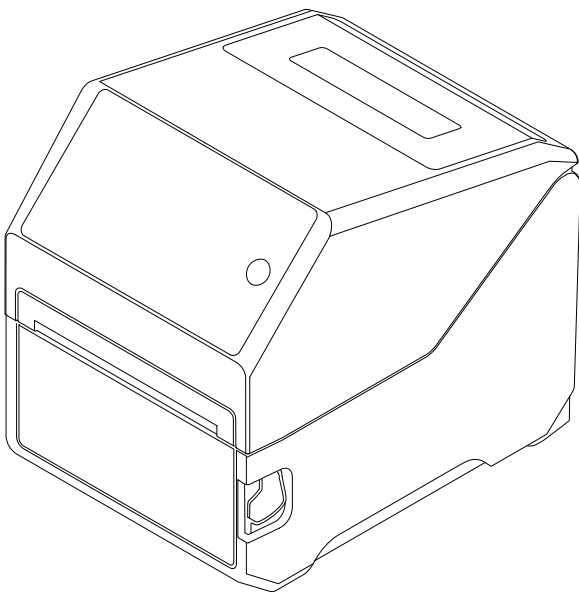


# Service Manual

# ***CT4-LX*** ***CT4-LX-HC***



**1 Introduction**



**2 Operation  
and  
Configuration**



**3 Checking and  
Performing  
Printer Adjustments**



**4 Replacement**



**5 Options**



**6 Troubleshooting**



**7 RFID**

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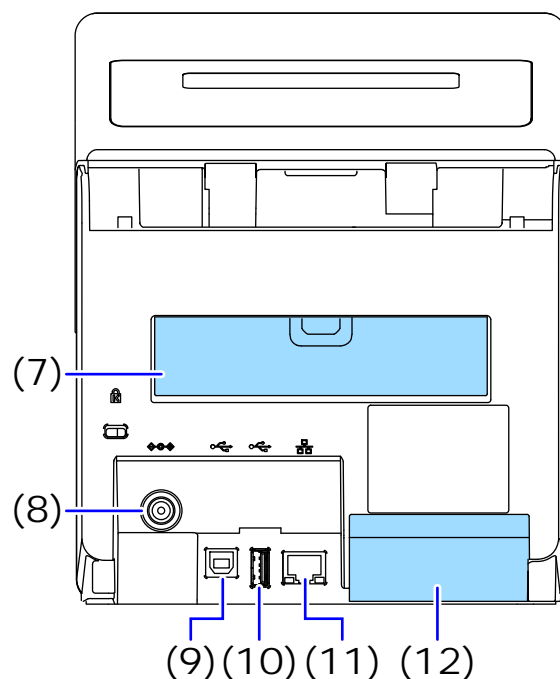
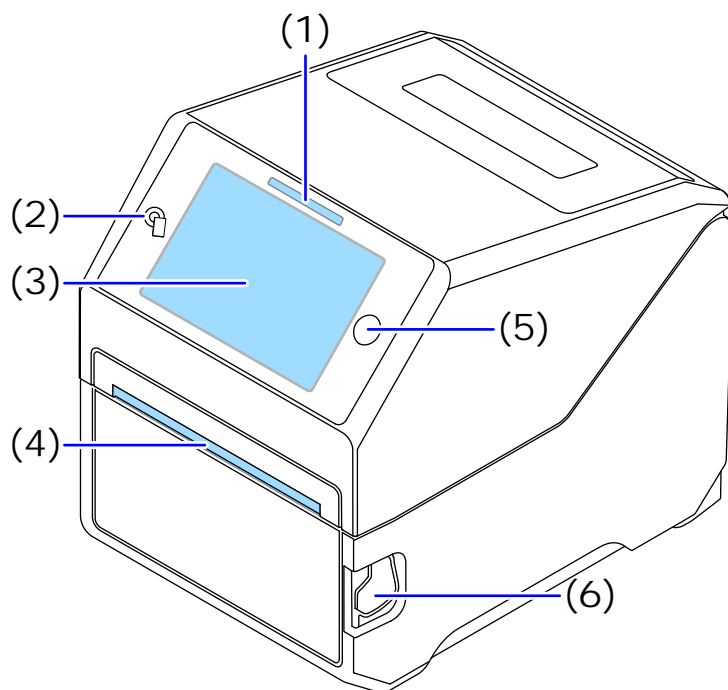
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## 1.3 Parts Identification of the Printer

### 1.3.1 Front View/Rear View



(1) LED indicator

(2) NFC built-in antenna  
\* CT4-LX only

(3) LCD/Touch panel

(4) Media discharge outlet

(5) Power/Home button

(6) Cover open latch

(7) Media loading port  
\* for fan-fold media

(8) DC input connector

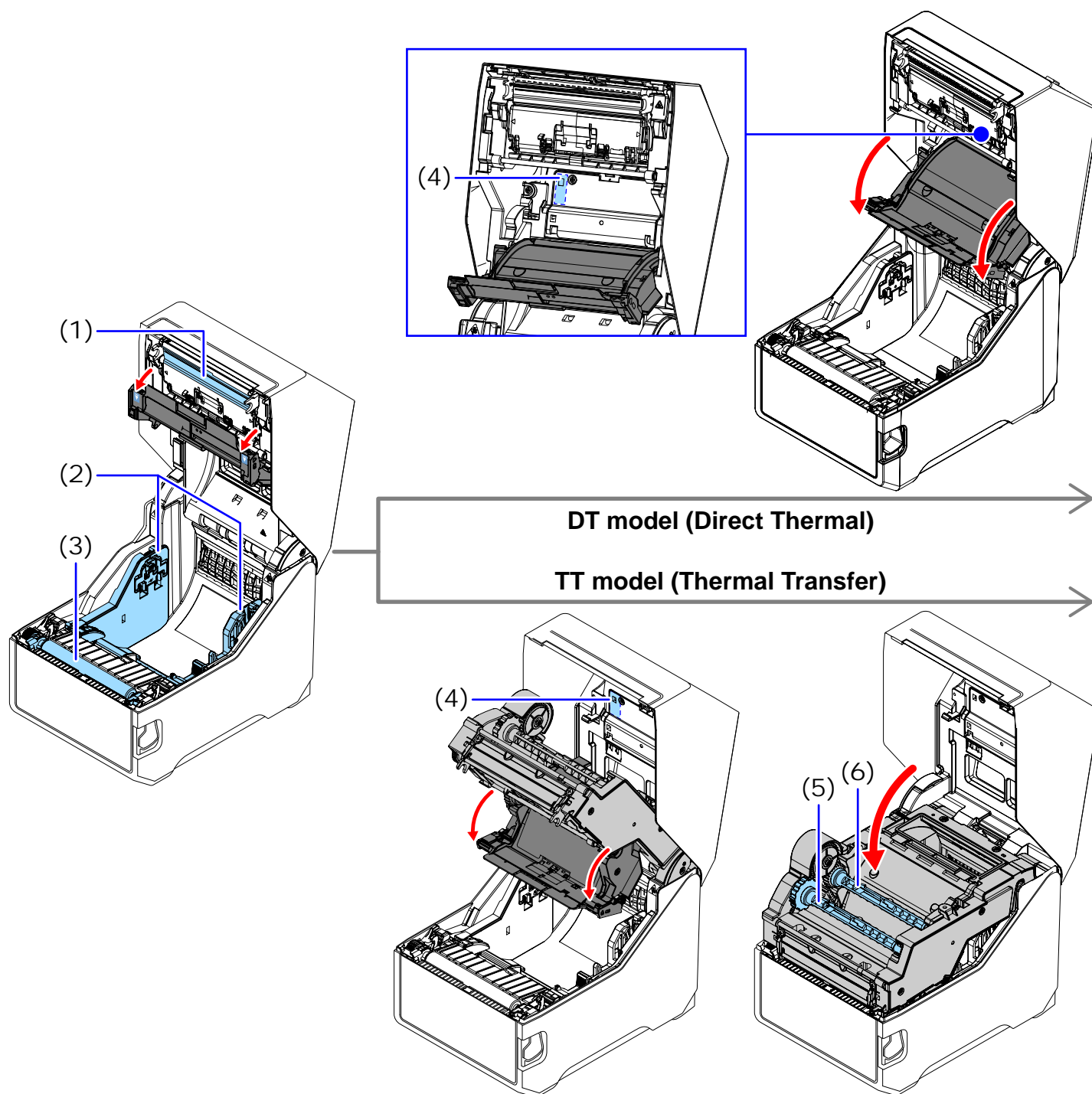
(9) USB connector (Type B)

(10) USB connector (Type A)

(11) LAN connector

(12) Expansion slot  
\* RTC, W-LAN/Bluetooth, or RS-232C.

## 1.3.2 Internal View



- (1) Print head (Thermal head) \* Consumables
- (2) Media guide
- (3) Platen roller \* Consumables
- (4) USB connector (Type A)
  - \* You can use USB memory to automatically back up setting information by using the auto-clone function.
- (5) Ribbon rewind spindle
- (6) Ribbon supply spindle

This chapter describes the following:

## [2. 1 About \[Settings\] menu](#)

## [2. 2 About \[Tools\] menu](#)

## [2. 3 About \[HEX-Dump\] menu](#)

### [2.3.1 Hex Dump Mode](#)

### [2.3.2 Buffer Dump](#)

### [2.3.3 Log Files](#)

## [2. 4 About \[Service\] menu](#)

### [2.4.1 Logging in Service Menu](#)

### [2.4.2 Details of the Service Menu](#)

### [2.4.3 Reset](#)

### [2.4.4 Maintenance](#)

### [2.4.5 Position Check](#)

### [2.4.6 Factory Offset](#)

### [2.4.7 Factory Pitch](#)

### [2.4.8 Factory Label Top Sensor](#)

### [2.4.9 Position Check](#)

## 2. 6 About [Clone] menu

## 2.7 About [AutoClone Setting] menu

### 2.7.1 Enable

## 2.7.2 Format USB drive

## 2. 8 About [Startup Guide] menu

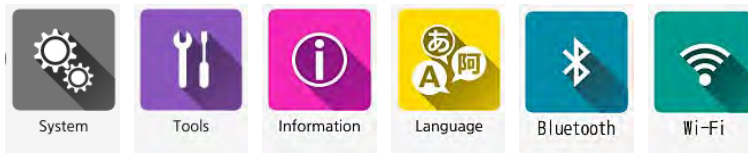
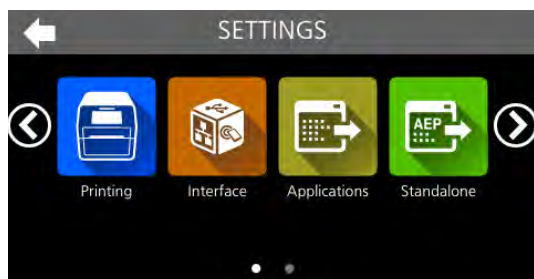
## 2. 9 Checking and Updating the Firmware

### 2.9.1 Checking the Firmware

## 2.9.2 Updating the Firmware

## 2. 1 About [Settings] menu

There are the following main menus in the Settings mode and each main menu has some submenus.



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.
[Standalone]	Access the settings related to the AEP (Application Enabled Printing) mode.
[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.
[Language]	Access the settings related to the display language. This main menu appears when the following menu is enabled: [System] > [Regional] > [Messages]
[Bluetooth]	Access the settings related to the Bluetooth. This main menu appears only when an optional WLAN/Bluetooth kit is installed.
[Wi-Fi]	Access the settings related to the WLAN. This main menu appears only when an optional WLAN/Bluetooth kit is installed.

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

The table below shows the [Tools] menu.

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

 Tools	Description
Media Startup	Print settings that match the media type to be used can be set at a time following the display on the screen.
Media Profiles Editing	
Media Profiles Registration	Register the print settings for each media type as the media profiles.
Delete Media Profiles	Delete the registered media profiles.
Test Print	
Factory	Perform the factory test print.
Configure List	Print the configuration information of the printer.
Configure QR	Print the configuration information with a QR code.
Paper Sensor	Print the detection result of the media sensor level.
BD address	Print the BD address.
<a href="#">About [HEX-Dump] menu</a>	
Hex Dump Mode	Enable or disable the Hex Dump mode.
Buffer Dump	Save the receive buffer data to the printer.
Log Files	Manage log files of the printer.
<a href="#">Reset</a>	
Data	Initialize the data saved in the printer.
Data & Settings	Initialize the data and setting values of the printer.
Settings	Initialize the setting values of the printer.
Profiles	
Delete	Delete the profile.
Load	Load the profile.
Save	Save the current profile settings by overwriting.
Save as	Save the current profile settings as a new one.
Start with	Select the profile to be loaded at startup.

<a href="#">About [Service] menu</a>	
Factory	Not available
Wi-Fi Site Survey	Survey the radio field strength of each access point and display or print it.
Install Certificates	Set the WLAN authentication.
Delete Certificates	Delete the WLAN authentication.
<a href="#">About [Clone] menu</a>	Copy the current printer settings and installed data to the USB memory.
<a href="#">About [AutoClone Setting] menu</a>	
Enable	Enable or disable the auto clone function.
Format USB drive	Format the USB memory installed in the printer so that it can be used for the auto-clone function.
<a href="#">About [Startup Guide] menu</a>	Enable or disable the startup guide.

## 2.3 About [HEX-Dump] menu

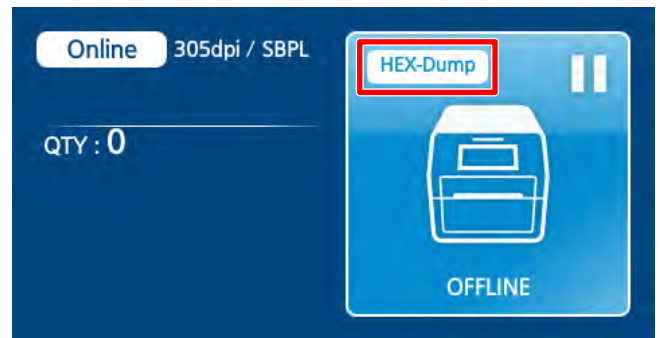
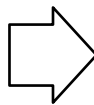
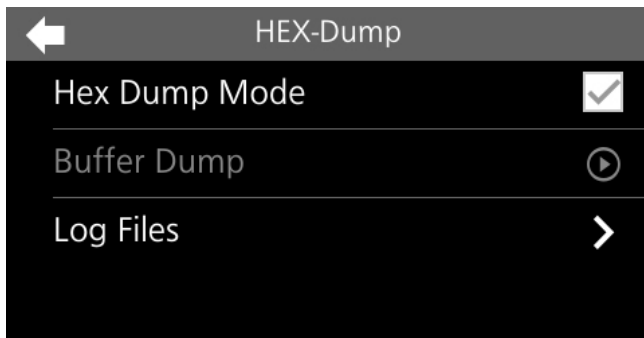
Save the hex dump print data or dump data from the receive buffer to the USB memory.

### 2.3.1 Hex Dump Mode

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.



### 2.3.2 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.

### 2.3.3 Log Files

Save the receive buffer data to the product.

Copy	buff/	Copy the selected log file to the USB memory. <b>Note</b> The data obtained by the buffer dump operation is stored.
	hexdump/	Copy the selected log file to the USB memory. <b>Note</b> 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/	

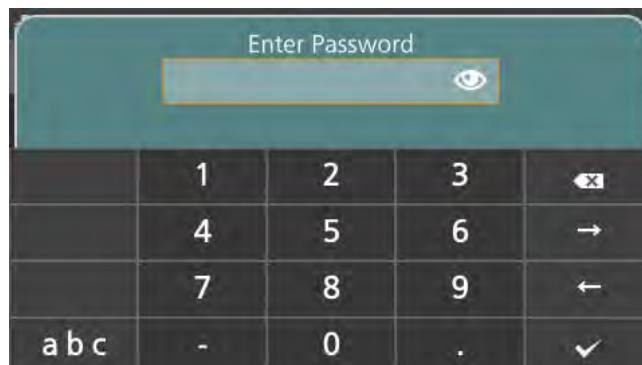
## 2. 4 About [Service] menu

### 2.4.1 Logging in Service Menu

When you select [Service] in the [Tools] menu, the printer shows the [Password] screen.

You need to enter the correct password in order to access the menu.

The default password to access the [Service] menu is 6677.



#### CAUTION

This menu is only for SATO authorized service personnel use.

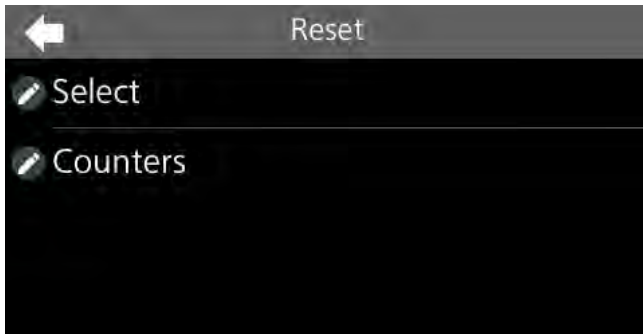
### 2.4.2 Details of the Service Menu

Item	Description
Service	
<a href="#">RFID</a>	Set the RFID function. Displayed when the RFID kit is installed.
NFC Mode	Enable or disable the NFC function. (Default: Enabled)
Hide Help Videos	Set whether to show or hide the help videos in [Settings] > [Information] > [Help]. Check “Hide Help Video” to hide the help videos.
<a href="#">Reset</a>	Initialize the settings and counter information of this printer.
<a href="#">Maintenance</a>	Manually set the serial number of the printer or the USB.
<a href="#">Position Check</a>	Check the offset position of the label and an error is displayed if it exceeds the allowable range set in “± Check Values”.
<a href="#">Factory Offset</a>	Correct the offset position.
<a href="#">Factory Pitch</a>	Offset the print position in the vertical direction.
<a href="#">Factory Label Top Sensor</a>	Correct the label top position.
<a href="#">Position Check</a>	Perform the operation check of the touch panel.

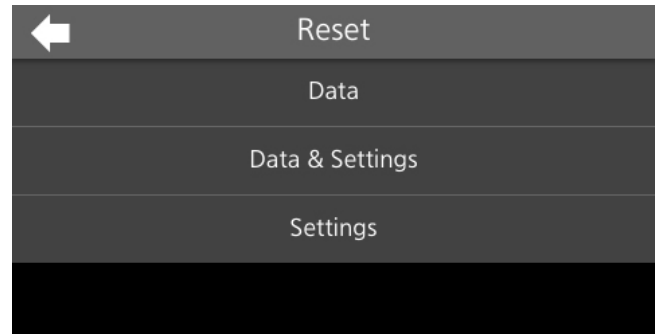
### 2.4.3 Reset

Reset the printer settings and counter information.

[Tools] > [Service] > [Reset]



[Tools] > [Reset]



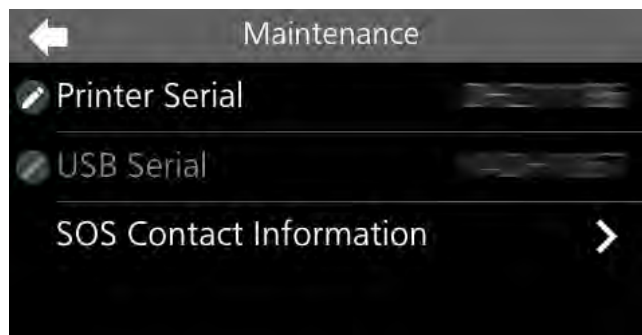
#### CAUTION

The cutter counter (number of cuts) can only be reset from the [Service] menu.

Item	Description
Select	
Data	Initialize the setting values set in [Printing], [Interface], [Application] and [System]. <b>Note</b> After initialization, the printer restarts automatically.
Data & Settings	Initialize the above data and the items selected from the following "Settings". <b>Note</b> 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	
Cutter	Initialize the cutter counter (number of cuts). <b>Note</b> For the [Service] menu only.

## 2.4.4 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. (Default: Disabled) Disabled: Cannot change the USB serial number. Enabled: Can change the USB serial number. To change the USB serial number, check the "Change USB Serial" in Offline > [Settings] > [Interface] > [USB].
SOS Contact Information	Enter the phone number of the SOS contact information.

## 2.4.5 Position Check

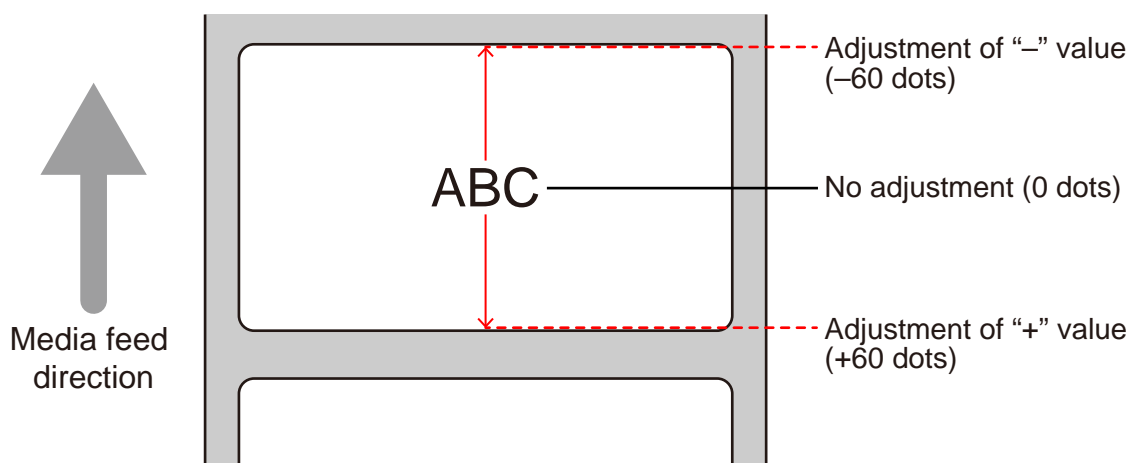
Select [Tools] > [Service] > [Position Check].



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	<p>Enable or disable the position check. (Default: disabled)</p> <p>Disabled: Disables the detection of the position check.</p> <p>Enabled: Enables the detection of the position check.</p>
+ 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)



## 2.4.6 Factory Offset

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

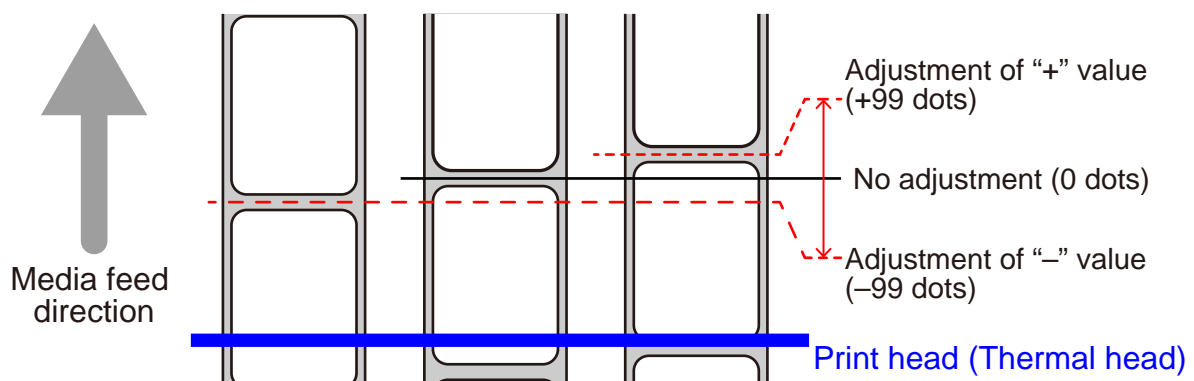


Correct the offset position.

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.



## 2.4.7 Factory Pitch

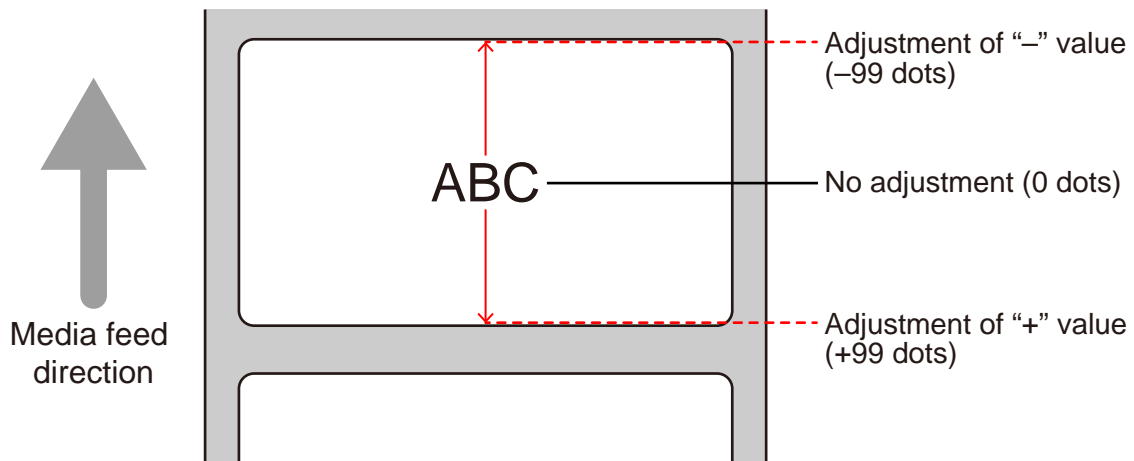
Select [Tools] > [Service] > [Factory Pitch].



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)

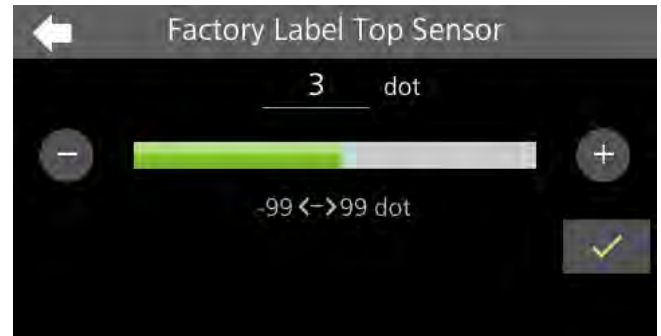


### Note

- 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.

## 2.4.8 Factory Label Top Sensor

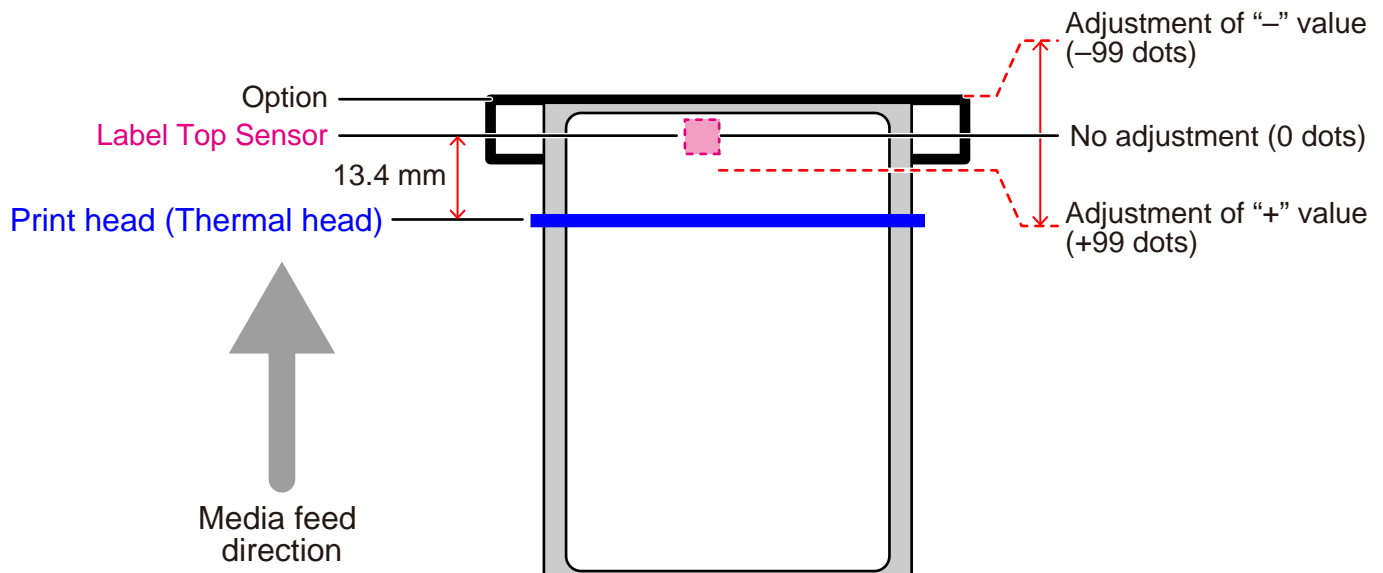
Select [Tools] > [Service] > [Factory Label Top Sensor].



Correct the label top position.

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)

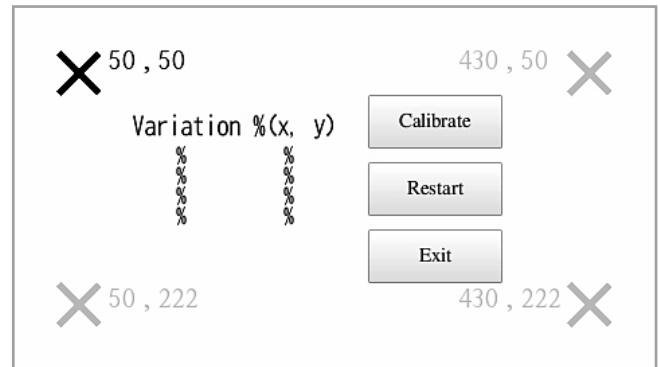


### Note

- For the linerless model or in Dispenser mode, the factory label top sensor does not work.
- The minimum pitch that can perform the label waste prevention process (back feed) is 20 mm.
- Even if the factory offset or factory pitch is adjusted, it is not necessary to adjust the factory label top sensor.

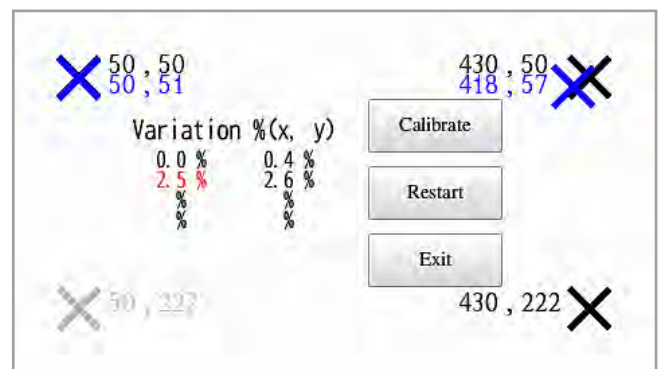
## 2.4.9 Position Check

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



Calibrate the touch panel.

- 1 Touch the center of the black cross with a touch pen.
- 2 The judgment result error is displayed numerically, and the next cross turns black.



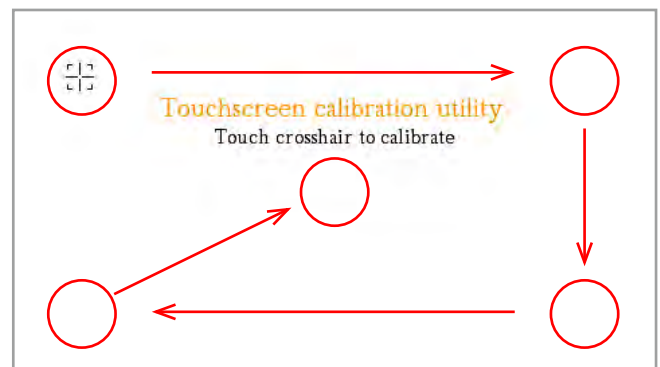
### CAUTION

If the judgment result is out of the allowable range, the value is displayed in red.

Allowable range	x: Within 2.1%
	y: Within 3.7%

If even one of the judgment results is displayed in red, touch [Restart] and start from the beginning.

- 3 Touch [Calibrate].
- 4 Touch the crosshair mark five times.



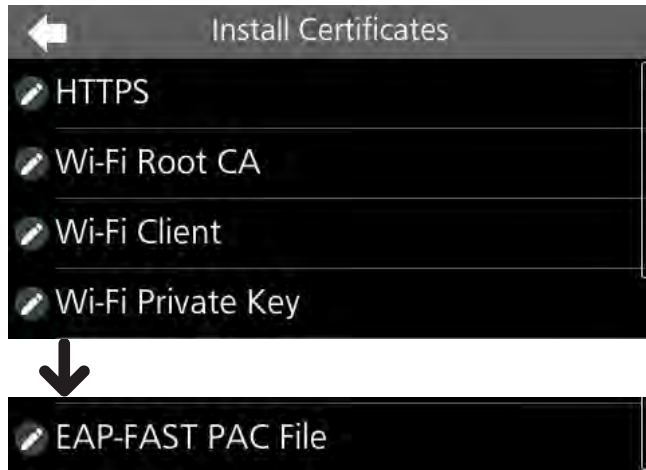
- 5 Touch [OK] to return to the touch panel confirmation screen.
- 6 Touch [Exit].



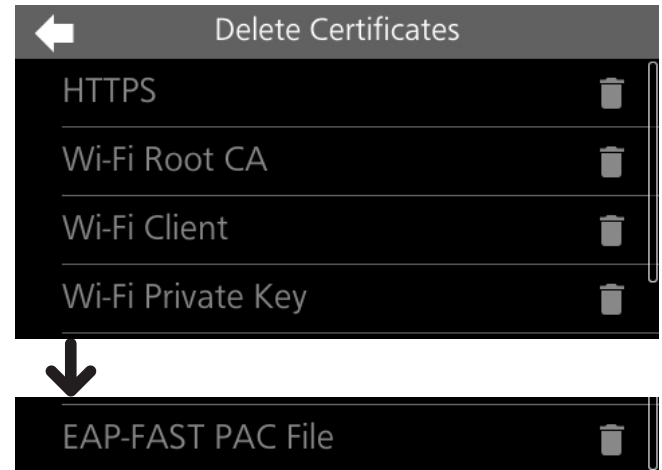
## 2.5 About [Install Certificates], [Delete Certificates] menu

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

Select [Tools] > [Install Certificates].



Select [Tools] > [Delete Certificates].



### 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.

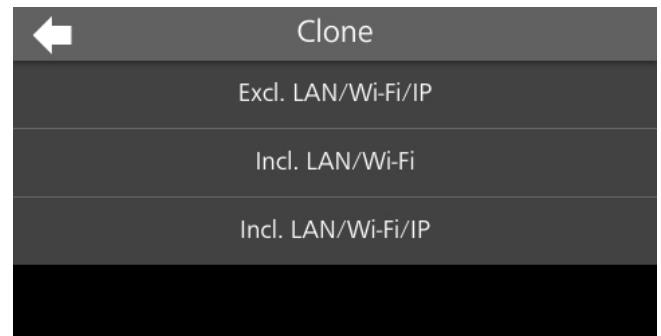
The setting items are as follows:

HTTPS	Save the certificate files to the USB thumb drive memory's root folder. Acceptable file extensions are: <ul style="list-style-type: none"> <li>• pem, .crt, .cer, .der for Root CA and client certificate in PEM or DER format.</li> <li>• pfx and .p12 for client certificates in PKCS #12 format.</li> <li>• prv and .key for private keys in PEM/PKCS#8 format.</li> <li>• pac for PAC files.</li> </ul>
Wi-Fi Root CA	
Wi-Fi Client	
Wi-Fi Private Key	
EAP-FAST PAC File	

## 2.6 About [Clone] menu

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.

## 2.7 About [AutoClone Setting] menu

The printer settings are automatically copied to the USB memory.

When a USB memory formatted for auto-clone is inserted in the printer and this function is enabled, auto-clone is executed at the following timing.

- Immediately after inserting the USB memory.
- Immediately after turning on the printer.
- When the setting of the printer is changed.

### Note

- It is recommended that the capacity of the USB memory is 4 GB or more.

### 2.7.1 Enable


Enable or disable the auto-clone function.

The function can be set only when a USB memory formatted in [Tools] > [AutoClone Setting] > [Format USB drive] is installed.

### 2.7.2 Format USB drive

Format the USB memory inserted in the printer so that it can be used for the auto-clone function.

The procedure to format the USB memory is as follows.

- 1 Touch [Format USB drive].
- 2 Touch [START] on the message screen.  
Formatting is executed and the execution result is displayed.
- 3 Touch  to complete the formatting.  
When the format is successful, you can enable the auto-clone function by selecting [AutoClone Setting] > [Enable].

## 2. 8 About [Startup Guide] menu

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.

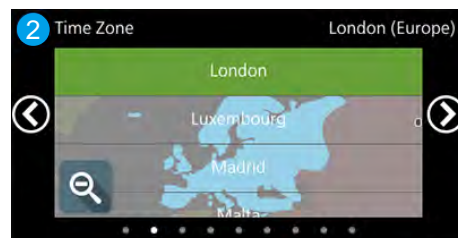


### Note

If the NTP function is enabled or the optional RTC kit is installed, set the time zone (2).

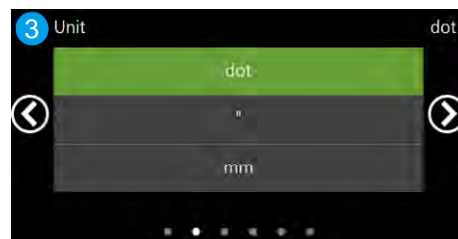
### 2 Time Zone

Select the region and the city.



### 3 Unit

Select the unit (dot, ", or mm).

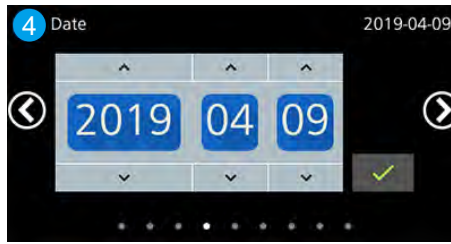


### Note

If the NTP function is enabled or the optional RTC kit is installed, set the date (4) and time (5).

### 4 Date

Set the year, month, and day, and tap the check mark.



### 5 Time

Set the time in 24-hour format and tap the check mark.



### Note

Set the printing mode (6) for the combined direct thermal/thermal transfer model.

### 6 Printing Mode

[Use Ribbon] Prints using a ribbon.

[Direct Thermal] Prints using thermal paper.

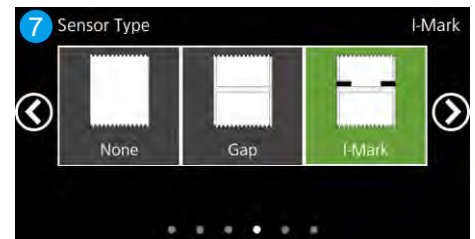


### 7 Sensor Type

[None] Disables the media sensor.

[Gap] Select this when using media with gaps.

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



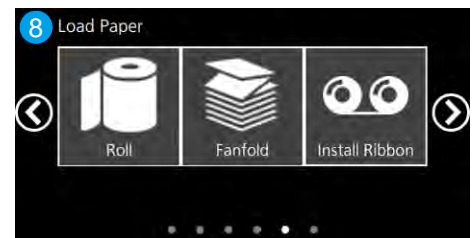
### 8 Load Paper

When you select the media type, the video plays.

After the video ends, the control screen is displayed.

If you want to skip the video, touch the screen to display the control screen.

Touch [x] ➡ [➤] on the screen.



### Note

[Fanfold] is not displayed when the optional dispenser unit is installed.

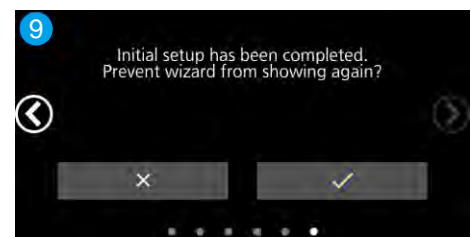
[Install Ribbon] is displayed only when [Use Ribbon] is selected in Print Method for the direct thermal/thermal transfer model.

### 9

Select whether to show the startup guide at the next startup.

[x] Shows the startup guide.

[✓] Does not show the startup guide.



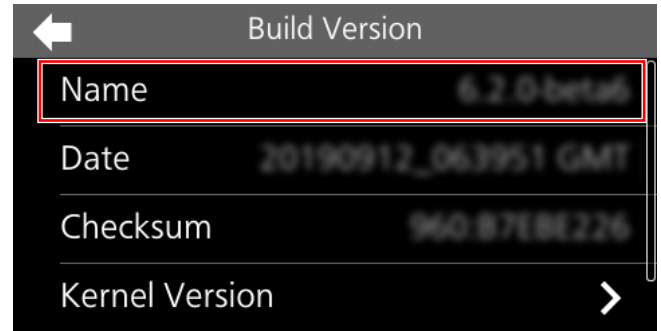


## 2.9 Checking and Updating the Firmware

### 2.9.1 Checking the Firmware

Select [Information] > [Build Version].

Check the version name.



### 2.9.2 Updating the Firmware

#### CAUTION

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

#### CAUTION

Firmware updating can be done by using either a “pkg” file or “img” file.

When you use the “img” file, you need to perform reset manually in step 5.

- 1 Prepare a pkg (img) file used for firmware updating and copy it to the root directory of the USB memory.
- 2 Set the printer to online mode.
- 3 When you connect the USB memory to the USB connector (type A), the printer automatically changes to Offline mode and shows the pkg (img) file in the USB memory.
- 4 Select the version to be updated and touch [ ✓ ] to start update.
- 5 After completion of the updating, the printer automatically restarts.

#### CAUTION

Updating the firmware does not yet enable the functions “AC power on function” and “high-speed startup”

To enable these functions, perform the following steps after updating the firmware.

- 6 Press the power/home button for 2 seconds or more to shut down the printer.
- 7 Restart the printer. (high-speed startup) \* The “AC power on function” is enabled at this point.

This chapter describes the following:

## [3. 1 Checking Before Starting Work](#)

### [3.1.1 Checking Printing with Actual User Data](#)

### [3.1.2 Checking Installation Environment and Printer Conditions](#)

### [3.1.3 Checking Printing with Factory Settings](#)

## [3. 2 Checking and Cleaning](#)

### [3.2.1 Checking and Cleaning the Print Head \(Thermal Head\)](#)

### [3.2.2 Checking and Cleaning the Platen Roller](#)

### [3.2.3 Checking and Cleaning the Media Sensors](#)

### [3.2.4 Checking and Cleaning Optional Units](#)

### [3.2.5 Checking and Cleaning the Exterior](#)

### [3.2.6 Blowing Air on the PCBs](#)

### [3. 3 Checks and Adjustments](#)

#### [3.3.1 Checking and Adjusting the I-mark Sensor and Gap Sensor](#)

#### [3.3.2 Checking and adjusting the Label Top Sensor](#)

#### [3.3.3 Printing Quality](#)

#### [3.3.4 Meandering](#)

#### [3.3.5 Checking and Adjusting the Print Position](#)

#### [3.3.6 Checking the Stop Position](#)

### [3. 4 Final Check](#)

#### [3.4.1 Checking Test Print with Factory Settings](#)

#### [3.4.2 Checking the Customer's Layout](#)

#### [3.4.3 Checking Barcode Scan](#)

#### [3.4.4 Checking SOS Connection](#)

#### [3.4.5 Returning to the Original State](#)

## 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 Are the date and time set correctly when the optional RTC kit is installed?
- ④ Is there any problem with the label expiration date?
- ⑤ Is the genuine label used?

## 3.1.3 Checking Printing with Factory Settings



2 min

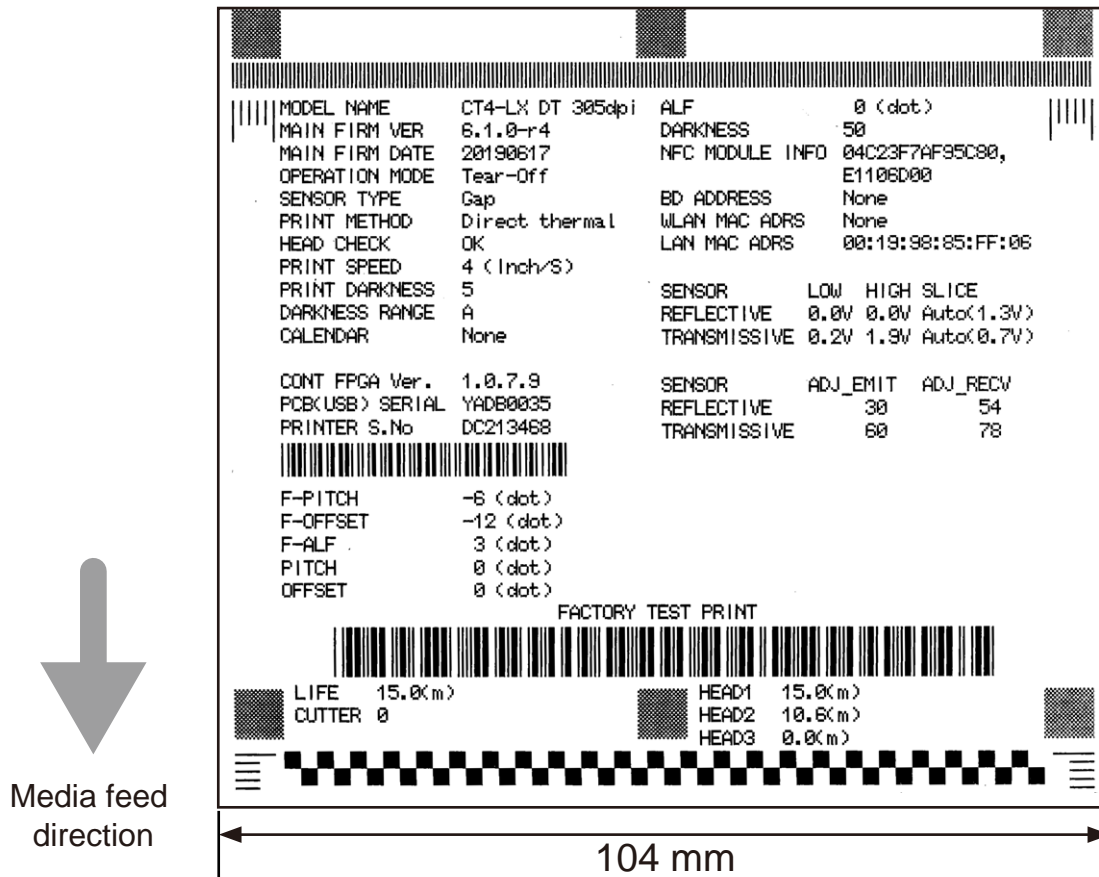
Before starting work, perform the test print and check for print position, counter information, sensor levels, etc.

- 1 Place the label of 104 mm width on the printer.

### CAUTION

If you use the label of less than 104 mm width, print missing occurs as the label width is smaller than the test print width.

- 2 Select [Settings] > [Tools] > [Test Print] > [Factory] > [Printing].
- 3 After printing multiple labels, touch [ || ] to stop the printing and then touch [x].





## Check & Point

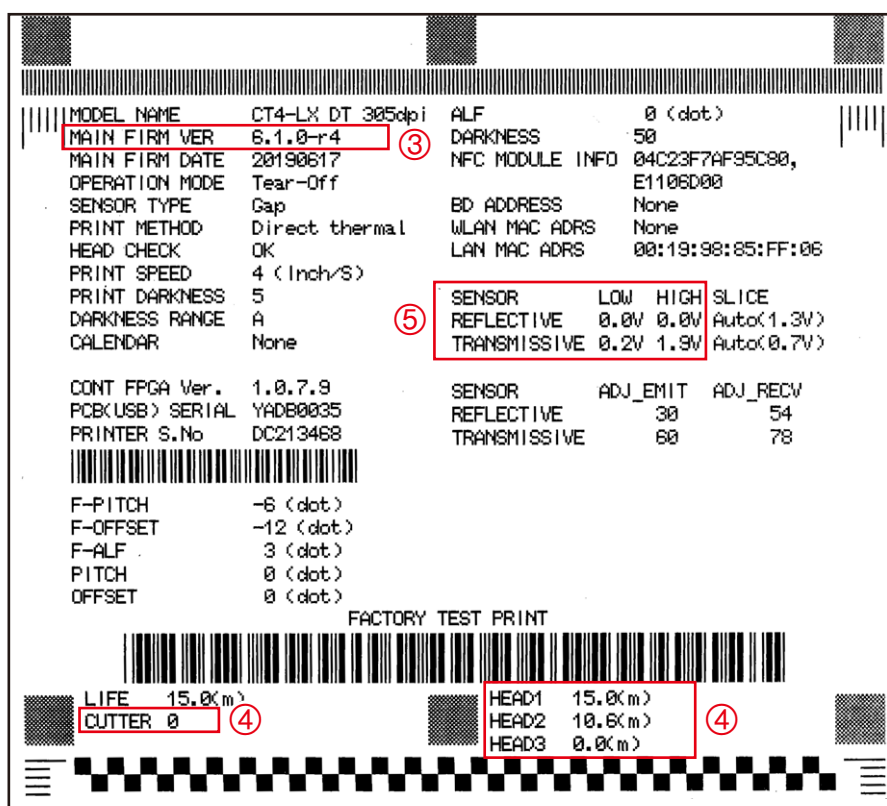
- ① Is there any abnormal noise?
- ② Check the print position and stop position.  
Print on multiple labels and check that the position of each block is stable.
- ③ Firmware version  
Update the firmware version as required.
- ④ Check the cutter and head counter information.

**Refer to** [4.3.1 Replacing the Print Head \(Thermal Head\)](#)

- ⑤ 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 $\geq$ 1.0 V	

**Refer to** [3.3.1 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.

## 3.2 Checking and Cleaning

While cleaning parts, perform the relevant checks.

### 3.2.1 Checking and Cleaning the Print Head (Thermal Head)



1 min

Clean the print head (thermal head) using the printer cleaning liquid.

#### CAUTION

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



#### Check & Point

Check the head counter before cleaning. If the counter value is close to the guaranteed value, check the print head (thermal head) and, if it is worn out, replace it with a new one.

**Refer to** [4.3.1 Replacing the Print Head \(Thermal Head\)](#)

### 3.2.2 Checking and Cleaning the Platen Roller



1 min

Clean the platen roller using the printer cleaning liquid.

#### CAUTION

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



#### Check & Point

Check the counter before cleaning. If the counter value is close to the guaranteed value, check the platen roller and, if it is worn out, replace it with a new one.

**Refer to** [4.4.1 Replacing the Platen Roller](#)

## 3.2.3 Checking and Cleaning the Media Sensors



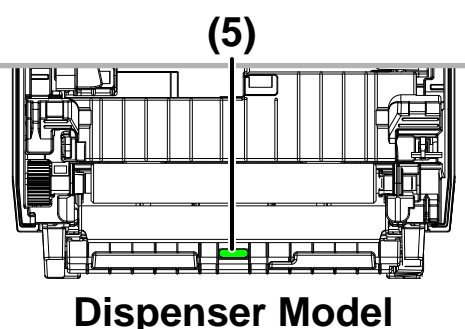
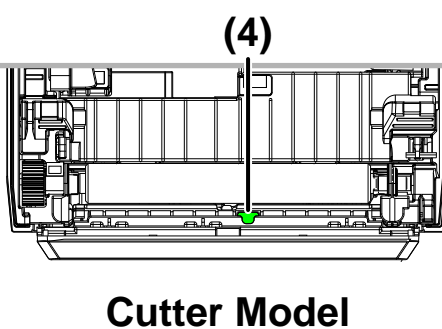
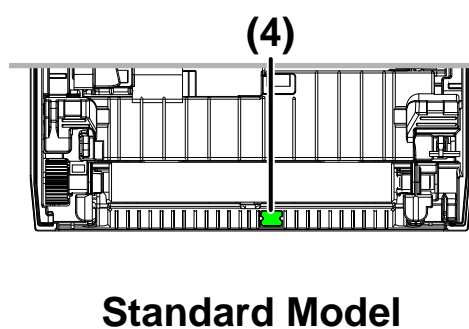
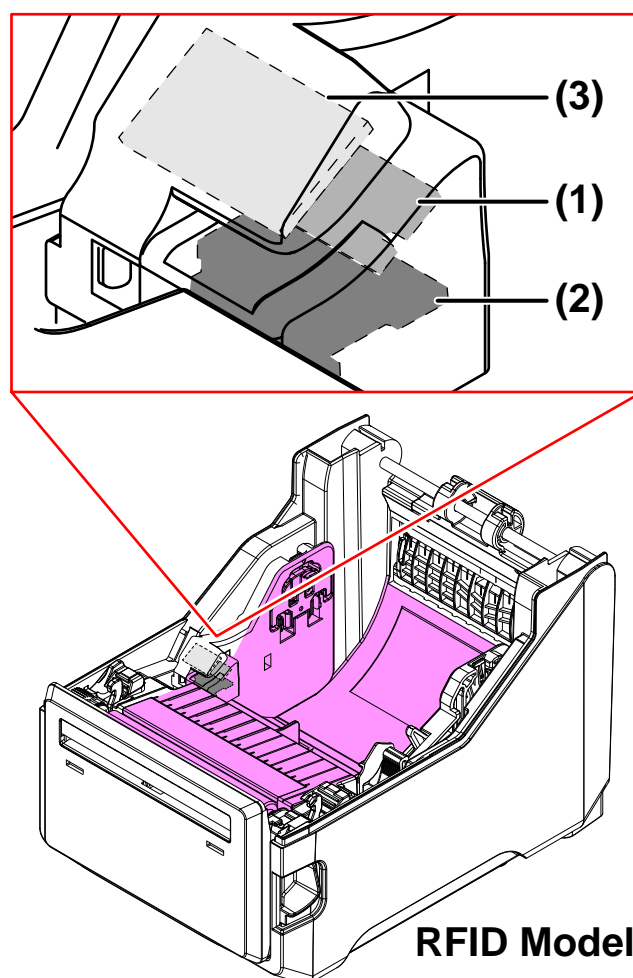
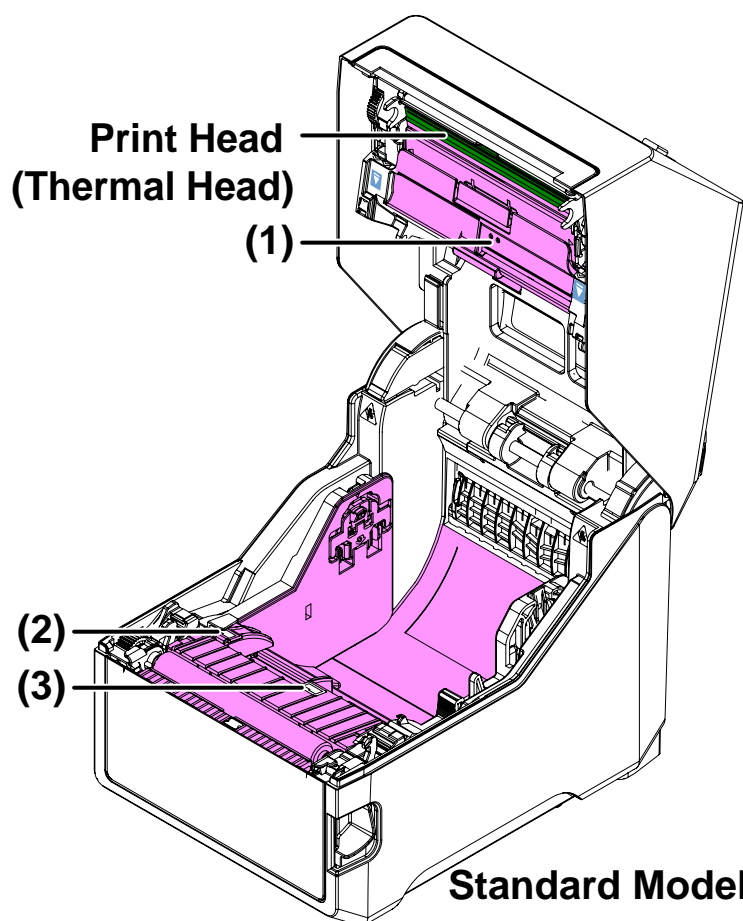
3 min

Clean each part.

- Print Head (Thermal Head)
- Route where label contacts
- Each sensor

\* The sensor position varies depending on the specifications.

(1)	Gap Sensor (Receiver)	(4)	Label Top Sensor (Transmitter)
(2)	I-mark Sensor	(5)	Paper Sensor
(3)	Gap Sensor (Transmitter)		





### 3.2.4 Checking and Cleaning Optional Units



1 min

Clean the optional units.



#### Check & Point

Check the counters before cleaning. If the counter value is close to the guaranteed value, check the optional unit and, if it is worn out, replace it with a new one.

### 3.2.5 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.

### 3.2.6 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.

### Note

Even when using wristband, perform the auto-calibration using the liner of the Sato standard label.

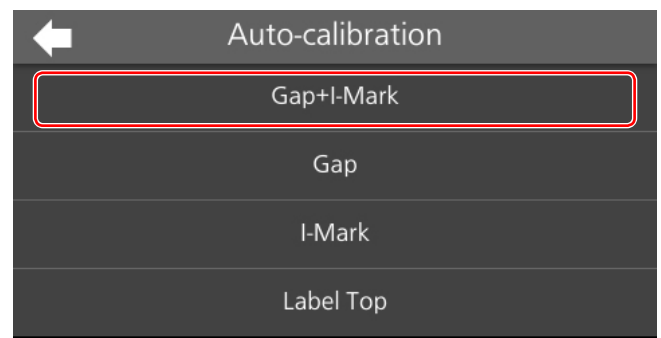
### 3.3.1 Checking and Adjusting the I-mark Sensor and Gap Sensor



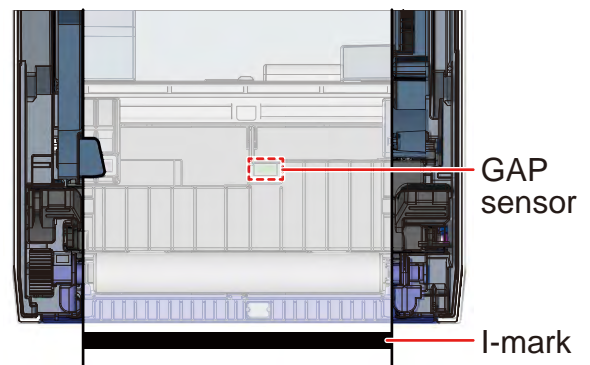
2 min

#### ■ Auto-calibration

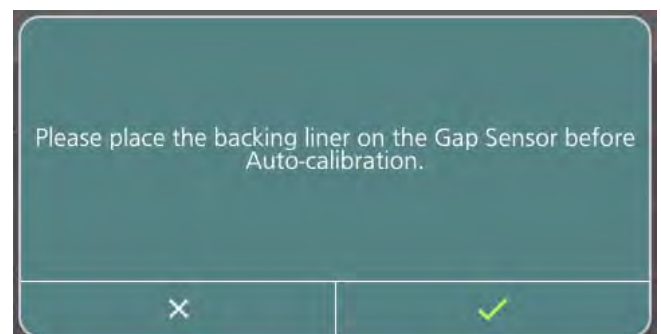
- 1 Select [Printing] > [Advanced] > [Calibrate] > [Auto-calibration] > [Gap+I-Mark].



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



- 3 Touch [✓]. Then, the sensor adjustment is automatically performed and shows the results.



### Note

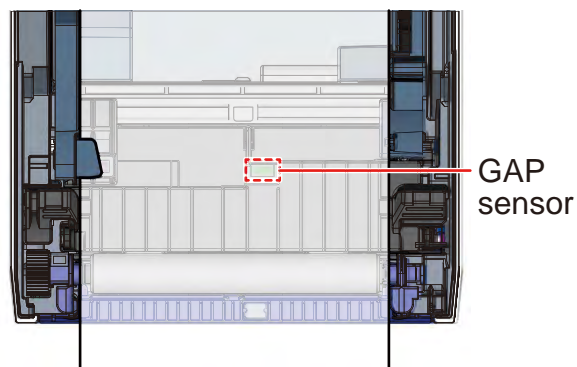
When the printer shows a “Calibration failed” message, place the liner correctly and perform the auto-calibration operation again.

The I-mark slice level is automatically adjusted by the following formula.

$$\text{I-mark slice level} = (\text{High level} - \text{Low level}) \times 0.7 + \text{Low level}$$

#### ■ 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

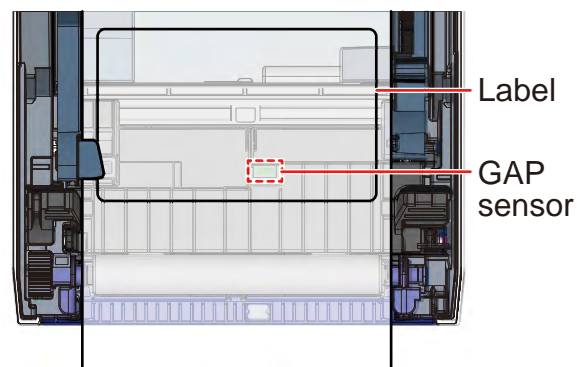


#### Adjustment

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.



- 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  $\geq 1.0$  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.

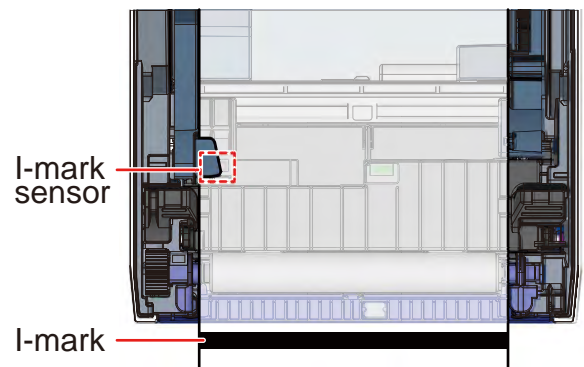
#### Note

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.



- 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.

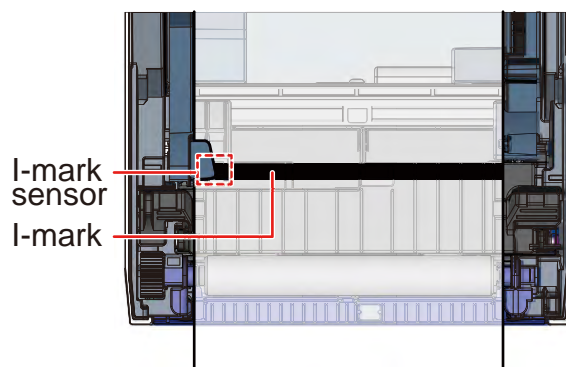
#### Adjustment

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.



- 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  $\geq 1.0$  V

#### Adjustment

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

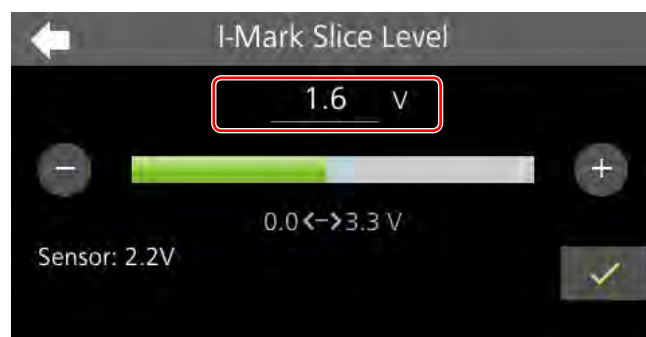


- 16** Select [Calibrate] > [I-Mark Slice Level].

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

#### Note

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



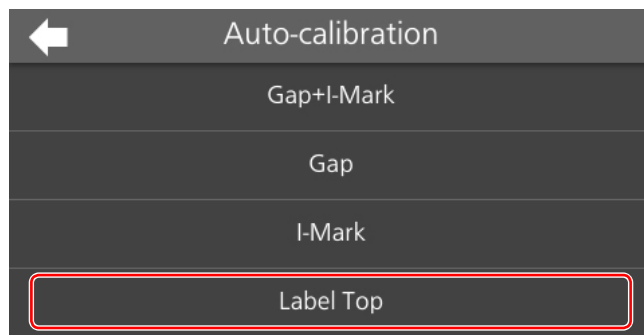
### 3.3.2 Checking and adjusting the Label Top Sensor



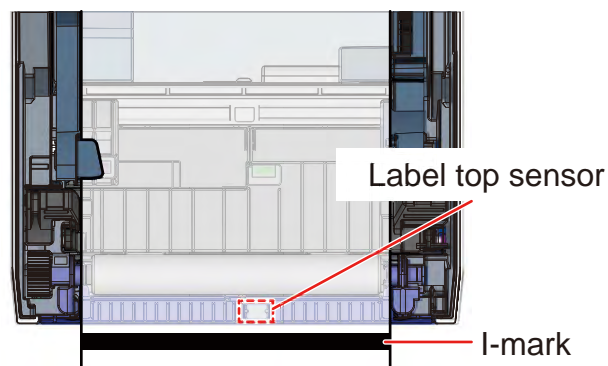
2 min

#### ■ Auto-calibration

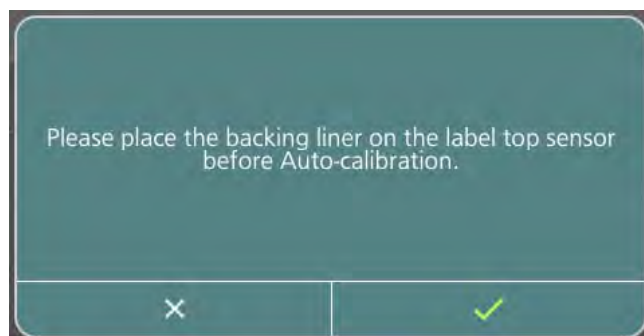
- 1 Select [Printing] > [Advanced] > [Calibrate] > [Auto-calibration] > [Label Top].



- 2 Remove the labels from the liner and place the liner on the label top sensor.



- 3 Touch [✓]. Then, the sensor adjustment is automatically performed and shows the results.



#### Note

When the printer shows a “Calibration failed” message, place the label correctly and perform the auto-calibration operation again

## 3.3.3 Printing Quality



2 min

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

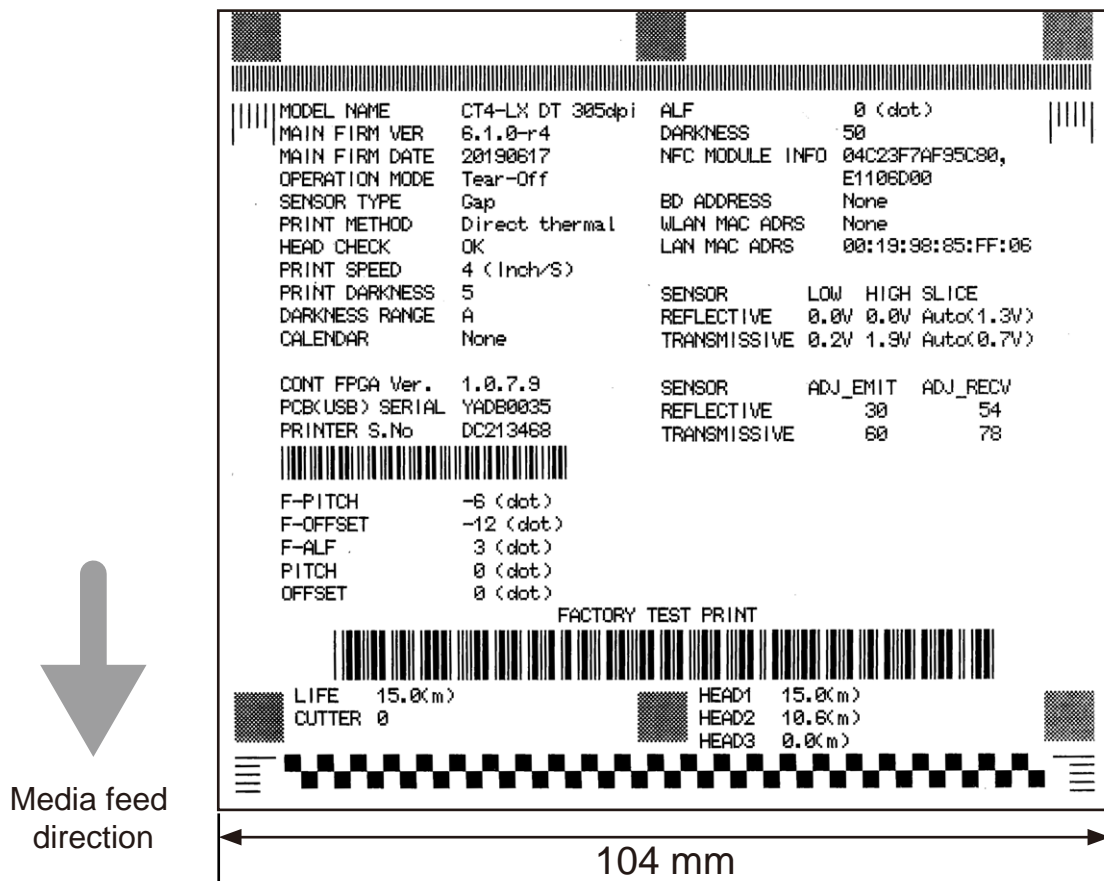
**1** Place the label of 104 mm width on the printer.

### CAUTION

If you use the label of less than 104 mm width, print missing occurs as the label width is smaller than the test print width.

**2** Select [Settings] > [Tools] > [Test Print] > [Factory] > [Printing].

**3** After printing multiple labels, touch [ ] to stop the printing and then touch [ ].



### 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.



### 3.3.4 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.

### 3.3.5 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.

### 3.3.6 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.

The replacement procedures described in this chapter are as follows:

## [4. 1 Notes on Replacing Parts](#)

## [4. 2 Case Cover](#)

### [4.2.1 Replacing the BOTTOM COVER](#)

### [4.2.2 Replacing the TOP COVER](#)

### [4.2.3 Replacing the INNER COVER](#)

### [4.2.4 Replacing the Cover open latch](#)

## [4. 3 Printing Section](#)

### [4.3.1 Replacing the Print Head \(Thermal Head\)](#)

## [4. 4 Paper Transfer Section](#)

### [4.4.1 Replacing the Platen Roller](#)

### [4.4.2 Replacing the Label Guide](#)

### [4.4.3 Replacing the Motor](#)

## [4. 5 Sensors](#)

### [4.5.1 Replacing the Cover Open Sensor](#)

### [4.5.2 Replacing the Gap Sensor \(Transmitter\)](#)

### [4.5.3 Replacing the Gap Sensor \(Receiver\)](#)

### [4.5.4 Replacing the Label Top Sensor \(Receiver\)](#)

### [4.5.5 Replacing the Label Top Sensor \(Transmitter\)](#)

### [4.5.6 Replacing the Ribbon Sensor](#)

### [4.5.7 Replacing the I-mark Sensor](#)

## [4. 6 PCBs and Electrical Parts](#)

### [4.6.1 Replacing the Head PCB](#)

### [4.6.2 Replacing the CONT PCB](#)

### [4.6.3 Replacing the speaker](#)




### [4.6.4 Replacing the NFC Antenna](#)

## [4. 7 Display Section](#)

### [4.7.1 Replacing the DISPLAY ASSY](#)


## 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.
- The following icons are used in this chapter.

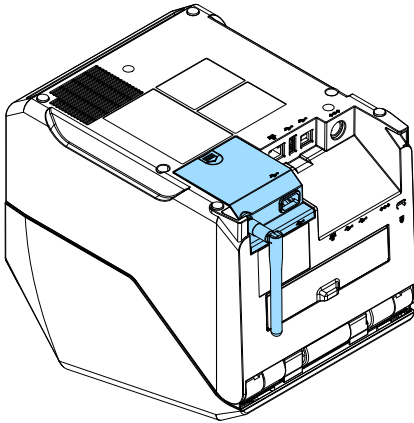
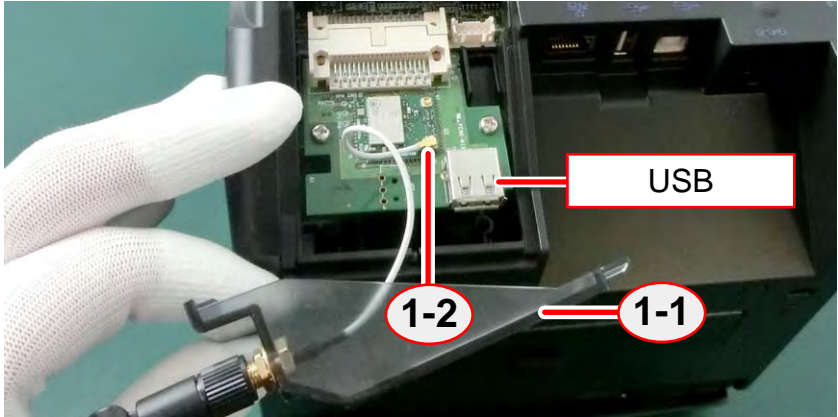
 <p>Required tools Items to be prepared</p>	<p>Describe the tools required and items to be prepared for work.</p> <p><b>Note</b> The number shown in the parentheses of the Phillips screwdriver is the size according to the JIS standard.</p>						
 <p>Number of screws used</p>	<p>Indicate the number of screws used. Refer to the following table for the type and standard of the screws.</p> <table border="1" data-bbox="544 1088 1343 1272"> <tr> <td>S1</td><td>PAN HEAD P-TITE 3×10</td></tr> <tr> <td>S2</td><td>PAN HEAD M3×6</td></tr> <tr> <td>S3</td><td>PAN HEAD P-TITE 3×8</td></tr> </table>	S1	PAN HEAD P-TITE 3×10	S2	PAN HEAD M3×6	S3	PAN HEAD P-TITE 3×8
S1	PAN HEAD P-TITE 3×10						
S2	PAN HEAD M3×6						
S3	PAN HEAD P-TITE 3×8						
 <p>Time required for replacement</p>	<p>Indicate the approximate period of time from when you start removing parts until when you finish assembling them.</p>						

## 4.2 Case Cover

### 4.2.1 Replacing the BOTTOM COVER

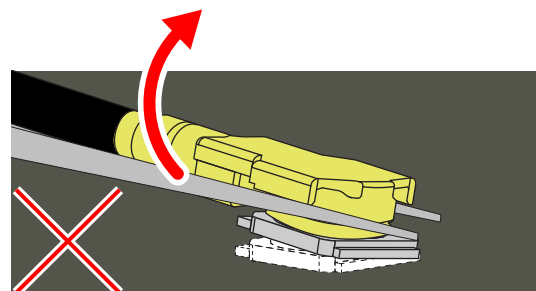
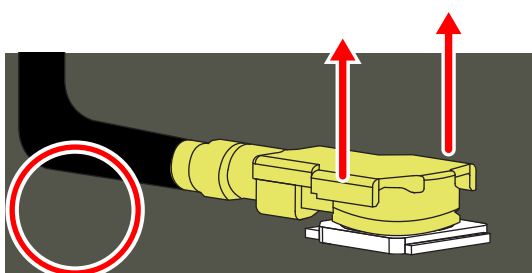
			
Standard Model	3 min.	Phillips screwdriver (#2)	S1×4
Cutter Model, Dispenser Model	3 min.		+S1×1
Model with the WLAN/Bluetooth Kit	5 min.		
Model with the RS-232C Kit	5 min.		

#### 1 Model with the WLAN/Bluetooth Kit

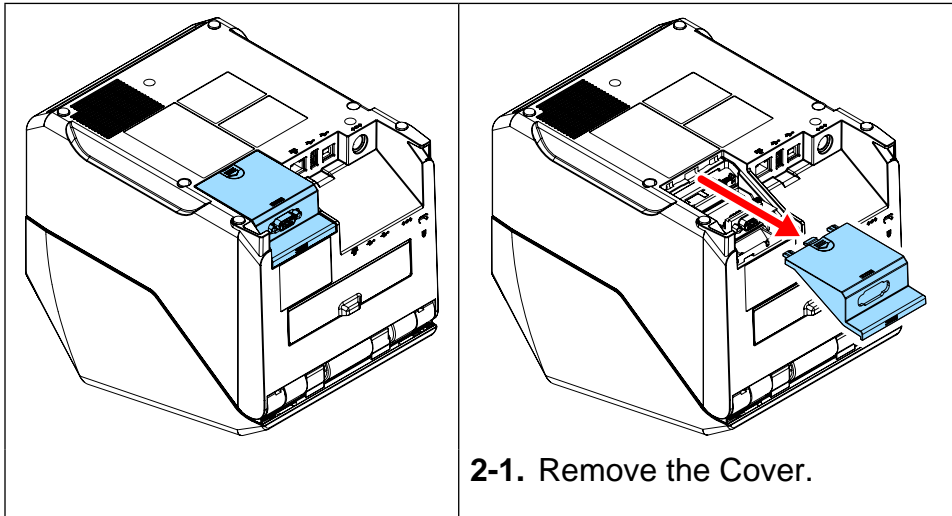
	 <div data-bbox="539 1238 887 1272">1-1. Remove the Cover.</div> <div data-bbox="539 1299 689 1332"><b>CAUTION</b></div> <div data-bbox="539 1346 984 1413">A coaxial cable is connected to the Cover.</div> <div data-bbox="1046 1238 1509 1272">1-2. Disconnect the coaxial cable.</div> <div data-bbox="1046 1299 1374 1332"><b>Notes on assembling</b></div> <div data-bbox="1046 1346 1497 1536">There are two coaxial connectors on the PCB. Connect the coaxial cable to the connector close to the USB connector.</div>
---	--

#### CAUTION

Use a dedicated jig to vertically connect or disconnect the coaxial cable connector. Applying force to one side of the connector only will damage the connector.



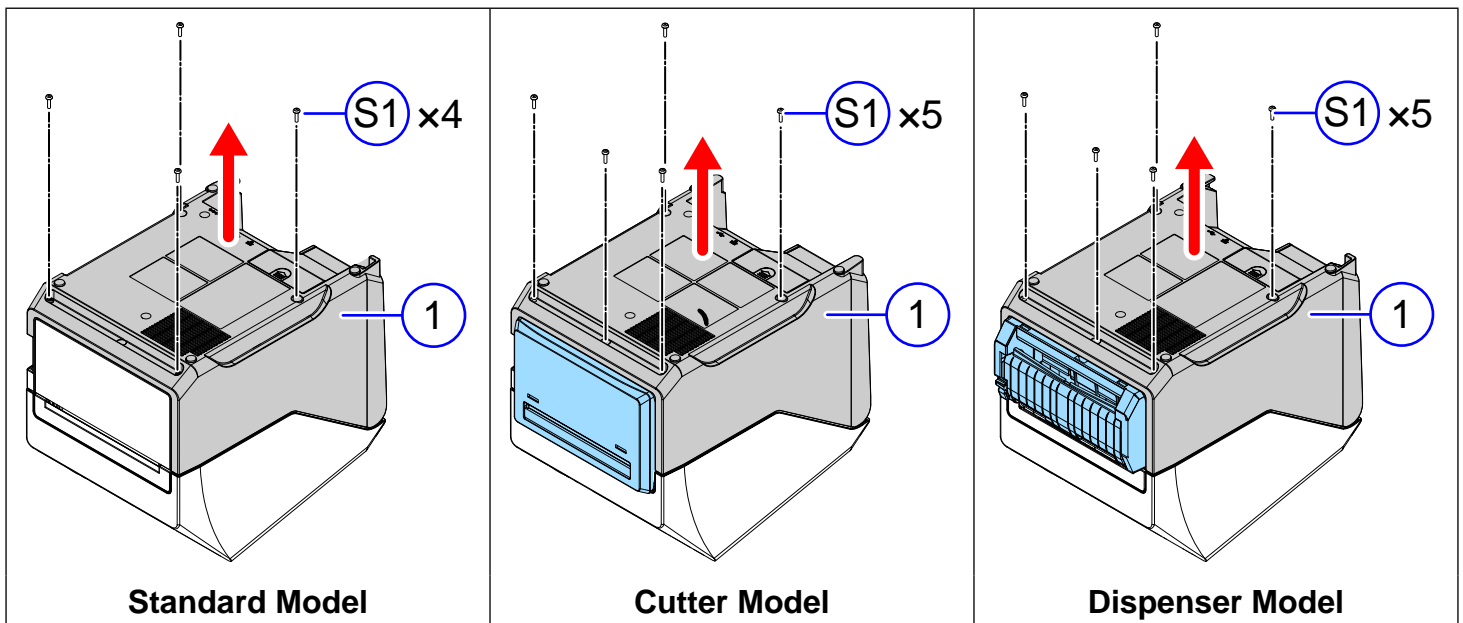
## 2 Model with the RS-232C Kit



## 3 Remove four screws (S1) and remove the BOTTOM COVER (①).

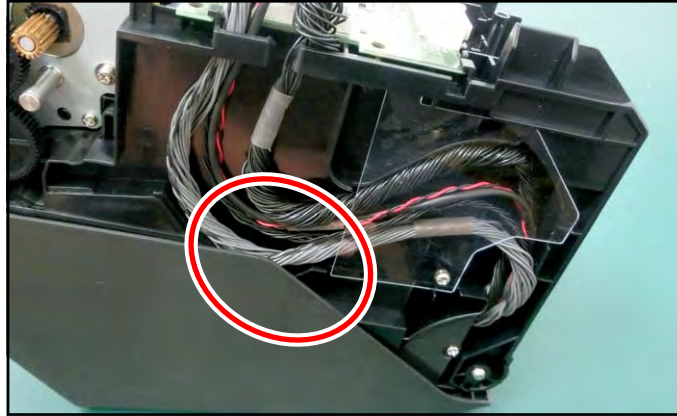
### CAUTION

For the cutter model or dispenser model, remove five screws (S1).

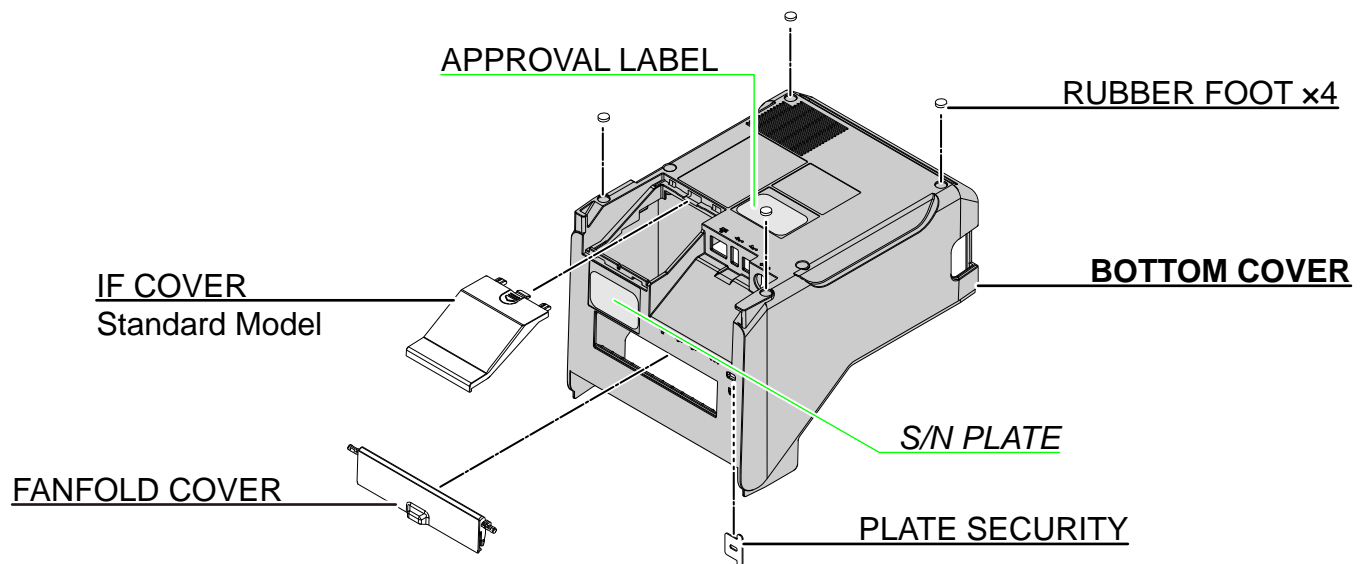


### Notes on assembling

Attach the BOTTOM COVER, taking care not to pinch the cables.



### 4 Components of the removed BOTTOM COVER



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



## 4.2.2 Replacing the TOP COVER




3 min.



Phillips screwdriver (#2)

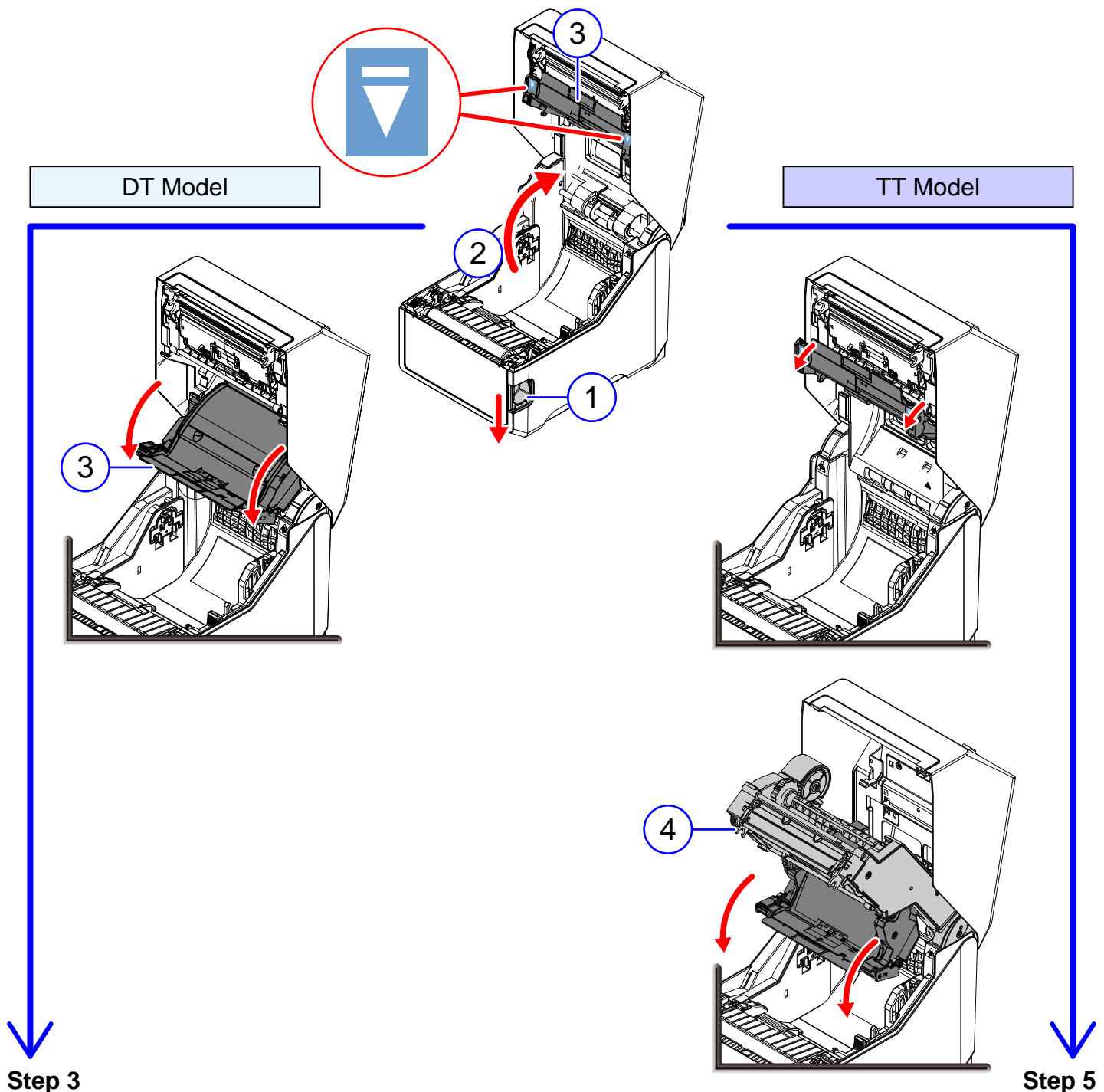


TT Model : S1×5  
DT Model : S1×7

- 1 Push down the cover open latch (①) to open the top cover (②).
- 2 Put your fingers on the seals (  ) on both sides of the RIBBON OPEN COVER (③) and open ③ or ④.

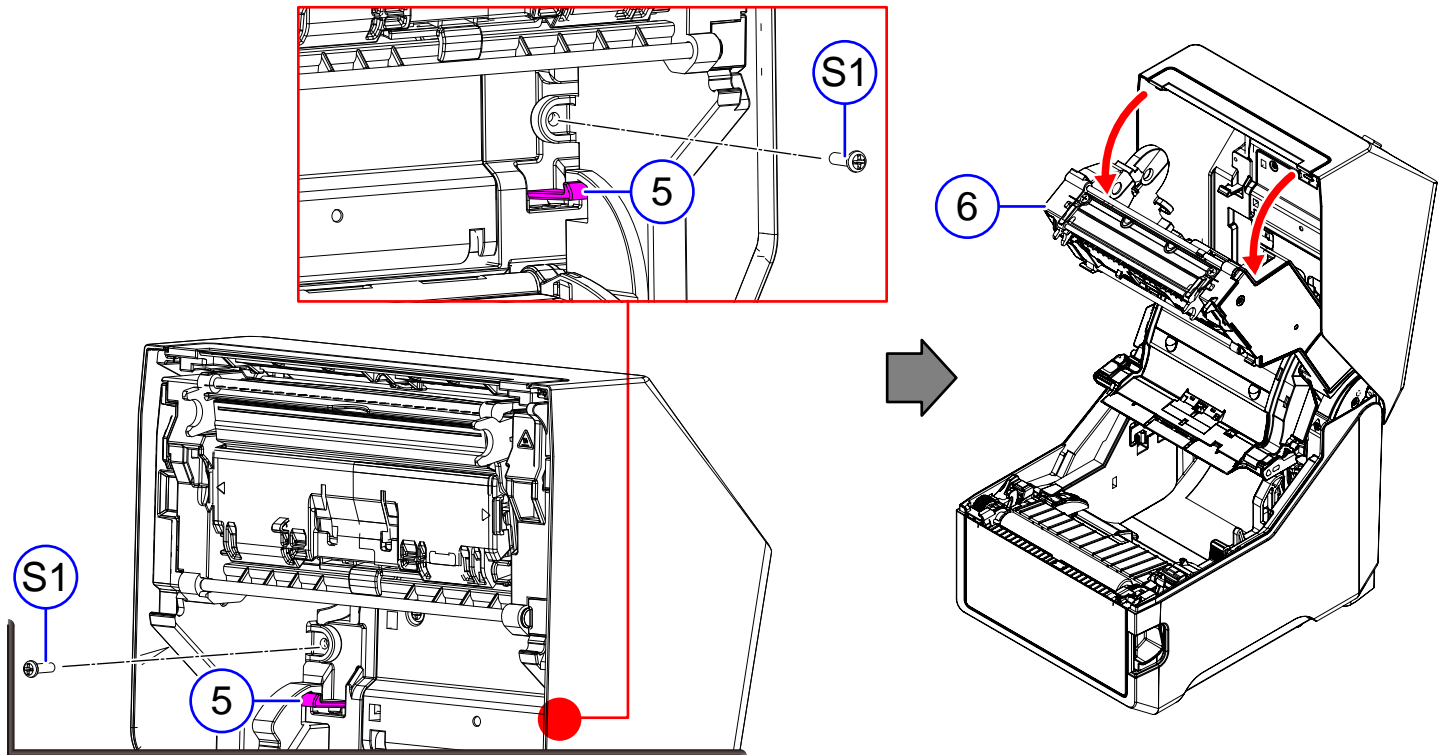
DT Model : RIBBON OPEN COVER (③)

TT Model : RIBBON FRAME (④)



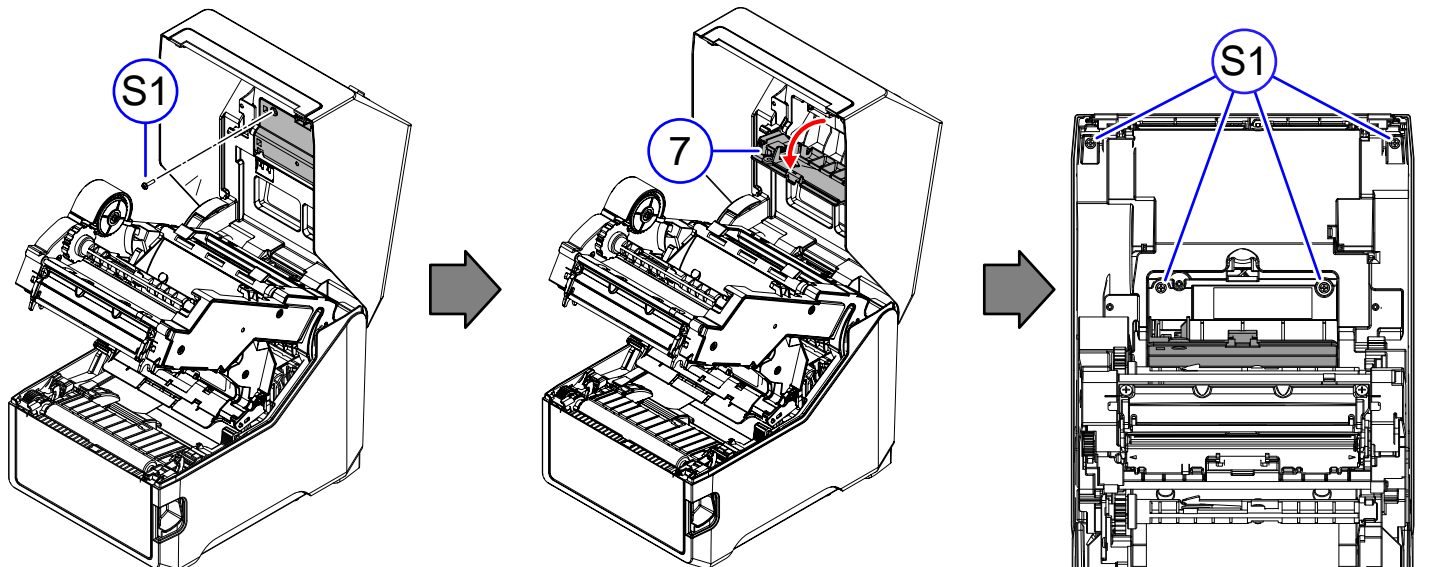
**3** DT Model Remove two screws (S1).

**4** DT Model Release two hooks (⑤) and open the RIBBON FRAME (⑥).

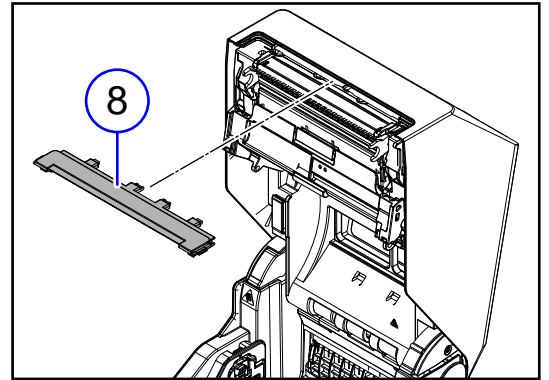


**5** Remove one screw (S1) and open the top USB cover (⑦).

**6** Remove four screws (S1).



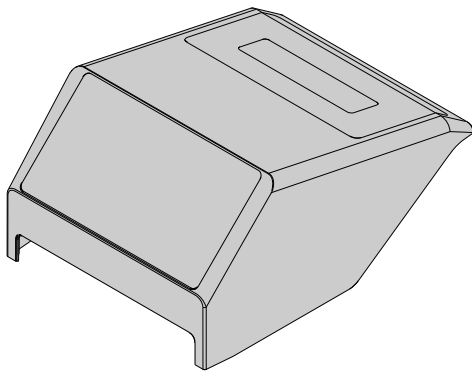
**7** Remove the TOP FRONT PANEL (⑧).



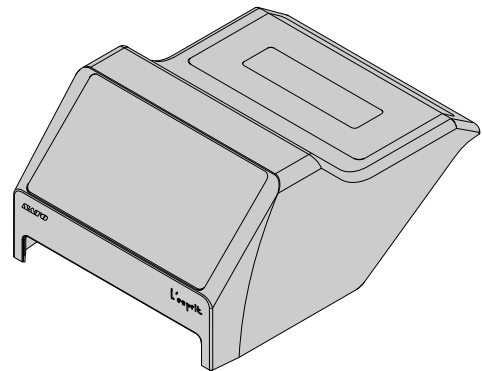
**8** Remove the top cover (⑨).



**9** Removed top cover.



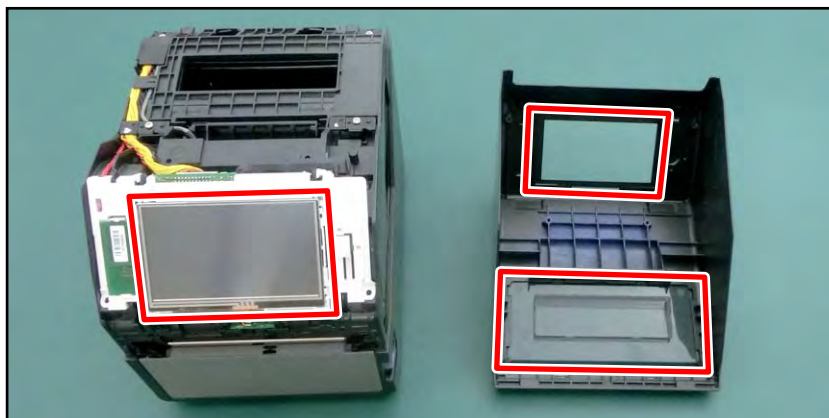
## CT4 Model



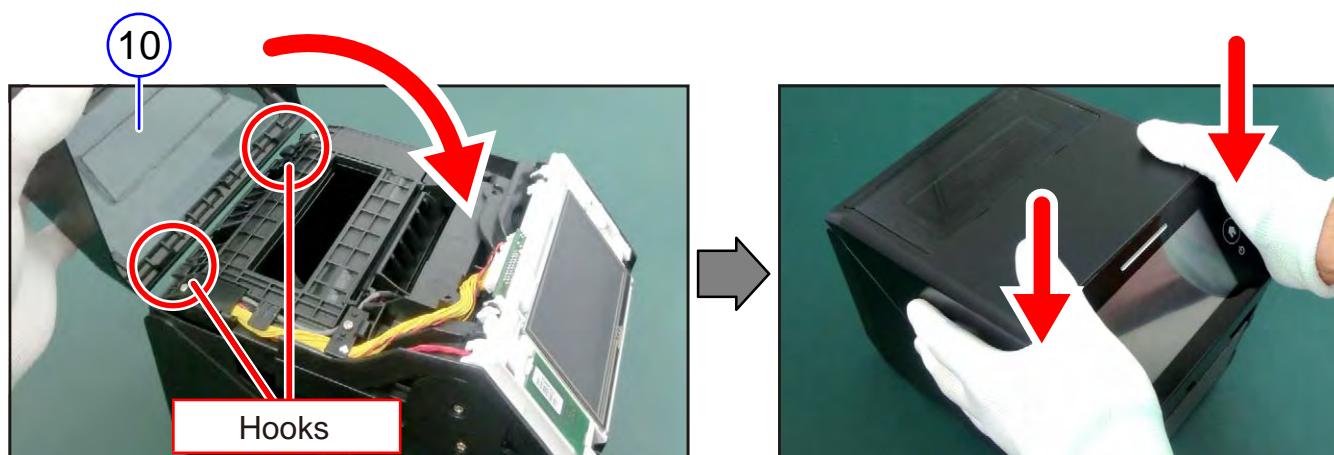
## H7 H(!@L!<7 Model

## Notes on assembling

Make sure that no dirt or dust adheres to the area surrounded by the red frames.



**10** With the RIBBON FRAME closed, attach the top cover (⑩).



**11** Assemble the parts in the reverse order from step 7.

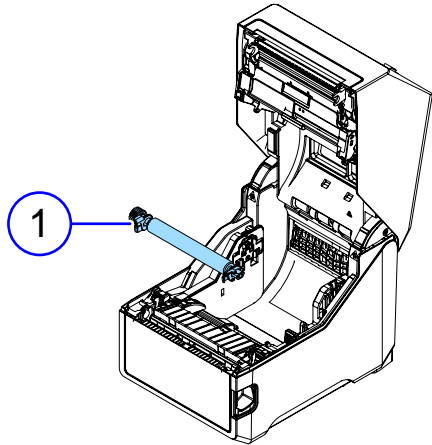
### 4.2.3 Replacing the INNER COVER



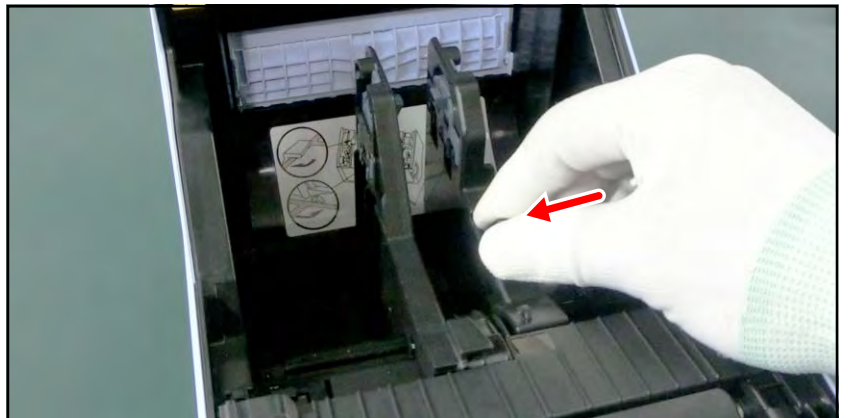
3 min.

- 1** Remove the platen roller (①).

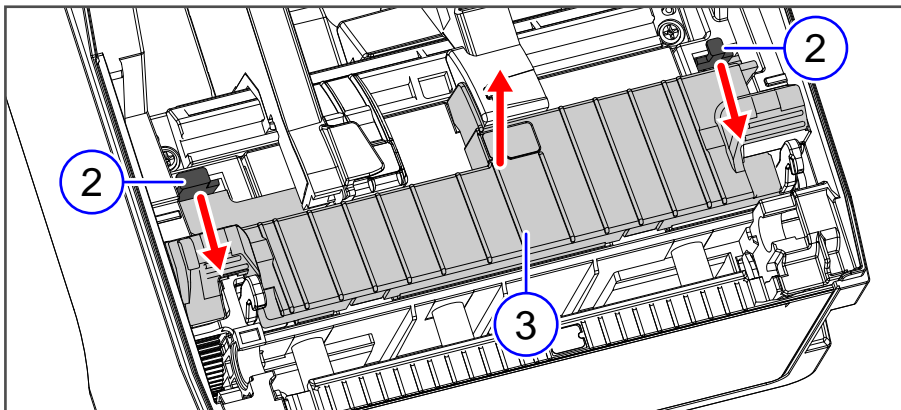
Refer to [4.4.1 Replacing the Platen Roller](#)



- 2** Press the knob and slide the label guide inward.



- 3** Release two hooks (②) and remove the inner cover (③).



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



## 4.2.4 Replacing the Cover open latch



4 min.



Phillips screwdriver (#2)

Precision flat-blade screwdriver



S1×4

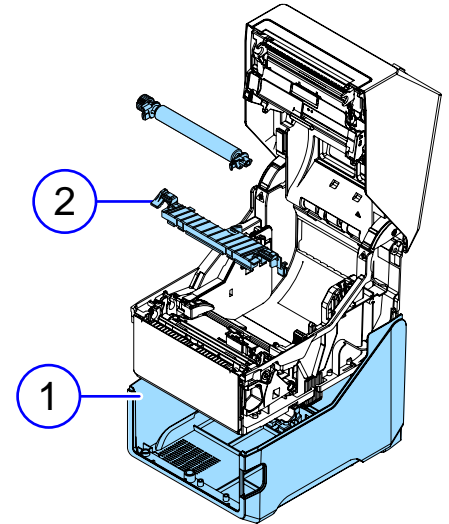
Cutter/Dispenser Model : S1×5

**1** Remove the BOTTOM COVER (①).

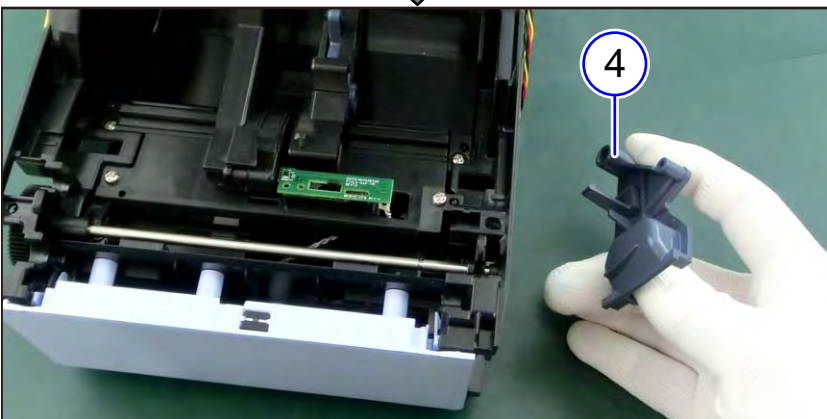
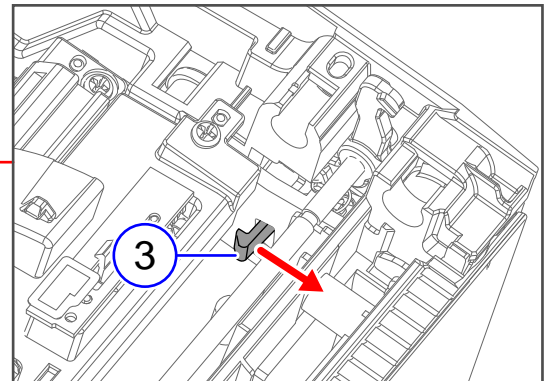
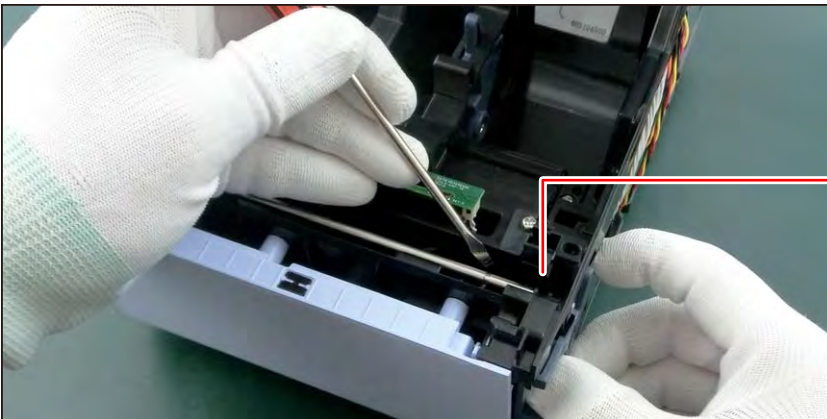
Refer to [4.2.1 Replacing the BOTTOM COVER](#)

**2** Remove the INNER COVER (②).

Refer to [4.2.3 Replacing the INNER COVER](#)



**3** Release one hook (③) and remove the cover open latch (④).



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

## 4.3 Printing Section


### 4.3.1 Replacing the Print Head (Thermal Head)

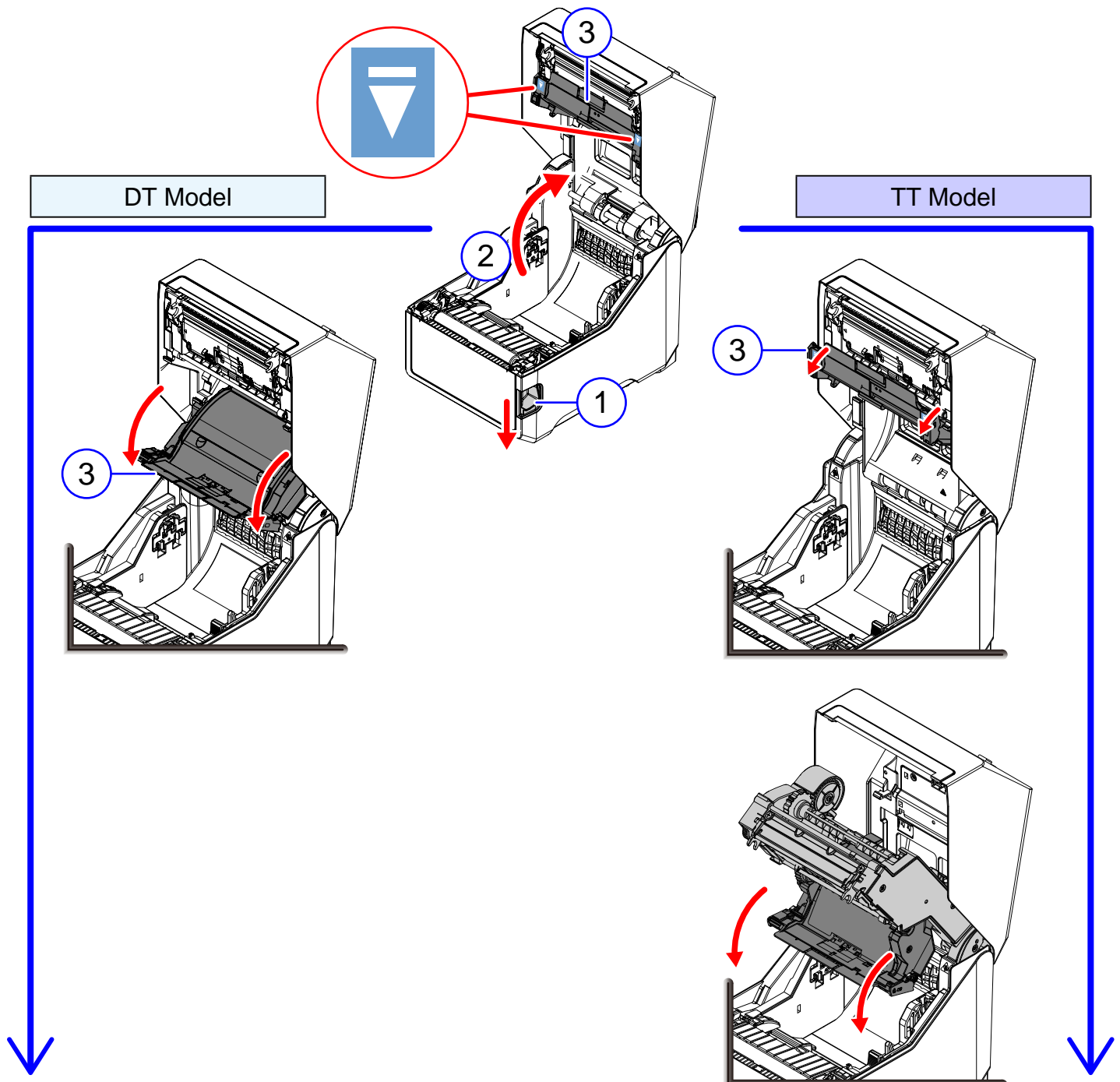


4 min.

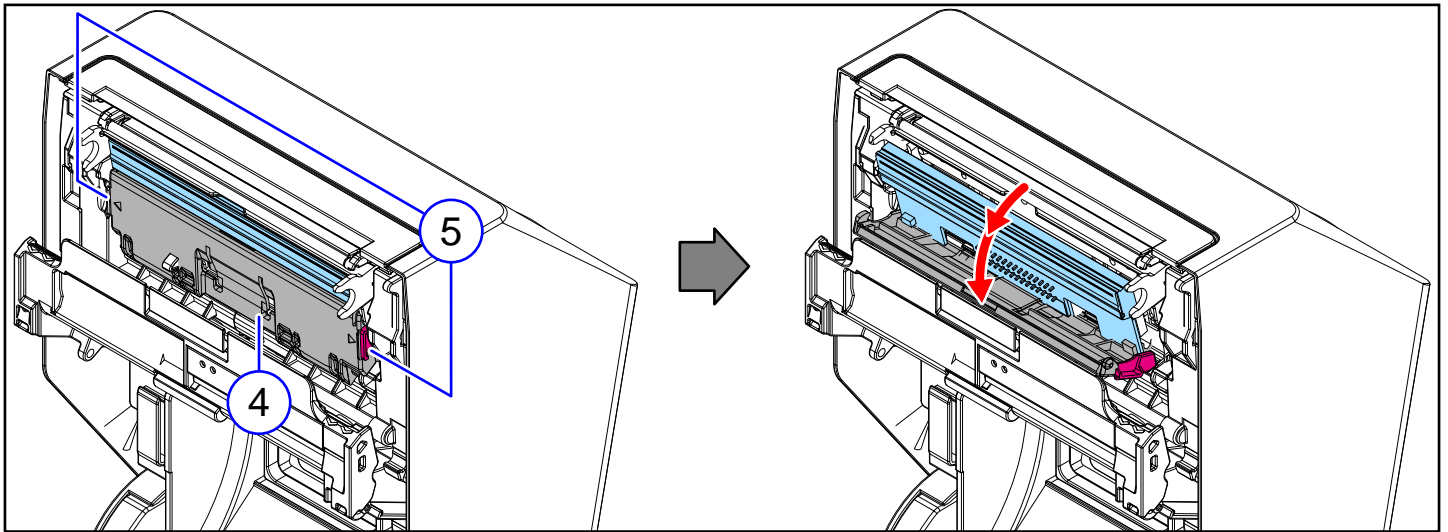


Isopropyl Alcohol (90% or higher)

- 1 Push down the cover open latch (①) to open the top cover (②).
- 2 Put your fingers on the seals (  ) on both sides of the RIBBON OPEN COVER (③) and open it.



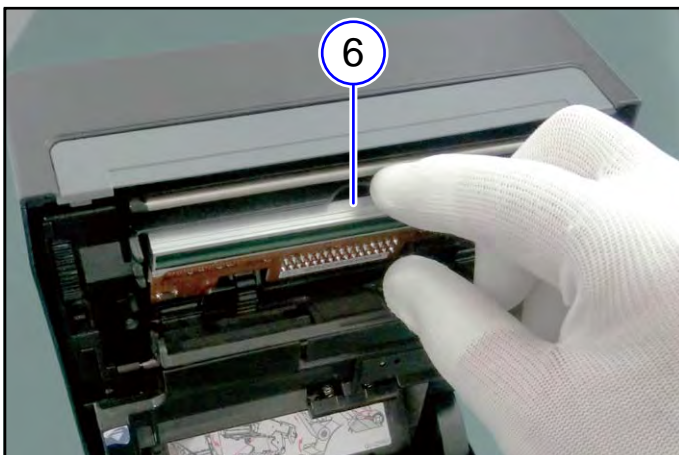
- 3** Put your finger on the concave parts (⑤) on the side of the head cover (④) and open it toward you. (The head cover is opened in two steps.)



- 4** Remove the Print Head (Thermal Head) (⑥).

## CAUTION

The print head (thermal head) and its surroundings are hot after printing.  
Be careful not to touch them until they get cool.

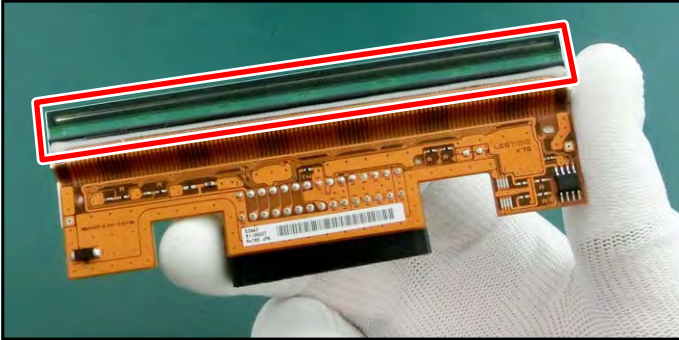




**Notes on assembling**

Do not touch the thermal element and terminal of the print head (thermal head).

Do not touch the thermal element and terminal of the print head (thermal head).

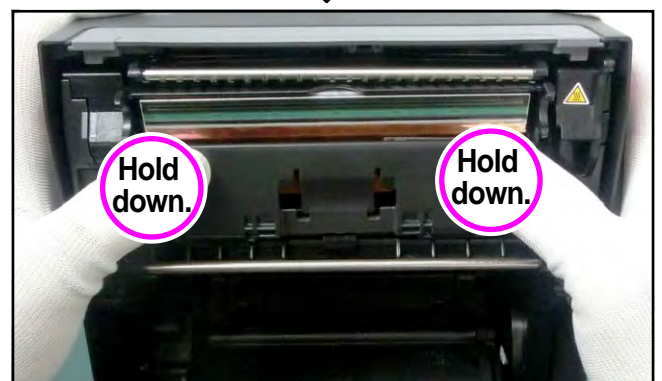
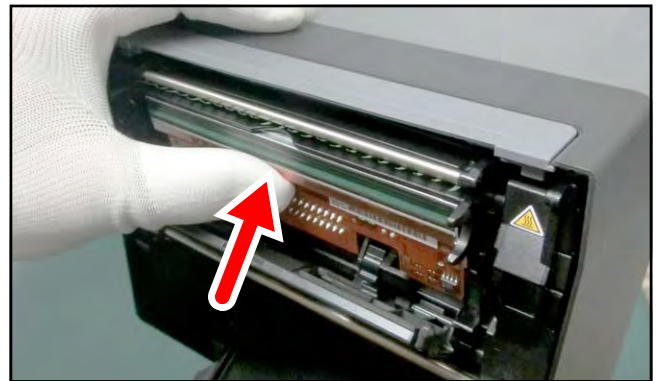
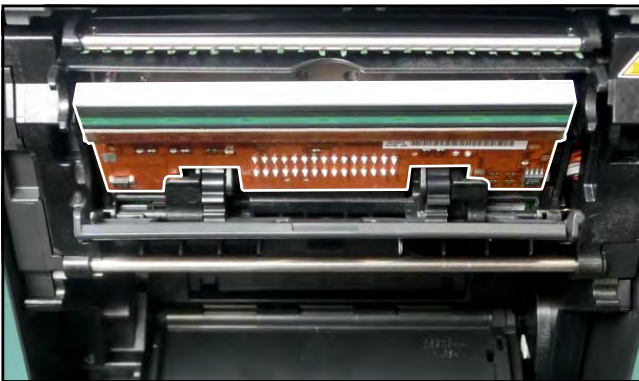


**5** Attach a new print head (thermal head) and close the head cover.

**CAUTION**

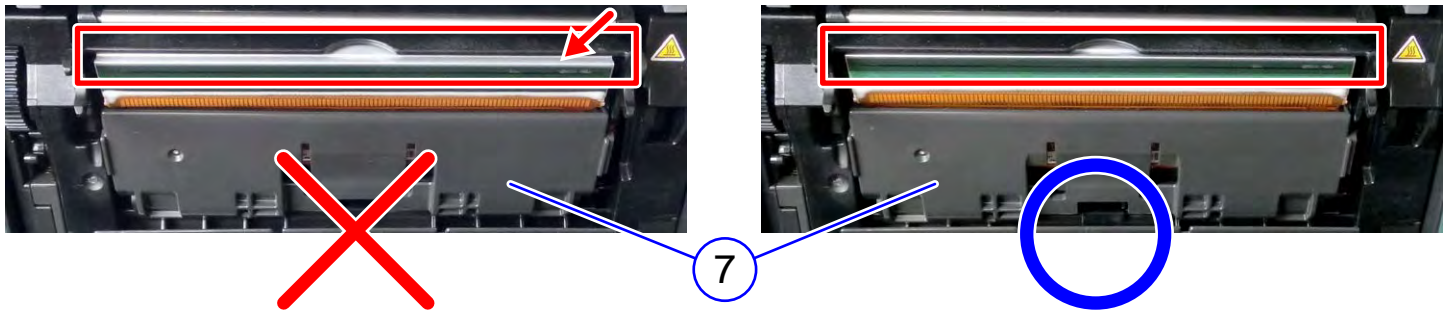
Make sure that the print head (thermal head) is securely seated with the positioning pins on the back side.

Make sure that the print head (thermal head) is securely seated with the positioning pins on the back side.

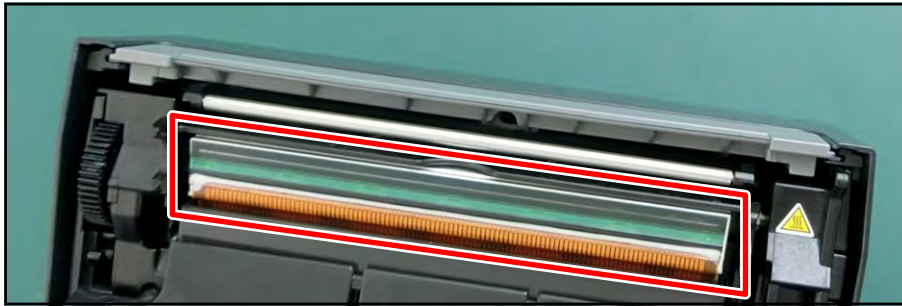


**Notes on assembling**

Make sure that the print head (thermal head) does not float when the head cover (⑦) is closed.



- 6** Close the RIBBON OPEN COVER and clean the print head part with Isopropyl Alcohol (90% or higher).

**CAUTION**

Do not use thinner, benzene, or kerosene for cleaning.

**Note**

Since the head counter is automatically updated, it is not necessary to clear the head counter.

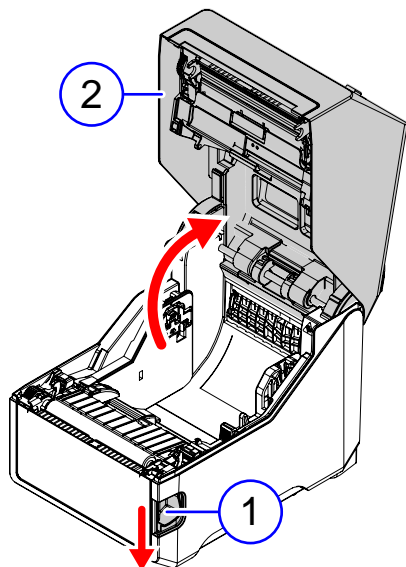
## 4. 4 Paper Transfer Section

### 4.4.1 Replacing the Platen Roller

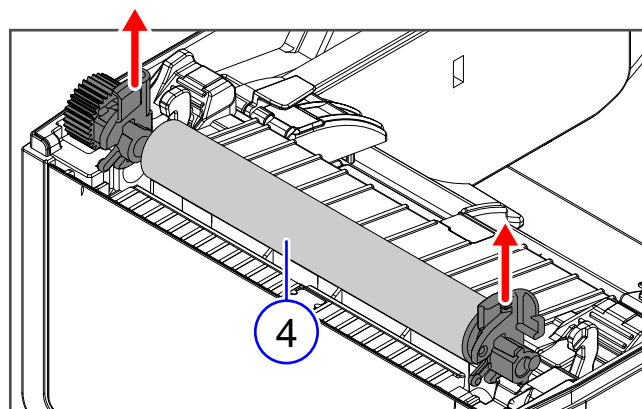
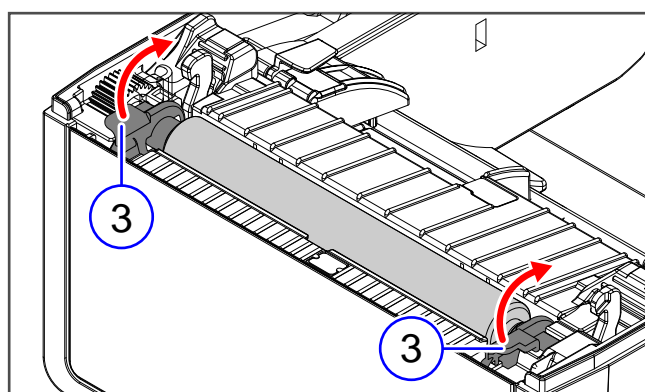


2 min.

- 1 Push down the cover open latch (①) to open the top cover (②).



- 2 Turn the two levers (③) of the platen roller (④), and then replace the platen roller with a new one.



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

## 4.4.2 Replacing the Label Guide



9 min.



Phillips screwdriver (#2)



S1×6

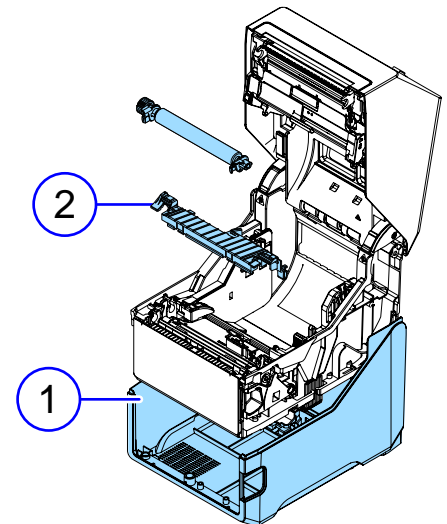
Cutter/Dispenser Model : S1×7

**1** Remove the BOTTOM COVER (①).

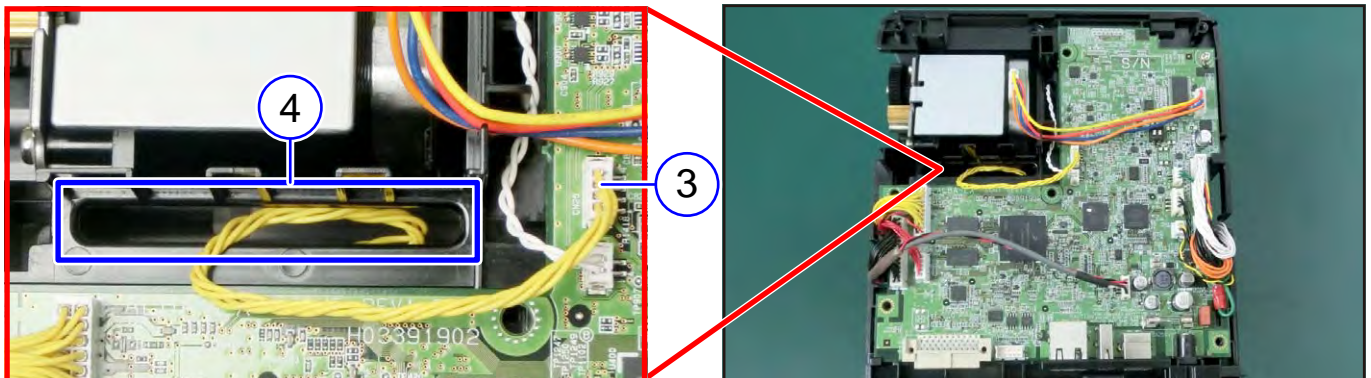
Refer to [4.2.1 Replacing the BOTTOM COVER](#)

**2** Remove the INNER COVER (②).

Refer to [4.2.3 Replacing the INNER COVER](#)



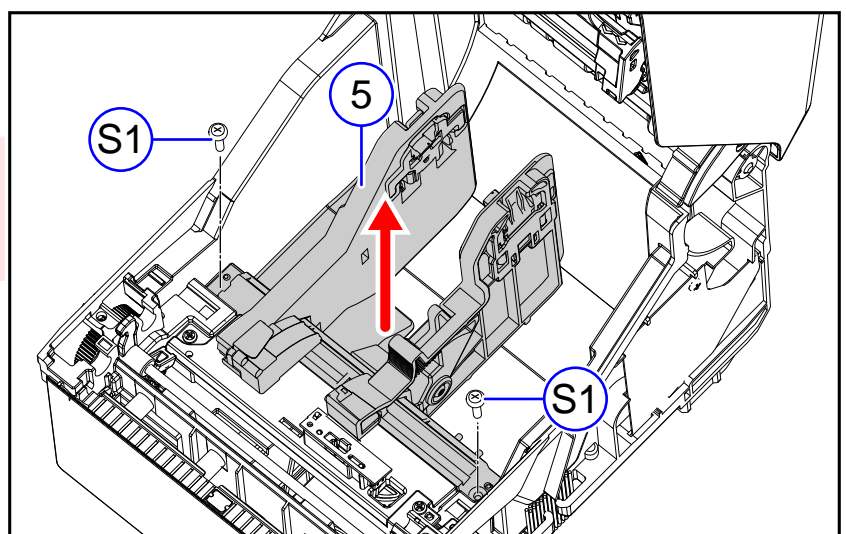
**3** Disconnect the label guide connector (③) from the CONT PCB and put it in the cable hole (④).



**4** Remove two screws (S1) and remove the label guide (⑤).

### CAUTION

Remove the label guide, paying attention to its cable.

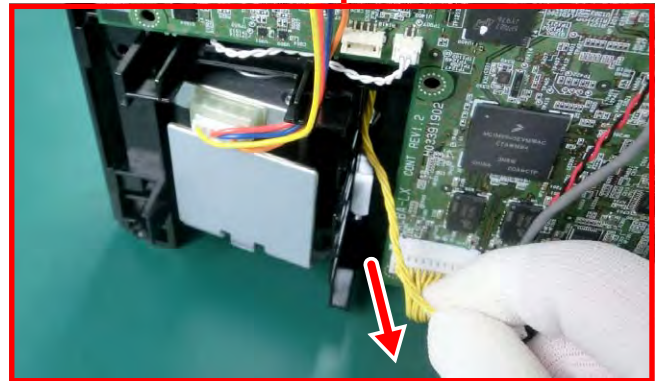
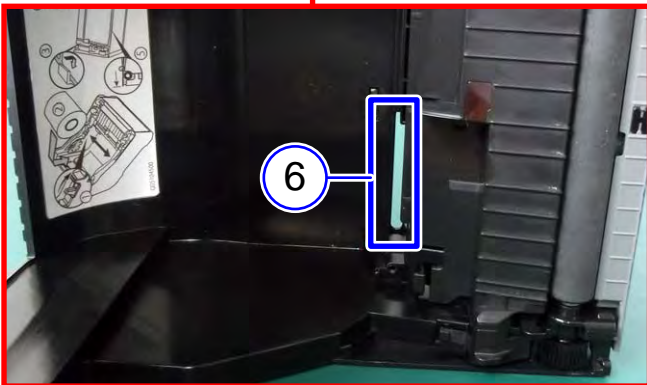
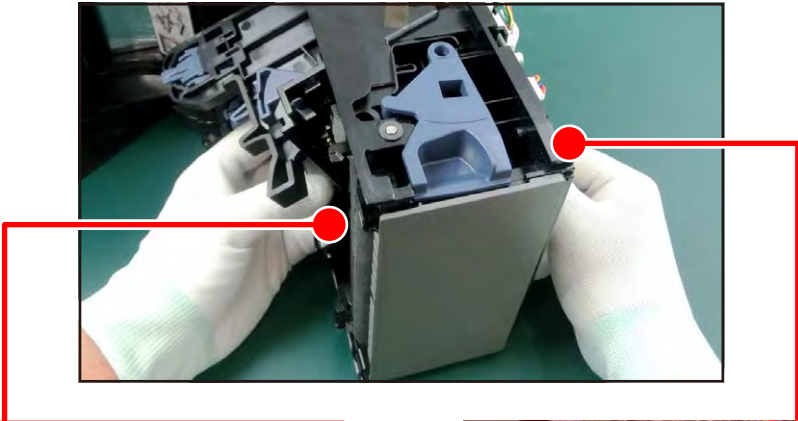




**Notes on assembling**

Pass the label guide cable through the cable hole (⑥).

Pass the label guide cable through the cable hole (⑥).



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

### 4.4.3 Replacing the Motor



5 min.



## Phillips screwdriver (#2)

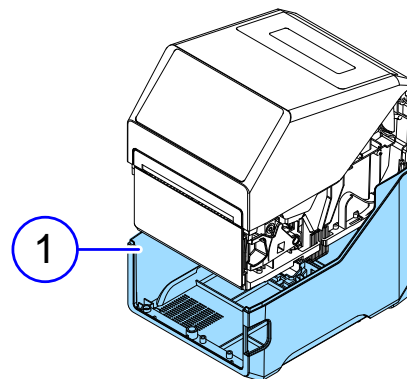


S1x8

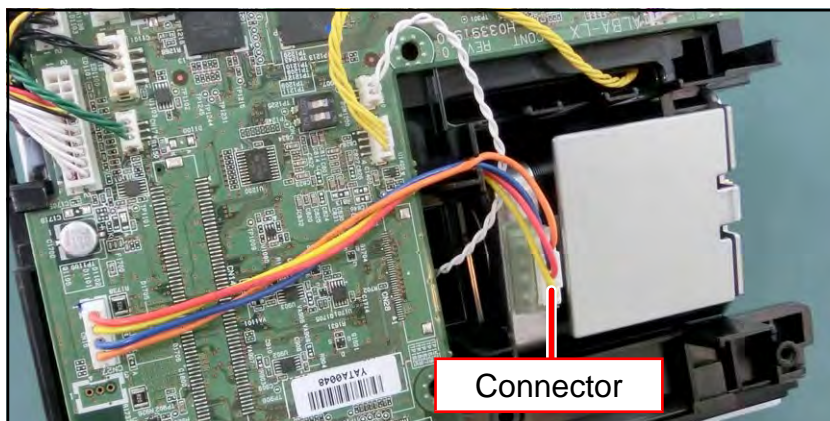
Cutter/Dispenser Model : S1x9

- 1** Remove the BOTTOM COVER (①).

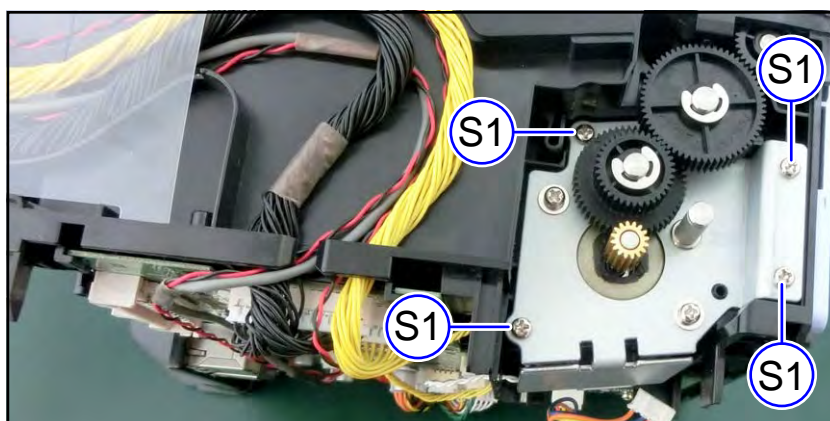
Refer to [4.2.1 Replacing the BOTTOM COVER](#)



- 2** Disconnect one connector.



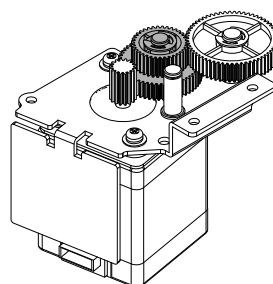
- ### 3 Remove four screws (S1).



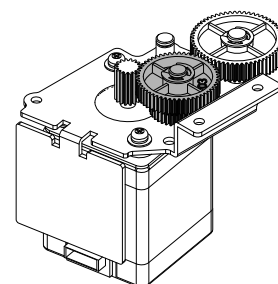
- 4** Remove the motor.

## CAUTION

The gear mounting position differs depending on the head density.

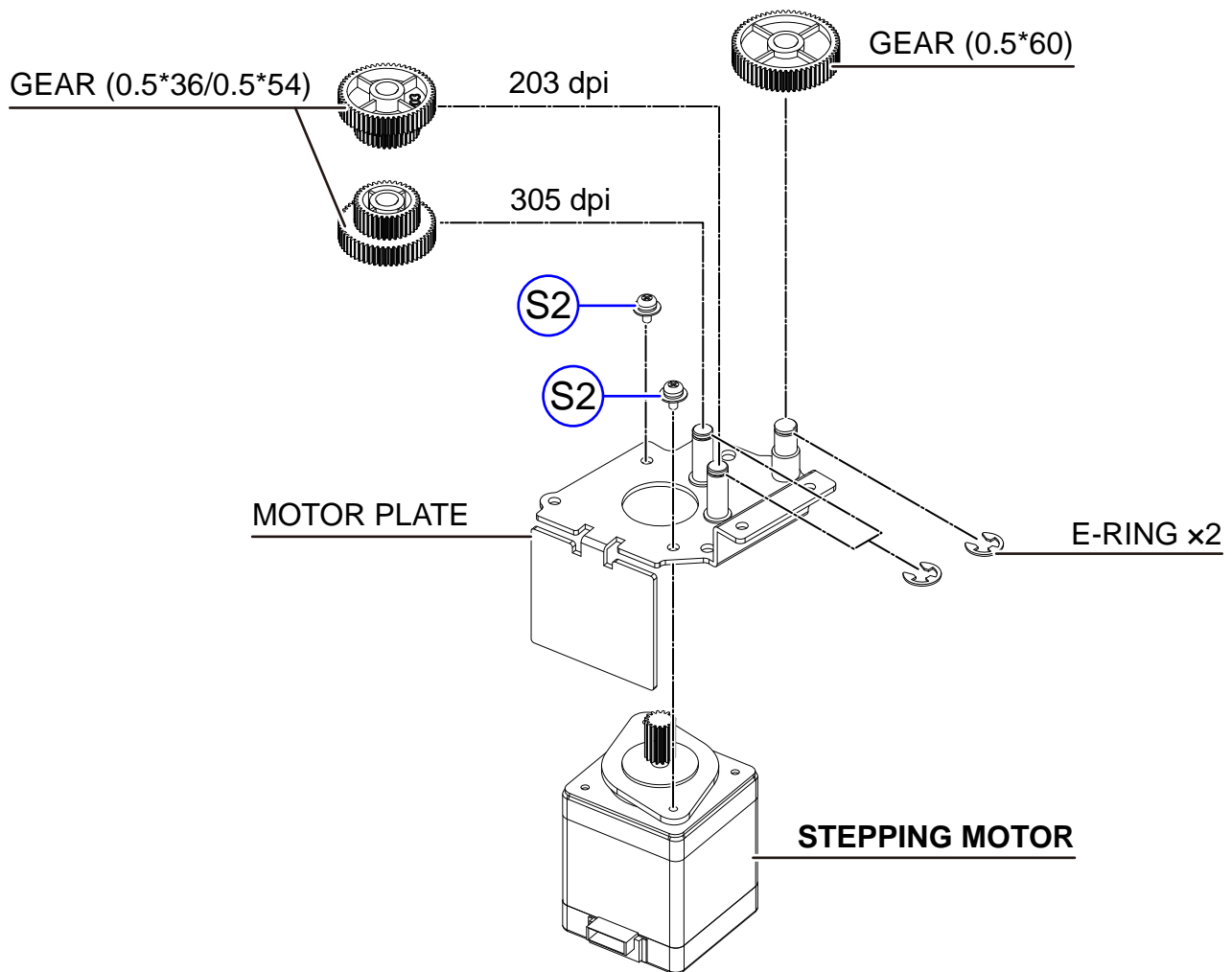


305 dpi



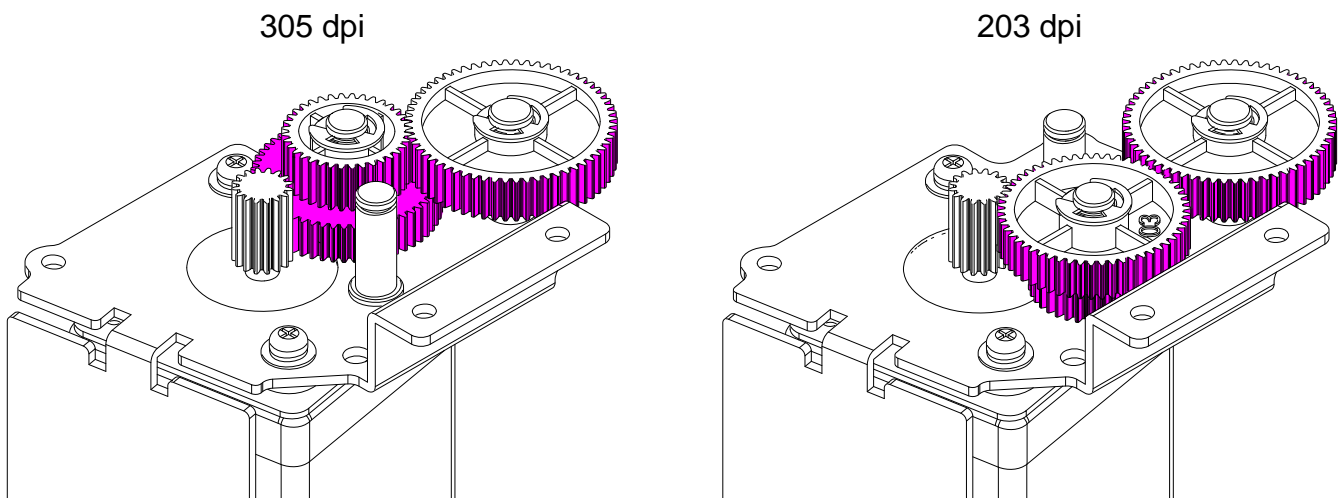
203 dpi

## 5 Components of the removed motor



### Notes on assembling

After replacing the gear, apply silicone grease to the surface of the gear teeth.



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

## 4.5 Sensors

### 4.5.1 Replacing the Cover Open Sensor



5 min.



Phillips screwdriver (#2)



S1×12

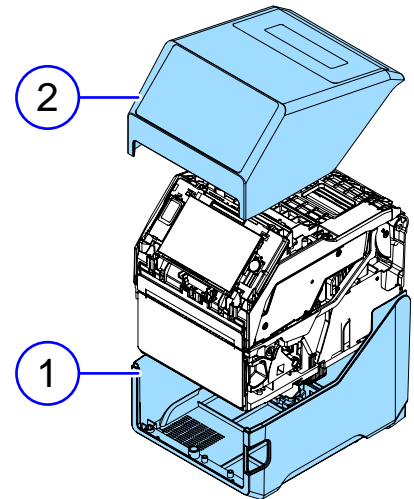
Cutter/Dispenser Model : S1×13

**1** Remove the BOTTOM COVER (①).

Refer to [4.2.1 Replacing the BOTTOM COVER](#)

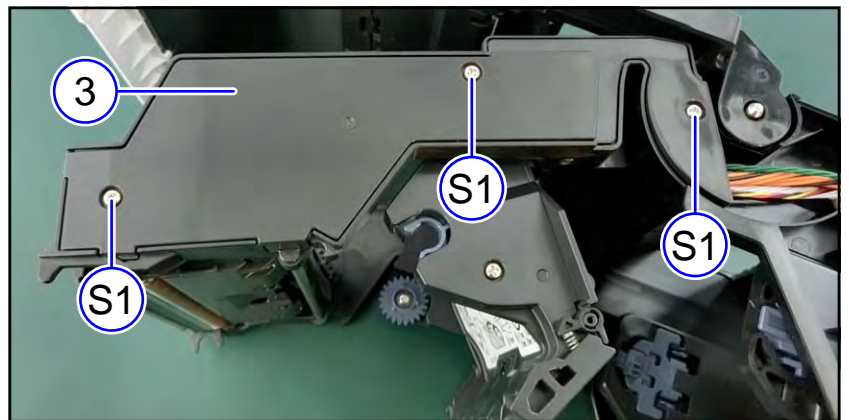
**2** Remove the top cover (②).

Refer to [4.2.2 Replacing the TOP COVER](#)



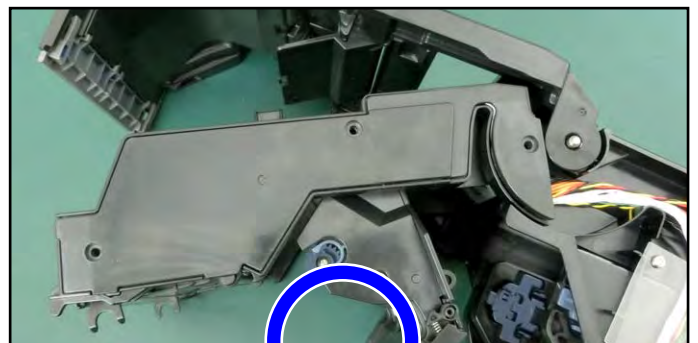
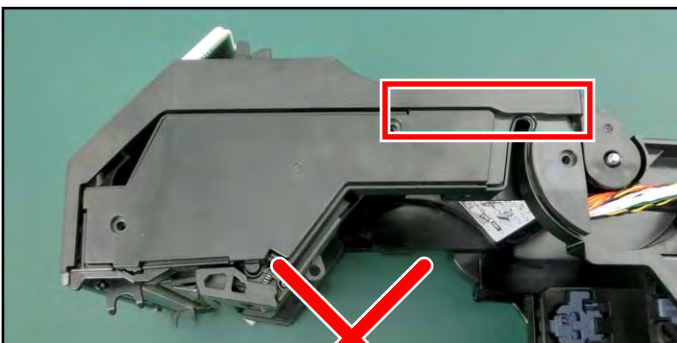
**3** Remove three screws (S1).

**4** Remove the RIBBON FRAME COVER (③).



#### CAUTION

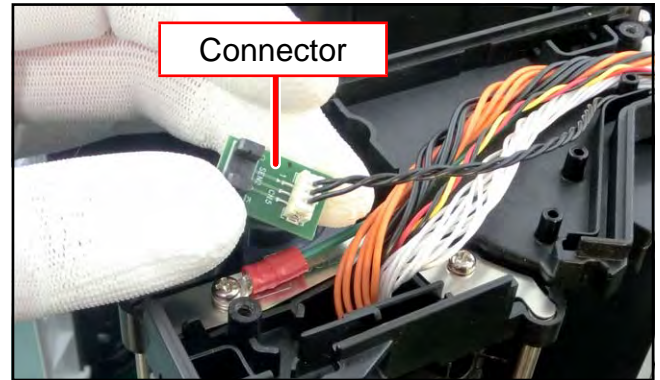
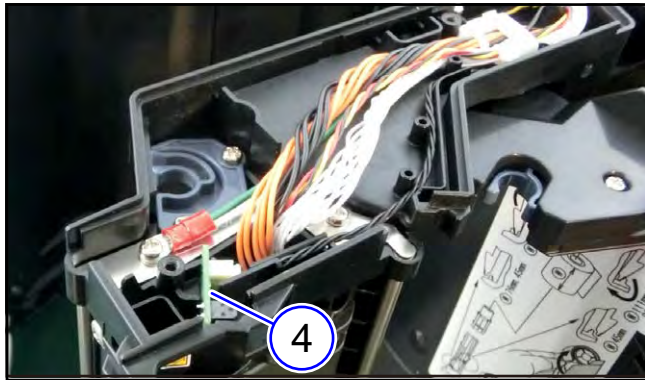
The RIBBON FRAME COVER cannot be removed when the TOP FRAME is closed.





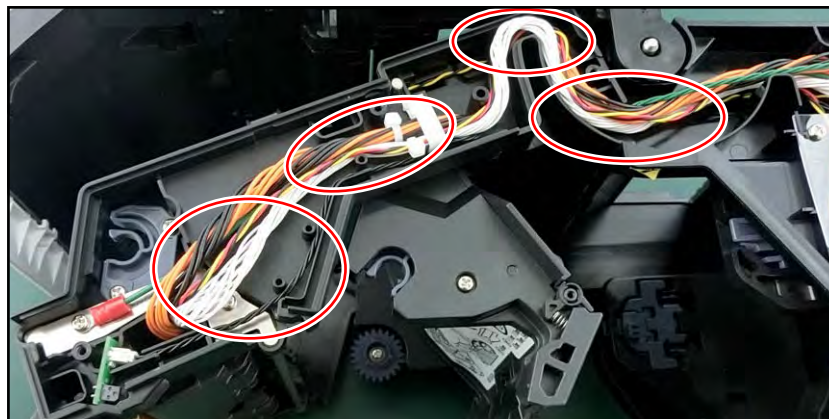
**5** Remove the COVER OP PCB (④).

**6** Disconnect one connector.



### Notes on assembling

Attach the RIBBON FRAME COVER, taking care not to pinch the cables.



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

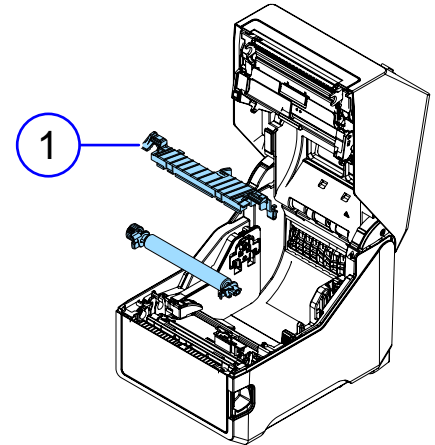
## 4.5.2 Replacing the Gap Sensor (Transmitter)



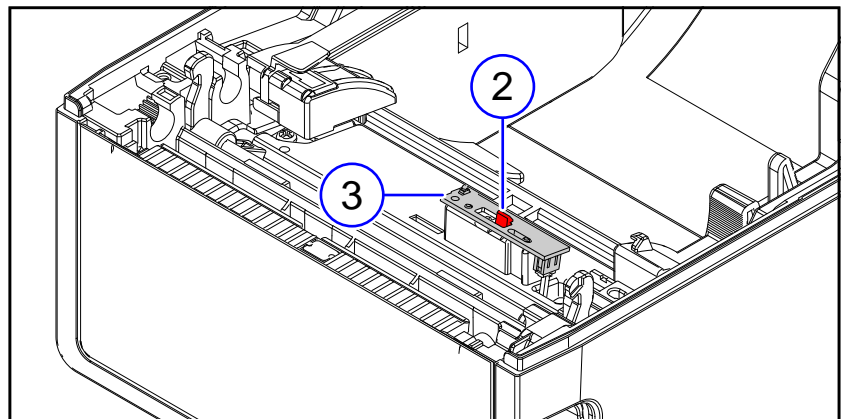
5 min.

**1** Remove the INNER COVER (①).

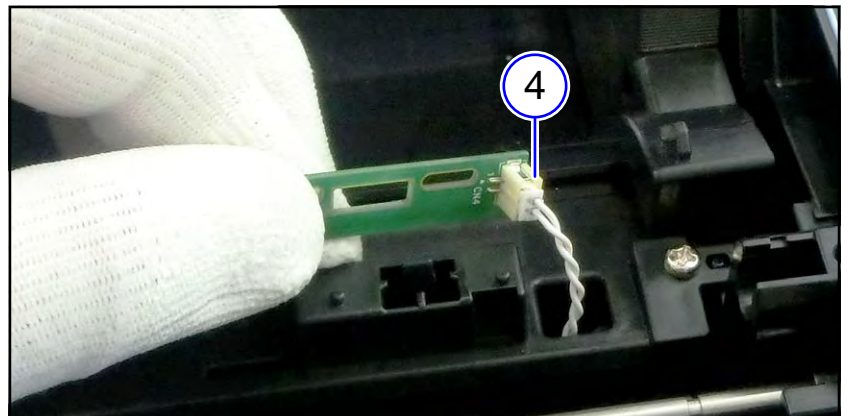
Refer to [4.2.3 Replacing the INNER COVER](#)



**2** Release one hook (②) and remove the GAP TR PCB (③).



**3** Disconnect one connector (④).




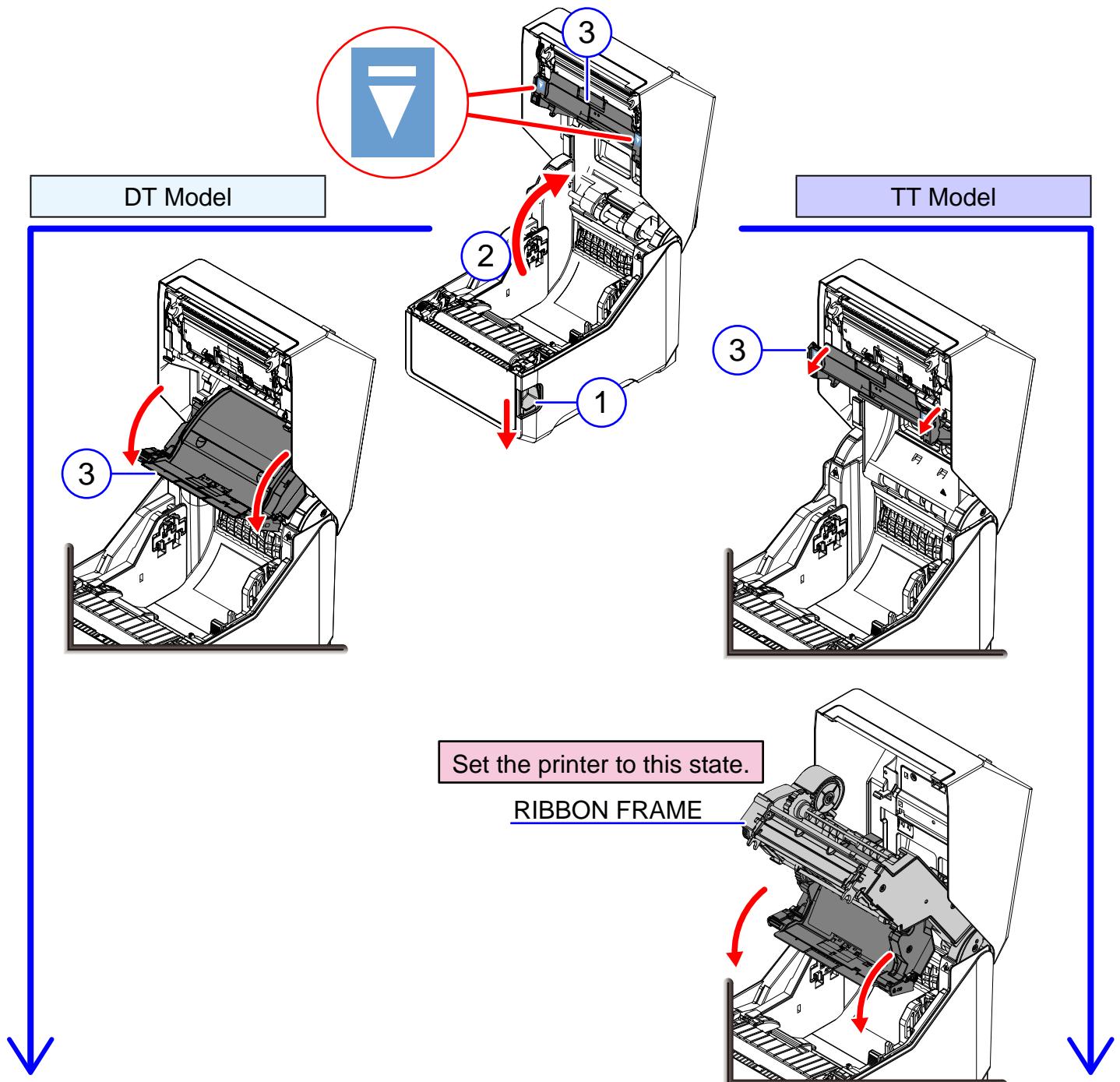
**4** Assemble the parts in the reverse order of the disassembly procedure.

### 4.5.3 Replacing the Gap Sensor (Receiver)

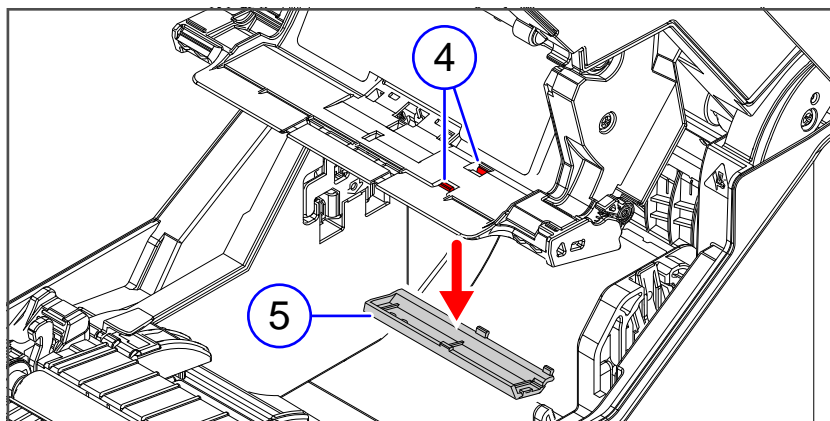


5 min.

- 1 Push down the cover open latch (①) to open the top cover (②).
- 2 Put your fingers on the seals (  ) on both sides of the RIBBON OPEN COVER (③) and open it.

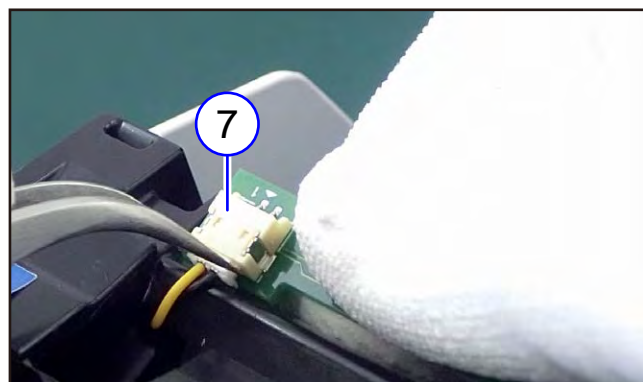
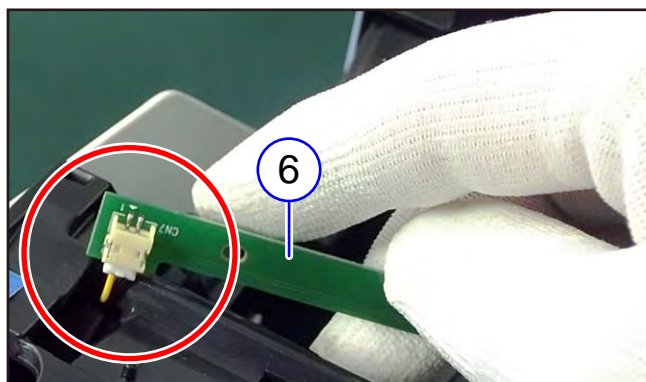


- 3** Release two hooks (④) and remove the RIBBON GAP U HOLDER(⑤).



- 4** Carefully pull out the GAP-D-PCB (⑥) as the connecting cable is short.

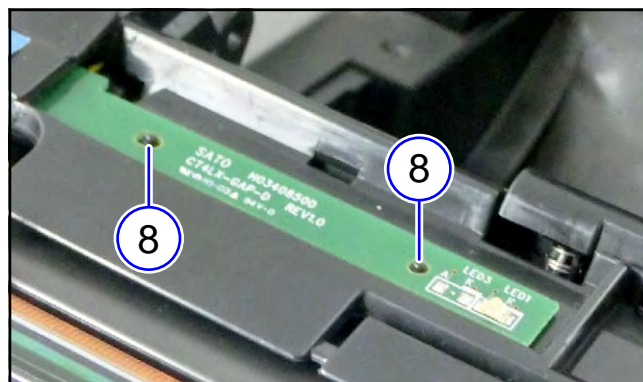
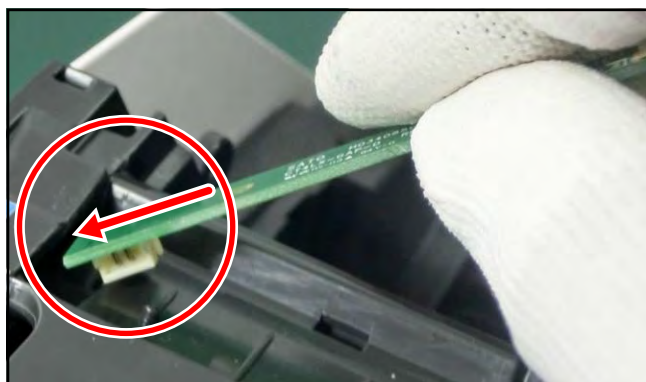
- 5** Disconnect one connector (⑦).



## Notes on assembling

Connect the cable to the GAP-D-PCB.

Insert the GAP-D-PCB into the slit in the RIBBON OPEN COVER and fix it with two positioning pins (⑧).



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



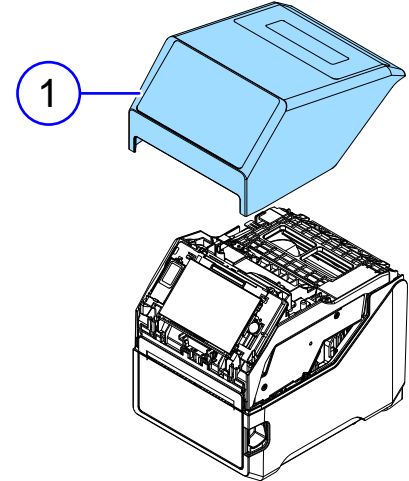
## 4.5.4 Replacing the Label Top Sensor (Receiver)



5 min.

**1** Remove the top cover (①).

Refer to [4.2.2 Replacing the TOP COVER](#)

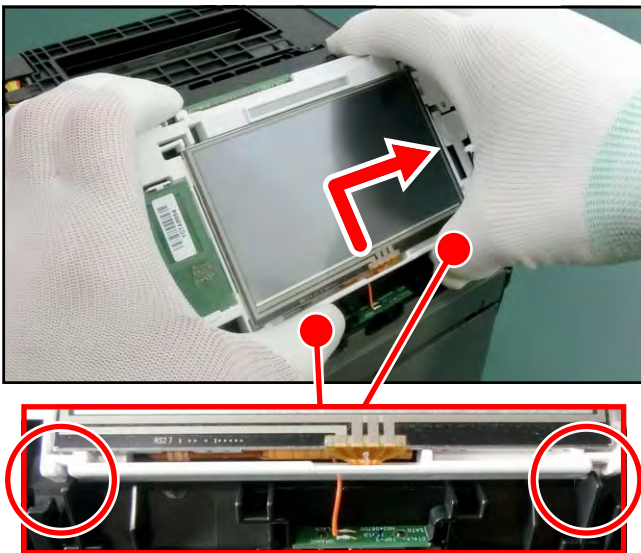


**2** Remove the TOP DISPLAY ASSY.

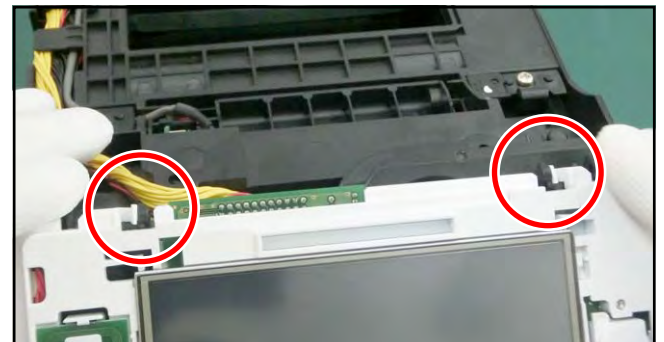
### CAUTION

Be careful as cables are connected to the TOP DISPLAY ASSY.

**2-1.** Release the joining sections (2 places).



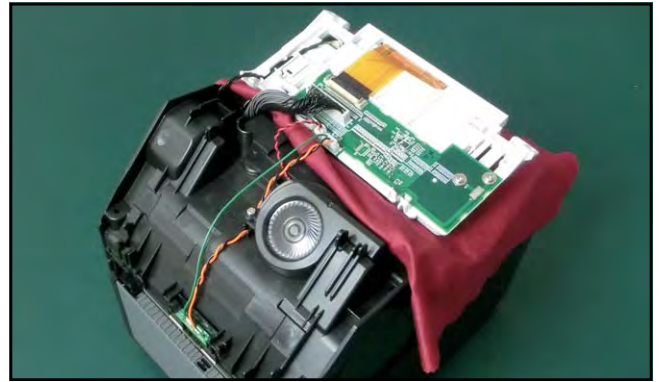
**2-2.** Release two hooks.



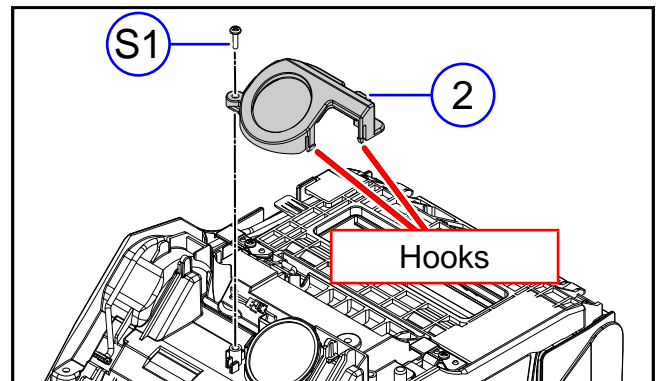
**2-3.** Pull out the cables from the case.



- 3** Place a waste cloth, and then place the TOP DISPLAY ASSY after turning it over.

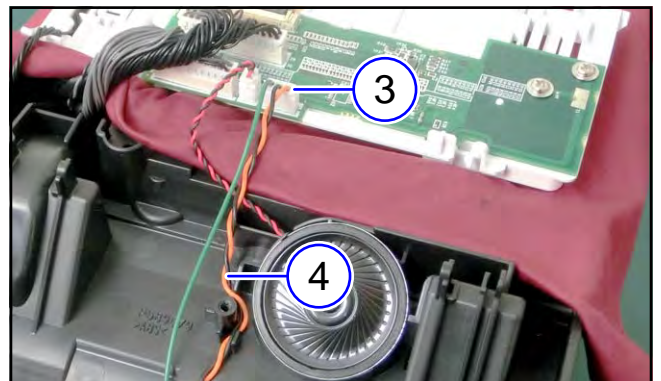


- 4** Remove one screw (S1) and remove the SPEAKER HOLDER (②).



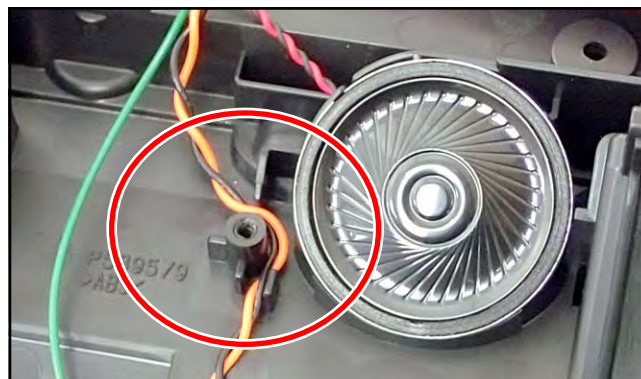
- 5** Disconnect one connector (③).

- 6** Pull out the twisted-pair wire (④) from the case.



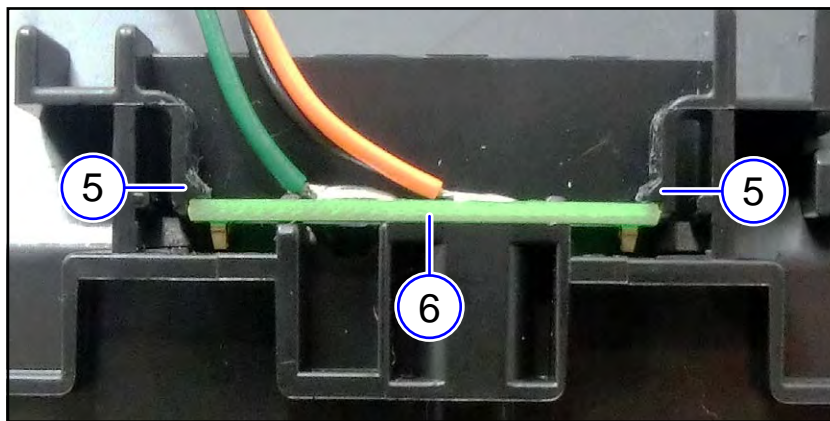
## Notes on assembling

Route the twisted-pair wire of the TOP D PCB as shown.



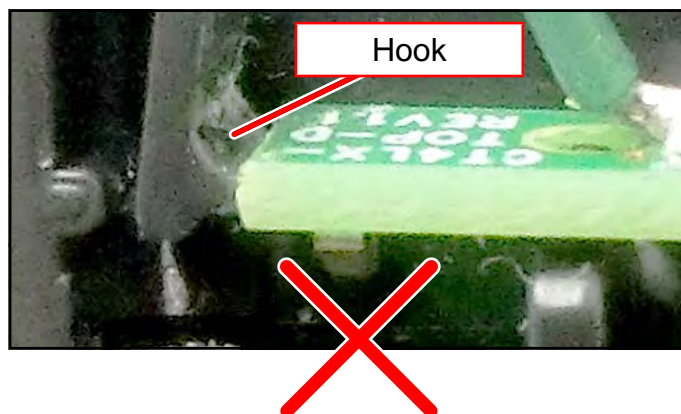
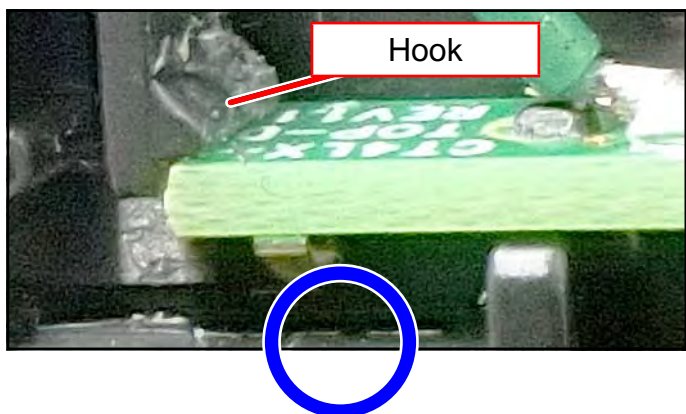
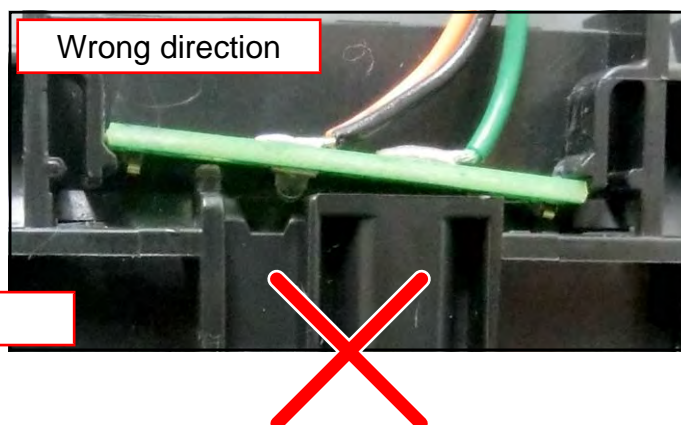
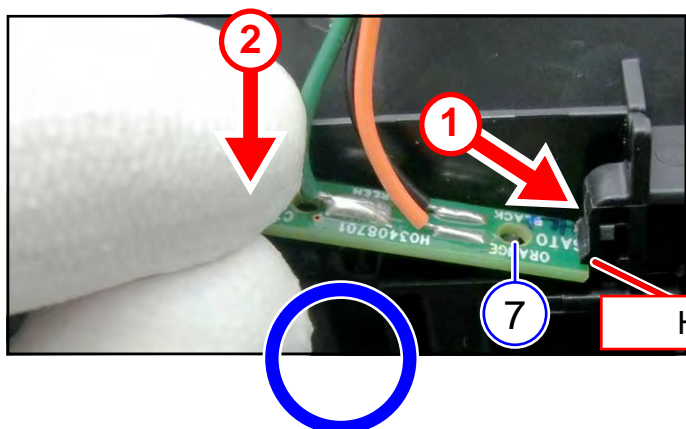


- 7** Release two hooks (⑤) and remove the TOP D PCB (⑥).

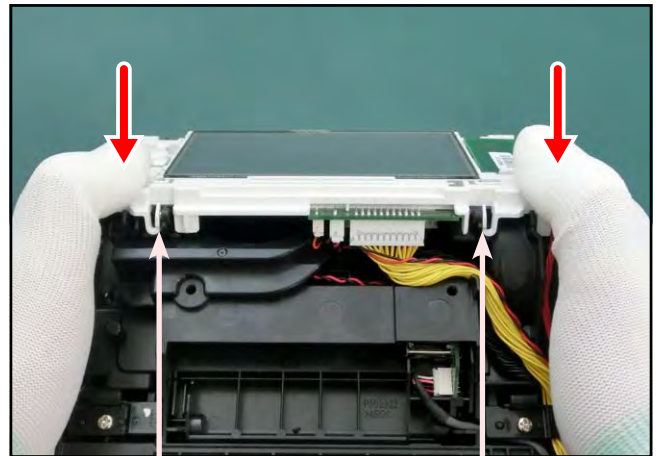
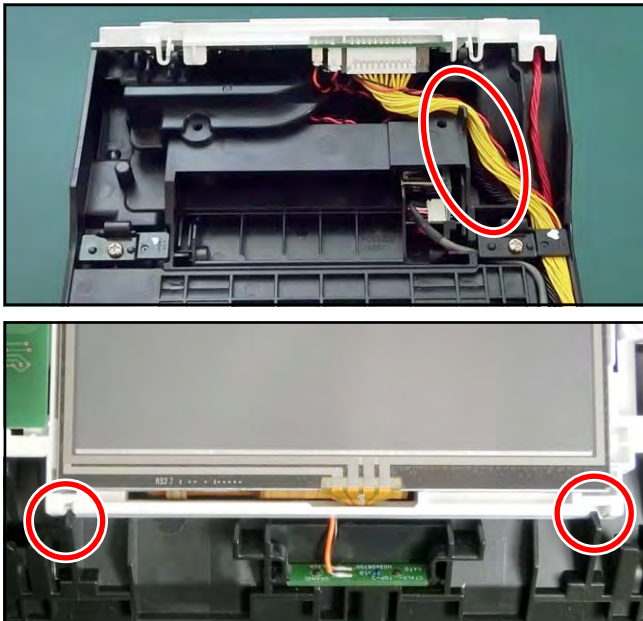


## Notes on assembling

While paying attention to the direction, attach the TOP D PCB by aligning its hole with the positioning pin (⑦).



- 8** While putting the cables in the case, set the DISPLAY ASSY in place, and then attach it to the case.



### Notes on assembling

Make sure that the DISPLAY ASSY is fixed with hooks.

- 9** Refer to the following item for the assembling procedure.

Refer to [4.2.2 Replacing the TOP COVER](#)



### 4.5.5 Replacing the Label Top Sensor (Transmitter)

Standard Model

**CAUTION**

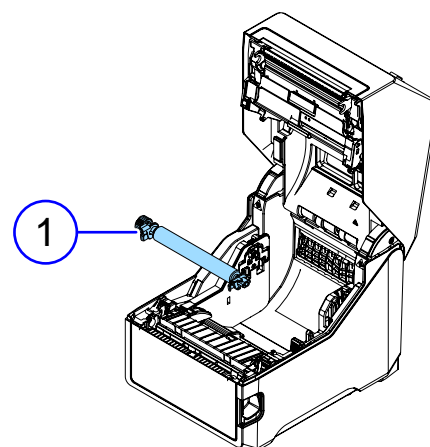
Since the label top sensor is not available alone, you need to replace the FRONT PNAEL.



3 min.

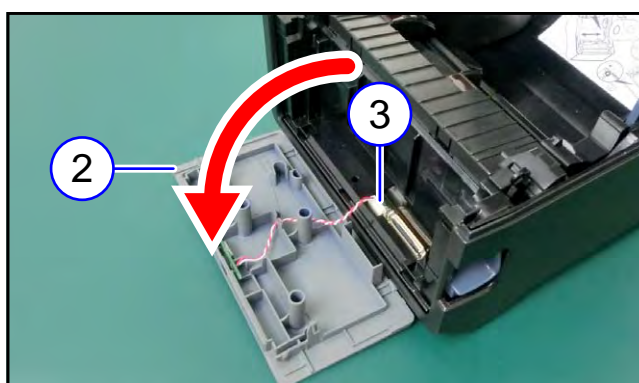
- 1 Remove the platen roller (①).

Refer to [4.4.1 Replacing the Platen Roller](#)



- 2 Remove the FRONT PANEL (②).

- 3 Disconnect one connector (③).



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

## 4.5.6 Replacing the Ribbon Sensor

## TT Model



5 min.

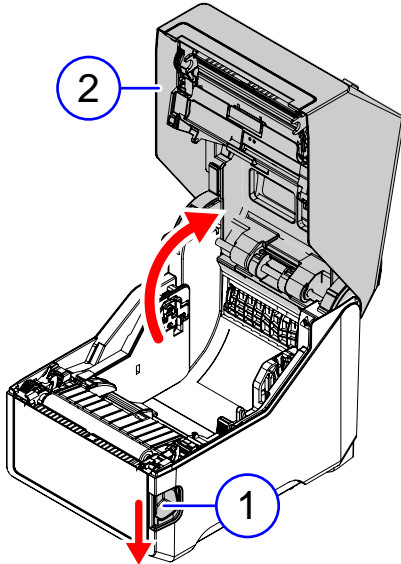



## Phillips screwdriver (#2)

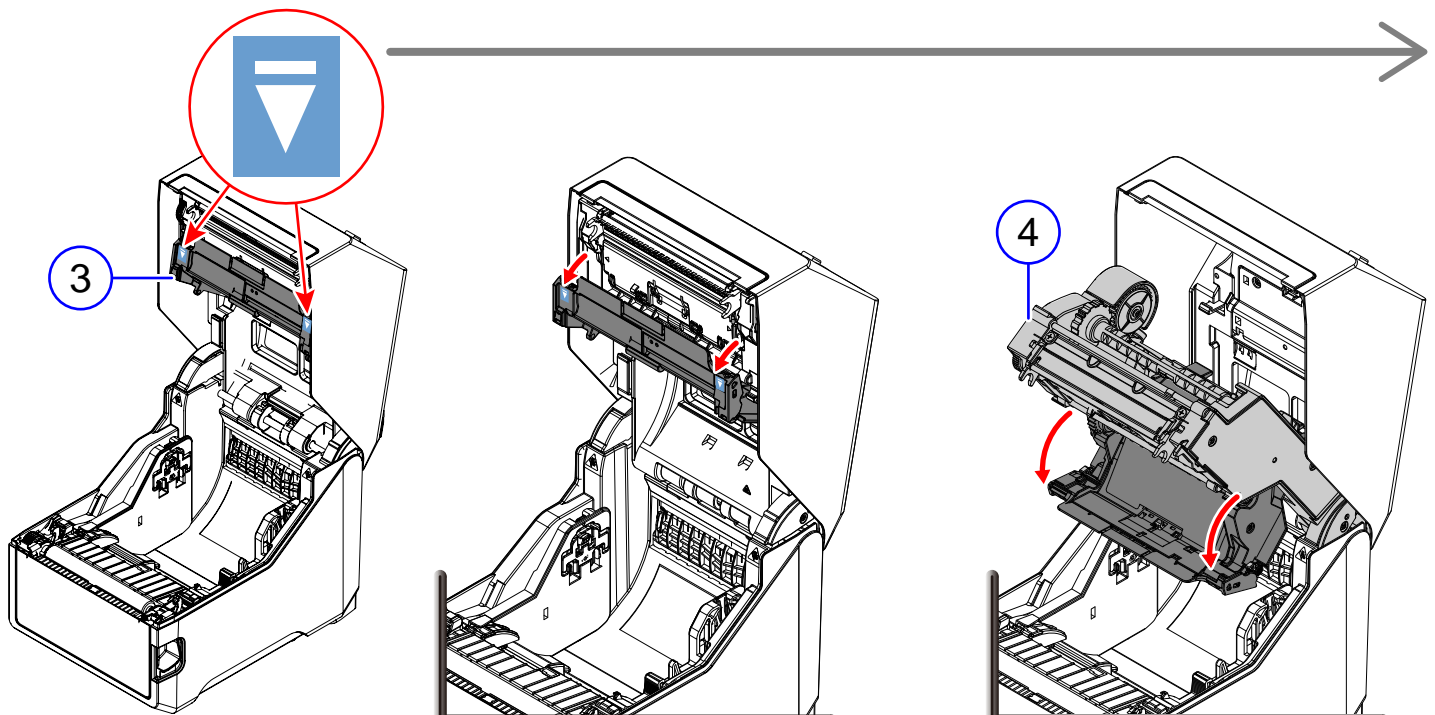


S1x2

- 1** Push down the cover open latch (①) to open the top cover (②).

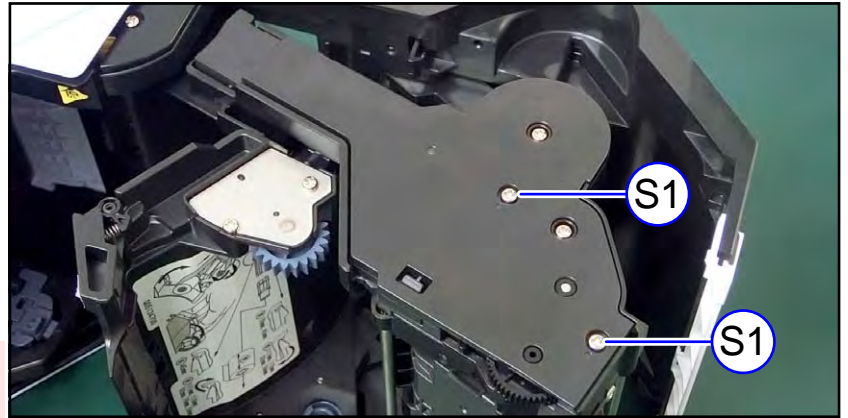
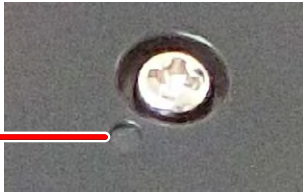


- 2** Put your fingers on the seals (  ) on both sides of the RIBBON OPEN COVER (③) and open the RIBBON FRAME (④) toward you.



- 3** Remove the two screws (S1) with a punch mark (round).

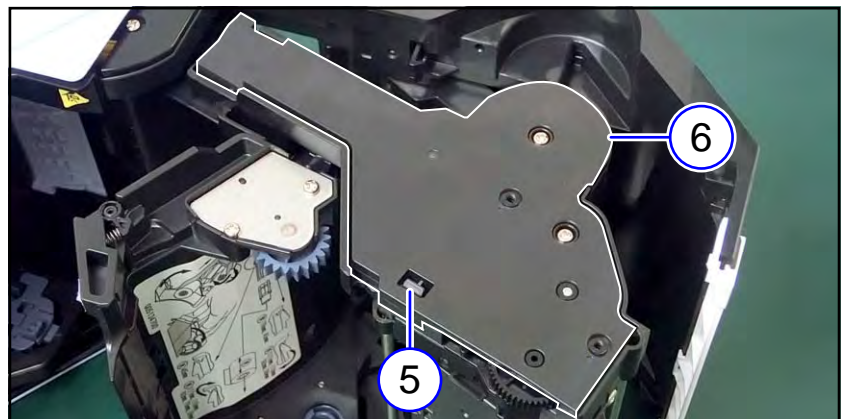
Punch mark  
(round)



**CAUTION**

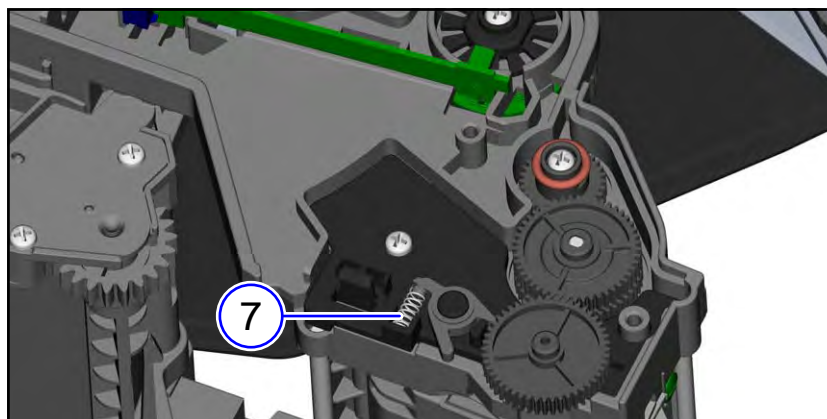
Do not remove screws without a punch mark.

- 4** Release one hook (⑤) and remove the GEAR COVER (⑥).



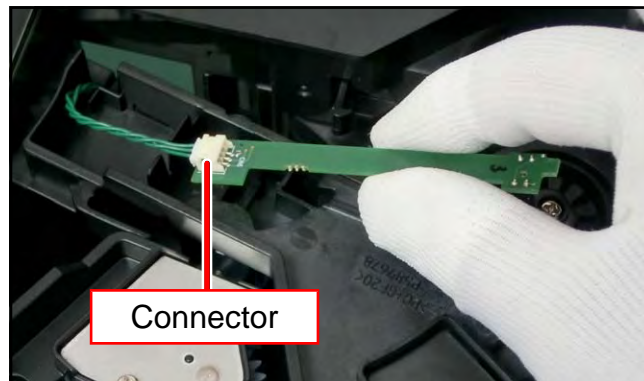
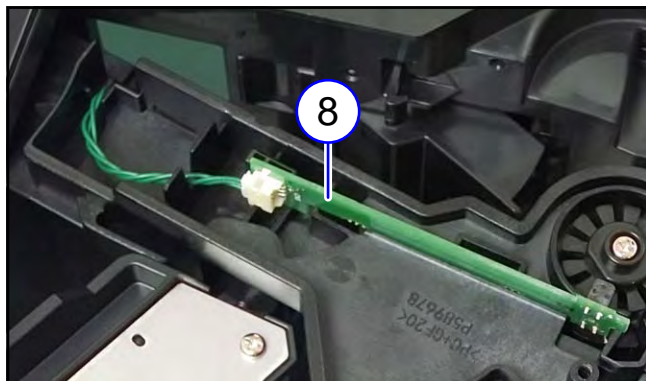
**CAUTION**

Be careful not to lose the spring (⑦) when removing the GEAR COVER.



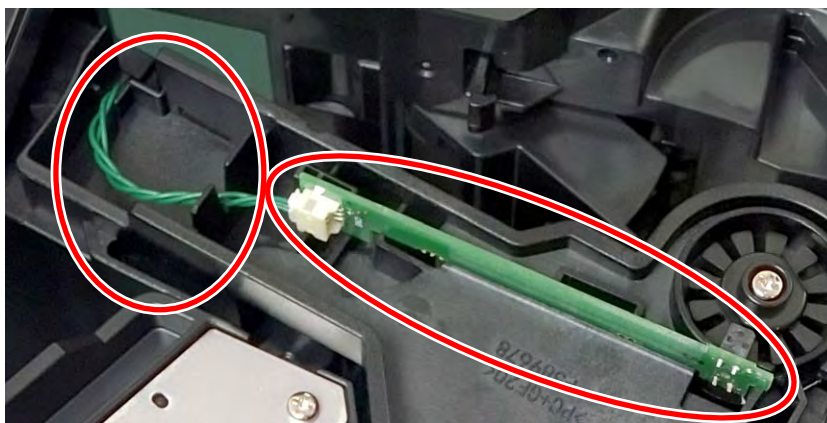
**5** Remove the RIBBON SENSOR PCB (⑧).

**6** Disconnect one connector.



### Notes on assembling

Make sure that the PCB and cable are correctly installed.



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



#### 4.5.7 Replacing the I-mark Sensor



9 min.



## Phillips screwdriver (#2)

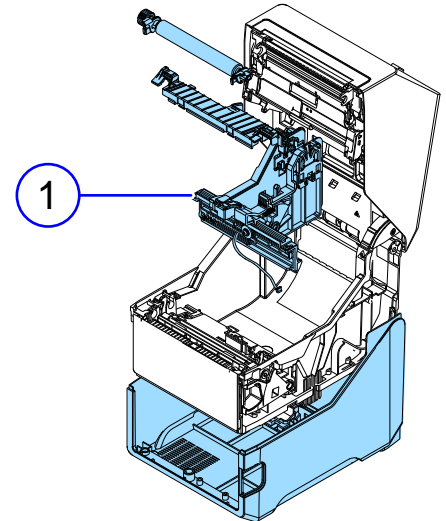


S1x4

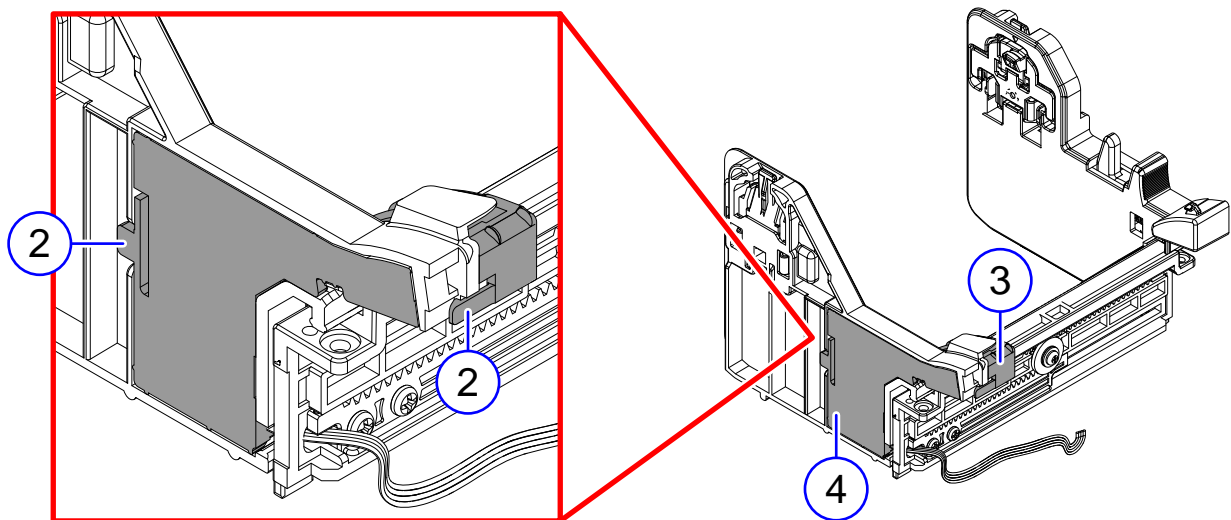
Cutter/Dispenser Model : S1x5

- 1** Remove the label guide (①).

Refer to [4.4.2 Replacing the Label Guide](#)

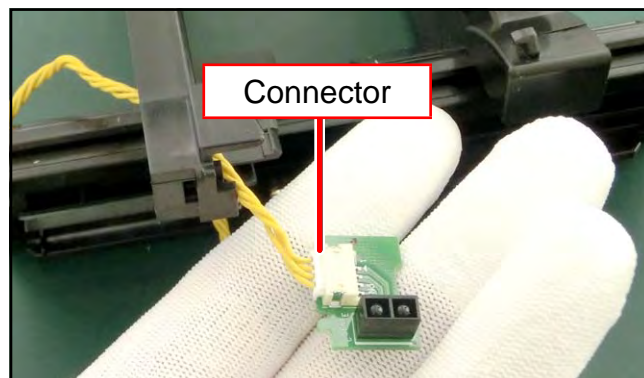
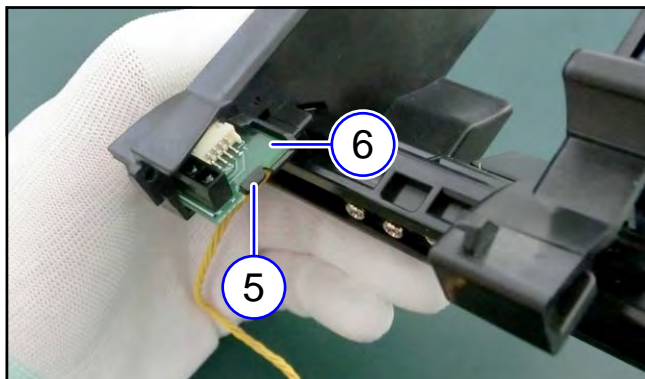


- 2** Release two hooks (②) and remove the LABEL-GUIDE SENSOR COVER (③) and LABEL-GUIDE COVER (④).



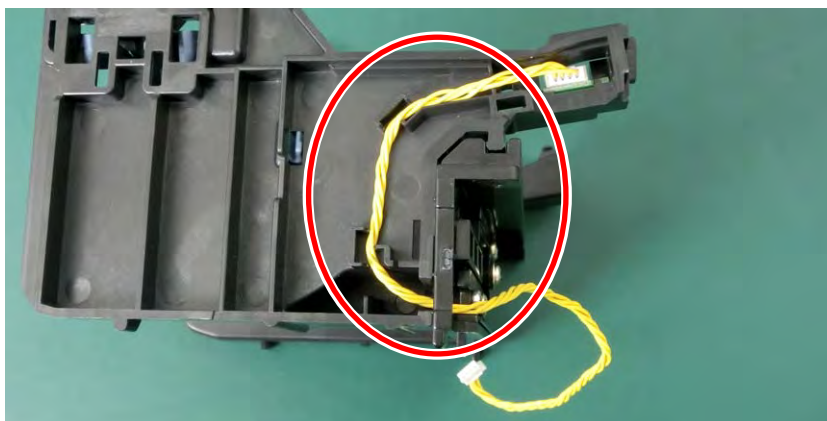
**3** Release one hook (⑤) and remove the IM PCB (⑥).

**4** Disconnect one connector.



#### Notes on assembling

Make sure that the PCB and cable are correctly installed.



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

## 4. 6 PCBs and Electrical Parts

### 4.6.1 Replacing the Head PCB



9 min.



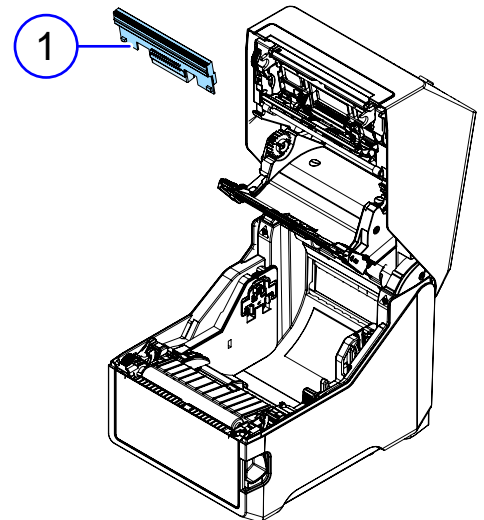
## Phillips screwdriver (#2)



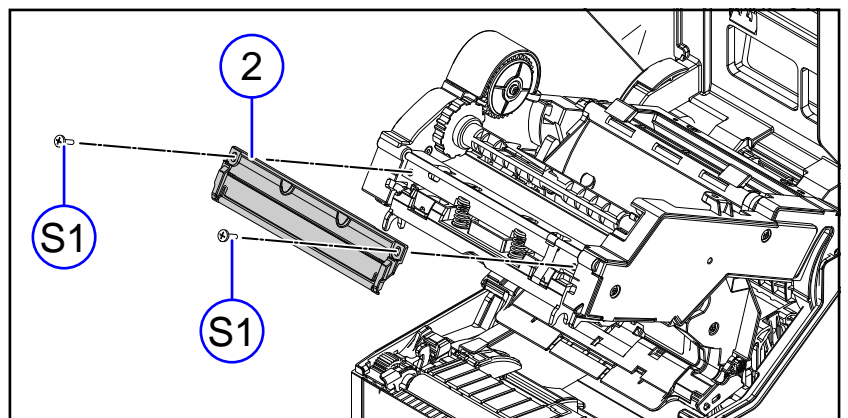
S1x2

- 1** Remove the platen head (thermal head) (①).

Refer to [4.3.1 Replacing the Print Head \(Thermal Head\)](#)



- 2** Remove two screws (S1) and remove the ADJUST PLATE (②).

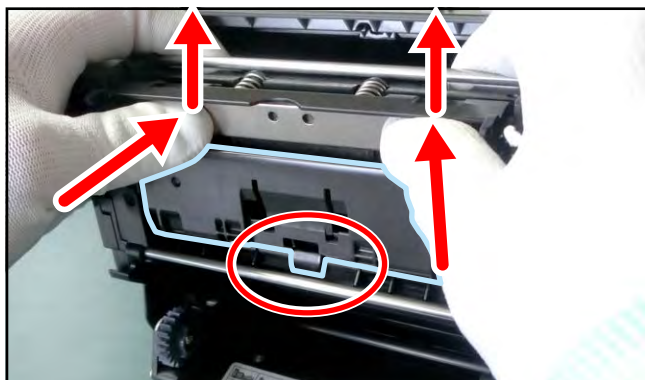


## Notes on assembling

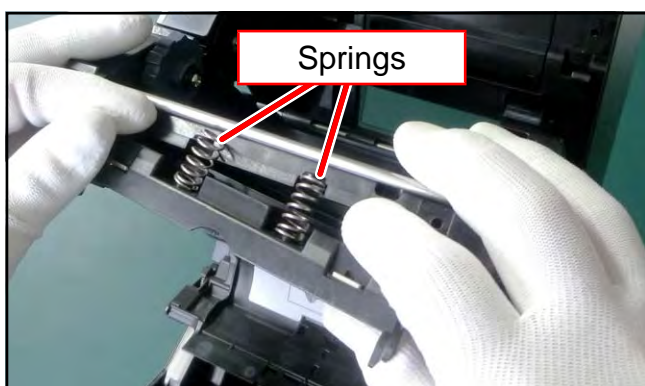
Align both edges (③) of the ADJUST PLATE with the lines (④) on the RIBBON FRAME and tighten two screws (S1) to fix the ADJUST PLATE.



**3** Remove the HEAD ASSY from the frame while paying attention to the springs.

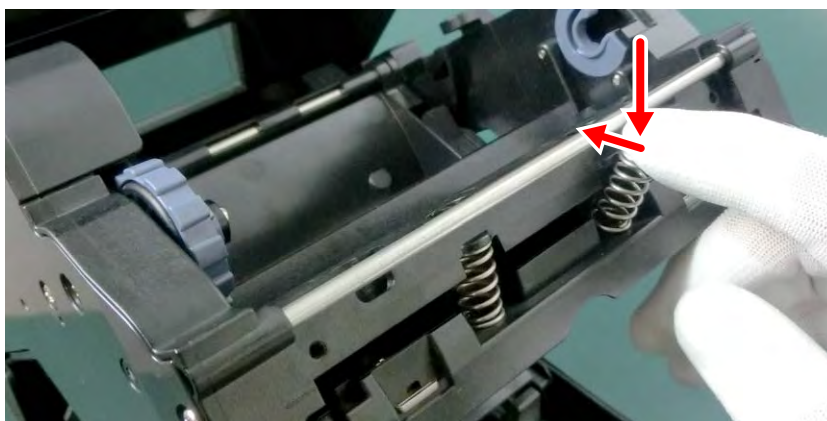


**4** Remove the two springs.



#### Tips on assembling

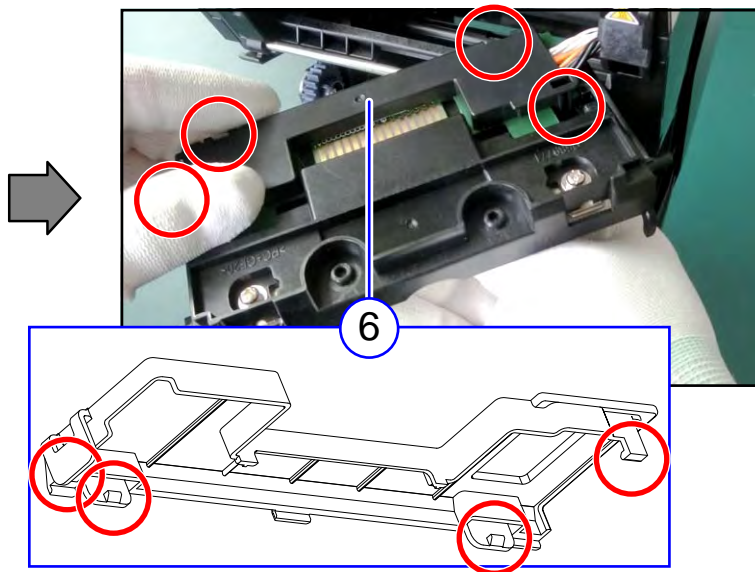
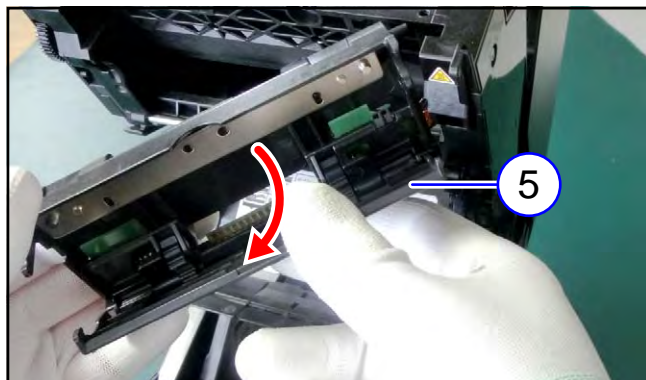
Set the springs after attaching the HEAD ASSY.





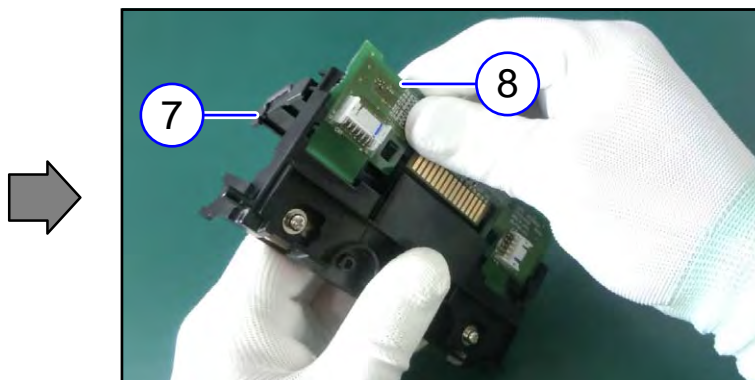
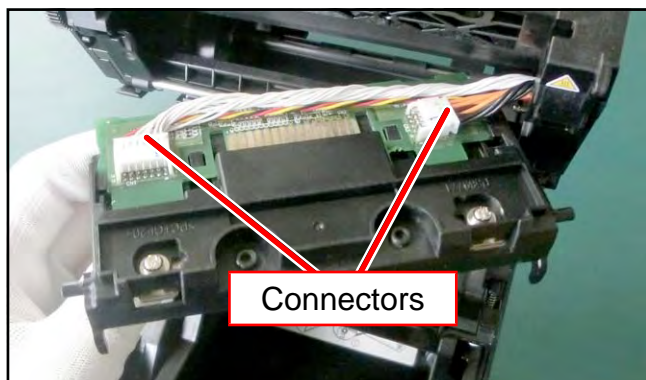
**5** Open the HEAD COVER (⑤).

**6** Release four hooks shown in the red circles and remove the CABLE COVER (⑥).



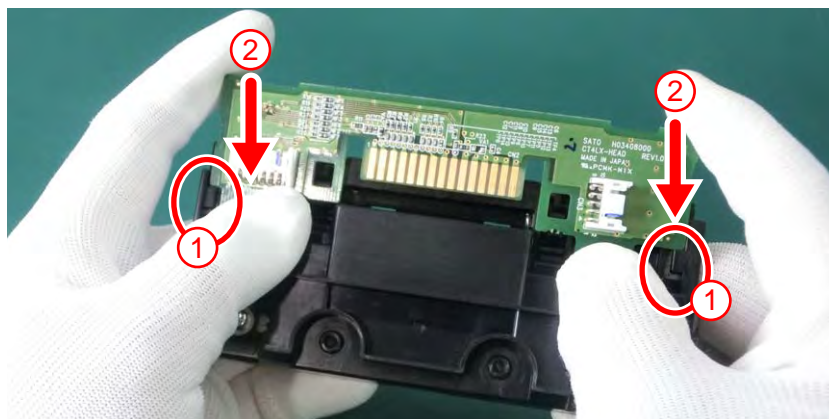
**7** Disconnect two connectors.

**8** With the HEAD COVER opened (⑦), remove the Head PCB (⑧).






### Tips on assembling When attaching the Head PCB

With the HEAD COVER opened, align the Head PCB (①) and insert it (②).



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

## 4.6.2 Replacing the CONT PCB

			
Standard Model	7 min.	Phillips screwdriver (#2)	S1×4
Cutter Model	8 min.		+S1×1
Dispenser Model	9 min.		+S1×1
With the RS-232C Kit	+2 min.		+S3×2
With the WLAN/Bluetooth Kit	+2 min.		+S1×2

- 1 If you can access the Service menu, create clone data.  
If clone data cannot be created, perform the initialization operation after getting permission from the customer.

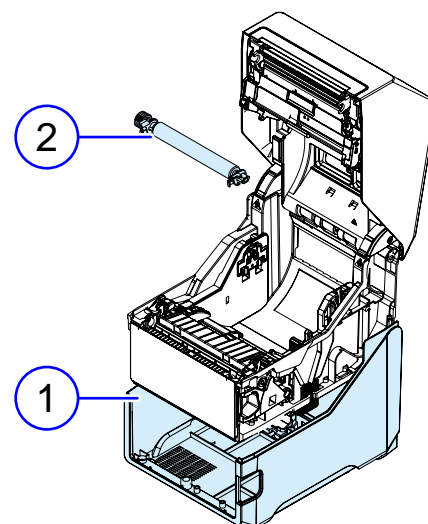
Refer to [2. 6 About \[Clone\] menu](#)

- 2 Remove the BOTTOM COVER (①).

Refer to [4.2.1 Replacing the BOTTOM COVER](#)

- 3 Remove the platen roller (②).

Refer to [4.4.1 Replacing the Platen Roller](#)



- 4 Remove the FRONT PANEL or optional kit.

### ● FRONT PANEL

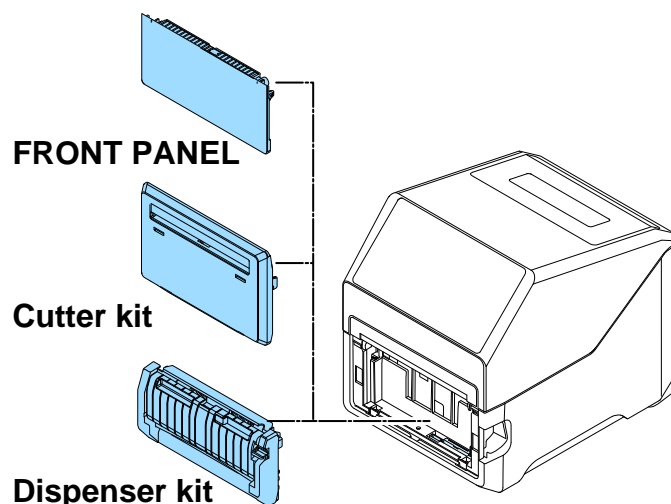
Refer to [4.5.5 Replacing the Label Top Sensor \(Transmitter\)](#)

### ● Cutter kit

Refer to [5.1.2 Remove the Cutter Kit](#)

### ● Dispenser kit

Refer to [5.2.2 Remove the Dispenser Kit.](#)



**5** Disconnect the following connectors and remove the kit.

**CAUTION**

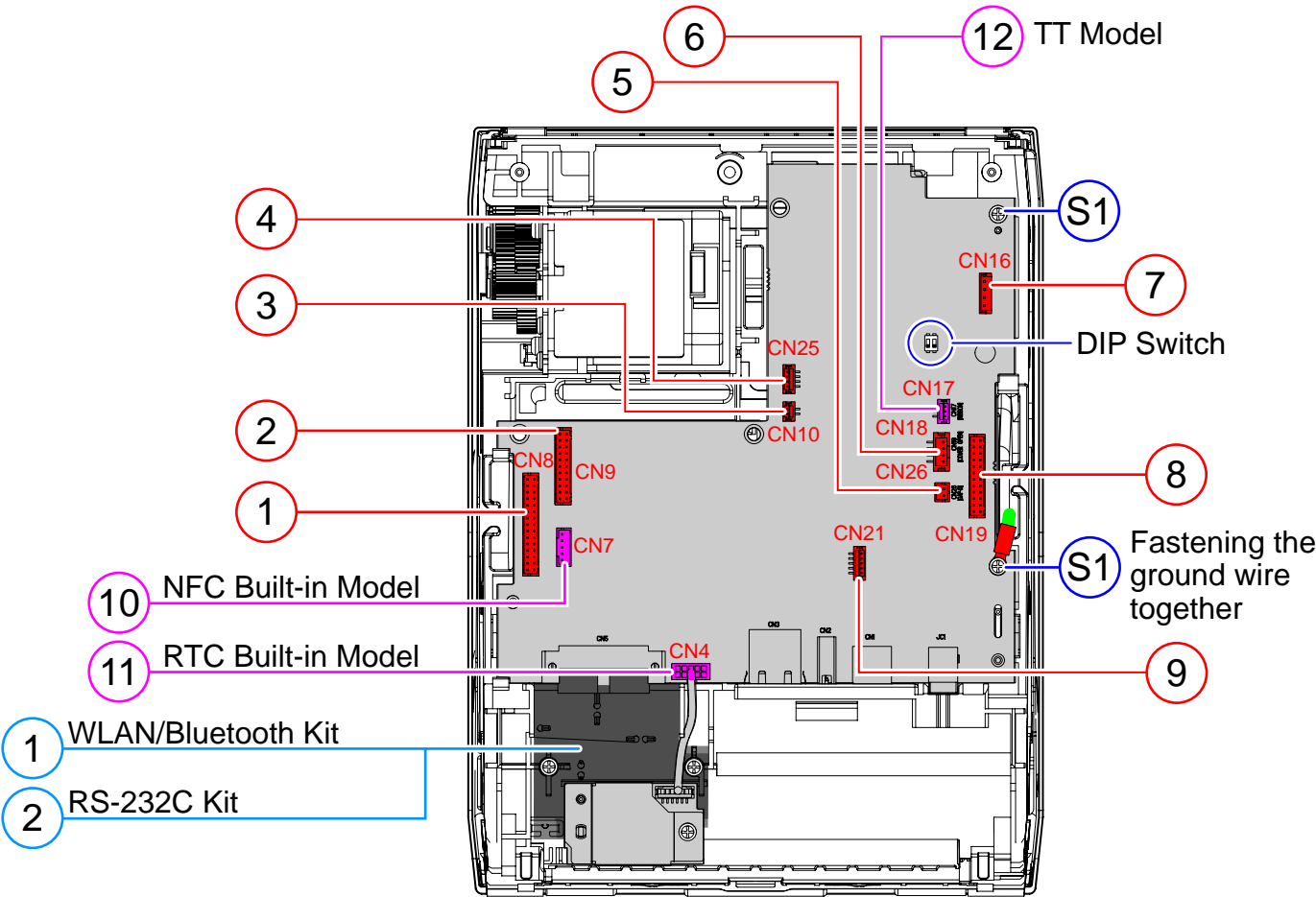
The number of connectors to be disconnected differs depending on the specifications and options.

①	KB PCB (DISPLAY ASSY)
②	KB PCB (DISPLAY ASSY)
③	GAP TR PCB
④	IM PCB (LABEL GIUDE)
⑤	GAP D PCB
⑥	COVER OP PCB
⑦	MOTOR
⑧	HEAD PCB (HEAD ASSY)
⑨	SIM PCB (Built-in USB port)

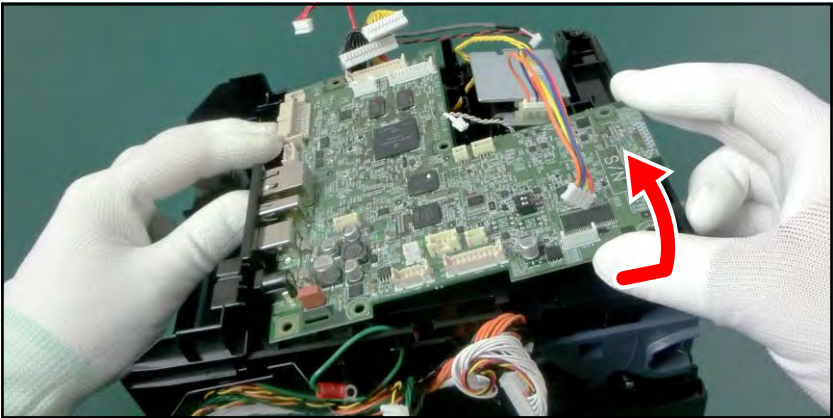
⑩	NFC PCB (DISPLAY ASSY)	NFC Built-in Model
⑪	RTC KIT	RTC Built-in Model
⑫	RIBBON SENSOR PCB	TT Model

①	WLAN/Bluetooth Kit	S1x2
②	RS-232C Kit	S3x2

**6** Remove 2 screws (S1).



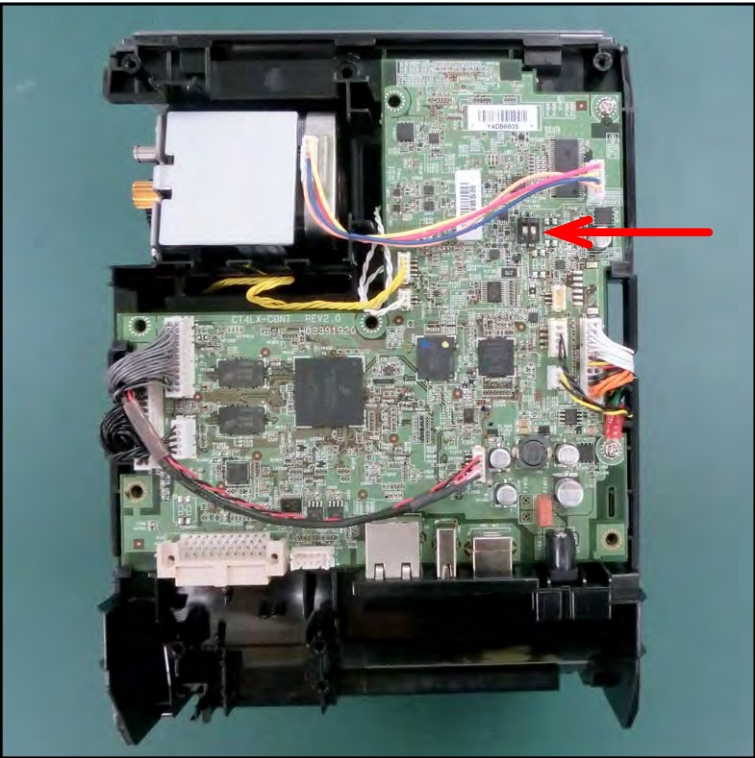
7 Remove the CONT PCB.



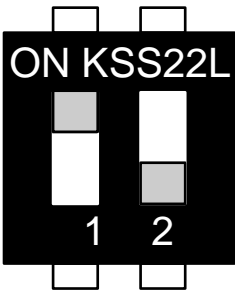
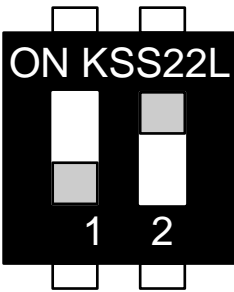
8 Assemble the parts in the reverse order of the disassembly procedure.

**Notes on assembling**

Check the DIP switch settings.



DIP switch

Oversaeas		JAPAN	
SW1	SW2	SW1	SW2
ON	OFF	OFF	ON
			



### 4.6.3 Replacing the speaker



9 min.



## Phillips screwdriver (#2)

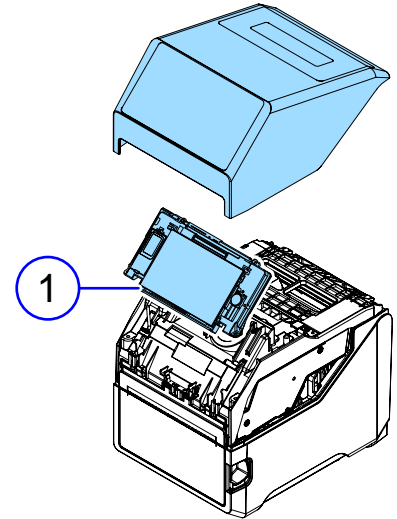


TT Model : S1x6

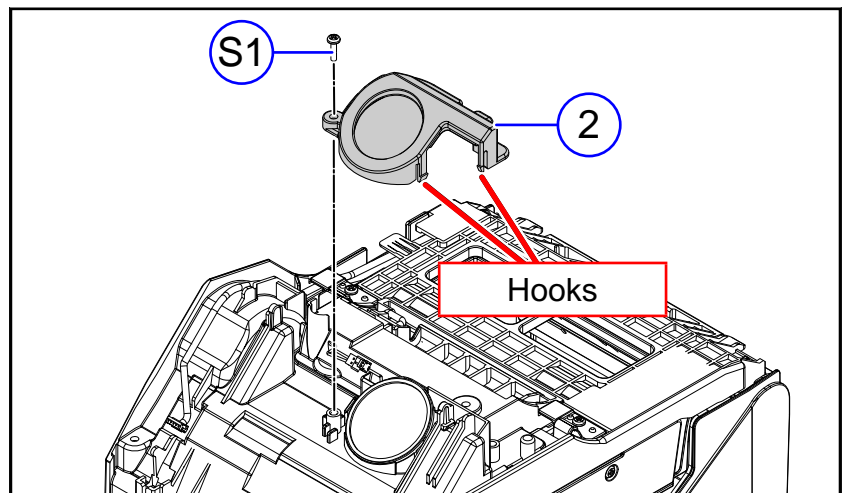
DT Model : S1x8

- 1** Remove the DISPLAY ASSY (①).

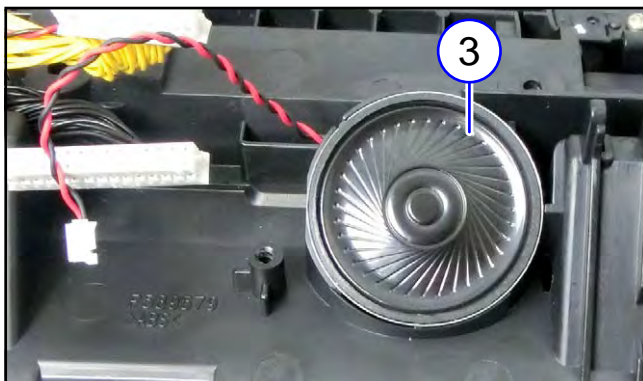
Refer to [4.7.1 Replacing the DISPLAY ASSY](#)



- 2** Remove one screw (S1) and remove the **SPEAKER HOLDER** (②).



- ### 3 Remove the speaker (③).



## Notes on assembling

Put the cable in the groove.



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

## 4.6.4 Replacing the NFC Antenna



9min.



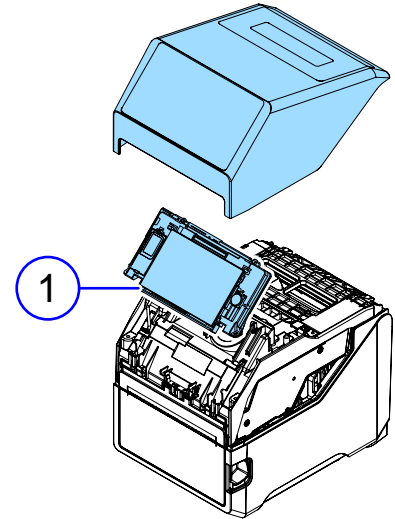
Phillips screwdriver (#2)



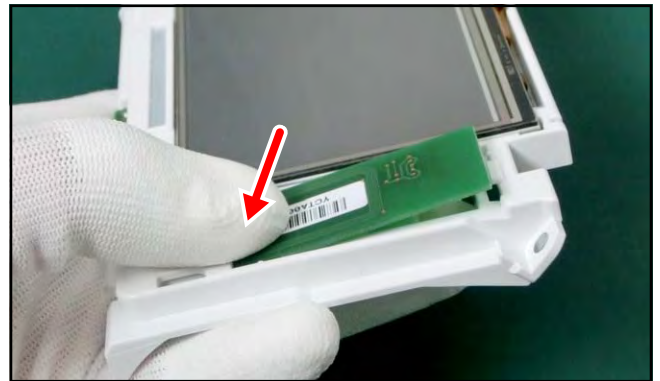
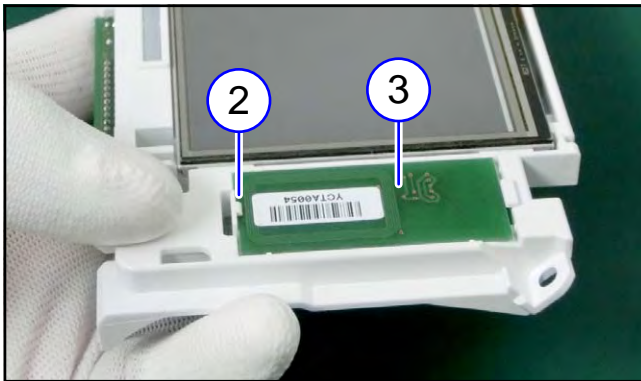
TT Model : S1x5  
DT Model : S1x7

**1** Remove the DISPLAY ASSY (①).

Refer to [4.7.1 Replacing the DISPLAY ASSY](#)



**2** Push one hook (②) and remove the NFC Antenna (③).



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

## 4. 7 Display Section

### 4.7.1 Replacing the DISPLAY ASSY



8 min.



Phillips screwdriver (#2)

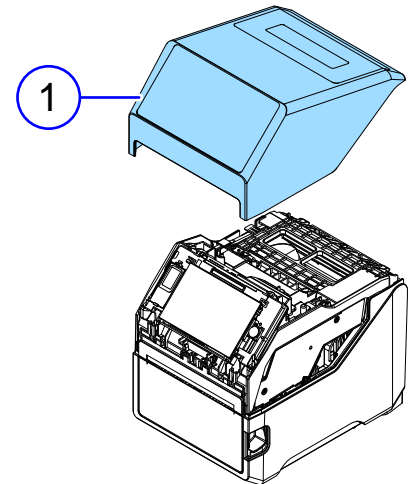


TT Model : S1x5

DT Model : S1x7

**1** Remove the top cover (①).

Refer to [4.2.2 Replacing the TOP COVER](#)

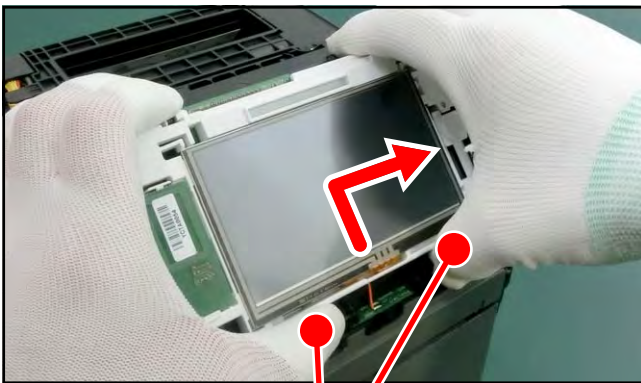


**2** Remove the DISPLAY ASSY.

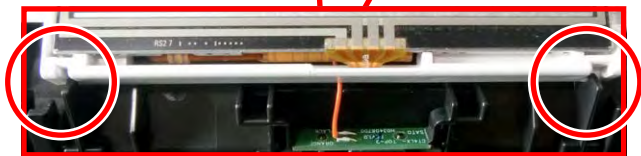
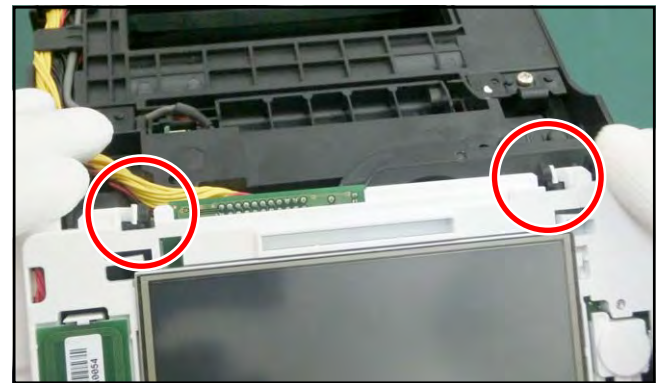
#### CAUTION

Be careful as cables are connected to the DISPLAY ASSY.

**2-1.** Release the joining sections (2 places).

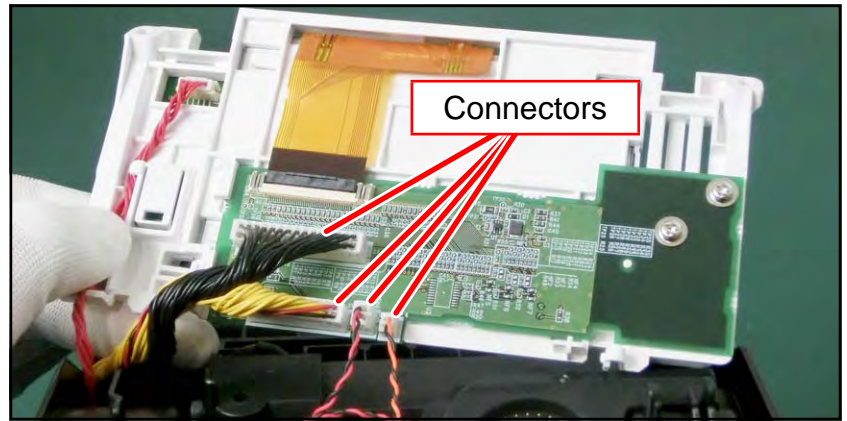


**2-2.** Release two hooks.

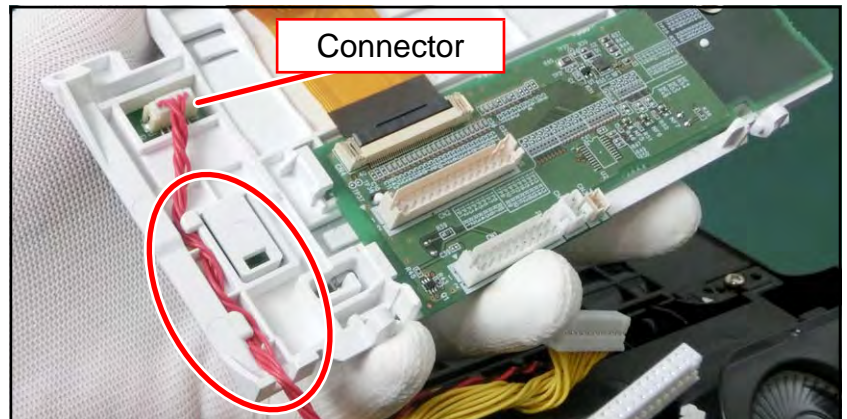




### 3 Disconnect four connectors.

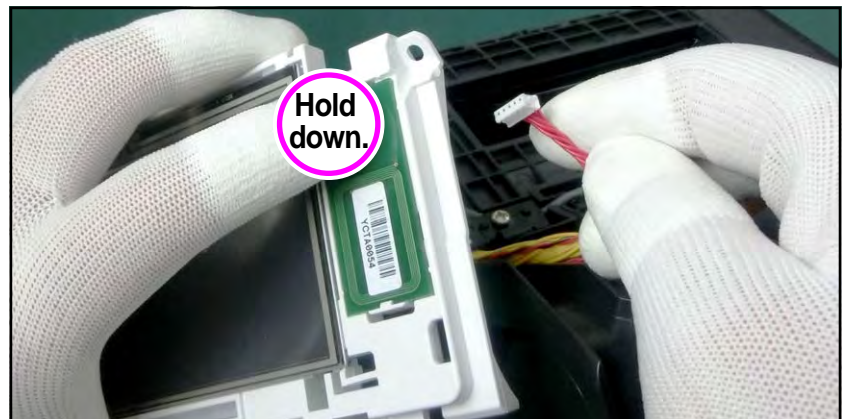


**4** Remove the cable from the case and disconnect the connector.

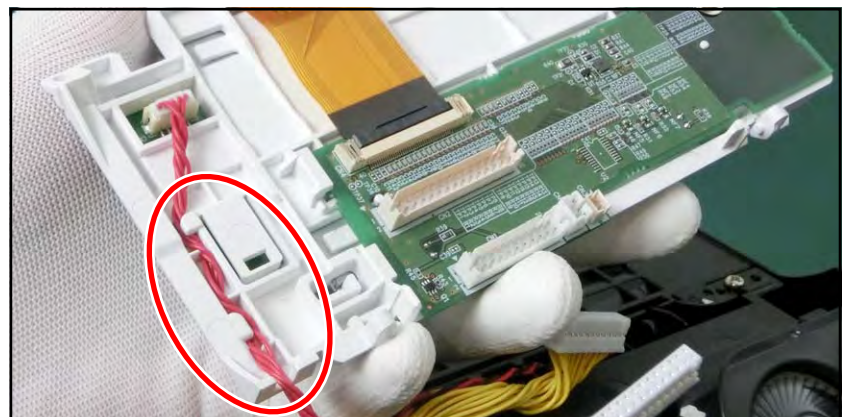


## ■ Installation Procedure

- 5 While holding down the NFC Antenna with your fingertip, connect the connector.



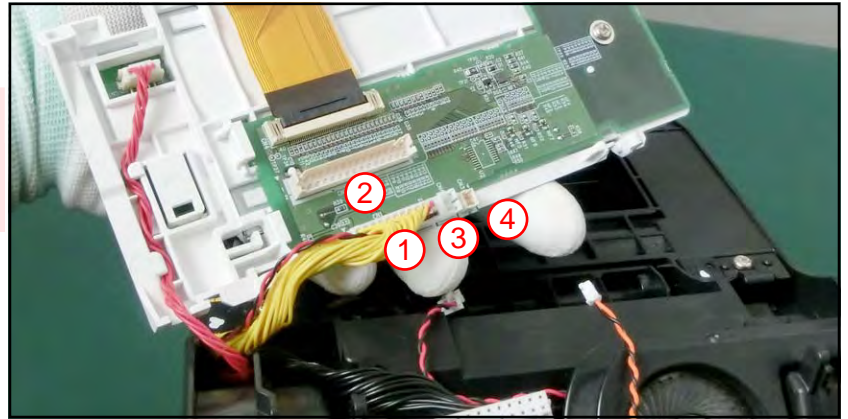
**6** Route the cable in the case as shown.



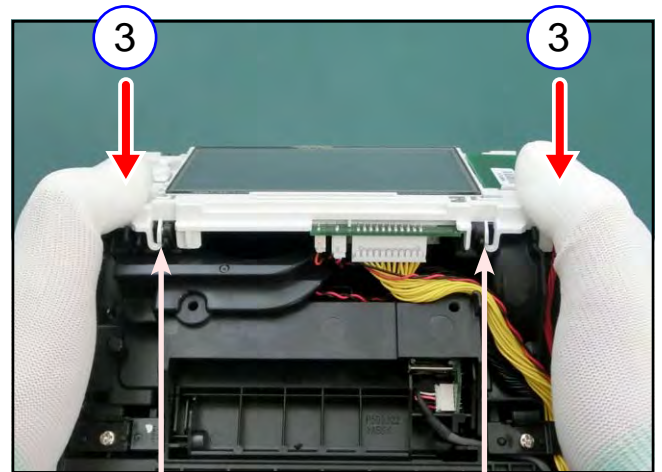
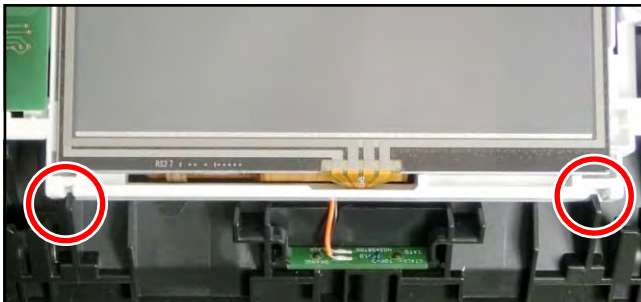
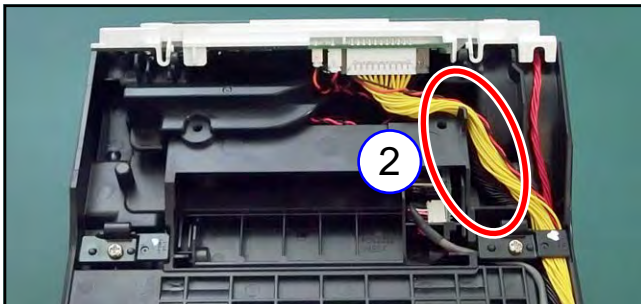
## 7 Connect four connectors.

### Notes on assembling

Connect the connectors in the order of the numbers.



## 8 While putting the cables in the case (②), set the DISPLAY ASSY in place, and then attach it to the case (③).



### Notes on assembling

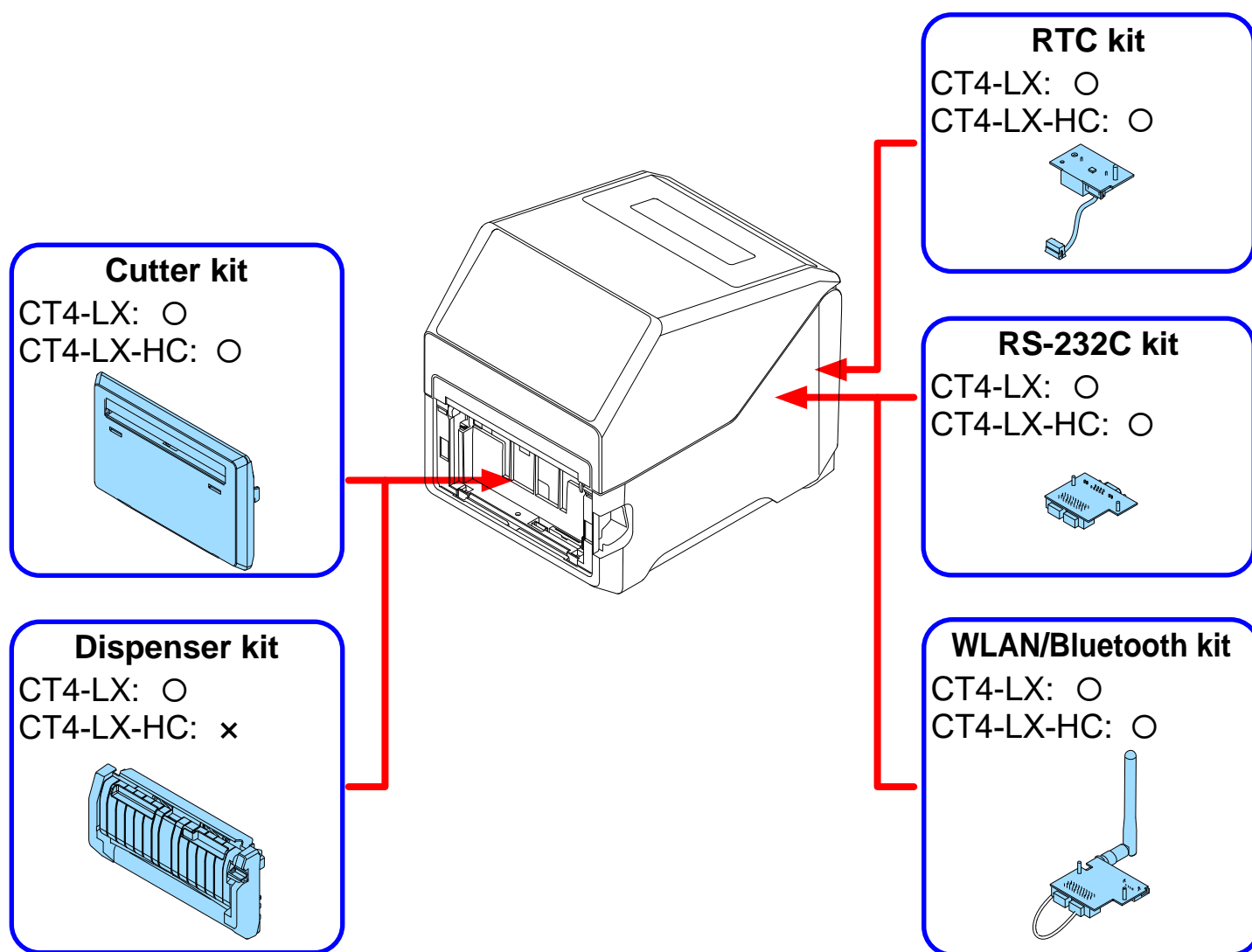
Make sure that the DISPLAY ASSY is fixed with hooks.

## 9 Attach the top cover.

# 5

## Installation of Options

This chapter describes how to remove and install the options.



### 5.1 Cutter Kit

Installation

Removal

### 5.2 Dispenser Kit

Installation

Removal

### 5.3 WLAN/Bluetooth Kit

Installation

### 5.4 RS-232C Kit

Installation

### 5.5 RTC Kit

Installation

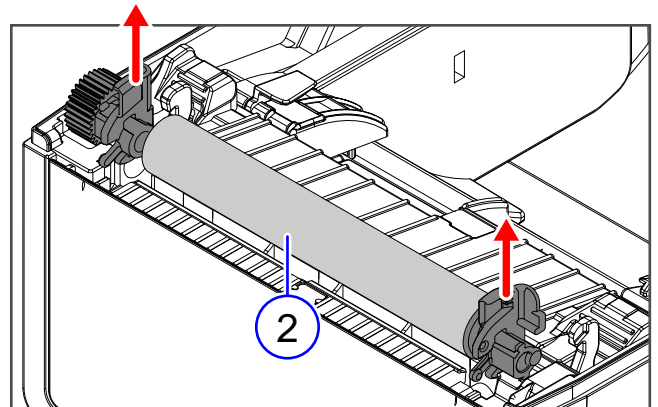
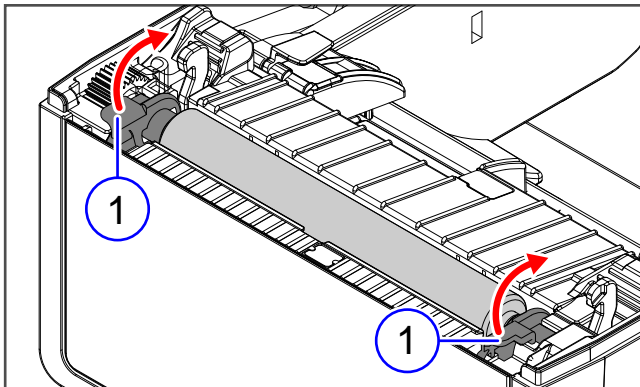
[Back to top](#)



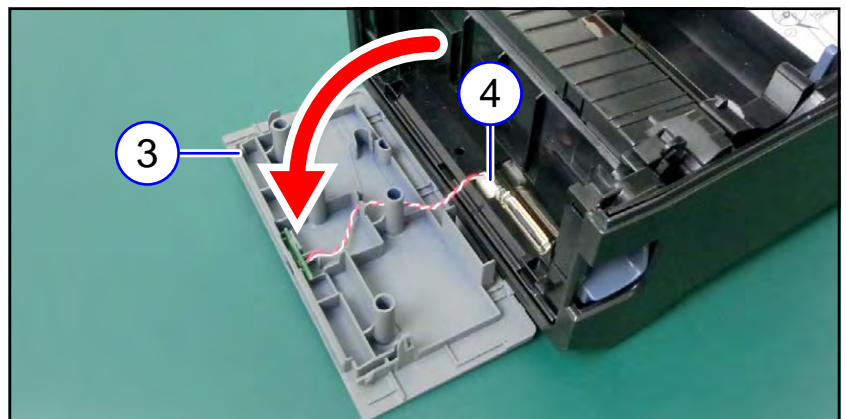
## 5.1 Cutter Kit

### 5.1.1 Standard Model ➔ RFID Model

- 1 Open the top cover.
- 2 Turn the two levers (①) of the platen roller (②) and remove the platen roller (②).



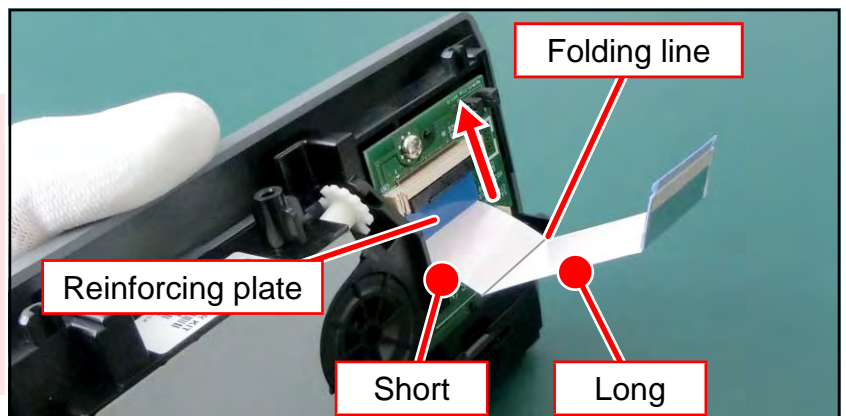
- 3 Remove the FRONT PANEL (③) and disconnect one connector (④).



- 4 Connect the FFC to the cutter kit.

#### CAUTION

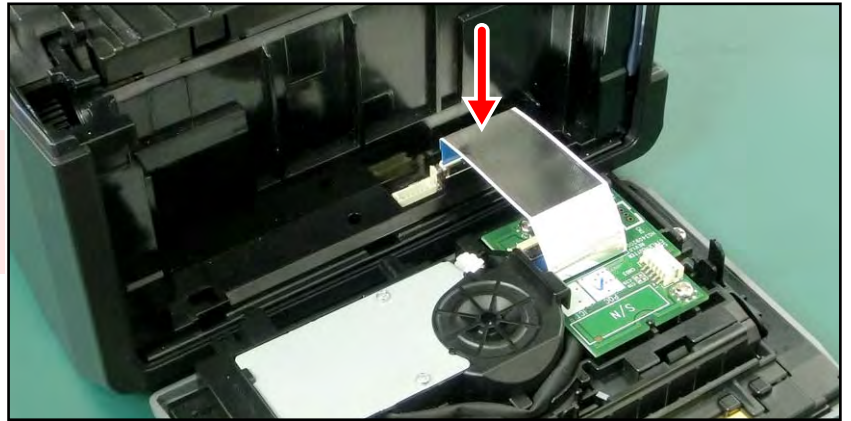
- Connect the FFC terminal of the shorter side from the fold line on the FFC.
- Insert the FFC with the reinforcing plate (blue) facing up until you hear a click sound.



- 5** Connect the other end of the FFC to the printer.

**CAUTION**

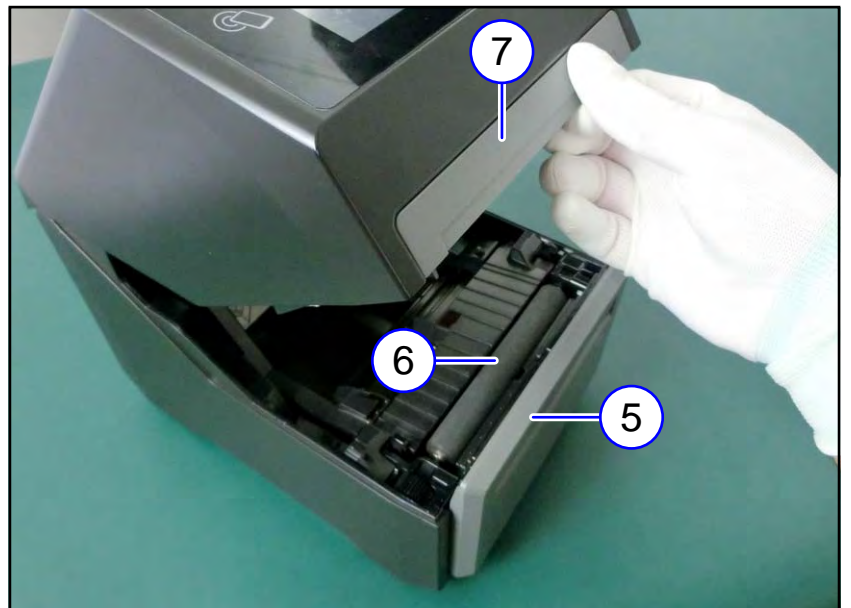
Insert the FFC until you hear a click sound.



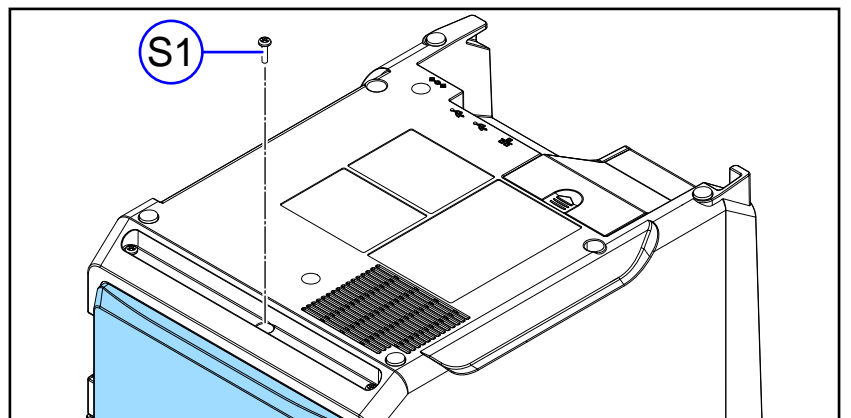
- 6** Set the cutter kit (⑤) to the printer.

- 7** Attach the platen roller (⑥).

- 8** Remove the TOP FRONT PANEL (⑦).

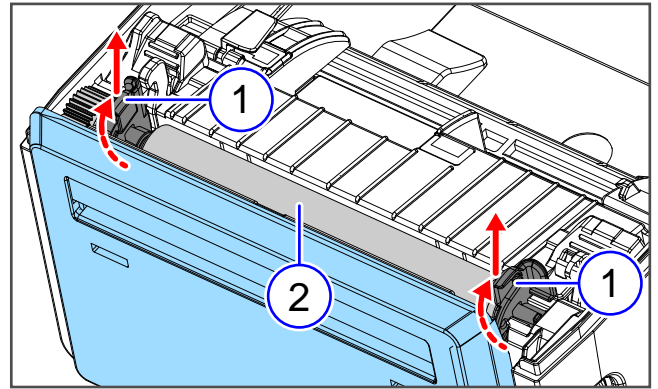
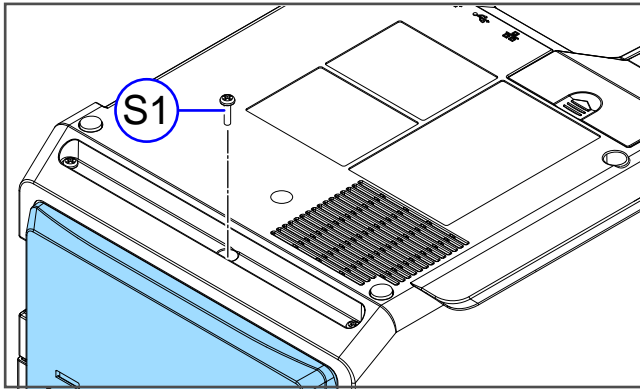


- 9** Tighten with one attached screw (S1).

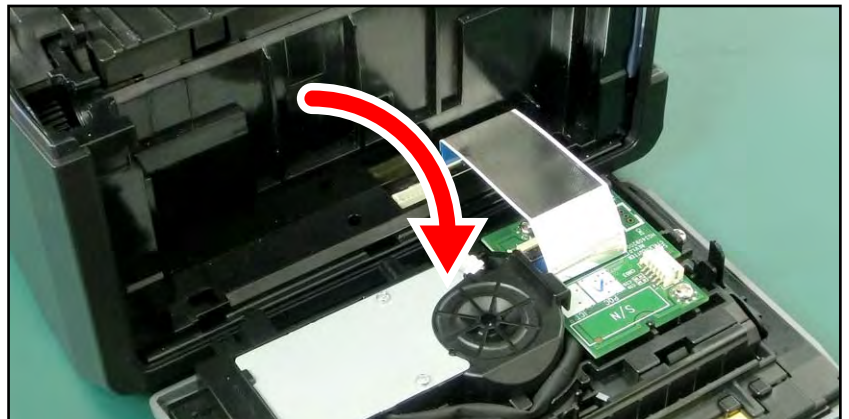


## 5.1.2 Remove the Cutter Kit

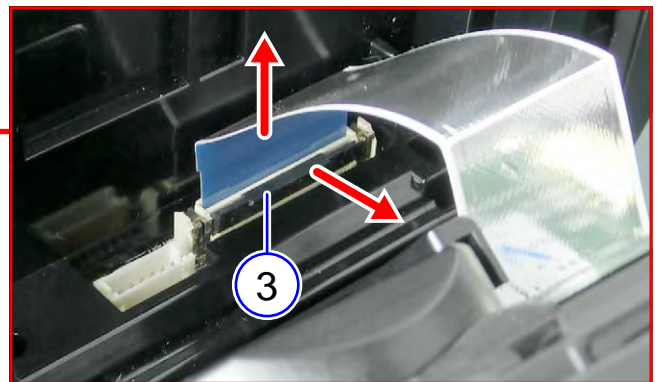
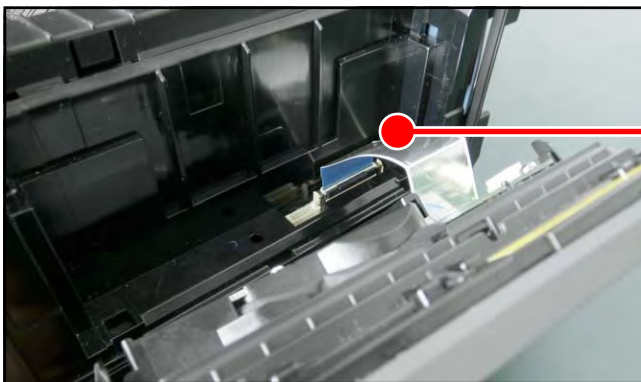
- 1** Remove one screw (S1).
- 2** Open the top cover.
- 3** Turn the two levers (①) of the platen roller (②) and remove the platen roller (②).



- 4** Remove the cutter kit from the printer.



- 5** Disconnect the FFC while pulling the lock lever (③).

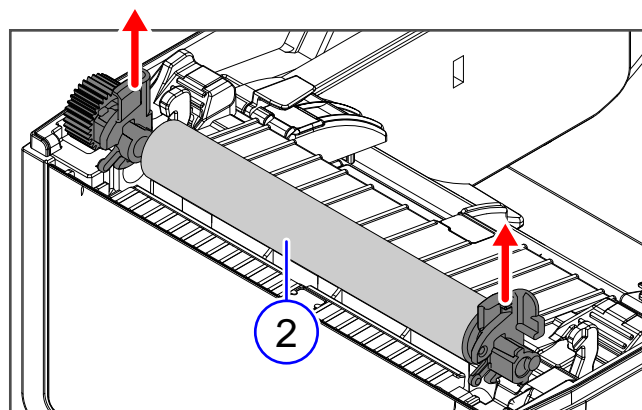
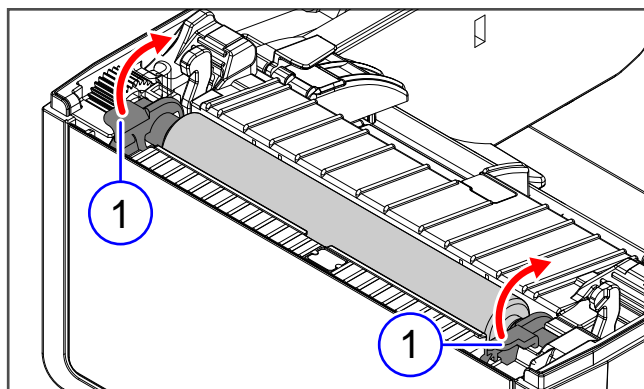




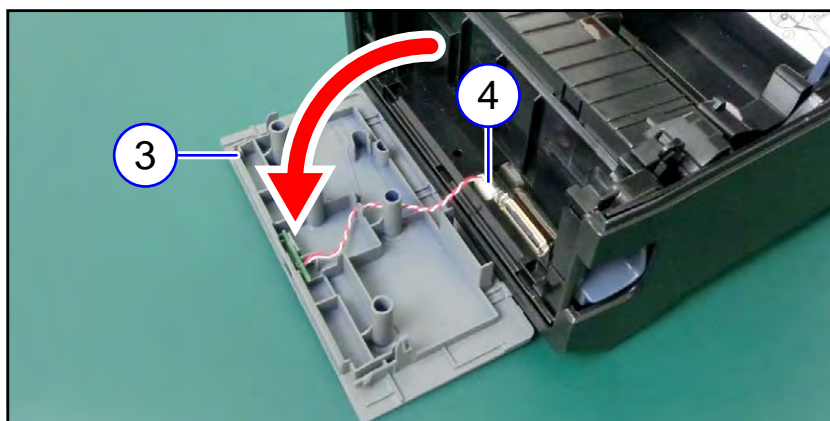
## 5.2 Dispenser Kit

### 5.2.1 Standard Model ➔ Dispenser Model

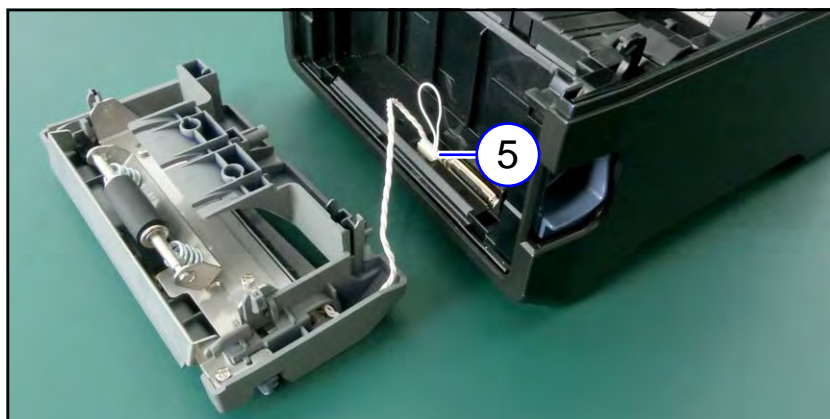
- 1 Open the top cover.
- 2 Turn the two levers (①) of the platen roller (②) and remove the platen roller (②).





- 3 Remove the FRONT PANEL (③) and disconnect one connector (④).



- 4 Connect the connector (⑤) of the dispenser kit to the printer.

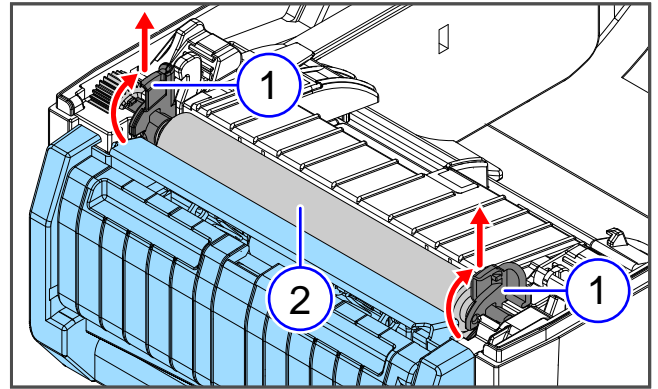
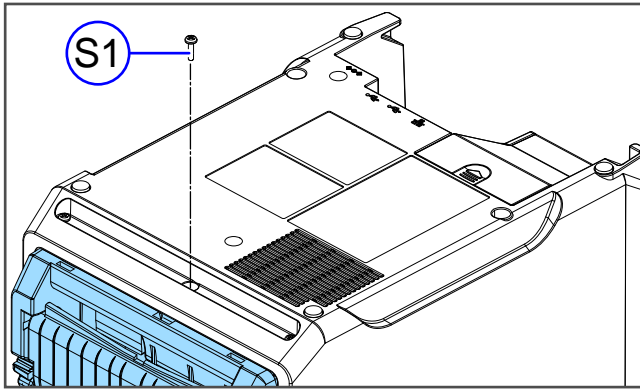




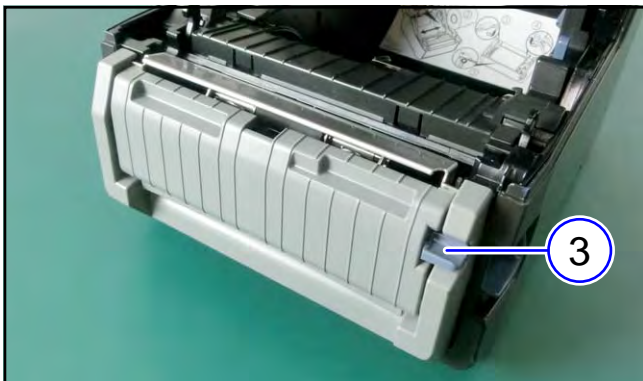
[illegible]

### 5.2.2 Remove the Dispenser Kit.

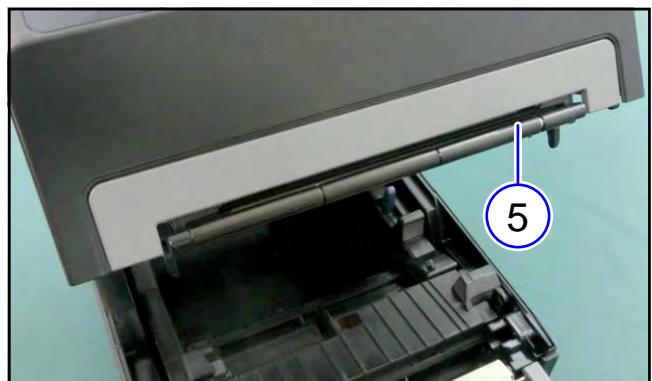
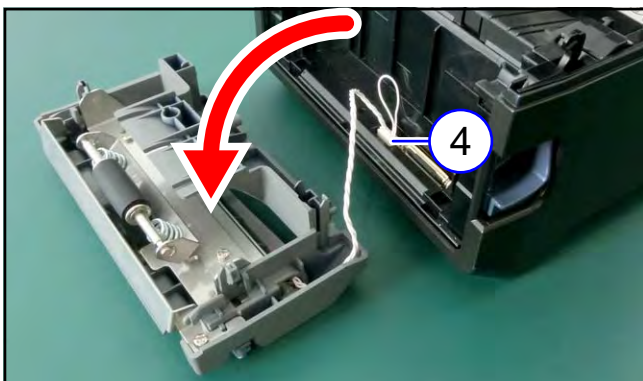
- 1** Remove one screw (S1).
- 2** Open the top cover.
- 3** Turn the two levers (①) of the platen roller (②) and remove the platen roller (②).



- 4** Pull the open lever (③) of the dispenser kit to open it.



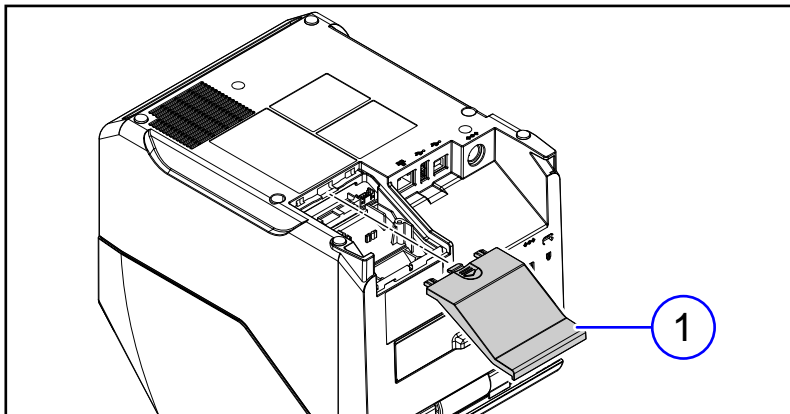
- 5** Remove the dispenser kit and disconnect one connector (④).
- 6** Remove the TOP FRONT PANEL (⑤) of the dispenser kit.



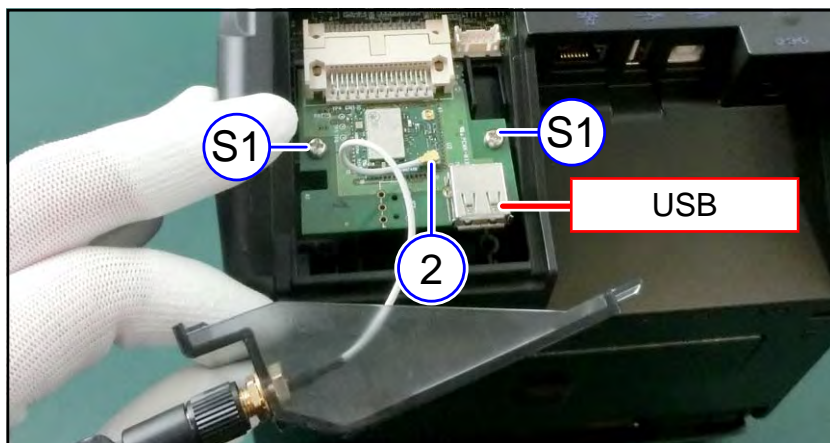


## 5.3 Installing the WLAN/Bluetooth Kit

- 1 Remove the IF COVER (①).



- 2 Attach the WLAN/Bluetooth PCB.
- 3 Fix it with two attached screws (S1).
- 4 Connect the coaxial cable (②).

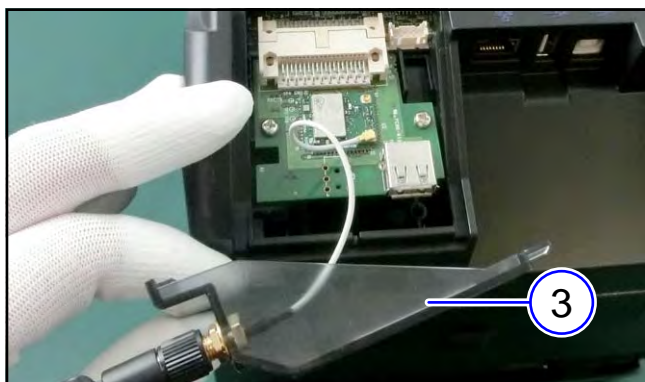


- 5 Attach the WLAN COVER (③).

### Notes on assembling

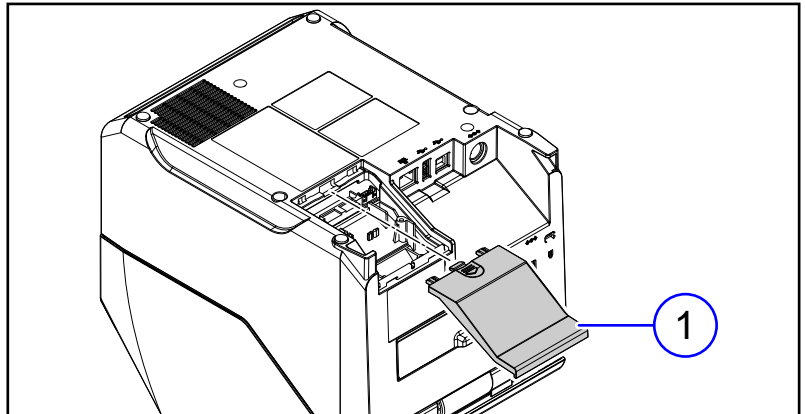
There are two coaxial connectors on the PCB.

Connect the coaxial cable to the connector close to the USB connector.

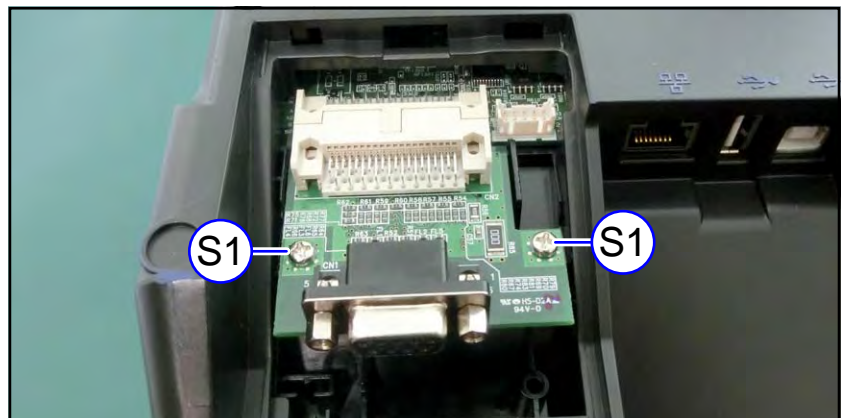


## 5. 4 Installing the RS-232C Kit

- 1** Remove the IF COVER (①).

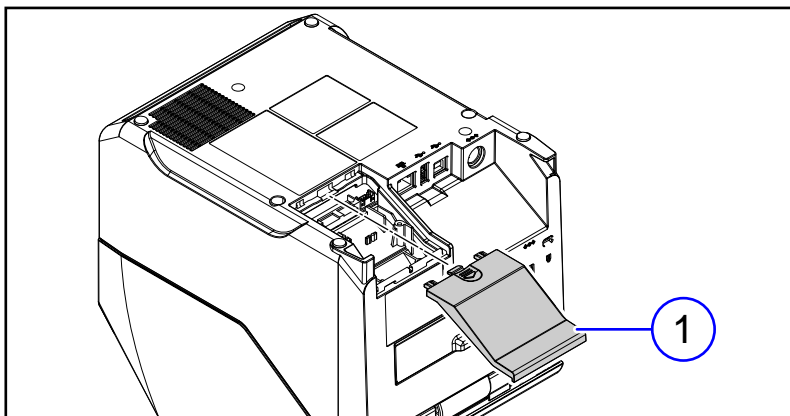


- 2** Attach the RS-232C PCB.  
**3** Fix it with two attached screws (S1).  
**4** Attach the RS-232C COVER (②).



## 5.5 Installing the RTC Kit

- 1** Remove the IF COVER (①).



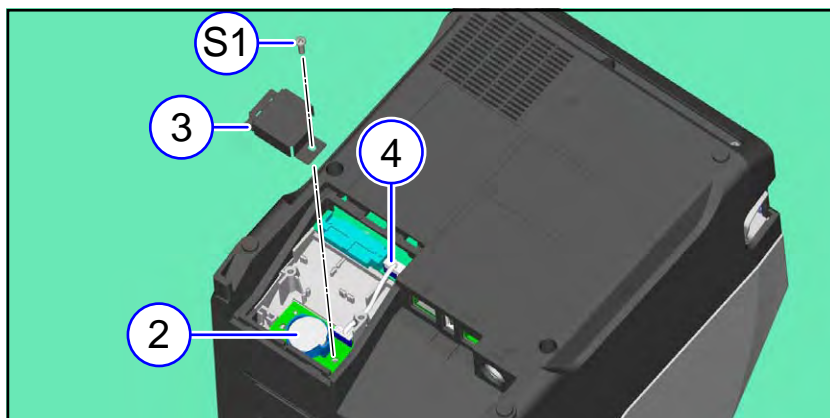
- 2** Set the coin battery (②).

- 3** Attach the RTC PCB.

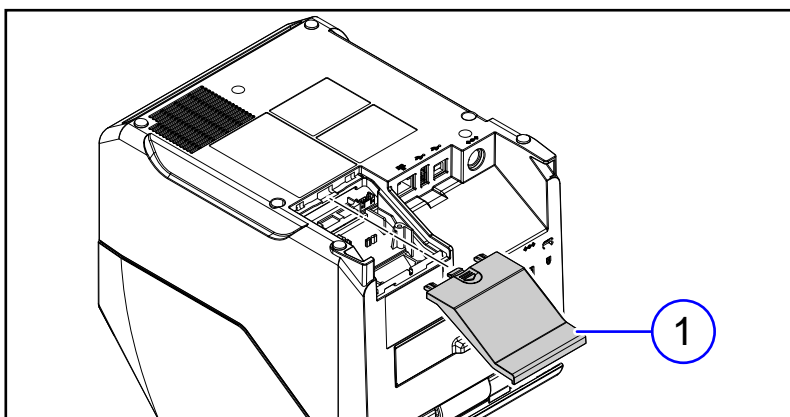
- 4** Attach the COIN BATTERY COVER (③).

- 5** Fix the COIN BATTERY COVER with one attached screw (S1).

- 6** Connect the connector (④) to the printer.



- 7** Attach the IF COVER (①).



## [6. 1 Error Message](#)

### [6.1.1 Error Code List](#)

### [6.1.2 Error causes and countermeasures](#)

## [6. 2 Symptom-based troubleshooting](#)

### [6.2.1 Printing](#)

### [6.2.2 Media feeding](#)

### [6.2.3 Power Supply](#)

### [6.2.4 Communications](#)

### [6.2.5 Others](#)



## 6. 1 Error Message

### 6.1.1 Error Code List

[Error Message 01 \(Ribbon near end\)](#)

[Error Message 02 \(Receive buffer near full\)](#)

[Error Message 03 \(Command Error\)](#)

[Error Message 04 \(Head Error \(Area other than barcode\)\)](#)

[Error Message 05 \(No connection with NTP time server\)](#)

[Error Message 1001 \(Machine Error\)](#)

[Error Message 1002 \(Program Error\)](#)

[Error Message 1003 \(Parity Error\)](#)

[Error Message 1004 \(Overrun Error\)](#)

[Error Message 1005 \(Framing Error\)](#)

[Error Message 1006 \(Buffer Overflow\)](#)

[Error Message 1007 \(Cover Open\)](#)

[Error Message 1008 \(Out of Paper\)](#)

[Error Message 1009 \(Ribbon End\)](#)

[Error Message 1010 \(Media Error\)](#)

[Error Message 1012 \(Head Error\)](#)

[Error Message 1013 \(USB R/W Error\)](#)

[Error Message 1014 \(USB Memory Full\)](#)

[Error Message 1015 \(Cutter Error\)](#)

[Error Message 1017 \(SBPL Command Error\)](#)

[Error Message 1019 \(RFID System Error\)](#)

[Error Message 1020 \(Calendar Error\)](#)

[Error Message 1021 \(BCC Check Error\)](#)

[Error Message 1022 \(Print Head Overheated\)](#)

[Error Message 1023 \(NTP Error\)](#)

[Error Message 1024 \(Head Density Changed\)](#)

[Error Message 1028 \(Gap Not Found\)](#)

[Error Message 1035 \(I-mark Not Found\)](#)

[Error Message 1046 \(EAP Authentication Error \(EAP Failure\)\)](#)

[Error Message 1047 \(EAP Authentication Error \(EAP Timeout\)\)](#)

[Error Message 1050 \(Bluetooth Error\)](#)

[Error Message 1058 \(CRC Check Error\)](#)

[Error Message 1066 \(Paper Jam\)](#)

[Error Message 1068 \(WLAN Error\)](#)

[Error Message 1073 \(RFID Undetected Warning\)](#)

[Error Message 1075 \(NFC Error\)](#)

[Error Message 1076 \(Invalid command in NFC\)](#)

[Error Message 1099 \(Config Warning\)](#)

[Error Message 1111 \(Label Waste Prevention Error\)](#)

[Error Message 1114 \(Tag Not Found\)](#)

[Error Message 1115 \(Write operation failed\)](#)

[Error Message 1116 \(Failed to read the tag data.\)](#)

[Error Message 1117 \(Write-lock or non-writable tag\)](#)

[Error Message 1118 \(Write/Read values are not consistent\)](#)

[Error Message 1119 \(Failed to lock the data\)](#)

[Error Message 1120 \(Wrong tag UID is read\)](#)

[Error Message 1121 \(Multiple tags are detected.\)](#)

[Error Message 1122 \(EPC does not match\)](#)

[Error Message 1123 \(Write-lock tag is used or power is not strong enough.\)](#)

[Error Message 1124 \(Wrong Tag type\)](#)

[Error Message 1125 \(Internal Error\)](#)

[Error Message 1126 \(Not enough power\)](#)

[Error Message 1127 \(Auto Clone Error\)](#)

[Error Message 1128 \(Bluetooth MFi Chip Module Error\)](#)

[Error Message 1132 \(RTC Module Error\)](#)

[Error Message 1133 \(SRA motor unit Error\)](#)

[Error Message 1134 \(RFID Module Overheated\)](#)

[Error Message \(X-axis photo sensor error.\)](#)

[Error Message \(X-axis motor is locking.\)](#)

[Error Message \(X-axis high-friction.\)](#)

[Error Message \(Y-axis photo sensor error.\)](#)

[Error Message \(Y-axis motor is locking.\)](#)

[Error Message \(Y-axis high-friction.\)](#)

## 6.1.2 Error causes and countermeasures

### Error Message 01

#### Ribbon near end

LED: None, Buzzer: None

<b>Causes</b>	The remaining amount of ribbon is little.
<b>Countermeasures</b>	Prepare a new ribbon for replacement.

### Error Message 02

#### Receive buffer near full

LED: None, Buzzer: None

<b>Causes</b>	The available memory in the Receive Buffer memory is becoming low.
<b>Countermeasures</b>	<p>Do not send the next data until the printer finishes the printing of the current data.</p> <p>* Prevent the Receive Buffer memory from becoming 0.95 Mbyte or less (Maximum: 2.95 Mbyte)</p>

## Error Message 03

### Command Error

LED: None, Buzzer: None

<b>Causes</b>	Command error The error contents are as follows: 01 Analyzed an invalid command. 02 Received an invalid parameter. 03 Analyzed invalid graphic data or custom designed data. 04 The specified registration area is invalid. Data was written to the write-protected media. 05 In the registration command, the specified number is already registered. 06 Exceeded the registration area limit. 07 Data is not registered. 08 The specified print start position is outside the printable area. 09 The print image is outside the printable area. (Barcode only).
<b>Countermeasures</b>	Resend after cancelling the print job.

## Error Message 04

### Head Error (Area other than barcode)

LED: None, Buzzer: None

<b>Causes</b>	A worn-out or damaged element of the print head is detected with the Headcheck setting set to "NORMAL". Printing shall resume after changing the Headcheck setting to "Barcode".
<b>Countermeasures</b>	Replace the print head.

## Error Message 05

### No connection with NTP time server

---

**LED: None, Buzzer: None**

<b>Causes</b>	The printer is not connected to the NTP time server via LAN. The NTP settings in the printer are incorrect. A time query was sent to the NTP server, but no response was returned.
<b>Countermeasures</b>	Check the LAN connection. (Communication settings and the NTP settings) Disable the NTP function and manually set the date and time, if the time setting is required.

## Error Message 1001

### Machine Error

---

**LED: Lights in red, Buzzer: Long sound, one time**

<b>Causes</b>	An error occurs in the printer.
<b>Countermeasures</b>	Restart the printer. If the problem persists, replace the CONT PCB.

## Error Message 1002

### Program Error

---

**LED: Lights in red, Buzzer: Long sound, one time**

<b>Causes</b>	Cannot access the Flash ROM. Exceeds the number of writes available. Other program error
<b>Countermeasures</b>	Restart the printer. If the problem persists, reinstall the firmware. If the problem still persists, replace the CONT PCB.



## Error Message 1003

### Parity Error

---

**LED: Lights in red, Buzzer: Short sound, 3 times**

<b>Causes</b>	(1) RS-232C settings are incorrect. (2) The RS-232C cable is not connected correctly.
<b>Countermeasures</b>	(1) Adjust the interface settings correctly. (2) Connect the RS-232C cable correctly.

## Error Message 1004

### Overrun Error

---

**LED: Lights in red, Buzzer: Short sound, 3 times**

<b>Causes</b>	(1) RS-232C settings are incorrect. (2) The RS-232C cable is not connected correctly.
<b>Countermeasures</b>	(1) Adjust the interface settings correctly. (2) Connect the RS-232C cable correctly.

## Error Message 1005

### Framing Error

---

**LED: Lights in red, Buzzer: Short sound, 3 times**

<b>Causes</b>	(1) RS-232C settings are incorrect. (2) The RS-232C cable is not connected correctly.
<b>Countermeasures</b>	(1) Adjust the interface settings correctly. (2) Connect the RS-232C cable correctly.

## Error Message 1006

### Buffer Overflow

**LED: Lights in red, Buzzer: Short sound, 3 times**

<b>Causes</b>	(1) The size of the received data from the host exceeds the size of the receive buffer (2.95 Mbyte). (2) The interface settings between the host and printer is incorrect.
<b>Countermeasures</b>	(1) Change the settings on the host so that data that exceeds the size of the receive buffer cannot be sent. (2) Set the interface settings between the host and printer.

## Error Message 1007

### Cover Open

**LED: Lights in red, Buzzer: Short sound, 3 times**

<b>Causes</b>	(1) The top cover is not closed. (2) The cover open sensor is defective.
<b>Countermeasures</b>	(1) Close top cover properly. (2) Clean the cover open sensor. If the problem persists, remove and reinsert the sensor connector on the COVER PCB ASSY. If the problem still persists, replace the cover open sensor.

**Error Message 1008****Out of Paper****LED: Lights in red, Buzzer: Short sound, 3 times**

<b>Causes</b>	<ul style="list-style-type: none"><li>(1) The media is not loaded.</li><li>(2) The media is not loaded correctly.</li><li>(3) The media is jammed.</li><li>(4) The media sensor is not operating properly.</li><li>(5) The media sensor level is not correctly set.</li></ul> <p>* Out of paper is detected with the following conditions:</p> <ul style="list-style-type: none"><li>• When the I-mark sensor level of 1.2 V or more continues for 15 mm.</li><li>• When the gap sensor level of 0.5 V or less continues for 15 mm.</li></ul>
<b>Countermeasures</b>	<ul style="list-style-type: none"><li>(1) Load the media.</li><li>(2) Load the media correctly.</li><li>(3) Remove the jammed media and clean the platen roller.</li><li>(4) Clean the media sensor.</li><li>(5) Adjust the sensor level. If the problem persists, replace the sensor and/or CONT PCB.</li></ul>

**Error Message 1009****Ribbon End****LED: Lights in red, Buzzer: Short sound, 3 times**

<b>Causes</b>	<ul style="list-style-type: none"><li>(1) The ribbon runs out.</li><li>(2) The ribbon was cut halfway.</li></ul>
<b>Countermeasures</b>	<ul style="list-style-type: none"><li>(1) Replace the ribbon with a new one.</li><li>(2) Clean and adjust the ribbon path.</li></ul>

## Error Message 1010

### Media Error

**LED: Lights in red, Buzzer: Short sound, 3 times**

<b>Causes</b>	<ul style="list-style-type: none"><li>(1) Printing of data is performed beyond 3 mm or more than the actual media pitch size.</li><li>(2) Feeding of media is performed beyond 3 mm or more than the specified media pitch size.</li><li>(3) Exceed beyond 3 mm or more than the media pitch size assigned in the media size command &lt;A1&gt;.</li><li>(4) The label pitch size information of the 1st and the 2nd labels differs 3 mm or more.</li></ul>
<b>Countermeasures</b>	<p>Check the media size and configuration of the printer.</p> <p>Check with other print data. If no error occurs, check the original print data.</p> <p>Clean the platen roller and sensors, and check and adjust the sensor level.</p> <p>If the problem persists, replace the sensor and/or CONT PCB.</p>

## Error Message 1012

### Head Error

**LED: Lights in red, Buzzer: Long sound, one time**

<b>Causes</b>	The print head is worn out or damaged.
<b>Countermeasures</b>	<p>Replace the printer head. If the problem persists, replace the cable and/or CONT PCB.</p> <p><b>Note</b></p> <p>With customer consent, the following immediate action can be performed:</p> <ul style="list-style-type: none"><li>• Temporarily disable the Headcheck function until it is safe to power off without any loss of print data.</li><li>• If the barcode printing area is not affected by the bad printhead elements, the Headcheck setting option can be changed to "Barcode" and the printer shall resume printing without any Printhead error.</li></ul>

## Error Message 1013

### USB R/W Error

**LED: Lights in red, Buzzer: Long sound, one time**

<b>Causes</b>	(1) The USB memory is not recognized. (2) The storage space in the USB memory is not sufficient. (3) Writing to the USB memory failed. (4) The USB memory is not formatted.
<b>Countermeasures</b>	(1) Remove and reinsert the USB memory. Check and insert in the other available USB port. (2) Check the available memory in the USB memory and reserve more memory space if the capacity is insufficient. (3) Check with other USB memory. (4) Format the USB memory with FAT32.

## Error Message 1014

### USB Memory Full

**LED: Lights in red, Buzzer: Long sound, one time**

<b>Causes</b>	The space in the USB memory is not sufficient.
<b>Countermeasures</b>	Delete unwanted data from the USB memory or insert a USB memory with sufficient space.

## Error Message 1015

### Cutter Error

**LED: Lights in red, Buzzer: Short sound, 3 times**

<b>Causes</b>	The cutter blade does not return to the home position.
<b>Countermeasures</b>	Touch [FEED] to return the cutter blade to the home position. If the problem persists, perform the followings: <ul style="list-style-type: none"><li>• Clean the contacts of the joint part of the cutter kit and the main body.</li><li>• Replace the cutter kit and/or CONT PCB.</li></ul>



## Error Message 1017

### SBPL Command Error

**LED: Lights in red, Buzzer: Short sound, 3 times**

<b>Causes</b>	<p>Incorrect command or parameter is detected in the print data.  Note: Only applicable when the “Show Error” function is enabled.</p> <p>Check the display of “Caaa: &lt;bb&gt;: cc” for error details.  Caaa: Location of error occurrence  &lt;bb&gt;: Error command name  cc: Error description (codes)</p> <p>The error contents are as follows:</p> <ul style="list-style-type: none"> <li>01 Invalid command</li> <li>02 Invalid parameter</li> <li>03 Command table read error</li> <li>04 Invalid graphic data/custom designed data</li> <li>05 Invalid registration area</li> <li>06 This number is already registered.</li> <li>07 Over registration area limit</li> <li>08 Data is not registered.</li> <li>09 The print position is outside the printable area.</li> <li>10 The barcode image is outside the printable area.</li> <li>11 Invalid PDF417 designation</li> <li>12 QR code generation error</li> </ul>
<b>Countermeasures</b>	<p>Check the print data.  If the problem persists, perform the following:</p> <ul style="list-style-type: none"> <li>• Obtain the print data from doing a HEX dump.</li> <li>• Obtain the setting information using the Clone file.</li> </ul>

## Error Message 1019

### RFID System Error

**LED: Lights in red, Buzzer: Long sound, one time**

<b>Causes</b>	RFID module is not operating correctly.
<b>Countermeasures</b>	Replace the RFID module.

## Error Message 1020

### Calendar Error

**LED: Lights in red, Buzzer: Long sound, one time**

<b>Causes</b>	The date and time of the calendar are incorrect.
<b>Countermeasures</b>	<p>Reset the calendar.</p> <p>If the problem persists, check the voltage of the coin battery and replace the battery if the voltage is less than 1.8 V.</p> <p>If the problem still persists, replace the RTC kit and/or CONT PCB.</p>

## Error Message 1021

### BCC Check Error

**LED: Lights in red, Buzzer: Short sound, 3 times**

<b>Causes</b>	<p>The sent data (one item's worth)'s BCC code is incorrect.</p> <p>* The BCC check function is enabled only when Status5 is selected in USB, LAN, WLAN, or RS-232C specifications.</p>
<b>Countermeasures</b>	<p>Check the transmitted data and communication settings.</p> <ul style="list-style-type: none"><li>• [PRINT]: Continue printing from the print data where the BCC error occurred.</li><li>• [CANCEL]: Cancel the print data with the BCC error and continue printing from the next item.</li><li>• Send the SUB command: Clear the BCC error and continue printing from where it stopped.</li><li>• Send the CAN command: Cancel the print data with the BCC error and continue printing from the next item.</li></ul>

## Error Message 1022

### Print Head Overheated

**LED: Flashes in red, Buzzer: Long sound, one time**

<b>Causes</b>	The temperature of the print head has exceeded the operating temperature of the temperature rise protect function. Error occurrence: 75 °C Error cancellation: 65 °C
<b>Countermeasures</b>	Stop the operation of the printer for a while to let the temperature of the printer decrease. When the temperature lowers, check if the print layout, print darkness and print speed are appropriate. If the problem persists, replace the print head and/or CONT PCB.

## Error Message 1023

### NTP Error

**LED: Flashes in red, Buzzer: Long sound, one time**

<b>Causes</b>	Unable to connect to the NTP time server to set the date and time.
<b>Countermeasures</b>	Restart the printer and check the followings: <ul style="list-style-type: none"><li>• Confirm that the address of the NTP time server is correct.</li><li>• Confirm that there is a connection to the NTP time server.</li><li>• To correct the date and time, change them manually.</li></ul>

## Error Message 1024

### Head Density Changed

**LED: Flashes in red, Buzzer: Long sound, one time**

<b>Causes</b>	(1) The print head is not installed in the printer. (2) A new print head with a different resolution has been installed.
<b>Countermeasures</b>	(1) Install the print head in the printer. (2) Check that the default values are changed to the new values. (3) Install a print head with the same resolution as the old one.

## Error Message 1028

### Gap Not Found

**LED: Lights in red, Buzzer: Short sound, 3 times**

<b>Causes</b>	No gap is found, even if the media is fed by 500 mm, or the length of print effective area.
<b>Countermeasures</b>	<ul style="list-style-type: none"><li>• Check if the sensor type matches the media to be used.</li><li>• Clean the gap sensor and the media path.</li><li>• Adjust the gap sensor level.</li></ul> If the problem persists, replace the sensor and/or CONT PCB.

## Error Message 1035

### I-mark Not Found

**LED: Lights in red, Buzzer: Short sound, 3 times**

<b>Causes</b>	No I-mark is found, even if the media is fed exceeding the length of print effective area. (1) The sensor level is incorrect. (2) The sensor type being selected is incorrect. (3) The media meanders.
<b>Countermeasures</b>	(1) Adjust the sensor level. (2) Check if the media without I-marks is loaded. Load the media with I-marks or change the sensor type to "Gap". (3) Clean and adjust the media path.

## Error Message 1046

### EAP Authentication Error (EAP Failure)

**LED: Lights in red, Buzzer: Short sound, 3 times**

<b>Causes</b>	EAP authentication failed.
<b>Countermeasures</b>	Perform the Wi-Fi settings correctly.

## Error Message 1047

### EAP Authentication Error (EAP Timeout)

**LED: Lights in red, Buzzer: Short sound, 3 times**

<b>Causes</b>	EAP authentication failed.
<b>Countermeasures</b>	Download a PAC file for EAP-FAST or correctly perform the EPA settings for the Access Point (AP) and authentication server.

## Error Message 1050

### Bluetooth Error

**LED: Lights in red, Buzzer: Long sound, one time**

<b>Causes</b>	The Bluetooth module is defective.
<b>Countermeasures</b>	Replace the Bluetooth module.

## Error Message 1058

### CRC Check Error

**LED: Lights in red, Buzzer: Short sound, 3 times**

<b>Causes</b>	CRC has not been added to the data. CRC does not match. * CRC check is valid only for the Bluetooth specifications.
<b>Countermeasures</b>	Right software key: Continue printing from the print data where the CRC error occurred. Left software key: Cancel the print data with the CRC error and continue printing from the next print data.

## Error Message 1066

### Paper Jam

**LED: Lights in red, Buzzer: Short sound, 3 times**

<b>Causes</b>	The media has jammed.
<b>Countermeasures</b>	<p>Clean the media path and load the media correctly.</p> <p>If the problem persists, perform the followings:</p> <ul style="list-style-type: none"><li>• Replace the platen roller.</li><li>• Check and adjust the label top sensor level.</li><li>• Replace the label top sensor and/or CONT PCB.</li></ul>

## Error Message 1068

### WLAN Error

**LED: Lights in red, Buzzer: Long sound, one time**

<b>Causes</b>	The WLAN module is damaged.
<b>Countermeasures</b>	Replace the WLAN module.

## Error Message 1073

### RFID Undetected Warning

**LED: Lights in red, Buzzer: Short sound, 3 times**

<b>Causes</b>	With Non-RFID warning enabled and tag loaded, the items received do not contain an RFID issue command.
<b>Countermeasures</b>	<p>(1) Add an RFID issue command to the print job.</p> <p>(2) Disable Non-RFID warning.</p> <p>(3) Replace with non-RFID label.</p>



## Error Message 1075

### NFC Error

**LED: Lights in red, Buzzer: Long sound, one time**

<b>Causes</b>	The NFC module is defective.
<b>Countermeasures</b>	Restart the printer. If the problem persists, perform the followings: <ul style="list-style-type: none"><li>• Remove and reinsert the NFC module connector.</li><li>• Replace the NFC module and/or CONT PCB.</li></ul>

## Error Message 1076

### Invalid command in NFC

**LED: Lights in red, Buzzer: Short sound, 3 times**

<b>Causes</b>	A command error occurs and the settings are not saved correctly.
<b>Countermeasures</b>	Check the commands.

## Error Message 1099

### Config Warning

**LED: Lights in red, Buzzer: Short sound, 3 times**

<b>Causes</b>	The power was cut off in an inappropriate way, such as the power cord was pulled out while the power was on.
<b>Countermeasures</b>	Reconfigure the printer.

## Error Message 1111

### Label Waste Prevention Error

**LED: Lights in red, Buzzer: Short sound, 3 times**

<b>Causes</b>	When feeding the media, its leading edge is not detected.
<b>Countermeasures</b>	Check the media setting position.

## Error Message 1114

### Tag Not Found

**LED: Lights in red, Buzzer: Short sound, 3 times**

<b>Causes</b>	No tag is found or reading the tag failed.
<b>Countermeasures</b>	Confirm the inlay operation and check the printer/antenna configuration.

## Error Message 1115

### Write operation failed

**LED: Lights in red, Buzzer: Short sound, 3 times**

<b>Causes</b>	Writing to the tag failed.
<b>Countermeasures</b>	Confirm the inlay operation and check the printer/antenna configuration.

## Error Message 1116

### Failed to read the tag data.

**LED: Lights in red, Buzzer: Short sound, 3 times**

<b>Causes</b>	Reading the tag failed.
<b>Countermeasures</b>	(1) Confirm the inlay operation and check the printer/antenna configuration. (2) Check if the address exceeding the size of the tag is specified.

## Error Message 1117

### Write-lock or non-writable tag

**LED: Lights in red, Buzzer: Short sound, 3 times**

<b>Causes</b>	(1) Tried to write to a write-locked tag. (2) Tried to write to an unwritable address.
<b>Countermeasures</b>	Use an tag that is not locked.

## Error Message 1118

### Write/Read values are not consistent

**LED: Lights in red, Buzzer: Short sound, 3 times**

<b>Causes</b>	(1) The written data and read data do not match. (2) A value greater than the original data was written to the subtraction register. (FeliCa only)
<b>Countermeasures</b>	(1) Confirm the inlay operation and check the printer/antenna configuration. (2) Write an appropriate value to the subtraction register. (FeliCa only)

## Error Message 1119

### Failed to lock the data

**LED: Lights in red, Buzzer: Short sound, 3 times**

<b>Causes</b>	The lock process failed.
<b>Countermeasures</b>	Check the tag in which an error occurred.

## Error Message 1120

### Wrong tag UID is read

**LED: Lights in red, Buzzer: Short sound, 3 times**

<b>Causes</b>	Read the UID other than the specified tag.
<b>Countermeasures</b>	Check if a tag specified by the tag type setting is used.

## Error Message 1121

### Multiple tags are detected.

**LED: Lights in red, Buzzer: Short sound, 3 times**

<b>Causes</b>	(1) Multiple tags are captured at a time. (2) The captured IDm of the card is inconsistent between processes. (Tried to write to a wrong card.) (FeliCa only)
<b>Countermeasures</b>	Confirm the inlay operation and check the printer/antenna configuration.

## Error Message 1122

### EPC does not match

**LED: Lights in red, Buzzer: Short sound, 3 times**

<b>Causes</b>	Detected inconsistent EPC during a series of processes.
<b>Countermeasures</b>	Check the tag.

## Error Message 1123

### Write-lock tag is used or power is not strong enough.

**LED: Lights in red, Buzzer: Short sound, 3 times**

<b>Causes</b>	(1) Tried to write to a write-locked tag. (2) Tried to write to an tag when the write power is low.
<b>Countermeasures</b>	(1) Use media that is not locked. (2) Adjust the write/read radio power level.

## Error Message 1124

### Wrong Tag type

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**LED: Lights in red, Buzzer: Short sound, 3 times**

<b>Causes</b>	An incorrect tag type is specified.
<b>Countermeasures</b>	Check the tag type, and specify the correct one.

## Error Message 1125

### Internal Error

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**LED: Lights in red, Buzzer: Short sound, 3 times**

<b>Causes</b>	Acquiring the ID failed.
<b>Countermeasures</b>	The radio wave condition needs to be improved.

## Error Message 1126

### Not enough power

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**LED: Lights in red, Buzzer: Short sound, 3 times**

<b>Causes</b>	With the RSSI filter enabled, the RSSI value of the tag lowered than the set value in "Threshold Value."
<b>Countermeasures</b>	(1) Check the media and also the "Threshold Value" set for the RSSI filter. (2) Adjust the write/read radio power level.

## Error Message 1127

### Auto Clone Error

**LED: Lights in red, Buzzer: Short sound, 3 times**

<b>Causes</b>	(1) Writing to the USB memory by Auto Clone failed. (2) The USB memory is not inserted. (3) The USB memory is not formatted.
<b>Countermeasures</b>	(1) Replace the USB memory. (2) Insert a USB memory into the USB connector. (3) Format the USB memory.

## Error Message 1128

### Bluetooth MFi Chip Module Error

**LED: Lights in red, Buzzer: Long sound, one time**

<b>Causes</b>	With the Bluetooth module connected, the MFi-chip is not detected.
<b>Countermeasures</b>	Replace the WLAN/Bluetooth kit.

## Error Message 1132

### RTC Module Error

**LED: Lights in red, Buzzer: Long sound, one time**

<b>Causes</b>	(1) With the RTC module connected, failed to the module communication. (2) Without connecting the RTC module, the module communication succeeded.
<b>Countermeasures</b>	(1) Replace the RTC kit. (2) Replace the CONT PCB.



## Error Message 1133

### SRA motor unit Error

**LED: Lights in red, Buzzer: Long sound, one time**

<b>Causes</b>	The SAR motor unit does not operate properly.
<b>Countermeasures</b>	Replace the RFID kit.

## Error Message 1134

### RFID Module Overheated

**LED: Lights in red, Buzzer: Long sound, one time**

<b>Causes</b>	The temperature of the RFID module exceeds the allowable limit.
<b>Countermeasures</b>	Stop the printer operation and wait until the temperature lowers.

## Error Message

**X-axis photo sensor error.**

**Y-axis photo sensor error.**

<b>Causes</b>	The photo sensor is defective.
<b>Countermeasures</b>	Replace the RFID kit.

## Error Message

**X-axis motor is locking.**

**Y-axis motor is locking.**

<b>Causes</b>	The motor is defective.
<b>Countermeasures</b>	Replace the RFID kit.

## Error Message

**X-axis high-friction.**

**Y-axis high-friction.**

<b>Causes</b>	(1) The grease is insufficiently applied. (2) The coaxial cable is interfering.
<b>Countermeasures</b>	(1) Apply silicone grease to the gear and slide gear of the RFID unit. (2) Check the wiring route of the coaxial cable and re-install the RFID kit. If the problem persists, replace the RFID kit

## 6.2 Symptom-based troubleshooting

### 6.2.1 Printing

#### Print quality

##### Keyword

- Printing is too light.
- Printing is too dark.
- Print darkness differs on the right side and left side.
- White lines appear in printing.

##### Checklist for SATO reseller or technical support center

- ① Is the cover properly closed?  
Check by opening and closing the cover.
- ② Clean the print head using cleaning supplies.
- ③ Change the print darkness setting.

##### CAUTION

After changing the print darkness setting, make sure that the barcode is read correctly.

##### Checklist for technician

- ① Check if the cover is properly closed.
- ② Check the condition of the print head and platen roller.  
Replace them if they are worn out or defective, or have scratches due to a foreign object.
- ③ Clean the print head and feed roller.
- ④ Check and change the print darkness setting.  
Check the printing and make necessary judgement whether the darkness is appropriate for the media. Change the darkness setting accordingly to improve the print image.

##### CAUTION

Print the actual print data and ensure that the new darkness setting is being applied.

- ⑤ Remove and reinsert the connector of the print head on the HEAD PCB.

## Print position

### Keyword

- Print position shifts vertically.
- Print position shifts horizontally.

#### Checklist for SATO reseller or technical support center

- ① Is the media loaded properly?
  - Vertical shift: The media guides are positioned too tight against the media width, causing heavier load during media feeding.
  - Horizontal shift: The media guides are positioned too loose away from the media width, causing the media to meander horizontally.
- ② Are the printer settings set correctly?
  - Select the correct sensor type.
  - Set the print position.
- ③ Clean the platen roller and sensors using cleaning solution.
- ④ Perform the auto-calibration of sensors.
  - \* Perform the auto-calibration only when the vertical shifting in the test print is not consistent.

#### Checklist for technician

- ① Check if the media is properly loaded. (Ensure the media guides is positioned properly against the media width.)
- ② Check if any unnecessary load is being applied during feeding of the media. (The media shifting vertically/horizontally can be caused by the unnecessary load.)
- ③ Check the condition of the print head and platen roller.  
Replace them if they are worn out or defective, or have scratches due to a foreign object.
- ④ Clean the print head and feed rollers.
- ⑤ Check the settings in the printer. (The correct selection of sensor type and set the Imaging setting to the correct print position)
- ⑥ Check and adjust the sensor level.
- ⑦ Check if the label guide rack is holding the label in the center.

## No printing

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### Keyword

- Nothing or blank print is created.

#### Checklist for SATO reseller or technical support center

- ① Is the media properly loaded?
- ② Printed within the media size?
- ③ Clean the platen roller and sensors using cleaning supplies.
- ④ Perform the auto-calibration of sensors.
  - \* Perform the auto-calibration only when the vertical shifting in the test print is not consistent.

#### Checklist for technician

- ① Check if the media is properly loaded. (Ensure the media guides is positioned properly against the media width.)
- ② Check if any unnecessary load is being applied during feeding of the media. (The media shifting vertically/horizontally can be caused by the unnecessary load.)
- ③ Check the print data. (Print-image may exceed the printable area, etc.)
- ④ Check and adjust the sensor level.
- ⑤ Remove and reinsert the connector on the print head and HEAD PCB.

## Abnormal printing

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### Keyword

- Printing is garbled.
- Printing is incorrect.
- Print data itself has a problem.

#### Checklist for SATO reseller or technical support center

- ① What is the software application used?
- ② Is the print data correct?
- ③ Power off and on the printer, and recheck the result.
- ④ Is the same problem persisted if using other print data?

#### Checklist for technician

- ① Check the print data.

#### CAUTION

Ensure to obtain print samples to check for any problems.

- ② Check the work environment. (Suspected possible electrical noise generated by surrounding sources, etc.)
- ③ Remove and reinsert each cable. (Suspected for possible poor connectivity)
- ④ Reset printer after back-up the current settings and then recheck the print results.
- ⑤ Replace the CONT PCB if suspected faulty.



## 6.2.2 Media feeding

### Cut position shifted

#### Keyword

- Cut position is shifted.

#### Checklist for SATO reseller or technical support center

- ① Is the media properly loaded?
- ② Adjust the offset position.
- ③ Perform the auto-calibration of sensors.
  - \* Perform the auto-calibration only when the vertical shifting in the test print is not consistent.

#### Checklist for technician

- ① Check if the media is properly loaded. (Ensure the media guides is positioned properly against the media width.)
- ② Clean and check the platen roller.  
Replace it if it is worn out or defective, or has scratches due to a foreign object.
- ③ Check the sensor level.
- ④ Adjust the offset position.

## Label is not cut.

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### Keyword

- Label is not cut. (Improper cutting)

#### Checklist for SATO reseller or technical support center

- ① Check the settings in the printer related to Cut mode.
- ② Is the media properly loaded?
- ③ Power off and on the printer and touch [FEED] to feed the label. Is the cutting problem resolved after feeding the label?
- ④ Remove the cutter kit and install it again.

#### Checklist for technician

- ① Check if the media is properly loaded. (Ensure the media guides is positioned properly against the media width.)
- ② Clean and check the cutter.  
Replace them if they are worn out or defective, or have a scratch marking due to a foreign object.
- ③ Check the printer settings. (Ensure that the cutter setting is set to Cutter mode)
- ④ Perform the feed operation or test print to check for correct cutting operation.
  - ➔ If the cutter is working, then check the print data and the priority setting between the printer and command.
  - ➔ If the cutter is not working, refer to below items.
- ⑤ Clean the contacts between the printer and cutter.
- ⑥ Remove and reinsert the cutter cable connectors.
- ⑦ Replace the part accordingly, if suspected faulty. (CUTTER PCB → CONT PCB)

## Dispense stop position shifted

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### Keyword

- Dispense stop position is shifted.
- Label fails to stop at the dispense stop position.
- Label falls off from dispense plate.
- Label cannot be peeled off from its back-liner.
- Label is caught on something.

#### Checklist for SATO reseller or technical support center

- ① Is the media properly loaded?
- ② Adjust the offset position.
- ③ Perform the auto-calibration of sensors.
  - \* Perform the auto-calibration only when the vertical shifting in the test print is not consistent.

#### Checklist for technician

- ① Check if the media is properly loaded. (Ensure the media guides is positioned properly against the media width.)
- ② Clean and check the platen roller.  
Replace it if it is worn out or defective, or has scratches due to a foreign object.
- ③ Check the sensor level.
- ④ Adjust the offset position.

## Label not peeling off during dispense mode operation

### Keyword

- Label is not peeling off.

#### Checklist for SATO reseller or technical support center

- ① Check the settings in the printer related to Dispense mode.
- ② Is the media properly loaded?
- ③ Power off and on the printer and touch [FEED] to feed the label. Does the dispenser kit work properly after feeding the label?
- ④ Remove the dispenser kit and install it again.

#### Checklist for technician

- ① Check if the media is properly loaded. (Ensure the media guides is positioned properly against the media width.)
- ② Clean and check the dispenser unit.  
When dispenser roller or dispenser plate is worn out, replace the dispenser kit.
- ③ Disconnect and reinsert the dispenser kit cable connector.
- ④ Replace the part if it is suspected faulty. (Dispenser sensor → CONT PCB)

## Printed label not feed out during dispense mode operation

### Keyword

- Label is not issued.
- Printer is not working at all.
- Nothing is printed.

#### Checklist for SATO reseller or technical support center

- ① Is the media properly loaded?
- ② Is there any label stayed in the dispenser sensor section?
- ③ Does the media back-liner sag? (The sensor is blocked by the back-liner.)
- ④ Clean the platen roller, print head and dispenser unit using cleaning supplies.

#### Checklist for technician

- ① Clean and check the platen roller, print head and dispenser unit. (The adhesive stuck on them acts as unnecessary load during feeding of media.)  
Replace them if they are worn out or defective, or have a scratch marking due to a foreign object.
- ② Check and adjust the dispenser sensor level. (The presence of the label is always recognized and thus the next label is not issued.)
- ③ Remove and reinsert the cable of the dispenser sensor or replace the sensor if it is suspected faulty.
- ④ Replace the CONT PCB if it is suspected faulty.

## Printed labels keep continuously feed out during dispense mode operation

### Keyword

- Malfunction of the printer dispense mode operation.

#### Checklist for SATO reseller or technical support center

- ① Is the print mode set correctly? (Ensure that the print mode is not set to “Continuous mode”.)
- ② Is the print mode set to “Dispenser mode”?
- ③ If the dispense sensing is disturbed by the surrounding/external lighting, change the direction/location of the printer.

#### Checklist for technician

- ① Is the print mode set correctly? (Ensure that the print mode is not set to “Continuous mode”.)
- ② Clean and check the platen roller, print head and dispenser unit. (The adhesive stuck on them acts as unnecessary load during feeding of media.)  
Replace them if they are worn out or defective, or have a scratch marking due to a foreign object.
- ③ Check and adjust the dispenser sensor level. (The absence of the label is recognized and the next label is issued.)
- ④ Remove and reinsert the cable of the dispenser sensor or replace the sensor if it is suspected faulty.
- ⑤ Replace the CONT PCB if it is suspected faulty.

## Label is stuck.

### Keyword

- Label is stuck.

#### Checklist for SATO reseller or technical support center

- ① Remove the stucked label.
- ② Load the media properly.

#### Checklist for technician

- ① Check if the media is properly loaded. (Ensure the media guides is positioned properly against the media width.)
- ② Perform cleaning and checking.  
Replace parts if they are worn out or defective, or have a scratch marking due to a foreign object.



## Label not feeding out.

---

### Keyword

- Label is not being issued out (feed out).

#### Checklist for SATO reseller or technical support center

- ① Is the media loaded correctly? Or, is the label stuck?
- ② Is the label issued out (feed out) when you touch [FEED] in Offline mode?
- ③ Is the dispenser sensor being blocked by the media or back-liner?

#### Checklist for technician

##### **Condition when the stepping motor not rotating:**

- ① Manually rotate the stepping motor shaft to check for any abnormality (shaft rotation is not smooth). If any abnormality is found, replace the stepping motor (STEPPING MOTOR-LF).
- ② Replace the CONT PCB if it is suspected faulty.

##### **Condition when the stepping motor shaft rotates normally:**

- ① Check the cover lock mechanism.
- ② Check the conveying load and torque of drive system such as gears and the platen roller.
- ③ Replace the CONT PCB if it is suspected faulty.

## 6.2.3 Power Supply

### The printer power not turned on

#### Keyword

- The printer power is not turned on.
- The printer does not operate.

#### Checklist for SATO reseller or technical support center

- ① Are the LED Indicator and LCD lit?
- ② Is the AC power cord plugged into the outlet?
- ③ Is the AC power cord inserted into the AC adapter? Isn't it loosely inserted?
- ④ Is the AC adapter cable inserted into the printer? Isn't it loosely inserted?

#### Checklist for technician

- ① Check the power supply voltage  
**Refer to** [2 Checking the Power Supply Voltage](#)
- ② Check the output voltage of the AC adapter alone.  
→ Replace the AC adapter.

## 6.2.4 Communications

### LAN communication not available (Nothing is printed even if the data is sent via LAN.)

---

#### Keyword

- Printing is not done.
- No LAN communication.

#### Checklist for SATO reseller or technical support center

- ① Is the LAN cable properly connected?
- ② Change the port of the hub, and check again.
- ③ Check the LAN settings.
- ④ Power off and on the printer, and send a ping command from the PC to check for the reply status.

#### Checklist for technician

- ① Check the communication settings in the printer and the PC.
- ② Check for a ping reply.
- ③ Is the communication established when the printer and the PC are directly connected?
  - ➔ If the communication can be established: Change the cable and/or hub, and check again.
  - ➔ If the communication cannot be established: Replace the CONT PCB.

## USB communication not established (Nothing is printed even if the data is sent via USB.)

---

### Keyword

- Printing is not done.
- No USB communication.

#### Checklist for SATO reseller or technical support center

- ① Remove and reinsert the USB cable, and restart the printer.
- ② Check the USB settings.

#### Checklist for technician

- ① Check the settings in the printer.
- ② Check if the printer is recognized by the device manager.
- ③ Reinstall the printer driver.
- ④ Replace the CONT PCB.

## Bluetooth communication not established (Nothing is printed even if the data is sent via Bluetooth.)

---

### Keyword

- Printing is not done.
- No Bluetooth communication.

#### Checklist for SATO reseller or technical support center

- ① Is the Bluetooth parameter settings correct?
- ② Is the printer detected by the Bluetooth pairing?

#### Checklist for technician

- ① Check the communication settings in the printer and peripheral devices. (Establish the Bluetooth pairing again.)
- ② Replace the Bluetooth kit.
- ③ Replace the CONT PCB.

## WLAN communication not established (Nothing is printed even if the data is sent via WLAN.)

---

### Keyword

- Printing is not done.
- No WLAN communication.

#### Checklist for SATO reseller or technical support center

- ① Is the WLAN parameter settings correct?
- ② Power off and on the printer, and send a ping command from the PC to check for the reply status.
- ③ Is the AP (Access Point) settings correct?

#### Checklist for technician

- ① Check the communication settings in the printer and peripheral devices, and check for a ping reply.
- ② Connect the printer and the PC in ad-hoc mode and check the communication again.
- ③ If the communication in ad-hoc mode fails, replace the WLAN kit.
- ④ If the problem persists, replace the CONT PCB.

## NFC communication is not established.

---

### Keyword

- NFC communication is not established.

#### Checklist for SATO reseller or technical support center

- ① Is the NFC function enabled?
- ② Hold the NFC mark of an NFC mounting device over the NFC antenna section in the up, down, left and right directions.

#### Checklist for technician

- ① Check the communication settings in the printer and peripheral devices.
- ② Remove and reinsert the connector.
- ③ Replace the NFC PCB.
- ④ Replace the CONT PCB.

## 6.2.5 Others

### Barcode cannot be scanned.

#### Keyword

- Barcode not able to be scanned.
- QR code not able to be scanned.

#### Checklist for SATO reseller or technical support center

- ① Is the laser light emitted from the scanner?
- ② Is the printed barcode faint or too dark?
- ③ Check if the other barcode is successfully scanned.
- ④ Restart the printer.
- ⑤ Remove and reinsert the scanner connector, and check again.
- ⑥ Use other the USB port, and check again.

#### Checklist for technician

- ① Check the print quality. (Faint barcode, blurred barcode and darkness)  
Change the print darkness setting, and check again the print quality.
- ② Remove and reinsert the scanner connector. Also, check if other barcode can be scanned.
- ③ Check scanner connected to other USB port.
- ④ Check with the other scanner and printer.



## An error occurs during printer driver installation

---

### Keyword

- Printer driver cannot be installed.

#### Checklist for SATO reseller or technical support center

- ① Is the version of the printer driver supporting the OS of the PC?
- ② Log on to the PC as an administrator and reinstall the printer driver.

#### Checklist for technician

- ① Log on to the PC as an administrator and reinstall an appropriate printer driver on the PC.
- ② Install the printer driver of different version.

## Screen display freezes

---

### Keyword

- The screen display freezes.
- No function button works.
- Unable to operate the printer.

#### Checklist for SATO reseller or technical support center

- ① Power off and on the printer.

#### Checklist for technician

- ① Remove and reinsert the LCD screen connector, and check again.
- ② Replace the LCD module.
- ③ Replace the CONT PCB.

## RFID

---

### Keyword

- Unable to read/write RFID

#### Checklist for SATO reseller or technical support center

- ① Is the RFID label used?
- ② Power off and on the printer.

#### Checklist for technician

- ① Check the specifications of the RFID label being used.
- ② Check that the settings of RFID setting items are the same as those at the time of installation.  
Check the values of antenna positions X and Y.
- ③ Check the sensor level and cut position.
- ④ Perform SRA. (When failed, perform SRA each time you increase the antenna output by 1dBm, according to the procedure.)

#### CAUTION

If an appropriate value is obtained when the antenna output exceeds  $\pm 2$  dBm, contact the person in charge of this model in the headquarters.

- ⑤ Replace the RFID unit.
- ⑥ Replace the RFID module.

This chapter describes the following:

## [7. 1 Standard Model ➡ RFID Model](#)

## [7. 2 About RFID Antenna](#)

### [7.2.1 RFID antenna position adjustment](#)

## [7. 3 RFID antenna position automatic adjustment](#)

### [7.3.1 Confirmation and \[SRA Setting\] icon](#)

### [7.3.2 SATO RF Analyze](#)

### [7.3.3 About \[RFID Tag Model\]](#)

## [7. 4 RFID antenna position manual adjustment](#)

### [7.4.1 About \[SRA Setting\] menu](#)

### [7.4.2 Move Antenna Position](#)

## 7.1 Standard Model ➔ RFID Model



9 min.



Phillips screwdriver (#2)

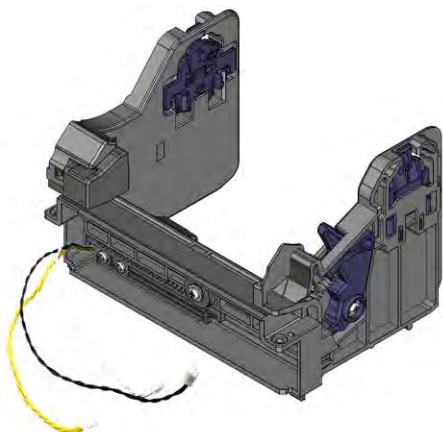
E-ring holder

RFID KIT

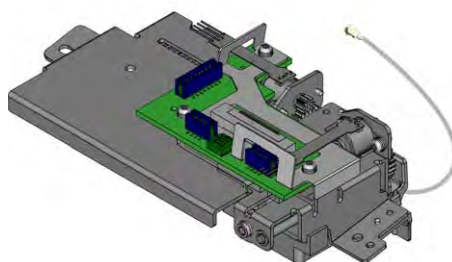


S1x6

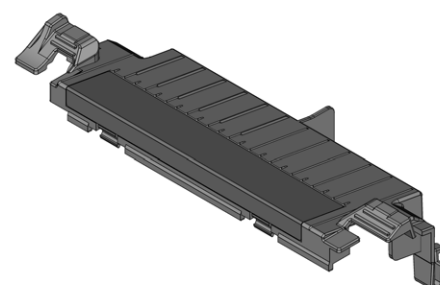
RFID KIT



LABEL GUIDE (RFID)



RFID UNIT



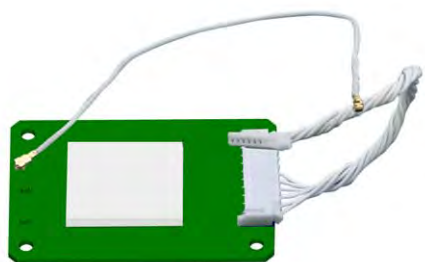
RFID INNER COVER



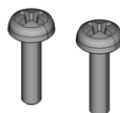
LABEL GUIDE SHAFT



E-RING



RFID MODULE



S1x2



RFID MOTER CABLE

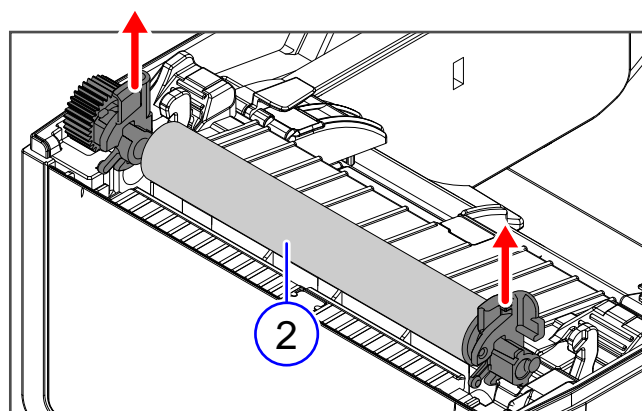
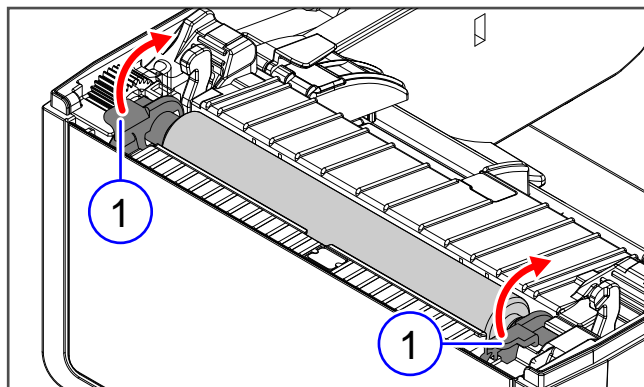


TUBE

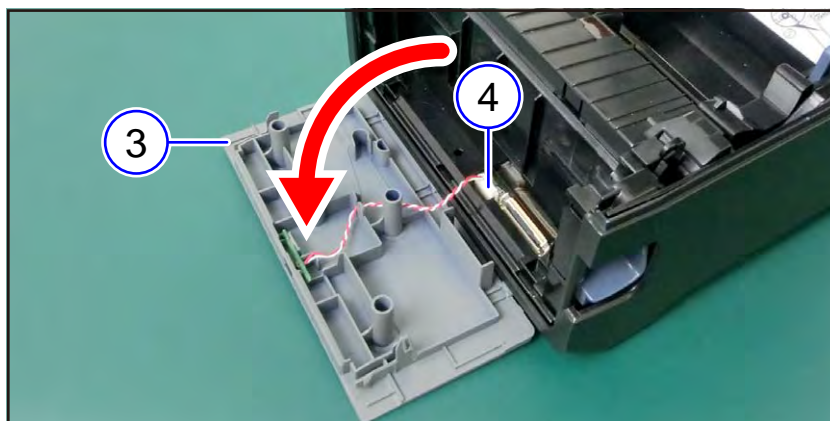

SATO RFID SOLUTIONS  
(Sticker)

RFID ROUTE  
(Sheet)

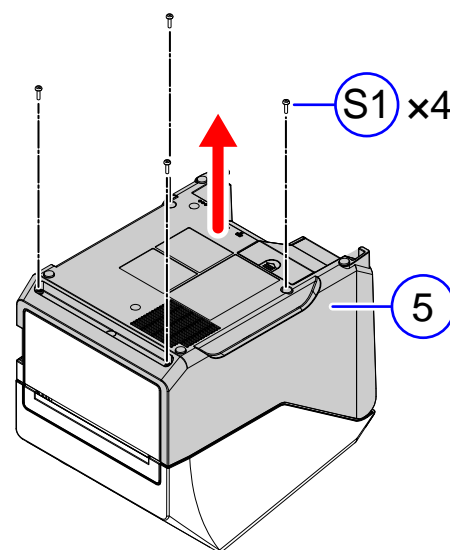
- 1** Open the top cover.
- 2** Turn the two levers (①) of the platen roller (②), and then replace the platen roller with a new one.



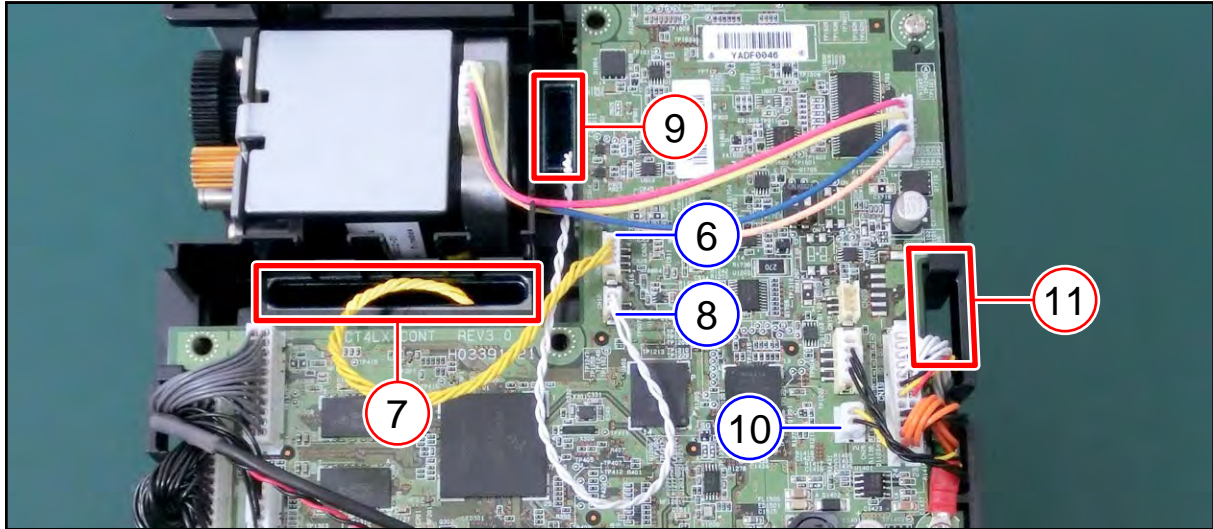
- 3** Remove the FRONT PANEL (③).
- 4** Disconnect one connector (④).



- 5** Remove four screws (S1) and remove the BOTTOM COVER (⑤).



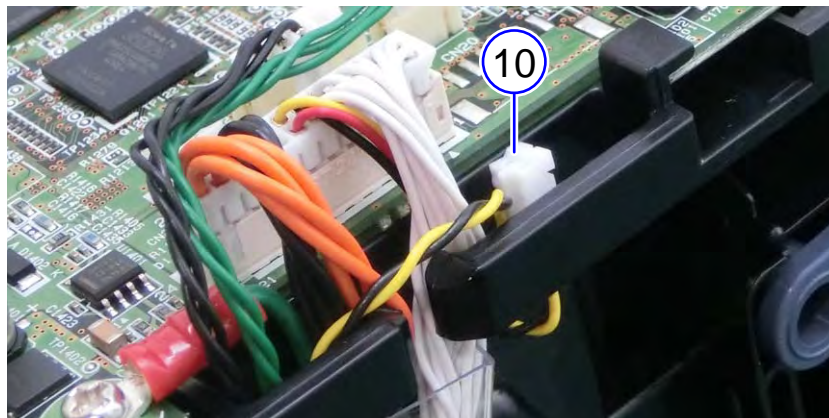
- 6** Disconnect the I-mark sensor connector (⑥) and put it in the cable hole (⑦).
- 7** Disconnect the gap sensor (transmitter) connector (⑧) and put it in the cable hole (⑨).
- 8** Disconnect the gap sensor (receiver) connector (⑩) and insert it into the cable guide (⑪) on the side.



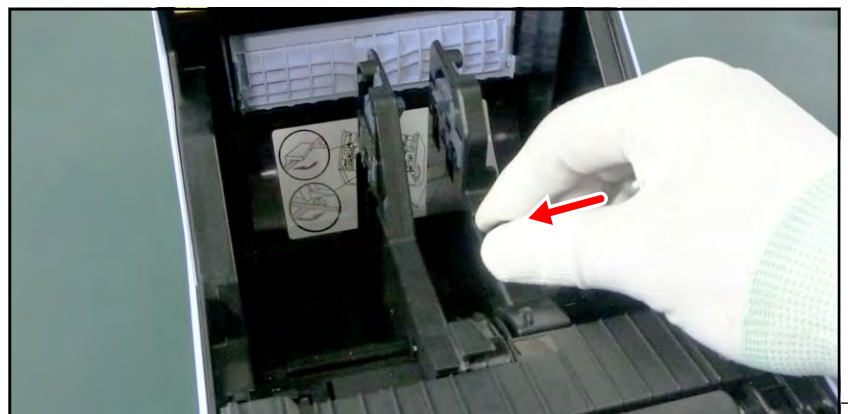
## CAUTION

The RFID model does not use the current gap sensor (receiver) connector (⑩) but uses that of the RFID kit instead.

Since the current gap sensor (receiver) connector (⑩) is not removed and remains, securely seat it in the cable guide.

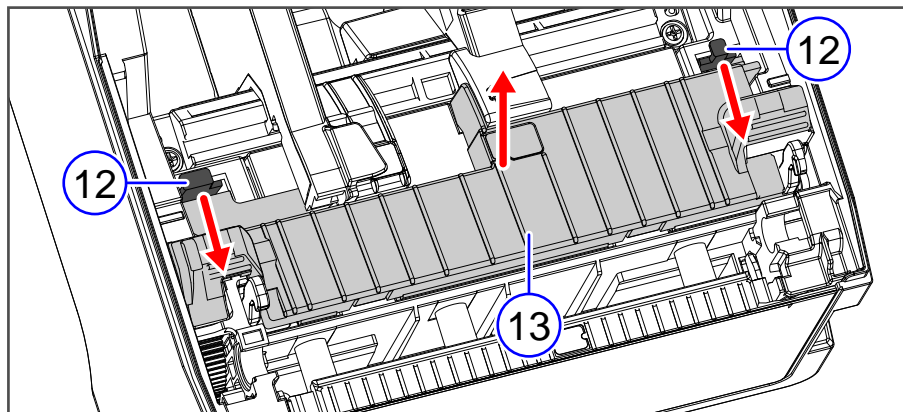


- 9** Press the knob and slide the label guide inward.

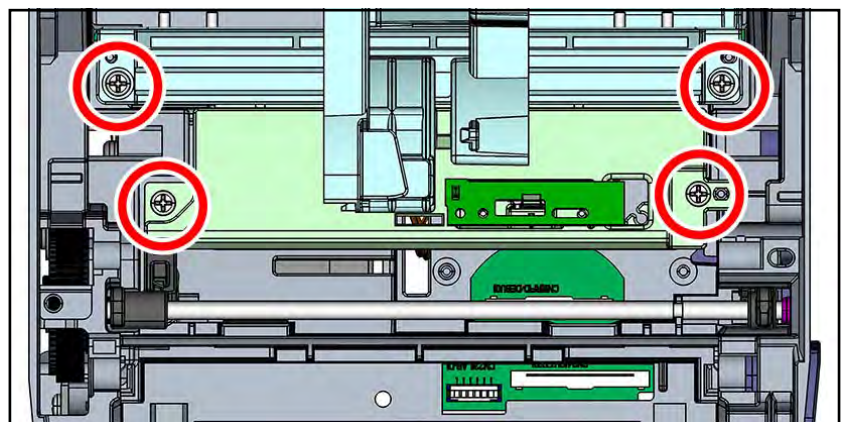




**10** Release two hooks (12) and remove the inner cover (13).

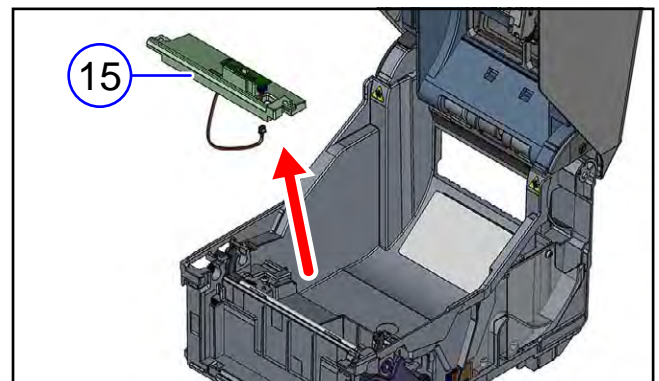
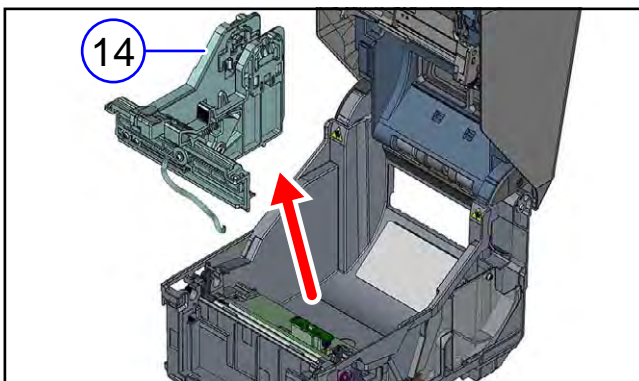


**11** Remove four screws (S1).



**12** Remove the label guide (14), paying attention to its cable.

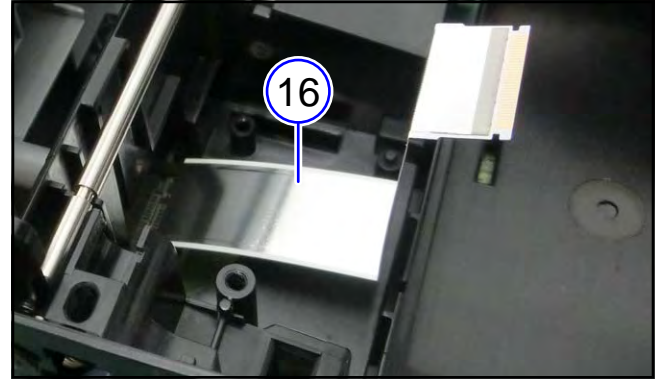
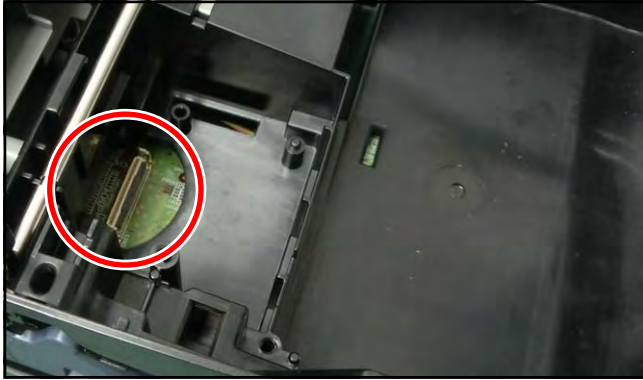
**13** Remove the GAP D HOLDER (15), paying attention to its cable.



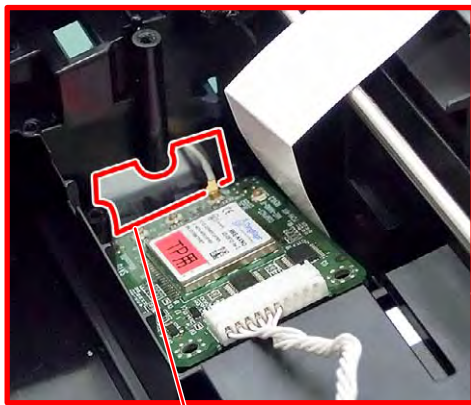
**14** Connect the FFC (⑩).

## Notes on assembling

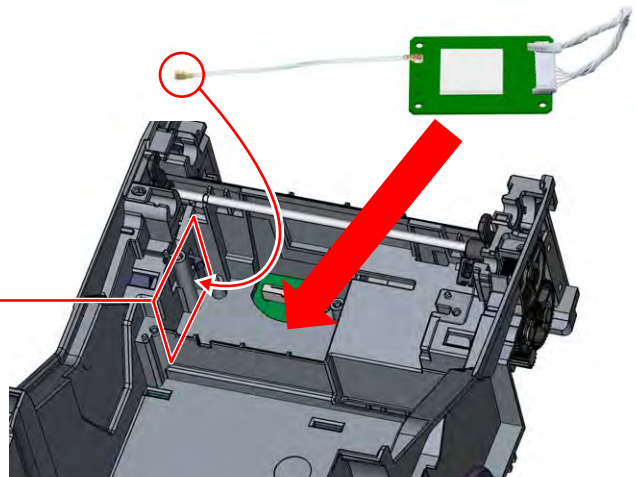
Insert the FFC with the silver side facing the front until you hear a click sound.



**15** Pass the coaxial cable of the RFID module through the cable hole as shown below.



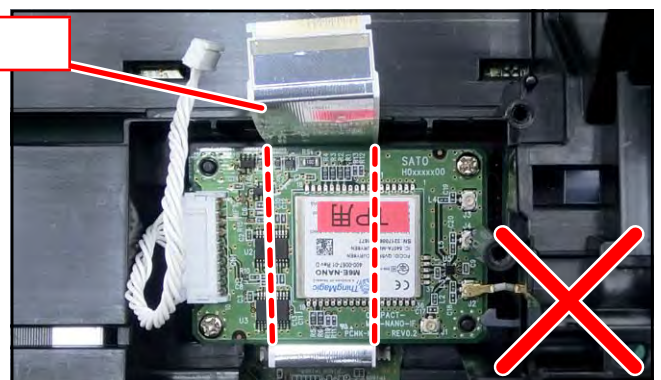
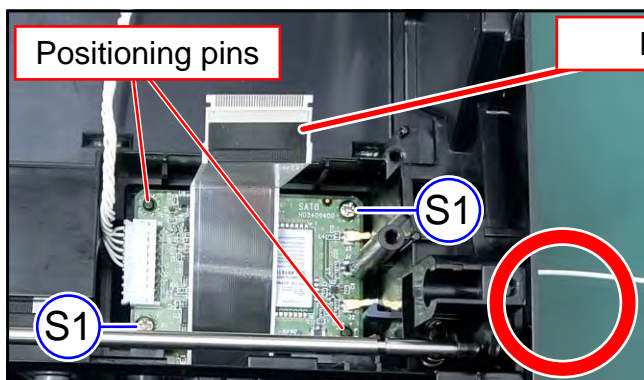
## Cable hole



**16** Place the RFID module by aligning its holes with the positioning pins and fix it with two screws (S1).

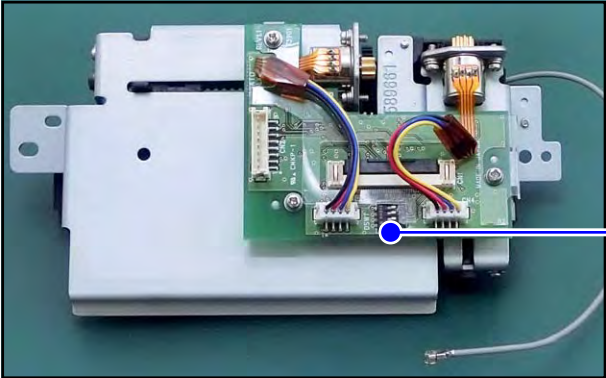
## Notes on assembling




Make sure that the FFC passes through the front side, not under the RFID module.





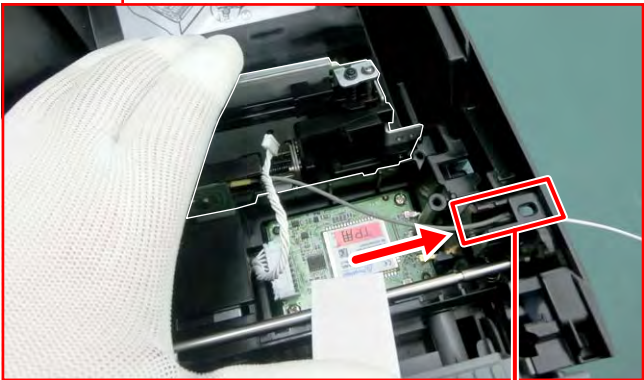
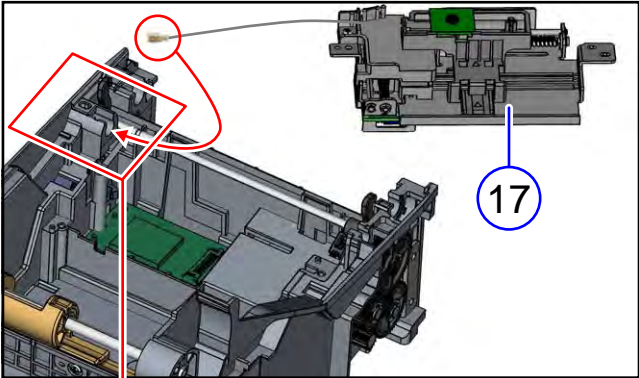
17 Check the DIP switch settings of the RFID unit.



	DSW1	DSW2	DSW3	Frequency band
	ON	OFF	OFF	UHF band
	OFF	ON	OFF	HF band
	ON	ON	OFF	HF band (PJM)

18 Pass the coaxial cable of the RFID unit (17) through the cable hole.

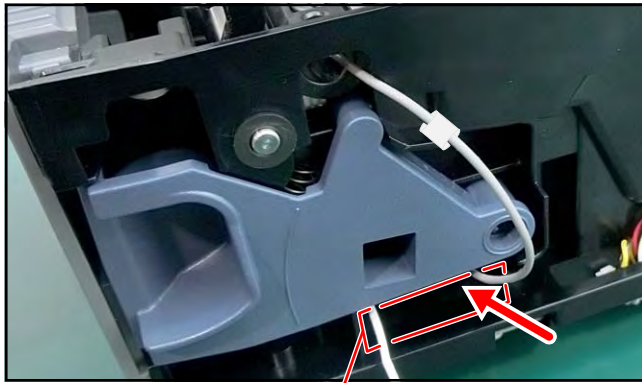
19 Insert the tube (18) into the coaxial cable, and then insert it into the cable hole.



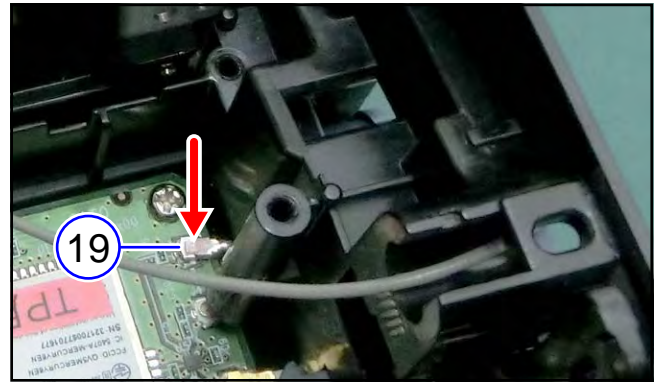
Cable hole



- 20** Pass the coaxial cable through the cable holes, and connect it to the connector (19) of the RFID module.

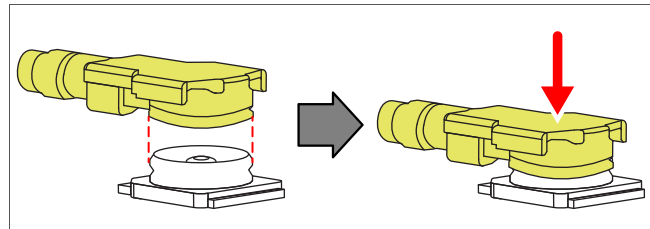


Cable hole



### Notes on assembling

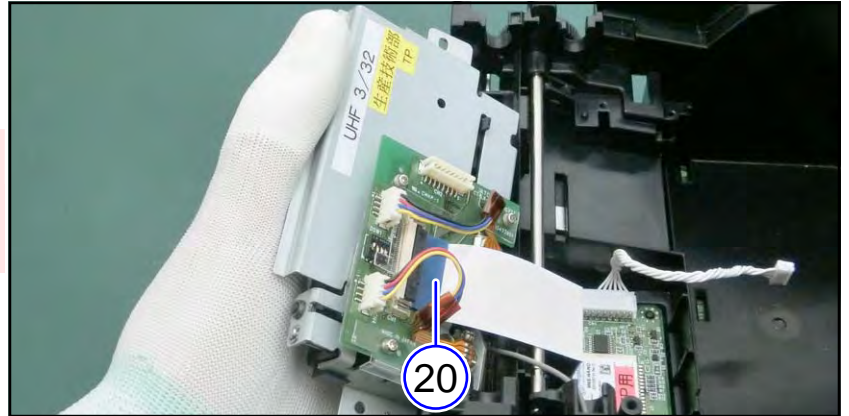
Match both connectors, and then connect them vertically.



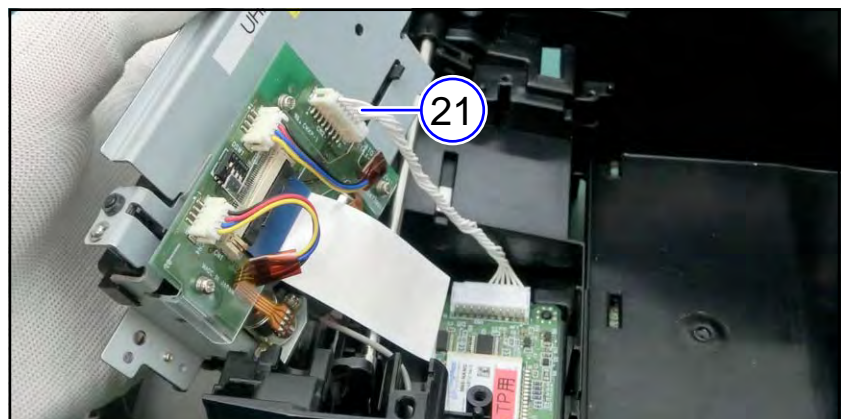
- 21** Connect the other end of the FFC (20) to the RFID unit.

### Notes on assembling

Insert the FFC until you hear a click sound.



- 22** Connect one connector (21) to the RFID unit.

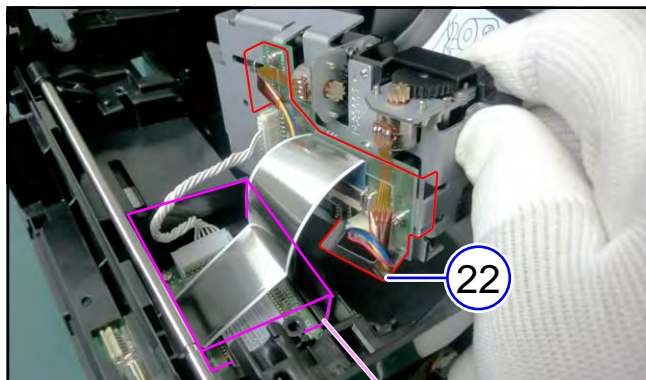




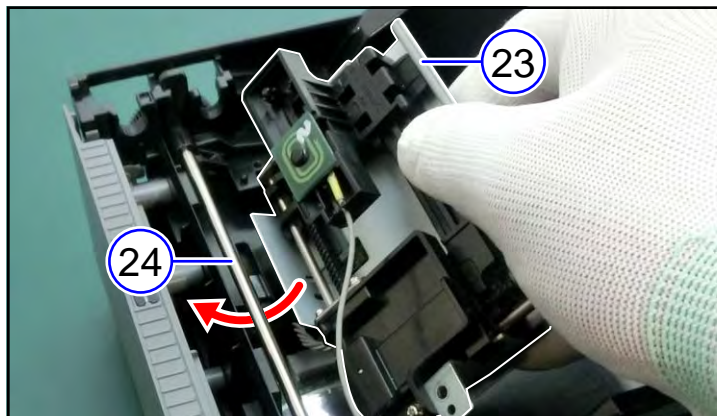
- 23** While holding down the cable sheet (②②), pass the RFID unit (②③) under the HEAD ROCK ARM SET (②④) and install it in the printer.

## Notes on assembling

Keep cables in the storage space to prevent them from being pinched.

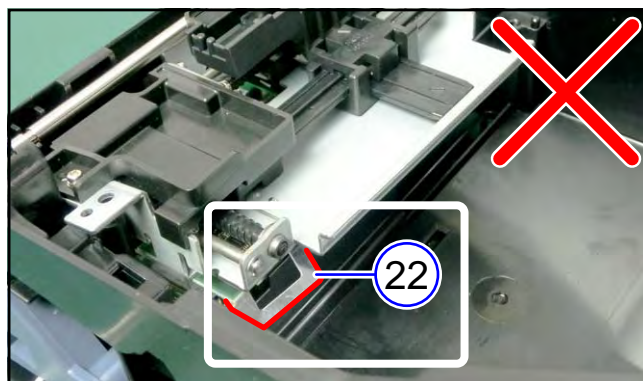
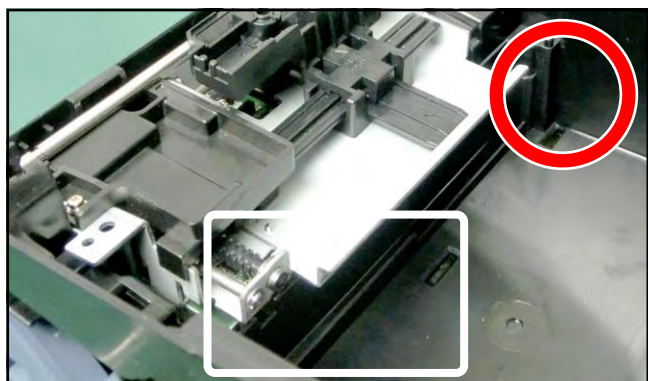


### Cable storage space

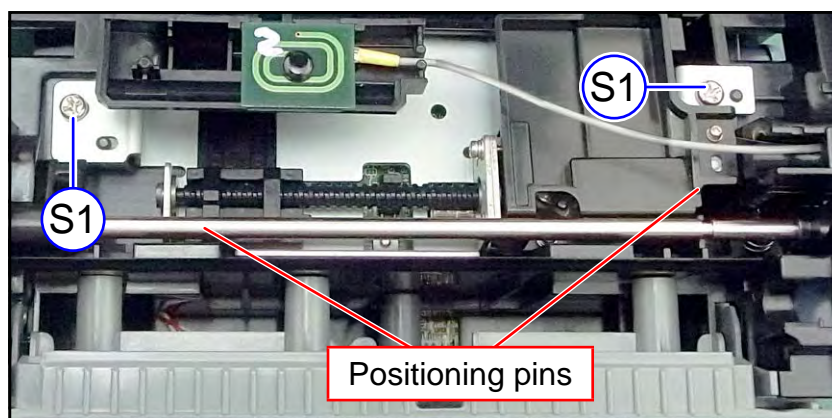


## Notes on assembling

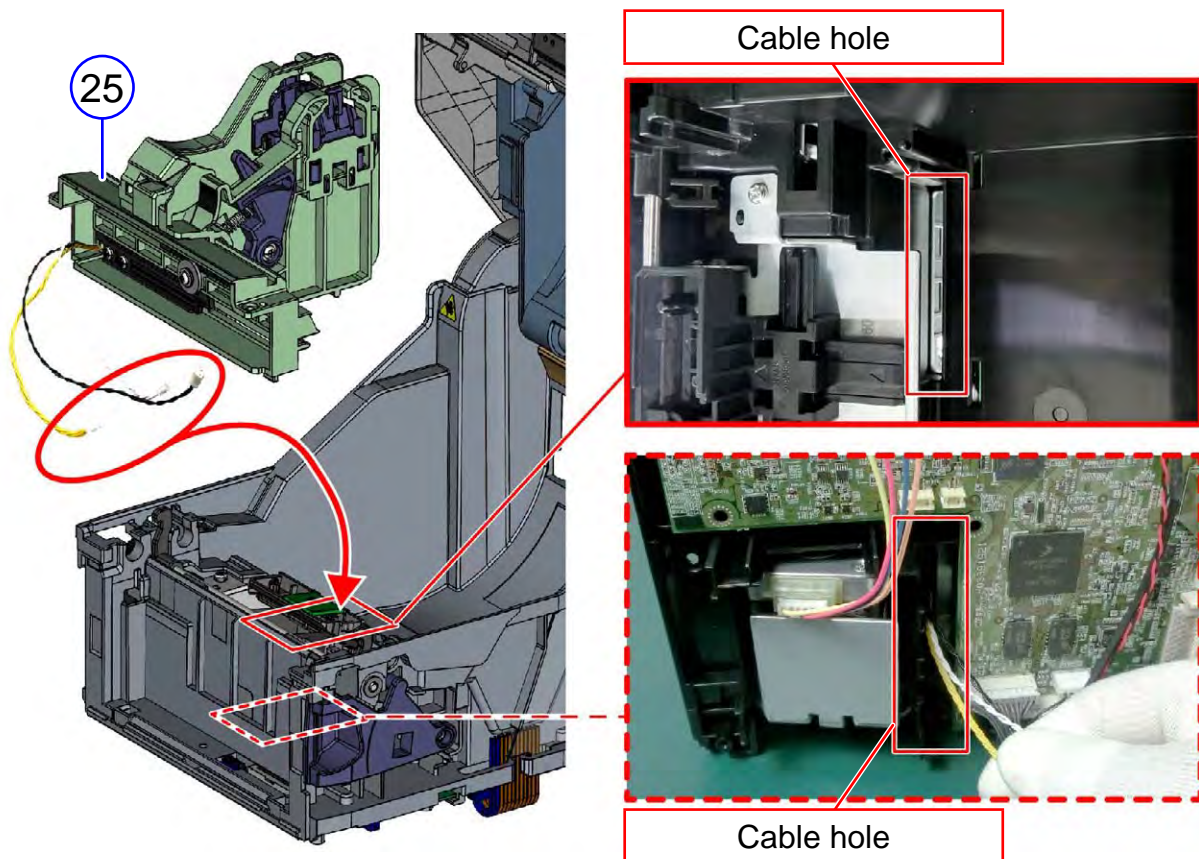
Put the cable sheet (②②) of the RFID unit inside the case.



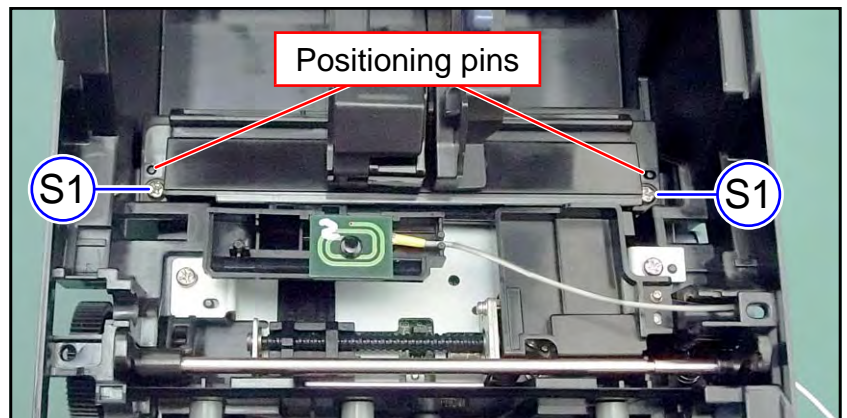
- 24** Install the RFID unit by aligning its holes with the positioning pins and fix it with two screws (S1).



**25** Pass the three cables of the LABEL GUIDE RFID (25) through the cable hole.



**26** Install the LABEL GUIDE RFID by aligning its holes with the positioning pins and fix it with two screws (S1).

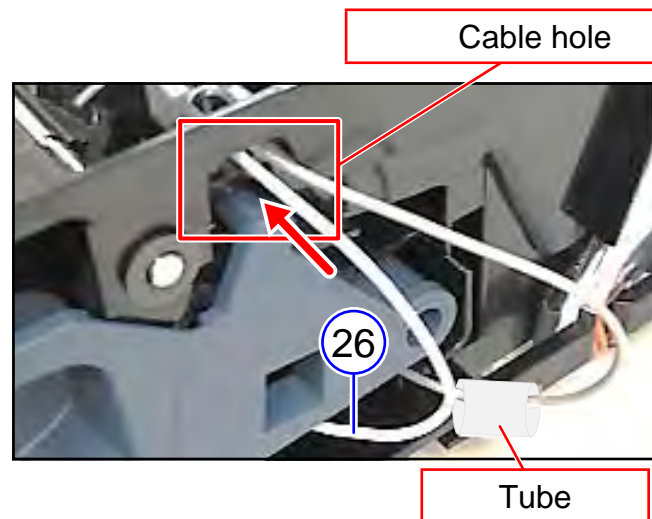


## Notes on assembling

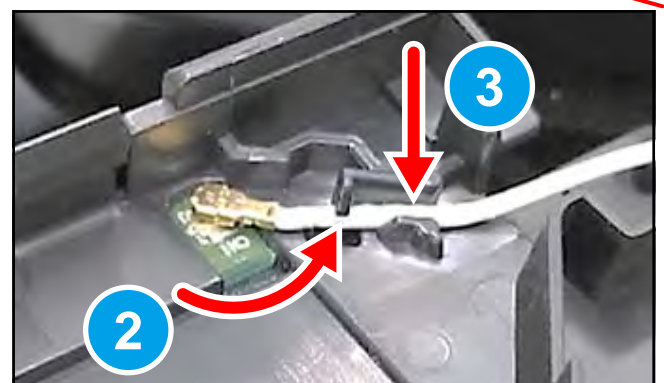
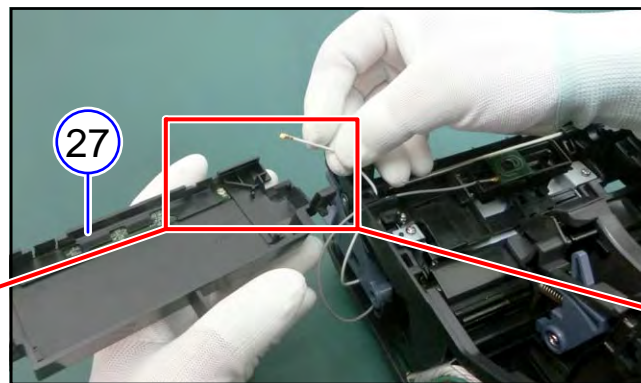
Make sure that the label guide slides smoothly.



- 27** Pass the coaxial cable (②⑥) connecting to the RFID module through the cable hole on the side of the case.

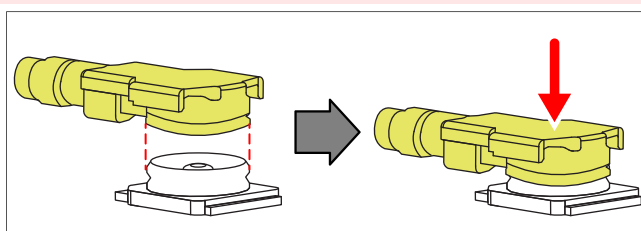


- 28** Connect the coaxial cable to the antenna PCB of the RFID INNER COVER (②⑦) and fix it with the ribs.



### Notes on assembling

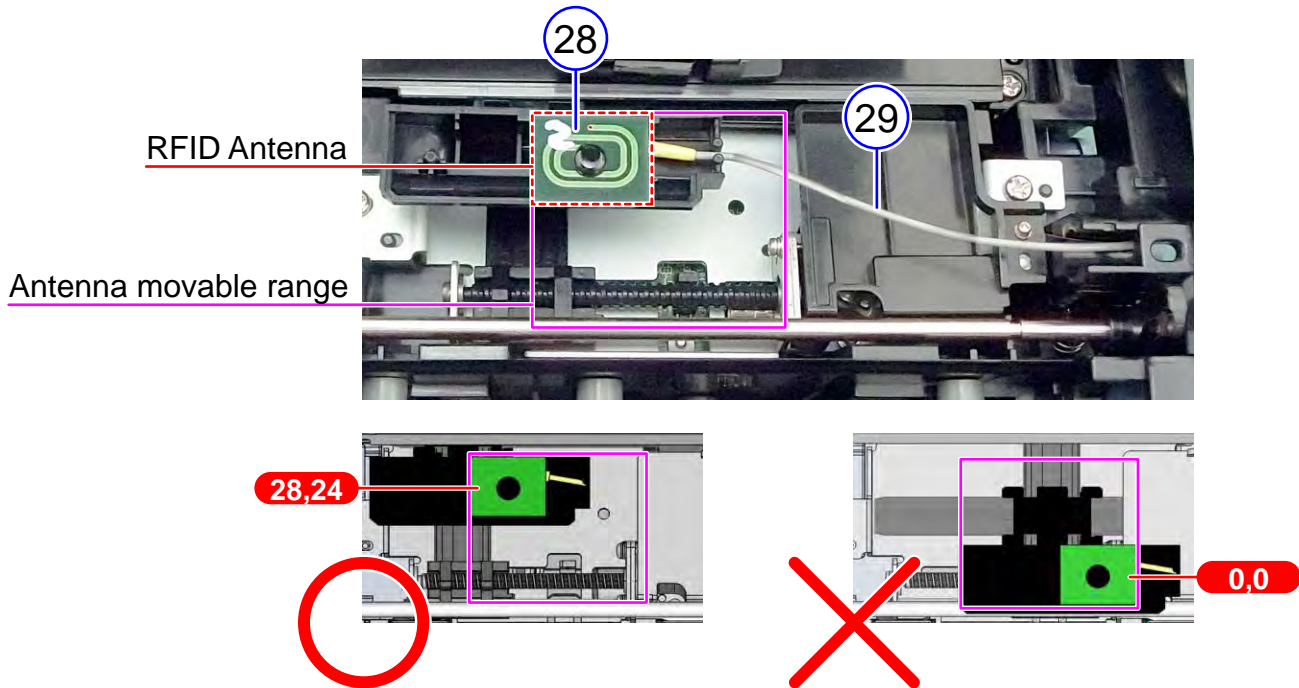
Match both connectors, and then connect them vertically.



**29** Before attaching the RFID INNER COVER, check the position of the RFID antenna (28) and coaxial cable (29).

## Notes on assembling

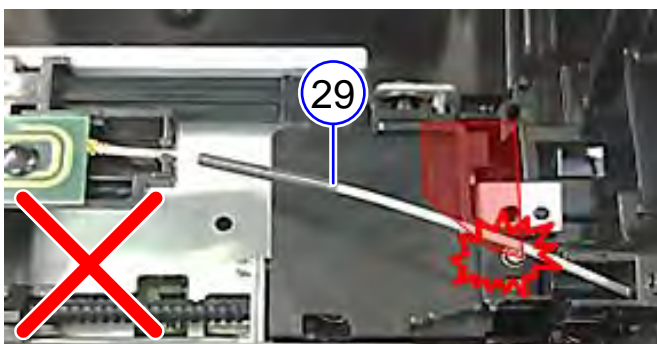
Check that the RFID antenna is located at the left rear position (antenna position: X28, Y24). If it is at the right front position (antenna position: X0, Y0), the coaxial cable can get caught.



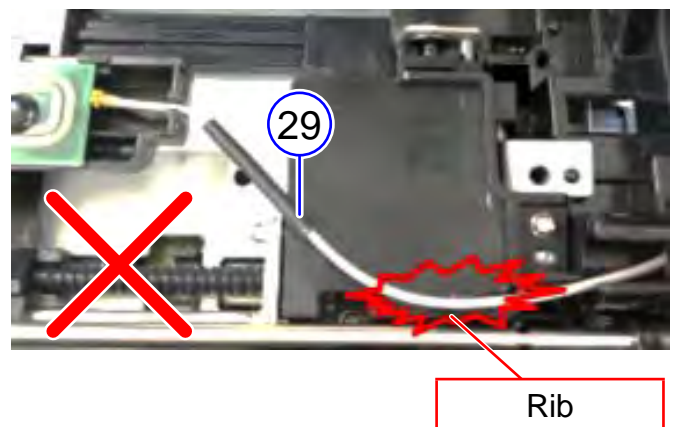
## Notes on assembling

If the coaxial cable is in the position shown below, it will be pinched by the RFID INNER COVER.

The coaxial cable runs across the red frame.



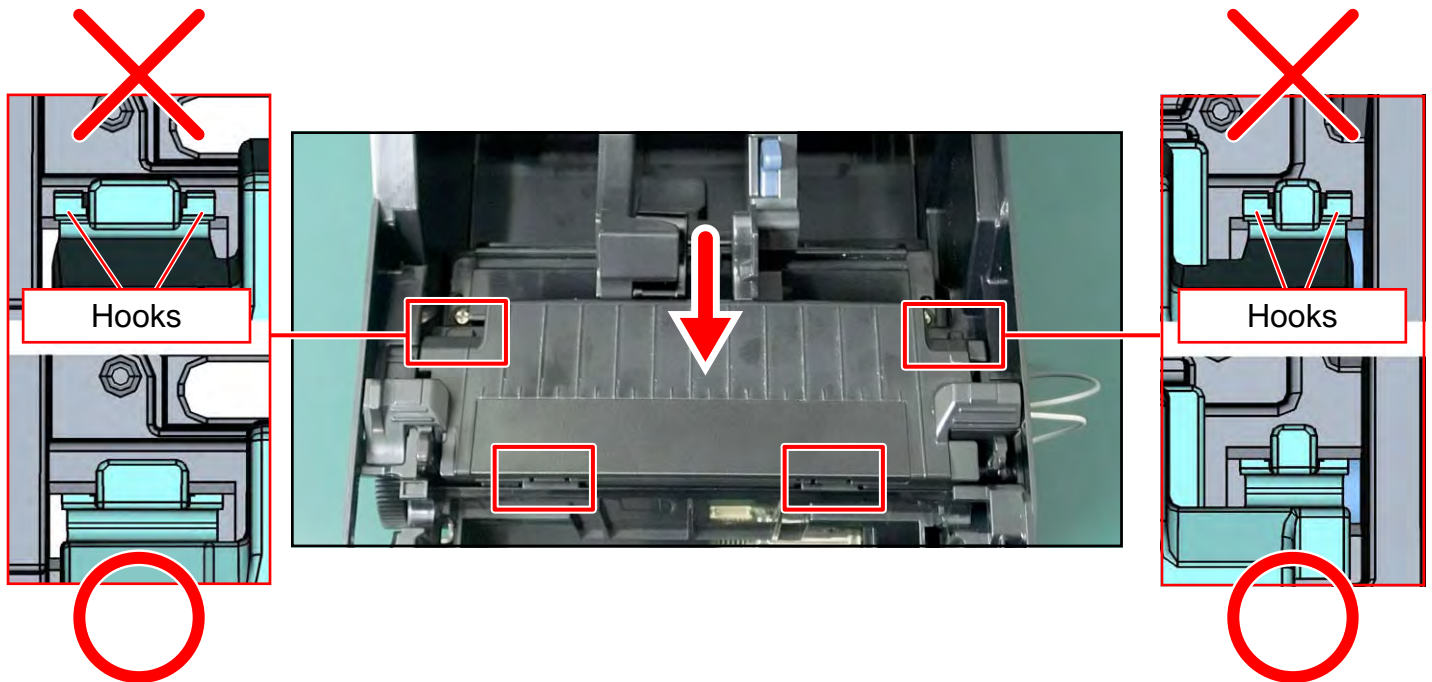
The coaxial cable is stuck on the rib.



### 30 Fix the RFID INNER COVER with hooks in four places.

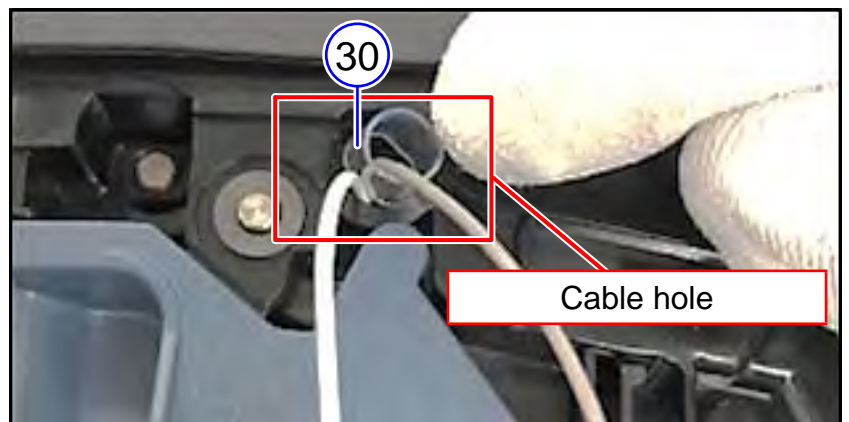
#### Notes on assembling

After fixing it, make sure that the hooks shown below are completely engaged with the printer.



### 31 Close the top cover.

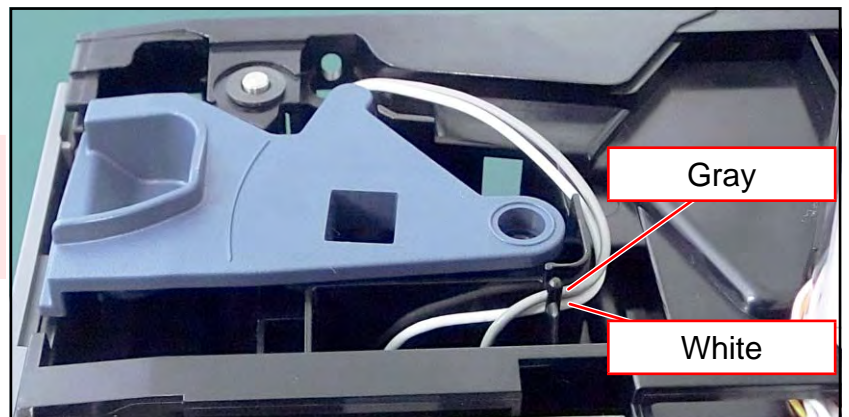
### 32 Insert the tube (30) into the cable hole.



### 33 Route the coaxial cables as shown and fix them with the rib.

#### Notes on assembling

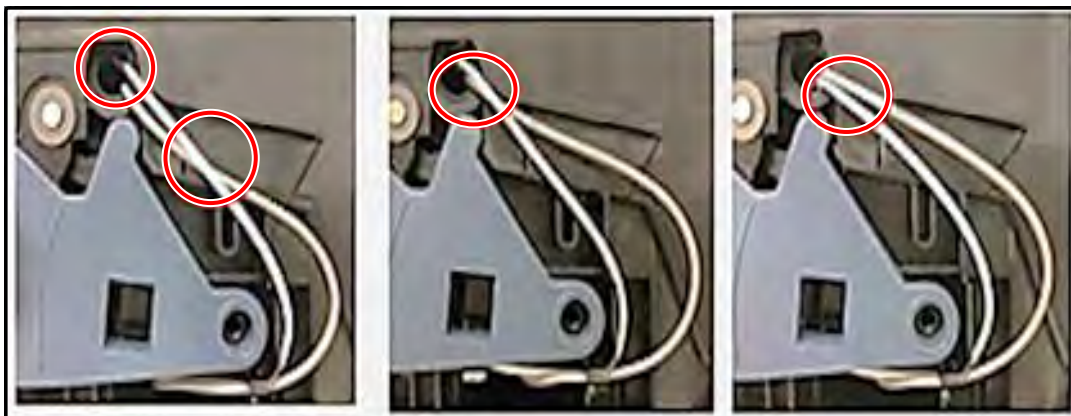
Fix the coaxial cables with the rib in the order of the white one and gray one.





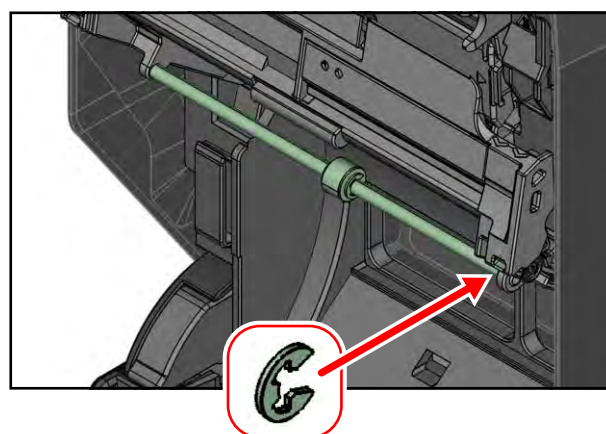
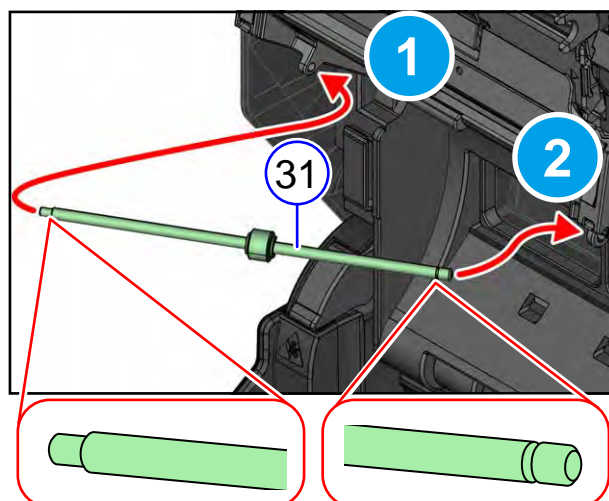
### Notes on assembling

Make sure that the coaxial cables do not cross each other as shown in the figure below.



**34** Attach the shaft (31) to the case.

**35** Fix the shaft with one E-ring.



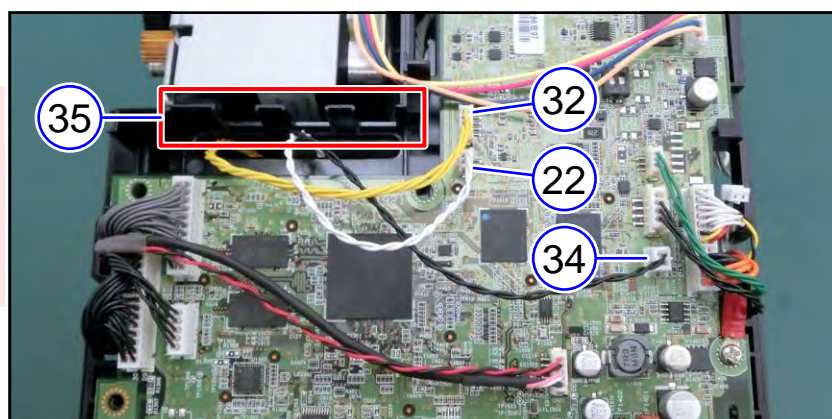
**36** Connect the three cables to the PCB.

- ③② I-mark sensor cable (yellow)
- ③③ Gap sensor (transmitter) cable (white)
- ③④ Gap sensor (Receiver) cable (black)

### Notes on assembling

Make sure that no cable is caught on the rib (35) of the bottom frame.

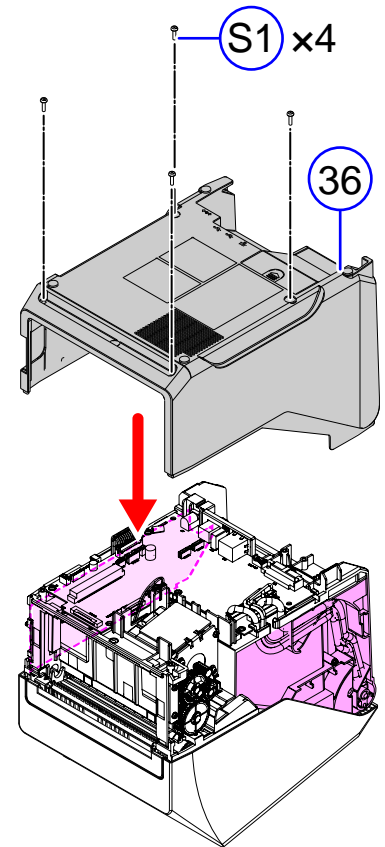
Otherwise, label guide malfunction can occur.



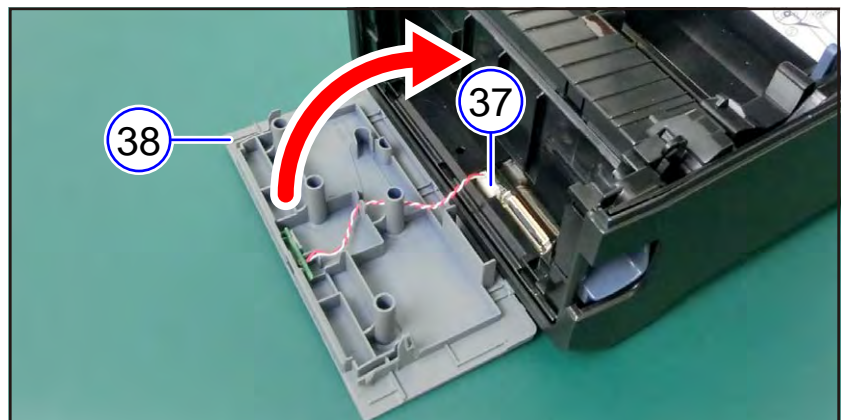
- 37** Attach the BOTTOM COVER (36) and fix it with four screws (S1).

**Notes on assembling**

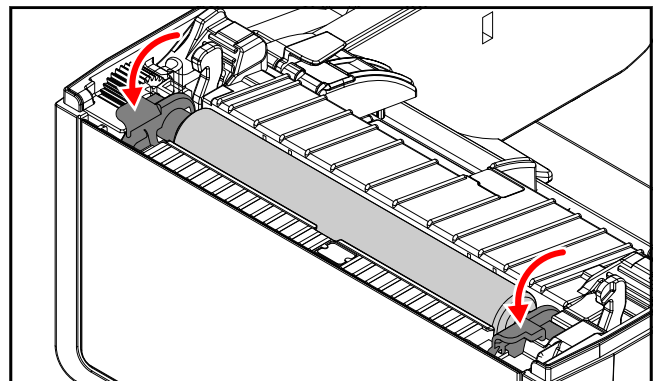
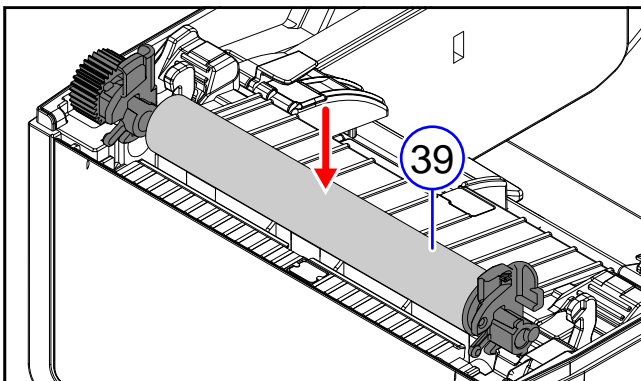
When attaching the BOTTOM COVER (36), be sure that the cables and coaxial cables on the right and left sides are not pinched.



- 38** Connect one connector (37) and attach the FRONT PANEL (38).



- 39** Attach the platen roller (39) and fix it with the two levers.

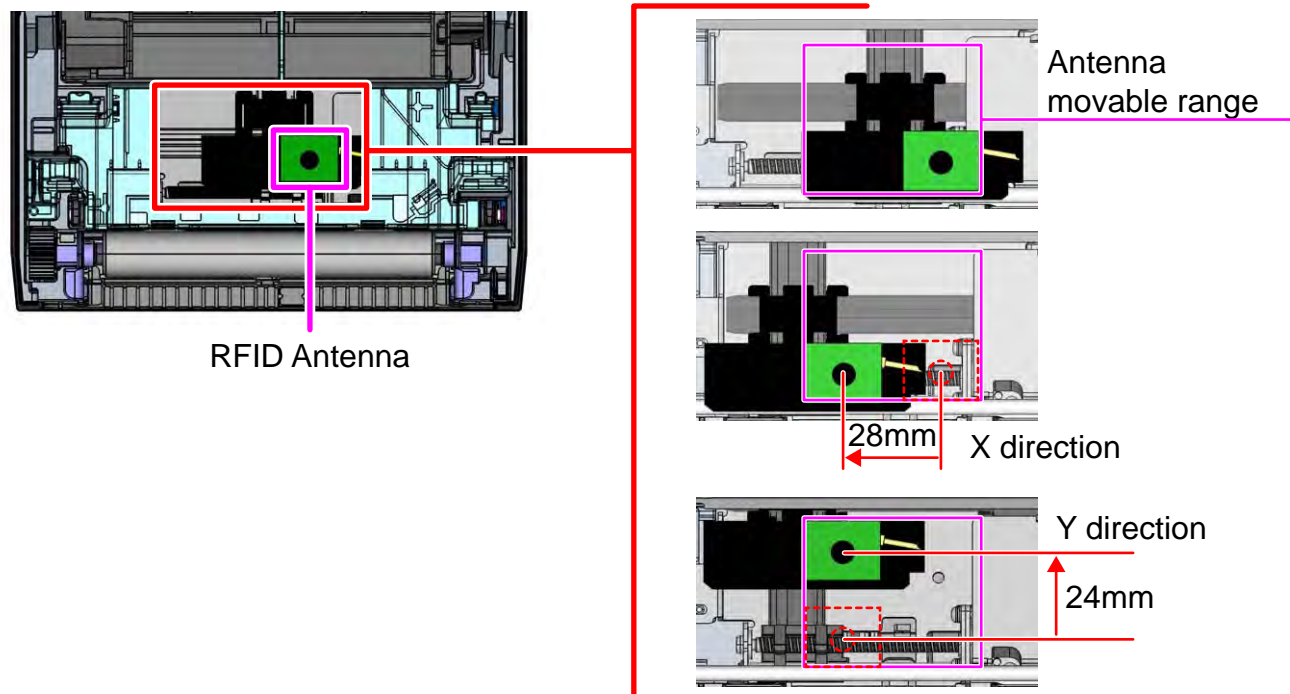


- 40** Check the printer operation.

## 7.2 About RFID Antenna

For the CT4-LX model, the position of the RFID antenna can be moved according to the RFID label/tag to be used.

RFID antenna position adjustment is available in addition to the conventional tag offset adjustment.



### 7.2.1 RFID antenna position adjustment

RFID antenna position adjustment is performed in [SRA Setting], and there are two adjustment methods: automatic position adjustment and manual position adjustment.

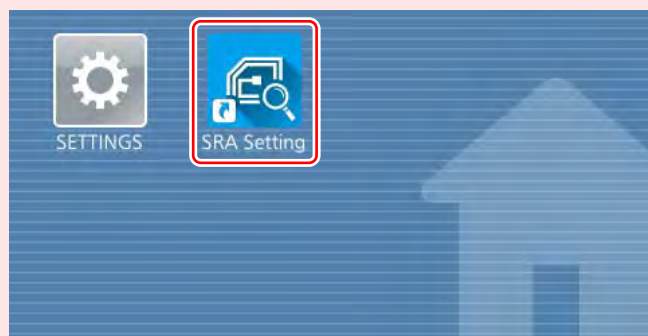
**Note** SRA stands for SATO RFAnalyze.

#### CAUTION

Both the automatic position adjustment and manual position adjustment use [SRA Setting], but the location of [SRA Setting] is different in the setting menu as follows.

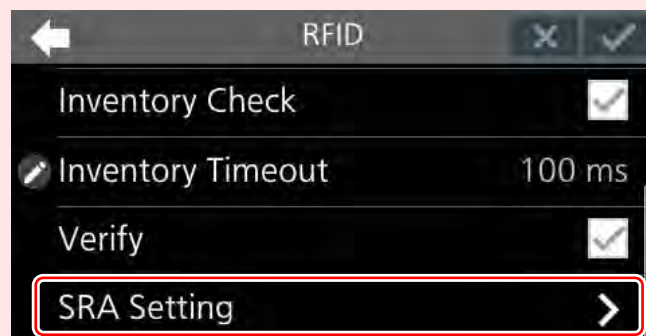
#### RFID antenna position automatic adjustment

Only when adjusting, perform the [SRA Setting] icon display setting to display it on the home screen.



#### RFID antenna position manual adjustment

[SRA Setting] is in the Service menu.  
[Tools] > [Service] > [RFID]





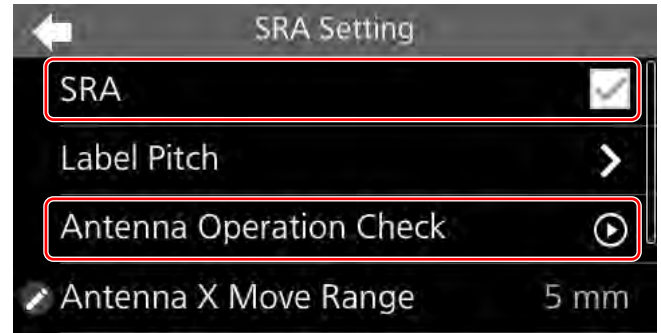
### 7.3 RFID antenna position automatic adjustment

### 7.3.1 Confirmation and [SRA Setting] icon

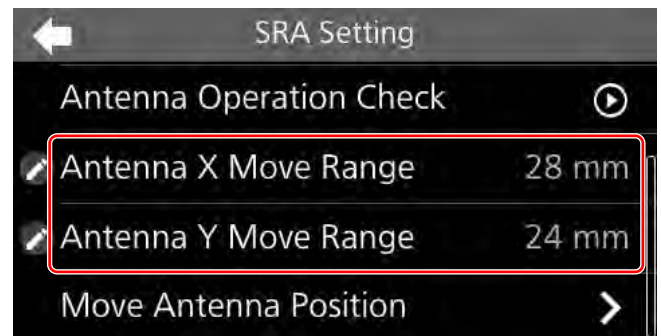
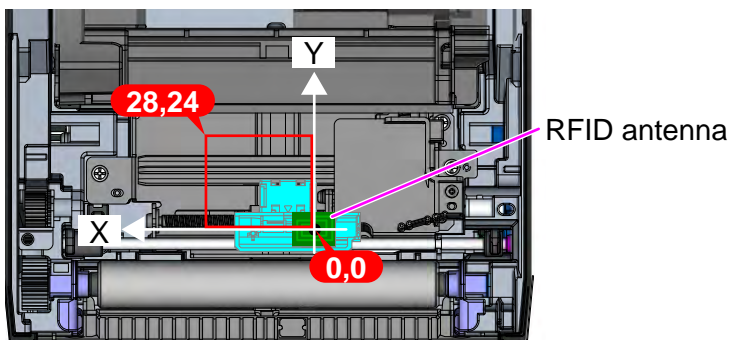
- 1 Select [Tools] > [Service] > [RFID] > [SRA Setting] and check the [SRA] check box.

**Note** [SRA Setting] icon is displayed on the home screen.

- 2** Select [Antenna Operation Check].

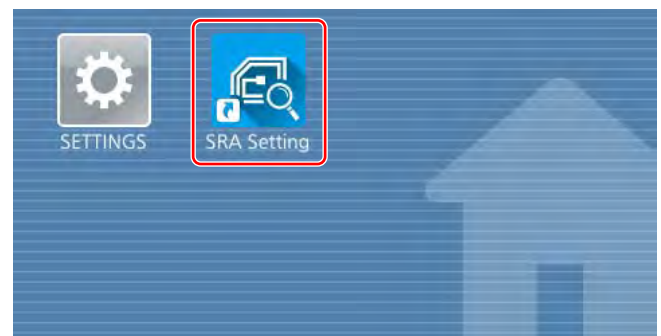


- ### 3 Check the antenna movable ranges.



**Note** X direction: 0 to 28 mm  
Y direction: 0 to 24 mm

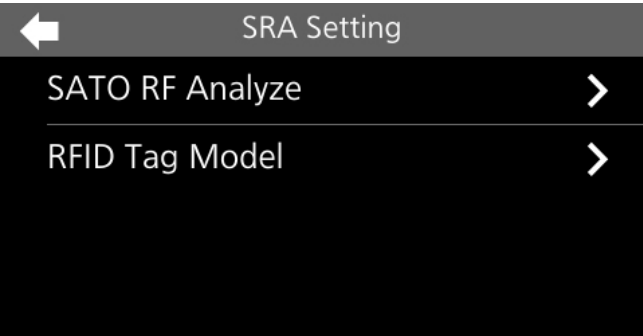
- 4** Press the power/home button.



## CAUTION

Be sure to hide the [SRA Setting] icon on the home screen after adjustment.  
Select [Tools] > [Service] > [RFID] > [SRA Setting] and uncheck the [SRA] check box.

**5** Select the [SRA Setting] icon on the home screen.



[SATO RF Analyze](#)

The RFID antenna position is automatically set.

[RFID Tag Model](#)

Read, edit, or delete the saved settings file.

### 7.3.2 SATO RF Analyze

Search Start

The RFID antenna position is automatically set.

- 1 When using two or more types of RFID labels/tags, be sure to change the name in [Save settings] beforehand.
- 2 Load the RFID label/tag.
- 3 Select [Search Start].

Search Level

Set the search level to [Standard].  
(Default: Quick)

Write Power

Check that the write power is [15 dBm].  
(Default: 15 dBm)

Read Power

Check that the read power is [15 dBm].  
(Default: 15 dBm)

Save settings

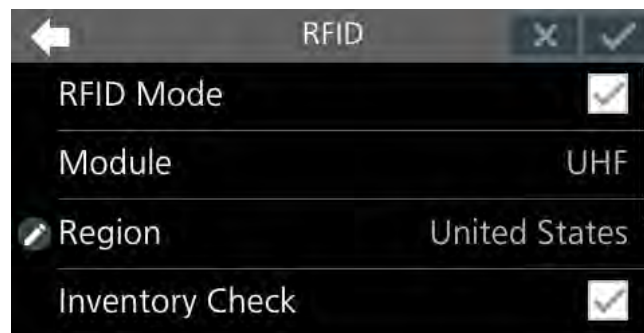
Use to save new RFID tag information.

### 7.3.3 About [RFID Tag Model]

Load	Load Read the saved RFID tag information.
Edit	Edit Edit the following setting items.
Antenna Position	Normal/Front
Antenna X Pos.	0 to 28 mm
Antenna Y Pos.	0 to 24 mm
Write Power	0 to 27 dBm
Read Power	0 to 27 dBm
Tag Offset	0 to 240 mm
Pitch Size	12 to 2880 dot
Save As	When edited, save as a new name.
Delete	Delete the saved RFID tag information.

## 7.4 RFID antenna position manual adjustment

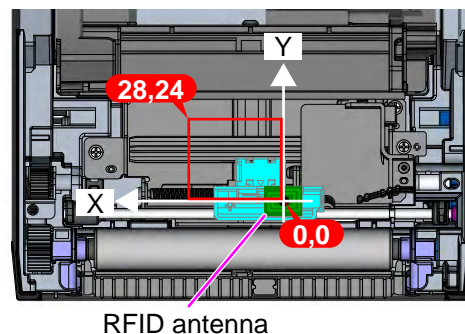
Select [Tools] > [Service] > [RFID].



RFID Mode	Enable or disable the RFID mode. Disabled: The following items are hidden. Enabled: The following items are displayed.
Module	Shows the type of RFID module installed on the printer.
Region	Set the region where you use the printer. * Shows only if you have installed the UHF RFID module.
Inventory Check	Enable or disable the inventory check function. * Shows only if you have installed the UHF RFID module.
Inventory Timeout	Set the timeout period of the inventory check. * Shows only if you have installed the UHF RFID module.
Verify	Enable or disable the verification of data written on tag.
<a href="#">SRA Setting</a>	Displays the [SRA Setting] menu.

### 7.4.1 About [SRA Setting] menu

SRA	When you check the [SRA] check box, the [SRA Setting] icon is displayed on the home screen.
Label Pitch	Set the label pitch size. (Default: Auto Label Measure)
Antenna Operation Check	Perform the antenna operation check in the range from the origin (0,0) to the maximum position (28,24) regardless of the current RFID antenna position.
Antenna X Move Range	Set the movable range of the RFID antenna in the X direction. (0-28 mm)
Antenna Y Move Range	Set the movable range of the RFID antenna in the Y direction. (0-24 mm)
<a href="#">Move Antenna Position</a>	Manually move the RFID antenna position.



### 7.4.2 Move Antenna Position

Antenna X Pos.	Set the X position of the RFID antenna. (0-28 mm)
Antenna Y Pos.	Set the Y position of the RFID antenna. (0-24 mm)
Move Antenna	Move the RFID antenna.

# Reference

This chapter describes the following:

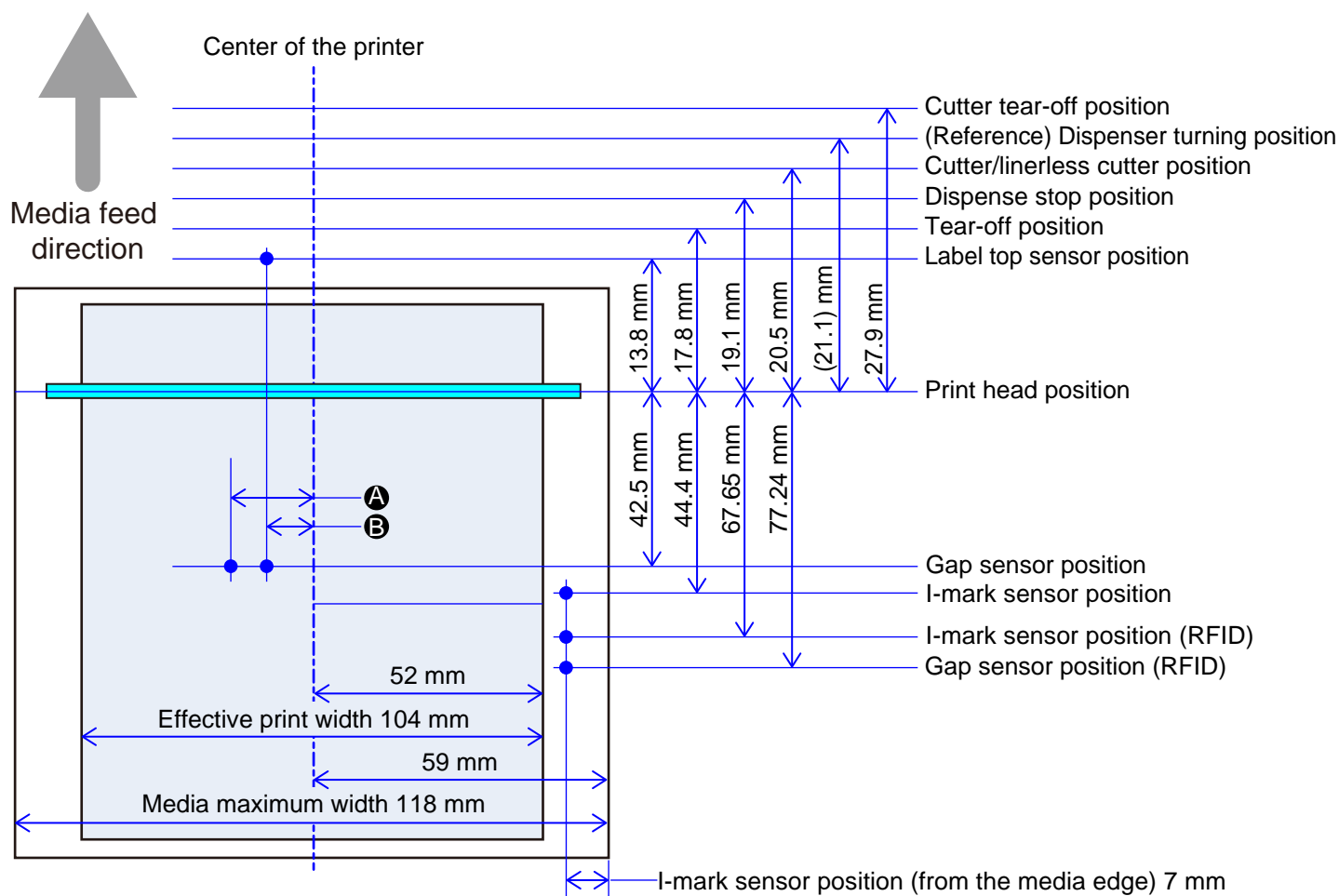
[1 Location of Sensors and Options](#)

[2 Checking the Power Supply Voltage](#)

[3 Guidelines for replacing parts \(Confidential\)](#)



# 1 Location of Sensors and Options

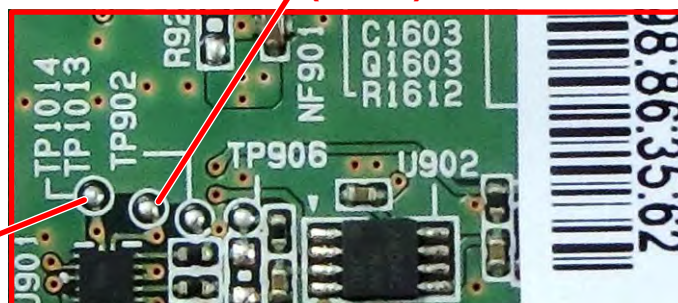


**A** Gap sensor position (sensor movable range: 13 mm)

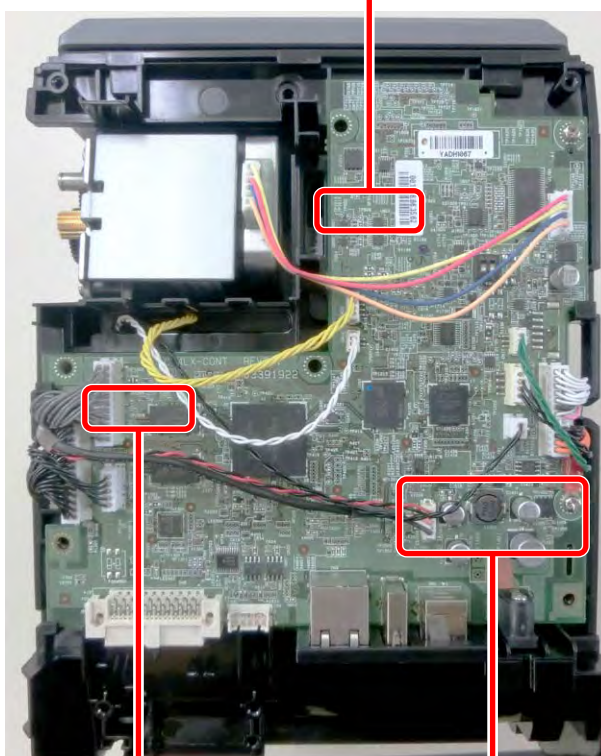
**B** Gap sensor/Label top sensor position 8 mm

## 2 Checking the Power Supply Voltage

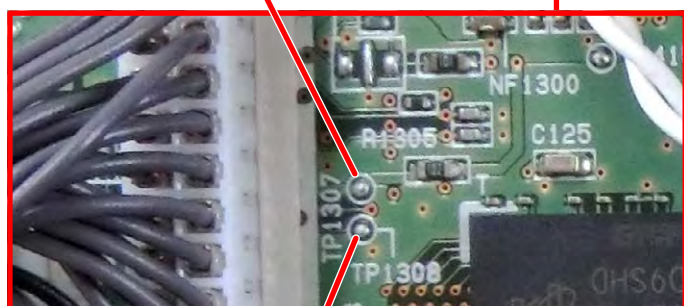
TP1013 (3.3 V)



TP1014 (3.3 V)

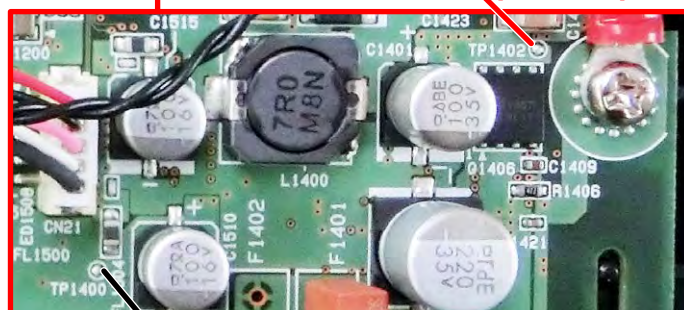


TP1307 (24.0 V)



TP1308 (5.0 V)

TP1402 (24.0 V)



TP1400 (GND)

### 3 Guidelines for replacing parts (Confidential)

#### Durability

Print head (Thermal head)	30 km
Platen roller	30 km
Motor (motor drive time)	3,000 hours
Sensors Conditions: Within the current and temperature specifications	15,000 hours
PCBs (CONT, PWR, IF, CUT, KB, HEAD, WLAN/Bluetooth)	15,000 hours
LCD	15,000 hours
AC adapter	15,000 hours
Coin battery (CR2032)	5 years
Cutter	300,000 times
Product life	150 km or 5 years

#### Precision of print position

Print start position (Media feed direction)	$\pm 1.5$ mm
Width direction position	$\pm 1.5$ mm
First print start position when the label waste prevention function is enabled. (Not affected by the light from outside)	$\pm 2.0$ mm

#### Expansion and contraction accuracy in printing

Continuous, Tear-off, Cutter, Dispenser	$\pm 1\%$
Linerless	$+1\%$ / $-6\%$

## Print mode

Continuous		Sensor enabled, Sensor disabled	
Tear-off		Sensor enabled, Sensor disabled	
Cutter		Sensor enabled/disabled	Motion 1 (Backfeed after printing) Motion 2 (Backfeed before printing) No backfeed
	Tear-off	Partial cut, backfeed enabled/disabled (default: disabled) * When backfeed is enabled, there must be no label after printing.	
Dispenser		Sensor enabled	Motion 1 (Backfeed after printing) Motion 2 (Backfeed before printing) No backfeed
Linerless			
	Tear-off	Sensor enabled/disabled	Motion 1 (Backfeed after printing)
	Cutter	Sensor enabled/disabled	Motion 1 (Backfeed after printing)

Media	

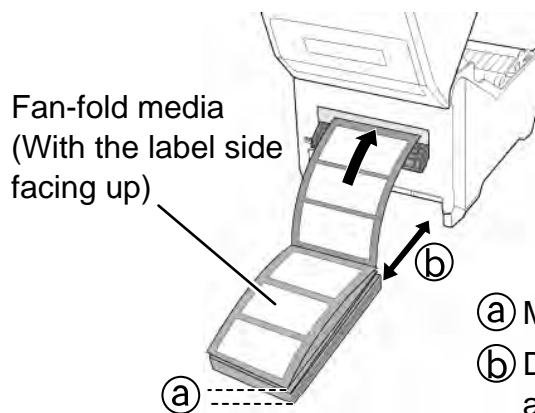
Media thickness (upper part media + liner)		80 to 190 µm (0.08 to 0.19 mm)
Continuous	Length	7 to 397 mm (10 to 400 mm, including the liner)
	Width	22 to 115 mm (25 to 118 mm, including the liner)
Tear-off	Length	22 to 397 mm (25 to 400 mm , including the liner) * When the media length is short, tear-off may not be possible by hand.
	Width	22 to 115 mm (25 to 118 mm, including the liner)
Cutter	Length	20 to 397 mm (23 to 400 mm, including the liner)
	Width	22 to 115 mm (25 to 118 mm, including the liner)
Cutter tear-off	Length	32 to 397 mm (35 to 400 mm, including the line) * When the media length is short, tear-off may not be possible by hand.
	Width	22 to 115 mm (25 to 118 mm, including the liner)

Dispenser	Length	20 to 397 mm (23 to 400 mm, including the liner) * When media length is 100 mm or more, the media may come in contact with the printer installation surface.
	Width	22 to 115 mm (25 to 118 mm, including the liner)
Linerless (Emulsion)	Length	25 to 100 mm * When media length is 100 mm or more, the media may come in contact with the printer installation surface.
	Width	25 to 110 mm
Linerless cutter (Emulsion)	Length	25 to 100 mm * When media length is 100 mm, the media may come in contact with the printer installation surface.
	Width	25 to 110 mm
Linerless cutter tear-off (Emulsion)	Length	41 to 100 mm * When media length is 100 mm, the media may come in contact with the printer installation surface.
	Width	25 to 110 mm
Non-adhesive label (Continuous)	Length	10 to 399 mm
	Width	25 to 118 mm
Non-adhesive label (Cutter)	Length	20 to 399 mm
	Width	25 to 118 mm
Non-adhesive label (Tear-off)	Length	25 to 399 mm * When the media length is short, tear-off may not be possible by hand.
	Width	25 to 118 mm
Media types		Media roll (face-out/face-in), Fan-fold * Wristband roll (face-out) * RFID roll (face-out)
Media forms		According to “Supply product specifications”

### Roll and core diameter sizes

Media roll (face-out/face-in)	Roll diameter	Maximum $\phi 128$ mm ( $\phi 5.0$ inches)
	Core inner diameter	$\phi 40$ mm ( $\phi 1.5$ inches)
Wristband roll (face-out)	Roll diameter	Maximum $\phi 115$ mm ( $\phi 4.5$ inches)
	Core inner diameter	$\phi 40$ mm ( $\phi 1.5$ inches)
RFID roll (face-out) Requires an adapter.	Roll diameter	Maximum $\phi 115$ mm ( $\phi 4.5$ inches)
	Core inner diameter	$\phi 76.2$ mm ( $\phi 3$ inches)

### Fan-fold media



- \* The height may be limited depending on where media is placed.
- \* When drawing the media from under the desk, not from the position on the same desk which the rear side of the product is placed, place the media so as not to obstruct the printing operation.
- \* Fan-fold media is not available in dispenser mode since the perforated line affects the dispenser function.

### Ribbon

Ribbon length	Maximum 100 m (maximum outer diameter: $\phi 39$ mm)
Ribbon width	45 to 111 mm (Core width : 45 mm, 76 mm, 111 mm)
Wind direction	face-out
Winding method	Winding on core
Ribbon core	No slit
Ribbon set position	Align with the center.
Ribbon types	According to "Supply product specifications"



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