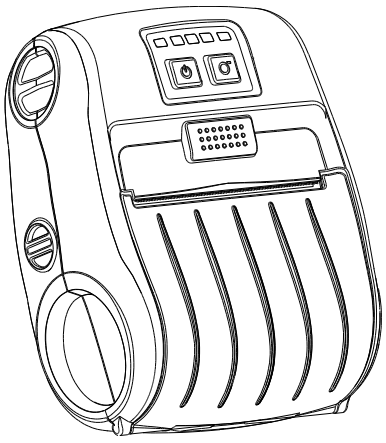
Alpha-3R

Direct Thermal Portable Printer

SERVICE MANUAL



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1. FUNDAMENTAL OF THE SYSTEM

1.1 Overview

Front View

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

Interior View

1. Print head
2. Black mark sensor
3. Media holder
4. Platen

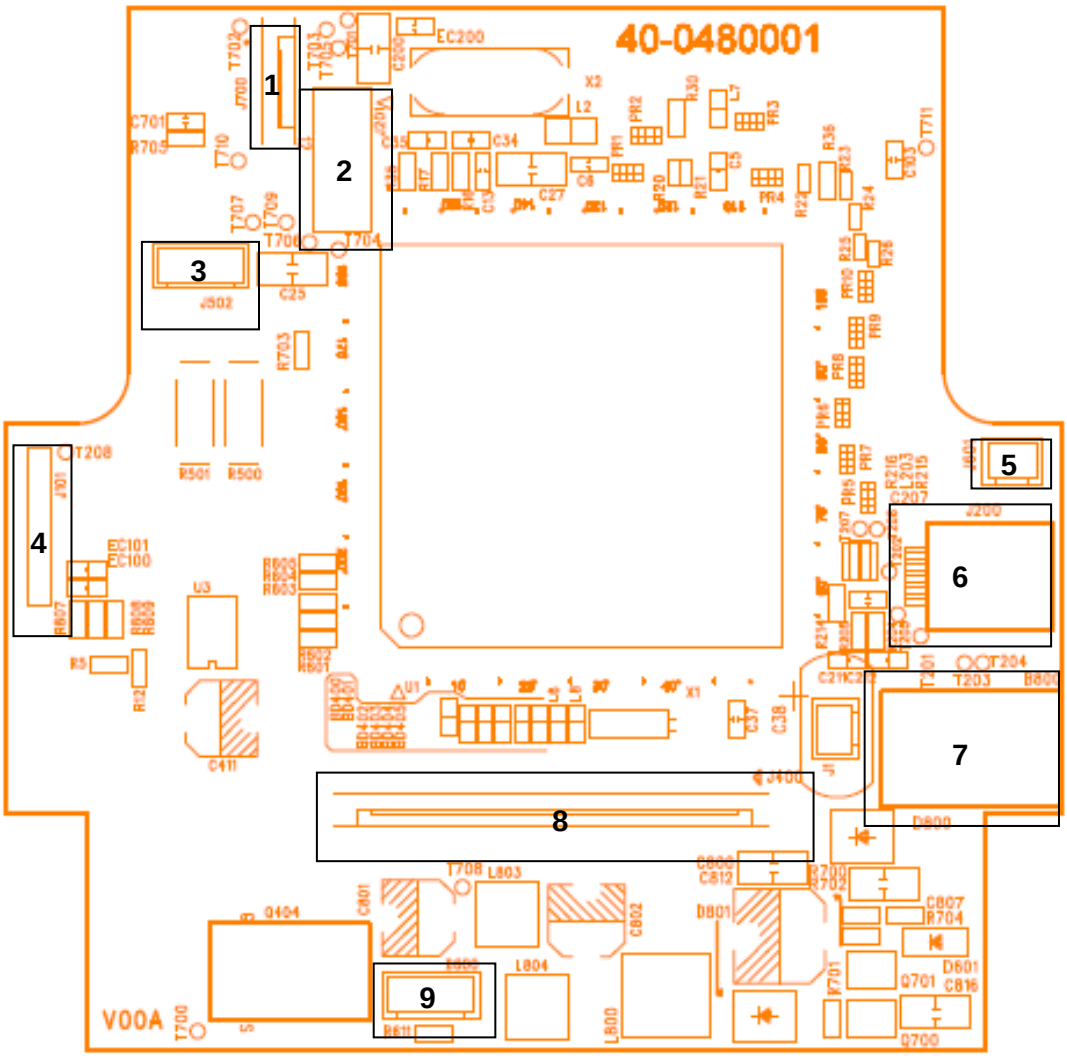
Rear View

1. Li-ion battery
2. Battery open clasp
3. USB interface
4. Power jack

2. ELECTRONICS

2.1 Summary of Board Connectors

Main board top



Connector	Description
1	LED & KEY board
2	WiFi or Bluetooth module connector

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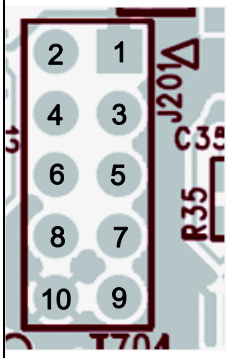
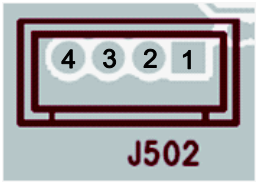
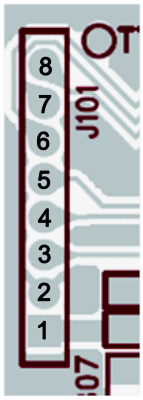
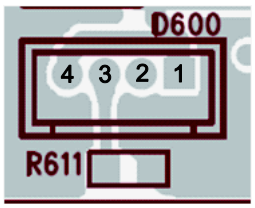


<table>
<tr><th></th><th>Pin</th><th>Description</th></tr>
<tr><td></td><td>1</td><td>3.3V</td></tr>
<tr><td></td><td>2</td><td>BT/WiFi Reset</td></tr>
<tr><td></td><td>3</td><td>BT RXD</td></tr>
<tr><td></td><td>4</td><td>BT RTS</td></tr>
<tr><td></td><td>5</td><td>BT TXD</td></tr>
<tr><td></td><td>6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


<table>
<tr><th></th><th>Pin</th><th>Description</th></tr>
<tr><td></td><td>1</td><td>OUT1</td></tr>
<tr><td></td><td>2</td><td>OUT2</td></tr>
<tr><td></td><td>3</td><td>OUT1</td></tr>
<tr><td></td><td>4</td><td>OUT2</td></tr>
</table>
</td></tr>
<tr><td>4</td><td>Download F/W connector


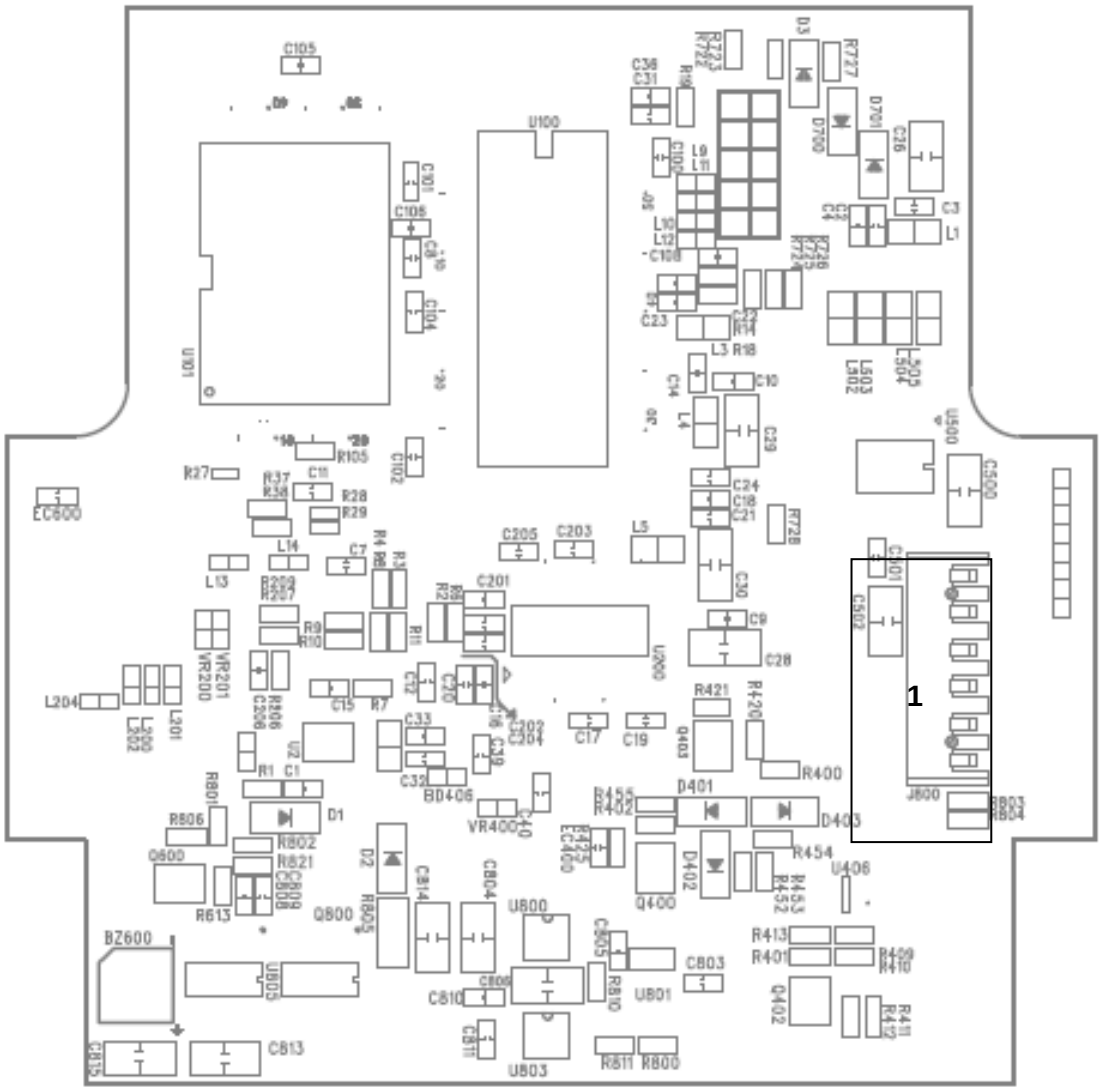
<table>
<tr><th></th><th>Pin</th><th>Description</th></tr>
<tr><td></td><td>1</td><td>3.3V</td></tr>
<tr><td></td><td>2</td><td>GND</td></tr>
<tr><td></td><td>3</td><td>RESET</td></tr>
<tr><td></td><td>4</td><td>BMS</td></tr>
<tr><td></td><td>5</td><td>NPCS0</td></tr>
<tr><td></td><td>6</td><td>MOSI</td></tr>
<tr><td></td><td>7</td><td>MISO</td></tr>
<tr><td></td><td>8</td><td>SPCK</td></tr>
</table>
</td></tr>
<tr><td>5</td><td>Head open sensor

<table>
<tr><th></th><th>Pin</th><th>Description</th></tr>
<tr><td></td><td>1</td><td>HEAD</td></tr>
<tr><td></td><td>2</td><td>GND</td></tr>
</table>
</td></tr>
<tr><td>6</td><td>USB & RS 232 connector</td></tr>
<tr><td>7</td><td>12V DC IN</td></tr>
</table>

<table>
<tr><td>8</td><td>TPH connector</td></tr>
<tr><td>9</td><td>Paper sensor
 

<table>
<tr><th>Pin</th><th>Description</th></tr>
<tr><td>1</td><td>3.3V</td></tr>
<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>
</table></td></tr>
</table>

Main board bottom



Connector	Description
1	Battery connector

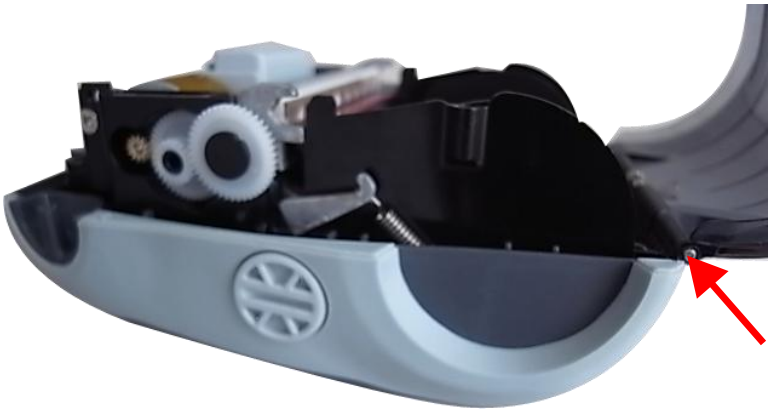
3. MECHANISM

3.1 Replacing the Media Cover

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

2. Take the printer top cover off.

3. Use a needle to remove the iron bar.



4. Reassemble the parts in the reverse procedures.

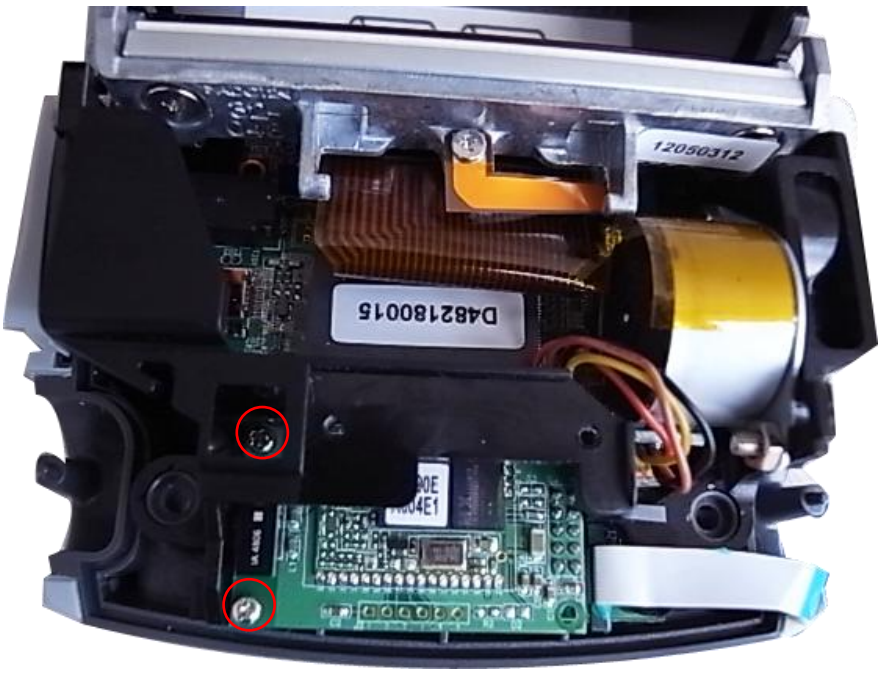
3.2 Replacing the Keys Pad

1. Refer to section 3.1 steps 1 and 2 to remove the printer top cover.
2. Remove two screws on the keys control board.
3. Disconnect the connector on the keys control board.

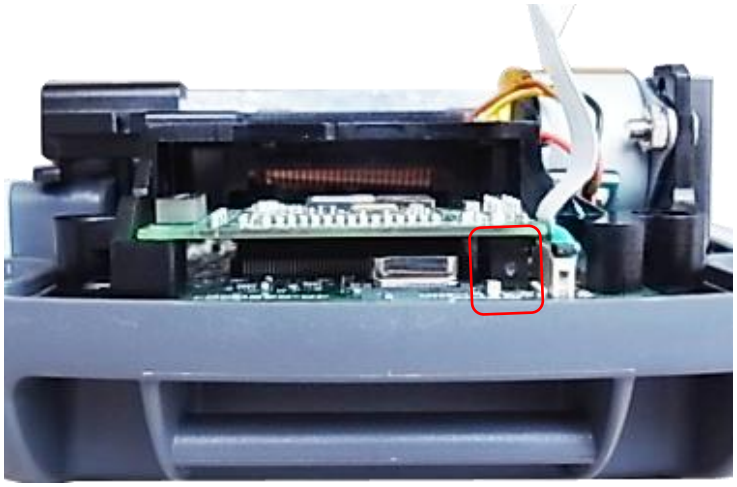
4. Reassemble the parts in the reverse procedures.

3.3 Replacing the Bluetooth Module (Option)

1. Refer to section 3.2 steps 1, 2, and 3 to remove the keys control board.
2. Remove two screws on the Bluetooth control board.



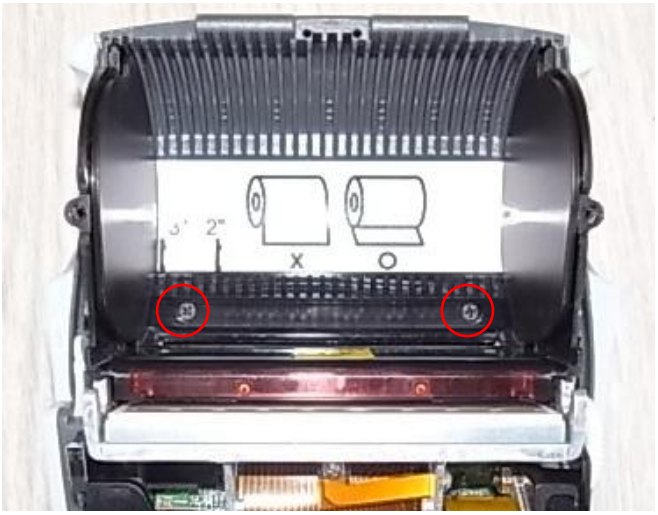
3. Disconnect the connector on the board.



4. Reassemble the parts in the reverse procedures.

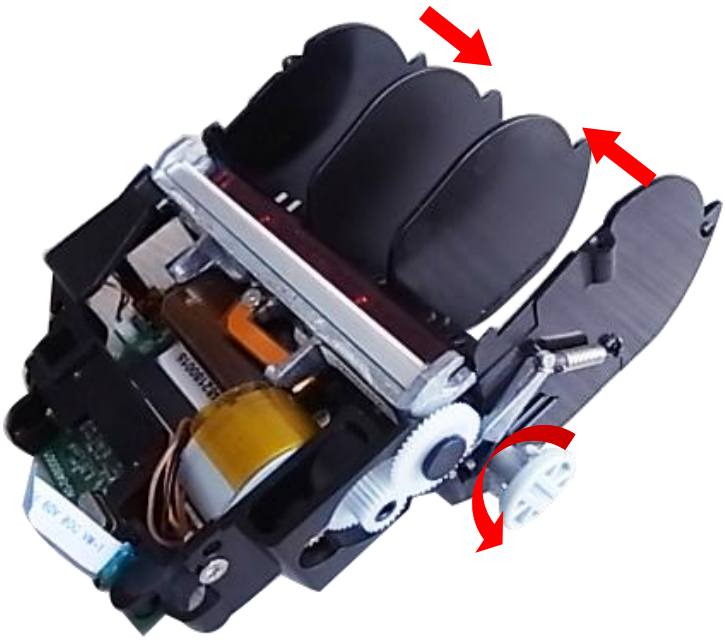
3.4 Replacing the Media Holder Assembly

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.

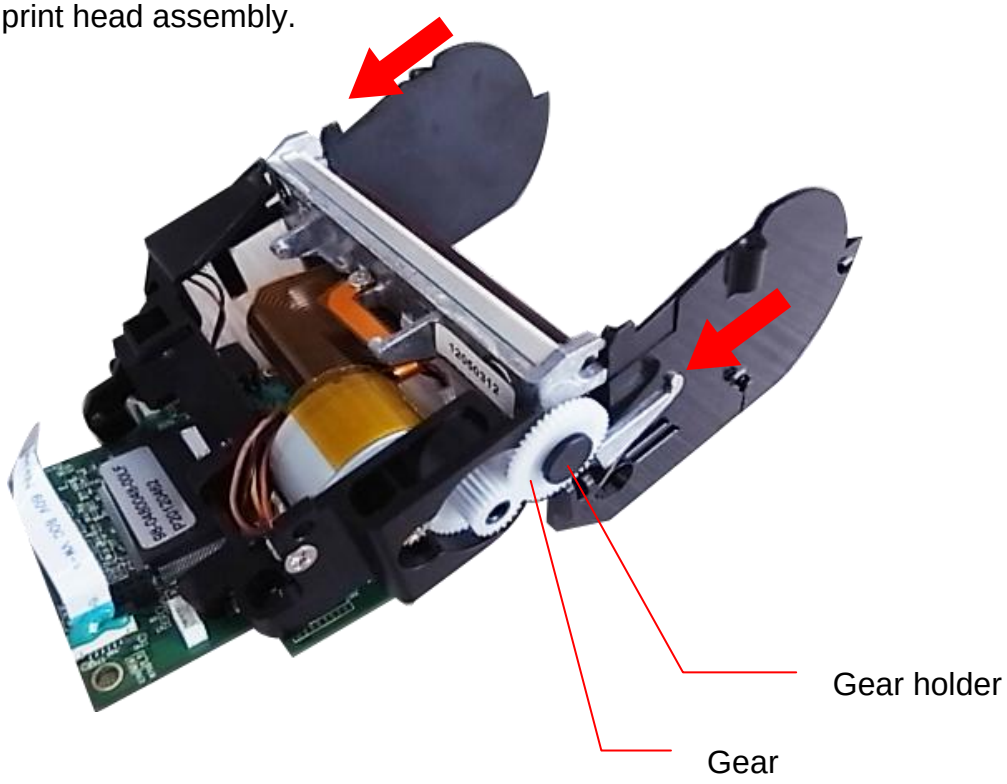
3. Reassemble the parts in the reverse procedures.

3.6 Replacing the Print Head Assembly

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 needle-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 the each side to remove the print head assembly.

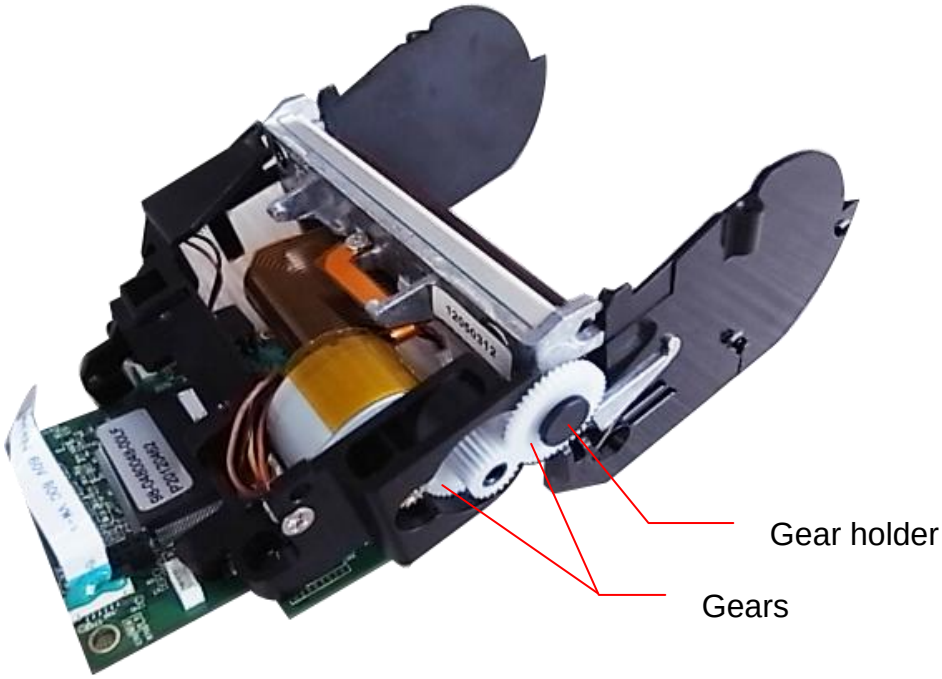


4. Reassemble the parts in the reverse procedures.

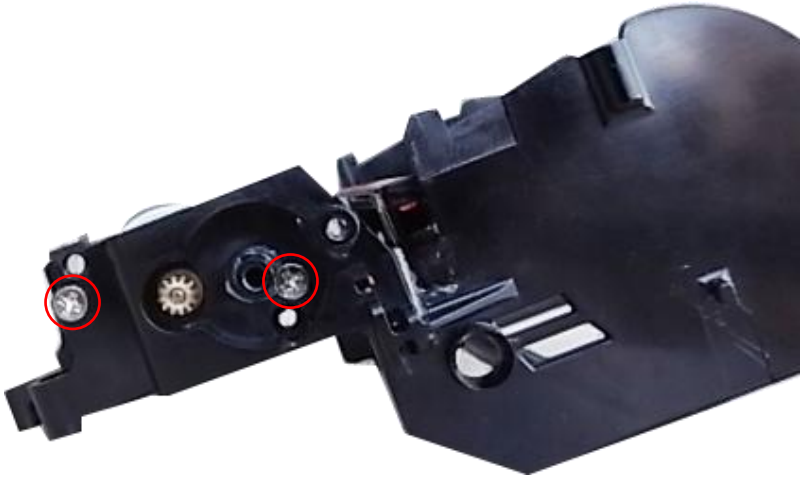
3.7 Replacing the Stepping Motor

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.

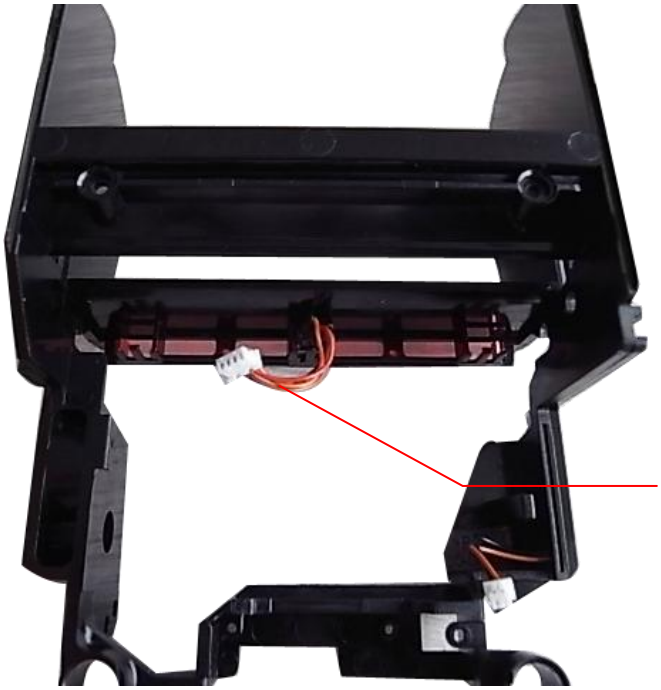


4. Reassemble the parts in the reverse procedures.

3.8 Replacing the black mark sensor assembly

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. Replace the black mark sensor.

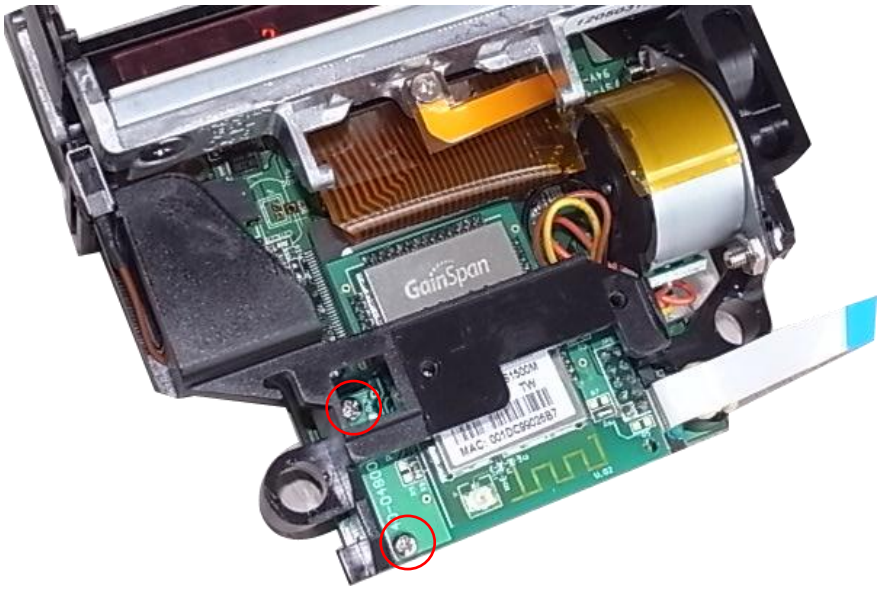


3. Reassemble the parts in the reverse procedures.

3.9 Replacing the WiFi Module (Option)

1. Refer to section 3.2 to remove the keys control board.

2. Remove two screws on the board.



3. Refer to section 3.5 to remove the main board assembly.
4. Replace the WiFi control board.
5. Reassemble the parts in the reverse procedures.

4. TROUBLESHOOTING

4.1 Common Problems

The following guide lists the most common problems that may be encountered when operating this bar code printer. If the printer still does not function after all suggested solutions have been invoked, please contact the Customer Service Department of your purchased reseller or distributor for assistance.

Problem	Possible Cause	Recovery Procedure
Power indicator does not illuminate	* The battery is not properly installed.	* Reinstall the battery. * Switch the printer on.
- The printer status from DiagTool shows "**Head Open**".	* The printer carriage is open.	* Please close the print carriage.
- The printer status from DiagTool 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 refer to the steps on section 3.4 to 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.

Not Printing	* Cable is not well connected to USB interface. * The serial port cable pin configuration is not pin to pin connected.	* Re-connect cable to interface. * If using serial cable, - Please replace the cable with pin to pin connected. - Check the baud rate setting. The default baud rate setting of printer is 9600,n,8,1. * If using the Ethernet cable, - Check if the Ethernet RJ-45 connector green LED is lit on. - Check if the Ethernet RJ-45 connector amber LED is blinking. - Check if the printer gets the IP address when using DHCP mode. - Check if the IP address is correct when using the static IP address. - Wait a few seconds let the printer get the communication with the server then check the IP address setting again. * Chang a new cable. * Clean the print head. * The print density setting is incorrect. * Print head's harness connector is not well connected with printheat. Turn off the printer and plug the connector again. * Check your program if there is a command PRINT at the end of the file and there must have CRLF at the end of each command line.
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.

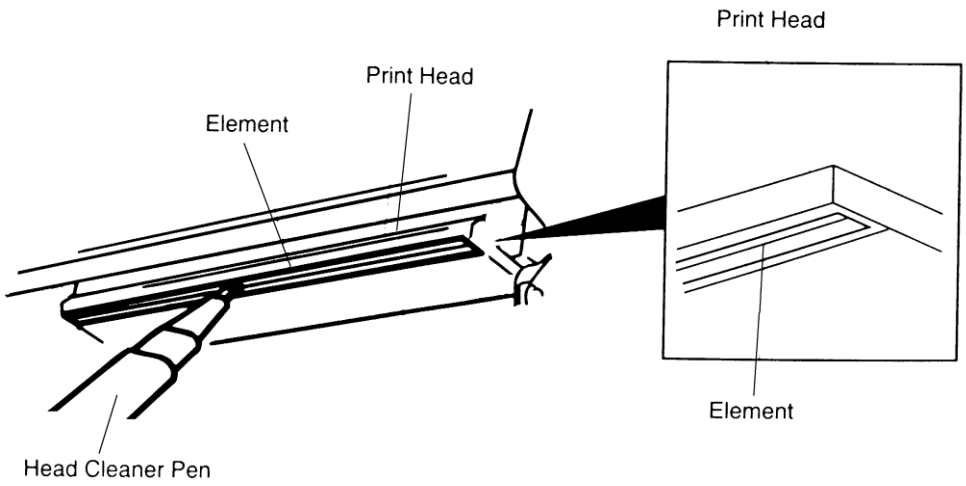
5. Maintenance

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

1. Please use one of following material to clean the printer.

- Cotton swab
- Lint-free cloth
- Vacuum / Blower brush
- 100% ethanol

2. The cleaning process is described as following,

<table>
<tr><th>Printer Part</th><th>Method</th><th>Interval</th></tr>
<tr><td rowspan="2">Print Head</td><td>1. Always turn off the printer before cleaning the print head.
2. Allow the print head to cool for a minimum of one minute.
3. Use a cotton swab and 100% ethanol to clean the print head surface.</td><td>Clean the print head when changing a new label roll</td></tr>
<tr><td colspan="2"> 
</td></tr>
<tr><td>Platen Roller</td><td>1. Turn the power off.
2. Rotate the platen roller and wipe it thoroughly with 100% ethanol and a cotton swab, or lint-free cloth.</td><td>Clean the platen roller when changing a new label roll</td></tr>
<tr><td>Tear Bar/Peel Bar</td><td>Use the lint-free cloth with 100% ethanol to wipe it.</td><td>As needed</td></tr>
<tr><td>Sensor</td><td>Compressed air or vacuum</td><td>Monthly</td></tr>
<tr><td>Exterior</td><td>Wipe it with water-dampened cloth</td><td>As needed</td></tr>
<tr><td>Interior</td><td>Brush or vacuum</td><td>As needed</td></tr>
</table>

Note:

- Do not touch printer head by hand. If you touch it careless, please use ethanol to clean it.
- Please use 100% Ethenol. DO NOT use medical alcohol, which may damage the printer head.
- Regularly clean the print head and supply sensors once change a new ribbon to keep printer performance and extend printer life.

Revise History

Date	Content	Editor

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