TSC PRINTRONIX AUTO ID

Alpha-3R

Dicrect Thermal

Mobile Barcode Printers

Series Lists:

Alpha-3R

Service Manual

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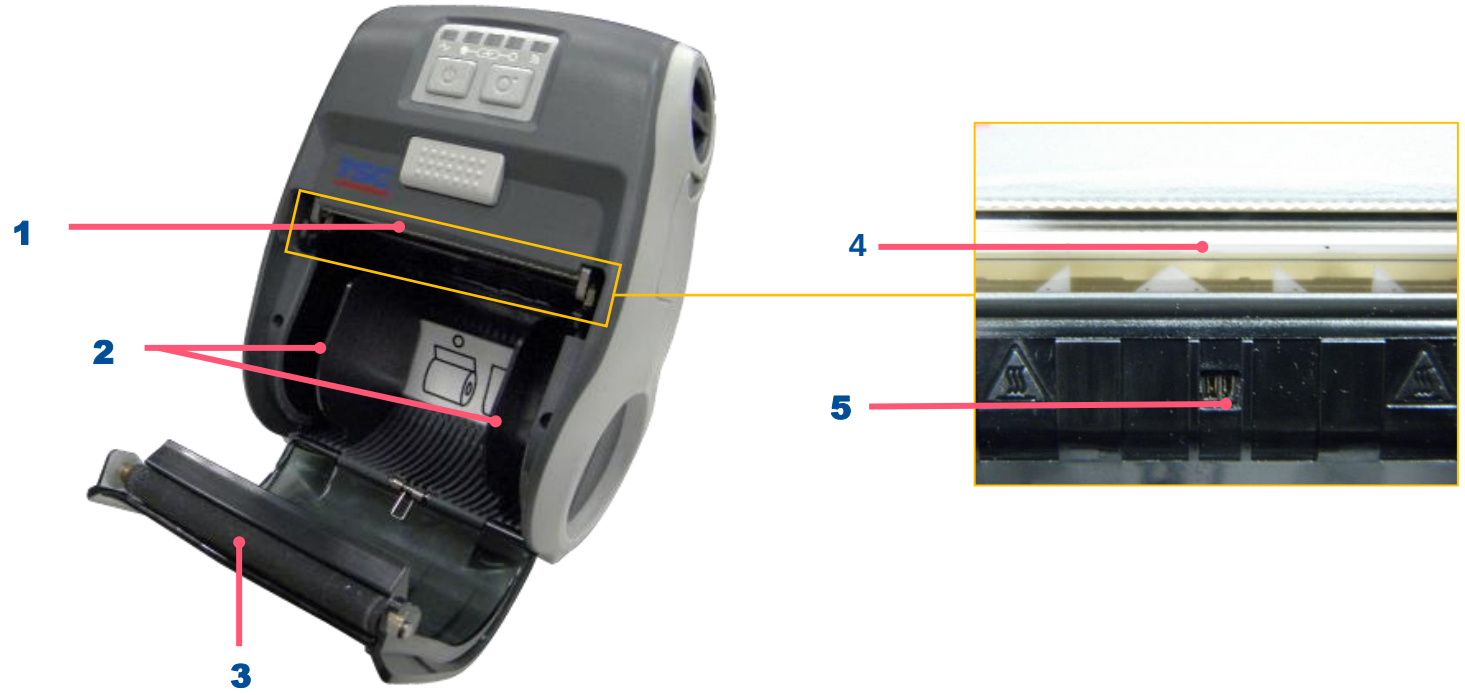
1. Fundamental of the System

1.1 Printer Overview

Front View

1. LED indicator
2. Power on/off button
3. Media holder adjustment knob
4. Feed button
5. Media cover release button
6. Media cover

Interior View



1. Tear edge
2. Media holder
3. Platen roller
4. Print head
5. Black mark sensor

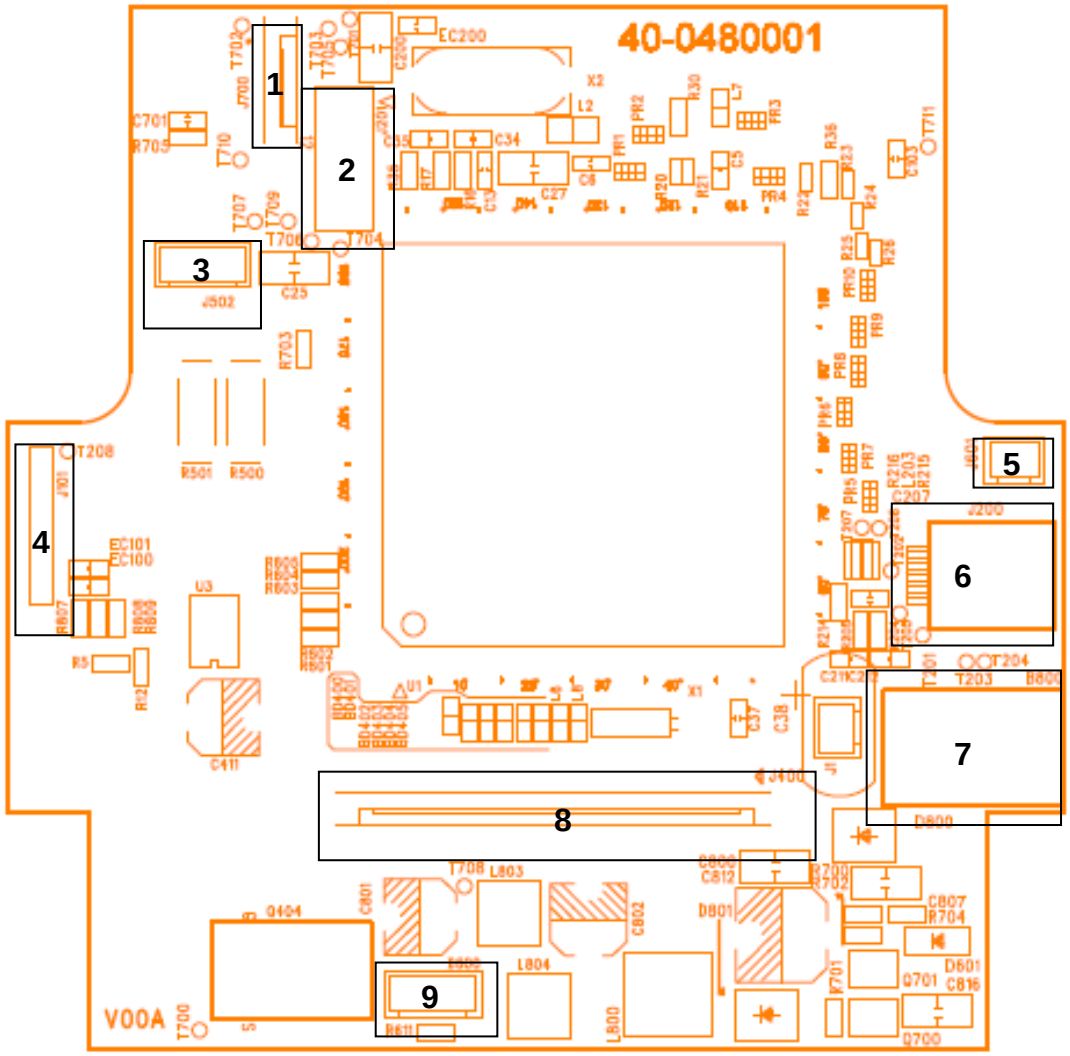
Rear View

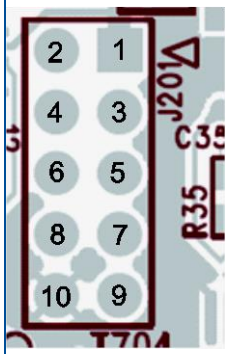
1. Li-ion Battery
2. Battery open clasp
3. USB interface
4. Power jack
5. Interface cover

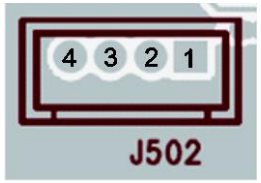
2. Electronics

2.1 Summary of the Board Connectors

Main board top



<table>
<tr><th>Connector</th><th>Description</th></tr>
<tr><td>1</td><td>LED & KEY board</td></tr>
<tr><td>2</td><td>WiFi or Bluetooth module connector</td></tr>
<tr><td></td><td>


<table>
<tr><th>Pin</th><th>Description</th></tr>
<tr><td>1</td><td>3.3V</td></tr>
<tr><td>2</td><td>BT/WiFi Reset</td></tr>
<tr><td>3</td><td>BT RXD</td></tr>
<tr><td>4</td><td>BT RTS</td></tr>
<tr><td>5</td><td>BT TXD</td></tr>
<tr><td>6</td><td>BT CTS</td></tr>
<tr><td>7</td><td>WiFi wake up</td></tr>
<tr><td>8</td><td>WiFi TCP</td></tr>
<tr><td>9</td><td>BT/WiFi Switch</td></tr>
<tr><td>10</td><td>GND</td></tr>
</table>
</td></tr>
<tr><td rowspan="2">3</td><td>Stepping motor</td></tr>
<tr><td>


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<tr><td>2</td><td>OUT2</td></tr>
<tr><td>3</td><td>OUT1</td></tr>
<tr><td>4</td><td>OUT2</td></tr>
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<tr><td>4</td><td>Download F/W connector</td></tr>
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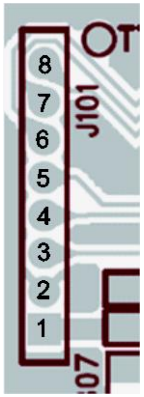
<tr><td></td><td></td><td> 
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<tr><td>Pin</td><td>Description</td></tr>
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<tr><td>2</td><td>GND</td></tr>
<tr><td>3</td><td>RESET</td></tr>
<tr><td>4</td><td>BMS</td></tr>
<tr><td>5</td><td>NPCS0</td></tr>
<tr><td>6</td><td>MOSI</td></tr>
<tr><td>7</td><td>MISO</td></tr>
<tr><td>8</td><td>SPCK</td></tr>
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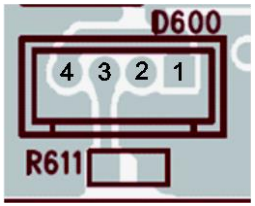
<tr><td>5</td><td colspan="3">Head open sensor</td></tr>
<tr><td></td><td></td><td>
</td><td><table>
<tr><td>Pin</td><td>Description</td></tr>
<tr><td>1</td><td>HEAD</td></tr>
<tr><td>2</td><td>GND</td></tr>
</table></td></tr>
<tr><td>6</td><td colspan="3">USB & RS 232 connector</td></tr>
<tr><td>7</td><td colspan="3">12V DC IN</td></tr>
<tr><td>8</td><td colspan="3">TPH connector</td></tr>
<tr><td>9</td><td colspan="3">Paper sensor</td></tr>
<tr><td></td><td></td><td> 
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<tr><td>Pin</td><td>Description</td></tr>
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<tr><td>2</td><td>BM_E</td></tr>
<tr><td>3</td><td>BM_R</td></tr>
<tr><td>4</td><td>3.3V</td></tr>
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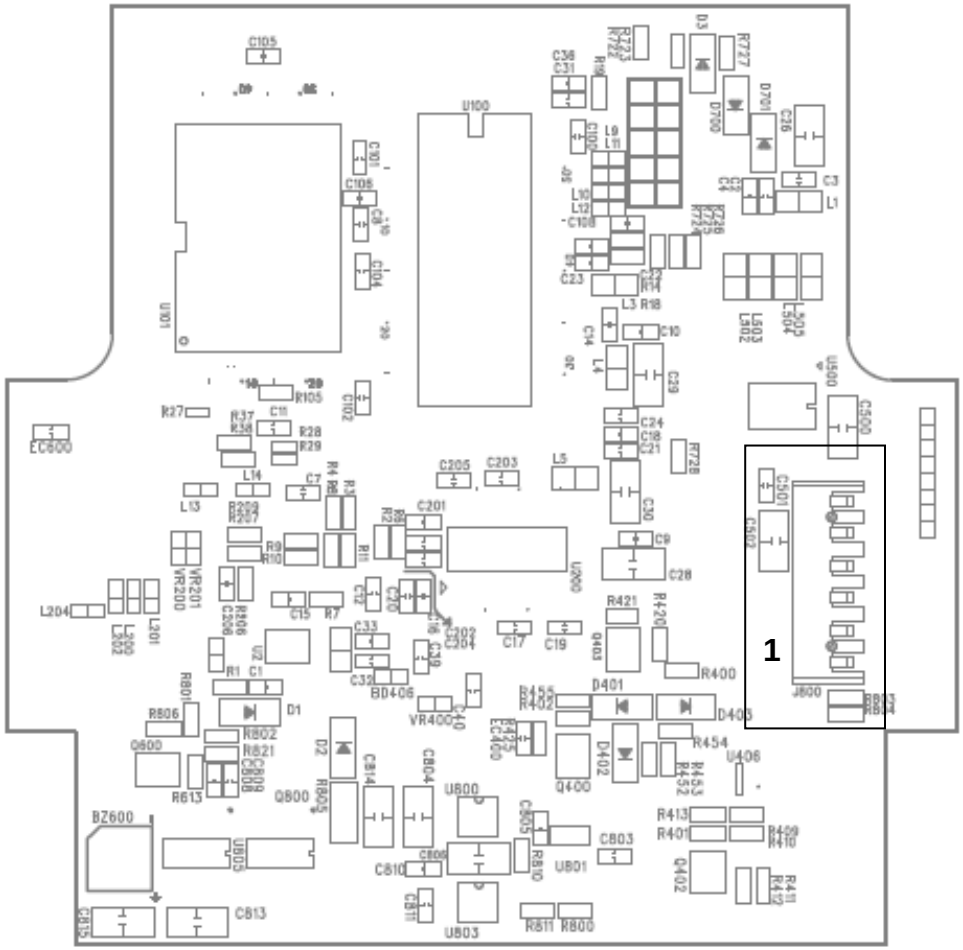
Main board bottom



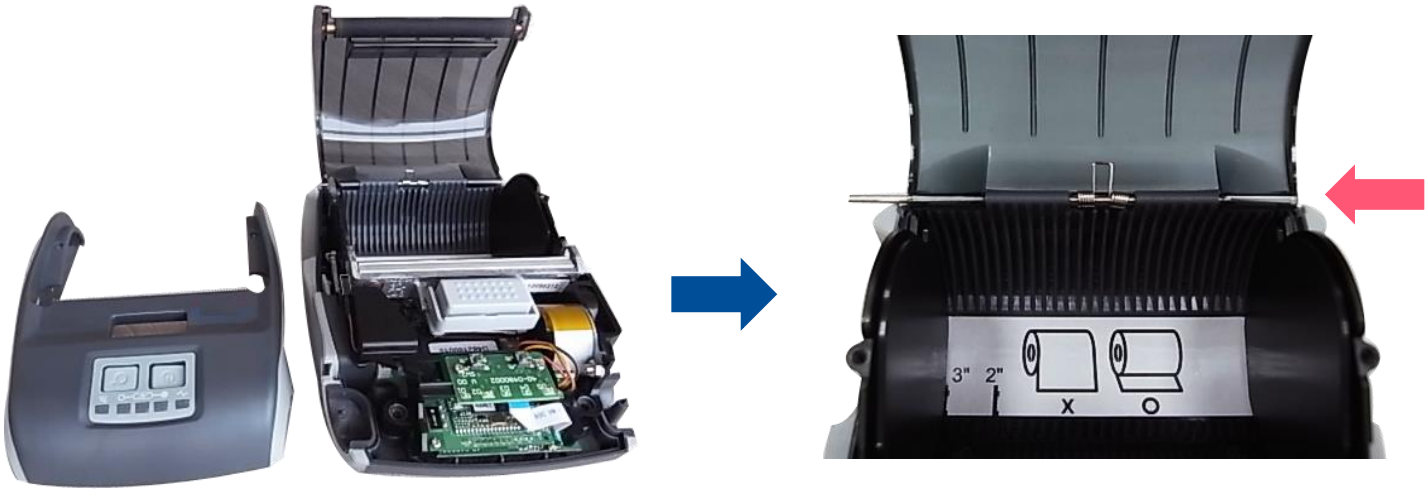
Connector	Description
1	Battery connector

3. Mechanism

3.1 Replacing the Planten Roller

1. Remove 2 screws from the back of the printer and two screws from the front of the printer.

2. Take the printer top cover off. Use a tool to remove the shaft. Remove/Replace the media cover. (including the platen roller ass'y)

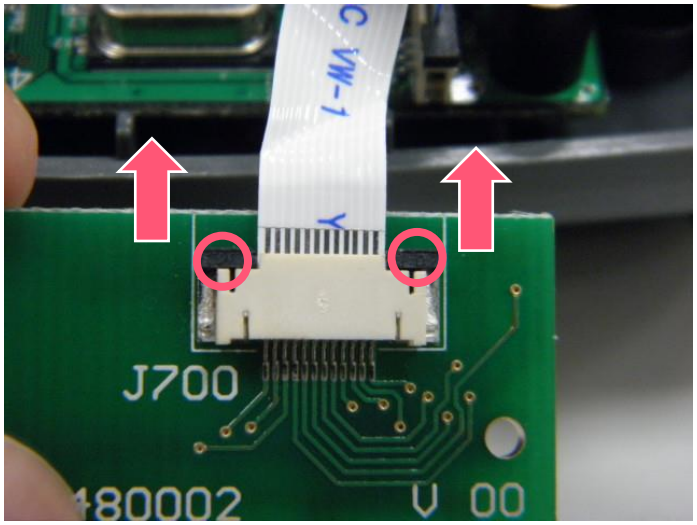


3. Reassemble the parts in the reverse procedures.

3.2 Replacing the Keys Control Board

1. Refer to section 3.1 to remove the printer top cover.
2. Remove two screws on the keys control board.

3. Loosen the connector lock then disconnect the flat cable from the keys control board. Remove/Replace the keys control board.



4. Reassemble the parts in the reverse procedures.

3.3 Replacing the Bluetooth Module (Option)

1. Refer to section 3.2 to remove the keys control board.
2. Remove two screws on the Bluetooth control board.

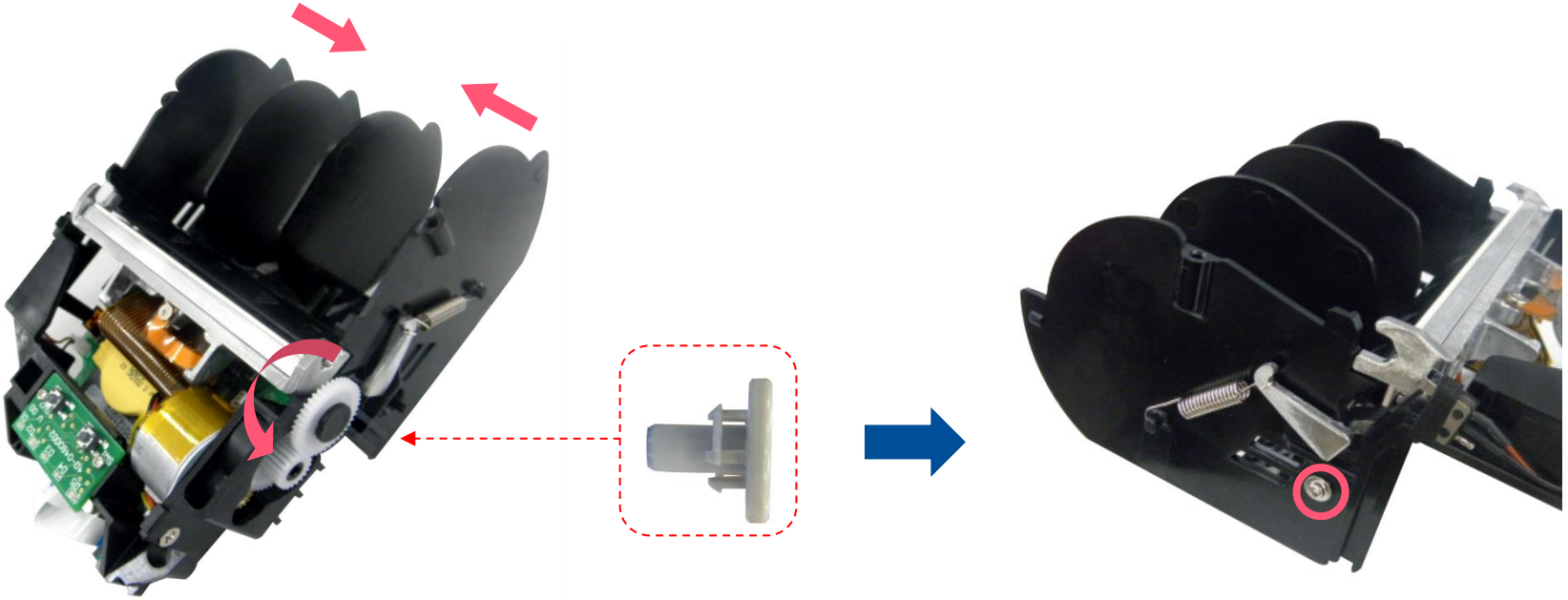
3. Disconnect the connector on the board.

4. Reassemble the parts in the reverse procedures.

3.4 Replacing the Keys Control Board

1. Remove two screws and media holder adjustment knob.

2. Take the interior mechanism from the printer bottom cover.
3. Plug the media holder adjustment knob to rotate the media holder to the closest position and remove a screw on the other side.



4. Take the media holder assembly from the mechanism.

5. Reassemble the parts in the reverse procedures.

3.5 Replacing the Main Board Assembly

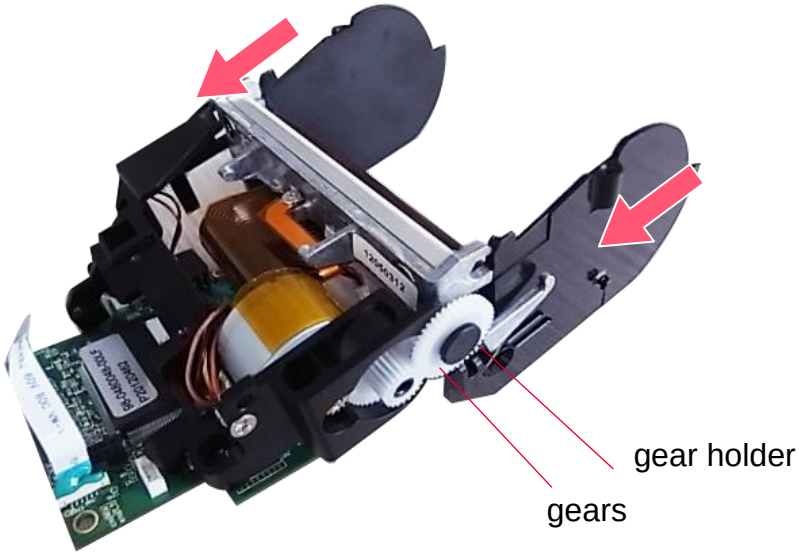
1. Refer to section 3.2 to section 3.4 to remove key control board, Bluetooth control board (option), and the media holder assembly.
2. Remove two screws from the back of interior mechanism and disconnect all the connectors on the main board assembly.

3. Reassemble the parts in the reverse procedures.

3.6 Replacing the Print Mechanism

1. Refer to section 3.2 to section 3.5 to remove key control board, Bluetooth control board (option), the media holder assembly, and main board assembly.
2. Use the long-nose pliers to remove two spring torsions on each side.

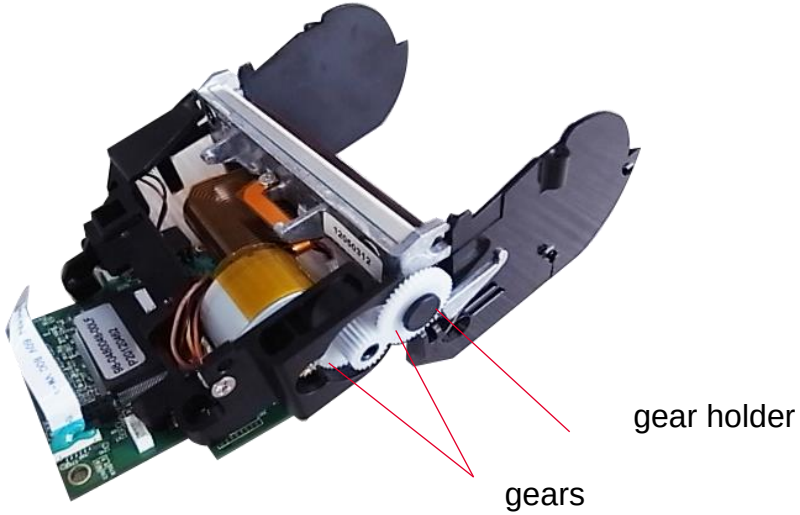
3. Take the gear holder and the gear, and push the print head holder on each side to remove the print head assembly.



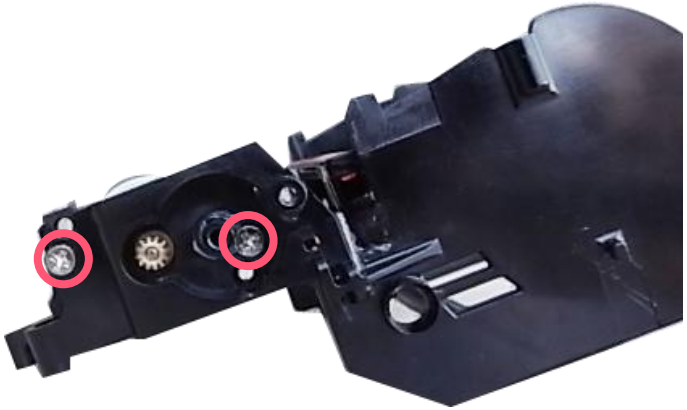
4. Reassemble the parts in the reverse procedures.

3.7 Replacing the Stepping Motor

1. Refer to section 3.4 and section 3.5 to remove media holder assembly and main board assembly.
2. Remove the gear holder and two gears.



3. Remove two screws.



4. Reassemble the parts in the reverse procedures.

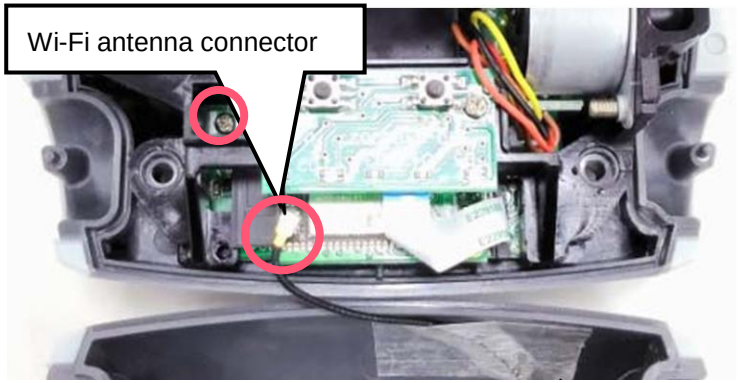
3.8 Replacing the Stepping Motor

1. Refer to section 3.2 to section 3.5 to remove key control board, Bluetooth control board (option), the media holder assembly, and main board assembly.
2. Remove the screw and replace the black mark sensor.

3. Reassemble the parts in the reverse procedures.

3.9 Replacing the Wi-Fi Mudule

1. Refer to section 3.1 take the printer top cover off. Disconnect the Wi-Fi antenna connector carefully.



2. Refer to section 3.2 to remove the keys control board.
3. Remove one screw on the Wi-Fi control board. Please refer to above picture.
4. Replace the WiFi control board.
5. Reassemble the parts in the reverse procedures.

Note:

- This is the new Wi-Fi module's replacing instruction. It should work with the main board that is -30LF version. (or later version)
- If you replace the main board, please check the Wi-Fi signal band on configuration page for your using region. If any questions, please contact the Customer Service Department of your purchased reseller or distributor for assistance.

US	EUR
**********	**********
WIFI VERSION: 1.3.1c	WIFI VERSION: 1.3.1c
WIFI MAC ADDRESS: 00-23-A7-65-19-30	WIFI MAC ADDRESS: 00-23-A7-65-19-30
WIFI Region: US	WIFI Region: EUR
WIFI MODE: INFRASTRUCTURE	WIFI MODE: INFRASTRUCTURE
WIFI SSID: RD_AP24	WIFI SSID: RD_AP24
WIFI DHCP ENABLED: YES	WIFI DHCP ENABLED: YES
WIFI IP ADDRESS: 0.0.0.0	WIFI IP ADDRESS: 0.0.0.0
WIFI SUBNET MASK: 0.0.0.0	WIFI SUBNET MASK: 0.0.0.0
WIFI DEFAULT GATEWAY: 0.0.0.0	WIFI DEFAULT GATEWAY: 0.0.0.0
WIFI PRINTER NAME: PS-651930	WIFI PRINTER NAME: PS-651930
WIFI RAW PORT: 9100	WIFI RAW PORT: 9100
**********	**********

3.10 Replacing the Open Sensor

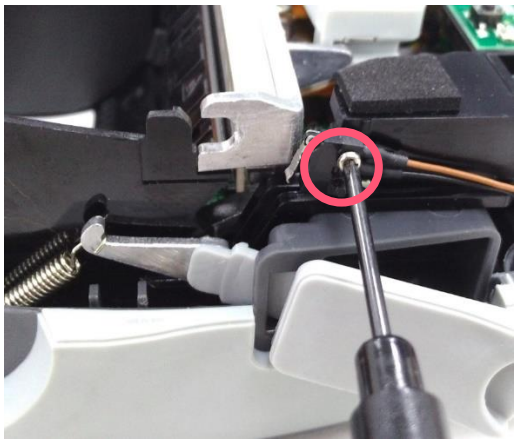
1. Please refer to section 3.1 take the printer top cover off and replace a new one with platen roller.

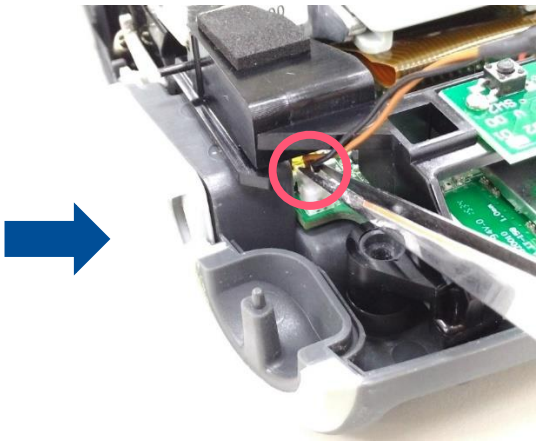
Old media cover

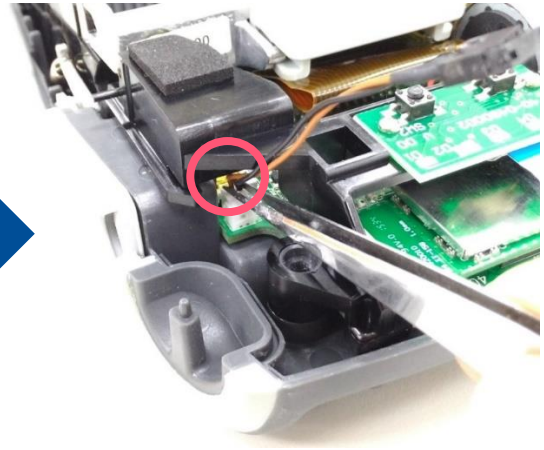
New media cover

(If the media cover is already the new one, it doesn't need to replace the open sensor)

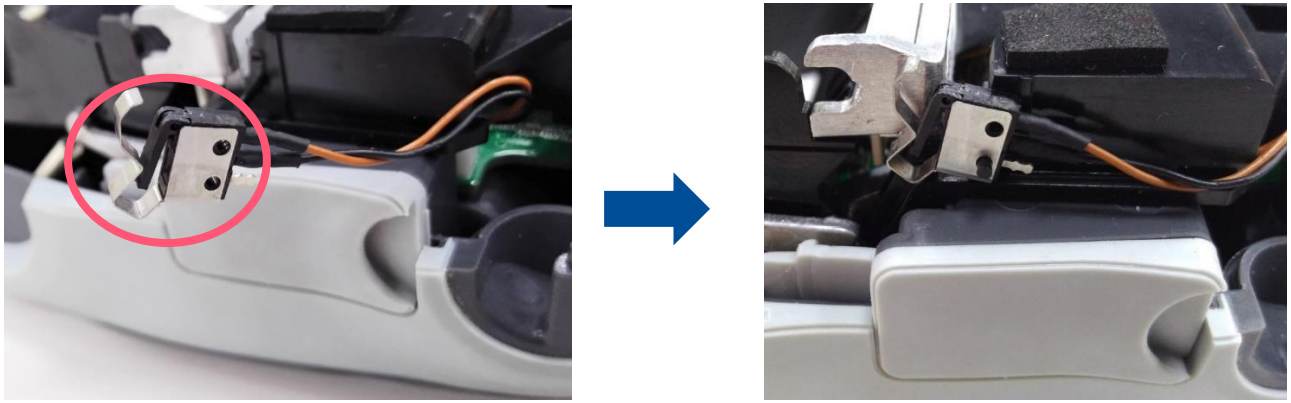
2. Remove the screw on the open sensor.
3. Unplug the old open sensor connector.
4. Then, insert the new open sensor connector.





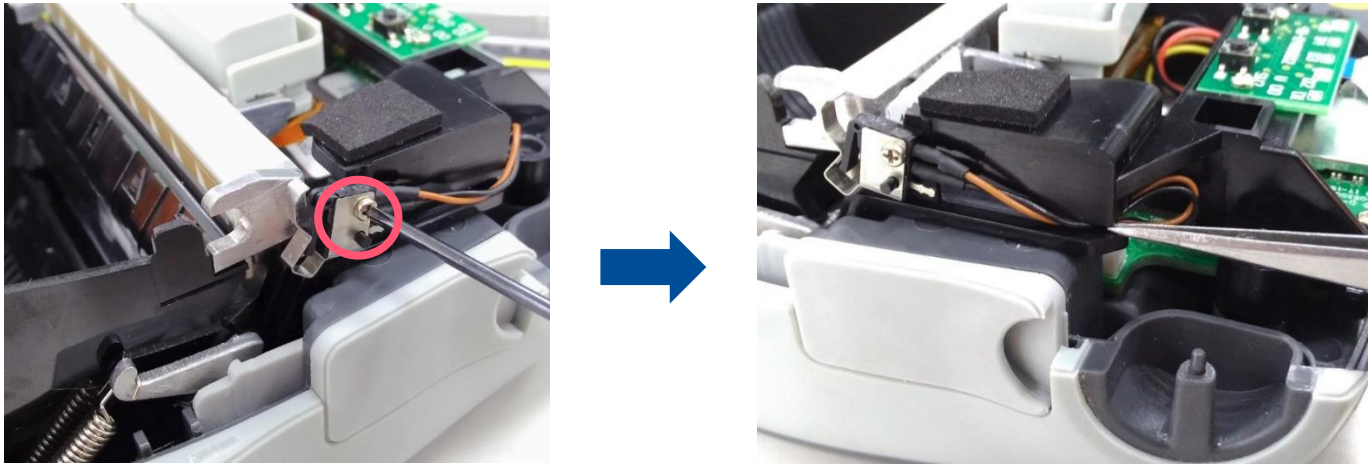


5. Install the elastic panel on the open sensor.
6. Place the open sensor on the side of media cover switch.



Note: the direction of elastic panel must be the same as illustrated

7. Lock the screw on the side of media cover switch.
8. Fix the wire on the slot.



9. Reassemble the parts in the reverse procedures.

4. TroubleShooting

Problem	Possible Cause	Recovery Procedure
Power indicator does not illuminate	* The battery is not properly installed. * The battery is dead.	* Reinstall the battery. * Switch the printer on. * Charge the battery.
- The printer status from TSC Console shows “**Head Open**”.	* The printer carriage is open.	* Please close the print carriage.
- The printer status from TSC Console shows “**Out of Paper**”.	* Running out of media roll. * The media is installed incorrectly. * Black mark sensor is not calibrated.	* Supply a new media roll. * Please reinstall the media roll. * Calibrate the black mark sensor.
- The printer status from DiagTool shows “**Paper Jam**”.	* Black mark sensor is not set properly. * Make sure media size is set properly. * Media may be stuck inside the printer mechanism.	* Calibrate the black mark sensor. * Set media size correctly.
Memory full (FLASH / DRAM)	* The space of FLASH/DRAM is full.	* Delete unused files in the FLASH/DRAM. * The max. numbers of DRAM is 256 files. * The max. user addressable memory space of DRAM is 256KB. * The max. numbers of file of FLASH is 256 files. * The max. user addressable memory space of FLASH is 2560KB.
Poor Print Quality	* Media is loaded incorrectly * Dust or adhesive accumulation on the print head. * Print density is not set properly. * Printhead element is damaged.	* Reload the supply. * Clean the print head. * Clean the platen roller. * Adjust the print density and print speed. * Run printer self-test and check the print head test pattern if there is dot missing in the pattern. * Change proper media roll.

Missing printing on the left or right side of label	* Wrong label size setup.	* Set the correct label size.
Gray line on the blank label	* The print head is dirty. * The platen roller is dirty.	* Clean the print head. * Clean the platen roller.
Irregular printing	* The printer is in Hex Dump mode. * The RS-232 setting is incorrect.	* Turn off and on the printer to skip the dump mode. * Re-set the Rs-232 setting.

5. Maintenance

This session presents the clean tools and methods to maintain the printer.

- **For Cleaning**

  Depending on the media used, the printer may accumulate residues (media dust, adhesives, etc.) as a by-product of normal printing. To maintain the best printing quality, you should remove these residues by cleaning the printer periodically. Regularly clean the print head and supply sensors once change a new media to keep the printer at the optimized performance and extend printer life.

- **For Disinfecting**

  Sanitize your printer to protect yourself and others and can help prevent the spread of viruses.

- **Important**

  - Set the printer power switch to O (Off) prior to performing any cleaning or disinfecting tasks. Leave the power cord connected to keep the printer grounded and to reduce the risk of electrostatic damage.
  - Do not wear rings or other metallic objects while cleaning any interior area of the printer.
  - Use only the cleaning agents recommended in this document. Use of other agents may damage the printer and void its warranty.
  - Do not spray or drip liquid cleaning solutions directly into the printer. Apply the solution on a clean lint-free cloth and then apply the dampened cloth to the printer.
  - Do not use canned air in the interior of the printer as it can blow dust and debris onto sensors and other critical components.
  - Only use a vacuum cleaner with a nozzle and hose that are conductive and grounded to drain off static build up.
  - All reference in these procedures for use of isopropyl alcohol requires that a 99% or greater isopropyl alcohol content be used to reduce the risk of moisture corrosion to the printhead.
  - Do not touch printhead by hand. If you touch it careless, please use 99% Isopropyl alcohol to clean it.
  - Always taking personal precaution when using any cleaning agent.

Cleaning Tools

- Cotton swab
- Lint-free cloth
- Brush with soft non-metallic bristles
- Vacuum cleaner
- 75% Ethanol (for disinfecting)
- 99% Isopropyl alcohol (for printhead and platen roller cleaning)
- Genuine printhead cleaning pen
- Mild detergent (without chlorine)

Cleaning Process:

Printer Part	Method	Interval
Print Head	I. Always turn off the printer before cleaning the printhead. II. Allow the printhead to cool for at least one minute. III. Use a cotton swab and 99% Isopropyl Alcohol or genuine print head cleaning pen to clean the print head surface.	Clean the print head when changing a new label roll.
Platen Roller	I. Turn off the printer. II. Rotate the platen roller and wipe it thoroughly with the lint-free 99% Isopropyl Alcohol.	Clean the platen roller when changing a new label roll
Peel Bar	Use the lint-free cloth with 99% Isopropyl Alcohol to wipe it.	As needed
Sensor	Use brush with soft non-metallic bristles or a vacuum cleaner, to remove paper dust. Clean upper and lower media sensors to ensure reliable Top of Form and Paper Out sensing.	Monthly
Exterior	Clean the exterior surfaces with a clean, lint-free cloth (water-dampened cloth). If necessary, use a mild detergent or desktop cleaning solution then use the 75% Ethanol to wipe it.	As needed
Interior	Clean the interior of the printer by removing any dirt and lint with a vacuum cleaner, as described above, or use a brush with soft non-metallic bristles then use the 75% Ethanol to wipe it.	As needed

Revise History

Date	Content	Editor

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