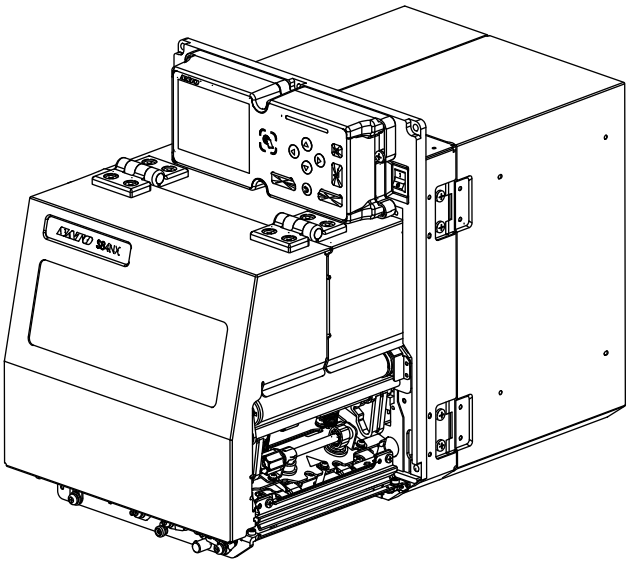
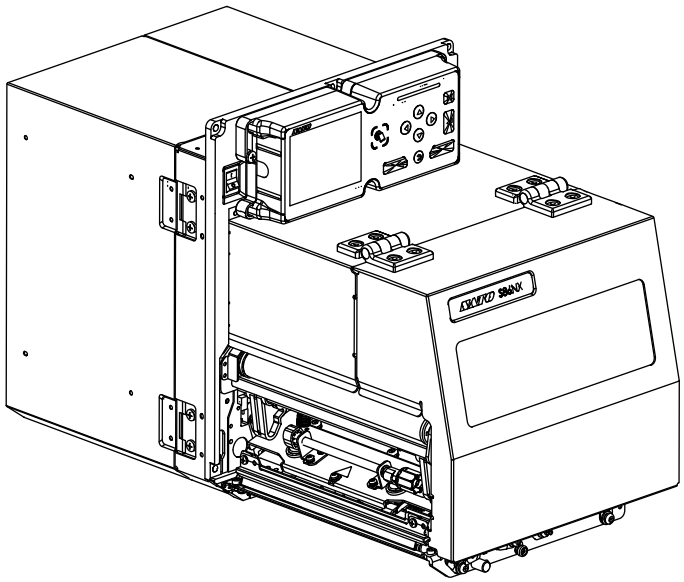
# Service Manual

# *S84NX*
# *S86NX*



S84NX Left-Hand Type



S86NX Right-Hand Type

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Version: S84NX/S86NX-r02-20-5-22SM

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# 1 Introduction

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## 1. 1 About This Manual

This service manual gives all the information necessary for you to adjust and repair the S84NX/S86NX.

This service manual is written only for SATO authorized service personnel.
The information in this manual is confidential to general users.

For basic specification, installation, operation and configurations of the printer, refer to the operator manual of the S84NX/S86NX.

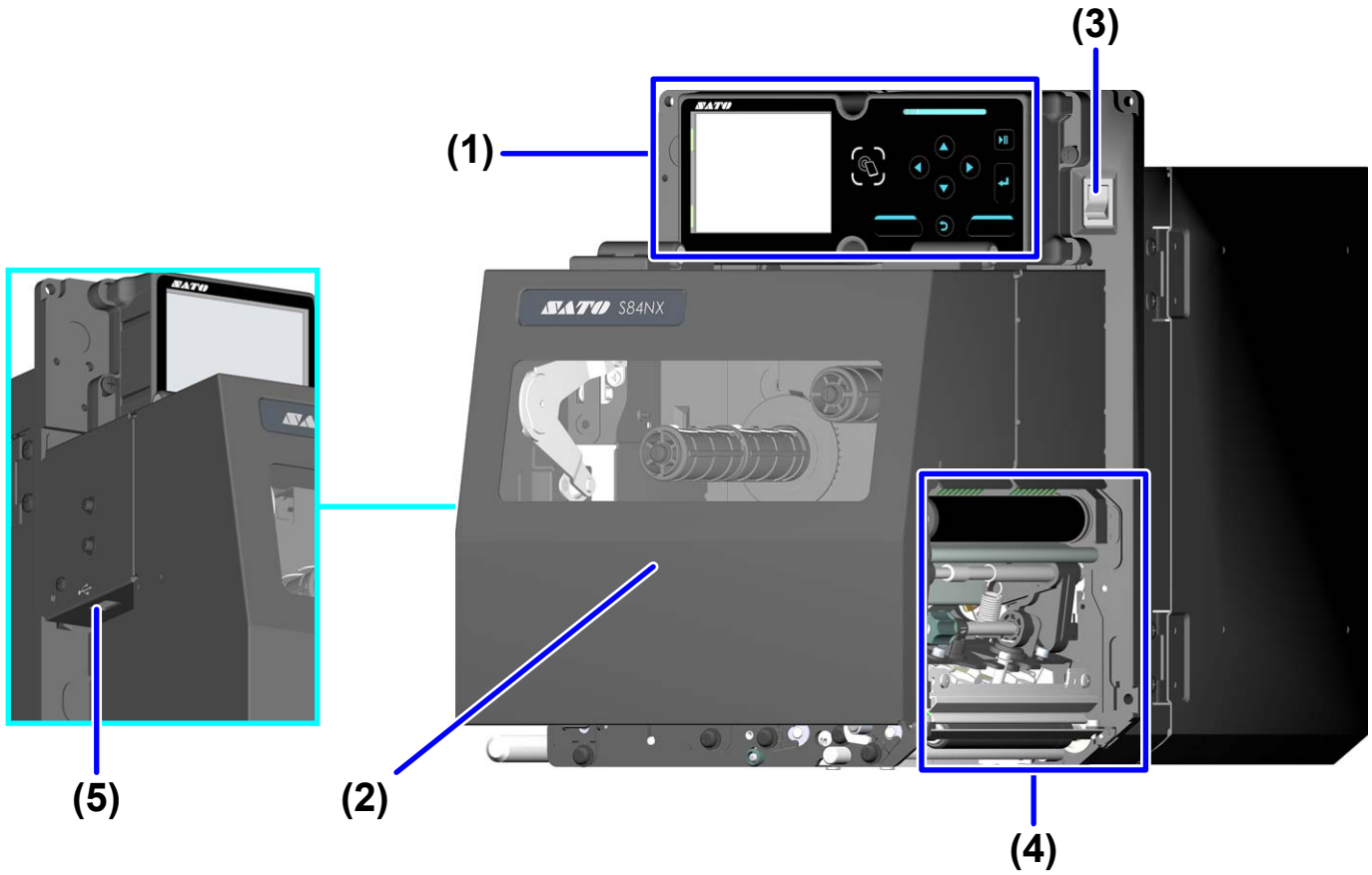
Since all problems that may arise during adjustment and repair work cannot be described in this document, service personnel should always pay attention to safety in addition to the precautions described in this document.

## 1. 2 Safety Precautions

- Always power off the printer and disconnect the AC power cord from the outlet before you start any maintenance procedures including parts replacement.
- Wear a properly grounded static wrist strap as required during repair work.
- Wear proper gloves during adjustment and repair work.
- Do not touch the printing element with your bare hand when you replace the print head (thermal head).
- Hold the circuit board on the sides. Do not touch the components or bend the circuit board when you remove or install the circuit board.
- Do not touch the cutter with your hands, nor place objects into the cutter. Doing so could cause an injury.
- The print head (thermal head) will become hot after printing. Be careful not to touch it when replacing media or cleaning immediately after printing, to avoid being burned.

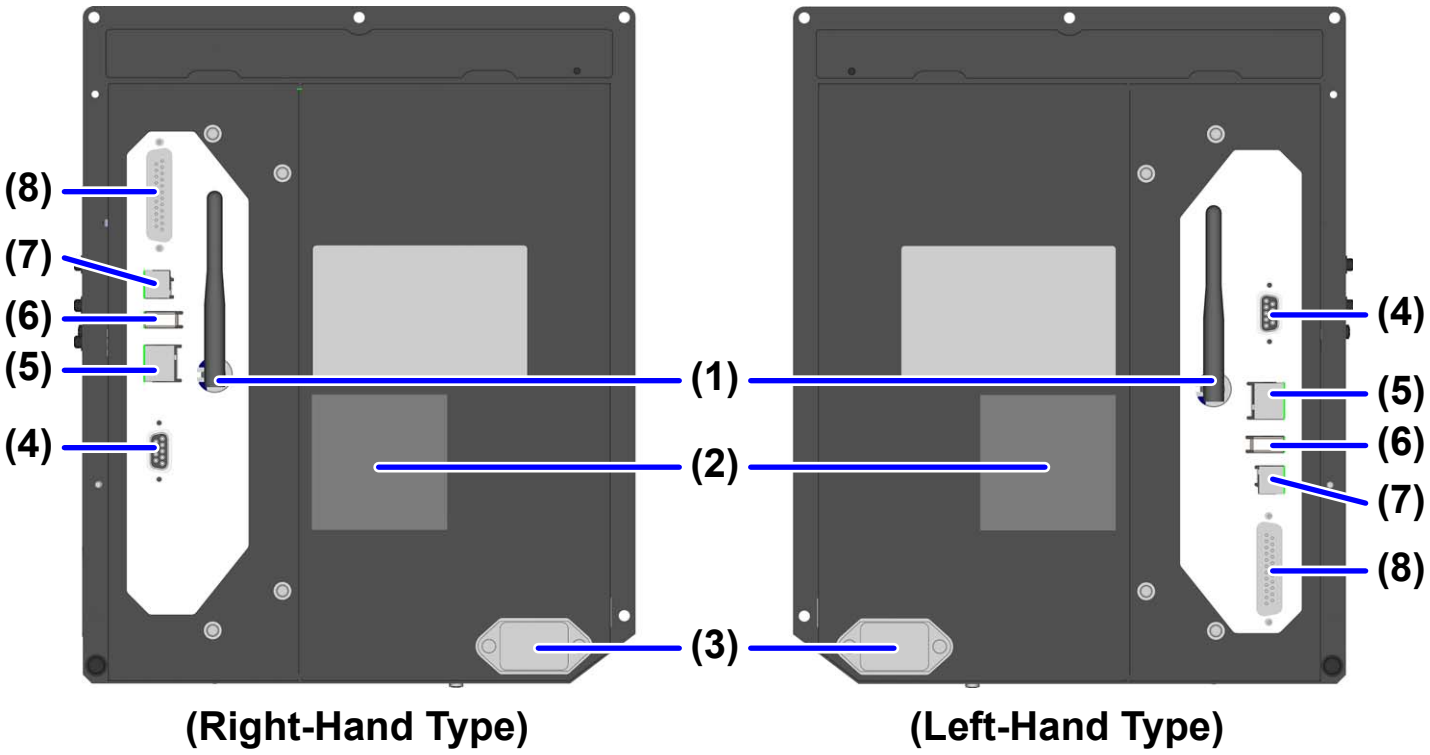
# 1. 3 Parts Identification for the Product

## 1.3.1 Front View



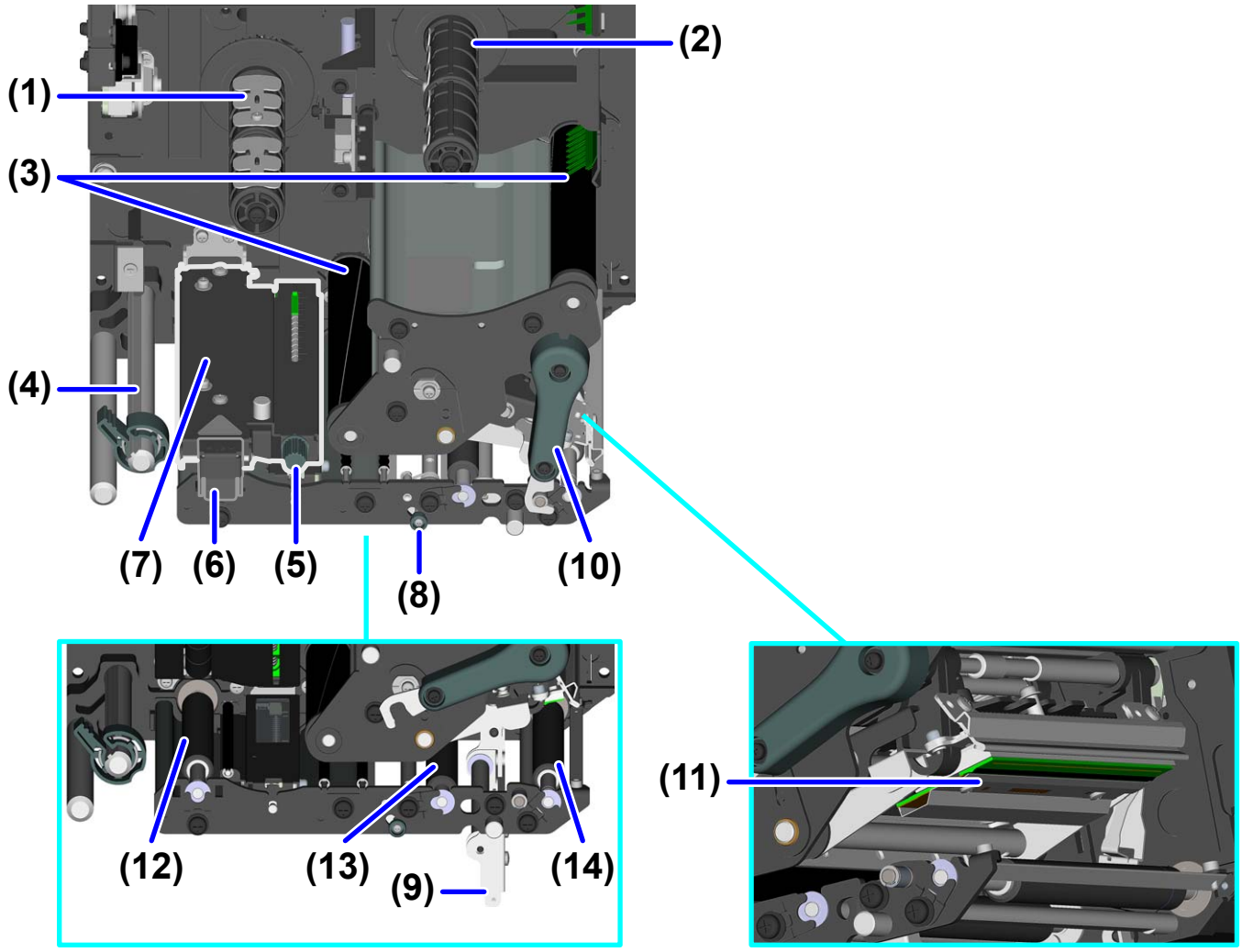

| | |
|---|---|
| **(1)** | Operator panel |
| **(2)** | Top cover |
| **(3)** | Power (I/O) switch<br>* Press this switch to power on (I) or power off (O) the product. |
| **(4)** | Media discharge outlet |
| **(5)** | USB connector (Type A) |

## 1.3.2 Rear View



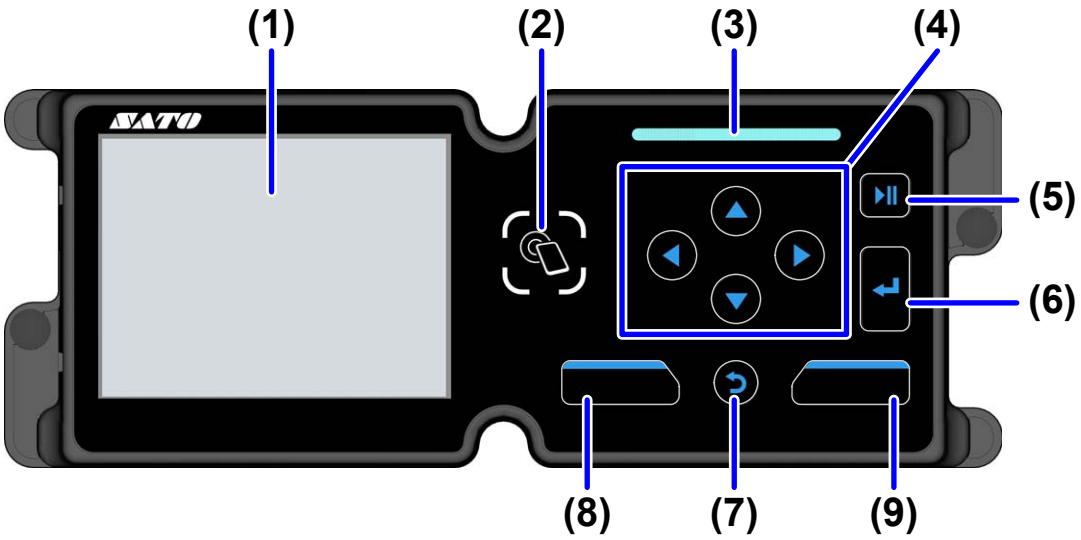

| | |
|---|---|
| **(1)** | Wireless LAN antenna　* Optional |
| **(2)** | Fan filter |
| **(3)** | AC input terminal<br>* Before connecting, make sure that the AC voltage of your region is in the range of AC 100 to 240 V, 50 to 60 Hz. |
| **(4)** | RS-232C connector<br>* You can also connect a barcode checker.<br>Usage of the RS-232C interface can be selected in the [Tools] > [Barcode Checker] > [Test] > [Interface] menu. |
| **(5)** | LAN connector |
| **(6)** | USB connector (Type A) |
| **(7)** | USB connector (Type B) |
| **(8)** | EXT connector (External signal interface) |

## 1.3.3 Internal View



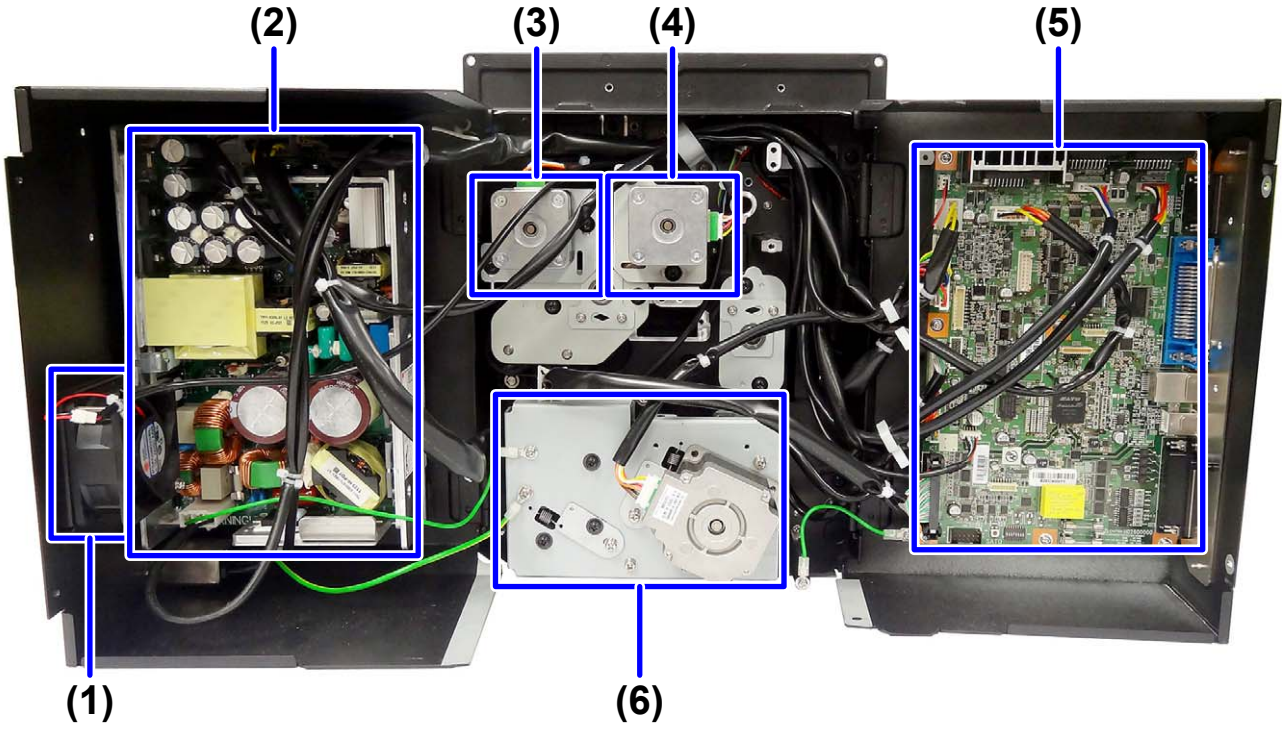

| | |
|---|---|
| **(1)** | Ribbon supply spindle |
| **(2)** | Ribbon rewind spindle |
| **(3)** | Ribbon roller |
| **(4)** | Media guide |
| **(5)** | Media sensor adjustment knob * Used to adjust the position of the media sensor. |
| **(6)** | Feed lock latch * Used to open the feed roller and media sensor assembly. |
| **(7)** | Feed roller and media sensor assembly |
| **(8)** | Plate lock lever * Used to release the Pressure plate. |
| **(9)** | Pressure plate * Consumables |
| **(10)** | Head lock lever * Used to release the print head assembly. |
| **(11)** | Print head * Consumables<br>Creates an image directly on the media or by using a ribbon. Clean the print head regularly. |
| **(12)** | Feed roller * Consumables |
| **(13)** | Pressure roller * Consumables |
| **(14)** | Platen roller * Consumables |

## 1.3.4 Operator Panel View




| | | |
|---|---|---|
| **(1)** | Display | |
| **(2)** | NFC antenna location | |
| **(3)** | LED indicator | |
| **(4)** | Arrow buttons | |
| **(5)** | LINE button<br>* Toggle between Online/Offline mode or playback/pause the video. | |
| **(6)** | Enter button<br>* Confirm the selected item or setting value. | |
| **(7)** | Back button<br>* Returns to the previous screen. | |
| **(8)** | Left soft button | * The functions change depending on the screen. The functions of the buttons are indicated on the bottom of the screen |
| **(9)** | Right soft button | |

## 1.3.5 Internal View with Rear Cover Opened




| | |
|---|---|
| **(1)** | Fan |
| **(2)** | Power supply unit<br>* The power board contains the transformers, relays, etc., for transference of electrical current from the supply source to the control circuits. |
| **(3)** | Ribbon rewind motor assembly<br>* To support the winding motion of the ribbon rewind spindle. |
| **(4)** | Ribbon supply motor assembly<br>* To support the winding motion of the ribbon supply spindle. |
| **(5)** | CONT PCB board<br>* The CONT PCB is the primary brain-center for all activities of the product. |
| **(6)** | Gearbox<br>* The stepper motor, timing belt and gears in the gearbox provide the main rotation motion for precise print positioning. |

# 2 Operation and Configuration

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**This chapter describes the following:**

# 2. 1 About [Settings] menu


| Icon | Menu | Description |
|---|---|---|
|  | [Printing] | Access the settings related to printing. |
|  | [Interface] | Access the settings related to the interfaces. |
|  | [Applications] | Access the settings related to the printer command. |
|  | [System] | Access the settings related to the display language, buzzer volume, compatible mode, etc. |
|  | [Tools] | Access the settings related to the media profiles editing, test print, initialization, etc. |
|  | [Information] | Display the printer information and help videos. |
|  | [Shortcut] | Directly access frequently used settings. |

You can find the [Service] menu in the [Tools] menu.
However, users cannot access the [Service] menu without password.
This menu is only for SATO authorized service personnel use.

# 2. 2 About [Tools] menu

Click on the items in blue to link directly to the details of the selected items.

| Tools | Description |
|---|---|
| Test Print | |
| Factory | Perform the factory test print. |
| Configure List | Print the product setting information. |
| Configure QR | Print the configuration information with a QR code. |
| Paper Sensor | Print the detection result of the media sensor level. |
| Head Check | Perform the head check print. |
| HEX-Dump | Save the hex dump print data or dump data from the receive buff er to the USB memory. |
| Reset | Reset the printer settings. |
| Profiles | |
| Delete | Delete the profile. |
| Load | Load the profile. |
| Save | Save the current profile settings by overwriting. |
| Start with | Select the profile to be loaded at startup. |
| Service | **Refer to** 2. 3 About [Service Mode] |
| Factory | Not available |
| Certificates | Set the WLAN authentication. |
| Barcode Checker | Set the barcode check function using a barcode checker. |
| Clone | Copy the current product settings and installed data to the USB memory.<br>* Available only if you have installed the USB memory. |
| Clone Notice Setting | Enable or disable the Clone Notice. |
| Support Info | Save various information about the product in a text file to the USB memory.<br>* Available only if you have installed the USB memory. |
| Logging Function | Enable, save, or delete the log information. |
| Startup Guide | Enable or disable the startup guide. |

## 2.2.1 Test Print

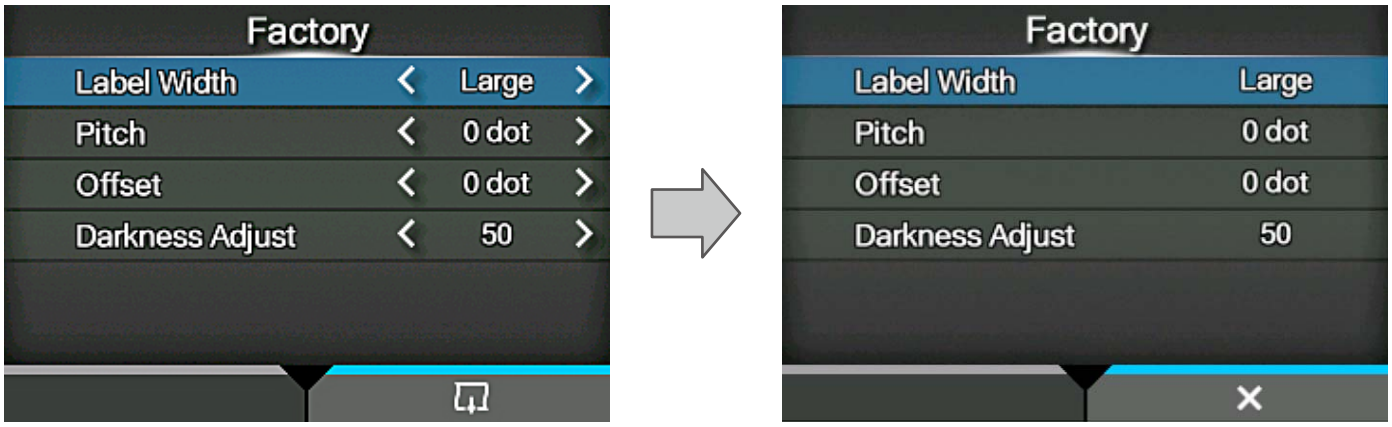
Before starting work, print out the factory settings and check the following.

- Check the print position, sensor level, etc.
- Check the password for the [Service] menu

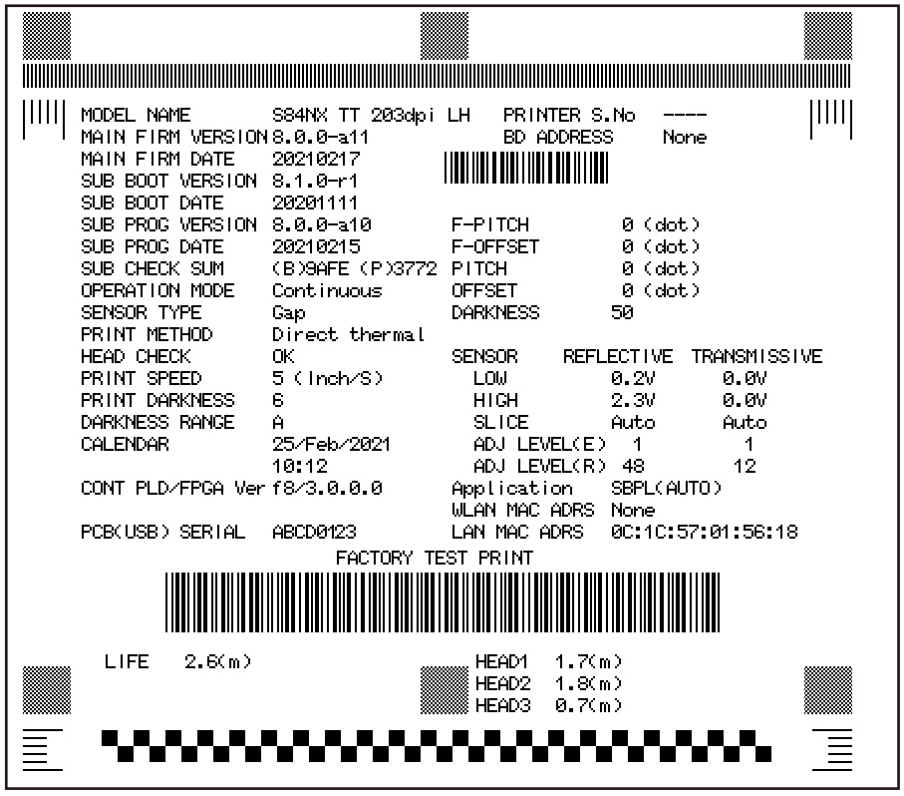
**1** Place the label on the printer.

**2** Select [Settings] > [Tools] > [Test Print] > [Factory] > [ ] (right select button).

**3** After printing multiple labels, select [ ] (right select button) to stop the printing.




Media feed direction

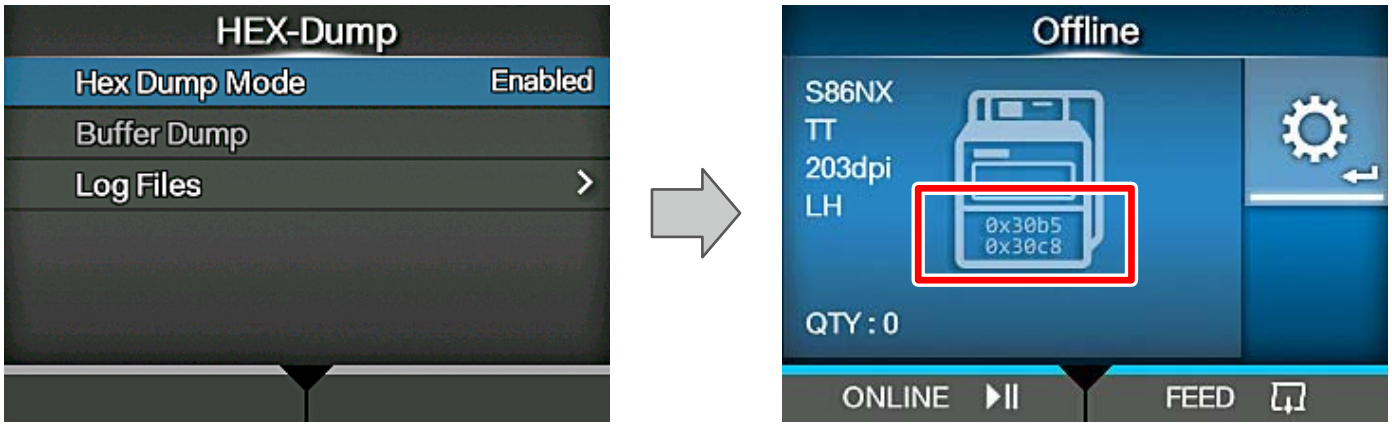


## 2.2.2 HEX-Dump

Enable or disable the Hex Dump mode.

If you enable [Hex Dump Mode], the product prints the received data and at the same time creates a file of the received data inside “hexdump/”.

If you return the setting to disabled, you can check the file on the screen.




### ■ Buffer Dump

Save the receive buffer data to the product.

Available only if you disabled the [Hex Dump Mode] menu.

Tap [START] on the startup screen to save the data to the product.

Save the receive buffer data to “buff/” in the product.

### ■ Log Files

Save the receive buffer data to the product.

| | | |
|---|---|---|
| Copy | buff/ | Copy the selected log file to the USB memory.<br>**Note** The data obtained by the buffer dump operation is stored. |
| | hexdump/ | Copy the selected log file to the USB memory.<br>**Note** The data obtained by the hex dump (enabled) operation is stored. |
| Remove | buff/ | Delete the log files of the printer. |
| | hexdump/ | |
| Print | buff/ | Print the selected log files. |
| | hexdump/ | |

## 2.2.3 Reset

Reset the printer settings.

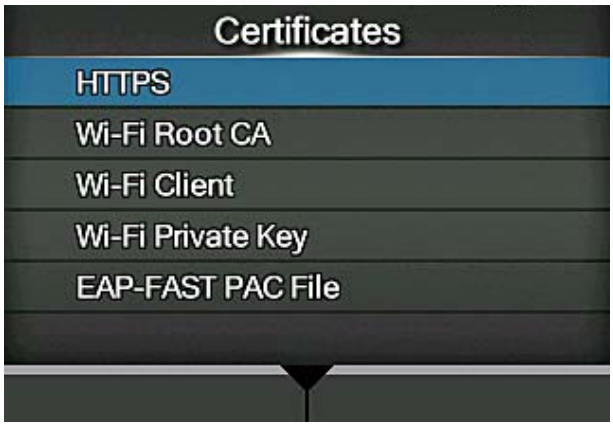

| Item | Description |
|---|---|
| Select | |
| Data | Initialize the setting values set in [Printing], [Interface], [Application] and [System].<br>**Note** After initialization, the printer restarts automatically. |
| Data & Settings | Initialize the above data and the items selected from the following “Settings”.<br>**Note** After initialization, the printer restarts automatically. |
| Settings | |
| User Reset | Initialize the setting values set in [Printing], [Interface], [Application] and [System]. |
| User Reset (–Interface) | Initialize the same setting values as the “User Reset” except the settings in the [Interface] menu. |
| Factory Reset | Initialize to the status of factory shipment. |
| Factory Reset (–Interface) | Initialize to the status after factory shipment except for [Interface]. |
| Interface | Initialize the setting values set in [Interface] main menu. |
| Printing | Initialize the setting values set in [Printing] main menu. |

## 2.2.4 Certificates

Install/delete the certificates used for WLAN authentication and HTTPS.

**CAUTION**

Certificate registration is enabled only when the USB memory in which the certificate file to be installed is stored in the root folder is connected to the USB connector on the back of the product.



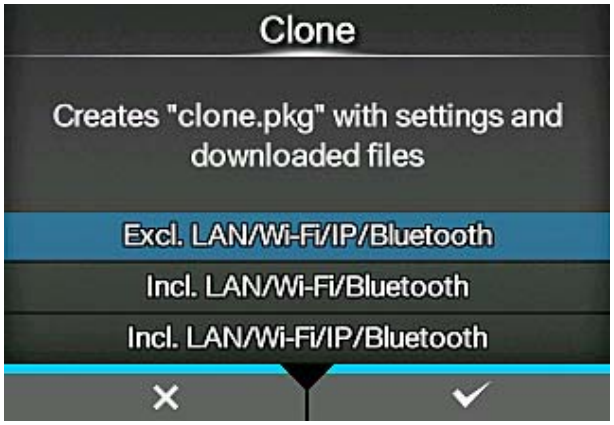

The setting items are as follows:

| | |
|---|---|
| HTTPS | Save the certificate files to the USB thumb drive memory's root folder.<br>Acceptable file extensions are:<br>• pem, .crt, .cer, .der for Root CA and client certificate in PEM or DER format.<br>• pfx and .p12 for client certificates in PKCS #12 format.<br>• prv and .key for private keys in PEM/PKCS#8 format.<br>• pac for PAC files. |
| Wi-Fi Root CA | |
| Wi-Fi Client | |
| Wi-Fi Private Key | |
| EAP-FAST PAC File | |

## 2.2.5 Clone

Copy the current printer settings and installed data to the USB memory.

Select [Tools] > [Clone].




**CAUTION**

Available only if you have installed the USB memory.

Be sure to perform a virus check for the USB memory before connecting the USB memory to the printer.

**Note**

Use the clone configuration when the printer will be replaced with a new printer, or when you set up multiple printers with same settings.

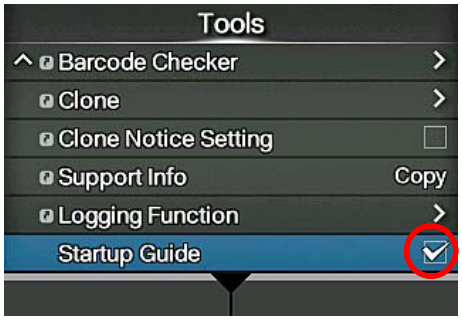
The setting items are as follows:

| | |
|---|---|
| Excl. LAN/Wi-Fi/IP | Copy the printer settings and data, excluding network information, to the USB memory. This is useful when you set up multiple printers already configured for network with the same printer settings. |
| Incl. LAN/Wi-Fi | Copy the printer settings and data, including network information (excluding the IP address), to the USB memory. This is useful when you set up multiple printers to be connected to the same network with the same printer settings. |
| Incl. LAN/Wi-Fi/IP | Copy the printer settings and data, including network information (with the IP address), to the USB memory. This is useful when carrying over the settings of the printer to be replaced to a new printer. |

## 2.2.6 Startup Guide

When the printer is turned on, the startup guide is displayed if it is enabled. (Default: Disabled)

Select [Tools] > [Startup Guide].




Perform the setting in the order of the following numbers.

### ① Messages

Select the language displayed on the printer.


### ② Time Zone

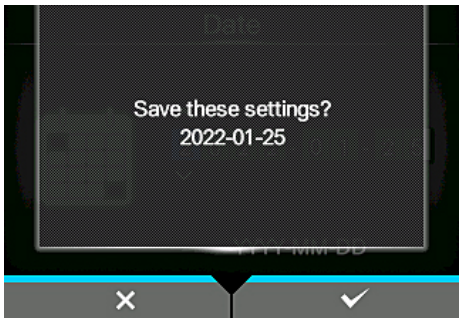
Select the region and the city.



### ③ Date

Set the current year, month and date, and select [ ] (right select button).

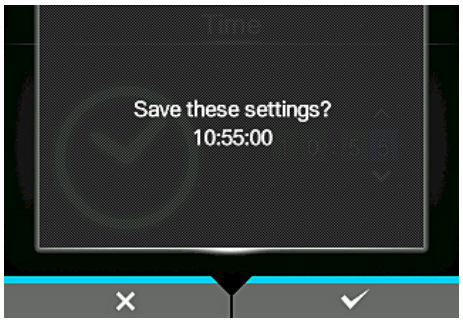
To save the setting, select [ ] (right select button) once again.


### ④ Time

Set the current time in 24-hour format and select [ ] (right select button).

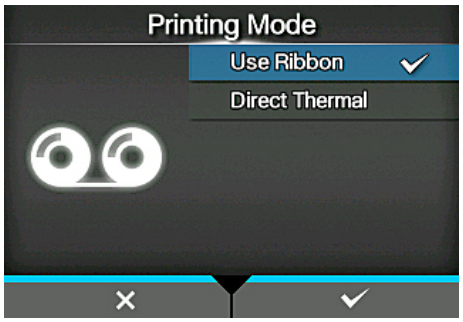
To save the setting, select [ ] (right select button) once again.

### ⑤ Printing Mode

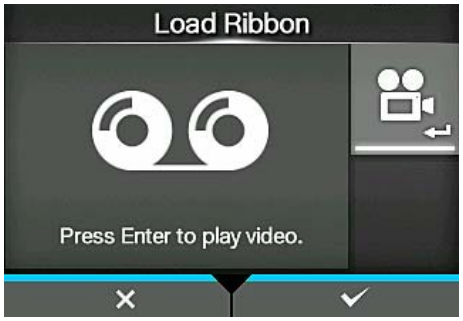
Select the operation mode.

[Use Ribbon] Prints using a ribbon.
[Direct Thermal] Select this when using media with I-marks.



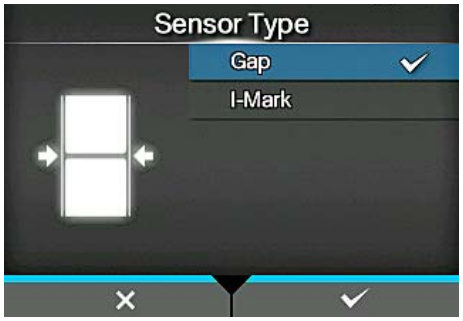

### ⑥ Video playback selection

Check video [ ] (Enter key)
End video [ ] (Right select button)




### ⑦ Sensor Type

[Gap] Select this when using media with gaps.
[I-Mark] Select this when using media with I-marks.

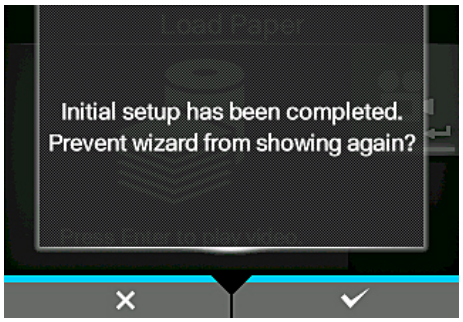



### ⑧ Load Paper

Check video [ ] (Enter key)
End video [ ] (Right select button)


### ⑨ Selection whether to show the startup guide at the next startup.

Does not show the startup guide. [ ] (Right select button)
Shows the startup guide. [ ] (Left select button)



# 2. 3 About [Service Mode]

## 2.3.1 Logging in Service Menu

**CAUTION**

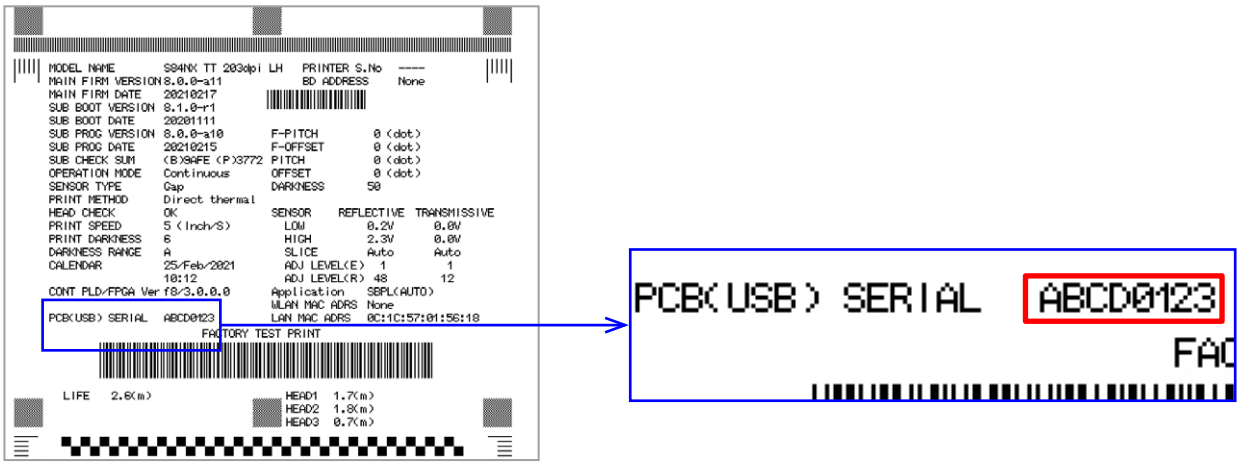
You need to enter the password to access the [Service] menu. Since the serial number of the PCB is used as the password, the password is different for each product.

**CAUTION**

The [Service] menu is only for SATO authorized service personnel use.

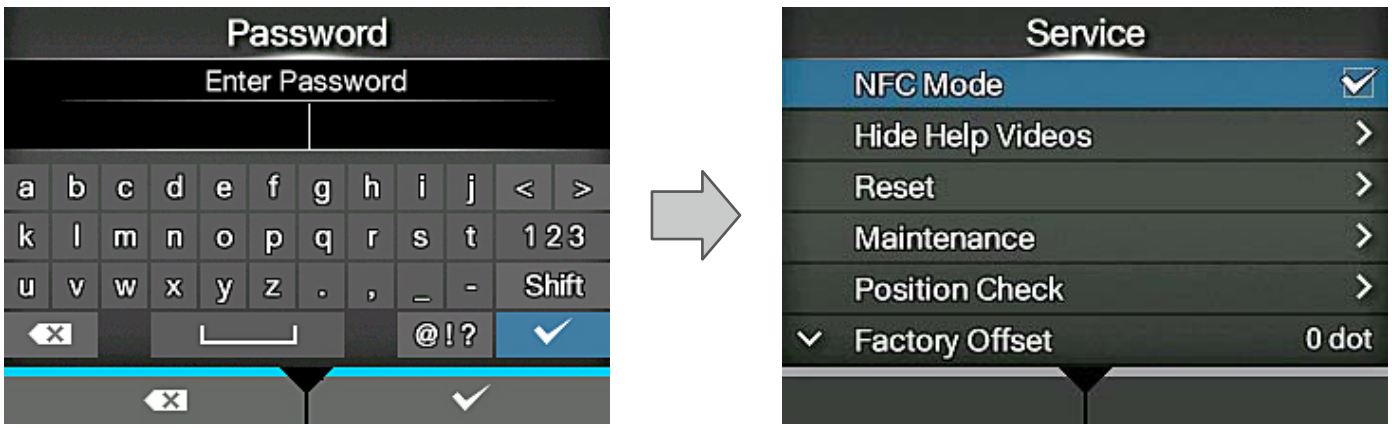
**1** Print the factory settings.

**Refer to** 3.1.3 Checking Printing with Factory Settings




**2** Enter the characters with "+ service" added to the PCB serial number (8 digits) on the printed label.

If the serial number shown above is printed: ABCD0123 + service



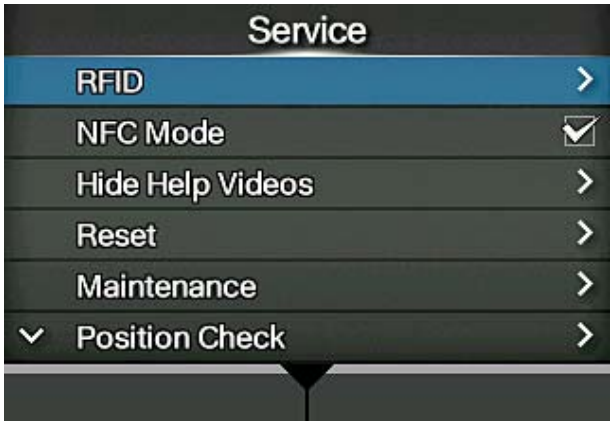
## 2.3.2 Details of the Service Menu

| Item | Description |
|---|---|
| Service | |
| RFID | Set the functions for RFID.<br>* Shows only if you have installed the optional RFID kit. |
| NFC Mode | Enable or disable the NFC function.<br>(Default: Enabled) |
| Hide Help Videos | Check “Hide Help Video” to hide the help videos. |
| WiFi Ex-Setting | Set the advanced functions for the wireless LAN.<br>* Shows only if you have installed the optional wireless LAN. |
| Reset | Reset the printer settings. |
| Maintenance | Manually set the serial number of the printer or the USB. |
| Position Check | Check the offset position of the label and show the error. |
| Factory Offset | Correct the offset position. |
| Factory Pitch | Offset the print position in the vertical direction. |
| Check Communication | Configure the Check Communication settings. |

## 2.3.3 RFID

Select [Tools] > [Service] > [RFID].

Set the functions for RFID.
Shows if you have installed the optional RFID kit.




The setting items are as follows:

| | |
|---|---|
| RFID mode | Enable or disable the RFID mode. |
| Module | Show the type of RFID module installed on the product. |
| Region | Set the region where you use the product.<br>* Shows only when you have installed the UHF RFID module. |
| Inventory Check | Enable or disable the inventory check function.<br>* Shows only if you have installed the UHF RFID module. |
| Inventory Timeout | Set the timeout period of the inventory check.<br>* Shows only when you have installed the UHF RFID module. |
| Verify | Enable or disable the verification of data written on the tag. |
| PREND Type 3/4 | Set the external output signal of the PREND. |

### ■ RFID mode

Enable or disable the RFID mode.
When RFID mode is set to Enabled, RFID menu is displayed on the Interface menu.


The options are as follows:

- **Enabled: Enable the RFID mode.**
- **Disabled: Disable the RFID mode.**

## Module

Shows the type of RFID module installed on the product.


## Region

Set the region where you use the product.

Shows only when you have installed the UHF RFID module.

Select the region (frequency band) where you use the product from the list.


## Inventory Check

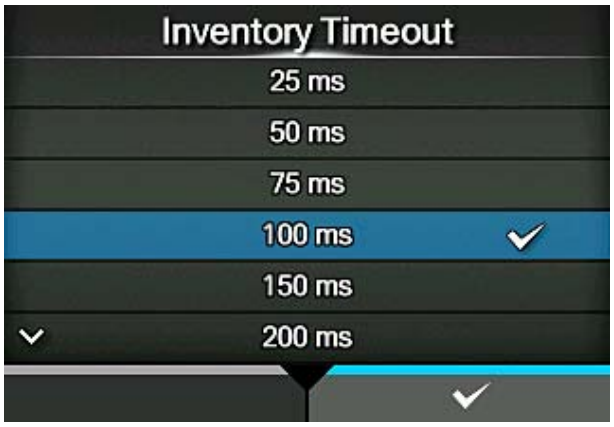
Enable or disable the inventory check function.
Shows only when you have installed the UHF RFID module.

The options are as follows:

- **Enabled: Perform the inventory check of the RFID tag. The product checks the taken tag number before writing to the tag. An error occurs when the number is other than one.**
- **Disabled: Do not perform the inventory check of the RFID tags.**

## Inventory Timeout

Set the timeout period of the inventory check. Shows only if you have installed the UHF RFID module.




The options are as follows:

- **25 ms**
- **50 ms**
- **75 ms**
- **100 ms**
- **150 ms**
- **200 ms**
- **300 ms**
- **500 ms**

## Verify

Enable or disable the verification of data written on tag. The options are as follows:


- **Enabled: Perform the verification by reading the data of the written tag. If not match, the product prints VERIFY TAG ERR on the label.**
- **Disabled: Do not perform the verification of the written tag.**

## PREND Type 3/4

Set the output content of the external signal PREND (Print Done).

Reflect the timing of write (stop media feed) of RFID tag to the TYPE3 and

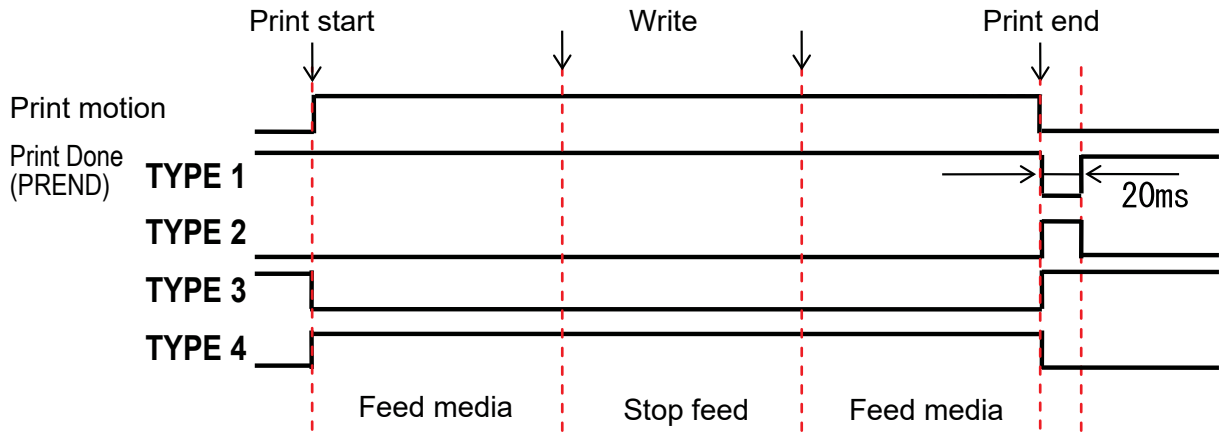
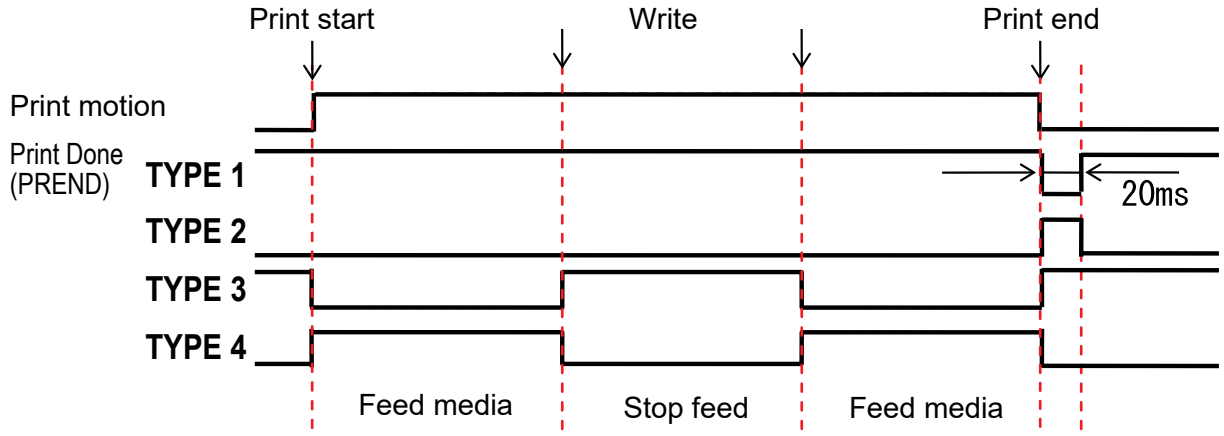
TYPE4 waveforms of PREND (Print End) signal.


The options are as follows:

- **Normal:** **Use the usual PREND signal.**
- **Motion:** **Reflect the timing of write (stop media feed) of tag to the PREND signal.**

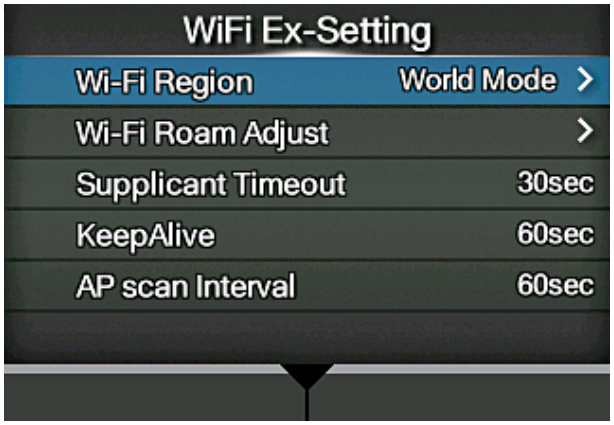
For the waveforms during the settings of Normal and Motion, refer to the timing chart below.

**The timing chart when writing to tag**

| Item | Output Waveform |
|---|---|
| **Normal Setting** |  |
| **Motion Setting** |  |

## 2.3.4 WiFi Ex-Setting

Select [Tools] > [Service] > [WiFi Ex-Setting].




Set the advanced functions for the wireless LAN.

Shows only if you have installed the optional wireless LAN.

* Shows only if the wireless LAN module is W-LAN.

The installed wireless LAN module is displayed in Wi-Fi Module in the Information menu.

The setting items are as follows:

| | |
|---|---|
| Wi-Fi Region | Set the region of the wireless LAN. |
| Wi-Fi Roam Adjust | Adjust the threshold level for low RSSI roaming of the wireless LAN. |
| Supplicant Timeout | Set a period of time for the EAP authentication timeout. |
| KeepAlive | Set the interval for sending a KeepAlive packet to a connected device. |
| AP scan Interval | Set the interval for scanning access points. |

### ■ Wi-Fi Region

Set the region of the wireless LAN.

Shows only if you have installed the optional wireless LAN.

Select the region (frequency band) from the list.

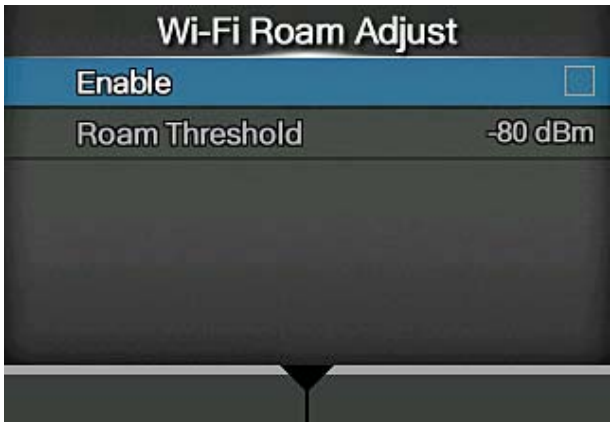

**NOTE**

- Do not set to a region other than where the product is to be used.
- The setting will be effective after you power on the product again.

## Wi-Fi Roam Adjust

Adjust the threshold level for low RSSI roaming of the wireless LAN.

Shows only if you have installed the optional wireless LAN.




The setting items are as follows:

| | |
|---|---|
| Enable | Enable or disable the Wi-Fi roaming adjustment.<br>The options are as follows:<br>• **Enabled**: Enable the Wi-Fi roaming adjustment.<br>• **Disabled**: Do not enable the Wi-Fi roaming adjustment.<br><br>* The setting will be effective after you power on the product again.<br>* Wi-Fi Direct will be disabled if this adjustment is enabled. (only if the wireless LAN module is W-LAN) |
| Roam Threshold | Set the RSSI roaming threshold level.<br>The setting range is from -95 to -40 dBm.<br>**NOTE**<br>• A higher value will make the product roam more often while a lower value will make the product more reluctant to roam.<br>• The roaming is disabled if set to -95 dBm but the product will change AP if the current AP is out of range or powered off. |

## Supplicant Timeout

Set a period of time for the EAP authentication timeout.

Shows only if you have installed the optional wireless LAN.

The options are as follows:

- **5 sec**
- **30 sec**

## KeepAlive

Set the interval for sending a KeepAlive packet to a connected device.

Shows only if you have installed the optional wireless LAN.

The options are as follows:

- **5 sec**
- **30 sec**
- **60 sec**

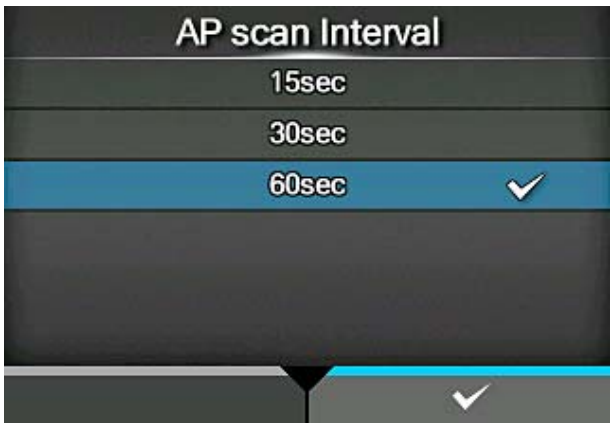

## AP scan Interval

Set the interval for scanning access points.

Shows only if you have installed the optional wireless LAN.

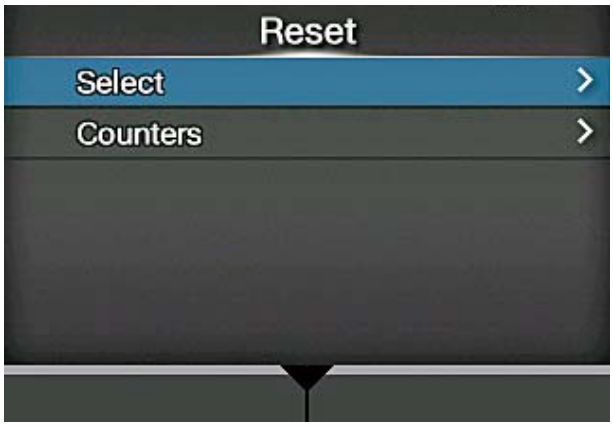
The options are as follows:

- **15 sec**
- **30 sec**
- **60 sec**



## 2.3.5 Reset

Reset the printer settings and counter information.




| Item | | | Description |
|---|---|---|---|
| Select | | | |
| | Data | | Initialize the setting values set in [Printing], [Interface], [Application] and [System].<br>**Note** After initialization, the printer restarts automatically. |
| | Data & Settings | | Initialize the above data and the items selected from the following “Settings”.<br>**Note** After initialization, the printer restarts automatically. |
| | Settings | | |
| | | User Reset | Initialize the setting values set in [Printing], [Interface], [Application] and [System]. |
| | | User Reset (–Interface) | Initialize the same setting values as the “User Reset” except the settings in the [Interface] menu. |
| | | Factory Reset | Initialize to the status of factory shipment. |
| | | Factory Reset (–Interface) | Initialize to the status after factory shipment except for [Interface]. |
| | | Interface | Initialize the setting values set in [Interface] main menu. |
| | | Printing | Initialize the setting values set in [Printing] main menu. |
| Counters | | | |
| | Head | | Initialize the head counte. |
| | Belt (Gear Box) | | Initialize the Belt (Gear Box) counte. |
| | Belt (Ribbon) | | Initialize the Belt (Ribbon) counte. |
| | Dispenser | | Initialize the Dispenser counte. |

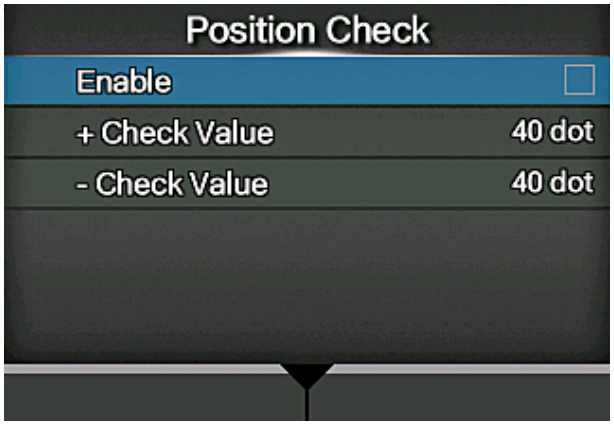
## 2.3.6 Maintenance

Select [Tools] > [Service] > [Maintenance].


| | |
|---|---|
| Printer Serial | Set manually the printer's Serial number whenever the CONT PCB is replaced. |
| USB Serial | Enable or disable the function to change the USB serial number.<br>(Default: Disabled)<br>Disabled: Cannot change the USB serial number.<br>Enabled: Can change the USB serial number.<br>To change the USB serial number, check the "Change USB Serial" in Offline > [Settings] > [Interface] > [USB]. |

## 2.3.7 Position Check

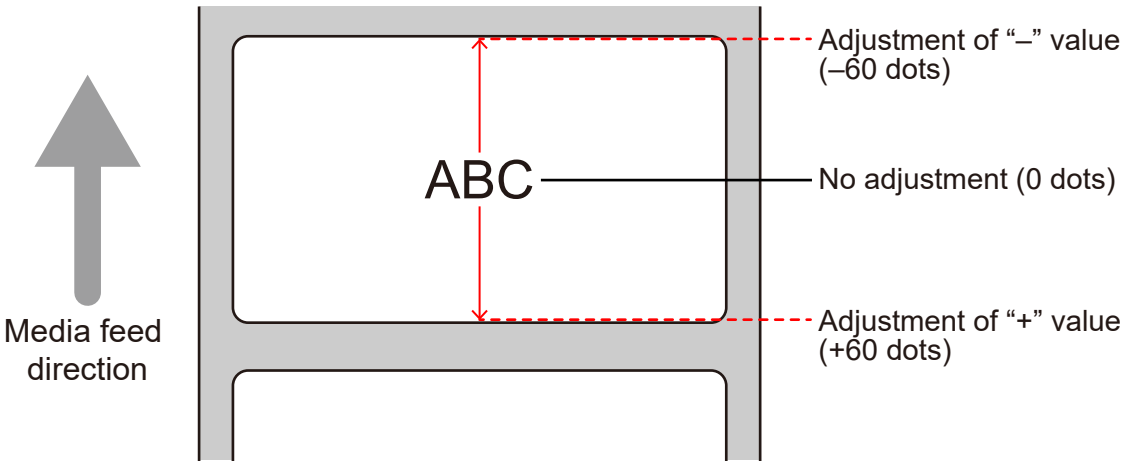
Select [Tools] > [Service] > [Position Check].




After turning on the printer or closing the print head, the printer measures the media pitch size printed on the second label, and compare it with the subsequent media pitch sizes to detect the printing position deviation. When a print position deviation exceeding the setting range is detected, “Media Error” is displayed.

| | |
|---|---|
| Enable checkbox | Enable or disable the position check.<br>(Default: disabled)<br>Disabled: Disables the detection of the position check.<br>Enabled: Enables the detection of the position check. |
| + Check Value | Set the allowable offset range in the direction opposite to the media feed direction. |
| – Check Value | Set the allowable offset range in the media feed direction. |

Setting range: –60 to 60 dots (Default: 0 dots)



## 2.3.8 Factory Offset

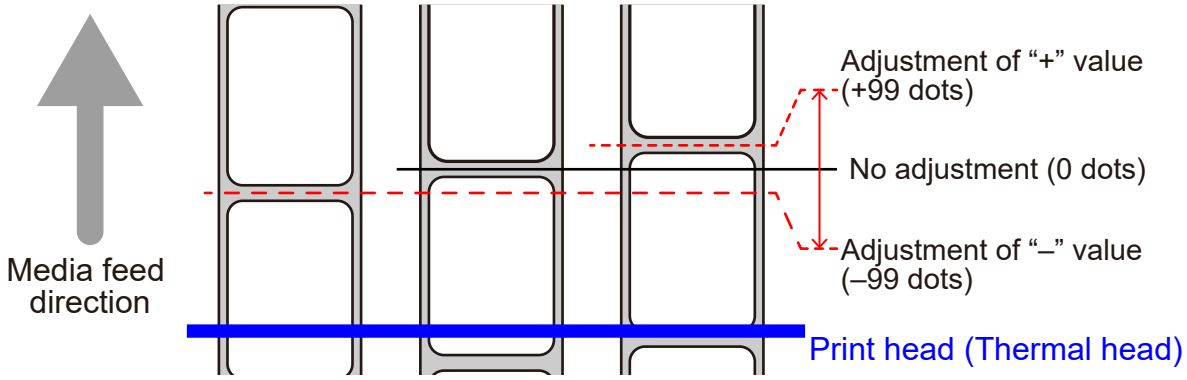
Select [Tools] > [Service] > [Offset].


Correct the offset position.

Set the offset value “+” to move the stop position in the direction opposite to the media feed direction and value “–” to move the stop position in the media feed direction.

Offset position refers to the tear-off position, cut position and dispense stop position.

Setting range: –99 to 99 dots (Default: 0 dots)




**Note**

- The actual offset position is the sum of the offset value set here and the offset value set for print position, in Service menu.
- When you change the offset value in the Service menu, the offset value set at factory shipment also changes.

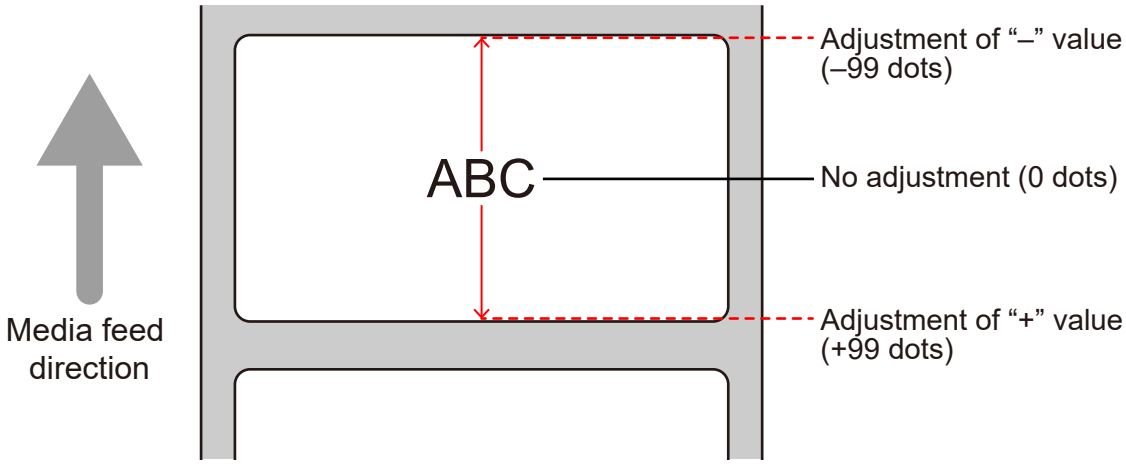
## 2.3.9 Factory Pitch

Select [Tools] > [Service] > [Factory Pitch].


To shift the print position in the vertical direction.

Set the print position “+” to move the position in the direction opposite to the media feed direction and value “–” to move the position in the media feed direction.

Setting range: –99 to 99 dots (Default: 0 dots)




**Note**

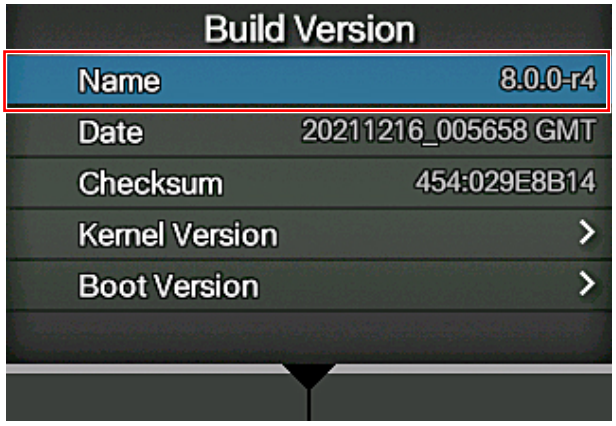
- The actual offset of the print position in the vertical direction is the sum of the offset value and the print position offset value set in Service menu.
- When you change the value in the Service menu, the value set at factory shipment also changes.

# 2. 4 Checking and Updating the Firmware

## Checking the Firmware

Select [Information] > [Build Version].

Check the version name.




## Updating the Firmware

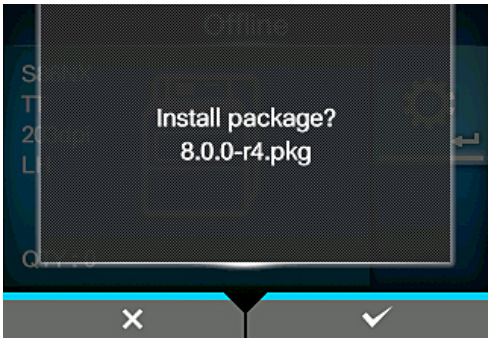
**CAUTION**
Be sure to perform a virus check for the USB memory before connecting it to the printer.

1 Prepare a pkg file used for firmware updating and copy it to the root directory of the USB memory.

2 Insert the USB memory into the USB connector (Type A).

3 Power on the printer.

4 Display the version to be updated.




5 Select [ ] (right select button) to start updating.


6 When the update is complete, the printer restarts automatically.

# 3 Checking and Performing Printer Adjustments

Back to top

**This chapter describes the following:**

## 3. 4 Final Check

# 3. 1 Checking Before Starting Work

This section describes the items to be checked before starting work.

## 3.1.1 Checking Printing with Actual User Data

1 min

Make sure to perform print check using actual user data.

**Note**

When multiple layouts are used for printing, make sure to check for every layout.

### Check & Point

① Is the print position correct in the horizontal and vertical directions?

② Is the print quality good? Make sure no blurred printing occurs in the horizontal and vertical directions and also no sticking occurs.

③ Is the media stop position correct?

## 3.1.2 Checking Installation Environment and Printer Conditions

1 min

Check the user's printer usage environment, label placing conditions, etc.

### Check & Point

① Is the label placed in the proper position?

② Is there any excessive load on the routed wirings?

③ Is there any problem with the label expiration date?

④ Is the genuine label used?

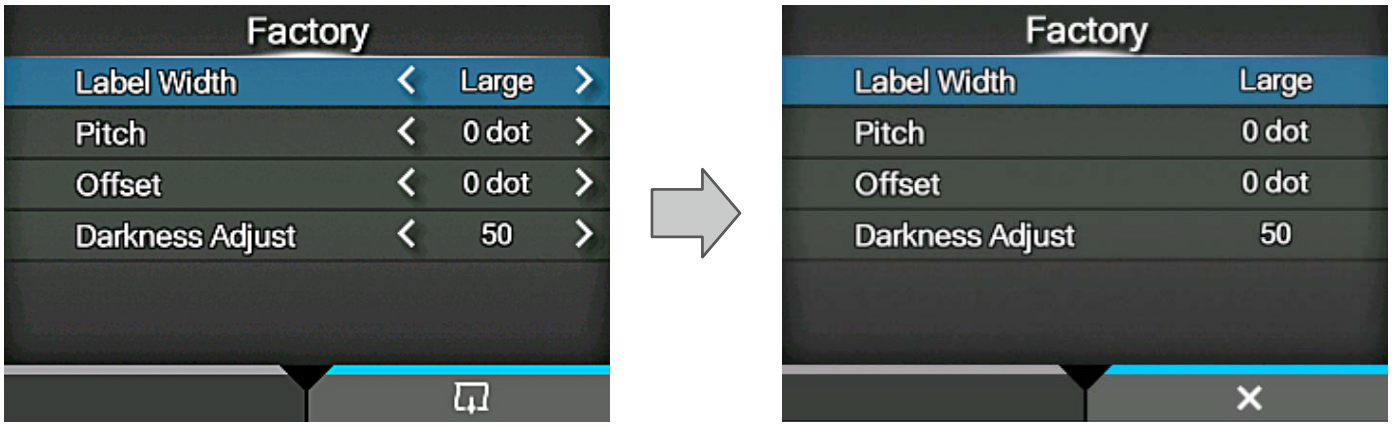
## 3.1.3 Checking Printing with Factory Settings

2 min

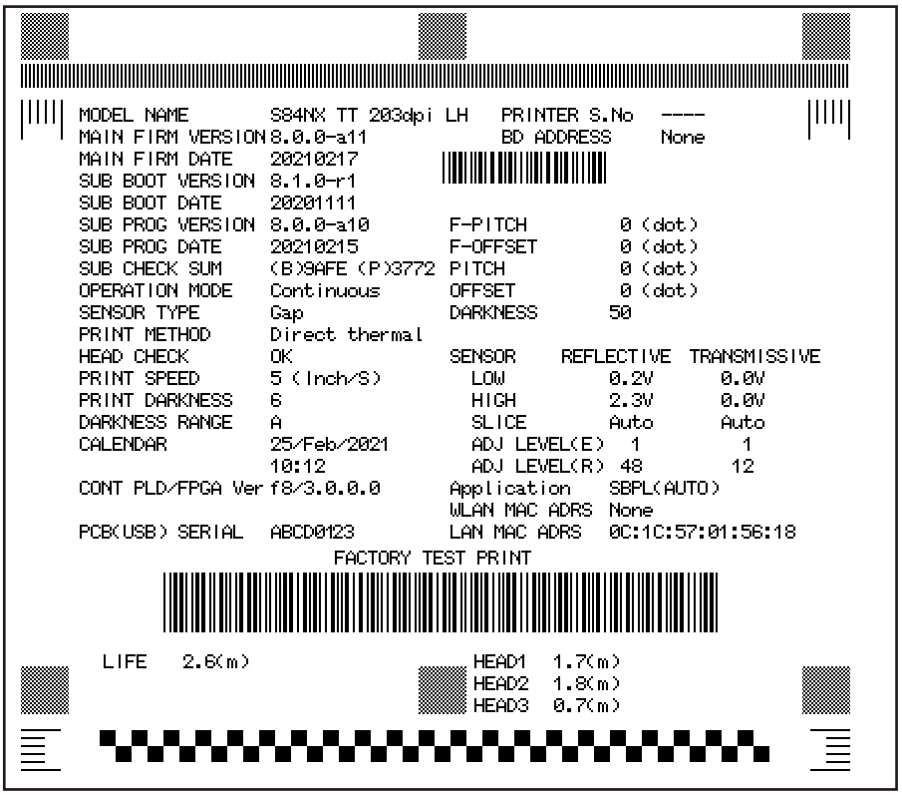
1 Place the label on the printer.

2 Select [Settings] > [Tools] > [Test Print] > [Factory] > [ ] (right select button).

3 After printing multiple labels, select [ ] (right select button) to stop the printing.




Media feed direction



## Check & Point

① Is there any abnormal noise?

② Check the print position and stop position.
Print on multiple labels and check that the position of each block is stable.

③ Firmware version
Update the firmware version as required.

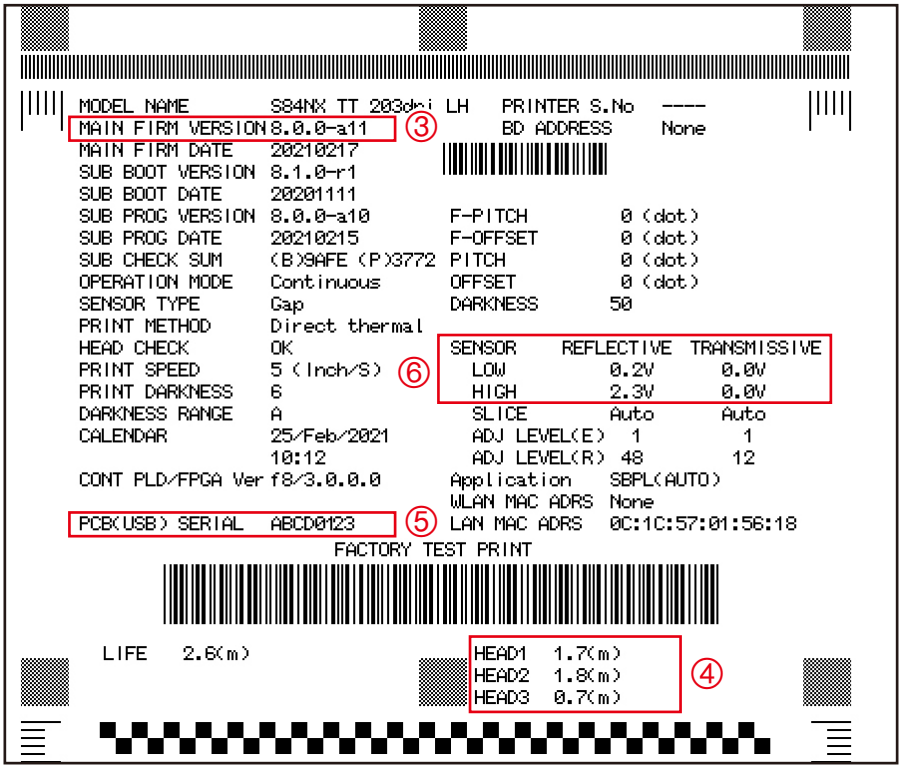
④ Check the head counter information.

⑤ The password for the [Service] menu

⑥ Check the sensor levels.
If the sensor level is outside of the following range, adjust the sensor level.

| Voltage | REFLECTIVE | TRANSMISSIVE |
|---|---|---|
| LOW | 0.5 V or less | |
| HIGH | High – Low ≧ 1.0 V | |

**Refer to** 3.3.3 Checking and Adjusting the I-mark Sensor and Gap Sensor




**CAUTION**
After completion of the above check, print various setting information so that you can check it later.

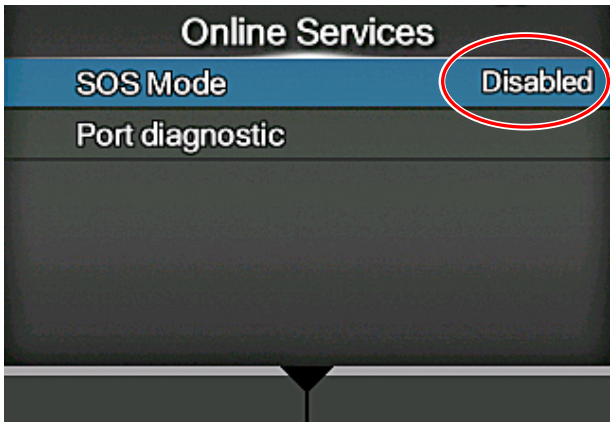
## 3.1.4 Disabling the SOS Connection

2 min

When performing inspections and repairs, notification information is sent, so disable the SOS mode.

1 Select [Settings] > [Interface] > [Network] > [Services] > [Online services].

2 Check that the SOS mode is set to Disabled.



# 3. 2 Checking and Cleaning

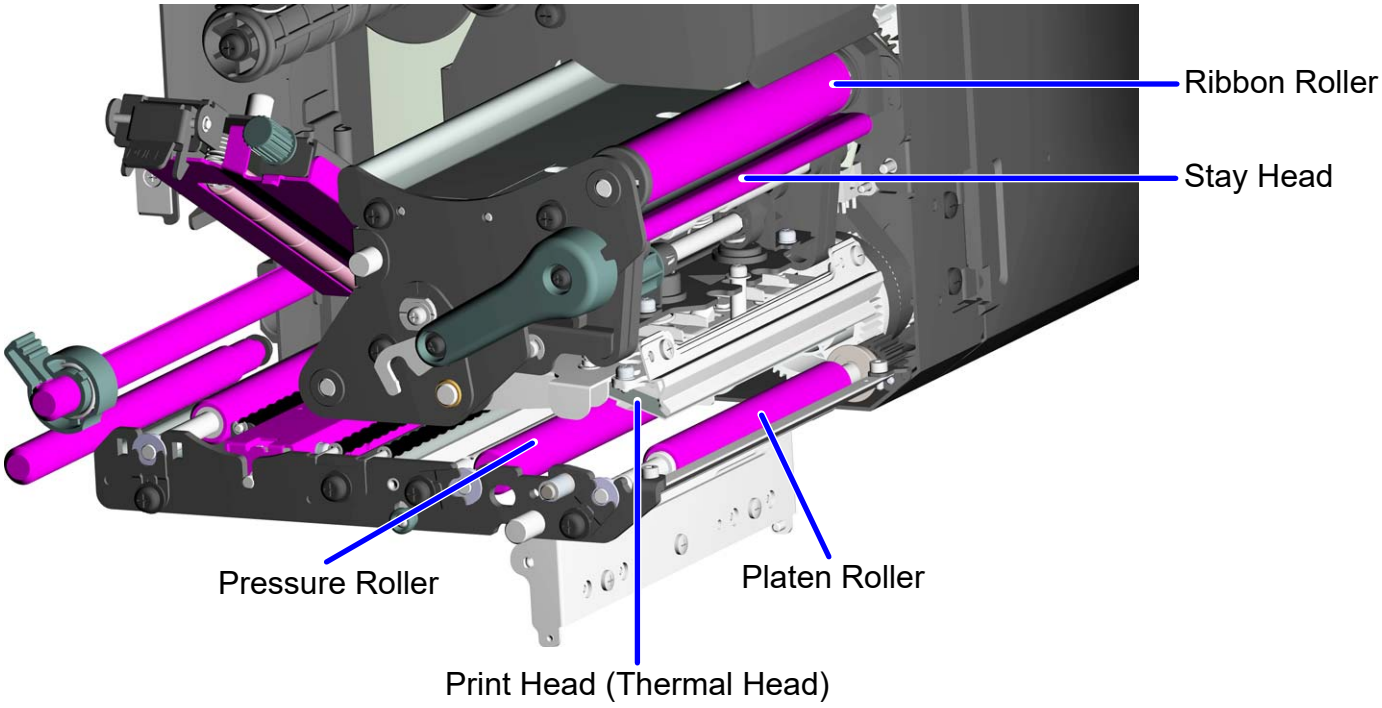
While cleaning parts, perform the relevant checks.

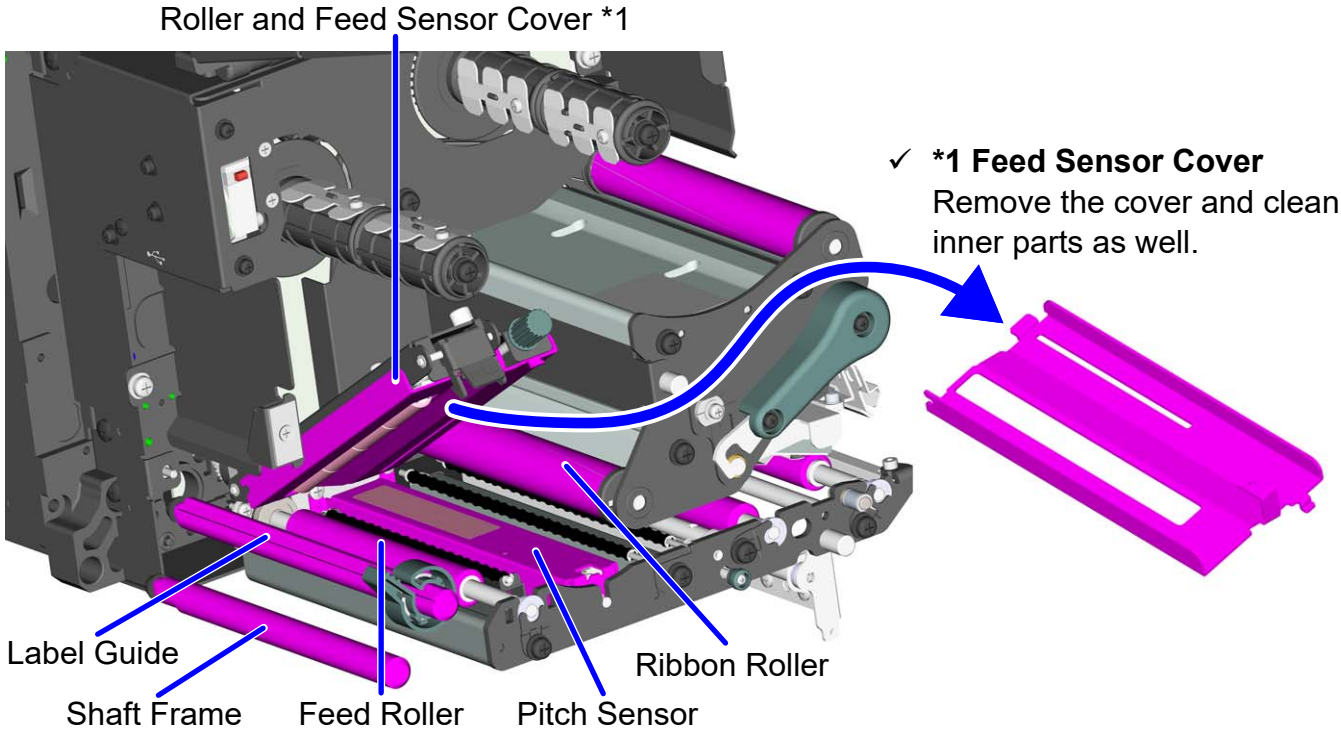
Clean each part of the printer using the printer cleaning liquid.

**CAUTION**

Do not use organic solvents. Use IPA (Isopropyl alcohol).

- Route where label contacts




✓ ***1 Feed Sensor Cover***
Remove the cover and clean the inner parts as well.

## Check & Point

- **Print Head (Thermal Head)**
- **Platen Roller**

If the counter value is close to the guaranteed value, check the part and, if it is worn out, replace it with a new one.

**Refer to** 4.3.1 Replacing the Print Head

**Refer to** 4.4.1 Replacing the Platen Roller

## 3.2.1 Checking and Cleaning the Exterior

1 min

Clean the LCD and exterior.

## Check & Point

① Check that no cracks or breakage appear on the exterior before cleaning.

② Check that the touch panel works properly.

③ Check that the power/home button works properly.

## 3.2.2 Blowing Air on the PCBs

1 min

Blow air on the PCB to remove dust or dirt.

**CAUTION**

Before cleaning the PCB, make sure to power off the printer. Next, unplug the AC power cord.

## Check & Point

① Is the connector loose?

② Is the screw loose?

③ Is the cable caught?

④ Is the gear broken or worn out?

# 3. 3 Checks and Adjustments

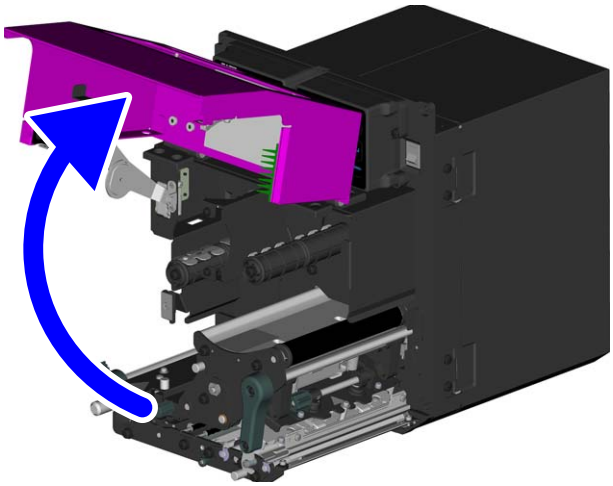
Check respective items before starting work. For the item judged to be adjusted, perform necessary adjustments.

## 3.3.1 Checking for Cover Open and Head Open Errors

1 min

**1** Power on the printer.

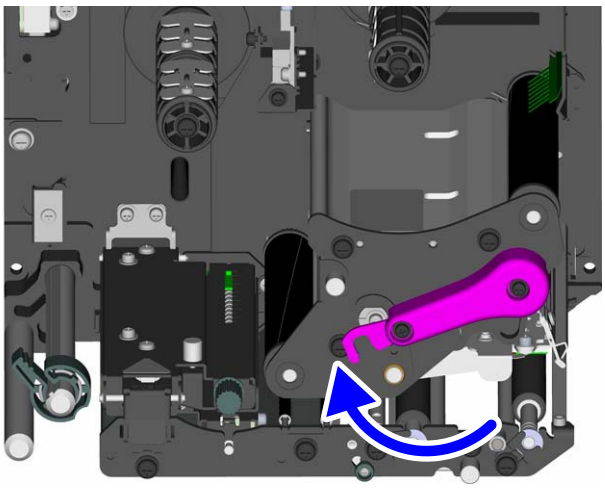
**2** Open the cover and check that the buzzer sounds and the error message is displayed.




**3** If no error occurs, replace the sensor.

**Refer to** 4.5.5 Replacing the Top Cover Sensor

**4** Turn the head lock lever clockwise to unlock the print head.




**5** If no error occurs, replace the sensor.

**Refer to** 4.5.4 Replacing the Head Open Sensor

## 3.3.2 Checking the Ribbon End Function

1 min

1 Remove the ribbon if you have loaded in the product.

2 Power on the printer.

3 Select [Settings] > [Printing] > [Printing Mode] > [Use Ribbon].

4 Press the Back button on the operator panel to change the printer to offline mode.


5 Select [ FEED ] (right select button) and check that the buzzer sounds and the error message is displayed.


6 If no error occurs, replace the sensor.

**Refer to** 4.5.3 Replacing the Ribbon End Sensor

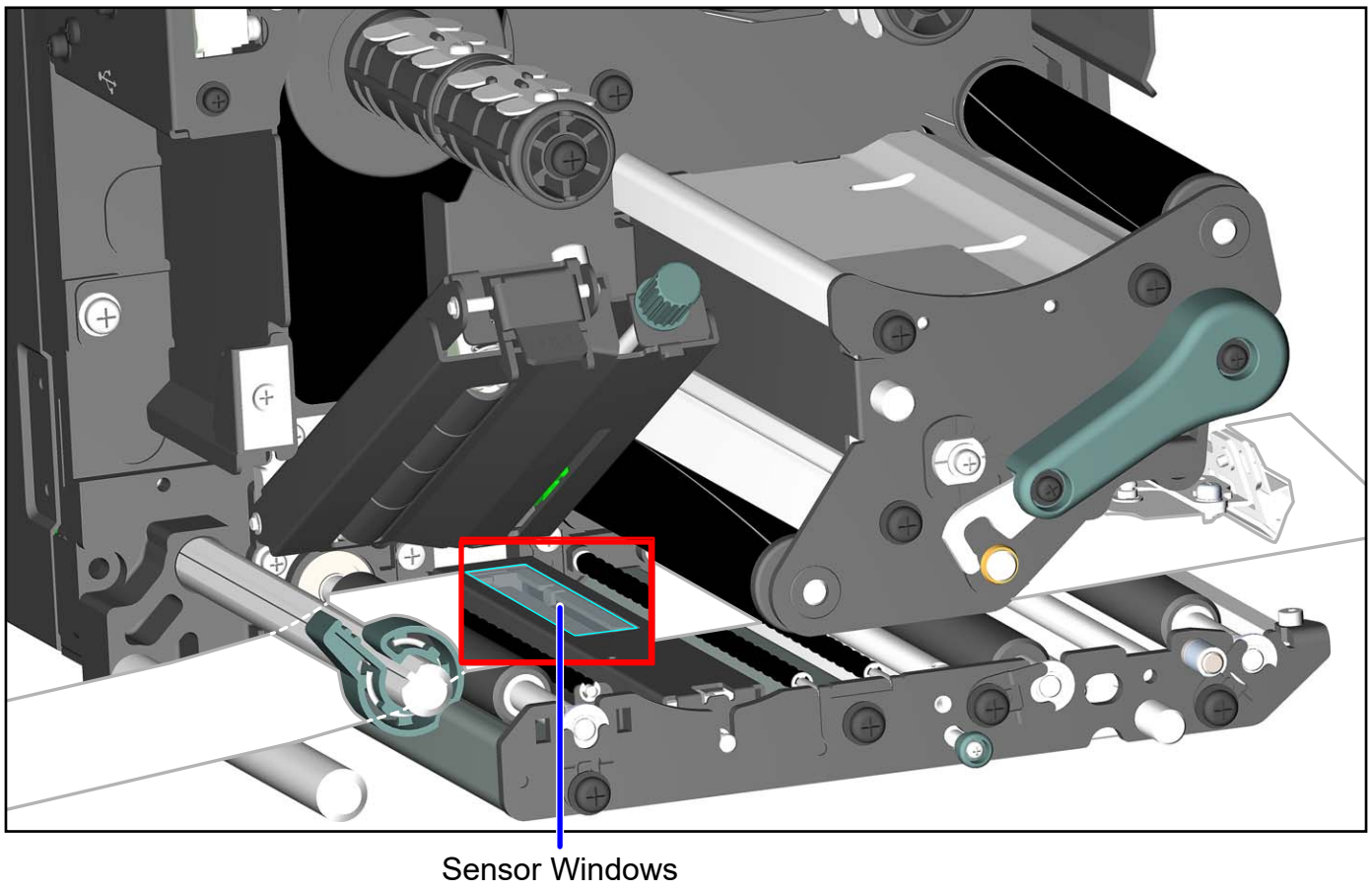
## 3.3.3 Checking and Adjusting the I-mark Sensor and Gap Sensor

2 min

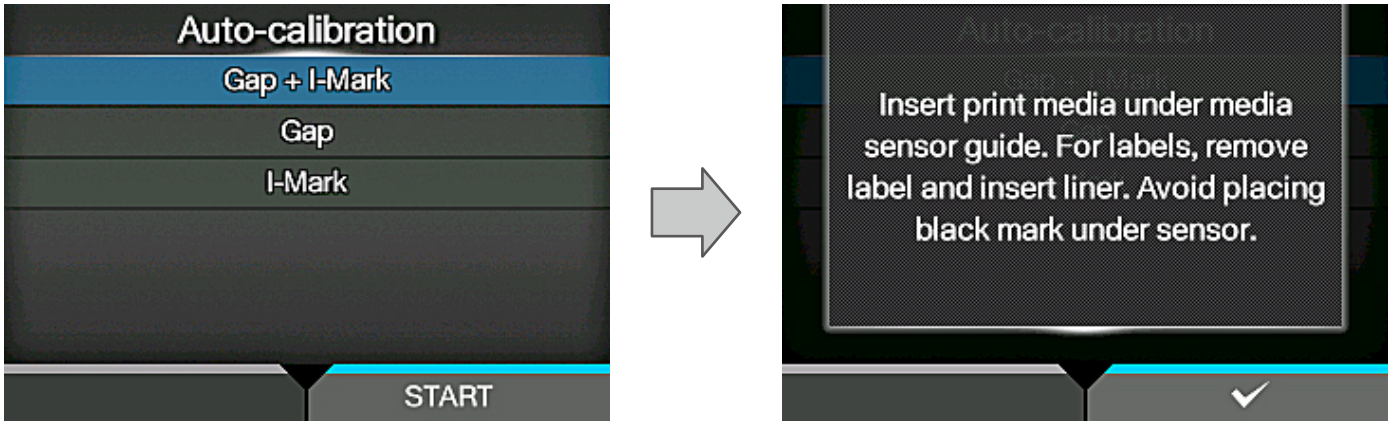
### ■ Auto-calibration

**1** Select [Printing] > [Advanced] > [Calibrate] > [Auto-calibration] > [Gap+I-Mark].


**2** Remove the labels from the liner and place the liner so that the I-mark does not cover the sensor window.



**3** Select [START] (right select button) > [ ] (right select button).
Then, the sensor adjustment is automatically performed and shows the results.




**[Tips]**
When the printer shows a “Calibration failed” message, place the liner correctly and perform the auto-calibration operation again.
The I-mark slice level is automatically adjusted by the following formula.

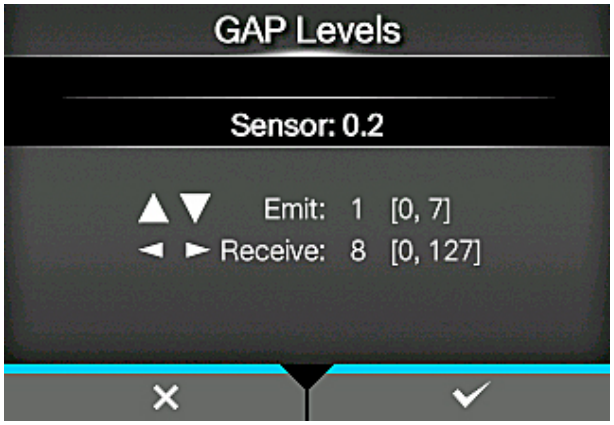
| I-mark slice level = (High level – Low level) × 0.7 + Low level |
|---|

## ■ Adjusting the Gap Sensor Manually

**4** Remove the labels from the liner and set the liner.

**5** Select [Printing] > [Calibrate] > [GAP Levels].

**6** Check and adjust the sensor low level and note the low level value.

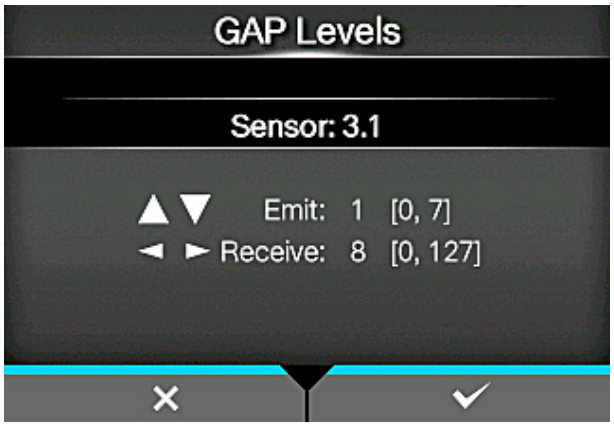



**Check**
Check that the sensor Level is less than 0.5 V

**Adjustment**
Adjust the sensor level by changing the value of the Emit level.
If the sensor level does not fall below 0.5 V, adjust it by changing the value of the Receive level.

**7** With the screen as it is, set the media so that the label part is on the gap sensor.
**[Tips]** For the sensor position, refer to step 2 of “Auto-calibration”.

**8** Check and adjust the sensor high level and note the high level value.




**Check**

Check that the sensor level satisfies the following conditions.

High level – Low level ≧ 1.0 V

The Low level is below 0.5 V.

**Adjustment**

Adjust the sensor level by changing the value of the Emit level and Receive level.

**9** Select [Calibrate] > [GAP Slice Level].

**10** You can set the slice level arbitrarily.


**Note**

When the slice level is 0, the slice level is automatically set.

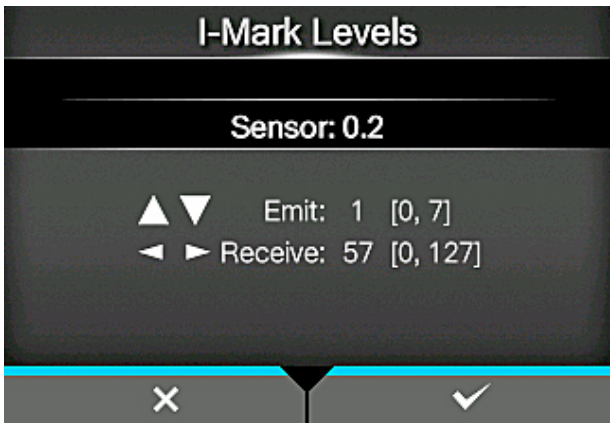
## ■ Adjusting the I-mark Sensor Manually

**11** Place the label so that the I-mark does not cover the I-mark sensor.

**Note** **For the sensor position, refer to step 2 of “Auto-calibration”.**

**12** Select [Calibrate] > [I-Mark Levels].

**13** Check and adjust the sensor low level and note the low level value.




**Check**

Check that the sensor level is less than 0.5 V.

**Adjustment**

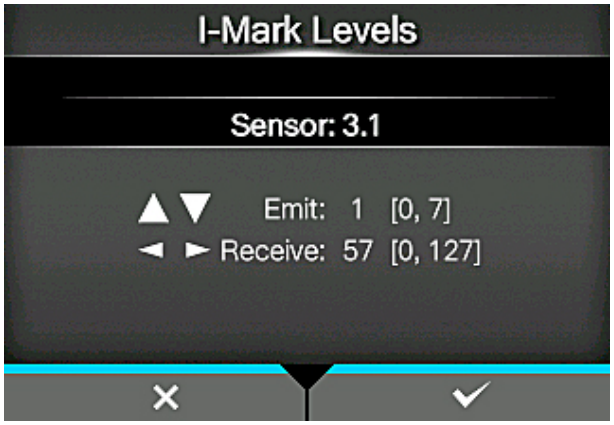
Adjust the sensor level by changing the Send Gap Level.

If you cannot set the sensor level to less than 0.5 V, change the Receive Gap Level.

**14** Without changing the screen, place the liner so that the I-mark on the liner is right on the I-mark sensor.

**Note** **For the sensor position, refer to step 2 of "Auto-calibration".**

**15** Check and adjust the sensor high level and note the high level value.




**Check**

Check that the sensor level satisfies the following condition.

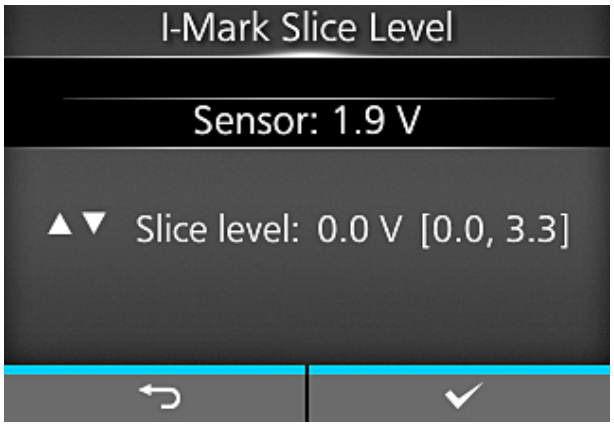
High level (I-mark sensor) – Low level ≧ 1.0 V

**Adjustment**

Adjust the sensor level by changing the Send Gap Level and Receive Gap Level.

**16** Select [Calibrate] > [I-Mark Slice Level].

**17** You can set the slice level arbitrarily.




**Note**

When the slice level is 0, the slice level is automatically set.

## 3.3.4 Printing Quality

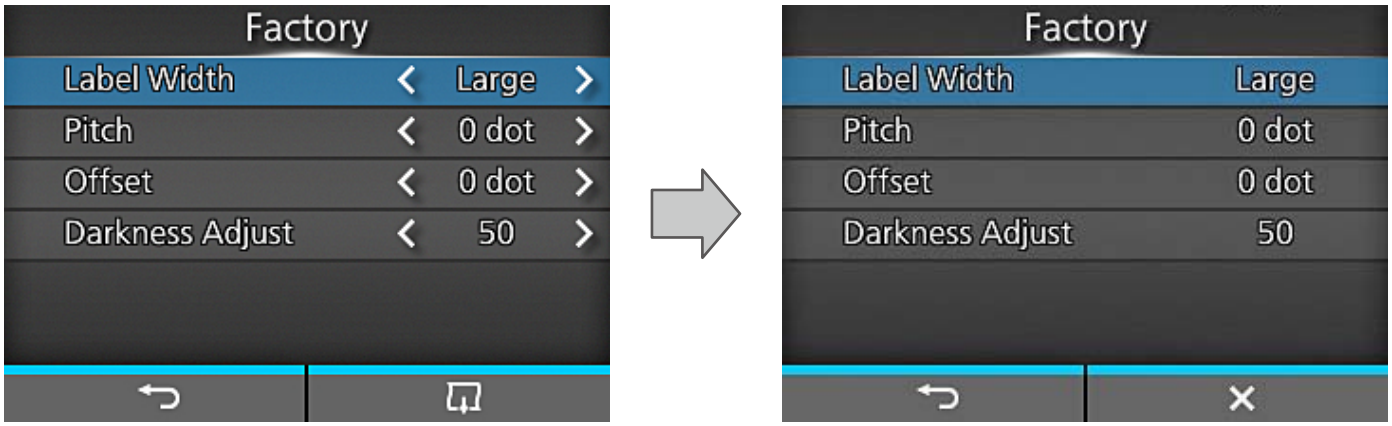
2 min

Perform the test print with the factory settings and check that there is no problem with printing quality.

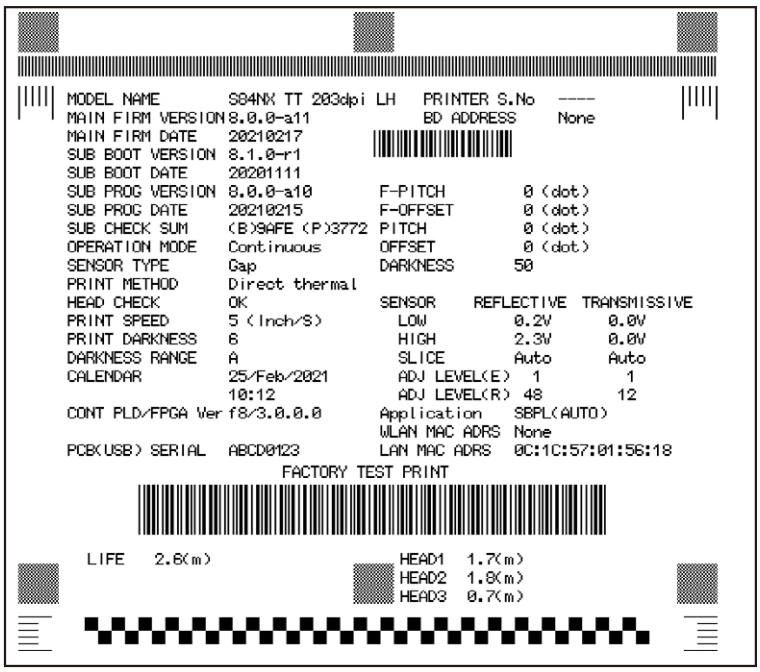
1 Place the label on the printer.

2 Select [Settings] > [Tools] > [Test Print] > [Factory] > [ ] (right select button).

3 After printing multiple labels, select [ ] (right select button) to stop the printing.




Media feed direction




## Check & Point

① Is there any quality degradation compared with the test print before starting work?

② Is the print quality uniform?
If the print quality is not uniform and hard to correct, lower the print darkness, and then check the test print results again.

③ Is printing shrunk
Pay attention to the ruled lines. If the ruled lines are missing, check the drive part as it may be the cause.

## 3.3.5 Meandering

1 min

Perform the test print with the factory settings and check that the printing is not meandering in horizontal direction.

### Check & Point

① Is the media meandering?
If you cannot eliminate the meandering, replace the roller.

② After installing all the units, check for meandering again.

## 3.3.6 Checking and Adjusting the Print Position

1 min

Perform the test print with the factory settings and check that no print position deviation occurs. If it occurs, perform adjustment to correct it.

**Note**

When you have adjusted the sensor levels, be sure to check the print position.

### Check & Point

Check that the print position on the 1st and 3rd labels is stable.
If the problem persists, perform sensor adjustment again and recheck the roller, etc.

## 3.3.7 Checking the Stop Position

1 min

Perform the test print with the factory settings and check that no stop position deviation occurs. If it occurs, perform adjustment to correct it.

**Note**

When you have adjusted the sensor levels, be sure to check the stop position.

### Check & Point

① Check that the stop position on the 1st and 3rd labels is stable.

② No print skips occurs.
If the problem persists, perform sensor adjustment again and recheck the roller, etc.

# 3. 4 Final Check

## 3.4.1 Checking Test Print with Factory Settings

1 min

After finishing work, make sure that you haven't accidentally changed something.

### Check & Point

① All setting items

② Print position

③ Stop position

**Note**

If there is an item unable to check, check it with the internal setting information, as required.

## 3.4.2 Checking the Customer's Layout

1 min

Ask the customer to print out with actual data, and make sure that there is no problem with the layout.

## 3.4.3 Checking Barcode Scan

1 min

When the customer's layout includes barcodes, QR codes, etc., perform readout checks to make sure that a scanner can read them correctly.

## 3.4.4 Checking SOS Connection

5 min

Check the SOS connection status and take an appropriate action according to the connection type.

### Check & Point

① On demand...Read an error code.

② Real time...Check that there is no problem with the communication state.

## 3.4.5 Returning to the Original State

3 min

Check that the printer configuration is the same as that before starting the service work.

# 4 Replacement

Back to top

**The replacement procedures described in this chapter are as follows:**

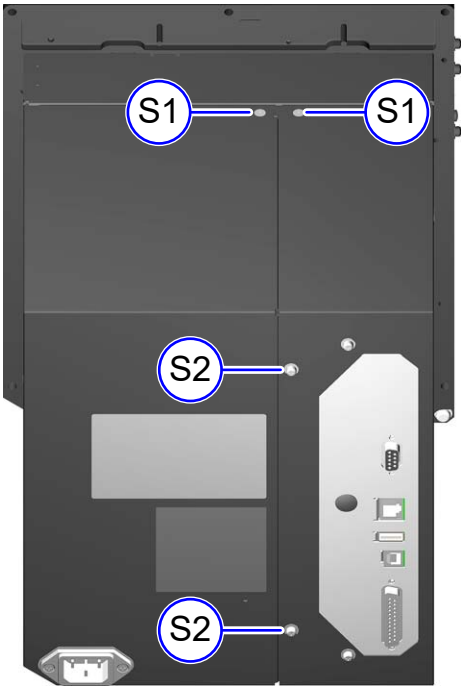
# 4. 1 Notes on Replacing Parts

- The description in this manual may differ from the actual product due to design changes, etc.
- Unplug the power cord before starting work.
- Use a screwdriver that matches the size of the screw head.
- Assemble the parts in the reverse order of the disassembly procedure.
- When assembling parts, do not pinch cables or wires.
- Replace tapes and stickers with new ones depending on their condition.
- There are several kinds of screws. Be sure to use the correct type of screws when assembling.

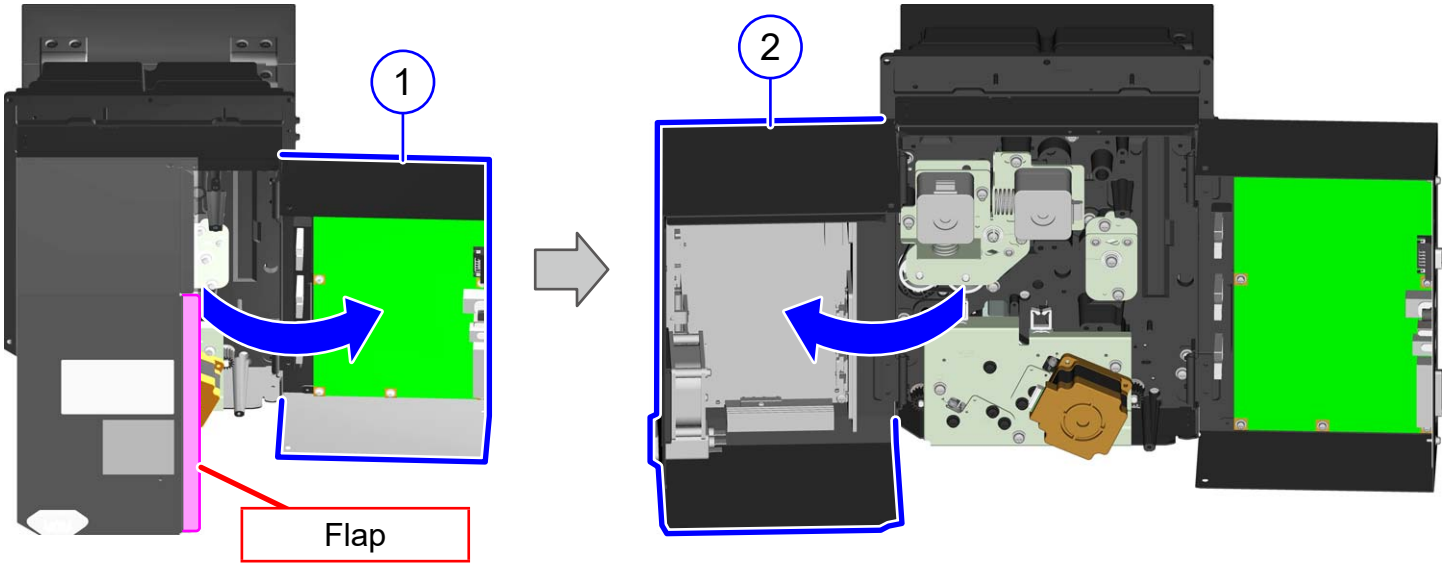
# 4. 2 Removing the Housing Cover

## 4.2.1 Opening the Rear Housing Cover

**1** Loosen and remove two **flat-head screws** (S1) at the top of the rear cover, then remove another two **pan head screws** (S2) at the rear.




**2** Open the interface side of the **rear housing cover** (①), then open the other side that has a flap on the **rear housing cover** (②).



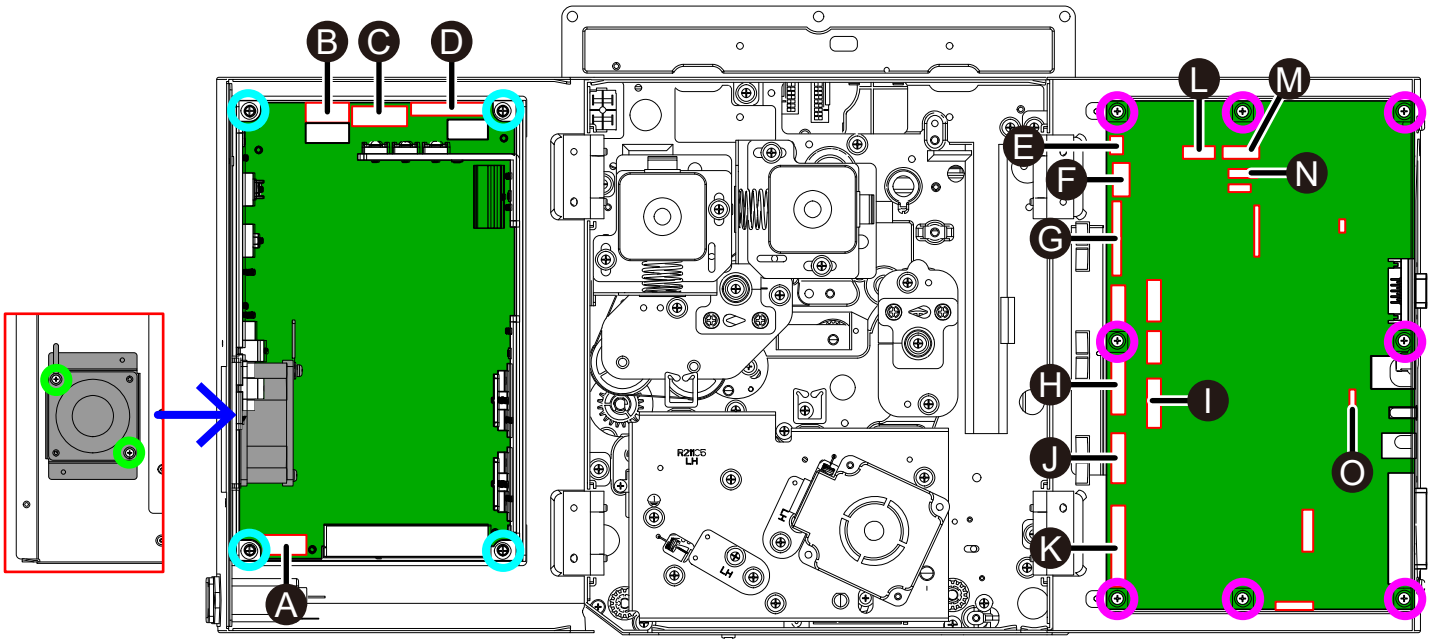
## ✓ Items to check before closing the rear housing cover

Check the following before closing the housing cover.

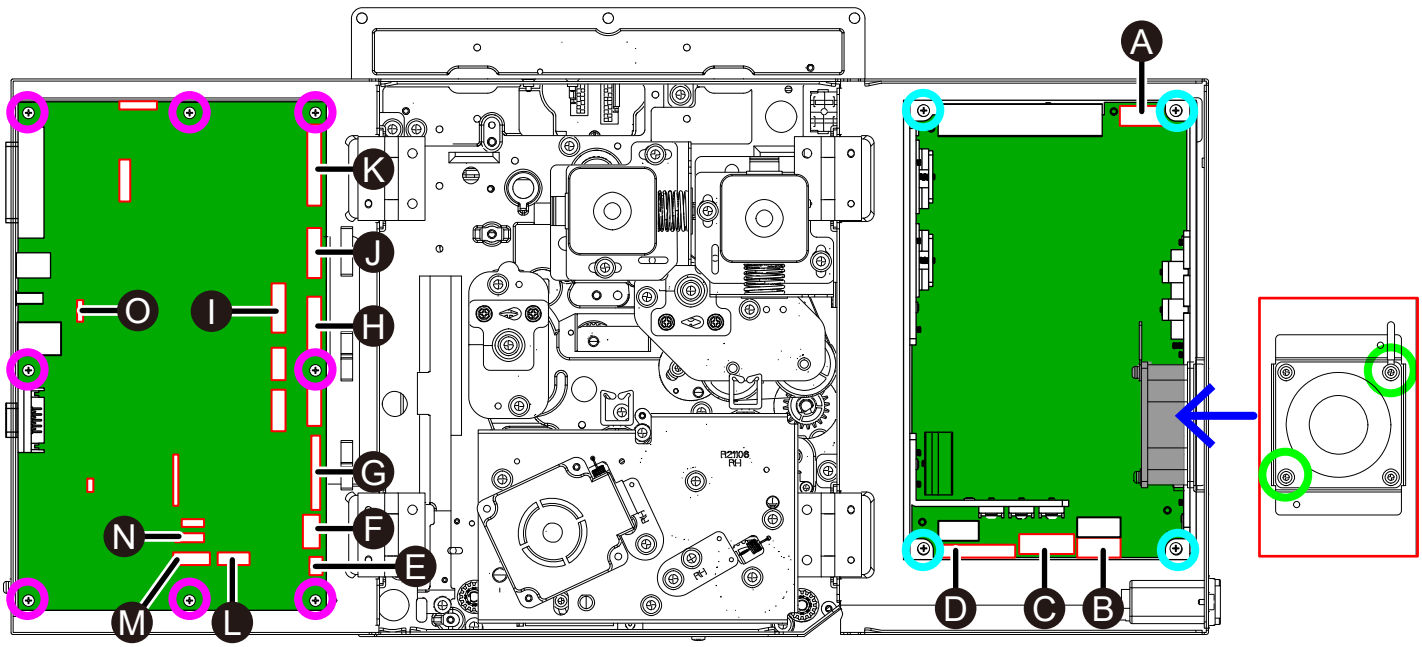
**1** Check the fixing screws and connectors.

| | |
|---|---|
| Check the fixing screw. | **DC FAN**: 2 pcs, Light green mark<br>**POWER SUPPLY UNIT**: 4 pcs, Light blue mark<br>**CONT PCB**: 8 pcs, Pink mark |
| Check the connector. All cable connectors must be connected. | **POWER SUPPLY UNIT**: A, B, C, D<br>**CONT PCB**: E, F, G, H, I, J, K, L, M, N, O |

### ■ LH type



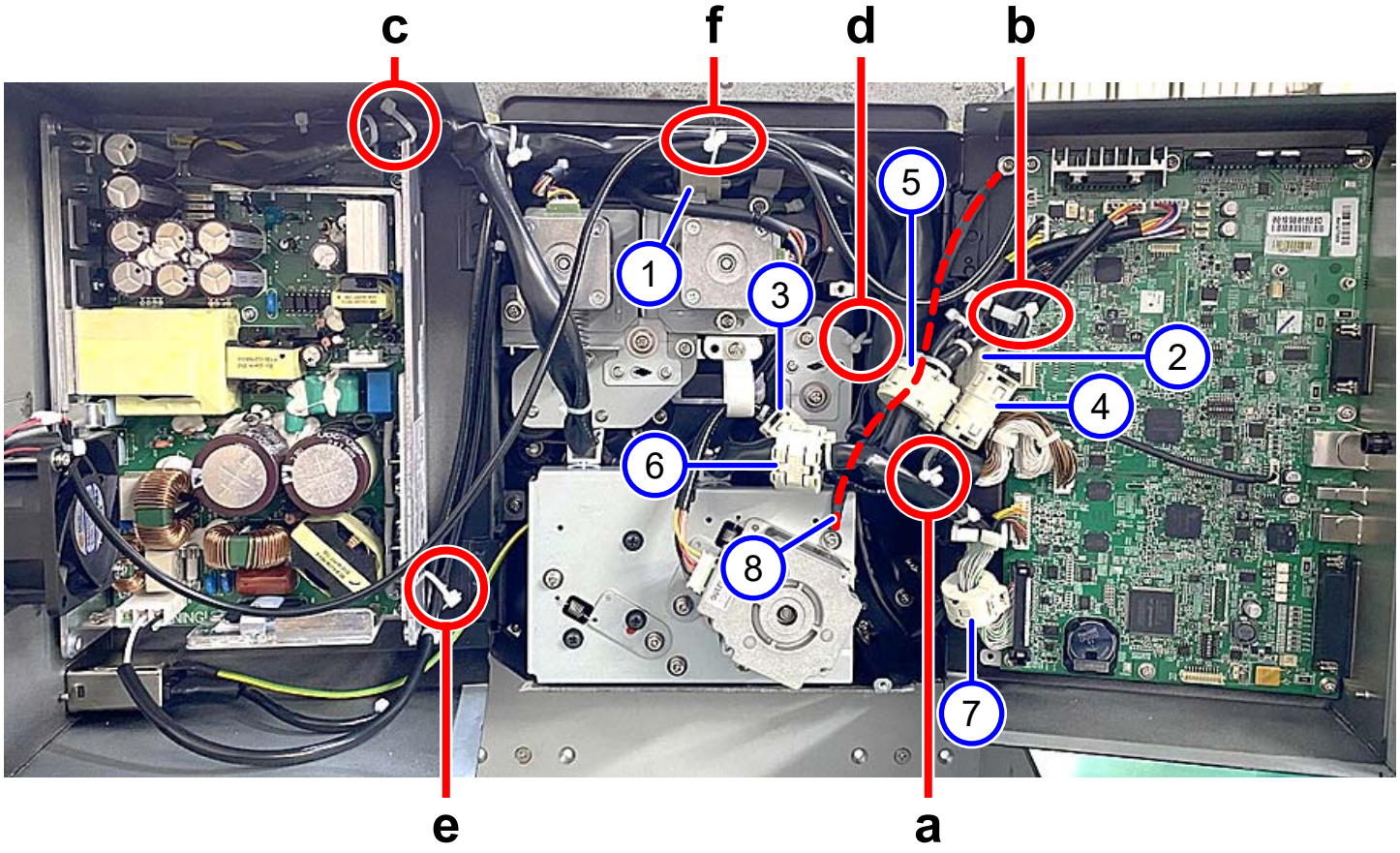

### ■ RH type



**2** Check that the ferrite cores, omega locks and cable ties are attached.

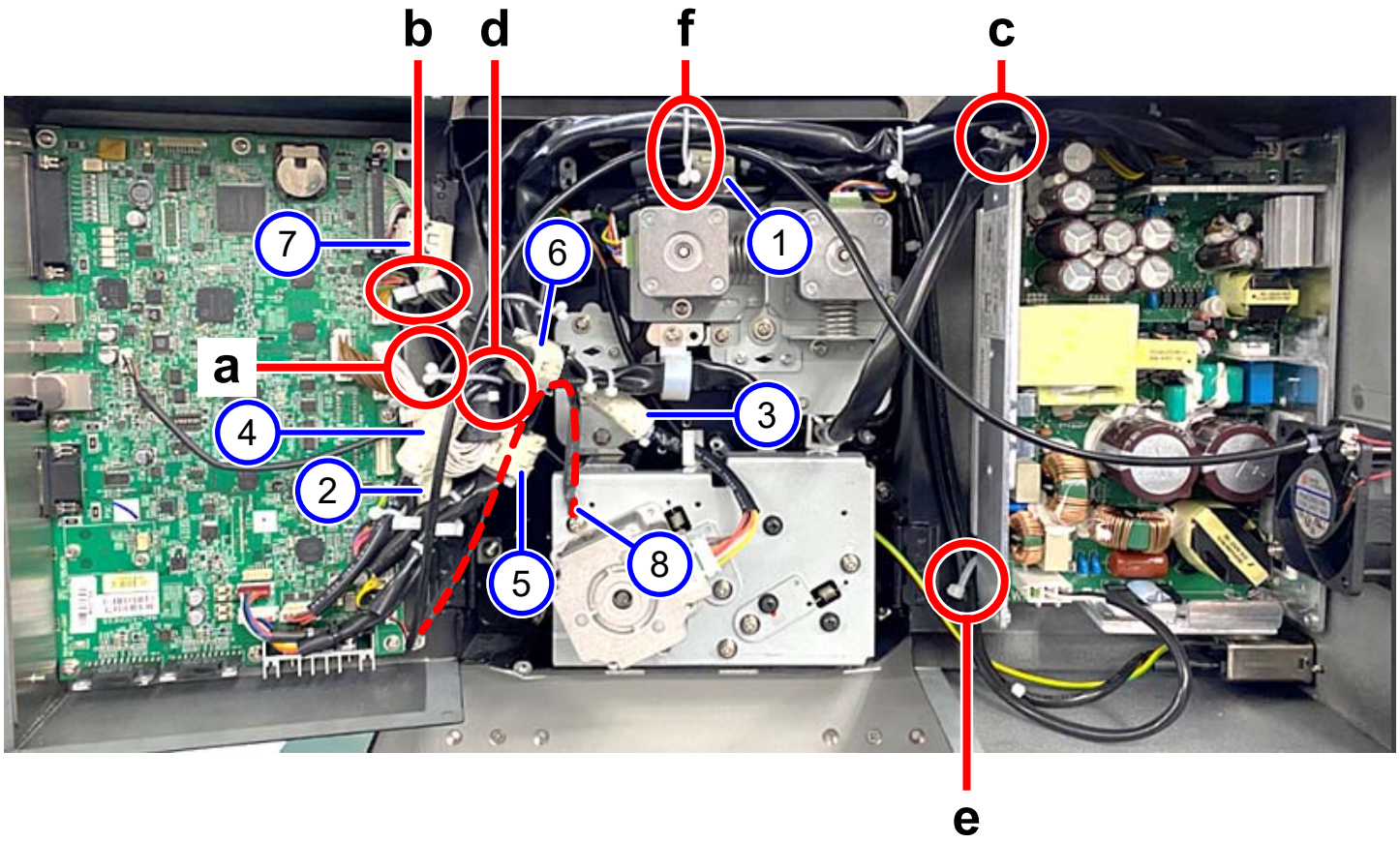
## ■ LH type

| | | |
|---|---|---|
| Check ferrite core and position.<br>**S84MX**: 6 pcs (① to ⑥)<br>**S86NX**: 7 pcs (① to ⑦) | ① | Ribbon motor RW/UW cable |
| | ② | Ribbon motor UW cable |
| | ③ | Stepping motor cable |
| | ④ | |
| | ⑤ | POWER CABLE ASSY |
| | ⑥ | Head cable *S86NX only |
| | ⑦ | Head cable |
| Check FG cable position. | ⑧ | Red dotted line |
| Check omega lock, Cable tie position. | Omega lock: **a, d, f**<br>Cable tie: **b, c, e** | |
| Check each cable route. | For details, refer to “3. Wiring route”. | |



## ■ RH type

| | | |
|---|---|---|
| Check ferrite core and position.<br>**S84MX**: 6 pcs (① to ⑥)<br>**S86NX**: 7 pcs (① to ⑦) | ① | Ribbon motor RW/UW cable |
| | ② | Ribbon motor UW cable |
| | ③ | Stepping motor cable |
| | ④ | |
| | ⑤ | POWER CABLE ASSY |
| | ⑥ | Head cable *S86NX only |
| | ⑦ | Head cable |
| Check FG cable position. | ⑧ | Red dotted line |
| Check omega lock, Cable tie position. | Omega lock: **a, d, f**<br>Cable tie: **b, c, e** | |
| Check each cable route. | For details, refer to “3. Wiring route”. | |

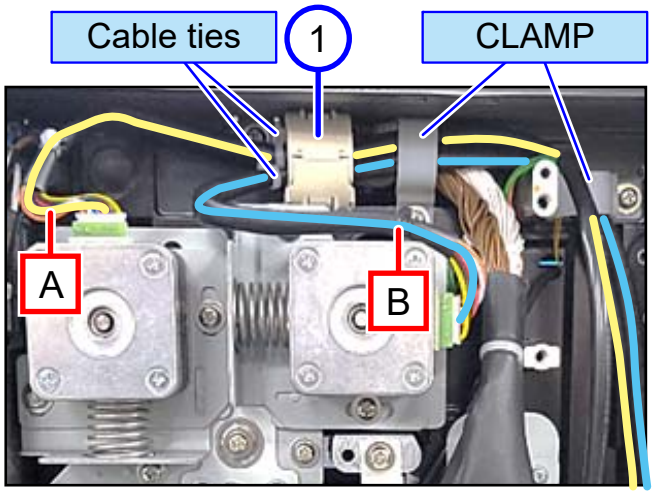


## 3 Wiring route

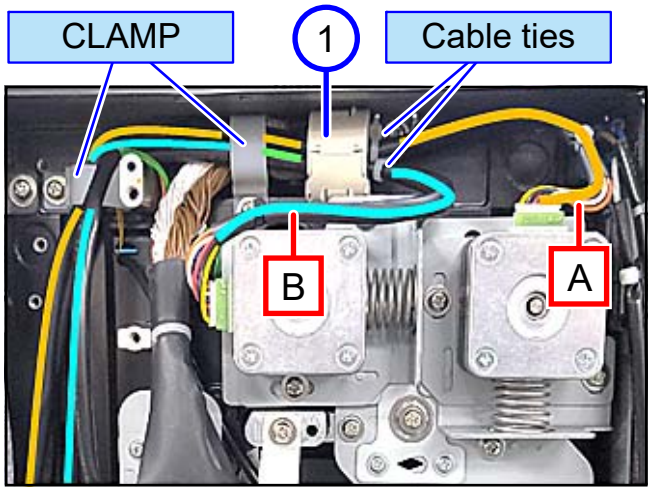
| | | |
|---|---|---|
| **A** | Ribbon motor RW cable | |
| **B** | Ribbon motor UW cable | |

- Make sure that the ferrite core (①) is attached with reference to the cable tie position of both the Ribbon motor RW cable (A) and Ribbon motor UW cable (B).
- Make sure that the Ribbon motor RW cable (A) and Ribbon motor UW cable (B) run through the two CLAMPs.

### ■ LH type

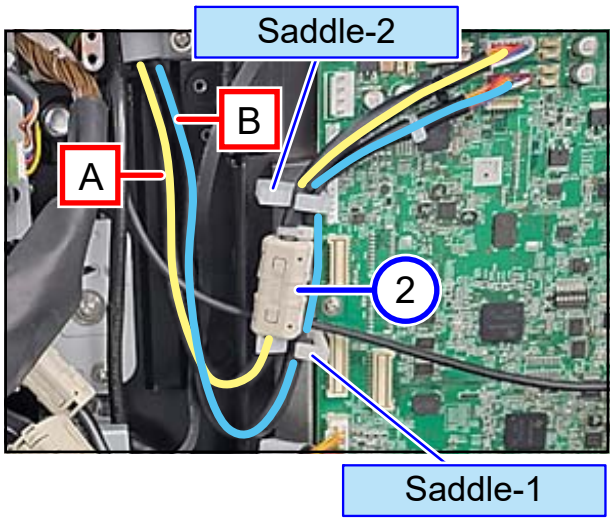



### ■ RH type

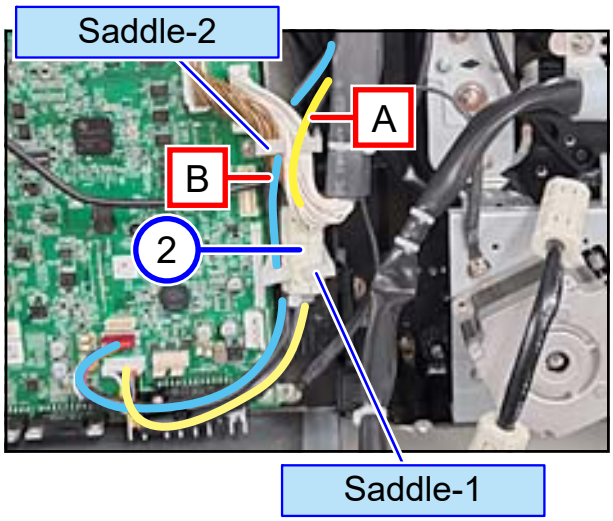



- Make sure that the Ribbon motor RW cable (A) and Ribbon motor UW cable (B) run through the saddle-1.
- Make sure that the ferrite core (②) is attached to only the Ribbon motor RW cable (A).
- Make sure that the ferrite core (②) is placed between the saddle-1 and saddle-2.
- Make sure that the Ribbon motor RW cable (A) and Ribbon motor UW cable (B) run through the saddle-2.

### ■ LH type



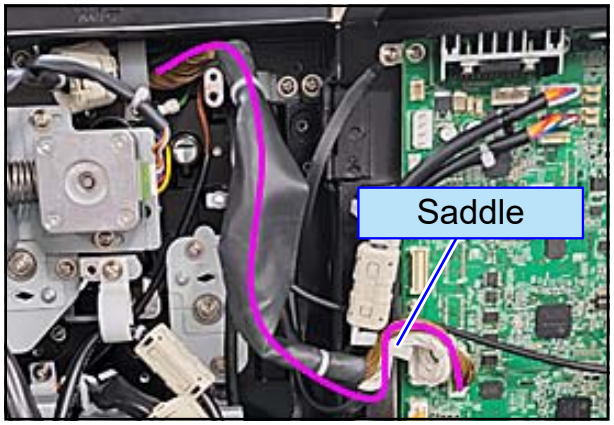

### ■ RH type



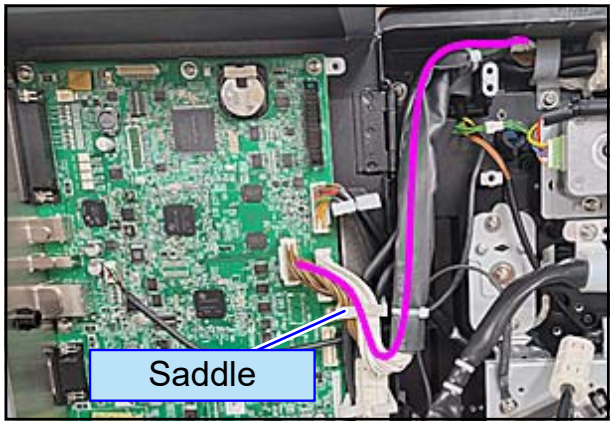
| | | |
|---|---|---|
| C | KB cable | |

- Make sure that the KB cable runs through the saddle.

## LH type



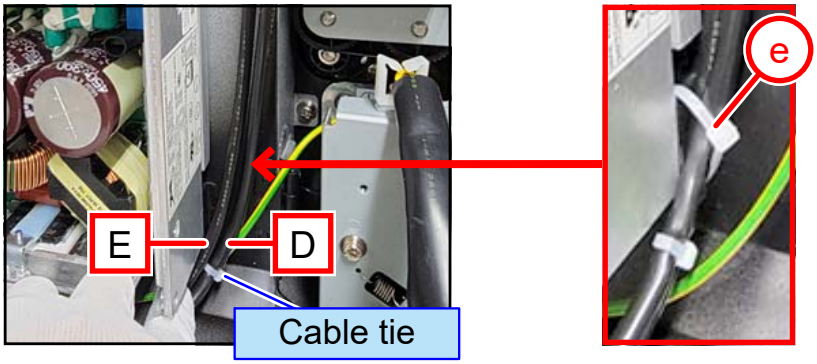

## RH type



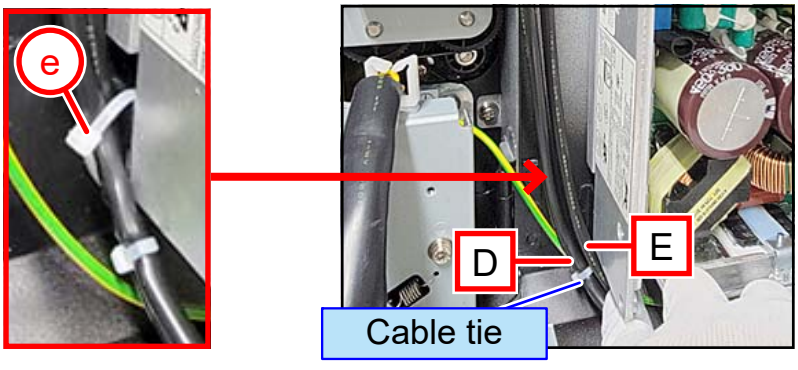

| | | |
|---|---|---|
| D | AC line cable | |
| E | Inlet cable | |

- Pay attention to the location of the cable tie on the AC line cable (D).
- Make sure that the Inlet cable (E) and AC line cable (D) are fixed with the cable tie (e).

## LH type




## RH type

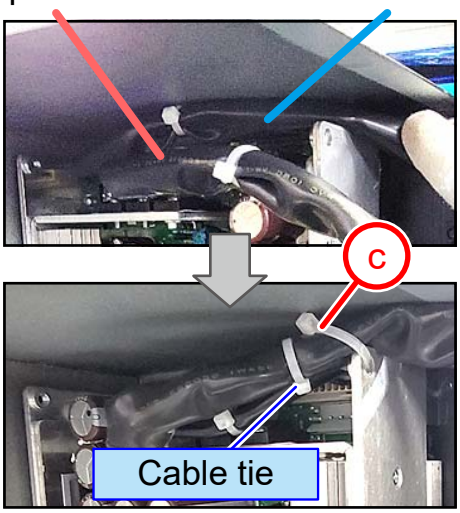


| | | |
|---|---|---|
| **F** | POWER CABLE ASSY | |
| **G** | Head power cable | |

- Place the POWER CABLE ASSY and Head power cable between the case and POWER UNIT in that order.
- Place the head power cable between the case and POWER UNIT and fix it with the cable tie (c). Make sure that the cable tie attached to the head power cable is on the POWER UNIT side.

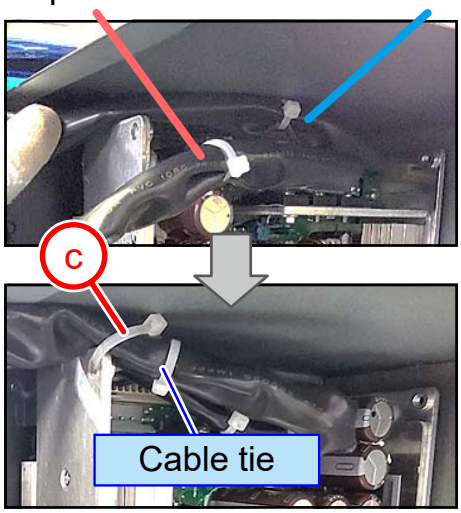
## ■ LH type

Head power cable POWER CABLE ASSY




## ■ RH type

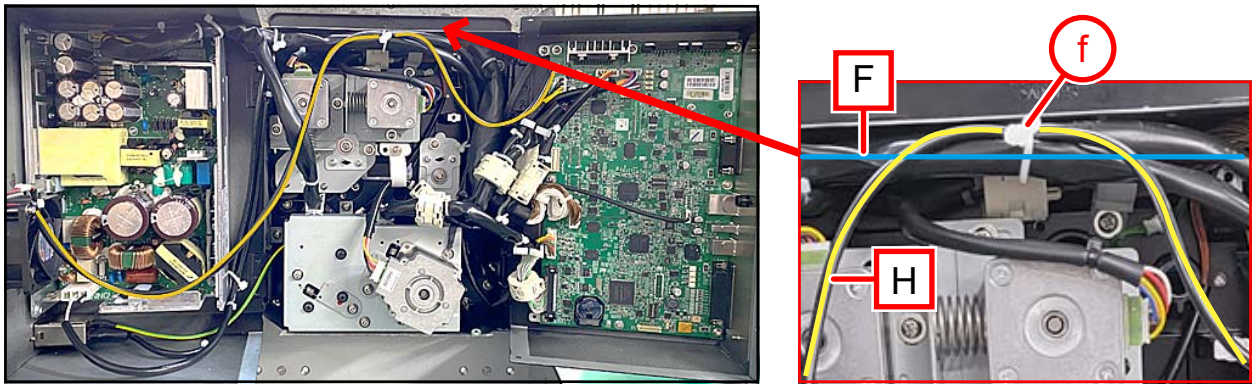
Head power cable POWER CABLE ASSY



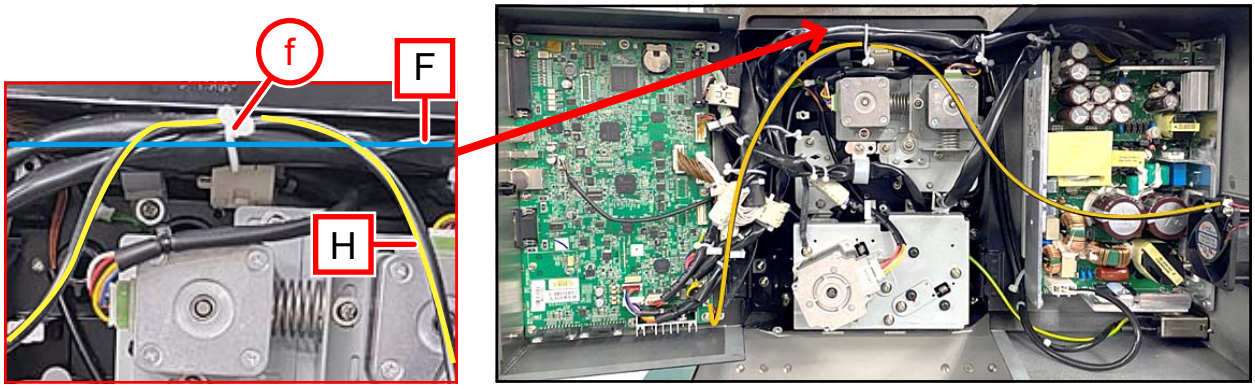
| | | |
|---|---|---|
| **F** | POWER CABLE ASSY | |
| **H** | FAN cable | |

- Make sure that the POWER CABLE ASSY (F) and FAN cable (H) are fixed with the Omega lock (f).

## LH type

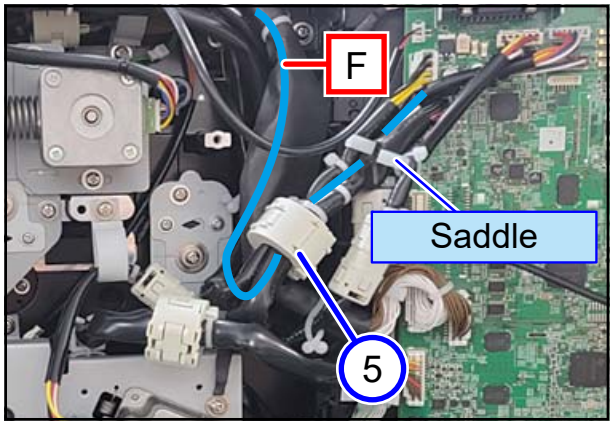



## RH type

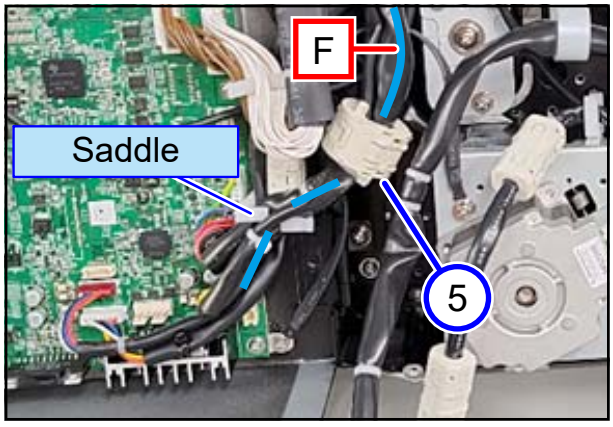



- Make sure that the POWER CABLE ASSY is fixed with the ferrite core (⑤).
- Make sure that thePOWER CABLE ASSY run through the saddle.

## LH type



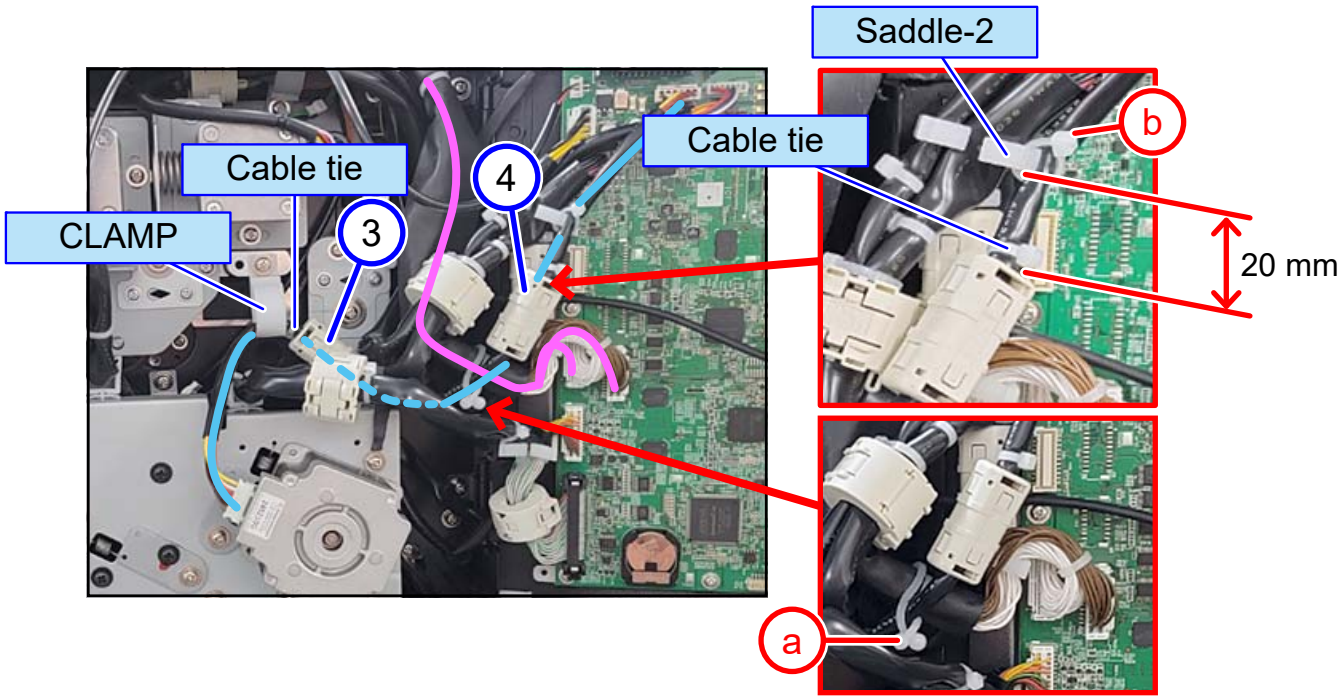

## RH type



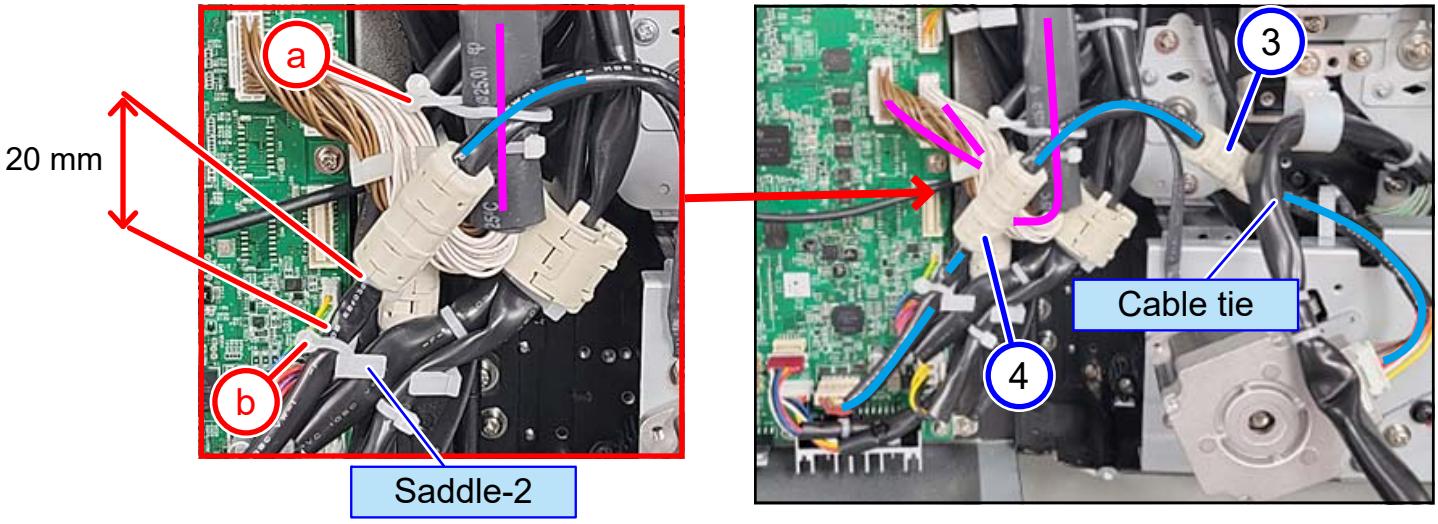
| | | |
|---|---|---|
| C | KB cable | |
| I | Stepping motor cable | |

- Make sure that the stepping motor cable runs through the clamp.
- Make sure that the two ferrite cores (③ and ④) are attached with reference to the cable tie position, respectively.
- Make sure that the stepping motor cable and KB cable are fixed with the Omega lock (a).
- Make sure that the stepping motor cable is fixed to the saddle-2 with the cable tie (b).

## LH type



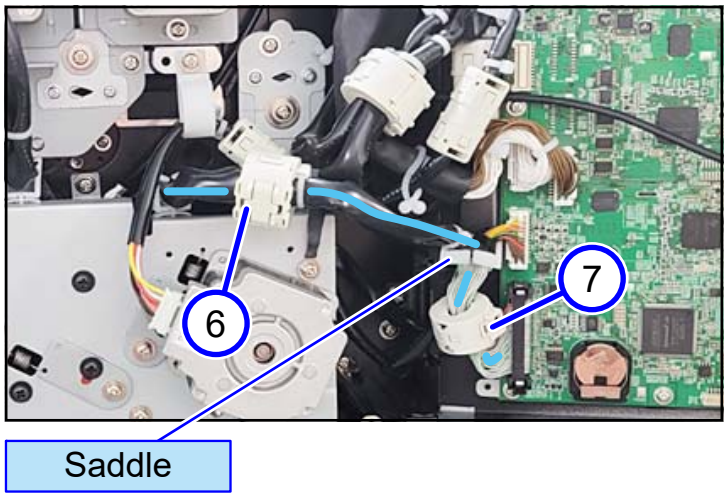

## RH type



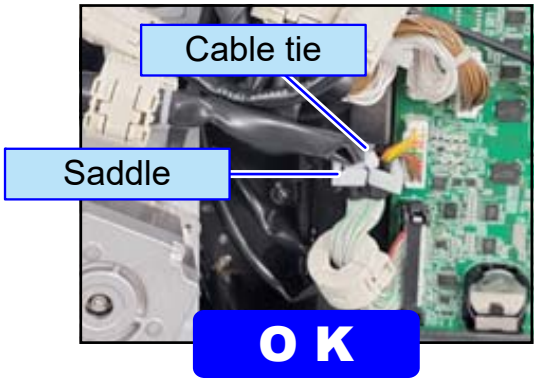
| J | Head cable | |
|---|---|---|

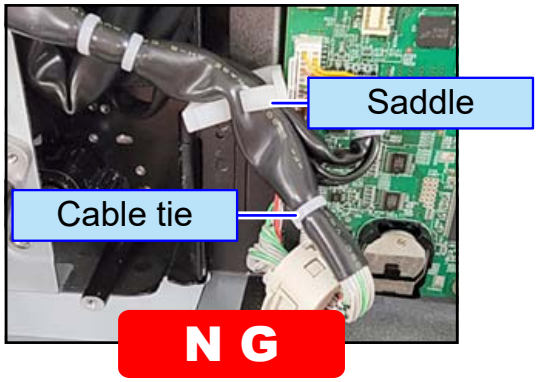
- Make sure that the head cable is fixed with the ferrite core (⑥). ***S86NX only**
- Make sure that the head cable runs through the clamp. ***RH type only**
- Make sure that the head cable runs through the saddle.
- Make sure that the head cable is fixed with the ferrite core (⑦).

## ■ LH type

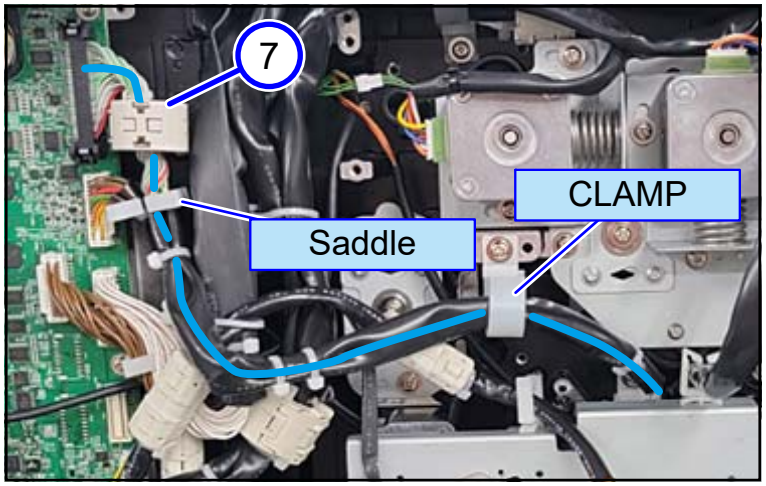



- Make sure that the saddle is located near the cable tie of the head cable.



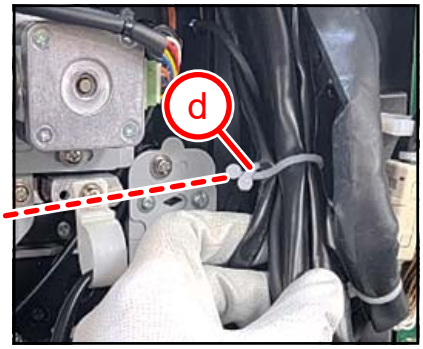

## ■ RH type



**Notes on assembling** Omega lock (**d**)

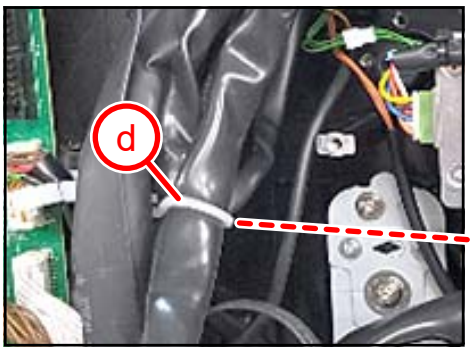
- Make sure that the following four cables are fixed with the Omega lock (d).
  RW ribbon motor cable, UW ribbon motor cable, Sensor cable set, POWER CABLE ASSY

## LH type




Omega lock mounting position
Install using the position of the hole in the plate as a guide.

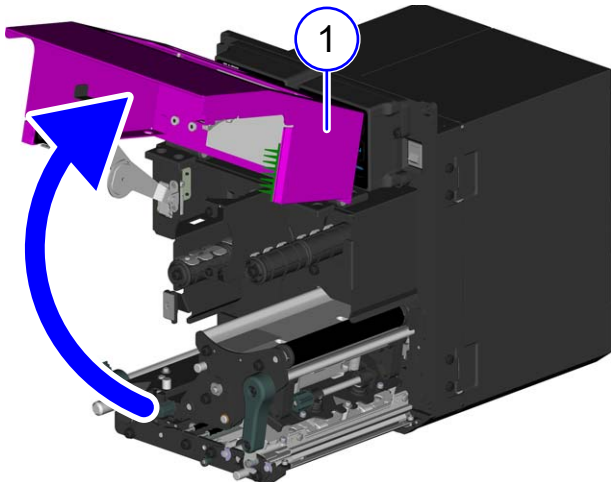
## RH type




Omega lock mounting position
Install using the position of the hole in the plate as a guide.

## 4.2.2 Removing the Front Housing Cover

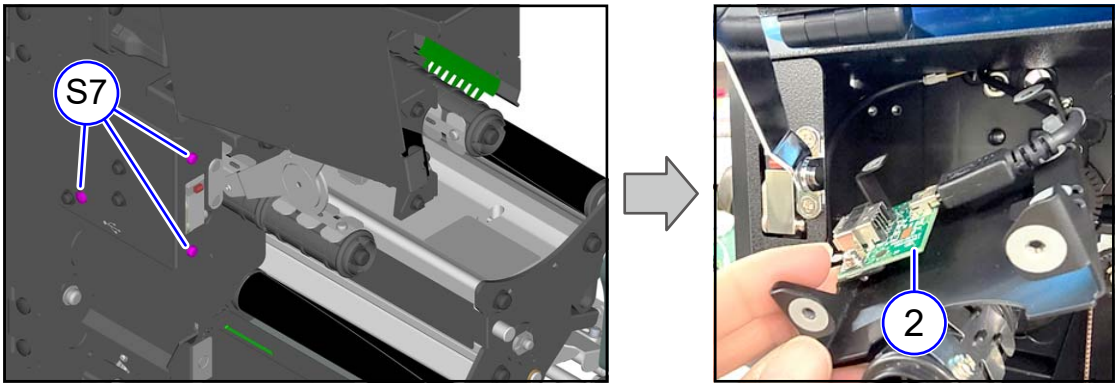
**1** Open the **top cover** (①) of the product.




**NOTE**

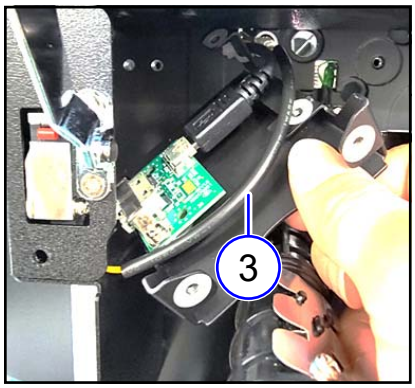
- Open the top cover fully to prevent accidental drop of the cover.

**2** Remove three **screws** (S7) and remove the **USB unit** (②).

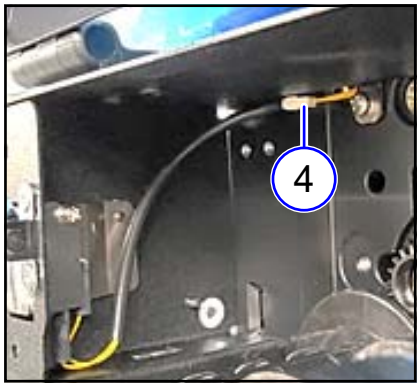



**Notes on assembling**

- Attach the USB unit so that the **SENSOR SW BR cable** (③) is not pinched.

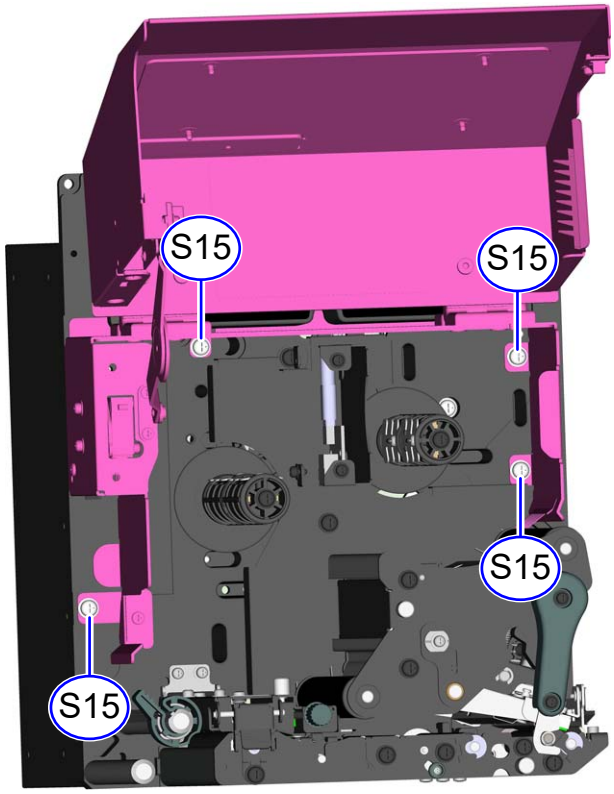



**3** Disconnect the SENSOR SW BR cable **connector** (④).



**4** Remove four **screws** (S15) attached to the **front housing cover** (⑤).

Hold and support the front housing cover while removing the screws.




## ▶ From here, assembling procedure

**5** Assemble the parts in the reverse order of the disassembly procedure.

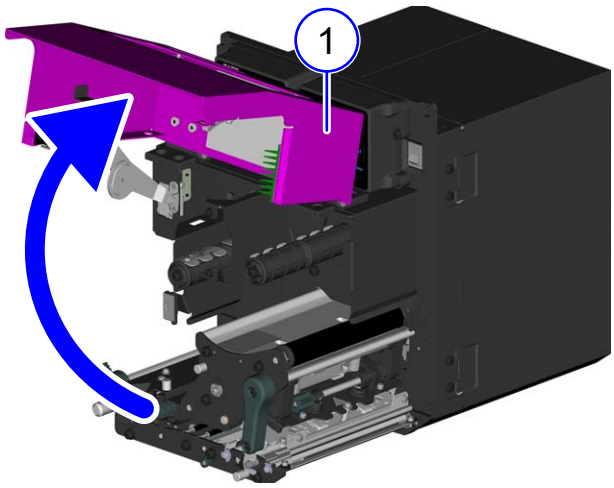
# 4. 3 Printing Section

## 4.3.1 Replacing the Print Head

**⚠WARNING**

- Do not touch the power switch, connect or disconnect the power cord while your hands are wet. Doing so could cause an electric shock.
- Disconnect the power cord from the AC outlet before you replace the print head.
- Wear gloves before replacing the print head, to prevent damage to the print head.

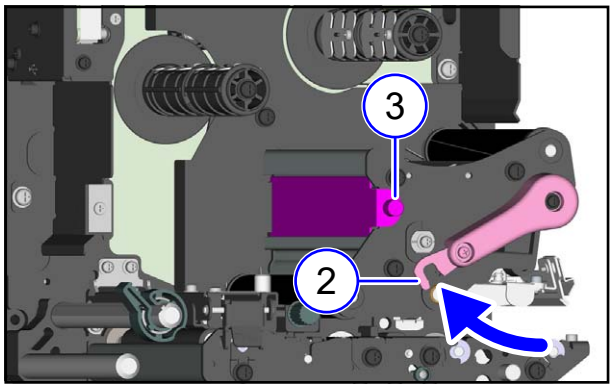
**1** Open the **top cover** (①) of the product.




**NOTE**

- Open the top cover fully to prevent accidental drop of the cover.

**2** Turn the **head lock lever** (2) clockwise to unlock the print head.



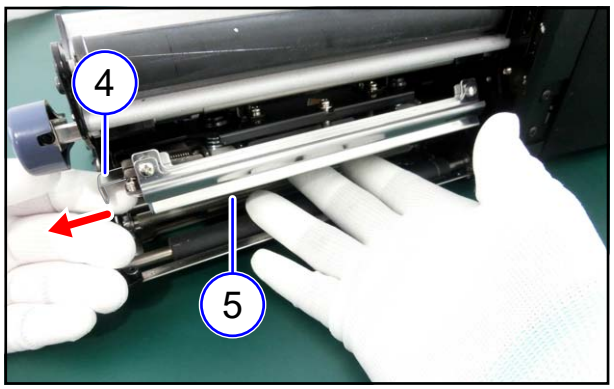

**NOTE**

- The print head and its surroundings are hot after printing. Be careful not to touch it, to avoid being burned.
- Touching the edge of the print head with your bare hand could cause injury.

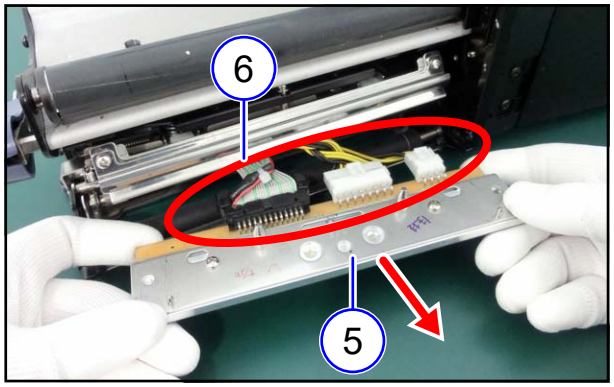
**3** Loosen the HEAD CABLE COVER thumb **screw** (③) and remove the HEAD CABLE COVER.

**4** Pull the **tab** (④) to remove the **print head** (⑤).

Support the print head with your hand when the **print head** is released.




**5** Pull out the **print head** (⑤) and disconnect all **connectors** (⑥).




## ▶ From here, assembling procedure

**Notes on assembling**

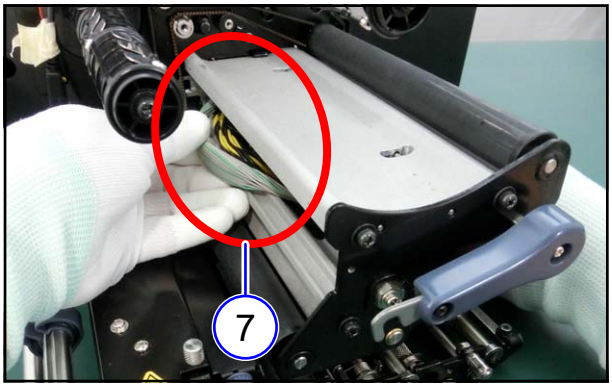
- PHandle the print head with care. Do not contaminate or scratch the sensitive print head surface.

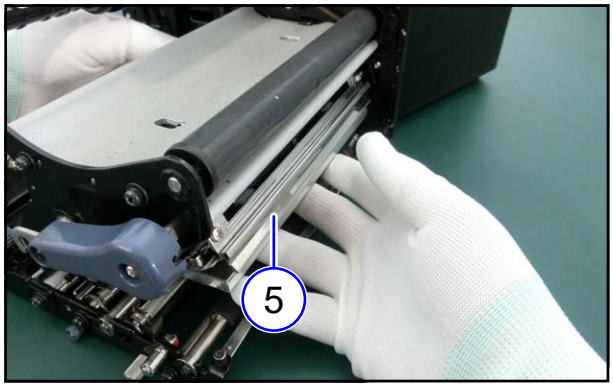
**6** Connect all the connectors (⑥) to the new print head.

**7** While pulling the **cables** (⑦) from the print head backwards, install the **print head** (⑤).

**Notes on assembling**

- Align the print head and press the print head upward until it is latched.



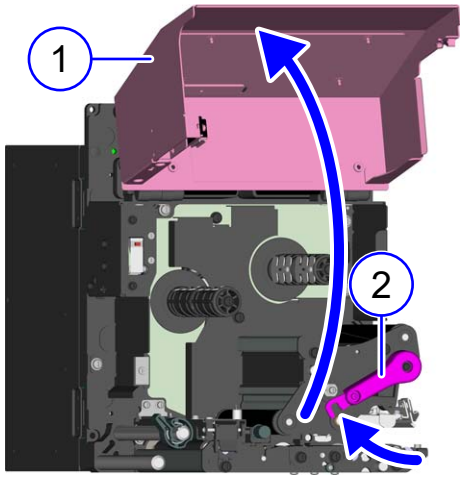




**8** Reverse the procedure from step 3.

# 4. 4 Paper Transfer Section

## 4.4.1 Replacing the Platen Roller

**1** Open the **top cover** (①) of the product.




**NOTE**

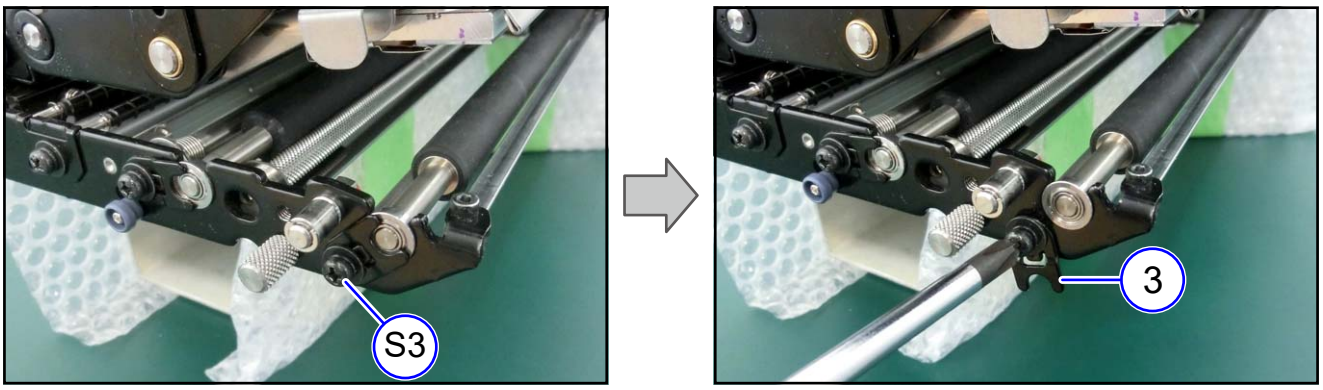
- Open the top cover fully to prevent accidental drop of the cover.

**2** Turn the **head lock lever** (②) clockwise to unlock the print head.

**NOTE**

- The print head and its surroundings are hot after printing. Be careful not to touch it, to avoid being burned.
- Touching the edge of the print head with your bare hand could cause injury.

**3** Loosen the **screw** (S3) until the **bearing clamp** (③) is released. Do not remove the screw.

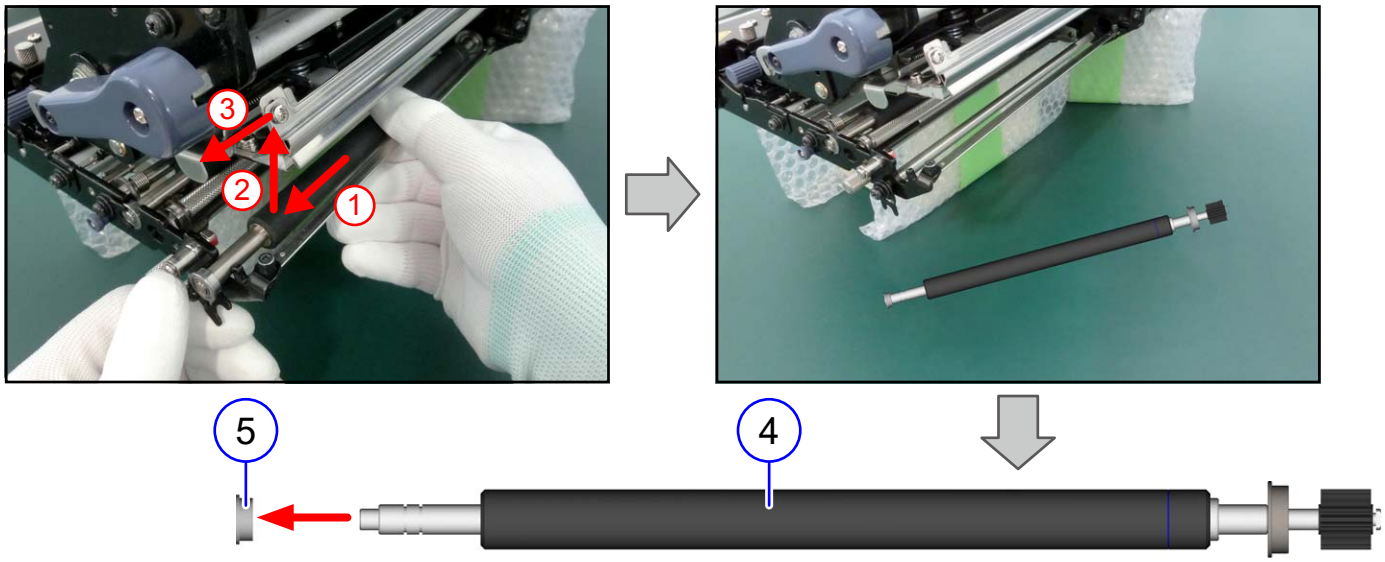



**Notes on assembling**

- While aligning the bearing clamp with the platen roller, tighten the screw.

**4** Remove the **platen roller** (④).

**5** Remove the **ball bearing** (⑤).




## ▶ From here, assembling procedure

**6** Assemble the parts in the reverse order of the disassembly procedure.

## 4.4.2 Replacing the Pressure roller Plate

**1** Open the **top cover** (①) of the product.

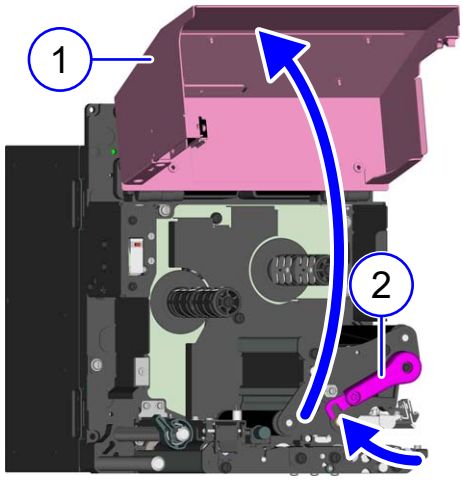
**NOTE**

- Open the top cover fully to prevent accidental drop of the cover.

**2** Turn the **head lock lever** (②) clockwise to unlock the print head.

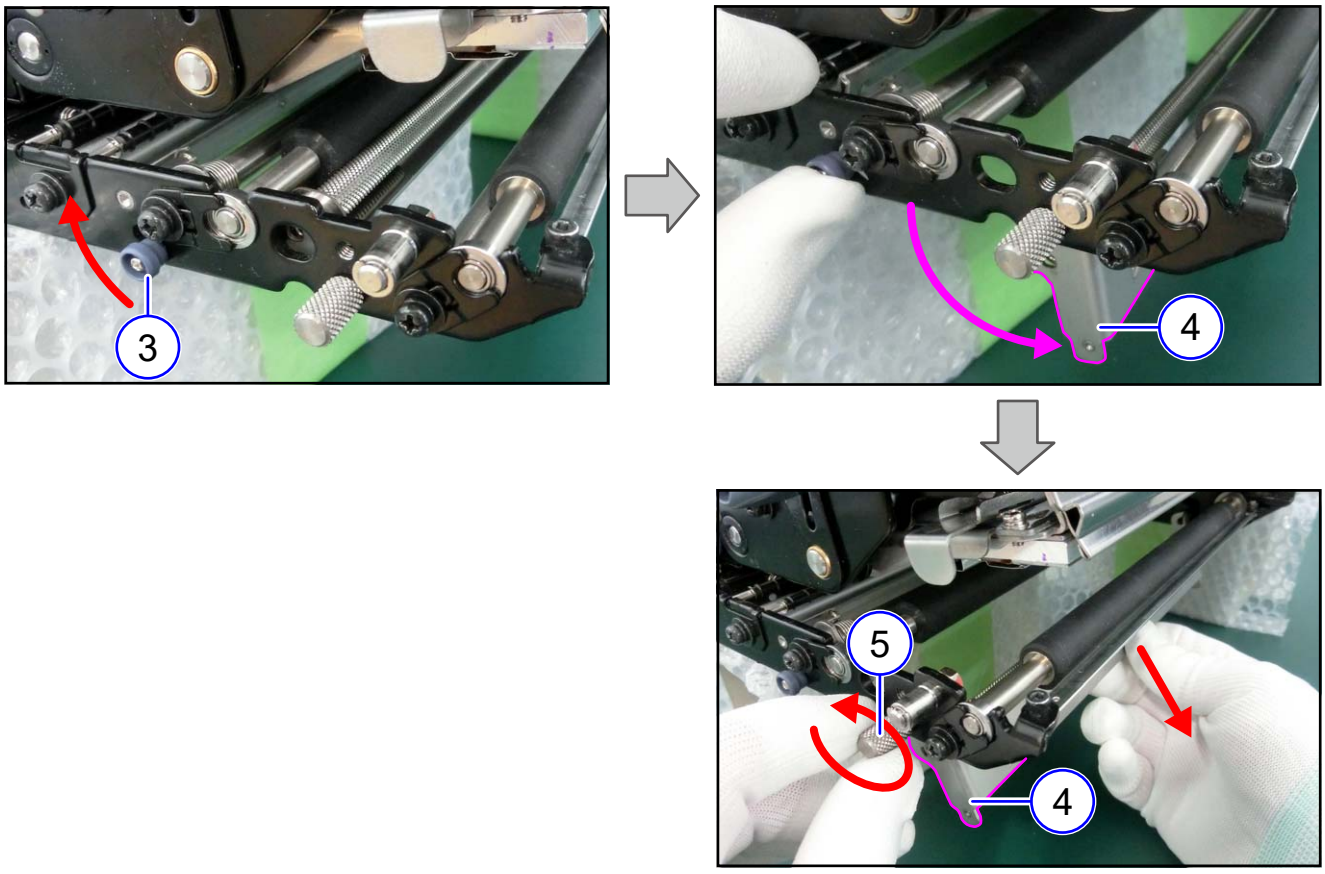
**NOTE**

- The print head and its surroundings are hot after printing. Be careful not to touch it, to avoid being burned.
- Touching the edge of the print head with your bare hand could cause injury.




**3** Push the **pressure roller release tab** (③) up to release the **pressure roller plate** (④).

**4** Turn the **pressure roller knob** (⑤) counterclockwise to remove the **pressure roller plate** (④).

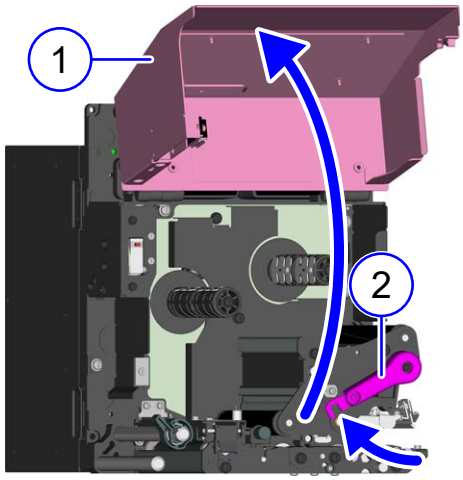



### ▶ From here, assembling procedure

**5** Assemble the parts in the reverse order of the disassembly procedure.

## 4.4.3 Replacing the Pressure Roller

**1** Open the **top cover** (①) of the product.




**NOTE**

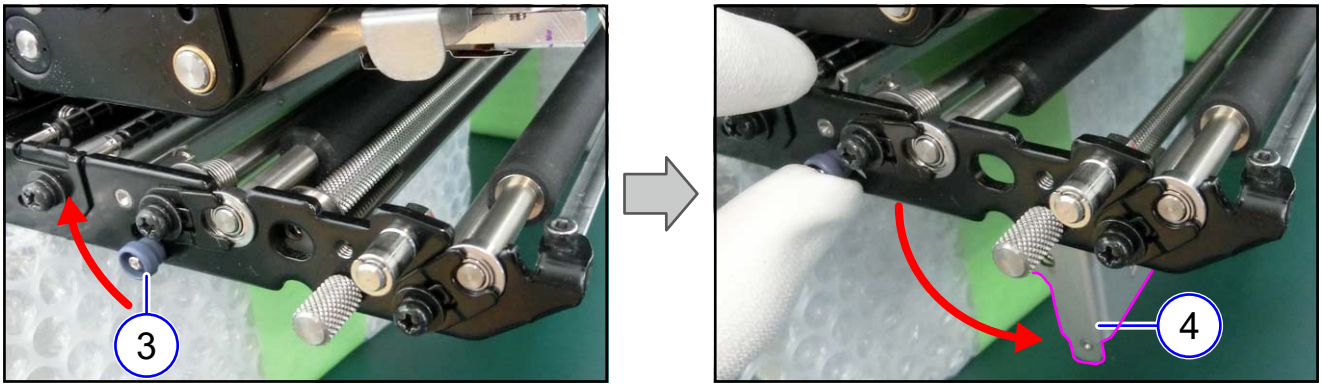
- Open the top cover fully to prevent accidental drop of the cover.

**2** Turn the **head lock lever** (②) clockwise to unlock the print head.

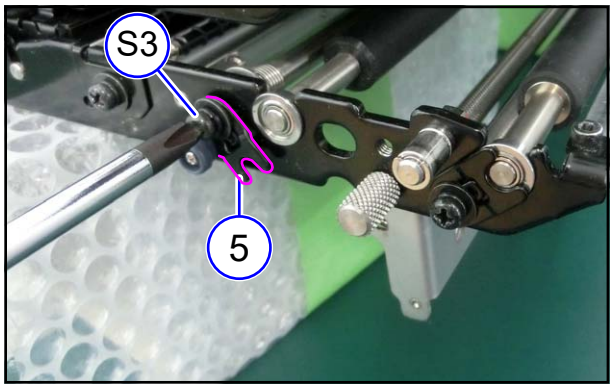
**NOTE**

- The print head and its surroundings are hot after printing. Be careful not to touch it, to avoid being burned.
- Touching the edge of the print head with your bare hand could cause injury.

**3** Push the **pressure roller release tab** (③) up to release the **pressure roller plate** (④).

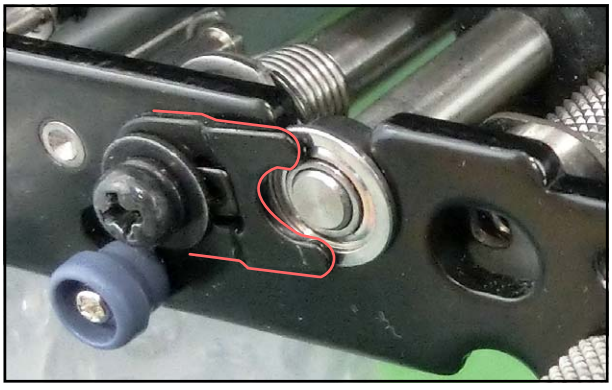



**4** Loosen the **screw** (**S3**) until the **bearing clamp** (⑤) is released.
Do not remove the screw.

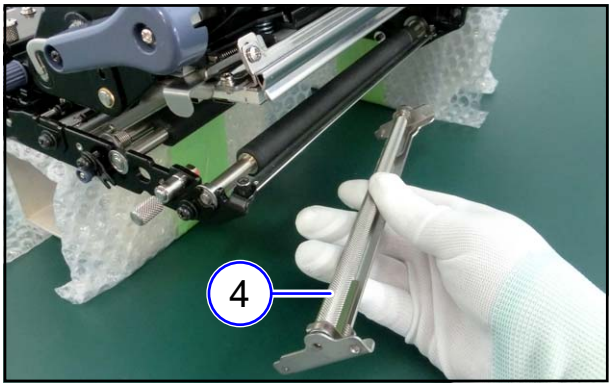



**Notes on assembling**

- While aligning the bearing clamp with the pressure roller, tighten the screw.

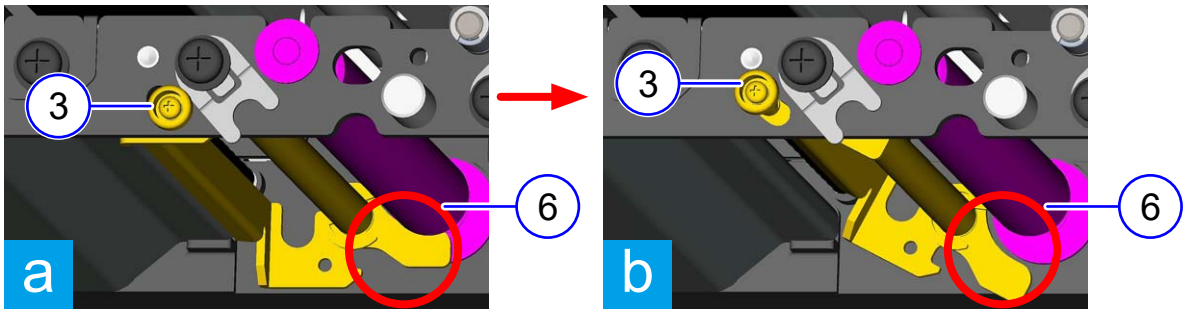


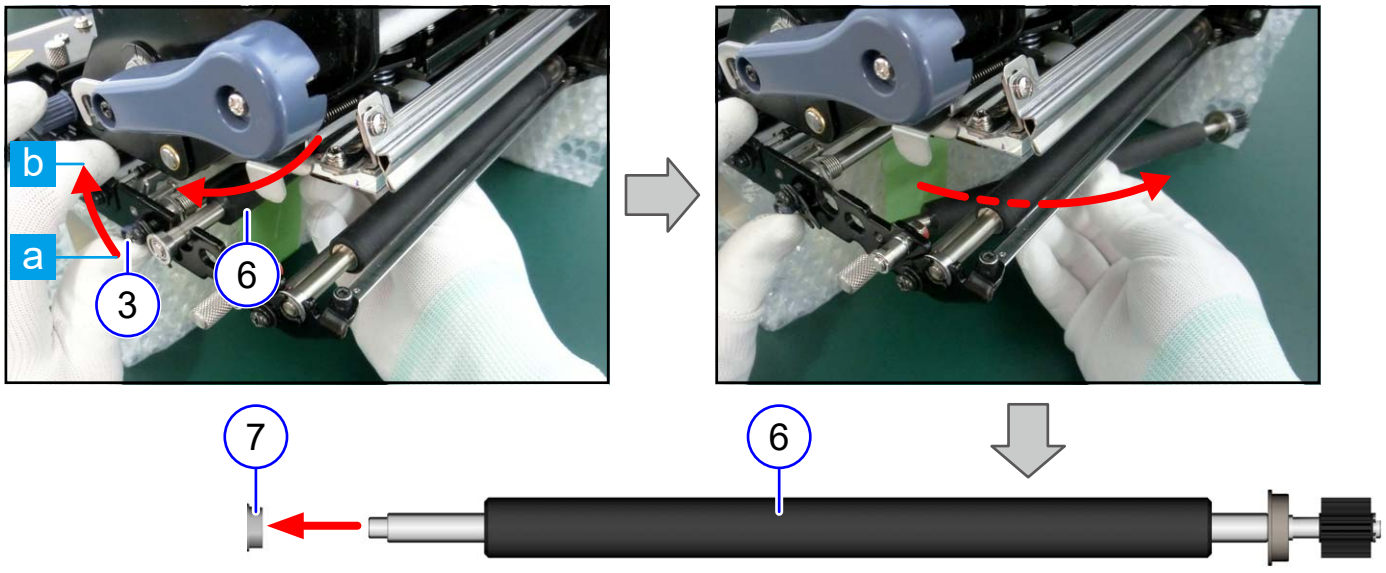
**TIPS**
The work will be easier if the **pressure roller plate** (④) is also removed.




**5** While pushing the **pressure roller release tab** (③) upward, remove the **pressure roller** (⑥).

**6** Remove the **ball bearing** (⑦).




## ▶ From here, assembling procedure

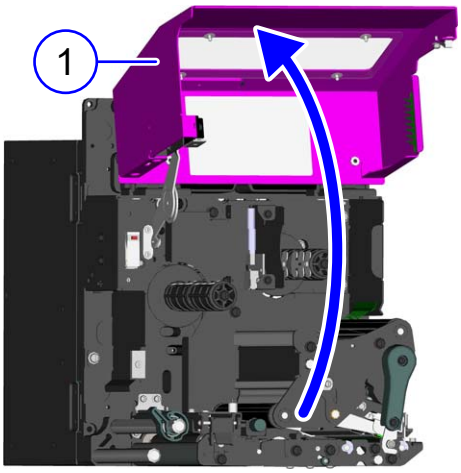
**7** Assemble the parts in the reverse order of the disassembly procedure.

## 4.4.4 Replacing the Media Feed Roller

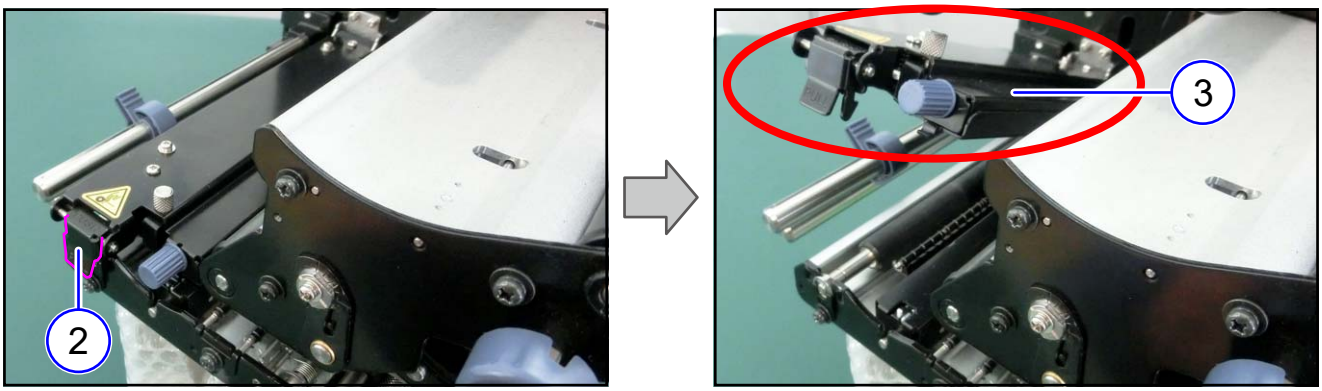
**1** Open the **top cover** (①) of the product.

**NOTE**

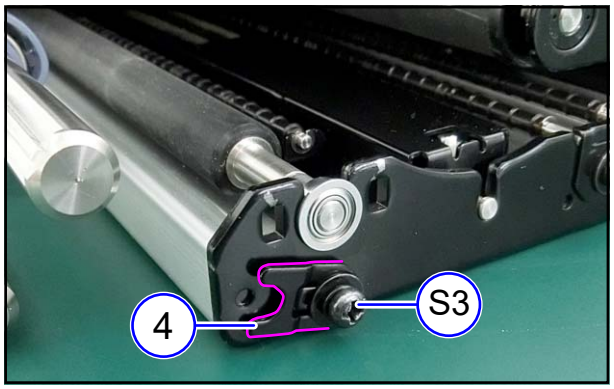
- Open the top cover fully to prevent accidental drop of the cover.




**2** Pull the **feed lock latch** (②) to unlock the **feed roller and media sensor assembly** (③).
The feed roller and media sensor assembly will flip open.




**3** Loosen the screw (S3) until the **bearing clamp** (④) is released.
Do not remove the screw.

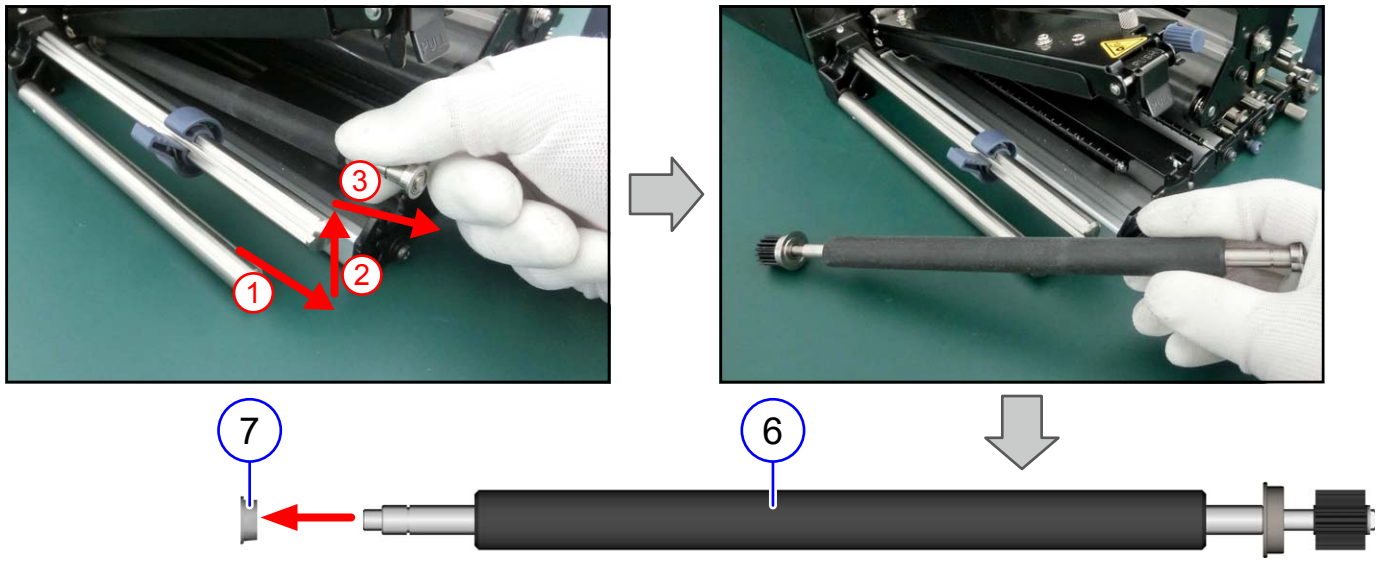



**Notes on assembling**

- While aligning the bearing clamp with the media feed roller, tighten the screw.

**4** Remove the **Media feed roller** (⑤).

**5** Remove the **ball bearing** (⑥).



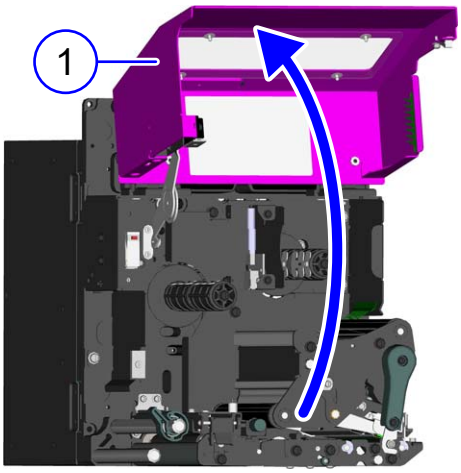

## ▶ From here, assembling procedure

**6** Assemble the parts in the reverse order of the disassembly procedure.

## 4.4.5 Replacing the Torque Limiter for Ribbon Spindle

**1** Open the **top cover** (①) of the product.

**NOTE**
- Open the top cover fully to prevent accidental drop of the cover.

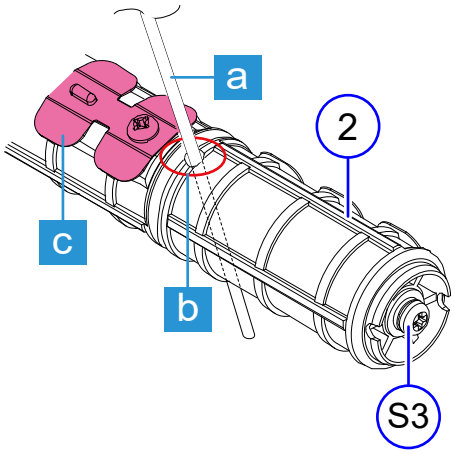



**2** Insert a thin shaft (a) into a hole (b) through the **ribbon rewind spindle** (②) to the opposite side as shown on the picture.

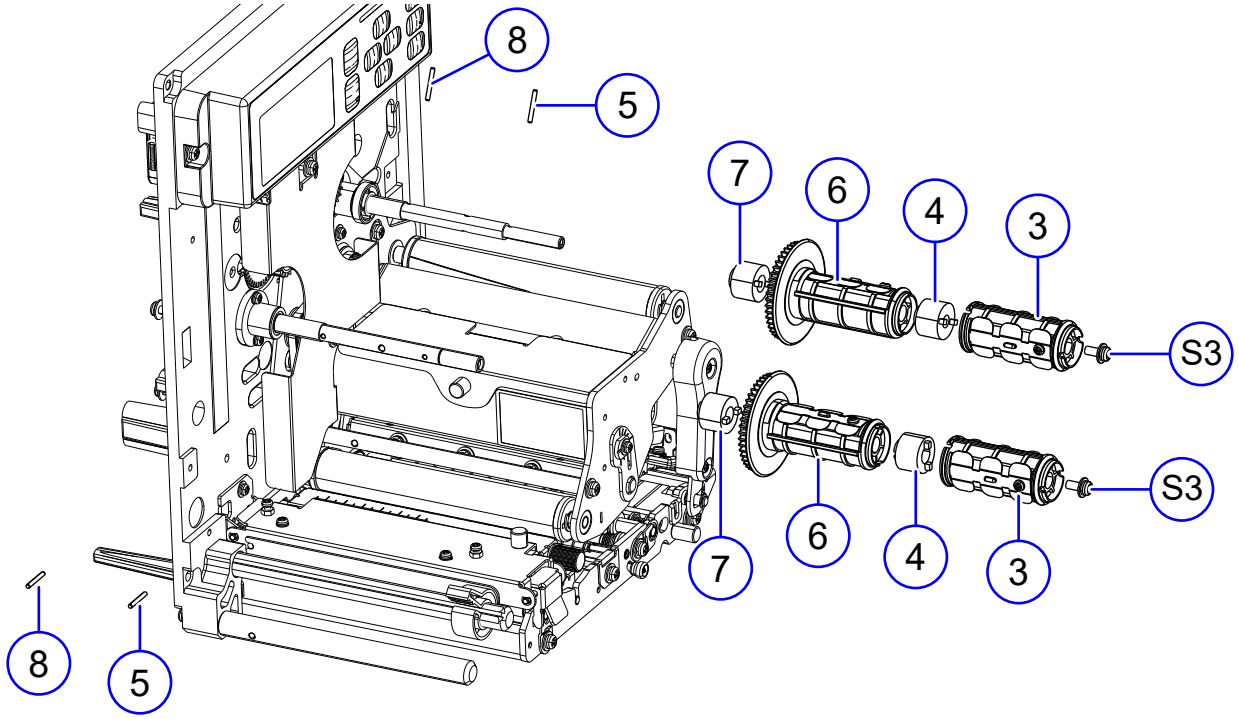
Insert a screwdriver into **screw** (S3) to rotate the spindle to align it with the hole (b) so that the thin shaft (a) may pass through it.

**3** On the other side of the product (rear side), remove the **screw** (S3) attached to the other end of **ribbon supply spindle** (②).
Hold the thin shaft (a) while removing the **screw** (S3).

**NOTE**
- In this case, be careful not to cut your hand on the corners of the BOSS SPRING (c).



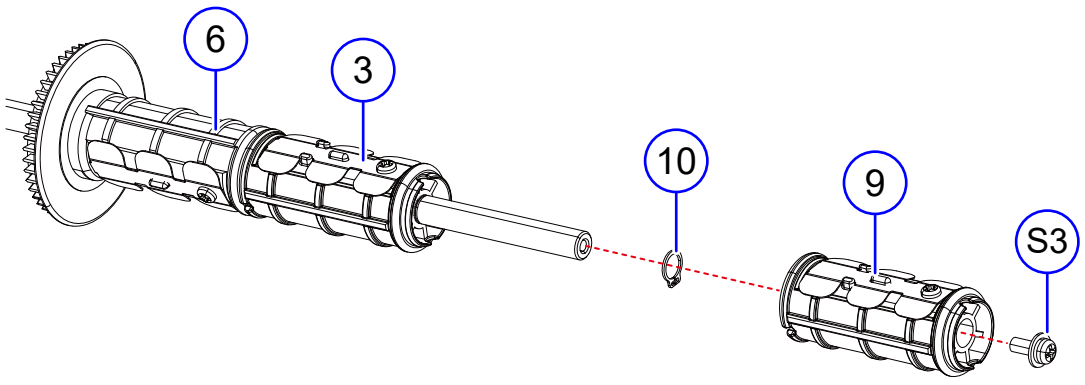
**4** Remove the **front boss** (③), **torque limiter** (④), **pin** (⑤), **rear boss** (⑥) and **torque limiter** (⑦) from the spindle. Leave the **pin** (⑧) in place.




**NOTE**

- The two torque limiters, ④ and ⑦ have minor differences. Keep them separately.

- For S86NX, the ribbon spindles have an extended **outer boss** ⑨ as shown.
  Before removing the **front boss** ③, remove the **outer boss** ⑨ and a **C-snap ring** ⑩.




## ▶ From here, assembling procedure

**5** Assemble the parts in the reverse order of the disassembly procedure.

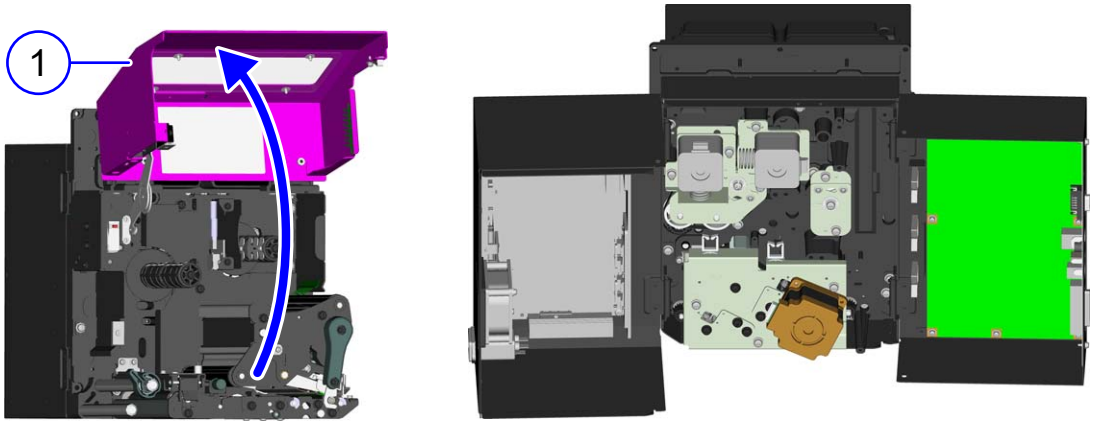
## 4.4.6 Replacing the BF Spring for Ribbon Supply Spindle

**1** Open the **top cover** (①) of the product.

**NOTE**
- Open the top cover fully to prevent accidental drop of the cover.

**2** Open the rear housing covers of the product.

**Refer to** 4.2.1 Opening the Rear Housing Cover

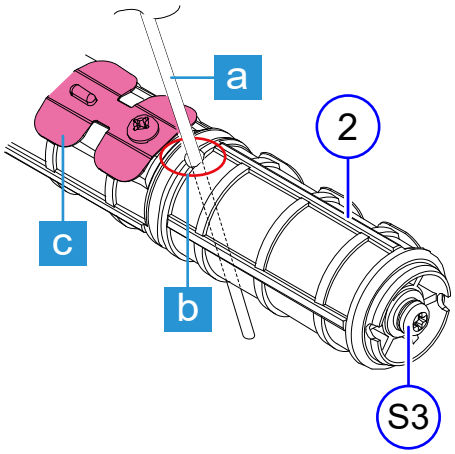



**3** Insert a thin shaft (a) into a hole (b) through the **ribbon rewind spindle** (②) to the opposite side as shown on the picture.

Insert a screwdriver into **screw** (S3) to rotate the spindle to align it with the hole (b) so that the thin shaft (a) may pass through it.

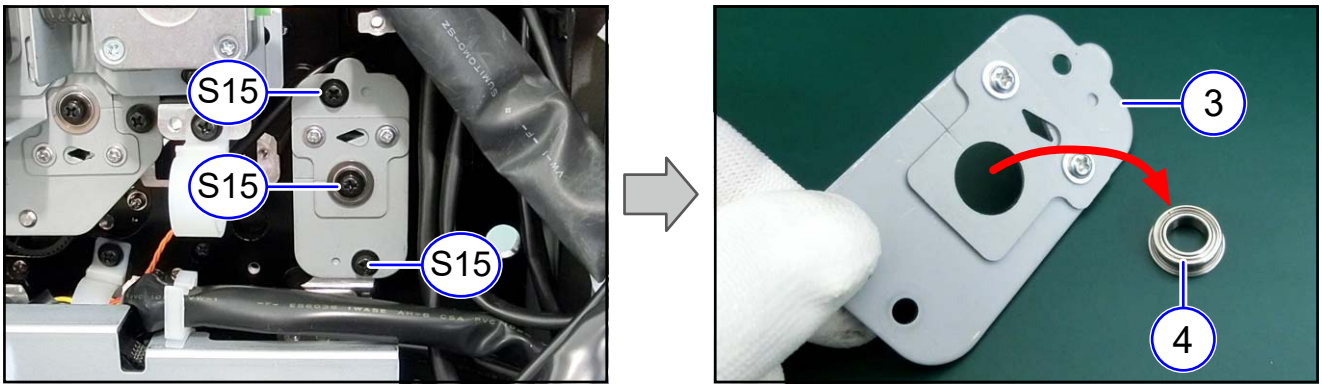
**4** On the other side of the product (rear side), remove the **screw** (S3) attached to the other end of **ribbon supply spindle** (②).
Hold the thin shaft (a) while removing the **screw** (S3).

**NOTE**
- In this case, be careful not to cut your hand on the corners of the BOSS SPRING (c).

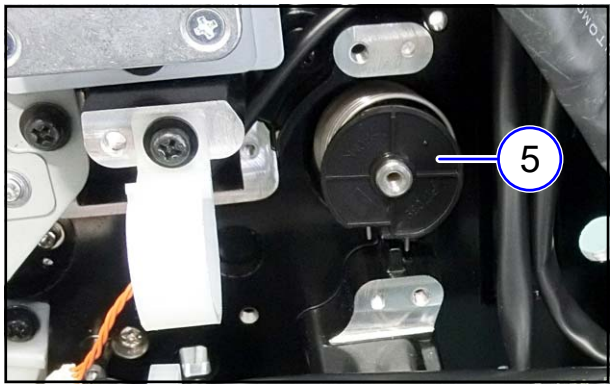


**5** Remove three **screws** (S15) attached to the **ribbon supply plate assy** (③).

**6** Remove the **bearing** (④) and **ribbon supply plate assy** (③).

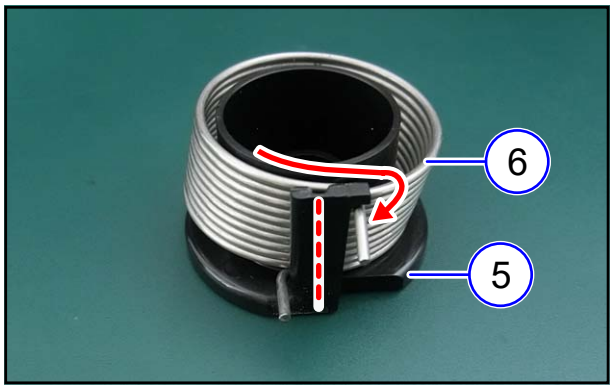



**7** Remove the **BF stopper** (⑤) from the shaft.




**8** Replace the **BF spring** (⑥) of the **BF stopper** (⑤).

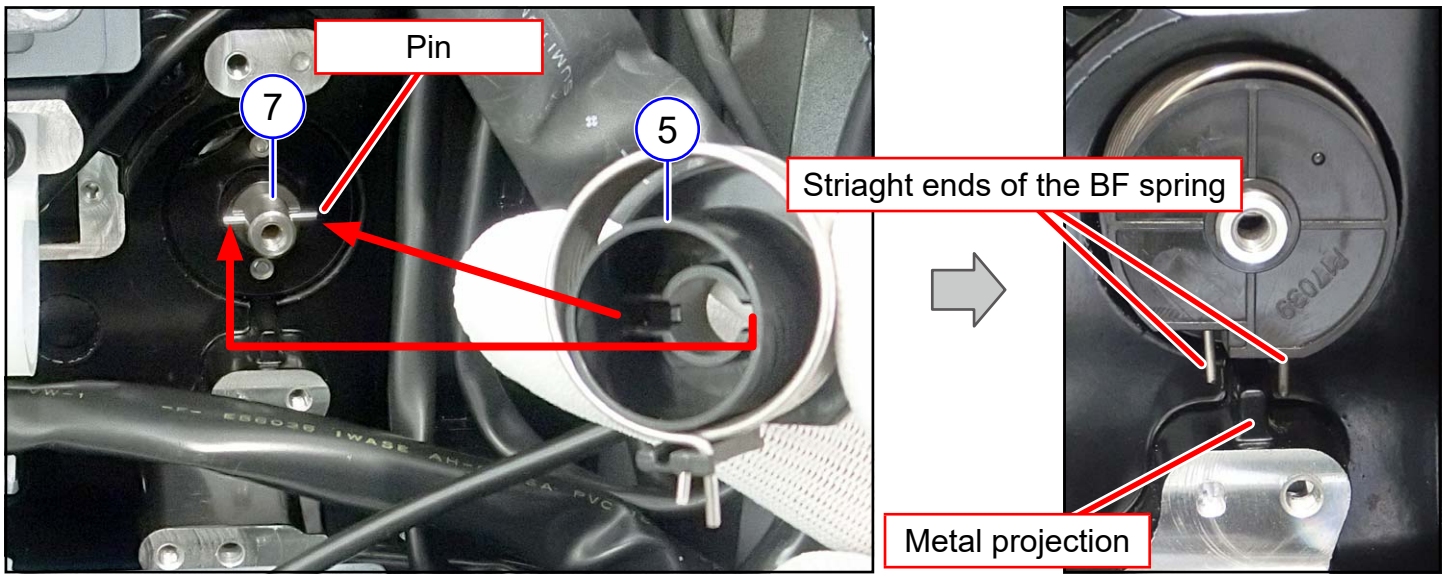
Place the new **BF spring** (⑥) onto the **BF stopper** (⑤). The lower straight end of the **BF spring** (⑥) is on the left side of the projection (RED dotted line) as shown. Then pull the top straight end and hook onto the right side of the projection.



**9** Insert the **BF stopper** (⑤) back to the **ribbon supply shaft** (⑦).

Rotate the **ribbon supply shaft** (⑦) so that the pin stays horizontal. Hold the **BF stopper** (⑤) as the concave inside stay horizontal as well and insert to the **ribbon supply shaft** (⑦).
Make sure that the concave of the **BF stopper** (⑤) engaged on the pin of the **ribbon supply shaft** (⑦).

**10** Orientate the **BF stopper** (⑤) such that the two straight ends of the **BF spring** (⑥) are pointing downward and the metal projection is in between them.

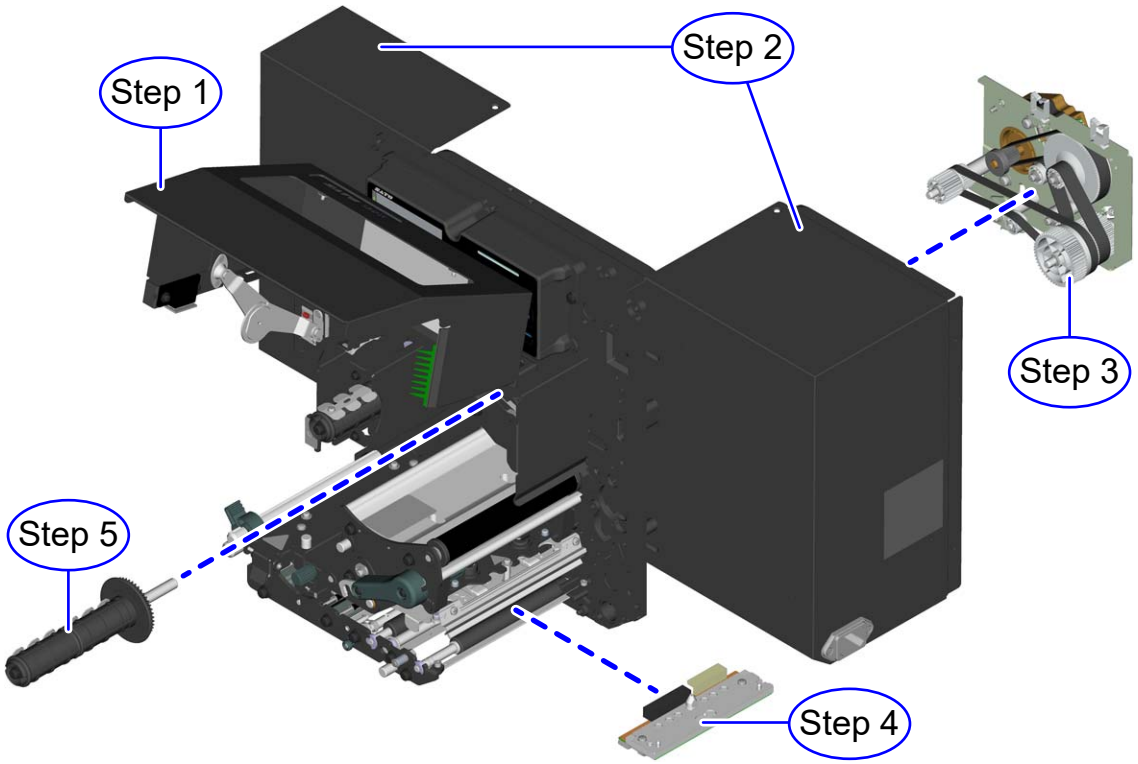



## ▶ From here, assembling procedure

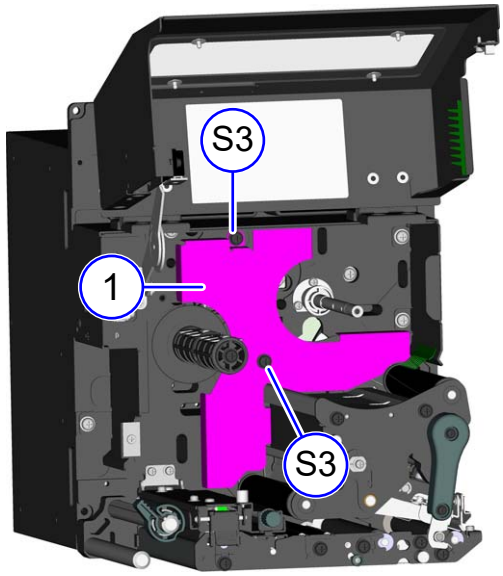
**11** Perform the assembly with the reverse procedure from step 8.

## 4.4.7 Replacing the Ribbon Roller

| Procedure | Reference |
|---|---|
| **1** Open the **front housing cover** of the product. | **Refer to** 4.2.2 |
| **2** Open the **rear housing covers** of the product. | **Refer to** 4.2.1 |
| **3** Remove the **gearbox** from the product. | **Refer to** 4.4.8 |
| **4** Remove the **print head** from the product. | **Refer to** 4.3.1 |
| **5** Remove the **ribbon rewind spindle**. | **Refer to** 4.4.5 |

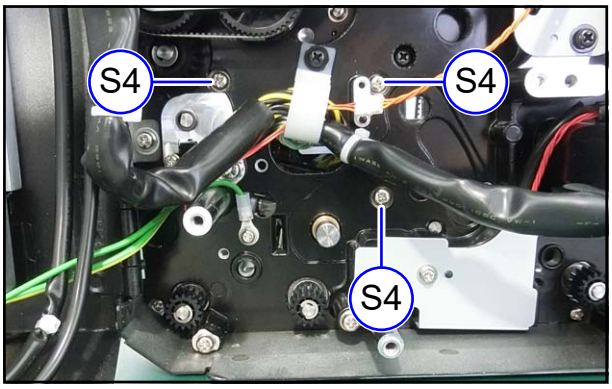


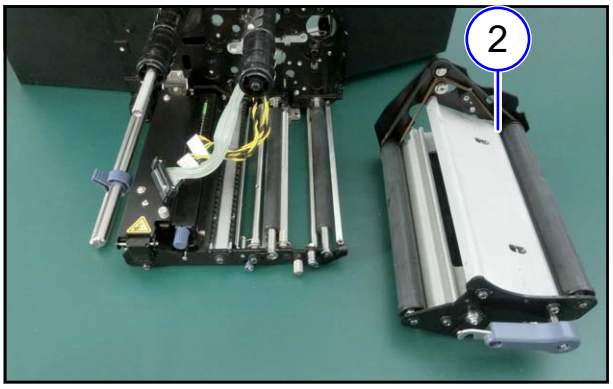

**6** On the front of the product, remove two **screws** (S3) and the **belt cover** (①).



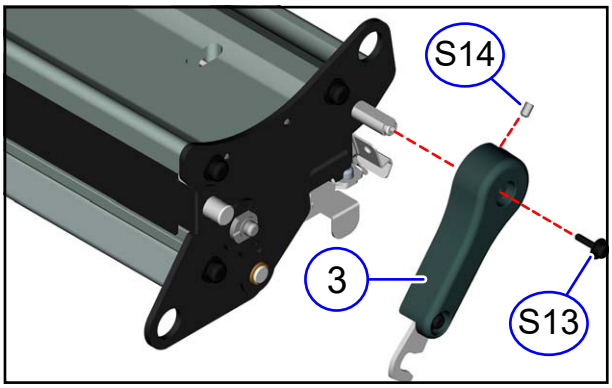
**7** On the rear of the product, remove three **screws** (S4).

**8** Then carefully remove the frame of the **print head assembly** (②).

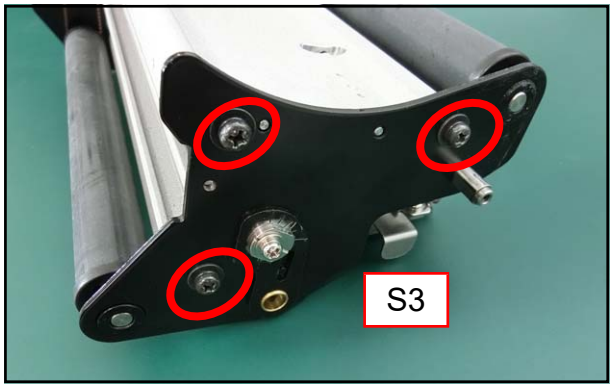


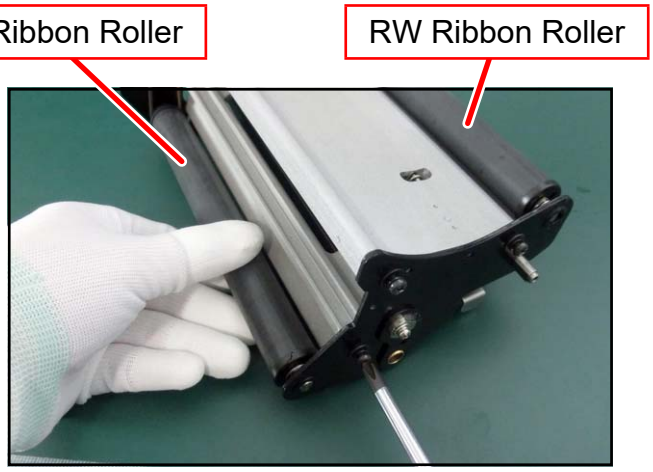




**9** On the **head lock lever** (③), remove the **hex socket set screw** (S14) using an Allen wrench. Then remove the **screw** (S13) and remove the **head lock lever** (③).




**10** Loosen three screws and remove the UW ribbon roller and RW ribbon roller.



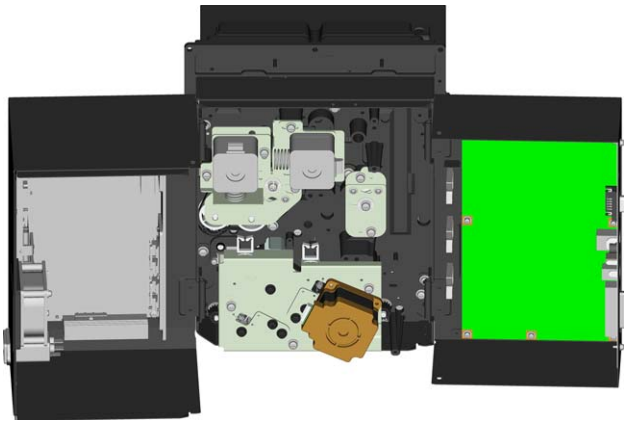

## ▶ From here, assembling procedure

**11** Assemble the parts in the reverse order of the disassembly procedure.

## 4.4.8 Replacing the Gearbox

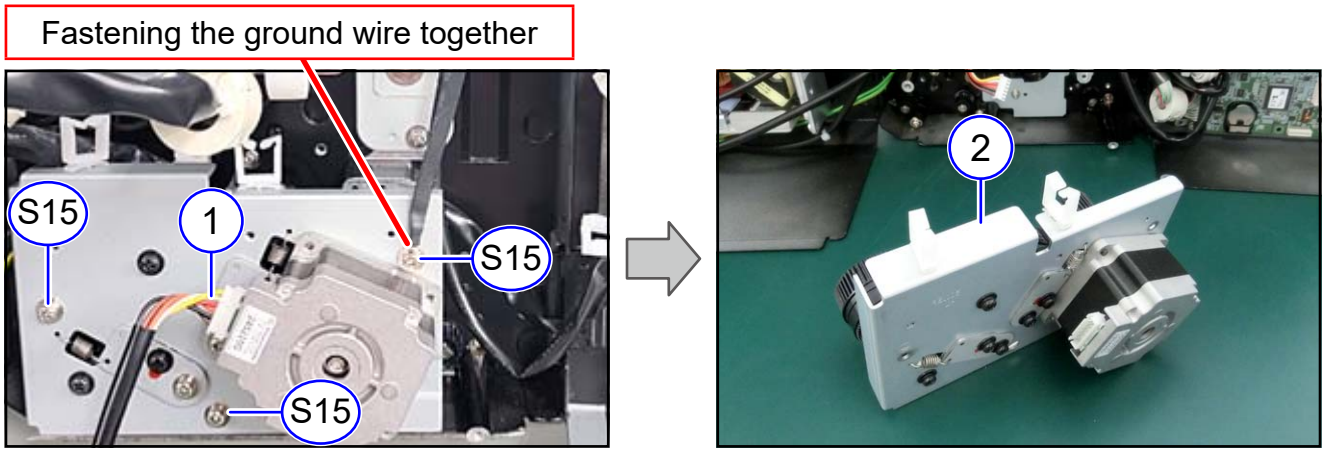
**1** Open the rear housing covers of the product.

**Refer to** 4.2.1 Opening the Rear Housing Cover



**2** Disconnect the **motor cable** (①).

**3** Remove three **screws** (S15) and remove the **gearbox** (②).




### ▶ From here, assembling procedure

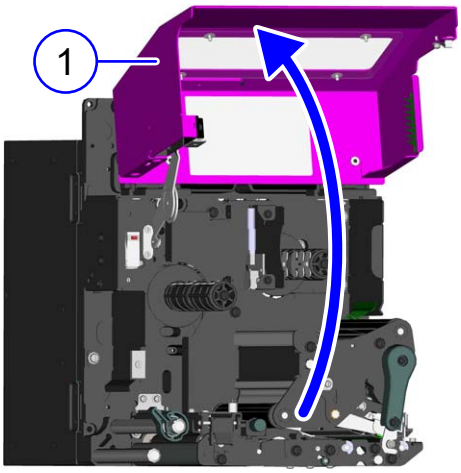
**4** Assemble the parts in the reverse order of the disassembly procedure.

# 4. 5 Sensors

## 4.5.1 Replacing the Media Sensor

**There are three types of media sensors as follows:**

- TOP MEDIA SENSOR PCB
- BOTTOM MEDIA SENSOR PCB
- MEDIA SENSOR ASSEMBLY OPEN SENSOR

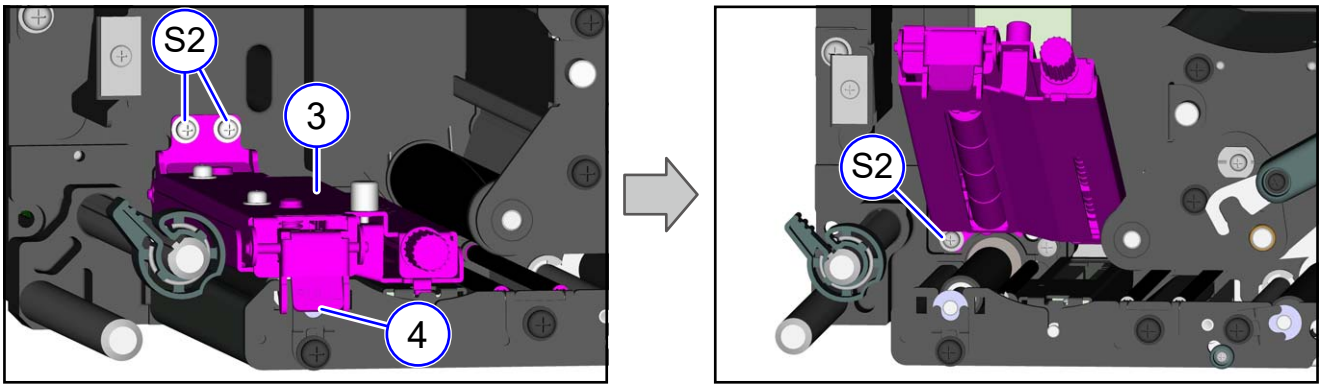



**1** Open the **top cover** (①) of the product.

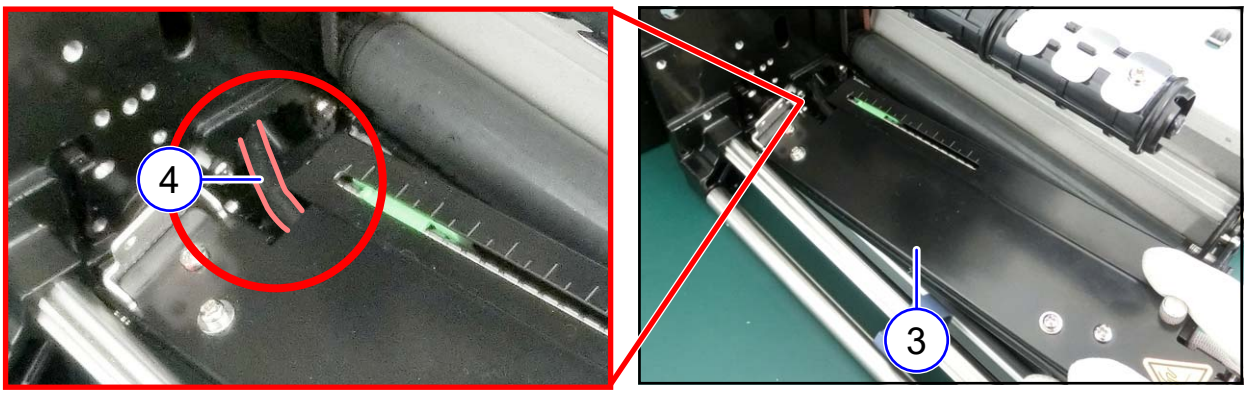
**NOTE**

- Open the top cover fully to prevent accidental drop of the cover.

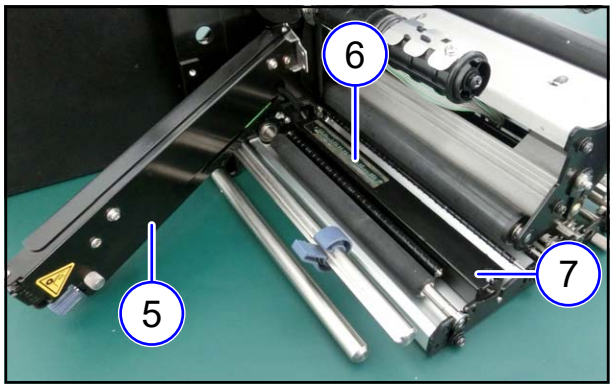
**2** Remove three **screws** (S2) attaching the **media sensor assembly** (③) to the center frame.
To access the lower screw, you need to pull the **feed lock latch** (④) to unlock the media sensor assembly.



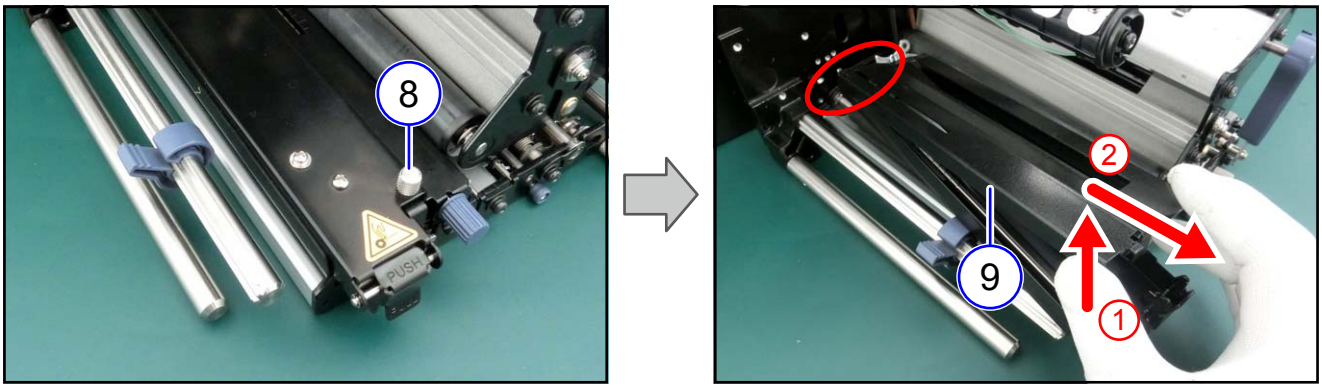

**3** Withdraw the **media sensor assembly** (③).
Be careful not to pull the **attached sensor cable** (④).



**4** Replace each media sensor.
**TOP MEDIA SENSOR PCB** (⑤): Go to Step 6.
**BOTTOM MEDIA SENSOR PCB** (⑥): Go to Step 9.
**MEDIA SENSOR ASSEMBLY OPEN SENSOR** (⑦): Go to Step 9.

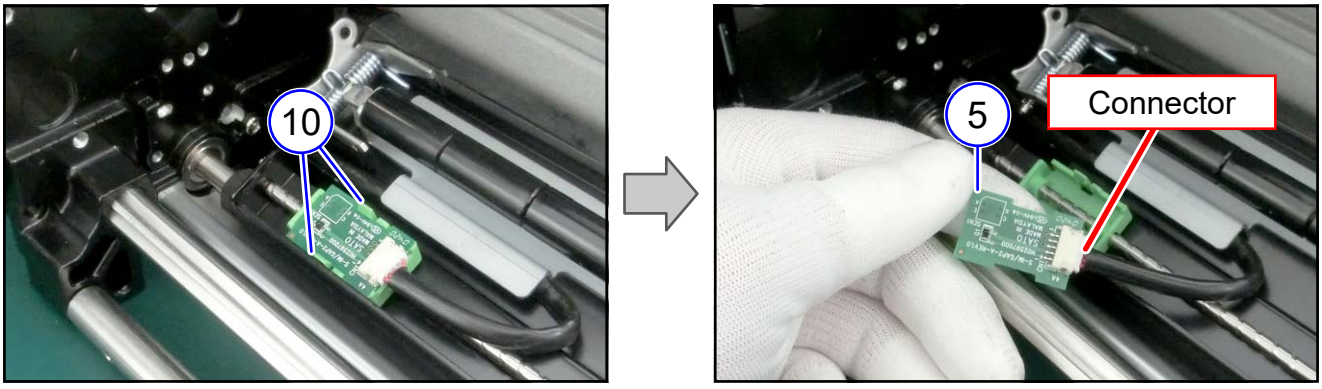



**5** Remove the **thumbscrew** (⑧) attached to the **media sensor cover** (⑨).




**6** Release two **hooks** (⑩) and remove the **TOP MEDIA SENSOR PCB** (⑤).

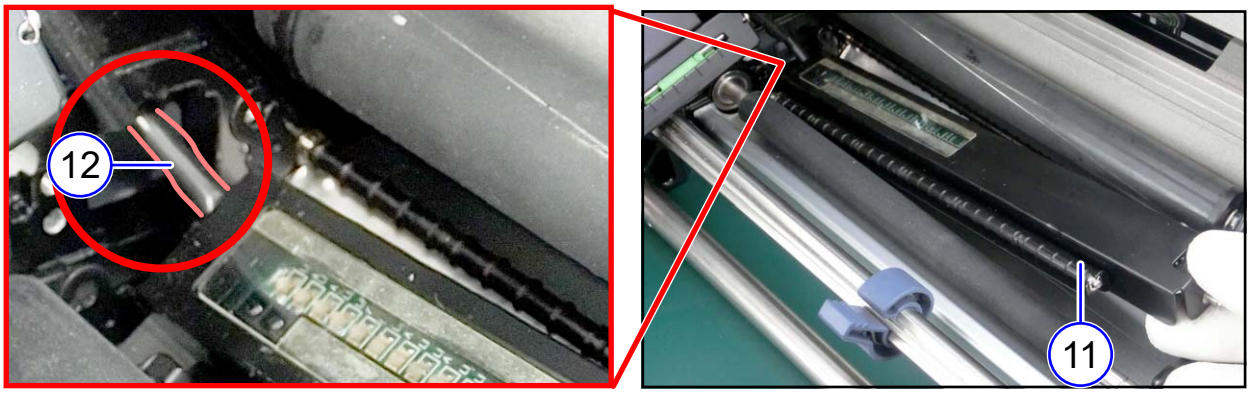
**7** Disconnect one connector.



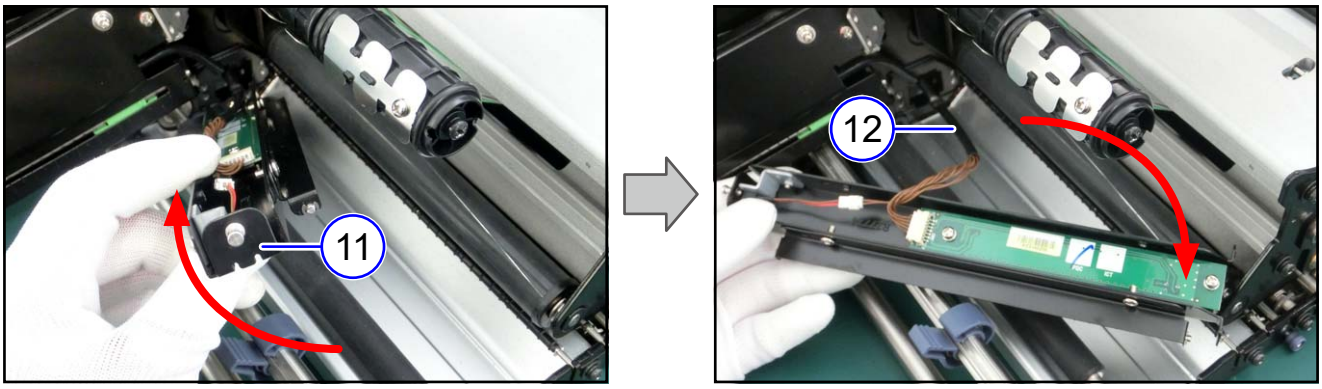

## ▶ From here, assembling procedure

**8** Assemble the parts in the reverse order of the disassembly procedure.

**9** Remove two **screws** (S16) attaching the **sensor bracket** (⑪) to the center frame.
Be careful not to pull the **attached sensor cable** (⑫).



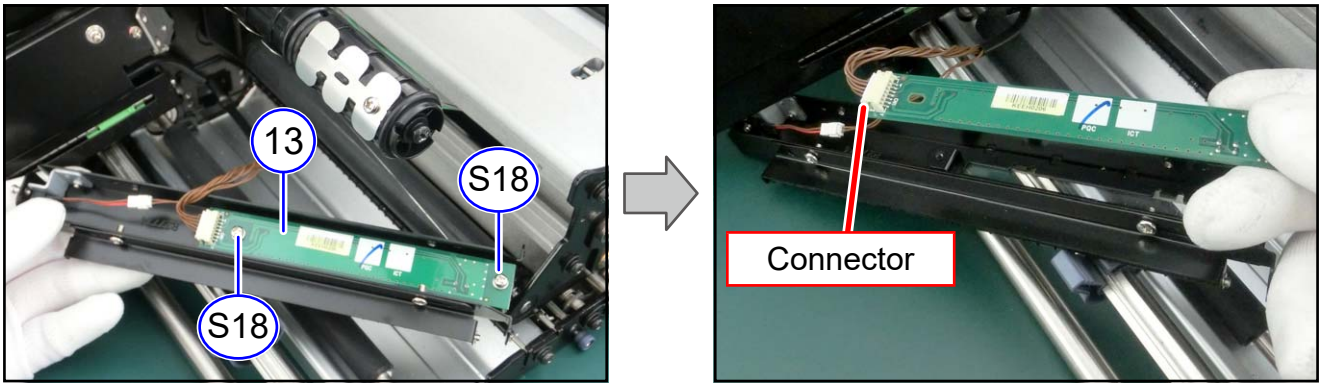

**10** Turn the **sensor bracket** (⑪) to change its direction.
Be careful not to pull the **attached sensor cable** (⑫).




## BOTTOM MEDIA SENSOR PCB

**11** Remove two **screws** (S18) and remove the **BOTTOM MEDIA SENSOR PCB** (⑬).

**12** Disconnect one connector.

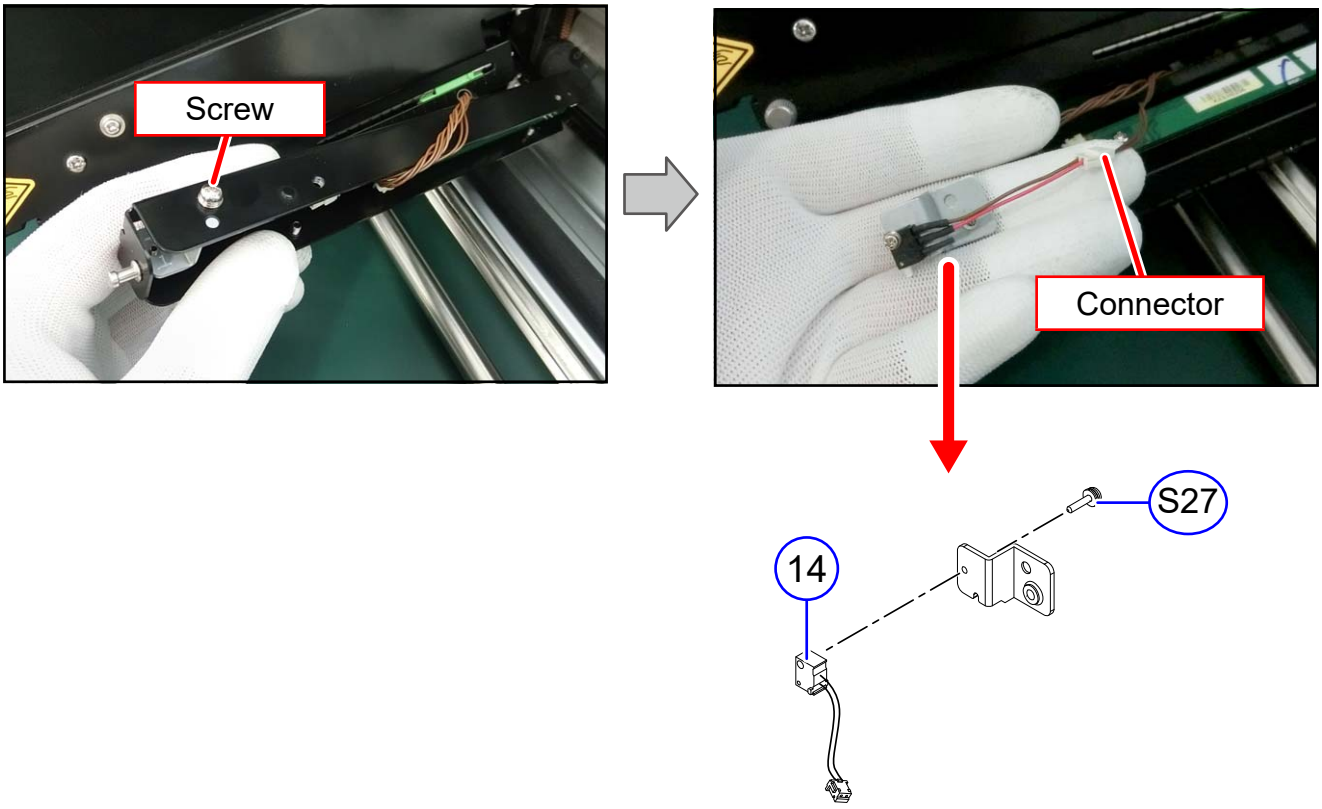


## MEDIA SENSOR ASSEMBLY OPEN SENSOR

**13** Then remove the **screw** and remove the **MEDIA SENSOR ASSEMBLY OPEN SENSOR** (⑭).

**14** Disconnect one connector.

**15** Then remove the **screw** (S27) and remove the **MEDIA SENSOR ASSEMBLY OPEN SENSOR** (⑭).




### ▶ From here, assembling procedure

**16** Perform the assembly with the reverse procedure from step 3.

## 4.5.2 Replacing the Ribbon Sensor

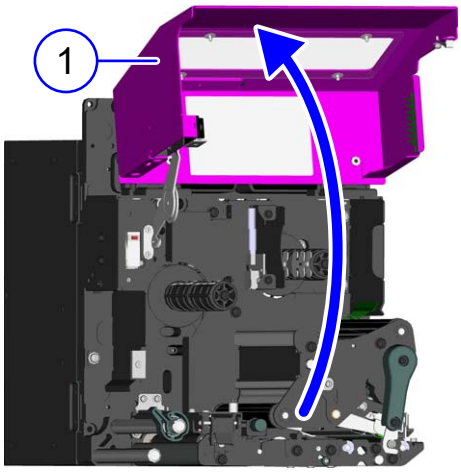
**1** Open the **top cover** (①) of the product.

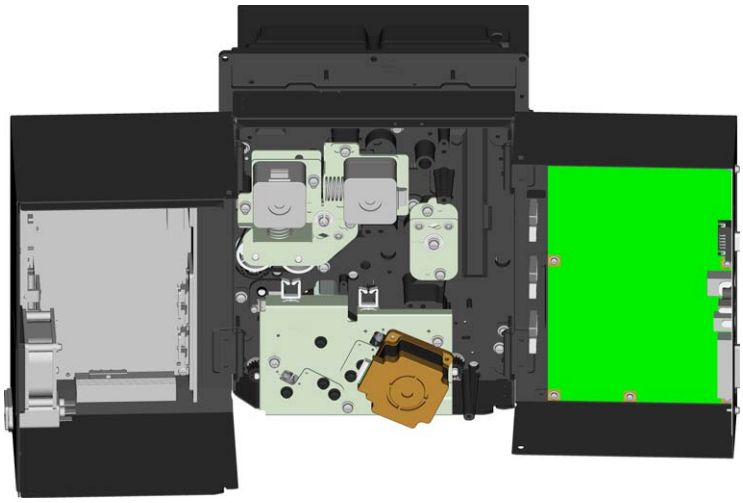
**NOTE**

• Open the top cover fully to prevent accidental drop of the cover.

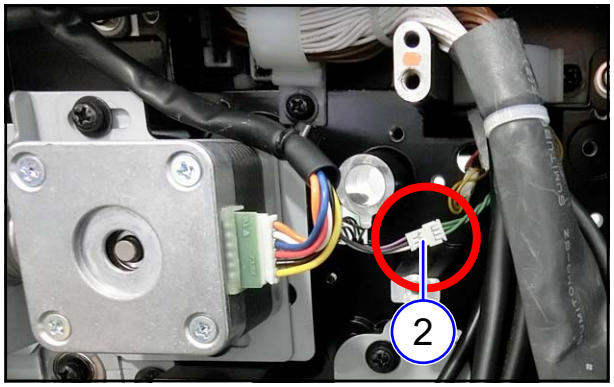
**2** Open the rear housing covers of the product.

**Refer to** 4.2.1 Opening the Rear Housing Cover

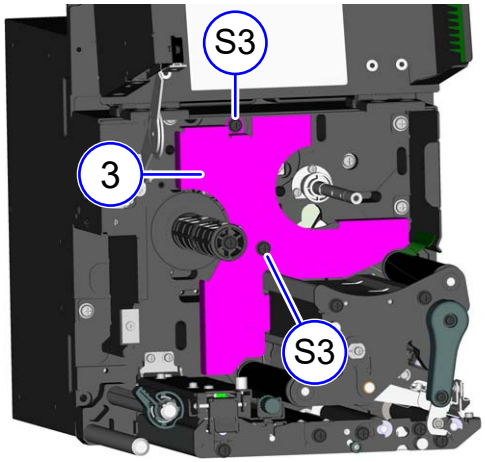


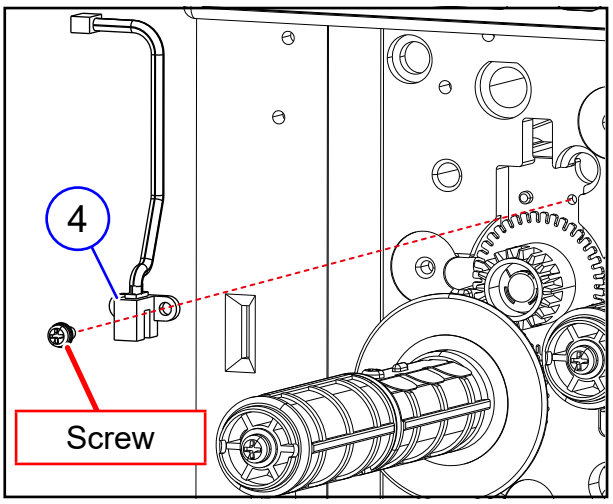
**3** Disconnect the **ribbon feed sensor cable** (②).




**4** On the front of the product, remove two **screws** (S3) and the **belt cover** (③).



**5** Remove the **screw** and replace the **ribbon sensor** (④).

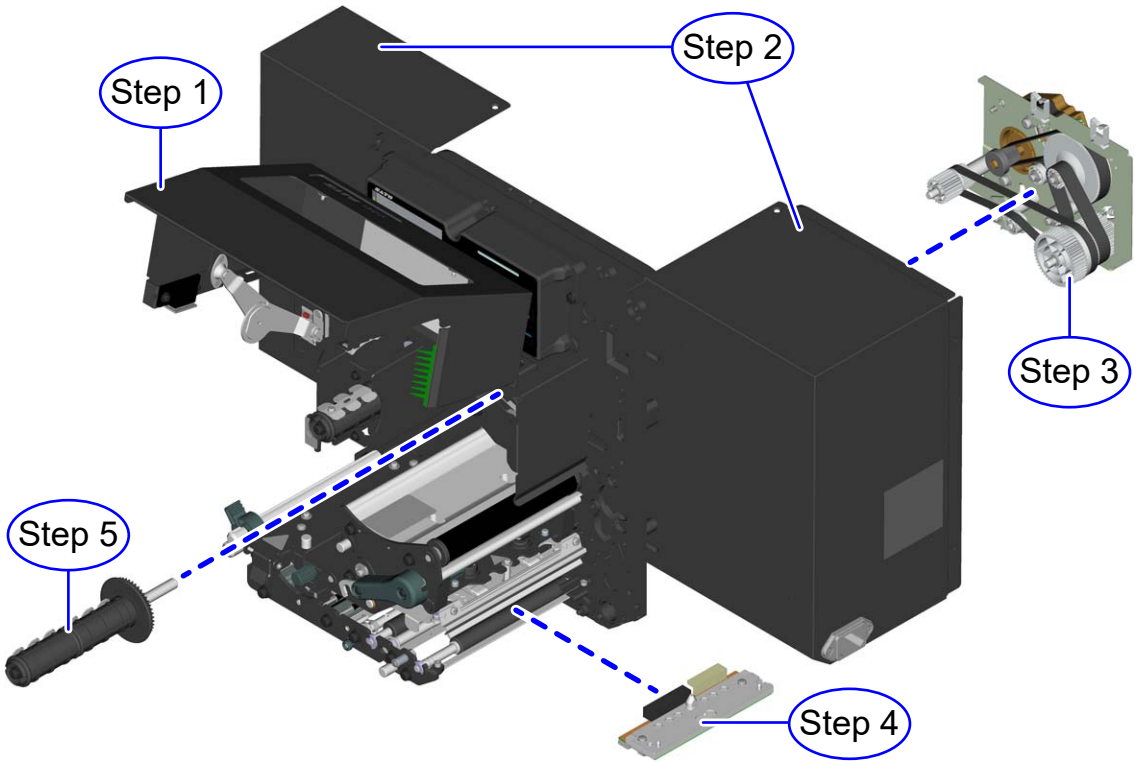



## ▶ From here, assembling procedure

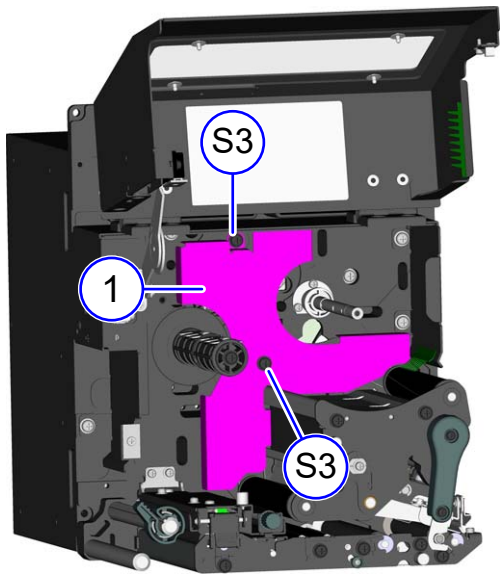
**6** Assemble the parts in the reverse order of the disassembly procedure.

## 4.5.3 Replacing the Ribbon End Sensor

| Procedure | Reference |
|---|---|
| **1** Open the **front housing cover** of the product. | **Refer to** 4.2.2 |
| **2** Open the **rear housing covers** of the product. | **Refer to** 4.2.1 |
| **3** Remove the **gearbox** from the product. | **Refer to** 4.4.8 |
| **4** Remove the **print head** from the product. | **Refer to** 4.3.1 |
| **5** Remove the **ribbon rewind spindle**. | **Refer to** 4.4.5 |




**6** On the front of the product, remove two **screws** (S3) and the **belt cover** (①).

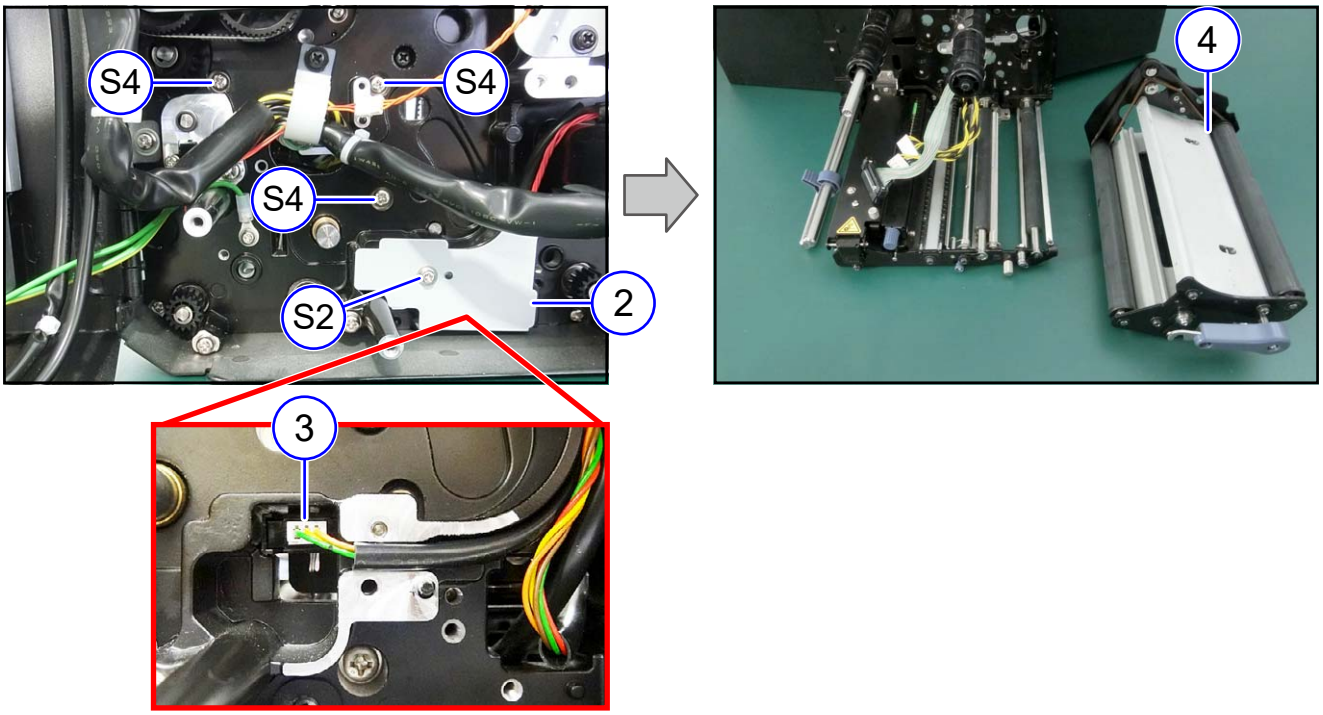


**7** Then remove the **screw** (S2) and remove the **cable cover** (②).

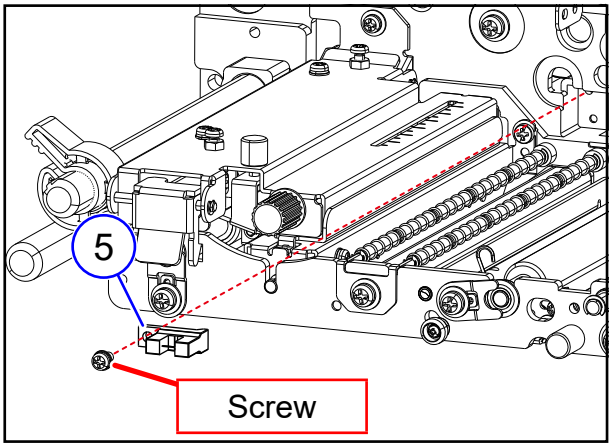
**8** Disconnect the **ribbon end cable** (③) from the connector.

**9** On the rear of the product, remove three **screws** (S4).

**10** Then carefully remove the frame of the **print head assembly** (④).




**11** Remove the **screw** and replace the **ribbon end sensor** (⑤).

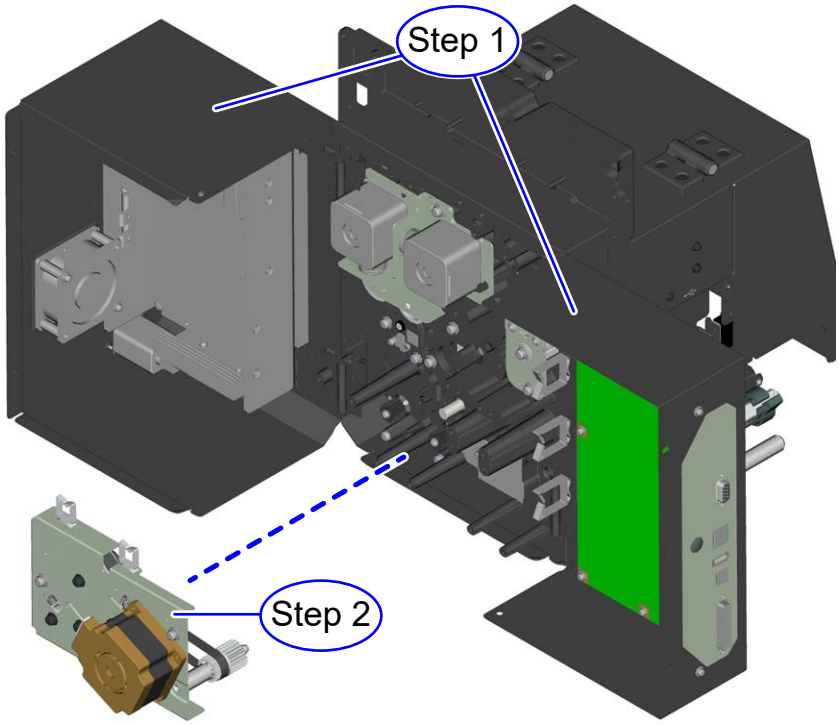



## ▶ From here, assembling procedure

**12** Assemble the parts in the reverse order of the disassembly procedure.

## 4.5.4 Replacing the Head Open Sensor

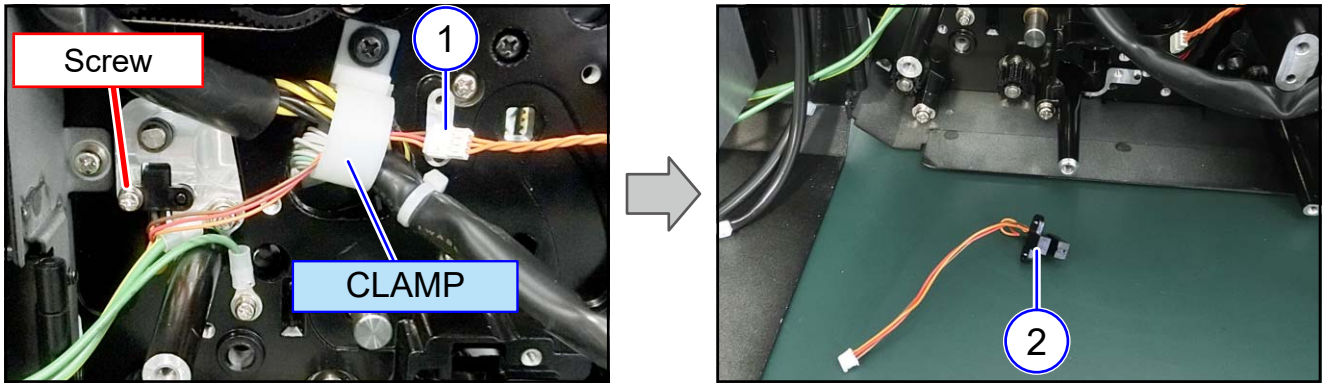
| Procedure | Reference |
|---|---|
| **1** Open the **rear housing covers** of the product. | **Refer to** 4.2.1 |
| **2** Remove the **gearbox** from the product. | **Refer to** 4.4.8 |




**3** Remove the **screw**, disconnect the **sensor cable** (①) and replace the **head open sensor** (②).

**Notes on assembling**

- Pass the sensor cable through the clamp.

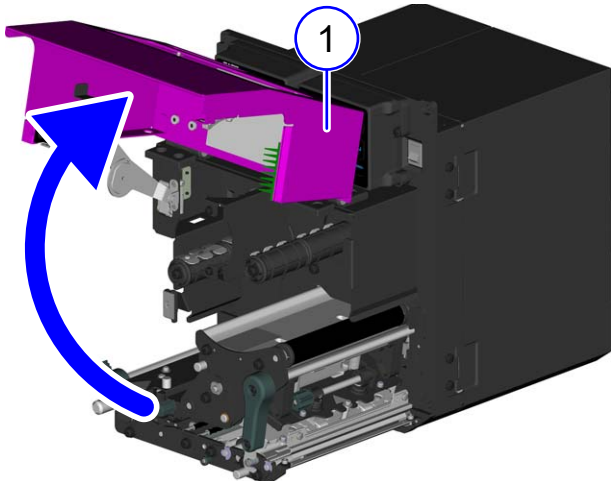



### ▶ From here, assembling procedure

**4** Assemble the parts in the reverse order of the disassembly procedure.

## 4.5.5 Replacing the Top Cover Sensor

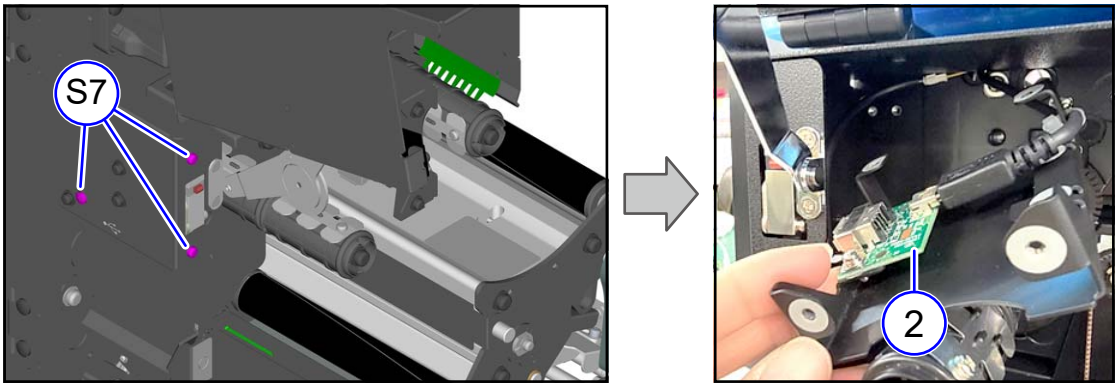
**1** Open the **top cover** (①) of the product.




**NOTE**

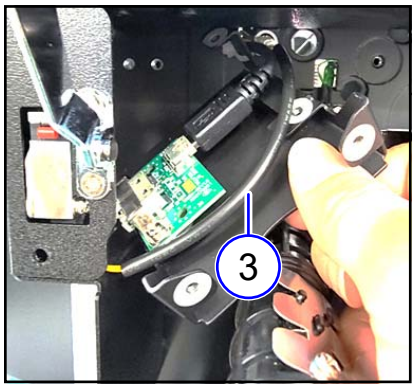
- Open the top cover fully to prevent accidental drop of the cover.

**2** Remove three **screws** (S7) and remove the **USB unit** (②).

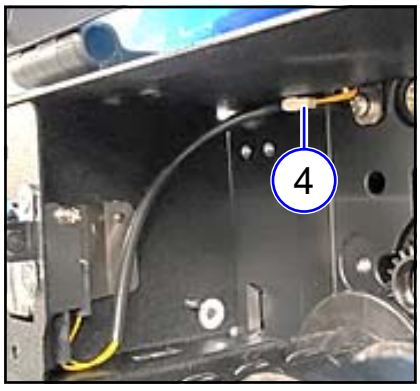



**Notes on assembling**

- Attach the USB unit so that the SENSOR SW BR cable (③) is not pinched.

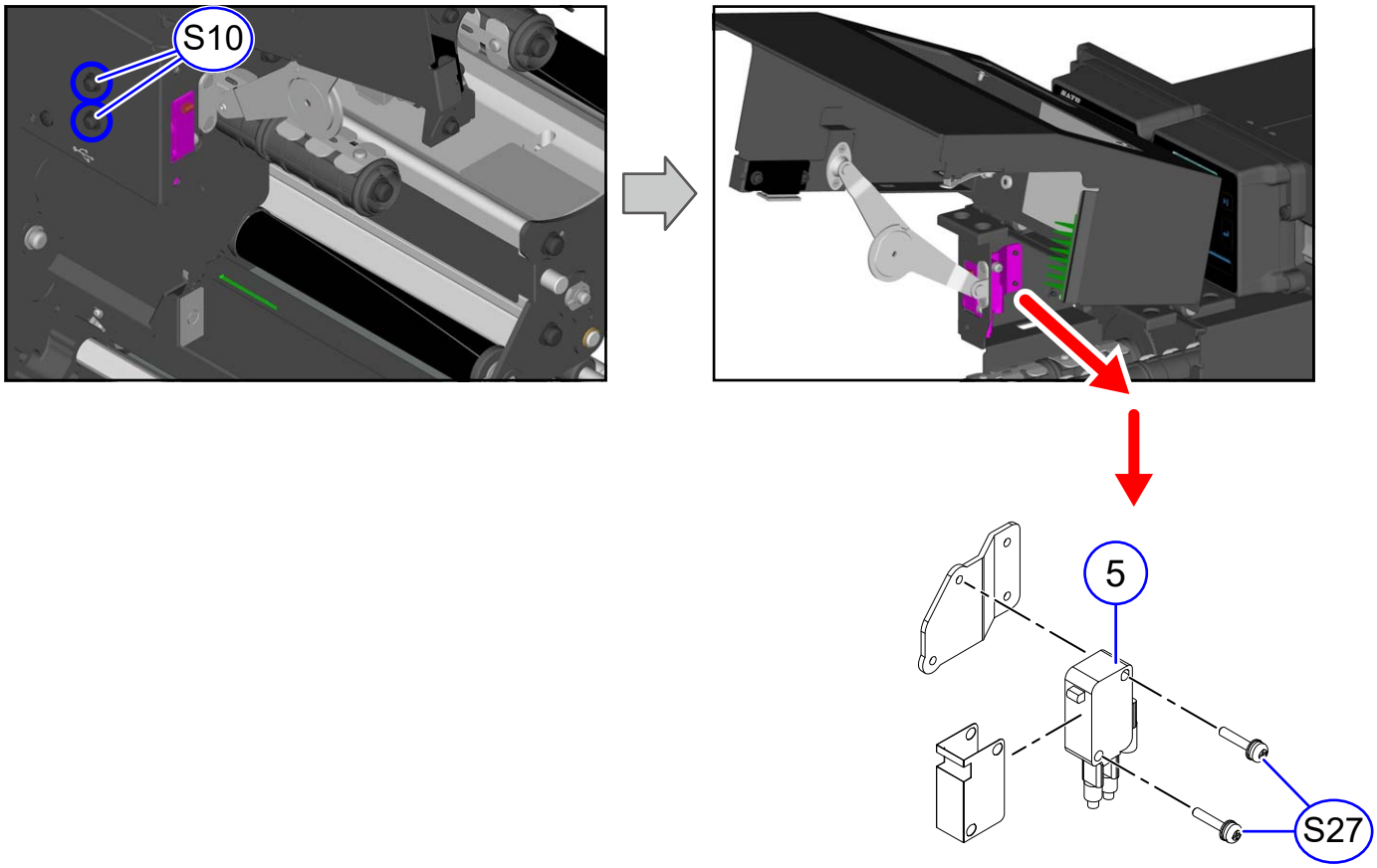



**3** Disconnect the **SENSOR SW BR cable connector** (④).



**4** Remove two **screws** (S10) and remove the **Top Cover Sensor** (⑤).

**5** Remove two **screws** (S9) and remove the **Top Cover Sensor** (⑤).




## ▶ From here, assembling procedure

**6** Assemble the parts in the reverse order of the disassembly procedure.

# 4. 6 PCBs and Electrical Parts

## 4.6.1 Replacing the USB PCB

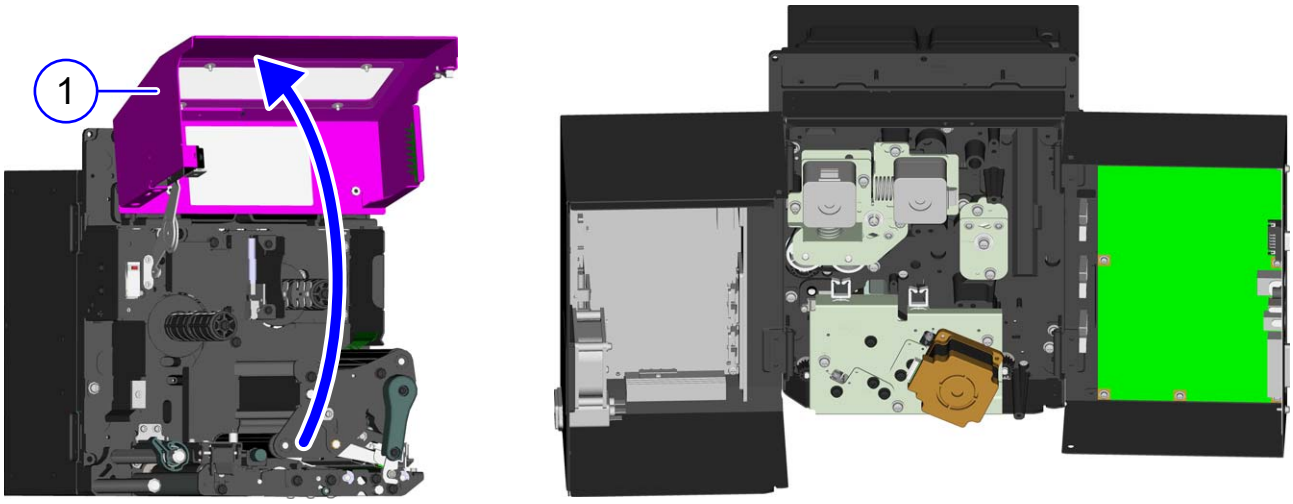
**1** Open the **top cover** (①) of the product.

**NOTE**

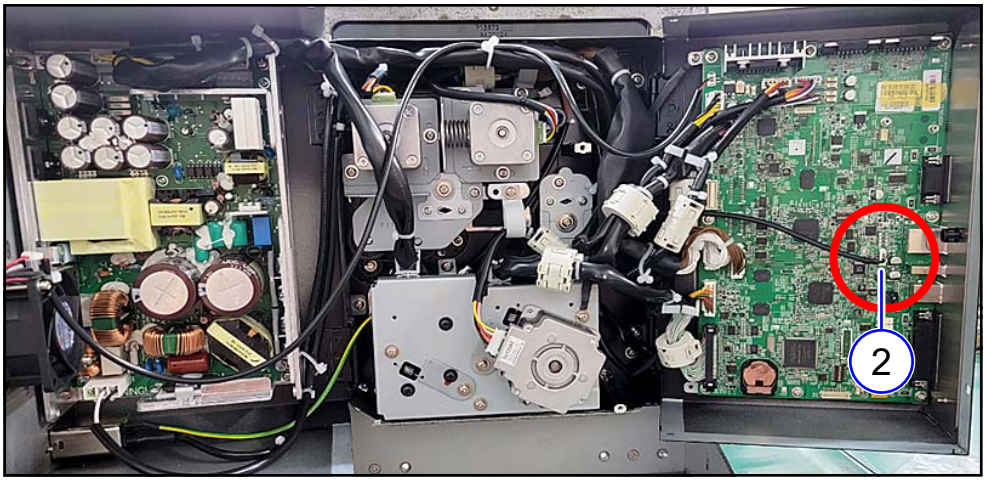
• Open the top cover fully to prevent accidental drop of the cover.

**2** Open the rear housing covers of the product.

**Refer to** 4.2.1 Opening the Rear Housing Cover



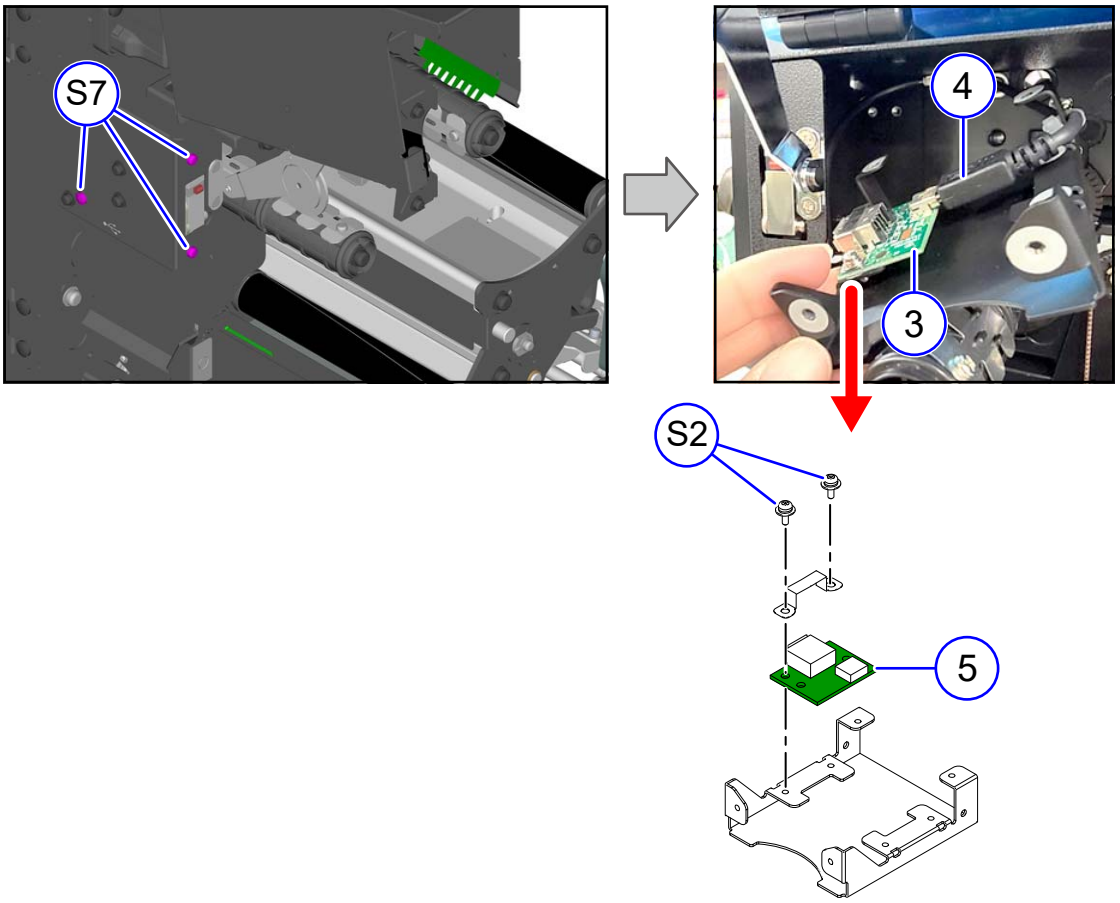

**3** Disconnect the **USB cable connector** (②).



**4** Remove three **screws** (S7) and remove the **USB unit** (③).

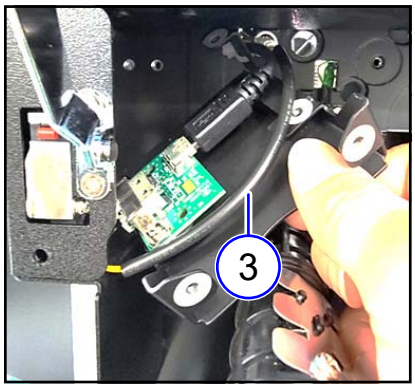
**5** Carefully pull out the USB cable from the printer and disconnect the **connector** (④) from the **USB unit** (③).

**6** Remove two **screws** (S2) and remove the **USB PCB** (⑤).




**Notes on assembling**

- Attach the USB unit so that the SENSOR SW BR cable (③) is not pinched.



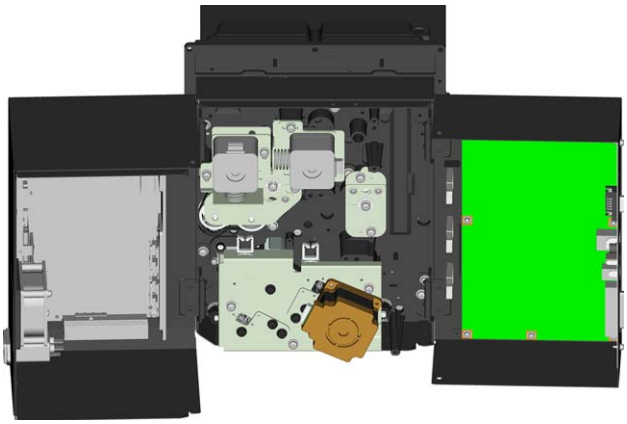

## ▶ From here, assembling procedure

**7** Assemble the parts in the reverse order of the disassembly procedure.

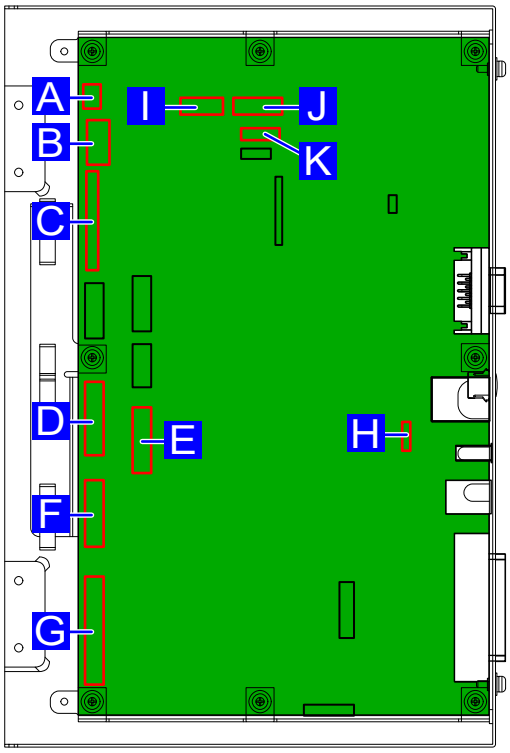
## 4.6.2 Replacing the Main (CONT) PCB

**1** Open the rear housing covers of the product.

**Refer to** 4.2.1 Opening the Rear Housing Cover

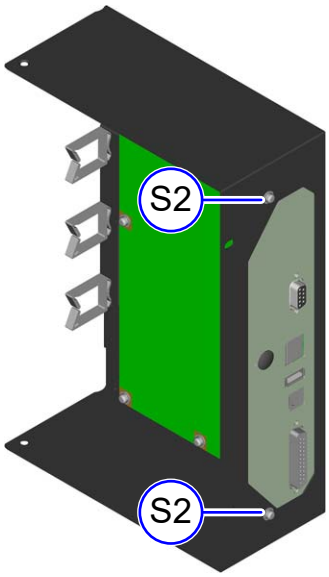


**2** Disconnect all the cables from the **connectors** (as listed below) on the **main (CONT) PCB**.




**A**: **FAN**, connects to the fan unit.
**B**: **POW24**, connects to the power supply unit.
**C**: **POW**, connects to the power supply unit.
**D**: **KB**, connects to the operator panel (KB) PCB.
**E**: **KB**, connects to the operator panel (KB) PCB.
**F**: **SENSOR**, connects to various sensors.
**G**: **HEAD**, connects to the print head assembly.
**H**: **USBH**, connects to the USB PCB.
**I**: **FEED**, connect to the gearbox motor.
**J**: **RIBBON_RW**, connects to the RW ribbon motor.
**K**: **RIBBON_UW**, connects to the UW ribbon motor.

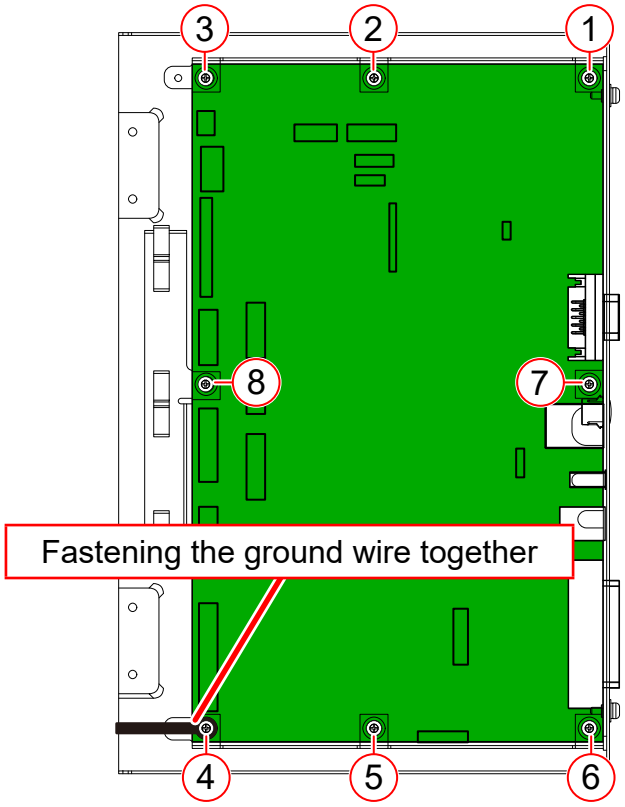
**3** Remove two **screws** (S2).



**4** Remove eight **screws** (S2) and remove the **main (CONT) PCB**.

**Notes on assembling**

- Tighten the screws in the order of circled numbers.
- Be careful not to forget to attach the ground wire.



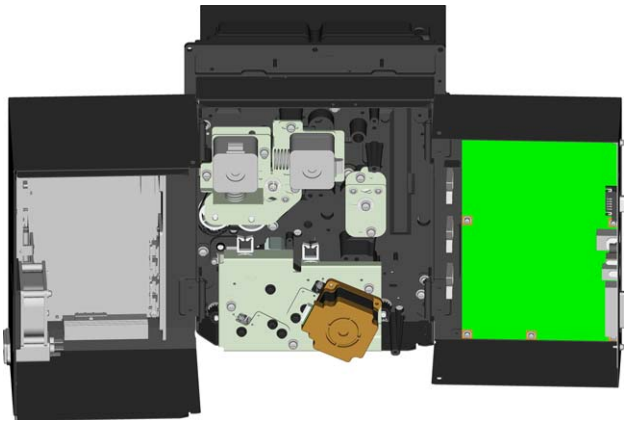

## ▶ From here, assembling procedure

**5** Assemble the parts in the reverse order of the disassembly procedure.

## 4.6.3 Replacing the Power Supply Unit

**1** Open the rear housing covers of the product.

**Refer to** 4.2.1 Opening the Rear Housing Cover



**2** Disconnect all the cables from the **connectors** (as listed below) on the **power supply unit**.

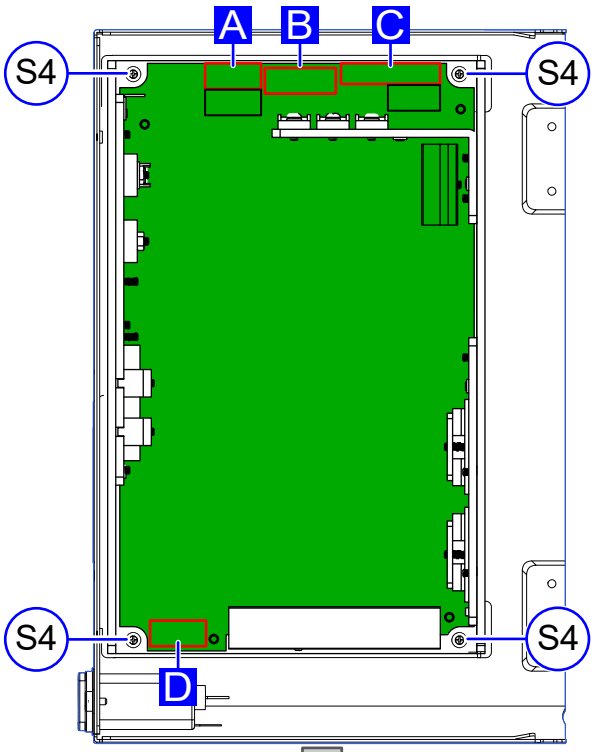
**A**: **S-cont DC power 24 V**, connects to the **POW24V** connector on the **main (CONT) PCB**.

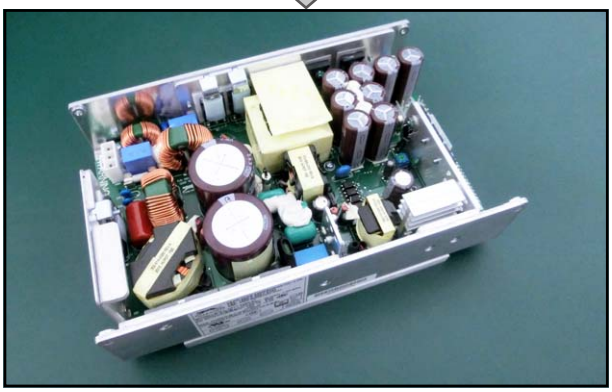
**B**: **Head power**, connects to the **print head assembly**.

**C**: **S-cont DC power**, connects to the **POW** connector on the **main (CONT) PCB**.

**D**: **AC line**, connects to the **power switch**.

**3** Remove four **screws** (S4) and remove the **power supply unit**.



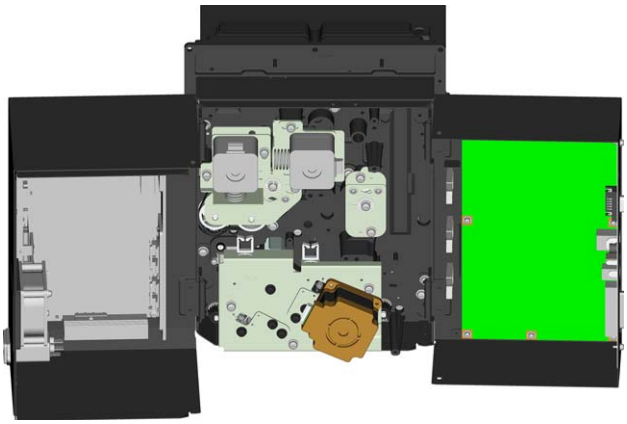
### ▶ From here, assembling procedure

**4** Assemble the parts in the reverse order of the disassembly procedure.

## 4.6.4 Replacing the Fan Motor

**1** Open the rear housing covers of the product.

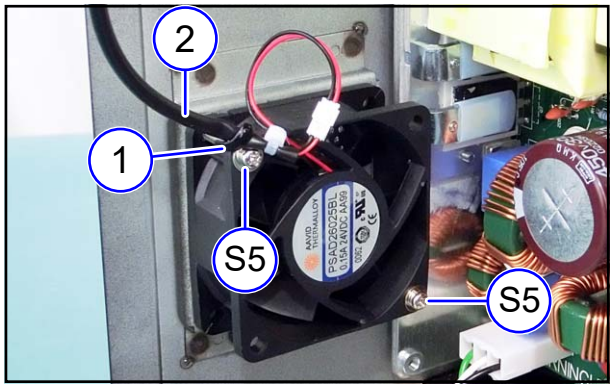
**Refer to** 4.2.1 Opening the Rear Housing Cover

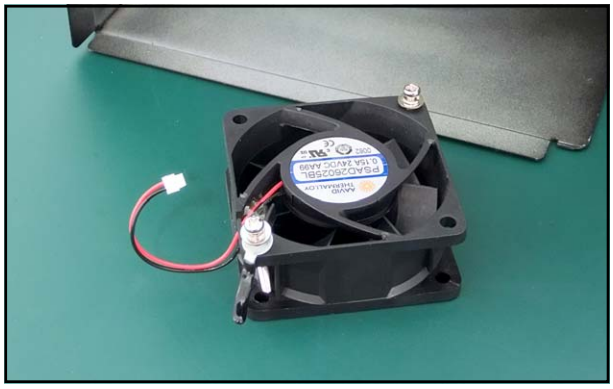


**2** Untie the **cable clamp** (①) to release the **fan cable** (②).

**3** Disconnect the **fan cable** (②).

**4** Remove two **screws** (S5) and remove the **fan motor** (③).



### ▶ From here, assembling procedure

**5** Assemble the parts in the reverse order of the disassembly procedure.

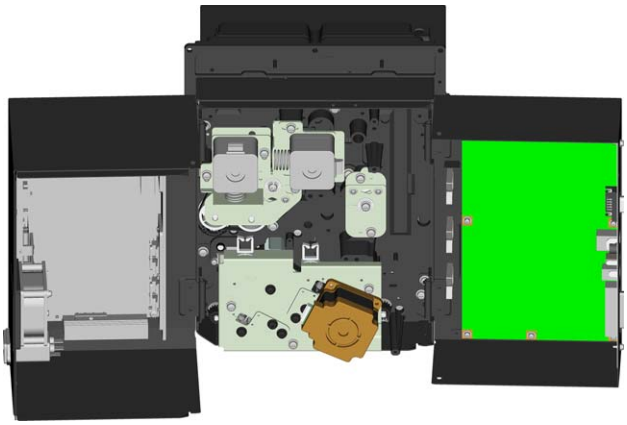
## 4.6.5 Replacing the Coin Battery

**CAUTION**

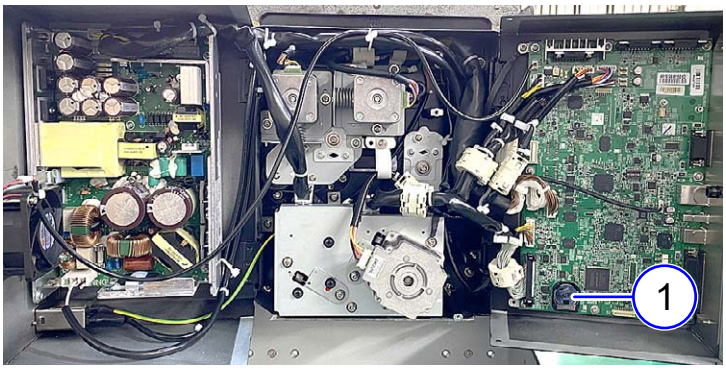
RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE.
DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.

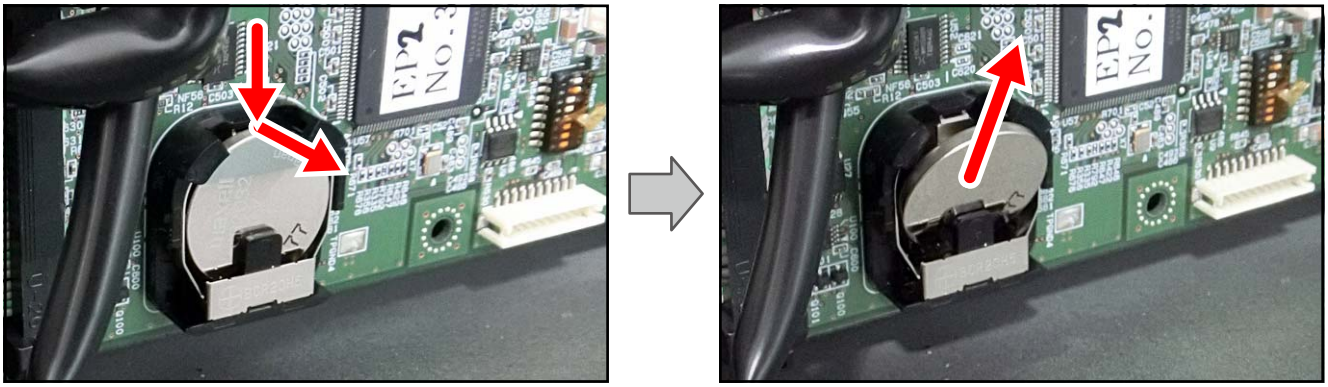
**1** Open the rear housing covers of the product.

**Refer to** 4.2.1 Opening the Rear Housing Cover



**2** Replace the **coin battery** (①) with a new one.



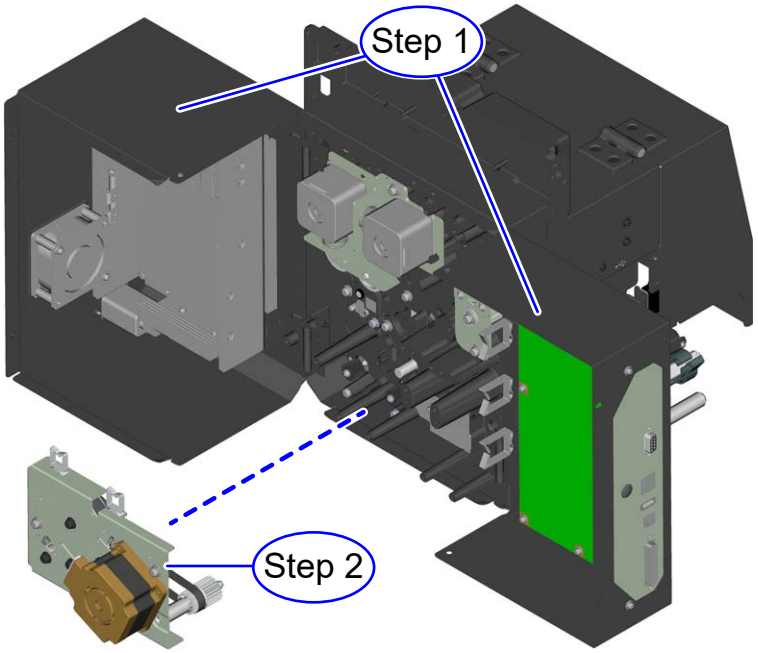
### ▶ From here, assembling procedure

**3** Assemble the parts in the reverse order of the disassembly procedure.

# 4. 7 Replacing the Timing Belt

## 4.7.1 Replacing the Timing Belt of Gearbox

| Procedure | Reference |
|---|---|
| **1** Open the **rear housing covers** of the product. | **Refer to** 4.2.1 |
| **2** Remove the **gearbox** from the product. | **Refer to** 4.4.8 |

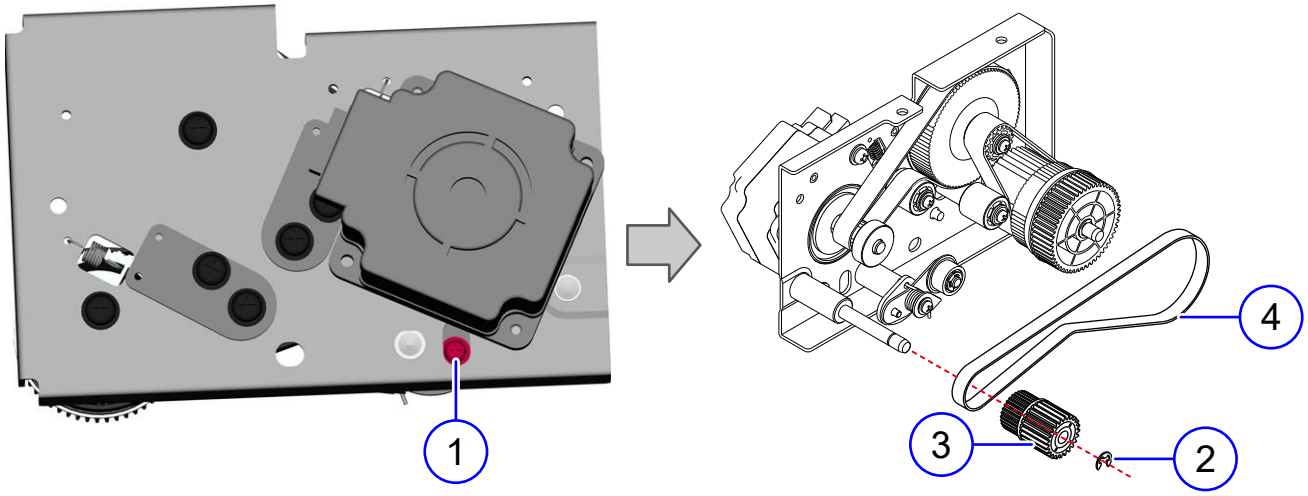



**3** Loosen the **screw** (①) of the **tension link**.

**NOTE**

- Do not remove the screws.

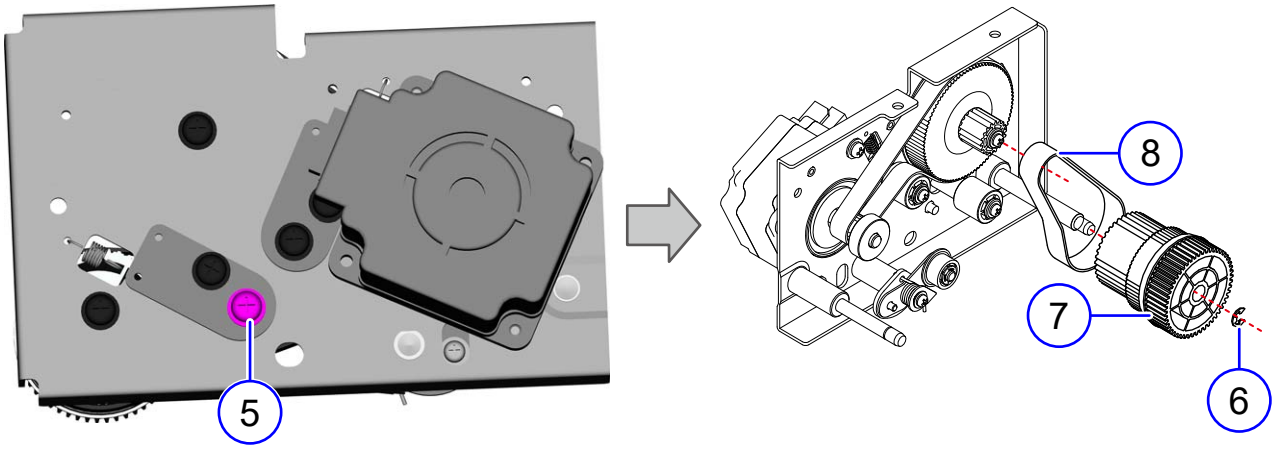
**4** On the gear side of the gearbox, remove the **e-ring** (②) using a slotted screwdriver. Then remove the **gear** (③) and **timing belt** (④).



**5** Loosen the **screw** (⑤) of the **tension bracket B**.

**NOTE**
• Do not remove the screws.

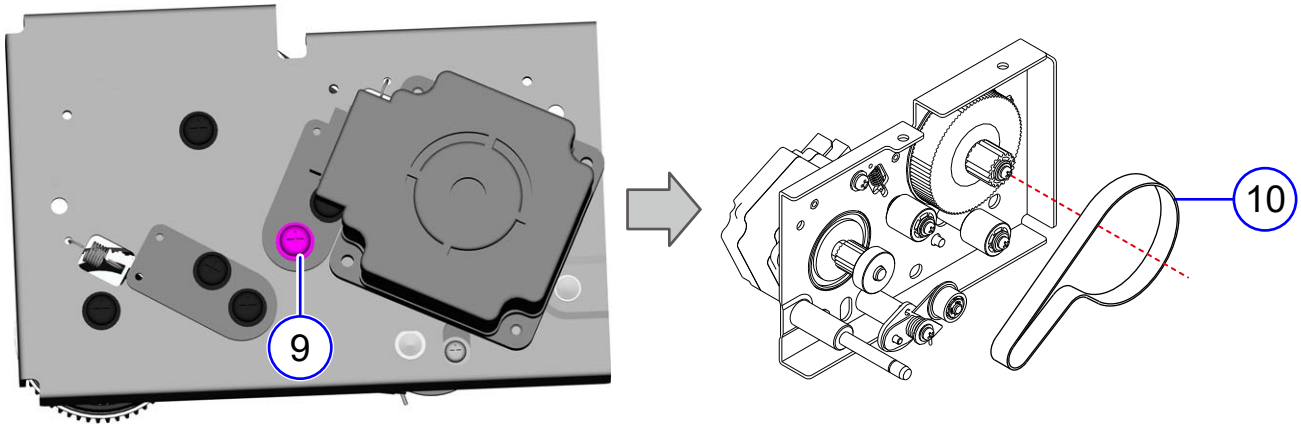
**6** On the gear side of the gearbox, remove the **e-ring** (⑥) using a slotted screwdriver. Then remove the **gear** (⑦) and **timing belt** (⑧).




**7** Loosen the **screw** (⑨) of the **tension bracket A**.

**NOTE**
• Do not remove the screws.

**8** On the gear side of the gearbox, remove the **timing belt** (⑩).



## ▶ From here, assembling procedure

**9** Assemble the parts in the reverse order of the disassembly procedure.

**TIPS**

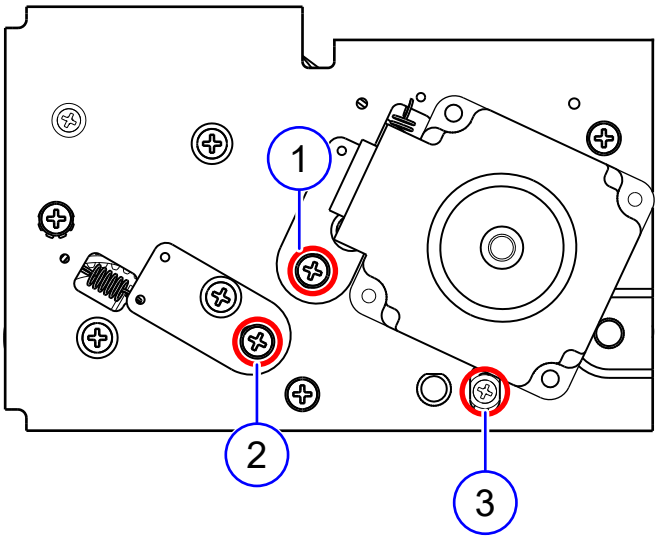
Adjusting the Timing Belt Tension (Gearbox)

Loosen the **screw** (①) of the **tension bracket A**, the **screw** (②) of the **tension bracket B** and the **screw** (③) of the **tension link**.

**NOTE** Do not remove the screws.

The tension of the timing belts will be adjusted automatically by the spring pressure.

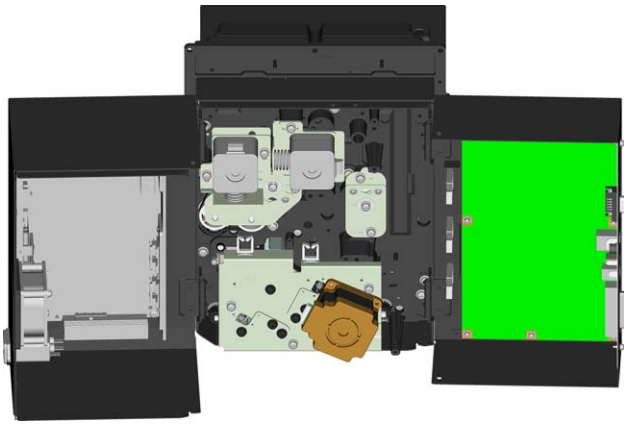
Tighten the screws that were loosened.

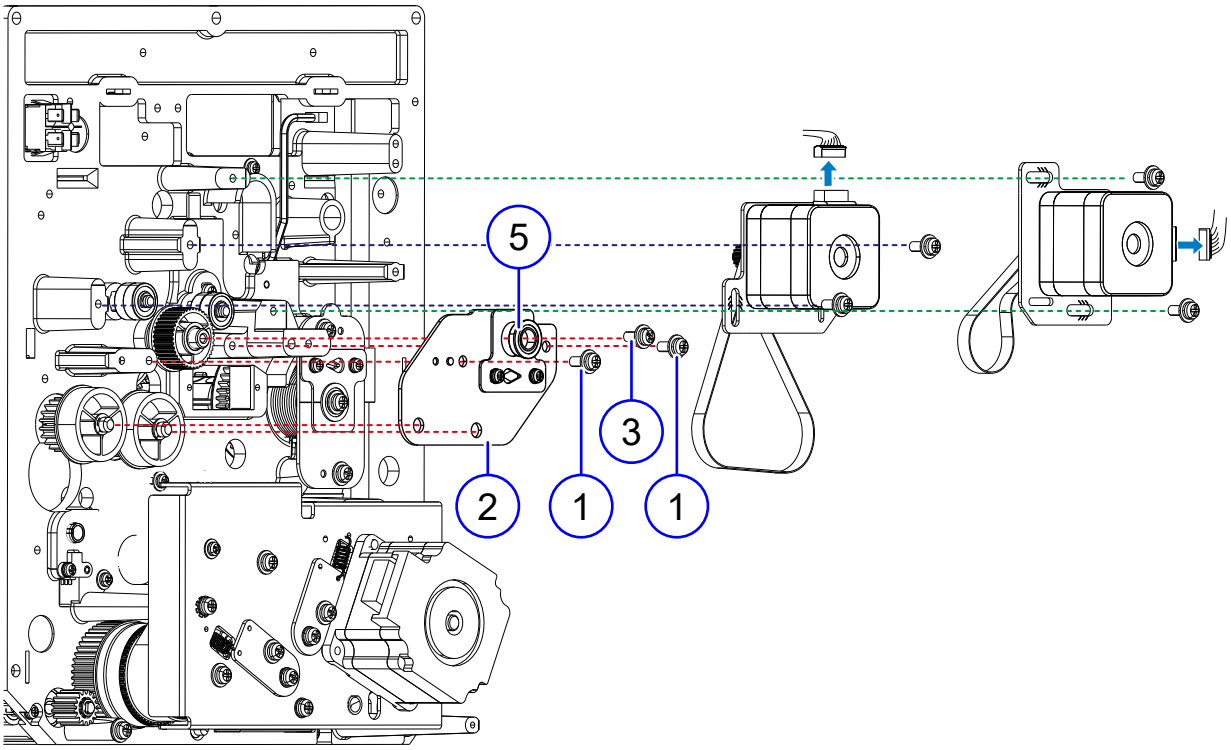


## 4.7.2 Replacing the Timing Belt of Ribbon Motors

**1** Open the rear housing covers of the product.

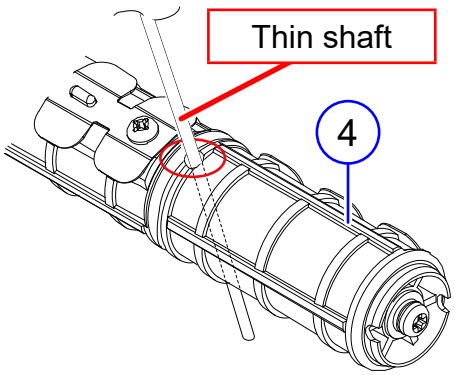
**Refer to** 4.2.1 Opening the Rear Housing Cover



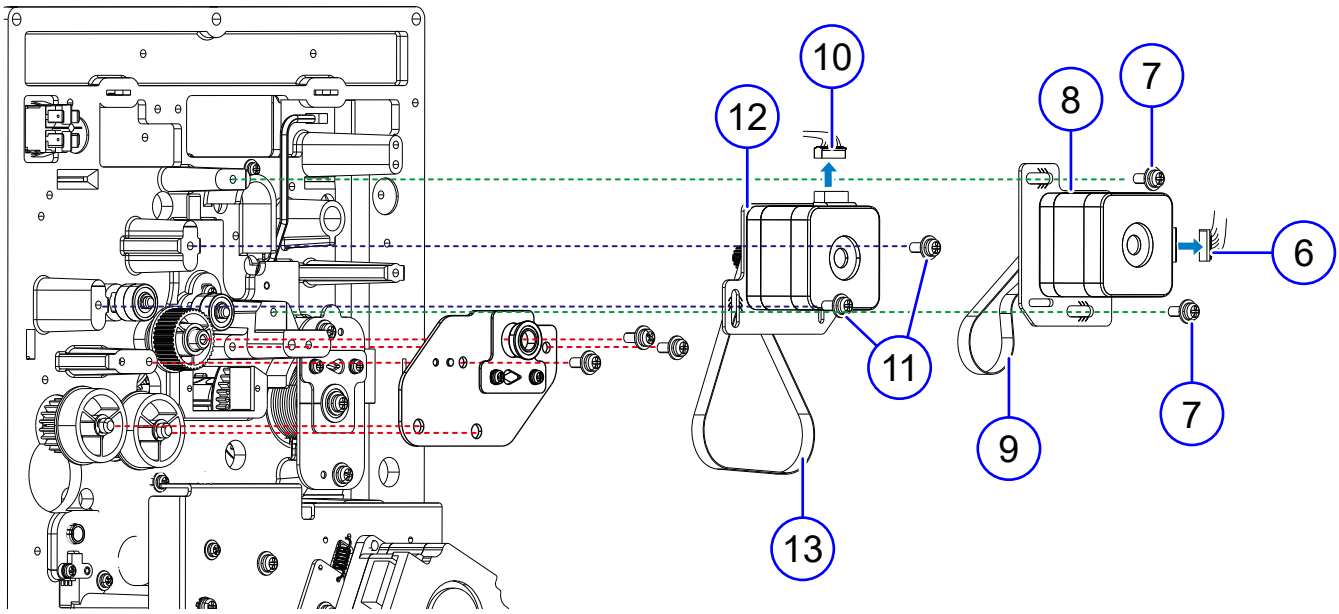



**2** Remove two **screws** ①(S15) attached to the **pulley bracket** (②) and remove the **screw** ③(S15) attached to the **ribbon rewind spindle** (④) on the other side.

To remove the **screw** ③(S15) easily, insert a **thin shaft** into a hole through the **ribbon rewind spindle** (④) as shown on the picture. Then hold the **ribbon rewind spindle** (④) while removing the **screw** ③(S15).




**3** Remove the **bearing** (⑤) and **pulley bracket** (②).




**4** If you need to replace the timing belt of the ribbon rewind motor, perform steps 5 through 7.

**5** Disconnect the **ribbon rewind cable** (⑥).

**6** Remove two **screws** ⑦(S15) attaching the **ribbon rewind motor** (⑧) to the center frame.

**7** Remove the **ribbon rewind motor** (⑧) and replace the **timing belt (ribbon rewinder)** (⑨).

**8** If you need to replace the timing belt of the ribbon supply motor, perform steps 9 through 11.

**9** Disconnect the **ribbon supply cable** (⑩).

**10** Remove two **screws** ⑪(S15) attaching the **ribbon supply motor** (⑫).to the center frame.

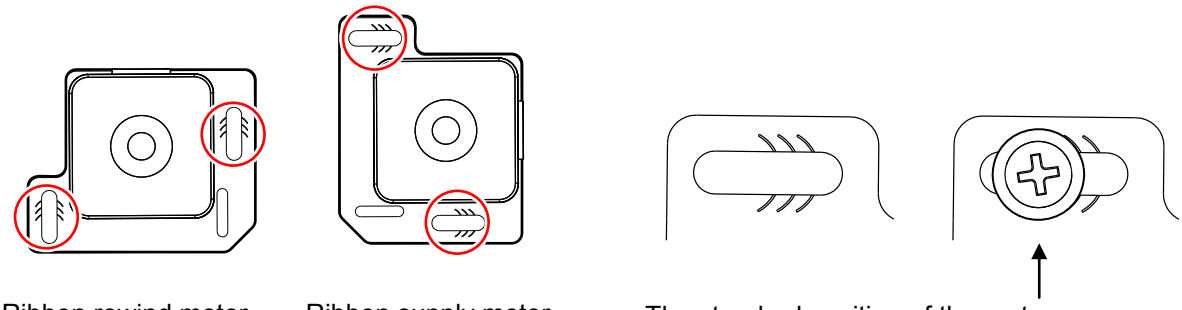
**11** Remove the **ribbon supply motor** (⑫).and replace the **timing belt (ribbon roller)** (⑬).

## ▶ From here, assembling procedure

**12** Assemble the parts in the reverse order of the disassembly procedure.

**TIPS**

When you attach the **ribbon motor** ⑧ or ⑫ using the two **screws** ⑦ or ⑪, set the **motor plate** so that the screws are on the marked position as shown.

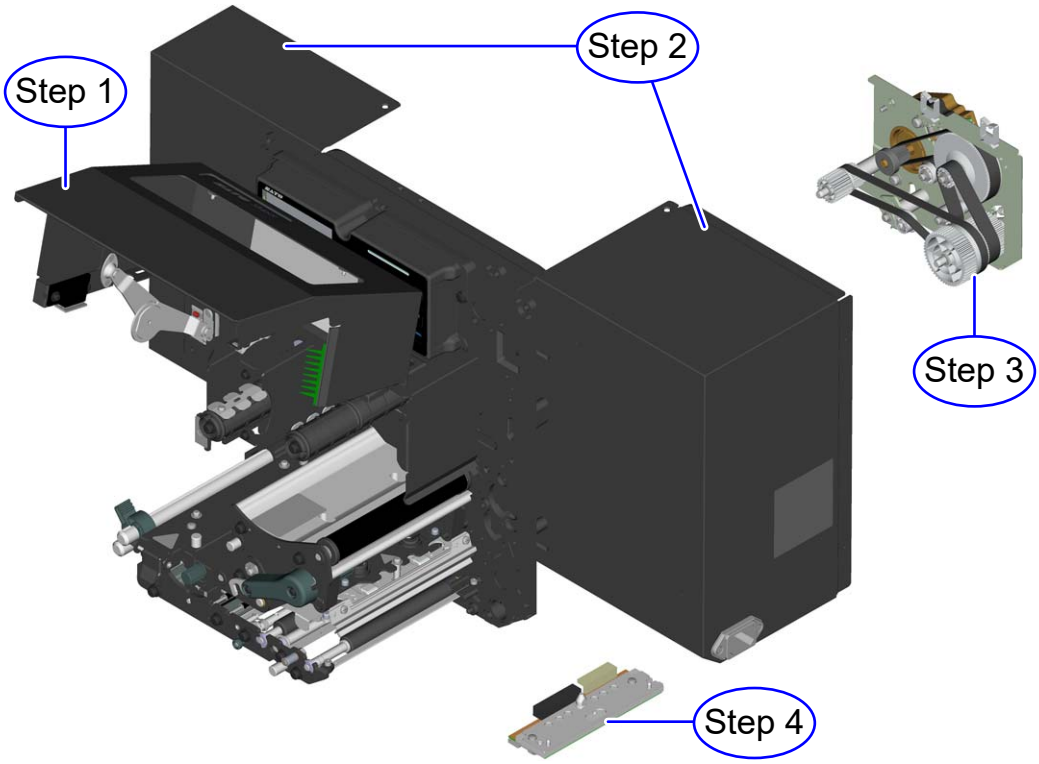


Ribbon rewind motor　Ribbon supply motor　The standard position of the motor screws.

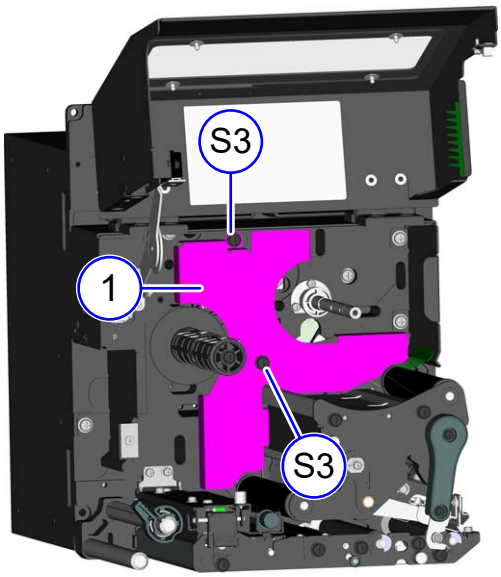
Setting the motor to the standard position provides a standard tension applied on the timing belt.

## 4.7.3 Replacing the Timing Belt of Ribbon Unwind Mechanism

| Procedure | Reference |
|---|---|
| **1** Open the **front housing cover** of the product. | **Refer to** 4.2.2 |
| **2** Open the **rear housing covers** of the product. | **Refer to** 4.2.1 |
| **3** Remove the **gearbox** from the product. | **Refer to** 4.4.8 |
| **4** Remove the **print head** from the product. | **Refer to** 4.3.1 |

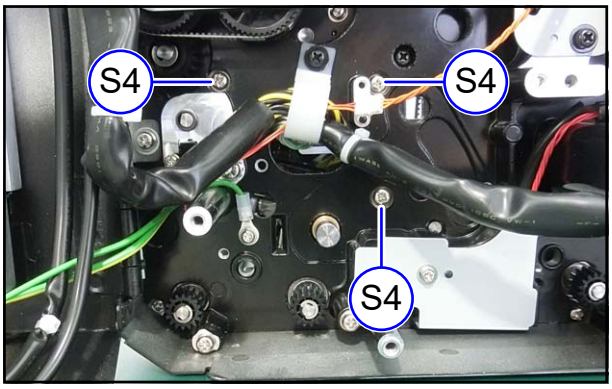


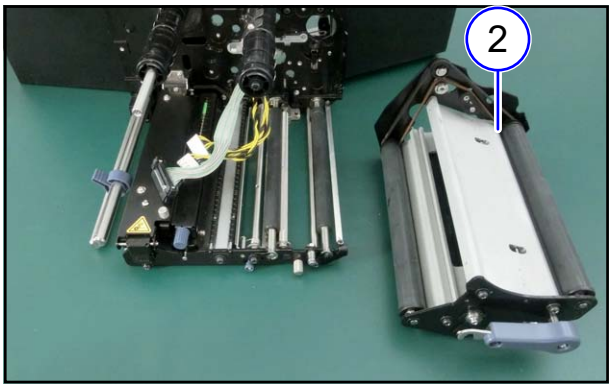

**5** On the front of the product, remove two **screws** (S3) and the **belt cover** (①).



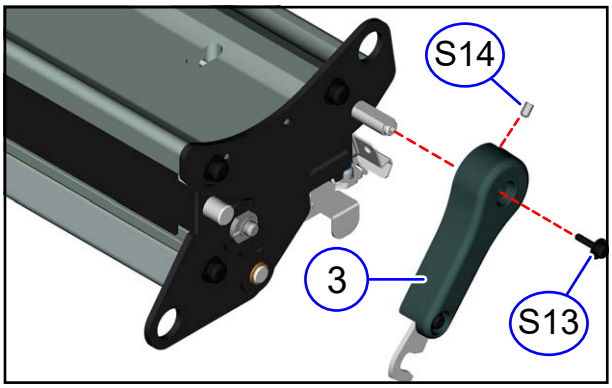
**6** On the rear of the product, remove three **screws** (S4).

**7** Then carefully remove the frame of the **print head assembly** (②).

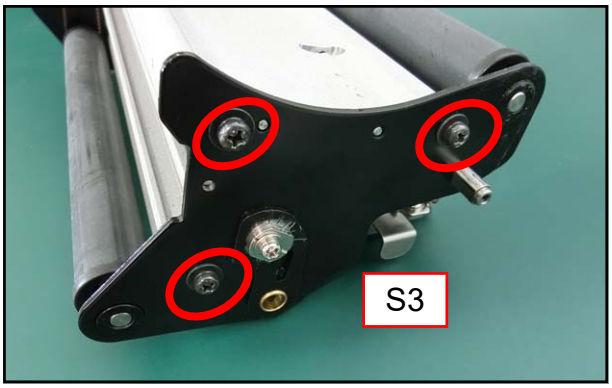


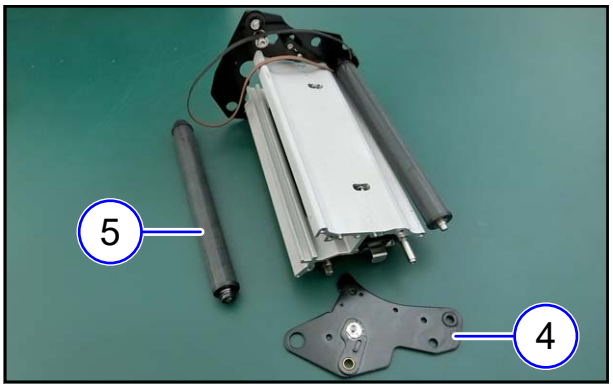




**8** On the **head lock lever** (③), remove the **hex socket set screw** (S14) using an Allen wrench. Then remove the **screw** (S13) and remove the **head lock lever** (③).

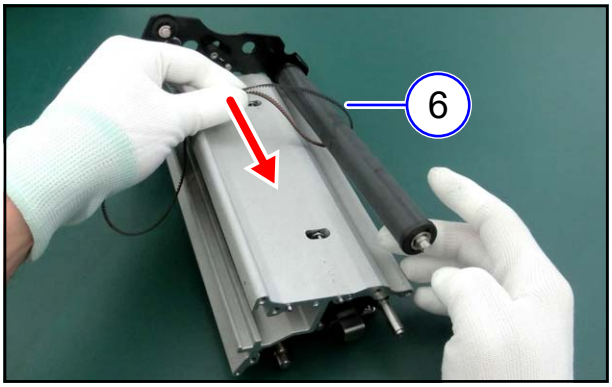



**9** Remove three **screws** (S3) and remove the **Side plate** (④) and **UW Ribbon Roller** (⑤).



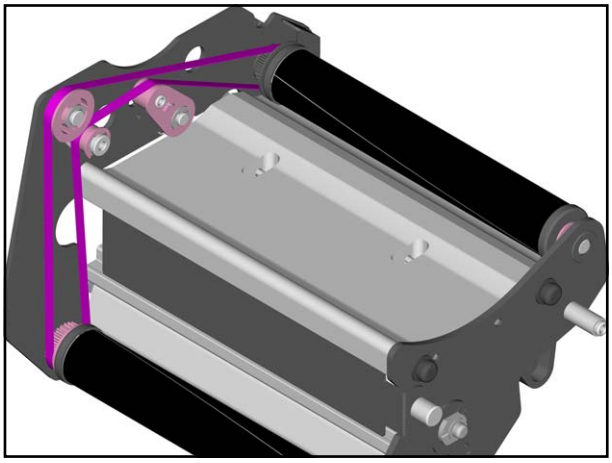




**10** Replace the **timing belt** (⑥).



**Notes on assembling**

- Check the route of the timing belt.



## ▶ From here, assembling procedure

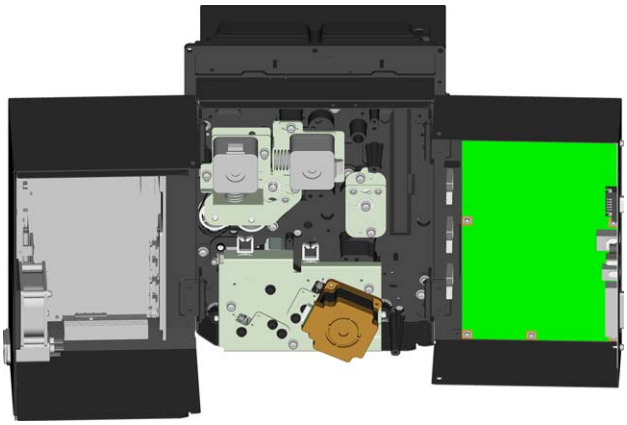
**11** Assemble the parts in the reverse order of the disassembly procedure.

# 4. 8 PCBs and Electrical Parts

## 4.8.1 Replacing the Operator Panel (KB) PCB

**1** Open the rear housing covers of the product.

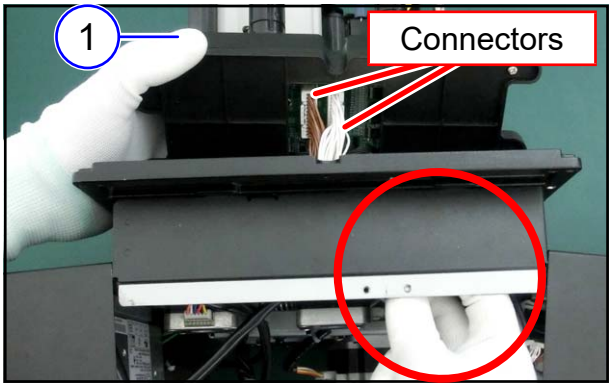
**Refer to** 4.2.1 Opening the Rear Housing Cover



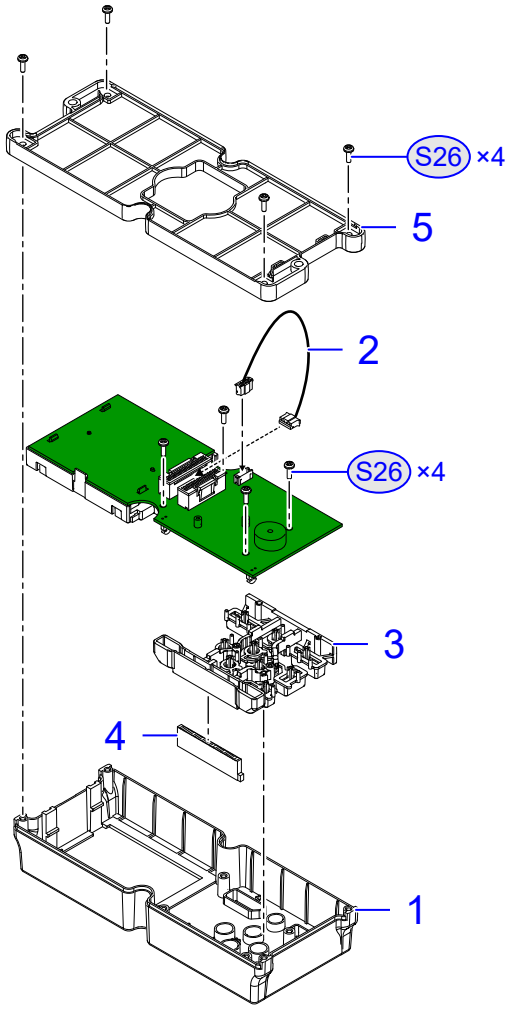
**2** Remove two **screws** (S24).

**3** While feeding the cables by hand, remove the **KEYBOARD PANEL ASSY** (①).

**4** Disconnect two connectors.

## Details of the KEYBOARD PANEL ASSY




| No. | DESCRIPTION |
|---|---|
| 1 | PANEL COVER S/A |
| 2 | S84-86NX NFC CABLE SET-LF |
| 3 | BUTTON |
| 4 | LED LENS |
| 5 | PANEL BASE |

### ▶ From here, assembling procedure

**5** Assemble the parts in the reverse order of the disassembly procedure.

# 5 Installation of Options

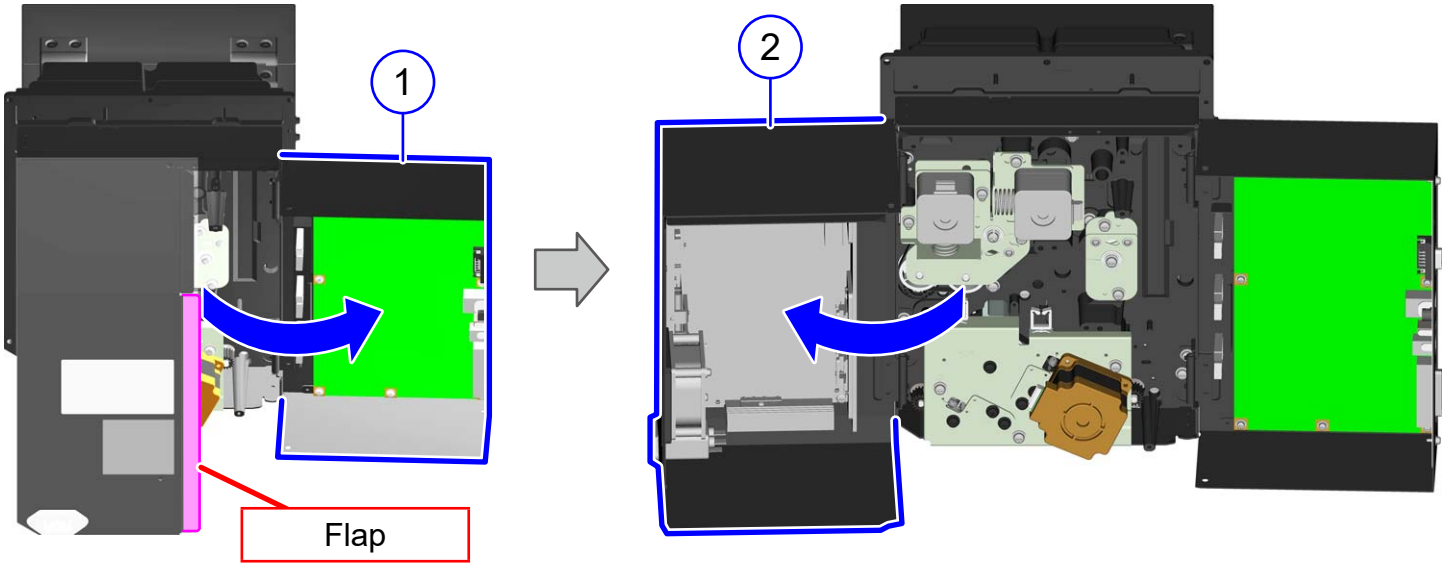
Back to top

**This chapter describes how to remove and install the options.**

# 5. 1 Replacing the W-LAN Kit

**1** Loosen and remove two **flat-head screws** (S1) at the top of the rear cover, then remove another two **pan head screws** (S2) at the rear.

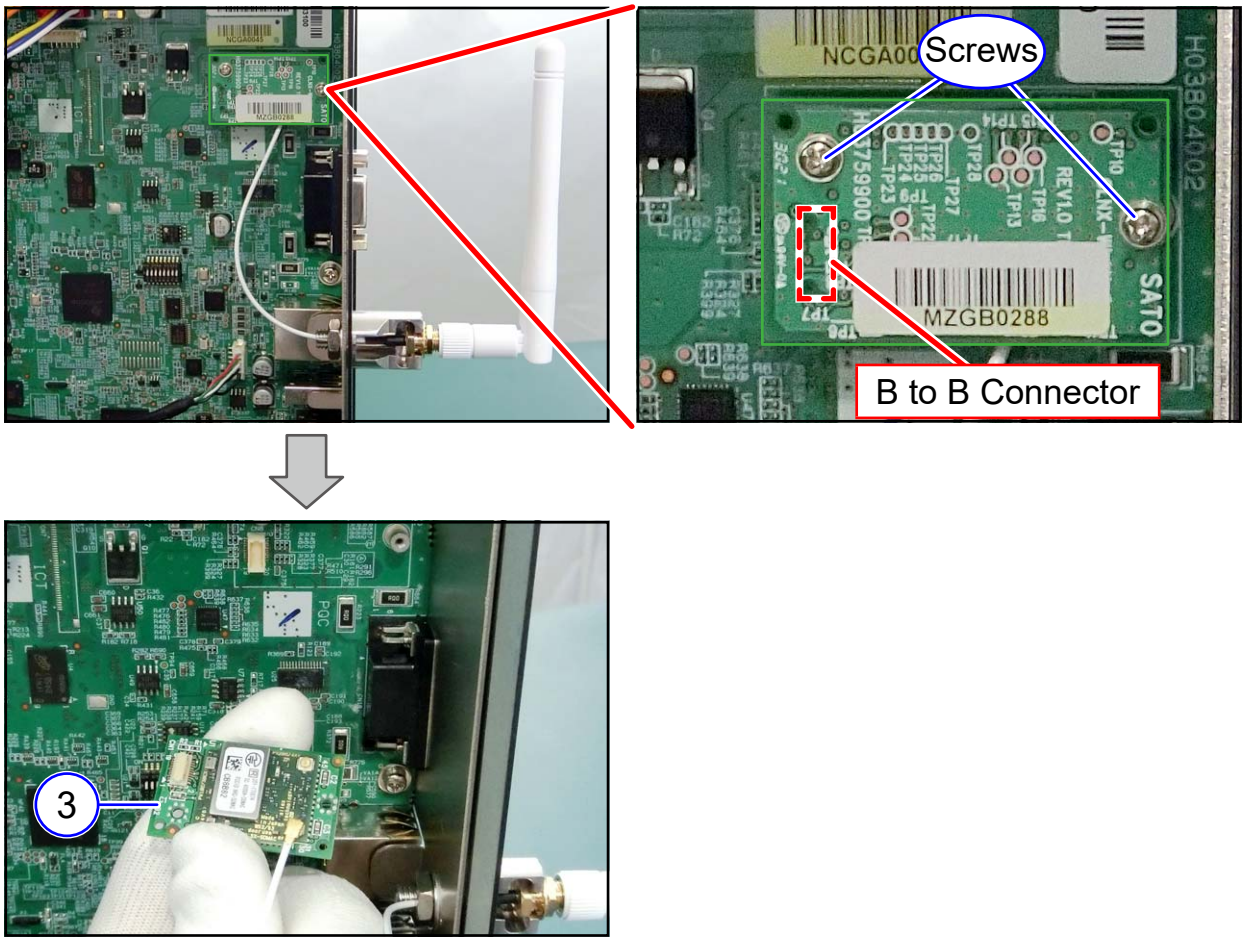

**2** Open the interface side of the **rear housing cover** (①), then open the other side that has a flap on the **rear housing cover** (②).



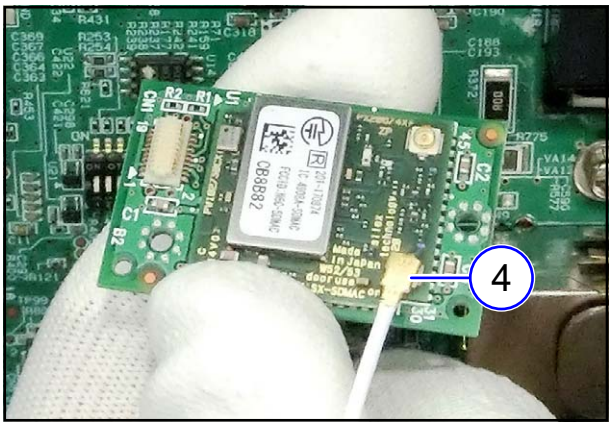
**3** Remove two screws and remove the W-LAN PCB (③).

**NOTE**

- The W-LAN PCB is connected to the CONT PCB with the B to B connector.

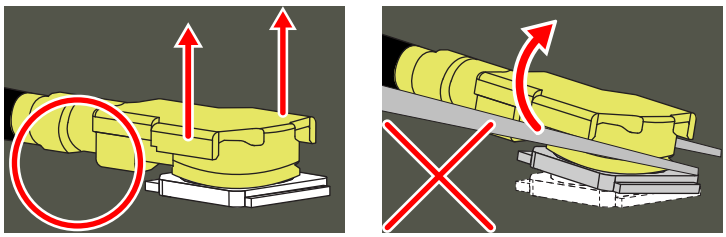



**4** Disconnect the coaxial cable (④).



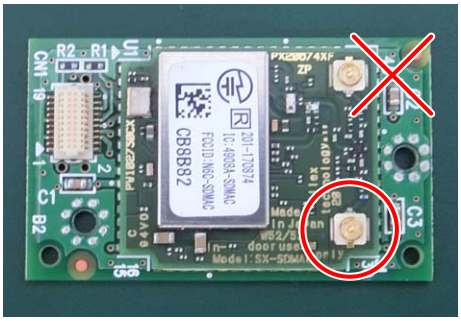

**NOTE**

- Use tweezers, etc. to vertically connect or disconnect the coaxial cable connector.
- Applying force to one side of the connector only will damage the connector.

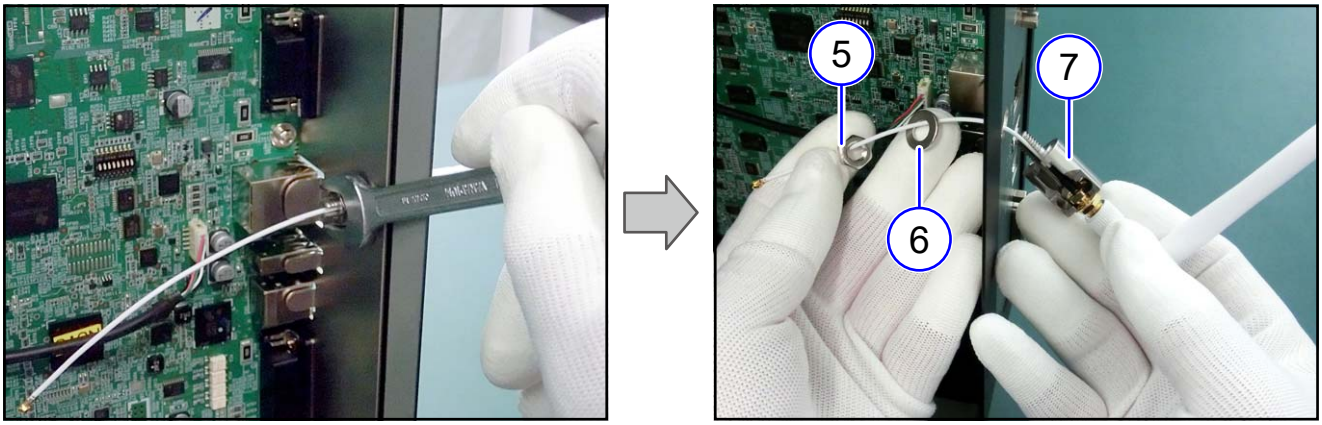


**Notes on assembling**

- The W-LAN PCB has two coaxial connectors, so connect the coaxial cable to the correct one as shown.

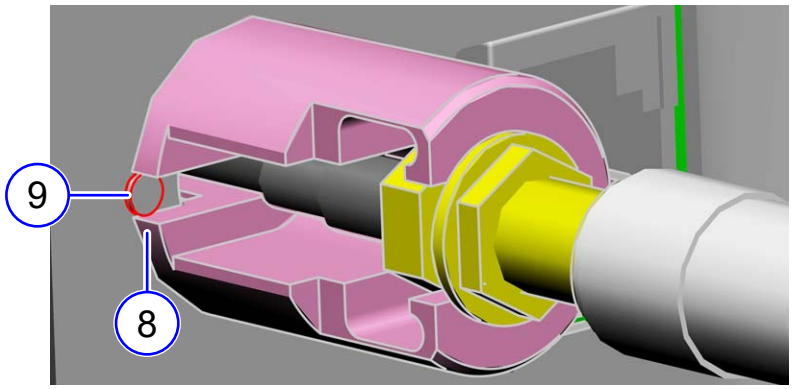


**5** Remove a hexagon nut (⑤), and then remove a washer (⑥) and the antenna sub (⑦).




**Notes on assembling**

- Align the concave part (⑧) of the antenna sub with the convex part (⑨) of the IF plate.




## ▶ From here, assembling procedure

**6** Assemble the parts in the reverse order of the disassembly procedure.

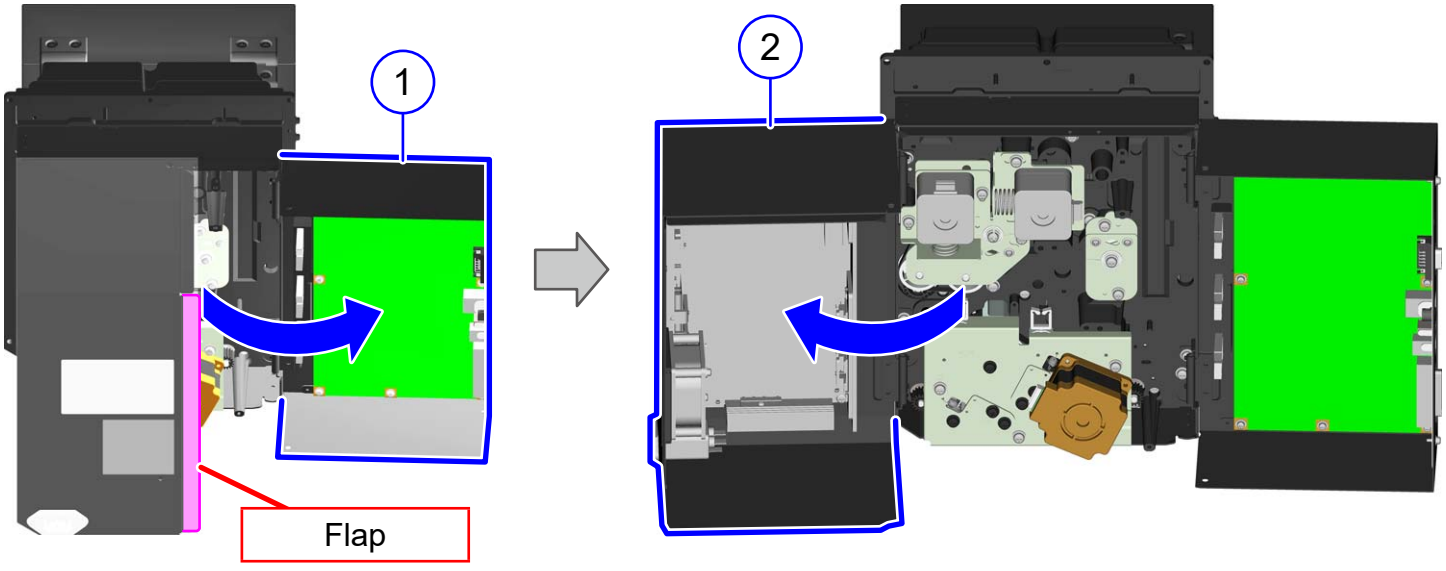
## ▶ Wi-Fi Settings

**Refer to** 2.3.4 WiFi Ex-Setting

# 5. 2 Installing the RFID Kit

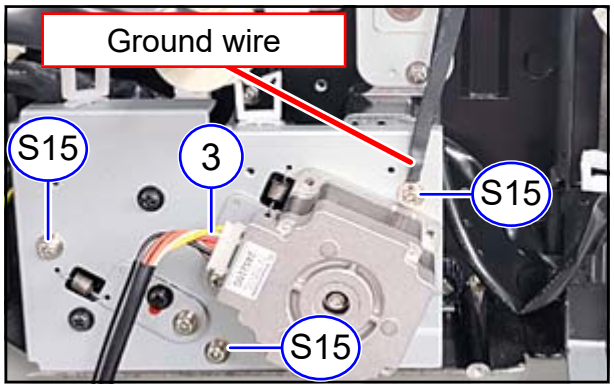
**1** Loosen and remove two **flat-head screws** (S1) at the top of the rear cover, then remove another two **pan head screws** (S2) at the rear.

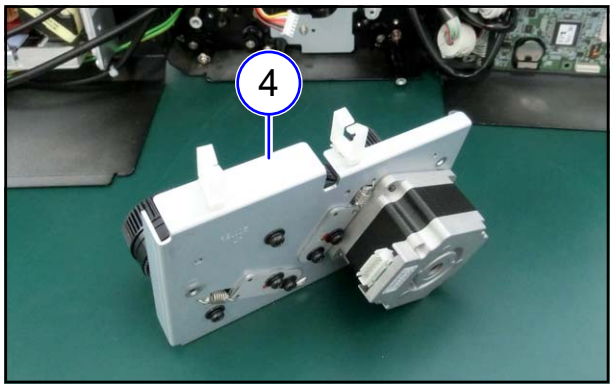

**2** Open the interface side of the **rear housing cover** (①), then open the other side that has a flap on the **rear housing cover** (②).



**3** Disconnect the **motor cable** (③).

**4** Remove three **screws** (S15) and remove the **gearbox** (④).

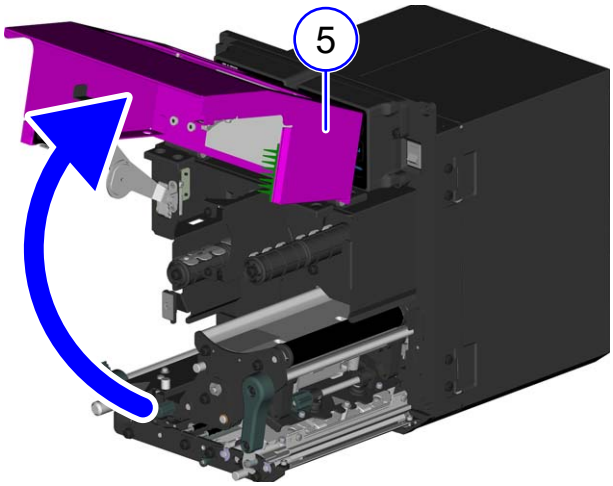


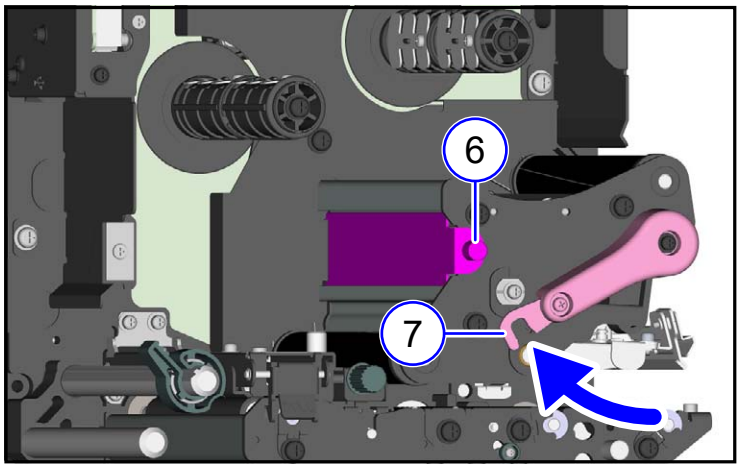




**5** Open the top cover (⑤) of the product.

**6** Loosen the HEAD CABLE COVER thumb screw (⑥) and remove the HEAD CABLE COVER.

**7** Turn the head lock lever (⑦) clockwise to unlock the print head.

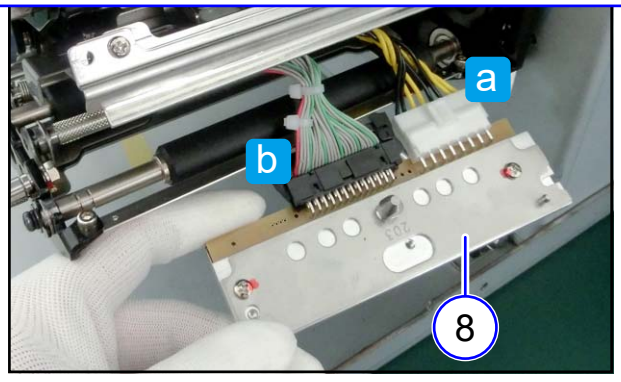


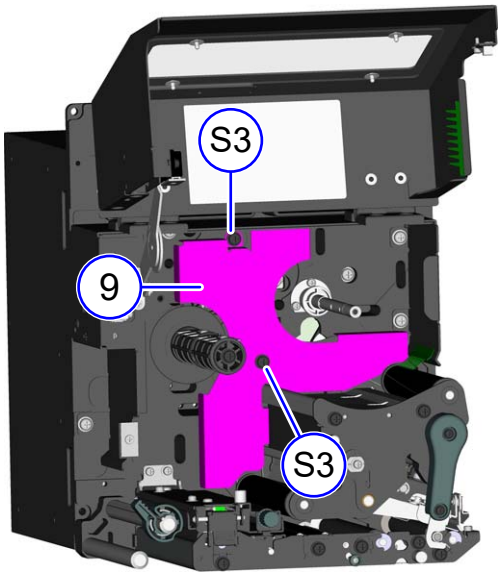

**8** Remove the **print head** (⑧).

**Refer to** 4.4.8 Replacing the Print Head

Unplug the connector in the order of a and b.

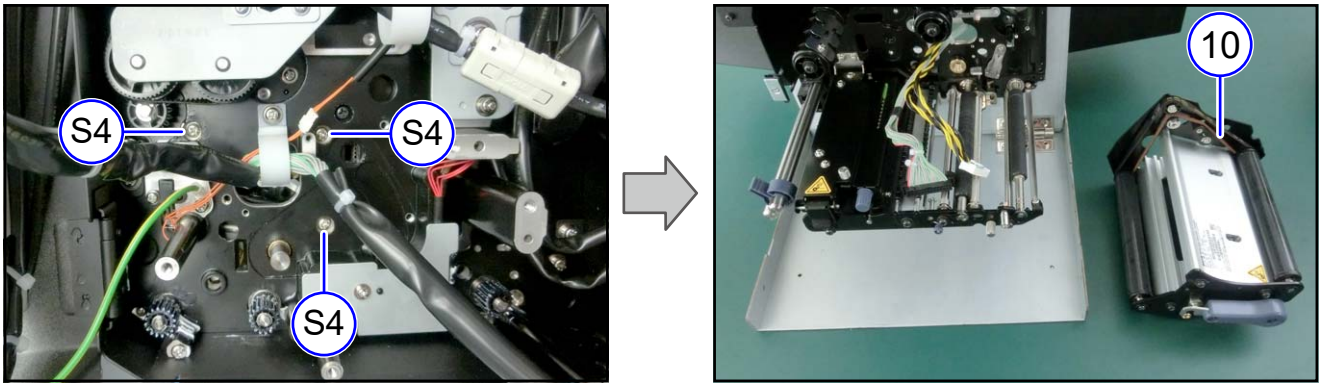


**9** On the front of the product, remove two **screws** (S3) and the **belt cover** (⑨).

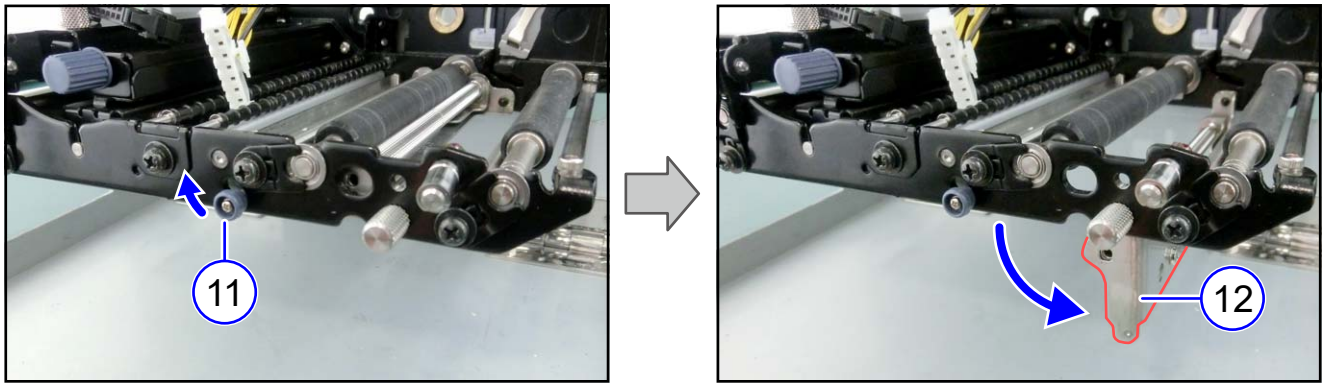



**10** On the rear of the product, remove three **screws** (S4).

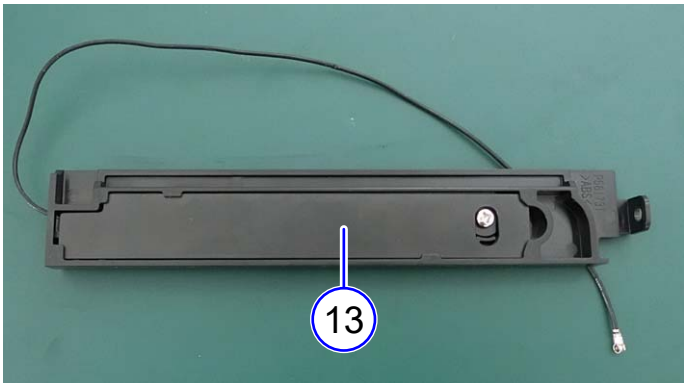
**11** Then carefully remove the frame of the **print head assembly** (⑩).




**12** Push the **pressure roller release tab** (⑪) up to release the **pressure roller plate** (⑫).



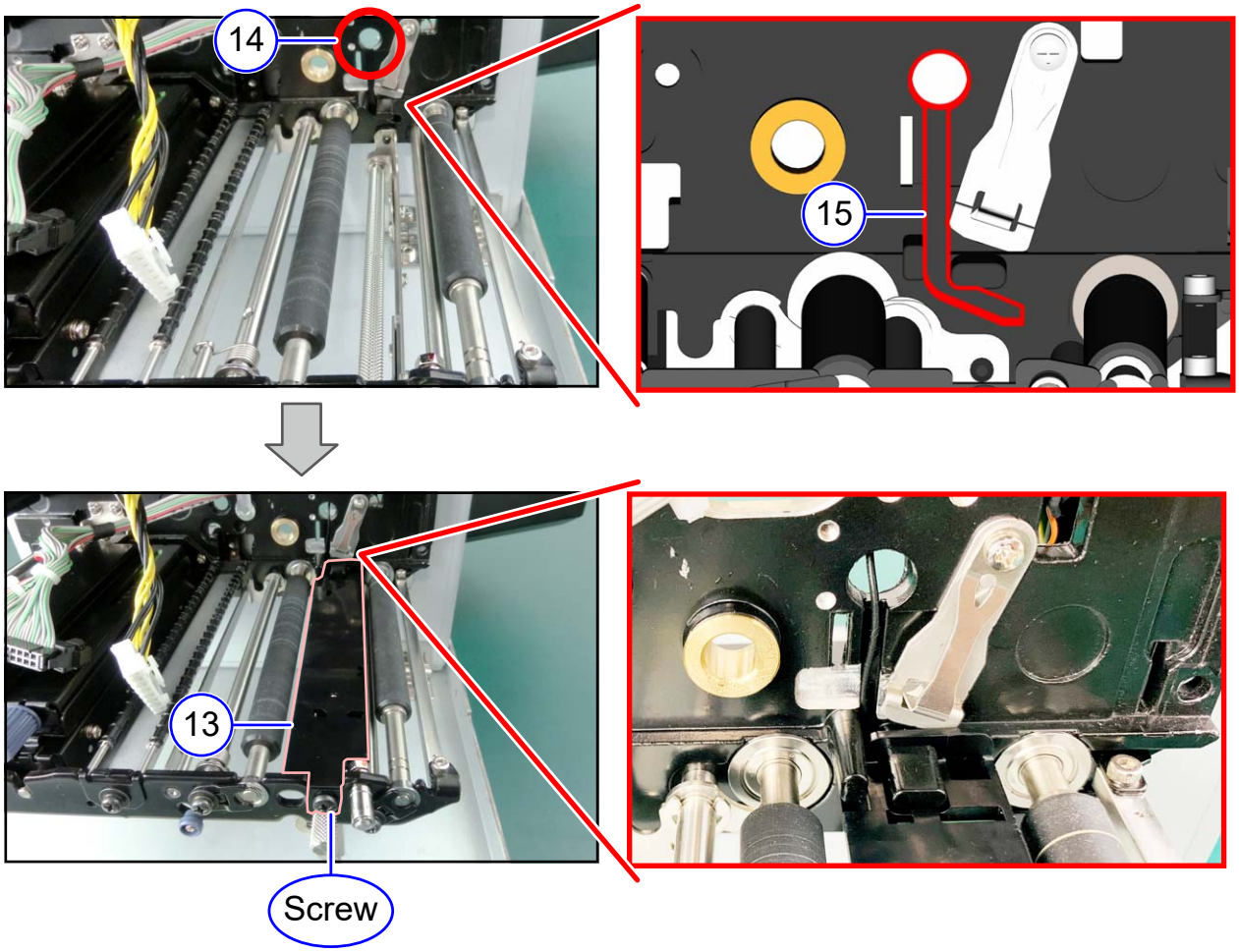
## 13 Installing the UHF NORMAL ASSY (⑬)




**(1)** Pass the coaxial cable of the UHF NORMAL ASSY through the cable hole (⑭) and feed it to the rear of the product.

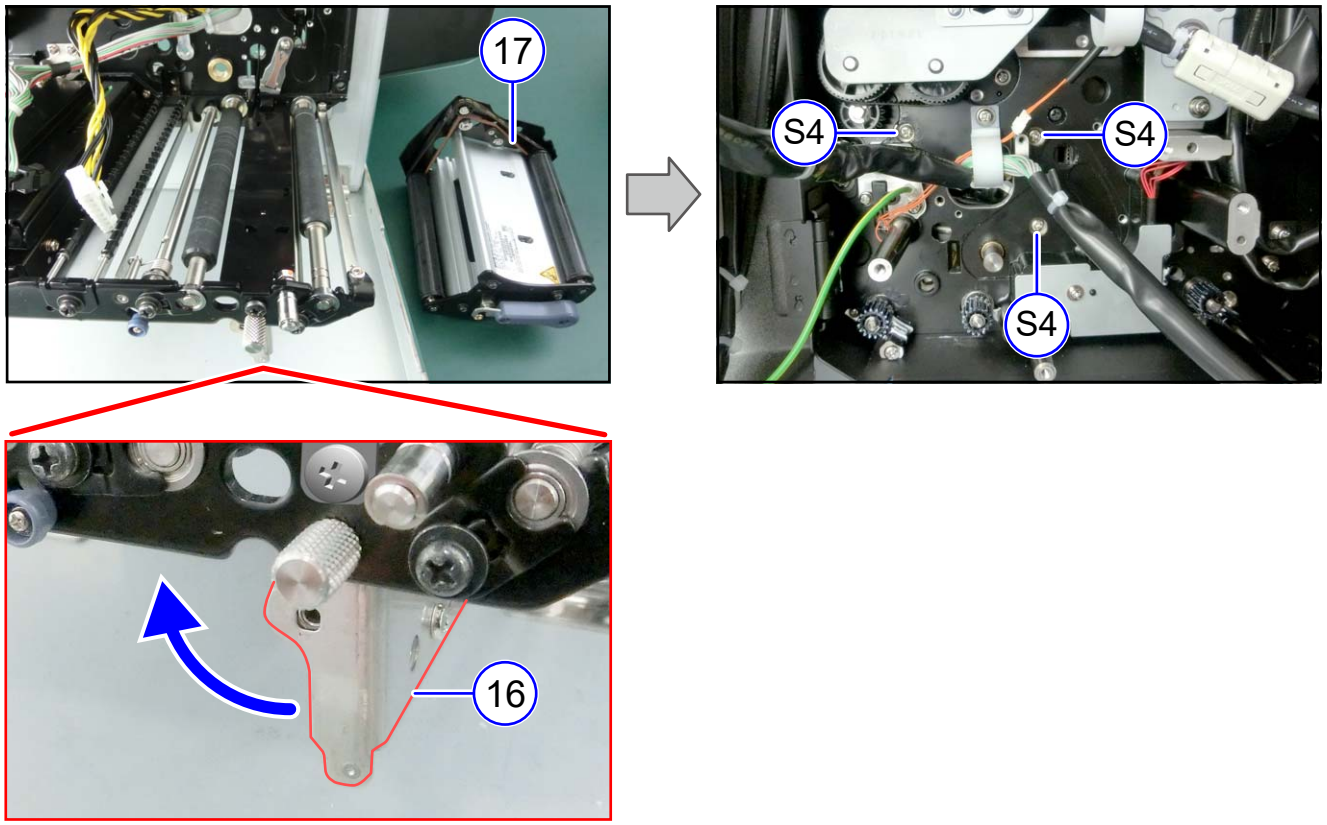
**(2)** Attach the UHF NORMAL ASSY (⑬) while inserting its coaxial cable into the cable routing groove (⑮) of the product.

**(3)** Tighten the UHF NORMAL ASSY using a screw attached to the UHF RFID Kit.



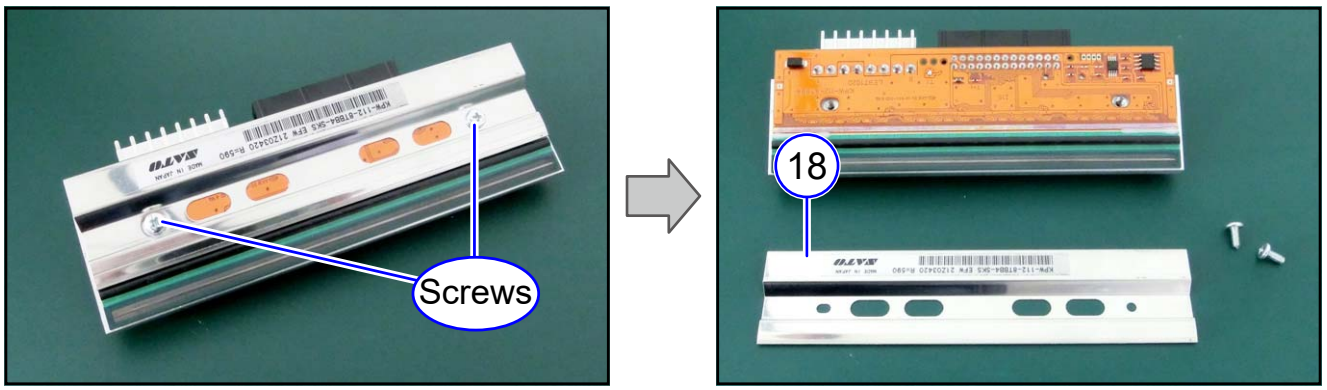
**14** Close the pressure roller plate (⑯).

**15** Install the print head assembly (⑰) and fix it using three screws (S4).

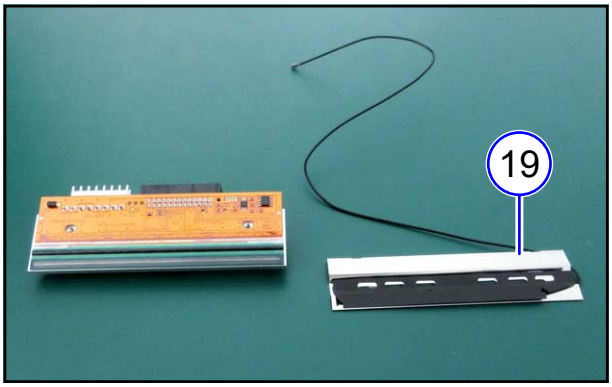



**16** Remove two screws and remove the head pwb cover (⑱).

**TIPS** **The screws are reused.**



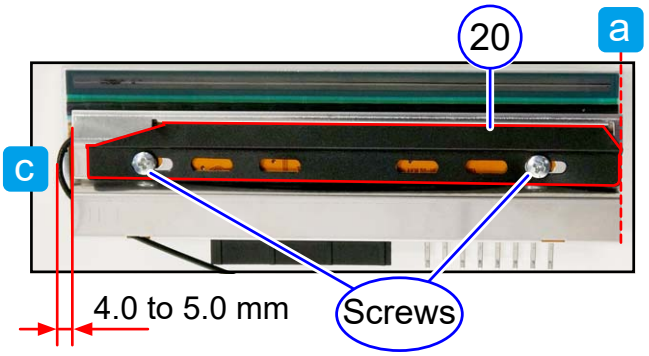
## 17 Installing the UHF FRONT ASSY (⑲)




**(1)** Attach the UHF FRONT ASSY to the print head and fix it using two screws.

### LH type

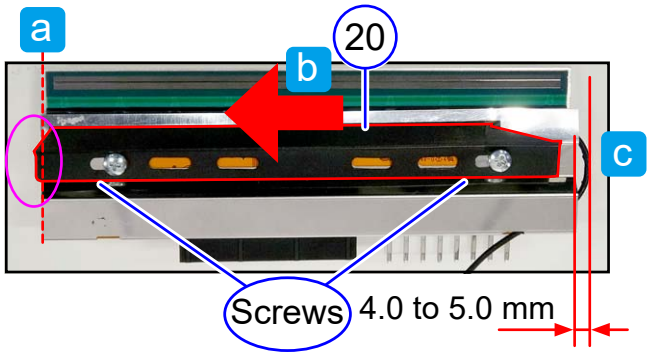
Align the RFID HEAD COVER SHEET (⑳) with the print head end face (a).




### RH type

Shift the RFID HEAD COVER SHEET (⑳) all the way to the end. (b)

* RFID HEAD COVER SHEET sticks out from the print head end face (a).



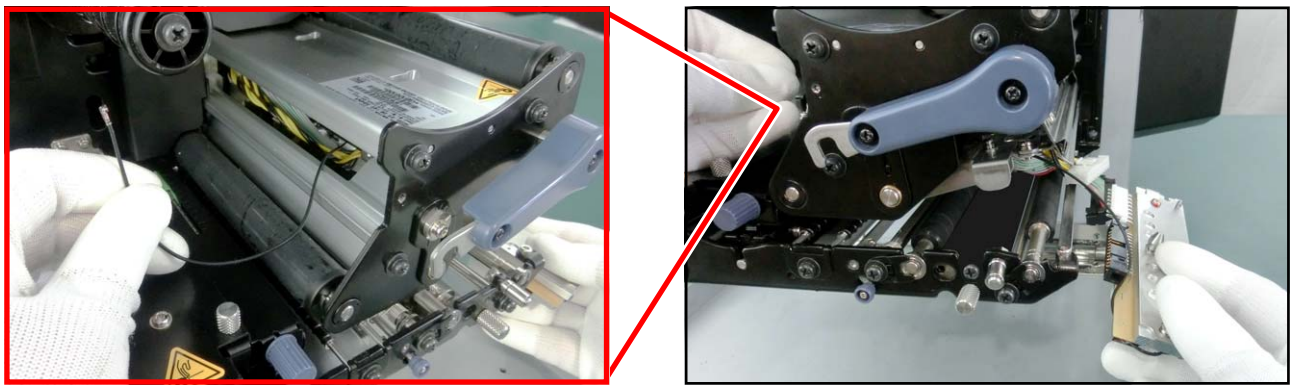

**Notes on assembling**

- Make sure that the protruding part of the cable (c) is 4.0 to 5.0 mm from the end face of the print head.

## 18 Pass the coaxial cable of the UHF FRONT ASSY through the print head assembly.

**Notes on assembling**

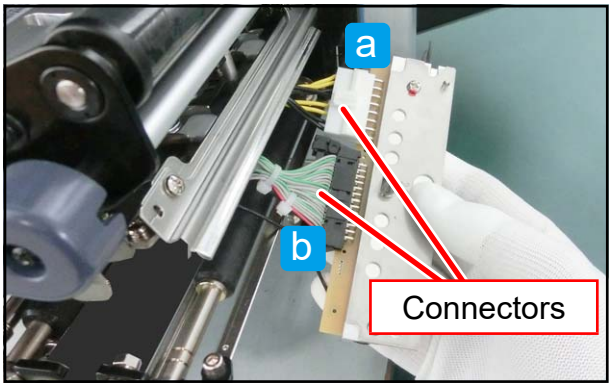
- Pass the coaxial cable between the two print head connectors.



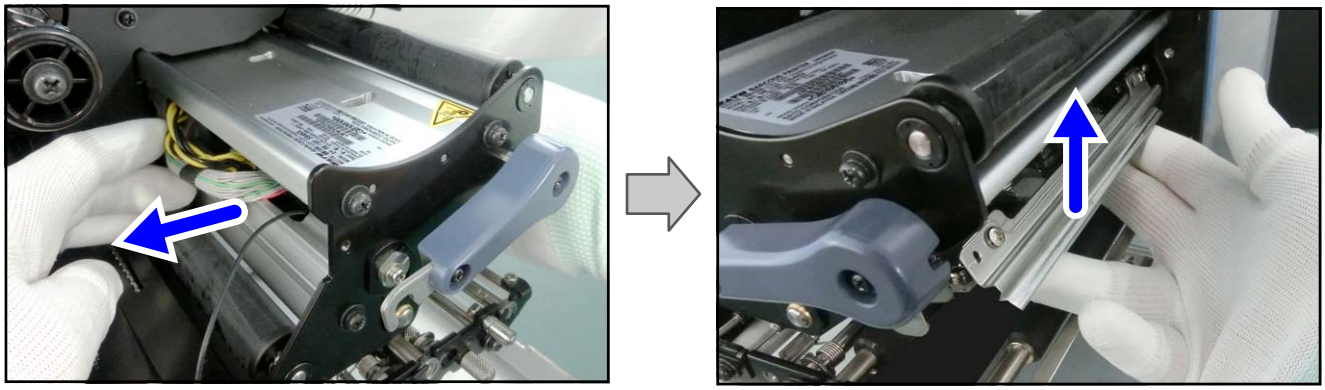
**19** Connect two connectors to the print head.

**Notes on assembling**

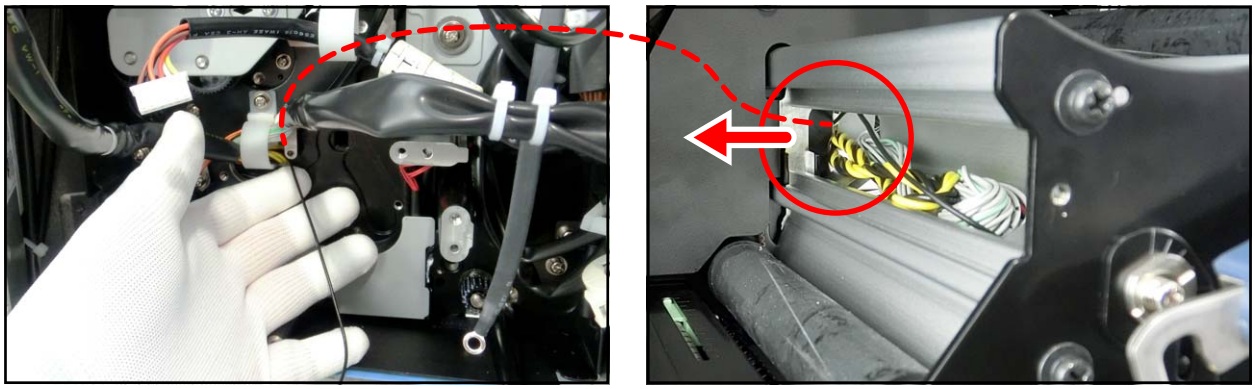
- Connect the connectors in the order of b and a.



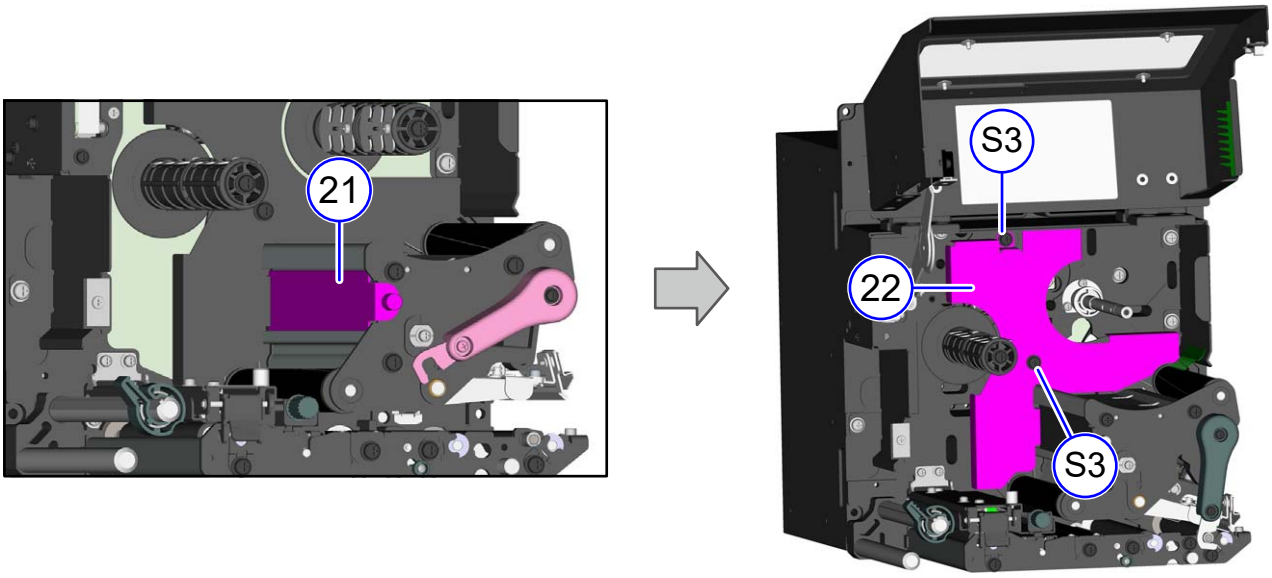

**20** While pulling back the cables, insert the print head inside the print head assembly. Then, align its position and push it upward until it is latched.



**21** Place the cables in the print head assembly, pass the coaxial cable through the cable hole, and feed it to the rear of the product.

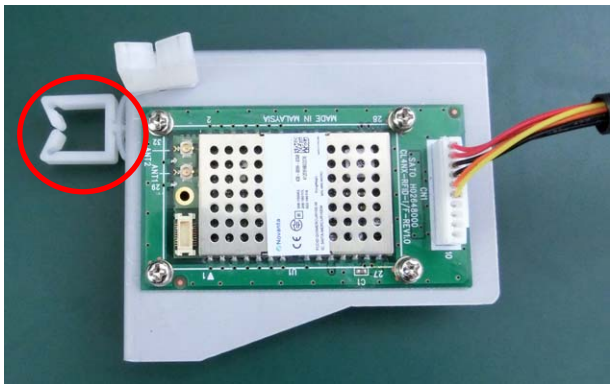


**22** Attach the HEAD CABLE COVER (㉑) and belt cover (㉒).

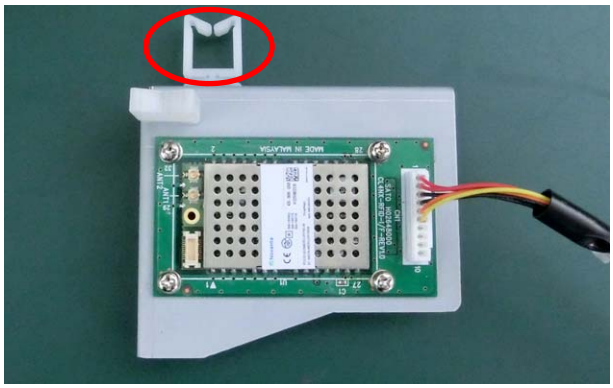



**23** The position of the WIRE SADDLE on the UHF RFID MODULE ASSY is different between the LH and RH models.

LH moel



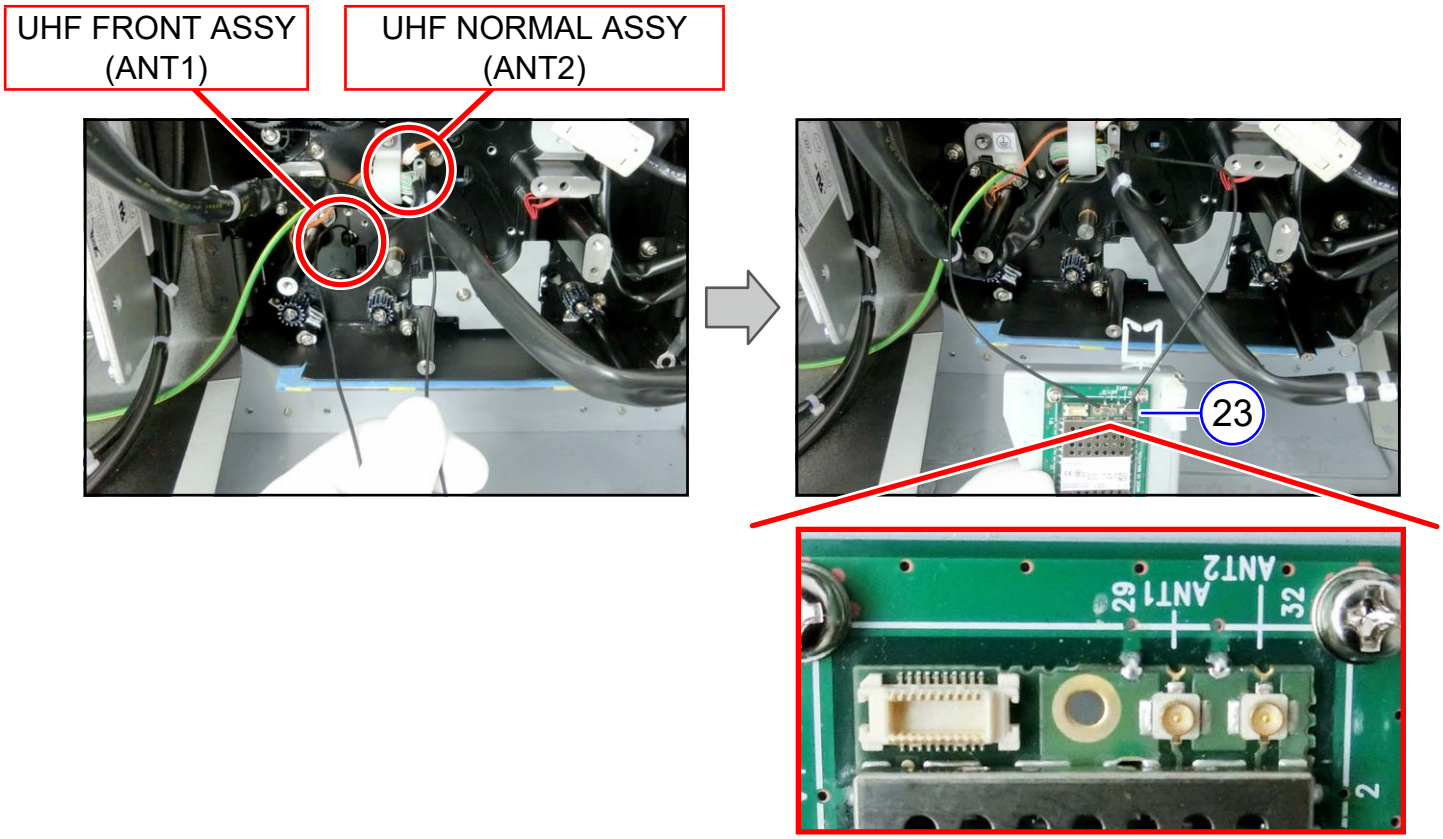
LH moel



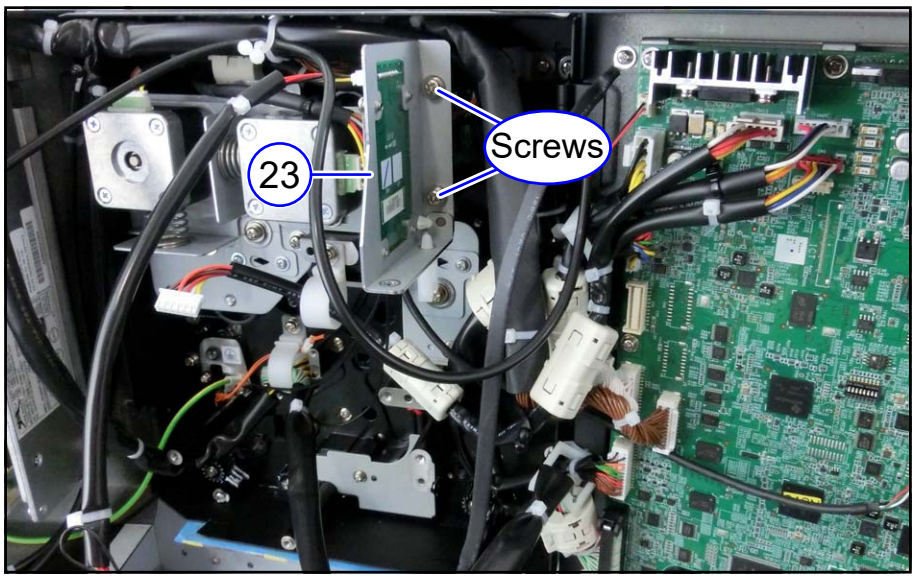
**24** Connect the two coaxial cables to the UHF RFID MODULE ASSY (㉓).

**Notes on assembling**

- The UHF RFID MODULE PCB has two connectors, ANT1 and ANT2, so connect each coaxial cable correctly.




**25** Fix the UHF RFID MODULE ASSY (㉓) using two screws attached to the UHF RFID Kit.

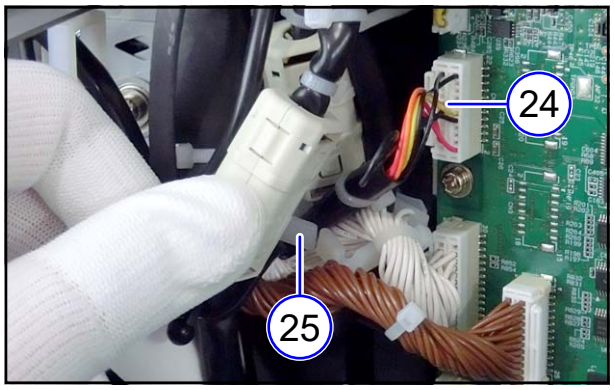


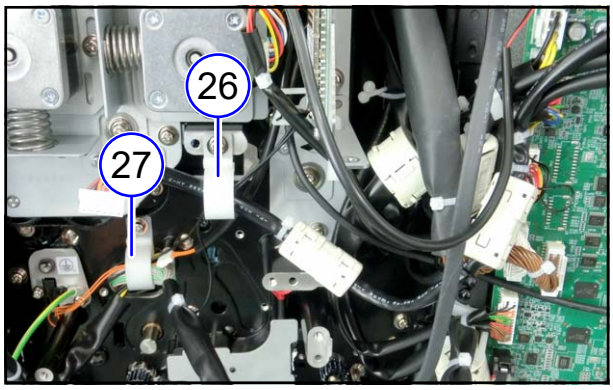
**26** Connect the cable (㉔) of the UHF RFID MODULE ASSY to the CONT PCB.

**27** Fix the cable of the UHF RFID MODULE ASSY using the Saddle (㉕).

**28** Fix the ANT1 cable using the CLAMP-1 (㉖).

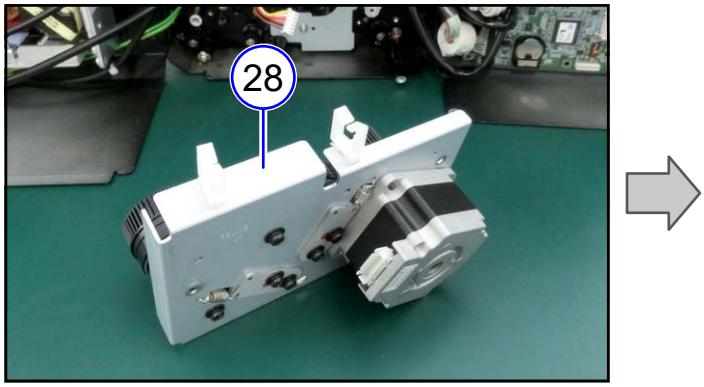
**29** Fix the ANT1 and ANT2 cables using the CLAMP-2 (㉗).

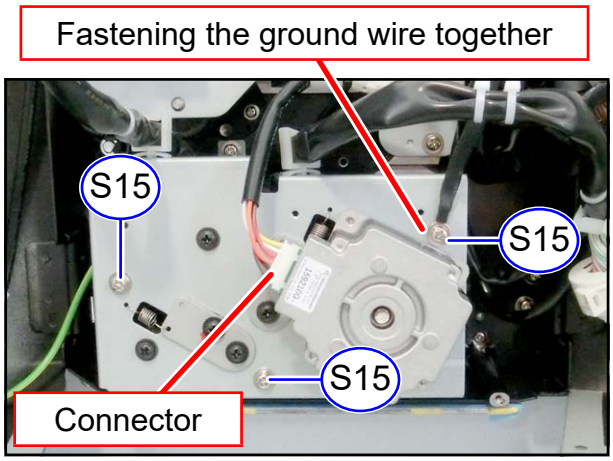


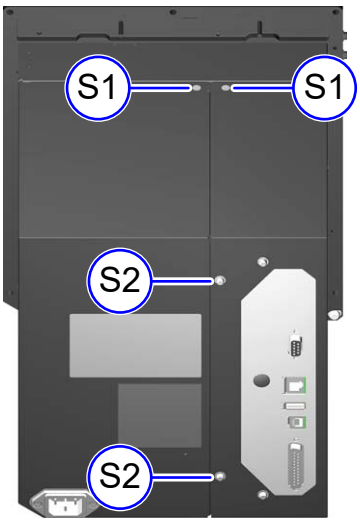

**30** Attach the gearbox (㉘) and fix it using three screws (S15).

**31** Connect the connector.




**32** Close the rear housing covers and fix them using four screws.




## ▶ RFID Settings

**Refer to** 2.3.3 RFID

# 6 Troubleshooting

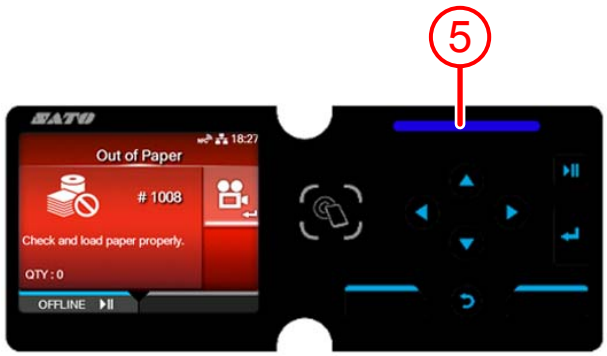
Back to top



## 6. 1 About Error Message

When an error occurs, a buzzer sound, red indicator on the status LED, and an error message on the display show you the error status.

| No | Menu | Description |
|---|---|---|
| ① | Error Number | An error number is displayed. |
| ② | Type of Error | A type of error is displayed. |
| ③ | Error Icon | A type of error is displayed in an icon. |
| ④ | Message | The procedure to clear an error is displayed. |
| ⑤ | LED Indicator | Lights in red when an error occurs. |
| ⑥ | Error Buzzer Sound | When an error occurs, a long buzzer sounds once, or a short buzzer sounds three times. |

## 6. 2 Error Code List

# 6. 3 Error List

| Error Number | Type of Error | Error Icon | LED | Buzzer |
|---|---|---|---|---|
| 1001 | Machine Error |  | Light in red | None |
| Message | Recycle power. Contact service if not resolved. | | | |
| To clear the display | Power off the product. | | | |
| Causes | Defective PCB. | | | |
| Countermeasures | Replace board. | | | |

| | | | | |
|---|---|---|---|---|
| 1002 | Program Error |  | Light in red | Long sound, one time |
| Message | Memory or program error. Recycle power. Contact service if not resolved. | | | |
| To clear the display | Power off the product. | | | |
| Causes | • Cannot access the Flash ROM.<br>• Exceeds the number of writes available.<br>• Other program error | | | |
| Countermeasures | • Restart the printer.<br>• If the problem persists, reinstall the firmware. | | | |

| | | | | |
|---|---|---|---|---|
| 1003 | Parity Error |  | Light in red | Short sound, 3 times |
| Message | Wrong RS-232C settings. Adjust settings and check cable. | | | |
| To clear the display | Press the left select button (OFFLINE) or LINE button. | | | |
| Causes | 1) RS-232C settings are incorrect.<br>2) The RS-232C cable is not connected correctly. | | | |
| Countermeasures | 1) Adjust the interface settings correctly.<br>2) Connect the RS-232C cable correctly. | | | |

| | | | | |
|---|---|---|---|---|
| 1004 | Overrun Error |  | Light in red | Short sound, 3 times |
| Message | Wrong RS-232C settings. Adjust settings and check cable. | | | |
| To clear the display | Press the left select button (OFFLINE) or LINE button. | | | |
| Causes | 1) RS-232C settings are incorrect.<br>2) The RS-232C cable is not connected correctly. | | | |
| Countermeasures | 1) Adjust the interface settings correctly.<br>2) Connect the RS-232C cable correctly. | | | |

| Error Number | Type of Error | Error Icon | LED | Buzzer |
|---|---|---|---|---|
| 1005 | Framing Error |  | Light in red | Short sound, 3 times |
| Message | Wrong RS-232C settings. Adjust settings and check cable. | | | |
| To clear the display | Press the left select button (OFFLINE) or LINE button. | | | |
| Causes | 1) RS-232C settings are incorrect.<br>2) The RS-232C cable is not connected correctly. | | | |
| Countermeasures | 1) Adjust the interface settings correctly.<br>2) Connect the RS-232C cable correctly. | | | |

| | | | | |
|---|---|---|---|---|
| 1006 | Buffer Overflow |  | Light in red | Short sound, 3 times |
| Message | Receiving buffer full. Check host program. | | | |
| To clear the display | Press the left select button (OFFLINE) or LINE button. | | | |
| Causes | 1) The size of the received data from the host exceeds the size of the receive buffer.<br>2) The interface settings between the host and printer is incorrect. | | | |
| Countermeasures | 1) Change the settings on the host so that data that exceeds the size of the receive buff er cannot be sent.<br>2) Set the interface settings between the host and printer. | | | |

| | | | | |
|---|---|---|---|---|
| 1007 | Head Open |  | Light in red | Short sound, 3 times |
| Message | Head is open. Close print head. | | | |
| To clear the display | Lock the print head. | | | |
| Causes | 1) Thermal head assembly isn't closed.<br>2) Sensor is dirty for detecting head open/close.<br>3) Failure of sensor for detecting head open/close. | | | |
| Countermeasures | 1) Close the thermal head assembly.<br>2) Sensor is cleaned.<br>3) Exchange of sensor substrates. | | | |

| Error Number | Type of Error | Error Icon | LED | Buzzer |
|---|---|---|---|---|
| 1008 | Out of Paper |  | Light in red | Short sound, 3 times |
| Message | Check and load paper properly. | | | |
| To clear the display | Load the media and open/close the print head, or press the left select button (OFFLINE) or LINE button. | | | |
| Causes | 1) The media is not loaded.<br>2) The media is not loaded correctly.<br>3) The media sensor level is not set correctly.<br>4) The media has jammed.<br>5) The media sensor is not operating correctly. | | | |
| Countermeasures | 1) 2)<br>Load the media correctly.<br>3) Adjust the media sensor level.<br>4) Remove the jammed media.<br>5) Clean the media sensor. | | | |

| | | | | |
|---|---|---|---|---|
| 1009 | Ribbon End |  | Light in red | Short sound, 3 times |
| Message | Receiving buffer full. Check host program. | | | |
| To clear the display | Load the ribbon correctly and close the print head, or press the left select button (OFFLINE) or LINE button. | | | |
| Causes | 1) The ribbon is not loaded.<br>2) The ribbon is not loaded correctly.<br>3) There is no ribbon.<br>4) The ribbon sensor is not operating correctly. | | | |
| Countermeasures | 1) Load the ribbon.<br>2) Load the ribbon and the media correctly.<br>3) Load a new ribbon.<br>4) Clean and adjust carbon ribbon path. | | | |

| Error Number | Type of Error | Error Icon | LED | Buzzer |
|---|---|---|---|---|
| 1010 | Media Error |  | Light in red | Short sound, 3 times |
| Message | Print is too long or wrong settings. Adjust print data or sensor settings. | | | |
| To clear the display | Open/close the print head, or press the left select button (OFFLINE) or LINE button. | | | |
| Causes | 1) The media size of the print data and the actual media size are different.<br>2) The media size of the print data is longer than the actual media size.<br>3) The media is fed a longer distance due to the incorrect sensor level. | | | |
| Countermeasures | 1) Check the media size of the print data and the actual media size again. If the error is not solved, power on the product again.<br>2) Check the print data. If the error is not solved, power on the product again.<br>3) Adjust the media sensor level. If the error is not solved, power on the product again. | | | |

| | | | | |
|---|---|---|---|---|
| 1012 | Head Error |  | Light in red | Long sound, one time |
| Message | Replace print head or change head check settings. | | | |
| To clear the display | Power off the product, or change print head check conditions. | | | |
| Causes | 1) The print head is defective.<br>2) The print head is worn or damaged. | | | |
| Countermeasures | 1) 2)<br>Replace the print head. | | | |

| | | | | |
|---|---|---|---|---|
| 1013 | USB R/W Error |  | Light in red | Long sound, one time |
| Message | Unknown partition type. Remove USB memory. | | | |
| To clear the display | Connect the USB memory and then disconnect it, or press the left select button (OFFLINE) or LINE button. | | | |
| Causes | 1) The USB memory is disconnected while writing.<br>2) The copy area in the USB memory is not sufficient.<br>3) Writing to the USB memory fails.<br>4) The USB memory is not formatted. | | | |
| Countermeasures | 1) Connect the USB memory.<br>2) Make sure that the USB memory has sufficient copy area.<br>3) Replace the USB memory.<br>4) Format the USB memory to FAT32 format. | | | |

| Error Number | Type of Error | Error Icon | LED | Buzzer |
|---|---|---|---|---|
| 1014 | USB Memory Full |  | Light in red | Long sound, one time |
| Message | USB memory full. Free up space. | | | |
| To clear the display | Connect the USB memory with sufficient space, or press the left select button (OFFLINE) or LINE button. | | | |
| Causes | • The space in the USB memory is not sufficient. | | | |
| Countermeasures | • Delete unwanted data from the USB memory or insert a USB memory with sufficient space. | | | |

| | | | | |
|---|---|---|---|---|
| 1017 | SBPL Command Error |  | Light in red | Short sound, 3 times |
| Message | C003:<X>:Invalid command | | | |
| To clear the display | Press the left select button (CANCEL) or LINE button. | | | |
| Causes | Incorrect command or parameter is detected in the print data.<br>Check the display of “Caaa: <bb>: cc” for error details.<br>Caaa: Position of error occurrence<br><bb>: Error command name<br>cc: Error content<br>The error contents are as follows: | | | |
| Countermeasures | Check the print data.<br>If the problem persists, restart the printer. | | | |

| | |
|---|---|
| Invalid command | Analyzed improper command. |
| Invalid parameter | Received improper parameter. |
| Command table read error | Failed to read the command table. |
| Invalid graphic data/ custom designed data | Analyzed improper graphic and custom designed data. |
| Invalid registration area | • Specified memory area (card slot) is inappropriate.<br>• Tried to write to a write-protected media. |
| This number is already registered. | Number specified by registration command has already been taken. |
| Over registration area limit | Exceeded the registration area. (Memory full) |
| Data is not registered | Data, such as form overlay, is not registered. |
| Printing position is out of printable area | The specified print start position is outside the printable area. |
| Barcode image is out of printable area | The printing image is outside the printable area. (Barcode only) |

| Error Number | Type of Error | Error Icon | LED | Buzzer |
|---|---|---|---|---|
| 1020 | Calendar Error |  | Light in red | Long sound, one time |
| Message | Check calendar setting. Press Enter. | | | |
| To clear the display | Change the calendar (option) settings, press the left select button (OFFLINE) or LINE button. | | | |
| Causes | • The date and time of the calendar are incorrect. | | | |
| Countermeasures | • Reset the calendar.<br>If the problem persists, check the voltage of the coin battery and replace the battery if the voltage is less than 1.8 V.<br>If the problem still persists, replace the CONT PCB. | | | |

| | | | | |
|---|---|---|---|---|
| 1021 | BCC Check Error |  | Light in red | Short sound, 3 times |
| Message | BCC (Block Check Code) error. Press line key or cancel job. | | | |
| To clear the display | Press the left select button (CANCEL) or LINE button. | | | |
| Causes | • The BCC code of the transmitted data (one item) is incorrect. | | | |
| Countermeasures | Check the transmitted data and interface settings.<br>• [PRINT]: Continue printing from the print data where the BCC error occurred.<br>• [CANCEL]: Cancel the print data where the BCC error occurred and continue printing from the next item.<br>• Send the SUB command: Clear the BCC error and continue printing from where it stopped.<br>• Send the CAN command: Cancel the print data where the BCC error occurred and continue printing from the next item. | | | |

| | | | | |
|---|---|---|---|---|
| 1022 | Print Head Overheated |  | Light in red | Long sound, one time |
| Message | Printer is overheated. Please wait to cool off. | | | |
| To clear the display | Stop the operation of the product to let the temperature decrease. | | | |
| Causes | The temperature of the product has exceeded its tolerance value. | | | |
| Countermeasures | Stop the operation of the product to let the temperature decrease. | | | |

| Error Number | Type of Error | Error Icon | LED | Buzzer |
|---|---|---|---|---|
| 1023 | NTP Error |  | Light in red | Long sound, one time |
| Message | No contact with time server. Check IP address and LAN settings. | | | |
| To clear the display | Press the left select button (OFFLINE) or change the calendar setting. | | | |
| Causes | 1) Could not connect to the time server and set the date and time.<br>2) There was a mistake in the network settings or a network malfunction occurred. | | | |
| Countermeasures | 1) Confirm that the address of the time server is correct. Confirm that there is a connection to the time server.<br>2) Check the network settings and the network environment. | | | |

| | | | | |
|---|---|---|---|---|
| 1024 | Head Density Changed |  | Light in red | Long sound, one time |
| Message | No print head installed or head resolution was changed. | | | |
| To clear the display | Check the message that appeared on the screen. | | | |
| Causes | 1) The print head is not installed.<br>2) A new print head with a different resolution has been installed. | | | |
| Countermeasures | 1) Install the print head.<br>2) Install a print head with the sameresolution as the old print head. | | | |

| | | | | |
|---|---|---|---|---|
| 1028 | GAP Not Found |  | Light in red | Short sound, 3 times |
| Message | Adjust sensor settings to match label type or clean sensor. | | | |
| To clear the display | Press the left select button (OFFLINE) or open/close the print head. | | | |
| Causes | 1) Meandering media.<br>2) A label is attached to the media sensor.<br>3) The media sensor type is incorrect.<br>4) The media sensor level is incorrect. | | | |
| Countermeasures | 1) Load the media correctly.<br>2) Clean the media sensor.<br>3) Set the media sensor type which is compatible with the media you use.<br>4) Adjust the media sensor level. | | | |

| Error Number | Type of Error | Error Icon | LED | Buzzer |
|---|---|---|---|---|
| 1029 | Cover Open |  | Light in red | Short sound, 3 times |
| Message | Cover is open. Close cover. | | | |
| To clear the display | Close the top cover. | | | |
| Causes | 1) The top cover is open.<br>2) Close the top cover. | | | |
| Countermeasures | 1) Cover open switch is malfunctioning.<br>2) Replace the top cover sensor | | | |

| | | | | |
|---|---|---|---|---|
| 1035 | I-mark Not Found |  | Light in red | Short sound, 3 times |
| Message | Adjust sensor settings to match label type or clean sensor. | | | |
| To clear the display | Press the left select button (OFFLINE) or open/close the print head. | | | |
| Causes | 1) Meandering media.<br>2) A label is attached to the media sensor.<br>3) The media sensor type is incorrect.<br>4) The media sensor level is incorrect. | | | |
| Countermeasures | 1) Load the media correctly.<br>2) Clean the media sensor.<br>3) Set the media sensor type which is compatible with the media you use.<br>4) Adjust the media sensor level. | | | |

| | | | | |
|---|---|---|---|---|
| 1046 | EAP Authentication Error<br>(EAP Failure) |  | Light in red | Short sound, 3 times |
| Message | Erroneous Wi-Fi settings. Adjust settings. | | | |
| To clear the display | Change the Wi-Fi settings or press the left select button (OFFLINE). | | | |
| Causes | EAP Authentication failure. | | | |
| Countermeasures | Use the correct Wi-Fi settings. | | | |

| Error Number | Type of Error | Error Icon | LED | Buzzer |
|---|---|---|---|---|
| 1047 | EAP Authentication Error (EAP Timeout) |  | Light in red | Short sound, 3 times |
| Message | Authentication timed out. Check AP and server configurations. | | | |
| To clear the display | Press the left select button (OFFLINE). | | | |
| Causes | The Access Point (AP) setting and authentication server setting do not match. | | | |
| Countermeasures | Check the Access Point (AP) setting and authentication server setting. | | | |

| | | | | |
|---|---|---|---|---|
| 1065 | Printer Overheated |  | Light in red | Long sound, one time |
| Message | Please inform a contact center. | | | |
| To clear the display | Stop the operation of the product to let the temperature decrease. | | | |
| Causes | The temperature of the product has exceeded its tolerance value. | | | |
| Countermeasures | Stop the operation of the product to let the temperature decrease. | | | |

| | | | | |
|---|---|---|---|---|
| 1068 | WLAN Error |  | Light in red | Long sound, one time |
| Message | Contact customer service. | | | |
| To clear the display | Press the left select button (OFFLINE). | | | |
| Causes | The wireless LAN module is damaged. | | | |
| Countermeasures | Replace the WLAN unit. | | | |

| | | | | |
|---|---|---|---|---|
| 1075 | NFC Error |  | Light in red | Long sound, one time |
| Message | Contact customer service. | | | |
| To clear the display | Press the left select button (OFFLINE). | | | |
| Causes | The NFC module is not operating correctly. | | | |
| Countermeasures | Replace the NFC module. | | | |

| Error Number | Type of Error | Error Icon | LED | Buzzer |
|---|---|---|---|---|
| 1076 | Invalid command in NFC |  | Light in red | Short sound, 3 times |
| Message | Failed to install settings from NFC. | | | |
| To clear the display | Press the left select button (OFFLINE). | | | |
| Causes | A command error occurs and the settings are not saved correctly. | | | |
| Countermeasures | Check the command.<br>If the problem persists, replace the CONT PCB. | | | |

| | | | | |
|---|---|---|---|---|
| 1077 | Barcode Reader Connection Error |  | Light in red | Short sound, 3 times |
| Message | Connect barcode reader. | | | |
| To clear the display | Connect the barcode checker, or press the left select button (OFFLINE). | | | |
| Causes | • Could not check the connection of the barcode checker.<br>• Communication between the barcode checker and the product fails. | | | |
| Countermeasures | • Check the barcode checker, and connect it correctly.<br>• If you do not use the barcode check function, disable the barcode check mode. | | | |

| | | | | |
|---|---|---|---|---|
| 1078 | Barcode Reading Error |  | Light in red | Short sound, 3 times |
| Message | Adjust attachment position of reader or confirm reader settings. | | | |
| To clear the display | Press the left select button (OFFLINE) or right select button (CANCEL).<br>• Press the left select button (OFFLINE) to change to Offline mode while keeping the print job.<br>• Press the right select button (CANCEL) to cancel the print job and change to Offline mode. | | | |
| Causes | Could not read the barcode correctly. | | | |
| Countermeasures | • Check the layout for printing.<br>• Check the barcode checker position and its settings. | | | |

| Error Number | Type of Error | Error Icon | LED | Buzzer |
|---|---|---|---|---|
| 1079 | Barcode Reading Error |  | Light in red | Short sound, 3 times |
| Message | The setting value of checking start position is larger than the printed area. | | | |
| To clear the display | Press the left select button (OFFLINE). The product changes to Offline mode while keeping the print job. | | | |
| Causes | A value larger than the loaded media length is specified for checking start position. | | | |
| Countermeasures | • Check the layout for printing.<br>• Set a value smaller than the loaded media length for checking start position. | | | |

| | | | | |
|---|---|---|---|---|
| 1080 | Barcode Comparison Error |  | Light in red | Short sound, 3 times |
| Message | Check printed barcodes. | | | |
| To clear the display | Press the left select button (OFFLINE) or right select button (CANCEL).<br>• Press the left select button (OFFLINE) to change to Offline mode while keeping the print job.<br>• Press the right select button (CANCEL) to cancel the print job and change to Offline mode. | | | |
| Causes | The read result of the barcode does not match the print data. | | | |
| Countermeasures | • Check the layout for printing.<br>• Check the barcode checker position and its settings. | | | |

| | | | | |
|---|---|---|---|---|
| 1099 | Config Warning |  | Light in red | Short sound, 3 times |
| Message | Configuration Initialization | | | |
| To clear the display | Press the left select button (OFFLINE). | | | |
| Causes | The power was cut off in an inappropriate way, such as the power cord was pulled out while the power was on. | | | |
| Countermeasures | • Power off the product correctly.<br>• Reset the product in the Settings menu. | | | |

| Error Number | Type of Error | Error Icon | LED | Buzzer |
|---|---|---|---|---|
| 1136 | Label Sensor Cover Open |  | Light in red | Short sound, 3 times |
| Message | Label sensor cover is open. Close label sensor cover. | | | |
| To clear the display | Lock the feed roller and media sensor assembly. | | | |
| Causes | • The feed roller and media sensor assembly are unlocked.<br>• The sensor for detecting the open/close status of the media sensor assembly is defective. | | | |
| Countermeasures | • Unlock the feed roller and media sensor assembly once, and then lock them again. | | | |

| | | | | |
|---|---|---|---|---|
| 1141 | Printing was aborted halfway |  | Light in red | Short sound, 3 times |
| Message | Please feed and remove the label | | | |
| To clear the display | Press the left select button (OFFLINE) or LINE button to switch to Offline mode. | | | |
| Causes | In dispense & print mode, printing was interrupted by a cancel operation or error. | | | |
| Countermeasures | Press the left select button (OFFLINE) or LINE button to switch to Offline mode, and then press the button to feed and eject the labels that have finished printing part way. | | | |

# 6. 4 Status Icon List

The icons on the status bar of the display show the product's status.


**Communication Interface Status**

| Icon | Description |
|---|---|
|  | Network link is enabled but not connected. |
|  | NFC is enabled but not connected. |
|  | NFC is enabled and connected. |
|  | Not connected to the NTP time server. |
|  | Wi-Fi is authenticated, but not connected. |
|  | Wi-Fi is connected.<br>Signal Level: 1 |
|  | Wi-Fi is connected.<br>Signal Level: 2 |
|  | Wi-Fi is connected.<br>Signal Level: 3 |
|  | Wi-Fi is connected.<br>Signal Level: 4 |
|  | Wi-Fi Direct is not connected. |

| Icon | Description |
|---|---|
|  | Wi-Fi Direct is connected.<br>Signal Level: 1 |
|  | Wi-Fi Direct is connected.<br>Signal Level: 2 |
|  | Wi-Fi Direct is connected.<br>Signal Level: 3 |
|  | Wi-Fi Direct is connected or the product is set to act as an access point.<br>Signal Level: 4 |
|  | Product is connected to USB host. |
|  | Waiting for external input/output signal. |
|  | Standard code is disabled. |
|  | The On-Demand mode of the SOS (SATO Online Services) is enabled. |
|  | The Real Time mode or the Light mode of the SOS is enabled. The product is connected to the SOS cloud. |
|  | The Real Time mode or the Light mode of the SOS is enabled, but not connected to the SOS cloud.<br>If the LAN or Wi-Fi icon is grayed out, the product is not connected to the network.<br>If the LAN or Wi-Fi icon is active, the Internet connection of the SOS cloud has a trouble. |
|  | The product is not connected to the SOS cloud. |
|  | Time period set for periodic notification for On-Demand mode for SOS has been reached. Scan the QR code and send the information to the SOS cloud. |
|  | IP address could not be acquired. Or a communication error has occurred. |

### USB Memory Status

| Icon | Description |
|---|---|
|  | USB memory is connected. |

### Barcode Checker Status

| Icon | Description |
|---|---|
|  | Barcode checker is connected. |

### Barcode Scanner Status

| Icon | Description |
|---|---|
|  | Barcode scanner is connected in AEP mode. |

### Print Job Status

| Icon | Description |
|---|---|
|  | Ribbon is near the end. The rest of the ribbon is decreased. Prepare a new ribbon. |
|  | Label is near the end. The rest of the media is decreased. Prepare new media. |
|  | Command error detected. Check the print data. |
|  | Receive buffer is nearly full. Stop sending print data until the buffer is no longer nearly full. |
|  | Defective print head is detected. Replace the print head. |
|  | Incompatible print head is detected. Replace the print head. |

**Maintenance Status**

Icons notify you about cleaning the product and replacing parts at the set periods when [Notifications] is enabled.

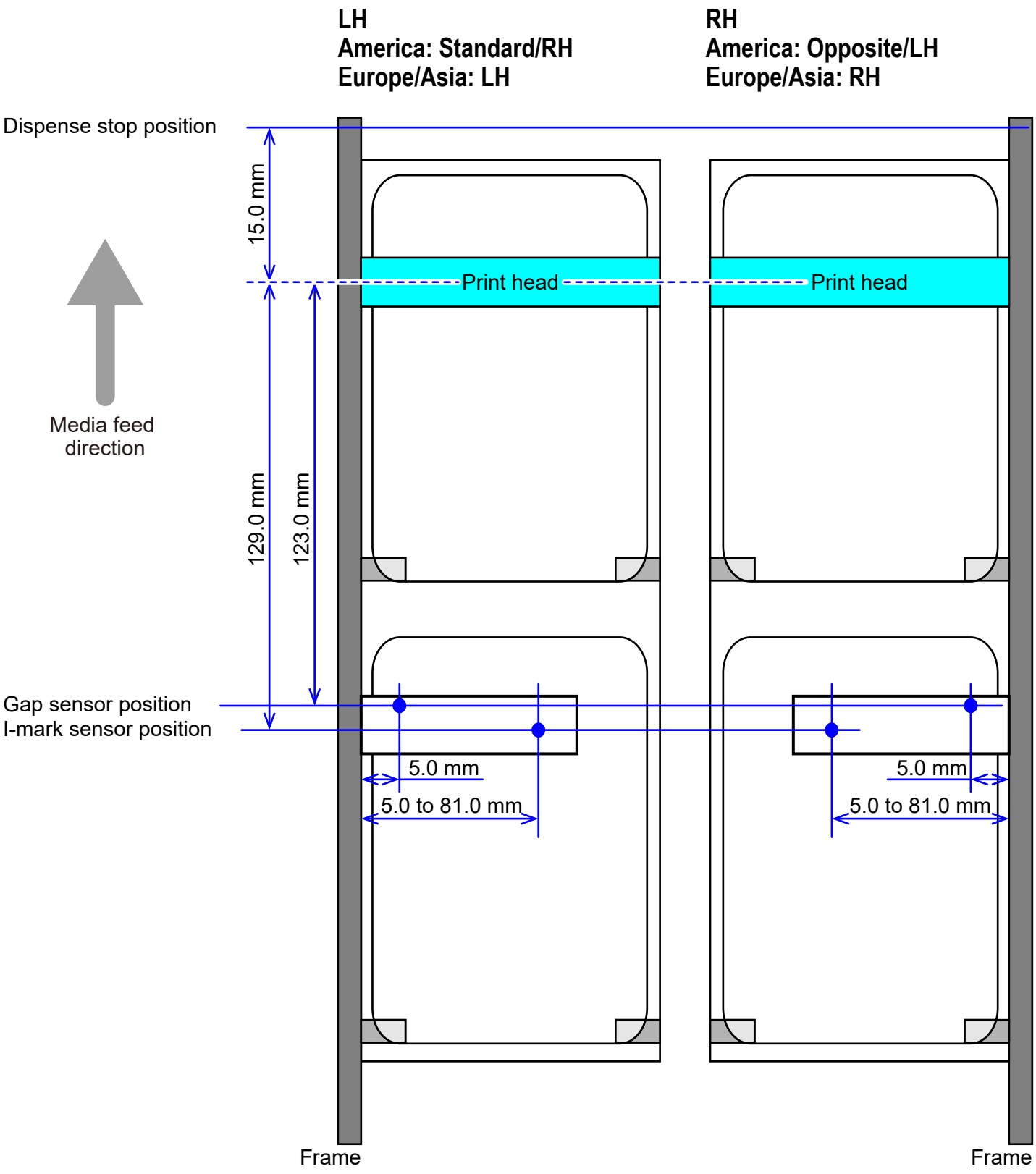
| Icon | Description |
|---|---|
|  | Clean the print head or platen roller. |
|  | Replace the print head. |
|  | Replace the platen roller. |
|  | Replace the belt(Gear Box). |
|  | Replace the belt(Ribbon). |

# Reference

**This chapter describes the following:**

# 1 Location of Sensors and Options

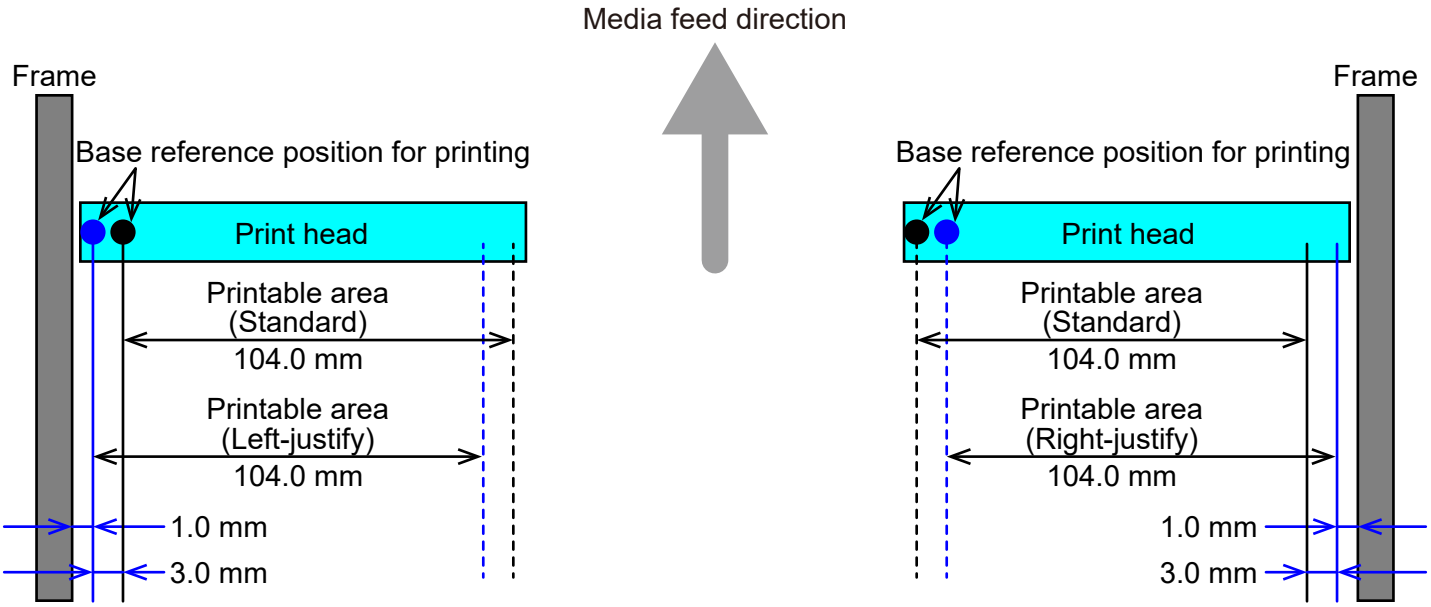
## Media Sensors and Label Feed Distance

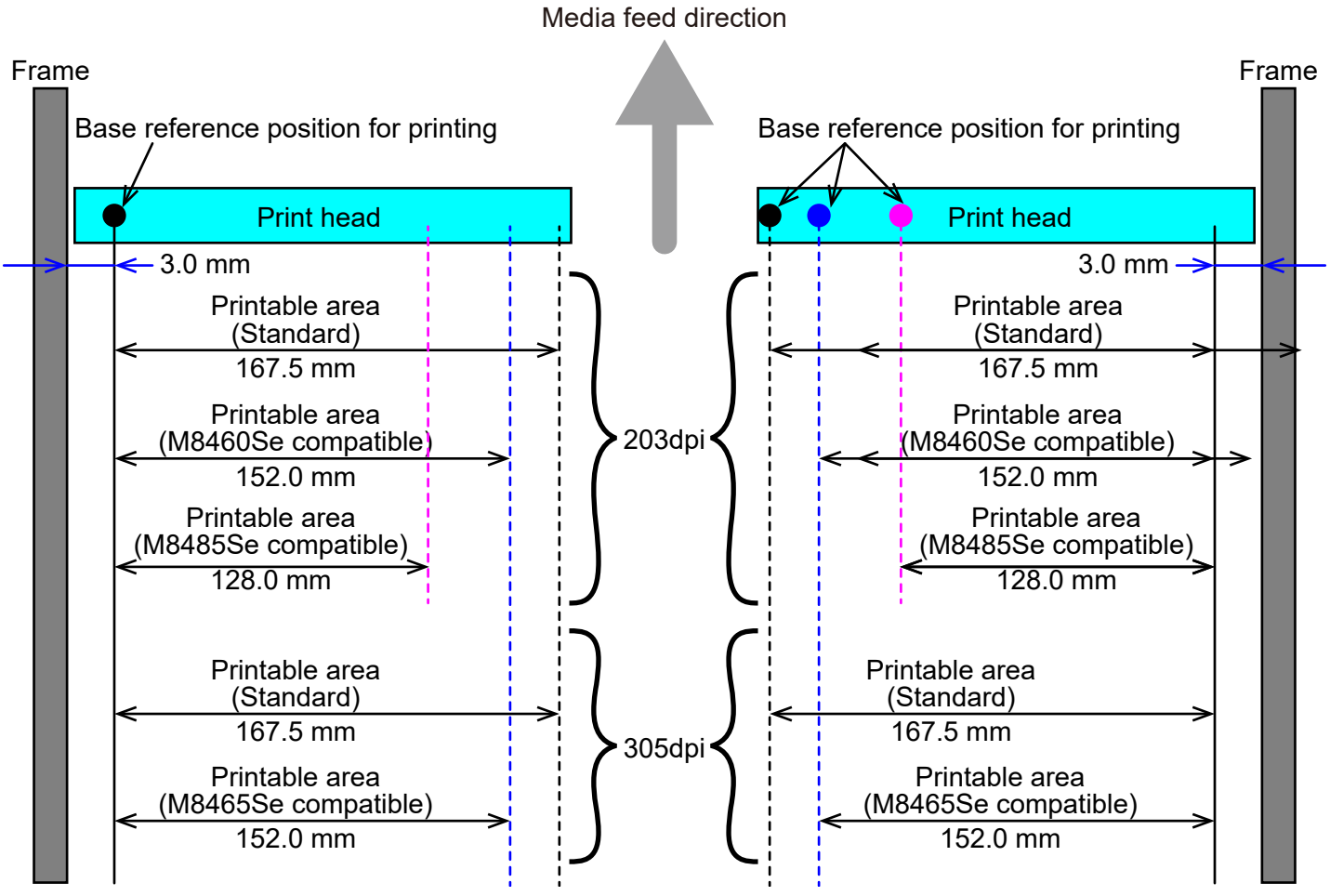


## Printable Area

S84NX Series LH
America: Standard/RH
Europe/Asia: LH

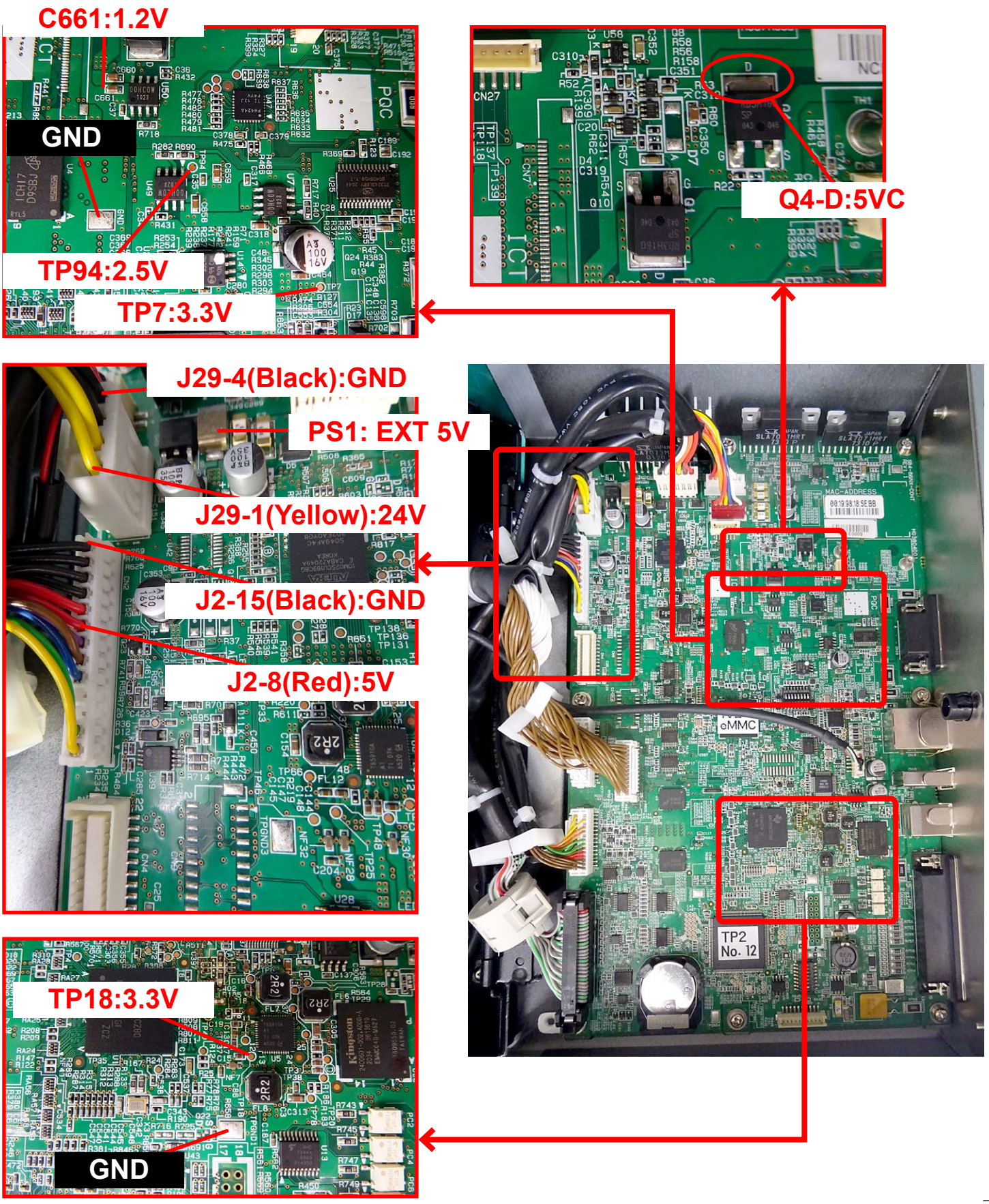
S84NX Series RH
America: Opposite/LH
Europe/Asia: RH



# 2 Checking the Power Supply Voltage

## Measurement Points



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