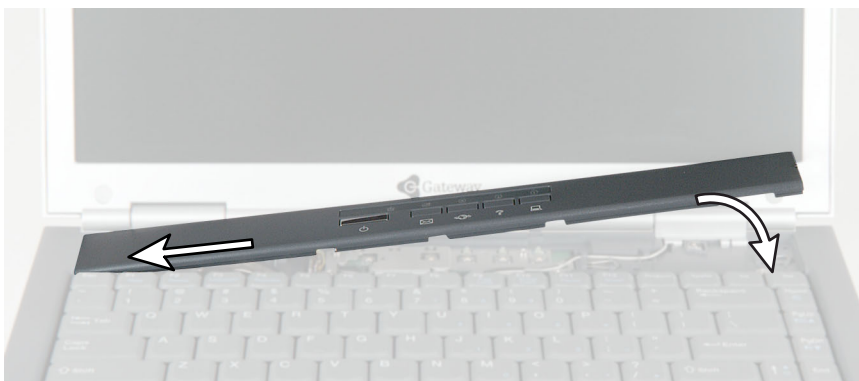
Inserting a piece of cloth between the screwdriver and keyboard and notebook case will help prevent damage to the notebook.



- 8 Pull the cover off the notebook. You will hear small snapping sounds as the cover comes away from the notebook. Be careful not to break off the tabs found on the left end of the cover.



- 9** Slide the two tabs on the left end of the new cover under the notebook frame.



- 10** 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.

Warning

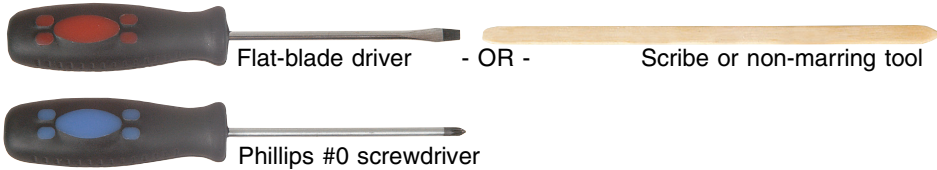


If the cover is not correctly replaced, the notebook could be damaged when you try to close the LCD panel.

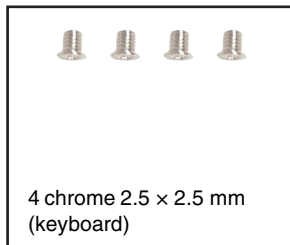


Replacing the keyboard

Tools you need to complete this task:



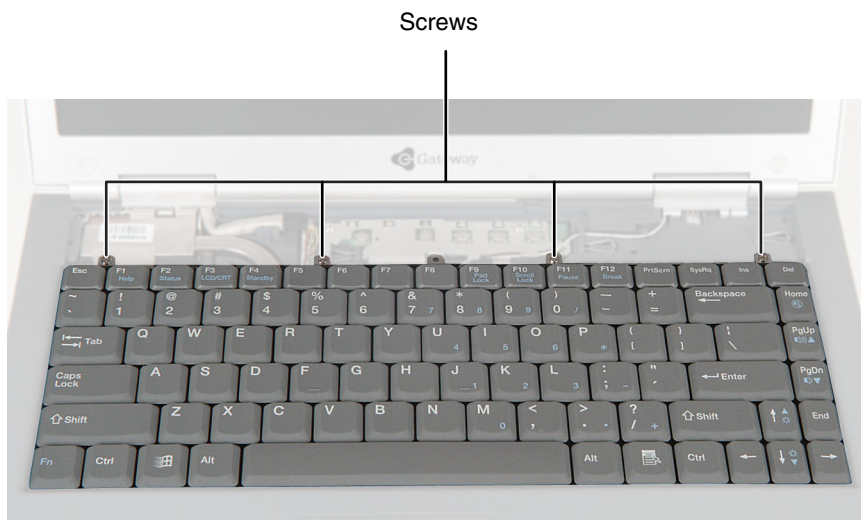
Screws removed during this task:



To replace the keyboard:

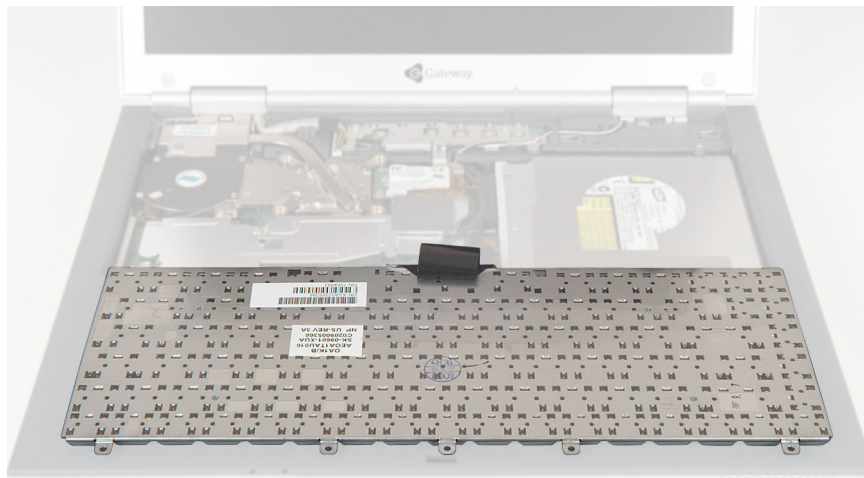
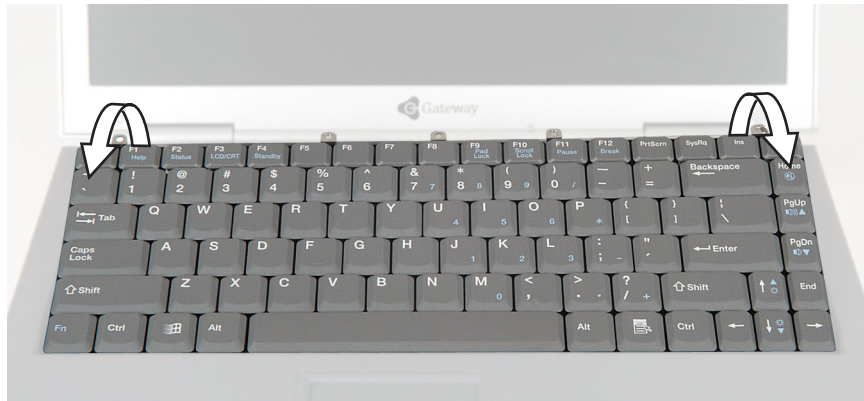
- 1 Disconnect the AC adapter and modem and network cables and prepare the notebook by following the instructions in [“Preparing the notebook” on page 6](#).
- 2 Disconnect the notebook from the optional port replicator by following the instructions in [“Disconnecting from the port replicator” on page 7](#).
- 3 Turn the notebook over so the bottom is facing up.
- 4 Remove the main and optional secondary batteries by following the instructions in [“Removing the batteries” on page 8](#).
- 5 Turn the notebook over so the top is facing up.
- 6 Remove the keyboard cover by following the instructions in [“Replacing the keyboard cover” on page 26](#).

- 7 Remove the four keyboard screws that secure the keyboard to the notebook.

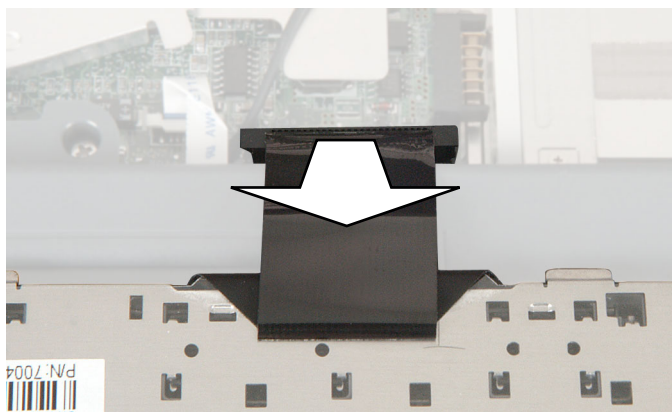


- 8 Lift the back edge of the keyboard slightly, then carefully slide the keyboard back until the four tabs on the front edge of the keyboard are free from their slots. Be careful not to damage the LCD panel.

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



- 10 Use two fingers to unplug the keyboard panel connector from the notebook. Be careful not to touch or damage any other components.

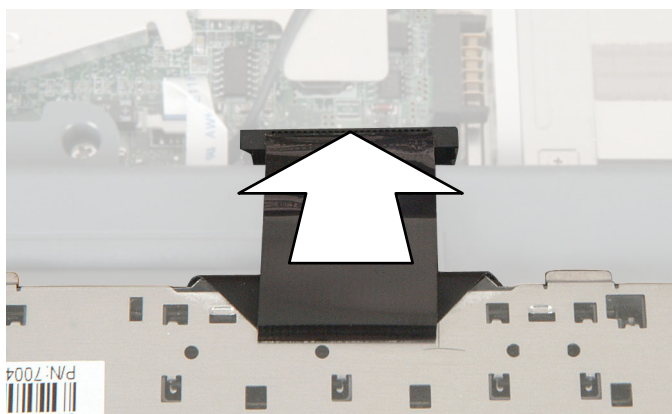


- 11 Place the new keyboard **keys-down** on the notebook with the space bar away from you.
- 12 Insert the keyboard plug, on the end of the keyboard cable, onto the keyboard connector.

Important



The outside of the keyboard plug goes around the keyboard connector. The plug is correctly oriented if the cable is not twisted.

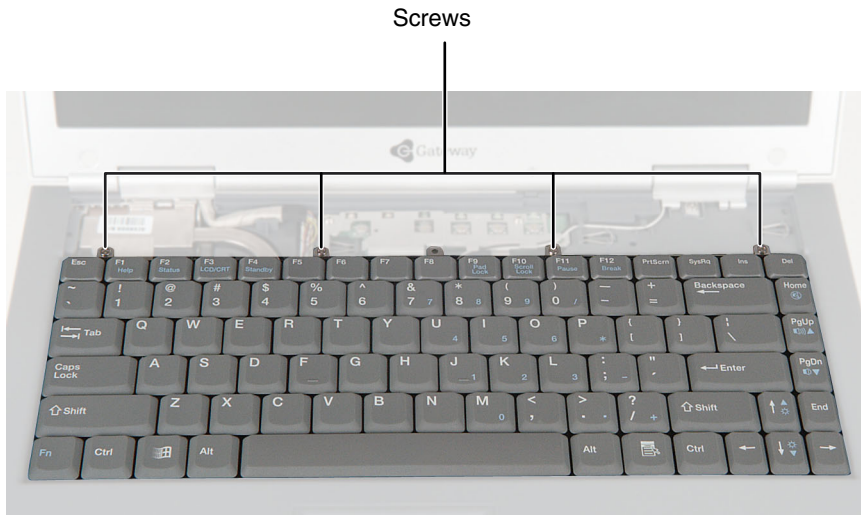


- 13** Rotate the keyboard toward the LCD panel until the keyboard is almost face-up.
- 14** Insert the four tabs located on the front edge of the keyboard into the corresponding slots under the palm rest.



- 15** 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.

16 Replace the four keyboard screws.

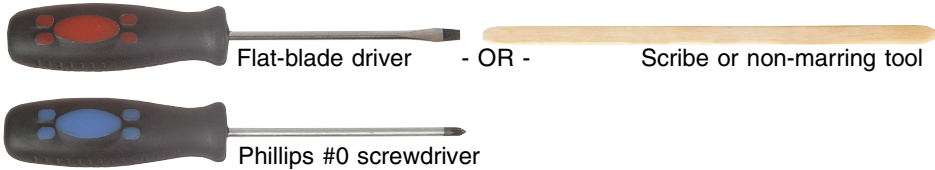


17 Reassemble the notebook.

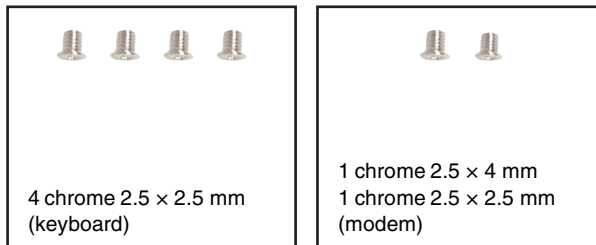


Replacing the modem

Tools you need to complete this task:



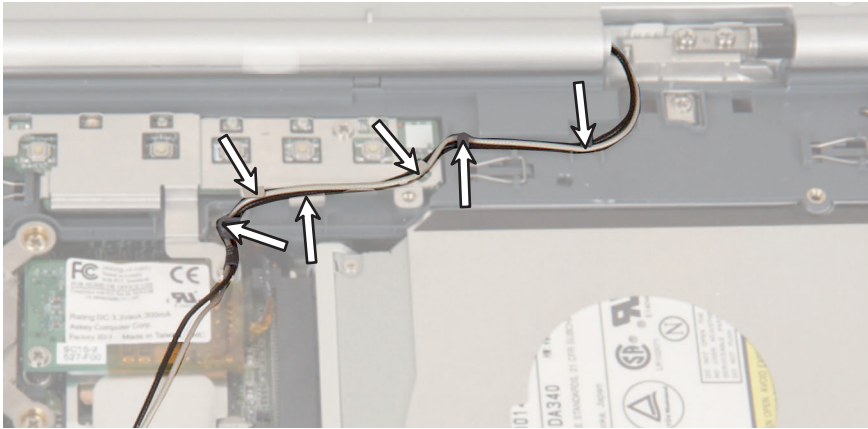
Screws removed during this task:



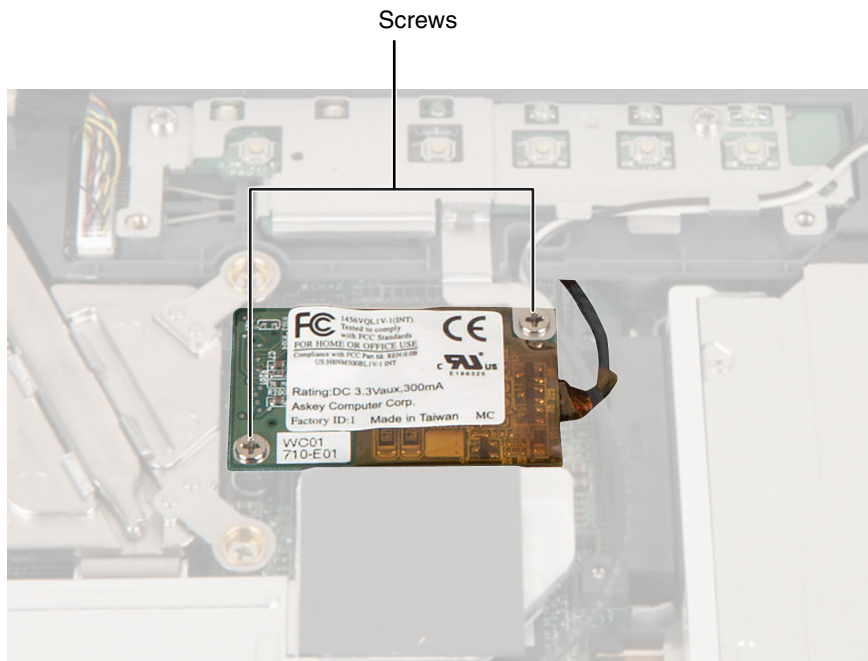
To replace the modem:

- 1** Disconnect the AC adapter and modem and network cables and prepare the notebook by following the instructions in [“Preparing the notebook” on page 6](#).
- 2** Disconnect the notebook from the optional port replicator by following the instructions in [“Disconnecting from the port replicator” on page 7](#).
- 3** Turn the notebook over so the bottom is facing up.
- 4** Remove the main and optional secondary batteries by following the instructions in [“Removing the batteries” on page 8](#).
- 5** Turn the notebook over so the top is facing up.
- 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 29](#).

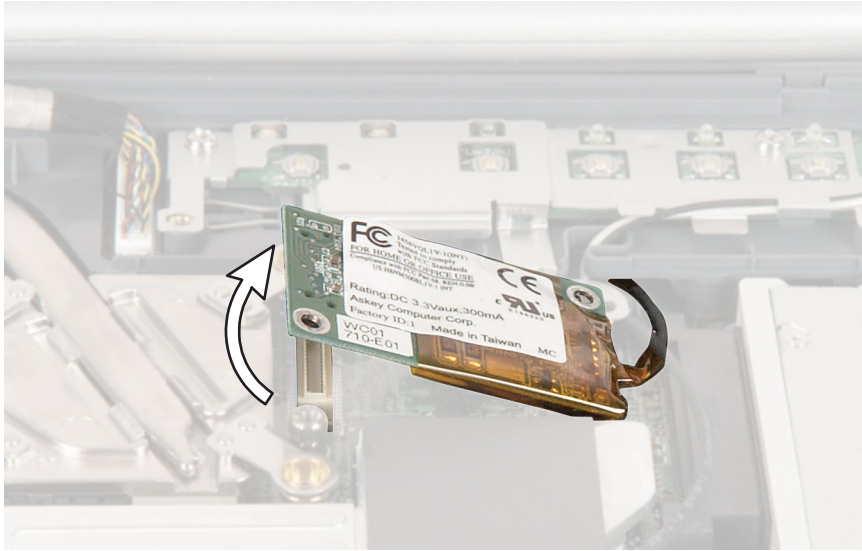
- 8 If the notebook has IEEE 802.11 wireless networking built in, slide the antenna cables away from the LED indicator panel EMI shielding.



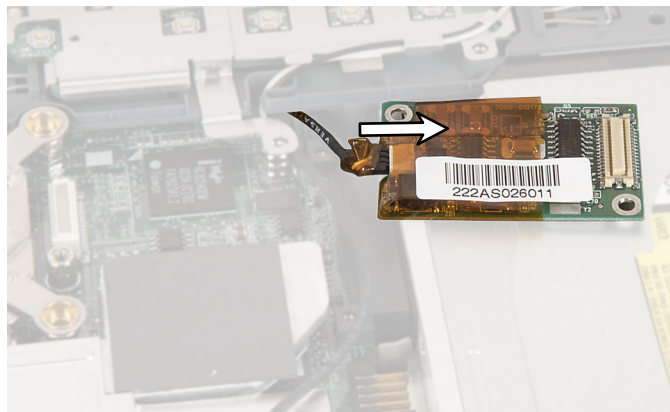
- 9 Remove the two screws that secure the modem to the notebook.



- 10** Insert the small flat-blade screwdriver or non-marring tool under the left side of the modem and gently pry it up about ¼ inch.



- 11** Slide the modem toward you until it slides out from under the LED indicator panel shielding.
- 12** Unplug the modem cable from the modem.



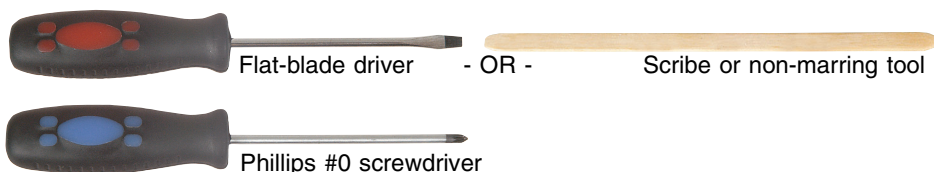
- 13** Connect the modem cable into the new modem.

- 14** Slide the modem under the LED indicator panel shielding, align the modem's screw holes with the holes on the notebook, then press the modem into place.
- 15** Replace the two screws that secure the modem to the notebook. Use the shorter screw to secure the lower-left corner.
- 16** Rethread the antenna cables (if applicable).
- 17** Reassemble the notebook.

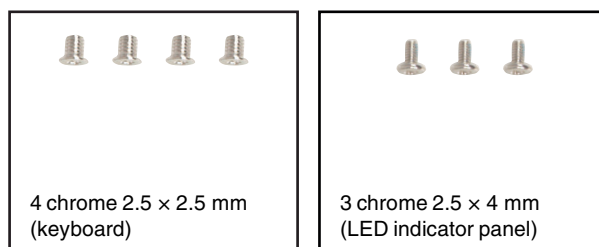


Replacing the LED indicator panel

Tools you need to complete this task:



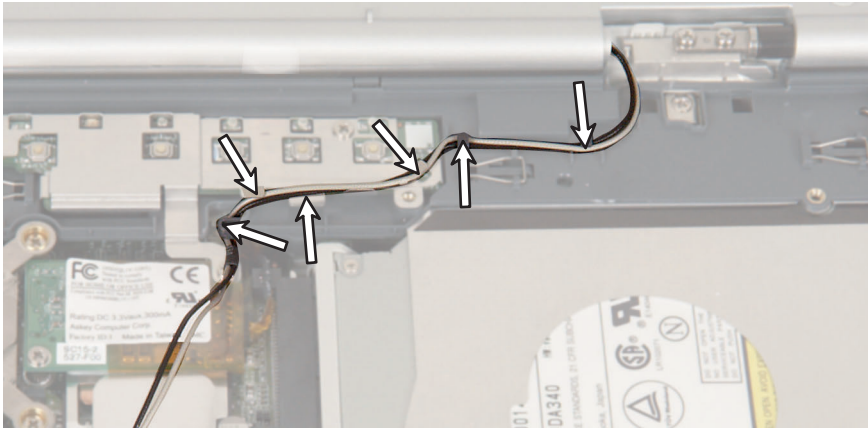
Screws removed during this task:



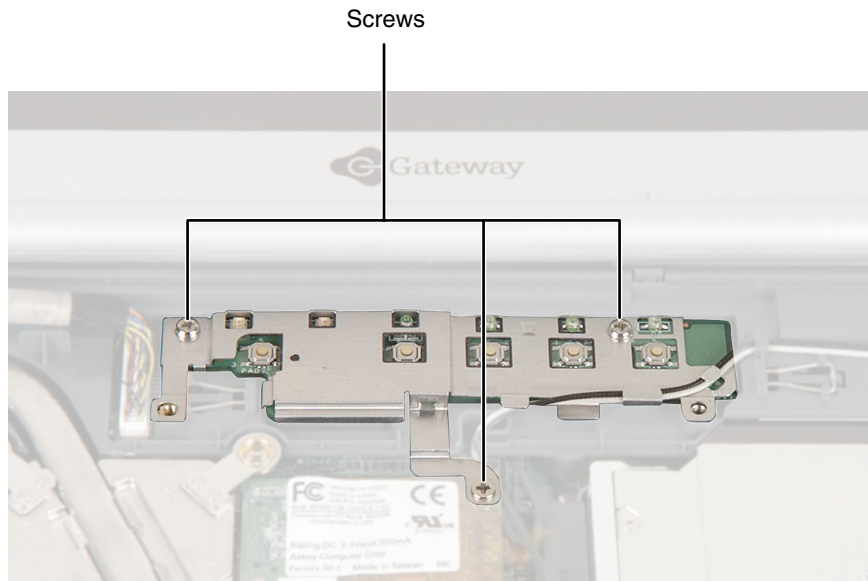
To replace the LED indicator panel:

- 1** Disconnect the AC adapter and modem and network cables and prepare the notebook by following the instructions in [“Preparing the notebook” on page 6](#).
- 2** Disconnect the notebook from the optional port replicator by following the instructions in [“Disconnecting from the port replicator” on page 7](#).
- 3** Turn the notebook over so the bottom is facing up.
- 4** Remove the main and optional secondary batteries by following the instructions in [“Removing the batteries” on page 8](#).
- 5** Turn the notebook over so the top is facing up.
- 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 29](#).

- 8 If the notebook has IEEE 802.11 wireless networking built in, slide the antenna cables away from the LED indicator panel EMI shielding.



- 9 Remove the three screws that secure the LED indicator panel shield to the notebook.



- 10 Insert the small flat-blade screwdriver or non-marring tool under the left side of the indicator panel and gently pry it up about ¼ inch, then lift the entire panel from the notebook.



- 11 Carefully lift the middle of the LED panel's silver EMI shielding slightly away from the panel, then lift the ends slightly, then repeat until the shielding pulls completely free.

Warning



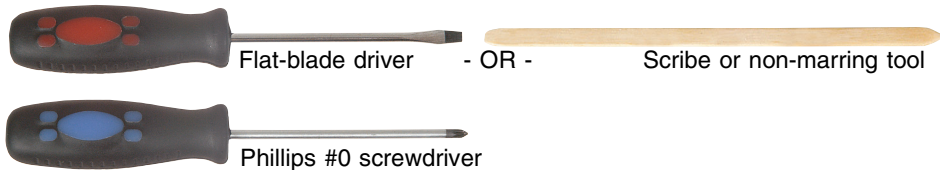
The LED panel's metal shielding is very thin and will break if you bend it too much. When removing the shielding, carefully lift the middle slightly, then lift the ends slightly, then repeat until the shielding pulls completely free.

- 12 Align the new indicator panel's screw holes with the holes on the notebook, then press the panel into place.
- 13 Carefully replace the indicator panel's shielding.
- 14 Replace the three screws that secure the LED indicator panel to the notebook.
- 15 Rethread the antenna cables (if applicable).
- 16 Reassemble the notebook.

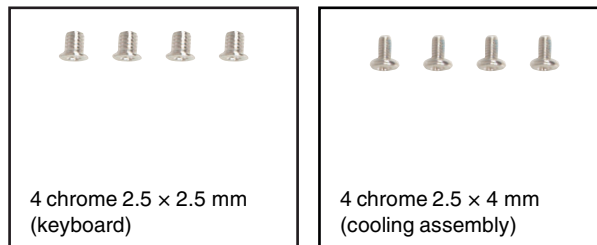


Replacing the cooling assembly

Tools you need to complete this task:



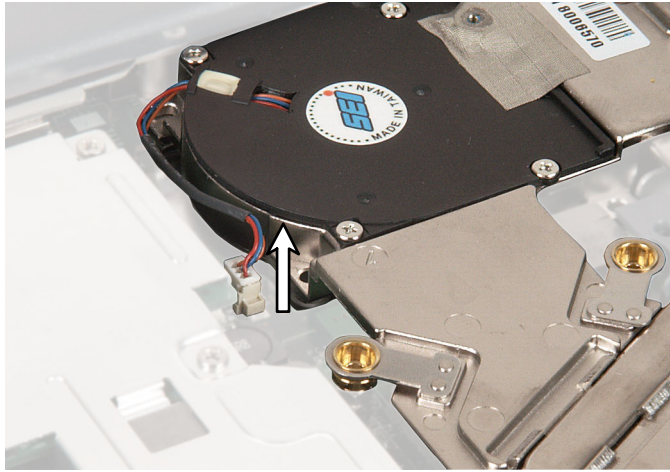
Screws removed during this task:



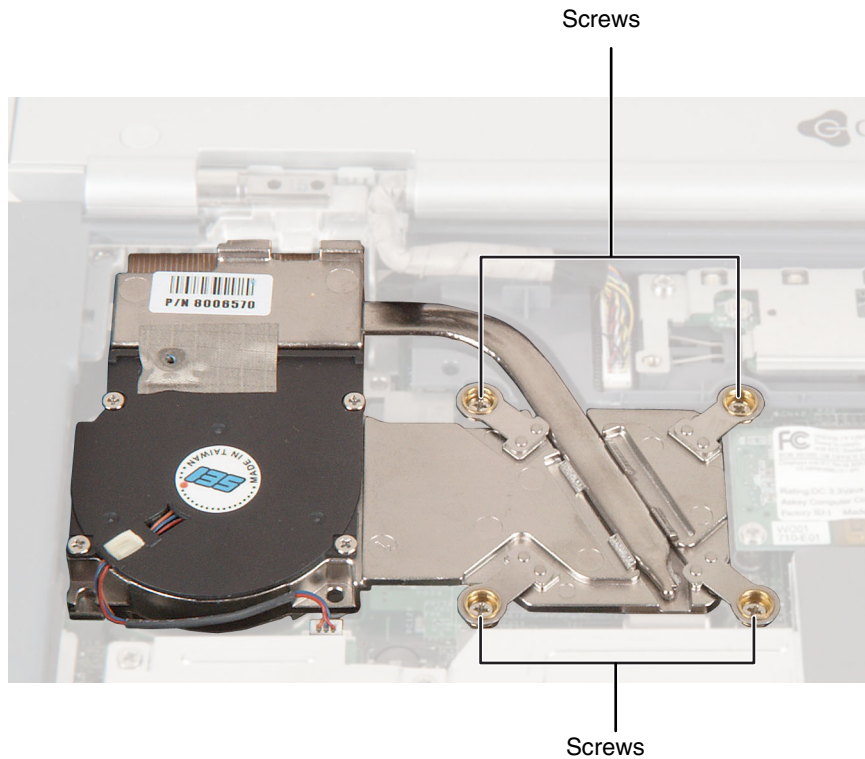
To replace the cooling assembly:

- 1** Disconnect the AC adapter and modem and network cables and prepare the notebook by following the instructions in [“Preparing the notebook” on page 6](#).
- 2** Disconnect the notebook from the optional port replicator by following the instructions in [“Disconnecting from the port replicator” on page 7](#).
- 3** Turn the notebook over so the bottom is facing up.
- 4** Remove the main and optional secondary batteries by following the instructions in [“Removing the batteries” on page 8](#).
- 5** Turn the notebook over so the top is facing up.
- 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 29](#).

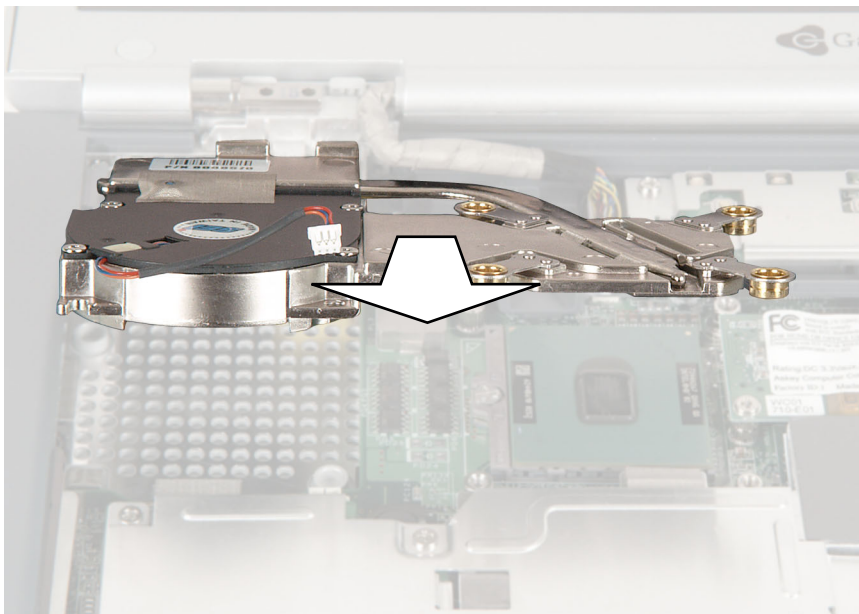
- 8 Unplug the cooling fan.



- 9 Remove the four screws that secure the cooling assembly to the notebook.



- 10** At the same time as you lift, move the cooling assembly to the front of the notebook and remove it.

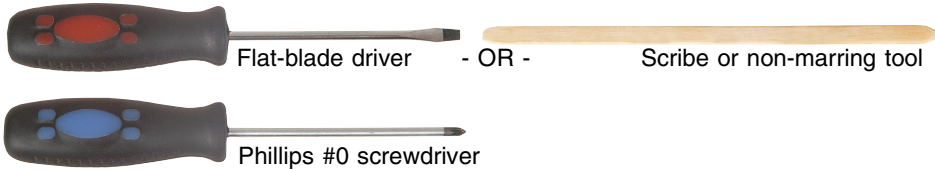


- 11** Insert the new cooling assembly into the notebook.
- 12** Replace the four cooling assembly screws.
- 13** Plug in the cooling fan.
- 14** Reassemble the notebook.

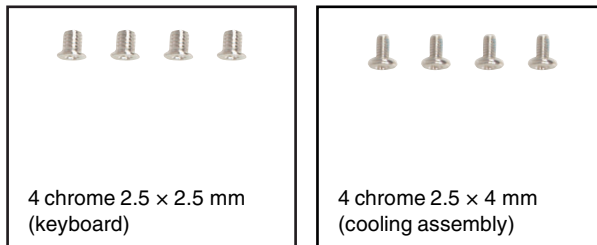


Replacing the hinge covers

Tools you need to complete this task:



Screws removed during this task:



To replace the hinge covers:

- 1** Disconnect the AC adapter and modem and network cables and prepare the notebook by following the instructions in [“Preparing the notebook” on page 6](#).
- 2** Disconnect the notebook from the optional port replicator by following the instructions in [“Disconnecting from the port replicator” on page 7](#).
- 3** Turn the notebook over so the bottom is facing up.
- 4** Remove the main and optional secondary batteries by following the instructions in [“Removing the batteries” on page 8](#).
- 5** Turn the notebook over so the top is facing up.
- 6** Remove the keyboard cover by following the instructions in [“Replacing the keyboard cover” on page 26](#).

7 If you are replacing the left hinge cover, go to [Step 8](#).

-OR-

If you are replacing only the right hinge cover, go to [Step 10](#).

8 Remove the keyboard by following the instructions in [“Replacing the keyboard” on page 29](#).

9 Remove the cooling assembly by following the instructions in [“Replacing the cooling assembly” on page 42](#).

10 Open the LCD panel all the way, so it lies flat on the table.

11 Insert the small flat-blade screwdriver or non-marring tool under the bottom of the hinge covers, then carefully pry them up.



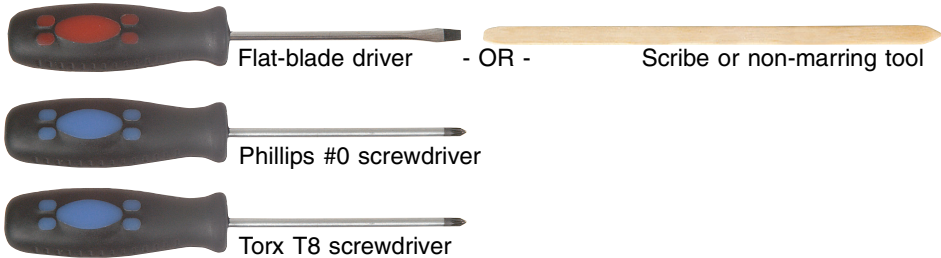
12 Snap the new covers into place over the hinges.

13 Reassemble the notebook.

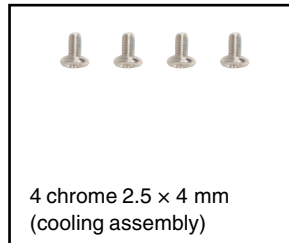
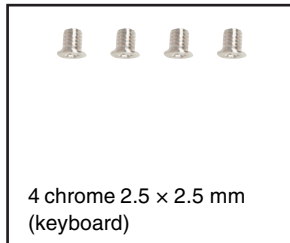


Replacing the LCD panel assembly

Tools you need to complete this task:



Screws removed during this task:



To replace the LCD panel assembly:

- 1 Disconnect the AC adapter and modem and network cables and prepare the notebook by following the instructions in [“Preparing the notebook” on page 6](#).
- 2 Disconnect the notebook from the optional port replicator by following the instructions in [“Disconnecting from the port replicator” on page 7](#).
- 3 Turn the notebook over so the bottom is facing up.
- 4 Remove the main and optional secondary batteries by following the instructions in [“Removing the batteries” on page 8](#).
- 5 If the notebook has IEEE 802.11 wireless networking built in, remove the IEEE 802.11 Mini PCI module by following the instructions in [“Replacing the IEEE 802.11 Mini PCI card” on page 15](#).
- 6 Turn the notebook over so the top is facing up.

- 7** Remove the keyboard cover by following the instructions in [“Replacing the keyboard cover” on page 26](#).
- 8** Remove the keyboard by following the instructions in [“Replacing the keyboard” on page 29](#).
- 9** Remove the cooling assembly by following the instructions in [“Replacing the cooling assembly” on page 42](#).
- 10** Remove both hinge covers by following the instructions in [“Replacing the hinge covers” on page 45](#).
- 11** Remove the four hinge screws that secure the LCD panel to the notebook.

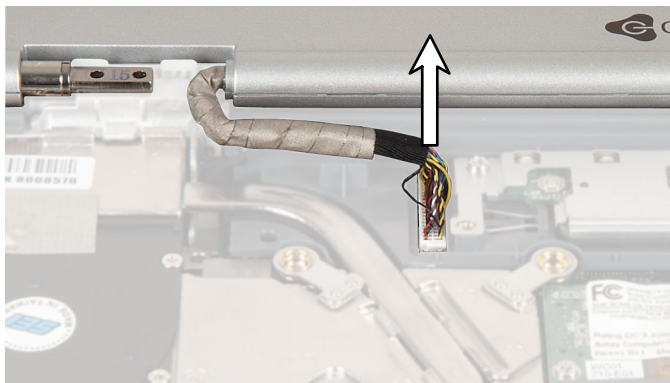


- 12 Use a flat-blade screwdriver or chip puller to carefully unplug the LCD video cable from the notebook. Make sure you grasp the connector, not the cable.

Warning

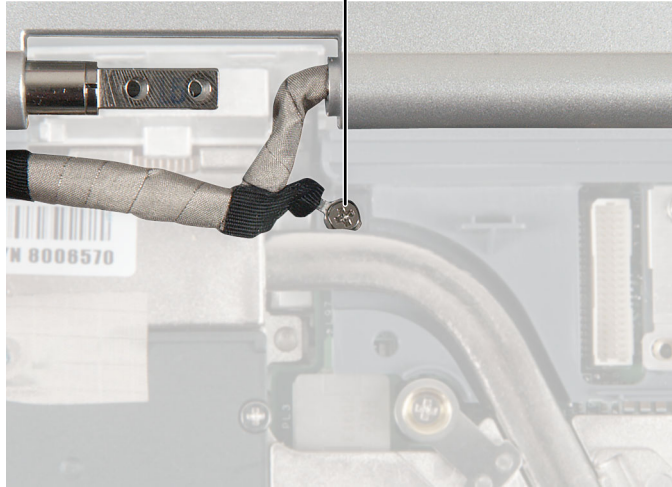


The connector is fragile. When using a flat-blade screwdriver to remove the connector, pry up one side slightly, then pry up the other side slightly. Continue alternating from side-to-side until the connector comes loose.

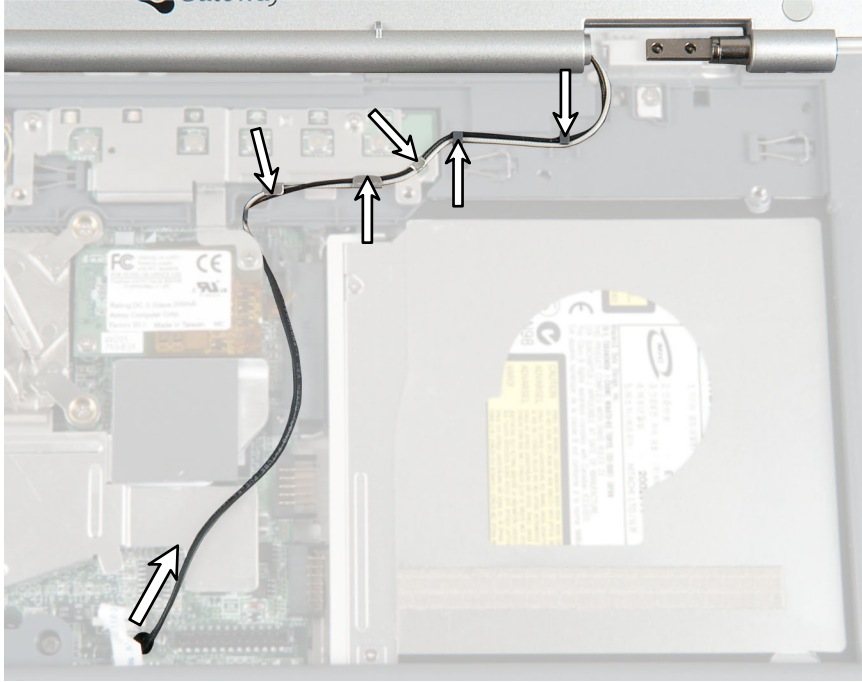


- 13** Loosen the screw holding the grounding wire, then lift the LCD panel grounding wire to remove the screw.

LCD panel grounding screw



- 14** If the notebook has IEEE 802.11 wireless networking built in, carefully pull the detached antenna cables up through the hole in the system board near the touchpad, then carefully pull the cables away from the LED indicator panel shielding.



Warning



The connectors may catch on the system board hole. Be careful not to break the connectors off the antenna cable.

- 15** Lift the LCD panel away from the notebook. The LCD panel assembly is now completely detached from the notebook.
- 16** Place the new LCD panel assembly onto the notebook, then replace the four hinge screws.
- 17** Reattach the grounding cable.
- 18** Thread the antenna cables through the guides on the LED indicator panel shielding, then through the hole in the system board.
- 19** Plug the LCD video cable into the notebook.

20 Reassemble the notebook.

21 If the mini PCI screw was covered by a wireless Ethernet label, replace it.



Caution



Legal requirements dictate that a security screw (or other means) be used to attach the mini-PCI cover to the chassis in a manner that restricts end user access. End users are strictly prohibited from having access to the wireless card. Due to manufacturing process changes, Gateway 450ROG notebooks manufactured after August 7, 2003 require a Torx head security screw to attach the mini-PCI cover.

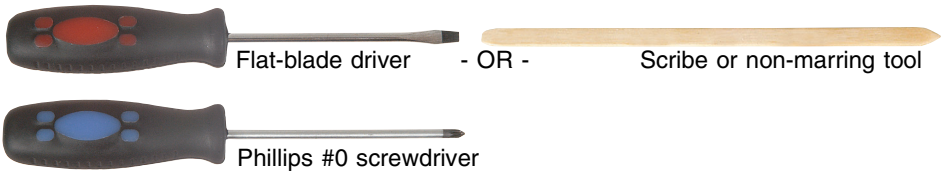
Caution



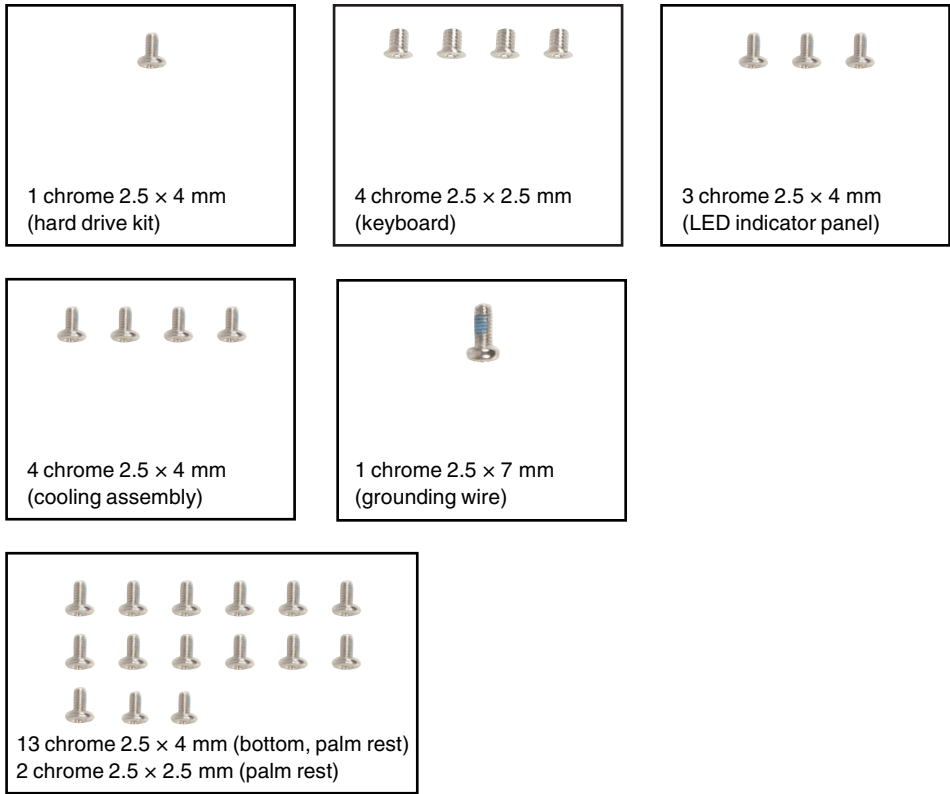
Legal requirements dictate the mini-PCI cover be in place during any and all operation of the notebook's wireless feature.

Replacing the palm rest assembly

Tools you need to complete this task:



Screws removed during this task:

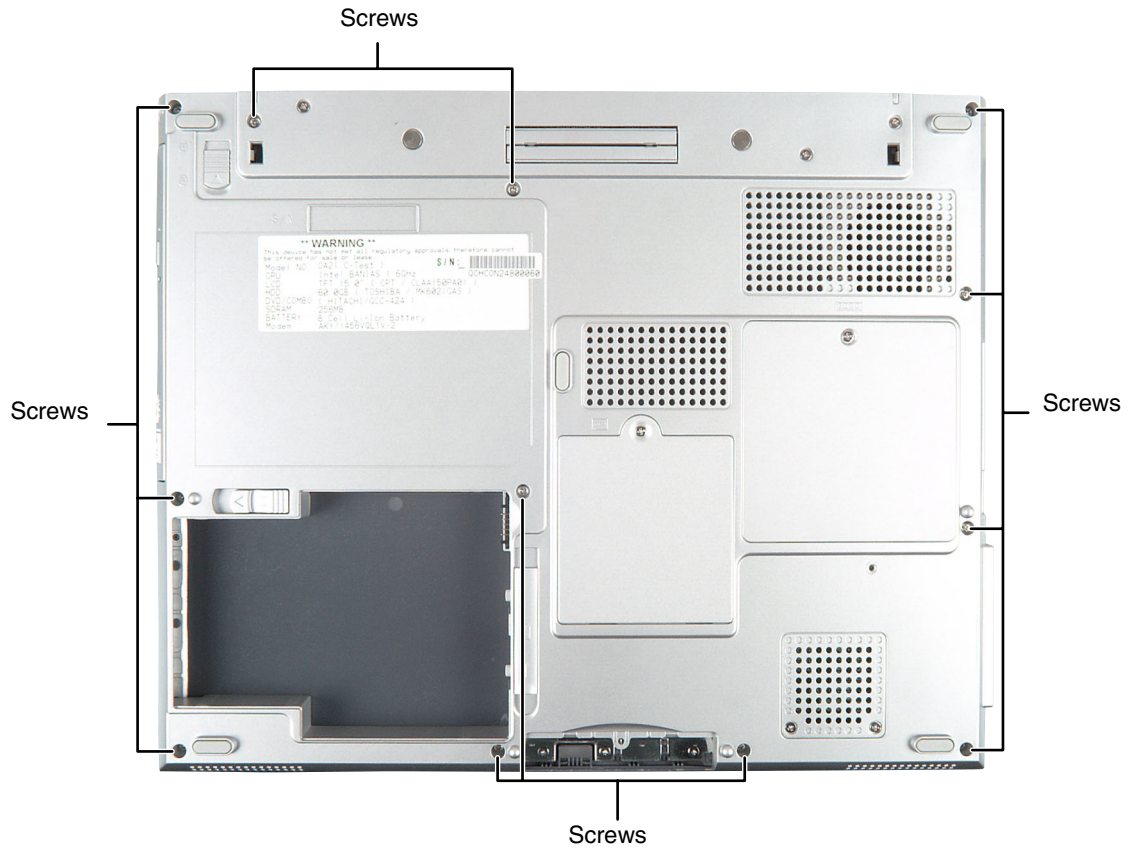




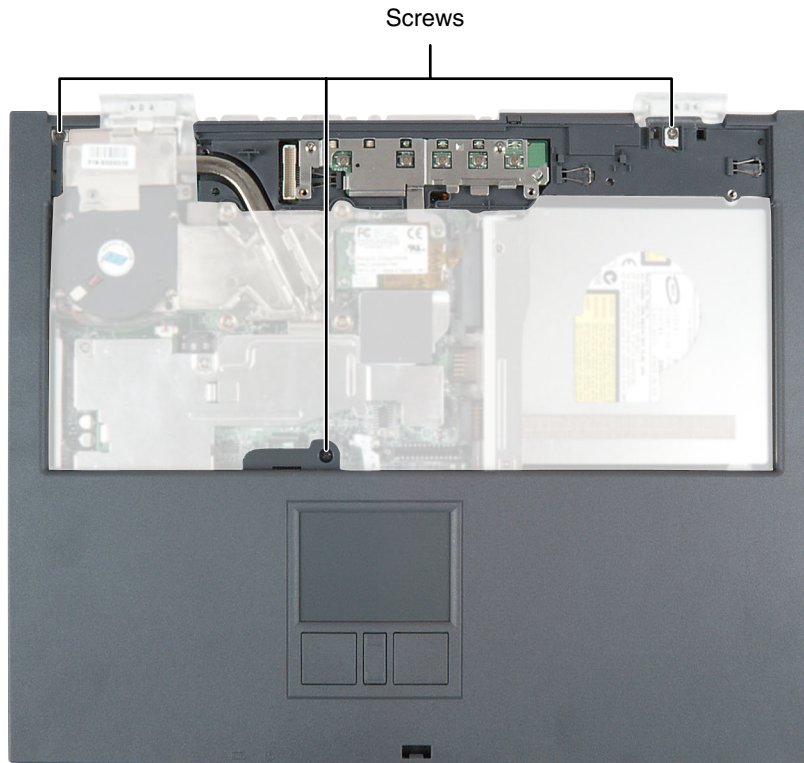
To replace the palm rest assembly:

- 1** Disconnect the AC adapter and modem and network cables and prepare the notebook by following the instructions in [“Preparing the notebook” on page 6](#).
- 2** Disconnect the notebook from the optional port replicator by following the instructions in [“Disconnecting from the port replicator” on page 7](#).
- 3** Turn the notebook over so the bottom is facing up.
- 4** Remove the main and optional secondary batteries by following the instructions in [“Removing the batteries” on page 8](#).
- 5** Remove the hard drive kit by following the instructions in [“Replacing the hard drive kit” on page 20](#).
- 6** Turn the notebook over so the top is facing up.
- 7** Remove the keyboard cover by following the instructions in [“Replacing the keyboard cover” on page 26](#).
- 8** Remove the keyboard by following the instructions in [“Replacing the keyboard” on page 29](#).
- 9** Remove the LED indicator panel by following the instructions in [“Replacing the LED indicator panel” on page 39](#).
- 10** Remove the cooling assembly by following the instructions in [“Replacing the cooling assembly” on page 42](#).
- 11** Remove both hinge covers by following the instructions in [“Replacing the hinge covers” on page 45](#).
- 12** Unplug the LCD video cable from the notebook by following the instructions on [page 49](#).
- 13** Remove the screw holding the LCD grounding wire by following the instructions on [page 50](#).

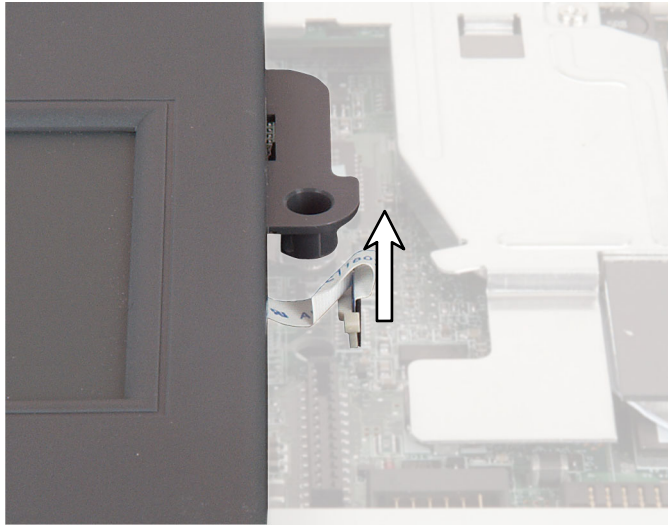
- 14** Turn the notebook over, then remove the twelve screws on the bottom of the notebook.



- 15** Turn the notebook over, then remove the three screws on the top of the notebook.



- 16** Use two fingers to carefully pull up on the touchpad connector tabs. After the connector is in the raised position, carefully pull the cable out of the connector.



- 17** Lift the palm rest assembly completely from the notebook.
- 18** Place the new palm rest assembly onto the notebook, then snap the assembly into place.
- 19** Replace all of the palm rest screws. Use the two shortest screws to secure the top-rear corners of the palm rest, which are near the LCD panel hinges.
- 20** Pull up on the touchpad connector to make sure that it is in the raised position.
- 21** Slide the end of the touchpad cable into the touchpad connector.

Important



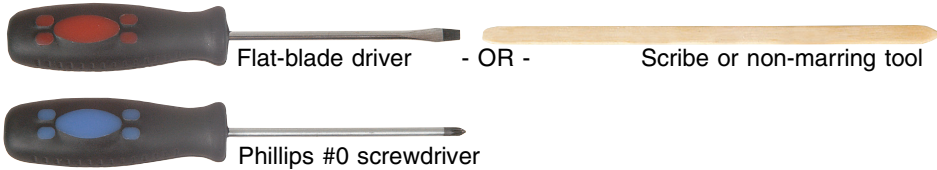
The touchpad cable should slide easily into the touchpad connector. The cable is oriented correctly if it is not twisted.

- 22** Use two fingers to press down on the touchpad connector tabs. This locks the touchpad cable into the touchpad connector.
- 23** Reassemble the notebook.

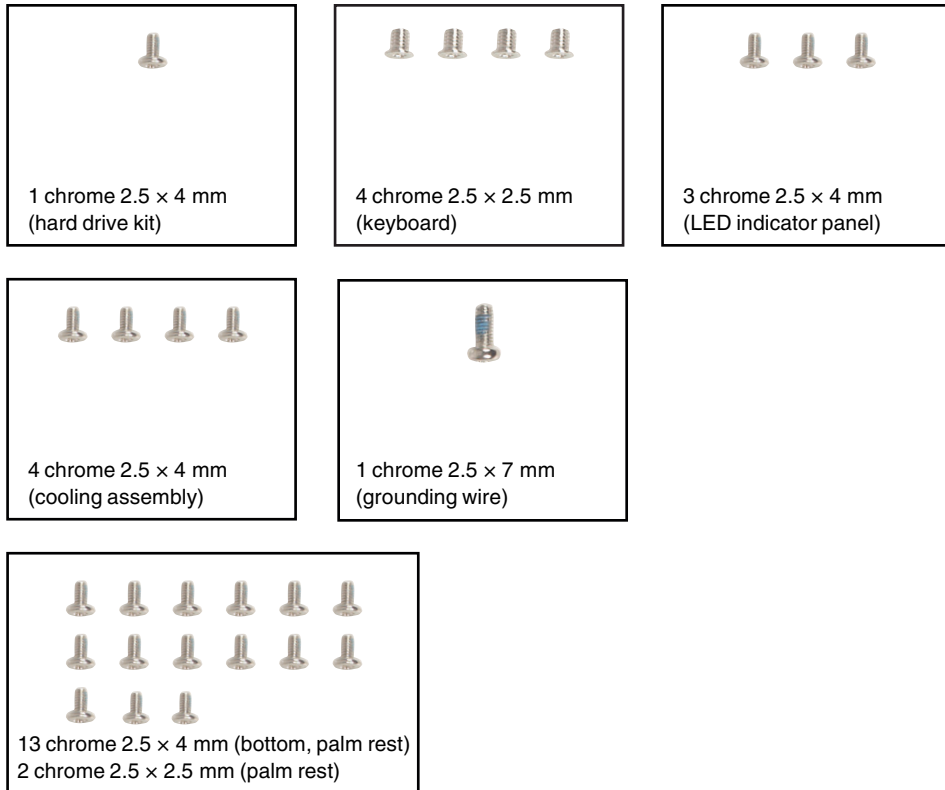


Replacing the CMOS battery

Tools you need to complete this task:



Screws removed during this task:

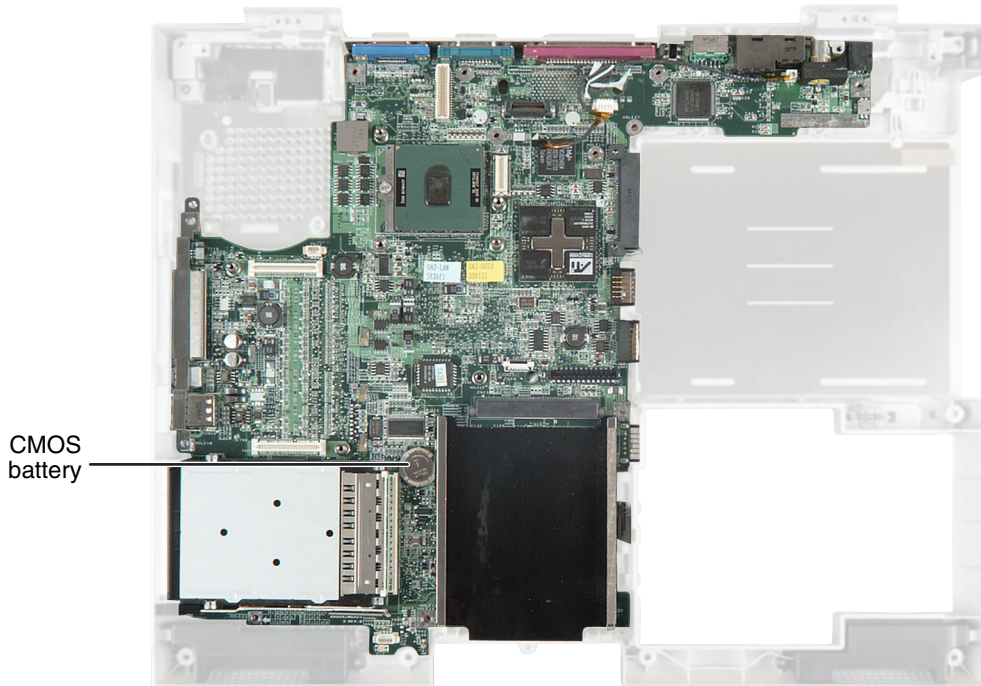




To replace the CMOS battery:

- 1** Disconnect the AC adapter and modem and network cables and prepare the notebook by following the instructions in [“Preparing the notebook” on page 6](#).
- 2** Disconnect the notebook from the optional port replicator by following the instructions in [“Disconnecting from the port replicator” on page 7](#).
- 3** Turn the notebook over so the bottom is facing up.
- 4** Remove the main and optional secondary batteries by following the instructions in [“Removing the batteries” on page 8](#).
- 5** Remove the hard drive kit by following the instructions in [“Replacing the hard drive kit” on page 20](#).
- 6** Turn the notebook over so the top is facing up.
- 7** Remove the keyboard cover by following the instructions in [“Replacing the keyboard cover” on page 26](#).
- 8** Remove the keyboard by following the instructions in [“Replacing the keyboard” on page 29](#).
- 9** Remove the LED indicator panel by following the instructions in [“Replacing the LED indicator panel” on page 39](#).
- 10** Remove the cooling assembly by following the instructions in [“Replacing the cooling assembly” on page 42](#).
- 11** Remove both hinge covers by following the instructions in [“Replacing the hinge covers” on page 45](#).
- 12** Unplug the LCD video cable from the notebook by following the instructions in [Step 12 on page 49](#).
- 13** Remove the screw holding the LCD grounding wire by following the instructions in [Step 13 on page 50](#).
- 14** Remove the palm rest assembly by following the instructions in [“Replacing the palm rest assembly” on page 53](#).

- 15** Locate the old battery on the system board.

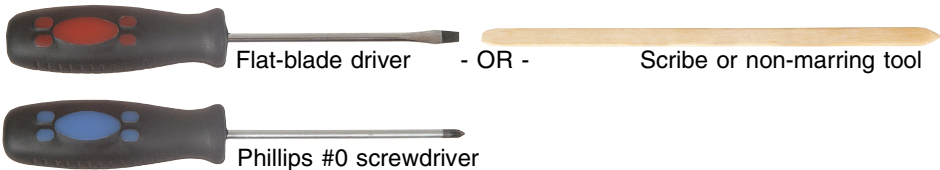


- 16** Insert the small flat-blade screwdriver or non-marring tool under the old battery and gently pry it up until it pops out of the socket.
- 17** Make sure the positive (+) side of the new battery is facing up, then press the battery into the socket until it snaps into place.
- 18** Reassemble the notebook.

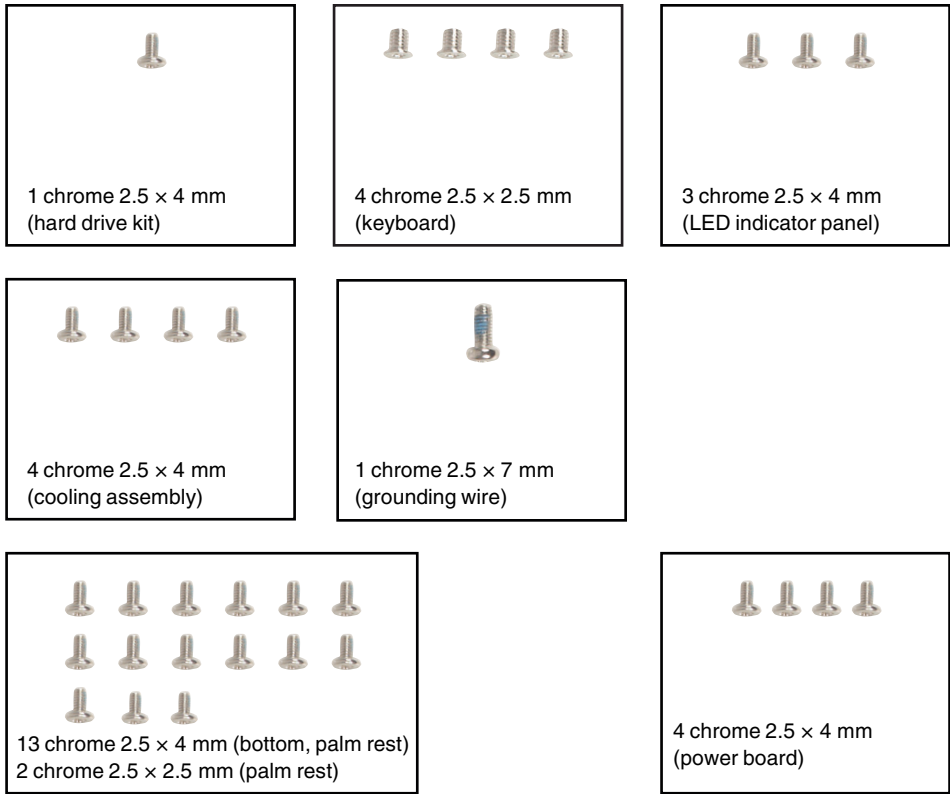


Replacing the power board

Tools you need to complete this task:



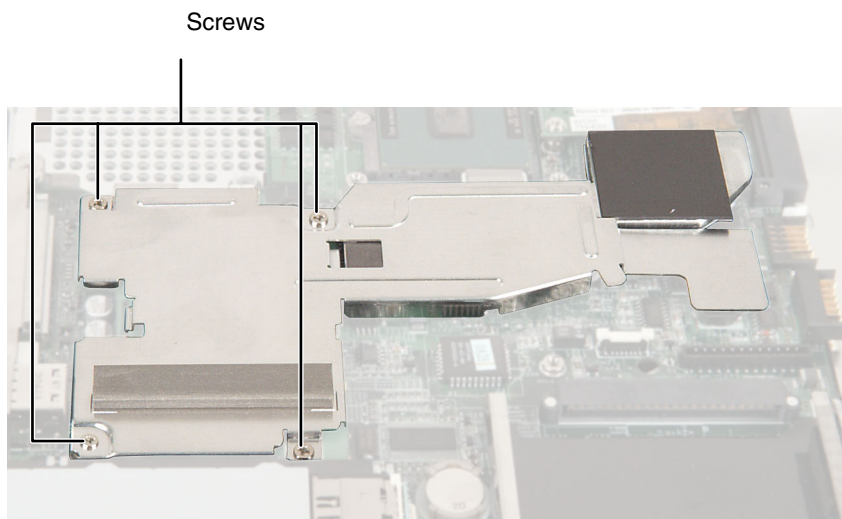
Screws removed during this task:



**To replace the power board:**

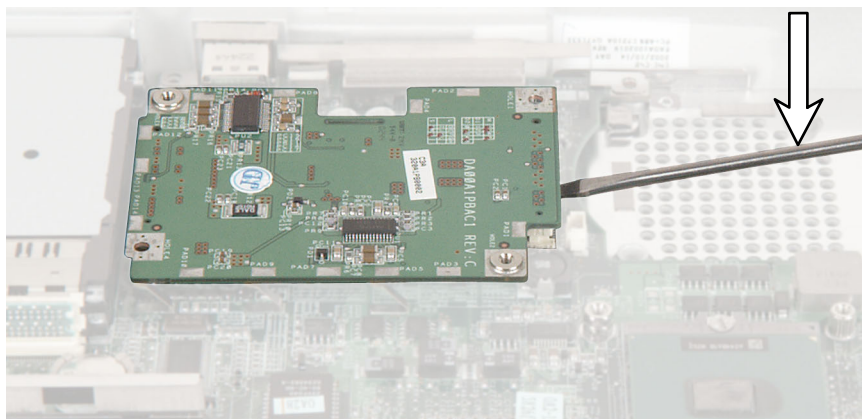
- 1** Disconnect the AC adapter and modem and network cables and prepare the notebook by following the instructions in [“Preparing the notebook” on page 6](#).
- 2** Disconnect the notebook from the optional port replicator by following the instructions in [“Disconnecting from the port replicator” on page 7](#).
- 3** Turn the notebook over so the bottom is facing up.
- 4** Remove the main and optional secondary batteries by following the instructions in [“Removing the batteries” on page 8](#).
- 5** Remove the hard drive kit by following the instructions in [“Replacing the hard drive kit” on page 20](#).
- 6** Turn the notebook over so the top is facing up.
- 7** Remove the keyboard cover by following the instructions in [“Replacing the keyboard cover” on page 26](#).
- 8** Remove the keyboard by following the instructions in [“Replacing the keyboard” on page 29](#).
- 9** Remove the LED indicator panel by following the instructions in [“Replacing the LED indicator panel” on page 39](#).
- 10** Remove the cooling assembly by following the instructions in [“Replacing the cooling assembly” on page 42](#).
- 11** Remove both hinge covers by following the instructions in [“Replacing the hinge covers” on page 45](#).
- 12** Unplug the LCD video cable from the notebook by following the instructions in [Step 12 on page 49](#).
- 13** Remove the screw holding the LCD grounding wire by following the instructions in [Step 13 on page 50](#).
- 14** Remove the palm rest assembly by following the instructions in [“Replacing the palm rest assembly” on page 53](#).

- 15** Remove the four screws that secure the power board EMI shield to the system board.



- 16** Lift the shielding away from the system board.

- 17** Insert the flat-blade screwdriver or non-marring tool under the power board, gently pry it up, and remove it.

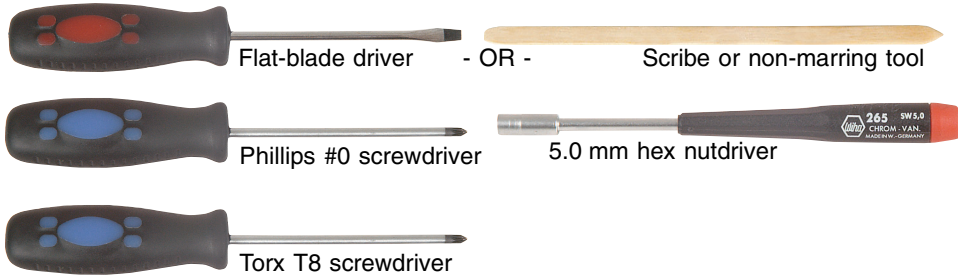


- 18** Align the new power board's screw holes with the holes on the system board, then press the power board into place.
- 19** Replace the power board's EMI shielding, then replace the screws.
- 20** Reassemble the notebook.

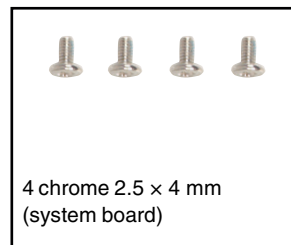
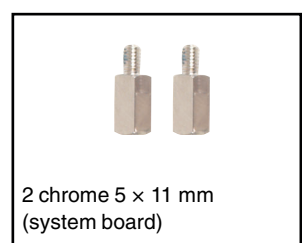
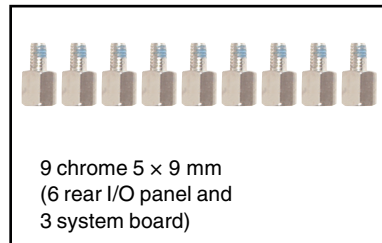
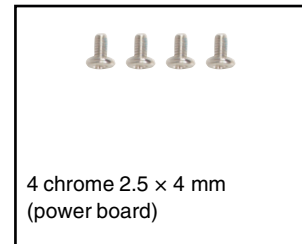
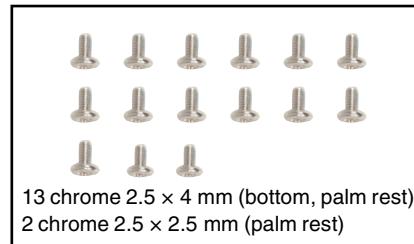
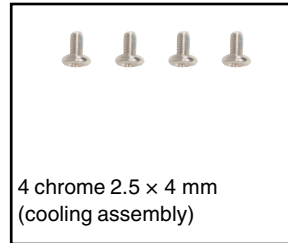
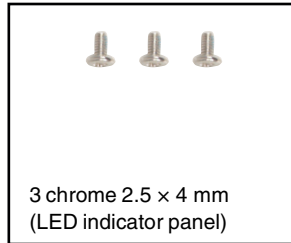
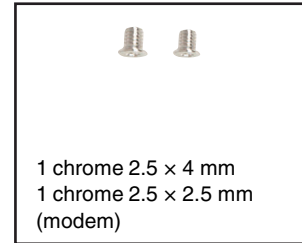
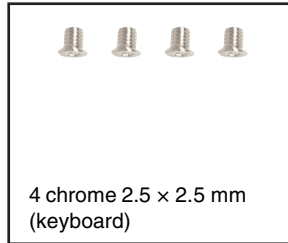
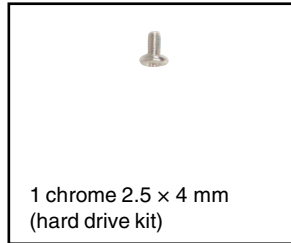


Replacing the system board

Tools you need to complete this task:



Screws removed during this task:

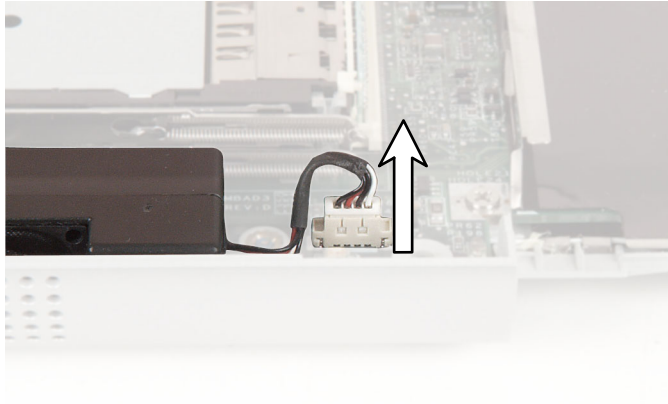




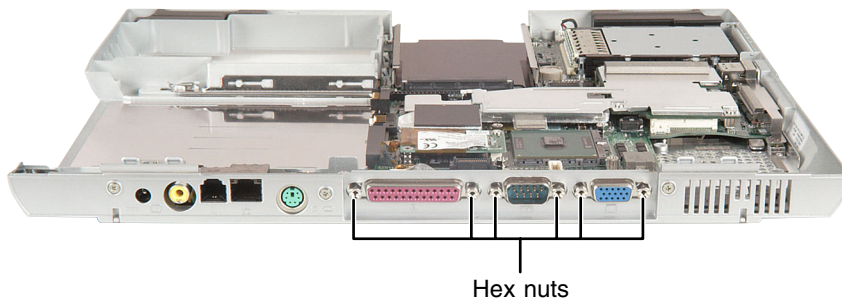
To replace the system board:

- 1** Disconnect the AC adapter and modem and network cables and prepare the notebook by following the instructions in [“Preparing the notebook” on page 6](#).
- 2** Disconnect the notebook from the optional port replicator by following the instructions in [“Disconnecting from the port replicator” on page 7](#).
- 3** Turn the notebook over so the bottom is facing up.
- 4** Remove the main battery by following the instructions in [“Removing the main battery” on page 8](#).
- 5** Remove the optional secondary battery or modular drive by following the instructions in [“Removing the optional secondary battery” on page 9](#).
- 6** Remove the memory modules by following the instructions in [“Adding or replacing memory modules” on page 11](#).
- 7** If the notebook has IEEE 802.11 wireless networking built in, remove the IEEE 802.11 Mini PCI module by following the instructions in [“Replacing the IEEE 802.11 Mini PCI card” on page 15](#).
- 8** Remove the hard drive kit by following the instructions in [“Replacing the hard drive kit” on page 20](#).
- 9** Turn the notebook over so the top is facing up.
- 10** Remove the keyboard cover by following the instructions in [“Replacing the keyboard cover” on page 26](#).
- 11** Remove the keyboard by following the instructions in [“Replacing the keyboard” on page 29](#).
- 12** Remove the modem by following the instructions in [“Replacing the modem” on page 35](#).
- 13** Remove the LED indicator panel by following the instructions in [“Replacing the LED indicator panel” on page 39](#).
- 14** Remove the cooling assembly by following the instructions in [“Replacing the cooling assembly” on page 42](#).
- 15** Remove the hinge covers by following the instructions in [“Replacing the hinge covers” on page 45](#).
- 16** Remove the LCD panel by following the instructions in [“Replacing the LCD panel assembly” on page 47](#).

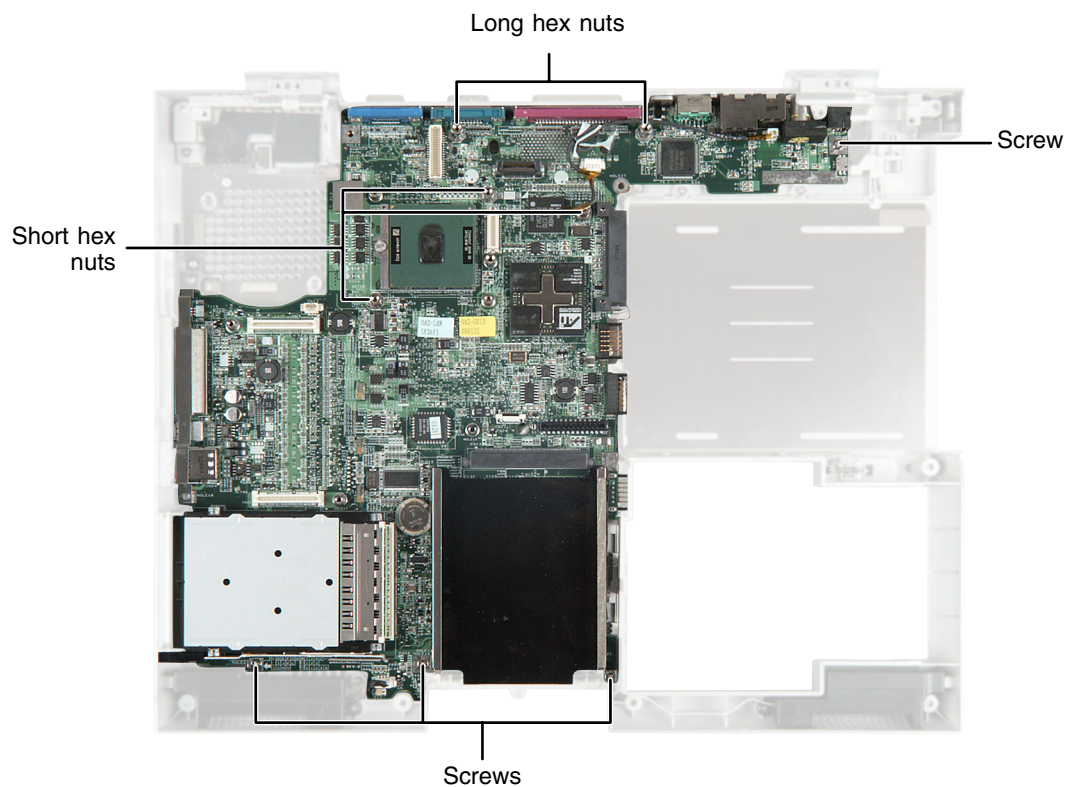
- 17** Remove the palm rest assembly by following the instructions in [“Replacing the palm rest assembly” on page 53](#).
- 18** Remove the power board by following the instructions in [“Replacing the power board” on page 62](#).
- 19** Unplug the speakers from the system board (one connector).



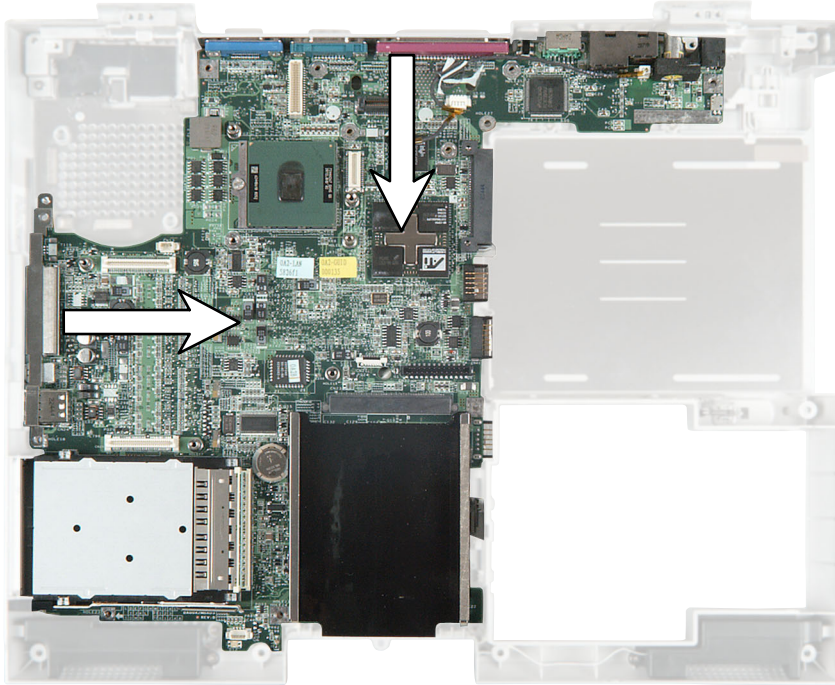
- 20** Remove the six hex nuts on the rear I/O panel.



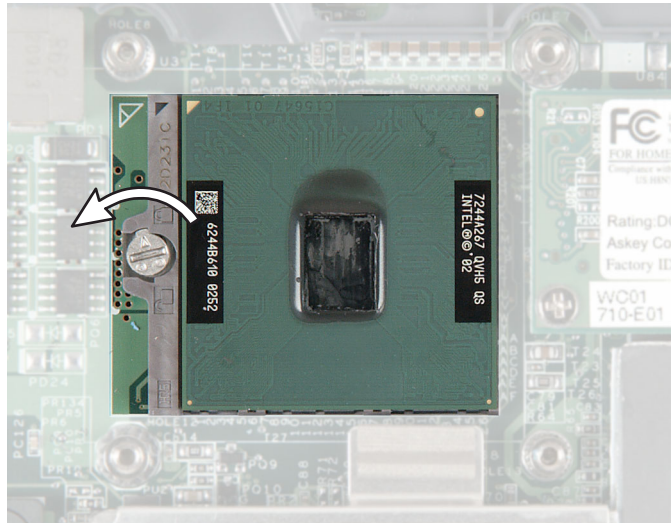
- 21** Remove the four system board screws and the five system board hex nuts.



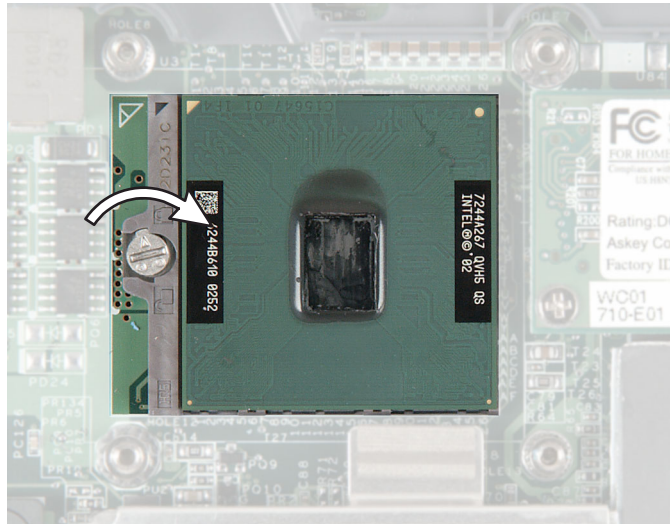
- 22** While pushing in on the PC Card eject button, remove the system board. Make sure that the rear I/O panel clears the bottom of the chassis (shown by the top arrow) and the side audio jacks clear the bottom of the chassis (shown by the left arrow).



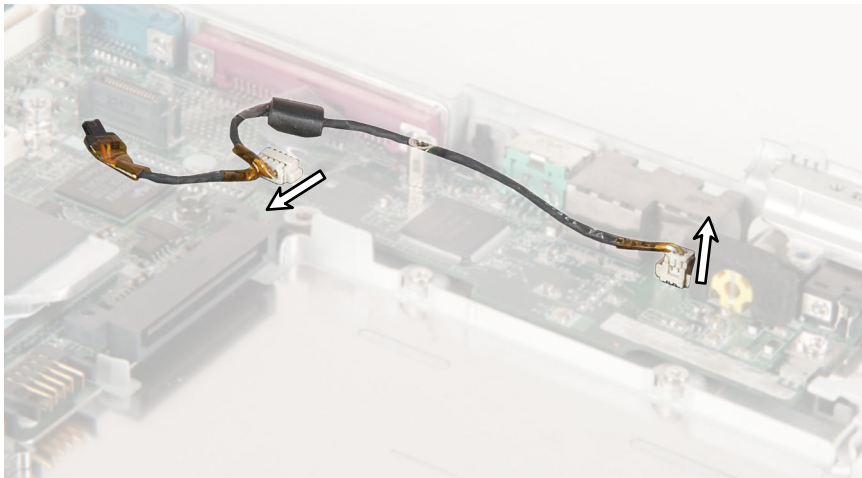
- 23** Use a flat-blade screwdriver to turn the processor lock screw ¼-turn counter-clockwise, then remove the processor from the old system board.



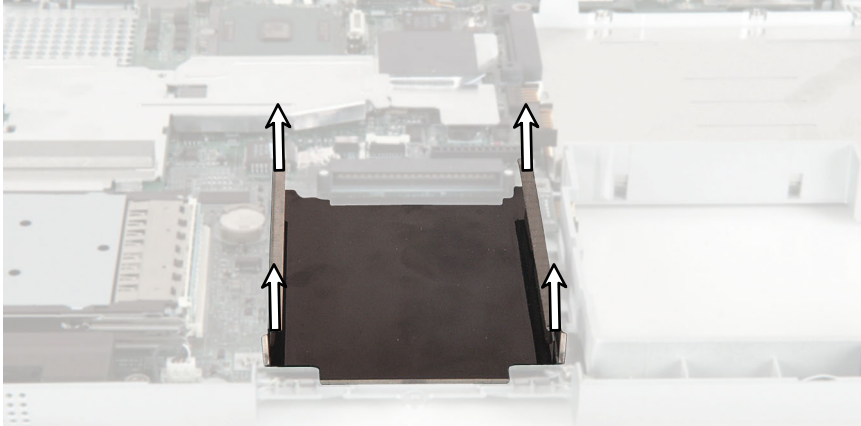
- 24** Install the processor onto the new system board making sure that Pin 1 on the processor (indicated by the silk-screened arrow on the corner of the processor) aligns with Pin 1 on the processor socket (indicated by the absence of a pin hole in the processor socket), then lock the processor in place by using a flat-blade screwdriver to turn the processor lock screw $\frac{1}{4}$ -turn clockwise.



- 25** Remove the modem cable from the old system board and install it on the new board.



- 26** If the new system board does not have a hard drive kit tray, remove the hard drive kit tray from the old system board and install it on the new board. The tray is attached to the system board with adhesive as well as four tabs that protrude through the system board. Be careful not to bend the tray or break the system board.



- 27** Place the new system board into the notebook.
- 28** Replace the four chrome system board screws from the holes marked 6, 22, 23, and 24; the long hex nuts from the holes marked 2 and 3; and the short hex nuts from the holes marked 7, 10, and 12.
- 29** Replace the six rear I/O panel hex nuts.
- 30** Connect the speakers.

- 31** Reassemble the notebook.
- 32** If the mini PCI screw was covered by a wireless Ethernet label, replace it.

**Caution**

Legal requirements dictate that a security screw (or other means) be used to attach the mini-PCI cover to the chassis in a manner that restricts end user access. End users are strictly prohibited from having access to the wireless card. Due to manufacturing process changes, Gateway 450ROG notebooks manufactured after August 7, 2003 require a Torx head security screw to attach the mini-PCI cover.

Caution

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

MAN SYS 450 ROG SERVICE GDE R1 7/03



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