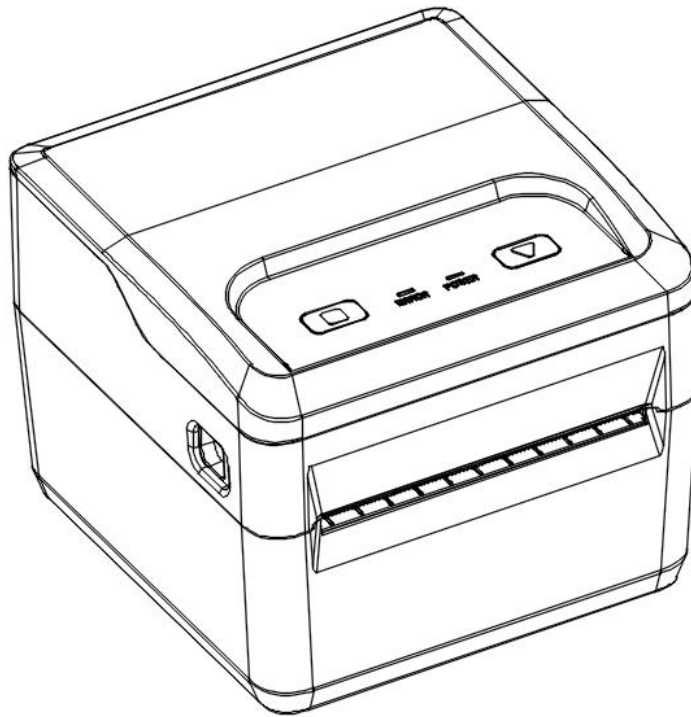


SPRT®

**SP-TL54
THERMAL BARCODE PRINTER**



Users' Manual (Ver 1.02)

Beijing Spirit Technology Development Co., Ltd

www.sprt-printer.com

Content

NOTICE.....	3
Notice of Safety.....	3
Notice of Using.....	3
Notice of Storing.....	4
Chapter1 Outer appearance and model No.....	4
1.1 Outer Appearance.....	4
1.2 Model NO.....	5
Chapter2 Features and Parameters.....	5
2.1 Printing parameters.....	5
2.2 Printing paper.....	5
2.3 Printing characteristics.....	5
2.4 Physical Parameters.....	6
2.5 Environment Parameters.....	6
2.4 Other Specification.....	6
Chapter 3 Operation Method.....	6
3.1 Operation steps.....	6
3.1.1 Printing Paper Roll Installation.....	6
3.2 Basic Function Usage.....	7
3.2.1 Power On / Off.....	7
3.2.2 Self test.....	8
3.2.3 Paper Feeding (Manual Feeding).....	8
3.2.4 Hexadecimal Printing.....	8
3.2.5 Restore Factory Settings.....	8
3.2.6 Printer calibration sensor sensitivity.....	9
3.2.7 Printer firmware update.....	9
3.2.8 Switch mode of work.....	9
3.2.9 Printer Parameters Setting.....	10
3.3 Interface connect.....	10
3.3.1 USB connect.....	10
3.3.2 Power Connection.....	10
3.4 Indicators, Buzzers, and Key Operation.....	11
Chapter 4 Other Information.....	12
4.1 Label size.....	12
4.2 Print head, roll replacement.....	13
4.2.1 Print head replacement.....	13
4.2.2 Roller replacement.....	14
4.3 Cleaning and maintenance.....	15

NOTICE

Please read this manual carefully before using the printer!

Notice of Safety

- ◆ Do not touch the tear bar of the printer
- ◆ Do not touch the print head and its connecting parts to avoid burns or damage to the print head due to static electricity.
- ◆ If the printer emits smoke, odor, or abnormal noise, turn off the machine immediately. Continued use may cause a fire. The power should be turned off immediately and contacted by the dealer or the SRPT Customer Service Center for instructions.
- ◆ Do not disassemble the printer by yourself. Improper repairs are dangerous and will break the promise of warranty by supplier.
- ◆ Use the power adapter supplied by the supplier or that meets the specifications. Improper power adapters may damage the machine and cause a fire.
- ◆ Prevent other objects entering into the printer to avoid damage of components. Foreign objects may even cause a fire or accident.
- ◆ If water or other liquids flow into the printer, immediately turn off the power and contact the dealer immediately to inquire about the handling method. Continued use may cause a fire.

Notice of Using

- ◆ Water or other liquid should not be spilled into the printer, also the printer should not be appeared in the rain, or else may cause printer damage.
- ◆ Please do not open the paper case cover when it is printing, otherwise the printer may work improperly.
- ◆ If printer works with USB connection, USB cable should not be pulled out during the printing process. Otherwise the data will be incomplete. When printer works with Bluetooth connection, the distance of communication should be within 10 meters, otherwise the printer doesn't print or prints messy code.
- ◆ Although the printer can work steadily when the environment temperature is between 0°C to 50°C, too high(45°C) or too low(5°C) environment temperature will affect printing quality.
- ◆ Too high (above 85% relative humidity) environment humidity or too low (below 20% relative humidity) environment humidity will effect the printing quality.
- ◆ The printer paper roll with poor quality or stored for too long time also may reduce the printing quality, sometimes even damages the printer.
- ◆ When print label, printing distance should be less than maximum printing distance, or printer will not work properly .

Notice of Storing

The printer should be placed in such an environment that the temperature is between -20°C and 60°C, and the relative humidity is between 10% and 90%.

Statement

This is a Class A product, which may cause radio interference in a living environment. In this case, the user may be required to take practical measures for their interference.

Chapter1 Outer appearance and model No.

1.1 Outer Appearance

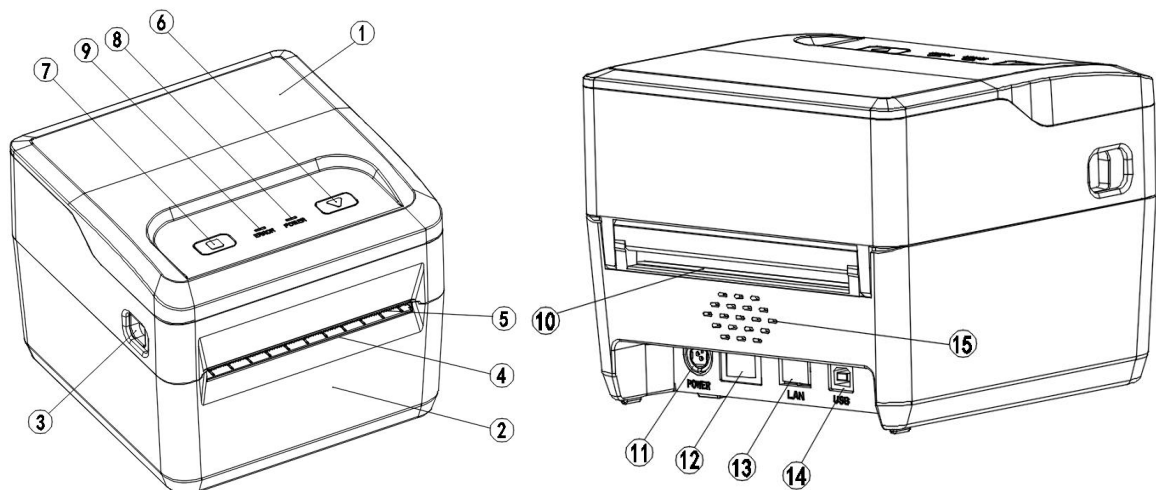


Fig 1-1 Printer parts name

1	Upper cover	9	Error indicator
2	Bottom cover	10	External paper exit
3	Open button	11	Power socket
4	Paper exit	12	Power button
5	Tear bar	13	Ethernet (reserved)
6	Feed button	14	USB
7	Pause button	15	Buzzer (reserved)
8	Power indicator		

1.2 Model NO.

Model	Interface
SP-TL54U	USB (Type B)

Chapter2 Features and Parameters

2.1 Printing parameters

- ◆ Printing method: Thermal printing
- ◆ Paper width: 40-112±0.5mm(Min)
- ◆ Printing density: 8 dot/mm (203DPI), 864 dot/line
- ◆ Printing speed: 150mm/s(max, 25% printing density)
- ◆ Printing Head Life: 50km
- ◆ working condition:
 - * ASCII: 12x24dots, 50 lines every time, intermittent repeat printing.
 - * Specified thermal paper
- ◆ Maximum effective printing width: 108mm

2.2 Printing paper

Paper size:

Paper width: 40-112mm

External diameter: Φ80mm (Max)

Inner diameter: Φ25mm

Paper thickness: 0.06mm~0.08mm(normal thermal paper), 0.06~0.14mm (label paper)

2.3 Printing characteristics

- ◆ ASCII:
 - 12×24 dots, 1.5 (width) × 3.0 (height) mm
 - 9×17 dots, 1.0 (width) × 2.00 (height) mm
- ◆ GB18030:
 - 24×24 dots, 3.00 (width) × 3.00 (height) mm

2.4 Physical Parameters

Dimension: 168 (L) X 165 (W) X 135 (H) mm

Physical Weight: 1200g (excluding paper roll)

Interface: USB

2.5 Environment Parameters

Operating Temp: 0°C~50°C

Operating Humidity: 10%~80%

Storage Temp: -20°C~60°C

Storage Humidity: 10%~90%

2.4 Other Specification

◆Paper Loading Method: Details refer to 3.1.1 Paper Roll Installation.

◆Printing Control Commands:

Character print commands: support ANK characters, custom characters and Chinese character double width, double height printing, can adjust the character line spacing.

Point map print commands: support different density point maps and download graphic prints.

GS barcode print commands: CODE128, CODE39, CODE93, EAN13, CODABAR, UPCA, UPCA+5, QR CODE, DATA Matrix.

Printing Control Commands: ESCPOS/TSPL (details in 《 SP-TL5X Printer command programming manual》)

Power Supply: DC24V±10%, 2.0A, A-1009-3P Power Socket

Chapter 3 Operation Method

3.1 Operation steps

3.1.1 Printing Paper Roll Installation


The SP-TL54 thermal barcode printer uses a 40-112mm wide paper roll.

The paper roll installation steps are as follows:

- a) Press the button on both sides to open the paper cover.
- b) Open the left and right forces the cardboard, the paper roll into the paper bin forces the cardboard, heat sensitive face up.

c) Pull out a section from the paper roll, close the paper cover, and pay attention to the paper head centered.

Note: Adjust the limit knob to a position slightly smaller than the existing paper width to facilitate subsequent paper roll installation.

 **Attention !**

1. Pay attention to the direction of loading paper, make the printing surface face to the print head.
2. Please don't feed or draw the paper forwards or backwards with hands.
3. Keep clean of the print head, avoid to influence the printing quality.

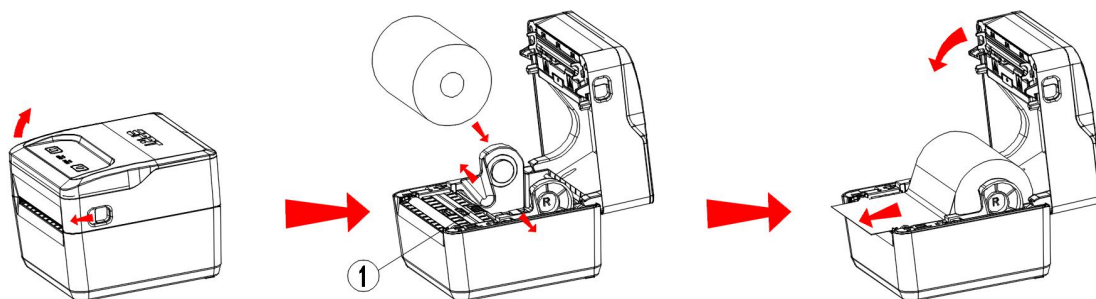


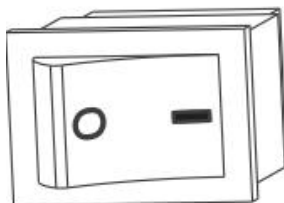
Figure 3.1.1 installation diagram of paper roll

3.2 Basic Function Usage

3.2.1 Power On / Off

Power On: In the status of power off, [paper cover] is closed, and then press the power switch "-" on the back of the printer to turn on the power. The error indicator and the power indicator flash alternately for two times, and then the error indicator goes off, and the printer enters the normal working mode.

Power off: In the status of power on, press the power switch "o" on the back of the printer to turn off the printer power.



3.2.2 Self test

The self-test will check the condition of printer, if the printer prints out the self-test receipt correctly, it means the printer works normally except interface with host. Otherwise it needs to repair.

The self-test will print out: Manufacturer name, printer model, software version, interface type, default value of printer parameters, 96 ANK characters in ASCII code, content of default code-page (if language is set English) or name of Chinese character library (if the language is set Chinese), bar code type.

Way of self-test: hold down **【FEED】** button and turn on the printer. Release the **【FEED】** button after the indicator lights flicker alternately. Then the printer will print the self-test receipt immediately.

3.2.3 Paper Feeding (Manual Feeding)

When the printer works normally, hold down **【FEED】** button, the paper feeding begins, and stops when stopped holding the **【FEED】** button. When the printer works in label mode, hold down **【FEED】** button, the printer begins to feed paper and stops at the position of gap.

3.2.4 Hexadecimal Printing

The function of hexadecimal printing is to print the information received from host machine by hexadecimal numbers and corresponding characters. It will be convenient to debug application.

Into hexadecimal printing: Power off, hold down the **【FEED】** button and **【PAUSE】** button at the same time. Then switch on the printer, wait until the indicator lights alternately flashing at the same time and release the **【FEED】** and **【PAUSE】** button. The printer turns into the hexadecimal printing mode and print the "Hexadecimal Dump To terminate hexadecimal dump, Press FEED button three times.

Quit hexadecimal printing :The way to quit hexadecimal printing mode is switch off the printer or press the **【FEED】** button for three times and enter the normal working mode. The printer will print the "****Completed****" which shows that the printer have quit hexadecimal printing mode when quit by pressing the **【FEED】** button.

3.2.5 Restore Factory Settings

Printer can not work normally due to parameter setting error, please use restore factory settings function to recover the printer parameter. Hold the **【PAUSE】** and **【FEED】** button to switch on

printer, release 【FEED】 button when the indicator lights alternately flashing at the same time, and still hold the 【PAUSE】 button then press 【FEED】 button for three times, printer will print the current setting parameter content and prompt: “Notice: The system setting will be recover to default value, press 【FEED】 once to confirm and power off to cancel.”

3.2.6 Printer calibration sensor sensitivity

Under label mode, the self-test paper is printed, and the printer will re-calibrate the label sensor.

3.2.7 Printer firmware update

In the printer standby state, use the upgrade tool ‘UpdateFirmware.exe’ on the PC to perform firmware upgrade; the upgrade tool is as shown below:



Upgrade instructions:

1. In the standby mode, select the port supported by the printer on the communication settings bar, and then click to open the port.
2. In the Firmware File field, select the firmware file you want to download to the printer.
3. Finally click the Start Upgrade button.
4. After the printer upgrade firmware is completed, the self-test test page is automatically printed.

3.2.8 Switch mode of work

Press and hold the [PAUSE] button and [FEED] button in the same time, and turn on the power, wait for about 8 seconds, the printer prints out the current printing mode.

3.2.9 Printer Parameters Setting

Printer can use special software < setting tool software > through the computer to set more parameters. The setting including: language, font, printing density, Bluetooth device name and password, printing mode and etc. The setting method please refer to the < Setting Tools Software Help>, offered with the software together.

The setting tool can be obtained from the official website of the company. Download center -- > setting tool -- > general setting tool. Select the latest version of setting tool and click download; If you have a CD-ROM you can get the Settings tool from the CD-ROM. Open "SettingToolVx.xx Client version.exe", select "POS printer", select "TL51/TL52/TL54", select the corresponding port, and set the required printer parameters.

3.3 Interface connect

3.3.1 USB connect

The standard SP-TL54 printer comes with a standard USB printer cable, D-port data cable which connects printer and main device. The USB type belongs to the slave device type (DEVICE). The outline and pin definition are shown in Fig. 3.3-1

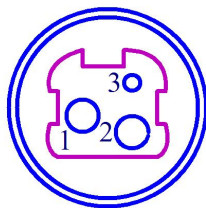


Pin	Function	Notes
1	V Bus	Power +5V
2	Data-	Data-
3	Data+	Data-
4	GND	Ground

Fig. 3.3-1 USB socket and pin definition

3.3.2 Power Connection

SP-TL54 printer uses the external power supply adapter as $24V \pm 10\%$, 2A, power socket is A-1009-3P model, The outline and pin definition are shown in Fig. 3.3-2



Pin No.	Signal
1	+24VDC
2	Ground
3	NC

Fig.3.3-2 Power socket and pin definition

3.4 Indicators, Buzzers, and Key Operation

There is three button and one inner buzzers and two indicators on TL54 printer.

Paper feed button: Normal mode: The print command can be used to enable or disable the key switch function. When the button control state is enabled, press paper feed button ,the printer feeds the paper, and release the paper feed button , stop the paper feed; the label mode: press the paper feed button one time, the printer automatically stops when feed one label (see Figure 1-1).

Power switch: Used to turn the printer's power on or off. Press the power switch on the back of the printer, press "-" to turn on the power, and press "o" to turn off the power (see Figure 1-1).

Pause button: Pauses the printer function (valid in label print mode) (see Figure 1-1).

Green POWER indicator: It is the power status indicator. When the POWER indicator is on, it indicates that the printer is turned on. If the printer presses the pause button and the printer is paused, the POWER indicator will flash continuously (see Figure 1-1).

Red ERROR indicator: On or flashing indicates that the printer paper status is abnormal; when the paper is out, the indicator light is on.

The error indicator flashes and the buzzer sounds: the printer has an error.




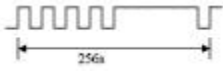
According to the different flicker type, the different error types are as below:




◆Non-recoverable error, the times of indicator flickering and buzzer sounding mean the error type, then persistent lighting.

◆recoverable error the indicator light flashes continuously, and the buzzer sounds.


◆Paper out, PAPER OUT indicator lights and the buzzer sounds persistently. When the paper case cover is open, whether the paper is out or not will not be tested.

1. Non-recoverable error, the indicator flickers several times, then persistent lighting. The times of flickering means the error type

ERROR Type	ERROR Description	ERROR Indicator Flickering Type
Non-recoverable error	LED flickers once:Internal memory reading and writing error	
	LED flickers twice:over-voltage	
	LED flickers three times:under-voltage	
	LED flickers four times: CPU execution error (wrong address)	

	LED flickers six times: FLASH writing error	
	LED flickers seven times: parameter writing error	
	LED flickers eight times: Temperature testing circuit error	

2. Auto-recoverable error, indicator flickers constantly, including printing head over-heat error and upper case cover opening error during printing.

ERROR Type	ERROR Description	ERROR Indicator Flickering Type
Auto-recoverable error	LED Flickers constantly: printing head over-heat; upper case cover opening error during printing	

Chapter 4 Other Information

4.1 Label size

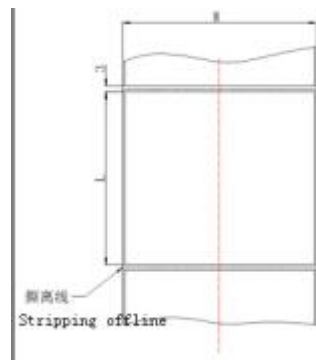


Figure 4.2

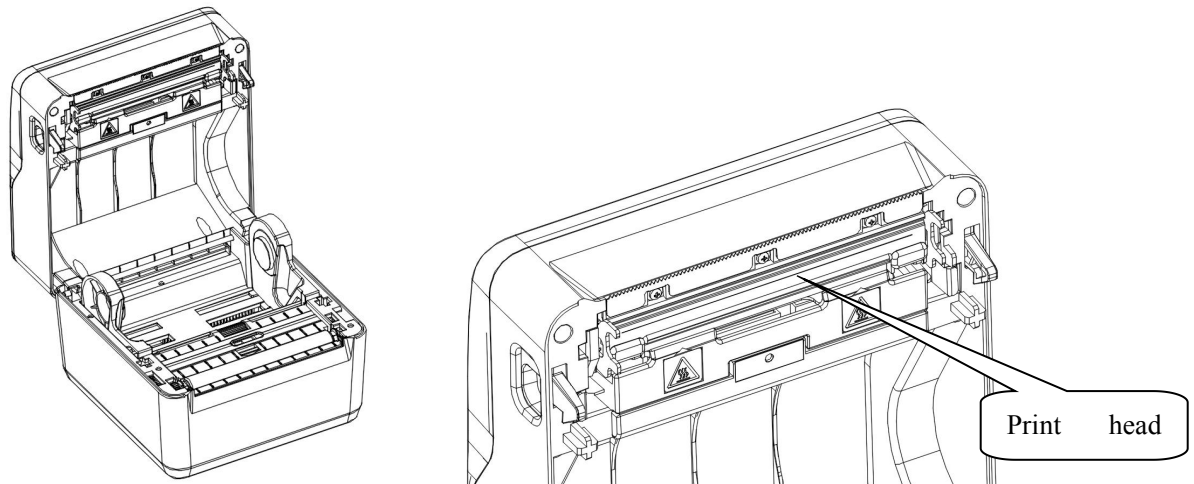
Label size:

- ◆ Label backing paper width: $40\text{mm} \leq W \leq 112\text{mm}$
- ◆ Label length: $30\text{mm} \leq L \leq 2286\text{mm}$
- ◆ Label spacing: 3mm
- ◆ Stripping offline

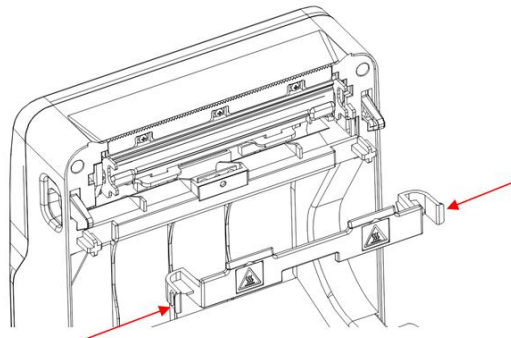
4.2 Print head, roll replacement

4.2.1 Print head replacement

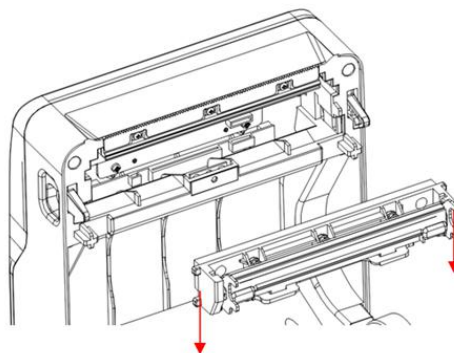
1) open the cover;



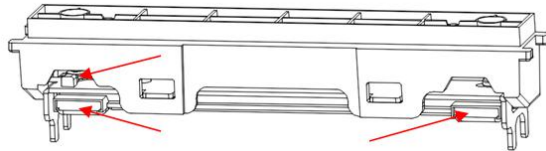
2) Press the parts inward as the figure show, after separate from the buckle and take out;



3) Slide the print head assembly down in the direction shown; After leaving the slide rail, take it out;



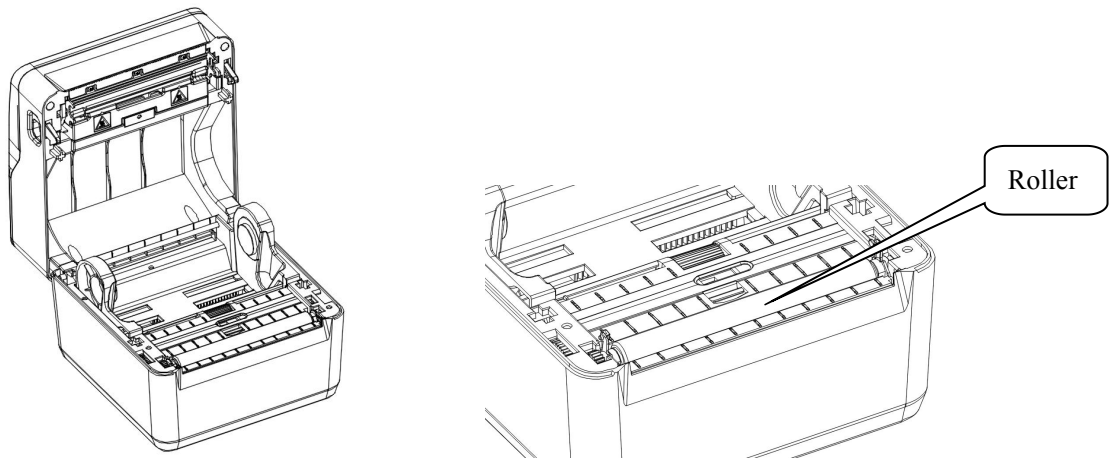
4) Remove the two connecting lines and one grounding line of the print head as shown



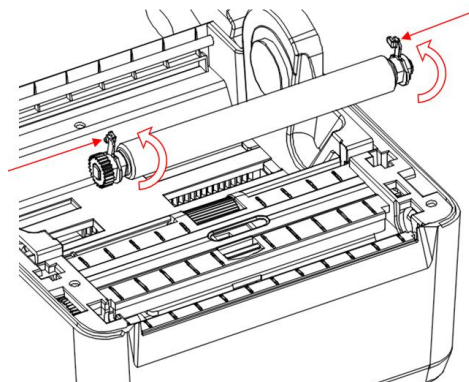
5) Replace the new print head assembly, and after connecting the three lines, reverse assembly.

4.2.2 Roller replacement

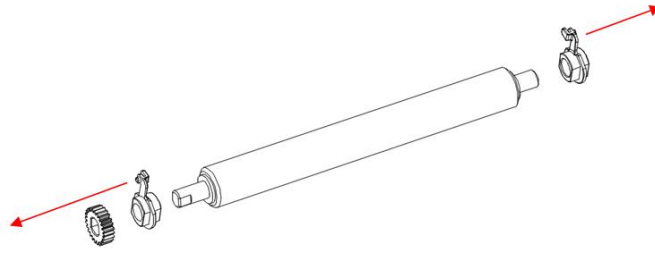
1) Open the cover;



2) Press the button of the roller sleeve inward, after separate from the buckle, rotate as the below figure. Take out the rubber roller assembly;



3) Remove the gear and bushing;



4) Replacing the new roller,reverse assembly.

4.3 Cleaning and maintenance

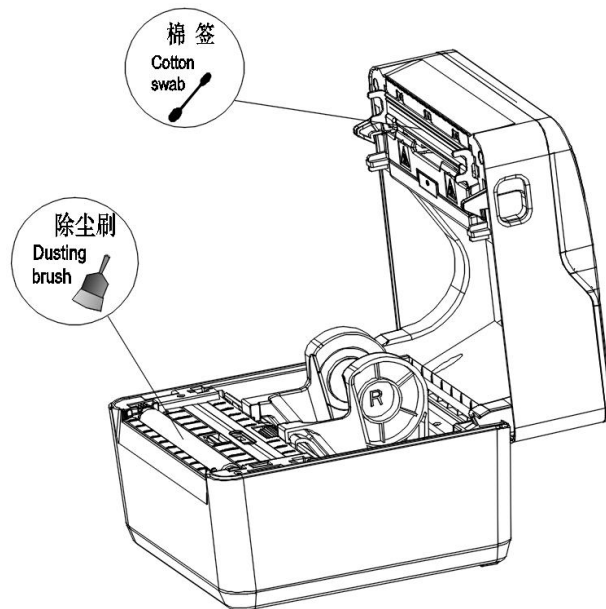


Figure 4.4

Thermal printer head require regular maintenance,the method as follows:

- ◆ Show as Figure 4.4:using the dusting brush to clean the paper roll
- ◆ Show as Figure 4.4, Using the cotton swab to draw the right amount of alcohol, to clean the printer core heater.
- ◆ The above operations must be performed while the printer is powered off.