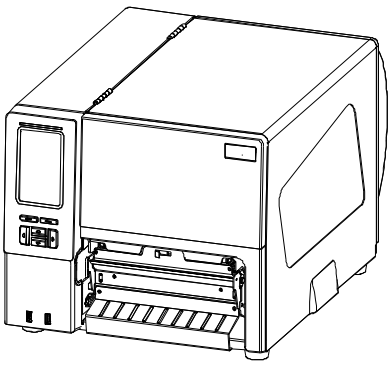
MH261T/ MH361T Series

THERMAL TRANSFER / DIRECT THERMAL BAR CODE PRINTER

SERVICE MANUAL



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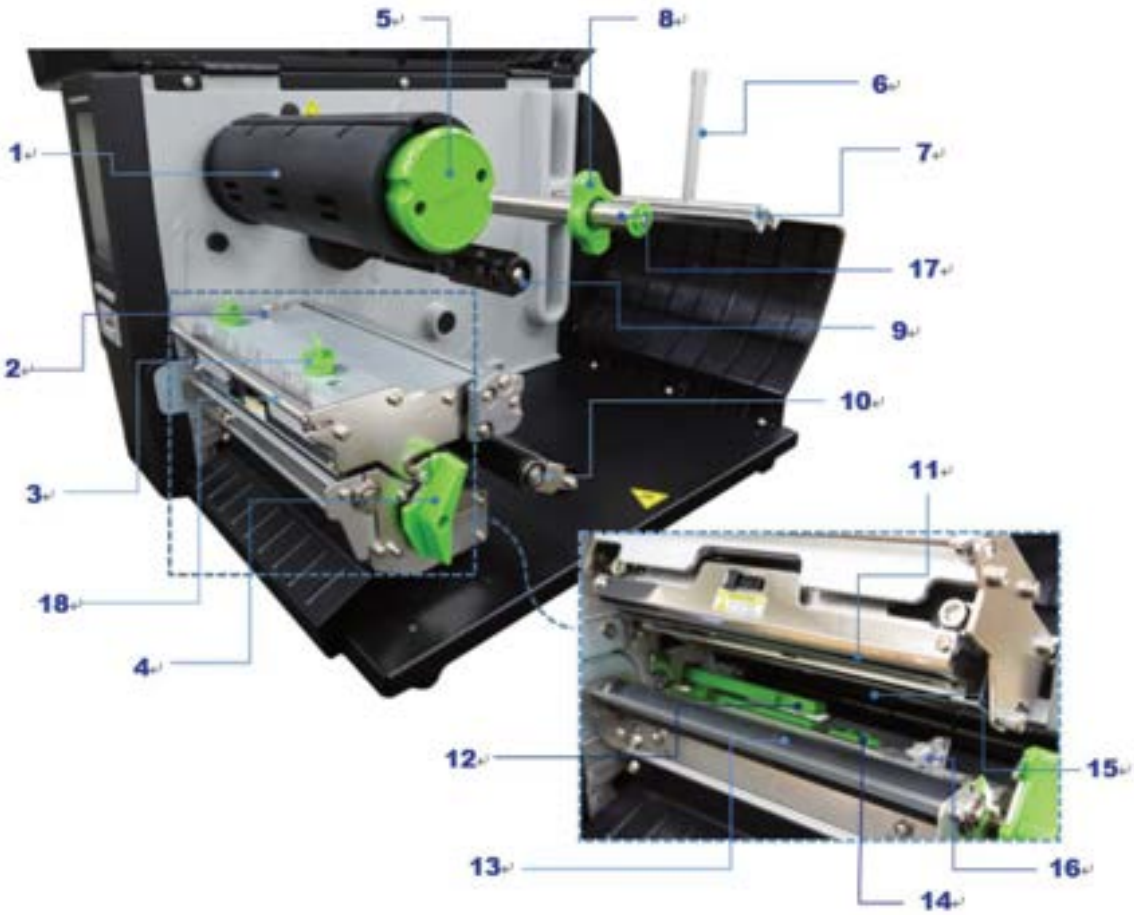
1. FUNDAMENTAL OF THE SYSTEM

1.1.1 Front View

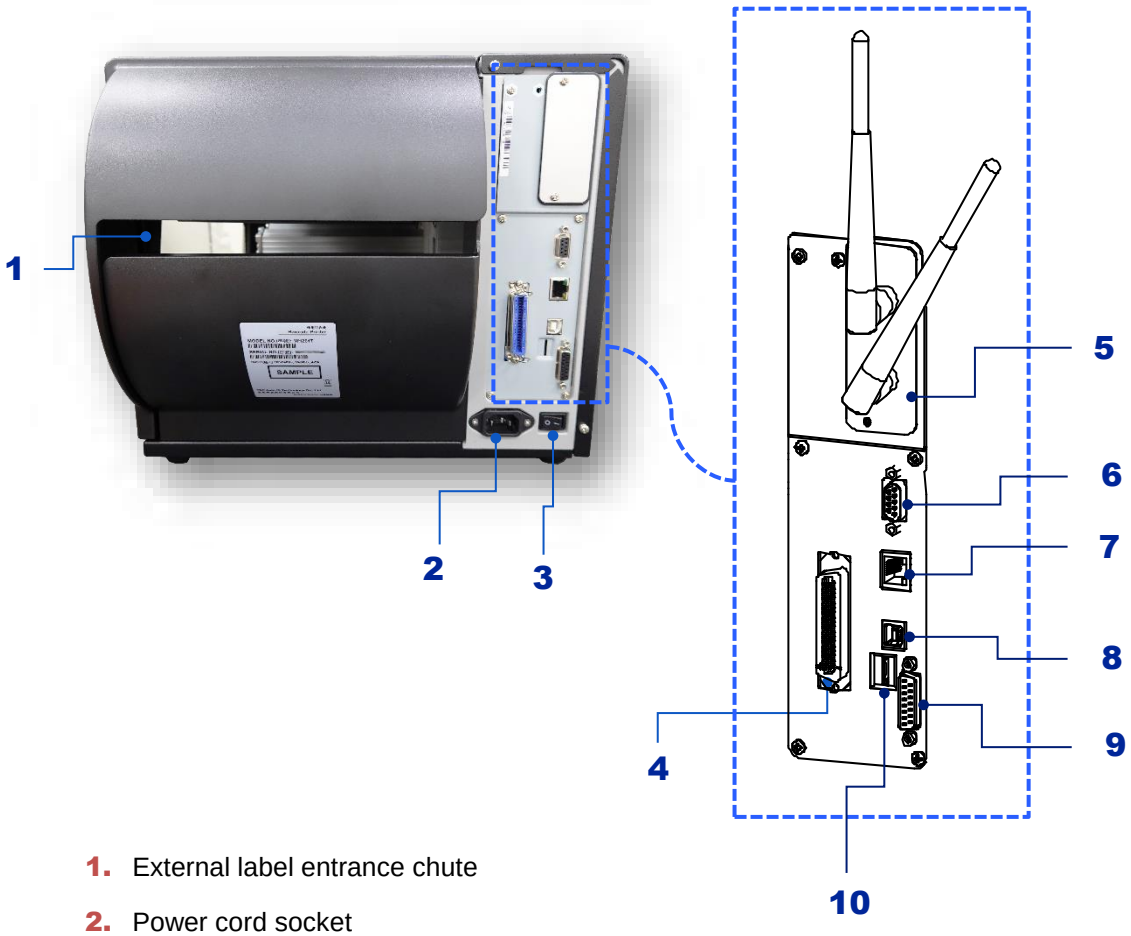
1. LED indicator
2. LCD display
3. Front panel buttons
4. USB host x 2
5. Media view window
6. Paper exit chute
7. Printer cover

1.1.2 Interior View



1	Ribbon rewind spindle	10	Media damper
2	Z axis mechanism adjustment knob	11	Print head
3	Print head pressure adjustment knobs	12	Gap sensor (shown as ▽ △)
4	Print head release lever	13	Platen roller
5	Ribbon release button	14	Black mark sensor (shown as △)
6	Label roll guard	15	Ribbon sensor
7	Label supply spindle	16	Front label guide
8	Rear label guide	17	Media guide bar
9	Ribbon supply spindle	18	Ribbon guide bar

1.1.3 Rear View



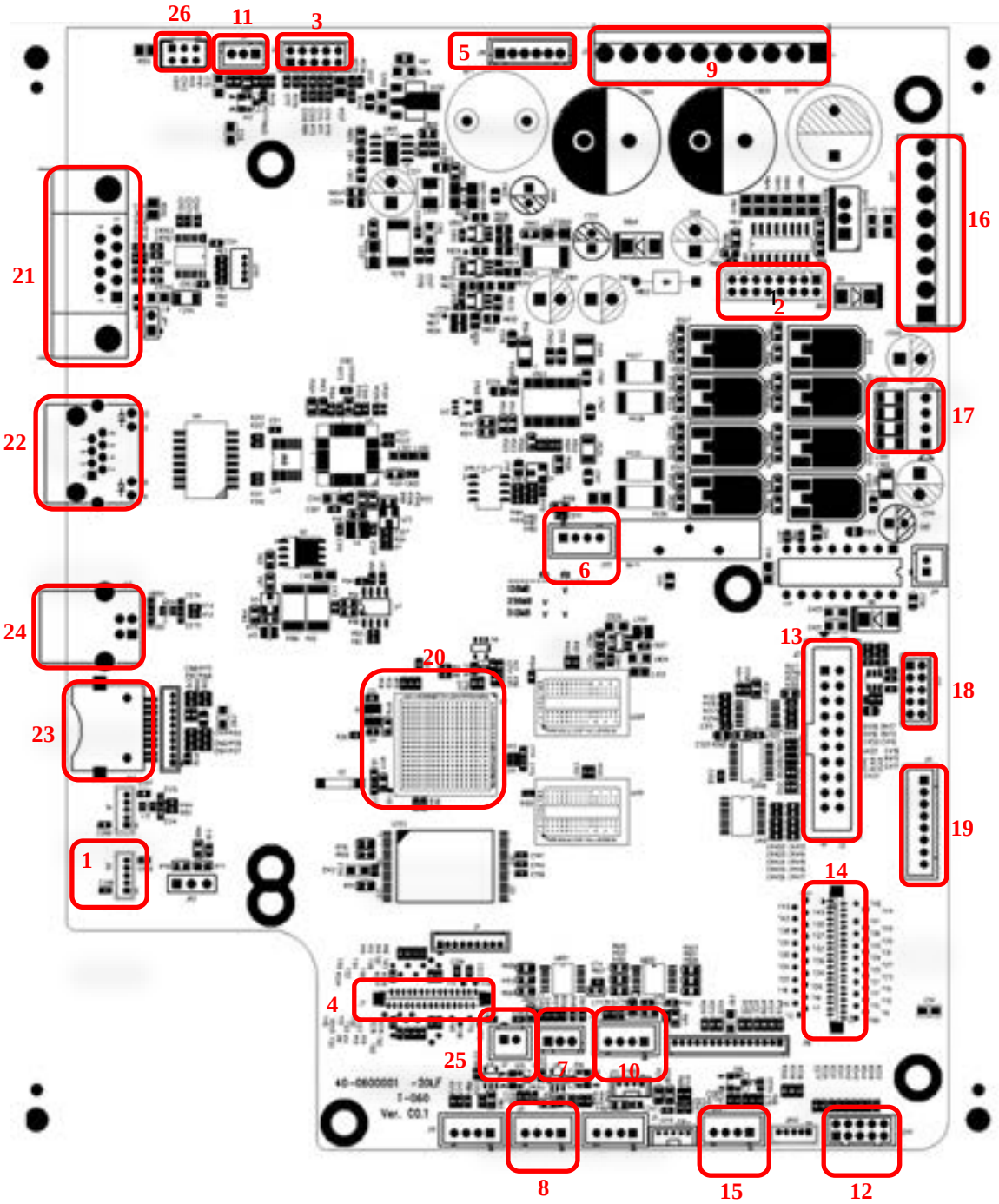
1. External label entrance chute
2. Power cord socket
3. Power switch
4. Centronics interface
5. Slot-in Wi-Fi module (Option)
6. RS-232C interface
7. Ethernet interface
8. USB interface
9. GPIO interface (Option)
10. SD card socket

*** Recommended microSD card specification**

Type	microSD card spec	microSD card capacity	Approved microSD card manufacturer
microSD	V2.0 Class 4	4G	Transcend
	V2.0 Class 4	8G	Transcend
	V3.0 Class 10 UHS-I	16G	Transcend
	V3.0 Class 10 UHS-I	32G	Transcend
	V3.0 Class 10	16G	Kingston
	V2.0 Class 4	16G	Sandisk
	V3.0 Class 10 UHS-I	16G	Sandisk
- The DOS FAT file system is supported for the microSD card. - Folders/files stored in the microSD card should be in the 8.3 filename format. - The miniSD / SD card to microSD card slot adapter is required.			

2. ELECTRONICS

2.1 Summary of Board Connectors



Main board

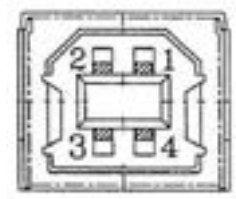
Connector	Description
1	USB Host connector
2	Power supply output (5V/36V DC) connector
3	Wi-Fi Module connector
4	Parallel Port board connector
5	GPIO interface board connector
6	Head open sensor connector
7	Gap sensor connector
8	Ribbon encoder sensor connector
9	Power supply output (24V DC) connector
10	Lower BM Sensor connector
11	Paper Distance Sensor connector
12	BT module connector
13	Print head connector
14	LCD panel connector
15	Ribbon end sensor connector
16	TPH Power (24V DC) connector
17	Stepping motor connector
18	Cutter/peel-off connector
19	Paper REWIND connector
20	Micro processor
21	RS-232C connector
22	Ethernet interface
23	MICRO SD card socket
24	USB interface
25	Upper BM Sensor Connector
26	Wi-Fi interface

2.2 Interface Pin Configuration

RS-232C

PIN	CONFIGURATION
1	+5 V
2	TXD
3	RXD
4	CTS
5	GND
6	RTS
7	N/C
8	RTS
9	N/C

USB

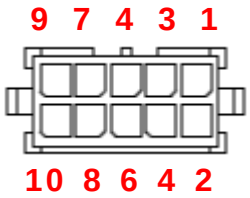


PIN	CONFIGURATION
1	N/C
2	D-
3	D+
4	GND

Ethernet

PIN	CONFIGURATION
1	**Tx+**
2	**Tx-**
3	**Rx+**
4	**N/C**
5	**N/C**
6	**Rx-**
7	**N/C**
8	**N/C**

Cutter/peel-off Sensor Connector

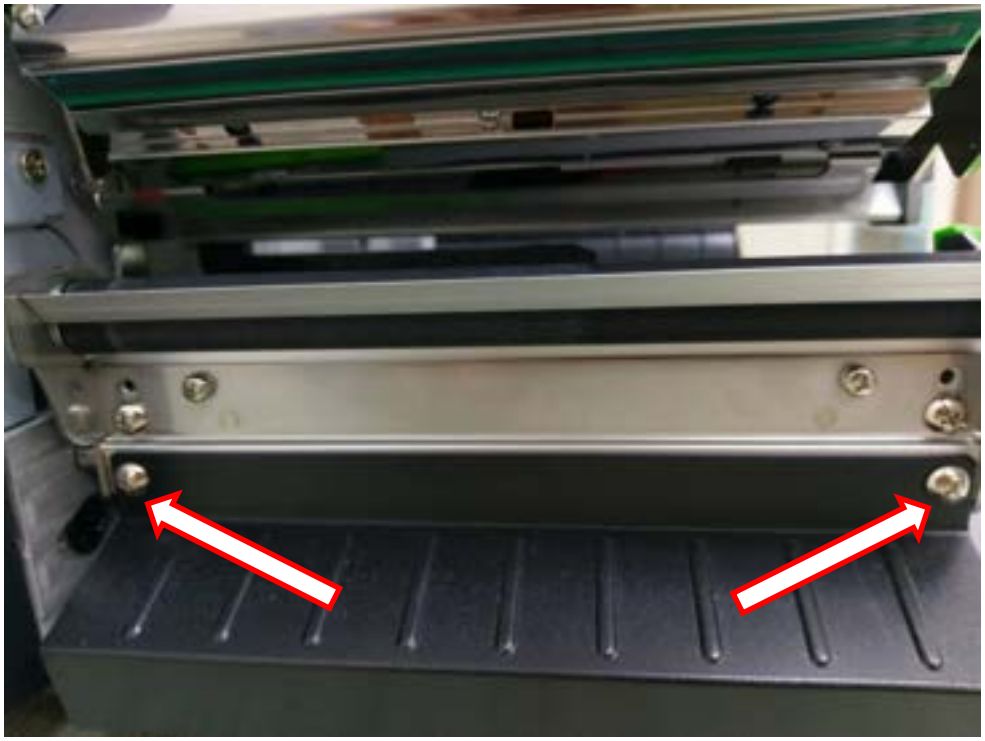


Pin	Description	Voltage
1	Cutter enable	0V: Cutter work 5V: Cutter stop
2	Cutter direction	0V: Cutter positive cut 5V: Cutter negative cut
3	Cutter position sensor switch	0V: Cutter stop 3.3V: Cutter work
4	Peel sensor receiver	A/D: 0~3.3V
5	N/A	N/A
6	Logic power	5V
7	GND	0V
8	Cutter power	24V
9	I2C SCL signal	
10	I2C SDA signal	

3. MECHANISM

3.1 Remove the Lower Front Panel

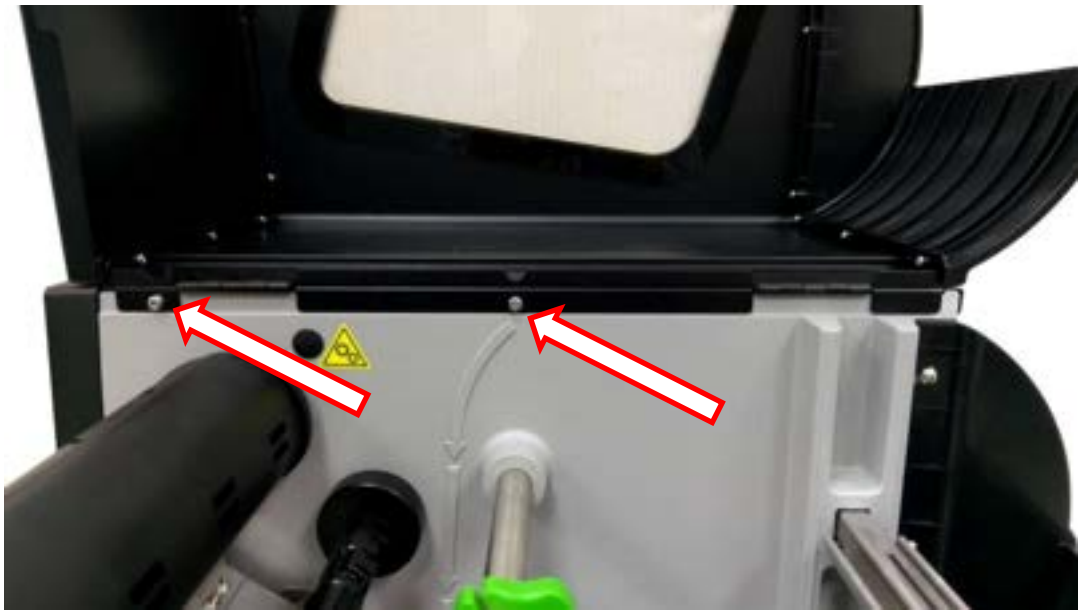
1. Unscrew 2 screws to remove the front panel.



2. Reassemble the parts in the reverse procedures.

3.2 Remove the Electronic Cover

1. Open Media Cover and unscrew 2 screws as below.



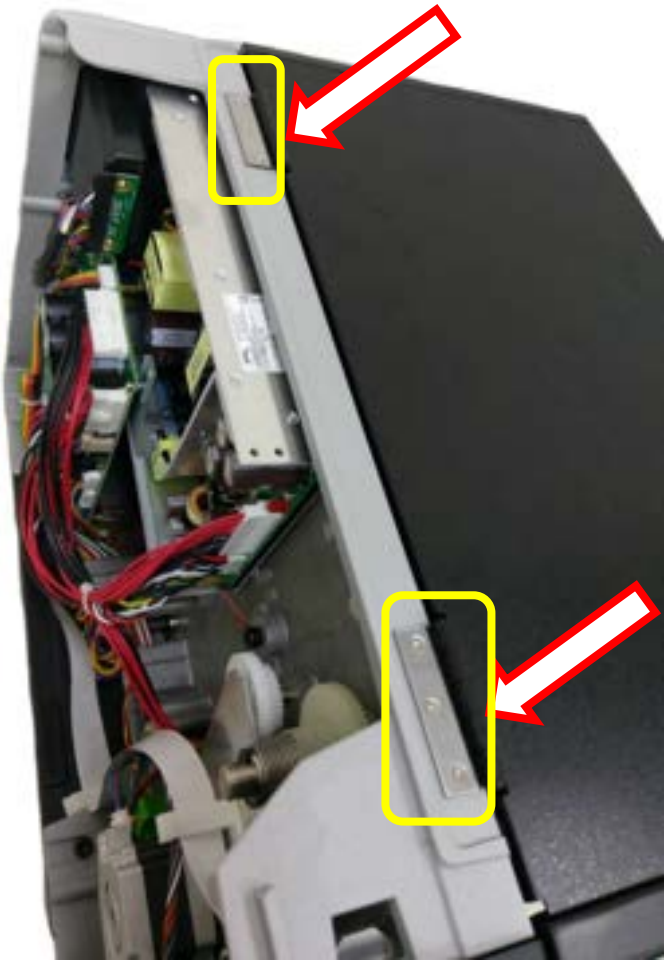
2. Unscrew 2 screws on back side of the printer.

3. Take up the electronic cover

4. Reassemble the parts in the reverse procedures.

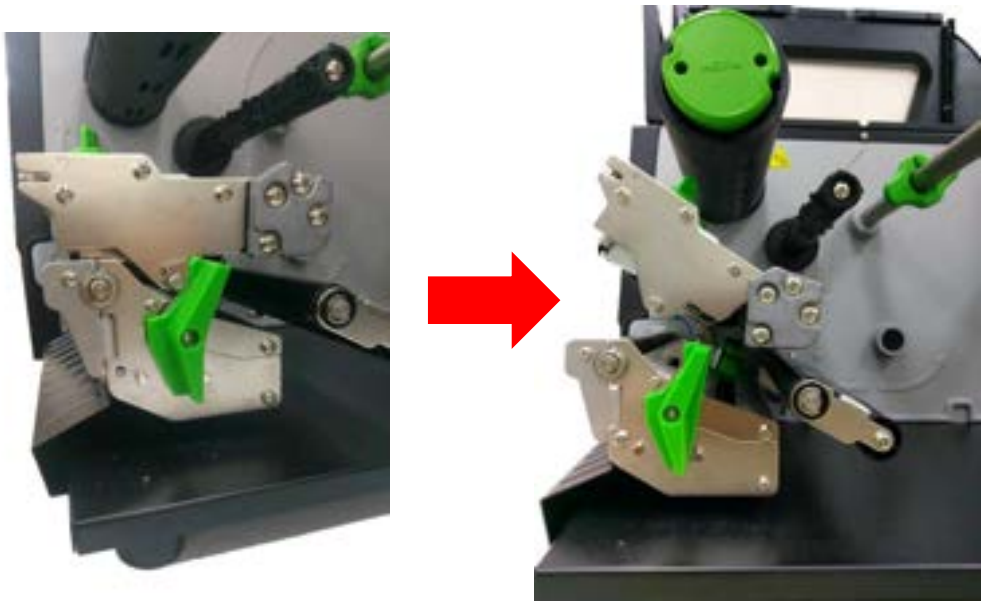
3.3 Remove the Media Cover

1. Refer 3.2 to open the Electronic Cover.
2. Unscrew 6 screws.
3. Reassemble the parts in the reverse procedures.



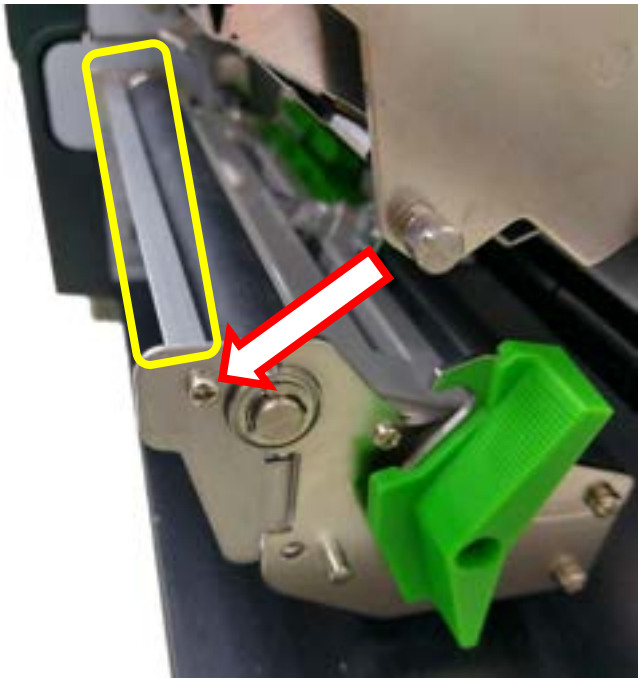
3.4 Replacing the Platen Roller Assembly

1. Open the printer cover.
2. Push the print head release lever to open the print head mechanism.

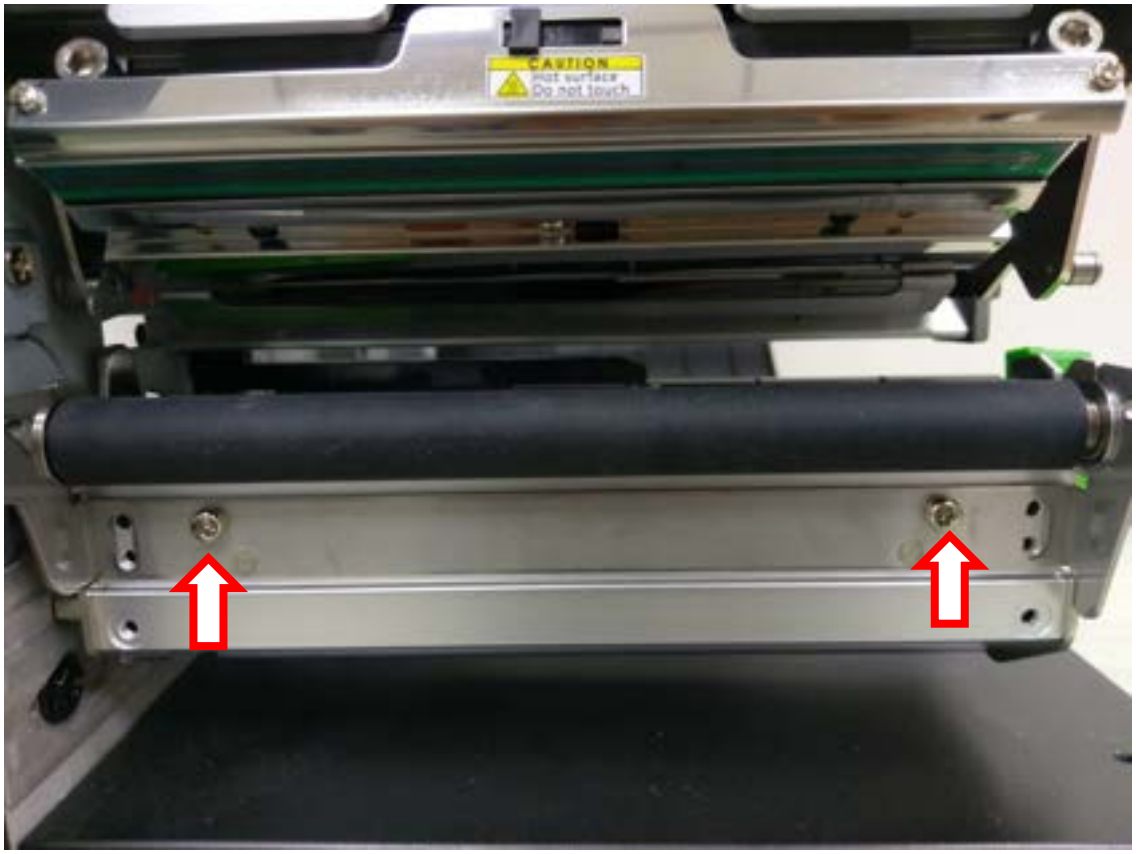


3. Refer to section 3.1 to remove the lower front panel.

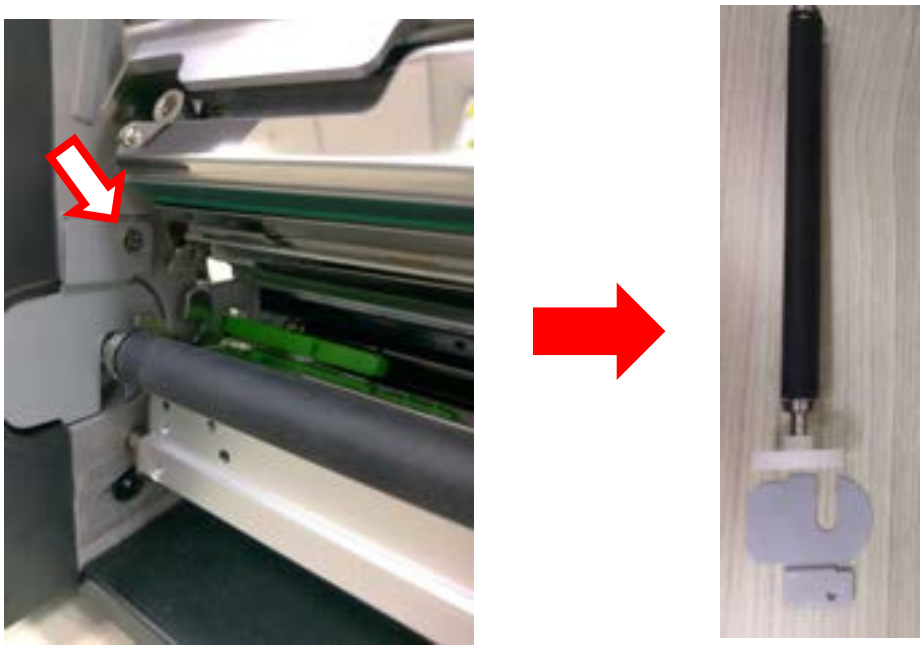
4. Unscrew 1 screw to remove the aluminum bar



5. Unscrew 2 screws to remove the plate.



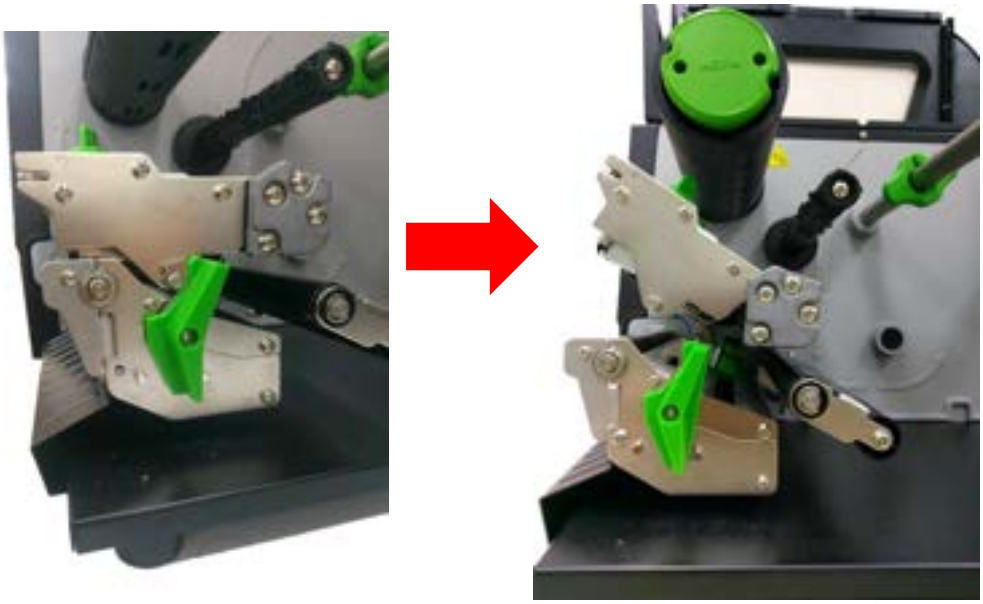
6. Unscrew 1 screw on the side of the platen roller then take out the platen roller.



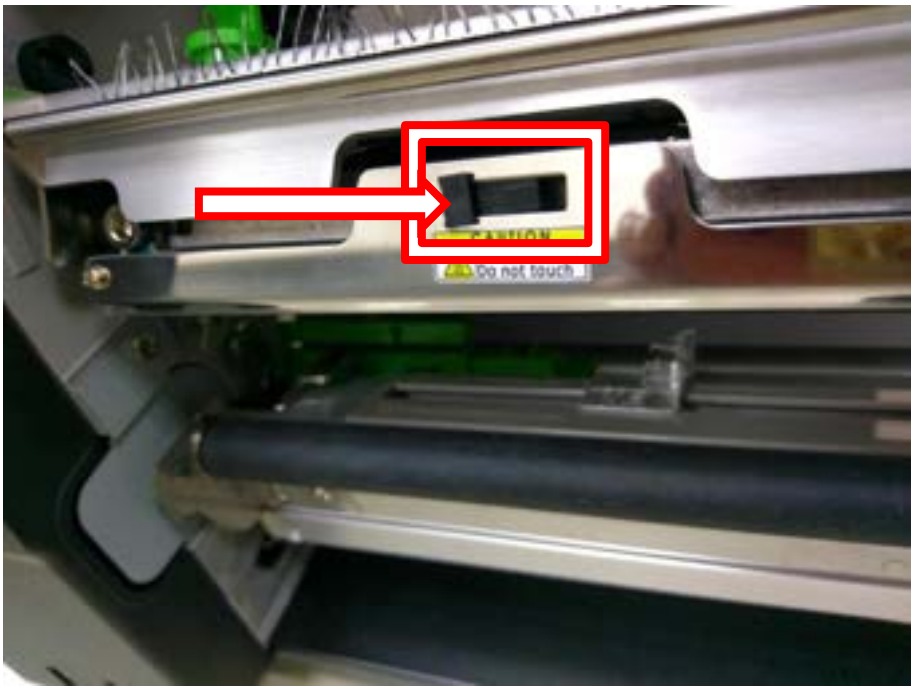
7. Reassemble the parts in the reverse procedures.

3.5 Replacing the Printhead Assembly

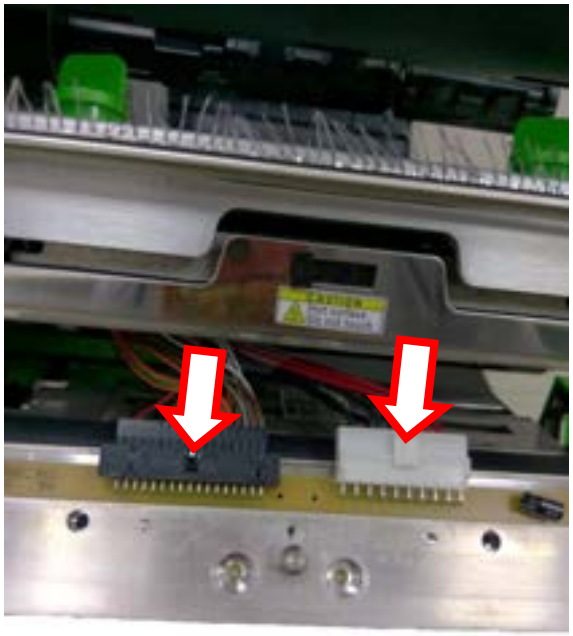
1. Open the printer cover and print head release lever.



2. Use key or tools to push the hook to the right side.



3. Carefully disconnect connectors from the print head assembly. Please push the key in the middle of the connector. When the connector becomes loose from the print head connector, you can disconnect and replace it.



Press the key and disconnect connectors.

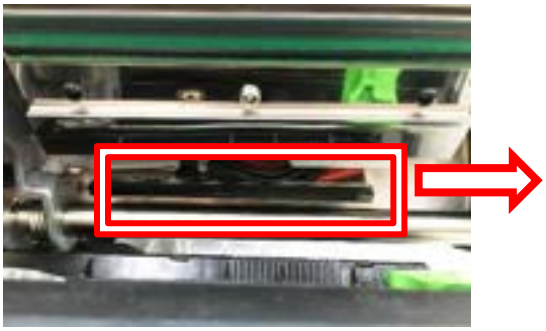
4. Reassemble the parts in the reverse procedures.

Note:

*** Please use the new print head secure screw enclosed with printer to replace the print head assembly.**

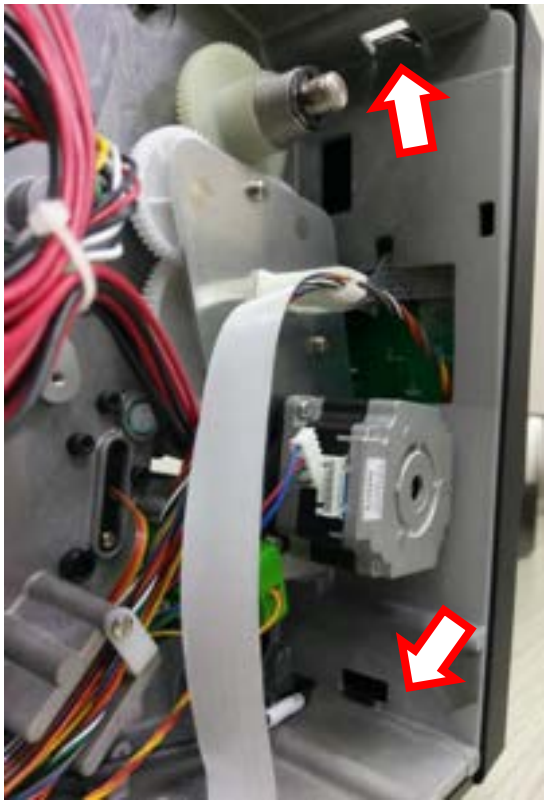
DO NOT re-use the original screw. Use original print head screw will damage the new print head screw hole. This damage is not in the warranty.

*** Please place the cables on the slot to prevent stuck when reinstall the print head assembly.**

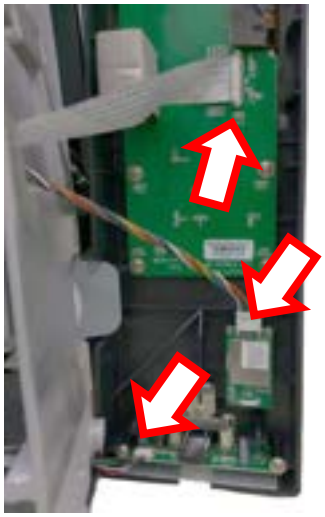


3.6 Replacing the LCD Panel Module

1. Refer to section 3.2 to remove the electronics cover.
2. Push the indicated location to dissemble the panel cover



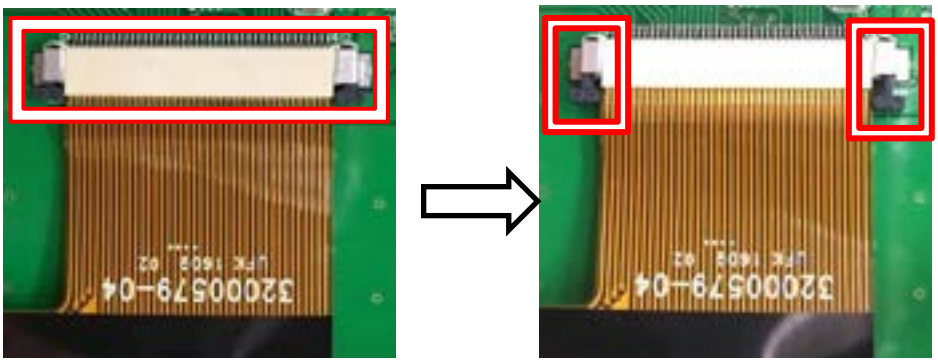
3. Remove the cable and harness from the module.



4. Reassemble the parts in the reverse procedures.

3.7 Replacing the LCD Control Board & LCD Touch Panel

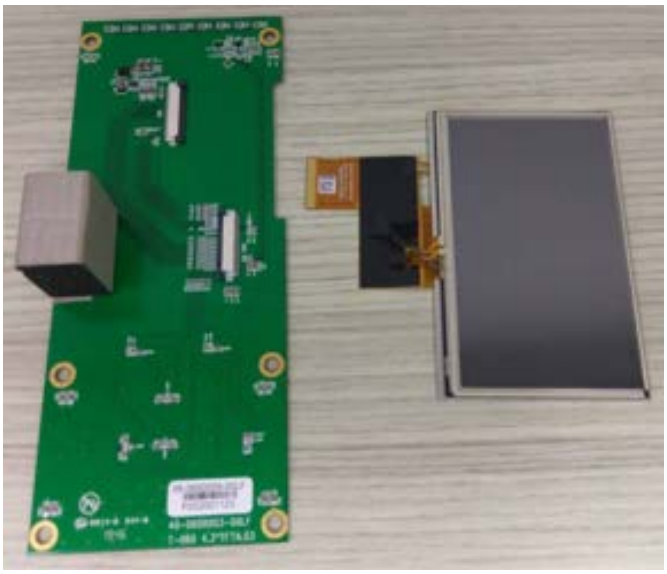
1. Follow the previous step (refer to section 3.6) to remove the LCD panel module.
2. Remove the FPC harness from the LCD control board.



3. Remove the marked six fixed screws (fastened by 5 kg±15% kg-cm) to take out LCD control board, the holder and touch panel can be removed.

4. Reassemble the parts in the reverse procedures.

Screws location

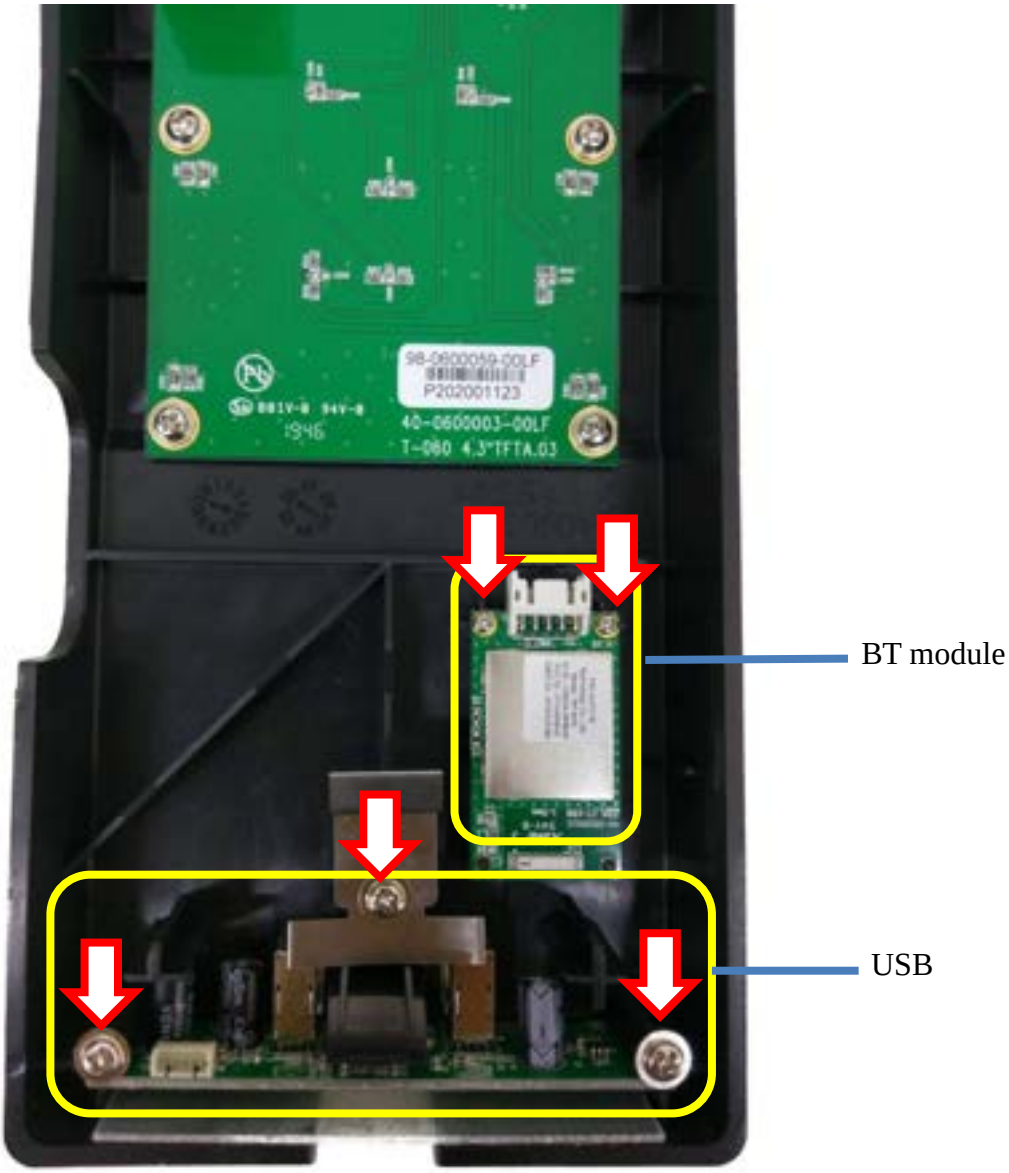


LCD control board **Touch panel**

3.7.1 Replacing the USB hub and BT Module

Refer section 3.6 to open the front panel cover

Unscrew indicated location to replace the USB hub and BT module.



3.8 Replacing the GPIO interface

1. Refer 3.2 to remove the electronic cover
2. Unscrew 2 screws from the back side of the printer as indicated.

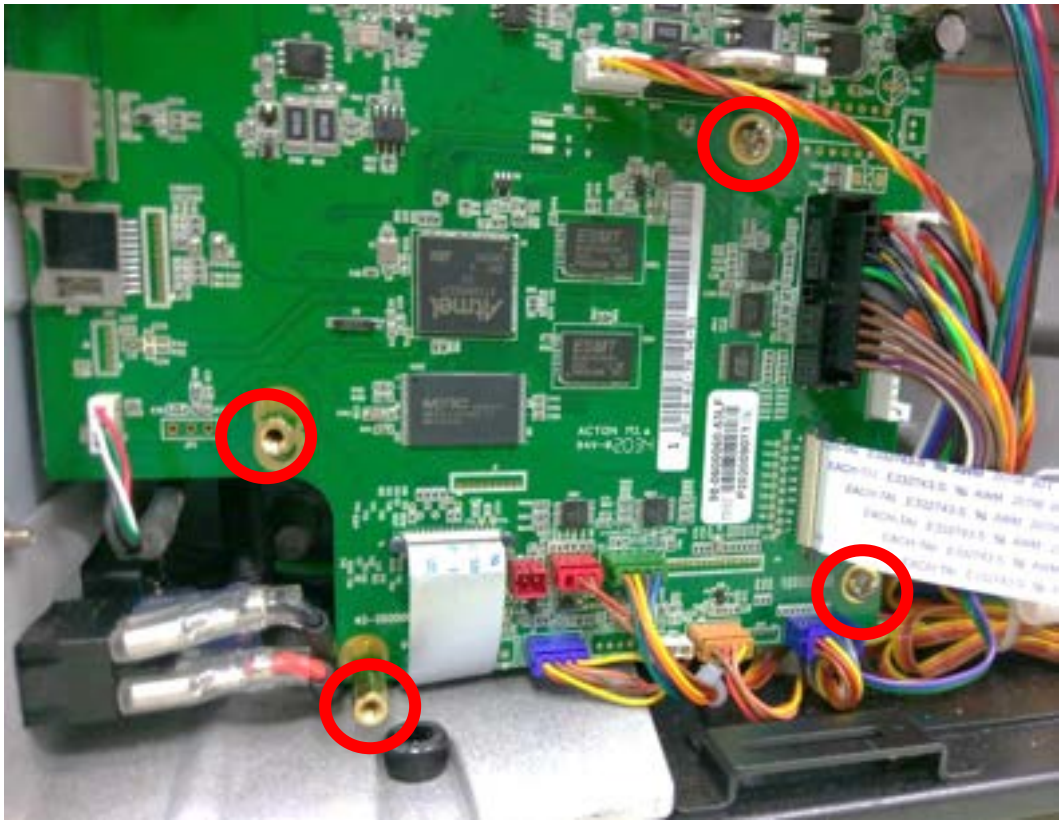
3. Disconnect the cable from the interface card and mainboard..

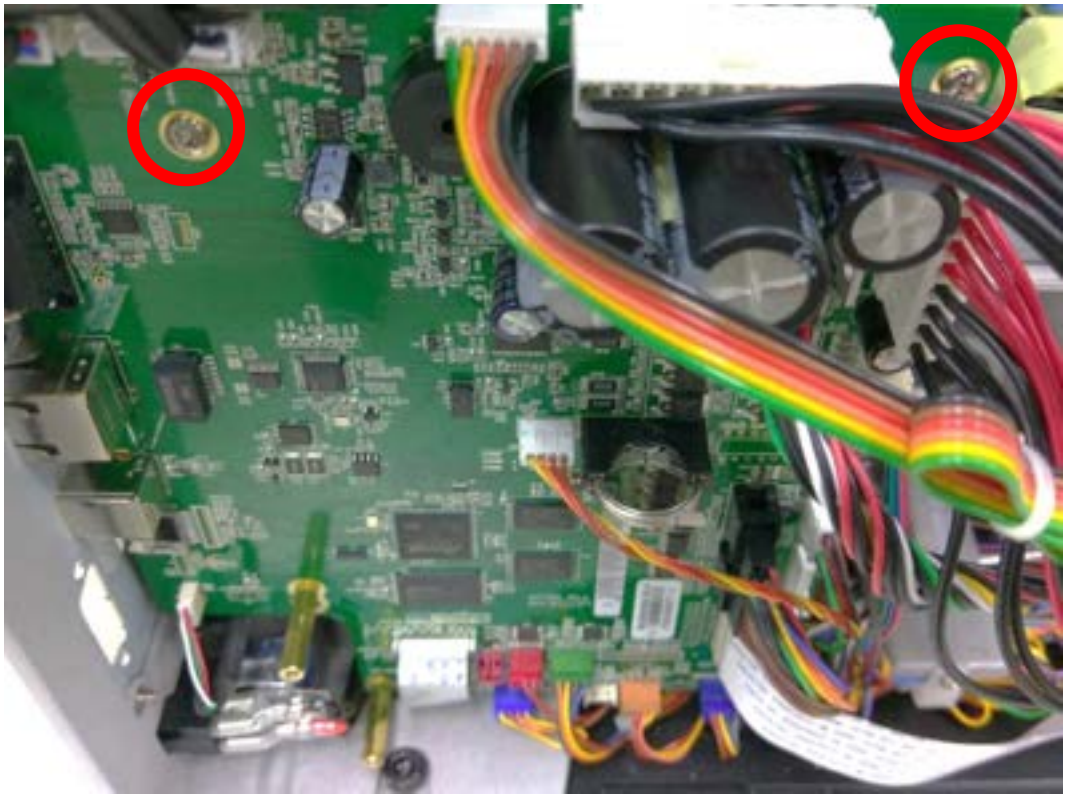
4. Reassemble the pats the reverse procedures.

3.9 Replacing the Mainboard

1. Refer 3.2 to remove the electronic cover.
2. Unscrew the indicated screws on the backside of the printer.

3. Unscrew 2 cooper pillars and 4 screws as below.





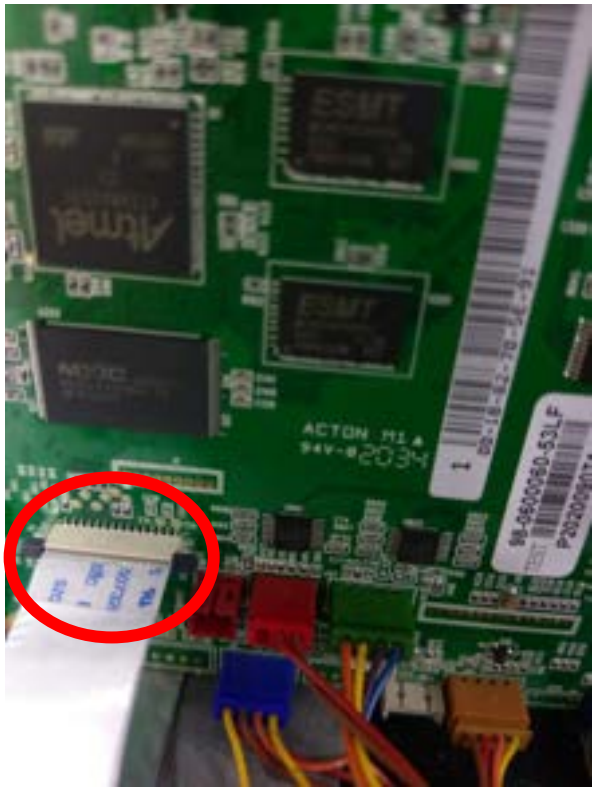
4. Disconnect the connectors

5. Reassemble the parts in reverse procedures.

3.10 Replacing the Parallel Port Board

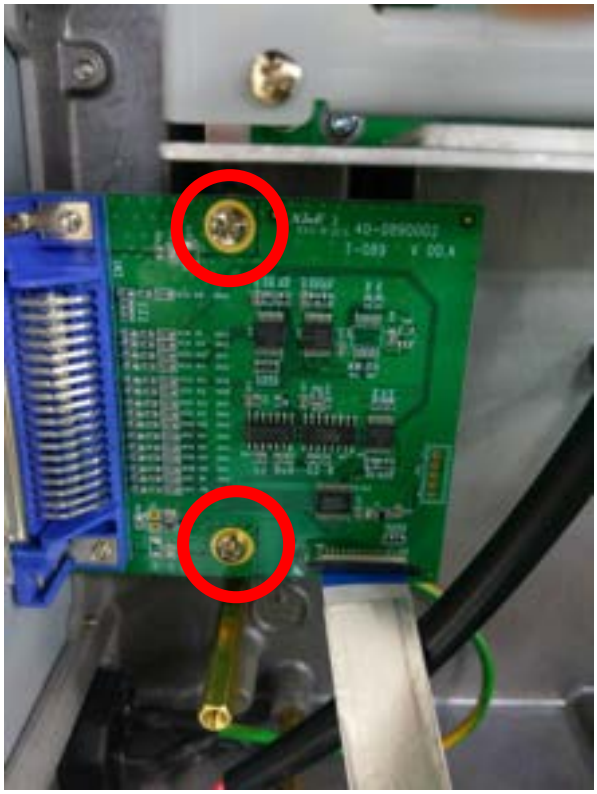
1. Refer 3.2 to remove electronic cover

2. Disconnect the cable from the main board.



3. Refer 3.9 to remove the main board.

4.Unscrew 2 screws and unplug the cable form parallel board.



5. Unscrew 2 marked screw as shown

6. Reassemble to parts in reverse procedures.

3.11 Replacing the Power Supply Unit

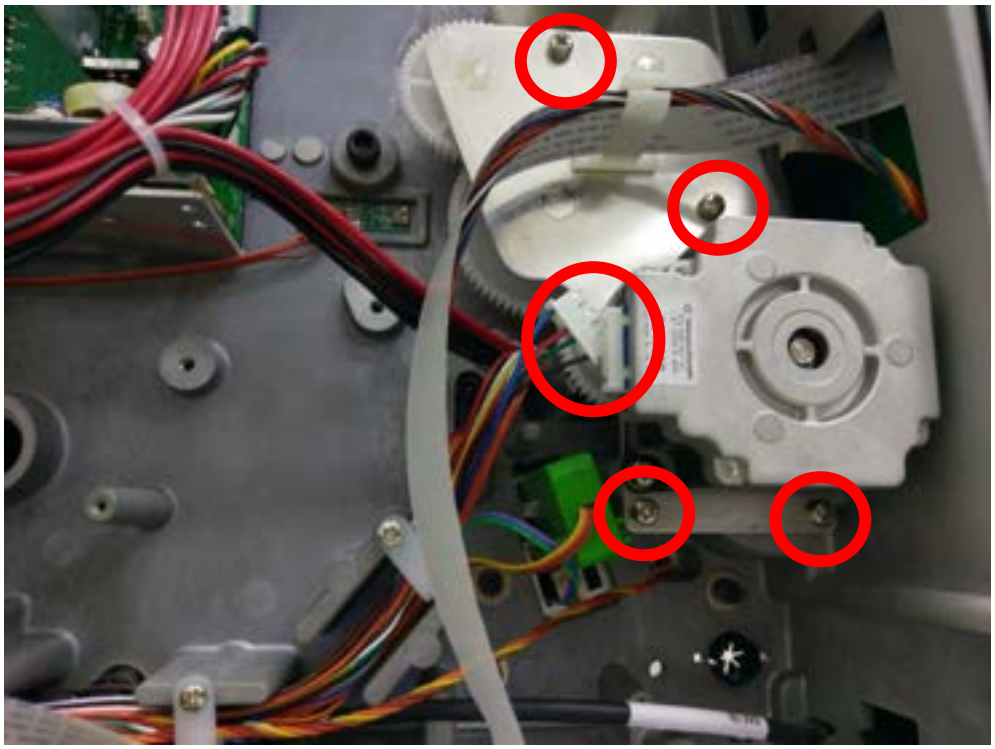
1. Refer to section 3.2 to remove the electronics cover.
2. Refer to section 3.9 to remove the main board.
3. Remove 2 screws (fastened by 7.5 kg±15% kg-cm) and 2 copper pillars as indicated.

4. Unplug the cable to remove the power supply

5. Reassemble the parts in the reverse procedures.

3.12 Replacing Motor Assembly

1. Refer to section 3.2 to remove the electronic cover.
2. Remove 4 marked screws and unplug the cable.

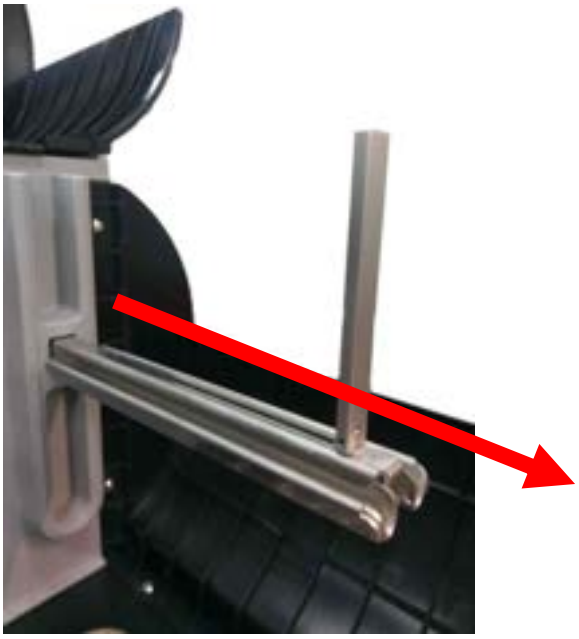


3. Reassemble the parts in the reverse procedures.

3.13 Replacing Media Spindle

1. Refer to section 3.2 to remove the electronics cover.
2. Refer to section 3.9 to remove mainboard.
3. Refer to section 3.10 to remove power supply.
4. Unscrew the indicated screw as below.

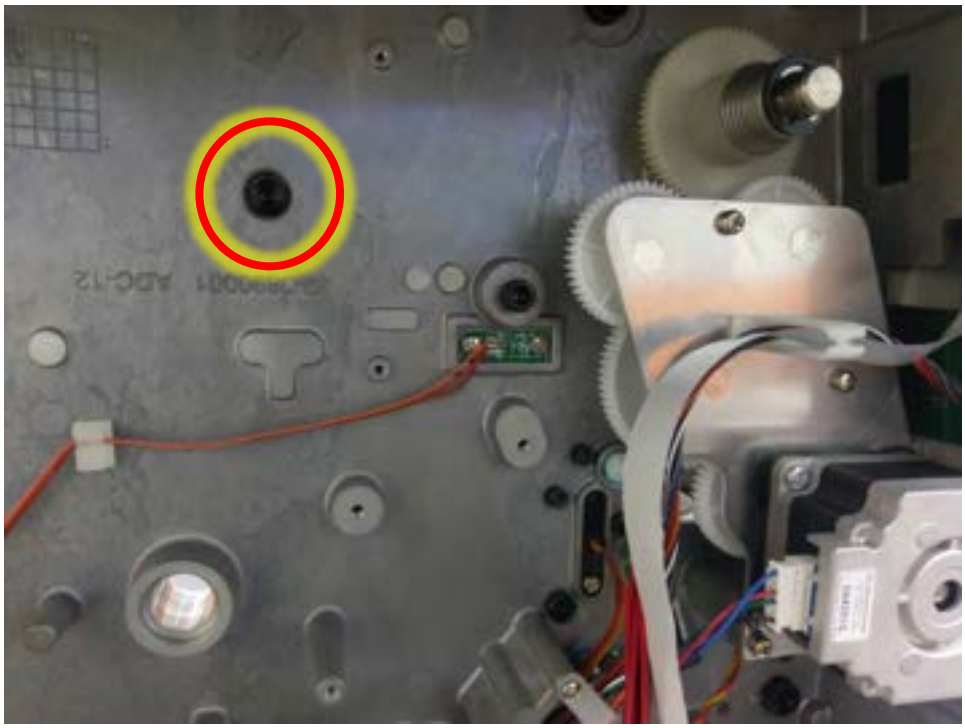
5. Pull and remove media spindle



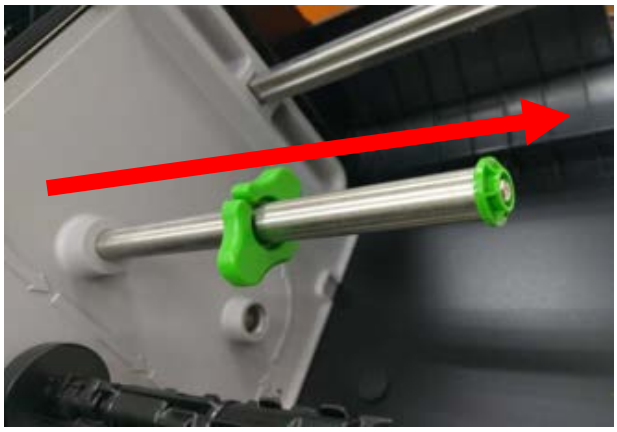
4. Reassemble the parts in the reverse procedures.

3.14 Replacing Media Guide Bar

1. Refer to section 3.2 to remove the electronics cover.
2. Refer 3.9 to remove the main board.
3. Refer 3.10 to remove the power supply.
4. Remove the marked hex screw.



5. Remove the Media Guide Bar

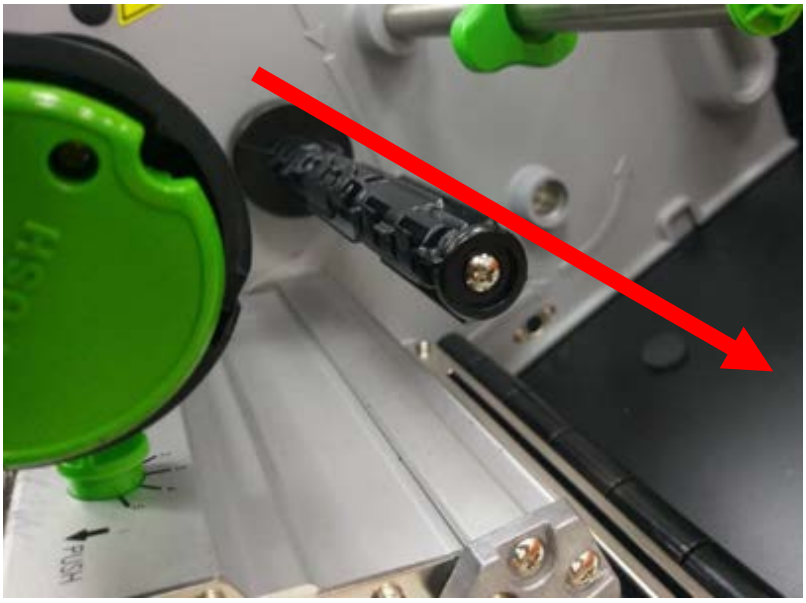


6. Reassemble the parts in the reverse procedures.

3.15 Replacing Ribbon Supply Spindle

1. Refer to section 3.2 to remove the electronics cover.
2. Remove the marked hex screw.

3. Remove the ribbon supply assembly.



4. Reassemble the parts in the reverse procedures.

3.16 Replacing Ribbon Rewind Spindle

1. Refer to section 3.2 to remove the electronics cover.
2. Remove the marked hex screw.

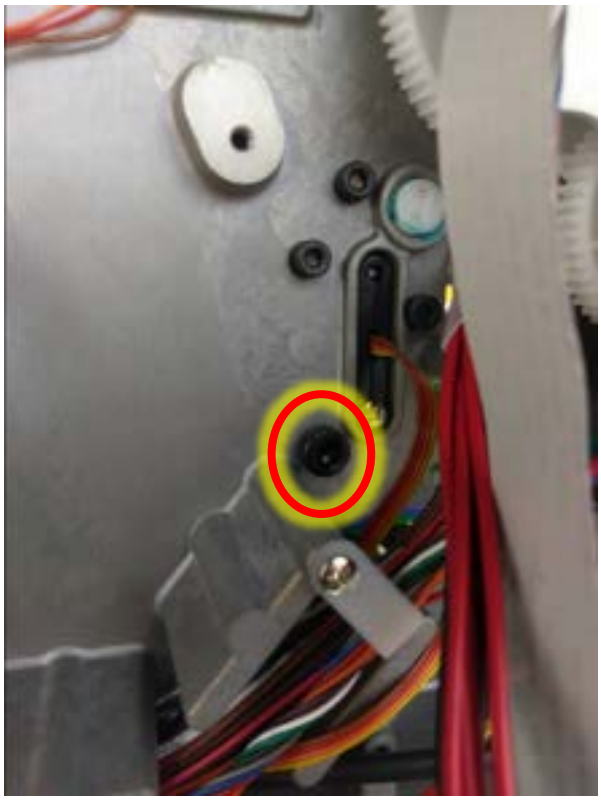
3. Remove the ribbon rewind spindle.

4. Reassemble the parts in the reverse procedures.

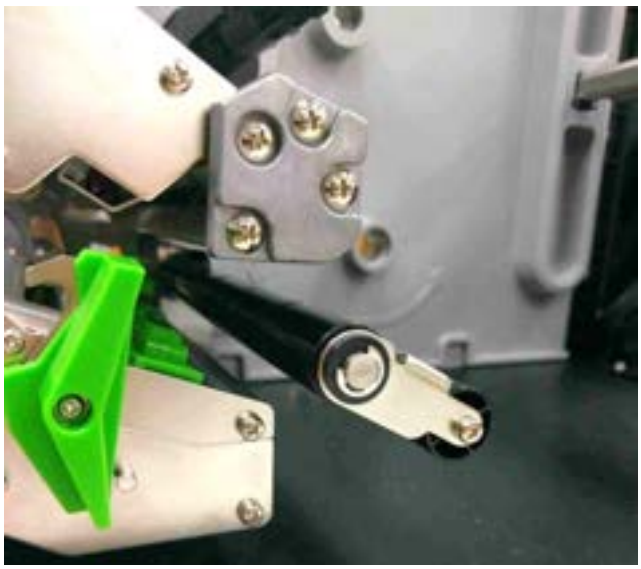
3.17 Replacing Damper

1. Refer to section 3.2 to remove the electronics cover.

2. Remove the marked hex screw.



3. Remove the damper.



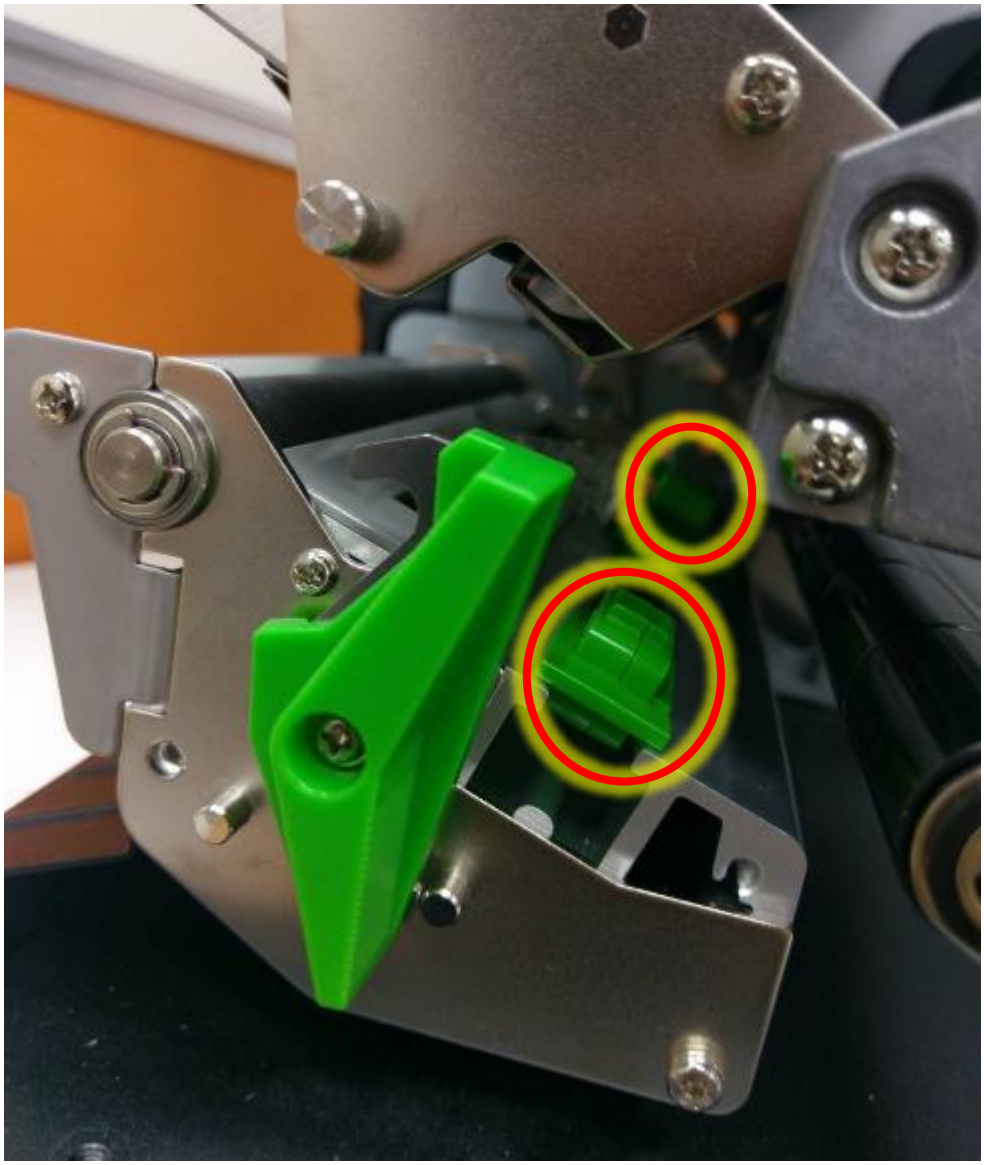
4. Reassemble the parts in the reverse procedures.

3.18 Replacing Gap/Black Mark Sensor Module

1. Refer to section 3.2 to remove the electronics cover.
2. Disconnect the gap/black mark sensor connectors from the main board.

3. Unscrew the marked 2 screws

4. Pull out the Gap/Black Mark sensor module

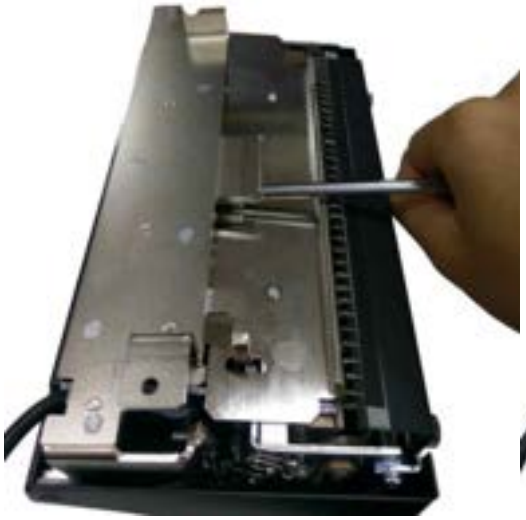


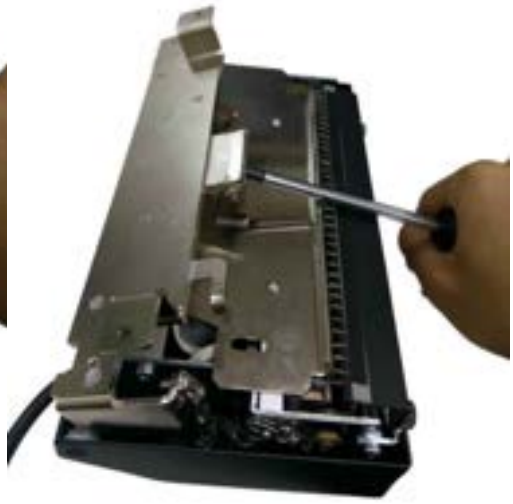
5. Reassemble the parts in reverse procedure.

3.19 Cutter Module Installation (Option)

1. Refer to section 3.1 to remove the lower front panel.

2. Use tool to pry up the cutter.

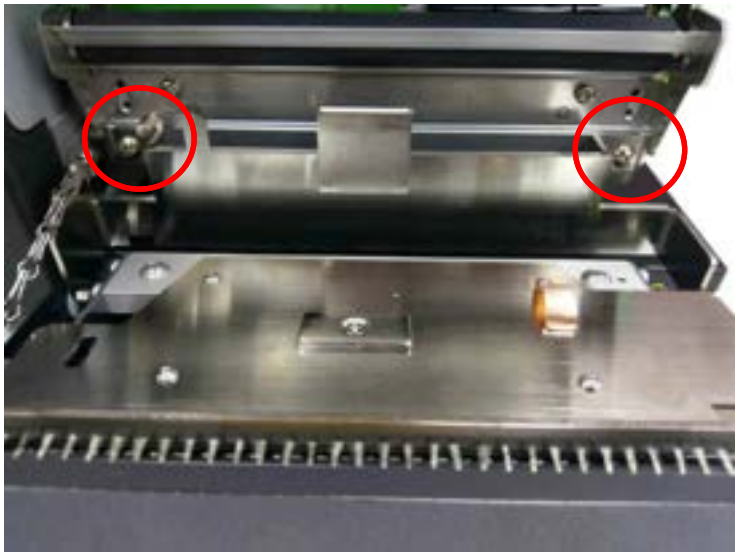




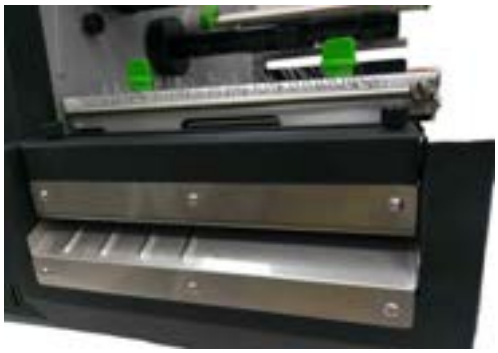
3. Refer 3.2 to remove the lower front cover.

4. Place the cutter as indicated position and let cables go under through print module.

4. Screw 2 screws as shown.



5. Press to close the cutter.



6. Connect the cable into the slot.

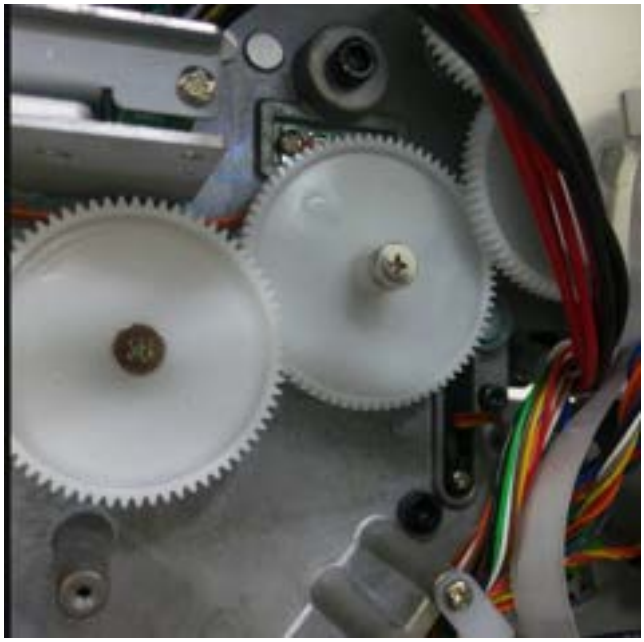
7. Remove the parts in reverse procedures.

3.20 Peel-off Kit Installation (Option)

1. Take the 2 screws and the gears.

2. Install the bigger one on the indicated position and fasten the screw

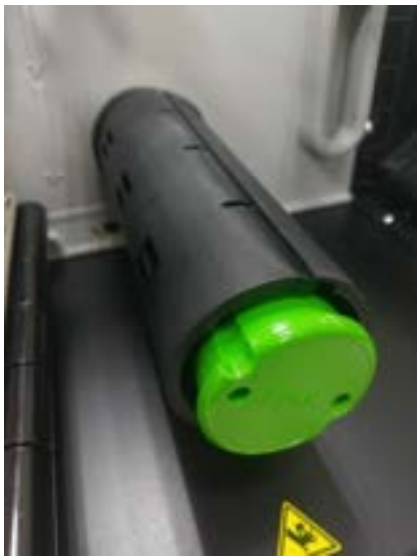
3. Install the smaller one and fasten the gear.



2. Take 2 rings as shown.

3. Place 1 ring in below position.

4. Install the peeler's spindle.



5. Place the other ring from electronic cover's side and push it into bottom.

6. Take 2 circlip as shown

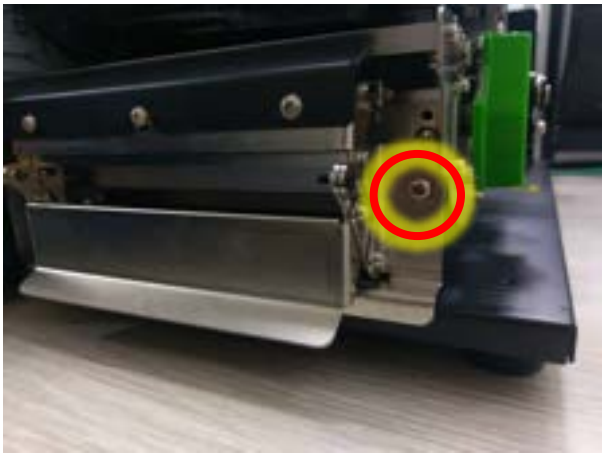
6. Insert 1 circlip at below position

7. Put the third gear into the spindle.

8. Insert second circlip on below position

9. Refer to 3.1 to remove the lower front panel.

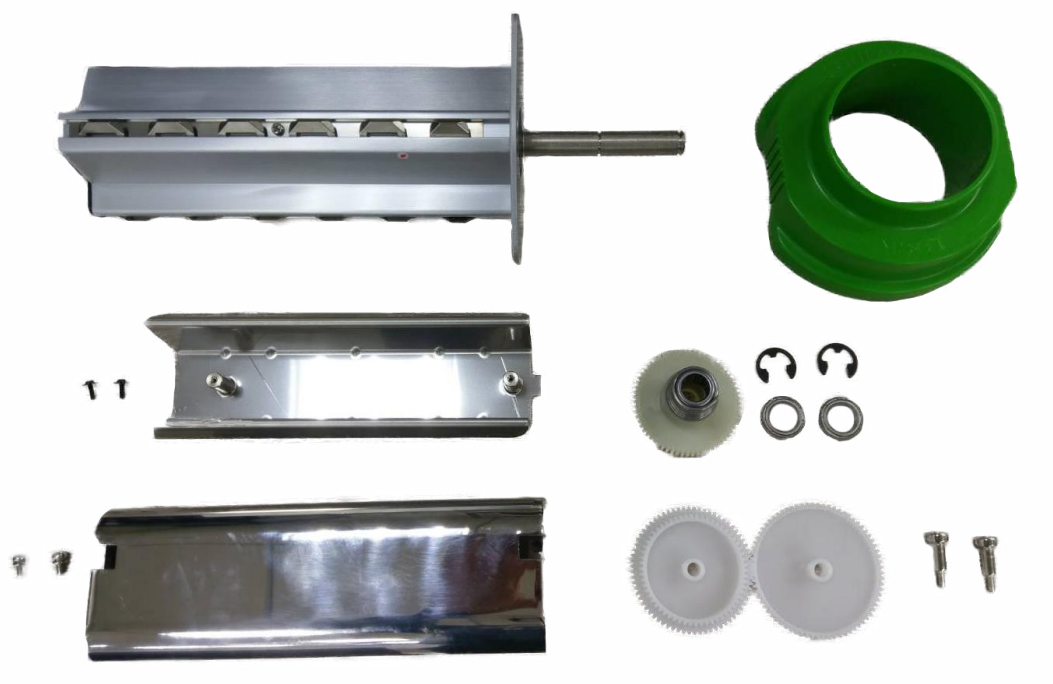
10. Fasten 2 screws at marked position.



9. Connect the cables into the slot between damper and the peeler spindle.

3. Remove the parts in the reverse procedures.

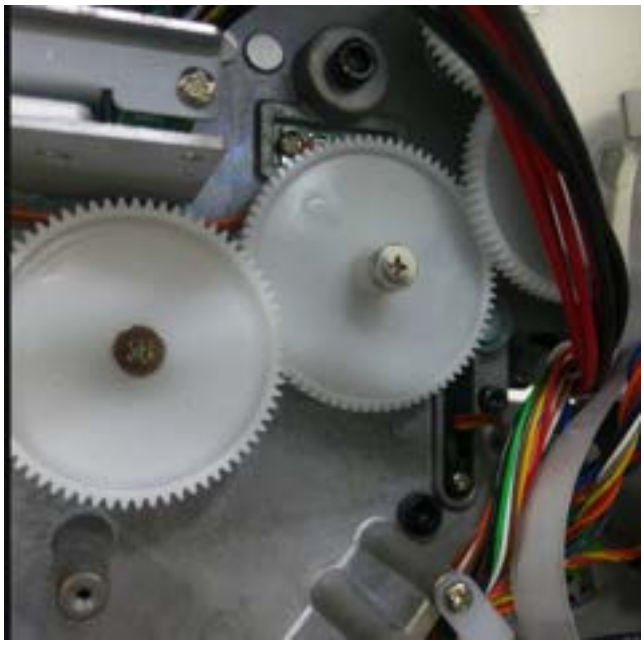
3.21 Internal Rewinder Installation (Option)



1. Take the 2 screws and the gears.

2. Install the bigger one on the indicated position and fasten the screw

3. Install the smaller one and fasten the gear.



4. Take 2 rings as shown.

5. Place 1 ring in below position.

6. Install the rewinder's spindle.

7. Place the other ring from electronic cover's side and push it into bottom.

8. Take 2 circlip as shown

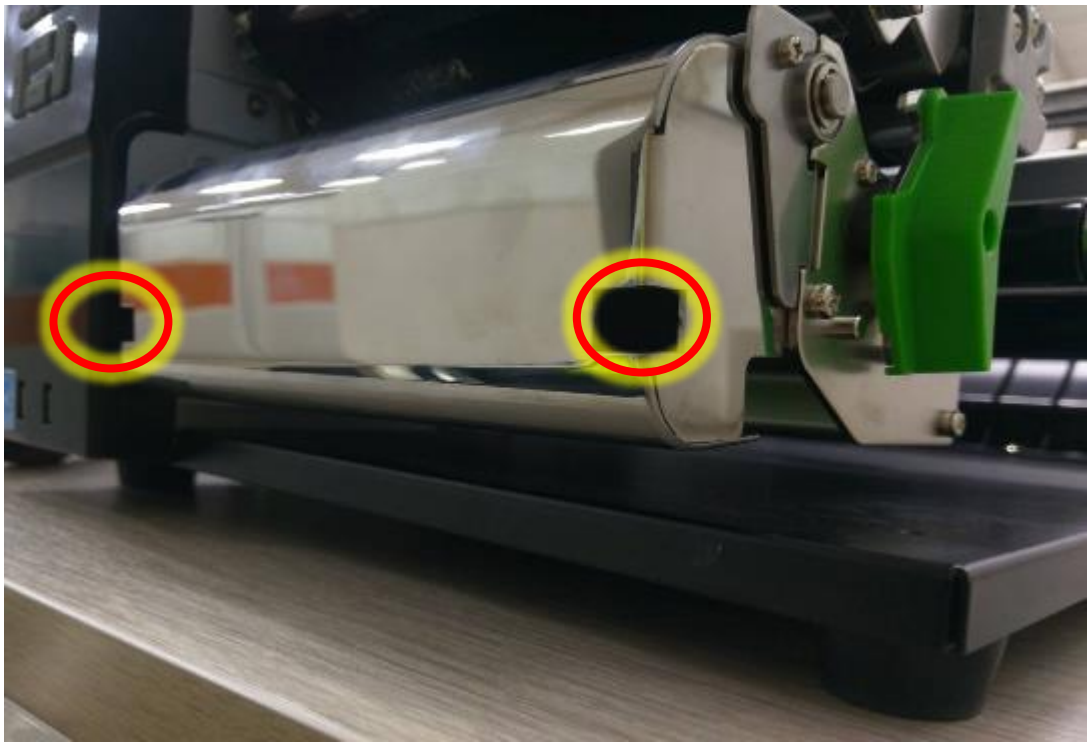
9. Insert 1 circlip at below position

10. Put the third gear into the spindle.

11. Insert second circlip on below position

12. Refer to 3.1 to remove the lower front panel.

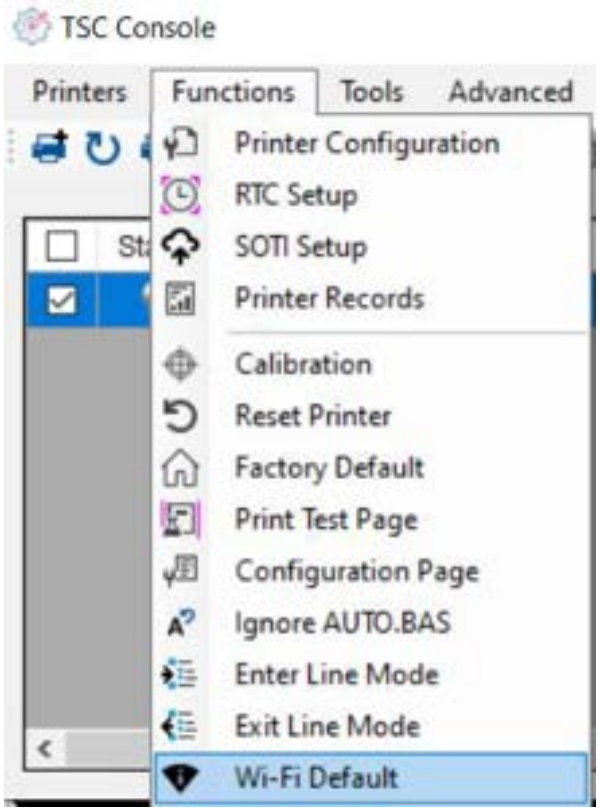
13. Install front cover and fasten 2 screws at marked position.



11. Remove the parts in reverse procedures.

3.22 WiFi Module Installation (Option)

1. Before replacing the new Wi-Fi module, please set the default to clear the old Wi-Fi settings in the printer via TSC Console. And you need to reset the Wi-Fi settings after replacing the new Wi-Fi module.



2. Refer 3.2 to remove the electronic cover.
3. Install WiFi housing.

4. Connect the cables to mainboard.

5. Fasten 2 screws on housing.

6. Insert the WiFi+BT Combo module and fasten the other 2 screws.

7. Reassemble the parts in reverse procedures.

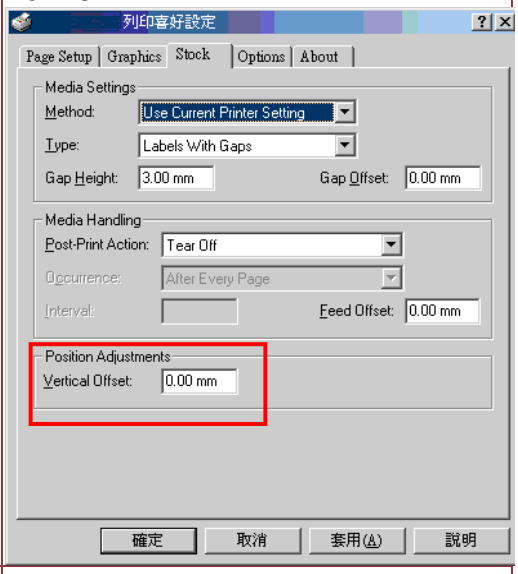
4. TROUBLE SHOOTING

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 power cord is not properly connected.	* Plug the power cord in printer and outlet. * Switch the printer on.
Carriage Open	* The printer carriages are open.	* Please close the print carriages.
Not Printing	* Check if interface cable is well connected to the interface connector. * Check if wireless or Bluetooth device is well connected between host and printer. * The port specified in the Windows driver is not correct.	* Re-connect cable to interface or change a new cable. * Please reset the wireless device setting. * Select the correct printer port in the driver. * Printhead'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.
No print on the label	* Label or ribbon is loaded not correctly. * Use wrong type paper or ribbon * The print density setting is incorrect.	* Follow the instructions in loading the media and ribbon. * Ribbon and media are not compatible. * Verify the ribbon-inked side. * Reload the ribbon again. * Clean the printhead. * Set the correct density with media
No Ribbon	* Running out of ribbon. * The ribbon is installed incorrectly.	* Supply a new ribbon roll. * Please refer to the steps in user's manual to reinstall the ribbon.
No Paper	* Running out of label. * The label is installed	* Supply a new label roll. * Please refer to the steps in user's

	incorrectly. * Gap/black mark sensor is not calibrated.	manual to reinstall the label roll. * Calibrate the gap/black mark sensor.
Paper Jam	* Gap/black mark sensor is not set properly. * Make sure label size is set properly. * Labels may be stuck inside the printer mechanism.	* Calibrate the media sensor. * Set media size correctly. * Remove the stuck label inside the printer mechanism.
Take Label	* Peel function is enabled.	* If the peeler module is installed, please remove the label. * If there is no peeler module in front of the printer, please switch off the printer and install it. * Check if the connector is plugging correctly.
Can't downloading the file to memory (FLASH / DRAM/CARD)	* The space of memory is full.	* Delete unused files in the memory.
SD card is unable to use	* SD card is damaged. * SD card doesn't insert correctly.	* Use the supported capacity SD card. * Insert the SD card again.
Poor Print Quality	* Ribbon and media is loaded incorrectly * Dust or adhesive accumulation on the print head. * Print density is not set properly. * Print speed is not set properly. * Printhead element is damaged. * Ribbon and media are incompatible. * The printhead pressure is not set properly.	* 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 ribbon or proper label media. * Adjust the printhead pressure adjustment knob. * Make sure the print carriage is closed properly.
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.
Label feeding is not stable (skew) when printing	* The media guide does not touch the edge of the media.	* If the label is moving to the right side, please move the label guide to left. * If the label is moving to the left side, please move the label guide to right.
Skip labels when printing	* Label size is not specified properly. * Sensor sensitivity is not set properly. * The media sensor is covered with dust.	* Check if label size is setup correctly. * Calibrate the sensor by Auto Gap or Manual Gap options. * Clear the GAP/Black mark sensor by blower.
Wrinkle Problem	* Printhead pressure is incorrect. * Ribbon installation is incorrect. * Media installation is incorrect. * Print density is incorrect. * Media feeding is incorrect.	* Please refer to section 4.2. * Please set the suitable density to have good print quality. * Make sure the label guide touch the edge of the media guide.
RTC time is incorrect when reboot the printer	* The battery has run down.	* Check if there is a battery on the main board.
The left side printout position is incorrect	* Wrong label size setup. * The parameter Shift X in LCD menu is incorrect.	* Set the correct label size. * Press [Menu] → [Setting] → [Shift X] to fine tune the parameter of Shift X.

The printing position of small label is incorrect	* Media sensor sensitivity is not set properly. * Label size is incorrect. * The parameter Shift Y in the LCD menu is incorrect. * The vertical offset setting in the driver is incorrect.	* Calibrate the sensor sensitivity again. * Set the correct label size and gap size. * Press [Menu] → [Setting] → [Shift X] to fine tune the parameter of Shift X. * If using the software BarTender, please set the vertical offset in the driver. 
LCD panel is dark and keys are not working	* The cable between main PCB and LCD panel is loose.	* Check if the cable between main PCB and LCD is secured or not.
LCD panel is dark but the LEDs are light	* The printer initialization is unsuccessful.	* Turn OFF and ON the printer again. * Initialize the printer.
Ribbon encoder sensor doesn't work	* The ribbon encoder sensor connector is loose.	* Fasten the connector.
Ribbon end sensor doesn't work	* The connector is loose. * The ribbon sensor hole is covered with dust.	* Check the connector. * Clear the dust in the sensor hole by the blower.
Cutter is not working	* The connector is loose.	* Plug in the connect cable correctly.

5. MAINTENANCE

This session presents the clean tools and methods to maintain your 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	1. Always turn off the printer before cleaning the printhead. 2. Allow the printhead to cool for a minimum of one minute. 3. 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	1. Turn off the printer. 2. 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 a brush with soft non-metallic bristles or a vacuum cleaner, described above, to remove paper dust. The upper and lower media sensors should be cleaned 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

UPDATE HISTORY

Date	Content	Editor
2022/4/21	Adjust Wi-Fi module replacing order	Linda

MH261T Series
Bar Code Printer Service Manual

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