Industrial Barcode Printer

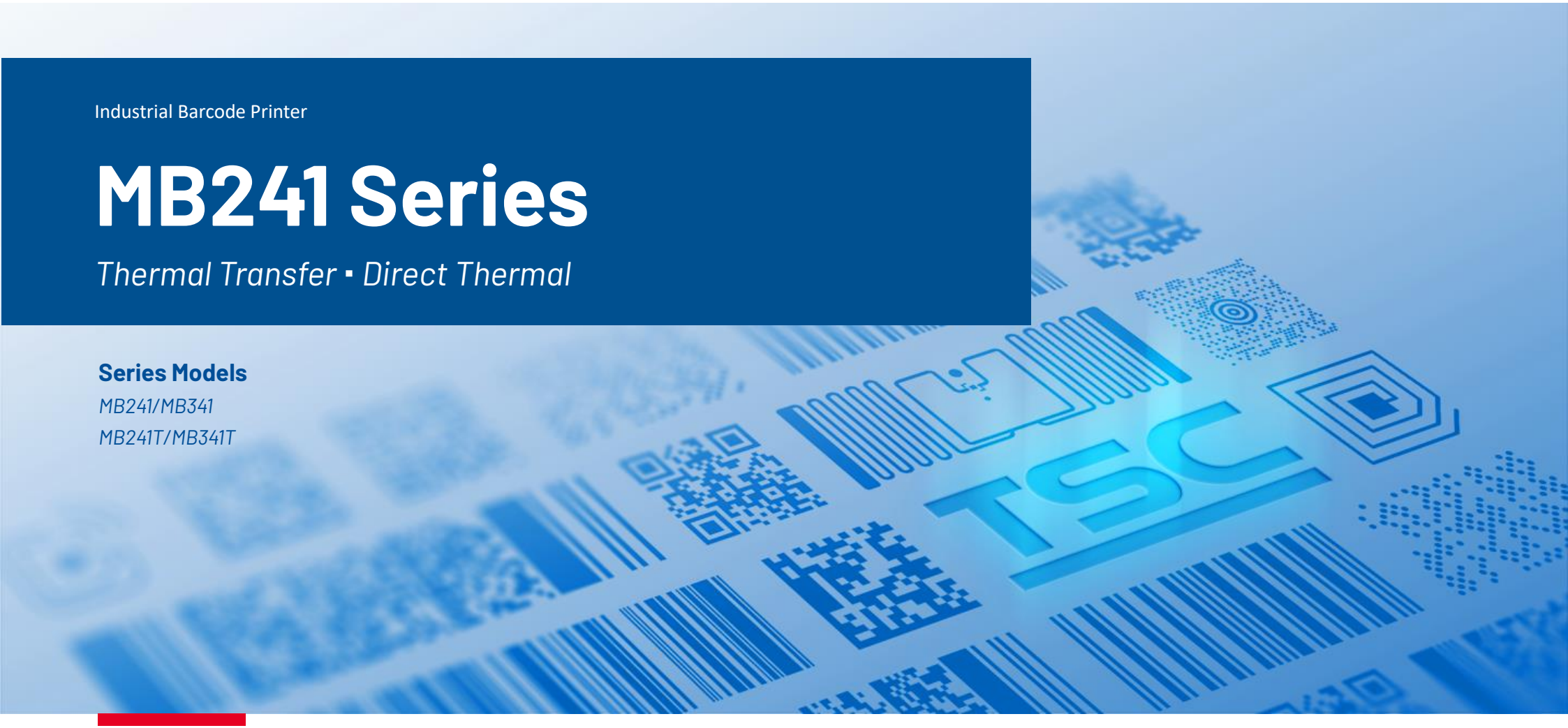
MB241 Series

Thermal Transfer ▪ Direct Thermal

Series Models

MB241/MB341

MB241T/MB341T



Service Manual

www.tscprinters.com

Copyright Information

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1. Fundamental of the System

1.1 Printer Overview

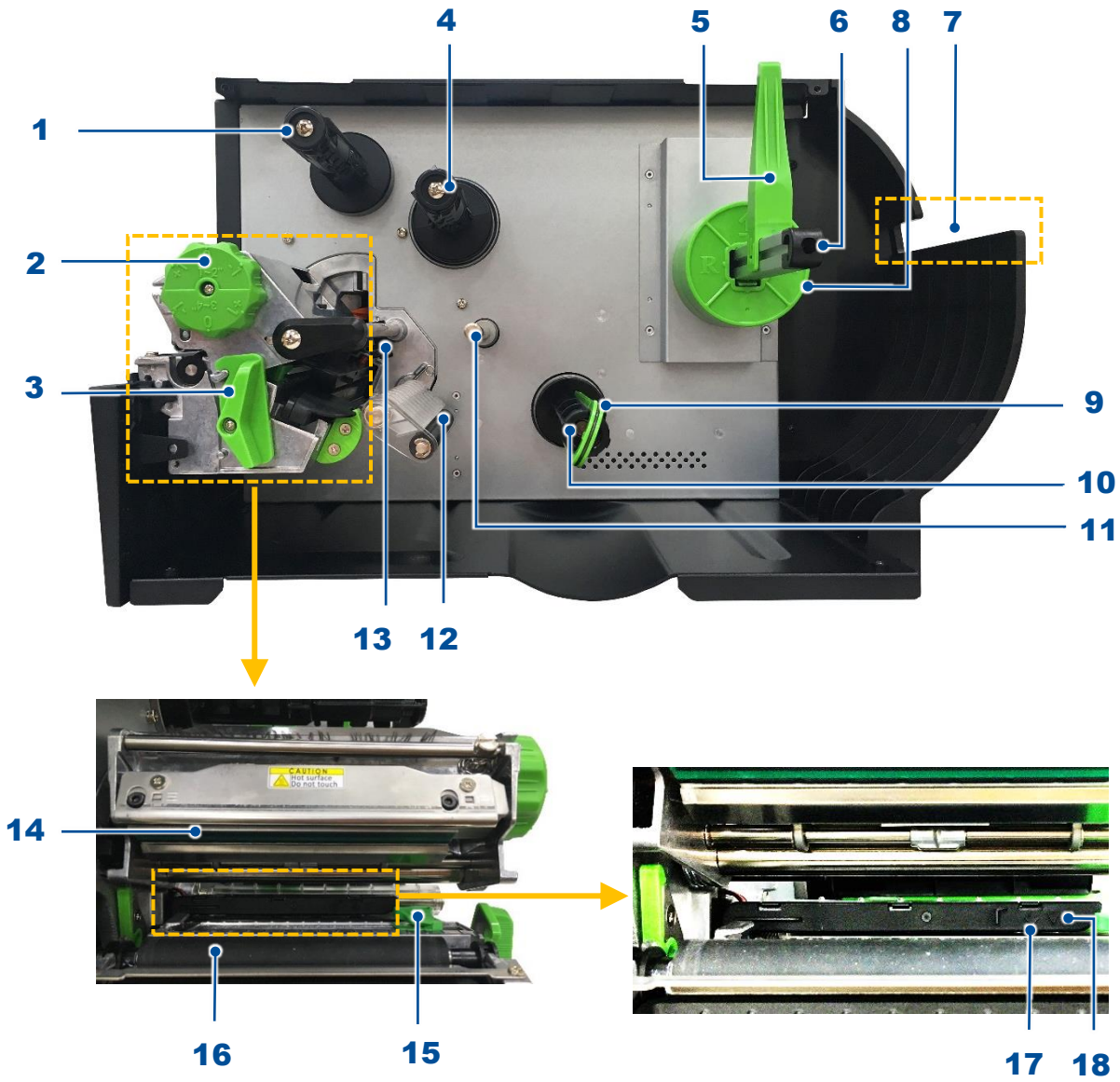
Front View

■ MB241 Series

■ MB241T Series

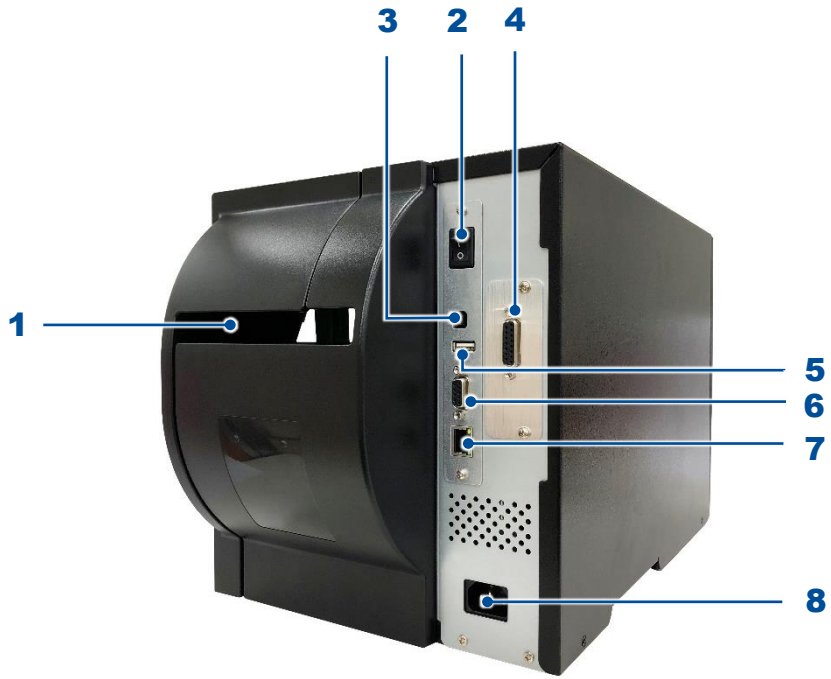
1. LED indicator
2. 2.3” color LCD display
3. Front panel buttons
4. 3.5” color touch LCD
5. Media window
6. Paper exit chute
7. Media cover handle

Interior View



1. Ribbon rewind spindle
2. Print head pressure adjustment knob
3. Print head release lever
4. Ribbon supply spindle
5. Label roll guard
6. Label supply spindle
7. External label entrance chute
8. 3” core adapter
9. Liner securing clip (Optional kit of Peel-off module ass’y)
10. Liner rewind spindle (Optional kit of Peel-off module ass’y)
11. Media guide bar (Optional kit of Peel-off module ass’y)
12. Damper
13. Ribbon end sensor
14. Print head
15. Front label guide
16. Platen roller
17. Black mark sensor (shown as ↓)
18. Gap sensor (shown as ▽)

Rear View



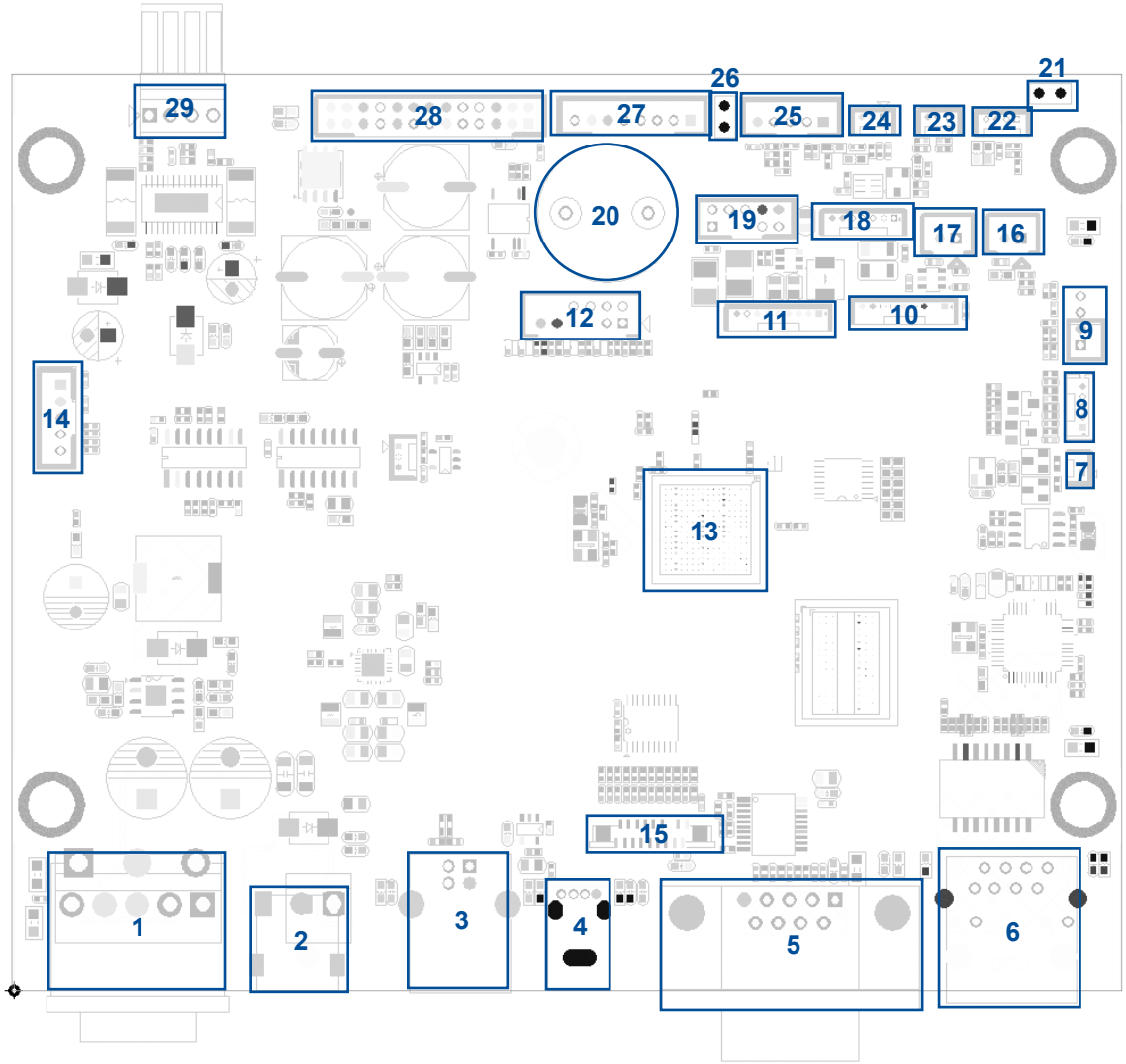
1. External label entrance chute
2. Power switch
3. USB interface (High speed mode)
4. Slot-in Wi-Fi or GPIO interface (Option)
5. USB host
6. RS-232C interface
7. Ethernet interface
8. Power cord socket

Note:
The interface picture here is for reference only. Please refer to the product specification for the interface availability.

2. Electronics

2.1 Summary of the Board Connectors

■ Main board for MB241/ MB241T Series



1. Power switch connector
2. Power supply (24V DC) connector
3. USB client connector
4. USB host connector
5. RS-232C connector
6. Ethernet connector
7. RTC battery connector
8. LED & key/ touch-function connector
9. Head open sensor connector
10. LCD panel (Interface 1, SPI LCD) connector
11. SD card connector
12. Wi-Fi connector
13. Micro processor
14. Liner rewinder connector
15. LCD panel (Interface 2, parallel LCD) connector
16. Gap receiver sensor connector
17. Gap emitter sensor connector
18. RFID connector
19. Wi-Fi/ Bluetooth connector
20. Buzzer
21. ESD cable connector
22. Ribbon end sensor connector
23. Ribbon encoder sensor connector
24. Black mark sensor connector
25. Peel-off sensor/ GPIO connector
26. ESD cable connector
27. Cutter/ GPIO connector
28. Printhead connector
29. Stepping motor connector

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 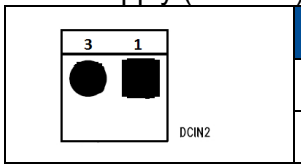

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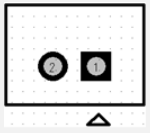
</table></td><td>DCIN2</td></tr>
<tr><td>3</td><td>USB client connector</td><td>USB1</td></tr>
<tr><td>4</td><td>USB host connector</td><td>USB2</td></tr>
<tr><td>5</td><td>RS-232C connector</td><td>RS1</td></tr>
<tr><td>6</td><td>Ethernet connector</td><td>LAN1</td></tr>
<tr><td>7</td><td>RTC battery connector
 
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<tr><td>2</td><td>Vbattery</td></tr>
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<tr><td>8</td><td>LED & key & touch-function connector
 
<table>
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<tr><td>1</td><td>3.3V</td></tr>
<tr><td>2</td><td>KEY_SDA</td></tr>
<tr><td>3</td><td>KEY_SCL</td></tr>
<tr><td>4</td><td>KEY_INT</td></tr>
<tr><td>5</td><td>GND</td></tr>
<tr><td>6</td><td>TOUCH_INT</td></tr>
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<table>
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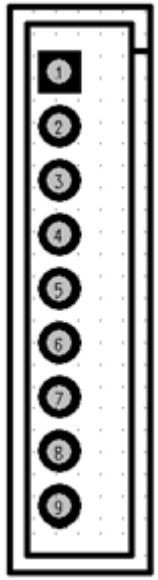
<tr><td>9</td><td>Head open sensor connector
  <table><tr><th>Pin</th><th>Description</th></tr><tr><td>1</td><td>HEAD open</td></tr><tr><td>2</td><td>GND</td></tr><tr><td>3</td><td>3.3V</td></tr><tr><td>4</td><td>3.3V</td></tr></table></td><td>CON1</td></tr>
<tr><td>10</td><td>LCD panel (Interface 1, SPI LCD) connector
  <table><tr><th>Pin</th><th>Description</th></tr><tr><td>1</td><td>3.3V</td></tr><tr><td>2</td><td>LCD_SI</td></tr><tr><td>3</td><td>LCD_SCL</td></tr><tr><td>4</td><td>LCD_CS1</td></tr><tr><td>5</td><td>SLCD_D/CX</td></tr><tr><td>6</td><td>LCD_BL</td></tr><tr><td>7</td><td>SLCD_RESET</td></tr><tr><td>8</td><td>GND</td></tr><tr><td>9</td><td>5V</td></tr></table></td><td>CON23</td></tr>
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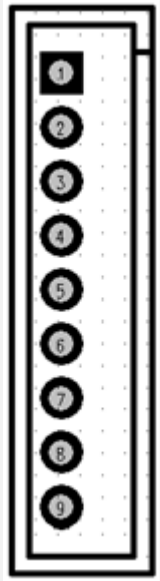
<tr><td>11</td><td>SD card connector
 
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<tr><td>3</td><td>MIC0_DA1</td></tr>
<tr><td>4</td><td>MIC0_DA2</td></tr>
<tr><td>5</td><td>MIC0_DA3</td></tr>
<tr><td>6</td><td>MIC0_CK</td></tr>
<tr><td>7</td><td>MIC0_CMD</td></tr>
<tr><td>8</td><td>Micro_SD_DATA2</td></tr>
<tr><td>9</td><td>SD_Detect</td></tr>
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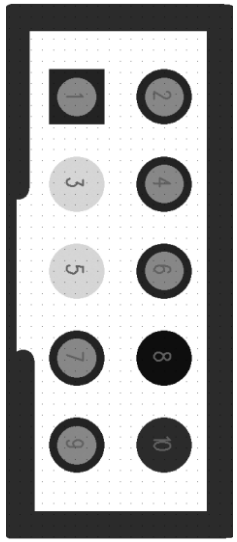
<tr><td>12</td><td>Wi-Fi connector
 
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<tr><td>3</td><td>SPI_MISO</td></tr>
<tr><td>4</td><td>RTS</td></tr>
<tr><td>5</td><td>SPI_MOSI</td></tr>
<tr><td>6</td><td>CTS</td></tr>
<tr><td>7</td><td>SPI_INTR</td></tr>
<tr><td>8</td><td>SPI_CLK</td></tr>
<tr><td>9</td><td>WB_GPIO</td></tr>
<tr><td>10</td><td>GND</td></tr>
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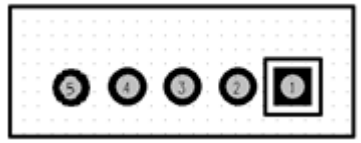
<tr><td>13</td><td>Micro processor</td><td>-</td></tr>
<tr><td>14</td><td>Liner rewinder connector
 
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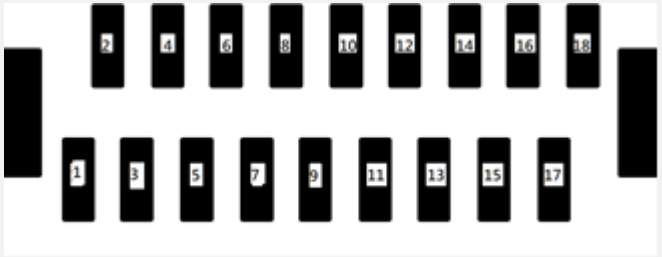
<tr><td>15</td><td>LCD panel (Interface 2, parallel LCD) connector
 
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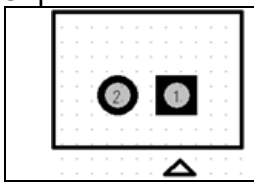
<tr><td>16</td><td>Gap receiver sensor connector
 
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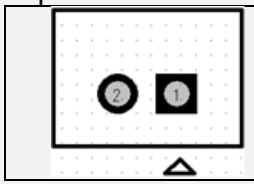
<tr><td>17</td><td>Gap emitter sensor connector
 
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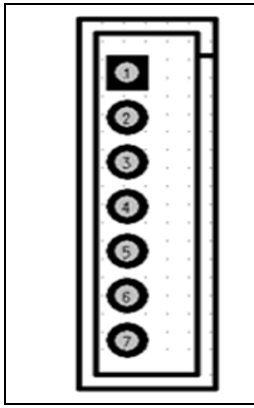
<tr><td>18</td><td>RFID connector
 
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 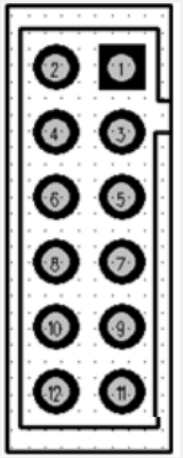

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<tr><td>3</td><td>MDIO</td></tr>
<tr><td>4</td><td>CRSDV</td></tr>
<tr><td>5</td><td>GRX0</td></tr>
<tr><td>6</td><td>RXER</td></tr>
<tr><td>7</td><td>RX1</td></tr>
<tr><td>8</td><td>TXEN</td></tr>
<tr><td>9</td><td>REFCK</td></tr>
<tr><td>10</td><td>TX1</td></tr>
<tr><td>11</td><td>GND</td></tr>
<tr><td>12</td><td>TX0</td></tr>
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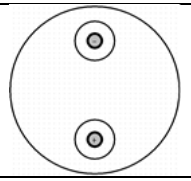
<tr><td>20</td><td>Buzzer
 
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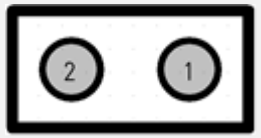
<tr><td>21 & 26</td><td>ESD cable connector
 

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<tr><td>22</td><td>Ribbon end sensor connector
 
<table><tr><th>Pin</th><th>Description</th></tr><tr><td>1</td><td>RIB sensor receiver</td></tr><tr><td>2</td><td>3.3V</td></tr><tr><td>3</td><td>GND</td></tr><tr><td>4</td><td>RIB sensor emitter</td></tr></table></td><td>CON11</td></tr>
<tr><td>23</td><td>Ribbon encoder sensor connector
 
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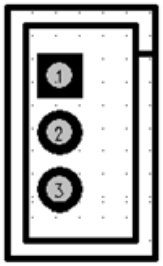
<tr><td>24</td><td>Black mark sensor connector
 
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 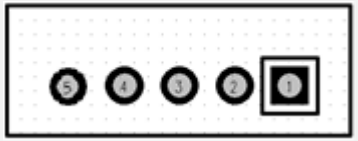
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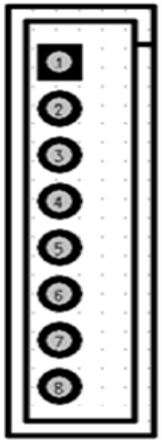
<tr><td>27</td><td>Cutter/ GPIO connector
 
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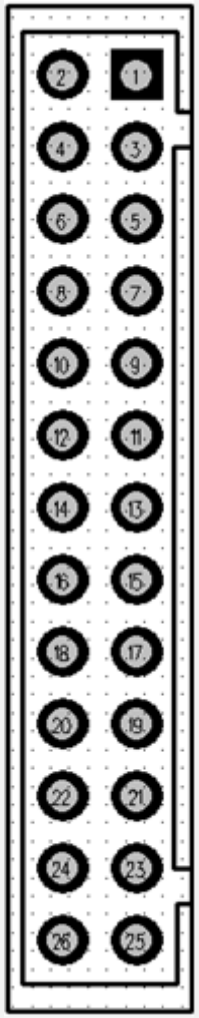
<tr><td> 
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<tr><td>8</td><td>Data2</td></tr>
<tr><td>9</td><td>TPH ID</td></tr>
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<tr><td>11</td><td>5V</td></tr>
<tr><td>12</td><td>GND</td></tr>
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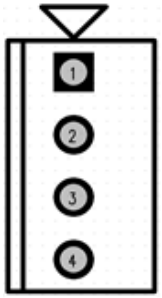
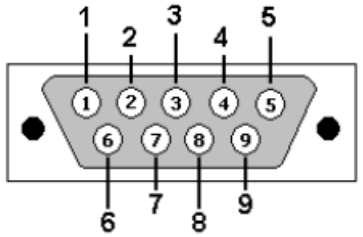
<tr><td>23</td><td>TPH 24V</td></tr>
<tr><td>24</td><td>TPH 24V</td></tr>
<tr><td>25</td><td>TPH 24V</td></tr>
<tr><td>26</td><td>TPH 24V</td></tr>
</table>
</td></tr>
</table></td><td>CON24</td></tr>
</table>

<table>
<tr><th>Connector</th><th>Description</th><th>Remark</th></tr>
<tr><td>29</td><td>Stepping motor connector
<table>
<tr><td> 
</td><td>
<table>
<tr><th>Pin</th><th>Description</th></tr>
<tr><td>1</td><td>BOUT2</td></tr>
<tr><td>2</td><td>BOUT1</td></tr>
<tr><td>3</td><td>AOUT1</td></tr>
<tr><td>4</td><td>AOUT2</td></tr>
</table>
</td></tr>
</table>
</td><td>CON16</td></tr>
</table>

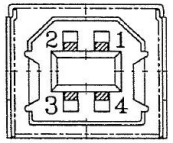
2.2 Interface Pin Configuration

RS-232C



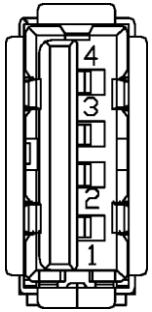
Pin	Description
1	+5 V
2	TXD
3	RXD
4	CTS
5	GND
6	RTS
7	N/C
8	RTS
9	N/C

USB Device



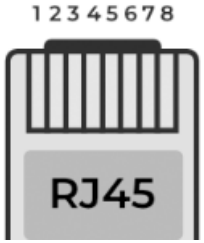
Pin	Description
1	N/C
2	D-
3	D+
4	GND

USB Host



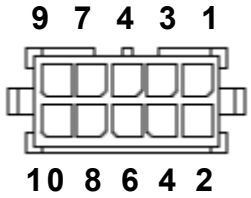
Pin	Description
1	5V
2	D-
3	D+
4	GND

Ethernet



Pin	Description
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. Replacing Parts

3.1 Before You Begin

WARNING:

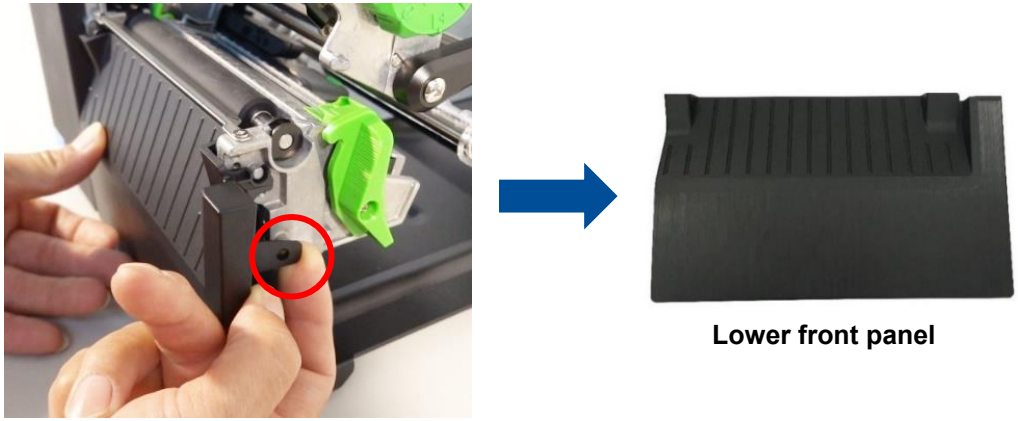
To avoid the risk of personal injury from electrical shock, before performing any replacement procedures, unplug the power cord from the printer or power outlet to ensure that power is removed.

To prepare the printer for the replacement or installation:

1. Protect yourself from ESD and wear protective gloves.
2. Place the printer on a flat surface.
3. Set the printer's power switch to the O (Off) position.
4. Remove the power cord from the printer or unplug the power cord from the AC power outlet.
5. Disconnect all interface cables from the rear panel of the printer.
6. Remove the media and ribbon from the printer.
7. Read through the maintenance procedures.

3.2 Removing the Lower Front Panel

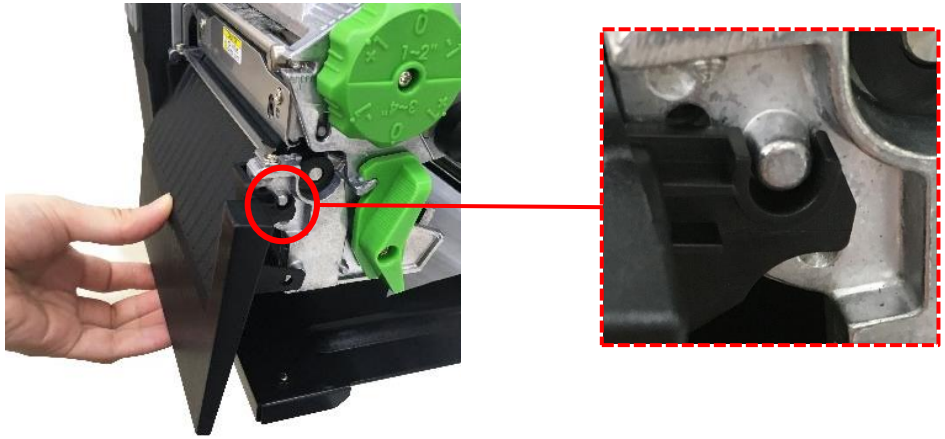
1. Follow the steps in Before You Begin to prepare the printer.
2. Raise the media cover. Push the printhead release lever to open the printhead mechanism.
3. Move the tab outward then pull the panel inward to remove the lower front panel.



Lower front panel

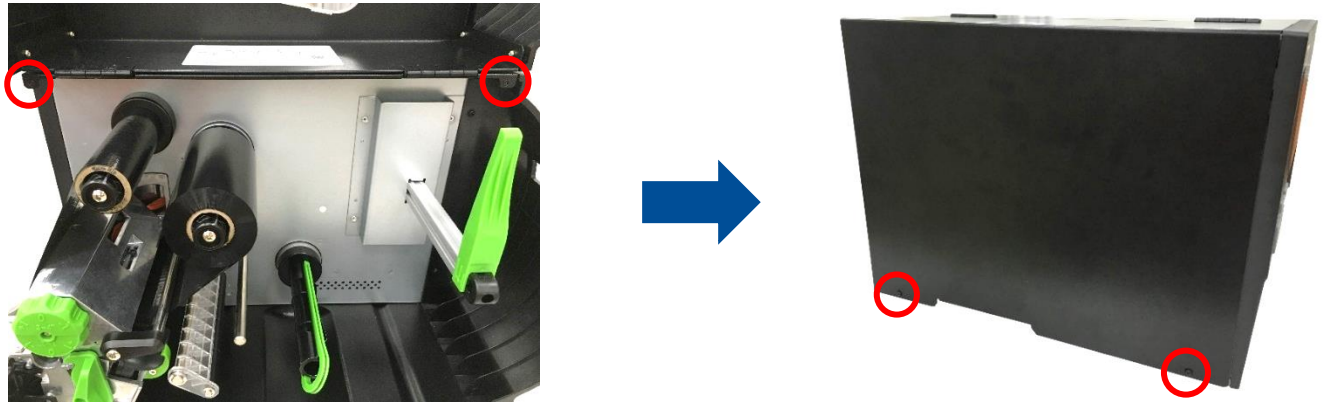
4. Reassemble the parts in the reverse procedures.

Note: When install the lower front panel, please attach the hook along the protrusion of print head mechanism.

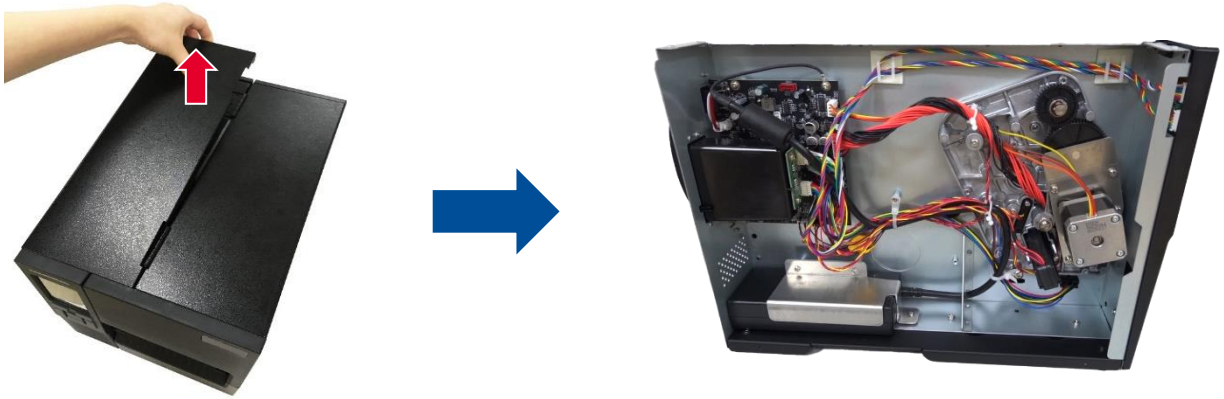


3.3 Removing the Electronics Cover

1. Follow the steps in Before You Begin to prepare the printer.
2. Raise the media cover and remove the two screws (fastened by 7.5 kg±15% kg-cm) on the inside of the printer as indicated.
3. Remove the two screws (fastened by 7.5 kg±15% kg-cm) securing the side cover (electronic cover) to the printer frame.



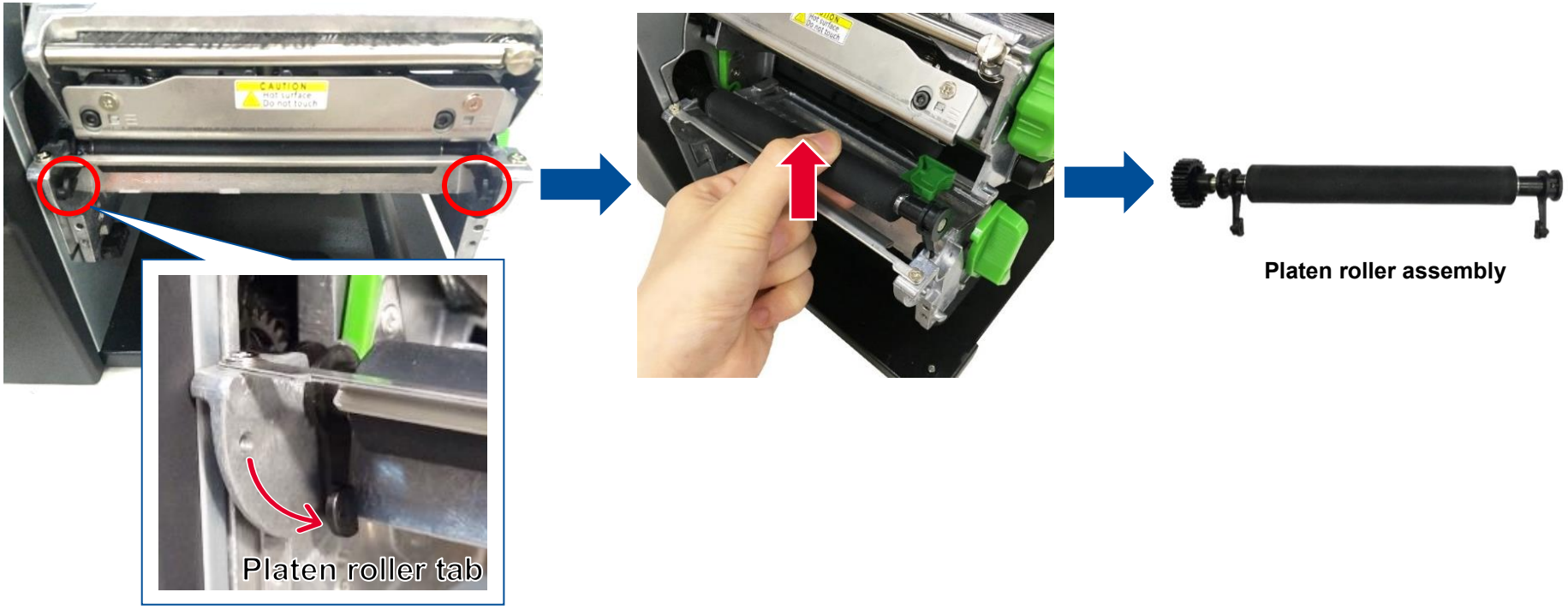
4. From the back of the printer lift up and tilt the top of the side cover up until the tabs along the lower edge disengage from the slots in the printer base frame and remove the side cover.



5. Reassemble the parts in the reverse procedures.

3.4 Replacing the Platen Roller Assembly

1. Follow the steps in Before You Begin to prepare the printer.
2. Refer to Removing the Lower Front Panel to remove the lower front panel.
3. Disengage the platen roller by pulling out the tabs located on both sides. Rotate the tabs into the end of mechanism as shown. Pulling upward to remove/replace the platen roller assembly.



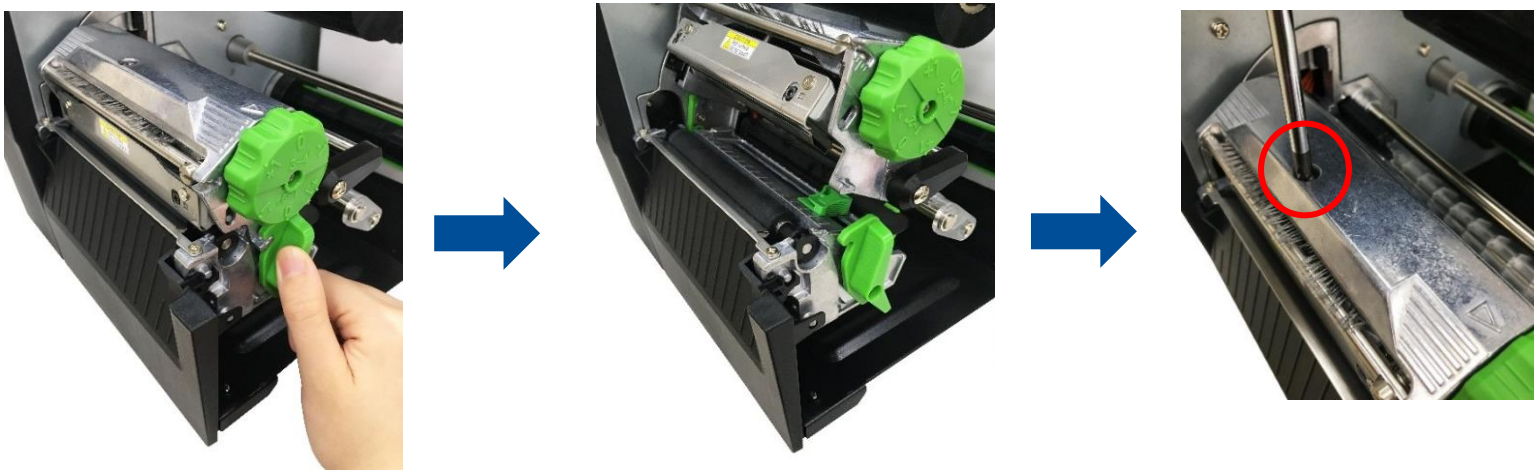
4. Reassemble the parts in the reverse procedures.

3.5 Replacing the Printhead Assembly

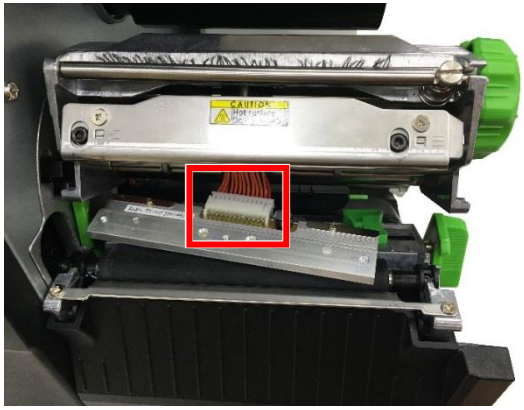
CAUTION:

To prevent electrostatic damage to electronic components, ground yourself by touching an unpainted part of the printer frame before removing or installing the printhead assembly.

1. Follow the steps in Before You Begin to prepare the printer.
2. Raise the media cover.
3. Push the printhead release lever to open the printhead mechanism.
4. Remove a screw (fastened by 5 kg±15% kg-cm) securing the printhead to the deck as indicated.

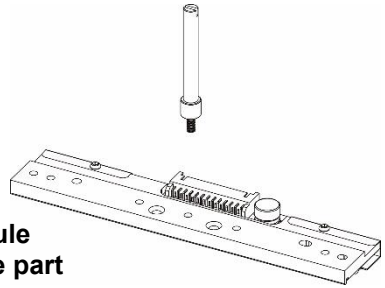


5. Disconnect the printhead harness to remove/replace the new printhead assembly.



Note:

Use the new printhead screw to install the new printhead assembly.

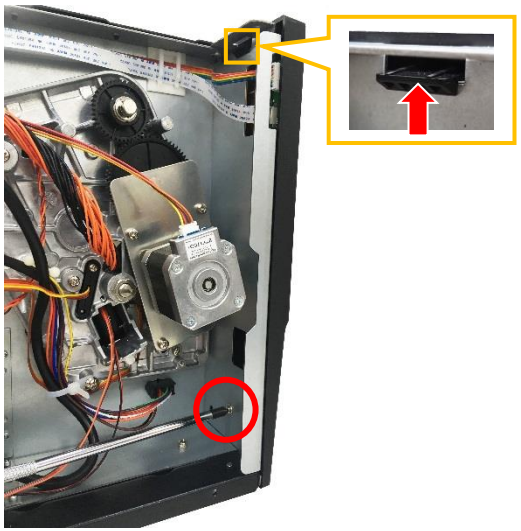


Printhead module assembly spare part

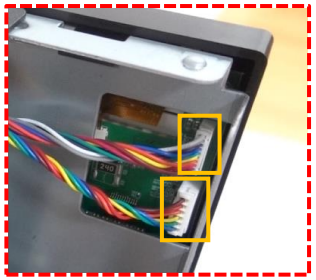
6. Reassemble the parts in the reverse procedures.

3.6 Replacing the Control Panel Assembly

1. Follow the steps in Before You Begin to prepare the printer.
2. Refer to Removing the Electronics Cover to remove the electronics cover.
3. Remove one screw (3.5” touch panel: fastened by 3.5 kg±15% kg-cm; 2.3” LCD panel: fastened by 3.5 kg±15% kg-cm) at the bottom of the control panel as shown then disengage the rectangular locking tab at the top of the control panel. Disconnect two connectors on control panel board.



MB241T Series
(3.5” Touch panel)



MB241 Series
(2.3” LCD panel)

4. Remove/Replace the control panel assembly.
5. Reassemble the parts in the reverse procedures.

Note:

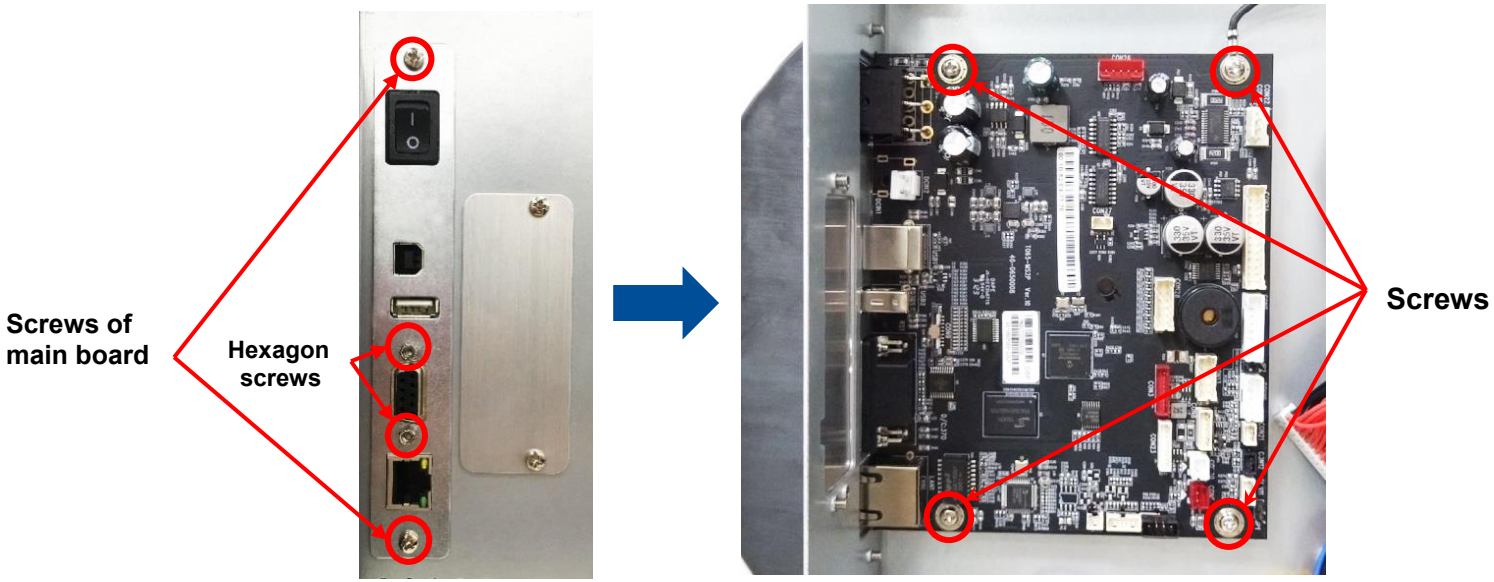
When reassemble the parts, please install the cables through the loading path as indicated.

3.5” Touch LCD:

2.3” LCD:

3.7 Replacing the Main Board

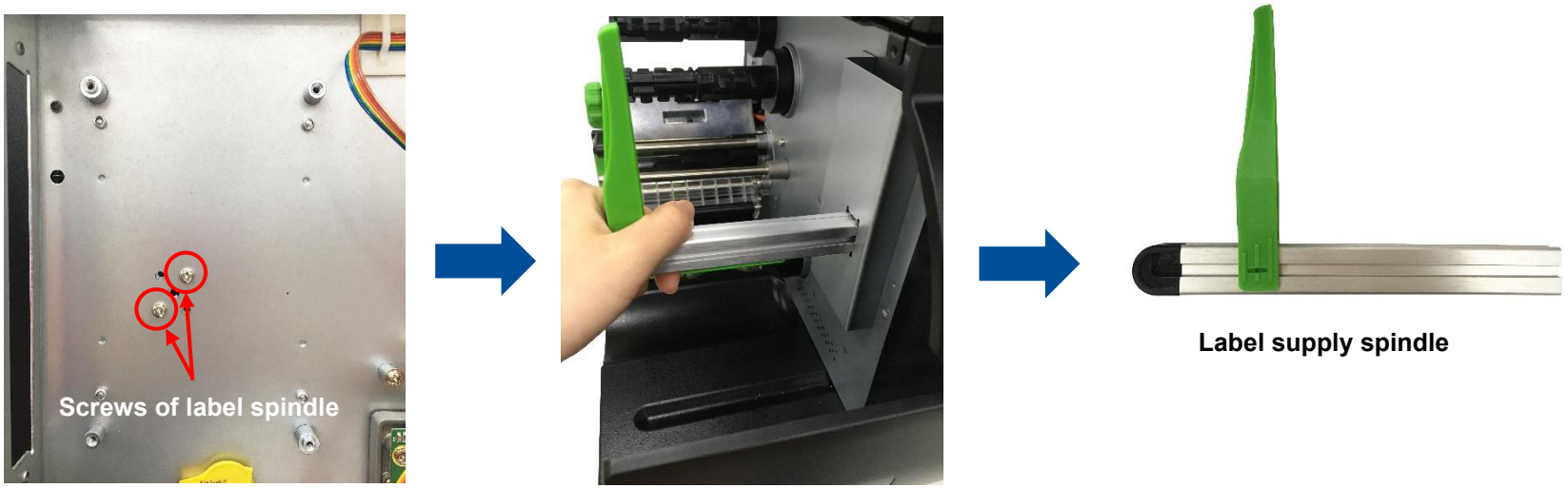
1. Follow the steps in Before You Begin to prepare the printer.
2. Refer to Removing the Electronics Cover to remove the electronics cover.
3. Refer to Slot-in Wireless Housing Installation (Option) to remove the wireless housing. (if module installed)
   Refer to GPIO Interface Assembly Installation (Option) to remove the GPIO interface board. (if module installed)
4. Remove two screws and two hexagon screws (RS-232) on the rear of printer.
   Remove four screws (fastened by 7.5 kg±15% kg-cm) and disconnect all the connectors from the main board.



5. Remove/Replace the main board.
6. Reassemble the parts in the reverse procedures.

3.8 Replacing the Label Supply Spindle

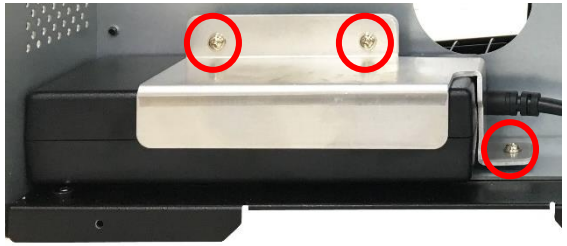
1. Follow the steps in Before You Begin to prepare the printer.
2. Refer to Removing the Electronics Cover to remove the electronics cover.
3. Refer to Replacing the Main Board to remove the main board.
4. After removing the main board, loosen two screws (fastened by 7.5 kg±15% kg-cm) as indicated. Remove/Replace the label supply spindle.



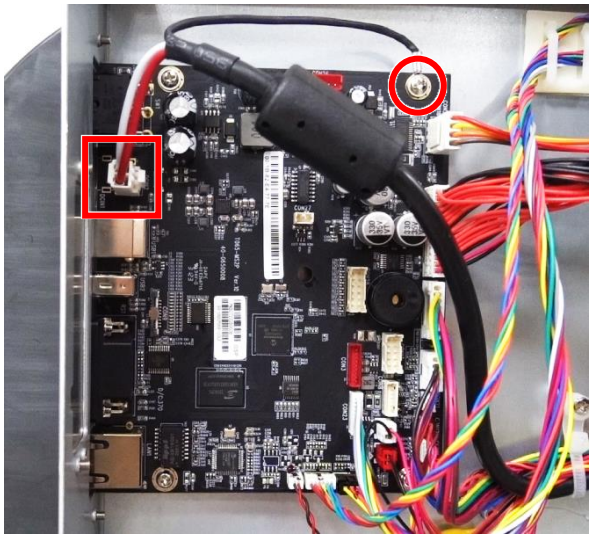
5. Reassemble the parts in the reverse procedures.

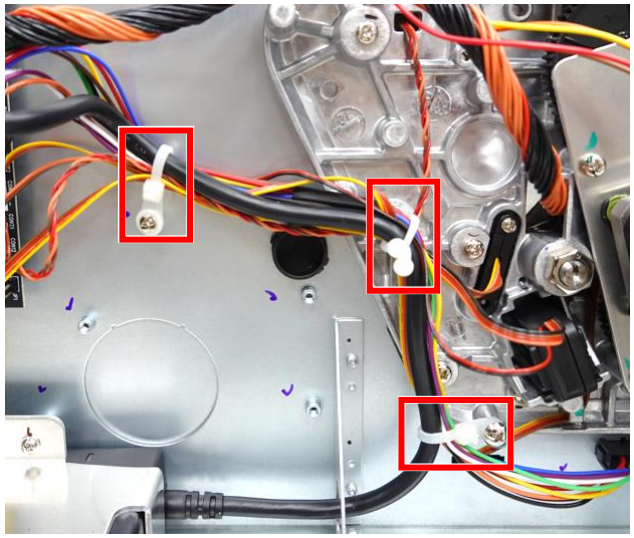
3.9 Replacing the Power Supply Unit

1. Follow the steps in Before You Begin to prepare the printer.
2. Refer to Removing the Electronics Cover to remove the electronics cover.
3. Remove three screws (fastened by 7.5 kg±15% kg-cm) as indicated below.



4. Remove one screw (fastened by 7.5 kg±15% kg-cm) and disconnect one connector on main board. Loosen three cable ties to remove/replace the power supply unit.



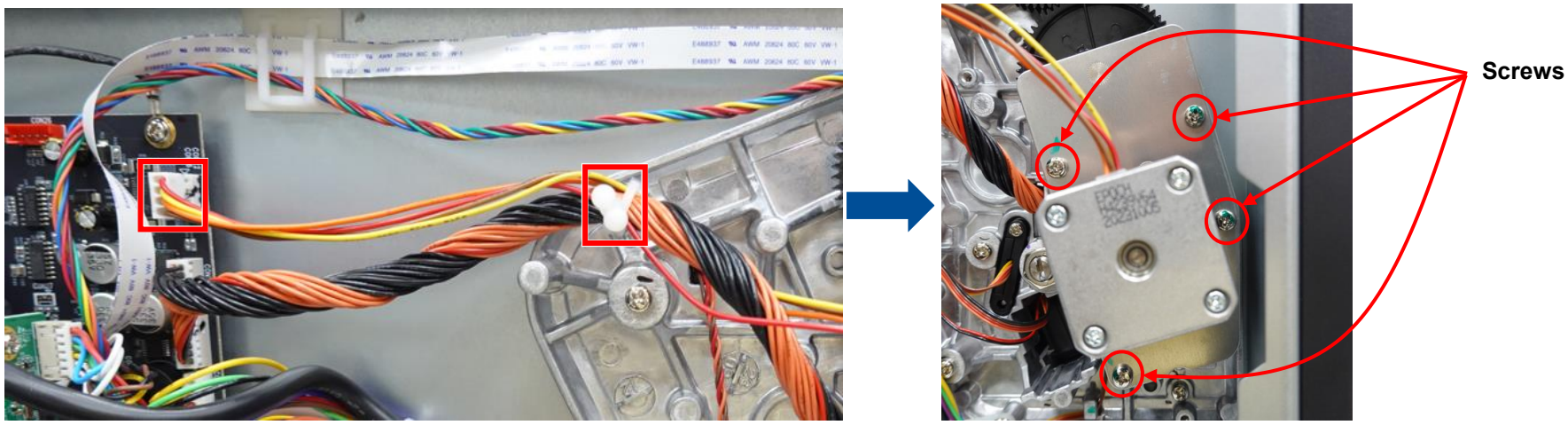


5. Reassemble the parts in the reverse procedure.

3.10 Replacing the Stepping Motor Assembly

1. Follow the steps in Before You Begin to prepare the printer.
2. Refer to Removing the Electronics Cover to remove the electronics cover.
3. Disconnect one connector on the main board and loosen one cable tie.

   Remove four screws (fastened by 10.5 kg±15% kg-cm) on the stepping motor assembly.



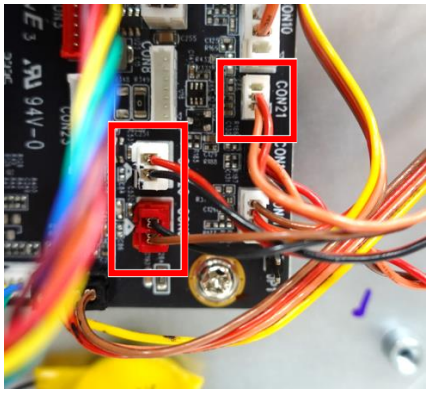
4. Remove/Replace the stepping motor assembly. (including gears and stepping motor)

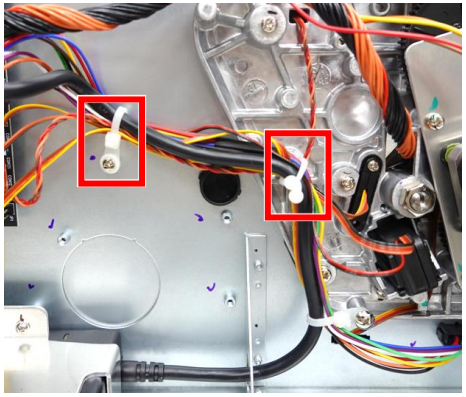
Stepping motor assembly

5. Reassemble the parts in the reverse procedures.

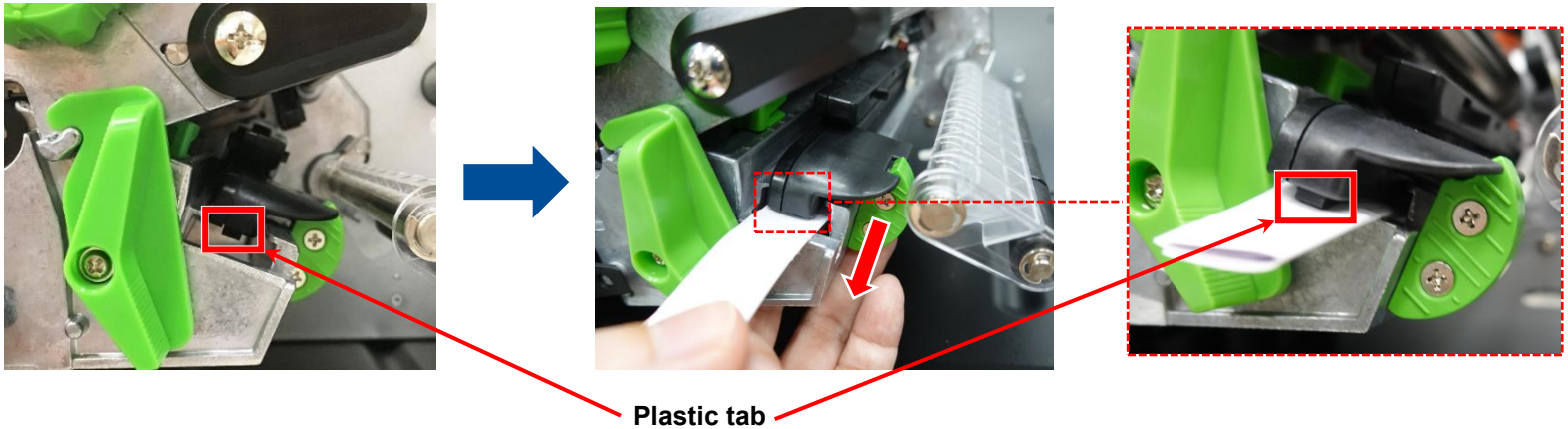
3.11 Replacing the Gap/Black Mark Sensor Module

1. Follow the steps in Before You Begin to prepare the printer.
2. Refer to Removing the Electronics Cover to remove the electronics cover.
3. Disconnect three gap/black mark sensor connectors from the main board. Loosen two cable ties.





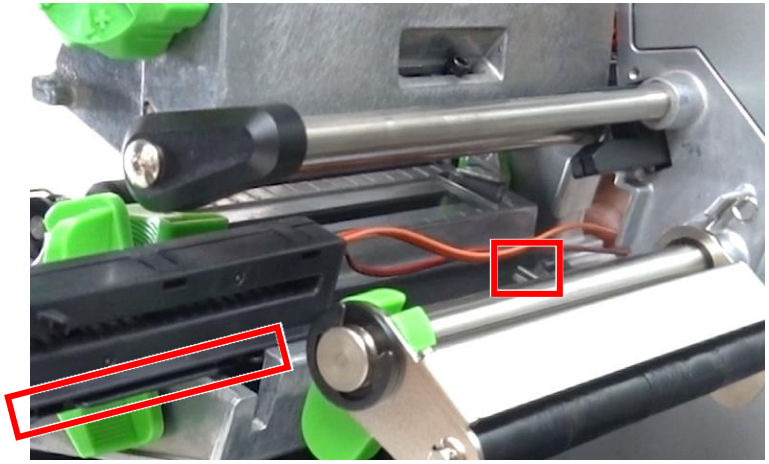
4. Raise the media cover. At the bottom of the gap/black mark sensor module, there is a plastic tab to latch the sensor assembly to the mechanism. Use a piece of paper (thick stiff paper) to make it through the slot and put the paper under the tab. Pull the media sensor assembly out of the mechanism.

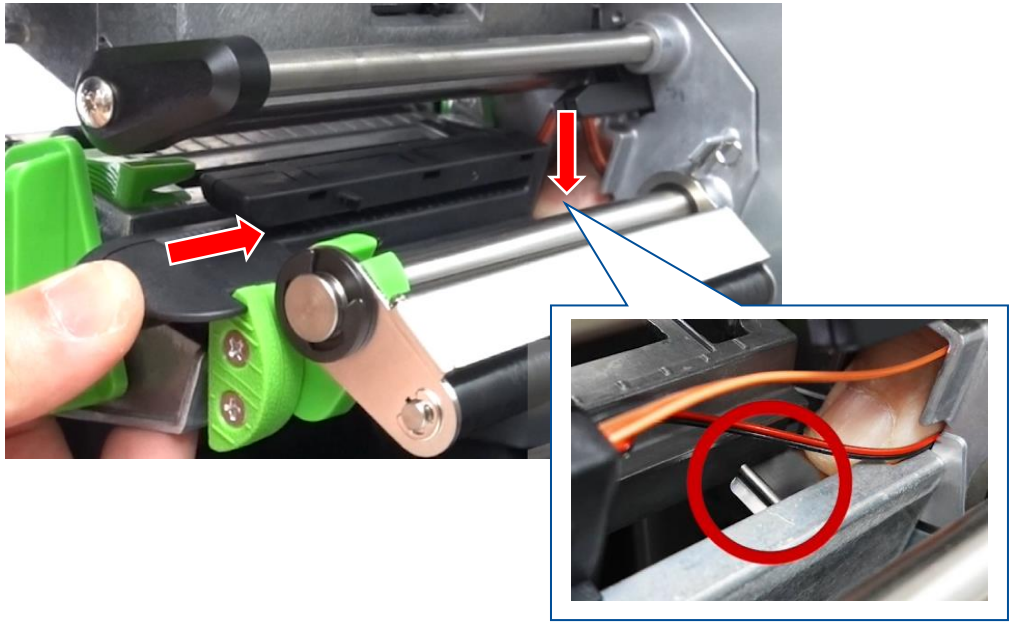


5. Remove/Replace the gap/black mark sensor.

Note:

When installing a new sensor module, please note that there is a spring in the center wall of the printer, please press down it when installing to avoid being hit. Attach the sensor module into the rail.

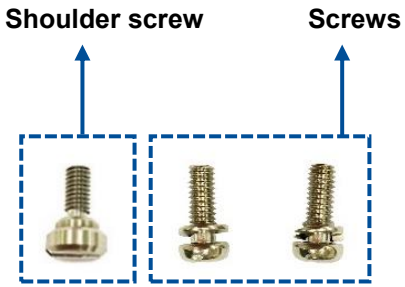




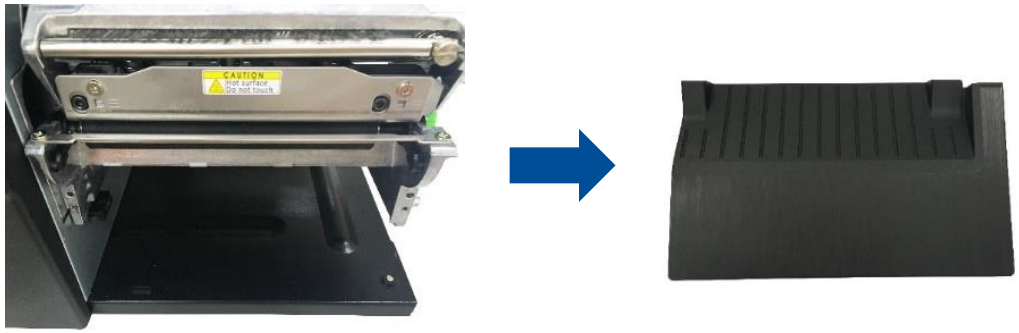
6. Reassemble the parts in the reverse procedures.

3.12 Cutter Module Installation (Option)

Cutter Module Assembly

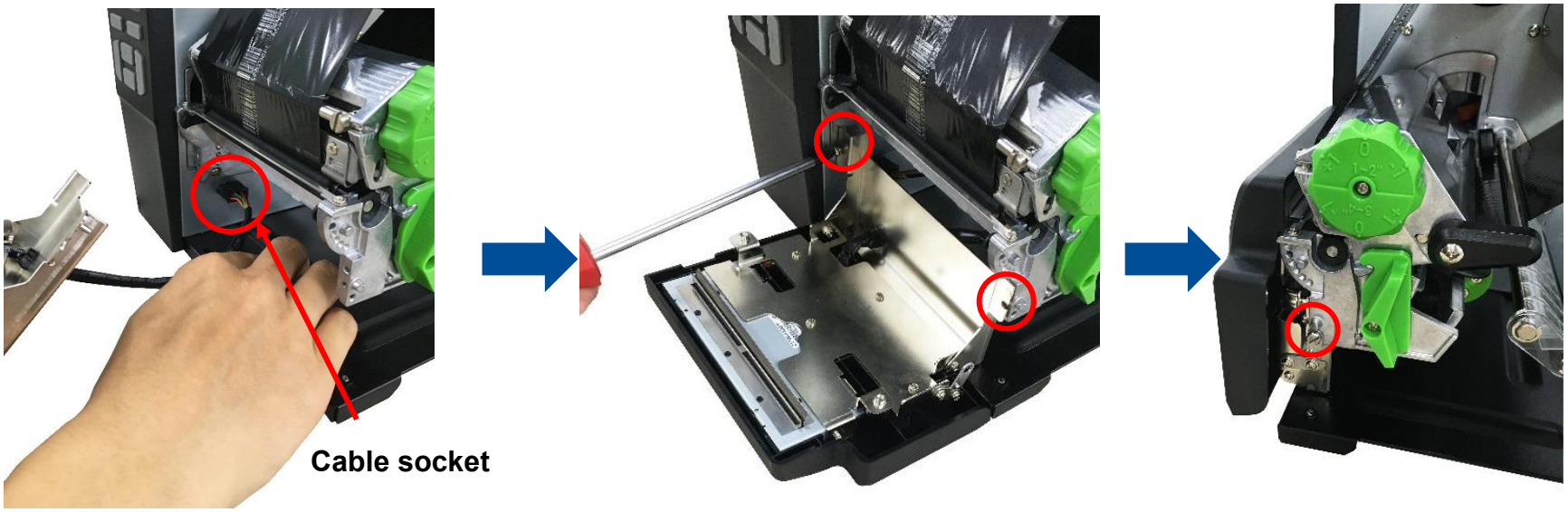


1. Follow the steps in Before You Begin to prepare the printer.
2. Refer to Removing the Lower Front Panel to remove the lower front panel.



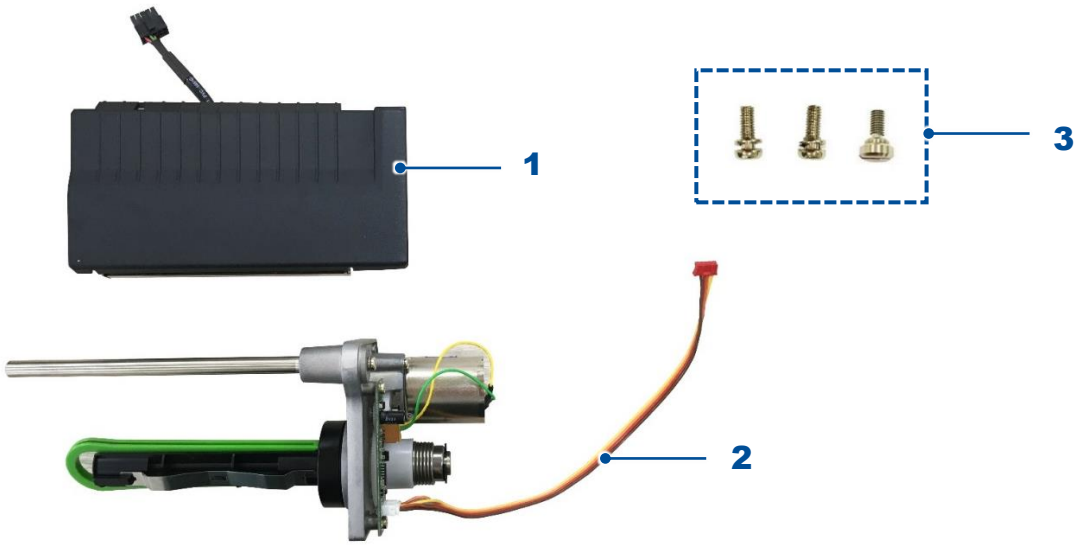
3. Open the cutter module panel. Install cutter module cable on printer cable socket as indicated.
4. Align the cutter module plate on printer mechanism locating holes to fasten two screws (fastened by 7.5 kg±15% kg-cm) as indicated.
5. Close cutter module and fasten one shoulder screw (fastened by 7.5 kg±15% kg-cm) to fix hinge.

Note: Please make sure shoulder screw did not interfere with hinge.



3.13 Peel-off Kit Installation (Option)

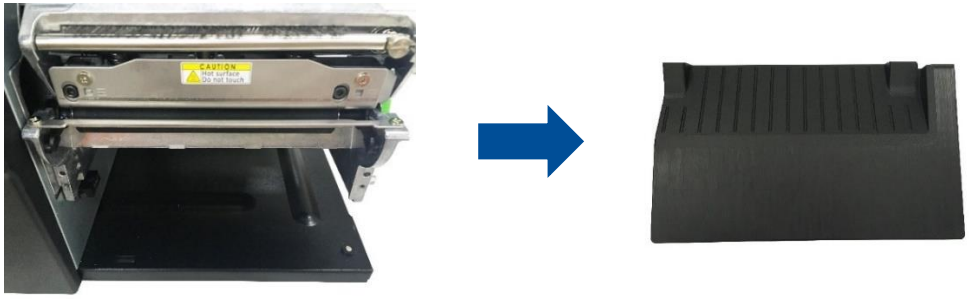
Peel-off Kit



1. Peel-off module
2. Rewind spindle and media guide bar module
3. Screw x2 & Shoulder screw x1

■ Peel-off Sensor Module Installation

1. Follow the steps in Before You Begin to prepare the printer.
2. Refer to Removing the Lower Front Panel to remove the lower front panel.

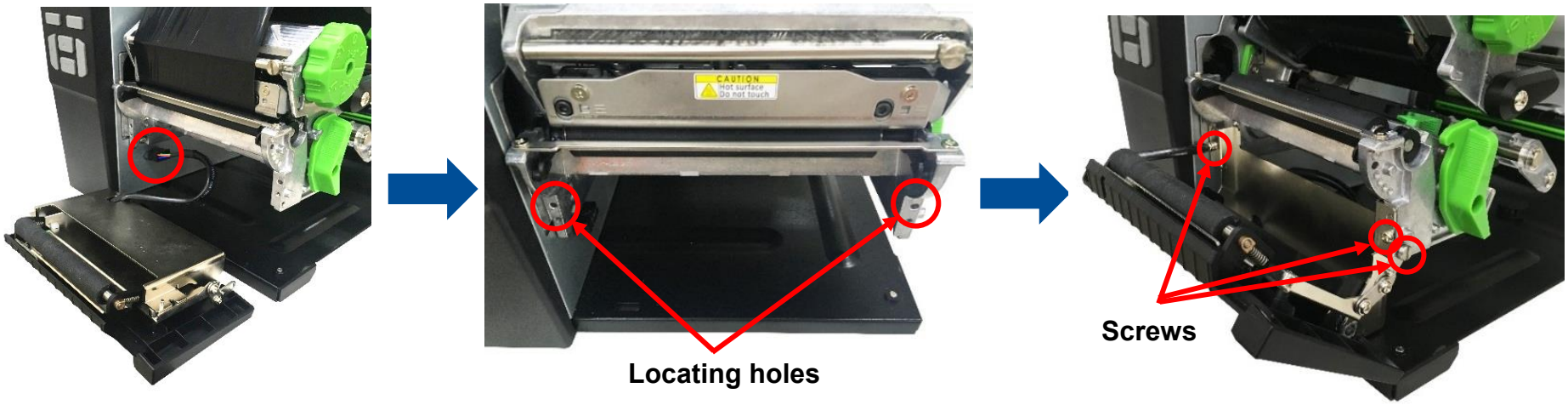


3. Install peel-off sensor module cable on printer connector as indicated.

Note: Please push the cable to bottom side to prevent media stuck when peeling the label.

Open the peel-off sensor module panel and align the module plate on printer mechanism locating holes to fasten two screws (fastened by 7.5 kg±15% kg-cm) and one shoulder screw (fastened by 7.5 kg±15% kg-cm) as indicated.

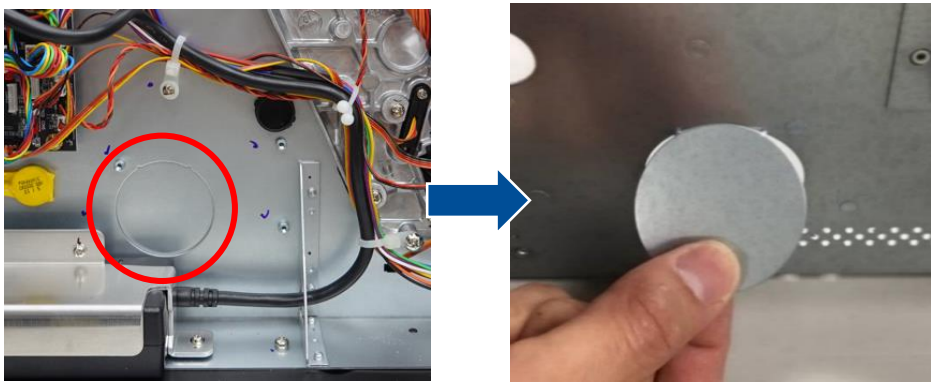
Note: Please make sure shoulder screw did not interfere with hinge.



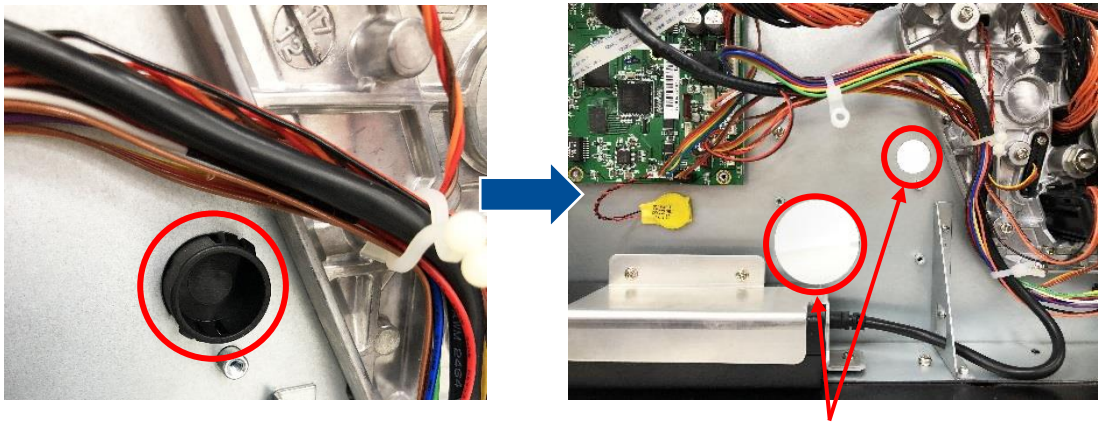
4. Close the peel-off sensor module and complete installation.

■ Rewind Spindle and Media Guide Bar Installation

1. Refer to Removing the Electronics Cover to remove the electronic cover.
2. Push the reserved cover on the electronic side with a force of 3kg ~ 5kg, then cover will be partially released on the printer middle plate and remove the reserved cover from the center plate of the printer on the media side.

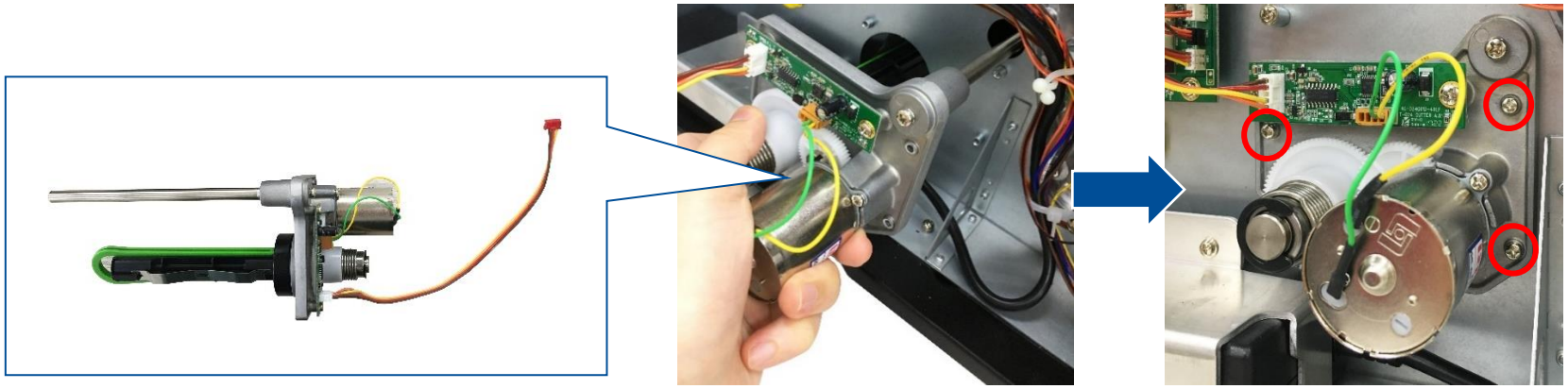


3. Remove the black plastic cover (on the electronic side) by push both sides of cover as indicated.

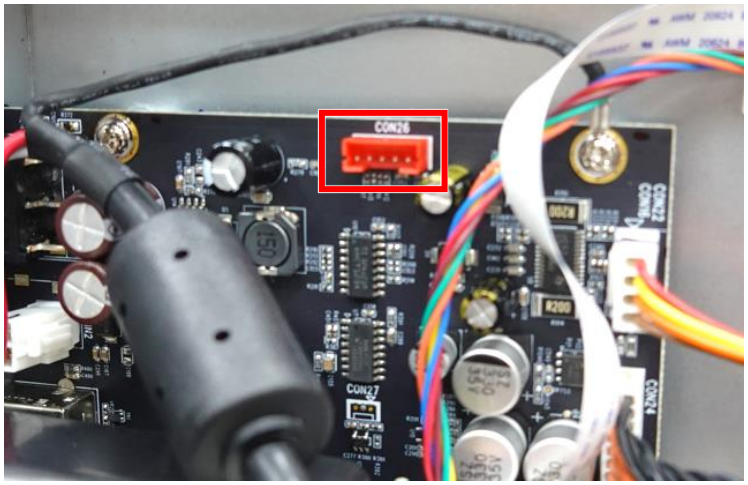


Positioning holes

4. Install the rewind spindle and media guide bar on electronic side.
   Fasten three screws (fastened by 7.5 kg±15% kg-cm) on rewind spindle and media guide bar module as indicated.



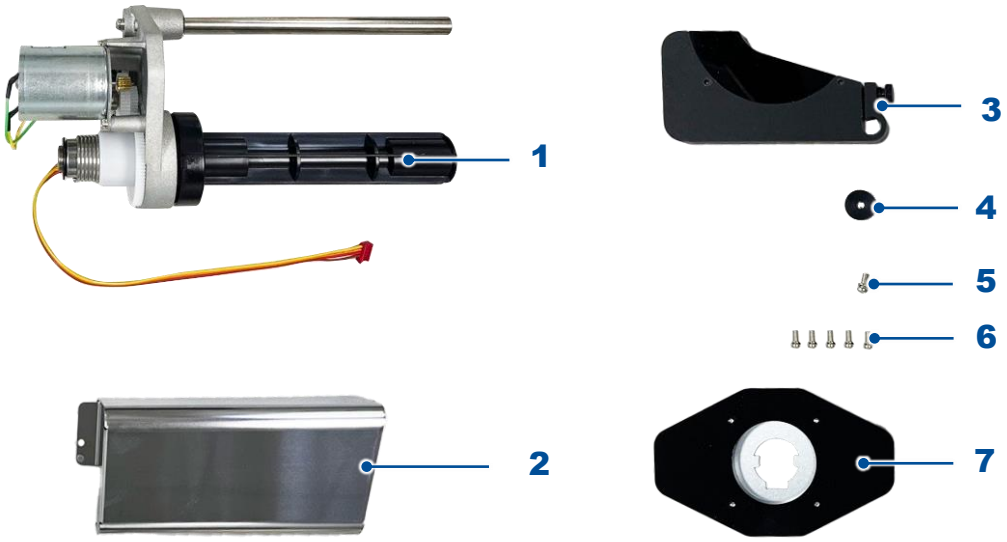
5. Connect the rewinder module cable to the main board socket (CON26/ red).



6. Complete the installation of rewind spindle and media guide bar module.
7. Reassemble the parts in the reverse procedures.

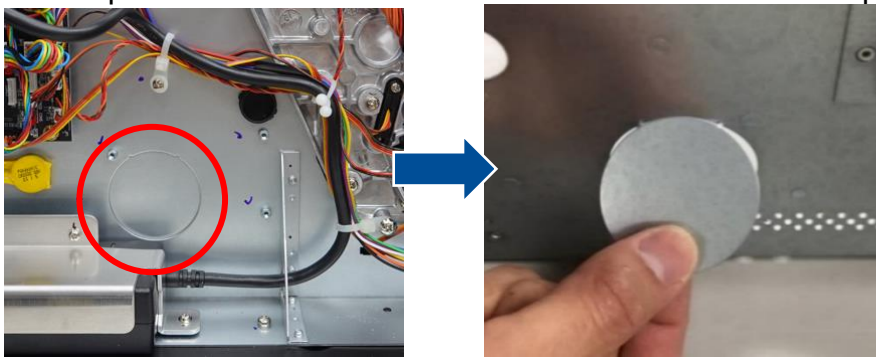
3.14 Replacing the Internal Full Rewinder Kit (Option)

Internal Full Rewinder Kit

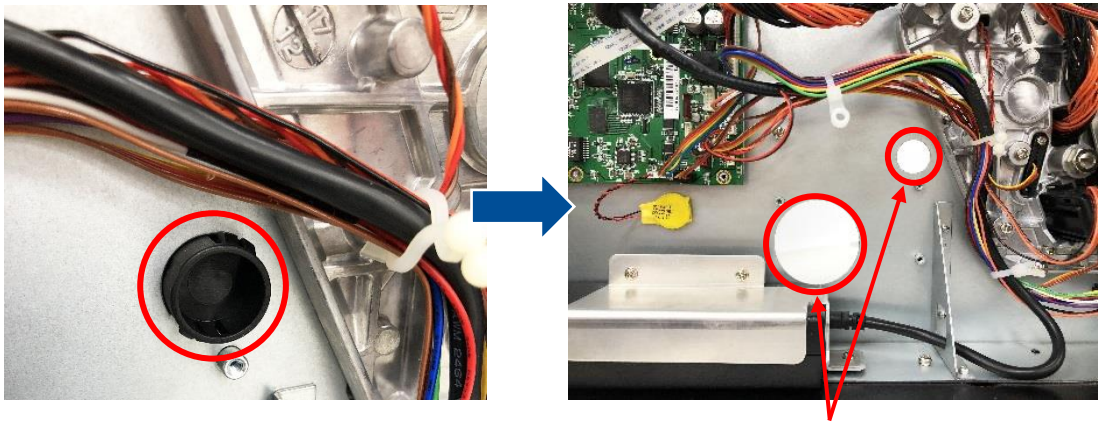


1. Internal full rewinder module
2. Lower front panel for internal rewinder
3. Rewinder media guard
4. Limiter for media guard
5. Screw (M4*8L) x1
6. Screw (M3*8L) x5
7. Rewinder spindle guard

1. Follow the steps in Before You Begin to prepare the printer.
2. Refer to Removing the Electronics Cover to remove the electronics cover.
3. Push the reserved cover on the electronic side with a force of 3kg ~ 5kg, then cover will be partially released on the printer middle plate and remove the reserved cover from the center plate of the printer on the media side.

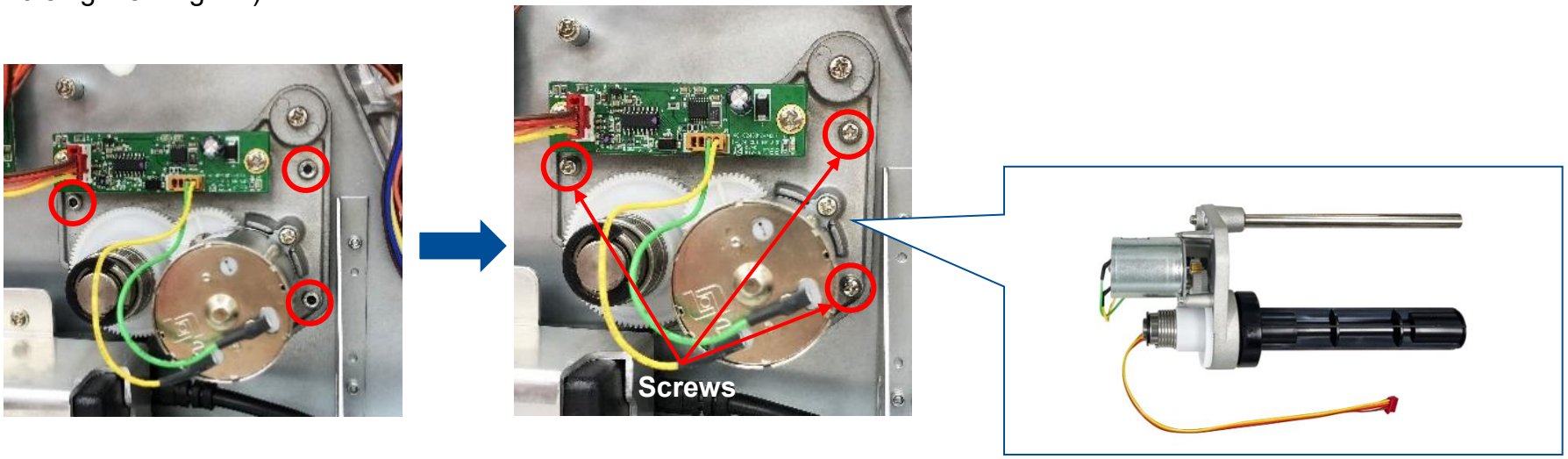


4. Remove the black plastic cover (on the electronic side) by push both sides of cover as indicated.

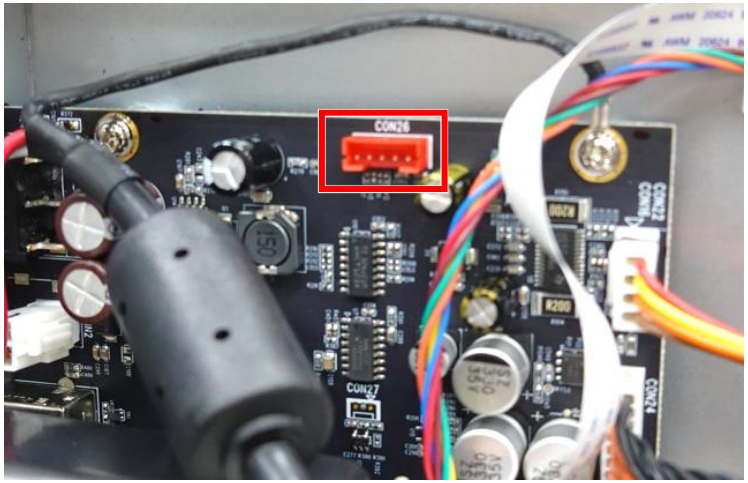


Positioning holes

5. Install the internal full rewinder module on the positioning holes and fix the module by fasten three screws (M3*8L/ fastened by 10.5 kg±15% kg-cm) as indicated.

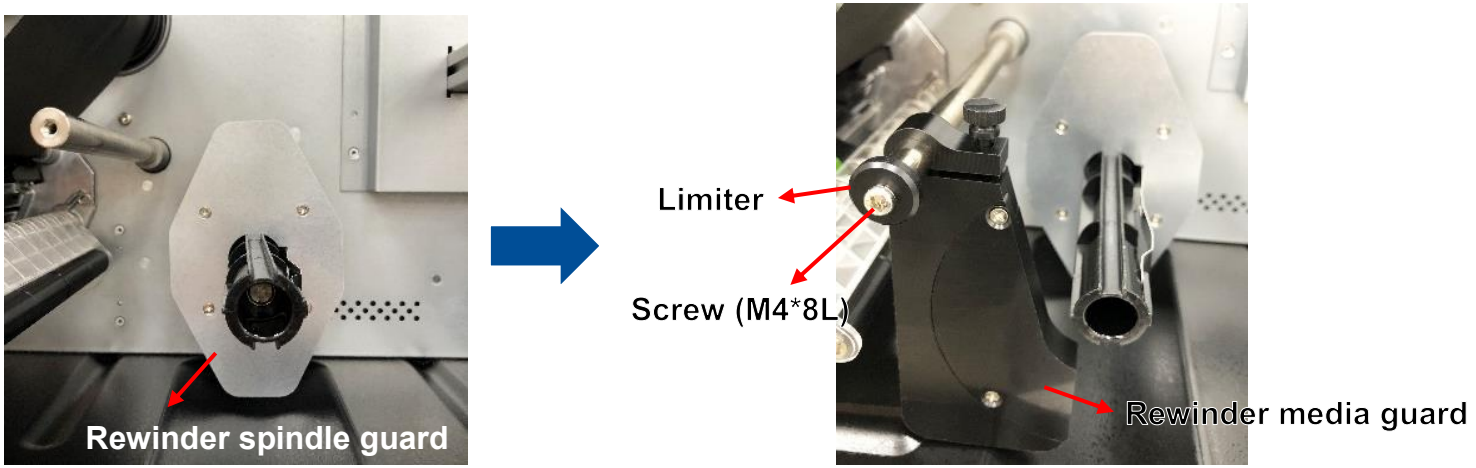


8. Connect the full rewinder module cable to the main board socket (CON26/ red) as indicated.



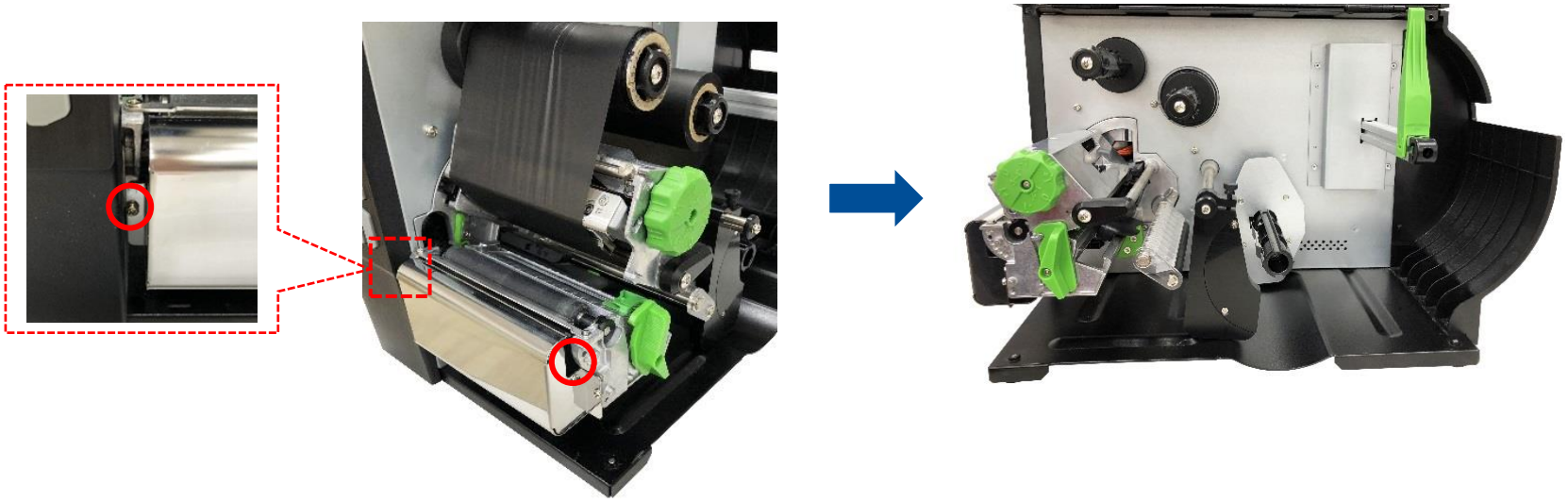
6. Reassemble the electronics cover.
7. Raise the media cover to install the rewinder spindle guard.

   Attach the rewinder media guard to the guide bar first, then attach the limiter and secure it with a screw (M4*8L).



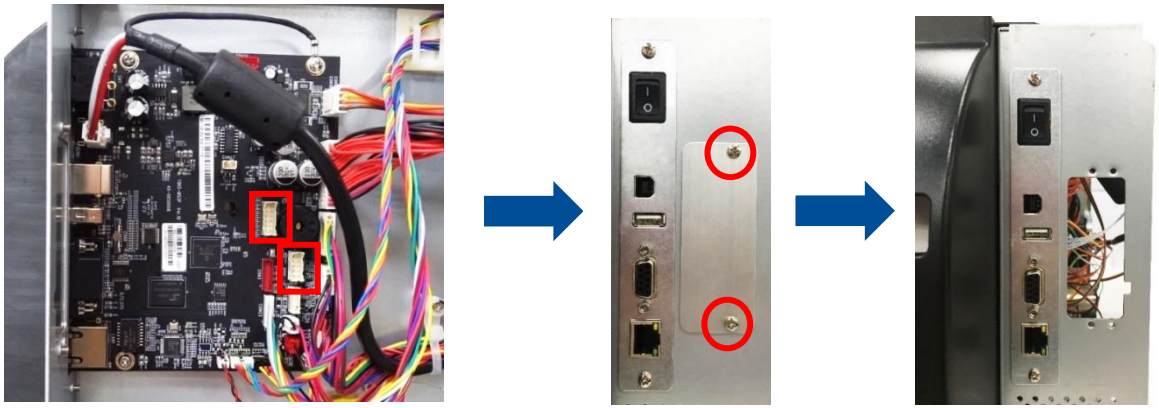
8. Refer to Removing the Lower Front Panel to remove the lower front panel.

9. Install and fix the lower front panel for internal rewinder by fasten two screws (M3*8L/ fastened by 7.5 kg±15% kg-cm) as indicated.
Complete the installation of internal full rewinder kit.

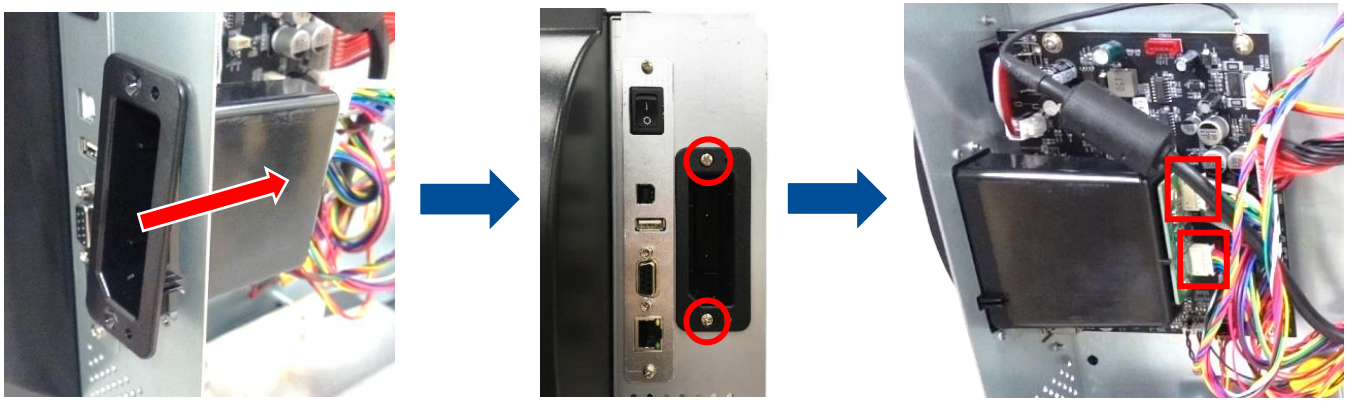


3.15 Slot-in Wireless Housing Installation (Option)

1. Follow the steps in Before You Begin to prepare the printer.
2. Refer to Removing the Electronics Cover to remove the electronic cover.
3. Connect the slot-in wireless transfer module housing board cables to the main board (CON28 & CON13) first.
   Take off the reserved plate by removing two screws (fastened by 5.5 kg±15% kg-cm) on rear of printer.

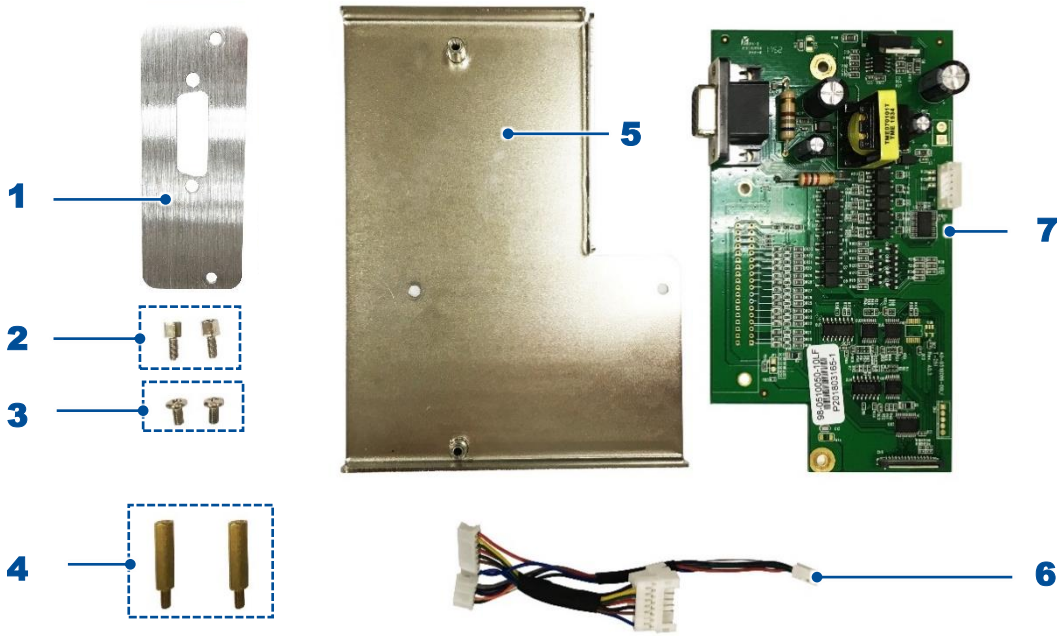


4. Install the slot-in wireless housing on the rear of the printer and fix the two screws. (5.5 kg±15% kg-cm)
   Connect another side of the cables to the slot-in wireless transfer module housing board.
   Reassemble the parts in the reverse procedures.



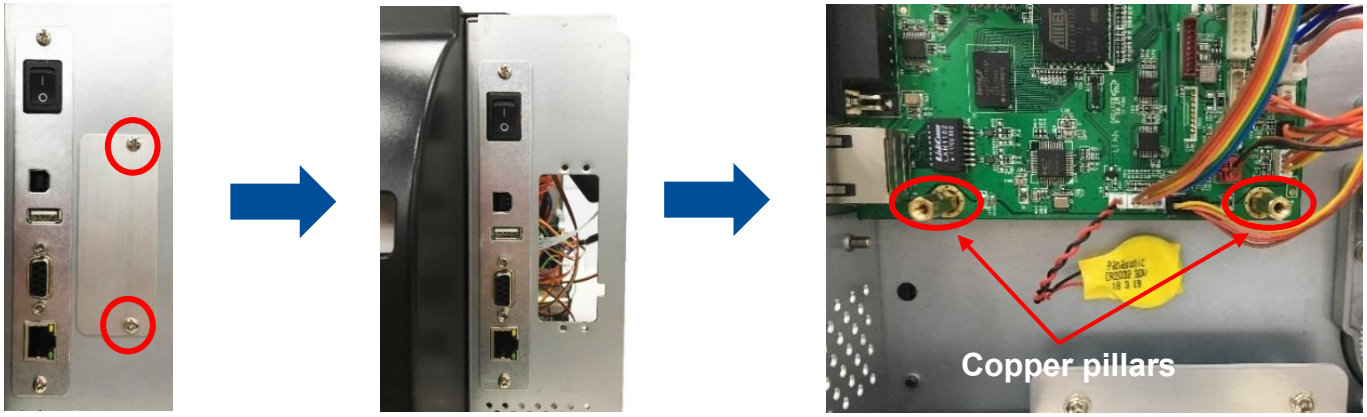
3.16 GPIO Interface Assembly Installation (Option)

GPIO Interface Assembly



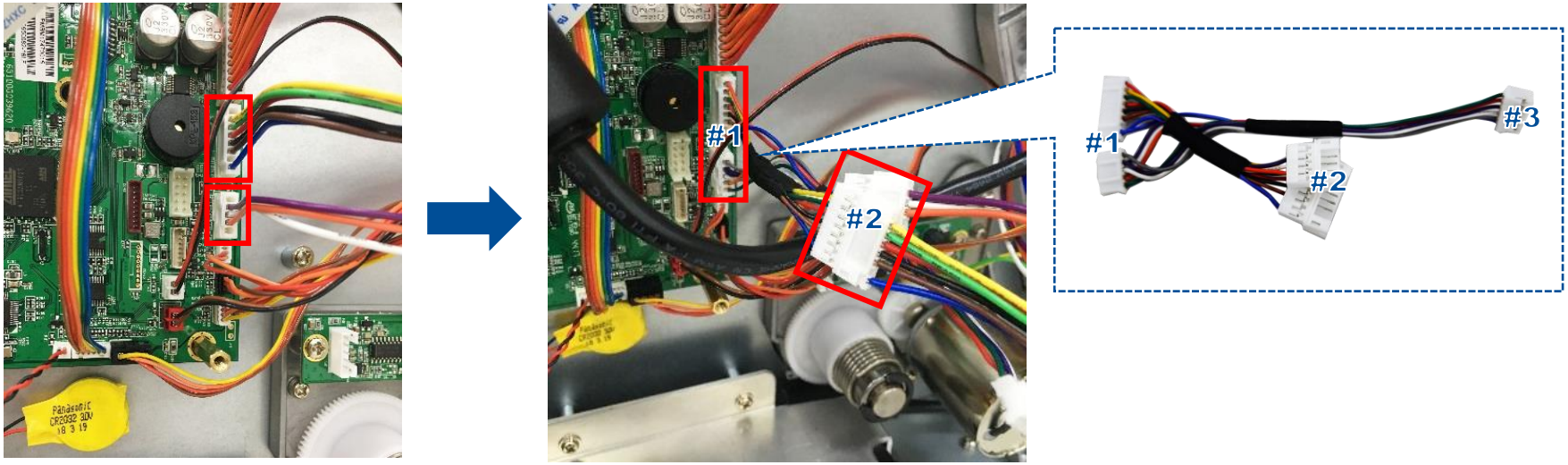
1. GPIO interface board
2. Hexagon screw x2
3. Screw x2
4. Copper pillar x2
5. GPIO mounting plate
6. GPIO transfer cable
7. GPIO board

1. Follow the steps in Before You Begin to prepare the printer.
2. Refer to Removing the Electronics Cover to remove the electronic cover.
3. Take off the reserved plate by removing two screws (fastened by 5.5 kg±15% kg-cm) on rear of printer.
   Replace the two screws on the bottom of the main board with copper pillars. (fastened by 7.5 kg±15% kg-cm)

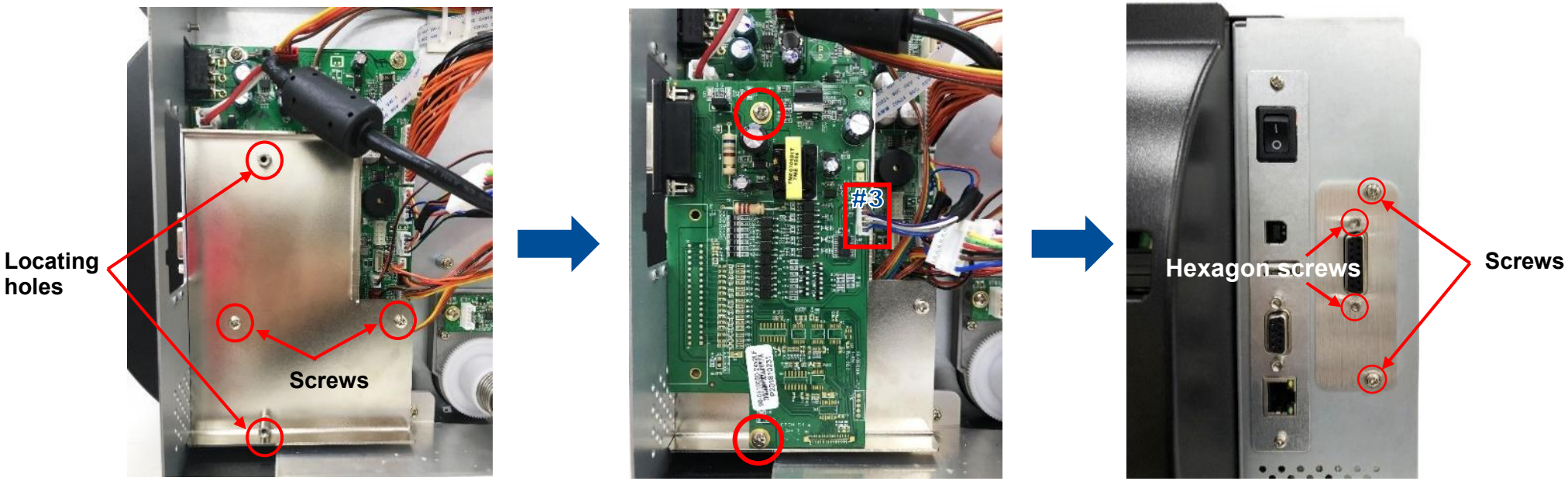


Note: Refer to Slot-in Wireless Housing Installation (Option) to remove the housing. (if module installed)

4. Remove the two cable connectors (CON6 and CON10) from the main board and insert the GPIO transfer cables (#1), then connect the two removed cables to the GPIO transfer connectors (#2) as indicated.



5. Fasten the two screws (fastened by 5.5 kg±15% kg-cm) on the GPIO mounting plate first.
   Then, aligning the GPIO board to the two locating holes on GPIO mounting plate and fasten another two screws (fastened by 5.5 kg±15% kg-cm) to secure the GPIO board.
   Insert the rest connector of GPIO transfer cable (#3) to GPIO board.
   Fasten the two screws and the two hexagon screws on the GPIO interface board on the rear of printer.

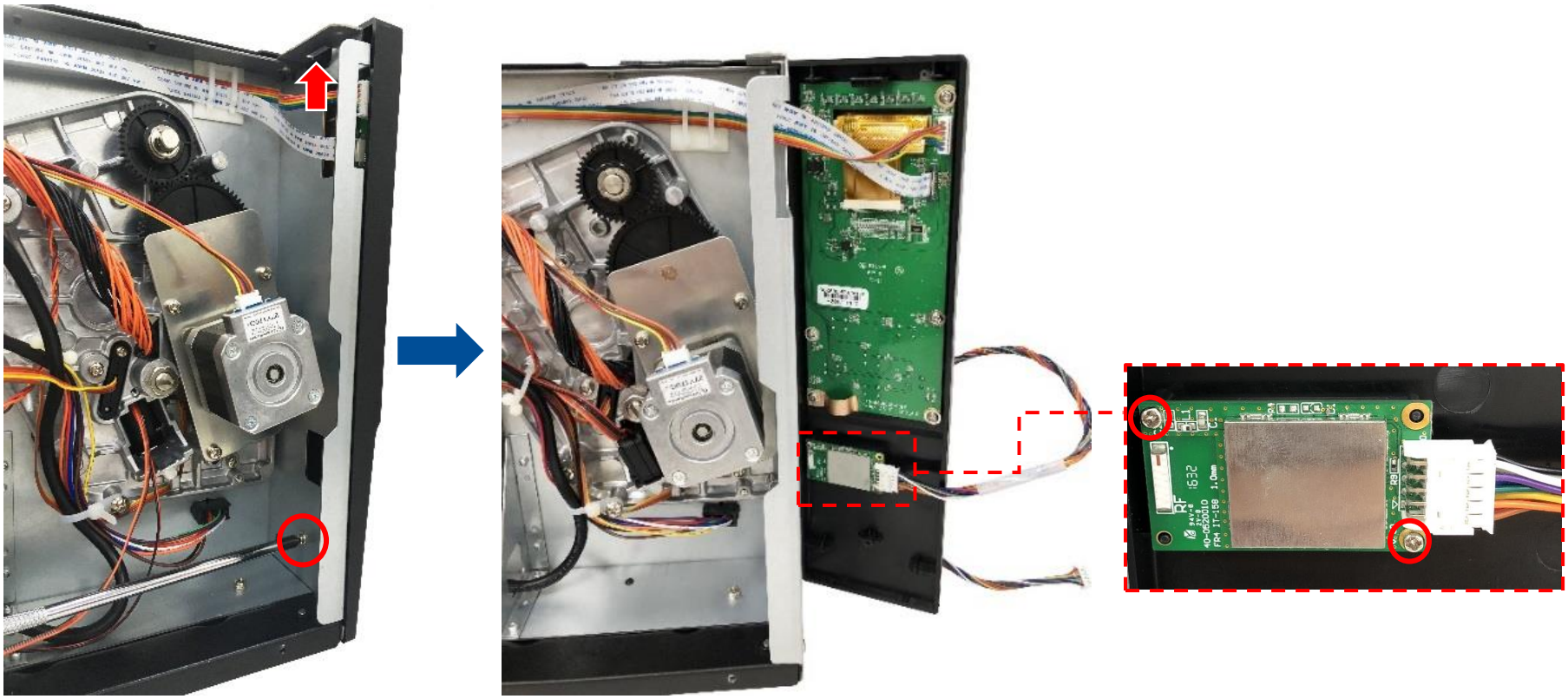


6. Reassemble the parts in the reverse procedures.

3.17 Bluetooth Module Installation (Option)

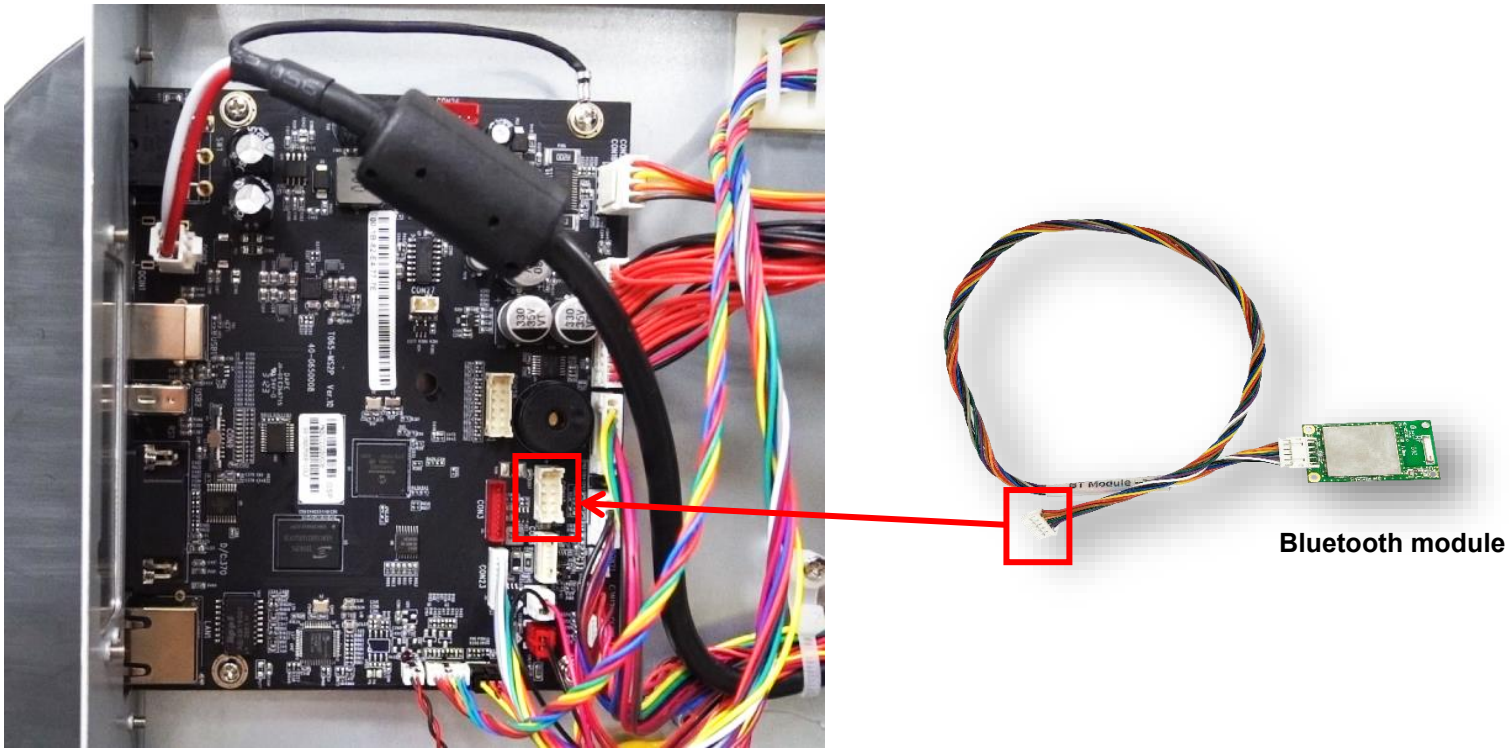
1. Follow the steps in Before You Begin to prepare the printer.
2. Refer to Removing the Electronics Cover to remove the electronic cover.
3. Remove the screw (fastened by 5 kg±15% kg-cm) on the panel assembly as indicated.

   Referring to Replacing the Control Panel Assembly, open the panel assembly and install the Bluetooth module by securing the two screws (fastened by 3.5 kg±15% kg-cm) as indicated. Then, install the panel assembly back.



4. Connect the Bluetooth module cable on the main board (CON13) as indicated.

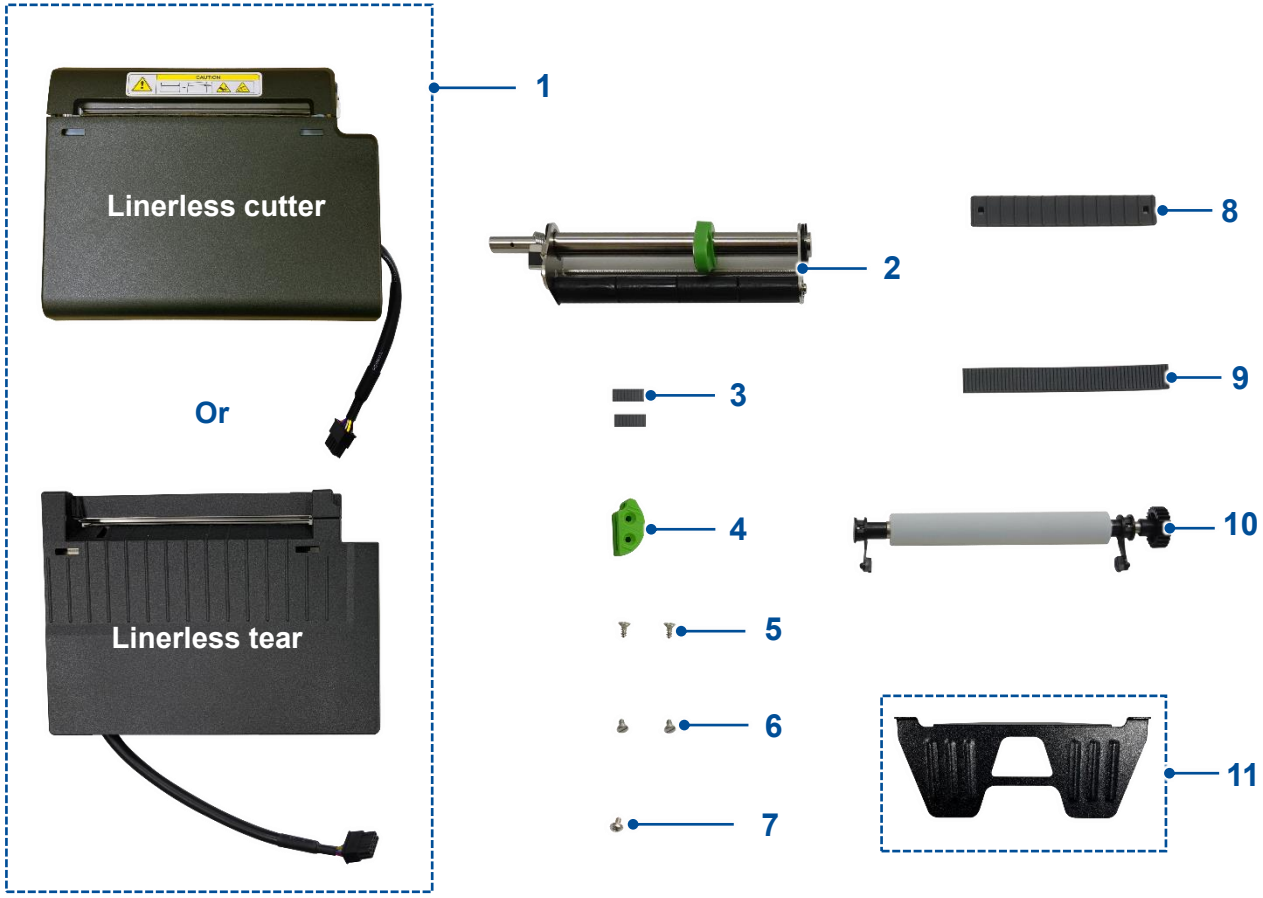
Note: Refer to Slot-in Wireless Housing Installation (Option) to remove the housing. (if module installed)



5. Reassemble the parts in the reverse procedures.

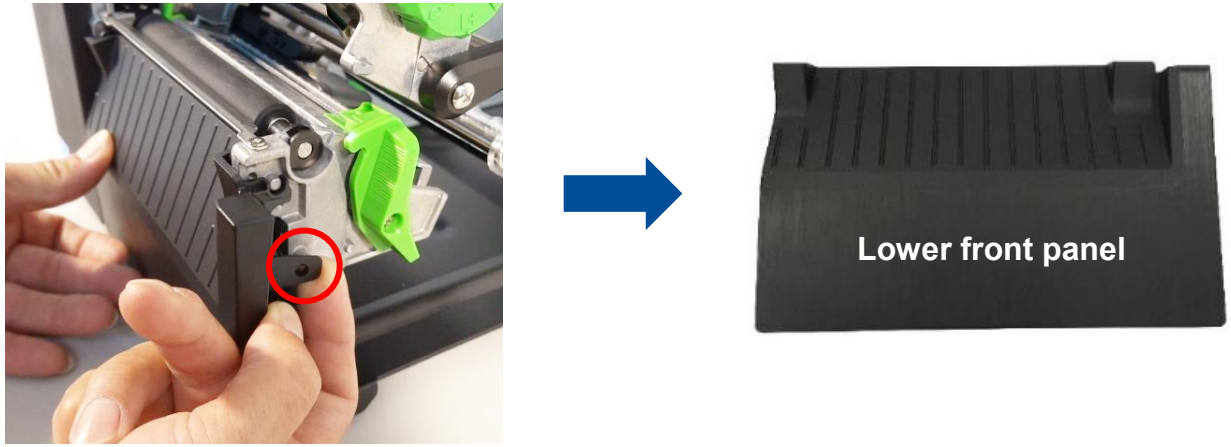
3.18 Linerless Kit Installation (Option)

Tear / Cutter linerless kit

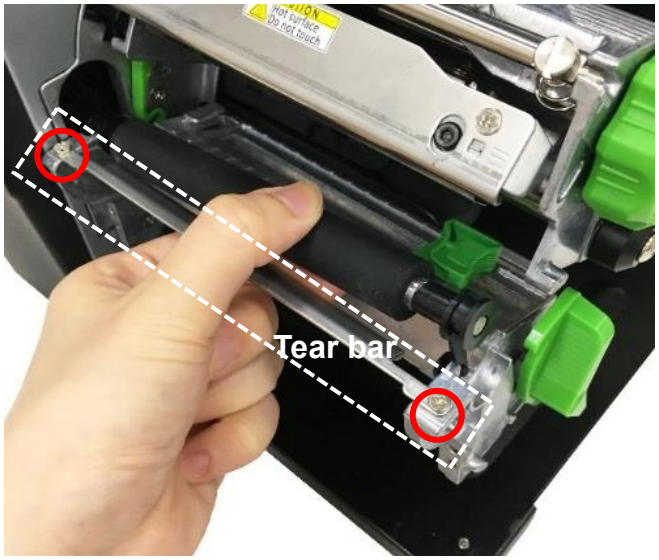


1. Linerless tear / Linerless cutter
2. Linerless damper
3. Linerless pads*2
4. Rubber handle
5. Self-tapping screw*2 (TP3*9)
6. Turning screws*2 (M3*4L)
7. Machine screws*1 (M3*6L)
8. Rubber cover
9. Linerless pad
10. Linerless roller
11. Cutter tray (Linerless cutter kit only)

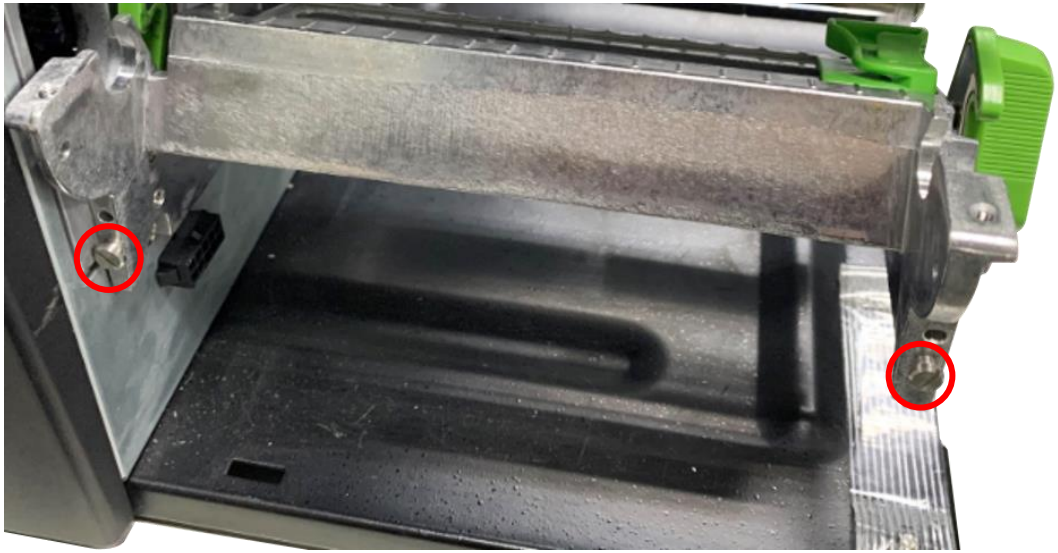
1. Follow the steps in Before You Begin to prepare the printer.
2. Move the tab outward then pull the panel inward to remove the lower front panel.



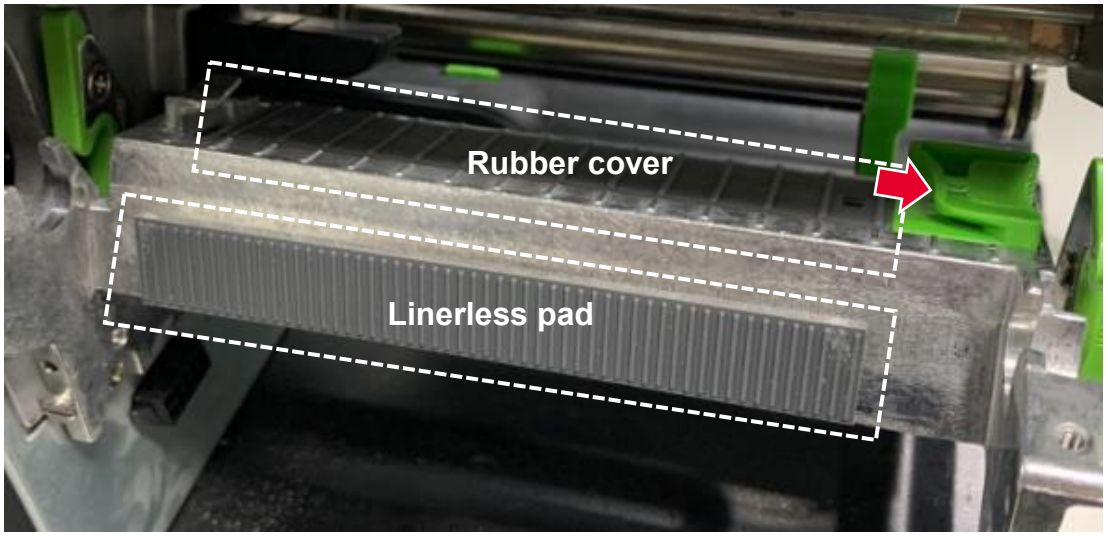
3. Refer to Replacing the Platen Roller Assembly to remove the platen roller (black) and remove the tear bar by removing the two screws.



4. Fasten the two turning screws (M3*4L; provided in the kit/ fastened by 7.5 kg±15% kg-cm) on printer mechanism as indicated.

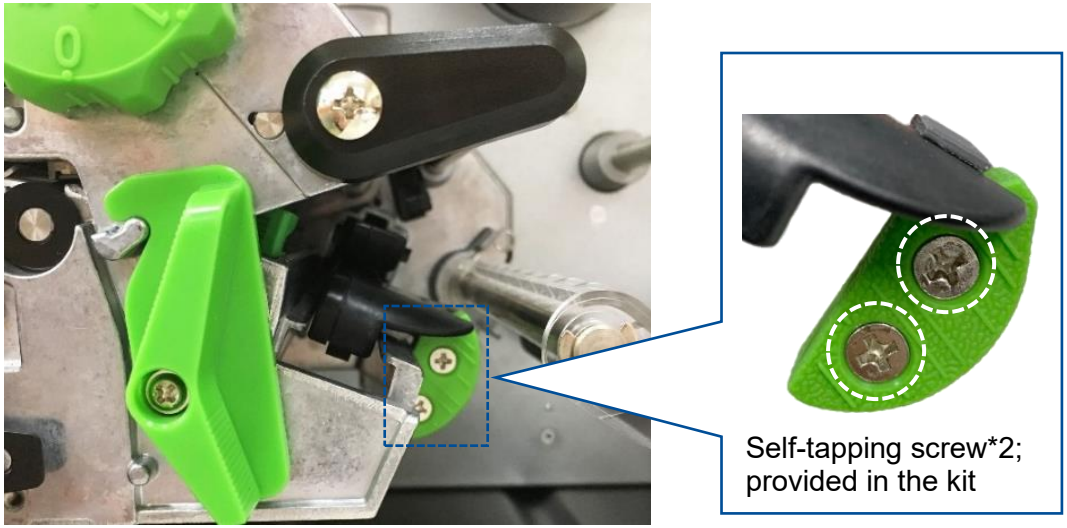


5. Move the label guide (green) to the outermost side to install the rubber cover and stick the linerless pad on the lower base.

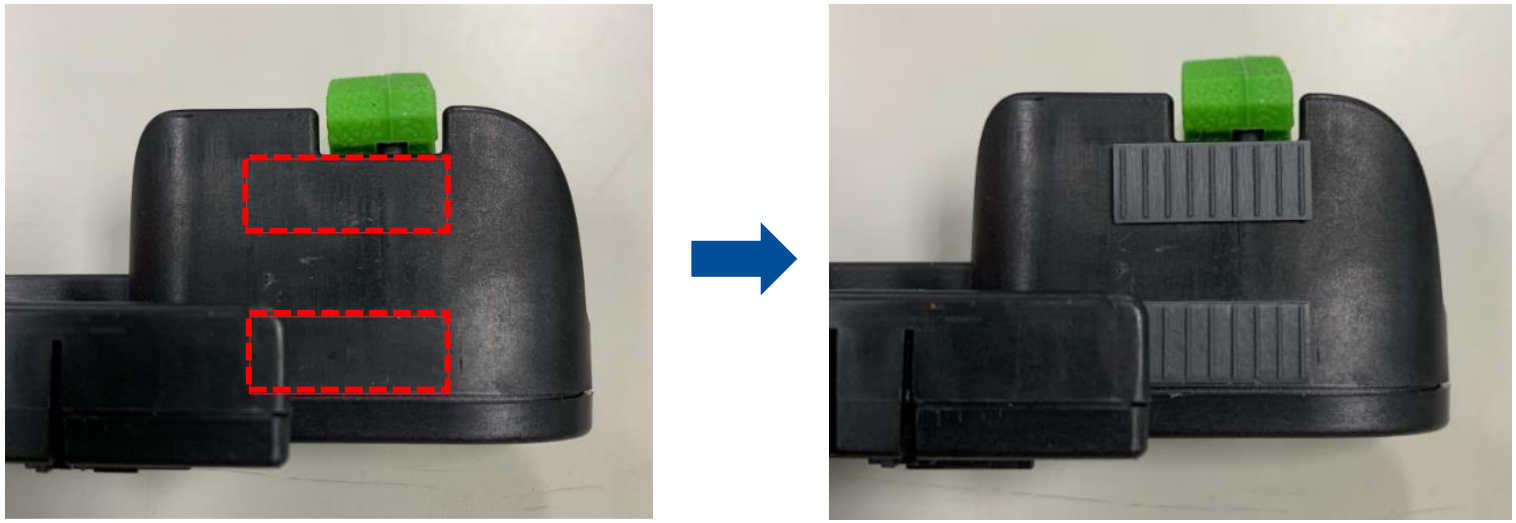


6. Install the linerless roller.

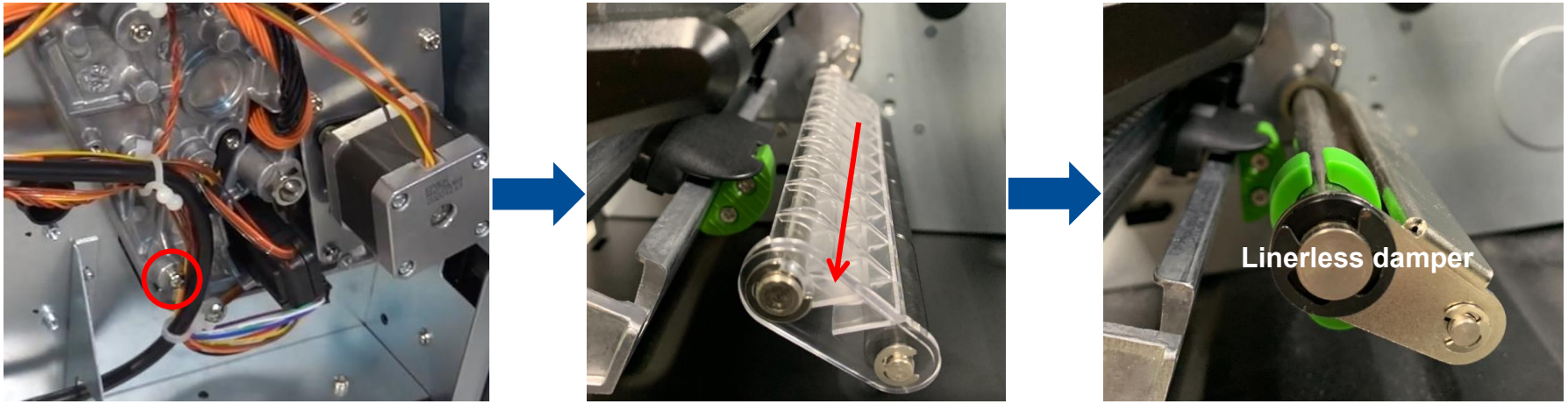
7. Remove the two screws and replace the cover (green) from plastic to rubber.



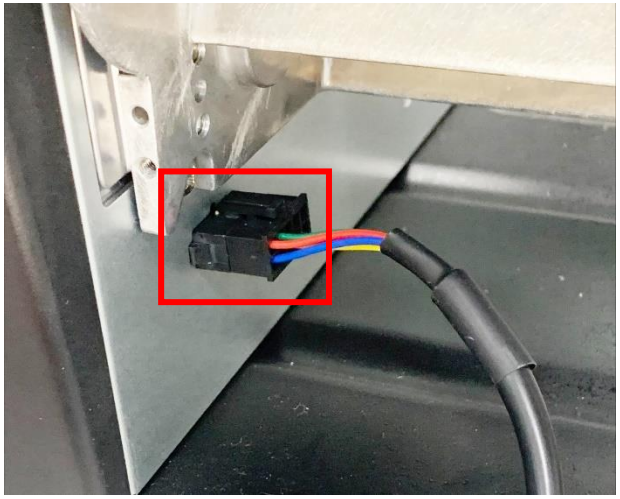
8. Stick the two linerless pads on the sensor module as indicated.



9. Refer to Removing the Electronics Cover to remove the electronic cover. Remove the one screw to replace the linerless damper.

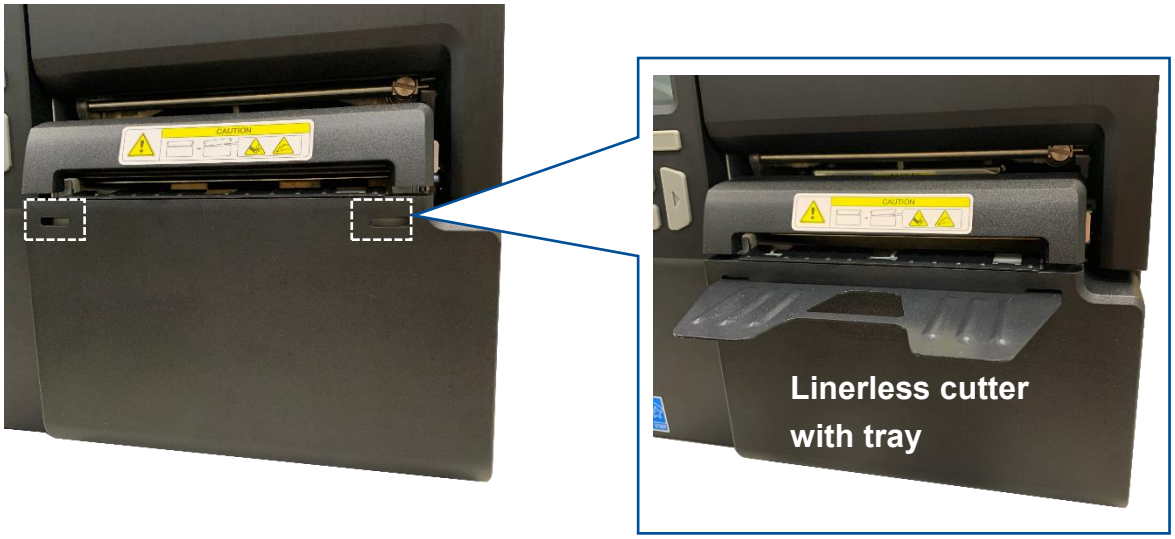


10. Plug the tear (or cutter) module mini DIN cable connector into the printer receptacle.



11. Place the tear (or cutter) module in position and use the machine screw (M3*6L/ fastened by 7.5 kg±15% kg-cm) provided in the kit to install the tear (or cutter) module on the lower support assembly.

12. For the linerless cutter module, the cutter tray is mounted on the cutter panel as required.



4. Troubleshooting

4.1 Common Issues

Problem	Possible Cause	Recovery Procedure
Power indicator does not illuminate	■ The power cord is not properly connected. ■ The power switch is closed.	■ Plug the power cord in printer and outlet. ■ Switch the printer on.
Carriage Open	■ The printer carriage is open.	■ Close the print carriage.
Not Printing	■ Check if interface cable is well connected. ■ Check if wireless or Bluetooth device is well connected. ■ The port in the Windows driver is not correct.	■ Re-connect cable to interface or change a new cable. ■ Reset the wireless device setting. ■ Select the correct printer port in the driver. ■ Clean the printhead. ■ Printhead's harness connector is not well connected with printhead. 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	■ Follow the instructions in loading the media and ribbon. ■ Ribbon and media are not compatible. ■ Verify the ribbon-inked side. ■ The print density setting is incorrect.
No Ribbon	■ Running out of ribbon. ■ The ribbon is installed incorrectly.	■ Supply a new ribbon roll. ■ Refer to user's manual to reinstall the ribbon.
No Paper	■ Running out of label. ■ The label is installed incorrectly. ■ Gap/black mark sensor is not calibrated.	■ Supply a new label roll. ■ Refer to user's manual to reinstall the label roll. ■ Calibrate the gap/black mark sensor.

Problem	Possible Cause	Recovery Procedure
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 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.
Poor Print Quality	■ Ribbon and media is loaded incorrectly. ■ Dust or adhesive accumulation on the print head. ■ Print density 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. ■ The release lever does not latch the printhead 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

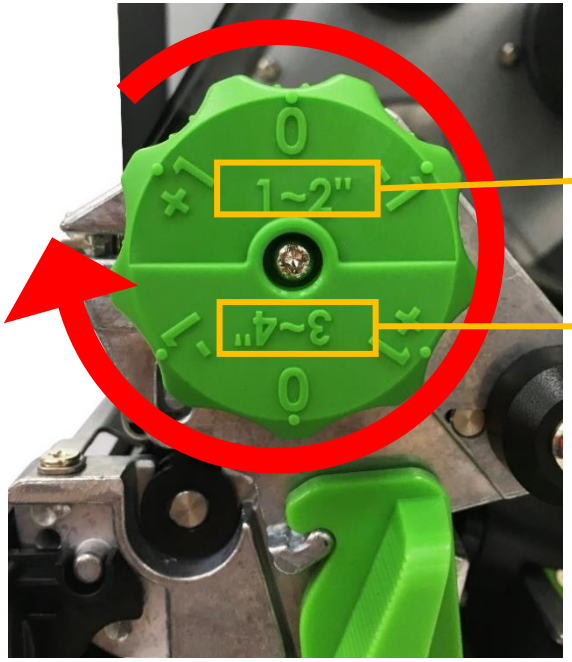
Problem	Possible Cause	Recovery Procedure
		label guide to left. ■ If the label is moving to the left side, please move the label guide to right.
Skip labels when printing	■ Label size is not specified properly. ■ Sensor sensitivity is not set properly. ■ The media sensor is covered with dust.	■ Check 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 the chapter 4. ■ 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 Y] → to fine tune the parameter of Shift Y. ■ Set the vertical offset in the driver if you're using BarTender.
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.

Problem	Possible Cause	Recovery Procedure
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.

4.2 Knob Adjustment

Print head Pressure Adjustment Knob

Print head Pressure Adjustment Knob has 6 levels' adjustment for 1~2" and 3~4" width media.
Different number means different pressure to the media. Due to printer's paper alignment is on left side of the mechanism, different media width requires the different pressure. Users can try which level can meet their expectation.



Print Head Pressure Adjustment range from 1~2" media width

Print Head Pressure Adjustment range from 3~4" media width

- **0** means regular media thickness (0.14-0.16mm) pressure setting.
- **-1** means lower pressure for thin paper media
- **+1** means higher pressure for thick media

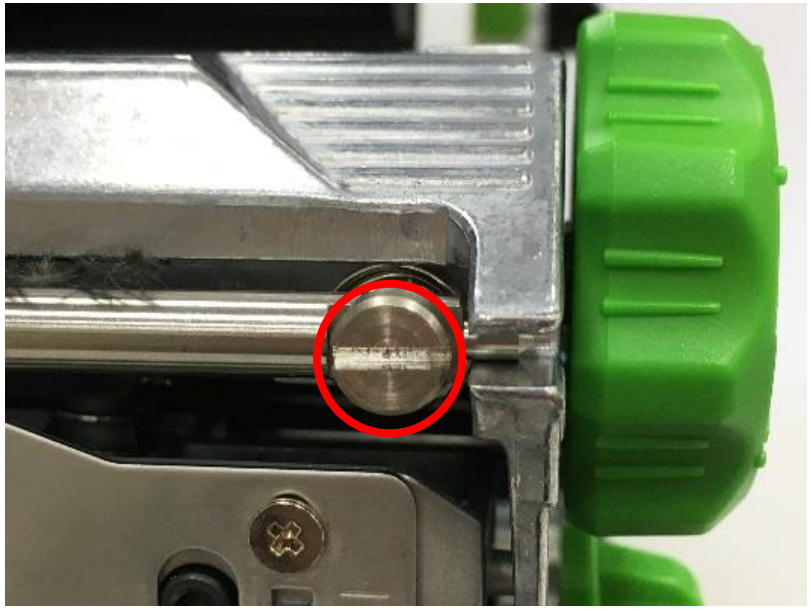
Ribbon Tension Adjustment Knob

Ribbon Tension Adjustment Knob has 5 positions for adjustment. Due to the ribbon is aligned to the inbound of print mechanism, different width of ribbon may need to adjust the tension adjustment knob to avoid the ribbon wrinkle and get the best print quality. Refer to Mechanism Fine Adjustment to Avoid Ribbon Wrinkles section for how to adjust.

Mechanism Fine Adjustment to Avoid Ribbon Wrinkles

Ribbon wrinkle is related to the media width, thickness, print head pressure balance, ribbon film characteristics, print darkness setting…etc. In case the ribbon wrinkle happens, please follow the instructions below to adjust the printer parts.

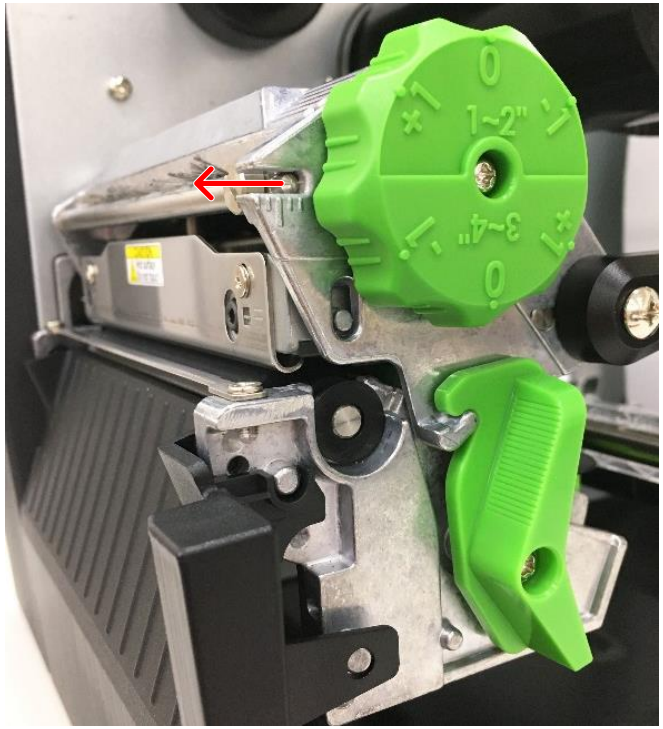
Ribbon Tension Adjustment Knob has 5 indexes for adjustment. Use flat screw driver to change the ribbon tension.



Wrinkle happens from label lower right to upper left direction

- Make sure the Print head Pressure Adjustment Knob is in correct position for the current media. Ex: 1~2”, 3~4”
- Turn the screw clockwise per level and print to see if the winkle has g1.
- If the ribbon tension adjustment knob has positioned on the level of innermost side but doesn’t improve the ribbon wrinkle, please switch the print head pressure at 1 level and print the label again to check if the wrinkle is g1.
- If the wrinkle can’t be avoided, please contact the Customer Service Department of your purchased reseller or distributor for service.

Wrinkle happens from label lower left to upper right direction



- Make sure the Print head Pressure Adjustment Knob is in correct position for the current media. Ex: 1~2”, 3~4”
- Turn the screw counterclockwise per level and print to see if the winkle has g1.
- If the ribbon tension adjustment knob has positioned on the level of outermost side but doesn’t improve the ribbon wrinkle, please switch the print head pressure at 1 level and print the label again to check if the wrinkle is g1.
- If the wrinkle can’t be avoided, please contact the Customer Service Department of your purchased reseller or distributor for service.

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

Printer Part	Method	Interval
Linerless Printer	Please refer to Linerless Cleaning Kit User Manual for more information.	◆ Clean as needed or after printing every 1 km. ◆ Please determine the maintenance intervals based on actual usage.

Revision History

Date	Content	Editor
2024/4/25	First release	Camille Pao