

# SERVICE MANUAL

## Receipt Printer

### BTP-S80



Shandong New Beiyang Information Technology Co., Ltd

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**Warning:** Items shall be strictly followed to avoid injury or damage to body and devices.



**Caution:** Items with important information and prompts for operating the printer.

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## Maintenance cautions

- 1) Follow the steps in this manual during maintenance;
- 2) Make sure that the printer and the computer are turned off before plugging the communication cable, changing print head or doing maintenance to the printer;
- 3) Be sure to protect it against electrostatic damage when maintaining print head and other electronic components;
- 4) Time between turning on and turning off the printer should be no less than 20 seconds;
- 5) Do not operate the printer when no paper roll is installed. Doing so can damage platen roller and print head seriously;
- 6) Set the print darkness to a lower grade as long as the print quality is acceptable. This will help to keep the print head durable.
- 7) The following contents related with cutter are only applicable to models that configured with cutter.

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# 1 Introduction

## 1.1 Outline

BTP-S80 is developed for high-end thermal receipt printing market, which is widely used. BTP-S80 can be connected with other devices via serial, parallel, USB, Bluetooth, Ethernet and WLAN. It provides drivers for operation systems such as Windows 2000 / XP / Server 2003 / Vista / Server200 / Win7 / Win8 / Win8.1 / Win10 / Server 2012, POSReady2009 / POSReady7, Linux, Mac and UPOS middleware.

Note: Windows and Linux drivers support 64-bit operation system.

## 1.2 Features

- Low noise, high printing speed;
- Support continuous paper, marked paper;
- Support paper saving, water mark, upside-down, two-color printing, etc.;
- Compact size, can output paper from the front or the top according to users' different demands;
- Rich interfaces: onboard USB, expandable serial / parallel / Ethernet / Bluetooth / WIFI / serial + Ethernet interface;

## 1.3 Technical specification

Item		Parameter
Printing	Print method	Direct thermal line printing
	Resolution	203 × 203DPI; 203 × 180DPI
	Paper width	57.5/80/82.5mm
	Print width	Max. 80mm
	Print speed	Max.250mm/s
	Flash LOGO	Max. 1M bytes
	Command buffer area	64K bytes, 4K bytes or 45 bytes
Interface	USB	USB2.0 (full speed)
	Serial interface	RS-232C
	Parallel interface	IEEE1284
	Ethernet interface	10/100BASE-T
	Cash drawer	Can select to controlling 1~2 cash drawers
Memory		RAM: 2MB, Flash: 4MB
Printer status detection		Paper end sensor/ black mark sensor; Paper near end sensor; Cover position sensor; Paper presence sensor Print head temperature sensor; Printer voltage detection
Cut mode		Full cut, partial cut
Barcode	1D	UPC-A, UPC-E, CODE 39, CODE 93, CODE 128, EAN8, EAN13, ITF, CODABAR

	2D	PDF417, QR, Maxicode
Fonts		Font A: 12 × 24 Font B: 9 × 17 Kanji font A: 24 × 24
Character set		95 Alphanumeric 14 types of international characters 128 x 68 code page Optional: Traditional Chinese, Simplified Chinese (GB2312/18030), Japanese, Korean, English, HK User-defined font (95) & code page
Character enlargement		All characters can be enlarged 1-6 times horizontally and vertically
Character rotation		Rotation printing in four directions (0°, 90°, 180°, 270°)
Command		ESC/POS compatible
Paper	Paper type	Thermal continuous paper Thermal marked paper
	Paper roll OD	Max. 83mm
	Paper thickness	0.06mm~0.10mm thermal paper
Power supply	Input	100-240VAC, 50-60Hz
	Output	24V ± 5% DC, average current 2A
	External or not	External power adapter
Human-machine interface	Power switch	Support
	Button	Support
	LED	Support, including POWER LED and ERROR LED
	Buzzer	Support, 24V buzzer
Reliability	Lifetime of print head	≥150Km (standard test sample with 12.5% duty ratio)
	Lifetime of cutter	2,000,000 cuts (standard test condition)
	MCBF	70,000,000 lines
	MTBF	360,000 hours (main control board)
Operation temperature and humidity		5°C~45°C, 20%~90%RH(40°C)
Storage temperature and humidity		-40°C~60°C, 10%~90%RH(40°C)
Overall dimensions		127mm(L)*127mm(W)*134mm(H)
Functions	Saving paper	Support
	Button configuration	Support (configure the printer without computer)
	Right-up-side printing	Support
	Water mark printing	Support
	Gray scale printing	Support

Table 1.3-1 Technical specifications



## 1.4 Switch, button and LED

### 1.4.1 Power switch

The power switch is located on the top side of the printer. Press “ON/OFF” to turn on or turn off the printer.



### 1.4.2 Button

#### 1) Print self-test page:

Press down the FEED button while turning on the power, the printer will print out the self-test page and then stay in pause state (ERROR LED flashes) after cutting paper. At this time, press the FEED button for a short time, the printer will print cycle sample and enter normal standby mode.

#### 2) Enter button configuration mode:

Press down the FEED button while turning on the power, the printer will print out the configuration sample and then stay in pause state (ERROR LED flashes) after cutting paper. Keep pressing FEED button at this time, the printer will enter button configuration mode (The parameters can be set by the FEED button under offline condition.).

#### 3) Stay in a standby mode:

Press down the FEED button, the printer will feed paper continuously and stop feeding paper while releasing the FEED button.

#### 4) During the process of printing:

Press down the FEED button, the printer will show no operation.

### 1.4.3 LED & buzzer

#### 1) Functions of LED & buzzer

LED name	Status	Description
POWER LED (green)	Always on	Printer power is on.
	Off	Printer power is off.
ERROR LED (red)	Off	Printer is in normal status.
	Flash	Printer is in error status, or paper is near end.
Paper exit LED	Flash in the way of breath LED	There are tickets left at the paper exit.
Buzzer	Beep	Printer is in error status.

## 2) Error type indicated by LED &amp; buzzer

Error Type	ERROR LED	Buzzer
Print head is overheating	Cycle flash 6 times	Cycle beep 6 times
Input voltage is abnormal	Cycle flash 5 times	Cycle beep 5 times
Cutter error	Cycle flash 4 times	Cycle beep 4 times
Print head lifts up	Cycle flash 3 times	Cycle beep 3 times
Paper end	Cycle flash 2 times	Cycle beep 2 times
Paper near end	Flash slowly	Not beep
Mark can not be found or verify failed	Flash slowly	Not beep

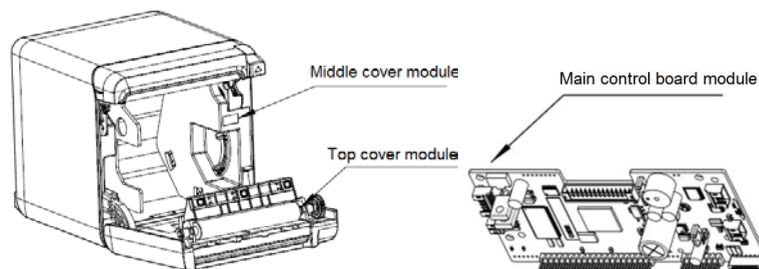

**Caution:**

- ✧ The temperature of the print head is detected by a thermal resistor. If the print head is overheating, the protective circuit will shut off the power and force the printer to stop printing; the temperature of print head when printing is stopped is 65℃.

## 2 Printer overview and modules

### 2.1 Printer overview

BTP-S80 printer is made up of the following major components: printer and power adapter. Printer consists of three main modules, including the top cover module, the middle cover module, and the main control board module as followings:



### 2.2 Main control board diagram

This printer uses the main control board POSASV2.2, the sensor, button, motor and cutter are connected to main control board via connectors or pinboard. The main control board diagram is shown as below:

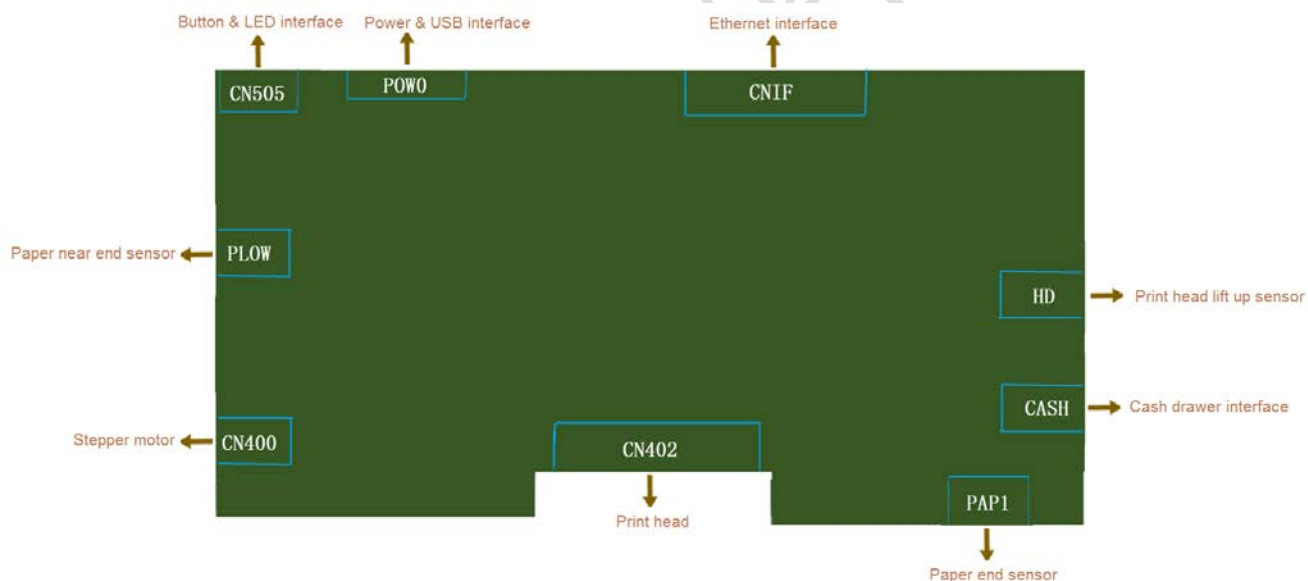


Fig. 2.2-1 Main control board diagram

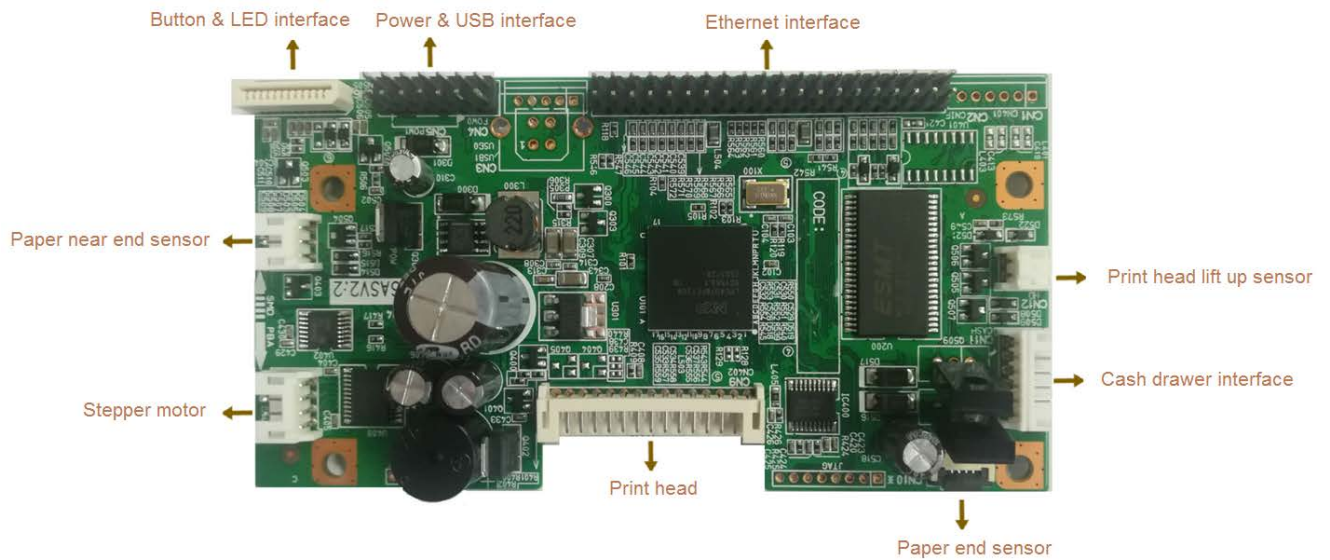


Fig. 2.2-2 Socket positions on main control board

### 3 Communication interface

BTP-S80 printer supports RS232 serial interface, parallel interface, B-type USB interface (fixed onboard), Ethernet interface, Bluetooth interface, WLAN interface, etc.

#### 3.1 RS-232 serial interface

##### 3.1.1 Connector and specification

The printer serial interface is compatible with RS-232 standard, of which the outlet is 25PIN and the connector is female DSUB-25 type.

##### 3.1.2 Signal definition

Signal definition of 25pin interface is as below:

Pin	Signal	Signal direction	Function
1	FG	—	House ground
2	TXD	Output	Send data
3	RXD	Input	Receive data
5	NC	—	Not connected
6	DSR	Input	Data device is ready
7	SG		Signal ground
8—19	NC	—	Not connected
4,20	DTR	Output	Require to send
21—25	NC	—	Not connected

##### 3.1.3 Communication cable

25PIN serial interface uses the 9 to 25 pin serial cable.

Host side	Printer side
2RXD-----	2TXD
3TXD-----	3RXD
8CTS -----	4RTS
7RTS -----	5NC
4DTR-----	6+8 DSR
1+6 DSR-----	20 DTR
5SG -----	7SG

### 3.1.4 Interface parameters

Serial interface parameters refer to following table:

Item	Parameter
Data transfer	Serial
Synchronize method	Asynchronism
Handshaking	DTR/DSR or XON/XOFF control
Voltage	MARK = -3 to -15 V: logic 1/ OFF SPACE = +3 to +15 V: logic 0/ ON
Baud rate	1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200 bps
Data bits	8 bits
Stop bits	1 bit

**Note:** The handshaking method and baud rates of the serial interface are configured by EEPROM.

### 3.1.5 Default configuration

Default configuration of the printer. (User can inquire the interface configuration by printing self-test page)

Baud rate: 38400bps

Data bits: 8 bits

Parity bits: no

Stop bits: 1bit

Handshaking: Hardware

### 3.1.6 Time sequence

- Software handshake (XON/XOFF) time sequence:

When XON/XOFF control is selected, the printer transmits XON or XOFF signals as follows:

	Printer status	Action
XON Transmission	1) When the printer is online after turning on the power.	Transmit
	2) When the receive buffer is released from the buffer full status.	Transmit
XOFF Transmission	1) When the receive buffer is full.	Transmit

#### Notes:

- ✧ Definition of "receive buffer full": default buffer size is 4K (which can be set to 45Byte/64K). When the buffer size is less than a certain byte amount (the byte amount is n1) and the interface is serial, the receive buffer will keep full status after it is full until the buffer size is increased to a certain byte amount (the byte amount is more than n1).
- ✧ Definition of XON/XOFF: XON is 0X11 and XOFF is 0X13.

- Hardware handshake (XON/XOFF) timing sequence:

When hardware handshake is selected, the status of signal DTR/DSR is shown as below:

	Printer status	Status
DTR	1) When power on the printer and the printer is on line.	SPACE
	2) When receive buffer is released from full status.	SPACE
DSR	1) When receive buffer is full.	SPACE

### 3.1.7 Troubleshooting

**Error:** Data can not be sent or received.

**Reason:**

- 1) The cable is not connected reliably;
- 2) The parameter setting of serial interface is wrong;
- 3) The circuit parts of serial interface are poor welded or damaged.

**Troubleshooting steps:**

- 1) Check whether the serial cable is connected reliably or not, if not, please connect it again.
- 2) Check whether the serial port setting of host is same as the printer configuration sheet or not, if it is not the same, please configure the serial port setting again and resend the data.
- 3) Check whether the serial interface signal is normal or not, if it is abnormal, please check whether signal channel is normal or not; if the signal channel is normal, please check whether the serial interface board SU01 is poor welded or not.

## 3.2 Parallel Interface

### 3.2.1 Connector and specification

The printer parallel interface connector is Centronics 36pin.

### 3.2.2 Signal definition

Signal definition of 36pin interface is as below:

Pin No.	Signal origin	Function
1	H	Data latching impulse signal. Printer latches the data to printer on the rising edge of the negative impulse.
2	H	Data 0 (least significant bit)
3	H	Data 1
4	H	Data 2
5	H	Data 3
6	H	Data 4
7	H	Data 5
8	H	Data 6
9	H	Data 7 (most significant bit)
10	P	Printer response signal, indicating printer has received the previous data. The negative

		impulse lasts about 1us.
11	P	Printer busy, high level means printer can not receive data anymore.
12	P	Paper out signal, high level means printer lack of paper.
13	P	Voltage pull-up to 5V via a 3.3k resistance.
14	—	Not connected
15	—	Not connected
16	Logic Ground	
17	Frame Ground, isolated with Logic Ground.	
18	—	Voltage pull-up to 5V via a 3.3k resistance.
19~30	Logic Ground	
31	H	Voltage pull-up to 5V via resistance
32	P	Printer error signal, low level means printer has errors. Printer output paper end signal together with printer error signal.
33	Logic Ground	
34~35	—	Not connected
36	Logic Ground	

**Note:** H indicates the signal source is host computer, P indicates the signal source is printer.

### 3.2.3 Communication cable

The communication cable uses 25 to 36 pin parallel interface signal cable.

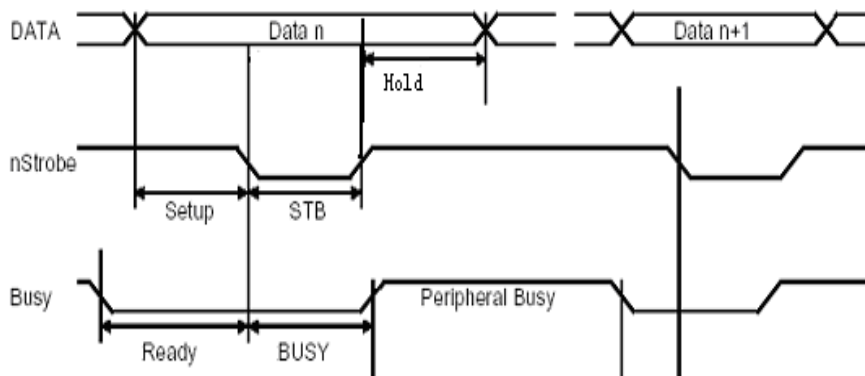
### 3.2.4 Interface parameters

Parallel interface parameters refer to following table:

Item	Parameters
Data transmission	8 bits parallel
synchronization method	External nStrobe signal
Handshaking Method	BUSY signal
Signal Level	TTL compatible
Transmission Status	PE(Paper Status),FAULT(Printer Status)

### 3.2.5 Time sequence

Data receiving time sequence of parallel interface:





Signal	Min.	Max.
setup	0.75 us	-
ready	-	-
stb	0.75 us	500 s
busy	-	0.5 us
hold	0.75 us	-

### 3.2.6 Troubleshooting

The corresponding relations between printer status and the signal of signal cable are as following:

Status	FAULT	PE
Normal	High	Low
Out of paper	Low	High
TPH overheat	Low	Low
Top cover open	Low	Low

When the above error occurs, user can read out the printer status via parallel interface.

**Error:** Data can not be sent or received.

**Reason:**

- 1) The cable is not connected reliably.
- 2) The circuit parts of serial interface is poor welded or damaged.

#### Troubleshooting steps

- 1) Check whether the parallel cable is connected reliably or not, if not, please connect it again.
- 2) Check whether the parallel interface signal is normal or not, if it is abnormal, please check whether signal channel is normal or not; if the signal channel is normal, please check whether some parts of parallel interface board is poor welded or not; If the parts are not poor welded, please replace the main chips.

## 3.3 USB interface

### 3.3.1 Connector and specification

The USB Interface Connector uses the standard USB B Interface Connector.

### 3.3.2 Signal definition

Signal definition of USB interface is as below:

Pin	signal	Signal define
1	VCC	Power
2	DADA-	Data -
3	DATA+	Data +
4	GND	Ground

### 3.3.3 Communication cable

USB interface cable adopts standard USB A TO B cable. The USB interface cable must meet the USB2.0 standard.

### 3.3.4 Interface parameters

The USB interface supports USB2.0 protocol and can be concatenated via USB HUB.

### 3.3.5 Troubleshooting

**Error:** Data can not be sent or received.

**Reason:**

- 1) The cable is not connected reliably.
- 2) The circuit parts of USB interface is poor welded or damaged.

#### Troubleshooting steps

- 1) Change to a new USB cable and test again.
- 2) Check if the capacitors and resistors are welded normally. Replace U101 and test again if they are welded normally.

## 3.4 Ethernet interface

### 3.4.1 Connector and specification

Meet 10/100 BASE-T standard of IEEE802.3.

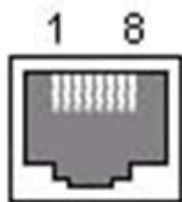


Figure 3.4.1-1 Socket of interface module

Pin	Signal name	Explanation
1	TX+	Data sending+
2	TX-	Data sending-
3	RX+	Data receiving +
4	NC	Reserve
5	NC	Reserve
6	RX-	Data receiving -
7	NC	Reserve
8	NC	Reserve

Table 3.4.1-2 Pin list of interface module

### 3.4.2 Electric features

Output signal: Efficient differential mode voltage is  $>450\text{mV}$ , peak voltage is  $\leq 13\text{V}$ . Common mode peak AC voltage is  $\leq 2.5\text{V}$ .

Input signal: differential mode voltage is  $>160\text{mV}$ , which is regarded as efficient mode voltage.

### 3.4.3 Troubleshooting

Detailed information please refer to: User's Quick Reference to Ethernet Interface Module.

## 3.5 WLAN Interface

### 3.5.1 Function and specification

Printer conducts WLAN communication based on 802.11b/g/n protocol, supporting 9100 port and LPR/LPD printing method, and supporting to return printer status back, configure and maintain interface module.

Technical specification

Item		Contents
Wire	Cable communication speed	10Mbps/100Mbps
	line disconnection detection	Support line disconnection detection function
Wireless	Wireless protocol	802.11b, 802.11g, 802.11n
	Wireless communication speed	Maximum 150Mbps
	Transmission distance	Realize that the communication distance is more than 100 meters (through three walls, 30cm thick per wall) indoor, and more than 200 meters after expanding the base station.
	Signal channel	1-14
	Security protocol	64/128 WEP, WPA-PSK, WPA2-PSK
	Network card type	USB2.0
Interface module	Status monitoring	Special configuration tool, browser
	Configuration management	Special configuration tool, browser
	Firmware upgrade	TFTP, browser
	Basic communication protocol	ARP, RARP, IP, IPV6, ICMP, TCP, UDP, HTTP, TFTP, IPX/SPX, SNMP
	Print communication mode	Port 9100, LPR / LPD
	Restore factory settings	Support buttons to restore the factory default settings.
Printer	Status query	Software development kit (including dynamic link libraries and routines), browser
	Average print communication speed	>500kByte/s

### 3.5.2 Function description

USB interface is controlled directly by CPU and connected with external local area network via WLAN card.

### 3.5.3 Electric features

Adopt WALN card, support 802.11b/g standard and provide Linux drive source code to users.

### 3.5.4 Parameters of the WLAN Interface Module

- Interface type: USB2.0
- Standards: Wi-Fi compatible, IEEE802.11b/g/n
- Frequency range: 1~14 channel
- Transmission method:
  - 802.11b: CCK,QPSK,BPSK
  - 802.11g/n: OFDM
- Transmission speed varies on different circumstance.

- Transmission distance:  
100m without obstruct indoors, 300m without obstruct outdoors.  
Transmission distance varies on different circumstance
- **Security:** WPA/WP2/WPAI,64/128/152-bit WEP,WPS
- **Power adapter:** DC3.3V, Max. current consumption is 450mA
- **System:** Windows 98SE/ME/XP/2000
- **Wireless internet card (USB interface) electric specification:** USB differential signal meet USB2.0 standard.

### 3.5.5 Troubleshooting

Detailed information please refer to: User's Quick Reference to WLAN Interface Module.

## 3.6 Bluetooth interface

### 3.6.1 Function and specification

The BTP-S80printer supports Bluetooth 2.0 and Bluetooth 4.0. Bluetooth module communicates with the printer via UART protocol. The baud rate of Bluetooth 2.0 module is 115200; the default baud rate of Bluetooth 4.0 is 256,000.

### 3.6.2 Interface parameters

The printer automatically configures the Bluetooth while power on, including: printer name (i.e. name of searched device), password, serial interface relevant parameters, device type, etc. The above parameters, except the password can be set by the customer via eep, and all the others are default and cannot be changed.

### 3.6.3 Communication interface failure

Failure: The data can not be sent, and can not receive data.

Reason:

- 1) The Bluetooth module is not configured.
- 2) The Bluetooth module is damaged.

Fault detection and troubleshooting steps:

- 1) Pull out and connect the Bluetooth module again when the power of printer is off. And then power on the printer and reconfigure the Bluetooth module.
- 2) Replace the Bluetooth module.

## 3.7 Double interfaces (RS-232 &Ethernet)

### 3.7.1 Function and specification

The double interface board supports both serial and Ethernet interfaces;

The Serial interface is a 9 pin serial interface, compatible with RS-232C standard. The interface connector is female DSUB-9 serial interface connector.

### 3.7.2 Interface signal definition

PIN No.	Signal definition
PIN1	Not connected
PIN2	RXD
PIN 3	TXD
PIN 4	DTR
PIN 5	SG
PIN6	DSR
PIN 7	RTS
PIN 8	CTS
PIN 9	Not connected

### 3.7.3 Communication cable

The communication cable is DB9F to DB9M parallel interface cable.

DB9M	DB9F
2 -----	3
3 -----	2
1+6-----	4
5 -----	5
4 -----	1+6
7 -----	8
8 -----	7
shell -----	shell

#### Caution:

Other information please refer to "3.1 RS-232 serial interface".

### 3.7.4 Ethernet interface

Please refer to "3.4 Ethernet interface".

## 4 Disassembly and assembly of main parts

### Caution:

- 1) Do not disassemble any parts of the printer or loosen any screw if it works properly;
- 2) When disassembling parts, please check carefully if the connecting lines are damaged or not;
- 3) When handling the thermal print head or electronic components, please make sure to use antistatic gloves or bracelet;
- 4) During the disassembly, be careful not to leave small parts or screws inside the printer;
- 5) Don't scratch the print head surface.

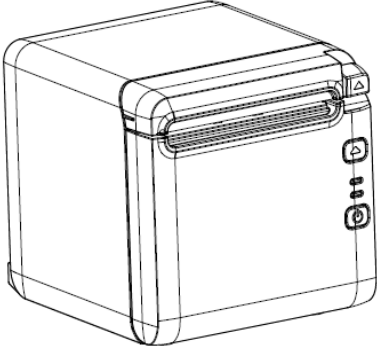
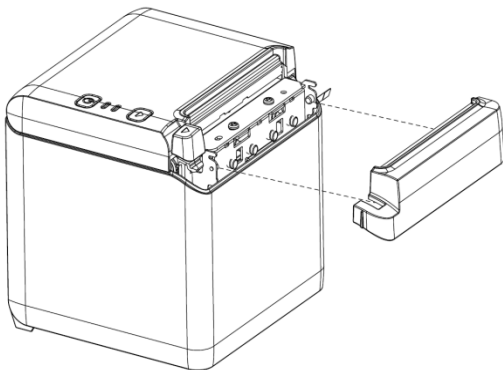
Assistant material: Lubricant, alcohol, absorbent cotton.

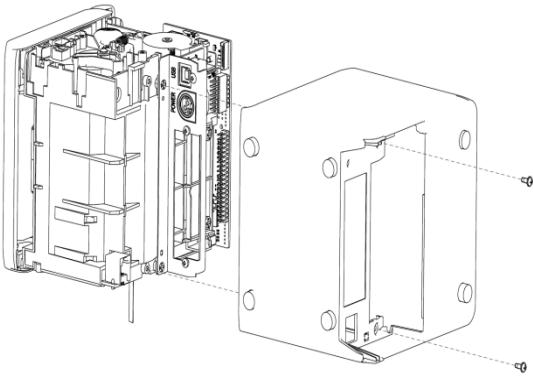
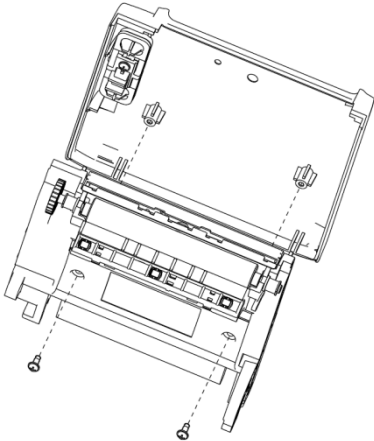
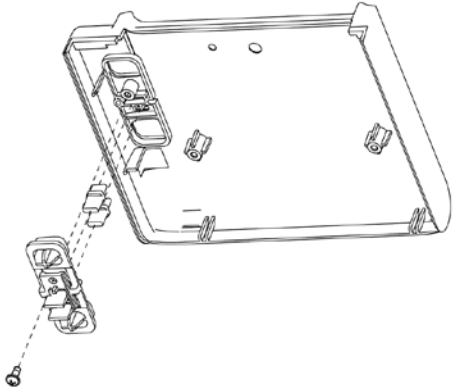
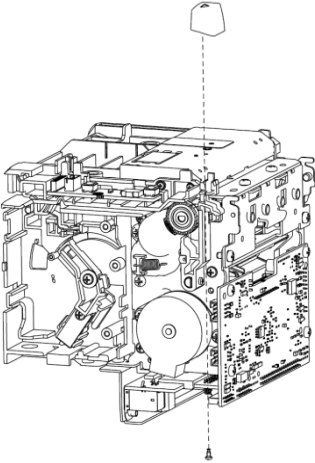
### 4.1 Maintenance tools

- ✧ Screw Driver(cross type)
- ✧ Screw Driver (line type)
- ✧ Wire cutter

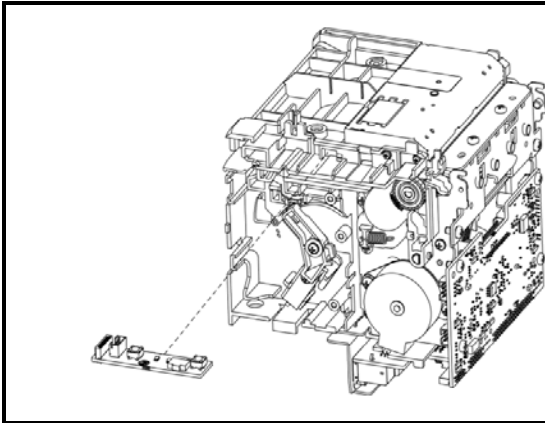
### 4.2 Disassemble the printer

#### 4.2.1 Disassemble the printer cover

Picture	Explanation
	Side view of the printer.
	Remove the cover of fixed blade in the horizontal or downward direction as shown in the figure.

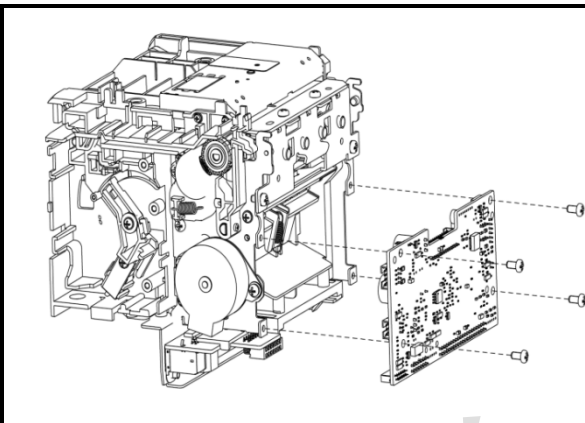
	<p>Remove the two ST2.6*6 pan head self-tapping screws shown in the figure with cross screwdriver to disassemble the middle cover. Pay attention that the elastic plate may drop off.</p>
	<ol style="list-style-type: none"> <li>1. Turn the cover open spanner to open the top cover module;</li> <li>2. Remove the two ST2.6*6 pan head self-tapping screws shown in the figure with cross screwdriver, open the top cover from the side of rotation shaft due to the hook at the side of platen roller.</li> </ol>
	<p>Remove the one ST2.6*6 pan head self-tapping screw shown in the figure with cross screwdriver to disassemble the button and two light guides.</p>
	<ol style="list-style-type: none"> <li>1. Remove the one ST1.7*4 pan head self-tapping screws shown in the figure with cross screwdriver;</li> <li>2. Disassemble the cover open spanner as shown in the figure. Pay attention to the spanner fixing hook.</li> </ol>

#### 4.2.2 Disassemble the button board



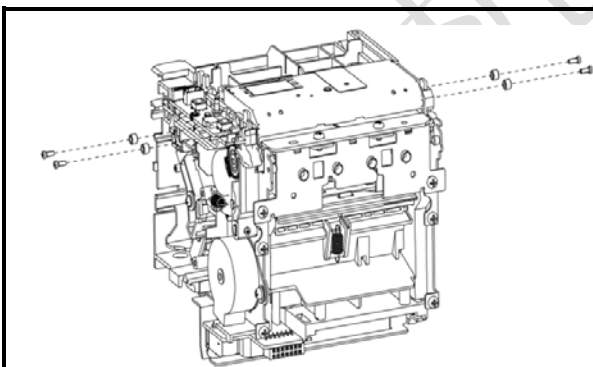
Unplug the connection cables from the button board one by one, and remove the button board in the direction shown in the figure.

#### 4.2.3 Disassemble the main control board

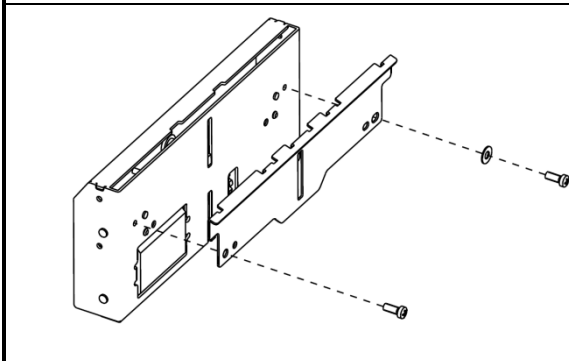


1. Unplug the connection cables from the main control board one by one;
2. Remove the four M3\*6 pan head screws shown in the figure with cross screwdriver;
3. Disassemble the main control board, and pay attention to the connection between the main control board with the power pinboard.

#### 4.2.4 Disassemble the moveable blade module



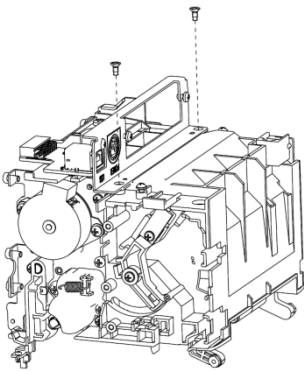
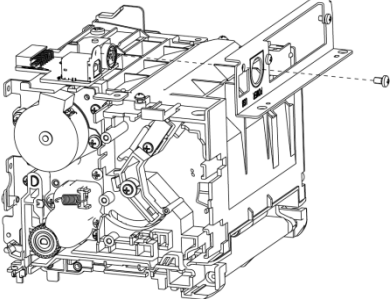
1. Remove the four M2.5\*5 pan head screws shown in the figure with cross screwdriver. Pay attention that the spacer may drop off;
2. Remove the four spacer sleeve shown in the figure and disassemble the moveable blade module.



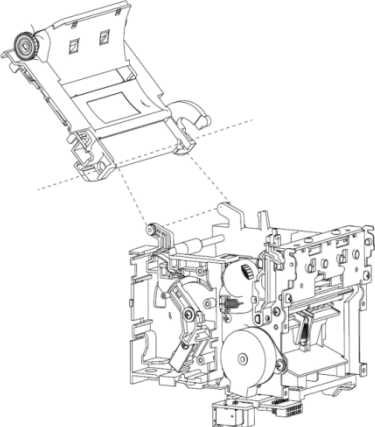
1. Remove the two M2\*4 pan head screws shown in the figure with cross screwdriver and remove the one  $\phi 2$  flat washer;
2. Remove the ground cable, and disassemble the moveable blade and the cutter path plate.



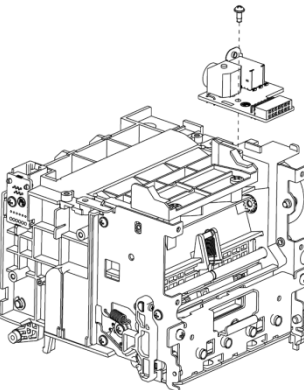
#### 4.2.5 Disassemble the interface baffle

	<p>Remove the two ST2.6*6 pan head self-tapping screws shown in the figure with cross screwdriver.</p>
	<ol style="list-style-type: none"> <li>1. Remove the one M3*5 pan head screw shown in the figure with cross screwdriver;</li> <li>2. Remove the interface baffle in the horizontal direction.</li> </ol>

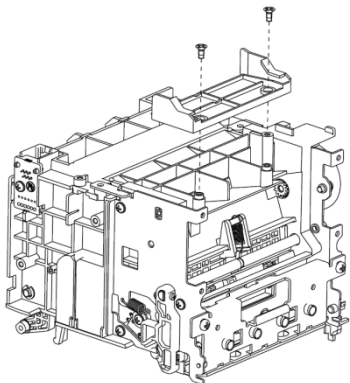
#### 4.2.6 Disassemble the top cover module

	<ol style="list-style-type: none"> <li>1. Turn the top cover module to the position shown in the figure, about 135°.</li> <li>2. Firstly remove the left rotation shaft shown in the figure along the shaft guide features, and then remove the right rotation shaft along the shaft guide features.</li> </ol>
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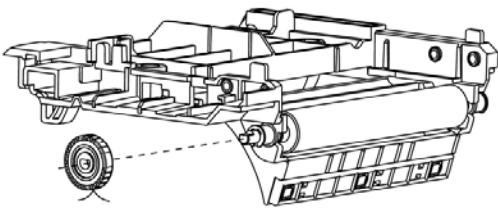
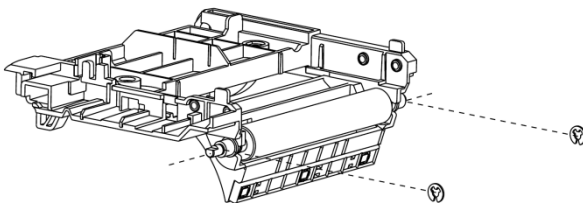
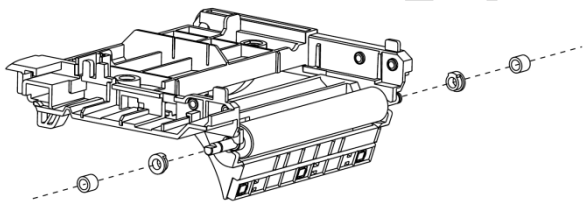
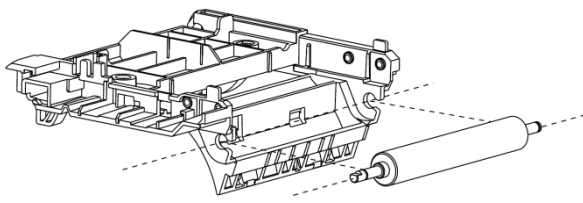
#### 4.2.7 Disassemble the power pinboard

	<ol style="list-style-type: none"> <li>1. Unplug the connection cables;</li> <li>2. Remove the one ST2.6*6 pan head self-tapping screw shown in the figure with cross screwdriver to disassemble the power board.</li> </ol>
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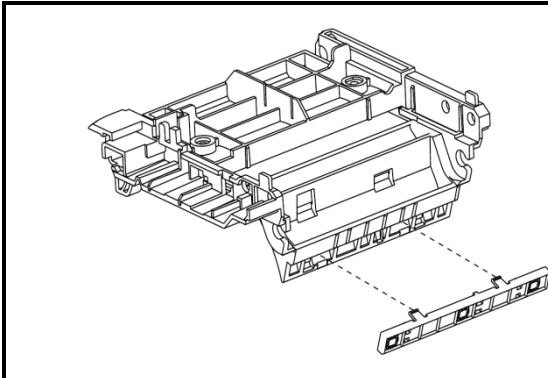
#### 4.2.8 Disassemble the guide plate

	<p>Remove the two ST2.6*6 pan head self-tapping screws shown in the figure with cross screwdriver to disassemble the guide plate.</p>
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#### 4.2.9 Disassemble the platen roller and the gears

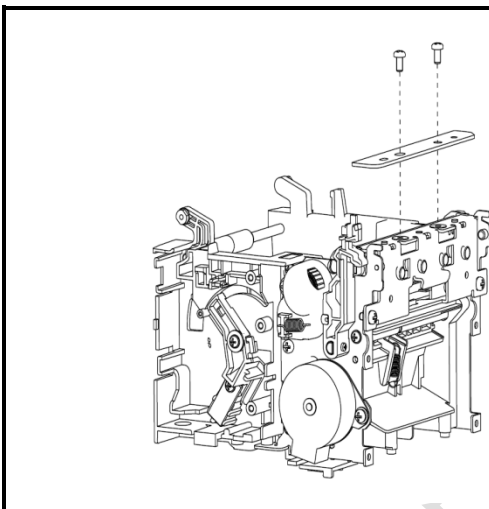
	<p>Disassemble the gear of platen roller as shown in the figure.</p>
	<p>Disassemble the two <math>\phi 3</math> "E"-ring shown in the figure with flat screwdriver.</p>
	<p>Remove the two metal shaft sleeves and the two platen roller shaft sleeves shown in the figure one by one without using any tools.</p>
	<p>Remove the platen roller from the top bracket notch as shown in the figure.</p>

#### 4.2.10 Disassemble the paper presence sensor holder



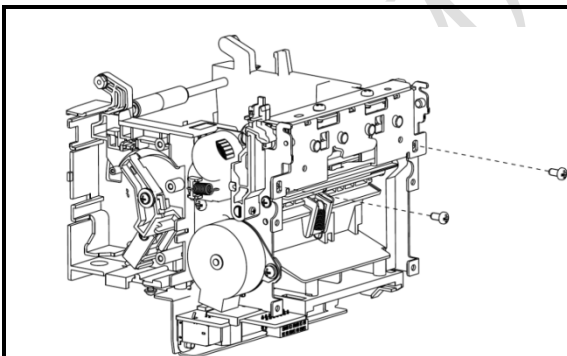
Lift the hook from the back to remove one end of the holder, and then push the hook on the other side to remove the other end of the holder shown in the figure with flat screwdriver.

#### 4.2.11 Disassemble the fixed blade

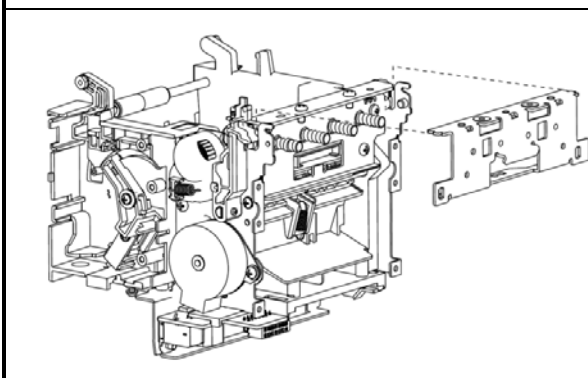


1. Remove the two M3\*6 pan head screws shown in the figure with cross screwdriver;
2. Remove the fixed blade.

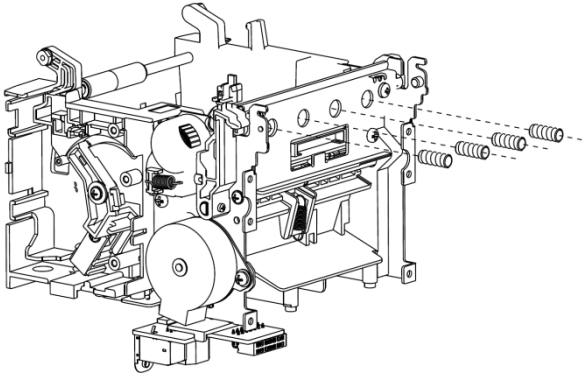
#### 4.2.12 Disassemble the print head module



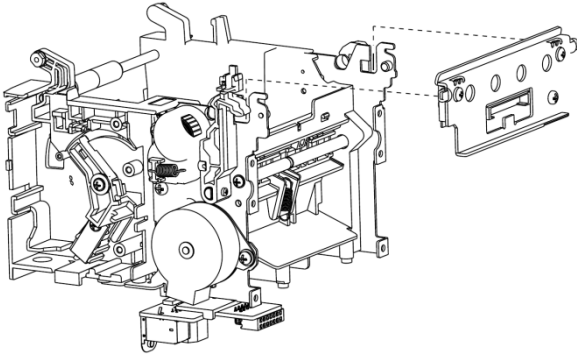
1. Unplug the print head cable;
2. Remove the two M3\*6 pan head screws shown in the figure with cross screwdriver.



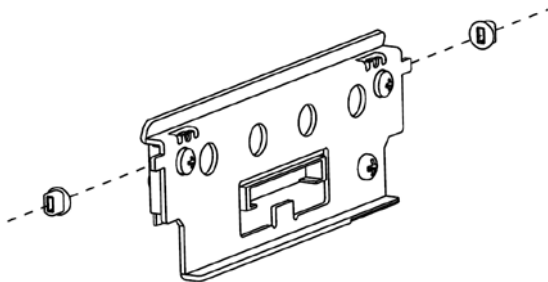
Remove the pressure spring plate in the direction of the limit slot. Pay attention that the spring may drop off.



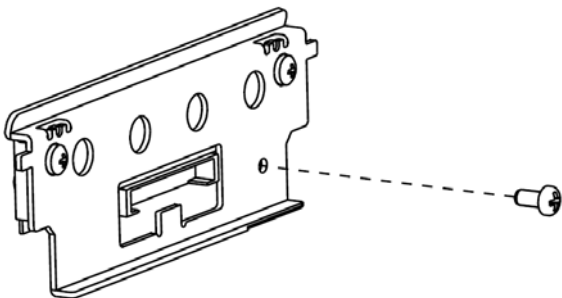
Remove the four pressure springs of print head.



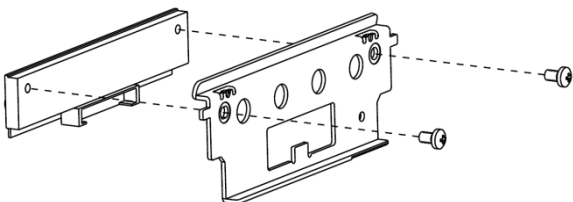
Remove the print head fixing plate in the direction of the limit slot.



Remove the two protective sleeves of print head fixing plate shown in the figure.

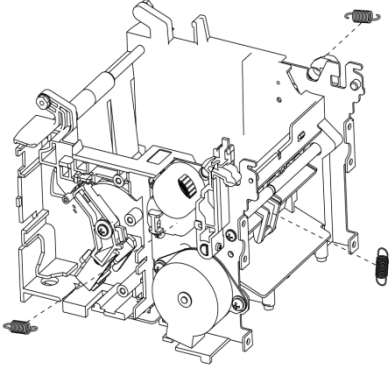
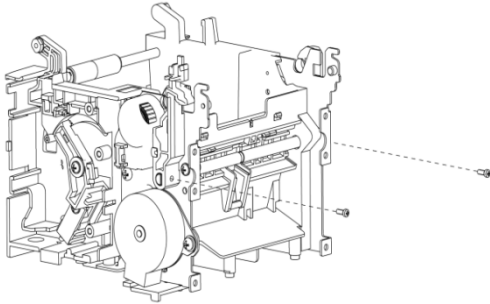
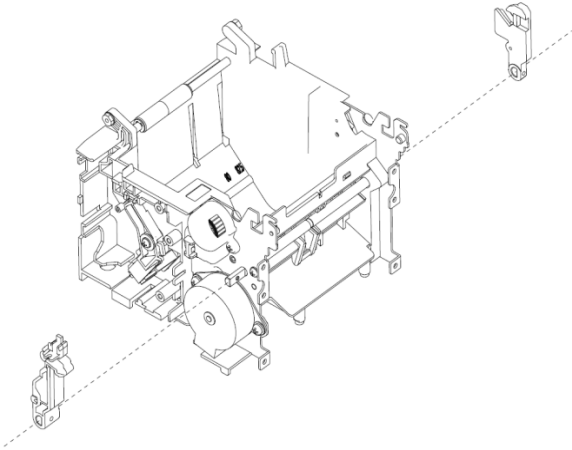
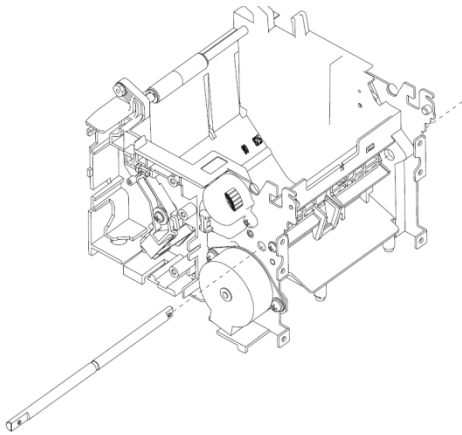


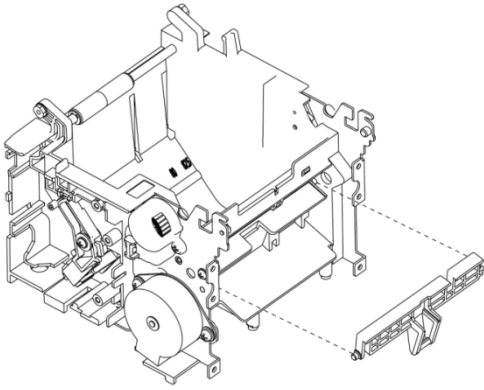
Remove the one M3\*6 pan head screw shown in the figure with cross screwdriver, and then remove the ground cable.



Remove the two M3\*5 pan head screws shown in the figure with cross screwdriver, and then remove the print head.

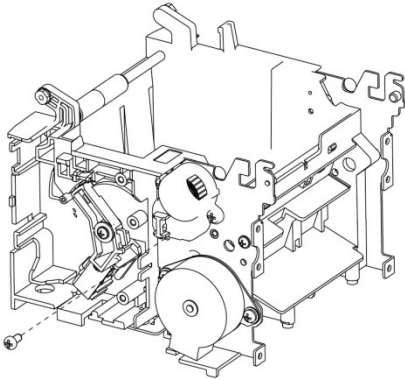
#### 4.2.13 Disassemble the latch and the buffer plate

	<p>Remove the reset spring of left and right latches and the tension spring of the buffer plate shown in the figure with nipper pliers.</p>
	<p>Remove the two M2*5 pan head screws shown in the figure with cross screwdriver.</p>
	<p>Remove the left and right latches in the direction shown in the figure.</p>
	<p>Pull out the rotation shaft of latch as shown in the figure.</p>

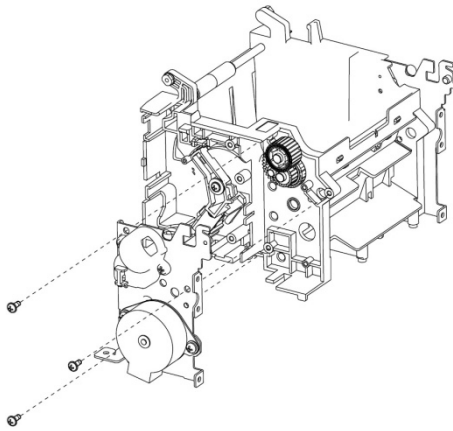


The buffer board is an elastic part. During the disassembling, turn up the left latch with flat screw firstly, and then pull out the buffer plate aslant.

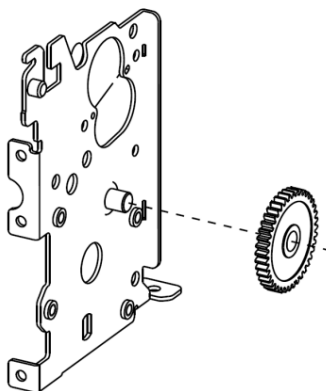
#### 4.2.14 Disassemble the side plate and the drive gear



Remove the one M3\*6 pan head screw shown in the figure with cross screwdriver, and then remove the ground cable.



Remove the three ST2.6\*6 pan head self-tapping screws shown in the figure with cross screwdriver, and then remove the left side plate. Pay attention that the gear may drop off.



Remove the transition gear from the left side plate without using any tools.



	<p>Remove the three ST2.6*6 pan head self-tapping screws shown in the figure with cross screwdriver, and then remove the right side plate.</p>
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#### 4.2.15 Disassemble the drive module

	<p>Remove the two M3*6 pan head combined screws shown in the figure with cross screwdriver, and then remove the motor.</p>
	<p>Remove the two M3*6 pan head screws shown in the figure with cross screwdriver, and then remove the gear cover.</p>
	<p>Remove the gear (25) and its gear shaft without using any tools.</p> <p><b>Note:</b> This picture and disassembly procedure is for model with 203dpi configurations.</p>

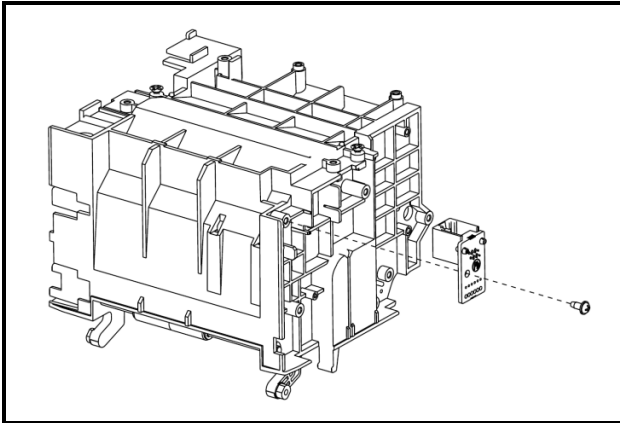
	<p>Remove the gear 2 and its gear shaft without using any tools.</p> <p><b>Note:</b> This picture and disassembly procedure is for model with 203dpi configurations.</p>
	<p>Remove the gear (25) and its gear shaft without using any tools.</p>
	<p>Remove the gear (18-27) and its gear shaft without using any tools.</p> <p><b>Note:</b> This picture and disassembly procedure is for model with 180dpi configurations.</p>

#### 4.2.16 Disassemble the micro switch

	<ol style="list-style-type: none"> <li>1. Unplug the connection cable;</li> <li>2. Remove the one ST2.6*6 pan head self-tapping screw shown in the figure with cross screwdriver and the remove the <math>\phi 3</math> washer and the micro switch.</li> </ol>
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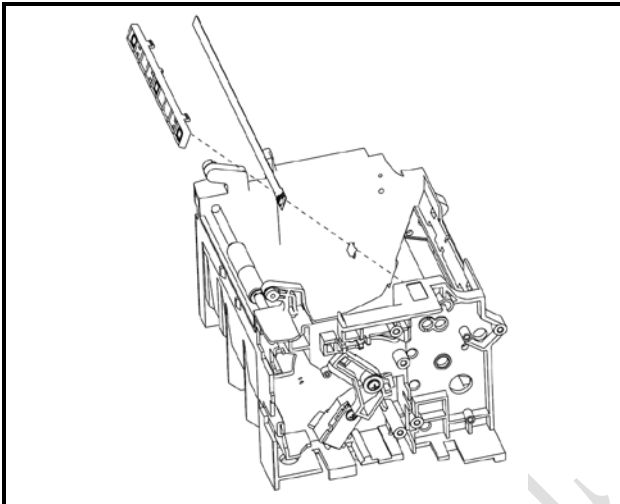


#### 4.2.17 Disassemble the cash drawer interface



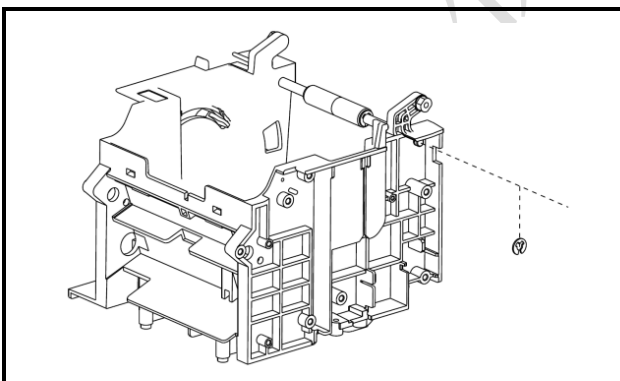
1. Unplug the connection cable;
2. Remove the one ST2.6\*6 pan head self-tapping screw shown in the figure with cross screwdriver and then remove the cash drawer interface.

#### 4.2.18 Disassemble the paper presence sensor and its holder

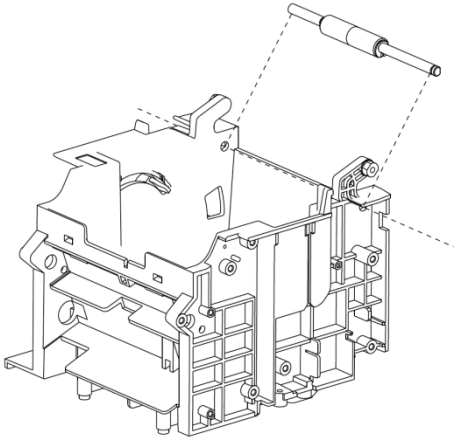
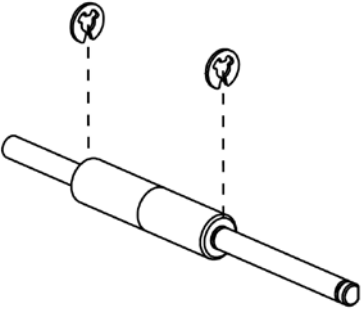
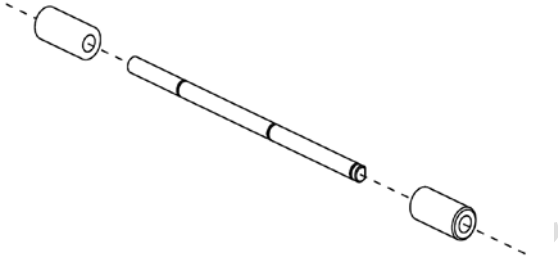


1. The paper presence sensor is fixed with latches, turn up the latch at one side with flat screw to remove one side, and then turn up the latch at the other side to remove the sensor holder;
2. Pull out the sensor, and then remove the sensor cover.

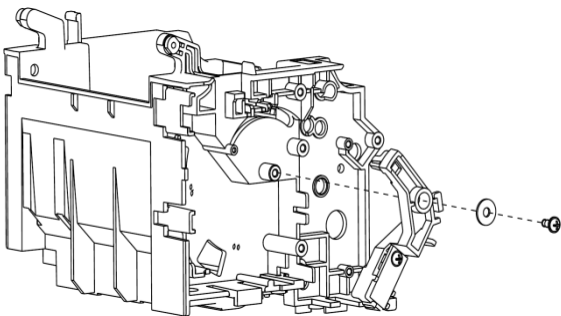
#### 4.2.19 Disassemble the paper roll module

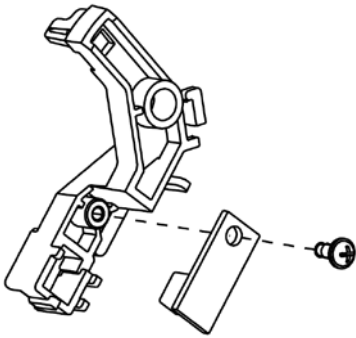
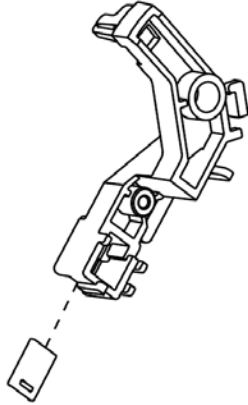


Remove the outer  $\phi 3$  "E"-ring at the side of oblate end of paper roll shaft with flat screwdriver.

	<ol style="list-style-type: none"> <li>1. Move the left end of the paper roll shaft module for a distance along the left direction;</li> <li>2. Aslant pull out the right end of the paper roll shaft module.</li> </ol>
	<p>Remove the two <math>\phi 3</math> "E"-rings on the paper roll shaft with flat screwdriver.</p>
	<p>Remove the two paper roll shaft.</p>

#### 4.2.20 Disassemble the paper near end sensor module

	<ol style="list-style-type: none"> <li>1. Unplug the sensor cable;</li> <li>2. Remove the one ST2.6*6 pan head self-tapping screw shown in the figure with cross screwdriver, and then remove the <math>\phi 3</math> washer and the paper near end sensor module.</li> </ol>
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	<p>Remove the one ST2.6*6 pan head self-tapping screw shown in the figure with cross screwdriver, and then remove the near end sensor.</p>
	<p>Remove the sensor cover in the direction shown in the figure.</p>

### 4.3 Assembly

Assemble the printer in the reverse sequence of disassembly.

## 5 Routine maintenance

### 5.1 Print head and platen roller cleaning

When the following cases occur, the print head and the platen roller should be cleaned:

- 1) Printout is not clear;
- 2) Some line in vertical of the printout is not clear;
- 3) Feed and retract paper with big noise.

The following steps are for print head and platen roller cleaning:

- 1) Turn off the printer and open the paper cabinet;
- 2) If just finishing the print, wait for the roller to cool down completely;
- 3) Wipe off the dust and stains on the surface of the print head and platen roller with soft cotton cloth dipped with pure alcohol (it should be wrung out);
- 4) After pure alcohol evaporates completely, close the paper cabinet.

### 5.2 Sensor cleaning

When the following cases occur, the paper end sensor should be cleaned:

- 4) During printing, the printer sometimes alarms paper end when there is paper in fact and stop printing;
- 5) The printer does not identify marks correctly;
- 6) The printer does not alarm paper end when there is no paper left;

The following steps are for paper end sensor cleaning:

- 1) Turn off the printer;
- 2) Pull top cover open lever to open the top cover;
- 3) Wipe off dust and stains on the surface of sensor with soft cotton cloth dipped with pure alcohol (it should be wrung out);
- 4) After pure alcohol evaporates completely, close the back cover.



#### **Caution:**

- 7) Before starting routine maintenance of printer, make sure the power is turned off;
- 8) Do not touch the surface of print head with hands or metal. Do not use forceps so as to avoid the print head, platen roller and sensors being scratched;
- 9) Do not use organic solvent like gasoline, acetone etc. for cleaning;
- 10) Please wait for alcohol to evaporate completely before starting printing.

## 6 Troubleshooting

In case of printer fault, consult this section for solutions and advice.

If you do not find a solution in this section, please contact your local dealer or SNBC for assistance.

### 6.1 Cutter error troubleshooting

When cutter fails to recover due to paper jam or sudden power off, perform the following steps manually to reset the cutter:

- 1) Turn off the printer power;
- 2) Turn on the print power after the paper jam is removed,
- 3) If the cutter is still not reset, then remove the fixed blade cover, turn the cover spanner, open the upper cover module, remove the upper cover, and manually reset the cutter blade;
- 4) After reset, install the parts in order.

### 6.2 Printer doesn't work

Problems	Possible Causes	Solution
Power switch is turned on, but printer does not work.	Printer has not been connected to power.	Make sure that printer cable has been connected properly on both ends.

### 6.3 Error LED and buzzer give alarm

Problems	Possible Causes	Solution
Error LED flashes and buzzer beeps.	Paper end.	Replace roll paper
	Cutter error.	Refer to 6.1 Cutter error troubleshooting
	Top cover open.	Close the top cover
	Print head is overheated.	Turn off printer power and wait until the print head turns to normal temperature.
Buzzer beeps and error LED is always on.	Printer has serious problems.	Contact your local distributor or a technician of manufacturer for assistance.

### 6.4 Problems during Printing

Problems	Possible Causes	Solution
Paper cannot be fed normally.	Paper jam.	Open top cover to check paper path and cutter, and remove paper jam.
Printer starts printing but stops suddenly.	Paper jam.	Open top cover to check the cutter and remove paper jam.
Paper is not cut off.	Paper jam.	Open top cover to check the cutter and remove paper jam.
Printout is not clear or dirty.	Paper roll is not installed correctly.	Make sure that the paper roll has been installed correctly.
	Paper is out of specification.	Use recommended thermal paper.
	Dirty print head or platen roller.	Clean the print head or the platen roller.
	Print darkness is too low.	Adjust the print darkness to 110% or 120% as needed.
Vertical column of printing is missing.	Dirty print head or platen roller.	Clean the print head or the platen roller.

## 6.5 Guide for updating printer firmware via U-Disk

- 1) Store the firmware update file at the root directory of U-Disk. If the file is a monitor program, rename it to "BY\_MAIN.jk"; if it is a font file, rename it to BY\_ZK.zk; if it is an EEPROM file, rename it to BY\_EEP.eep;
- 2) Insert the U-Disk into the USB interface of printer;
- 3) After opening the top cover, press the feed button while powering on the printer;
- 4) Release the button immediately when the error LED is on. The time of pressing the button after powering on the printer should be controlled within two seconds; otherwise it will be disabled;
- 5) When entering printer update mode via U-Disk with error LED flashing continuously, do not operate or power off the printer;
- 6) Printer update via U-Disk is complete when error LED stops flashing.
- 7) Finally, remove the U-Disk from the printer.

## Appendix

### Appendix 1 Command list











Refer to BTP-S80 Programming Manual.

### Appendix 2 EEPROM setting table

Refer to BTP-S80 EEPROM setting table.

### Appendix 3 Easily wearing parts list

Parts	Part No.	Quantity	Reference picture
Print head	3000-0000002	1	
Print head connection cable	7115-9001435	1	
Paper end sensor	7206-0000000	1	
Paper near end sensor	7600-9019733	1	
Cutter connection cable	7104-9029259	1	
Cutter	3100-9040049	1	
Stepper motor	3200-0000010	1	
Button & LED connection cable	7190-9003589	1	

Parts		Part No.	Quantity	Reference picture
Main control board		7201-0000177	1	
Button & LED board		7204-0000057	1	
Power +USB pin board		7211-0000087	1	
Cash drawer interface		7600-0000176	1	
Micro switch		7600-9043896	1	
Platen Roller		8301-9019419	1	
Gear	Gear (26)	8203-9002239	1	
	Gear (2)	8203-9000087	1	
	Gear (18-27)	8203-9001777	1	
	Gear (25)	8203-9000993	1	



## Appendix 4 Printer exploded view

### 1) Exploded view of printer

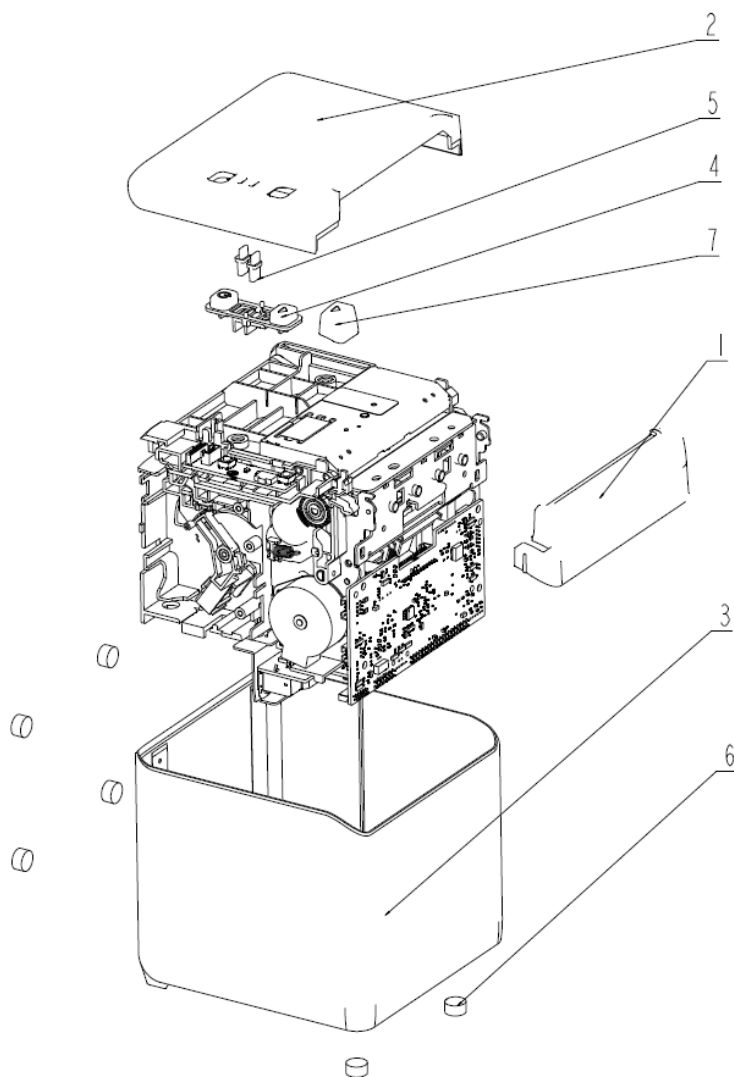
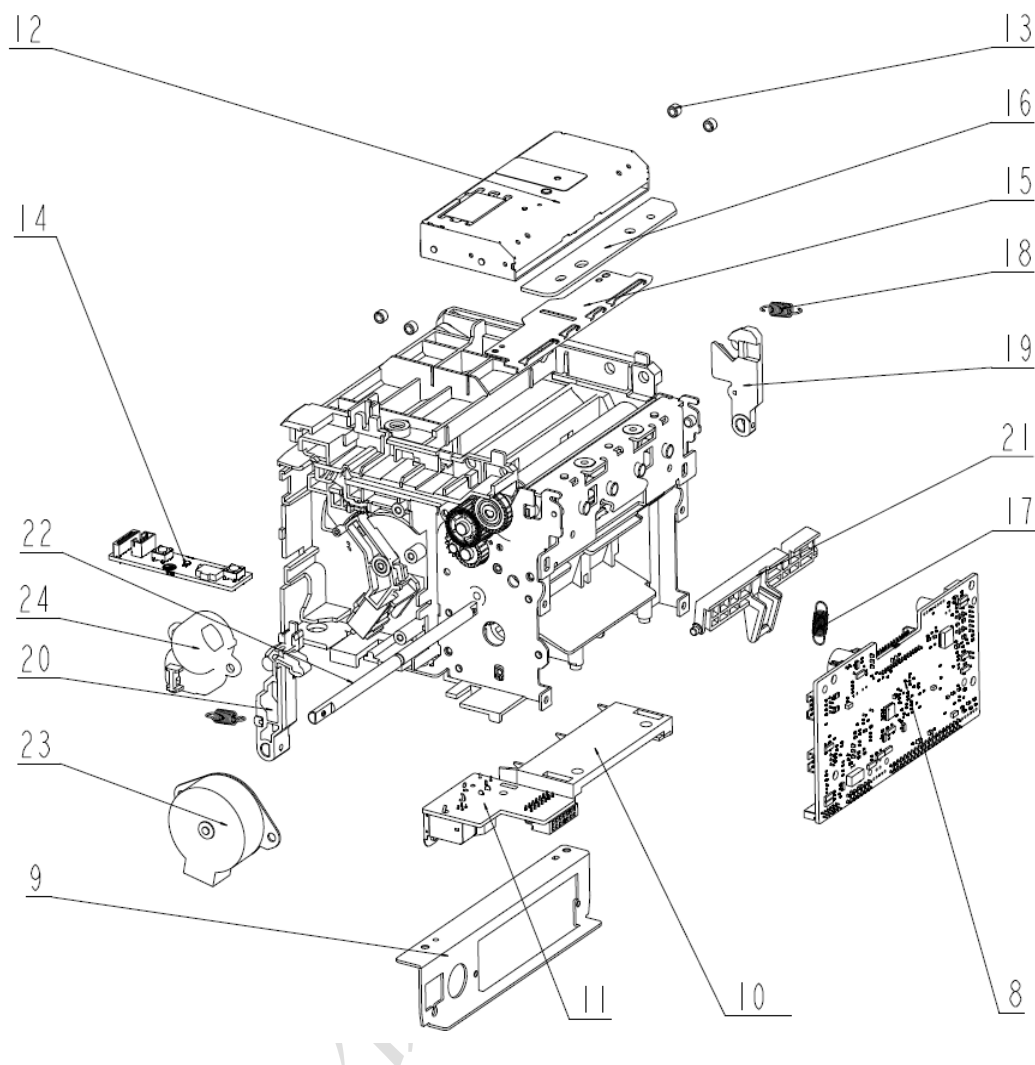
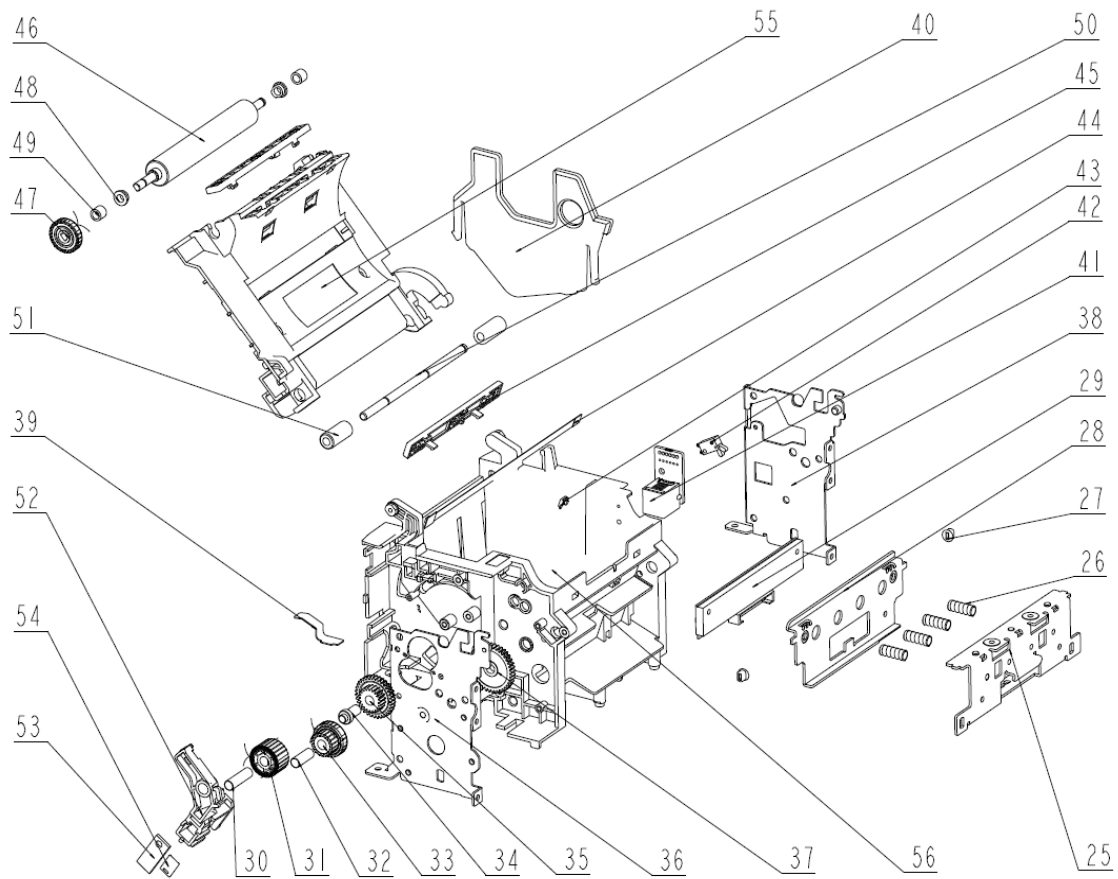


Fig. appendix 4-1

## 2) Exploded view of printer mechanism





**Fig. appendix4-2**

## Appendix 5 Parts list

No.	Parts No.	Description	Quantity	Remarks
1	8201-0000409	Fixed blade cover	1	Select the corresponding number according to the configured different colors and the silk screen content.
2	8201-0000412	Upper cover	1	Select the corresponding number according to the configured different colors and the silk screen content.
3	8201-0000411	Middle cover	1	Select the corresponding multi-color number according to the configured different colors.
4	8209-0000026	button	1	Select the corresponding multi-color number according to the configured different colors.
5	8207-0000321	Light guide	2	
6	8303-0000003	Foot	6	8303-0000005 without adhesive number
7	8201-0000410	Cover open spanner	1	Select the corresponding multi-color number according to the configured different colors.
8	7201-0000177	Main control board	1	
9	8102-0000589	Interface baffle	1	
10	8201-9040036	Guide plate	1	
11	7211-0000087	Power board	1	
12	3100-9040049_1	Moveable blade	1	
13	8002-9026703	Spacer	4	
14	7204-0000057	Button board	1	
15	8103-9045104	Cutter path plate	1	
16	3100-9040049_2	Fixed blade	1	
17	8005-9003544	Tension spring of hook for buffer plate	1	
18	8005-9015557	Tension spring of lath	2	
19	8219-0000008	Right latch	1	
20	8219-0000009	Left latch	1	
21	8207-0000324	Buffer board	1	
22	8001-0000385	Rotation shaft of latch	1	
23	3200-0000010	Motor	1	
24	8207-0000319	Gear cover	1	
25	8102-0000591	Pressure spring plate	1	Riveted.
	8001-9007351	Gear shaft 1		
26	8005-9003612	Print head pressure spring	4	
27	8211-9014484	Print head fixing plate sleeve	2	

No.	Parts No.	Description	Quantity	Remarks
28	8102-0000588	Print head fixing plate	1	
29	3000-0000002	Print head	1	
30	8001-0000379	Gear shaft 2	1	
31	8203-9000993	Gear (25)	1	
32	8001-0000380	Gear shaft 3	1	Only for 180DPI model configuration
33	8203-9001777	Gear (18-27)	1	
34	8001-0000378	Gear shaft 1	1	Only for 203DPI model configuration.
35	8203-9000087	Gear 2	1	
36	8102-0000593	Left side plate	1	Riveted.
	8001-9003943	Print head positioning column		
	8001-0000381	Gear shaft 4		
37	8203-9000086	Transition gear	1	
38	8102-0000592	Right side board	1	Riveted.
	8001-9003943	Print head positioning column		
39	8109-0000006	Elastic plate 1	1	8104-0000152, Z-type Stainless steel elastic plate.
40	8207-0000318	Paper guide	1	
41	7211-0000086	Cash drawer interface	1	
42	2200-9000948	Micro switch	1	
43	8215-9010770	Paper presence sensor cover	1	
44	7206-0000000	Flexible PCB of paper presence sensor	1	
45	8207-0000327	Paper presence sensor holder	2	
46	8301-9019419	Platen roller	1	
47	8203-9002239	Gear of platen roller (26)	1	
48	8211-9007365	Platen roller sleeve	2	
49	8002-9019805	SRN sleeve	2	
50	8001-0000386	Roller shaft	1	
51	8204-9016906	Paper roll	2	
52	8207-0000328	Paper near end sensor holder	1	
53	8201-9000377	Sensor dustproof cover	1	
54	7203-0000003	Paper near end sensor	1	
55	8207-0000325	Cover bracket	1	
56	8207-0000326	Paper cabinet	1	

## Appendix 6 Overall dimension

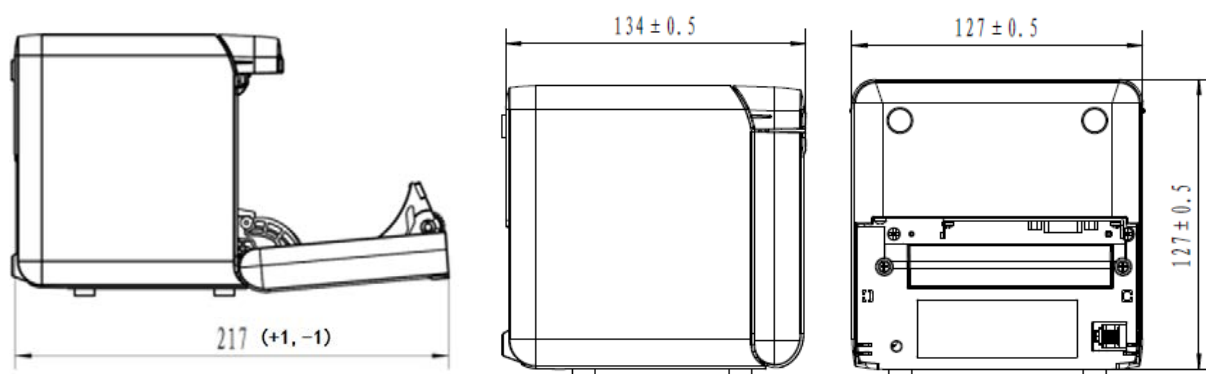
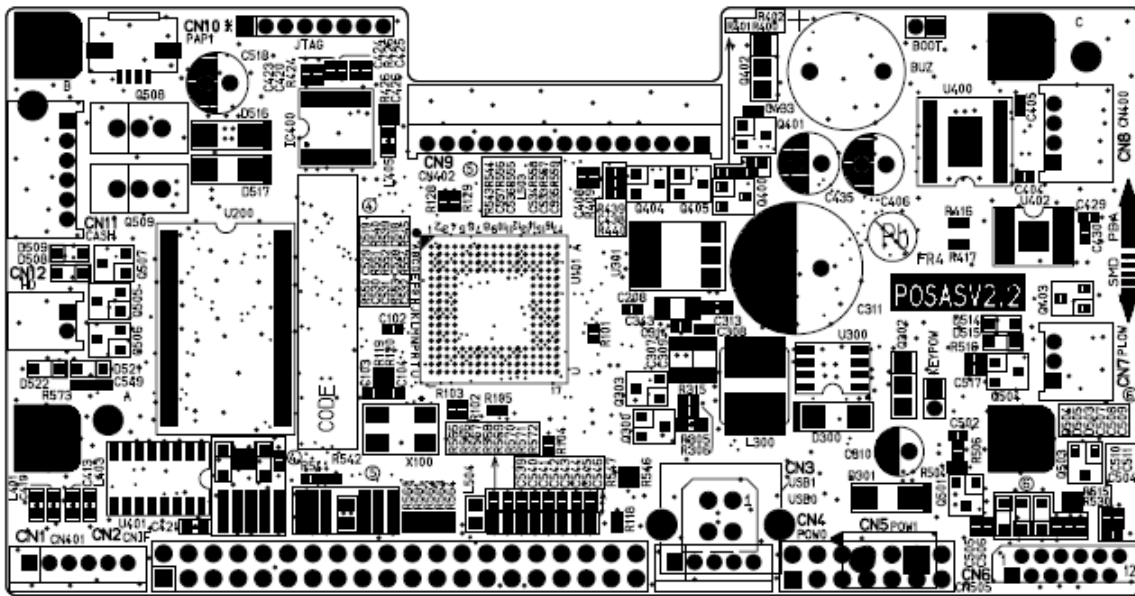
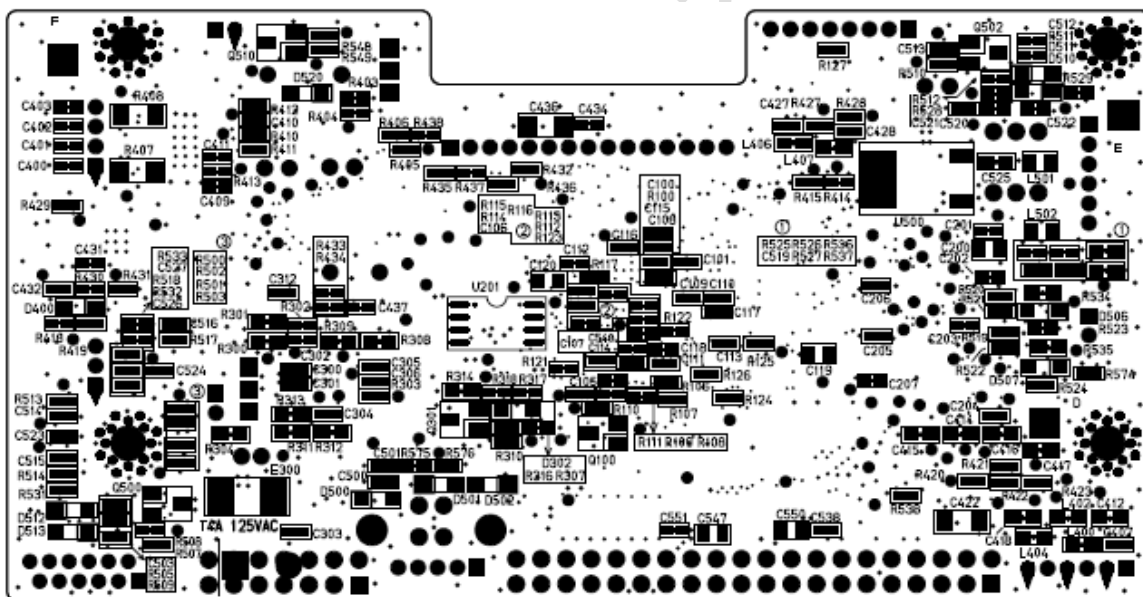


Fig. appendix 6-1

## Appendix 7 Silk-screen drawing of main control board



**Fig. appendix 7-1 Front layout of main control board**



**Fig. appendix 7-1 Back layout of main control board**

## Appendix 8 Button configuration list

Refer to BTP-S80 Printer Parameter Setting Menu.