

TT024-50 / TT034-30

**USER'S
MANUAL**

Contents

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Compliances

CE Class B:

EMI: EN 50081-1:1998->EN55022:1998, EN 61000-3-2:2000,
EN61000-4-3:1998

EMS: EN55024:1998

FCC Part 15, Class B

UL, CUL

C-Tick: Class B AS/ NZS 3584: 1997

TÜV-GS: EN60950: 2000

Wichtige Sicherheits-Hinweise

1. Bitte lesen Sie Diese Hinweis sorgfältig durch
2. Heben Sie diese Anleitung für den späteren Gebrauch auf.
3. Vor jedem Reinigen ist das Gerät vom Stromnetz zu trennen.
Verwenden Sie Keine Flüssig-oder Aerosolreiniger. Am besten eignet sich ein angefeuchtetes Tuch zur Reinigung.
4. Die Netzanschlußsteckdose soll nahe dem Gerät angebracht und leicht zugänglich sein.
5. Das Gerät ist vor Feuchtigkeit zu schützen.
6. Bei der Aufstellung des Gerätes ist auf sicheren Stand zu achten. Ein Kippen oder Fallen könnte Beschädigungen hervorrufen.
7. Beachten Sie beim Anschluß an das stromnetz die Anschlußwerte.
8. Dieses das Gerät kann bis zu einer Außentemperatur von maximal 40°C betrieben werden.

1. Introduction

Thank you for purchasing the TSC TT024-50/034-30 series of Thermal Transfer and Direct Thermal Bar Code Printers. Although the printer takes only a small amount of space, it delivers reliable, superior performance.

This printer provides both thermal transfer and direct thermal printing at user selectable speed of: 2.0, 3.0, 4.0 or 5.0 ips, /2.0 or 3.0 ips. It accepts roll feed, die-cut, and fan-fold labels for both thermal transfer and direct thermal printing. All common bar codes formats are available. Fonts and bar codes can be printed in 4 directions, 8 different alphanumeric bitmap fonts and a build-in true type font capability. You will enjoy high throughput for printing labels with this printer.

2. Getting Started

2.1 Unpacking and Inspection

This printer has been specially packaged to withstand damage during shipping. Please carefully inspect the packaging and printer upon receiving the bar code printer. Please retain the packaging materials in case you need to reship the printer.

2.2 Equipment Checklist

- Printer unit.
- Software CD disk.
- Sample ribbon roll.
- Sample label roll.
- Label spindle (1 inch diameter core).
- Label spindle fixed tab.
- 1.5" core adapter.
- Paper core.
- Ribbon supply/rewind spindle. (2 pcs.)
- Parallel port or USB cable.
- Auto switching power supply.
- Power cord.
- Quick start guide.

If any parts are missing, please contact the Customer Service Department of your purchased reseller or distributor.

Options

- External label roll mount.
- Label spindle (3-inch diameter core).
- Keyboard display unit (KU-007 series).
- Automatic cutter module.
- Peel off module.
- Internal Ethernet print server.
- 802.11b wireless print server.

2.3 Printer Parts



Fig. 1 Top front view

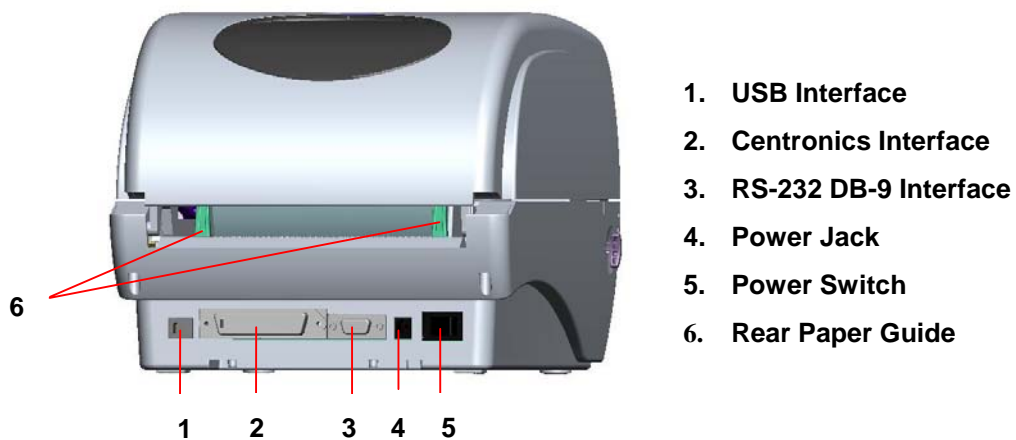


Fig. 2 Rear view

3. Setup

3.1 Setting Up the Printer

1. Place the printer on a flat, secure surface.
2. Make sure the power switch is off.
3. Connect the printer to the computer with the Centronics or USB cable.
4. Plug the power cord into the power supply connector at the rear of the printer, and then plug the power cord into a properly grounded receptacle.

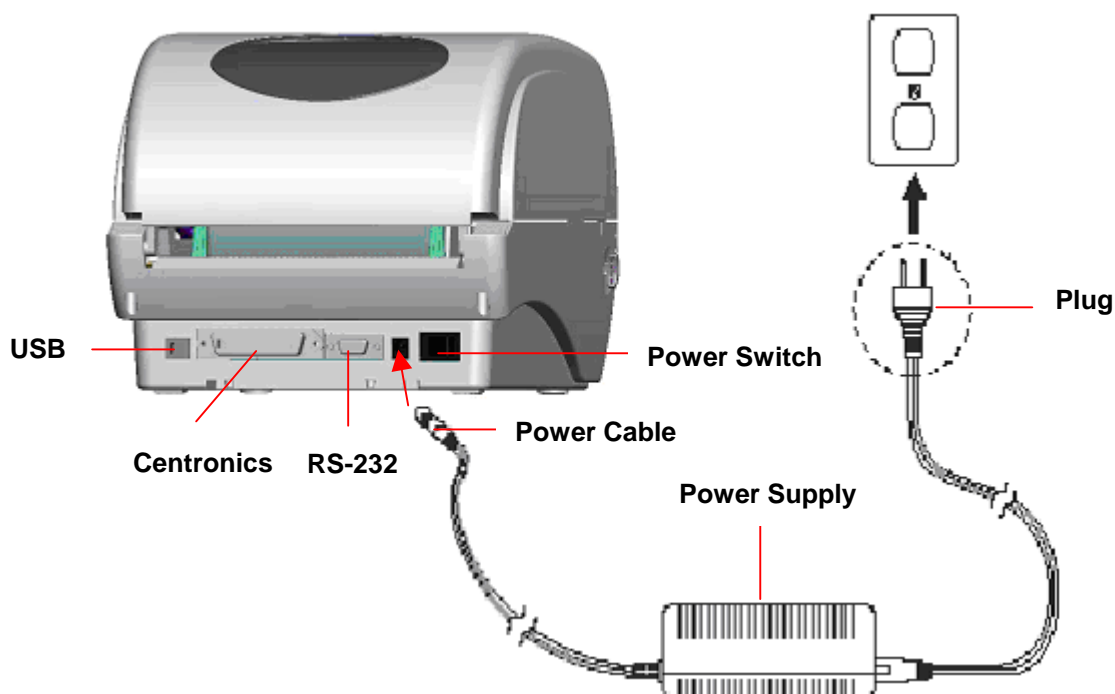


Fig. 5 Attach power supply to printer

3.2 Loading the Ribbon

The printer automatically detects if a ribbon is installed after power on and will switch to thermal transfer or direct thermal printing mode. If printer does not detect the ribbon, the motor that drives the ribbon rewind spindle will be turned off. In case if ribbon is installed, but printer is not able to take up, please refer to the ribbon calibration procedure to calibrate the ribbon sensor sensitivity.

Make sure both the ribbon access window and the printer top cover are closed when powering up the printer.

1. Push down on the ribbon access window to unlock and open the cover.
2. Place a paper core onto the ribbon rewind spindle.
3. Mount the ribbon rewind paper core on the front hubs.
4. Install a ribbon on the ribbon supply spindle.
5. Mount the ribbon supply spindle on the rear hubs.
6. Attach the ribbon leader to the ribbon rewind paper core.
7. Rotate the ribbon rewind paper core until the ribbon leader is thoroughly, firmly encompassed by the black section of the ribbon.
8. Close the ribbon access window.

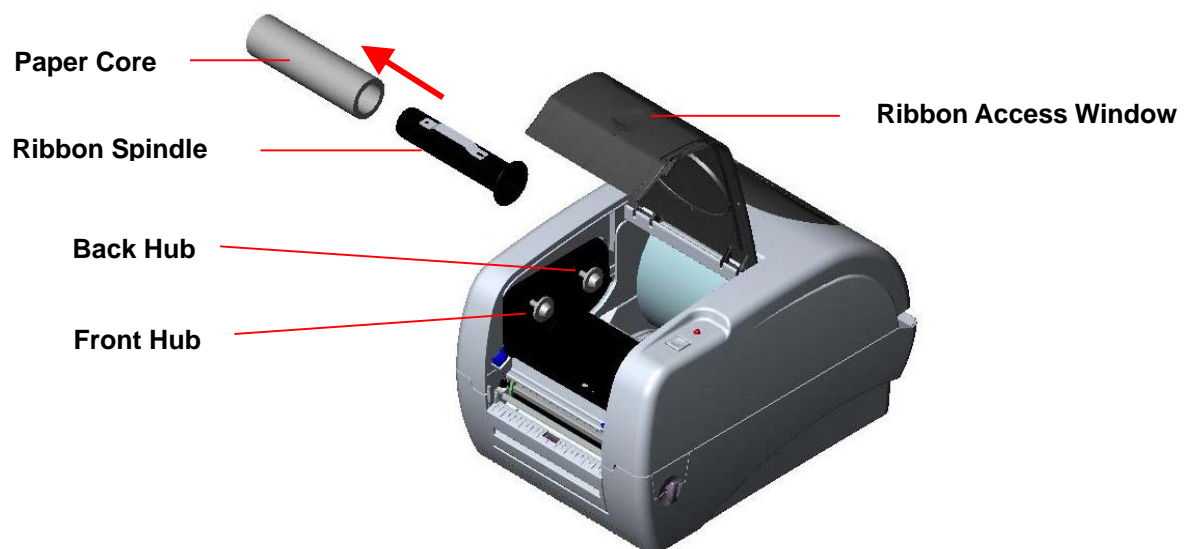


Fig. 6 Ribbon installation (I)

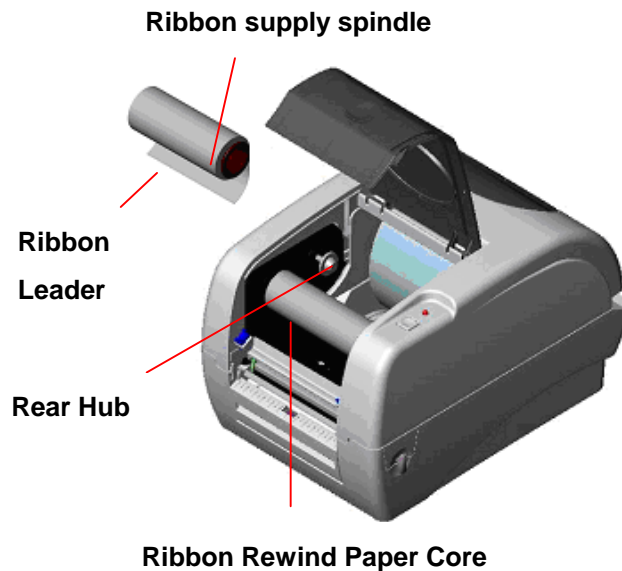


Fig. 7 Ribbon installation (II)

3.3 Loading Label Stock

1. Insert a 1" label spindle into a paper roll (* If your paper core is 1 inch, remove the 1.5" core adapter from the fixed tab. If label width is 4 inch wide, two fixing tabs are not required.).

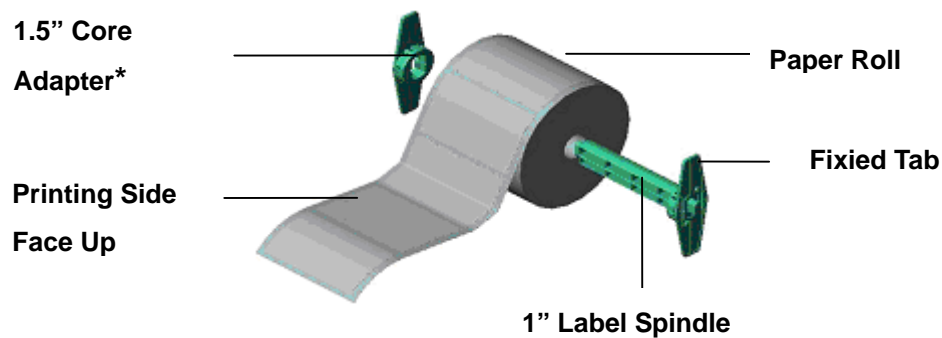


Fig. 8 Label roll installation (I)

2. Open the printer's top cover by releasing the green top cover open levers located on each side of the printer and lifting the top cover. A top cover support at the rear of the printer will hold the printer top cover open.

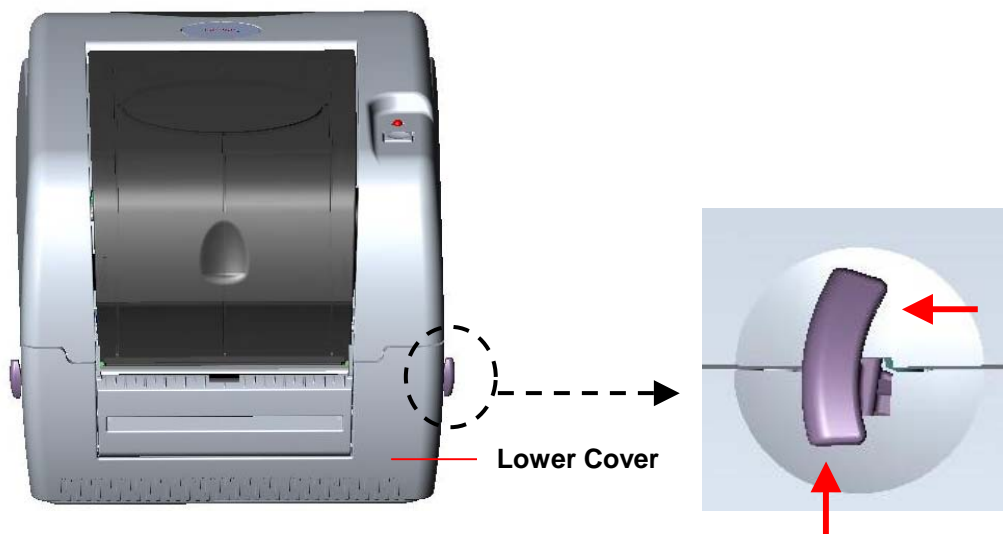


Fig. 9 Pull the lever to open the cover

3. Place a roll of paper onto the center of the paper roll mount.
4. Feed the paper, printing side face up, through the Teflon bar and the paper guide and pass over the platen.
5. Adjust the green center-biased paper guides to slightly touch the edges of the label backing.
6. To close the printer top cover, lift the cover to the ultimate open angle then use both hands to close the cover gently. Close the printer top cover slowly and make sure the cover locks latch securely.

Note:

1. ***Make sure hands are not placed in the printer when close the top cover.***
2. ***Do not free fall the top cover.***
3. ***Failure to securely close and lock the cover will result in poor print quality.***

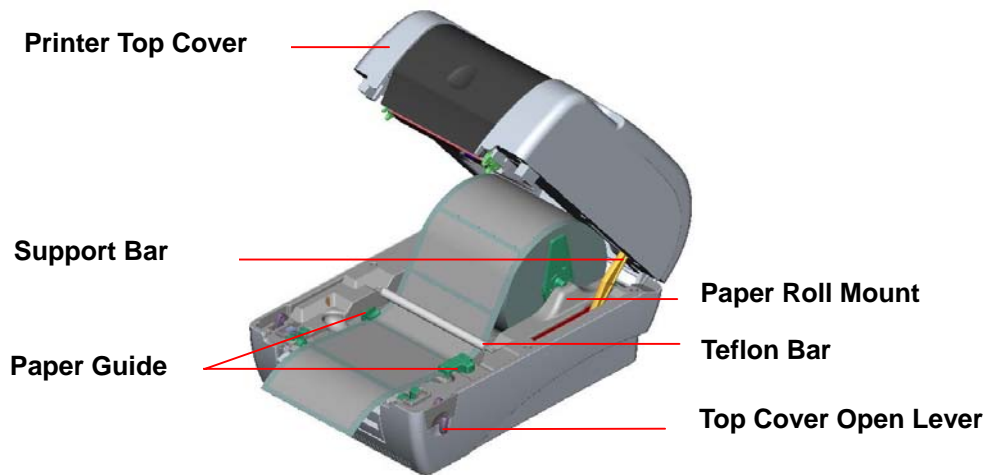


Fig. 10 Label installation (II)

3.4 External Label Roll Mount Installation (Option)

1. Attach an external paper roll mount on the bottom of the printer.

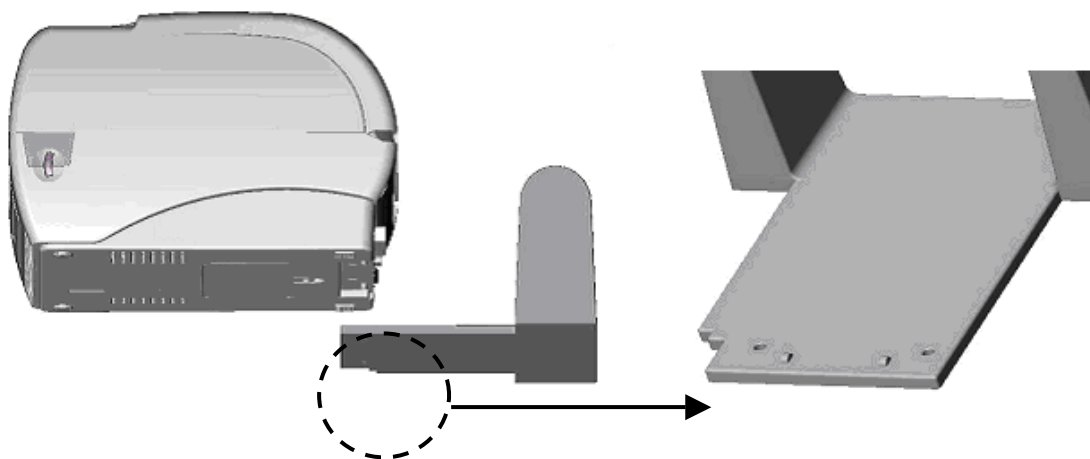
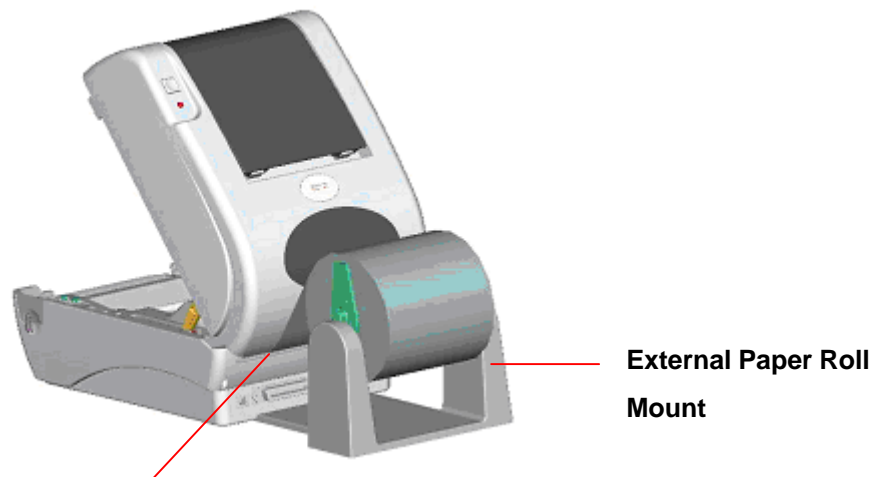


Fig. 11 Attach the external roll mount to the printer

1. Open the printer top cover by pushing forward the top cover open levers. The top cover support will hold the printer top cover.
2. Install a roll of paper on the external paper roll mount.
3. Feed the paper to the external paper feed opening through the rear paper guide.



External Paper Feed Opening

Fig. 12 External roll mount label installation (I)

4. Feed the paper, printing side face up, through the paper guide and pass over the platen.
5. Adjust the paper guide by removing it left or right to fit the paper width.
6. Close the printer top cover by lifting up the top cover support and close the printer top cover slowly.

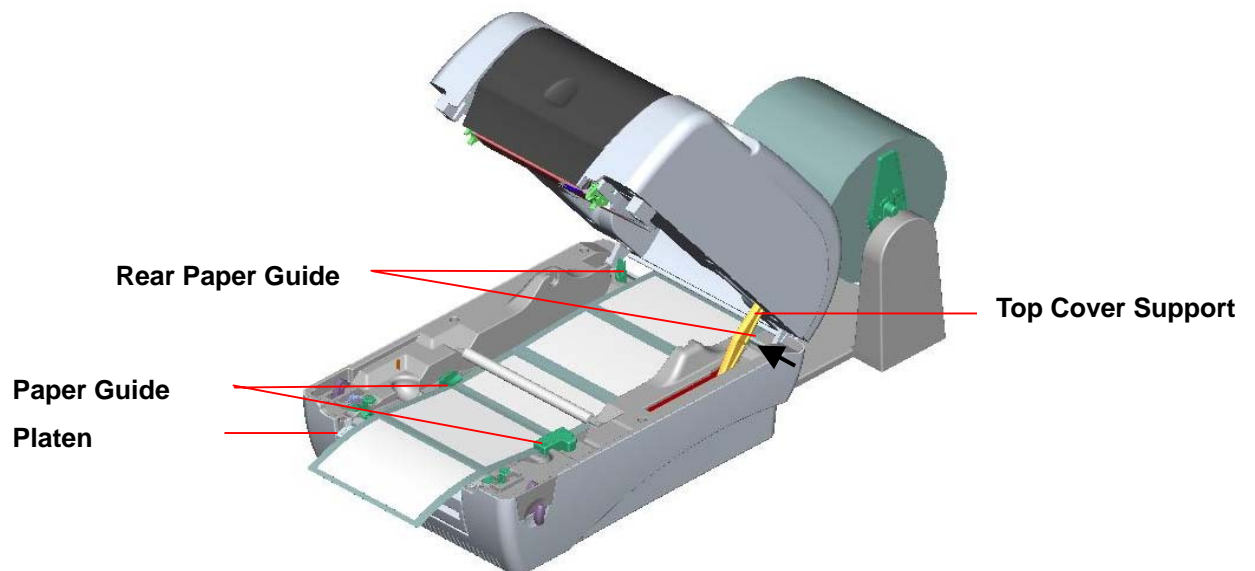


Fig. 13 External roll mount label installation (II)

3.5 Peel-off Module Installation (Option)

1. Open the top cover and remove the front panel from the printer

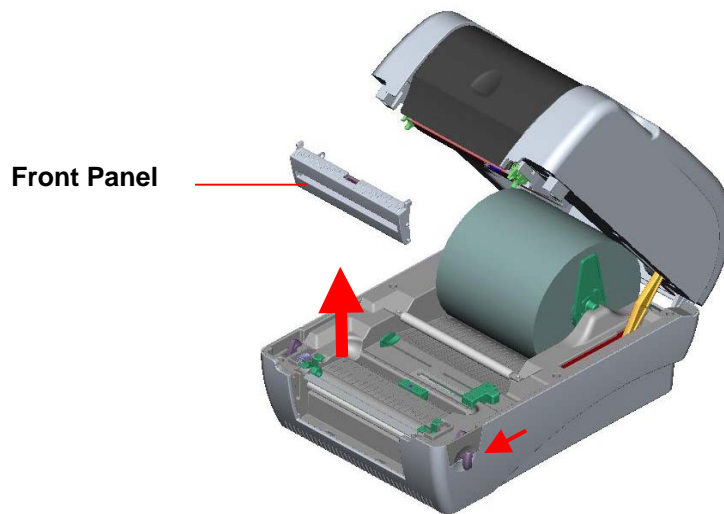


Fig. 14 Remove the front panel

2. Open the top cover and hold it and push down and push backward the top cover support then push backward the top cover.
3. Use a screwdriver to screw off 6 screws on the lower inner cover.

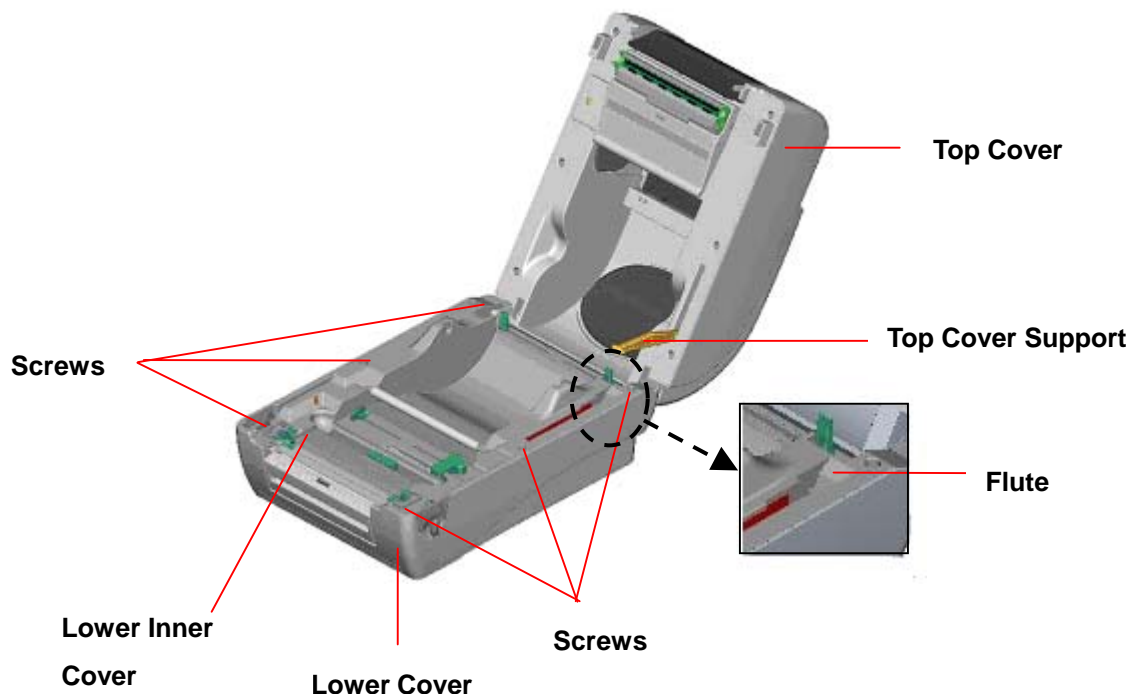


Fig. 15 Remove 6 screws from lower inner cover

4. Hold the lower cover to lift up the top cover open levers to separate the

lower inner cover and the lower cover.

5. Connect the peel-off panel cable to the 5-pin socket on printer PCB.

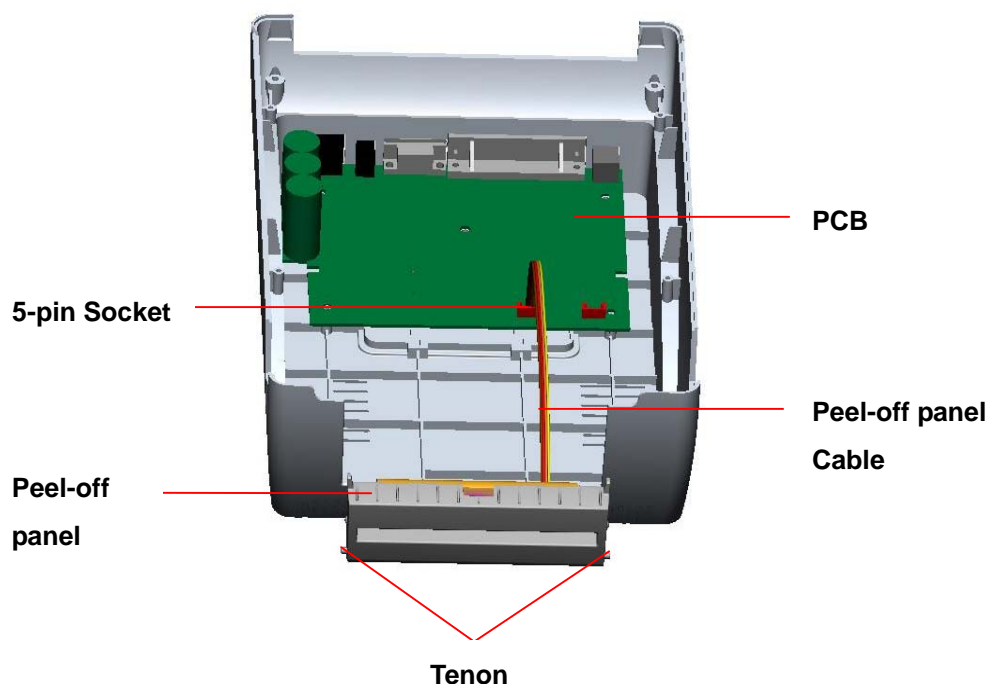


Fig. 16 Connect peel-off sensor cable to main board

6. Arrange the cable through the bezel.

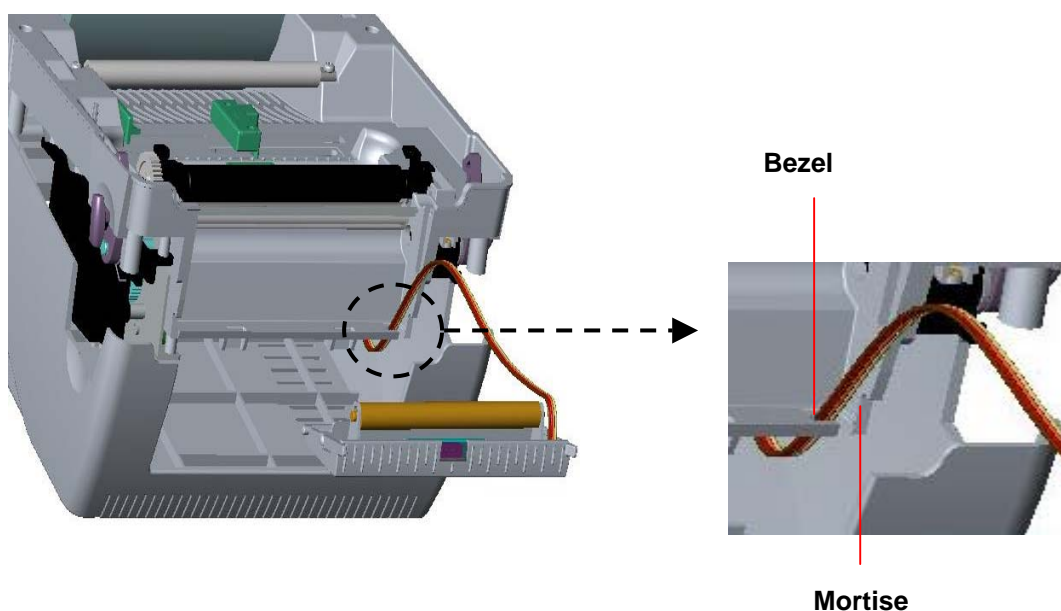


Fig. 17 Peel-off sensor cable installation

7. Flat a peel-off panel and embed the tenons in mortises, and you will hear a

kick sound.

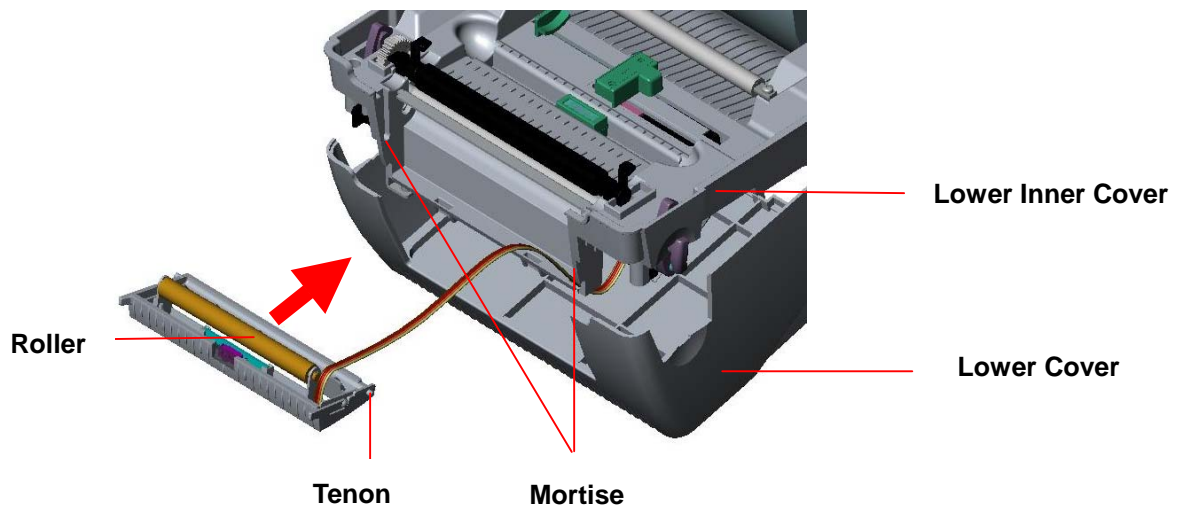


Fig. 18 Peel-off panel installation (I)

8. Arrange the lower inner cover back to the lower cover.

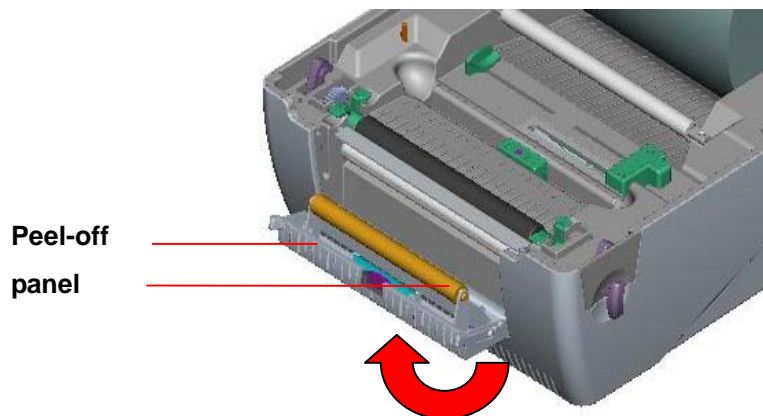


Fig. 19 Peel-off panel installation (II)

9. Lift up the peel-off panel to the lower cover to close it.
10. Use a screwdriver to screw down 6 screws on the lower inner cover.
11. Close the top cover by arranging the top cover support back to the flute and push it forward then close the top cover slowly.

4.5.1 Loading the Paper for Peel-off Mode

Note: Both thermal paper and plain paper apply for peel-off function but neither PVC nor vynle work at peel-off function.

1. Insert a 1" label spindle into a paper roll.
2. Open the printer top cover by pushing forward the top cover open levers. The top cover support will hold the printer top cover.



Fig. 20 Open the top cover

3. Install the paper roll on the paper roll mount.
4. Open the peel-off panel by pulling it out.

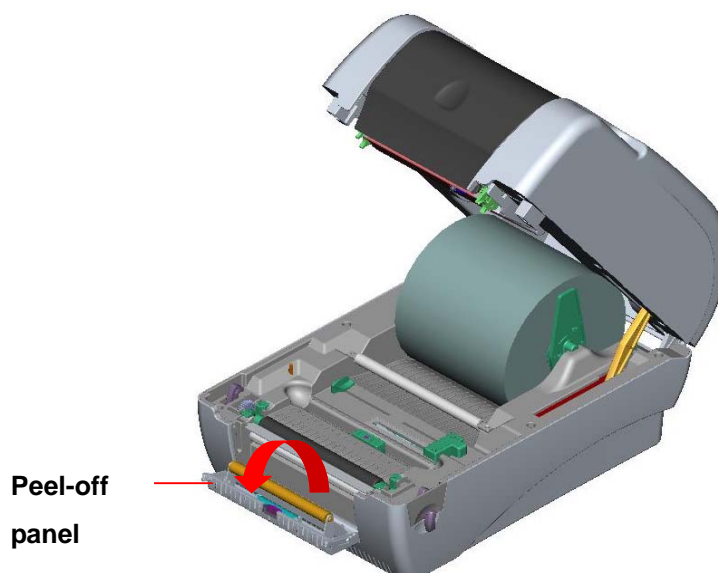


Fig. 21 Open the peel-off panel

5. Feed the paper, printing side facing up, through the paper guide and pass

over the platen.

6. Lead the paper through the backing paper opening, beneath the roller,
7. Adjust the paper guide by removing left or right to fit the paper width.

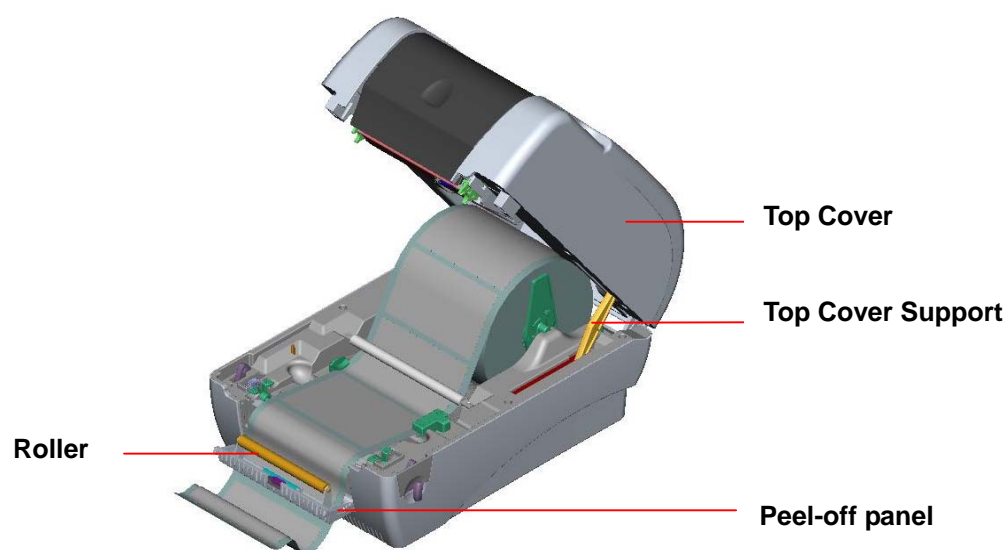


Fig. 22 Lead the paper through the backing paper opening, beneath the roller

8. Push the peel-off panel back to the printer.
9. Close the top cover by lifting up the top cover support and close the top cover slowly.



Fig. 23 Complete label installation for peel-off mode

3.6 Cutter Module Installation (Option)

1. Pull the top cover open levers to open the top cover.
2. Remove the front panel from the lower cover.

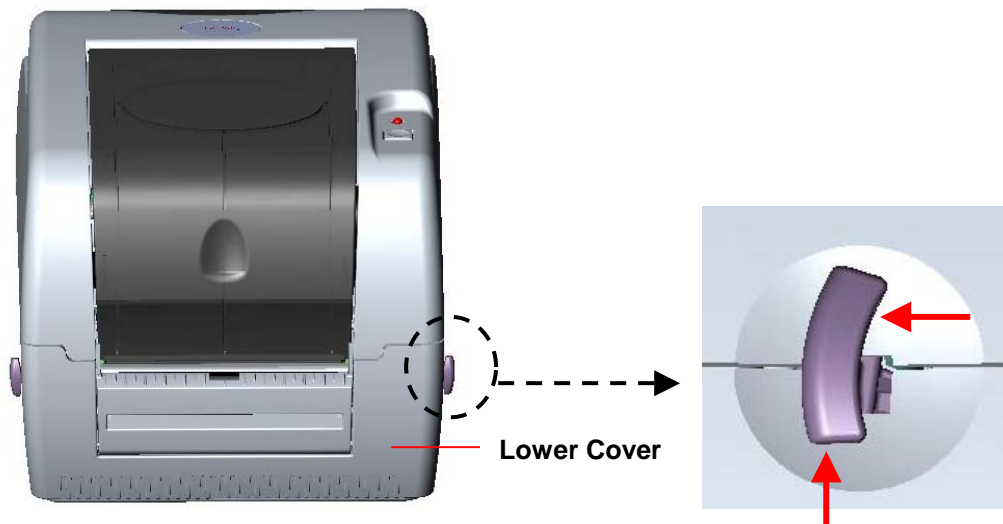


Fig. 24 Pull the lever to open the cover

3. Open the top cover and hold it and push down and push backward the top cover support then push backward the top cover.
4. Use a screwdriver to screw off 6 **screws** on the **lower inner cover**.

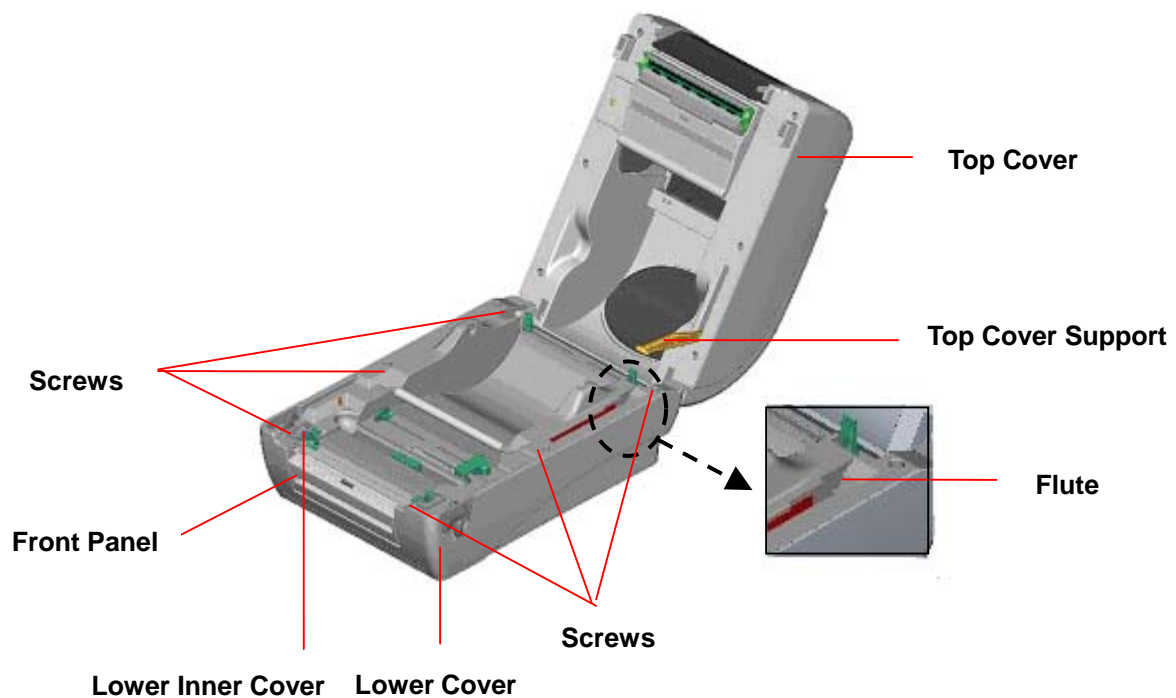


Fig. 25 Remove 6 screws from lower inner cover

5. Use both thumbs to hold the lower cover and index fingers to lift up the top cover open levers to separate the lower inner cover and the lower cover.
6. Connect the cutter module cable to the 4-pin socket on printer PCB.

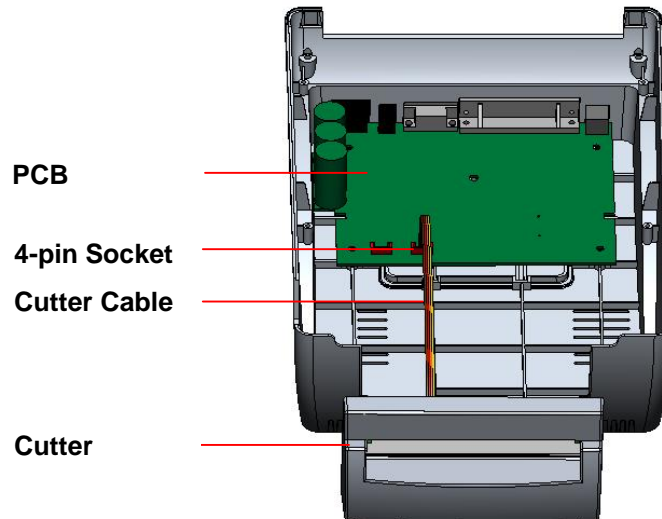


Fig. 26 Cutter module installation

7. Arrange the cable through the bezel.

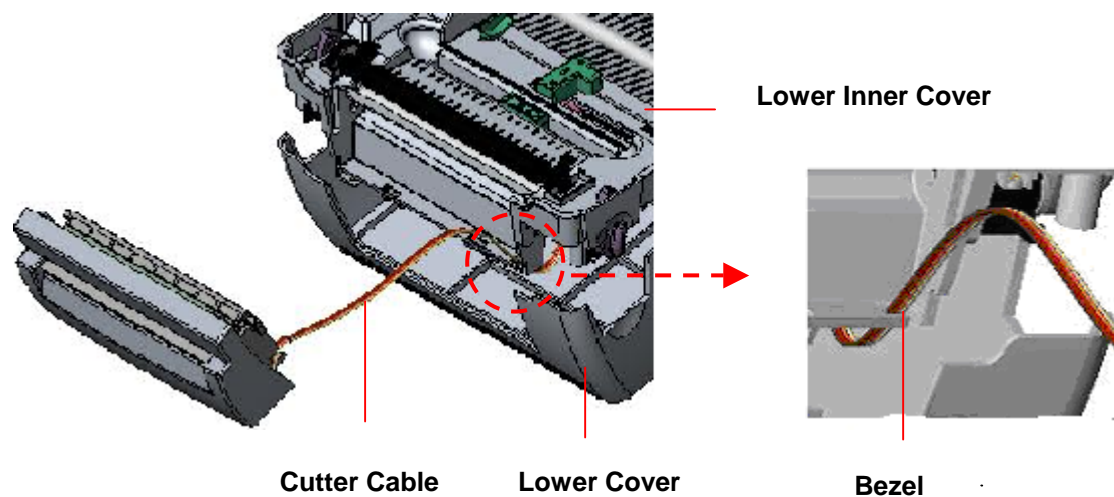


Fig. 27 Cutter module cable arrangement

8. Arrange the lower inner cover back to the lower cover.
9. Install the cutter into the niches of the printer.

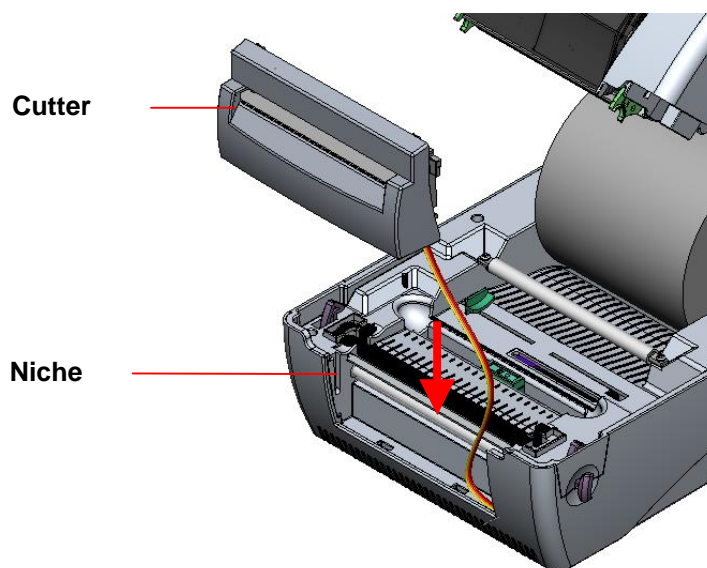


Fig. 28 Cutter module installation

10. Use a screwdriver to screw down 6 screws on the lower inner cover.
11. Close the top cover by arranging the top cover support back to the flute and push it forward then close the top cover slowly.

3.6.1 Loading Label in Cutter Mode

1. Insert a 1" label spindle into a paper roll.
2. Open the printer top.
3. Install the a paper roll on the paper roll mount.
4. Feed the paper, printing side face up, through the paper guide and pass over the platen
5. Lead the paper through the cutter paper opening.
6. Adjust the paper guide by removing left or right to fit the paper width.

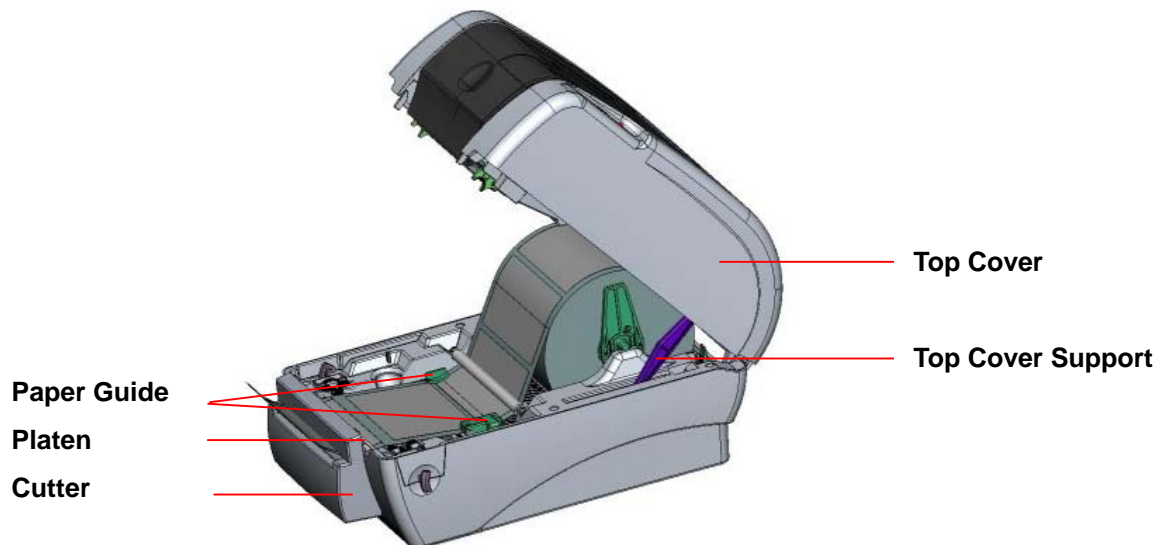


Fig. 29 Label installation in cutter mode

7. Close the top cover by lifting up the top cover support and close the top cover slowly.



Fig. 30 Complete label installation in cutter mode

3.7 Instructions to Top Cover Operation

Please take care when opening or closing the printer's top cover by carefully following these instructions.

To Open:

1. When facing the front of the printer pull the cover release levers on both sides of printer towards you.

2. Lift up the top gradually.

There are two stop positions for the top cover. Position 1 and 2 are indicated on the label below.

Note: To hold the cover open at position 1, you must lift the cover higher than the stopping point at position 1 and gently lower the cover to stopping point 1. Do not let the cover free fall!

3. Fully open the top cover and gently lower it to stop position 2.



Fig. 1 Top cover support is fixed at position 2

4. To close the cover, lift up the top cover to the ultimate angle then close the top cover gently and it will be kept at a stop position between 1 and 2 for a while. Use both hands to gently push down the top cover to close it and make sure the cover is latched on both sides.

Note: Do not place your hands between top cover and lower cover when closing the top cover!



Fig. 2 Top cover is fully open and ready to close



Fig. 3 Use both hands to close the top cover

5. ***Do not force the cover!*** If you are not sure if top cover is fixed at stop position, please do not push top cover to close it or the top cover will be damaged.
Please open the top cover to the ultimate angle to close the top cover again.
Use both hands to push top cover to close it.

4. Power on Utilities

There are three power-on utilities to set up and test printer hardware. These utilities are activated by pressing FEED button and by turning on the printer power simultaneously. The utilities are listed as below:

1. Ribbon sensor calibration
2. Gap or black mark sensor calibration
3. Printer initialization

4.1 Ribbon Sensor Calibration

Please follow the steps below to calibrate the ribbon sensor.

1. Turn off the power.
2. Press and hold the FEED button then turn on printer power.
3. Release the button when LED turns red after first orange within 5 blinks.

The LED color will be changed as following pattern.

Orange → **red (5 blinks)** → orange (5 blinks) → green (5 blinks) → solid green

4.2 Gap/Black Mark Calibration

Gap/black mark sensor sensitivity should be calibrated at the following conditions:

1. A brand new printer
2. Change label stock.
3. Printer initialization.

To calibrate gap or black mark sensor, depends on the sensor setting in the last print job. Please follow the steps below to calibrate the sensor.

1. Turn off the power.
2. Press and hold the FEED button then turn on printer power.
3. Release the button when LED turns orange with blinking in 5 blinks

The LED color will be changed as following pattern:

Orange → red (5 blinks) → **orange (5 blinks)** → green (5 blinks) → solid green

While calibrate the gap/black mark sensor, printer will measure the label length, print the internal configuration and then enter the dump mode.

Self-test printout can be used to check if there is any dot damage on the heater element, printer configurations and available memory space.

Turn off / on the power to resume printer for normal printing.

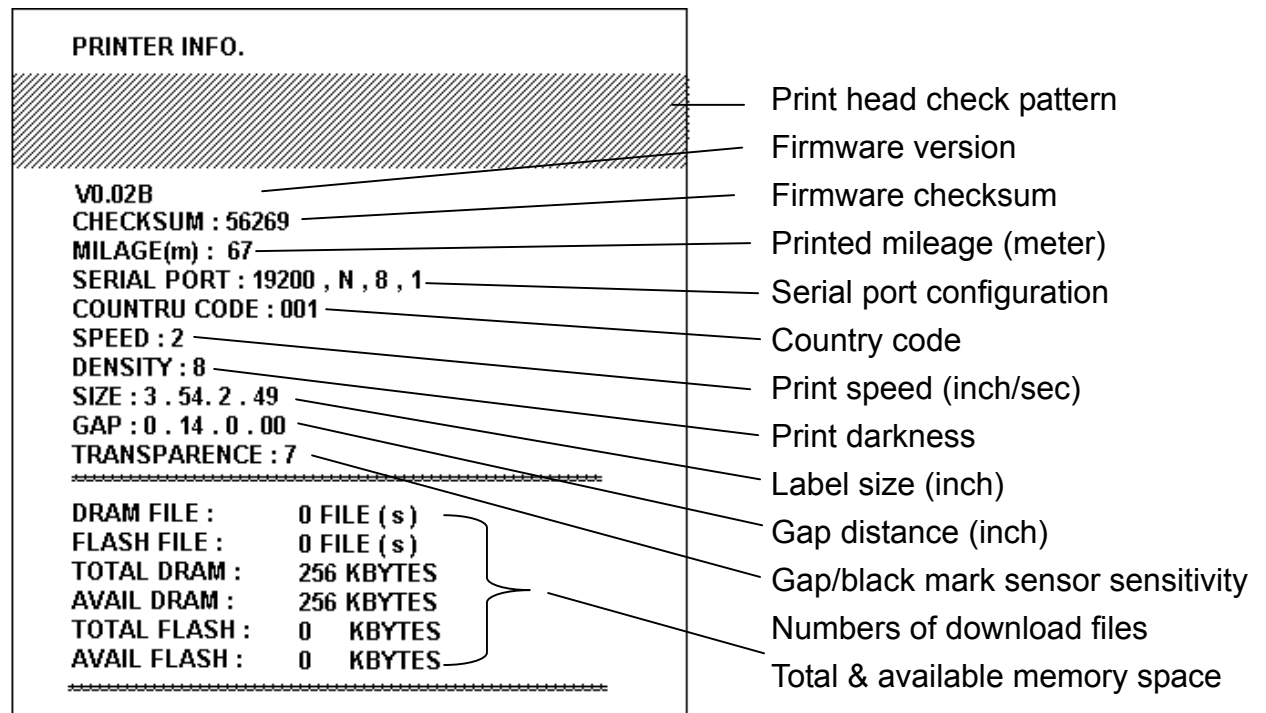


Fig. 3 Self-test printout

Printer will enter dump mode after printing printer configuration. In the dump mode, all characters will be printed in 2 columns as following.

SPEED 2.0	53	50	45	45	44	20	32	2E	30	0D
DENSITY 8	0A	44	45	4E	53	49	54	59	20	38
SET PEEL	0D	0A	53	45	54	20	50	45	45	4C
OFF DIRE	20	4F	46	46	0D	0A	44	49	52	45
CTION 0 G	43	54	49	4F	4E	20	30	0D	0A	47
AP 3.00 mm	41	50	20	33	2E	30	30	20	6D	6D
.0.00 mm	2C	30	2E	30	30	20	6D	6D	0D	0A
REFERENCE	52	45	46	45	52	45	4E	43	45	20
0.0 SET C	30	2C	30	0D	0A	53	45	54	20	43
UTTER OFF	55	54	54	45	52	20	4F	46	46	0D
SIZE 100.	0A	53	49	5A	45	20	31	30	30	2E
02 mm, 65.0	30	32	20	6D	6D	2C	36	35	2E	30
4 mm CLS	34	20	6D	6D	0D	0A	43	4C	53	0D
BARCODE 1	0A	42	41	52	43	4F	44	45	20	31
44,149,"39	34	34	2C	31	34	39	2C	22	33	39
".120,1,0,	22	2C	31	32	30	2C	31	2C	30	2C
2,6,"57114	32	2C	36	2C	22	35	37	31	31	34
38T" PRIN	33	38	54	22	0D	0A	50	52	49	4E
T 1,1 SPE	54	20	31	2C	31	0D	0A	53	50	45
ED 2.0 DE	45	44	20	32	2E	30	0D	0A	44	45
NSITY 8 S	4E	53	49	54	59	20	38	0D	0A	53
ET PEEL OF	45	54	20	50	45	45	4C	20	4F	46
F DIRECTI	46	0D	0A	44	49	52	45	43	54	49
ON 0 GAP	4F	4E	20	30	0D	0A	47	41	50	20
3.00 mm,0.	33	2E	30	30	20	6D	6D	2C	30	2E
00 mm REF	30	30	20	6D	6D	0D	0A	52	45	46
ERENCE 0.0	45	52	45	4E	43	45	20	30	2C	30
SET CUTT	0D	0A	53	45	54	20	43	55	54	54
ER OFF SI	45	52	20	4F	46	46	0D	0A	53	49
ZE 100.02	5A	45	20	31	30	30	2E	30	32	20
mm,65.04 m	6D	6D	2C	36	35	2E	30	34	20	6D
m CLS BA	6D	0D	0A	43	4C	53	0D	0A	42	41
RCODE 144.	52	43	4F	44	45	20	31	34	34	2C
149,"39",1	31	34	39	2C	22	33	39	22	2C	31
20,1,0,2,6	32	30	2C	31	2C	30	2C	32	2C	36
".5711438T	2C	22	35	37	31	31	34	33	38	54
" PRINT 1	22	0D	0A	50	52	49	4E	54	20	31
.1	2C	31	0D	0A						

Fig. 4 Dump mode printout

The left side characters are received from your system and right side data are the corresponding hexadecimal value of the characters. It allows users or engineers to verify and debug the program. Turn off and on the power switch to reset the printer for normal printing.

4.3 Initialization

Printer initialization is used to clear DRAM and restore printer settings to defaults. The only one exception is ribbon sensitivity, which will not be restored to default.

Printer initialization is activated by the following procedures.

1. Turn off printer power.
2. Press the FEED button and then turn on power. The LED will become red, orange, green with 5 blinking (around 5 seconds) for each color.
3. Release the FEED button when LED becomes green with blinking

The LED color will be changed as following pattern:

Orange → red (5 blinks) → orange (5 blinks) → **green (5 blinks)** → solid green

4. Printer configuration will be restore to defaults as below after initialization.

Parameter	Default setting
Speed	TT024-50, 127 mm/sec (5 ips) TT034-30, 76 mm/sec (3 ips)
Density	7
Label Width	4.25" (108.0 mm)
Label Height	2.5" (63.4 mm)
Sensor Type	Gap sensor
Gap Setting	0.12" (3.0 mm)
Print Direction	0
Reference Point	0,0 (upper left corner)
Offset	0
Tear Mode	On
Peel off Mode	Off
Cutter Mode	Off
Serial Port Settings	9600 bps, none parity, 8 data bits, 1 stop bit
Code Page	850
Country Code	001
Clear Flash Memory	No

5. Maintenance

5.1 Cleaning

Use one or more of the following supplies that meets your needs:

- Cleaning pens.
- Cleaning swabs
- Lint-free cloth.

The cleaning process is described as following

Printer Part	Method
Printer Head	<ul style="list-style-type: none">■ Let the print head to cool for one minute.■ Use a cleaning pen to swab the print elements.
Platen Roller	<ul style="list-style-type: none">■ Rotate the platen roller and wipe it thoroughly with 70% alcohol and a cleaning swab, or lint-free cloth.
Exterior	<ul style="list-style-type: none">■ Wipe it with water-dampened cloth.
Interior	<ul style="list-style-type: none">■ Brush or air blow.

6. Troubleshooting

This section lists the common problems that according to the LED status and other problems you may encounter when operating the printer. Also, it provides solutions.

6.1 LED Status

LED Status / Color	Printer Status	Solution Number
Off	off	1
Solid Green	on	2
Green with blinking	Pause	3
Red with blinking	Stopped	4

1. **No power.**

- Turn on the power switch.
- Check if the green LED is lit on power supply. If it is not lit on, power supply is broken.
- Check both power connection from the power cord to the power supply and from the power supply to the printer power jack.

2. **The printer is on and ready to use.**

- No action necessary.

3. **The printer is paused.**

- Press the feed button to resume printing.

4. **The out of label or ribbon or the printer setting is not correct**

Out of label or ribbon

- Load a roll of label and follow the instructions in Loading the Paper then press the feed button to resume printing.
- Load a roll of ribbon and follow the instructions in Loading the Ribbon then press the feed button to resume printing.

Printer setting is not correct

- Initialize the printer by following the instructions in “Power on Utility”.

6.2 Print Quality

Continuous feeding labels

- The printer setting may go wrong. Please do the **Initialization** and **Gap/Black Mark Calibration**.

No print on the label

- Is the label or ribbon loaded correctly? Follow the instructions in **Loading the Paper** or **Loading the Ribbon**.
- Does the ribbon run out? Follow the instructions in **Loading the Ribbon**.

Poor print quality

- Top cover is not closed properly. Close the top cover completely and make sure the right side and left side levers are latched to top cover properly.
- Clean the thermal print head.
- Adjust the print density setting.
- Ribbon and paper media are not compatible.

7. Specifications

7.1 Printer Specifications

Item	TT024-50	TT034-30
<i>Mechanism</i>		
Resolution	203 dpi.	300 dpi
Max. Print Width	108 mm.	104 mm
Max. Print Length	1000 mm (39").	420 mm (16.53")
Ribbon Capacity	300 meter with 1" core. (Max. OD 67 mm)	
Printing Speed	2, 3, 4 and 5 ips.	2, 3 ips
Peeler function	2, 3 ips	2 ips
Printing Method	Direct thermal and thermal transfer printing.	
<i>Enclosure</i>		
Structure	Double-walled plastic.	
Dimension	Standard Model: 314mm(L) x 213mm(W) x 188mm(H)	
Operation Panel	One push switch, and one indicator LED (Green, Orange, Red colors).	
<i>Hardware</i>		
Sensor	Transmissive sensor (offset 6 mm from liner edge). Reflective sensor (position adjustable). Head open micro switch. Ribbon end sensor	
Memory	1M byte Flash memory 2M bytes DRAM	
Interface	RS-232C (max baud rate, 19,200 bps). USB: V1.1. Centronics.	
Power	AC input: 100-240V universal auto switching power supply. DC output: 24V 3.75A.	
<i>Firmware</i>		
Font Type	8 alpha-numeric bitmap fonts, and 1 true type font.	
Rotation	0, 90,180 and 270 degrees.	
Barcode Format	1D Bar code	

Command Set	Code 39, Code 93, Code 128UCC, Code128 subsets A.B.C, Codabar, Interleave 2 of 5, EAN-8, EAN-13, EAN-128, UPC-A, UPC-E, EAN and UPC2(5) digits add-on, MSI, PLESSEY, POSTNET, CPOST 2D Bar code PDF-417, Maxicode, and DataMatrix. TSPL2
Environment	
Operation	Temperature: 5°C ~ 40°C. Relative Humidity: 25% ~ 85% (Non Condensing).
Storage	Temperature: -40°C ~ 60°C. Relative Humidity: 10% ~ 90% (Non Condensing).

7.2 Label Stock Specifications

Item	Specification
Type	Label (Continuous , Die-cut , Fan-fold).
Wound Type	Outside wound.
Width	20mm ~ 112mm (0.78" ~ 4.4").
Length	10mm ~ 1000mm (0.4" ~ 39"). 25.4mm ~ 1000mm (1" ~ 39").(for peeler and cutter)
Thickness	0.06mm ~ 0.19mm. (2.3~7.4 mil), max. 150g/m ²
Roll Diameter	5".
Roll Core Diameter	25.4mm ~ 76.2mm (1" ~ 3").
Gap Height	2mm min.
Black Mark Height	2mm min.
Black Mark Width	8mm min.

7.3 Ribbon Specifications

Item	Specification
Type	Wax, Wax / Resin, Resin.
Core Diameter	1".
Width	Max 110mm.
Capacity	300m with 1" core.
Wound Type	Outside wound.
Ribbon End	Clear or silver end tape.

8. LED and Button Operation

8.1 LED

LEDColor	Description
Green	This illuminates that the power is on and the device is ready to use.
Orange	This illuminates that the system is detecting the paper and ribbon status
Red	This illuminates a printing error, such as paper empty, ribbon empty, or cover opened etc.

8.2 Button Operation

<i>Feed</i>	<ul style="list-style-type: none"> ● Press the button when the LED is green. <ul style="list-style-type: none"> ■ It feeds the label to the beginning of the next label.
<i>Pause</i>	<ul style="list-style-type: none"> ● Press the feed button during printing <ul style="list-style-type: none"> ■ The printing job is suspended.
<i>Ribbon Sensor Calibration</i>	<ul style="list-style-type: none"> ● Turn off the power switch. ● Hold on the button then turn on the power switch. ● Release the button when LED becomes red and blinking. (Any red will do during the 5 blinks). <ul style="list-style-type: none"> ■ It will calibrate the ribbon sensor sensitivity.
<i>Gap/Black Mark Sensor Calibration, Label Length Measurement, Self Test and enter Dump Mode</i>	<ul style="list-style-type: none"> ● Turn off the power switch. ● Hold on the button then turn on the power switch. ● Release the button when LED becomes orange and blinking. (Any orange will do during the 5 blinks). <ul style="list-style-type: none"> ■ The LED color will be changed as following order. Orange → red (5 blinks) → orange (5 blinks) → green (5 blinks) → solid green. ■ It calibrates the sensor and measures the label length and prints internal settings then enter the dump mode.
<i>Printer Initialization</i>	<ul style="list-style-type: none"> ● Turn off the power switch. ● Hold on the button then turn on the power switch. ● Release the button when LED turns green after 5 orange blinks. (Any green will do during the 5 blinks). <ul style="list-style-type: none"> ■ The LED color will be changed as following: orange → red (5 blinks) → orange (5 blinks) → green (5 blinks) → solid green. ● Always do gap/black mark sensor calibration after printer initialization.

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