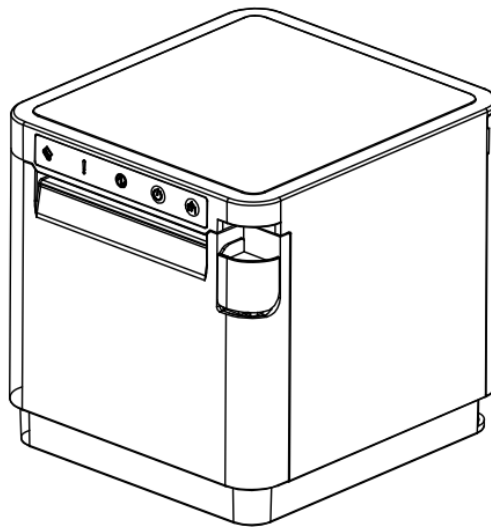


# **Service Manual for XT890HW Desktop POS Printer**





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## Notes for Maintenance

Prior to operation and use of the printer, read the following notes carefully:

### 1. Safety warning



Warning: The printing head is a heating part, do not touch it or parts neighboring it while printing or when printing is just over.



Warning: Do not touch the printing head and the connecting parts lest the printing head be damaged by static electricity.

### 2. Notes for attention

- 1) The steps narrated in the manual shall be followed in trouble-shooting.
- 2) Pull and plug of the communication cable, change of the printing head and maintenance of the printer is prohibited with power on before the printer and the computer is turned off;
- 3) Take care to prevent from static electricity in processing the printing head or other electronic parts and elements;
- 4) The time interval between power on and power off of the printer shall not be less than 20 seconds;
- 5) The printer shall not run when there's no paper in it, otherwise the rubber roller for printing and the printing head will be damaged seriously;
- 6) While printing effect meets use requirements, the user is recommended set printing concentration of lower grade so as to improve service life of the printing head.

## 1、 Characteristics of the Printer

### 1.1 Overview

This printer is a thermal note printer equipped with automatic cutter, it has the characteristics of high printing quality, high speed and high stability and it can be applied in commercial POS system and catering industry and so on widely where on-site real-time printing of notes is required. It can be connected to other devices through serial, USB, Ethernet, Bluetooth and WIFI interfaces, and the drivers for Windows XP/Windows 7/Windows 8/Windows 10/Linux are provided for it.

### 1.2 Main Characteristics

- Automatic paper cutting
- Low-noise and high-speed printing
- Design of easy-drop-in-paper-load structure is adopted
- Over-heated protection of the printing head is supported
- Printing of marking paper and continuous paper is supported
- Compatible for paper of several width
- Cash drawer control is supported
- Communication interface is optional
- Over-heated protection of the printing head and prevention of cutter jam are supported
- Online upgrade of IAP is supported

## 1.3 Technical Parameters

<b>Model</b>	T890H
<b>Color</b>	White
<b>Printing mode</b>	Direct row-type thermal printing
<b>Printing speed</b>	300mm/s
<b>Width of paper roll</b>	58mm(57.5±0.5mm),80mm(79.5±0.5mm),83mm(82.5±0.5mm)
<b>Paper roll</b>	ID MinΦ13mm, OD Max Φ83mm
<b>Thickness of paper</b>	0.06-0.08mm
<b>Printing width</b>	52/72/80±0.5mm (can be adjusted through command)
<b>Paper-out mode</b>	Front paper out
<b>Printing density</b>	576 dots/line or 510 dots/line
<b>Space of rows</b>	3.75mm (adjusted through command)
<b>Printing command</b>	Compatible with ESC/POS command
<b>Type of interface</b>	serial port+USB+network port
<b>Size of character:</b>	ANK character, Font A:1.5mm×3.0mm (12×24 dots) Font B:1.1mm×2.1mm (9×17 dots) Simplified/traditional:3.0mm×3.0mm (24×24 dots)
<b>Graph</b>	Mono-color BMP image files and so on can be downloaded to FLASH
<b>Type of bar code:</b>	UPC-A/UPC-E/JAN13(EAN13)/JAN8(EAN8)/CODE39/ITF/CODABAR/ CODE93/CODE128
<b>QR code:</b>	QR Code,PDF417
<b>The Number of column</b>	Font A - 42 columns or 48 columns/Font B - 56 columns or 64 columns / Simplified/traditional - 21 columns or 24 columns
<b>Extended character table</b>	PC437(Std.Europe), (Katakana)\n\, PC850(Multilingual), PC860(Portugal), PC863 (Canadian), PC865(Nordic), (West Europe), (Greek), (Hebrew), (East Europe), (Iran), (WPC1252), PC866(Cyrillic#2), PC852(Latin2), (PC858), (IranII), (Latvian), (Arabic), (PT1511251)

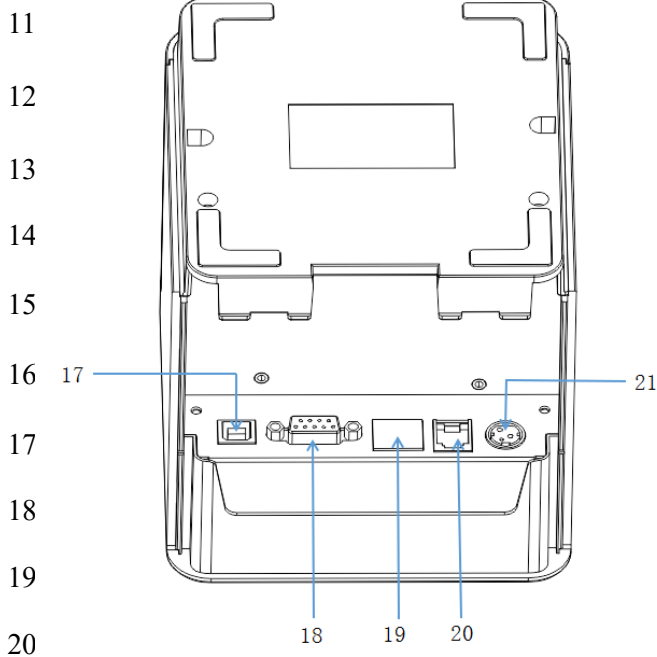
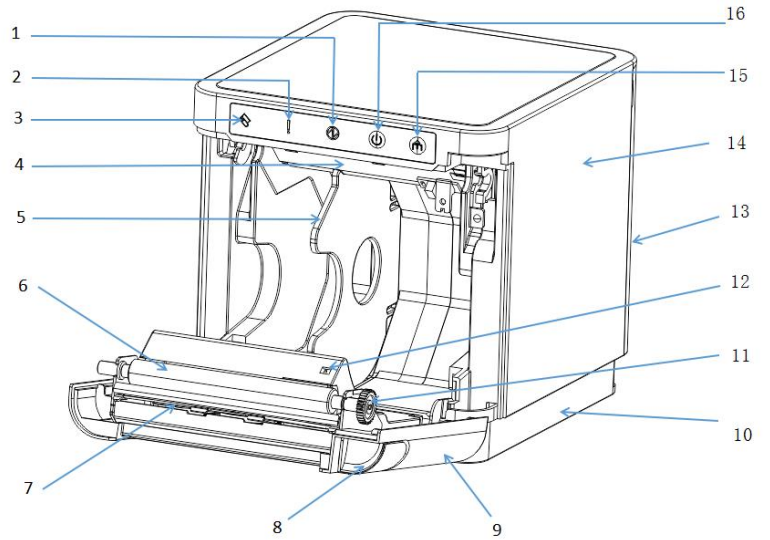
<b>Reliability</b>	Service life of the cartridge is 150 kilometers and that of the cutter is 2 million times
<b>Paper-cutting mode</b>	Semi-cutting
<b>Paper detection</b>	Photoelectric sensor
<b>Black-label positioning</b>	Supported
<b>Input buffer</b>	2048Kbytes
<b>NV Flash</b>	256Kbytes
<b>Voltage input of adaptor</b>	AC 100-240V/50~60Hz
<b>Voltage output of adaptor</b>	DC 24V/2.5A
<b>Control of Cash drawer</b>	DC 24V/1A
<b>Working environment</b>	Temperature:0~45°C, Humidity:10~80% (non-condensing)
<b>Storage environment</b>	Temperature: -10~60°C, Humidity:10~90%
<b>Operating system</b>	Win 2000 /Win 2003 /Win XP /Win Vista/Win 7 /Win 8/ Win 10 /Linux
<b>Physical dimension</b>	130*140*133mm (W*D*H)
<b>Net weight</b>	1.1kg

## 2、 Appearance and Components



## 2.1 Appearance of the Product

- 1--Power light
- 2--Status indicator light
- 3-- Low paper indicator
- 4--Fixed knife assembly
- 5--Partition board
- 6--Rubber roller
- 7--Cutter and moving knife set
- 8--Cover-opening button
- 9--Flip cover
- 10--Base



- 21--Power interface

## 2.2 Connecting Diagram for Components of the Control Panel

The printer composed of main control board, printing cartridge, cutter, keys and buttons is connected to the mainboard via connectors or pinboard, Below is the connection diagram for the control board components:

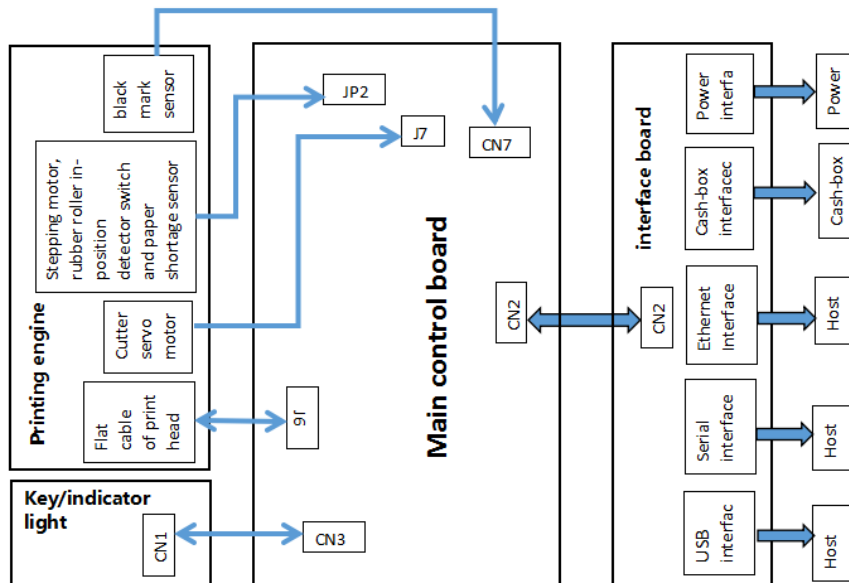


Fig 2.2.1 Connection Diagram of USB+ Network Interface Control Panel

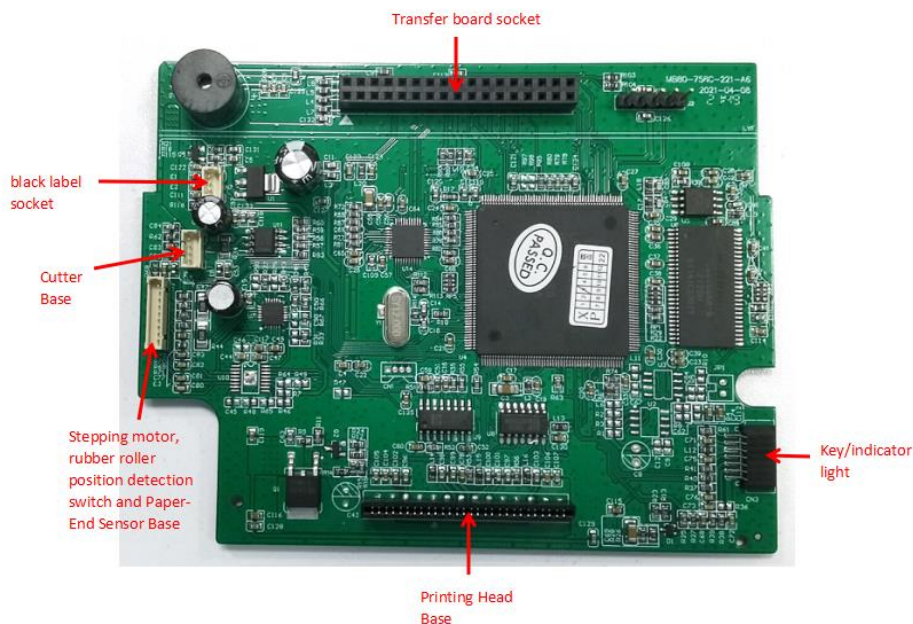
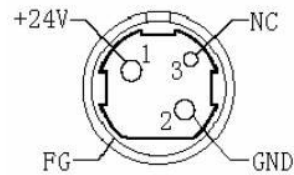


Fig 2.2.2 Position Diagram for USB+ Network Interface Control Panel

## 2.3 Interfaces of the Printer

## 2.3.1 Power interface

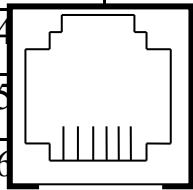
PIN	SIGNAL NAME
1	+24V
2	GND
3	N.C
SHELL	F.G



## 2.3.2 Interface of Cash drawer

Cashier-box control: 6-line RJ-11 socket, output DC 24V/1A power signals to drive actions of Cash drawer.

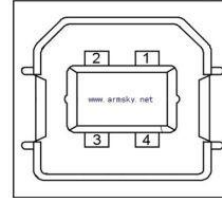
PIN	SIGNAL NAME
1	FGND
2	Drawer 1
3	SW
4	CASH
5	Drawer 2
6	GND



654321

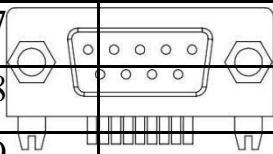
## 2.3.3 USB interface

PIN	SIGNAL NAME
1	VBUS
2	D- (DATA-)
3	D+ (DATA+)
4	GND



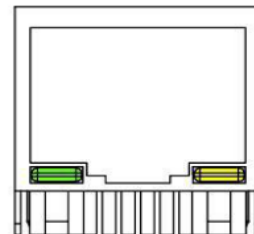
## 2.3.4 Serial interface

PIN	SIGNAL NAME
1	-
2	TXD
3	RXD
4	-
5	GND
6	DSR
7	-
8	CTS
9	-



## 2.3.5 Network interface

PIN	SIGNAL NAME
1	TD+
2	TD-
3	RD+
4	TXC
5	RCT
6	RD-
7,8	-
9	GREEN+
10	GREEN -
11	YELLOW+
12	YELLOW-



### 3、 Keys, Buttons, Indicators and Functions



### 3.1 Paper-feed key ( )

When the printer does not alarm, press the key to feed paper, and hold it to feed paper continuously.

### 3.2 Power key ( )

Press this key 1-2 seconds to turn on/off the printer.

### 3.3 Power indicator ( )

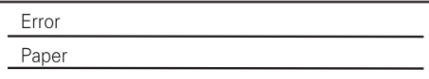
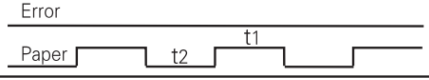
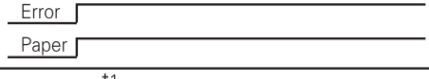
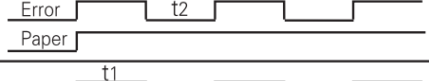
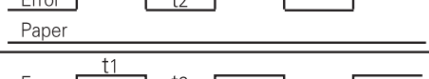
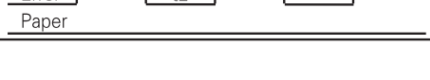
The indicator light is blue in color. When it is on, the power of the printer is turned on, and when it is off, the power of the printer is turned off.

### 3.4 Status indicator ( )

The indicator light is red in color.

### 3.5 Paper-lacking indicator ( )

The indicator light is red in color.

Operating Condition	Flash Mode	LED
Closed roll paper cover with paper		No lights
Closed roll paper cover without paper		Paper LED flashing at $t = t_1 + t_2$
Opened roll paper cover without paper		Error LED and Paper LED on
Opened roll paper cover with paper		Paper LED on and Error LED flashing at $t = t_1 + t_2$
Cutter fails to operate		Error LED flashing at a faster speed
Thermal head overtemperature		Error LED flashing at a faster speed

### 3.6 Description of the printer's status

- Status of errors

Including overheating of the printing head, cover opening, paper lacking, cutter jam and paper jam, etc.

- Standby status

No error, no printing, no paper feed, waiting for printing task of the printer.

- Printing status

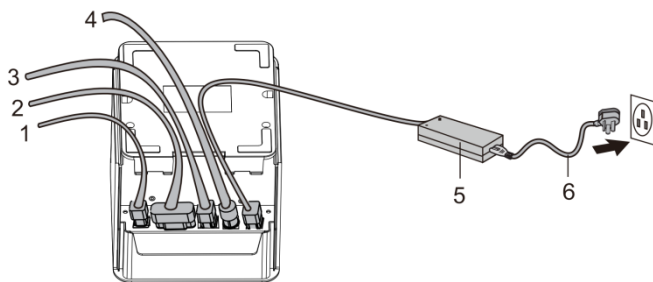
The process from start to end of printing the contents after the printing contents are received.

- Paper-out status

The process from paper out to paper cutting after printing is over.

## 4、 Installation and Use

### 4.1 Connection of Interfaces



1.USB cable 2. Serial cable 3.network cable 4. Cash drawer cable 5. Power adaptor 6. Power cable

#### 4.1.1 Connecting to power adaptor

- 1) Confirm that the power switch of the printer is in off state;
- 2) Insert the cable plug of the power adaptor into the power interface at the rear of the printer with the flat and straight facing upwards;
- 3) Turn on the input power of the power adaptor;
- 4) Be cautious in inserting and pulling the power adaptor, or it is easily damaged.

#### Cautions:

- 1) Use the dedicated power adaptor or an equivalent product;

- 2) While inserting or pulling the plug of the power adaptor, be sure to hold the connector's housing of the plug, and avoid pulling the cable with force;
- 3) Avoid dragging the cable of the power adaptor, or the cable may be damaged and a fire or electrical shock may be caused;
- 4) Avoid putting the power adaptor around any over-heated device, or the surface of the cable may be melted and a fire or electrical shock may be caused.
- 5) Cut off the power source of the printer's power adaptor if the printer is not used for a long time.

## 4.1.2 Connecting to interface cable

- 1) Confirm that the power switch of the printer is in off state;
- 2) Insert the interface cable into a matching interface, and fix it with the screw or snap spring on the plug;
- 3) Connect the other end of the interface cable to the main engine.

## 4.1.3 Connecting to Cash drawer

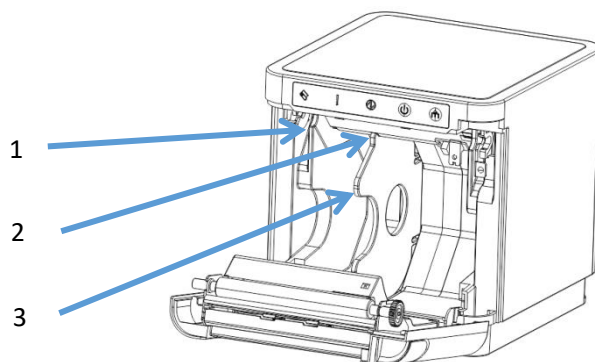
- 1) Confirm that the power switch of the printer is in off state;
- 2) Insert the connecting cable of the Cash drawer into the interface for the Cash drawer at the rear of the printer.



Warning: The interface of the Cash drawer can only be connected to a Cash drawer device with voltage of 24V/1A (and telephone line shall not be connected).

## 4.2 Load of Paper Roll

After the power adaptor is connected to the interface cable, media can be loaded for printing, and confirm the specification of the paper used by the printer before printing. Choose the partition board as per the specification of the paper to be used.





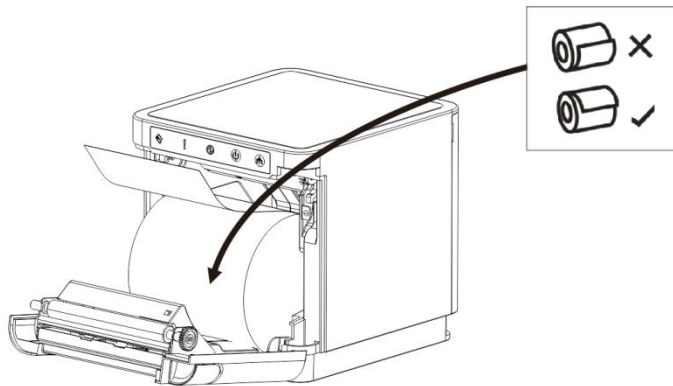
1. Card slot 1      2. Card slot 2      3. Partition board

Choose a suitable position according to the width of the paper, and insert the partition board downward vertically (Note: the partition board is mounted at the position of card slot 1 by default)

Notes: The partition board is in card slot 1: The paper roll with width of 80mm( $79.5\pm 0.5$ mm) is supported.

The partition board is in card slot 2: The paper roll with width of 58mm( $57.5\pm 0.5$ mm) is supported.

Partition board is not mounted: The paper roll with width of 83mm( $82.5\pm 0.5$ mm) is supported.



## Paper roll installation

- 1) Turn off the power of the printer;
- 2) Turn on the cover-opening button, and open the flip cover of the printer;
- 3) Place the paper roll into the printer, minding the laying direction of the paper roll.
- 4) Close the flip cover of the printer.

## 5、 Guide on Trouble-shooting

In case any fault occurs for the printer, it can be handled in accordance with this chapter, If the fault cannot be solved in this way, contact the dealer or the manufacturer.

### 5.1 Power Supply

Fault	Possible cause	Solution
	AC/DC power adaptor is not	Connect the power adaptor again

Power indicator is not on	connected properly	
	AC/DC power adaptor is in fault	Change the power adaptor
	Power supply circuit on the mainboard is in fault	Repair or change the mainboard
	Lamp panel is in fault	Repair or change the lamp panel

## 5.2 Printing

Fault	Possible cause	Solution
Print out empty paper	Printing paper is not loaded correctly	Load printing paper as per the requirements in the manual
	Paper type is not correct	Use thermal paper for printing
	Printing head is damaged	Change the printing head
	The mainboard is damaged	Repair or change the mainboard
	Printing paper is not loaded correctly	Load printing paper as per the requirements in the manual
Printing quality is poor/dim	Paper quality is poor	Use paper with equivalent quality
	Setting is not correct	Improve printing concentration
	The printing head is damaged	Change printing head
Printing dirt	Paper is dirty or paper quality is poor	Check or change printing paper
	The printing head is dirty	Use alcohol to clean printing head

## 5.3 Paper Feed

Fault	Possible cause	Solution
Paper does not enter or paper feed	The printer is jammed with paper	Remove the jammed paper and load the printing paper as per the requirement in the manual
	The gear is damaged	Change the gear
	The mainboard is damaged	Repair or change the mainboard

is not normal	Motor of the printing head is in fault	Change the printing head
	Foreign matter in the gear	Clean the gear

## 5.4 Cash drawer

Fault	Possible cause	Solution
Cash drawer cannot be opened	Cable for Cash drawer does not meet the specification	Replace cable with corresponding specification
	Driving cable for the Cash drawer is damaged	Change the cable
	Driving circuit of the Cash drawer is damaged	Repair or change the mainboard
Cash drawer cannot be closed	Driving circuit of the Cash drawer is damaged	Repair or change the mainboard

## 5.5 Indicator/Buzzer

Fault	Possible cause	Solution
Key or indicator does not work	The cable for key indicator is not connected reliably	Connect the cable again
	The cable or connector is damaged	Change the cable or connector

	The key or indicator is damaged	Change the key or indicator
	Status display circuit is damaged	Change or repair the mainboard
Buzzer does not work	The Buzzer is damaged	Change the buzzer
	Control circuit of the buzzer is not normal	Change or repair the mainboard
	The setting is not correct	Set as per the requirements in the user manual

## 5.6 Communication

Fault	Possible cause	Solution
Status of the printer is normal, but it does not print	Connection between communication cable and the printer is not reliable	Connect to the communication cable again
	The communication cable used does not meet the specification	Use the communication cable matching with the printer
	The communication cable or connector is damaged	Change the communication cable or connector
	The communication pinboard is damaged	Change the communication pinboard
	The circuit for extended interface on the mainboard is in fault	Repair or change the mainboard

## 5.7 Paper Cutting

Fault	Possible cause	Solution
Knife is jammed	The blade is distorted	Change the cutter
	The motor is burned	Change the cutter

	Scraps of paper are accumulated	Clean the scraps on transmission parts
Paper is jammed	Plate of driving head is over-heated	Lower heating power of the driving head
	Paper feed position is not correct	Align edge of paper with the paper slot and put the paper between the rubber roller and TPH
Paper is not cut off	Blade is damaged or worn	Change the cutter
	Paper is too thick	Change standard paper

## 6、 Dismantlement and Assembly of Main Parts

Cautions in operation:

- 1) When the printer is working normally, do not dismantle any part of the printer, nor loosen any screw of the printer;
- 2) While dismantling parts, check if the connecting cable is damaged or not carefully;

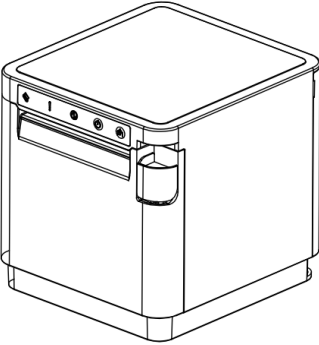
- 3) In the process of handling the printing cartridge and electronic elements, taking anti-static measures;
- 4) Do not let parts such as screws keep inside the printer in the dismantlement process;
- 5) Prevent from doing harm to the printing cartridge in dismantlement and assembly.

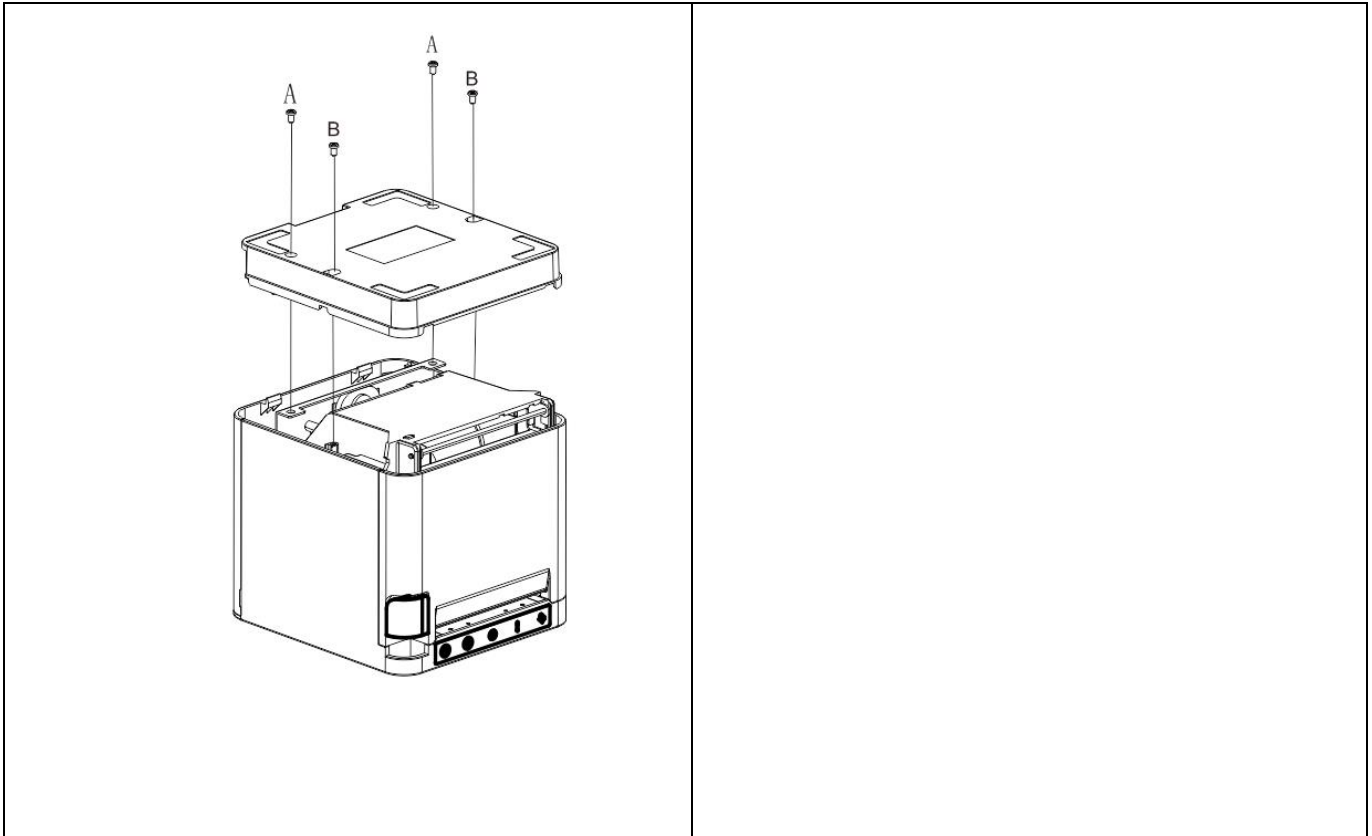
Maintenance tools: Phillips screwdriver and combination pliers

Auxiliary materials: Lubricant, alcohol, absorbent ball and high-temperature adhesive tape

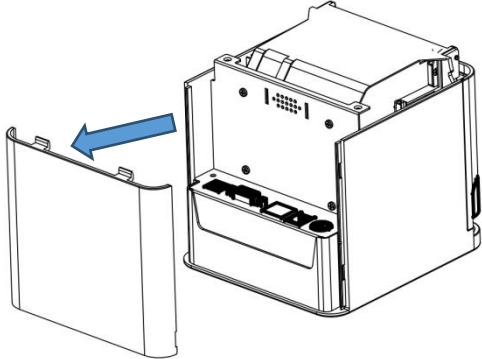
## 6.1 Dismantlement of the Printer

### 6.1.1 Dismantlement of the base of the printer

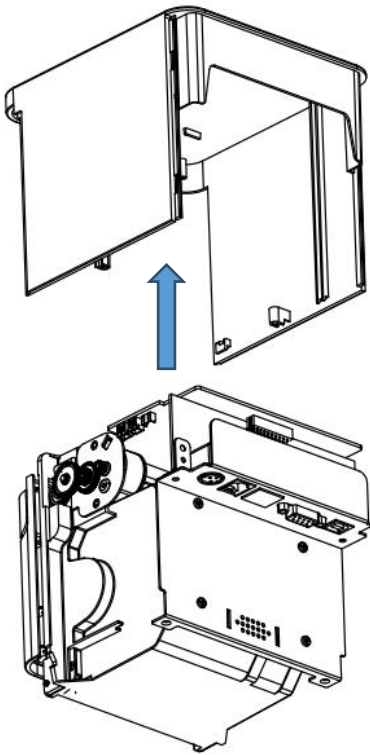
Picture	Illustration
<p>1</p> 	<p>External view of the printer</p>
<p>2</p>	<p>A、 Use a Phillips screwdriver to remove the 2 H3*6mm screws fixing the base.</p> <p>B、 Use a Phillips screwdriver to remove the 2 TB3*10mm screws securing the base; then remove the base in the same direction.</p>



6.1.2 Removing the rear cover and main body of the printer

Picture	Illustration
<p>1</p> 	<p>Remove the back cover.</p>

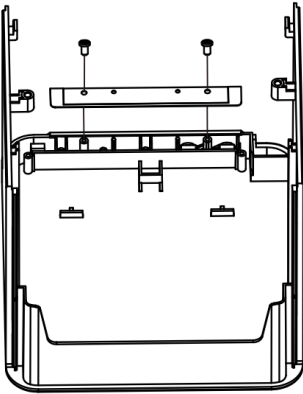
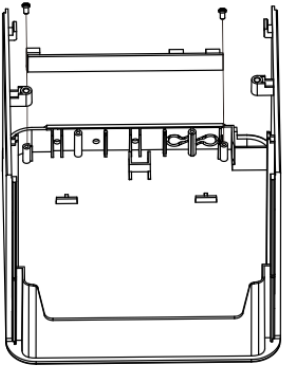
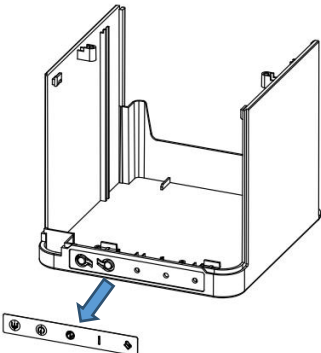
2



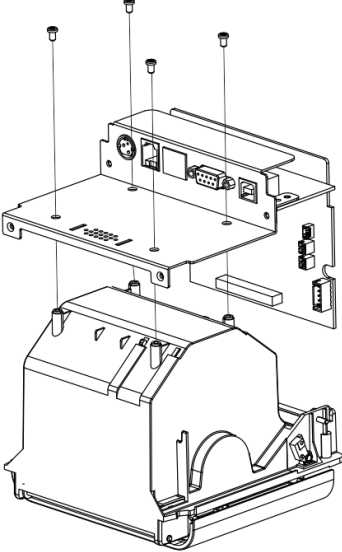
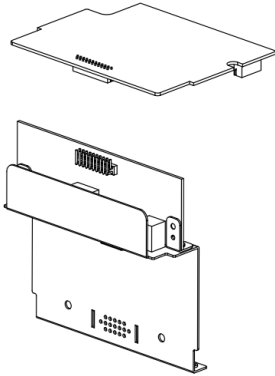
First remove the 7P cable connected to the motherboard, then move the bottom of the main body away by hand, then lift the main body up, and finally gently remove the main body.

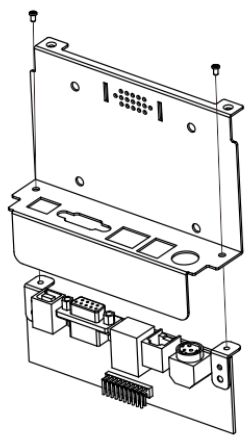
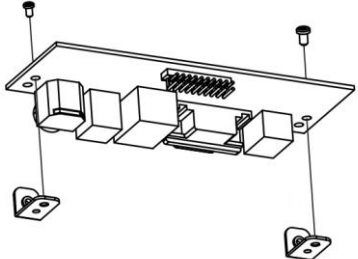


## 6. 1. 3 Remove the blade, light board, and button stickers on the main body

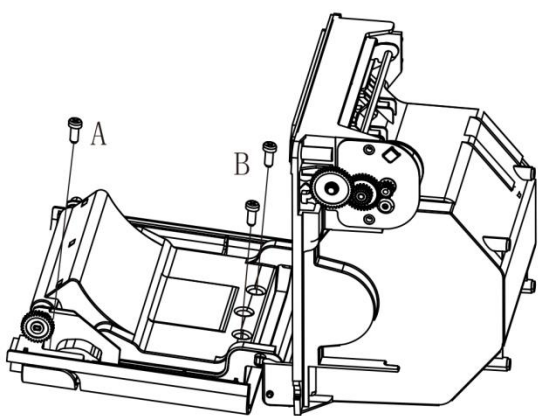
Picture	Illustration
<p>1</p> 	<p>Use a small Phillips screwdriver to remove the 2 CA2.2*3.5 screws that secure the blade, and then take out the blade.</p>
<p>2</p> 	<p>Use a small Phillips screwdriver to remove the 2 PWB2*4*φ4.8 screws securing the light board, and then take out the light board.</p>
<p>3</p> 	<p>Remove the button sticker.</p>

## 6. 1. 4 Remove the printer interface iron plate, main board and interface board

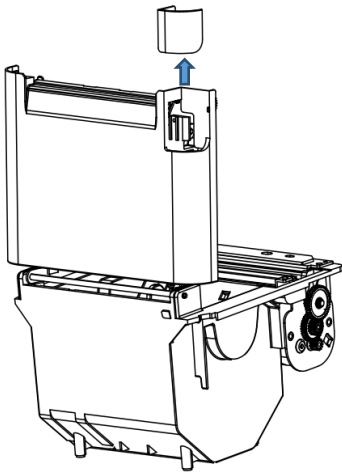
Picture	Illustration
<p>1</p> 	<p>Use a Phillips screwdriver to remove the 4 PA3*8mm screws that fix the interface iron plate, and then remove the interface iron plate and the main board.</p>
<p>2</p> 	<p>Remove the motherboard.</p>

<p>3</p> 	<p>Use a Phillips screwdriver to remove the 2 H3*6mm screws securing the interface iron plate, and then remove the interface plate.</p>
<p>4</p> 	<p>Use a Phillips screwdriver to remove the 2 H3*6mm screws that lock the left/right brackets.</p>

## 6. 1. 5 Remove the cover button, flip cover

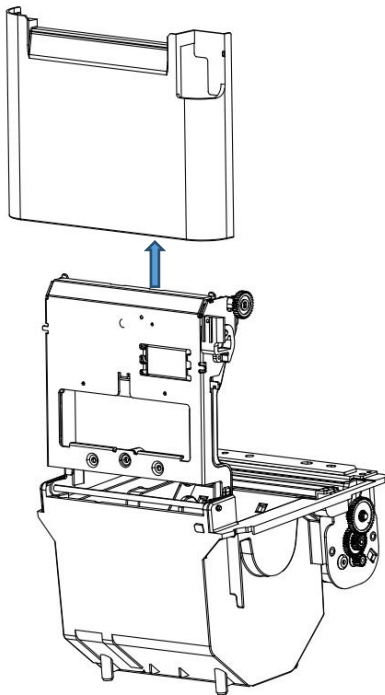
Picture	Illustration
<p>1</p> 	<p>A: Use a small Phillips screwdriver to remove the 1 PB2*4.8 screw that fixes the cover opening button.</p> <p>B: Use a small Phillips screwdriver to remove the 2 PM3*3.8 screws securing the flip cover.</p>

2



Lift the cover open button upwards.

3



Lift the flap upwards.

## **6.2 Assembly of the Printer**

Assembly is just the reverse sequence of dismantlement.

## 7、 Cleaning the Printer

Dust, foreign matters, sticky substance or other dirt struck on the printing head or inside the printer may lower printing quality. Clean the printer with the following method.

### 7.1 Clean the Printing Head

- 1) Open the flip cover of the printer, and clean the printer from its center to the two sides with a cleaning pen or a cotton stick moistened with diluted alcohol (alcohol or isopropanol).
- 2) After cleaning the printing head, do not use the printer immediately till the alcohol has been evaporated completely (1-2 minutes), and the printing head is completely dry.

### 7.2 Clean Sensor, Rubber Roller and Paper Path

- 1) Open the flip cover of the printer and take out paper roll.
- 2) Wipe off dust or foreign matters with a piece of dry cloth or a cotton stick.
- 3) Moisten the cotton cloth or cotton stick with medical alcohol, and wipe off sticky foreign matters or other dirt with it.
- 4) After cleaning parts, do not use the printer immediately till alcohol has been evaporated completely (1-2 minutes) and use the printer after it is completely dry.

※ When printing quality or paper checking performance is lowered, clean parts.



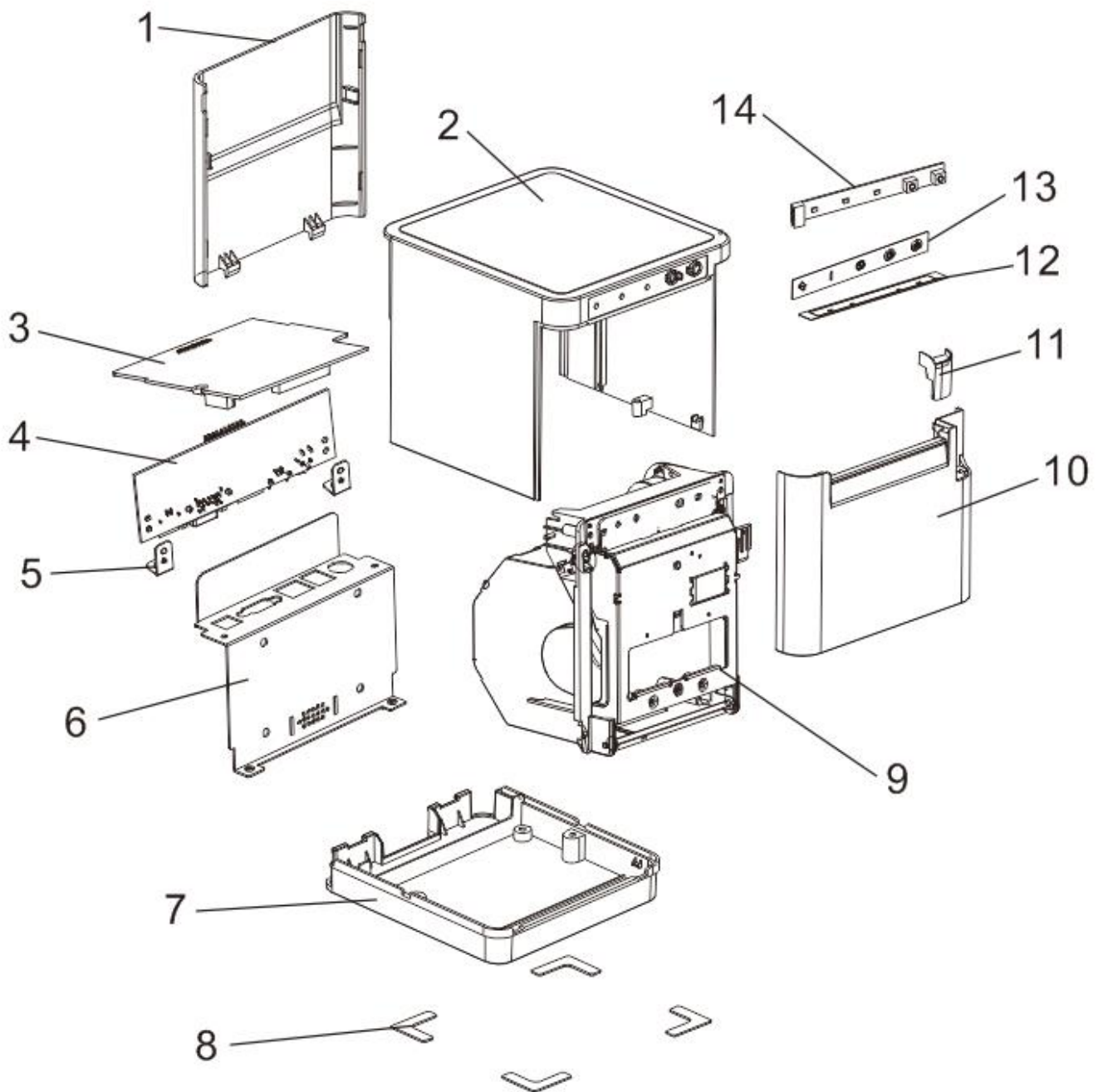
#### Cautions

- 1) Make sure to turn off the power before cleaning.
- 2) While the printer is printing, the printing head becomes hot. Therefore, before cleaning the printing head, do turn off the power for the printer, and wait for 2-3 minutes before cleaning.
- 3) In cleaning the printing head, do not touch the heating part of the printing head lest the printing head be damaged due to static electricity.
- 4) Do not scratch or damage the printing head.
- 5) Do not use any metal tool such as tweezers to scratch the surface of the printing head, rubber roller or sensor.
- 6) Do not use any organic solvent such as gasoline or acetone.

**Appendix: Exploded View of the Printer****1. List of Parts of the Printer**

SN	Name of material	SN	Name of material
1	back cover	16	Fixed knife assembly
2	main body	17	paper bin
3	motherboard	18	Motor components
4	Interface board	19	switch plate shaft
5	frame	20	optocoupler components
6	Interface iron plate	21	optocoupler
7	base	22	Thermal film assembly
8	foot pad	23	switch board
9	printing core	24	paper compartment cover
10	flip cover	25	receiver
11	open button	26	optocoupler
12	blade	27	Rubber roller assembly
13	button stickers	28	open cover shaft
14	Light board	29	cover
15	Separator	30	Open cover lever

**2. Explode View of the Printer**



**3. Explode View of Cartridge of the Printer**



