RW-337D
Receipt Printer Service Manual

Declaration

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Warning and Caution

Warning: Items shall be strictly followed to avoid damages to body and equipment.

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

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/unplugging 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 print without paper and ribbon; otherwise you may damage the print bar and print head;
6) In order to ensure the stable work of each components and printer's lifetime, you need to conduct a regular maintenance monthly at least. The regular maintenance includes printer status check, printer dust cleaning and part lubrication. If the printer has a larger workload, the maintenance cycle can be appropriately shortened.

Contents

1 Features and Specifications

1.1 Features

The RW-337D is a 9-pin serial impact dot matrix receipt printer offering high quality, high speed, and stable performance. It is widely used in real-time printing on-site, such as POS system, kitchen and finance applications.

The RW-337D can be connected with other devices via USB, parallel, serial and Ethernet interface, and it provides drivers and applications under 2000/2003/XP/Vista.

1.2 Technical Specifications

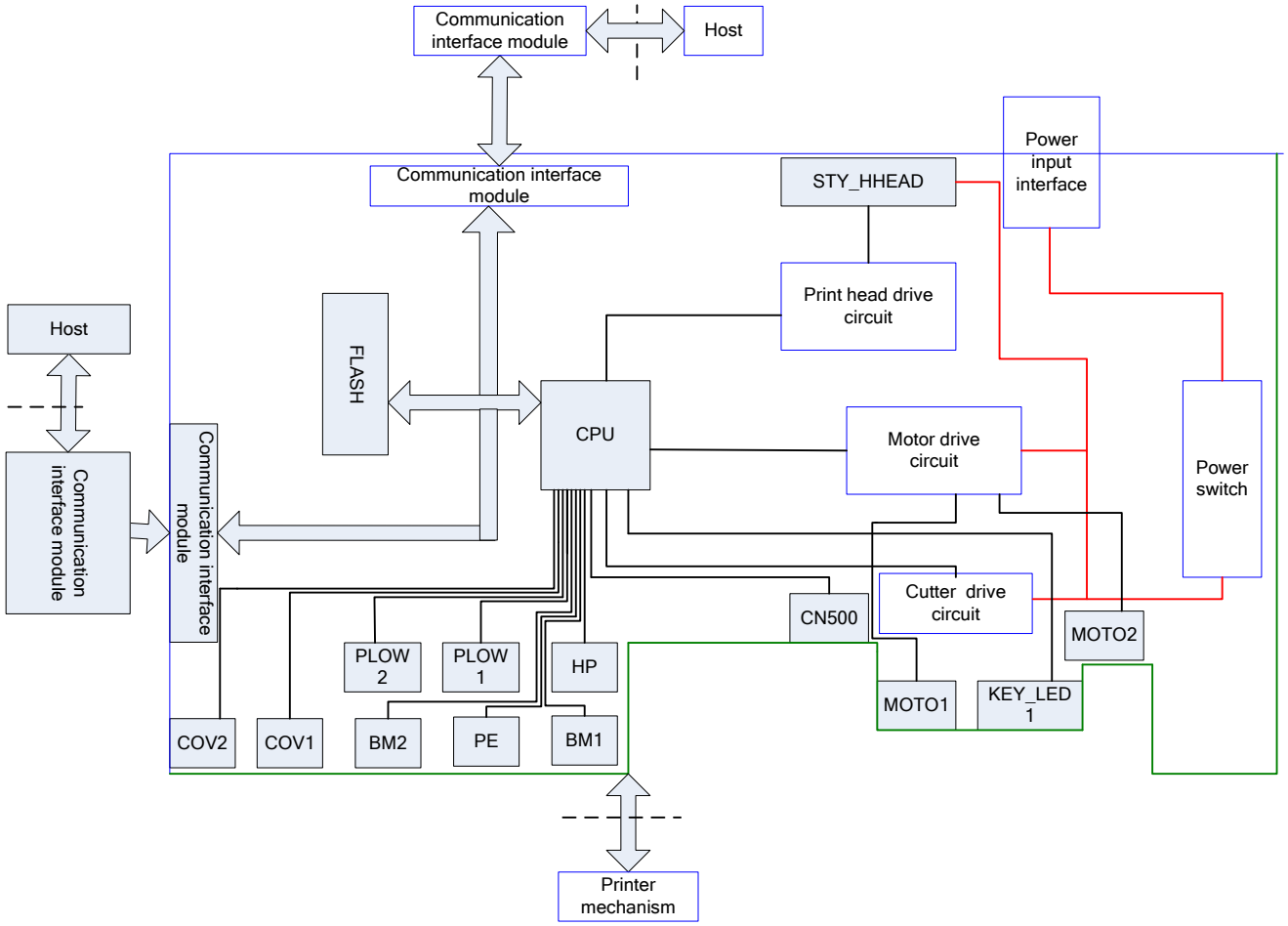
Item		Specifications			
Print mode		9-pin serial impact dot matrix			
Print speed		Max. 4.7LPS (400 dots/line)			
Print width		Max. 400(half dots)/200(full dots)			
Paper	Paper type	Continuous paper or marked paper			
	Single layer	Paper width: 80±0.5mm,76±0.5mm,69.5±0.5mm,57.5±0.5mm; Paper thickness: 0.06—0.085mm			
	Multi-layer paper (1 original+1 copies)	Paper width: 80±0.5mm,76±0.5mm,69.5±0.5mm,57.5±0.5mm; Paper thickness: 0.05—0.08mm, total thickness≤0.14 mm			
Character	Character type	Font A: 9×9 Font B: 7×9 Chinese: 16×16			
	Characters/line (Default)		76mm	69.5mm	57.5mm
		Font A	33 CPL	30 CPL	25 CPL
		Font B	40 CPL	36 CPL	30 CPL
		Chinese	22 CPL	20 CPL	16 CPL
	Character size (Default)	Font A: 1.6×3.1mm Font B: 1.2×3.1mm Chinese: 2.7×2.9mm			
	Characters/inch (Default)	Font A: 13.3CPI Font B: 16CPI Chinese: 8.9CPI			
Data buffer	Receiving buffer	64KB/8KB/40Byte			
	NV image data	128KB			
	NV user data	8KB			
Ribbon specification		ERC-38 ribbon cartridge			
Ribbon lifetime		ERC-38(P)	4,000,000 characters		
		ERC-38(B)	3,000,000 characters		
		ERC-38(B/R)	Black: 1,500,000 characters Red: 750,000 characters		
Communication interface		USB / IEEE1284/RS-232/Ethernet /(optional)			
Cash drawer connector		Can control 1～2 cash drawers			
Power supply		AC100-240V~1.0A Max 50-60Hz			
Reliability	Printing Mechanism	10,000,000 lines			
	Print head	150,000,000 characters			
	Cutter	800,000 cuts(paper thickness:0.080mm, standard testing condition)			
Operating temperature and humidity		5～45℃,20～90%RH (40℃)			
Storage temperature and humidity		-40～60℃,20%～93%RH (40℃)			
Dimensions		160(W)×245(D)×154(H)			
Weight		3.0kg			

2 Printer Overview

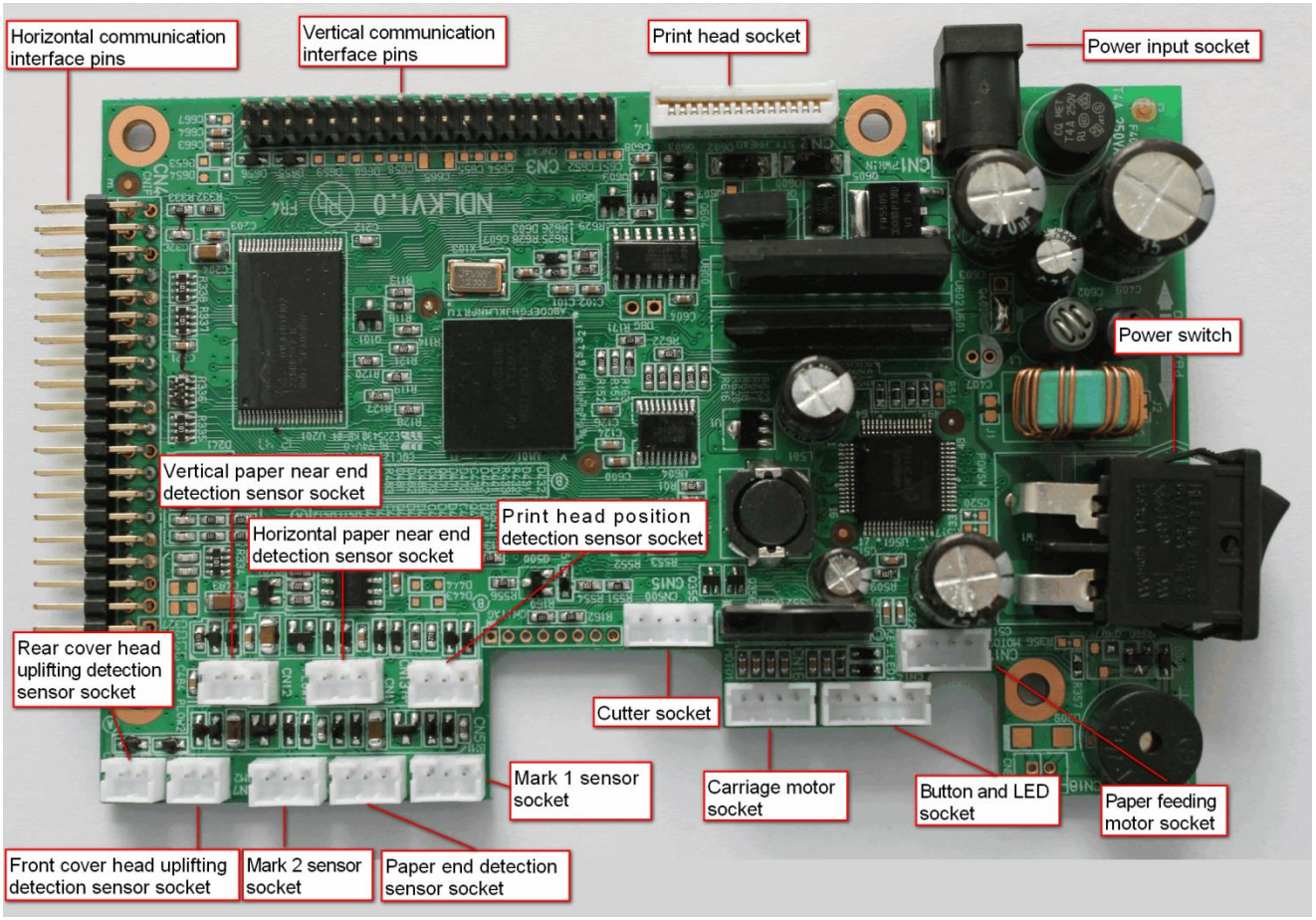
The RW-337D printer consists of the following parts:

Pinter mechanism part, NDLF main control board, expanded interface board.

Main control board unit block diagram is shown as below:



Main Control Board Unit Block Diagram



Position of all the sockets in the main control board

3 Main Control Board Description

RW-337D can be connected to another device with USB, serial, parallel, Ethernet or WIFI interface.

3.1 USB interface

3.1.1 Parameter

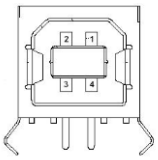
- Data transfer: Supports USB1.1 Protocol
- Connector: USB B type standard socket

3.1.2 Interface signal

The printer built-in USB interface supports USB1.1 protocol, of which the outlet is USB A type.

Interface signal is defined as below:

Pin	Signal name	Function
1	VBUS	+5V
2	DATA-	Data-
3	DATA+	Data+
4	GND	Ground



3.1.3 USB interface connection

Host Printer

VBUS.....VBUS

DATA- .....DATA-

DATA+..... DATA+

GND .....GND

Caution:

✧ The vertical USB interface cannot be used when set the receiving buffer to 40Bytes.

3.2 Serial interface

3.2.1 Parameter

- Data transmission: Asynchronous serial communicate
- Handshaking: DTR/DSR or XON/XOFF
- Voltage: MARK = -3 to -15V: Logic "1"/ OFF
  SPACE = +3 to +15V: Logic "0"/ ON
- Baud rate: 1200, 2400, 4800, 9600, 19200, 38400, 57600 bps
  [bps: bits per second]
- Data bit: 7 bit or 8 bit
- Parity bits: No
- Stop bit: 1 bit or 2 bit
- Connector: D-SUB 25PIN hole socket

Caution:

✧ Handshaking, baud rate, data bit and stop bit can be set by EEPROM and feed button.

3.2.2 Interface connection and signal function

Pin	Signal Name	Signal Direction	Function
1	FG	—	Frame ground
2	TXD	OUTPUT	Data output
3	RXD	INPUT	Data input
4	RTS	OUTPUT	Request to send
6	DSR	INPUT	Host ready
7	SG	—	Signal ready
20	DTR	OUTPUT	Data terminal ready

3.2.3 Serial connection

Host Printer

TXD----------RXD

RXD----------TXD

DSR----------DTR

CTS----------RTS

RTS----------CTS

DTR----------DSR

FG ----------FG

SG ----------SG

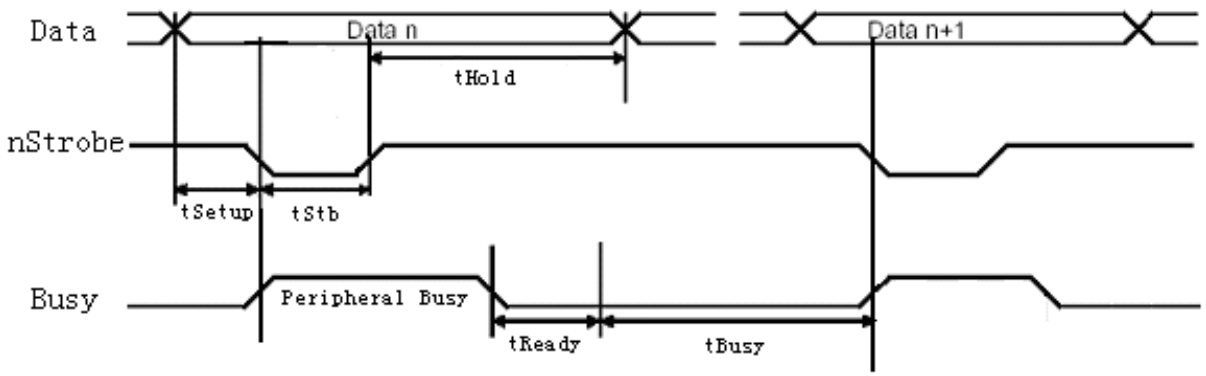
3.3 Parallel interface

Parallel interface works under IEEE1284 compatible mode and byte mode.

3.3.1 Parameter

- Data transmission: 8 bit parallel
- Synchronized mode: Externally supplied nStrobe signals
- Handshaking mode: Busy Signal
- Handshaking pressure: TTL compatible
- Connector: IEEE 1284-B(CENTRONICS) socket

3.3.2 Time Sequence of the Parallel Interface Module



Time Sequence of Parallel Interface (compatible mode)

Signal	Min. value (ns)	Max. value (ns)
tSetup	750	-
tReady	0	-
tStb	750	-
tBusy	0	500
tHold	750	-

Time Request of Parallel Interface

3.3.3 Interface signal

Pin	Signal source	Signal definition	Pin	Signal source	Signal definition
1	H	nStrobe	19		Signal Ground
2	H	Data 0 (Least Significant Bit)	20		Signal Ground
3	H	Data 1	21		Signal Ground
4	H	Data 2	22		Signal Ground
5	H	Data 3	23		Signal Ground
6	H	Data 4	24		Signal Ground
7	H	Data 5	25		Signal Ground
8	H	Data 6	26		Signal Ground
9	H	Data 7 (Most Significant Bit)	27		Signal Ground
10	P	Ack	28		Signal Ground
11	P	Busy	29		Signal Ground
12	P	PError	30		Signal Ground
13	P	Select	31	H	nInit
14	H	nAutoLF	32	P	nFault
15		Not defined	33		Signal Ground
16		Logic Gnd	34		Not defined
17		Chassis Gnd	35		Not defined
18	P	Peripheral Logic High	36	H	nSelectIn

Parallel interface signal definition

Caution:

- H stands for host end, P stands for printer end.
- Parallel interface signal adopting TTL level. Please make sure that both ascending and descending time of the host end are less than 0.5μs when using the printer to print.
- During data transmitting, the host end should not neglect the Busy signal, otherwise the printing data will be lost.
- The parallel interface signal cable should be as short as possible.

3.3.4 Parameter

ıtput HIGH current	IOH	0.32 mA	-	VOH=2.4 V
ıtput LOW current	IOL	-12 mA	-	VOL=0.4 V
ɔut HIGH voltage	VIH	2.0 V	-	
ɔut LOW voltage	VIL	-	0.8 V	
ɔut HIGH current	IIH	-	-0.32 mA	VIH=2.0 V
ɔut LOW current	IIL	-	12 mA	VIL=0.8 V

ıtput HIGH current	IOH	0.32 mA	-	VOH=2.4 V
ıtput LOW current	IOL	-12 mA	-	VOL=0.4 V
ɔut HIGH voltage	VIH	2.0 V	-	
ɔut LOW voltage	VIL	-	0.8 V	
ɔut HIGH current	IIH	-	-0.32 mA	VIH=2.0 V
ɔut LOW current	IIL	-	12 mA	VIL=0.8 V

3.3.5 Effect of printer's status on parallel interface

Status	/nFault	PE
Normal status	High	Low
Paper end	Low	High
Rear cover open	Low	Low
Cutter error	Low	Low
Input voltage is abnormal	Low	Low
Print head is overheated	Low	Low
HP error	Low	Low

Caution:

✧ When the above error occurs, user can inquire the printer's status from the pin of parallel interface.

3.4 Ethernet interface

3.4.1 Interface character

- Supports 10BASE-T communication
- Ethernet II frame type compatible
- LED indicates the net connection status and data transmission status
- Supports 9100 port printing
- Supports status back
- Supports parameter configuration
- Supports firmware update online
- Supports printer status inquiry and interface module maintenance based in HTTP mode

3.4.2 Protocol supported

- IP
- ARP
- ICMP
- TCP

- UDP
- DHCP
- TFTP
- HTTP

3.4.3 Electrical character

Output signal:

- The valid differential mode voltage is more than 450mV, and the peak voltage is no more than 13V;
- The common mode peak AC voltage is no more than 2.5V.

Input signal:

- If the differential mode voltage is more than 160mV, then it is valid signal.

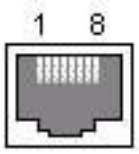
3.4.4 Frame type

Compatible with the frame type of Ethernet II format.

3.4.5 Interface signal

The interface use 10BASE-T standard which comply to IEEE802.3.

Pin	Signal Name	Description
1	TX+	Data sending +
2	TX-	Data sending-
3	RX+	Data receiving+
4	NC	Reserved
5	NC	Reserved
6	RX-	Data receiving-
7	NC	Reserved
8	NC	Reserved



4 Disassembly and Assembly

 **Caution:**

- ✧ Do not disassemble, assemble or adjust the printer if it works properly. Do not unscrew any screws unless necessary.
- ✧ When disassembling and assembling, avoid damaging all wires and cables.
- ✧ When handling the print head or electronic component, make sure to take some measures to protect it from electrostatic charge.
- ✧ During maintenance, be careful not to leave parts or screws loose inside the printer.
- ✧ During maintenance, be careful not to damage the print head surface and the print bar.

4.1 Maintenance Tools

Maintenance Tools:

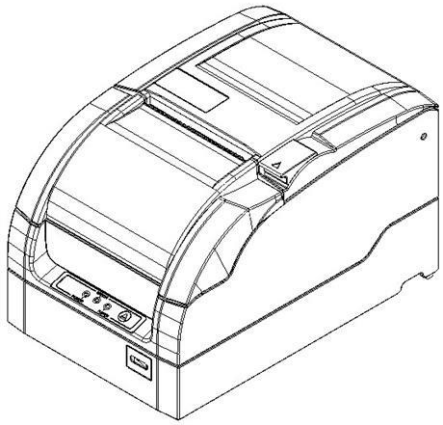
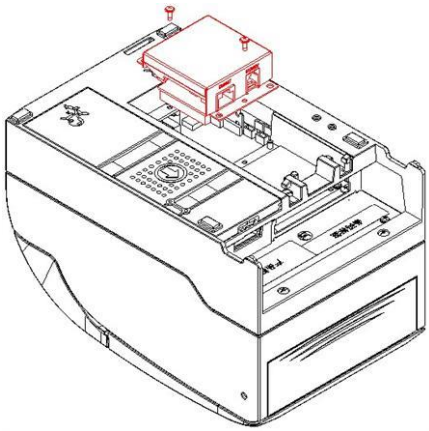
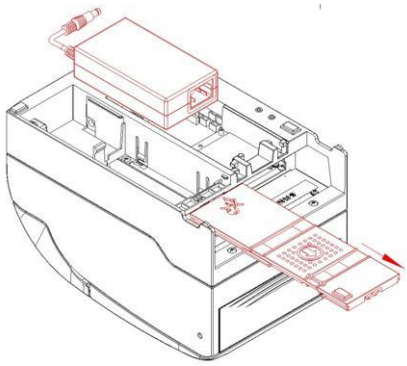
- ➢ Cross screwdriver
- ➢ Sharp-nose pliers
- ➢ Wire cutter

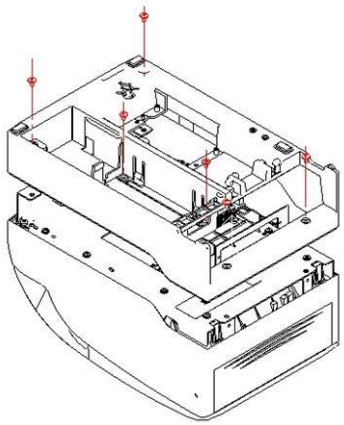
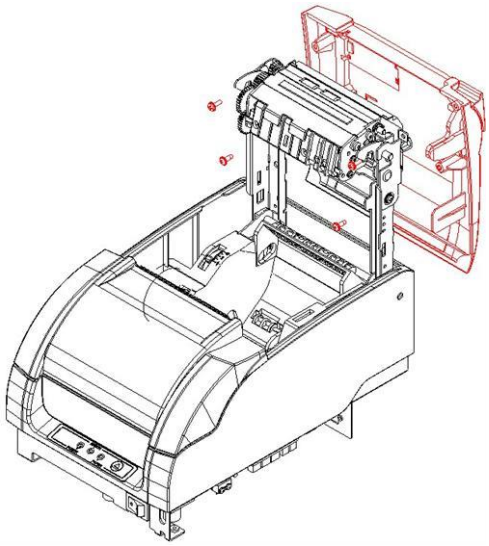
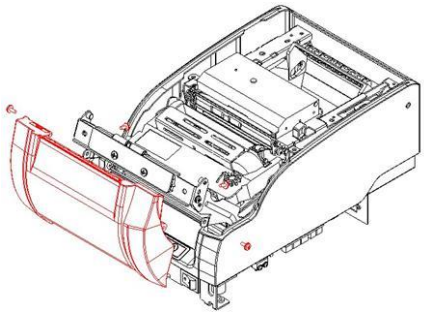
Assistant materials:

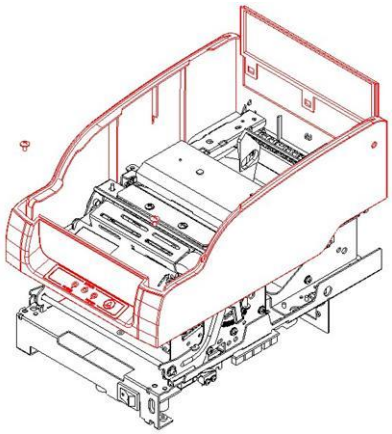
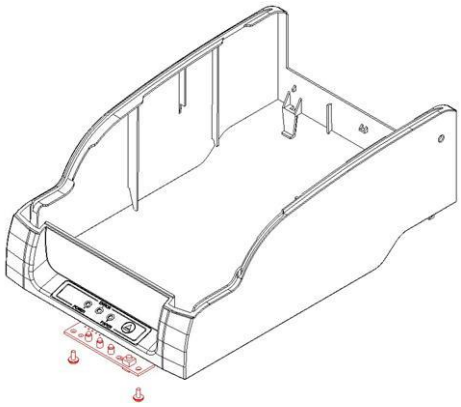
- ➢ Lubricant grease
- ➢ Alcohol
- ➢ Absorbent cotton

4.2 Disassemble the printer

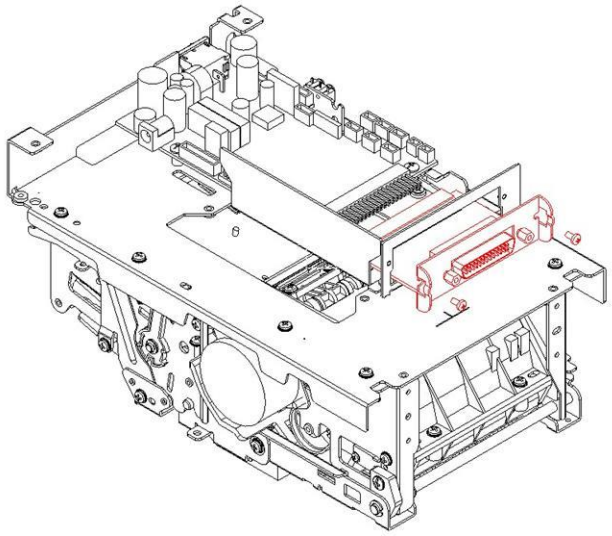
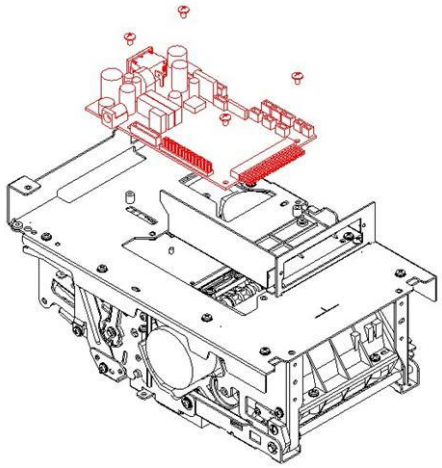
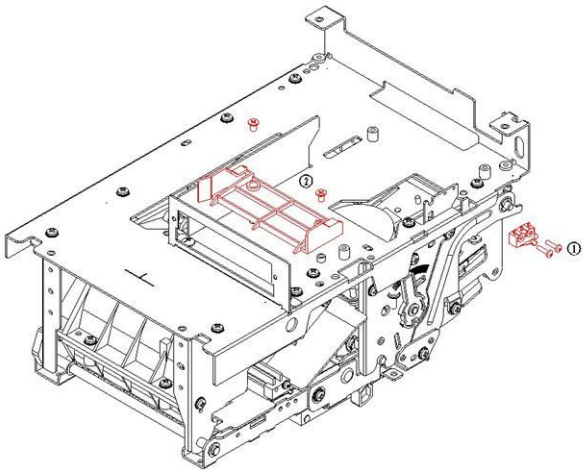
4.2.1 Disassemble the printer cover

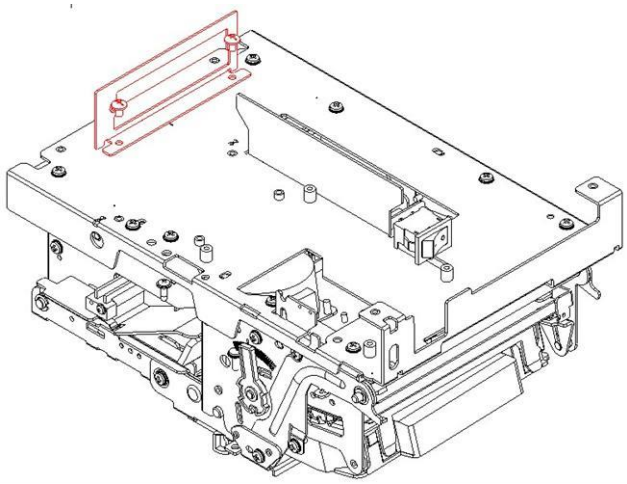
Picture	Instructions
	Top view of printer.
	1) Remove the two screws (ST2.9x8) shown in the figure with the cross screwdriver; 2) Take off the vertical pluggable interface board shown in the figure.
	1) Push out the power cover plate in the arrow direction; 2) Take off the built-in power supply from its location position.

	Remove the six screws (M3x4) shown in the figure with cross screwdriver, and take off the bottom cover.
	1) Remove the four screws (ST2.9x6) shown in the figure with cross screwdriver; 2) Take off the top cover.
	Remove the four screws (ST2.9x6) shown in the figure with cross screwdriver, and take off the front cover.

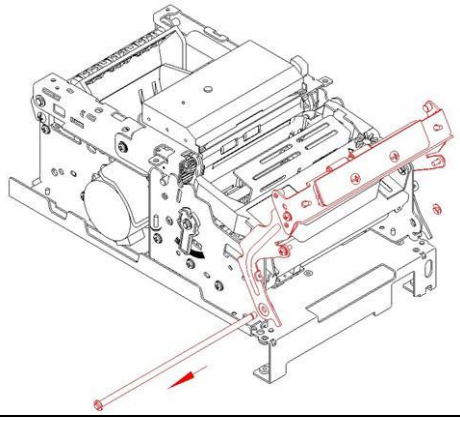
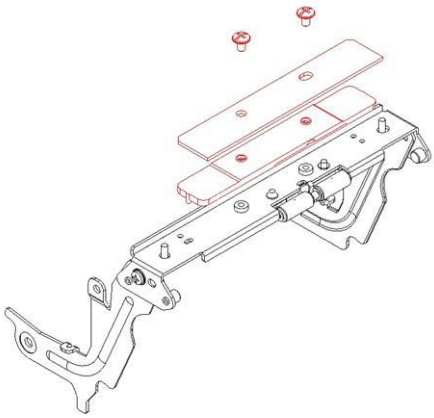
	1) Remove the two screws (M3x7) shown in the figure with cross screwdriver; 2) Disconnect the connecting cable between button and control board; 3) Push out the cover locking unit at the back of middle cover with appropriate force, and take off the middle cover; 4) Take off the baffle of middle cover with appropriate force upward. **Notes:** ✧ Please do not pull the connection wire to avoid damage to the wire when plug and unplug the connection wire
	Remove the two screws (ST2.9x6) shown in the figure with cross screwdriver, and take off the button board.

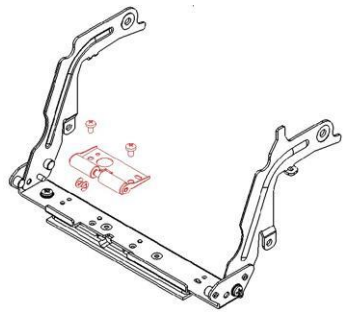
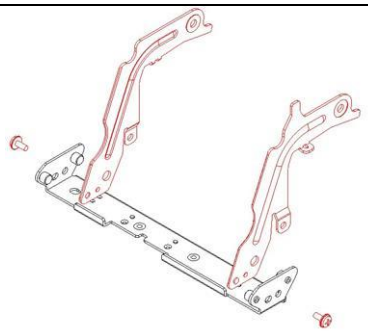
4.2.2 Disassemble the main control board cover

Picture	Instructions
	Remove the two screws (M2.5x5) shown in the figure with cross screwdriver, and take off the optional communication interface module. **Notes:** ✧ Please use moderate force to plug/unplug the communication interface in horizontal direction to avoid damaging the pins.
	1) Unplug all the wires in the main control board with a moderate force; 2) Remove the four screws (M3x5) with the screw driver and take off the main control board. **Notes:** ✧ Please keep the main control board safely to avoid scratching and short circuit; ✧ Please do not pull the connection wire to avoid damage to the wire when plug and unplug the connection wire.
	1) Remove the two screws (M2x8) shown in the figure at ① with cross screwdriver and take off the micro switch; 2) Remove the two sunk screws (M3x5) shown in the figure at ② with cross screw driver and take off the guide plate; 3) Take off the power switch in the arrow direction shown in the figure

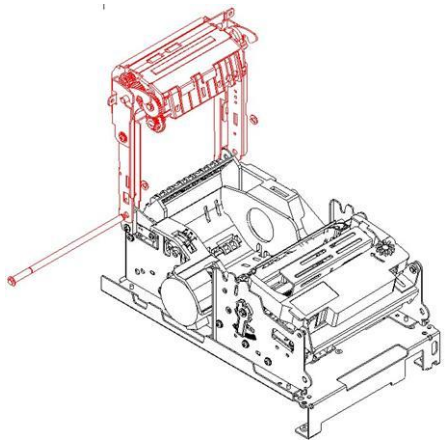
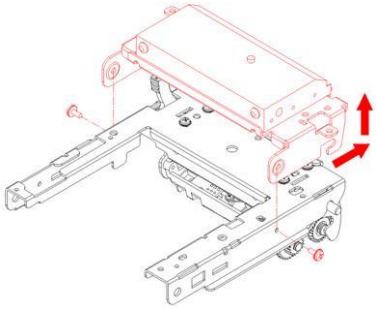
	Remove the three screws (M3x5) shown in the figure with cross screwdriver and take off the interface plate in the arrow direction shown in the figure.

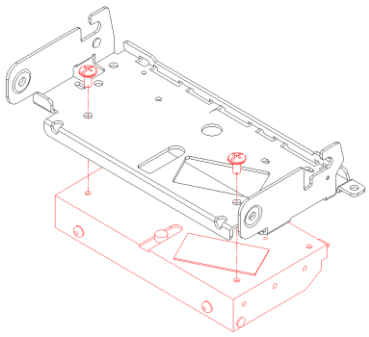
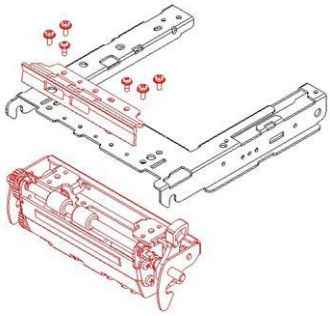
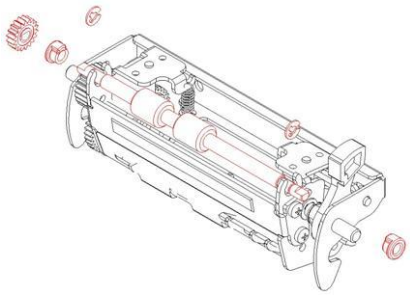
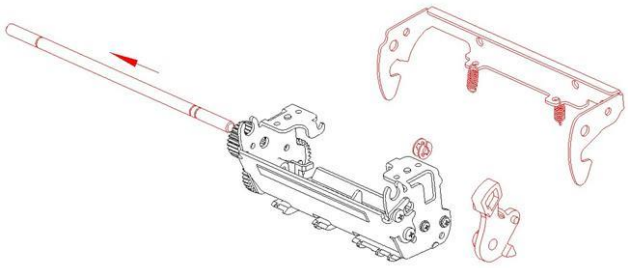
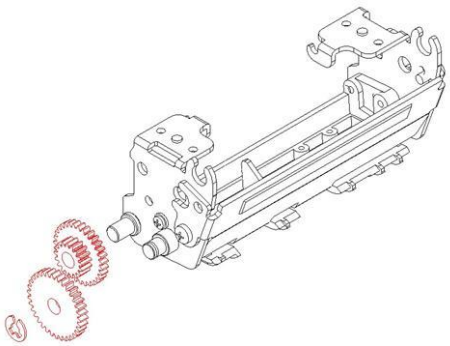
4.2.3 Disassemble the stationary blade cutter module

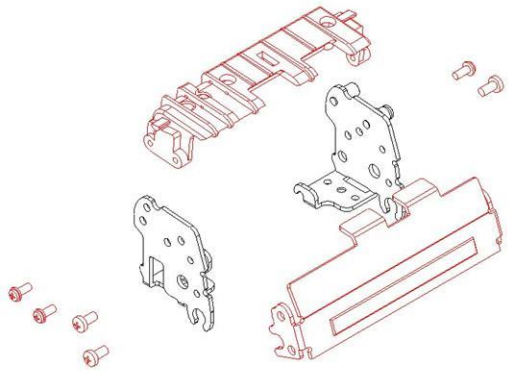
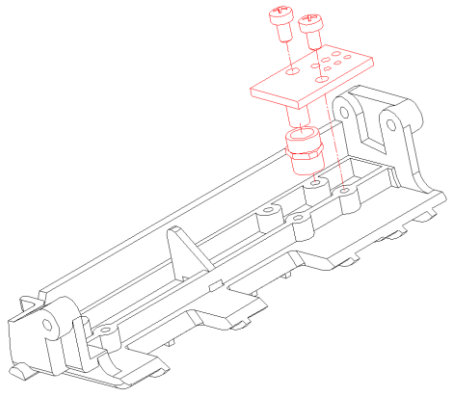
Picture	Instructions
	Take off the one "E"-ring on one end of the rotation shaft of stationary blade cutter with sharp-nose pliers, pull out the rotation shaft of stationary blade along the arrow direction and disassemble the stationary blade module
	Remove the two screws (M3x7) shown in the figure with cross screwdriver, and take off the cutter bracket and stationary blade cutter **Notes:** ✧ Please be careful to keep the stationary blade disassembled to avoid damage to human body; ✧ Please be careful to keep the stationary blade disassembled to avoid being scratched by hard objects.

	1) Remove the two screws (M2.5x4) shown in the figure with cross screwdriver, and disassemble the support plate module of paper pressure roller and cutter support module; 2) Disassemble the two 2mm "E"-rings shown in the figure with sharp-nose pliers, and disassemble the paper pressure roller.
	Remove the two screws (ST2.9x6) shown in the figure with cross screwdriver, and then disassemble the left and right holders of stationary blade.

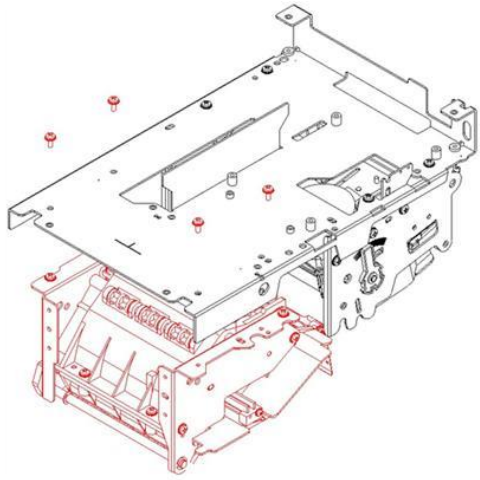
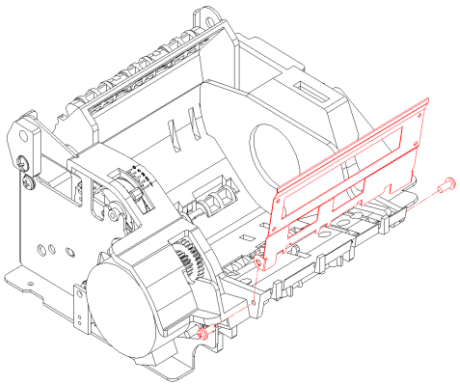
4.2.4 Disassemble the non-retraction platen roller module

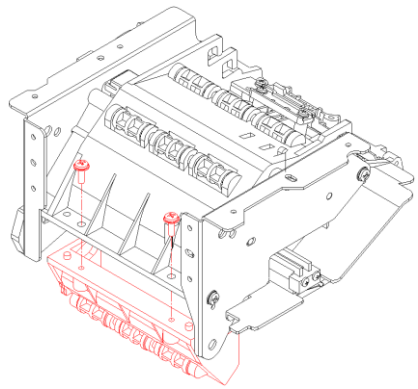
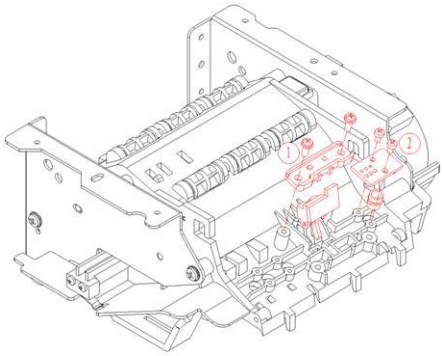
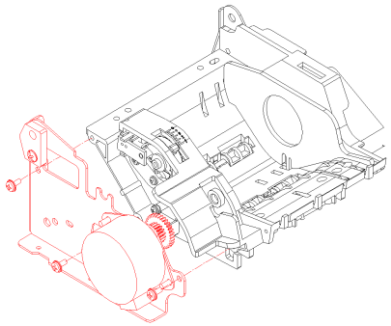
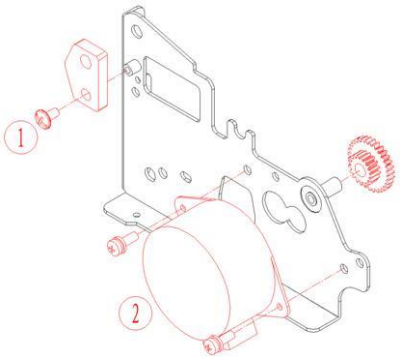
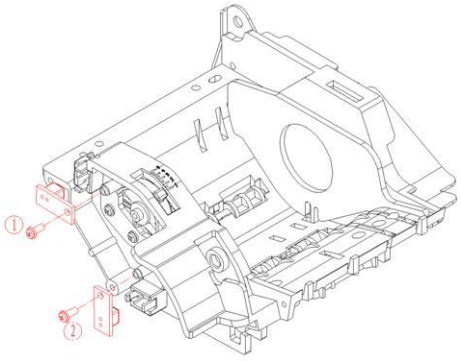
Picture	Instructions
	1) Cut off the cable tie of cutter cable with wire cutter; 2) Take off one “E”-ring at one end and one “E”-ring at the middle of the rear rotation shaft with sharp-nose pliers, pull out the rear rotation shaft along the arrow direction shown in the figure, and then disassemble the non-retraction platen roller module.
	1) Remove the two screws (ST2.9x6) shown in the figure with the cross screwdriver; 2) Move the cutter sliding blade along the arrow direction (move forward horizontally, then move upward), and then disassemble the sliding blade module.

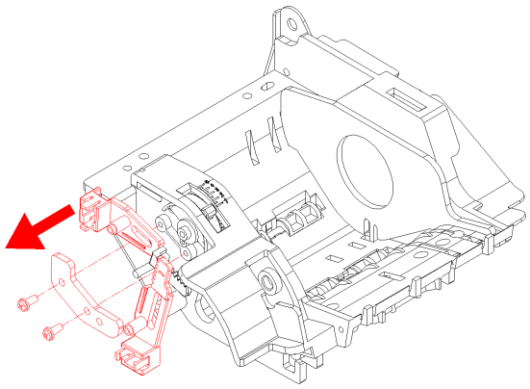
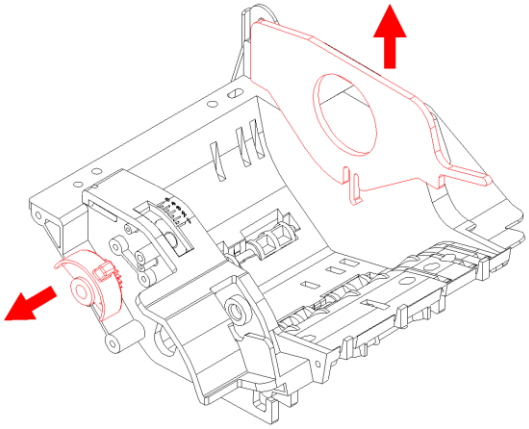
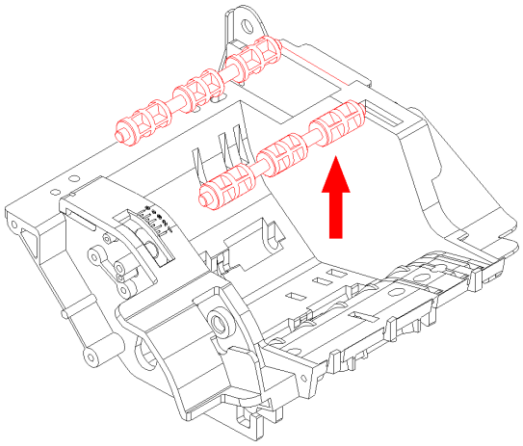
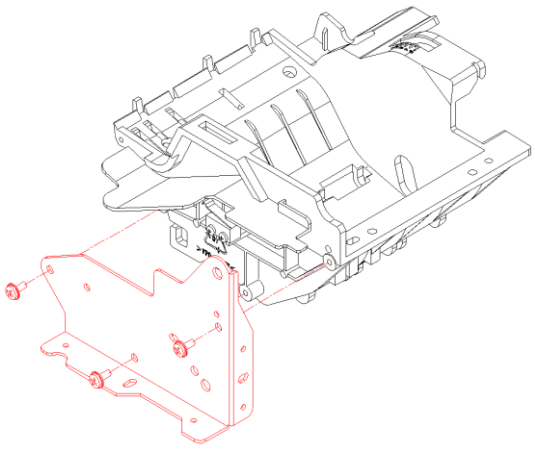
	Remove the two screws (M3x5) shown in the figure with the cross screwdriver, and then disassemble the sliding blade and its fixing plate.
	1) Remove the two ST2.6x6 screws and four ST2.9x6 screws shown in the figure with cross screwdriver; 2) Disassemble the platen roller module and guide plate.
	1) Disassemble the two "E"-rings shown in the figure with sharp-nose pliers; 2) Take off the gear of platen roller and sleeve of platen roller shaft respectively, and then disassemble the paper feeding platen roller.
	1) Disassemble the two 3.5mm "E"-rings shown in the figure with sharp-nose pliers; 2) Disassemble the hook rotation shaft in the direction shown in the figure; 3) Disassemble the hook module and spanner of mechanism.
	Disassemble the “E”-ring shown in the figure with sharp-nose pliers, and disassemble the two plastic gears.

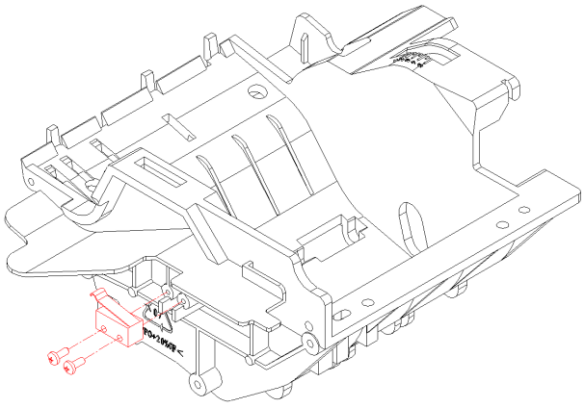
	Remove the three ST2.9x6 screws and three ST2.6x6 screws shown in the figure with cross screwdriver, and disassemble the upper path plate and print bar.
	When the upper mark sensor is configured, remove the two screws (ST2.2x4) shown in the figure with cross screwdriver, and disassemble the mark sensor and its dustproof cover.

4.2.5 Disassemble the paper cabinet module

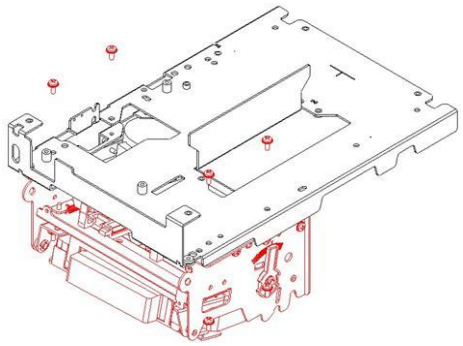
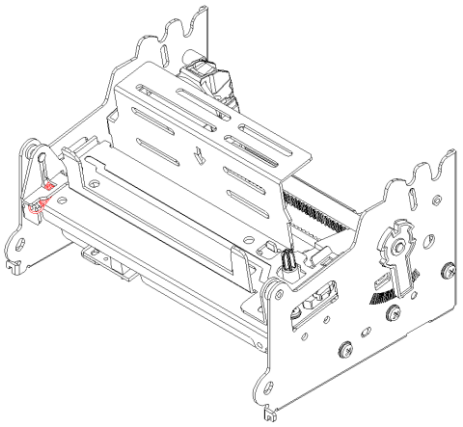
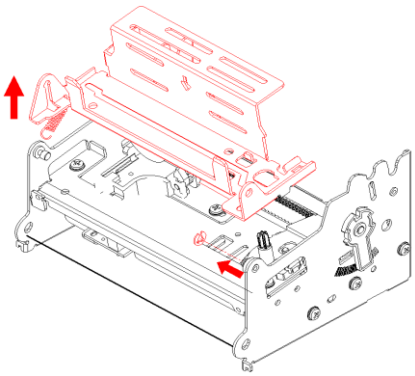
Picture	Instructions
	1) Cut off the cable ties of all wires with wire cutter; 2) Remove the four ST2.9x6 screws shown in the figure with cross screwdriver, and take the paper cabinet module off from circuit board box.
	Unscrew the two ST2.6x6 screws with the cross screwdriver and take the paper guide elastic plate off.

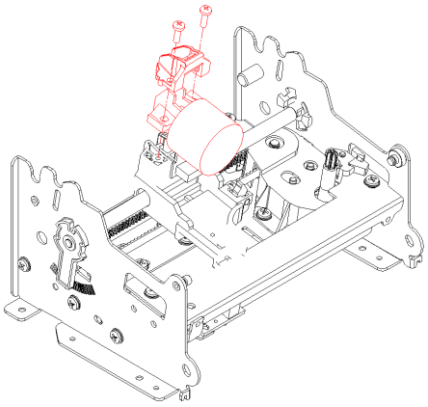
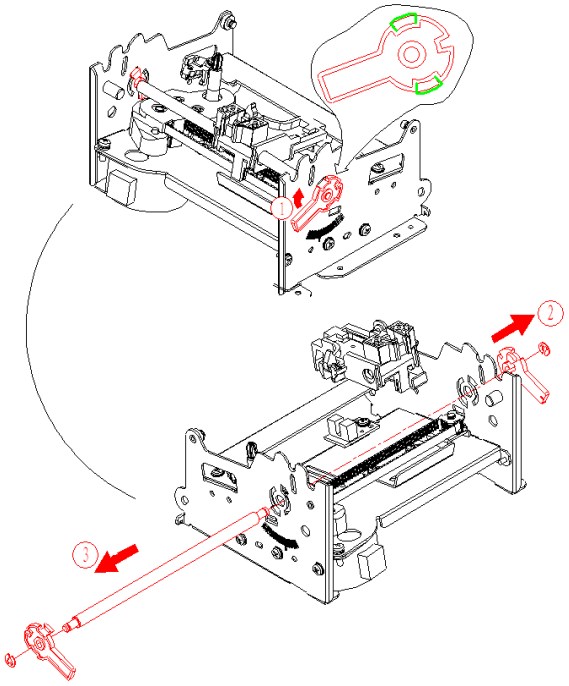
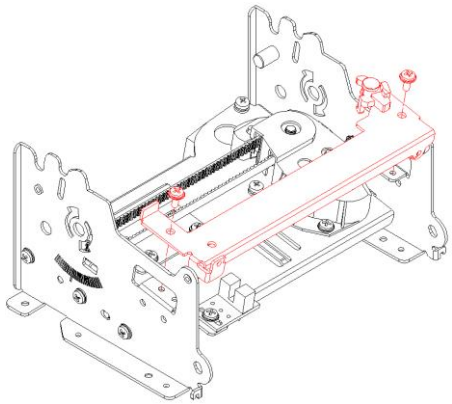
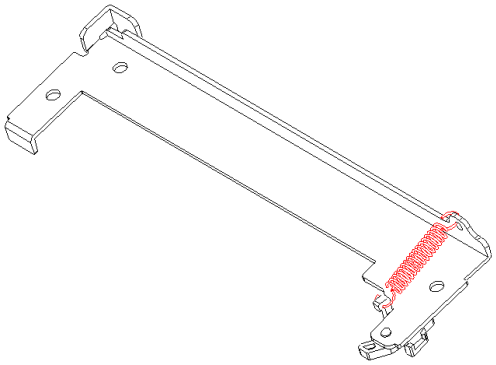
	Remove the two ST2.9x6 screws shown in the figure with the cross screwdriver, and then disassemble the vertical paper cabinet.
	1) Remove the two screws (ST2.6x6) at ① shown in the figure with cross screwdriver, and then take off the paper end sensor and its press plate; 2) When lower mark sensor is equipped, remove the two screws (ST2.2x4) at ② with cross screwdriver and take off the mark sensor and sensor dustproof cover.
	Remove the three screws (ST2.9x6) shown in the figure with cross screwdriver, and then take off the left side plate module of paper cabinet
	1) Remove the one screw (M3x6) at ① shown in the figure with cross screwdriver, and then take off the damping washer; 2) Remove the two screws (M3x8) at ② shown in the figure with cross screwdriver, and then take off the paper feeding motor and gear 31-17.
	1) Remove the one screw (ST2.6x6) at ① shown in the figure with cross screwdriver, pull the lock frame with a moderate force outwards and take off the horizontal paper near end sensor; 2) Remove the one screw (ST2.6x6) at ② shown in the figure with cross screwdriver, pull the lock frame with a moderate force outwards and take off the vertical paper near end sensor.

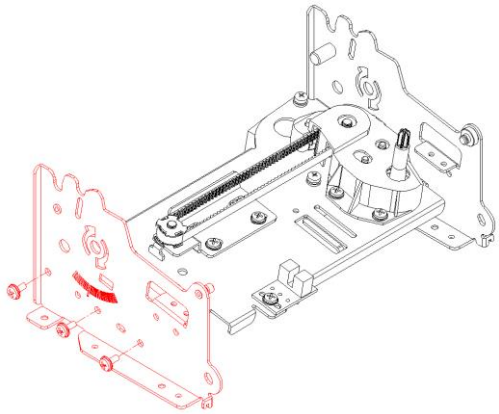
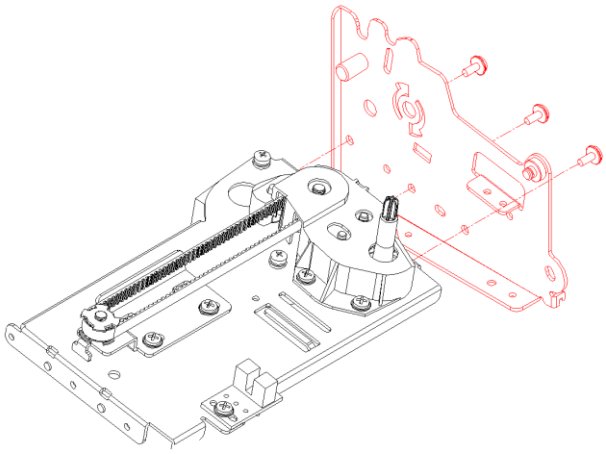
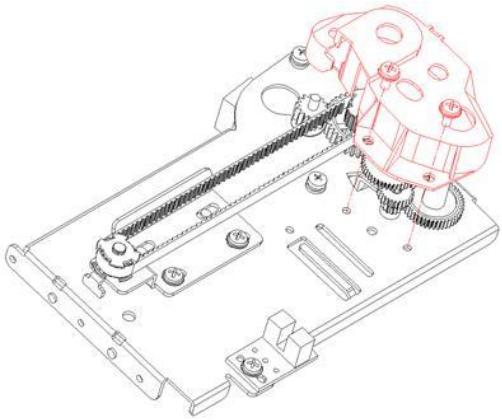
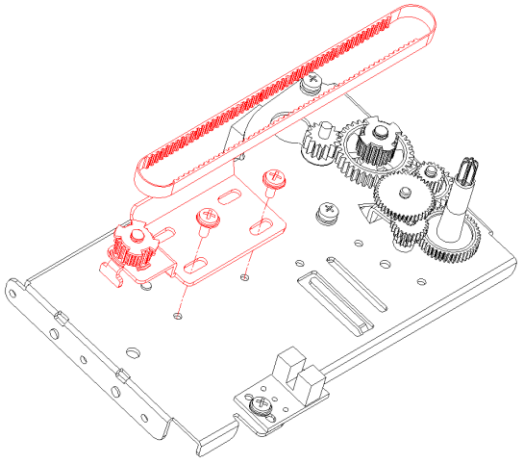
	1) Remove the two screws (ST2.6x4) shown in the figure with cross screwdriver and take off the press plate of paper near end sensor; 2) Take off the horizontal/vertical paper near end sensor holders in the arrow direction shown in the figure.
	1) Take off the paper roll guide with a moderate force in the arrow direction shown in the figure; 2) Take off the paper near end sensor adjustment lever in the arrow direction shown in the figure.
	Take off the paper roll shaft in the arrow direction shown in the figure.
	Remove the three screws (ST2.9x6) shown in the figure with cross screwdriver and take off the right side plate of paper cabinet.

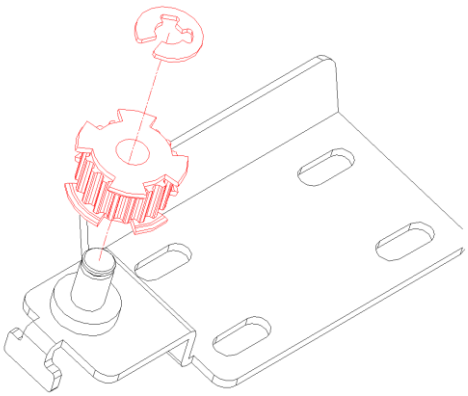
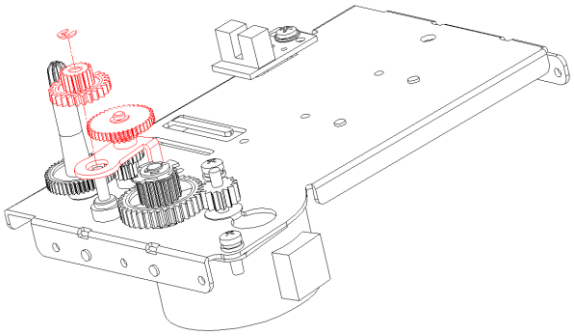
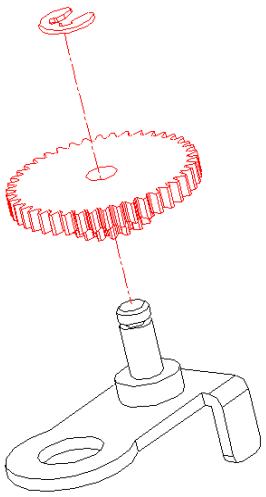
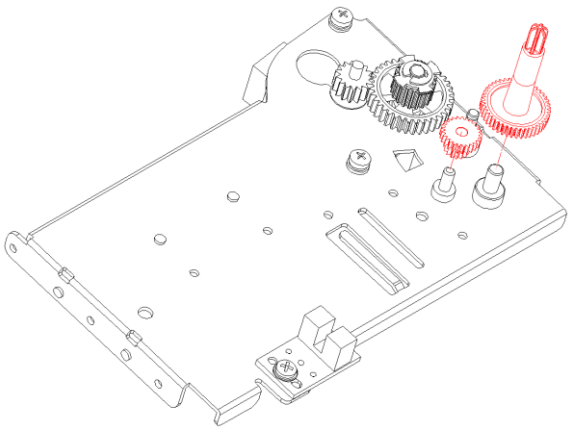
	Remove the two screws (ST1.7x10) shown in the figure with cross screwdriver and take off the micro switch.

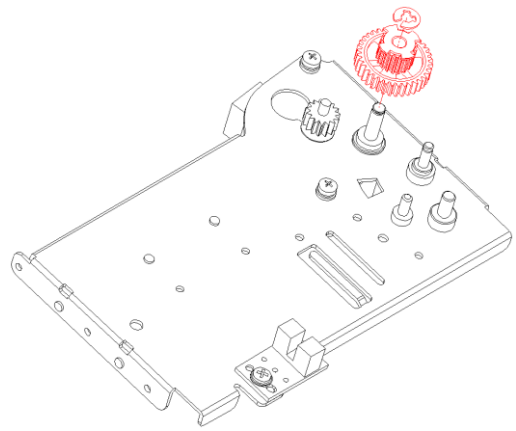
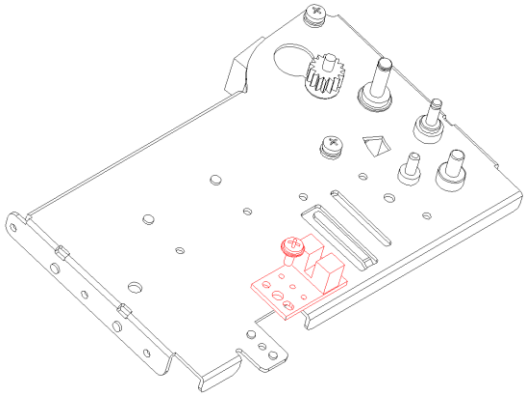
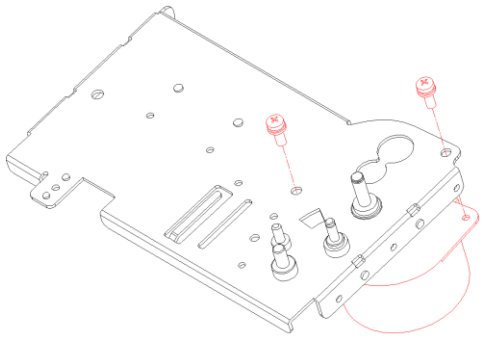
4.2.6 Disassemble the print module

Picture	Instructions
	Remove the four screws (ST2.9x6) shown in the figure with cross screwdriver and take the print module off.
 	1) Take off the tension spring shown in the figure with sharp-nose pliers; 2) Take off the one “E”-ring shown in the figure with sharp-nose pliers; 3) First move the ribbon support plate 4mm to the left side in the horizontal direction as the arrow shown, and then lift up the ribbon support plate so as to take the ribbon support plate off.

	Remove the two screws (ST2.6x10) shown in the figure with cross screwdriver, and then take off the print head and ribbon guide.
	1) Take off the two “E”-rings at both sides of guide shaft shown in the figure with sharp-nose pliers; 2) Turn the eccentric bushing at left and right sides at the arrow ① shown so as to make the eccentric bushings to superpose with the notches of the side plate; 3) Take off the left side eccentric bushing and the right side eccentric bushing at the arrow ② and ③ shown; 4) Take off the guide shaft at the arrow ③ shown.
	Remove the two screws (ST2.9x6) shown in the figure with cross screwdriver and take off the ribbon support plate module.
	Disassemble the spring shown in the figure with sharp-nose pliers.

	Remove the three screws (ST2.9x6) shown in the figure with cross screwdriver and take off the left side board.
	Remove the three screws (ST2.9x6) shown in the figure with cross screwdriver and take off the right side board.
	Remove the two screws (ST2.9x6) shown in the figure with cross screwdriver and take off the gear dustproof cover.
	Remove the two screws (ST2.9x6) shown in the figure with cross screwdriver, and then take off the tight plate and timing belt.

	Take off the one “E”-ring shown in the figure with sharp-nose pliers, and then take off the tight wheel.
	Take off the one “E”-ring shown in the figure with sharp-nose pliers, and then take off the transition gear and balance wheel module.
	Take off the one “E”-ring shown in the figure with sharp-nose pliers and take off the gear 3.
	Take off the gear 1 and ribbon rotation wheel.

	Take off the one “E”-ring shown in the figure with sharp-nose pliers and take off the driving pulley.
	Remove the one screw (ST2.9x6) shown in the figure with the screwdriver and take off the HP sensor.
	Remove the two screws (M3x8) shown in the figure with cross screwdriver and take off the carriage motor.

4.3 Assemble the printer

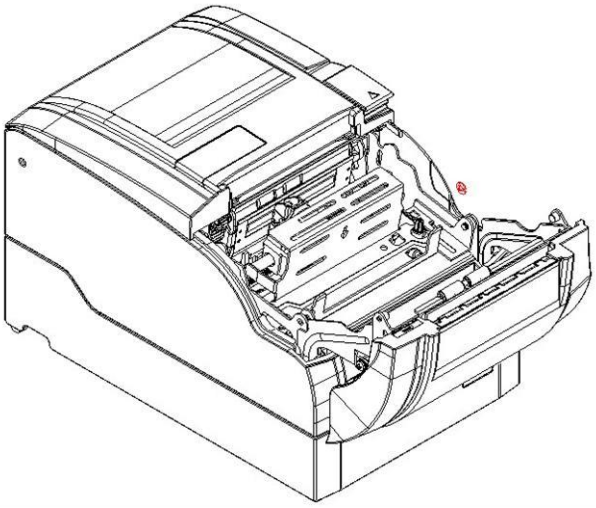
Assemble the printer in the reverse sequence of printer disassembly.

5 Printer maintenance

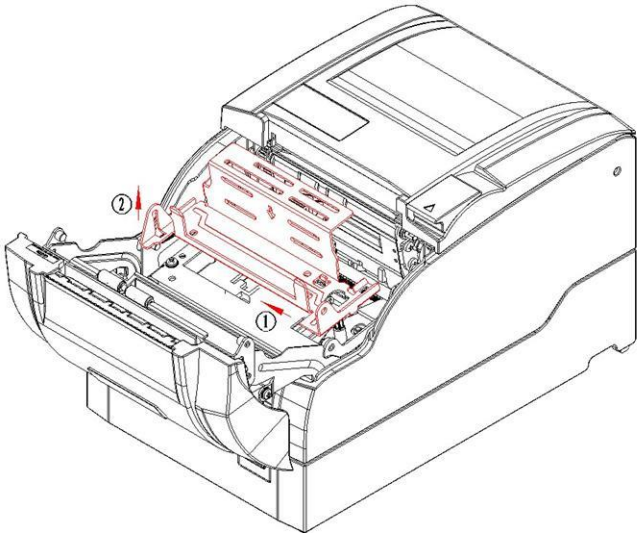
5.1 Main part replacement

5.1.1 Print head replacement

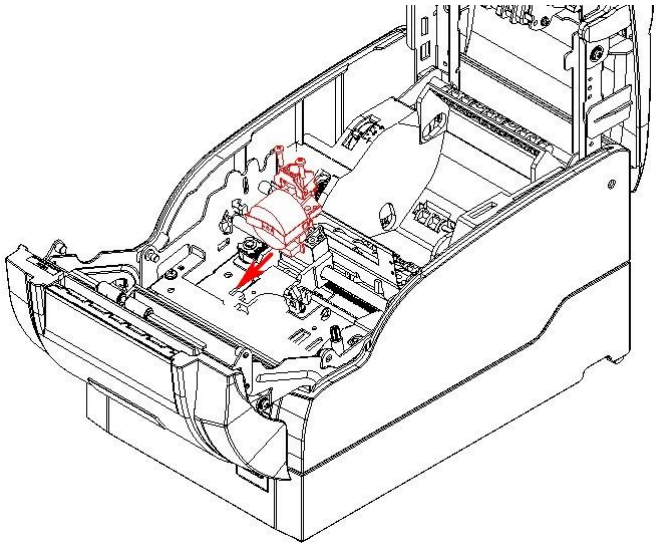
1) Turn off the printer.
2) Open the front cover of printer and take off the ribbon, and then disassemble the “E”-ring on right side of ribbon support plate as shown in the figure.



3) Move the ribbon holder 4mm in the arrow direction ①, and then lift it in the arrow direction ② and take the ribbon spring off, then take the ribbon holder off.



4) Open the rear cover, remove the two screws (ST2.6x10) and take off ribbon guide plate, then take off the print head from carriage and pull out the print head cable with moderate force in the arrow direction, and finally disassemble the print head.



5) Install a new print head in the reverse steps.

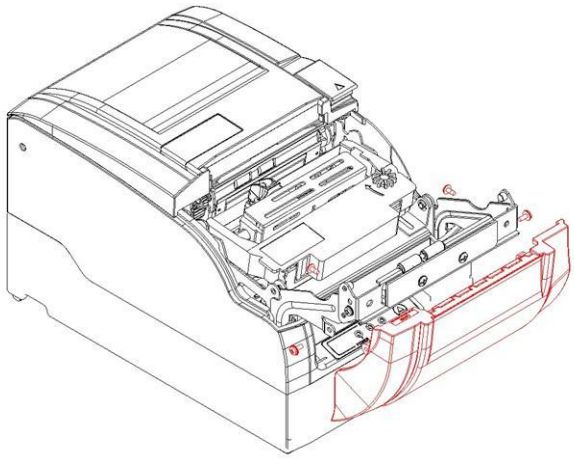
Caution:

- ✧ Please do not pull the cable when detaching the connector, so as to avoid breaking the cable connector.
- ✧ Print head is a thermal part, please disassembly it after cooling down.
- ✧ Print head is easily damageable part, please avoid injuring or damage it when disassembling or reassembling it.
- ✧ Please make sure that the cable print head connect to the print head firmly.
- ✧ Please avoid squeezing the cable in reassembly.
- ✧ When reassembling the print head, please position the print head on carriage and ribbon correctly and fix the screws firmly.

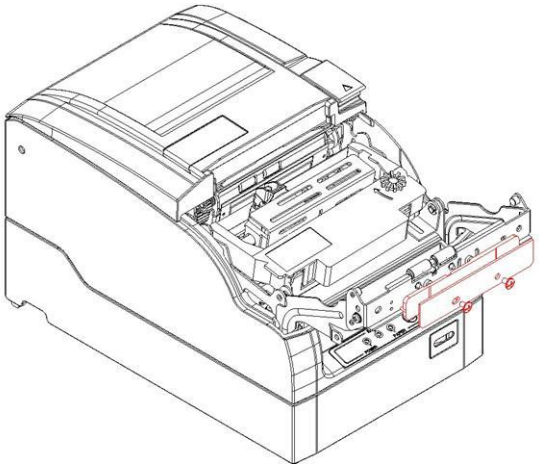
5.1.2 Cutter replacement

➢ **Stationary blade replacement**

1) Turn off the power.
2) After the print head cooling down, open the front cover and remove the four screws (ST2.9X6), then take off the front cover.



3) Remove the two screws (M3X5) and take the stationary blade off.



4) Install a new stationary blade in the reverse steps.

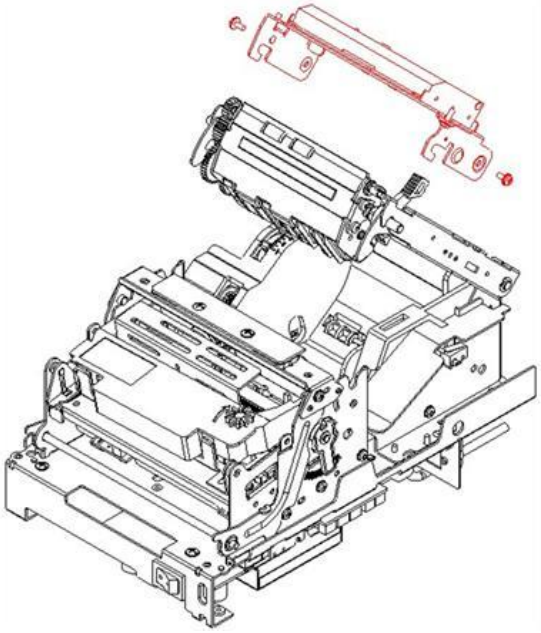
➢ **Movable blade replacement**

1) Turn off the power.

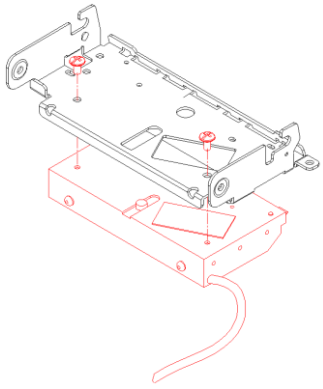
2) After the print head cooling down, disassemble the cover according to 4.2.1.

3) Cut the cable ties and detach the cutter cable off from the main control board.

4) Remove the two screws (ST2.9X6) and disassemble the movable blade together with the cutter holder.



5) Remove the two screws (M3X5) and disassemble the movable blade.



6) Install a new movable blade in the reverse steps.

Caution:

- ✧ While disassembling the locking frame of printer, the force must be moderate to avoid damaging the cover of printer;
- ✧ Please do not drag the connecting cable while pulling the cable out of main control board to avoid breaking the cable connector;
- ✧ The print head is a thermal part. After the printing is over, please wait until it cools down completely before the disassembly;
- ✧ Please make sure that the connecting cable of cutter has been inserted into corresponding socket during the installation;
- ✧ Please avoid squeezing the cable in reassembly;
- ✧ In reassembling the cutter, please position the cutter on fix plate correctly and fix screws firmly.

5.1.3 Main control board replacement

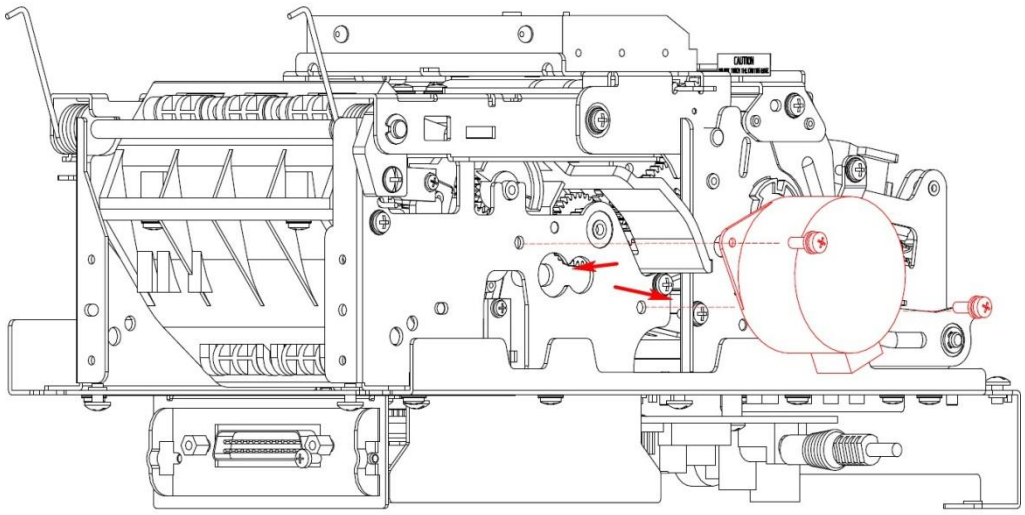
1) Turn off the power and detach the communication cable;
2) Disassemble the parts of bottom cover module with reference to section 4.2.1;
3) Pull out the cables from main control board with moderate force, and then disassemble the main control board with reference to section 4.2.2;
4) Install a new control board in the reverse steps.

Caution:

- ✧ While disassembling the locking frame of printer, the force must be moderate to avoid damaging the cover of printer;
- ✧ Please do not drag the connecting cable while pulling the cable out of main control board to avoid breaking the cable connector;
- ✧ Please use moderate force to take off the interface board in horizontal direction to avoid damaging the pins on main control board;
- ✧ Please make sure all the cables connect to their sockets firmly;
- ✧ Please avoid squeezing the cable in reassembly;
- ✧ In reassembling the main control board, please fix all screws firmly.

5.1.4 Paper feed motor replacement

1) Turn off the power.
2) Disassemble the printer cover after print head cooling down with reference to section 4.2.1;
3) Pull out the paper feed motor cable from main control board with moderate force.
4) Remove the two screws (M3X8) with cross screwdriver and take off the paper feed motor.



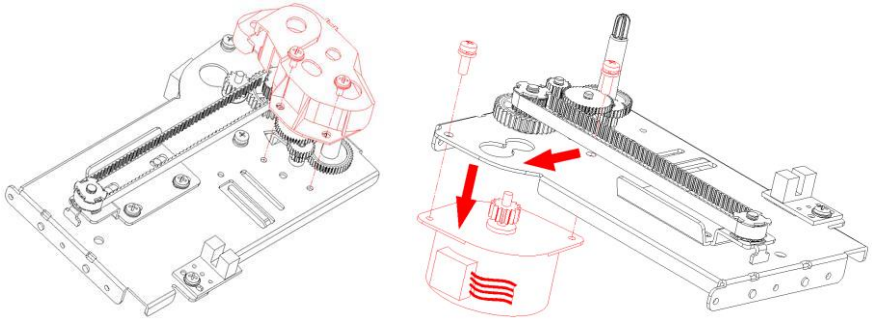
5) Install a new paper feed motor in the reverse steps.

Caution:

- ✧ While disassembling the locking frame of printer, the force must be moderate to avoid damaging the cover of printer;
- ✧ Please do not drag the connecting cable while pulling the cable out of main control board to avoid breaking the cable connector;
- ✧ Please make sure all the cables of paper feed motor connect to their sockets firmly;
- ✧ Please avoid squeezing the cable in reassembly;
- ✧ In reassembling the paper feed motor, please fix all screws firmly.

5.1.5 CR motor replacement

1) Turn off the power.
2) Disassemble the printer cover after print head cooling down with reference to section 4.2.1.
3) Pull out the cables of CR motor, HP sensor and print head from the main control board.
4) Disassemble the transmission module with reference to section 4.2.6.
5) Remove the two ST2.9X6 screws and take off the gear dust proof cover as shown in the figure.
6) Remove the two M3X8 screws and take off the CR motor in the arrow direction as shown in the figure.



7) Install a new CR motor in the reverse steps.

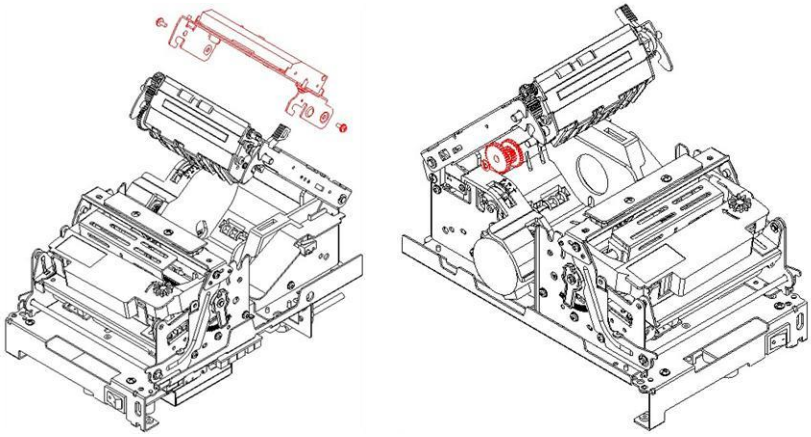
Caution:

- ✧ While disassembling the locking frame of printer, the force must be moderate to avoid damaging the cover of printer;

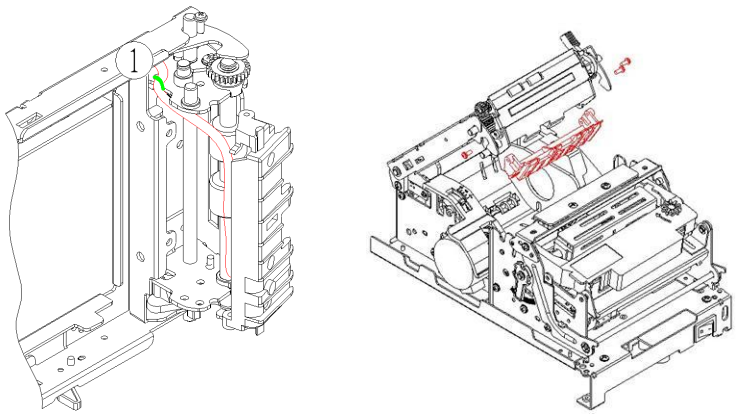
- ✧ Please do not drag the connecting cable while pulling the cable out of main control board to avoid breaking the cable connector;
- ✧ Please make sure all the cables of CR motor connect to their sockets firmly;
- ✧ Please avoid squeezing the cable in reassembly;
- ✧ In reassembling the CR motor, please fix all screws firmly.

5.1.6 Upper mark sensor replacement

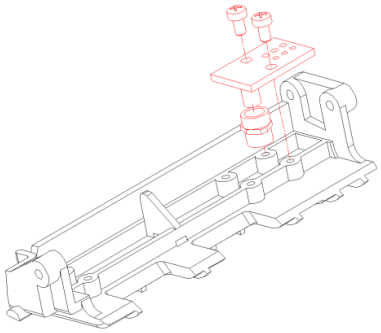
1) Turn off the power;
2) Disassemble the printer cover with reference to section 4.2.1, then pull out the cable of upper mark sensor form the main control board;
3) Remove the two ST2.9X6 screws with cross screwdriver and disassemble the movable blade module as shown in the figure;
4) Take off the one “E”-ring shown in the figure with sharp-nose pliers, then take off the gear 30 and gear 31-17.



5) Cut the cable tie shown at ① in the figure with wire cutter, then remove the three ST2.6X6 screws with cross screwdriver and disassemble the upper path module as shown in the figure:



6) Remove the two ST2.2X4 screws with cross screwdriver, then disassemble the mark sensor as shown in the figure:



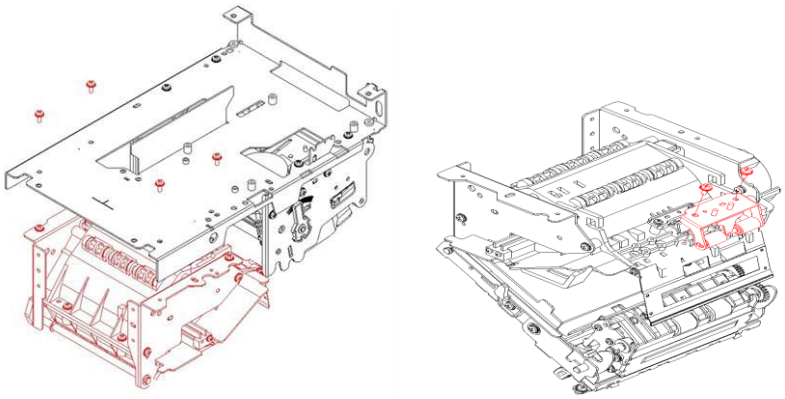
7) Install a new upper mark sensor in the reverse steps.

Caution:

- ✧ While disassembling the locking frame of printer, the force must be moderate to avoid damaging the cover of printer;
- ✧ Please do not drag the connecting cable while pulling the cable out of main control board to avoid breaking the cable connector;
- ✧ Please make sure all the cables connect to their sockets firmly;
- ✧ Please avoid squeezing the cable in reassembly;
- ✧ During reassembling, please fix all screws firmly.

5.1.7 Lower mark sensor replacement

1) Turn off the power;
2) Disassemble the printer cover with reference to 4.2.1, then pull out the cables of paper near end sensor, paper feed motor, paper end sensor, rear cover micro-switch and lower mark sensor from main control board;
3) Remove the four ST2.9X6 screws with cross screwdriver and disassemble the paper cabinet module as shown in the figure;
4) Remove the two ST2.9X6 screws with cross screwdriver and disassemble the float wheel module as shown in the figure:

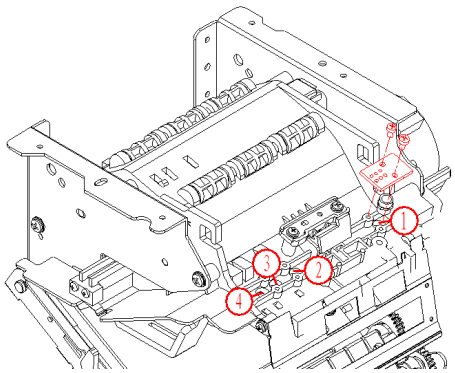


5) Remove the two ST2.2X4 screws with cross screwdriver and disassemble the lower mark sensor;
6) Install a new lower mark sensor in the reverse steps.

Caution:

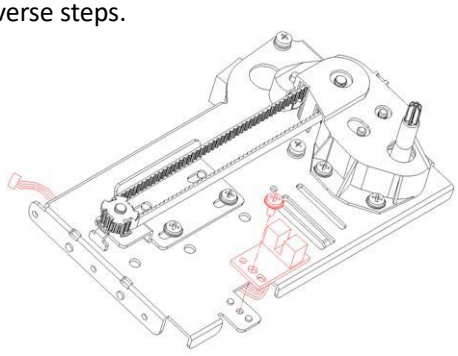
- ✧ When the lower mark sensor is fixed at position ①, please replace the sensor in above steps; when the lower mark sensor is fixed at position ②③④, please skip over the step 4 above.

- ✧ While disassembling the locking frame of printer, the force must be moderate to avoid damaging the cover of printer;
- ✧ Please do not drag the connecting cable while pulling the cable out of main control board to avoid breaking the cable connector;
- ✧ Please make sure all the cables connect to their sockets firmly;
- ✧ Please avoid squeezing the cable in reassembly;
- ✧ During reassembling, please fix all screws firmly.



5.1.8 HP sensor replacement

1) Turn off the power.
2) Disassemble the transmission module according to the step 2, 3, 4 and 5 in section 4.2.5.
3) Remove the one ST2.9X6 with cross screwdriver and disassemble the HP sensor as shown in the figure.
4) Install a new HP sensor in the reverse steps.



Caution:

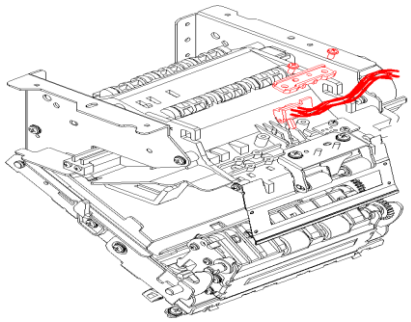
- ✧ While disassembling the locking frame of printer, the force must be moderate to avoid damaging the cover of printer;
- ✧ Please do not drag the connecting cable while pulling the cable out of main control board to avoid breaking the cable connector;
- ✧ Please make sure all the cables connect to their sockets firmly;
- ✧ Please avoid squeezing the cable in reassembly;
- ✧ During reassembling, please fix all screws firmly.

5.1.9 Paper sensor replacement

1) Turn off the power;
2) Disassemble the paper cabinet module according to step 2 and 3 in section 4.2.5;
3) Remove the two ST2.6X6 screws with cross screwdriver and disassemble the paper end sensor as shown in the

figure;

4) Install a new paper end sensor in the reverse steps.



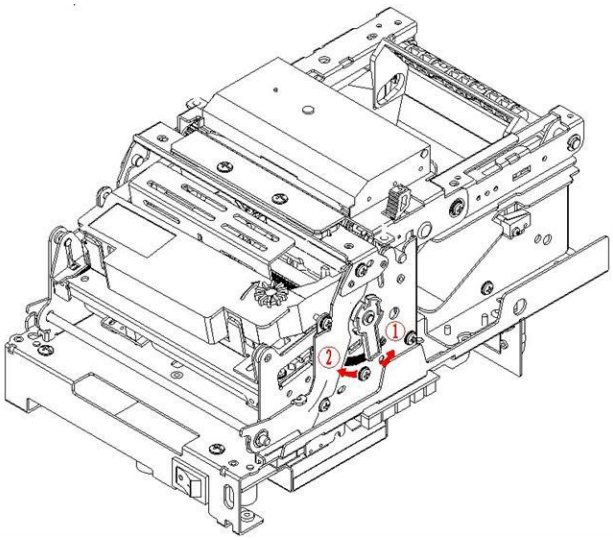
Caution:

- ✧ While disassembling the locking frame of printer, the force must be moderate to avoid damaging the cover of printer;
- ✧ Please do not drag the connecting cable while pulling the cable out of main control board to avoid breaking the cable connector;
- ✧ Please make sure all the cables connect to their sockets firmly;
- ✧ Please avoid squeezing the cable in reassembly;
- ✧ During reassembling, please fix all screws firmly.

5.2 Printer adjustment

5.2.1 Print spacing adjustment

1) Turn off the power;
2) Disassemble the printer cover with reference to 4.2.1 after print head cooling down;
3) Measure the print spacing with feeler gauge and compare with standard distance(0.5±0.05mm), if the distance is bigger than standard distance, please rotate the eccentric bushing at both sides in arrow direction ① until the print spacing measured meets the standard distance requirements; If the print spacing is less than standard distance, please rotate the eccentric bushing at both sides in arrow direction ② until the print spacing measured meets the standard distance requirements.



4) Fix the eccentric bushing with glue to complete the print spacing adjustment;

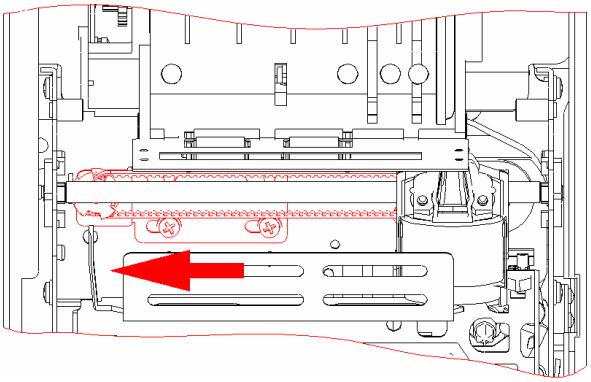
5) Install the printer cover with reference to 4.2.1.

Caution:

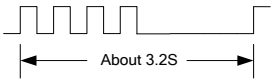
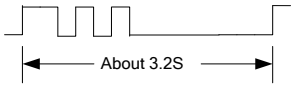
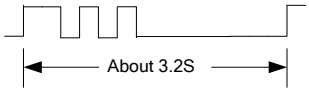
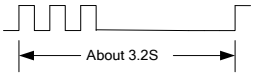
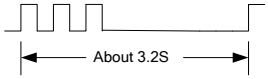
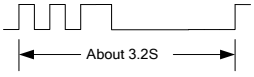
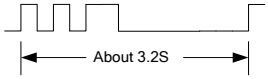
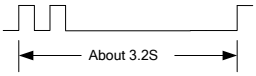
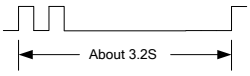
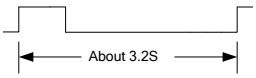
- ✧ While disassembling the locking frame of printer, the force must be moderate to avoid damaging the cover of printer.
- ✧ In reassembling, please fix all screws firmly.

5.2.2 Tighten transmission belt of carriage

1) Turn off the power;
2) After the print head cooling down, open the front cover and take off the ribbon;
3) Remove the two ST2.9X6 screws with cross screwdriver, tighten the transmission belt in the arrow direction(about 1~2 kg force), then fix the two screws to complete tightening transmission belt .



6 Error Types and Processing

Errors	ERROR LED	PAPER LED	Buzzer	Recovery
HP Error		Off		Press the FEED Button for a long time, or send command DLE ENQ 2, or re-start the printer.
Print head is overheated		Off		Automatically come back to normal status after print head cooling down
Voltage is abnormal		Off		Turn on the printer power again.
Cutter error		Off		Press the FEED Button for a long time, or send command DLE ENQ 2, or re-start the printer.
Rear cover open (unrecoverable)		Off		Send command DLE ENQ 2 after closing rear cover
Rear cover open (recoverable)		Off		Close rear cover
Front cover open		Off		Close front cover
Paper end		On		Automatically come back to normal status after loading paper.
Paper near end		On		Replace roll paper

Notes:

- ✧ The priority sequence of errors output from high level to low level is as below:
- ✧ HP Error > Print head is overheated > Voltage is abnormal > Cutter error > Rear cover open >
- ✧ Front cover open > Paper end > Paper near end;
- ✧ The processing method of rear cover open error can be set by command GS (E.
- ✧ When the cutter error occurs due to the paper jam, please turn off the printer, and turn on the printer after clearing paper jam.

7 Troubleshooting

If the printer works abnormally, consult this chapter below. If there are still problems that can not be solved, please contact your local dealer for assistance.

7.1 Abnormal print effect

1) **Problems:** Characters are not clear.

   Possible causes and solutions:

   - Ribbon ink is out, please change ribbon;
   - There might be a lot of dust on the print head, please clear it up;
   - Needles of the printer are worn out, please ask technical personnel to adjust the printing distance or replace the print head.

2) **Problems:** Some characters dots are omitted.

   Possible causes and solutions:

   - Print head cable is worn out, please ask technical personnel to replace it;
   - Needles of the printer are worn out, please ask technical personnel to replace the print head.

3) **Problems:** Print color is mixed

   Possible causes and solutions:

   - The ribbon baseband is loose, please rotate the ribbon knob two to three times clockwise to tighten the ribbon baseband;
   - The ink of ribbon is used up, please replace a new ribbon;
   - The installation of the ribbon is not correct, please install the ribbon again;
   - The toothed belt is too loose, please ask the technician to adjust the tension of the toothed belt;
   - The print spacing is too small, please ask the technical personnel to adjust the spacing;
   - The ribbon support plate deformed, please ask the technical personnel to replace it;
   - The paper guide elastic plate is deformed, please ask the technical personnel to replace it.

7.2 Abnormal paper detection

1) **Problems:** Printer alarm paper out mistakenly.

   Possible causes and solutions:

   - The paper end sensor is damaged, please check whether the sensor is normal or not, if the sensor is abnormal, please replace the sensor;
   - The main control board is damaged, please replace the main control board.

7.3 Printing with noise

1) **Problems:** Big noise during paper feeding.

   Possible causes and solutions:

   - The paper feed motor is damaged, please replace it;
   - The paper feeding gear is worn out, please replace it.

2) **Problems:** Big noise during CR running.

Possible causes and solutions:

- The tension of tooth belt is too strong, please adjust the position of the tooth belt;
- The print gear is worn out, please replace it.

3) **Problems:** Big noise during two-color conversion.

Possible causes and solutions:

- The uplifting surface of the ribbon supporting plate is dry, please ask the technician to lubricate it.

7.4 Abnormal ribbon action

1) **Problems:** The ribbon baseband does not rotate during printing.

Possible causes and solutions:

- The resistance of ribbon baseband transmission part is too big, please change a new ribbon cassette;
- The ribbon driving gear is damaged, please ask the technical personnel to replace it.

2) **Problems:** Ribbon squeeze.

Possible causes and solutions:

- The ribbon baseband is loose, please turn the ribbon knob clockwise for 2-3 times to tighten the ribbon;
- The ink of ribbon is used up, please replace a new ribbon;
- The print spacing is too small, please ask the technical personnel to adjust the spacing;
- The paper guide elastic plate is deformed, please ask the technical personnel to replace it.

7.5 Abnormal cutter action

1) **Problems:** Cutting is not completely and noise is abnormal.

Possible causes and solutions:

- There are too many scraps of paper and dust accumulated inside the cutter, please remove the scraps of paper and dust;
- The cutter is worn out badly, please ask the technician to replace the cutter;
- The cutter is not installed in the right position, please ask the technical personnel to check whether the installation of the cutter is correct or not.

2) **Problems:** The cutter does not reset and alarms.

Possible causes and solutions:

- Paper is jammed in the cutter, please clear the jammed paper and turn on the printer;
- The cutter cable is broken, please ask the technical personnel to replace it;
- The sensor inside the cutter is damaged, please ask the technical personnel to replace it;
- The main control board is damaged, please ask the technician to replace it.

Note: Solutions to deal with the paper jammed in cutter:

- Turn off the printer;
- Open the front cover and upper cover;
- Close the rear cover after clearing paper jammed;
- Keep far away from cutter sliding blade to avoid it being scratched while resetting the sliding blade, then turn on the power and the cutter will reset automatically.

 **Caution:**

✧ Please do not touch the stationary blade and the movable blade of cutter to avoid any damage when power on the printer.

7.6 Printer doesn't work

Problems: The printer doesn't work when power switch is turned on.

Possible causes and solutions:

- The power supply is not connected. Please check whether both sides of power cable are connected correctly or not, if not, please connect it; Check whether the host and the power supply are powered, if not, please connect it;
- The main control board is damaged, please replace it.

7.7 Problem during the printing process

1) Problems: Alarm HP error.

Possible causes and solutions:

- The tension of tooth belt is too big, please adjust the tension (1kg~2kg force);
- The tension of tooth belt is too small, please adjust the tension (1kg~2kg force);
- The space between the direction guide shaft and its bushing is too big, please replace the bushing;
- The load of carriage driving is too big, please check whether foreign material exists in the gears or not. If so, please clear it;
- The installation position of HP sensor is not correct, please ask the technical personnel to install it again;
- The wire of HP sensor is broken, please ask the technical personnel to replace it;
- The HP sensor is damaged, please ask the technical personnel to replace it;
- The main control board is damaged, please ask the technical personnel to replace it.

2) Problems: Paper can not be output normally.

Possible causes and solutions:

- Paper is jammed, please clear jammed paper;
- The load of paper feed driving is abnormal, please check whether foreign material exists in the gears or not. If so, please clear it;
- The wire of paper feed motor is damaged, please ask the technical personnel to replace it;
- The paper feed motor is damaged, please ask the technical personnel to replace it;
- The main control board is damaged, please ask the technical personnel to replace it.

3) Problems: Paper feeding is continuously.

Possible causes and solutions:

- The currently used paper type is not accordant with the printer setting, please print self-test page to confirm the printer setting and use the correct paper.

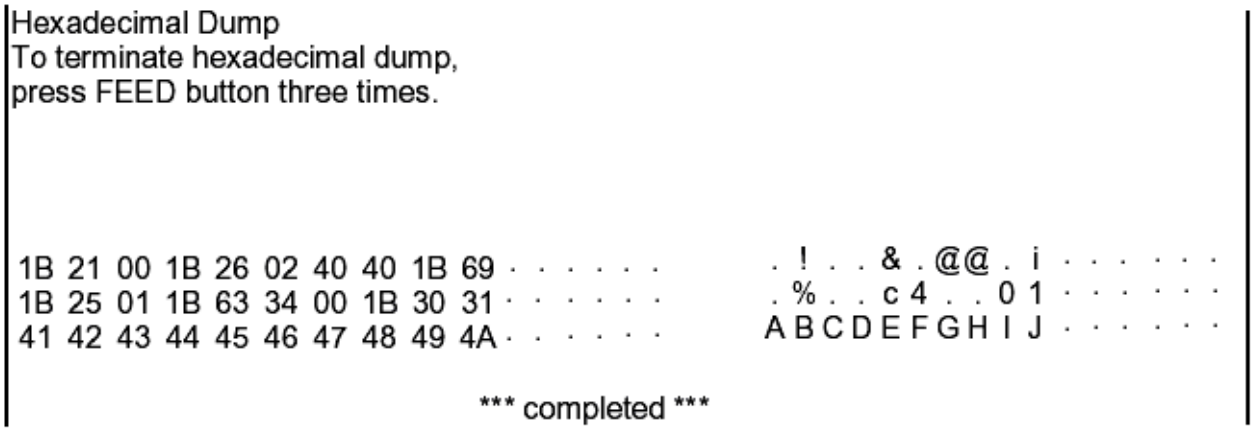
Appendix

Appendix 1 Hexadecimal Dump Mode

This mode allows the printer print in hexadecimal format after got data from host.

- **Enter Hexadecimal Dump mode:**
  1) Make sure that the printer is off and the rear cover is open, then press down the FEED button while you turn on the printer, and release the FEED button after carriage was verified. Close the rear cover after confirming there is paper, then the printer will enter into dump mode;
  2) Send command “0x1D 0x28 0x41 0x02 0x00 0x00 0x01”, the printer will enter into dump mode.
- **Terminate Hexadecimal Dump mode:**

  Send command “0x1D 0x28 0x41 0x02 0x00 0x00 0x01”, the printer will enter into dump mode.



Appendix 2 Command list

Code	Hex	Decimal	Description
HT	09	009	Horizontal tab
LF	0A	010	Print and line feed
CR	0D	013	Print and carriage return
DLE EOT n	10 04 n	016 004 n	Real-time status transmission
DLE ENQ n	10 05 n	016 005 n	Real-time request to printer
DLE DC4	10 14	016 020	Generate cash drawer open pulse at real-time
XON	11	017	Allow data back
XOFF	13	019	Generate cash drawer open pulse at real-time
ESC SP n	1B 20 n	027 032 n	Allow data back
ESC ! n	1B 21	027 033 n	Select character print mode(s)
ESC % n	1B 25 n	027 037 n	Select/cancel user-defined character set
ESC &	1B 26	027 038	Define user-defined characters
ESC *	1B 2A	027 042	Select bit-image mode
ESC - n	1B 2D n	027 045 n	Turn on/off underline mode
ESC 2	1B 32	027 050	Select default line spacing
ESC 3 n	1B 33 n	027 051 n	Set line spacing
ESC <	1B 3C	027 060	Print head back to original position
ESC = n	1B 3D n	027 61 n	Select printer
ESC ? n	1B 3F n	027 063 n	Cancel user-defined characters
ESC @	1B 40	027 064	Initialize printer
ESC D	1B 44	027 068	Set horizontal tab positions
ESC E n	1B 45 n	027 069 n	Turn on/off bold mode
ESC G n	1B 47 n	027 071 n	Turn on/off double printing mode
ESC J n	1B 4A n	027 074 n	Print and feed n lines
ESC K n	1B 4B n	027 075 n	Print and reverse feed n lines
ESC M n	1B 4D n	027 077 n	Select font
ESC R n	1B 52 n	027 082 n	Select an international character set
ESC U n	1B 55 n	027 085 n	Select /cancel unidirectional printing mode
ESC a n	1B 61 n	027 097 n	Select justification
ESC c 3 n	1B 63 33 n	027 099 051 n	Select paper sensor(s) to output paper-end signals
ESC c 4 n	1B 63 34 n	027 099 052 n	Select paper sensor(s) to stop printing
ESC c 5 n	1B 63 35 n	027 099 053 n	Enable/disable panel buttons
ESC d n	1B 64 n	027 100 n	Print and feed n lines
ESC e n	1B 65 n	027 101 n	Print and reverse feed n lines
ESC p m	1B 70 n	027 112 m	General cash drawer control pulse
ESC r n	1B 72 n	027 114 n	Select print color
ESC t n	1B 74 n	027 116 n	Select code page
ESC { n	1B 7B n	027 123 n	Turn on/off upside-down printing

FS p n m	1C 70 n m	028 112 n m	Print NV bit-image
FS q	1C 71	028 113	Download NV bit-image
GS FF	1D 0C	029 012	Locate marked paper
GS (A	1D 28 41	029 040 065	Execute test print
GS (C	1D 28 43	029 040 067	Edit the user data stored in NV memory
GS (D	1D 28 44	029 040 068	Turn on/off real-time command
GS (E	1D 28 45	029 040 069	User setting command
GS (F	1D 28 46	029 040 070	Set black mark adjustment value
GS I n	1D 49 n	029 073 n	Inquire the ID of printer
GS V	1D 56	029 086	Select the paper cutting mode and cut paper
GS a n	1D 61 n	029 097 n	Enable/Disable Auto Status Back(ASB)
GS r n	1D 72 n	029 114 n	Transmit status
GS z 0	1D 7A 30	029 122 048	Set the waiting time of online recovery
FS ! n	1C 21 n	028 033 n	Select Kanji character mode
FS &	1C 26	028 038	Select Kanji mode
FS - n	1C 28 n	028 045 n	Select/cancel Kanji and underline mode
FS .	1C 2E	028 046	Cancel Kanji mode
FS 2	1C 32	028050	Define user-defined Kanji character
FS ?	1C 3F	028 063	Cancel user-defined Kanji character
FS C	1C 43	028 067	Select Japanese character code system
FS S	1C 53	028 083	Set left- and right-side Kanji character spacing
FS W	1C 57	028 087	Turn on/off quadruple-size mode for Kanji characters
ESC i	1B 69	027 105	Partial cut
ESC m	1B 6D	027 109	Partial cut
ESC u n	1B 75	027 117 n	Peripheral status transmission
ESC v	1B 76	027 118	Paper status transmission

Appendix 3 EEPROM setting table

Address (HEX)	Instruction	Value range and description
04	Print width	0: 76mm,1: 69.5mm,2: 57.5mm
06	Print speed	416-1000 steps/second
12	Paper type	0: Continuous paper, 1: Marked paper
14	CR(0x0D)command mode	0: Paper not feed, 1: CR equivalent LF
16	Baud rate	0: 9600,1: 19200,2: 38400,3: 57600
17	Data bits	7: 7bits, 8: 8 bits
19	Stop bit(s)	1: 1 bit, 2: 2 bits
1B	Parity checkout	0: None, 1: odd, 2: even
7D	Receiving buffer size	0: 4096Byte, 1: 40Byte
2A	Distance from print head to cutter	Indicated by feeding steps
2C	Distance from sensor to print head	Indicated by feeding steps
2E	Top limitation of mark length	Indicated by feeding steps
30	Cutter enabled	0: Disabled, 1: Enabled
35	Distance between print position to mark	Indicated by feeding steps
37	Distance between cut position to mark	Indicated by feeding steps
40	Serial software handshaking	0: Disable software handshaking; 1: Enable software handshaking
44	Stop printing when paper near end	0: Does not stop printing when paper near end; 1: Stop printing when paper near end
58	Buzzer enabled	1: Enabled 0: Disabled
7E	Sending data when powered on	0: disable1: enable

User can configure EEPROM by command:

[Format] ASCII ESC s B E a1 a2 data1 data2 n

Hex 1B 73 42 45 92 9A data1 data2 n

Decimal 27 115 66 69 146 154 data1 data2 n

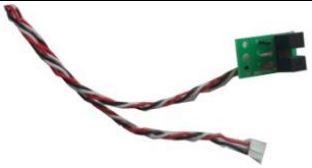
[Range] 0≤n≤127

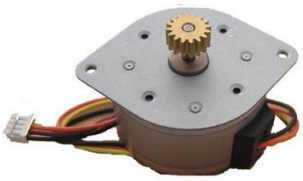
a1 = 92h

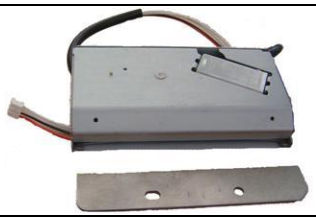
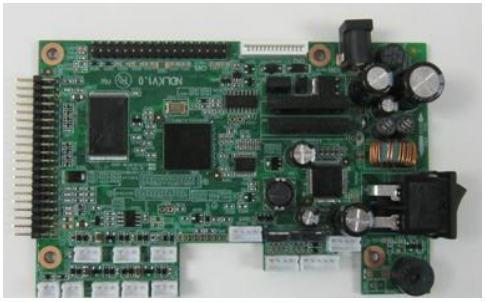
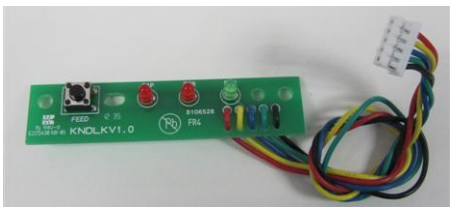
a2 = 9Ah

[Description] Write a WORD type data to EEPROM address specified by n, data1 is low-bit data and data2 is high-bit data. After changing the EEPROM configuration, the configuration will be effective only after restarting the printer.

Appendix 4 Spare part list

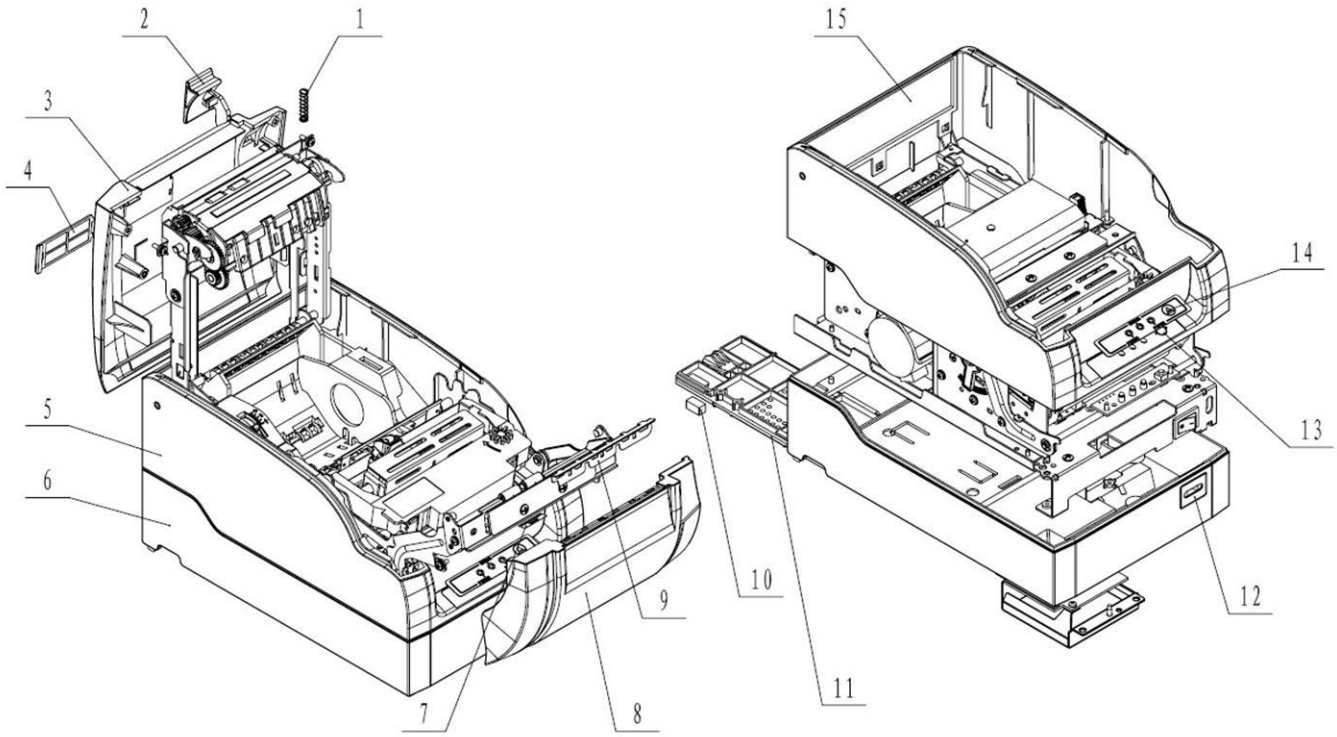
Name	Part No.	Reference picture
Print head	3009-9027965	
Print head FFC	7190-9005477	
Ribbon drive gear	8203-9000490	
Mark sensor	7600-9031882	
Microswitch of front cover	7600-9014125	
Microswitch of end cover	7600-9011464	
Paper end sensor	7600-9005462	
horizontal paper near end sensor	7600-9034616	
vertical paper near end sensor	7600-9031884	
HP sensor	7600-9031883	
Platen roller	8301-9009121	

Shaft sleeve		8211-9001326	
Carriage shaft sleeve (Only ND220)		8400-9021307	
Paper guide elastic plate		8104-9009186	
Paper feed motor		3200-9004997	
Carriage motor		3200-9015008	
Gear	Driving gear	8221-9000487	
	Tight gear	8221-9000488	
Paper feed gear	Platen roller gear 18	8203-9002066	
	Transition gear	7702-9009477	

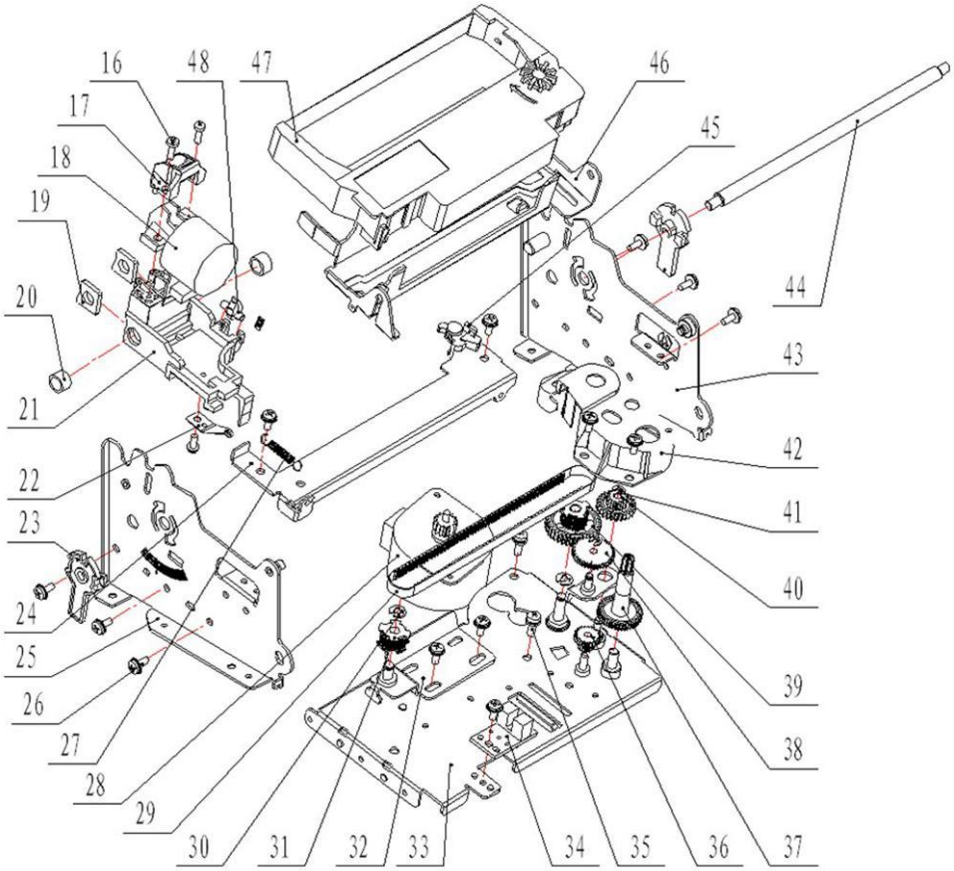
	Gear 31-17	8203-9001160	
Print gear	Transition gear (25-19)	8203-9000489	
	Gear 3 (42-17)	8203-9001158	
	Scan gear 1 (25-15)	8203-9001159	
Timing tooth belt		4930-9018827	
Cutter		3100-9040048	
Main control board		7201-9034525	
Button and LED		7600-9031881	
Button label (English)		8012-9028534	

Appendix 5 Exploded drawing of the printer

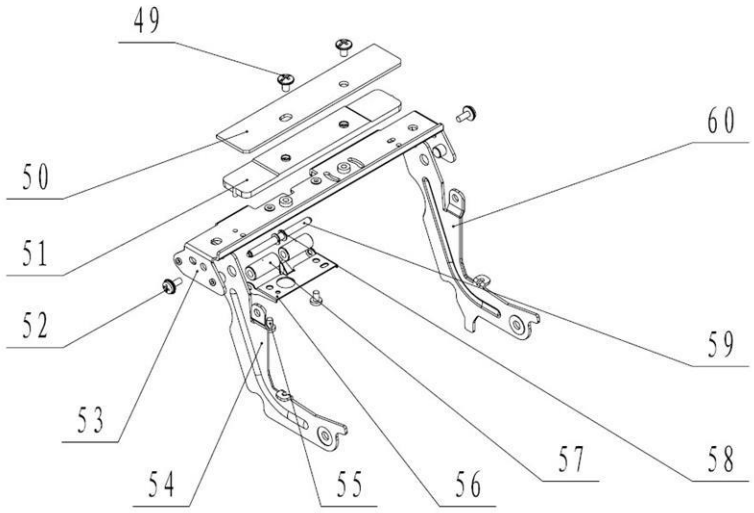
1) Exploded drawing of cover module



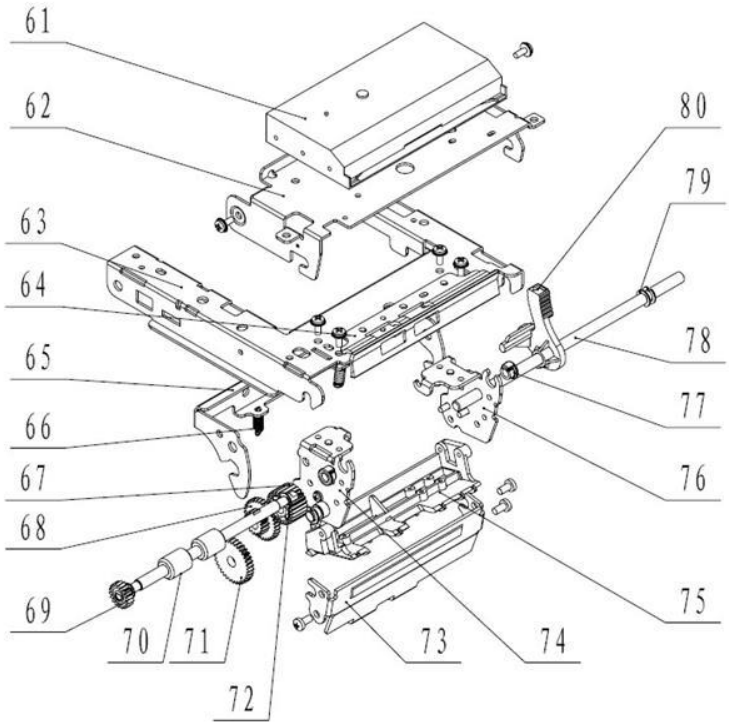
2) Exploded drawing of print module



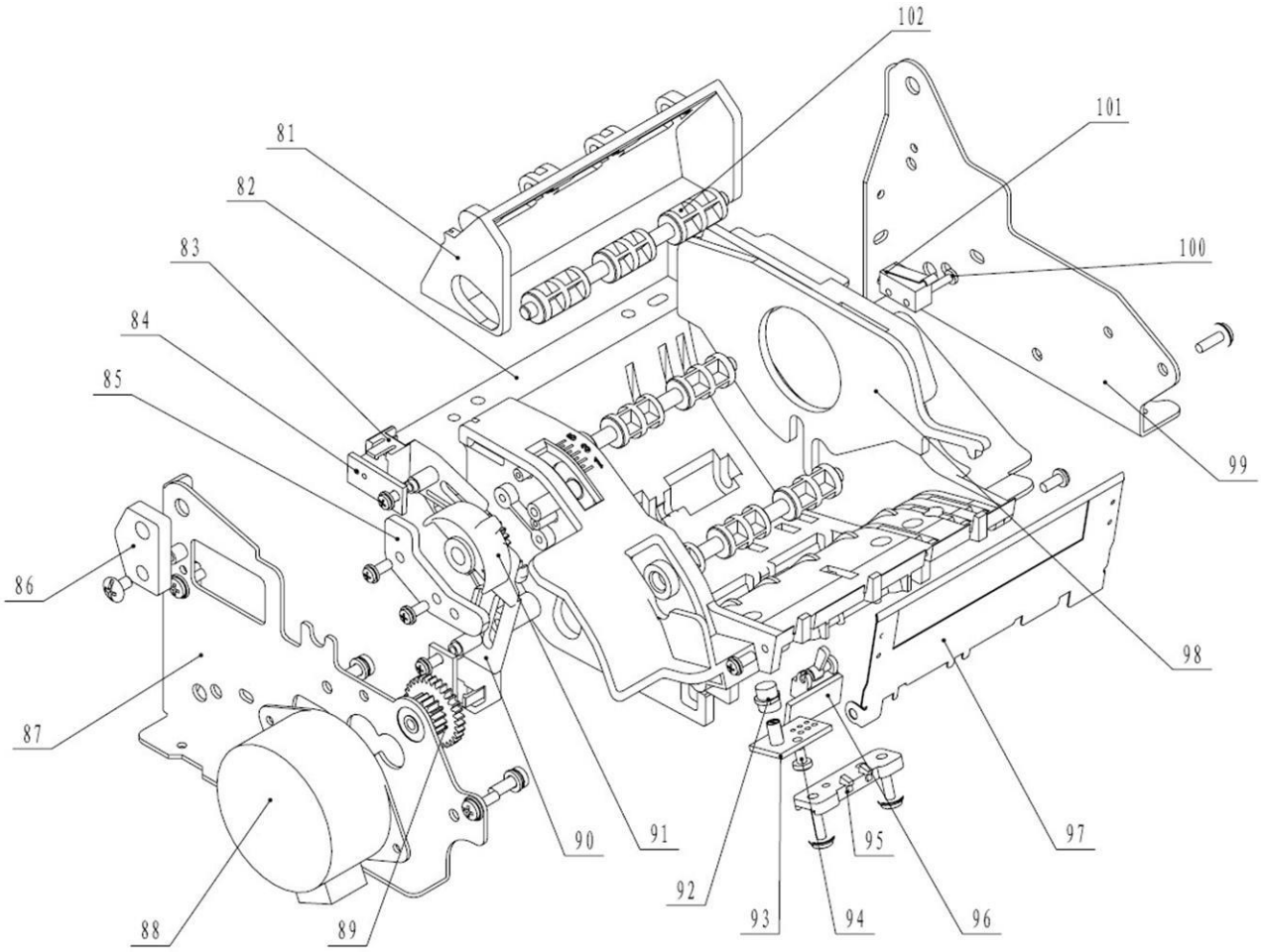
3) Exploded drawing of stationary blade



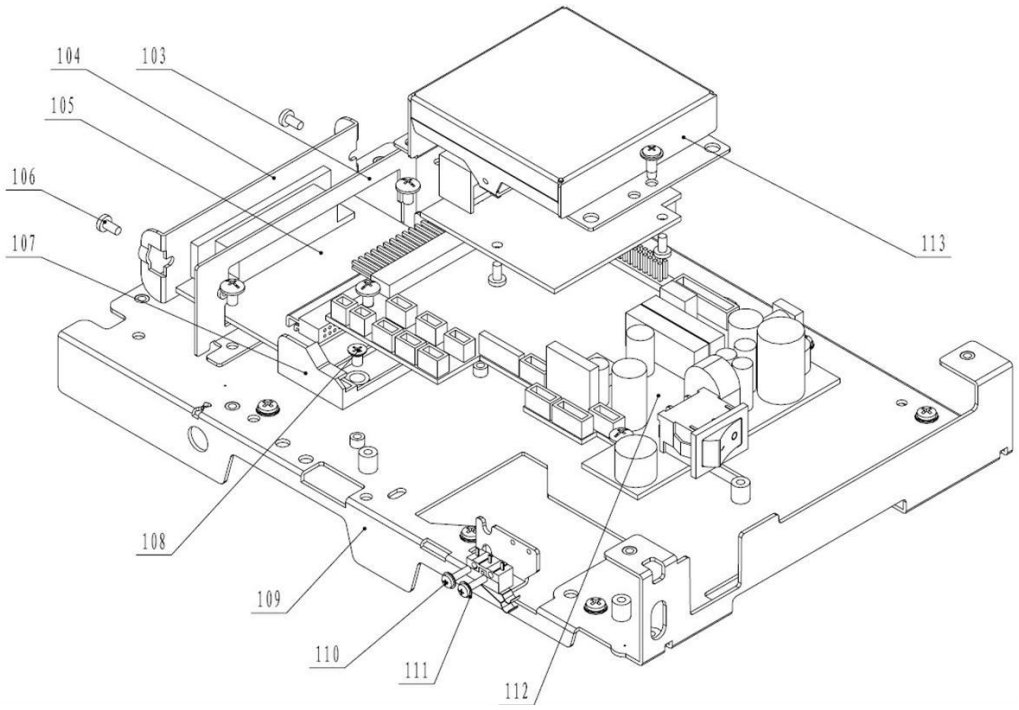
4) Exploded drawing of platen roller module



5) Exploded drawing of paper cabinet module



6) Exploded drawing of control board box module



Appendix 6 Part list

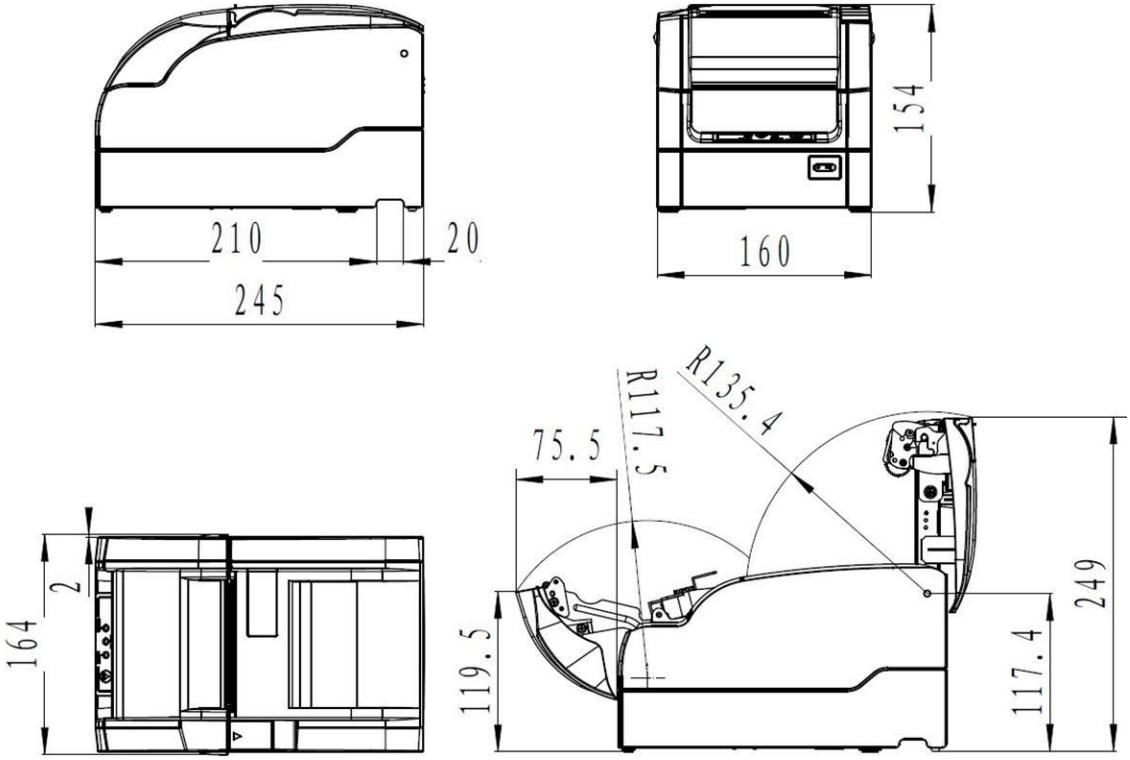
Item	Part No.	Drawing No.	Name	Q'ty	Remarks
1.	8005-9004688	RW-337D.01.02.16R	Pressure spring of start spanner	1	
2.	8202-9036462	RW-337D.02.02R	Spanner of top cover	1	
3.	8201-9036461	RW-337D.02.01R	Top cover	1	
4.	8201-9036499	RW-337D.01.10R	Insertion of top cover	1	
5.	8201-9036464	RW-337D.02.04R	Middle cover	1	
6.	8201-9036465	RW-337D.02.05R	Bottom cover	1	
7.	8205-9000247	RW-337D.BS.01R	Cutter label	1	
8.	8201-9036463	RW-337D.02.03R	Front cover	1	
9.	8104-9004626	RW-337D.01.07.01R	Tear-off bar	1	
10.	8303-9000500	RW-337D.01.07R	Foot	4	
11.	8201-9036466	RW-337D.02.06R	Cover plate of power	1	
12.	8201-9036551	RW-337D.05.02R	Baffle of power switch	1	
13.	8201-9028548	RW-337D.02.07R	Button	1	
14.	8012-9028534	RW-337D-BS-01R	Button label (English)	1	
15.	8201-9036880	RW-337D.01.05.05R	Baffle of middle cover	1	
16.	4002-9000901	ST2.6*10	Pan head self-tapping screw	2	
17.	8201-9036887	RW-337D.01.01.17R	Ribbon guide plate	1	
18.	3009-9027965		Print head	1	
19.	8007-9004692	RW-337D.01.01.09.03R	Dustproof woolen washer	2	Only ND220
20.	8400-9021307	RW-337D.01.09.19R	Carriage shaft sleeve	2	Only ND220
21.	8207-9036555	RW-337D.01.01.16R	Carriage	1	
	8207-9004678	RW-337D.01.09.18R	Carriage(with shaft sleeve)	1	Only ND220
22.	8.1.04.9004609	RW-337D.01.01.09.01R	Carriage elastic plate	1	
23.	8204-9004676	RW-337D.01.01.14R	Eccentricity bushing	2	
24.	8103-9007686	RW-337D.01.01.10.01R	Carriage supporting plate	1	
25.	7700-9007762	RW-337D.01.01.02R	Mechanism left plate (rustproof iron) module	1	
26.	4002-9000913	ST2.9×6	Pan head self-tapping screw	6	
27.	8005-9002358	BK-S216.01.04.19R	Hook spring	1	
28.	3200-9015008		Carriage motor	1	
29.	4930-9018827	96 MXL 019	Timing tooth belt	1	
30.	4400-9000292	Φ3.5	“E”-ring	7	
31.	8221-9000488	RW-337D.01.03.18.04R	Tight gear	1	
32.	7700-9007766	RW-337D.01.01.08R	Fasten plate(rustproof iron) riveted module	1	
33.	7700-9007764	RW-337D.01.01.06R	Ribbon drive plate (rustproof iron) riveted module	3	
34.	7600-9031883		HP sensor	1	
35.	4013-9000297	M3×8	Screw module	6	
36.	8203-9001159	BSC-2000A.01.24R	Scan gear 1	1	
37.	8203-9000490	RW-337D.01.03.18.07R	Ribbon driving gear	1	

38.	8203-9001158	BX-7R	Gear 3	2	
39.	8221-9000487	RW-337D.01.03.18.02R	Driving gear	1	
40.	8203-9000489	RW-337D.01.03.18.05R	Transition gear	1	
41.	4400-9000294	Φ2	“E”-ring	2	
42.	8215-9036889	RW-337D.01.01.15R	Gear dustproof cover	1	
43.	7700-9028550	RW-337D.01.05R	Riveted mechanism right plate	1	
44.	8001-9004643	RW-337D.01.01.20R	Guide shaft	1	
45.	8207-9004674	RW-337D.01.01.12R	Plastic block	1	
46.	7700-9007765	RW-337D.01.01.07R	Ribbon supporting plate (rustproof iron) riveted module	1	
47.	6101-9001146	ERC38	Ribbon	1	
48.	8207-9004675	RW-337D.01.01.13R	Impact block	1	
49.	4006-9000295	M3×5	Spherical head screw	2	
50.			Cutter stationary blade	1	
51.	8201-9036890	RW-337D.01.09.11R	Bolster plate of stationary blade	1	
52.	4002-9000913	ST2.9x6	Pan head self-tapping screw	40	
53.	7700-9028650	RW-337D.01.09.17R	Fixing plate of stationary blade	1	
54.	8103-9007682	RW-337D.01.01.05.01R	Left supporting plate of stationary blade	1	
55.	4000-9000185	M2.5x4	Pan head screw	1	
56.	8104-9009190	RW-337D.01.09.08R	Holder of paper press wheel	1	
57.	8204-9009192	RW-337D.01.09.10R	paper press wheel(paper-pulling structure)	1	
58.	8001-9010102	RW-337D.01.09.14R	Supporting shaft of paper press wheel	1	
59.	4400-9000294	Φ2mm	“E”-ring	1	
60.	8103-9007681	RW-337D.01.01.04.01R	Right supporting plate of stationary blade	1	
61.	3100-9040048		Cutter sliding blade	1	
62.	8103-9009183	RW-337D.01.09.01R	Fixing plate of sliding blade (without retraction)	3	
63.	8103-9009185	RW-337D.01.09.03R	Platen roll rotation frame	1	
64.	8201-9036884	RW-337D.01.09.12R	Front plate of path		
65.	8103-9007691	RW-337D.01.02.04.01R	Hook	1	
66.	8005-9004685	RW-337D.01.02.08R	Tension spring of hook	2	
67.	8203-9000993	RW-337D.01.11R	Gear 25	1	
68.	8203-9001160	RW-337D.01.05.01.10-AR	Gear 31-17	1	
69.	8203-9002066	RW-337D.01.05.01.18R	Platen roller gear 18	1	
70.	8301-9009121	RW-337D.01.09.09R	Platen roller	1	
71.	7702-9009477	RW-337D.01.09.15R	Transition gear 34(special for paper-pulling structure)	1	
72.	4400-9000293	Φ3	“E”-ring	9	
73.	8103-9009187	RW-337D.01.09.05R	Print bar	1	
74.	7700-9028660	RW-337D.01.09.15R	Riveted platen roller left support frame	1	
75.	8207-9004682	RW-337D.01.02.13R	Upper path plate	1	

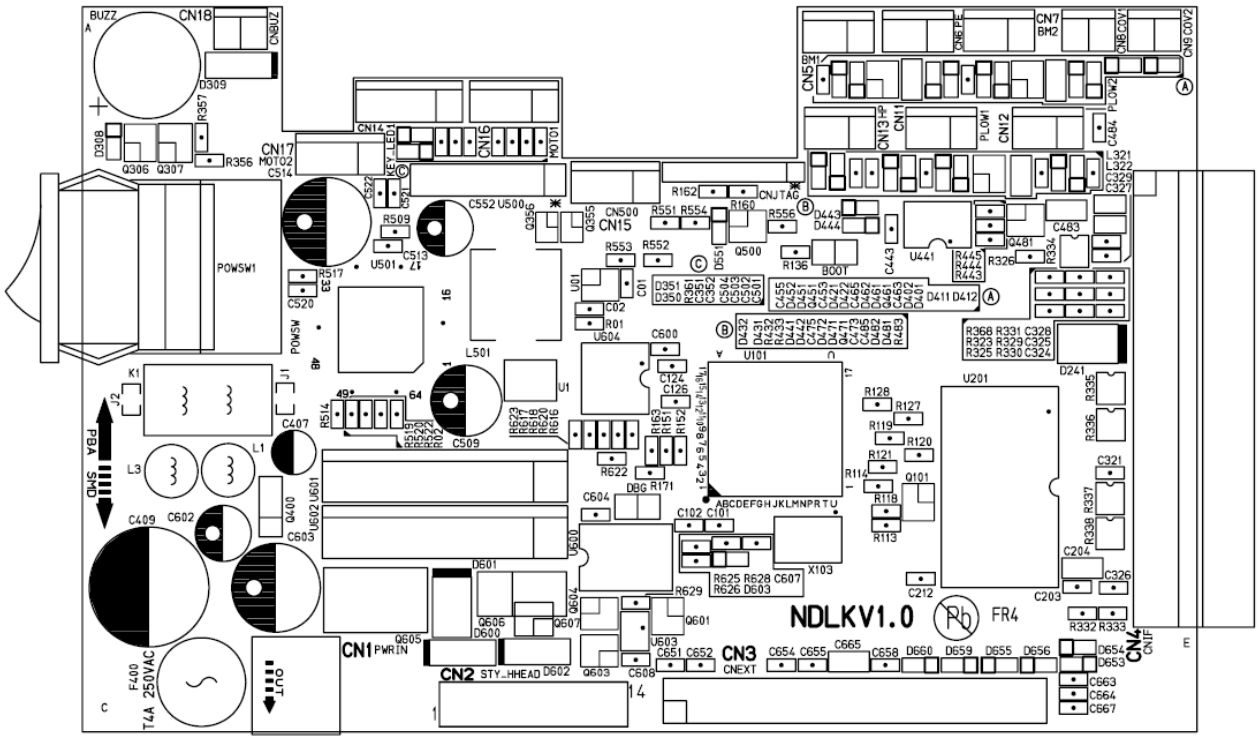
76.	8103-9009189	RW-337D.01.09.07R	Right support frame of platen roller	1	
77.	8211-9001326	BSC-2000A.01.39R	Shaft sleeve	1	
78.	8001-9004647	RW-337D.01.02.09R	Hook rotation shaft	1	
79.	4400-9000292	Φ3.5	“E”-ring	5	
80.	8202-9028549	RW-337D.02.08R	Mechanism spanner	1	
81.	8207-9004708	RW-337D.01.03.10R	Vertical paper cabinet	1	
82.	8207-9004681	RW-337D.01.03.09R	Paper cabinet	1	
83.	8207-9000508	RW-337D.01.01.11R	Sensor holder (vertical)	1	
84.	7600-9031884		Vertical paper near end sensor	1	
	7600-9034616		Horizontal paper near end sensor	1	
85.	8201-9000507	BSC-R280.01.01.01R	Pressure plate of paper near end spanner	1	
86.	8302-9004630	RW-337D.01.03.14R	Cushion washer	1	
87.	7700-9007762	RW-337D.01.01.02R	Left side plate of mechanism (rustproof iron) riveted module	1	
88.	3200-9004997		Paper feed motor	1	
89.	8203-9001160	RW-337D.01.05.01.10-AR	Gear 31-17	1	
90.	8207-9000509	RW-337D.01.01.12R	Sensor holder (vertical)	1	
91.	8203-9000484	RW-337D.01.03.06R	Sensor adjustment lever	1	
92.	8215-9004683	RW-337D.01.03.12R	Sensor dustproof cover	1	
93.	7600-9031882		Mark sensor	1	
94.	4002-9000282	ST2.2×4	Pan head self-tapping screw	2	
95.	8201-9036929	RW-337D.01.03.11R	Pressure plate of paper end sensor	1	
96.	7600-9005462		Paper end sensor	1	
97.	8104-9009186	RW-337D.01.09.04R	Paper guide elastic plate	1	
98.	8201-9036888	RW-337D.01.03.13R	Paper roll baffle	1	
99.	8101-9028541	RW-337D.01.06R	Right plate of paper cabinet	1	
100.	4002-9001163	ST1.7x10	Pan head self-tapping screw	1	
101.	7600-9011464		Microswitch	1	
102.	8204-9001155	RW-337D.01.01.10R	Paper roll shaft	3	
103.	8102-9028539	RW-337D.01.04R	Interface baffle	1	
104.	8103-9000250	RW-337D.01.02.05R	USB interface baffle	1	
	8103-9000144	RW-337D.01.02.04R	36-pin parallel interface baffle	1	
	8103-9000249	RW-337D.01.02.06R	25-pin parallel interface baffle	1	
	8103-9000397	YTW-01.01R	Ethernet interface baffle	1	
105.	7205-9028971	IFEAV1.0	Ethernet	1	
	7205-9011441	IFP36CV1.2	36-pin nibble parallel interface board	1	
	7205-9002277	IFWI1.01	JK-W01 WLAN interface board	1	
	7205-9024276	S25PORT2.1	25-pin serial interface board	1	
	7205-9034345	IFSEV1.0	RJ45	1	
106.	4000-9000185	M2.5×5	Pan head screw	2	
107.	8201-9040036	RW-337D.01.02.05R	Guide plate	1	
108.	4001-9000165	M3×5	Flat screw	2	
109.	7700-9028536	RW-337D.01.01R	Riveted main board cover	1	

110.	4000-9000057	M2×8	Pan head screw	2	
111.	4200-9004101	Φ2	Flat washer	2	
112.	7201-9034525	NDLKV1.0	Main board	1	
113.	8103-9028537	RW-337D.01.02R	Pluggable interface board (USB + cash drawer)	1	
	8103-9028538	RW-337D.01.03R	Pluggable interface board (Ethernet + cash drawer)	1	

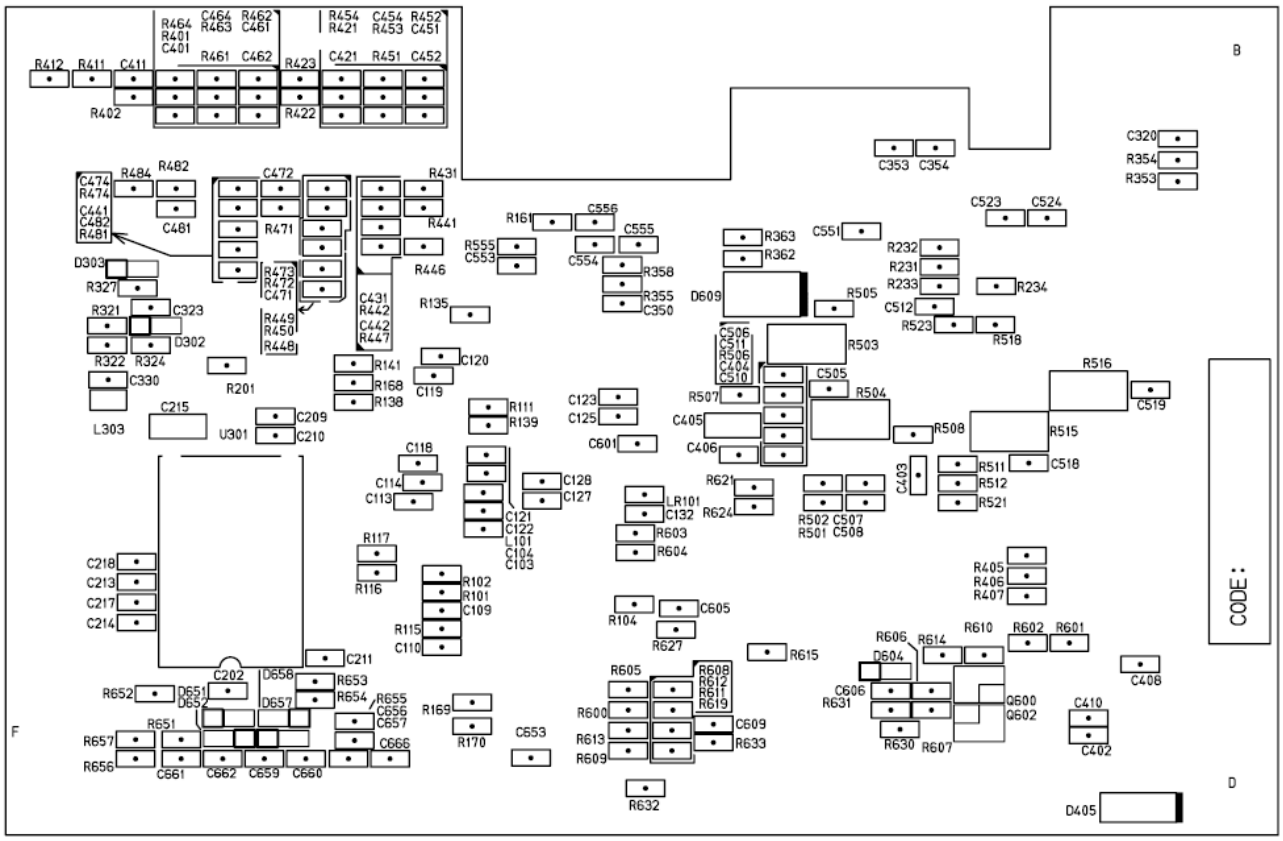
Appendix 7 Outline drawing



Appendix 8 Main board layout



Top side of Main control board



Bottom side of Main control board

Appendix 9 Lubrication

Please lubricate the printer according to following principle:

1) Please lubricate joint point of gear and gear shaft, do not lubricate gear tooth.
2) Please do not lubricate platen roller shaft and its sleeve.
3) Please lubricate the carriage guide shaft in maintenance.

Caution:

✧ The lubrication grease is special (EM50), please ask distributor or manufacture for advice.