

# **TOSHIBA**

TOSHIBA Potable Printer

## **B-EP4DL SERIES**

### **Maintenance Manual**

Document No. **EO18-33023**

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(Revised                    )

PRINTED IN JAPAN

**TOSHIBA TEC CORPORATION**

**WARNING!**

*Follow all manual instructions. Failure to do so could create safety hazards such as fire or electrocution.*

**NOTE:**

*Failure to follow manual instructions or any unauthorized modification, substitution or change to this product will void the limited product warranty.*

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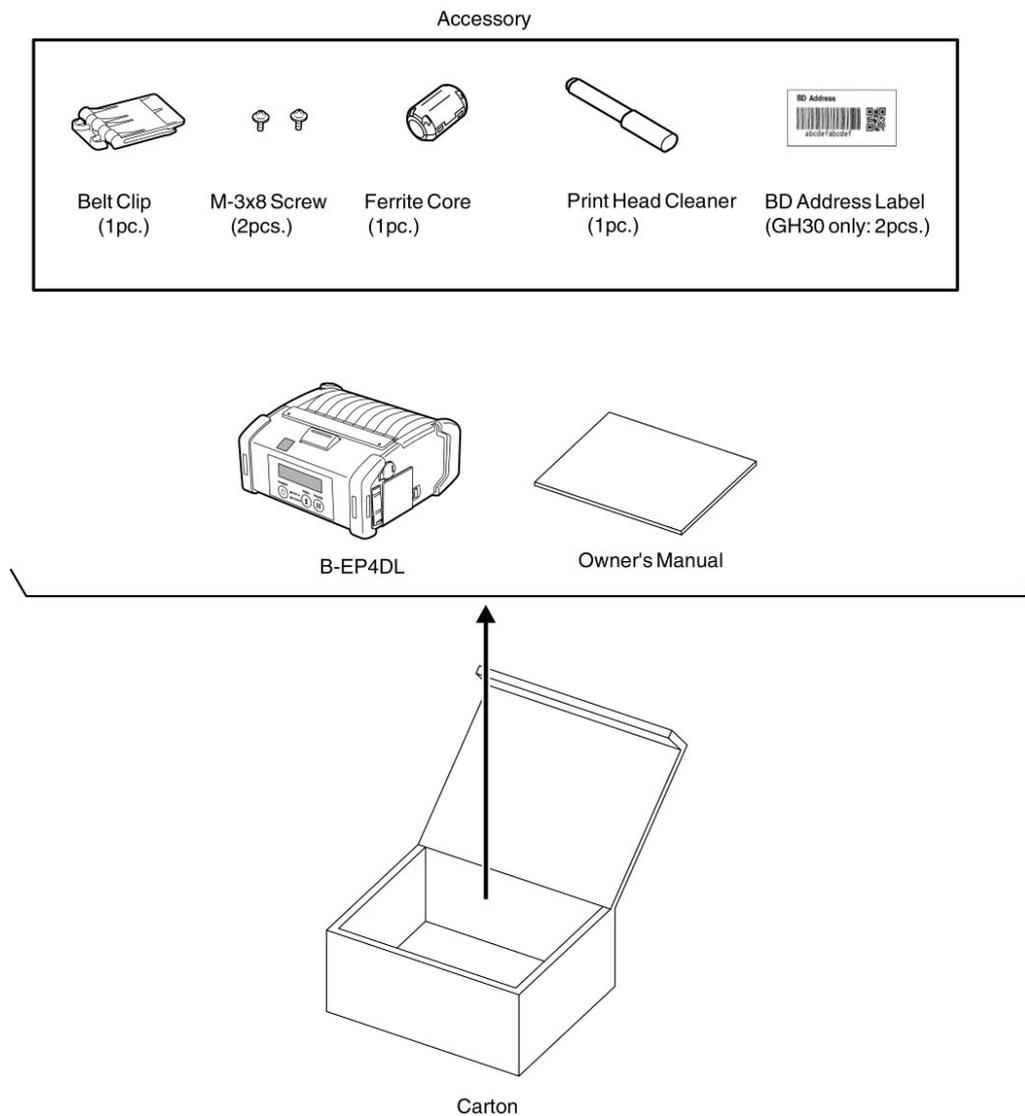
**CAUTION!**

- 1. This manual may not be copied in whole or in part without prior written permission of TOSHIBA TEC.*
- 2. The contents of this manual may be changed without notification.*

# 1. UNPACKING

## 1.1 Procedure

- 1) Open the carton.
- 2) Unpack the accessories from the carton.
- 3) Unpack the printer.



**NOTE:** Keep the carton and pad for future transportation of the printer.

## 1.2 Checks

- 1) Check for damage or scratches on the machine.
- 2) Confirm that none of the accessories are missing.

## 2. MAJOR UNIT REPLACEMENT

### WARNING!

1. Disconnect the power cord before installing the main parts.
2. Be careful not to injure your fingers when replacing the main parts.

### CAUTION!

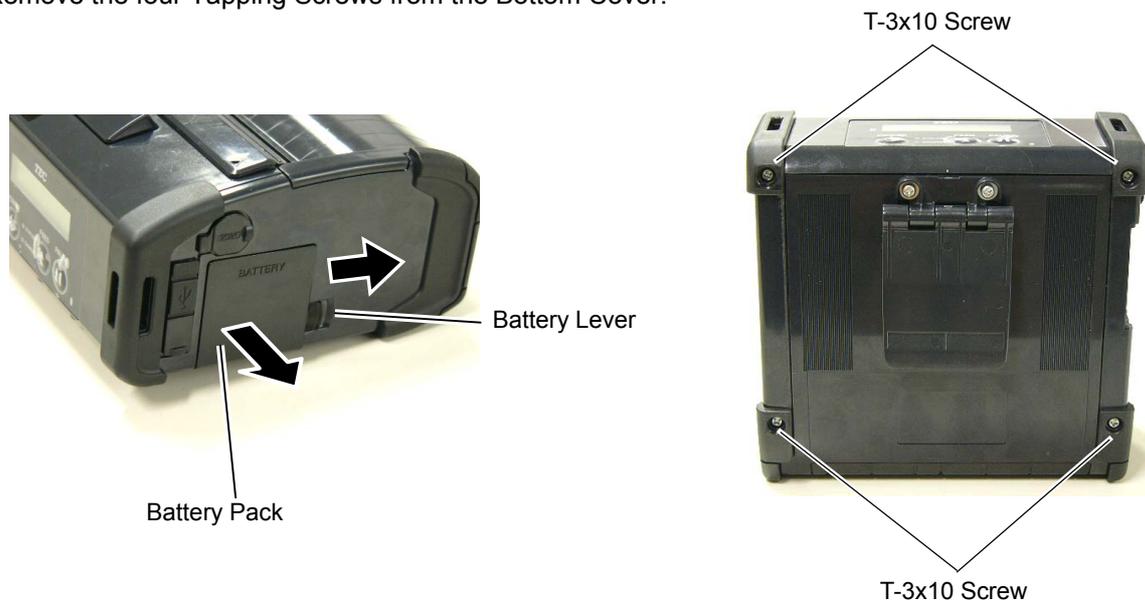
1. Since a lot of small moulded parts are used in this printer, care must be taken not to damage or lose them.
2. Be careful not to damage the print head while removing and reassembling.
3. In the United States, used lithium ion batteries should be returned to the store where you bought the machine. (USA only)
4. LITHIUM ION BATTERY DISPOSE OF PROPERLY  
Caution: Do not handle damaged or leaking lithium ion battery.
5. Before handling the main parts, be sure to discharge static electricity in human body through other metals. Failure to do this may damage the CPU PC board, print head, etc..

### NOTES:

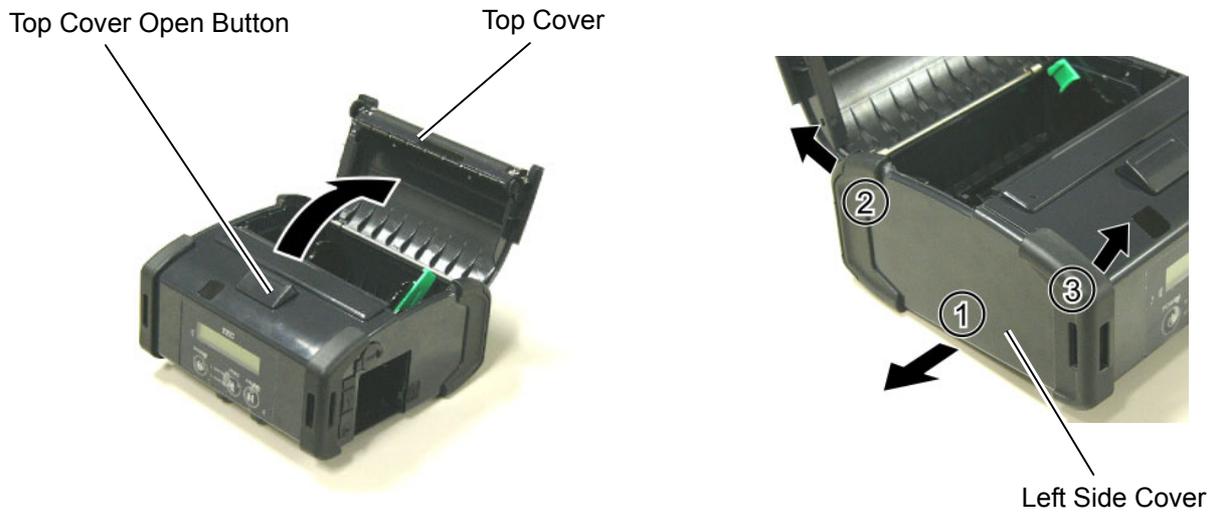
1. Before replacing the main parts, print out the maintenance counter values and the parameter values and keep the printout. (Refer to Section 4.2 Diagnostics Test in the System Mode Manual.)  
After replacing, restore the setting according to the printout.
2. Use precision screwdrivers for replacing the precision components which are installed into the printer.

### 2.1 Replacing the CPU PC Board

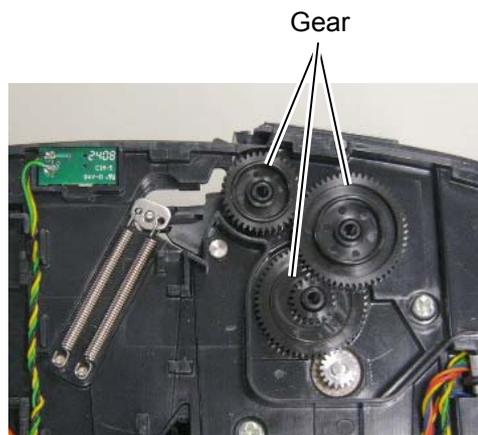
- 1) Turn off the printer.
- 2) Slide the Battery Lever in the direction of the arrow, and remove the Battery Pack from the printer.
- 3) Remove the four Tapping Screws from the Bottom Cover.



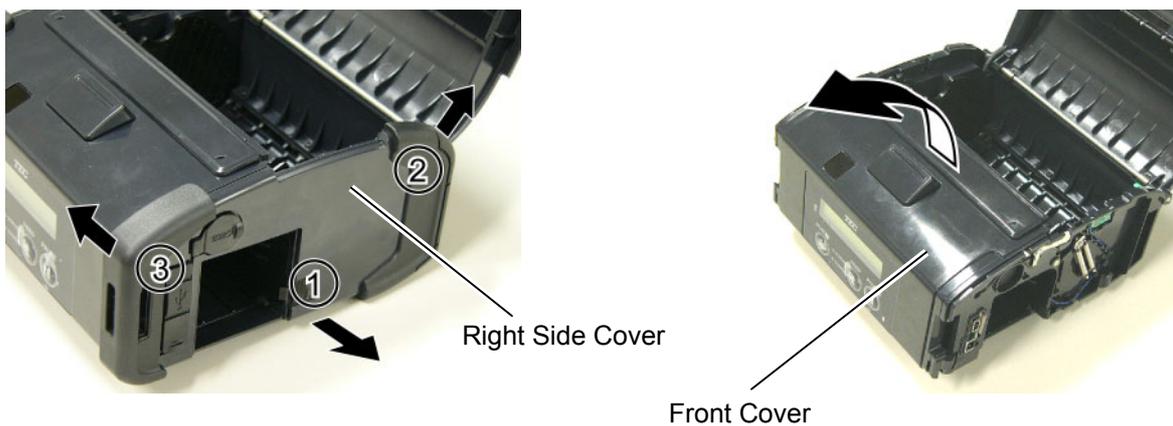
- 4) Press the Top Cover Open Button to open the Top Cover.
- 5) Remove the Left Side Cover in the direction of the arrow.



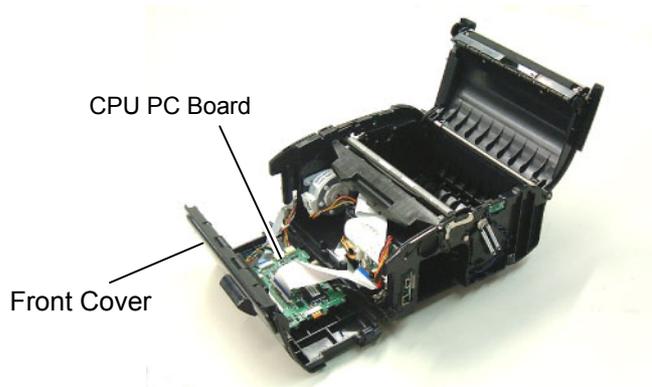
**NOTE:** The Gears shown in the picture below are not secured and are easily removed. Be careful not to drop and break or lose them.



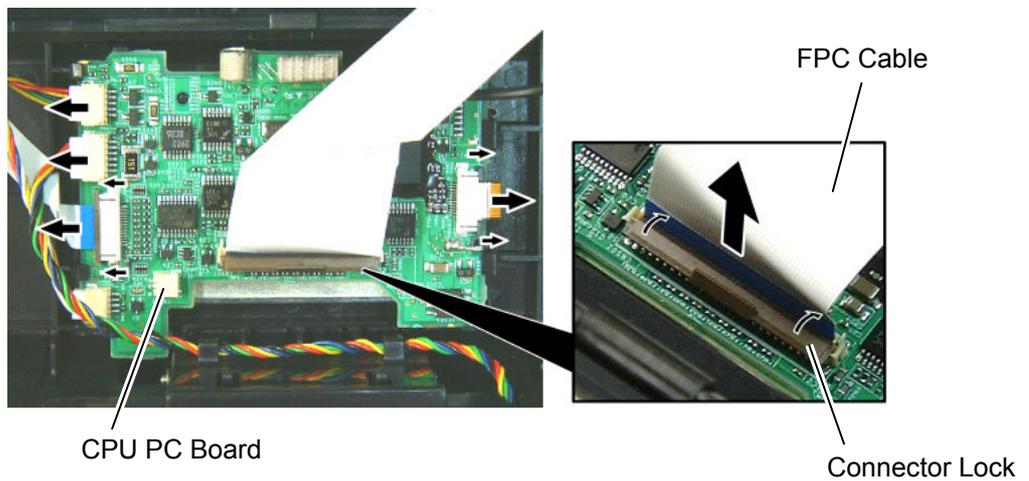
- 6) Remove the Right Side Cover and the Front Cover in the direction of the arrow, respectively.



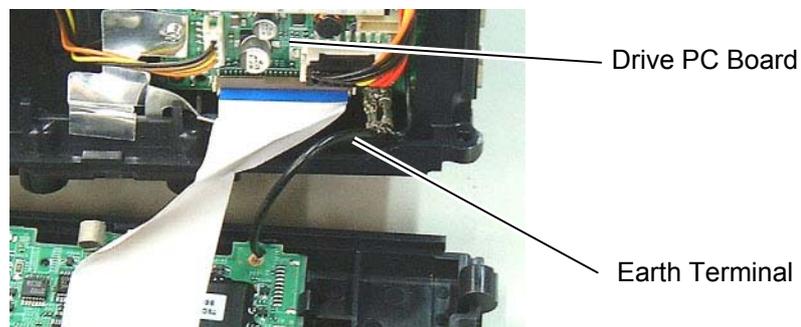
7) Remove the Front Cover.



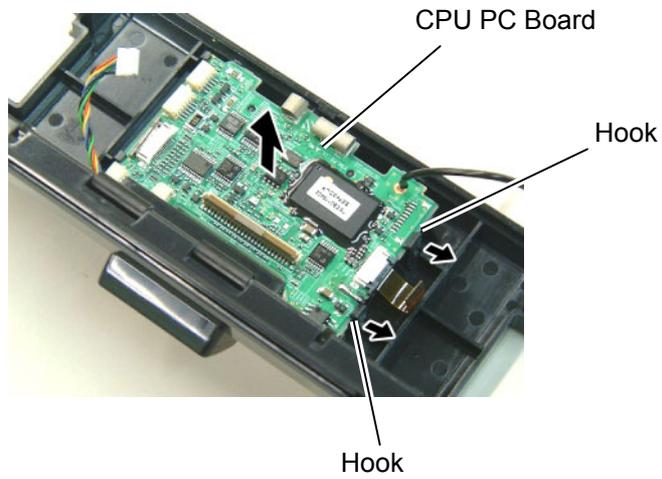
6) Disconnect all Connectors and FPC Cable from the CPU PC Board.  
**NOTE:** Before disconnecting the FPC Cable, release the Connector Lock.



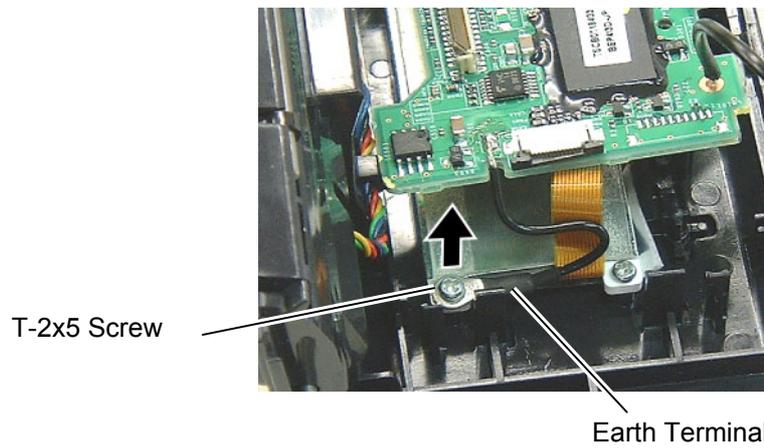
7) Disconnect the Earth Terminal from the Drive PC Board.



- 8) Open the Hooks, then remove the CPU PC Board from the Front Cover.



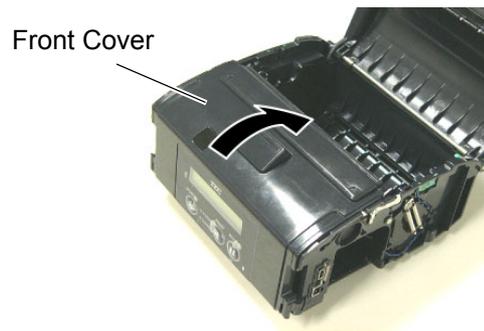
- 9) Remove the screw, then remove the Earth Terminal.



- 10) Replace the CPU PC Board with a new one, then reassemble in the reverse order of removal.

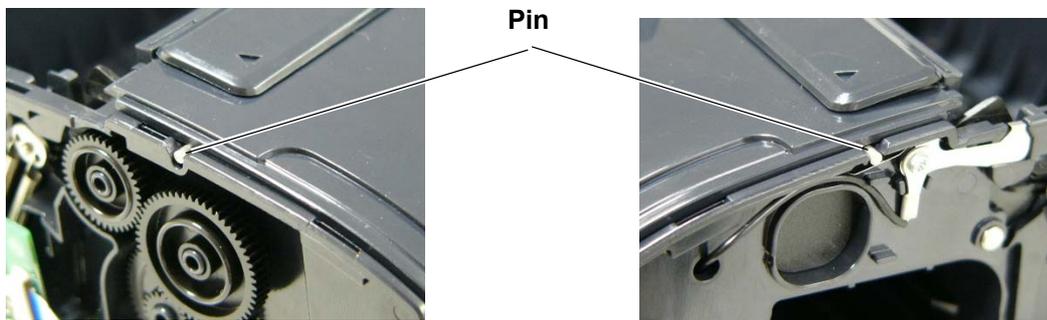


11) Close the front cover.

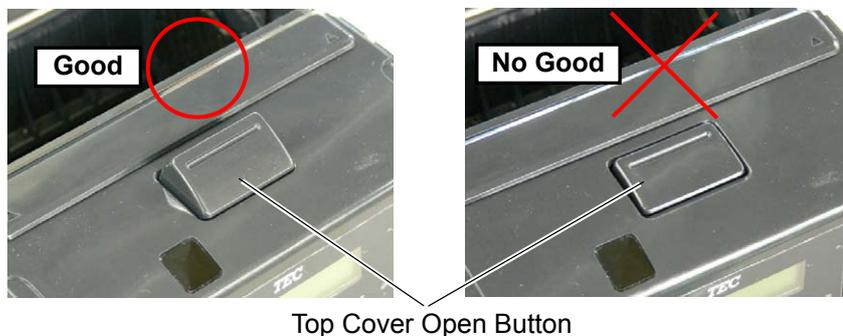


**NOTES:**

1. Make sure that the pins on the both sides of the front cover are fit in position, as shown in the pictures below.

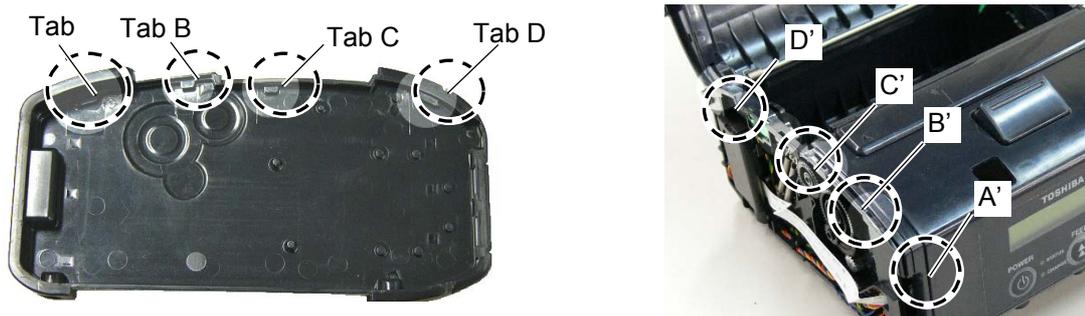


2. Do not reassemble the Front Cover while the Top Cover Open Button is pressed. Doing so may cause the Top Cover not to open.



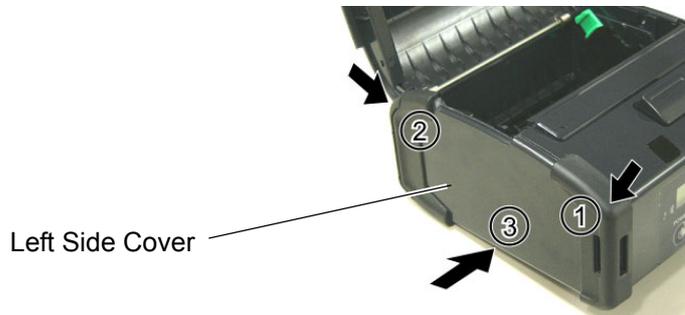
12) Mount the left side cover to the printer while fitting the tabs on the left side cover into the slots of the printer enclosure.

Fit the tabs A to D into the slots A' to D'.



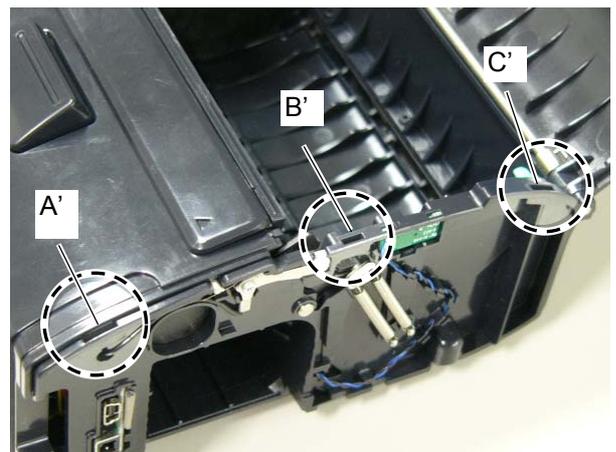
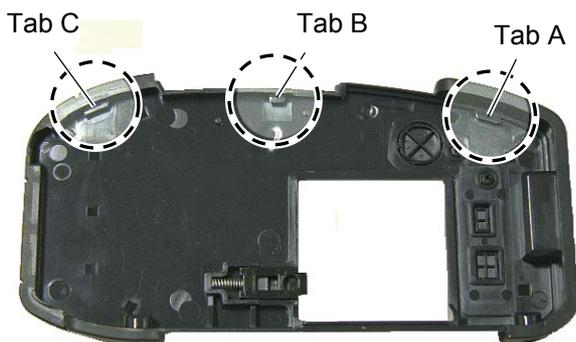
**NOTE:**

*It is easy to mount the left side cover if you fit the tabs from the LCD side in order, then secure the bottom side. Be careful not to catch the cable by the cover while reassembling.*



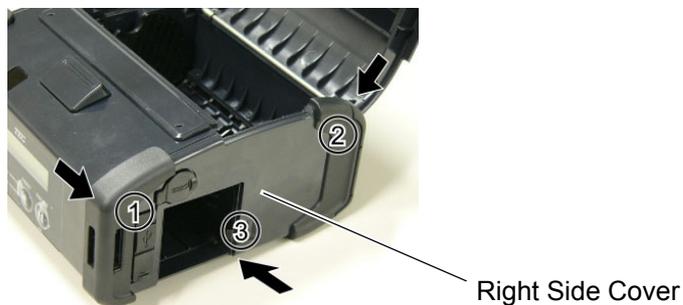
- 13) Mount the right side cover to the printer while fitting the tabs on the right side cover into the slots of the printer enclosure.

Fit the tabs A to C into the slots A' to C'.



**NOTE:**

*It is easy to mount the right side cover if you fit the tabs from the LCD side in order, then secure the bottom side. Be careful not to catch the cable by the cover while reassembling.*

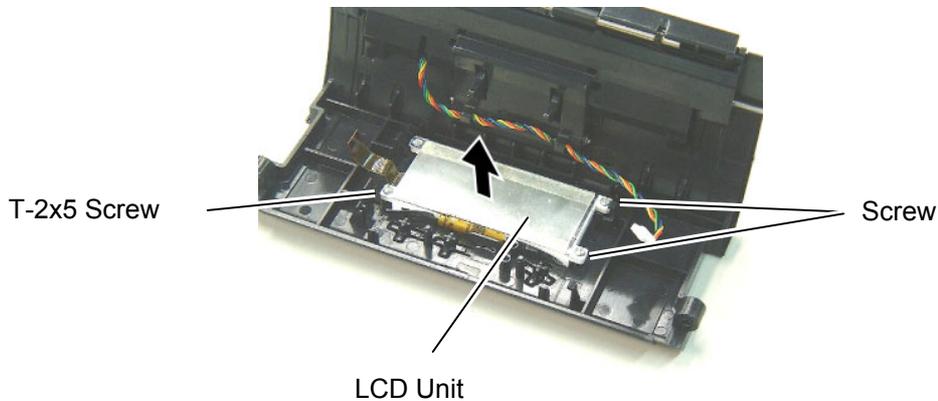


**NOTES:**

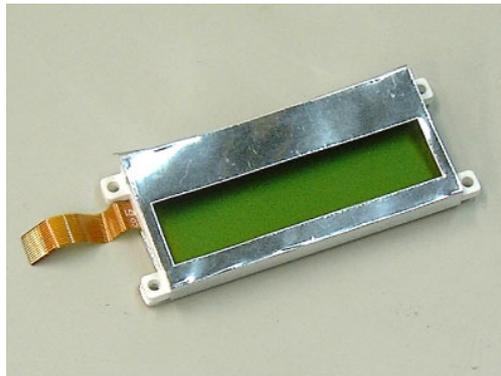
1. *After replacing the CPU PC Board, refer to the Setting Operation Manual or System Mode Manual and perform the following operations.*
  1. *Perform a RAM clear.*
  2. *Perform the sensor adjustment.*
2. *After replacing the CPU PC Board, perform an LED check in the system mode and make sure the LED lights properly. If the LED does not light properly, this may result from the disconnection of the harness from the CPU PC board, the unset battery, or the run-down battery, etc. Make sure the connection of the cables and the battery status. When they are correct, the LED failure may result from the initial failure of the CPU PC board and replace the CPU PC board with a correct one. Regarding the procedures for the LED check, refer to Section 4.2.3 in the System Mode Manual.*

## 2.2 Replacing the LCD Unit

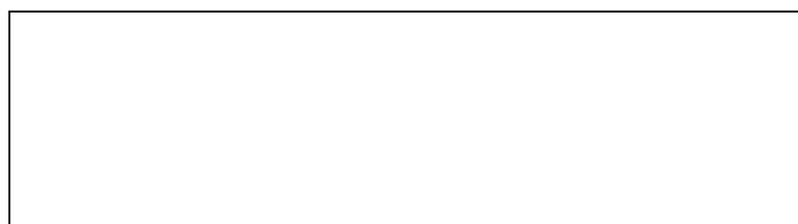
- 1) Remove the Right Cover, Left Cover, Front Cover and CPU PC Board. (Refer to **Section 2.1 Replacing the CPU PC Board.**)
- 2) Remove the three screws, then remove the LCD Unit.



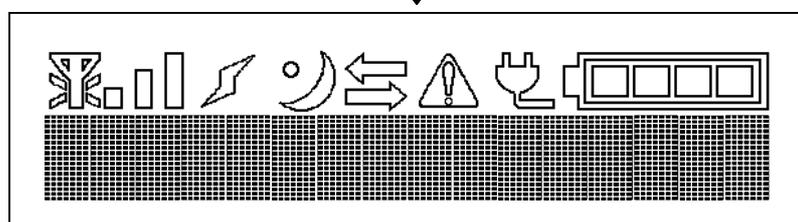
- 3) Replace the LCD Unit with a new one, then reassemble in the reverse order of removal.



- 4) After replacing the LCD unit, perform an LCD check in the system mode and make sure none of dots are missing. Regarding the procedures for the LCD check, refer to Section 4.2.4 in the System Mode Manual. If the LCD does not display clearly, refer to Section 4.4.2 in the System Mode Manual and perform an LCD density setting. When the LCD dots are missing, make sure the LCD cable is surely connected to the CPU PC board. If the connection of the cable is correct, the dot missing may result from the initial failure of the LCD and replace the LCD unit with a correct one.



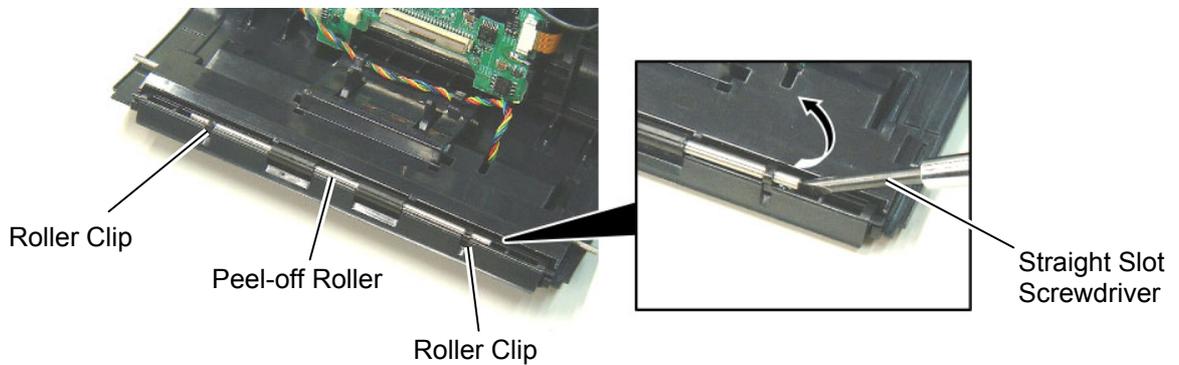
All backlights off  
(3 seconds)



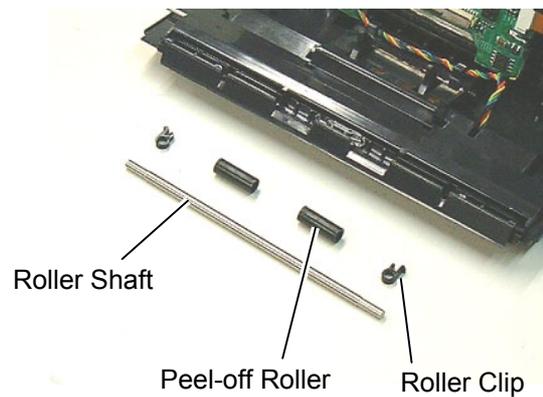
All backlights on  
(3 seconds)

## 2.3 Replacing the Peel-off Roller

- 1) Remove the Right Cover, Left Cover and Front Cover. (Refer to **Section 2.1 Replacing the CPU PC Board.**)
- 2) Remove the two Roller Clips with a straight slot screwdriver, then remove the Peel-off Roller Ass'y.

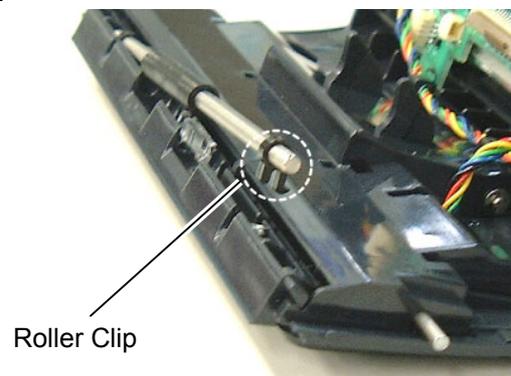


- 3) Remove the two Peel-off Rollers and the two Roller Clips from the Roller Shaft.



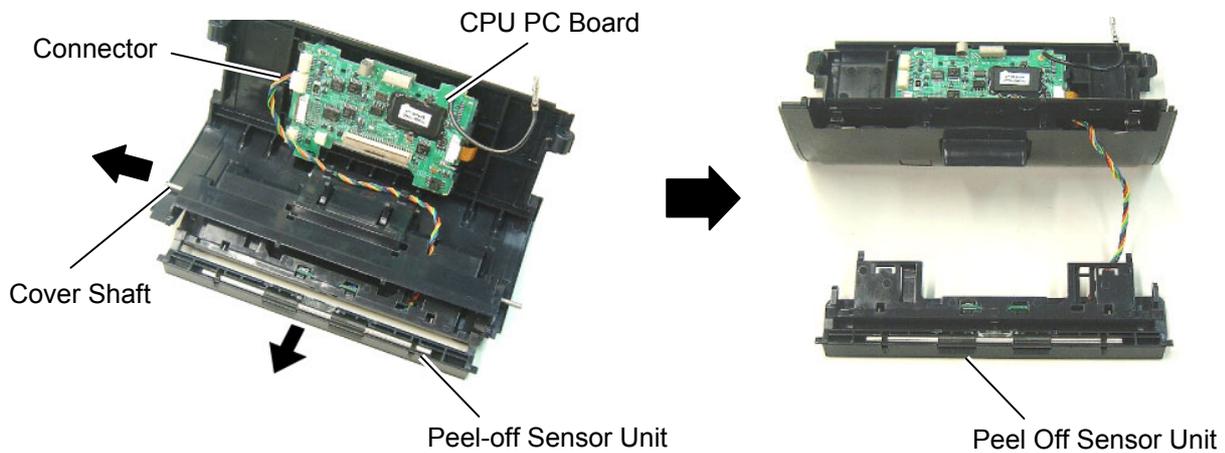
- 4) Replace the Peel-off Roller with a new one, then reassemble in the reverse order of removal.

**NOTE:** Be careful of the orientation of the Roller Clips as shown in the picture below when reassembling the Peel-off Rollers.

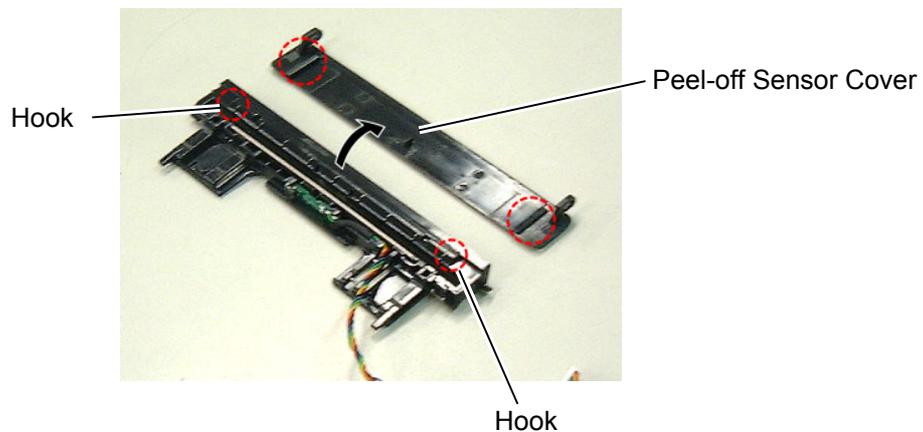


## 2.4 Replacing the Peel-off Sensor

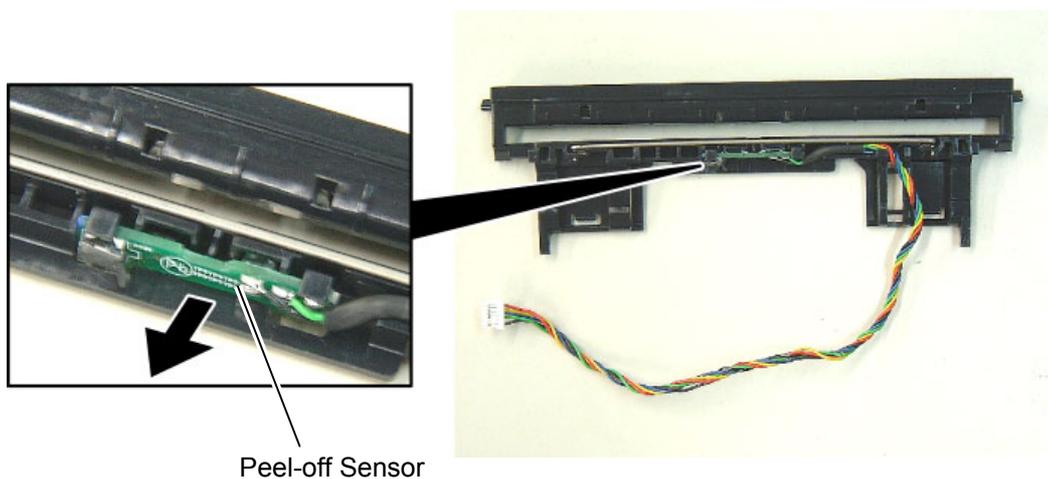
- 1) Remove the Right Cover, Left Cover and Front Cover. (Refer to **Section 2.1 Replacing the CPU PC Board.**)
- 2) Disconnect the Connector from the CPU PC Board.
- 3) Pull out the Cover Shaft, then remove the Peel-off Sensor Unit.



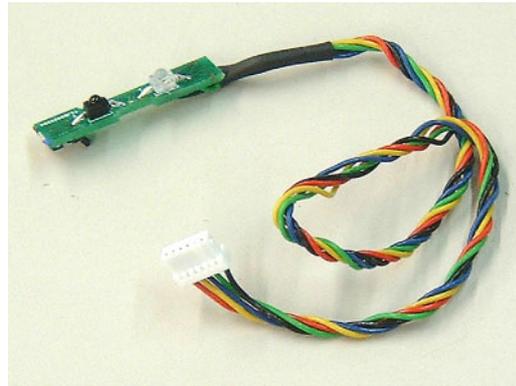
- 4) Release the Peel-off Sensor Cover from the Hooks.



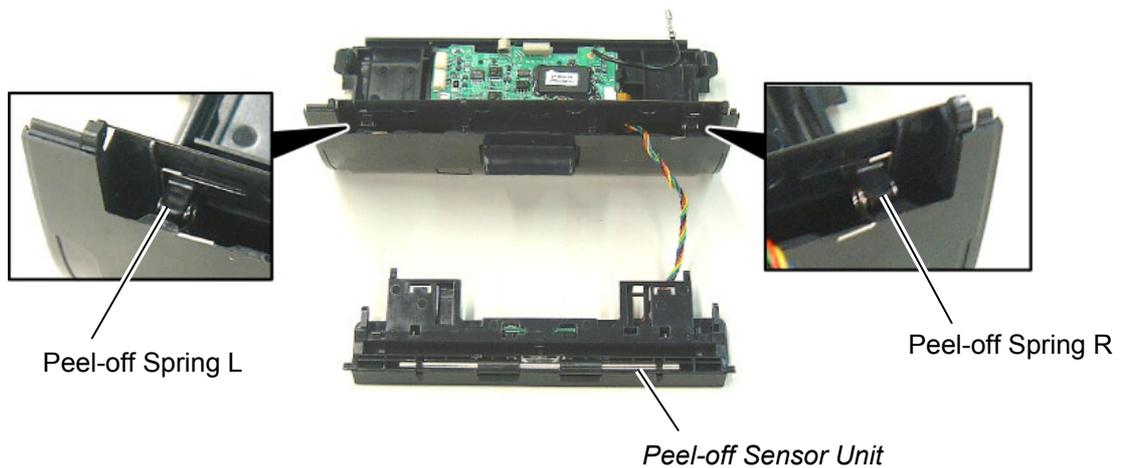
- 5) Remove the Peel-off Sensor.



- 6) Replace the Peel-off Sensor with a new one, then reassemble in the reverse order of removal.

**NOTES:**

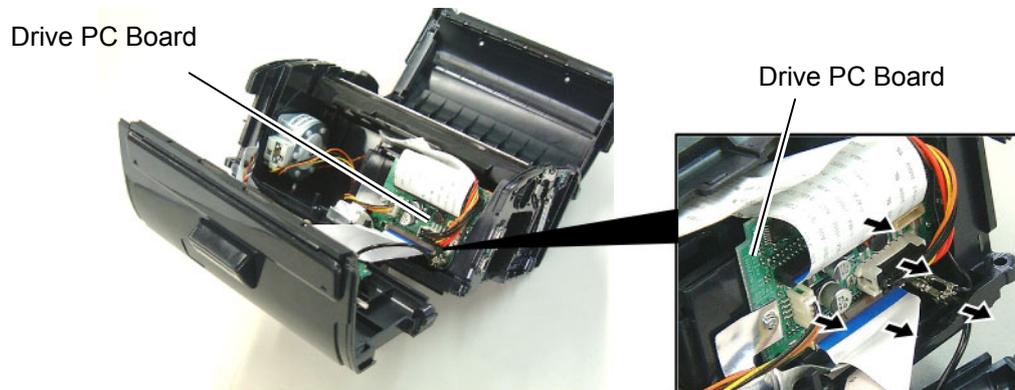
1. Be careful of the orientation of the Peel-off Springs as shown in the picture below when reassembling the Peel-off Sensor Unit.



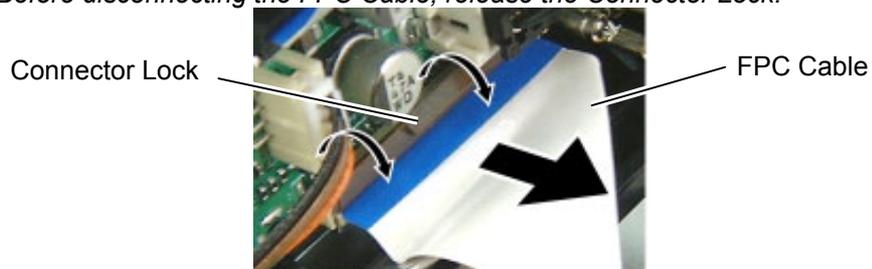
2. After replacing the Peel-off Sensor, refer to the Setting Operation Manual or System Mode Manual and perform the following operations.
- Perform the sensor adjustment.

## 2.5 Replacing the Drive PC Board

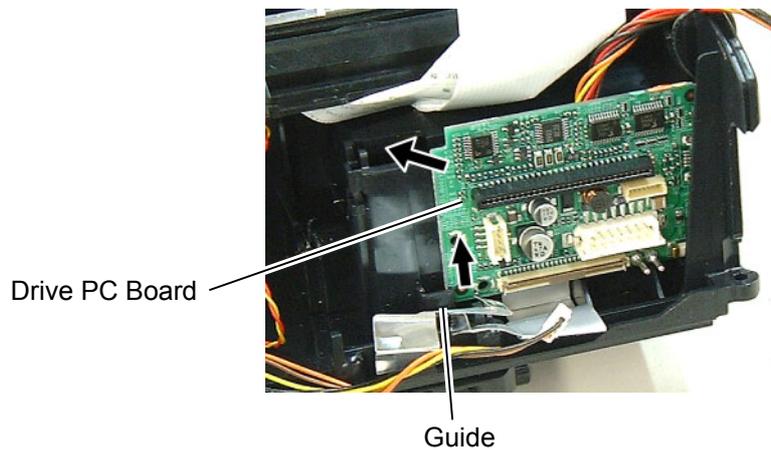
- 1) Remove the Right Cover, Left Cover and Front Cover. (Refer to **Section 2.1 Replacing the CPU PC Board.**)
- 2) Disconnect all Connectors and FPC Cable from the Drive PC Board.



**NOTE:** Before disconnecting the FPC Cable, release the Connector Lock.



- 3) Remove the Drive PC Board from the Guide.

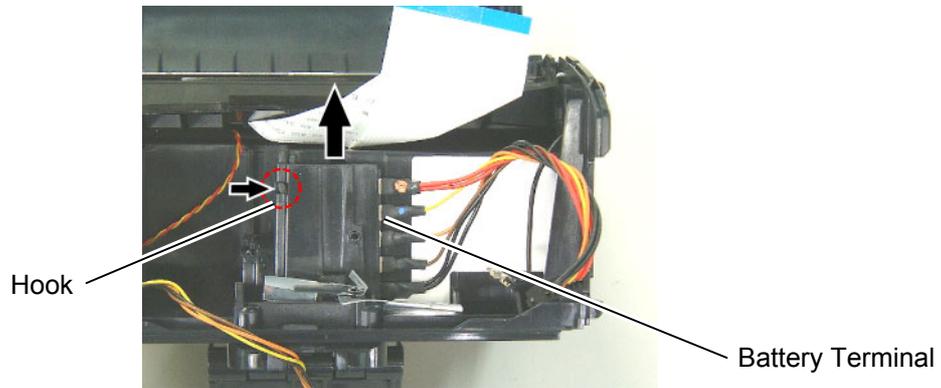


- 5) Replace the Drive PC Board with a new one, then reassemble in the reverse order of removal.

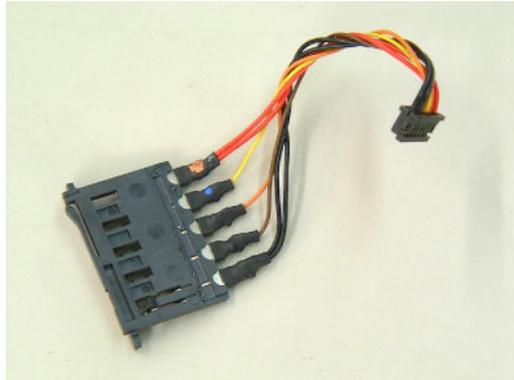


## 2.6 Replacing the Battery Terminal

- 1) Remove the Right Cover, Left Cover and Front Cover. (Refer to **Section 2.1 Replacing the CPU PC Board.**)
- 2) Remove the Drive PC Board. (Refer to **Section 2.5 Replacing the Drive PC Board.**)
- 3) Hold down the Hook and remove the Battery Terminal upward.

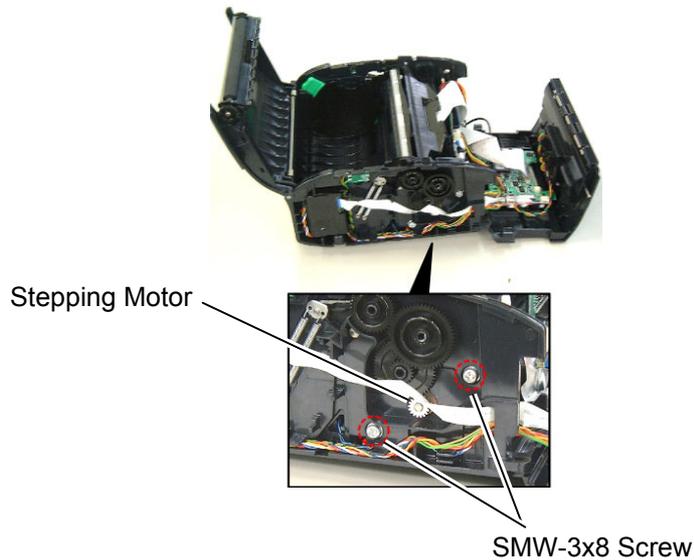


- 4) Replace the Battery Terminal with a new one, then reassemble in the reverse order of removal.

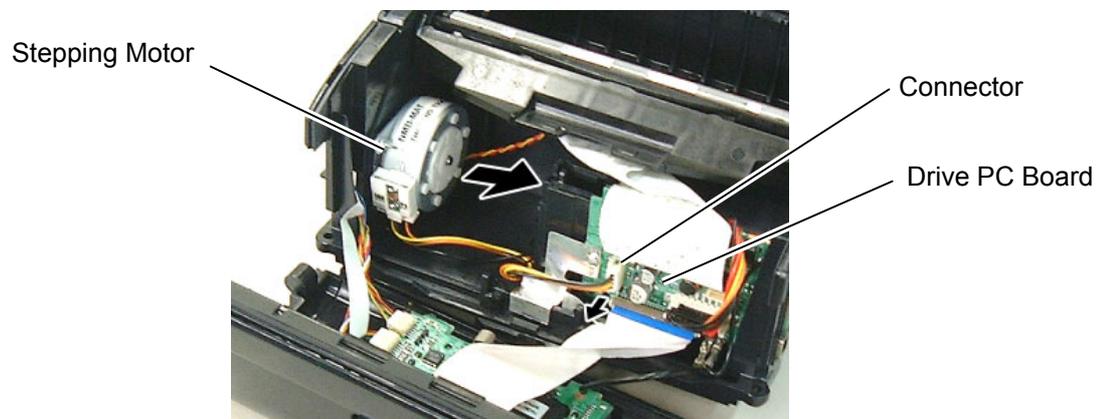


## 2.7 Replacing the Stepping Motor

- 1) Remove the Right Cover, Left Cover and Front Cover. (Refer to **Section 2.1 Replacing the CPU PC Board.**)
- 2) Remove the two screws.



- 3) Disconnect the Connector from the Drive PC Board.
- 4) Remove the Stepping Motor.



Replace the Stepping Motor with a new one, then reassemble in the reverse order of removal.

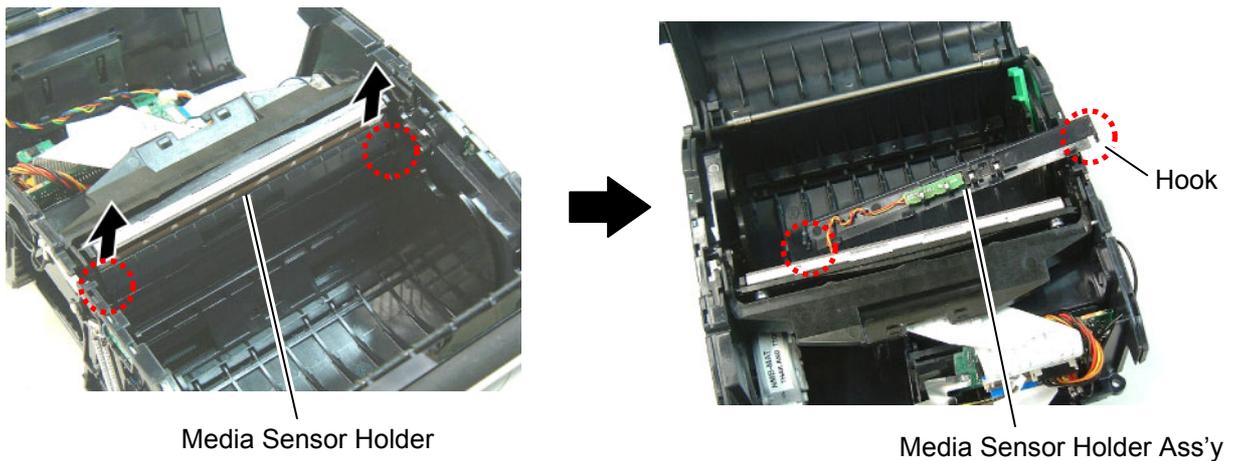


## 2.8 Replacing the Print Head

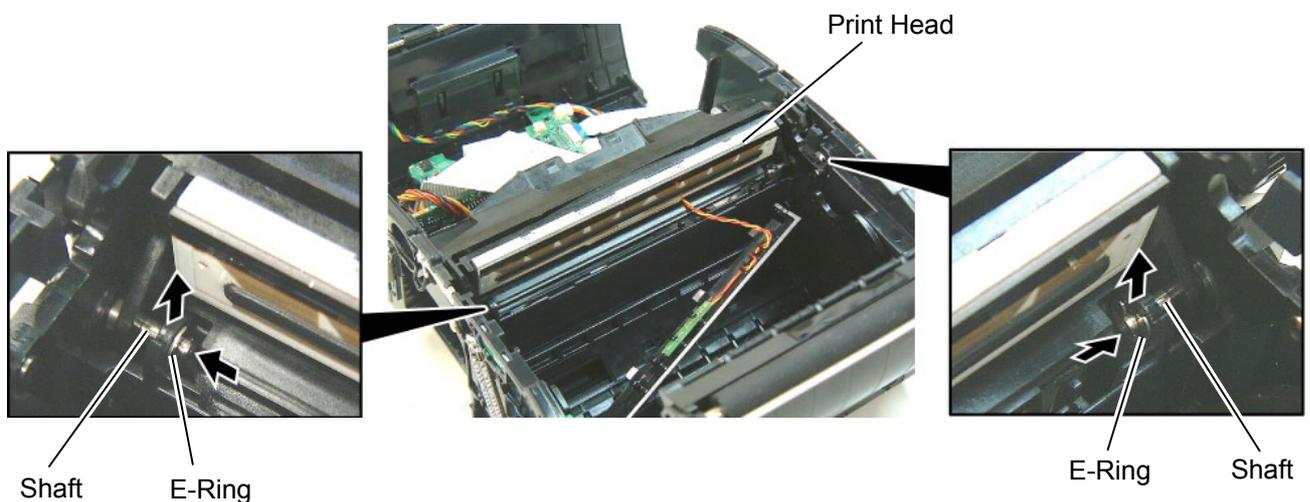
### CAUTION!

1. Before handling the print head, be sure to discharge static electricity in human body through other metals. Failure to do this may damage the print head element.
2. Never touch the print head element directly by hands or hard objects. Doing so will damage the element, causing a dot missing and a print failure.

- 1) Remove the Right Cover, Left Cover and Front Cover. (Refer to **Section 2.1 Replacing the CPU PC Board.**)
- 2) Release the Hooks, then remove the Media Sensor Holder Ass'y upward.

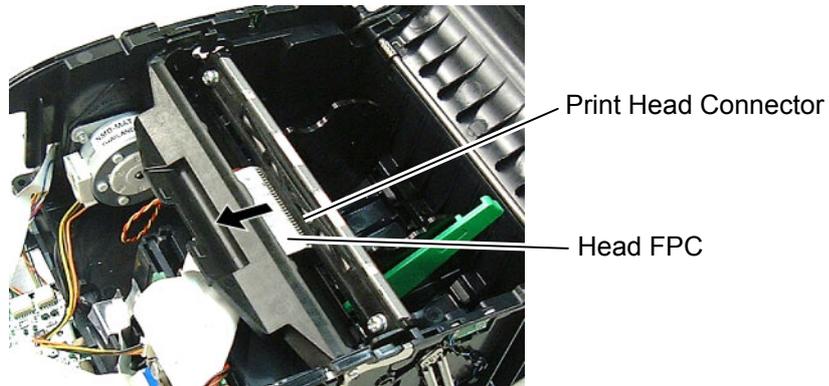


- 3) Remove the right and left E-Rings.  
**NOTE:** Carefully remove the E-Rings in order not to damage the Print Head Element.
- 4) Remove the right and left Shafts.



- 5) Disconnect the Head FPC from the Print Head Connector.

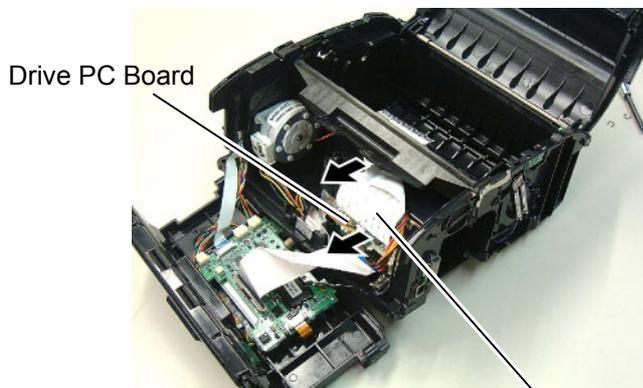
**NOTE:** When reassembling the Head FPC, the contact portion should be faced upward.



- 6) Remove the Print Head Ass'y.



- 7) Disconnect the Head FPC Cable from the Drive PC Board Connector.



Head FPC Cable

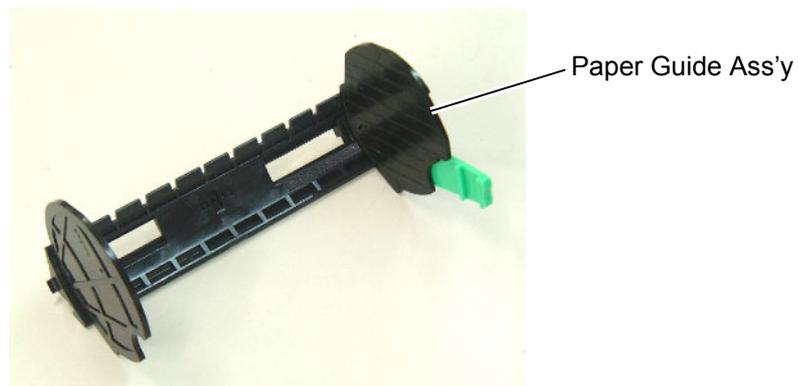
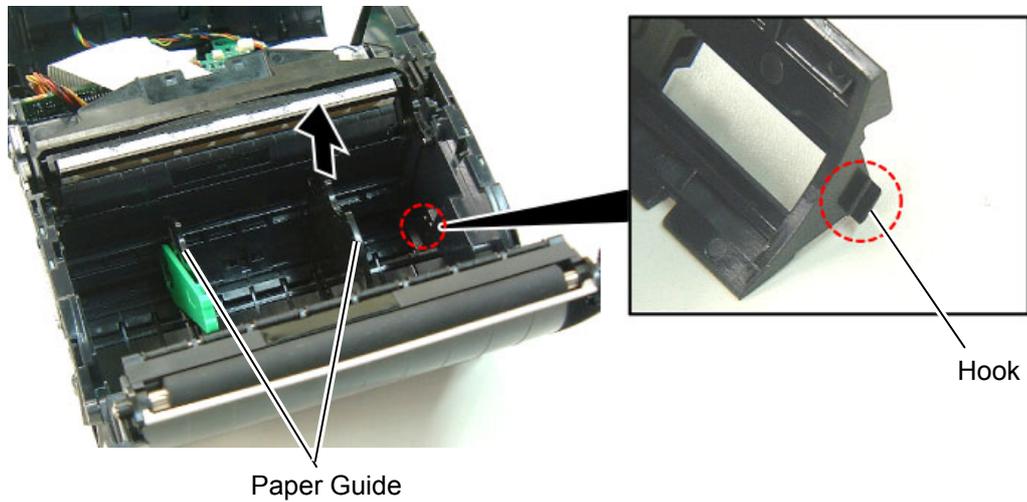
- 8) Replace the Print Head and Head FPC Cable with a new one, then reassemble in the reverse order of removal.

**NOTES:**

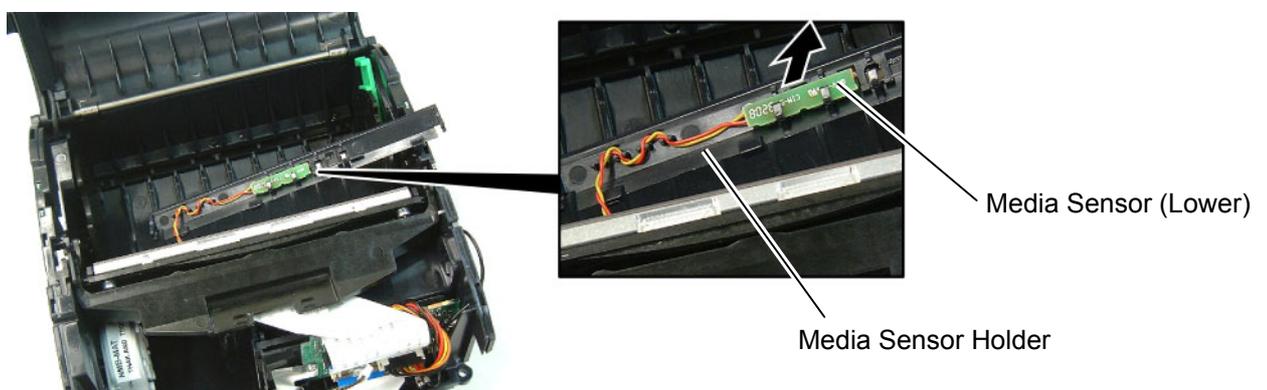
1. After replacing the Print Head, refer to the Setting Operation Manual or System Mode Manual and perform the following operations.
  - Perform a RAM clear.
2. After replacing the Print Head, perform the print head broken element check and make sure none of the elements are broken. (Refer to Section 4.2.2 in the System Mode Manual.) Also perform a test print and make sure the print quality is correct. (Refer to Section 4.6 in the System Mode Manual.) If the print tone is dark or light, perform the print tone fine adjustment. (Refer to Section 4.5.4 in the System Mode Manual.) If the media is smudged, this may result from the smudged print head. In the case, refer to the Owner's Manual and clean the print head.

## 2.9 Replacing the Cover Open Switch and Media Sensor (Lower)

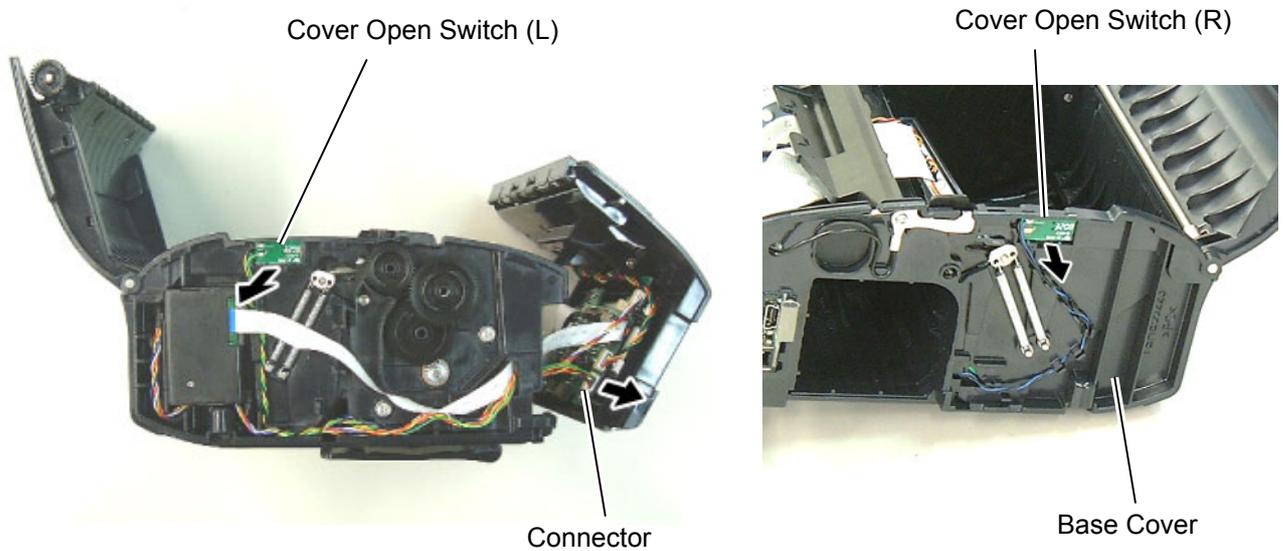
- 1) Remove the Right Cover, Left Cover and Front Cover. (Refer to **Section 2.1 Replacing the CPU PC Board.**)
- 2) Release the Hooks by pulling the Paper Guides, then remove the Paper Guide Ass'y.



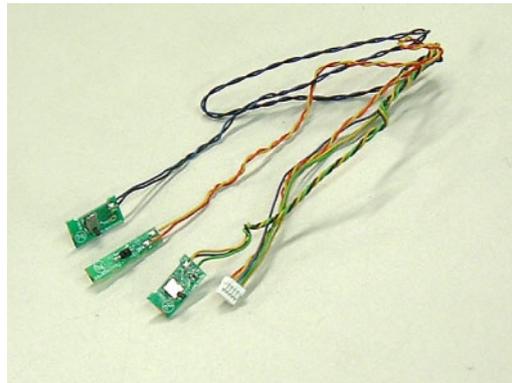
- 3) Remove the Media Sensor Holder and Print Head. (Refer to **Section 2.8 Replacing the Print Head.**)
- 4) Remove the Media Sensor (Lower) from the Media Sensor Holder.



- 5) Remove the Cover Open Switch (L) and Cover Open Switch (R) from the Base Cover.



- 6) Replace the Media Sensor (Lower) and Cover Open Switches (L) and (R) with a new one, then reassemble in the reverse order of removal.



**NOTES:**

1. After replacing the Media Sensor, refer to the Setting Operation Manual or System Mode Manual and perform the following operations.
  1. Perform a RAM clear.
  2. Perform the sensor adjustment.
2. After replacing the Media Sensor, perform an operation check for the cover open switch as follows.
 

When the top cover is fully opened, make sure "Cover Open" is displayed on the LCD.

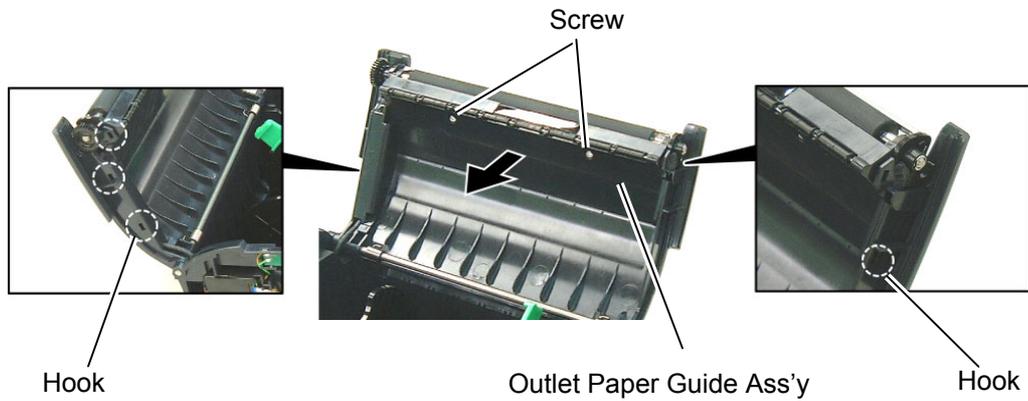
When either side of the top cover is opened, make sure "Cover Open" is displayed on the LCD.

When the top cover is fully closed, make sure the print operation is performed correctly.

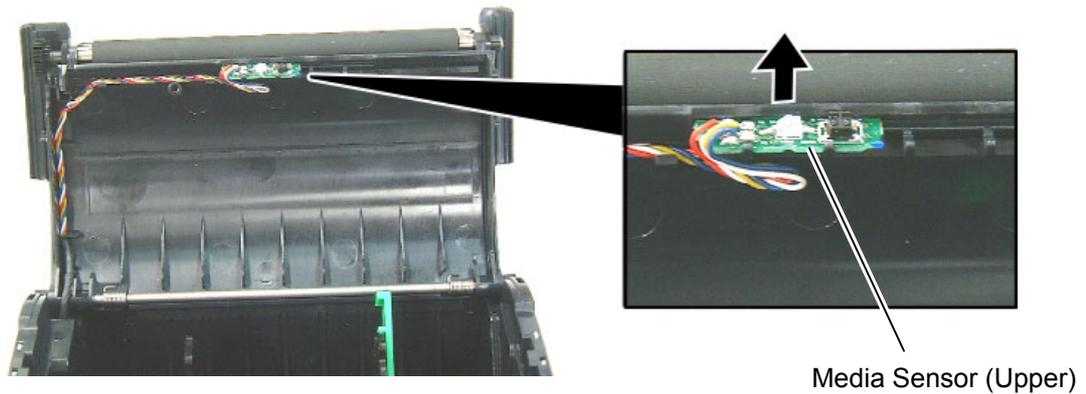
If the cover open switch does not operate correctly, this may result from the wrong connection of the sensor connector, poor contact of the cable, etc. Make sure the sensor connector is surely connected to CN402 on the CPU PC board and the cable is not broken.

## 2.10 Replacing the Media Sensor (Upper)

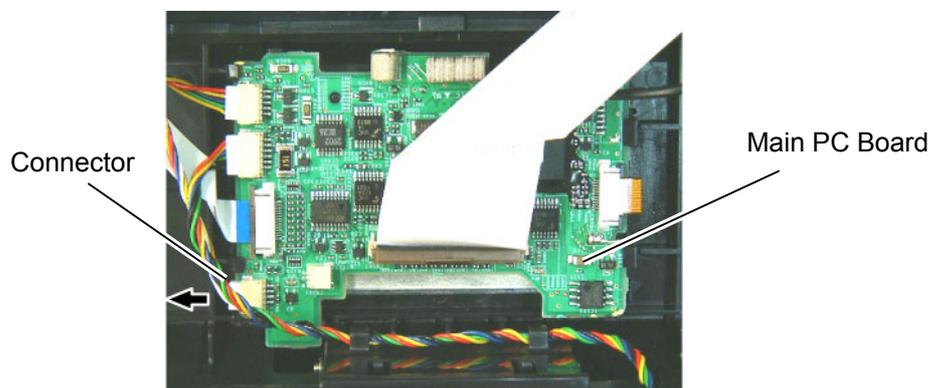
- 1) Remove the Right Cover, Left Cover and Front Cover. (Refer to **Section 2.1 Replacing the CPU PC Board.**)
- 2) Remove the two screws which secure the Outlet Paper Guide Ass'y.
- 3) Release the Hooks, then remove the Outlet Paper Guide Ass'y.



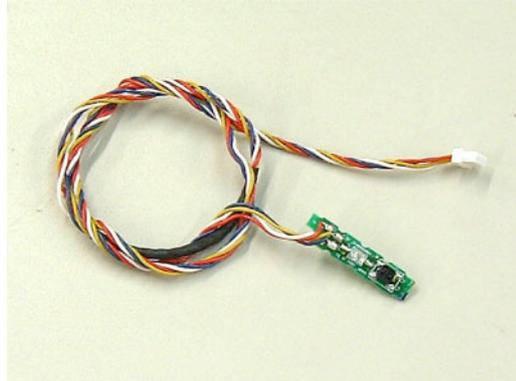
- 4) Remove the Media Sensor (Upper).



- 5) Disconnect the cables from the Main PC Board.



- 5) Replace the Media Sensor (Upper) with a new one, then reassemble in the reverse order of removal.



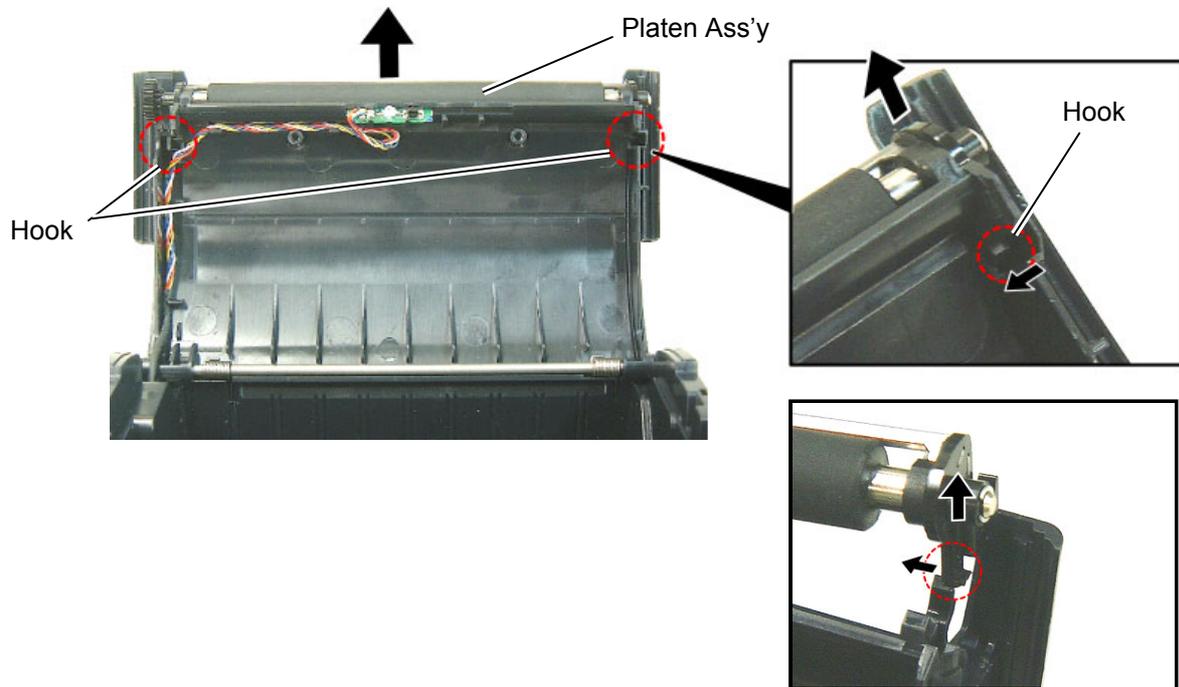
**NOTE:**

*After replacing the Media Sensor, refer to the Setting Operation Manual or System Mode Manual and perform the following operations.*

- 1. Perform a RAM clear.*
- 2. Perform the sensor adjustment.*

## 2.11 Replacing the Platen Ass'y

- 1) Remove the Upper Sensor Cover. (Refer to **Section 2.9 Replacing the Media Sensor (Upper).**)
- 2) Release the Hooks, then remove the Platen Ass'y.



- 3) Replace the Platen Ass'y with a new one, then reassemble in the reverse order of removal.



### NOTES:

1. After replacing the Platen, refer to the Setting Operation Manual or System Mode Manual and perform the following operations.
  - Perform a RAM clear.
2. Perform a test print and make sure printing is even. (Refer to Section 4.6 in the System Mode Manual.)  
If the printing is uneven, make sure the platen ass'y is surely fixed with the hooks.

### 3. TROUBLESHOOTING

Problems	Cause	Solution
The printer is not turned on.	<ol style="list-style-type: none"> <li>1. The battery is not loaded correctly.</li> <li>2. The battery terminal is disconnected from the soldering part.</li> <li>3. CPU PC board ass'y failure or Drive PC board ass'y failure</li> </ol>	<ol style="list-style-type: none"> <li>1. Re-load the battery correctly.</li> <li>2. Replace the battery terminal.</li> <li>3. Replace the CPU PC board ass'y or the Drive PC board ass'y.</li> </ol>
The printer does not print media. (The status indicator blinks in red.)	<ol style="list-style-type: none"> <li>1. The media roll is not loaded correctly.</li> <li>2. The media cover is not closed completely.</li> <li>3. The media is jammed in the printer.</li> <li>4. The print head FPC harness or the print head element is broken.</li> <li>5. The print head temperature reached the upper limit of the operating temperature.</li> <li>6. Flash ROM write error or erase error occurred.</li> <li>7. There is insufficient area in the flash ROM.</li> <li>8. The print mode is not selected correctly.</li> </ol>	<ol style="list-style-type: none"> <li>1. Re-load the media roll correctly.</li> <li>2. Close the media cover completely.</li> <li>3. Remove the jammed media and re-load the media roll correctly.</li> <li>4. Replace the print head FPC harness or the print head ass'y.</li> <li>5. Open the media cover and allow the print head to cool.</li> <li>6. Open the media cover and close it again. Replace the CPU PC board ass'y.</li> <li>7. Open the media cover and close it again. Erase the data.</li> <li>8. Open the media cover and close it again. Send the correct print mode from the PC or handy terminal.</li> </ol>
The printer does not print media. (The status indicator Blinks in green or orange.)	<ol style="list-style-type: none"> <li>1. A communication error occurred.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check that the interface cable is connected firmly. Check the communication parameters.</li> </ol>
The printer does not print media. (The status indicator lights in red.)	<ol style="list-style-type: none"> <li>1. The battery voltage is low.</li> </ol>	<ol style="list-style-type: none"> <li>1. Turn off the printer and replace the battery with a fully charged one.</li> </ol>
The printer does not print media. (The status indicator lights in orange.)	<ol style="list-style-type: none"> <li>1. The battery is nearly end.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace the battery with a fully charged one as soon as possible.</li> </ol>
The <b>[FEED]</b> button does not function.	<ol style="list-style-type: none"> <li>1. The <b>[FEED]</b> button is depressed incompletely.</li> </ol>	<ol style="list-style-type: none"> <li>1. Press the <b>[FEED]</b> button more strongly. Replace the CPU PC board ass'y or Drive PC Board.</li> </ol>

Problems	Cause	Solution
The printer does not print labels one by one in the strip mode or specified number of labels in the batch mode.	<ol style="list-style-type: none"> <li>1. The sensors are not adjusted properly.</li> <li>2. The sensors are not installed properly.</li> <li>3. The sensors are dirty.</li> <li>4. The sensors are disconnected from the CPU PC board ass'y.</li> </ol>	<ol style="list-style-type: none"> <li>1. Re-adjust the sensors.</li> <li>2. Re-install the sensors.</li> <li>3. Clean the sensors.</li> <li>4. Connect the sensors to the CPU PC board ass'y.</li> </ol>
A cover open error occurs after closing the media cover.	<ol style="list-style-type: none"> <li>1. Either side of the media cover is unlocked.</li> <li>2. The media cover switch failure</li> </ol>	<ol style="list-style-type: none"> <li>1. Close the media cover until both sides of the cover click in position.</li> <li>2. Replace the media cover switch.</li> </ol>
The printer does not print by radio communication.	<ol style="list-style-type: none"> <li>1. Interface PC board ass'y failure</li> <li>2. CPU PC board ass'y failure</li> <li>3. Interface PC board ass'y is disconnected from the CPU PC board ass'y.</li> <li>4. The FPC cable for the interface PC board is broken.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace the interface PC board ass'y.</li> <li>2. Replace the CPU PC board ass'y.</li> <li>3. Connect the interface PC board ass'y with the CPU PC board ass'y completely.</li> <li>4. Replace the FPC cable for the interface PC board.</li> </ol>
Poor print quality	<ol style="list-style-type: none"> <li>1. The print head is dirty.</li> <li>2. Unspecified media is used.</li> </ol>	<ol style="list-style-type: none"> <li>1. Clean the print head.</li> <li>2. Change the media to the specified one.</li> </ol>
The print start position is not detected.	<ol style="list-style-type: none"> <li>1. The sensor is not adjusted properly.</li> <li>2. The sensor is not installed properly.</li> <li>3. The sensor or the sensor filter is dirty.</li> <li>4. The sensor is disconnected from the CPU PC board ass'y.</li> </ol>	<ol style="list-style-type: none"> <li>1. Re-adjust the sensor.</li> <li>2. Re-install the sensor.</li> <li>3. Clean the sensor and sensor filter.</li> <li>4. Connect the sensor to the CPU PC board ass'y completely.</li> </ol>
The power switch does not perform.	<ol style="list-style-type: none"> <li>1. Power switch failure or CPU PC board ass'y failure</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace the power switch or the CPU PC board ass'y.</li> </ol>
Print tone is uneven.	<ol style="list-style-type: none"> <li>1. The print head is dirty.</li> <li>2. The print head failure</li> <li>3. The platen failure</li> </ol>	<ol style="list-style-type: none"> <li>1. Clean the print head.</li> <li>2. Replace the print head ass'y.</li> <li>3. Replace the platen.</li> </ol>
A print error occurs in the feed direction.	<ol style="list-style-type: none"> <li>1. Failure in the motor idler gear, platen idler gear, idler gear, or platen gear</li> <li>2. Print head failure</li> <li>3. Platen failure</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace the motor idler gear, platen idler gear, idler gear, or platen gear.</li> <li>2. Replace the print head ass'y.</li> <li>3. Replace the platen.</li> </ol>