Service Manual

For printer model:

CL4NX Plus
CL6NX Plus
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# Table of Contents

## 1 Introduction .......................................................................................... 5
  1.1 About This Manual ........................................................................ 5
  1.2 Safety Precautions ........................................................................ 5
  1.3 Parts Identification of the Product ................................................ 6
    1.3.1 Internal View with Left Housing Cover Removed ....................... 7

## 2 Operation and Configuration ......................................................... 9
  2.1 About Service Menu ...................................................................... 9
    2.1.1 Reset Passwords ..................................................................... 10
  2.2 Tools Menu Tree Structure ......................................................... 11
  2.3 Details of the Settings Menu Screen ............................................ 13
    2.3.1 Tools Menu ............................................................................ 13
  2.4 Initial Values in Service Menu ..................................................... 32
  2.5 Downloading Firmware ............................................................... 34

## 3 Troubleshooting ............................................................................. 35
  3.1 Troubleshooting Flowchart ......................................................... 35
    3.1.1 Power Problem ..................................................................... 35
    3.1.2 Feed Problem ....................................................................... 36
    3.1.3 Print Problem ....................................................................... 38
    3.1.4 Screen Problem .................................................................... 42
    3.1.5 Media Problem ..................................................................... 42
    3.1.6 Cutter Problem ..................................................................... 43
    3.1.7 Dispenser Problem ................................................................ 44

## 4 Checking and Adjusting the Product ........................................... 45
  4.1 Checking the Direct Current Power Voltage .................................. 46
  4.2 Counter Clear Mode ..................................................................... 48
  4.3 Checking and Adjusting the Media Sensor .................................... 50
    4.3.1 Auto-calibration .................................................................... 50
    4.3.2 Adjusting the Gap Sensor Sensitivity ..................................... 52
    4.3.3 Adjusting the Gap Sensor Slice Level .................................... 54
    4.3.4 Adjusting the I-mark Sensor Sensitivity ................................. 54
    4.3.5 Adjusting the I-mark Sensor Slice Level ............................... 56
  4.4 Test Print Check .......................................................................... 58
  4.5 Adjusting the Print Position ......................................................... 61
4.6 Adjusting the Media Stop/Cut Position........................................................... 62
4.7 Adjusting the Print Darkness........................................................................ 64
4.8 Checking the Ribbon End Function .............................................................. 65
4.9 Checking the Head Open Error.................................................................... 66
4.10 Checking the Label Near End Function....................................................... 67
4.11 Adjusting the Factory Pitch ......................................................................... 69
4.12 Adjusting the Factory Offset....................................................................... 71
4.13 Adjusting the Buzzer Volume.................................................................... 73
4.14 Adjusting the LCD Brightness................................................................... 75
4.15 Adjusting the Head Pressure Balance ......................................................... 76
   4.15.1 Adjusting the Head Pressure Balance with Adjustment Screw.............. 76
   4.15.2 Adjusting the Head Pressure Balance with Adjustment Dials............... 78
4.16 Adjusting the Head Alignment.................................................................... 80
4.17 Adjusting the Timing Belt Tension.............................................................. 81
4.18 Adjusting the Ribbon Tension...................................................................... 83
4.19 Adjusting the Position of the Media Sensor................................................ 84
4.20 Adjusting the Timing Belt Tension of the Optional Liner Rewinder............ 86

5 Replacement.................................................................................................... 89

5.1 Removing the Housing Cover....................................................................... 91
   5.1.1 Remove the Left Housing Cover.......................................................... 91
   5.1.2 Remove the Front Covers................................................................. 92
5.2 Replacing the Print Head............................................................................ 93
   5.2.1 Replacing the Print Head (without the Optional UHF RFID Antenna Installed)............ 93
   5.2.2 Replacing the Print Head (with the optional UHF RFID antenna-CL4NX Plus)....... 95
   5.2.3 Replacing the Print Head (with the optional UHF RFID antenna-CL6NX Plus)..... 98
5.3 Replacing the Platen Roller........................................................................ 101
   5.3.1 Replacing the Optional Linerless Platen Roller (CL4NX Plus Only)......... 103
5.4 Replacing the Media Sensor....................................................................... 104
5.5 Replacing the Main (CONT) PCB................................................................. 107
5.6 Replacing the Operator Panel (KB) PCB..................................................... 109
5.7 Replacing the NFC Antenna....................................................................... 110
5.8 Replacing the Power Supply Unit............................................................... 112
5.9 Replacing the Interface Board................................................................... 115
5.10 Replacing the FPGA PCB........................................................................ 116
5.11 Replacing the Timing Belt ................................................................. 117
5.12 Replacing the Head Open Sensor ..................................................... 118
5.13 Replacing the Ribbon Sensor ........................................................... 119
5.14 Replacing the Label Near End Sensor ............................................... 120
5.15 Replacing the Torque Limiter for Ribbon Rewind Spindle ............... 126
5.16 Replacing the Torque Limiter for Ribbon Supply Spindle ............... 127
5.17 Replacing the Torque Limiter for Optional Liner Rewinder ............. 129
5.18 Replacing the Timing Belt for Optional Liner Rewinder ................. 130
5.19 Replacing the Optional Cutter Unit / Linerless Cutter Unit (CL4NX Plus Only) ................................................................. 134
5.20 Replacing the Cutter PCB of the Optional Cutter Unit / Linerless Cutter Unit (CL4NX Plus Only) .................................................. 136
5.21 Replacing the Pressure Roller of the Optional Dispenser Unit .......... 137
  5.21.1 Removing the Dispenser Unit ....................................................... 137
  5.21.2 Replacing the Pressure Roller (CL4NX Plus) ............................. 138
  5.21.3 Replacing the Pressure Roller (CL6NX Plus) ............................. 141
5.22 Replacing the Torque Limiter of the Optional Dispenser Unit (CL4NX Plus Only) ................................................................. 144
5.23 Replacing the Optional Rotary Damper of Cover Damper .............. 145
  5.23.1 Measuring the Free-fall Time ...................................................... 145
  5.23.2 Replacing the Rotary Damper ..................................................... 146
5.24 Replacing the Optional Rotary Cutter Unit (CL4NX Plus only) ........ 148

6 Installing the Options ........................................................................ 153
6.1 Installing the Optional RTC (Real-time Clock) Kit ............................... 154
6.2 Installing the Optional Wireless LAN Kit ......................................... 156
  6.2.1 Installing the Optional Wireless LAN onto the Interface Combo Board 156
  6.2.2 Installing the Optional Wireless LAN Interface Board ................. 160
6.3 Installing the Optional Cutter ........................................................... 162
6.4 Installing the Optional Rotary Cutter (CL4NX Plus only) ................... 167
6.5 Installing the Optional Dispenser with Internal Rewinder ............... 175
6.6 Installing the Optional Linerless Kit (CL4NX Plus Only) ................. 195
6.7 Installation of the Optional RFID Kit ................................................. 204
  6.7.1 Installation of the Optional UHF RFID Kit ................................ 204
  6.7.2 Installation of the Optional HF RFID Kit (CL4NX Plus only) ....... 224
1.1 About This Manual

This service manual gives all the information necessary for you to adjust and repair the CL4NX Plus/CL6NX Plus (hereafter referred to as “the product”). This service manual is written only for SATO authorized service personnel. The information in this manual is confidential to general users. This service manual is used as an extension of the operator manual. For basic specification, installation, operation and configurations of the product, refer to the operator manual of the CL4NX Plus/CL6NX Plus.

1.2 Safety Precautions

For your safety and to protect valuable equipment, always read and follow all warnings, cautions and instructions carefully before you operate or repair the product.

Pictographic Symbols

The warning and caution symbols in this manual alert you of the information that you should follow. The symbol explanations are as follows.

<table>
<thead>
<tr>
<th>Warning</th>
<th>Caution</th>
</tr>
</thead>
<tbody>
<tr>
<td>!</td>
<td>!</td>
</tr>
<tr>
<td>The Warning symbol indicates that you can cause death or serious injury if you do not follow the instruction or procedure.</td>
<td>The Caution symbol indicates that you can cause injury or property damage if you do not follow the instruction or procedure.</td>
</tr>
</tbody>
</table>

⚠️ WARNING

- Always power off the product and disconnect the AC power cord from the outlet before you start any maintenance procedures. Perform maintenance procedures with the product power on could cause injury to people or damage to equipment. Power on the product only when you are instructed to do so.
- Wear a properly grounded static wrist strap when you perform maintenance procedures.
- Wear proper gloves when you perform maintenance procedures.
- Do not touch the printing element with your bare hand when you replace the print head.
- Hold the circuit board on the sides. Do not touch the components or bend the circuit board when you remove or install the circuit board.
- Do not touch the cutter with your hands, nor place objects into the cutter. Doing so could cause an injury.
- The print head will become hot after printing. Be careful not to touch it when replacing media or cleaning immediately after printing, to avoid being burned.

⚠️ CAUTION

RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.
1.3 Parts Identification of the Product

For the parts identification of the external view of the product, refer to Parts Identification of CL4NX Plus/CL6NX Plus operator manual.

Note
The pictures in this manual show the CL4NX Plus printer, unless otherwise stated.
1.3.1 Internal View with Left Housing Cover Removed

1. Optional EXT PCB board
   The optional EXT PCB is added when installing the optional RTC (Real Time Clock) kit, dispenser unit or RFID kit.

2. Power supply unit
   This is the power board, which is located behind the main (CONT) PCB. It contains the transformers, relays, etc., for transference of electrical current from the supply source to the control circuits.

3. Interface board

4. Main (CONT) PCB board
   The main (CONT) PCB is the primary brain center for all product activities.

5. Ribbon frame
   To support the ribbon supply spindle and ribbon rewind spindle.

6. Operator panel (KB) PCB board
   This PCB provides the user interaction functionality via the operational buttons and as well as the LCD.

7. Gearbox
   The stepper motor, timing belt and gears in the gearbox provide the main rotation motion for precise print positioning.

8. FPGA PCB board
   The FPGA (Field Programmable Gate Array) board is used as a TPH (Thermal Print Head) controller. It controls the general of printing such as print strobe and etc. The main purpose is for history control of printing.
1 Introduction
This is supplementary information to Product Settings of the CL4NX Plus/CL6NX Plus operator manual. For other detailed information on operation and configuration, refer to the CL4NX Plus/CL6NX Plus operator manual. In this chapter, we only explain the operation and configuration in the Service menu.

2.1 About Service Menu

In settings mode, the following menus show:

<table>
<thead>
<tr>
<th>Menu</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shortcut</td>
<td>Directly access frequently used settings.</td>
</tr>
<tr>
<td>Printing</td>
<td>Access the settings related to printing.</td>
</tr>
<tr>
<td>Interface</td>
<td>Access the settings related to the interfaces.</td>
</tr>
<tr>
<td>Applications</td>
<td>Access the settings related to the product command.</td>
</tr>
<tr>
<td>System</td>
<td>Access the settings related to the display language, buzzer volume etc.</td>
</tr>
<tr>
<td>Tools</td>
<td>Access the test print, initialization and other settings.</td>
</tr>
<tr>
<td>Information</td>
<td>Access the product information and help videos.</td>
</tr>
</tbody>
</table>

Note

The ![Icon] icon appears between the Information menu and Shortcut menu when the System > Regional > Display Language Icon menu is enabled. You can easily access the Language menu.

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.
When you select Service in the Tools menu, the product 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.

After a successful login, LOG OUT shows on the bottom left of the Settings menu screen. Press the left soft button if you want to log out immediately.

**Note**
If no button is pressed for about ten minutes after login, the login session will end automatically. Password is required to access the Service menu again.

### 2.1.1 Reset Passwords

If you have forgotten the customized password, you can reset it back to the default password.

1. Power off the product.

2. Press and release the 🔄 power button while pressing and holding the ☐ back button, ◀ and ► buttons simultaneously until the online/offline screen is shown.

   All the passwords are reset to their default values.

**Note**
This key sequence allows users to access the settings menu and the Service menu with the default passwords as a temporary solution.

After accessing with the default password, you must customize the password again in the System > Password > Change Password menu.

For more information about changing the password, refer to the CL4NX Plus/CL6NX Plus operator manual.
## 2.2 Tools Menu Tree Structure

The table below outlines only the tree structure for the **Service** menu in the **Tools** menu. Refer to the tree structure to understand where information is located in the **Tools** menu. Click on the items in blue to link directly to the details of the selected items.

<table>
<thead>
<tr>
<th>Tools</th>
<th>Submenus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Print</td>
<td></td>
</tr>
<tr>
<td>HEX-Dump</td>
<td></td>
</tr>
<tr>
<td>Reset</td>
<td></td>
</tr>
<tr>
<td>Profiles</td>
<td></td>
</tr>
<tr>
<td><strong>Service</strong></td>
<td><strong>RFID</strong></td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
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<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>NFC Mode</strong></td>
<td><strong>WiFi Ex-Setting</strong></td>
</tr>
<tr>
<td></td>
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<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Reset</td>
<td><strong>Select</strong></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Maintenance</td>
<td><strong>Printer Serial</strong></td>
</tr>
<tr>
<td></td>
<td><strong>USB Serial</strong></td>
</tr>
<tr>
<td>Position Check</td>
<td><strong>Enable</strong></td>
</tr>
<tr>
<td></td>
<td><strong>+ Check Value</strong></td>
</tr>
<tr>
<td></td>
<td><strong>- Check Value</strong></td>
</tr>
</tbody>
</table>
## Tools

<table>
<thead>
<tr>
<th>Submenus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factory Offset</td>
</tr>
<tr>
<td>Factory Pitch</td>
</tr>
<tr>
<td>Check SOS Communication</td>
</tr>
<tr>
<td>Copy SOS DebugLog</td>
</tr>
<tr>
<td>Factory</td>
</tr>
<tr>
<td>Certificates</td>
</tr>
<tr>
<td>Barcode Checker</td>
</tr>
<tr>
<td>Clone</td>
</tr>
<tr>
<td>Support Info</td>
</tr>
<tr>
<td>Startup Guide</td>
</tr>
</tbody>
</table>
## 2.3 Details of the Settings Menu Screen

### 2.3.1 Tools Menu

The following settings are available in the **Tools** menu:

<table>
<thead>
<tr>
<th>No.</th>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Test Print</td>
<td>Perform a test print.</td>
</tr>
<tr>
<td>2</td>
<td>HEX-Dump</td>
<td>Save the hex dump print data or dump data from the receive buffer to the USB memory.</td>
</tr>
<tr>
<td>3</td>
<td>Reset</td>
<td>Initialize the settings and counters on the product.</td>
</tr>
<tr>
<td>4</td>
<td>Profiles</td>
<td>Save the product’s settings as a profile to be loaded as needed.</td>
</tr>
<tr>
<td>5</td>
<td>Service</td>
<td>These are the setting items for service. Strictly for SATO authorized service personnel use.</td>
</tr>
<tr>
<td>6</td>
<td>Factory</td>
<td>These are the setting items for factory. Strictly for SATO factory personnel use.</td>
</tr>
<tr>
<td>7</td>
<td>Certificates</td>
<td>Set the wireless LAN authentication. * Available only if you have installed the USB memory.</td>
</tr>
<tr>
<td>8</td>
<td>Barcode Checker</td>
<td>Set the barcode check function using a barcode checker.</td>
</tr>
<tr>
<td>9</td>
<td>Clone</td>
<td>Copy the current product settings and data to the USB memory. * Available only if you have installed the USB memory.</td>
</tr>
<tr>
<td>10</td>
<td>Support Info</td>
<td>Save various information about the product in a text file to the USB memory. * Available only if you have installed the USB memory.</td>
</tr>
<tr>
<td>11</td>
<td>Logging Function</td>
<td>Save the log data.</td>
</tr>
<tr>
<td>12</td>
<td>Startup Guide</td>
<td>Enable or disable the startup guide.</td>
</tr>
</tbody>
</table>
## Service

**Tools > Service**

These are the setting items for SATO authorized service personnel used only. The setting items are as follows:

<table>
<thead>
<tr>
<th>No.</th>
<th>Setting Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>RFID</td>
<td>Set the functions for RFID. * Shows only if you have installed the optional RFID kit.</td>
</tr>
<tr>
<td>2</td>
<td>NFC Mode</td>
<td>Allow you to use NFC function.</td>
</tr>
<tr>
<td>3</td>
<td>Hide Help Videos</td>
<td>Select the guidance video that you do not wish to show on the Information &gt; Help screen.</td>
</tr>
<tr>
<td>4</td>
<td>WiFi Ex-Setting</td>
<td>Set the advanced functions for the wireless LAN. * Shows only if you have installed the optional wireless LAN.</td>
</tr>
<tr>
<td>5</td>
<td>Reset</td>
<td>Initialize the settings and counter information of this product.</td>
</tr>
<tr>
<td>6</td>
<td>Maintenance</td>
<td>Set the Printer Serial or USB Serial manually.</td>
</tr>
<tr>
<td>7</td>
<td>Position Check</td>
<td>Check the offset position of the label and show the error.</td>
</tr>
<tr>
<td>8</td>
<td>Factory Offset</td>
<td>Adjust the offset position.</td>
</tr>
<tr>
<td>9</td>
<td>Factory Pitch</td>
<td>Adjust the vertical print position.</td>
</tr>
<tr>
<td>10</td>
<td>Check SOS Communication</td>
<td>Check the SOS communication. * Shows only if you have installed the USB memory and you have selected Real-Time in the SOS Mode menu.</td>
</tr>
<tr>
<td>11</td>
<td>Copy SOS DebugLog</td>
<td>Copy the SOS debug log data to the USB memory. * Shows only if you have installed the USB memory.</td>
</tr>
</tbody>
</table>
RFID

Tools > Service > RFID
Set the functions for RFID.
Shows if you have installed the optional RFID kit.
The setting items are as follows:

<table>
<thead>
<tr>
<th></th>
<th>RFID mode</th>
<th>Enable or disable the RFID mode.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Module</td>
<td>Show the type of RFID module installed on the product.</td>
</tr>
</tbody>
</table>
| 3 | Region    | Set the region where you use the product.
* Shows only when you have installed the UHF RFID module. |
| 4 | Inventory Check | Enable or disable the inventory check function.
* Shows only if you have installed the UHF RFID module. |
| 5 | Inventory Timeout | Set the timeout period of the inventory check.
* Shows only when you have installed the UHF RFID module. |
| 6 | Verify    | Enable or disable the verification of data written on the tag. |
| 7 | PREND Type 3/4 | Set the external output signal of the PREND. |
| 8 | SRA Setting | Configure the detailed settings when executing SRA (SATO RF Analyze) and check the antenna (coupler) operation.
* Shows only when you have installed the SRA available RFID module. |

RFID mode

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

The options are as follows:
* Enabled: Enable the RFID mode.
* Disabled: Disable the RFID mode.
Module
Tools > Service > RFID > Module
Shows the type of RFID module installed on the product.

Region
Tools > Service > RFID > Region
Set the region where you use the product.
Shows only when you have installed the UHF RFID module.
Select the region (frequency band) where you use the product from the list.

Inventory Check
Tools > Service > RFID > Inventory Check
Enable or disable the inventory check function. Shows only when you have installed the UHF RFID module.
The options are as follows:
- **Enabled**: Perform the inventory check of the RFID tag. The product checks the taken tag number before writing to/read from the tag. An error occurs when the number is other than one.
- **Disabled**: Do not perform the inventory check of the RFID tags.
### Inventory Timeout

*Tools > Service > RFID > Inventory Timeout*

Set the timeout period of the inventory check. Shows only if you have installed the UHF RFID module.
The options are as follows:

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

![Inventory Timeout](image)

### Verify

*Tools > Service > RFID > Verify*

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

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

![Verify](image)
PREND Type 3/4

Tools > Service > RFID > PREND Type 3/4

Set the output content of the external signal PREND (Print Done). Reflect the timing of write (stop media feed) of RFID tag to the TYPE3 and TYPE4 waveforms of PREND (Print End) signal.

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

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

**The timing chart when writing to tag**

<table>
<thead>
<tr>
<th>Item</th>
<th>Output Waveform</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Print start</td>
</tr>
<tr>
<td>Normal</td>
<td></td>
</tr>
<tr>
<td>Normal Setting</td>
<td>Print motion</td>
</tr>
<tr>
<td></td>
<td>Print Done</td>
</tr>
<tr>
<td>TYPE 1</td>
<td></td>
</tr>
<tr>
<td>TYPE 2</td>
<td></td>
</tr>
<tr>
<td>TYPE 3</td>
<td></td>
</tr>
<tr>
<td>TYPE 4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Feed media</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item</th>
<th>Output Waveform</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Print start</td>
</tr>
<tr>
<td>Motion</td>
<td></td>
</tr>
<tr>
<td>Motion Setting</td>
<td>Print motion</td>
</tr>
<tr>
<td></td>
<td>Print Done</td>
</tr>
<tr>
<td>TYPE 1</td>
<td></td>
</tr>
<tr>
<td>TYPE 2</td>
<td></td>
</tr>
<tr>
<td>TYPE 3</td>
<td></td>
</tr>
<tr>
<td>TYPE 4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Feed media</td>
</tr>
</tbody>
</table>
### SRA Setting

**Tools > Service > RFID > SRA Setting**

Configure the detailed settings when executing SRA (SATO RF Analyze) and check the antenna (coupler) operation.

Shows only when you have installed the SRA available RFID module.

The setting items are as follows:

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SRA</td>
<td>Enable or disable the functions for SRA. Shows only if you have installed the UHF RFID module.</td>
</tr>
<tr>
<td>2</td>
<td>Label Pitch</td>
<td>Obtain the pitch size of the RFID label. Shows only if you have installed the UHF RFID module.</td>
</tr>
<tr>
<td>3</td>
<td>Antenna Operation Check</td>
<td>Check the motor operation of the normal position antenna.</td>
</tr>
<tr>
<td>4</td>
<td>Move Antenna Position</td>
<td>Adjust the position of the normal antenna manually. Shows only if you have installed the UHF RFID module.</td>
</tr>
</tbody>
</table>

### SRA

**Tools > Service > RFID > SRA Setting > SRA**

Enable or disable the functions for SRA. The options are as follows:

- **Enabled**: Enable the SRA function.
- **Disabled**: Disable the SRA function.

### Label Pitch

**Tools > Service > RFID > SRA Setting > Label Pitch**

Obtain the pitch size of the RFID label. The setting items are as follows:

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Auto Label Measure</td>
<td>Enable or disable automatic obtaining of the pitch size of the RFID label.</td>
</tr>
</tbody>
</table>
| 2 | Pitch Size | When the **Auto Label Measure** is disabled, set the pitch size. The setting range is as follows:  
  - **203 dpi**: 8 to 1920 dot (1 to 240 mm)  
  - **305 dpi**: 12 to 2880 dot (1 to 240 mm)  
  - **609 dpi**: 24 to 5760 dot (1 to 240 mm) |
## Antenna Motion Check

**Tools > Service > RFID > SRA Setting > Antenna Operation Check**

Check whether to perform the motor operation check for the normal position antenna.

### Move Antenna Position

**Tools > Service > RFID > SRA Setting > Move Antenna Position**

Adjust the position of the normal antenna manually.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Antenna X Pos.</td>
<td>Set the position to move the antenna in the X direction. The setting range is as follows: • 0 to 36 mm (by 1 mm)</td>
</tr>
<tr>
<td>2</td>
<td>Antenna Y Pos.</td>
<td>Set the position to move the antenna in the Y direction. The setting range is as follows: • 0 to 30 mm (by 1 mm)</td>
</tr>
<tr>
<td>3</td>
<td>Move Antenna</td>
<td>Check whether to move the antenna to the set value.</td>
</tr>
</tbody>
</table>

## NFC Mode

**Tools > Service > NFC Mode**

Enable the NFC (Near Field Communication) function.
Hide Help Videos

*Tools > Service > Hide Help Videos*

Select the guidance video that you do not wish to show on the Information > Help screen. The items with a check mark on the right are the selected videos that will not show on the Help screen.

WiFi Ex-Setting

*Tools > Service > WiFi Ex-Setting*

Set the advanced functions for the wireless LAN. Shows only if you have installed the optional wireless LAN. *Shows only if the wireless LAN module is W-LAN. The installed wireless LAN module is displayed in Wi-Fi Module in the Information menu.

The setting items are as follows:

1. **Wi-Fi Region**
   - Set the region of the wireless LAN.

2. **Wi-Fi-Direct**
   - Enable or disable the WiFi-Direct function.

3. **Wi-Fi Roam Adjust**
   - Adjust the threshold level for low RSSI roaming of the wireless LAN.

4. **BadAP-list**
   - Enable or disable BadAP-list.

5. **Supplicant Timeout**
   - Set a period of time for the EAP authentication timeout.

6. **SSID Connect Delay**
   - This feature is not supported.

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

8. **AP scan Interval**
   - Set the interval for scanning access points.

9. **Back scan**
   - Enable or disable the back scan function.

Wi-Fi Region

*Tools > Service > WiFi Ex-Setting > Wi-Fi Region*

Set the region of the wireless LAN. Shows only if you have installed the optional wireless LAN. Select the region (frequency band) from the list.

**Note**

- Do not set to a region other than where the product is to be used.
- The setting will be effective after you power on the product again.
**WiFi-Direct (only if the wireless LAN module is W-LAN)**

*Tools > Service > WiFi Ex-Setting > WiFi-Direct*

Enable or disable the WiFi-Direct function. Shows only if you have installed the optional wireless LAN. When **WiFi-Direct** is set to **Enabled**, **Interface > Network > Settings > Wi-Fi > Wi-Fi Direct** becomes available. The options are as follows:

- **Enabled**: Enable the WiFi-Direct function.
- **Disabled**: Disable the WiFi-Direct function.

**Note**
The setting will be effective after you power on the product again.

---

**Wi-Fi Roam Adjust**

*Tools > Service > WiFi Ex-Setting > Wi-Fi Roam Adjust*

Adjust the threshold level for low RSSI roaming of the wireless LAN. Shows only if you have installed the optional wireless LAN. The setting items are as follows:

1. **Enable**: Enable or disable the Wi-Fi roaming adjustment.
2. **Roam Threshold**: Set the Wi-Fi roaming threshold level.

---

**Enable**

*Tools > Service > WiFi Ex-Setting > Wi-Fi Roam Adjust > Enable*

Enable or disable the Wi-Fi roaming adjustment. Shows only if you have installed the optional wireless LAN. The options are as follows:

- **Enabled**: Enable the Wi-Fi roaming adjustment.
- **Disabled**: Do not enable the Wi-Fi roaming adjustment.

**Note**
- The setting will be effective after you power on the product again.
- **Wi-Fi Direct** will be disabled if this adjustment is enabled. (only if the wireless LAN module is W-LAN)
Roam Threshold

Tools > Service > WiFi Ex-Setting > Wi-Fi Roam Adjust > Roam Threshold

Set the RSSI roaming threshold level. Shows only if you have installed the optional wireless LAN. The setting range is from -95 to -40 dBm.

Note (only if the wireless LAN module is W-LAN)
A higher value will make the product roam more often while a lower value will make the product more reluctant to roam. The roaming is disabled if set to -95 dBm but the product will change AP if the current AP is out of range or powered off.

BadAP-list (only if the wireless LAN module is W-LAN)

Tools > Service > WiFi Ex-Setting > BadAP-list

Enable or disable BadAP-list. Shows only if you have installed the optional wireless LAN. The options are as follows:
- **Enabled**: Enable BadAP-list.
- **Disabled**: Disable BadAP-list.

Supplicant Timeout

Tools > Service > WiFi Ex-Setting > Supplicant Timeout

Set a period of time for the EAP authentication timeout. Shows only if you have installed the optional wireless LAN. The options are as follows:
- **5sec**
- **30sec**
SSID Connect Delay (only if the wireless LAN module is W-LAN)

Tools > Service > WiFi Ex-Setting > SSID Connect Delay

This feature is not supported.

KeepAlive

Tools > Service > WiFi Ex-Setting > KeepAlive

Set the interval for sending a KeepAlive packet to a connected device. Shows only if you have installed the optional wireless LAN. The options are as follows:
- 5sec
- 30sec
- 60sec

AP scan Interval

Tools > Service > WiFi Ex-Setting > AP scan Interval

Set the interval for scanning access points. Shows only if you have installed the optional wireless LAN. The options are as follows:
- 15sec
- 30sec
- 60sec

Back scan (only if the wireless LAN module is W-LAN)

Tools > Service > WiFi Ex-Setting > Back scan

This is a scan for roaming wireless LAN. When the function is disabled, roaming does not work. The options are as follows:
- Enabled
- Disabled
## Reset

*Tools > Service > Reset*

Initialize the configuration or counter of the product. The setting items are as follows:

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Select</td>
<td>Select the items to be initialized.</td>
</tr>
<tr>
<td>2</td>
<td>Counters</td>
<td>Select the counter information to be initialized.</td>
</tr>
</tbody>
</table>

## Select

*Tools > Service > Reset > Select*

Select the items to be initialized. The setting items are as follows:

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Data</td>
<td>Initialize the data saved in the product.</td>
</tr>
<tr>
<td>2</td>
<td>Data &amp; Settings</td>
<td>Initialize the data and setting values of the product.</td>
</tr>
<tr>
<td>3</td>
<td>Settings</td>
<td>Initialize the setting values of the product.</td>
</tr>
</tbody>
</table>

## Data

*Tools > Service > Reset > Select > Data*

Initialize the data saved in the product. The data to be initialized are the fonts and graphics registered in the product.

When you select **Data**, the confirmation screen shows.

Press the left soft button to cancel or right soft button to perform the initialization.

The product will restart after reset.

**CAUTION**

It is generally not necessary to perform the initialization. Doing so could change the print conditions.
## Data & Settings

*Tools > Service > Reset > Select > Data & Settings*

Initialize the data and setting values of the product. Select the setting items to be initialized. The options are as follows:

- **User Reset**: Initialize the data and setting values.
- **User Reset (-Interface)**: Initialize the data and setting values that are not included in the *Interface* menu.
- **Factory Reset**: Initialize to the status after factory shipment.
- **Factory Reset (-Interface)**: Initialize the items that are not included in the *Interface* menu to the status after factory shipment.
- **Interface**: Initialize the data and setting values in the *Interface* menu.
- **Printing**: Initialize the data and setting values in the *Printing* menu.

Select the item to be initialized using the ▲/▼ buttons, then press the right soft button to perform the initialization. The confirmation screen shows. Press the left soft button to cancel or right soft button to perform the initialization. The product will restart after reset.

Refer to **List of Initial Values** of the CL4NX Plus/CL6NX Plus operator manual and **Section 2.4 Initial Values in Service Menu** of this manual for the initial value of each setting item.

### Note

The data to be initialized are the fonts and graphics registered in the product.
Settings

Tools > Service > Reset > Select > Settings

Select the setting items to be initialized.
The options are as follows:
- **User Reset**: Initialize the setting values.
- **User Reset (-Interface)**: Initialize the setting values that are not included in the Interface menu.
- **Factory Reset**: Initialize to the status after factory shipment.
- **Factory Reset (-Interface)**: Initialize the items that are not included in the Interface menu to the status after factory shipment.
- **Interface**: Initialize the setting values in the Interface menu.
- **Printing**: Initialize the setting values in the Printing menu.

Select the item to be initialized using the ▲/▼ buttons, then press the right soft button to perform the initialization.
The confirmation screen shows.
Press the left soft button to cancel or right soft button to perform the initialization.
After reset, if a message prompting you to restart the product appears on the Online/Offline screen, restart the product to apply the settings.

Refer to List of Initial Values of the CL4NX Plus/CL6NX Plus operator manual and Section 2.4 Initial Values in Service Menu of this manual for the initial value of each setting item.

Counters

Tools > Service > Reset > Counters

Select the counter information to be initialized.
The options are as follows:
- **Head**: Initialize the head counter (media feed distance).*
- **Cutter**: Initialize the cutter counter (number of cuts).

Select the item to be initialized using the ▲/▼ buttons, then press the right soft button to perform the initialization.
The confirmation screen shows.
Press the left soft button to cancel or right soft button to perform the initialization.

Note
When using the smart print head, the head counter information is not be initialized after reset. The head counter information saved in the memory of the smart print head will be recalled when you restart the product.
### Maintenance

**Tools > Service > Maintenance**

Set the Printer Serial or USB Serial manually. The setting items are as follows:

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Printer Serial Manually enter the serial number of the product after replacing the main (CONT) PCB.</td>
</tr>
<tr>
<td>2</td>
<td>USB Serial Manually enter the USB serial number. *Available only if you have set the Interface &gt; USB &gt; Change USB Serial menu to Enabled.</td>
</tr>
</tbody>
</table>

### Printer Serial

**Tools > Service > Maintenance > Printer Serial**

Manually enter the serial number of the product after replacing the main (CONT) PCB.

### USB Serial

**Tools > Service > Maintenance > USB Serial**

Change the USB serial number. Available only if you have set the Interface > USB > Change USB Serial menu to Enabled.

Replacing the main (CONT) PCB makes the PC recognizes that a new product is installed and connected, and users will be prompted to install the USB device. To avoid being prompted to install the USB device, change the USB serial number back to the previous USB serial number of the old board.

You can enter 8 characters including alphabet (capital and small letters), numbers and symbols.

**CAUTION**

If two products that have the same USB serial connected to the same PC, it may cause the PC to show blue screen error.
Position Check

Tools > Service > Position Check

Measure the distance between two I-marks (Gaps) after the product is powered on, after the print head is open, or after an error occurs. An error is shown if the distance between I-marks (Gaps) measured later is longer or shorter than the set value.

The setting items are as follows:

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Enable</td>
<td>Enable or disable the position check.</td>
</tr>
<tr>
<td>2</td>
<td>+ Check Value</td>
<td>Set the tolerable offset range opposite the feed direction.</td>
</tr>
<tr>
<td>3</td>
<td>- Check Value</td>
<td>Set the tolerable offset range in the feed direction.</td>
</tr>
</tbody>
</table>

Note

- To use this function, the Check Media Size in Advanced under Printing menu must be disabled.
- When error occurs, open/close the print head and feed the label two times to clear the error.
- The product performs the position check to the last label that passes through the media sensor. Therefore, the position check may not be performed to printed or ejected media if the media length is short. The minimum media length is 70 mm.

Enable

Tools > Service > Position Check > Enable

Enable or disable the position check.

The options are as follows:
- **Enabled**: Enable the position check.
- **Disabled**: Do not enable the position check.

+ Check Value

Tools > Service > Position Check > + Check Value

Set the tolerable offset range opposite the feed direction.

The setting range is as follows:

- 203 dpi: 0 to 40 dots
- 305 dpi: 0 to 60 dots
- 609 dpi: 0 to 120 dots

Media error will not be prompted if the offset is within the set range.
- Check Value

Tools > Service > Position Check > - Check Value

Set the tolerable offset range in the feed direction.
The setting range is as follows:
The setting range varies depending on the print resolution of the product.
• 203 dpi: 0 to 40 dots
• 305 dpi: 0 to 60 dots
• 609 dpi: 0 to 120 dots

Media error will not be prompted if the offset is within the set range.

Factory Offset

Tools > Service > Factory Offset

This is the factory default setting of the offset position.
The offset position refers to the tear-off position, cut position, and dispense stop position.
When you decrease the offset value, the stop/cut position moves in the feed direction.
When you increase the offset value, the stop/cut position moves opposite the feed direction.

The setting range is from -99 to 0 to 99 dots.

Note
• The total of the factory offset value in the Service menu and the offset value in the Printing menu will be applied as the offset position.
• Changing the factory offset value in the Service menu changes the factory default offset value.

Factory Pitch

Tools > Service > Factory Pitch

This is the factory default setting of the print position.
This item adjusts the vertical print position.
When you decrease the setting value, the print position moves in the feed direction.
When you increase the setting value, the print position moves opposite the feed direction.

The setting range is from -99 to 0 to 99 dots.

Note
• The total of the factory pitch value in the Service menu and the pitch value in the Printing menu will be applied as the vertical print position.
• Changing the factory pitch value in the Service menu changes the factory default value.
Check SOS Communication

*Tools > Service > Check SOS Communication*

Check the SOS communication. Shows only if you have installed the USB memory and you have selected Real-Time in the SOS Mode menu.

Copy SOS DebugLog

*Tools > Service > Copy SOS DebugLog*

Copy the SOS debug log data to the USB memory. Shows only if you have installed the USB memory.
## 2.4 Initial Values in Service Menu

The initial value of the service items are as follows:

<table>
<thead>
<tr>
<th>Setting Item</th>
<th>Initial Value</th>
<th>User Reset</th>
<th>Factory Reset</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service</td>
<td>―</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>RFID</td>
<td>―</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>RFID Mode</td>
<td>Enabled</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Module</td>
<td>―</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Region</td>
<td>United States</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Inventory Check</td>
<td>Enabled</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Inventory Timeout</td>
<td>100ms</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Verify</td>
<td>Enabled</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>PREND TYPE 3/4</td>
<td>Normal</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>SRA Setting</td>
<td>―</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>SRA</td>
<td>Enabled</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Label Pitch</td>
<td>―</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Auto Label Measure</td>
<td>Enabled</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Pitch Size</td>
<td>203dpi : 8dot(1mm)</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>305dpi : 12dot(1mm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>609dpi : 24dot(1mm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Antenna Operation Check</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Move Antenna Position</td>
<td>―</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Antenna X Pos.</td>
<td>14mm</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Antenna Y Pos.</td>
<td>5mm</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Move Antenna</td>
<td>―</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>NFC Mode</td>
<td>Enabled</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Hide Help Videos</td>
<td>―</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>WiFi Ex-Setting</td>
<td>―</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Wi-Fi Region</td>
<td>World Mode</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>WiFi-Direct (only if the wireless LAN module is W-LAN)</td>
<td>Disabled</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Wi-Fi Roam Adjust</td>
<td>―</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Enable</td>
<td>Disabled</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Roam Threshold</td>
<td>-80</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Setting Item</td>
<td>Initial Value</td>
<td>User Reset</td>
<td>Factory Reset</td>
</tr>
<tr>
<td>----------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>------------</td>
<td>---------------</td>
</tr>
<tr>
<td>BadAP-list (only if the wireless LAN module is W-LAN)</td>
<td>Enabled</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Supplicant Timeout</td>
<td>30sec</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>SSID Connect Delay (only if the wireless LAN module is W-LAN)</td>
<td>Enabled</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>KeepAlive</td>
<td>60sec</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>AP scan Interval</td>
<td>60sec</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Back scan (only if the wireless LAN module is W-LAN)</td>
<td>Enabled</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Reset</td>
<td>Enabled</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Select</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Counters</td>
<td>—</td>
<td>No</td>
<td>Yes, not life</td>
</tr>
<tr>
<td>Maintenance</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Printer Serial</td>
<td>—</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>USB Serial</td>
<td>00000000</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Position Check</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Enable</td>
<td>Disabled</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>+ Check Value</td>
<td>203 dpi: 40 dot 305 dpi: 60 dot 609 dpi: 120 dot</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>- Check Value</td>
<td>203 dpi: 40 dot 305 dpi: 60 dot 609 dpi: 120 dot</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Factory Offset</td>
<td>0 dot</td>
<td>No</td>
<td>—</td>
</tr>
<tr>
<td>Factory Pitch</td>
<td>0 dot</td>
<td>No</td>
<td>—</td>
</tr>
<tr>
<td>Check SOS Communication</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Copy SOS DebugLog</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>
2.5 Downloading Firmware

You can easily use the USB thumb drive memory to download the firmware.

⚠️ CAUTION

Be sure to perform a virus check on the USB memory before connecting it to the product. SATO Corporation shall not be held responsible for any product malfunctions caused by a virus spread via USB memory.

1. Save the pkg-file to the USB thumb drive memory.

2. Press the ⚪️ power button on the operator panel until the LED lights blue to power on the product.

3. Insert the USB thumb drive memory into the USB connector (Type A).
   The Install package? screen shows.

   **Note**
   You can use either front or rear USB connector (Type A).

4. Press the right soft button to start downloading the firmware package.
   The Password screen shows if USB or Always is selected in the Install Security menu.
   Enter the password used for level1 or manager to proceed downloading the firmware package.

5. The product starts to prepare and download the firmware to the product.
   The Updating screen shows the status of the process and a warning message.
   Do not power off the product and do not remove the USB memory while the product is updating.

6. After the update process is completed, the product restarts.
   You can remove the USB memory and insert into another printer for downloading.
   • If the USB is removed, no more messages are shown. The product enters online mode.
   • If the USB is still in the product and the firmware is updated, the Install package screen shows again.
     Press the left soft button and remove the USB memory from the product. The product enters offline mode.
3 Troubleshooting

You can first refer to Troubleshooting of CL4NX Plus/CL6NX Plus operator manual to identify the cause of errors or problems with the printer. If you cannot find the solution to the problem, continue with the following troubleshooting flowchart.

### 3.1 Troubleshooting Flowchart

When a problem occurs, you can easily trace the solution with the following troubleshooting flowcharts. For each problem, the chart shows its symptoms, possible causes, and suggested corrective actions. Click on the blue links in the flowchart to go directly to the details of the corrective actions.

#### 3.1.1 Power Problem

<table>
<thead>
<tr>
<th>Category</th>
<th>Symptom</th>
<th>Cause</th>
<th>Remedy</th>
<th>Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power</td>
<td>No power supply</td>
<td>Is the power cord connected?</td>
<td>Connect the power cord correctly</td>
<td>Refer to 4.1 Checking the Direct Current Power Voltage</td>
</tr>
<tr>
<td></td>
<td></td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Is DC power voltage (5V) OK?</td>
<td>Check DC power voltage (5V)</td>
<td>Replace the power supply unit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NO</td>
<td>NO</td>
<td>Refer to 5.8 Replacing the Power Supply Unit</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check DC power voltage (3.3V, 1.8V, 1.26V)</td>
<td>Replace the main (CONT) PCB</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Refer to 5.5 Replacing the Main (CONT) PCB</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Refer to 4.1 Checking the Direct Current Power Voltage</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Replace the operator panel (KB) PCB</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Refer to 5.6 Replacing the Operator Panel (KB) PCB</td>
<td></td>
</tr>
</tbody>
</table>
### 3.1.2 Feed Problem

<table>
<thead>
<tr>
<th>Category</th>
<th>Symptom</th>
<th>Cause</th>
<th>Remedy</th>
<th>Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feeding</td>
<td>Cannot feed media</td>
<td>Is DC power voltage (24V) OK?</td>
<td>Check DC power voltage (24V) NO</td>
<td>Replace the power supply unit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NO</td>
<td></td>
<td>Refer to 4.1 Checking the Direct Current Power Voltage</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Is the media loaded correctly?</td>
<td>Load the media correctly</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>NO</td>
<td>Select the correct sensor type</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Is the sensor type correct?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>YES</td>
<td>Select the correct sensor type</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>NO</td>
<td>Clean the platen roller</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>YES</td>
<td>Make sure that the connections are correct</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>NO</td>
<td>Replace the platen roller</td>
<td>Refer to 5.3 Replacing the Platen Roller</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Does the platen roller rotate properly?</td>
<td>Replace the platen roller</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>YES</td>
<td>Replace the motor</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>NO</td>
<td>Replace the main (CONT) PCB</td>
<td>Refer to 5.5 Replacing the Main (CONT) PCB</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Are the cable connections OK?</td>
<td>Replace the power supply unit</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>YES</td>
<td>Cannot resolve</td>
<td></td>
</tr>
</tbody>
</table>

Refer to 4.1 Checking the Direct Current Power Voltage
Refer to 5.3 Replacing the Platen Roller
Refer to 5.5 Replacing the Main (CONT) PCB
## Troubleshooting

### Feeding

<table>
<thead>
<tr>
<th>Category</th>
<th>Symptom</th>
<th>Cause</th>
<th>Remedy</th>
<th>Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feeding</td>
<td>Does not stop at specified position</td>
<td>Is the sensor type correct?</td>
<td>Select the correct sensor type</td>
<td>Replace the main (CONT) PCB</td>
</tr>
<tr>
<td></td>
<td></td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>NO</td>
<td></td>
<td>Refer to 5.4 Replacing the Main (CONT) PCB</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Is the sensor level correct?</td>
<td>Adjust the I-mark, Gap sensor level</td>
<td>Replace the I-mark, Gap PCB</td>
</tr>
<tr>
<td></td>
<td></td>
<td>YES</td>
<td></td>
<td>Refer to 5.3 Checking and Adjusting the Media Sensor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NO</td>
<td></td>
<td>Replace the Media Sensor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Replace the sensor cable</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Replace the Media Sensor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Replace the main (CONT) PCB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Refer to 5.5 Replacing the Main (CONT) PCB</td>
</tr>
</tbody>
</table>
### 3.1.3 Print Problem

<table>
<thead>
<tr>
<th>Category</th>
<th>Symptom</th>
<th>Cause</th>
<th>Remedy</th>
<th>Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Printing</td>
<td>Printing does not start</td>
<td>Is the interface cable connected? NO</td>
<td>Connect the interface cable</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Is the interface setting correct? NO</td>
<td>Correct the interface settings</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Is the data input correct? NO</td>
<td>Input the data again</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>YES</td>
<td>Check on the Feeding problem</td>
<td>Refer to 3.1.2 Feed Problem</td>
</tr>
<tr>
<td></td>
<td>Blank media are issued</td>
<td>Is the data input correct? NO</td>
<td>Input the data again</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Is the print head cable connected? NO</td>
<td>Connect the print head cable in power off mode</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>YES</td>
<td>Replace the print head</td>
<td>Refer to 5.2 Replacing the Print Head</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Cannot resolve</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Replace the main (CONT) PCB</td>
<td>Refer to 5.5 Replacing the Main (CONT) PCB</td>
</tr>
<tr>
<td>Category</td>
<td>Symptom</td>
<td>Cause</td>
<td>Remedy</td>
<td>Maintenance</td>
</tr>
<tr>
<td>-------------------</td>
<td>----------------------------------</td>
<td>------------------------------</td>
<td>---------------------------------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>Defective print</td>
<td>Printing is too dark</td>
<td></td>
<td>Adjust the print darkness</td>
<td>Refer to 4.7 Adjusting the Print Darkness</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Printing is too light</td>
<td>Is the darkness setting correct?</td>
<td>Adjust the print darkness</td>
<td>Refer to 4.7 Adjusting the Print Darkness</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Part of the printing is missing</td>
<td>Is the print head cable connected?</td>
<td>Connect the print head cable in power off mode</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Replace the print head</td>
<td>Refer to 5.2 Replacing the Print Head</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Replace the main (CONT) PCB</td>
<td>Refer to 5.5 Replacing the Main (CONT) PCB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Replace the print head</td>
<td>Refer to 5.2 Replacing the Print Head</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Replace the main (CONT) PCB</td>
<td>Refer to 5.5 Replacing the Main (CONT) PCB</td>
</tr>
<tr>
<td>Category</td>
<td>Symptom</td>
<td>Cause</td>
<td>Remedy</td>
<td>Maintenance</td>
</tr>
<tr>
<td>----------</td>
<td>---------</td>
<td>-------</td>
<td>--------</td>
<td>-------------</td>
</tr>
<tr>
<td>Defective print</td>
<td>One side of the print is lighter than the other</td>
<td>Is the print head clean? NO</td>
<td>Clean the print head</td>
<td>Replace the platen roller Refer to 5.3 Replacing the Platen Roller</td>
</tr>
<tr>
<td></td>
<td></td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Is the platen roller worn out? YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deviation of the print start position (Vertical direction)</td>
<td>Is the data input correct? NO</td>
<td>Input the data again</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>YES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Is the sensor level correct? NO</td>
<td>Adjust the I-mark/Gap sensor level Refer to 4.3 Checking and Adjusting the Media Sensor</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Is the pitch position correct? NO</td>
<td>Adjust the print position Refer to 4.5 Adjusting the Print Position</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deviation of the print start position (Horizontal direction)</td>
<td>Is the data input correct? NO</td>
<td>Input the data again</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>YES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check on the media problem Refer to 3.1.5 Media Problem</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Category</td>
<td>Symptom</td>
<td>Cause</td>
<td>Remedy</td>
<td>Maintenance</td>
</tr>
<tr>
<td>----------------</td>
<td>----------------------------------</td>
<td>-------------------------------------</td>
<td>-------------------------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>Defective print</td>
<td>Printing is shrunk</td>
<td>Is the platen roller clean?</td>
<td>Clean the platen roller</td>
<td>Replace the platen roller</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NO</td>
<td></td>
<td>Refer to 5.3 Replacing the Platen Roller</td>
</tr>
<tr>
<td></td>
<td></td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>White lines appear in printing</td>
<td>Is the print head clean?</td>
<td>Clean the print head</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>YES</td>
<td>Replace the print head</td>
<td>Refer to 5.2 Replacing the Print Head</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NO</td>
<td>Clean the platen roller</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>YES</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CL4NX Plus/CL6NX Plus Service Manual 41
### 3.1.4 Screen Problem

<table>
<thead>
<tr>
<th>Category</th>
<th>Symptom</th>
<th>Cause</th>
<th>Remedy</th>
<th>Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screen</td>
<td>No display on the screen</td>
<td>1. Is the LCD cable connected?</td>
<td>Connect the LCD cable</td>
<td>Replace the operator panel (KB) PCB</td>
</tr>
<tr>
<td></td>
<td></td>
<td>YES</td>
<td></td>
<td>Refer to 5.6 Replacing the Operator Panel (KB) PCB</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NO</td>
<td></td>
<td>Replace the main (CONT) PCB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Refer to 5.5 Replacing the Main (CONT) PCB</td>
</tr>
</tbody>
</table>

### 3.1.5 Media Problem

<table>
<thead>
<tr>
<th>Category</th>
<th>Symptom</th>
<th>Cause</th>
<th>Remedy</th>
<th>Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Media</td>
<td>Media is meandering</td>
<td>1. Is the media loaded correctly?</td>
<td>Load the media correctly</td>
<td>Replace the platen roller</td>
</tr>
<tr>
<td></td>
<td></td>
<td>YES</td>
<td></td>
<td>Refer to 5.3 Replacing the Platen Roller</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Is the platen roller clean?</td>
<td>Clean the platen roller</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>NO</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


### 3.1.6 Cutter Problem

<table>
<thead>
<tr>
<th>Category</th>
<th>Symptom</th>
<th>Cause</th>
<th>Remedy</th>
<th>Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cutter</td>
<td>No cutting motion</td>
<td>Is the print mode set correctly?</td>
<td>Set the print mode to Cutter</td>
<td>Refer to Print Mode in CL4NX Plus/CL6NX Plus operator manual</td>
</tr>
<tr>
<td></td>
<td></td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Is the cutter cable connected?</td>
<td>Connect the cutter cable</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Is the cutter blade position correct?</td>
<td>Feed the media and move the cutter blade to home position</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Is the cutter blade clean?</td>
<td>Clean the cutter blade</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>NO</td>
<td></td>
<td>Replace the cutter unit</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Replace the cutter PCB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Replace the cutter unit</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Replace the cutter PCB</td>
</tr>
<tr>
<td></td>
<td>Cannot cut the media</td>
<td>Is the cutter blade clean?</td>
<td>Clean the cutter blade</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>NO</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# 3.1.7 Dispenser Problem

<table>
<thead>
<tr>
<th>Category</th>
<th>Symptom</th>
<th>Cause</th>
<th>Remedy</th>
<th>Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dispenser</td>
<td>Does not stop at specified position</td>
<td>Is the print mode set correctly?</td>
<td>Set the print mode to Dispenser</td>
<td>Refer to Print Mode in CL4NX Plus/CL6NX Plus operator manual</td>
</tr>
<tr>
<td></td>
<td></td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Is the dispenser sensor OK?</td>
<td></td>
<td>Refer to 5.5 Replacing the Main (CONT) PCB</td>
</tr>
<tr>
<td></td>
<td></td>
<td>YES</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
This chapter contains more procedures for checking the performance of the product during maintenance and troubleshooting, or after replacement of parts. This chapter also contains procedures for making adjustments to ensure the optimum performance of the product.

The checking and adjusting procedures described in this section are as follows.

- 4.1 Checking the Direct Current Power Voltage
- 4.2 Counter Clear Mode
- 4.3 Checking and Adjusting the Media Sensor
- 4.4 Test Print Check
- 4.5 Adjusting the Print Position
- 4.6 Adjusting the Media Stop/Cut Position
- 4.7 Adjusting the Print Darkness
- 4.8 Checking the Ribbon End Function
- 4.9 Checking the Head Open Error
- 4.10 Checking the Label Near End Function
- 4.11 Adjusting the Factory Pitch
- 4.12 Adjusting the Factory Offset
- 4.13 Adjusting the Buzzer Volume
- 4.14 Adjusting the LCD Brightness
- 4.15 Adjusting the Head Pressure Balance
- 4.16 Adjusting the Head Alignment
- 4.17 Adjusting the Timing Belt Tension
- 4.18 Adjusting the Ribbon Tension
- 4.19 Adjusting the Position of the Media Sensor
- 4.20 Adjusting the Timing Belt Tension of the Optional Liner Rewinder
4.1 Checking the Direct Current Power Voltage

This procedure enables checking various direct current voltages of the main (CONT) PCB board.

Required tools:
• Digital multimeter
• Phillips screwdriver (JIS #2 or equivalent)

1. Make sure that the product is powered off, and disconnect the power cord from the AC outlet.
2. Remove the left housing cover from the product.
   Refer to Section 5.1.1 Remove the Left Housing Cover for details.
3. Set the digital multimeter to direct current, voltage mode.
4. Connect the power cord to an AC outlet.
5. Press the \( \text{power button} \) on the operator panel until the LED lights blue to power on the product.
6. Touch the negative measurement probe to the [\text{GND}] point of the main (CONT) PCB. Then touch the positive probe to the test point [\text{TP}] as indicated below.
   Refer to the Figure 4.1 for the position of the test points.
   • Touch the positive probe to the [5VC] point and measure the voltage of +5.0 V.
   • Touch the positive probe to the [TP5], [TP7], or [TP26] point and measure the voltage of +3.3 V.
   • Touch the positive probe to the [TP16], [1.8V] point and measure the voltage of +1.8 V.
   • Touch the positive probe to the [TP13] or [TP47] points and measure the voltage of +1.26 V (MPU).
   • Touch the positive probe to the [TP12] or [TP46] points and measure the voltage of +1.1 V (CORE).
   • Touch the positive probe to the [TP70] point and measure the voltage of +24 V.

Criteria

<table>
<thead>
<tr>
<th>Table of Normal Performance Values:</th>
</tr>
</thead>
<tbody>
<tr>
<td>+5.0 V</td>
</tr>
<tr>
<td>+5.0 V</td>
</tr>
<tr>
<td>+4.8 V to +5.2 V</td>
</tr>
<tr>
<td>+3.3 V</td>
</tr>
<tr>
<td>+3.2 V to +3.4 V</td>
</tr>
<tr>
<td>+1.8 V</td>
</tr>
<tr>
<td>+1.7 V to +1.9 V</td>
</tr>
<tr>
<td>+1.26 V</td>
</tr>
<tr>
<td>+1.21 V to +1.326 V</td>
</tr>
<tr>
<td>+1.1 V</td>
</tr>
<tr>
<td>+1.056 V to +1.144 V</td>
</tr>
<tr>
<td>+24 V</td>
</tr>
<tr>
<td>+22.8 to +25.2 V</td>
</tr>
</tbody>
</table>

7. Replace the main (CONT) PCB if the supply voltage of +5.0 V / +3.3 V / +1.8 V / +1.26 V / +1.1 V / +24 V does not meet the criteria.
   Refer to Section 5.5 Replacing the Main (CONT) PCB for details.
8. Power off the product.
Position of the test points

Main (CONT) PCB

FPGA PCB assembly

Figure 4.1
## 4.2 Counter Clear Mode

The product has integrated counters to measure the accumulative activity of some features. These counters include head counter and cutter counter. In this mode, you can initialize these counters to zero.

1. Press the power button on the operator panel until the LED lights blue to power on the product.
2. When the product is in online mode, press the button on the operator panel to change to offline mode.
3. Press the button to show the **Settings** menu.
4. Press the buttons to select **Tools**, then press the button.

5. Press the buttons to select **Service**, then press the button. The **Password** screen shows.

6. Press the buttons to select the number. Then press the button to enter the number to the password text box. The password for the **Service** menu is 6677.

7. Press the right soft button to verify the password and goes to the next screen. The **Service** menu shows.
8 Press the ▲/▼ buttons to select Reset, then press the ← button. The Reset screen shows.

9 Press the ▲/▼ buttons to select Counters, then press the ← button.

10 Press the ▲/▼ buttons to select the counter you want to reset.
   - Select Head to initialize the head counter.
   - Select Cutter to initialize the cutter counter. You have to initialize each time you replaced the cutter.

Note
When using the smart print head, the head counter information is not be initialized after resetting. The head counter information saved in the memory of the smart print head will be recalled when you restart the product.
* If the head counter value is not automatically updated due to reasons such as memory not working, use the head reset function.

11 Press the right soft button or ← button to perform initialization. The confirmation screen shows.

12 Press the left soft button to cancel or right soft button to perform the initialization.
4.3 Checking and Adjusting the Media Sensor

In the **Printing > Advanced > Calibrate** menu, you can check the media sensor condition and calibrate the media sensor level for the optimum performance.

### 4.3.1 Auto-calibration

Perform the auto-calibration for the selected media sensor. Auto-calibration is not available if you have installed the optional linerless kit.

1. Press the power button on the operator panel until the LED lights blue to power on the product.

2. When the product is in online mode, press the button on the operator panel to change to offline mode.

3. Press the button to show the **Settings** menu.

4. Press the / buttons to select **Printing**, then press the button.

5. Press the / buttons to select **Advanced**, then press the button.
6 Press the ▲/▼ buttons to select **Calibrate**, then press the ← button.

7 Press the ▲/▼ buttons to select **Auto-calibration**, then press the ← button.

8 Pass the media ① below the media sensor guide ②. If you are using labels, remove the label from the liner. Align it so that the media sensor does not sense the I-mark (black mark).

9 Close the print head. To get the correct adjustment result, adjust after you have closed the print head.

10 Press the ▲/▼ buttons to select the type of sensor to be adjusted.
   - **Gap + I-Mark**: Perform the adjustment for both the Gap sensor and I-mark sensor.
   - **Gap**: Perform the adjustment for the Gap sensor.
   - **I-Mark**: Perform the adjustment for the I-mark sensor.

11 Press the right soft button or ← button. The confirmation screen shows.

12 Press the right soft button to start the sensor adjustment.
The sensor adjustment result shows. To exit the adjustment, press the right soft button.

Set to offline mode. Press the right soft button to confirm that the media feeds correctly.

If the media does not feed correctly after the Auto-calibration, clean the sensor portion and try again.

If the problem persists, adjust the sensor level manually. Refer to Section 4.3.2 Adjusting the Gap Sensor Sensitivity and Section 4.3.4 Adjusting the I-mark Sensor Sensitivity.

### 4.3.2 Adjusting the Gap Sensor Sensitivity

Manually set the Gap sensor level.

1. Perform steps 1 through 6 of Section 4.3.1 Auto-calibration.

   The Calibrate screen shows.

   **First, adjust the “Low” level (voltage) of the Gap sensor.**

2. Remove the label from the liner.

3. Pass the liner ① below the media sensor guide ②.

   Align it so that the media sensor does not sense the I-mark (black mark).

4. Close the print head.

   To get the correct adjustment result, adjust after you have closed the print head.

5. Press the ▲/▼ buttons to select the GAP Levels in the Calibrate menu and press the ← button.
6 Press the ▲/▼ buttons to change the Emit value until the Sensor value is lower than 0.5 (V). Set the Emit value as low as possible.

7 If the Sensor value does not decrease lower than 0.5 after you changed the Emit value, press the ◀/▶ buttons to change the Receive value.

8 Take a note of the Sensor value from the above procedure. This is the “Low” level value for the Gap sensor.

Next, check the “High” level (voltage) of the Gap sensor as follows:

9 Pass the media (if label, attached with liner) below the media sensor guide.
   Align it so that the media sensor does not sense the I-mark (black mark).

10 Close the print head.

11 Check the Sensor value.
   If the value is 1.0 (V) higher than the “Low” level value you have recorded, then this is the “High” level value for the Gap sensor.
   If the difference between the “High” and the “Low” levels is less than 1.0, adjust the Emit and Receive values so that the difference is more than 1.0, or perform the adjustments again from step 2.

12 The standard values for the “High” and “Low” levels for the Gap sensor are as follows:
   • Low (with only liner) ≤ 0.5 (V)
   • High (media attached with liner) - Low ≥ 1.0 (V)

13 If both “High” and “Low” levels comply with the standard value, press the right soft button to confirm the value.

14 If you cannot adjust the sensor level, clean the sensor, check the connection of the connector, and try again.
   If the problem persists, replace the sensor. Refer to Section 5.4 Replacing the Media Sensor for details.
4.3.3 Adjusting the Gap Sensor Slice Level

Set the Gap sensor slice level.

1. Perform steps 1 through 6 of Section 4.3.1 Auto-calibration.
   The Calibrate screen shows.

2. Press the ▲ / ▼ buttons to select the GAP Slice Level in the Calibrate menu and press the ← button.

3. Press the ▲ / ▼ buttons to change the Slice level value. Set the Slice level to the level calculated from the following formula.

   \[
   \text{Slice level} = \text{High level} - \text{Low level} \times 0.3 + \text{Low level}
   \]

4. Press the right soft button to confirm the value.

Note
If you set the Slice Level to 0.0 (V), the product sets the slice level automatically.

4.3.4 Adjusting the I-mark Sensor Sensitivity

Manually set the I-mark sensor level.

1. Perform steps 1 through 6 of Section 4.3.1 Auto-calibration.
   The Calibrate screen shows.
First, adjust the “Low” level (voltage) of the I-mark sensor.

2 Pass the media (if label, attached with liner) below the media sensor guide. Align it so that the media sensor does not sense the I-mark (black mark).

3 Close the print head. To get the correct adjustment result, adjust after you have closed the print head.

4 Press the \(\uparrow/\downarrow\) buttons to select the I-Mark Levels in the Calibrate menu and press the \(\leftarrow\) button.

5 Press the \(\uparrow/\downarrow\) buttons to change the Emit value until the Sensor value is lower than 0.5 (V). Set the Emit value as low as possible.

6 If the Sensor value does not decrease lower than 0.5 after you changed the Emit value, press the \(\leftarrow/\rightarrow\) buttons to change the Receive value.

7 Take a note of the Sensor value from the above procedure. This is the “Low” level value for the I-mark sensor.
Next, check the “High” level (voltage) of the I-mark sensor as follows:

8 Pass the media ① below the media sensor guide ② so that the media sensor can sense the I-mark (black mark).

9 Close the print head.

10 Check the Sensor value.
If the value is 1.0 (V) higher than the “Low” level value you have recorded, then this is the “High” level value for the I-mark sensor.
If the difference between the “High” and the “Low” levels is less than 1.0, adjust the Emit and Receive values so that the difference is more than 1.0, or perform the adjustments again from step 2.

11 The standard values for the “High” and “Low” levels for the I-mark sensor are as follows:
   - Low (without I-mark) ≤ 0.5 (V)
   - High (with I-mark) - Low ≥ 1.0 (V)

12 If both “High” and “Low” levels comply with the standard value, press the right soft button to confirm the value.

13 If you cannot adjust the sensor level, clean the sensor, check the connection of the connector, and try again.
   If the problem persists, replace the sensor. Refer to Section 5.4 Replacing the Media Sensor for details.

4.3.5 Adjusting the I-mark Sensor Slice Level

Set the I-mark sensor slice level.

1 Perform steps 1 through 6 of Section 4.3.1 Auto-calibration.
   The Calibrate screen shows.

2 Press the ▲/▼ buttons to select the I-Mark Slice Level in the Calibrate menu and press the ← button.
3 Press the ▲/▼ buttons to change the Slice level value. Set the Slice level to the level calculated from the following formula.

\[
((\text{High level} - \text{Low level}) \times 0.7 + \text{Low level}) = \text{slice level}
\]

4 Press the right soft button to confirm the value.

**Note**

If you set the Slice Level to 0.0 (V), the product sets the slice level automatically.
4.4 Test Print Check

After adjustment or parts replacement, perform a test print to make sure that the product is in optimum condition.

You can use the test print to check the print head alignment, print head balance, media tracking and ribbon wrinkling.

1. Press the power button on the operator panel until the LED lights blue to power on the product.

2. When the product is in online mode, press the button on the operator panel to change to offline mode.

3. Press the button to show the Settings menu.

4. Press the buttons to select Tools, then press the button.

5. Press the buttons to select Test Print, then press the button.

6. Press the buttons to select the types of test print, then press the button.

The options are as follows:
- **Factory**: Perform the factory test print.
- **Configure List**: Print the configuration information of the product.
- **Configure QR**: Print the configuration information with a QR code.
- **Paper Sensor**: Print the detection result of the media sensor level.
- **Head Check**: Perform the head check print.
7 Press the ▲/▼ buttons to select the item you want to set. Then press the ◀/▶ buttons to change the value.

You can set the following items.
- **Label Width**: Set the media width used for the test print. The options are **Large** (101.6 mm (4'')) and **Small** (50.8 mm (2'')).
- **Pitch**: Set the print position in the vertical direction. The setting range varies depending on the print resolution of the product. The following table shows the setting range:

<table>
<thead>
<tr>
<th>Resolution</th>
<th>CL4NX Plus</th>
<th>CL6NX Plus</th>
</tr>
</thead>
<tbody>
<tr>
<td>203dpi</td>
<td>-30 to 0 to 30 dots</td>
<td>-30 to 0 to 30 dots</td>
</tr>
<tr>
<td>305dpi</td>
<td>-45 to 0 to 45 dots</td>
<td>-45 to 0 to 45 dots</td>
</tr>
<tr>
<td>609dpi</td>
<td>-90 to 0 to 90 dots</td>
<td>—</td>
</tr>
</tbody>
</table>

- When you decrease the setting value, the print position moves in the feed direction.
- When you increase the setting value, the print position moves opposite the feed direction.
- **Offset**: Set the tear-off position / cut position / dispense stop position. The setting range varies depending on the print resolution of the product. The following table shows the setting range:

<table>
<thead>
<tr>
<th>Resolution</th>
<th>CL4NX Plus</th>
<th>CL6NX Plus</th>
</tr>
</thead>
<tbody>
<tr>
<td>203dpi</td>
<td>-30 to 0 to 30 dots</td>
<td>-30 to 0 to 30 dots</td>
</tr>
<tr>
<td>305dpi</td>
<td>-45 to 0 to 45 dots</td>
<td>-45 to 0 to 45 dots</td>
</tr>
<tr>
<td>609dpi</td>
<td>-90 to 0 to 90 dots</td>
<td>—</td>
</tr>
</tbody>
</table>

- When you decrease the setting value, the offset position moves in the feed direction.
- When you increase the setting value, the offset position moves opposite the feed direction.
- ** Darkness Adjust**: Fine tune the print darkness of the test print. 0 is the lightest and 99 is the darkest.

---

**Note**

The value of Pitch, Offset and Darkness Adjust set in the **Factory** menu will be reflected to the same item settings in the **Configure List** menu, **Configure QR** menu, **Paper Sensor** menu and **Head Check** menu.

---

8 Press the right soft button to start the test print.

Press the right soft button again to pause the print.

To stop the test print, first pause the print, then press the ▼ button.
Note
In the test print results, "✱ 1" or "✱ 2" may be printed on the right side of “HEAD CHECK” item as shown on the figure.

"✱ 1" indicates that the product cannot access the memory of the smart print head (memory failure, cable disconnected, etc.).

"✱ 2" indicates that the product is using a head other than the smart print head.
4.5 Adjusting the Print Position

1. Press the \( \) power button on the operator panel until the LED lights blue to power on the product.

2. When the product is in online mode, press the \( \) button on the operator panel to change to offline mode.

3. Press the \( \) button to show the Settings menu.

4. Select \( \text{Shortcut} > \text{Adjustments} > \text{Pitch} \) or \( \text{Printing} > \text{Advanced} > \text{Adjustments} > \text{Pitch} \) using the \( \uparrow/\downarrow \) buttons, then press the \( \) button.

   The Pitch screen shows.

5. Change the setting value. Press the \( \uparrow/\downarrow/\leftarrow/\rightarrow \) buttons to select the number, then press the \( \) button to enter the number to the text box.

   The setting range varies depending on the print resolution of the product. The following table shows the setting range:

<table>
<thead>
<tr>
<th>Resolution</th>
<th>Setting Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>203 dpi</td>
<td>-30 to 0 to 30 dots</td>
</tr>
<tr>
<td>305 dpi</td>
<td>-45 to 0 to 45 dots</td>
</tr>
<tr>
<td>609 dpi</td>
<td>-90 to 0 to 90 dots</td>
</tr>
</tbody>
</table>

   • When you decrease the setting value, the print position moves in the feed direction.
   • When you increase the setting value, the print position moves opposite the feed direction.

6. Press the right soft button to save the setting value.

7. Perform the factory test print to check the adjusted print position.

   Refer to Section 4.4 Test Print Check for details.

   Check the print position and make sure that it is within the criteria as shown on the illustration.

8. If the print position is not within the criteria, adjust the pitch position again. Then check on the test print again.
4.6 Adjusting the Media Stop/Cut Position

1. Press the power button on the operator panel until the LED lights blue to power on the product.

2. When the product is in online mode, press the button on the operator panel to change to offline mode.

3. Press the button to show the Settings menu.

4. Select Shortcut > Adjustments > Offset or Printing > Advanced > Adjustments > Offset using the / buttons, then press the button.

   The Offset screen shows.

5. Change the setting value. Press the / / / buttons to select the number, then press the button to enter the number to the text box.

   The setting range varies depending on the print resolution of the product. The following table shows the setting range:

<table>
<thead>
<tr>
<th>Resolution</th>
<th>Setting Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>203 dpi</td>
<td>-30 to 0 to 30 dots</td>
</tr>
<tr>
<td>305 dpi</td>
<td>-45 to 0 to 45 dots</td>
</tr>
<tr>
<td>609 dpi</td>
<td>-90 to 0 to 90 dots</td>
</tr>
</tbody>
</table>

   - When you decrease the setting value, the stop/cut position moves in the feed direction.
   - When you increase the setting value, the stop/cut position moves opposite the feed direction.

6. Press the right soft button to save the setting value.
Perform the factory test print to check the adjusted stop/cut position.

Refer to Section 4.4 Test Print Check for details.
Check the stop/cut position and make sure that it is within the following criteria.

- **Tear-off stop position**
  It should be possible to tear the media along the perforation.
  For the non perforated label, take the center position of the liner as reference.

- **Dispenser stop position**
  The label stop position is approximate 2.0 mm ±1.0 mm (0.08” ±0.04”) from the edge of the dispenser bar.

- **Cut position**
  For the perforated label, ensure to cut the label after the perforated line.
  For the non perforated label, cut the center position of the liner (in between labels).

If the stop/cut position is not within the criteria, adjust the stop/cut position again. Then check on the test print again.
4.7 Adjusting the Print Darkness

1. Press the 🔌 power button on the operator panel until the LED lights blue to power on the product.

2. When the product is in online mode, press the ⏹ button on the operator panel to change to offline mode.

3. Press the ⬅️ button to show the Settings menu.

4. Select Shortcut > Adjustments > Darkness Adjust or Printing > Advanced > Adjustments > Darkness Adjust using the ▲/▼ buttons, then press the ⬅️ button.

   The Darkness Adjust screen shows.

5. Press the ▲/▼ buttons to change the Darkness Adjust value.

   The setting range is from 0 to 99.
   0 is the lightest and 99 is the darkest.

6. Press the right soft button to save the setting value.

7. Perform the factory test print.

   Refer to Section 4.4 Test Print Check for details.

8. Check to make sure that there are no breaks in the print image or blurring of the bar code.

9. If you cannot obtain a proper printing result, clean the print head and platen roller.

   If the problem persists, replace the print head and platen roller. Refer to Section 5.2 Replacing the Print Head and Section 5.3 Replacing the Platen Roller for details.
### 4.8 Checking the Ribbon End Function

1. Press the \( \text{power} \) button on the operator panel until the LED lights blue to power on the product.

2. When the product is in online mode, press the \( \text{online} \) button on the operator panel to change to offline mode.

3. Press the \( \text{left arrow} \) button to show the **Settings** menu.

4. Press the \( \text{left arrow} \text{ and right arrow} \) buttons to select **Printing**, then press the \( \text{left arrow} \) button.

5. Press the \( \text{up arrow} \) and \( \text{down arrow} \) buttons to select **Printing Mode**, then press the \( \text{left arrow} \) button.

6. Press the \( \text{up arrow} \) and \( \text{down arrow} \) buttons to select **Use Ribbon**.

7. Press the right soft button or \( \text{left arrow} \) button to save the setting.
8 Press the button to enter offline mode.

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

10 In offline mode, press the right soft button to feed the media.
   Make sure that the product shows a Ribbon End error message, and along with the buzzer sounds.

11 If no error occurs, check the connection of the ribbon sensor connector.
   If there is no problem, replace the sensor. Refer to Section 5.13 Replacing the Ribbon Sensor for details.

4.9 Checking the Head Open Error

1 Press the power button on the operator panel until the LED lights blue to power on the product.

2 Open the top cover.

⚠️ CAUTION
Open the top cover fully to prevent accidental drop of the cover.

3 When the product is in online mode, push the head lock lever towards the rear to unlock the print head.
   Make sure that the product shows a Head Open error message, and along with the buzzer sounds.

4 If no error occurs, check the connection of the head open sensor connector.
   If there is no problem, replace the sensor. Refer to Section 5.12 Replacing the Head Open Sensor for details.
4.10 Checking the Label Near End Function

1. Press the power button on the operator panel until the LED lights blue to power on the product.
2. When the product is in online mode, press the button on the operator panel to change to offline mode.
3. Press the button to show the Settings menu.
4. Press the / buttons to select Printing, then press the button.
5. Press the / buttons to select Advanced, then press the button.
6. Press the / buttons to select Label Near End, then press the button.
7 Press the ▲/▼ buttons to select Enabled.

8 Press the right soft button or ← button to save the setting.

9 Press the ■ button to enter offline mode.

10 Load a full media roll to the media holder.

11 In offline mode, press the right soft button to feed the media.

12 Check if the label near end warning icon is shown on the top of the screen.
   If the product does not show the label near end warning icon on the screen, proceed to step 13.
   If the label near end warning icon is shown, check the connection of the label near end sensor connector.
   If there is no problem, replace the sensor. Refer to Section 5.14 Replacing the Label Near End Sensor for details.

13 Next, remove the media from the media holder.

14 In offline mode, press the right soft button to feed the media.
   Make sure that the product shows a label near end icon on the top of the screen.

15 If no warning occurs, check the connection of the label near end sensor connector.
   If there is no problem, replace the sensor. Refer to Section 5.14 Replacing the Label Near End Sensor for details.

**Note**

When the label near end function is enabled on the printer that does not have the label near end sensor installed, the label near end warning icon will be shown on the screen.

Go to **Printing > Advanced > Label Near End** menu screen to set the label near end function to Disabled.
4.11 Adjusting the Factory Pitch

⚠️ CAUTION
Factory pitch is strictly for factory adjustment before shipping. Do not adjust the factory pitch setting unless you have replaced a new main (CONT) PCB or you cannot adjust the print position with the pitch setting in Printing menu.

Note
• The total of the factory pitch value in the Service menu and the pitch value in the Printing menu will be applied as the vertical print position.
• Changing the factory pitch value in the Service menu changes the factory default value.

1 Press the 🌐 power button on the operator panel until the LED lights blue to power on the product.

2 When the product is in online mode, press the ▶ button on the operator panel to change to offline mode.

3 Press the ⬅ button to show the Settings menu.

4 Press the ⬅/▶ buttons to select Tools, then press the ⬅ button.

5 Press the ▲/▼ buttons to select Service, then press the ⬅ button.

The Password screen shows.
Checking and Adjusting the Product

6 Press the \(<>/>/▲/▼\) buttons to select the number. Then press the \(<\) button to enter the number to the password text box.

The password for the Service menu is 6677.

7 Press the right soft button to verify the password and goes to the next screen.

The Service menu shows.

8 Press the \(▲/▼\) buttons to select Factory Pitch, then press the \(<\) button.

The Factory Pitch screen shows.

9 Change the setting value. Press the \(<>/>/▲/▼\) buttons to select the number, then press the \(<\) button to enter the number to the text box.

The setting range is from -99 to 0 to +99 dots.
• When you decrease the setting value, the print position moves in the feed direction.
• When you increase the setting value, the print position moves opposite the feed direction.

10 Press the right soft button to save the setting value.

11 Perform the factory test print to check the adjusted print position.

Refer to Section 4.4 Test Print Check for details. If the print position is not within the criteria as shown on the illustration, adjust the pitch value in the Test Print menu or the Printing menu.
4.12 Adjusting the Factory Offset

⚠️ CAUTION
Factory offset is strictly for factory adjustment before shipping. Do not adjust the factory offset setting unless you have replaced a new main (CONT) PCB or you cannot adjust the media stop/cut position with the offset setting in Printing menu.

Note
- The total of the factory offset value in the Service menu and the offset value in the Printing menu will be applied as the offset position.
- Changing the factory offset value in the Service menu changes the factory default offset value.

1. Follow the procedures from step 1 to step 7 of Section 4.11 Adjusting the Factory Pitch to show the Service menu.

   The Service menu shows.

2. Press the ▲ / ▼ buttons to select Factory Offset, then press the ➪ button.

   The Factory Offset screen shows.

3. Change the setting value. Press the ◀ / ▶ / ▲ / ▼ buttons to select the number, then press the ➪ button to enter the number to the text box.

   The setting range is from -99 to 0 to +99 dots.
   - When you decrease the setting value, the stop/cut position moves in the feed direction.
   - When you increase the setting value, the stop/cut position moves opposite the feed direction.

4. Press the right soft button to save the setting value.

5. Perform the factory test print to check the adjusted stop/cut position.

   Refer to Section 4.4 Test Print Check for details.
Check the stop/cut position and make sure that it is within the following criteria.

- **Tear-off stop position**
  It should be possible to tear the media along the perforation. For the non perforated label, take the center position of the liner as reference.

- **Dispenser stop position**
  The label stop position is approximate 2.0 mm ±1.0 mm (0.08” ±0.04”) from the edge of the dispenser bar.

- **Cut position**
  For the perforated label, ensure to cut the label after the perforated line as shown below.

For the non perforated label, cut the center position of the liner (in between labels).

6 If the stop/cut position is not within the criteria, adjust the stop/cut position again. Then check on the test print again.
### 4.13 Adjusting the Buzzer Volume

1. Press the \( \bigcirc \) power button on the operator panel until the LED lights blue to power on the product.

2. When the product is in online mode, press the \( \bigtriangledown \) button on the operator panel to change to offline mode.

3. Press the \( \leftarrow \) button to show the **Settings** menu.

4. Press the \( \leftrightarrow \) buttons to select **System**, then press the \( \leftarrow \) button.

5. Press the \( \uparrow / \downarrow \) buttons to select **Sound**, then press the \( \leftarrow \) button.

6. Press the \( \uparrow / \downarrow \) buttons to select **Error Sound** or **Power Off Sound**, then press the \( \leftarrow \) button.
7 Press the ▲/▼ buttons to change the setting.

The options are as follows:
- **Off**: Mute the sound.
- **Low**: Low volume.
- **Medium**: Medium volume.
- **High**: High volume.

8 Press the right soft button or ← button to save the setting.
4.14 Adjusting the LCD Brightness

1. Press the power button on the operator panel until the LED lights blue to power on the product.

2. When the product is in online mode, press the button on the operator panel to change to offline mode.

3. Press the button to show the Settings menu.

4. Press the / buttons to select System, then press the button.

5. Press the / buttons to select LCD Brightness, then press the button.

6. Press the / buttons to change the value.
   The setting range is from 0 to 9.
   0 is the darkest and 9 is the brightest.

7. Press the right soft button or button to save the setting.
4.15 Adjusting the Head Pressure Balance

Print head balance refers to the equalization of pressure between the print head and the platen roller. If the print head balance is out of adjustment, the printed image will be darker on one side of the media than the other and the media will be prone to travel in the direction of greater pressure.

4.15.1 Adjusting the Head Pressure Balance with Adjustment Screw

Required tool:
• Slotted screwdriver

The adjustment procedure for the head pressure balance is as follows:

1. Open the top cover ①.

⚠️ CAUTION
Open the top cover fully to prevent accidental drop of the cover.

2. Make sure that the print head is locked.
   If not, press the print head down until the head lock lever is locked.
3 Find the head pressure balance adjustment screw ① on the top of the print head assembly as shown above.

4 Turn the head pressure balance adjustment screw ② with a slotted screwdriver.
   • Turn the adjustment screw clockwise to increase the pressure on the right side (when you see from the front of the product). The indicator ③ on the side of the print head assembly moves downward.
   • Turn the adjustment screw counterclockwise to increase the pressure on the left side (when you see from the front of the product). The indicator ③ on the side of the print head assembly moves upward.

5 Use media with broad width to perform the factory test print.
   Refer to Section 4.4 Test Print Check for details.

6 Check to make sure that the tone of the left and right side of the print image is the same.

7 If the tone of the left and right side of the print image is not same, repeat the procedure from steps 4 through 6.
4.15.2 Adjusting the Head Pressure Balance with Adjustment Dials

Criteria of the head pressure balance adjustment
- Set the head pressure according to the media thickness, including the liner.
- Set the pressure balance according to the media width (if necessary).

Head pressure setting
The adjustment procedure for the head pressure balance is as follows:

1. Open the **top cover**.
2. Find the **adjustment dials** ① on the top of the **print head assembly** as shown.
3. Turn the **adjustment dials** ① to match the media thickness.

<table>
<thead>
<tr>
<th>Media Thickness</th>
<th>0.060 mm - 0.200 mm (0.0024&quot; - 0.0079&quot;)</th>
<th>0.200 mm - 0.268 mm (0.0079&quot; - 0.011&quot;)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjustment Dials</td>
<td>② (Left and Right, CL4NX Plus only)</td>
<td>④ (Left and Right, CL6NX Plus only)</td>
</tr>
<tr>
<td></td>
<td>④ or ⑤ (Left and Right, CL6NX Plus only)</td>
<td>(Left and Right)</td>
</tr>
<tr>
<td>Reference</td>
<td>Thin paper / normal label, etc.</td>
<td>Thick paper / tag, etc.</td>
</tr>
</tbody>
</table>

**Note**
- The factory default setting is Left ① and Right ③.
  For CL6NX Plus dispenser model, the factory default setting is Left ④ and Right ⑤.
- The thickness of the media includes the liner.

After adjusting the head pressure, perform an actual printing. If media feeding starts to shift to the right side (when facing the product), adjust the pressure balance by referring to the Pressure balance setting on the next page.
Checking and Adjusting the Product

Pressure balance setting
After adjusting the head pressure, if media feeding starts to shift to the right side (when facing the product), adjust the pressure balance by referring to this procedure. Set the pressure balance according to the media width to be used.

1 Open the top cover.
2 Find the adjustment dials ① on the top of the print head assembly as shown.
3 Turn the adjustment dials ① according to the media width and set the pressure balance.

*The setting below shows an example of when the head pressure is set at Left ③.

<table>
<thead>
<tr>
<th>Media Width</th>
<th>25mm - 54mm (0.98&quot; - 2.13&quot;)</th>
<th>54mm - 83mm (2.13&quot; - 3.27&quot;)</th>
<th>83mm - 131mm (3.27&quot; - 5.16&quot;)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjustment Dials</td>
<td>Left ③</td>
<td>Left ③</td>
<td>Left ③</td>
</tr>
<tr>
<td></td>
<td>Right ①</td>
<td>Right ②</td>
<td>Right ③</td>
</tr>
</tbody>
</table>

CL6NX Plus

<table>
<thead>
<tr>
<th>Media Width</th>
<th>50mm - 120mm (1.97&quot; - 4.72&quot;)</th>
<th>120mm - 140mm (4.72&quot; - 5.51&quot;)</th>
<th>140mm - 160mm (5.51&quot; - 6.30&quot;)</th>
<th>160 mm - 180mm (6.30&quot; - 7.08&quot;)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjustment Dials</td>
<td>Left ③ or ④</td>
<td>Left ③ or ④</td>
<td>Left ③ or ④</td>
<td>Left ③ or ④</td>
</tr>
<tr>
<td></td>
<td>Right ①</td>
<td>Right ①</td>
<td>Right ②</td>
<td>Right ③ or ④</td>
</tr>
</tbody>
</table>

Note
- The factory default setting is Left ③ and Right ③.
  For CL6NX Plus dispenser model, the factory default setting is Left ③ and Right ④.
- If the media is shifted to the right after adjusting the dial, turn the head pressure balance adjustment screw to counterclockwise. (If media is shifted left, turn to clockwise.) Refer to Section 4.15.1 Adjusting the Head Pressure Balance with Adjustment Screw for details.
4.16 Adjusting the Head Alignment

When the print head is out of alignment with the platen roller, the print image becomes blurred.

The adjustment procedure for the head alignment is as follows:

1. Open the top cover.

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

2. Push the head lock lever towards the rear to unlock the print head.

3. Turn the head alignment dial upward or downward as shown above.
   - Turn the head alignment dial upward to move the print head to the front.
   - Turn the head alignment dial downward to move the print head to the back.

4. Perform the factory test print.
   Refer to Section 4.4 Test Print Check for details.

5. Check to make sure that the print image is clearer.

6. If the print image is blurred, repeat the procedure from steps 3 through 5.
4.17 Adjusting the Timing Belt Tension

**Required tool:**
- Phillips screwdriver (JIS #2 or equivalent)

1. Make sure that the product is powered off, and disconnect the power cord from the AC outlet.

2. Remove the **left housing cover** from the product.
   Refer to Section 5.1.1 Remove the Left Housing Cover for details.

3. Disconnect the **motor connector** ① from the **main (CONT) PCB**.

4. Remove four **screws** ② attaching the **gearbox** to the product.

5. Loosen the **screw** ③ of the **tension bracket** ④.

**Note**
Do not remove the screw ③.
6 Turn over to the inner side of the gearbox and check the condition of the timing belt ③.
   Make sure that there is tension on the timing belt.

7 Tighten the screw ③ of the tension bracket.

8 If the tension of the timing belt is not enough, replace the timing belt.
   Refer to Section 5.11 Replacing the Timing Belt for details.

9 Perform the assembly with the reverse procedure.
4.18 Adjusting the Ribbon Tension

Required tool:
• Phillips screwdriver (JIS #2 or equivalent)

1 Adjust the print head pressure balance before you adjust the ribbon tension.
   Refer to Section 4.15 Adjusting the Head Pressure Balance for details.

2 Loosen two screws ① attaching the ribbon adjustment plate ② to the print head assembly.

   **Note**
   Do not remove the screws ①.

3 Move the ribbon adjustment plate up or down to adjust.
   Adjust the left side of the adjustment plate upward when wrinkle occurs on the right.
   Adjust the right side of the adjustment plate upward when wrinkle occurs on the left.

   **CAUTION**
   If you adjusted the ribbon adjustment plate to fully raised, the ribbon tearing sound (scrunching noise) increases. To avoid this, lower the ribbon adjustment plate completely before you adjust.

4 Tighten two screws ① to set the position.

5 Perform the factory test print.
   Refer to Section 4.4 Test Print Check for details.

6 Check to make sure that the ribbon must not wrinkle and meander.

7 If the ribbon wrinkles or meanders, repeat the procedure from steps 2 through 5.
4.19 Adjusting the Position of the Media Sensor

If you used standard media, you do not need to adjust the media sensor (I-mark sensor and Gap sensor).
*During shipment from the factory (default settings), the media sensor guide is set to the innermost position, and is to be used for the standard media.
When you use nonstandard media (for example, media with printing on the underside, or media with a special shape), the media sensor cannot sense the I-mark or Gap of the media correctly. In such a case, adjust the position of the media sensor to sense the I-mark or Gap correctly.

About the media sensor
The I-mark sensor and Gap sensor are mounted on the same PCB and move simultaneously.
The media guide is attached to these sensors, the mark shows the I-mark sensor position and the mark shows the Gap sensor position.
The adjustment ranges are as follows:
With the inner side of the product as reference (left side of the media when looking from the front),

**CL4NX Plus**
- I-mark sensor position: 6.3 mm to 59.6 mm (0.2" to 2.3")
- Gap sensor position: 13.3 mm to 66.6 mm (0.5" to 2.6")

**CL6NX Plus**
- I-mark sensor position: 8.0 mm to 73.0 mm (0.3" to 2.9")
- Gap sensor position: 25.0 mm to 90.0 mm (1.0" to 3.5")

The adjustment procedure is as follows:
1 Open the **top cover**.

⚠ **CAUTION**
Open the top cover fully to prevent accidental drop of the cover.

2 Push the **head lock lever** towards the rear to unlock the **print head**.

3 Adjust the **media sensor guide** to the position where it can sense the I-mark or Gap of the media.

The □ mark shows the I-mark sensor position and the ▽ mark shows the Gap sensor position.
4.20 Adjusting the Timing Belt Tension of the Optional Liner Rewinder

**CL4NX Plus**

**Required tool:**
- Phillips screwdriver (JIS #2 or equivalent)

1. Make sure that the product is powered off, and disconnect the power cord from the AC outlet.

2. Remove the left housing cover.
   Refer to Section 5.1.1 Remove the Left Housing Cover.

3. Open the top cover.

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

4. Remove the E-ring ①, then remove the rewind core unit ②.
5 Remove three screws ③ attaching the media holder plate ④.

6 Slide in the arrow direction to remove the media holder plate ④.

7 Loosen the screw ⑤ of the tension bracket.
   Do not remove the screw ③.
   When the screw is loosened, the spring automatically adjusts the belt tension properly.

   **Note**
   Adjust it without removing rewind drive unit from the product.

8 Tighten the screw ⑤ of the tension bracket.

9 If the tension of the timing belt is not enough, replace the timing belt.
   Refer to Section 5.18 Replacing the Timing Belt for Optional Liner Rewinder for details.

10 Perform the assembly with the reverse procedure.
4 Checking and Adjusting the Product

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**CL6NX Plus**

**Required tool:**
- Phillips screwdriver (JIS #2 or equivalent)

1. Make sure that the printer is powered off, and disconnect the power cord from the AC outlet.

2. Remove the **gearbox** of the **liner rewinder** from the printer.
   - Refer to Section 5.18 Replacing the Timing Belt for Optional Liner Rewinder for details.

3. Loosen the **screw** ① of the **tension bracket** ②.
   - **Note**
   - Do not remove the screw.

4. Check the condition of the **timing belt** ③.
   - Make sure that there is tension on the **timing belt**.

5. Tighten the **screw** ① of the **tension bracket**.

6. If the tension of the **timing belt** is not enough, replace the **timing belt**.
   - Refer to Section 5.18 Replacing the Timing Belt for Optional Liner Rewinder for details.

7. Perform the assembly with the reverse procedure.
5 Replacement

This chapter provides in-depth procedures on all primary component and assembly replacement, in addition to most secondary components. Be sure to observe all precautions and warning notes.

The replacement procedures described in this section are as follows.

- 5.1 Removing the Housing Cover
- 5.2 Replacing the Print Head
- 5.3 Replacing the Platen Roller
- 5.4 Replacing the Media Sensor
- 5.5 Replacing the Main (CONT) PCB
- 5.6 Replacing the Operator Panel (KB) PCB
- 5.7 Replacing the NFC Antenna
- 5.8 Replacing the Power Supply Unit
- 5.9 Replacing the Interface Board
- 5.10 Replacing the FPGA PCB
- 5.11 Replacing the Timing Belt
- 5.12 Replacing the Head Open Sensor
- 5.13 Replacing the Ribbon Sensor
- 5.14 Replacing the Label Near End Sensor
- 5.15 Replacing the Torque Limiter for Ribbon Rewind Spindle
- 5.16 Replacing the Torque Limiter for Ribbon Supply Spindle
- 5.17 Replacing the Torque Limiter for Optional Liner Rewinder
- 5.18 Replacing the Timing Belt for Optional Liner Rewinder
- 5.19 Replacing the Optional Cutter Unit / Linerless Cutter Unit (CL4NX Plus Only)
- 5.20 Replacing the Cutter PCB of the Optional Cutter Unit / Linerless Cutter Unit (CL4NX Plus Only)
- 5.21 Replacing the Pressure Roller of the Optional Dispenser Unit
- 5.22 Replacing the Torque Limiter of the Optional Dispenser Unit (CL4NX Plus Only)
- 5.23 Replacing the Optional Rotary Damper of Cover Damper
- 5.24 Replacing the Optional Rotary Cutter Unit (CL4NX Plus only)
CAUTION
POWER OFF THE PRODUCT AND REMOVE THE POWER CORD BEFORE YOU START ASSEMBLY OR DISASSEMBLY.
5.1 Removing the Housing Cover

Before you remove the covers, power off the product. Disconnect the power cord and all cables attached to the product.

5.1.1 Remove the Left Housing Cover

Required tool:
• Phillips screwdriver (JIS #2 or equivalent)

1 Make sure that the product is powered off, and disconnect the power cord from the AC outlet.

2 Remove the screw ①.

3 Slide and lift in the arrow direction to remove the left housing cover ②.

4 Perform the assembly and attach the left housing cover with the reverse procedure.

Note
When removing the left housing cover, make sure that the cover does not touch the PCB, causing the components of the PCB to be deformed.
5.1.2 Remove the Front Covers

**Required tool:**
- Phillips screwdriver (JIS #2 or equivalent)

1. Make sure that the product is powered off, and disconnect the power cord from the AC outlet.

2. Remove two screws ①.

3. Slide in the arrow direction to remove the front covers ② and ③.

4. Perform the assembly and attach the front covers with the reverse procedure.
5.2 Replacing the Print Head

Wear protective gloves to avoid contaminating the sensitive print head surface. Before replacing the print head, check the head counter values. Refer to the Information > Counters > Head menu.

⚠️ WARNING

• Do not power on or off the product, connect or disconnect the power cord while your hands are wet. Doing so could cause an electric shock.
• Disconnect the power cord from the AC outlet before you replace the print head.

5.2.1 Replacing the Print Head (without the Optional UHF RFID Antenna Installed)

1. Make sure that the product is powered off, and disconnect the power cord from the AC outlet.
2. Open the top cover.

⚠️ CAUTION

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

3. Push the head lock lever 1 towards the rear to unlock the print head.

⚠️ CAUTION

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

4. Remove the media and ribbon if they are already loaded.
5 Press the lever ② to remove the print head ③.

6 Disconnect all the connectors ④ from the defective print head ③.
   In total, there are two connectors for CL4NX Plus and three connectors for CL6NX Plus.

7 Connect all the connectors ④ to the new print head.

⚠️ CAUTION
Handle the print head with care.
Do not contaminate or scratch the sensitive print head surface.

8 Install the new print head.
   Install the print head so that it is locked with a click sound.

9 Load the media and ribbon back if you remove them in step 4.

After the replacement
• If the head counter value is not automatically updated due to reasons such as memory not working, clear the head counter manually.
   Refer to Section 4.2 Counter Clear Mode
   As the head counter information saved in the memory of the smart print head will be recalled when you restart the product under normal conditions, you do not need to clear the head counter value.
• Check the print darkness.
   Refer to Section 4.7 Adjusting the Print Darkness.
5.2.2 Replacing the Print Head (with the optional UHF RFID antenna-CL4NX Plus)

If the optional UHF RFID kit is installed, a small pitch antenna is installed in the print head assembly. When replacing the print head, first remove the small pitch antenna and then reinstall it in the new print head assembly.

Required tool:
• Phillips screwdriver (JIS #2 or equivalent)

1 Refer to steps 1 to 6 of Section 5.2.1 Replacing the Print Head (without the Optional UHF RFID Antenna Installed) to remove the print head assembly from the product.

⚠️ CAUTION
The UHF RFID small pitch antenna is installed in the print head. Do not pull the antenna cable strongly when replacing the print head.

2 Remove two screws (print head) ⑤ and RFID head cover ⑥ from the print head ③.

3 Remove two screws (print head) ⑦ and the head cover ⑧ from the new print head ⑨.

Attach the serial label of the new print head to the head cover ⑧. Store the head cover ⑧ for later reference.

⚠️ CAUTION
Be careful to handle the print head. Do not stain or scratch the surface of the print head.
4 Make sure that the UHF (small pitch) antenna assembly is attached to the **RFID head cover** as shown in the figure.

If it is not attached properly, insert the front of the UHF (small pitch) antenna assembly through the rectangular opening in the RFID head cover. Thread the antenna cable accordingly.

5 Attach the **RFID head cover** to the new **print head** with two **screws** (print head).

Align the end of the RFID head cover with the side surface of the print head and screw them as shown in the figure. Hereafter, the print head assembly is referred to as the **RFID head assembly**.

**Note**
Shorten the antenna cable loop as illustrated by “OK” in the figure.

6 Connect the print head cable to two **connectors** of the **RFID head assembly**.

7 Attach the **RFID head assembly**.

Install so that the print head is locked with a click sound.

8 Put back the removed media and ribbon.

**After replacement**
- If the head counter value is not automatically updated due to reasons such as memory not working, clear the head counter manually.
  Refer to **Section 4.2 Counter Clear Mode**
As the head counter information saved in the memory of the smart print head will be recalled when you restart the product under normal conditions, you do not need to clear the head counter value.

- Check the print darkness.
  Refer to Section 4.7 Adjusting the Print Darkness.
5.2.3 Replacing the Print Head (with the optional UHF RFID antenna-CL6NX Plus)

If the optional UHF RFID kit is installed, a small pitch antenna is installed in the print head assembly. When replacing the print head, first remove the small pitch antenna and then reinstall it in the new print head assembly.

**Required tool:**
- Phillips screwdriver (JIS #2 or equivalent)

1. Refer to steps 1 to 6 of Section 5.2.1 Replacing the Print Head (without the Optional UHF RFID Antenna Installed) to remove the print head assembly from the product.

**CAUTION**
The UHF RFID small pitch antenna is installed in the print head. Do not pull the antenna cable strongly when replacing the print head.

2. Remove the screw and rivets ③ to remove the head cover ⑥ from the print head ③.

3. Remove the screw, rivets (print head) ⑦, and the head cover ⑧ from the new print head ⑨.

Attach the serial label of the new print head to the head cover ⑧. Store the head cover ⑧ for later reference.

**CAUTION**
Be careful to handle the print head. Do not stain or scratch the surface of the print head.
4 Make sure that the UHF (small pitch) antenna assembly is attached to the **RFID head cover** (6) as shown in the figure.

If it is not attached properly, insert the front of the UHF (small pitch) antenna assembly through the rectangular opening in the RFID head cover. Thread the antenna cable accordingly.

5 Attach the **RFID head cover** (6) to the new **print head** (9) using the **screw and rivets** (7) removed in step 3.

Align the end of the RFID head cover (6) with the side surface of the print head (9) and screw them as shown in the figure. Hereafter, the print head assembly is referred to as the **RFID head assembly** (8).
6 Connect the print head cable to two connectors ④ of the RFID head assembly ⑧.

7 Attach the RFID head assembly ⑩. Install so that the print head is locked with a click sound.

8 Put back the removed media and ribbon.

After the Replacement
- If the head counter value is not automatically updated due to reasons such as memory not working, clear the head counter manually. Refer to Section 4.2 Counter Clear Mode.
  As the head counter information saved in the memory of the smart print head will be recalled when you restart the product under normal conditions, you do not need to clear the head counter value.
- Check the print darkness. Refer to Section 4.7 Adjusting the Print Darkness.
5.3 Replacing the Platen Roller

The platen roller is considered a high-wear component due to constant treading of the print media and ribbon stock against its contact surface. This constant contact will eventually wear grooves into the rubber material and negatively affect print output.

Guideline for replacement
The platen roller has a yellow striped marking on the left side. When the yellow striped marking started to fade off, it indicates that you should replace the platen roller.
This is only a general guideline, the condition of the platen roller wears out varies depending on the used media. In any cases, replace the worn platen roller when it affected the printing quality of the product.

WARNING
• Do not touch the power button, connect or disconnect the power cord while your hands are wet. Doing so could cause an electric shock.
• Disconnect the power cord from the AC outlet before you replace the platen roller.

1 Make sure that the product is powered off, and disconnect the power cord from the AC outlet.
2 Open the top cover.

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

3 Push the head lock lever ① towards the rear to unlock the print head.

CAUTION
• The print head and its surroundings are hot after printing. Be careful not to touch it, to avoid being burned.
• Touching the edge of the print head with your bare hand could cause injury.
4 Lift the lever ② to unlock the platen roller ③, then pull out the platen roller ③.

5 Install the new platen roller. Make sure that the first tab ④ on the driving end of the platen roller is pointing upward. Then push the platen roller in the direction ⑤ so that the first tab ④ is fixed in the groove ⑤ at the driving side.

6 Next, make sure that the second tab ⑥ on the driven end of the platen roller is pointing upward. Then push the platen roller again in the direction ⑦ so that the second tab ⑥ is fixed in the groove ⑦ at the driven side.

7 Turn the lever ② back to lock the platen roller.

After the replacement
• Check the print darkness. Refer to Section 4.7 Adjusting the Print Darkness.
5.3.1 Replacing the Optional Linerless Platen Roller (CL4NX Plus Only)

Guideline for replacement
The linerless platen roller has a blue striped marking on the left side. When the blue striped marking started to fade off, it indicates that you should replace the linerless platen roller. This is only a general guideline, the condition of the platen roller wears out varies depending on the used media. In any cases, replace the worn platen roller when it affected the printing quality of the product.

Note on replacement
The replacement procedure is same as the standard platen roller. Refer to Section 5.3 Replacing the Platen Roller. When attaching the linerless platen roller, make sure that the direction of the media guide ① is as shown in the picture.
5.4 Replacing the Media Sensor

Required tool:
- Phillips screwdriver (JIS #2 or equivalent)

1. Make sure that the product is powered off, and disconnect the power cord from the AC outlet.

2. Remove the left housing cover.
   Refer to Section 5.1.1 Remove the Left Housing Cover.

3. Open the top cover.

⚠️ CAUTION
Open the top cover fully to prevent accidental drop of the cover.

4. Push the head lock lever ① towards the rear to unlock the print head.

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

5. Tilt the sensor guide lock ② down and pull out the media sensor guide ③.
6 Disconnect the connectors of the sensor cable set ④.

Disconnect the ribbon sensor connector ⑤ (orange cable). Refer to Section 5.13 Replacing the Ribbon Sensor.

Disconnect the head open sensor connector ⑥ (yellow cable). Refer to Section 5.12 Replacing the Head Open Sensor. Remove the cable from the cable clamps ⑦.

Disconnect the label near end sensor connector ⑧ (brown cable). Refer to Section 5.14 Replacing the Label Near End Sensor. Remove the cable from the hole of the product.
7 Remove the screw ⑨ attaching the sensor holder assembly ⑩ and sensor case tension ⑪. Replace the defective sensor holder assembly with a new sensor holder assembly ⑩.

8 Insert the new sensor holder assembly ⑩ by aligning the rail to fit in the protrusion of the center frame. Push the sensor holder assembly ⑩ all the way in. Attach the sensor case tension ⑪ using the screw ⑨.

9 Perform the assembly with the reverse procedure.

After the replacement
• Adjust the media sensor.
  Refer to Section 4.3 Checking and Adjusting the Media Sensor.
5.5 Replacing the Main (CONT) PCB

Required tool:
• Phillips screwdriver (JIS #2 or equivalent)

1 Make sure that the product is powered off, and disconnect the power cord from the AC outlet.

2 Remove the left housing cover.
   Refer to Section 5.1.1 Remove the Left Housing Cover.
   Refer to Section 5.9 Replacing the Interface Board to remove the interface board if applicable.

3 Disconnect all the cables from the connectors (as listed below) on the main (CONT) PCB.
   A: HEAD, connects to the print head assembly.
   B: EXT (optional), connects to the EXT PCB when installing optional RTC kit, dispenser or RFID kit.
   C: KB (X2), connect to the operator panel (KB) PCB.
   D: MOTOR, connect to the gearbox motor.
   E: SEN, connects to various sensors.
   F: OPTION, connects to the relay PCB when installing optional cutter, dispenser or linerless kit.
   G: USB, connects to the USB PCB.
   H: POW, connects to the power supply unit.
   I: CN1, connects to the power supply unit.
   J: JITAG&NFC, connect to the operator panel (KB) PCB.

4 Remove six screws attaching the main (CONT) PCB to the bracket.

5 Remove a screw attaching the FPGA PCB assembly to the main (CONT) PCB and bracket.

6 Remove the FPGA PCB assembly from the FPGA connector on the main (CONT) PCB.

7 Replace the defective main (CONT) PCB with a new main (CONT) PCB.
8 Perform the assembly with the reverse procedure.

After the replacement
- Check the media sensor.
  Refer to Section 4.3 Checking and Adjusting the Media Sensor.
- Adjust the print darkness.
  Refer to Section 4.7 Adjusting the Print Darkness.
- Adjust the pitch.
  Refer to Section 4.5 Adjusting the Print Position.
- Adjust the offset.
  Refer to Section 4.6 Adjusting the Media Stop/Cut Position.
- Adjust the factory pitch or factory offset only when you cannot adjust the print position or the media stop/cut position with the pitch setting or the offset setting in the Printing menu. Set only when necessary.
  Refer to Section 4.11 Adjusting the Factory Pitch and Section 4.12 Adjusting the Factory Offset.
5.6 Replacing the Operator Panel (KB) PCB

Required tool:
- Phillips screwdriver (JIS #2 or equivalent)

1 Make sure that the product is powered off, and disconnect the power cord from the AC outlet.

2 Remove the left housing cover.
   Refer to Section 5.1.1 Remove the Left Housing Cover.

3 Remove the front covers.
   Refer to Section 5.1.2 Remove the Front Covers.

4 On the back of the operator panel, disconnect two connectors ① and the connector ②.

5 Remove two screws ③, then slide the operator panel ④ upward to remove it.

6 Disconnect the connector ⑤.

7 Remove five screws ⑥ and replace the operator panel (KB) PCB ⑦.

8 Perform the assembly with the reverse procedure.

After the replacement
- Adjust the LCD contrast.
  Refer to Section 4.14 Adjusting the LCD Brightness.
5.7 Replacing the NFC Antenna

Required tool:
- Phillips screwdriver (JIS #2 or equivalent)

1 Make sure that the product is powered off, and disconnect the power cord from the AC outlet.

2 Remove the left housing cover.
   Refer to Section 5.1.1 Remove the Left Housing Cover.

3 Remove the front covers.
   Refer to Section 5.1.2 Remove the Front Covers.

4 On the back of the operator panel, disconnect two connectors ① and the connector ②.

5 Remove two screws ③, then slide the operator panel ④ upward to remove it.

6 Disconnect the connector ⑤.

7 Remove five screws ⑥, then remove the operator panel (KB) PCB ⑦.
8 Remove the **power button** ⑧ and the **NFC antenna holder** ⑨.

9 Remove the defective **NFC antenna PCB** ⑩ and replace with the new **NFC antenna PCB**.

10 Perform the assembly with the reverse procedure.
   When placing the NFC antenna PCB on the holder, ensure the NFC antenna PCB sits on the hooks of the holder.
   Place the NFC holder on the ribs of the operator panel.
5.8 Replacing the Power Supply Unit

CL4NX Plus

Required tool:
• Phillips screwdriver (JIS #2 or equivalent)

1 Make sure that the product is powered off, and disconnect the power cord from the AC outlet.

2 Remove the left housing cover.
   Refer to Section 5.1.1 Remove the Left Housing Cover.
   Refer to Section 5.9 Replacing the Interface Board to remove the interface board if applicable.

3 Disconnect all the cables from the connectors on the main (CONT) PCB.
   Refer to the step 3 of Section 5.5 Replacing the Main (CONT) PCB for details.

4 Remove five screws, then remove the main (CONT) PCB assembly (with bracket).

5 Disconnect the cables from two connectors on the power supply unit.

6 Remove four screws, then replace the power supply unit.

7 Perform the assembly with the reverse procedure.

After the replacement
• Power on the product, check that the product operates correctly.
CL6NX Plus

Required tool:
- Phillips screwdriver (JIS #2 or equivalent)

1 Make sure that the printer is powered off, and disconnect the power cord from the AC outlet.

2 Remove the left housing cover.
   Refer to Section 5.1.1 Remove the Left Housing Cover.
   Refer to Section 5.9 Replacing the Interface Board to remove the interface board if applicable.

3 Remove the rewind core unit if it is installed to the dispenser model.
   Refer to Section 5.17 Replacing the Torque Limiter for Optional Liner Rewinder to remove the rewind core unit.

4 Disconnect all the cables from the connectors on the main (CONT) PCB.
   Refer to the step 3 of Section 5.5 Replacing the Main (CONT) PCB for details.

5 Remove four screws ① and then remove the main (CONT) PCB assembly (with bracket) ②.

6 Remove three screws ③ attaching the media holder plate ④.
7 Slide in the arrow direction to remove the media holder plate ④.

8 Remove four screws ⑤ attaching the power supply unit ⑥ to the printer center frame.

9 Remove two screws ⑦ attaching the power supply unit ⑥ to the printer rear.

10 Disconnect the cables from two connectors ⑧ on the power supply unit ⑥.

11 Remove the defective power supply unit ⑥ and replace with the new power supply unit ⑥.

12 Perform the assembly with the reverse procedure.

After the replacement
• Power on the printer, check that the printer operates correctly.
5.9 Replacing the Interface Board

**Required tool:**
- Phillips screwdriver (JIS #2 or equivalent)

1. Make sure that the product is powered off, and disconnect the power cord from the AC outlet.
   Remove the interface cable if applicable.

2. Remove two screws ①, then replace the interface board ②.

**Note**
Make sure that the interface board is aligned and inserted into the slot. So as not to scrape the board against the top metal catches inflicting damage.

3. Tighten two screws ①.
5.10 Replacing the FPGA PCB

**Required tool:**
- Phillips screwdriver (JIS #2 or equivalent)

1. Make sure that the product is powered off, and disconnect the power cord from the AC outlet.

2. Remove the **left housing cover**.
   Refer to **Section 5.1.1 Remove the Left Housing Cover**.

3. Disconnect the **CN1 connector** ① on the **FPGA PCB** ②.

4. Remove two **screws** ③ attaching the **FPGA PCB** ② to the bracket.

5. Remove the **FPGA PCB** ② from the **FPGA connector** ④ on the **main (CONT) PCB**.

6. Replace the defective **FPGA PCB** ② with a new **FPGA PCB** ②.

7. Set the DIP switch **DSW1** on the **FPGA PCB** as below.

<table>
<thead>
<tr>
<th></th>
<th>CL4NX Plus</th>
<th>CL6NX Plus</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ON</td>
<td>OFF</td>
</tr>
<tr>
<td>2</td>
<td>ON</td>
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</tr>
<tr>
<td>3</td>
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<td>OFF</td>
</tr>
<tr>
<td>8</td>
<td>OFF</td>
<td>OFF</td>
</tr>
</tbody>
</table>

8. Perform the assembly with the reverse procedure.
5.11 Replacing the Timing Belt

Required tool:
• Phillips screwdriver (JIS #2 or equivalent)

1 Make sure that the product is powered off, and disconnect the power cord from the AC outlet.

2 Remove the left housing cover.
   Refer to Section 5.1.1 Remove the Left Housing Cover.

3 Disconnect the motor cable from the connector ①, remove four screws ②, then remove the gearbox ③.

4 On the gearbox ③, loosen the screw ④ and replace the timing belt ⑤.

5 Perform the assembly with the reverse procedure.

After the replacement
• Adjust the tension of the timing belt.
   Refer to Section 4.17 Adjusting the Timing Belt Tension.
5.12 Replacing the Head Open Sensor

Required tool:
• Phillips screwdriver (JIS #2 or equivalent)

1. Make sure that the product is powered off, and disconnect the power cord from the AC outlet.

2. Remove the **left housing cover**.
   Refer to Section 5.1.1 Remove the Left Housing Cover.

3. Remove the **gearbox**.
   Refer to Section 5.11 Replacing the Timing Belt.

4. Remove the **screw** ①, disconnect the **cable** ② and replace the **sensor PCB** ③.

5. Perform the assembly with the reverse procedure.

---

**After the replacement**
• Check the head open error message.
  Refer to Section 4.9 Checking the Head Open Error.
5.13 Replacing the Ribbon Sensor

Required tool:
• Phillips screwdriver (JIS #2 or equivalent)

1 Make sure that the product is powered off, and disconnect the power cord from the AC outlet.

2 Remove the left housing cover. Refer to Section 5.1.1 Remove the Left Housing Cover.

3 Remove the ribbon frame. Refer to Section 5.15 Replacing the Torque Limiter for Ribbon Rewind Spindle.

4 Remove the screw ①, disconnect the cable ② and replace the ribbon sensor PCB ③.

5 Perform the assembly with the reverse procedure.

After the replacement
• Check the ribbon end error message. Refer to Section 4.8 Checking the Ribbon End Function.
5.14 Replacing the Label Near End Sensor

CL4NX Plus

Required tool:
- Phillips screwdriver (JIS #2 or equivalent)

1. Make sure that the product is powered off, and disconnect the power cord from the AC outlet.

2. Remove the left housing cover.
   Refer to Section 5.1.1 Remove the Left Housing Cover.

3. Remove the rewind core unit if the optional liner rewinder is installed.
   Perform step 2 and step 3 of Section 5.17 Replacing the Torque Limiter for Optional Liner Rewinder.

4. Remove three screws ① attaching the media holder plate ②.

5. Slide in the arrow direction to remove the media holder plate ②.

⚠️ CAUTION
When the liner rewinder is installed in CL4NX Plus, the attachment position of the label near end sensor and the media holder is different from that of CL4NX Plus. Refer to the instruction of CL6NX Plus for the attachment position.
6 Remove four screws ③.

7 Lift up the media holder bracket ④ to remove from the center frame.

8 Disconnect the sensor cable ⑤ from the connector.

9 Remove the screw ⑥, then remove the label sensor bracket ⑦ from the media holder bracket ④.

10 Remove the screw ⑧ and replace the label sensor ⑨.

11 Perform the assembly with the reverse procedure.
Notes on installing the label sensor bracket
Install the label sensor bracket on the circled position as shown.

If the optional liner rewinder is installed, the media holder and label sensor bracket are installed on the upper position. In this case, install the label sensor bracket on the “X” position instead.

After the replacement
• Check the label near end warning icon.
  Refer to Section 4.10 Checking the Label Near End Function.
CL6NX Plus

Required tool:
• Phillips screwdriver (JIS #2 or equivalent)

1 Make sure that the product is powered off, and disconnect the power cord from the AC outlet.

2 Remove the left housing cover.
   Refer to Section 5.1.1 Remove the Left Housing Cover.

3 If the optional liner rewinder is installed, remove the rewind core unit.
   Refer to steps 2 and 3 of Section 5.17 Replacing the Torque Limiter for Optional Liner Rewinder.

4 Remove the three screws ① that attach the media holder plate ②.

5 Slide the media holder plate ② in the direction of the arrow to remove it.
6 Remove four screws ③.

7 Lift the media holder bracket ④ and remove it from the center frame.

8 Remove the center cable from the connector ⑤.

9 Remove the screw ⑥ and remove the label sensor bracket ⑦ from the media holder bracket ④.

10 Remove the screw ⑥ and replace the label sensor ⑦.

11 Perform the assembly with the reverse procedures.
Note Precautions when attaching the label sensor bracket
Attach the label sensor bracket at the position indicated by the circle in the following photo.

After the Replacement
• Check the warning icon of the label near end detection.
  Refer to Section 4.10 Checking the Label Near End Function.
5.15 Replacing the Torque Limiter for Ribbon Rewind Spindle

Required tool:
- Phillips screwdriver (JIS #2 or equivalent)

1. Make sure that the product is powered off, and disconnect the power cord from the AC outlet.

2. Remove the left housing cover. Refer to Section 5.1.1 Remove the Left Housing Cover.

3. Remove four screws ①, then remove two bearings ② and the ribbon frame ③.

4. Remove the gearbox. Perform step 3 of Section 5.11 Replacing the Timing Belt.

5. Remove one way torque limiter ④, E-ring ⑤, gear ⑥, torque limiter ⑦ and one way clutch ⑧.

6. Replace the torque limiter ⑦.

7. Perform the assembly with the reverse procedure.

After the replacement
- Adjust the tension of the timing belt. Refer to Section 4.18 Adjusting the Ribbon Tension.
5.16 Replacing the Torque Limiter for Ribbon Supply Spindle

Required tool:
- Phillips screwdriver (JIS #2 or equivalent)
- Slotted screwdriver

1. Make sure that the product is powered off, and disconnect the power cord from the AC outlet.

2. Remove the left housing cover.
   Refer to Section 5.1.1 Remove the Left Housing Cover.

3. Remove four screws ①, then remove two bearings ② and the ribbon frame ③.

4. Using the slotted screwdriver, remove the screw ③ attaching the torque limiter ⑤ to the ribbon supply spindle.

5. Remove the BF spring ⑤, torque limiter ⑥ and BF stopper ⑦.

6. Replace the torque limiter ⑥.

7. Perform the assembly with the reverse procedure.
   Refer to the Notes on installing the BF spring.

* Refer to Note
Notes on installing the BF spring

1. Place the straight end of the BF spring onto the left side of the RED dotted line as shown.
2. Turn the other end of the BF spring (U-shape) counterclockwise, approximately 3 quarters rotation, to the RED dotted line. Cross over the straight end position, then hook to the projection of the frame and BF stopper.
5.17 Replacing the Torque Limiter for Optional Liner Rewinder

1 Make sure that the product is powered off, and disconnect the power cord from the AC outlet.

2 Open the top cover.

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

3 Remove the E-ring ①, then remove the rewind core unit ②.

4 Remove the spring ③, E-ring ④, torque limiter ⑤ and one way clutch ⑥.

5 Replace the torque limiter ⑤.

6 Perform the assembly with the reverse procedure.
Rotate the torque limiter while applying forward pressure to ensure proper nesting onto the one way clutch.
5.18 Replacing the Timing Belt for Optional Liner Rewinder

**CL4NX Plus**

**Required tool:**
- Phillips screwdriver (JIS #2 or equivalent)

1. Make sure that the product is powered off, and disconnect the power cord from the AC outlet.

2. Remove the **left housing cover**.
   Refer to Section 5.1.1 Remove the Left Housing Cover.

3. Remove the **rewind core unit**.
   Perform step 2 and step 3 of Section 5.17 Replacing the Torque Limiter for Optional Liner Rewinder.

4. Remove three **screws** ① attaching the **media holder plate** ②.

5. Slide in the arrow direction to remove the **media holder plate** ②.
6. Remove four screws ③, then remove the rewinder unit ④.

7. Loosen the screw ⑤ of the tension bracket.

8. Remove two screws ⑥ attaching the pulley bracket ⑦ on the rear of the rewinder unit ④. Then remove the pulley bracket ⑦ and the bearing ⑧.

9. Remove three screws ⑨, then remove the gear bracket ⑩.

10. Remove the E-ring ⑪ and the gear pulley ⑫.

11. Replace the timing belt ⑬.

12. Perform the assembly with the reverse procedure.

After the replacement
- Adjust the tension of the timing belt.
  Refer to Section 4.20 Adjusting the Timing Belt Tension of the Optional Liner Rewinder.
  Belt tension adjustment must be performed after installing the rewinder unit and before installing the media holder plate.
- Check that the liner rewind operation is correct.
CL6NX Plus

Required tool:
- Phillips screwdriver (JIS #2 or equivalent)

1 Make sure that the printer is powered off, and disconnect the power cord from the AC outlet.

2 Remove the left housing cover.
   Refer to Section 5.1.1 Remove the Left Housing Cover.

3 Remove the rewind core unit.
   Refer to Section 5.17 Replacing the Torque Limiter for Optional Liner Rewinder.

4 Remove three screws ① attaching the media holder plate ②.

5 Slide in the arrow direction to remove the media holder plate ②.
6 Remove four screws ③ and remove the gearbox ④ of the liner rewinder.

7 Remove three screws ⑤ and remove the rewind drive unit ⑥.

8 Remove the E-ring ⑦, gear pulley ⑧ and replace the timing belt ⑨.
Loosen the screw ⑩ in case the tension of the timing belt is tight.

9 Perform the assembly with the reverse procedure.

After the replacement
• Adjust the tension of the timing belt.
  Refer to Section 4.20 Adjusting the Timing Belt Tension of the Optional Liner Rewinder.
• Check that the liner rewind operation is correct.
5.19 Replacing the Optional Cutter Unit / Linerless Cutter Unit (CL4NX Plus Only)

Before replacing the cutter unit / linerless cutter unit, check the cutter counter values. Refer to the Information > Counters menu.

**Required tools:**
- Phillips screwdriver (JIS #2 or equivalent)
- Nipper

1. Make sure that the product is powered off, and disconnect the power cord from the AC outlet.

2. Remove **two screws** ①, then remove the **front cover** ②.

3. Remove **four screws** ④, then remove the **cutter unit / linerless cutter unit** ⑤.

4. Slide in the arrow directions to remove the **front cover** ③.

5. Disconnect all the **connectors** ⑥.
   The cutter unit has four connectors, and the linerless cutter unit for CL4NX Plus has five connectors including the one indicated by the dotted line.

6. Remove **two screws** ⑦, then remove the **cutter unit / linerless cutter unit** from the **cutter PCB** ⑧.

7. Remove the **screw** ⑨, then remove the **cutter open sensor** ⑩.

8. Cut and remove **two cable ties** ⑪ that bind the cable of the **cutter open sensor** to the frame.
For the linerless cutter unit, remove the label sensor ⑯, cut and remove the cable tie ⑰ that binds the cable of the label sensor to the frame.

Replace the cutter unit / linerless cutter unit with a new unit.

Perform the assembly with the reverse procedure.

After the replacement
- Clear the cutter counter value.
  Refer to Section 4.2 Counter Clear Mode.
5.20 Replacing the Cutter PCB of the Optional Cutter Unit / Linerless Cutter Unit (CL4NX Plus Only)

Required tool:
- Phillips screwdriver (JIS #2 or equivalent)

1 Refer to steps 1 through 5 of Section 5.19 Replacing the Optional Cutter Unit / Linerless Cutter Unit (CL4NX Plus Only) to remove the cutter unit / linerless cutter unit from the product and disconnect all the connectors from it.

2 Remove four screws ① and replace the cutter PCB ②.

3 Perform the assembly with the reverse procedure.
5.21 Replacing the Pressure Roller of the Optional Dispenser Unit

5.21.1 Removing the Dispenser Unit

Required tool:
• Phillips screwdriver (JIS #2 or equivalent)

1. Make sure that the product is powered off, and disconnect the power cord from the AC outlet.

2. Remove two screws ①.

3. Remove the screw ③ from the back of the dispenser unit ②.

4. Open the dispenser unit ② and remove the front cover ④.

5. Remove the screw ⑤, then remove the dispenser bar ⑥.

6. Remove four screws ⑦ attaching to the dispenser unit ②.
   It is not necessary to remove the screw ⑧.

7. Remove the dispenser unit ②.

8. Slide in the arrow direction to remove the front cover ⑨.

9. Disconnect the connector ⑩.
5.21.2 Replacing the Pressure Roller (CL4NX Plus)

**Required tools:**
- Phillips screwdriver (JIS #2 or equivalent)
- Slotted screwdriver
- Spring hooking tool

**1** Use the spring hook tool to remove the **hooks of the nip spring** ① on both sides from the frame's parts where the nip spring hangs.

When it is difficult to remove, insert a slotted screwdriver into the part where the nip spring hangs and twist it. The tip of the hook will come off.
2 Remove the E-rings ② and bushes ③ from both ends of the pressure roller unit to remove the unit.

3 Remove the screw ⑤ from the pressure roller ④.
   At this point, do not remove the pressure roller ④ from the shaft. Otherwise, the parts inside the pressure roller may come out.

4 While paying attention to prevent the spring ⑦ from coming out, remove the collar ⑥.

5 Remove the spring ⑦ and steel ball ⑧.
   Be careful not to lose the spring and steel ball, as they are small parts.

6 Remove the E-ring ⑨.

7 Replace the pressure roller ④.

8 Perform the assembly with the reverse procedure.
Notes on assembly

• Pay attention to insert direction of the pressure roller.

• Hook the pin of the torque limiter stopper ① into a hole of the stopper plate ② and assemble it.

• Confirm that the nip spring is in the correct position. Especially on the shaft side, make sure that the tip of the spring is hitting the frame in the direction of the arrow. Also the spring must not fall into the groove.

• When attaching the dispenser unit to the product, be careful not to pinch the cable.
5.21.3 Replacing the Pressure Roller (CL6NX Plus)

Required tools:
- Phillips screwdriver (JIS #2 or equivalent)
- Slotted screwdriver

1. Use the slotted screwdriver to remove the hooks of the nip spring on both sides from the frame's parts where the nip spring hangs.

Do not use a spring hooking tool as the spring of CL6NX Plus is so strong and may damage the tool. Insert the slotted screwdriver into the part where the nip spring hangs and twist it. The tip of the hook will come off.

2. Remove the E-rings and bushes from both ends of the pressure roller unit to remove the unit.

3. Remove the screw from the pressure roller.

At this point, do not remove the pressure roller from the shaft. Otherwise, the parts inside the roller may come out.

4. While paying attention to prevent the spring from coming out, remove the collar.

5. Remove the spring and steel ball.

Be careful not to lose the spring and steel ball, as they are small parts.

6. Remove the E-ring.

7. Replace the pressure roller.

8. Perform the assembly with the reverse procedure.
Notes on assembly

• Pay attention to insert direction of the pressure roller.

• Because the spring of CL6NX Plus is so strong and may damage the spring hooking tool, remove the front cover when hooking the spring.

Push the hook with a slotted screwdriver etc, and hitch the hook on the frame's part where the spring hangs.

Confirm that the hook is in the correct position, and then attach the front cover.
• Confirm that the nip spring is in the correct position. Especially on the shaft side, make sure that the tip of the spring is hitting the frame in the direction of the arrow. Also the spring must not fall into the groove.

• When attaching the dispenser unit to the printer, be careful not to pinch the cable.
5.22 Replacing the Torque Limiter of the Optional Dispenser Unit (CL4NX Plus Only)

Required tools:
• Phillips screwdriver (JIS #2 or equivalent)
• Slotted screwdriver
• Spring hooking tool

1 Refer to Section 5.21.1 Removing the Dispenser Unit and step 1 of Section 5.21.2 Replacing the Pressure Roller (CL4NX Plus) to remove the dispenser unit from the product and remove the hooks of the nip spring from the frame's parts where the spring hangs.

2 Remove the E-rings ① and bushes ② from both ends of the pressure roller unit to remove the unit.

3 Remove the E-ring ③, one way clutch ④, torque limiter ⑤, torque limiter stopper ⑥, and polyslider washer ⑦ from the shaft.

4 Replace the torque limiter ⑤.

5 Perform the assembly with the reverse procedure.

Note on assembly
• When assembling, fit the convex and groove of the torque limiter stopper ⑥ and torque limiter ⑤, and perform the same to the torque limiter ⑤ and one way clutch ④.
5.23 Replacing the Optional Rotary Damper of Cover Damper

The rotary dampers have to be replaced if the free-fall time is 1.5 seconds or less when you freely close the cover (when the ambient temperature is 23°C ±2°C). The rotary dampers are located in the left and right respectively, so replace both of them simultaneously. When doing the assembly, be careful not to mount to a wrong location.

5.23.1 Measuring the Free-fall Time

1. Open the top cover fully, then close it slowly.
   On the way to closing the top cover slowly, there is a position where the cover closes by its own weight (about 80 degrees).

2. Release the top cover slowly at the position where the cover begins to close by its own weight. The cover falls freely.

3. Measure the free-fall time.
   The free-fall time is “the interval time from the position where the top surface of the cover is approaching the vertical (90 degrees) until it completely closes”.

   - Release the top cover when it has begun to close by its own weight.
   - Measure the section-time
     Start: the vertical position
     Stop: completely closed

Free-fall time varies widely. Obtain the average value by measuring approximately 5 to 10 times.
5.23.2 Replacing the Rotary Damper

Note
The rotary dampers are located in the left and right respectively, so replace both of them simultaneously. When doing the assembly, be careful not to mount to a wrong location.

Required tool:
- Phillips screwdriver (JIS #2 or equivalent)

1. Make sure that the product is powered off, and disconnect the power cord from the AC outlet.

2. Open the top cover.

⚠️ CAUTION
Open the top cover fully to prevent accidental drop of the cover.

3. Remove two screws ① to remove the cap ②.

4. Remove the screw ③ to remove the hinge ④ and rotary damper R ⑤.

5. Replace the rotary damper R ⑤ and perform the assembly with the reverse procedure of step 4.
Assemble the rotary damper R ⑤ so that the notch and the “R” marking are upward.

6 Remove two screws ⑥ to remove the hinge ⑦ and rotary damper L ⑧.

7 Replace the rotary damper L ⑧ and perform the assembly with the reverse procedure of step 6.

Assemble the rotary damper L ⑧ so that the notch and the “L” marking are upward.

8 Perform the assembly with the reverse procedure of step 3 and previous steps.

**After the replacement**

- Check the free-fall time.
  Free-fall time of the new rotary dampers: 11 sec ±4 sec (when the ambient temperature is 23°C ±2°C)
5.24 Replacing the Optional Rotary Cutter Unit (CL4NX Plus only)

Before replacing the rotary cutter unit, check the cutter counter value. Check Information > Counters menu.

**Required tool:**
- Phillips screwdriver (JIS #2 or equivalent)

1. Make sure that the product is powered off, and disconnect the power cord from the AC outlet.
2 Remove two **screws** ⑫ and remove the **cover** ⑬.
   1. Move the cover to the right.
   2. Remove the left side of the cover from the product.
   3. Remove the cover from the product.
3 Remove two screws ③ for the cutter unit and two screws attached to the cutter unit.
4 Remove the cutter unit ⑫.
Remove the cutter cable ⑧ from the base of the cutter unit ⑫.

5 Replace the cutter unit with a new one.
6 Perform the assembly with the reverse procedures.

Notes on assembly
- With the cutter cable 8 in the groove, align the cutter unit to be attached.
- Align the holes on the bracket with the projections on the cutter unit, and align them so that there is no gap between the cutter unit and the product.

After the replacement
- Clear the cutter counter value.
  Refer to Section 4.2 Counter Clear Mode.
This chapter describes how to install the following options.

- **6.1 Installing the Optional RTC (Real-time Clock) Kit**
  With the RTC kit, you can set the calendar for time and date labeling.

- **6.2 Installing the Optional Wireless LAN Kit**
  With the wireless LAN kit, you can easily communicate with Wi-Fi compliant networks without wired connections.

- **6.3 Installing the Optional Cutter**
  With the cutter unit, you can cut each media while/after printing the specified number of media continuously.

- **6.4 Installing the Optional Rotary Cutter (CL4NX Plus only)**
  With the rotary cutter, you can cut the media automatically in the designated number of pages.

- **6.5 Installing the Optional Dispenser with Internal Rewinder**
  With the dispenser unit, you can peel the liner from the printed label.

- **6.6 Installing the Optional Linerless Kit (CL4NX Plus Only)**
  With the linerless kit, you can cut each linerless label while/after printing the specified number of media continuously.

- **6.7 Installation of the Optional RFID Kit**
  With the RFID kit, you can print RFID tags/labels that enable identification using radio frequency.
6.1 Installing the Optional RTC (Real-time Clock) Kit

⚠️ CAUTION
Before the installation, be sure to power off the product and disconnect the power cord.

Required tool:
• Phillips screwdriver (JIS #2 or equivalent)

1 Remove the screw ①, slide and lift to remove the left housing cover ②.

Note
When removing the left housing cover, make sure that the cover does not touch the PCB, causing the components of the PCB to be deformed.

2 Attach the EXT PCB ③ and tighten four screws ④.
3 Connect the **EXT signal cable** to the **CN3 connector** on the **EXT PCB**. Then the other end to the **EXT connector** on the **main (CONT) PCB**.

4 Attach the **left housing cover** and tighten the **screw**.

**Note**
Align the catches of the cover to the circled position and slide the cover in the arrow direction. When attaching the cover, be careful not to pinch the cables.

---

**Checking after the Installation**

1 Power on the product and confirm that the time (hh:mm) is showed on the right top corner of the LCD screen.
6.2 Installing the Optional Wireless LAN Kit

6.2.1 Installing the Optional Wireless LAN onto the Interface Combo Board

Required tools:
- Phillips screwdriver (JIS #1 and #2, or equivalent)
- Wrench (size: #10)

1. Make sure that the product is powered off, and disconnect the power cord from the AC outlet. Then, disconnect all the interface cables, if any.

2. On the rear of the product, remove two screws ① and pull out the interface combo board ②.

3. Remove the antenna hole cover ③ from the interface combo board ②.
4 Insert the wire of the antenna sub ④ through the antenna hole, a washer ⑤ and a hexagon nut ⑥.
Set the antenna sub ④ to match the convex on the bracket, fix the antenna sub ④ by the hexagon nut ⑥ using a wrench.

5 Connect the wire of the antenna sub ④ to the CN1 connector on the WLAN PCB ⑦.
6 Connect the **WLAN PCB** ⑦ to the **CN7 connector** on the **interface combo board** ② and tighten two **screws** ⑧.

7 Connect and tighten the **antenna** ⑨ to the **antenna sub** ④.
   Tilt the **antenna** ⑨ to upright position.
8 Attach the **interface combo board** ② with the wireless LAN installed, to the product and tighten two **screws** ①.

**Note**
- Make sure that the interface board is aligned and inserted into the slot. So as not to scrape the board against the top metal catches inflicting damage.
- When using the wireless LAN, adjust the **antenna** ③ facing upward.
  When transporting the product, make sure that the **antenna** ⑨ is facing downward.

9 Paste the **WIFI/CCX Sticker** ⑩ on the front left bottom corner of the product as shown.
6.2.2 Installing the Optional Wireless LAN Interface Board

**Required tools:**
- Phillips screwdriver (JIS #2 or equivalent)

1. Make sure that the product is powered off, and disconnect the power cord from the AC outlet.

2. On the rear of the product, remove two screws and remove the interface cover.

3. Connect and tighten the antenna to the antenna sub of the WLAN board assembly.
   Tilt the antenna to upright position.

4. Attach the WLAN board assembly to the product and tighten two screws.

**Note**
Make sure that the WLAN board assembly is aligned and inserted into the slot. So as not to scrape the board against the top metal catches inflicting damage.
**Note**
When using the wireless LAN, adjust the **antenna ③** facing upward.
When transporting the product, make sure that the **antenna ③** is facing downward.

5 Paste the **WIFI/CCX Sticker ⑥** on the front left bottom corner of the product as shown.
6.3 Installing the Optional Cutter

⚠️ CAUTION
• Before the installation, be sure to power off the product and disconnect the power cord.
• Be careful not to touch the cutter blade.

Required tools:
• Phillips screwdriver (JIS #2 or equivalent)

1. Open the top cover ① and print head ②.

⚠️ CAUTION
Open the top cover fully to prevent accidental drop of the cover.

2. Remove two screws ③ and the front covers ④ and ⑤.
   Slide in the arrow direction to remove the front covers.
3 Install the relay PCB ⑥ to the product and tighten two screws ⑦.

⚠️ CAUTION
To avoid electrical damage, make sure that the orientation of the relay PCB is placed with the highlighted connector at the bottom as shown.

4 Connect the option cable ⑧ of the product to the relay PCB ⑥.
5 Connect the cutter cable ③ to the relay PCB ⑥.

6 Attach the front cover ⑤ while placing the cutter cable ③ onto the slot.

7 Connect the cutter cable ③ to the PCB on the cutter unit ⑩.
8 Attach the cutter unit ⑧ to the product and tighten four screws ⑪.

9 Attach the front cover ⑫ of the cutter and tighten two screws ⑬.

Checking and Adjusting after the Installation

Error message checking

1 After you load the media and ribbon, close the print head then power on the product.
2 Pull the tab to open the cutter-open lever and check that the Cutter open error message shows on the LCD.

3 Close and lock the cutter-open lever.

Cut position adjustment

1 In offline mode, press the right soft button (FEED).
   The product feeds and cuts one label.

2 Check that the cut position is correct.
   Make sure that the cutter cuts on the label gap. If not, adjust the offset value.
   Refer to Section 4.6 Adjusting the Media Stop/Cut Position to adjust the media cut position if necessary.

Note
If the Auto-mode in Printing is disabled, make sure that you have selected Cutter, Linerless or Cut & Print in Printing > Print Mode.
6.4 Installing the Optional Rotary Cutter (CL4NX Plus only)

⚠️ **CAUTION**
- Before the installation, make sure to power off the product and disconnect the power cord.
- Be careful not to touch the cutter blade.

**Required tool:**
- Phillips screwdriver (JIS #2 or equivalent)

1. Open the **top cover ①** and the **print head ②**.

⚠️ **CAUTION**
Open the top cover ① fully to prevent accidental drop of the cover.
2 Remove two screws \( \text{screws} \) ③, the front covers ④ and ⑤.
   Slide in the arrow direction to remove the front cover.
   You do not use the removed front cover.

3 Pull out the option cable ⑤ of the product.
4 Connect the **cutter cable** ③ and the **option cable** ⑥ to the **Relay-PCB** ⑦.
5 Insert the Relay-PCB ⑦ into the product and tighten two Relay-PCB screws ⑧.

6 Attach the rotary cutter bracket ⑩ to the product and tighten it with three bracket screws ⑪.
7 Connect the other end of the cutter cable ⑧ to the base of the cutter unit ⑫.
8 With the cutter cable ⑧ in the groove, align the cutter unit ⑨ to be attached.

Align the holes on the bracket with the projections on the cutter unit. Align the cutter unit and product so that there is no gap between them.
9 Tighten two screws attached to the cutter unit and two cutter unit screws (5).
Attach the cover and tighten two cover screws.

1. Align the cover with the right side of the product.
2. Push the left side of the cover toward the product.
3. Move the cover to the Left.
6.5 Installing the Optional Dispenser with Internal Rewinder

CL4NX Plus

⚠️ CAUTION
Before the installation, be sure to power off the product and disconnect the power cord.

**Required tools:**
- Phillips screwdriver (JIS #2 or equivalent)
- Nipper
- Pliers

1. Open the **top cover** ① and print head ②.

⚠️ CAUTION
Open the top cover fully to prevent accidental drop of the cover.
2 Remove two screws ③ and the front covers ④ and ⑤. Slide in the arrow direction to remove the front covers.

3 Remove the screw ⑥, slide and lift in the arrow direction to remove the left housing cover ⑦.

Note
When removing the left housing cover, make sure that the cover does not touch the PCB, causing the components of the PCB to be deformed.

4 If you are installing dispenser without internal rewinder, proceed to step 23 directly. Otherwise, continue the following steps to install the internal rewinder.
5 Remove the **screws** ⑧ to remove the **cover** ⑤, then remove three **screws** ⑩ to remove the **media holder plate** ⑪.

6 Cut three joints using a nipper to remove the portion in the circle of the **media holder plate** ⑪.

Make sure that there is no burr remains on the cut surface.
7 Remove four screws ②.

8 Lift up the media holder bracket ③ to remove from the center frame.

9 Disconnect the sensor cable ④ from the label sensor connector.

10 Remove the screw ⑤ and shift the label sensor assembly ⑥ to the upper position and attach it back with the screw ⑤.

11 Remove three screws ⑦ and shift the media holder ⑧ to the upper position and attach it back with the screws ⑦.

12 Connect the sensor cable ④ to the label sensor connector.
13 Attach the media holder bracket ▌ to the center frame and tighten four screws ▍.

14 Connect the DIS motor cable ▌ to the stepping motor of the rewinder unit ▒.

15 Attach the rewinder unit ▌ and tighten four screws ▍.

16 Slide to attach the media holder plate ▍ back and tighten three screws ▌. Refer to step 5 for the positions of three screws ▌.
17 Place the spring ② and rewind core unit ③ through the rewind shaft ④.
   Rotate the rewind core unit ③ such that the groove on the inner core nested on the protruding tab of the torque limiter.
   Properly nested rewind core unit allows the E-ring ⑤ to lock on the rewind shaft ⑥.

18 Insert the oiles bearing ⑧ to the center hole of the rewind core unit ②.

19 Using a pliers, attach the E-ring ⑤ to the groove of the rewind shaft ⑥.

20 Attach the EXT PCB ⑥ and tighten four screws ⑦.
21 Connect the DIS power cable to the EXT PCB and power supply unit. Then connect the DIS signal cable to the EXT PCB and the main (CONT) PCB.

22 Connect the DIS motor cable from the rewinder unit to the EXT PCB.
23 Install the relay PCB @ to the product and tighten two screws @.

⚠️ CAUTION
To avoid electrical damage, make sure that the orientation of the relay PCB is placed with the highlighted connector at the bottom as shown.

24 Connect the option cable 2 of the product to the relay PCB @.

25 Connect the dispenser cable 3 of the dispenser unit to the relay PCB @.
26 Attach the front cover ⑤ to the product.

27 Attach the dispenser unit ⑥ and tighten four screws ⑦.

**Note**
Before attaching the dispenser unit, make sure that the NIP springs are in the correct position. If the NIP spring is in the wrong position, push the NIP spring in the arrow direction using a long nose pliers.

**Correct position**
The end of the spring is positioned on the bearing.

**Wrong position**
The end of the spring is positioned on the groove.
28 Open the dispenser unit, attach the dispenser bar and tighten the screw.

29 Then attach the front cover of the dispenser and tighten two screws.

30 Tighten the screw from the rear of the dispenser unit.

31 Close the dispenser unit.

32 Attach the left housing cover and tighten the screw.

**Note**
Align the catches of the cover to the circled position and slide the cover in the arrow direction. When attaching the cover, be careful not to pinch the cables.
Before the installation, be sure to power off the printer and disconnect the power cord.

**Required tools:**
- Phillips screwdriver (JIS #2 or equivalent)
- Nipper
- Pliers

1. Open the top cover 1 and print head 2.

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

2. Remove two screws 3 and the front covers 4 and 5.
   Slide in the arrow direction to remove the front covers.
3 Remove the screw ⑥, slide and lift to remove the left housing cover ⑦.

**Note**
When removing the left housing cover, make sure that the cover does not touch the PCB, causing the components of the PCB to be deformed.

4 Remove two screws ⑧ to remove the cover ⑨, then remove three screws ⑩ to remove the media holder plate ⑪.
5 Cut three joints using a nipper to remove the portion in the circle of the media holder plate 11.
Make sure that there is no burr remains on the cut surface.

6 Attach the gearbox 12 of the liner rewinder and tighten four screws 13.

- First, route the motor cable 14 around the motor as shown. Do not overlap on the shaded area of the motor.
- Attach the gearbox 12 using four screws 13. Make sure that the motor cable is not pinched.
- Then, tie the motor cable 14 using a cable tie 15 as shown. Do not overlap the motor cable 14 on the shaded area.
- Lastly, insert the motor cable 14 into the slot at the bottom of the printer center frame.
7 Slide to attach the **media holder plate** back and tighten three **screws**.
Refer to step 4 for the positions of three **screws**.

8 Place the **spring** and **rewind core unit** through the **rewind shaft**.
Rotate the **rewind core unit** such that the groove on the inner core nested on the protruding tab of the **torque limiter**.
Properly nested **rewind core unit** allows the **E-ring** to lock on the **rewind shaft**.

9 Insert the **oiles bearing** to the center hole of the **rewind core unit**.

10 Using a pliers, attach the **E-ring** to the groove of the **rewind shaft**.
11 Attach the EXT PCB ⑪ and tighten four screws ⑫. Attach the motor cover ⑬ and tighten two screws ⑭.

12 Connect the DIS power cable ⑯ to the EXT PCB ⑪ and power supply unit ⑬. Connect the motor cable ⑬ from the gearbox ⑭ to EXT PCB ⑪. And then connect the DIS signal cable ⑱ to the EXT PCB ⑪ and main (CONT) PCB ⑳.
13 Install the relay-PCB 2 to the printer and tighten two screws 3.

⚠️ CAUTION
To avoid electrical damage, make sure that the orientation of the relay-PCB is placed with the highlighted connector at the bottom as shown.

14 Connect the option cable 3 of the printer to the relay-PCB 2.

15 Connect the dispenser cable 3 of the dispenser unit to the relay-PCB 2.
16 Attach the **front cover** ⑤ to the printer.

17 Attach the **dispenser unit** ③ and tighten four **screws** ④.

**Note**
Before attaching the **dispenser unit**, make sure that the **NIP springs** are in the correct position. If the **NIP spring** is in the wrong position, push the **NIP spring** in the arrow direction using a long nose pliers.

**Correct position**
The end of the spring is positioned on the bearing.

**Wrong position**
The end of the spring is positioned on the groove.
18 Open the dispenser unit, attach the dispenser bar ⑮ and tighten the screw ⑯.
Align the center line on the dispenser bar ⑮ to the ▲ mark on the engine frame, and then tighten the screw ⑯.

19 Then attach the front cover ⑯ of the dispenser and tighten two screws ⑯. Attach the back of the front cover to the protruded tab as shown.

20 Tighten a screw ⑰ from the rear side of the dispenser unit.

21 Close the dispenser unit.

22 Attach the left housing cover ⑱ and tighten the screw ⑰.
Checking and Adjusting after the Installation

Test print checking

1. After you load the media and ribbon, close the print head and top cover. Then power on the product.
   If you have installed the liner rewinder, confirm that the time (hh:mm) is showed on the right top corner of the LCD screen.

2. Perform a test print to check the following items:
   • Check the dispense operation to make sure that there is no slack on the liner.
   • Check to make sure that the dispenser sensor can sense the label.
     Before the label is removed from the dispenser bar, the “waiting for media removal” status icon is shown. When the label is removed, the product continues to print the next test print and stops for label removal.

   • Check that the media stop position is correct. The regular position is to let the label stay about 2.0 mm (0.08”) on the liner. If not, adjust the offset value on the test print screen. Refer to the Section 4.6 Adjusting the Media Stop/Cut Position to adjust the media stop position if necessary.
   • Check that the liner is rewound correctly (liner rewinder model).
• Check that the media is not meandering. If the feeding path of the label or liner is slanted, adjust the slope angle of the dispenser bar. Loosen the screw and adjust the dispenser bar. Tighten the screw to fix the new position.

Note
If the Auto-mode in Printing is disabled, make sure that you have selected Dispenser in Printing > Print Mode.
6.6 Installing the Optional Linerless Kit (CL4NX Plus Only)

⚠️ CAUTION
• Before the installation, be sure to power off the product and disconnect the power cord.
• Be careful not to touch the cutter blade.

Required tools:
• Phillips screwdriver (JIS #2 or equivalent)

1. Open the top cover ① and print head ②.

⚠️ CAUTION
Open the top cover fully to prevent accidental drop of the cover.

2. Remove two screws ③ and the front covers ④ and ⑤.
   Slide in the arrow direction to remove the front covers.
3 Remove the platen roller assembly ⑥.

4 Tilt the lock of the media sensor guide ⑦ in the direction as shown, then remove the media sensor guide ⑦ from the sensor holder.

5 Remove two screws ⑧ and media guard ⑨.
   Make sure that the sensor holder is pushed to the innermost position before you remove the media guard. Lift the front of the media guard to remove it.

6 Remove the screw ⑩, slide and lift in the arrow direction to remove the left housing cover ⑪.

Note
When removing the left housing cover, make sure that the cover does not touch the PCB, causing the components of the PCB to be deformed.
7 Pull out the sensor holder assembly ⑫ from the product.

Note
Be careful not to break the wires.

8 Follow steps 9 and 10 to paste the pure sheet (sensor) ⑬ onto the sensor holder assembly ⑫.

9 Clean the areas a and b on the sensor holder assembly where the sheet is to be pasted.

10 Align a and b to the areas on sensor holder assembly and paste the sheet as shown in the arrow direction.
11 Insert the **sensor holder assembly** by aligning the rail to fit in the protrusion as shown.

**Note**
- Do not close the print head when inserting the sensor holder assembly.
- Make sure that the movement of the sensor holder assembly is smooth.

12 Arrange the wire route so that the yellow wire is under the **sensor holder assembly**.

13 Attach the **media frame (linerless)** by tightening the **screws** while pressing down the media frame.

14 Attach the **linerless platen roller**.

15 Attach the **media sensor guide** and tilt the sensor guide lock back to the locked position.

**Note**
- Make sure that the movement of the sensor holder assembly is smooth.
- Set the media sensor guide to the innermost side.
16 Connect the option cable ⑭ and cutter cable ⑭ to the linerless relay PCB ⑮. Tighten two screws ⑯ to attach the linerless relay PCB.

**CAUTION**
To avoid electrical damage, make sure that the orientation of the relay PCB is placed with the highlighted connector at the bottom as shown.

17 Attach the front cover ⑫ while placing the cutter cable ⑭ onto the slot.
18 Connect the **cutter cable** ⑪ to the PCB on the **linerless cutter unit** ⑫.

19 Attach the **linerless cutter unit** ⑫ to the product and tighten four **screws** ⑬.

**Note**
Be careful not to pinch the cables.

20 Pull the tab to open the **cutter-open lever**, attach the **front cover** ⑭ of the cutter and tighten two **screws** ⑮.

21 Close and lock the **cutter-open lever**.

22 Attach the **left housing cover** ⑯ and tighten the **screw** ⑰.

**Note**
Align the catches of the cover to the circled position and slide the cover in the arrow direction. When attaching the cover, be careful not to pinch the cables.
Checking and Adjusting after the Installation

Preparation:
• Load direct thermal media to the product for checking the print position. (Linerless media is not required)

Error message checking
1 After you load the media and ribbon, close the print head and top cover. Then power on the product.
2 Pull the tab to open the cutter-open lever.

3 Check that the Cutter open error message shows on the LCD.
4 Close and lock the cutter-open lever.
Test print checking

1. After you load the media and ribbon, close the print head and top cover. Then power on the product.

2. Perform a factory test print to check the print position:
   The standard print position is 10 to 11 mm from the cutting line.
   If the print position is not within the standard range, perform the Print position adjustment on the next page.
Print position adjustment

1. After you load the media and ribbon, close the **print head** and **top cover**. Then power on the product.

2. Adjust the **Pitch** in the **Tools > Test Print > Factory** menu.

3. Perform a factory test print to check the print position.

4. If the print position is in the case of A, reduce the pitch. If the print position is in the case of B, then increase the pitch.

5. After adjusting the pitch, perform a factory test print again.

6. Check the cutting position. If necessary, perform steps 2 through 5 until the cutting position is correct.
6.7 Installation of the Optional RFID Kit

6.7.1 Installation of the Optional UHF RFID Kit

⚠️ CAUTION
Before the installation, make sure to power off the product and disconnect the power cord. When handling the print head, wear gloves to avoid damaging the print head.

Required tool:
- Phillips screwdriver (JIS #1 and JIS #2 or equivalents)

1. Open the top cover ① and the print head ②.

⚠️ CAUTION
Open the top cover fully to prevent accidental drop of the cover.

2. Remove two screws ③, the front covers ④ and ⑤.
   Slide in the arrow direction to remove the front cover.
3 Remove the **screw ⑥** and slide the left **housing cover ⑦** in the direction of the arrow to remove it.

**Note**
When removing the left housing cover ⑦, be careful not to touch the board and deform the board parts.

4 Tilt down the **sensor guide lock ⑧** in front and pull out the **media sensor guide ⑨**.

5 Remove the **screw ⑩**, remove the **sensor tension ⑪**, and then remove the **sensor case ⑫**.
6 Disassemble the **sensor case** and disconnect the cables.

7 Remove the platen roller.

8 For CL4NX Plus, remove two **screws** and the **media guard**. For CL6NX Plus, remove three **screws** and the **media guard**. Push the sensor holder all the way in and remove the media guard.
9 Pass the relay cable through the hole in the frame and connect it to the media guard (RFID)

Pass the other side of the relay cable through the part marked with a circle.
10 Align the hole in the media guard 16 with the projection on the frame, and slide the media guard 16 from the back to the front to attach it.

11 Pass the antenna cable 15 from the media guard (RFID) 16 through the hole in the frame as shown in the figure.

Pass the antenna cable 15 through the part indicated by the red arrow as shown in the figure.
12 Pass the relay cable through the hole in the frame and pull it out.

13 Use the attached screws ③ to fix the media guard (RFID) ⑥.

**Note**
Use two screws for CL4NX Plus, and three screws for CL6NX Plus to fix the media guard.

14 Install the platen roller.
15 Insert the sensor case (RFID) along the groove of the media guard (RFID) and screw it.

**Note**
When attaching the sensor case (RFID), be careful not to pinch the antenna cable.

16 Insert the media sensor guide (RFID) into the sensor case (RFID) to attach it.
17 Remove the print head. Peel off the serial label on the print head and save it for later reference.

◆ CL4NX Plus

18-1 Remove two screws ① and remove the head cover ⑨ from the print head ⑪.
19-1 Attach the UHF (small pitch) antenna assembly to the RFID head cover as shown in the figure.
Insert the front of the UHF (small pitch) antenna assembly through the rectangular opening in the RFID head cover. Thread the antenna cable accordingly.

20-1 To attach the RFID head cover, use the two screws (print head) removed in step 18-1.
Align the end of the RFID head cover with the side surface of the print head and screw them as shown in the figure. Hereafter, the print head assembly is referred to as the RFID head assembly.

**Note**
Shorten the antenna cable loop as illustrated by “OK” in the figure.
CL6NX Plus

18-2 Remove the screw and rivets to remove the head cover from the print head.

19-2 Attach the UHF (small pitch) antenna assembly to the RFID head cover as shown in the figure.
Insert the front of the UHF (small pitch) antenna assembly through the rectangular opening in the RFID head cover. Thread the antenna cable accordingly.
20-2 To attach the **RFID head cover**, use the screw and two rivets removed in step 18-2.
Align the end of the RFID head cover with the side surface of the print head and fix them with the screw and rivets as shown in the figure.
Use the rivets attached to the RFID head cover.
Hereafter, the print head assembly is referred to as the RFID head assembly.
21 Remove five screws \( \textcircled{3} \) that fix the gearbox assembly \( \textcircled{24} \).
22 Thread the antenna cable of the **RFID head assembly** through the hole in the frame behind the print head cable. Pull out the antenna cable from the board side.

23 Connect the print head cable to two **connectors** of the **RFID head assembly**.

24 Install the **RFID head assembly**. Install so that the print head is locked with a click sound.
25 Attach the **mini clamp** to the center frame.
Pass the antenna cable from the print head assembly through the mini clamp.

26 Install the **gearbox assembly**.
Use five screws removed in step 21.
Pass two antenna cables under the gearbox assembly.

**Note**
Keep the following in mind when installing the gearbox assembly.
- Do not pinch the cable.
- Insert the gear pulley properly.
27 Attach the EXT PCB ③ and tighten four screws ⑧.

28 Connect the EXT signal cable ③ from the EXT PCB ③ to the main (CONT) PCB.
Connect the EXT power cable ② from the EXT PCB ② to the power supply unit.
29 Attach the **RFID PCB assembly** ③ to the gearbox assembly using the three **screws** ④.

30 Connect the relay cable to the PCB as shown in the figure.
31 Pass the relay cable through the back of the PCB and fix it with the omega lock.
32 Connect the EXT power cable, RFID signal cable, EXT signal cable, SRA driver cable, and antenna cable to the RFID PCB and EXT PCB as shown in the figure.
33 Attach the **front covers** ③ and ④ using two **screws** ③.
Slide and attach the front covers ④ and ⑤ in the arrow direction.

34 Attach the left **housing cover** ⑦ and tighten the **screw** ⑥.
Attach the stickers at the positions shown in the figure.

- Attach the SATO RFID solution sticker to the surface of the product as shown above.
- Attach the patent label to the left cover as shown above.
6.7.2  Installation of the Optional HF RFID Kit (CL4NX Plus only)

**CAUTION**
Before the installation, make sure to power off the product and disconnect the power cord. When handling the print head, wear gloves to avoid damaging the print head.

**Required tool:**
- Phillips screwdriver (JIS #1 and JIS #2 or equivalents)

1. Open the top cover ① and the print head ②.

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

2. Remove two screws ③, the front covers ④ and ⑤.
   Slide in the arrow direction to remove the front cover.
3 Remove the screw ⑥ and slide the left housing cover ① to remove it in the direction of the arrow.

**Note**
When removing the left housing cover ①, be careful not to touch the board and deform the board parts.

4 Tilt down the sensor guide lock ⑧ in front and pull out the media sensor guide ⑨.

5 Remove the screw ⑩, remove the sensor tension ⑪, and then remove the sensor case ⑫.
6 Disassemble the sensor case ② and disconnect the cables.

7 Remove the platen roller.

8 Remove two screws ③ and the media guard ④.
   Push the sensor holder all the way in and remove the media guard. Lift the front of the media guard to remove it.
9 Pass the relay cable through the hole in the frame and connect it to the *media guard (RFID)*. Pass the other side of the relay cable through the part marked with a circle.
10 Align the hole in the media guard with the projection on the frame, and slide the media guard from the back to the front to attach it.

11 Pass the antenna cable from the media guard (RFID) through the hole in the frame as shown in the figure.

Pass the antenna cable through the part indicated by the red arrow as shown in the figure.
12 Pass the relay cable through the hole in the frame and pull it out.

13 Use the attached screws to fix the media guard (RFID).

14 Install the platen roller.
15 Insert the sensor case (RFID) along the groove of the media guard (RFID) and screw it.

**Note**
When attaching the sensor case (RFID), be careful not to pinch the antenna cable.

16 Insert the media sensor guide (RFID) into the sensor case (RFID) to attach it.
17 Attach the **EXT PCB** and tighten four **screws**.

18 Connect the **EXT signal cable** from the **EXT PCB** to the main (CONT) PCB.
Connect the **EXT power cable** from the **EXT PCB** to the power supply unit.
19. Attach the RFID PCB assembly to the gearbox assembly using three screws.

20. Connect the relay cable to the PCB as shown in the figure.
Pass the relay cable through the back of the PCB and fix it with the omega lock.
Connect the EXT power cable, RFID signal cable, EXT signal cable, SRA driver cable, and antenna cable to the RFID PCB and EXT PCB as shown in the figure.

Pass the pitch sensor cable and sensor cables (3 in total) through the mini clamp.
23 Attach the **front covers** ⑤ and ④ using two **screws** ③.
Slide and attach the front covers ④ and ⑤ in the arrow direction.

24 Attach the left **housing cover** ⑦ and tighten the **screw** ⑥.
Attach the stickers at the positions shown in the figure.

- Attach the SATO RFID solution sticker ⑤ to the surface of the product as shown above.
- Attach the patent label ⑥ to the left cover as shown above.
Notes on the RFID Module Automatic Detection

For products with the RFID kit installed, the RFID function is automatically enabled when the power is turned on. For products with the RFID kit removed, the RFID function is automatically disabled when the power is turned on.

⚠️ CAUTION
Turn off the power of the product, unplug the power cord, and then install or remove the RFID kit.

When the RFID kit has been installed
When the power is turned on, the RFID function is enabled and [RFID] is displayed in the [Interface] menu of Settings mode.

If the buzzer sounds six times when the power is turned on (from the time when the power is on to when the online screen is displayed), it means that the product has detected the RFID module but could not communicate. In this case, check the connection. If the product receives RFID write/read or <IP5> related commands in this condition, it cannot operate. "RFID System Error" continues to be displayed until the power of the product is turned off.

When the RFID kit has been removed
When the power is turned on, the RFID function is disabled and [RFID] is not displayed in the [Interface] menu of Settings mode.

If the product receives RFID write/read or <IP5> related commands, a command error or an NAK response will occur.
6 Installing the Options

