GATEWAY CONVERTIBLE NOTEBOOK

SERVICEGUIDE

Gateway®

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Replacing convertible notebook components

- Identifying the convertible notebook model
- Identifying components
- Preparing your work space
- Preventing static electricity discharge
- Preparing the convertible notebook
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- Adding or replacing memory modules
- Replacing the cooling assembly
- Replacing the processor
- Replacing the IEEE 802.11 wireless card
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- Replacing the system board
- Replacing the modem
- Replacing the TPM module (select models)
- Replacing the TPM module (select models)

Important
The color of your convertible notebook may vary from the pictures in this service guide.

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 convertible notebook's general maintenance, technical support, safety notices, and regulatory notices, see the convertible 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 convertible notebooks:

- CX200 series
- CX2000 series
- M280
- M285
- S-7200
- TA1
- TA6
- TA7

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

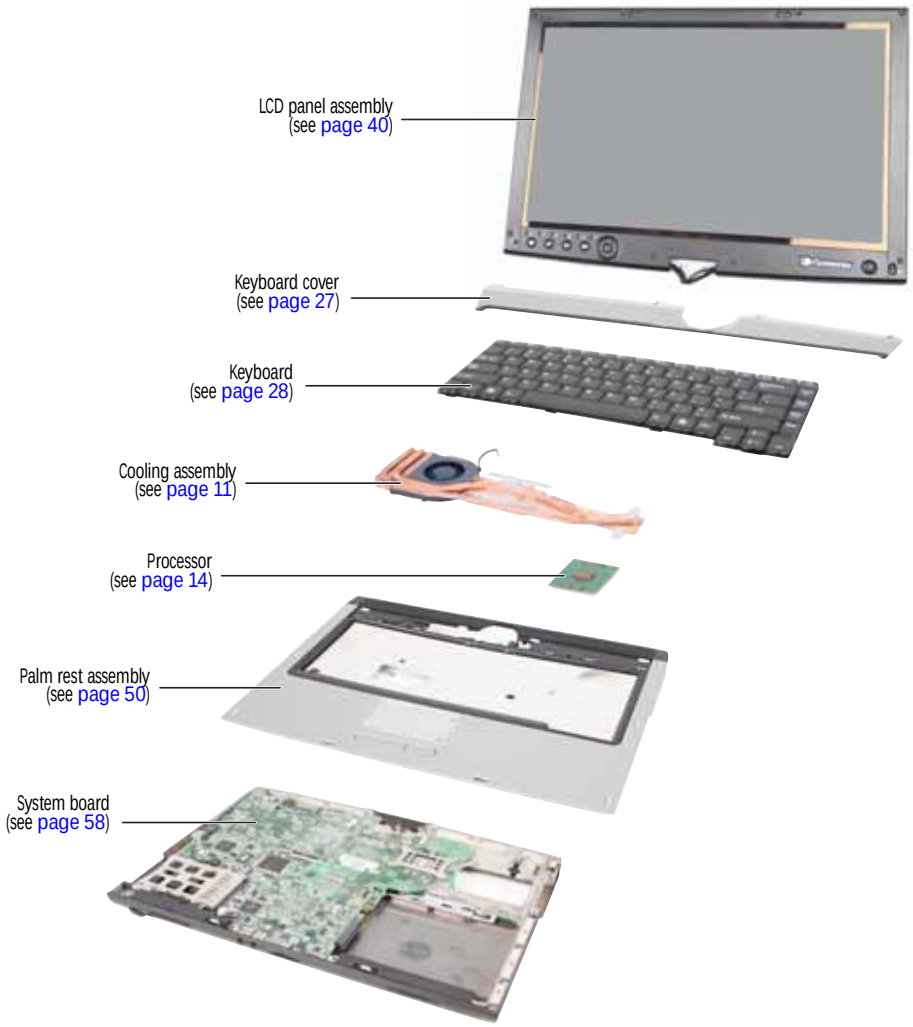
Identifying the convertible notebook model

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

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

Identifying components

Use this chart to identify the main components of the convertible notebook. For a complete list of replaceable parts, see “Contents” on page i.



Preparing your work space

Before performing maintenance on the convertible notebook, make sure that your work space and the convertible 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 convertible 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 convertible 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 convertible notebook, remove the main and optional secondary 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 convertible notebook.

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

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

Before performing maintenance on the convertible 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 convertible 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 convertible notebook

To prepare the convertible notebook for maintenance:

1. Make sure that the disc drive is empty.
2. Turn off the convertible notebook.
3. Make sure the LCD panel is in notebook mode, then close the LCD panel.
4. Disconnect your convertible notebook from the optional port replicator.
5. Disconnect the AC adapter, modem cable, and network cable, if connected to the convertible notebook.
6. Disconnect all peripheral devices connected to the convertible notebook and remove any PC Cards and memory cards.
7. Remove the main and optional secondary batteries. For more information, see "Removing the batteries" on page 5.

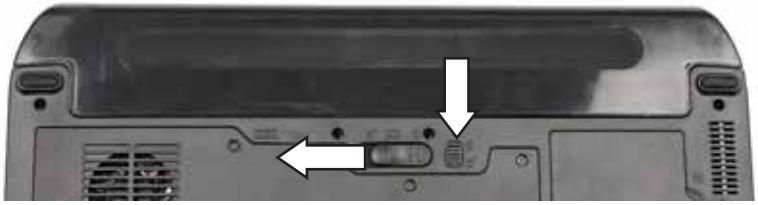
■

Removing the batteries

Removing the main battery

To remove the main battery:

1. Turn the convertible notebook over so the bottom is facing up.
2. Slide the battery lock to the unlocked position , then slide the battery release latch.



3. Slide the battery out of the bay.

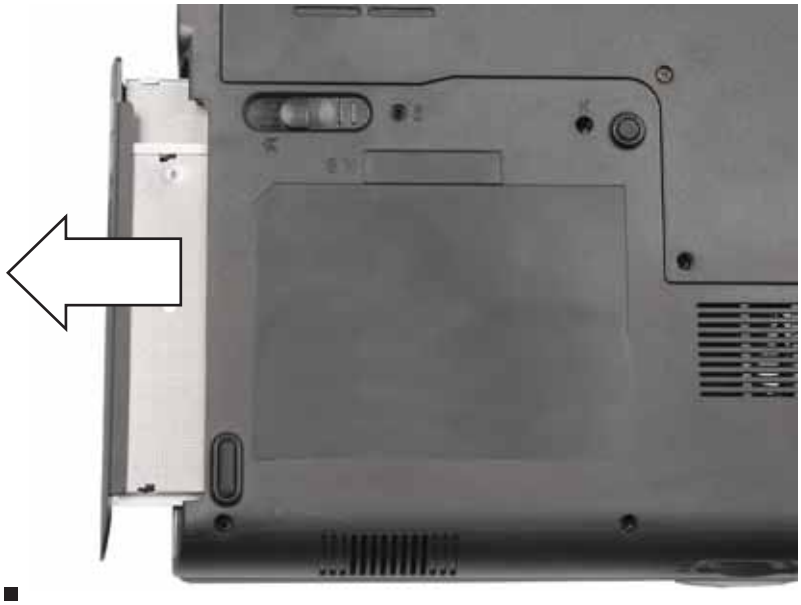
■

Removing the optional secondary battery

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

1. Remove the modular bay lock screw (if one is present), then slide and hold the module bay latch. The battery may move out slightly.

2. Slide the battery out.



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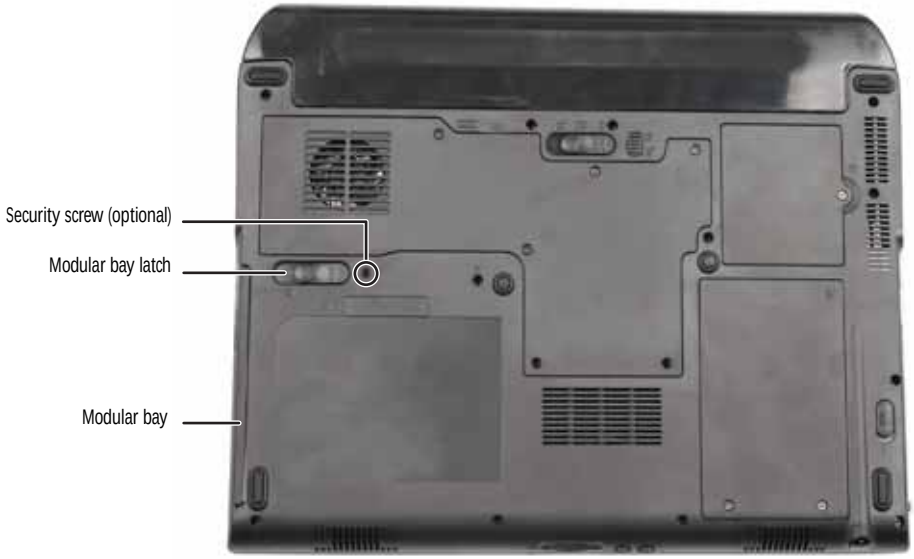
Replacing a bay module

Tools you need to complete this task:

Phillips #0 screwdriver

Screws removed during this task:

1 black 2.5*8.0 (Optional bay module security screw)



To replace a bay module:

1. If you are removing a drive, make sure that there is no disc in it.
2. Complete the steps in “Preparing the convertible notebook” on page 5.
3. Turn the convertible notebook over so the bottom is facing up.

4 Remove the modular bay lock screw (if one is present), then slide and hold the module bay latch. The drive may move out slightly.

5 Slide the drive out.

6 Firmly push the new drive straight into the bay until the latch clicks into place.

7 Replace the module bay lock screw.

■

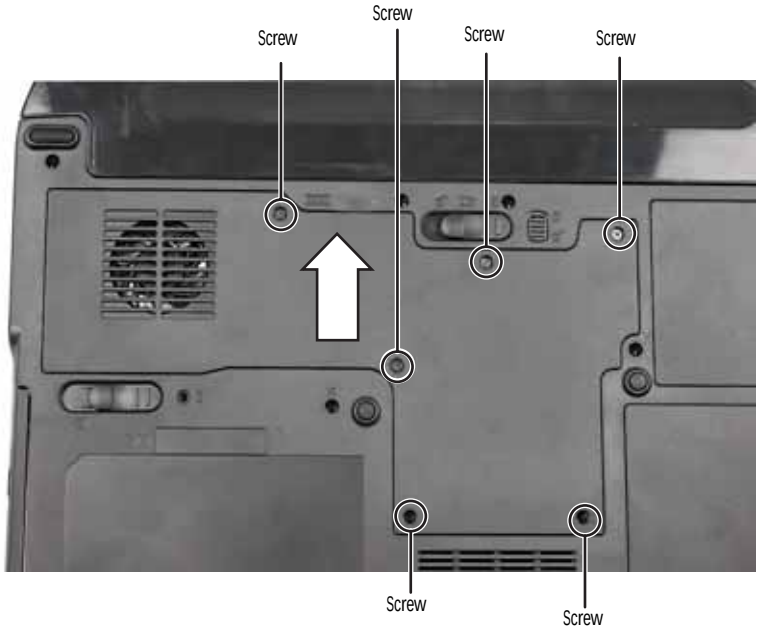
Adding or replacing memory modules

Important
Use only memory modules designed for this Gateway convertible notebook.

Tools you need to complete this task:

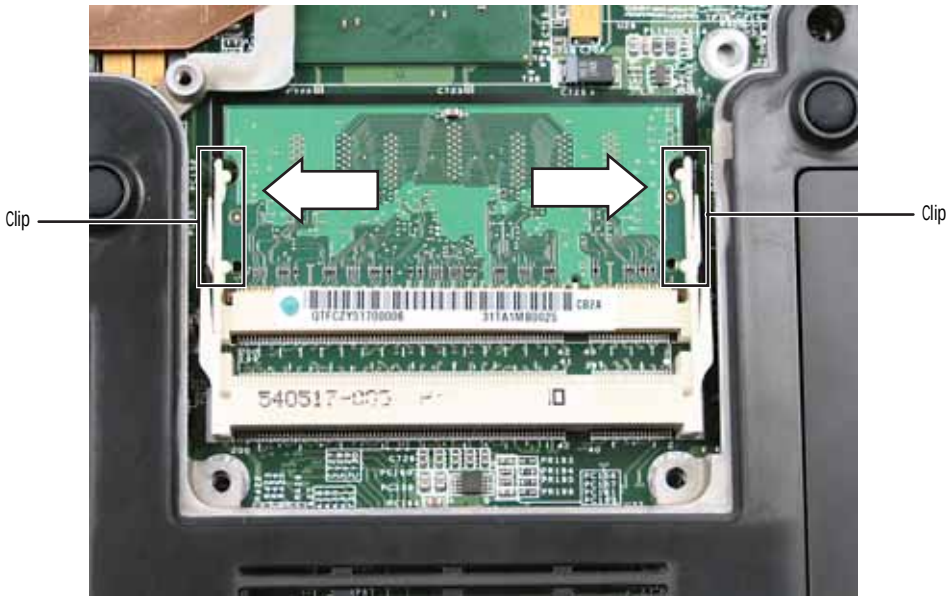
▶ **To add or replace memory modules:**

1. Complete the steps in "Preparing the convertible notebook" on page 5.
2. Loosen the screws that secure the memory cover. (These screws cannot be removed.)

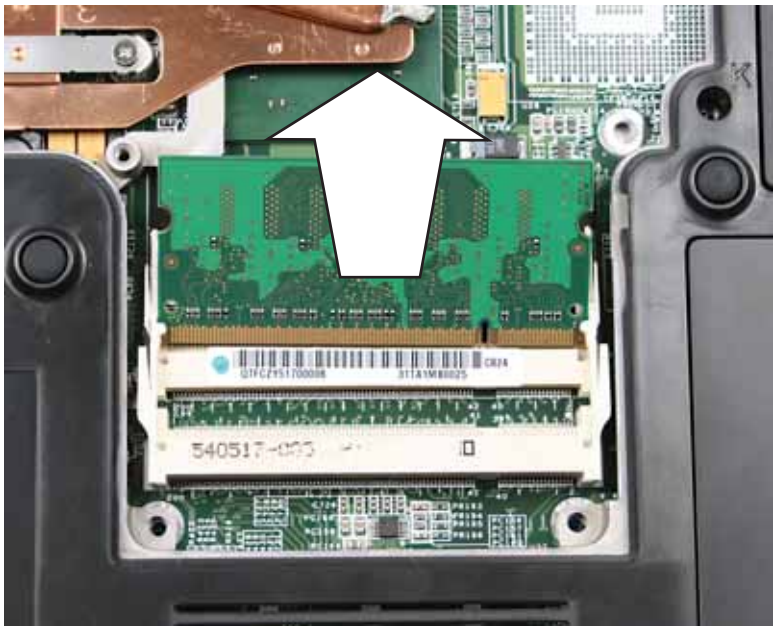


3. Remove the memory bay cover. Be careful not to break off the tabs located on the bottom of the cover. If the cover does not remove easily, wiggle the cover to loosen it.

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



5 Pull the module out of the slot.



6 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.

7 Press the card down until it clicks into place.

8 Replace the memory bay cover, then tighten the cover screws.

■

Replacing the cooling assembly

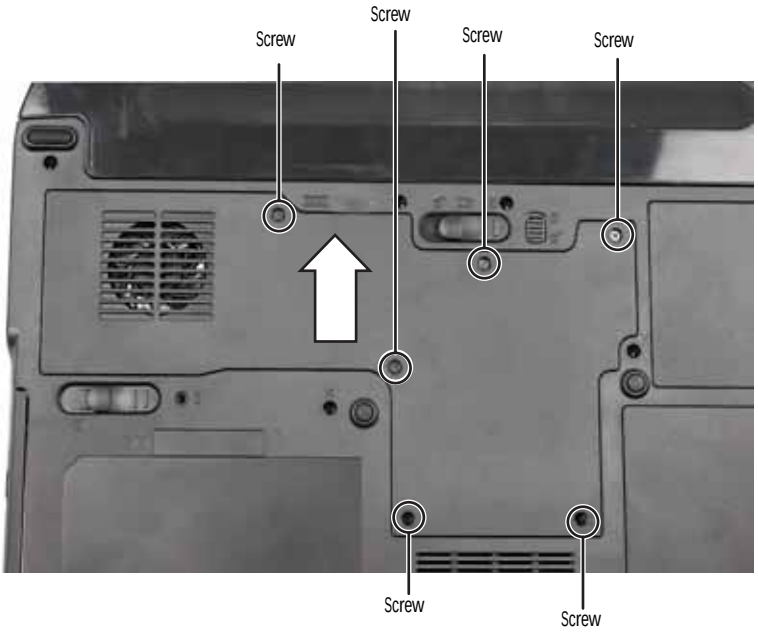
Tools you need to complete this task:

Additional materials you need to complete this task:

- X-23-7762 thermal grease

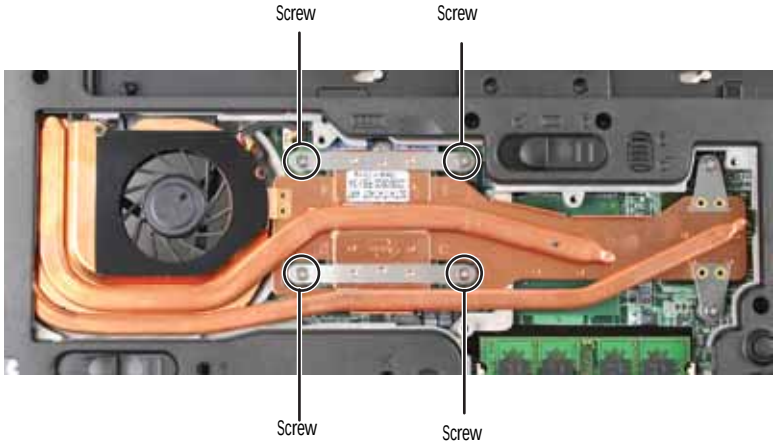
▶ **To replace the cooling assembly:**

1. Complete the steps in "Preparing the convertible notebook" on page 5.
2. Loosen the screws that secure the cooling assembly bay cover. (These screws cannot be removed.)



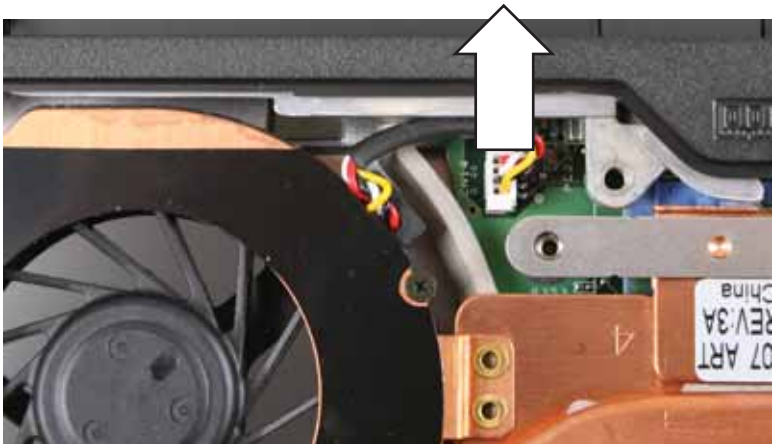
3 Remove the cooling assembly bay cover. Be careful not to break off the tabs located on the bottom of the cover. If the cover does not remove easily, wiggle the cover to loosen it.

4 Loosen the four screws that secure the cooling assembly to the system board. (These screws cannot be removed.) 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).

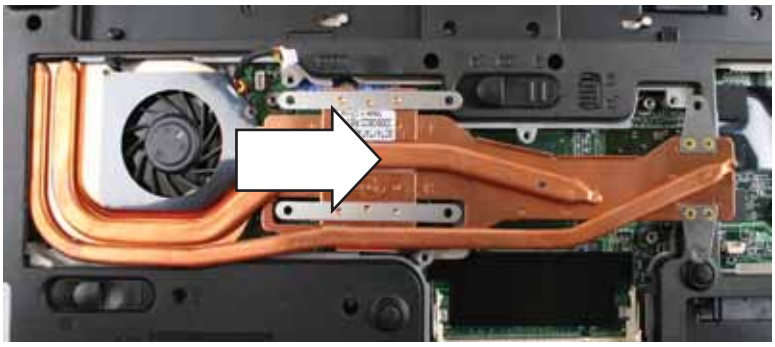


5 Loosen the two remaining optional screws that connect the cooling assembly to the system board. (These screws cannot be removed.)

6 Disconnect the fan from the system board.



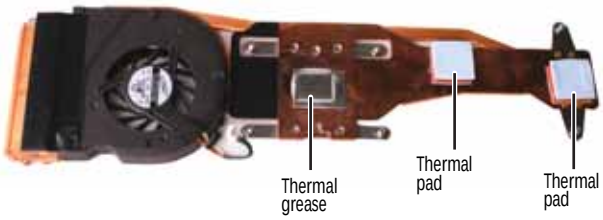
7 At the same time as you lift, move the cooling assembly away from the side of the convertible notebook.



8 Remove any thermal grease residue from the processor using a soft cloth and isopropyl alcohol.

9 Place new thermal grease on the processor. Use only enough to cover the CPU die.

10 Make sure thermal pads are placed between the cooling assembly and other components as shown.



11 Insert the new cooling assembly into the convertible notebook.

12 Connect the fan to the system board.

13 Tighten the two optional screws that connect the cooling assembly to the system board.

14 Tighten the 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).

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

15 Replace the cooling assembly bay cover, then tighten the cover screws.

■

Replacing the processor

Tools you need to complete this task:

Phillips #0 screwdriver

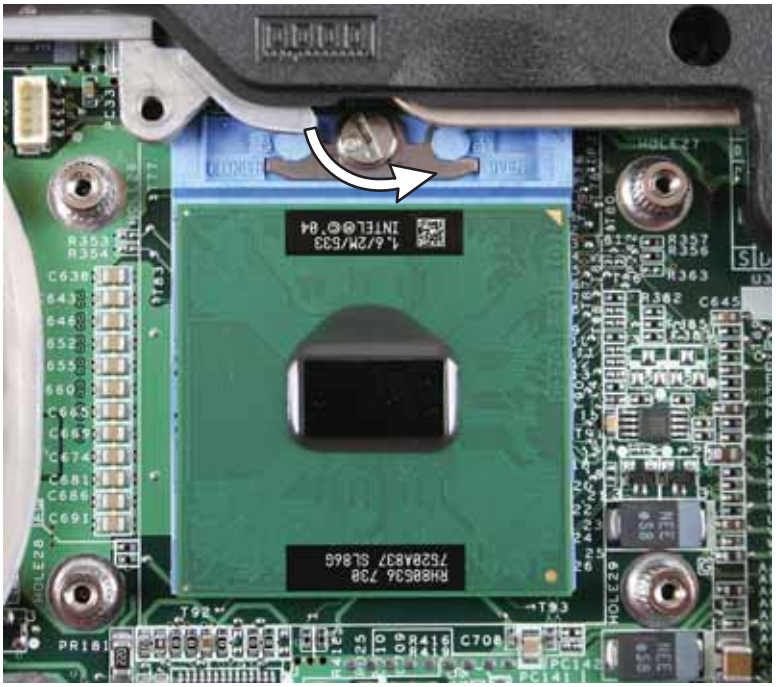
Flat-blade driver

Additional materials you need to complete this task:

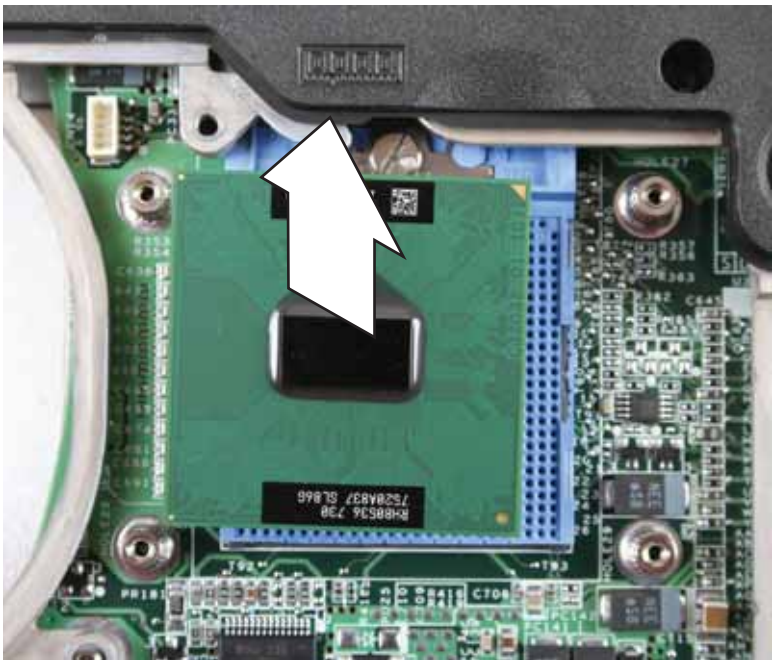
- X-23-7762 thermal grease

To replace the processor:

1. Complete the steps in "Preparing the convertible notebook" on page 5.
2. Remove the cooling assembly by following the steps in "Replacing the cooling assembly" on page 11.
3. Use a flat-blade screwdriver to turn the processor lock screw 1/4-turn counter-clockwise.



4 Remove the old processor from the system board.

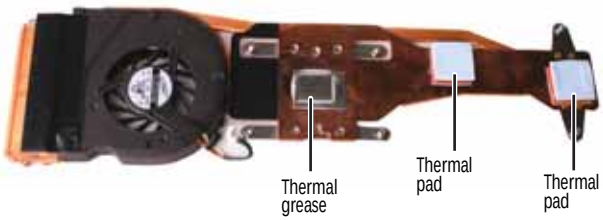


5 Install the new processor onto the system board making sure that Pin 1 on the processor (indicated by the silk-screened arrow on the corner of the processor) aligns with Pin 1 on the processor socket (indicated by the absence of a pin hole in the processor socket), then use a flat-blade screwdriver to turn the processor lock screw 1/4-turn clockwise.

6 Remove any thermal grease residue from the cooling assembly using a soft cloth and isopropyl alcohol.

7 Place new thermal grease on the processor. Use only enough to cover the CPU die.

8 Make sure thermal pads are placed between the cooling assembly and other components as shown.



9 Replace the cooling assembly by following the instructions in "Replacing the cooling assembly" on page 11.

■

Replacing the IEEE 802.11 wireless card

Tools you need to complete this task:

Phillips #0 screwdriver

Screws removed during this task:

2 chrome 2.0*3.0 (IEEE 802.11 wireless card) Select models only

▶ **To replace the IEEE 802.11 wireless card:**

1 Complete the steps in "Preparing the convertible notebook" on page 5.

2 Loosen the screw that secures the wireless cover. (This screw cannot be removed.)

3 Remove the wireless bay cover. Be careful not to break off the tabs located on the bottom of the cover. If the cover does not remove easily, wiggle the cover to loosen it.

4 Unplug the antenna cables. Note which color cable is connected to each of the connectors.

Important
The number of antenna cables varies by the type of wireless network used by the convertible notebook. IEEE 802.11N cards typically have three antenna cables. Other types of wireless network cards typically have two antenna cables. Some convertible notebook models do not support three antenna cables.

5 Move the antenna cables out of the way.

6 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 screws, remove the screws.

7 Pull the card out of the slot.

8 Hold the new card at a 30-degree angle and press 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.

9 Move the antenna cables out of the way.

10 Press the card down until it clicks into place.

-OR-

Press the card down, then replace the screws removed in Step 6.

11 Reattach the antenna cables to the connectors.

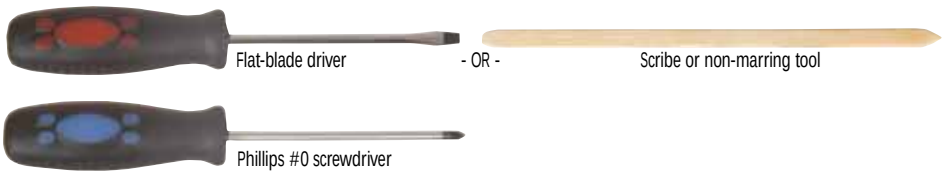
12 Replace the wireless bay cover, then tighten the cover screw.

■

Replacing the CMOS battery

Important
Use only CMOS batteries designed for this Gateway convertible notebook.

Tools you need to complete this task:



Screws removed during this task:

2 chrome 2.0*3.0 (IEEE 802.11 wireless card) Select models only

To replace the CMOS battery:

1. Complete the steps in "Preparing the convertible notebook" on page 5.
2. Open the wireless bay by following the instructions in "Replacing the IEEE 802.11 wireless card" on page 16. If your convertible notebook has a wireless card, remove it.
3. Locate the old battery on the system board.

4. 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.
5. Make sure the positive (+) side of the new battery is facing up, then press the battery into the socket until it snaps into place.
6. If the convertible notebook has wireless networking built in, replace the wireless card by following the steps in "Replacing the IEEE 802.11 wireless card" on page 16.
7. Replace the wireless bay cover by following the steps in "Replacing the IEEE 802.11 wireless card" on page 16.

■

Replacing the hard drive

Tools you need to complete this task:

Screws removed during this task:

1 chrome 2.5*5.0 (Hard drive)	4 chrome 3.0*0.5+3.5I (Hard drive bracket)

▶ **To replace the hard drive:**

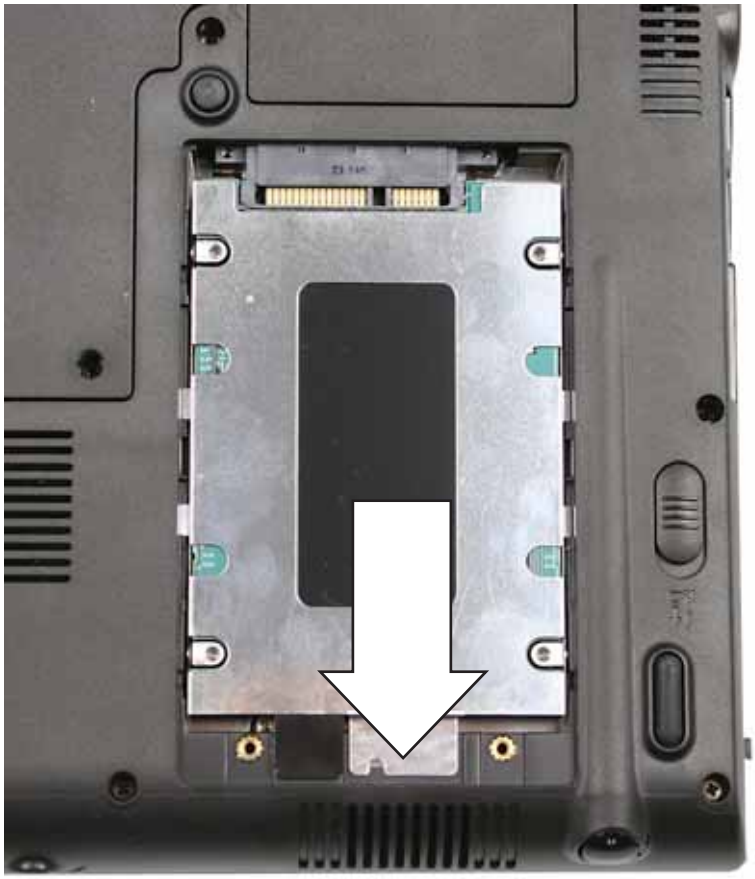
1 Complete the steps in “Preparing the convertible notebook” on page 5.

2 Loosen the screws that secure the hard drive bay cover. (These screws cannot be removed.)

3 Remove the hard drive bay cover. Be careful not to break off the tabs located on the bottom of the cover. If the cover does not remove easily, wiggle the cover to loosen it.

4 Remove the hard drive screw.

5 Slide the old hard drive kit out of the convertible notebook.



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

7 Insert the new drive into the bracket, label side up, so the screw holes line up.

8 Replace the four screws that were removed in Step 6.

9 Slide the new hard drive into your convertible notebook, then replace the screw that was removed in Step 4.

10 Replace the hard drive bay cover, then tighten the cover screws.

■

Replacing the hinge covers

Tools you need to complete this task:

Flat-blade driver

- OR -

Scribe or non-marring tool

▶ **To replace the hinge covers:**

1. Complete the steps in “Preparing the convertible notebook” on page 5.
2. Turn the convertible notebook over so the top is facing up.
3. Insert the small flat-blade screwdriver or non-marring tool under the bottom of the back hinge cover, then carefully pry it up.

4. Open the LCD panel to the fully open position, insert the small flat-blade screwdriver or non-marring tool under the bottom of the front hinge cover, then carefully pry it up.

5. Snap the new front cover into place over the hinge, then snap the back cover into place.

■

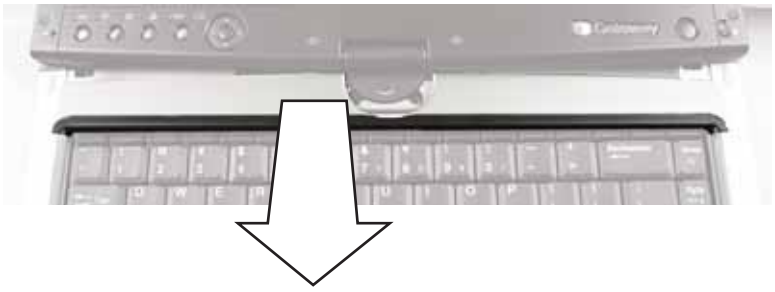
Replacing the keyboard cover

Tools you need to complete this task:

▶ **To replace the keyboard cover:**

1. Complete the steps in "Preparing the convertible notebook" on page 5.
2. Turn the convertible notebook over so the top is facing up.
3. Open the LCD panel to the fully open position.
4. Insert the small flat-blade screwdriver under the bottom of the keyboard cover between the PAUSE and INSERT keys and gently pry it up.

5. Insert the small flat-blade screwdriver under the bottom of the keyboard cover between the F1 and F2 keys and gently pry it up.
6. Remove the keyboard cover from the convertible notebook by pulling the cover toward you and at the same time lifting its front to clear the keyboard. You will hear small snapping sounds as the cover comes away from the convertible notebook. Be careful not to break off the tabs located on the bottom of the cover.



7. Slide the tabs on the bottom side of the new cover under the convertible notebook frame.
8. Press down on the cover in several places to make sure that it is correctly mounted. The cover is correctly mounted when you can run your finger along the cover and find no loose spots. The cover should be flat all the way across.

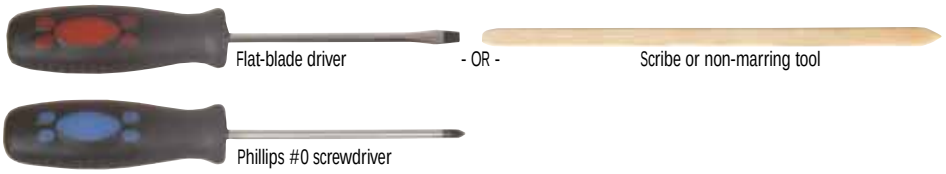
Caution
If the cover is not correctly replaced, the convertible notebook could be damaged when you try to close the LCD panel.

9. Close the LCD panel.

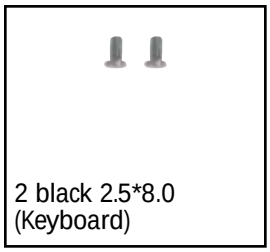
■

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 convertible notebook" on page 5.
2. Remove the two bottom keyboard screws.

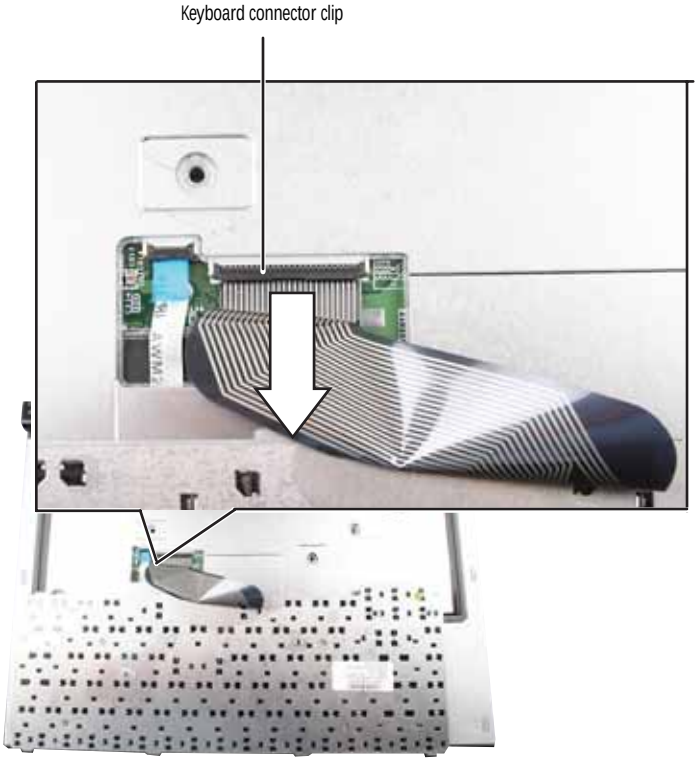
Tip
The screw holes are marked with a K.

3. Remove the keyboard cover by following the steps in "Replacing the keyboard cover" on page 27.

4 Lift the back edge of the keyboard slightly, then slowly slide it toward the LCD panel to release the keyboard retaining tabs located on the front edge of the keyboard.

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

6 Swing the black keyboard connector clip up, then lift the cable out of the connector. Be careful not to touch or damage any other components.



7 Place the new keyboard on your convertible notebook.

8 Make sure the black keyboard connector clip is up, insert the cable into the connector, then swing the clip down to lock the connector in place.

Important
The keyboard cable is correctly oriented if it is not twisted.

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

10 Gently press the keyboard down until it is flat all the way across. The keyboard should easily fall into place. Be careful to not damage the LCD panel.

11 Replace the keyboard cover by following the steps in "Replacing the keyboard cover" on page 27.

12 Close the LCD panel.

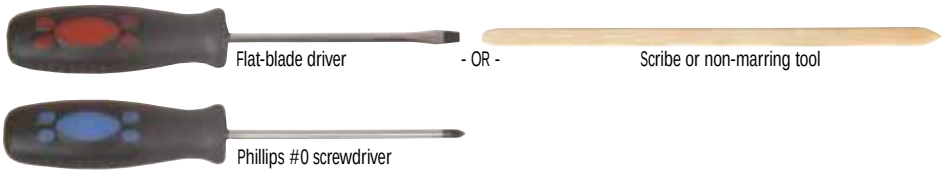
13 Turn your convertible notebook over so the bottom is facing up.

14 Replace the screws removed in Step 2.

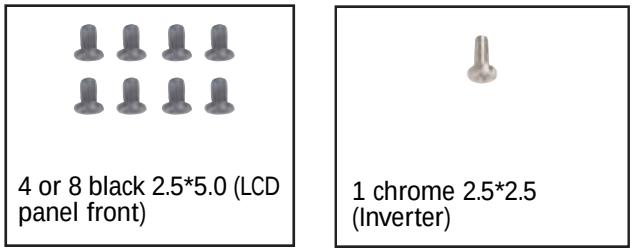
■

Replacing the inverter

Tools you need to complete this task:



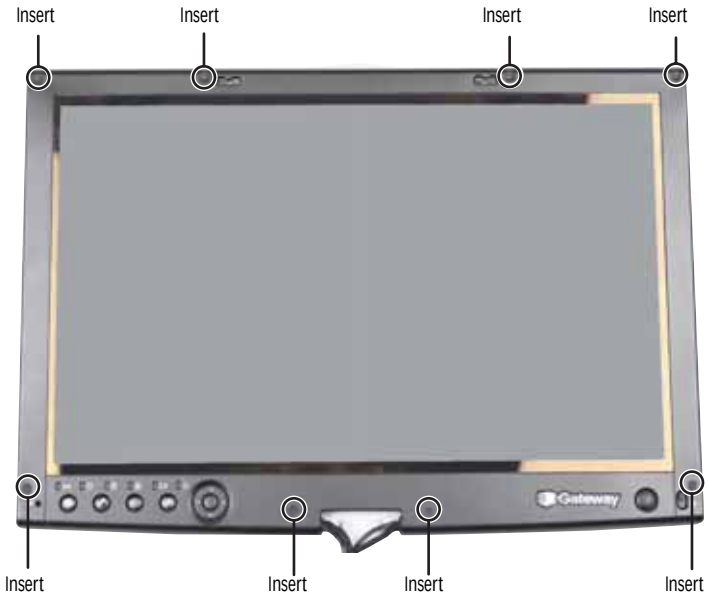
Screws removed during this task:



To replace the inverter:

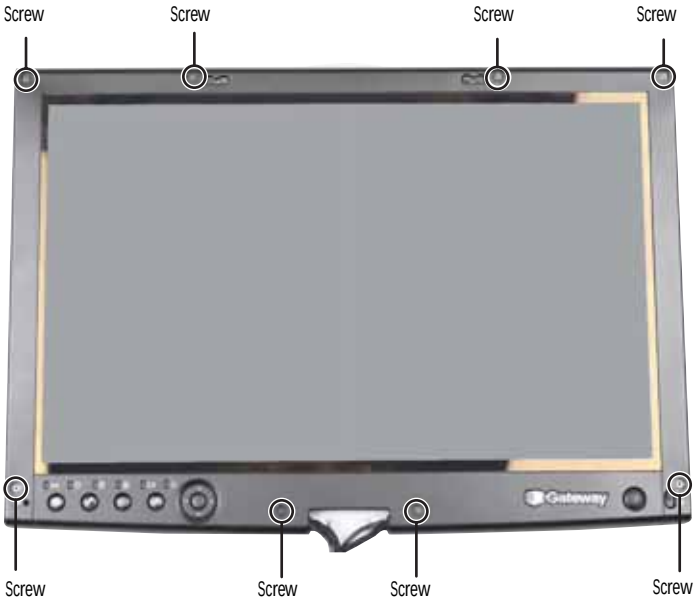
1. Complete the steps in "Preparing the convertible notebook" on page 5.
2. Remove the keyboard cover by following the steps in "Replacing the keyboard cover" on page 27.
3. Open the LCD panel to the fully open position.
4. Remove the rubber inserts from the front of the LCD panel assembly.

Important
The number of rubber inserts varies by convertible notebook model.



5 Remove the screws from the front of the LCD panel assembly.

Important
The number of screws varies by convertible notebook model.



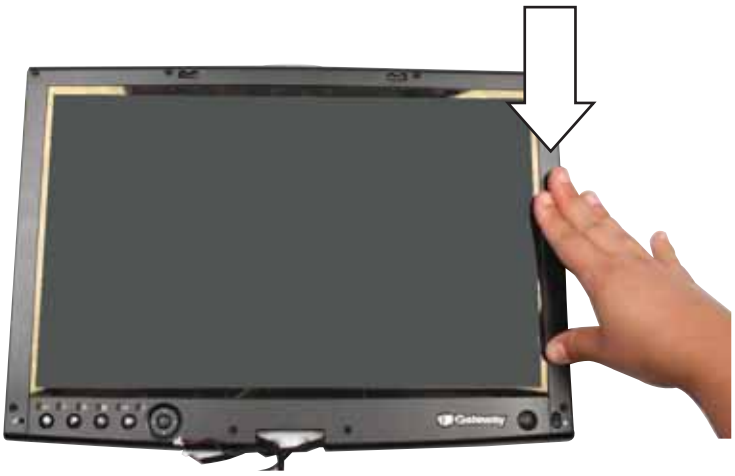
6 Carefully separate the front and back of the LCD panel assembly.

7 Disconnect the connectors from the inverter.

8 Remove the screw that connects the inverter to the front of the LCD panel assembly.

9 Align the new inverter with the screw hole, replace the screw that was removed in Step 8, then reconnect the cables.

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



11 Replace the LCD panel assembly screws removed in Step 5.

12 Replace the inserts removed in Step 4.

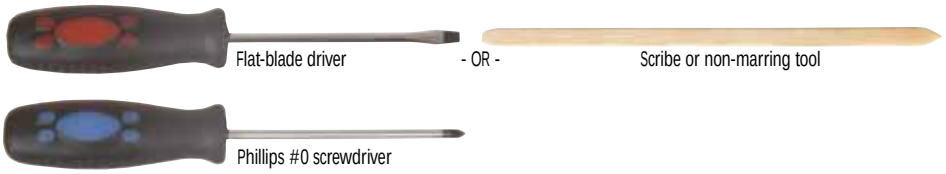
Caution
The larger rubber inserts go across the top of the panel.

13 Replace the keyboard cover by following the steps in “Replacing the keyboard cover” on page 27.

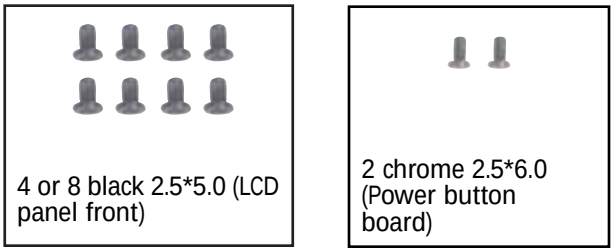
■

Replacing the power button board

Tools you need to complete this task:



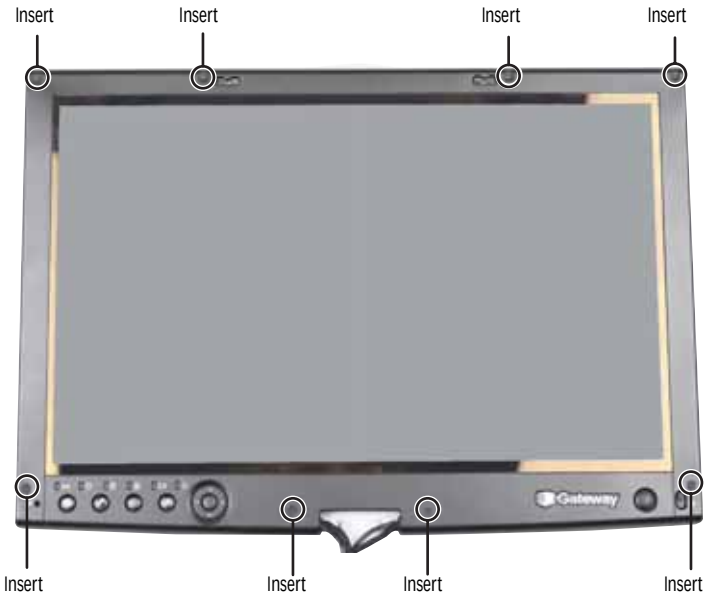
Screws removed during this task:



To replace the power button board:

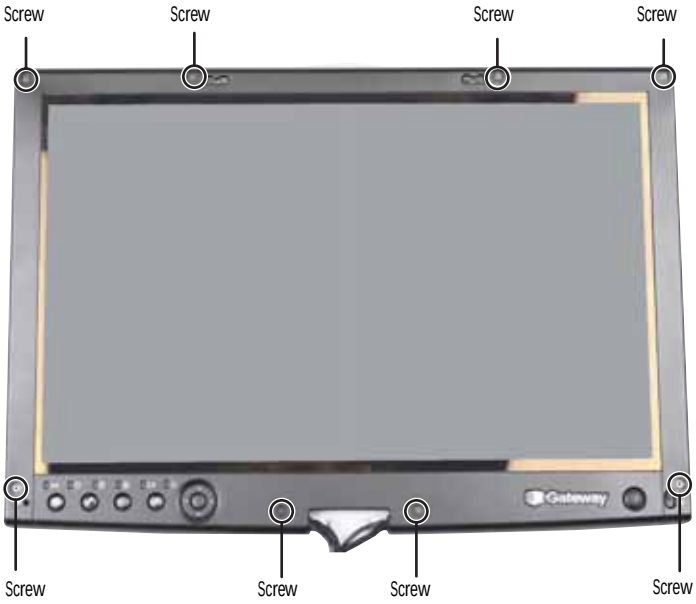
1. Complete the steps in "Preparing the convertible notebook" on page 5.
2. Remove the keyboard cover by following the steps in "Replacing the keyboard cover" on page 27.
3. Open the LCD panel to the fully open position.
4. Remove the rubber inserts from the front of the LCD panel assembly.

Important
The number of rubber inserts varies by convertible notebook model.



5 Remove the screws from the front of the LCD panel assembly.

Important
The number of screws varies by convertible notebook model.



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

7 Disconnect the power button cable from the power button board.

8 Remove the two screws that connect the power button board to the front of the LCD panel assembly, then remove the board.

9 Install the new power button board.

10 Replace the screws that were removed in Step 8, then reconnect the cable.

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

12 Replace the LCD panel assembly screws removed in Step 5.

13 Replace the inserts removed in Step 4.

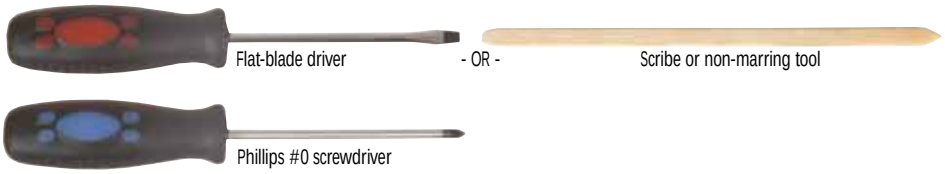
Caution
The larger rubber inserts go across the top of the panel.

14 Replace the keyboard cover by following the steps in "Replacing the keyboard cover" on page 27.

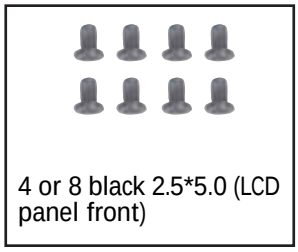
■

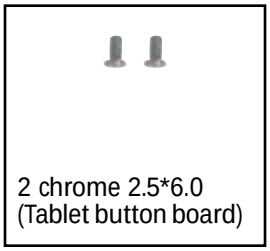
Replacing the tablet button board

Tools you need to complete this task:



Screws removed during this task:

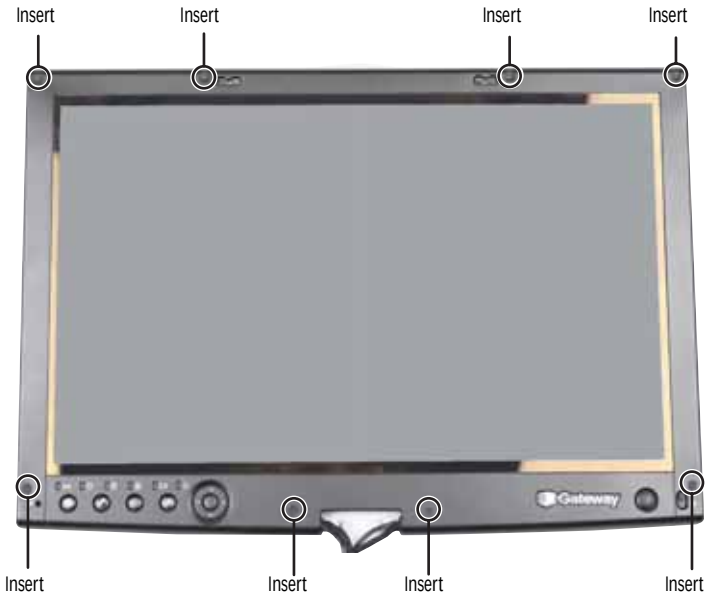




To replace the tablet button board:

1. Complete the steps in "Preparing the convertible notebook" on page 5.
2. Remove the keyboard cover by following the steps in "Replacing the keyboard cover" on page 27.
3. Open the LCD panel to the fully open position.
4. Remove the rubber inserts from the front of the LCD panel assembly.

Important
The number of rubber inserts varies by convertible notebook model.

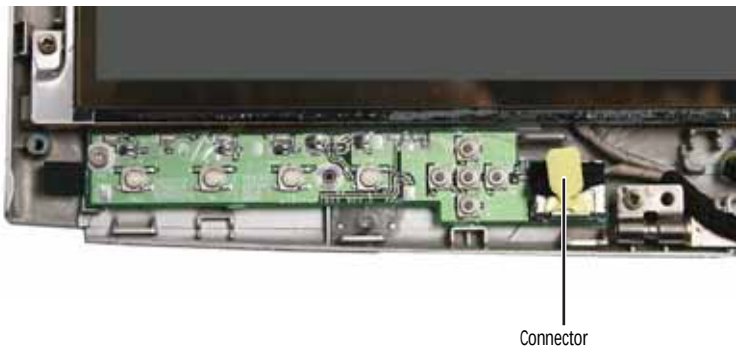


5 Remove the screws from the front of the LCD panel assembly.

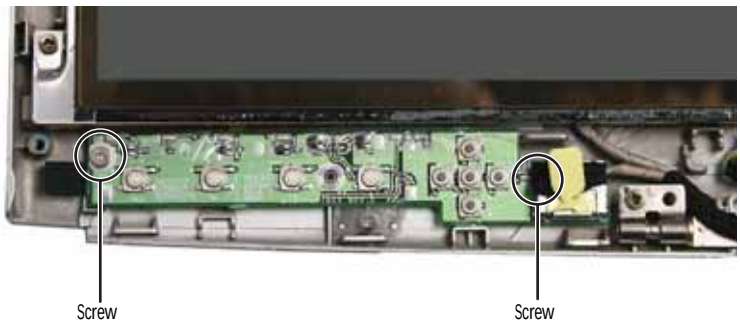
Important
The number of screws varies by convertible notebook model.

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

7 Disconnect the tablet button cable from the tablet button board.



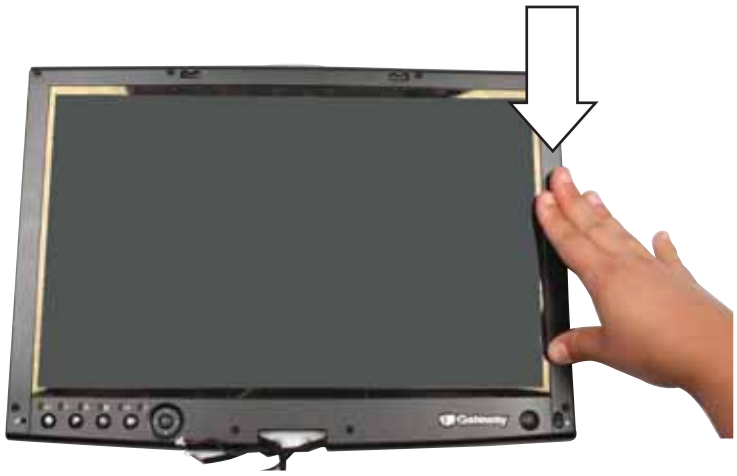
8 Remove the two screws that connect the tablet button board to the front of the LCD panel assembly, then remove the board.



9 Install the new tablet button board.

10 Replace the screws that were removed in Step 8, then reconnect the cable.

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



12 Replace the LCD panel assembly screws removed in Step 5.

13 Replace the inserts removed in Step 4.

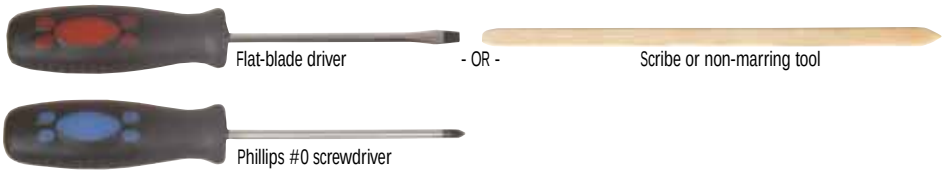
Caution
The larger rubber inserts go across the top of the panel.

14 Replace the keyboard cover by following the steps in "Replacing the keyboard cover" on page 27.

■

Replacing the LCD assembly

Tools you need to complete this task:



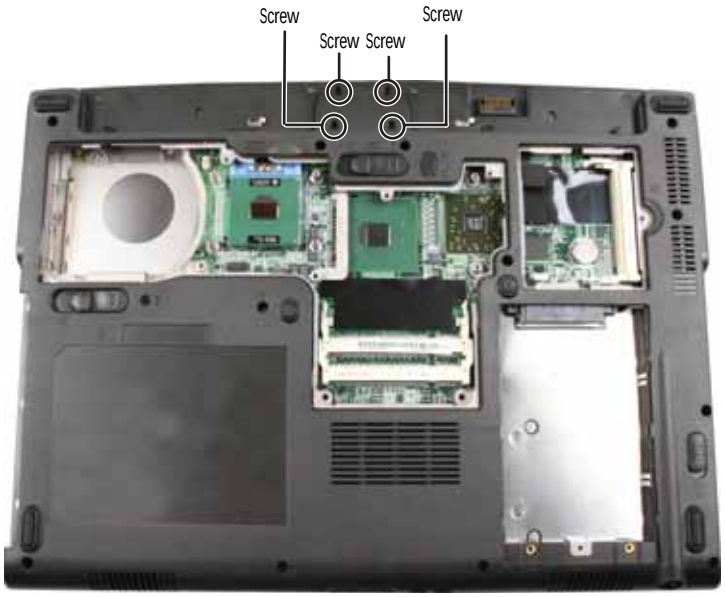
Screws removed during this task:

4 or 6 black 2.5*8.0 (LCD hinge to notebook)

To replace the LCD assembly:

1. Complete the steps in "Preparing the convertible notebook" on page 5.
2. If the convertible notebook has wireless networking built in, unplug the wireless antennas by following the steps in "Replacing the IEEE 802.11 wireless card" on page 16.
3. Remove the screws on the bottom that secure the LCD panel hinge to the chassis.

Important
The number of screws varies by convertible notebook model.

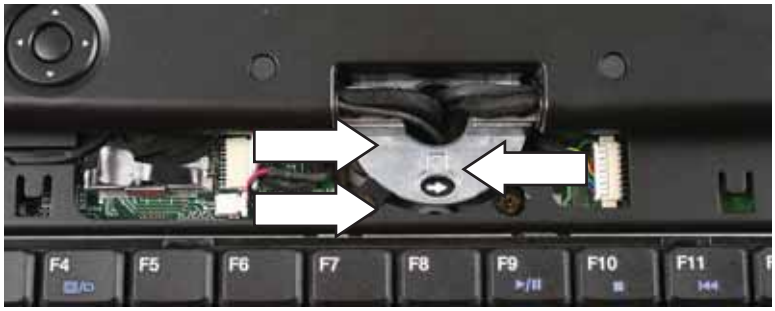


4. Turn the convertible notebook over so the top is facing up.
5. Remove the hinge covers by following the steps in "Replacing the hinge covers" on page 26.
6. Open the LCD panel to the fully open position.

Caution
Be careful not to use too much force when opening the LCD panel.

7 Remove the keyboard cover by following the steps in "Replacing the keyboard cover" on page 27.

8 Detach the three cables from the system board.



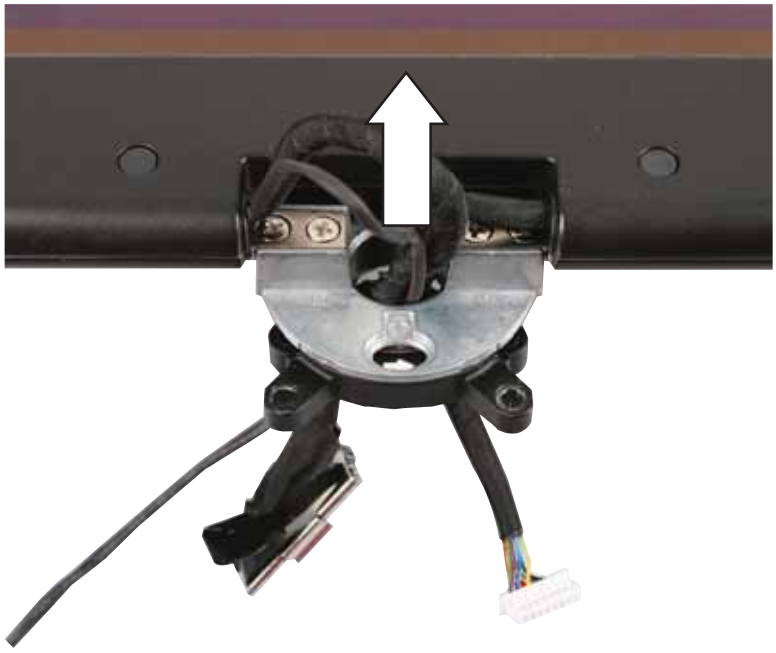
9 Grasp the plastic tab carefully and pull to unplug the LCD video cable from the convertible notebook. Make sure you grasp the tab, not the cable.

Caution
The connector is fragile.

10 Taking care to note the cables' routing and positions as they are installed from Gateway, pull the antenna cables out from under the system board, then slide the wires out from under the retaining clips.

11 Remove the two screws on the top that secure the LCD panel hinge to the chassis.

12 Lift the LCD panel assembly up and away from the convertible notebook. The LCD panel assembly is now completely detached from the convertible notebook.



13 Place the new LCD panel assembly onto the convertible notebook, then replace the two hinge screws removed in Step 11.

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

15 Plug the LCD video cable into the convertible notebook.

16 Reattach the three cables to the appropriate connectors on the system board.

17 Replace any tape that held the antenna wires and LCD cable.

18 Replace the keyboard cover by following the steps in "Replacing the keyboard cover" on page 27.

19 Replace the hinge covers by following the steps in "Replacing the hinge covers" on page 26.

20 Turn the convertible notebook over so the bottom is facing up.

21 Replace the hinge screws removed in Step 3.

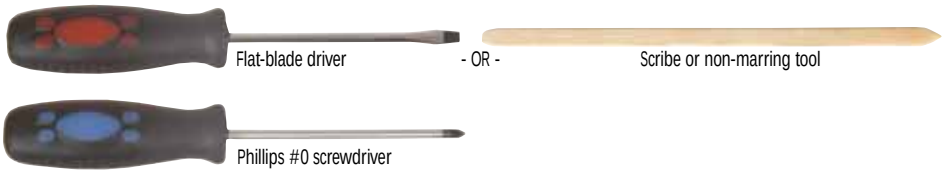
22 Reconnect the antenna wires to the wireless card by following the steps in "Replacing the IEEE 802.11 wireless card" on page 16.

23 Replace the wireless bay cover by following the steps in "Replacing the IEEE 802.11 wireless card" on page 16.

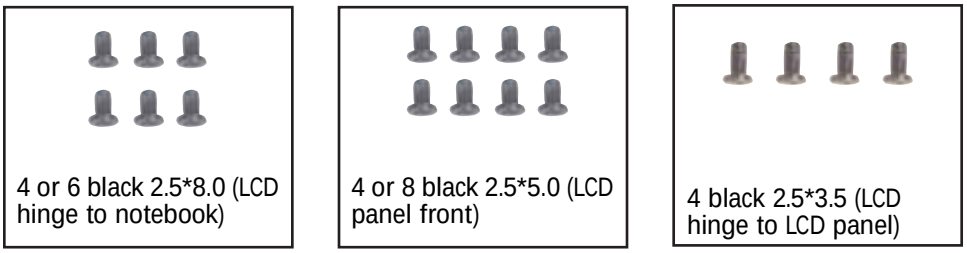
■

Replacing the LCD panel hinge

Tools you need to complete this task:



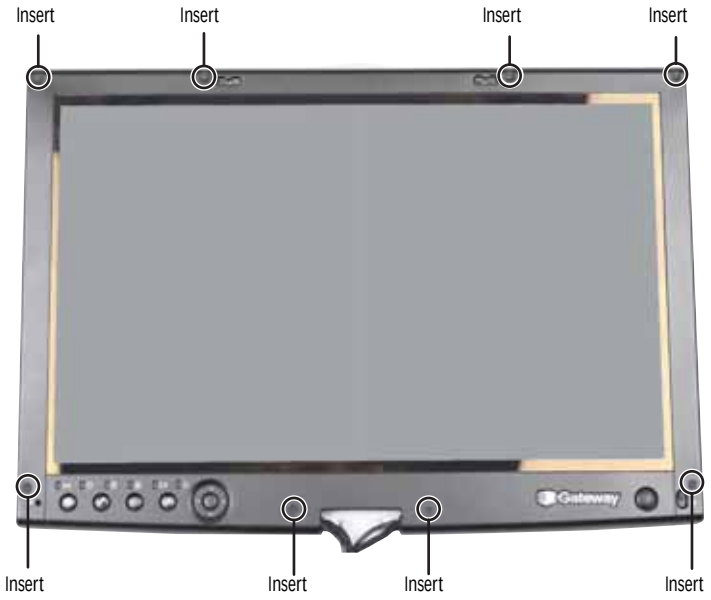
Screws removed during this task:



To replace the LCD panel hinge:

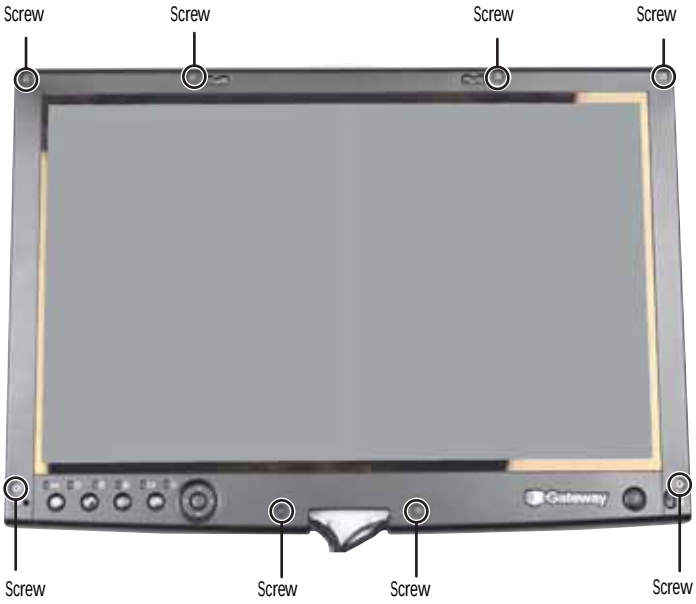
1. Complete the steps in "Preparing the convertible notebook" on page 5.
2. If the convertible notebook has wireless networking built in, unplug the wireless antennas by following the steps in "Replacing the IEEE 802.11 wireless card" on page 16.
3. Remove the hinge covers by following the steps in "Replacing the hinge covers" on page 26.
4. Remove the keyboard cover by following the steps in "Replacing the keyboard cover" on page 27.
5. Remove the LCD assembly by following the steps in "Replacing the LCD assembly" on page 40.
6. Open the LCD panel to the fully open position.
7. Remove the rubber inserts from the front of the LCD panel assembly.

Important
The number of rubber inserts varies by convertible notebook model.



8 Remove the screws from the front of the LCD panel assembly.

Important
The number of screws varies by convertible notebook model.



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

10 Carefully pull the wiring out of the hinge.

Tip
Start by pulling the wire that has the smallest connector out of the hinge. Then proceed to the wire that has the next biggest connector and so on.

11 Remove the four screws that secure the old hinge to the LCD panel assembly.

12 Replace the new hinge onto the LCD panel assembly.

13 Replace the screws removed in Step 11.

14 Feed the wiring back into the hinge.

Tip
Start by feeding the wire that has the largest connector into the hinge. Then proceed to the wire that has the next smallest connector and so on.

15 Replace the screws that were removed in Step 8, then reconnect the cable.

16 Press the LCD panel front and back together. Press the two halves 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 LCD panel assembly screws removed in Step 5.

18 Replace the inserts removed in Step 4.

Caution
The larger rubber inserts go across the top of the panel.

19 Replace the LCD assembly by following the steps in "Replacing the LCD assembly" on page 40.

20 Replace the keyboard cover by following the steps in "Replacing the keyboard cover" on page 27.

21 Replace the hinge covers by following the steps in "Replacing the hinge covers" on page 26.

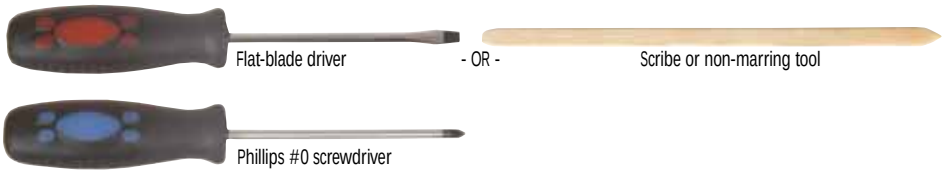
22 Reconnect the antenna wires to the wireless card by following the steps in "Replacing the IEEE 802.11 wireless card" on page 16.

23 Replace the wireless bay cover by following the steps in "Replacing the IEEE 802.11 wireless card" on page 16.

■

Replacing the LCD panel

Tools you need to complete this task:



Screws removed during this task:

4 or 6 black 2.5*8.0 (LCD hinge to notebook)

4 or 8 black 2.5*5.0 (LCD panel front)

4 black 2.5*8.0 (LCD panel)

▶ **To replace the LCD panel:**

1. Complete the steps in "Preparing the convertible notebook" on page 5.
2. If the convertible notebook has wireless networking built in, unplug the wireless antennas by following the steps in "Replacing the IEEE 802.11 wireless card" on page 16.
3. Remove the hinge covers by following the steps in "Replacing the hinge covers" on page 26.
4. Remove the keyboard cover by following the steps in "Replacing the keyboard cover" on page 27.
5. Remove the LCD assembly by following the steps in "Replacing the LCD assembly" on page 40.
6. Disconnect the right inverter connector by following the instructions in "Replacing the inverter" on page 31.
7. Disconnect the tablet button board by following the instructions in "Replacing the tablet button board" on page 37.
8. Carefully pull the wiring out of the hinge.

Tip
Start by pulling the wire that has the smallest connector out of the hinge. Then proceed to the wire that has the next biggest connector and so on.

9 Remove the screws connecting the LCD panel to the LCD lid.

10 Remove the old LCD panel from the LCD lid.

11 Place the new LCD panel into the LCD lid.

12 Replace the screws removed in Step 9.

13 Feed the wiring back into the hinge.

Tip
Start by feeding the wire that has the largest connector into the hinge. Then proceed to the wire that has the next smallest connector and so on.

14 Reconnect the tablet button board by following the instructions in "Replacing the tablet button board" on page 37.

15 Reconnect the inverter and reassemble the LCD assembly by following the instructions in "Replacing the inverter" on page 31.

16 Replace the LCD assembly by following the steps in "Replacing the LCD assembly" on page 40.

17 Replace the keyboard cover by following the steps in "Replacing the keyboard cover" on page 27.

18 Replace the hinge covers by following the steps in "Replacing the hinge covers" on page 26.

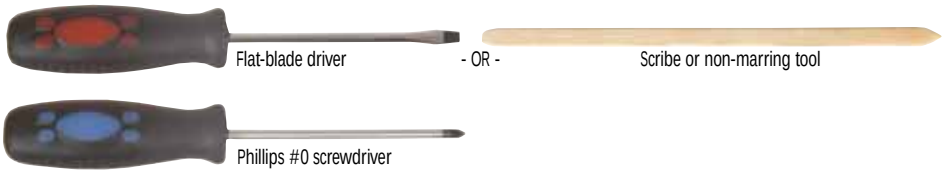
19 Reconnect the antenna wires to the wireless card by following the steps in "Replacing the IEEE 802.11 wireless card" on page 16.

20 Replace the wireless bay cover by following the steps in "Replacing the IEEE 802.11 wireless card" on page 16.

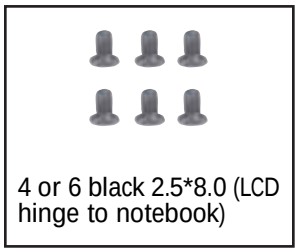
■

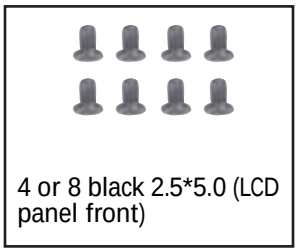
Replacing the LCD assembly lid

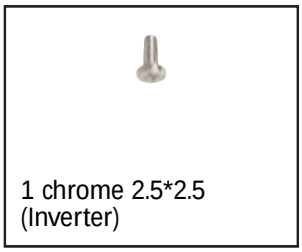
Tools you need to complete this task:

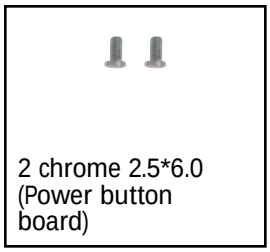


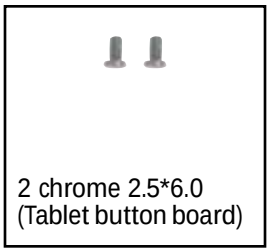
Screws removed during this task:

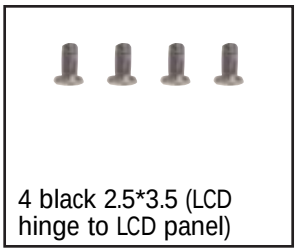


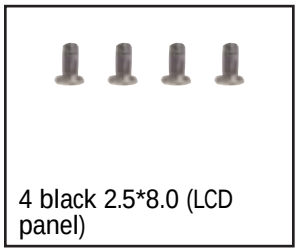












To replace the LCD assembly lid:

1. Complete the steps in "Preparing the convertible notebook" on page 5.
2. If the convertible notebook has wireless networking built in, unplug the wireless antennas by following the steps in "Replacing the IEEE 802.11 wireless card" on page 16.
3. Remove the hinge covers by following the steps in "Replacing the hinge covers" on page 26.
4. Remove the keyboard cover by following the steps in "Replacing the keyboard cover" on page 27.
5. Remove the LCD assembly by following the steps in "Replacing the LCD assembly" on page 40.
6. Remove the inverter by following the instructions in "Replacing the inverter" on page 31.
7. Remove the power button board by following the instructions in "Replacing the power button board" on page 34.
8. Remove the tablet button board by following the instructions in "Replacing the tablet button board" on page 37.

9 Remove the LCD panel hinge by following the instructions in "Replacing the LCD panel hinge" on page 43.

10 Remove the screws connecting the LCD panel to the old LCD lid.

11 Remove the LCD panel from the old LCD lid.

12 Place the LCD panel into the new LCD lid.

13 Replace the screws removed in Step 10.

14 Replace the LCD panel hinge by following the instructions in "Replacing the LCD panel hinge" on page 43.

15 Replace the tablet button board by following the instructions in "Replacing the tablet button board" on page 37.

16 Replace the power button board by following the instructions in "Replacing the power button board" on page 34.

17 Replace the inverter and reassemble the LCD assembly by following the instructions in "Replacing the inverter" on page 31.

18 Replace the LCD assembly by following the steps in "Replacing the LCD assembly" on page 40.

19 Replace the keyboard cover by following the steps in "Replacing the keyboard cover" on page 27.

20 Replace the hinge covers by following the steps in "Replacing the hinge covers" on page 26.

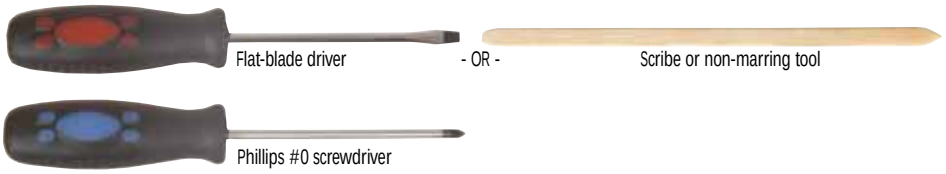
21 Reconnect the antenna wires to the wireless card by following the steps in "Replacing the IEEE 802.11 wireless card" on page 16.

22 Replace the wireless bay cover by following the steps in "Replacing the IEEE 802.11 wireless card" on page 16.

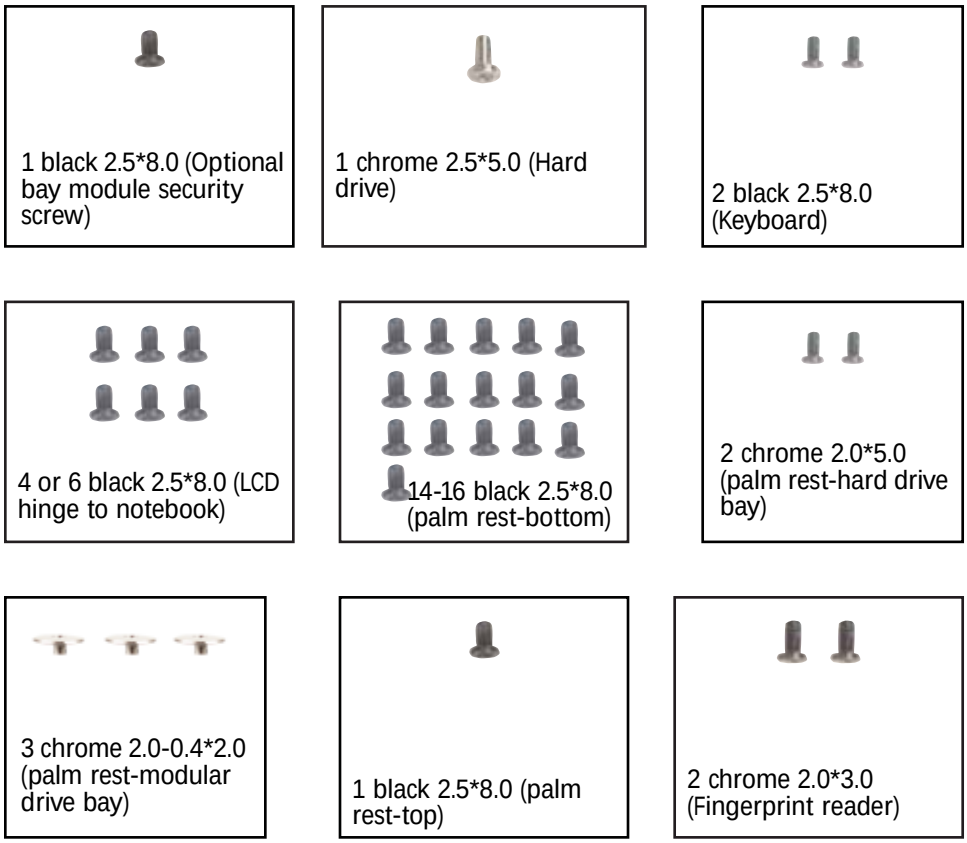
■

Replacing the palm rest

Tools you need to complete this task:



Screws removed during this task:

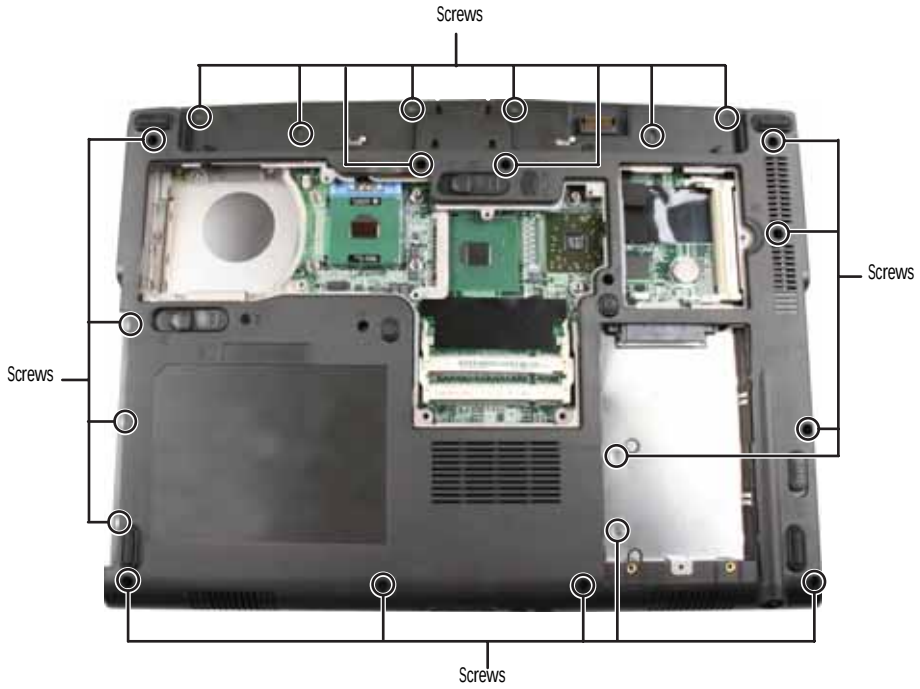


To replace the palm rest:

1. Complete the steps in "Preparing the convertible notebook" on page 5.
2. Remove the bay module by following the steps in "Replacing a bay module" on page 7.
3. If the convertible notebook has wireless networking built in, unplug the wireless antennas by following the steps in "Replacing the IEEE 802.11 wireless card" on page 16.
4. Remove the hard drive by following the steps in "Replacing the hard drive" on page 21.
5. Remove the hinge covers by following the steps in "Replacing the hinge covers" on page 26.
6. Remove the keyboard cover by following the steps in "Replacing the keyboard cover" on page 27.
7. Remove the keyboard by following the steps in "Replacing the keyboard" on page 28.
8. Remove the LCD assembly by following the steps in "Replacing the LCD assembly" on page 40.

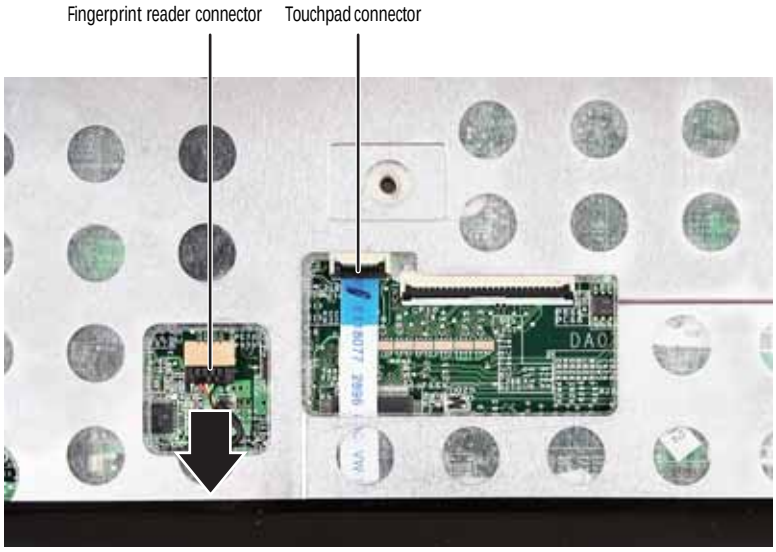
9 Remove the screws shown in the following picture. Note the location of the screw types and sizes. Some models may have fewer screws than shown or screws in a slightly different location.

Important
The number of screws varies by convertible notebook model.



10 Turn the convertible notebook over so the top is facing up.

11 Flip the black touchpad connector clip up, then remove the cable. Be careful not to touch or damage any other components.



12 Disconnect the optional fingerprint reader from the system board.

13 Remove the screw from the top of the palm rest.

14 Starting on the right side, lift the palm rest assembly up and away from the convertible notebook. Be careful when pulling the palm rest assembly away from the bottom near the docking port.

15 Turn the palm rest over so the bottom is facing up, then remove the optional fingerprint reader from the old palm rest and install it on the new palm rest by following the instructions in "Replacing the fingerprint reader" on page 53.

16 Place the new palm rest assembly onto the convertible notebook, then snap the assembly into place.

17 Replace the screw removed in Step 13.

18 Connect the fingerprint reader to the system board.

19 Make sure the black touchpad connector clip is in the raised position, insert the cable into the connector, then lower the black connector clip to lock the cable in place.

20 Turn the convertible notebook over so the bottom is facing up.

21 Replace the screws removed in Step 9.

22 Replace the LCD assembly by following the steps in "Replacing the LCD assembly" on page 40.

23 Replace the keyboard by following the steps in "Replacing the keyboard" on page 28.

24 Replace the keyboard cover by following the steps in "Replacing the keyboard cover" on page 27.

25 Replace the hinge covers by following the steps in "Replacing the hinge covers" on page 26.

26 Replace the hard drive by following the steps in "Replacing the hard drive" on page 21.

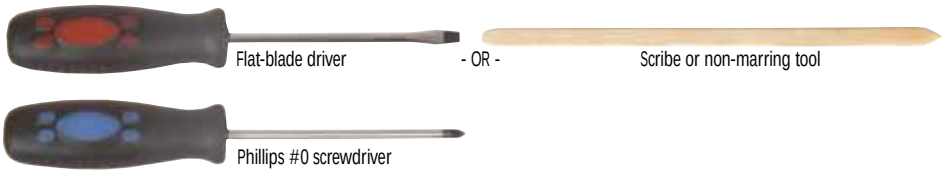
27 If the convertible notebook has wireless networking built in, plug the wireless antennas back in by following the steps in "Replacing the IEEE 802.11 wireless card" on page 16.

28 Replace the wireless bay cover by following the steps in "Replacing the IEEE 802.11 wireless card" on page 16.

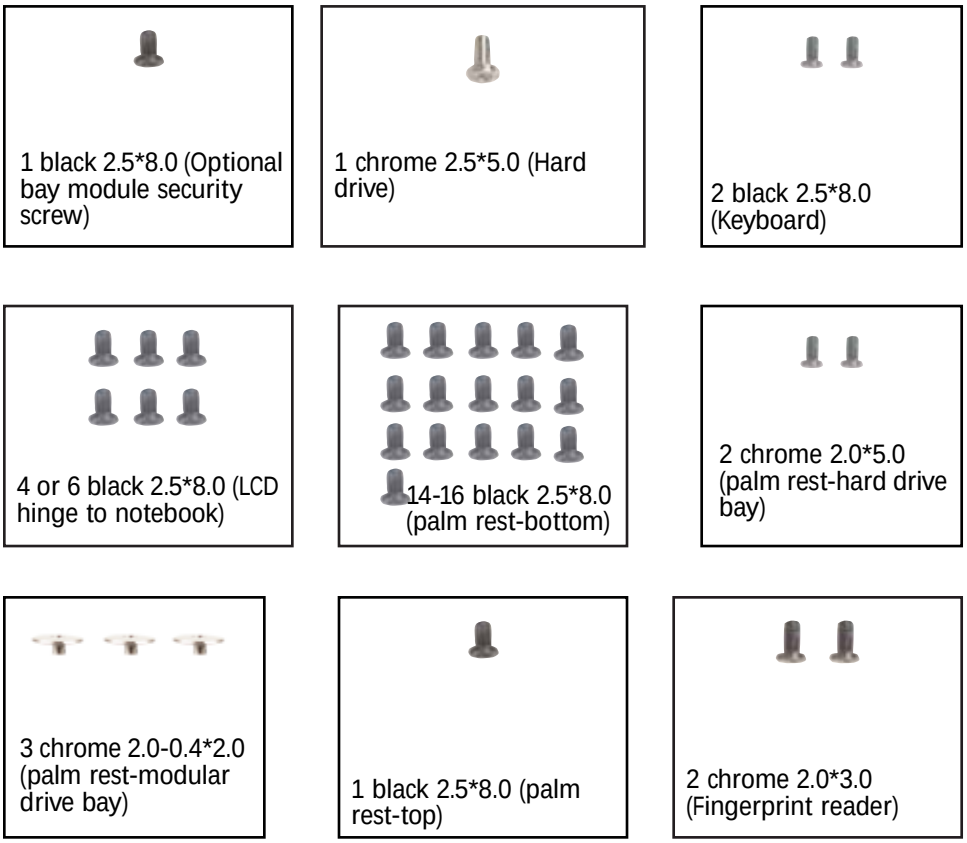
29 Insert the bay module by following the instructions in "Replacing a bay module" on page 7. ■

Replacing the fingerprint reader

Tools you need to complete this task:



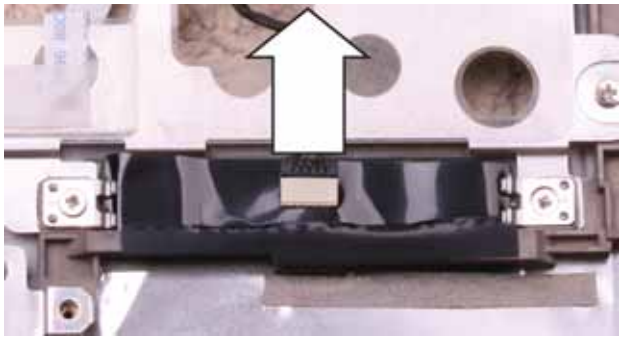
Screws removed during this task:



To replace the fingerprint reader:

1. Complete the steps in "Preparing the convertible notebook" on page 5.
2. Remove the bay module by following the steps in "Replacing a bay module" on page 7.
3. If the convertible notebook has wireless networking built in, unplug the wireless antennas by following the steps in "Replacing the IEEE 802.11 wireless card" on page 16.
4. Remove the hard drive by following the steps in "Replacing the hard drive" on page 21.
5. Remove the keyboard cover by following the steps in "Replacing the keyboard cover" on page 27.
6. Remove the keyboard by following the steps in "Replacing the keyboard" on page 28.
7. Remove the LCD assembly by following the steps in "Replacing the LCD assembly" on page 40.
8. Remove the palm rest by following the steps in "Replacing the palm rest" on page 50.
9. Turn the palm rest over so the back side is facing up.

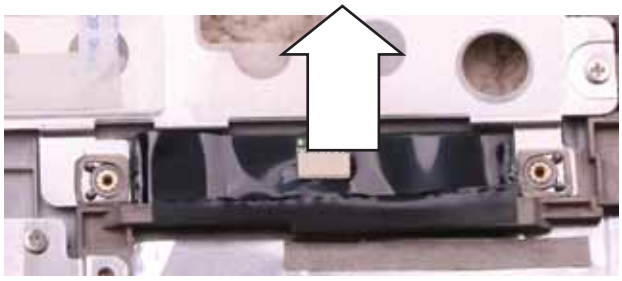
10 Disconnect the fingerprint reader cable.



11 Remove the screws from the metal clips covering the ends of the fingerprint reader.

12 Lift the metal clips off of the fingerprint reader.

13 Remove the fingerprint reader from the convertible notebook.



14 Place the new fingerprint reader into the convertible notebook in the same orientation as the old reader.

15 Lay the clips on the fingerprint reader, then replace the screws removed in Step 11.

16 Plug the fingerprint reader cable into the fingerprint reader.

17 Replace the palm rest by following the steps in “Replacing the palm rest” on page 50.

18 Replace the LCD assembly by following the steps in “Replacing the LCD assembly” on page 40.

19 Replace the keyboard by following the steps in “Replacing the keyboard” on page 28.

20 Replace the keyboard cover by following the steps in “Replacing the keyboard cover” on page 27.

21 Replace the hinge covers by following the steps in “Replacing the hinge covers” on page 26.

22 Replace the hard drive by following the steps in “Replacing the hard drive” on page 21.

23 If the convertible notebook has wireless networking built in, plug the wireless antennas back in by following the steps in “Replacing the IEEE 802.11 wireless card” on page 16.

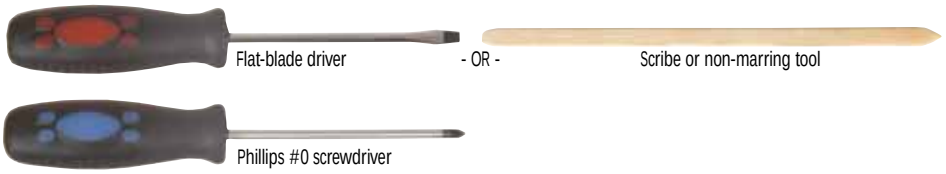
24 Replace the wireless bay cover by following the steps in “Replacing the IEEE 802.11 wireless card” on page 16.

25 Insert the bay module by following the instructions in “Replacing a bay module” on page 7.

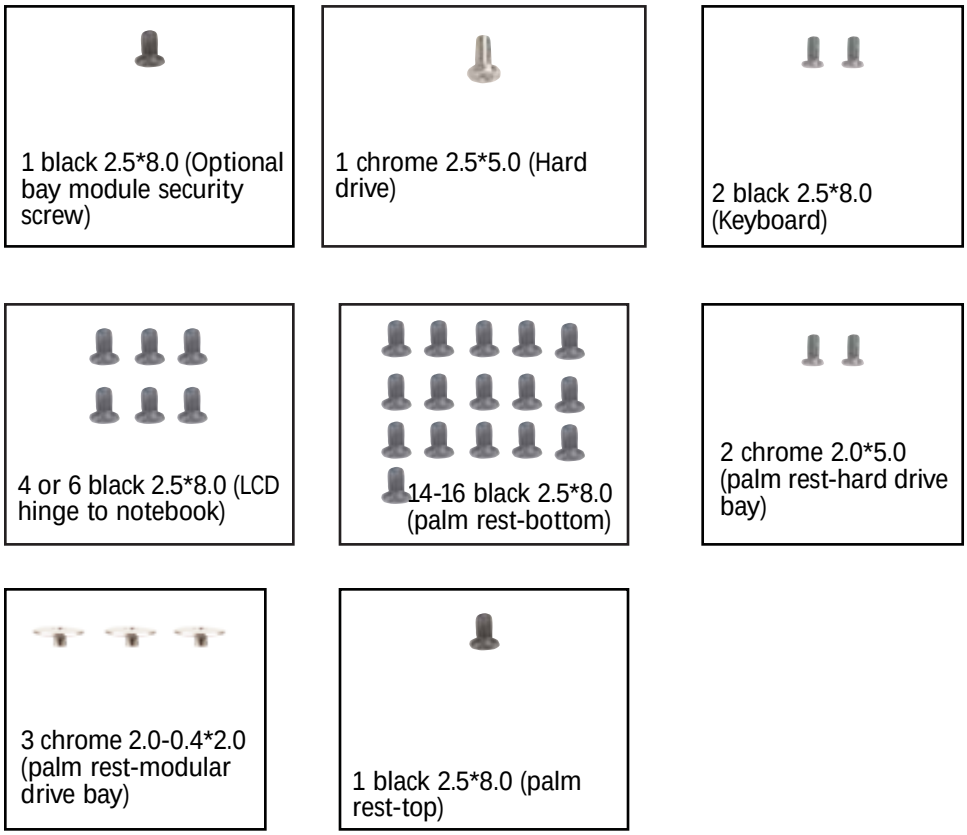
■

Replacing the Bluetooth module

Tools you need to complete this task:



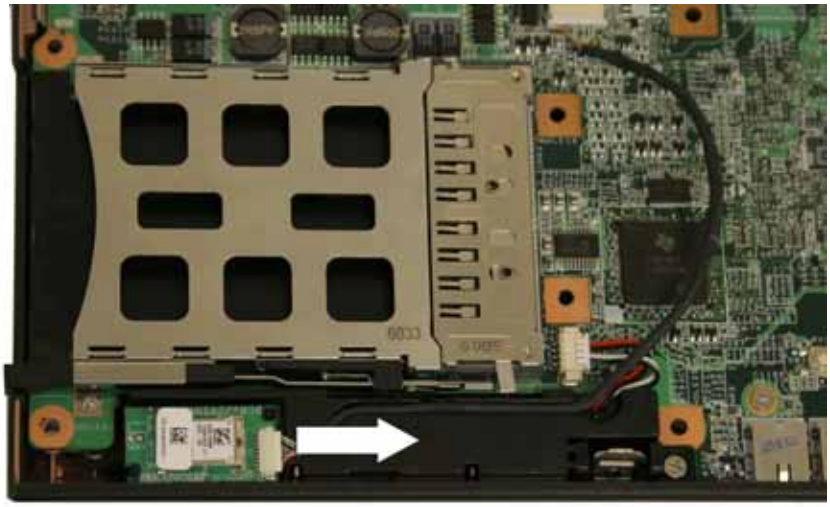
Screws removed during this task:



To replace the Bluetooth module:

1. Complete the steps in "Preparing the convertible notebook" on page 5.
2. Remove the bay module by following the steps in "Replacing a bay module" on page 7.
3. If the convertible notebook has wireless networking built in, unplug the wireless antennas by following the steps in "Replacing the IEEE 802.11 wireless card" on page 16.
4. Remove the hard drive by following the steps in "Replacing the hard drive" on page 21.
5. Remove the hinge covers by following the steps in "Replacing the hinge covers" on page 26.
6. Remove the keyboard cover by following the steps in "Replacing the keyboard cover" on page 27.
7. Remove the keyboard by following the steps in "Replacing the keyboard" on page 28.
8. Remove the LCD assembly by following the steps in "Replacing the LCD assembly" on page 40.
9. Remove the palm rest by following the steps in "Replacing the palm rest" on page 50.

10 Disconnect the cable from the old Bluetooth module, then slide the module from the convertible notebook.



11 Slide the new Bluetooth module into the convertible notebook.

12 Connect the cable to the new Bluetooth module.

13 Replace the palm rest by following the steps in "Replacing the palm rest" on page 50.

14 Replace the LCD assembly by following the steps in "Replacing the LCD assembly" on page 40.

15 Replace the keyboard by following the steps in "Replacing the keyboard" on page 28.

16 Replace the keyboard cover by following the steps in "Replacing the keyboard cover" on page 27.

17 Replace the hinge covers by following the steps in "Replacing the hinge covers" on page 26.

18 Replace the hard drive by following the steps in "Replacing the hard drive" on page 21.

19 If the convertible notebook has wireless networking built in, plug the wireless antennas back in by following the steps in "Replacing the IEEE 802.11 wireless card" on page 16.

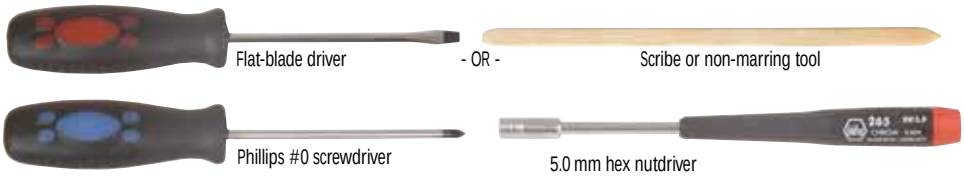
20 Replace the wireless bay cover by following the steps in "Replacing the IEEE 802.11 wireless card" on page 16.

21 Insert the bay module by following the instructions in "Replacing a bay module" on page 7.

■

Replacing the system board

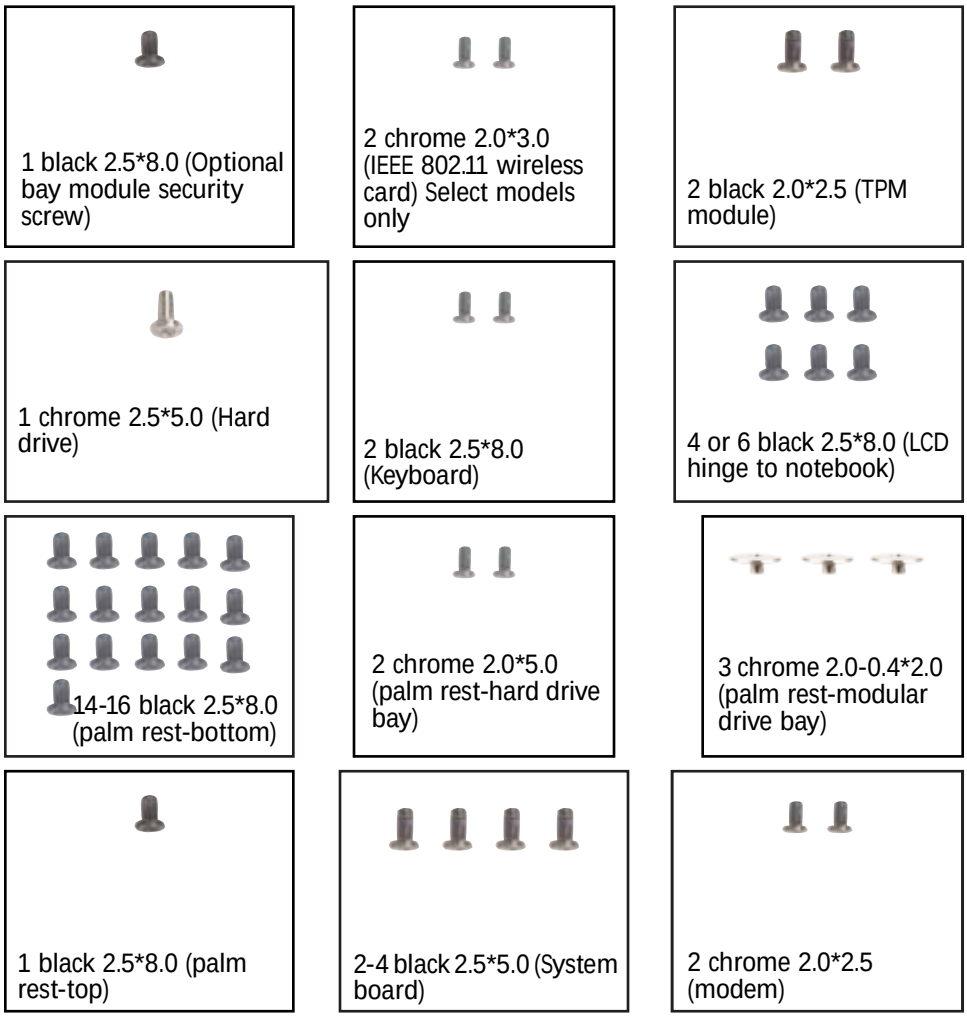
Tools you need to complete this task:



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 convertible notebook" on page 5.
2. Remove the bay module by following the instructions in "Replacing a bay module" on page 7.
3. Remove the memory from the old system board and install it on the new system board by following the instructions in "Adding or replacing memory modules" on page 9.

4 Remove the cooling assembly by following the instructions in “Replacing the cooling assembly” on page 11.

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 14.

6 Remove the optional IEEE 802.11 wireless card from the old system board and install it on the new system board by following the instructions in “Replacing the IEEE 802.11 wireless card” on page 16.

7 If the optional TPM module is located in the wireless bay, remove it from the old system board and install it on the new system board by following the instructions in “Replacing the TPM module (select models)” on page 66.

8 Remove the hard drive by following the instructions in “Replacing the hard drive” on page 21.

9 Remove the hinge covers by following the steps in “Replacing the hinge covers” on page 26.

10 Remove the keyboard cover by following the steps in “Replacing the keyboard cover” on page 27.

11 Remove the keyboard by following the steps in “Replacing the keyboard” on page 28.

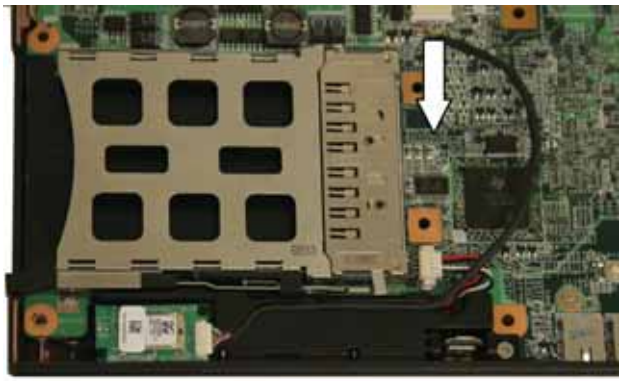
12 Remove the LCD assembly by following the steps in “Replacing the LCD assembly” on page 40.

13 Remove the palm rest by following the steps in “Replacing the palm rest” on page 50.

14 Unplug the optional fan from the system board (one connector).

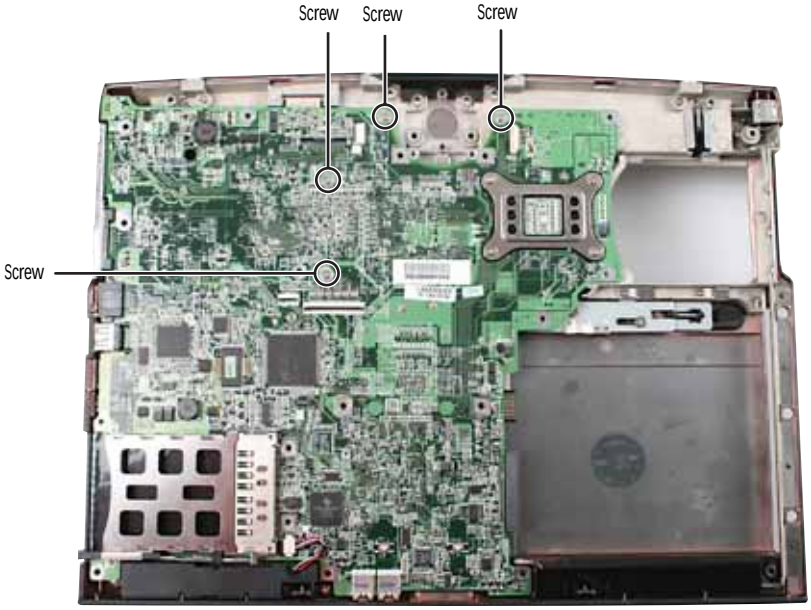
15 Unplug the speakers from the system board (one connector).

16 Unplug the Bluetooth module from the system board (one connector).

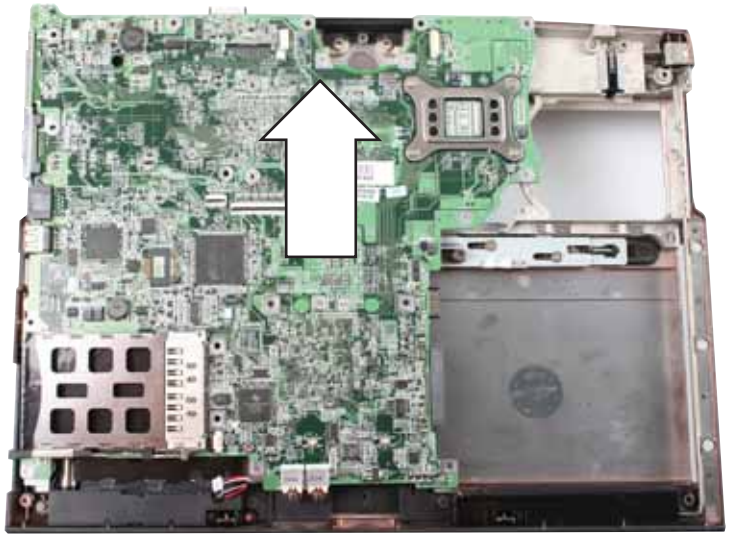


17 Remove the system board screws.

Important
The number of screws varies by convertible notebook model.



18 Carefully remove the system board.



19 Turn the system board over so the bottom is facing up, then 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 63.

20 If the optional TPM module is located on the bottom of the system board, remove it from the old system board and install it on the new system board by following the instructions in "Replacing the TPM module (select models)" on page 67.

21 Place the new system board into the convertible notebook and reconnect all cables.

22 Replace the system board screws in the holes on the top of the system board removed in Step 17.

23 Connect the Bluetooth module to the system board.

24 Connect the speakers to the system board.

25 Connect the optional fan to the system board.

26 Replace the palm rest by following the steps in “Replacing the palm rest” on page 50.

27 Replace the LCD assembly by following the steps in “Replacing the LCD assembly” on page 40.

28 Replace the keyboard by following the steps in “Replacing the keyboard” on page 28.

29 Replace the keyboard cover by following the steps in “Replacing the keyboard cover” on page 27.

30 Replace the hinge covers by following the steps in “Replacing the hinge covers” on page 26.

31 Replace the hard drive by following the instructions in “Replacing the hard drive” on page 21.

32 Replace the cooling assembly by following the instructions in “Replacing the cooling assembly” on page 11.

33 If the convertible notebook has wireless networking built in, plug the wireless antennas back in by following the steps in “Replacing the IEEE 802.11 wireless card” on page 16.

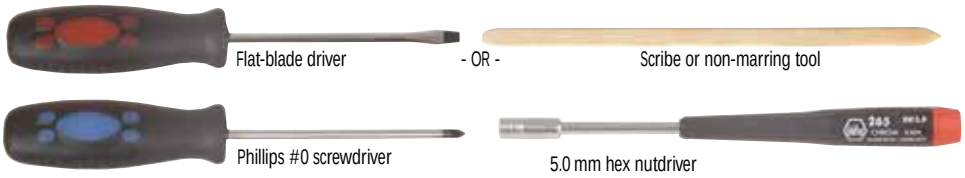
34 Replace the wireless bay cover by following the steps in “Replacing the IEEE 802.11 wireless card” on page 16.

35 Insert the bay module by following the instructions in “Replacing a bay module” on page 7.

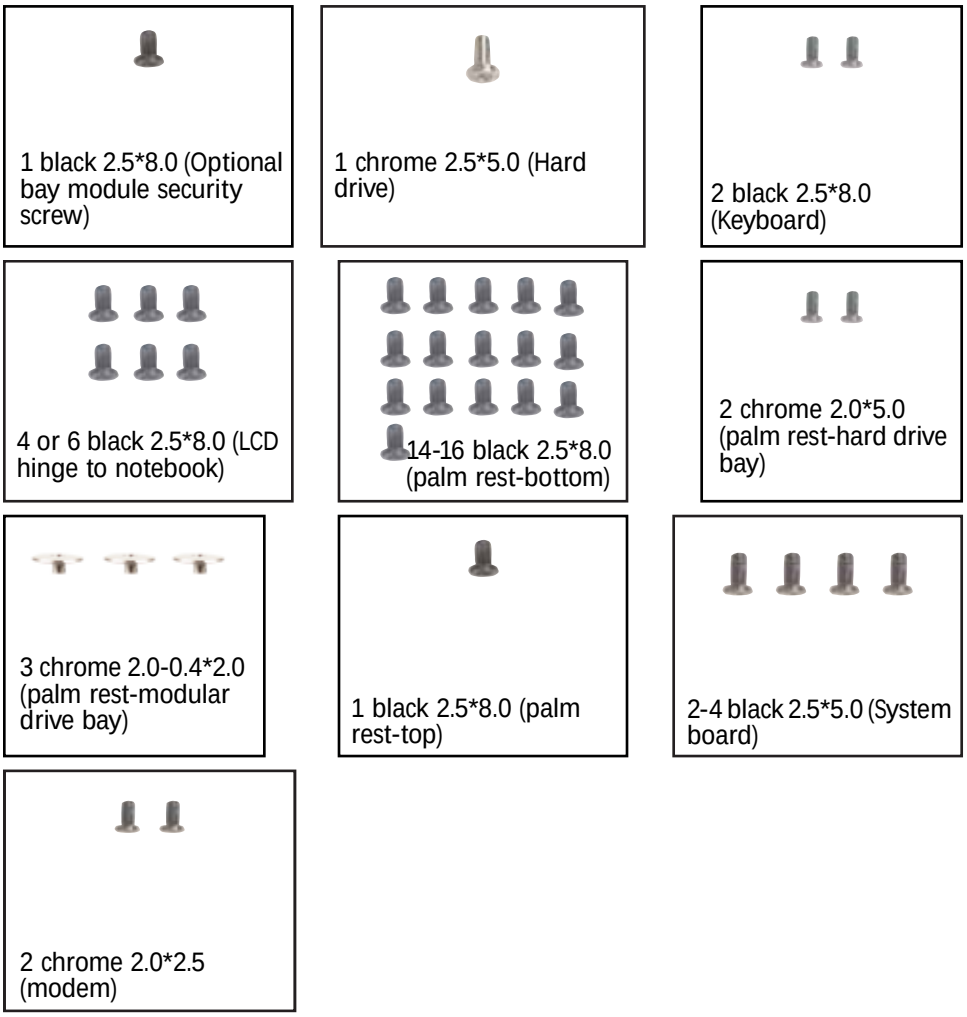
■

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 convertible notebook" on page 5.
2. Remove the bay module by following the instructions in "Replacing a bay module" on page 7.
3. If the convertible notebook has wireless networking built in, unplug the wireless antennas by following the steps in "Replacing the IEEE 802.11 wireless card" on page 16.
4. Remove the hard drive by following the instructions in "Replacing the hard drive" on page 21.
5. Remove the hinge covers by following the steps in "Replacing the hinge covers" on page 26.
6. Remove the keyboard cover by following the steps in "Replacing the keyboard cover" on page 27.

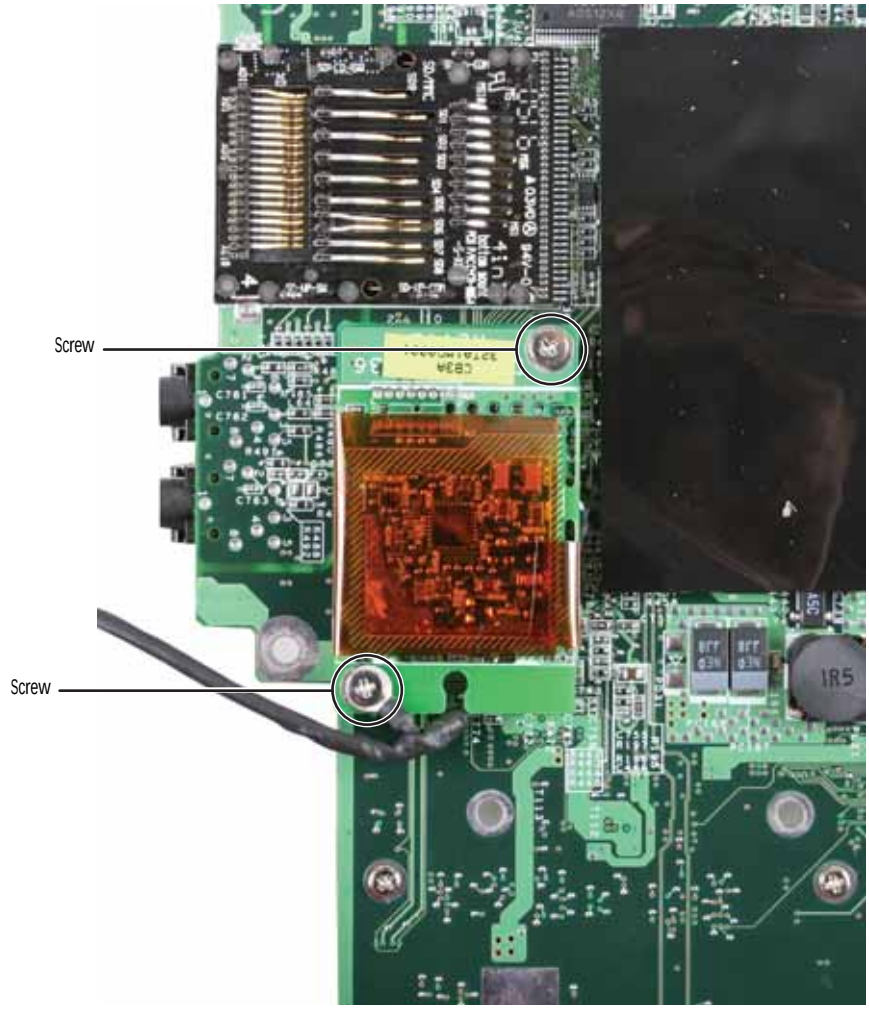
7 Remove the keyboard by following the steps in “Replacing the keyboard” on page 28.

8 Remove the LCD assembly by following the steps in “Replacing the LCD assembly” on page 40.

9 Remove the palm rest by following the steps in “Replacing the palm rest” on page 50.

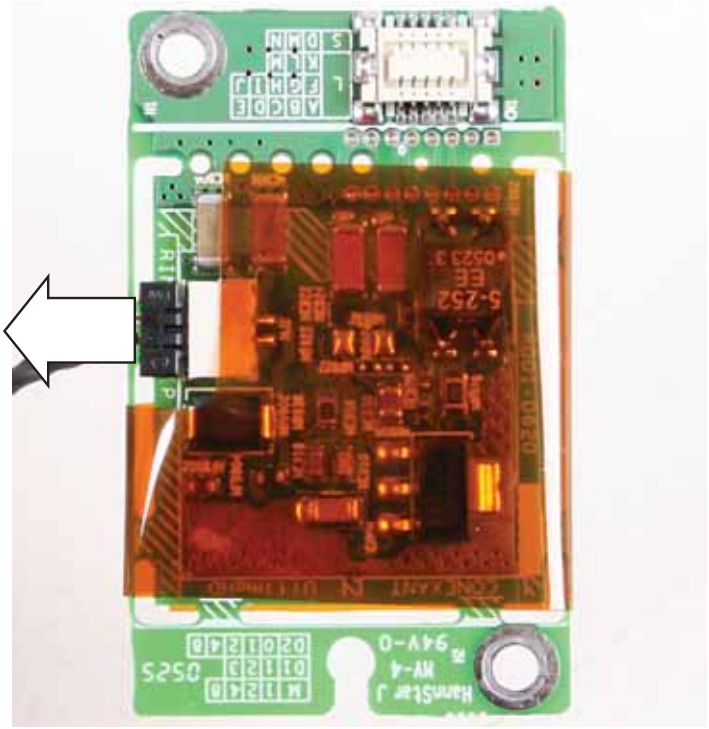
10 Remove the system board by following the steps in “Replacing the system board” on page 58.

11 Turn the system board over so the bottom is facing up, then remove the screws that secure the modem to the convertible notebook.



12 Lift the modem off of the system board.

13 Turn the modem over, then unplug the modem cable from the modem.



14 Install the new modem on the system board.

15 Replace the system board following the steps in “Replacing the system board” on page 58.

16 Replace the palm rest by following the steps in “Replacing the palm rest” on page 50.

17 Replace the LCD assembly by following the steps in “Replacing the LCD assembly” on page 40.

18 Replace the keyboard by following the steps in “Replacing the keyboard” on page 28.

19 Replace the keyboard cover by following the steps in “Replacing the keyboard cover” on page 27.

20 Replace the hinge covers by following the steps in “Replacing the hinge covers” on page 26.

21 Replace the hard drive by following the instructions in “Replacing the hard drive” on page 21.

22 If the convertible notebook has wireless networking built in, plug the wireless antennas back in by following the steps in “Replacing the IEEE 802.11 wireless card” on page 16.

23 Replace the wireless bay cover by following the steps in “Replacing the IEEE 802.11 wireless card” on page 16.

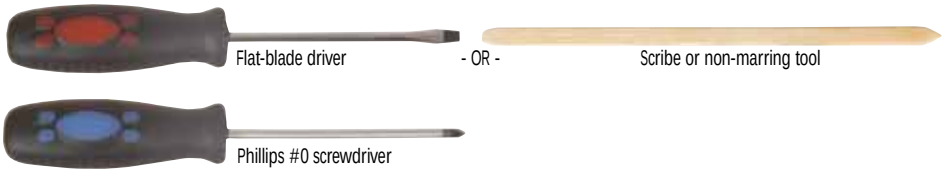
24 Insert the bay module by following the instructions in “Replacing a bay module” on page 7.

■

Replacing the TPM module (select models)

Important
If the TPM module is not located in the wireless bay, use the procedure found in "Replacing the TPM module (select models)" on page 67 to replace the TPM module.

Tools you need to complete this task:



Screws removed during this task:

2 black 2.0*2.5 (TPM module)

To replace the TPM module:

1. Complete the steps in "Preparing the convertible notebook" on page 5.
2. Open the wireless bay by following the instructions in "Replacing the IEEE 802.11 wireless card" on page 16.
3. Remove the two screws that secure the TPM module to the system board.

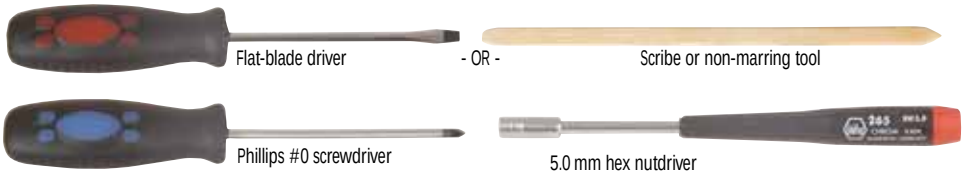
4. Lift the TPM module from the system board.
5. Install the new TPM module onto the system board.
6. Replace the TPM module screws removed in Step 3.
7. Replace the wireless bay cover, then tighten the cover screw.

■

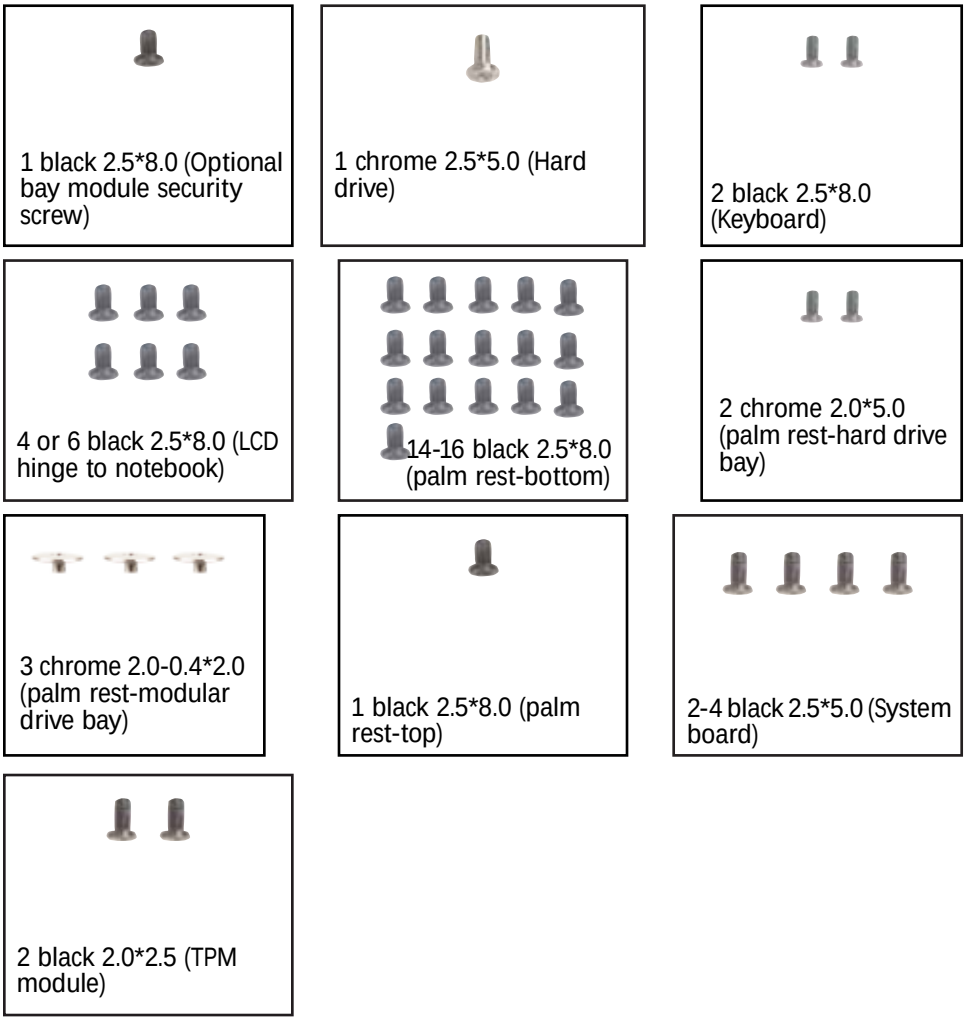
Replacing the TPM module (select models)

Important
If the TPM module is located in the wireless bay, use the procedure found in "Replacing the TPM module (select models)" on page 66 to replace 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 convertible notebook" on page 5.
2. Remove the bay module by following the instructions in "Replacing a bay module" on page 7.
3. If the convertible notebook has wireless networking built in, unplug the wireless antennas by following the steps in "Replacing the IEEE 802.11 wireless card" on page 16.
4. Remove the hard drive by following the instructions in "Replacing the hard drive" on page 21.

5 Remove the hinge covers by following the steps in “Replacing the hinge covers” on page 26.

6 Remove the keyboard cover by following the steps in “Replacing the keyboard cover” on page 27.

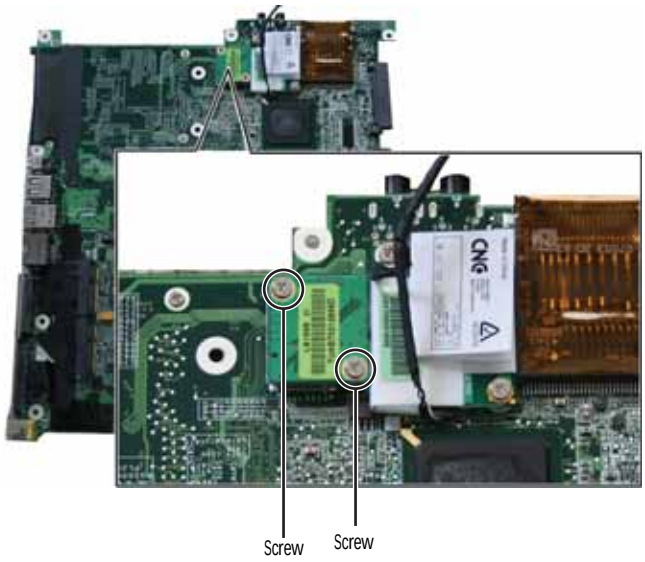
7 Remove the keyboard by following the steps in “Replacing the keyboard” on page 28.

8 Remove the LCD assembly by following the steps in “Replacing the LCD assembly” on page 40.

9 Remove the palm rest by following the steps in “Replacing the palm rest” on page 50.

10 Remove the system board by following the steps in “Replacing the system board” on page 58.

11 Turn the system board over so the back side is facing up, then remove the two screws that secure the TPM module to the system board.



12 Lift the old TPM module from the system board.

13 Install the new TPM module onto the system board.

14 Replace the TPM module screws removed in Step 11.

15 Replace the system board following the steps in “Replacing the system board” on page 58.

16 Replace the palm rest by following the steps in “Replacing the palm rest” on page 50.

17 Replace the LCD assembly by following the steps in “Replacing the LCD assembly” on page 40.

18 Replace the keyboard by following the steps in “Replacing the keyboard” on page 28.

19 Replace the keyboard cover by following the steps in “Replacing the keyboard cover” on page 27.

20 Replace the hinge covers by following the steps in “Replacing the hinge covers” on page 26.

21 Replace the hard drive by following the instructions in “Replacing the hard drive” on page 21.

22 If the convertible notebook has wireless networking built in, plug the wireless antennas back in by following the steps in “Replacing the IEEE 802.11 wireless card” on page 16.

23 Replace the wireless bay cover by following the steps in “Replacing the IEEE 802.11 wireless card” on page 16.

24 Insert the bay module by following the instructions in “Replacing a bay module” on page 7.

■

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