BIXOLON

Service Manual

XT6-60N Series

Industrial Label Printer

Ver. 1.00



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BIXOLON maintains ongoing efforts to enhance and upgrade the functions and quality of all our products.
In the following, product specifications and/or user manual content may be changed without prior notice.

Caution

Electronics, such as printers, are prone to damage by static electricity. Therefore, to protect the printer from static electricity, be sure to turn off the printer before connecting or disconnecting the cable to the rear of the printer. If the printer is damaged by static electricity, contact your local dealer.

This equipment is not suitable for use in locations where children are likely to be present.
When the printer is operating with the media cover open, do not wear anything that can touch the drive, such as clothing, necklaces, rings, watches, or employee certificates close to it. Also, keep yourself away from the printer as it is dangerous for some parts of the body to come into contact with it. If an object or part of your body touches the drive, immediately disconnect the power cord or turn off the power switch on the back of the product.

If the battery is not replaced correctly, there is a risk of explosion. Replace only with the same model or equivalent product specified by the manufacturer. When the battery is used up, be sure to tape the terminals and insulate them and dispose at the designated place in accordance with the relevant laws and ordinances set by the state.

Warning

Hazardous moving parts
Keep fingers and other body parts away
Pull the print head lever can be stop all moving parts.

IEC 60417-6057 (2011-05) for other moving parts.

Mise en garde

Les appareils électroniques, tels que les imprimantes, risquent d'être endommagés par
l'électricité statique. Par conséquent, pour protéger l’imprimante de l’électricité statique,
veillez à l’éteindre avant de connecter ou de déconnecter le câble situé à l’arrière
de celle-ci. Si l'imprimante est endommagée par l'électricité statique, contactez votre revendeur local

Cet appareil n’est pas adapté d’utilser dans des endroits où des enfants sont probablement d'être présents.
Lorsque l'imprimante fonctionne avec le capot ouvert, ne portez rien qui puisse entrer en contact avec le mécanisme, tel que des vêtements, des colliers, des bagues, des montres ou des certificats d'employé à proximité. Éloignez-vous également de l’imprimante car il est dangereux que certaines parties du corps entrent en contact avec celle-ci. Si un objet ou une partie de votre corps entre en contact avec le mécanisme, débranchez immédiatement le câble d'alimentation ou éteignez l’interrupteur situé à l'arrière du produit.

Si la batterie n'est pas remplacée correctement, il existe un risque d'explosion. Remplacez-la uniquement avec le même modèle ou un produit équivalent approuvé par le fabricant.
Lorsque la batterie est épuisée, veillez à coller du ruban adhésif sur les bornes, à l’isoler et à la jeter de manière adéquate, conformément aux lois et réglementations locales et nationales en vigueur.

Attention

Pièces mobiles dangereuses
Veillez à ce que vos doigts ou toute partie du corps n’entre(nt) pas en contact avec ces pièces.
Tirez le levier de la tête d'impression pour arrêter toutes les pièces en movement.

IEC 60417-6057 (2011-05) pour les autres pièces mobiles.

Compliance information

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Caution: Exposure to Radio Frequency Radiation.
To comply with FCC RF exposure compliance requirements, a separation distance of at least 20 cm must be maintained between the antenna of this device and all persons.

Caution: Any Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

Class A Digital Device : Wired Device
This Apparatus complies with class “A” limits for radio interference as specified in the Canadian department of communications radio interference regulations.

This Class A digital apparatus complies with Canadian ICES-003.

Appareil numérique de classe A: appareil filaire
Get appareil est conforme aux normes class “A” d’interference radio tel que specifier par
ministre canadien des communications dans les reglements d’interference radio.

Cet appareil numérique de la classe A est conform à la norme NMB-003 du Canada.

Waste Electrical and Electric Equipment (WEEE)



This marking shown on the product or its literature, indicates that is should not be disposed with other household wastes at the end of its working life, To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate this from other types of wastes and recycle it responsibly to promote the sustainable reuse of material resources. Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take this item for environmentally safe recycling. Business users should contact their supplier and check the terms and conditions of the purchase contract. This product should not be mixed with other commercial wastes for disposal.

About

About this Manual

This Service Manual describes how to perform hardware service maintenance for the BIXOLON XT6-60N Series Industrial Label Printer.

Notes

Notes may appear anywhere in the manual. They draw your attention to additional information about the item.

Precaution symbols

 Indicates a Safety Precaution that applies to this part component.

 Indicates the part or component is an electro-statically sensitive device. Use caution when handling these parts.

Overview of this Label Printer

This System Industrial Label Printer is a TI processor-based system, using a AM335x Arm Cortex-A8 Processor.
This Service Manual provides the technical information for many individual component systems, circuits and gives an analysis of the operations performed by the circuits. If you need more technical information, please contact our service branch or R&D center.
All information in this manual is subject to change without prior notice. Therefore, you must check the correspondence of your manual with your machine. No part of this manual may be copied or reproduced in any form or by any means, without the prior written consent of BIXOLON Co., Ltd.

1. Precaution Statements

1-1 Safety Precautions

1. Make sure that there are no cabinet openings through which people – particularly children - might insert fingers and contact dangerous voltages. Such openings include excessively wide cabinet ventilation slots and improperly fitted covers and drawers.

2. Leakage Current Hot Check:
   Use a leakage-current tester or a metering system that complies with American National Standards Institute (ANSI C101.1, Leakage Current for Applications), and Underwriters Laboratories (UL Publications UL1410, 59.7). With the unit completely reassembled, plug the AC line cord directly into a 100VAC or 240VAC outlet of the Adaptor.
   With the unit's AC switch first in the ON position and then OFF, measure the current between a known Earth ground (metal water pipe, conduit, etc.) and all exposed metal part, including: metal cabinet, frame, and screw-heads and printer. The current measure should not exceed 0.1 milliamp. Reverse the power-plug prong in the AC outlet and repeat the test.

3. Design Alteration Warning:
   Never alter or add to the mechanical or electrical design of the Printer. Unauthorized alterations might create a safety hazard. Also any design changes or additions will void the manufacturer's warranty.

4. Components, parts and wiring that appear to have overhead or that are otherwise damaged should Be replaced with parts that meet the original specifications. Always determine the cause of damaged or overheating and correct any potential hazards.

5. Observe the original lead dress, especially near the following areas: sharp edges, and especially the AC and high voltage supplies. Always inspect for pinched, out-of-place, or frayed wiring.
   Do not change the spacing between components and the printed circuit board. Check the AC power Cord for damage. Make sure that leads and components do not touch thermally hot parts.

6. Product Safety Notice:
   Some electrical and mechanical parts have special safety-related characteristics, which might not be obvious from visual inspection. These safety features and the protection they give might be lost if the replacement component differs from the original-even if the replacement is rated for higher voltage, wattage, etc.
   Use replacement components that have the same ratings, especially for flame resistance and Dielectric strength specifications. A replacement part that does not have the same safety characteristics as the original might create shock, fire or other hazards.

1-2 Servicing Precaution

WARNING 1: First read the Safety Precaution section of this manual. If some unforeseen circumstance creates a conflict between the servicing and safety precautions, always follow the safety precaution.

WARNING 2: An electrolytic capacitor installed with the wrong polarity might explode.

1. Always unplug the unit's AC power cord from the AC power source or the Power Switch off before attempting to:
   (a) Remove or reinstall any component or assembly,
   (b) Disconnect an electrical plug or connector,

2. An insulation tube or tape is sometime used. The internal wiring is sometimes clamped to prevent contact with thermally hot components. Reinstall all such elements to their original position.

3. After servicing, always check that the screws, components and wiring have been correctly reinstalled.
   Make sure that the portion around the serviced part has not been damaged.

4. Check the insulation between the blades of the AC plug and accessible conductive parts

5. Insulation Checking Procedure: Disconnect the power cord from the AC source and turn the power switch ON. Connect an insulation resistance meter (500V) to the blades of the AC plug. The insulation resistance between each blade of the AC plug and accessible conductive parts should be greater than 1 mega-ohm.

6. Always connect an instrument's ground lead to the instrument chassis ground before connecting the positive lead; always remove the instrument's ground lead last.

1-3 Precaution for Electrostatically Sensitive Devices (ESDs)

1. Some semiconductor (solid state) devices are easily damaged by static electricity. Such components are called Electrostatically Sensitive Devices (ESDs); examples include integrated circuits and some field-effect transistors. The following techniques will reduce the occurrence of component damaged caused by static electricity.

2. Immediately before handling any semiconductor components or assemblies, drain the electrostatic charge from your body by touching a known earth ground. Alternatively, wear a discharging wrist-strap device.
   (Be sure to remove it prior to applying power-this is an Electric shock precaution.)

3. After removing an ESD-equipped assembly, place it on a conductive surface such as aluminum foil To prevent accumulation of electrostatic charge.

4. Do not use freon-propelled chemical. These can generate electrical charges that damage ESDs.

5. Use only a grounded-tip soldering iron when soldering or unsoldering ESDs.

6. Use only an anti-static solder removal device. Many solder removal devices are not rated as anti-static; these can accumulate sufficient electrical charge to damage ESDs.

7. Do not remove a replacement ESD from its protective package until you are ready to install it. Most replacement ESDs are packaged with leads that are electrically shorted together by conductive foam, aluminum foil or other conductive materials.

8. Minimize body motions when handling unpacked replacement ESDs. Motions such as brushing clothes together, or lifting a foot from a carpeted floor can generate enough static electricity to damaged an ESD.

1-4 Operational Precautions

1. The heating element of the printer mechanism's thermal head and the driver IC are easily damaged. Never allow these components to come into contact with metal or other hard objects.

2. Never touch the printer mechanism's heating element with your hand. Doing so can damage the heating element and affect proper operation.

3. The head and motor areas are very hot during and immediately after printing. Do not touch components in these areas directly with your hand.

4. Do not use any paper other than these specified in this manual otherwise print head reliability and print quality are affected adversely.

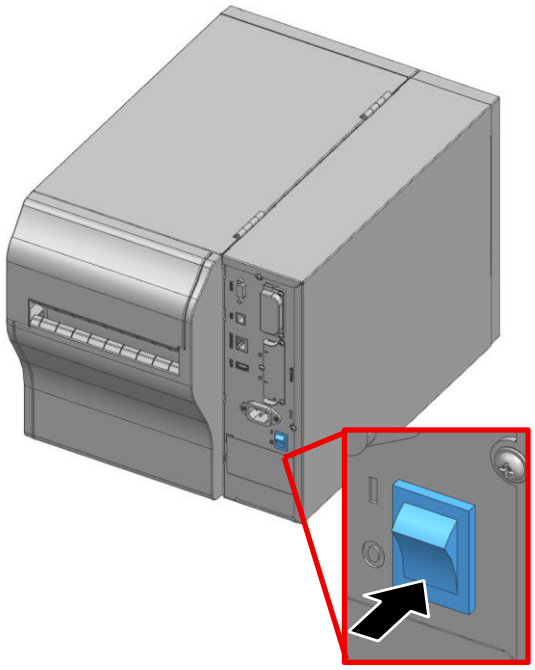
5. Thermal paper starts to color at around 70°C. Take care to protect unused and printed thermal Paper against the affects of heat, light and characters on the paper to feed.

6. Take the roll paper out of the printer when you will not use the printer for a long time in a high temperature and humidity environment.

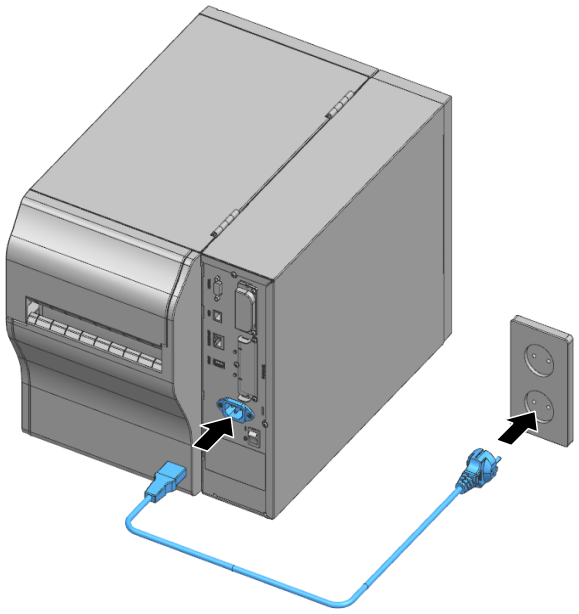
2. Installation

2-1 Power Connection

• Connect power to the printer as shown below.



Power Switch OFF



Power Cord

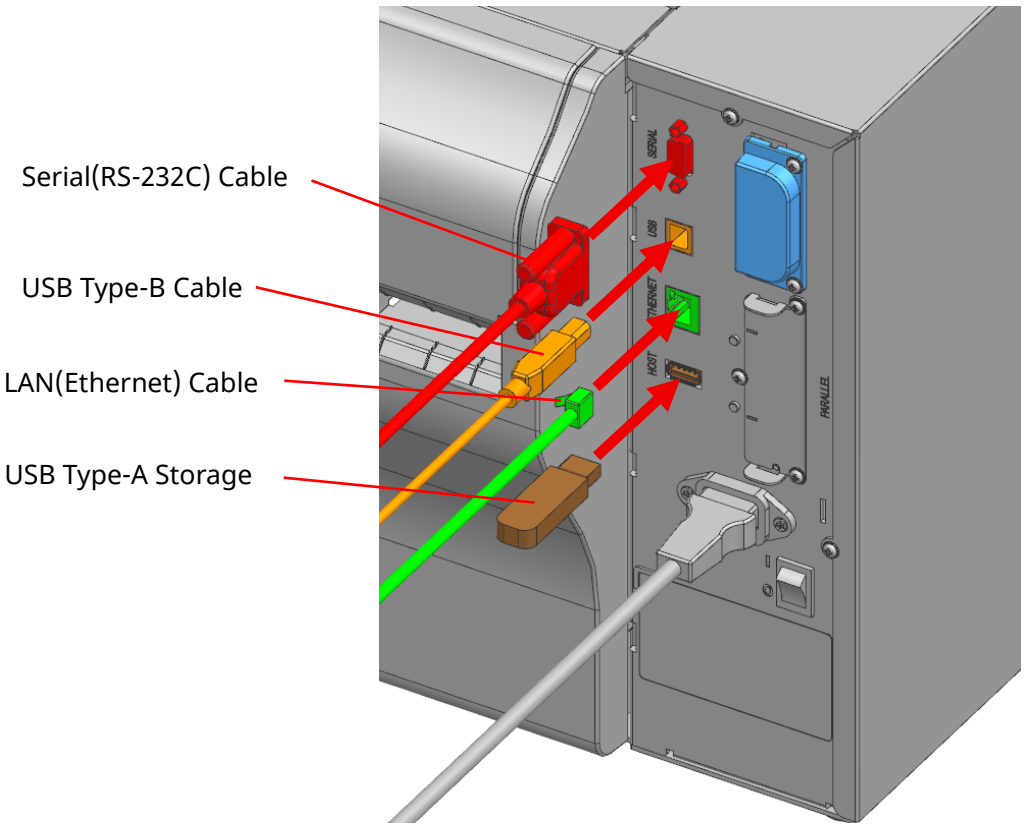
1) Turn off the printer power switch.

2) Connect the power cord to the printer.

3) Connect the power cord to a power source/outlet.

2-2 Standard Interface

This printer can use the following types of communication.
- LAN (Ethernet) Cable / USB Type-B Cable / Serial (RS-232C) Cable / USB Type-A Storage (*USB type dongle not supported)

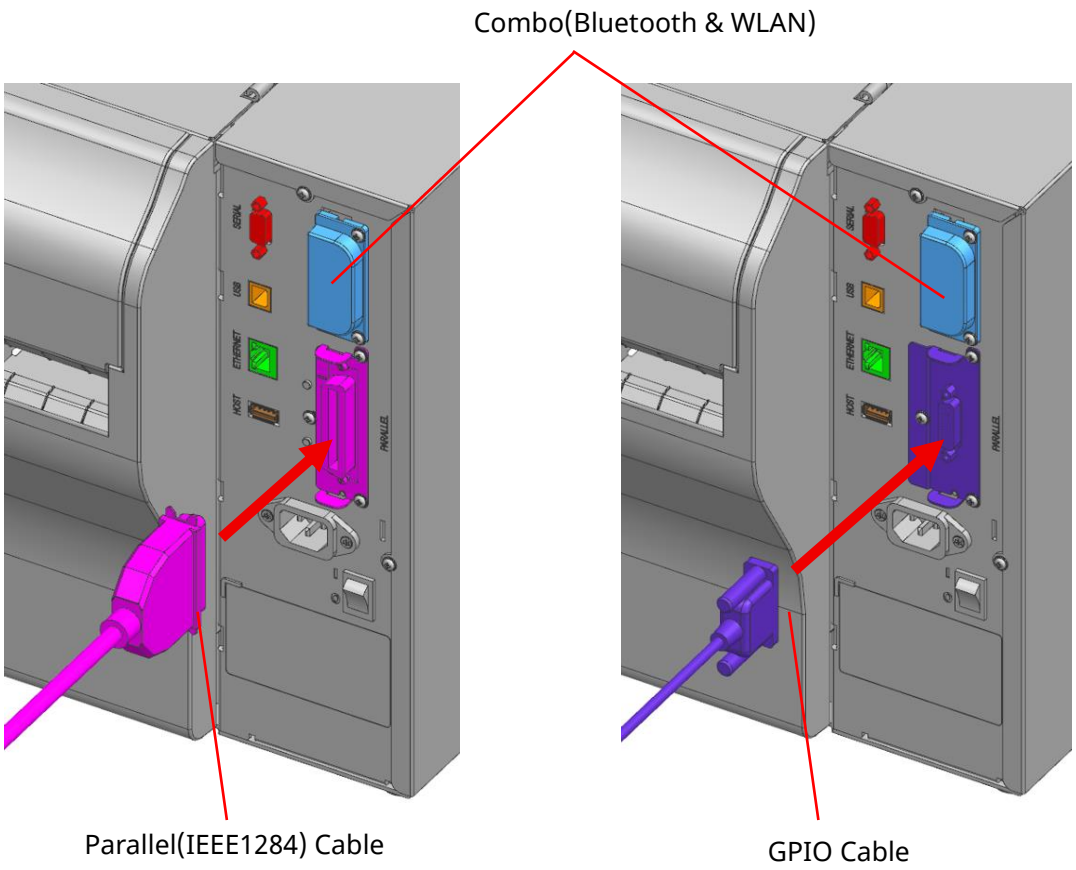


1) Turn off the power switch.

2) Connect the communication cable to the printer communication port to be used.
   - Connect the LAN(Ethernet) cable to the Ethernet port.
   - Connect the USB Type-B cable to the USB port.
   - Connect the USB Type-A storage to the USB port.
   - Connect Serial(RS-232C) cable to the serial port and tighten both screws.

2-3 Option Interface

This printer can use the following types of communication.
- Combo(Bluetooth & WLAN) / Parallel(IEEE1284) Cable / GPIO Cable



1) Turn off the power switch.

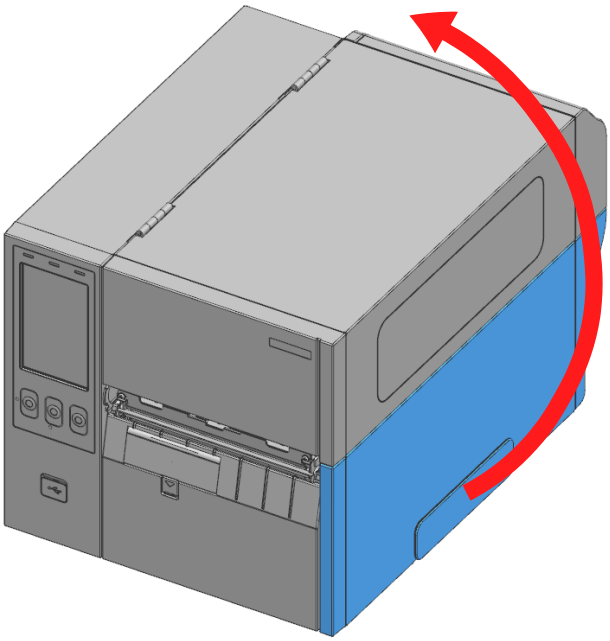
2) Connect the communication cable to the printer communication port to be used.
   - Connect Parallel(IEEE1284) Cable to parallel port and fasten both clips.
   - Connect GPIO Cable to GPIO port and tighten both screws.
   - Wireless interface does not require a separate cable connection

2-4 Media Installation

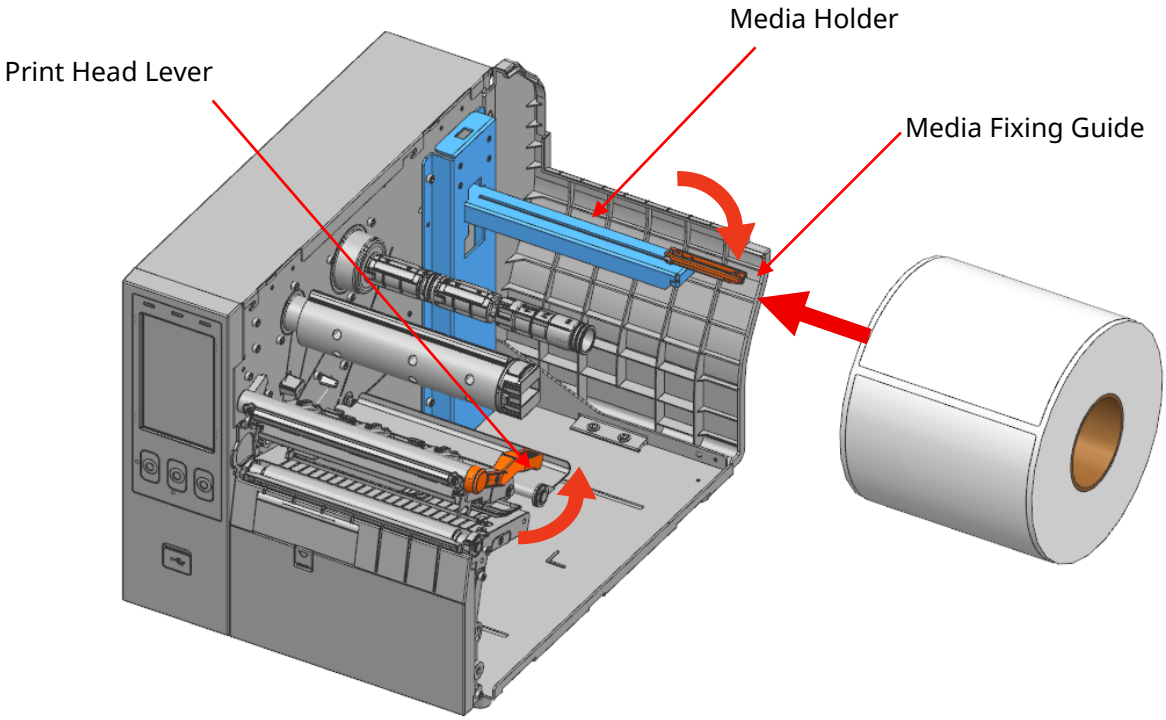
2-4-1 Media Installation Method of Standard Model

For standard models, install media in the following ways:

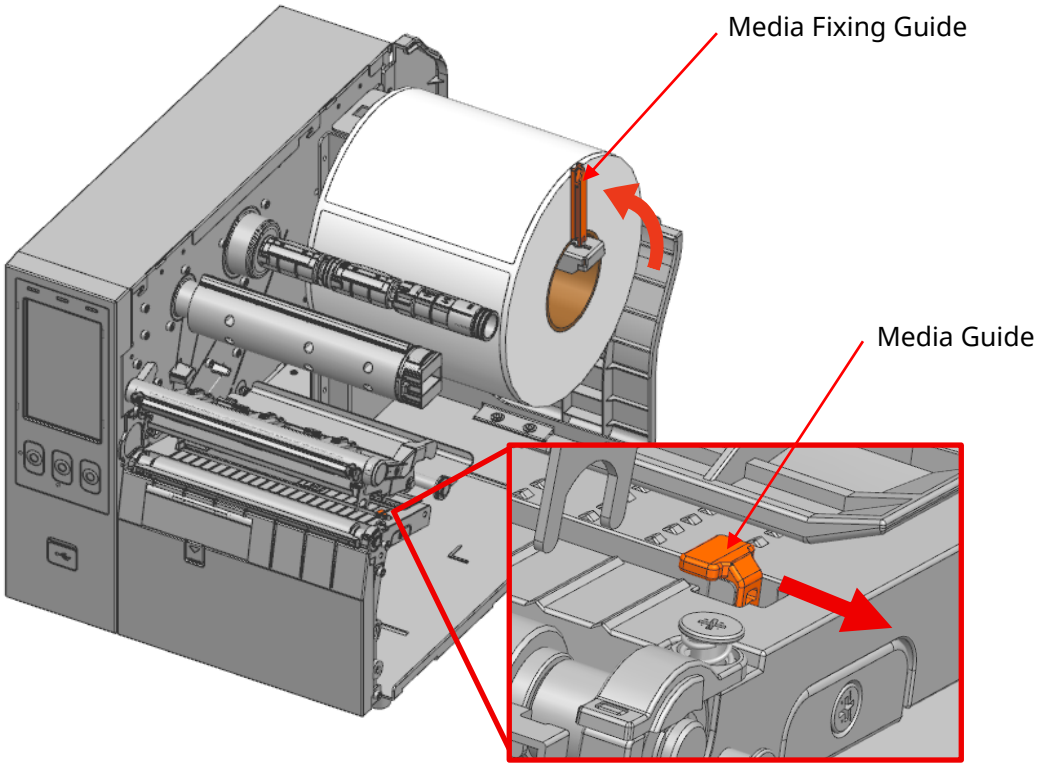
1) Open the media cover.



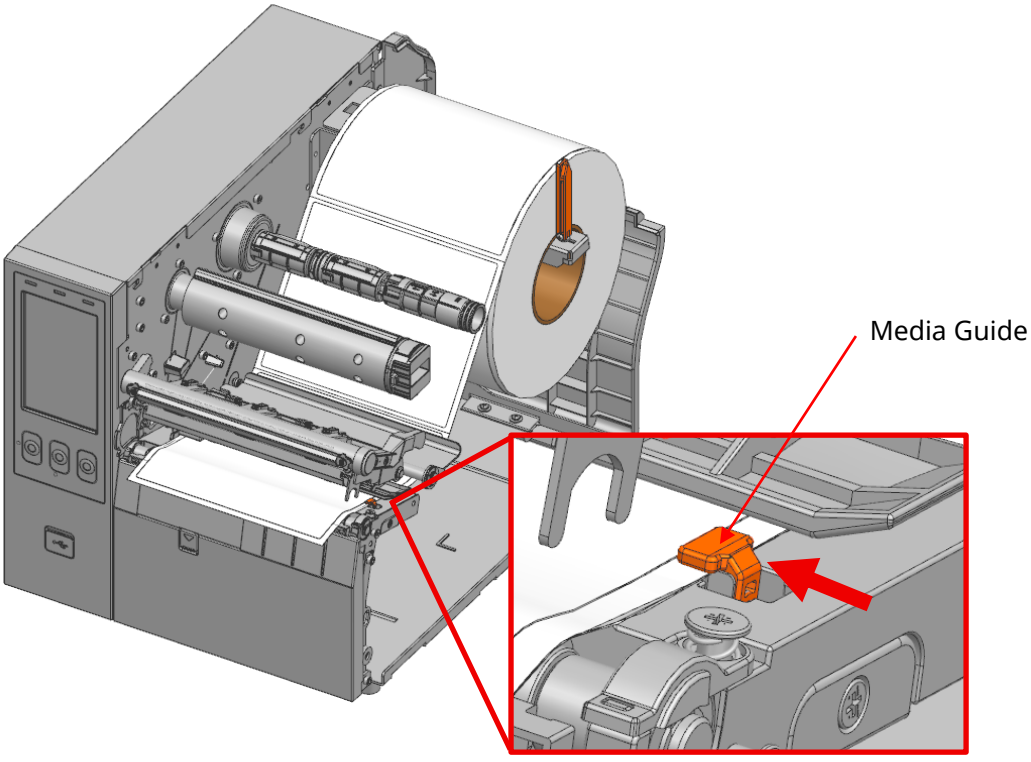
2) Open the print head lever. Flip down the media fixing guide and place the media in the media holder with print side up.



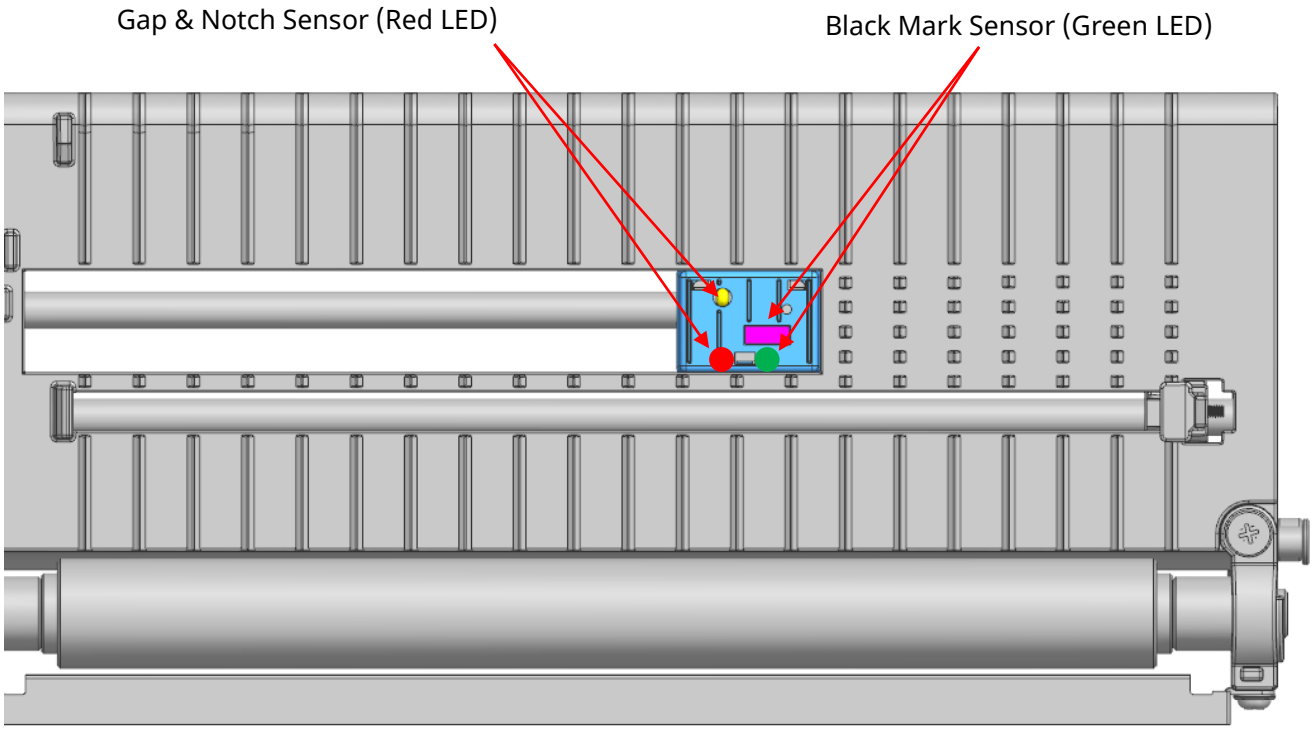
3) After flip up the media fixing guide, push the holder so that it is close to the media
Push the media guides to the right.



4) After inserting the media into the fixing guides, adjust the media guides to the media width.



5) Please make sure the sensor position where media gap/black mark will pass through for sensing. Sensor(gap & notch sensor, black mark sensor) can be moved by the sensor lever. Check the sensor position with LED color.



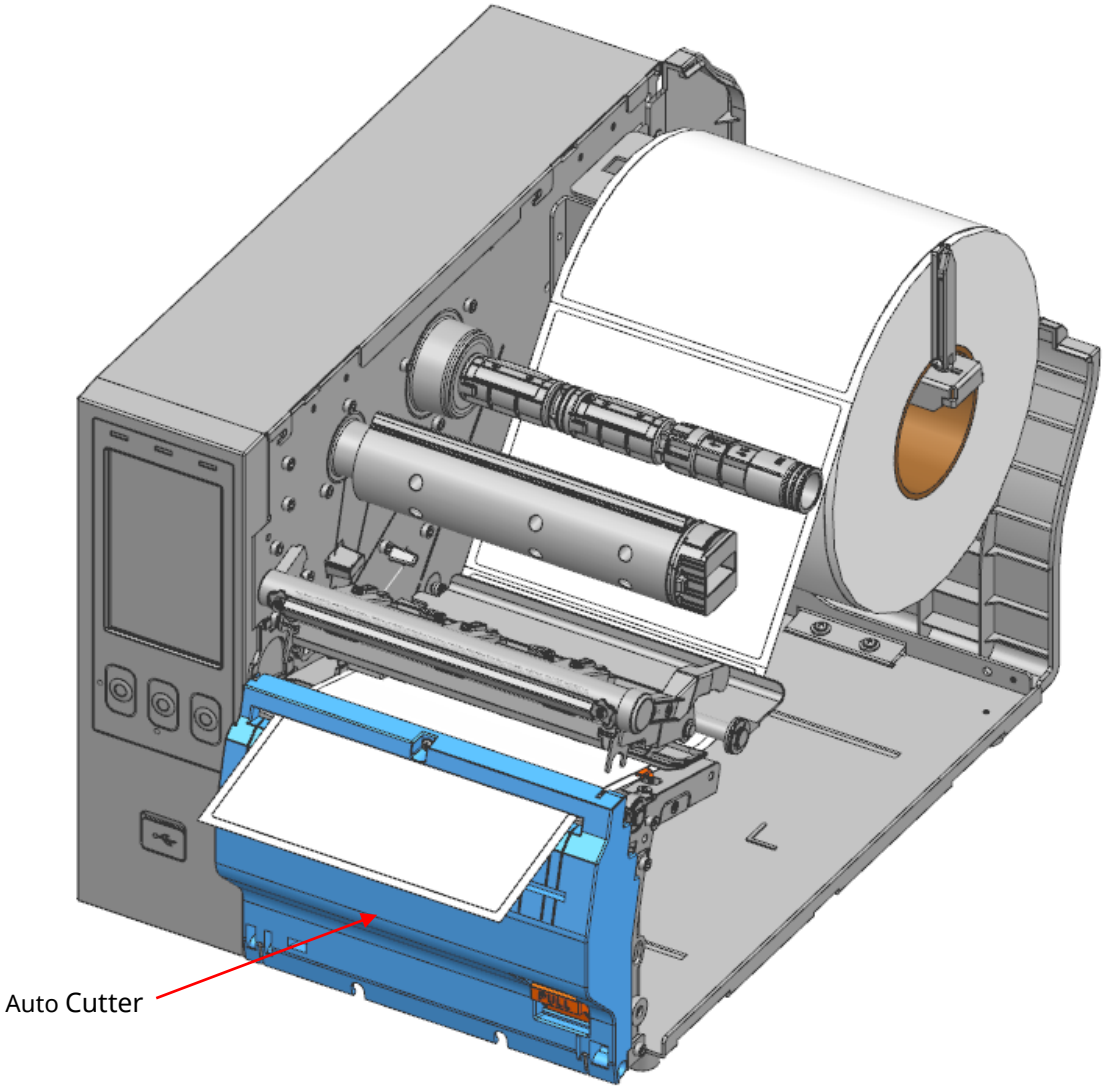
6) Close the print head lever and media cover.

2-4-2 Media Installation Method of Auto Cutter(optional) Model

Use the Auto Cutter to cut the printed media.
For Auto Cutter Model, install media in the following ways:

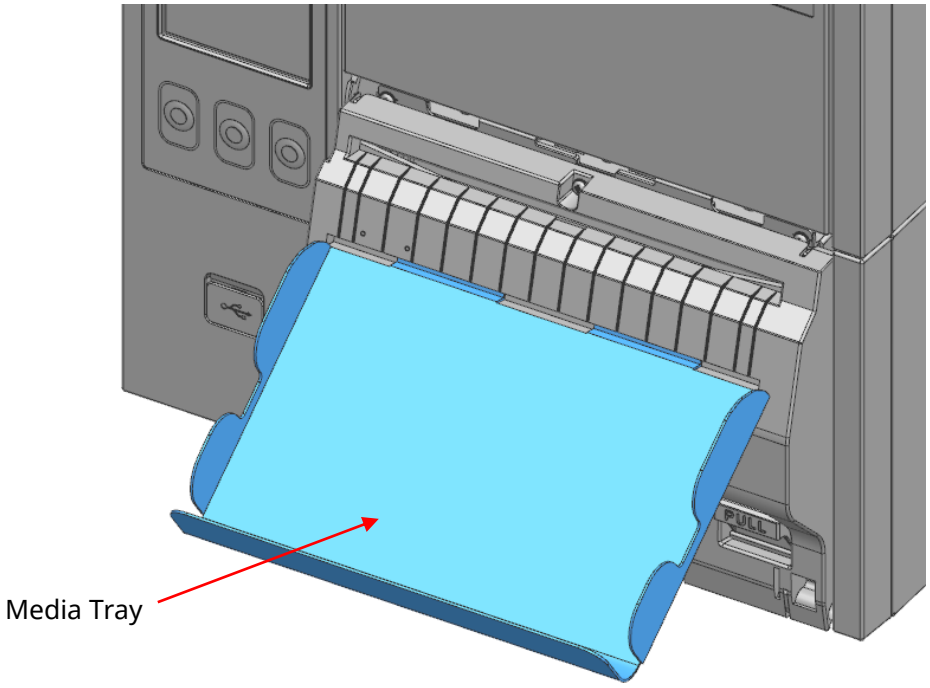
1) Refer to '2-4-1 Media Installation Method of Standard Model' to install media, adjust media guide and sensor position.

2) Install the media through the Auto Cutter as shown in the figure.



3) Close the print head lever and media cover.

4) If necessary, install the media tray as shown in the picture.
(*The Media tray is not included with the product. Please purchase it separately.)

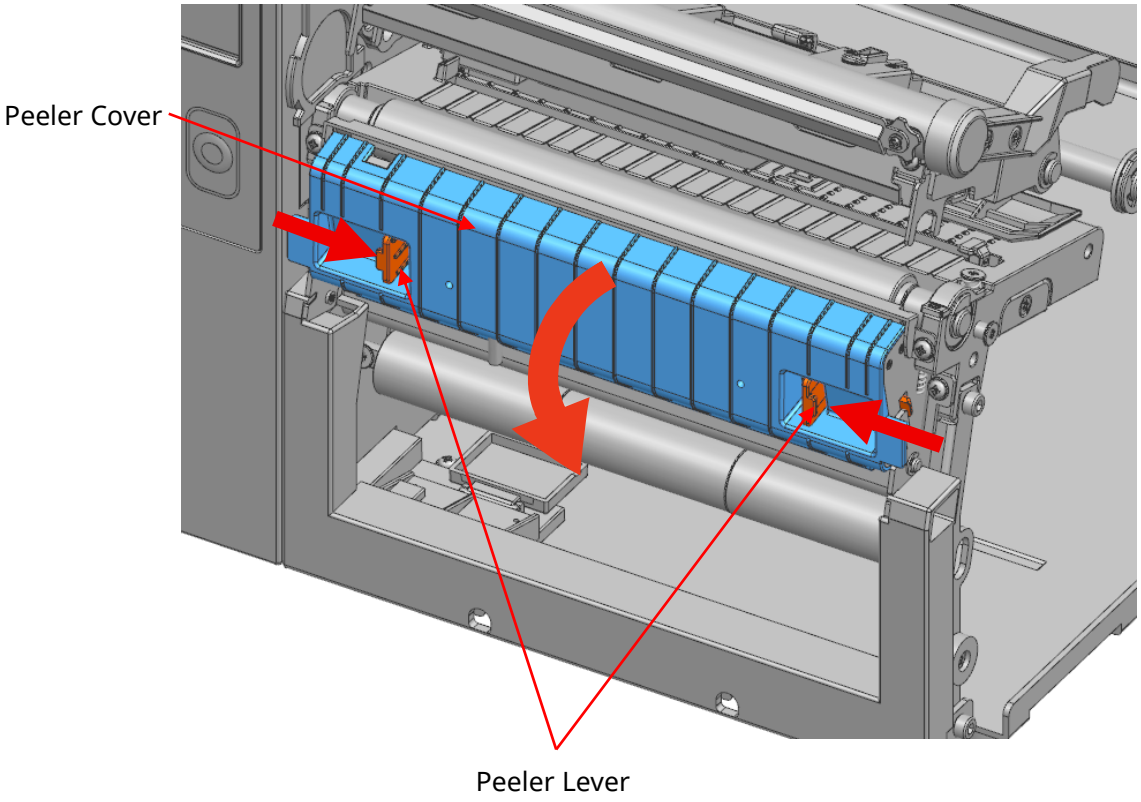


2-4-3 Media Installation Method of Peeler(optional) Model

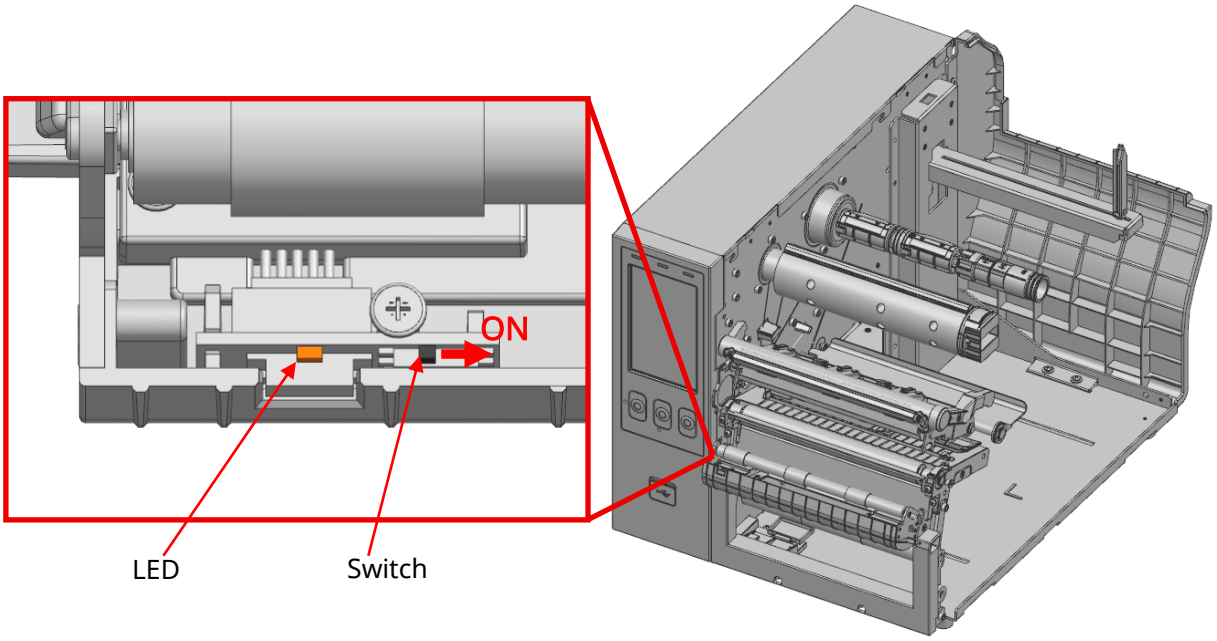
Use a peeler to automatically separate the printed media from the liner.
When shipped from the factory, the peeler is attached.
For Peeler Model, install media in the following ways:

1) Refer to '2-4-1 Media Installation Method of Standard Model' to install media, adjust media guide and sensor position.

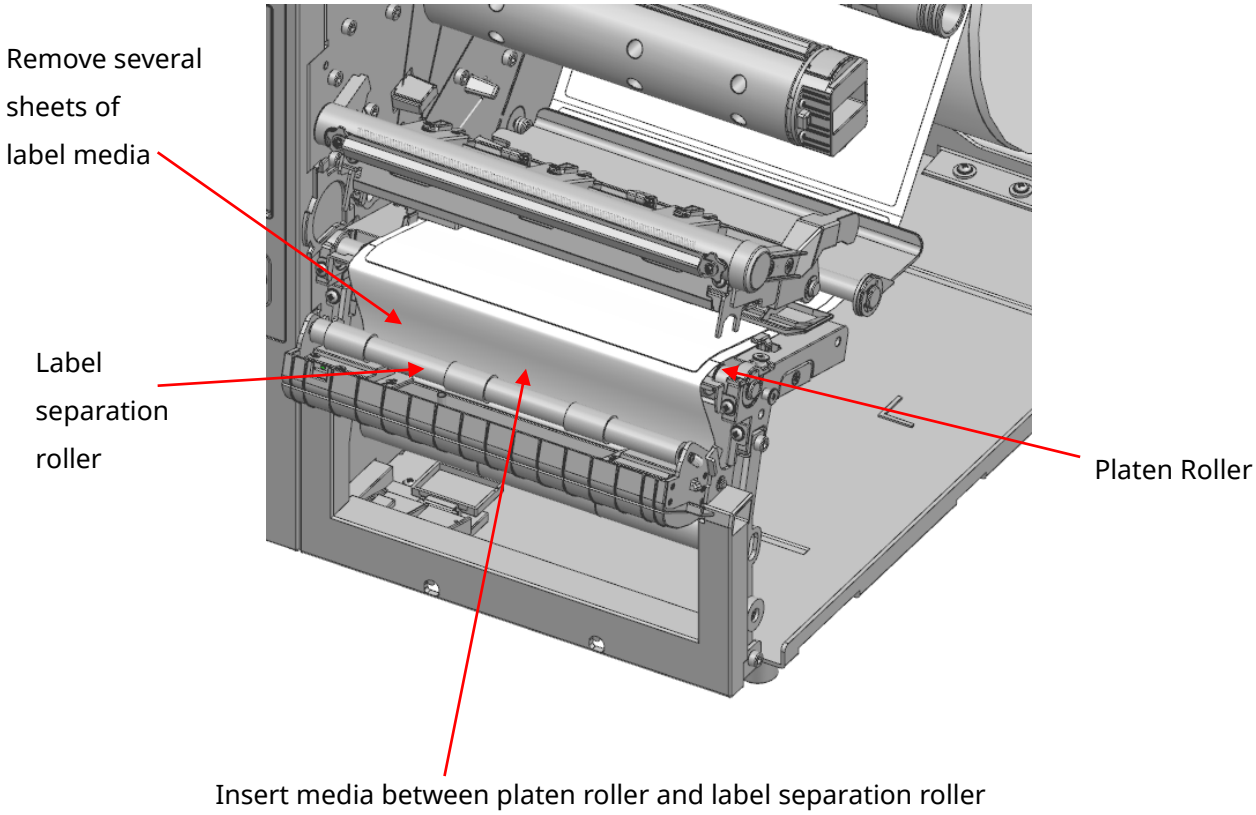
2) Press the left and right peeler levers to open the peeler cover.



3) Move the peeler switch to ON. Please make sure that the LED has turned on.

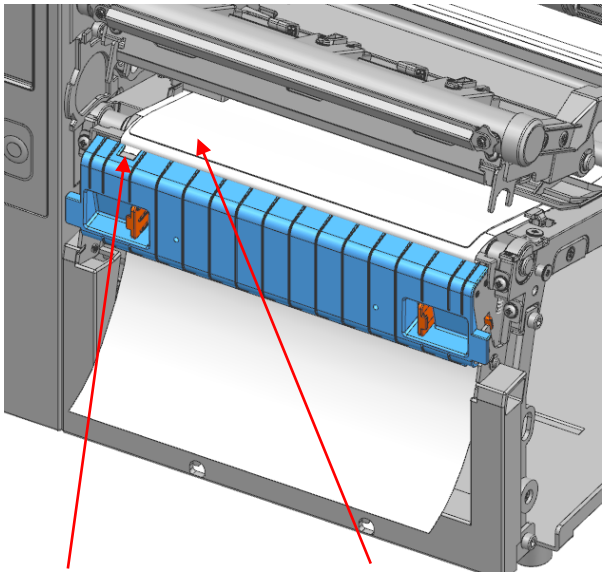


4) Remove several sheets of label media and insert liner as in the picture.

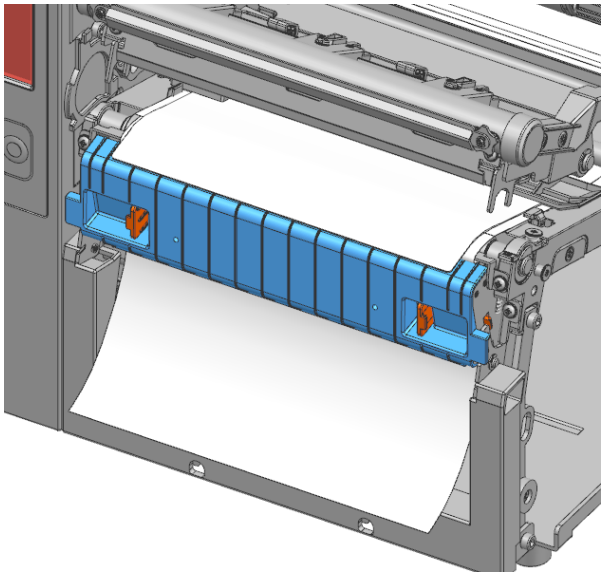


5) Close the peeler cover until it clicks.

(O)



(X)



6) Close the print head lever and the media cover.

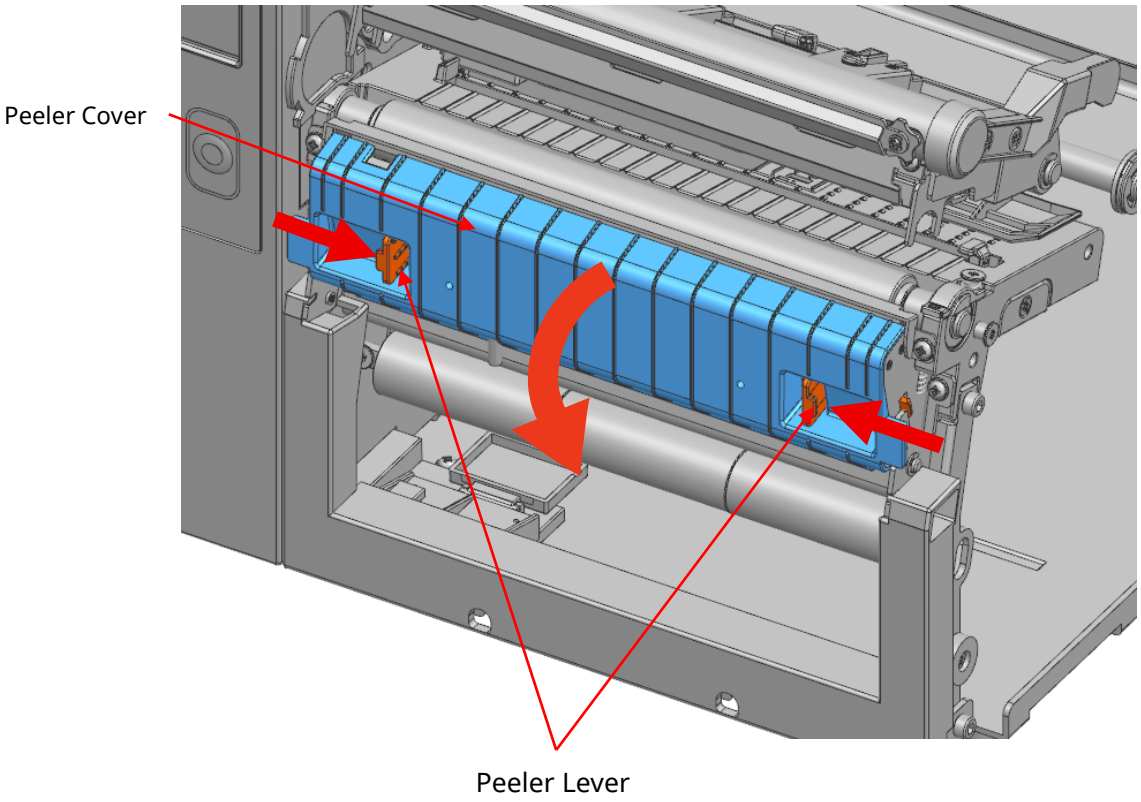
2-4-4 Media Installation Method of Internal Rewinder(optional- Liner Take-up only) Model

Use the internal rewinder to automatically rewind the liner.
For internal rewinder model, install media in the following ways:

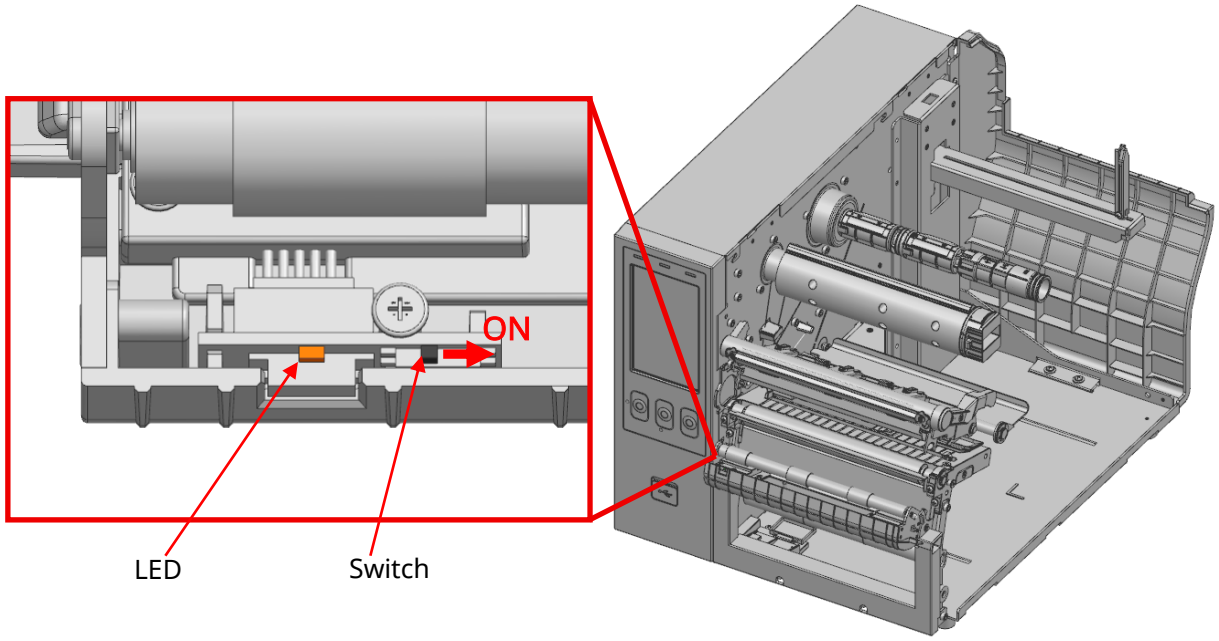
•Media Installation Method

1) Refer to '2-4-1 Media Installation Method of Standard Model' to install media, adjust media guide and sensor position.

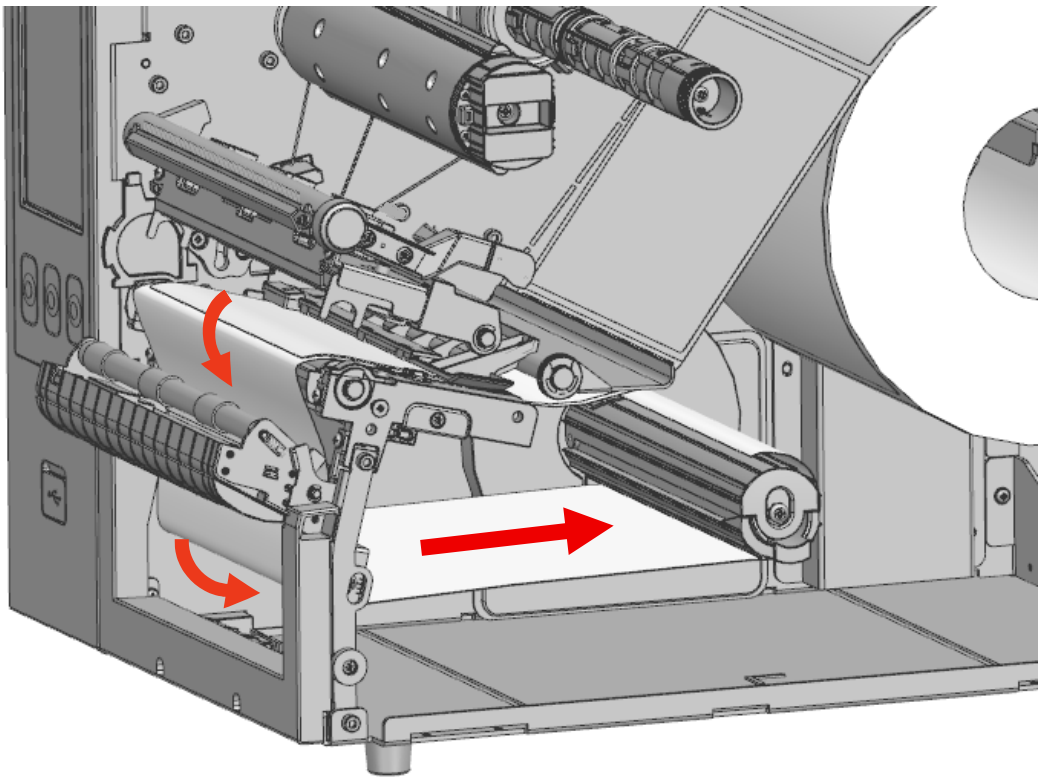
2) Press the left and right peeler levers to open the peeler cover.



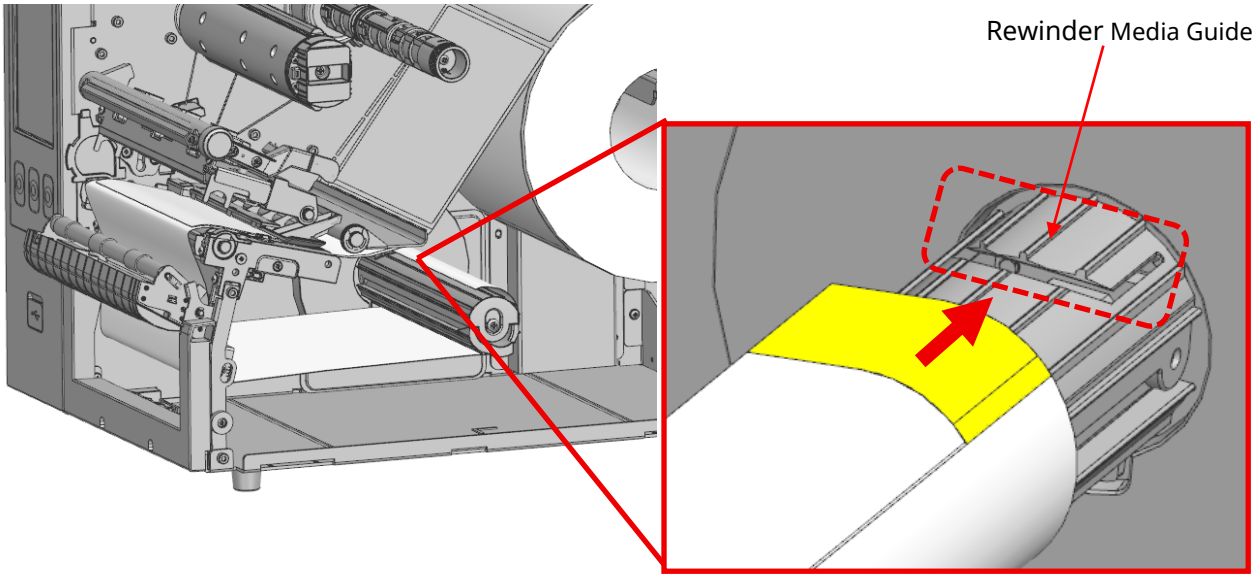
3) Move the peeler switch to ON. Please make sure that the LED has turned on.



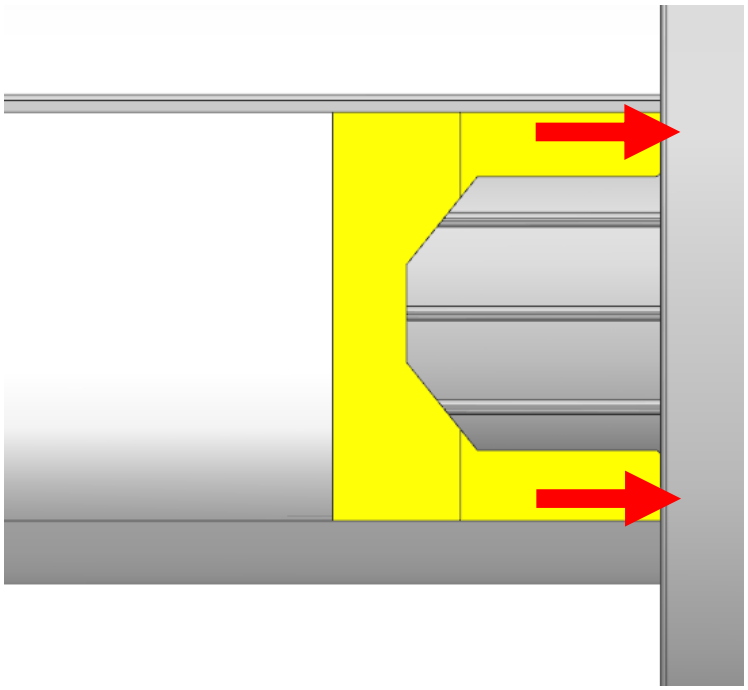
4) Remove several sheets of label media and insert liner as in the picture.



5) After installing the media in the same way as the picture, fix the media on rewinder media guide.

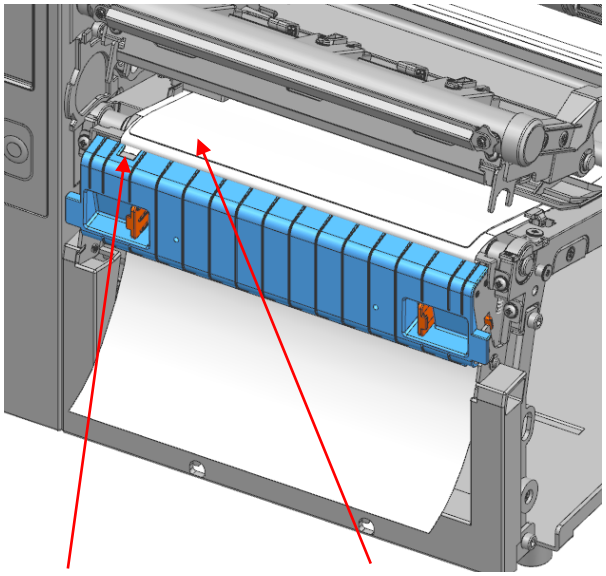


* Insert the paper all the way to the Rewinder media guide



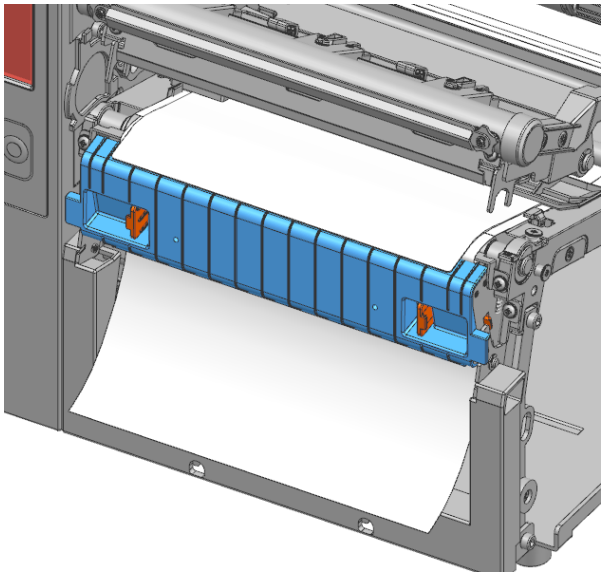
6) Close the peeler cover until it clicks.

(O)



Peeler Sensor

(X)



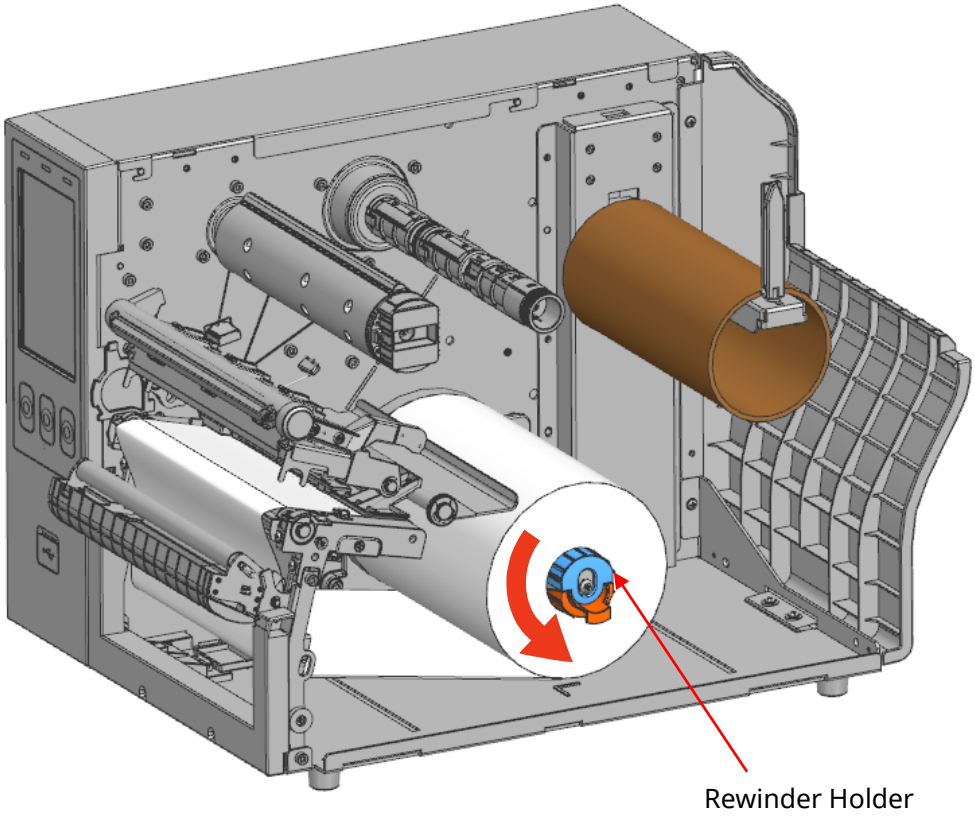
Be careful that the media does not cover the peeler sensor

7) Close the print head lever, the rewinder cover, and the media cover.

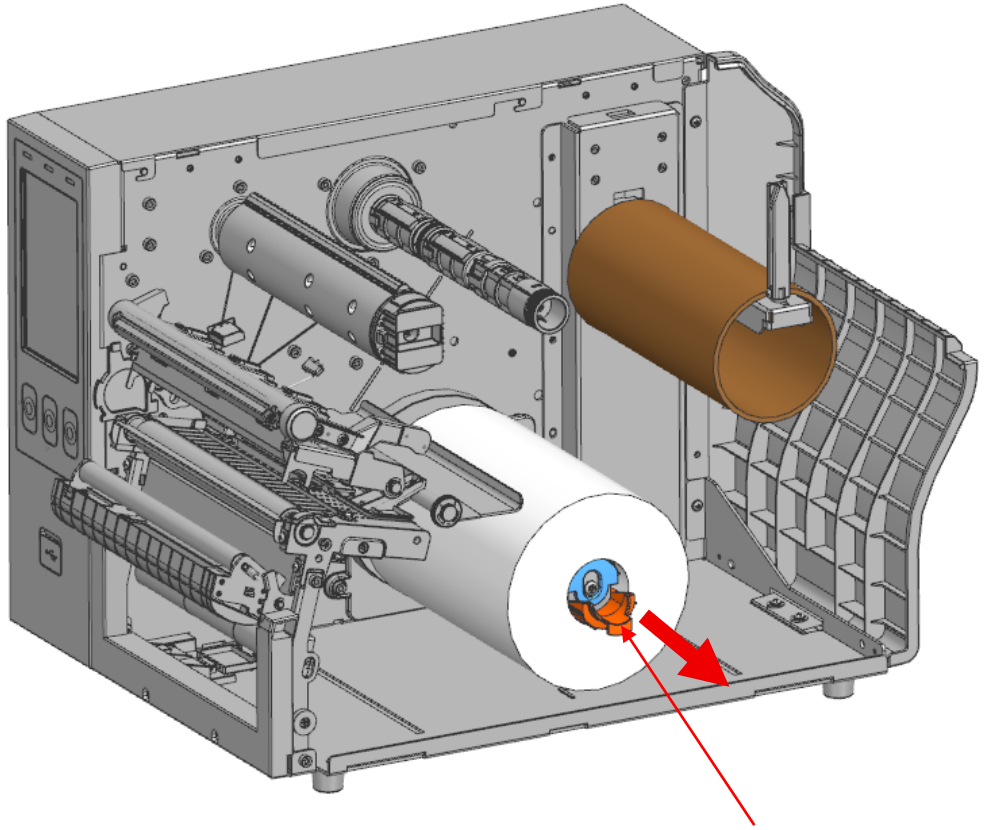
• Media Liner Removal Method

1) Open the peeler cover, the media cover and the print head lever.

2) Rotate the rewinder holder counter-clockwise to wind the media liner.



3) Pull the Rewinder Holder Handle and remove installed media liner.

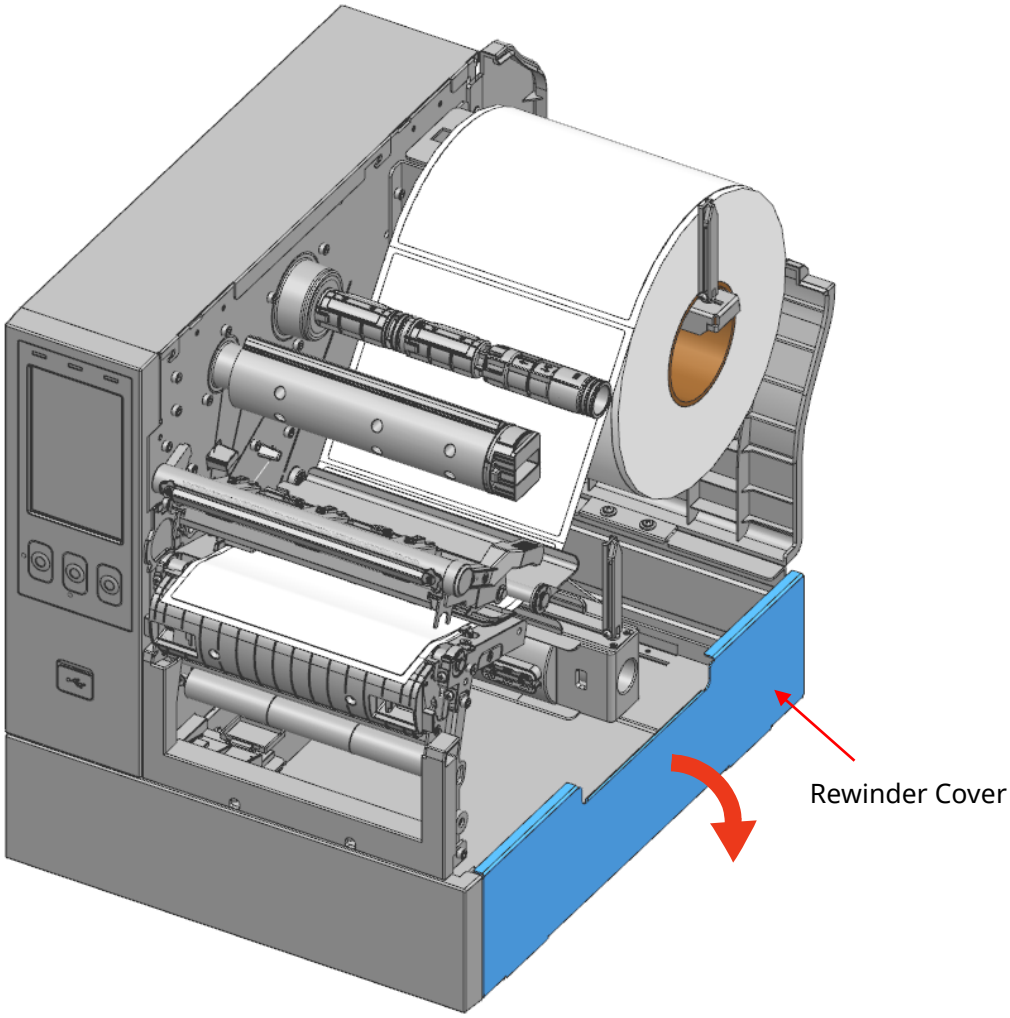


2-4-5 Media Installation Method of External Rewinder(optional) Model

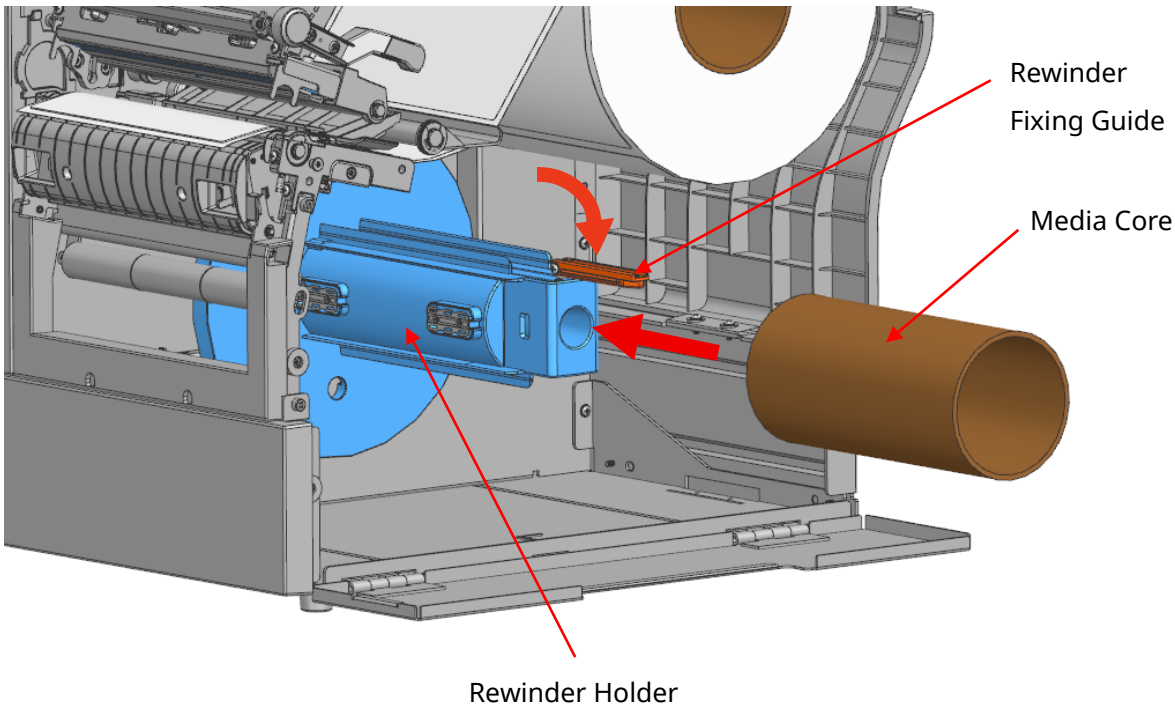
Use the Rewinder to automatically rewind the printed media.
When shipped from the factory, the Rewinder is attached.
For Rewinder Model, install media in the following ways:

1) Refer to '2-4-1 Media Installation Method of Standard Model' to install media, adjust media guide and sensor position.

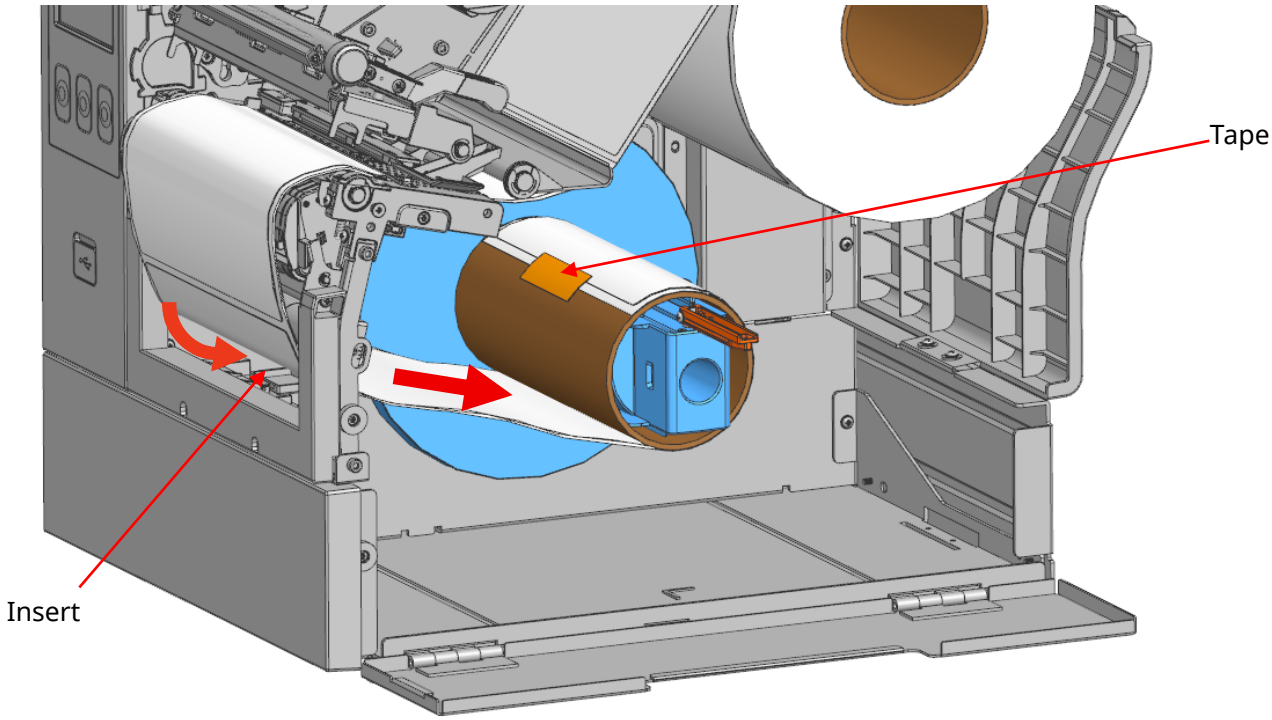
2) Open the rewinder cover.



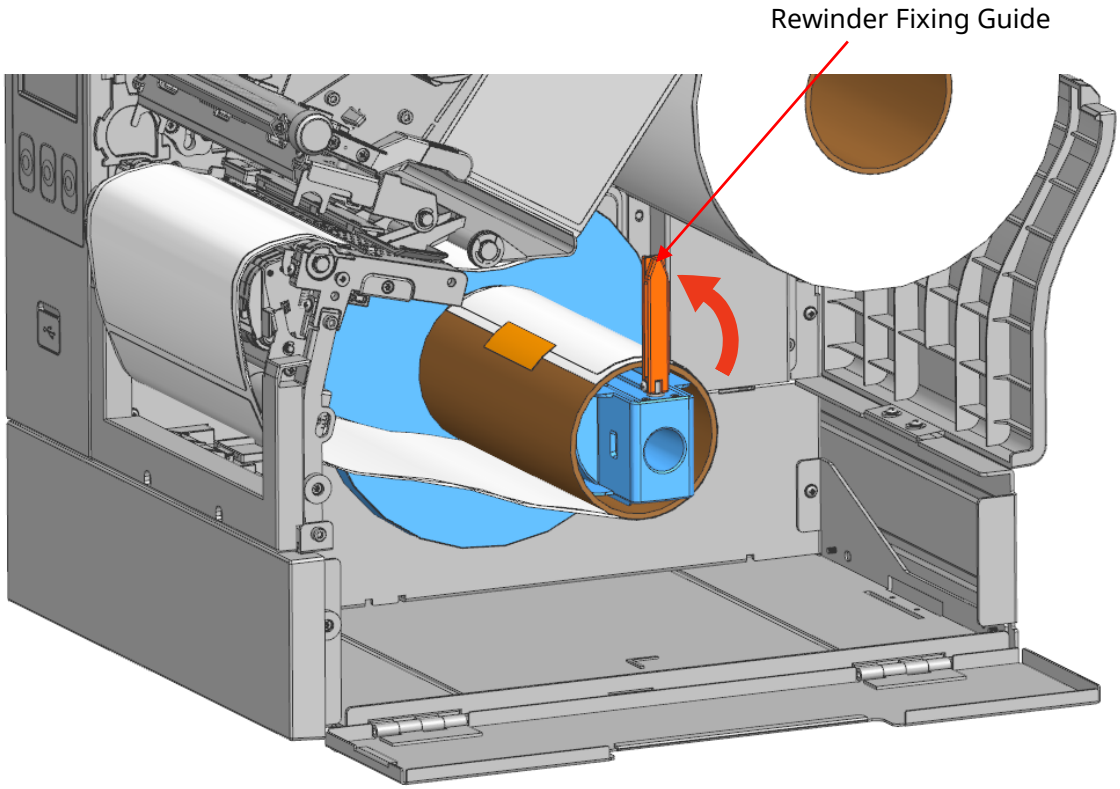
3) After flip down the Rewinder fixing guide, install a 3inch media core on the Rewinder holder.



4) After installing the media in the same way as the picture, attach the media to the media core using tape.



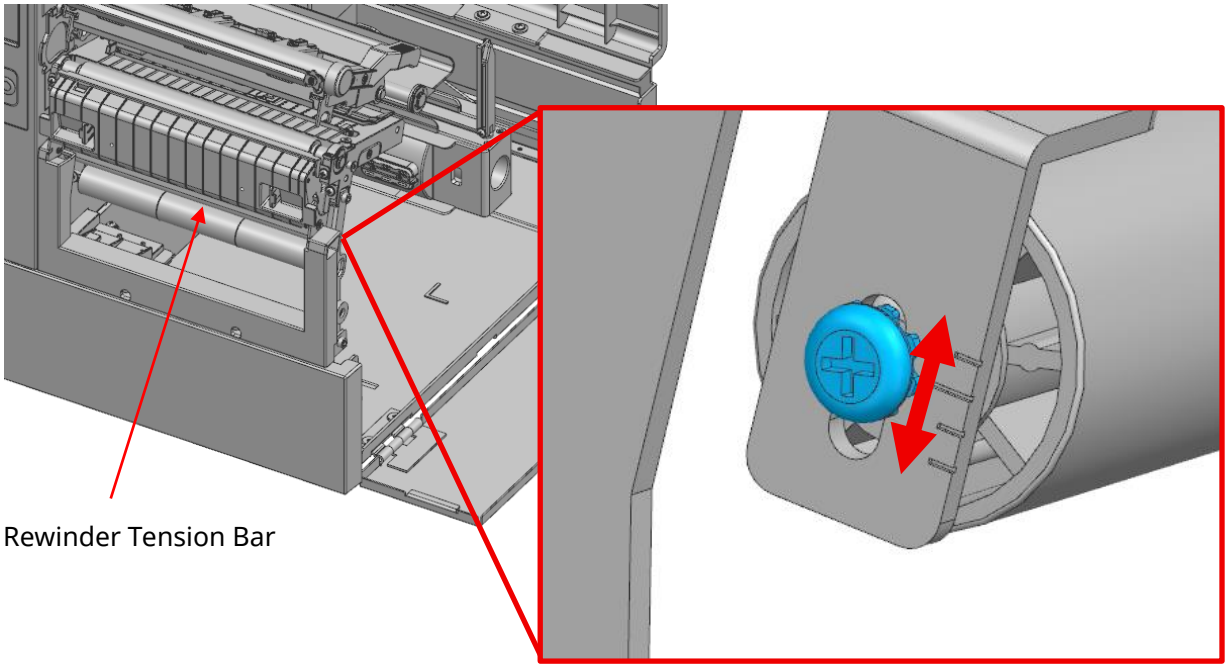
5) After flip up the Rewinder fixing guide, push it close to the media.



6) Close the print head lever, the Rewinder cover, and the media cover.

• Rewinder Tension Bar Control Method

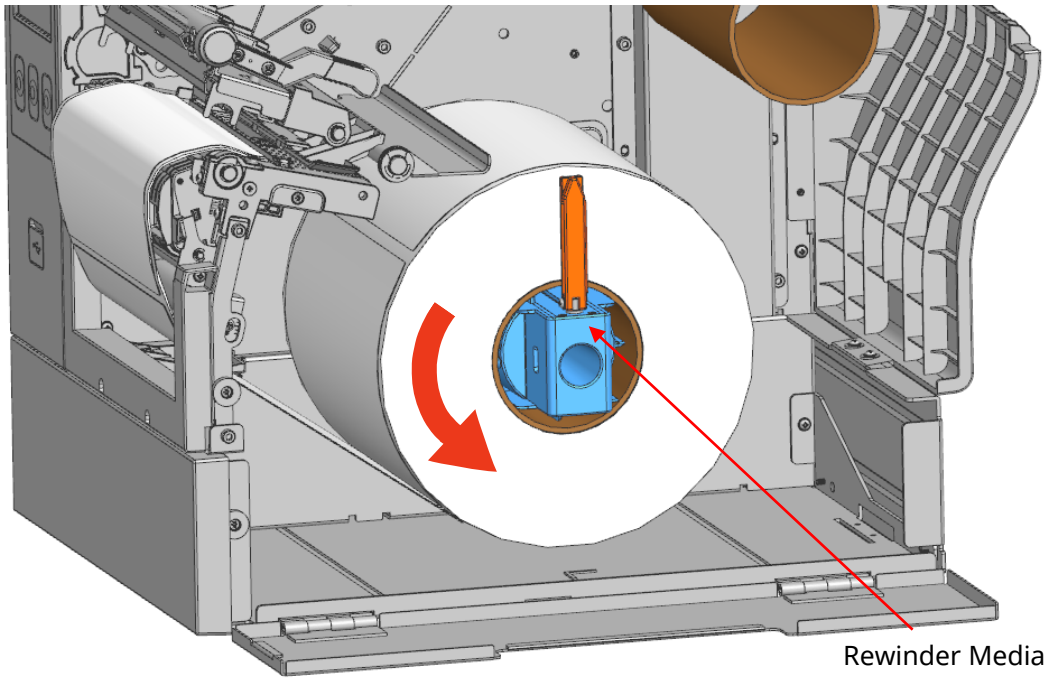
If the media being wound on the rewinder is not aligned properly,
slightly loosen the screws fastened to rewinder tension bar using a cross-tip screwdriver
to adjust it up and down.



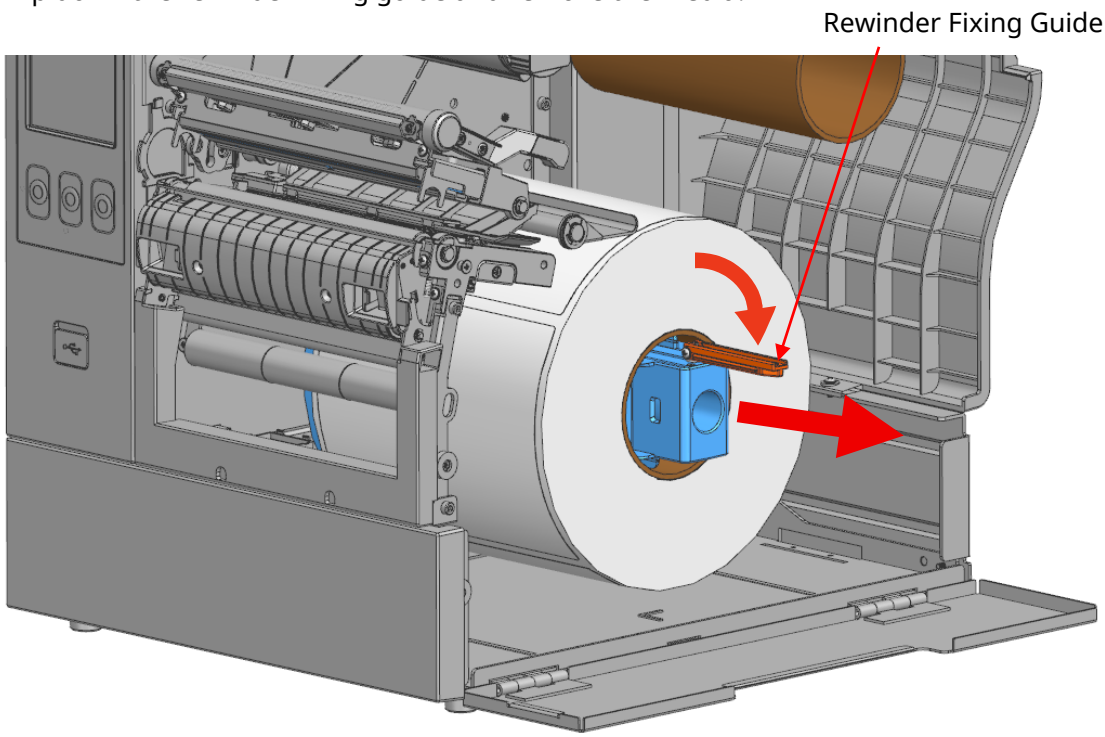
• Media Removal Method

1) Open the media cover, the rewinder cover and the print head lever.

2) Rotate the rewinder media holder counter-clockwise to collect the media.



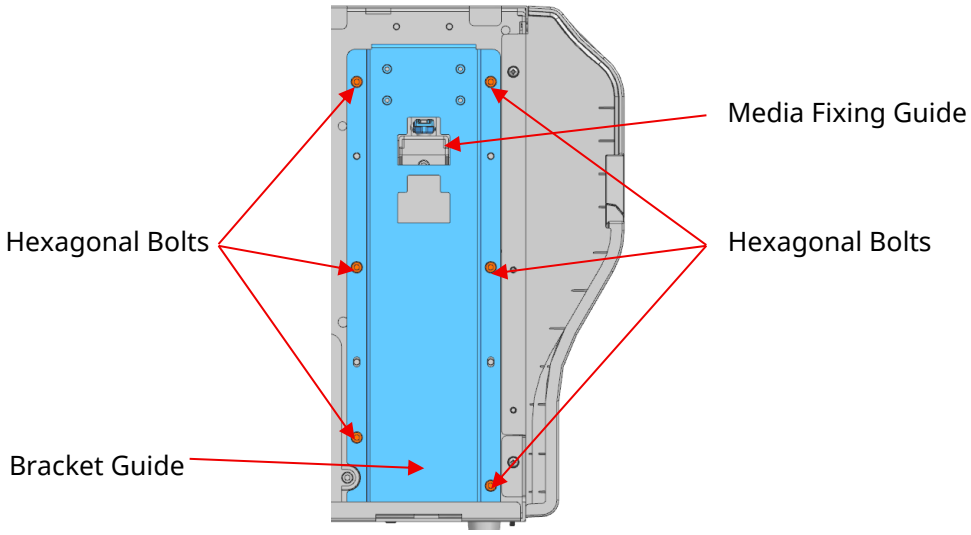
3) After flip down the rewinder fixing guide and remove the media.



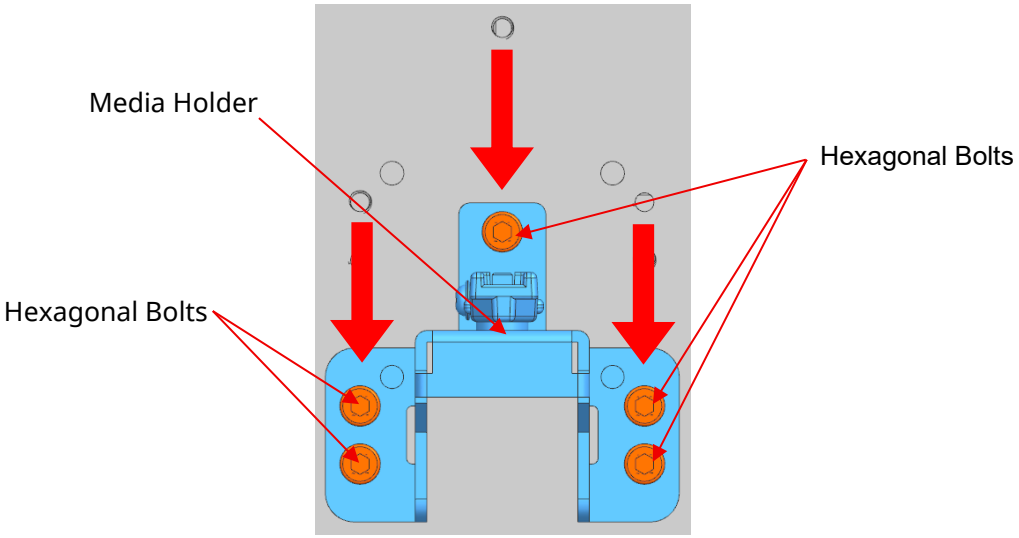
2-4-6 Media Installation Method for 1.5inch Media Core Model

For 1.5inch Media Core Model, install media in the following ways:

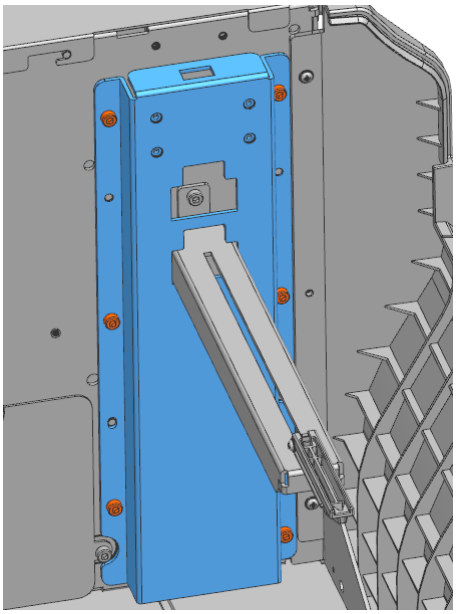
1) After folding the media fixing guide down, remove the six hexagonal bolts with a hexagonal wrench(3mm) to separate the bracket guide from the printer.



2) Remove the five hexagonal bolts with a hexagonal wrench(3mm) to separate the media holder from the printer, then reassemble by changing the position downward as shown in the figure below.



3) Reassemble the bracket guide as shown below.

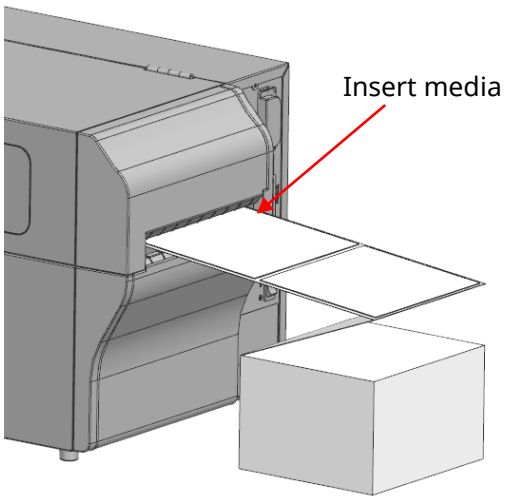


4) Install the media in the same manner as the 3 inch core paper model.

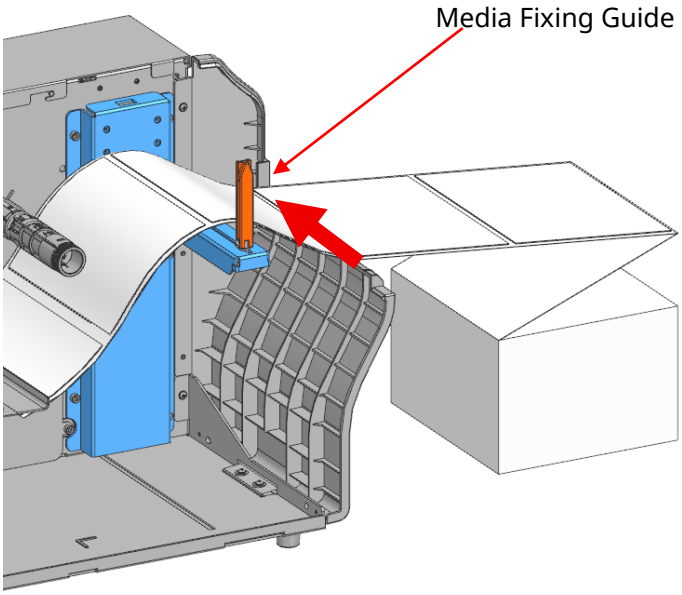
2-4-7 How To Install Media Externally

Install media from outside the printer as follows.

1) Insert the media through the rear access slot of the printer.



2) Adjust the media fixing guide to the media width.

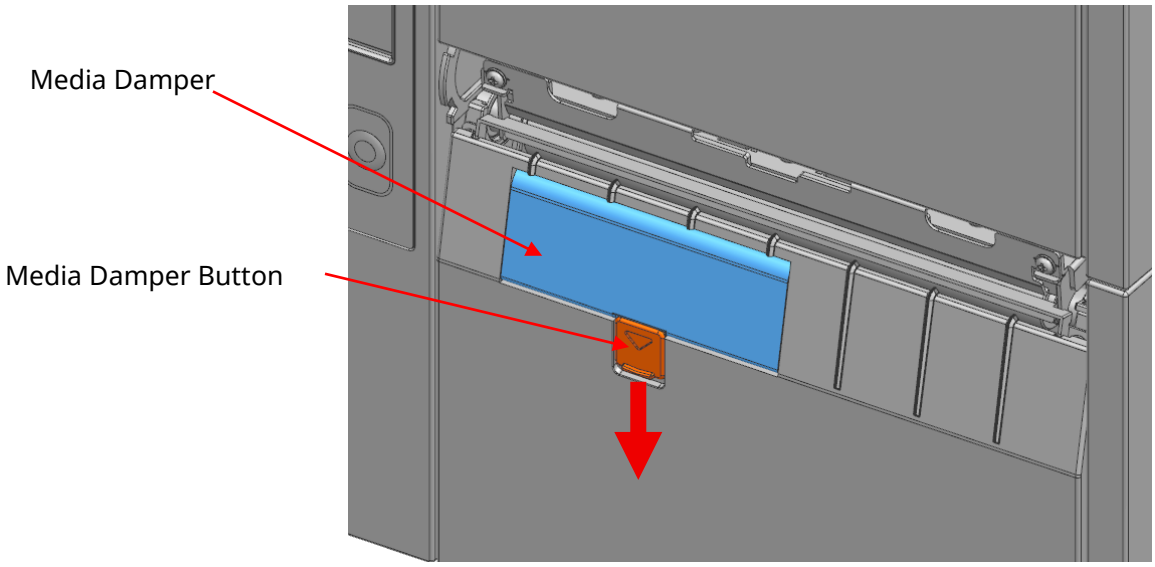


3) Close the print head lever and media cover.

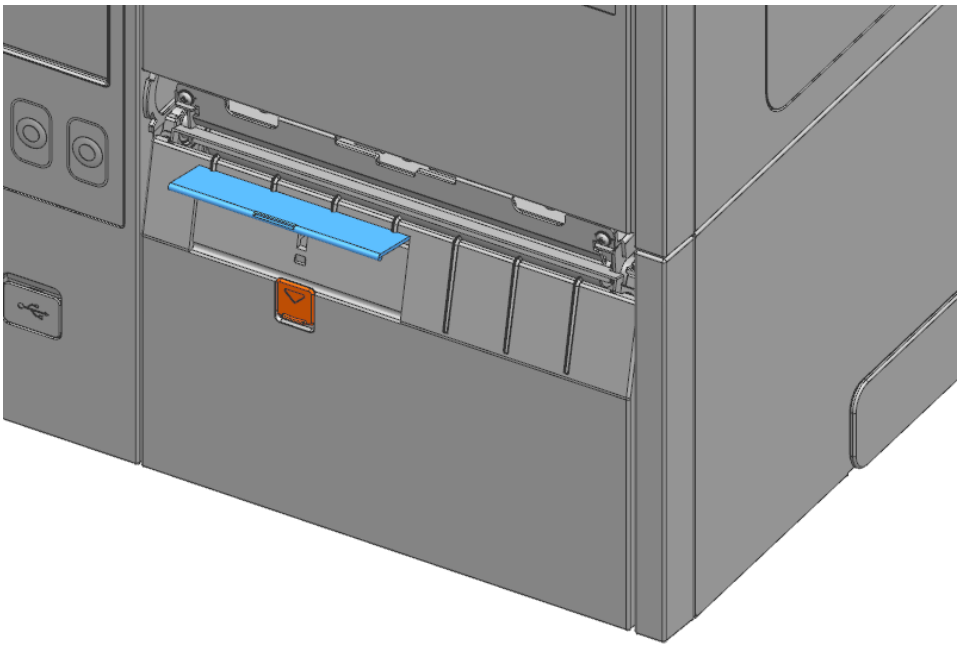
2-5 How to Use Media Damper (Standard Model)

• You can use the media damper to avoid the issue shown in the following images.
- label stuck to the ribbon guide
- folded label end when printing

1) Push the media damper button down to lift the media damper.



2) Use the printer with the media damper up as in the picture.
(Please refer to 2-4-1 Media Installation Method of Standard Model)

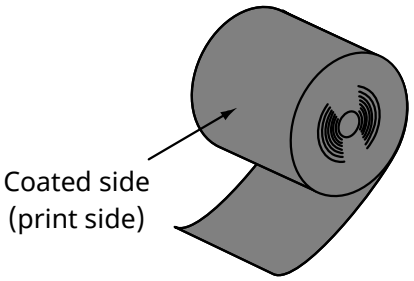


2-6 Ribbon Installation

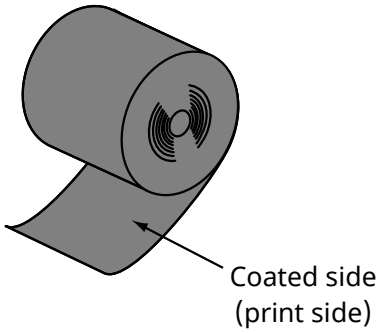
2-6-1 Ribbon Type

This printer can be used only with the ribbon of 1 inch ribbon core.

1) Type by film coating position
   - This printer can be used with both Outside and Inside Ribbon.



Outside Ribbon



Inside Ribbon

※ **Note**

- Follow the procedure described below to determine the coating surface of the ribbon.

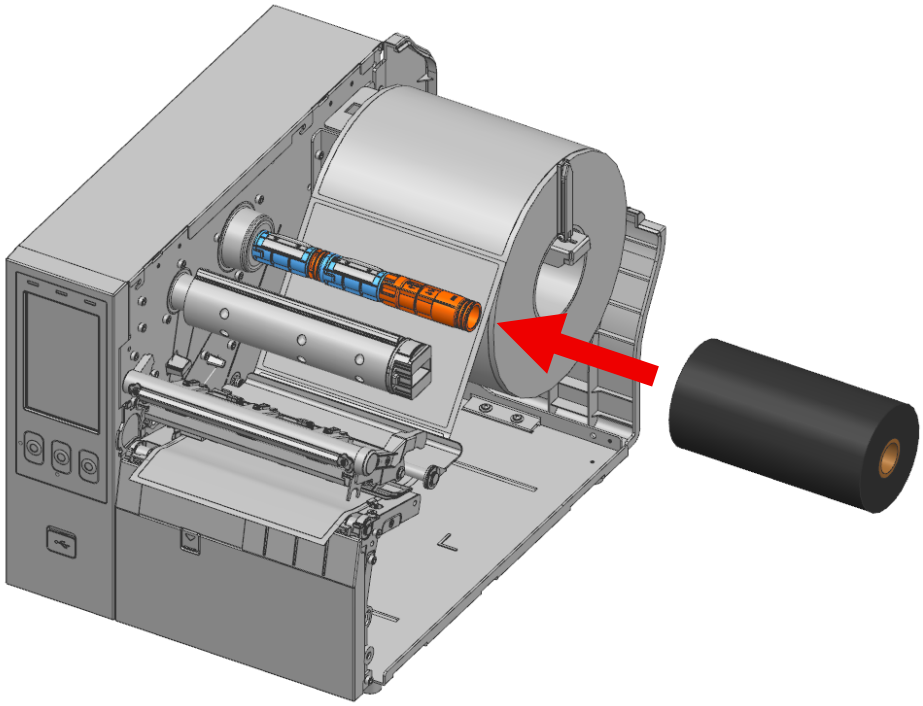
• Ribbon test using adhesive material
  - Perform contact test in order to determine which side is coated if there are useable labels.

• Complete the following steps to carry out the contact test
  - Remove the label from the liner.
  - Put a piece of adhesive surface of the label on the outer/inner surface of the ribbon, and apply depressure.
  - Remove the label from the ribbon.
  - Check whether adhesive surface of the label is stained by black ink ribbon.

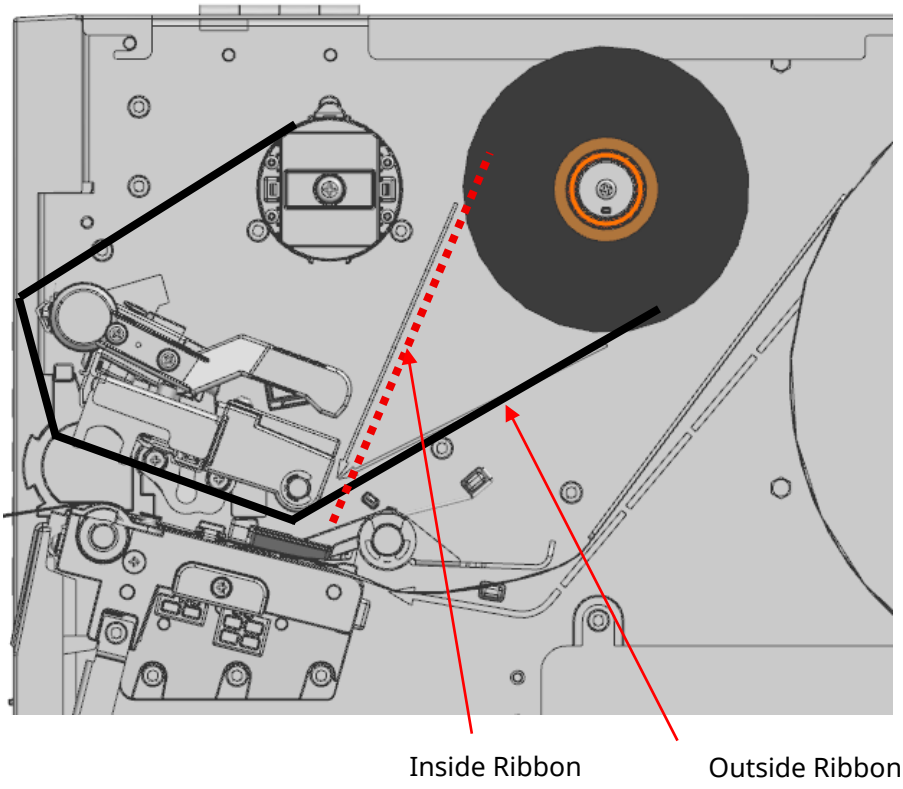
2-6-2 Ribbon Installation Method

Install ribbon as follows.

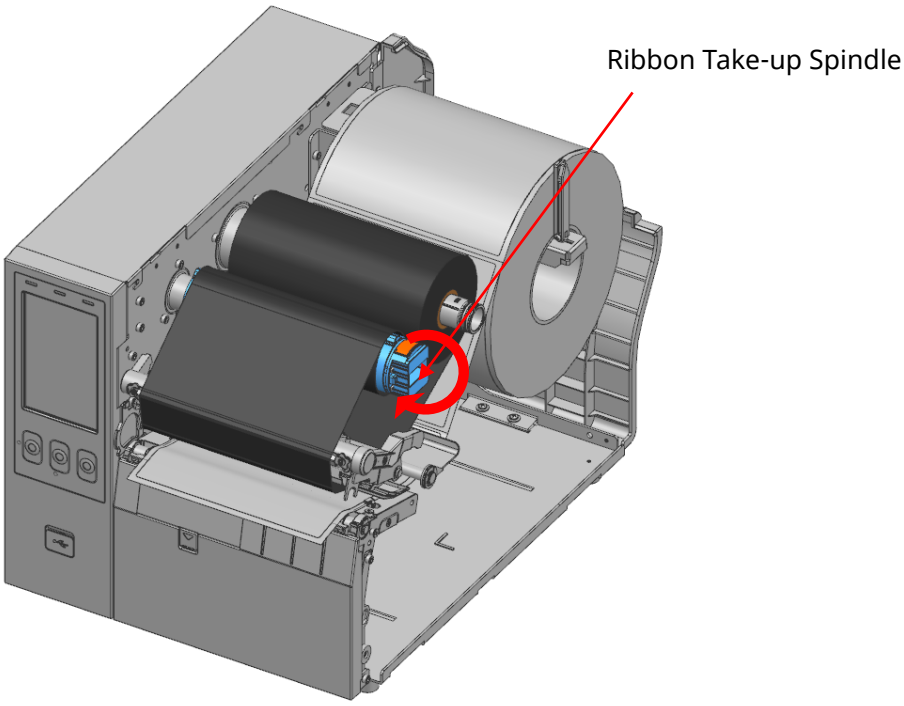
1) Insert the ribbon into the ribbon supply spindle.



2) Open the print head lever and install the ribbon as shown below.



3) Rotate the ribbon take-up spindle to wind the ribbon.

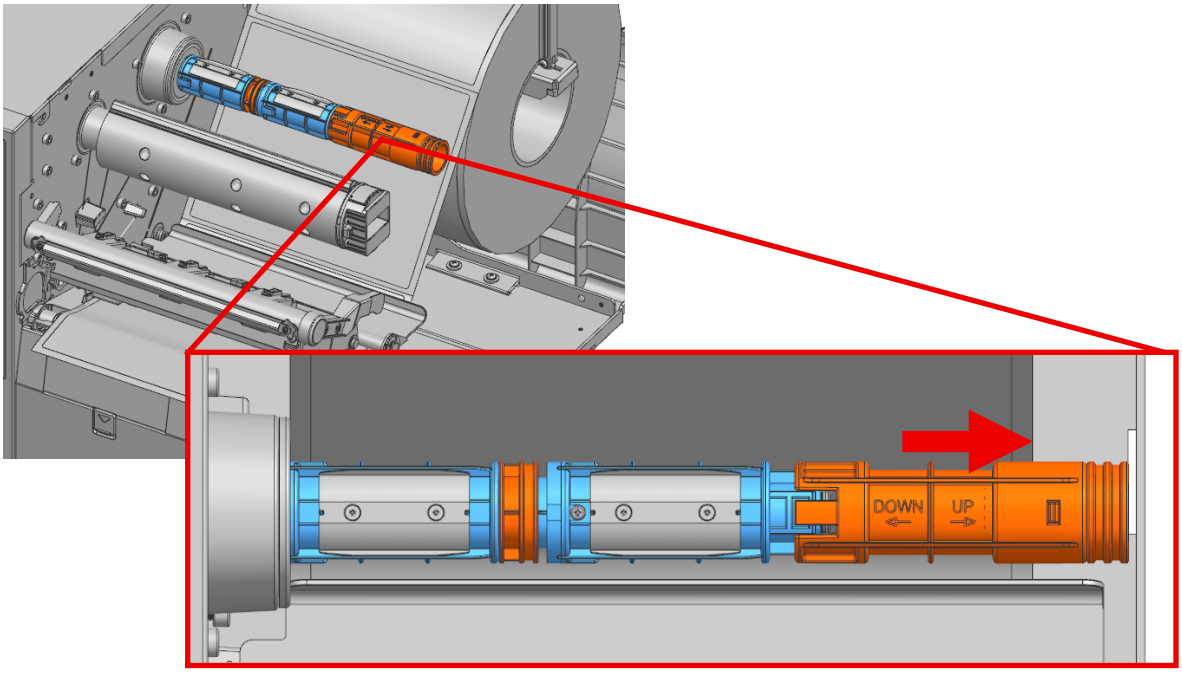


4) Close the print head lever and the media cover.

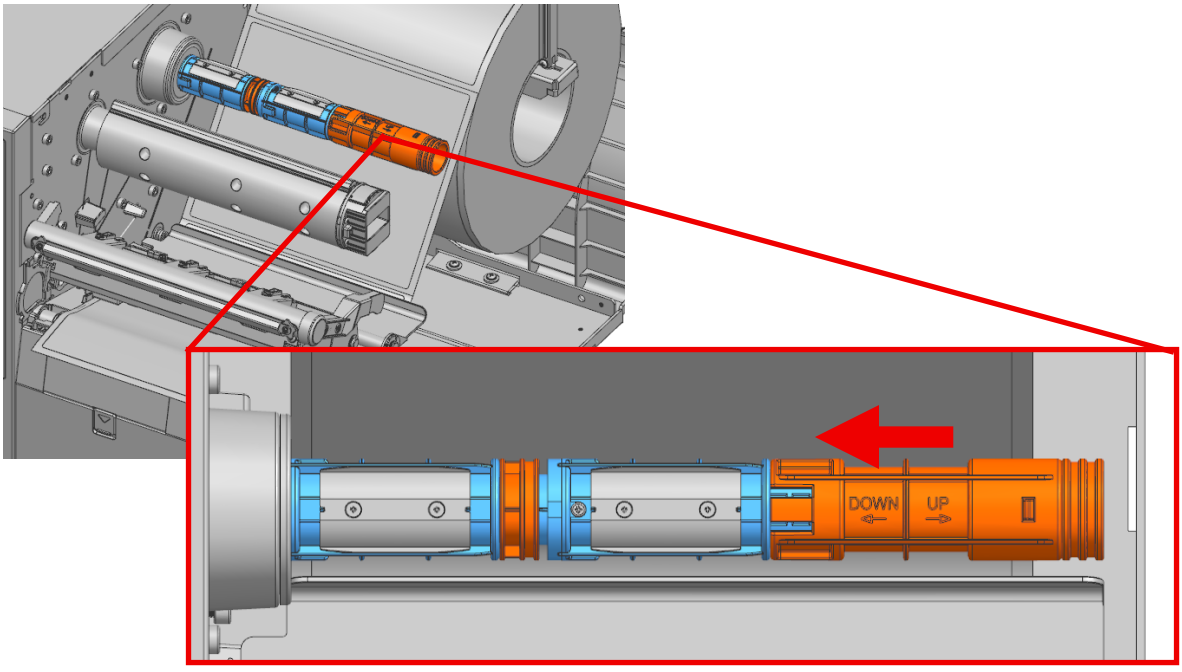
2-6-3 Load Adjustment by Ribbon Length

The printer can use all 2 to 6 inch wide ribbons and is set to 6 inch wide ribbons when shipped from the factory. Adjust the ribbon supply spindle load according to the ribbon width.

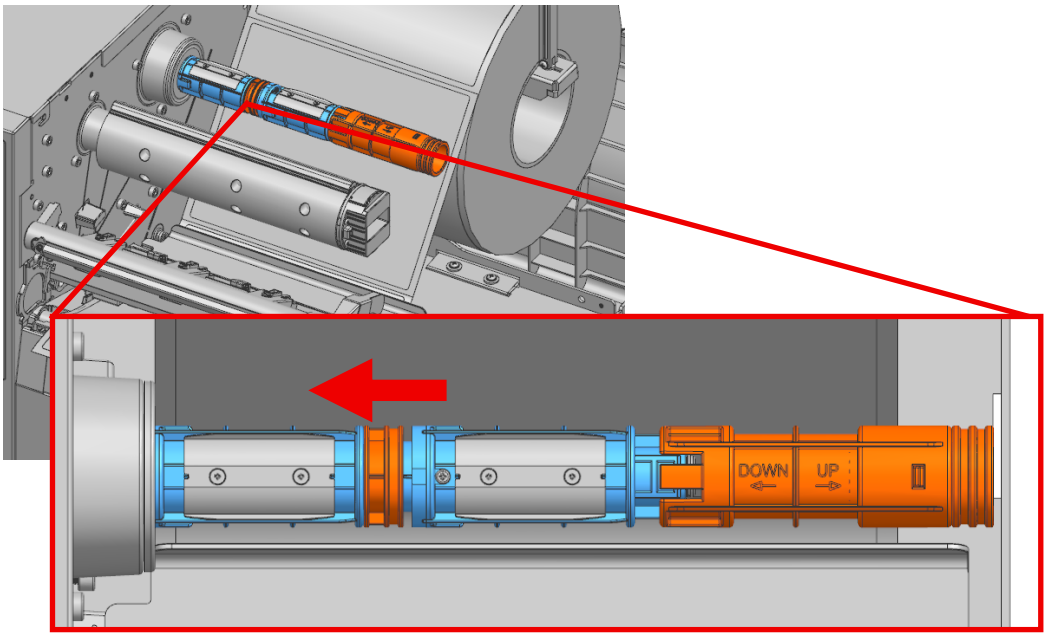
1) When using ribbon of 5 inch or 6 inch width, pull in the direction of UP marked on the ribbon supply spindle until it clicks.



2) When using ribbon of 3 inch or 4 inch width, push in the direction of DOWN marked on the ribbon supply spindle until it clicks.



3) When using ribbon of 2 inch width, push the lever in the center of the ribbon supply spindle inward until it clicks.

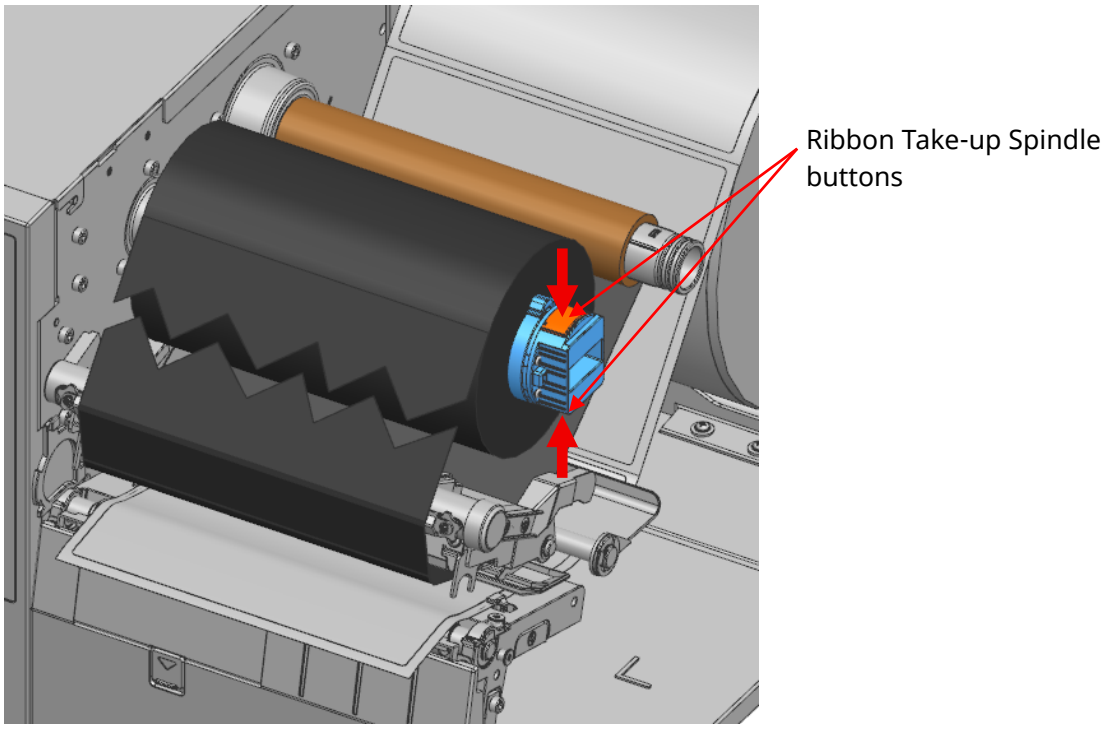


2-6-4 Ribbon Remove Method

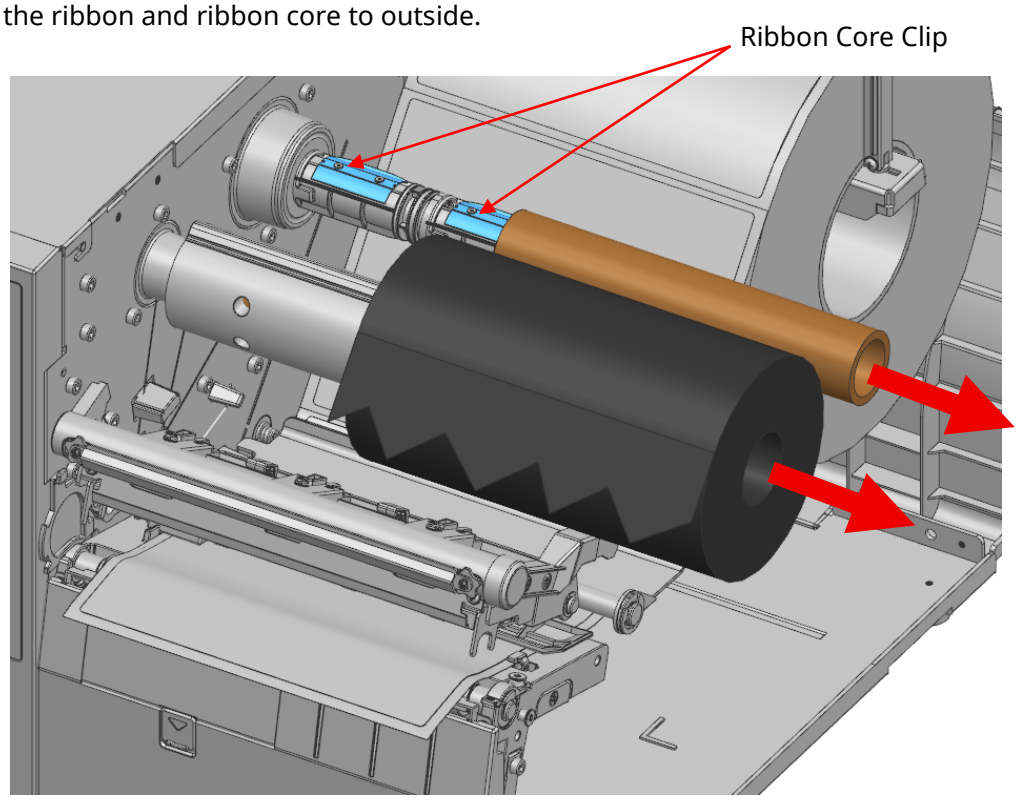
Remove the ribbons as follows.

1) Open the print head lever.

2) Cut the Ribbon and press both buttons on the ribbon take-up spindle.



3) Remove the ribbon and ribbon core to outside.

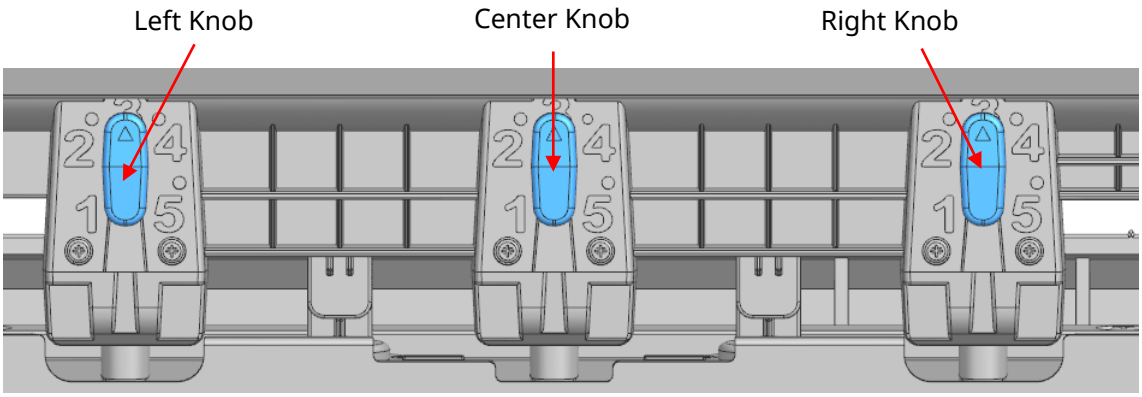


2-7 Print Head Load Control Method

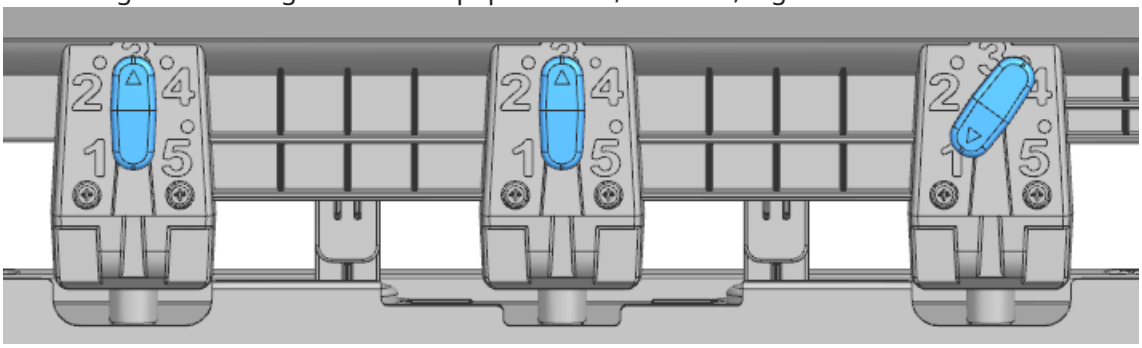
• Adjust the print head load by turning the knobs depending on the media width and thickness. When the printer ships from the factory, the left, center and right knobs are set to level 3. Adjusting the print head load can improve the print quality.

※ Turning the knob toward the level 1 (counterclockwise) direction reduces the print head load and the print density. Turning the knob toward level 5 (clockwise) increases the print head load and the print density.

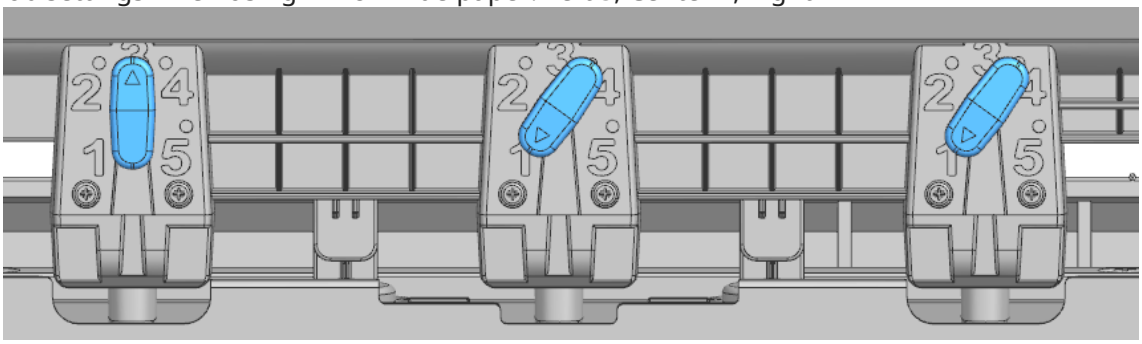
1) Default knob settings: Left 3, Center 3, Right 3



2) Knob settings when using 4-inch-wide paper: Left 3, Center 1, Right 1



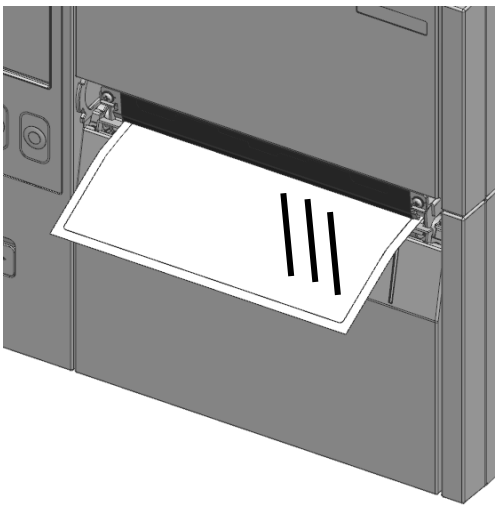
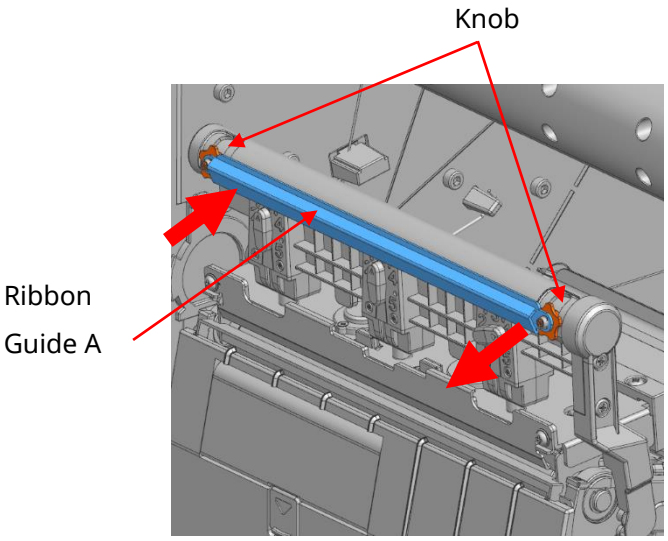
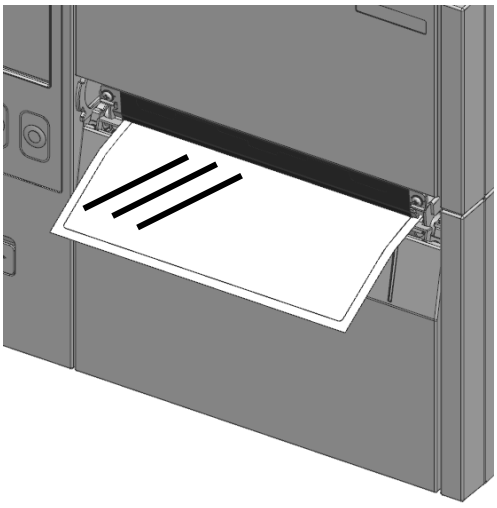
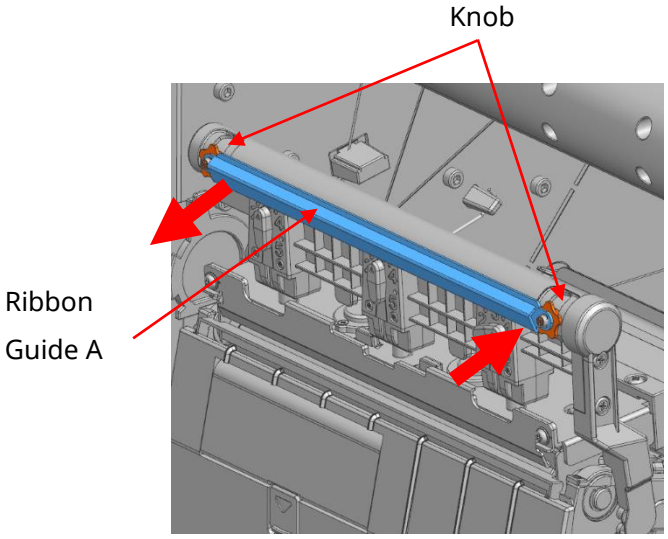
3) Knob settings when using 2-inch-wide paper: Left 3, Center 1, Right 1



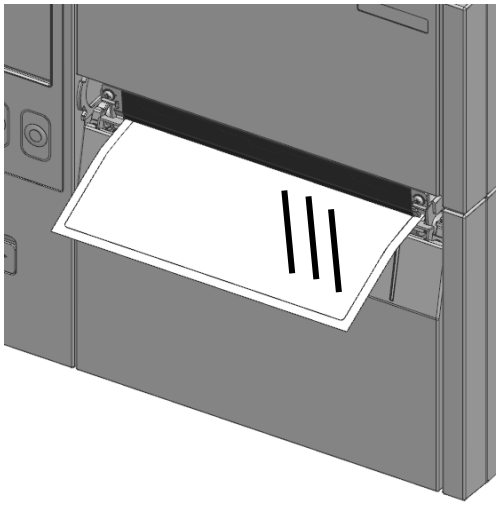
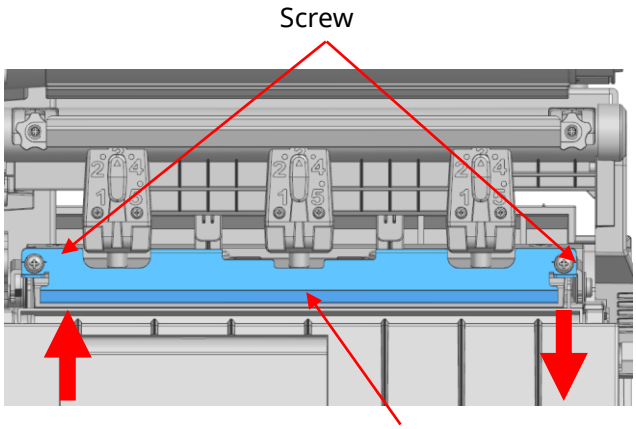
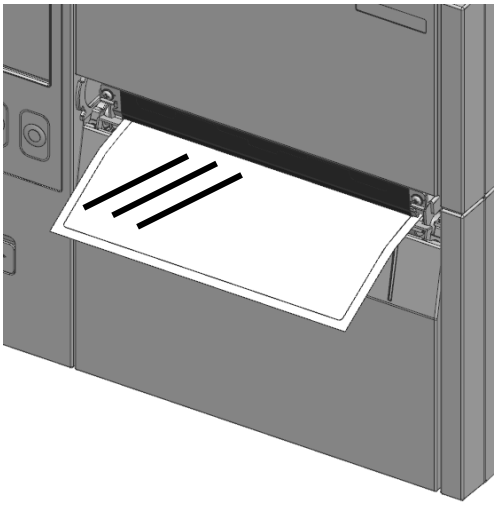
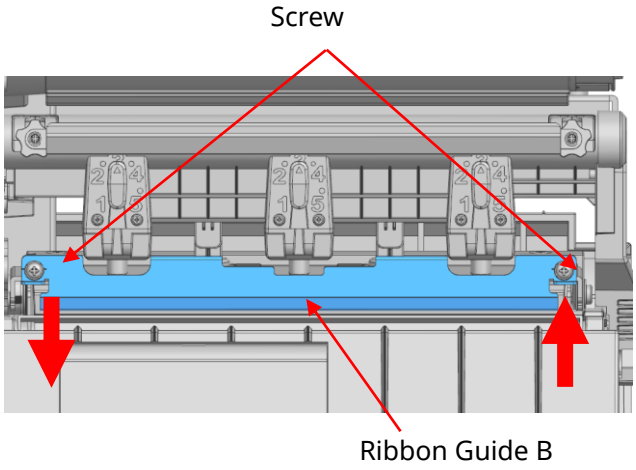
2-8 Ribbon Guide Control Method

• Wrinkles can be improved by adjusting A and B on the ribbon guides.

1) How to adjust ribbon guide A
- Adjust the forward and backward by turning the left and right knobs of ribbon guide A.

Media Printing Status	Adjustment Method
 Wrinkles on the Right	 1) Slightly loosen the knob on the right side. 2) Slightly fasten the knob on the left side.
 Wrinkles on the Left	 1) Slightly fasten the knob on the right side. 2) Slightly loosen the knob on the left side.

2) How to adjust ribbon guide B
- Slightly loosen the screws fastened to the ribbon guide B using a cross-tip screwdriver to adjust it up and down.

Media Printing Status	Adjustment Method
 Wrinkles on the Right	 1) Lower the right side of the ribbon guide B. 2) Higher the left side of the ribbon guide B.
 Wrinkles on the Left	 1) Lower the left side of the ribbon guide B. 2) Higher the right side of the ribbon guide B.

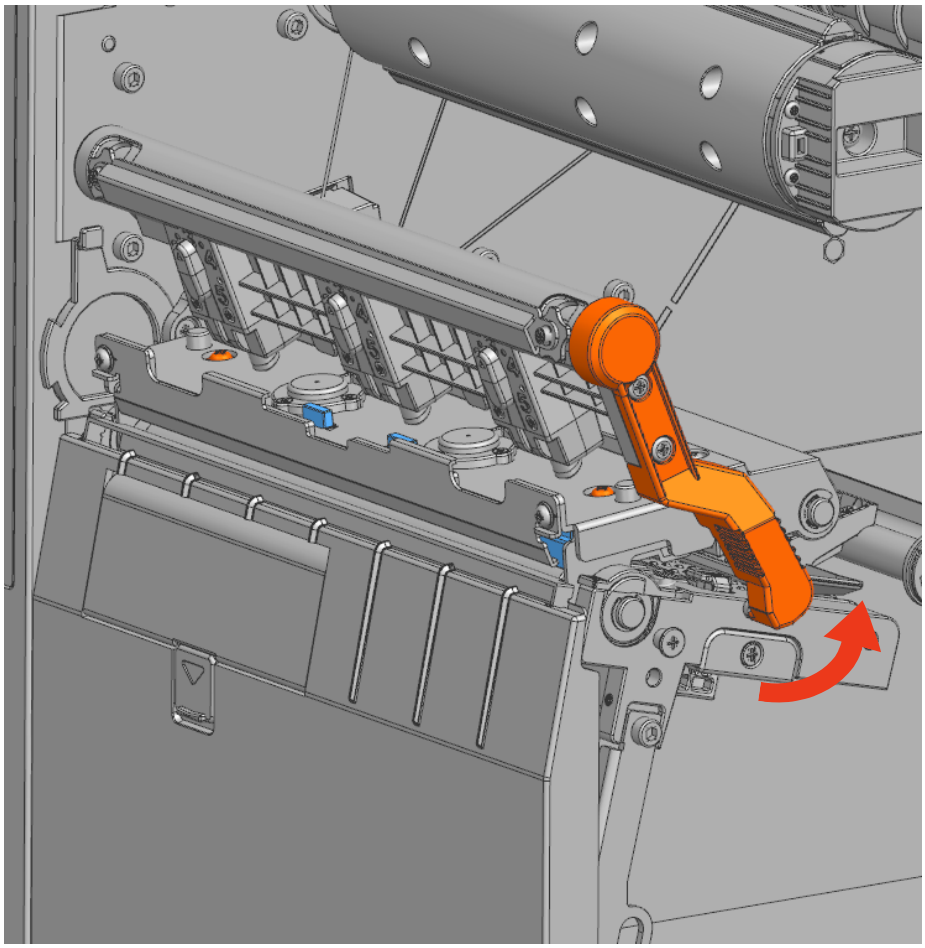
2-9 How to Fine Tune Print Head Position

• When using special paper, you can fine tune the print head position.
There is no need to do this when using standard paper.
By fine tuning the print head position, you can improve the printing quality.

1) Turn off the printer.

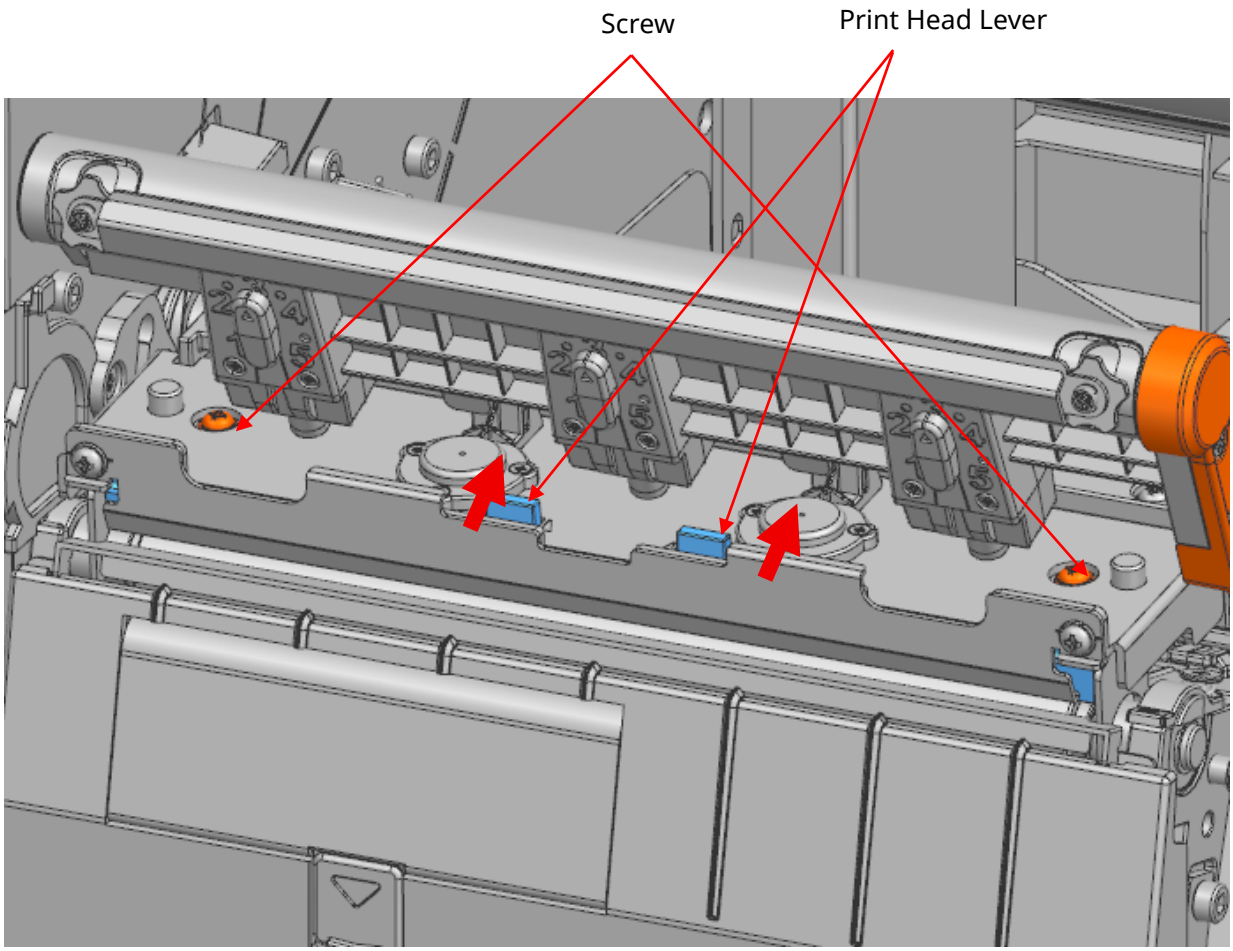
2) Unplug the power cord from the printer.

3) Slightly open the print head lever.

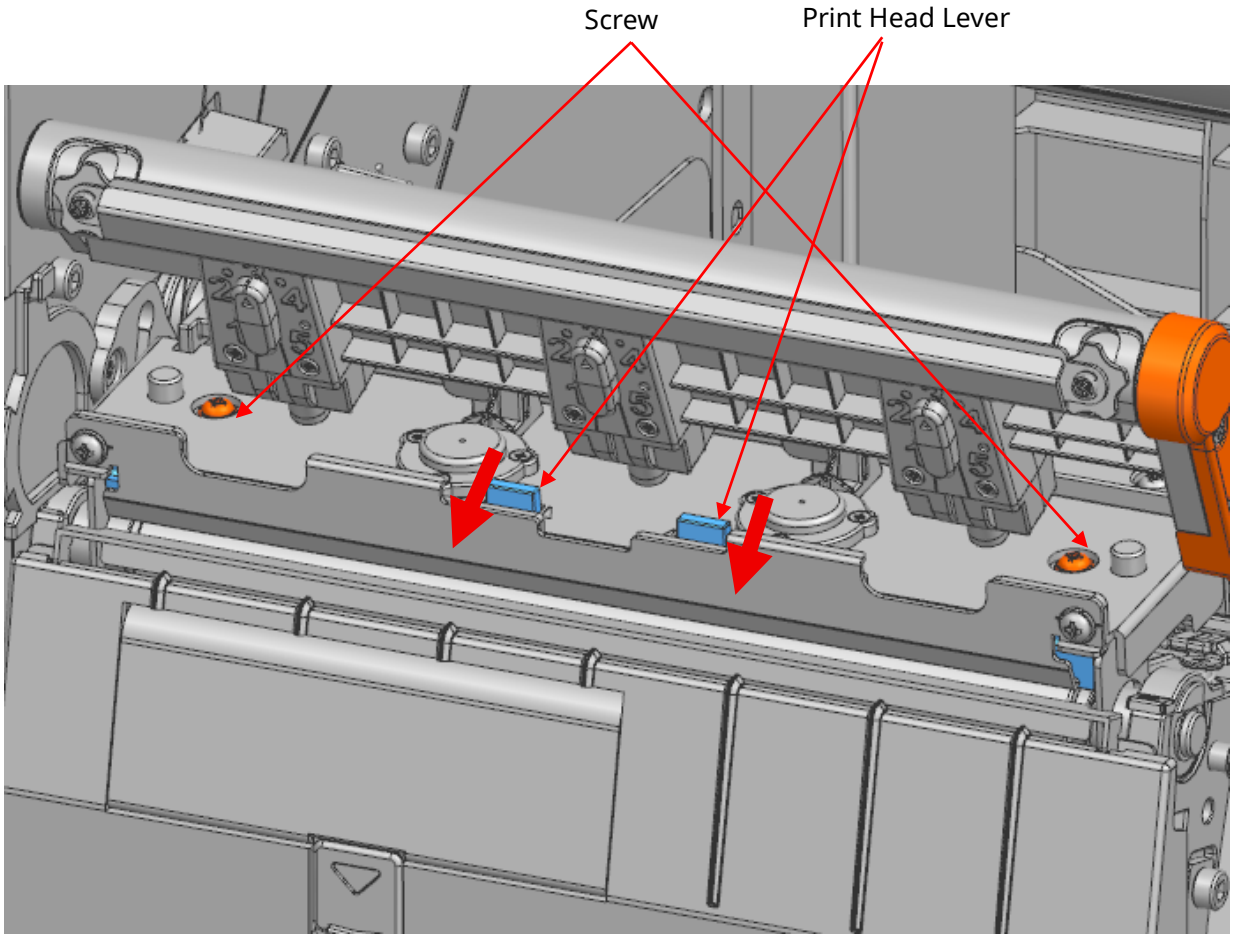


4) After slightly loosening the screws using a screwdriver,
adjust the print head adjustment lever by moving it forward and backward.

The factory default position of the print head lever is as far back as possible.



* When using thick paper (0.26 to 0.3 mm), move the print head lever position as far forward as possible.



5) After fine tuning the position, re-assemble in reverse order of disassembly.

3. Operations

3-1 Major Control Part Names(Touch Screen Model)

3-1-1 Control Panel



No	Description
1	Printer status LED
2	Interface status icon
3	Time
4	Model name
5	Firmware version
6	Printer status
7	Main icon
8	Ethernet IP, WLAN IP
9	Date
10	Printer operation button

3-1-2 Detailed Descriptions

3-1-2-1 Printer Status LED

List	Status	Explanation
POWER	ON	Printer power on
	OFF	Printer power off
STATUS	ON	Waiting for data reception
	BLINK	Receiving data
ERROR	BLINK	Print error
	OFF	In normal operation

3-1-2-2 Interface Status Icon

List	Status	Explanation
	ON	Ethernet is connected
	OFF	Ethernet is not connected
	ON	Not connected to AP
	OFF	WLAN communication is not supported
	ON	Connected to AP, Strength: 4
	ON	Connected to AP, Strength: 3
	ON	Connected to AP, Strength: 2
	ON	Connected to AP, Strength: 1
	ON	Bluetooth is not connected to the host
	OFF	Bluetooth communication is not supported
	ON	Bluetooth is connected to the host
	ON	USB device is connected
	OFF	USB device is not connected
	ON	Password feature is enabled
	OFF	Password feature is disabled
	ON	Receiving data
	OFF	No data received
	Blink	Data reception error

3-1-2-3 Date, Time (RTC clock)

List	Explanation
YYYY-MM-DD	Date
12:00 AM/PM	Time

3-1-2-4 Model Name

List	Explanation
XT6-60N	Model name

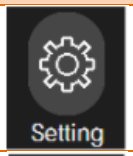
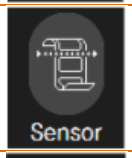
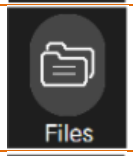
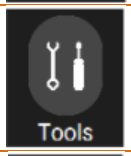
3-1-2-5 Firmware Version

List	Explanation
V01.00	Firmware version

3-1-2-6 Printer Status

List	Explanation
READY	Ready for print
STANDBY	Standing by for user input -  button: Switch to Print Standby Mode without feeding any media -  button: Feed one sheet of media to align the media position and switch to the Print Standby Mode
PRINTING	In printing
PAUSE	Printing pause
CANCEL	Canceled printing
F/W Downloading	Downloading firmware
PRINT HEAD OPEN	Print head is open
PRINT HEAD OVER TEMP	Print head has reached the maximum temperature
PRINT HEAD COLD TEMP	Print head has reached the minimum temperature
AUTO CUTTER JAM	Media is stuck in the auto cutter blade
MEADIA OUT	Media is not installed correctly
RIBBON OUT	Ribbon is not installed correctly
MEADIA JAM	Media is jammed and not printing normally
SENSING FAIL	Media is not recognized normally

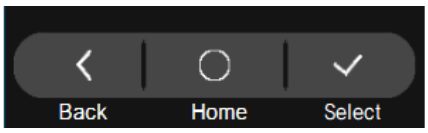
3-1-2-7 Main Icons

List	Explanation
	Printer settings
	Interface settings
	Sensor settings
	File settings
	Additional and other functions settings
	Providing printer information

3-1-2-8 Ethernet IP, WLAN IP

List	Explanation
LAN: 192.168.100.123	Ethernet IP
WLAN: 192.168.100.123	WLAN IP (displayed only when WLAN is supported)

3-1-2-9 Function Button

List	Explanation
	Select, Cancel, Save, Delete, Move to main menu

3-1-2-10 Printer Operation Button

List	Explanation
	Press the button to feed one label
	Press the button for 2 seconds during printing to pause printing
	Press the button for 2 seconds during printing to cancel printing

3-2 Printer Setting using LCD Menu

3-2-1 Menu Composition(Standard Model, Touch Screen Model)

	Explanation	
Setting	Print Width	
	Print Length	
	Print Direction	
	Print Speed	
	Print Density	
	Print Method	
	Media Type	
	Tear Off	
	Print Offset	
	Left Position	
	Print Mode	
	Power Up Action	
	Print Head Close	
	GPIO	GPIO Port Mode
		Start Print Mode
		Error on Pause
		Reprint
		Voltage Info.

	Explanation			
Interface	Serial	Baud Rate		
		Data Bits		
		Parity		
		Stop Bit		
		Host Handshake		
	Ethernet	IP Protocol		
		IP Address		
		Subnet Mask		
		Gateway		
		MAC Address		
	WLAN	Network		
		ESSID (APID)		
		Auth (Authentication)		
		Encrypt (Encryption)		
		WEP Password		
		PSK Password		
		IP Protocol		
		IP Address		
		Subnet Mask		
		Gateway		
		Frequency		
		SWC (Simple Wi-Fi Connect)	Execute SWC	
			Print App URL	
		WLAN Factory Reset		
	Bluetooth	Device Name		
		Pairing	PIN Code	
			SSP(Secure Simple Pairing)	
		MAC Address		
		Role Mode	Bluetooth Low Energy	
			Classic	Auth&Enc (Authentication & Encryption)
				Connect Mode
		BT Factory Reset		
	Interface Info			

	Explanation
Sensor	Gap Calibration
	Black Mark Calibration
	Max Calibration Length
	Sensor Sensitivity

	Explanation	
Files	Saved File	Template
		Image
		Download Font
		E Drive (Flash Memory)
		A Drive (USB Memory)
	Twin Function	Printer Setting
		Template
		Image
		Download Font
	Firmware Update	

	Explanation	
Tools	Self Test	
	Factory Reset	
	Dump Mode	
	Print Head Check	
	LCD	Dead Pixel Test
		Touch Position Test
		Backlight Brightness
	Real Time Clock	Date Setting
		Time Setting
		Date Format
		Time Format
	Language Setting	
	Emulation	
	USB Serial Number	
	Buzzer Setting	
	Sleep Mode	
	Security	Password Enable
		Password Setting
	Demo Print	
	Reprint Mode	

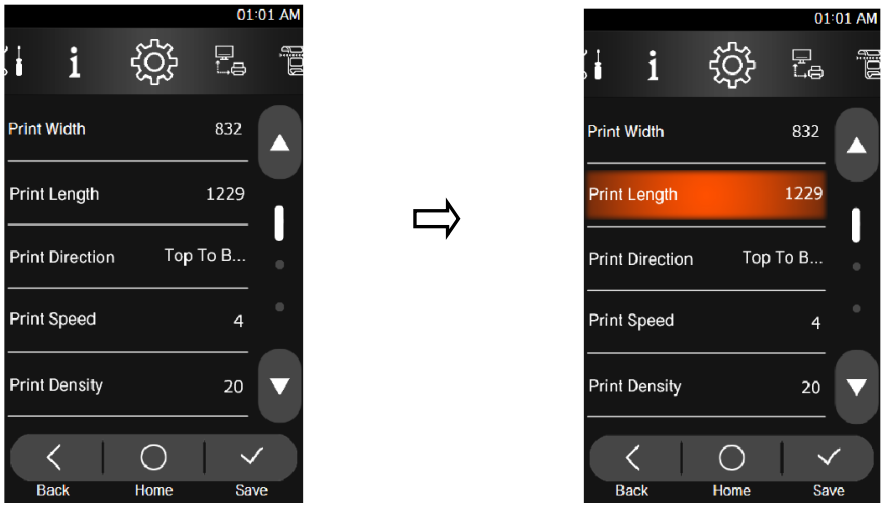
	Explanation	
Information	Printer Info	
	Installation & Usage	Media Installation
		Media Installation (Peel Off)
		Media Installation (Rewinder)
		Ribbon Installation
		Peel off Installation
		Auto Cutter Installation
		Replace Media
		Replace Ribbon
		Replace Print Head
	Troubleshooting	
	Contact US	

3-2-2 Menu Select Method(Touch Screen Model)

1) Press the Settings menu while in the Ready to Print state.



2) Press screen to enter the sub menu.

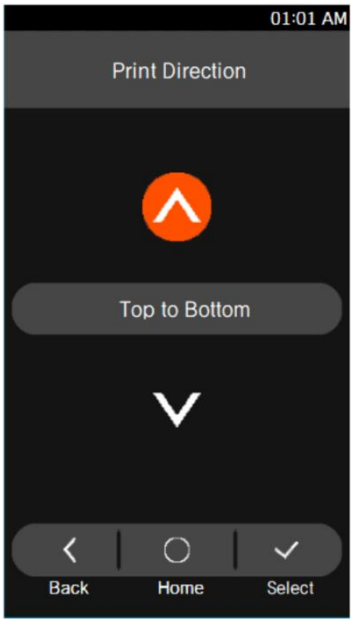


3) If there are no input for 5 seconds, it returns to main screen.



3-3-3 Setting Confirm Method(Touch Screen Model)

1) How to use the up and down buttons



(1) Select the desired setting value using ▲ or ▼ button

(2) After selecting the setting value, save it with ✓ button.

(3) If you want to exit the menu without setting,
press < button to move to the previous screen.

(4) If you want to exit the menu without setting,
press ○ button to move to the main screen.

2) How to input numbers



(1) Select the desired setting value using number keypad.

(2) With X, you can delete the input value.

(3) With DEL, you can delete the all input value.

(4) After selecting the setting value, save it with ✓ button.

(5) If you want to exit the menu without setting,
press < button to move to the previous screen.

(6) If you want to exit the menu without setting,
press ○ button to move to the main screen.

3) How to input characters(English only)



(1) Select the desired setting value using keypad.

(2) With , you can delete the input value.

(3) With , you can input the capital lettere.

(4) After selecting the setting value, save it with button.

(5) If you want to exit the menu without setting,
press button to move to the previous screen

(6) If you want to exit the menu without setting,
press button to move to the main screen.

4) How to input IP address



(1) Select the desired IP Address using number keypad.

(2) With , you can delete the input value.

(3) With , you can input the Dot(.)
* from 0 to 99, press Dot(.) to move next
* from 100 to 255, Dot(.) would be automatically generated.

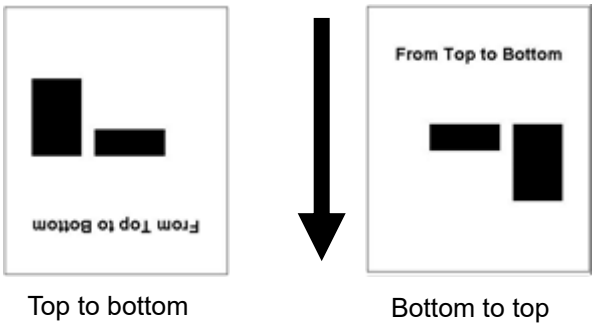
(4) After selecting the setting value, save it with button.

(5) If you want to exit the menu without setting,
press button to move to the previous screen

(6) If you want to exit the menu without setting,
press button to move to the main screen.

3-2-4 Setting Menu Explanation(Standard, Touch Screen Model)

3-2-4-1 Setting

List	Explanation
Print Width	**Explanation** Setting media width[dots] Function to adjust image buffer size according to print width **Default Value** 203dpi: 1,344dots(168mm) 300dpi: 1,984dots(168mm) **Maximum Value** 203dpi: 1,344dots(168mm) 300dpi: 1,984dots(168mm)
Print Length	**Explanation** Setting media length[dots] Function to adjust image buffer size according to print length **Default Value** 203dpi: 1,225dot (153mm) 300dpi: 1,811dot (150mm) **Maximum Value** 203dpi: 20,800dot (2,600mm) 300dpi: 14,400dot (1,200mm)
Print Direction	**Explanation** Setting printing direction Top to bottom: Printing from top to bottom Bottom to Top: Printing from bottom to top **Default Value** Bottom to Top **Variable Value** Bottom to Top, Top to Bottom Printing Direction  Top to bottom Bottom to top

Print Speed	**Explanation** Setting print speed[ips] **Default Value** 203dpi: 6ips 300dpi: 6ips **Variable Value** 203dpi: 2 ~ 12ips 300dpi: 2 ~ 10ips
Print Density	**Explanation** Setting print density **Default Value** 203dpi: 20 300dpi: 20 **Variable Value** 0 ~ 30
Print Method	**Explanation** Setting print method **Default Value** Transfer **Variable Value** Transfer, Direct
Media Type	**Explanation** Setting media type **Default Value** Gap **Variable Value** Gap, Black Mark, Continuous
Tear Off	**Explanation** Setting media position[dots] for tear off after printing or feed **Default Value** 0 **Variable Value** -100 ~ 100

Print Offset	**Explanation** Setting top print position[dots] **Default Value** 0 **Variable Value** -100 ~ 100
Left Position	**Explanation** Setting left print position[2dots] **Default Value** 0 **Variable Value** -300 ~ 300
Print Mode	**Explanation** Setting print mode suitable to the printer option **Default Value** Tear Off **Variable Value** Tear Off, Auto Cutter, Rewinder
Power Up Action	**Explanation** Setting the action for the printer after the power-up sequence. **Default Value** No Feed **Variable Value** No Feed, Set Label Length, Media Calibration, Feed
Print Head Close	**Explanation** Setting the action for the printer when you close the print head **Default Value** Feed **Variable Value** Feed, Standby Mode, No Feed, Set Label Length, Media Calibration

3-2-4-2 GPIO

List	Explanation
GPIO Port Mode	**Explanation** Set the “END PRINT” signal for the GPIO port. **Default Value** Off **Variable Value** Off: GPIO disabled (printing without the start signal) 1: In general, the end print signal is HIGH and becomes LOW when printing/feeding. 2: In general, the end print signal is LOW and becomes HIGH when printing/feeding. 3: In general, the end print signal is HIGH and becomes LOW for 40ms after printing. 4: In general, the end print signal is LOW and becomes HIGH for 40ms after printing. **Command** ^gt
Start Print Mode	**Explanation** Set the “START PRINT” signal for the GPIO port. **Default Value** Level Mode **Variable Value** Pulse Mode: starts printing when the signal changes from HIGH to LOW Level Mode: starts printing when the LOW signal is input **Command** ^gt
Error on Pause	**Explanation** Add Pause to the "ALERT" signal for the GPIO port. **Default Value** Enable **Variable Value** Enable, Disable **Command** ^gt

Reprint	**Explanation** Set the “REPRINT” signal type for the GPIO port. **Default Value** Disable **Variable Value** Disable, Active Low, Active High **Command** ^gt
Voltage Info.	**Explanation** Check the ground status and output voltage. **Command** ^gv

3-2-5 Interface Menu Explanation(Standard, Touch Screen Model)

3-2-5-1 Serial

List	Explanation
Baud Rate	**Explanation** Setting the baud rate **Default Value** 115200 **Variable Value** 9600, 19200, 38400, 57600, 115200
Data Bits	**Explanation** Setting the data bit **Default Value** 8 **Variable Value** 7, 8
Parity	**Explanation** Setting the parity **Default Value** None **Variable Value** None, Odd, Even
Stop Bit	**Explanation** Setting the stop bit **Default Value** 1 **Variable Value** 1, 2
Host Handshake	**Explanation** Setting the handshake **Default Value** RTS_CTS **Variable Value** RTS_CTS, DTR_DSR, XON_XOFF

3-2-5-2 Ethernet

List	Explanation
IP Protocol	**Explanation** Setting IP assignment method **Default Value** DHCP **Variable Value** DHCP, Static IP
IP Address	**Explanation** Setting IP Address method **Default Value** Static IP: 192.168.192.123 DHCP: 0.0.0.0 **Variable Value** 0 ~ 255
Subnet Mask	**Explanation** Setting subnet mask **Default Value** Static IP: 255.255.255.0 DHCP: 0.0.0.0 **Variable Value** 0 ~ 255
Gateway	**Explanation** Setting gateway **Default Value** Static IP: 192.168.192.254 DHCP: 0.0.0.0 **Variable Value** 0 ~ 255
MAC Address	**Explanation** Indicating MAC address

3-2-5-3 WLAN

List	Explanation
Network	**Explanation** Setting WLAN operation mode **Default Value** Soft AP **Variable Value** Soft AP, Infrastructure, P2P
ESSID	**Explanation** Setting the ID of AP to be accessed **Default Value** PRINTER_xxxxxx(product specific value)
Auth	**Explanation** Setting WLAN authentication method **Default Value** Open System **Variable Value** Open System, Shared Key, WPA1PSK, WPA2PSK, WPA1EAP, WPA2EAP
Encrypt	**Explanation** Setting WLAN encryption method **Default Value** None **Variable Value** None, WEP64/128, TKIP, AES, AES+TKIP
WEP Password	**Explanation** Setting WEP password
PSK Password	**Explanation** Setting PSK password
IP Protocol	**Explanation** Setting IP assignment method **Default Value** DHCP **Variable Value** Static IP, DHCP
IP Address	**Explanation** Setting IP address **Default Value** Static IP: 192.168.1.1 DHCP: 0.0.0.0 **Variable Value** 0 ~ 255

Gateway	**Explanation** Setting gateway **Default Value** Static IP: 192.168.1.254 DHCP: 0.0.0.0 **Variable Value** 0 ~ 255	
Frequency	**Explanation** Setting Frequency **Default Value** 2.4/5GHz(Priority:2.4GHz) **Variable Value** 2.4GHz, 5GHz, 2.4/5GHz(Priority:2.4GHz), 2.4/5GHz(Priority:5GHz)	
SWC	**Execute SWC**	**Explanation** Connecting printers to network environments using SWC(Simple Wi-Fi Connect) mode
	Print App URL	**Explanation** Site linking(QR code) for SWC technical support
WLAN Factory Reset	**Explanation** Initializes the WLAN settings to factory default	

3-2-5-4 Bluetooth

List			Explanation
Device Name			**Explanation** Name of Device
Pairing	**PIN Code**		**Explanation** Changes required PIN code to connect
	SSP		**Explanation** Secures simple pairing **Default Value** Disable **Variable Value** Disable, Just Works, Numeric Comparison, Passkey Entry
MAC Address			**Explanation** Bluetooth device MAC address
Role Mode	**Bluetooth Low Energy**		**Explanation** Bluetooth Low Energy **Default Value** Disable **Variable Value** Disable, Enable
	Classic	**Connect Mode**	**Explanation** Setting Bluetooth connection mode **Default Value** Mode 2 **Variable Value** Mode 1, Mode 2, Mode 3
		Connect Mode	**Explanation** Setting Bluetooth connection mode **Default Value** Mode 2 **Variable Value** Mode 1, Mode 2, Mode 3
BT Factory Reset			**Explanation** Initializes the BT settings to factory default

3-2-5 Sensor Menu Explanation

List	Explanation
Gap Calibration	**Explanation** Detect media gap and calibrate automatically
Black Mark Calibration	**Explanation** Detect media black mark and calibrate automatically
Max Calibration Length	**Explanation** Adjustment of maximum calibration length **Default Value** 600 (mm) **Variable Value** 150 ~ 2000 (mm)
Sensor Sensitivity	**Explanation** Adjusts the sensitivity of the gap sensor **Default Value** 70 **Variable Value** 10 ~ 100

3-2-6 Files Menu Explanation

List	Explanation		
Files	**Saved File**	Template	**Refer** 3-2-6-1 Saved File
		Image	
		Download Fonts	
		E Drive (Flash Memory)	
		A Drive (USB Memory)	
	Twin Function	PRT Set (Printer Setting)	**Refer** 3-2-6-2 Twin Function
		Template	
		Image	
		Download Fonts	
	F/W Update		**Refer** 3-2-6-3 F/W Update

3-2-6-1 Saved File

Displays the list of object files stored in the printer on the LCD screen.

List	Explanation
Template	Template list stored in the printer
Image	Image list stored in the printer (*.pcx)
Download Font	Download font list stored in the printer
E Drive (Flash Memory)	Saved object files in E drive
A Drive (USB Memory)	Saved object files in A drive

3-2-6-2 Twin Function

Saves the current printer settings, save files (templates, images, download fonts) to another printer using USB, or loads the settings of another printer and saves files to the current printer.

List	Explanation
Printer Setting	**Explanation** Saves printer settings to a USB storage device, or loads the print settings from USB storage. **File path** F:\configuration
Template	**Explanation** Saves template file to a USB storage device, or load the template from USB storage. **File path** F:\ USER_AREA_TEMPLATES
Image	**Explanation** Saves image file to a USB storage device, or load the image from USB storage (*.pcx) **File path** F:\ USER_AREA_PCXImages
Download Font	**Explanation** Saves download font file to a USB storage device, or load the download font from USB storage. **File path** F:\ USER_AREA_FONTS
Printer Setting	**Explanation** Saves printer settings to a USB storage device, or loads the print settings from USB storage. **File path** F:\configuration **• Save Function Explanation** - Connect a USB storage to the printer. - Select Save on the menu using the up and down buttons. - The printer_config file is created in the configuration folder of USB storage device. (The configuration folder is automatically created) **• Load Function Explanation** - Check whether the printer_config file exists in the configuration folder of the USB storage device. (If there is no file, save the printer settings first.) - Connect the USB storage to the printer. - Select Load from the Printer Setup menu using the up and down buttons. - Loading message is displayed while loading, and when loading is completed, USB loading completion message is displayed. - Check the change of the printer's settings.

List	Explanation
Template	**Explanation** Saves template file to a USB storage device, or load the template from USB storage. **File path** F:\ USER_AREA_TEMPLATES **• Save Function Explanation** - Connect a USB storage to the printer. - Select Save on the menu using the up and down buttons. - Template files are stored in the USER_AREA_TEMPLATES folder of USB storage device. (USER_AREA_TEMPLATES folder is automatically created) **• Load Function Explanation** - Check whether a template file exists in the USER_AREA_TEMPLATES folder of the USB storage device. (If the file does not exist, create a USER_AREA_TEMPLATES folder and save the template file to be copied to the printer below first) - Connect the USB storage to the printer. - Select Load from the Printer Setup menu using the up and down buttons. - Loading message is displayed while loading, and when loading is completed, USB loading completion message is displayed. - Go to Save File menu then, check the template file is normally saved to the printer.
Image	**Explanation** Saves image file to a USB storage device, or load the image from USB storage (*.pcx) **File path** F:\ USER_AREA_PCXImages **• Save Function Explanation** - Connect a USB storage to the printer. - Select Save on the menu using the up and down buttons. - Image files are stored in the USER_AREA_PCXImages folder of USB storage device. (USER_AREA_PCXImages folder is automatically created) **• Load Function Explanation** - Check whether the image file exists in the USER_AREA_PCXImages folder of the USB storage device. (If there is no file, create the USER_AREA_PCXImages folder and save the image file to be copied to the printer below first.) - Connect the USB storage to the printer. - Select Load from the Printer Setup menu using the up and down buttons. - Loading message is displayed while loading, and when loading is completed, USB loading completion message is displayed. - Go to Save File menu then, check the image file is normally saved to the printer.

List	Explanation
Download Font	**Explanation** Saves download font file to a USB storage device, or load the download font from USB storage. **File path** F:\ USER_AREA_FONTS **• Save Function Explanation** - Connect a USB storage to the printer. - Select Save on the menu using the up and down buttons. - Download Font files are stored in the USER_AREA_FONTS folder of USB storage device. (USER_AREA_FONTS folder is automatically created) **• Load Function Explanation** - Check if the downloaded font file exists in the USER_AREA_FONTS folder of the USB storage device. (If there is no file, create the USER_AREA_FONTS folder and save the download font file to be copied to the printer below first.) - Connect the USB storage to the printer. - Select Load from the Printer Setup menu using the up and down buttons. - Loading message is displayed while loading, and when loading is completed, USB loading completion message is displayed. - Go to Save File menu then, check the download font file is normally saved to the printer.

3-2-6-3 Firmware Update

Firmware can be updated through USB storage.

F/W Update	**Explanation** Printer firmware update available using the USB storage directly without any communication. **File path** F:\ FW_DOWNLOAD **File name** “XT6-6x_Vxx.xx_STD_mmddyy.fls” in F:\ FW_DOWNLOAD folder. (203dpi : x is 0 / 300dpi : x is 3 / 400dpi : x is 6) • **Download process explanation** - Check firmware file(*.fls) is in FW_DOWNLOAD folder of USB storage. (If there is no folder, please create FW_DOWNLOAD folder and save the firmware file (* .fls) to it.) - Connect USB storage to the printer. - Select “F/W Update” from the “Files” menu. - Select the firmware download menu. - If the message "F/W Downloading" is displayed, the firmware download has started normally. - When the firmware download is completed successfully, the message "Printer Restart" is displayed and the rebooting process is automatically performed.

3-2-7 Tools Menu Explanation

List		Explanation
Self Test		**Explanation** Prints for self-test
Factory Reset		**Explanation** Initializes the printer settings to factory default
Dump Mode		**Explanation** Diagnoses communication status when printing is not normal **Default Value** Off **Variable Value** Off, Print, USB Memory
Print Head Check		**Explanation** Dot-out check of head through printing
LCD	**Dead Pixel Test**	**Explanation** LCD pixel test function
	Touch Position Test	**Explanation** LCD touch position test function (supported on Touch Screen Model only)
	Backlight Brightness	**Explanation** Setting backlight brightness **Default Value** 70 **Variable Value** 10 ~ 100
Real Time Clock		**Explanation** Setting RTC date and time Setting RTC date and time format **Date format** YYYY-MM-DD, YYYY/MM/DD, MM-DD-YYYY, MM/DD/YYYY, DD-MM-YYYY, DD/MM/YYYY **Time format** 12H, 24H
Language Setting		**Explanation** Setting language to be displayed on the LCD **Default Value** English **Variable Value** English, Korean, German, French, Spanish, Chinese(Traditional), Chinese(Simplified), Japanese, Thai, Italy, Norway, Portuguese, Swedish, Danish, Dutch, Finnish, Czech, Romanian, Russian, Polish, Turkish

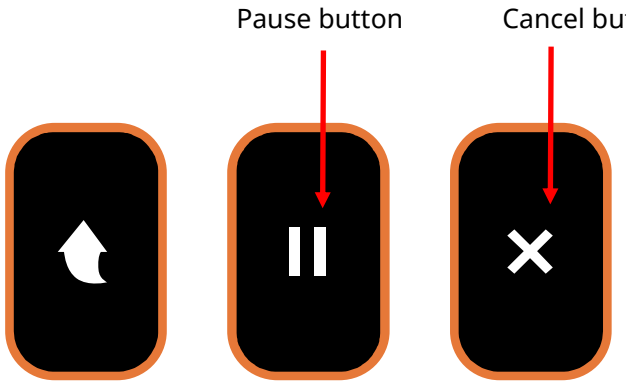
Emulation	**Explanation** Setting printer emulation **Default Value** AUTO **Variable Value** AUTO(SLCS, BPL-Z, BPL-E), BPL-D, PDF
USB Serial Number	**Explanation** Checks USB serial number
Buzzer Setting	**Explanation** Setting beep on / off **Default Value** Enable **Variable Value** Enable, Disable
Sleep Mode	**Explanation** Sleep mode on / off **Default Value** Enable **Variable Value** Enable, Disable
Security	**Explanation** Setting a password to restrict printer settings **Default Value** Disable **Variable Value** Disable, Enable
Demo Print	**Explanation** Demo format output function
Reprint Mode	**Explanation** A feature that allows you to reprint the last printed label **Default Value** Disable **Variable Value** Disable, Enable

3-3-8 Info Menu Explanation

List	Explanation
Printer Info	**Explanation** Checking the printer usage information
Installation & Usage	**Explanation** Site linking(QR code) for installation and usage instructions
Troubleshooting	**Explanation** Site linking(QR code) for troubleshooting
Contact US	**Explanation** Site linking(QR code) for technical support

3-4 Pause/Cancel

• During multiple-page print jobs, the Pause and Cancel button can be used to pause printing and cancel the print job altogether, respectively.



3-4-1 Pause/Resume Function





1) When printing, press the Pause button( ).

2) The printer will pause after finishing the current media printing and the status of LED, LCD will be as follows.
   - Status LED: Green Blink
   - Status LCD: PAUSE

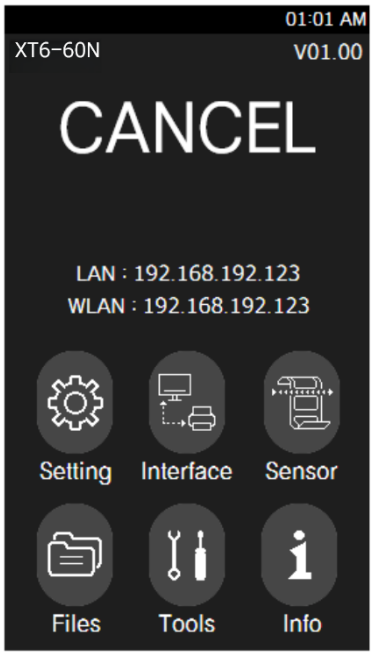
3) While the print job is paused press the Pause button( ) again to resume printing.

3-4-2 Print Cancellation

The following processes occur in the print cancellation mode.

- All label printing cancelled
- All data received in the printer communications buffer deleted.
- All received data deleted.





1) During printing and/or pause mode, press the Cancel button( ) enters the print cancellation mode.

2) The LCD Status in the print cancellation mode can be as follows.
   - STATUS LED: Green Blink
   - LCD: Press CANCEL

3) While in the print cancellation mode, press the Cancel button( ) again to return to print ready mode.

3-5 Smart Media Detection

• Media with gap and black mark can be identified without additional settings.

• 3~5 pages of media will be used depending on the types of media.

• Smart Media Detection function is executed in the followings cases

- When the printer is installed first time, it is executed by pressing Feed button( )
- If the printer is installed first time, printer command will execute Smart Media Detection.
- When change of media length or type is detected during feeding or printing.
- When the different media type command is entered from the configured media type.
- After factory reset.

3-6 Gap Sensor Auto Calibration Mode

• Gap sensor auto calibration mode is used when the printer does not detect a gap on the media correctly.

Generally a printer is set to detect most types of gap but sometimes it fails to detect and keep feeding the media without a stop when special media used. In such case, use gap sensor auto calibration mode function for a proper detection.

1) Make sure that media roll has been installed properly.

2) In print ready mode press "**Sensor → Gap Calibration**" to process gap sensor auto Calibration mode.

* Please refer Tools Menu Explanation (3-3-1) for more information.

3-7 Black Mark Sensor Auto Calibration Mode

• Black mark sensor auto calibration mode is used when the printer does not detect a black mark on the media correctly.

Generally a printer is set to detect most types of black mark but sometimes it fails to detect and keep feeding the media without a stop when special media used. In such case, use black mark sensor auto calibration mode function for a proper detection.

1) Make sure that media roll has been installed properly.

2) In print ready mode press "**Sensor → Black Mark Calibration"** to process black mark sensor auto Calibration mode.

* Please refer Tools Menu Explanation (3-3-1) for more information.

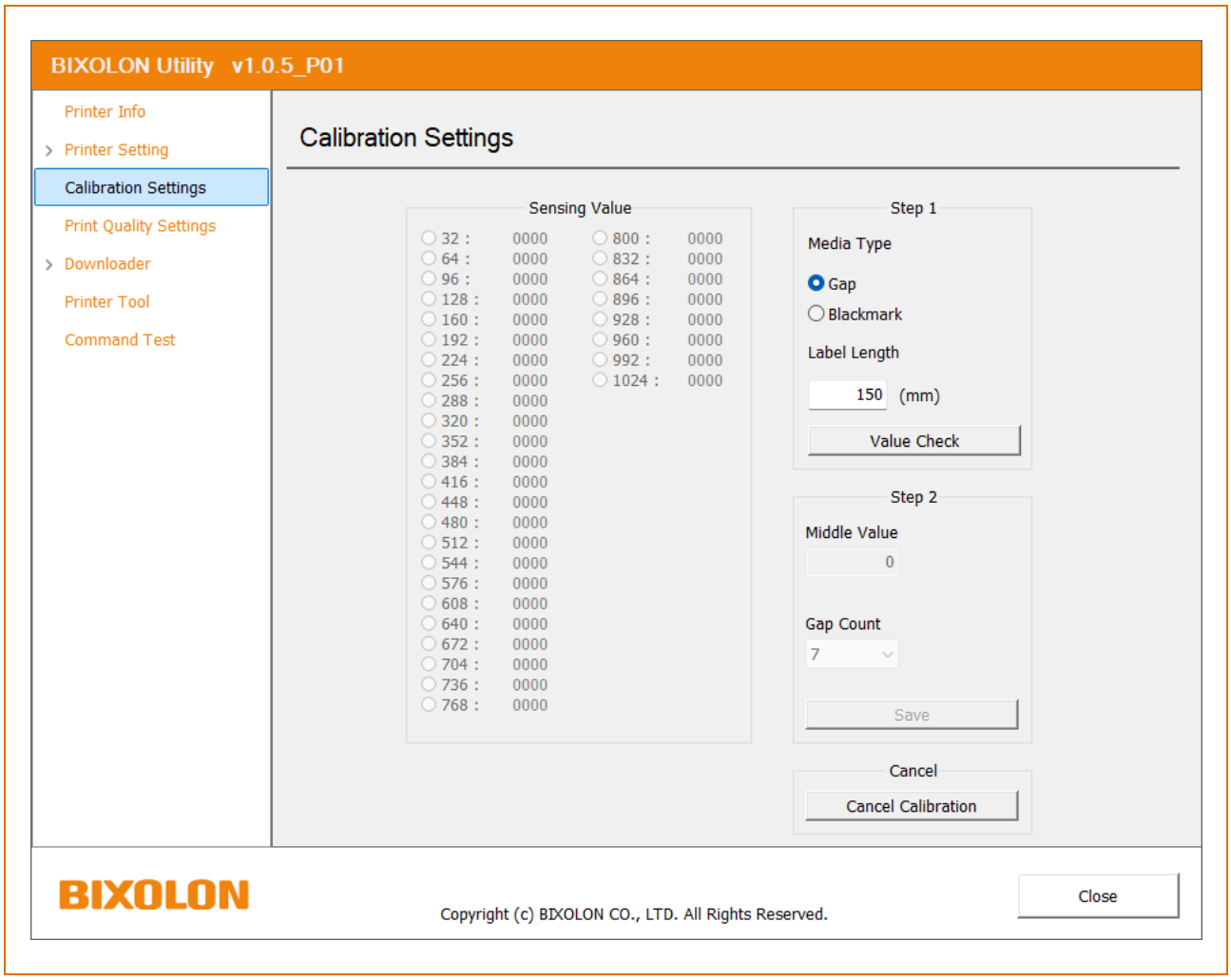
3-8 Media Sensor Manual-Calibration

• Manual-calibration of media detection can be used when the printer cannot detect a media gap (or black mark) even after auto-calibration has been executed.

Users can calibrate sensor parameters in detail by using the Unified Label Utility-II program provided by the manufacturer.

The Unified Label Utility-II can be downloaded from the Internet via the BIXOLON website. (www.bixolon.com)

Please make sure the printer is connected and execute the Unified Label Utility-II program. Please the Calibration Setting Manager Button after setting the interface type.



1) Select the sensing type and input the label length by millimeter and click “Check Sensing Value” button. Then printer starts calibration.

2) Printer will print the scanned values after calibration and the values will appear on the Screen.

3) Optimal sensing values will appear in black bold letters on the left of the utility screen and select one of the values and click on “Save Calibration”

4) If chosen value does not work properly, please try the other values among the black bold letters.

5) To go back to the initial value, please click on “Cancel Calibration”

3-9 Sensor Sensitivity

• Use this mode when paper is not detected correctly.

You can adjust the strength of the sensor to fix the paper sensing problem.

Turn the printer off and on to recover to the print ready mode.

In print ready mode press "**Sensor → Sensor Sensitivity"** to run automatically Calibration with the setting value.

* Please refer Tools Menu Explanation (3-3-1) for more information.

3-10 Data Dump Mode

• This function can be used to diagnose the communication issues when the printer does not work properly.

In this mode, the received data are not analyzed and printed, instead they are dumped in hex format without processing.

Turn the printer off and on to recover to the print ready mode.

- In Print Ready mode, selecting **"Tools → Dump mode → Print"** activates the received data print mode.
- In Print Ready mode, selecting **"Tools → Dump mode → USB Memory"** activates the mode that saves received data to a USB memory device.
- In Dump mode, selecting **"Tools → Dump mode → Off"** save the data and deactivates Dump mode.

* Please refer Tools Menu Explanation (3-3-1) for more information.

3-11 Factory Reset

• This function is used to factory reset the printer settings.

1) Make sure that media roll has been installed properly.

2) In Print Ready mode, selecting "**Tools→ Factory Reset"** will reset the printer settings to factory default values.

* Please refer Tools Menu Explanation (3-3-1) for more information.
* The printer will be rebooted automatically.

3-12 SWC (Simple Wi-Fi Connect)

• Connect the printer to a network using SWC(Simple Wi-Fi Connect) mode.
** blink rate of “Pulse” is slower than blink rate of “Flash”

• Make sure that media roll has been installed properly.
(1) Enter SWC(Simple Wi-fi Connect) Mode using buttons.
In Print Ready mode, selecting “**Interface → WLAN → SWC → Execute SWC”** will enter SWC mode.
(2) Printer’s LCD Display “SWC Mode” indicates that the printer is in SWC Mode.
You can set network through Host Devices
- LCD Display: ”Preparing…” → ”SWC Mode”
(3) Once the network is not set correctly, LCD will Display Error Message, and try entering SWC Mode again.
- LCD Display: ”Password Error Return to SWC mode”

3-13 Print Standby Mode

3-13-1 About Print Standby Mode

The printed area may become out of range of media if the media is not in the accurate printing position when the print head levers is opened and closed.
The printer is put into print standby mode instead of print ready mode when the print head levers is closed in order to prevent this problem, and it waits for additional user input.

The LED, LCD status in the print standby mode can be as follows.
- STATUS LED: Green Blink
- LCD: STANDBY

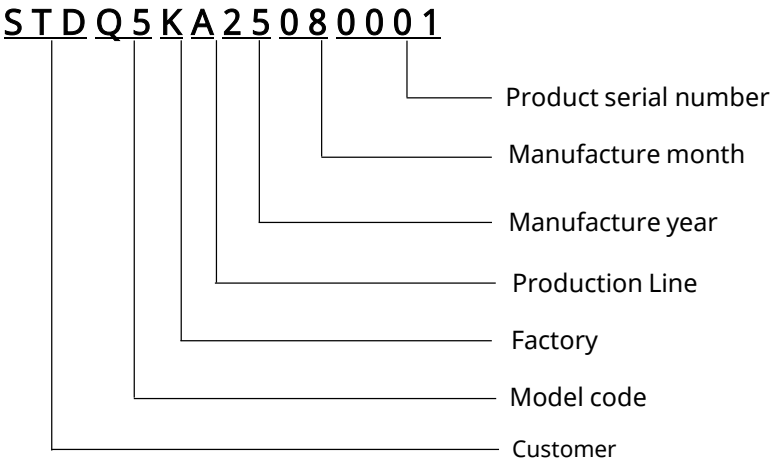
The data received during print standby mode will be printed after the printer recovers to print–ready mode.

3-13-2 How to switch the printer from Standby Mode to Print Ready Mode

- Press Pause button( ) to switch to print ready mode without feeding any media.
- Press Feed button( ) to feed one page to align the media position and switch to the print ready mode.

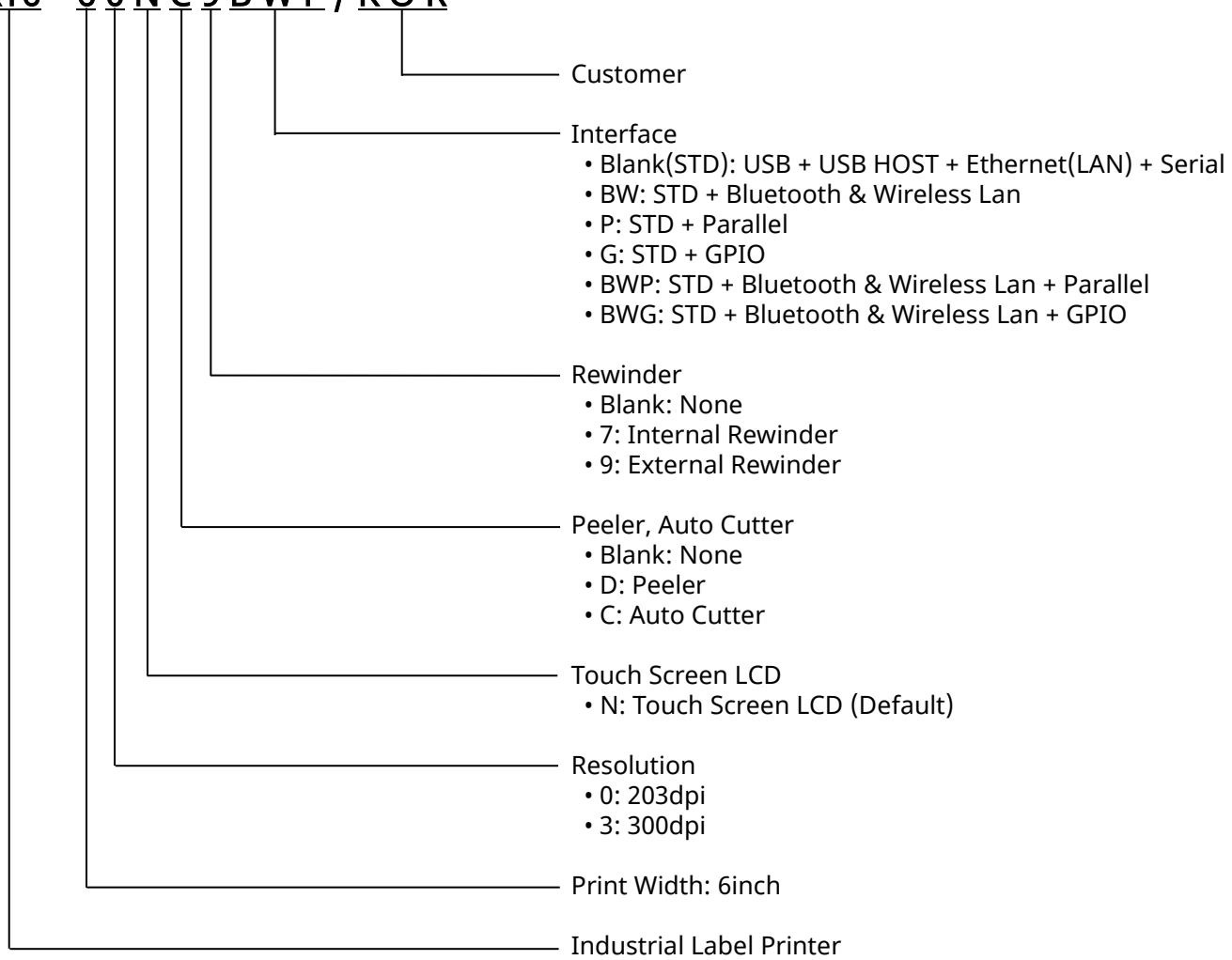
4. Specification

4-1 SET Identification number application method After June 2018



4-2 Printer Classification

XT6 – 6 0 N C 9 B W P / K O R



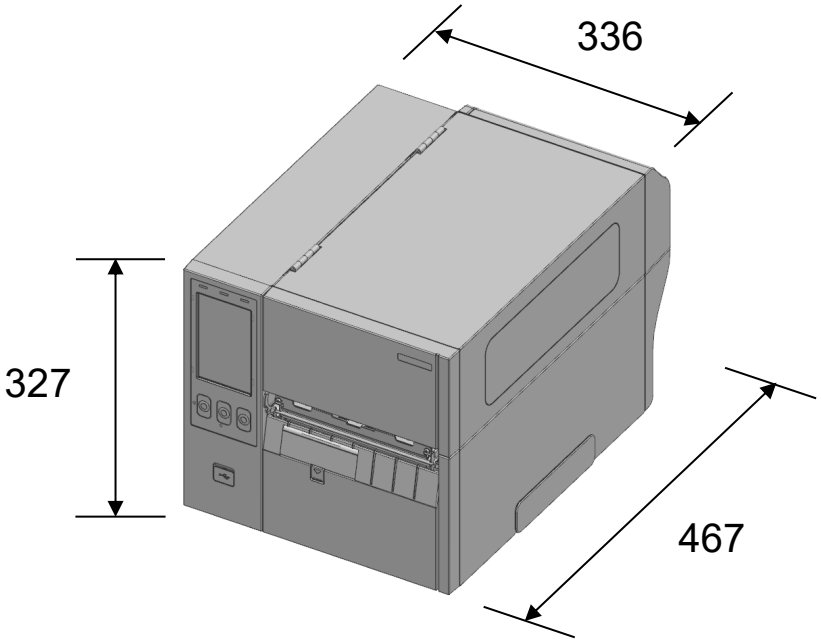
XT6-60N Series

No	Model Name	Resolution	Peeler /Auto Cutter	Rewinder	Interface	Remark
1	XT6-60N	203dpi	-	-	USB, USB Host, Ethernet, Serial	-
2	XT6-60NBW	203dpi	-	-	USB, USB Host, Ethernet, Serial Bluetooth&Wireless LAN	-
3	XT6-60NP	203dpi	-	-	USB, USB Host, Ethernet, Serial Parallel	-
4	XT6-60NBWP	203dpi	-	-	USB, USB Host, Ethernet, Serial Bluetooth&Wireless LAN, Parallel	-
5	XT6-60NC	203dpi	Auto Cutter	-	USB, USB Host, Ethernet, Serial	-
6	XT6-60NCBW	203dpi	Auto Cutter	-	USB, USB Host, Ethernet, Serial Bluetooth&Wireless LAN	-
7	XT6-60NCP	203dpi	Auto Cutter	-	USB, USB Host, Ethernet, Serial Parallel	-
8	XT6-60NCBWP	203dpi	Auto Cutter	-	USB, USB Host, Ethernet, Serial Bluetooth&Wireless LAN, Parallel	-
9	XT6-60ND	203dpi	Peeler	-	USB, USB Host, Ethernet, Serial	-
10	XT6-60NDBW	203dpi	Peeler	-	USB, USB Host, Ethernet, Serial Bluetooth&Wireless LAN	-
11	XT6-60NDP	203dpi	Peeler	-	USB, USB Host, Ethernet, Serial Parallel	-
12	XT6-60NDBWP	203dpi	Peeler	-	USB, USB Host, Ethernet, Serial Bluetooth&Wireless LAN, Parallel	-
13	XT6-60ND7	203dpi	Peeler	Internal	USB, USB Host, Ethernet, Serial	-
14	XT6-60ND7BW	203dpi	Peeler	Internal	USB, USB Host, Ethernet, Serial Bluetooth&Wireless LAN	-
15	XT6-60ND7P	203dpi	Peeler	Internal	USB, USB Host, Ethernet, Serial Parallel	-
16	XT6-60ND7BWP	203dpi	Peeler	Internal	USB, USB Host, Ethernet, Serial Bluetooth&Wireless LAN, Parallel	-
17	XT6-60ND9	203dpi	Peeler	External	USB, USB Host, Ethernet, Serial	-
18	XT6-60ND9BW	203dpi	Peeler	External	USB, USB Host, Ethernet, Serial Bluetooth&Wireless LAN	-
19	XT6-60ND9P	203dpi	Peeler	External	USB, USB Host, Ethernet, Serial Parallel	-
20	XT6-60ND9BWP	203dpi	Peeler	External	USB, USB Host, Ethernet, Serial Bluetooth&Wireless LAN, Parallel	-
21	XT6-60NG	203dpi	-	-	USB, USB Host, Ethernet, Serial ,GPIO	-

No	Model Name	Resolution	Peeler /Auto Cutter	Rewinder	Interface	Remark
22	XT6-63N	300dpi	-	-	USB, USB Host, Ethernet, Serial	-
23	XT6-63NBW	300dpi	-	-	USB, USB Host, Ethernet, Serial Bluetooth&Wireless LAN	-
24	XT6-63NP	300dpi	-	-	USB, USB Host, Ethernet, Serial Parallel	-
25	XT6-63NBWP	300dpi	-	-	USB, USB Host, Ethernet, Serial Bluetooth&Wireless LAN, Parallel	-
26	XT6-63NC	300dpi	Auto Cutter	-	USB, USB Host, Ethernet, Serial	-
27	XT6-63NCBW	300dpi	Auto Cutter	-	USB, USB Host, Ethernet, Serial Bluetooth&Wireless LAN	-
28	XT6-63NCP	300dpi	Auto Cutter	-	USB, USB Host, Ethernet, Serial Parallel	-
29	XT6-63NCBWP	300dpi	Auto Cutter	-	USB, USB Host, Ethernet, Serial Bluetooth&Wireless LAN, Parallel	-
30	XT6-63ND	300dpi	Peeler	-	USB, USB Host, Ethernet, Serial	-
31	XT6-63NDBW	300dpi	Peeler	-	USB, USB Host, Ethernet, Serial Bluetooth&Wireless LAN	-
32	XT6-63NDP	300dpi	Peeler	-	USB, USB Host, Ethernet, Serial Parallel	-
33	XT6-63NDBWP	300dpi	Peeler	-	USB, USB Host, Ethernet, Serial Bluetooth&Wireless LAN, Parallel	-
34	XT6-63ND7	300dpi	Peeler	Internal	USB, USB Host, Ethernet, Serial	-
35	XT6-63ND7BW	300dpi	Peeler	Internal	USB, USB Host, Ethernet, Serial Bluetooth&Wireless LAN	-
36	XT6-63ND7P	300dpi	Peeler	Internal	USB, USB Host, Ethernet, Serial Parallel	-
37	XT6-63ND7BWP	300dpi	Peeler	Internal	USB, USB Host, Ethernet, Serial Bluetooth&Wireless LAN, Parallel	-
38	XT6-63ND9	300dpi	Peeler	External	USB, USB Host, Ethernet, Serial	-
39	XT6-63ND9BW	300dpi	Peeler	External	USB, USB Host, Ethernet, Serial Bluetooth&Wireless LAN	-
40	XT6-63ND9P	300dpi	Peeler	External	USB, USB Host, Ethernet, Serial Parallel	-
41	XT6-63ND9BWP	300dpi	Peeler	External	USB, USB Host, Ethernet, Serial Bluetooth&Wireless LAN, Parallel	-
42	XT6-63NG	300dpi	-	-	USB, USB Host, Ethernet, Serial ,GPIO	-

4-3 Appearance

4-3-1 Printer Dimensions(mm)

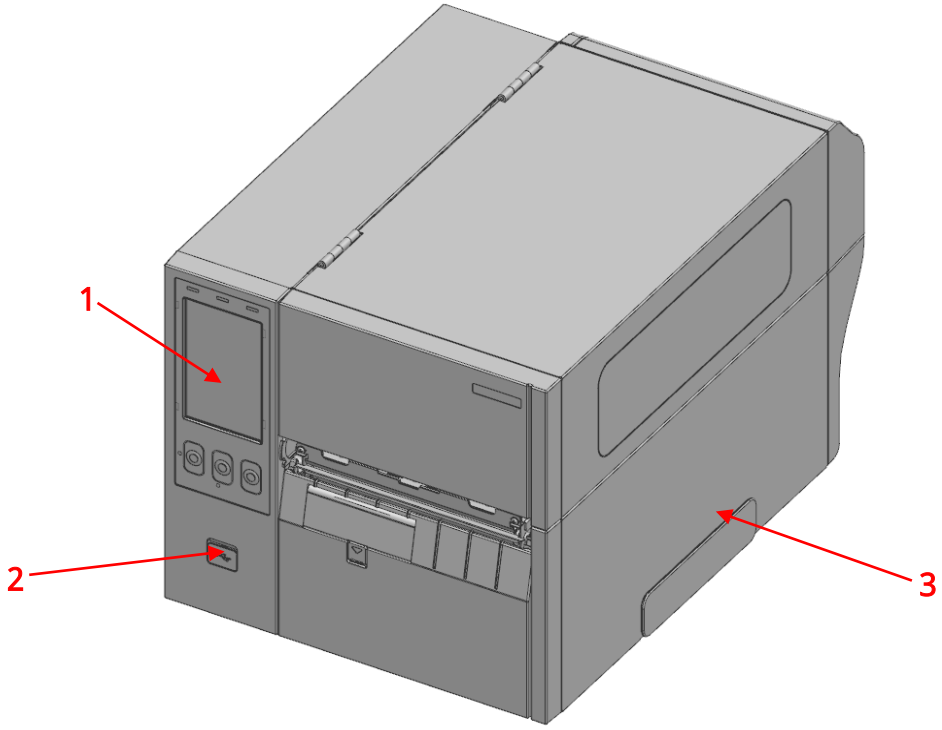


XT6-60N Standard Model

Figure4-3-1 Printer Dimension

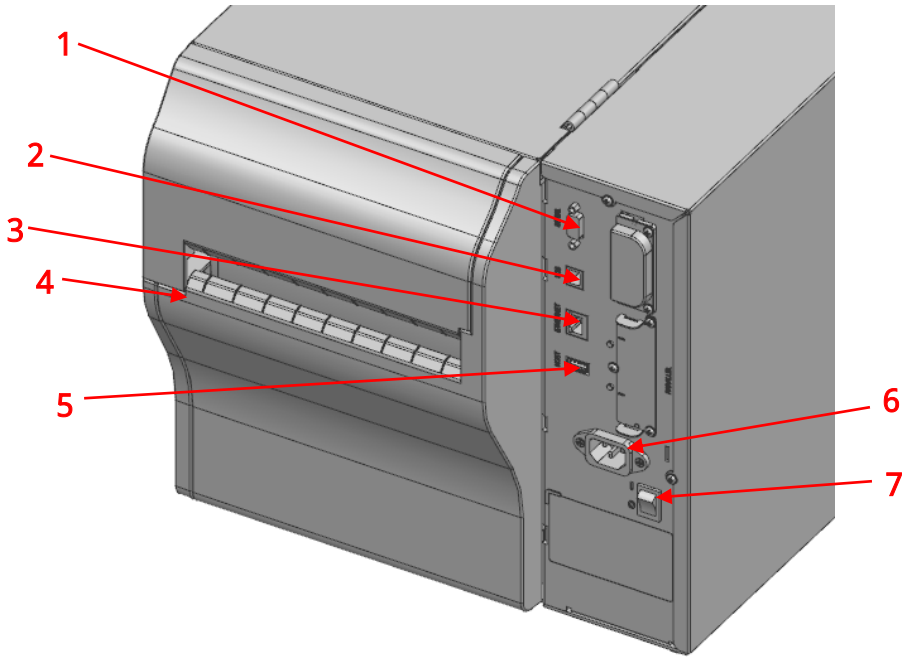
4-3-2 Feature Locations

- Front



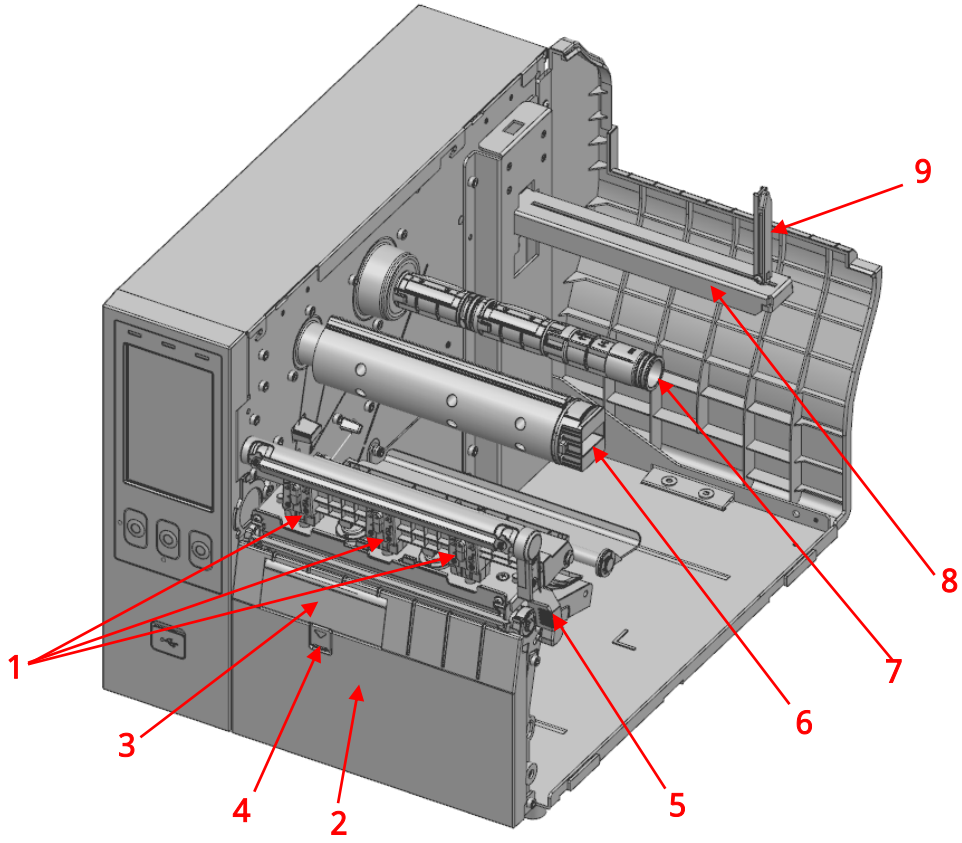
1	Control Panel	3	Media Cover
2	USB Host Port		

- Back

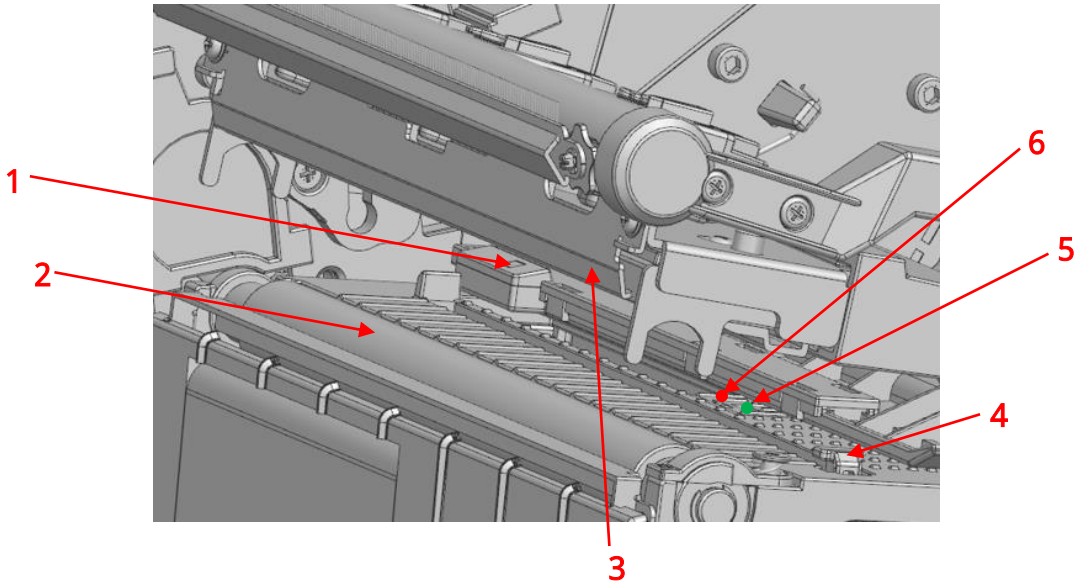


1	Serial(RS-232C) Port	5	USB Host Port
2	USB Port	6	Power Connector
3	Ethernet Port	7	Power Switch
4	Rear Access Slot(Media)		

- Internal

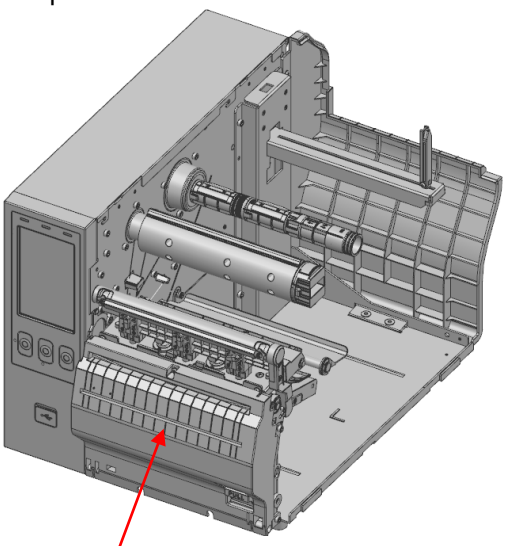


1	Print Head Pressure Adjustment	6	Ribbon Take-up Spindle
2	Cover STD	7	Ribbon Supply Spindle
3	Media Damper	8	Media Holder
4	Media Damper Button	9	Media Fixing Guide
5	Print Head Lever		

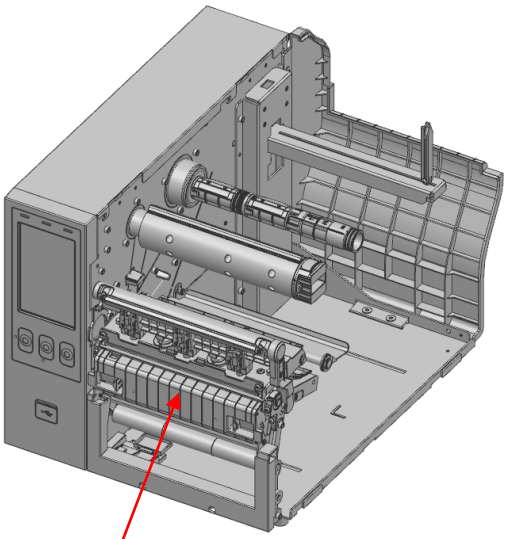


1	Ribbon Sensor	4	Media Guide
2	Platen Roller	5	Black Mark Sensor (Green LED)
3	Print Head	6	Gap & Notch Sensor (Red LED)

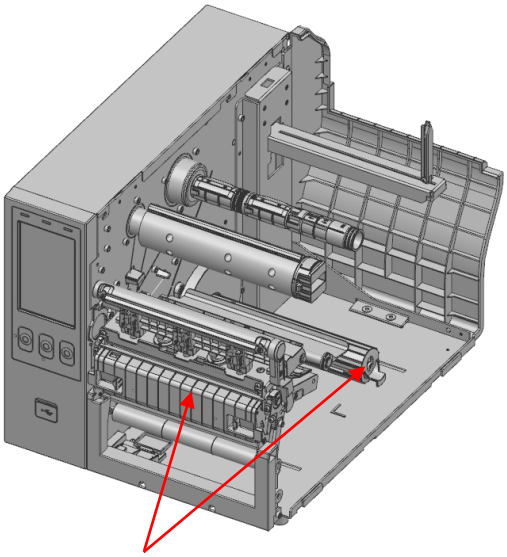
- Printer Option



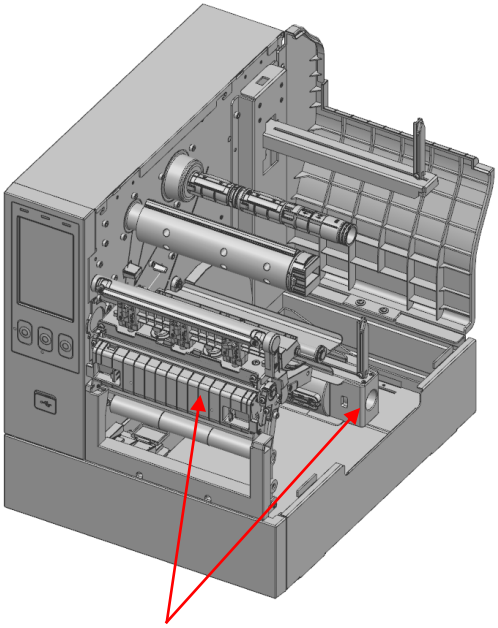
Auto Cutter



Peeler



Peeler + Rewinder(internal)



Peeler + Rewinder(external)

4-4 General Specifications

4-4-1 Hardware Specification

Item	Description	Remark
Product	XT6-6x (Industrial Label Printer)	-
Processor	ARM Cortex®-A8 32-bit	-
Memory	DDR3 SDRAM: 1GB NAND Flash: 1GB	-
Serial Interface (RS-232C)	Flow Control 1) Xon/Xoff (S/W Control) 2) RTS/CTS (H/W Control) Baud Rate: 9,600 / 19,200 / 38,400 / 57,600 / 115,200 bps Connector Type: DB9P(Female), 9P to 9P (1:1 Cable)	-
USB Device	Version: V2.0 Transfer Type: BULK Speed: Hi-Speed, 480Mbps Power: Self-powered Connector Type: USB B type	-
USB HOST (Front / Rear)	Version: V2.0 Transfer Type: BULK Speed: Hi-Speed, 480Mbps Power: Self-powered (Current Limiting: 0.5A) Connector Type: USB A type	-
Ethernet Interface	Network: 10/100/1000Mbps Base-T, Auto Detection Protocol: TCP, UDP, IP, ICMP, ARP Flow Control: Hardware(RTS/CTS)	-
Auto Cutter	Cutting Method: Full Cut	Factory Option
Printing Method	Thermal Transfer	-
Printing Speed	XT6-60N: Max. 304 mm/sec (Max. 12ips) XT6-63N: Max. 254 mm/sec (Max. 10ips)	-
Power Consumption	Operation: Max.387W (100% duty) Operation: Max. 59W (“H” Pattern) Idle(Ready mode) : Typ. 9.4W	-
AC/DC Enclosed	Input: AC 100-240V, 50/60Hz, 4A Output: DC 24V, 14.6A	-
Environment Condition	Operating Temperature: 0°C to 41°C Storage Temperature: -40°C to 60°C Operating Humidity: 10% to 80% RH (no Condensation) Storage Humidity: 5% to 95% RH (no Condensation)	-
Weight	STD: 16.8kg External Rewinder(STD): 21.8kg	-
Dimensions (W x D x H)	STD: 336 x 467 x 327 mm External Rewinder: 336 x 467 x 420 mm	-

4-4-2 Function Specification

Function	Description	Remarks
Text Printing	Multiply, Bold, Reverse and Rotation functions	-
1D Barcode Printing	Various barcodes supported Rotation, HRI supported.	-
2D Barcode Printing	Various barcodes supported Rotation. HRI supported	-
Block Printing	Line, Box, Slope and Circle printing supported Overwrite, Exclusive OR, Delete mode supported	-
Graphic	PCX Save, Load & Printing, Delete function supported	-
Font download	Bitmap Font Download Vector Font Download	-
Template	The label format can be stored in the printer and can be reused. Variable and Counter can be used in template.	-
Variable	Total 100 variables supported Can be used in Data field of Text & Barcode. Left, center and right justification	-
Counter	Total 10 counters supported Maximum 27 field size. + counting or – counting. Can be used in Data field of Text & Barcode. Left, center and right justification	-
Multi Printing	Copies and Set function supported.	-
Label size setting	Label size can be set by user regardless of label media size.	-

4-5 Thermal Printer Specification

4-5-1 Printer Specification

Item	Description	Remark
Model	XT6-60N XT6-63N	-
Printing Method	Thermal Transfer	-
Resolution	XT6-60N: 203dpi XT6-63N: 300dpi	-
Printing Direction	Unidirectional with friction feed	-
Printing Width	XT6-60N: Max. 168mm XT6-63N: Max. 168mm	-
Printing Speed	XT6-60N: Max. 304mm/sec (Max. 12ips) XT6-63N: Max. 254mm/sec (Max. 10ips)	-

4-5-2 Character Specification

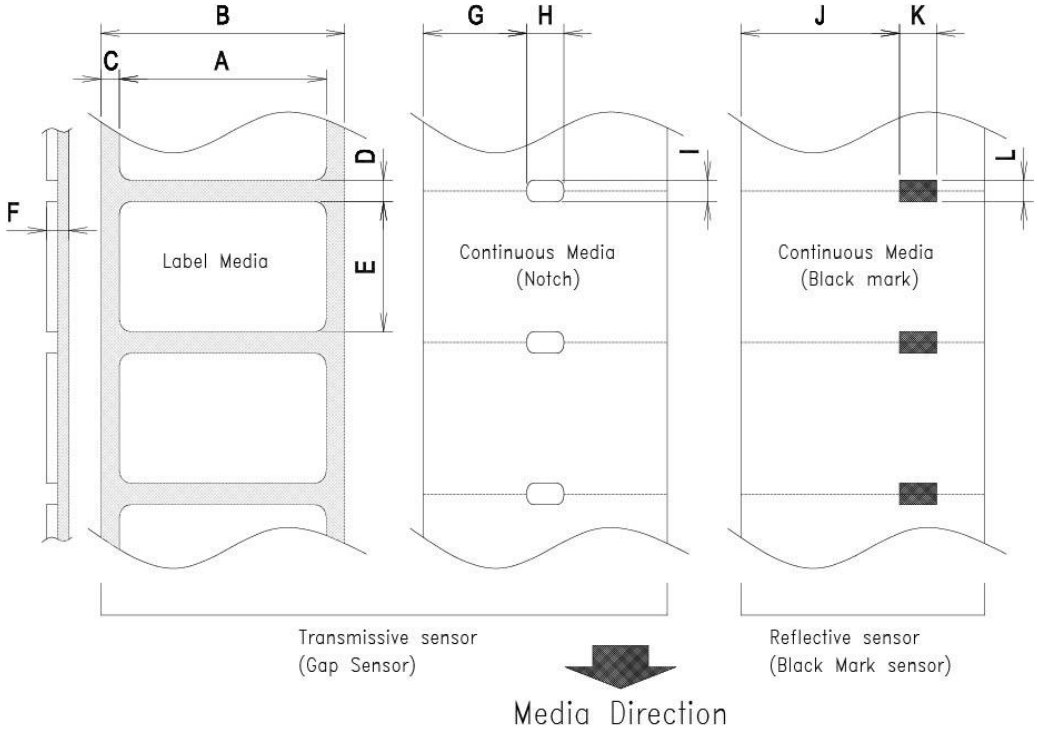
Item	Description	Remark
Number of Character	Alphanumeric Characters: 95(except space)	-
	Extended Characters: more than 23 code pages	-
	International Characters: more than 32 code pages	-
Fonts	10 resident expandable SLCS bitmap fonts One resident scalable font for SLCS 16 resident Expandable BPL-Z bitmap fonts One resident scalable font for BPL-Z 5 resident expandable BPL-E bitmap fonts Unicode supported (UTF-8, UTF-16LE, UTF-16BE)	-

4-5-3 Barcode Specification

Item	Description		Remark
1D Barcodes	Codabar Code 11 Code 128 Code 39 Code 93 EAN-13 EAN-8 Industrial 2-of-5 Interleaved 2-of-5 Logmars	MSI Plessey Postnet GS1 DataBar (RSS-14) Standard 2-of-5 UPC/EAN extensions UPC-A UPC-E IMB	-
2D Barcodes	Codablock Code 49 Data Matrix MaxiCode	QR Code PDF417 MicroPDF417 Aztec TLC 39	-

4-5-4 Media Specification

Item	Description	Remark
Media Type	Thermal transfer	-
Media Form	Gap, Black Mark, Notch, Continuous, Fan-Fold	-
Media Width	50.8~178mm	-
Media Roll Diameter	Max Φ 203mm (8 inch)	-
Core I.D.	Φ38.1 ~ Φ76.2mm (1.5~3 inch),	-



Index	Item	Specification		Sensor Type
		Min.	Max.	
A	Label width	50.8	175	-
B	Liner width	50.8	178	-
C	Label right Gap	0	3	-
D	Length of Gap between labels	2.5	30	Gap sensor
E	Length	6	2600	Gap / Black mark sensor
F	Total media thickness	0.06	0.25	-
G	Notch position	3	104	Gap sensor
H	Notch width	5	170	Gap sensor
I	Notch length	2.5	30	Gap sensor
J	Black mark position	3	110	Black mark sensor
K	Black mark width	5	170	Black mark sensor
L	Black mark length	2.5	30	Black mark sensor

4-5-5 Ribbon Specification

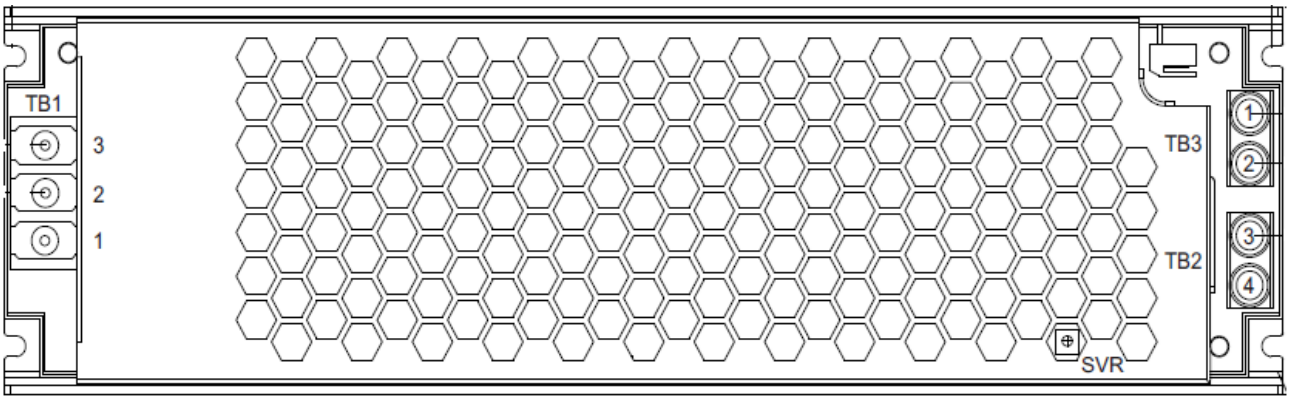
Item	Description	Remark
Ribbon Type	Wax, Wax/Resin, Resin	-
Wound Type	Ink Outside, Ink Inside	-
Ribbon Width	50 ~ 174mm (1.9 ~ 6.85 inch)	-
Ribbon Length	Max. 450m	-
Ribbon Roll Size	Max. Φ73mm(2.87 inch)	-
Core ID.	25.4mm (1 inch)	-

4-6 SMPS Specification

4-6-1 AC/DC Enclosed Specification

Item	Description	Remark
Input Voltage	100-240V AC	-
Input Current	4.0A @115VAC 2.0A @230VAC	-
Efficiency	94%	-
Output Voltage	+24V DC	-
Output Current	14.6A	-
Inrush Current	30A @115VAC (Cold Start) 60A @230VAC (Cold Start)	-
Line Regulation	72mV (±0.3%)	-
Load Regulation	120mV (±0.5%)	-
Ripple and Noise	Max. 240mV	peak to peak
O.C.P(Over Current Protect)	110~140% rated output power	-
O.V.P (Over Voltage Protect)	26.4 ~ 31.2V	-

4-6-2 AC/DC Enclosed Connector



1) AC Input Terminal (TB1) pin NO. Assignment

Pin No.	Assignment	Terminal
1	AC/L	DG28C-B-03P (DEGSON)
2	AC/N	
3	⏚	

2) DC Output Terminal(TB2,TB3) pin NO. Assignment

Pin No.	Assignment	Terminal
1, 2	-V	TB-HTP-200-40A (MW)
3, 4	+V	

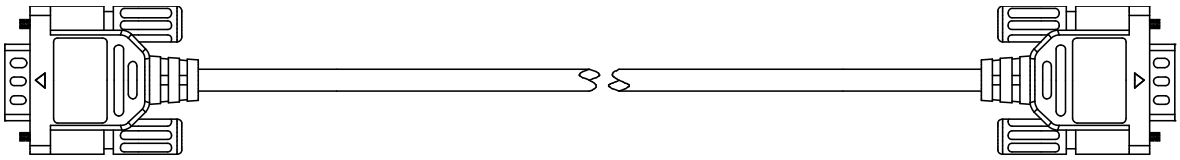
4-7 Interface Specification

4-7-1 RS-232C Serial Interface

1) Specification

Item	Description	Remark
Data Transmission	Serial	-
Synchronization	Asynchronous	-
Hand Shaking (Flow Control)	H/W: RTS/CTS S/W: Xon/Xoff	-
Signal Level	Logic 1(Mark): -3V~-15V Logic 0(Space): +3V~+15V	-
Baud Rate	9,600 / 19,200 / 38,400 / 57,600 / 115,200 bps	-
Data bits length	7 bits/8 bits	-
Stop bits length	1 bit/2bits	-
Parity	None/Even/Odd	-
Connector	9pin – 9pin (1:1 Cable)	-

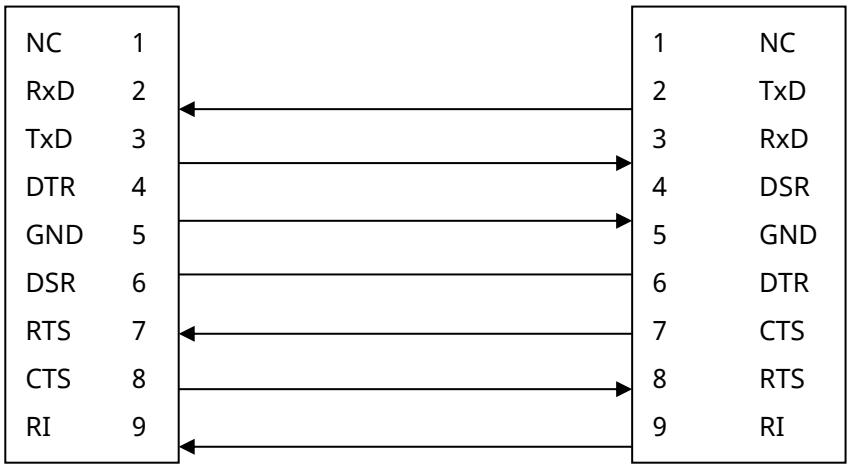
2) RS-232C Cable



Printer Side
D-SUB9P Male

Host Side
D-SUB9P Female

3) Cable Connection



Printer Side
D-SUB9P Male

Host Side
D-SUB9P Female

4) Signal Description

Signal Name	Signal Direction	Function
Frame GND	-	Frame Ground
TxD	Output	Transmit Data
RxD	Input	Receive Data
RTS	Output	Ready To Send Ready to exchange data
CTS	Input	Clear To Send
DTR	Output	Data Terminal Ready(Almost same function as RTS)
DSR	Input	Data Set Ready(Almost same function as CTS)
Signal GND	-	Signal Ground

5) S/W Flow Control

When Xon/Xoff flow control is selected, the printer transmits Xon(ASCII 11h) or Xoff(ASCII 13h) signal through the TxD line. If the printer is busy, the printer transmits XOFF to host through the TxD line. Then the host recognize that the printer is now busy. So the host does not transmit a data to the printer. If the printer is released from busy state, the printer transmits Xon to host through the TxD line. Then the host recognize that the printer is not busy. And the host can transmit a data to the printer

6) H/W Flow Control

When H/W flow control is selected, the printer checks whether the host is BUSY or not before sending data. If the host is BUSY the printer does not transmit data till the host becomes NOT BUSY.

4-7-2 IEEE 1284 Parallel Interface

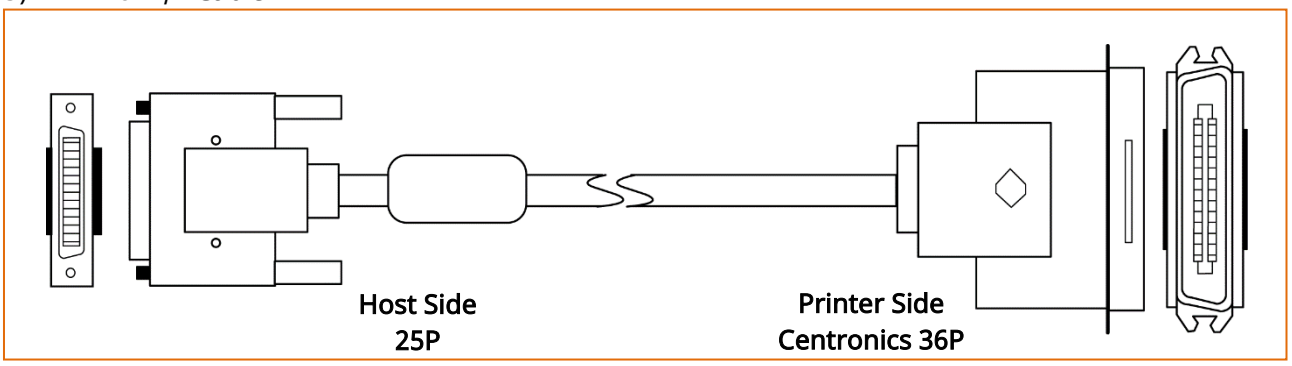
1) Forward Mode Specification (Compatibility mode)
Data transmission from host to printer: Centronics Compatible

Item	Description	Remark
Data Transmission	8-bit Parallel	-
Synchronization	External supplied nStrobe signals	-
Handshaking	nACK and Busy signals	-
Signal Level	TTL compatible	-
Connector	Centronics 36P	-

2) Signal Specification

Pin No	Source	Compatibility Mode	Nibble Mode	Byte Mode
1	Host	Nstrobe	HostClk	HostClk
2	Host/Printer	Data 0 (LSB)	-	Data 0 (LSB)
3	Host/Printer	Data 1	-	Data 1
4	Host/Printer	Data 2	-	Data 2
5	Host/Printer	Data 3	-	Data 3
6	Host/Printer	Data 4	-	Data 4
7	Host/Printer	Data 5	-	Data 5
8	Host/Printer	Data 6	-	Data 6
9	Host/Printer	Data 7 (MSB)	-	Data 7 (MSB)
10	Printer	Nack	PtrClk	PtrClk
11	Printer	Busy	PtrBusy /Data3,7	PtrBusy
12	Printer	Perror	AckDataReq /Data2,6	AckDataReq
13	Printer	Select	Xflag /Data1,5	Xflag
14	Host	NautoFd	HostBusy	HostBusy
15		NC	ND	ND
16		GND	GND	GND
17		FG	FG	FG
18	Printer	Logic-H	Logic-H	Logic-H
19~30		GND	GND	GND
31	Host	Ninit	Ninit	Ninit
32	Printer	Nfault	nDataAvail/Data0,4	nDataAvail
33		GND	ND	ND
34	Printer	DK_Status	ND	ND
35	Printer	+5V	ND	ND
36	Host	NselectIn	1284-Active	1284-Active

3) IEEE1284 I/F Cable



4-7-3 USB Interface

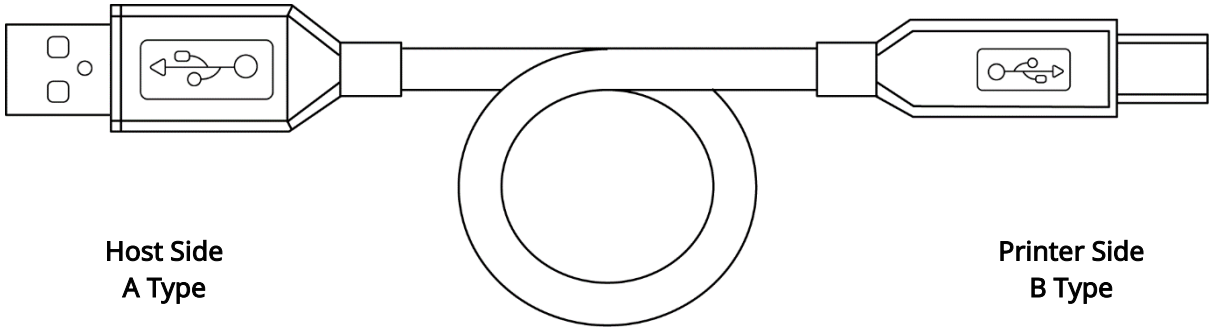
1) Specification

Item	Description	Remark
Transfer Type	BULK	-
Data Signal	Bi-direction, Half-Duplex Differential Signal Pair(D+ / D-)	-
Data Format	NRZI Format Zero Bit Stuffing after 6 ones	-
Transceiver	Differential Receive Sensitivity: 200 mV Differential Common Mode Range: 0.8 ~ 2.5 V Single-End Receiver Threshold: 0.8 ~ 2.0 V	-
Speed	Hi-Speed, 480M bps	-
Power	Self-Powered	-
Cable & Connector	Cable: A to B Type Standard Connector: B Type	-
Other	Supports the 480 Mbps high-speed(HS) mode for USB 2.0, as well as the 12 Mbps full-speed (FS) and the 1.5Mbps low-speed (LS) mode for USB 1.1	-

2) Signal Description

Pin No	Signal Name	Assignment(Color)	Function
Shell	Shield	Drain Wire	Frame Ground
1	VBUS	Red	Host Power: DC5V/500mA
2	D-	White	Differential Data Line
3	D+	Green	Differential Data Line
4	GND	Black	Signal Ground

3) USB I/F Cable

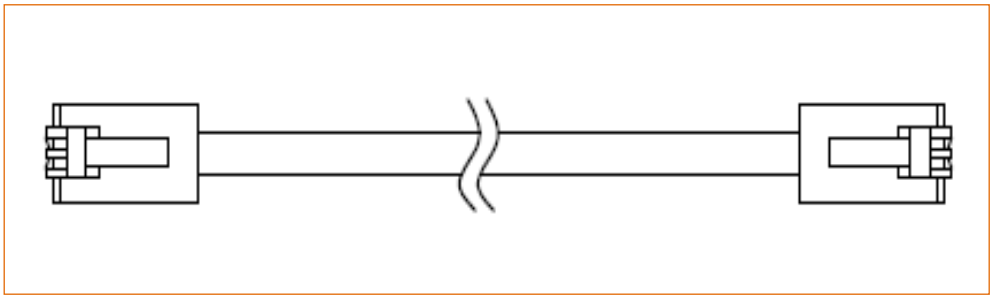


4-7-4 Ethernet I/F

1) Ethernet I/F specifications

Item	Description	Remark
Network Interface	10/100/1000 Base-T All in one type (Auto detection)	-
Protocol	TCP, UDP, IP, ICMP, ARP	-
IP mode	Static IP, DHCP(Dynamic Host Configuration Protocol)	-

2) Ethernet I/F cable



3) Ethernet I/F signal descriptions

Pin No.	Signal name	Assignment (Color)	Function
1	TD+	White Orange	Transmit +
2	TD-	Orange	Transmit -
3	TCT	White Green	Receive +
4	NC	Blue	-
5	NC	White Blue	-
6	RCT	Green	Receive -
7	RD+	White Brown	-
8	RD-	Brown	-

4) 1000 Base-T Ethernet I/F signal descriptions

Pin No.	Signal name	Assignment (Color)	Function
1	TRXP0	White Orange	BI_DA+
2	TRXN0	Orange	BI_DA-
3	TRXP1	White Green	BI_DB+
4	TRXP2	Blue	BI_DC+
5	TRXN2	White Blue	BI_DC-
6	TRXN1	Green	BI_DB-
7	TRXP3	White Brown	BI_DD+
8	TRXN3	Brown	BI_DD-

* For more information, refer to the Ethernet User Manual in Bixolon web site.

4-7-5 Combo (Bluetooth & WLAN)

1) Combo (Bluetooth & WLAN) specifications

Item		Description
Protocol	Wi-Fi	802.11 a/b/g/n/ac/ax
	Bluetooth	Bluetooth 5.3 Classic/BLE
Networking	Wi-Fi	2.4GHz (2.401~2.483) / 5GHz (5.150~5.825)
	Bluetooth	BR and EDR 1Mbps, 2Mbps and 3Mbps LE 1Mbps/2Mbps, Long Range Power class 1.5
Encryption	Wi-Fi	AES, TKIP
	Bluetooth	AES
Security	Wi-Fi	WEP, WPA1, WPA2, WPA3
	Bluetooth	Security Mode 4
Management	Wi-Fi	Station mode, Access Point mode
	Bluetooth	TBD

5. Hardware

5-1 Wiring Diagram

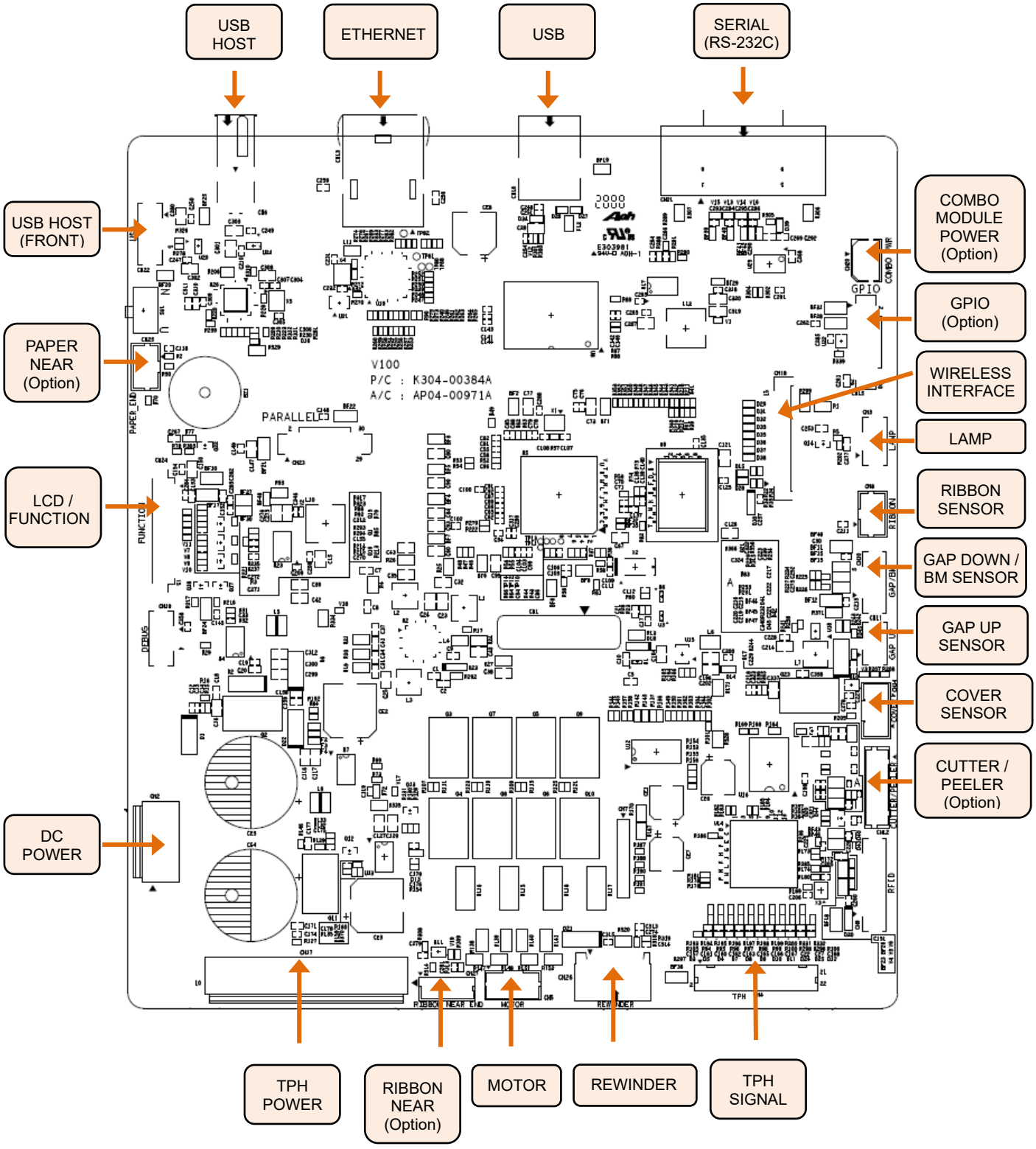


Figure 5-1 Board Wiring Diagram

5-2 Block Diagram

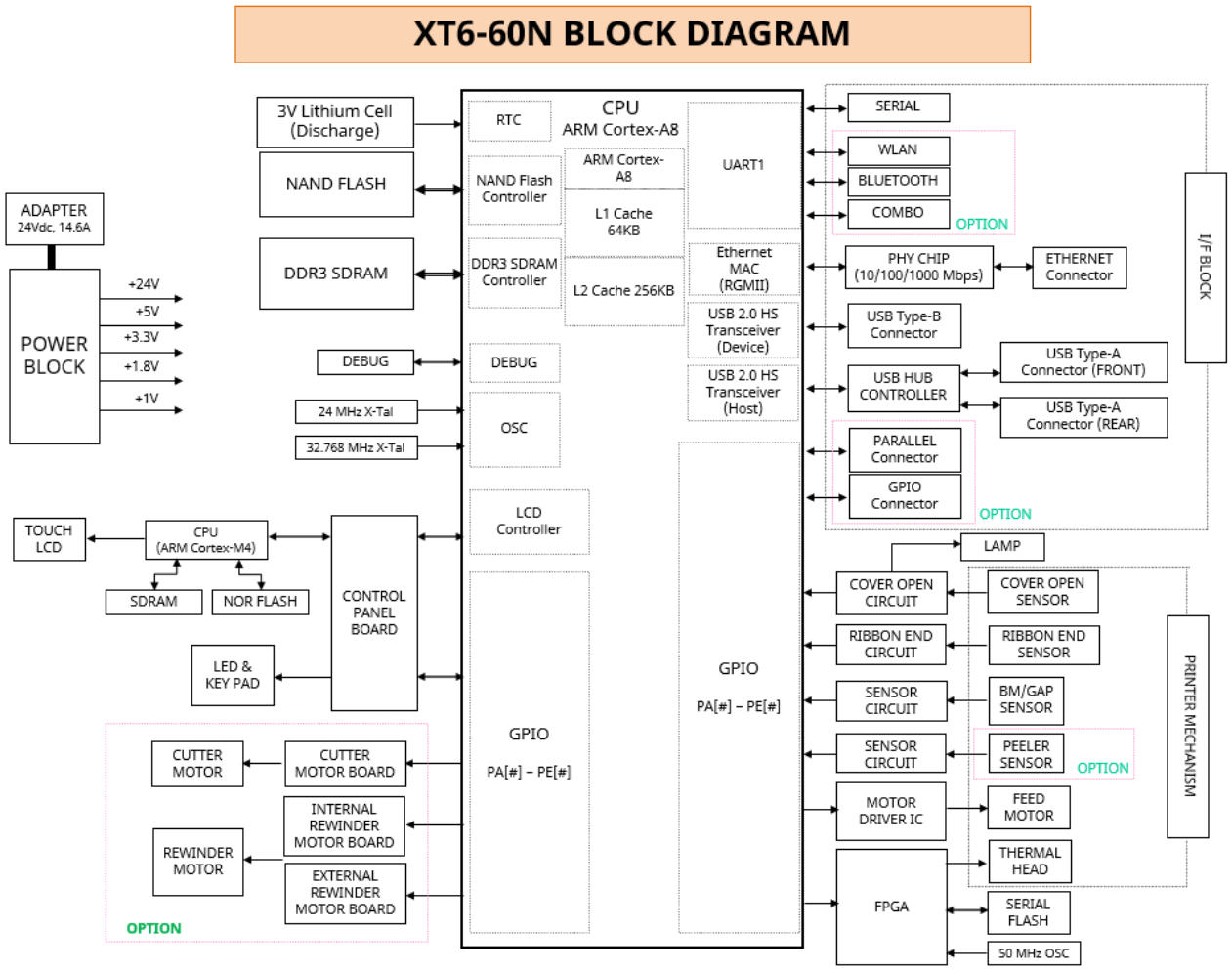


Figure 5-2 Block Diagram

5-3 Special Circuit Description

5-3-1 Power Circuit

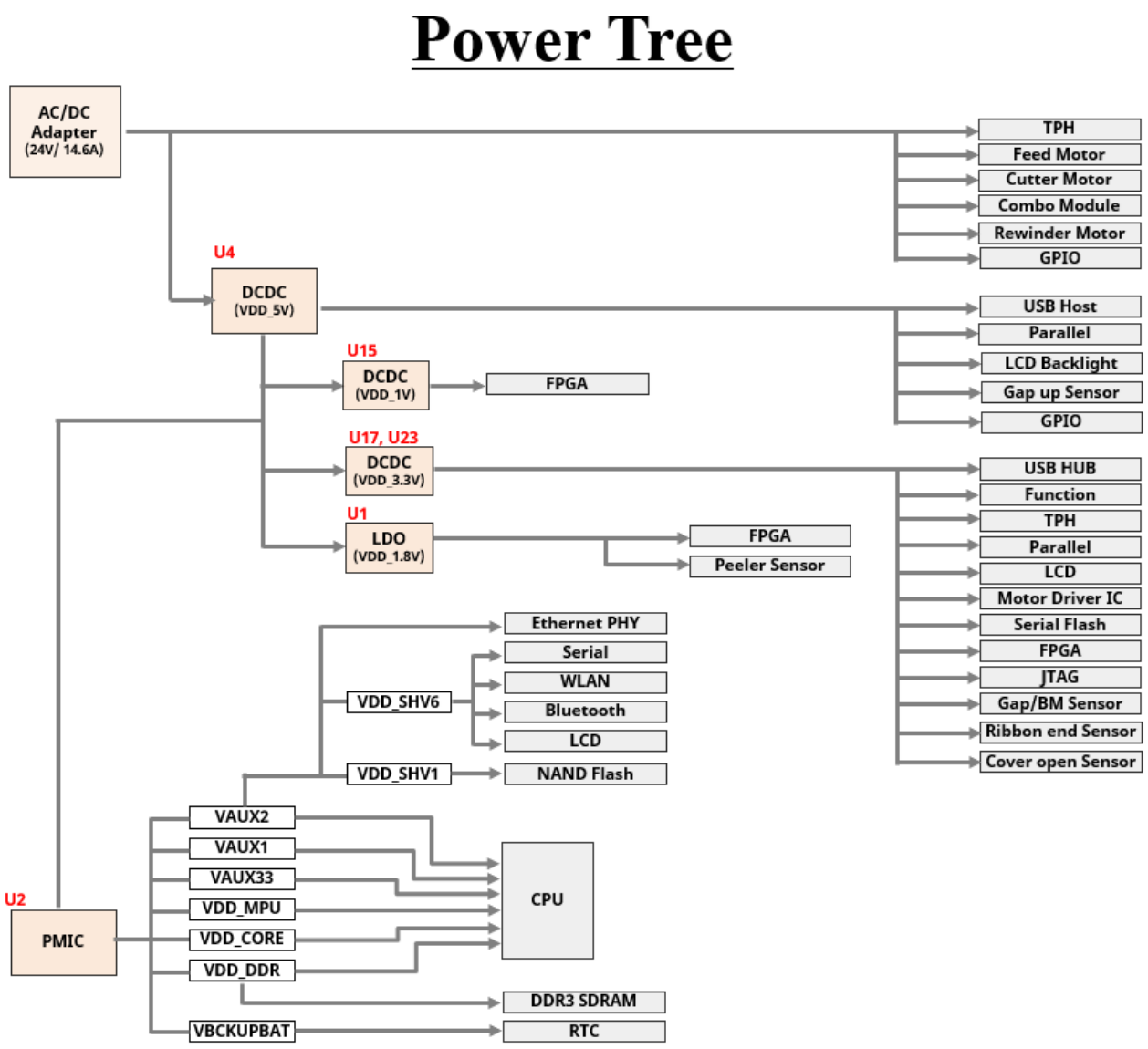


Figure 5-3 Block Diagram

No.	VOLTAGE	DESCRIPTION
1	VDD_24V (+24VDC)	TPH, Feed Motor, Cutter, Rewinder, GPIO, Combo, Paper near
2	VDD_5V (+5VDC)	USB Host, Parallel, LCD Backlight, Gap Up, GPIO
3	VDD_3V3 (+3.3VDC)	USB HUB, Function, Parallel, LCD, TPH, Motor Driver IC, FPGA, Serial Flash, JTAG, Gap/BM Sensor, Ribbon Sensor, Cover Sensor, Peel Off, Ribbon near
4	VDD_1V (+1.0VDC)	FPGA
5	VAUX2 (+3.3VDC)	Ethernet PHY, CPU
6	VDD_SHV1 (+3.3VDC)	NAND Flash
7	VDD_SHV6 (+3.3VDC)	Serial, WLAN, Bluetooth, LCD
8	VBCKUPBAT (+1.5VDC)	RTC Backup Battery
9	VDD_DDR (+1.5VDC)	DDR3 SDRAM, CPU
10	VAUX1 (+1.8VDC)	CPU
11	VAUX33 (+3.3VDC)	CPU
12	VDD_MPU (+1.2VDC)	CPU
13	VDD_CORE (+1.2VDC)	CPU

Table 5-1 Power Circuit Description

5-3-2 USB Communication Block Diagram

The printer supports the USB (Universal Serial Bus). The transfer type is the BULK

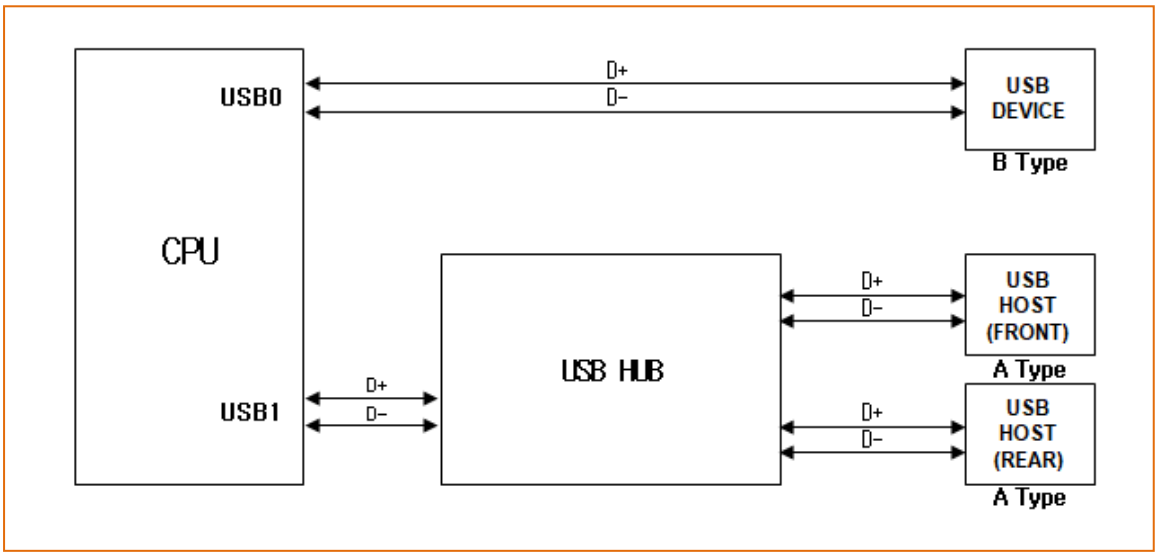


Figure 5-4 USB 2.0 Communication Block Diagram

5-3-3 RS232C Communication Block Diagram

The CPU and RS-232C driver are used for serial communication.

1) RS-232C Communication block diagram

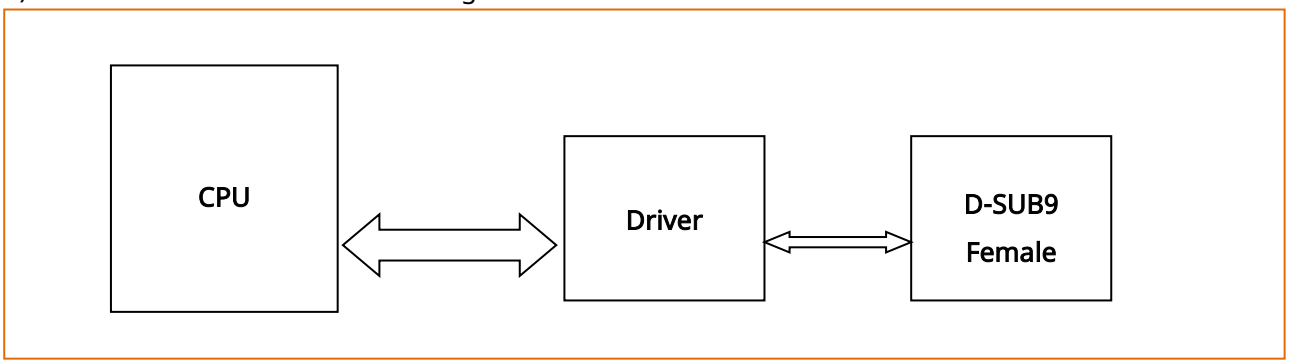


Figure 5-5 RS232C Communication Block

2) RS232C Communication waveform

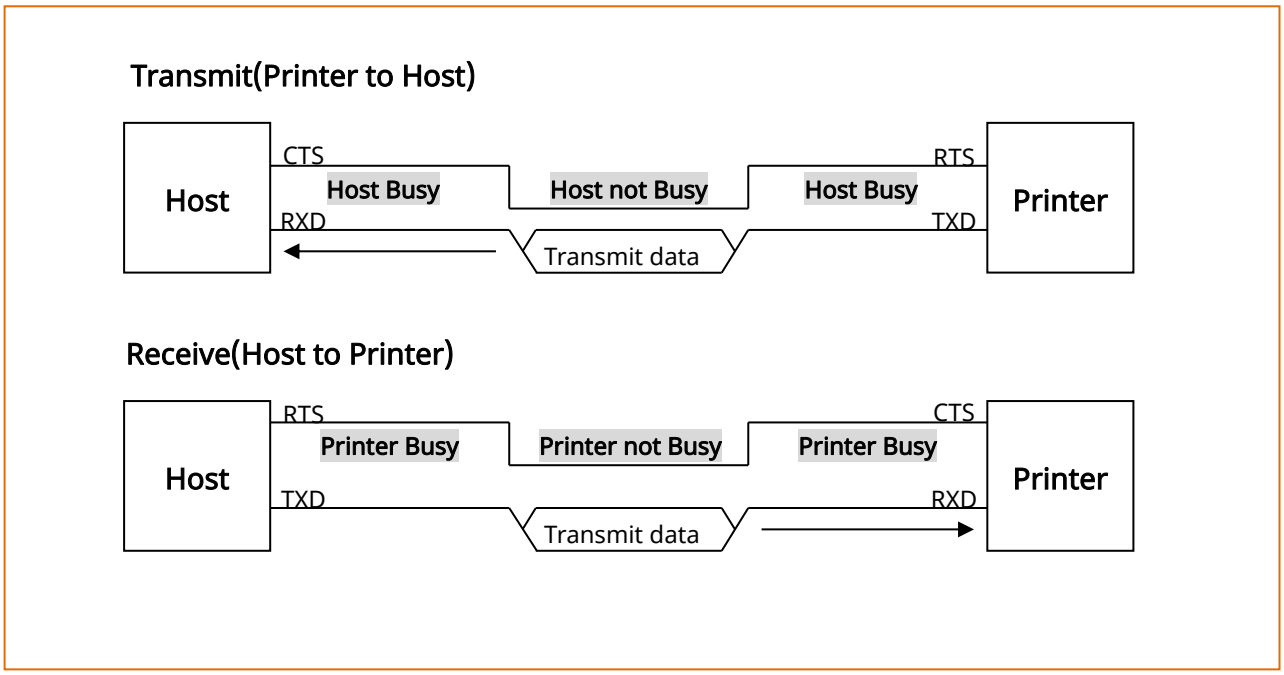


Figure 5-6 RS-232C Communication Waveform

5-3-4 Parallel Communication Block Diagram

The printer supports the bi-directional parallel interface with Centronics, Nibble mode.
The Centronics is Forward mode and the nibble is reverse mode.

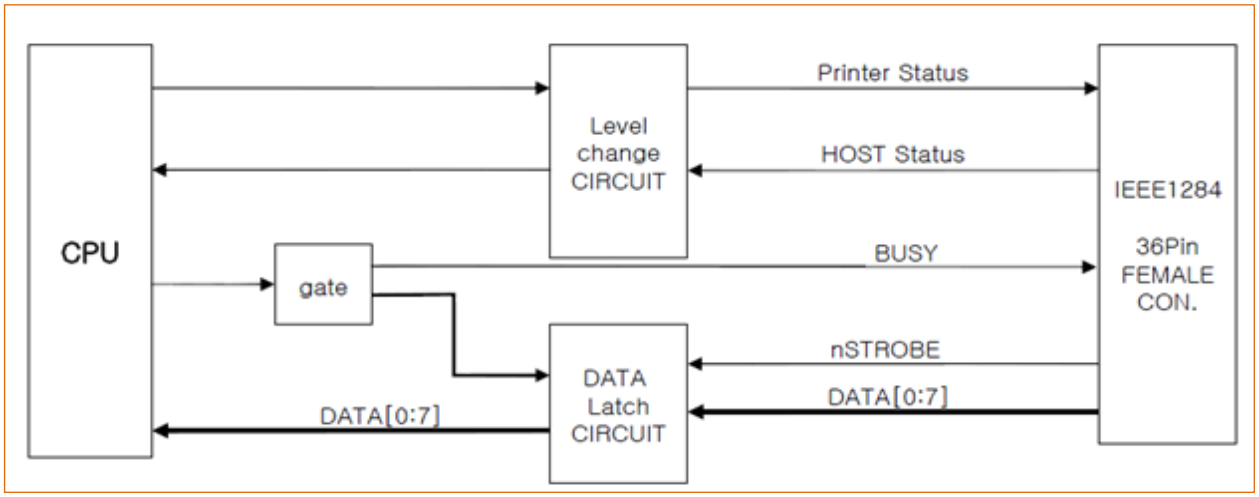


Figure 5-7 IEEE1284 Communication Block Diagram

5-3-5 Ethernet Communication Block Diagram

The printer supports the Ethernet. The Network type is 10/100/1000 Base-T All in one type.
(Auto detection)

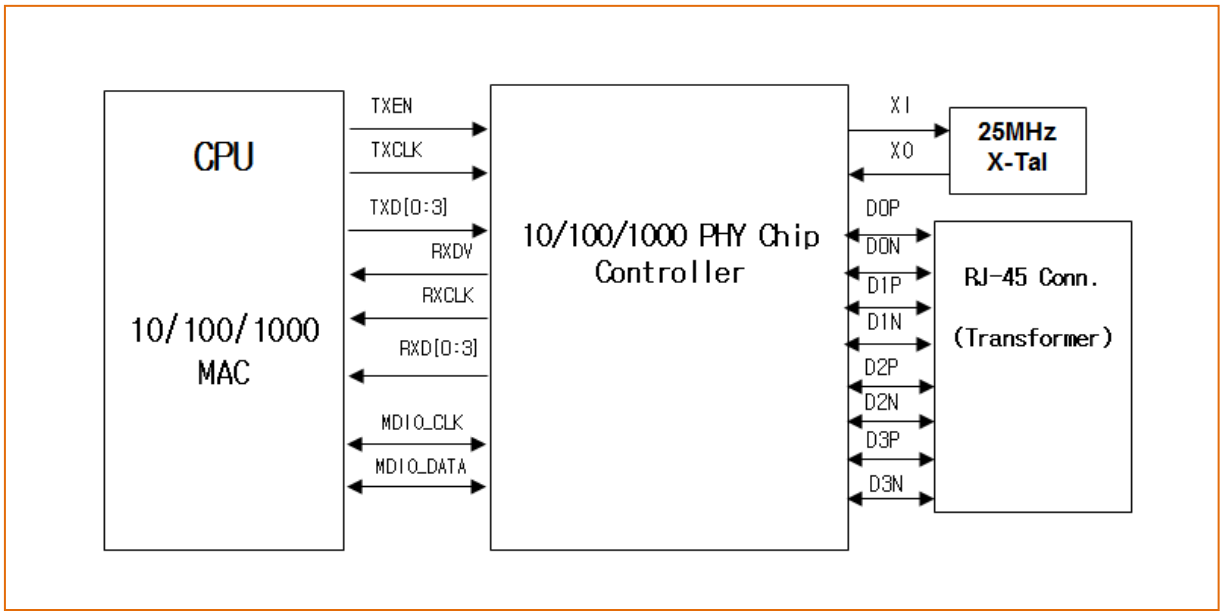


Figure 5-8 Ethernet Communication Block Diagram

5-3-6 Thermal Pinter Circuit

First, the FPGA sends a serial clock and serial data 1344bits (64x13Chips, 104bytes) to the shift register of the TPH. Second, the FPGA sends a Latch signal to the TPH. Then the Data of shift register are moved to the Latch register. After that the FPGA sends a strobe signal to the TPH. Then the TPH outputs the serial data. Each strobe signal controls the each dot of TPH.

Strobe No.(TPH)	Dot No.	Dots/STB	Strobe pin(FPGA)
STB1, 2	1344 ~ 1153	192	STROB
STB1, 2	1152 ~ 961	192	STROB
STB1, 2	960 ~ 769	192	STROB
STB1, 2	768 ~ 577	192	STROB
STB1, 2	576 ~ 385	192	STROB
STB1, 2	384 ~ 193	192	STROB
STB1, 2	192 ~ 1	192	STROB

Table 5-2 Printer Head Strobe Processing

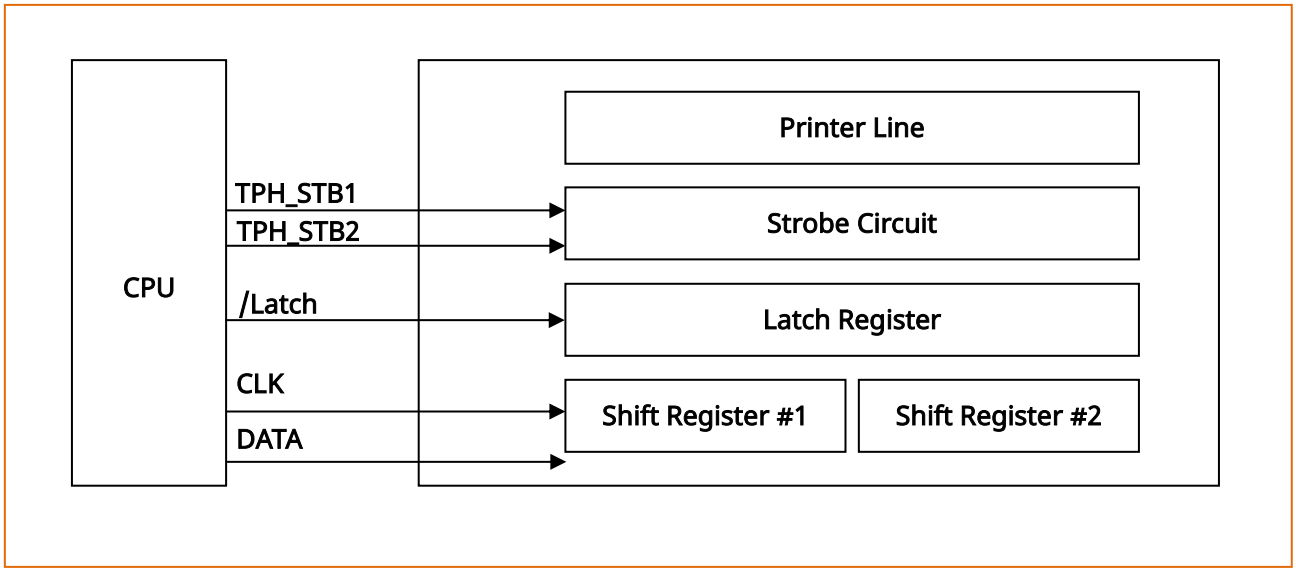


Figure 5-9 Thermal Printer Block Diagram

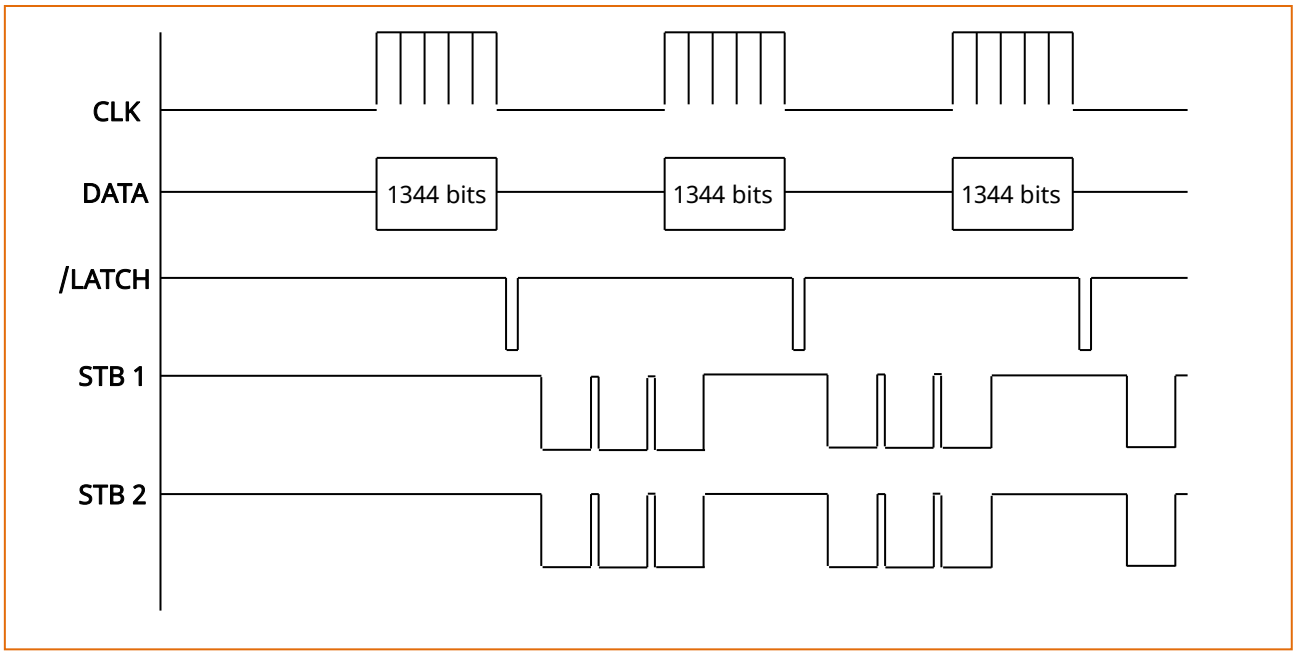


Figure 5-10 Thermal Printer Timing Waveform

6. Disassembly and Assembly

6-1 ASSY-BRACKET-COVER disassembly

1) Remove the four SCREWs①.
2) Separate the ASSY-BRACKET-COVER② from the printer.
3) Remove the twelve SCREWs③.
4) Separate the parts④~⑮ from the ASSY-BRACKET-COVER.

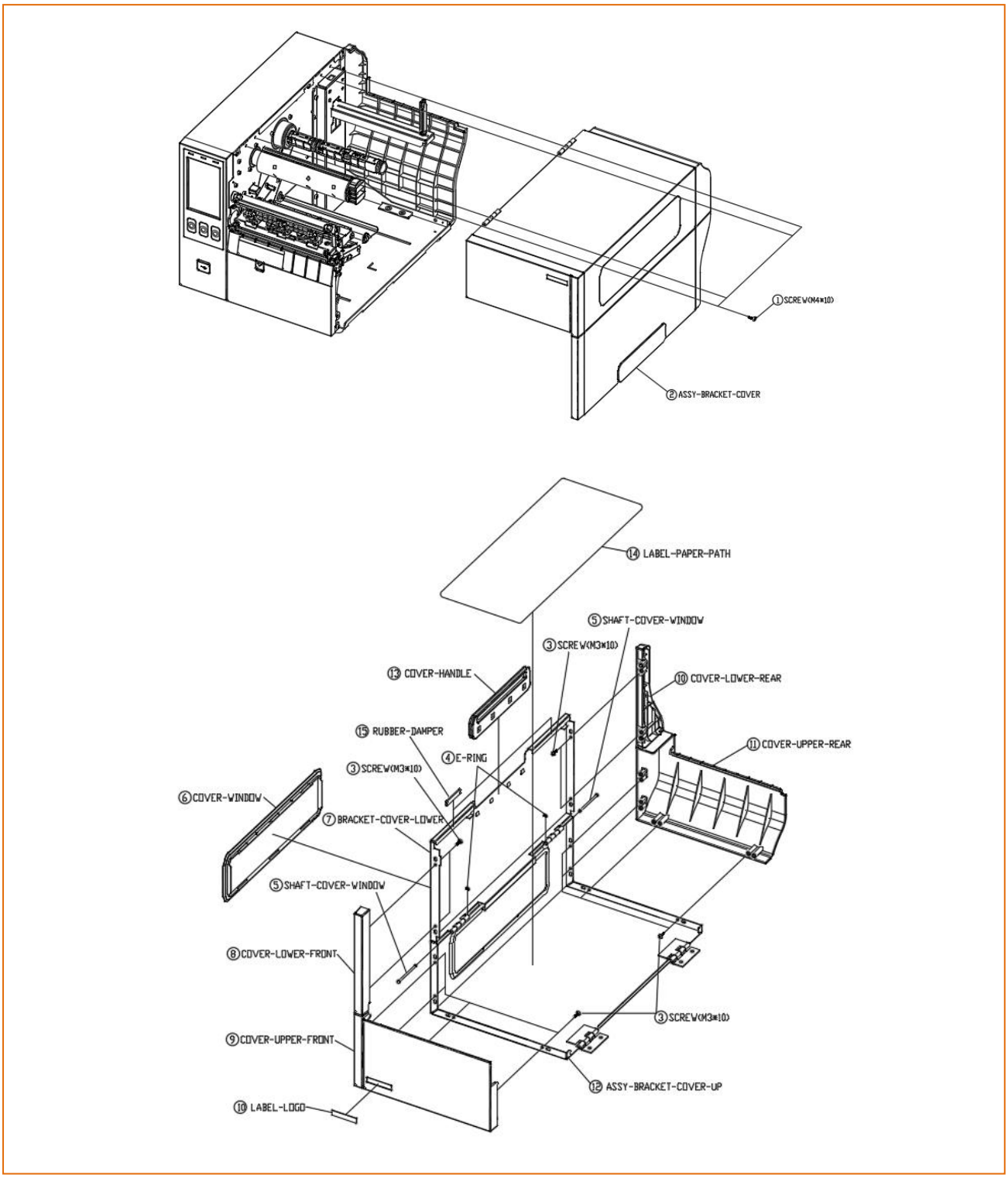


Figure 6-1 ASSY-COVER disassembly

6-2 ASSY-HOLDER-PAPER disassembly

1) Remove the six SCREWs① and separate the BRACKET-GUIDE-PAPER②.
2) Remove the five SCREWs ③ and separate the HOLDER-PAPER⑨.
3) Remove the SCREWs④ and separate the parts⑤~⑧ from the HOLDER-PAPER⑨.

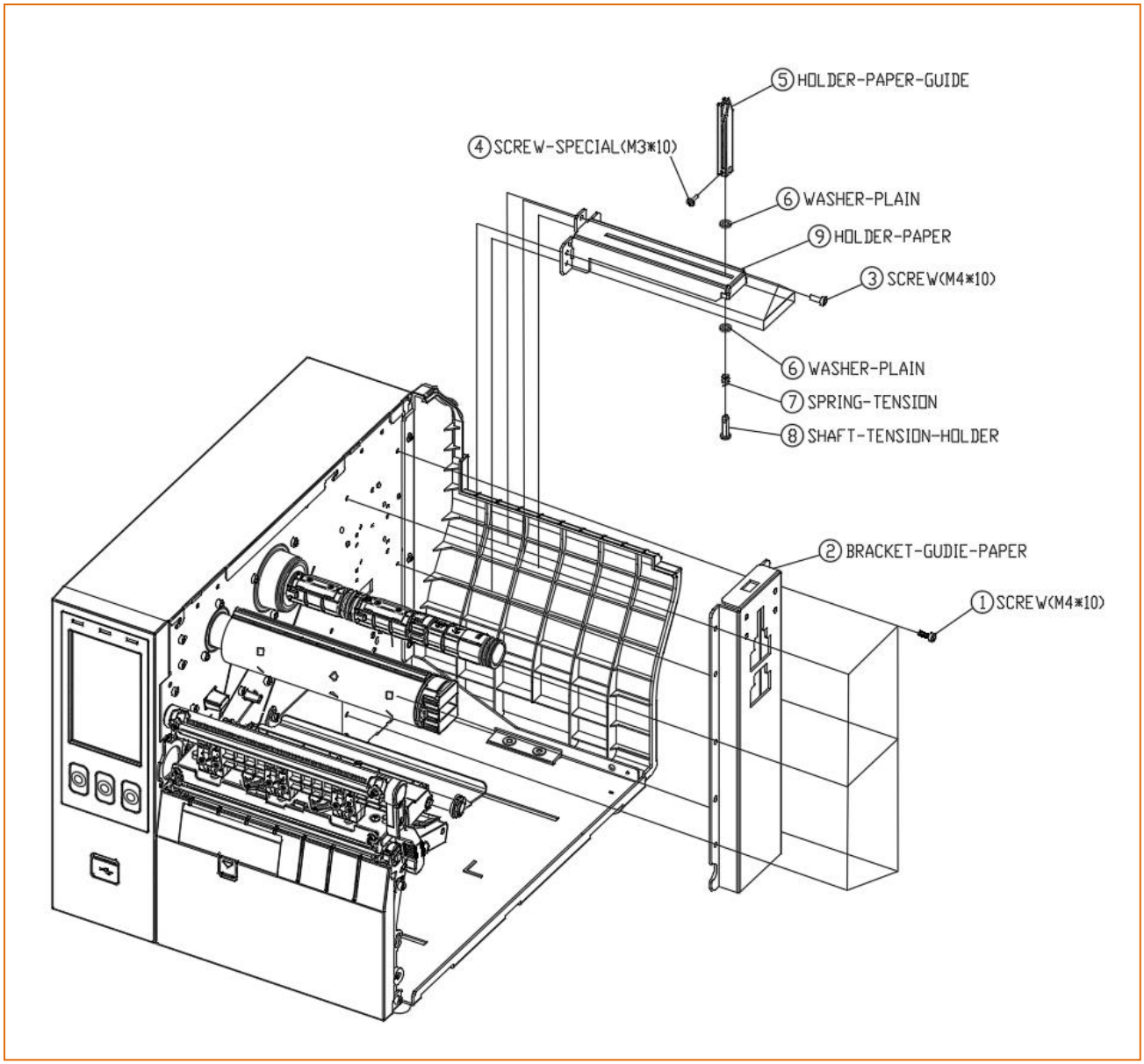


Figure 6-2 ASSY-HOLDER-PAPER disassembly

6-3 ASSY-COVER-STD & COVER-REAR & ASSY-BRKT-FIX disassembly

1) Separate the COVER-STD① from the printer.
2) Remove the two SCREWs②.
3) Separate the parts③~⑦ from the COVER-STD①.
4) Remove the three SCREWs⑧ and two SCREWs⑨ and one SCREW⑩.
5) Separate the parts⑪~⑬ from the printer.

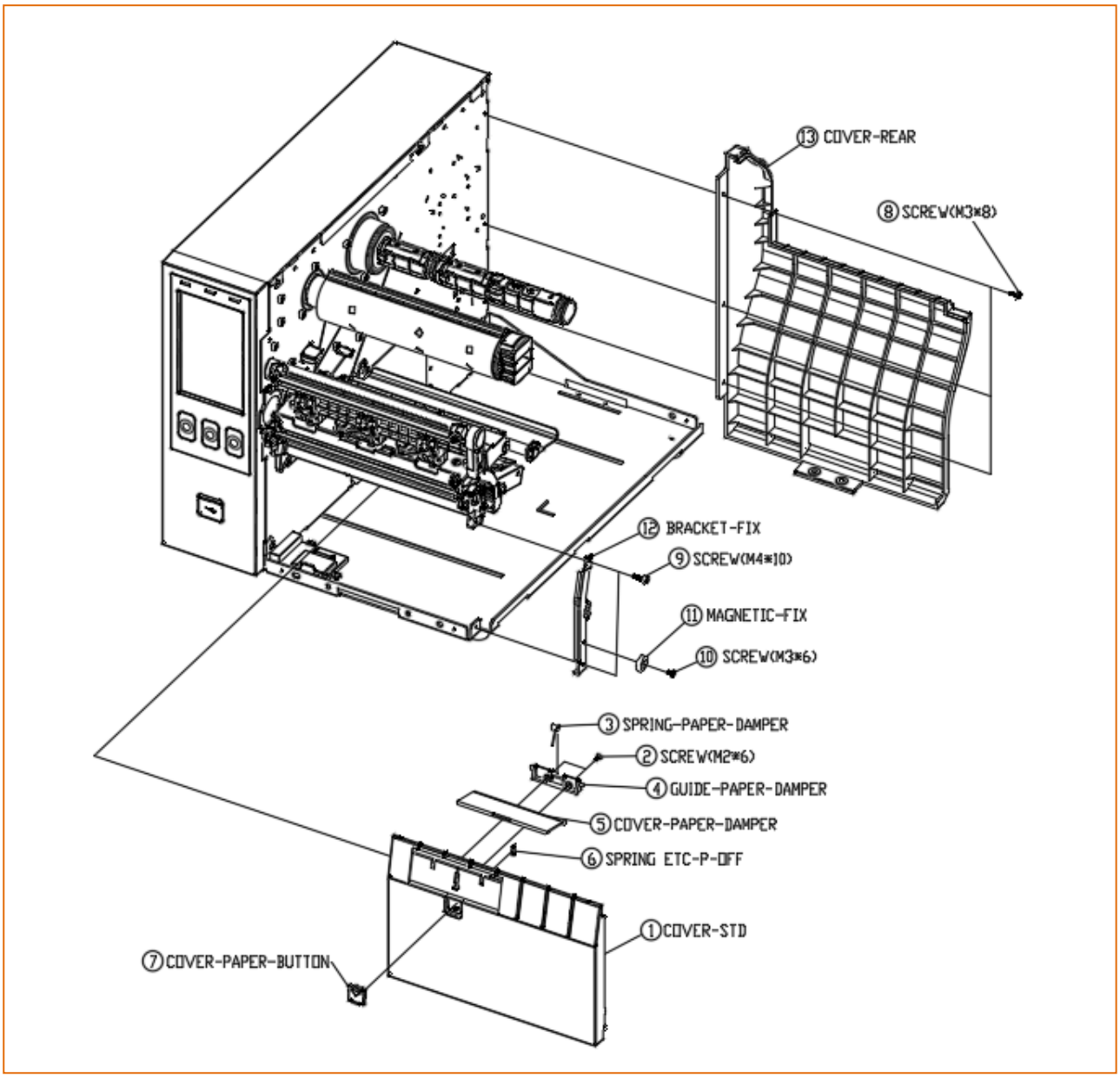


Figure 6-3 COVER-FRONT & COVER-REAR & ASSY-BRKT-FIX disassembly

6-4 COVER-INTERFACE & COVER-MAIN disassembly

1) Remove the ten SCREWs①②.
2) Separate the parts③~⑥ from the Printer.

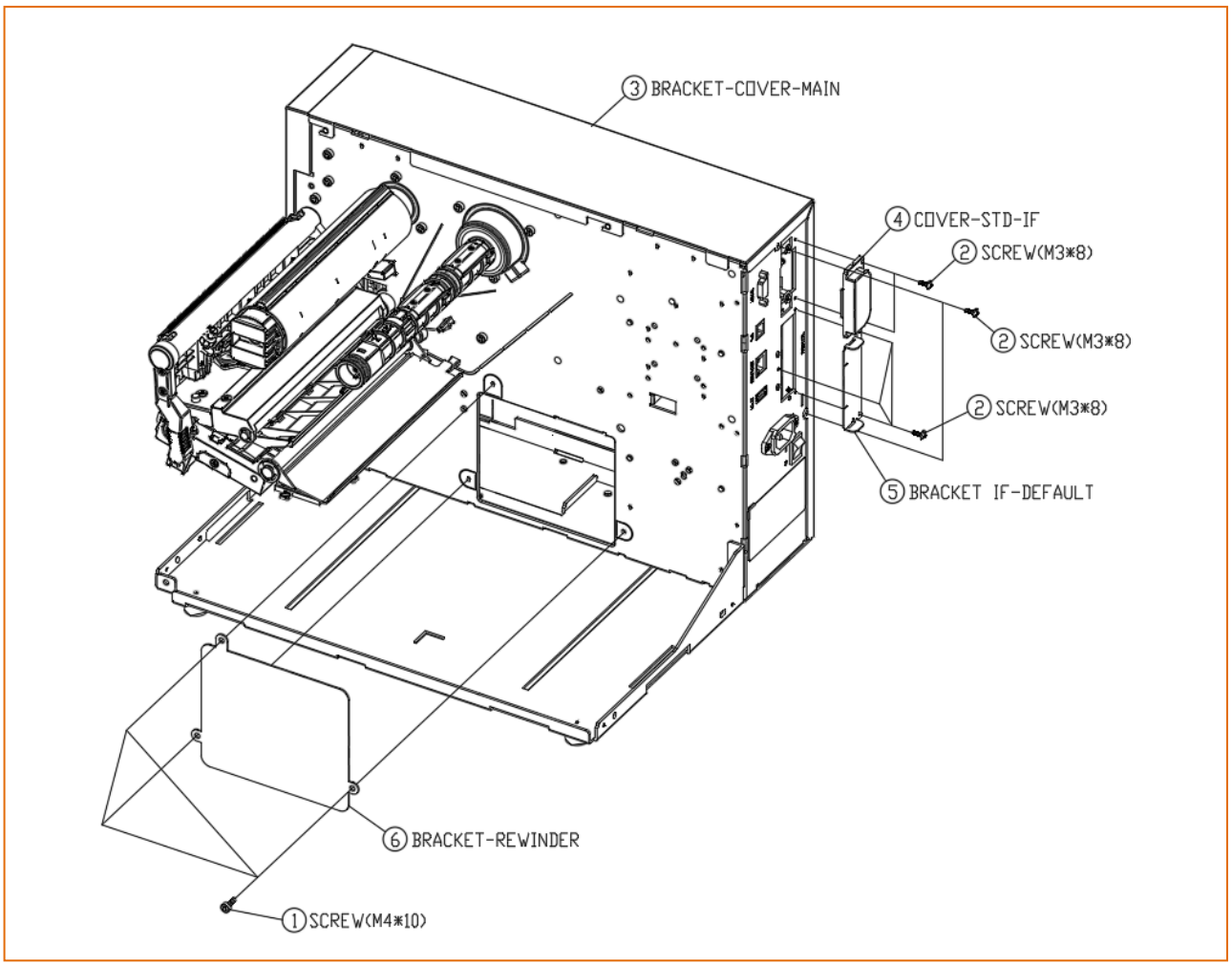


Figure 6-4 COVER-INTERFACE & COVER-MAIN disassembly

6-5 ASSY-GUIDE-INTERFACE & MAIN-PCB disassembly

1) Remove the three SCREWs① and separate the BRACKET-SUPPORT-FRAME②.
2) Remove the four SCREWs③④ and separate the parts⑤~⑦.
3) Remove the connector wires from ⑧PCB-MAIN
4) Remove the five SCREWs⑨ and separate PCB-MAIN⑧.

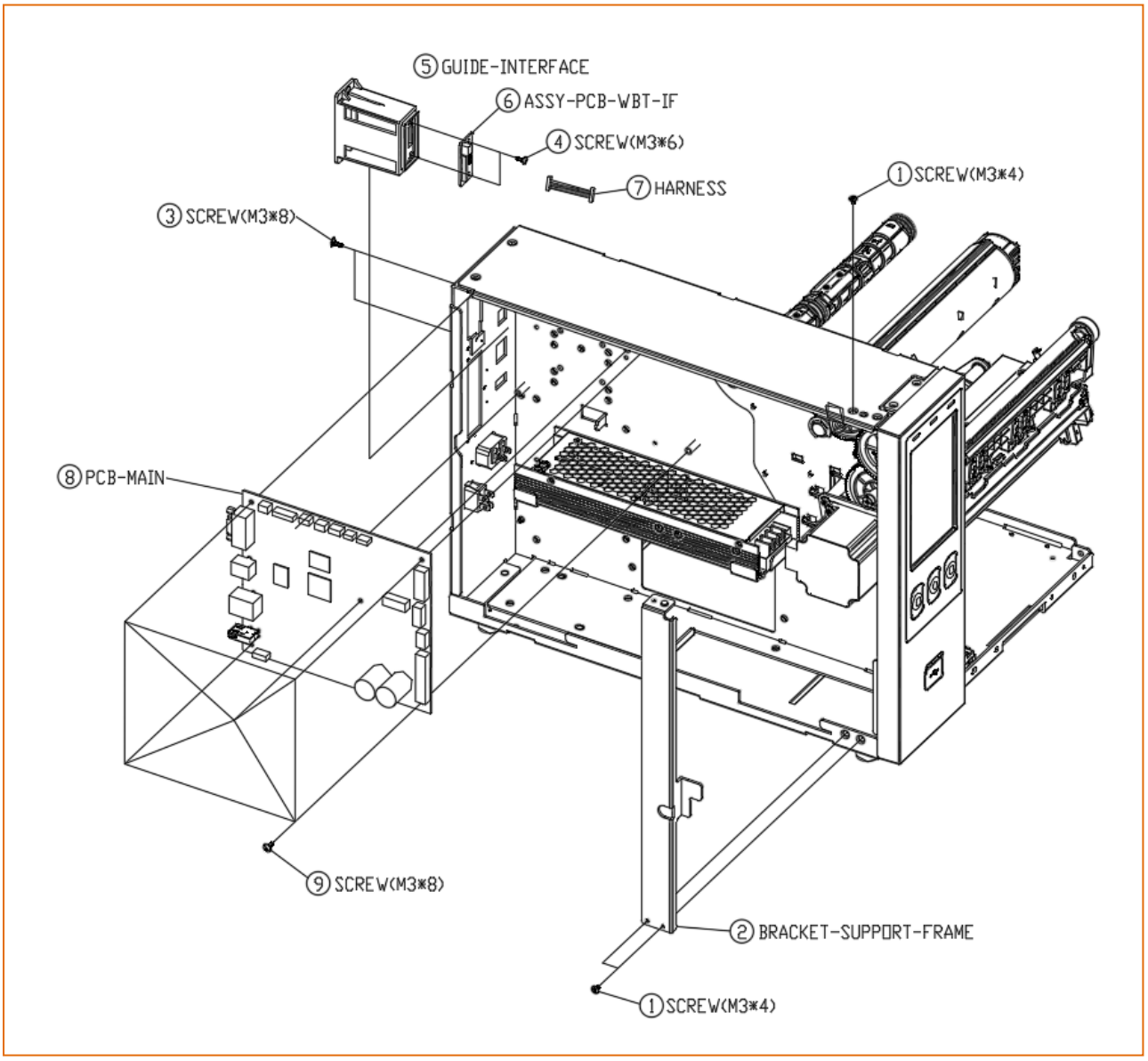


Figure 6-5 ASSY-GUIDE-INTERFACE & MAIN-PCB disassembly

6-6 ASSY-COVER-FUNCTION(1) & ETC disassembly

1) Remove the three SCREWs①②.
2) Separate the COVER-FUNCTION Assembly③ and CAP-RUBBER④.

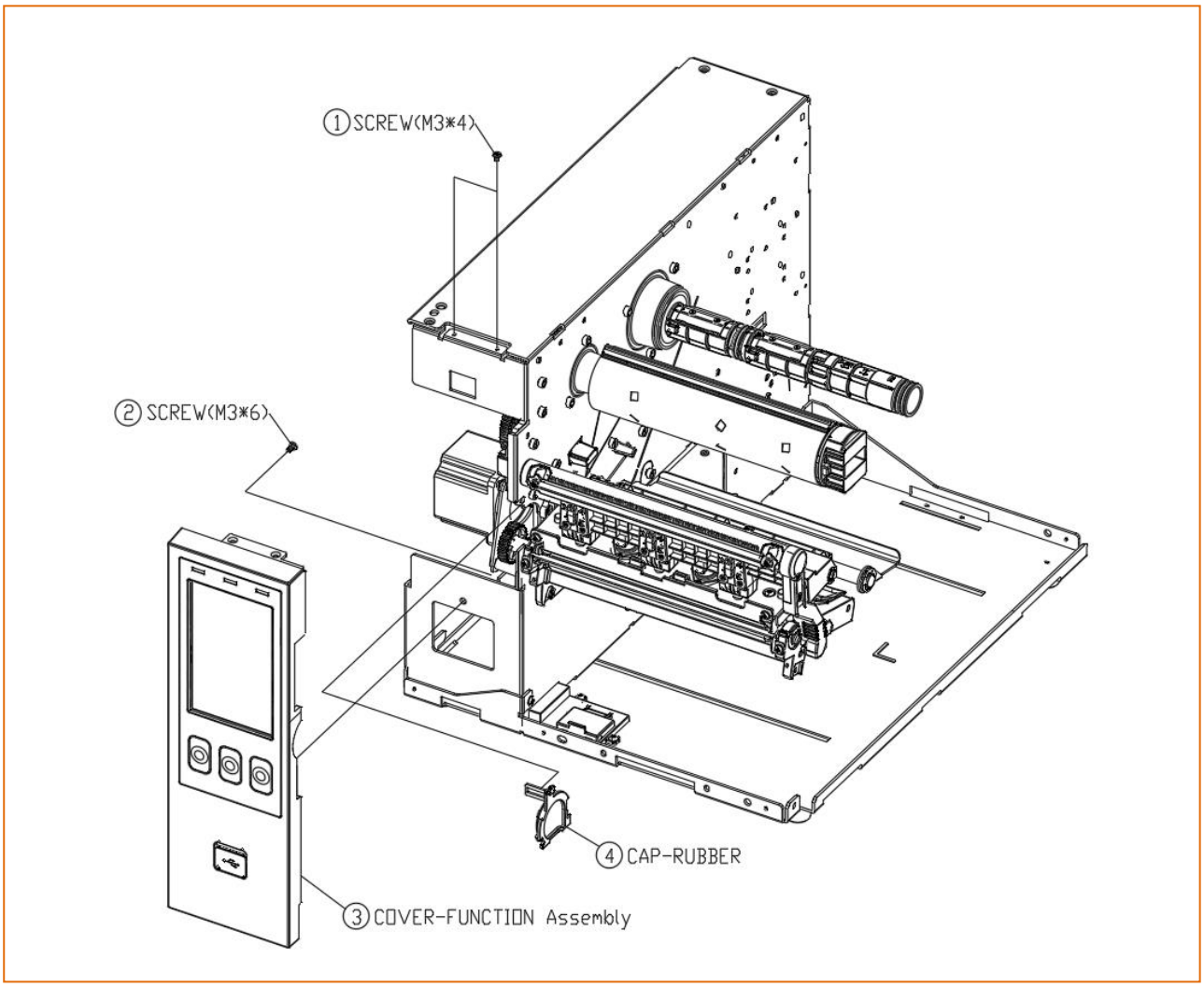


Figure 6-6 ASSY-COVER-FUNCTION(1) & ETC disassembly

6-7 ASSY-COVER-FUNCTION(2) disassembly

1) Remove the sixteen SCREWs①.
2) Separate the Parts②~⑭ from the COVER-TOUCH-LCD⑮.

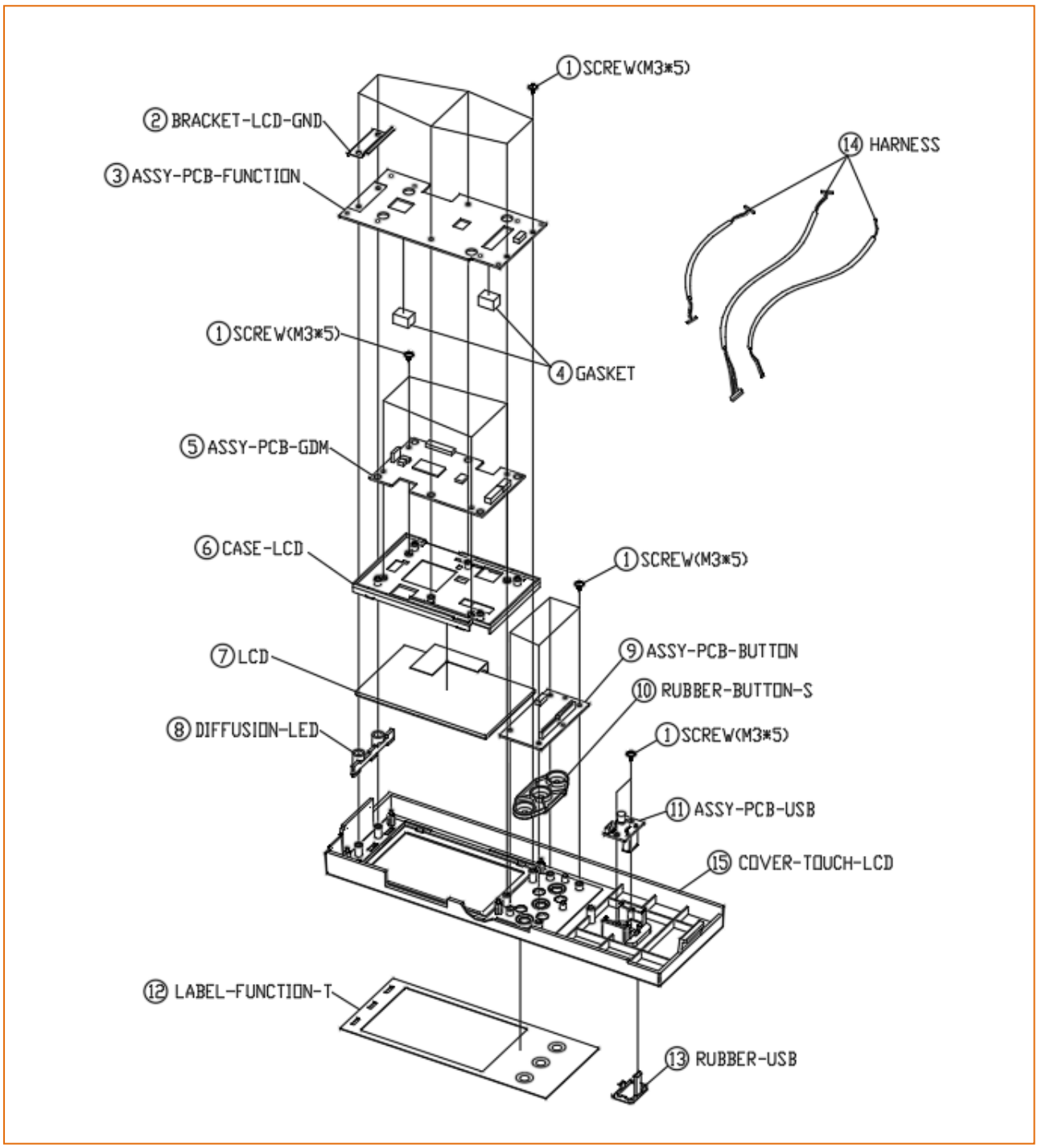


Figure 6-7 ASSY-COVER-FUNCTION(2) disassembly

6-8 ASSY-POWER & ETC disassembly

1) Remove the six SCREWs①.
2) Separate the BRACKET-POWER-L③, BRACKET-POWER-R④ and POWER⑤.
3) Remove the two SCREWs② and separate the AC-INLET⑥,POWER-SWITCH⑦L

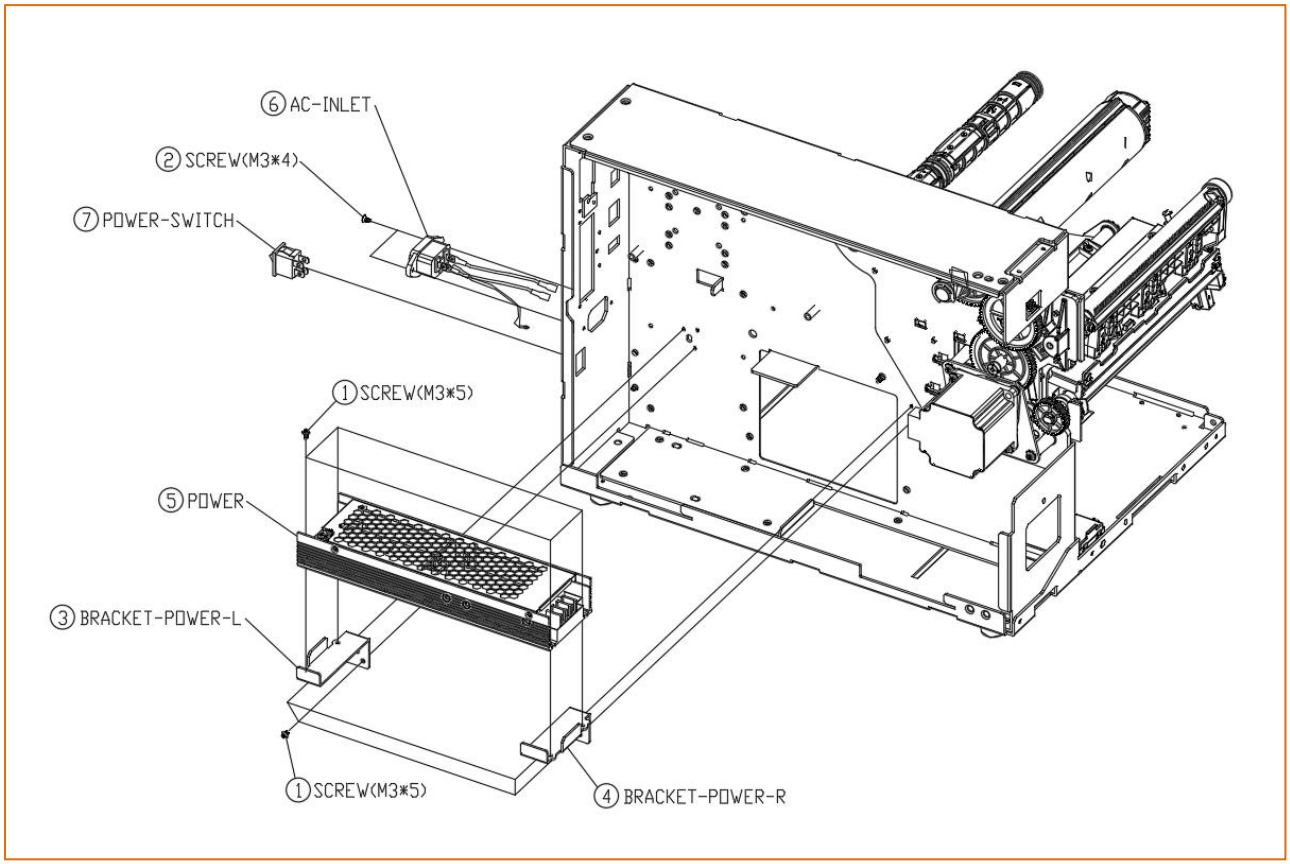


Figure 6-8 ASSY-POWER & ETC disassembly

6-9 ASSY-MOTOR & GEAR & ETC disassembly

1) Remove the seven SCREWs①.
2) Separate the Motor②, DAMPER③ and BRACKET-MOTOR④.
3) Remove the E-RING⑤ and separate the parts⑥~⑧ from the printer.
4) Remove the three Gear-Screw⑨ and separate the parts⑩~⑪.
5) Remove the SCREW⑬ and separate the parts⑭~⑮.

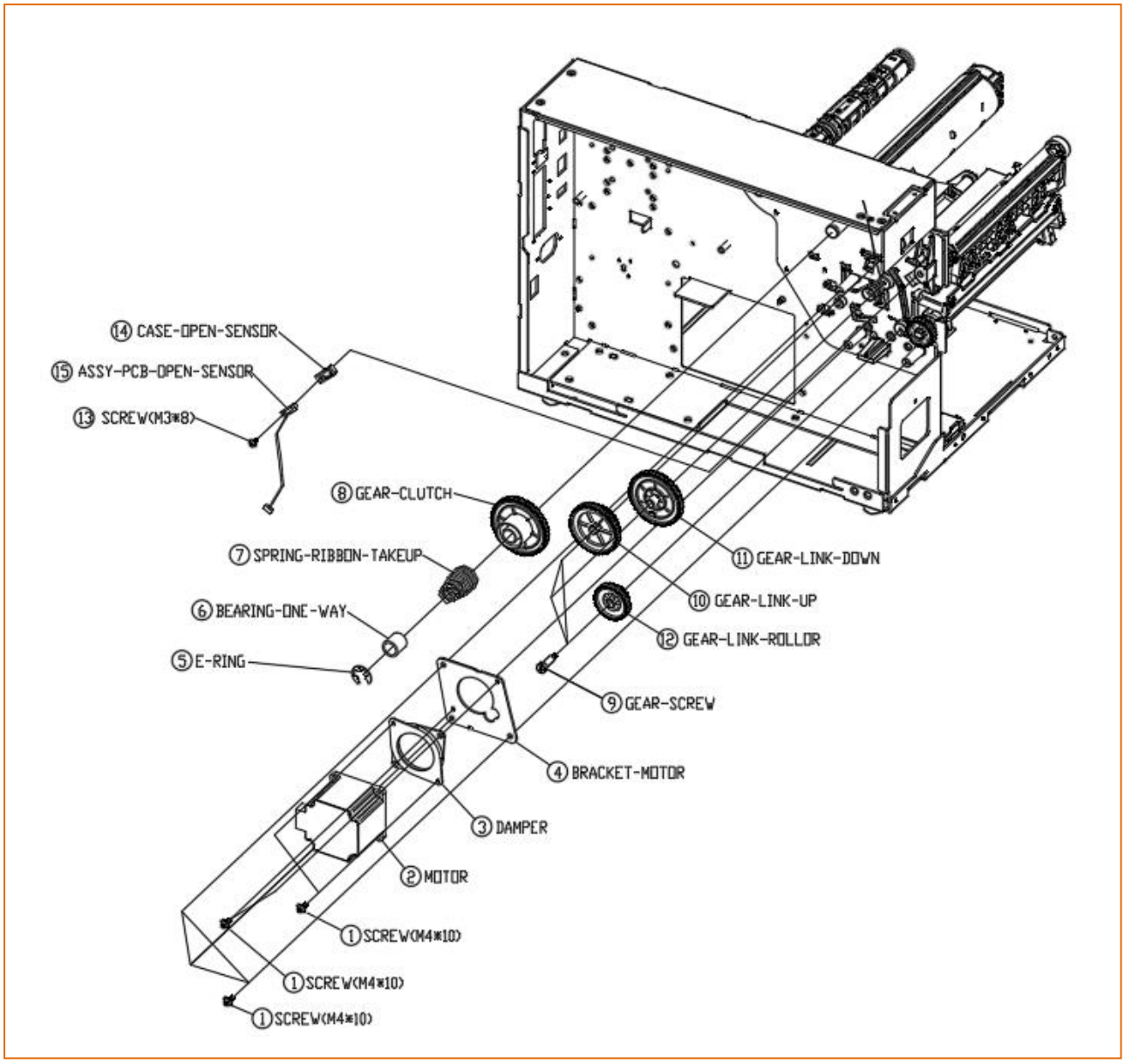


Figure 6-9 ASSY-MOTOR & GEAR & ETC disassembly

6-10 ASSY-RIBBON-TAKE-UP(1) & ASSY-RIBBON-SUPPLY(1) disassembly

1) Remove the SCREW① and E-RING②.
2) Separate the parts③~⑦

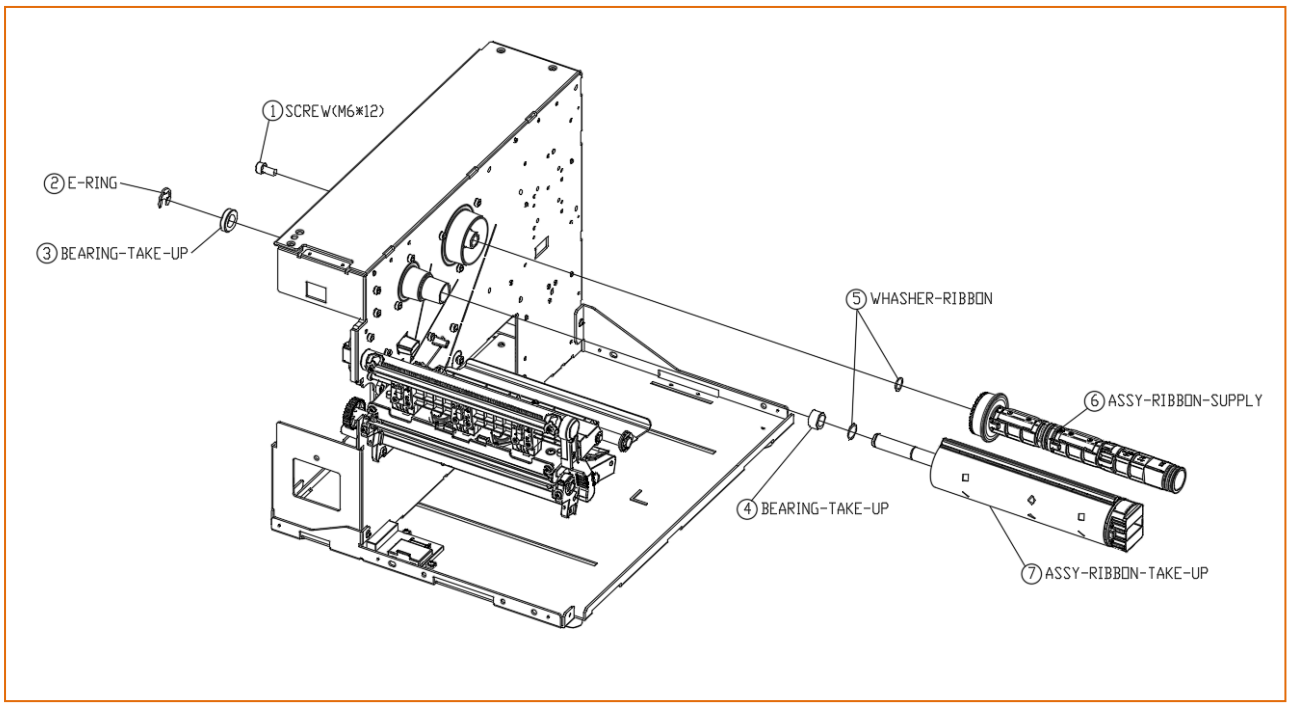


Figure 6-10 ASSY-RIBBON-TAKE-UP(1) & ASSY-RIBBON-SUPPLY(1) disassembly

6-11 ASSY-RIBBON-TAKE-UP(2) disassembly

1) Remove the five SCREWs①② and separate the parts③~⑦.
2) Remove the six SCREW⑧ and separate the parts⑨~⑭.

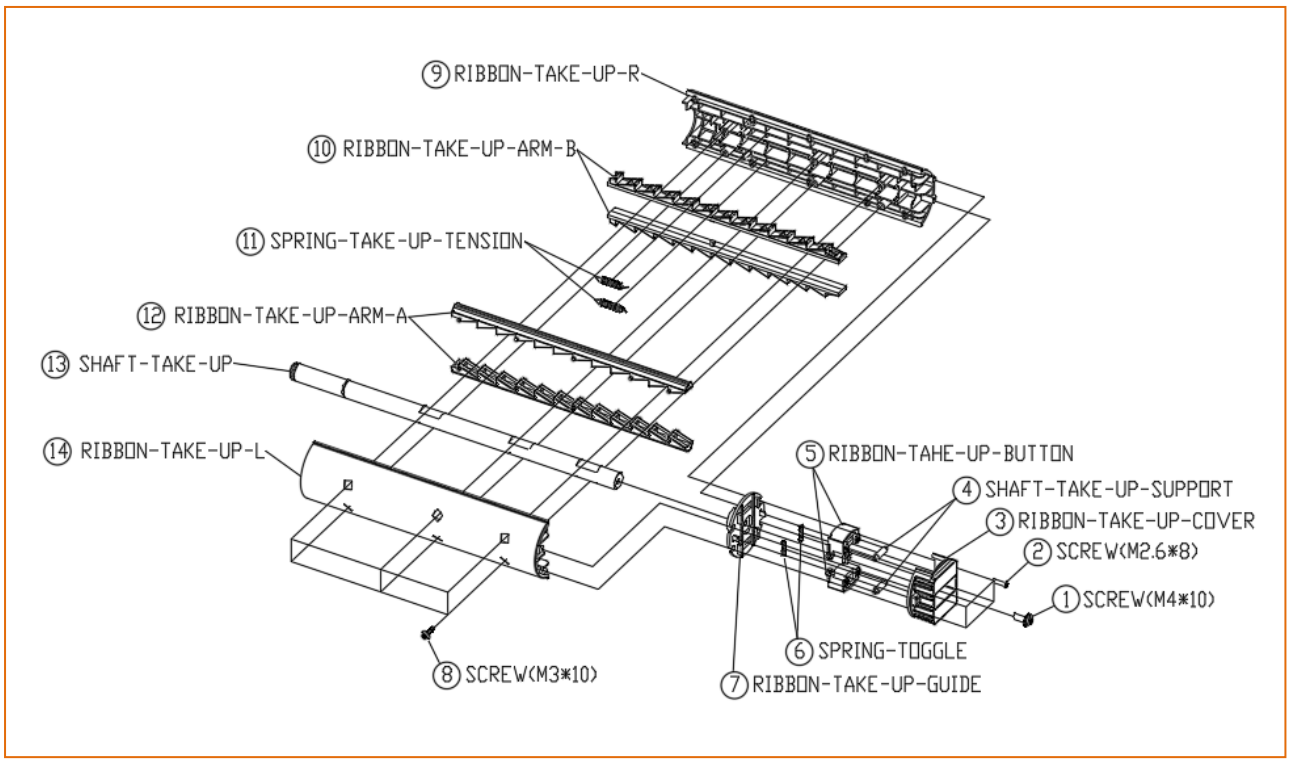


Figure 6-11 ASSY-RIBBON-TAKE-UP(2) disassembly

6-12 ASSY-RIBBON-TAKE-UP(2) disassembly

1) Remove the SCREWs①②③④ and separate the parts(5)~(17).

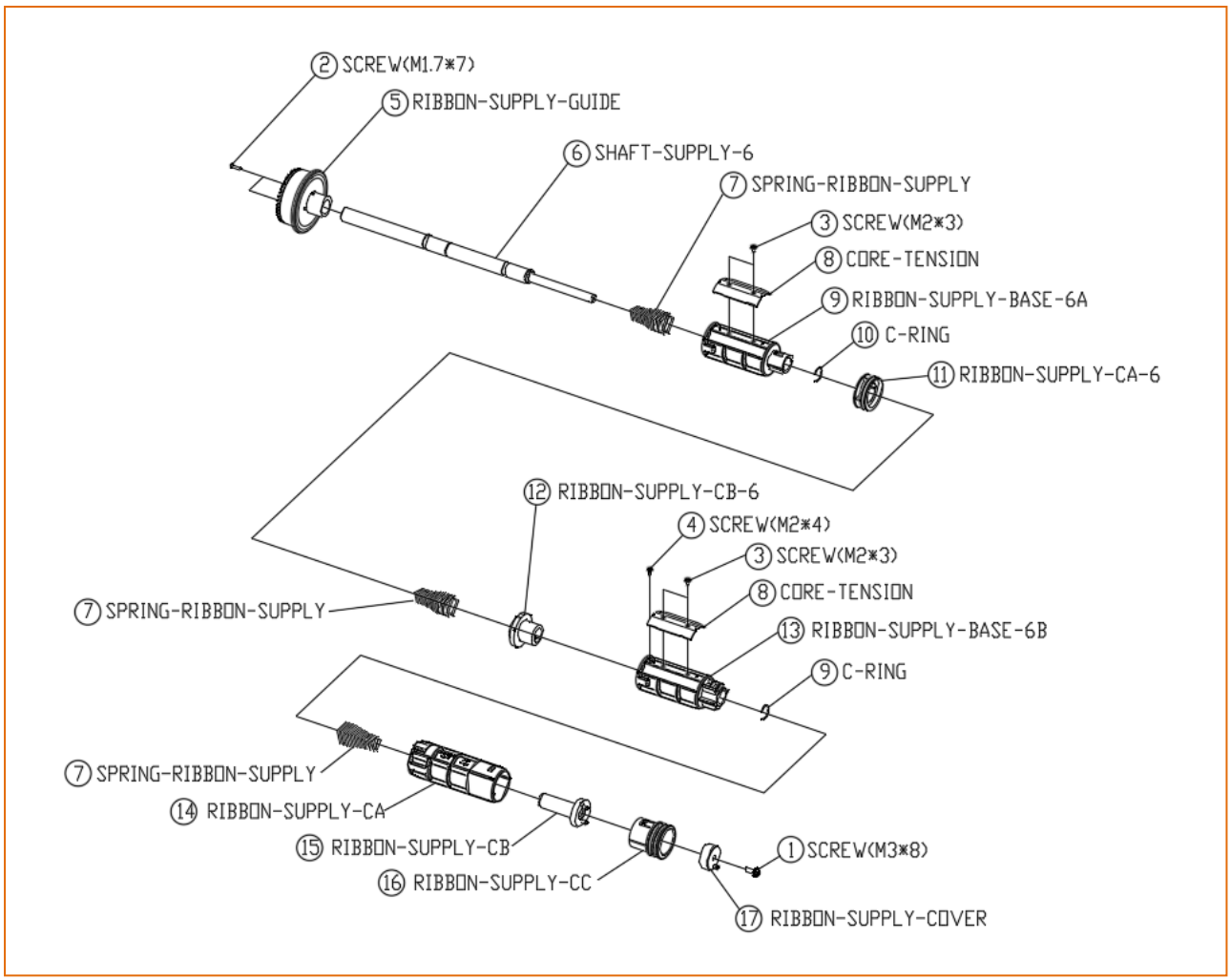


Figure 6-12 ASSY-RIBBON-SUPPLY(2) disassembly

6-13 ASSY-TPH-LOAD(1) & RIBBON-GUIDE-UP disassembly

1) Remove the two SHAFT-RIBBON-GUIDE①.
2) Separate the Parts②~⑦ from the printer.

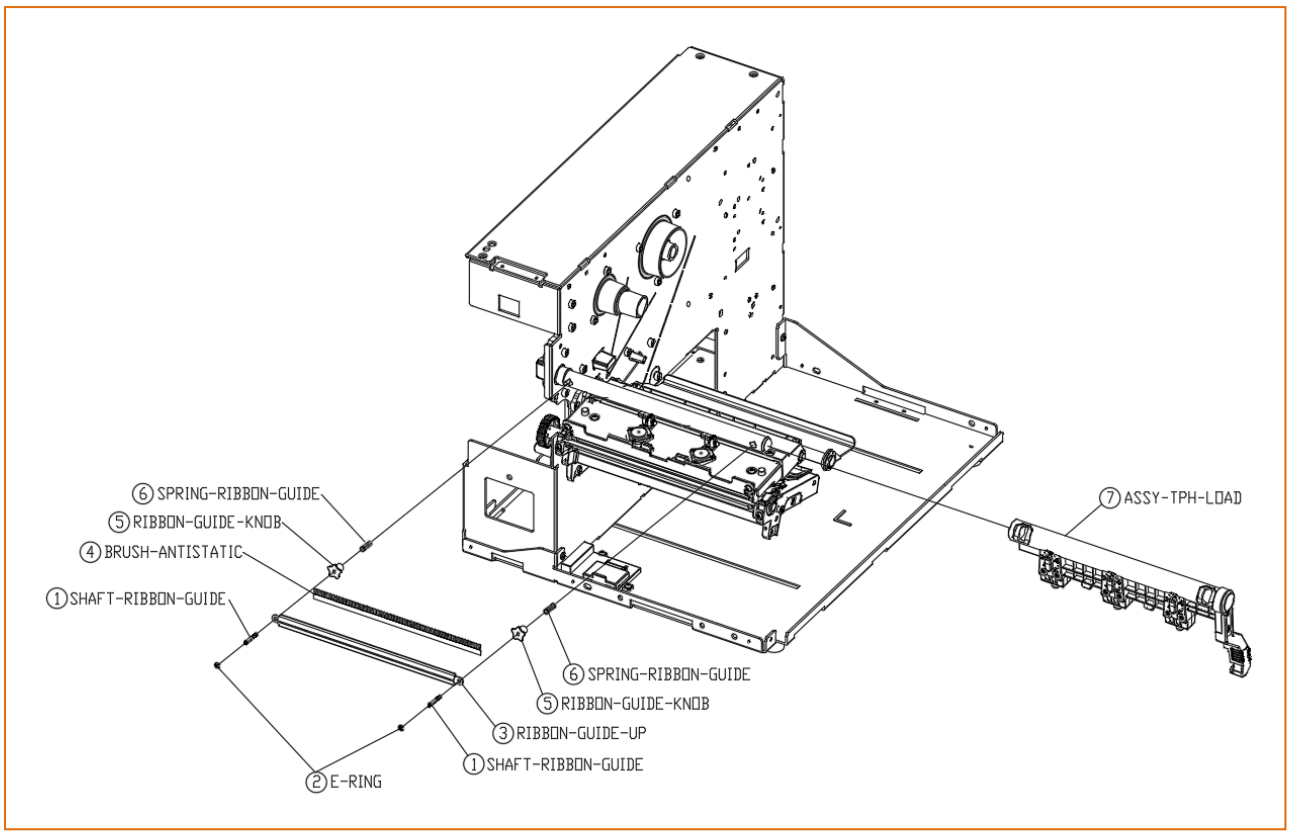


Figure 6-13 ASSY-TPH-LOAD(1) & RIBBON-GUIDE-UP disassembly

6-14 ASSY-TPH-LOAD(2) disassembly

1) Remove the fifteen SCREWs①②.
2) Separate the Parts③~⑩.

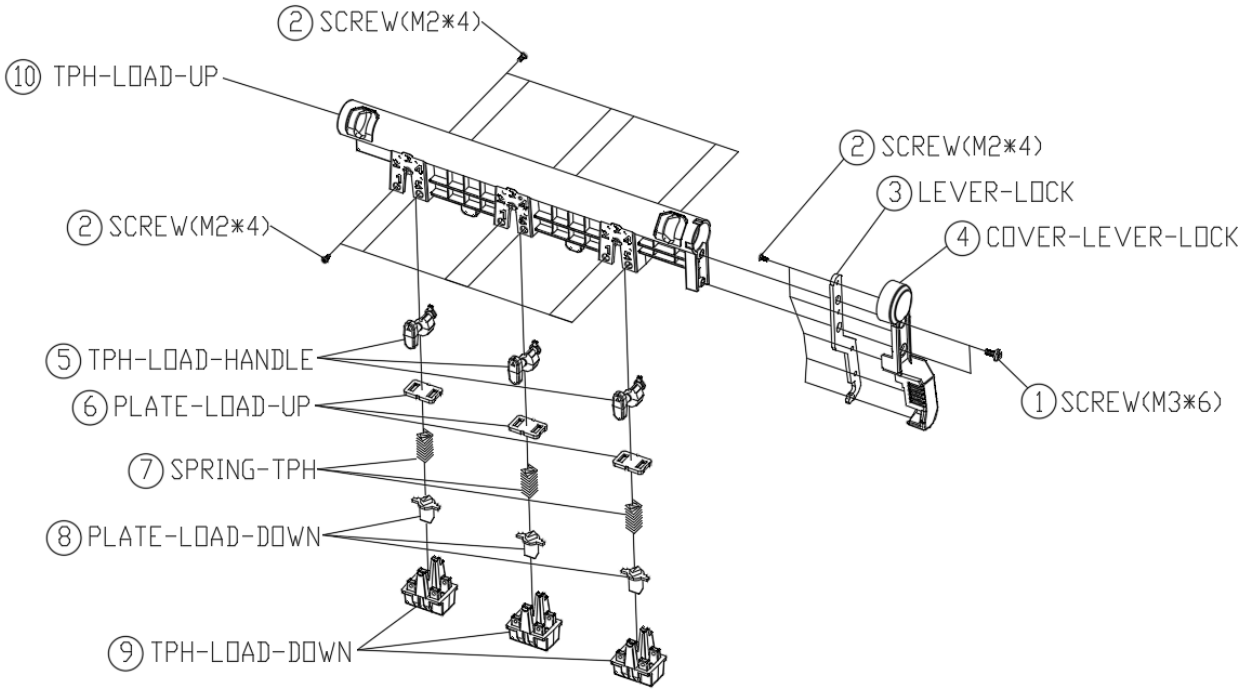


Figure 6-14 ASSY-TPH-LOAD(2) disassembly

6-15 ASSY-TPH (1) & ASSY-ROLLER -PLATEN disassembly

1) Remove the E-RING① and separate the ASSY-TPH②,WASHER③.
2) Remove the two SCREWs④ and separate the TEAR-BAR⑤.
3) Remove the SCREW-SPECIAL⑥ and separate the parts⑦~⑭.

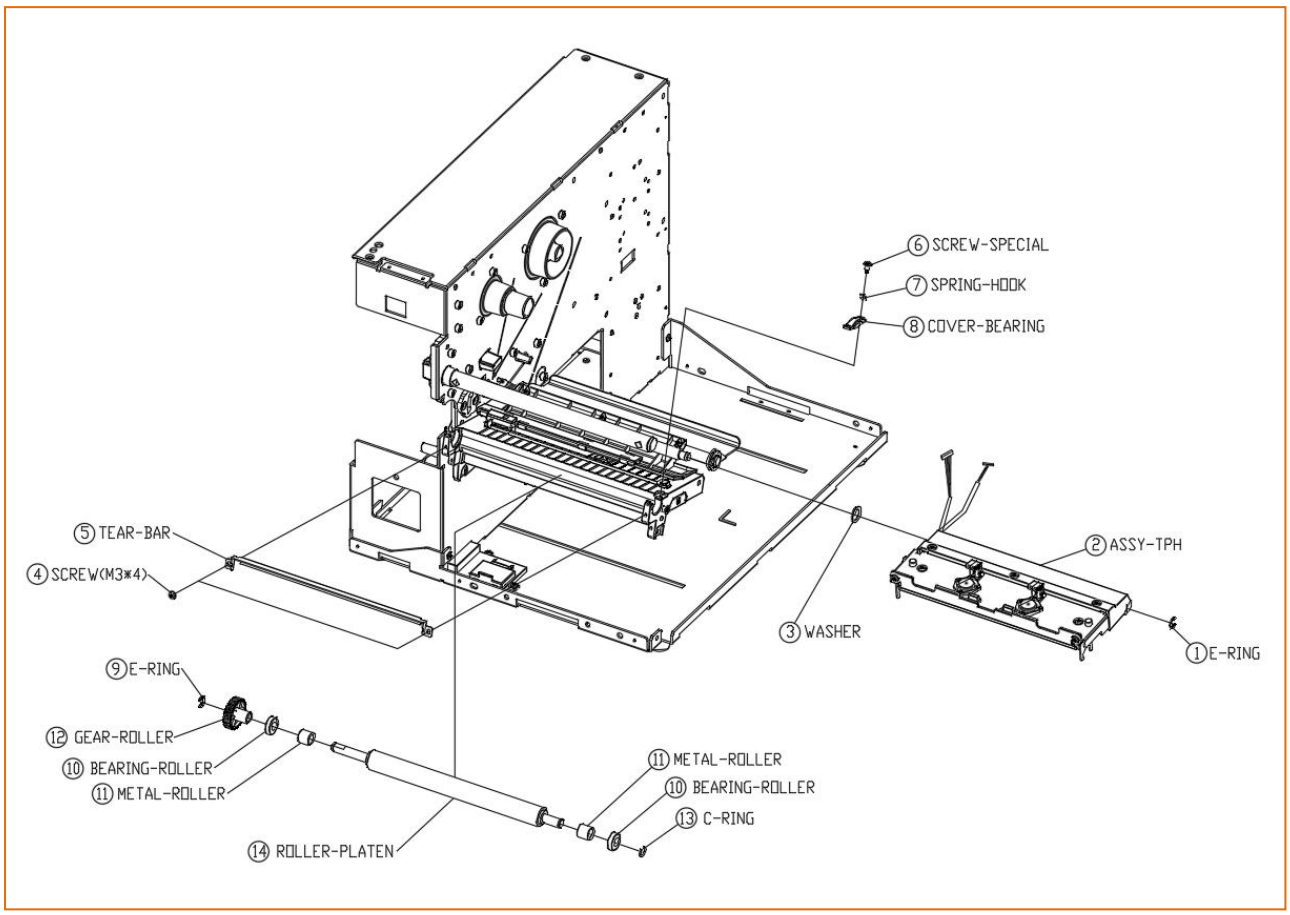


Figure 6-15 ASSY-TPH(1) & ASSY-ROLLER -PLATEN disassembly

6-16 ASSY-TPH (2) disassembly

1) Remove the two SCREWs① and separate the RIBBON-GUIDE-DOWN②.
2) Separate the BRACKET-TPH-DOWN⑦
3) Remove the four SCREWs① and separate the parts③~⑥.
4) Remove the nine SCREWs⑧⑨ and separate the parts⑩~⑭.

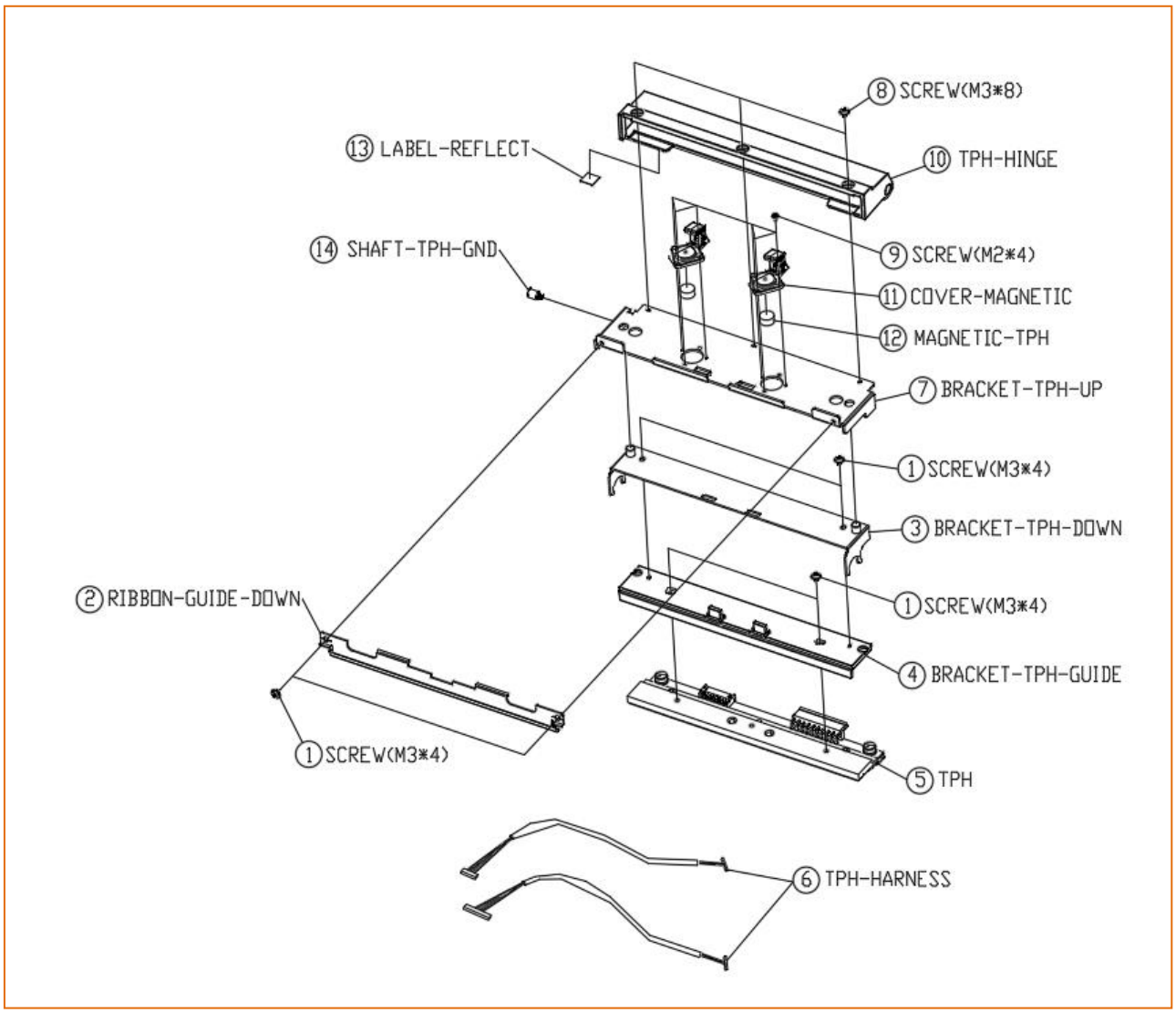


Figure 6-16 ASSY-TPH(2) disassembly

6-17 ASSY-BRACKET-MECHA (1) & ASSY-PAPER-TENSION (1) disassembly

1) Remove the nine SCREWs①②.
2) Separate the Parts③~⑥.

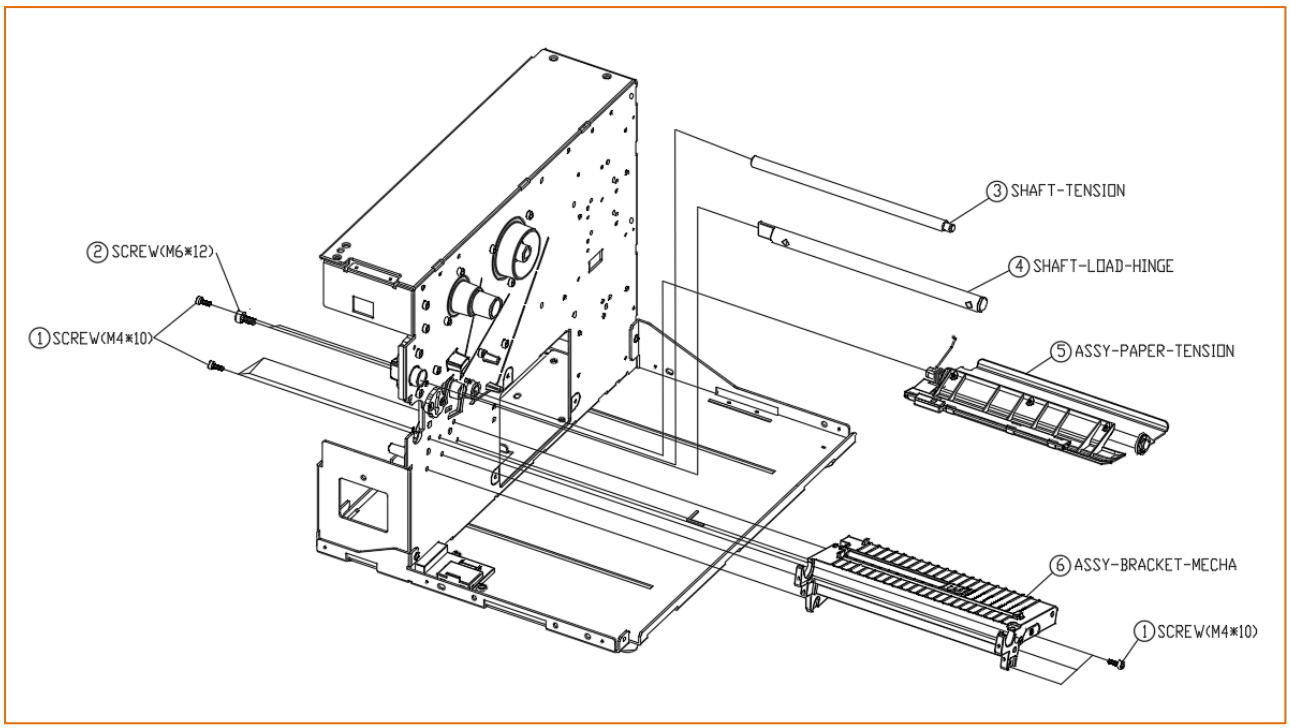


Figure 6-17 ASSY-BRACKET-MECHA(1) & ASSY-PAPER-TENSION disassembly

6-18 ASSY-BRACKET-MECHA (2) disassembly

1) Remove the eight SCREWs①② and separate the Parts③~⑩.
2) Remove the two SCREWs⑥⑦ and separate the Parts⑧~⑫.

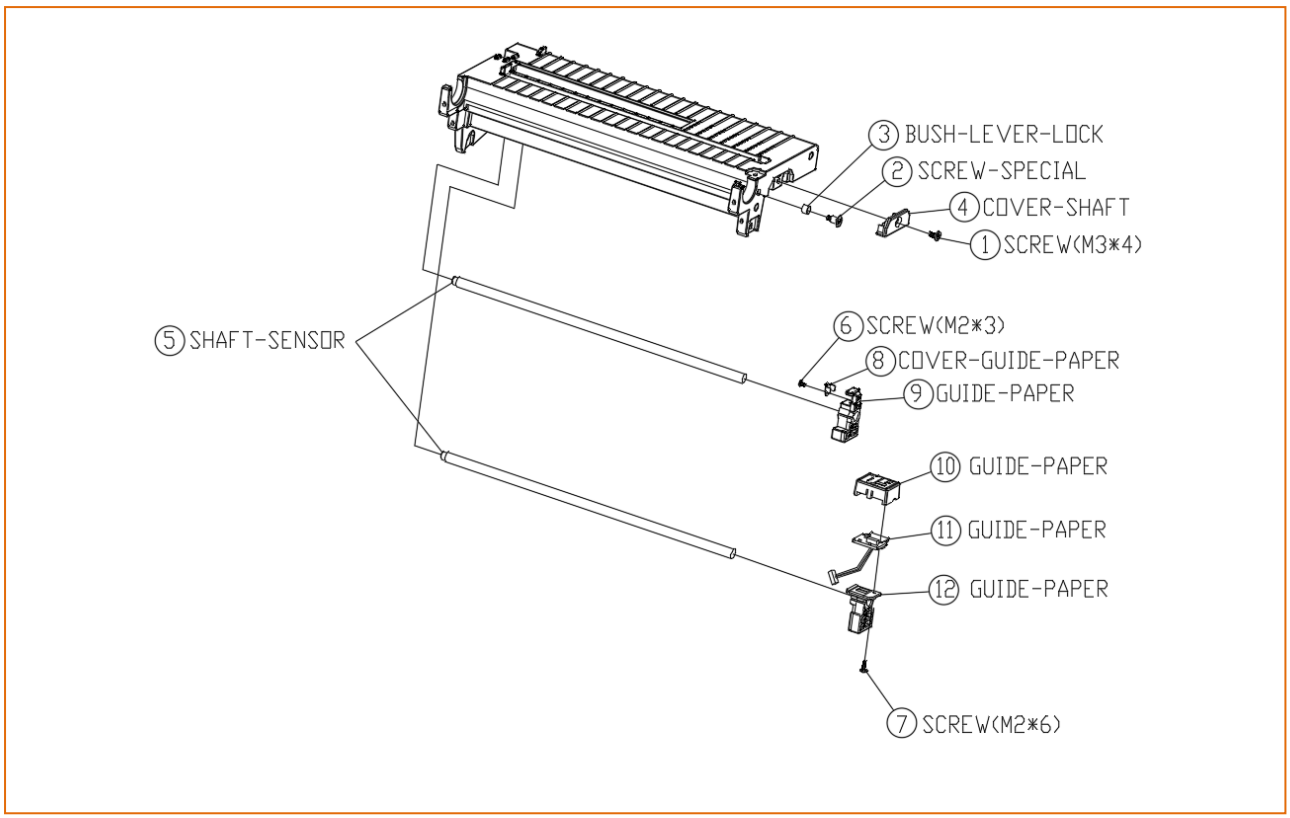


Figure 6-18 ASSY-BRACKET-MECHA(2) disassembly

6-19 ASSY- PAPER-TENSION (2) disassembly

1) Remove the three SCREWs① and separate the Parts②~⑤.
2) Remove the two E-RINGs⑥ and separate the Parts⑦~⑩.

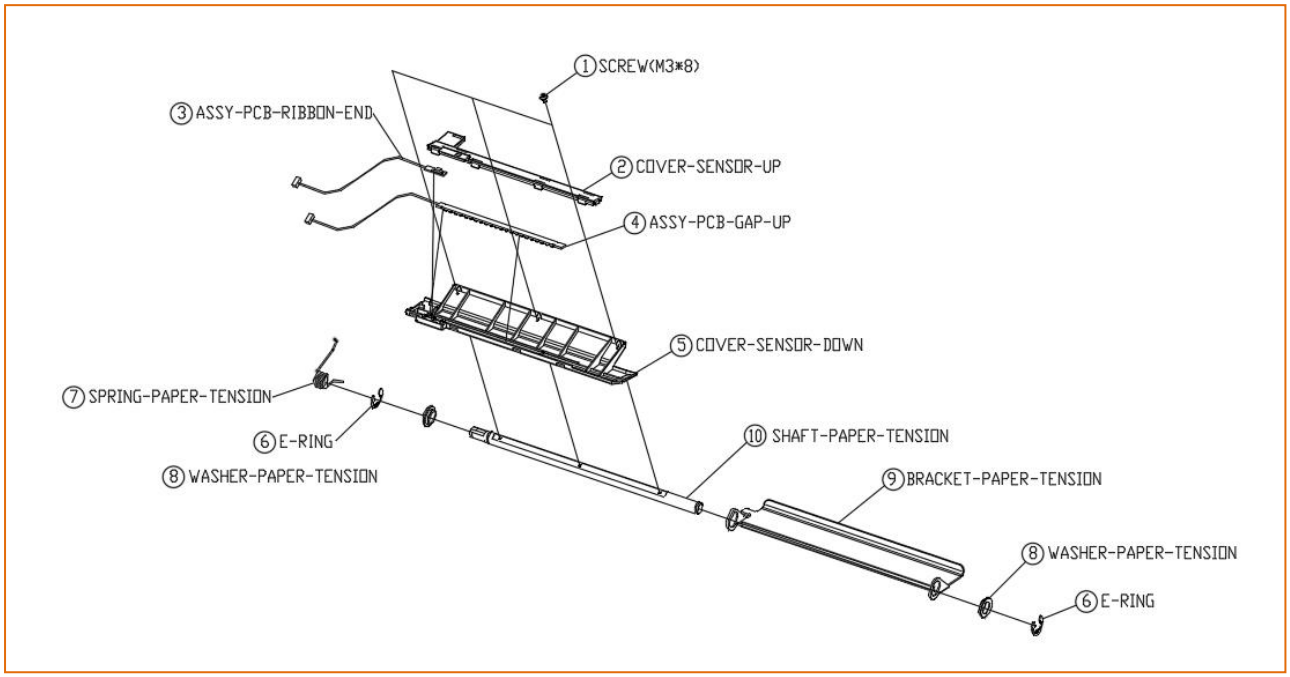


Figure 6-19 ASSY-PAPER-TENSION(2) disassembly

6-20 BRACKET-MAIN and ETC disassembly

1) Remove the two SCREWs① and separate the Parts②~⑤.
2) Remove the fourteen SCREWs ⑥ and separate the BRACKET-MAIN⑦.

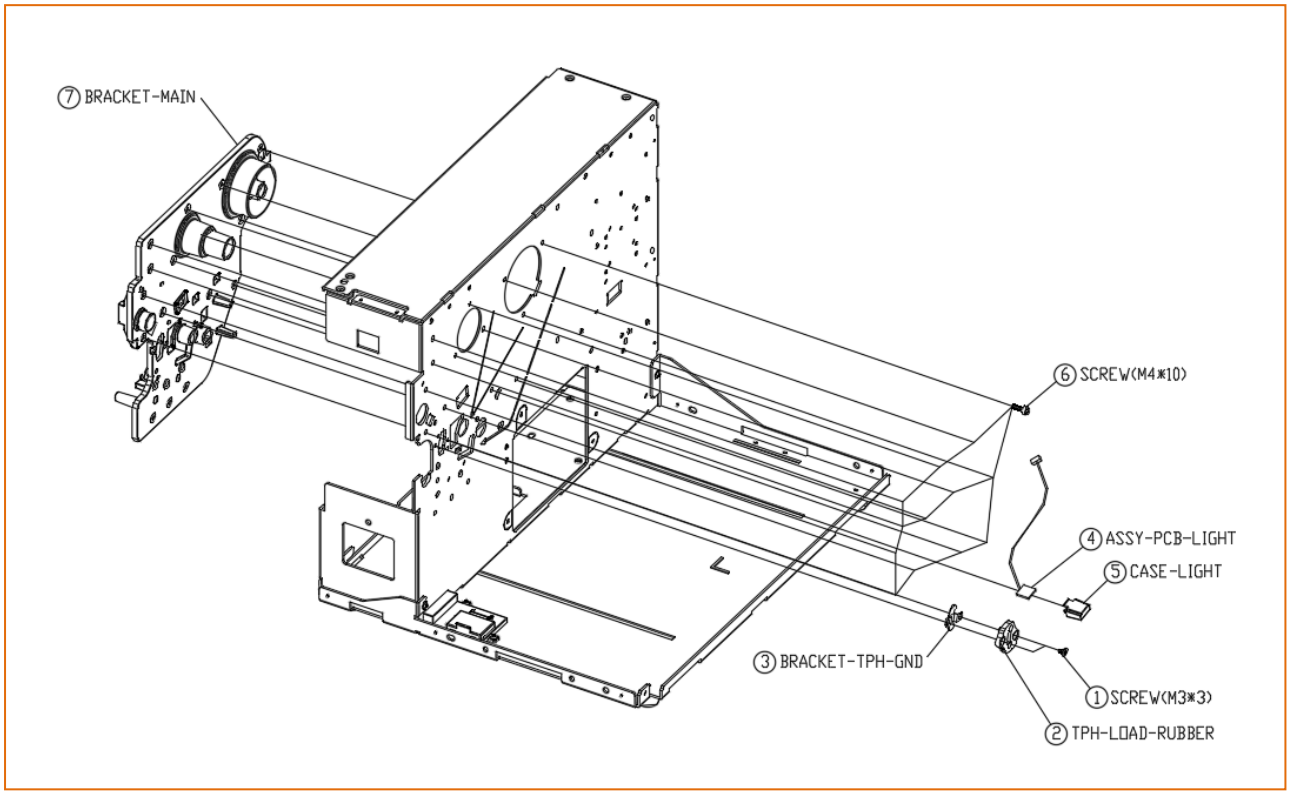


Figure 6-20 BRACKET-MAIN and ETC disassembly

6-21 FRAME-MAIN and ETC disassembly

1) Remove the fourteen SCREWs①②③ and separate the Parts④~⑥.
2) Remove the seven SCREWs⑦⑧ and separate the Parts⑨~⑫.

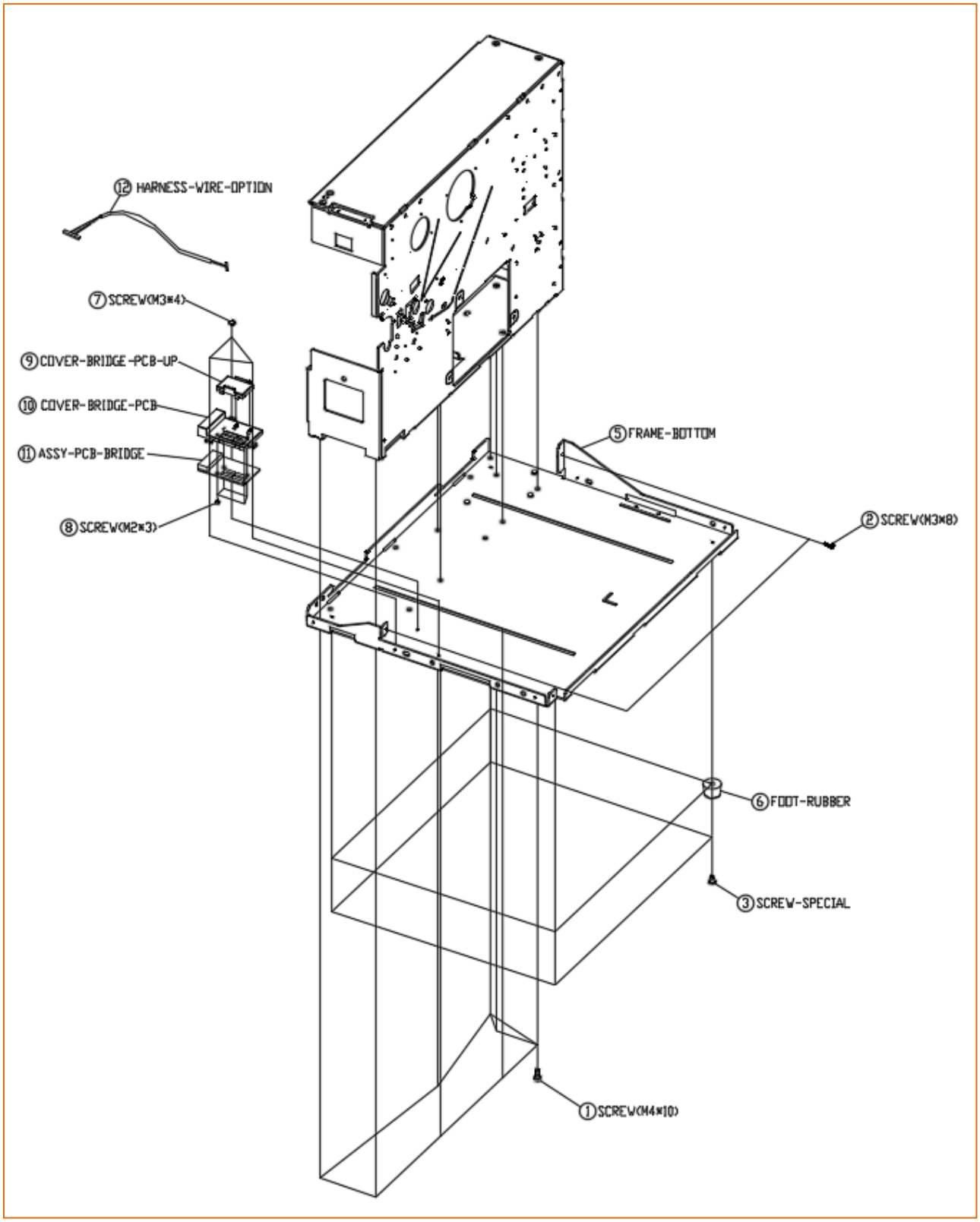


Figure 6-21 BRACKET-MAIN and ETC disassembly

7. Maintenance

7-1 Cleaning Printer

Due to dust, foreign substances, adhesives, and other contaminants on or inside print head, print quality may be reduced. In this case, clean the printer using the cleaning tools for each area as indicated in the following table.

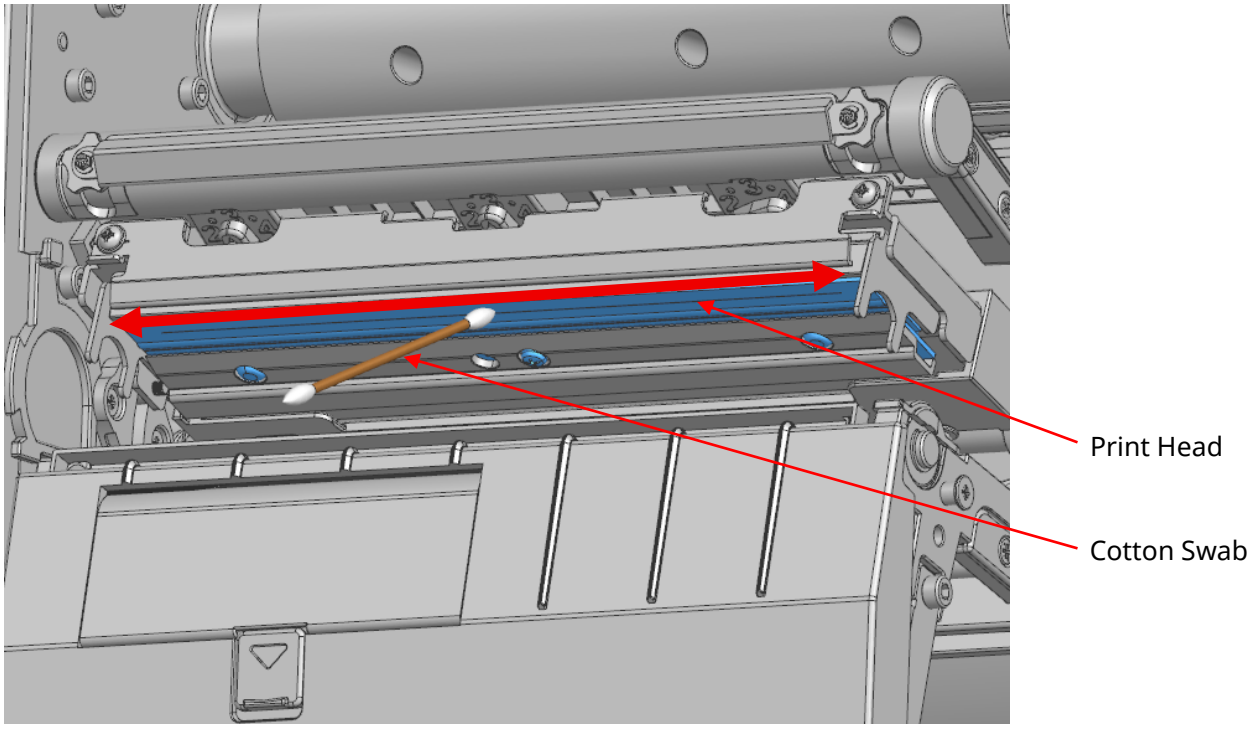
Area	Tools	Interval
Print Head	Cotton swab dipped in medical alcohol solution	When changing media
Platen Roller	Cloth dipped in medical alcohol solution (Cotton swab)	
Media Sensor		
Ribbon Sensor		
Media Feed Path	Air compressors, Cloth dipped in medical alcohol solution (Cotton swab)	
Ribbon Feed Path		
Manual cutting	Cloth dipped in medical alcohol solution (Cotton swab)	When a foreign substance is discovered
Peeler Roller(Option)		When changing media
Peeler Sensor(Option)		
Auto Cutter(Option)	Air compressors, Cotton swab dipped in medical alcohol solution	When a foreign substance is discovered

7-2 Cleaning Print Head

1) Open the media cover and print head levers and remove the media and ribbon.

2) Clean the print head toward both sides from the center using a cotton swab dipped in medical alcohol.

3) After cleaning, use the printer after alcohol has evaporated sufficiently (1 to 2 minutes) and the surface of print head has completely dried up.



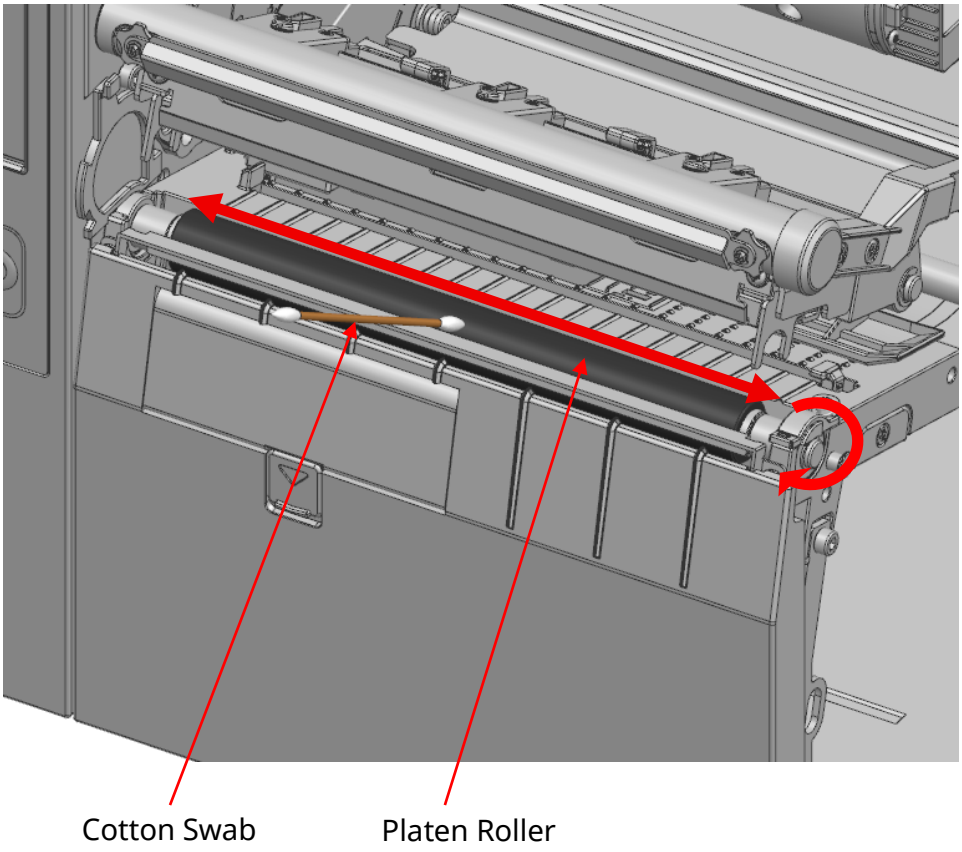
7-3 Cleaning Platen Roller

1) Open the media cover and print head levers and remove the media and ribbon.

2) While rotating the roller, remove dust or foreign substances using a dry cloth or cotton swab.

3) In case that adhesive substances or other contaminants remain, remove it using a cloth or cotton swab dipped in medical alcohol solution while rotating the roller.

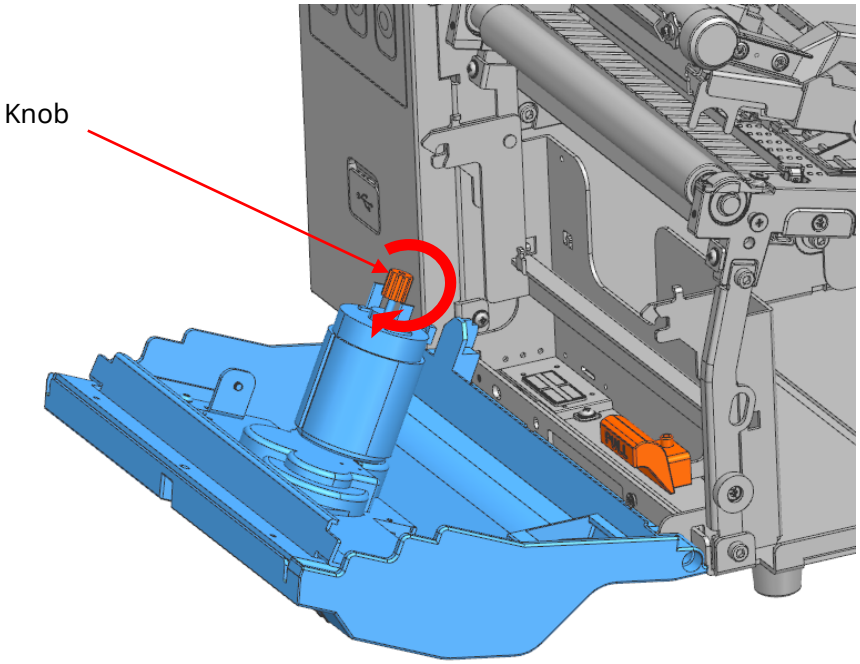
4) After cleaning, use the printer after alcohol has evaporated sufficiently (1 to 2 minutes) and the surface of platen roller has completely dried up.

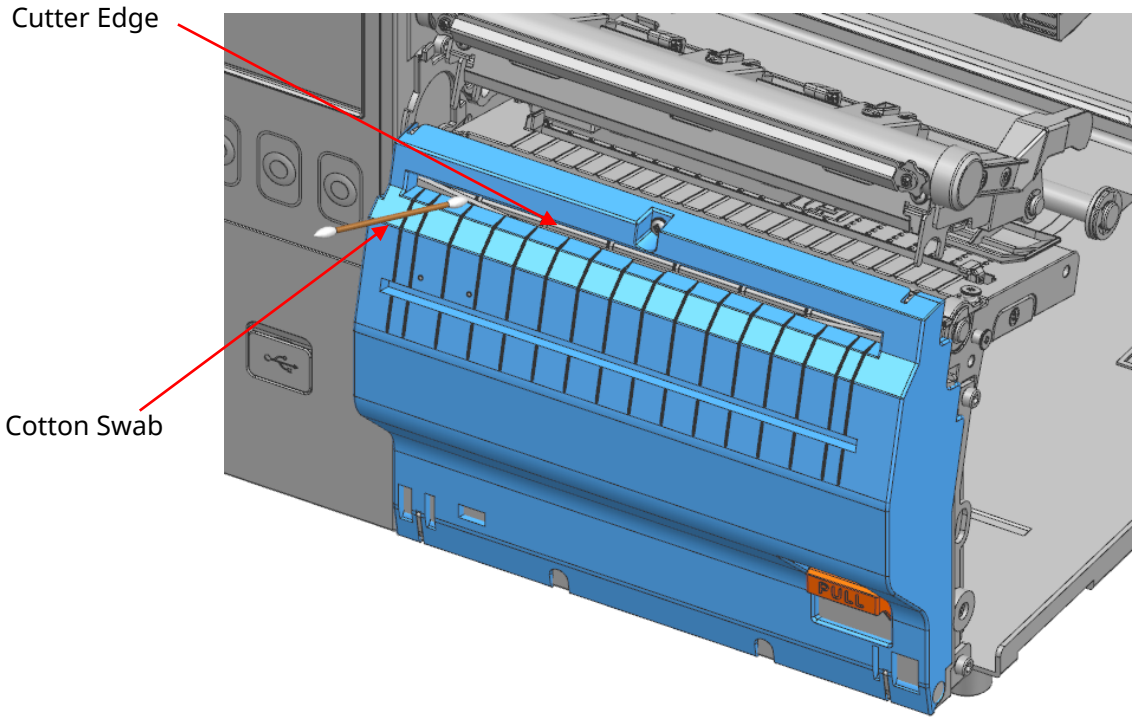


7-4 Cleaning Auto Cutter (optional)

1) Open the media cover and print head levers and remove the media and ribbon.

2) After exposing the cutter blade completely by rotating the knob, remove dust or foreign substances using a cotton swab dipped in medical alcohol solution.





3) After cleaning, use the printer after alcohol has evaporated sufficiently (1 to 2 minutes) and the cutter blade has completely dried up.

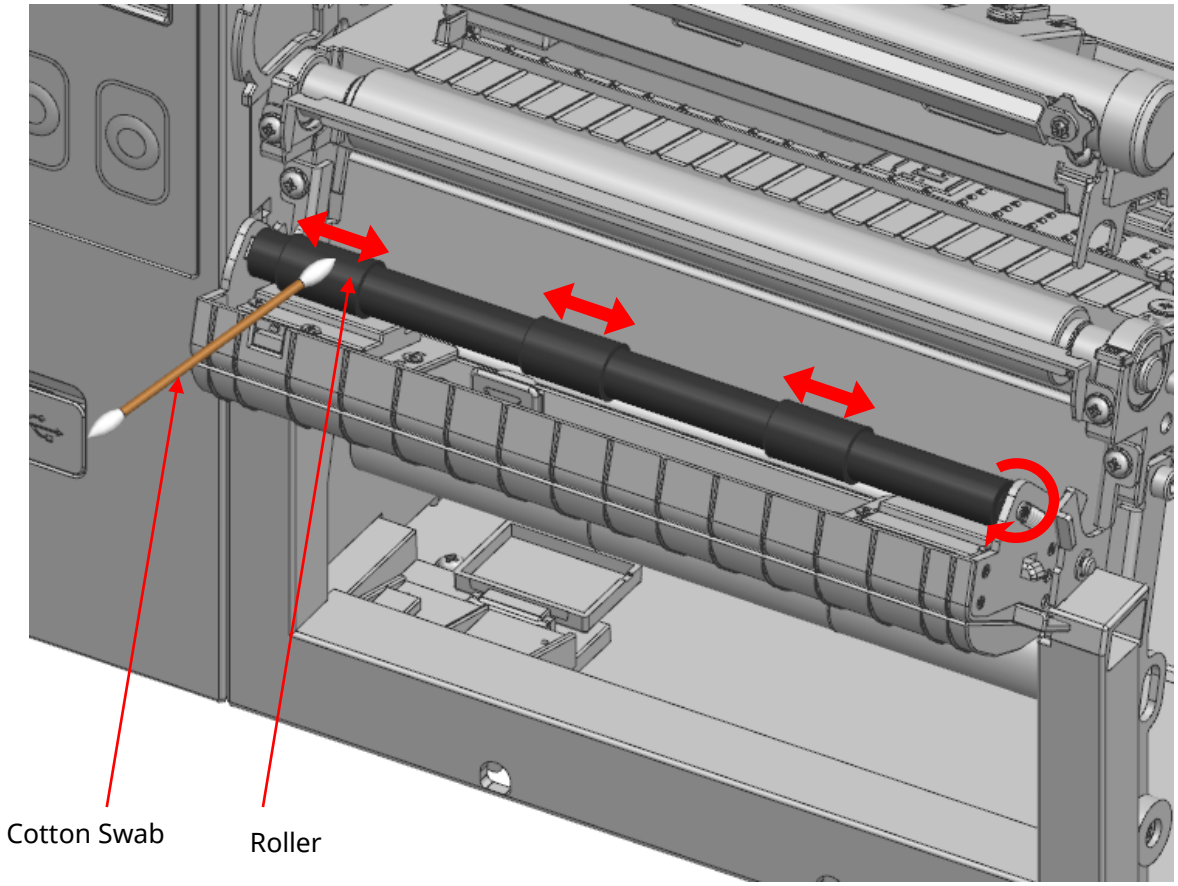
7-5 Cleaning Peeler Module (optional)

1) Open the media cover, print head levers, and peeler cover and remove the media and ribbon.

2) While rotating the roller, remove dust or foreign substances using a dry cloth or cotton swab.

3) In case that adhesive substances or other contaminants remain, while rotating the roller, remove it using a cloth or cotton swab dipped in medical alcohol solution.

4) After cleaning, use the printer after alcohol has evaporated sufficiently (1 to 2 minutes) and the surface of peeler roller has completely dried up.



8. Troubleshooting

This character describes the methods for troubleshooting in this Industrial Label Printer.

• **Troubleshooting tables**
Follow the steps outlined in these tables to repair a defect whose symptoms are known.

8-1 Troubleshooting Tables

If a problem that can be verified by visual examination has occurred, use the tables below to determine the cause and perform repairs.

There are two tables, divided by symptom category:
• Common Problems
• Printing Quality Problems

The tables contain the following columns:

• Problem
This is the symptom that can be verified
• Problem Causes
This is a listing of one or several possible causes that should be examined.
• Level
- Level A
The problem can be corrected by persons who are familiar with the printer and have general knowledge, but special technical skills are not required.
- Level B
The problem requires thorough knowledge and familiarity with the printer as well as technical skills and experience.
• Checkpoint
These are one or more areas in the printer that should be checked.
• Action
These are the steps to correct the problem. If the problem persists after taking these steps, check the other possible causes listed.

8-1-1 Common Problems

Problem	Probable Cause	Level	Checkpoint	Action
Power LED does not illuminate	The power cord is not properly connected	A	Check the power cord	Plug the power cord properly and switch the printer on
'HEAD OPEN' message is not displayed when head is opened	The print head lever is not engaged	A	Check the print head lever	Engage the print head lever
	Cover Open sensor failure	B	Check the connector	Fasten the connector
				Replace the cover open sensor ass'y
'SENSING FAIL' message is displayed	Gap/Black mark sensor is not calibrated	A	Check the calibration	Calibrate the Gap/Black mark sensor
	Media type is not selected properly	A	Check the media and setting	Select media type properly in setting menu (gap/black mark)
	Gap/Black mark sensor failure	B	Check the connector	Fasten the connector
				Replace the gap/black mark sensor ass'y
'MEDIA OUT' message is displayed	Media is empty	A	Check the media	Supply the media
'RIBBON OUT' message is displayed	Ribbon is empty	A	Check the ribbon	Supply the ribbon
	Ribbon sensor failure	B	Check the connector	Fasten the connector
				Replace the ribbon sensor ass'y
'MEDIA JAM' message is displayed	Media jam	A	Check the stuck media	Open the head, and then remove the jammed paper
'AUTO CUTTER JAM' message is displayed	Auto cutter jam	A	Check the stuck media	Remove the stuck label inside the cutter then restart the printer
	There is not auto cutter installed on the printer	B	If printer is auto cutter model, check auto cutter connector	Fasten auto cutter connector
		B	If printer is not auto cutter model, check media handling type in setting menu	Select media handling type properly in setting menu
'PRINT HEAD COLD TEMP' message is displayed	Print head temperature is too low	A	Check the ambient temperature	Use the printer at the proper temperature (5°C ~ 40°C)
	TPH cable is not properly connected	B	Check the connector	Fasten the connector

'PRINT HEAD OVER TEMP' message is displayed	Print head temperature is too high	A	Check the ambient temperature	Use the printer at the proper temperature (5°C ~ 40°C)
		A	Check how many printed in a row	Wait until the print head temperature is low enough
USB memory is not recognized	USB memory is damaged	A	Check USB memory is useable	Change the USB memory
USB memory is not recognized (front side)	Cable is not connected well	B	Check the connector	Fasten the connector
Not printing	Ribbon-inked side is not correctly	A	Check the ribbon	Verify the ribbon-inked side
Not printing (USB)	USB cable is not connected well	A	Check the cable	Re-connect cable / Change the cable
Not printing (Serial)	Serial cable is not connected well	A	Check the cable	Re-connect cable / Use straight pin to pin cable
	The cable between main PCB and interface PCB is loose	B	Check the connector	Fasten the connector
	Serial interface setting is incorrectly	B	Check the setting	Change the setting properly (Baud rate, Data bit, Parity, Stop bit, Handshake)
Not printing (Parallel)	Parallel cable is not connected well	A	Check the cable	Re-connect cable / Change the cable
	The cable between main PCB and parallel PCB is loose	B	Check the connector	Fasten the connector
Not printing (Ethernet)	Ethernet cable is not connected well	A	Check the cable	Re-connect cable / Change the cable
	Printer doesn't get Ethernet IP address	B	Check the IP address	Set IP protocol and address correctly
Not printing (WLAN)	The cable between main PCB and interface PCB is loose	B	Check the connector	Fasten the connector
	Access point is not working	B	Check the access point	Turn on the access point (or wireless router)
	WLAN network setting is incorrectly	B	Check the WLAN setting	Set the ESSID (Network name), security mode and key correctly
Not printing (Bluetooth)	The cable between main PCB and interface PCB is loose	B	Check the connector	Fasten the connector
	Bluetooth network setting is incorrectly	B	Check the Bluetooth setting	Set the Bluetooth setting correctly

LCD is not working	The cable between main PCB and LCD PCB is loose	B	Check the connector	Fasten the connector
Keys are not working	The cable between main PCB and LCD PCB is loose	B	Check the connector	Fasten the connector
RTC time is reset when reboot the printer	The battery has run down	B	Check the battery on the main PCB	Change the battery
Cutter is not working	Media handling type is not correctly	A	Check media handling type in setting menu	Select media handling type to 'Auto Cut' in setting menu
	Cable is not connected well	B	Check the connector	Fasten the connector
Rewinder is not working	Media handling type is not correctly	A	Check media handling type in setting menu	Select media handling type to 'Rewinder in setting menu
	Cable is not connected well	B	Check the connector	Fasten the connector
Peeler is not working	Peeler switch not turned on	B	Check the peeler LED is illuminated	Turn on the peeler switch
	Cable is not connected well	B	Check the connector	Fasten the connector
Feeding failure	Feeding motor failure	B	Check for short failure inside the motor	Replace the motor
	Gear is dislocated from the rotating axis	B	Check the assembly status of the washers holding the gears	Reassemble the gears and washers
Joint or bouncing sound during feeding operation	Gears are damaged or are impeded by foreign substances	B	Check for damage or foreign substances on the gears	Replace the gears or remove the foreign substance

8-1-2 Printing Quality Problems

Problem	Probable Cause	Level	Checkpoint	Action
Certain parts are printed with vertical white lines	Foreign substance on the head surface	A	Check the foreign substance on the head surface	Remove the foreign substance with a cleaning pen
	Head surface is damaged	B	Check the damage of the head surface such as dents	Replace the head
	Internal IC of the head is damaged	B	Damage of the internal IC of the head	Replace the head
	Vertical scratched trace on the paper	A	Check whether there are obstructions such as bumps	Remove the obstructions
Certain parts are printed with vertical black lines	Damage to the internal IC of the head	B	Damage of the internal IC of the head	Replace the head
Horizontal black lines are generated or the vertical width of the characters is reduced	Irregular feeding	B	Check for damage to the gears and for foreign substances in the gear profile	Replace the gears or remove the foreign substance
	Feeding motor failure	B	Check whether the motor runs smoothly without load	Replace the motor
	Roller rotation is not smooth	A	Check whether oil remains in the bearings holding the roller	Add oil for the bearings
Overall printing density is low	Roller and the head are not attached properly	A	Cover is not completely closed	Open the cover, then and completely close it
	The spring pushing the head is not strong enough	B	Check whether the screws mounting the spring are loose	Fasten the screws
	Head surface is damaged	B	Check for abrasions on the head surface	Replace the head
	Print density setting is incorrectly	A	Check print density setting value	Change print density setting correctly

Revision history

Ver.	Date	Description
1.00	14-01-2026	New