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## **Chapter 4**

# **Replacement Procedures**

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### 4.1 Overview

This chapter describes the procedure for removing and replacing the field replaceable units (FRUs) in the PC. It may not be necessary to remove all the FRUs in order to replace one. The chart below provides a guide as to which other FRUs must be removed before a particular FRU can be removed. The numbers in the chart indicate the relevant section numbers in this manual.

In all cases when removing an FRU, the battery pack must also be removed. When repairing an FRU that is the potential cause of a computer fault, use the chart to determine the order in which FRUs need to be removed.

4.3 PC card SD memory card		4.2 Battery pack											
		4.6 Memory module				4.7 HDD							
4.4 Keyboard													
4.8 Base cover assembly								4.5 Touch pad				4.19 LCD/FL inverter	
4.9 Mini PCI	4.10 MDC modem	4.6 FAN/ CPU	4.12 RTC battery	4.13 Blue tooth module	4.14 Hinge cable	4.18 Pen holder/ Battery lock/ Base latch assembly	4.17 Second FAN						
4.15 System board								4.21 Digitizer		4.8 Application Switch/ Power switch/ LCD latch assembly		4.22 LCD harness/ Hinge assembly	
4.16 Speaker/LED board								4.24 Florescent lamp				4.23 Hinge Switch board	

(Example)

■ Chart Notation

The chart shows the case for the following example:

◆ Removing the system board

All FRUs down to the “4.9 Mini PCI” to “4.14 Hinge cable” units immediately above the system board must be removed.

Similarly, as this requires the removal of all the units from “4.3 PC card” to “4.8 Base cover assembly” must be also removed.

4.3 PC card/ SD memory card		4.2 Battery pack											
		4.6 Memory module				4.7 HDD							
4.4 Keyboard													
4.8 Base cover assembly								4.5 Touch pad				4.19 LCD/FL inverter	
4.9 Mini PCI	4.10 MDC modem	4.6 FAN/ CPU	4.12 RTC battery	4.13 Blue tooth module	4.14 Hinge cable	4.18 Pen holder/ Battery lock/ Base latch assembly	4.17 Second FAN						
4.15 System board								4.21 Digitizer		4.8 Application Switch/ Power switch/ LCD latch assembly		4.22 LCD harness/ Hinge assembly	
4.16 Speaker/LED board								4.24 Florescent lamp				4.23 Hinge Switch board	

## Safety Precautions

Please read the following safety instructions before disassembling the computer and always follow the instructions while working on the computer.

- Danger:**
- 1. In the case of the battery, always use authentic parts or equivalent parts approved by Toshiba. Other batteries may have different specifications that are incompatible with the computer and may result in fire or explosion.  
Due to the risk of alkali fluid leaks, never attempt to heat or disassemble the battery. Similarly, due to the risk of explosion, never expose the battery to flame.*
  - 2. Some parts including the power supply and FL inverter generate high voltages. If you need to turn on the power while disassembling the computer, do not touch any connectors or other components due to the risk of electric shock. Also, do not disassemble individual parts when performing routine maintenance.*

- Warning:**
- 1. To prevent electric shock, turn off the power and unplug the AC adapter from the power source.*
  - 2. As the battery installed to the computer is typically already charged, the risk of electric shock remains even when the AC adapter is unplugged from the socket. To prevent electric shock, always take off any metal jewelry or accessories such as necklaces, bracelets or rings before working on the computer. Never work with wet or moist hands.*
  - 3. Take care not to injury yourself on any edges or corners.*

- Caution:**
- 1. Confirm that replacement parts have compatible specifications before replacing on the computer. Never use incorrect parts as these may cause faults on the computer.*
  - 2. To prevent internal damage such as short circuits or burning, do not allow any screws, paper clips, or other metal objects to fall into the computer. When removing screws, always replace with the same size screw. Ensure that all screws are fully tightened. Loose screws may result in short circuits leading to overheating, smoke or flame.*
  - 3. To prevent electric shock, check that you have disconnected all cables from a part before removing the part.*
  - 4. When connecting to the AC power supply, use only an AC adapter and cable approved by Toshiba.*
  - 5. To prevent electric shock, ensure that all replacement parts are compatible with the computer and that all cables and connectors are securely connected.*

**Before You Begin**

Take note of the following points before starting work. Always remove the AC adapter and battery pack before commencing any of the procedures. The procedure for removing the battery pack is described in section “4.2.1 Battery Pack”.

1. Do not disassemble the computer unless it is operating abnormally.
2. Use the designated tools.
3. Ensure that the environment for working on and storing parts does not contain any of the following.
  - Dust or dirt
  - Static electricity
  - Extremely hot, cold, or humid conditions
4. Perform the diagnostic tests described in Chapter 2 to determine which FRU is the cause of the fault.
5. Do not perform any unnecessary work. Always work in accordance with the disassembly and re-assembly procedures in this manual.
6. Keep parts removed from the computer in a safe place away from the computer where they will not be damaged or interfere with your work.
7. Disassembling requires the removal of a large number of screws. Keep removed screws in a safe place such that you can determine which screws belong to which part.
8. When reassembling, ensure that you use the correct screws and fit parts in the correct position. Screw sizes are noted in the text and figures.
9. As all parts have sharp edges and corners, take care not to cut yourself.
10. After replacing an FRU, check that the computer and replaced part operate correctly.

## Disassembly Procedures

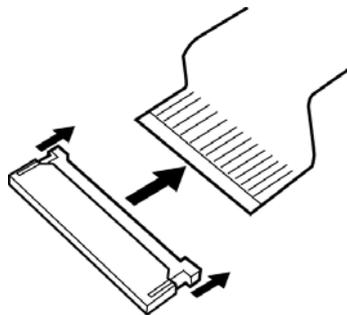
Three main types of cable connector are used.

- Pressure plate connector
- Spring connector
- Normal pin connector

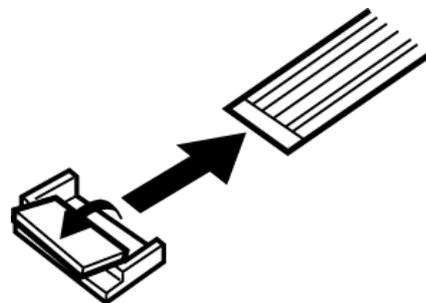
When disconnecting a pressure plate connector, draw the tab on one side of the plastic pressure plate on the connector and pull the cable out from the connector. When reconnecting a cable to a pressure plate connector, draw enough the pressure plate and insert the cable into the connector. Press both sides of the pressure plate such that both sides of the plate and connector are at the same height and that the cable is fixed in the correct position. Pull the cable to ensure that it is securely connected. If the cable is disconnected from the connector, reconnect it making sure that you draw enough the pressure plate to insert fully the cable.

For spring connectors, lifting up the stopper frees the cable and allows it to be pulled out. To reconnect, hold the stopper in the up position and insert the cable, then lower the stopper to secure the cable.

Normal pin connectors are used for all other cables. Simply pull out or push in these connectors to disconnect or reconnect.



Pressure plate connector



Spring connector

### Assembly Procedure

After the computer has been disassembled and the part that caused the fault has been repaired or replaced, the computer must be reassembled.

Take note of the following general points when assembling the computer.

- Take your time and follow the instructions carefully. Hurrying the assembly work will only introduce new problems.
- Check that all cables and connectors are securely connected.
- Before fastening FRUs or other parts in place, ensure that no cables are caught on screws or the FRU.
- Check that all latches are securely closed.
- Ensure that you have installed all FRUs correctly and do not have any screws left over. Using an incorrect screw may damage the thread or screw head and result in the FRU not being securely fastened in place.

After installing FRUs, check that the computer operates correctly.

### Tools and Equipment

For your safety and the safety of the people around you, it is important that you use Electrostatic Discharge (ESD) equipment. Correctly utilizing of the equipment increases the percentage of successful repairs and saves on the cost of damaged or destroyed parts. The following equipment is required for disassembly and assembly.

- One Philips screwdriver with type 0 bit (for THIN HEAD screws)
- One Philips screwdriver with type 1 bit (for screws other than above)
- Tweezers (for lifting screws)
- ESD mats (lay on work table or floor)
- An ESD wrist strap and heel grounder
- Anti-static carpet or flooring
- A pair of needle-nose pliers
- Air-ionizers in highly static sensitive areas
- Antenna coaxial cable disconnecter

## Screw Tightening Torque

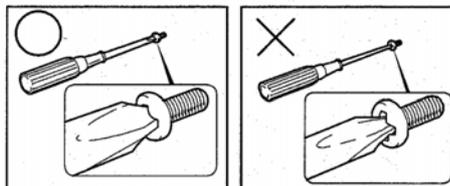
Use the following torque when tightening screws.

**Caution:** Overtightening may damage screws or parts. Undertightening may allow screws to loosen (and possibly fall out) causing a short circuit or other damage.

**Note:** To tighten screws quickly and accurately, an electric screwdriver is recommended.

- M2 (2mm) 0.167 N•m (1.7 kgf•cm)
- M2.5 (2.5mm) 0.294 N•m (3.0 kgf•cm)
- M3 (3mm) 0.549 N•m (5.6 kgf•cm)

**Note:** To prevent damage to THIN HEAD screws, use type 0 pit philips screwdriver. Use, however, the PH point size “1” screwdriver for screws fixing the expansion memory slot cover and the keyboard.. Press along the axis of the screwdriver while turning the screw. This is because the contact area between the screw and driver is less than for a pan head screw (standard pan-shaped screw head).



## Grip Color

Some screws have a colored grip area to help you determine the length of the screw.

- Even numbered length screws: Brown
- Odd numbered length screws: White
- Special length screw: Blue

“Special length screw” means screws whose length is indicated in an integral number to the first decimal places such as 2.5 mm, 2.6 mm and so on.



## Screw Notation

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.

Format:

Screw shape + Screw length (mm)

Screw shape

B: Bind screw

F: Flat head screw

S: Super thin head screw

T: Tapping screw

U: Other screws (Unique screws: pan head, stud, etc.)

Example: B6 ... 6mm BIND screw

## 4.2 Battery pack

### Removing the battery pack

The following describes the procedure for removing the battery pack. (See Figure 4-1.)

**Caution:** Take care not to short circuit the terminals when removing the battery pack. Similarly, do not drop, knock, scratch, disassemble, twist, or bend the battery pack.

1. Turn off the power of the computer.
2. Disconnect the AC adapter and all other external devices from the computer.
3. Turn the computer upside down.
4. Release the battery lock switch.
5. Slide the battery latch in the direction indicated by the arrow to loosen the lock. Pull out the battery to remove.

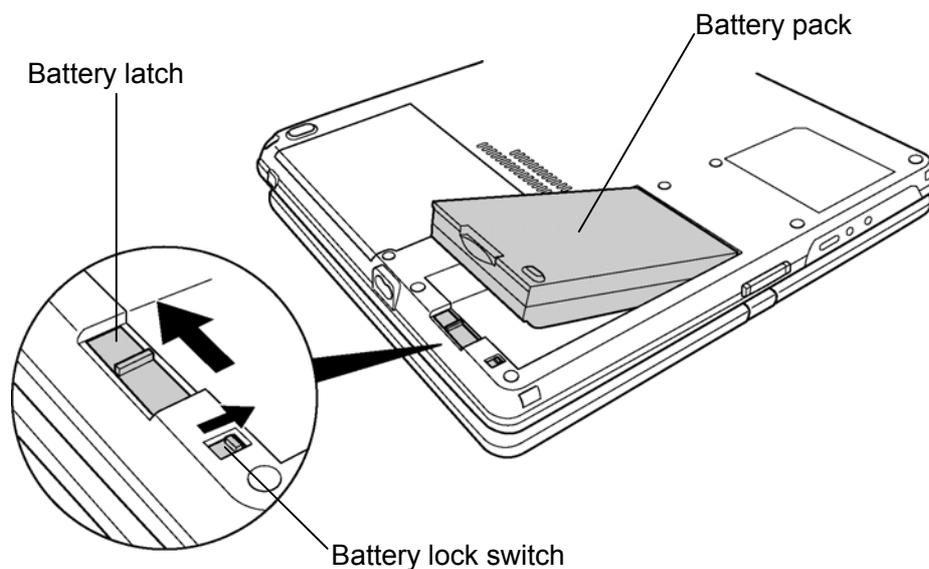


Figure 4-1 Removing the battery pack

**Note:** Dispose of the used battery pack in accordance with the laws and ordinances of your local authority.

### Installing the battery pack

The following describes the procedure for installing the battery pack. (See Figure 4-1.)

**Caution:** *There is a danger that the lithium ion battery pack may explode if not fitted, operated, handled, or disposed correctly. Dispose of the used batteries pack in accordance with the laws and ordinances of your local authority. Use only the batteries approved by Toshiba.*

**Note:** *Check visually the battery terminals and clean off any dirt with a dry cloth.*

1. Turn off the power of the computer.
2. Disconnect the AC adapter and all other external devices from the computer.
3. Inset the connector of the battery to the connector of the computer. Press the battery pack until the battery is locked.
4. Secure the battery lock.

## 4.3 PC Card/SD memory card

### 4.3.1 PC Card

#### Removing the PC Card

The following describes the procedure for removing the PC card. (See Figure 4-2.)

**Caution:** Insert or remove the PC Card in accordance with any instructions in the PC Card manual or the manuals of the computer system you are using.

1. Push the ejection button. It will pop out when you release it. Press it once more to eject the PC Card.
2. Pull out the and remove it.

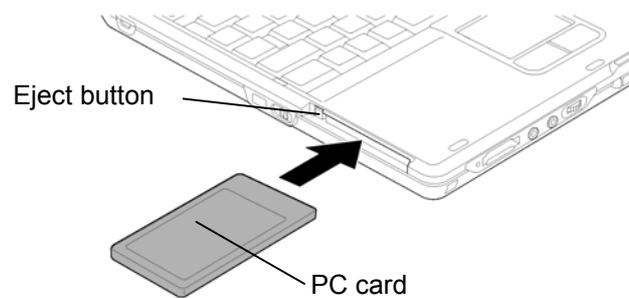


Figure 4-2 Removing the PC card

#### Installing the PC Card

The following describes the procedure for installing the PC card. (See Figure 4-2.)

1. Make sure the eject button does not stick out.
2. Insert the PC Card and press it until it is securely connected.

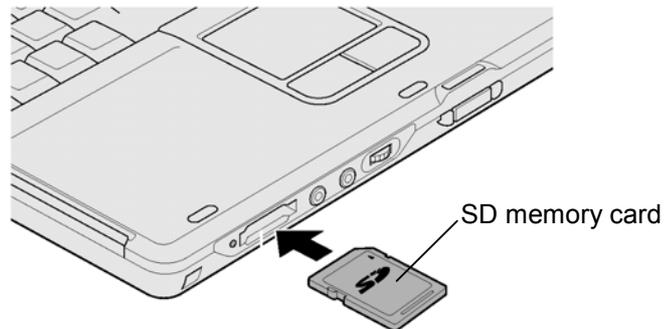
### 4.3.2 SD memory card

#### Removing the SD memory card

The following describes the procedure for removing the SD memory card. (See Figure 4-3.)

**Caution:** Insert or remove the SD card in accordance with any instructions in the SD card manual or the manuals of the computer system you are using.

1. Push the SD memory card. It will pop out partly when you release, so pull out the card.



*Figure 4-3 Removing the SD memory card*

### **Installing the SD memory card**

The following procedure describes the procedure for installing the SD memory card. (See Figure 4-3.)

1. Insert the SD memory card and press it until it securely connected.

## 4.4 Keyboard

### Removing the keyboard

The following describes the procedure for removing the keyboard. (See Figure 4-4.)

1. Open the display.
2. Insert your nails in the slot of both sides of the keyboard holder and lift it up to remove.
3. Remove the following screws securing the keyboard.

- M2.5x2.8B FLAT BIND screw x2

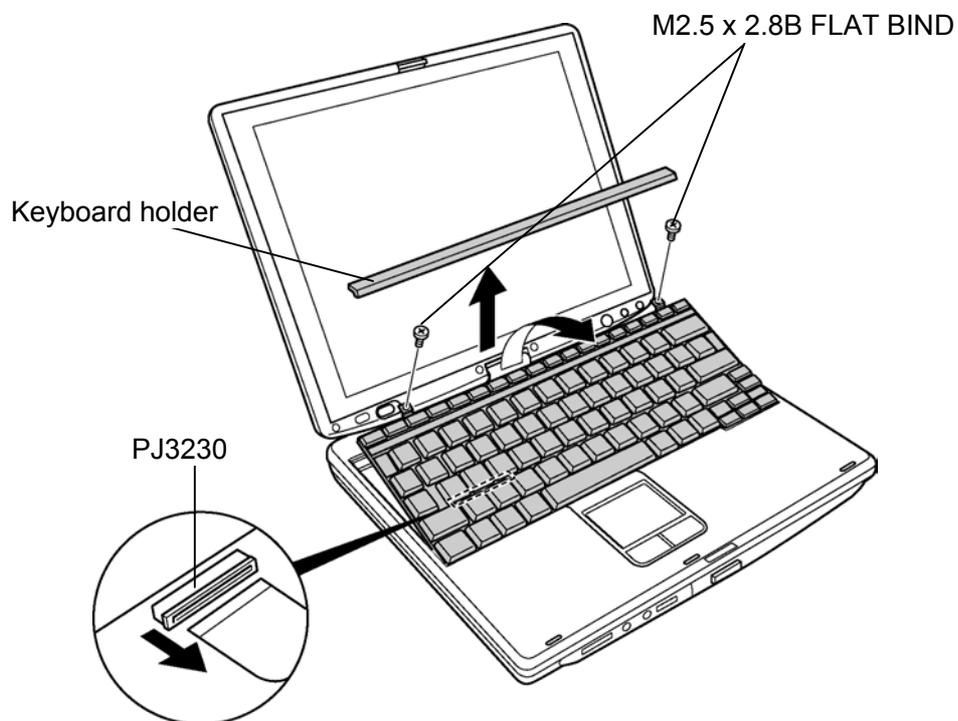


Figure 4-4 Removing the keyboard

4. Lift the top edge of the keyboard and bring the edge to the front to lay on the computer. Unlock the connector and disconnect the flexible keyboard cable from the connector on the system board.
5. Remove the keyboard.

### Installing the keyboard

The following describes the procedure for installing the keyboard. (See Figure 4-4.)

1. Put the keyboard on the palm rest as its face is down. Connect the flexible keyboard cable to PJ3230 on the system board and lock the connector.
2. Hook the bottom edge of the keyboard to the palm rest. Place the keyboard on the computer and secure it with the following screws.

- M2.5×2.8B FLAT BIND screw x2

3. Install the keyboard holder.

## 4.5 Touch pad

### Removing the touch pad

The following describes the procedure for removing the touch pad. (See Figure 4-5.)

1. Disconnect the flat cable from the connector on the system board.
2. Pull the touch pad holder slantwise from the computer.
3. Remove the following screws securing the touch pad.
  - M2.5×3B S-THIN screw x2
4. Remove the touch pad from the computer.
5. Disconnect the flat cable from the touch pad.

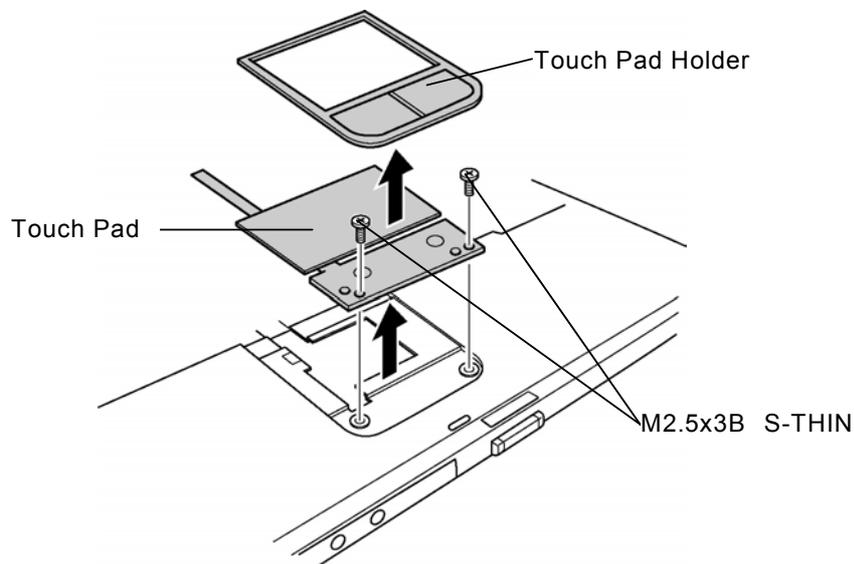


Figure 4-5 Removing the Touch Pad

### Installing the touch pad

The following describes the procedure for installing the touch pad (See Figure 4-5.).

1. Connect the flat cable to the touch pad.
2. Install the touch pad on the computer.
3. Secure the touch pad with the following screws.
  - M2.5×3B S-THIN screw x2
4. Insert the touch pad holder into the touch pad slot slantwise.
5. Connect the flat cable to the connector PJ3240 on the system board.

## 4.6 Memory module

**Caution:** The power must be turned off when you remove the memory module. Removing a memory module with the power on risks damaging the module or the computer itself.

Do not touch the memory module terminals. Any dirt on the terminals may cause memory access problems.

Never press hard or bend the memory module.

### Removing the memory module

To remove the memory module(s), confirm that the computer is in boot mode. Then perform the following procedure. (See Figure 4-6.)

1. Turn the computer upside down.
2. Loosen the screw with e-ring fixing the memory slot cover.
3. Remove the memory slot cover.
4. Open the left and right latches and remove the memory module(s).

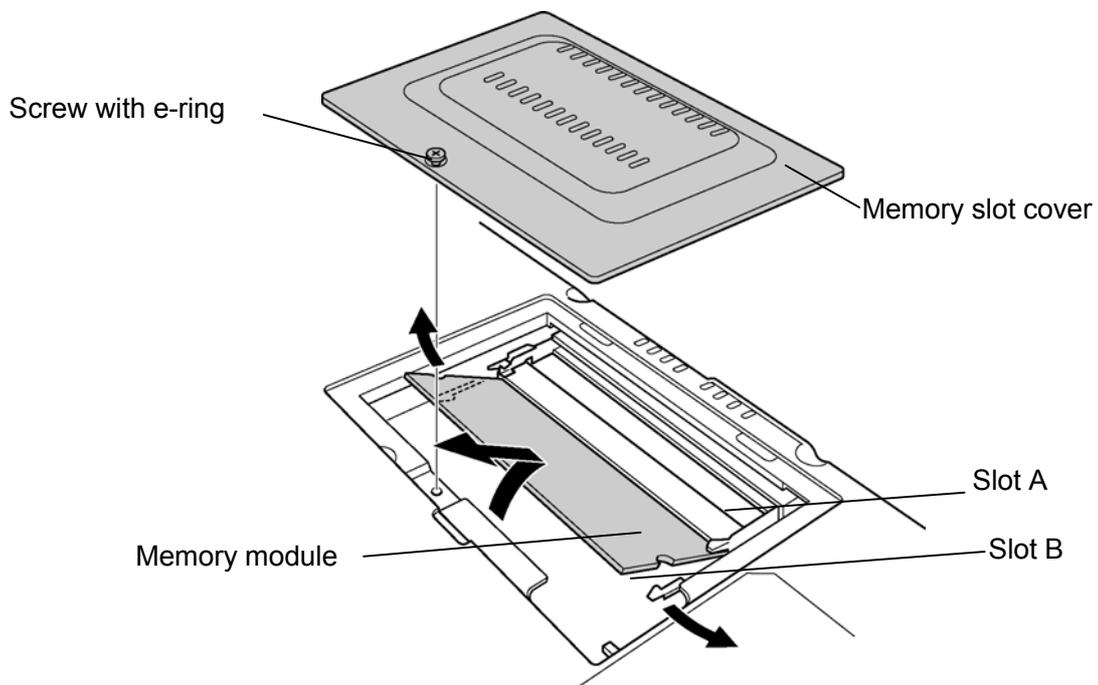


Figure 4-6 Removing the memory module

### Installing the memory module

To install the memory module(s), confirm that the computer is in boot mode. Then perform the following procedure. (See Figure 4-6.)

1. Insert the memory module into the connector of the computer slantwise (terminal side first) and press it to connect firmly.

**Caution:** *The power must be turned off when you insert the memory module. Inserting a memory module with the power on risks damaging the module or the computer itself.*

*Never press hard or bend the memory module.*

*When installing a memory module, be sure to install the memory module into the slot B.*

2. Install the memory slot cover.
3. Secure the screw with e-ring to fix the memory slot cover.

## 4.7 HDD

### Removing the HDD

The following describes the procedure for removing the HDD. (See Figure 4-7 to 4-8.)

**Caution:** Take care not to press on the top or bottom of the HDD. Pressure may cause data loss or damage to the device.

1. Turn the computer upside down.
2. Loosen the screw with e-ring securing the HDD slot cover and remove the cover.
3. Hold the HDD holder tab and pull the HDD assembly to the arrow direction (1) in the figure below and remove the HDD assembly.

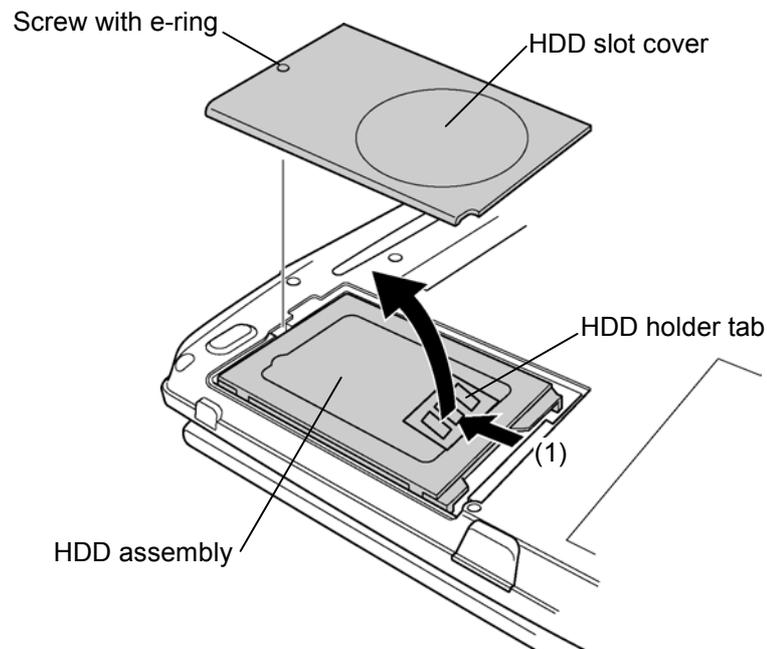
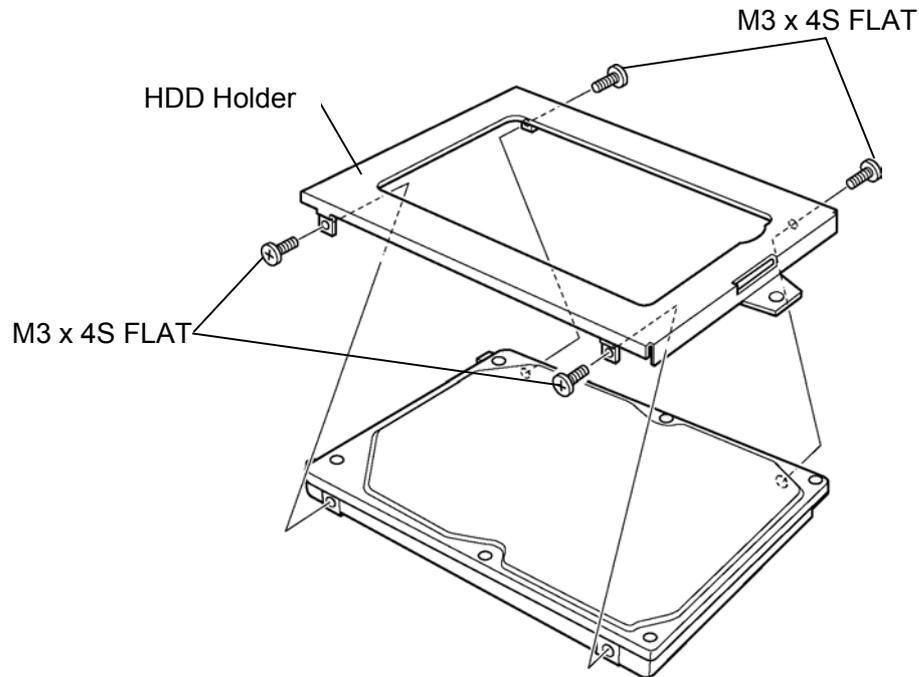


Figure 4-7 Removing the HDD cover

4. Remove the following screws fixing the HDD holder.

- M3×4S FLAT screw x4

5. Detach the HDD holder from the HDD.



*Figure 4-8 Removing the HDD holder*

### Installing the HDD

The following describes the procedure for installing the HDD. (See Figure 4-7 to 4-8.)

1. Install the HDD holder to the HDD with the following screws.

- M3×4S FLAT screw x4

2. Set the HDD assembly to the HDD slot from the opposite side of the connector.

3. Insert the HDD assembly into the connector on the system board with holding the HDD holder tab.

4. Install the HDD slot cover from the opposite side of the screw and secure it with the screw with e-ring.

## 4.8 Base cover assembly

### Removing the base cover assembly

The following describes the procedure for removing the base cover assembly. (See Figure 4-9 to 4-11.)

1. After Peeling off the glass tape, turn up the insulator and disconnect the speaker cable.
2. After turning up the insulator, unlock the connector and disconnect the LED flexible cable and the Touch Pad flexible cable.

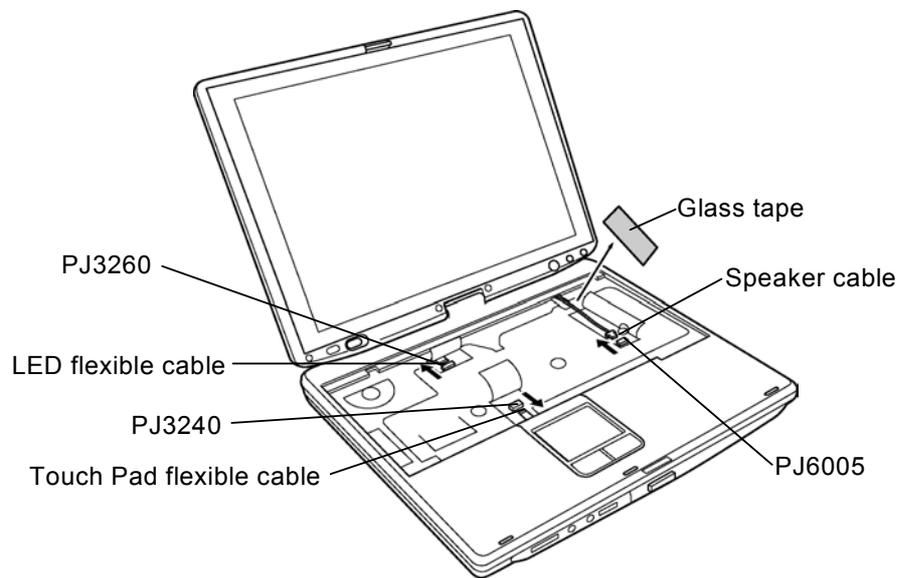


Figure 4-9 Disconnecting the cables

3. Close the display and turn the computer upside down.
4. Disconnect the second FAN cable from the system board near the memory slot.

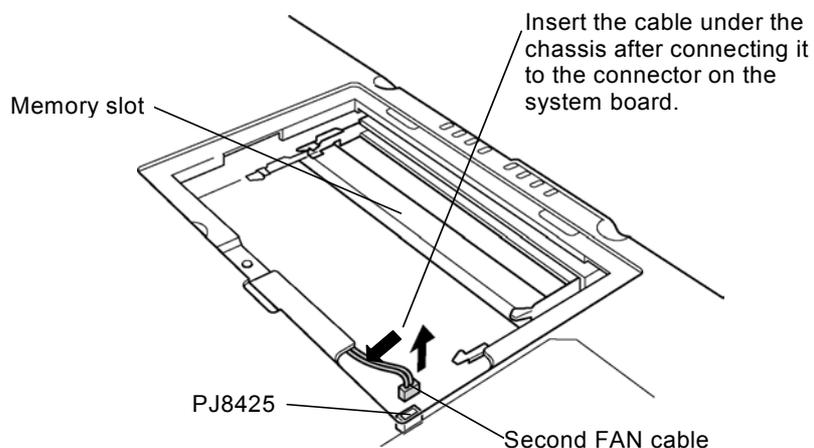


Figure 4-10 Disconnecting the second FAN cable

5. Remove the following screws from the bottom of the computer.

- M2.5×6B FLAT BIND screw x19 (Described as 6 in the figure)
- M2.5×3B S-THIN screw x1 (Described as 3 in the figure)

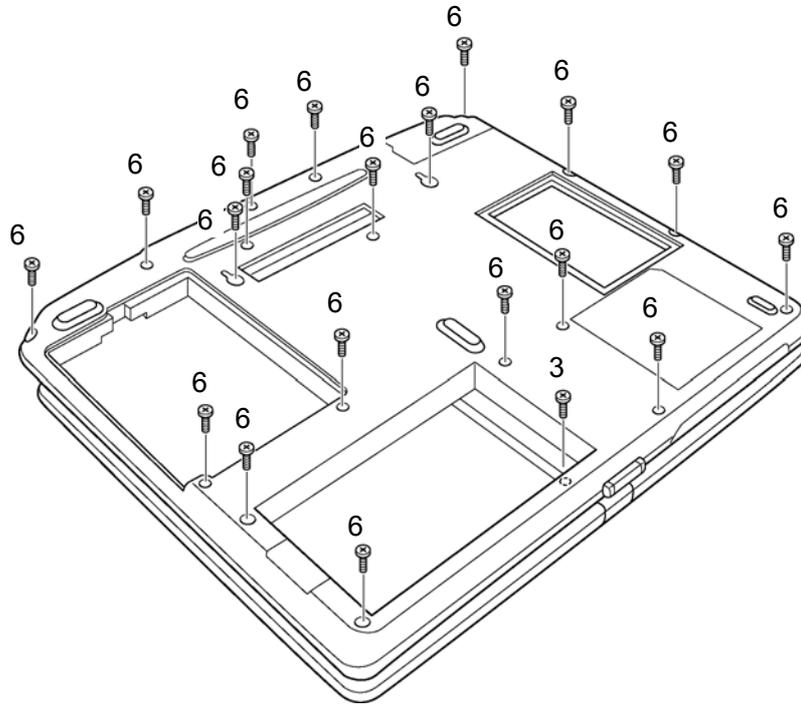


Figure 4-11 Removing screws

6. Pull up the base cover assembly to remove.

### Installing the base cover assembly

The following describes the procedure for installing the base assembly. (See Figure 4-9 to 4-11.)

1. Install the base cover assembly on the base assembly and hook the latches.
2. Secure the base cover assembly with the following screws.
  - M2.5×6B FLAT BIND screw x19
  - M2.5×3B S-THIN screw x1
3. Connect the second FAN cable to the connector on the system board near the memory slot and push the cable into the slot of the computer.
4. Turn over the computer.
5. Turn up the insulator and connect the LED flexible cable and Touch Pad flexible cable to the connector PJ3260 and PJ3240.
6. Turn up the insulator and connect the speaker cable to the connector PJ6005. Stick the glass tape to secure the insulator on the speaker cable.

## 4.9 Mini PCI

### Removing the Mini PCI

The following describes the procedure for removing a Mini PCI. (See Figure 4-12.)

**Caution:** The power must be turned off when you remove the mini PCI. Removing a mini PCI with the power on risks damaging the module or the computer itself.

Never press hard or bend the mini PCI.

1. Remove the following screws securing the mini PCI cover and remove the mini PCI cover.
  - M2×4Z BIND screw x2
  - or
  - M2×4B LH STICK screw x2
2. Disconnect the wireless LAN antenna cables from the mini PCI.
3. Open the left and right latches securing the mini PCI and remove the mini PCI.

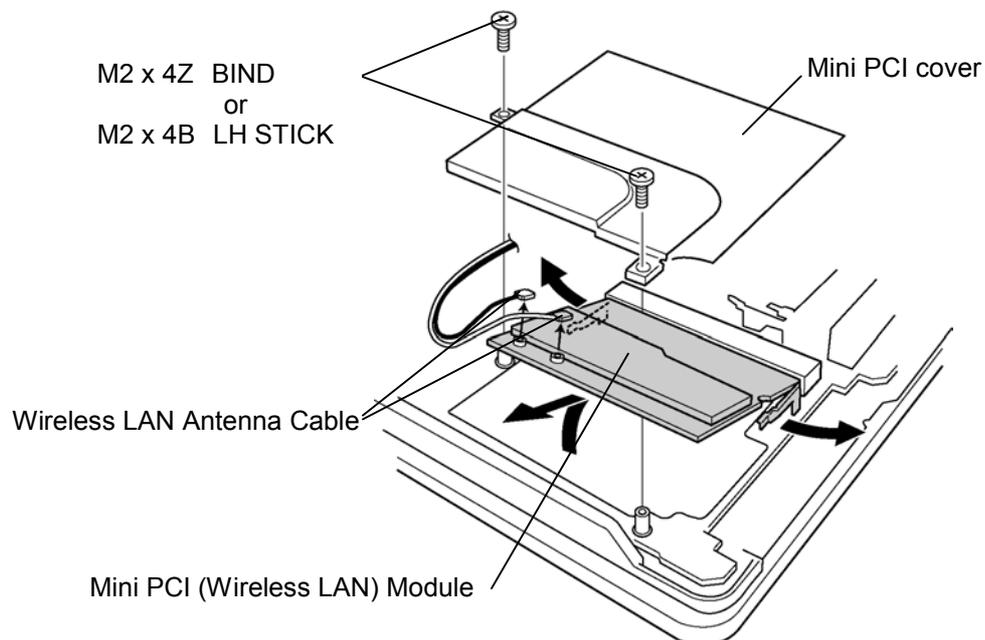


Figure 4-12 Removing the Mini PCI

### Installing the Mini PCI

The following describes the procedure for removing a Mini PCI. (See Figure 4-12 to 4-13.)

1. Insert the mini PCI slantwise into the connector on the system board. Press the mini PCI until it hooks surely.
2. Connect the Wireless LAN antenna cable to the mini PCI. Connect the white cable to the Main connector and the black one to the Sub connector.

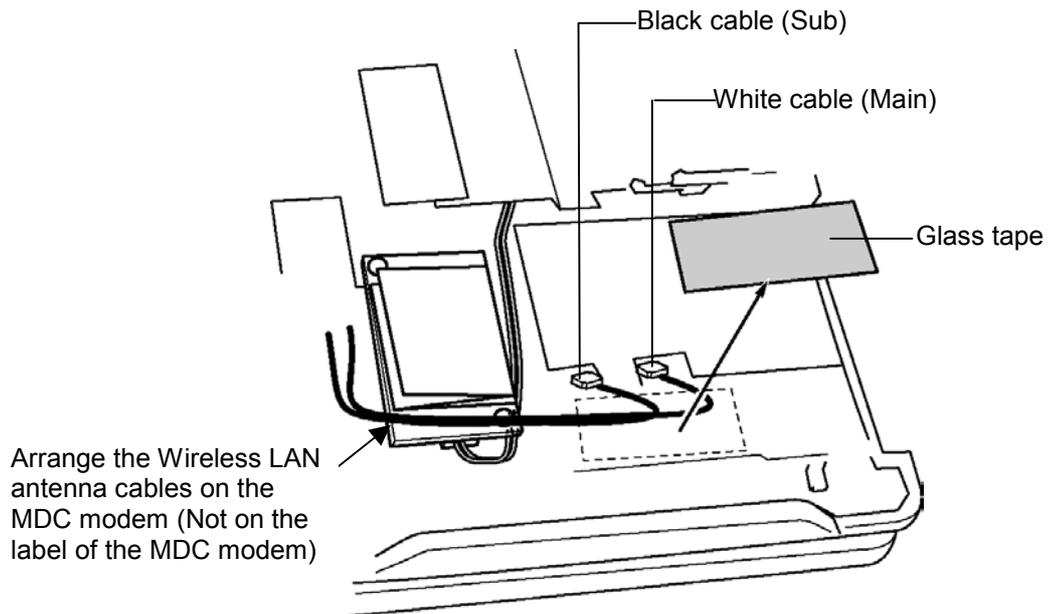


Figure 4-13 Installing the Wireless LAN antenna cables

3. Secure the mini PCI cover with the following screws.
  - M2×4Z BIND screw x2
  - or
  - M2×4B LH STICK screw x2

## 4.10 MDC modem

### Removing the MDC modem

The following describes the procedure for removing an MDC modem. (See Figure 4-14.)

**Caution:** *The power must be turned off when you remove the MDC modem. Removing an MDC modem with the power on risks damaging the modem or the computer itself.*

1. Remove the following screws securing the MDC modem.
  - M2×4Z BIND screw x2
2. Remove the MDC modem from the connector on the system board.
3. Disconnect the cable from the MDC modem.
4. After peeling off the glass tape, turn up the insulator and disconnect the MDC modem cable from the connector on the system board.

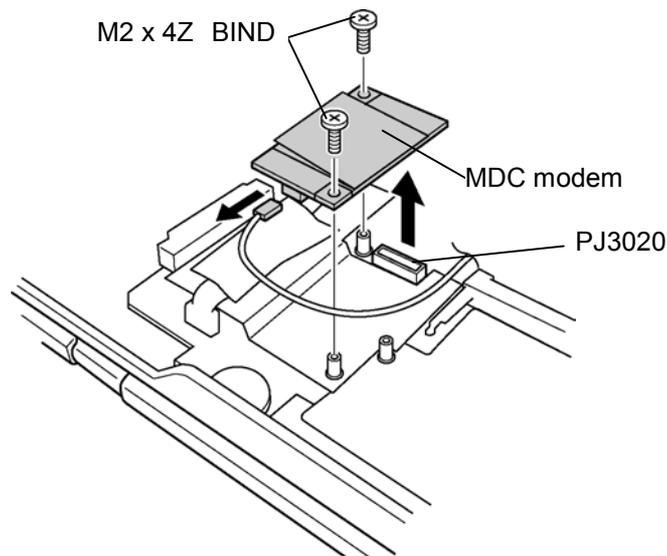


Figure 4-14 Removing the MDC Modem

### Installing the MDC modem

The following describes the procedure for installing an MDC modem. (See Figure 4-14 to 4-15.)

1. Connect the MDC modem cable to the MDC modem.
2. Connect the MDC modem to the connector PJ3020 on the system board and secure it with the following screws
  - M2×4Z BIND screw x2
3. After turning up the insulator, arrange the MDC modem cable and connect to the connector PJ3021 on the system board. Stick the glass tape.

**Caution:** When installing the MDC modem cable, make sure the cable does not cover screw holes and is caught by the Fan.

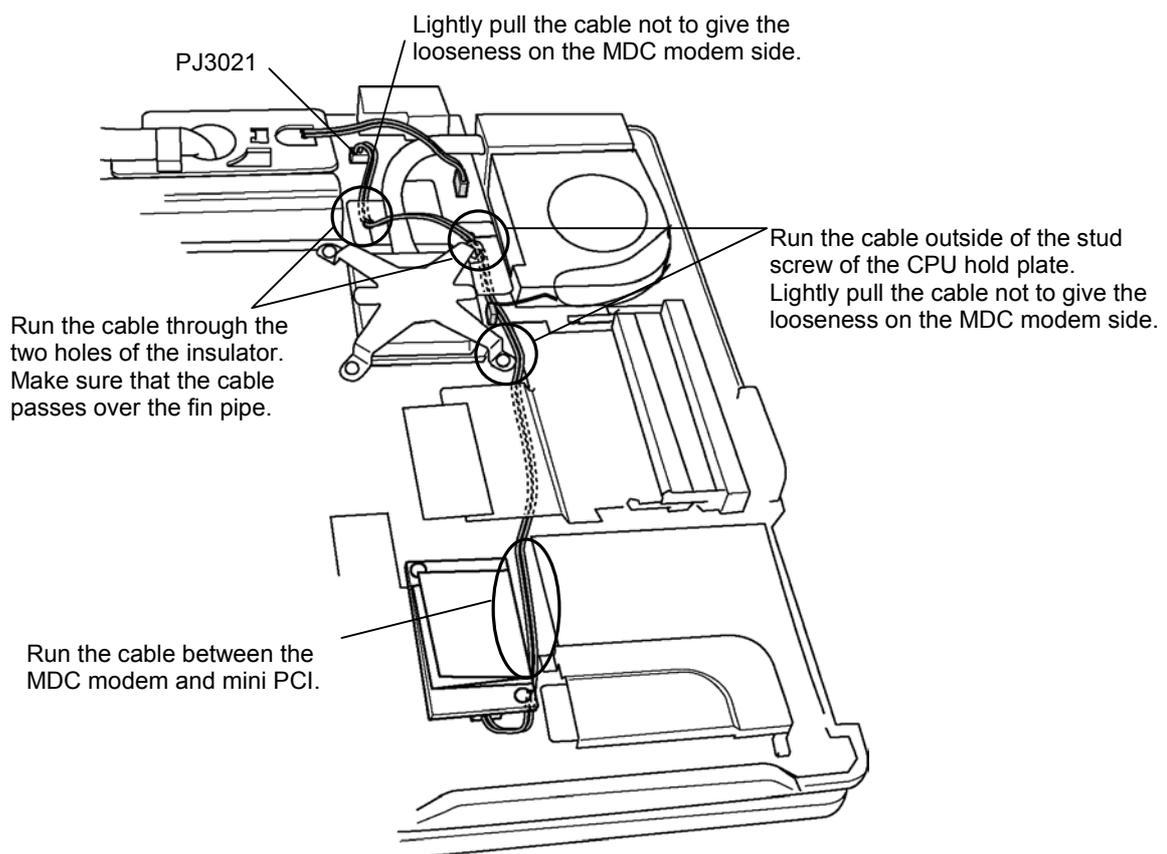


Figure 4-15 Installing the MDC Modem

## 4.11 FAN/CPU

### Removing the FAN/CPU

The following describes the procedure for removing the FAN/CPU. (See Figure 4-16 to 4-18.)

1. Remove the following screws securing the FAN unit.
  - M2.5×4B FLAT BIND screw x2
2. Disconnect the FAN cable from the connector on the system board.
3. Remove the FAN and peel off the glass tape covering the FAN cable.
4. Disconnect the rotation sensor cable from the connector on the system board.

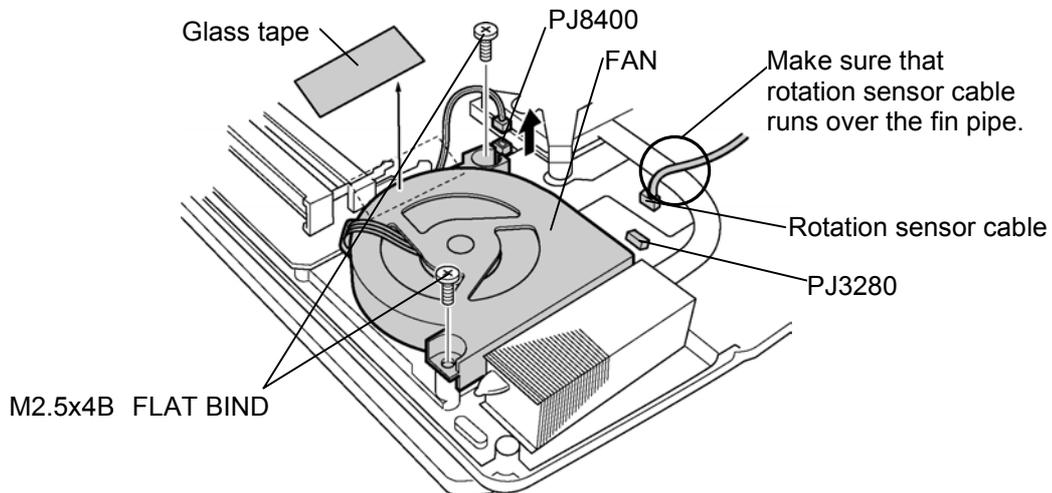


Figure 4-16 Removing the FAN

5. Remove the following screws securing the CPU holder in the order of the marks (4 to 1) on the CPU hold plate.
  - M2×4Z BIND screw x4
6. Remove the FIN on the CPU.

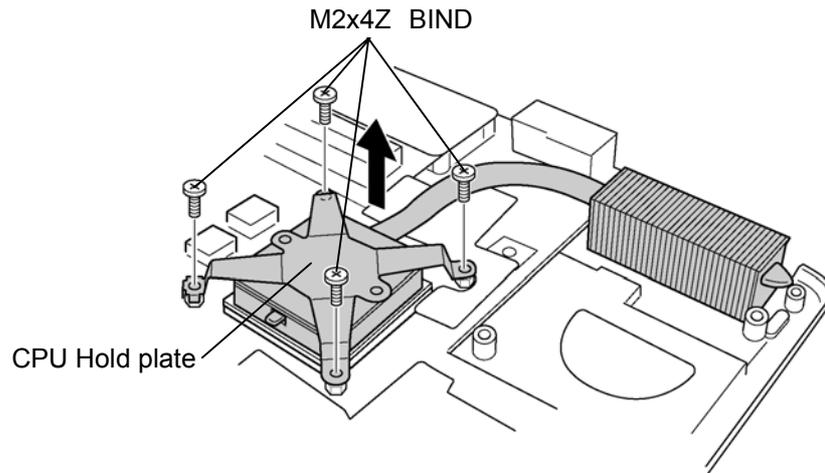


Figure 4-17 Removing the FIN

7. Unlock the CPU by rotating counterclockwise the cam on the CPU socket by 90 degrees with a flat-blade driver.
8. Remove the CPU.

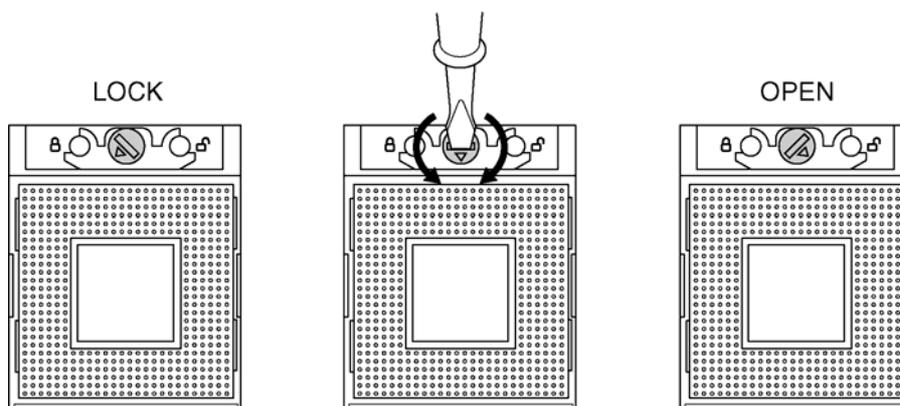


Figure 4-18 Removing the CPU

### Installing the FAN/CPU

The following describes the procedure for installing the FAN/CPU. (See Figure 4-16 to 4-20.)

1. Make sure that the cam of the CPU socket is in the unlock position.
2. Install the CPU on the CPU socket and check the CPU is installed on the right position.
3. Lock the CPU by rotating clockwise the cam on the CPU socket by 90 degrees with a flat-blade driver.

4. If there is already silicon grease on the CPU and FIN, clean it with a cloth. 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. The amount is 0.25ml.

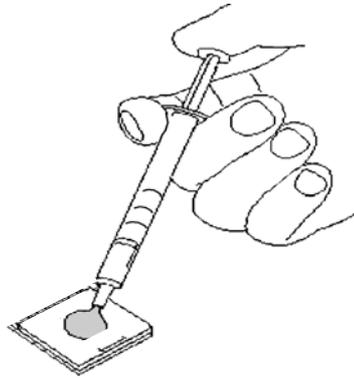


Figure 4-19 Applying Silicon Grease

5. Install the FIN on the CPU. Install the CPU hold plate on them and secure it with the following screws in the order of the marks (1 to 4) on the CPU hold plate.
  - M2×4Z BIND screw x4
6. Connect the rotation sensor cable to the connector PJ3280 on the system board.
7. Set the FAN cable along the side of the FAN and secure it with the glass tape.
8. Connect the FAN cable to the connector PJ8400 on the system board.

**Caution:** Make sure the FAN cable does not pass on the memory connectors.

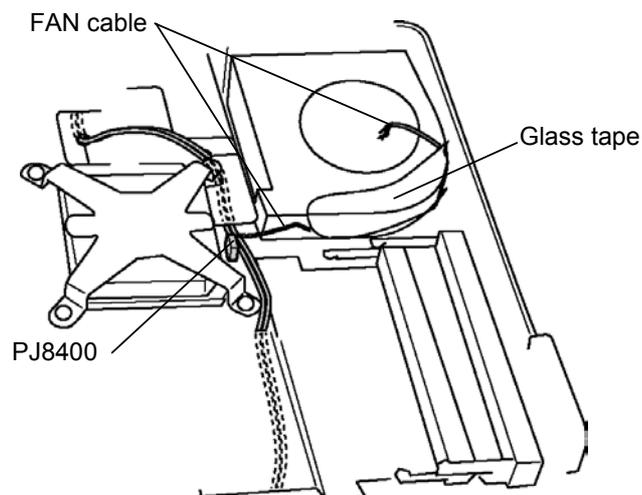


Figure 4-20 Installing the FAN cable

9. Install the FAN and secure it with the following screws.

- M2×4B BIND screw x4

## 4.12 RTC battery

### Removing the RTC battery

The following describes the procedure for removing the RTC battery. (See Figure 4-21.)

1. Remove the RTC battery from the Battery holder.
2. Disconnect the RTC battery cable from the connector on the system board.

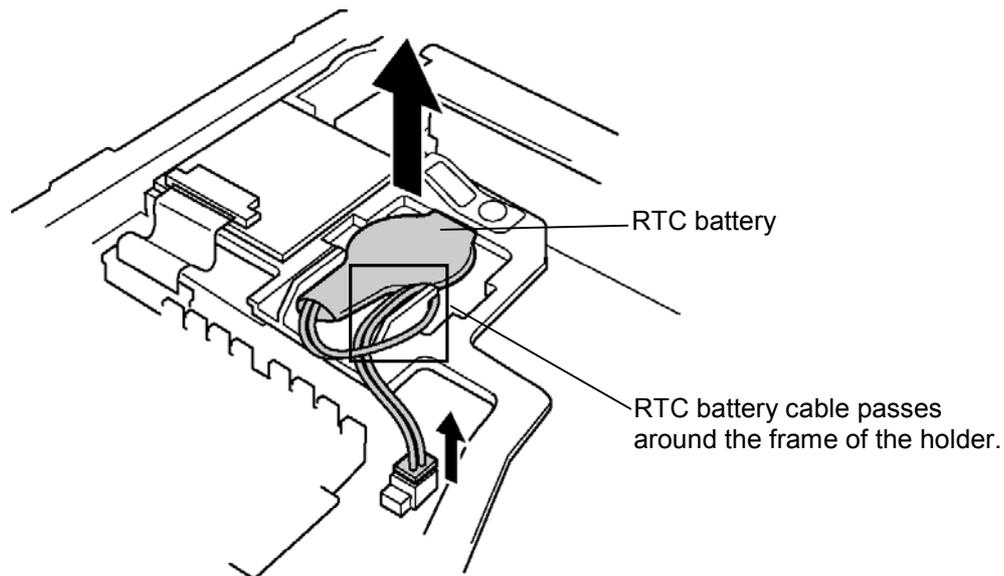


Figure 4-21 Removing the RTC battery

### Installing the RTC battery

The following describes the procedure for installing the RTC battery. (See Figure 4-21.)

1. Connect the RTC battery cable to the connector on the system board.
2. After arranging the cable passing around the frame of the holder, install the RTC battery in the RTC battery holder.

## 4.13 Bluetooth module

### Removing the Bluetooth module

The following describes the procedure for removing the Bluetooth module. (See Figure 4-22.)

1. Peel off the insulator.
2. After releasing the connector lock, disconnect the flat cable from the connector on the system board and Bluetooth module.
3. Remove the Bluetooth antenna harness from the Bluetooth module.
4. Remove the following screws securing Bluetooth module.

- M2×4Z BIND screw x1

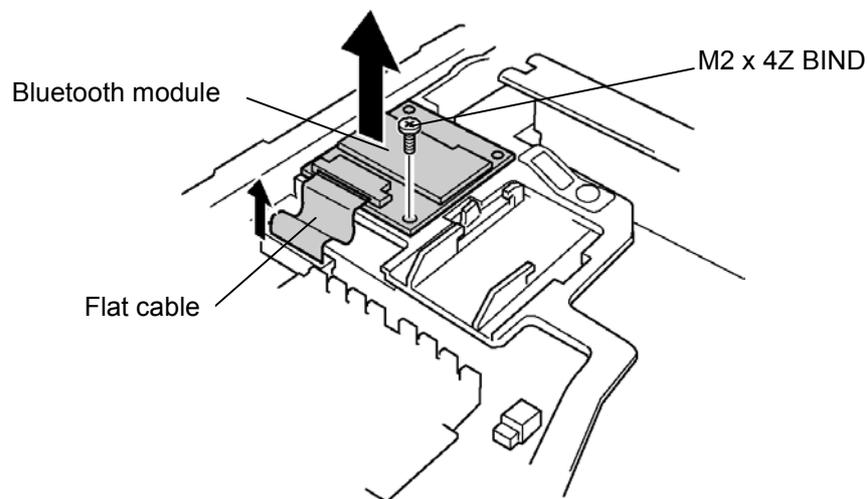


Figure 4-22 Removing the Bluetooth module

### Installing the Bluetooth module

The following describes the procedure for installing the Bluetooth module. (See Figure 4-22.)

1. Install the Bluetooth module and secure it with following screw.
  - M2×4Z BIND screw x1
2. Connect the Bluetooth antenna harness to the Bluetooth module.
3. Connect the flat cable to the connector PJ4410 on the system board and Bluetooth module and lock the connectors.

4. Stick the insulator.

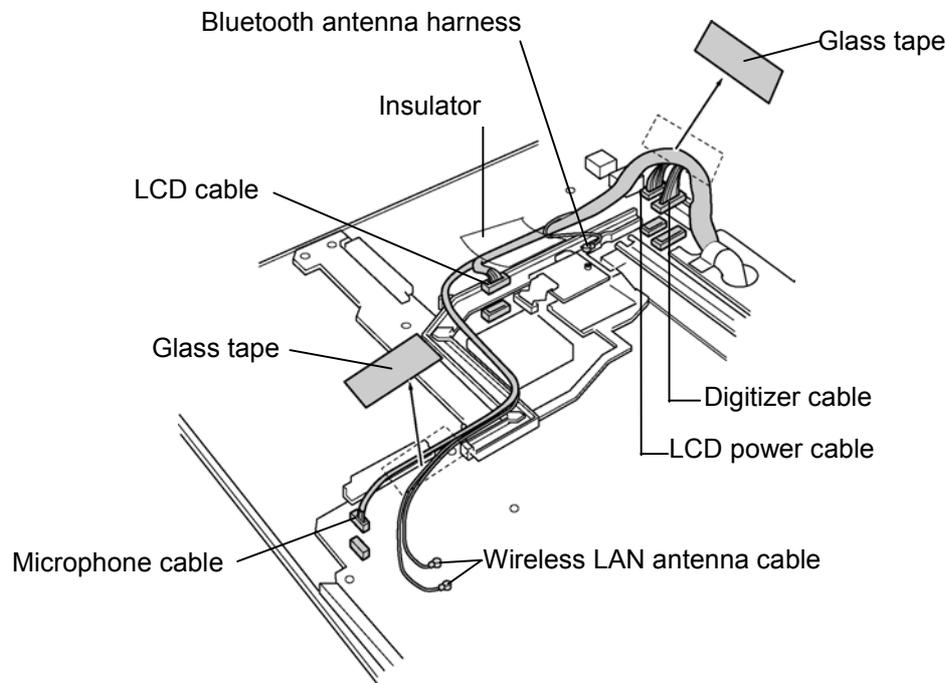
**Note:** *When the Bluetooth module is not installed, secure the antenna harness with the glass tape on the insulator.*

## 4.14 Hinge cables

### Removing the hinge cables

The following describes the procedure for removing the hinge cables. (See Figure 4-23.)

1. Peel off two glass tapes securing the hinge cables.
2. Disconnect the microphone cable and LCD cable from the connector on the system board.
3. Disconnect the Digitizer cable and LCD power cable.
4. Remove carefully the hinge cables from the guide of the base assembly.



*Figure 4-23 Removing the hinge cable*

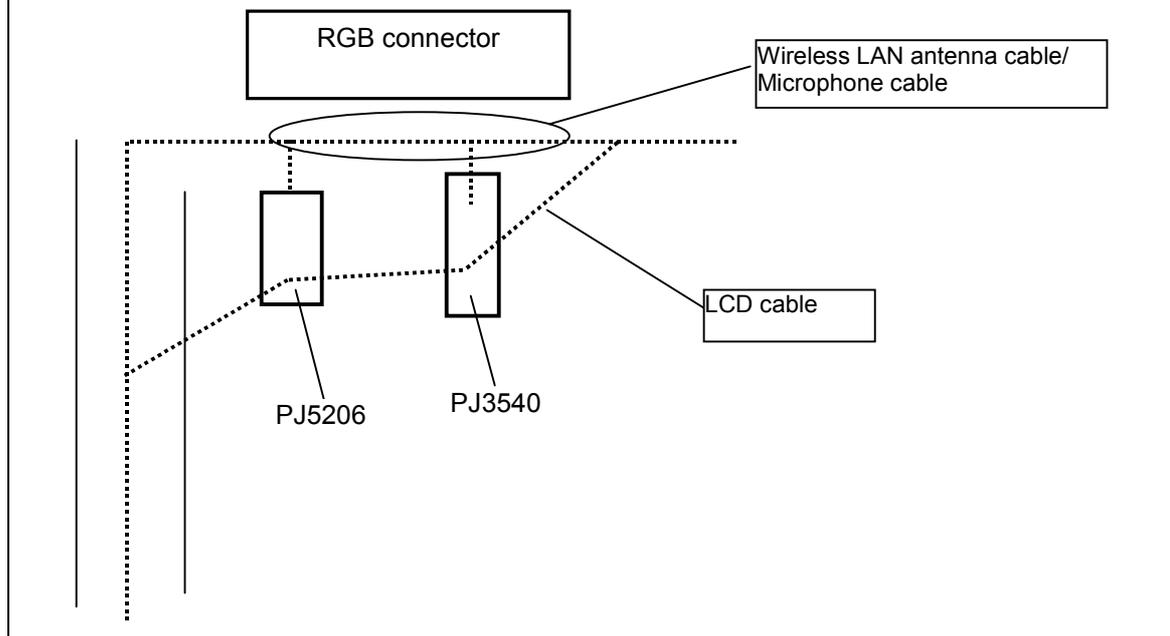
### Installing the hinge cables

The following describes the procedure for installing the hinge cables (See Figure 4-23).

1. Connect the Digitizer cable and LCD power cable to the connector on the system board.
2. Install carefully the hinge cables in the guide of the base assembly.

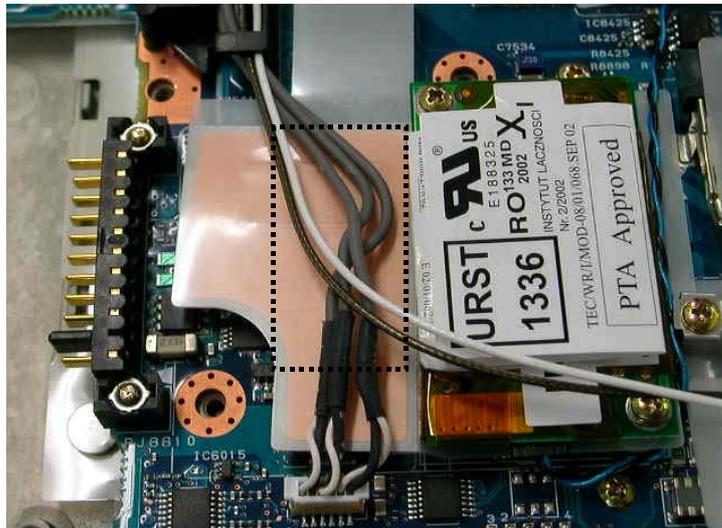
**Note:** Arrange the Wireless LAN antenna cable and microphone cable running between RGB connector and the connectors PJ3540, PJ5206.

Arrange the LCD cable running over the connectors PJ3540, PJ5206.



3. Connect the microphone cable and LCD cable to the connector PJ6000 and PJ5205 on the system board. Stick the two glass tapes to secure them.

**Caution:** Arrange the microphone cable running in the copper portion on the laminate sheet.



**Caution:** Make sure that the glass tape covering the digitizer cable and LCD power cable is lower than the connector panel.

## 4.15 System board

### Removing the system board

The following describes the procedure for removing the system board. (See Figure 4-24.)

**NOTE:** When removing/installing the system board, be careful not to scratch the cables.

1. Remove the following screws securing the system board and remove the system board.
  - M2.5×4B FLAT BIND screw x6
2. Remove the sound JACK cover from the system board.
3. Remove the FIR cover ASSY from the base assembly.

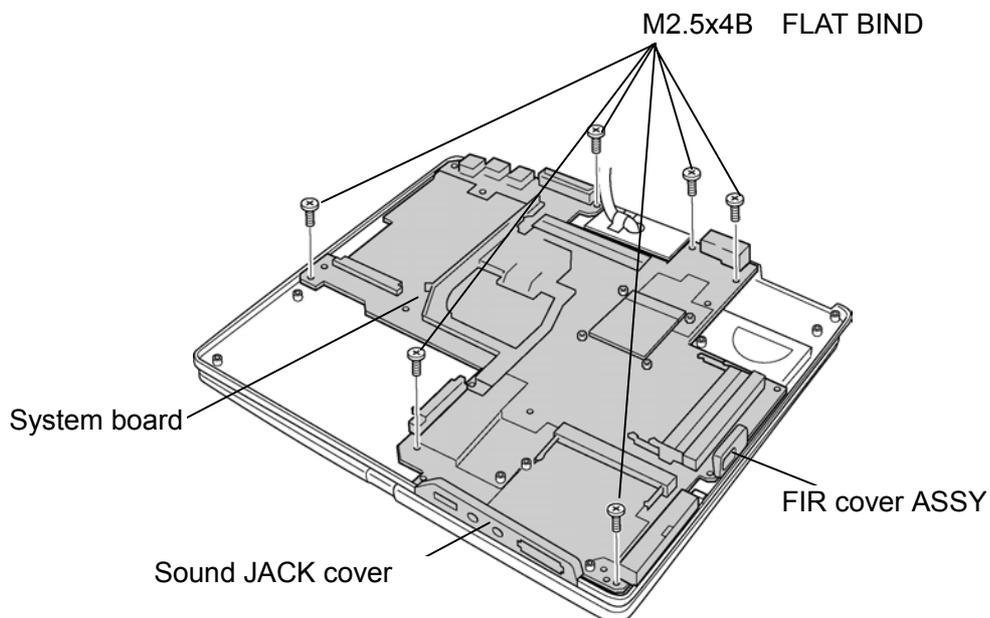


Figure 4-24 Removing the system board

### Installing the system board

The following describes the procedure for installing the system board. (See Figure 4-24.)

1. Install the sound JACK cover to the system board.
2. Install the system board to the base assembly from the hinge side and secure it with the following screws.

- M2.5×4B FLAT BIND screw      x6

**NOTE:** *When installing the system board, make sure that the switch of the system board fits to the FIR cover ASSY and works correctly.  
And also, confirm the rotation sensor cable is on the system board.*

3. Install the FIR cover ASSY to the base assembly.

## 4.16 Speaker/LED board

### 4.16.1 Speaker

#### Removing the speaker

The following describes the procedure for removing the speaker. (See Figure 4-25.)

1. Remove the following screws securing the speaker holder and remove the speaker holder.

- M2.5×3B S-THIN screw x2

2. Remove the speaker from the speaker holder.

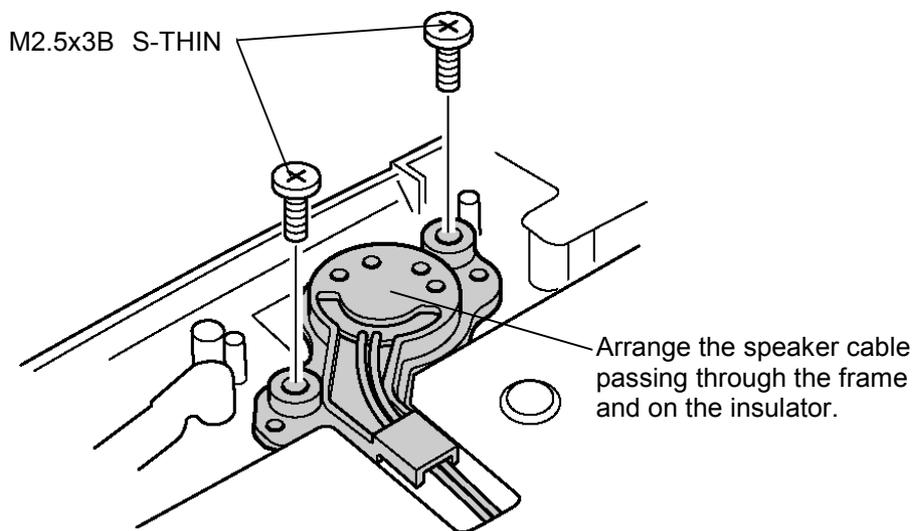


Figure 4-25 Removing the speaker

#### Installing the speaker

The following describes the procedure for installing the speaker. (See Figure 4-25.)

1. Set the speaker to the speaker holder.
2. Install the speaker holder on the base assembly and secure it with the following screws.

- M2.5×3B S-THIN screw x2

### 4.16.2 LED board

#### Removing the LED board

The following describes the procedure for removing the LED board. (See Figure 4-26.)

1. Remove the following screws securing the LED board and remove LED lens holder.
  - M2.5×2.8B FLAT BIND screw x1
2. Disconnect the flat cable from the LED board.
3. Remove the LED board from the LED lens holder.

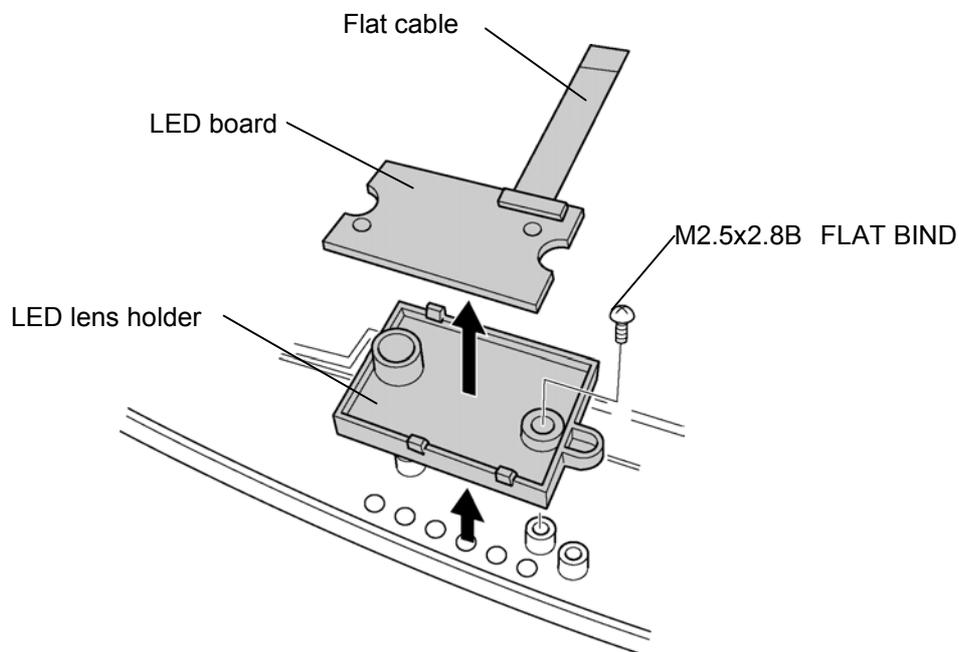


Figure 4-26 Removing the LED board

#### Installing the LED board

The following describes the procedure for installing the LED board. (See Figure 4-26.)

1. Install the LED board to the LED lens holder.
2. Connect the flat cable to the LED board and system board.
3. Install the LED lens holder to the base assembly and secure it with the following screws.

- M2.5×2.8B FLAT BIND screw x1

**NOTE:** *After installing the LED lens holder, make sure the flat cable comes on the insulator of the base cover assembly.*

## 4.17 Second FAN

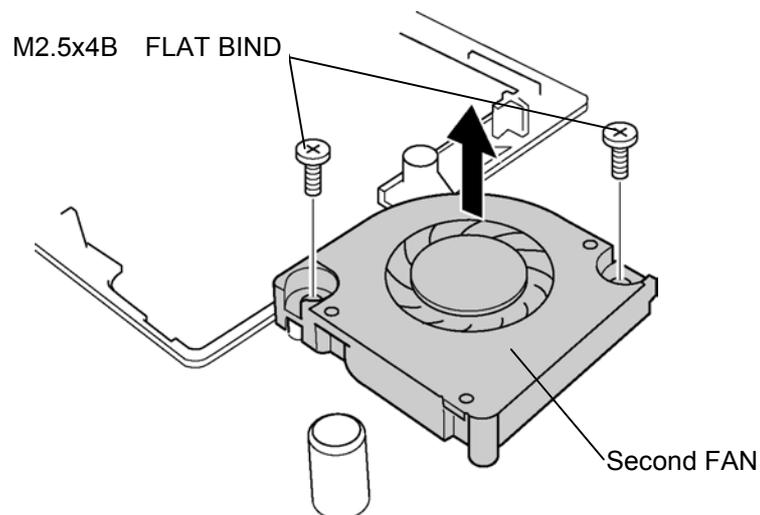
### Removing the Second FAN

The following describes the procedure for removing the Second FAN. (See Figure 4-27.)

1. Remove the following screws securing the Second FAN unit.

- M2.5×4B FLAT BIND screw x2

2. Remove the Second FAN unit from the base cover assembly.



*Figure 4-27 Removing the Second FAN*

### Installing the Second FAN

The following describes the procedure for installing the Second FAN. (See Figure 4-27.)

1. Install the Second FAN unit on the base cover assembly.

2. Secure the Second FAN unit with the following screws.

- M2.5×4B FLAT BIND screw x2

## 4.18 Pen holder/Battery lock/Latch assembly

### 4.18.1 Pen holder

#### Removing the Pen holder

The following describes the procedure for removing the Pen holder. (See Figure 4-28.)

1. Remove the following screws securing the pen holder.

- M2.5×4B FLAT BIND screw x2

2. Remove the pen holder from the base cover.

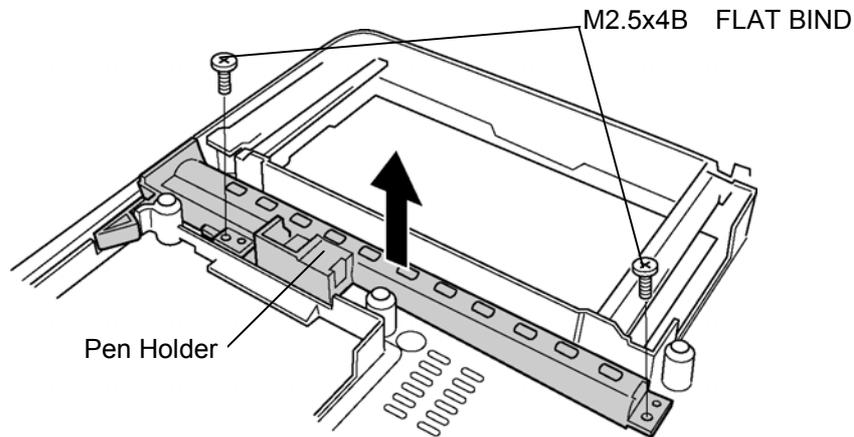


Figure 4-28 Removing the Pen holder

#### Installing the Pen holder

The following describes the procedure for installing the Pen holder. (See Figure 4-28.)

1. Install the pen holder on the base cover.

2. Secure the pen holder with the following screws.

- M2.5×4B FLAT BIND screw x2

### 4.18.2 Battery lock

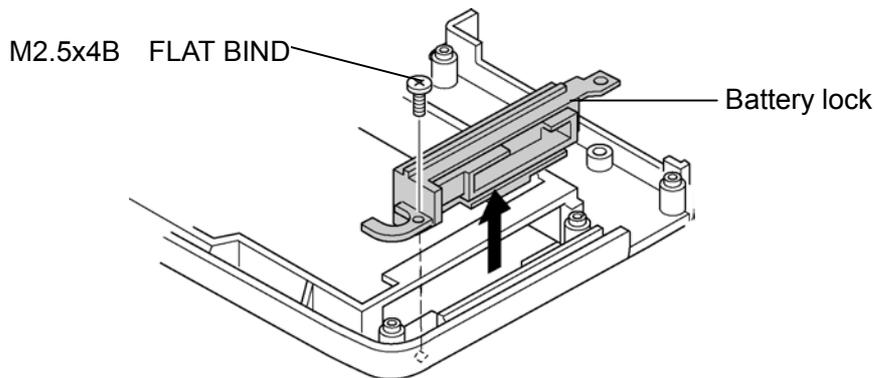
#### Removing the Battery lock

The following describes the procedure for removing the Battery lock (See Figure 4-29.)

1. Remove the following screws securing the Battery lock.

- M2.5×4B FLAT BIND screw x2

2. Remove the Battery lock from the base cover.



*Figure 4-29 Removing the Battery lock*

#### Installing the Battery lock

The following describes the procedure for installing the Battery lock (See Figure 4-29)

1. Install the Battery lock on the base cover.

2. Secure the Battery lock with the following screws.

- M2.5×4B FLAT BIND screw x2

### 4.18.3 Base latch assembly

#### Removing the Base latch assembly

The following describes the procedure for removing the Base latch assembly (See Figure 4-30.)

1. Remove the following screws securing the base latch assembly.

- M2.5×4B FLAT BIND screw x2

2. Remove the base latch assembly from the base cover.

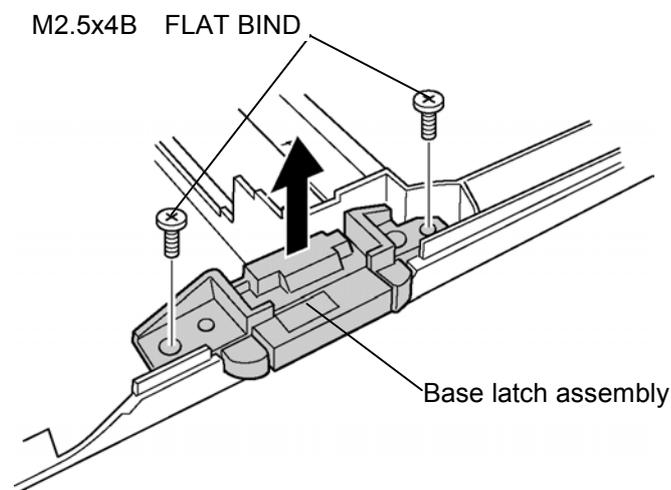


Figure 4-30 Removing the latch assembly

#### Installing the Base latch assembly

The following describes the procedure for installing the Base latch assembly (See Figure 4-30)

1. Install the base latch assembly to the base cover.

2. Secure the base latch assembly with the following screws.

- M2.5×4B FLAT BIND screw x2

## 4.19 LCD unit/FL inverter

### Removing the LCD unit and FL inverter

The following describes the procedure for removing the LCD unit and FL inverter. (See Figure 4-31 to 4-34.)

**NOTE:** When removing the LCD unit or FL inverter, do not press the LCD part of the base cover assembly. It may cause the breakage of the hinge assembly. Use a stand or something to make the LCD part flat for installing the LCD unit and FL inverter, and to make the base assembly floating from the ground.

1. Remove the four mask cushions from the LCD cover by using a needle.  
Remove the two mask seals from the display mask.
2. Remove the following screws securing the LCD cover.
  - M2.5×6B FLAT BIND screw x6 (Described as 6 in the figure)
3. Open the display until LCD and the base assembly become horizontal. Insert your nails into slit of the LCD and release the latches from the bottom side of the LCD.

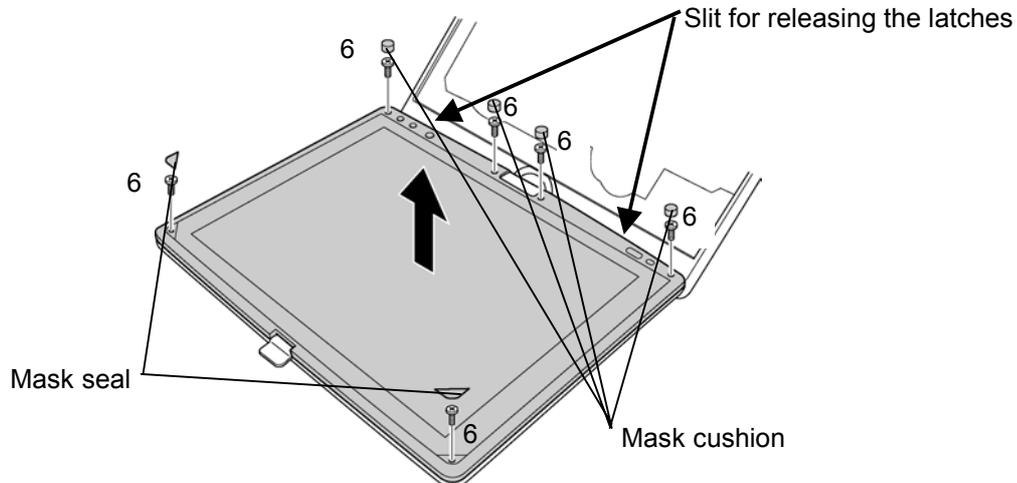


Figure 4-31 Removing the LCD mask

4. Remove the Cross function button.

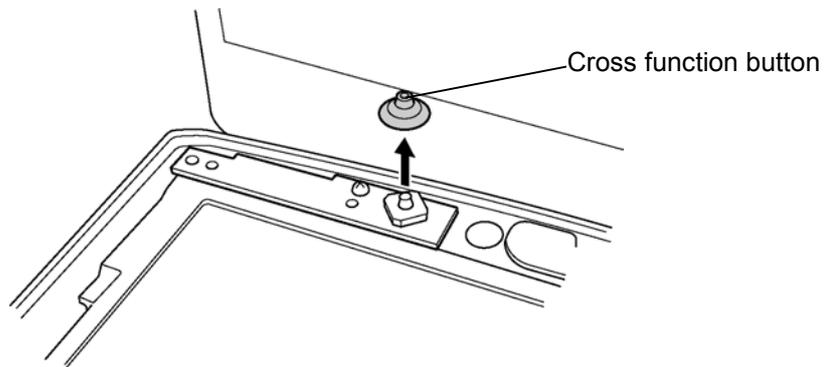


Figure 4-32 Removing the Cross function button

5. Remove the following screw fixing the FL inverter. After peeling off the insulator, remove the harness from both sides and remove the FL inverter.

- M2×4Z BIND screw x1

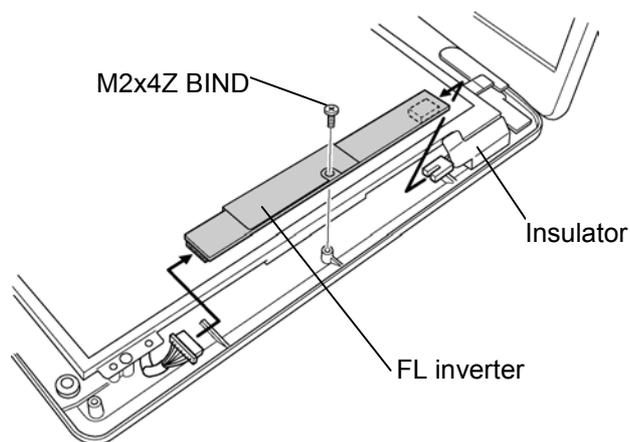


Figure 4-33 Removing the FL Inverter

6. Remove the following screws fixing the LCD unit.

- M2 ×4Z BIND screw x4

7. With the bottom edge of the LCD unit on the display cover, raise the top edge of the LCD unit. Remove the glass tapes to remove two LCD cables from the connector on the back of the LCD.

**NOTE:** When putting the LCD unit on the display cover, lay a mat or something on under the LCD unit to protect the computer and the LCD from a scratch or breakage.

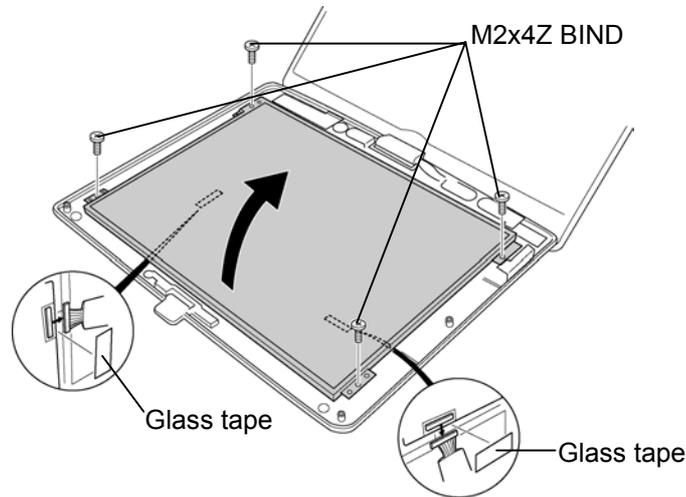


Figure 4-34 Removing the LCD

### Installing the LCD unit and FL inverter

The following describes the procedure for installing the LCD unit and FL inverter. (See Figure 4-31 to 4-34.)

1. With the LCD unit standing on the display cover, connect two LCD cables on the back of LCD and secure them with two glass tapes.
2. Lay down the LCD on the LCD cover and secure it with the following screws.
  - M2×4Z BIND screw x4
3. Connect the two harnesses to the connector of the FL inverter. Secure the FL inverter with the following screw. Secure the FL inverter with the following screw.
  - M2×4Z BIND screw x1
4. Install the cross function button
5. Install the LCD mask. Press the LCD mask until latches fasten securely.

**NOTE:** When installing the LCD mask, wipe the LCD mask with a soft cloth and make the back of the LCD mask clean with an ionizer. And also, make sure that the cross function button is installed.

6. Secure the LCD mask with the following screws and put the mask seals and mask cushions on them.

- M2.5×6B FLAT BIND screw x6

## 4.20 Application switch board/Power switch board/LCD latch assembly

### 4.20.1 Application switch board/Power switch board

#### Removing the Application switch board/Power switch board

The following describes the procedure for removing the Application switch board/Power switch board. (See Figure 4-35 to 4-36.)

1. Remove the following screws securing the application switchboard and remove the application switchboard.

- M2 x4Z BIND screw x1

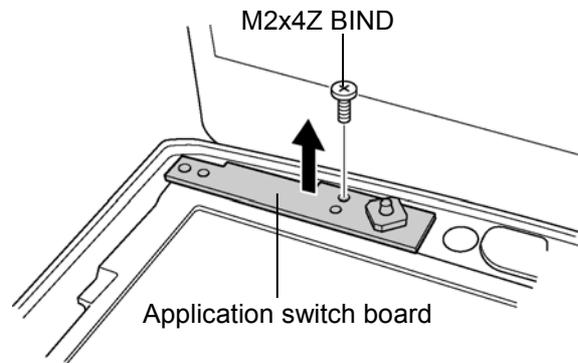


Figure 4-35 Removing the application switch board

2. Disconnect the harness from the connector on the application switchboard.
3. Remove the following screws securing the Power switchboard and remove the Power switchboard.

- M2 x4Z BIND screw x1

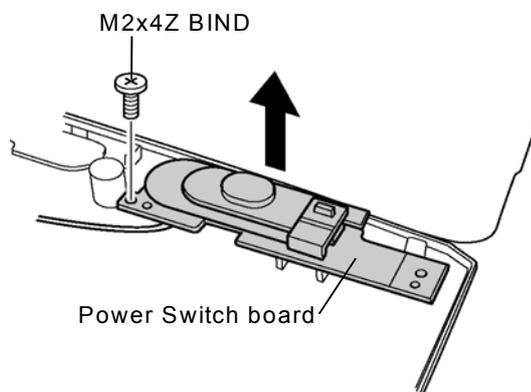


Figure 4-36 Removing the power switch board

### Installing the Application switchboard/Power switchboard

The following describes the procedure for installing the Application switchboard/Power switchboard (See Figure 4-35 to 4-36.)

1. Connect the harness to the connector on the application switchboard. Install the application switchboard along the guide pin on the both side and secure it with the following screws.

- M2×4Z BIND screw x1

2. Connect the harness to the connector on the power switchboard. Install the power switchboard along the guide pin on the both side and secure it with the following screws.

- M2×4Z BIND screw x1

### 4.20.2 LCD latch assembly

#### Removing the LCD latch assembly

The following describes the procedure for removing the LCD latch assembly (See Figure 4-37.)

1. Remove the following screws securing the LCD latch assembly and remove the LCD latch assembly.

- M2.5×4Z FLAT BIND screw x1

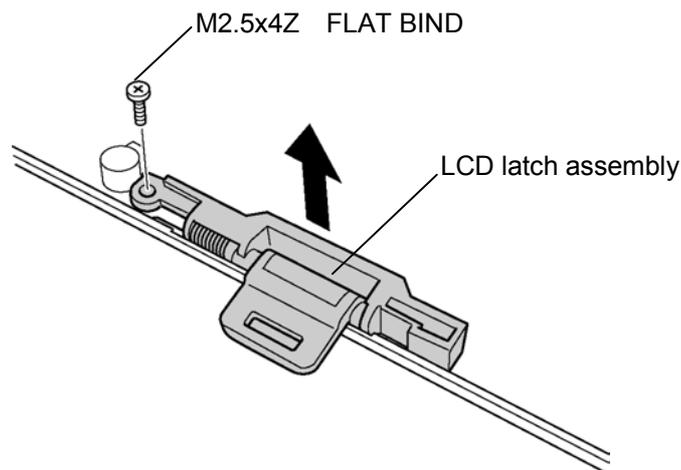


Figure 4-37 Removing the LCD latch assembly

### **Installing the LCD latch assembly**

The following describes the procedure for installing the LCD latch assembly (See Figure 4-37.)

1. Install the LCD latch assembly and secure it with the following screw.

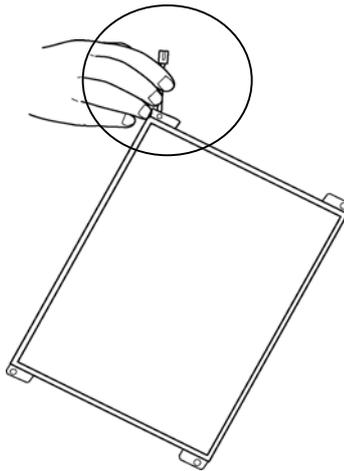
- M2.5×4Z FLAT BIND screw x1

## 4.21 Digitizer

**Caution:** Read following instructions before handling the Digitizer.

Do not carry the LCD module by holding the FL cable in one's hand because it may result to cut the FL cable, and cause display function failure or lighting failure.

**NO**

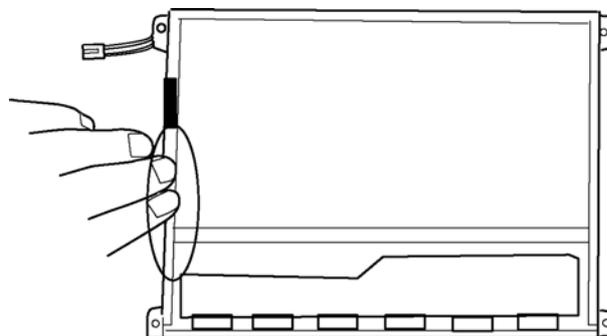


Do not carry the LCD module by holding the FL cable in one's hand.

Be careful to use the bezel guide.

There is a portion where the bezel is sticking out because of the digitizer guide. Do not press and rub the portion with bare hands or it may result cut your finger.

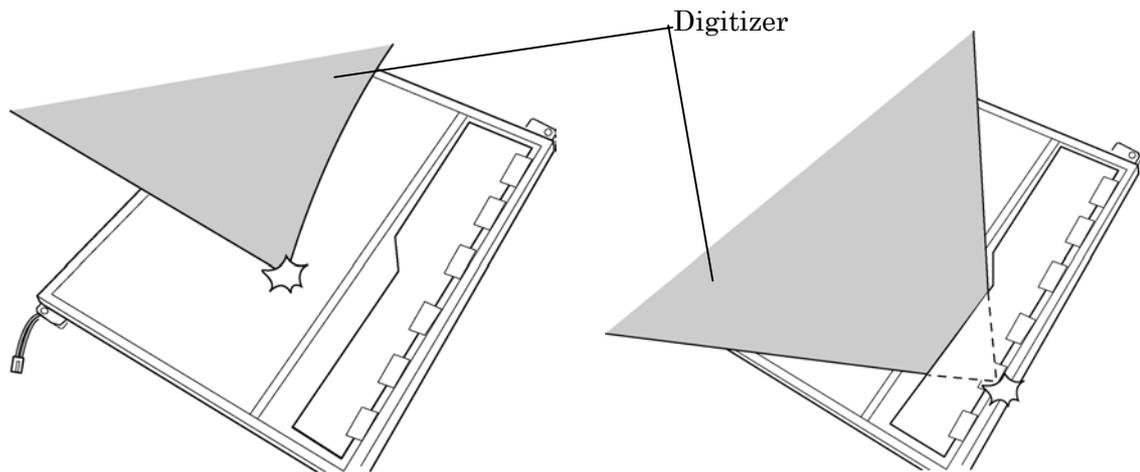
**NO**



Be careful to use the bezel guide.

*Do not make any scratches on the B/L and TAB by the edge of the digitizer when installing the digitizer because it may result to break the TAB or make scratches on the B/L and cause display function failure.*

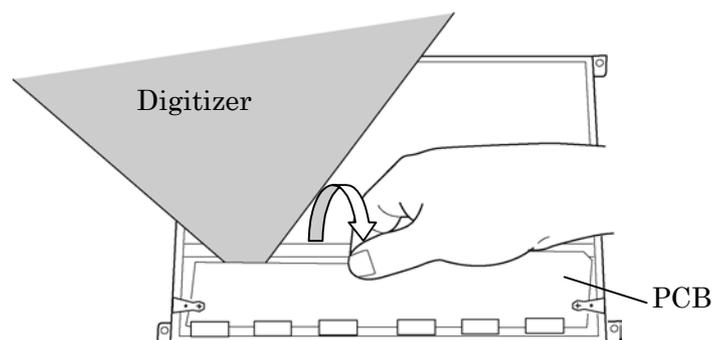
**NO**



Do not hit the corner of the digitizer

*Do not pull up the PCB hardly when installing the digitizer because it may result to give stress on the TAB or PCB and cause the display function failure.*

**NO**

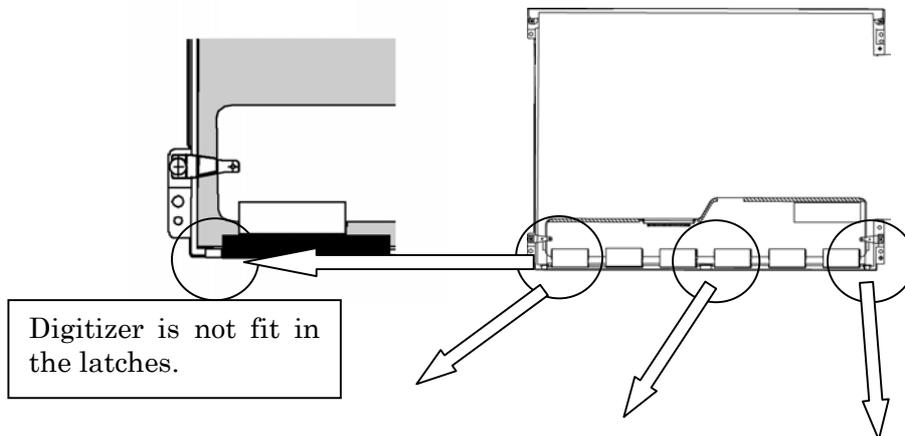


Do not pull up the PCB.

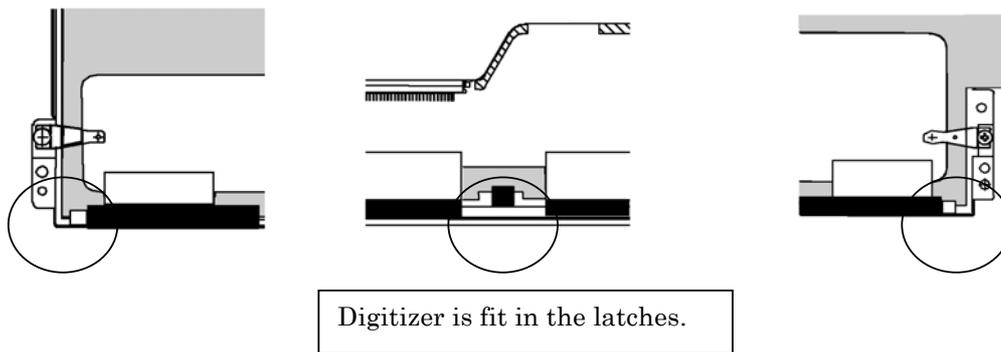
Make sure that three latches fit the digitizer securely.

If the latches are not locked securely, it may result to move the digitizer and give stress on the TAB or PCB and cause the display function failure.

**NO**

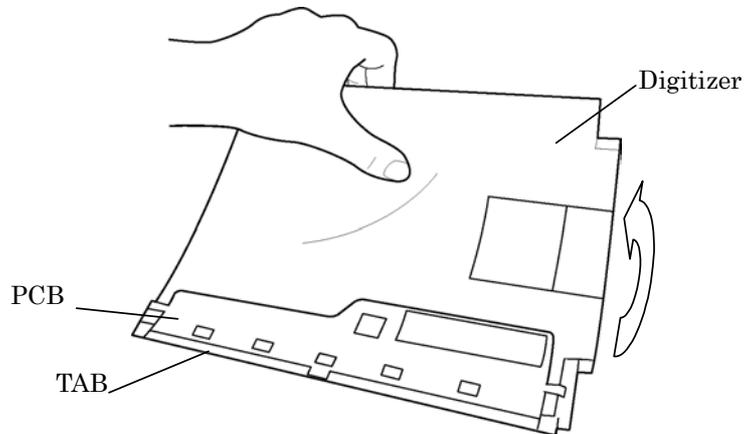


**OK**



*Do not turn up the digitizer because it may result to give stress on the TAB or PCB and cause the display function failure.*

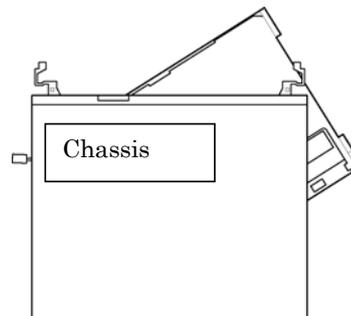
**NO**



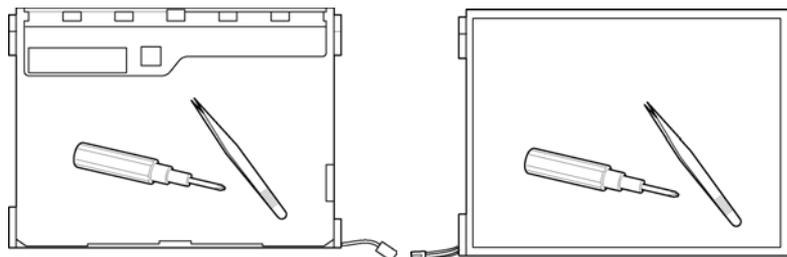
Do not turn up the digitizer to avoid the warp of the PCB.

*Do not put any instrument on the LCD module because it may result to make scratch on the cell, polarization sheet or B/L and break the TAB and may cause the display function failure.*

**NO**



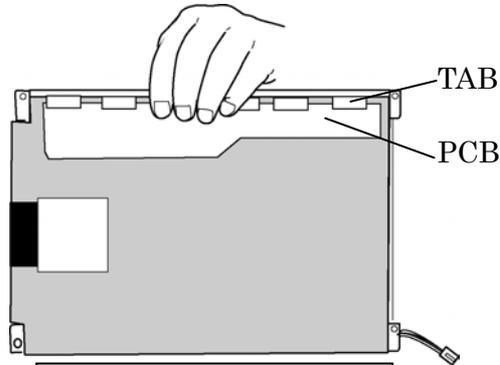
Do not put the chassis on the LCD.



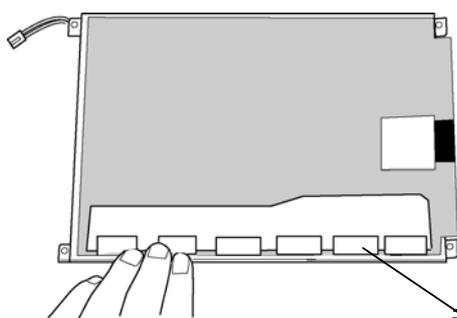
Do not put the instrument on the LCD.

*Do not hold, press and rub the TAB because it may result to break the TAB and cause the display function failure.*

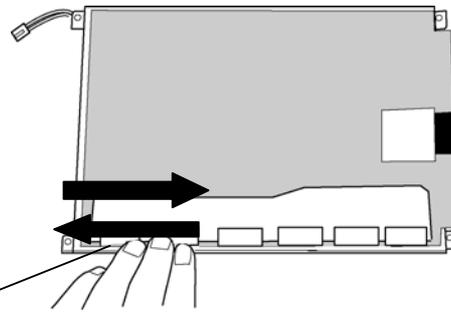
**NO**



Do not hold the TAB.



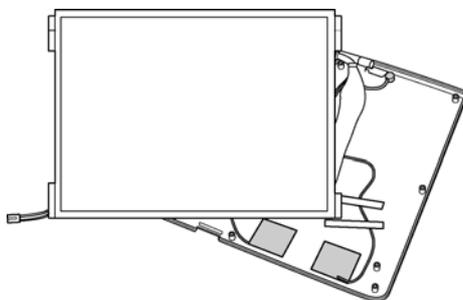
Do not press the TAB.



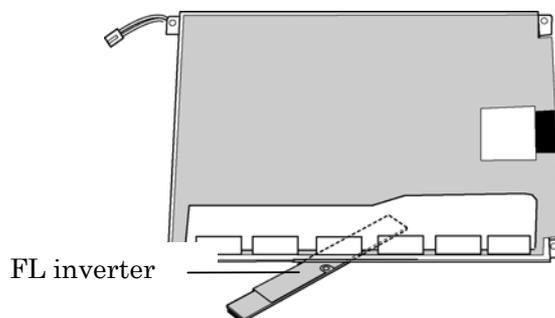
Do not rub the TAB.

*Make sure to put the LCD module on the flat place. If the LCD module is put on the uneven place, it may result to break the TAB, make scratch on the B/L or polarization sheet and cause the display function failure.*

**NO**



Do not put the LCD on the chassis when the LCD is not installed to the computer.



Do not put the LCD on the FL inverter.

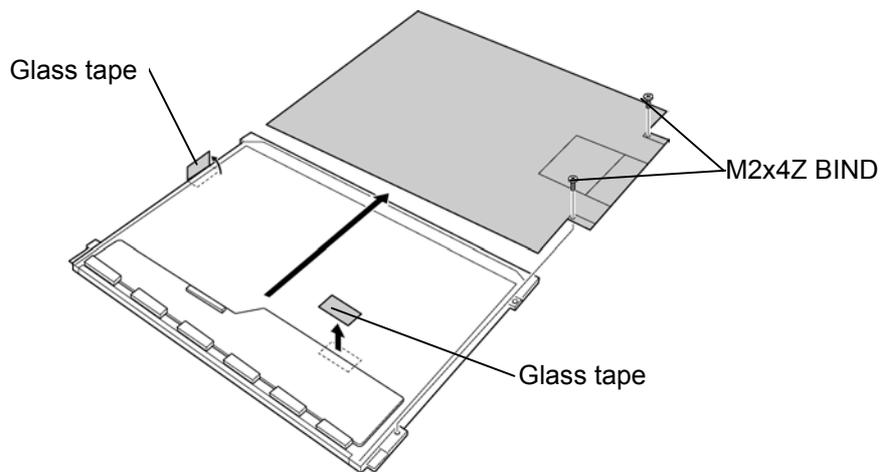
### Removing the Digitizer

The following describes the procedure for removing the digitizer. (See Figure 4-38.)

1. Peel off two tapes securing the digitizer.
2. Remove the following screws securing the digitizer.

- M2×4Z BIND screw x2

3. Pull the digitizer toward the arrow direction in the figure below and remove the digitizer.



*Figure 4-38 Removing the Digitizer*

### Installing the digitizer

The following describes the procedure for installing the digitizer. (See Figure 4-38.)

1. Slide the digitizer into the back of the LCD.
2. Secure the digitizer with the following screws.

- M2×4Z BIND screw x2

3. Stick two glass tapes to secure the digitizer.

## 4.22 LCD harness / Hinge assembly

### Removing the LCD harness and hinge assembly

The following describes the procedure for removing the LCD harness and hinge assembly. (See Figure 4-39.)

1. Remove the following screws securing the hinge assembly.
  - M2.5×6B FLAT BIND screw x2 (Described as 6B in the figure)
  - M2.5×6C FLAT BIND screw x2 (Described as 6C in the figure)
2. Remove the hinge rear cover and hinge assembly from the base assembly by turning the hinge counterclockwise by 90 degrees.
3. Remove the following screw securing the LCD harness hold plate.
  - M2×2.8B FLAT BIND screw x1 (Described as 2.8 in the figure)
4. Remove the following screws securing the hinge on the both sides.
  - M2.5×6B FLAT BIND screw x4 (Described as 6B in the figure)

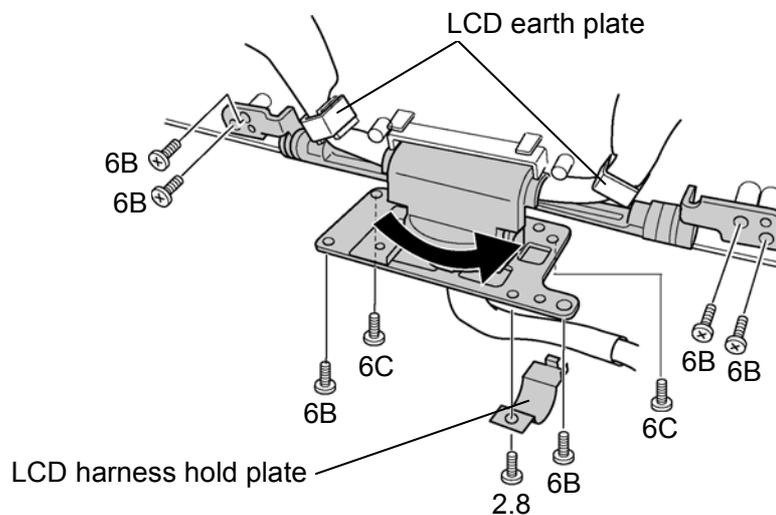


Figure 4-39 Removing the hinge

5. Remove the LCD earth plates securing the both sides of the cables.
6. Peel off the six acetate tapes securing the wireless LAN antenna cables, Bluetooth cable and microphone cable.
7. Remove the microphone cables.
8. Remove the LCD harness.

### Installing the LCD harness and the hinge assembly

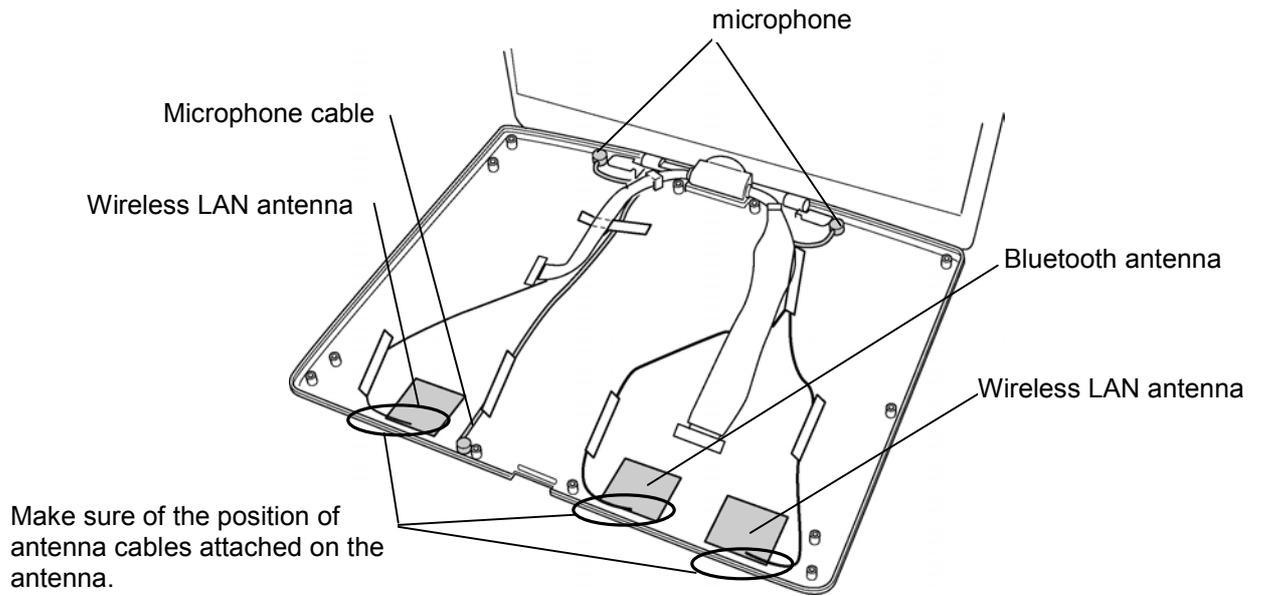
The following describes the procedure for installing the LCD harness and the hinge assembly. (See Figure 4-39 to 4-40.)

1. Pass the LCD harness and microphone cable through the hole of the hinge.
2. Install the hinge assembly and secure it with the following screws.
  - M2.5×6B FLAT BIND screw x4 (Described as 6B in the figure)
3. Arrange the cables along the guide to the both sides and secure them with the LCD earth plate.
4. Install the LCD harness hold plate for holding the LCD harness and secure it with the following screw.
  - M2×2.8B FLAT BIND screw x1 (Described as 2.8 in the figure)
5. Turn the hinge plate counterclockwise by 90 degrees. Install the hinge rear cover and secure it with the following screws.
  - M2.5×6B FLAT BIND screw x2 (Described as 6B in the figure)
  - M2.5×6C FLAT BIND screw x2 (Described as 6C in the figure)
6. Hold the LCD cover facing you and attach the following antennas with double-faced tapes in the order of the main wireless LAN antenna (with white cable), Bluetooth antenna (with brown cable) and sub wireless LAN antenna (with black cable).

**NOTE:** When installing the Wireless LAN antennas and Bluetooth antenna, make sure to install them along the mark line of the computer.  
And also, make sure of the position of each antenna cable installed on the antenna.

7. Install the microphones to the guide pin.
8. Arrange the cables from each antenna and stick six acetate tapes for securing the cables.

**Caution:** Place each cable from the hinge assembly in the order of wireless LAN cable, microphone cable and LCD harness.



*Figure 4-40 Installing the Wireless LAN antenna/Bluetooth antenna*

## 4.23 Hinge Switch Board

### Removing the hinge switch board

The following describes the procedure for removing the hinge switch board. (See Figure 4-41.)

1. Remove the following screw to remove the hinge switch board.
  - M2×3B FLAT BIND screw x2
2. Remove the plate placed under the hinge switch board.

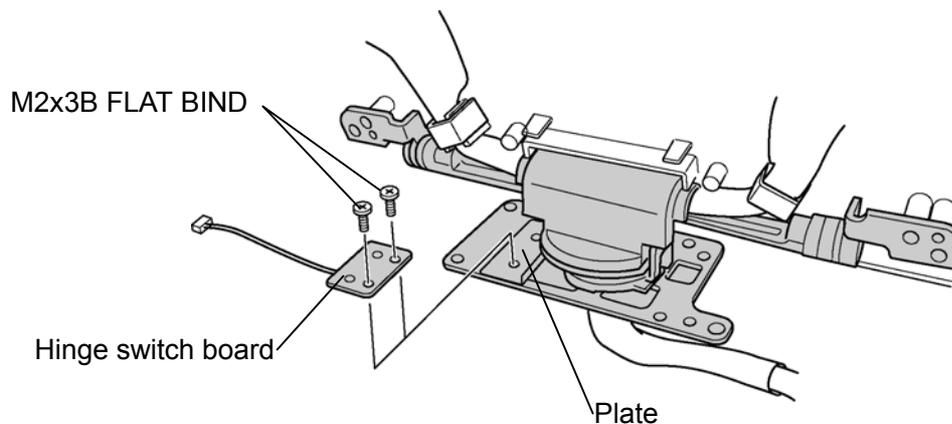


Figure 4-41 Removing the hinge switch board

### Installing the hinge switch board

The following describes the procedure for installing hinge switch board. (See Figure 4-41.)

1. Install the plate fitting to the bosses on the hinge assembly and put the hinge switch board on it.
2. Secure the hinge switch board with the following screws.
  - M2×3B FLAT BIND screw x2)

## 4.24 Fluorescent Lamp

This system uses LCD modules from the following suppliers. The procedure for replacing the fluorescent lamp is different for each LCD module. Refer to the appropriate procedure.

Type	Part.No	Supplier	Section
12.1 inch	G33C00019110	Toshiba	4.24.1

- Note:** - *When working with an LCD module, always use a flat, grounded table.*
- *Handle the backlight unit in the environment without dust, such as on the clean bench. Keep the worktable free from any screws or other material that may scratch the LCD surface.*
  - *Use an anti-static or protective sheet.*
  - *When replacing the FL unit, cover with a finger protector or similar to prevent dirtying or scratching the LCD panel.*
  - *Take care when handling the lamp. Excessive force may break the lamp.*
  - *Take care not to dirty or deform the lamp reflector.*
  - *Ensure always that the power of the LCD module is turned off before connecting or disconnecting cables and connectors.*

### 4.24.1 Replacing the 12.1 Inch Toshiba Fluorescent Lamp

The following describes the procedure for replacing the fluorescent lamp. (See Figure 4-42 to 4-53.)

#### Disassembling the module

1. Peel off tapes and insulating sheets.

- 1) Place carefully the module face up on a clean and flat worktable. To avoid scratching the face of the LCD module, make sure the table is free of dirt and dust. Place a protection sheet (soft cloth or similar one) over the front of the module.
- 2) Peel off the double-faced tape of the insulation sheet side. (Do not peel off the tape on the bezel side.)

**Caution:** 1) Be careful not to damage the TAB, PCB, B/L and reflection sheet.  
2) Leave the insulation sheet on the bezel to reuse it later.  
3) Be careful not to damage the TAB and PCB when peeling off double-faced tape on the insulation sheet.

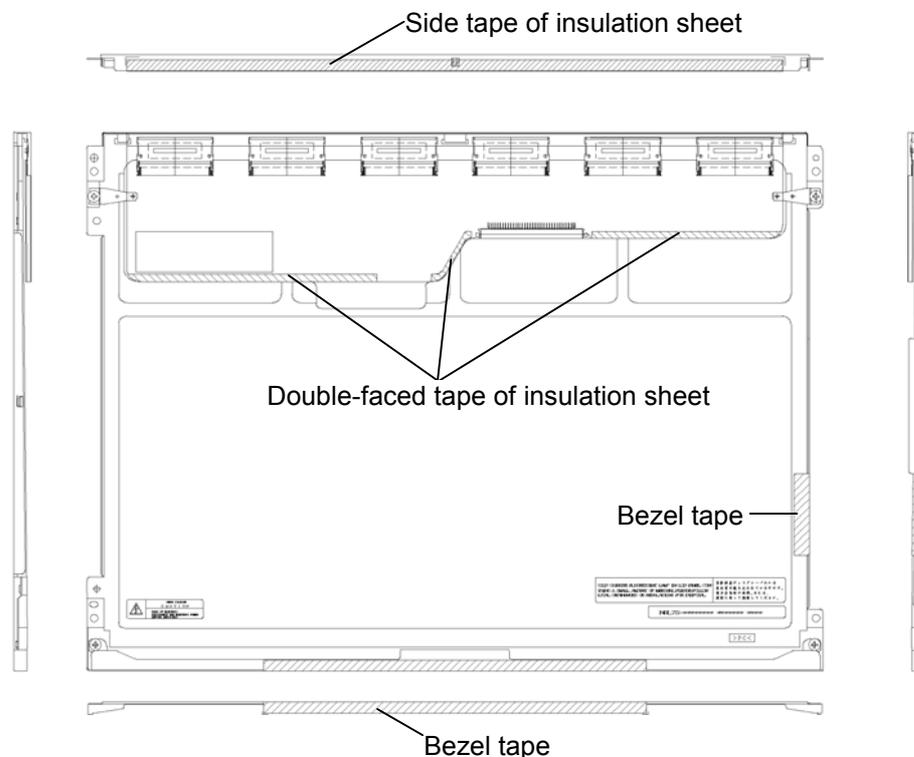


Figure 4-42 Replacing Toshiba fluorescent lamp(1)

## 2. Removing screws

- 1) Peel off the bezel tapes
- 2) Spread out the insulation sheet without detaching from the bezel side, as shown in the drawing below.

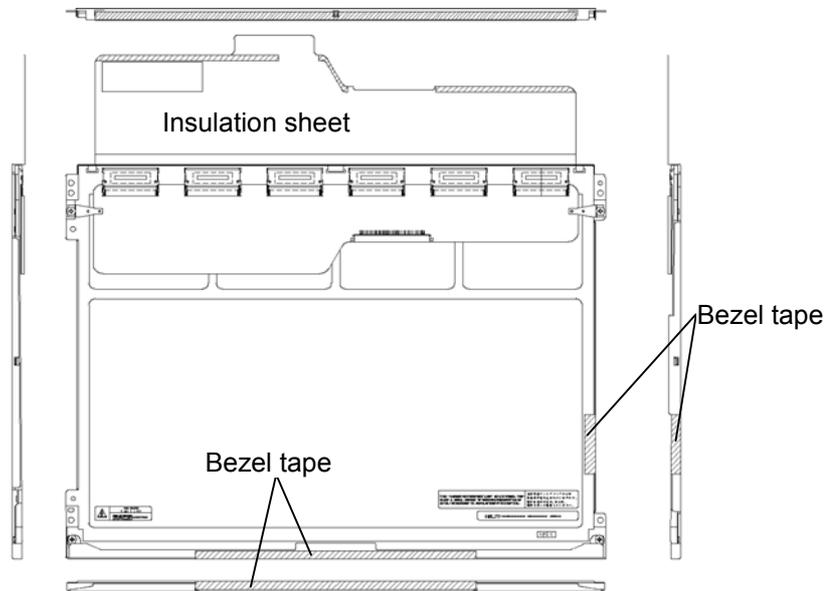


Figure 4-43 Replacing Toshiba fluorescent lamp(2)

- 3) Remove the screws.(4 screws)

**Caution:** Use a Philips screwdriver with type 0 bit to remove the screws.

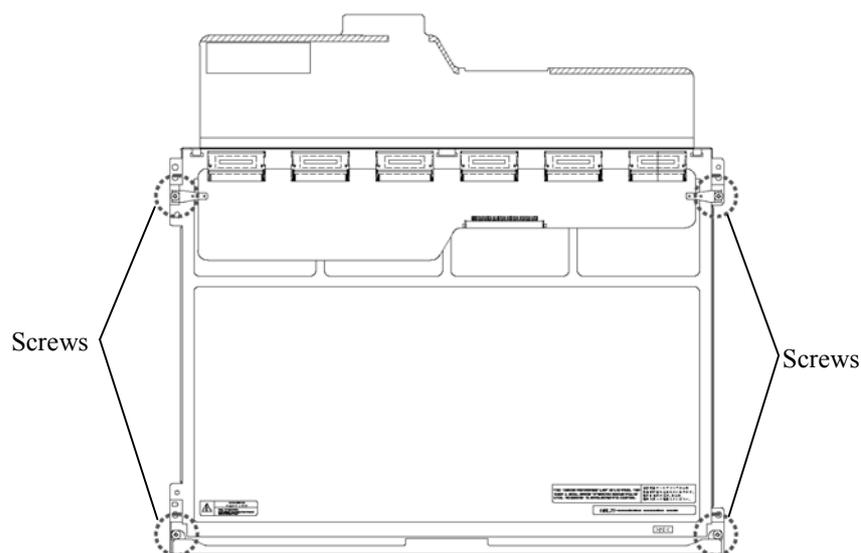


Figure 4-44 Replacing Toshiba fluorescent lamp(3)

## 3. Removing the bezel

- 1) Place the module with the insulation sheet facing upwards.
- 2) Release two latches for the side edge of the bezel and frame. Pulling up the bezel from the bottom side (FL lamp side), release four latches for the top edge of the bezel and remove the bezel from the cell.  
(The bezel with double-faced tape will be reused.)

**Caution:** 1) When peeling off the double-faced tapes, be careful not to damage the TAB.  
2) When removing the bezel, peel off the double-faced tape on the bezel bottom carefully and do not break it and do not deform the bezel. (The bezel with double-faced tape will be reused.)

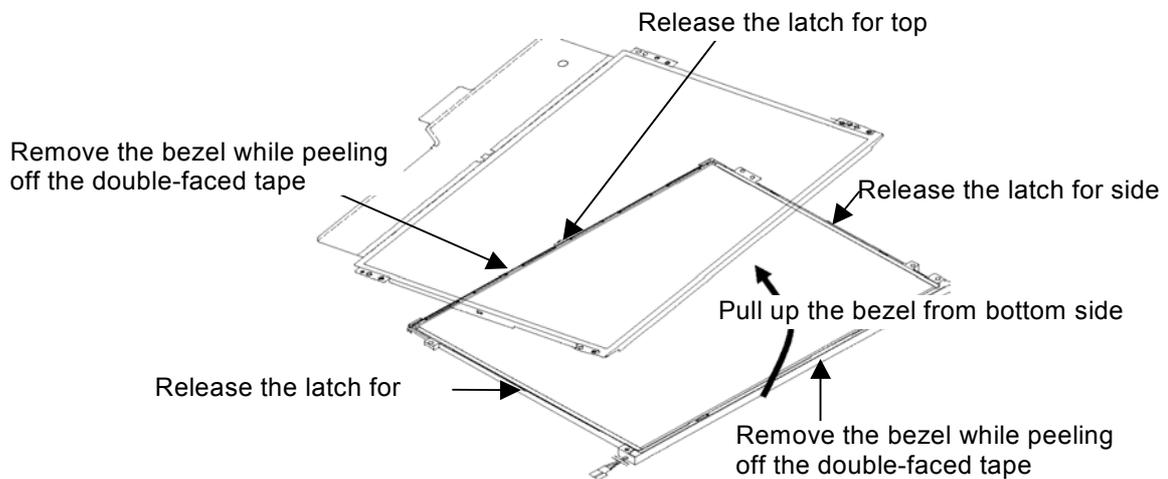


Figure 4-45 Replacing Toshiba fluorescent lamp(4)

## 4. Spread out the PCB

- 1) Spread out the PCB horizontally as shown in the drawing below.

**Caution:** Be careful not to damage the TAB.

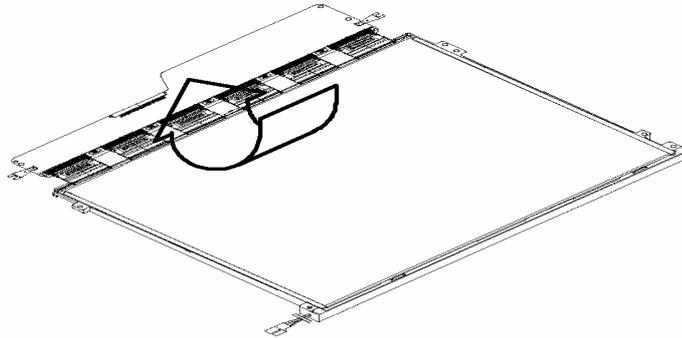


Figure 4-46 Replacing Toshiba fluorescent lamp(5)

#### 5. Removing the cell with the PCB

- 1) Remove the cell with the PCB from the backlight unit as shown in the drawing below.
- 2) Peel off the double-faced tape on the back of the cell cleanly.

**Caution:** 1)The cell in the top side is attached to the frame with double-faced tape so that remove the cell carefully not to break it.  
2)Be careful not to peel off the shading tape on the four sides.  
3)Be careful not to damage the TAB.

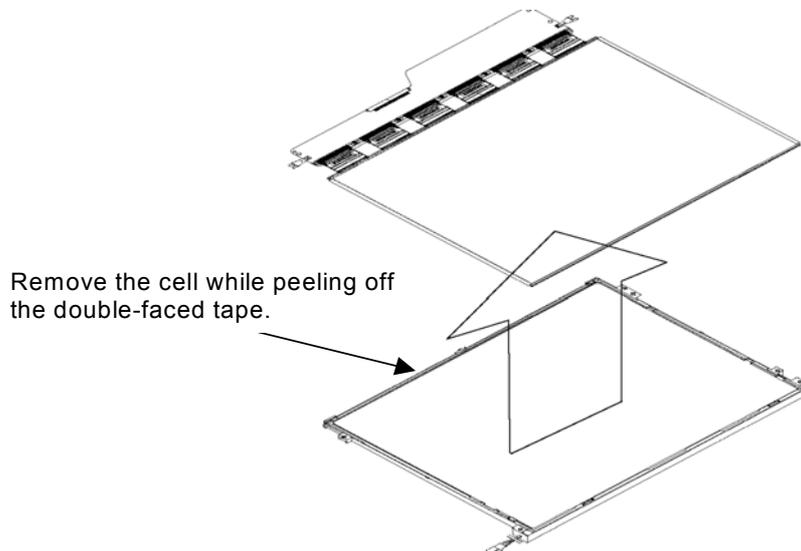


Figure 4-47 Replacing Toshiba fluorescent lamp(6)

### Assembling the module

Assembling procedure is a same as the preceding paragraph “Disassembling the module” but practice in reverse.

#### 1. Checking the backlight

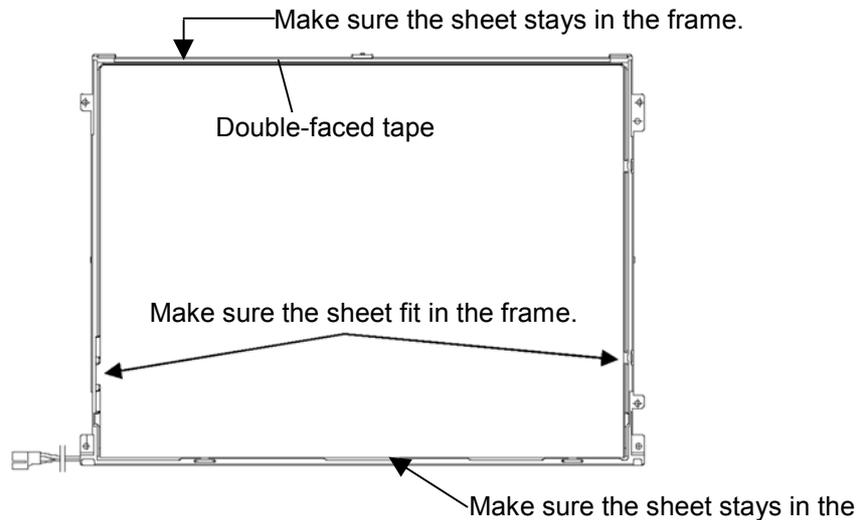


Figure 4-48 Replacing Toshiba fluorescent lamp(7)

#### 2. Assembling the cell with the PCB

- 1) Peel off the separation sheet of the double-faced tape on the top of the frame.
- 2) Illuminate the backlight.
- 3) Make sure there is no scratch or dirt on the backlight. Also check the back of the cell. Next, install the cell with the PCB to the backlight unit.

**Caution:** 1) Install by aligning to the bottom left corner as shown below.

2) Be careful not to damage the TAB.

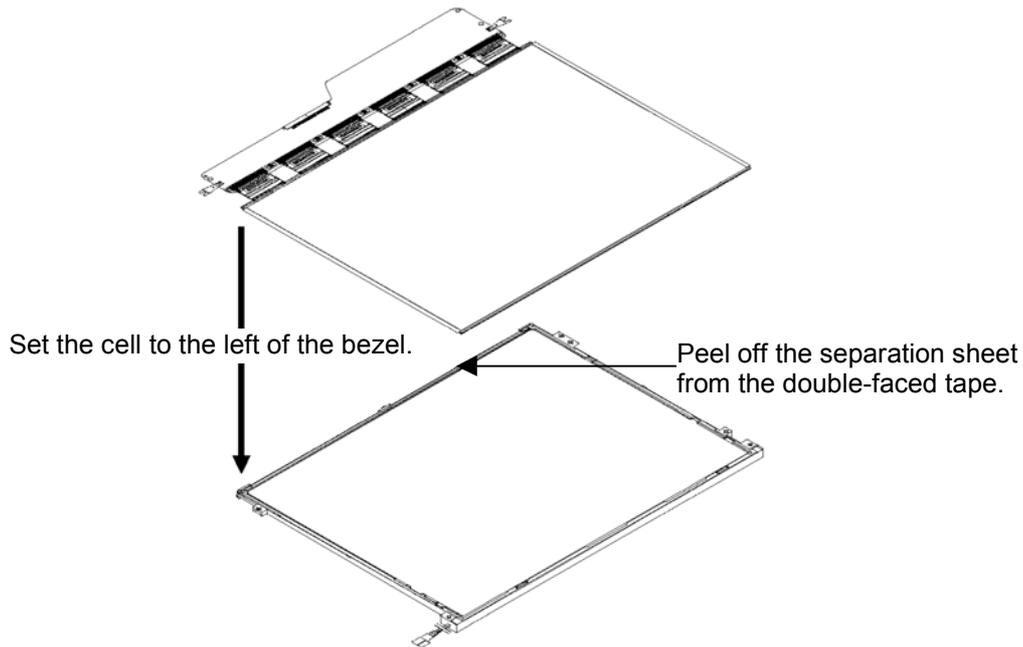


Figure 4-49 Replacing Toshiba fluorescent lamp(8)

### 3. Folding and temporary fixing the TAB / PCB

- 1) Fold the TAB (PCB) around the back of the backlight unit as shown below.

**Caution:** Be careful not to damage the TAB.

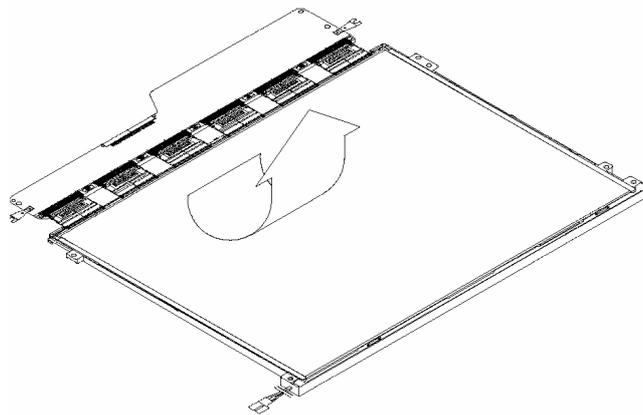


Figure 4-50 Replacing Toshiba fluorescent lamp(9)

### 4. Installing the bezel

- 1) Hook the latch on the top of the bezel (TAB side).
- 2) Hook the two latches on the side of the bezel (one latch for each side).
- 3) Set the bezel on the frame from the bottom side.

**Caution:** Be careful not to damage the cell, TAB and B/L.

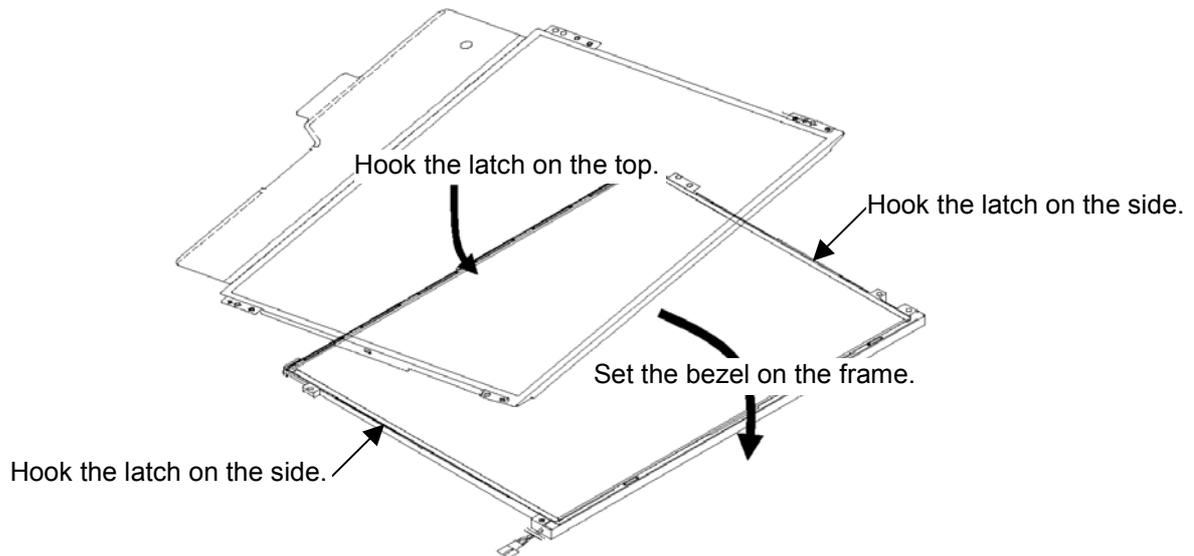


Figure 4-51 Replacing Toshiba fluorescent lamp(10)

#### 5. Screwing the PCB and the bezel

- 1) Use four screws to secure the left and right edge.

**Caution:** 1) The screw tightening torque is  $0.147\text{N}\cdot\text{m}$  ( $1.5\text{kgf}\cdot\text{cm}$ ) for all screws.  
Be careful not to float the screw.

- 2) Use a Philips screwdriver with type 0 bit.

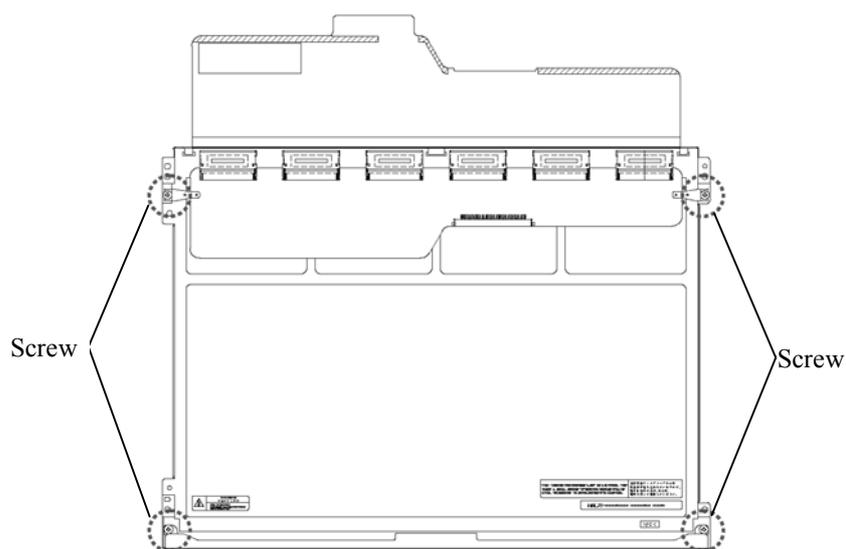


Figure 4-52 Replacing Toshiba fluorescent lamp(11)

## 6. Installing the tapes and insulation sheets

- 1) Stick the double-faced tape of the insulation sheet.
- 2) Stick two bezel tapes. (bottom side first)

**Caution:** 1) Refer to the drawing below.

- 2) When the tapes and insulation sheets are installed, be careful not to damage the PCB, cell and B/L.

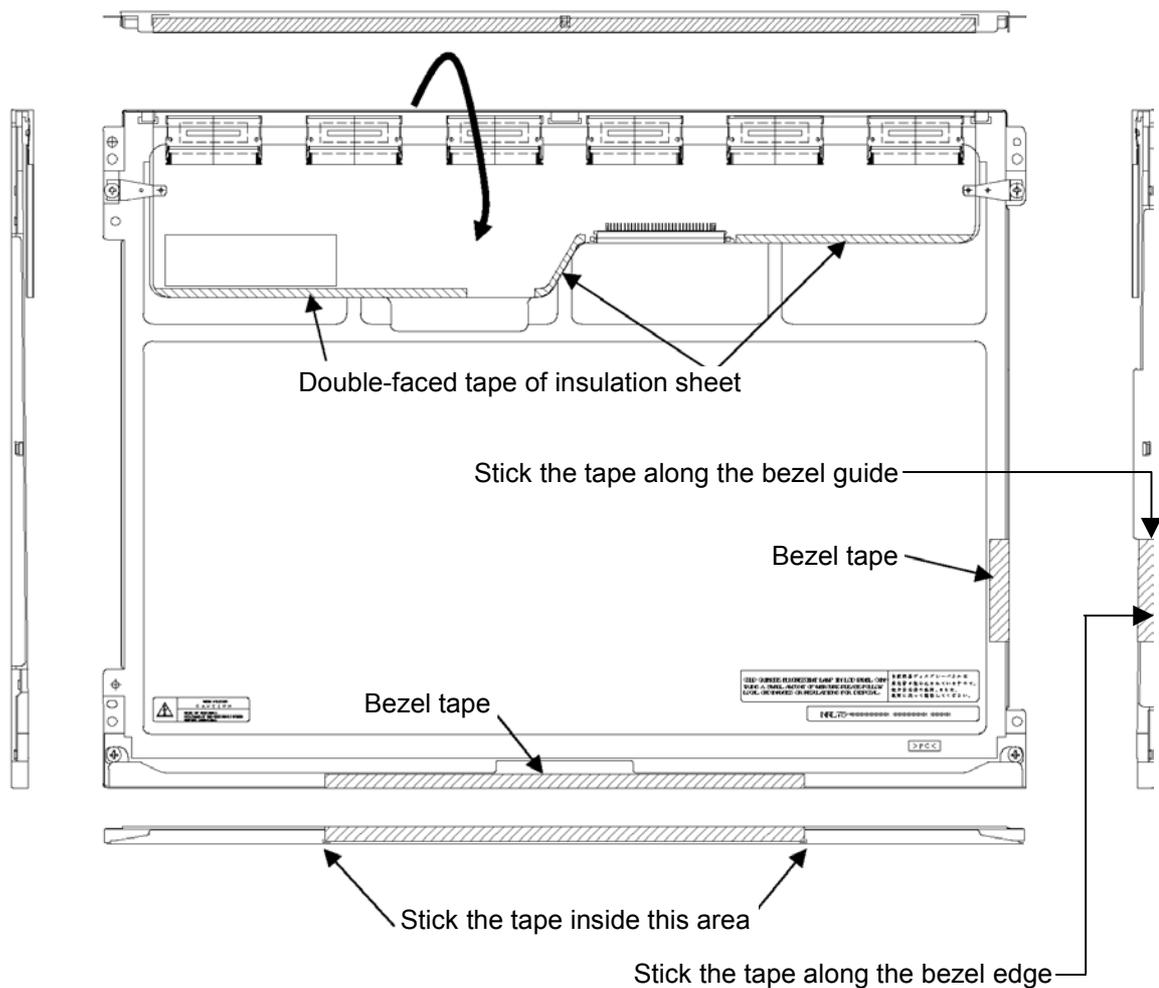


Figure 4-53 Replacing Toshiba fluorescent lamp(12)