

Chapter 4 Replacement Procedures

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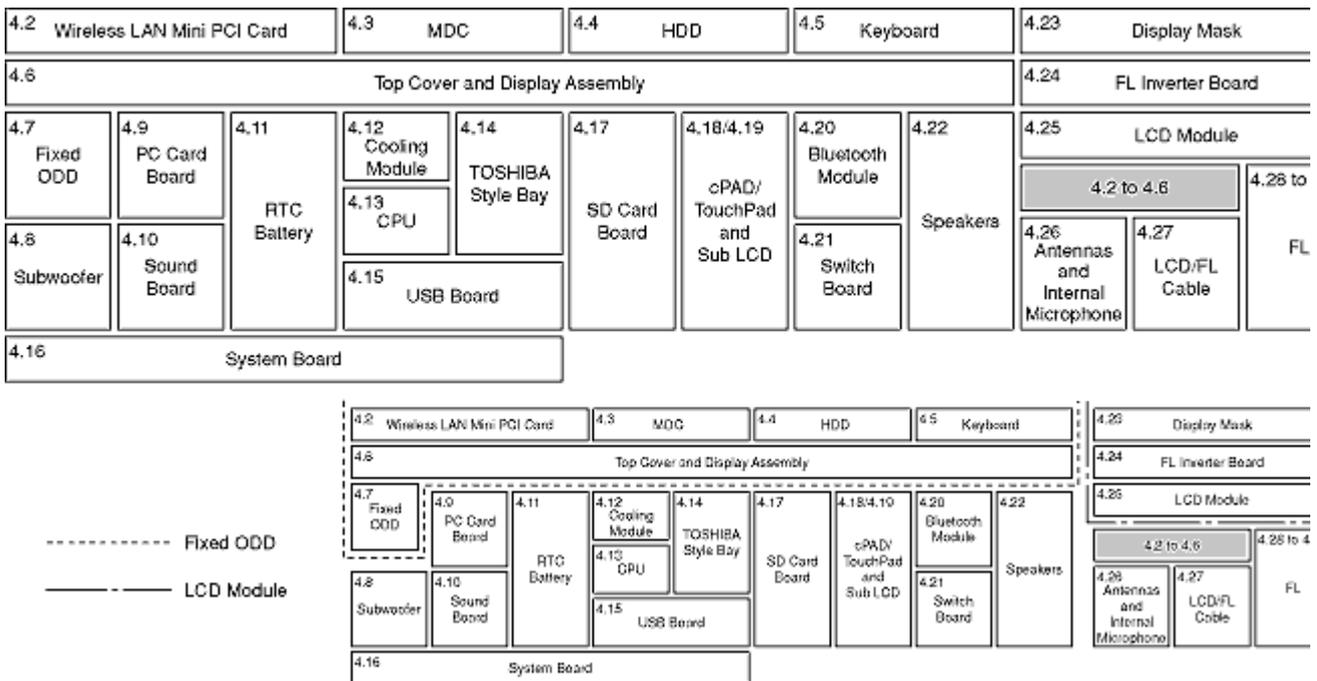
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4.1 General

This section explains how to disassemble the computer and replace Field Replaceable Units (FRUs). It may not be necessary to remove all the FRUs in order to replace one. The chart below is a guide to which FRUs need to be removed in order to remove others. Always start by removing the battery pack, next, optional items such as the optional PC Card, then follow the line on the chart to determine which FRU you must remove next in order to repair the one you think is causing the computer to operate improperly. Refer to the example at the bottom of the page.



The example to the right shows FRUs to be removed for the DVD-ROM drive and for the LCD module. The DVD-ROM drive is overlapped by the top cover and display assembly, which is overlapped by the keyboard, MDC, Mini PCI Card and HDD. The LCD module is overlapped by the FL inverter board and display mask.

Safety Precautions

Before you begin disassembly, read the following safety precautions and observe them carefully as you work.

DANGER:

1. Always use the lithium ion battery pack or backup battery that is authorized by Toshiba or compatible with the unit. Since other battery packs have different specifications, they may be incompatible with the unit, and may burst or explode. Heating or disassembling the battery pack could cause leakage of alkaline solution. Throwing the battery pack into a fire could cause the battery pack to explode.
2. The power supply, FL inverter and other components carry high voltages. To avoid the risk of electric shock when you need to turn on the power of a partially disassembled computer to check its operation, be very careful not to touch connectors or components. Also, do not disassemble individual components in first-level maintenance.

WARNING: To avoid the risk of electric shock or other injury:

1. Always turn the power off and disconnect the AC adaptor from the power source.
2. Remove any metal jewelry or accessories such as necklaces, bracelets, or rings. Batteries in the computer retain an electrical charge so there is danger of electrical shock even when the computer is disconnected from an AC power source.
3. Never work with wet or damp hands.

4. *The computer contains many sharp edges and corners, so be careful not to injure yourself.*
5. *Make sure that all replacement components meet the specifications for the computer and that all cables and connectors are securely fastened.*

CAUTION: *To avoid damage to the computer:*

1. *When you change a component, be sure the replacement component meets the required specifications. Never use parts not recommended by Toshiba.*
2. *Metal objects such as screws or paper clips which fall into the unit can cause a short-circuit, fire, or other internal damage.*
3. *When assembling the computer, make sure you use the correct screws to secure the various pieces in place. Screw sizes are listed in their corresponding figure. Make sure all screws are securely fastened. Loose screws can cause short circuits, resulting in heat, smoke, or fire.*
4. *Before removing an FRU or other component, make sure all cables to the component have been disconnected.*
5. *If you use AC power, be sure to use the cable that came with the computer or one recommended by Toshiba.*

Before You Begin

Look over the procedures in this section before you begin disassembling the computer. Familiarize yourself with the disassembly and reassembly steps. Begin each procedure by removing the AC adaptor and the battery pack as instructed in this section.

1. Do not disassemble the computer unless it is operating abnormally.
2. Use only the correct and approved tools.
3. Make sure the working environment is free from the following elements whether you are using or storing the computer.
 - Dust and contaminants
 - Static electricity
 - Extreme heat, cold and humidity
4. Make sure the FRU you are replacing is causing the abnormal operation by performing the necessary diagnostics tests described in this manual.
5. Do not perform any operations that are not necessary and use only the described procedures for disassembling and installing FRUs in the computer.
6. After removing parts from the computer, place them in a safe place away from the computer so they will not be damaged and will not interfere with your work.
7. You will remove and replace many screws when you disassemble the computer. When you remove screws, make sure they are placed in a safe place and identified with the correct parts.
8. When assembling the computer make sure you use the correct screws to secure the various pieces. Screw sizes are listed in their corresponding figures.
9. The computer contains many sharp edges and corners, so be careful not to

injure yourself.

10. After you have replaced an FRU, make sure the computer is functioning properly by performing the appropriate test on the FRU you have fixed or replaced.

Disassembly Procedures

The computer has two basic types of cable connectors:

- Pressure Plate Connectors
- Normal Pin Connectors

To disconnect a Pressure Plate connector, lift up the tabs on either side of the connector's plastic pressure plate and slide the cable out of the connector. To connect the cable to a Pressure Plate connector, make sure the pressure plate is fully lifted and slide the cable into the connector. Secure the cable in place by pushing the sides of the pressure plate down so the plate is flush with the sides of the connector. Gently pull on the cable to make sure the cable is secure. If you pull out the connector, connect it again making sure the connector's pressure plate is fully lifted when you insert the cable.

Standard pin connectors are used with all other cables. These connectors can be connected and disconnected by simply pulling them apart or pushing them together.

Assembly Procedures

After you have disassembled the computer and fixed or repaired the problem that was causing the computer to operate abnormally, you will need to reassemble the computer.

Install all the removed FRUs following the steps described in the corresponding sections in this chapter.

While assembling the computer, remember the following general points:

- Take your time, making sure you follow the instructions closely. Most problems arise when you get in a hurry assembling the computer.
- Make sure all cables and connectors are securely fastened.
- Before securing the FRU or other parts, make sure that no cables will be pinched by screws or the FRU.
- Check that all latches are closed securely.
- Make sure all the correct screws are used to secure all FRUs. Using the wrong screw can either damage the threads on the screw or the head of the screw and may prevent proper seating of an FRU.

After installing an FRU in the computer, confirm that the FRU and the computer are functioning properly.

Tools and Equipment

The use of Electrostatic Discharge (ESD) equipment is very important for your safety and the safety of those around you. Proper use of these devices will increase the success rate of your repairs and lower the cost for damaged or destroyed parts. The following

equipment is necessary to disassemble and reassemble the computer:

- One M2 Phillips screwdriver to remove and replace screws.
- Tweezers, to lift out screws that you cannot grasp with your fingers.
- ESD mats for the floor and the table you are working on.
- ESD wrist strap or heel grounder.
- Anti-static carpeting or flooring.
- Air ionizers in highly static sensitive areas.

Screw Tightening Torque

When you fasten screws, be sure to follow the torque list below. Overtightening can damage components and screws; undertightening can result in electrical shorts or other damage if screws or components come loose.

- M2 0.17 N·m (1.7 kgf·cm)
- M2.5 0.29 N·m (3.0 kgf·cm)
- FDD 0.22 N·m (2.2 kgf·cm)
- HDD 0.3 N·m (3.1 kgf·cm) or less
- LCD (internal use) 0.176 N·m ± 0.02 N·m

Color of Screw

To avoid mistakes on the screw length, screws are colored or grip finished as follows:

- Even number length screw: brown grip finish (2 mm, 4 mm)
- Odd number length screw: silver (no grip finish) (3mm, 5mm)
- Special length screw: blue grip finish
Screws whose length is indicated to one or more decimal places. Such as 2.5mm or 2.8mm.

Marking of Screws on the Computer Body

To make maintenance of the computer easier, markings of the kinds of the screws including the types and lengths of the screws are indicated on the computer body.

Kind of screws	Symbol
<input type="checkbox"/> Bind screw	B
<input type="checkbox"/> Flat-head screw	F
<input type="checkbox"/> Super flat-head screw	S
<input type="checkbox"/> Tapping screw	T
<input type="checkbox"/> Other screws (Unique screws, stud, etc.)	U

Examples:

- 6 mm bind screw B6

❑ 12 mm bind screw B12

❑ 5 mm stud U5

(Indicates the screwed length in round number regardless the length of the stud.)

Removing the Battery Pack

To remove the battery pack, follow the steps below and refer to Figure 4-1.

1. Turn the computer upside down.
2. While you slide the battery latch toward the right to release it, pull the battery pack out of the slot.

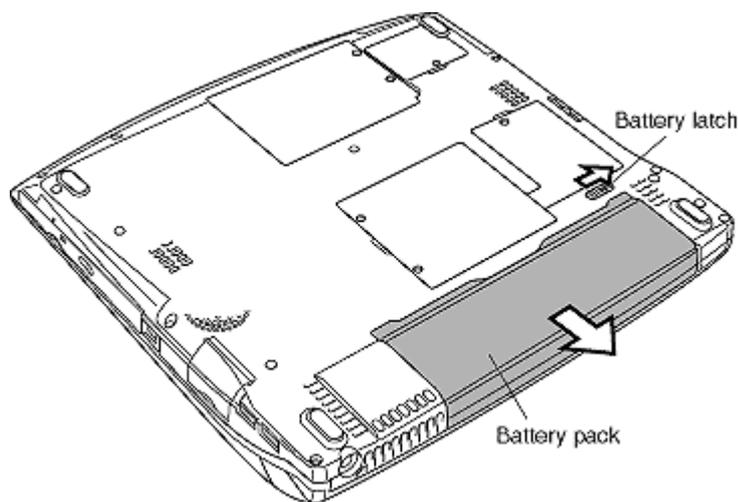


Figure 4-1 Removing the battery pack

NOTE: For environmental reasons, do not throw away a spent battery pack. Please return the spent battery packs to Toshiba.

Installing the Battery Pack

To install the battery pack, follow the steps below and refer to Figure 4-2.

WARNING: The battery is a lithium ion battery and can explode if not properly replaced, used, handled or disposed of. Use only batteries recommended by Toshiba as replacements.

1. Align both edges of the battery pack with the computer and gently slide it toward the connector until you hear a click.

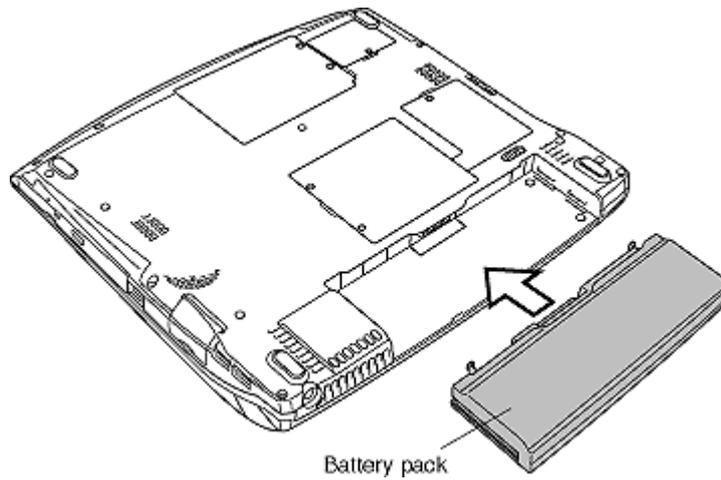


Figure 4-2 Installing the battery pack

Removing a PC Card

To remove a PC Card, follow the steps below and refer to Figure 4-3.

1. Push the eject button. It will pop out when you release it.
2. Push the eject button once more to pop the PC Card out slightly.
3. Grasp the PC Card and remove it.
4. Push the eject button back into place, if necessary.

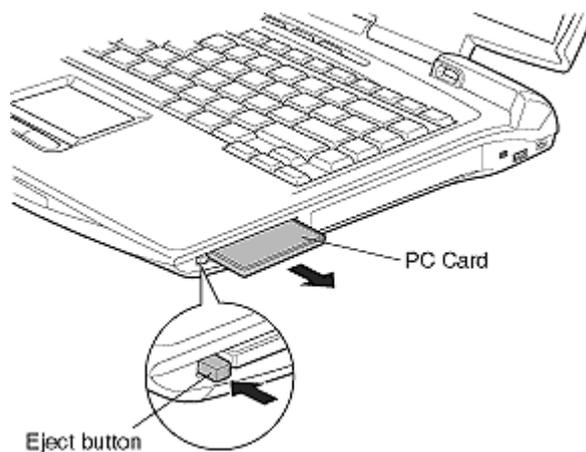


Figure 4-3 Removing a PC Card

Installing a PC Card

To install a PC Card, follow the steps below and refer to Figure 4-4.

1. Make sure the eject button does not stick out.
2. Insert the PC Card and press gently to ensure a firm connection.

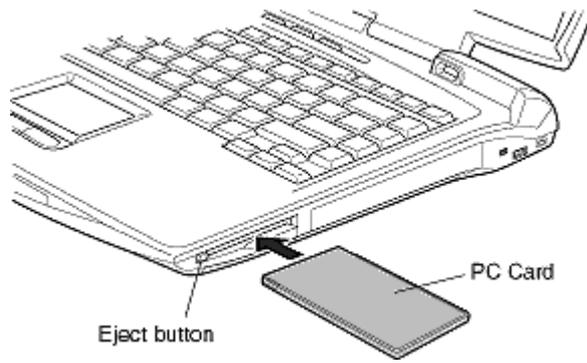


Figure 4-4 Installing a PC Card

Removing an SD Card

To remove an SD Card, make sure the computer is in boot mode, then follow the steps below and refer to Figure 4-5.

CAUTION: Before you remove an SD Card, refer to the card's documentation and to your operating system documentation for proper procedures and precautions.

1. Push in the SD card and release it to pop the SD card out slightly.
2. Grasp the SD card and remove it.

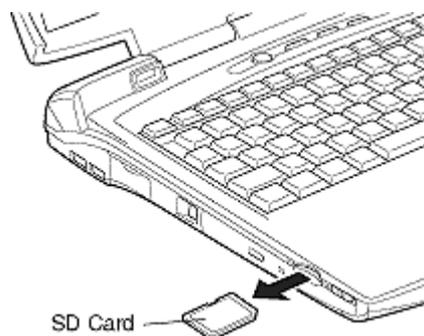


Figure 4-5 Removing an SD Card

Installing an SD Card

To install an SD Card, follow the steps below and refer to Figure 4-6.

1. Insert the SD card.
2. Press gently to ensure a firm connection.

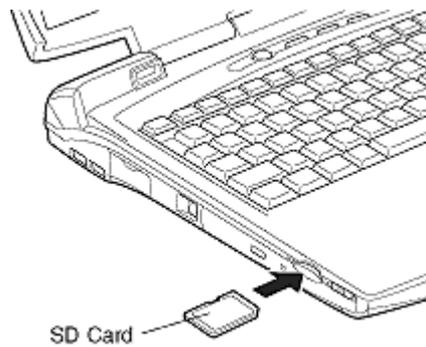


Figure 4-6 Installing an SD Card

Removing a TOSHIBA Style Bay Module

To remove a TOSHIBA Style Bay module, follow the steps below and refer to Figure 4-7.

The illustrations show the TOSHIBA Style Bay DVD-ROM drive. Therefore, the text refers to those modules. However, the procedures are the same for any of the modules: CD-RW/DVD-ROM drive, bridge media adaptor, HDD adaptor, TOSHIBA Style Bay 2nd battery pack with separate tray or weight saver.

CAUTION: To avoid damage to the computer:

1. To avoid injury, do not put your hand into the TOSHIBA Style Bay slot.
2. Before removing or installing a second battery pack, turn off the computer's power.

1. Turn off the computer.
2. Turn the computer upside down.
3. Remove the screw near the icon securing the TOSHIBA Style Bay.
4. Make sure the screw in the TOSHIBA Style Bay lock is set in the hole for the unlock position.
5. Slide the TOSHIBA Style Bay latch to the unlock position.
6. Grasp the TOSHIBA Style Bay module and slide it out.

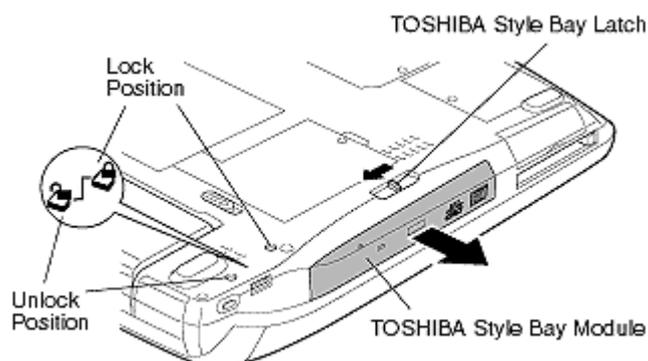


Figure 4-7 Removing a TOSHIBA Style Bay module

Installing a TOSHIBA Style Bay Module

To install a TOSHIBA Style Bay module, follow the steps below and refer to Figure 4-8.

1. Insert the TOSHIBA Style Bay module in the computer as shown below and press until the ejector clicks.
2. Set the TOSHIBA Style Bay lock screw in the hole for the lock position.

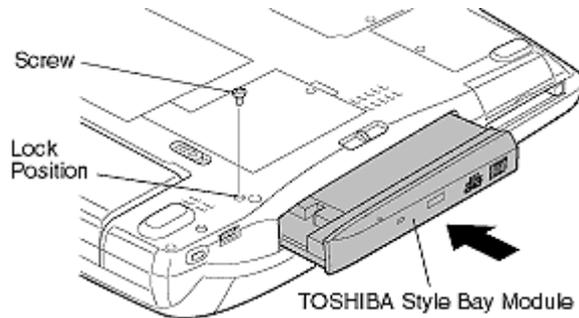


Figure 4-8 Removing a TOSHIBA Style Bay module

Removing a Memory Module

To remove a memory module, follow the steps below and refer to Figures 4-9 and 4-10.

1. Turn the computer upside down.
2. Remove two M2.5x5 black flat-head screws securing the memory module cover.
3. Lift off the memory module cover.

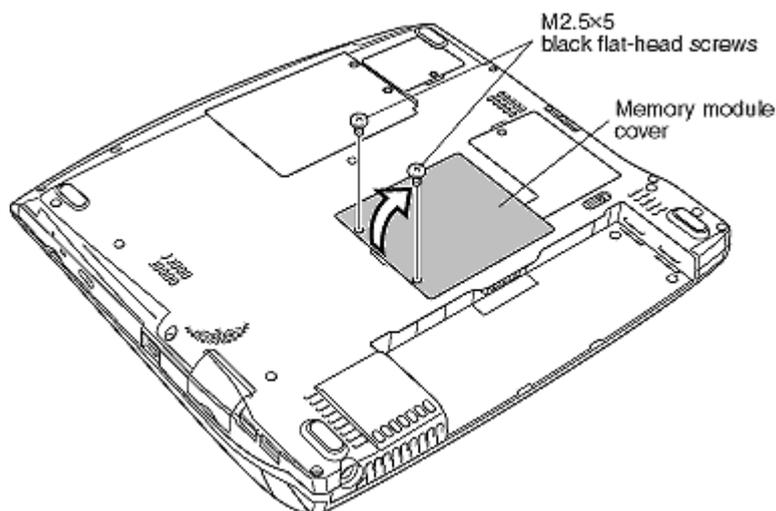


Figure 4-9 Removing the memory module cover

4. Turn up the insulator and press two latches on either side of the module to the outside. One end of the memory module will pop up.
5. Grasp the memory module by the sides and pull it out.

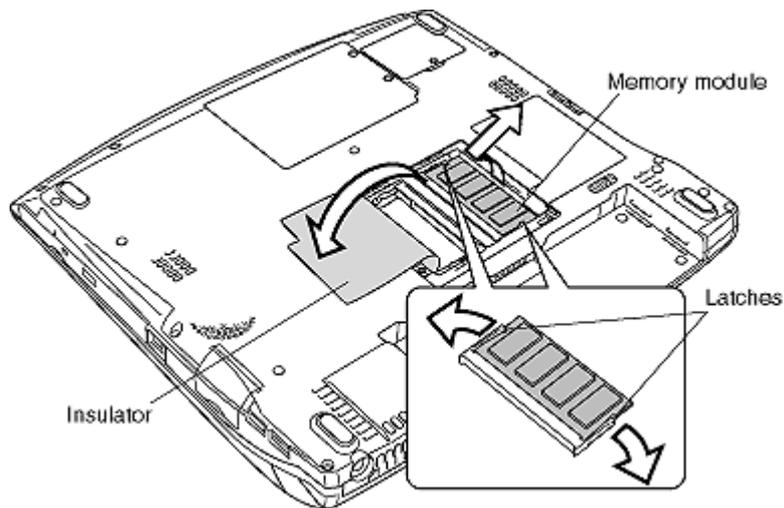


Figure 4-10 Removing memory modules

CAUTION: Do not touch the connectors on the expansion memory or on the computer. Debris on the connectors may cause memory access problems.

Installing a Memory Module

To install a memory module, follow the steps below and refer to Figures 4-9 to 4-11.

1. Turn up the insulator.
2. Fit the memory module's connector into the computer's connector and press carefully to ensure firm contact.

CAUTION: Do not touch the connectors on the expansion memory or on the computer. Debris on the connectors may cause memory access problems.

3. Gently, push the memory module down until two latches engage the memory module to hold it in place.
4. Seat the memory module cover in place and secure it with two M2.5x5 black flat-head screws.

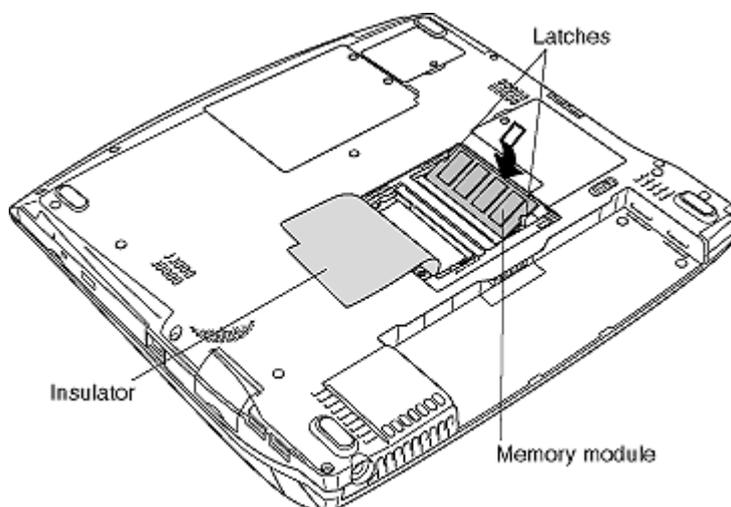


Figure 4-11 Installing memory modules

4.2 Wireless LAN Mini PCI Card

Removing the Wireless LAN Mini PCI Card

To remove the wireless LAN Mini PCI card, make sure the computer is in boot mode and powered off, follow the steps below and refer to Figures 4-12 and 4-13.

CAUTION: Do not try to remove the wireless LAN card with the computer turned on. You can damage the computer and the wireless LAN card.

1. Turn the computer upside down.
2. Remove one M2x4 black screw securing the wireless LAN Mini PCI card slot cover.
3. Lift off the cover.

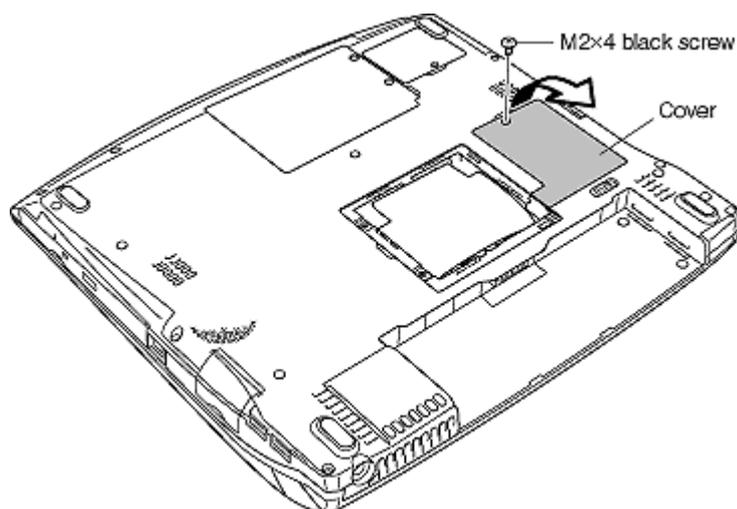


Figure 4-12 Removing the wireless LAN Mini PCI card slot cover

4. Disconnect two antenna coaxial cables from the wireless LAN Mini PCI card using an antenna coaxial cable disconnecter.
5. Gently press out on the latches. One end of the wireless LAN Mini PCI card will pop up.
6. Grasp the wireless LAN Mini PCI card and pull it out.

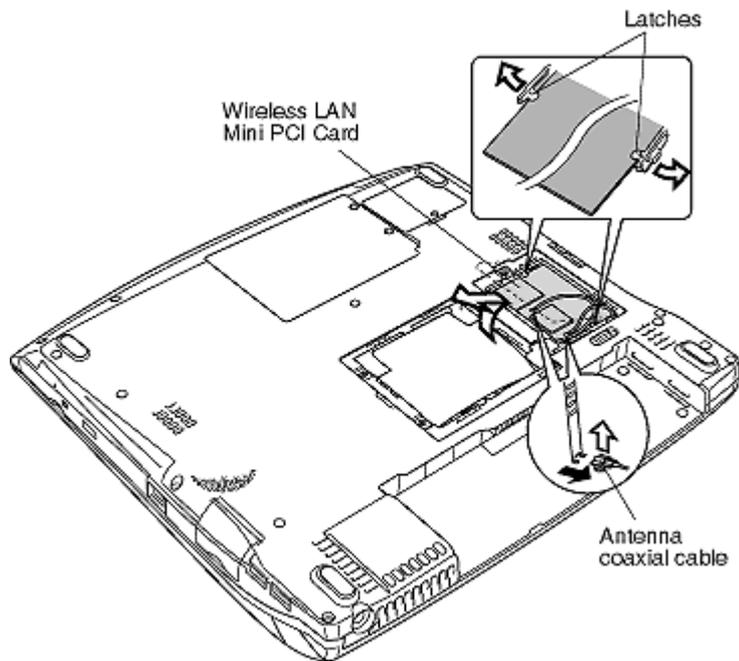


Figure 4-13 Removing the wireless LAN card

CAUTION: Do not touch the connectors on the wireless LAN Mini PCI card or on the computer. Debris on the connectors may cause the card to malfunction or to get damaged.

Installing the Wireless LAN Mini PCI Card

To install the wireless LAN Mini PCI card, follow the steps below and refer to Figures 4-12 to 4-14.

1. Fit the wireless LAN Mini PCI card's connector into the computer's connectors and press it carefully to ensure firm contact.

CAUTION: Do not touch the connectors on the wireless LAN Mini PCI card or on the computer. Debris on the connectors may cause the card to malfunction or to get damaged.

2. Gently, push the wireless LAN Mini PCI card down until latches on either side engage the card to hold it in place.
3. Connect two antenna coaxial cables with the appropriate color to the proper connectors on the wireless LAN Mini PCI card.
4. Seat the wireless LAN Mini PCI card slot cover in place and secure it with one M2x4 black screw.

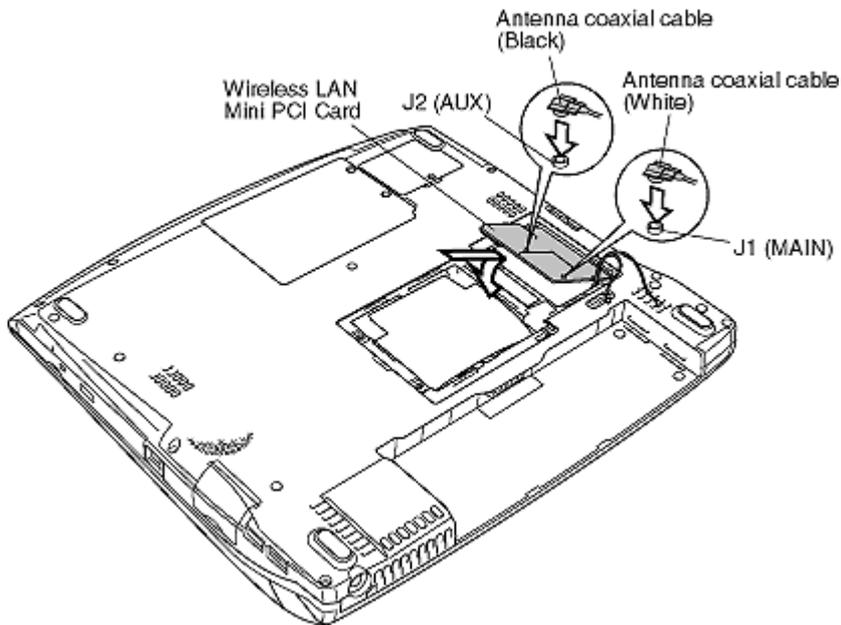


Figure 4-14 Installing the wireless LAN card

4.3 MDC

Removing the MDC

To remove the modem daughter card (MDC), follow the steps below and refer to Figures 4-15 to 4-17.

1. Turn the computer upside down.
2. Remove one M2x4 black screw securing the MDC cover.
3. Lift up the front side of the MDC cover to remove it.

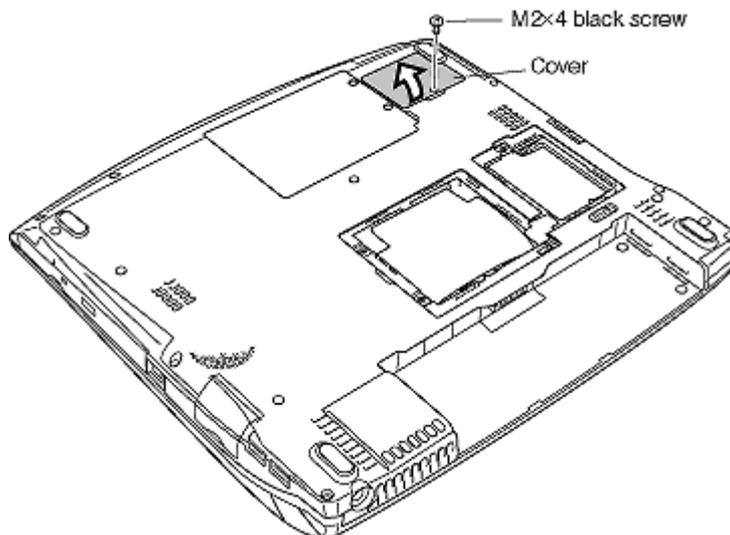


Figure 4-15 Removing the MDC cover

4. Remove two M2x4 black screws securing the MDC.
5. Gently lift up the left side of the MDC to disconnect it from connector PJ4060

on the sound board.

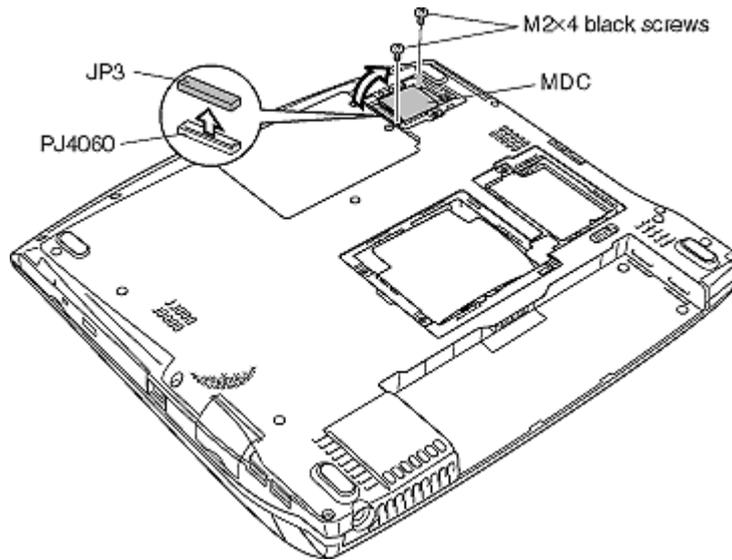


Figure 4-16 Removing the MDC

6. Disconnect the modem cable from JP1 on the MDC.

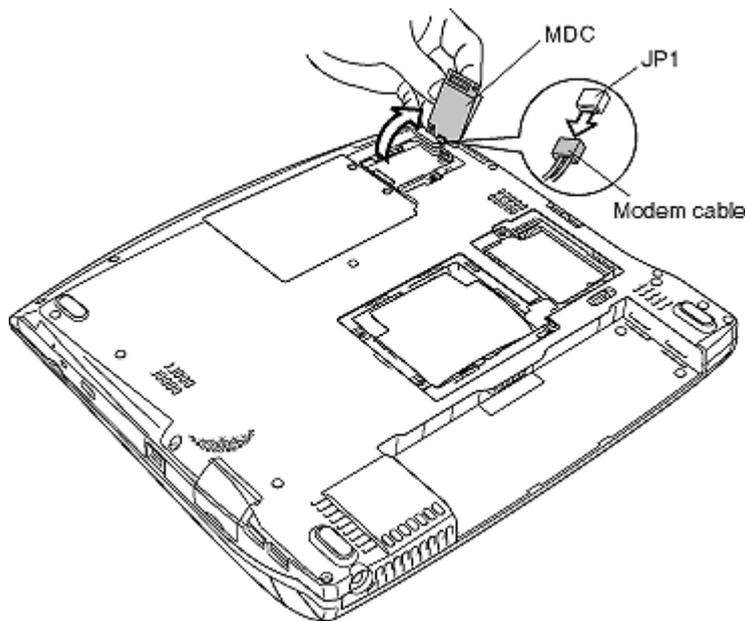


Figure 4-17 Disconnecting the modem cable

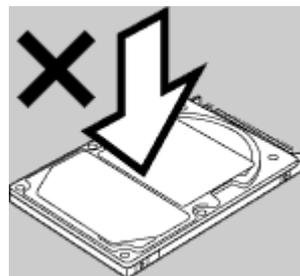
Installing the MDC

To install the MDC, follow the steps below and refer to Figures 4-15 to 4-17.

1. Connect the modem cable to JP1 on the MDC.
2. Carefully align the connector on the MDC to PJ4060 on the sound board and press the card gently to ensure a firm connection.
3. Secure the MDC with two M2x4 black screws.
4. Seat the MDC cover and secure it with one M2x4 black screw.

4.4 HDD

CAUTION: When handling the HDD, do not press the top surface as shown by the arrow. Hold it by the sides.



Removing the HDD

To remove the HDD, follow the steps below and refer to Figures 4-18 to 4-20.

1. Turn the computer upside down.
2. Remove two M2.5x5 black flat-head screws and lift off the HDD cover.

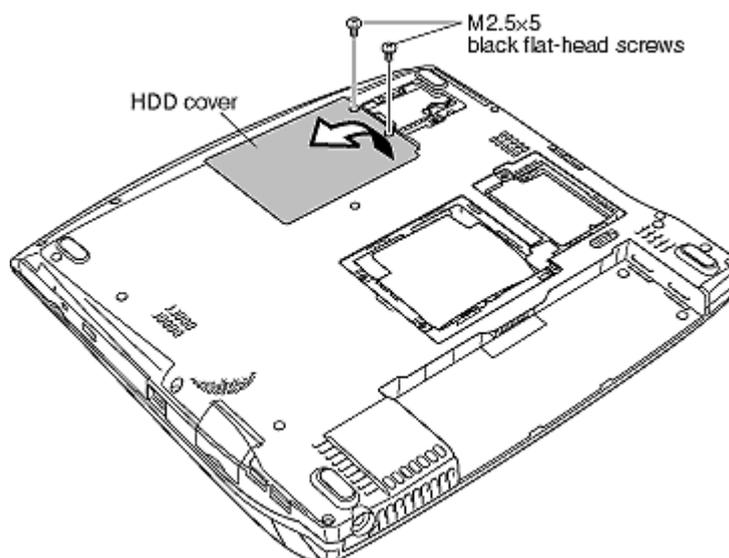


Figure 4-18 Removing the HDD cover

3. Raise the HDD up out of the slot.
4. Disconnect the HDD from connector PJ4181 on the HDD FPC. Be careful not to apply pressure to the HDD FPC.

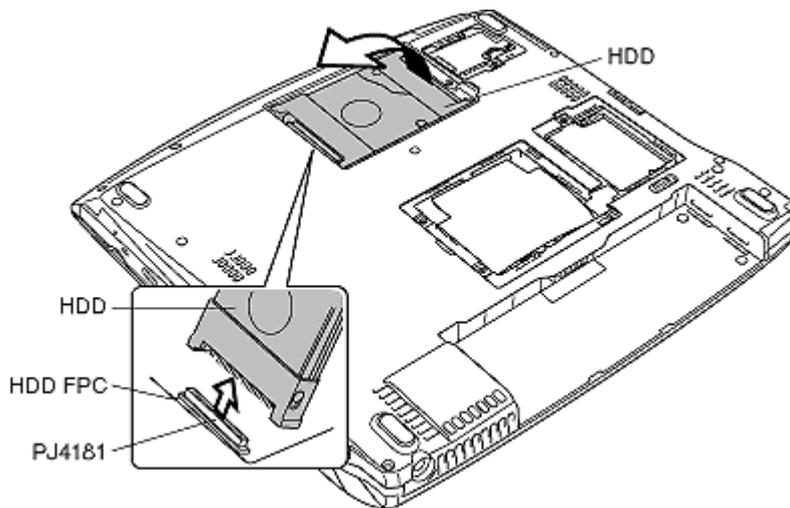


Figure 4-19 Disconnecting the HDD

NOTE: It is not necessary to remove the rubber pads and the HDD bracket unless you are going to replace the HDD.

5. Remove two rubber pads from the HDD.
6. Remove four M3x4 flat-head screws that secure the HDD bracket to the HDD.
7. Lift off the HDD bracket.

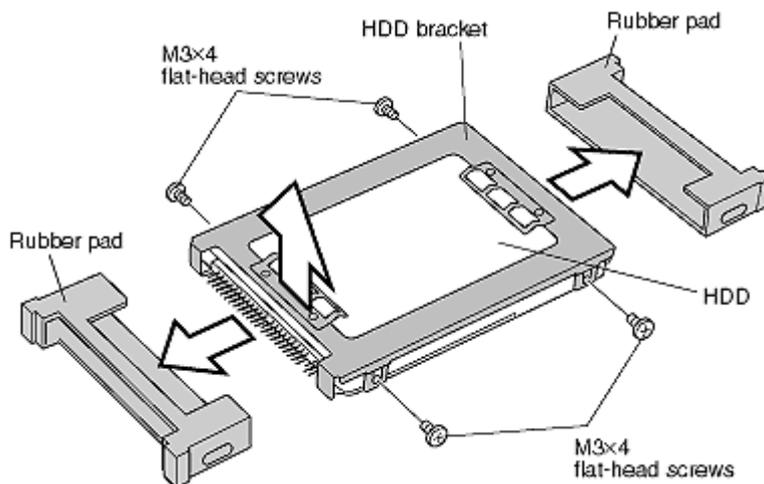


Figure 4-20 Removing the rubber pads and the HDD bracket

Installing the HDD

To install the HDD, follow the steps below and refer to Figures 4-18 to 4-20.

1. Seat the HDD in the HDD bracket.
2. Secure the HDD bracket with four M3x4 flat-head screws.
3. Attach two pads to the HDD.
4. Connect the HDD to PJ4181 on the HDD FPC.
5. Seat the HDD into the HDD slot.

6. Seat the HDD cover and secure it with two M2.5x5 black flat-head screw.

4.5 Keyboard

Removing the Keyboard

To remove the keyboard, follow the steps below and refer to Figures 4-21 to 4-23.

1. Open the display panel.
2. Lift out the keyboard brace releasing twelve latches.

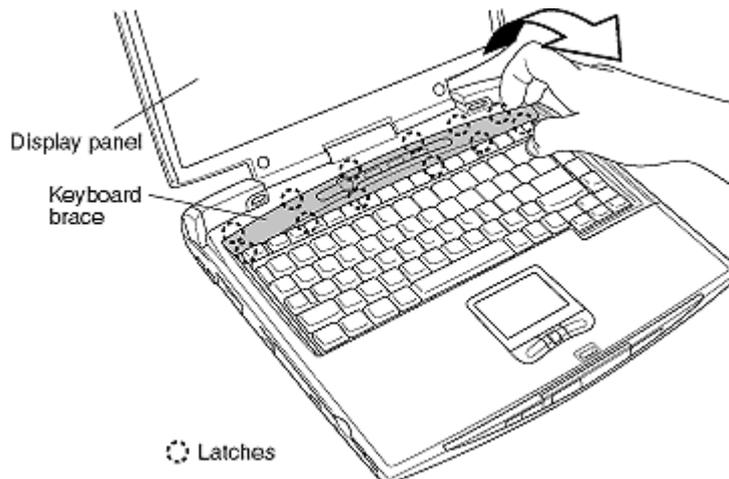


Figure 4-21 Removing the keyboard brace

3. Remove two M2.5x2.8 black flat-head screws securing the keyboard.
4. Lift the keyboard out and turn it face down on the palm rest. Be careful not to apply pressure to the keyboard cable.

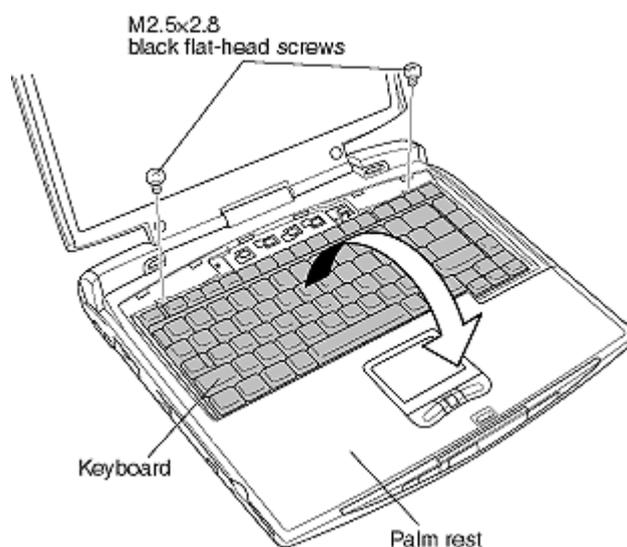


Figure 4-22 Removing the screws

5. Disconnect the keyboard cable from PJ113 on the system board and remove the keyboard.

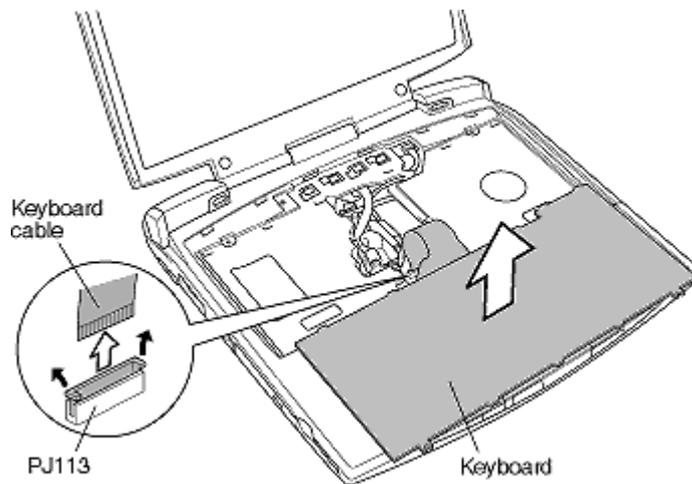


Figure 4-23 Removing the keyboard

Installing the Keyboard

To install the keyboard, follow the steps below and refer to Figures 4-21 to 4-23.

1. Turn the keyboard upside down on the palm rest and connect the keyboard cable to PJ113 on the system board.
2. Turn the keyboard face up and set it in place.
3. Secure the keyboard with two M2.5x2.8 black flat-head screws.
4. Seat the keyboard brace and secure twelve latches.

4.6 Top Cover and Display Assembly

Removing the Top Cover and Display Assembly

To remove the top cover and display assembly, follow the steps below and refer to Figures 4-24 to 4-28.

1. Turn the computer upside down.
2. Remove the following twenty screws:
 - Five M2.5x20 black screws
 - Five M2.5x6 black flat-head screws
 - Six M2.5x5 black flat-head screws
 - Four M2x4 black screws

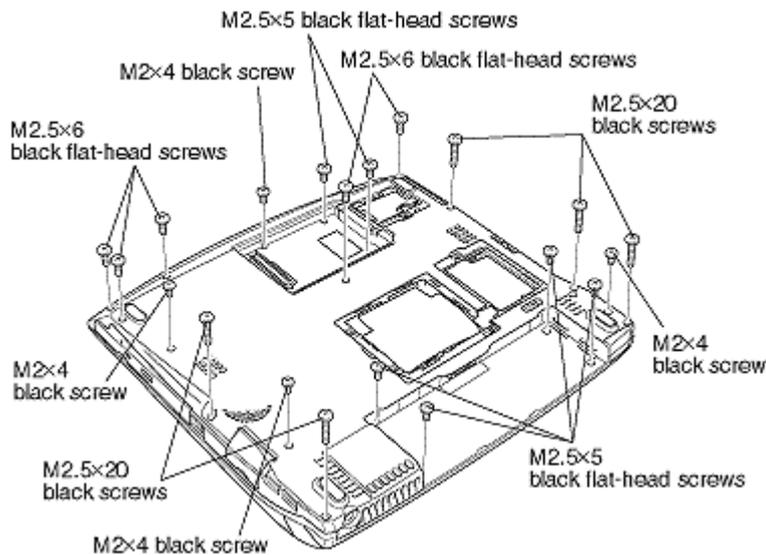


Figure 4-24 Removing twenty screws securing the top cover

3. Turn the computer right side up and open the display.
4. Disconnect the following five cables:
 - Switch cable from PJ103 on the system board
 - Membrane cable from PJ114 on the system board
 - SD card board I/F cable from PJ124 on the system board
 - LCD/FL cable from PJ5205 on the system board
 - Sound I/F cable from PJ4041 on the switch board

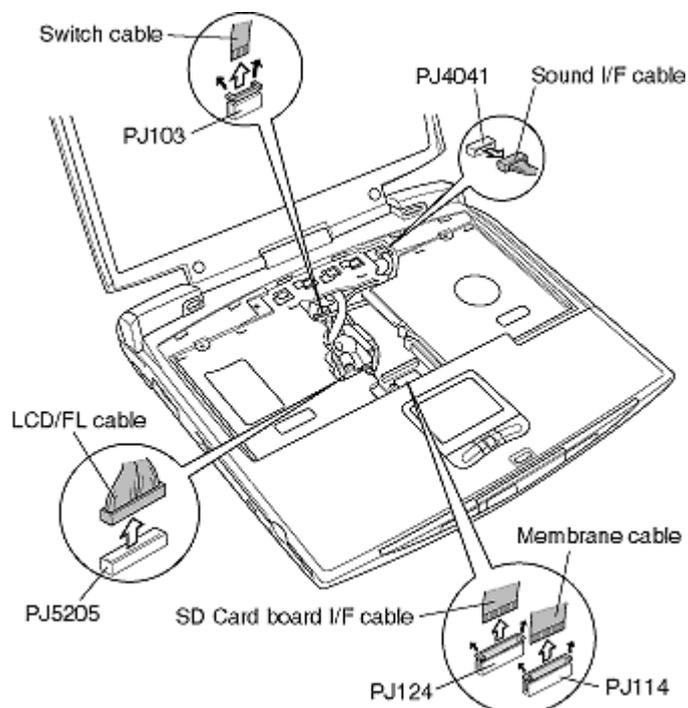


Figure 4-25 Disconnecting the cables

5. Remove the following four screws:
 - One M2x14 screw
 - Three M2x6 screws

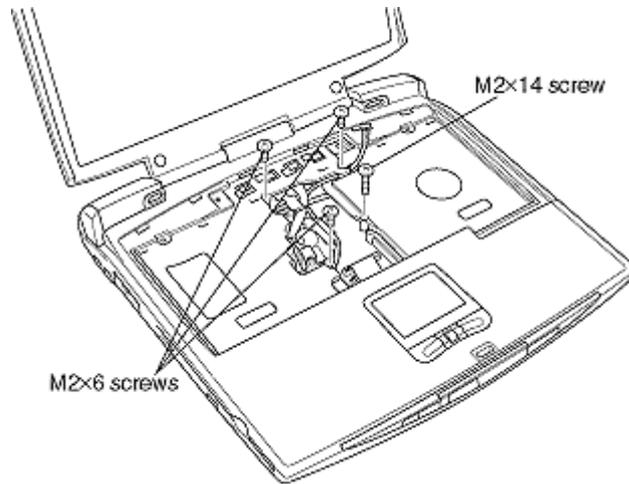


Figure 4-26 Removing four screws securing the top cover

6. Pull two antenna coaxial cables (black and white) out of the hole on the bottom case.

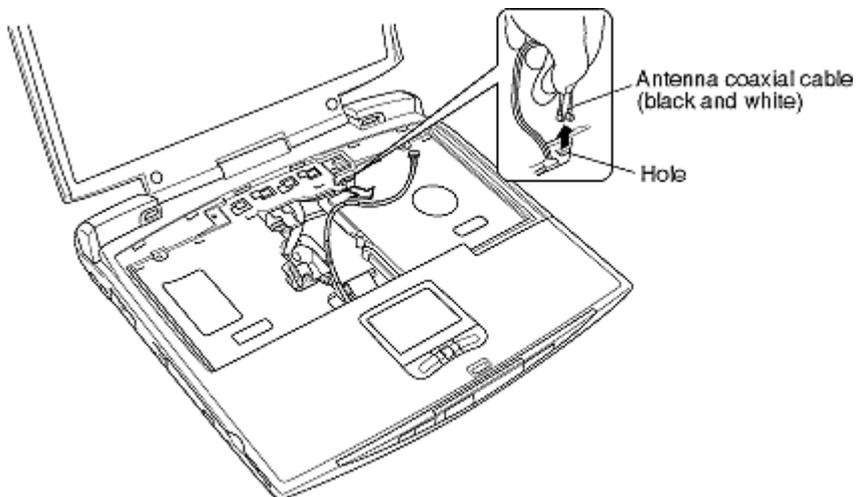


Figure 4-27 Pulling the antenna coaxial cables out of the hole

7. Lift the back side of the top cover and display assembly by 1 cm to release two latches on the back side, and release four latches on the front of the top cover to separate the top cover and display assembly from the bottom case.

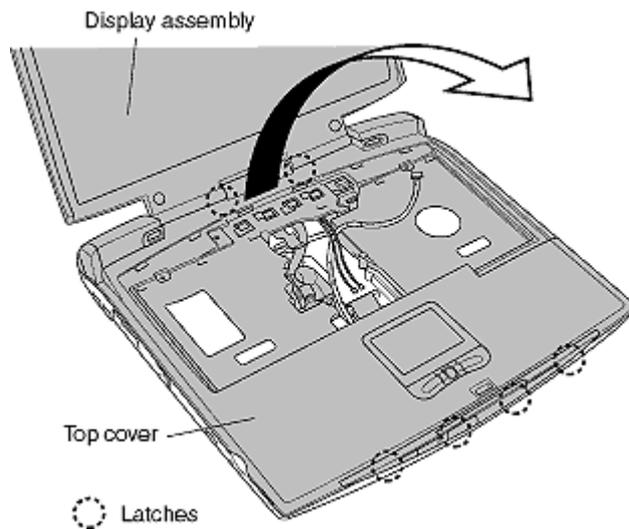


Figure 4-28 Removing the top cover and display assembly

Installing the Top Cover and Display Assembly

To install the top cover and display assembly, follow the steps below and refer to Figures 4-24 to 4-28.

1. Seat the top cover and display assembly and secure six latches.
2. Secure the following four screws:
 - One M2x14 screw
 - Three M2x6 screws
3. Thread two antenna coaxial cables (black and white) through the hole on the bottom case.
4. Connect the following five cables:
 - Switch cable from PJ103 on the system board
 - Membrane cable from PJ114 on the system board
 - SD card board I/F cable from PJ124 on the system board
 - LCD/FL cable from PJ5205 on the system board
 - Sound I/F cable from PJ4041 on the switch board
5. Close the display panel and turn the computer upside down.
6. Secure the following twenty screws:
 - Five M2.5x20 black screws
 - Five M2.5x6 black flat-head screws
 - Six M2.5x5 black flat-head screws
 - Four M2x4 black screws

4.7 Fixed ODD

Removing the Fixed ODD

To remove the fixed optical disk drive (ODD), follow the steps below and refer to Figures 4-29 and 4-30.

1. Slide the ODD carefully to the left to disconnect it from PJ106 on the system board, and remove it.

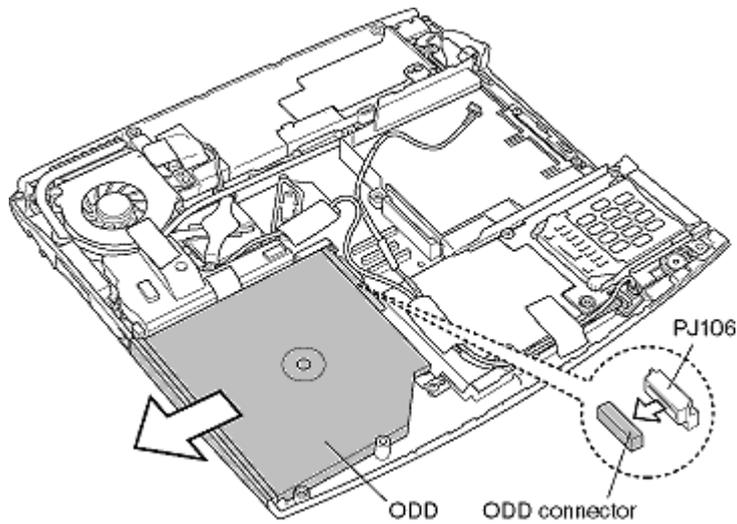


Figure 4-29 Removing the ODD

NOTE: You do not have to disassemble the ODD, as described below, unless you are going to replace it.

2. Remove two M2x2 flat-head screws securing the metal brace on the ODD connector, and remove the metal brace.
3. Remove one M2x3 flat-head screw securing the metal brace on the side of the ODD, and remove the metal brace.

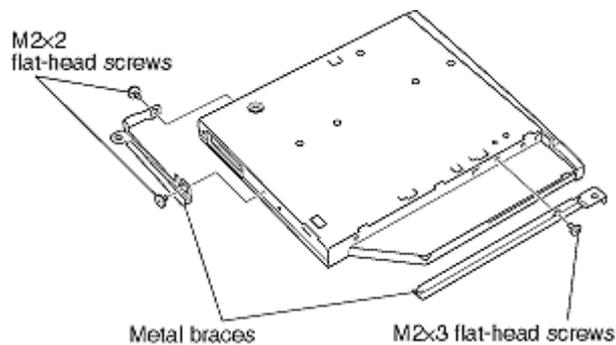


Figure 4-30 Disassembling the ODD

Installing the ODD

To install the ODD, follow the steps below and refer to Figures 4-29 and 4-30.

1. Seat the metal brace on the side of the drive, and secure it with one M2x3 flat-head screw.
2. Seat the metal brace on the ODD connector, and secure it with two M2x2 flat-head screws.
3. Seat the ODD in place, and slide the ODD to connect it to PJ106 on the system board.

4.8 Subwoofer

Removing the Subwoofer

To remove the subwoofer, follow the step below and refer to Figure 4-31.

1. Remove four strips of tape securing the sub woofer and subwoofer cable (and sound I/F cable).
2. Disconnect the subwoofer cable from PJ5504 on the sound board.
3. Lift off the subwoofer.

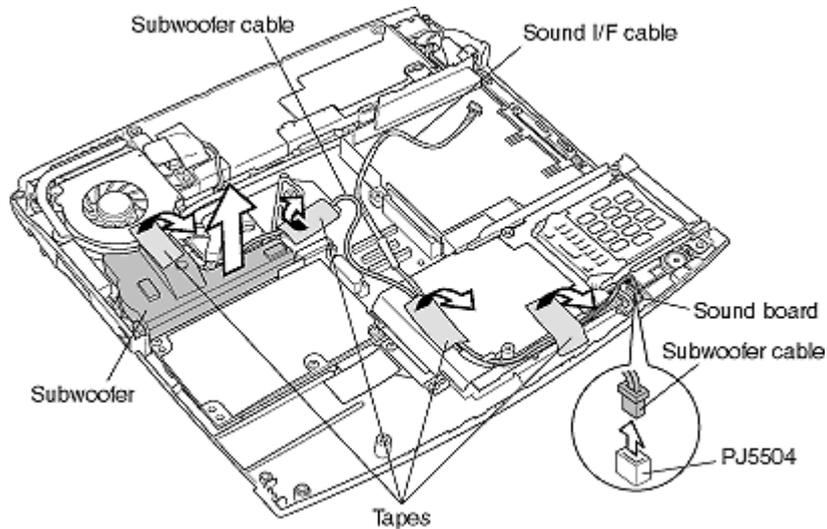


Figure 4-31 Removing the subwoofer

Installing the Subwoofer

To install the subwoofer, follow the step below and refer to Figure 4-31.

1. Seat the subwoofer.
2. Connect the subwoofer cable to PJ5504 on the sound board.
3. Secure the subwoofer and subwoofer cable (and sound I/F cable) with four strips of tape.

4.9 PC Card Board

Removing the PC Card Board

To remove the PC Card board, follow the steps below and refer to Figure 4-32.

1. Gently lift up the PC Card board to disconnect it from PJ115 on the system board, and remove it.

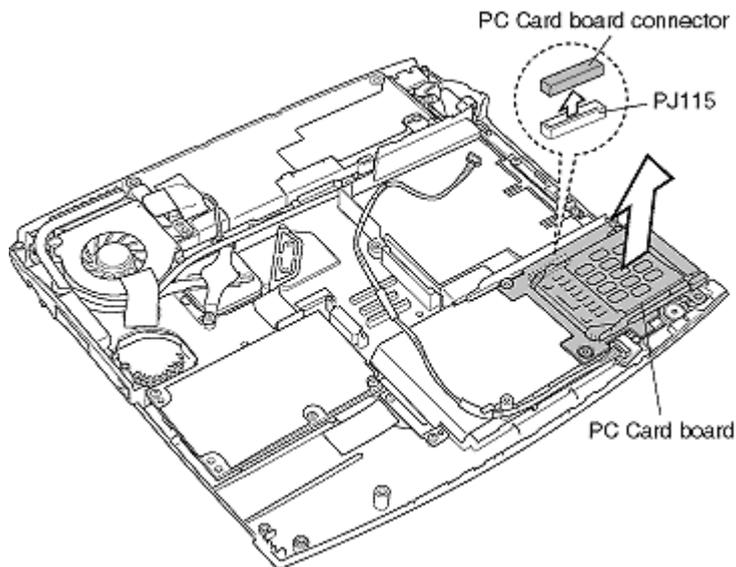


Figure 4-32 Removing the PC Card board

Installing the PC Card Board

To install the PC Card board, follow the steps below and refer to Figure 4-32.

1. Seat the PC Card board and connect it to PJ115 on the system board.

4.10 Sound Board

Removing the Sound Board

To remove the sound board, follow the steps below and refer to Figure 4-33.

1. If necessary, remove two strips of tape securing the sound I/F cable (and the subwoofer cable).
2. If necessary, disconnect the subwoofer cable from PJ5504 on the sound board.
3. Remove two M2.5x4 screws securing the sound board.
4. Gently lift up the sound board to disconnect it from PJ118 on the system board. Be careful not to catch the bottom case on the volume control.
5. Disconnect the sound I/F cable from PJ5507 on the sound board.

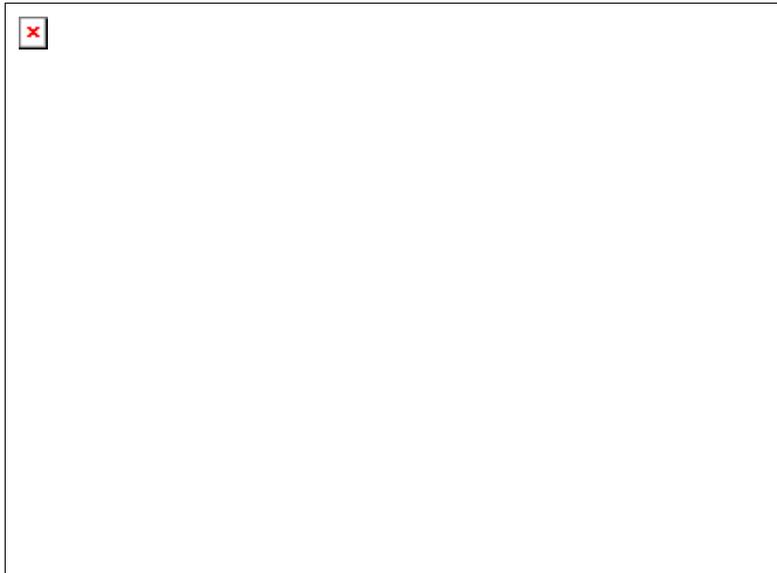


Figure 4-33 Removing the sound board

Installing the Sound Board

To install the sound board, follow the steps below and refer to Figure 4-33.

1. Connect the sound I/F cable to PJ5507 on the sound board.
2. Seat the sound board taking care about the volume control, and connect the sound board to PJ118 on the system board.
3. Secure the sound board with two M2.5x4 screws.
4. If necessary, connect the subwoofer cable to PJ5504 on the sound board.
5. If necessary, route the sound I/F cable and the subwoofer cable through the hook on the bottom case and secure them with two strips of tape.

4.11 RTC Battery

WARNING: *If you replace the RTC battery, be sure to use only batteries recommended by Toshiba. Installation of the wrong battery can cause the battery to explode or otherwise cause damage.*

Removing the RTC Battery

To remove the RTC battery, follow the steps below and refer to Figure 4-34.

1. Remove the tape securing the RTC battery.
2. Disconnect the RTC battery cable from PJ8771 on the system board.
3. Remove the RTC battery.

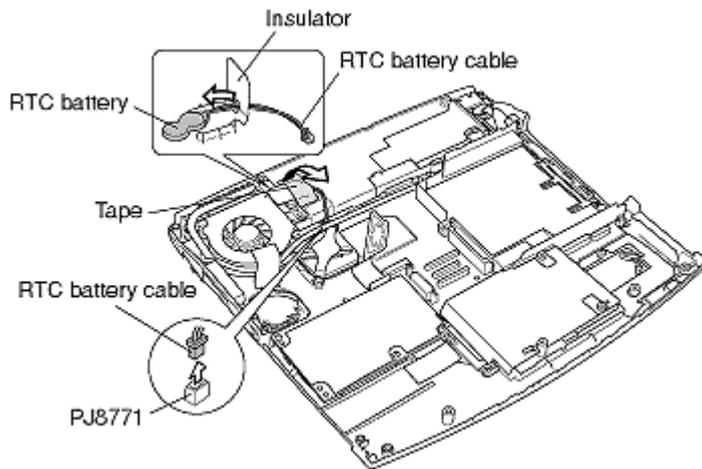


Figure 4-34 Removing the RTC battery

Installing the RTC Battery

To install the RTC battery, follow the steps below and refer to Figure 4-34.

1. Thread the RTC battery cable through the hole on the insulator, and seat the RTC battery.
2. Connect the RTC battery cable to PJ8771 on the system board.
3. Cover the RTC battery with the insulator, and secure it with the tape.

4.12 Cooling Module

Removing the Cooling Module

To remove the cooling module, follow the steps below and refer to Figures 4-35 to 4-37.

1. Remove two M2x4 screws securing the metal brace.
2. Lift off the metal brace.

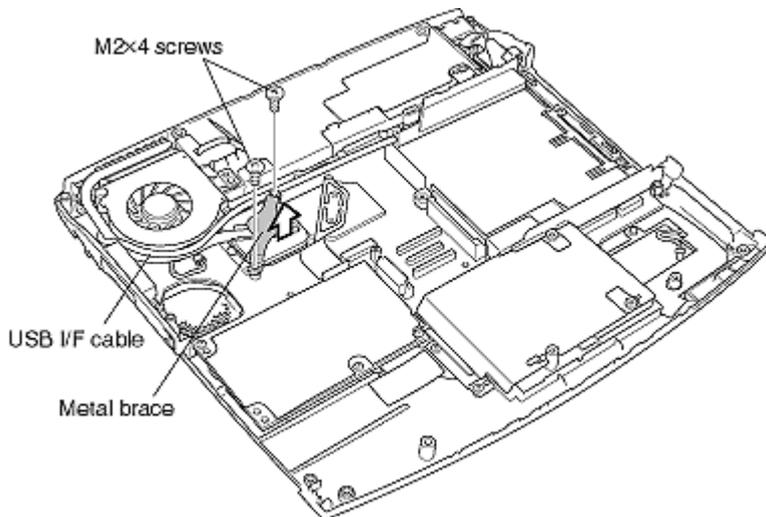


Figure 4-35 Removing the metal brace

3. Lift off the cooling plate and the heat pipe.

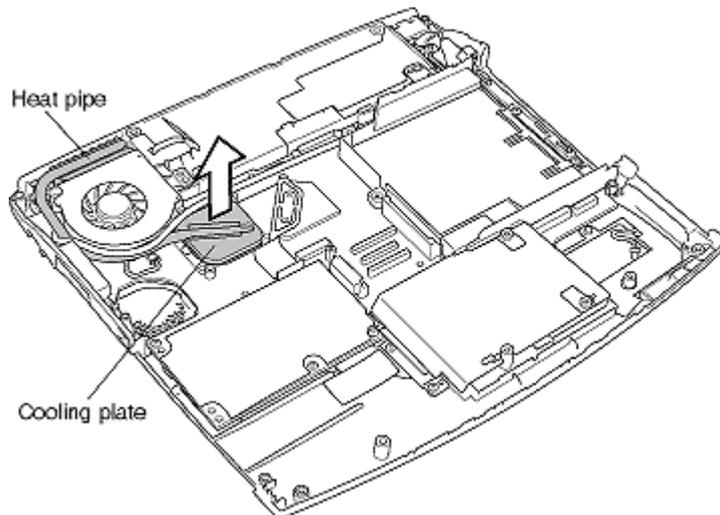


Figure 4-36 Removing the cooling plate and heat pipe

4. Disconnect the fan cable from PJ8770 on the system board.
5. Remove one M2.5x4 screw securing the fan module.
6. Lift off the fan module.

NOTE: 1. Do not touch the cooling fan contained in the fan module.
If silicon grease has already been applied to the CPU and cooling plate,
2. wipe clean with a cloth and apply new silicon grease. The computer will not operate correctly if the CPU is not firmly in contact with the cooling plate.

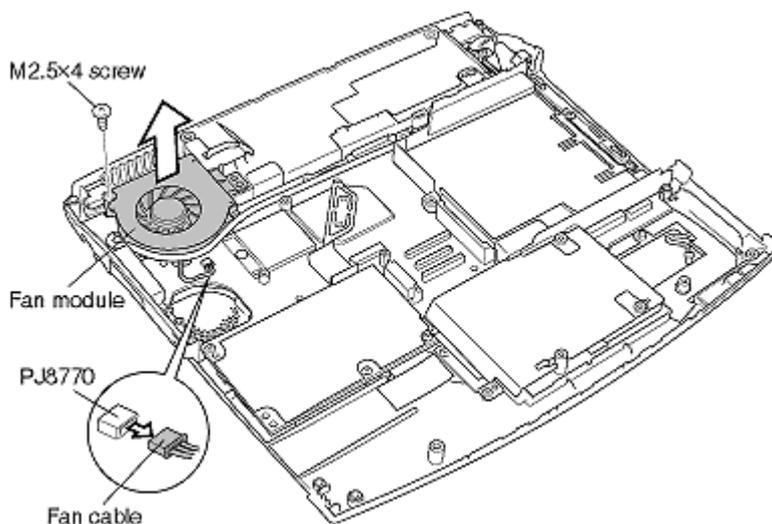


Figure 4-37 Removing the fan

Installing the Cooling fan

To install the Cooling fan, follow the steps below and refer to Figures 4-35 to 4-38.

1. Wipe silicon grease from the surface of the CPU and of the cooling plate.
2. Seat the fan module and secure it with one M2x4 screw.
3. Connect the fan cable to PJ8770 on the system board.
4. Using a special applicator, apply silicon grease so that the CPU chip on the CPU is completely covered.

NOTE: Apply the silicon grease enough to cover the chip surface using the special applicator.

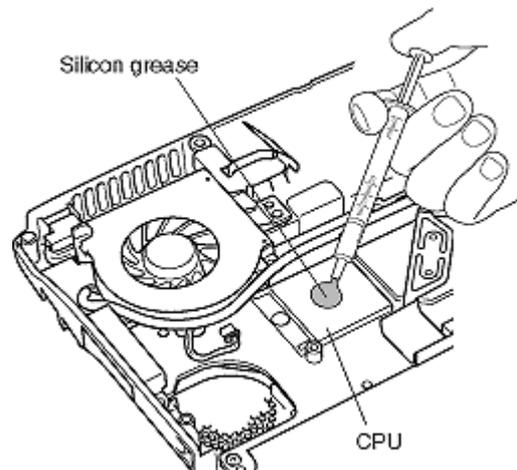


Figure 4-38 Applying silicon grease

5. Seat the cooling plate and the heat pipe. Make sure the heat pipe lies under the USB I/F cable.
6. Seat the metal brace and secure it with two M2.5x4 screws.

4.13 CPU

Removing the CPU

To remove the CPU, follow the steps below and refer to Figures 4-39 and 4-40.

1. Turn the knob on the CPU socket counterclockwise with a flat-blade screwdriver to unlock the CPU.

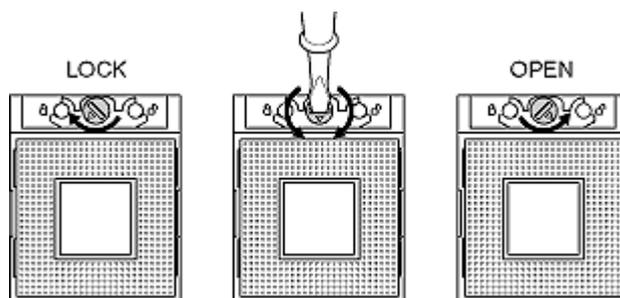


Figure 4-39 Unlocking the CPU

2. Lift off the CPU.

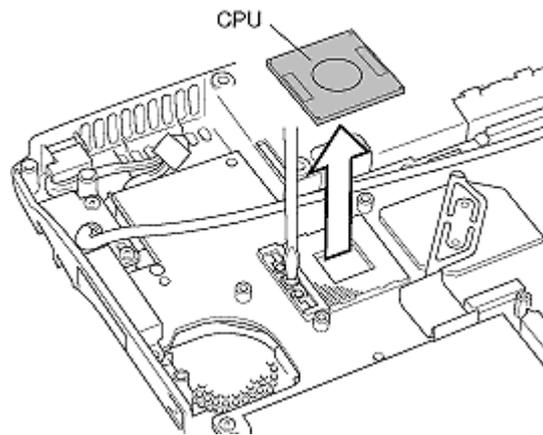


Figure 4-40 Removing the CPU

Installing the CPU

To install the CPU, follow the steps below and refer to Figures 4-39 and 4-40.

1. Make sure the knob on the CPU socket is in the open position.
2. Seat the CPU in the CPU socket aligning the triangle mark on the CPU with the mark on the upper-left corner of the CPU socket. Be careful not to damage the pins of the CPU.
3. Turn the knob on the CPU socket clockwise with a flat-blade screwdriver to lock the CPU. Make sure the knob is exactly in the lock position.

4.14 TOSHIBA Style Bay

Removing the TOSHIBA Style Bay

To remove the TOSHIBA Style Bay, follow the steps below and refer to Figure 4-41.

1. Remove two M2x3 silver flat-head screws securing the TOSHIBA Style Bay.
2. Gently lift off the TOSHIBA Style Bay.

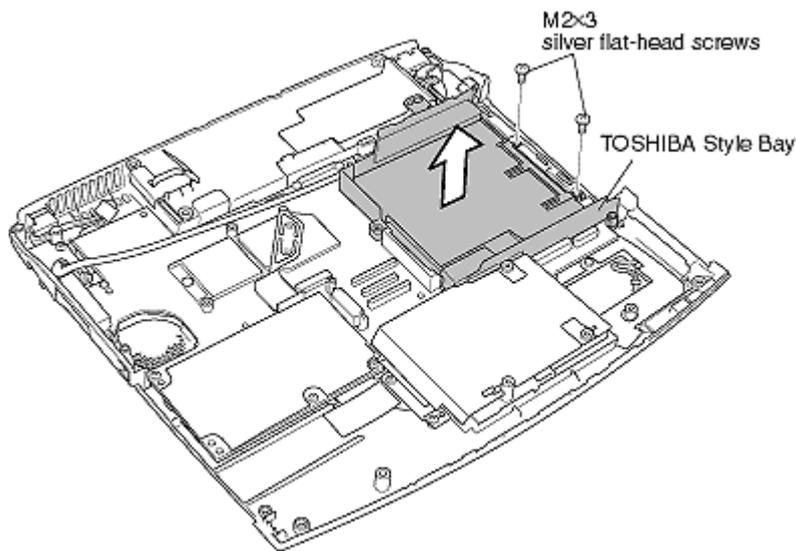


Figure 4-41 Removing the TOSHIBA Style Bay

Installing the TOSHIBA Style Bay

To install the TOSHIBA Style Bay, follow the steps below and refer to Figure 4-41.

1. Seat the TOSHIBA Style Bay aligning the hole on the tab of the bay with the pin on the bottom case.
2. Secure the TOSHIBA Style Bay with two M2x3 silver flat-head screws.

4.15 USB Board

Removing the USB Board

To remove the USB board, follow the steps below and refer to Figure 4-42.

1. Disconnect the USB I/F cable from PJ6200 on the system board.
2. Remove two M2x4 black screws securing the USB board.
2. Lift off the USB board.

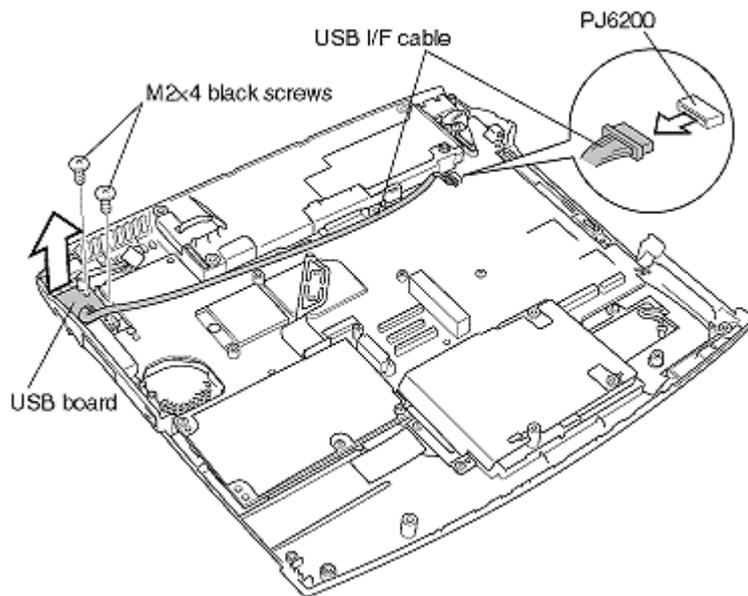


Figure 4-42 Removing the USB board

Installing the USB Board

To install the RTC battery, follow the steps below and refer to Figure 4-46.

1. Seat the USB board, and secure it with two M2x4 black screws.
2. Connect the USB I/F cable to PJ6200 on the system board.

4.16 System Board

Removing the System Board

To remove the system board, follow the steps below and refer to Figures 4-43 to 4-47.

1. Remove the tape securing the HDD FPC.
2. Disconnect the RJ-45 jack cable from PJ108 on the system board.
3. Detach the DC IN jack from its slot.
4. Release two latches securing the battery connector cover to remove it.

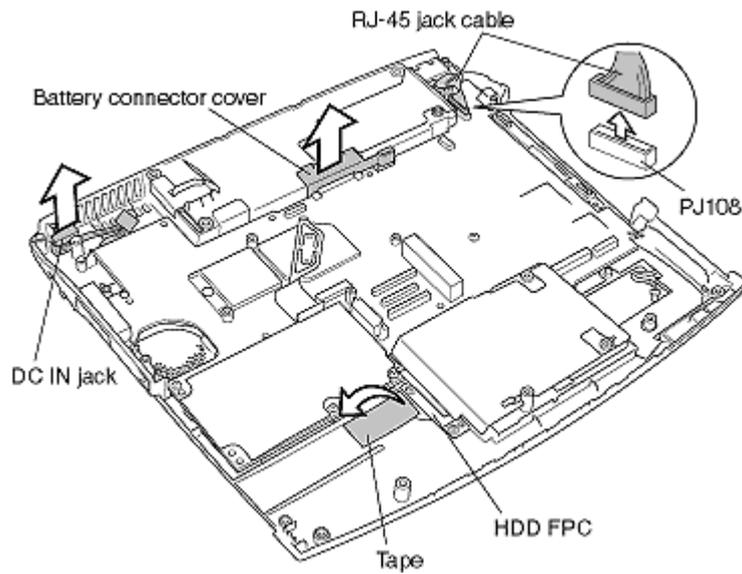


Figure 4-43 Removing the tape and the cover

5. Remove the following eleven screws:
 - EEight M2.5x4 screws
 - ETwo M2.5x2.8 black flat-head screws
 - EOne M2.5x14 stud screw

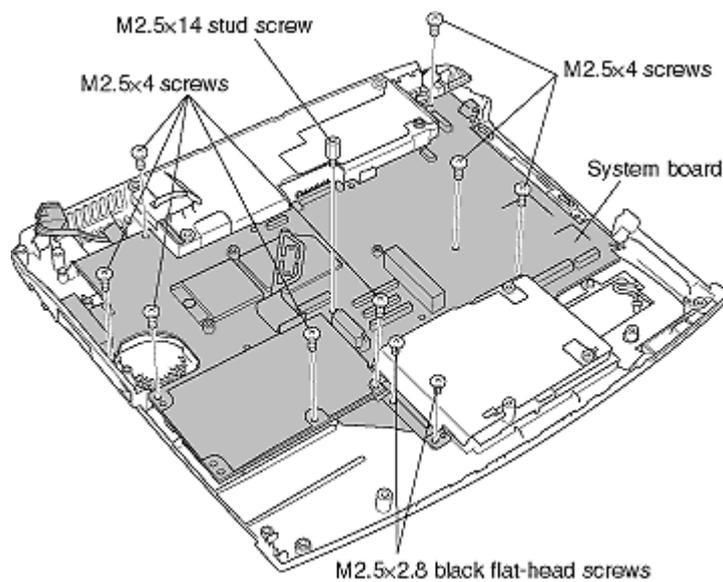


Figure 4-44 Removing the screws

6. Rotate the left side of the system board up and lift it out.

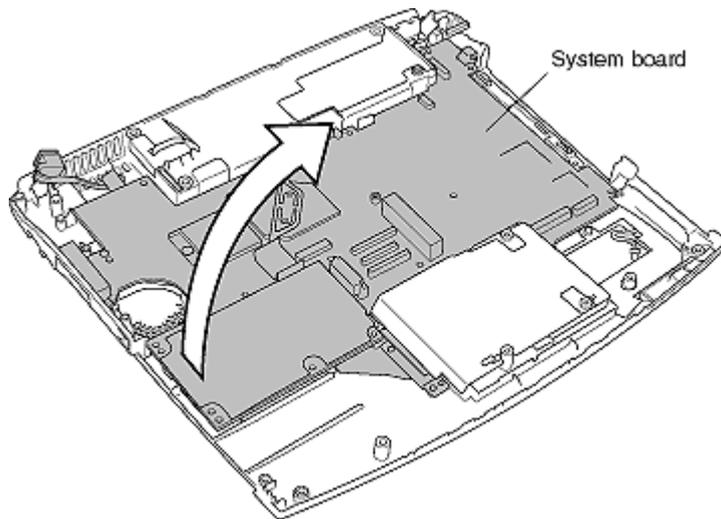


Figure 4-45 Removing the system board

7. Turn the system board upside down.
8. Remove the HDD FPC from PJ105 on the system board.
9. Disconnect the DC IN jack cable from PJ8800 on the system board.

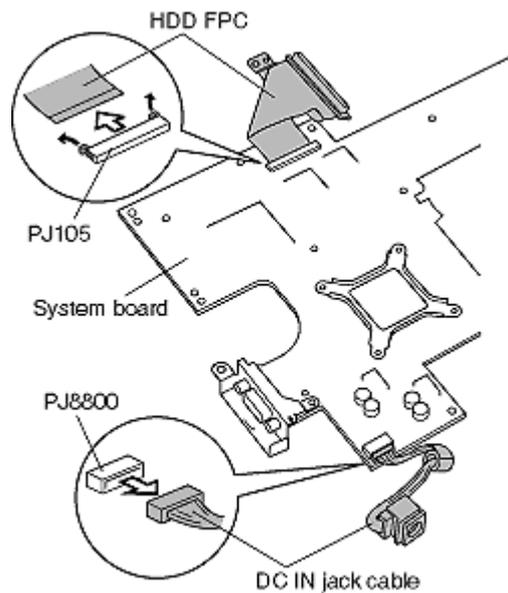


Figure 4-46 Removing the HDD FPC and the DC IN jack cable

10. Remove two strips of tape securing the modem cable.
11. Turn up the insulator securing the modem cable.
12. Remove the RJ-11/RJ-45 jacks.

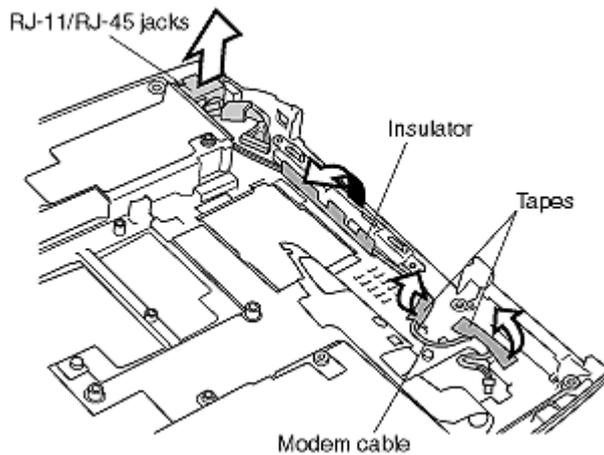


Figure 4-47 Removing the RJ-11/RJ-45 jacks

Installing the System Board

To install the system board, follow the steps below and refer to Figures 4-43 to 4-47.

1. Seat the RJ-11/RJ-45 jacks.
2. Route the modem cable through the groove and hooks on the bottom case.
3. Secure the modem cable with one insulator and two strips of tape.
4. Connect the DC IN jack cable to PJ8800 on the system board.
5. Connect the HDD FPC to PJ105 on the system board.
6. Seat the system board.
7. Secure the system board with the following eleven screws:
 - EEight M2.5x4 screws
 - ETwo M2.5x2.8 black flat-head screws
 - EOne M2.5x14 stud screw
8. Mount the DC IN jack in its slot.
9. Connect the RJ-45 jack cable to PJ108 on the system board.
10. Secure the HDD FPC with tape.

4.17 SD Card Board

Removing the SD Card Board

To remove the SD Card board, follow the steps below and refer to Figures 4-48 and 4-49.

1. Disconnect the following cables from the SD Card board:
 - ESub LCD backlight I/F cable from PJ4001
 - ESub LCD I/F cable from PJ4002
 - EPAD I/F cable from PJ4003
2. Remove two M2x4 flat-head screws securing the SD Card board.
3. Lift off the SD Card board.

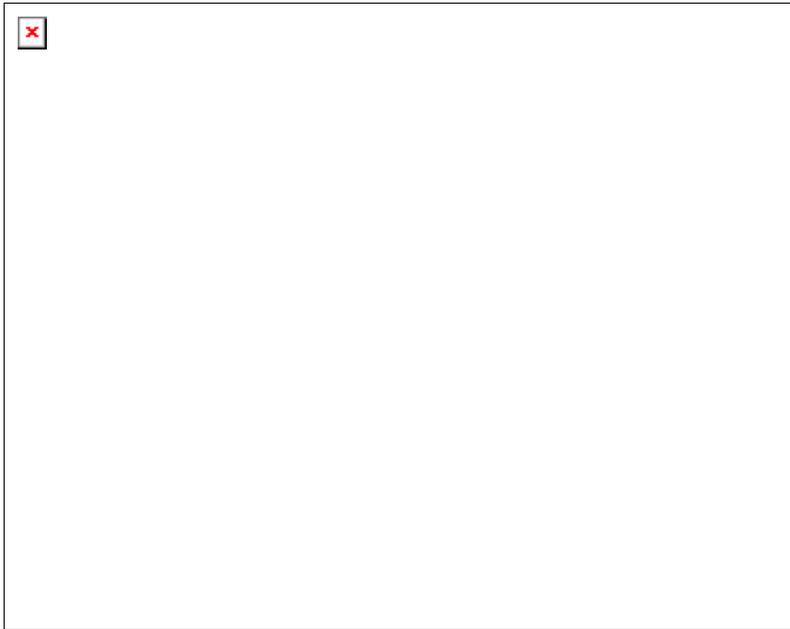


Figure 4-48 Removing the SD Card board

4. Disconnect the SD Card board I/F cable from PJ4000 on the SD Card board.

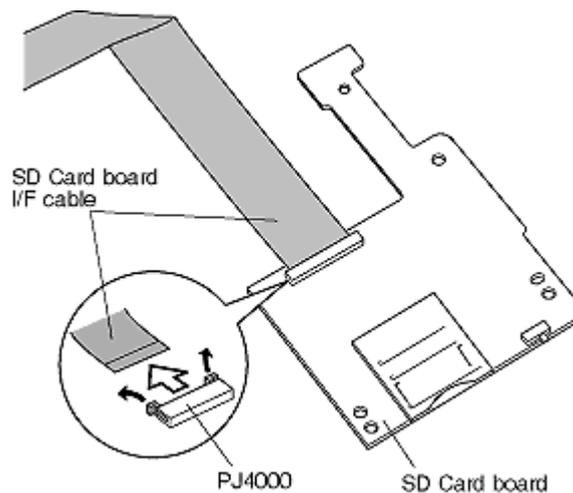


Figure 4-49 Disconnecting the SD Card board I/F cable

Installing the SD Card Board

To install the SD Card board, follow the steps below and refer to Figures 4-48 and 4-49.

1. Connect the SD Card board I/F cable to PJ4000 on the SD Card board.
2. Seat the SD Card board. Be sure to align the switch S4001 on the SD Card board with the wireless communication switch on the bottom case.
3. Secure the SD Card board with two M2x4 flat-head screws.
4. Connect the following cables to the SD Card board:
 - Sub LCD backlight I/F cable to PJ4001
 - Sub LCD I/F cable to PJ4002
 - PAD I/F cable to PJ4003
5. Be sure to lay the SD Card board I/F cable under the membrane cable as

illustrated in Figure 4-48; otherwise, the SD Card board I/F cable interferes with the connection between the membrane cable and the system board.

4.18 cPAD and Sub LCD (cPAD model only)

Removing the cPAD and Sub LCD

To remove the cPAD and Sub LCD, follow the steps below and refer to Figures 4-50 to 4-53.

1. Remove four M2x4 screws securing the cPAD.
2. Remove two M2x4 screws securing the cPAD daughter board.
3. Lift out the cPAD and daughter board.
4. Disconnect the cPAD daughter board I/F cable from J2 on the daughter board.
5. Disconnect the PAD I/F cable from J3 on the cPAD daughter board.

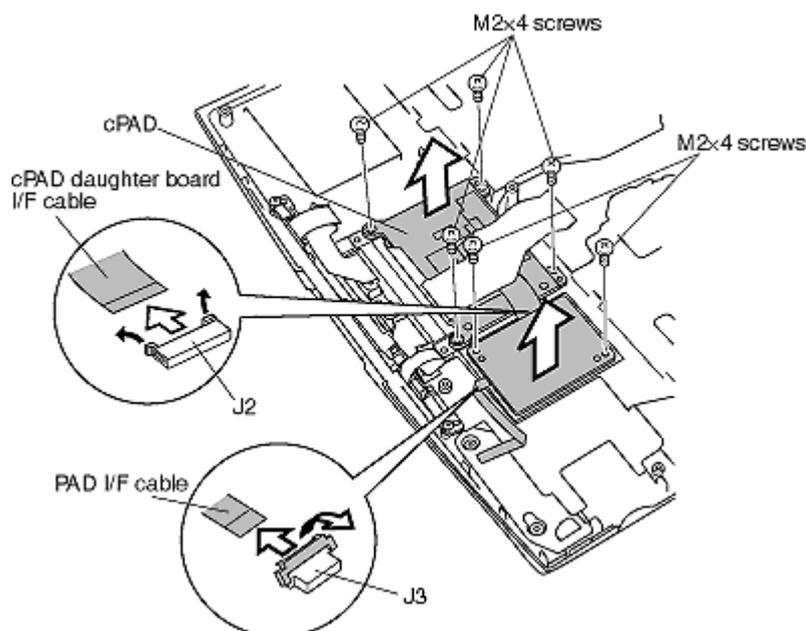


Figure 4-50 Removing the cPAD and daughter board

6. Turn over the membrane cable.

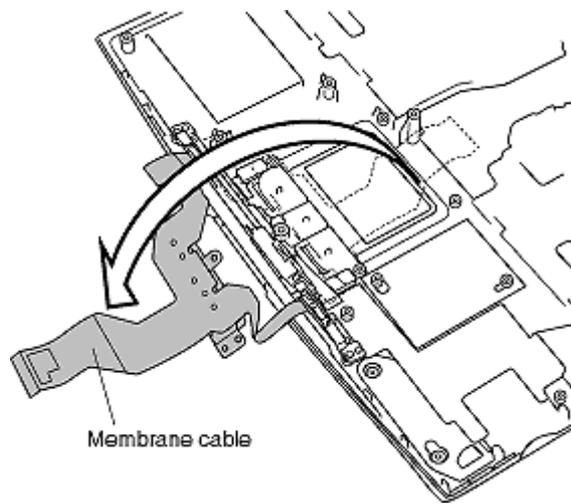


Figure 4-51 Turning over the membrane cable

7. Remove three M2x4 screws securing the plastic holder.
8. Lift out the plastic holder.

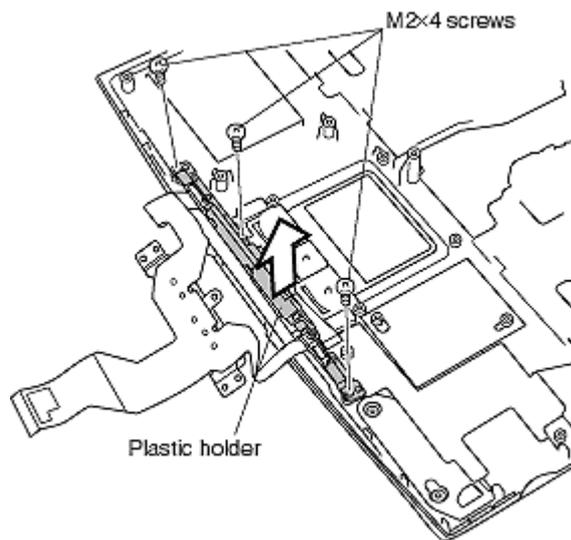


Figure 4-52 Removing the plastic holder

9. Remove two M2x4 screws securing the membrane assembly.
10. Lift out the membrane assembly.
11. Lift out the Sub LCD.

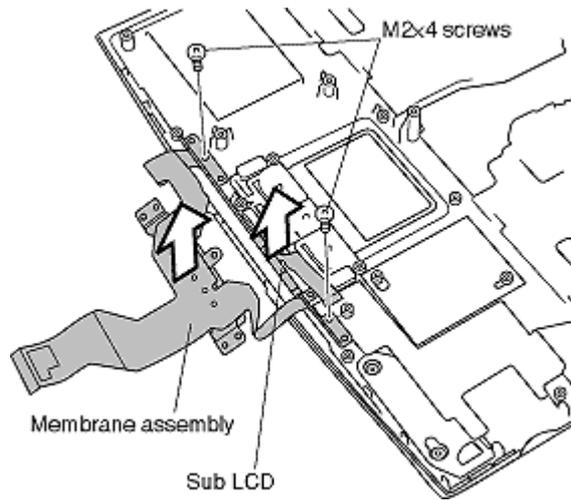


Figure 4-53 Removing the membrane assembly and the Sub LCD

Installing the cPAD and Sub LCD

To install the cPAD and Sub LCD, follow the steps below and refer to Figures 4-50 to 4-53.

1. Seat the Sub LCD.
2. Seat the membrane assembly.
3. Secure the membrane assembly with two M2x4 screws.
4. Seat the plastic holder.
5. Secure the plastic holder with three M2x4 screws.
6. Connect the PAD I/F cable to J3 on the cPAD daughter board.
7. Connect the cPAD daughter board I/F cable to J2 on the daughter board.
8. Seat the cPAD and daughter board.
9. Secure the cPAD with four M2x4 screws.
10. Secure the cPAD daughter board with two M2x4 screws.

4.19 TouchPad and Sub LCD (TouchPad model only)

Removing the TouchPad and Sub LCD

To remove the TouchPad and Sub LCD, follow the steps below and refer to Figures 4-54 to 4-57.

1. Turn over the membrane cable.

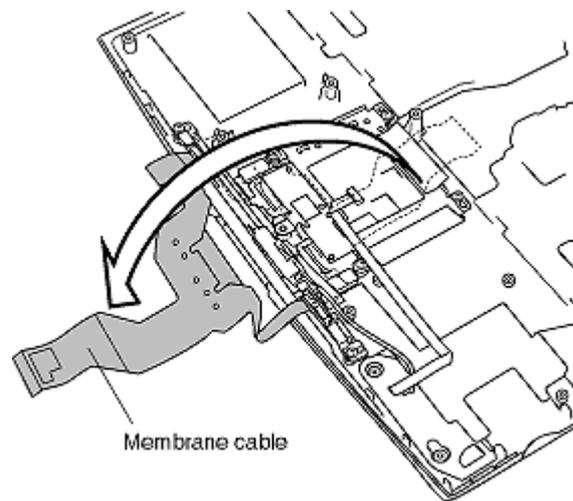


Figure 4-54 Turning over the membrane cable

2. Disconnect the PAD I/F cable from J1 on the TouchPAD.
3. Remove four M2x4 screws securing the TouchPad.
4. Lift out the TouchPad.

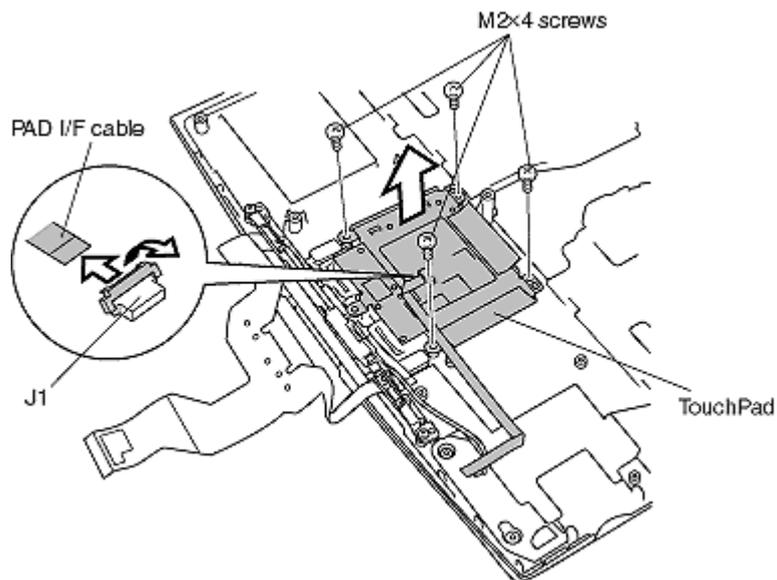


Figure 4-55 Removing the TouchPad

5. Remove three M2x4 screws securing the plastic holder.
6. Lift out the plastic holder.

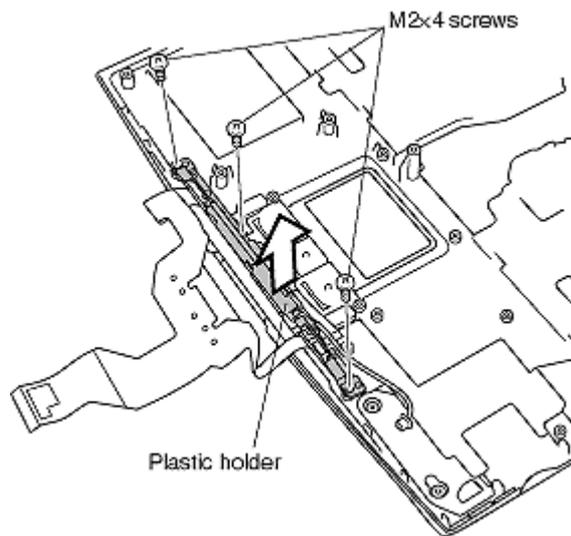


Figure 4-56 Removing the plastic holder

7. Remove two M2x4 screws securing the membrane assembly.
8. Lift out the membrane assembly.
9. Lift out the Sub LCD.

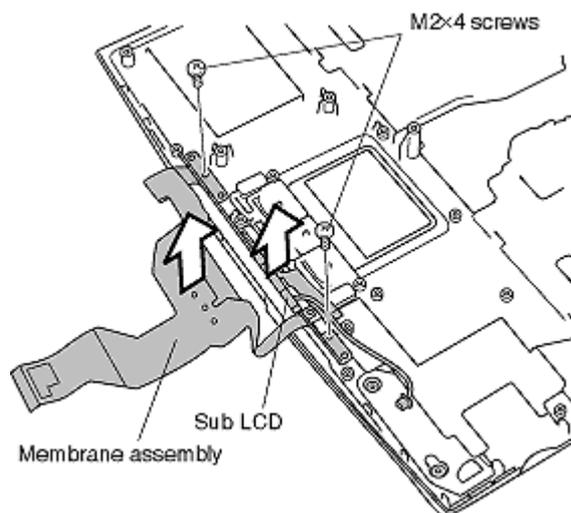


Figure 4-57 Removing the membrane assembly and the Sub LCD

Installing the TouchPad and Sub LCD

To install the TouchPad and Sub LCD, follow the steps below and refer to Figures 4-54 to 4-57.

1. Seat the Sub LCD.
2. Seat the membrane assembly.
3. Secure the membrane assembly with two M2x4 screws.
4. Seat the plastic holder.
5. Secure the plastic holder with three M2x4 screws.
6. Connect the pad I/F cable to J1 on the TouchPAD.

7. Seat the TouchPad.
8. Secure the TouchPad with four M2x4 screws.

4.20 Bluetooth module

Removing the Bluetooth module

To remove the Bluetooth module, follow the steps below and refer to Figures 4-58 and 4-59.

1. Remove one M2.5x4 screw securing the metal brace.
2. Lift off the metal brace.

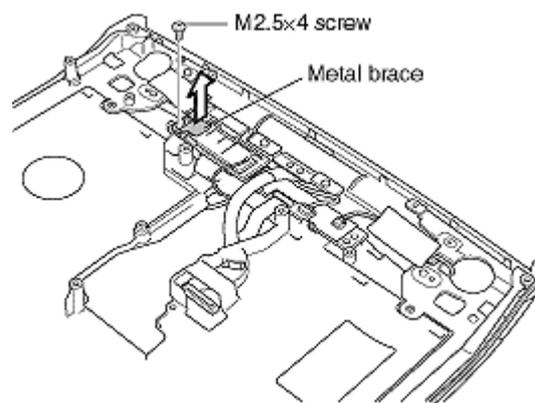


Figure 4-58 Removing the metal brace

3. Disconnect the Bluetooth antenna coaxial cable (brown) from CN2 on the Bluetooth module using an antenna coaxial cable disconnecter.
4. Gently disconnect the Bluetooth module from PJ4045 on the switch board, and remove it.

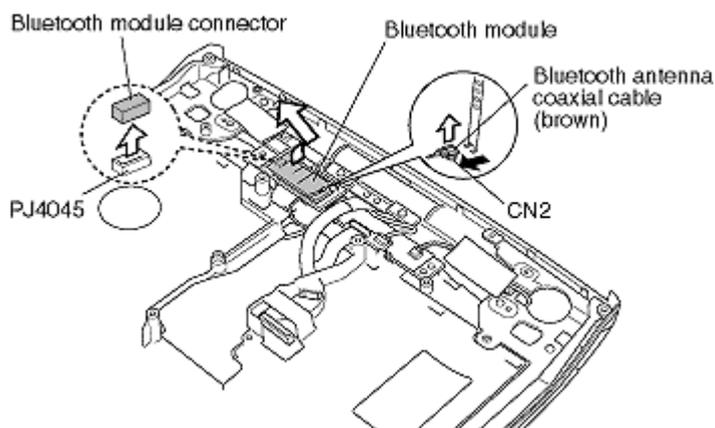


Figure 4-59 Removing the Bluetooth module

Installing the Bluetooth module

To install the Bluetooth module, follow the steps below and refer to Figures 4-58 and 4-59.

1. Connect the Bluetooth module to PJ4045 on the switch board.
2. Seat the metal brace and secure it with one M2.5x4 screw.
3. Connect the Bluetooth antenna coaxial cable (brown) to CN2 on the Bluetooth module.

4.21 Switch Board

Removing the Switch board

To remove the switch board, follow the steps below and refer to Figures 4-60 to 4-62.

1. Disconnect the following cables from the switch board:
 - Switch cable from PJ4040
 - Internal microphone cable from PJ4042
 - Left speaker cable (blue) from PJ4043
 - Right speaker cable (red) from PJ4044
2. Remove two strips of tapes securing the speaker cables, if necessary.

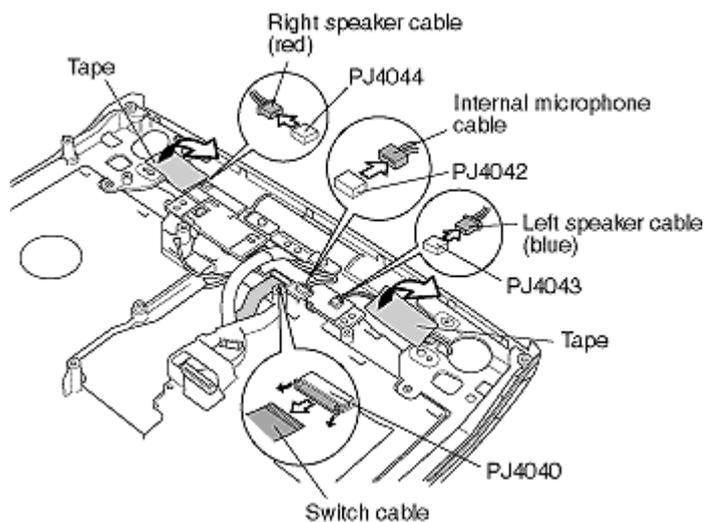


Figure 4-60 Disconnecting the cable and removing the tape

3. Pull out the LCD/FL cable from its groove in the top cover.

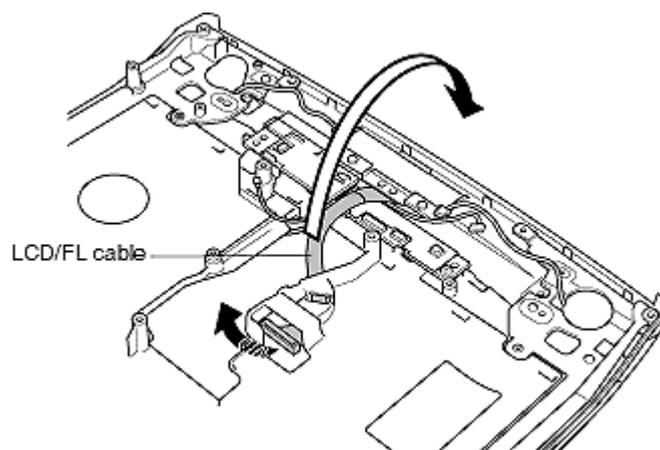


Figure 4-61 Pulling out the LCD/FL cable

4. Remove one M2.5x4 screw securing the switch board.
5. Lift out the switch board.

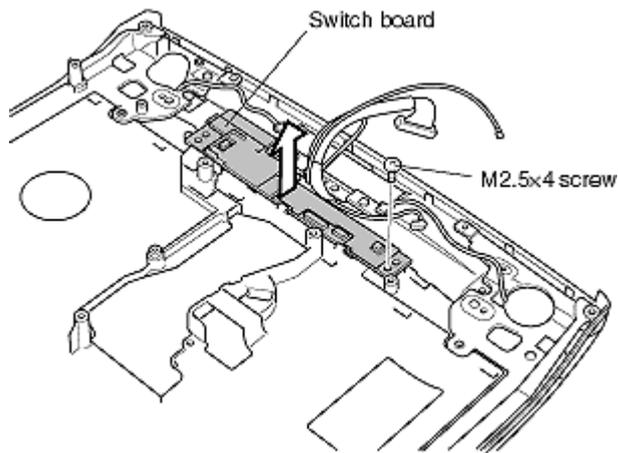


Figure 4-62 Removing the switch board

Installing the Switch board

To install the Switch board, follow the steps below and refer to Figures 4-60 to 4-62.

1. Seat the switch board and secure it with one M2.5x4 screw.
2. Route the LCD/FL cable through its groove on the top cover.
3. Connect the following cables to the switch board:
 - Switch cable to PJ4040
 - Internal microphone cable to PJ4042
 - Left speaker cable (blue) to PJ4043
 - Right speaker cable (red) to PJ4044
4. Secure the speaker cables with two strips of tape.

4.22 Speakers

Removing the Speakers

To remove the speakers, follow the steps below and refer to Figures 4-63 and 4-64.

1. Remove two strips of tape securing the speaker cables, if necessary.
2. Disconnect the following cables from the switch board, if necessary (refer to Figure 4-60).
 - Left speaker cable (blue) from PJ4043
 - Right speaker cable (red) from PJ4044
3. Remove one M2.5x4 screw securing each of two speakers.

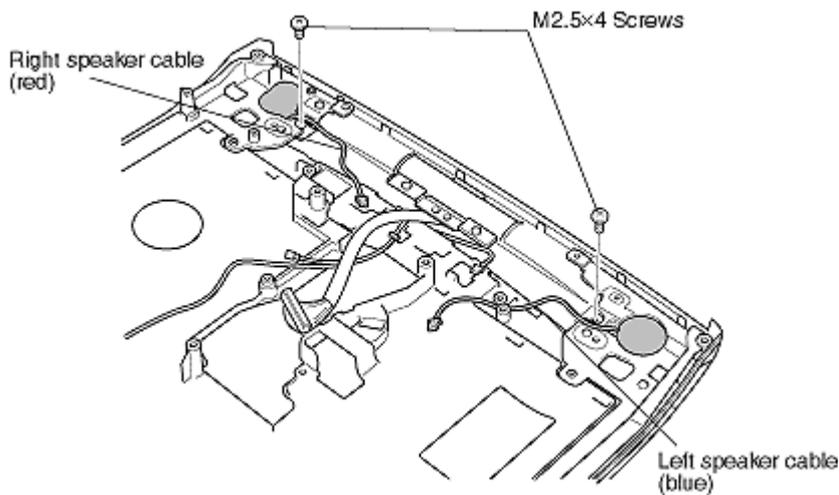


Figure 4-63 Removing the screws

4. Turn the top cover and display assembly right side up and open the display panel.
5. Lift up each speaker and pull out each speaker cable to remove the speaker.

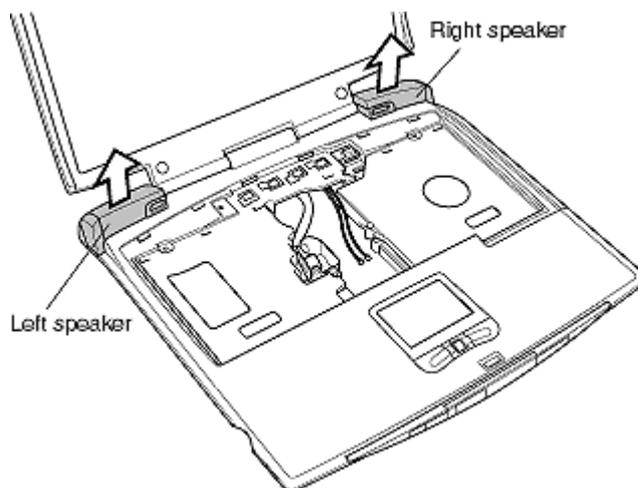


Figure 4-64 Removing the speakers

Installing the Speakers

To install the speakers, follow the steps below and refer to Figures 4-63 and 4-64.

1. Thread each speaker cable through its hole in the top cover, and seat each speaker. The speaker with the blue cable goes on the left and the speaker with the red cable goes on the right.
2. Close the display panel and turn the display assembly and top cover upside down.
3. Secure each speaker with one M2.5x4 screw.
4. Connect the following cables to the switch board, if necessary (refer to Figure 4-60).
 - Left speaker cable (blue) from PJ4043
 - Right speaker cable (red) from PJ4044

5. Secure each speaker cable with tape.

4.23 Display Mask

Removing the Display Mask

To remove the display mask, follow the steps below and refer to Figures 4-65 and 4-66.

1. Remove two mask seals at the hinges to expose two M2.5x6 black flat-head screws securing the display mask.
2. Remove two M2.5x6 black flat-head screws that were covered by the mask seals.

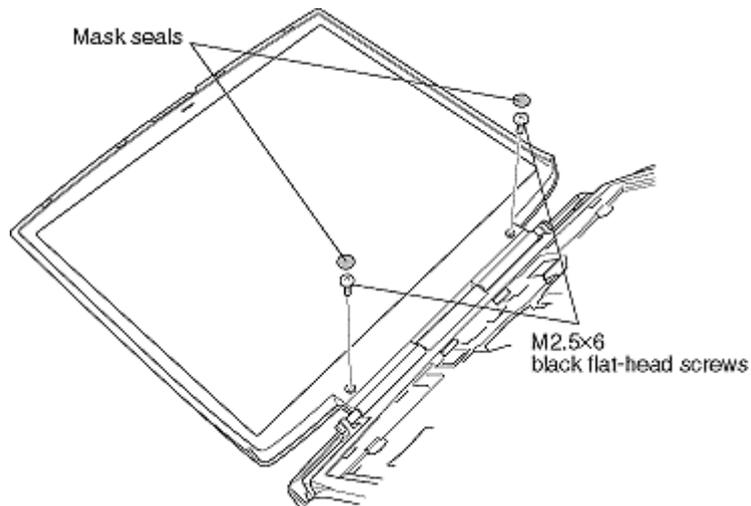


Figure 4-65 Removing the mask seals and screws

3. A total of twenty-four snaps secure the display mask. Carefully insert your fingers between the mask and the LCD panel and pry open the snaps. Start with the seven snaps at the bottom of the display mask.
4. Continue unsnapping the display mask along the sides (five snaps on each side), and the top (seven snaps).

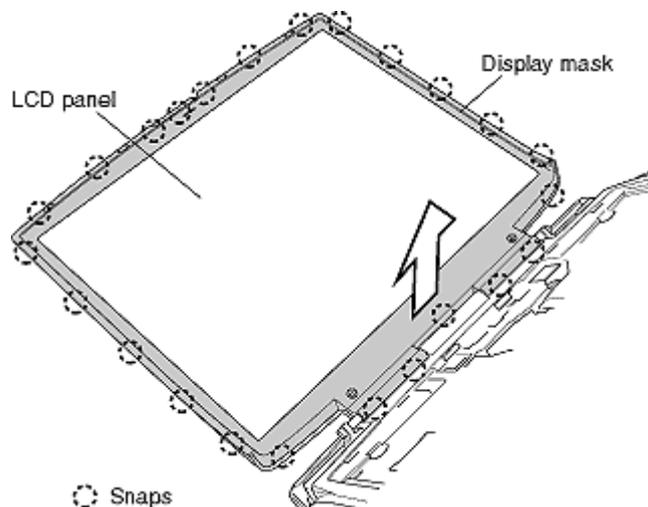


Figure 4-66 Removing the display mask

Installing the Display Mask

To install the display mask, follow the steps below and refer to Figures 4-65 and 4-66.

1. Seat the display mask and secure the snaps beginning with the seven snaps across the top of the display mask.
2. Continue along the sides (five snaps) and the bottom (seven snaps).
3. Secure the display mask with two M2.5x6 black flat-head screws at the hinges.
4. Attach two mask seals to cover the screws.

4.24 FL Inverter Board

Removing the FL Inverter Board

To remove the FL inverter board, follow the steps below and refer to Figure 4-67.

1. Remove one M2x4 flat-head screw securing the FL inverter board.
2. Turn over the insulator securing the HV cable.
3. Carefully lift up the FL inverter board and disconnect the FL cable from CN1 and the HV cable from CN2.

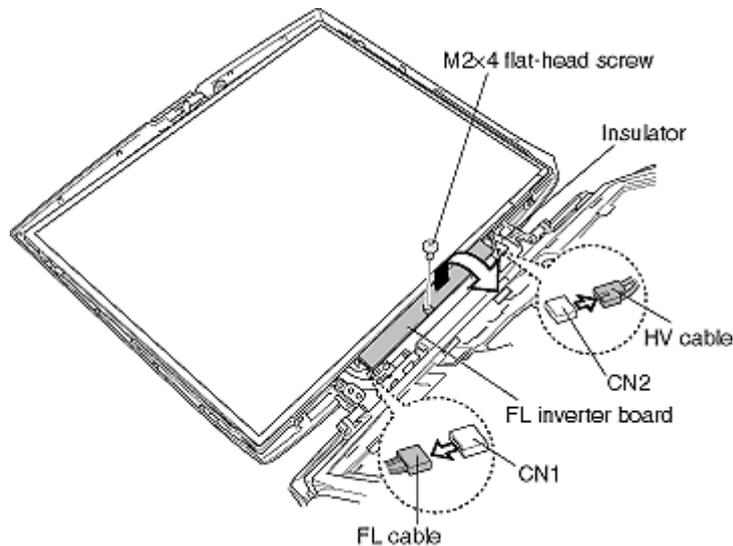


Figure 4-67 Removing the FL inverter board

Installing the FL Inverter Board

To install the FL inverter board, follow the steps below and refer to Figure 4-67.

1. Connect the FL cable to CN1 and the HV cable to CN2 on the FL inverter board.
2. Seat the FL inverter board and secure it with one M2x4 flat-head screw.
3. Secure the HV cable with the insulator.

4.25 LCD Module

Removing the LCD Module

To remove the LCD module, follow the steps below and refer to Figures 4-68 to 4-70.

1. Remove four mask seals on the side of the display mask to expose four M2x4 flat-head screws securing the LCD module.
2. Remove four M2x4 flat-head screws securing the LCD module.

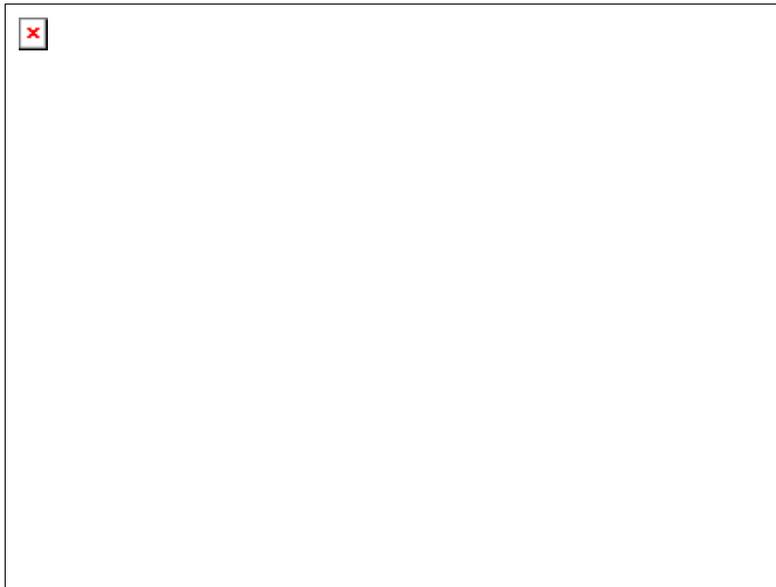


Figure 4-68 Removing the screws securing the LCD module

3. Rotate the LCD module from the top side out of the LCD cover. Be careful not to apply pressure to the flexible cable.
4. Remove the tape on the LCD connector.
5. Disconnect the LCD cable from the LCD connector on the back of the LCD module.

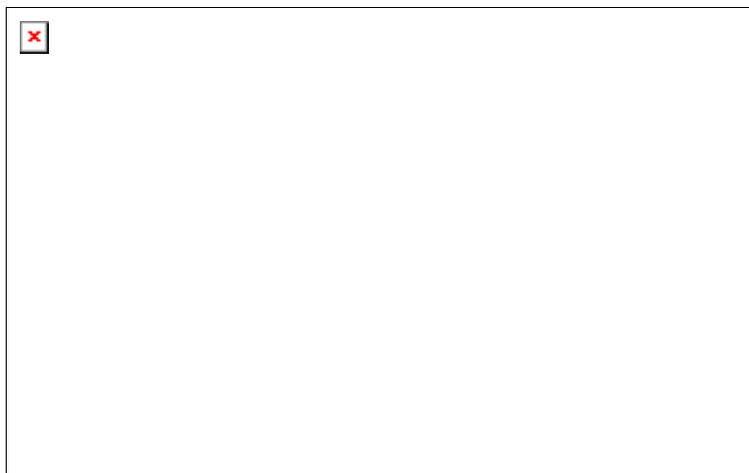


Figure 4-69 Removing the LCD

6. Remove four M2x3 silver flat-head screws securing two metal braces to remove the metal braces.

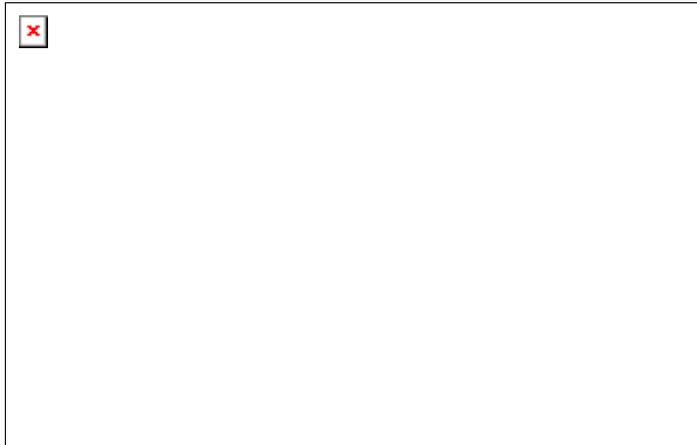


Figure 4-70 Removing the metal brace

Installing the LCD Module

To install the LCD module, follow the steps below and refer to Figures 4-68 to 4-70.

1. Secure each of two metal brace to the LCD module with two M2x3 silver flat-head screws.
2. Connect the LCD cable to the LCD connector on the back of the LCD module.
3. Secure the LCD cable with tape.
4. Rotate the LCD module into place.
5. Secure the LCD module with four M2x4 flat-head screws.
6. Apply four mask seals to cover the screws.

4.26 Antennas and Internal Microphone

Removing the Antennas and Internal Microphone

To remove the antennas and internal microphone, follow the steps below and refer to Figures 4-71 and 4-72.

1. Close the display panel, and turn the display assembly and the top cover upside down.
2. Remove two M2.5x6 silver flat-head screws securing the plastic cover.
3. Remove the plastic cover.

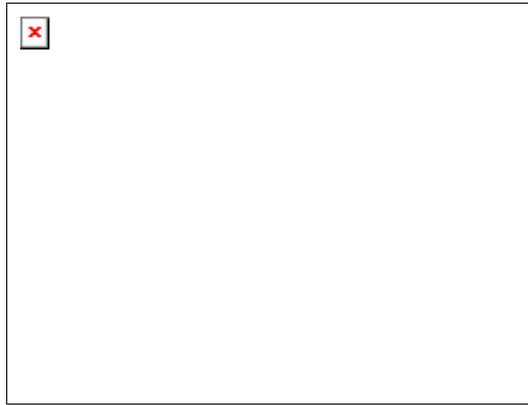


Figure 4-71 Removing the plastic cover

4. Turn the display assembly and top cover right side up, and open the display panel.
5. Free the wireless LAN antenna coaxial cables (black and white) from its hook on the top cover.
6. Remove three strips of tape securing the antenna coaxial cables and internal microphone cable.
7. Pull out the antenna coaxial cables and internal microphone cable from the hole in the hinge, and remove them.

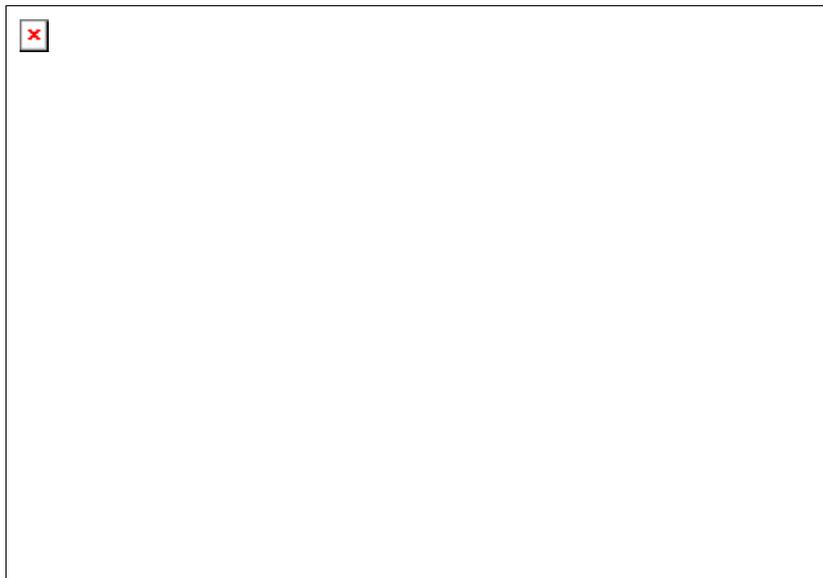


Figure 4-72 Removing the antennas and internal microphone

Installing the Antennas and Internal Microphone

To install the antennas and internal microphone, follow the steps below and refer to Figures 4-71 and 4-72.

1. Seat three antennas and the internal microphone.
2. Thread the antenna coaxial cables and internal microphone cable through the hole in the hinge.
3. Secure the antenna coaxial cables and internal microphone cable with three

strips of tape.

4. Close the display panel, and turn the display assembly and the top cover upside down.
5. Seat the plastic cover and secure it with two M2.5x6 silver flat-head screws.
6. Turn the display assembly and top cover right side up, and open the display panel.
7. Route the wireless LAN antenna coaxial cables (black and white) through its hook on the top cover.

4.27 LCD/FL Cable

Removing the LCD/FL Cable

To remove the TFT FL (Model 15.0 UXGA SHARP), follow the steps below and refer to Figures 4-114 to 4-122.

1. Turn the display assembly and top cover right side up, and open the display panel.
2. Remove one M2.5x6 silver flat-head screw securing the metal brace.
3. Remove the metal brace.

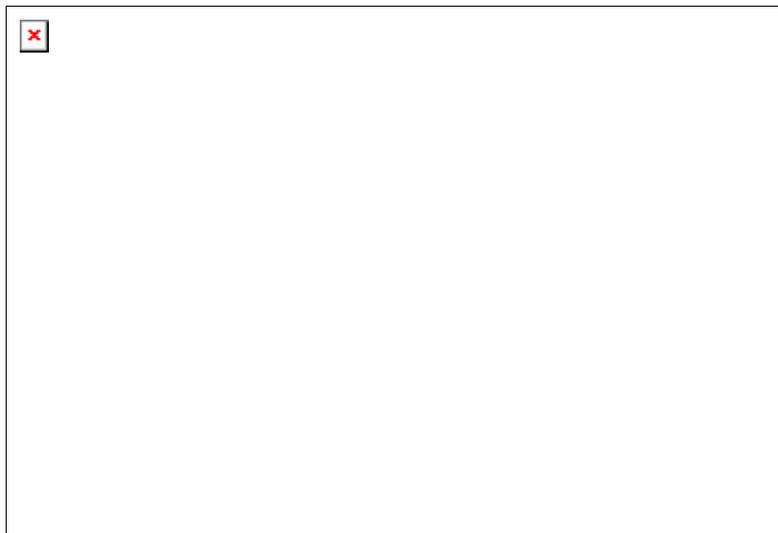


Figure 4-73 Removing the metal brace

4. Close the display panel, and turn the display assembly and the top cover upside down.
5. Remove two M2.5x6 silver flat-head screws securing the plastic cover, if necessary.
6. Remove the plastic cover, if necessary.



Figure 4-74 Removing the plastic cover

7. Pull out the LCD/FL cable through the clearance between the display assembly and the top cover.
8. Pull out the LCD/FL cable from the hole in the top cover to remove it.



Figure 4-75 Removing the LCD/FL cable

Installing the LCD/FL Cable

To install the LCD/FL cable, follow the steps below and refer to Figures 4-73 to 4-75.

1. Thread the LCD/FL cable through the hole in the top cover.
2. Insert the LCD/FL cable into the clearance between the top cover and the display assembly.
3. Seat the plastic cover, and secure it with two M2.5x6 silver flat-head screws, if necessary.
4. Turn the display assembly and top cover right side up, and open the display panel.
5. Seat the metal brace, and secure it with one M2.5x6 silver flat-head screw.