

chapter 5

REMOVAL AND REPLACEMENT PROCEDURES

5.1 Serial Number

The computer serial number should be reported to Compaq when requesting information or ordering spare parts. The serial number is located on the bottom of the computer (Figure 5-1).

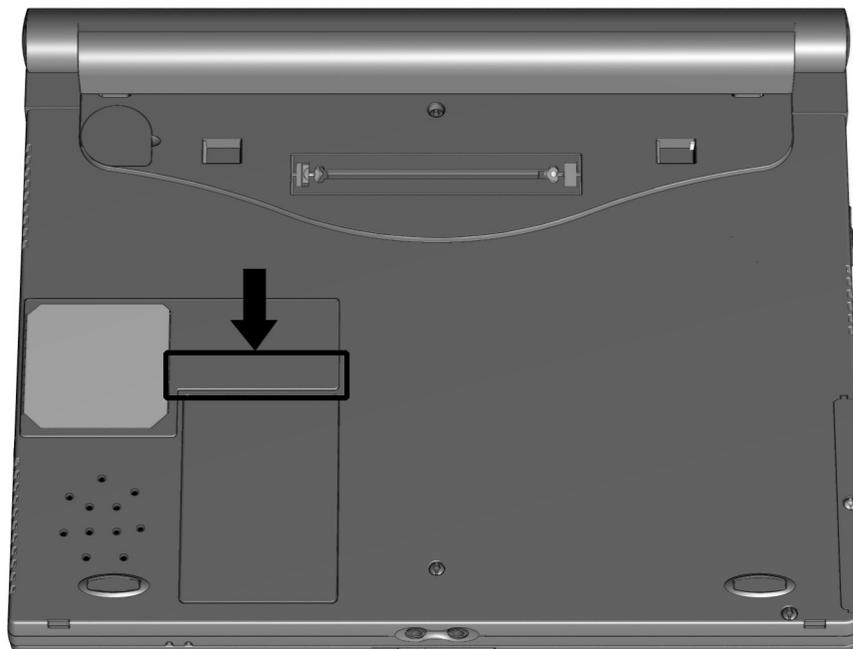


Figure 5-1. Serial Number Location

5.2 Disassembly Reference Chart

Use the chart below to determine the section number to be referenced when removing components from the computer.

5.3	Disconnecting the Computer from the Mobile Expansion Unit
5.4	Disconnecting the Computer
5.5	Preparing the Computer for Disassembly
5.6	Battery Packs
	Removing the Battery Pack
	Replacing the Battery Pack
5.7	Hard Drives
	Removing a Hard Drive
	Inserting a Hard Drive
5.8	PC Cards
	Removing a PC Card
	Inserting a PC Card
5.9	Modem or Modem/NIC Card
5.10	Real Time Clock Battery
5.11	Keyboard
5.12	Memory Expansion
	Removing Memory Expansion Boards
	Installing Memory Expansion Boards
5.13	Switch Cover
5.14	Display Assembly
5.15	Top Cover with TouchPad
5.16	Voltage Converter Board
5.17	Modem Connector Board
5.18	PC Card Connector
5.19	Processor/System Board Assembly

Figure 5-2. Disassembly Reference Chart

5.3 Disconnecting the Computer from the Mobile Expansion Unit

1. Turn off the computer.
2. Close the display.
3. Turn off and disconnect all external devices connected to the computer.
4. On the mobile expansion unit, press the docking release button **1** to release the expansion unit from the computer (Figure 5-3).
5. Lift the rear end of the computer to disconnect it from the computer expansion connector **2**.
6. Pull the computer away from the mobile expansion unit tabs.

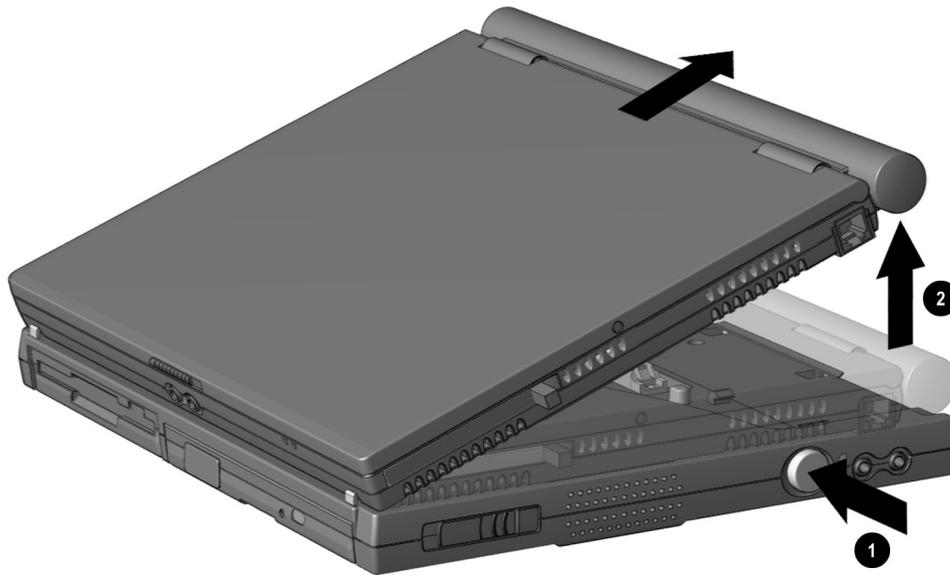


Figure 5-3. Disconnecting the Computer from the Mobile Expansion Unit

5.4 Disconnecting the Computer

1. Disconnect the AC power cord from the AC adapter ❶ (Figure 5-4).
2. Unplug the power cord from the electrical outlet ❷.
3. Disconnect the AC adapter from the power connector on the left side of computer ❸.

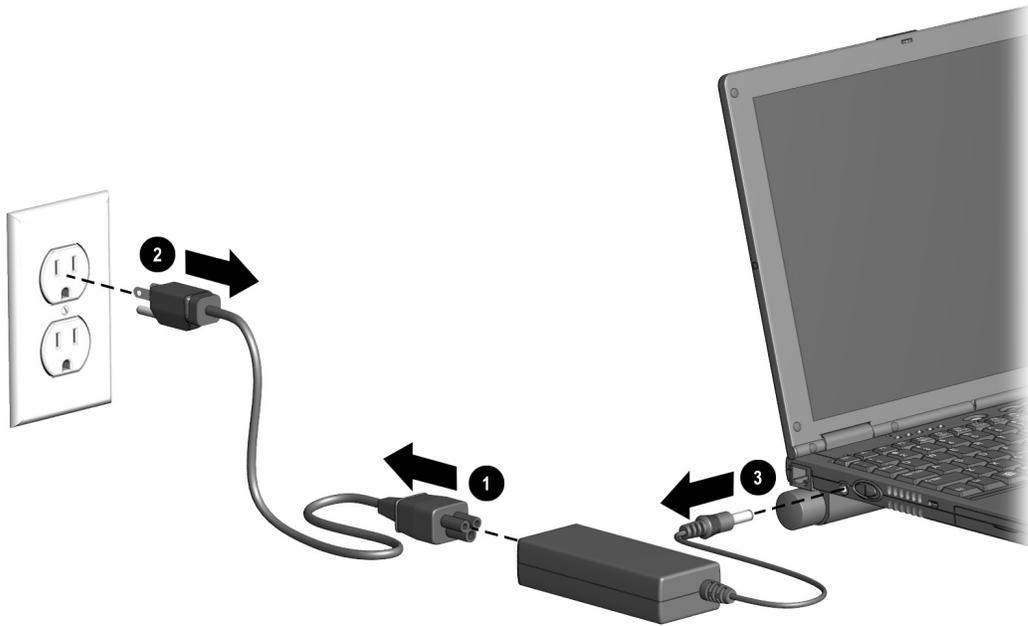


Figure 5-4. Disconnecting the Computer

5.5 Preparing the Computer for Disassembly

1. Disconnect the computer from the mobile expansion unit.
2. Shut down the computer.
3. Disconnect the AC adapter and all external devices connected to the computer.
4. Remove the battery pack (Section 5.6).



CAUTION: Failure to disconnect the AC Adapter from the computer and to remove the battery pack before removing and installing internal components can damage the equipment.

5. Remove the hard drive (Section 5.7).
6. Remove all PC Cards (Section 5.8).

5.6 Battery Packs



WARNING: To reduce the risk of injury or damage to the battery pack, do not crush, puncture, or incinerate the battery pack or short the metal contacts. Do not attempt to open or service the battery pack.

Removing the Battery Pack

1. Shut down the computer.
2. Turn the computer upside down.
3. Tilt the battery pack so it lies flat.
4. Slide in the two battery latches toward each other ❶ (Figure 5-5).
5. Rotate the battery pack 90 degrees toward the computer ❷, and lift the battery pack from the computer ❸.

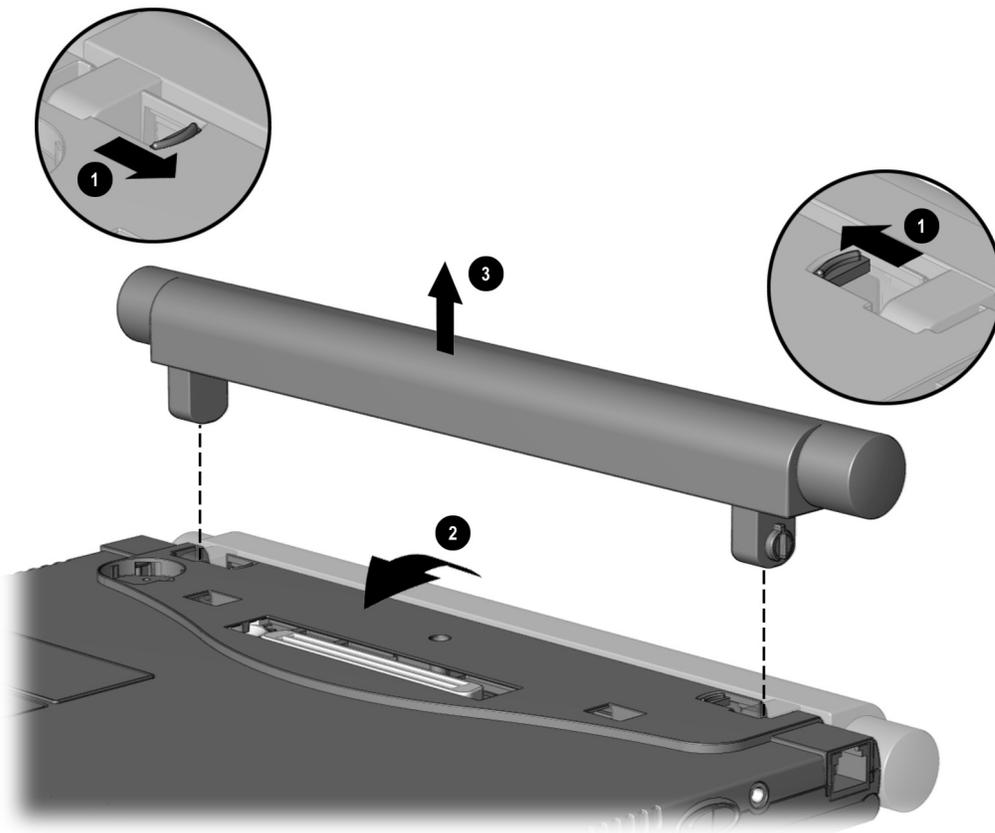


Figure 5-5. Removing the Battery Pack

Replacing the Battery Pack



WARNING: To prevent damage to the computer, do not insert a battery pack until the computer is fully reassembled.

1. Turn the computer upside down.
2. Push the battery pack onto the computer until the contacts connect **1**, and rotate the battery pack 90 degrees toward the back of the computer **2** (Figure 5-6).
3. Slide the two battery latches out (away from each other) **3**.

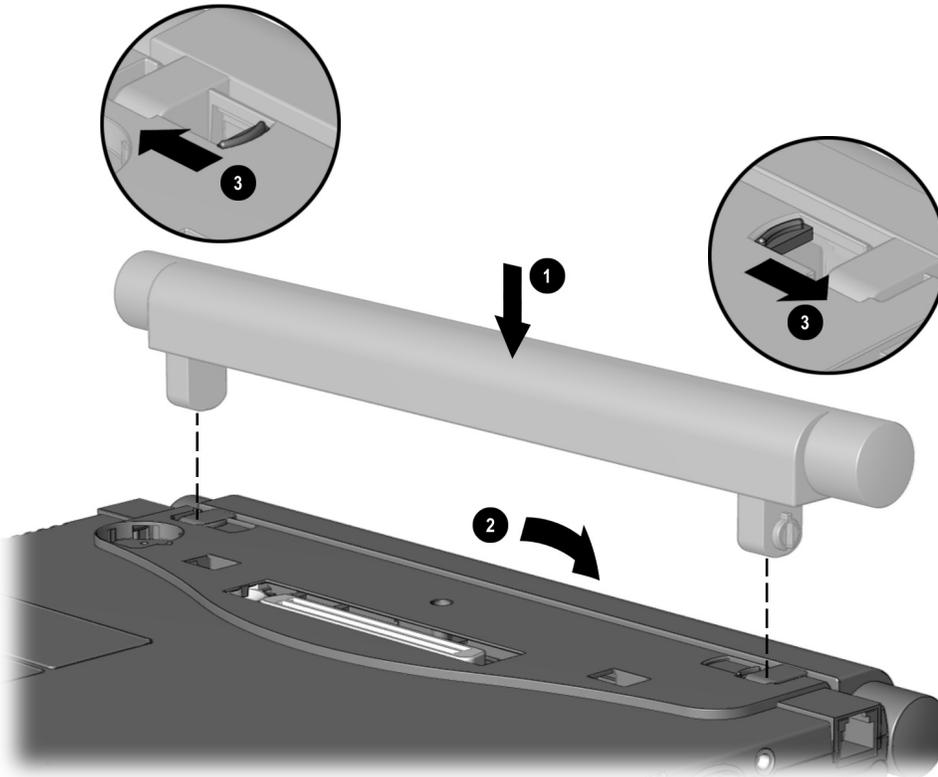


Figure 5-6. Replacing the Battery Pack

5.7 Hard Drives

Removing a Hard Drive

Before removing a hard drive, back up all information on the hard drive.

1. Shut down the computer.
2. Turn the computer upside down.
3. Remove the hard drive screw ❶ (Figure 5-7).
4. Pull up on the front bezel ❷.
5. Slide the hard drive out of the bay ❸.

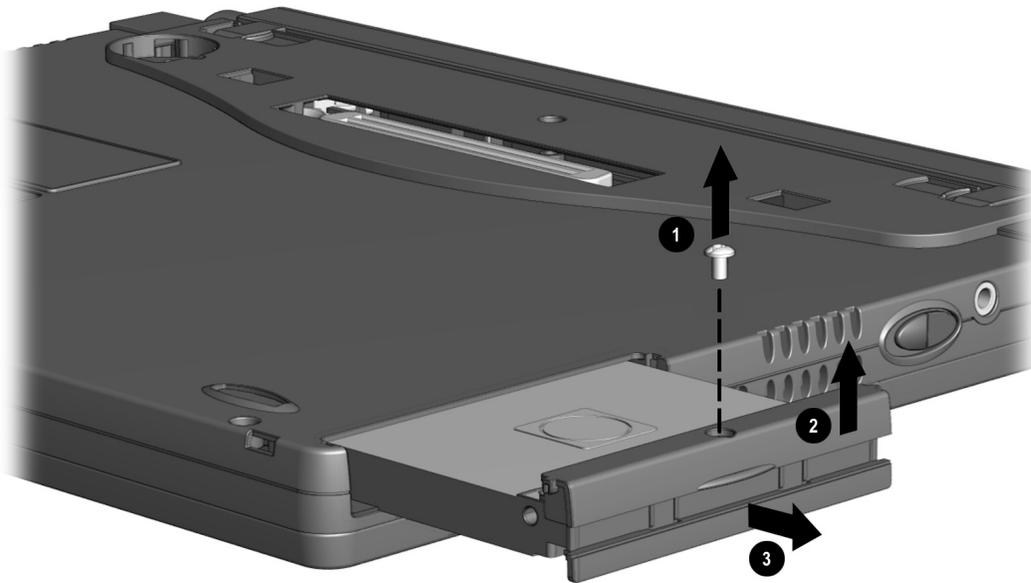


Figure 5-7. Removing a Hard Drive

Inserting a Hard Drive

1. Shut down the computer.
2. Turn the computer upside down.
3. Pull the bottom half of the bezel down.
4. Slide the hard drive into the bay until the connector is seated **1** (Figure 5-8).
5. Push the front bezel down **2**.
6. Insert the hard drive screw **3**.

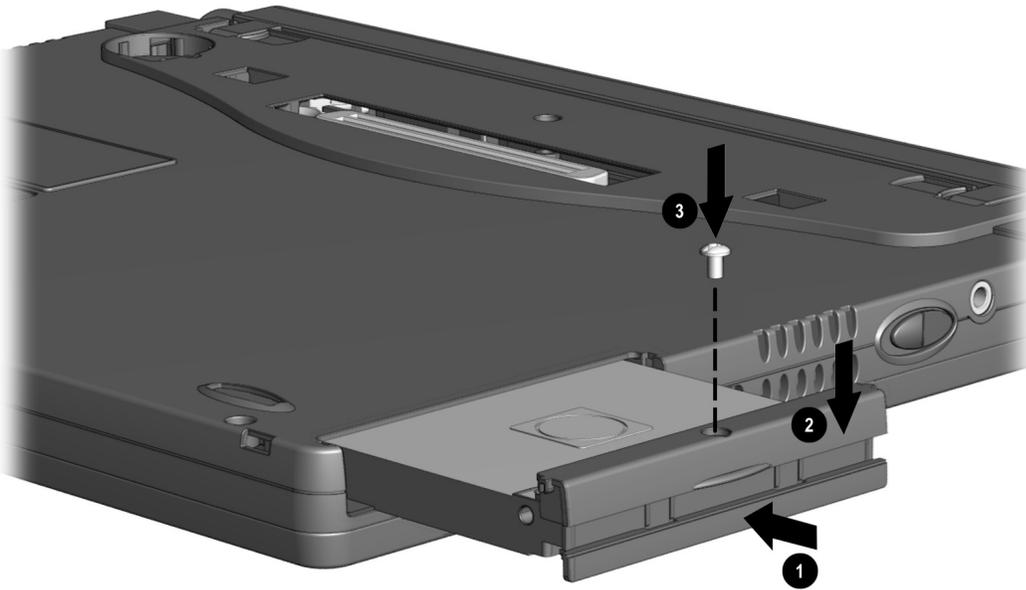


Figure 5-8. Inserting a Hard Drive

5.8 PC Cards

The procedure for removing PC Cards varies with the operating system being used and with the kind of PC Card being removed.

In Windows 95 or Windows 98—

- If you insert a PC Card while the computer is on, the computer beeps twice when the card is ready for use.
- If you remove a PC Card while the computer is on, the computer beeps twice when the card is removed.
- When a PC Card is in the system, the PC Card icon displays on the taskbar.

In Windows NT 4.0 with CardWare from Compaq—

- If you insert a PC Card while the computer is on, the computer beeps three times when the card is recognized.
- If you remove a PC Card while the computer is on, the computer beeps three times when the card is removed.
- The PC Card icon displays in the taskbar whether or not a PC Card is in the system.

Removing a PC Card

First, prepare the system for the removal:



CAUTION: If the computer is on and running Windows 95, failure to stop a PC Card before removing it may cause loss of data.

- **In Windows 95 or Windows 98**—If the computer is on, stop the PC Card before you remove it. To stop a PC Card, select the PC Card icon in the taskbar, then select the PC Card you want to stop. A message displays when the PC Card can be safely removed.
- **In Windows NT 4.0 with CardWare provided by Compaq**—If the computer is on, you must shut it down before removing some PC Cards. Refer to the PC Card documentation for removal requirements. Second, remove the PC Card:
 1. Press the PC Card eject button ❶ (Figure 5-9).
 2. Gently grasp the card and pull it out ❷.

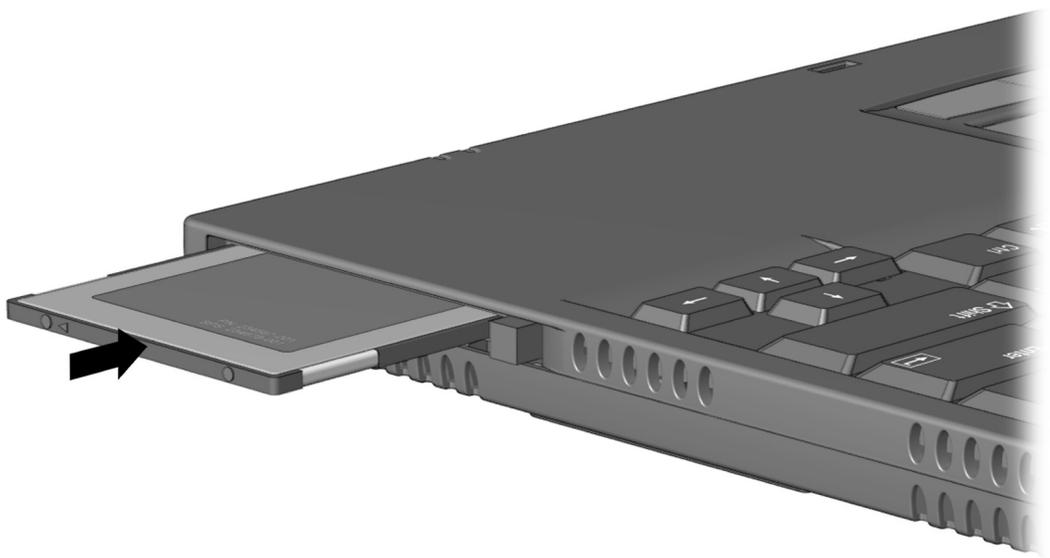


Figure 5-9. Removing a PC Card

Inserting a PC Card



CAUTION: To prevent damage to the connectors, use minimal pressure as you insert a PC Card into the PC Card slot.

1. With the connector facing the computer and the label side up, insert the PC Card in the slot, aligning the card on the two guide rails inside the PC Card slot (Figure 5-10).
2. Gently push the card into the slot until the card is seated.

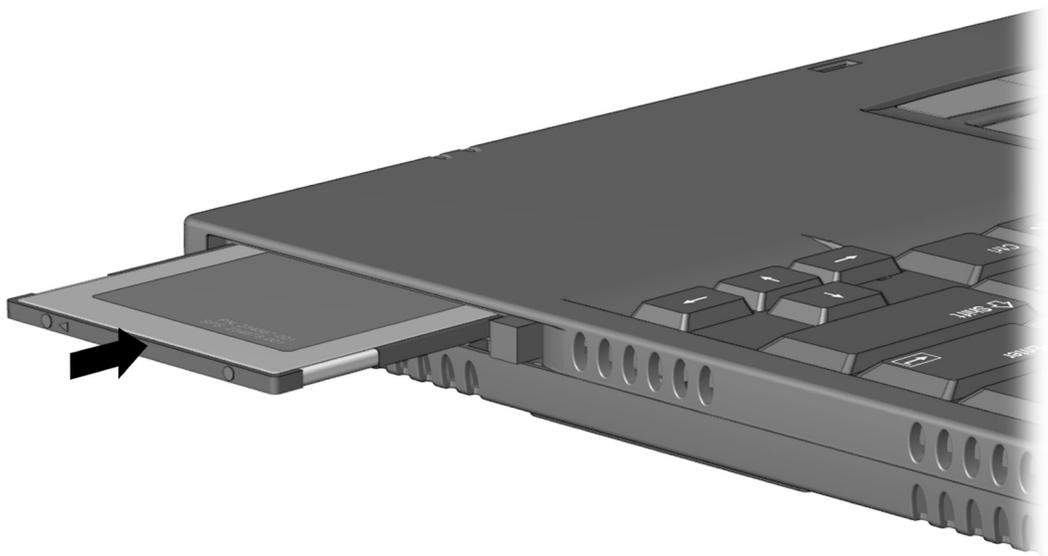


Figure 5-10. *Inserting a PC Card*

5.9 Modem or Modem/NIC Card

1. Prepare the computer for disassembly (Section 5.5).
2. If attached, disconnect the RJ-11 and RJ-45 cables from the computer.
3. Turn the computer upside down with the front facing forward.
4. Remove the two screws that secure the modem or modem/NIC card cover to the base assembly ❶ (Figure 5-11).
5. Lift the front edge of the cover and swing it back ❷.
6. Remove the cover ❸.

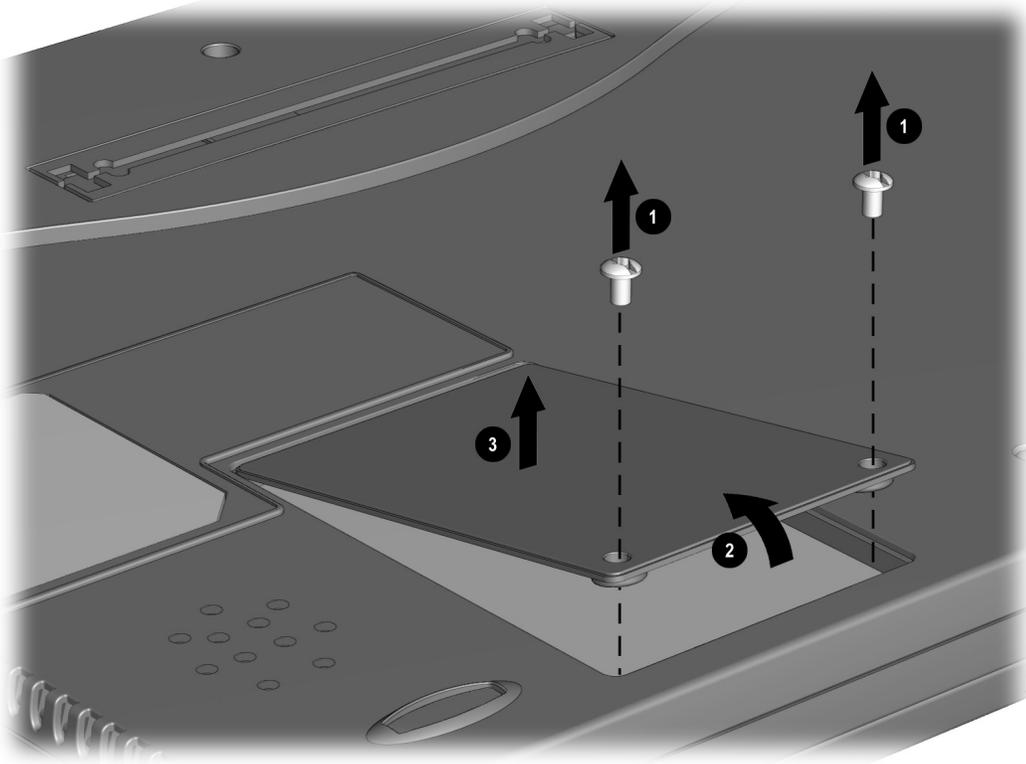


Figure 5-11. Removing the Modem or Modem/NIC Card Cover

7. Lift up on the back of the modem or modem/NIC card ❶, and swing it forward to disconnect it from the system board ❷ (Figure 5-12).
8. Use the connector removal tool to disconnect all cables connected to the card ❸.
9. Remove the card.

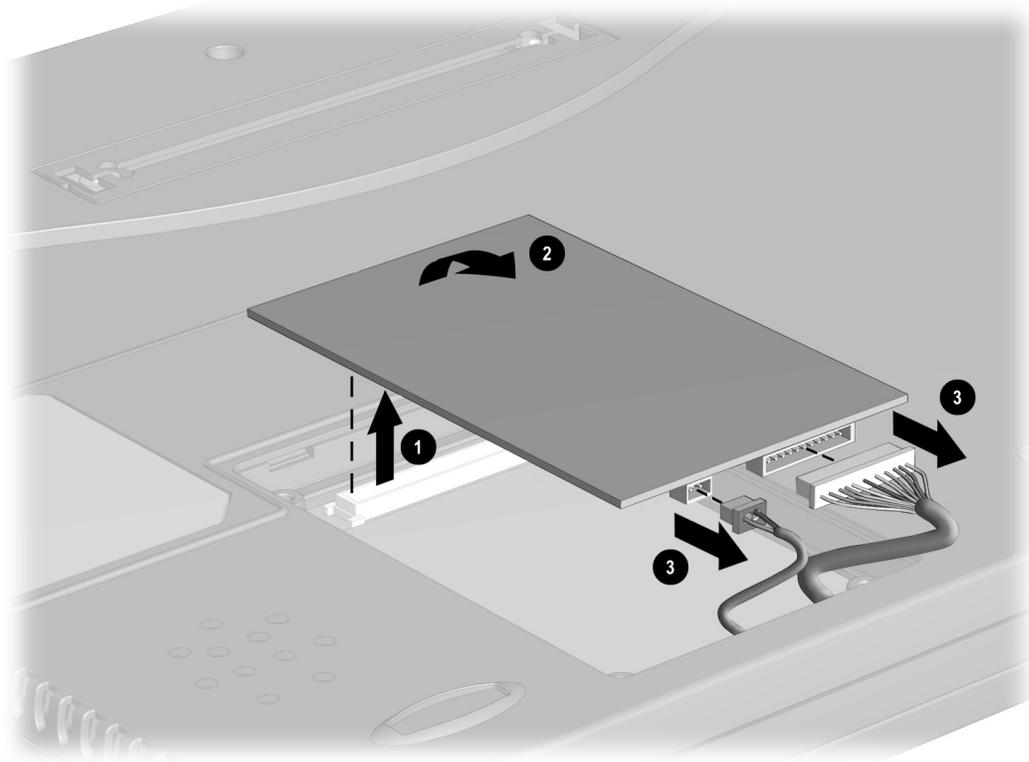


Figure 5-12. Removing the Modem or Modem/NIC Card

Reverse the above procedure to install the modem or modem/NIC card.

5.10 Real Time Clock (RTC) Battery

1. Prepare the computer for disassembly (Section 5.5).
2. Turn the computer upside down with the rear panel facing forward.
3. Remove the RTC battery cover by lifting it at the indentation **1** (Figure 5-13).
4. Remove the battery from the base enclosure **2**.
5. Use the connector removal tool to disconnect the RTC battery cable from the system board **3**.
6. Remove the battery.

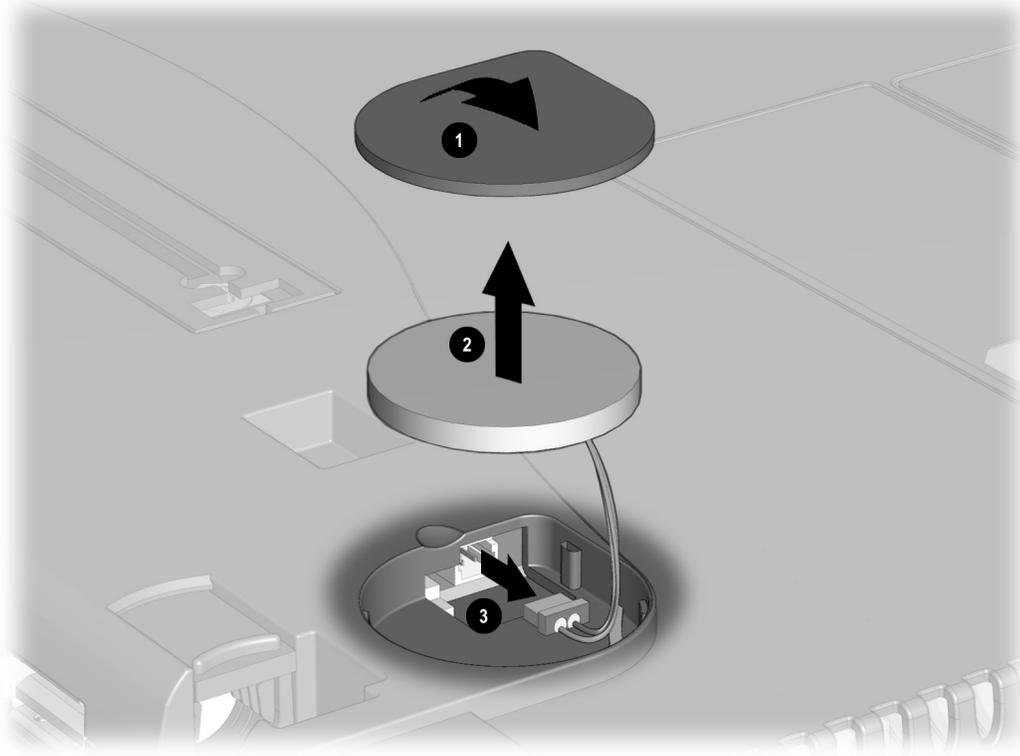


Figure 5-13. Removing the RTC Battery

Reverse the above procedure to install the RTC battery.

5.11 Keyboard

1. Prepare the computer for disassembly (Section 5.5).
2. Press down on each of the three release tabs **1** along the top edge of the keyboard (Figure 5-14).
3. Swing the top edge of the keyboard up and forward **2**.

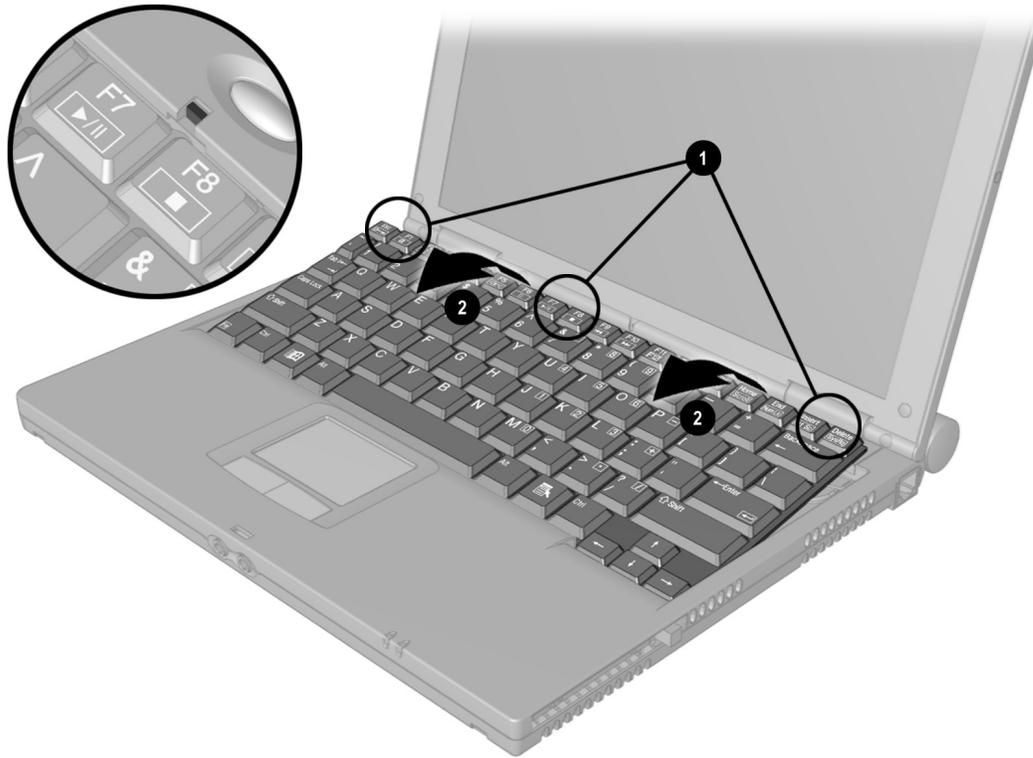


Figure 5-14. Releasing the Keyboard

4. Use the connector removal tool to release the keyboard cable from the ZIF connector ❶ (Figure 5-15).
5. Use the connector removal tool to disconnect the keyboard cable ❷.
6. Remove the keyboard.

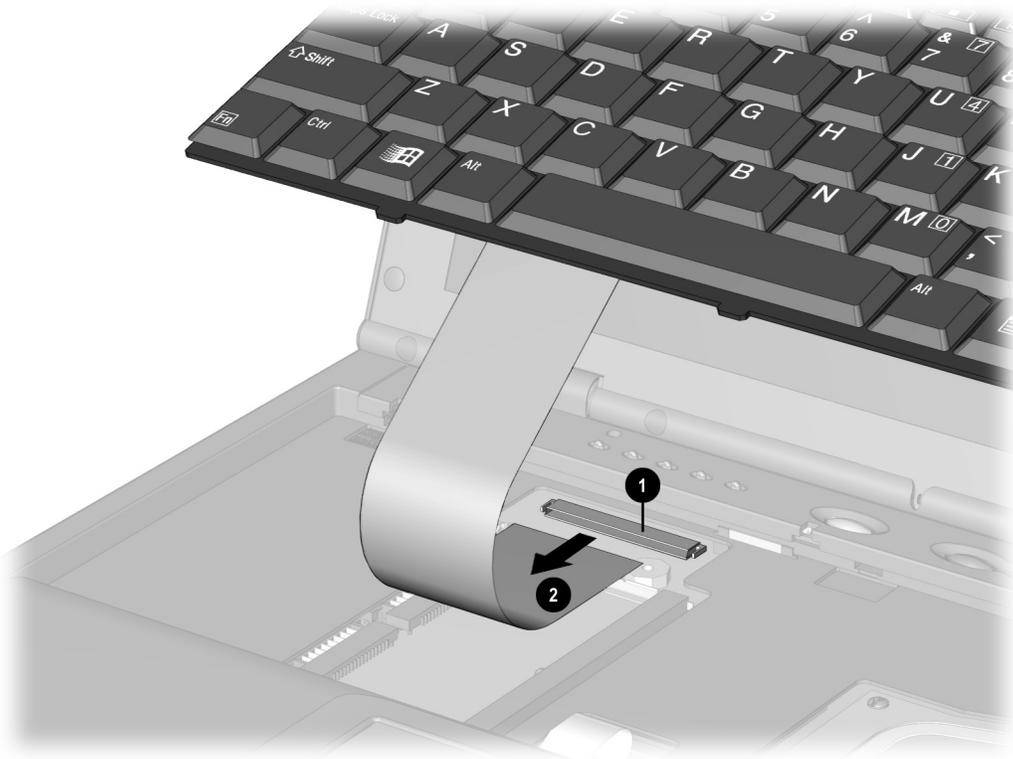


Figure 5-15. *Disconnecting the Keyboard Cable*

Reverse the above procedure to install the keyboard.

5.12 Memory Expansion

Removing the Memory Expansion Board



WARNING: Failure to unplug the power cord and to remove the battery pack before installing a memory expansion board can damage the equipment and expose you to the risk of electrical shock.



CAUTION: Electrostatic discharge (ESD) can damage electronic components. Before beginning this procedure, ensure that you are properly grounded. For more information, refer to “Preventing Electrostatic Damage” in Chapter 4.

NOTE: There is only one memory expansion slot in the computer. Before upgrading memory, you must remove the memory board that came with the computer.

1. To remove the memory board, pull away the plastic retention clips on each side of the memory board ❶. The memory expansion board tilts upward (Figure 5-16).
2. Lift the edge of the memory expansion board and slide it gently out of the memory expansion slot at a 45-degree angle ❷.
3. If applicable, turn back the memory insulator.
4. Place the removed memory expansion board in an electrostatic-safe container.

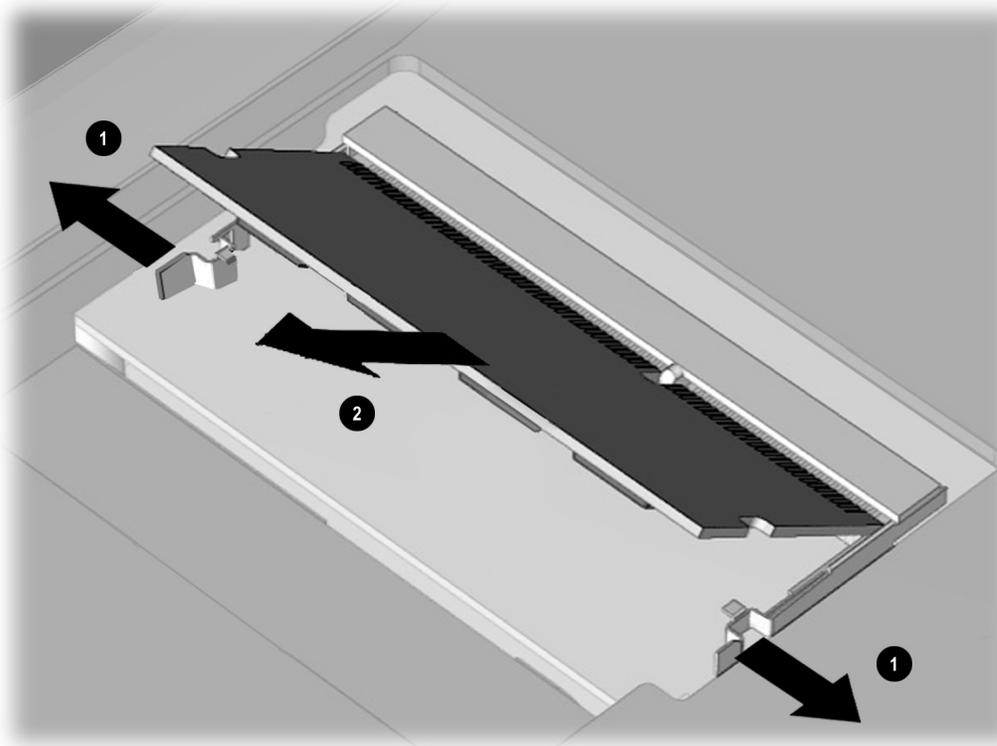


Figure 5-16. Removing the Memory Board

Installing the Memory Expansion Board

1. To add a memory board, insert the memory expansion board into the empty memory expansion slot at a 45-degree angle ❶. Then slide it gently into place until it is seated while tilted (Figure 5-17).

NOTE: All memory expansion boards supported by the computer are keyed (notched) to ensure correct positioning.

2. Push the memory expansion board down until the plastic retention clips ❷ snap into place.
3. Replace the memory insulator, if applicable.
4. Replace the keyboard by gently pressing down on the top of the keyboard until it clicks into place.

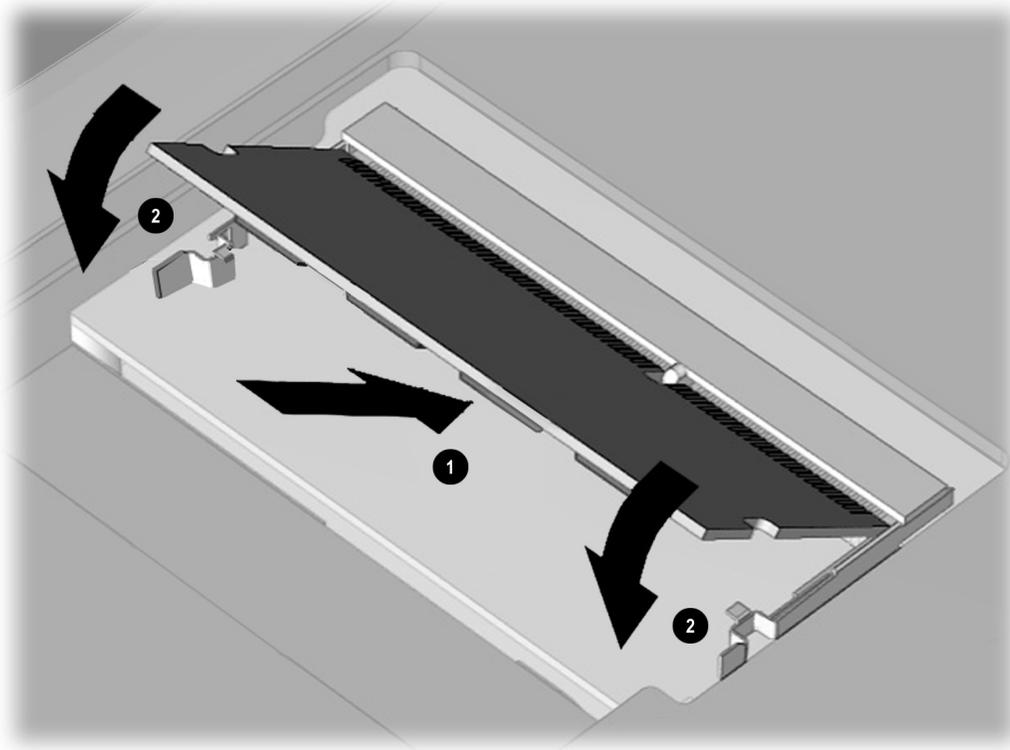


Figure 5-17. Installing the Memory Board

5.13 Switch Cover

1. Prepare the computer for disassembly (Section 5.5).
2. Remove the keyboard (Section 5.11).
3. Position the computer so the rear panel faces forward.
4. Remove the two screws from the rear panel of the computer that secure the switch cover to the base assembly (Figure 5-18).

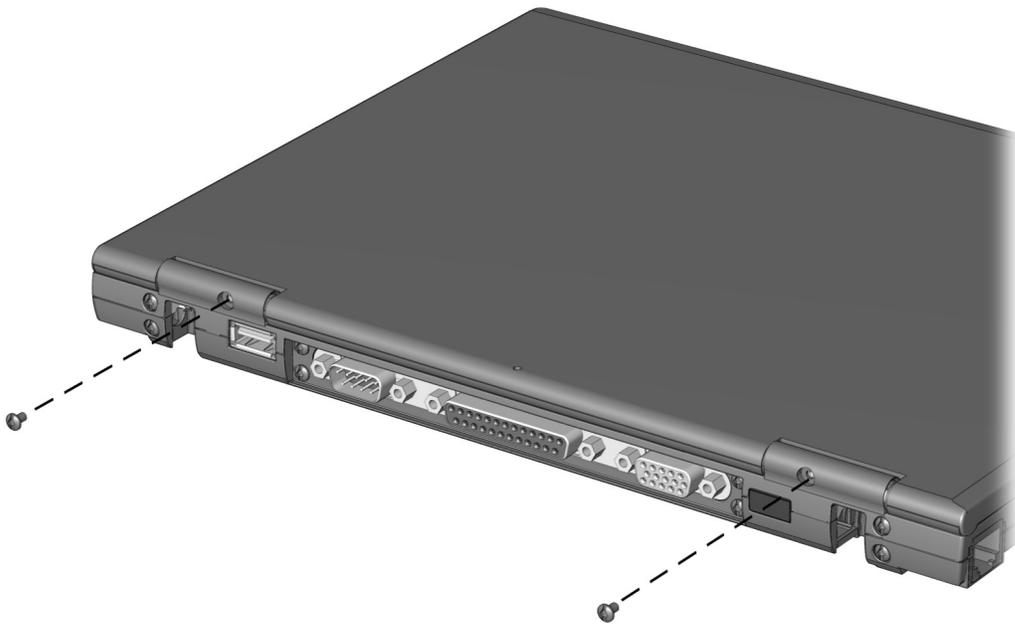


Figure 5-18. Removing the Switch Cover Screws

5. Position the computer so the front faces forward.
6. Open the computer as far as it will open.
7. Swing the back edge of the switch cover forward **1** (Figure 5-19).
8. When the switch cover disengages from the base assembly, remove the cover **2**.

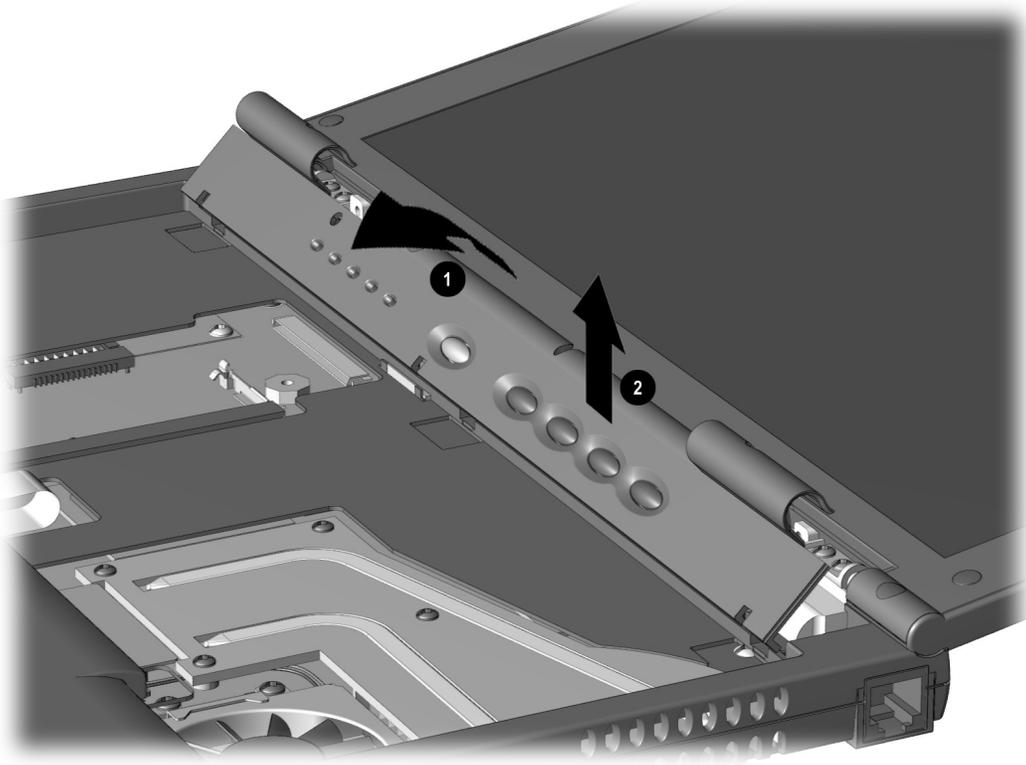


Figure 5-19. Removing the Switch Cover

Reverse the above procedure to install the switch cover.

5.14 Display Assembly

1. Prepare the computer for disassembly (Section 5.5).
2. Remove the keyboard (Section 5.11).
3. Remove the switch cover (Section 5.13).
4. Use the connector removal tool to disconnect the inverter cable ❶ from the system board (Figure 5-20).
5. Use the connector removal tool to disconnect the microphone cable ❷ and the video cable ❸ from the system board.
6. Remove display screw covers from the hinges connecting the display assembly to the base assembly.
7. Remove the four screws (two on each hinge) ❹ that secure the display assembly to the base assembly.
NOTE: When these four screws are removed, the display assembly is unsupported. Make sure to support the display assembly when removing these screws.
8. Remove the display assembly.

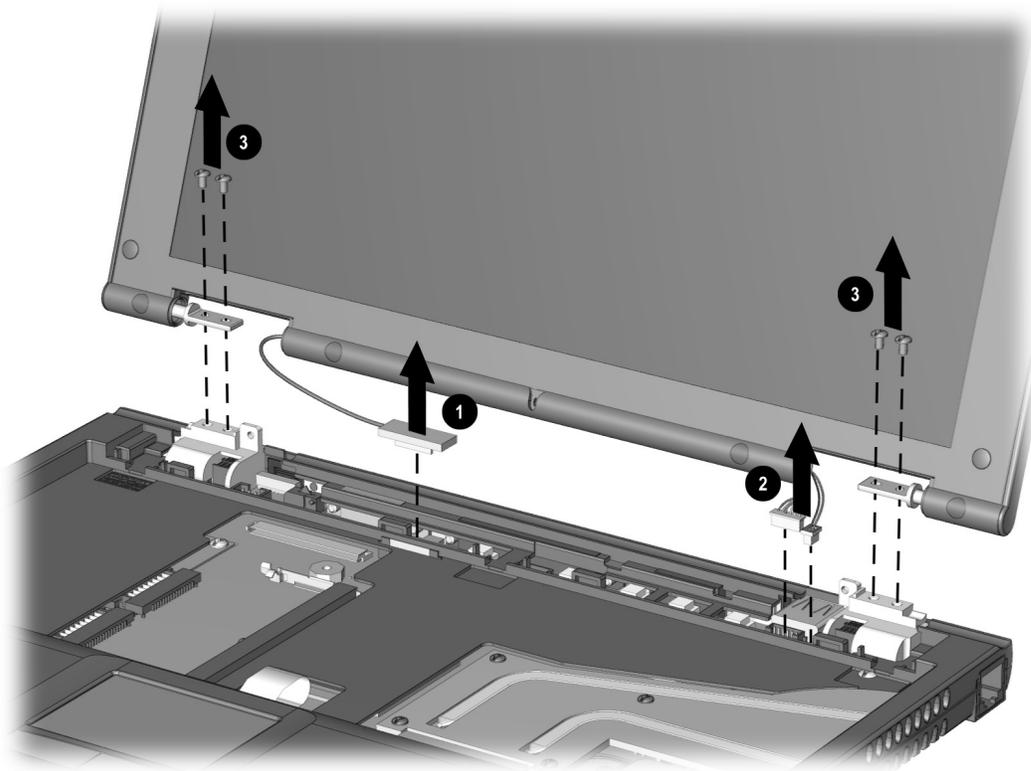


Figure 5-20. Removing the Display Assembly

Reverse the above procedure to install the display.

5.15 Top Cover with TouchPad

NOTE: The power button and infrared lens are easily dislodged when the top cover is removed. Make note of their location and orientation before removing the top cover.

1. Prepare the computer for disassembly (Figure 5.5).
2. Remove the keyboard (Section 5.11).
3. Remove the switch cover (Section 5.13).
4. Remove the display assembly (Section 5.14).
5. Turn the computer upside down with the rear panel facing forward.
6. Remove the seven screws from the bottom of the computer (Figure 5-21).
7. Remove the four screws from the back of the computer.

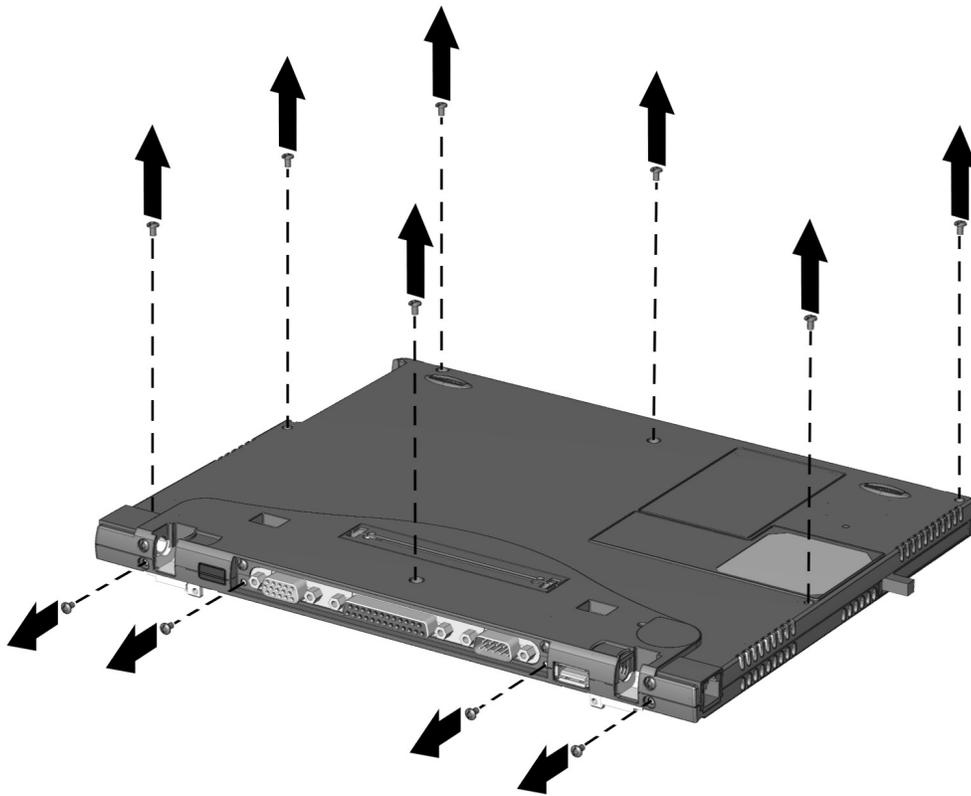


Figure 5-21. Removing the Top Cover Screws

8. Turn the computer right side up with the front facing forward.
9. Use the connector removal tool to disconnect the TouchPad cable ❶ from the system board (Figure 5-22).
10. Press in on the front of the top cover at the highlighted area ❷, and swing the front edge of the cover up and away from the base assembly ❸.
11. Remove the top cover.

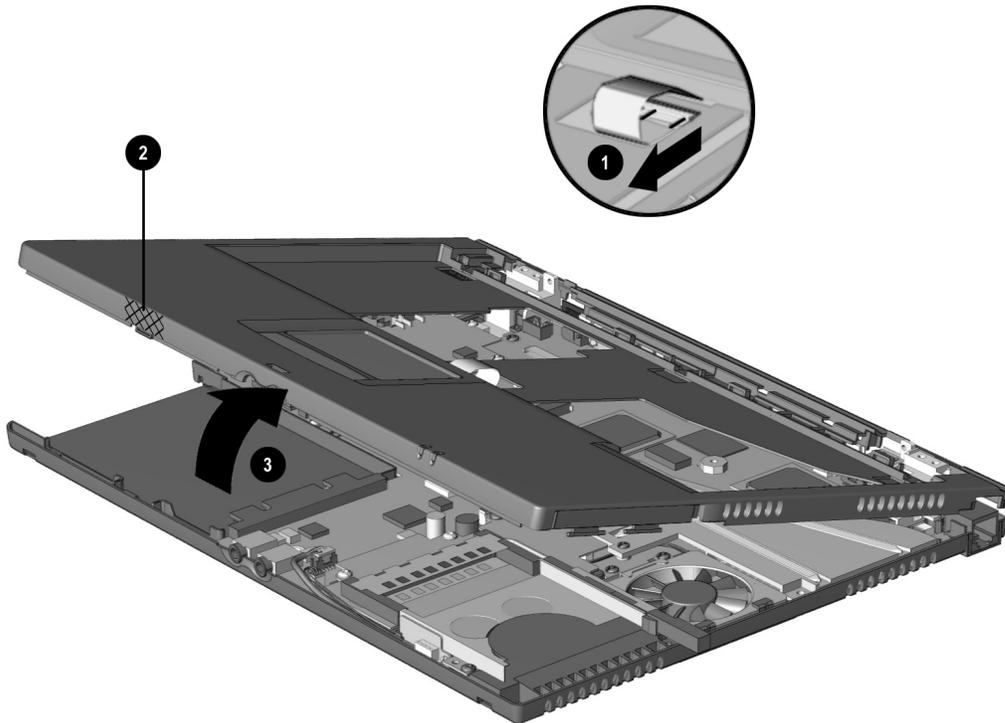


Figure 5-22. *Removing the Top Cover*

Reverse the above procedure to install the top cover. Make sure the power switch and infrared lens are replaced in their appropriate locations before attempting to install the top cover.

5.16 Voltage Converter Board

NOTE: When removing the voltage converter board from the system board, be careful of the connectors on the right side of the voltage converter board.

1. Prepare the computer for disassembly (Section 5.5).
2. Remove the keyboard (Section 5.11).
3. Remove the switch cover (Section 5.13).
4. Remove the display assembly (Section 5.14).
5. Remove the top cover (Section 5.15).
6. Remove the two screws ❶ that secure the voltage converter board to the system board (Figure 5-23).
7. Lift up the left side of the voltage converter ❷ until it clears the left edge of the base assembly.
8. Pull the voltage converter board to the left to disconnect it from the system board ❸.

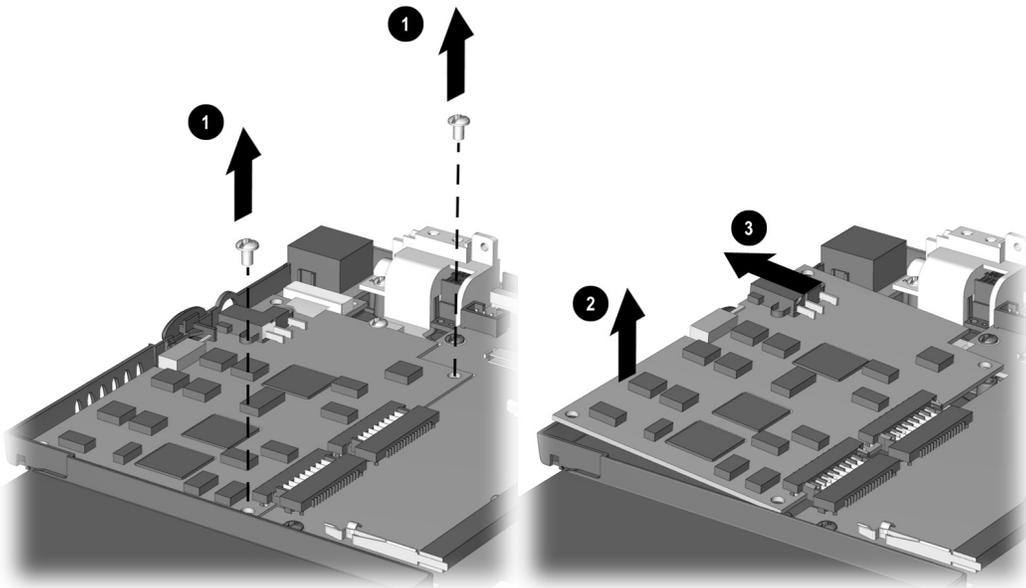


Figure 5-23. Removing the Voltage Converter Board

Reverse the above procedure to install the voltage converter board. Make sure to attach the connectors on the right side of the board to the system board first.

5.17 Modem Connector Board

1. Prepare the computer for disassembly (Section 5.5).
2. Remove the modem or modem/NIC card (Section 5.9).
3. Remove the keyboard (Section 5.11).
4. Remove the switch cover (Section 5.13).
5. Remove the display assembly (Section 5.14).
6. Remove the top cover (Section 5.15).
7. Remove the two screws that secure the modem connector board **1** to the system board (Figure 5-24).
8. Lift up on the modem connector board **2** to disconnect it from the system board.
9. Remove the modem connector board.

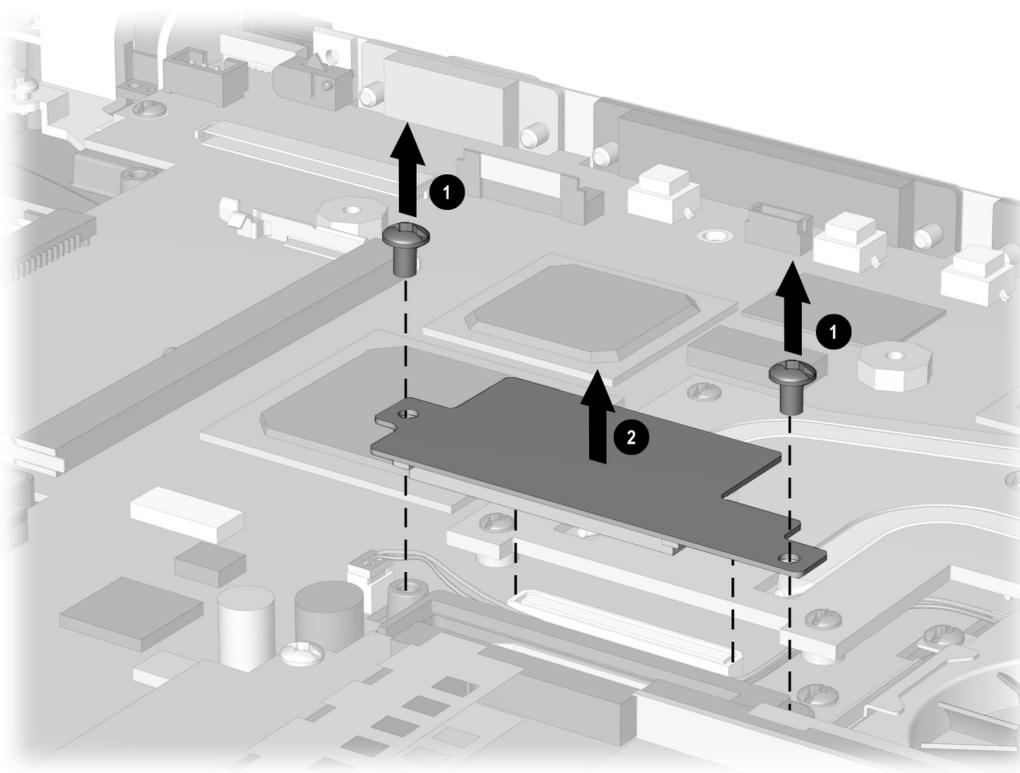


Figure 5-24. Removing the Modem Connector Board

Reverse the above procedure to install the modem connector board.

NOTE: When installing the modem connector board, make sure the fan cable is routed between the connector and the modem connector area (Figure 5-25). Do not route the cable next to the heat sink.

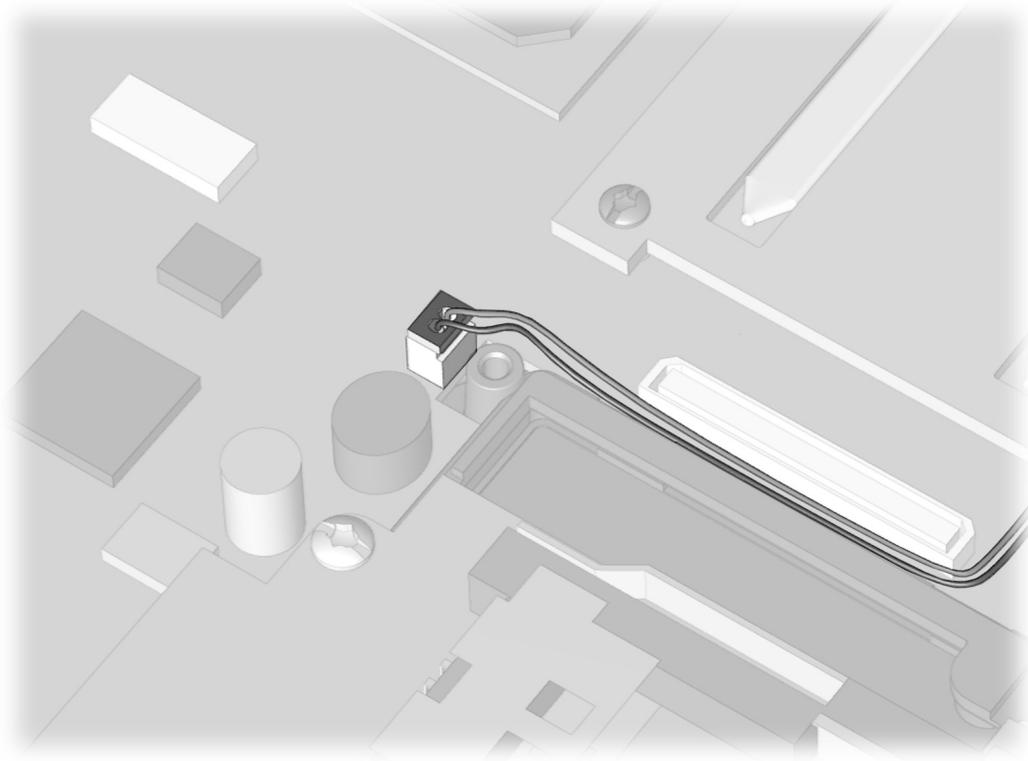


Figure 5-25. Routing the Fan Cable

5.18 PC Card Assembly

IMPORTANT: There are different-sized screws securing the PC Card assembly to the system board. Make note of the location of these screws.

1. Prepare the computer for disassembly (Section 5.5).
2. Remove the modem or modem/NIC card (Section 5.9).
3. Remove the keyboard (Section 5.11).
4. Remove the switch cover (Section 5.13).
5. Remove the display assembly (Section 5.14).
6. Remove the top cover (Section 5.15).
7. Remove the modem connector board (Section 5.17).
8. Remove the two silver screws **1** on the left side of the PC Card assembly (Figure 5-26).
9. Remove the black screw **2** securing the front of the PC Card assembly to the base assembly.
10. Lift the left side of the PC Card assembly **3** to disconnect it from the system board.

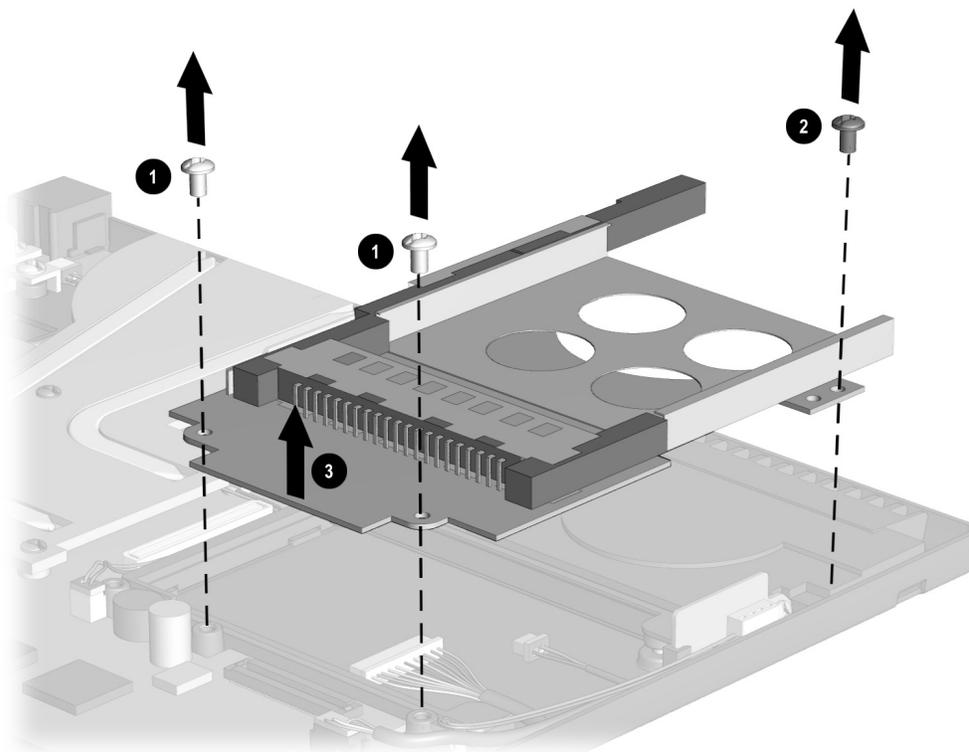


Figure 5-26. Removing the PC Card Assembly

Reverse the above procedures when installing the PC Card assembly.

IMPORTANT: Be sure to route the audio and light board cables between the PC Card assembly and the base plastic. Do not route the cables near the heat sink.

5.19 System Board

IMPORTANT: There are different-sized screws securing the system board to the base enclosure. Make note of the location of these screws. Also, when the system board is removed, components of the base enclosure may come loose. Note the location and orientation of all base enclosure components.

1. Prepare the computer for disassembly (Section 5.5).
2. Remove the RTC battery (Section 5.10).
3. Remove the keyboard (Section 5.11).
4. Remove the switch cover (Section 5.13).
5. Remove the display assembly (Section 5.14).
6. Remove the top cover (Section 5.15).
7. Remove the modem connector board (Section 5.17).
8. Remove the PC Card assembly (Section 5.18).
9. Position the computer so the front faces forward.
10. Use the connector removal tool to disconnect the left battery terminal cable **1**, right battery cable **2**, fan cable **3**, LED cable **4**, and speaker cable **5** (Figure 5-27)

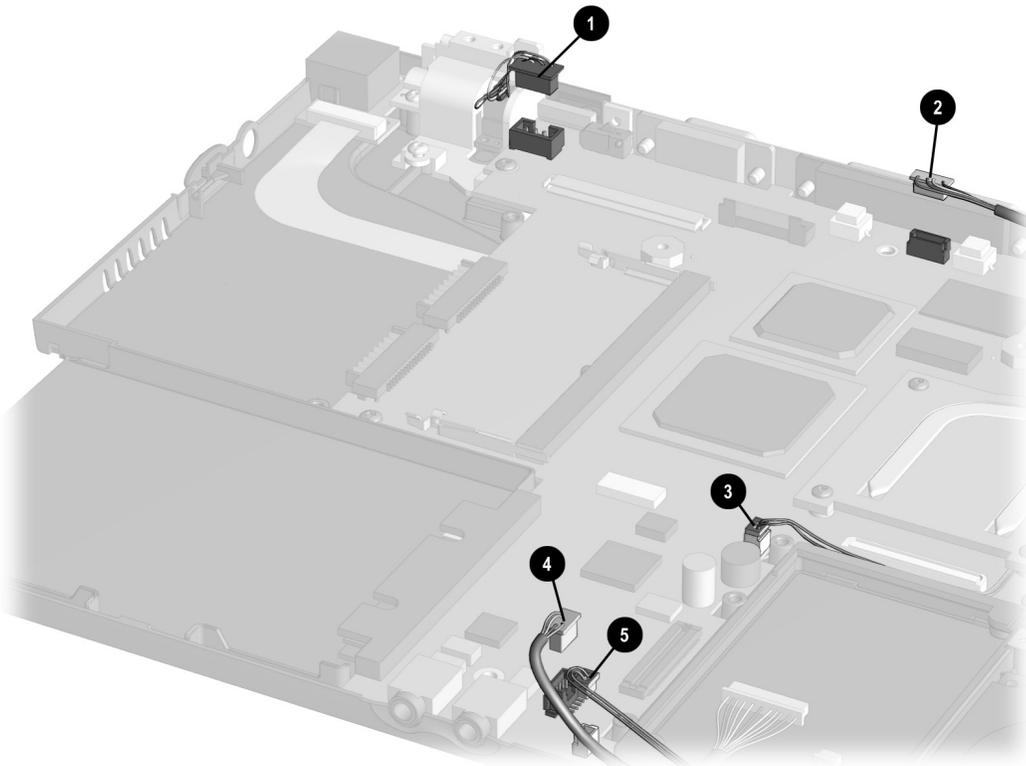


Figure 5-27. *Disconnecting Cables from the System Board*

11. Remove the two screws from the back of the computer that secures the system board to the base enclosure ❶ (Figure 5-28).
12. Remove the silver screw from the heat sink ❷.
13. Remove the black screws from around the fan ❸, around the USB port ❸, and around the battery cable in the upper left of the board ❸.
14. Lift up the rear edge of the system board.
15. Remove the system board.

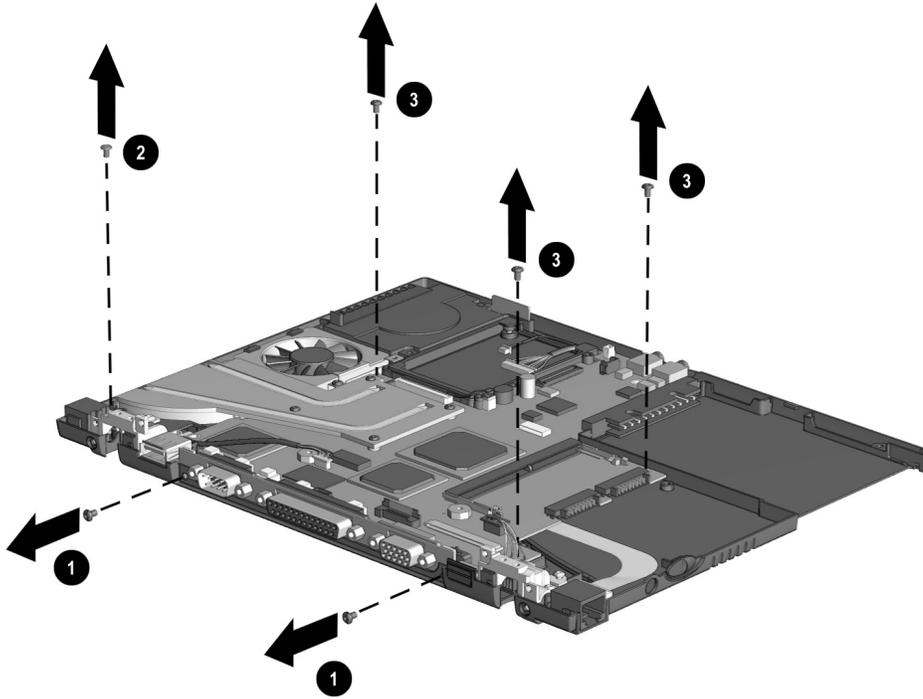


Figure 5-28. Removing the System Board

Reverse the above procedure when installing the system board. Make sure to replace all components of the base enclosure into their appropriate locations.