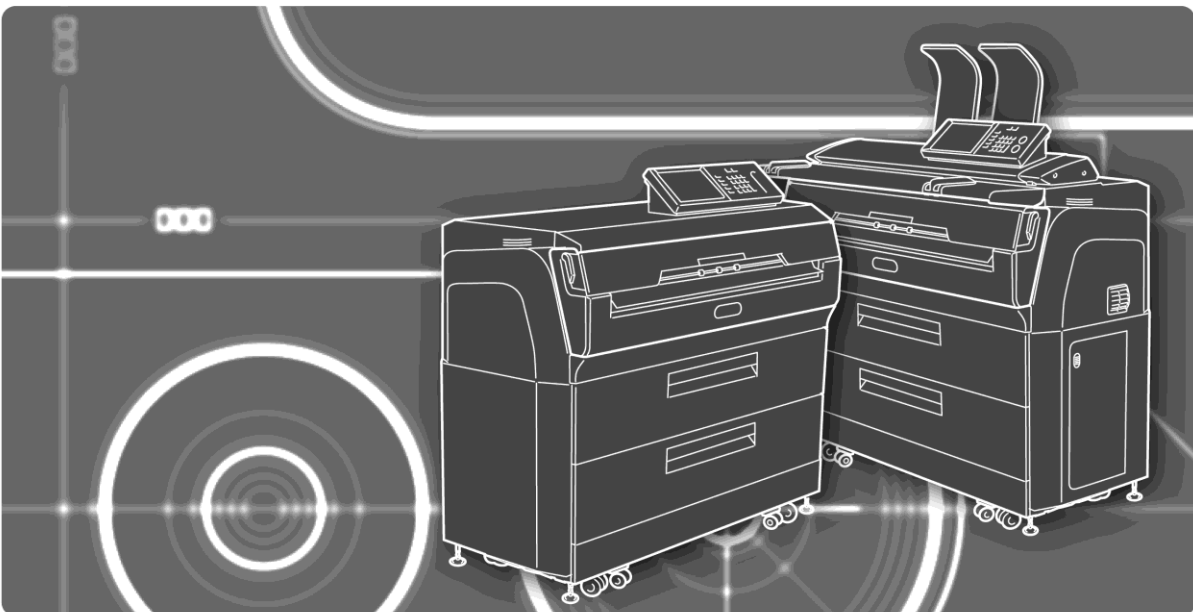


# OKI

## LP-1030/LP-1030-MF Wide Format Multifunction Printer

### Maintenance Manual

U00123015304



**OKI Data Infotech Corporation**

|              |                |                     |
|--------------|----------------|---------------------|
| U00123015300 | February, 2011 | Initial Publication |
| U00123015301 | May, 2012      | Second edition      |
| U00123015302 | July, 2014     | Third edition       |
| U00123015303 | June, 2015     | Fourth edition      |
| U00123015304 | November, 2015 | Fifth edition       |

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# Preface

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This manual contains information required for field maintenance and troubleshooting of the LP-1030 printers.

- LP-1030 Monochrome Raster Printer
- LP-1030-MF Network Multifunction Printer

Before beginning any maintenance work be sure to read and understand the **Safety Notices** and **Cautionary Notes When Performing Maintenance Work** sections that follow to ensure that safe and proper maintenance/inspection is performed.

This manual assumes the knowledge of a qualified maintenance person familiar with the assembly/disassembly, adjustment, etc. of the Printer.

The illustrations and control panel figures used in this manual are taken from one of the printers if it does not differ from the method of operation and does not hinder maintenance work.

## Note



: This symbol indicates a reference item or page in this manual or a reference document.



# Safety Notices

---

In this manual, the following symbols are used to alert the reader to information that will prevent damage/malfunction of the Printer, and to ensure safe and correct inspection/maintenance procedures are carried out.

Ensure that you thoroughly understand each of these symbols and follow the information written by each carefully.

The meanings for each of the symbols used in this manual are listed below.

|   |                |  |
|---|----------------|--|
|  | <b>Warning</b> | If this information is ignored, and the Printer is handled incorrectly, it may result in serious injury or death.  |
|  | <b>Caution</b> | If this information is ignored, and the Printer is handled incorrectly, it may result in injury or machine damage. |

## Symbol Examples



△ This symbol indicates that caution is required (includes dangers, and warnings).  
The example on the left indicates a safety **Warning or Precaution**.



⊘ This symbol indicates a prohibited action.  
The example on the left means **Do not touch**.



● This symbol indicates required actions or instructions.  
The example on the left means **Disconnect the power plug from the outlet**.



## Warning



Be very careful not to touch the transfer/detack corotron labeled HIGH VOLTAGE inside the Printer.  
There is a risk of electrical shock.



Be very careful not to touch the fuser unit labeled HIGH TEMPERATURE inside the Printer.  
Burn injuries may result.



Do not disassemble the Printer any further than is instructed in this manual.  
An accident or malfunction may result.



Do not heat a toner cartridge or a waste toner bottle containing waste toner, nor place it into a flame.  
It may burst or ignite, resulting in an accident or fire.



Never use the Printer in a location exposed to abnormally high humidity or moisture.  
A fire, electric shock, or malfunction may result.



Do not drop metal pieces such as staples, or spill water or other liquids inside the Printer or through gaps.  
A fire, electric shock, or malfunction may result.



Do not connect or disconnect the power cord or other parts with wet hands.  
An electric shock may result.



When replacing service parts, turn off the power, and disconnect the power plug from the outlet.  
An electric shock may result.



## Caution



If toner gets into your eyes, do not rub your eyes, and wash the toner out. Visit a doctor immediately. If ink stains your skin or clothing, wash with soap and water immediately.



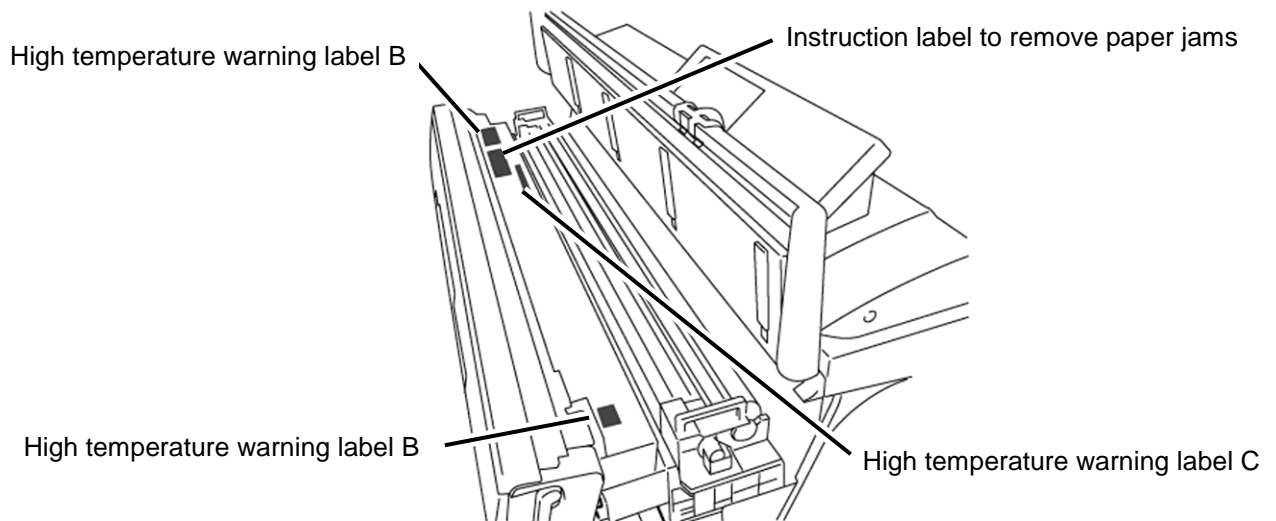
Be careful not to injure yourself or damage the Printer when working with box cutters, screwdrivers, or other tools.

In addition to the items above, observe the warnings and precautions in each section of the manual.

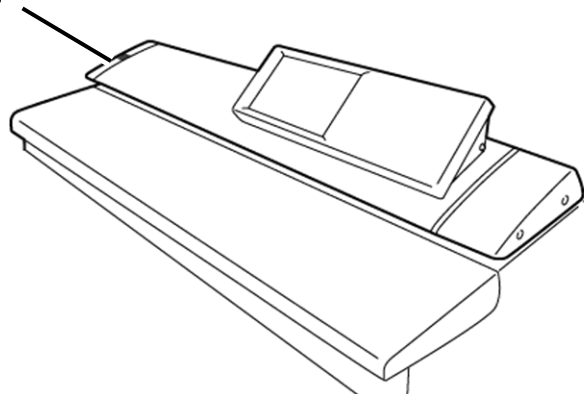
# Warning Labels

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Warning labels are affixed to the Printer in the locations shown in the figure below. Make sure you understand the information on the warning labels before inspecting/repairing the Printer.



Caution label to prevent hands from being stuck **MF**



### (1) High temperature warning label

This label warns against touching heated parts.

The fuser unit can become very hot. Be careful not to touch this area when removing a paper jam or performing any other work in this area.



### (2) Instruction label to remove paper jams

This label indicates the removal direction for jammed paper when a jam occurs in the fuser unit. Remove the paper by following the instruction on the label.



### (3) Caution label to prevent hands from being stuck

This label raises caution to prevent your hands from being stuck between the Printer and the scanner.

When closing the scanner, do not place your hands near this label.



# Cautionary Notes When Performing Maintenance Work

---

When performing inspection/maintenance work, always be aware of the following items.

- (1) Begin your inspection/maintenance work only after confirming with the user the current status of the Printer and the state of the Printer when the trouble occurred.  
In some cases there may not be any problem with the Printer itself, but instead it may be a problem resulting from the use of non-standard toner/paper or a data problem, so always check the status of the printer first.
- (2) When disassembling the Printer to replace a part, make sure to fully understand how the Printer is put together before taking anything apart so that you can smoothly restore the Printer to its working condition afterwards.
- (3) Allocate sufficient surrounding space for conducting your work.
- (4) Be careful not to spill new/used toner. Also, place a sheet or cloth on the floor to prevent staining of the surrounding floor area.
- (5) Light-induced fatigue can affect the photoconductor drum. Avoid leaving the fuser unit drawer open for long periods of time. When removing the photoconductor drum, cover it with a black bag.
- (6) Do not touch the surface of the photoconductor drum with your bare hands as it will cause the drum to deteriorate.  
If touched, wipe cleanly with a Ciegal cotton wipe. Any problems with image quality caused by touching the photoconductor drum can be fixed by outputting a few dozen sheets of paper.
- (7) Keep screws, metallic washers, or any other magnetic materials away from the developing sleeve. If any such part should get stuck due to the magnetic pull of the magnet roll, you must remove those parts to prevent drum crush.
- (8) Do not reverse the developing sleeve.



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# Chapter 1 Maintenance Work Process Overview

This chapter discusses the work instructions, required tools, and the names of parts required for initial maintenance of the Printer.

## 1.1 Maintenance Work Process Overview

Maintenance work can be divided into two categories: regular inspections based on a maintenance agreement and maintenance required when a malfunction or other problem occurs.

The work flow for each of these categories is shown in the figure below.

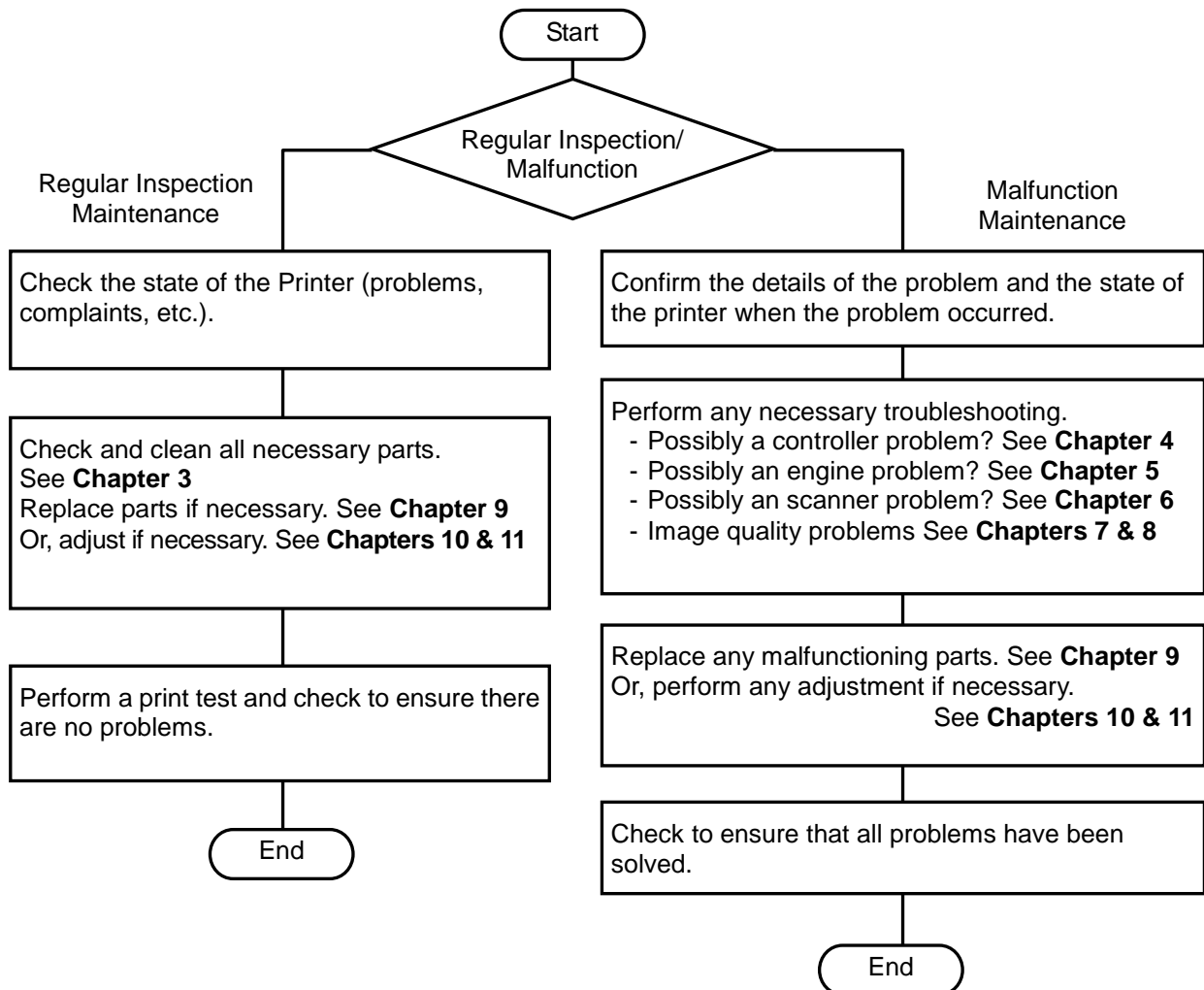


Figure 1.1 Maintenance Work Flow

## 1.2 Required Tools

The tools and measuring devices required for maintenance work are shown in the table below.

Table 1-1 Required Tools List

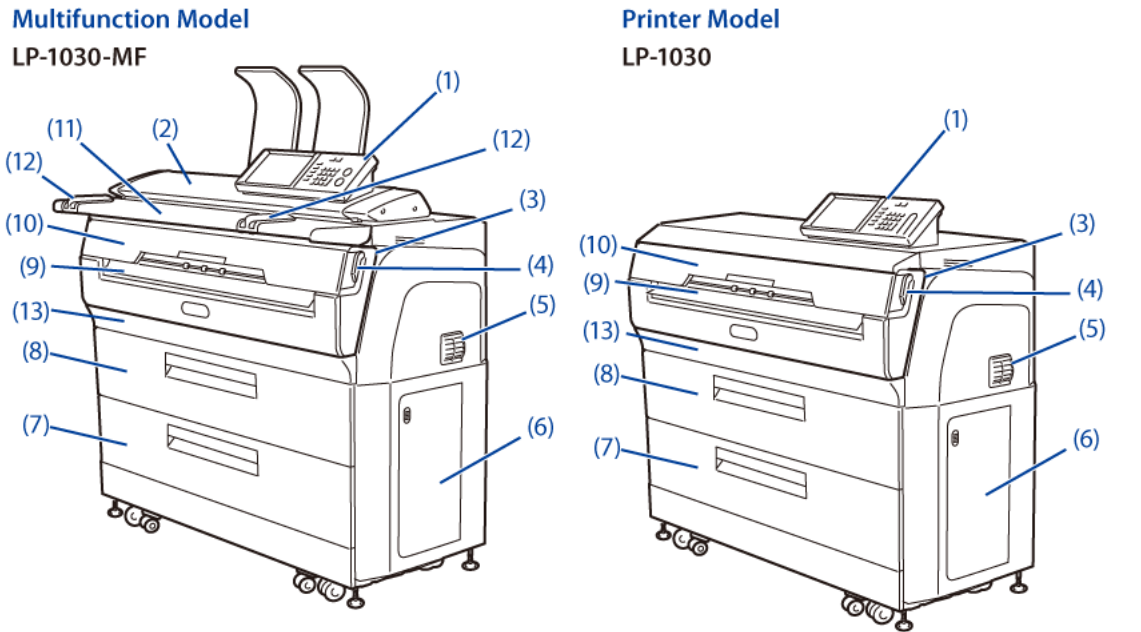
| Name                                | Amt.   | Notes   |
|-------------------------------------|--------|---|
| USB memory                          | 1      | For system firmware upgrade (USB 2.0)   |
| Phillips screwdriver                | 1 each | Magnetic #2 (Shaft length = 100 mm or 3.94 inches, 200 mm or 7.87 inches)<br>Magnetic #3<br>Stubby screwdriver (Shaft length = 38 mm or 1.50 inches)<br>Torquedriver, 8kg, for screws on plastic external parts |
| Hex driver                          | 1      | Hex bit 5.5 mm type<br>Hex bit 7.0 mm type, for LED focus adjustment  |
| Flat head screwdriver               | 1      | For E-ring removal and nip calibration  |
| Screwdriver for voltage adjustment  | 1      | Ceramic aligner screwdriver DA-58/+   |
| Tool for type C retaining ring      | 1      |   |
| Hexagon socket screw key            | 1 each | 1.5 mm, 2 mm, 2.5 mm, 3 mm, 4 mm, 5 mm, 6 mm  |
| Longnose pliers                     | 1      |   |
| Nipper                              | 1      | For cutting cable ties  |
| Tie bands                           | —      |   |
| Scale                               | 1      |   |
| Cutter                              | 1      |   |
| Digital multimeter                  | 1      | For various types of power measurement  |
| Cleaning tools                      | 1 set  | For cleaning within the Printer (ethanol*, cotton swabs)  |
| Vacuum cleaner                      | 1      | For cleaning within the Printer (for cleaning toner, hand-held type)  |
| Tweezers                            | 1      | For cleaning wires or replacing parts   |
| Cleaning cloth                      | —      | —   |
| Ciegal Cotton Wipes                 | —      | 30790-0103<br>Used for cleaning the drum  |
| H/R cleaner                         | —      | For cleaning the fuser roller (heat) and roller (backup)  |
| Contact grease, FLOIL GE-676        | —      | For lubricating the fuser ring (bias)   |
| Heat resistant grease, FLOIL FG-65W | —      | For heat roller contact   |
| OPC cleaner                         | —      | For cleaning the OPC drum   |
| PUSH-PULL GAUGE                     | 1      | For adjusting the timing belt tension and the clutch gears engagement   |
| AIR BLOW TOOL                       | 1      | For cleaning the connectors (air blow)  |
| TOOLKIT MNT                         | 1 set  | Box wrench and flat wrench set  |

\*: Isopropyl alcohol (IPA) can be used as a substitute. However, we recommend ethanol.

### 1.3 Part Names and Functions

The following shows the names of parts and the functions they perform in the Printer.

#### 1.3.1 Front Side/Right Side



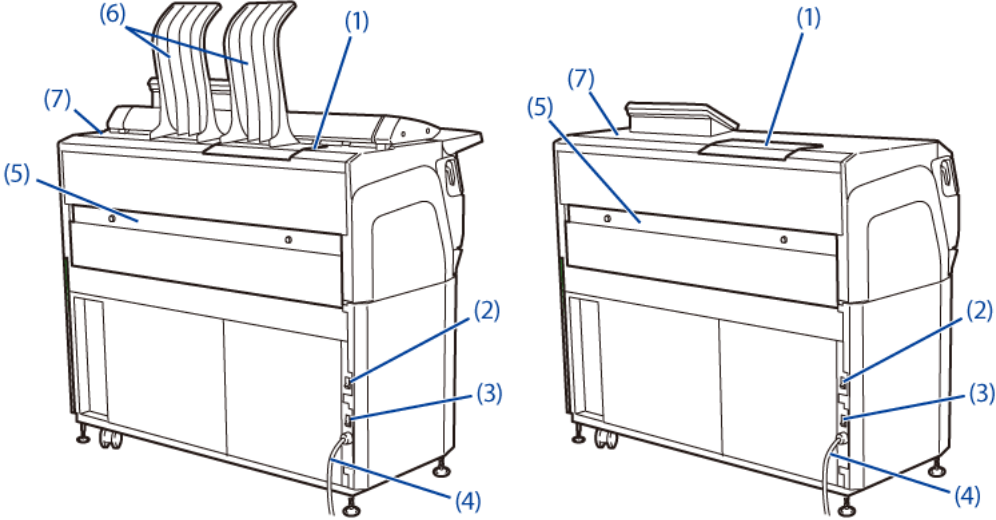
- |                       |                         |  |
|-----------------------|-------------------------|--|
| (1) Operation panel   | (6) Waste toner door    | (11) Document table                          |
| (2) Scanner cover     | (7) Drawer for roll 2   | (12) Original width guide                    |
| (3) Fuser unit drawer | (8) Drawer for roll 1   | (13) Electrical box access cover (COVER-PSB) |
| (4) Latch lever       | (9) Outlet slot         |  |
| (5) Filter cover      | (10) Paper outlet cover |  |

Figure 1.2 Part Names and Functions (Front Side/Right Side)

1.3.2 Rear Side/Left Side

Multifunction Model  
LP-1030-MF

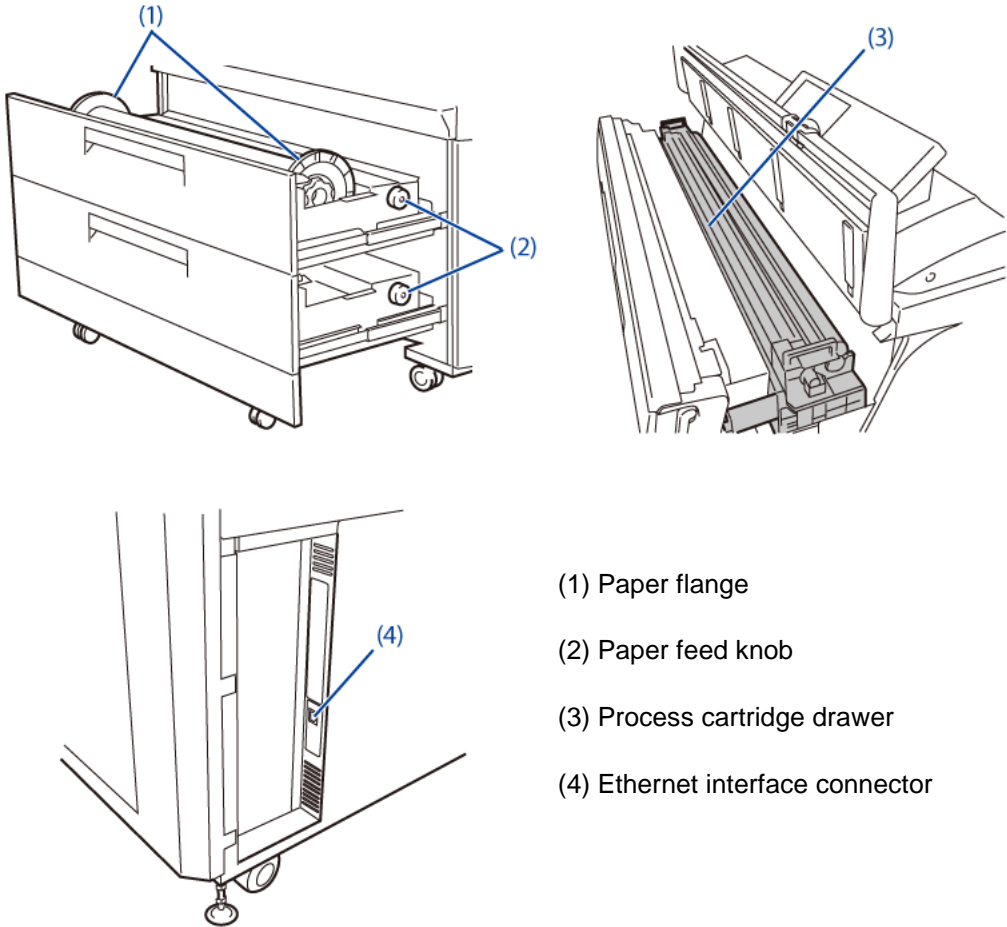
Printer Model  
LP-1030



- (1) Toner door
- (2) Heater switch
- (3) Main power switch
- (4) Power cord
- (5) Rear door
- (6) Original output guide
- (7) Top cover

Figure 1.3 Part Names and Functions (Rear Side/Left Side)

1.3.3 Inside

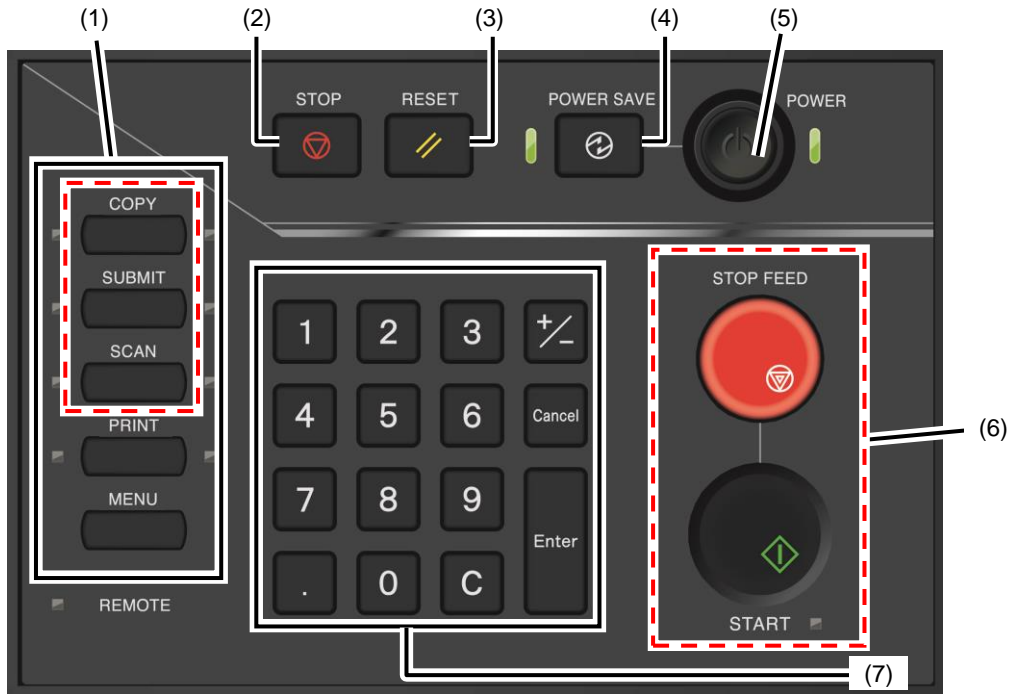


- (1) Paper flange
- (2) Paper feed knob
- (3) Process cartridge drawer
- (4) Ethernet interface connector

Figure 1.4 Part Names and Functions (Inside)

### 1.3.4 Operation Panel

The names and functions of the primary parts of the operation panel are given below. See the *User's Manual* for more details.



\* Items enclosed in dotted lines are on the multifunction model only.

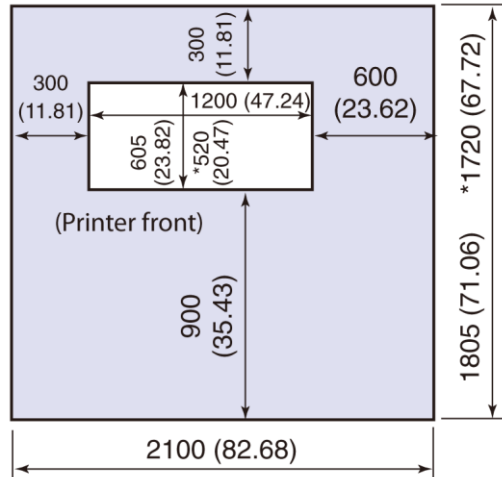
Figure 1.5 Part Names and Functions (Operation Panel)

- (1) Button used to move between different modes  
The green lamp lights up when the current mode is selected.  
The orange lamp lights up when an error has occurred in that mode.
- (2) **STOP** button  
Press to stop printing.
- (3) **RESET** button  
Resets the current configuration (enabled in copy mode and submission mode).
- (4) **POWER SAVE** button  
Enters **POWER SAVE** mode. Press again to leave power save mode.
- (5) **POWER** button
- (6) **START** button, **STOP FEED** button  
Starts scanning the original document. Cancels scanning the original document.
- (7) Number Pad  
Changes, enters, or cancels the setting values.

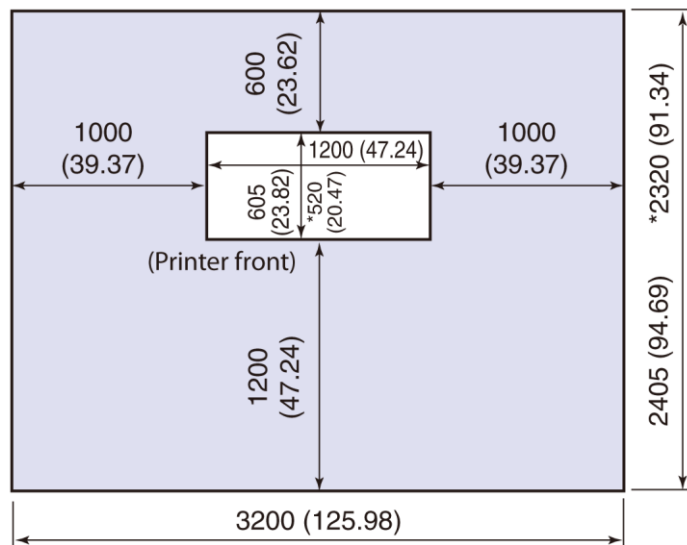
### 1.4 Installation/Maintenance Space

Keep enough space around the Printer as shown in the figure below in order to ensure enough ventilation for the Printer and to facilitate easy maintenance work, replacement of expendable parts, and handling of output paper.

#### Installation Space



#### Maintenance Space



\* : Printer Model

Unit: mm (inch)

2000 mm (78.74 inches) in height

Figure 1.6 Installation/Maintenance Space

## 1.5 Upgrading System Firmware

The Printer contains several firmware applications.  
This section explains how to upgrade these firmware applications.

- Notes**
- ◇ Use the latest firmware as much as possible.
  - ◇ Avoid downgrading the firmware.
  - ◇ Use the methods below when not otherwise instructed:
    - Upgrade using a USB drive (on the operation panel)
    - Upgrade using the Web browser

- TIP**
- ◇ On the multifunction model, the upgrading process is not possible when a jammed original document is left in the scanner. In such a case, remove the original document before upgrading the system.
  - ◇ The message Upgrading... may be displayed when the printer restarts after the upgrade is complete. While this message is displayed, do not turn the printer off.
  - ◇ The upgrading process may take 10 minutes or more. Do not turn the printer off during that time.

<Installed Firmware Applications>

Controller Firmware  
Scanner Firmware (Included on multifunction models only)  
Controller Unit Boot ROM

<Upgrade Method>

Upgrade Using USB Memory (Buffalo products cannot be used)  
Upgrade Using a Web Browser

The firmwares that can be upgraded depend on the method used to upgrade and the configuration of the Printer.

Table 1-2 Upgrade Methods and Target Firmware Application

|   | Controller Firmware<br>(Includes FPGA) | Scanner Firmware<br>(Includes FPGA) | Controller Unit<br>Boot ROM |
|---|--|-------------------------------------|-----------------------------|
| USB Memory (at startup)*                | Yes                                    | No                                  | Yes                         |
| USB Memory<br>(via the operation panel) | Yes                                    | Yes                                 | Yes                         |
| Web Browser                             | Yes                                    | Yes                                 | Yes                         |

\*: The upgrade content will vary depending on the setting of SW3 DIP switch bits 3 and 4 on the ARC board.



Table 1-3 SW3 DIP Switch Setting when Upgrading at Startup Using USB Memory

| DIP Switches |     | Target Firmware Application                           | Notes  |
|--------------|-----|---|--|
| 3            | 4   |   |  |
| On           | Off | Controller firmware                                   |  |
| On           | On  | Controller firmware and controller unit boot ROM      | Upgrade the boot ROM only if specified in the firmware release notes.<br>Note that the boot ROM may be corrupted if the power is turned off during the upgrade operation. In this case, the only way to recover the system is to replace the ARC board |
| Off          | Off | Start up the Printer without performing any upgrades. | Standard setting when using the Printer.   |

### 1.5.1 Upgrading Using USB Memory (at Startup)

With the upgrade USB memory, upgrade the controller firmware and boot ROM (the upgrade USB memory is the same for all printer models and multifunction models).

- TIP**
- ◇ Generally, upgrade with the DIP switch bit 3 to On and bit 4 to Off.
  - ◇ Set the DIP switch bit 4 to On only if it is specified to upgrade the boot ROM in the firmware release notes.
  - ◇ Note that the boot ROM may be corrupted if the power is turned off during the upgrade operation. In this case, the only way to recover the system is to replace the ARC board.

#### <Instructions>

- (1) Turn On the power to the Printer. Select **Menu -> Function -> Print System Settings** to output the setup list.
- (2) Turn Off the power to the Printer.
- (3) Insert the USB memory for upgrade in the USB connector on the ARC board.  
Set the bits 3 and 4 of the SW3 DIP switch on the ARC board according to the upgrade you want to perform.
- (4) Turn the power to the Printer On.  
The old version will be deleted and the new version will be installed automatically. The upgrade will begin after booting up normally. The operation panel will display the following information.

When upgrading at startup:

#### <1> When loading the firmware image

|                               |     |
|-------------------------------|-----|
| FW is running the upgrade.    | 1/2 |
| [Rip]                         |     |
| Rip-FW is reading from media. |     |

#### <2> When extracting the firmware image

|                            |     |
|----------------------------|-----|
| FW is running the upgrade. | 1/2 |
| [Rip]                      |     |
| Rip-FW upgrade is running. |     |
| [decompressing]            |     |

## &lt;3&gt; When installing Rip-FW

|                            |     |
|----------------------------|-----|
| FW is running the upgrade. | 1/2 |
| [Rip]                      |     |
| Rip-FW upgrade is running. |     |
| [writing]                  |     |

## &lt;4&gt; When completing the upgrade

|  |     |
|--|-----|
| FW is running the upgrade.             | 2/2 |
| [Rip]                                  |     |
| Rip-FW upgrade is running.             |     |
| Please turn off the main power supply. |     |
| FW upgrade was completed successfully. |     |

## &lt;5&gt; When an error occurs

|                            |     |
|----------------------------|-----|
| FW is running the upgrade. | 2/2 |
| [Rip]                      |     |
| Rip-FW upgrade is running. |     |
| Error:                     |     |
| E VU:XXXX                  |     |
| [1]                        |     |

[1] Error number (see section **Errors When Upgrading** on the page 1-14)

**Note**

If the USB memory used has a poor compatibility with the Printer, the USB may not be recognized and the upgrade may fail. (Error codes 7F50, 7F51, 7F80)  
In such a case, perform the following procedure to have the Printer recognize the USB memory.  
Then restart the upgrade procedure from step 1.

<6> Without turning off the Printer, remove the USB memory and insert it again.

<7> Hold the **POWER SAVE** button on the operation panel for approximately 5 seconds.

If the upgrade fails even after performing this procedure, create the USB memory for upgrade again or use another USB memory.

- (5) Confirm the information displayed in **<4> When completing the upgrade** and hold the **POWER** button on the operation panel for 5 seconds to turn off the Printer.
- (6) Remove the USB memory used for upgrade from the USB connector on the ARC board.
- (7) Set all bits of the ARC board SW3 DIP switch to Off.
- (8) Turn On the power to boot up the Printer again.
- (9) Output the setup list and confirm that the upgrade completed successfully.

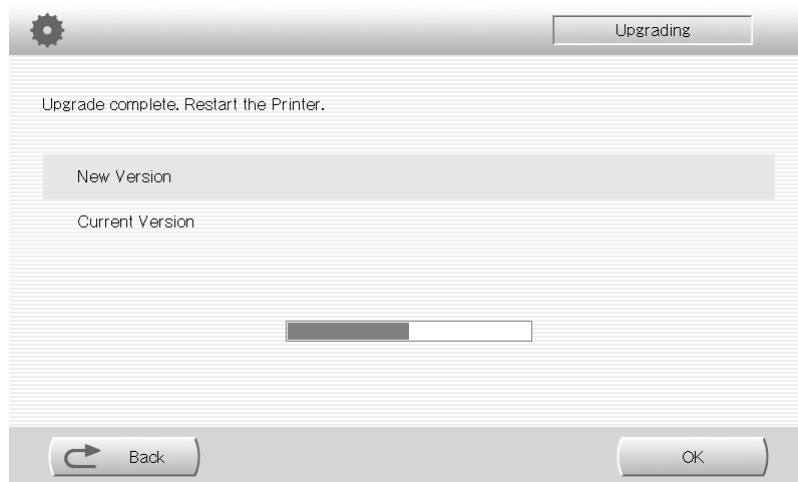
## 1.5.2 Upgrading with USB Memory (via the Operation Panel)

With the upgrade USB memory, upgrade from the operation panel.

**TIP** ◇ On the multifunction model, the upgrading process is not possible when a jammed original document is left in the scanner. In such a case, remove the original document before upgrading the system.

<Instructions>

- (1) Turn Off the power to the Printer.
- (2) Confirm that bits 3 and 4 of the ARC board SW3 DIP switch are both set to Off (usually bits 1 to 4 are Off.)
- (3) Turn On the power to the Printer.
- (4) Insert the USB memory for upgrade in the USB connector on the ARC board
- (5) Check the old version by navigating to **Menu -> Upgrade** and start the upgrade process by pressing the **OK** button.



Press **OK** on the above screen and the popup shown below will be displayed.



Press **OK** and the popup will go away and the upgrade will be executed.

- (6) Check to ensure that everything is okay once more and press **OK** button.  
The progress of the upgrade process will be shown as a progress bar. When the upgrade is finished you will see the message **Upgrade complete. Restart the printer.**
- (7) Hold the **POWER** button for approximately 5 seconds to turn off the Printer and remove the USB memory from the ARC board USB connector.
- (8) Turn On the power to boot up the Printer again.
- (9) Output the setup list and confirm that the upgrade completed successfully.

### 1.5.3 Errors When Upgrading

The following message will be displayed should an error occur during the upgrade process.

ERROR:  
E VU: XXXX

XXXX: One of the error codes from the table below will be displayed here.

Table 1-4 List of Upgrade Errors

| Category | Error Code | Error Name and/or Error Details   | Solution (for Technician)   |
|----------|------------|---|---|
| E        | 2501       | NAND flash memory write error   | Start the upgrade again. If the same error occurs or if the Printer will not start up, replace the ARC board.   |
| E        | 2701       | Scanner firmware unit write error   | Same as 2501.<br>If the problem is not solved, replace the ASC board.   |
| E        | 2702       | Scanner BOOT unit write error   |   |
| E        | 2703       | Scanner FPGA-FSC unit write error   |   |
| E        | 2704       | Scanner FPGA-FIC unit write error   |   |
| E        | 2705       | Scanner FPGA-FSG unit write error   |   |
| E        | 7F50       | The system image on the USB memory is not for the Printer. (Non-matching magic number) or (Non-matching sub-magic number) | Perform the procedure described in subsection 1.5.1 to have the Printer recognize the USB memory.<br>Use the correct upgrade USB memory and execute the upgrade process again.<br>If, after doing so, the same error occurs again, then replace the ARC board.  |
| E        | 7F51       | Part of the system image on the USB memory is corrupted (CRC error).  | Perform the procedure described in subsection 1.5.1 to have the Printer recognize the USB memory.<br>Use the correct upgrade USB memory (that includes the correct system image) and execute the upgrade process again.<br>If the same error occurs again then replace, the ARC board.  |
| E        | 7F80       | The card identification file (cardid.dat) on the USB memory is invalid.   | Perform the procedure described in subsection 1.5.1 to have the Printer recognize the USB memory.<br>Upgrade the firmware:<br>- with a correct upgrade USB memory; or<br>- with the procedure described in <b>1.6 Upgrading when replacing the ARC board.</b>   |
| E        | 7F81       | The firmware does not match between the USB memory and ARC board.   | Confirm that the system file for the correct model is written on the USB memory. When the system file model is correct, see section 1.6 to verify that the procedure described applies. If not, perform the following method.<br>Turn the power Off, remove and re-insert the USB memory, turn the power back On, and execute the upgrade process again.<br>If the same error occurs again, then replace the ARC board. |
| E        | 7F90       | Cannot downgrade lower than version 4.01 because the subscription function is enabled.                                    | Upgrade the system to version 4.01 or higher.   |
| E        | 7F91       | Cannot upgrade because ARC2 is not supported.   | Upgrade the system to version 9.00 or higher.   |

| <b>Category</b> | <b>Error Code</b> | <b>Error Name and/or Error Details</b>                          | <b>Solution (for Technician)</b>  |
|-----------------|-------------------|---|---|
| E               | 1100              | The printer is out of memory. The upgrade process was canceled. | Turn the power Off, remove and re-insert the USB memory, turn the power back On, and execute the upgrade process again.<br>If the same error occurs again, then replace the ARC board.                                  |
| E               | 7FF0              | Failed to upgrade the boot ROM.                                 | Set the bit 4 of the ARC board SW3 DIP switch to On and execute the upgrade process again (SW3 bit 3 may be On or Off).<br>If the same error still occurs or if the Printer does not start, then replace the ARC board. |

#### 1.5.4 Acquiring the System Firmware

The system firmware is supplied as a compressed file in the ZIP format.

**Example:** lp2050\_v8.11fw.zip  
- lp2050: Product name  
- v8.11: Version

The firmware differs depending on the printer model.  
Use the correct firmware according to your Printer model.



### 1.5.5 About the Upgrade USB Memory

Store the system file on a commercially available USB memory to use it as the USB memory for upgrade.

The Printer supports the following USB memory devices.

- Devices in FAT16 or FAT32 format.

Some USB memory devices may have poor compatibility with the Printer and may be difficult to recognize.

We recommend using device brands or models that you already used with the Printer without problem.

#### (1) USB memory directory structure

The upgrade USB memory consists of the following two directories.

##### (1) **sys** directory

The /sys directory contains the system file (system.sys) for the upgrade as one integrated file.

If the /sys directory or system.sys file does not exist, the upgrade will not execute.

The system.sys file size is between 10 and 20 MB.

##### (2) **cardid** directory

The /cardid directory stores a file (cardid.dat) that contains the ID code identifying the USB memory as the memory used for upgrade.

If the /cardid directory or cardid.dat file does not exist, the upgrade will not execute.

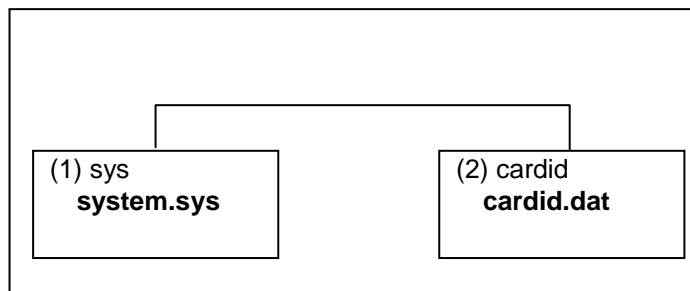


Figure 1.7 Directory Structure of the Upgrade USB Memory

## 1.5.6 How to Create the USB Memory for Upgrade

### <Instructions>

- (1) Prepare a PC environment that can read/write USB memory.
- (2) Prepare and extract the compressed file as discussed above.  
The directories and files will be created on the PC.
- (3) Make sure the USB memory does not contain any files or folders and copy both the /sys and /cardid directories to the USB memory.

**Caution** ◇ Be sure to copy the two entire directories below to the USB memory

- sys

- cardid

### 1.5.7 Upgrading via a Web Browser

The system.sys file is required to upgrade using a Web browser.

\* The system.sys file is the same as the one contained in the USB memory for upgrade.

The upgrade procedure is shown below.

- TIP**
- ◇ **Do not turn off the Printer during the system firmware upgrade process. Otherwise, the flash memory containing the firmware may be corrupted and the Printer may not be able to boot up properly. In such a case, recover the system by performing the upgrade procedure using the USB memory at startup (see subsection 1.5.1).**
  - ◇ **Upgrading requires 5 to 6 minutes. Do not turn off the Printer during this time.**
  - ◇ **Use Internet Explorer 6.0 or higher for the web browser.**
  - ◇ **On the multifunction model, the upgrading process is not possible when there is an original document jam in the scanner. In such a case, remove the original document before upgrading the system.**

#### <Instructions>

- (1) Prepare the firmware system file.  
(**system.sys**)
- (2) Input the IP address of the Printer into a web browser. The Printer's web interface will be displayed.
- (3) Click **Maintenance** at the bottom left of the screen. The Maintenance screen is displayed.
- (4) At the maintenance screen, click **6. Upgrade**.
- (5) The upgrade screen appears. Click **Browse**, and then select the system firmware file (system.sys) saved earlier at Step 1.
- (6) Confirm that the printer is in standby, and then click **Send to printer**.  
After the system firmware file is sent to the printer, the followings are displayed:
  - Firmware versions of the system firmware stored in the printer; and
  - Firmware versions of the system firmware for upgrading.
- (7) Confirm that the displayed firmware versions are correct, and then click **OK**.  
A screen indicating that the printer is upgrading appears, and then the printer upgrade starts. The remote LED of the operation panel blinks at this time.

When the upgrade is complete, the printer automatically restarts. The completion of the upgrade can also be confirmed by switching to the web browser screen.

## 1.6 Upgrading when replacing the ARC board (When using the board between different models)

The controller firmware is written in the ARC board.

Although the same ARC board may be used on several printer models, a specific controller firmware must be used for each printer model.

When replacing the ARC board, the controller firmware needed for the printer model may not be written on the new ARC board.

In such a case, the firmware written on the board must be replaced by the controller firmware for your printer model.

An error message like those below is displayed if the controller firmware on the ARC board does not match the printer model.

- When upgraded using USB memory at startup  
The printer's operation panel displays **E VU:7F80**.
- When upgraded using USB memory from the operation panel  
The operation panel displays **Insert the USB memory containing the correct system image file**.
- Invalid firmware upgrade with web browser  
The web browser displays **An error was found at the file check**.

In such cases, the method described in section 1.5 cannot be used to upgrade the firmware. Instead, use the procedure described below.

- (1) Check that the printer is turned off.
- (2) Set both the bits 3 and 4 of the ARC board SW3 DIP switch to **On**.
- (3) Insert the USB memory containing the system firmware for the model you want to upgrade into the USB connector of the ARC board.
- (4) Hold the **POWER SAVE** button on the operation panel of the printer and then switch on the power of the printer. Be sure to press the **POWER SAVE** button until the following message appears on the panel screen.  
The upgrade starts about 5 minutes after this message. Do not switch off the power of the printer during this time.

### **System (from USB) loading...**

- (5) After the message appears, the procedure is the same as of 1.5.1.
- (6) After completing the upgrade, switch off the power of the printer, and then set DIP switches 3 and 4 to **Off**.
  - \* Switch off the power of the printer by holding the **POWER** button on the operation panel for about 5 seconds.

- TIP**
- ◇ ARC board is classified into two: ARC1 board and ARC2 board. When you buy one of these boards individually as a maintenance part, note that its firmware has already been upgraded for the LP-2050 model. So be sure to upgrade the firmware so that it matches your printer model.
  - ◇ When replace the ARC board, perform the following actions.
    - Install the replaced ARC board's EEPROM on the replacing ARC board.
    - Reset the current time (see Chapter 3 - Menu Functions - Function Menu - Date and Time Setting in the *User's Manual for Basic Printer Operation*).
    - Reset the printer's serial number. (See p. 2-47)
  - ◇ When the upgrade is complete, select Menu -> Function -> Print System Settings to output the setup list, and confirm that the correct model name is printed.

If the system settings are not printed, open the printer's door and check that the operation panel shows the error screen with the correct printer illustration.
  - ◇ In this manual, the term ARC board means either ARC1 board or ARC2 board. When replacing the board, pay attention to always replace ARC1 boards with ARC1 boards, and ARC2 boards with ARC2 boards.

Printer operation is not guaranteed if the wrong board is installed.

## 1.7 Upgrading when replacing the ASC board (When using the board between different models)

The ASC board (scanner board) is the same for all T2 series models. However, the scanner firmware differs depending on the model. For example, LP-1140 printers use A1 model and the LP-2050 printers use A0 model.

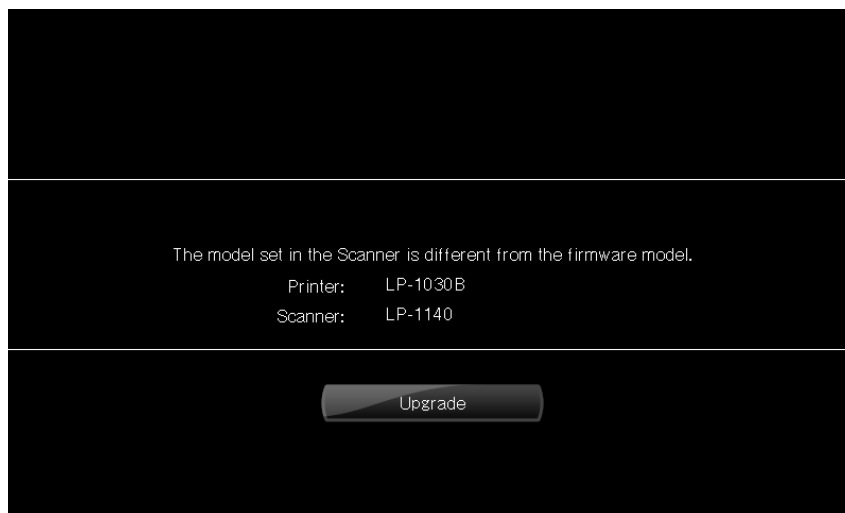
For this reason, the scanner firmware will not match if an ASC board with a firmware for a different model is installed.

In such a case, you need to upgrade the system using a USB drive.

Follow the procedure below.

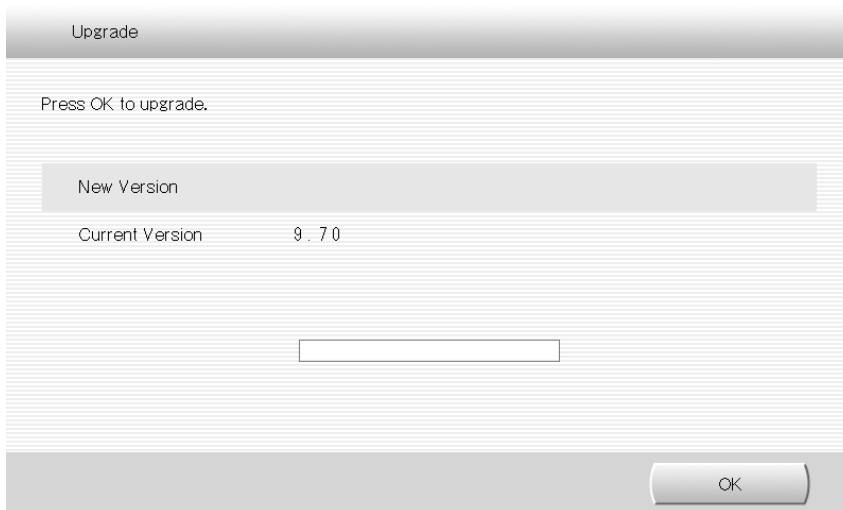
### <Procedure>

- (1) The following error message is displayed when the printer is started with an incorrect scanner firmware version. Click on the **Upgrade** button.



\* The picture shows an example when an ASC board with an A1 model scanner firmware is used with an A0 model printer.

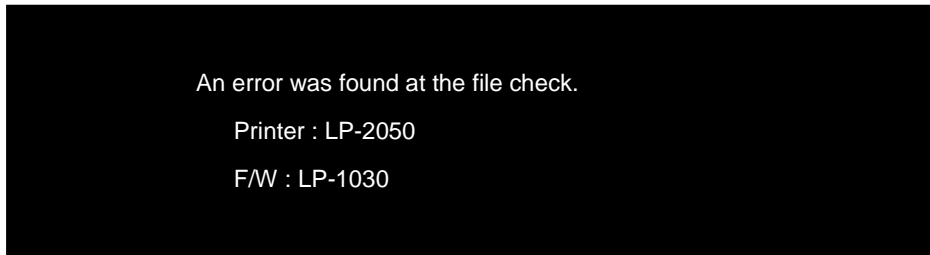
- (2) When the next screen is displayed, insert a USB drive that contains the firmware for the correct system, and click the **OK** button.



See **1.5.2 Upgrading with USB Memory (via the Operation Panel)** for the remaining steps of the procedure.

## 1.8 Replacing the EEPROM

On starting, the Printer may show the error message below.



The error message above is displayed when the model of the controller firmware stored in the ARC board and the model information registered in the EEPROM are different.

For example, this message appears if a printer with the LP-1030 firmware is started with an EEPROM for LP-2050 models installed. It happens almost always because the EEPROM has not been replaced, so replace the EEPROM.

- ◇ **The Printer will still be able to boot up even if the firmware of a model different from the Printer is stored in the ARC board. (For example, starting a LP-2050 printer containing an ARC board with LP-1030 firmware.)**  
**Perform the procedure below to verify that the firmware for the correct model is installed.**
  - **Start the Printer and open any roll paper drawer.**
  - **Check that the feed mechanism described in the printer illustration displayed on the operation panel matches the Printer you are using.**
- ◇ **If the EEPROM is damaged or lost, purchase a new one with the EEPROM serial number written on the order.**  
**(Product name: T2ARC-EEPROM MNT) (See 9.2.6 ELECTRICAL UNIT)**



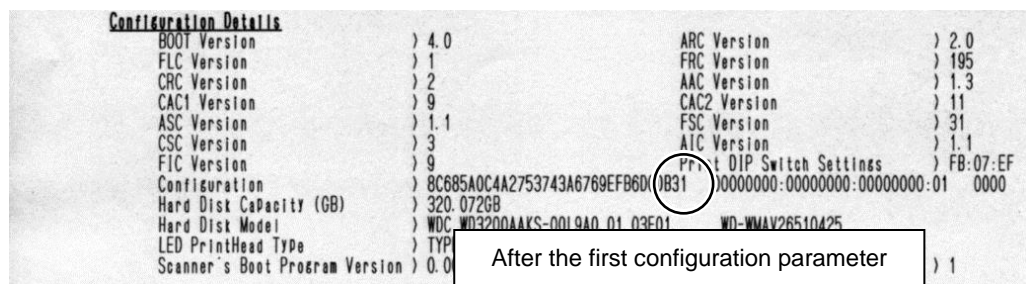
## 1.9 Confirming Operations such as Firmware Upgrade and Board Replacement

Confirm the following after you upgraded the firmware, replaced the ARC board, and replaced the EEPROM.

Select **Menu -> Function -> Print System Settings** to output the setup list.

Check the following items.

- (1) Select **Printer Information -> Version -> Controller Firmware Version**  
 When the controller firmware has been upgraded, confirm that the new version is printed in controller firmware version.  
 If a different version is printed, execute the upgrade again.
- (2) Select **Printer Information -> Version -> Scanner Firmware Version**  
 When the scanner firmware has been upgraded, confirm that the new version is printed in scanner firmware version.  
 If a different version is printed, execute the upgrade again.
- (3) Select **Printer Information -> Advanced Configuration -> BOOT Version**  
 When the BOOT has been upgraded, confirm that the new version is printed in the BOOT version field.  
 If a different version is printed, execute the upgrade again.
- (4) Printer Information -> MAC Address  
 Check that the \* symbol is not written after the MAC address.  
 If \* is written, set the serial number again.  
 See **2.5 Technician Menu Functions** (3) for the method to set the serial number.
- (5) Configuration  
 If an asterisk (\*) symbol is displayed after the first parameter in the Configuration field, perform one of the following actions.  
 If you have not replaced the EEPROM, replace it (see **1.8 Replacing the EEPROM**).  
 If you have not set the serial number, set it (see **2.5 Technician Menu Functions** (3)).



## 1.10 How to Acquire Information When a Problem Occurs

Through Chapters 4 to 8, troubleshooting for each unit is described. However, a problem that cannot be resolved immediately may sometimes arise.

In such cases, use one of the two procedures below to acquire information from the printer on which the problem occurred. This information may be used later on to analyze the problem.

<Save to a USB memory from the operation panel >

See (6) Maintenance information output in **2.5 Technician Menu Functions**.

<Save to a computer from a Web browser>

Access the Printer from a Web browser.

Acquire the information below in order.

(1) Error log

Select **Open Maintenance** -> **2.Log acquisition**.

Click the **Error log** link to save the file.

\* The download will start several minutes after you click the link.

(2) Maintenance information

Select **Open Maintenance** -> **5.Maintenance information acquisition**.

Click the **Execute** button for Maintenance information acquisition (TXT).

\* The download will start several minutes after you click the link.

(3) Diagnostic data

Select **Open Maintenance** -> **5.Maintenance information acquisition**.

Click the **Execute** button for Diagnostic data acquisition.

\* The download may start several minutes after you click the **Execute** button.

\* The following data items without the passwords are obtained through diagnostic data acquisition.

- All settings
- Error log
- Job log
- Authentication log
- Engine log
- Operation log
- Engine information

The downloaded file is encrypted.

---

## Chapter 2 Engine Maintenance Mode

---

When performing regular inspections or troubleshooting in the event of a problem, you will be using the engine maintenance mode feature discussed in this chapter. To use the engine maintenance mode you will need to input a password and enter maintenance mode.

### Note

The Printer series contains several models which vary in number of roll paper drawers or motor/sensor configuration. The functions provided in the engine maintenance mode are common to all these different models. Consequently, some operations may be executed on a roll paper drawer or a motor/sensor that actually does not exist on a particular model. Unexpected behavior may occur if an operation is executed on a part that does not exist, so be careful when using these functions. (Note that the Printer will not break even if you designate a wrong part for an operation.)

## 2.1 How to Enter Maintenance Mode

To use the engine maintenance mode functions, input a login name for technician and a password, and enter maintenance mode

\* These instructions are the same for both printer and multifunction models.

(1) Press the **Menu** button. The top menu screen will appear.

(2) Press the buttons on the operation panel in the following order.

**Enter->Cancel->Enter->Enter**

If the buttons are pressed correctly, the password input screen for maintenance mode will appear.

(3) Input the login name and password.

The following two combinations of login name and password are available to maintenance personnel.

Both have exactly the same function.

< First name and password >

Login Name: **maintenance**

Password: **tktk2010**

< Second name and password >

Login Name: **t2t2**

Password: **12325802**

(4) Press the **Enter** button.



Figure 2.1 Password Input Screen

- Notes**
- ◇ The password entered is always displayed as eight asterisks (\*\*\*\*\*).
  - ◇ If the login name and password are correct, the display will change to the display for technician.
  - ◇ If the login name and password are incorrect, the display will not change.
  - ◇ Once in maintenance mode, the Printer will stay in this mode until it is returned to the standby screen.

## 2.2 Maintenance Diagnostic Items Overview and How to Use Them

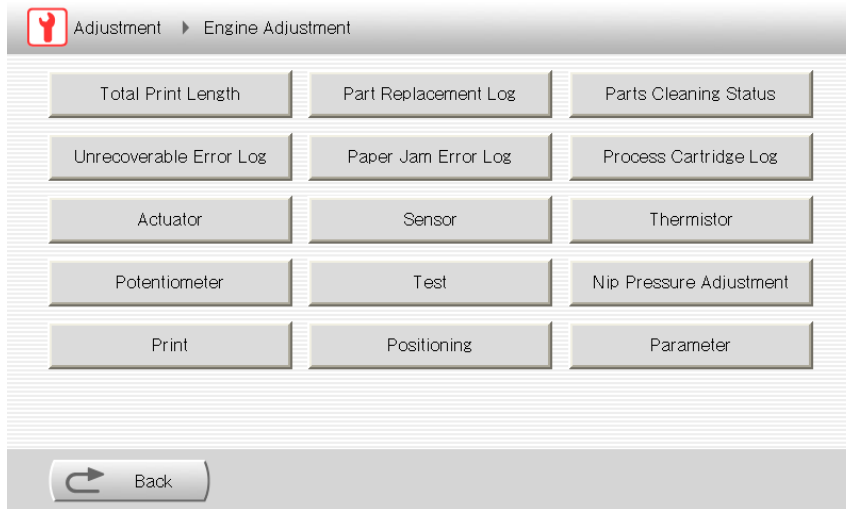
### 2.2.1 Maintenance Diagnostic Items

Table 2-1 Maintenance Diagnostic Items

| No. | Item                    | Description  |
|-----|-------------------------|--|
| 1   | Cumulative print length | Displays the cumulative print length of each roll.   |
| 2   | Unrecoverable Error Log | Displays information about errors that could not be recovered from.  |
| 3   | Jam error log           | Displays information about paper jam errors.   |
| 4   | Process cartridge log   | Displays information about the process cartridge.  |
| 5   | Part replacement data   | Displays the cumulative print length after part replacement and the approximate replacement value.<br>Clears the cumulative print length after part replacement. |
| 6   | Part cleaning data      | Displays the cumulative print length after part cleaning and the approximate cleaning value.<br>Clears the cumulative print length after part cleaning.          |
| 7   | Thermistor              | Displays the state of the thermistor and of the halogen heater.  |
| 8   | Sensor                  | Displays the status of the sensors and switches.<br>You can also configure it so that changes can be identified by different types of buzzer noises.             |
| 9   | Actuator                | Displays the status of the motor, clutch, fan and other parts.<br>You can also operate the motor, clutch, fan, etc. independently.                               |
| 10  | Test                    | Operation for adjusting the primary charger current.   |
|     |                         | Operation for adjusting the developer bias.  |
|     |                         | Operation for adjusting the separator bias.  |
|     |                         | Turns on the LED head.   |
|     |                         | Makes the LED head flash.  |
| 11  | Nip pressure adjustment | Executes a print operation to adjust the fuser nip pressure.   |
| 12  | Print                   | Select a test pattern in the engine and print it.  |
| 13  | Positioning             | Align the top edge position.   |
|     |                         | Align the center position.   |
|     |                         | Adjust the print length.   |
|     |                         | Adjust the cut length.   |
|     |                         | Correct the paper cut length based on the remaining paper amount.  |
| 14  | Parameter               | Change the RAM value of the engine control parameter.  |
| 15  | Potentiometer           | Perform potentiometer correction in order to maintain the paper width detection accuracy of the installed roll paper.  |

## 2.2.2 How to Use the Maintenance Diagnostics

Switch to maintenance mode and select the desired maintenance diagnosis item.



\* **Transfer Roller Adjustment** is not available with this model.

The operation after the selection are classified into four below.

| Operation      | Description  |
|----------------|--|
| Display Action | Display the current status.  |
| Clear          | Clears the cumulative print length related to the maintenance.     |
| Change Setting | Change the current setting's value.                                |
| Execute        | Execute the operation. Or, stop the currently executing operation. |

### (1) Display action

Display the cumulative print length and/or other current status items.



**(2) Clear**

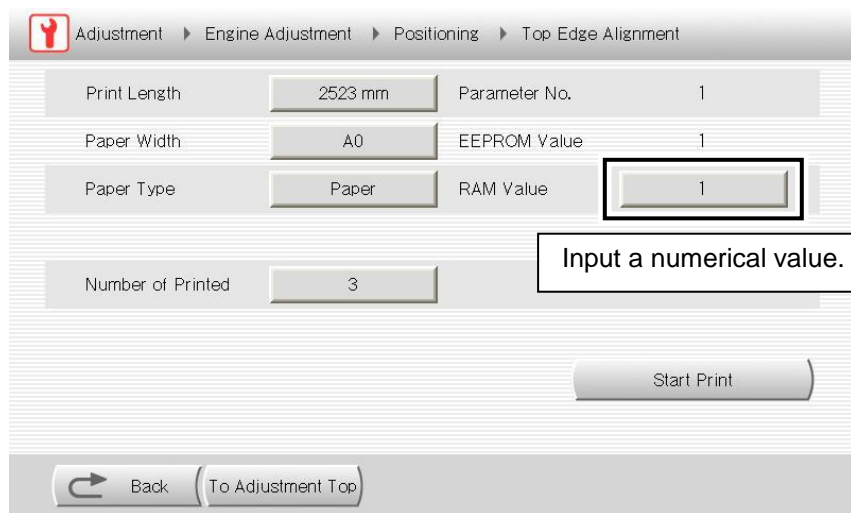
Clear the cumulative print length related to the maintenance. The information is cleared by clicking the **OK** button.



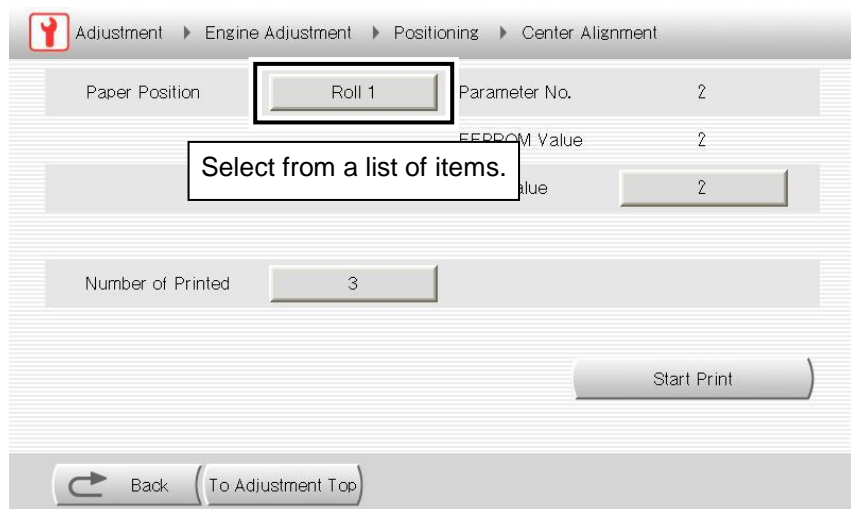
**(3) Change setting**

Change the current setting's value. There are two methods for this, as shown below.

Numerical Input - Select an item to change, and input the value with the number pad.



Selection Input - Select an item from the list of items displayed.



**(4) Execute**

Execute the operation. Or, stop the currently executing operation.

## 2.3 Maintenance Diagnostic Items

### 2.3.1 Cumulative Print Length

Displays the cumulative print length (in either meters or feet) and the A3 and A4 counter value.

Table 2-2 Cumulative Print Length Items

| Item  | Meaning | Operation    |
|---|---------|--------------|
| Display Cumulative Print Length [m]/[ft]                        | ←       | Display Only |
| Roll x Cumulative Print Length [m]/[ft]<br>(x: the roll number) | ←       | Display Only |
| Total Print Count [m]/[ft]                                      | ←       | Display Only |

The cumulative print length and the A3 and A4 counter value values are added for each printed paper upon successful print completion. Pages for which a paper jam occurred or pages that were canceled before completely finishing are considered incomplete and therefore are not counted.

When **Top Cut at Door Open** or **Top Cut Timer** is enabled, the approximately 400 mm (approximately 15.7 inches) piece of blank paper may be output, which is added to the cumulative print length, but it is not added to the A3 and A4 counter value.

The count-up value for the A3 and A4 counter is decided for each page depending on the printout length and roll paper width as shown in the table on next page.



Table 2-3 A3 and A4 counter's Count-Up Values on A1 and A3

| Printout length |                     |                   | Count-Up Value   |   |
|-----------------|---------------------|-------------------|--|---|
| [mm]<br>(up to) | [inches]<br>(up to) | [line]<br>(up to) | Roll papers identified by the<br>Printer as A3 width, e.g., with the<br>following width:<br>- 297 mm;<br>- 310 mm;<br>- 11 inches; or<br>- 12 inches | Roll papers identified by the<br>Printer as A1 width, e.g., with the<br>following width:<br>- 594 mm;<br>- 610 mm;<br>- 620 mm;<br>- 700 mm;<br>- 707 mm;<br>- 22 inches; or<br>- 24 inches |
| 460             | 18.1                | 10867             | 1  | 2   |
| 920             | 36.2                | 21733             | 2  | 3   |
| 1380            | 54.3                | 32599             | 3  | 4   |
| 1840            | 72.4                | 43465             | 4  | 6   |
| 2300            | 90.6                | 54332             | 5  | 8   |
| 2760            | 108.7               | 65198             | 6  | 9   |
| 3220            | 126.8               | 76064             | 7  | 10  |
| 3680            | 144.9               | 86930             | 8  | 12  |
| 4140            | 163.0               | 97797             | 9  | 13  |
| 4600            | 181.1               | 108663            | 10   | 15  |
| 5060            | 199.2               | 119529            | 11   | 18  |
| 5520            | 217.3               | 130395            | 13   | 19  |
| 5980            | 235.4               | 141261            | 14   | 21  |
| 6440            | 253.5               | 152128            | 15   | 22  |
| 6900            | 271.7               | 162994            | 16   | 24  |
| 7360            | 289.8               | 173860            | 17   | 25  |
| 7820            | 307.9               | 184726            | 18   | 27  |
| 8280            | 326.0               | 195593            | 19   | 28  |
| 8740            | 344.1               | 206459            | 20   | 30  |
| 9200            | 362.2               | 217325            | 21   | 31  |
| 9660            | 380.3               | 228191            | 22   | 33  |
| 10120           | 398.4               | 239058            | 24   | 36  |
| 10580           | 416.5               | 249924            | 25   | 37  |
| 11040           | 434.7               | 260790            | 26   | 39  |
| 11500           | 452.8               | 271656            | 27   | 40  |
| 11960           | 470.9               | 282522            | 28   | 42  |
| 12420           | 489.0               | 293389            | 29   | 43  |
| 12880           | 507.1               | 304255            | 30   | 45  |
| 13340           | 525.2               | 315121            | 31   | 46  |
| 13800           | 543.3               | 325987            | 32   | 48  |
| 14260           | 561.4               | 336854            | 33   | 49  |
| 14720           | 579.5               | 347720            | 34   | 51  |
| 15180           | 597.6               | 358586            | 36   | 54  |

A3 (297 mm × 420 mm), 11 inches × 17 inches, 12 inches × 18 inches = one count-up  
A1 (594 mm × 841 mm), 22 inches × 34 inches, 24 inches × 36 inches = three count-ups

Table 2-4 A3 and A4 counter's Count-Up Values on A2 and A0

| Printout length |                     |                   | Count-Up Value  |   |
|-----------------|---------------------|-------------------|---|---|
| [mm]<br>(up to) | [inches]<br>(up to) | [line]<br>(up to) | Roll paper identified as A2<br>width by the Printer<br>- 420 mm;<br>- 440 mm;<br>- 450 mm;<br>- 500 mm;<br>- 17 inches; or<br>- 18 inches | Roll paper identified as A0<br>width by the Printer<br>- 841mm;<br>- 880 mm;<br>- 900 mm;<br>- 910 mm;<br>- 914 mm;<br>- 30 inches;<br>- 34 inches; or<br>- 36 inches |
| 320             | 12.6                | 7560              | 1   | 2   |
| 640             | 25.2                | 15119             | 2   | 3   |
| 960             | 37.8                | 22678             | 3   | 4   |
| 1280            | 50.4                | 30237             | 4   | 5   |
| 1600            | 63.0                | 37796             | 5   | 6   |
| 1920            | 75.6                | 45355             | 6   | 8   |
| 2240            | 88.2                | 52914             | 7   | 9   |
| 2560            | 100.8               | 60473             | 8   | 10  |
| 2880            | 113.4               | 68033             | 9   | 11  |
| 3200            | 126.0               | 75592             | 10  | 13  |
| 3520            | 138.6               | 83151             | 11  | 14  |
| 3840            | 151.2               | 90710             | 12  | 15  |
| 4160            | 163.8               | 98269             | 14  | 17  |
| 4480            | 176.4               | 105828            | 15  | 19  |
| 4800            | 189.0               | 113387            | 16  | 20  |
| 5120            | 201.6               | 120946            | 17  | 21  |
| 5440            | 214.2               | 128505            | 18  | 23  |
| 5760            | 226.8               | 136065            | 19  | 24  |
| 6080            | 239.4               | 143624            | 20  | 25  |
| 6400            | 252.0               | 151183            | 21  | 26  |
| 6720            | 264.6               | 158742            | 22  | 27  |
| 7040            | 277.2               | 166301            | 23  | 29  |
| 7360            | 289.8               | 173860            | 24  | 30  |
| 7680            | 302.4               | 181419            | 25  | 31  |
| 8000            | 315.0               | 188978            | 26  | 33  |
| 8320            | 327.6               | 196537            | 28  | 34  |
| 8640            | 340.2               | 204097            | 29  | 35  |
| 8960            | 352.8               | 211656            | 30  | 37  |
| 9280            | 365.4               | 219215            | 31  | 39  |
| 9600            | 378.0               | 226774            | 32  | 40  |
| 9920            | 390.6               | 234333            | 33  | 41  |
| 10240           | 403.2               | 241892            | 34  | 43  |
| 10560           | 415.8               | 249451            | 35  | 44  |
| 10880           | 428.4               | 257010            | 36  | 45  |
| 11200           | 441.0               | 264570            | 37  | 46  |
| 11520           | 453.5               | 272129            | 38  | 47  |
| 11840           | 466.1               | 279688            | 39  | 48  |
| 12160           | 478.7               | 287247            | 40  | 50  |
| 12480           | 491.3               | 294806            | 42  | 52  |
| 12800           | 503.9               | 302365            | 43  | 54  |
| 13120           | 516.5               | 309924            | 44  | 55  |
| 13440           | 529.1               | 317483            | 45  | 56  |
| 13760           | 541.7               | 325042            | 46  | 57  |
| 14080           | 554.3               | 332602            | 47  | 59  |
| 14400           | 566.9               | 340161            | 48  | 60  |
| 14720           | 579.5               | 347720            | 49  | 61  |
| 15040           | 592.1               | 355279            | 50  | 63  |

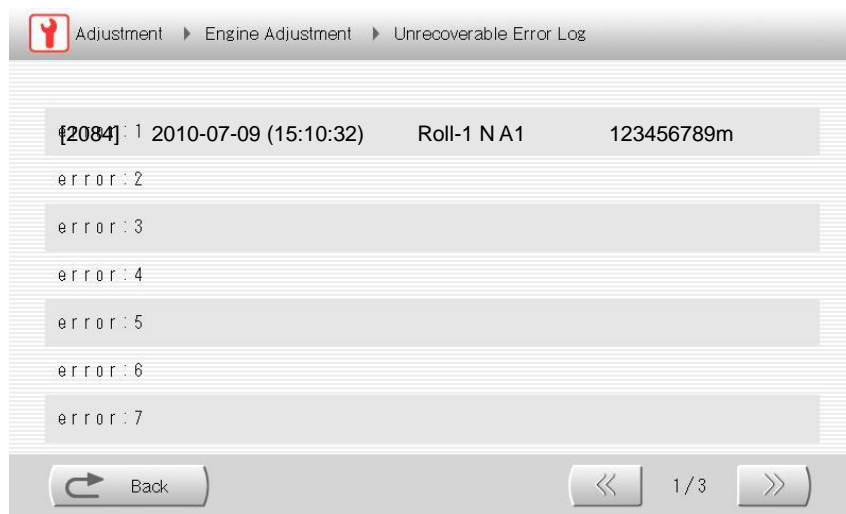
### 2.3.2 Unrecoverable Error Log

Displays information about the latest 21 unrecoverable errors that have occurred, from newest to oldest.

A single error consists of the following elements.

Table 2-5 Elements of Unrecoverable Error Codes

| Item   | Meaning   | Operation    |
|--|---|--------------|
| Error Code   | See Below                                       | Display only |
| Information about the type of paper used when the error occurred | See Below                                       | Display only |
| Date when the error occurred                                     | Date when the error occurred                    | Display only |
| Cumulative print length when the error occurred [m]/[ft]         | Cumulative print length when the error occurred | Display only |



Example of an Unrecoverable Error Log

[2084]    2010-07-09(15:10:32)    Roll-1 N A1    123456789m  
 (1)                                    (2)                                    (3)                                    (4)

Table 2-6 Example of an Unrecoverable Error Log

|     |                       |  |
|-----|-----------------------|--|
| (1) | [2084]                | Error Code   |
| (2) | 2010-07-09 (15:10:32) | The date when the error occurred. YYYY-MM-DD (HH:MM:SS)          |
| (3) | Roll-1 N A1           | Information about the type of paper used when the error occurred |
| (4) | 123456789m            | Cumulative print length when the error occurred                  |

**(1) Unrecoverable Error Codes and Their Details**

Table 2-7 Unrecoverable Error Codes and Their Details

| <b>Error Code</b> | <b>Error Details</b>  |
|-------------------|---|
| 2010              | FMxx (Paper Feed Pulse Motor x) Trouble   |
| 2011 - 2013       | FM01 (Paper Feed Pulse Motor 1) Trouble   |
| 2014 - 2016       | FM02 (Paper Feed Pulse Motor 2) Trouble   |
| 2017 - 2019       | -   |
| 201A - 201C       | -   |
| 2021 - 2022       | HM01 (Heat Roller Pulse Motor) Trouble  |
| 2023              | PM01 (Process Motor) Trouble  |
| 2024 - 2026       | GM01 (Developer Pulse Motor) Trouble  |
| 2027 - 202B       | TM01 (Paper Feed Pulse Motor) Trouble   |
| 2030              | AC Power Supply Problem (Problem With 50Hz/60Hz Judgment Value)   |
| 2031              | High Voltage Power Supply Problem CC at CH1, DB at CH2, and DC at CH3   |
| 2032              | High Voltage Power Supply Problem (TR at CH3)   |
| 2035              | LED Head Correction Data Transmission Error (Timeout error)   |
| 2036              | LED Head Correction Data Transmission Error (Header error)  |
| 2037              | LED Head Correction Data Transmission Error (Footer error)  |
| 203A              | AC Power Supply Problem (Problem with zero value)   |
| 2081              | TH02 (Overheat Thermistor) has detected overheating in the fuser.   |
| 2082              | TH01 (Fuser Temperature Control Thermistor) problem. Extremely hot (possible cable short).  |
| 2083              | TH01 (Fuser Temperature Control Thermistor) has exceeded the fuser's maximum allowed temperature.   |
| 2084              | After beginning the warm-up sequence, the fuser temperature TH01 did not reach the specified temperature within the specified amount of time. |
| 2085              | TH03 (LED Head Temperature Measurement Thermistor) Problem<br>Extremely hot (possible cable short).   |
| 2086              | TH03 (LED Head Temperature Measurement Thermistor) has exceeded the LED head's maximum allowed temperature.                                   |
| 2087              | TH04 (Fuser Temperature Control Thermistor) problem. Extremely hot (possible cable short).  |
| 2088              | TH04 (Fuser Temperature Control Thermistor) has exceeded the fuser's maximum allowed temperature.   |
| 2089              | After beginning the warm-up sequence, the fuser temperature TH04 did not reach the specified temperature within the specified amount of time. |
| 208A              | The temperature difference between TH01 and TH04 is too large.  |
| 208B              | TH05 (Backup Roller Temperature Measurement Thermistor) Problem   |
| 208C              | TH06 (Humidity Sensor Unit Temperature Measurement Thermistor) Problem  |
| 208D              | HU01 (Humidity Sensor) Problem  |
| 20BF              | No folding completion notice from the folder  |
| 20C1 - 20C3       | EEPROM Checksum Error (System parameter)  |
| 20C4              | EEPROM Checksum Error (Print length after part replacement)   |
| 20C5              | EEPROM Checksum Error (Print length after part cleaning)  |
| 20C8              | EEPROM Checksum Error (Unrecoverable error log)   |
| 20C9              | EEPROM Checksum Error (Paper jam error log)   |
| 20CA              | EEPROM Checksum Error (Process cartridge usage log)   |
| 20D1 - 20D8       | EEPROM Checksum Error (Engine Control Parameter)  |
| 2E40              | Actuator Communication      Initialization is not complete  |
| 2E50              | Actuator Communication      Output port write error   |
| 2E51              | Actuator Communication      Packet error  |
| 2E52              | Actuator Communication      Parity error  |
| 2E53              | Actuator Communication      Communication timeout   |
| 2E54              | Actuator Communication      Buffer overflow error   |

**(2) Information about the type of paper used when an error occurred and the contents of that information**

The meanings of the six characters representing the paper information at the time of an error are shown in the table below.

Table 2-8 Information and Its Contents on the type of paper used when an error occurred

| <b>First and Second Characters<br/>(Roll paper position)</b> | <b>Meaning</b>                  |
|--|---------------------------------|
| Rx (x: the roll number)                                      | Roll position                   |
|  | Roll paper position is unknown. |

| <b>Third and Fourth Characters<br/>(Type of paper)</b> | <b>Meaning</b>                       |
|--|--------------------------------------|
| N  | Plain paper                          |
| T1   | Tracing paper (Tracing Paper Mode 1) |
| T2   | Tracing paper (Tracing Paper Mode 2) |
| F  | Film                                 |
|  | Paper type is unknown.               |

| <b>Fifth and Sixth Characters<br/>(Paper width)</b> | <b>Meaning</b>   |
|---|--|
| A0  | Roll papers identified by the Printer as A0 width (841 mm width (33.11 inches)), e.g., with the following width:<br>880 mm, 900 mm, 910 mm, 914 mm,<br>30 inches, 34 inches, 36 inches<br>width roll paper, etc. |
| A1  | Roll paper identified by the Printer as A1 width (594 mm (23.39 inches) width), e.g., with the following width:<br>610 mm, 620 mm, 700 mm, 707 mm,<br>22 inches, 24 inches<br>width roll paper, etc.             |
| A2  | Roll paper identified by the Printer as A2 width (420 mm (16.54 inches)width), e.g., with the following width:<br>440 mm, 450 mm, 500 mm<br>17 inches, 18 inches<br>width roll paper, etc.                       |
| A3  | Roll paper identified by the Printer as A3 width (297 mm (11.69 inches) width), e.g., with the following width:<br>310 mm,<br>11 inches, 12 inches,<br>width roll paper, etc.<br>Paper Width Unknown             |

### 2.3.3 Jam error log

Displays information about the latest 21 paper jam errors that have occurred, from newest to oldest.

A single paper jam error consists of the following elements.

Table 2-9 Elements of Paper Jam Error

| Item   | Meaning   | Operation    |
|--|---|--------------|
| Error Code   | See the following page and forward              | Display only |
| Information about the type of paper used when the error occurred | See the following page and forward              | Display only |
| Date when the error occurred                                     | Date when the error occurred                    | Display only |
| Cumulative print length when the error occurred [m]/[ft]         | Cumulative print length when the error occurred | Display only |



#### Paper Jam Log Example

[3500]    2010-07-09(13:00:59)    Roll-2 N A1    123456789m  
 (1)                                    (2)                                    (3)                                    (4)

Table 2-10 Paper Jam Log Example

|     |                          |  |
|-----|--------------------------|--|
| (1) | [3500]                   | Error Code   |
| (2) | 2010-07-09 (13:00:59 PM) | The date when the error occurred. YYYY-MM-DD (HH:MM:SS)          |
| (3) | Roll-2 N A1              | Information about the type of paper used when the error occurred |
| (4) | 123456789m               | Cumulative print length when the error occurred                  |

## (1) Paper jam error codes and their details

Table 2-11 Paper Jam Error Codes and Their Details

| Error Code     | Error Details  |      |  |
|----------------|--|------|--|
| 3400           | The paper is jammed at the PS04 sensor, that is, under the cutter.   |      |  |
| 3401, 3402     | The lead edge of the paper is reaching PS04 too quickly.   |      |  |
| 3403, 3404     | The lead edge of the paper is not reaching PS04.   |      |  |
| 3491, 3492     | When rewinding the roll paper, it is reaching PS04 too quickly.  |      |  |
| 3493, 3494     | When rewinding the roll paper, there is still paper at the PS04 position even after the estimated paper pass-through time is exceeded. |      |  |
| 3500           | The paper is jammed at the PS05 sensor, where the positioning operation is performed.  |      |  |
| 3501, 3502     | The lead edge of the paper is reaching PS05 too quickly.   |      |  |
| 3503, 3504     | The lead edge of the paper is not reaching PS05.   |      |  |
| 3591, 3592     | The tail edge of the paper is disengaging from PS05 too quickly.   |      |  |
| 3593, 3594     | The tail edge of the paper is not disengaging from the PS05 position even after the estimated paper pass-through time is exceeded.     |      |  |
| 3600           | The paper is jammed at the PS06 sensor in the transport unit.  |      |  |
| 3601, 3602     | The lead edge of the paper is reaching PS06 too quickly.   |      |  |
| 3603, 3604     | The lead edge of the paper is not reaching PS06.   |      |  |
| 3691, 3692     | The tail edge of the paper is disengaging from PS06 too quickly.   |      |  |
| 3693, 3694     | The tail edge of the paper is not disengaging from the PS06 position even after the estimated paper pass-through time is exceeded.     |      |  |
| 3700           | The paper is jammed at the PS07 sensor, where the ink is fused to the paper.   |      |  |
| 3701, 3702     | The lead edge of the paper is reaching PS07 too quickly.   |      |  |
| 3703, 3704     | The lead edge of the paper is not reaching PS07.   |      |  |
| 3791, 3792     | The tail edge of the paper is disengaging from PS07 too quickly.   |      |  |
| 3793, 3794     | The tail edge of the paper is not disengaging from the PS07 position even after the estimated paper pass-through time is exceeded.     |      |  |
| 3042 -<br>3047 | Problem occurred when the cutter blade is moving   | 3042 | The Printer detects the cutter blade at neither right nor left home position.  |
|                |  | 3043 | The Printer detects the cutter blade at both right and left home positions.  |
|                |  | 3045 | The Printer detects the cutter blade fixed at the home position.   |
|                |  | 3046 | After the cutter blade is moved from a home position, the Printer does not detect the cutter blade at the other home position. |
|                |  | 3047 | After the cutter blade reaches the home position, the cutter blade is disengaged from the home position.                       |

When two error codes are written together (3401 to 3794), the difference between the two errors is as follows.

Odd number codes such as 3401:

Jam detected for odd numbered page during continuous print  
Or jam detected during printing of a single sheet

Even number codes such as 3402:

Jam detected for even numbered page during continuous print

### 2.3.4 Process Cartridge Log

Displays information about the cumulative print length of the process cartridge.



#### Process Cartridge Log Example

[0001]    2010-07-09(12:34:56)    123456789m  
(1)                                    (2)                                    (3)

Table 2-12 Process Cartridge Log Example

|     |                                |  |
|-----|--------------------------------|--|
| (1) | <u>[0001]</u>                  | Process cartridge number                             |
| (2) | <u>2010-07-09(12:34:56 PM)</u> | The date of last use. YYYY-MM-DD(HH:MM:SS)           |
| (3) | <u>123456789m</u>              | The cumulative print length of the process cartridge |



### 2.3.5 Part Replacement Data

Displays as reference data for the part replacement:

- The cumulative print length after the part replacement; and
- The cumulative print length with which the part replacement is recommended

You can also clear the cumulative print length after part replacement to 0.

**TIP**     **◇ Whenever you are replacing a part, you should always perform the clear to 0 operation above.**

Table 2-13 Elements of Part Replacement Data

| Item  | Meaning | Operation         |
|---|---------|-------------------|
| Part name   | ←       | Display only      |
| Cumulative print length after part replacement [m]/[ft] | ←       | Display and clear |
| Estimated part replacement value [m]/[ft]               | ←       | Display only      |



Table 2-14 Part Replacement Data Details

| No. | Replacement Part Name  | Cumulative print length with which the part replacement is recommended |           |
|-----|------------------------|--|-----------|
|     |                        | Unit: m (inch)   | Unit: ft  |
| 1   | Thermistor             | 100000 m (3937008 inches)  | 328084 ft |
| 2   | Detach needle          | 100000 m (3937008 inches)  | 328084 ft |
| 3   | Belt trans             | 100000 m (3937008 inches)  | 328084 ft |
| 4   | Spacer dev             | 100000 m (3937008 inches)  | 328084 ft |
| 5   | Roller TRA /Spacer TRA | 100000 m (3937008 inches)  | 328084 ft |
| 6   | Roller heat            | 100000 m (3937008 inches)  | 328084 ft |
| 7   | Roller back up         | 100000 m (3937008 inches)  | 328084 ft |
| 8   | Peeler fu out          | 100000 m (3937008 inches)  | 328084 ft |
| 9   | Separator (BUR)        | 100000 m (3937008 inches)  | 328084 ft |

### 2.3.6 Part Cleaning Data

Displays as reference data for the part cleaning:

- The cumulative print length after the part cleaning; and
- The cumulative print length with which the part cleaning is recommended

You can also clear the cumulative print length after part cleaning to 0.

**TIP**     **◇ Whenever you are cleaning a part, you should always perform the clear to 0 operation above.**

Table 2-15 Elements of Part Cleaning Data

| Item   | Meaning | Operation         |
|--|---------|-------------------|
| Part name  | ←       | Display only      |
| Cumulative print length after part cleaning [m]/[ft] | ←       | Display and clear |
| Estimated part cleaning value [m]/[ft]               | ←       | Display only      |



Table 2-16 Parts for Cleaning and Cleaning Cycle

| No. | Part Name                           | Cleaning Cycle          |          |
|-----|-------------------------------------|-------------------------|----------|
|     |                                     | Unit: m                 | Unit: ft |
| 1   | Thermistor                          | 5000 m (196850 inches)  | 16404 ft |
| 2   | Detach needle                       | 5000 m (196850 inches)  | 16404 ft |
| 3   | Belt trans                          | 5000 m (196850 inches)  | 16404 ft |
| 4   | Spacer dev                          | 5000 m (196850 inches)  | 16404 ft |
| 5   | Roller TRA /Spacer TRA              | 5000 m (196850 inches)  | 16404 ft |
| 6   | Roller heat                         | 5000 m (196850 inches)  | 16404 ft |
| 7   | Roller back up                      | 5000 m (196850 inches)  | 16404 ft |
| 8   | Peeler fu out                       | 10000 m (393700 inches) | 32808 ft |
| 9   | Separator (BUR)                     | 10000 m (393700 inches) | 32808 ft |
| 10  | Led head                            | 5000 m (196850 inches)  | 16404 ft |
| 11  | Guide-C/Guide (TRA)                 | 5000 m (196850 inches)  | 16404 ft |
| 12  | Roller regist<br>Roller (PINCH 2)   | 10000 m (393700 inches) | 32808 ft |
| 13  | Roller cutter<br>Roller (PINCH 2)   | 10000 m (393700 inches) | 32808 ft |
| 14  | Roller (PF)LOW<br>Roller (PINCH·PF) | 10000 m (393700 inches) | 32808 ft |

| No. | Part Name                             | Cleaning Cycle          |          |
|-----|---------------------------------------|-------------------------|----------|
|     |                                       | Unit: m                 | Unit: ft |
| 15  | Roller (REWIND)<br>Bearing (DR-22-H6) | 10000 m (393700 inches) | 32808 ft |
| 16  | Cutter unit (AUTO)                    | 10000 m (393700 inches) | 32808 ft |

### 2.3.7 Thermistor

Displays the state of the thermistors and the halogen heater.

Table 2-17 Thermistors and Halogen Heaters: Status and Meaning

| Code | Category  | Status and Meaning                              |
|------|---|---|
| TH02 | Fuser temperature overheat sensor TH02's status         | Normal: No overheating<br>Overheat: Overheating |
| TH01 | Center fuser temperature sensor TH01's value            |   |
| TH03 | LED head temperature sensor TH03's value                |   |
| TH04 | Edge fuser temperature sensor TH04's value              |   |
| TH05 | Backup roller temperature sensor TH05's value           |   |
| TH06 | Temperature sensor TH06's value at humidity sensor unit |   |
|      |   |   |
| HU01 | Humidity sensor HU01's status                           |   |
| FL01 | Fuser unit halogen heater FL01's status                 | Off: The halogen heater is Off.                 |
| FL02 | Fuser unit halogen heater FL02's status                 | On: The halogen heater is On.                   |



**TIP** ◇ If the thermistor is disconnected, 0 degree C is displayed. In this case, check the connectors.

### 2.3.8 Sensor

Displays the status of the sensors and switches.

Table 2-18 Elements of Sensor Data

| Item                 | Meaning  | Operation      |
|----------------------|--|----------------|
| Sensor status On/Off | Sensor Status (See table below)                  | Display only   |
| Beep On/Off          | See the figures starting from the following page | Change setting |

#### (1) Sensor status

Table 2-19 Sensor Status Messages

| Selection Button | Function  | Displayed Status and Meaning                      |
|------------------|---|---|
| PS04             | Status of paper detection sensor under the cutter.                              | Off: No paper<br>On: Paper loaded                 |
| PS05             | Status of paper detection sensor, where the positioning operation is performed. |   |
| PS06             | Status of paper detection sensor, where the transport unit.                     |   |
| PS07             | Status of paper detection sensor, where the ink is fused to the paper.          |   |
| PS1x             | Status of roll x flange detection sensor (x: the roll number)                   | Off: No flange<br>On: Flange detected             |
| PS16             | Status of fuser unit drawer (door 5) open/closed sensor                         | Off: Closed<br>On: Open                           |
| PS21             | Status of drawer for roll 1 open/closed sensor                                  |   |
| PS22             | Status of drawer for roll 2 open/closed sensor                                  |   |
| PS23             | Status of drawer for roll 3 open/closed sensor                                  |   |
| PS40             | Status of toner door open/closed sensor   |   |
| PS5x             | Status of roll x remaining sensor (x: the roll number)                          | Off: Interception<br>On: Penetrate                |
| INT3             | Status of rear door (door 6) open/closed sensor                                 | Off: Closed<br>On: Open                           |
| INT5 (MS06-1)    | Status of paper outlet cover (door 4) open/closed sensor                        |   |
| RE03             | Status of cutter blade detection sensor   | Off: No cutter blade<br>On: Cutter blade detected |
| RE04             | Status of cutter blade detection sensor   |   |
| MS04             | Status of toner cartridge detection sensor                                      | Off: No cartridge<br>On: Cartridge detected       |
| MS05             | Status of waste toner bottle detection sensor                                   |   |
| TS01             | Status of toner sensor  | Off: No toner<br>On: Toner detected               |
| TS02             | Status of waste toner sensor  |   |
| V24V             | Status for 24 V power supply  | Off: Not supplied<br>On: Supplied                 |

Depending on the Printer model, some sensors are not installed as follows.

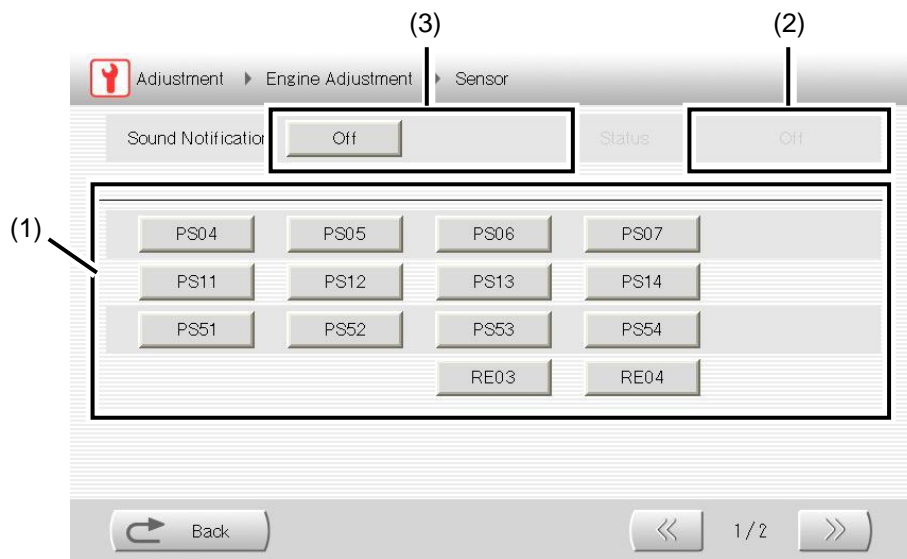
\* Even if not installed, these sensors are displayed on the panel, but their statuses should be ignored.

- LP-1030 (for 1 roll): PS12, PS13, PS14, PS22, PS23, PS40, PS52, PS53, and PS54 are not installed.

- LP-1030 (for 2 rolls): PS13, PS14, PS23, PS40, PS53, and PS54 are not installed.

To check the status of PS06, fix the sensor with adhesive tape not leaving adhesive when removed.

## (2) Turning the beep sound On/Off



- (1) Select the sensor whose status you want to display.
- (2) The status of the selected sensor will be displayed.
- (3) If the beep sound is turned On, a beep is output in accordance with changes in sensor status. It allows you to grasp the sensor status when the panel display is not available due to sensor operation being performed.

### 2.3.9 Actuator

Check the status of or specify actions for the high voltage power supply, motor, clutch, or other such parts.

Table 2-20 Elements of Actuator Data

| Item                     |        | Meaning          | Operation      |
|--------------------------|--------|------------------|----------------|
| Actuator Status          | On/Off | See table below  | Display only   |
| Action Specification     | On/Off | See table below  | Change setting |
| ALL action specification | On/Off | See figure below | Change setting |

#### (1) Actuator status and action specification

Table 2-21 Actuator Status Message List

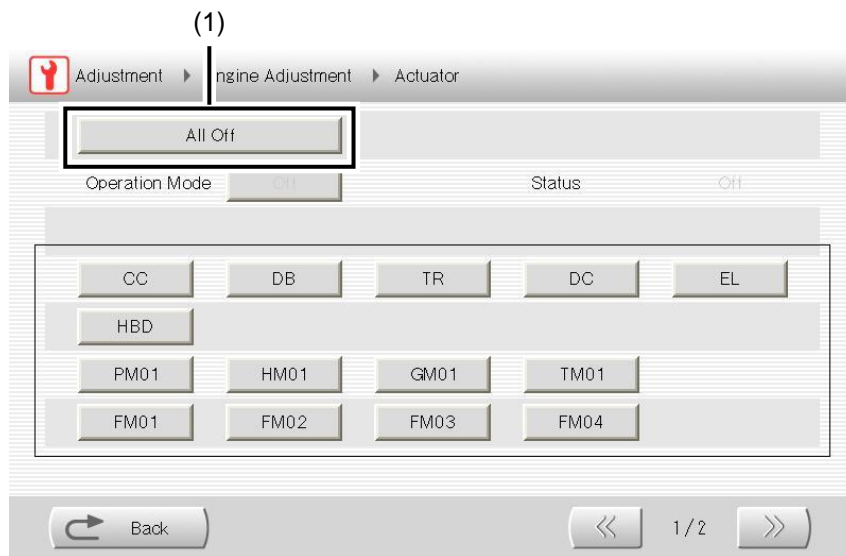
| Selection Button | Function                                     | Displayed Status and Meaning   |
|------------------|--|--|
| CC               | Indicates or specifies CC's action status.   | Off: The electrical part's status is off.<br>On: The electrical part's status is on.   |
| DB               | Indicates or specifies DB's action status.   |  |
| TR               | Indicates or specifies TR's action status.   |  |
| DC               | Indicates or specifies DC's action status.   |  |
| EL               | Indicates or specifies EL's action status.   |  |
| LED              | Indicates or specifies LED's action status.  |  |
| PM01             | Indicates or specifies PM01's action status. | Off: The motor is not operating.<br>On: The motor is rotating.   |
| HM01             | Indicates or specifies HM01's action status. |  |
| GM01             | Indicates or specifies GM01's action status. | Off: The motor is not operating.<br>On 1: The motor is rotating toward development function side.<br>On 2: The motor is rotating toward toner agitation function side. |
| TM01             | Indicates or specifies TM01's action status. | Off: The motor is not operating.<br>On 1: The motor is rotating toward paper feed direction.<br>On 2: The motor is rotating toward paper rewind direction.             |
| FM01             | Indicates or specifies M01's action status.  |  |
| FM02             | Indicates or specifies FM02's action status. |  |
| FM03             | Indicates or specifies FM03's action status. |  |
| FM04             | Indicates or specifies FM04's action status. |  |
| CL04             | Indicates or specifies CL04's action status. | Off: The clutch is disconnected.<br>On: The clutch is connected.   |
| SL01             | Indicates or specifies SL01's action status. | Off: The solenoid's status is off.<br>On: The solenoid's status is on with the shutter facing upward.  |
| SL02             | Indicates or specifies SL02's action status. | Off: The solenoid's status is off.<br>On: The solenoid's status is on.   |
| BL01             | Indicates or specifies BL01's action status. | Off: The blower is not operating.<br>On: The blower is rotating.   |
| BL02             | Indicates or specifies BL02's action status. |  |
| BL03             | Indicates or specifies BL03's action status. |  |
| BL06             | Indicates or specifies BL06's action status. |  |

Before changing the rotation direction of the motor, temporarily switch off the motor.

Do not change the statuses for the actuators below, as they are not installed on the printer.

- LP-1030 (for 1 roll): FM02, FM03, FM04
- LP-1030 (for 2 rolls): FM03, FM04

**(2) ALL action specification**



(1) Turn off all actuators' actions.

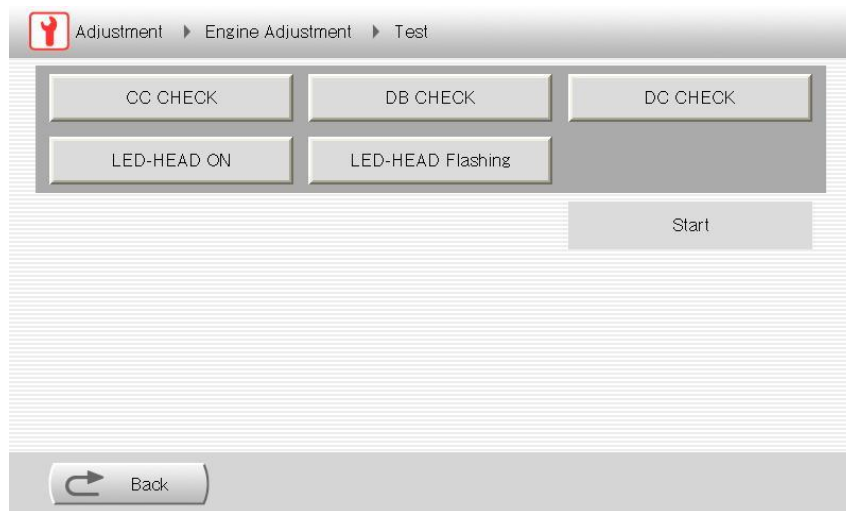


### 2.3.10 Test

Executes the test function.

Table 2-22 Test Items

| Item           | Description  | Operation |
|----------------|--|-----------|
| CC CHECK       | Tests the adjustment of the primary charger current. | Execute   |
| DB CHECK       | Tests the adjustment of the developer bias.          | Execute   |
| DC CHECK       | Tests the adjustment of the separator bias.          | Execute   |
| LED-HEAD ON    | Switches on the lighting of the LED head             | Execute   |
| LED-HEAD BLINK | Blinks the lighting of the LED head                  | Execute   |



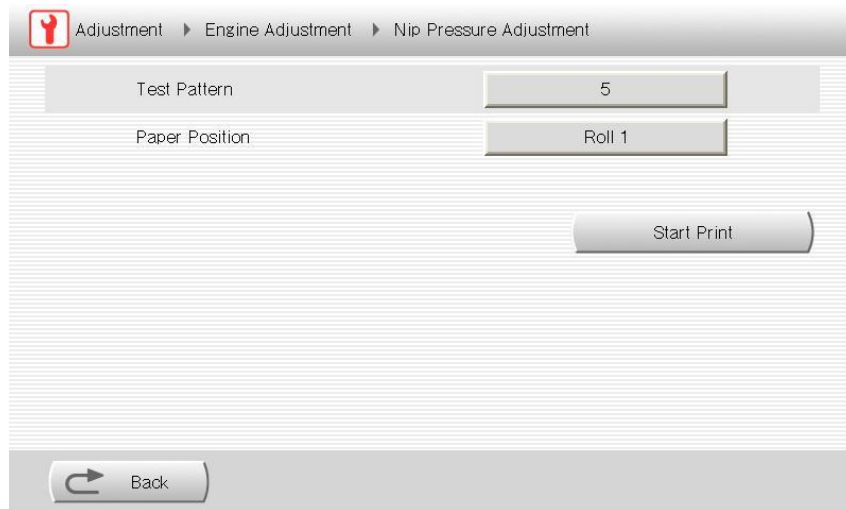
### 2.3.11 Nip Pressure Adjustment

Executes a print operation to adjust the fuser nip pressure.

Select a test pattern and Paper Postion to execute the print operation.

Table 2-23 Nip Pressure Calibration Parameters

| Selection Item Name | Selection | Meaning                      |
|---------------------|-----------|------------------------------|
| Test Pattern        | 5         | Pattern 5: Horizontal 2 by 2 |
|                     | 7         | Pattern 17: Solid Black      |
|                     | 20        | Pattern 20: Vertical 2 by 2  |
| Paper Postion       | Roll x    | Roll x (x: the roll number)  |



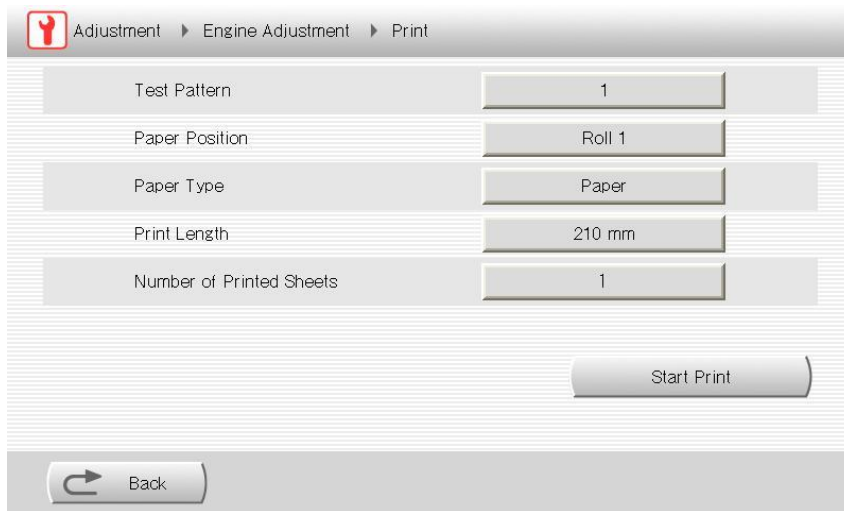
Though rolls that may not be available depending on the model are also displayed as paper position selection items, these items should be ignored.

**2.3.12 Print**

Prints the test patterns contained in the engine.  
Specify the pattern to print by selecting one of the following items.

Table 2-24 Executable Items Overview Under the Print Menu

| Item                     | Description                 | Operation |
|--------------------------|-----------------------------|-----------|
| Test Pattern             | See table below.            | Select    |
| Paper Position           | Roll x (x: the roll number) | Select    |
| Paper Type               | Paper/Tracing/Film          | Select    |
| Print Length             | See table below.            | Select    |
| Number of Printed Sheets | 1- 99                       | Select    |



Though rolls that may not be available depending on the model are also displayed as paper position selection items, these items should be ignored.

Table 2-25 Executable Items Under the Print Menu (Details)

| Item Name    | Selection | Meaning   |
|--------------|-----------|---|
| Test Pattern | 1         | Vertical stripe, composed of 256-dot width black and white lines                                      |
|              | 2         | Checkerboard, composed of 256-dot width cells   |
|              | 3         | Horizontal stripe, composed of 256-dot width black and white lines                                    |
|              | 4         | Horizontal stripe, composed of 1-dot width black and 3-dot width white lines                          |
|              | 5         | Horizontal stripe, composed of 2-dot width black and 2-dot width white lines                          |
|              | 6         | Horizontal stripe, composed of 2-dot width black and 14-dot width white lines                         |
|              | 7         | Grid, composed of 64-dot width cels and 2-dot width black lines                                       |
|              | 8         | Grid, composed of 64-dot width and 512-dot height cels and 1-dot width black lines                    |
|              | 9         | Grid, composed of 64-dot width and 512-dot height cels and 2-dot width black lines                    |
|              | 10        | Grid, composed of 64-dot width and 512-dot height cels and 4-dot width black lines                    |
|              | 11        | Checkerboard, composed of 2-dot width cells   |
|              | 12        | Grid, composed of the three cels below:<br>- Black cells;<br>- White cells; and<br>- Grid-lined cells |
|              | 13        | Grid, with a scale attachment   |
|              | 14        | Grid, with 1-dot width diagonal lines   |
|              | 15        | Grid, with 2-dot width diagonal lines   |

| Item Name                | Selection             | Meaning  |  |
|--------------------------|-----------------------|--|--|
| Test Pattern             | 16                    | Grid, with 1-dot width and 2-dot width lines                               |  |
|                          | 17                    | Solid black  |  |
|                          | 18                    | Solid white  |  |
|                          | 19                    | Vertical stripe, composed of 1-dot width black and 3-dot width white lines |  |
|                          | 20                    | Vertical stripe, composed of 2-dot width black and 2-dot width white lines |  |
| Paper Postion            | Roll x                | Roll x (x: the roll number)  |  |
| Paper Type               | Paper                 | Plain  |  |
|                          | Trace                 | Tracing  |  |
|                          | Film                  | Film   |  |
| Print Length             | 210 mm                | 210 mm = 8.27 inches   | (4961 lines)<br>Print C:<br>Equivalent to 210 mm   |
|                          | 297 mm                | 297 mm = 11.69 inches  | (7016 lines)<br>Print B:<br>Equivalent to 297 mm   |
|                          | 420 mm                | 420 mm = 16.54 inches  | (9921 lines)<br>Print A:<br>Equivalent to 841 mm   |
|                          | 594 mm                | 594 mm = 23.39 inches  | (14032 lines)                                      |
|                          | 841 mm                | 841 mm = 33.11 inches  | (19866 lines)                                      |
|                          | 1189 mm               | 1189 mm = 46.81 inches   | (28087 lines)                                      |
|                          | 1682 mm               | 1682 mm = 66.22 inches   | (39733 lines)<br>Print X:<br>Equivalent to 2523 mm |
|                          | 2378 mm               | 2378 mm = 93.62 inches   | (56174 lines)                                      |
|                          | 2523 mm               | 2523 mm = 99.33 inches   | (59599 lines)                                      |
|                          | 3000 mm               | 3000 mm = 118.11 inches  | (70867 lines)                                      |
|                          | 4000 mm               | 4000 mm = 157.48 inches  | (94489 lines)                                      |
|                          | 5000 mm               | 5000 mm = 196.85 inches  | (118111 lines)                                     |
|                          | 6000 mm               | 6000 mm = 236.22 inches  | (141733 lines)                                     |
|                          | 7000 mm               | 7000 mm = 275.59 inches  | (165356 lines)                                     |
|                          | 8000 mm               | 8000 mm = 314.96 inches  | (188978 lines)                                     |
|                          | 9000 mm               | 9000 mm = 354.33 inches  | (212600 lines)                                     |
|                          | 10000 mm              | 10000 mm = 393.70 inches   | (236222 lines)                                     |
|                          | 11000 mm              | 11000 mm = 433.07 inches   | (259845 lines)                                     |
|                          | 12000 mm              | 12000 mm = 472.44 inches   | (283467 lines)                                     |
|                          | 13000 mm              | 13000 mm = 511.81 inches   | (307089 lines)                                     |
|                          | 14000 mm              | 14000 mm = 551.18 inches   | (330711 lines)                                     |
|                          | 15000 mm              | 15000 mm = 590.55 inches   | (354334 lines)                                     |
|                          | 8.5"                  | 8.5 inches = 215.9 mm  | (5100 lines)<br>Print C:<br>Equivalent to 210 mm   |
|                          | 9"                    | 9 inches = 228.6 mm  | (5400 lines)                                       |
|                          | 11"                   | 11 inches = 279.4 mm   | (6600 lines)                                       |
|                          | 12"                   | 12 inches = 304.8 mm   | (7200 lines)<br>Print B:<br>Equivalent to 297 mm   |
|                          | 17"                   | 17 inches = 431.8 mm   | (10200 lines)<br>Print X:<br>Equivalent to 2523 mm |
|                          | 18"                   | 18 inches = 457.2 mm   | (10800 lines)                                      |
|                          | 22"                   | 22 inches = 558.8 mm   | (13200 lines)                                      |
|                          | 24"                   | 24 inches = 609.6 mm   | (14400 lines)                                      |
|                          | 30"                   | 30 inches = 762.0 mm   | (18000 lines)                                      |
|                          | 34"                   | 34 inches = 863.6 mm   | (20400 lines)                                      |
| 36"                      | 36 inches = 914.4 mm  | (21600 lines)  |  |
| 42"                      | 42 inches = 1066.8 mm | (25200 lines)  |  |
| 44"                      | 44 inches = 1117.6 mm | (26400 lines)  |  |
| 48"                      | 48 inches = 1219.2 mm | (28800 lines)  |  |
| Number of Printed Sheets | 1 - 99                | Prints continuously for the input value (1-99)                             |  |

### 2.3.13 Positioning

Executes the positioning functions shown in the table below.

Table 2-26 Positioning Functions

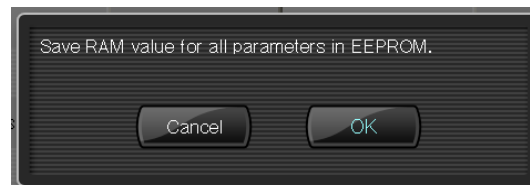
| Function                | Description  |
|-------------------------|--|
| Top Edge Alignment      | Executes a print operation for the top edge alignment.                                 |
| Center Alignment        | Executes a print operation for the center alignment.                                   |
| Print Length Adjustment | Executes a print operation for the print length adjustment.                            |
| Cut Length Adjustment   | Executes a print operation for the cut length adjustment.                              |
| Remaining Paper Based   | Executes a print operation for correcting the cut length based on the remaining paper. |

#### (1) Top Edge Alignment

Executes a print operation for the top edge alignment.

Selecting Print Length, Paper Width, or Paper Type displays the EEPROM and RAM values of the corresponding engine control parameters for the top edge alignment. Use the number pad to change the RAM value. Click the **Save** button to save the **RAM Value** in the EEPROM.

**Note** ◇ A confirmation window appears when you click the **Save** button.



When saving the new parameter, not only the value for the currently displayed screen, but all RAM values that have been changed at this point are saved.

Table 2-27 Executable Items Under the Top Edge Alignment Menu (1)

| Item Name                | Option  | Meaning   |
|--------------------------|---------|---|
| Print Length             | 2523 mm | 2523mm = 99.33 inches = 841×3 (59599 lines)       |
|                          | 841 mm  | 841 mm = 33.11 inches (19866 lines)               |
|                          | 297 mm  | 297 mm = 11.69 inches (7016 lines)                |
|                          | 210 mm  | 210 mm = 8.27 inches (4961 lines)                 |
| Paper Width              | A0      | Roll papers identified by the Printer as A0 width |
|                          | A1      | Roll papers identified by the Printer as A1 width |
|                          | A2      | Roll papers identified by the Printer as A2 width |
|                          | A3      | Roll papers identified by the Printer as A3 width |
| Paper Type               | Paper   | Plain paper                                       |
|                          | Tracing | Tracing paper                                     |
|                          | Film    | Film  |
| Number of Printed Sheets | 1       | Print 1 page.                                     |
|                          | 2       | Prints 2 pages continuously.                      |
|                          | 3       | Prints 3 pages continuously.                      |

For models with multiple rolls, the upper roll is prioritized for paper supply.  
If the upper roll is empty, the roll below is used.

Table 2-28 Executable Items Under the Top Edge Alignment Menu (2)

| Item Name        | Display   | Meaning  |
|------------------|-----------|--|
| Parameter number | 601 - 648 | Number of engine control parameter for the top edge alignment.           |
| EEPROM value     | 0 - 1500  | EEPROM value of the engine control parameter for the top edge alignment. |

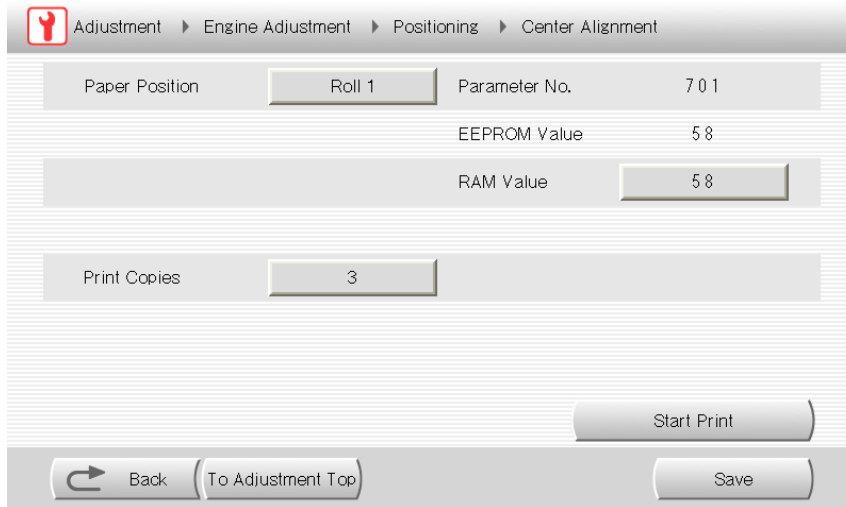
Table 2-29 Executable Items Under the Top Edge Alignment Menu (3)

| Input Item Name | Recommended Input Range* | Meaning   |
|-----------------|--------------------------|---|
| RAM value       | 0 - 1500                 | RAM value of the engine control parameter for the top edge alignment. |

\*: Values between 0 and 65535 can be entered.

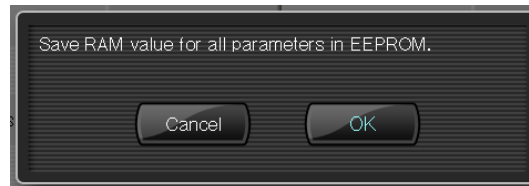
**(2) Center Alignment**

Executes a print operation for the center alignment.



Selecting Paper Position displays the EEPROM and RAM values of the corresponding engine control parameter for the center alignment. Use the number pad to change the RAM value. Click the **Save** button to save the **RAM Value** in the EEPROM.

**Note**    **◇ A confirmation window appears when you click the Save button.**



**When saving the new parameter, not only the value for the currently displayed screen, but all RAM values that have been changed at this point are saved.**

Though rolls that may not be available depending on the model are also displayed as paper position selection items, these items should be ignored.

Table 2-30 Executable Items Under the Center Alignment Menu (1)

| Item Name                | Option | Meaning                      |
|--------------------------|--------|------------------------------|
| Paper Position           | Roll x | Roll x (x: the roll number)  |
| Number of Printed Sheets | 1      | Print 1 page.                |
|                          | 2      | Prints 2 pages continuously. |
|                          | 3      | Prints 3 pages continuously. |

Table 2-31 Executable Items Under the Center Regist Alignment Menu (2)

| Item Name     | Display   | Meaning  |
|---------------|-----------|--|
| Parameter No. | 701 - 704 | Number of engine control parameter for the center alignment.       |
| EEPROM Value  | 0 - 100   | EEPROM value of engine control parameter for the center alignment. |

Table 2-32 Executable Items Under the Center Alignment Menu (3)

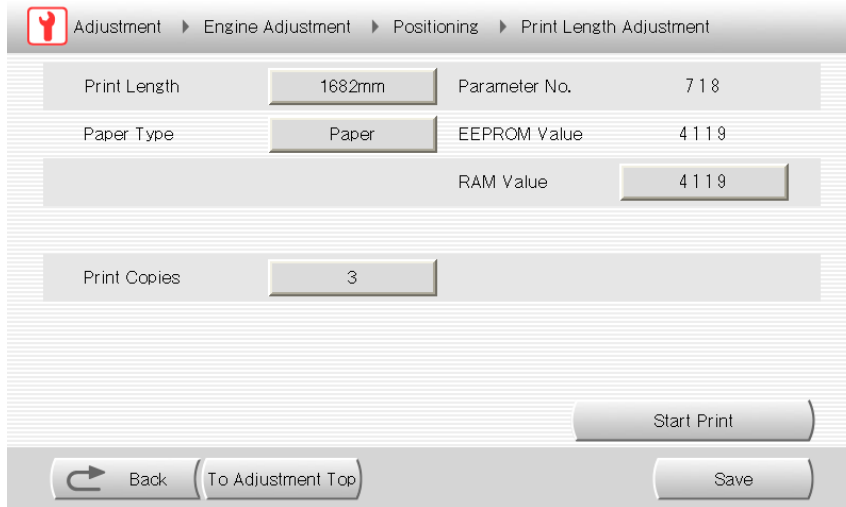
| Item Name | Recommended Input Range* | Meaning   |
|-----------|--------------------------|---|
| RAM Value | 0 - 100                  | RAM value of engine control parameter for the center alignment. |

\*: Values between 0 and 65535 can be entered.



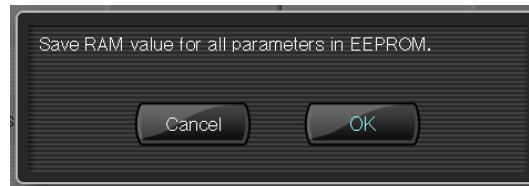
**(3) Print Length Adjustment**

Executes a print operation for the print length adjustment.



Selecting Print Length or Paper Type displays the EEPROM and RAM values of the corresponding engine control parameter. Use the number pad to change the RAM value. Click the **Save** button to save the **RAM Value** in the EEPROM.

**Note**    ♦ A confirmation window appears when you click the **Save** button.



**When saving the new parameter, not only the value for the currently displayed screen, but all RAM values that have been changed at this point are saved.**

Table 2-33 Executable Items Under the Print Length Adjustment Menu (1)

| Item Name                | Option  | Meaning                                     |
|--------------------------|---------|---|
| Print Length             | 2523 mm | 2523mm = 99.33 inches = 841×3 (59599 lines) |
|                          | 1682 mm | 1682mm = 66.22 inches = 841×2 (39732 lines) |
|                          | 841 mm  | 841 mm = 33.11 inches (19866 lines)         |
|                          | 297 mm  | 297 mm = 11.69 inches (7016 lines)          |
|                          | 210 mm  | 210 mm = 8.27 inches (4961 lines)           |
| Paper Type               | Paper   | Plain paper                                 |
|                          | Tracing | Tracing paper                               |
|                          | Film    | Film  |
| Number of Printed Sheets | 1       | Print 1 page.                               |
|                          | 2       | Prints 2 pages continuously.                |
|                          | 3       | Prints 3 pages continuously.                |

For models with multiple rolls, the upper roll is prioritized for paper supply. If the upper roll is empty, the roll below is used.

Table 2-34 Executable Items Under the Print Length Adjustment Menu (2)

| <b>Item Name</b> | <b>Display</b> | <b>Meaning</b>  |
|------------------|----------------|---|
| Parameter No.    | 718 - 723      | Number of engine control parameter for the print length adjustment.       |
| EEPROM Value     | 3050 - 3200    | EEPROM value of engine control parameter for the print length adjustment. |

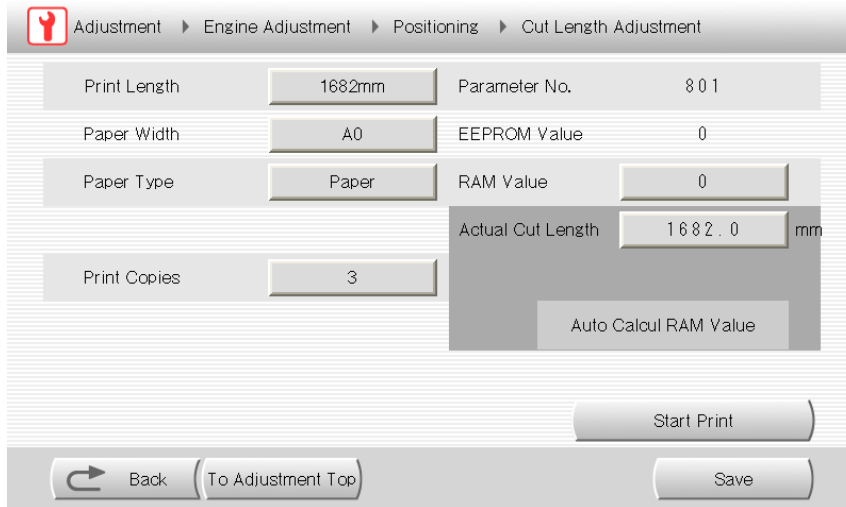
Table 2-35 Executable Items Under the Print Length Adjustment Menu (3)

| <b>Item Name</b> | <b>Recommended Input Range*</b> | <b>Meaning</b>   |
|------------------|---------------------------------|--|
| RAM Value        | 3050 - 3200                     | RAM value of engine control parameter for the print length adjustment. |

\*: Values between 0 and 65535 can be entered.

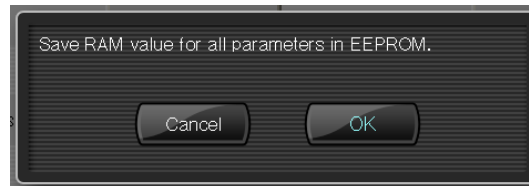
**(4) Cut Length Adjustment**

Executes a print operation for the cut length adjustment.



Selecting Print Length or Paper Type displays the EEPROM and RAM values of the corresponding engine control parameter.  
Use the number pad to change the RAM value.  
Click the **Save** button to save the **RAM Value** in the EEPROM.

**Note**   ◇ A confirmation window appears when you click the **Save** button.



**When saving the new parameter, not only the value for the currently displayed screen, but all RAM values that have been changed at this point are saved.**

Table 2-36 Executable Items Under the Cut Length Adjustment Menu (1)

| Item Name                | Option  | Meaning   |
|--------------------------|---------|---|
| Print Length             | 2523 mm | 2523mm = 99.33 inches = 841×3 (59599 lines)       |
|                          | 1682 mm | 1682mm = 66.22 inches = 841×2 (39732 lines)       |
|                          | 841 mm  | 841 mm = 33.11 inches (19866 lines)               |
|                          | 297 mm  | 297 mm = 11.69 inches (7016 lines)                |
|                          | 210 mm  | 210 mm = 8.27 inches (4961 lines)                 |
| Paper Width              | A0      | Roll papers identified by the Printer as A0 width |
|                          | A1      | Roll papers identified by the Printer as A1 width |
|                          | A2      | Roll papers identified by the Printer as A2 width |
|                          | A3      | Roll papers identified by the Printer as A3 width |
| Paper Ttype              | Paper   | Plain paper                                       |
|                          | Tracing | Tracing paper                                     |
|                          | Film    | Film  |
| Number of Printed Sheets | 1       | Print 1 page.                                     |
|                          | 2       | Prints 2 pages continuously.                      |
|                          | 3       | Prints 3 pages continuously.                      |

For models with multiple rolls, the upper roll is prioritized for paper supply.  
If the upper roll is empty, the roll below is used.

Table 2-37 Executable Items Under the Cut Length Adjustment Menu (2)

| <b>Item Name</b> | <b>Display</b> | <b>Meaning</b>  |
|------------------|----------------|---|
| Parameter No.    | 801 - 848      | Number of engine control parameter for the cut length adjustment.       |
| EEPROM Value     | 0 - 1000       | EEPROM value of engine control parameter for the cut length adjustment. |

Table 2-38 Executable Items Under the Cut Length Adjustment Menu (3)

| <b>Item Name</b> | <b>Recommended Input Range*</b> | <b>Meaning</b>   |
|------------------|---------------------------------|--|
| RAM Value        | 0 - 1000                        | RAM value of engine control parameter for the cut length adjustment. |

\*: Values between 0 and 65535 can be entered.

**(5) Remaining Paper Based**

Executes a print operation for correcting the cut length based on the remaining paper.

## &lt;Preparation&gt;

Prepare two rolls, one with the maximum remaining length and one with the minimum remaining length, of the paper width and paper type you want to adjust.

\* They are not necessary if the cut lengths from the roll front and the roll end are already known, and only enter the cut length with the roll front in **Length Roll Front**, and the cut length with the roll end in **Length Roll End**.

The screenshot shows the 'Remaining Paper Based' adjustment screen. At the top, there is a navigation bar with a wrench icon and the text 'Adjustment > Engine Adjustment > Positioning > Remaining Paper Based'. Below this, there are several input fields and buttons:

- Print Length:** 1682mm
- Parameter No.:** 540
- Paper Width:** A0
- EEPROM Value:** 0
- Paper Type:** Paper
- RAM Value:** 0
- Length Roll Front:** 1682.0 mm
- Length Roll End:** 1682.0 mm
- Print Copies:** 3
- Auto Calcul RAM Value:** (button)
- Start Print:** (button)
- Back:** (button)
- To Adjustment Top:** (button)
- Save:** (button)

- (1) Select the paper width and the paper type.
- (2) Install the roll with the maximum remaining length in roll 1.
- (3) Select the print length with which you often print on the roll you have set, and click the **Start Print** button.
- (4) Measure the cut length of the third printout, and enter the value in **Length Roll Front**.
- (5) Install the roll with the minimum remaining length in roll 1.
- (6) Enter the same value as (3) in **Print Length**, and click the **Start Print** button.
- (7) Measure the cut length of the third printout, and enter the value in **Length Roll End**.
- (8) Click the **Auto Calcul RAM Value** button to display the RAM value automatically.
  - \* Repeat the procedure with a different paper width and paper type if required.
- (9) Click the **Save** button to save the **RAM Value** in the EEPROM.

**Note** ◇ A confirmation window appears when you click the **Save** button.



**When saving the new parameter, not only the value for the currently displayed screen, but all RAM values that have been changed at this point are saved.**

Table 2-39 Executable Items Under the Remaining Paper Based Menu (1)

| Item Name                | Option  | Meaning   |
|--------------------------|---------|---|
| Print Length             | 2523 mm | 2523mm = 99.33 inches = 841×3 (59599 lines)       |
|                          | 1682 mm | 1682mm = 66.22 inches = 841×2 (39732 lines)       |
|                          | 841 mm  | 841 mm = 33.11 inches (19866 lines)               |
|                          | 297 mm  | 297 mm = 11.69 inches (7016 lines)                |
|                          | 210 mm  | 210 mm = 8.27 inches (4961 lines)                 |
| Paper Width              | A0      | Roll papers identified by the Printer as A0 width |
|                          | A1      | Roll papers identified by the Printer as A1 width |
|                          | A2      | Roll papers identified by the Printer as A2 width |
|                          | A3      | Roll papers identified by the Printer as A3 width |
| Paper Ttype              | Paper   | Plain paper                                       |
|                          | Tracing | Tracing paper                                     |
|                          | Film    | Film  |
| Number of Printed Sheets | 1       | Print 1 page.                                     |
|                          | 2       | Prints 2 pages continuously.                      |
|                          | 3       | Prints 3 pages continuously.                      |

For models with multiple rolls, the upper roll is prioritized for paper supply.  
If the upper roll is empty, the roll below is used.

Table 2-40 Executable Items Under the Remaining Paper Based Menu (2)

| Item Name     | Display | Meaning   |
|---------------|---------|---|
| Parameter No. | 540~551 | Number of engine control parameter for the cut length adjustment.       |
| EEPROM Value  | 1~100   | EEPROM value of engine control parameter for the cut length adjustment. |

Table 2-41 Executable Items Under the Remaining Paper Based Menu (3)

| Item Name | Recommended Input Range* | Meaning  |
|-----------|--------------------------|--|
| RAM Value | 1 - 100                  | RAM value of engine control parameter for the cut length adjustment. |

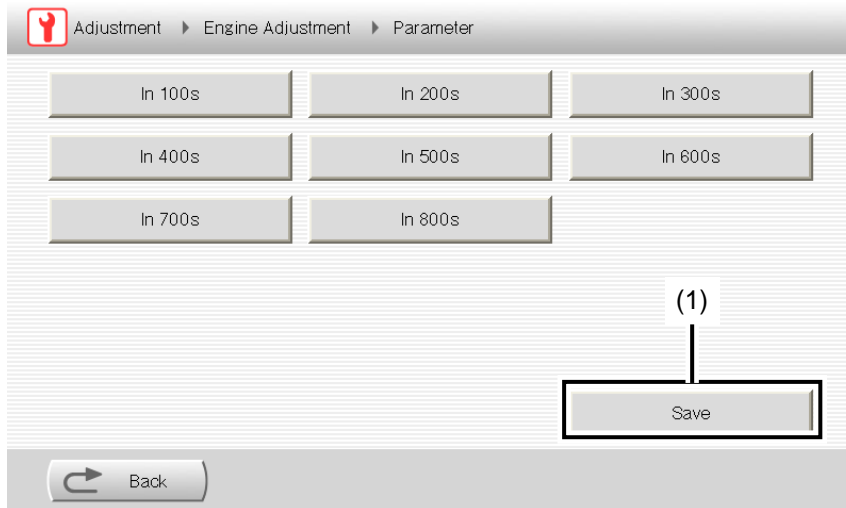
\*: Values between 0 and 65535 can be entered.

### 2.3.14 Parameter

Change the RAM value of the engine control parameter.

When changing engine control parameter 620, press the **In 600s** button to switch the page and display engine control parameter 620.

Next, if the No.620 RAM value is pressed, a value input popup is displayed. Enter a value. (The input range is from 0 to 65535.)



- (1) After changing the engine control parameter RAM value to the default, save to the EEPROM value.
- (2) Save the engine control parameter RAM value to the EEPROM value.

Immediately after switching the power on, the engine control parameter copies the EEPROM value to the RAM value.

Engine control parameters in the 100s, 200s, 300s, and 400s are different for every system firmware version.

Do not change engine control parameters not listed in the parameter chart below.

Table 2-42 Engine Control Parameters (200-299)

| Number | Description  | Value | Availability of Change | Print Length                                  |
|--------|--|-------|------------------------|---|
| 203    | <b>Print C: Equivalent to 210 mm</b><br>Minimum number of print lines  | 4961  | Cannot be changed      | Print C: Equivalent to 210 mm (8.27 inches)   |
| 204    | <b>Print B: Equivalent to 297 mm</b><br>Minimum number of print lines  | 6614  | Cannot be changed      | Print B: Equivalent to 297 mm (11.69 inches)  |
| 205    | <b>Print A: Equivalent to 841 mm</b><br>Minimum number of print lines  | 9874  | Cannot be changed      | Print A: Equivalent to 841 mm (33.11 inches)  |
| 207    | <b>Print X: Equivalent to 2523 mm</b><br>Minimum number of print lines | 28801 | Cannot be changed      | Print X: Equivalent to 2523 mm (99.33 inches) |



| No. | EEPROM Va | RAM Value                      | No. | EEPROM Va | RAM Value                       |
|-----|-----------|--------------------------------|-----|-----------|---------------------------------|
| 601 | 1         | <input type="text" value="1"/> | 607 | 7         | <input type="text" value="7"/>  |
| 602 | 2         | <input type="text" value="2"/> | 608 | 8         | <input type="text" value="8"/>  |
| 603 | 3         | <input type="text" value="3"/> | 609 | 9         | <input type="text" value="9"/>  |
| 604 | 4         | <input type="text" value="4"/> | 610 | 10        | <input type="text" value="10"/> |
| 605 | 5         | <input type="text" value="5"/> | 611 | 11        | <input type="text" value="11"/> |
| 606 | 6         | <input type="text" value="6"/> | 612 | 12        | <input type="text" value="12"/> |

Back (To Adjustment Top)

1/6



Table 2-43 Engine Control Parameters (600-699)

## Top Edge Alignment Value

| Number | Selections for Top Edge Alignment                          |                                   |            | Standard Value | Input Range   |
|--------|--|-----------------------------------|------------|----------------|---|
|        | Print Length   | Paper Width                       | Paper Type |                |   |
| 601    | Print X :<br>Equivalent to<br>2523 mm<br>(99.33<br>inches) | Roll paper identified as A0 width | Paper      | 750            | Standard Value ± 100  |
| 602    |  | Roll paper identified as A1 width |            | 750            |   |
| 603    |  | Roll paper identified as A2 width |            | 750            |   |
| 604    |  | Roll paper identified as A3 width |            | 750            |   |
| 605    |  | Roll paper identified as A0 width | Tracing    | 750            |   |
| 606    |  | Roll paper identified as A1 width |            | 750            |   |
| 607    |  | Roll paper identified as A2 width |            | 750            |   |
| 608    |  | Roll paper identified as A3 width |            | 750            |   |
| 609    |  | Roll paper identified as A0 width | Film       | 750            |   |
| 610    |  | Roll paper identified as A1 width |            | 750            |   |
| 611    |  | Roll paper identified as A2 width |            | 750            |   |
| 612    |  | Roll paper identified as A3 width |            | 750            |   |
| 613    | Print A :<br>Equivalent to<br>841 mm<br>(33.11<br>inches)  | Roll paper identified as A0 width | Paper      | 750            | Unit<br>msec  |
| 614    |  | Roll paper identified as A1 width |            | 750            |   |
| 615    |  | Roll paper identified as A2 width |            | 750            |   |
| 616    |  | Roll paper identified as A3 width |            | 750            |   |
| 617    |  | Roll paper identified as A0 width | Tracing    | 750            |   |
| 618    |  | Roll paper identified as A1 width |            | 750            |   |
| 619    |  | Roll paper identified as A2 width |            | 750            |   |
| 620    |  | Roll paper identified as A3 width |            | 750            |   |
| 621    |  | Roll paper identified as A0 width | Film       | 750            |   |
| 622    |  | Roll paper identified as A1 width |            | 750            |   |
| 623    |  | Roll paper identified as A2 width |            | 750            |   |
| 624    |  | Roll paper identified as A3 width |            | 750            |   |
| 625    | Print B :<br>Equivalent to<br>297 mm<br>(11.69<br>inches)  | Roll paper identified as A0 width | Paper      | 490            | Adjustment method<br>Increasing the value:<br>The printing range<br>moves towards the<br>foot of the paper.<br>Decreasing the value:<br>The printing range<br>moves towards the<br>head of the paper. |
| 626    |  | Roll paper identified as A1 width |            | 490            |   |
| 627    |  | Roll paper identified as A2 width |            | 490            |   |
| 628    |  | Roll paper identified as A3 width |            | 490            |   |
| 629    |  | Roll paper identified as A0 width | Tracing    | 490            |   |
| 630    |  | Roll paper identified as A1 width |            | 490            |   |
| 631    |  | Roll paper identified as A2 width |            | 490            |   |
| 632    |  | Roll paper identified as A3 width |            | 490            |   |
| 633    |  | Roll paper identified as A0 width | Film       | 490            |   |
| 634    |  | Roll paper identified as A1 width |            | 490            |   |
| 635    |  | Roll paper identified as A2 width |            | 490            |   |
| 636    |  | Roll paper identified as A3 width |            | 490            |   |
| 637    | Print C :<br>Equivalent to<br>210 mm<br>(8.27 inches)      | Roll paper identified as A0 width | Paper      | 490            | Adjustment criteria<br>Increase by 100 to<br>move the printing<br>range about 8 mm<br>(0.32 inches) in the<br>direction of the foot of<br>the paper.  |
| 638    |  | Roll paper identified as A1 width |            | 490            |   |
| 639    |  | Roll paper identified as A2 width |            | 490            |   |
| 640    |  | Roll paper identified as A3 width |            | 490            |   |
| 641    |  | Roll paper identified as A0 width | Tracing    | 490            |   |
| 642    |  | Roll paper identified as A1 width |            | 490            |   |
| 643    |  | Roll paper identified as A2 width |            | 490            |   |
| 644    |  | Roll paper identified as A3 width |            | 490            |   |
| 645    |  | Roll paper identified as A0 width | Film       | 490            |   |
| 646    |  | Roll paper identified as A1 width |            | 490            |   |
| 647    |  | Roll paper identified as A2 width |            | 490            |   |
| 648    |  | Roll paper identified as A3 width |            | 490            |   |

## Calibration to Identify Roll Width

| Number | Description   | Identified Value            | Detected Value |
|--------|---|-----------------------------|----------------|
| 649    | The Printer detects the distance between the right and left flange guides and calibrates it to the identified value.<br>In this category, the right flange is moved to the leftmost position, and the left flange to the rightmost so that the distance is minimized. | Roll number (649 is Roll 1) | 1080           |
| 650    |   |                             |                |
| 651    |   |                             |                |
| 652    |   |                             |                |
| 653    | The Printer detects the distance between the right and left flange guides and calibrates it to the identified value.<br>In this category, the right flange is moved to the rightmost position, and the left flange to the leftmost so that the distance is maximized. | Roll number (653 is Roll 1) | 3690           |
| 654    |   |                             |                |
| 655    |   |                             |                |
| 656    |   |                             |                |

| Number | Description   | Identified Value | Detected Value  |
|--------|---|------------------|---|
| 657    | Number of bytes in left end mask<br><b>Adjustment method</b><br>Decreasing the value: Decreases the mask area of the left edge of the printing area.<br>Increasing the value: Increases the mask area of the left edge of the printing area.<br><b>Adjustment criteria</b><br>If 10 is input, the area is masked about 5 mm.  | 6                | 0 - 255<br>(6 = approximately 2 mm (0.079 inches))<br><br><b>Note</b><br>1 byte = 0.339 mm (0.0134 inches)<br>1 mm equals about 2.95 bytes                      |
| 658    | Number of bytes in right end mask<br><b>Adjustment method</b><br>Decreasing the value: Decreases the mask area of the left edge of the printing area.<br>Increasing the value: Increases the mask area of the left edge of the printing area.<br><b>Adjustment criteria</b><br>If 10 is input, the area is masked about 5 mm. | 6                | 10 byte = 3.39 mm (0.13 inches)   |
| 659    | Number of front end mask lines<br><b>Adjustment method</b><br>Decreasing the value: Decreases the mask area of the head of the printing area.<br>Increasing the value: Increases the mask area of the head of the printing area.<br><b>Adjustment criteria</b><br>If 100 is input, the area is masked about 4 mm.             | 71               | 0 - 255<br>(71 = approximately 3 mm (0.12 inches),<br>47 = approximately 2 mm (0.08 inches))<br><br><b>Note</b><br>1 line equals about 0.0423 mm (0.017 inches) |
| 660    | Number of rear end mask lines<br><b>Adjustment method</b><br>Decreasing the value: Decreases the mask area of the head of the printing area.<br>Increasing the value: Increases the mask area of the head of the printing area.<br><b>Adjustment criteria</b><br>If 100 is input, the area is masked about 4 mm.              | 47               | 1 mm (0.039 inches) equals about 23.6 lines<br>100 lines equal about 4.23 mm (0.17 inches)  |
| 662    | Excessive process cartridge usage warning   | 0                | 1: Notify<br>0: Do not notify   |

Table 2-44 Engine Control Parameters (700-799)

Calibration for Center Alignment

| Number | Selections for Center Alignment | Paper Position   | Standard Value | Input Range  |
|--------|---------------------------------|--|----------------|--|
|        | Roll Paper Position             |  |                |  |
| 70x    | Roll x<br>(x: the roll number)  | <b>Adjustment method</b><br>Decreasing the value: The printing range moves towards the right edge of the paper.<br>Increasing the value: The printing range moves towards the left edge of the paper.<br><b>Adjustment criteria</b><br>Increase by 10 to move the printing range about 5 mm in the direction of the left edge of the paper.<br><b>Unit</b><br>byte | 50             | 0 – 100<br><br><b>Note</b><br>1 byte = 0.339 mm (0.0134 inches)<br>1 mm equals about 2.95 bytes<br>10 byte = 3.39 mm (0.13 inches) |
|        |                                 |  | 50             |  |
|        |                                 |  | 50             |  |
|        |                                 |  | 50             |  |

| Number | Description                        | Standard Value | Input Range |
|--------|------------------------------------|----------------|-------------|
| 709    | Head A light-up extension time     | 12             | 0 - 65      |
| 710    | Head C light-up extension time     | 12             |             |
| 711    | Head A line memory read start bank | 90             | 80 - 98     |
| 712    | Head C line memory read start bank | 90             |             |

Print Length Calibration

| Number | Selection for Print Length Adjustment |                    |               | Default Setting | LED Head Writing Speed [line/sec] | Unit of Input Value 1 |
|--------|---------------------------------------|--------------------|---------------|-----------------|-----------------------------------|-----------------------|
|        | Print Sequence                        | Paper Width        | Paper Type    |                 |                                   |                       |
| 713    | Print A                               | Not differentiated | Film          | 3133            | 2490.4                            | 1 Hz or equivalent    |
| 714    | Print B                               |                    | Film          | 3133            | 2489.6                            |                       |
| 715    | Print X                               |                    | Tracing paper | 3136            | 2490.4                            |                       |
| 716    | Print A                               |                    | Tracing paper | 3136            | 2490.4                            |                       |
| 717    | Print B                               |                    | Tracing paper | 3136            | 2489.6                            |                       |
| 718    | Print X                               |                    | Paper         | 3137            | 2490.4                            |                       |
| 719    | Print A                               |                    | Paper         | 3137            | 2490.4                            |                       |
| 720    | Print B                               |                    | Paper         | 3138            | 2490.4                            |                       |
| 721    | Print C                               |                    | Paper         | 3138            | 2489.6                            |                       |
| 722    | Print C                               |                    | Tracing paper | 3139            | 2489.6                            |                       |
| 723    | Print C                               |                    | Film          | 3136            | 2489.6                            |                       |

\*Setting value = 1/(LED head writing speed x 128) x 10<sup>9</sup>

\*LED head writing speed = 1/(setting value x 128) x 10<sup>9</sup>

## Print Density Calibration

| Number | Description  |        | Standard Value | Input Range |
|--------|--|--------|----------------|-------------|
| 728    | Light-emitting strobe width  | Head A | 15             | 12 - 22     |
| 729    |  | Head B | 15             |             |
| 730    |  | Head C | 15             |             |
| 731    | Density calibration value 1  | Head A | 4              | 2 - 8       |
| 732    |  | Head B | 4              |             |
| 733    |  | Head C | 4              |             |
| 734    | Density calibration value 2<br>(for fine adjustment on each drawing) | Head A | 2              | 1 - 6       |
| 735    |  | Head B | 2              |             |
| 736    |  | Head C | 2              |             |

## Heat Roller Speed Adjustment Value

| Number | Selections for Top Edge Alignment   |                                      |                  | Standard Value | Input Range  |
|--------|---|--------------------------------------|------------------|----------------|--|
|        | Print Length  | Paper Width                          | Paper Type       |                |  |
| 741    | Print X:<br>Equivalent to 2523 mm<br>(99.33 inches)   | A0 width or<br>equivalent roll paper | Paper            | 6115           | <b>Adjustment method</b><br>Decreasing the value:<br>Faster<br>Increasing the value:<br>Slower<br><br><b>Adjustment criteria</b><br>If the value is<br>changed by 10, the<br>speed changes about<br>0.13mm (0.0051<br>inches)/sec. |
| 742    |   | A1 width or<br>equivalent roll paper |                  | 6105           |  |
| 743    |   | A2 width or<br>equivalent roll paper |                  | 6095           |  |
| 744    |   | A3 width or<br>equivalent roll paper |                  | 6085           |  |
| 745    | Print X:<br>Equivalent to 2523 mm<br>(99.33 inches)   | A0 width or<br>equivalent roll paper | Tracing<br>paper | 6115           |  |
| 746    |   | A1 width or<br>equivalent roll paper |                  | 6105           |  |
| 747    |   | A2 width or<br>equivalent roll paper |                  | 6095           |  |
| 748    |   | A3 width or<br>equivalent roll paper |                  | 6085           |  |
| 749    | Print A/B/C<br>- Equivalent to 841 mm<br>(33.11 inches)<br>- Equivalent to 297 mm<br>(11.69 inches)<br>- Equivalent to 210 mm<br>(8.27 inches)  | A0 width or<br>equivalent roll paper | Paper            | 6135           |  |
| 750    |   | A1 width or<br>equivalent roll paper |                  | 6125           |  |
| 751    |   | A2 width or<br>equivalent roll paper |                  | 6115           |  |
| 752    |   | A3 width or<br>equivalent roll paper |                  | 6105           |  |
| 753    | Print A/B/C<br>- Equivalent to 841 mm<br>(33.11 inches)<br>- Equivalent to 297 mm<br>(11.69 inches)<br>- Equivalent to 210 mm<br>(8.27 inches)  | A0 width or<br>equivalent roll paper | Tracing<br>paper | 6120           |  |
| 754    |   | A1 width or<br>equivalent roll paper |                  | 6110           |  |
| 755    |   | A2 width or<br>equivalent roll paper |                  | 6100           |  |
| 756    |   | A3 width or<br>equivalent roll paper |                  | 6090           |  |
| 757    | Print A/B/C<br>- Equivalent to 2523 mm<br>(99.33 inches)<br>- Equivalent to 841 mm<br>(33.11 inches)<br>- Equivalent to 297 mm<br>(11.69 inches)<br>- Equivalent to 210 mm<br>(8.27 inches) | A0 width or<br>equivalent roll paper | Film             | 6100           |  |
| 758    |   | A1 width or<br>equivalent roll paper |                  | 6090           |  |
| 759    |   | A2 width or<br>equivalent roll paper |                  | 6080           |  |
| 760    |   | A3 width or<br>equivalent roll paper |                  | 6070           |  |

Table 2-45 Engine Control Parameters (800-899)

## Cut Length Calibration

| Number | Options   |                                   |            | Standard Value | Input Range  |
|--------|---|-----------------------------------|------------|----------------|--|
|        | Print Length                                      | Paper Width                       | Paper Type |                |  |
| 801    | Print X :<br>Equivalent to 2523 mm (99.33 inches) | Roll paper equivalent to A0 width | Paper      | 500            | Standard Value $\pm$ 200<br><br><b>Adjustment metho</b><br>Decreasing the value: Increases the paper cut length. Increasing the value: Decreases the paper cut length.<br><br><b>Adjustment criteria</b><br>If increased 100, the paper cut length decreases by approximately 4 mm (0.16 inches).<br><br><b>Note</b><br>1 line equals about 0.0423 mm (0.017 inches)<br>1 mm (0.039 inches) equals about 23.6 lines<br>100 lines equal about 4.23 mm (0.17 inches) |
| 802    |   | Roll paper equivalent to A1 width |            | 500            |  |
| 803    |   | Roll paper equivalent to A2 width |            | 500            |  |
| 804    |   | Roll paper equivalent to A3 width |            | 500            |  |
| 805    |   | Roll paper equivalent to A0 width | Tracing    | 500            |  |
| 806    |   | Roll paper equivalent to A1 width |            | 500            |  |
| 807    |   | Roll paper equivalent to A2 width |            | 500            |  |
| 808    |   | Roll paper equivalent to A3 width |            | 500            |  |
| 809    |   | Roll paper equivalent to A0 width | Film       | 500            |  |
| 810    |   | Roll paper equivalent to A1 width |            | 500            |  |
| 811    |   | Roll paper equivalent to A2 width |            | 500            |  |
| 812    |   | Roll paper equivalent to A3 width |            | 500            |  |
| 813    | Print A :<br>Equivalent to 841 mm (33.11 inches)  | Roll paper equivalent to A0 width | Paper      | 500            |  |
| 814    |   | Roll paper equivalent to A1 width |            | 500            |  |
| 815    |   | Roll paper equivalent to A2 width |            | 500            |  |
| 816    |   | Roll paper equivalent to A3 width |            | 500            |  |
| 817    |   | Roll paper equivalent to A0 width | Tracing    | 500            |  |
| 818    |   | Roll paper equivalent to A1 width |            | 500            |  |
| 819    |   | Roll paper equivalent to A2 width |            | 500            |  |
| 820    |   | Roll paper equivalent to A3 width |            | 500            |  |
| 821    |   | Roll paper equivalent to A0 width | Film       | 500            |  |
| 822    |   | Roll paper equivalent to A1 width |            | 500            |  |
| 823    |   | Roll paper equivalent to A2 width |            | 500            |  |
| 824    |   | Roll paper equivalent to A3 width |            | 500            |  |
| 825    | Print B :<br>Equivalent to 297 mm (11.69 inches)  | Roll paper equivalent to A0 width | Paper      | 500            |  |
| 826    |   | Roll paper equivalent to A1 width |            | 500            |  |
| 827    |   | Roll paper equivalent to A2 width |            | 500            |  |
| 828    |   | Roll paper equivalent to A3 width |            | 500            |  |

| Number | Options   |                                   |            | Standard Value | Input Range |
|--------|---|-----------------------------------|------------|----------------|-------------|
|        | Print Length                                    | Paper Width                       | Paper Type |                |             |
| 829    |   | Roll paper equivalent to A0 width | Tracing    | 500            |             |
| 830    |   | Roll paper equivalent to A1 width |            | 500            |             |
| 831    |   | Roll paper equivalent to A2 width |            | 500            |             |
| 832    |   | Roll paper equivalent to A3 width |            | 500            |             |
| 833    |   | Roll paper equivalent to A0 width | Film       | 500            |             |
| 834    |   | Roll paper equivalent to A1 width |            | 500            |             |
| 835    |   | Roll paper equivalent to A2 width |            | 500            |             |
| 836    |   | Roll paper equivalent to A3 width |            | 500            |             |
| 837    | Print C :<br>Equivalent to 210 mm (8.27 inches) | Roll paper equivalent to A0 width | Paper      | 500            |             |
| 838    |   | Roll paper equivalent to A1 width |            | 500            |             |
| 839    |   | Roll paper equivalent to A2 width |            | 500            |             |
| 840    |   | Roll paper equivalent to A3 width |            | 500            |             |
| 841    |   | Roll paper equivalent to A0 width | Tracing    | 500            |             |
| 842    |   | Roll paper equivalent to A1 width |            | 500            |             |
| 843    |   | Roll paper equivalent to A2 width |            | 500            |             |
| 844    |   | Roll paper equivalent to A3 width |            | 500            |             |
| 845    |   | Roll paper equivalent to A0 width | Film       | 500            |             |
| 846    |   | Roll paper equivalent to A1 width |            | 500            |             |
| 847    |   | Roll paper equivalent to A2 width |            | 500            |             |
| 848    |   | Roll paper equivalent to A3 width |            | 500            |             |

Print X's tail edge blank space adjustment value

| Number | Description  | Standard Value | Input Range |
|--------|--|----------------|-------------|
| 861    | Print X's back-end blank space is specified with the number of lines.<br>When the back-end blank space is specified, the printout length is increased by the specified amount. | 1              | 0 - 4500    |

### 2.3.15 Potentiometer

Perform potentiometer correction in order to maintain the paper width detection accuracy of the installed roll paper.

The correction method is performed by setting the minimum and maximum width values for the paper flange bearing as detected by the Printer for the appropriate engine parameters (649 to 656).

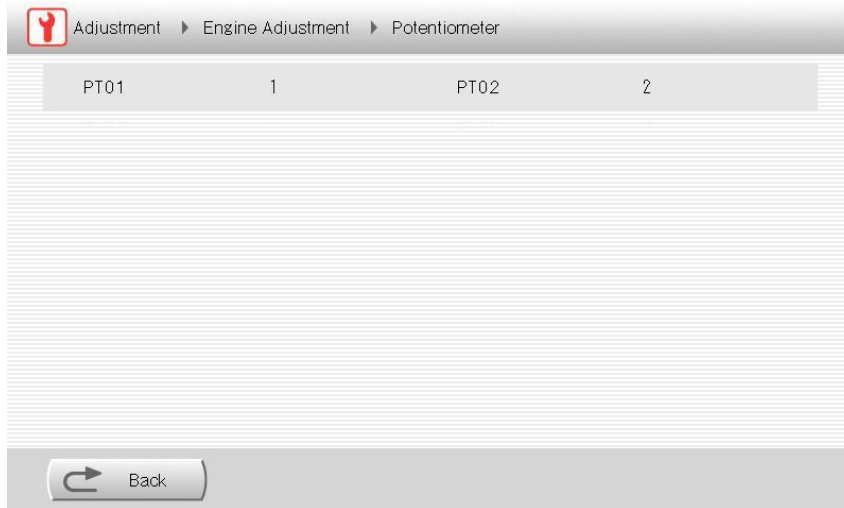


Table 2-46 Engine Control Parameter Numbers

| Roll Number   | Minimum Width Value | Maximum Width Value |
|---------------|---------------------|---------------------|
| Roll 1 (PT01) | 649                 | 653                 |
| Roll 2 (PT02) | 650                 | 654                 |

The number of rolls depends on the model.

#### <Instructions>

- (1) Remove all roll paper from the Printer.
- (2) Slide all flange guides to their minimum width positions.
- (3) Close the roll paper drawer.
- (4) Execute the potentiometer (this function) and load the values for each roll.  
Write down those values.
- (5) Open the roll paper drawer to slide all flange guides to the maximum width position.
- (6) Close the roll paper drawer.
- (7) Execute the potentiometer (this function) and load the values for each roll.  
Write down those values.
- (8) Register the read values read to the engine parameters. Note that two values are read per roll.

## 2.4 Messages

While the Printer is in operation, printing or doing other actions, status updates, error messages, and other information are displayed (an error lamp will also light up in the case of an error).

When an error lamp lights up, press the mode button at its left, and check the error message displayed on the screen to determine how to fix the problem (user solution).

For more details about what to do in case of an error, see **Chapter 5 - Troubleshooting - When the Error Screen Appears** in the *User's Manual for Basic Printer Operation*.

If the user cannot fix the problem themselves, the user can request support from a service representative.



## 2.5 Technician Menu Functions

### (1) Activate Single Points

How to launch: **Menu -> PDL Settings -> HP-GL -> Drawing Parameters**

Function: Specifies whether or not to print individual dots for HP-GL data.

Off: Print individual dots (default)

On: Do not print individual dots

### (2) Special Settings 1

How to launch: **Menu -> Device Behavior**

Function: Switches between Printer's special settings

Parameter: 0000 to FFFF (in hex)

Several functions are assigned to each bit of the hexadecimal parameter above.

- bit 0: Set to **On** to set the following special paper feed operations when using a folder.
  - **Continue with Other Paper** function is not performed during continuous printing.
  - **Continue with Other Paper** function with page rotation is not performed.
- bit 1: Set to **On** to specify the output destination for local printing to be output tray.
- bit 2: Set to **On** to perform PDF accounting only when print is performed.
- bit 3: Set to **On** to prevent the warning buzzer from beeping.
- bit 4: Set to **On** to set the special menu display for Tokai University.
- bit 5: Set to **On** to display the file name authentication screen in the Web tool.
- bit 6: Set to **On** to increase the processing speed and image quality for Yomiuri Shimbun.
- bit 7: Set to **On** not to use the **Continue with Other Paper** function with local printing.
- bit 8: Set to **On** to enable the PDF option.
- bit 9: Set to **On** to perform **Active Directory authentication** without the account locked.
- bit 10: Set to **On** to perform the following special paper supply operation for Fujitsu Newspaper Publishing system. The **Continue with Other Paper** function can be used to continue printing with a different larger roll even when:
  - Paper supply mode is set to **Optimal**; and
  - The most suitable paper rolls are exhausted.
- bit 11: Set to **On** to perform the following special paper feed operation for the users using the LP-2050 with folder. When paper supply mode is set to **Continuous**, the printer prints an A4 drawing image in portrait orientation as an A4 printout in landscape orientation.
- bit 12: With ARC1 board configuration, the printer does not enter the power save mode if the web or SNMP is accessed regularly.

On **Special Settings 1**, several functions can be enabled simultaneously.

### (3) Printer Serial No.

How to launch: **Menu -> System -> Printer Settings -> Common Settings**

Function: Input the printer's serial number.

Parameter: 00000 to 65535 (decimally)

#### (4) Logical Hard Disk Format

How to launch: **Menu->Function**

Function: Formats the internal hard disk.

Sometimes formatting the HDD is a good solution when errors caused by an HDD problem often occur.

If the problem is not solved by formatting the HDD, replace it.

The following items are initialized when the HDD is formatted.

Table 2-47 Items Initialized through HDD Format

| Menu Item Category                                | Items Initialized   | Items not Initialized   |
|---|---|---|
| Menu settings                                     | Paper settings<br>Printer settings<br>System settings<br>Port settings<br>PDL settings<br>Administrator settings<br>User authentication settings<br>Standby display settings<br>Technician menu items | Printer serial number   |
| Registration memory                               | Copy registration memory<br>Submission registration memory  |   |
| Submission destination                            | Submission destination settings   |   |
| Accounting information settings                   | Accounting information settings that can be configured in the Web tool.   |   |
| Counter information                               |   | Copy mode area<br>Copy mode length<br>Monochrome scan area<br>Monochrome scan length<br>Gray scan area<br>Gray scan length<br>Color scan area<br>Color scan length<br>Print mode area<br>Print mode length<br>PDtF area<br>PDtF count<br>Total print count<br>Cumulative print length (m)<br>Print count<br>Port accounting information |
| Option key code                                   |   | Option key code   |
| Logs  | Error log<br>Job log<br>Authentication log  |   |
| Administrator/supervisor registration information | Administrator registration information<br>Supervisor registration information   |   |
| Jobs  | Completed jobs<br>Submission box<br>PDtF box  |   |
| Adjustment parameters                             |   | Engine adjustment parameters<br>Scanner adjustment parameters   |

The printer restarts automatically after the HDD has been formatted. The following operations must be performed next (follow the messages prompting you to perform these operation that are displayed in order on the operation panel).

- (1) The message **Setup data is incorrect** indicating a setup corruption error is displayed on the panel. Press the **Enter** button to initialize the setup data.
- (2) Adjust the panel.
- (3) Set the language.
- (4) Perform the initial settings.
- (5) Set the date and time.
- (6) Set the IP address.
- (7) The printer restarts automatically again. After the printer has restarted, configure the items that have been initialized as necessary.

**(5) Factory Default Setting**

How to launch: **Menu -> Function**

Function: Initializes the parameters of technician unlocked items.

Table 2-48 Items that return to their default values

| Menu Item Category              | Items Initialized  | Items not Initialized   |
|---------------------------------|--|---|
| Menu settings                   | Paper settings<br>Printer settings<br>System settings<br>Port settings<br>PDL settings<br>Administrator settings<br>User authentication settings<br>Standby display settings<br>Technician menu items  | Printer serial number   |
| Registration memory             | Copy registration memory<br>Submission registration memory   |   |
| Submission destination          | Submission destination settings  |   |
| Accounting information settings | Accounting information settings that can be configured in the Web tool.  |   |
| Counter information             | Copy mode area<br>Copy mode length<br>Monochrome scan area<br>Monochrome scan length<br>Gray scan area<br>Gray scan length<br>Color scan area<br>Color scan length<br>Print mode area<br>Print mode length<br>PDtF area<br>PDtF count<br><br>Port accounting information | Total print count<br>Cumulative print length (m)<br>Print count |

| Menu Item Category                                | Items Initialized                          | Items not Initialized   |
|---|--|---|
| Option key code                                   |  | Option key code   |
| Logs  | Error log<br>Job log<br>Authentication log |   |
| Administrator/supervisor registration information | Administrator registration information     |   |
|   | Supervisor registration information        |   |
| Jobs  |  | Completed jobs<br>Submission box<br>PDtF box                  |
| Adjustment parameters                             |  | Engine adjustment parameters<br>Scanner adjustment parameters |

#### (6) Obtain Maintenance Data

How to launch: **Menu -> Function**

Function: Function: Sends the following information to a USB memory.

- Error log
- Job log
- Authentication log
- Maintenance information
- Other information for problem diagnosis such as operation trace and CPU exception.

This information is stored in a folder with the following name created in the USB memory root directory.

**ModelName#SerialNumber#Date#Time**

#### (7) Service Code

How to launch: **Menu -> User Authentication Settings -> Data Position**

Function: Specifies the IC card's service code. The function is available when **IC Card Operation Settings** is set to **IC Card Auth. w/ spec. data**.

Parameter: 0000 to FFFF (in hex)

#### (8) Block No.

How to launch: **Menu -> User Authentication Settings -> Data Position**

Function: Specifies the IC card's block number. The function is available when **IC Card Operation Settings** is set to **IC Card Auth. w/ spec. data**.

Parameter: 0 to 31 (decimally)

#### (9) Start Position

How to launch: **Menu -> User Authentication Settings -> Data Position**

Function: Specifies the IC card's start position. The function is available when **IC Card Operation Settings** is set to **IC Card Auth. w/ spec. data**.

Parameter: 0 to 15 (decimally)

**(10) Read Data Length**

How to launch: **Menu -> User Authentication Settings -> Data Position**

Function: Specifies the IC card's read data length. The function is available when **IC Card Operation Settings** is set to **IC Card Auth. w/ spec. data**.

Parameter: 0 to 15 (decimally)

**(11) Indication 1 - 3**

How to launch: **Menu -> Standby Display Settings**

Function: Selects the counter information to display during standby.

You can select up to three of the following items.

<Choices>

- Off
- Total print count
- Cumulative print length
- Print mode area
- Print mode length
- Monochrome scan area
- Monochrome scan length
- Gray scan area
- Gray scan length
- Color scan area
- Color scan length
- Copy mode area
- Copy mode length
- PDtF area
- Print count
- PDtF count

The following items cannot be displayed with the printer model.

- Monochrome scan area
- Monochrome scan length
- Gray scan area
- Gray scan length
- Color scan area
- Color scan length
- Copy mode area
- Copy mode length

**(12) LCD Display Check**

How to launch: **Menu -> Adjustment -> LCD Display Check**

Function: Check the LCD display.

Press the **Enter** button and the color of the LCD display changes in the following order: White -> Black -> Red -> Green -> Blue.

## 2.6 How to Enter the Web Based Maintenance Mode

Maintenance can also be performed on the Printer via a web browser.

To use this functionality you will need to enter maintenance mode via a web browser instead of from the control panel.

\* These instructions are the same for both printer and multifunction models.

### <Instructions>

- (1) Access the Printer from a web browser. The technician password input screen will be displayed.

How to launch: **Maintenance -> 8. Special Maintenance**

- (2) Input the username and password.

Username: **maintenance**

Password: **tktk2010**

or

Username: **t2t2**

Password: **12325802**

(It is the same password as for the engine maintenance mode.)

### (1) Activate Single Points

How to launch: **Menu -> PDL Settings -> HP-GL -> Drawing Parameters**

Function: Specifies whether or not to print individual dots for HP-GL data.

Off: Print individual dots (default)

On: Do not print individual dots

### (2) Special Settings 1

How to launch: **Menu -> Printer Engine**

Function: Switches between printer's special settings.

Parameter: 0000 to FFFF (in hex)

Several functions are assigned to each bit of the hexadecimal parameter above.

- bit 0: Set to **On** to set the following special paper feed operations when using a folder.
  - **Continue with Other Paper** function is not performed during continuous printing.
  - **Continue with Other Paper** function with page rotation is not performed.
- bit 1: Set to **On** to specify the output destination for local printing to be output tray.
- bit 2: Set to **On** to perform PDF accounting only when print is performed..
- bit 3: Set to **On** to prevent the warning buzzer from beeping.
- bit 4: Set to **On** to set the special menu display for Tokai University.
- bit 5: Set to **On** to display the file name authentication screen in the Web tool.
- bit 6: Set to **On** to increase the processing speed and image quality for the Yomiuri Shimbun.
- bit 7: Set to **On** not to use the **Continue with Other Paper** function with local printing.
- bit 8: Set to **On** to enable the PDF option.
- bit 9: Set to **On** to perform Active Directory authentication without the account locked.
- bit 10: Set to **On** to perform the following special paper supply operation for Fujitsu Newspaper Publishing system. The **Continue with Other Paper** function can be used to continue printing with a different larger roll even when:
  - Paper supply mode is set to **Optimal**; and
  - The most suitable paper rolls are exhausted.

bit 11: Set to **On** to perform the following special paper feed operation for the users using the LP-2050 with folder. When paper supply mode is set to **Continuous**, the printer prints an A4 drawing image in portrait orientation as an A4 printout in landscape orientation.

On **Special Settings 1**, several functions can be enabled simultaneously.

**(3) Accounting Information Output**

How to launch: **Maintenance -> Accounting Information -> Settings**

Function: Configures the accounting e-mails.

**(4) Support Site URL**

How to launch: **Maintenance -> Special Maintenance**

Function: Displays addresses of websites for customer support, such as the address of the distributor's website.

**(5) Scanner Maintenance**

How to launch: **Maintenance -> Scanner Maintenance**

Function: Specifies and displays the scanner adjustment parameters.

**(6) Capture Operation Panel**

How to launch: **Maintenance -> Capture Operation Panel**

Function: Allows you to operate the printer operation panel from the Web tool.

Position the mouse on the operation panel screen and right-click to capture the screen.

## 2.7 Technician Only Web Functions

The following is available as technical only web functions.

Note that even after entering maintenance mode, user level and administrator level functions are also displayed

### (1) Accounting information output settings

How to Launch: **Maintenance -> 4. Accounting Information -> Accounting Information Output**

Function: Configures settings to send accounting information via e-mail.

|                       |  |
|-----------------------|--|
| Parameters: To:       | The e-mail address to send to                          |
| From:                 | The e-mail address to send from                        |
| CC, CC2, CC3:         | Additional e-mail addresses to send to (not required)  |
| Subject:              | The title of the e-mail                                |
| User ID:              | User identifier  |
| MFG:                  | The Printer's serial number                            |
| TEL:                  | User phone number                                      |
| FAX:                  | User fax number  |
| Support TEL:          | Phone number of the company that performed maintenance |
| Support FAX:          | Fax number of the company that performed maintenance   |
| Report by E-mail:     | Parameter to send mail automatically                   |
| Report by FAX:        | Parameter to output a fax report automatically.        |
| SMTP Addr:            | SMTP server address                                    |
| SMTP Server DNS Name: | DNS server name  |
| SMTP Port:            | SMTP port number                                       |
| SMTP User Name:       | SMTP user name   |
| SMTP Password:        | SMTP password  |



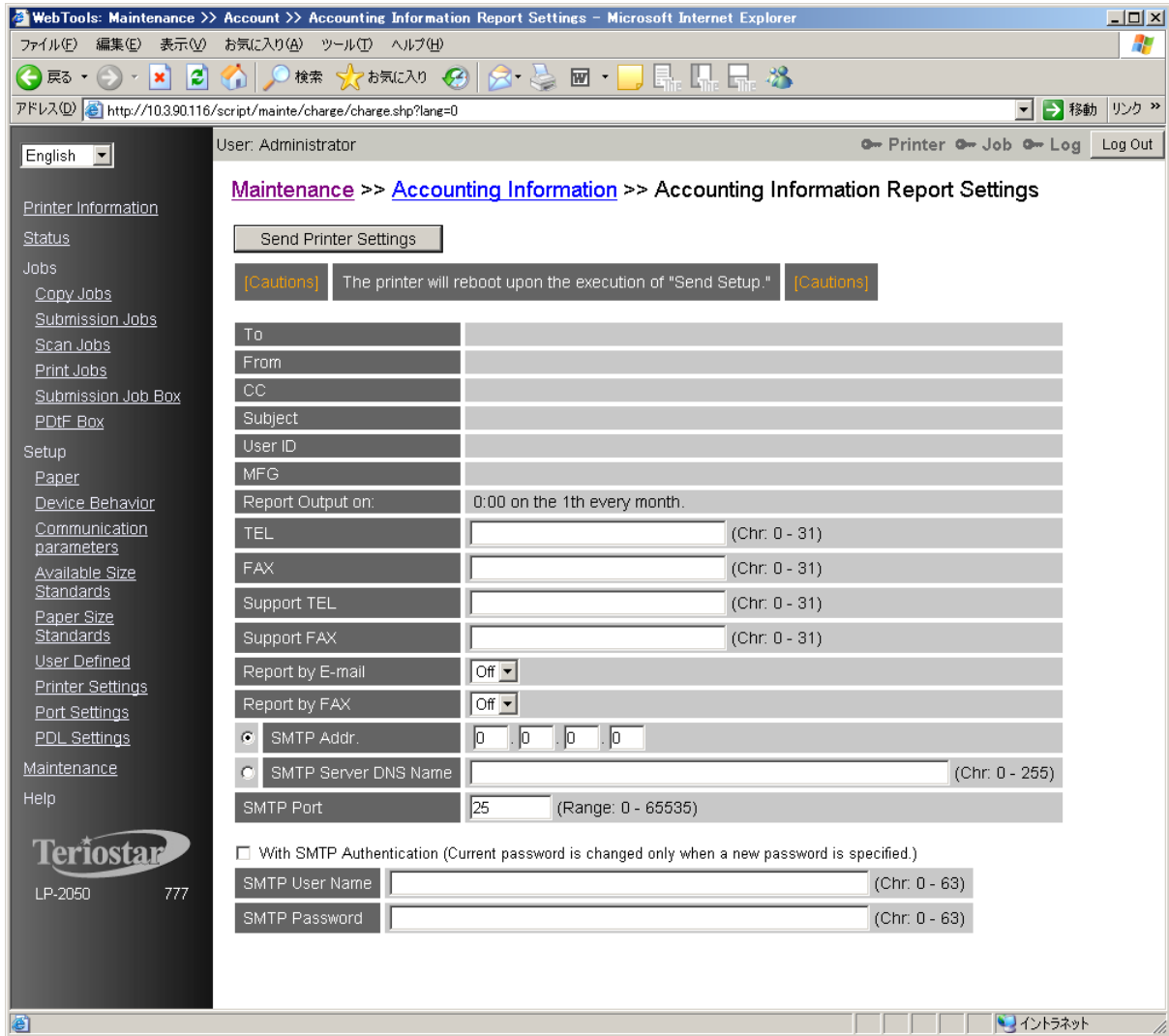


Figure 2.2 Accounting Information Output Settings

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## **Chapter 3 Regular Service Inspections**

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This chapter will discuss items related to regular service inspections and maintenance.

### 3.1 Regular Service Inspection Work Items and Their Details

Regular service inspections should be carried out once every 12 months at a minimum. However, in order to ensure the best printout image quality we recommend performing these inspections once every 6 months.

The work involved in a regular service inspection is detailed in Table 3-1. Items related to the scanner are detailed in Table 3-2.

- TIP**
- ◇ Always work with the power turned off, unless otherwise required.
  - ◇ Always receive confirmation from the user before replacing any parts.

Table 3-1 Regular Service Inspection Items

| No. | Work Item                           | Part Name                        | Work Details  | Cumulative Print Length for Cleaning Recommended | Cumulative Print Length for Part Replacement Recommended * | Reference Item            |
|-----|-------------------------------------|----------------------------------|---|--|--|---------------------------|
| 1   | Thermistor (TH01, TH02, TH04, TH05) | THERMISTOR                       | Wipe clean with a cleaning cloth. Replace if it looks like the plate spring is bent.<br><Note><br>Be careful not to bend the secured plate spring.<br><Note><br>When cleaning, you can extend the life of the parts by rotating the positions of TH01, TH02, and TH04 (due to central sensor wear occurring quickly). | 5km (196850.39 inches)                           | 100km (3937007.87 inches)                                  | 9.10.8                    |
| 2   | Detach needle electrode             | DETACH NEEDLE                    | Suck up all dirt using a toner vacuum cleaner. Use compressed air to blow away dirt.<br><Note><br>The electrode is easily bent, so be careful when working around it.   | 5km (196850.39 inches)                           | 100km (3937007.87 inches)                                  | 9.17.2                    |
| 3   | Suction belt                        | BELT TRANS                       | Check to ensure the belt is properly installed.<br><Note><br>Be careful not to break the belt's PS06 arm when performing this check.  | 5km (196850.39 inches)                           | 100km (3937007.87 inches)                                  | 9.18.4                    |
| 4   | Developer gap spacer                | SPACER DEV                       | If dirt is significant, wipe off with a dry cloth while rotating the roller.<br><Note><br>Do not touch the roller (magnetic) with your bare hands.  | 5km (196850.39 inches)                           | 100km (3937007.87 inches)                                  | 9.6.5                     |
| 5   | Gap spacer & transfer roller        | SPACER TRA<br>ROLLER TRA<br>3565 | Use a Ciegal cotton wipe to wipe dry the roller while rotating it.<br><Note><br>Do not hold the guide as it can easily break off.   | 5km (196850.39 inches)                           | 100km (3937007.87 inches)                                  | 3.2.3<br>9.17.3<br>9.17.4 |
| 6   | Heat roller                         | ROLLER HEAT                      | Use a Ciegal cotton wipe soaked in HR Cleaner (30790-0125) to clean the surface of the roller.<br><Note><br>Wipe off with a dry Ciegal cotton wipe afterwards.  | 5km (196850.39 inches)                           | 100km (3937007.87 inches)                                  | 9.10.13                   |

| No. | Work Item  | Part Name                                 | Work Details  | Cumulative Print Length for Cleaning Recommended | Cumulative Print Length for Part Replacement Recommended * | Reference Item |
|-----|--|---|---|--|--|----------------|
| 7   | Backup roller  | ROLLER BACK UP                            | Use a Ciegal cotton wipe soaked in HR Cleaner (30790-0125) to clean the surface of the roller.<br><Note><br>Wipe off with a dry Ciegal cotton wipe afterwards.  | 5km<br>(196850.39 inches)                        | 100km<br>(3937007.87 inches)                               | 9.10.14        |
| 8   | Heat roller unrolling claw                               | PEELER FU OUT                             | If a significant amount of toner is found on the end of the unrolling claw, wipe it off with a cleaning cloth.  | 10km<br>(393700.79 inches)                       | 100km<br>(3937007.87 inches)                               | 9.10.11        |
| 9   | Backup roller unrolling claw                             | Separator (BUR)                           | If there is a significant amount of toner on the end of the separating claw, use a cleaning cloth to wipe it off.   | 10km<br>(393700.79 inches)                       | 100km<br>(3937007.87 inches)                               | 9.10.12        |
| 10  | LED head (SLA)   | LED HEAD                                  | Clean the SLA (LED head lens) with a Ciegal cotton wipe.<br><Note><br>Wipe carefully, because the surface you are cleaning has a defogging film on it.  | 5km<br>(196850.39 inches)                        | —  | 9.16.1         |
| 11  | Ozone filter (fuser, main unit)                          | FILTER(FUS) FILTER-T2                     | Suck up all dirt using a toner vacuum cleaner.<br>Use compressed air to blow away dirt.   | 5km<br>(196850.39 inches)                        | —  | 9.13.8         |
| 12  | Transfer roller anterior to paper guide (top and bottom) | Top:<br>GUIDE C<br>Bottom:<br>GUIDE (TRA) | Wet a cleaning cloth, wring it out thoroughly, and wipe away all toner on the paper guides (anterior to transfer and bottom)<br>Be sure to let dry thoroughly.  | 5km<br>(196850.39 inches)                        | —  | —              |
| 13  | Registration roller & pinch roller                       | ROLLER REGIST ROLLER (PINCH 2)            | If dirt is significant, wet a cleaning cloth, wring it out thoroughly, and wipe off the surface of the rollers to remove any toner and paper dust.<br>Be sure to let dry thoroughly.                              | 10km<br>(393700.79 inches)                       | —  | —              |
| 14  | Above cutter roller & pinch roller                       | ROLLER CUTTER ROLLER (PINCH 2)            | If dirt is significant, wet a cleaning cloth, wring it out thoroughly, and wipe off the surface of the rollers to remove any toner and paper dust.<br>Be sure to let dry thoroughly.                              | 10km<br>(393700.79 inches)                       | —  | —              |
| 15  | Paper feed roller & pinch roller                         | ROLLER (PF) LOW / ROLLER (PINCH-PF)       | If dirt is significant, wet a cleaning cloth, wring it out thoroughly, and wipe off the surface of the rollers to remove any dirt you see.<br>Be sure to let dry thoroughly.<br>Do this for all paper feed units. | 10km<br>(393700.79 inches)                       | —  | —              |
| 16  | Paer rewind roller & flange holder                       | ROLLER REWIND ROLLER (SUPPORT)            | If dirt is significant, wet a cleaning cloth, wring it out thoroughly, and wipe off the surface of the rollers to remove any dirt you see.<br>Be sure to let dry thoroughly.<br>Do this for all paper feed units. | 10km<br>(393700.79 inches)                       | —  | 9.14.4         |
| 17  | Slitter cutter   | CUTTER UNIT (AUTO)                        | Open the rear door and remove all paper particles. Blow out small paper particles using compressed air.<br><Note><br>Be careful not to injure yourself on the cutter blade.                                       | 10km<br>(393700.79 inches)                       | —  | —              |
| 18  | Cleaner blade  | BLADE (CLEANER)                           | If dirt is significant, moisten a Ciegal cotton wipe with alcohol and wipe the part clean.  | 5km<br>(196850.39 inches)                        | 10km<br>(393700.79 inches)                                 | 3.2.1          |
| 19  | Charge wire  | WIRE (CHARGER)                            | If dirt is significant, moisten a Ciegal cotton wipe with alcohol and wipe the part clean.  | 5km<br>(196850.39 inches)                        | 5km<br>(196850.39 inches)                                  | 3.2.2          |

- \* Cumulative print length for part replacement recommended should be treated merely as guideline values. These values will vary depending on the usage environment of the Printer, cleaning practices, and other such factors. Note that you can check the interval values to be used as a guideline for cleaning and replacement under **Part Replacement Data** and **Part Cleaning Data** in Maintenance Mode (See 2.3).
- \*\* Before completing your service inspection, always be sure to clean the inside of the Printer.

<Reference>

The table below lists the diameter and circumferential length of each rollers. By measuring the periodic length of the defect on the printouts, identify the defective part and clean or replace it.

| Part                | Diameter            | Circumferential Length |
|---------------------|---------------------|------------------------|
| Photoconductor drum | 60 mm (2.36 inches) | 188 mm (7.40 inches)   |
| Heat roller         | 50 mm (1.97 inches) | 157 mm (6.18inches)    |
| Backup roller       | 60 mm (2.36 inches) | 188 mm (7.40 inches)   |
| Developing sleeve   | 40 mm (1.58 inches) | 63 mm (2.48 inches) *  |

\* As the developing sleeve rotates at the double speed of the photoconductor drum's, the periodic length halves from 125.6 mm (4.95 inches) to 63 mm (2.48 inches).

Table 3-2 Regular Inspection Items (Multifunction Model Only)

| No. | Work Item                         | Part Name                      | Work Details   | Cumulative Print Length for Cleaning Recommended | Cumulative Print Length for Part Replacement Recommended * | Reference Item |
|-----|-----------------------------------|--------------------------------|--|--|--|----------------|
| 1   | Shading guide                     | PLATE-SHADING-ASSY             | Wet a cleaning cloth, wring it out thoroughly, and clean the surface of the sheet.<br>If the dirt is significant, wipe with a neutral detergent soap.<br>Be careful not to rub the surface strongly for long periods of time or with a cleaning cloth containing an alcohol based cleaner because it could remove the coating from the surface of the sheet. | —  | —  | —              |
| 2   | Scanner glass                     | GLASS-DOCUMENT                 | Wet a cleaning cloth, wring it out thoroughly, and clean the surface of the scanner glass.<br>If hard to remove stains are present, use an alcohol based cleaner to wipe down the glass.   | —  | —  | —              |
| 3   | Advance roller                    | ROLLER-SC                      | Wet a cleaning cloth, wring it out thoroughly, and clean the surface of the roller.<br>Be sure to let dry thoroughly.<br>If the dirt is significant, wipe with a neutral detergent soap.   | —  | —  | —              |
| 4   | Original document securing roller | ROLLER-CIS-UP<br>ROLLER-CIS-SP | Wet a cleaning cloth, wring it out thoroughly, and clean the surface of the roller.<br>Be sure to let dry thoroughly.<br>If the dirt is significant, wipe with a neutral detergent soap.   | —  | —  | —              |

Table 3-3 Regular Inspection Items (Multifunction Model Only)

| No. | Work Item                          | Part Name                  | Work Details  | Cumulative Print Length for Cleaning Recommended | Reference Item |
|-----|------------------------------------|----------------------------|---|--|----------------|
| 1   | Charger unit high voltage contact  | SPRING-CHARGE-300gf        | Check visually to confirm that some contact grease remains. Due to repeated contacts, there may be no grease left. In this case, add some grease.   | 5km (196850.39 inches)                           | 3.3.1          |
| 2   | Photoconductor drum ground contact | SPRING-OPC-GRAND           | Check visually to confirm that some contact grease remains. Due to repeated contacts, there may be no grease left. In this case, add some grease.   | 5km (196850.39 inches)                           | 3.3.2          |
| 3   | Heat roller contact                | EARTH-CONTACT ROLLER(HEAT) | Check visually to confirm that some heatproof grease remains. Due to repeated contacts, there may be no grease left. In this case, add some grease. | 5km (196850.39 inches)                           | 3.3.3          |

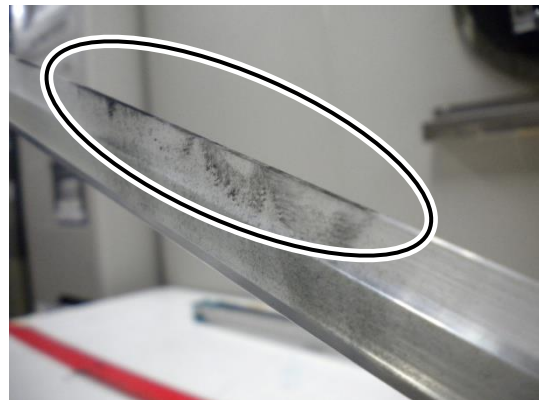
## 3.2 Cleaning Methods

### 3.2.1 Cleaner Blade

1. Remove the process cartridge from the Printer.  
See **Replacing the Process Cartridge** in the *User's Manual for Basic Printer Operation*.
2. Remove the SCOROTRON CHARGER UNIT (see p. **9-147**).
3. Remove the BLADE(CLEANER) (see p. **9-158**).
4. Moisten a Ciegal cotton wipe with alcohol and wipe off all toner on the cleaner blade.
5. Let dry for approximately 10 minutes



6. Put some toner that has not been used on a new Ciegal cotton wipe. If a new toner cartridge is available, open the toner cartridge cover and insert the cotton wipe inside to put some toner on it. If not available, put some toner on the cotton wipe from the upper part of the developing sleeve. Gently tap the Ciegal cotton wipe with the toner on it onto the contact point between the cleaner blade and the photoconductor drum to transfer some toner. Put approximately the amount of toner shown in the photo to the right on all the cleaner blade width.



#### Note

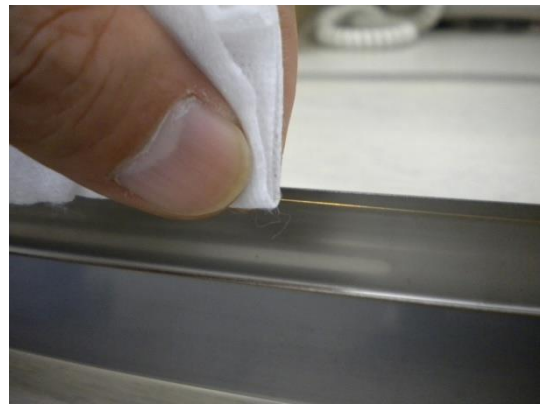
- (1) Put only genuine LP-761 toner from OKI DATA INFOTECH on the cleaner blade. Toner from other manufacturer or Kynar powder may damage the Printer.
- (2) Do not put waste toner on the cleaner blade. It may shorten the lifespan of the process cartridge.

### 3.2.2 Charge Wire

1. Remove the process cartridge from the Printer.  
See **Replacing the Process Cartridge** in the *User's Manual for Basic Printer Operation*.
2. Remove the SCOROTRON CHARGER UNIT (see p. **9-147**).
3. Remove the GRID(CHARGER) (see p. **9-154**).
4. Moisten a Ciegel cotton wipe with alcohol and wipe clean the back of each wire by going back and forth twice.

#### Note

The charge wires may break if pulled excessively. Do not pull the charge wires more than 3 mm (0.12 inches) when cleaning.



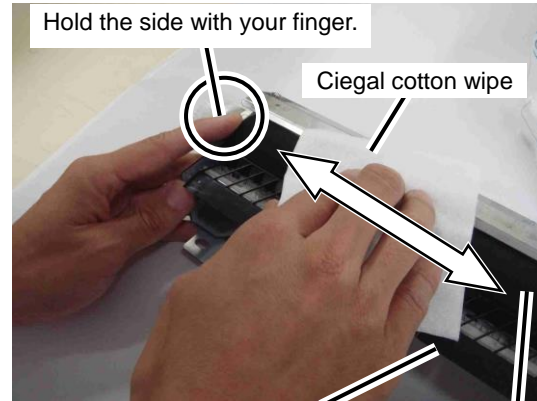
5. Moisten a Ciegel cotton wipe with alcohol and wipe clean the front of each wire by going back and forth twice.





### 3.2.3 Transfer Roller

1. Remove the TRANSFER ROLLER UNIT (see p. 9-147).
2. (a) Hold the side of ROLLER (TRA-3565) with your finger to prevent it from rotating.  
(b) Wipe clean the front surface of ROLLER (TRA-3565) with a Ciegelal cotton wipe.  
Wipe with the Ciegelal cotton wipe in the longitudinal direction.  
(c) When the all roller length has been cleaned, rotate the ROLLER (TRA-3565) adequately and repeat



GUIDE (DC)

ROLLER (TRA-3565)

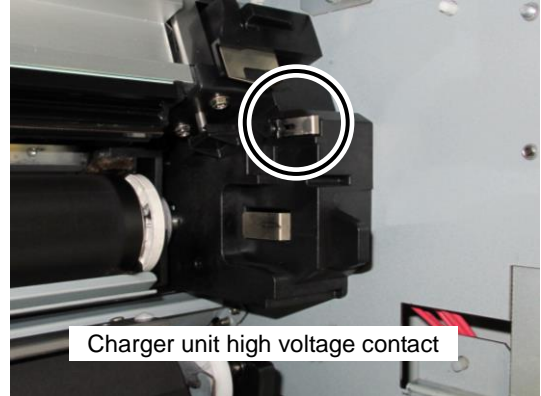
#### Note

Do not apply excessive force on the GUIDE(DC), as it is fragile.

### 3.3 How to Apply Grease

#### 3.3.1 Charger Unit High Voltage Contact

Apply approximately the amount of a sesame seed of contact grease with a Ciegelal cotton wipe on all the front surface of the plate spring. The plate spring surface should blacken lightly.



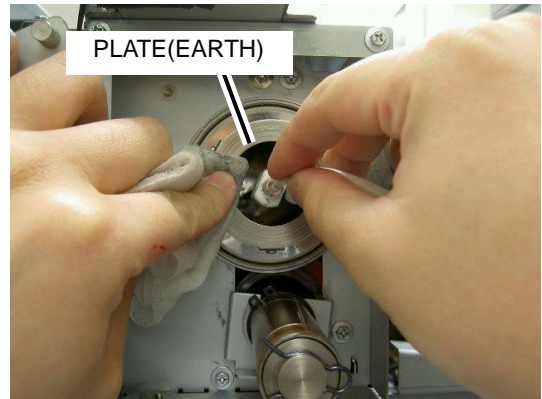
### 3.3.2 Photoconductor Drum Ground Contact

Apply approximately the amount of a sesame seed of contact grease with a Ciegel cotton wipe on all the front surface of the plate spring. The plate spring surface should blacken lightly.

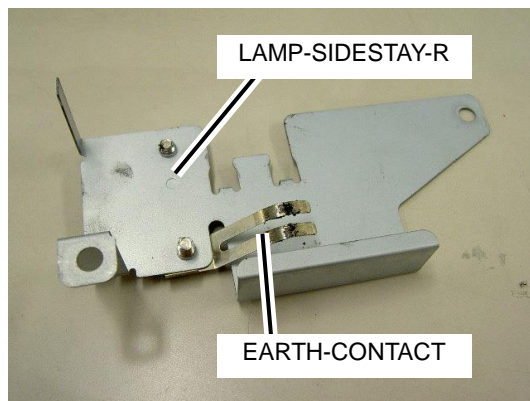


### 3.3.3 Heat Roller Contact

1. Remove the LAMP-SIDESTAY-R.  
(See steps 1 through 5 in subsection 9.10.6)
2. Moisten a Ciegal cotton wipe with ethanol and wipe clean the PLATE(EARTH).



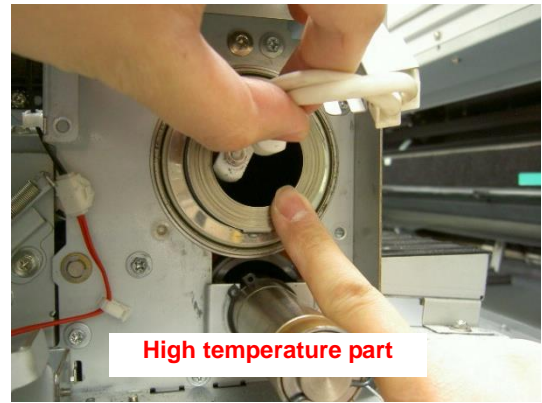
3. Remove EARTH-CONTACT from the LAMP-SIDESTAY-R.



4. Moisten a Ciegal cotton wipe with ethanol and wipe clean the EARTH-CONTACT.



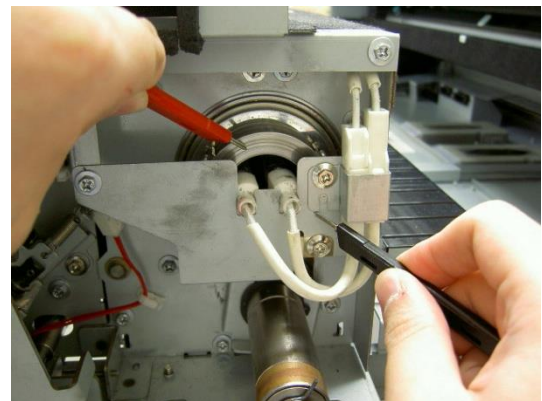
5. Apply a thin layer of heatproof grease on the entire PLATE(EARTH).



6. Reassemble the parts and test the continuity between PLATE(EARTH) and the main frame.

**Note**

The continuity is tested to confirm that the ROLLER HEAT is grounded.



7. Reassemble the SIDE-COVER and external parts, and then execute a test print to complete the procedure.

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## Chapter 4 Controller Problems Troubleshooting

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This chapter will discuss what to do if you should suspect any controller problems are occurring.

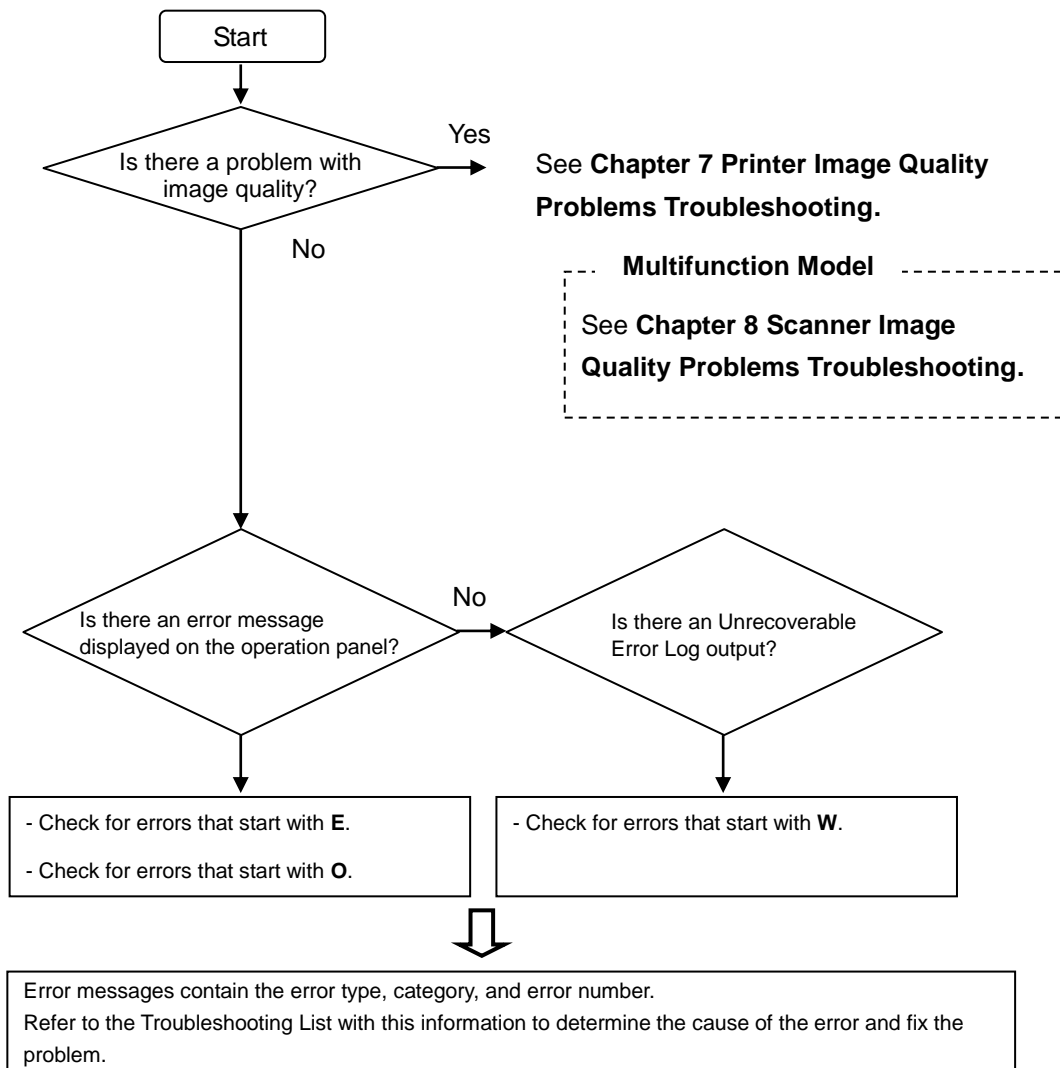
Normally, if the Printer encounters a problem, the error lamp will light up (however, warning error lamp does not light up).

If an error message appears on the operation panel, use the error message to determine the cause and location of the problem so that you can fix it.

If no error message appears on the operation panel, you will have to rely on the symptoms of the problem and/or any error messages found in the error log files (see section 4.3) to determine the cause of the problem and how to fix it.

After confirming any error, be sure to always press the **Power** button on the operation panel to turn off the power to the Printer. When a service call error (type E) occurs, you can turn off the Printer by pressing and holding the **Power** button for five seconds.

## 4.1 Troubleshooting - Basic Workflow



- Errors that start with **E** (other than category EN and SE) ->See p. **4-6**.
- Errors that start with **E** (category EN) ->See p. **5-2**
- Errors that start with **E** (category SE) ->See p. **6-2**.
- Errors that start with **W** ->See p. **4-19**.
- Errors that start with **O** ->See p. **4-32**.

See the following page for more information about the structure of error messages (error type, category, and error number).

## 4.2 Error Messages

An example of an error message string and an explanation of its individual components is given below.

All error messages are saved in a log file. However, depending on the type of error it may or may not appear on the operation panel.

### Error Example

E PM 2900

### Meaning

|          |           |             |
|----------|-----------|-------------|
| <u>x</u> | <u>xx</u> | <u>nnnn</u> |
| (1)      | (2)       | (3)         |

#### (1) Error type

The type of error is designated by either the letter **E**, **O**, or **W**.

- E** Service Call Error (Type: E)  
 This type of error refers to a broken part, media problem, program failure, or some other unrecoverable error.  
 This type of error will always require a technician to repair.  
 - Logged: Yes  
 - Operation Panel Display: Yes
- O** Operator Call Error (Type: O)  
 This type of error occurs when the Printer is out of paper, out of toner, there is a paper jam, or any other situation when the operator can fix the problem his or herself.  
 - Logged: Yes  
 - Operation Panel Display: Yes
- W** Warning (Type: W)  
 This type of error represents any type of warning such as those regarding the life of expendable items/parts in the Printer or data problems.  
 This type of error may also occur due to network problems, data problems, or other such problems with the configuration or the usage environment.  
 In most cases these errors can be fixed by the operator, but some may require the assistance of a technician to resolve.  
 - Logged: Yes  
 - Operation Panel Display: No



**(2) Category**

The error's category (described in detail below) is represented by two letters.

Table 4-1 Error Category

| Error ID Characters | Module Name                      |
|---------------------|----------------------------------|
| AC                  | Accounting task                  |
| AD                  | Active Directory                 |
| AL                  | Authentication log task          |
| BT                  | Platform (boot)                  |
| CI                  | Common file task (SMB/CIFS)      |
| CP                  | Copy task                        |
| EL                  | Error log task                   |
| EN                  | Print engine control task        |
| FT                  | FTP                              |
| HT                  | Web (HTTP Task)                  |
| IC                  | IC card reader                   |
| IG                  | Scanned image processing task    |
| IN                  | Initialization task              |
| JB                  | Job control task                 |
| JL                  | Job control library              |
| LN                  | Print data reception task (netd) |
| LP                  | Local print                      |
| LT                  | Warning light control task       |
| ML                  | Mail (SMTP)                      |
| OM                  | Output main task                 |
| OP                  | Operation task                   |
| PD                  | PDL analysis task                |
| PE                  | Print engine task                |
| PM                  | Main task (print manager)        |
| PN                  | Operation panel task             |
| PR                  | Print task                       |
| RM                  | Web (remote task)                |
| SB                  | Subscription                     |
| SC                  | Scanned data input task          |
| SE                  | Scanner engine                   |
| SG                  | Scanner engine task              |
| SL                  | Data spool library               |
| SN                  | SNMP                             |
| SP                  | Data spool task                  |
| SS                  | Platform (CPU exception)         |
| ST                  | Status library                   |
| TM                  | Timer                            |
| TW                  | Twain (file task)                |
| VU                  | Upgrade                          |

**(3) Error number**

The error number is represented by a 4-digit hexadecimal number.

Use this error number to determine the cause of the error and to fix the problem.

### 4.3 Error Log

Execute **Menu -> Function -> Print Error Log** to print out the error log.  
 A printout example and a detailed description of its elements are given below.

#### Printout example

| Log media:HDD Max log number:65535 Log set count : 11 |                        |         |       |          |           |             |
|---|------------------------|---------|-------|----------|-----------|-------------|
| Log No.   | Time                   | Job No. | Level | Category | Error No. | message     |
| 13  | 2004/06/10 22:17:44    |         | O     |          |           | COVER OPEN  |
| 12  | 2004/06/10 10:17:42 PM |         | O     |          |           | COVER OPEN  |
| 11  | 2004/06/10 22:16:56    |         | O     |          |           | NON PROCESS |
| 10  | 2004/06/10 3:56:33 AM  |         | O     |          |           | COVER OPEN  |
| 9   | 2004/06/10 3:49:19 AM  |         | O     |          |           | COVER OPEN  |
| 8   | 2004/06/09 00:33:35    |         | O     |          |           | COVER OPEN  |
| 7   | 2004/06/09 00:33:05    |         | O     |          |           | NON PROCESS |
| 6   | 2004/06/05 04:34:35    |         | O     |          |           | NO MEDIA    |
| 5   | 2004/06/05 01:08:14    |         | O     |          |           | SCAN JAM    |
| 4   | 2004/06/05 01:07:26    |         | O     |          |           | COVER OPEN  |
| 3   | 2004/06/05 1:06:01 AM  |         | O     |          |           | SCAN JAM    |
| 2   | 2004/06/05 00:59:23    |         | O     |          |           | DOOR 3 OPEN |
| 1   | 2004/06/04 06:55:44    | 85      | E     | SE       | 0001      | SCANNER     |

#### Meaning

| Log media:HDD Max log number:65535 Log set count : <u>XX</u>   |             |                |              |                 |                  |                |
|--|-------------|----------------|--------------|-----------------|------------------|----------------|
| (1)  |             |                |              |                 |                  |                |
| <u>Log No.</u>   | <u>Time</u> | <u>Job No.</u> | <u>Level</u> | <u>Category</u> | <u>Error No.</u> | <u>message</u> |
| (2)  | (3)         | (4)            | (5)          | (6)             | (7)              | (8)            |
| (1): Number of printed logs  |             |                |              |                 |                  |                |
| (2): Log number ... Location of line in log file (1 to 65535, 5 digits max)  |             |                |              |                 |                  |                |
| (3): Error date ... When error occurred (yyyy/mm/dd hh:mm:ss) (19 digits max)  |             |                |              |                 |                  |                |
| (4): Job number ... Number of the job where the error occurred. This is blank if the error that occurred is not associated with any job (5 digits max) |             |                |              |                 |                  |                |
| (5): Error level ... Either <b>W</b> , <b>O</b> , or <b>E</b> ( <b>W</b> : Warning, <b>O</b> : Operator Call, <b>E</b> : Service Call)                 |             |                |              |                 |                  |                |
| (6): Error category ... Module section where error occurred (2 digits max)   |             |                |              |                 |                  |                |
| (7): Error number ... Error number registered when error occurred. This is blank if there is no error number (4 digits max)                            |             |                |              |                 |                  |                |
| (8): Error message ... Error details (31 characters max)   |             |                |              |                 |                  |                |

You can also download the error log file (in CSV format) with the following operations in the Web tool.

Open **Maintenance -> 2. Log acquisition -> Error log**

or

Open **Maintenance -> 5. Maintenance information acquisition -> Diagnostic data acquisition**

## 4.4 Message List

### 4.4.1 Controller Error Messages

The troubleshooting list in case of a controller error is given below.

#### Note

- See **Engine Problems Troubleshooting** (p. 5-1) for category EN errors.
- See **Scanner Troubleshooting** (p. 6-1) for category SE errors.

Table 4-2 Troubleshooting for controller-related service call errors

| Type | Category | Error No. | Cause   | User Solution  | Service Engineer Inspection<br>(For inspection criteria, see Reference to Check/Replace Parts.) | Assumed Replacement Part                | Reference to Check/Replace Parts                  |
|------|----------|-----------|---|--|---|---|---|
| E    | AC       | 2400      | EEPROM accounting information area access error                       | - Restart the printer.<br>- Upgrade the firmware to the latest.  | Check PCB-ASSY-ARC.   | PCB-ASSY-ARC                            | P. 9-56   |
| E    | AC       | 2401      | EEPROM port accounting information area access error                  | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 9-56   |
| E    | AC       | 4001      | Opening error with accounting aggregation request pipe                | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 9-56   |
| E    | AC       | 4002      | Opening error with accounting possible output inquiry pipe            | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 9-56   |
| E    | AC       | 4003      | Opening error with accounting possible output response pipe           | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 9-56   |
| E    | AC       | 4004      | MYKselect error   | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 9-56   |
| E    | AL       | 4001      | Unable to open pipe   | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 9-56   |
| E    | AL       | 5011      | Unable to generate authentication log                                 | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 9-56   |
| E    | AL       | 5013      | Unable to register authentication log                                 | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 9-56   |
| E    | BT       | 1000      | Unable to secure reserved memory area                                 | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 9-56   |
| E    | BT       | 1010      | Unable to load module   | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 9-56   |
| E    | BT       | 2200      | USB memory read error (unable to use kernel boot from the USB memory) | - Restart the printer.<br>- Upgrade the system to the latest.<br>- Reformat the memory.                                    | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 9-56   |
| E    | BT       | 2300      | Unable to recover from sleep  | Restart the printer's main power.  | - Check SATA cable.<br>- Check PCB-ASSY-ARC.  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | P. 4-35 (5)<br>P. 4-36 (10)<br>P. 9-59<br>P. 9-56 |
| E    | BT       | 2500      | Unable to write   | —  | - Check the printer's serial no. of the BOOT system.<br>- Check PCB-ASSY-ARC.                   | PCB-ASSY-ARC                            | P. 4-34 (1)<br>P. 9-56<br>P. 2-3<br>P. 2-47 (3)   |
| E    | BT       | 2510      | Unable to read  | —  | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 4-34 (1)<br>P. 9-56<br>P. 2-3<br>P. 2-47 (3)   |
| E    | BT       | 2600      | Unable to configure FLC   | - Restart the printer.<br>- Upgrade the firmware to the latest.  | Check PCB-ASSY-ARC.   | PCB-ASSY-ARC                            | P. 4-34 (1)<br>P. 9-56                            |
| E    | BT       | 2900      | Unable to configure FRC   | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 4-34 (1)<br>P. 9-56                            |
| E    | BT       | 7FF1      | System not installed  | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 4-34 (1)<br>P. 9-56                            |
| E    | BT       | 7FF2      | Installed system error (the installed system is corrupted)            | —  | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 4-34 (1)<br>P. 9-56                            |
| E    | CI       | 1100      | Memory allocation error   | - Restart the printer.<br>- Check the SMB/CIFS settings on the Printer and/or PC.<br>- Upgrade the firmware to the latest. | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 9-56   |

## Chapter 4 Controller Problems Troubleshooting

| Type | Category | Error No. | Cause   | User Solution  | Service Engineer Inspection<br>(For inspection criteria, see Reference to Check/Replace Parts.) | Assumed Replacement Part                | Reference to Check/Replace Parts                  |
|------|----------|-----------|---|--|---|---|---|
| E    | CI       | 4000      | Unable to open spool file   | - Restart the printer.<br>- Check the SMB/CIFS settings on the Printer and/or PC.<br>- Upgrade the firmware to the latest. | - Check SATA cable.<br>- Check PCB-ASSY-ARC.  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | P. 4-35 (5)<br>P. 4-36 (10)<br>P. 9-59<br>P. 9-56 |
| E    | CI       | 4001      | Unable to read spool file (size error)                            | <i>ditto</i>   | <i>ditto</i>  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | P. 4-35 (5)<br>P. 4-36 (10)<br>P. 9-59<br>P. 9-56 |
| E    | CI       | 4002      | Unable to close spool file  | <i>ditto</i>   | <i>ditto</i>  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | P. 4-35 (5)<br>P. 4-36 (10)<br>P. 9-59<br>P. 9-56 |
| E    | CI       | 4100      | Unable to start NBT background process                            | <i>ditto</i>   | Check PCB-ASSY-ARC.   | - PCB-ASSY-ARC                          | P. 9-56   |
| E    | CI       | 4200      | Unable to acquire information from job library                    | <i>ditto</i>   | <i>ditto</i>  | - PCB-ASSY-ARC                          | P. 9-56   |
| E    | CI       | 4201      | Job ID does not match the continuous output request for scan data | <i>ditto</i>   | <i>ditto</i>  | - PCB-ASSY-ARC                          | P. 9-56   |
| E    | CI       | 4300      | Virtual interface opening error                                   | <i>ditto</i>   | <i>ditto</i>  | - PCB-ASSY-ARC                          | P. 9-56   |
| E    | CI       | 6000      | Unable to acquire setup information                               | <i>ditto</i>   | - Check SATA cable.<br>- Check PCB-ASSY-ARC.  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | P. 4-34 (3)<br>P. 9-59<br>P. 9-56                 |
| E    | CP       | 2781      | IO error  | - Restart the printer.<br>- Upgrade the firmware to the latest.  | Check PCB-ASSY-ARC.   | PCB-ASSY-ARC                            | P. 4-34 (1)<br>P. 9-56                            |
| E    | CP       | 2782      | IO error  | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 4-34 (1)<br>P. 9-56                            |
| E    | CP       | 2783      | IO error  | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 4-34 (1)<br>P. 9-56                            |
| E    | CP       | 2784      | IO error  | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 4-34 (1)<br>P. 9-56                            |
| E    | CP       | 2785      | IO error  | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 4-34 (1)<br>P. 9-56                            |
| E    | CP       | 2786      | IO error  | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 4-34 (1)<br>P. 9-56                            |
| E    | CP       | 2787      | IO error  | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 4-34 (1)<br>P. 9-56                            |
| E    | CP       | 2788      | IO error  | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 4-34 (1)<br>P. 9-56                            |
| E    | CP       | 2789      | IO error  | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 4-34 (1)<br>P. 9-56                            |
| E    | CP       | 278A      | IO error  | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 4-34 (1)<br>P. 9-56                            |
| E    | CP       | 278B      | IO error  | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 4-34 (1)<br>P. 9-56                            |
| E    | CP       | 278C      | IO error  | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 4-34 (1)<br>P. 9-56                            |
| E    | CP       | 278D      | IO error  | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 4-34 (1)<br>P. 9-56                            |
| E    | CP       | 2791      | IO error  | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 4-34 (1)<br>P. 9-56                            |
| E    | CP       | 2792      | IO error  | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 4-34 (1)<br>P. 9-56                            |
| E    | CP       | 2793      | IO error  | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 4-34 (1)<br>P. 9-56                            |
| E    | CP       | 2794      | IO error  | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 4-34 (1)<br>P. 9-56                            |
| E    | CP       | 2795      | IO error  | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 4-34 (1)<br>P. 9-56                            |
| E    | CP       | 2796      | IO error  | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 4-34 (1)<br>P. 9-56                            |
| E    | CP       | 2797      | IO error  | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 4-34 (1)<br>P. 9-56                            |
| E    | CP       | 27A1      | IO error  | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 4-34 (1)<br>P. 9-56                            |
| E    | CP       | 27A2      | IO error  | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 4-34 (1)<br>P. 9-56                            |
| E    | CP       | 27A3      | IO error  | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 4-34 (1)<br>P. 9-56                            |
| E    | EL       | 4001      | Unable to open pipe   | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 4-34 (1)<br>P. 9-56                            |
| E    | EL       | 5011      | Unable to generate error log                                      | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 9-56   |

| Type | Category | Error No. | Cause  | User Solution   | Service Engineer Inspection<br>(For inspection criteria, see Reference to Check/Replace Parts.) | Assumed Replacement Part                | Reference to Check/Replace Parts  |
|------|----------|-----------|--|---|---|---|-----------------------------------|
| E    | EL       | 5013      | Unable to register error log                                     | - Restart the printer.<br>- Upgrade the firmware to the latest. | Check PCB-ASSY-ARC.   | PCB-ASSY-ARC                            | P. 9-56                           |
| E    | HT       | 1100      | Unable to acquire memory   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 9-56                           |
| E    | HT       | 4000      | MYKgetInterface has returned an error (HTTPD task → remote task) | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 9-56                           |
| E    | HT       | 4001      | MYKgetInterface has returned an error (remote task → HTTPD task) | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 9-56                           |
| E    | HT       | 4002      | MYKselect has returned an error during message reception         | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 9-56                           |
| E    | HT       | 4003      | MYKrcvInterface has returned an error during message reception   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 9-56                           |
| E    | HT       | 4004      | MYKselect has returned an error during message sending           | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 9-56                           |
| E    | HT       | 4005      | MYKrcvInterface has returned an error during message sending     | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 9-56                           |
| E    | HT       | 6001      | Unable to acquire dynamic memory with DBdataAlloc function       | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 9-56                           |
| E    | IG       | 4000      | Reception pipe opening error                                     | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 4-34 (1)<br>P. 9-56            |
| E    | IG       | 4010      | Response pipe opening error                                      | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 4-34 (1)<br>P. 9-56            |
| E    | IG       | 4020      | MYKselect abnormality  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 4-34 (1)<br>P. 9-56            |
| E    | IG       | B000      | Undefined process request  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 4-34 (1)<br>P. 9-56            |
| E    | IG       | B010      | Job library abnormal end   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 4-34 (1)<br>P. 9-56            |
| E    | IN       | 2320      | HDD error (HDD not recognized)                                   | Restart the printer's main power.                               | - Check SATA cable.<br>- Check PCB-ASSY-ARC.  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | P. 4-35 (5)<br>P. 9-59<br>P. 9-56 |
| E    | IN       | 2321      | Setup error (not recognized)                                     | <i>ditto</i>  | <i>ditto</i>  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | P. 4-35 (5)<br>P. 9-59<br>P. 9-56 |
| E    | IN       | 2322      | Error log file error (not recognized)                            | <i>ditto</i>  | <i>ditto</i>  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | P. 4-35 (5)<br>P. 9-59<br>P. 9-56 |
| E    | IN       | 2323      | Job log file error (not recognized)                              | <i>ditto</i>  | <i>ditto</i>  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | P. 4-35 (5)<br>P. 9-59<br>P. 9-56 |
| E    | IN       | 2324      | Authentication log file error (not recognized)                   | <i>ditto</i>  | <i>ditto</i>  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | P. 4-35 (5)<br>P. 9-59<br>P. 9-56 |
| E    | IN       | 2325      | User information file error (not recognized)                     | <i>ditto</i>  | <i>ditto</i>  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | P. 4-35 (5)<br>P. 9-59<br>P. 9-56 |
| E    | IN       | 2326      | Common project information file error (not recognized)           | <i>ditto</i>  | <i>ditto</i>  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | P. 4-35 (5)<br>P. 9-59<br>P. 9-56 |
| E    | IN       | 2330      | HDD error (partition not recognized)                             | <i>ditto</i>  | <i>ditto</i>  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | P. 4-35 (5)<br>P. 9-59<br>P. 9-56 |
| E    | IN       | 2331      | HDD error (unable to create partition)                           | <i>ditto</i>  | <i>ditto</i>  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | P. 4-35 (5)<br>P. 9-59<br>P. 9-56 |
| E    | IN       | 2332      | HDD error (unable to format partition)                           | <i>ditto</i>  | <i>ditto</i>  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | P. 4-35 (5)<br>P. 9-59<br>P. 9-56 |
| E    | IN       | 2333      | HDD error (unable to delete partition)                           | <i>ditto</i>  | <i>ditto</i>  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | P. 4-35 (5)<br>P. 9-59<br>P. 9-56 |
| E    | IN       | 2340      | HDD error (folder not recognized)                                | <i>ditto</i>  | <i>ditto</i>  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | P. 4-35 (5)<br>P. 9-59<br>P. 9-56 |
| E    | IN       | 2400      | EEPROM initialization error                                      | Restart the printer.  | Check PCB-ASSY-ARC.   | PCB-ASSY-ARC                            | P. 9-56                           |
| E    | IN       | 2410      | EEPROM format error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 9-56                           |

## Chapter 4 Controller Problems Troubleshooting

| Type | Category | Error No. | Cause   | User Solution   | Service Engineer Inspection<br>(For inspection criteria, see Reference to Check/Replace Parts.) | Assumed Replacement Part                  | Reference to Check/Replace Parts   |
|------|----------|-----------|---|---|---|---|--|
| E    | IN       | C000      | Internal communication acquisition error                            | - Restart the printer.<br>- Upgrade the firmware to the latest. | Check PCB-ASSY-ARC.   | PCB-ASSY-ARC                              | 📖 P. 4-34 (1)<br>📖 P. 9-56   |
| E    | IN       | C010      | HDD configuration error   | Restart the printer's main power.                               | - Check SATA cable.<br>- Check PCB-ASSY-ARC.  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC   | 📖 P. 4-35 (5)<br>📖 P. 9-59<br>📖 P. 9-56  |
| E    | JB       | 1100      | Memory acquisition error  | - Restart the printer.<br>- Upgrade the firmware to the latest. | Check PCB-ASSY-ARC.   | PCB-ASSY-ARC                              | 📖 P. 9-56  |
| E    | JB       | 4001      | Interface acquisition error   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                              | 📖 P. 9-56  |
| E    | JB       | 4002      | MYKselect has returned an error                                     | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                              | 📖 P. 9-56  |
| E    | JB       | 4003      | Interface sending error   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                              | 📖 P. 9-56  |
| E    | JB       | 4004      | Interface reception error   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                              | 📖 P. 9-56  |
| E    | JB       | 4101      | Error when starting synchronization with spool                      | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                              | 📖 P. 9-56  |
| E    | JB       | 4102      | Error when ending synchronization with spool                        | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                              | 📖 P. 9-56  |
| E    | JB       | 6001      | Unable to acquire job information storage path                      | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                              | 📖 P. 9-56  |
| E    | JB       | 6101      | Unable to register job log  | <i>ditto</i>  | - Check SATA cable.<br>- Check PCB-ASSY-ASC.<br>- Check PCB-ASSY-ARC.                           | - HDD<br>- PCB-ASSY-ASC<br>- PCB-ASSY-ARC | 📖 P. 4-34 (1)<br>📖 P. 9-64<br>📖 P. 4-34 (4)<br>📖 P. 9-59<br>📖 P. 4-35 (5)<br>📖 P. 9-56 |
| E    | JB       | C001      | Received command code error   | <i>ditto</i>  | Check PCB-ASSY-ARC.   | PCB-ASSY-ARC                              | 📖 P. 9-56  |
| E    | JB       | E001      | Internal error (incorrect job type)                                 | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                              | 📖 P. 9-56  |
| E    | JB       | E004      | Internal error (unable to save job ID)                              | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                              | 📖 P. 9-56  |
| E    | JB       | E006      | Internal error (job exhaustion)                                     | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                              | 📖 P. 9-56  |
| E    | JB       | E007      | Internal error (multi page area exhaustion)                         | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                              | 📖 P. 9-56  |
| E    | JB       | E009      | Internal error (unable to save job information)                     | <i>ditto</i>  | - Check SATA cable.<br>- Check PCB-ASSY-ASC.<br>- Check PCB-ASSY-ARC.                           | - HDD<br>- PCB-ASSY-ASC<br>- PCB-ASSY-ARC | 📖 P. 4-34 (1)<br>📖 P. 9-64<br>📖 P. 4-34 (4)<br>📖 P. 9-59<br>📖 P. 4-35 (5)<br>📖 P. 9-56 |
| E    | JL       | 1200      | Unable to generate semaphore  | <i>ditto</i>  | Check PCB-ASSY-ARC.   | PCB-ASSY-ARC                              | 📖 P. 9-56  |
| E    | JL       | 4001      | Interface acquisition error   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                              | 📖 P. 9-56  |
| E    | JL       | 4002      | MYKselect has returned an error                                     | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                              | 📖 P. 9-56  |
| E    | JL       | 4003      | Interface sending error   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                              | 📖 P. 9-56  |
| E    | JL       | 4004      | Interface reception error   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                              | 📖 P. 9-56  |
| E    | JL       | 4005      | Error with ctlInterface   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                              | 📖 P. 9-56  |
| E    | JL       | 5011      | Unable to generate job log  | Restart the printer.  | - Check SATA cable.<br>- Check PCB-ASSY-ARC.  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC   | 📖 P. 4-35 (5)<br>📖 P. 9-59<br>📖 P. 9-56  |
| E    | JL       | 5013      | Unable to register job log  | <i>ditto</i>  | <i>ditto</i>  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC   | 📖 P. 4-35 (5)<br>📖 P. 9-59<br>📖 P. 9-56  |
| E    | LP       | 2400      | EEPROM access error   | - Restart the printer.<br>- Upgrade the firmware to the latest. | Check PCB-ASSY-ARC.   | PCB-ASSY-ARC                              | 📖 P. 9-56  |
| E    | LP       | 4001      | Opening error with local printing request pipe                      | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                              | 📖 P. 9-56  |
| E    | LP       | 4002      | Local printing request command error                                | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                              | 📖 P. 9-56  |
| E    | LP       | 4003      | Local printing request function number error                        | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                              | 📖 P. 9-56  |
| E    | OM       | 1100      | Memory acquisition error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                              | 📖 P. 9-56  |
| E    | OM       | 1110      | Child task starting error   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                              | 📖 P. 9-56  |
| E    | OM       | 4000      | MYKgetInterface has returned an error (job task → output main task) | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                              | 📖 P. 9-56  |

| Type | Category | Error No. | Cause  | User Solution   | Service Engineer Inspection<br>(For inspection criteria, see Reference to Check/Replace Parts.) | Assumed Replacement Part | Reference to Check/Replace Parts |
|------|----------|-----------|--|---|---|--------------------------|----------------------------------|
| E    | OM       | 4100      | MYKgetInterface has returned an error (PM → output main task)                  | - Restart the printer.<br>- Upgrade the firmware to the latest. | Check PCB-ASSY-ARC.   | PCB-ASSY-ARC             | P. 9-56                          |
| E    | OM       | 4110      | MYKgetInterface has returned an error (output main task → PM)                  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | OM       | 4200      | MYKgetInterface has returned an error (print task → output main task)          | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | OM       | 4210      | MYKgetInterface has returned an error (output main task → print task)          | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | OM       | 4300      | MYKgetInterface has returned an error (external print task → output main task) | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | OM       | 4310      | MYKgetInterface has returned an error (output main task → external print task) | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | OM       | 4400      | MYKgetInterface has returned an error (CIFS task → output main task)           | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | OM       | 4410      | MYKgetInterface has returned an error (output main task → CIFS task)           | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | OM       | 4500      | MYKgetInterface has returned an error (TWAIN task → output main task)          | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | OM       | 4510      | MYKgetInterface has returned an error (output main task → TWAIN task)          | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | OP       | 1100      | Screen instance not generated  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | OP       | 1101      | Transition destination screen not generated                                    | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | OP       | 1102      | Error screen not generated   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | OP       | 1110      | Page group not generated   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | OP       | 1120      | Unable to acquire frame buffer   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | OP       | 1121      | Unable to acquire memory for GEAL  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | OP       | 1122      | Unable to acquire memory for engine parameters                                 | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | OP       | 1130      | Panel task initialization timeout  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | OP       | 2400      | Unable to save parameter   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | OP       | 4000      | Unable to operate semaphore  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | OP       | 4100      | Unable to acquire job  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | OP       | 4110      | Unable to acquire job code   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | OP       | 6000      | Unable to acquire device status  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | OP       | C000      | Screen transition destination limit exceeded                                   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | OP       | C010      | Unable to register screen part   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | OP       | C020      | Unable to generate screen part   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | OP       | C030      | Unable to register RadioControl part   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | OP       | C040      | Operation undefined event received   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |

## Chapter 4 Controller Problems Troubleshooting

| Type | Category | Error No. | Cause   | User Solution   | Service Engineer Inspection<br>(For inspection criteria, see Reference to Check/Replace Parts.) | Assumed Replacement Part | Reference to Check/Replace Parts |
|------|----------|-----------|---|---|---|--------------------------|----------------------------------|
| E    | OP       | C050      | Operation undefined error received                  | - Restart the printer.<br>- Upgrade the firmware to the latest. | Check PCB-ASSY-ARC.   | PCB-ASSY-ARC             | P. 9-56                          |
| E    | OP       | C060      | Undefined phase for calibration adjustment received | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | 4180      | IO error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | 4181      | IO error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | 4182      | IO error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | 4280      | IO error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | 4281      | IO error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | 4283      | IO error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | 4680      | IO error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | 4681      | IO error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | 4682      | IO error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | 4780      | IO error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | 4781      | IO error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | 4783      | IO error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | 4A80      | IO error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | 4A81      | IO error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | 4A82      | IO error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | 4A83      | IO error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | 4A84      | IO error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | 4A85      | IO error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | 4A86      | IO error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | 4A87      | IO error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | 4A88      | IO error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | 4A89      | IO error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | 4A8A      | IO error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | 4A8B      | IO error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | 4A8C      | IO error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | 4A8D      | IO error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | 4A8E      | IO error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | 4A8F      | IO error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | 4A90      | IO error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | 4A91      | IO error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | 4A92      | IO error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | 4A93      | IO error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | 4A94      | IO error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | 4A95      | IO error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | 4A96      | IO error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | 4A97      | IO error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | 4A98      | IO error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | 4A99      | IO error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | 4A9A      | IO error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | 4A9B      | IO error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | 4A9C      | IO error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | 4A9D      | IO error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | 4A9E      | IO error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | 4A9F      | IO error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | 4AA0      | IO error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | 4AA1      | IO error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | 4AA2      | IO error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | C380      | Opening error                                       | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | C381      | Opening error                                       | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | C382      | Opening error                                       | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | C383      | Opening error                                       | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | C384      | Opening error                                       | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | C385      | Opening error                                       | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | C386      | Opening error                                       | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | C387      | Read error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | C388      | Read error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | C389      | Read error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | C38A      | Read error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | C38B      | Read error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | C38C      | Read error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | C38D      | Read error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | C38E      | Opening error                                       | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | C38F      | Opening error                                       | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | C390      | Internal memory error                               | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | C391      | Internal memory error                               | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | C392      | Internal memory error                               | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | C393      | Internal memory error                               | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | PD       | C394      | Internal memory error                               | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |



| Type | Category | Error No. | Cause   | User Solution   | Service Engineer Inspection<br>(For inspection criteria, see Reference to Check/Replace Parts.) | Assumed Replacement Part                | Reference to Check/Replace Parts        |
|------|----------|-----------|---|---|---|---|---|
| E    | PD       | C395      | Internal memory error   | - Restart the printer.<br>- Upgrade the firmware to the latest. | Check PCB-ASSY-ARC.   | PCB-ASSY-ARC                            | 📖 P. 9-56                               |
| E    | PD       | C396      | Internal memory error   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | 📖 P. 9-56                               |
| E    | PD       | C397      | Internal memory error   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | 📖 P. 9-56                               |
| E    | PD       | C398      | Internal memory error   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | 📖 P. 9-56                               |
| E    | PD       | C399      | Internal memory error   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | 📖 P. 9-56                               |
| E    | PD       | C39A      | Internal memory error   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | 📖 P. 9-56                               |
| E    | PD       | C39B      | Internal memory error   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | 📖 P. 9-56                               |
| E    | PD       | C39C      | Internal memory error   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | 📖 P. 9-56                               |
| E    | PD       | C39D      | Internal memory error   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | 📖 P. 9-56                               |
| E    | PD       | C39E      | Internal memory error   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | 📖 P. 9-56                               |
| E    | PD       | C39F      | Internal memory error   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | 📖 P. 9-56                               |
| E    | PD       | C3A0      | Opening error   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | 📖 P. 9-56                               |
| E    | PD       | C3A1      | IO error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | 📖 P. 9-56                               |
| E    | PE       | 1100      | Error when starting engine control                              | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | 📖 P. 9-56                               |
| E    | PE       | 2300      | Late image disk reading   | <i>ditto</i>  | - Check SATA cable.<br>- Check PCB-ASSY-ARC.  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | 📖 P. 4-35 (5)<br>📖 P. 9-59<br>📖 P. 9-56 |
| E    | PE       | 2310      | Cannot open virtual page  | <i>ditto</i>  | <i>ditto</i>  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | 📖 P. 4-35 (5)<br>📖 P. 9-59<br>📖 P. 9-56 |
| E    | PE       | 2311      | Insufficient virtual page capacity                              | <i>ditto</i>  | <i>ditto</i>  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | 📖 P. 4-35 (5)<br>📖 P. 9-59<br>📖 P. 9-56 |
| E    | PE       | 2312      | Virtual page reading error                                      | <i>ditto</i>  | <i>ditto</i>  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | 📖 P. 4-35 (5)<br>📖 P. 9-59<br>📖 P. 9-56 |
| E    | PE       | 2313      | Virtual page writing error                                      | <i>ditto</i>  | <i>ditto</i>  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | 📖 P. 4-35 (5)<br>📖 P. 9-59<br>📖 P. 9-56 |
| E    | PE       | 2910      | Image transfer error  | <i>ditto</i>  | Check PCB-ASSY-ARC.   | PCB-ASSY-ARC                            | 📖 P. 4-34 (1)<br>📖 P. 9-56              |
| E    | PE       | 2920      | Print parameter error   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | 📖 P. 4-34 (1)<br>📖 P. 9-56              |
| E    | PE       | 2930      | Mismatch in number of copies of print request and print results | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | 📖 P. 4-34 (1)<br>📖 P. 9-56              |
| E    | PE       | 2940      | Mismatch in number of requested copies and print results        | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | 📖 P. 4-34 (1)<br>📖 P. 9-56              |
| E    | PE       | 4000      | Library reception pipe opening error                            | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | 📖 P. 4-34 (1)<br>📖 P. 9-56              |
| E    | PE       | 4010      | Library response pipe opening error                             | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | 📖 P. 4-34 (1)<br>📖 P. 9-56              |
| E    | PE       | 4020      | Opening error with library print engine event pipe              | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | 📖 P. 4-34 (1)<br>📖 P. 9-56              |
| E    | PE       | 4030      | Engine control reception pipe opening error                     | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | 📖 P. 4-34 (1)<br>📖 P. 9-56              |
| E    | PE       | 4040      | Engine control response pipe opening error                      | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | 📖 P. 4-34 (1)<br>📖 P. 9-56              |
| E    | PE       | 4050      | Opening error with engine control print engine event pipe       | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | 📖 P. 4-34 (1)<br>📖 P. 9-56              |
| E    | PM       | 2310      | Error log access error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | 📖 P. 4-34 (1)<br>📖 P. 9-56              |
| E    | PM       | 2310      | HDD format execution error                                      | <i>ditto</i>  | - Check SATA cable.<br>- Check PCB-ASSY-ARC.  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | 📖 P. 4-35 (5)<br>📖 P. 9-59<br>📖 P. 9-56 |
| E    | PM       | 2311      | Job log access error  | <i>ditto</i>  | Check PCB-ASSY-ARC  | PCB-ASSY-ARC                            | 📖 P. 4-34 (1)<br>📖 P. 9-56              |
| E    | PM       | 2312      | Authentication log access error                                 | Restart the printer.  | - Check SATA cable.<br>- Check PCB-ASSY-ARC.  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | 📖 P. 4-35 (5)<br>📖 P. 9-59<br>📖 P. 9-56 |
| E    | PM       | 2313      | Administrator registration information access error             | <i>ditto</i>  | <i>ditto</i>  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | 📖 P. 4-35 (5)<br>📖 P. 9-59<br>📖 P. 9-56 |
| E    | PM       | 2314      | User registration information access error                      | <i>ditto</i>  | <i>ditto</i>  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | 📖 P. 4-35 (5)<br>📖 P. 9-59<br>📖 P. 9-56 |
| E    | PM       | 2400      | EEPROM access error   | <i>ditto</i>  | Check PCB-ASSY-ARC  | PCB-ASSY-ARC                            | 📖 P. 4-34 (1)<br>📖 P. 9-56              |

## Chapter 4 Controller Problems Troubleshooting

| Type | Category | Error No. | Cause  | User Solution   | Service Engineer Inspection<br>(For inspection criteria, see Reference to Check/Replace Parts.) | Assumed Replacement Part                | Reference to Check/Replace Parts        |
|------|----------|-----------|--|---|---|---|---|
| E    | PM       | 2401      | EEPROM format execution                                | - Restart the printer.<br>- Upgrade the firmware to the latest. | Check PCB-ASSY-ARC  | PCB-ASSY-ARC                            | 📖 P. 4-34 (1)<br>📖 P. 9-56              |
| E    | PM       | 2700      | Scanner system error                                   | <i>ditto</i>  | - Check PCB-ASSY-ASC.<br>- Check PCB-ASSY-ARC.  | - PCB-ASSY-ASC<br>- PCB-ASSY-ARC        | 📖 P. 4-34 (4)<br>📖 P. 9-64<br>📖 P. 9-56 |
| E    | PM       | 2900      | Engine, scanner synchronization control                | <i>ditto</i>  | Check PCB-ASSY-ARC.   | PCB-ASSY-ARC                            | 📖 P. 4-34 (1)<br>📖 P. 9-56              |
| E    | PM       | 4000      | Job Lib access (job operation) error                   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | 📖 P. 4-34 (1)<br>📖 P. 9-56              |
| E    | PM       | 4101      | Program failure (select starting process)              | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | 📖 P. 4-34 (1)<br>📖 P. 9-56              |
| E    | PM       | 4102      | Program failure (select main process)                  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | 📖 P. 4-34 (1)<br>📖 P. 9-56              |
| E    | PM       | 4103      | Program failure (sending process)                      | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | 📖 P. 4-34 (1)<br>📖 P. 9-56              |
| E    | PM       | 4104      | Program failure (reception process)                    | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | 📖 P. 4-34 (1)<br>📖 P. 9-56              |
| E    | PM       | 4105      | Program failure (I/F process)                          | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | 📖 P. 4-34 (1)<br>📖 P. 9-56              |
| E    | PM       | 4106      | Program failure (power saving HDD process)             | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | 📖 P. 4-34 (1)<br>📖 P. 9-56              |
| E    | PM       | 4107      | Program failure (process parameter)                    | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | 📖 P. 4-34 (1)<br>📖 P. 9-56              |
| E    | PM       | 6000      | Setup generation error                                 | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | 📖 P. 4-34 (1)<br>📖 P. 9-56              |
| E    | PM       | 6010      | Setup saving error (all areas before HDD sleep)        | Restart the printer.  | - Check SATA cable.<br>- Check PCB-ASSY-ARC.  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | 📖 P. 4-35 (5)<br>📖 P. 9-59<br>📖 P. 9-56 |
| E    | PM       | 6011      | Setup saving error (copy area)                         | <i>ditto</i>  | <i>ditto</i>  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | 📖 P. 4-35 (5)<br>📖 P. 9-59<br>📖 P. 9-56 |
| E    | PM       | 6012      | Setup saving error (area specification)                | <i>ditto</i>  | <i>ditto</i>  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | 📖 P. 4-35 (5)<br>📖 P. 9-59<br>📖 P. 9-56 |
| E    | PM       | 6020      | Setup writing error (area specification)               | <i>ditto</i>  | <i>ditto</i>  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | 📖 P. 4-35 (5)<br>📖 P. 9-59<br>📖 P. 9-56 |
| E    | PM       | 6021      | Setup writing error (copy area)                        | <i>ditto</i>  | <i>ditto</i>  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | 📖 P. 4-35 (5)<br>📖 P. 9-59<br>📖 P. 9-56 |
| E    | PM       | 6030      | Setup reading error (system area)                      | <i>ditto</i>  | <i>ditto</i>  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | 📖 P. 4-35 (5)<br>📖 P. 9-59<br>📖 P. 9-56 |
| E    | PM       | 6031      | Setup reading error (current copy area)                | <i>ditto</i>  | <i>ditto</i>  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | 📖 P. 4-35 (5)<br>📖 P. 9-59<br>📖 P. 9-56 |
| E    | PM       | 6032      | Setup reading error (system area)                      | <i>ditto</i>  | <i>ditto</i>  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | 📖 P. 4-35 (5)<br>📖 P. 9-59<br>📖 P. 9-56 |
| E    | PM       | 6033      | Setup reading error (authentication setting area)      | <i>ditto</i>  | <i>ditto</i>  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | 📖 P. 4-35 (5)<br>📖 P. 9-59<br>📖 P. 9-56 |
| E    | PM       | 6034      | Setup reading error (system area)                      | <i>ditto</i>  | <i>ditto</i>  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | 📖 P. 4-35 (5)<br>📖 P. 9-59<br>📖 P. 9-56 |
| E    | PM       | 6035      | Setup reading error (system area unit setting)         | <i>ditto</i>  | <i>ditto</i>  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | 📖 P. 4-35 (5)<br>📖 P. 9-59<br>📖 P. 9-56 |
| E    | PM       | 6036      | Setup reading error (system area folder setting)       | <i>ditto</i>  | <i>ditto</i>  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | 📖 P. 4-35 (5)<br>📖 P. 9-59<br>📖 P. 9-56 |
| E    | PM       | 6037      | Setup reading error (system area valid series setting) | <i>ditto</i>  | <i>ditto</i>  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | 📖 P. 4-35 (5)<br>📖 P. 9-59<br>📖 P. 9-56 |
| E    | PM       | 6038      | Setup reading error (scan information)                 | <i>ditto</i>  | <i>ditto</i>  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | 📖 P. 4-35 (5)<br>📖 P. 9-59<br>📖 P. 9-56 |
| E    | PM       | 6039      | Setup reading error (system area)                      | <i>ditto</i>  | <i>ditto</i>  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | 📖 P. 4-35 (5)<br>📖 P. 9-59<br>📖 P. 9-56 |
| E    | PM       | 603A      | Setup reading error (device area)                      | <i>ditto</i>  | <i>ditto</i>  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | 📖 P. 4-35 (5)<br>📖 P. 9-59<br>📖 P. 9-56 |
| E    | PM       | 6100      | Status Lib access error                                | - Restart the printer.<br>- Upgrade the firmware to the latest. | Check PCB-ASSY-ARC.   | PCB-ASSY-ARC                            | 📖 P. 4-34 (1)<br>📖 P. 9-56              |

| Type | Category | Error No. | Cause  | User Solution   | Service Engineer Inspection<br>(For inspection criteria, see Reference to Check/Replace Parts.) | Assumed Replacement Part                          | Reference to Check/Replace Parts                          |
|------|----------|-----------|--|---|---|---|---|
| E    | PM       | 6200      | Spool Lib access error   | - Restart the printer.<br>- Upgrade the firmware to the latest. | Check PCB-ASSY-ARC.   | PCB-ASSY-ARC                                      | 📖 P. 4-34 (1)<br>📖 P. 9-56                                |
| E    | PM       | 7E11      | Default setting execution error                                  | ditto   | - Check SATA cable.<br>- Check PCB-ASSY-ARC.  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC           | 📖 P. 4-35 (5)<br>📖 P. 9-59<br>📖 P. 9-56                   |
| E    | PM       | 7E12      | Device initialization execution error                            | ditto   | ditto   | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC           | 📖 P. 4-35 (5)<br>📖 P. 9-59<br>📖 P. 9-56                   |
| E    | PN       | 4000      | Unable to operate semaphore (in panel task)                      | ditto   | - Clean CBL-PNL contact<br>- Check PCB-ASSY-ARC.  | - PANEL ASSY<br>- PANEL ASSY PL<br>- PCB-ASSY-ARC | 📖 P. 4-36 (11)<br>📖 P. 4-34 (1)<br>📖 P. 9-59<br>📖 P. 9-56 |
| E    | PR       | 4000      | Reception pipe opening error                                     | ditto   | Check PCB-ASSY-ARC.   | PCB-ASSY-ARC                                      | 📖 P. 4-34 (1)<br>📖 P. 9-56                                |
| E    | PR       | 4010      | Response pipe opening error                                      | ditto   | ditto   | PCB-ASSY-ARC                                      | 📖 P. 4-34 (1)<br>📖 P. 9-56                                |
| E    | PR       | 4020      | Opening error with print engine event pipe                       | ditto   | ditto   | PCB-ASSY-ARC                                      | 📖 P. 4-34 (1)<br>📖 P. 9-56                                |
| E    | PR       | 40F0      | MYKselect abnormality  | ditto   | ditto   | PCB-ASSY-ARC                                      | 📖 P. 4-34 (1)<br>📖 P. 9-56                                |
| E    | RM       | 4000      | MYKgetInterface has returned an error (HTTPD task → remote task) | ditto   | ditto   | PCB-ASSY-ARC                                      | 📖 P. 4-34 (1)<br>📖 P. 9-56                                |
| E    | RM       | 4001      | MYKgetInterface has returned an error (remote task → HTTPD task) | ditto   | ditto   | PCB-ASSY-ARC                                      | 📖 P. 4-34 (1)<br>📖 P. 9-56                                |
| E    | RM       | 4002      | MYKselect has returned an error during message reception         | ditto   | ditto   | PCB-ASSY-ARC                                      | 📖 P. 4-34 (1)<br>📖 P. 9-56                                |
| E    | RM       | 4003      | MYKrcvInterface has returned an error during message reception   | ditto   | ditto   | PCB-ASSY-ARC                                      | 📖 P. 4-34 (1)<br>📖 P. 9-56                                |
| E    | RM       | 4004      | MYKselect has returned an error during message sending           | ditto   | ditto   | PCB-ASSY-ARC                                      | 📖 P. 4-34 (1)<br>📖 P. 9-56                                |
| E    | RM       | 4005      | MYKrcvInterface has returned an error during message sending     | ditto   | ditto   | PCB-ASSY-ARC                                      | 📖 P. 4-34 (1)<br>📖 P. 9-56                                |
| E    | RM       | 4006      | MYKgetInterface has returned an error (PM → remote task)         | ditto   | ditto   | PCB-ASSY-ARC                                      | 📖 P. 4-34 (1)<br>📖 P. 9-56                                |
| E    | RM       | 4007      | MYKgetInterface has returned an error (remote task → PM)         | ditto   | ditto   | PCB-ASSY-ARC                                      | 📖 P. 4-34 (1)<br>📖 P. 9-56                                |
| E    | RM       | 6000      | Unable to acquire memory   | ditto   | ditto   | PCB-ASSY-ARC                                      | 📖 P. 4-34 (1)<br>📖 P. 9-56                                |
| E    | RM       | 6001      | Unable to acquire dynamic memory with DBdataAlloc function       | ditto   | ditto   | PCB-ASSY-ARC                                      | 📖 P. 4-34 (1)<br>📖 P. 9-56                                |
| E    | SC       | 2781      | IO error   | ditto   | ditto   | PCB-ASSY-ARC                                      | 📖 P. 4-34 (1)<br>📖 P. 9-56                                |
| E    | SC       | 2782      | IO error   | ditto   | ditto   | PCB-ASSY-ARC                                      | 📖 P. 4-34 (1)<br>📖 P. 9-56                                |
| E    | SC       | 2783      | IO error   | ditto   | ditto   | PCB-ASSY-ARC                                      | 📖 P. 4-34 (1)<br>📖 P. 9-56                                |
| E    | SC       | 2784      | IO error   | ditto   | ditto   | PCB-ASSY-ARC                                      | 📖 P. 4-34 (1)<br>📖 P. 9-56                                |
| E    | SC       | 2785      | IO error   | ditto   | ditto   | PCB-ASSY-ARC                                      | 📖 P. 4-34 (1)<br>📖 P. 9-56                                |
| E    | SC       | 2786      | IO error   | ditto   | ditto   | PCB-ASSY-ARC                                      | 📖 P. 4-34 (1)<br>📖 P. 9-56                                |
| E    | SC       | 2787      | IO error   | ditto   | ditto   | PCB-ASSY-ARC                                      | 📖 P. 4-34 (1)<br>📖 P. 9-56                                |
| E    | SC       | 2788      | IO error   | ditto   | ditto   | PCB-ASSY-ARC                                      | 📖 P. 4-34 (1)<br>📖 P. 9-56                                |
| E    | SC       | 2789      | IO error   | ditto   | ditto   | PCB-ASSY-ARC                                      | 📖 P. 4-34 (1)<br>📖 P. 9-56                                |
| E    | SC       | 278A      | IO error   | ditto   | ditto   | PCB-ASSY-ARC                                      | 📖 P. 4-34 (1)<br>📖 P. 9-56                                |
| E    | SC       | 278B      | IO error   | ditto   | ditto   | PCB-ASSY-ARC                                      | 📖 P. 4-34 (1)<br>📖 P. 9-56                                |
| E    | SC       | 278C      | IO error   | ditto   | ditto   | PCB-ASSY-ARC                                      | 📖 P. 4-34 (1)<br>📖 P. 9-56                                |
| E    | SC       | 278D      | IO error   | ditto   | ditto   | PCB-ASSY-ARC                                      | 📖 P. 4-34 (1)<br>📖 P. 9-56                                |

## Chapter 4 Controller Problems Troubleshooting

| Type | Category | Error No. | Cause   | User Solution   | Service Engineer Inspection<br>(For inspection criteria, see Reference to Check/Replace Parts.)    | Assumed Replacement Part                       | Reference to Check/Replace Parts  |
|------|----------|-----------|---|---|--|--|---|
| E    | SC       | 278E      | IO error  | - Restart the printer.<br>- Upgrade the firmware to the latest. | Check PCB-ASSY-ARC.  | PCB-ASSY-ARC                                   | P. 4-34 (1)<br>P. 9-56  |
| E    | SC       | 278F      | IO error  | <i>ditto</i>  | <i>ditto</i>   | PCB-ASSY-ARC                                   | P. 4-34 (1)<br>P. 9-56  |
| E    | SC       | 2791      | IO error  | <i>ditto</i>  | <i>ditto</i>   | PCB-ASSY-ARC                                   | P. 4-34 (1)<br>P. 9-56  |
| E    | SC       | 2792      | IO error  | <i>ditto</i>  | <i>ditto</i>   | PCB-ASSY-ARC                                   | P. 4-34 (1)<br>P. 9-56  |
| E    | SC       | 2793      | IO error  | <i>ditto</i>  | <i>ditto</i>   | PCB-ASSY-ARC                                   | P. 4-34 (1)<br>P. 9-56  |
| E    | SC       | 2794      | IO error  | <i>ditto</i>  | <i>ditto</i>   | PCB-ASSY-ARC                                   | P. 4-34 (1)<br>P. 9-56  |
| E    | SC       | 2795      | IO error  | <i>ditto</i>  | <i>ditto</i>   | PCB-ASSY-ARC                                   | P. 4-34 (1)<br>P. 9-56  |
| E    | SC       | 2796      | IO error  | <i>ditto</i>  | <i>ditto</i>   | PCB-ASSY-ARC                                   | P. 4-34 (1)<br>P. 9-56  |
| E    | SC       | 2797      | IO error  | <i>ditto</i>  | <i>ditto</i>   | PCB-ASSY-ARC                                   | P. 4-34 (1)<br>P. 9-56  |
| E    | SC       | 2798      | IO error  | <i>ditto</i>  | <i>ditto</i>   | PCB-ASSY-ARC                                   | P. 4-34 (1)<br>P. 9-56  |
| E    | SC       | 2799      | IO error  | <i>ditto</i>  | <i>ditto</i>   | PCB-ASSY-ARC                                   | P. 4-34 (1)<br>P. 9-56  |
| E    | SC       | 27A1      | IO error  | <i>ditto</i>  | <i>ditto</i>   | PCB-ASSY-ARC                                   | P. 4-34 (1)<br>P. 9-56  |
| E    | SC       | 27B1      | IO error  | <i>ditto</i>  | <i>ditto</i>   | PCB-ASSY-ARC                                   | P. 4-34 (1)<br>P. 9-56  |
| E    | SG       | 2700      | Error when starting scanner                             | <i>ditto</i>  | - Clean CBLS - LVDS contact<br>- Check PCB-ASSY-ASC.<br>- Check PCB-ASSY-ARC.<br>- Check CIS unit. | - PCB-ASSY-ASC<br>- PCB-ASSY-ARC<br>- CIS unit | P. 8-6<br>P. 4-34 (1)<br>P. 9-56<br>P. 4-34 (4)<br>P. 9-64<br>P. 4-35 (6)<br>P. 9-201 |
| E    | SG       | 2710      | Image transfer error                                    | <i>ditto</i>  | Check PCB-ASSY-ARC.  | PCB-ASSY-ARC                                   | P. 4-34 (1)<br>P. 9-56  |
| E    | SG       | 2720      | SIO opening error                                       | <i>ditto</i>  | <i>ditto</i>   | PCB-ASSY-ARC                                   | P. 4-34 (1)<br>P. 9-56  |
| E    | SG       | 2721      | Scanner command reception error                         | <i>ditto</i>  | <i>ditto</i>   | PCB-ASSY-ARC                                   | P. 4-34 (1)<br>P. 9-56  |
| E    | SG       | 2722      | Scanner command resending number limit error            | <i>ditto</i>  | <i>ditto</i>   | PCB-ASSY-ARC                                   | P. 4-34 (1)<br>P. 9-56  |
| E    | SG       | 2723      | Scanner command writing error                           | <i>ditto</i>  | - Check PCB-ASSY-ASC.<br>- Check PCB-ASSY-ARC.<br>- Check CIS unit.                                | - PCB-ASSY-ASC<br>- PCB-ASSY-ARC<br>- CIS unit | P. 4-34 (1)<br>P. 9-56<br>P. 4-34 (4)<br>P. 9-64<br>P. 4-35 (6)<br>P. 9-201           |
| E    | SG       | 4000      | Library reception pipe opening error                    | <i>ditto</i>  | Check PCB-ASSY-ARC.  | PCB-ASSY-ARC                                   | P. 4-34 (1)<br>P. 9-56  |
| E    | SG       | 4010      | Library response pipe opening error                     | <i>ditto</i>  | <i>ditto</i>   | PCB-ASSY-ARC                                   | P. 4-34 (1)<br>P. 9-56  |
| E    | SG       | 4020      | Opening error with library print engine event pipe      | <i>ditto</i>  | <i>ditto</i>   | PCB-ASSY-ARC                                   | P. 4-34 (1)<br>P. 9-56  |
| E    | SG       | 4030      | Scanner reception pipe opening error                    | <i>ditto</i>  | <i>ditto</i>   | PCB-ASSY-ARC                                   | P. 4-34 (1)<br>P. 9-56  |
| E    | SG       | 4040      | Scanner response pipe opening error                     | <i>ditto</i>  | <i>ditto</i>   | PCB-ASSY-ARC                                   | P. 4-34 (1)<br>P. 9-56  |
| E    | SL       | 4001      | Pipe opening error                                      | <i>ditto</i>  | <i>ditto</i>   | PCB-ASSY-ARC                                   | P. 9-56   |
| E    | SL       | 4002      | Unable to generate semaphore                            | <i>ditto</i>  | <i>ditto</i>   | PCB-ASSY-ARC                                   | P. 9-56   |
| E    | SN       | 8800      | Pipe opening error                                      | Upgrade the RIP firmware to the latest.                         | <i>ditto</i>   | PCB-ASSY-ARC                                   | P. 9-56   |
| E    | SN       | 8801      | Pipe read error   | <i>ditto</i>  | <i>ditto</i>   | PCB-ASSY-ARC                                   | P. 9-56   |
| E    | SN       | 8802      | Pipe write error  | <i>ditto</i>  | <i>ditto</i>   | PCB-ASSY-ARC                                   | P. 9-56   |
| E    | SN       | 8803      | Small pipe message (programming error)                  | <i>ditto</i>  | <i>ditto</i>   | PCB-ASSY-ARC                                   | P. 9-56   |
| E    | SP       | 1101      | Unable to hunt memory during initialization             | - Restart the printer.<br>- Upgrade the firmware to the latest. | <i>ditto</i>   | PCB-ASSY-ARC                                   | P. 9-56   |
| E    | SP       | 1401      | Unable to generate real file<br>Probably HDD failure    | <i>ditto</i>  | - Check SATA cable.<br>- Check PCB-ASSY-ARC.   | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC        | P. 4-36 (10)<br>P. 9-59<br>P. 9-56  |
| E    | SP       | 1402      | Unable to open real file<br>Probably bug or HDD failure | <i>ditto</i>  | <i>ditto</i>   | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC        | P. 4-36 (10)<br>P. 9-59<br>P. 9-56  |

| Type | Category | Error No. | Cause  | User Solution   | Service Engineer Inspection<br>(For inspection criteria, see Reference to Check/Replace Parts.) | Assumed Replacement Part                | Reference to Check/Replace Parts         |
|------|----------|-----------|--|---|---|---|--|
| E    | SP       | 1403      | Unable to close real file<br>Probably bug or HDD failure                           | - Restart the printer.<br>- Upgrade the firmware to the latest. | - Check SATA cable.<br>- Check PCB-ASSY-ARC.  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | 📖 P. 4-36 (10)<br>📖 P. 9-59<br>📖 P. 9-56 |
| E    | SP       | 1404      | Unable to write real file<br>Probably HDD failure                                  | <i>ditto</i>  | <i>ditto</i>  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | 📖 P. 4-36 (10)<br>📖 P. 9-59<br>📖 P. 9-56 |
| E    | SP       | 1405      | Unable to read real file<br>Probably HDD failure                                   | <i>ditto</i>  | <i>ditto</i>  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | 📖 P. 4-36 (10)<br>📖 P. 9-59<br>📖 P. 9-56 |
| E    | SP       | 1406      | Unable to seek real file<br>Probably HDD failure                                   | <i>ditto</i>  | <i>ditto</i>  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | 📖 P. 4-36 (10)<br>📖 P. 9-59<br>📖 P. 9-56 |
| E    | SP       | 1407      | Unable to remove real file<br>Probably HDD failure                                 | <i>ditto</i>  | <i>ditto</i>  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | 📖 P. 4-36 (10)<br>📖 P. 9-59<br>📖 P. 9-56 |
| E    | SP       | 1408      | Unable to rename real file<br>Probably HDD failure                                 | <i>ditto</i>  | <i>ditto</i>  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | 📖 P. 4-36 (10)<br>📖 P. 9-59<br>📖 P. 9-56 |
| E    | SP       | 1409      | Unable to save spool management file<br>Probably HDD failure                       | <i>ditto</i>  | <i>ditto</i>  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | 📖 P. 4-36 (10)<br>📖 P. 9-59<br>📖 P. 9-56 |
| E    | SP       | 4001      | Unable to open pipe during initialization  | <i>ditto</i>  | Check PCB-ASSY-ARC.   | PCB-ASSY-ARC                            | 📖 P. 9-56                                |
| E    | SP       | 4002      | Error with select  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | 📖 P. 9-56                                |
| E    | SP       | 4003      | Error with pipe sending  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | 📖 P. 9-56                                |
| E    | SP       | 4004      | Error with pipe reception  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | 📖 P. 9-56                                |
| E    | SP       | 4005      | Error with CntrlInterface  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | 📖 P. 9-56                                |
| E    | SP       | 4102      | Error with job library (jobEvent)  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | 📖 P. 9-56                                |
| E    | SP       | 4103      | Error with job library (jobSetInfo)  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | 📖 P. 9-56                                |
| E    | SP       | 4104      | Error with job library (jobSetFinish)  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | 📖 P. 9-56                                |
| E    | SP       | 4105      | Error with job library (jobGetInfo)  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | 📖 P. 9-56                                |
| E    | SP       | 6001      | Unable to acquire spool data storage path  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | 📖 P. 9-56                                |
| E    | SP       | 6011      | Unable to hunt memory block  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | 📖 P. 9-56                                |
| E    | SP       | D001      | Unable to generate spool data<br>Probably HDD failure                              | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | 📖 P. 9-56                                |
| E    | SP       | D002      | Unable to open spool data<br>Probably bug or HDD failure                           | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | 📖 P. 9-56                                |
| E    | SP       | D003      | Unable to close spool data<br>Probably bug or HDD failure                          | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | 📖 P. 9-56                                |
| E    | SP       | D004      | Unable to write spool data<br>Probably HDD failure                                 | <i>ditto</i>  | - Check SATA cable.<br>- Check PCB-ASSY-ARC.  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | 📖 P. 4-36 (10)<br>📖 P. 9-59<br>📖 P. 9-56 |
| E    | SP       | D005      | Unable to read spool data<br>Probably HDD failure                                  | <i>ditto</i>  | <i>ditto</i>  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | 📖 P. 4-36 (10)<br>📖 P. 9-59<br>📖 P. 9-56 |
| E    | SP       | D006      | Unable to seek spool data<br>Probably HDD failure                                  | <i>ditto</i>  | <i>ditto</i>  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | 📖 P. 4-36 (10)<br>📖 P. 9-59<br>📖 P. 9-56 |
| E    | SP       | D011      | Internal error<br>No space in spool data   | <i>ditto</i>  | Check PCB-ASSY-ARC.   | PCB-ASSY-ARC                            | 📖 P. 9-56                                |
| E    | SP       | D012      | Internal error<br>Maximum number of data items that can be opened at the same time | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | 📖 P. 9-56                                |
| E    | SP       | D013      | Internal error<br>Spool data not found   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | 📖 P. 9-56                                |
| E    | SP       | D021      | Error with spool data cleanup  | <i>ditto</i>  | - Check SATA cable.<br>- Check PCB-ASSY-ARC.  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | 📖 P. 4-36 (10)<br>📖 P. 9-59<br>📖 P. 9-56 |
| E    | SP       | D031      | Incorrect reception command  | <i>ditto</i>  | Check PCB-ASSY-ARC.   | PCB-ASSY-ARC                            | 📖 P. 9-56                                |
| E    | SP       | D041      | Reception command parameter abnormality  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | 📖 P. 9-56                                |
| E    | SP       | D042      | Reception command parameter abnormality  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | 📖 P. 9-56                                |

## Chapter 4 Controller Problems Troubleshooting

| Type | Category | Error No. | Cause   | User Solution   | Service Engineer Inspection<br>(For inspection criteria, see Reference to Check/Replace Parts.) | Assumed Replacement Part | Reference to Check/Replace Parts |
|------|----------|-----------|---|---|---|--------------------------|----------------------------------|
| E    | SP       | D043      | Reception command parameter abnormality                               | - Restart the printer.<br>- Upgrade the firmware to the latest. | Check PCB-ASSY-ARC.   | PCB-ASSY-ARC             | P. 9-56                          |
| E    | SP       | D044      | Reception command parameter abnormality                               | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | SP       | D045      | Reception command parameter abnormality                               | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | SP       | D046      | Reception command parameter abnormality                               | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | SP       | D047      | Reception command parameter abnormality                               | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | SP       | D048      | Reception command parameter abnormality                               | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | SP       | D049      | Reception command parameter abnormality                               | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | SP       | D04A      | Reception command parameter abnormality                               | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | SP       | D04B      | Reception command parameter abnormality                               | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | SP       | D04C      | Reception command parameter abnormality                               | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | SP       | D04D      | Reception command parameter abnormality                               | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | SP       | D04E      | Reception command parameter abnormality                               | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | SP       | D051      | Reception command parameter abnormality                               | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | SP       | D052      | Reception command parameter abnormality                               | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | SP       | E001      | Internal error Spool number abnormality                               | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | SP       | E002      | Internal error Incorrect virtual FD                                   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | SP       | E003      | Internal error Reception queue overflow                               | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | SP       | E004      | Internal error Virtual FD exhaustion                                  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | SP       | E005      | Internal error Multiple WriteOpen                                     | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | SP       | E006      | Internal error Write on ReadOpen data, read on WriteOpen data         | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | SP       | E007      | Internal error Incorrect real FD                                      | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | SP       | E008      | Internal error Incorrect seek parameter                               | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | SP       | E009      | Internal error Unable to reopen                                       | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | SP       | E00A      | Internal error Data already existed when attempted to create new data | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | SP       | E00B      | Internal error Reception state abnormality                            | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | SS       | F200      | CPU exception: machine check exception                                | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | SS       | F300      | CPU exception: DSI exception  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | SS       | F400      | CPU exception: ISI exception  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | SS       | F600      | CPU exception: Alignment exception                                    | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | SS       | F700      | CPU exception: Program exception                                      | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | SS       | F800      | CPU exception: Invalid floating decimal point exception               | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | TM       | 4000      | I/F initialization error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| E    | TW       | 4000      | Fatal error when initializing communication between tasks             | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 4-34 (1)<br>P. 9-56           |

| Type | Category | Error No. | Cause  | User Solution  | Service Engineer Inspection<br>(For inspection criteria, see Reference to Check/Replace Parts.)  | Assumed Replacement Part  | Reference to Check/Replace Parts |
|------|----------|-----------|--|--|--|---|----------------------------------|
| E    | TW       | 4010      | Fatal error in memory operation  | - Restart the printer.<br>- Upgrade the firmware to the latest.  | Check PCB-ASSY-ARC.  | PCB-ASSY-ARC  | P. 4-34 (1)<br>P. 9-56           |
| E    | TW       | 4020      | Fatal error in socket operation  | <i>ditto</i>   | <i>ditto</i>   | PCB-ASSY-ARC  | P. 4-34 (1)<br>P. 9-56           |
| E    | TW       | 4030      | Setup information fatal error  | <i>ditto</i>   | <i>ditto</i>   | PCB-ASSY-ARC  | P. 4-34 (1)<br>P. 9-56           |
| E    | TW       | 4100      | Fatal error during data lead from spool  | <i>ditto</i>   | <i>ditto</i>   | PCB-ASSY-ARC  | P. 4-34 (1)<br>P. 9-56           |
| E    | TW       | 4200      | Fatal error in communication with output main  | <i>ditto</i>   | <i>ditto</i>   | PCB-ASSY-ARC  | P. 4-34 (1)<br>P. 9-56           |
| E    | TW       | 4210      | Output main undefined command fatal error  | <i>ditto</i>   | <i>ditto</i>   | PCB-ASSY-ARC  | P. 4-34 (1)<br>P. 9-56           |
| E    | TW       | 40F0      | Other fatal error  | <i>ditto</i>   | <i>ditto</i>   | PCB-ASSY-ARC  | P. 4-34 (1)<br>P. 9-56           |
| E    | VU       | 1100      | Upgrade has been stopped because of insufficient printer memory  | <i>ditto</i>   | <i>ditto</i>   | PCB-ASSY-ARC  | P. 4-34 (1)<br>P. 9-56           |
| E    | VU       | 2501      | NAND - FLASH memory writing error  | <i>ditto</i>   | <i>ditto</i>   | PCB-ASSY-ARC  | P. 4-34 (1)<br>P. 9-56           |
| E    | VU       | 2701      | Scanner - FW writing error   | <i>ditto</i>   | <i>ditto</i>   | PCB-ASSY-ARC  | P. 4-34 (1)<br>P. 9-56           |
| E    | VU       | 2702      | Scanner - BOOT writing error   | <i>ditto</i>   | <i>ditto</i>   | PCB-ASSY-ARC  | P. 4-34 (1)<br>P. 9-56           |
| E    | VU       | 2703      | Scanner - FPGA-FSC writing error   | <i>ditto</i>   | <i>ditto</i>   | PCB-ASSY-ARC  | P. 4-34 (1)<br>P. 9-56           |
| E    | VU       | 2704      | Scanner - FPGA-FIC writing error   | <i>ditto</i>   | <i>ditto</i>   | PCB-ASSY-ARC  | P. 4-34 (1)<br>P. 9-56           |
| E    | VU       | 7F50      | Scanner - FPGA-FSG writing error   | <i>ditto</i>   | <i>ditto</i>   | PCB-ASSY-ARC  | P. 4-34 (1)<br>P. 9-56           |
| E    | VU       | 7F51      | The system image in the USB memory is not for the printer.<br><b>Magic number does not match</b> or<br><b>Submagic number does not match</b> | <i>ditto</i>   | <i>ditto</i>   | PCB-ASSY-ARC  | P. 4-34 (1)<br>P. 9-56           |
| E    | VU       | 7F80      | Incorrect card identification file (cardid.dat) in the USB memory  | <i>ditto</i>   | From the computer check cardid.dat file on the USB memory.   |   |                                  |
| E    | VU       | 7F81      | USB memory access error  | Turn off the printer and reseal the USB memory. Then turn on the printer and again upgrade the firmware to the latest.                         | - While the touchpanel displays the error message, reseal the USB memory. Then hold down the POWER SAVE button for three seconds or more. The firmware upgrade will be started automatically. If the error persists, replace the USB memory with another one.<br>- Check PCB-ASSY-ARC. | - Several USB memories (different makers if possible)<br>- PCB-ASSY-ARC | P. 4-34 (1)<br>P. 9-56           |
| E    | VU       | 7F90      | Impossible to upgrade because subscription is valid  |  |  |   |                                  |
| E    | VU       | 7F91      | Impossible to upgrade because ARC2 is not supported  |  |  |   |                                  |
| E    | VU       | 7FF0      | Unable to upgrade BOOT-ROM   | Set the SW3 DIP switch on the ARC board as follows and upgrade the firmware again.<br>Bit 3: Off<br>Bit 4: On<br>Or,<br>Bit 3: On<br>Bit 4: On | Check PCB-ASSY-ARC.  | PCB-ASSY-ARC  | P. 4-34 (1)<br>P. 9-56           |

Table 4-3 Troubleshooting for controller-related warnings

| Type | Category | Error No. | Cause  | User Solution   | Service Engineer Inspection<br>(For inspection criteria, see Reference to Check/Replace Parts.) | Assumed Replacement Part | Reference to Check/Replace Parts   |
|------|----------|-----------|--|---|---|--------------------------|--|
| W    | AD       | 9400      | ActiveDirectory D/C1 timeout                         |   |   |                          |  |
| W    | AD       | 9401      | ActiveDirectory D/C2 timeout                         |   |   |                          |  |
| W    | AD       | 9402      | ActiveDirectory D/C3 timeout                         |   |   |                          |  |
| W    | AL       | 4002      | Small size of pipe lead message                      | - Restart the printer.<br>- Upgrade the firmware to the latest.                               | —   | —                        | —  |
| W    | AL       | 4003      | Size of pipe lead message does not match the command | <i>ditto</i>  | —   | —                        | —  |
| W    | AL       | 4004      | Undefined pipe lead message command                  | <i>ditto</i>  | —   | —                        | —  |
| W    | AL       | 4005      | Regenerated authentication log generation            | <i>ditto</i>  | —   | —                        | —  |
| W    | AL       | 5012      | Small size of pipe lead message                      | <i>ditto</i>  | —   | —                        | —  |
| W    | BT       | 2C00      | Dead battery (or there is no battery at all)         |   |   | PCB-ASSY-ARC             | P. 9-56  |
| W    | BT       | 2C01      | Out of battery warning                               |   |   | PCB-ASSY-ARC             | P. 9-56  |
| W    | CI       | 8401      | NBT name registration denied                         | - Restart the printer.<br>- Check SMB/CIFS settings.<br>- Upgrade the firmware to the latest. | —   | —                        | —  |
| W    | CI       | 8402      | Unable to register NBT                               | <i>ditto</i>  | —   | —                        | —  |
| W    | CI       | 8403      | Unable to connect to NBT session                     | <i>ditto</i>  | —   | —                        | —  |
| W    | CI       | 8404      | Unable to perform SMB negotiation                    | <i>ditto</i>  | —   | —                        | —  |
| W    | CI       | 8405      | Unable to setup SMB                                  | <i>ditto</i>  | —   | —                        | —  |
| W    | CI       | 8406      | Unable to connect to SMB tree                        | <i>ditto</i>  | —   | —                        | —  |
| W    | CI       | 8407      | Unable to open/create SMB file                       | <i>ditto</i>  | —   | —                        | —  |
| W    | CI       | 8408      | Unable to write SMB                                  | <i>ditto</i>  | —   | —                        | —  |
| W    | CI       | 8409      | Unable to close SMB file                             | <i>ditto</i>  | —   | —                        | —  |
| W    | CI       | 840A      | Unable to disconnect from SMB tree                   | <i>ditto</i>  | —   | —                        | —  |
| W    | CI       | 840B      | Unable to open SMB session handle                    | <i>ditto</i>  | —   | —                        | —  |
| W    | CI       | 840C      | Unable to disconnect from NBT session                | <i>ditto</i>  | —   | —                        | —  |
| W    | CI       | 840D      | Connection parameter error                           | <i>ditto</i>  | —   | —                        | —  |
| W    | CI       | 840E      | Output parameter error                               | - Restart the printer.<br>- Check SMB/CIFS settings.<br>- Upgrade the firmware to the latest. | —   | —                        | <b>User's Manual for Basic Printer Operation.</b><br><b>User's Manual for Multifunction Printer Operation.</b> |
| W    | CI       | 840F      | Parameter error                                      | <i>ditto</i>  | —   | —                        | <b>User's Manual for Basic Printer Operation.</b><br><b>User's Manual for Multifunction Printer Operation.</b> |
| W    | EL       | 4002      | Unable to perform pipe lead                          | - Restart the printer.<br>- Upgrade the firmware to the latest.                               | —   | —                        | —  |
| W    | EL       | 4003      | Small size of pipe lead message                      | <i>ditto</i>  | —   | —                        | —  |
| W    | EL       | 4004      | Size of pipe lead message does not match the command | <i>ditto</i>  | —   | —                        | —  |
| W    | EL       | 4005      | Undefined message command read from the pipe         | <i>ditto</i>  | —   | —                        | —  |



| Type | Category | Error No. | Cause  | User Solution   | Service Engineer Inspection<br>(For inspection criteria, see Reference to Check/Replace Parts.) | Assumed Replacement Part | Reference to Check/Replace Parts |
|------|----------|-----------|--|---|---|--------------------------|----------------------------------|
| W    | EL       | 5012      | Regenerated error log generation                   | - Restart the printer.<br>- Upgrade the firmware to the latest. | —   | —                        | —                                |
| W    | FT       | 9500      | FTP connection failure                             |   |   |                          |                                  |
| W    | FT       | 9501      | FTP login failure                                  |   |   |                          |                                  |
| W    | FT       | 9502      | FTP binary mode failure                            |   |   |                          |                                  |
| W    | FT       | 9503      | FTP directory move failure                         |   |   |                          |                                  |
| W    | FT       | 9504      | FTP port failure                                   |   |   |                          |                                  |
| W    | FT       | 9505      | FTP passive failure                                |   |   |                          |                                  |
| W    | FT       | 9506      | Unable to acquire FTP file list                    |   |   |                          |                                  |
| W    | FT       | 9507      | FTP upload failure                                 |   |   |                          |                                  |
| W    | FT       | 9508      | Unable to connect to FTP data                      |   |   |                          |                                  |
| W    | FT       | 9509      | Unable to send FTP data                            |   |   |                          |                                  |
| W    | HT       | 9101      | accept function return value error                 | - Restart the printer.<br>- Upgrade the firmware to the latest. | Check PCB-ASSY-ARC.   | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | HT       | 9102      | socket function return value error                 | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | HT       | 9103      | bind function return value error                   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | HT       | 9104      | listen function return value error                 | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | HT       | 2B00      | Unable to open httpd.cnf                           | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | HT       | 2B01      | Resource file opening error                        | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | IC       | C001      | IC card reader is inserted                         |   |   |                          |                                  |
| W    | IC       | C002      | IC card reader is removed                          |   |   |                          |                                  |
| W    | IC       | 9201      | Communication error with IC card reader            |   |   |                          |                                  |
| W    | IN       | 1001      | Module start error (EEPROM driver)                 | - Restart the printer.<br>- Upgrade the firmware to the latest. | Check PCB-ASSY-ARC.   | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | IN       | 1002      | Module start error (printer image transfer driver) | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | IN       | 1003      | Module start error (hardware button driver)        | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | IN       | 1004      | Module start error (scanner SIO driver)            | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | IN       | 1005      | Module start error (scanner image transfer driver) | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | IN       | 1006      | Module start error (JPEG driver)                   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | IN       | 1007      | Module start error (engine control related driver) | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | IN       | 1011      | Module start error (trace library)                 | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | IN       | 1012      | Module start error (EEPROM library)                | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | IN       | 1013      | Module start error (HDD configuration library)     | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | IN       | 1014      | Module start error (system environment library)    | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | IN       | 1015      | Module start error (virtual page disk library)     | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | IN       | 1016      | Module start error (virtual library)               | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | IN       | 1017      | Module start error (memory library)                | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | IN       | 1018      | Module start error (spool library)                 | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | IN       | 1019      | Module start error (upgrade library)               | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | IN       | 101A      | Module start error (serial number check library)   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |

## Chapter 4 Controller Problems Troubleshooting

| Type | Category | Error No. | Cause  | User Solution   | Service Engineer Inspection<br>(For inspection criteria, see Reference to Check/Replace Parts.) | Assumed Replacement Part                | Reference to Check/Replace Parts  |
|------|----------|-----------|--|---|---|---|-----------------------------------|
| W    | IN       | 101B      | Module start error (status library)              | - Restart the printer.<br>- Upgrade the firmware to the latest. | Check PCB-ASSY-ARC.   | PCB-ASSY-ARC                            | P. 9-56                           |
| W    | IN       | 101C      | Module start error (error log library)           | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 9-56                           |
| W    | IN       | 101D      | Module start error (job log library)             | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 9-56                           |
| W    | IN       | 101E      | Module start error (setup library)               | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 9-56                           |
| W    | IN       | 101F      | Module start error (network settings library)    | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 9-56                           |
| W    | IN       | 1020      | Module start error (authentication log library)  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 9-56                           |
| W    | IN       | 1021      | Module start error (user information library)    | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 9-56                           |
| W    | IN       | 1031      | Module start error (timer task)                  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 9-56                           |
| W    | IN       | 1032      | Module start error (operation task)              | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 9-56                           |
| W    | IN       | 1033      | Module start error (panel task)                  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 9-56                           |
| W    | IN       | 1034      | Module start error (PM task)                     | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 9-56                           |
| W    | IN       | 1035      | Module start error (job task)                    | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 9-56                           |
| W    | IN       | 1036      | Module start error (network task)                | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 9-56                           |
| W    | IN       | 1037      | Module start error (spool task)                  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 9-56                           |
| W    | IN       | 1038      | Module start error (output main task)            | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 9-56                           |
| W    | IN       | 1039      | Module start error (engine control related task) | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 9-56                           |
| W    | IN       | 103A      | Module start error (scanner driver task)         | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 9-56                           |
| W    | IN       | 103B      | Module start error (printer driver task)         | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 9-56                           |
| W    | IN       | 103C      | Module start error (remote task)                 | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 9-56                           |
| W    | IN       | 103D      | Module start error (scan task)                   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 9-56                           |
| W    | IN       | 103E      | Module start error (PDL main task)               | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 9-56                           |
| W    | IN       | 103F      | Module start error (local print task)            | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 9-56                           |
| W    | IN       | 1040      | Module start error (upgrade task)                | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                            | P. 9-56                           |
| W    | IN       | 2300      | HDD error (partition rebuilding)                 | <i>ditto</i>  | - Check SATA cable.<br>- Check PCB-ASSY-ARC.  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | P. 4-35 (5)<br>P. 9-59<br>P. 9-56 |
| W    | IN       | 2301      | Setup rebuilding                                 | <i>ditto</i>  | <i>ditto</i>  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | P. 4-35 (5)<br>P. 9-59<br>P. 9-56 |
| W    | IN       | 2302      | Error log file rebuilding                        | <i>ditto</i>  | <i>ditto</i>  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | P. 4-35 (5)<br>P. 9-59<br>P. 9-56 |
| W    | IN       | 2303      | Job log file rebuilding                          | <i>ditto</i>  | <i>ditto</i>  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | P. 4-35 (5)<br>P. 9-59<br>P. 9-56 |
| W    | IN       | 2304      | Initial setting applied for setup limit exceeded | <i>ditto</i>  | Check SATA cable.   | - HDD<br>- SATA cable                   | P. 4-35 (5)<br>P. 9-59<br>P. 9-56 |
| W    | IN       | 2310      | HDD error (folder rebuilding)                    | <i>ditto</i>  | - Check SATA cable.<br>- Check PCB-ASSY-ARC.  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | P. 4-35 (5)<br>P. 9-59<br>P. 9-56 |
| W    | IN       | 2312      | Spool partition formatting                       | <i>ditto</i>  | <i>ditto</i>  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | P. 4-35 (5)<br>P. 9-59<br>P. 9-56 |
| W    | IN       | 2313      | Other partition formatting                       | <i>ditto</i>  | <i>ditto</i>  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | P. 4-35 (5)<br>P. 9-59<br>P. 9-56 |
| W    | IN       | 2314      | Setup partition formatting                       | <i>ditto</i>  | <i>ditto</i>  | - HDD<br>- SATA cable<br>- PCB-ASSY-ARC | P. 4-35 (5)<br>P. 9-59<br>P. 9-56 |

| Type | Category | Error No. | Cause  | User Solution  | Service Engineer Inspection<br>(For inspection criteria, see Reference to Check/Replace Parts.) | Assumed Replacement Part | Reference to Check/Replace Parts |
|------|----------|-----------|--|--|---|--------------------------|----------------------------------|
| W    | IN       | 2315      | SMART information check error (HDD life near end)                                      | - Restart the printer.<br>- Upgrade the firmware to the latest.                    | Check SATA cable.   | - HDD<br>- SATA cable    | 📖 P. 4-35 (5)<br>📖 P. 9-59       |
| W    | IN       | 2400      | EEPROM rebuilding (all)  | Restart the printer.   | Check PCB-ASSY-ARC.   | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | IN       | 2401      | EEPROM rebuilding (RIP area only)  | ditto  | ditto   | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | IN       | C000      | Initialization process start<br>nnn: F/W system version—                               | —  | —   | —                        |                                  |
| W    | JB       | 4103      | The job has been deleted because an error occurred while synchronizing with the spool. | - Restart the printer.<br>- Upgrade the firmware to the latest.                    | Check PCB-ASSY-ARC.   | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | JB       | D001      | Deleted because of an overflow in authentication waiting jobs                          | —  | —   | —                        | —                                |
| W    | JB       | E002      | Internal error (incorrect virtual page ID)   | —  | —   | —                        | —                                |
| W    | JB       | E003      | Internal error (status mismatching event)  | —  | —   | —                        | —                                |
| W    | JB       | E005      | Internal error (unable to read job ID)   | —  | —   | —                        | —                                |
| W    | JB       | E008      | Internal error (incorrect job ID)  | —  | —   | —                        | —                                |
| W    | JB       | E00A      | Operation on a deleted job   | —  | —   | —                        | —                                |
| W    | JL       | 4002      | Unable to read from pipe   | - Restart the printer.<br>- Upgrade the firmware to the latest.                    | Check PCB-ASSY-ARC.   | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | JL       | 4003      | Size of the message read from the pipe is small  | ditto  | ditto   | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | JL       | 4004      | Size of message read from the pipe does not match the command                          | ditto  | ditto   | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | JL       | 4005      | Undefined message command read from the pipe   | ditto  | ditto   | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | JL       | 5012      | Regenerated job log generation   | ditto  | ditto   | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | JL       | C001      | Parameter error (jobCreate)  | ditto  | ditto   | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | JL       | C002      | Parameter error (jobGetInfo)   | ditto  | ditto   | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | JL       | C003      | Parameter error (jobGetInfoWithPage)   | ditto  | ditto   | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | JL       | C004      | Parameter error (jobGetTopPrioSts)   | ditto  | ditto   | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | JL       | C005      | Parameter error (jobGetDisplayInfo)  | ditto  | ditto   | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | JL       | C006      | Parameter error (jobSetInfo)   | ditto  | ditto   | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | JL       | C007      | Parameter error (jobSetInfoWithPage)   | ditto  | ditto   | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | JL       | C008      | Parameter error (jobEvent)   | ditto  | ditto   | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | LN       | 1201      | select error   | Restart the printer.   | ditto   | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | LN       | 1202      | Pipe reading error   | ditto  | ditto   | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | LN       | 1203      | Pipe writing error   | ditto  | ditto   | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | LN       | 1301      | XPT socket generation error  | ditto  | ditto   | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | LN       | 1302      | XPT socket bind error  | ditto  | ditto   | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | LN       | 1303      | XPT socket listen error  | ditto  | ditto   | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | LN       | 1304      | XPT socket accept error  | ditto  | ditto   | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | LN       | 1305      | XPT remote address acquisition error   | ditto  | ditto   | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | LN       | 1306      | XPT setsockopt error   | ditto  | ditto   | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | LN       | 1307      | XPT socket Read error  | - Check connection cable.<br>- Check printer driver.<br>- Check network condition. | ditto   | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | LN       | 1308      | XPT socket Write error   | ditto  | ditto   | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | LN       | 1311      | LPR socket generation error  | Restart the printer.   | ditto   | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | LN       | 1312      | LPR socket bind error  | ditto  | ditto   | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | LN       | 1313      | LPR socket listen error  | Restart the printer.   | Check PCB-ASSY-ARC.   | PCB-ASSY-ARC             | 📖 P. 9-56                        |

## Chapter 4 Controller Problems Troubleshooting

| Type | Category | Error No. | Cause   | User Solution   | Service Engineer Inspection<br>(For inspection criteria, see Reference to Check/Replace Parts.) | Assumed Replacement Part | Reference to Check/Replace Parts |
|------|----------|-----------|---|---|---|--------------------------|----------------------------------|
| W    | LN       | 1314      | LPR socket accept error   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | LN       | 1315      | LPR remote address acquisition error                                      | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | LN       | 1316      | LPR setsockopt error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | LN       | 1317      | LPR socket Read error   | - Check connection cable.<br>- Check printer driver.<br>- Check network condition.  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | LN       | 1318      | LPR socket Write error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | LN       | 1321      | FTP server socket generation error  | Restart the printer.  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | LN       | 1322      | FTP server socket bind error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | LN       | 1323      | FTP server socket listen error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | LN       | 1324      | FTP server socket accept error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | LN       | 1325      | FTP data socket generation error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | LN       | 1326      | FTP data socket bind error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | LN       | 1327      | FTP data socket connect error   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | LN       | 1328      | FTP data socket connect timeout   | - Check connection cable.<br>- Check printer driver.<br>- Check network condition.  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | LN       | 1329      | FTP data socket connect refused   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | LN       | 132A      | FTP control socket Read error   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | LN       | 132B      | FTP control socket Write error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | LN       | 132C      | FTP data socket Read error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | LN       | 132D      | FTP data socket Write error   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | LN       | 132E      | FTP remote address acquisition error                                      | Restart the printer.  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | LN       | 132F      | FTP setsockopt error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | LN       | 1401      | FTP file open error   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | LN       | 1402      | FTP file read error   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | LN       | 1403      | FTP file write error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | LN       | 4101      | Error with job library (jobGetDisplayInfo)                                | - Restart the printer.<br>- Upgrade the firmware to the latest.                     | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | LN       | 6001      | Setup reading error   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | LN       | 6002      | Setup value error   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | LN       | 6011      | Memory block acquisition error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | LN       | 8001      | XPT port number overlap   | Check the printer settings.   | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | LN       | 8081      | XPT reception timeout   | - Check printer driver.<br>- Check network condition.<br>- Check application.       | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | LN       | 8101      | XPT port number overlap   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | LN       | 8102      | XPT reception timeout   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | LN       | 8103      | LPR parameter line format error   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | LN       | 8104      | LPR parameter error (size)  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | LN       | 8105      | LPR parameter error (host name)   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | LN       | 8181      | LPR reception timeout   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | LN       | 8201      | Login operation with user name, <b>downloading</b> and incorrect password | <i>ditto</i>  | —   | —                        | —                                |
| W    | LN       | 8202      | Login operation with user name, <b>service</b> and incorrect password     | <i>ditto</i>  | —   | —                        | —                                |
| W    | LN       | 8203      | Login operation with unknown user name                                    | <i>ditto</i>  | —   | —                        | —                                |
| W    | LN       | 8204      | Incorrect FTP password  | <i>ditto</i>  | —   | —                        | —                                |
| W    | LN       | 8205      | Successful login operation to the port for maintenance                    | - Check condition of the host computer which sent the data.<br>- Check application. | —   | —                        | —                                |

| Type | Category | Error No. | Cause  | User Solution   | Service Engineer Inspection<br>(For inspection criteria, see Reference to Check/Replace Parts.) | Assumed Replacement Part | Reference to Check/Replace Parts |
|------|----------|-----------|--|---|---|--------------------------|----------------------------------|
| W    | LN       | 8211      | FTP command format error                                 | <i>ditto</i>  | - Check error log.<br>- Check transmission software.  | —                        | —                                |
| W    | LN       | 8212      | Unknown command received by FTP                          | <i>ditto</i>  | <i>ditto</i>  | —                        | —                                |
| W    | LN       | 8221      | FTP command parameter error (PORT)                       | <i>ditto</i>  | <i>ditto</i>  | —                        | —                                |
| W    | LN       | 8222      | FTP command parameter error (TYPE)                       | <i>ditto</i>  | <i>ditto</i>  | —                        | —                                |
| W    | LN       | 8223      | FTP command parameter error (RETR)                       | <i>ditto</i>  | <i>ditto</i>  | —                        | —                                |
| W    | LN       | 8224      | FTP command parameter error (STOR)                       | <i>ditto</i>  | <i>ditto</i>  | —                        | —                                |
| W    | LN       | 8225      | FTP command parameter error (DELE)                       | <i>ditto</i>  | <i>ditto</i>  | —                        | —                                |
| W    | LN       | 8226      | FTP command parameter error (CWD)                        | <i>ditto</i>  | <i>ditto</i>  | —                        | —                                |
| W    | LN       | 8227      | FTP command parameter error (LIST)                       | <i>ditto</i>  | <i>ditto</i>  | —                        | —                                |
| W    | LN       | 8228      | FTP command parameter error (RNFR)                       | <i>ditto</i>  | <i>ditto</i>  | —                        | —                                |
| W    | LN       | 8229      | FTP command parameter error (RNT0)                       | <i>ditto</i>  | <i>ditto</i>  | —                        | —                                |
| W    | LN       | 822A      | FTP command parameter error (MKD)                        | - Check printer driver.<br>- Check network condition.<br>- Check application.   | - Check error log.<br>- Check transmission software.  | —                        | —                                |
| W    | LN       | 822B      | FTP command parameter error (RMD)                        | <i>ditto</i>  | <i>ditto</i>  | —                        | —                                |
| W    | LN       | 8281      | FTP reception timeout                                    | - Check printer driver.<br>- Check network condition.<br>- Check application on the host computer.<br>- Check LAN connection cable.               | Check PCB-ASSY-ARC.   | PCB-ASSY-ARC             | P. 9-56                          |
| W    | LN       | 8282      | FTP control connection reset                             | - Check printer driver.<br>- Check network condition.<br>- Check application.   | - Check error log.<br>- Check transmission software.  | —                        | —                                |
| W    | LN       | 8301      | During data reception, the connection was forcibly cut.  | <i>ditto</i>  | <i>ditto</i>  | —                        | —                                |
| W    | LN       | C001      | Unable to open warning light driver                      | - Restart the printer.<br>- Upgrade the firmware to the latest.   | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| W    | LN       | C011      | FTP reception timeout                                    | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| W    | LT       | 2D01      | FTP control connection reset                             | - Check the warning light model number to confirm it is a recommended product.<br>- Check the serial cables connection.<br>- Restart the Printer. | <i>ditto</i>  | PCB-ASSY-ARC             | P. 4-34 (1)<br>P. 9-56           |
| W    | LT       | 2D02      | NAK reception from warning light                         | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC             | P. 4-34 (1)<br>P. 9-56           |
| W    | ML       | 8700      | SMTP server not configured                               | Check SMTP server address.  | Check SMTP server address.  | —                        | —                                |
| W    | ML       | 8701      | SMTP server connection error (insufficient rights)       | Check mail settings.  | Check mail settings.  | —                        | —                                |
| W    | ML       | 8709      | SMTP server connection error (destination invalid)       | Check SMTP server settings.   | Check SMTP server settings.   | —                        | —                                |
| W    | ML       | 870B      | SMTP server connection error (no usable port)            | - Restart the printer.<br>- Upgrade the firmware to the latest.   | Check PCB-ASSY-ARC.   | PCB-ASSY-ARC             | P. 4-34 (1)<br>P. 9-56           |
| W    | ML       | 870D      | SMTP server connection error (insufficient rights)       | - Check printer-side mail settings.<br>- Check SMTP-side mail settings.   | - Check printer-side mail settings.<br>- Check SMTP-side mail settings.                         | —                        | —                                |
| W    | ML       | 8720      | SMTP server connection error (IP address already in use) | Check IP address settings.  | Check IP address settings.  | —                        | —                                |
| W    | ML       | 8721      | SMTP server connection error (timeout)                   | Check SMTP server settings.   | Check SMTP server settings.   | —                        | —                                |
| W    | ML       | 8722      | SMTP server connection error (connection refused)        | Check SMTP server settings.   | Check SMTP server settings.   | —                        | —                                |

## Chapter 4 Controller Problems Troubleshooting

| Type | Category | Error No. | Cause   | User Solution                  | Service Engineer Inspection<br>(For inspection criteria, see Reference to Check/Replace Parts.) | Assumed Replacement Part | Reference to Check/Replace Parts |
|------|----------|-----------|---|--------------------------------|---|--------------------------|----------------------------------|
| W    | ML       | 8730      | SMTP server protocol error (initialization process)                         | <i>ditto</i>                   | <i>ditto</i>  | —                        | —                                |
| W    | ML       | 8731      | SMTP server protocol error (socket process)                                 | <i>ditto</i>                   | <i>ditto</i>  | —                        | —                                |
| W    | ML       | 8732      | SMTP server protocol error (connect process)                                | <i>ditto</i>                   | <i>ditto</i>  | —                        | —                                |
| W    | ML       | 8733      | SMTP server protocol error (connection authorization and HELO process)      | <i>ditto</i>                   | <i>ditto</i>  | —                        | —                                |
| W    | ML       | 8734      | SMTP server protocol error (HELO authorization and MAIL process)            | <i>ditto</i>                   | <i>ditto</i>  | —                        | —                                |
| W    | ML       | 8735      | SMTP server protocol error (MAIL authorization and RCPT process)            | <i>ditto</i>                   | <i>ditto</i>  | —                        | —                                |
| W    | ML       | 8736      | SMTP server protocol error (RCPT authorization and CC or DATA process)      | <i>ditto</i>                   | <i>ditto</i>  | —                        | —                                |
| W    | ML       | 8737      | SMTP server protocol error (CC authorization and DATA process)              | <i>ditto</i>                   | <i>ditto</i>  | —                        | —                                |
| W    | ML       | 8738      | SMTP server protocol error (DATA authorization and data sending process)    | <i>ditto</i>                   | <i>ditto</i>  | —                        | —                                |
| W    | ML       | 8739      | SMTP server protocol error (data sending complete and QUIT process)         | <i>ditto</i>                   | <i>ditto</i>  | —                        | —                                |
| W    | ML       | 873A      | SMTP server protocol error (QUIT permission process)                        | Check SMTP-side mail settings. | Check SMTP-side mail settings.  | —                        | —                                |
| W    | ML       | 873B      | SMTP server protocol error (END authorization process)                      | <i>ditto</i>                   | <i>ditto</i>  | —                        | —                                |
| W    | ML       | 8741      | SMTP server protocol error (connection authorization and EHLO process)      | Check SMTP server settings.    | Check SMTP server settings.   | —                        | —                                |
| W    | ML       | 8751      | SMTP server protocol error (EHLO authorization and AUTH process)            | <i>ditto</i>                   | <i>ditto</i>  | —                        | —                                |
| W    | ML       | 8752      | SMTP server protocol error (plain text authentication process)              | <i>ditto</i>                   | <i>ditto</i>  | —                        | —                                |
| W    | ML       | 8753      | SMTP server protocol error (authentication authorization and MAIL process)  | <i>ditto</i>                   | <i>ditto</i>  | —                        | —                                |
| W    | ML       | 8761      | SMTP server protocol error (login authentication and ID sending process)    | <i>ditto</i>                   | <i>ditto</i>  | —                        | —                                |
| W    | ML       | 8762      | SMTP server protocol error (ID authentication and password sending process) | <i>ditto</i>                   | <i>ditto</i>  | —                        | —                                |

| Type | Category | Error No. | Cause   | User Solution   | Service Engineer Inspection<br>(For inspection criteria, see Reference to Check/Replace Parts.) | Assumed Replacement Part | Reference to Check/Replace Parts |
|------|----------|-----------|---|---|---|--------------------------|----------------------------------|
| W    | ML       | 8763      | SMTP server protocol error (password authentication and MAIL process)   | Check SMTP server settings.   | Check SMTP server settings.   | —                        | —                                |
| W    | ML       | 8771      | SMTP server protocol error (MD5 authentication and response process)  | ditto   | ditto   | —                        | —                                |
| W    | ML       | 8772      | SMTP server protocol error (MD5MAIL process)  | ditto   | ditto   | —                        | —                                |
| W    | ML       | 8780      | Program failure (parameter characters overflow)   | - Restart the printer.<br>- Upgrade the firmware to the latest.                                     | Check PCB-ASSY-ARC.   | PCB-ASSY-ARC             | P. 9-56                          |
| W    | ML       | 8781      | Program failure (select timeout)  | ditto   | ditto   | PCB-ASSY-ARC             | P. 9-56                          |
| W    | ML       | 8782      | Program failure (select error)  | ditto   | ditto   | PCB-ASSY-ARC             | P. 9-56                          |
| W    | ML       | 8783      | Program failure (read error)  | ditto   | ditto   | PCB-ASSY-ARC             | P. 9-56                          |
| W    | OM       | 4600      | MYKselect has returned an error during message reception  | ditto   | ditto   | PCB-ASSY-ARC             | P. 9-56                          |
| W    | OM       | 4610      | MYKselect has returned an error during message sending  | ditto   | ditto   | PCB-ASSY-ARC             | P. 9-56                          |
| W    | OM       | 4700      | MYKrcvInterface has returned an error during message reception from JOB   | ditto   | ditto   | PCB-ASSY-ARC             | P. 9-56                          |
| W    | OM       | 4710      | MYKrcvInterface has returned an error during message reception from PM  | ditto   | ditto   | PCB-ASSY-ARC             | P. 9-56                          |
| W    | OM       | 4720      | MYKrcvInterface has returned an error during message reception from print task  | ditto   | ditto   | PCB-ASSY-ARC             | P. 9-56                          |
| W    | OM       | 4730      | MYKrcvInterface has returned an error during message reception from external print task   | ditto   | ditto   | PCB-ASSY-ARC             | P. 9-56                          |
| W    | OM       | 4740      | MYKrcvInterface has returned an error during message reception from CIFS task   | ditto   | ditto   | PCB-ASSY-ARC             | P. 9-56                          |
| W    | OM       | 4750      | MYKrcvInterface has returned an error during message reception from TWAIN task  | ditto   | ditto   | PCB-ASSY-ARC             | P. 9-56                          |
| W    | OM       | 4800      | MYKsndInterface has returned an error during message sending  | ditto   | ditto   | PCB-ASSY-ARC             | P. 9-56                          |
| W    | OP       | EF00      | Job ID mismatch<br>Occurs when the status of a job displayed on the job operation screen is updated, and the correct job could not be controlled. | —   | —   | —                        | —                                |
| W    | OP       | EF01      | Printer's time setting was attempted.   | —   | —   | —                        | —                                |
| W    | OP       | EF02      | Printer's time setting was changed successfully.  | —   | —   | —                        | —                                |
| W    | OP       | EF03      | Unable to change the printer's time setting.  | —   | —   | —                        | —                                |
| W    | PD       | A300      | A problem was found with the D-SCAN format.   | Analyze the data dumped with the error message. Then on the computer correct the error of the data. | —   | —                        | —                                |
| W    | PD       | A401      | An unsupported HP-GL or HP-GL/2 command was received.   | On the computer correct the error.  | —   | —                        | —                                |
| W    | PD       | A402      | An incorrect number of parameters was passed to a HP-GL or HP-GL/2 command.   | ditto   | —   | —                        | —                                |

## Chapter 4 Controller Problems Troubleshooting

| Type | Category | Error No. | Cause  | User Solution  | Service Engineer Inspection<br>(For inspection criteria, see Reference to Check/Replace Parts.) | Assumed Replacement Part | Reference to Check/Replace Parts |
|------|----------|-----------|--|--|---|--------------------------|----------------------------------|
| W    | PD       | A403      | The Printer received:<br>- A print command exceeding the supported range of the HP-GL or HP-GL/2 command parameters; or<br>- A print command that used a character or characters not allowed in parameters | On the computer correct the error.   | —   | —                        | —                                |
| W    | PD       | A405      | An unsupported HP-GL or HP-GL/2 character set command was received.  | <i>ditto</i>   | —   | —                        | —                                |
| W    | PD       | A407      | A polygon buffer size overflow error occurred.   | <i>ditto</i>   | —   | —                        | —                                |
| W    | PD       | A408      | No valid print data was found in the HP-GL command, so the data was discarded.   | On the computer check that valid drawing data is transmitted.  | —   | —                        | —                                |
| W    | PD       | A500      | A large number of patterns were registered to a single drawing and an overflow has occurred in the pattern memory.   | On the computer decrease the data with pattern registered on a drawing.  | —   | —                        | —                                |
| W    | PD       | A501      | A large number of hatches were registered to a single drawing and the pattern memory has overflowed.   | On the computer decrease the data with hatching on a drawing.  | —   | —                        | —                                |
| W    | PD       | A502      | There is a large number of external characters in the D-SCAN format data and the external character memory has overflowed.   | On the computer decrease the data with end-user-defined characters.<br>Note: This error does not occur with LP-2050. | —   | —                        | —                                |
| W    | PD       | A503      | There is no free memory area for HP-GL user registration characters.   | Decrease the number of the end-user-defined characters, or correct the characters to decrease their data size.       | —   | —                        | —                                |
| W    | PD       | A504      | The drawing contains a large amount of data and an overflow has occurred in the VMS memory.  | Decrease the data size of one drawing.<br>Note: This error does not occur with LP-2050.                              | —   | —                        | —                                |
| W    | PD       | A505      | The spool memory has overflowed.   | When the Centering is set to <b>On</b> , change to <b>Off</b> .  | —   | —                        | —                                |
| W    | PD       | A506      | A polygon buffer size overflow error occurred.   | On the computer correct the error.<br>Note: The polygon buffer capacity is 106600 at maximum.                        | —   | —                        | —                                |
| W    | PD       | A507      | Program warning  | If the error may be reproduced and cause problem on the printout, upgrade the firmware to the latest.                | Check PCB-ASSY-ARC.   | PCB-ASSY-ARC             | P. 9-56                          |
| W    | PD       | A508      | Program warning  | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| W    | PD       | A509      | Program warning  | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| W    | PD       | A50A      | Program warning  | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| W    | PD       | A50B      | Program warning  | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| W    | PD       | A50C      | Program warning  | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| W    | PD       | A50D      | Program warning  | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| W    | PD       | A50E      | Program warning  | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| W    | PD       | A50F      | Program warning  | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| W    | PD       | A510      | Program warning  | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| W    | PD       | A511      | Program warning  | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| W    | PD       | A512      | Program warning  | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| W    | PD       | A513      | Program warning  | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC             | P. 9-56                          |
| W    | PD       | A514      | Data has been discarded because there is no valid data on the paper.   | On the computer check that valid drawing data is transmitted.  | —   | —                        | —                                |
| W    | PD       | A600      | Error in the compressed raster data format   | On the computer check that the compressed raster data format is correct.   | —   | —                        | —                                |



| Type | Category | Error No. | Cause   | User Solution   | Service Engineer Inspection<br>(For inspection criteria, see Reference to Check/Replace Parts.) | Assumed Replacement Part            | Reference to Check/Replace Parts  |
|------|----------|-----------|---|---|---|-------------------------------------|-----------------------------------|
| W    | PD       | A601      | No raster data of the size specified by the data  | On the computer check that the data is correct.   | —   | —                                   | —                                 |
| W    | PD       | A700      | Controller internal format error  | If the error may be reproduced and cause problem on the printout, upgrade the firmware to the latest. | Check PCB-ASSY-ARC.   | PCB-ASSY-ARC                        | P. 9-56                           |
| W    | PD       | A701      | Controller internal format error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                        | P. 9-56                           |
| W    | PD       | A702      | Controller internal format error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                        | P. 9-56                           |
| W    | PD       | A703      | Controller internal format error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                        | P. 9-56                           |
| W    | PD       | A704      | Controller internal format error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                        | P. 9-56                           |
| W    | PD       | A705      | Controller internal format error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                        | P. 9-56                           |
| W    | PD       | A800      | A problem was found with the TIFF data. Or, a required tag is missing and therefore the data cannot be printed. | On the computer correct the error.  | —   | —                                   | —                                 |
| W    | PD       | A801      | The number of parameters for a tag or tags in the TIFF data is incorrect.                                       | <i>ditto</i>  | —   | —                                   | —                                 |
| W    | PD       | A802      | The value of a tag parameter in the TIFF data exceeds the supported range.                                      | <i>ditto</i>  | —   | —                                   | —                                 |
| W    | PD       | A803      | No valid print data was found in the TIFF data so the data was discarded.                                       | On the computer check that valid drawing data is transmitted.   | —   | —                                   | —                                 |
| W    | PD       | A900      | A required record for CALS format data is missing and therefore the data cannot be printed.                     | On the computer correct the error.  | —   | —                                   | —                                 |
| W    | PM       | 2300      | HDD format execution  | - Restart the printer.<br>- Upgrade the firmware to the latest.                                       | - Check SATA cable.<br>- Check PCB-ASSY-ARC.  | - HDD<br>- PCB-ASSY-ARC             | P. 4-36 (9)<br>P. 9-56<br>P. 9-59 |
| W    | PM       | 2313      | Administrator registration information access error   | <i>ditto</i>  | Check PCB-ASSY-ARC.   | PCB-ASSY-ARC                        | P. 9-56                           |
| W    | PM       | 4001      | Job information in the printer was deleted.   | —   | —   | —                                   | —                                 |
| W    | PM       | 7E01      | Default setting execution   | - Restart the printer.<br>- Upgrade the firmware to the latest.                                       | - Check SATA cable.<br>- Check EEPROM.<br>- Check PCB-ASSY-ARC.                                 | - HDD<br>- EEPROM<br>- PCB-ASSY-ARC | P. 4-36 (9)<br>P. 9-56<br>P. 9-59 |
| W    | PM       | 7E02      | Device initialization execution   | <i>ditto</i>  | <i>ditto</i>  | - HDD<br>- EEPROM<br>- PCB-ASSY-ARC | P. 4-36 (9)<br>P. 9-56<br>P. 9-59 |
| W    | PM       | 7E03      | Engine parameter saving   |   |   |                                     |                                   |
| W    | PM       | 7E04      | Engine parameter initialization   |   |   |                                     |                                   |
| W    | PM       | B800      | Non-authenticated login   | - Restart the printer.<br>- Upgrade the firmware to the latest.                                       | Check PCB-ASSY-ARC.   | PCB-ASSY-ARC                        | P. 9-56                           |
| W    | PM       | C100      | Internal communication parameter error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                        | P. 9-56                           |
| W    | PM       | C200      | Status mismatch   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                        | P. 9-56                           |
| W    | PM       | C300      | Internal process parameter error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                        | P. 9-56                           |
| W    | PM       | C401      | Printer entered power save mode.  | —   | —   | —                                   | —                                 |
| W    | PM       | C402      | Printer returned from power save mode.  | —   | —   | —                                   | —                                 |
| W    | PM       | C403      | Printer was restarted artificially.   | —   | —   | —                                   | —                                 |
| W    | PM       | C404      | Printer was restarted with no artificial operation.   | If the problem occurs frequently, upgrade the firmware to the latest.                                 | Check PCB-ASSY-ARC.   | PCB-ASSY-ARC                        | P. 9-56                           |
| W    | PM       | C405      | Printer power was turned off.   | —   | —   | —                                   | —                                 |

## Chapter 4 Controller Problems Troubleshooting

| Type | Category | Error No. | Cause  | User Solution   | Service Engineer Inspection<br>(For inspection criteria, see Reference to Check/Replace Parts.) | Assumed Replacement Part                    | Reference to Check/Replace Parts             |
|------|----------|-----------|--|---|---|---|--|
| W    | PM       | C406      | With no artificial operation, printer power was turned off automatically.  | If the problem occurs frequently, upgrade the firmware to the latest. | Check PCB-ASSY-ARC.   | PCB-ASSY-ARC                                | 📖 P. 9-56                                    |
| W    | PM       | C407      | Device restart   |   |   |   |  |
| W    | PN       | 2600      | The panel is not connected. Occurs when no response is received for a panel initialization command. (in panel task)              | If the problem occurs frequently, upgrade the firmware to the latest. | - Check CBL-PNL.<br>- Check PCB-ASSY-ARC.   | - CBL-PNL<br>- PANEL ASSY<br>- PCB-ASSY-ARC | 📖 P. 4-34 (1)<br>📖 P. 4-36 (11)<br>📖 P. 9-56 |
| W    | PN       | 2610      | Undefined command reception Occurs when an undefined command has been received from the panel. (in panel task)                   | <i>ditto</i>  | <i>ditto</i>  | - CBL-PNL<br>- PANEL ASSY<br>- PCB-ASSY-ARC | 📖 P. 4-34 (1)<br>📖 P. 4-36 (11)<br>📖 P. 9-56 |
| W    | PN       | 2620      | The command has been resent because there was no response for the command from the panel for a specified time. (in panel driver) | <i>ditto</i>  | <i>ditto</i>  | - CBL-PNL<br>- PANEL ASSY<br>- PCB-ASSY-ARC | 📖 P. 4-34 (1)<br>📖 P. 4-36 (11)<br>📖 P. 9-56 |
| W    | PN       | 2630      | The command has been discarded because the command from the panel suddenly expired. (in panel driver)                            | <i>ditto</i>  | <i>ditto</i>  | - CBL-PNL<br>- PANEL ASSY<br>- PCB-ASSY-ARC | 📖 P. 4-34 (1)<br>📖 P. 4-36 (11)<br>📖 P. 9-56 |
| W    | PN       | 2640      | The command from the panel has been discarded because of a parent pipe overflow. (in panel driver)                               | <i>ditto</i>  | Check PCB-ASSY-ARC.   | PCB-ASSY-ARC                                | 📖 P. 9-56                                    |
| W    | PN       | 2650      | Hardware button entry response error (in panel task)   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                                | 📖 P. 9-56                                    |
| W    | PN       | C000      | Undefined command reception Occurs when an undefined command has been received from operation. (in panel task)                   | <i>ditto</i>  | - Check CBL-PNL.<br>- Check PCB-ASSY-ARC.   | - CBL-PNL<br>- PANEL ASSY<br>- PCB-ASSY-ARC | 📖 P. 4-34 (1)<br>📖 P. 4-36 (11)<br>📖 P. 9-56 |
| W    | RM       | 2B01      | Resource file opening error  | <i>ditto</i>  | Check PCB-ASSY-ARC.   | PCB-ASSY-ARC                                | 📖 P. 9-56                                    |
| W    | RM       | EF01      | Printer's time setting was attempted.  | —   | —   | —   | —  |
| W    | RM       | EF02      | Printer's time setting was changed successfully.   | —   | —   | —   | —  |
| W    | RM       | EF03      | Unable to change the printer's time setting.   | —   | —   | —   | —  |
| W    | SG       | 2300      | Late image disk writing  | - Restart the printer.<br>- Upgrade the firmware to the latest.       | Check PCB-ASSY-ARC.   | PCB-ASSY-ARC                                | 📖 P. 9-56                                    |
| W    | SN       | 6000      | Setup access error   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                                | 📖 P. 9-56                                    |
| W    | SN       | 8810      | The size of the received message is smaller than the message header.   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                                | 📖 P. 9-56                                    |
| W    | SN       | 8820      | Message received while SNMP task has not started.  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                                | 📖 P. 9-56                                    |
| W    | SN       | 8821      | CA command unknown by SNMP was received.   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                                | 📖 P. 9-56                                    |
| W    | SN       | C000      | MIB information build error  | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                                | 📖 P. 9-56                                    |
| W    | SN       | C010      | MIB information access error   | - Restart the printer.<br>- Upgrade the firmware to the latest.       | Check PCB-ASSY-ARC.   | PCB-ASSY-ARC                                | 📖 P. 9-56                                    |
| W    | SN       | C020      | Internal communication error   | <i>ditto</i>  | <i>ditto</i>  | PCB-ASSY-ARC                                | 📖 P. 9-56                                    |
| W    | SP       | 4101      | Unable to generate job   | —   | —   | —   | —  |
| W    | SP       | A001      | PJL entire size is too large   | Check the port settings.  | —   | —   | —  |

| Type | Category | Error No. | Cause   | User Solution  | Service Engineer Inspection<br>(For inspection criteria, see Reference to Check/Replace Parts.) | Assumed Replacement Part | Reference to Check/Replace Parts |
|------|----------|-----------|---|--|---|--------------------------|----------------------------------|
| W    | SP       | A002      | First line of PjL is too long   | - Restart the printer.<br>- Upgrade the firmware to the latest.<br>- Reinstall the printer driver. | - Check received data.<br>- Check PCB-ASSY-ARC.   | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | SP       | A003      | Incorrect PjL line head   | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | SP       | A004      | Incorrect PjL command type  | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | SP       | A005      | Incorrect PjL value type  | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | SP       | A006      | Incorrect PjL line format   | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | SP       | A007      | Incorrect PjL value   | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | SP       | A101      | No valid PDL in the port  | Change the printer's port settings and restart the printer.  | Check PCB-ASSY-ARC.   | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | SP       | A102      | Format automatic judgment failure   | Check the port settings.   | - Check received data.<br>- Check PCB-ASSY-ARC.   | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | SP       | A103      | Unsupported PDL (JPEG) was sent to the printer.   | Check the PDL sent to the printer.   | —   | —                        | —                                |
| W    | SP       | A104      | Unsupported PDL (PDF) was sent to the printer.  | <i>ditto</i>   | —   | —                        | —                                |
| W    | SP       | A110      | No valid PDL was found at port %d.  | <i>ditto</i>   | —   | —                        | —                                |
| W    | SP       | C001      | Spool area overflow state (print spool)   | —  | —   | —                        | —                                |
| W    | SP       | C002      | Spool area overflow (submission document spool)   | —  | —   | —                        | —                                |
| W    | SP       | C003      | Spool area overflow (PDTF spool)  | —  | —   | —                        | —                                |
| W    | SP       | C004      | Spool area overflow (TWAIN spool)   | —  | —   | —                        | —                                |
| W    | SP       | C005      | Spool area overflow (submission spool)  | —  | —   | —                        | —                                |
| W    | SP       | C006      | Spool area overflow (copy spool)  | —  | —   | —                        | —                                |
| W    | SP       | C011      | Spool area recovered from overflow state (print spool)                                  | —  | —   | —                        | —                                |
| W    | SP       | C012      | Spool area recovered from overflow state (submission document spool)                    | —  | —   | —                        | —                                |
| W    | SP       | C013      | Spool area recovered from overflow state (PDTF spool)                                   | —  | —   | —                        | —                                |
| W    | SP       | C014      | Spool area recovered from overflow state (TWAIN spool)                                  | —  | —   | —                        | —                                |
| W    | SP       | C015      | Spool area recovered from overflow state (submission spool)                             | —  | —   | —                        | —                                |
| W    | SP       | C016      | Spool area recovered from overflow state (copy spool)                                   | —  | —   | —                        | —                                |
| W    | SP       | C021      | Direct mode migration   | —  | —   | —                        | —                                |
| W    | SP       | C031      | No spool management file<br>The printer may not have been shut down properly last time. | —  | —   | —                        | —                                |
| W    | SP       | C032      | Spool management file abnormality   | —  | —   | —                        | —                                |
| W    | SP       | C041      | Because spool data could not be restored, one item of this data was deleted.            | —  | —   | —                        | —                                |
| W    | SP       | C042      | Spool data not supporting the job list was deleted                                      | —  | —   | —                        | —                                |
| W    | SP       | C801      | Internal warning<br>Incorrect real FD when closing                                      | —  | Check PCB-ASSY-ARC.   | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | SP       | C802      | Internal warning<br>Write in overflow state   | —  | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |

## Chapter 4 Controller Problems Troubleshooting

| Type | Category | Error No. | Cause   | User Solution  | Service Engineer Inspection<br>(For inspection criteria, see Reference to Check/Replace Parts.) | Assumed Replacement Part | Reference to Check/Replace Parts |
|------|----------|-----------|---|--|---|--------------------------|----------------------------------|
| W    | ST       | C000      | Function start (start process end)                        | —  | —   | —                        | —                                |
| W    | ST       | C001      | EEPROM corruption error                                   | —  | —   | —                        | —                                |
| W    | ST       | C002      | Setup corruption error                                    | —  | —   | —                        | —                                |
| W    | ST       | C003      | Model mismatch (printer)                                  | —  | —   | —                        | —                                |
| W    | ST       | C004      | Serial number entry                                       | —  | —   | —                        | —                                |
| W    | ST       | C005      | Language entry  | —  | —   | —                        | —                                |
| W    | ST       | C006      | IP address entry  | —  | —   | —                        | —                                |
| W    | ST       | C007      | Model mismatch (scanner)                                  | —  | —   | —                        | —                                |
| W    | TW       | 4000      | Fatal error when initializing communication between tasks | —  | Check PCB-ASSY-ARC.   | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | TW       | 6000      | Setup could not be read properly                          | - Restart the printer.<br>- Initialize the setup.<br>- Upgrade the firmware to the latest.   | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 4-34 (1)<br>📖 P. 9-56       |
| W    | TW       | 8300      | Socket general error                                      | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | TW       | 8301      | Socket process error                                      | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | TW       | 8302      | Socket command error                                      | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | TW       | 8303      | Socket read error   | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | TW       | 8304      | Socket write error  | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 9-56                        |
| W    | TW       | 8320      | Network error   | - Check communication with pint command.<br>- Re-insert the network cable.<br>- Check that the host computer has been turned on.<br>- Check the printer's network settings.<br>- Check the host computer's network settings.<br>- Check the network condition and cable connections. | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 4-34 (1)<br>📖 P. 9-56       |
| W    | TW       | 8331      | Network error   | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 4-34 (1)<br>📖 P. 9-56       |
| W    | TW       | 8333      | Network error   | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 4-34 (1)<br>📖 P. 9-56       |
| W    | TW       | 8336      | Network error   | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 4-34 (1)<br>📖 P. 9-56       |
| W    | TW       | 8337      | Network error   | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 4-34 (1)<br>📖 P. 9-56       |
| W    | TW       | 8339      | Network error   | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 4-34 (1)<br>📖 P. 9-56       |
| W    | TW       | 833C      | Network error   | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 4-34 (1)<br>📖 P. 9-56       |
| W    | TW       | 833D      | Network error   | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 4-34 (1)<br>📖 P. 9-56       |
| W    | TW       | 8341      | Network error   | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 4-34 (1)<br>📖 P. 9-56       |
| W    | TW       | 8343      | Network error   | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 4-34 (1)<br>📖 P. 9-56       |
| W    | TW       | 83FF      | Other network error                                       | <i>ditto</i>   | <i>ditto</i>  | PCB-ASSY-ARC             | 📖 P. 4-34 (1)<br>📖 P. 9-56       |

Table 4-4 Troubleshooting for Problems Related to Door, Toner, Cover, and Paper

| Type | Category | Error No. | Cause  | User Solution  | Service Engineer Inspection<br>(For inspection criteria, see Reference to Check/Replace Parts.)   | Assumed Replacement Part   | Reference to Check/Replace Parts   |
|------|----------|-----------|--|--|---|--|--|
| O    |          |           | No paper xx: The position detecting no paper | <ul style="list-style-type: none"> <li>- Check that the roll paper is installed.</li> <li>- Check that the paper flange is fixed.</li> <li>- Check that the paper flange is installed correctly on the flange guide.</li> <li>- Check the roll paper's installation condition (see the <i>User's Manual for Basic Printer Operation, Replacing the Roll Paper</i>).</li> <li>- Restart the printer.</li> </ul> | <ul style="list-style-type: none"> <li>- Check On/Off settings of PS11 and 13.</li> <li>- Check that CBL-RFU 11, 12, 21, and 31 are not shorted.</li> <li>- Check PS11 and 13 for the position and contact.</li> <li>- Check the position of flange guide.</li> <li>- Check that the paper flange is not deformed.</li> </ul>   | <ul style="list-style-type: none"> <li>- PCB-ASSY-ARC</li> <li>- PCB-ASSY-AAC</li> </ul>   | <ul style="list-style-type: none"> <li>📖 P. 5-46 (4)</li> <li>📖 P. 9-56</li> <li>📖 P. 9-55</li> </ul>                                      |
| O    |          |           | Front door                                   | <ul style="list-style-type: none"> <li>- Open and close the front door (see the <i>User's Manual for Basic Printer Operation, Part Names and Functions and Removing a Paper Jam from Inside the Printer</i>).</li> <li>- Restart the printer.</li> </ul>   | <ul style="list-style-type: none"> <li>- Check INT3 for position, contact, and On/Off setting.</li> <li>- Check CBL-INT1 for disconnection and contact.</li> <li>- Check CBL-INT3 for disconnection and contact.</li> <li>- Check that the actuator is not broken nor bent.</li> </ul>  | <ul style="list-style-type: none"> <li>- PCB-ASSY-ARC</li> <li>- PCB-ASSY-AAC</li> </ul>   | <ul style="list-style-type: none"> <li>📖 P. 5-40 (1)</li> <li>📖 P. 9-56</li> <li>📖 P. 9-55</li> </ul>                                      |
| O    |          |           | No toner                                     | <ul style="list-style-type: none"> <li>- Supply the toner (see the <i>User's Manual for Basic Printer Operation, Replacing the Toner Cartridge</i>).</li> <li>- Restart the printer.</li> </ul>  | <ul style="list-style-type: none"> <li>- Check remaining toner.</li> <li>- Check TS01 for On/Off setting.</li> <li>- Check CBL-DEV 1 and 2 for short circuit.</li> </ul>  | <ul style="list-style-type: none"> <li>- PCB-ASSY-ARC</li> <li>- PCB-ASSY-AAC</li> <li>- Developer unit</li> </ul>               | <ul style="list-style-type: none"> <li>📖 P. 5-42 (2)</li> <li>📖 P. 9-56</li> <li>📖 P. 9-55</li> <li>📖 P. 9-36</li> </ul>                   |
| O    |          |           | Full waste toner bottle                      | <ul style="list-style-type: none"> <li>- Replace the waste toner bottle (see the <i>User's Manual for Basic Printer Operation, Part Names and Functions and Replacing the Waste Toner Bottle</i>).</li> <li>- Restart the printer.</li> </ul>  | <ul style="list-style-type: none"> <li>- Check TS02 for On/Off setting.</li> <li>- Check the clearance between TS02 and waste toner bottle.</li> <li>- Check CBL-MECH1 for short circuit, removal, and disconnection.</li> <li>- Check CBL-TS02 for short circuit, removal, and disconnection.</li> <li>- Check that the waste toner bottle is not deformed.</li> </ul> | <ul style="list-style-type: none"> <li>- PCB-ASSY-ARC</li> <li>- PCB-ASSY-AAC</li> </ul>   | <ul style="list-style-type: none"> <li>📖 P. 5-44 (3)(b)</li> <li>📖 P. 9-56</li> <li>📖 P. 9-55</li> </ul>                                   |
| O    |          |           | No waste toner bottle                        | <ul style="list-style-type: none"> <li>- Reseat the waste toner bottle (see the <i>User's Manual for Basic Printer Operation, Part Names and Functions and Replacing the Waste Toner Bottle</i>).</li> <li>- Restart the printer.</li> </ul>   | <ul style="list-style-type: none"> <li>- Check MS05 for On/Off setting.</li> <li>- Check MS05 for contact.</li> <li>- Check MS05 position.</li> <li>- Check CBL-MECH1 for disconnection.</li> <li>- Check MS06-1 ASSY for disconnection.</li> <li>- Check that waste toner bottle is not deformed.</li> </ul>   | <ul style="list-style-type: none"> <li>- PCB-ASSY-ARC</li> <li>- PCB-ASSY-AAC</li> </ul>   | <ul style="list-style-type: none"> <li>📖 P. 5-44 (3)(a)</li> <li>📖 P. 9-56</li> <li>📖 P. 9-55</li> </ul>                                   |
|      |          |           | No process cartridge                         | <ul style="list-style-type: none"> <li>- Open and close the fuser unit drawer.</li> <li>- Reseat the process cartridge (see the <i>User's Manual for Basic Printer Operation, Part Names and Functions and Replacing the Process Cartridge</i>).</li> <li>- Restart the printer.</li> </ul>  | <ul style="list-style-type: none"> <li>- Check PCB-ASSY-ACN1 for contact.</li> <li>- Check CBL-PRCS1 for open/short circuit.</li> <li>- Check PRCS1R for open/short circuit.</li> </ul>   | <ul style="list-style-type: none"> <li>- Process cartridge</li> <li>- PCB-ASSY-ARC</li> <li>- PCB-ASSY-AAC</li> </ul>            | <ul style="list-style-type: none"> <li>📖 P. 9-148</li> <li>📖 P. 9-211</li> <li>📖 P. 9-56</li> <li>📖 P. 9-55</li> </ul>                     |
|      |          |           | Door opened Scanner cover                    | <ul style="list-style-type: none"> <li>- Open and close the scanner cover (see the <i>User's Manual for Basic Printer Operation, Part Names and Functions, When the Error Screen Appears, and Original Jam MF</i>).</li> <li>- Restart the printer.</li> </ul>   | <ul style="list-style-type: none"> <li>- Check PSS09.</li> <li>- Check PCB-ASSY-ASC.</li> </ul>   | <ul style="list-style-type: none"> <li>- PSS09</li> <li>- PCB-ASSY-ASC</li> <li>- Scanner cover ASSY</li> </ul>                  | <ul style="list-style-type: none"> <li>📖 P. 4-34 (7)</li> <li>📖 P. 9-180</li> <li>📖 P. 9-64</li> <li>📖 P. 9-175 (for reference)</li> </ul> |
|      |          |           | Door opened Fuser unit drawer                | <ul style="list-style-type: none"> <li>- Open and close the fuser unit drawer.</li> <li>- Restart the printer.</li> </ul>  | <ul style="list-style-type: none"> <li>- Check PS16 for On/Off setting.</li> </ul>  | <ul style="list-style-type: none"> <li>- PS16</li> </ul>   | <ul style="list-style-type: none"> <li>📖 P. 9-137</li> </ul>   |
|      |          |           | Door opened Paper outlet cover               | <ul style="list-style-type: none"> <li>- Open and close the paper outlet cover.</li> <li>- Restart the printer.</li> </ul>   | <ul style="list-style-type: none"> <li>- Check INT5 (MS06-1) for On/Off setting.</li> <li>- Check CBL-FUSER21/22/23 for open/short circuit.</li> </ul>  | <ul style="list-style-type: none"> <li>- INT5(MS06-1)</li> <li>- CBL-FUSER21/22/23</li> </ul>                                    | <ul style="list-style-type: none"> <li>📖 P. 9-114</li> </ul>   |
|      |          |           | Door opened Roll 1                           | <ul style="list-style-type: none"> <li>- Open and close the drawer for rolls 1.</li> <li>- Check that the roll paper has been installed properly (see the <i>User's Manual for Basic Printer Operation, Part Names and Functions and Replacing the Roll Paper</i>).</li> <li>- Restart the printer.</li> </ul>   | <ul style="list-style-type: none"> <li>- Check PS21 for disconnection.</li> <li>- Check CBL-RFU 11 and 12 for contact and disconnection.</li> </ul>   | <ul style="list-style-type: none"> <li>- PS21</li> <li>- CBL-RFU11/12</li> <li>- PCB-ASSY-ARC</li> <li>- PCB-ASSY-AAC</li> </ul> | <ul style="list-style-type: none"> <li>📖 P. 5-40 (1) (b) (c)</li> <li>📖 P. 9-56</li> <li>📖 P. 9-55</li> </ul>                              |

| Type | Category | Error No. | Cause                               | User Solution  | Service Engineer Inspection<br>(For inspection criteria, see Reference to Check/Replace Parts.)   | Assumed Replacement Part  | Reference to Check/Replace Parts   |
|------|----------|-----------|-------------------------------------|--|---|---|--|
|      |          |           | Door opened Roll 2                  | <ul style="list-style-type: none"> <li>- Open and close the drawer for rolls 2.</li> <li>- Check that the roll paper has been installed properly (see the <b>User's Manual for Basic Printer Operation, Part Names and Functions and Replacing the Roll Paper</b>).</li> <li>- Restart the printer.</li> </ul> | <ul style="list-style-type: none"> <li>- Check PS22 for disconnection.</li> <li>- Check CBL-RFU 21 and 12 for contact and disconnection.</li> </ul>   | <ul style="list-style-type: none"> <li>- PS22</li> <li>- CBL-RFU21/12</li> <li>- PCB-ASSY-ARC</li> <li>- PCB-ASSY-AAC</li> </ul>          | <ul style="list-style-type: none"> <li>📖 P. 5-40 (1)</li> <li>(b) (c)</li> <li>📖 P. 9-56</li> <li>📖 P. 9-55</li> </ul>   |
|      |          |           | No toner cartridge                  | <ul style="list-style-type: none"> <li>- Check that toner cartridge has been installed.</li> <li>- Check that toner cartridge has been installed properly (see the <b>User's Manual for Basic Printer Operation, Replacing the Toner Cartridge</b>).</li> <li>- Restart the printer.</li> </ul>                | <ul style="list-style-type: none"> <li>- Check MS04 for On/Off setting.</li> <li>- Check MS04 for position and contact.</li> <li>- Check CBL-DEV 1 and 2 for short circuit.</li> <li>- Check that the toner cartridge is not deformed.</li> </ul> | <ul style="list-style-type: none"> <li>- PCB-ASSY-ARC</li> <li>- PCB-ASSY-AAC</li> </ul>  | <ul style="list-style-type: none"> <li>📖 P. 5-42 (2)</li> <li>📖 P. 9-56</li> <li>📖 P. 9-55</li> </ul>  |
|      |          |           | No Folder connected                 | Check the Folder's power supply.   | Check the Folder's connection cable.  | <ul style="list-style-type: none"> <li>- Folder's connection cable</li> <li>- PCB-ASSY-ARC</li> <li>- Board kept in the Folder</li> </ul> | <ul style="list-style-type: none"> <li>📖 P. 9-56</li> <li>📖 P. 4-34 (1)</li> </ul>   |
|      |          |           | Jam at scanner                      | <ul style="list-style-type: none"> <li>- Following the panel indication, remove the jammed paper.</li> <li>- Open and close the scanner cover.</li> <li>- Restart the printer.</li> </ul>  | <ul style="list-style-type: none"> <li>- Check PSS01 to 08, and PSS11 for position and On/Off setting.</li> <li>- Check CBL-SSENS1 and 2 for disconnection.</li> <li>- Check that PCB-ASSY-ASC CN3 is connected securely.</li> </ul>              | <ul style="list-style-type: none"> <li>- PCB-ASSY-ASC</li> <li>- CIS unit</li> </ul>  | <ul style="list-style-type: none"> <li>📖 P. 6-8 (2)</li> <li>📖 P. 9-64</li> </ul>  |
|      |          |           | Copy job box overflow               | Restart the printer.   | —   | —   | <ul style="list-style-type: none"> <li>📖 <b>User's Manual for Basic Printer Operation</b></li> <li>📖 <b>User's Manual for Multifunction Printer Operation</b></li> </ul> |
|      |          |           | Submission job box overflow         | <i>ditto</i>   | —   | —   | <ul style="list-style-type: none"> <li>📖 <b>User's Manual for Basic Printer Operation</b></li> <li>📖 <b>User's Manual for Multifunction Printer Operation</b></li> </ul> |
|      |          |           | Operation panel display abnormality | <i>ditto</i>   | Clean CBL-PNL contact   | <ul style="list-style-type: none"> <li>- PANEL ASSY</li> <li>- PANEL ASSY PL</li> <li>- PCB-ASSY-ARC</li> </ul>                           | <ul style="list-style-type: none"> <li>📖 P. 4-36 (11)</li> </ul>   |

## 4.4.2 Controller Problem Diagnosis

Basic diagnosis methods for controller problems are given below.

### Note

The following is the information referenced in the Detailed Solutions column of the Troubleshooting List.

#### (1) ARC Problem Analysis

Upgrade to the latest firmware version

↓ No

Disconnect and reconnect all connectors to the ARC

↓ No

Replace the ARC

#### (2) ARC/SO-DIMM Problem Analysis

Upgrade to the latest firmware version

↓ No

Remove and re-insert the SO-DIMM

↓ No

Disconnect and reconnect all connectors to the ARC

↓ No

Replace the ARC board

#### (3) HDD Problem Analysis

Upgrade to the latest firmware version

↓ No

Disconnect and reconnect all connectors to the HDD

↓ No

Replace the HDD

#### (4) ASC Problem Analysis

Upgrade to the latest firmware version

↓ No

Disconnect and reconnect all connectors to the ASC

↓ No

Replace the ASC

**(5) HDD/ARC Problem Analysis**

Upgrade to the latest firmware version  
↓ No  
Disconnect and reconnect all connectors to the HDD  
↓ No  
Disconnect and reconnect all connectors to the ARC board  
↓ No  
Replace the HDD  
↓ No  
HDD is not broken, so put it back as it was  
↓ No  
Replace the ARC board

**(6) CIS/ASC Problem Analysis**

Upgrade to the latest firmware version  
↓ No  
Disconnect and reconnect all connectors to the CIS  
↓ No  
Disconnect and reconnect all connectors to the ASC  
↓ No  
Replace the ASC  
↓ No  
ASC is not broken, so put it back as it was  
↓ No  
Replace the CIS

**(7) EEPROM Problem Analysis**

Upgrade to the latest firmware version  
↓ No  
Remove and re-insert the EEPROM  
↓ No  
Replace the ARC board

**(8) EEPROM/ARC Problem Analysis**

Upgrade to the latest firmware version  
↓ No  
Remove and re-insert the EEPROM  
↓ No  
Disconnect and reconnect all connectors to the ARC board  
↓ No  
Replace the EEPROM  
↓ No  
EEPROM is not broken, so put it back as it was  
↓ No  
Replace the ARC board



**(9) HDD/ARC/SO-DIMM Problem Analysis**

Upgrade to the latest firmware version  
↓ No  
Disconnect and reconnect all connectors to the HDD  
↓ No  
Disconnect and reconnect all connectors to the ARC board  
↓ No  
Remove and re-insert the SO-DIMM  
↓ No  
Replace the HDD  
↓ No  
HDD is not broken, so put it back as it was  
↓ No  
Replace the ARC board

**(10) Determining SATA Cables Condition**

Upgrade to the latest firmware version  
↓ No  
Disconnect and reconnect all connectors to the HDD and the ARC board  
↓ No  
Replace the SATA Cables  
↓ No  
Replace the HDD  
↓ No  
HDD is not broken, so put it back as it was  
↓ No  
Replace the ARC board

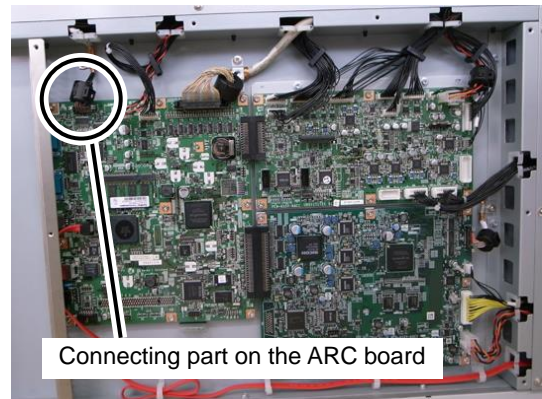
**(11) Cleaning CBL-PNL contact**

Upgrade to the latest firmware version  
↓ No  
Clean the contacts between the ARC board and CBL-PNL  
↓ No  
Clean the contacts between the operation panel and CBL-PNL  
↓ No  
Replace the operation panel

◆How to clean the contact between the ARC board and the CBL-PNL

<Disconnect the CBL-PNL from the ARC board>

1. Disconnect the CBL-PNL from the CN13 connector on the ARC board.  
(See 9.8.3 [ARC] PCB-ASSY-ARC1 MNT/PCB-ASSY-ARC2 MNT, [EEPROM] T2ARC-EEPROM MNT)



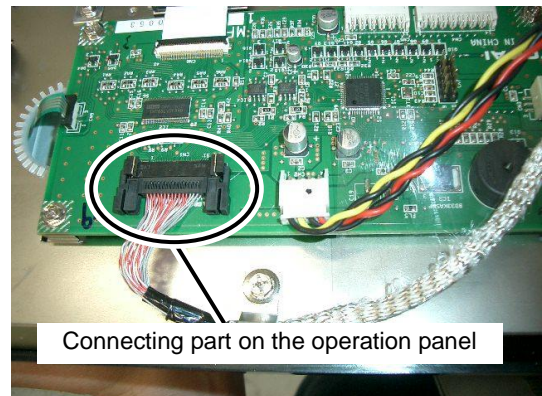
<Clean the connecting part on the ARC board with air>

2. Clean both the connector on the ARC board and the connector on the harness side with the air blow tool in order to remove any foreign particle from the connecting area.

◆How to clean the contact between the operation panel and the CBL-PNL

<Disconnect the CBL-PNL from the operation panel>

1. If the problem is not solved after cleaning the connector on the ARC board side, follow the procedure to replace the operation panel unit up to step 2 and disconnect the CBL-PNL from the operation panel.  
(See 9.2.10 OPERATION PANEL UNIT)



<Clean the connecting part on the operation panel with air>

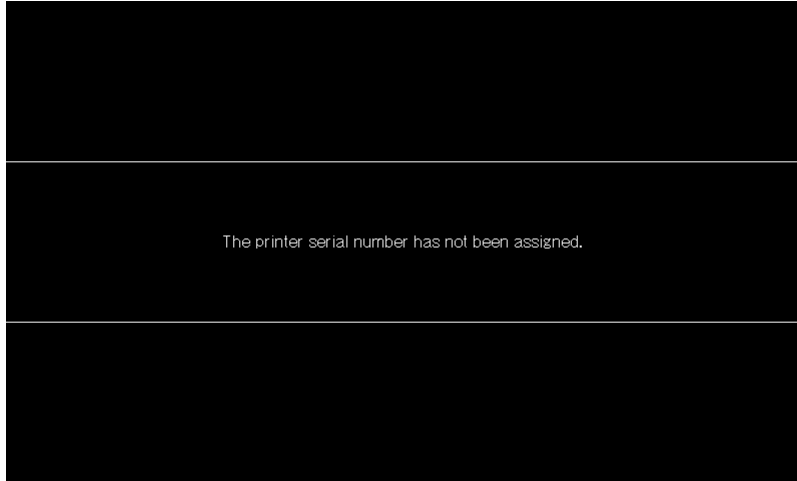
2. Clean both the connector on the operation panel and the connector on the harness side with the air blow tool in order to remove any foreign particle from the connecting area.

## 4.5 Serial Number Not Set

When powering on the Printer, the Printer checks the area that saves the Printer's serial number. If this area is damaged or corrupted (or if it has not been formatted), the following message is displayed.

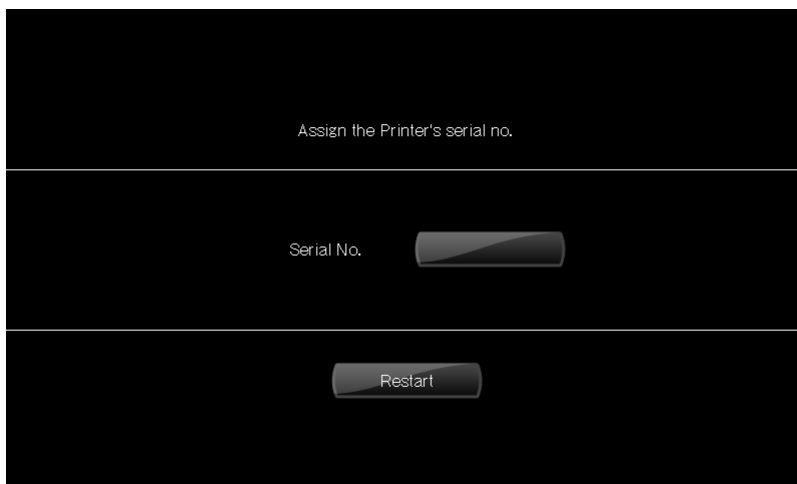
Note that this message also appears when a non-initialized PCB-ASSY-ARC (main control board) has been installed as a replacement board.

If this message appears, enter Maintenance mode and set the serial number for the Printer.



Solution: Set the Printer's serial number by following instructions

- (1) Press **Enter** -> **Cancel** -> **Enter** -> **Enter**.
- (2) The operation panel adjustment screen appears. Perform this adjustment.
- (3) The maintenance mode password input screen appears. Input the login name and password.
- (4) The serial number setting screen appears. Input the serial number.



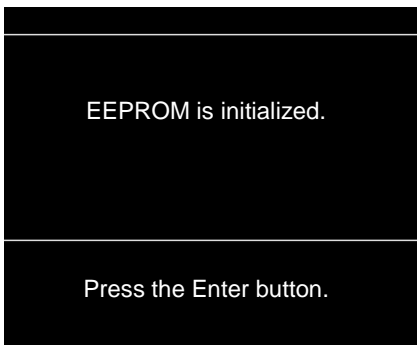
- (5) Once you input the serial number, press the **Restart** button to restart the Printer.

## 4.6 EEPROM Corruption

The EEPROM area is checked automatically when you power on the Printer. If any corruption is detected, the following message is displayed. When you see this error, you must enter Maintenance mode and initialize the EEPROM.



- (1) Press **Enter** -> **Cancel** -> **Enter** -> **Enter**.
- (2) The operation panel adjustment screen appears. Perform this adjustment.
- (3) The maintenance mode password input screen appears. Input the login name and password.
- (4) You are sent back to the EEPROM corruption error screen. Press **Enter**. The Printer restarts after 10 to 20 seconds.



If you initialize the EEPROM on this screen, the following data may be initialized.

- Printer setup information
- Accounting information
- Options information
- Printer engine adjustment values

### Note

If the options information is formatted, you will not be able to use the optional functions such as color color scanner. To use options again, you will have to order another EEPROM from the factory.

When the message below appears, solve the problem with the procedure described in section **1.8 Replacing the EEPROM.**

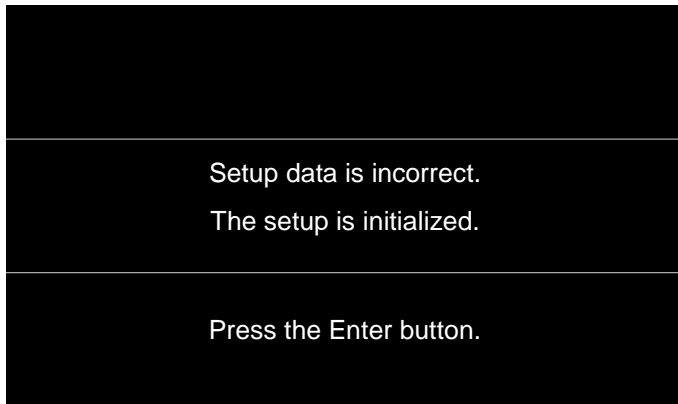
An error was found at the file check.

Printer : LP-2050

F/W : LP-1030

## 4.7 Setup Corruption

If any setup corruption is detected when the printer starts, the following screen is displayed.



Only operations with the **Enter** and **Power** buttons are enabled.

You can press the **Power** button to display the shutdown screen and turn the printer off.

- (1) Press the **Enter** button to initialize the following settings.
  - Default settings
  - Initial settings with the content initialized the last time (Standard use and Use in China)
- (2) After the initialization has finished, the adjustment screen appears automatically and adjustment is performed.
- (3) After the adjustment is complete, the reboot screen is displayed and the printer restarts.

## 4.8 Low Ambient Temperature Warning

If the printer is installed in an environment with low temperature, a button indicated a low-ambient temperature is displayed on the screen.

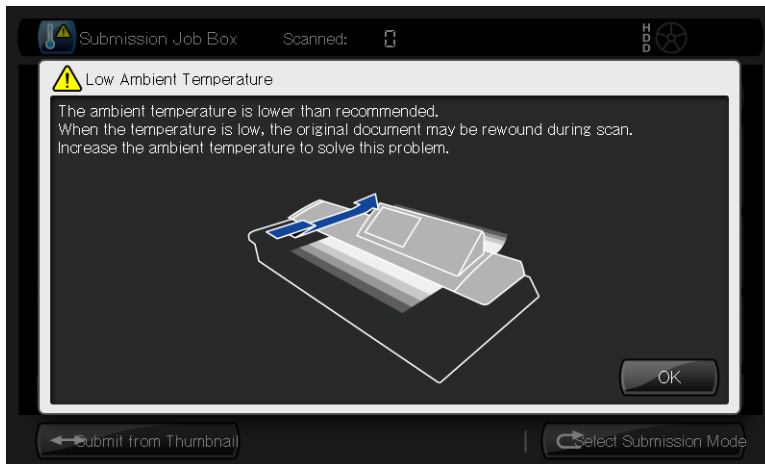
One of the followings may occur if the printer is used in a low-temperature environment.

- During scanning, the document may be fed back many times.
- Data processing may take more time than usually.



The warning button for low temperature is flashing.

Press the flashing low-temperature button to display the following low-temperature warning window.



**Note**   ◇ If the low-temperature warning button is displayed, adjust the printer ambient temperature to 20 to 30°C.

## 4.9 Specific Operation

If the printer cannot start due to hardware failure or another problem, you can still start it in self-diagnostic mode.

The functions available in specific operation are as follows.

- HDD check function
- HDD format function

Set the printer DIP switch SW1 to ON and start the printer to use specific operation.

**Note** ◇ **DIP switch SW1 is the bit 1 of the ARC board SW3. The same applies below.**

When the printer cannot start because a fatal error occurred during startup, and if you could determine from the error code that the cause is the HDD, the problem can sometimes be solved by executing **HDD format** in specific operation.

If the printer cannot be used anymore because all administrators have lost their password when printer administration is activated, the problem can be solved by executing **HDD format** in specific operation.

**\* Read the following notes as formatting the HDD has some negative effects.**

**Notes** ◇ **The following data and information items are deleted when the HDD is formatted.**

- Jobs
- Setup data
- Log information

◇ **The following operations must be performed after formatting the HDD and restarting the printer.**

- Setup initialization (the incorrect setup error occurs when the printer restarts)
- Adjustment setting
- Language setting
- Printer initialization setting
- Date and time setting
- IP address setting
- Other settings depending on the user

◇ **The problem may not be solved even after formatting the HDD due to the HDD condition.**



## 4.9.1 How to Use Specific Operation

Only the hardware buttons are used.

You can check or format the HDD.

The HDD check function verifies whether the installed HDD can be used or not, and format it if it cannot be used.

The HDD format function formats the HDD regardless of its condition.

Follow the procedure below to use specific operation.

- (1) Set only the DIP switch SW1 to ON and turn the printer on.
- (2) The specific operation screen is displayed.

```
Specific operation
1. Check HDD
2. Format HDD

Input a number and press Enter.___
```

- (3) Press the number of the function to execute and press the **Enter** button.

```
Specific operation
1. Check HDD
2. Format HDD

Input a number and press Enter.2
```

- (4) A confirmation screen is displayed. Press **1** and **Enter** to execute the function.

```
Specific operation
8. Start HDD format
9. Cancel

Input a number and press Enter.___
```

- (5) The specified function is executed.

```
Specific operation
Formatting HDD. . .
```

- (6) The operation is complete.

```
Specific operation
Formatting HDD. . . Completed

Press any button.
```

- (7) Press any button to return to the specific operation screen.

```
Specific operation
1. Check HDD
2. Format HDD

Input a number and press Enter.___
```

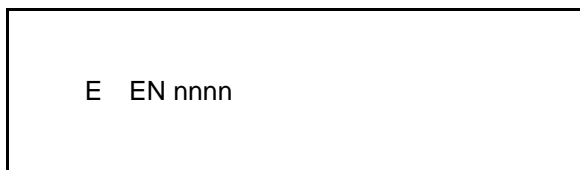
- (8) Press the **Power** button to turn the printer off.
- (9) Set the DIP switch SW1 to OFF before turning the printer on again.

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## Chapter 5 Engine Problems Troubleshooting

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This chapter will discuss what to do if you should suspect any engine problems are occurring. If the following type of message should appear on the operation panel screen, take note of the error message's error code **nnnn** and take the appropriate action to fix the problem. For any other problem besides those listed here, check the symptoms of the problem to determine the best solution.



nnnn: Error code

The troubleshooting against the engine problem is listed below.

**Note:**

To troubleshoot the paper jam, see **5.3.2 Paper Jam Error Code Problem Analysis**.

**Instruction to turn off the printer**

- Be sure to use the **POWER** button on the operation panel when you turn off the printer after checking errors.
- At the service call error with type E, to turn off the printer hold on the **POWER** button for approximately five seconds .

Table 5-1 Troubleshooting for Engine Problems

| Type | Category | Error No. | Cause                                    | User Solution  | Service Engineer Inspection<br>(For inspection criteria, see Reference to Check/Replace Parts.)   | Assumed Replacement Part  | Reference to Check/Replace Parts   |
|------|----------|-----------|--|--|---|---|--|
| E    | EN       | 2011      | FMxx (paper feed pulse motor x) trouble  |  |   |   |  |
| E    | EN       | 2011      | FM01 (paper feed pulse motor 1) trouble  | <ul style="list-style-type: none"> <li>- Restart the printer.</li> <li>- Open and close each door.</li> </ul>  | <ul style="list-style-type: none"> <li>- Open and close the front door (see the <b>User's Manual for Basic Printer Operation</b>, Part Names and Functions and Removing a Paper Jam from Inside the Printer).</li> <li>- Check MS18 for On/Off setting, position, and contact.</li> <li>- Check INT3 for On/Off setting, position, and contact.</li> <li>- Check CBL-INT1 for open/short circuit.</li> <li>- Check CBL-INT3 for open/short circuit.</li> <li>- Check CBL-RASDC for open/short circuit.</li> <li>- Check CBL-FUSER11 for open/short circuit.</li> <li>- Check CBL-FUSER12 for open/short circuit.</li> </ul>   | <ul style="list-style-type: none"> <li>- MS18</li> <li>- INT3</li> <li>- CBL-RASDC</li> <li>- PSU-T2</li> <li>- CBL-RFU11</li> <li>- CBL-RFU12</li> <li>- PCB-ASSY-AAC</li> <li>- PCB-ASSY-ARC</li> </ul>                                     | <ul style="list-style-type: none"> <li>📖 P. 5-14 (3)</li> <li>📖 P. 9-133</li> <li>📖 P. 9-66</li> <li>📖 P. 9-55</li> <li>📖 P. 9-56</li> </ul>                     |
| E    | EN       | 2012      | <i>ditto</i>                             | <i>ditto</i>   | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>   |
| E    | EN       | 2013      | <i>ditto</i>                             | <i>ditto</i>   | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>   |
| E    | EN       | 2014      | FM02 (paper feed pulse motor 02) trouble | <i>ditto</i>   | <i>ditto</i>  | <ul style="list-style-type: none"> <li>- MS18</li> <li>- INT3</li> <li>- CBL-RASDC</li> <li>- PSU-T2</li> <li>- CBL-RFU21</li> <li>- CBL-RFU12</li> <li>- PCB-ASSY-AAC</li> <li>- PCB-ASSY-ARC</li> </ul>                                     | <i>ditto</i>   |
| E    | EN       | 2015      | <i>ditto</i>                             | <i>ditto</i>   | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>   |
| E    | EN       | 2016      | <i>ditto</i>                             | <i>ditto</i>   | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>   |
| E    | EN       | 2021      | HM01 (heat roller pulse motor) trouble   | <ul style="list-style-type: none"> <li>- Restart the printer.</li> <li>- Open and close the paper outlet cover.</li> <li>- Open and close the fuser unit drawer.</li> <li>- Open and close each door.</li> <li>- Reverse the SCOROTRON CHARGER UNIT.</li> <li>- Upgrade the firmware to the latest.</li> </ul> | <ul style="list-style-type: none"> <li>- Open and close the front door (see the <b>User's Manual for Basic Printer Operation</b>, Part Names and Functions and Removing a Paper Jam from Inside the Printer).</li> <li>- Check INT5 (MS06-1, MS06-2) On/Off setting, position, and contact.</li> <li>- Check MS18 for On/Off setting, position, and contact.</li> <li>- Check INT3 for On/Off setting, position, and contact.</li> <li>- Check CBL-INT1 for open/short circuit.</li> <li>- Check CBL-INT3 for open/short circuit.</li> <li>- Check CBL-RASDC for open/short circuit.</li> <li>- Check CBL-FUSER11 for open/short circuit.</li> <li>- Check CBL-FUSER12 for open/short circuit.</li> </ul> | <ul style="list-style-type: none"> <li>- INT5 (MS06-1,MS06-2)</li> <li>- MS18</li> <li>- INT3</li> <li>- CBL-RASDC</li> <li>- PSU-T2</li> <li>- CBL-FUSER11</li> <li>- CBL-FUSER12</li> <li>- PCB-ASSY-AAC</li> <li>- PCB-ASSY-ARC</li> </ul> | <ul style="list-style-type: none"> <li>📖 P. 9-114</li> <li>📖 P. 5-11 (1)</li> <li>📖 P. 9-133</li> <li>📖 P. 9-66</li> <li>📖 P. 9-55</li> <li>📖 P. 9-56</li> </ul> |
| E    | EN       | 2022      | <i>ditto</i>                             | <i>ditto</i>   | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>   |

## Chapter 5 Engine Problems Troubleshooting

| Type | Category | Error No. | Cause  | User Solution  | Service Engineer Inspection<br>(For inspection criteria, see<br>Reference to Check/Replace<br>Parts.)   | Assumed<br>Replacement Part   | Reference to<br>Check/Replace<br>Parts  |
|------|----------|-----------|--|--|---|---|---|
| E    | EN       | 2023      | PM01 (process motor) trouble                                 | <ul style="list-style-type: none"> <li>- Restart the printer.</li> <li>- Open and close the paper outlet cover.</li> <li>- Open and close the fuser unit drawer.</li> <li>- Open and close each door.</li> <li>- Reverse the SCOROTRON CHARGER UNIT's right and left.</li> </ul> | <ul style="list-style-type: none"> <li>- Clean the contacts at both ends of the SCOROTRON CHARGER UNIT.</li> <li>- Check the contacts and clean the plate springs on the side and upper parts inside the Printer.</li> <li>- Check INT5 (MS06-1 and MS06-2) On/Off setting, position, and contact.</li> <li>- Check MS18 for On/Off setting, position, and contact.</li> <li>- Check INT3 for On/Off setting, position, and contact.</li> <li>- Check CBL-INT1 for open/short circuit.</li> <li>- Check CBL-INT3 for open/short circuit.</li> <li>- Check CBL-RASDC for open/short circuit.</li> <li>- CBL-PM for open/short circuit.</li> <li>- CBL-PMDC for open/short circuit.</li> <li>- Check CL04 operation.</li> <li>- Check visually for abnormal electrical discharge from the developing to the photoconductor drum.</li> </ul> | <ul style="list-style-type: none"> <li>- INT5 (MS06-1 and MS06-2)</li> <li>- MS18</li> <li>- INT3</li> <li>- CBL-RASDC</li> <li>- PSU-T2</li> <li>- CBL-FUSER11</li> <li>- CBL-FUSER12</li> <li>- PCB-ASSY-AAC</li> <li>- PCB-ASSY-ARC</li> <li>- Developer unit</li> </ul> | <ul style="list-style-type: none"> <li>📖 P. 9-114</li> <li>📖 P. 5-12 (2)</li> <li>📖 P. 5-13</li> <li>📖 P. 9-133</li> <li>📖 P. 9-66</li> <li>📖 P. 9-55</li> <li>📖 P. 9-56</li> </ul> |
| E    | EN       | 2024      | GM01 (developer unit pulse motor) trouble                    | <ul style="list-style-type: none"> <li>- Restart the printer.</li> <li>- Open and close each door.</li> </ul>  | <ul style="list-style-type: none"> <li>- Check MS18 for On/Off setting, position, and contact.</li> <li>- Check INT3 for On/Off setting, position, and contact.</li> <li>- Check CBL-INT1 for open/short circuit.</li> <li>- Check CBL-INT3 for open/short circuit.</li> <li>- Check CBL-RASDC for open/short circuit.</li> <li>- Check CBL-MECH3 for open/short circuit.</li> <li>- Check CBL-DEV2 for open/short circuit.</li> </ul>  | <ul style="list-style-type: none"> <li>- MS18</li> <li>- INT3</li> <li>- CBL-INT1</li> <li>- CBL-INT3</li> <li>- CBL-RASDC</li> <li>- PSU-T2</li> <li>- CBL-MECH3</li> <li>- CBL-DEV2</li> <li>- PCB-ASSY-AAC</li> <li>- PCB-ASSY-ARC</li> </ul>                            | <ul style="list-style-type: none"> <li>📖 P. 5-11 (1)</li> <li>📖 P. 9-133</li> <li>📖 P. 9-66</li> <li>📖 P. 9-55</li> <li>📖 P. 9-56</li> </ul>  |
| E    | EN       | 2025      | GM01 (developer unit pulse motor) trouble                    | <i>ditto</i>   | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>  |
| E    | EN       | 2026      | GM01 (developer unit pulse motor) trouble                    | <i>ditto</i>   | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>  |
| E    | EN       | 2027      | TM01 (paper feed pulse motor) trouble                        | <ul style="list-style-type: none"> <li>- Restart the printer.</li> <li>- Open and close each door.</li> </ul>  | <ul style="list-style-type: none"> <li>- Check MS18 for On/Off setting, position, and contact.</li> <li>- Check INT3 for On/Off setting, position, and contact.</li> <li>- Check CBL-INT1 for open/short circuit.</li> <li>- Check CBL-INT3 for open/short circuit.</li> <li>- Check CBL-RASDC for open/short circuit.</li> <li>- Check CBL-TM for open/short circuit.</li> </ul>   | <ul style="list-style-type: none"> <li>- MS18</li> <li>- INT3</li> <li>- CBL-INT1</li> <li>- CBL-INT3</li> <li>- CBL-RASDC</li> <li>- PSU-T2</li> <li>- CBL-TM</li> <li>- PCB-ASSY-AAC</li> <li>- PCB-ASSY-ARC</li> </ul>   | <i>ditto</i>  |
| E    | EN       | 2028      | TM01 (paper feed pulse motor) trouble (rewinding)            | <i>ditto</i>   | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>  |
| E    | EN       | 2029      | TM01 (paper feed pulse motor) trouble (high speed)           | <i>ditto</i>   | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>  |
| E    | EN       | 202A      | TM01 (paper feed pulse motor) trouble (normal speed)         | <i>ditto</i>   | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>  |
| E    | EN       | 202B      | TM01 (paper feed pulse motor) trouble                        | <i>ditto</i>   | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>  |
| E    | EN       | 2030      | Power supply problem (problem with 50Hz/60Hz judgment value) | Restart the printer.   | Check CBL-ARCCNT for open/short circuit.  | <ul style="list-style-type: none"> <li>- PSU-T2</li> <li>- PCB-ASSY-ARC</li> </ul>  | <ul style="list-style-type: none"> <li>📖 P. 5-14 (4)</li> <li>📖 P. 9-66</li> <li>📖 P. 9-56</li> </ul>   |

| Type | Category | Error No. | Cause  | User Solution  | Service Engineer Inspection<br>(For inspection criteria, see<br>Reference to Check/Replace<br>Parts.)  | Assumed<br>Replacement Part  | Reference to<br>Check/Replace<br>Parts   |
|------|----------|-----------|--|--|--|--|--|
| E    | EN       | 2031      | High voltage power supply problem (other than CH3: CC, DB, DC); too much load on high voltage output | - Restart the printer.<br>- Reverse the SCOROTRON CHARGER UNIT's right and left. | - Clean the contacts at both ends of the SCOROTRON CHARGER UNIT.<br>- Check the contacts and clean the plate springs on the side and upper parts inside the Printer.<br>- Check that CH1, 2, 4 output normally.<br>- Check the process cartridge wire for smear, foreign particles, and loose.<br>- Check the contact between developer unit and developer bias terminal.<br>- Check the transfer/detack corotron for smear, foreign particles, and loose.<br>- Check CBL-HV1 for short circuit.<br>- Check CBL-HV2 for short circuit.<br>- Check CBL-HV21 for short circuit.<br>- Check CBL-HV4 for short circuit.<br>- Check CBL-HV41 for short circuit. | - SCOROTRON CHARGER UNIT<br>- Process cartridge<br>- Developer unit<br>- Separator unit<br>- PCB-ASSY-ARC<br>- CBL-HV1<br>- CBL-HV2<br>- CBL-HV21<br>- CBL-HV4<br>- CBL-HV41 | <ul style="list-style-type: none"> <li>📖 P. 5-13</li> <li>📖 P. 5-15 (5)</li> <li>📖 P. 9-36</li> <li>📖 P. 9-212</li> <li>📖 P. 9-56</li> </ul> |
| E    | EN       | 2032      | High voltage power supply problem (CH3:TR); too much load on high voltage output                     | Restart the printer.   | - Check that CH3 outputs normally.<br>- Check the transfer/detack corotron roller for foreign particles.<br>- Check that the transfer/detack corotron are installed properly.<br>- Check CBL-HV31 for short circuit.   | - Transfer/detack corotron<br>- CBL-HV31   | <ul style="list-style-type: none"> <li>📖 P. 5-16 (6)</li> <li>📖 P. 9-212</li> </ul>  |
| E    | EN       | 2035      | LED head correction data transmission error (timeout)  | <i>ditto</i>   | - Check CBL-LEDHDC for disconnection or short circuit.<br>- Check that the LED head 5V outputs normally.   | - CBL-LEDH1<br>- CBL-LEDHDC<br>- LED head<br>- PSU-T2<br>- PCB-ASSY-ARC  | <ul style="list-style-type: none"> <li>📖 P. 5-16 (7)</li> <li>📖 P. 9-209</li> <li>📖 P. 9-66</li> <li>📖 P. 9-56</li> </ul>                    |
| E    | EN       | 2036      | Led head correction data transmission error (header error)   | <i>ditto</i>   | <i>ditto</i>   | - CBL-LEDH1<br>- CBL-LEDHDC<br>- LED head<br>- PSU-T2<br>- PCB-ASSY-ARC  | <ul style="list-style-type: none"> <li>📖 P. 5-16 (7)</li> <li>📖 P. 9-209</li> <li>📖 P. 9-66</li> <li>📖 P. 9-56</li> </ul>                    |
| E    | EN       | 2037      | LED head correction data transmission error (footer error)   | <i>ditto</i>   | <i>ditto</i>   | - CBL-LEDH1<br>- CBL-LEDHDC<br>- LED head<br>- PSU-T2<br>- PCB-ASSY-ARC  | <ul style="list-style-type: none"> <li>📖 P. 5-16 (7)</li> <li>📖 P. 9-209</li> <li>📖 P. 9-66</li> <li>📖 P. 9-56</li> </ul>                    |
| E    | EN       | 203A      | Power supply problem (problem with ZERO value)   | - Restart the printer.<br>- Upgrade the firmware to the latest.                  | Check CBL-ARCCNT for open/short circuit.   | - PSU-T2<br>- PCB-ASSY-ARC   | <ul style="list-style-type: none"> <li>📖 P. 5-15 (4)</li> <li>📖 P. 9-66</li> <li>📖 P. 9-56</li> </ul>  |
| E    | EN       | 2081      | TH02 (overheat thermistor) has detected overheating in the fuser.                                    | Restart the printer.   | - Check TH01 for installation, smear, and short circuit.<br>- Check TH02 for short circuit.<br>- Check CBL-FUSER21 for short circuit.<br>- Check CBL-FUSER22 for short circuit.<br>- Check CBL-FUSER23 for short circuit.  | - TH01<br>- TH02<br>- CBL-FUSER21<br>- CBL-FUSER22<br>- CBL-FUSER23<br>- PCB-ASSY-ARC<br>- PCB-ASSY-AAC<br>- Fuser unit  | <ul style="list-style-type: none"> <li>📖 P. 5-16 (8)</li> <li>📖 P. 9-107</li> <li>📖 P. 9-55</li> <li>📖 P. 9-56</li> <li>📖 P. 9-80</li> </ul> |
| E    | EN       | 2082      | TH01 (fuser temperature control thermistor) problem. Extremely hot (possible cable short).           | <i>ditto</i>   | - Check TH01 for short circuit.<br>- Check TH04 for short circuit.<br>- Check CBL-FUSER21 for short circuit.<br>- Check CBL-FUSER22 for short circuit.<br>- Check CBL-FUSER for short circuit.   | - TH01<br>- TH04<br>- CBL-FUSER21<br>- CBL-FUSER22<br>- CBL-FUSER<br>- PCB-ASSY-ARC<br>- PCB-ASSY-AAC  | <ul style="list-style-type: none"> <li>📖 P. 5-17 (9)</li> <li>📖 P. 5-16 (8)</li> <li>📖 P. 9-55</li> <li>📖 P. 9-56</li> </ul>                 |

| Type | Category | Error No. | Cause   | User Solution  | Service Engineer Inspection<br>(For inspection criteria, see Reference to Check/Replace Parts.)   | Assumed Replacement Part  | Reference to Check/Replace Parts   |
|------|----------|-----------|---|--|---|---|--|
| E    | EN       | 2083      | TH01 (fuser temperature control exceeded the fuser's maximum allowed temperature.   | Restart the printer.   | <ul style="list-style-type: none"> <li>- Check BL02 and 06 for rotation.</li> <li>- Check TH01 for short circuit.</li> <li>- Check TH04 for short circuit.</li> <li>- Check CBL-FUSER21 for short circuit.</li> <li>- Check CBL-FUSER22 for short circuit.</li> <li>- Check CBL-FUSER for short circuit.</li> <li>- Check that the ozone filter is not clogged.</li> </ul>  | <ul style="list-style-type: none"> <li>- BL02</li> <li>- BL06</li> <li>- TH01</li> <li>- TH04</li> <li>- CBL-FUSER21</li> <li>- CBL-FUSER22</li> <li>- CBL-FUSER</li> <li>- Ozone filter</li> </ul>   | <ul style="list-style-type: none"> <li>📖 P. 5-17 (10)</li> <li>📖 P. 9-227</li> <li>📖 P. 9-107</li> </ul>   |
| E    | EN       | 2084      | After beginning the warm-up sequence, the fuser temperature TH01 did not reach the specified temperature within the specified amount of time. | <ul style="list-style-type: none"> <li>- Restart the printer.</li> <li>- Open and close the paper outlet cover.</li> <li>- Open and close the fuser unit drawer.</li> <li>- Open and close each door.</li> </ul> | <ul style="list-style-type: none"> <li>- Check for voltage reduction in user power supply.</li> <li>- Check INT5 (MS06-1 and MS06-2) On/Off setting, position, and contact.</li> <li>- Check MS18 On/Off setting, position, and contact.</li> <li>- Check INT3 On/Off setting, position, and contact.</li> <li>- Check that the halogen heater lights on.</li> <li>- Temperature fuse for continuity.</li> <li>- Check FL01/FL02 for continuity.</li> <li>- Check TH01 for connector quantity, paper particle, slight removal, bentness, smear, and open circuit.</li> <li>- Check TH02 for connector quantity, paper particle, slight removal, bentness, smear, and open circuit.</li> <li>- Check TH04 for connector quantity, paper particle, slight removal, bentness, smear, and open circuit.</li> <li>- Check CBL-FUSER11 for open circuit.</li> <li>- Check CBL-FUSER12 for open circuit.</li> <li>- Check CBL-FUSER21 for short circuit.</li> <li>- Check CBL-FUSER22 for short circuit.</li> <li>- Check CBL-FUSER23 for short circuit.</li> <li>- Check Cable (Halogen) for open circuit.</li> <li>- Check CBL-ARCCNT for open/short circuit.</li> </ul> | <ul style="list-style-type: none"> <li>- INT5 (MS06-1 and MS06-2)</li> <li>- Halogen heater</li> <li>- Temperature fuse ASSY</li> <li>- FL01</li> <li>- FL02</li> <li>- TH01</li> <li>- TH02</li> <li>- TH04</li> <li>- CBL-FUSER11</li> <li>- CBL-FUSER12</li> <li>- PSU-T2</li> <li>- PCB-ASSY-ARC</li> <li>- CBL-FUSER21</li> <li>- CBL-FUSER22</li> <li>- CBL-FUSER23</li> <li>- PCB-ASSY-AAC</li> <li>- Cable (Halogen)</li> <li>- CBL-ARCCNT</li> </ul> | <ul style="list-style-type: none"> <li>📖 P. 5-18 (11)</li> <li>📖 P. 9-99</li> <li>📖 P. 9-107</li> <li>📖 P. 9-114</li> <li>📖 P. 9-66</li> <li>📖 P. 9-55</li> <li>📖 P. 9-56</li> </ul> |
| E    | EN       | 2085      | TH03 (LED head temperature measurement thermistor) problem  | Restart the printer.   | <ul style="list-style-type: none"> <li>- Check TH03 for short circuit.</li> <li>- Check CBL-MECH2 for short circuit.</li> </ul>   | <ul style="list-style-type: none"> <li>- CBL-MECH2</li> <li>- PCB-ASSY-ARC</li> <li>- PCB-ASSY-AAC</li> <li>- LED head</li> </ul>   | <ul style="list-style-type: none"> <li>📖 P. 5-19 (12)</li> <li>📖 P. 9-55</li> <li>📖 P. 9-56</li> <li>📖 P. 9-209</li> </ul>   |
| E    | EN       | 2086      | TH03 (LED head temperature measurement thermistor) has exceeded the maximum temperature of the LED head                                       | <i>ditto</i>   | <ul style="list-style-type: none"> <li>- Check BL01 and 02 for rotation.</li> <li>- Check BL06 for rotation.</li> <li>- Check TH03 for short circuit.</li> <li>- Check CBL-MECH2 for short circuit.</li> <li>- Check that the ozone filter is not clogged.</li> </ul>   | <ul style="list-style-type: none"> <li>- BL01</li> <li>- BL02</li> <li>- BL06</li> <li>- CBL-MECH2</li> <li>- LED head</li> </ul>   | <ul style="list-style-type: none"> <li>📖 P. 5-19 (13)</li> <li>📖 P. 9-79</li> <li>📖 P. 9-209</li> </ul>  |
| E    | EN       | 2087      | TH04 (fuser temperature control thermistor) problem. Extremely hot (possible cable short).  | <i>ditto</i>   | <ul style="list-style-type: none"> <li>- Check TH01 for short circuit.</li> <li>- Check TH04 for short circuit.</li> <li>- Check CBL-FUSER21 for short circuit.</li> <li>- Check CBL-FUSER22 for short circuit.</li> <li>- Check CBL-FUSER23 for short circuit.</li> </ul>  | <ul style="list-style-type: none"> <li>- TH01</li> <li>- TH04</li> <li>- CBL-FUSER21</li> <li>- CBL-FUSER22</li> <li>- CBL-FUSER23</li> <li>- PCB-ASSY-ARC</li> <li>- PCB-ASSY-AAC</li> <li>- Halogen heater</li> </ul>   | <ul style="list-style-type: none"> <li>📖 P. 5-17 (9)</li> <li>📖 P. 9-107</li> <li>📖 P. 9-55</li> <li>📖 P. 9-56</li> <li>📖 P. 9-99</li> </ul>   |

| Type | Category | Error No. | Cause  | User Solution   | Service Engineer Inspection<br>(For inspection criteria, see<br>Reference to Check/Replace<br>Parts.)   | Assumed<br>Replacement Part   | Reference to<br>Check/Replace<br>Parts  |
|------|----------|-----------|--|---|---|---|---|
| E    | EN       | 2088      | TH04 (fuser temperature control thermistor) has exceeded the fuser's maximum allowed temperature.  | Restart the printer.  | <ul style="list-style-type: none"> <li>- Check BL02 and 06 for rotation.</li> <li>- Check TH01 for short circuit.</li> <li>- Check TH04 for short circuit.</li> <li>- Check CBL-FUSER21 for short circuit.</li> <li>- Check CBL-FUSER22 for short circuit.</li> <li>- Check CBL-FUSER23 for short circuit.</li> <li>- Check that the ozone filter is not clogged.</li> </ul>  | <ul style="list-style-type: none"> <li>- BL02</li> <li>- BL06</li> <li>- TH01</li> <li>- TH04</li> <li>- CBL-FUSER21</li> <li>- CBL-FUSER22</li> <li>- CBL-FUSER23</li> <li>- Ozone filter</li> </ul>   | <ul style="list-style-type: none"> <li>📖 P. 5-17 (9), (10)</li> <li>📖 P. 9-80</li> <li>📖 P. 9-107</li> </ul>  |
| E    | EN       | 2089      | After starting the warm-up sequence, the fuser temperature TH04 did not reach the specified temperature within the specified amount of time. | <i>ditto</i>  | <ul style="list-style-type: none"> <li>- Check that the halogen heater lights on.</li> <li>- Temperature fuse for continuity.</li> <li>- Check FL01/FL02 for continuity.</li> <li>- Check TH01 for connector quantity, paper particle, slight removal, bentness, smear, and open circuit.</li> <li>- Check TH02 for connector quantity, paper particle, slight removal, bentness, smear, and open circuit.</li> <li>- Check TH04 for connector quantity, paper particle, slight removal, bentness, smear, and open circuit.</li> <li>- Check CBL-FUSER11 for open circuit.</li> <li>- Check CBL-FUSER12 for open circuit.</li> <li>- Check CBL-FUSER21 for short circuit.</li> <li>- Check CBL-FUSER22 for short circuit.</li> <li>- Check CBL-FUSER23 for short circuit.</li> <li>- Check Cable (Halogen) for open circuit.</li> <li>- Check CBL-ARCCNT for open/short circuit.</li> </ul>   | <ul style="list-style-type: none"> <li>- Halogen heater</li> <li>- Temperature fuse ASSY</li> <li>- FL01</li> <li>- FL02</li> <li>- TH01</li> <li>- TH02</li> <li>- TH04</li> <li>- CBL-FUSER11</li> <li>- CBL-FUSER12</li> <li>- PSU-T2</li> <li>- PCB-ASSY-ARC</li> <li>- CBL-FUSER21</li> <li>- CBL-FUSER22</li> <li>- CBL-FUSER23</li> <li>- PCB-ASSY-AAC</li> <li>- Cable (Halogen)</li> <li>- CBL-ARCCNT</li> </ul>   | <ul style="list-style-type: none"> <li>📖 P. 5-18 (11)</li> <li>📖 P. 9-99</li> <li>📖 P. 9-107</li> <li>📖 P. 9-113</li> <li>📖 P. 9-66</li> <li>📖 P. 9-55</li> <li>📖 P. 9-56</li> </ul>  |
| E    | EN       | 208A      | The temperature difference between TH01 and TH04 is too large.   | <ul style="list-style-type: none"> <li>- Restart the printer.</li> <li>- Open and close the paper outlet cover.</li> <li>- Open and close the fuser unit drawer.</li> <li>- Open and close each door.</li> <li>- Upgrade the firmware to the latest.</li> </ul> | <ul style="list-style-type: none"> <li>- Check INT5 (MS06-1 and MS06-2) On/Off setting, position, and contact.</li> <li>- Check MS18 On/Off setting, position, and contact.</li> <li>- Check INT3 On/Off setting, position, and contact.</li> <li>- Check BL02 and 06 for rotation.</li> <li>- Check that the halogen heater lights on.</li> <li>- Temperature fuse for continuity.</li> <li>- Check FL01/FL02 for continuity.</li> <li>- Check TH01 for connector quantity, paper particle, slight removal, bentness, smear, and open/short circuit.</li> <li>- Check TH04 for connector quantity, paper particle, slight removal, bentness, smear, and open/short circuit.</li> <li>- Check CBL-FUSER11 for open circuit.</li> <li>- Check CBL-FUSER12 for open circuit.</li> <li>- Check CBL-FUSER21 for short circuit.</li> <li>- Check CBL-FUSER22 for short circuit.</li> <li>- Check CBL-FUSER23 for short circuit.</li> <li>- Check Cable (Halogen) for open circuit.</li> <li>- Check that the ozone filter is not clogged.</li> <li>- Check CBL-ARCCNT for open/short circuit.</li> </ul> | <ul style="list-style-type: none"> <li>- INT5 (MS06-1 and MS06-2)</li> <li>- BL02</li> <li>- BL06</li> <li>- Temperature fuse ASSY</li> <li>- FL01</li> <li>- FL02</li> <li>- TH01</li> <li>- TH04</li> <li>- CBL-FUSER11</li> <li>- CBL-FUSER12</li> <li>- PSU-T2</li> <li>- PCB-ASSY-ARC</li> <li>- CBL-FUSER21</li> <li>- CBL-FUSER22</li> <li>- CBL-FUSER23</li> <li>- PCB-ASSY-AAC</li> <li>- Ozone filter</li> <li>- Cable (Halogen)</li> <li>- CBL-ARCCNT</li> <li>- PSU-T2</li> <li>- PCB-ASSY-ARC</li> </ul> | <ul style="list-style-type: none"> <li>📖 P. 5-18 (11)</li> <li>📖 P. 9-93</li> <li>📖 P. 9-114</li> <li>📖 P. 9-113</li> <li>📖 P. 9-99</li> <li>📖 P. 9-107</li> <li>📖 P. 9-66</li> <li>📖 P. 9-55</li> <li>📖 P. 9-56</li> </ul> |



| Type | Category | Error No. | Cause  | User Solution  | Service Engineer Inspection<br>(For inspection criteria, see<br>Reference to Check/Replace<br>Parts.)  | Assumed<br>Replacement Part   | Reference to<br>Check/Replace<br>Parts    |
|------|----------|-----------|--|--|--|---|---|
| E    | EN       | 208B      | TH05 (backup roller temperature measurement thermistor) problem        | - Restart the printer.<br>- Open and close the fuser unit drawer.  | - Check TH05 for connector quantity, paper particle, slight removal, bentness, smear, and open/short circuit.<br>- Check CBL-FUSER21 for open/short circuit.<br>- Check CBL-FUSER22 for open/short circuit.<br>- Check CBL-FUSER23 for open/short circuit. | - LED head<br>- CBL-FUSER21<br>- CBL-FUSER22<br>- CBL-FUSER23<br>- PCB-ASSY-AAC<br>- PCB-ASSY-ARC | P. 9-17<br>P. 9-209<br>P. 9-55<br>P. 9-56 |
| E    | EN       | 208C      | TH06 (humidity sensor unit temperature measurement thermistor) problem | <i>ditto</i>   | Check CBL-MECH1 for open/short circuit.  | - CBL-MECH1<br>- Hygrothermal sensor<br>- PCB-ASSY-AAC<br>- PCB-ASSY-ARC                          | P. 9-17<br>P. 9-130<br>P. 9-55<br>P. 9-56 |
| E    | EN       | 208D      | HU01 (humidity sensor) problem   | <i>ditto</i>   | <i>ditto</i>   | <i>ditto</i>  | <i>ditto</i>                              |
| E    | EN       | 20BF      | No folding completion notice from the Folder                           | - Restart the printer.<br>* This error may occur when printing with the Folder bridge in the upper position.<br>- Check the serial cables connection | - Check that the Folder settings are suitable for the Printer.   | —   | —   |
| E    | EN       | 20C1      | EEPROM checksum error (system parameter)                               | Restart the printer.   | Check PCB-ASSY-ARC.  | PCB-ASSY-ARC  | P. 4-34 (1)<br>P. 9-56                    |
| E    | EN       | 20C2      | EEPROM checksum error (system parameter)                               | <i>ditto</i>   | <i>ditto</i>   | <i>ditto</i>  | <i>ditto</i>                              |
| E    | EN       | 20C3      | EEPROM checksum error (system parameter)                               | <i>ditto</i>   | <i>ditto</i>   | <i>ditto</i>  | <i>ditto</i>                              |
| E    | EN       | 20C4      | EEPROM checksum error (print distance after part replacement)          | <i>ditto</i>   | <i>ditto</i>   | <i>ditto</i>  | <i>ditto</i>                              |
| E    | EN       | 20C5      | EEPROM checksum error (print distance after part cleaning)             | <i>ditto</i>   | <i>ditto</i>   | <i>ditto</i>  | <i>ditto</i>                              |
| E    | EN       | 20C8      | EEPROM checksum error (unrecoverable error log)                        | <i>ditto</i>   | <i>ditto</i>   | <i>ditto</i>  | <i>ditto</i>                              |
| E    | EN       | 20C9      | EEPROM checksum error (paper jam error log)                            | <i>ditto</i>   | <i>ditto</i>   | <i>ditto</i>  | <i>ditto</i>                              |
| E    | EN       | 20CA      | EEPROM checksum error (process cartridge usage log)                    | <i>ditto</i>   | <i>ditto</i>   | <i>ditto</i>  | <i>ditto</i>                              |
| E    | EN       | 20D1      | EEPROM checksum error with engine control parameter 100 to 199         | - Restart the printer.<br>- Upgrade the firmware to the latest.  | - Check PCB-ASSY-ARC.<br>- Check EEPROM.   | - EEPROM<br>- PCB-ASSY-ARC  | P. 4-36 (9)<br>P. 9-56                    |
| E    | EN       | 20D2      | EEPROM checksum error with engine control parameter 200 to 299         | <i>ditto</i>   | <i>ditto</i>   | <i>ditto</i>  | <i>ditto</i>                              |
| E    | EN       | 20D3      | EEPROM checksum error with engine control parameter 300 to 399         | <i>ditto</i>   | <i>ditto</i>   | <i>ditto</i>  | <i>ditto</i>                              |
| E    | EN       | 20D4      | EEPROM checksum error with engine control parameter 400 to 499         | <i>ditto</i>   | <i>ditto</i>   | <i>ditto</i>  | <i>ditto</i>                              |
| E    | EN       | 20D5      | EEPROM checksum error with engine control parameter 500 to 599         | <i>ditto</i>   | <i>ditto</i>   | <i>ditto</i>  | <i>ditto</i>                              |

| Type | Category | Error No. | Cause  | User Solution   | Service Engineer Inspection<br>(For inspection criteria, see Reference to Check/Replace Parts.)                      | Assumed Replacement Part                         | Reference to Check/Replace Parts                          |
|------|----------|-----------|--|---|--|--|---|
| E    | EN       | 20D6      | EEPROM checksum error with engine control parameter 600 to 699 | - Restart the printer.<br>- Upgrade the firmware to the latest. | - Check PCB-ASSY-ARC.<br>- Check EEPROM.   | - EEPROM<br>- PCB-ASSY-ARC                       | 📖 P. 4-36 (9)<br>📖 P. 9-56                                |
| E    | EN       | 20D7      | EEPROM checksum error with engine control parameter 700 to 799 | <i>ditto</i>  | <i>ditto</i>   | <i>ditto</i>                                     | <i>ditto</i>  |
| E    | EN       | 20D8      | EEPROM checksum error with engine control parameter 800 to 899 | <i>ditto</i>  | <i>ditto</i>   | <i>ditto</i>                                     | <i>ditto</i>  |
| E    | EN       | 2E40      | Unable to complete the actuator communication initialization.  | <i>ditto</i>  | - Check PCB-ASSY-ARC for contact.<br>- Check PCB-ASSY-AAC for contact.<br>- Check CBL-ARCCNT for open/short circuit. | - PCB-ASSY-ARC<br>- PCB-ASSY-AAC<br>- CBL-ARCCNT | 📖 P. 5-20 (17)<br>📖 P. 4-34 (1)<br>📖 P. 9-55<br>📖 P. 9-56 |
| E    | EN       | 2E50      | Actuator communication's output port write error               | <i>ditto</i>  | <i>ditto</i>   | <i>ditto</i>                                     | <i>ditto</i>  |
| E    | EN       | 2E51      | Actuator communication's packet error                          | <i>ditto</i>  | <i>ditto</i>   | <i>ditto</i>                                     | <i>ditto</i>  |
| E    | EN       | 2E52      | Actuator communication's parity error                          | <i>ditto</i>  | <i>ditto</i>   | <i>ditto</i>                                     | <i>ditto</i>  |
| E    | EN       | 2E53      | Actuator communication's Communication timeout                 | <i>ditto</i>  | <i>ditto</i>   | <i>ditto</i>                                     | <i>ditto</i>  |
| E    | EN       | 2E54      | Actuator communication's buffer overflow error                 | <i>ditto</i>  | <i>ditto</i>   | <i>ditto</i>                                     | <i>ditto</i>  |

## 5.1 Troubleshooting Overview

Troubleshoot the engine problem with the procedure below:

- (1) Level 1 Problem Analysis
- (2) Level 2 Problem Analysis

When analyzing a trouble cause with a tool such as Level 1/2 Problem Analysis or checking chart, read their procedure carefully.

If a problem is caused by two or more causes, to identify each cause you may have to conduct the same check twice or more. In such a case do not skip the check, as the same check may result in the different analysis.

### (1) Level 1 problem analysis

Level 1 problem analysis is the first step to analyze the problem. At this stage check the presence of the error codes and trouble symptom to basically understand the situation.

### (2) Level 2 problem analysis

Level 2 problem analysis contains the problem analysis procedures, with which problems are classified depending on the trouble symptoms such as error codes, paper jams, and all other symptoms.

With the procedures explained in this section or check charts, you will identify the trouble cause efficiently.

**Error code** If the error code displayed on the operation panel indicates the engine-related problem, refer to the error code list for the error details and error reset procedure, then troubleshoot the problem based on the corresponding problem analysis.

**Paper jams** If the paper jams frequently, see **5.3.2 Paper Jam Error Code Problem Analysis** and Frequent paper jam problem analysis to analyze the problem.

**Other problems** For the following problems, identify the corresponding engine block based on the symptom and analyze the problem.

- No error code is displayed; and
- The problem is not paper jams.

### (3) Engine maintenance mode

The Printer includes an engine adjustment function to check and test each part of the engine. The engine adjustment function is used in level 2 problem analysis. From the operation panel, enter the engine maintenance mode, and execute **Adjust -> Engine Adjustment**. See **Chapter 2** for the engine adjustment function description and operation procedures.

## 5.2 Level 1 Problem Analysis

During the level 1 problem analysis, you will divide up and categorize the problem.

If an error message such as E EN nnnn is displayed on the operation panel screen, use this unrecoverable error code information to perform any necessary troubleshooting (see **5.3.1 Unrecoverable Error Code Problem Analysis**).

If you are experiencing frequent paper jams, enter Engine Maintenance mode, check the status of those paper jams, and perform any necessary troubleshooting (see **5.3.2 Paper Jam Error Code Problem Analysis**).

For other problems, troubleshoot by analyzing the solution based on the symptom (see **5.3.3 Problem Analysis Based on Symptoms**).

### 5.3 Level 2 Problem Analysis

#### 5.3.1 Unrecoverable Error Code Problem Analysis

##### (1) 2021/2022/2024 - 2026/2027 - 202B problem analysis

These errors occur when the motor does not run or when the motor's rotational speed changes. Check the MS06-2(24V) operation of the INT5. Then check that no problem is found with the interlock switch MS18 and INT3.

Check the error code displayed, select the motor corresponding to the error code, and then turn the motor On.

Is the motor running?

Yes

No

Check that the voltage between CN1-1 and CN1-5 is +24VDC on the PCB-ASSY-AAC's (actuator control board).

Yes

No

- ◆ Check for a disconnect or a short of the CBL-RASDC.
- ◆ Check the low voltage power supply.

- ◆ Check that the mechanical load is not too high.
- ◆ HM problem  
Check for disconnection and shorts on CBL-FUSER11 and CBL-FUSER12.
- ◆ GM problem  
Check for disconnection and shorts on CBL-DEV1 and CBL-DEV2.
- ◆ TM problem  
Check for disconnection and shorts on CBL-TM.  
If there are no problems, replace the PCB-ASSY-ARC (RIP board) or the PCB-ASSY-AAC (actuator control board).

- ◆ Replace the PCB-ASSY-ARC (RIP board) or the PCB-ASSY-AAC (actuator control board).

**(2) 2023 problem analysis**

This error occurs when the PM01 motor does not run or when the motor's rotational speed changes.

In such a case, check that:

- the PM01 runs;
- no problem is found with the high voltage power system; and
- the CL04 operates normally.

Enter **Actuator** in Engine Maintenance mode. Select the motor that corresponds to the error code that was displayed and turn that motor On.

Is the motor running?

Yes

No

Check that the voltage between CN1-1 and CN1-5 is +24VDC on the PCB-ASSY-AAC (actuator control board).

Yes

No

- ◆ Check for a disconnect or a short of the CBL-RASDC.
- ◆ Check the low voltage power supply.

- ◆ Check that the mechanical load is not too high.
- ◆ Check CBL-PM and CBL-PMDC for a short or open circuit.

If there are no problems, replace the motor, PCB-ASSY-ARC (RIP board) or the PCB-ASSY-AAC (actuator control board).

Mechanical check

- ◆ Check the high voltage power system

Enter Test in Engine Maintenance mode.

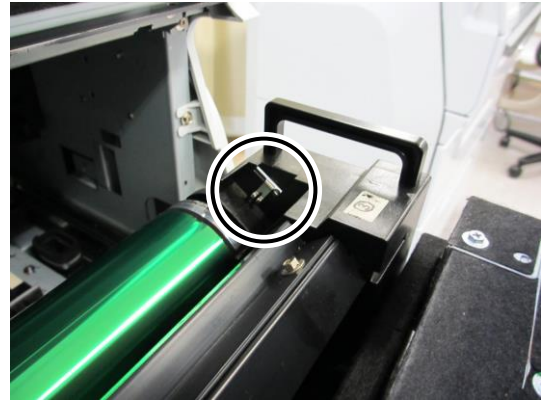
Perform CC CHECK test and check that there are no high-voltage related errors and that the motor rotates.

Check the three following points if a high-voltage or motor related error occurs.

The error E EN 2023 (PM01 trouble) may occur due to the noise generated in the high voltage contact if the connection is not stable.

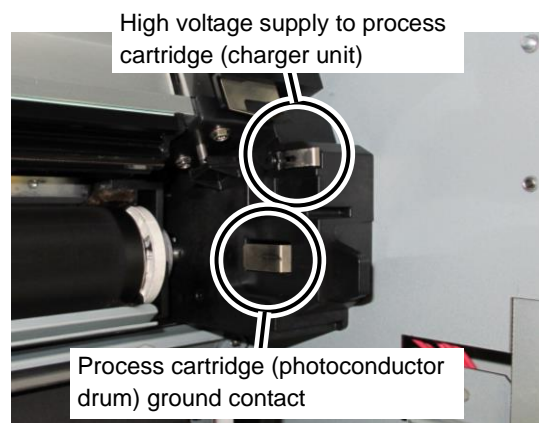
1. Grease at the high voltage supply contact with the charger unit inside the process cartridge.

When a problem occurs, or during the visit of a technician or a regular service inspection, remove all grease from the high voltage supply unit using a dry cleaning cloth and alcohol.



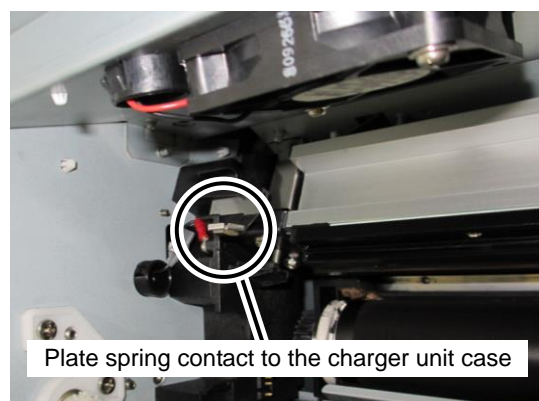
2. Grease at the high voltage supply and ground contacts with the process cartridge inside the Printer.

Remove all grease from parts other than the metal plates using a dry cleaning cloth and alcohol. Also, remove the excess of grease from the contact to leave only a thin layer.



3. Plate spring at the high voltage contact with the charger unit case inside the Printer.

If the contact becomes instable due to the plate spring deformation at the high voltage contact, repair the plate spring bend by hand to secure the contact.



◆ Check CL04 operation

If there are no problems, replace the motor, the PCB-ASSY-ARC (RIP board), or the PCB-ASSY-AAC (actuator control board).

**(3) 2011 - 201C problem analysis**

These errors occur when the motor does not run or when the motor's rotational speed changes. Check the MS06-2(24V) operation of the INT5. Then check that no problem is found with the interlock switch MS18 and INT3.

Select **Actuator** in Engine Maintenance mode. Check the error code displayed, select the motor corresponding to the error code, and then turn the motor On.

Is the motor running?

|                              |   |
|------------------------------|---|
| Yes                          | No  |
|                              | Check that the voltage between CN1-1 and CN1-5 is +24VDC on the PCB-ASSY-AAC (actuator control board).        |
|                              | Yes   |
|                              | No  |
|                              | ◆ Check for a disconnect or a short of the CBL-RASDC.   |
|                              | ◆ Check the low voltage power supply.   |
|                              | ◆ Check that the mechanical load is not too high.   |
|                              | ◆ Check the cable for a short or open circuit.  |
|                              | - FM01 problem  |
|                              | Check CBL-RFU11 and CBL-RFU12 for a short or open circuit.  |
|                              | - FM02 Problem  |
|                              | Check CBL-RFU21 and CBL-RFU12 for a short or open circuit.  |
|                              | If there are no problems, replace the PCB-ASSY-ARC (RIP board), or the PCB-ASSY-AAC (actuator control board). |
| Mechanical check             |   |
| ◆ Check for any gear damage. |   |

**(4) 2030/203A problem analysis**

The power supply's frequency counter pulse was input abnormally.

- ◆ Check CBL-ARCCNT for a short or open circuit.
- If there are no problems, replace the low voltage power supply or the PCB-ASSY-ARC (RIP board).



**(5) 2031 problem analysis**

The error E EN 2031 may occur due to the noise generated in the high voltage contact when the connection is not stable.

Clean the contact while referring to the steps 1, 2, and 3 on page 5-13.

If the problem is not solved even after performing the procedure above, check the following.

The output has shorted at the high-voltage output signal line, CH1, CH2, or CH4.

Turn on CH1, CH2, and CH4 one at a time. Check for any electrical discharge noise and check to ensure that the high voltage power supply's monitor output is stable to determine which CH has shorted out.

See **High Voltage Power Supply Voltage/Current Calibration**

Select **Test** in Engine Maintenance mode. Select the item that corresponds to each process.

**CH1 Problem (CC Check)**

- ◆ Check the process cartridge. (Check for dirty wires or foreign particles, loose wires, etc. Also, check for any grid dirtiness or looseness.)
- ◆ Check CBL-HV1 for a short.

If any problems are observed, replace those parts.

**CH2 Problem (DB Check)**

- ◆ Check the developer unit (check the contact of the developer bias contact).
- ◆ Check for shorts on CBL-HV2 and CBL-HV21.

If any problems are observed, replace those parts.

**CH4 Problem (DC Check)**

- ◆ Check the separator unit. (Check for any dirt or foreign particles on the needle shaped electrode and for any looseness or other problems. Also, check the installation condition of the transfer unit.)
- ◆ Check for shorts on CBL-HV4 and CBL-HV41.

If any problems are observed, replace those parts.

If there are problems on all CH

Replace the PCB-ASSY-ARC (RIP board).

Check CBL-ARCCNT for a short or open circuit.

If the problem is not solved with the operations above, replace the HV(4CH)-PSU-T2.

**(6) 2032 problem analysis**

The output has shorted at the high-voltage output signal line, CH3.  
Turn on CH3. Check for any electrical discharge noise and check to ensure that the high voltage power supply's monitor output is stable to determine if CH has shorted out.  
See **High Voltage Power Supply Voltage/Current Calibration**.

CH3 Problem (TC Check)

- ◆ Check the transfer unit. (Check for any foreign particles on the transfer roller. Also, check the installation of the transfer unit.)
  - ◆ Check CBL-HV3 and CBL-HV31 for a short.
- If any problems are observed, replace those parts.

**(7) 2035/2036/2037 problem analysis**

These errors occur when the configuration (writing of correction data) of the LED head was not performed properly.

Is the voltage on the LED head's CN2-1 and CN2-2 +5VDC?

Yes      No

- |  |  |
|--|--|
|  | ◆ Check for a disconnect or a short of the CBL-LEDHDC. |
|  | ◆ Check the low voltage power supply.                  |
|  | If there are no problems, replace the LED head.        |

Check CBL-LEDH1.

If there are no problems, replace the LED head or the PCB-ASSY-ARC (RIP board).

**(8) 2081 problem analysis**

- ◆ Check the installation condition of TH01 (fuser control thermistor).  
(Look for loose connectors, paper particles, raised or bent spots, etc.)  
Check for dirt on the contact surface of TH01's roller (heat). Clean any dirt off if necessary.
  - ◆ Check for any open circuits on TH01.  
If there is a problem, replace the TH01.
  - ◆ Check for shorts on TH02 (overheat thermistor). (The thermistor is not functioning properly if its resistance value is 1k ohms or less.)
  - ◆ Check for shorts on CBL-FUSER21, CBL-FUSER22, and CBL-FUSER23.
- If any problems are observed, replace those parts.  
If there are no problems, replace the PCB-ASSY-ARC (RIP board) or the PCB-ASSY-AAC (actuator control board).

**(9) 2082/2087 problem analysis**

- ◆ Check for shorts on TH01 and TH04 (fuser control thermistor).  
(The thermistor is not functioning properly if its resistance value is 1k ohms or less.)
- ◆ Check for shorts on CBL-FUSER21, CBL-FUSER22, CBL-FUSER23, CBL-FUSER11, CBL-FUSER12, and CBL-FUSER13.

If any problems are observed, replace those parts.

If there are no problems, replace the PCB-ASSY-ARC (RIP board) or the PCB-ASSY-AAC (actuator control board).

**(10) 2083/2088 problem analysis**

Check the operational status of each of the fans.

Check the operation of BL02 (fuser fan) and BL06 (fuser A3 fan).

Does each fan operate properly?

Yes      No

|

Replace any fans operating improperly.

Check for shorts on TH01 and TH04 (fuser control thermistor).

- ◆ Check TH01 and TH04.
- If there is a problem, replace the TH01 or TH04.
- ◆ Check CBL-FUSER21, CBL-FUSER22, and CBL-FUSER23.
  - ◆ Check for any clogging of the ozone filter.

Replace the ozone filter if it is clogged.

**Note**      ◇ Ensure that the halogen heater turns on and off every few seconds.

(11) 2084/2089/208A problem analysis

Check to ensure that the two halogen heaters light up.



**Warning**

- ◇ When checking to see if the halogen heater lights up, make sure that the fuser unit temperature has decreased sufficiently.

**Note** ◇ After checking that the heaters light up, quickly turn off the halogen heater by either turning off the power or opening the cover.

Are the halogen heaters lit up?

Yes

No

Check the operations of MS06-2(24V) and MS18 in the INT5(MS06) for:

- Proper installation; and
- Continuity

Check that the temperature fuse, THM for continuity.

Yes

No

Replace the temperature fuse ASSY.

\* After you have replaced the part, perform the **2084, 2089 and 208A problem analysis** once again.

- ◆ Check the continuity of the heaters FL01 and FL02.

Was continuity detected?

Yes

No

Replace the halogen heater that is not conducting.

- ◆ Check CBL-FUSER11, CBL-FUSER12, and Cable (Halogen) for open circuits.

- ◆ Check CBL-ARCCNT for a short or open circuit.

If the problem persists, replace the low voltage power supply unit or the PCB-ASSY-ARC (RIP board).

- ◆ Check the installation conditions for TH01, TH04 (fuser control thermistor), and TH02 (overheat thermistor). (Look for loose connectors, paper particles, raised or bent spots, etc.)
- ◆ Check for dirt on the contact surface of TH01, TH02, and TH04's rollers (heat). Clean any dirt off if necessary.
- ◆ Check for any open circuits on TH01, TH02, and TH04. If there is a problem, replace the TH01, TH02, or TH04.
- ◆ Check for shorts on CBL-FUSER21, CBL-FUSER22, CBL-FUSER23, and CBL-FUSER13. If there are no problems, replace the PCB-ASSY-ARC (RIP board) or the PCB-ASSY-AAC (actuator control board).

**(12) 2085 problem analysis**

- ◆ Check for shorts on TH03 (LED head thermistor).  
(The thermistor is not functioning properly if its resistance value is 1k ohms or less.)  
If there is a problem, replace the LED head.
- ◆ Check for shorts on CBL-MECH2.

If there are no problems, replace the PCB-ASSY-ARC (RIP board) or the PCB-ASSY-AAC (actuator control board).

**(13) 2086 problem analysis**

Check the operational status of each fan.  
Check the operation of BL01 (suction fan), BL02 (fuser fan), and BL06 (fuser A3 fan).

Does each fan operates properly?

Yes      No

|  |  |
|--|--|
|  | Replace the fans operating improperly. |
|--|--|

Check for shorts on TH03 (LED head thermistor).

- ◆ Check TH03.  
If there is a problem, replace the LED head.
- ◆ Check CBL-MECH2.
- ◆ Check for any clogging of the ozone filter.  
Replace the ozone filter if it is clogged.

**(14) 20C1 - 20CA problem analysis**

Replace the PCB-ASSY-ARC (RIP board).

**(15) 208B problem analysis**

- ◆ Check for shorts on TH05 (backup roller temperature measurement thermistor).  
The thermistor's resistance must be more than 1kΩ.  
If there is a problem, replace the LED head.
- ◆ Check for short/open circuit on CBL-FUSER11, CBL-FUSER12, and CBL-FUSER13.

If there are no problems, replace the PCB-ASSY-ARC (RIP board) or the PCB-ASSY-AAC (actuator control board).

**(16) 208C/208D problem analysis**

- ◆ Check for short/open circuit on CBL-MECH1.  
If there is a problem, replace the CBL-MECH1.

If there are no problems, replace the environment hygrothermal sensor, PCB-ASSY-ARC (RIP board), or PCB-ASSY-AAC (actuator control board).

**(17) 2E40/2E50/2E51/2E52/2E53/2E54 problem analysis**

- ◆ Check for short/open circuit on CBL-ARCCNT.  
If there is a problem, replace the CBL-ARCCNT.

If there are no problems, replace the PCB-ASSY-ARC (RIP board) or the PCB-ASSY-AAC (actuator control board).

### 5.3.2 Paper Jam Error Code Problem Analysis

Clear the paper jam error as follows.

- (1) If a four digit error code is displayed on the upper right or upper left of the operation panel when a paper jam error occurs, follow the information displayed on the panel to solve the problem.
- (2) If the problem is not solved with the messages on the operation panel, identify the problem cause, analyze the problem with the error code, and solve the problem based on the error code.

Table 5-2 lists the Troubleshooting on the paper jam error.

Table 5-2 Troubleshooting on Paper Jam Error

| Type | Category | Error No. | Cause  | User Solution  | Service Engineer Inspection<br>(For inspection criteria, see Reference to Check/Replace Parts.)  | Assumed Replacement Part  | Reference to Check/Replace Parts   |
|------|----------|-----------|--|--|--|---|--|
|      | JAM      | 3042      | Problem occurred when the cutter blade is moving<br>The Printer detects the cutter blade at neither right nor left home position.  | <ul style="list-style-type: none"> <li>- Open the roll paper drawer, and check that neither foreign particle nor paper particle is found around the cutter.</li> <li>- If the cutter is not at the right or left arrow position, move it to the position.</li> <li>- Check the paper type settings (see the <b>User's Manual for Basic Printer Operation</b>).</li> <li>- Install the OKI DATA INFOTECH official paper, or replace the current roll paper (see the <b>User's Manual for Basic Printer Operation</b>).</li> <li>- Restart the printer.</li> </ul> | <ul style="list-style-type: none"> <li>- Check that neither foreign particle nor paper particle is found in the cutter unit.</li> <li>- Check the paper specifications.</li> <li>- Check RE03 for On/Off setting.</li> <li>- Check RE04 for On/Off setting.</li> <li>- Check for open/short circuit on CBL-CUT1.</li> <li>- Check the stop position of RE03 and -04 and cutter blade.</li> </ul> | <ul style="list-style-type: none"> <li>- PCB-ASSY-ARC</li> <li>- PCB-ASSY-AAC</li> <li>- Cutter unit</li> <li>- CBL-CUT1</li> </ul> | <ul style="list-style-type: none"> <li>📖 P. 5-29 (3)</li> <li>📖 P. 9-56</li> <li>📖 P. 9-55</li> <li>📖 P. 9-33</li> </ul> |
|      | JAM      | 3043      | Problem occurred when the cutter blade is moving<br>The printer detected the cutter blade on the right and left home positions.  | <i>ditto</i>   | <i>ditto</i>   | <i>ditto</i>  | <i>ditto</i>   |
|      | JAM      | 3045      | Problem occurred when the cutter blade is moving<br>The cutter blade does not move from the home position.   | <i>ditto</i>   | <i>ditto</i>   | <i>ditto</i>  | <i>ditto</i>   |
|      | JAM      | 3046      | Problem occurred when the cutter blade is moving<br>After moving the cutter blade from one home position, the printer does not detect the cutter blade on the other home position. | <i>ditto</i>   | <i>ditto</i>   | <i>ditto</i>  | <i>ditto</i>   |
|      | JAM      | 3047      | Problem occurred when the cutter blade is moving<br>After reaching the home position, the cutter blade did not stop on the home position.  | <i>ditto</i>   | <i>ditto</i>   | <i>ditto</i>  | <i>ditto</i>   |

| Type | Category | Error No. | Cause  | User Solution   | Service Engineer Inspection<br>(For inspection criteria, see<br>Reference to Check/Replace<br>Parts.)  | Assumed<br>Replacement Part   | Reference to<br>Check/Replace<br>Parts   |
|------|----------|-----------|--|---|--|---|--|
|      | JAM      | 3401      | The lead edge of the paper is reaching PS04 too quickly.   | <ul style="list-style-type: none"> <li>- Remove the paper particles following the operation panel indication.</li> <li>- Check that the paper flange is fixed.</li> <li>- Check that the paper flange is installed on the flange guide properly.</li> <li>- When the paper head edge is bent, folded, or burred, cut the paper edge.</li> <li>- Check that the roll paper is installed properly (see the <b>User's Manual for Basic Printer Operation, Replacing the Roll Paper</b>).</li> <li>- Install the OKI DATA INFOTECH official paper, or replace the current roll paper (see the <b>User's Manual for Basic Printer Operation</b>).</li> <li>- Restart the printer.</li> </ul> | <ul style="list-style-type: none"> <li>- Check that the paper and paper flange are installed properly.</li> <li>- Check that no foreign particle is found on the paper feed roller's surface.</li> <li>- Check that the paper head edge is not bent, folded, or burred. Perform 3042-3047 problem analysis.</li> <li>- Check that PS04 is installed securely and its lever functions normally.</li> <li>- Check the paper delivery path to PS04.</li> </ul>                                    | <ul style="list-style-type: none"> <li>- PS04</li> <li>- Cutter unit</li> <li>- PCB-ASSY-ARC</li> <li>- PCB-ASSY-AAC</li> </ul>   | <ul style="list-style-type: none"> <li>📖 P. 5-29 (4)</li> <li>📖 P. 9-148</li> <li>📖 P. 9-33</li> <li>📖 P. 9-56</li> <li>📖 P. 9-55</li> </ul>                     |
|      | JAM      | 3402      | The lead edge of the paper is reaching PS04 too quickly.   | <i>ditto</i>  | <i>ditto</i>   | <i>ditto</i>  | <i>ditto</i>   |
|      | JAM      | 3403      | The lead edge of the paper is not reaching PS04.   | <i>ditto</i>  | <ul style="list-style-type: none"> <li>- Check the paper is installed properly.</li> <li>- Check that no paper particle is found at PS04.</li> <li>- Check that the paper head edge is not bent, folded, or burred. Perform 3042-3047 problem analysis.</li> <li>- Check PS04 for On/Off setting.</li> <li>- Check CBL-CUT1 for open/short circuit.</li> <li>- Check that FM01 and 02 rotate.</li> <li>- Perform 2021 problem analysis.</li> </ul>   | <ul style="list-style-type: none"> <li>- PS04</li> <li>- MS18</li> <li>- INT3</li> <li>- HM01</li> <li>- PCB-ASSY-AAC</li> <li>- PCB-ASSY-ARC</li> <li>- Cutter unit</li> <li>- CBL-CUT1</li> </ul> | <ul style="list-style-type: none"> <li>📖 P. 5-30 (5)</li> <li>📖 P. 9-148</li> <li>📖 P. 9-128</li> <li>📖 P. 9-33</li> <li>📖 P. 9-56</li> <li>📖 P. 9-55</li> </ul> |
|      | JAM      | 3404      | The lead edge of the paper is not reaching PS04.   | <i>ditto</i>  | <i>ditto</i>   | <i>ditto</i>  | <i>ditto</i>   |
|      | JAM      | 3491      | When rewinding the roll paper, it is reaching PS04 too quickly.  | <i>ditto</i>  | <ul style="list-style-type: none"> <li>- Check that the paper and paper flange are installed properly.</li> <li>- Check that the paper head edge is not bent, folded, or burred. Perform 3042-3047 problem analysis.</li> <li>- Check that PS04 is installed securely and its lever functions normally.</li> <li>- Check the paper delivery path from PS04 to PS05.</li> </ul>   | <ul style="list-style-type: none"> <li>- PS04</li> <li>- Cutter unit</li> <li>- PCB-ASSY-ARC</li> <li>- PCB-ASSY-AAC</li> </ul>   | <ul style="list-style-type: none"> <li>📖 P. 5-31 (6)</li> <li>📖 P. 9-148</li> <li>📖 P. 9-33</li> <li>📖 P. 9-56</li> <li>📖 P. 9-55</li> </ul>                     |
|      | JAM      | 3492      | When rewinding the roll paper, it is reaching PS04 too quickly.  | <i>ditto</i>  | <i>ditto</i>   | <i>ditto</i>  | <i>ditto</i>   |
|      | JAM      | 3493      | When rewinding the roll paper, there is still paper at the PS04 position even after the estimated paper pass-through time is exceeded. | <i>ditto</i>  | <ul style="list-style-type: none"> <li>- Check the paper is installed properly.</li> <li>- Check that no paper particle is found at PS04.</li> <li>- Check that the paper head edge is not bent, folded, or burred. Perform 3042-3047 problem analysis.</li> <li>- Check PS04 for On/Off setting.</li> <li>- Check CBL-CUT1 for open/short circuit.</li> <li>- Check that FM01 and 02 rotate.</li> <li>- Check the pinch roller pressure.</li> <li>- Perform 2021 problem analysis.</li> </ul> | <ul style="list-style-type: none"> <li>- PS04</li> <li>- MS18</li> <li>- INT3</li> <li>- HM01</li> <li>- PCB-ASSY-AAC</li> <li>- PCB-ASSY-ARC</li> <li>- Cutter unit</li> <li>- CBL-CUT1</li> </ul> | <ul style="list-style-type: none"> <li>📖 P. 5-32 (7)</li> <li>📖 P. 9-148</li> <li>📖 P. 9-128</li> <li>📖 P. 9-33</li> <li>📖 P. 9-56</li> <li>📖 P. 9-55</li> </ul> |



| Type | Category | Error No. | Cause  | User Solution   | Service Engineer Inspection<br>(For inspection criteria, see<br>Reference to Check/Replace<br>Parts.)  | Assumed<br>Replacement Part   | Reference to<br>Check/Replace<br>Parts  |
|------|----------|-----------|--|---|--|---|---|
|      | JAM      | 3494      | When rewinding the roll paper, there is still paper at the PS04 position even after the estimated paper pass-through time is exceeded. | <ul style="list-style-type: none"> <li>- Remove the paper particles following the operation panel indication.</li> <li>- Check that the paper flange is fixed.</li> <li>- Check that the paper flange is installed on the flange guide properly.</li> <li>- When the paper head edge is bent, folded, or burred, cut the paper edge.</li> <li>- Check that the roll paper is installed properly (see the <b>User's Manual for Basic Printer Operation, Replacing the Roll Paper</b>).</li> <li>- Install the OKI DATA INFOTECH official paper, or replace the current roll paper (see the <b>User's Manual for Basic Printer Operation</b>).</li> <li>- Restart the printer.</li> </ul> | <ul style="list-style-type: none"> <li>- Check the paper is installed properly.</li> <li>- Check that no paper particle is found at PS04.</li> <li>- Check that the paper head edge is not bent, folded, or burred. Perform 3042-3047 problem analysis.</li> <li>- Check PS04 for On/Off setting.</li> <li>- Check CBL-CUT1 for open/short circuit.</li> <li>- Check that FM01 and 02 rotate.</li> <li>- Check the pinch roller pressure.</li> <li>- Perform 2021 problem analysis.</li> </ul> | <ul style="list-style-type: none"> <li>- PS04</li> <li>- MS18</li> <li>- INT3</li> <li>- HM01</li> <li>- PCB-ASSY-AAC</li> <li>- PCB-ASSY-ARC</li> <li>- Cutter unit</li> <li>- CBL-CUT1</li> </ul> | <ul style="list-style-type: none"> <li>📖 P. 5-32 (7)</li> <li>📖 P. 9-148</li> <li>📖 P. 9-128</li> <li>📖 P. 9-33</li> <li>📖 P. 9-56</li> <li>📖 P. 9-55</li> </ul>  |
|      | JAM      | 3501      | The lead edge of the paper is reaching PS05 too quickly.   | <i>ditto</i>  | <ul style="list-style-type: none"> <li>- Check that the paper and paper flange are installed properly.</li> <li>- Check that no foreign particle is found on the paper feed roller's surface.</li> <li>- Check that the paper head edge is not bent, folded, or burred. Perform 3042-3047 problem analysis.</li> <li>- Check that PS05 is installed securely and its lever functions normally.</li> <li>- Check the paper delivery path to PS05.</li> </ul>                                    | <ul style="list-style-type: none"> <li>- PS05</li> <li>- Cutter unit</li> <li>- PCB-ASSY-ARC</li> <li>- PCB-ASSY-AAC</li> </ul>   | <ul style="list-style-type: none"> <li>📖 P. 5-32 (8)</li> <li>📖 P. 9-148</li> <li>📖 P. 9-33</li> <li>📖 P. 9-56</li> <li>📖 P. 9-55</li> </ul>                      |
|      | JAM      | 3502      | The lead edge of the paper is reaching PS05 too quickly.   | <i>ditto</i>  | <i>ditto</i>   | <i>ditto</i>  | <i>ditto</i>  |
|      | JAM      | 3503      | The lead edge of the paper is not reaching PS05.   | <i>ditto</i>  | <ul style="list-style-type: none"> <li>- Check that the paper and paper flange are installed properly.</li> <li>- Check PS05 for On/Off setting.</li> <li>- Check CBL-MECH2 and CBL-PS04 for short circuit.</li> <li>- Check that PS05 is installed securely and its lever functions normally.</li> <li>- Check the paper delivery path from PS04 to PS05.</li> <li>- Check the pinch roller pressure.</li> <li>- Perform 3042-3047 problem analysis.</li> </ul>                               | <ul style="list-style-type: none"> <li>- PS05</li> <li>- Cutter unit</li> <li>- PCB-ASSY-ARC</li> <li>- PCB-ASSY-AAC</li> <li>- CBL-MECH2</li> <li>- CBL-PS04</li> </ul>                            | <ul style="list-style-type: none"> <li>📖 P. 5-33 (9)</li> <li>📖 P. 9-148</li> <li>📖 P. 9-33</li> <li>📖 P. 9-56</li> <li>📖 P. 9-55</li> </ul>                      |
|      | JAM      | 3504      | The lead edge of the paper is not reaching PS05.   | <i>ditto</i>  | <i>ditto</i>   | <i>ditto</i>  | <i>ditto</i>  |
|      | JAM      | 3591      | The tail edge of the paper is disengaging from PS05 too quickly.   | <i>ditto</i>  | <ul style="list-style-type: none"> <li>- Check that no problem is found with the cutting condition at the paper tail edge. Perform 3042-3047 problem analysis.</li> <li>- Check that no foreign particle is found on the registration roller's surface.</li> <li>- Check that PS05 is installed securely and its lever functions normally.</li> <li>- Check paper delivery path to PS05.</li> <li>- Check the pinch roller pressure.</li> <li>- Check the motor TM01.</li> </ul>               | <ul style="list-style-type: none"> <li>- PS05</li> <li>- Cutter unit</li> <li>- PCB-ASSY-ARC</li> <li>- PCB-ASSY-AAC</li> <li>- Motor (TM01)</li> </ul>   | <ul style="list-style-type: none"> <li>📖 P. 5-33 (10)</li> <li>📖 P. 9-148</li> <li>📖 P. 9-33</li> <li>📖 P. 9-56</li> <li>📖 P. 9-55</li> <li>📖 P. 9-131</li> </ul> |
|      | JAM      | 3592      | The tail edge of the paper is disengaging from PS05 too quickly.   | <i>ditto</i>  | <i>ditto</i>   | <i>ditto</i>  | <i>ditto</i>  |

| Type | Category | Error No. | Cause  | User Solution   | Service Engineer Inspection<br>(For inspection criteria, see<br>Reference to Check/Replace<br>Parts.)  | Assumed<br>Replacement Part   | Reference to<br>Check/Replace<br>Parts   |
|------|----------|-----------|--|---|--|---|--|
|      | JAM      | 3593      | The tail edge of the paper is not disengaging from the PS05 position even after the estimated paper pass-through time is exceeded. | <ul style="list-style-type: none"> <li>- Remove the paper particles following the operation panel indication.</li> <li>- Check that the paper flange is fixed.</li> <li>- Check that the paper flange is installed on the flange guide properly.</li> <li>- When the paper head edge is bent, folded, or burred, cut the paper edge.</li> <li>- Check that the roll paper is installed properly (see the <b>User's Manual for Basic Printer Operation, Replacing the Roll Paper</b>).</li> <li>- Install the OKI DATA INFOTECH official paper, or replace the current roll paper (see the <b>User's Manual for Basic Printer Operation</b>).</li> <li>- Restart the printer.</li> </ul> | <ul style="list-style-type: none"> <li>- Check that no paper particle is found on PS05.</li> <li>- Check that no problem is found with the cutting condition at the paper tail edge. Perform 3042-3047 problem analysis.</li> <li>- Check PS05 for On/Off setting.</li> <li>- Check CBL-MECH2 and CBL-PS04 for short circuit.</li> <li>- Check that PS05 is installed securely and its lever functions normally.</li> <li>- Check the CL04 operation.</li> <li>- Check paper delivery path after PS05.</li> <li>- Check the pinch roller pressure.</li> <li>- Check the motor TM01 operation.</li> <li>- Check PCB-ASSY-AAC.</li> </ul>  | <ul style="list-style-type: none"> <li>- PS05</li> <li>- Cutter unit</li> <li>- PCB-ASSY-ARC</li> <li>- PCB-ASSY-AAC</li> <li>- Motor (TM01)</li> <li>- CL04</li> </ul>   | <ul style="list-style-type: none"> <li>📖 P. 5-34 (11)</li> <li>📖 P. 9-148</li> <li>📖 P. 9-33</li> <li>📖 P. 9-56</li> <li>📖 P. 9-55</li> <li>📖 P. 9-131</li> <li>📖 P. 9-46</li> </ul> |
|      | JAM      | 3594      | The tail edge of the paper is not disengaging from the PS05 position even after the estimated paper pass-through time is exceeded. | <i>ditto</i>  | <i>ditto</i>   | <i>ditto</i>  | <i>ditto</i>   |
|      | JAM      | 3601      | The lead edge of the paper is reaching PS06 too quickly.   | <i>ditto</i>  | <ul style="list-style-type: none"> <li>- Check that no problem is found with the cutting condition at the paper tail edge. Perform 3042-3047 problem analysis.</li> <li>- Check that PS06 is installed securely and its lever functions normally.</li> <li>- Check that CL04 if installed securely and operates normally.</li> </ul>   | <ul style="list-style-type: none"> <li>- PS06</li> <li>- Cutter unit</li> <li>- PCB-ASSY-ARC</li> <li>- PCB-ASSY-AAC</li> <li>- CL04</li> </ul>   | <ul style="list-style-type: none"> <li>📖 P. 5-34 (12)</li> <li>📖 P. 9-219</li> <li>📖 P. 9-33</li> <li>📖 P. 9-56</li> <li>📖 P. 9-55</li> <li>📖 P. 9-46</li> </ul>                     |
|      | JAM      | 3602      | The lead edge of the paper is reaching PS06 too quickly.   | <i>ditto</i>  | <i>ditto</i>   | <i>ditto</i>  | <i>ditto</i>   |
|      | JAM      | 3603      | The lead edge of the paper is not reaching PS06.   | <i>ditto</i>  | <ul style="list-style-type: none"> <li>- Check that the paper and paper flange are installed properly.</li> <li>- Check that no problem is found with the cutting condition at the paper tail edge. Perform 3042-3047 problem analysis.</li> <li>- Check PS06 for On/Off setting.</li> <li>- Check CBL-FUSER21 and -22 and CBL-PS06 for short circuit.</li> <li>- Check that PS06 is installed securely and its lever functions normally.</li> <li>- Check the paper delivery path.</li> <li>- Check that the belt is extended.</li> <li>- Check that the paper is not bubbled.</li> <li>- Check that the paper is separated from the drum.</li> <li>- Check the BL01 operation.</li> <li>- Check the ozone filter.</li> </ul> | <ul style="list-style-type: none"> <li>- PS06</li> <li>- Cutter unit</li> <li>- PCB-ASSY-ARC</li> <li>- PCB-ASSY-AAC</li> <li>- BL01</li> <li>- Ozone filter</li> <li>- CBL-FUSER21/22</li> <li>- CBL-PS06</li> </ul> | <ul style="list-style-type: none"> <li>📖 P. 5-35 (13)</li> <li>📖 P. 9-219</li> <li>📖 P. 9-33</li> <li>📖 P. 9-56</li> <li>📖 P. 9-55</li> <li>📖 P. 9-79</li> </ul>                     |
|      | JAM      | 3604      | The lead edge of the paper is not reaching PS06.   | <i>ditto</i>  | <i>ditto</i>   | <i>ditto</i>  | <i>ditto</i>   |

## Chapter 5 Engine Problems Troubleshooting

| Type | Category | Error No. | Cause  | User Solution   | Service Engineer Inspection<br>(For inspection criteria, see Reference to Check/Replace Parts.)   | Assumed Replacement Part   | Reference to Check/Replace Parts   |
|------|----------|-----------|--|---|---|--|--|
|      | JAM      | 3691      | The tail edge of the paper is disengaging from PS06 too quickly. | <ul style="list-style-type: none"> <li>- Remove the paper particles following the operation panel indication.</li> <li>- Check that the paper flange is fixed.</li> <li>- Check that the paper flange is installed on the flange guide properly.</li> <li>- When the paper head edge is bent, folded, or burred, cut the paper edge.</li> <li>- Check that the roll paper is installed properly (see the <b>User's Manual for Basic Printer Operation, Replacing the Roll Paper</b>).</li> <li>- Install the OKI DATA INFOTECH official paper, or replace the current roll paper (see the <b>User's Manual for Basic Printer Operation</b>).</li> <li>- Restart the printer.</li> </ul> | <ul style="list-style-type: none"> <li>- Check that no problem is found with the cutting condition at the paper head edge. Perform 3042-3047 problem analysis.</li> <li>- Check that PS06 is installed securely and its lever functions normally.</li> <li>- Check that the paper is not bubbled.</li> <li>- Check that the paper is separated from the drum.</li> <li>- Check the BL01 operation.</li> <li>- Check the ozone filter.</li> <li>- Check the paper cut length.</li> <li>- Check the motor TM01.</li> </ul>  | <ul style="list-style-type: none"> <li>- PS06</li> <li>- Cutter unit</li> <li>- PCB-ASSY-ARC</li> <li>- PCB-ASSY-AAC</li> <li>- Motor (TM01)</li> <li>- BL01</li> </ul>  | <ul style="list-style-type: none"> <li>📖 P. 5-36 (14)</li> <li>📖 P. 9-219</li> <li>📖 P. 9-33</li> <li>📖 P. 9-56</li> <li>📖 P. 9-55</li> <li>📖 P. 9-131</li> <li>📖 P. 9-79</li> </ul> |
|      | JAM      | 3692      | The tail edge of the paper is disengaging from PS06 too quickly. | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>   | <i>ditto</i>   |
|      | JAM      | 3701      | The lead edge of the paper is reaching PS07 too quickly.         | <i>ditto</i>  | <ul style="list-style-type: none"> <li>- Check that no problem is found with the cutting condition at the paper head edge. Perform 3042-3047 problem analysis.</li> <li>- Check that PS07 is installed securely and its lever functions normally.</li> <li>- Check the paper delivery path.</li> <li>- Check PS07 for On/Off setting.</li> <li>- Check the fuser drive mechanism.</li> </ul>  | <ul style="list-style-type: none"> <li>- PS07</li> <li>- Cutter unit</li> <li>- PCB-ASSY-ARC</li> <li>- PCB-ASSY-AAC</li> <li>- FUSER UNIT</li> </ul>  | <ul style="list-style-type: none"> <li>📖 P. 5-37 (16)</li> <li>📖 P. 9-148</li> <li>📖 P. 9-33</li> <li>📖 P. 9-56</li> <li>📖 P. 9-55</li> </ul>  |
|      | JAM      | 3702      | The lead edge of the paper is reaching PS07 too quickly.         | <i>ditto</i>  | <ul style="list-style-type: none"> <li>- Check that no problem is found with the cutting condition at the paper head edge. Perform 3042-3047 problem analysis.</li> <li>- Check that PS07 is installed securely and its lever functions normally.</li> <li>- Check the paper is fed normally.</li> <li>- Check PS07 for On/Off setting.</li> <li>- Check the fuser drive mechanism.</li> </ul>  | <i>ditto</i>   | <i>ditto</i>   |
|      | JAM      | 3703      | The lead edge of the paper is not reaching PS07.                 | <i>ditto</i>  | <ul style="list-style-type: none"> <li>- Check that no problem is found with the cutting condition at the paper head edge. Perform 3042-3047 problem analysis.</li> <li>- Check PS07 for On/Off setting.</li> <li>- Check CBL-FUSER21, -22, and -23 and CBL-PS07 for short circuit.</li> <li>- Check that PS07 is installed securely and its lever functions normally.</li> <li>- Check that the paper is fed normally.</li> <li>- Check the fuser drive mechanism.</li> <li>- Check the fuser separating claw.</li> <li>- Check the BL01 operation.</li> </ul> | <ul style="list-style-type: none"> <li>- PS07</li> <li>- Cutter unit</li> <li>- PCB-ASSY-ARC</li> <li>- PCB-ASSY-AAC</li> <li>- FUSER UNIT</li> <li>- BL01</li> <li>- CBL-FUSER21/22/23</li> <li>- CBL-PS07</li> </ul> | <ul style="list-style-type: none"> <li>📖 P. 5-38 (17)</li> <li>📖 P. 9-148</li> <li>📖 P. 9-33</li> <li>📖 P. 9-56</li> <li>📖 P. 9-55</li> <li>📖 P. 9-79</li> </ul>                     |
|      | JAM      | 3704      | The lead edge of the paper is not reaching PS07.                 | <i>ditto</i>  | <i>ditto</i>  | <ul style="list-style-type: none"> <li>- PS07</li> <li>- Cutter unit</li> <li>- PCB-ASSY-ARC</li> <li>- PCB-ASSY-AAC</li> <li>- FUSERUNIT</li> <li>- BL01</li> </ul>   | <i>ditto</i>   |

| Type | Category | Error No. | Cause  | User Solution   | Service Engineer Inspection<br>(For inspection criteria, see<br>Reference to Check/Replace<br>Parts.)   | Assumed<br>Replacement Part  | Reference to<br>Check/Replace<br>Parts  |
|------|----------|-----------|--|---|---|--|---|
|      | JAM      | 3791      | The tail edge of the paper is disengaging from PS07 too quickly.   | <ul style="list-style-type: none"> <li>- Remove the paper particles following the operation panel indication.</li> <li>- Check that the paper flange is fixed.</li> <li>- Check that the paper flange is installed on the flange guide properly.</li> <li>- When the paper head edge is bent, folded, or burred, cut the paper edge.</li> <li>- Check that the roll paper is installed properly (see the <b>User's Manual for Basic Printer Operation, Replacing the Roll Paper</b>).</li> <li>- Install the OKI DATA INFOTECH official paper, or replace the current roll paper (see the <b>User's Manual for Basic Printer Operation</b>).</li> <li>- Restart the printer.</li> </ul> | <ul style="list-style-type: none"> <li>- Check that no problem is found with the cutting condition at the paper head edge. Perform 3042-3047 problem analysis.</li> <li>- Check that PS07 is installed securely and its lever functions normally.</li> <li>- Check PS07 for On/Off setting.</li> <li>- Check that the paper is fed normally.</li> <li>- Check the fuser drive mechanism.</li> </ul>   | <ul style="list-style-type: none"> <li>- PS07</li> <li>- Cutter unit</li> <li>- PCB-ASSY-ARC</li> <li>- PCB-ASSY-AAC</li> <li>- FUSER UNIT</li> </ul>                            | <ul style="list-style-type: none"> <li>📖 P. 5-39 (18)</li> <li>📖 P. 9-148</li> <li>📖 P. 9-33</li> <li>📖 P. 9-56</li> <li>📖 P. 9-55</li> </ul> |
|      | JAM      | 3792      | The tail edge of the paper is disengaging from PS07 too quickly.   | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>   | <i>ditto</i>  |
|      | JAM      | 3793      | The tail edge of the paper is not disengaging from the PS07 position even after the estimated paper pass-through time is exceeded. | <i>ditto</i>  | <ul style="list-style-type: none"> <li>- Check that no paper particle is found on PS07.</li> <li>- Check that no problem is found with the cutting condition at the paper head edge. Perform 3042-3047 problem analysis.</li> <li>- Check that PS07 is installed securely and its lever functions normally.</li> <li>- Check PS07 for On/Off setting.</li> <li>- Check CBL-FUSER21, -22, and -23 and CBL-PS07 for short circuit.</li> <li>- Check the paper delivery path.</li> </ul> | <ul style="list-style-type: none"> <li>- PS07</li> <li>- Cutter unit</li> <li>- PCB-ASSY-ARC</li> <li>- PCB-ASSY-AAC</li> <li>- CBL-FUSER21/22/23</li> <li>- CBL-PS07</li> </ul> | <ul style="list-style-type: none"> <li>📖 P. 5-39 (19)</li> <li>📖 P. 9-148</li> <li>📖 P. 9-33</li> <li>📖 P. 9-56</li> <li>📖 P. 9-55</li> </ul> |
|      | JAM      | 3794      | The tail edge of the paper is not disengaging from the PS07 position even after the estimated paper pass-through time is exceeded. | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>   | <i>ditto</i>  |

For errors between 3401 and 3794, two messages with the same meaning, one with an odd number and one with an even number, are written successively.

The difference between the two errors is as follows.

Odd number codes such as 3401:

Jam detected for odd numbered page during continuous print

Or jam detected during printing of a single sheet

Even number codes such as 3402:

Jam detected for even numbered page during continuous print

**(1) Power On jam checkout instructions**

This problem analysis is used when a paper jam error message is displayed on the operation panel before printing.

**Note** ◇ If more than two doors are displayed on the operation panel, check the applicable sensors on all doors.

- (a) Select **Sensor** in Engine Maintenance mode. For each paper jammed door, check the applicable sensors from the chart below.

| Position with Paper Jammed              | Sensor                            | Check Item  |
|---|-----------------------------------|---|
| Roll paper drawer                       | PS04<br>(Jam Sensor Below Cutter) | <ul style="list-style-type: none"> <li>- There is light shining into the sensor.</li> <li>- A short was detected between the frame and CBL-CUT1.</li> <li>- With CBL-CUT1 an unplugged connector is found or a cable disconnection is detected.</li> <li>- The sensor is not functioning.</li> </ul>  |
| Rear door                               | PS05<br>(Registration sensor)     | <ul style="list-style-type: none"> <li>- There is light shining into the sensor.</li> <li>- The position between CBL-MECH2 or CBL-PS04 and the frame is shorted.</li> <li>- The connectors of CBL-MECH2 and CBL-PS04 are removed, or they are disconnected.</li> <li>- The sensor is not functioning.</li> </ul>  |
| Paper outlet cover or Fuser unit drawer | PS06<br>(Suction jam sensor)      | <ul style="list-style-type: none"> <li>- There is light shining into the sensor.</li> <li>- A short was detected between the frame and CBL-FUSER21, CBL-FUSER22, and/or CBL-PS06.</li> <li>- With CBL-FUSER21, CBL-FUSER22, and/or CBL-PS06, an unplugged connector is found or a cable disconnection is detected.</li> <li>- The sensor is not functioning.</li> </ul>                           |
|   | PS07<br>(Fuser jam sensor)        | <ul style="list-style-type: none"> <li>- There is light shining into the sensor.</li> <li>- A short was detected between the frame and CBL-FUSER21, CBL-FUSER22, CBL-FUSER23, and/or CBL-PS07.</li> <li>- With CBL-FUSER21, CBL-FUSER22, CBL-FUSER23, and/or CBL-PS07, an unplugged connector is found or a cable disconnection is detected.</li> <li>- The sensor is not functioning.</li> </ul> |

- (b) Replace the sensor corresponding to the position with the paper jammed. Then press the sensor button. If the sensor status is still On, replace the PCB-ASSY-AAC (actuator control board) or the PCB-ASSY-ARC (RIP board).

**(2) Frequent paper jams problem analysis**

This problem analysis determine you as to which paper jam problem analysis to use based on the particular paper jam situation you are facing.

**Note**    ♦ **Turn Off the power and check to make sure no paper is left inside the Printer.**

Turn On the power.

Is a paper jam position displayed on the operation panel?

Yes        No

Perform the **Frequent paper Jams problem analysis**.

Select **Jam Log** in Engine Maintenance mode. The log will be displayed on the operation panel.

Check the last 20 entries in the paper jam log.

Perform the problem analyses in order from the most often occurring error code.

- ◆ Jam Code **3042/3045/3046/3047** Problem Analysis
- ◆ Jam Code **3401/3402** Problem Analysis
- ◆ Jam Code **3403/3404** Problem Analysis
- ◆ Jam Code **3491/3492** Problem Analysis
- ◆ Jam Code **3493/3494** Problem Analysis
- ◆ Jam Code **3501/3502** Problem Analysis
- ◆ Jam Code **3503/3504** Problem Analysis
- ◆ Jam Code **3591/3592** Problem Analysis
- ◆ Jam Code **3593/3594** Problem Analysis
- ◆ Jam Code **3601/3602** Problem Analysis
- ◆ Jam Code **3603/3604** Problem Analysis
- ◆ Jam Code **3691/3692** Problem Analysis
- ◆ Jam Code **3693/3694** Problem Analysis
- ◆ Jam Code **3701/3702** Problem Analysis
- ◆ Jam Code **3703/3704** Problem Analysis
- ◆ Jam Code **3791/3792** Problem Analysis
- ◆ Jam Code **3793/3794** Problem Analysis

Follow the **Power On Jam Checkout** instructions.

**(3) 3042 - 3047 problem analysis**

Check inside the cutter unit and look for any paper particles or other foreign objects.  
 Check to ensure that the paper is supported by the Printer.  
 Select **Sensor** in Engine Maintenance mode.  
 Monitor RE03 or RE04, right and left cutter home position switch.

Does the display change between **On** and **Off**?

Yes

No



◆ Check CBL-CUT1 for a short or open circuit.  
 If there are no problems, replace the PCB-ASSY-ARC (RIP board) or the PCB-ASSY-AAC (actuator control board). Then replace the cutter unit (for RE03 and/or RE04 problems).

◆ Check RE03, RE04, and the stop position of the cutter blade.  
 If there is a problem with the position, replace the cutter unit.  
 If there are no problems, replace the PCB-ASSY-ARC (RIP board) or the PCB-ASSY-AAC (actuator control board).

**(4) Jam code 3401/3402 problem analysis**

After the paper supply starts from the Roll x (x: roll number), PS04 detected paper earlier than the prescribed time.

- ◆ Check for improper paper installation or a problem with the flange.
- ◆ Check for any dirt or foreign particles on the surface of the paper feed rollers.
- ◆ Check the cut at the front edge of the paper for:
  - Folded end;
  - Curved cut line; and
  - Jagged edges.

If there is a problem with the cut, perform **(3) 3042-3047 problem analysis** and check the cutter's home position as well as its operation.

Is there a problem below with the installation of PS04?

- Improperly installed PS04
- Lever abnormality

Yes

No



If there are any problems, replace the PS04.

◆ Check the paper path to PS04.

**(5) Jam code 3403/3404 problem analysis**

After the paper supply starts from the Roll x (x: roll number), PS04 detected paper earlier than the prescribed time.

- ◆ Check for improper paper installation and check for any remnants of paper particles in PS04.
- ◆ Check the cut at the front edge of the paper for:
  - Folded end;
  - Curved cut line; and
  - Jagged edges

If there is a problem with the cut, perform **(3) 3042-3047 problem analysis** and check the cutter's home position as well as its operation.

Select **Sensor** in Engine Maintenance mode.  
Monitor PS04 (paper jam 4 sensor).

Does the display change between **On** and **Off**?

Yes      No

- ◆ Check for short and open status on the CBL-CUT1.
  - ◆ Check the installation of PS04 and the lever configuration.
- If there are no problems, replace PS04.

Select **Actuator** in Engine Maintenance mode, and operate FM01 and FM02 with **On 1** (in paper feed direction).

Does FM01 and FM02 run with **On 1** (paper feed direction)?

Yes      No

Perform 2011-201C problem analysis. (See subsection **5.3.1 (3)**.)

- ◆ Check the paper path to PS04.
- ◆ Check the pressure of the roller (pinch).



**(6) Jam Code 3491/3492 problem analysis**

When rewinding the paper, the lead edge of the paper reaches PS04 (paper jam 4 sensor) too quickly.

- ◆ Check for improper paper installation or a problem with the flange.
- ◆ Check the cut at the front edge of the paper for:
  - Folded end;
  - Curved cut line; and
  - Jagged edges

If there is a problem with the cut, perform **(3) 3042 - 3047 problem analysis** and check the cutter's home position as well as its operation.

Is there a problem below with the installation of PS04?

- Improperly installed PS04
- Lever abnormality

Yes      No

|            If there are any problems, replace the PS04.

Check the paper path from PS04 to PS05 (registration sensor).

### (7) Jam code 3493/3494 problem analysis

When rewinding the paper, the lead edge of the paper reaches PS04 (paper jam 4 sensor) too slowly.

- ◆ Check for improper paper installation or a problem with the flange.
- ◆ Check for any remnants of paper particles in PS04.
- ◆ Check the cut at the front edge of the paper for:
  - Folded end;
  - Curved cut line; and
  - Jagged edges

If there is a problem with the cut, perform **(3) 3042 - 3047 problem analysis** and check the cutter's home position as well as its operation.

Select **Sensor** in Engine Maintenance mode.

Monitor PS04 (paper jam 4 sensor).

Does the display change between **On** and **Off**?

Yes      No

- ◆ Check for short on the CBL-CUT1.
  - ◆ Check the PS04 installation and its lever shape.
- If there are no problems, replace the PS04.

Select Actuator in Engine Maintenance mode, and operate FM01 and FM02 with On 2 (in paper rewind direction).

Does FM01 and FM02 run with On 2 (paper rewind direction)?

Yes      No

Perform **2011-201C problem analysis**. (See subsection **5.3.1 (3)**.)

- ◆ Check the paper path to PS04.

### (8) Jam code 3501/3502 problem analysis

The lead edge of the paper reaches PS05 (registration sensor) too quickly.

- ◆ Check for improper paper installation or a problem with the flange.
- ◆ Check the cut at the front edge of the paper for:
  - Folded end;
  - Curved cut line; and
  - Jagged edges

If there is a problem with the cut, perform **(3) 3042 - 3047 problem analysis** and check the cutter's home position as well as its operation.

- ◆ Check for any dirt or foreign particles on the surface of paper feed rollers.

Is there a problem below with the installation of PS05?

- Improperly installed PS05
- Lever abnormality

Yes      No

If there are any problems, replace the PS05.

Check the paper path to PS05.

**(9) Jam code 3503/3504 problem analysis**

The lead edge of the paper reaches PS05 (registration sensor) too slowly.

- ◆ Check for improper paper installation or a problem with the flange.

Select **Sensor** in Engine Maintenance mode.

Monitor PS05.

Does the display change between **On** and **Off**?

Yes      No

- |
- Check for shorts on CBL-MECH2 and CBL-PS04.
  - Check the installation of PS05 and the lever configuration.
- If there are no problems, replace the PS05.

- ◆ Check the paper path from PS04 to PS05.
- ◆ If the jammed paper is in the cutter, perform **(3) 3042 - 3047 problem analysis** and check the cutter's home position as well as its operation.
- ◆ Check the pressure of the roller (pinch).

**(10) Jam code 3591/3592 problem analysis**

The tail edge of the paper passes through PS05 (registration sensor) too quickly.

- ◆ Check the cut at the front edge of the paper for:
  - Folded end;
  - Curved cut line; and
  - Jagged edges.

If there is a problem with the cut, perform **(3) 3042 - 3047 problem analysis** and check the cutter's home position as well as its operation.

- ◆ Check for any dirt or foreign particles on the surface of the rollers (registration).

Is there a problem below with the installation of PS05?

- Improperly installed PS05
- Lever abnormality

Yes      No

|      If there are any problems, replace the PS05.

- ◆ Check the paper path to PS05.
- ◆ Check the pressure of the roller (pinch).

Measure the paper length.

Is the cut length too short?

Yes      No

- |
- ◆ Check that a slack is formed in the paper above the cutter when the paper is cut. If no slack is formed, decrease the heat roller speed.
  - ◆ Check the motor PM01. If a problem is found, try replacing the motor.

### (11) Jam code 3593/3594 problem analysis

The paper head edge reaches PS05(registration sensor) too quickly.

- ◆ Check for any remnants of paper particles in PS05.
- ◆ Check the cut at the tail edge of the paper for:
  - Folded end;
  - Curved cut line; and
  - Jagged edges.

If there is a problem with the cut, perform **(3) 3042 - 3047 problem analysis** and check the cutter's home position as well as its operation.

Select **Sensor** in Engine Maintenance mode.

- ◆ Check PS05.

Does the display change between **On** and **Off**?

Yes      No

- |  |   |
|--|---|
|  | <ul style="list-style-type: none"><li>◆ Check for shorts on CBL-MECH2 and CBL-PS04.</li><li>◆ Check the installation of PS05 and the lever configuration.</li></ul> If there are no problems, replace the PS05. |
|--|---|

- ◆ Check the operation of CL04 (clutch (registration)).
- ◆ Check the paper path from PS05 onward.
- ◆ Check the pressure of the roller (pinch).
- ◆ Check the operation of the motor TM01.
- ◆ Check that the PCB-ASSY-AAC (actuator control board) does not issue the motor FG signal, which increases the paper cut length. To fix the problem, replace the PCB-ASSY-AAC.

### (12) Jam Code 3601/3602 problem analysis

The paper reaches PS06 (suction jam sensor) too quickly.

- ◆ Check the cut at the front edge of the paper for:
  - Folded end;
  - Curved cut line; and
  - Jagged edges

If there is a problem with the cut, perform **(3) 3042 - 3047 problem analysis** and check the cutter's home position as well as its operation.

Is there a problem below with the installation of PS06?

- Improperly installed PS06
- Lever abnormality

Yes      No

- |  |  |
|--|--|
|  | If there are any problems, replace the PS06. |
|--|--|

- ◆ Check the operation of CL04 (clutch (registration)) and its On/Off synchronization with the roller (registration).

If there are any problems, check CL04's installation gap.

**(13) Jam code 3603/3604 problem analysis**

The paper head edge reaches PS06 (suction jam sensor) too quickly.

- ◆ Check for improper paper installation or a problem with the flange configuration.
- ◆ Check the cut at the front edge of the paper for:
  - Folded end;
  - Curved cut line; and
  - Jagged edges

If there is a problem with the cut, perform **(3) 3042 - 3047 problem analysis** and check the cutter's home position as well as its operation.

Select **Sensor** in Engine Maintenance mode.

Monitor PS06.

Does the display change between **On** and **Off**?

Yes      No

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>◆ Check for shorts on CBL-FUSER21, CBL-FUSER22, and CBL-PS06.</li> <li>◆ Check the installation of PS06 and the lever configuration.</li> </ul> | <p>If there are no problems, replace the PS06.</p> |
|--|--|

There is a hardware problem. Check the paper path.

- ◆ Check for problems with the paper feed or the shape of the lead edge of the paper.
- ◆ Check for belt stretching.
- ◆ Check for air leaks or other problems that could cause the paper paper bubble.
- ◆ Ensure that:
  - The paper is not caught on the separating claw (OPC); and
  - The paper is not bubbled due to that.
- ◆ Check for problems with the paper separation from the drum.
- ◆ Check the operation of BL01.
- ◆ Check for any clogging of the ozone filter.

**(14) Jam code 3691/3692 problem analysis**

The tail edge of the paper passes through PS06 (suction jam sensor) too quickly.

- ◆ Check the cut at the tail edge of the paper for:
  - Folded end;
  - Curved cut line; and
  - Jagged edges

If there is a problem with the cut, perform **(3) 3042 - 3047 problem analysis** and check the cutter's home position as well as its operation.

Is there a problem below with the installation of PS06?

- Improperly installed PS06
- Lever abnormality

Yes      No

|

If there are any problems, replace the PS06.

- ◆ Check for the paper bubble caused by:
  - Poor paper feed; or
  - Wrinkled or slackened paper
- ◆ Check for problems with the paper separation from the drum causing the paper bubble.
- ◆ Check for air leaks or other problems that could cause the paper to be rising.
- ◆ Check the operation of BL01.
- ◆ Check for any clogging of the ozone filter.

Measure the paper length.

Is the length correct?

Yes      No

|

- ◆ Check that a slack is formed in the paper above the cutter when the paper is cut.  
If no slack is formed, decrease the heat roller speed.
- ◆ Check the motor PM01. If a problem is found, try replacing the motor.

**(15) Jam code 3693/3694 problem analysis**

The tail edge of the paper passes through PS06 (suction jam sensor) too slowly.

- ◆ Check for any remnants of paper particles in PS06.
- ◆ Check the cut at the tail edge of the paper for:
  - Folded end;
  - Curved cut line; and
  - Jagged edges

If there is a problem with the cut, perform **(3) 3042 - 3047 problem analysis** and check the cutter's home position as well as its operation.

Select **Sensor** in Engine Maintenance mode.

Monitor PS06.

Does the display change between **On** and **Off**?

Yes      No

- ◆ Check for shorts on CBL-FUSER21, CBL-FUSER22, and CBL-PS06.
  - ◆ Check the installation of PS06 and the lever configuration.
- If there are no problems, replace the PS06.

- ◆ Check the paper path to PS07.
- ◆ Check for air leaks or other problems that could cause the improper paper feed.
- ◆ Check the fuser drive mechanism for loose gears.
- ◆ Check the operation of BL01.
- ◆ Check for any clogging of the ozone filter.
- ◆ Check for air leaks.

**(16) Jam code 3701/3702 problem analysis**

The paper head edge reaches PS07 (fuser jam sensor) too quickly.

- ◆ Check the cut at the tail edge of the paper for:
  - Folded end;
  - Curved cut line; and
  - Jagged edges.

If there is a problem with the cut, perform **(3) 3042 - 3047 problem analysis** and check the cutter's home position as well as its operation.

Is there a problem below with the installation of PS07?

- Improperly installed PS07
- Lever abnormality

Yes      No

If there are any problems, replace the PS07.

- ◆ Check the paper path.
- ◆ Check for improper operation of PS07 due to external light.
- ◆ Check the fuser drive mechanism for loose gears.

**(17) Jam code 3703/3704 problem analysis**

The paper head edge reaches PS07 (fuser jam sensor) too quickly.

- ◆ Check the cut at the front edge of the paper for:
  - Folded end;
  - Curved cut line; and
  - Jagged edges

If there is a problem with the cut, perform **(3) 3042 - 3047 problem analysis** and check the cutter's home position as well as its operation.

Select **Sensor** in Engine Maintenance mode.

Monitor PS07.

Does the display change between **On** and **Off**?

Yes

No

- ◆ Check for shorts on CBL-FUSER21, CBL-FUSER22, CBL-FUSER23, and CBL-PS07.
  - ◆ Check the installation of PS07 and the lever configuration.
- If any problems are observed, replace those parts.

There is a hardware problem. Check the paper path.

- ◆ Check for air leaks or other problems that could cause the improper paper feed.
- ◆ Check the fuser drive mechanism.
- ◆ Ensure that:
  - The paper is not caught on the separating claw (fuser in); and
  - The paper is not deformed due to that.
- ◆ Check for problems with the paper separation from the rollers (heat).
- ◆ Check the operation of BL01.



**(18) Jam code 3791/3792 problem analysis**

The tail edge of the paper passes through PS07 (fuser jam sensor) too quickly.

- ◆ Check the cut at the tail edge of the paper for:
  - Folded end;
  - Curved cut line; and
  - Jagged edges

If there is a problem with the cut, perform **(3) 3042 - 3047 problem analysis** and check the cutter's home position as well as its operation.

Is there a problem below with the installation of PS07?

- Improperly installed PS07
- Lever abnormality

Yes      No

|

If there are any problems, replace the PS07.

- ◆ Check for improper operation of PS07 due to external light.
- ◆ Check the fuser drive mechanism.
- ◆ Check the paper path including shape of the paper guide around the PS07 for any bends or deformities, so that the paper is advanced smoothly along the proper paper path.

**(19) Jam code 3793/3794 problem analysis**

The tail edge of the paper passes through PS07 (fuser jam sensor) too slowly.

- ◆ Check for any remnants of paper particles in PS07.
- ◆ Check the cut at the tail edge of the paper for:
  - Folded end;
  - Curved cut line; and
  - Jagged edges

If there is a problem with the cut, perform **(3) 3042 - 3047 problem analysis** and check the cutter's home position as well as its operation.

Select **Sensor** in Engine Maintenance mode.

Monitor PS07.

Does the display change between **On** and **Off**?

Yes      No

|

- ◆ Check for shorts on CBL-FUSER21, CBL-FUSER22, CBL-FUSER23, and CBL-PS07.
  - ◆ Check the installation of PS07 and the lever configuration.
- If any problems are observed, replace those parts.

There is a hardware problem. Check the paper path.

### 5.3.3 Problem Analysis Based on Symptoms

#### (1) Check open door problem analysis

This problem analysis is used to analyze a situation when:

- You are unable to print due to **Door Open** displayed on the operation panel; and
- All doors and covers are closed.

Perform the appropriate problem analysis from (a) to (d) below based on what is displayed on the operation panel.

#### (a) Problem analysis at improper display on rear dooropen/close status



### Caution

- ◇ If INT 3 is switched to On and everything is operating as it should, the cutter is activated and returned to its home position as part of its initial action. Be careful not to touch the cutter during this time.

Open the rear door.

Turn On INT 3 (the cutter door interlock switch).

Did the error display on the operation panel go away?

Yes      No

Select **Sensor** in Engine Maintenance mode.

Select INT3.

Is **On** displayed?

Yes      No

- ◆ Check INT 3.
- ◆ Check for a problem with INT 3's signal contact.
- ◆ Check CBL-INT1 and/or CBL-INT3, and CBL-MECH1 for a disconnection or a faulty 1 connection.

If there are no problems, replace the PCB-ASSY-ARC (RIP board) or the PCB-ASSY-AAC (actuator control board).

- ◆ Check for any problems with the installation position of INT 3.
- ◆ Check for a broken or bent actuator.
- ◆ Check all mechanical parts.
- ◆ Replace the PCB-ASSY-ARC (RIP board) or the PCB-ASSY-AAC (actuator control board).

**(b) Problem analysis at improper display on drawer for roll 1 open/close status**



**Caution**

- ◇ **If PS21 is switched On and everything is operating as it should, its initial action is executed. Be careful not to touch it during this time.**

- ◆ Check PS21.
- ◆ Check for a problem with PS21's signal contact or with PS21 itself.
- ◆ Check CBL-RFU11 and CBL-RFU12 connectors for a disconnection or a faulty connection. If there are no problems, replace the PCB-ASSY-ARC (RIP board) or the PCB-ASSY-AAC (actuator control board).

**(c) Problem analysis at improper display on drawer for roll 2 open/close status**



**Caution**

- ◇ **If PS22 is switched On and everything is operating as it should, its initial action is executed. Be careful not to touch it during this time.**

- ◆ Check PS22.
- ◆ Check for a problem with PS22's signal contact or with PS22 itself.
- ◆ Check CBL-RFU21 and CBL-RFU12 connectors for a disconnection or a faulty connection. If there are no problems, replace the PCB-ASSY-ARC (RIP board) or the PCB-ASSY-AAC (actuator control board).

**(2) No Toner Cartridge message problem analysis**

This problem analysis is used when:

- The message related to the toner cartridge is displayed even after the toner is supplied;  
and
- You are unable to print.

Perform the appropriate problem analysis from (a) and (b) below based on what is displayed on the operation panel.

**(a) No Toner Cartridge message problem analysis**

Install the toner cartridge.

Did the error display on the operation panel go away?

Yes

No

Select **Sensor** in Engine Maintenance mode.

Select MS04.

Is **On** displayed?

Yes

No

- ◆ Check MS04 (toner cartridge's presence).
- ◆ Check for a problem with MS04's contact.
- ◆ Check for shorts on CBL-DEV1 and CBL-DEV2.

If there are no problems, replace the PCB-ASSY-ARC (RIP board) or the PCB-ASSY-AAC (actuator control board).

- ◆ Check for any problems with the installation position of MS04.
- ◆ Check for any deformities or problems with the toner cartridge.
- ◆ Check to ensure that the toner cartridge has been installed properly.

If there are no problems, replace the PCB-ASSY-ARC (RIP board) or the PCB-ASSY-AAC (actuator control board).

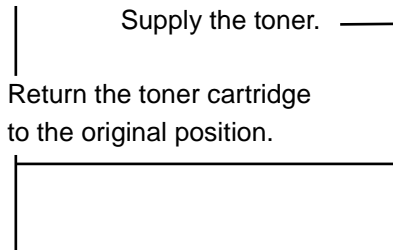
**(b) No Toner message problem analysis**

Remove the toner cartridge.

Check the remaining toner in the developer unit's hopper.

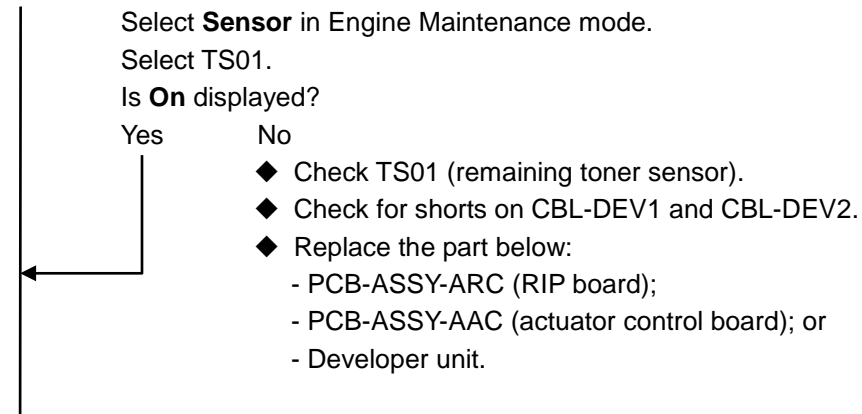
Is there enough toner remaining so that you cannot see the shaft (agitator)?

Yes      No



Does the error appear again after one minute?

Yes      No



◆ Check the expiration date of the toner cartridge.

◆ Check to ensure that the toner was well agitated before it was installed.

If there are no problems, replace the PCB-ASSY-ARC (RIP board) or the PCB-ASSY-AAC (actuator control board).

### (3) Replace Waste Toner Bottle message problem analysis

This problem analysis is used when:

- The message related to the waste toner bottle replacement is displayed even after the bottle is replaced; and
- You are unable to print.

Perform the appropriate problem analysis from (a) and (b) below based on what is displayed on the operation panel.

#### (a) No Waste Toner Bottle message problem analysis

Install the waste toner bottle.

Did the error display on the operation panel go away?

Yes

No

Select **Sensor** in Engine Maintenance mode.

Select MS05.

Is **On** displayed?

Yes

No

◆ Check MS05 (waste toner bottle switch).

◆ Check for a problem with MS05's contact.

◆ Check CBL-MECH1 and MS06-1 ASSY for any disconnects.

If there are no problems, replace the PCB-ASSY-AAC (actuator control board).

◆ Check for any problems with the installation position of MS05.

◆ Check for any deformities or problems with the waste toner bottle.

◆ Check to ensure that the waste toner bottle has been installed properly.

If there are no problems, replace the PCB-ASSY-ARC (RIP board) or the PCB-ASSY-AAC (actuator control board).

**(b) Waste Toner Full message problem analysis**

Install a new waste toner bottle.

Did the error display on the operation panel go away?

Yes      No



Select **Sensor** in Engine Maintenance mode.

Select TS02.

Is **On** displayed?

Yes      No

◆ Check TS02 (waste toner sensor).

(Put a magnetic screwdriver, metal ruler, or a full waste toner bottle against TS02 to perform this check.)

◆ Check the gap between TS02 and the bottle.

◆ Check for shorts, loose connectors, and disconnections on CBL-MECH1 and CBL-TS02.

If there are no problems, replace the PCB-ASSY-ARC (RIP board) or the PCB-ASSY-AAC (actuator control board).

◆ Check for any problems with the installation position of TS02.

◆ Check for any deformities or problems with the waste toner bottle.

◆ Check to ensure that the waste toner bottle has been installed properly.

If there are no problems, replace the PCB-ASSY-ARC (RIP board) or the PCB-ASSY-AAC (actuator control board).

#### (4) Replace paper message problem analysis

This problem analysis is used when:

- The message related to the paper replacement is displayed even after the paper is replaced; and
- You are unable to print.

Perform the problem analysis below based on what is displayed on the operation panel.

##### No Paper Message Problem Analysis

Install roll paper with an attached paper flange.

Did the error display on the operation panel go away?

Yes

No

Select **Sensor** in Engine Maintenance mode.

Select PS11 and PS12.

Is **On** displayed?

Yes

No

- ◆ Check PS11 (roll 1 detection sensor), PS12 (roll 2 detection sensor).
- ◆ Check for a problem with PS11, and/or PS12 signal contact or with PS11, and/or PS12 themselves.
- ◆ Check for shorts on CBL-RFU11, CBL-RFU12, and CBL-RFU21.
- ◆ Check for any problems with the installation positions of PS11 and PS12.
- ◆ Check for any problems with the installation position of the guide (flange).

If there are no problems, replace the PCB-ASSY-ARC (RIP board) or the PCB-ASSY-AAC (actuator control board).

- ◆ Check for any problems with the installation positions of PS11 and PS12.
- ◆ Check for any problems with the installation position of the guide (flange).
- ◆ Check for any deformities or problems with the paper flange.
- ◆ Check to ensure that the paper flanges have been installed properly.

If there are no problems, replace the PCB-ASSY-ARC (RIP board) or the PCB-ASSY-AAC (actuator control board).



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## Chapter 6 Scanner Troubleshooting

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This chapter will discuss what to do if you should suspect any scanner problems are occurring. If the following type of message should appear on the operation panel screen, take note of the error message's error code **nnnn** and take the appropriate action to fix the problem. For any other problem besides those listed here, determine the best solution based on the symptom of the problem.



E SE nnnn

nnnn: Error code

### Instruction to turn off the printer

- Be sure to use the **POWER** button on the operation panel when you turn off the printer after checking errors.
- At the service call error with type E, to turn off the printer hold on the **POWER** button for approximately five seconds .

The troubleshooting against the scanner problem is listed below.

Table 6-1 Troubleshooting on Scanner Problem

| Type | Category | Error No. | Cause  | User Solution   | Service Engineer Inspection<br>(For inspection criteria, see Reference to Check/Replace Parts.) | Assumed Replacement Part       | Reference to Check/Replace Parts                       |
|------|----------|-----------|--|---|---|--------------------------------|--|
| E    | SE       | 2101      | SDRAM1 error (former)  | - Restart the printer.<br>- Upgrade the firmware to the latest. | Check PCB-ASSY-ASC.   | PCB-ASSY-ASC                   | 📖 P. 4-34 (4)<br>📖 P. 9-64                             |
| E    | SE       | 2102      | SDRAM2 error (latter)  | ditto   | ditto   | ditto                          | ditto  |
| E    | SE       | 2103      | FSG DRAM error   | ditto   | ditto   | ditto                          | ditto  |
| E    | SE       | 2201      | FSC FPGA configuration error                                       | ditto   | - Check PCB-ASSY-ASC.<br>- Check CIS unit for contact.  | - PCB-ASSY-ASC.<br>- CIS unit. | 📖 P. 4-34 (4)<br>📖 P. 9-64<br>📖 P. 11-41<br>📖 P. 9-201 |
| E    | SE       | 2202      | FSC FPGA configuration error                                       | ditto   | - Clean CBLS-LVDS contact.<br>- Check PCB-ASSY-ASC.<br>- Check CIS unit for contact.            | ditto                          | ditto  |
| E    | SE       | 2203      | FIC register read/write error                                      | ditto   | Check PCB-ASSY-ASC.   | PCB-ASSY-ASC                   | 📖 P. 4-34 (4)<br>📖 P. 9-64                             |
| E    | SE       | 2204      | FIC register read/write error                                      | ditto   | - Check PCB-ASSY-ASC.<br>- Check CIS unit for contact.  | - PCB-ASSY-ASC.<br>- CIS unit. | 📖 P. 4-34 (4)<br>📖 P. 9-64<br>📖 P. 11-41<br>📖 P. 9-201 |
| E    | SE       | 2205      | FSG FPGA configuration   | ditto   | Check PCB-ASSY-ASC.   | PCB-ASSY-ASC                   | 📖 P. 4-34 (4)<br>📖 P. 9-64                             |
| E    | SE       | 2206      | FSG register read-write error                                      | ditto   | ditto   | ditto                          | ditto  |
| E    | SE       | 2301      | EEPROM 1 Read/Write error  | ditto   | ditto   | ditto                          | ditto  |
| E    | SE       | 2302      | EEPROM 2 Read/Write error  | ditto   | ditto   | ditto                          | ditto  |
| E    | SE       | 2400      | Program load error   | ditto   | ditto   | ditto                          | ditto  |
| E    | SE       | 2401      | Reset error  | ditto   | ditto   | ditto                          | ditto  |
| E    | SE       | 2402      | Scan start command error   | ditto   | ditto   | ditto                          | ditto  |
| E    | SE       | 2403      | Scan stop command error  | ditto   | ditto   | ditto                          | ditto  |
| E    | SE       | 2404      | Shading reset command error  | ditto   | ditto   | ditto                          | ditto  |
| E    | SE       | 2405      | Black shading command error  | ditto   | ditto   | ditto                          | ditto  |
| E    | SE       | 2406      | White shading command error  | ditto   | ditto   | ditto                          | ditto  |
| E    | SE       | 2408      | CIS paper width automatic detection start command Error            | ditto   | ditto   | ditto                          | ditto  |
| E    | SE       | 2409      | Automatic background compensation start command error              | ditto   | ditto   | ditto                          | ditto  |
| E    | SE       | 2410      | Tone curve data configuration command error                        | ditto   | ditto   | ditto                          | ditto  |
| E    | SE       | 2411      | Dither pattern data configuration command error                    | ditto   | ditto   | ditto                          | ditto  |
| E    | SE       | 2412      | Scan parameter configuration command error                         | ditto   | ditto   | ditto                          | ditto  |
| E    | SE       | 2415      | Black shading data configuration command error                     | ditto   | ditto   | ditto                          | ditto  |
| E    | SE       | 2416      | White shading data configuration command error                     | ditto   | ditto   | ditto                          | ditto  |
| E    | SE       | 2420      | Version data acquisition command error                             | ditto   | ditto   | ditto                          | ditto  |
| E    | SE       | 2421      | Output line number acquisition command error                       | ditto   | ditto   | ditto                          | ditto  |
| E    | SE       | 2422      | CIS paper width automatic detection data acquisition command error | ditto   | ditto   | ditto                          | ditto  |
| E    | SE       | 2423      | Automatic background compensation data acquisition command error   | ditto   | ditto   | ditto                          | ditto  |
| E    | SE       | 2425      | Black shading data acquisition command error                       | ditto   | ditto   | ditto                          | ditto  |
| E    | SE       | 2426      | White shading data acquisition command error                       | ditto   | ditto   | ditto                          | ditto  |
| E    | SE       | 242F      | Scan end timeout error   | ditto   | ditto   | ditto                          | ditto  |
| E    | SE       | 2440      | Program load error   | ditto   | ditto   | ditto                          | ditto  |
| E    | SE       | 2441      | Reset error  | ditto   | ditto   | ditto                          | ditto  |
| E    | SE       | 2442      | Scan start command error   | ditto   | ditto   | ditto                          | ditto  |
| E    | SE       | 2443      | Scan stop command error  | ditto   | ditto   | ditto                          | ditto  |
| E    | SE       | 2444      | Shading reset command error  | ditto   | ditto   | ditto                          | ditto  |
| E    | SE       | 2445      | Black shading command error  | ditto   | ditto   | ditto                          | ditto  |
| E    | SE       | 2446      | White shading command error  | ditto   | ditto   | ditto                          | ditto  |
| E    | SE       | 2448      | CIS paper width automatic detection start command error            | ditto   | ditto   | ditto                          | ditto  |
| E    | SE       | 2449      | Automatic background compensation start command error              | ditto   | ditto   | ditto                          | ditto  |

| Type | Category | Error No. | Cause  | User Solution   | Service Engineer Inspection<br>(For inspection criteria, see Reference to Check/Replace Parts.) | Assumed Replacement Part | Reference to Check/Replace Parts |
|------|----------|-----------|--|---|---|--------------------------|----------------------------------|
| E    | SE       | 2450      | Tone curve data configuration command error                        | - Restart the printer.<br>- Upgrade the firmware to the latest. | Check PCB-ASSY-ASC.   | PCB-ASSY-ASC             | 📖 P. 4-34 (4)<br>📖 P. 9-64       |
| E    | SE       | 2451      | Dither pattern data configuration command error                    | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>             | <i>ditto</i>                     |
| E    | SE       | 2452      | Scan parameter configuration command error                         | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>             | <i>ditto</i>                     |
| E    | SE       | 2455      | Black shading data configuration command error                     | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>             | <i>ditto</i>                     |
| E    | SE       | 2456      | White shading data configuration command error                     | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>             | <i>ditto</i>                     |
| E    | SE       | 2460      | Version data acquisition command error                             | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>             | <i>ditto</i>                     |
| E    | SE       | 2461      | Output line number acquisition command error                       | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>             | <i>ditto</i>                     |
| E    | SE       | 2462      | CIS paper width automatic detection data acquisition command error | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>             | <i>ditto</i>                     |
| E    | SE       | 2463      | Automatic background compensation data acquisition command error   | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>             | <i>ditto</i>                     |
| E    | SE       | 2465      | Black shading data acquisition command error                       | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>             | <i>ditto</i>                     |
| E    | SE       | 2466      | White shading data acquisition command error                       | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>             | <i>ditto</i>                     |
| E    | SE       | 246F      | Scan end timeout error   | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>             | <i>ditto</i>                     |
| E    | SE       | 2480      | Program load error   | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>             | <i>ditto</i>                     |
| E    | SE       | 2481      | Reset error  | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>             | <i>ditto</i>                     |
| E    | SE       | 2482      | Scan start command error   | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>             | <i>ditto</i>                     |
| E    | SE       | 2483      | Scan stop command error  | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>             | <i>ditto</i>                     |
| E    | SE       | 2484      | Shading reset command error  | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>             | <i>ditto</i>                     |
| E    | SE       | 2485      | Black shading command error  | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>             | <i>ditto</i>                     |
| E    | SE       | 2486      | White shading command error  | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>             | <i>ditto</i>                     |
| E    | SE       | 2488      | CIS paper width automatic detection start command Error            | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>             | <i>ditto</i>                     |
| E    | SE       | 2489      | Automatic background compensation start command error              | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>             | <i>ditto</i>                     |
| E    | SE       | 2490      | Tone curve data configuration command error                        | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>             | <i>ditto</i>                     |
| E    | SE       | 2491      | Dither pattern data configuration command error                    | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>             | <i>ditto</i>                     |
| E    | SE       | 2492      | Scan parameter configuration command error                         | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>             | <i>ditto</i>                     |
| E    | SE       | 2495      | Black shading data configuration command error                     | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>             | <i>ditto</i>                     |
| E    | SE       | 2496      | White shading data configuration command error                     | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>             | <i>ditto</i>                     |
| E    | SE       | 24A0      | CIS paper width automatic detection data acquisition command error | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>             | <i>ditto</i>                     |
| E    | SE       | 24A1      | Automatic background compensation data acquisition command error   | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>             | <i>ditto</i>                     |
| E    | SE       | 24A2      | Black shading data acquisition command error                       | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>             | <i>ditto</i>                     |
| E    | SE       | 24A3      | White shading data acquisition command error                       | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>             | <i>ditto</i>                     |
| E    | SE       | 24A5      | Scan complete timeout error  | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>             | <i>ditto</i>                     |
| E    | SE       | 24A6      | Scan complete timeout error  | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>             | <i>ditto</i>                     |
| E    | SE       | 24AF      | Version data acquisition command error                             | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>             | <i>ditto</i>                     |
| E    | SE       | 24C0      | Output line number acquisition command error                       | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>             | <i>ditto</i>                     |
| E    | SE       | 24C1      | CIS paper width automatic detection data acquisition command error | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>             | <i>ditto</i>                     |
| E    | SE       | 24C2      | Automatic background compensation data acquisition command error   | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>             | <i>ditto</i>                     |
| E    | SE       | 24C3      | Black shading data acquisition command error                       | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>             | <i>ditto</i>                     |
| E    | SE       | 24C4      | White shading data acquisition command error                       | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>             | <i>ditto</i>                     |
| E    | SE       | 24C5      | Scan complete timeout error  | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>             | <i>ditto</i>                     |
| E    | SE       | 24C6      | Program load error   | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>             | <i>ditto</i>                     |

| Type | Category | Error No. | Cause  | User Solution   | Service Engineer Inspection<br>(For inspection criteria, see Reference to Check/Replace Parts.) | Assumed Replacement Part         | Reference to Check/Replace Parts                                   |
|------|----------|-----------|--|---|---|----------------------------------|--|
| E    | SE       | 24C8      | Reset error  | - Restart the printer.<br>- Upgrade the firmware to the latest. | Check PCB-ASSY-ASC.   | PCB-ASSY-ASC                     | 📖 P. 4-34 (4)<br>📖 P. 9-64   |
| E    | SE       | 24C9      | Scan start command error   | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>                     | <i>ditto</i>   |
| E    | SE       | 24D0      | Scan stop command error  | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>                     | <i>ditto</i>   |
| E    | SE       | 24D1      | Shading reset command error  | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>                     | <i>ditto</i>   |
| E    | SE       | 24D2      | Black shading command error  | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>                     | <i>ditto</i>   |
| E    | SE       | 24D5      | White shading command error  | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>                     | <i>ditto</i>   |
| E    | SE       | 24D6      | CIS paper width automatic detection start command error            | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>                     | <i>ditto</i>   |
| E    | SE       | 24E2      | EEPROM engine parameter sum error (both)                           | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>                     | <i>ditto</i>   |
| E    | SE       | 24E3      | CIS paper width automatic detection data acquisition command error | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>                     | <i>ditto</i>   |
| E    | SE       | 24E4      | Automatic background compensation data acquisition command error   | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>                     | <i>ditto</i>   |
| E    | SE       | 24E5      | Black shading data acquisition command error                       | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>                     | <i>ditto</i>   |
| E    | SE       | 24E6      | White shading data acquisition command error                       | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>                     | <i>ditto</i>   |
| E    | SE       | 24E1      | Output line number acquisition command error                       | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>                     | <i>ditto</i>   |
| E    | SE       | 24EF      | Scan complete timeout error  | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>                     | <i>ditto</i>   |
| E    | SE       | 2501      | EEPROM engine parameter sum error (both)                           | <i>ditto</i>  | - Check PCB-ASSY-ASC.<br>- Check PCB-ASSY-ARC   | - PCB-ASSY-ASC<br>- PCB-ASSY-ARC | 📖 P. 4-34 (4)<br>📖 P. 9-64<br>📖 P. 9-56<br>📖 P. 11-41              |
| E    | SE       | 2601      | RIP controller communication error                                 | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>                     | <i>ditto</i>   |
| E    | SE       | 2700      | Register read-write error  | <i>ditto</i>  | Check PCB-ASSY-ASC.   | PCB-ASSY-ASC                     | 📖 P. 4-34 (4)<br>📖 P. 9-64   |
| E    | SE       | 2701      | <i>ditto</i>   | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>                     | <i>ditto</i>   |
| E    | SE       | 2702      | <i>ditto</i>   | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>                     | <i>ditto</i>   |
| E    | SE       | 2703      | <i>ditto</i>   | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>                     | <i>ditto</i>   |
| E    | SE       | 2704      | FSG config data checksum error                                     | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>                     | <i>ditto</i>   |
| E    | SE       | 2705      | FSG FPGA configuration   | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>                     | <i>ditto</i>   |
| E    | SE       | 2706      | FSG register read-write error                                      | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>                     | <i>ditto</i>   |
| E    | SE       | 2707      | FSG DRAM error   | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>                     | <i>ditto</i>   |
| E    | SE       | 2708      | F/W checksum error   | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>                     | <i>ditto</i>   |
| E    | SE       | 2709      | Table checksum error   | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>                     | <i>ditto</i>   |
| E    | SE       | 270A      | FSC config data checksum error                                     | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>                     | <i>ditto</i>   |
| E    | SE       | 270B      | FIC config data checksum error                                     | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>                     | <i>ditto</i>   |
| E    | SE       | 270C      | FSC FPGA configuration   | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>                     | <i>ditto</i>   |
| E    | SE       | 270D      | FSC register read-write error                                      | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>                     | <i>ditto</i>   |
| E    | SE       | 270E      | FSC DRAM error   | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>                     | <i>ditto</i>   |
| E    | SE       | 270F      | EEPROM checksum error  | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>                     | <i>ditto</i>   |
| E    | SE       | 2718      | FIC FPGA configuration   | <i>ditto</i>  | - Clean CBLS-LVDS contact..<br>- Check PCB-ASSY-ASC.<br>- Check CIS unit for contact.           | - PCB-ASSY-ASC.<br>- CIS unit.   | 📖 P. 8-6<br>📖 P. 4-34 (4)<br>📖 P. 9-64<br>📖 P. 11-41<br>📖 P. 9-201 |
| E    | SE       | 2719      | FIC register read-write error                                      | <i>ditto</i>  | - Check PCB-ASSY-ASC.<br>- Check CIS unit for contact.  | <i>ditto</i>                     | 📖 P. 4-34 (4)<br>📖 P. 9-64<br>📖 P. 11-41<br>📖 P. 9-201             |
| E    | SE       | 271A      | AIC board EEPROM sum error   | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>                     | <i>ditto</i>   |
| E    | SE       | 271B      | AIC board AFE register read-write error                            | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>                     | <i>ditto</i>   |
| E    | SE       | 2801      | AIC board EEPROM read/write error                                  | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>                     | <i>ditto</i>   |
| E    | SE       | 2803      | AIC board FPGA communication error                                 | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>                     | <i>ditto</i>   |
| E    | SE       | 2804      | AIC board EEPROM sum error   | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>                     | <i>ditto</i>   |
| E    | SE       | 2805      | AIC board AFE register read/write error                            | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>                     | <i>ditto</i>   |
| E    | SE       | 2A01      | Shading offset automatic adjustment error                          | <i>ditto</i>  | Check PCB-ASSY-ASC.   | PCB-ASSY-ASC                     | 📖 P. 4-34 (4)<br>📖 P. 9-64   |
| E    | SE       | 2A02      | Shading data write timeout error                                   | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>                     | <i>ditto</i>   |
| E    | SE       | 2B00      | Firmware check sum error   | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>                     | <i>ditto</i>   |
| E    | SE       | 2B01      | Tone curve data check sum error                                    | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>                     | <i>ditto</i>   |
| E    | SE       | 2B02      | Dither pattern data check sum error                                | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>                     | <i>ditto</i>   |

| Type | Category | Error No. | Cause   | User Solution   | Service Engineer Inspection<br>(For inspection criteria, see Reference to Check/Replace Parts.) | Assumed Replacement Part       | Reference to Check/Replace Parts                                   |
|------|----------|-----------|---|---|---|--------------------------------|--|
| E    | SE       | 2B03      | Second tone curve data check sum error                          | - Restart the printer.<br>- Upgrade the firmware to the latest. | Check PCB-ASSY-ASC.   | PCB-ASSY-ASC                   | 📖 P. 4-34 (4)<br>📖 P. 9-64   |
| E    | SE       | 2B06      | FSC configuration data check sum error                          | <i>ditto</i>  | - Check PCB-ASSY-ASC.<br>- Check CIS unit for contact.  | - PCB-ASSY-ASC.<br>- CIS unit. | 📖 P. 4-34 (4)<br>📖 P. 9-64<br>📖 P. 11-41<br>📖 P. 9-201             |
| E    | SE       | 2B07      | FIC configuration data check sum error                          | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>                   | <i>ditto</i>   |
| E    | SE       | 2B08      | FSG config data checksum error                                  | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>                   | <i>ditto</i>   |
| E    | SE       | 2C00      | SSIMC initial setting error                                     | <i>ditto</i>  | - Clean CBLS-LVDS contact.<br>- Check PCB-ASSY-ASC.<br>- Check CIS unit for contact.            | <i>ditto</i>                   | 📖 P. 8-6<br>📖 P. 4-34 (4)<br>📖 P. 9-64<br>📖 P. 11-41<br>📖 P. 9-201 |
| E    | SE       | 2C01      | SSIMC communication control timeout error                       | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>                   | <i>ditto</i>   |
| E    | SE       | 2C02      | SSIMC single communication transmission timeout error           | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>                   | <i>ditto</i>   |
| E    | SE       | 2C03      | SSIMC single communication reception timeout error              | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>                   | <i>ditto</i>   |
| E    | SE       | 2C04      | SSIMC single communication packet w/o response error            | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>                   | <i>ditto</i>   |
| E    | SE       | 2C05      | SSIMC single communication parity error                         | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>                   | <i>ditto</i>   |
| E    | SE       | 2C06      | SSIMC single communication packet number error                  | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>                   | <i>ditto</i>   |
| E    | SE       | 2C07      | SSIMC single communication unable to read or w/o response error | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>                   | <i>ditto</i>   |
| E    | SE       | 2C08      | SSIMC single communication timeout error                        | <i>ditto</i>  | <i>ditto</i>  | <i>ditto</i>                   | <i>ditto</i>   |

## 6.1 How to Read the Information Presented in this Chapter

### 6.1.1 Scanner Troubleshooting Outline

When performing any scanner troubleshooting, first perform a level 1 problem analysis to determine the type of problem you are dealing with. Next perform a level 2 problem analysis to troubleshoot the problem further.

When trying to determine the cause of the problem through this problem analysis, checklist, or any other method, be sure to follow the instructions carefully.

When multiple causes are assumed for a problem, you are unable to determine all causes of the problem in a single pass. As a result, you may conduct the same problem analysis multiple times. In such a case, even though it is the same problem analysis, the action to be taken may be different. So read its explanation carefully.

#### (1) Level 1 problem analysis

The level 1 problem analysis is the first step to diagnosing a problem. The level 1 problem analysis asks for the error code and various other symptoms of the problem in order to determine you along to the level 2 problem analysis.

#### (2) Level 2 problem analysis

The level 2 problem analysis is a set of diagnostic instructions categorized based on the error code, whether or not its a paper jam, and many other problem symptoms. The method for this diagnostic procedure uses instructions from the problem analysis or a checklist in order to allow you to find the cause of the problem quickly and easily.

## 6.2 Level 1 Problem Analysis

During the level 1 problem analysis you will divide up and categorize the problem. If an error message such as **nnnn** is displayed on the operation panel screen, use this unrecoverable error code information to perform any necessary troubleshooting.

In any other case, use the symptoms of the problem as a guide and perform any necessary troubleshooting from there (see section **Problem Analysis Based on Symptoms**).

## 6.3 Level 2 Problem Analysis

### 6.3.1 Error Solutions

If an unrecoverable error code is displayed, and if the problem is not resolved by turning the power Off then On, take one of the following actions to solve the problem.

- (1) With the user check the conditions surrounding the error when it occurred, upgrade to the latest firmware version and/or replace any defective part(s).
- (2) Check the harness (CBLS-LVDS) between the CIS unit and PCB-ASSY-ASC for any disconnections and check that both ends of the harness are clamped.  
If this does not solve the problem, with the user check the conditions surrounding the error when it occurred, upgrade to the latest firmware version and/or replace any defective part(s).  
If this still does not solve the problem, replace the PCB-ASSY-ASC (scanner control board).  
If the problem still persists, replace the CIS unit.
- (3) Check with the user check the conditions surrounding the error when it occurred, upgrade to the latest firmware version and/or replace the PCB-ASSY-ASC (scanner control board).  
If this still does not solve the problem, replace the PCB-ASSY-ARC (RIP control board).

### 6.3.2 Problem Analysis Based on Symptoms

#### (1) Cover is Open message problem analysis

This problem analysis is used to analyze a situation when:

- **Cover is Open** is displayed even though the cover is closed; and
- The Printer does not feed originals.

#### **Close the Cover** Problem Analysis

Open the cover, and insert some object in the sensor's photointerruptor so that the Printer detects that the cover is closed. Then turn on the PSS09.

Does the **Close the cover** message on the operation panel go away?

| Yes | No   |
|-----|--|
|     | <ul style="list-style-type: none"> <li>◆ Check PSS09.</li> <li>◆ Check for a disconnection or faulty contact in CBLS-SENS1 and CBLS-SENS2.</li> <li>◆ There is a problem with PCB-ASSY-ASC's CN3 connector insertion.<br/>If there is a problem, replace the relevant part.<br/>If there are no problems, replace the PCB-ASSY-ASC.</li> </ul> |
|     | <ul style="list-style-type: none"> <li>◆ Check for a broken or bent left side lever on the cover.</li> <li>◆ Check for any problems with the installation position of PSS09.<br/>If there is a problem, replace the relevant part.</li> </ul>  |

**(2) Problem analysis at improper display on original document jam**

This problem analysis is used to analyze a situation when **original document jam** is displayed on the operation panel even though there is no original document, causing the original document not to be fed.

Problem Analysis on **Remove the jammed original**.

- ◆ Check PSS01 to 08 and PSS11.
- ◆ Check for any problems with the installation position of PSS01 to 08 and PSS11.
- ◆ Check for disconnections or faulty contacts with CBLS-SENS1 or CBLS-SENS2.
- ◆ Check for problems with PCB-ASSY-ASC's CN3 connector insertion.

If there is a problem, replace the relevant part.

If there are no problems, replace the PCB-ASSY-ASC.

**(3) Motor will not run check problem analysis**

This problem analysis is used to analyze a situation when the motor will not run even though the original document was set properly, causing the original document not to be fed.

**Motor Will Not Run** Problem Analysis

- ◆ Check for disconnections or faulty contacts with CBLS-SENS1 or CBLS-SENS2.
- ◆ Check for problems with PCB-ASSY-ASC's CN4 connector insertion.
- ◆ Check the installation of PCB-ASSY-ASC's R35 and R36 (look for shorts or other problems).

If there is a problem, replace the relevant part.

If there are no problems, replace the motor SM01 and PCB-ASSY-ASC in that order.



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# Chapter 7    Printer Image Quality Problems Troubleshooting

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This chapter covers types of problems related to image quality and possible solutions for those problems.

## 7.1    How to Troubleshoot Image Quality Problems

When a problem with image quality occurs, print one of the engine test patterns stored in the engine's memory to check for any problems with the engine itself.

The methods to troubleshoot image quality problems are classified into two depending on the details surrounding the problem.

- Problems related to print length accuracy and registration  
Measure the printed engine test pattern at the position described in **7.2 Troubleshooting Print Specification Problems**.  
Then determine the problem if the measurement values are not within the standard values.
- Problems on image overlap or print density  
Start by checking any parts that you think could be causing the problem based on the specific symptoms observed. See **7.3 Troubleshooting Image Quality Problems**.

### 7.1.1 Types of Engine Test Patterns

Print an engine test pattern by selecting **Print** in Engine Maintenance mode, and by executing Test Pattern. For details, see subsection **2.3.12 Print** (p. 2-25).

The Table 7-1 lists the engine test patterns and their evaluation items.

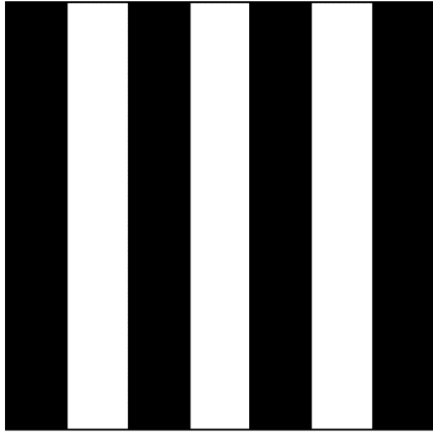
Table 7-1 Engine Test Pattern

| No.         | Engine Test Pattern  |
|-------------|--|
| Pattern #1  | Vertical stripe, composed of 256-dot width black and white lines                                       |
| Pattern #2  | Checkerboard, composed of 256-dot width cells  |
| Pattern #3  | Horizontal stripe, composed of 256-dot width black and white lines                                     |
| Pattern #4  | Horizontal stripe, composed of 1-dot width black and 3-dot width white lines                           |
| Pattern #5  | Horizontal stripe, composed of 2-dot width black and 2-dot width white lines                           |
| Pattern #6  | Horizontal stripe, composed of 2-dot width black and 14-dot width white lines                          |
| Pattern #7  | Grid, composed of 64-dot width cells and 1-dot width black lines                                       |
| Pattern #8  | Grid, composed of 64-dot width and 512-dot height cells and 1-dot width black lines                    |
| Pattern #9  | Grid, composed of 64-dot width and 512-dot height cells and 2-dot width black lines                    |
| Pattern #10 | Grid, composed of 64-dot width and 512-dot height cells and 4-dot width black lines                    |
| Pattern #11 | Checkerboard, composed of 2-dot width cells  |
| Pattern #12 | Grid, composed of the three cells below:<br>- Black cells;<br>- White cells; and<br>- Grid-lined cells |
| Pattern #13 | Grid, with a scale attachment  |
| Pattern #14 | Grid, with 1-dot width diagonal lines  |
| Pattern #15 | Grid, with 2-dot width diagonal lines  |
| Pattern #16 | Grid, with 1-dot width and 2-dot width diagonal lines  |
| Pattern #17 | Solid black  |
| Pattern #18 | Solid white  |
| Pattern #19 | Vertical stripe, composed of 1-dot width black and 3-dot width white lines                             |
| Pattern #20 | Vertical stripe, composed of 2-dot width black and 2-dot width white lines                             |

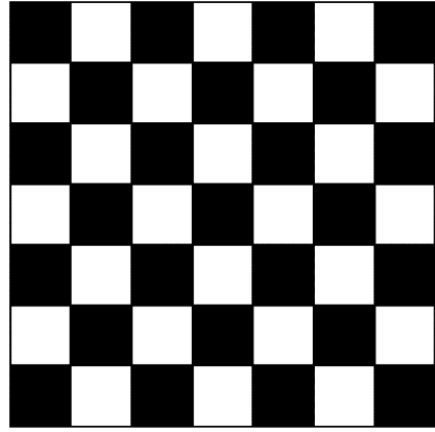
The output images produced by these engine test patterns are shown below.

- Notes**
- ◇ Each of the patterns shown below are merely illustrations of what kind of patterns can be output. The actual size and spacing of each pattern will not match those shown here.
  - ◇ Patterns 4 - 7, 11, and 17 are all represented as Solid Black, but the actual output of each pattern will vary.
  - ◇ Patterns 8 - 10 each have different line thicknesses.
  - ◇ Patterns 14 - 16 also each have their own combination of different line thicknesses.
  - ◇ Pattern 18, Solid White, has been omitted.

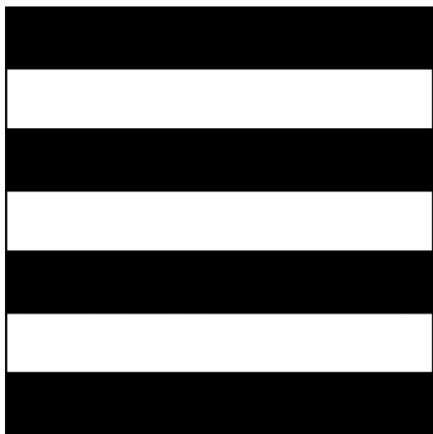
Pattern 1



Pattern 2



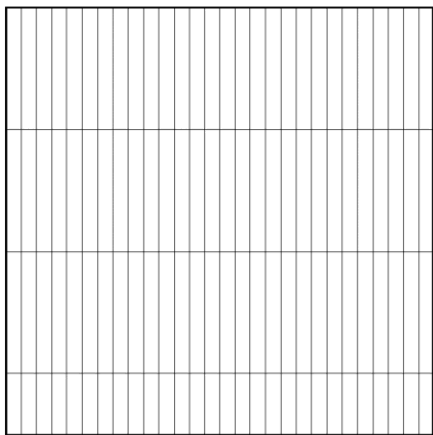
Pattern 3



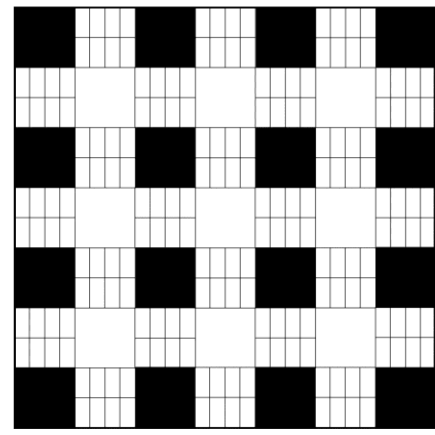
Pattern 4  
Pattern 5  
Pattern 6  
Pattern 7  
Pattern 11  
Pattern 17



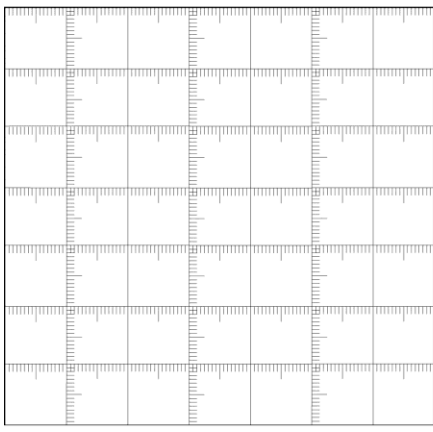
Pattern 8  
Pattern 9  
Pattern 10



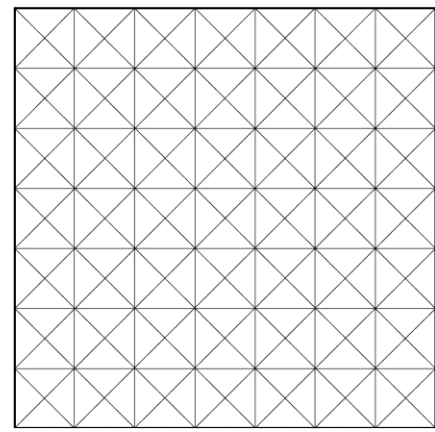
Pattern 12



Pattern 13



Pattern 14  
Pattern 15  
Pattern 16

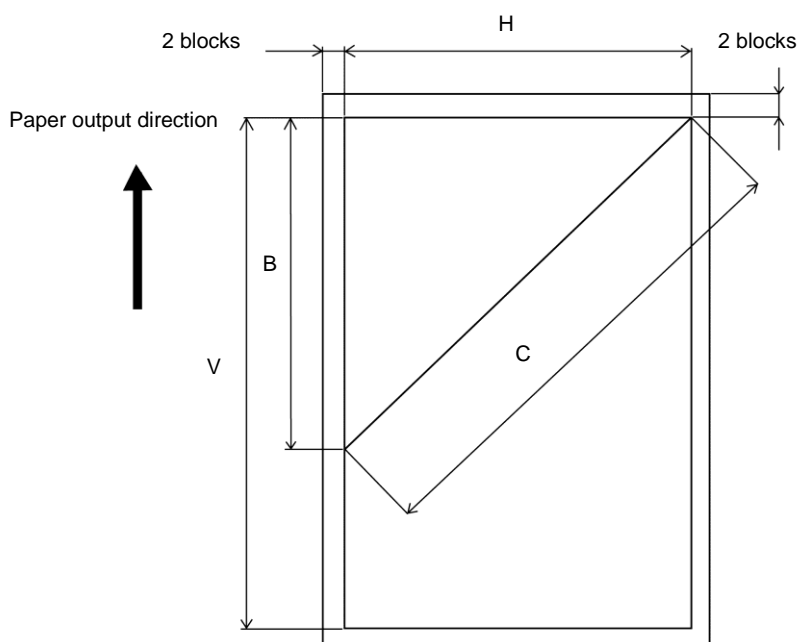


## 7.2 Troubleshooting Print Specification Problems

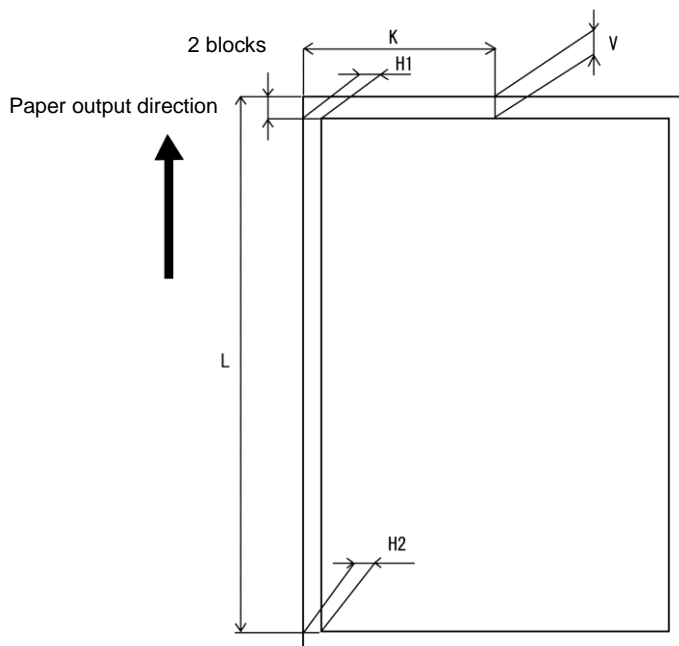
### 7.2.1 Print Specifications and How to Measure Them

**Note** ◇ When checking the positioning of the front end and side for the paper and image, always perform all test prints. Also be sure to check with both plain and tracing paper.

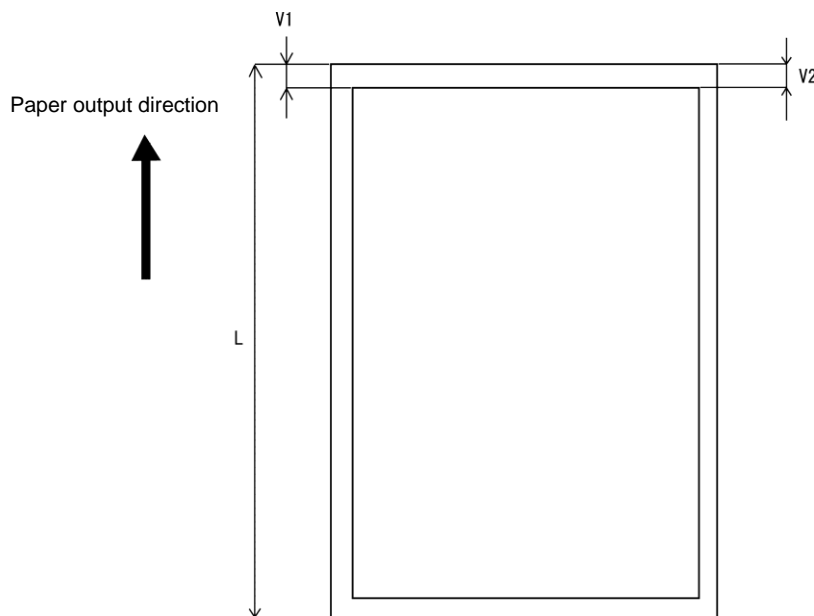
| Item                  | Measurement Location   | Standard Value  | Notes                  |
|-----------------------|--|---|------------------------|
| Print length accuracy | <p>Main Scanning Direction:<br/>Measure the length H of 74 blocks in the horizontal direction, where 1 block is 10.837 mm (0.43 inches).</p> <p>Vertical Scanning Direction:<br/>Measure the length V of 104 blocks in the vertical direction, where 1 block is 10.837 mm (0.43 inches).</p> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>- Output three pages in a row, and measure the third page.</li> <li>- Measure at least 15 minutes after printing.</li> </ul>   | <ul style="list-style-type: none"> <li>- Main scanning direction<br/>802±0.5% (±4 mm (0.16 inches))</li> <li>- Vertical scanning direction<br/>1127.1±0.5% (±5.6 mm (0.22 inches))</li> </ul> | Engine test pattern 15 |
| Print squareness      | <p>Measure:</p> <ul style="list-style-type: none"> <li>- The length H, horizontal 74 blocks;</li> <li>- The length B, vertical 74 blocks; and</li> <li>- The diagonal length C, where 1 block is 10.837 mm (0.43 inches).</li> </ul> <p>Then use the following equation to calculate squareness.</p> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>- Output three pages in a row, and measure the third page.</li> <li>- Measure at least 15 minutes after printing.</li> </ul> $\left  \frac{C - \sqrt{H^2 + B^2}}{\sqrt{H^2 + B^2}} \right  \times 100$ <ul style="list-style-type: none"> <li>* When outputting three pages in a row, measure the third page.</li> <li>* Measure at least 15 minutes after printing.</li> <li>* 1 block = 10.837 mm (0.43 inches)</li> </ul> | - ±0.2%   | Engine test pattern 15 |



| Item               | Measurement Location   | Standard Value   | Notes                  |
|--------------------|--|--|------------------------|
| Top edge alignment | Measure the length V with:<br>- K block from the paper's right edge; and<br>- 2 blocks from the paper's front edge,<br>where 1 block is 10.837 mm, and K is:<br>- 27 at A1 vertical;<br>- 20 at A2 vertical;<br>- 15 at A3 vertical; and<br>- 15 at A4 vertical<br><b>Note:</b><br>- Output three pages in a row, and measure the third page.<br>- Measure at least 15 minutes after printing. | - A1 vertical<br>21.7±3.0 mm<br>(0.85±0.12 inches)<br>- A2 vertical<br>21.7±3.0 mm<br>(0.85±0.12 inches)<br>- A3 vertical<br>21.7±3.0 mm<br>(0.85±0.12 inches)<br>- A4 horizontal<br>21.7±3.0 mm<br>(0.85±0.12 inches) | Engine test pattern 15 |
| Center alignment   | Measure the length H1 with:<br>- 2 blocks from the paper's right edge; and<br>- 2 blocks from the paper's front edge,<br>where 1 block is 10.837 mm.<br><b>Note:</b><br>- Output three pages in a row, and measure the third page.<br>- Measure at least 15 minutes after printing.  | - A1 vertical<br>21.7±3.0 mm<br>(0.85±0.12 inches)<br>- A2 vertical<br>21.7±3.0 mm<br>(0.85±0.12 inches)<br>- A3 vertical<br>21.7±3.0 mm<br>(0.85±0.12 inches)<br>- A4 horizontal<br>21.7±3.0 mm<br>(0.85±0.12 inches) | Engine test pattern 15 |
| Skew               | Measure the length H2 with:<br>- 2 blocks from the paper's right edge; and<br>- L block from the paper's front edge,<br>where L is:<br>- 104 at A0 vertical;<br>- 74 at A1 vertical;<br>- 50 at A2 vertical;<br>- 33 at A3 vertical; and<br>- 23 at A4 vertical<br>Then obtain the difference between H1 and H2.   | - A0 vertical<br>±5.6 mm (±0.22 inches)<br>- A1 vertical<br>±4 mm (±0.16 inches)<br>- A2 vertical<br>±2.7 mm (±0.11 inches)<br>- A3 vertical<br>±1.8 mm (±0.07 inches)<br>- A4 horizontal<br>±1.2 mm (±0.05 inches)    | Engine test pattern 15 |



| Item                | Measurement Location  | Standard Value   | Notes                  |
|---------------------|---|--|------------------------|
| Cut length accuracy | Measure the length L below:<br>- From the paper's front edge to the rear edge; and<br>- At the right edge of the paper.<br><b>Note:</b><br>- Output three pages in a row, and measure the third page.<br>- Measure at least 15 minutes after printing.  | - A0 vertical<br>1189±6.0 mm<br>(46.81±0.24 inches)<br>- A1 vertical<br>841±4.0 mm<br>(33.11±0.16 inches)<br>- A2 vertical<br>594±3.0 mm<br>(23.39±0.12 inches)<br>- A3 vertical<br>420±3.0 mm<br>(16.54±0.12 inches)<br>- A4 horizontal<br>210±3.0 mm<br>(8.27±0.12 inches)           | Engine test pattern 15 |
| Cut squareness      | Measure the lengths V1 and V2 with:<br>- 2 block from the paper's front edge; and<br>- At the paper's right edge for V1 and left edge for V2.<br>Then obtain the difference between V1 and V2.<br><b>Note:</b><br>- Output three pages in a row, and measure the third page.<br>- Measure at least 15 minutes after printing. | - A0 vertical<br>±3.0/841 mm<br>(±0.12/33.11 inches)<br>- A1 vertical<br>±2.0/594 mm<br>(±0.08/23.39 inches)<br>- A2 vertical<br>±1.4/420 mm<br>(±0.06/16.54 inches)<br>- A3 vertical<br>±1.0/297 mm<br>(±0.04/11.69 inches)<br>- A4 horizontal<br>±1.0/297 mm<br>(±0.04/11.69 inches) | Engine test pattern 15 |



## 7.2.2 Print Specification Problem Solutions

If the measurement value is not within the standard value range, refer to **10.3 Calibrating Print Specification Items** (p10-16) and adjust the problematic item.

### 7.3 Troubleshooting Image Quality Problems

A list of image quality problem troubleshooting items is given below. Afterwards, troubleshooting instructions for each item are given.

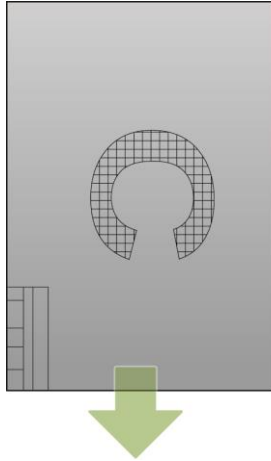
Table 7-2 Image Quality Problem Troubleshooting Item List

| Item  | Description  |
|---|--|
| (1) Gray cast                                     | The white parts on the printout are globally slightly tainted.   |
| (2) Print density irregularities                  | Density irregularity or line width differences appear in a printout.   |
| (3) Density between prints variation              | Density irregularities appear between printouts of the same pattern made successively.   |
| (4) Too low density                               | The printout density is low or the 3-dot line is too thin.   |
| (5) White loss (partial)                          | Parts in the printout are missing.   |
| (6) Poor Image reproduction                       | The original and the printout differ.<br>Characters or forms not present in the original are printed.<br>Some bits are missing.<br>Vertical 8-mm bands are missing.<br>An image already printed overlaps printouts made afterward. |
| (7) White loss (horizontal belts)                 | Belts of missing print appear horizontally.  |
| (8) White loss (vertical belts)                   | Belts of missing print appear vertically.  |
| (9) Black lines (horizontal)                      | Several black lines not present in the original image are printed horizontally. The image is printed.  |
| (10) Black lines (vertical)<br>*Image not printed | Several black lines not present in the original image are printed vertically or black stripes appear all over the printout. The image is not printed.  |
| (11) Black lines (vertical)<br>*Image printed     | Several black lines not present in the original image are printed vertically. The image is printed.  |
| (12) Black belts (vertical)                       | Black belts not present in the original image are printed vertically.  |
| (13) Black dots                                   | Black dots are printed.  |
| (14) Toner fusing problem                         | The toner on some parts of the printout can easily be rubbed off by hand.  |
| (15) Positioning problem                          | The print position is incorrect either in the up/down or right/left direction.   |
| (16) Tilted image                                 | The image is printed with a diagonal tilt due to skewed paper.   |
| (17) Solid white print                            | Nothing is printed.  |
| (18) Repeat print                                 | The same image is printed at intervals.  |
| (19) Skipping                                     | An area is not printed in the horizontal direction.  |
| (20) Smearing                                     | Horizontal lines appear duplicated or smeared.   |
| (21) Solid black print                            | All the printout is black.   |
| (22) Ink spatter                                  | The toner of horizontal lines spatters backward.   |

**(1) Gray cast**

The white parts on the printout are globally slightly tainted.

**Print sample**



Possible problem locations

- Process cartridge
- Developer unit
- Transfer roller unit

**■ Cause and solution**

(a) Cause:

Cleaner blade's poor cleaning capacity

Solution:

Turn the process cartridge central knob to unlock the cleaner blade.

(b) Cause:

Photoconductor drum malfunction

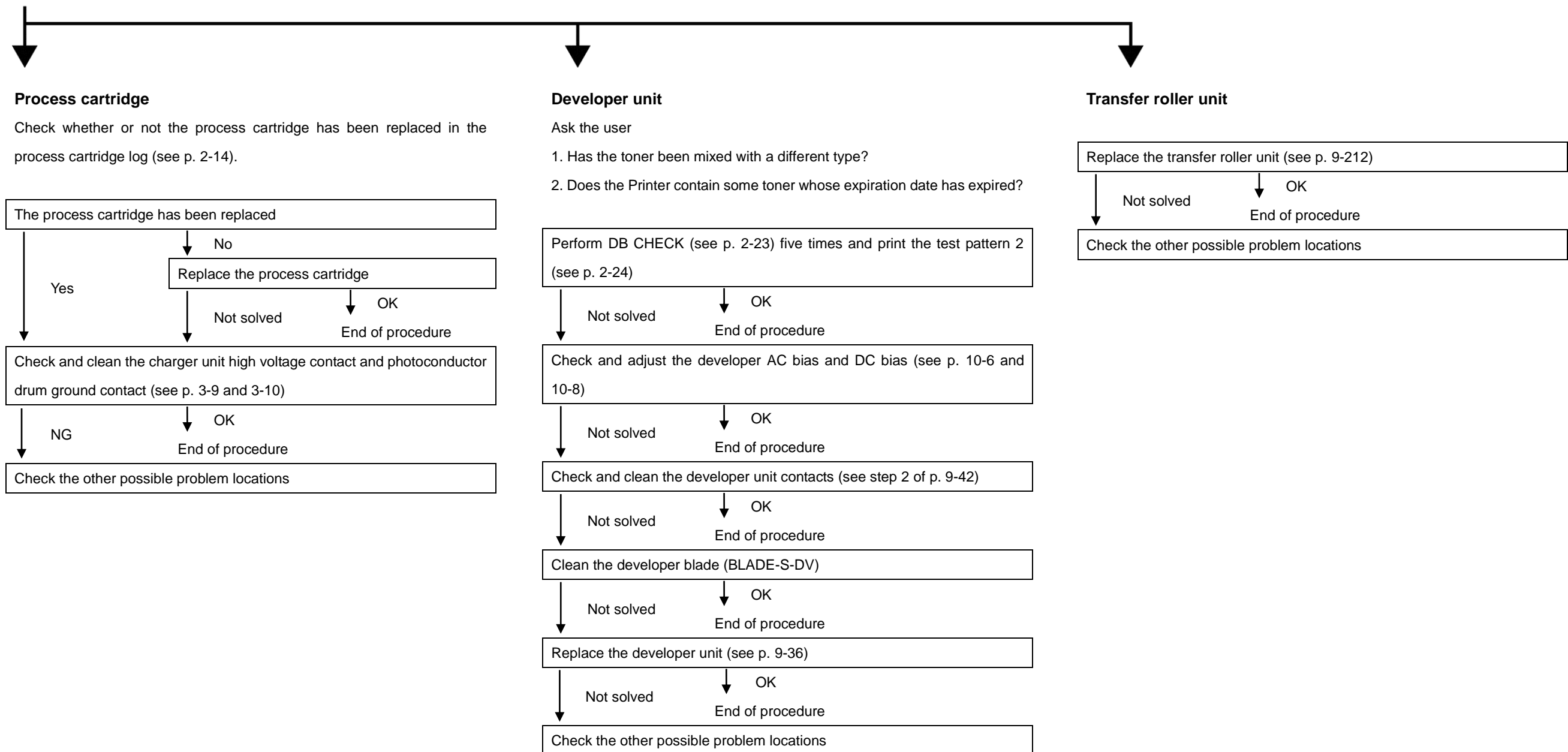
Solution:

Replace the process cartridge.



■ Technician troubleshooting

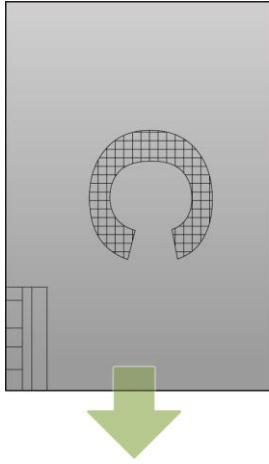
Check printing using the engine test pattern 18



## (2) Print density irregularities

Density irregularity or line width differences appear in a printout.

### Print sample



Possible problem locations

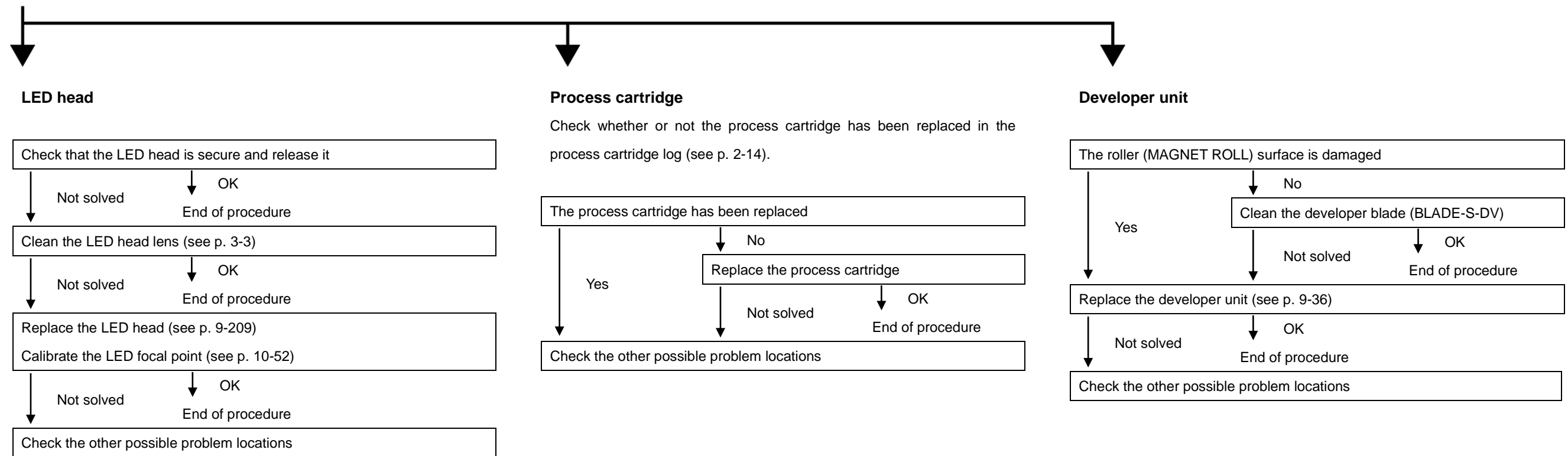
- LED head
- Process cartridge
- Developer unit

### ■ Cause and solution

- Cause:  
Lack of toner  
Solution:  
Supply the toner.
- Cause:  
Photoconductor drum deterioration  
Solution:  
Replace the process cartridge.

■ Technician troubleshooting

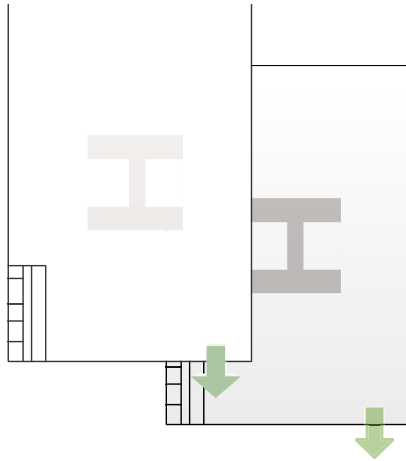
Check printing using the engine test pattern 15



### (3) Density between prints variation

Density irregularities appear between printouts of the same pattern made successively.

#### Print sample



Possible problem locations

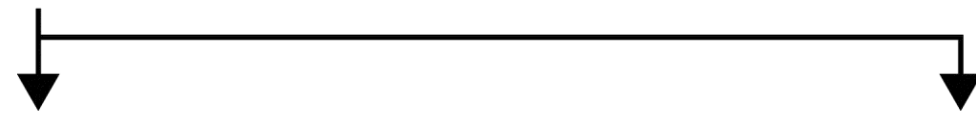
- Process cartridge
- Developer unit

#### ■ Cause and solution

- (a) Cause:  
Lack of toner  
Solution:  
Supply the toner.
- (b) Cause:  
Photoconductor drum deterioration  
Solution:  
Replace the process cartridge.

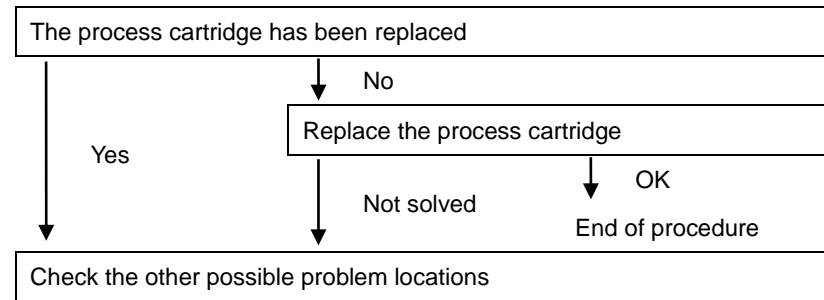
■ Technician troubleshooting

Check printing using the engine test pattern 15

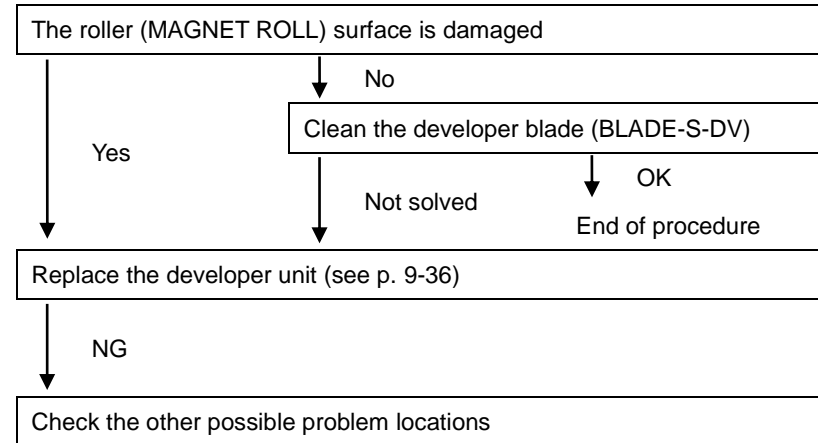


**Process cartridge**

Check whether or not the process cartridge has been replaced in the process cartridge log (see p. 2-14).



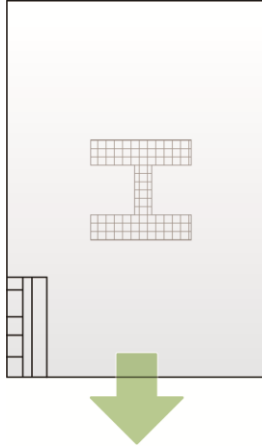
**Developer unit**



#### (4) Too low density

The printout density is low or the 3-dot line is too thin.

##### Print sample



Possible problem locations

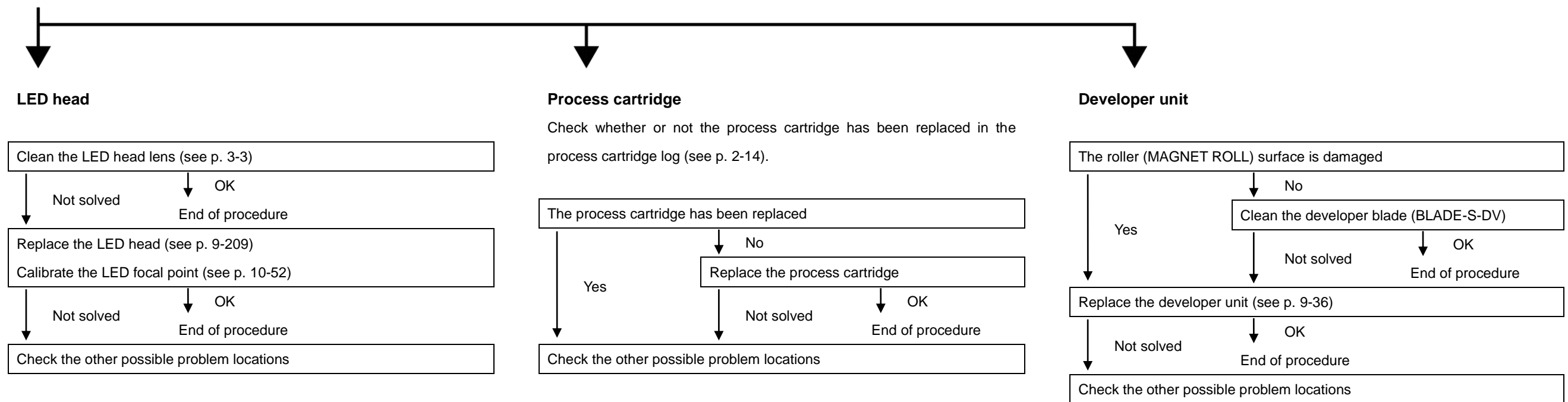
- LED head
- Process cartridge
- Developer unit

##### ■ Cause and solution

- (a) Cause:  
Lack of toner  
Solution:  
Supply the toner.
- (b) Cause:  
Photoconductor drum deterioration  
Solution:  
Replace the process cartridge.

■ **Technician troubleshooting**

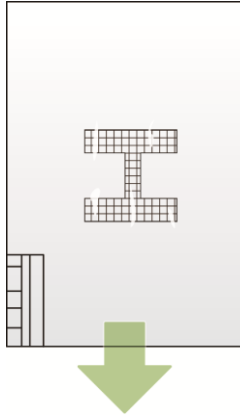
Check printing using the engine test pattern 15



**(5) White loss (partial)**

Parts in the printout are missing.

**Print sample**



Possible problem locations

- Transport unit
- Process cartridge
- Fuser unit
- Transfer roller unit
- Environment

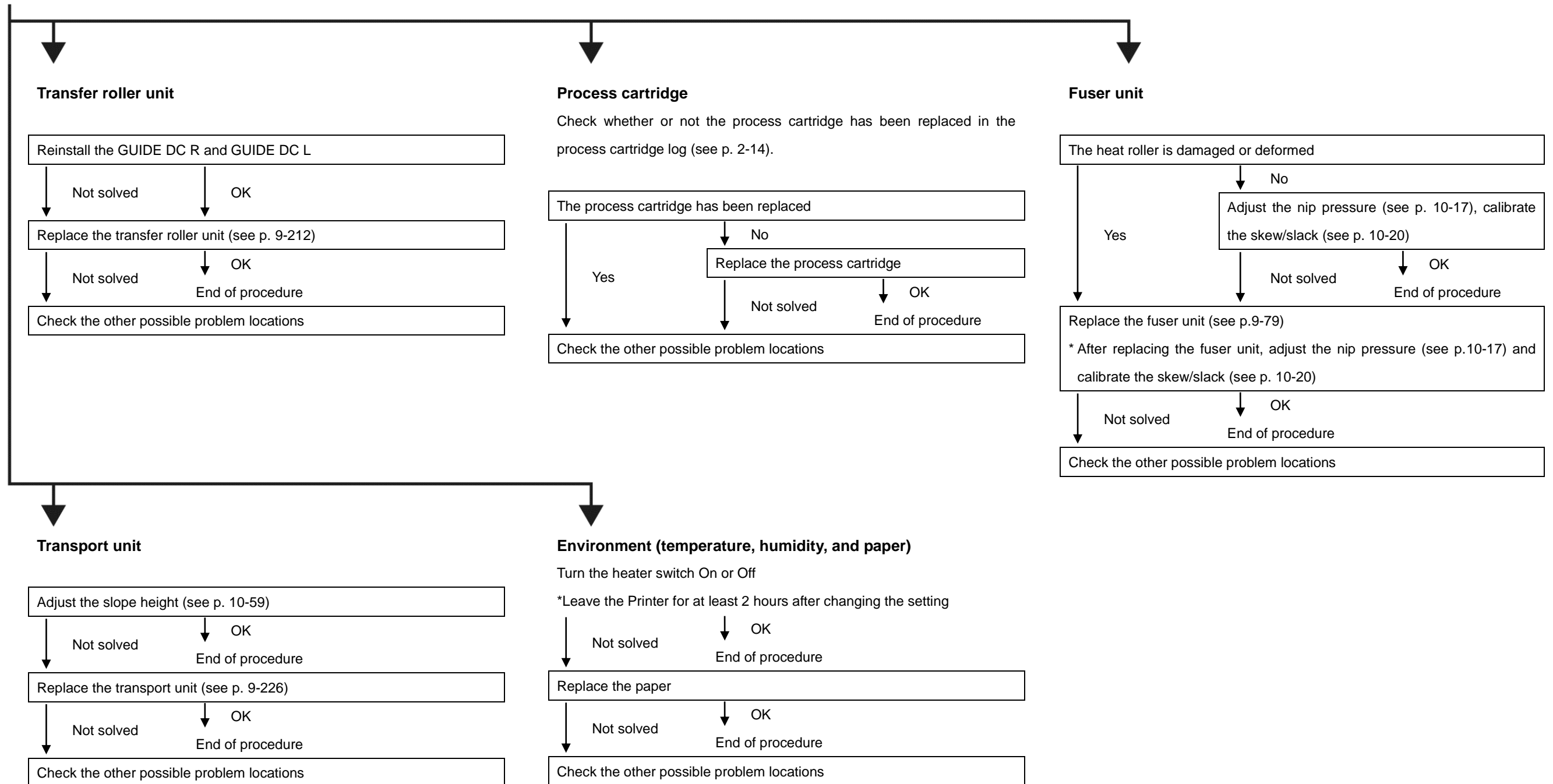
**■ Cause and solution**

- (a) Solution:  
Turn the heater switch On or Off.  
\* Leave the Printer for at least 2 hours after changing the setting.
- (b) Cause:  
Incorrect paper  
Solution:  
Replace the paper.
- (c) Solution:  
Replace the process cartridge.



■ Technician troubleshooting

Check printing using the engine test pattern 15



**(6) Poor Image reproduction**

The original and the printout differ.

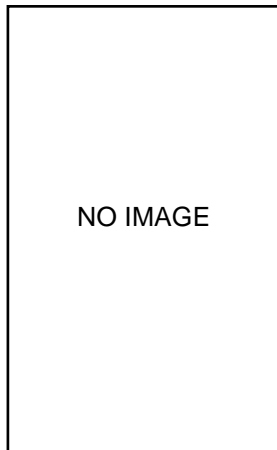
Characters or forms not present in the original are printed.

Some bits are missing.

Vertical bands of 8 mm in width are missing.

An image already printed overlaps printouts made afterward.

**Print sample**



Possible problem locations  
- LED head

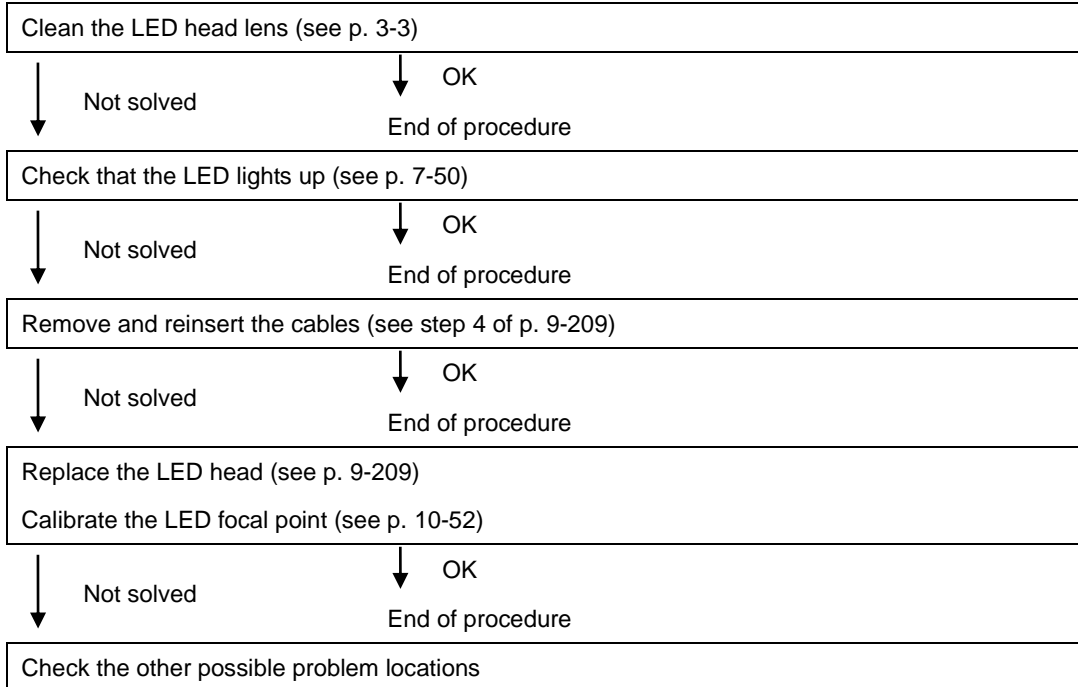
**■ Cause and solution**

- (a) Cause:  
Controller malfunction
- Solution:  
Restart the Printer.

■ **Technician troubleshooting**

Check printing using the engine test pattern 15

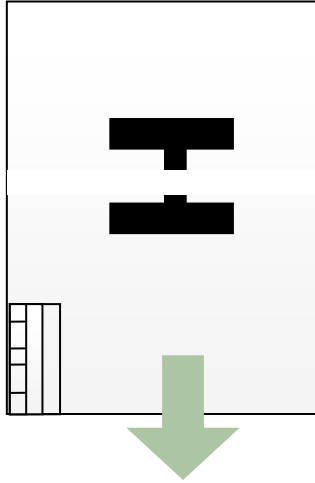
**LED head**



**(7) White loss (horizontal belts)**

Belts of missing print appear horizontally.

**Print sample**



Possible problem locations

- Process cartridge
- Developer unit
- Transfer roller unit

**■ Cause and solution**

- (a) Cause:  
Incorrect paper  
Solution:  
Replace the process cartridge.
- (b) Solution:  
Replace the process cartridge.

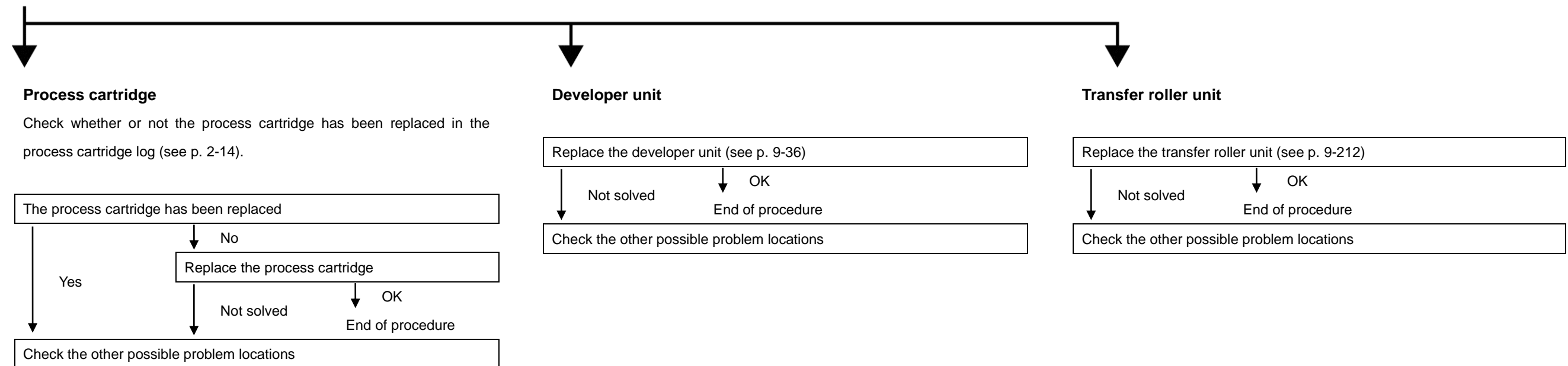
■ **Technician troubleshooting**

Check printing using the engine test pattern 18

If you notice intervals in the occurrence of missing areas, determine the problematic part using the table below showing the part circumferential lengths (intervals), and then clean or replace the part.

| Part                | External diameter   | Circumferential length |
|---------------------|---------------------|------------------------|
| Photoconductor drum | 60 mm (2.36 inches) | 188 mm (7.40 inches)   |
| Heat roller         | 50 mm (1.97 inches) | 157 mm (6.18 inches)   |
| Backup roller       | 60 mm (2.36 inches) | 188 mm (7.40 inches)   |
| Developing sleeve   | 40 mm (1.58 inches) | 63* mm (2.48 inches)   |

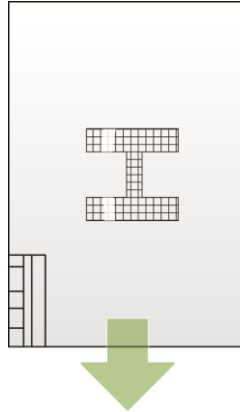
\* The developing sleeve rotates twice as fast as the photoconductor drum, thus its circumferential length is half of 125.6 mm (4.95 inches) or 63 mm (2.48 inches).



**(8) White loss (vertical belts)**

Belts of missing print appear vertically.

**Print sample**



Possible problem locations

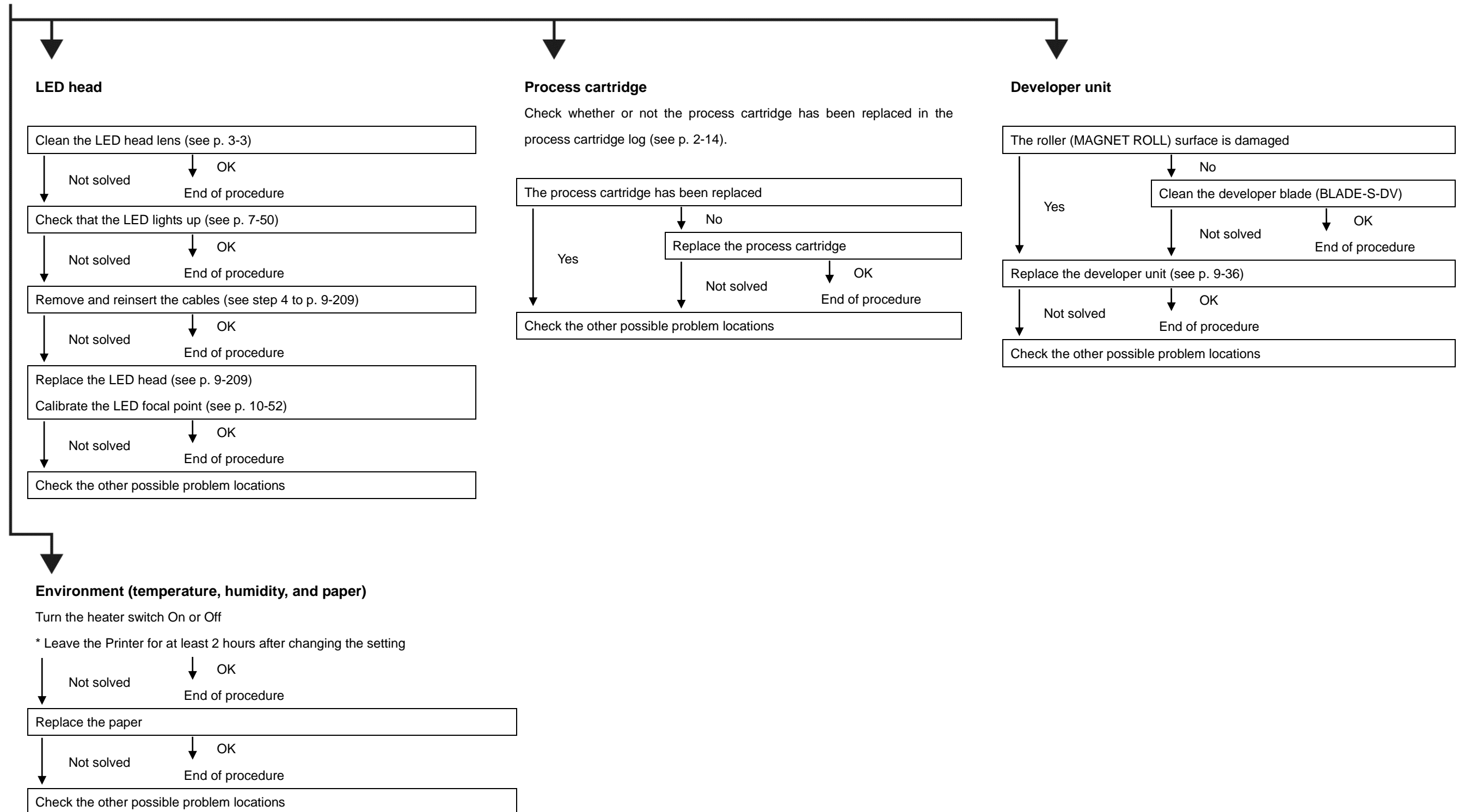
- LED head
- Process cartridge
- Developer unit
- Environment

**■ Cause and solution**

- (a) Solution:  
Turn the heater switch On or Off  
\* Leave the Printer for at least 2 hours after changing the setting
- (b) Cause:  
Incorrect paper  
Solution:  
Replace the paper.
- (c) Solution:  
Replace the process cartridge.

■ Technician troubleshooting

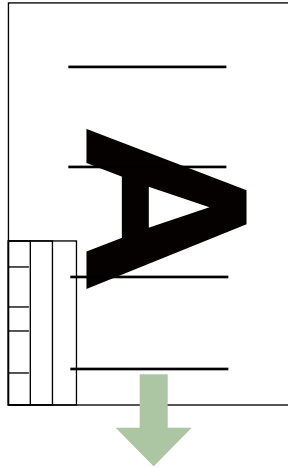
Check printing using the engine test pattern 15



**(9) Black lines (horizontal)**

Black lines not present in the original image are printed horizontally. The image is printed.

**Print sample**



Possible problem locations

- Process cartridge
- Developer unit
- Fuser unit

**■ Cause and solution**

- (a) Cause:  
Cleaner blade malfunction  
Solution:  
Replace the process cartridge.



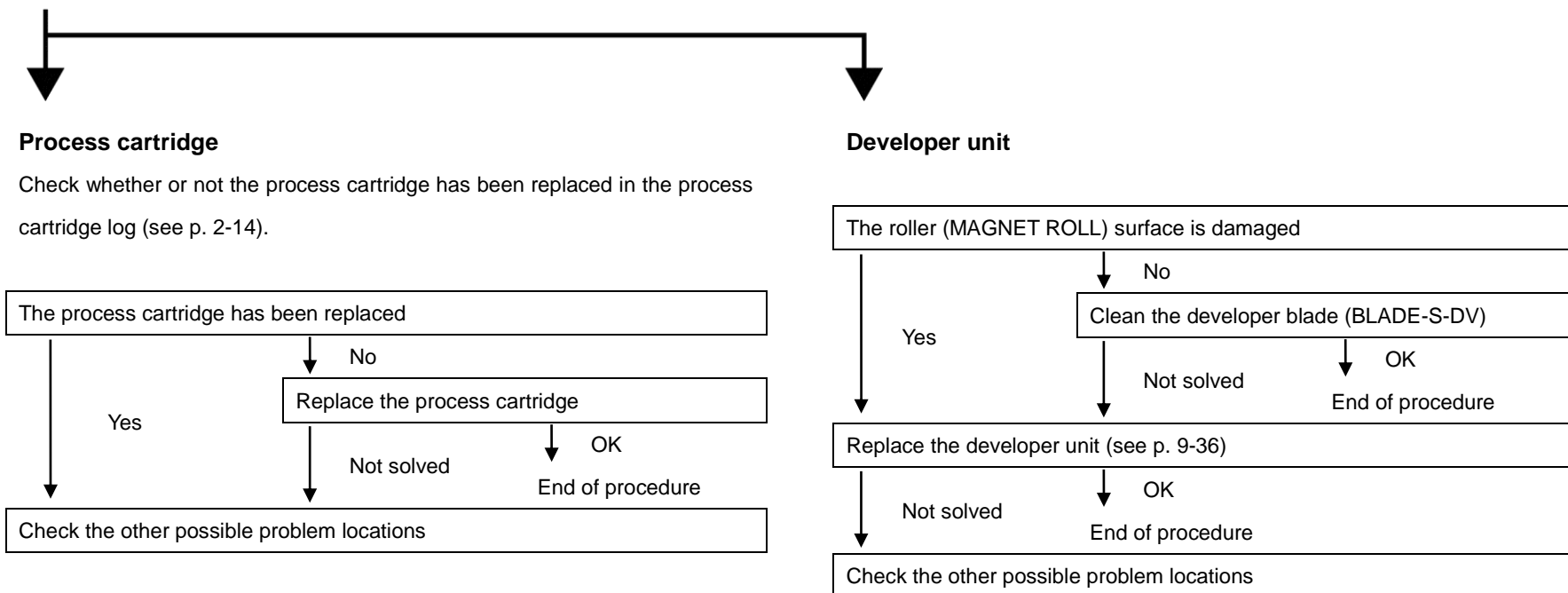
■ **Technician troubleshooting**

Check printing using the engine test pattern 15

If you notice intervals in the occurrence of missing areas, determine the problematic part using the table below showing the part circumferential lengths (intervals), and then clean or replace the part.

| Part                | External diameter   | Circumferential length |
|---------------------|---------------------|------------------------|
| Photoconductor drum | 60 mm (2.36 inches) | 188 mm (7.40 inches)   |
| Heat roller         | 50 mm (1.97 inches) | 157 mm (6.18 inches)   |
| Backup roller       | 60 mm (2.36 inches) | 188 mm (7.40 inches)   |
| Developing sleeve   | 40 mm (1.58 inches) | 63* mm (2.48 inches)   |

\* The developing sleeve rotates twice as fast as the photoconductor drum, thus its circumferential length is half of 125.6 mm (4.95 inches) or 63 mm (2.48 inches).

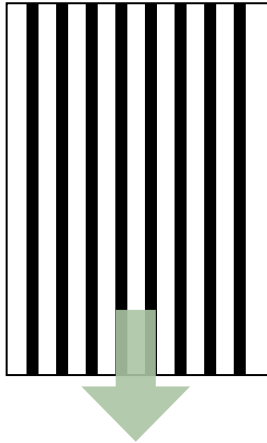


**(10) Black lines (vertical) \*Image not printed**

Black lines not present in the original image are printed vertically or black stripes appear all over the printout.

The image is not printed.

**Print sample**



Possible problem locations  
- LED head

**■ Cause and solution**

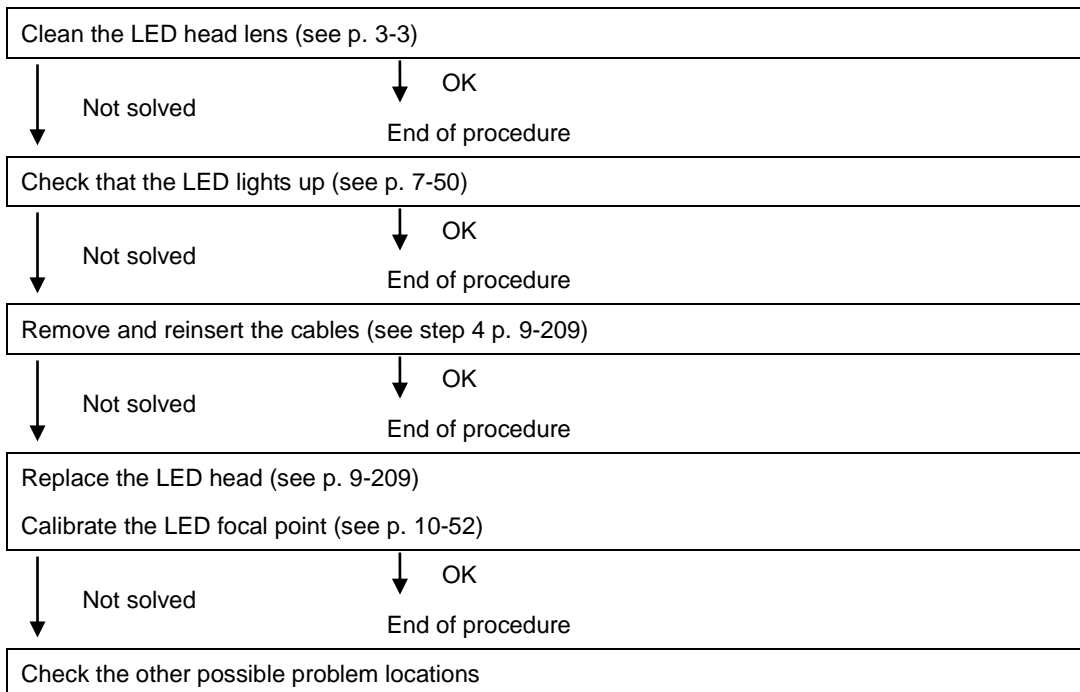
None

---

**■ Technician troubleshooting**

Check printing using the engine test pattern 15

**LED head**

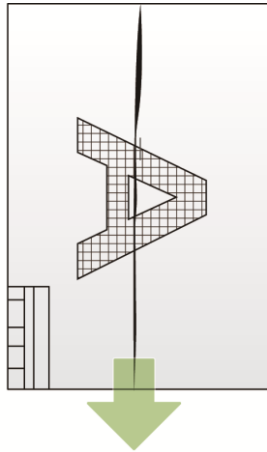


**(11) Black lines (vertical) \*Image printed**

Black lines not present in the original image are printed vertically.

The image is printed.

**Print sample**



Possible problem locations

- Process cartridge
- Fuser unit
- LED head

**■ Cause and solution**

(a) Cause:

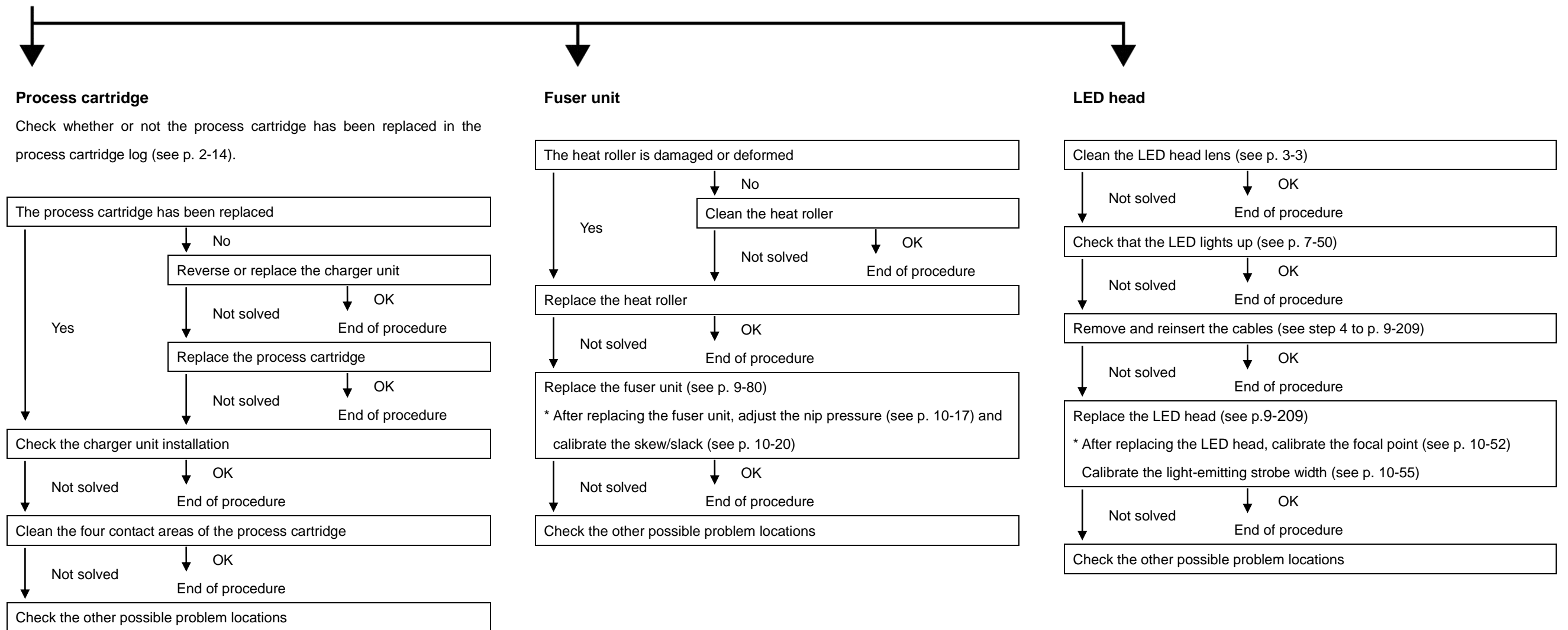
Charge wire, cleaner blade, or photoconductor drum malfunction

Solution:

Replace the process cartridge.

■ **Technician troubleshooting**

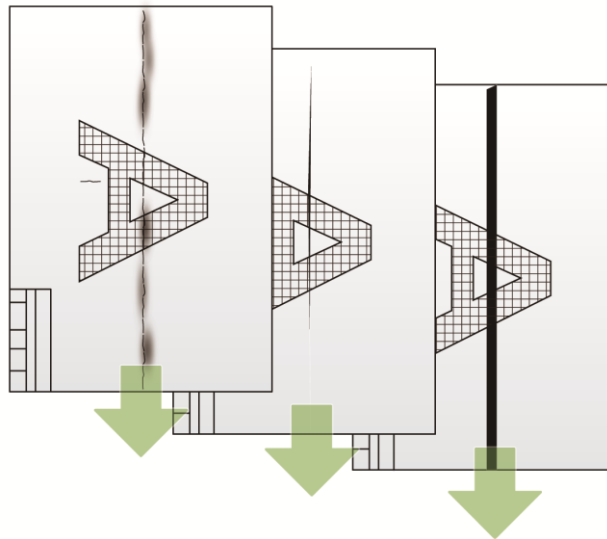
Check printing using the engine test pattern 15



**(12) Black belts (vertical)**

Black belts not present in the original image are printed vertically.

**Print sample**



Possible problem locations

- Process cartridge
- Fuser unit
- LED head

**■ Cause and solution**

(a) Cause:

Light-induced fatigue of the photoconductor drum

Solution:

Block the light if the Printer is reached directly by sunlight.

(b) Cause:

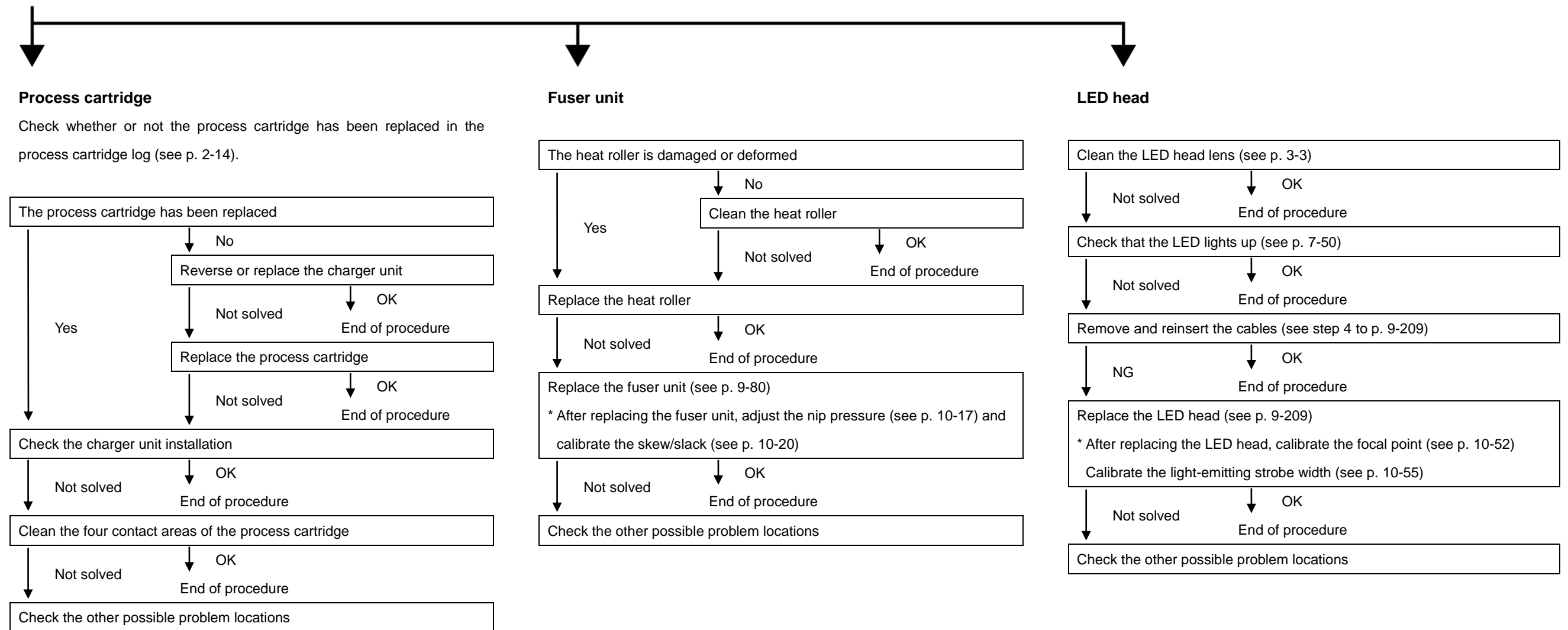
Charge wire, cleaner blade, or photoconductor drum malfunction

Solution:

Replace the process cartridge.

■ **Technician troubleshooting**

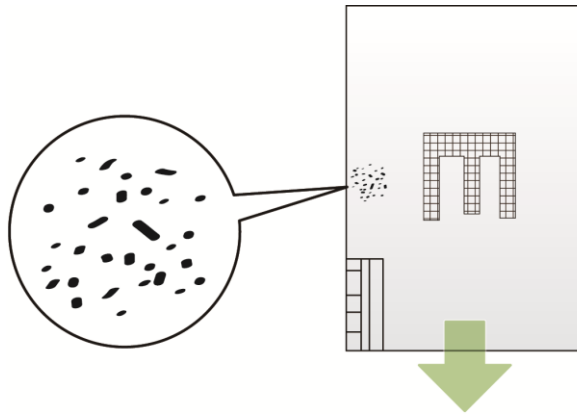
Check printing using the engine test pattern 15



**(13) Black dots**

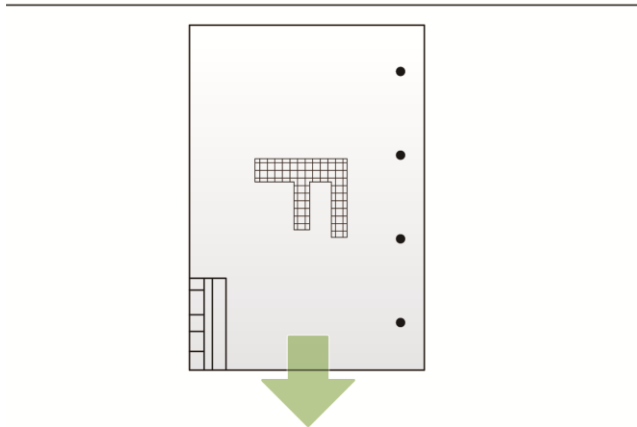
Black dots are printed.

**Print sample**



Possible problem locations

- Process cartridge
- Fuser unit
- Developer unit



**■ Cause and solution**

(a) Cause:

Charge wire, cleaner blade, or photoconductor drum malfunction

Solution:

Replace the process cartridge.

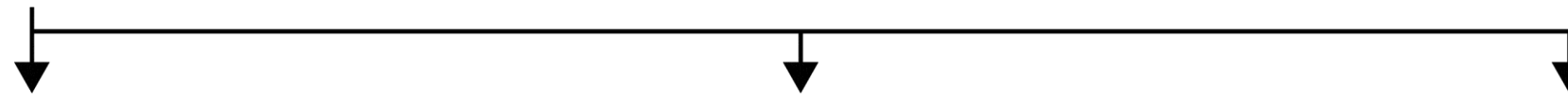
**■ Technician troubleshooting**

Check printing using the engine test pattern 15

If you notice intervals in the occurrence of missing areas, determine the problematic part using the table below showing the part circumferential lengths (intervals), and then clean or replace the part.

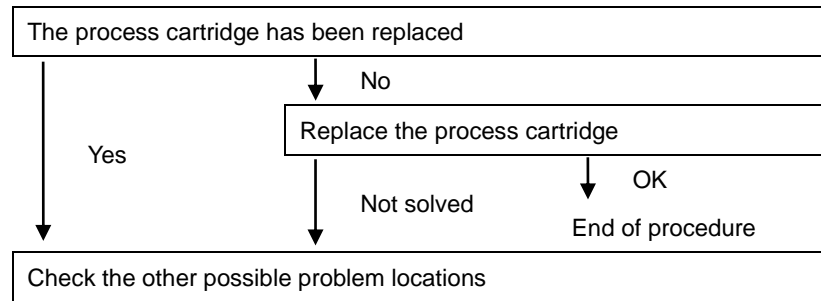
| Part                | External diameter   | Circumferential length |
|---------------------|---------------------|------------------------|
| Photoconductor drum | 60 mm (2.36 inches) | 188 mm (7.40 inches)   |
| Heat roller         | 50 mm (1.97 inches) | 157 mm (6.18 inches)   |
| Backup roller       | 60 mm (2.36 inches) | 188 mm (7.40 inches)   |
| Developing sleeve   | 40 mm (1.58 inches) | 63* mm (2.48 inches)   |

\* The developing sleeve rotates twice as fast as the photoconductor drum, thus its circumferential length is half of 125.6 mm (4.95 inches) or 63 mm (2.48 inches).

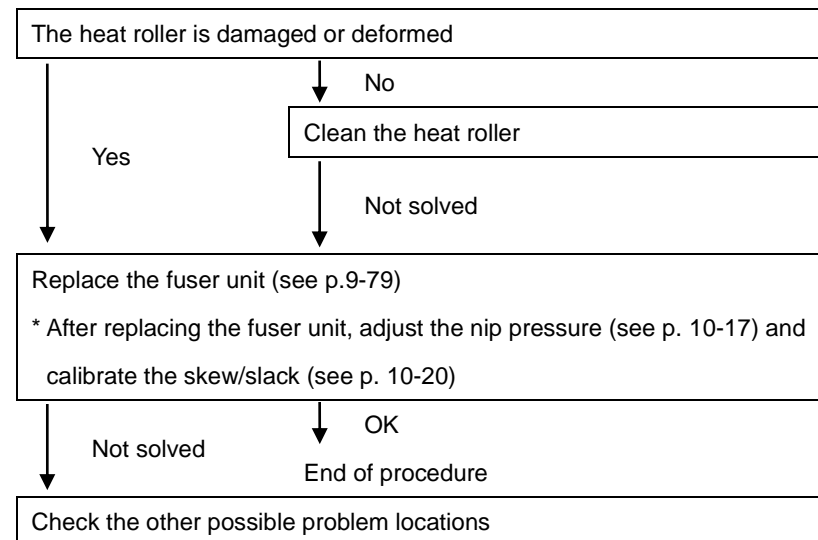


**Process cartridge**

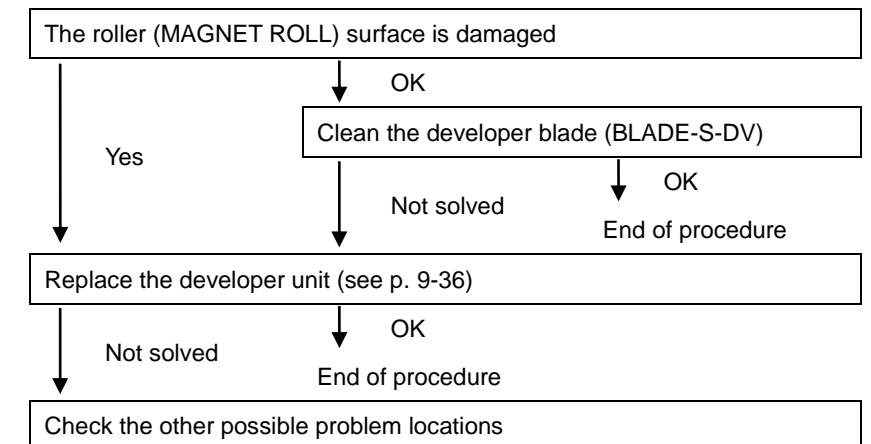
Check whether or not the process cartridge has been replaced in the process cartridge log (see p. 2-14).



**Fuser unit**



**Developer unit**

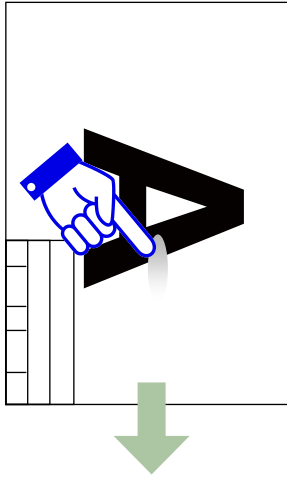




**(14) Toner fusing problem**

The toner on some parts of the printout can easily be rubbed off by hand.

**Print sample**



Possible problem locations  
- Fuser unit

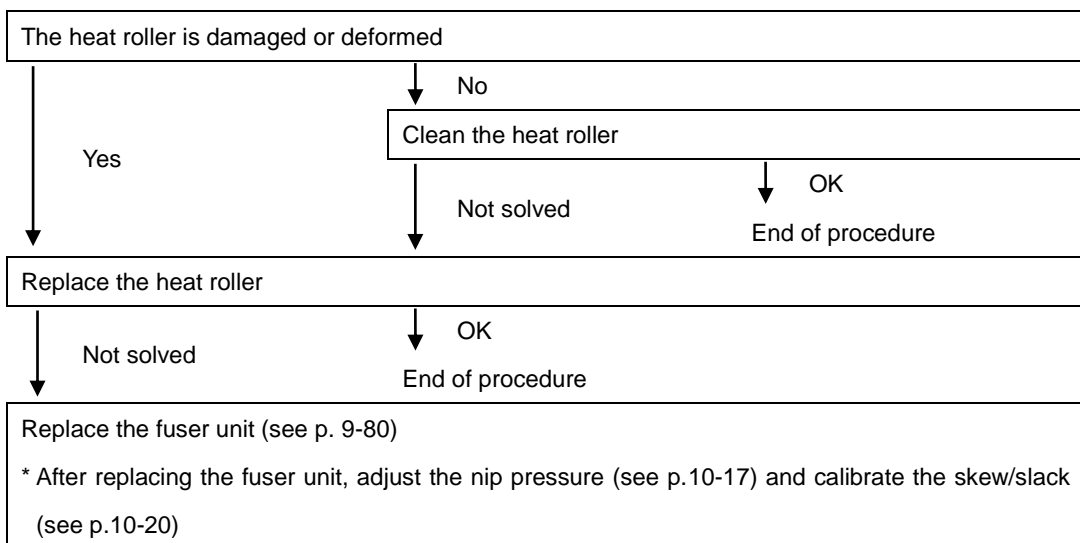
**■ Cause and solution**

- (a) Cause:  
Incorrect paper
- Solution:  
Replace the paper.

**■ Technician troubleshooting**

Check printing using the engine test pattern 15

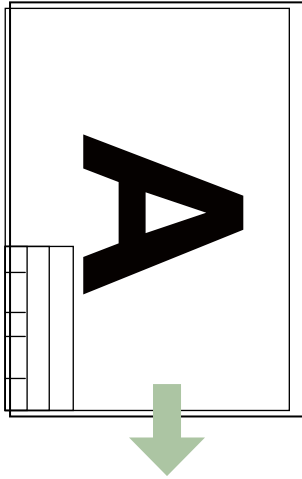
**Fuser unit**



**(15) Positioning problem**

The print position is incorrect either in the up/down or right/left direction.

**Print sample**



Possible problem locations

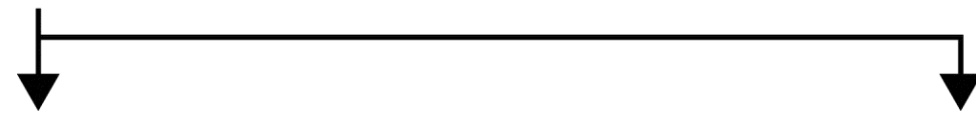
- CL04
- Torque limiter

**■ Cause and solution**

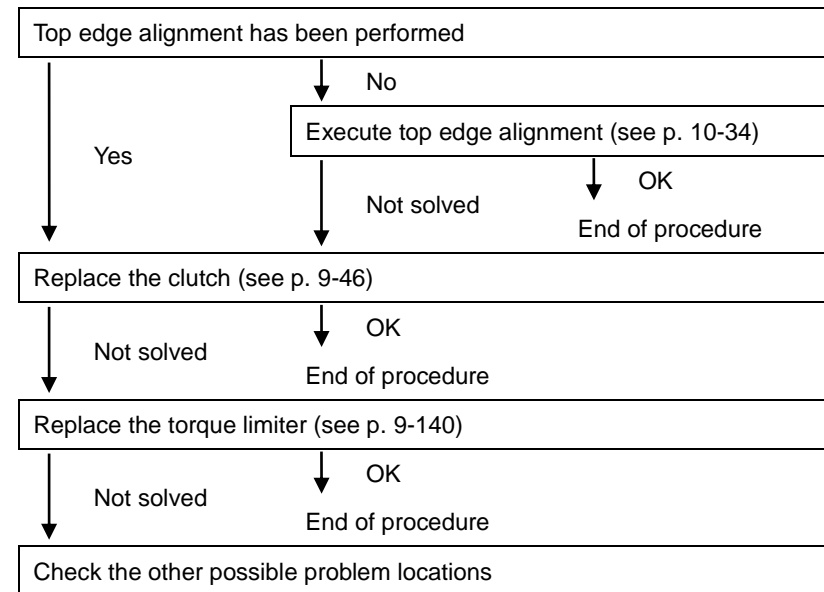
- (a) Cause:  
Photoconductor drum or holder malfunction  
Solution:  
Replace the process cartridge.

■ Technician troubleshooting

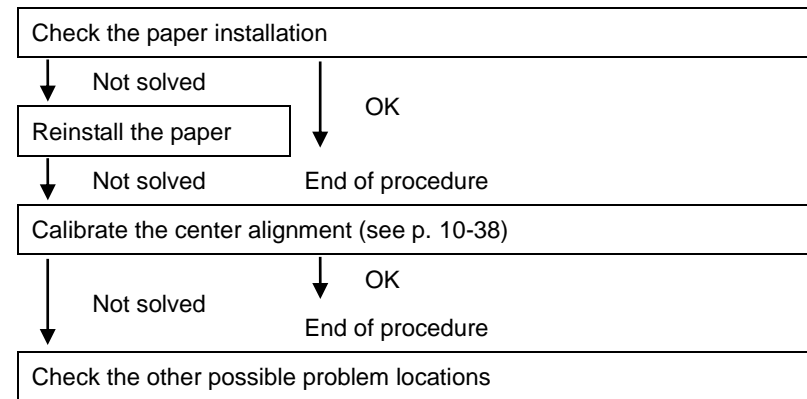
Check printing using the engine test pattern 13



**Printout misaligned vertically**



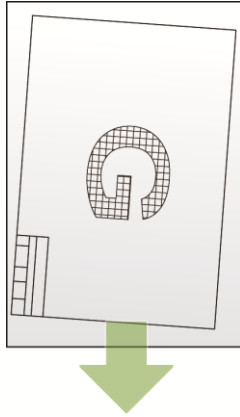
**Printout misaligned horizontally**



### (16) Tilted image

The image is printed with a diagonal tilt due to skewed paper.

#### Print sample



Possible problem locations

- Fuser unit
- Feed roller
- Pinch roller
- Above cutter roller
- Transport unit
- Transfer roller unit

#### ■ Cause and solution

- (a) Cause:  
Incorrect paper installation  
Solution:  
Reinstall the paper and the flange.

■ Technician troubleshooting

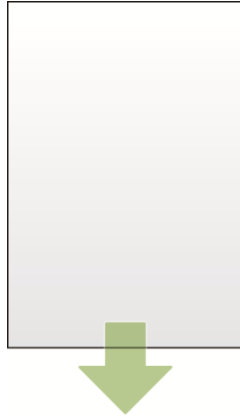
Check printing using the engine test pattern 13



**(17) Solid white print**

Nothing is printed.

**Print sample**



Possible problem locations

- Process cartridge
- Developer unit
- LED head

**■ Cause and solution**

(a) Cause:

Photoconductor drum rotation problems due to clogged cleaner unit

Solution:

Replace the process cartridge.

(b) Cause:

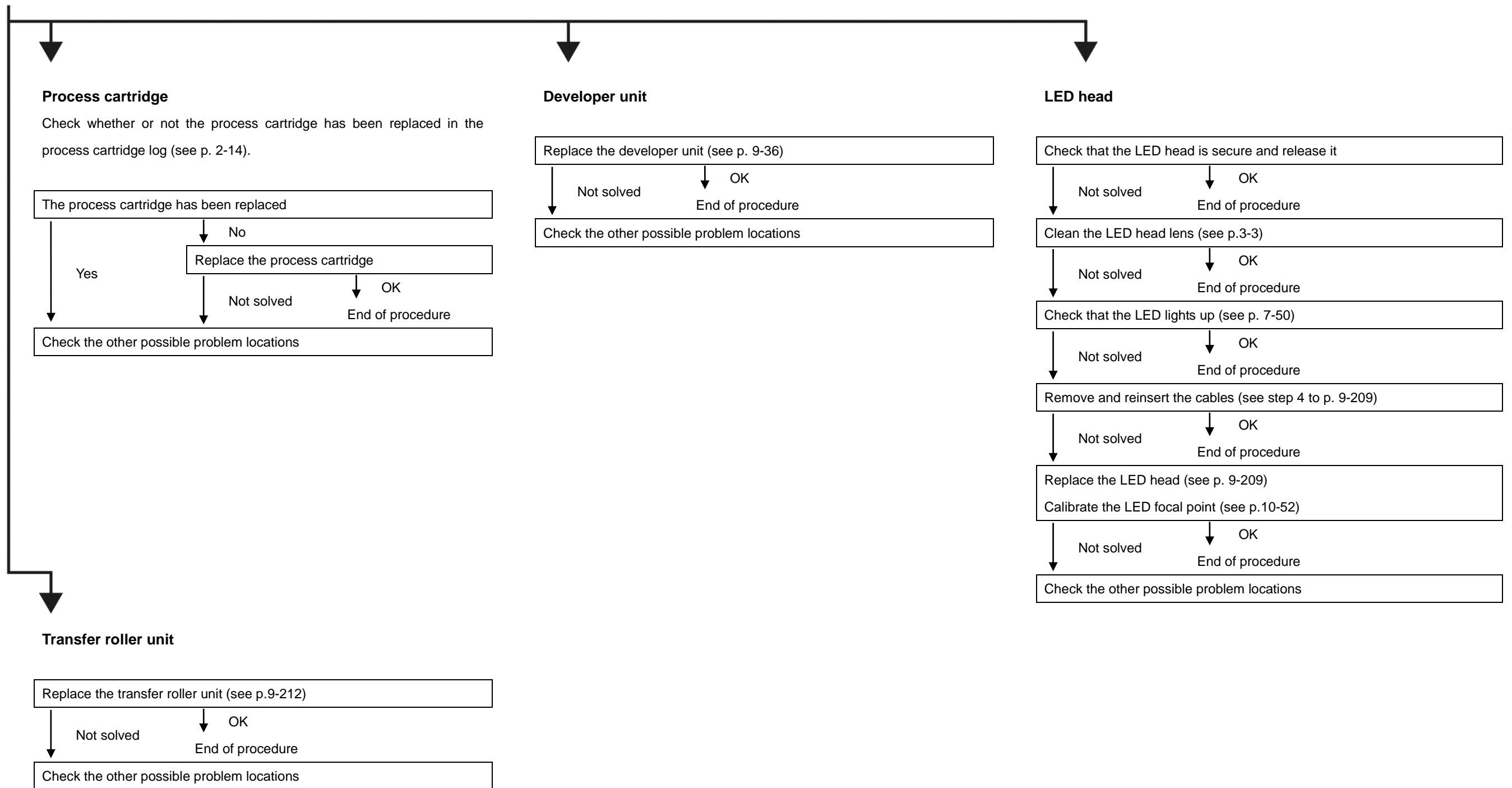
Lack of toner

Solution:

Supply the toner.

■ Technician troubleshooting

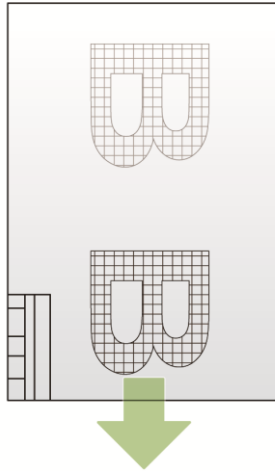
Check printing using the engine test pattern 14



**(18) Repeat print**

The same image is printed at intervals.

**Print sample**



Possible problem locations

- Process cartridge
- Fuser unit

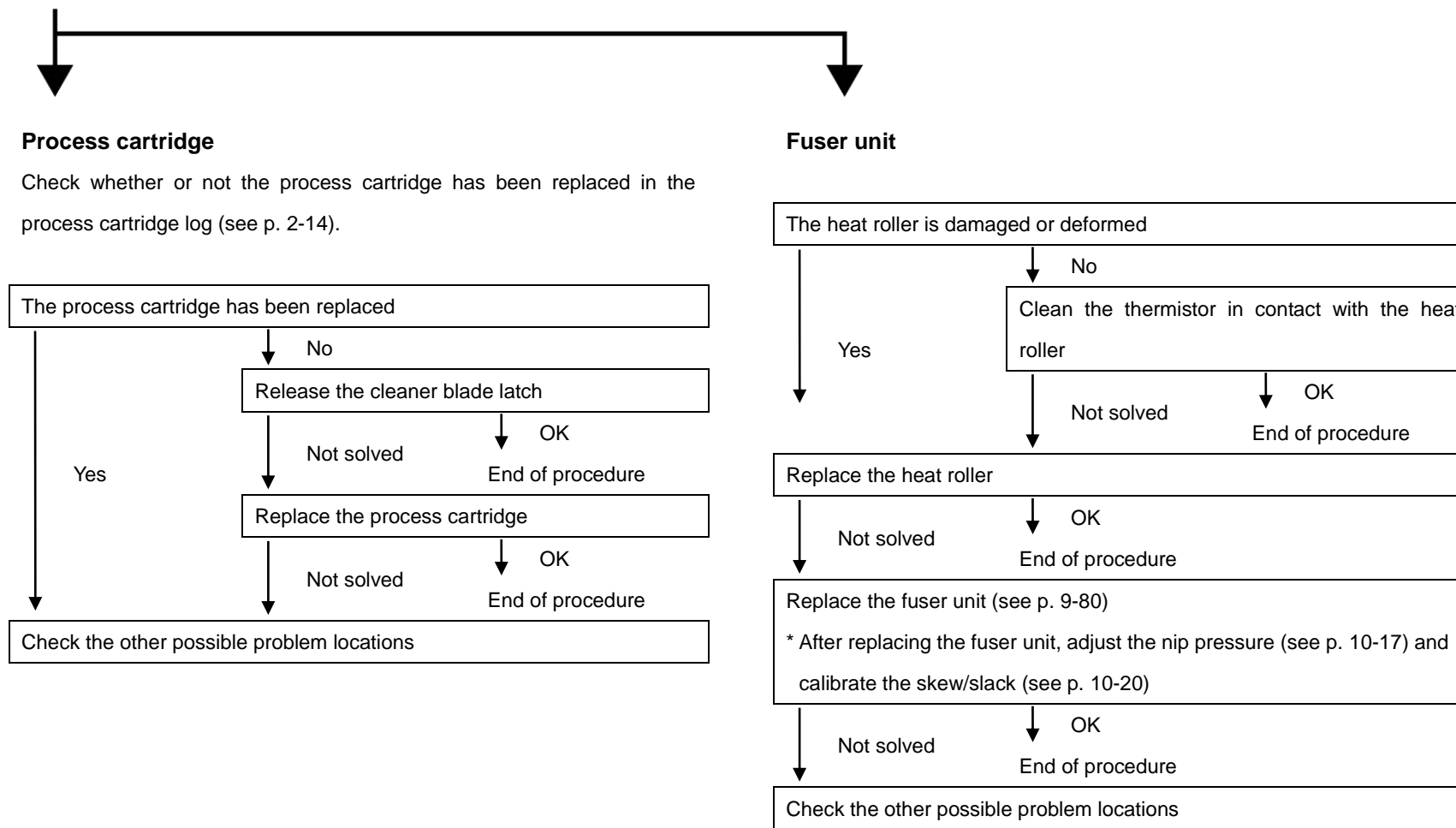
**■ Cause and solution**

- (a) Cause:  
Cleaner blade malfunction  
Solution:  
Replace the process cartridge.



■ Technician troubleshooting

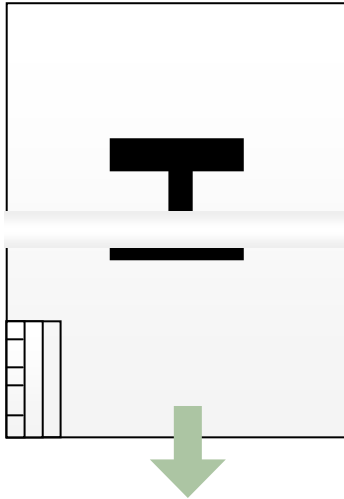
Check printing using the engine test pattern 2



**(19) Skipping**

An area is not printed in the horizontal direction.

**Print sample**



Possible problem locations

- Process cartridge
- Developer unit
- Transfer roller unit

**■ Cause and solution**

- (a) Cause:  
Incorrect paper installation  
Solution:  
Reinstall the paper and the flange.

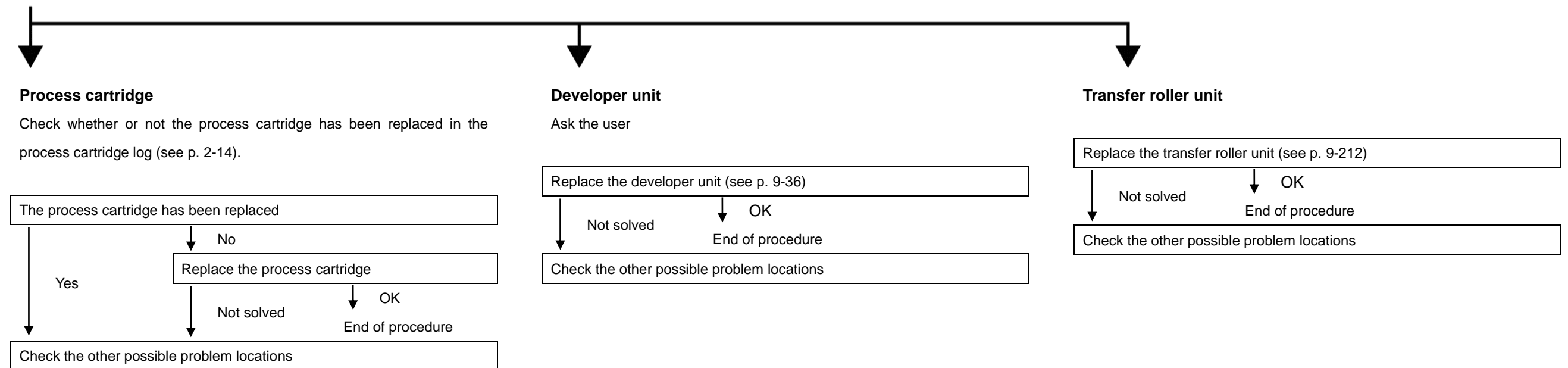
■ Technician troubleshooting

Check printing using the engine test pattern 15

If you notice intervals in the occurrence of missing areas, determine the problematic part using the table below showing the part circumferential lengths (intervals), and then clean or replace the part.

| Part                | External diameter   | Circumferential length |
|---------------------|---------------------|------------------------|
| Photoconductor drum | 60 mm (2.36 inches) | 188 mm (7.40 inches)   |
| Heat roller         | 50 mm (1.97 inches) | 157 mm (6.18 inches)   |
| Backup roller       | 60 mm (2.36 inches) | 188 mm (7.40 inches)   |
| Developing sleeve   | 40 mm (1.58 inches) | 63* mm (2.48 inches)   |

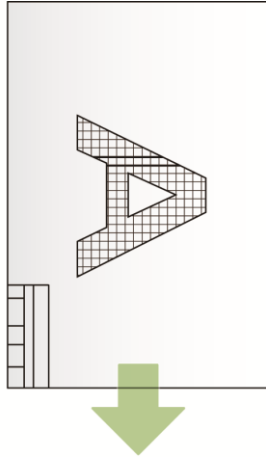
\* The developing sleeve rotates twice as fast as the photoconductor drum, thus its circumferential length is half of 125.6 mm (4.95 inches) or 63 mm (2.48 inches).



## (20) Smearing

Horizontal lines appear duplicated or smeared.

### Print sample



Possible problem locations

- Process cartridge
- Fuser unit
- Transfer roller unit

### ■ Cause and solution

(a) Cause:

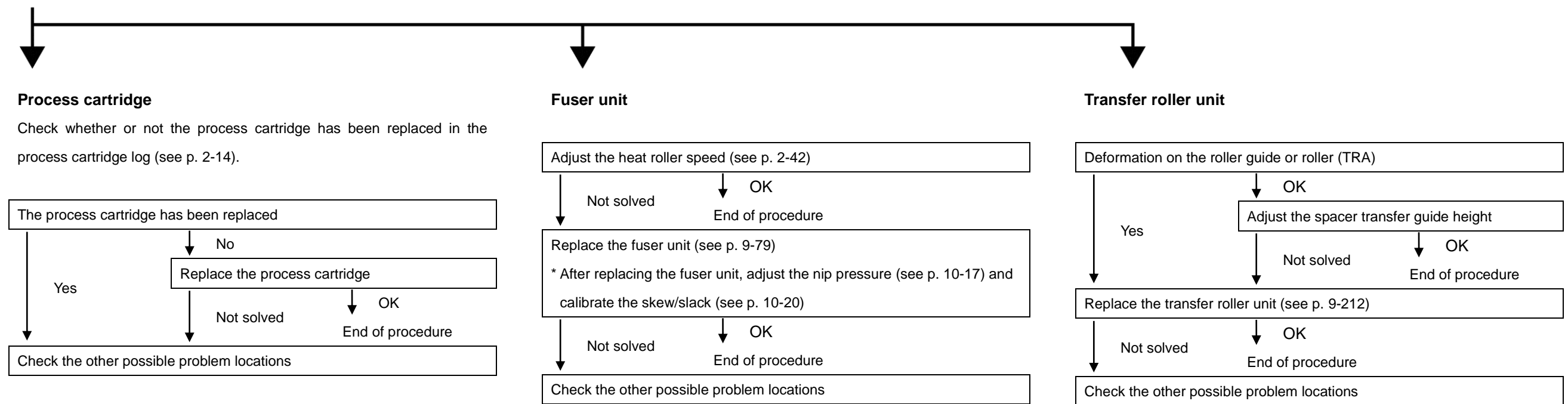
Photoconductor drum rotation problems due to clogged cleaner unit

Solution:

Replace the process cartridge.

■ **Technician troubleshooting**

Check printing using the engine test pattern 5



**(21) Solid black print**

All the printout is black.

**Print sample**



Possible problem locations

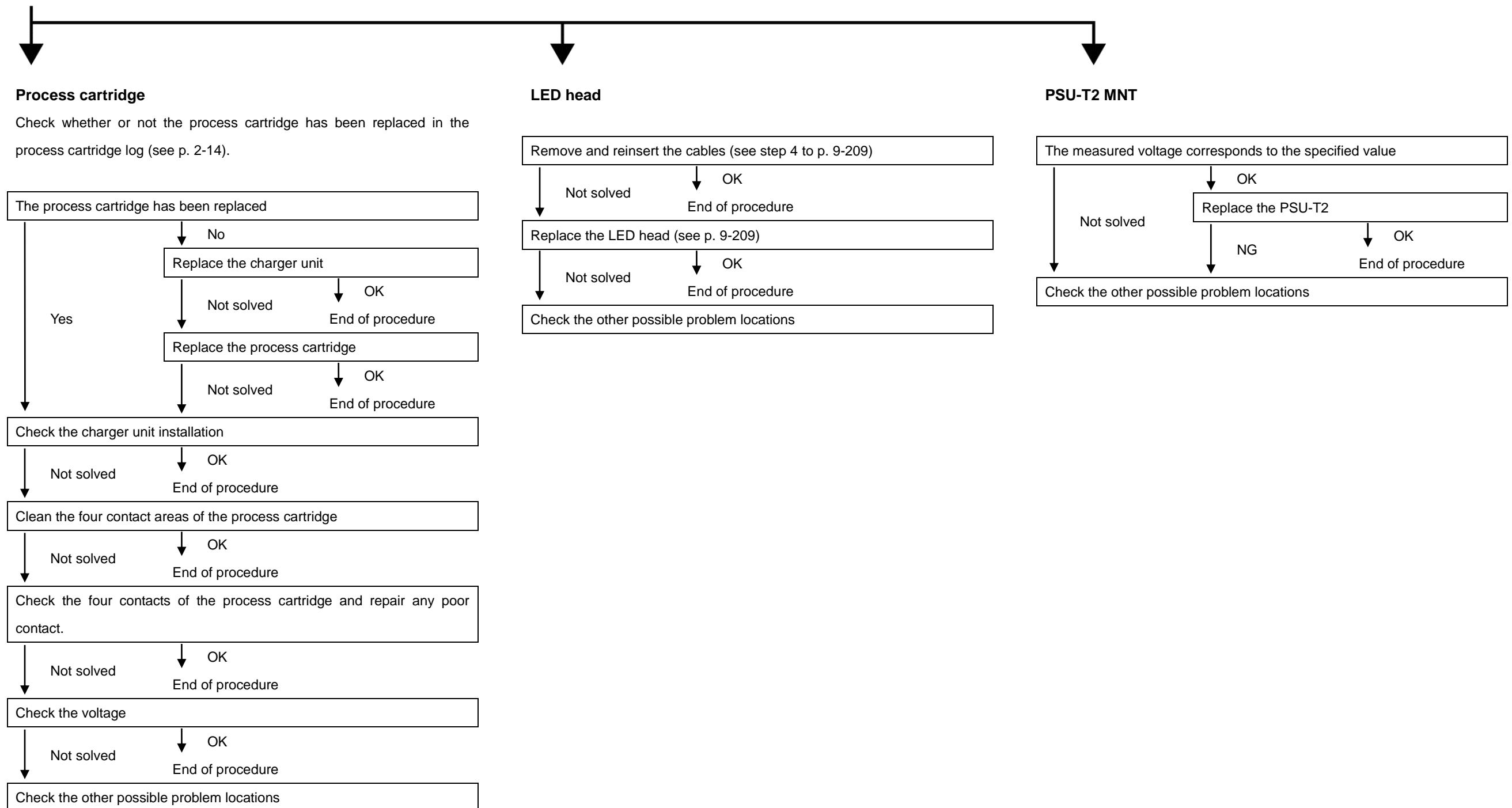
- Process cartridge
- LED head
- PSU-T2

**■ Cause and solution**

- (a) Cause :  
Supply of incorrect toner
- (b) Cause:  
Photoconductor drum malfunction  
Solution:  
Replace the process cartridge.

■ Technician troubleshooting

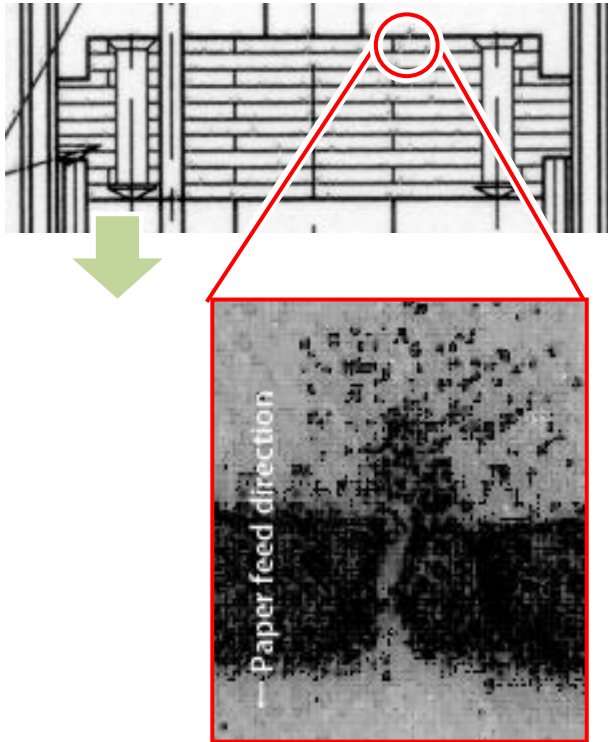
Check printing using the engine test pattern 18



## (22) Ink spatter

The toner of some lines perpendicular to the paper feed direction is partially spattered backward.

### Print sample



### Possible problem locations

- Fuser unit
- Transfer roller unit
- Developer unit

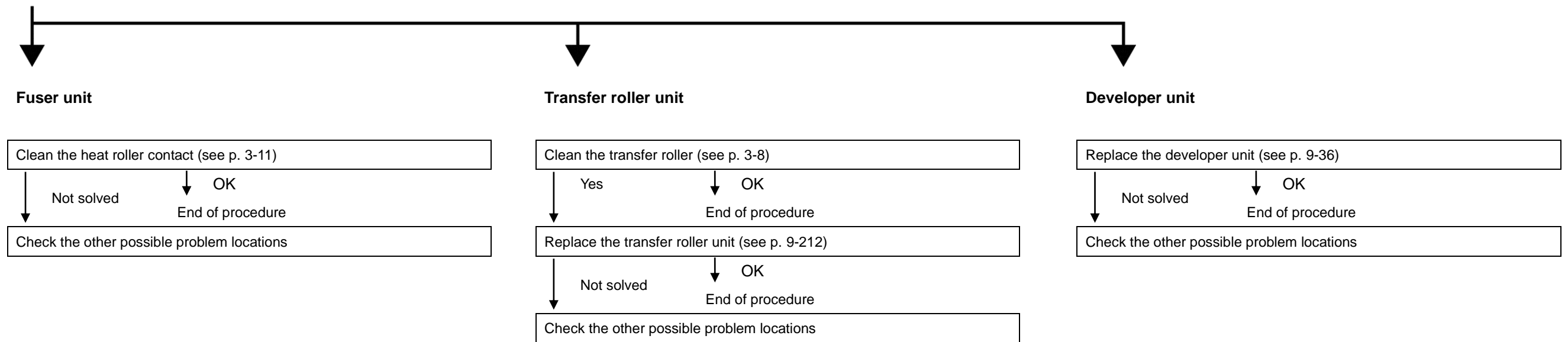
### ■ Cause and solution

- Solution:  
Decrease the room humidity.
- Solution:  
Set the heater switch to On.  
\* Leave the Printer for at least 2 hours after changing the setting.
- Cause:  
Incorrect paper  
Solution:  
Replace the paper.
- Cause:  
Lack of toner  
Solution:  
Supply the toner.
- Cause :  
Supply of incorrect toner



■ Technician troubleshooting

Check printing using the engine test pattern 18



## 7.4 How to Visually Check LED Head Lighting

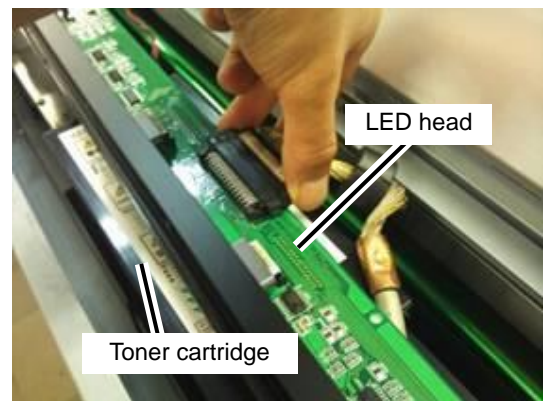
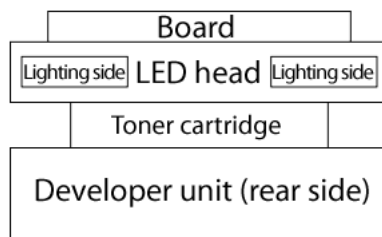
This section explains how to check visually that the LED head lights up.

<Required tool>

- Phillips screwdriver

<Check procedure>

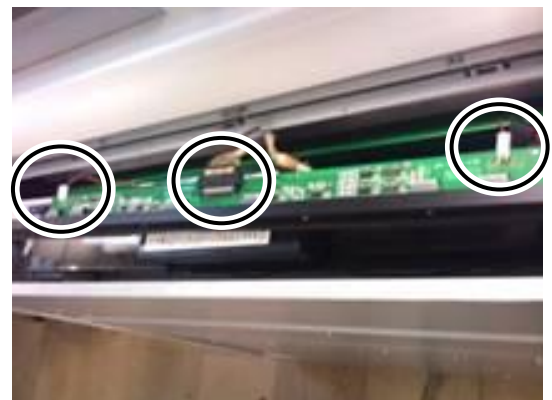
1. Remove the LED head from the Printer (see p. 9-209).
2. Set the toner cartridge to the developer unit.
3. Place the LED head above the toner cartridge.  
Place the LED head with the lighting side toward you and the board on the top. (Be careful to keep the lighting side clean.)



4. Connect all the four connectors (one signal cable, two power cables, one thermistor cable) to the LED head board.

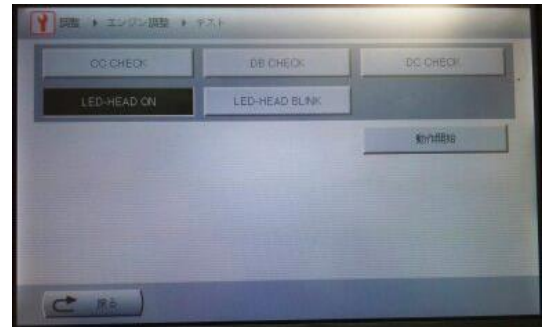
### Note

Be careful not to make the cables come into contact with the photoconductor drum or the magnet roller.

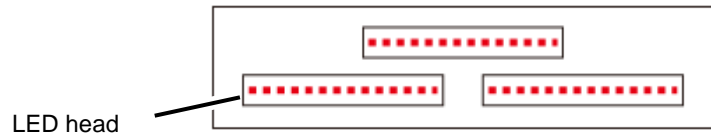
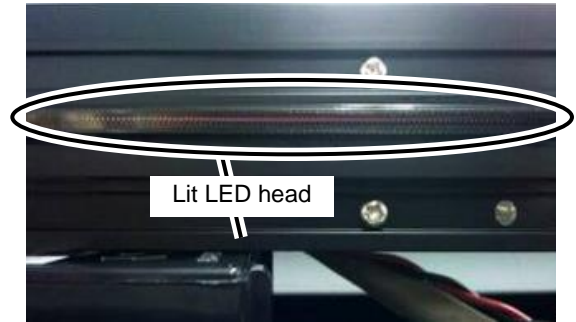


5. Check that no error messages are displayed. Check that all doors are closed and there is no paper jam. (The LED head will not light up if an error has occurred.)

6. Enter the engine maintenance mode and make the LED head light up.  
In **Engine Maintenance Mode**, select **Adjustment -> Engine Adjustment -> Test -> LED-HEAD ON -> Start**.



7. The central part of the LED head lights red for several seconds. Check visually that the LED head lights up.  
Confirm that the LED head lights up entirely.



8. Replace the LED head back into the Printer.

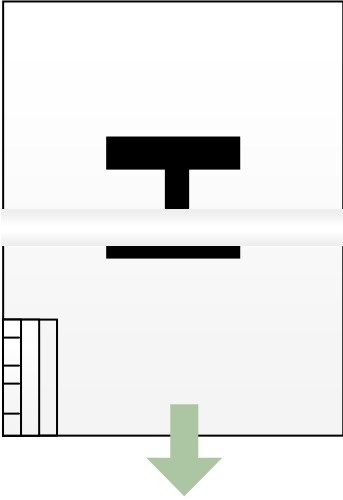
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## **Chapter 8 Scanner Image Quality Problems Troubleshooting**

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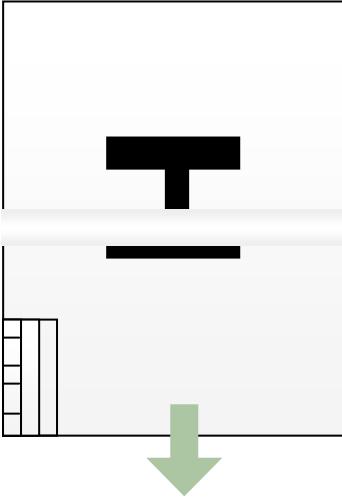
This chapter covers types of problems related to scanner image quality and possible solutions for those problems.

## 8.1 Image Misalignment (Top)

| Print Sample  | Problem Symptoms and Signs to Look For   |
|---|--|
|  | <ul style="list-style-type: none"> <li>◆ The front registration is too large or too small, causing a difference between the printer and the copy functions.</li> </ul> |

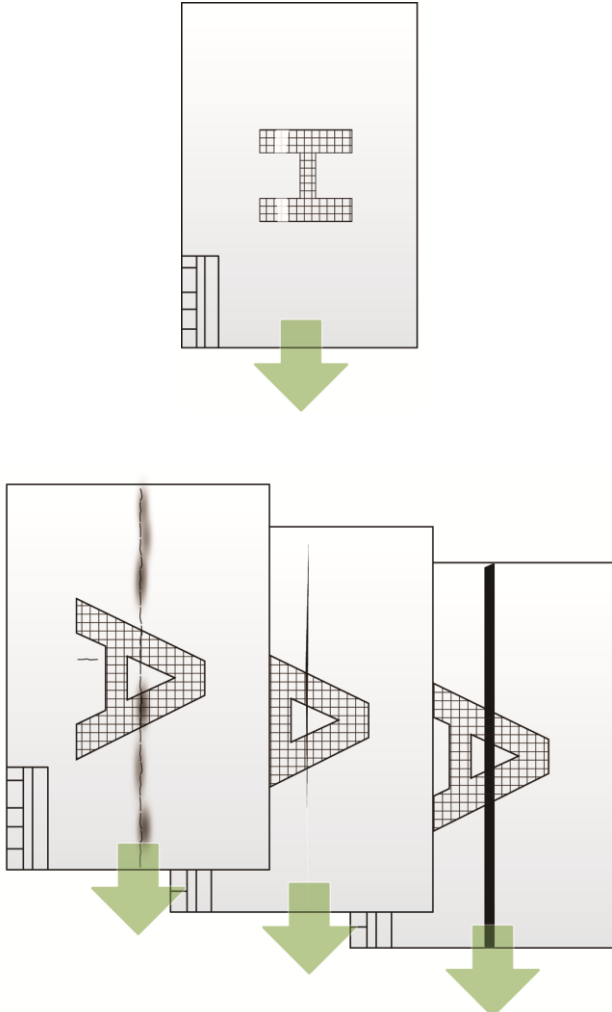
| Symptom  | Cause  | Solution  |
|--|--|---|
| <p>The front registration is either too large or too small. This causes a difference between printouts and copies.</p> | <p>The value of the printer's front registration or the scanner's front registration is incorrect.</p> | <p>Identify which top edge alignment is misaligned, on the printer or on the scanner.</p> <p>Step 1: Check the top edge alignment on the printer. Print the engine test pattern 13, and measure the specified block. If there are any misaligned areas, adjust as necessary.</p> <p>Step 2: Check the top edge alignment on the scanner. After adjusting the printer's top edge alignment, print the engine test pattern 13. Then copy the pattern. With the copy output, measure the top edge alignment value. Note that the specified block must be the same as the one at the printer function.</p> <p>Step 3: Calibrate the top edge alignment.</p> |

## 8.2 Image Misalignment (Center)

| Print Sample  | Problem Symptoms and Signs to Look For  |
|---|---|
|  | <ul style="list-style-type: none"> <li>◆ The print position is largely misaligned despite inserting the original document correctly aligned with the original guide.</li> </ul> |

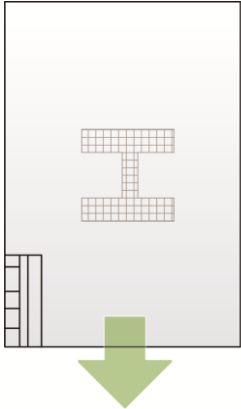
| Symptom  | Cause   | Solution  |
|--|---|---|
| <p>The print position is largely misaligned despite inserting the original document correctly aligned with the original guide.</p> | <p>The printer's center alignment value or the scanner's right-side scan position is incorrect.</p> | <p>Check to see if the problem is with the printer or the scanner.</p> <p>Step 1: Check the center position of the printer. Print the engine test pattern 13, and measure the specified block. If there are any misaligned areas, adjust as necessary.</p> <p>Step 2: Check the right-side scan position of the scanner. After adjusting the printer's center alignment, print the engine test pattern 13. With the copy output, measure the right-side scan position (with the same section as the printer for the specified block). Note that the specified block must be the same as the one at the printer function.</p> <p>Step 3: Adjust until the image shift is resolved.</p> |

### 8.3 Vertical Lines (Black or White)

| Print Sample  | Problem Symptoms and Signs to Look For  |
|---|---|
|  <p>The diagram illustrates the progression of vertical line artifacts. The top panel shows a clean print sample of a grid 'T' character. Below it, three panels show the same 'T' character with a vertical line appearing on the left side. The first line is thin and brownish, the second is slightly thicker and greyish, and the third is thick and solid black. Green arrows point downwards from each panel to the next, indicating the progression of the problem.</p> | <ul style="list-style-type: none"> <li>◆ Black or white lines appear on copy output.</li> </ul> |

| Symptom  | Cause  | Solution   |
|--|--|--|
| <p>Black or white lines appear on copy output.</p> | <p>There is a problem with the printer's printing. Or, there is some dirt or foreign particles on the surface of the scanner glass or shading guide.</p> | <p>Step 1: Check the printout of the printer by printing the engine test pattern 13. If there are any problems, perform the necessary steps to resolve them. (See <b>Troubleshooting</b> Image Quality Problems p. 7-7)</p> <p>Step 2: Check to see if there are any problems with the scanner.<br/>Clean the scanner's shading guide and/or scanner glass.<br/>If these steps do not solve the problem, replace the CIS unit.</p> |

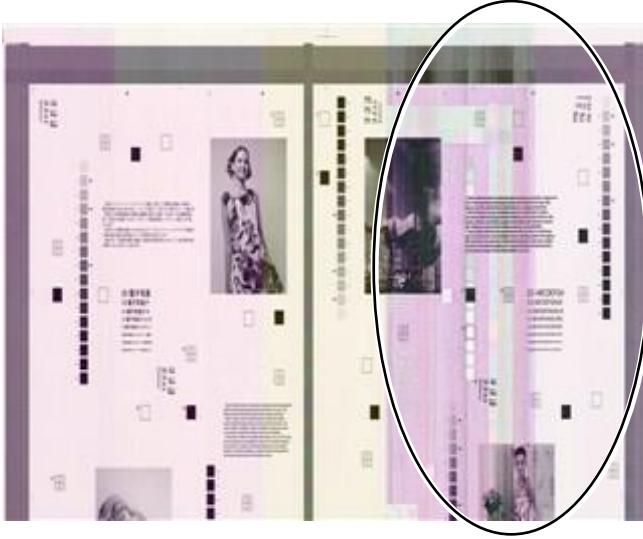
### 8.4 Density Irregularities

| Print Sample  | Problem Symptoms and Signs to Look For   |
|---|--|
|  | <ul style="list-style-type: none"> <li>◆ Density irregularities occur at the CIS level.</li> </ul> |

| Symptom   | Cause   | Solution   |
|---|---|--|
| <p>Density irregularities occur at the CIS level.</p> | <p>The shading correction value may be faulty. The shading correction is performed to cancel the height difference between the shading guide and the scanner glass surface.</p> | <p>Adjust the shading correction value. If there is still obvious density irregularities at the CIS level even after adjusting the shading correction value, replace the CIS unit.</p> |



## 8.5 Other Problems

| Print Sample  | Problem Symptoms and Signs to Look For   |
|---|--|
|  | <ul style="list-style-type: none"> <li>◆ Black belts appear in the sensor D vertical direction and past images appear diagonally.</li> </ul> |

| Symptom  | Cause   | Solution                               |
|--|---|--|
| Black belts appear vertically.<br><br>Past images appear horizontally or diagonally. | The CBL5-LVDS connector may not contact properly. | Clean the CBL5-LVDS connector contact. |

### ◆ How to clean the CBL5-LVDS connector contact

<Disconnect the CBL5-LVDS from the ASC1 board>

1. Disconnect the CBL5-LVDS from the CN5 connector on the ASC1 board.  
(See 9.8.8 PCB-ASSY-ASC MNT)

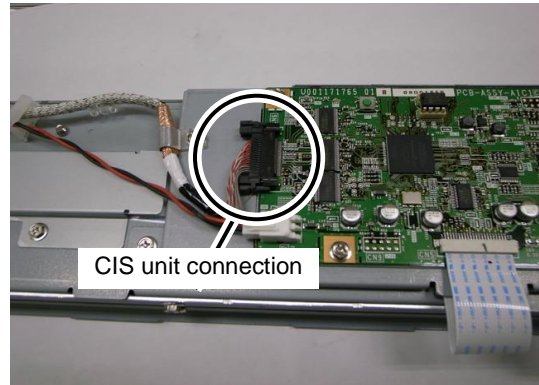


<Clean the ASC1 board connecting part with air>

2. Clean:
  - the connector on the ASC1 board; and
  - the connector on the harness sidewith the air blow tool in order to remove any foreign particle from the connecting area.

<Disconnect the CBLS-LVDS from the CIS unit>

3. If the problem was not solved with the operation above, perform the CIS unit replacement procedure up to the step 10, and disconnect the CBLS-LVDS from the CIS unit. (See **9.15.6 CIS UNIT MNT and PCB-ASSY-AIC1 MNT**)



<Clean the CIS unit connecting part with air>

4. Clean:
  - the connector on the CIS unit; and
  - the connector on the harness sidewith the air blow tool in order to remove any foreign particle from the connecting area.

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# Chapter 9 Parts Disassembly, Assembly, and Replacement

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This chapter provides instructions for any assembly/disassembly required when replacing parts for the Printer.

## 9.1 How to Read the Information Presented in this Chapter

### 9.1.1 Reading the Assembly/Disassembly Instructions

The rules that should be followed when performing the replacement of any parts (assembly/disassembly) as outlined in this chapter are given below.

- Notes**
- ◇ **Before disassembling anything, be sure to note carefully the current state of the installation. This will allow a smoother assembly process after replacing the part(s).**
  - ◇ **Before replacing any parts, make sure to turn off the power to the Printer and unplug the power cable from the outlet.**
  - ◇ **To reduce photoconductor deterioration, keep the fuser unit drawer and paper outlet cover closed when they are not needed.**
  - ◇ **If the descriptions given here differ from your actual observations, always give preference to the actual state of the Printer you are working with.**
  - ◇ **Be careful not to drop screws, E-rings, and other small parts into the Printer, or lose them.**

<Removal> : Designates instructions for disassembly.  
Illustrations may also provide more detailed instructions.

<Installation> : Designates instructions for assembly.  
However, only cautionary notes are provided because installation is merely the reverse of the removal process.

Directional Definitions : Positions and directional information given in the instructions are defined specifically as follows.

- ◆ **Front** : The front of the Printer
- ◆ **Right Side** : The right side of the Printer when looking at the Printer from the front
- ◆ **Left Side** : The left side of the Printer when looking at the Printer from the front
- ◆ **Back** : The back side of the Printer

[ ] : The names in brackets [ ] are the names described in **12.4.2 Outline of Printer Components** and **13.3.2 Outline of Printer Configuration**.

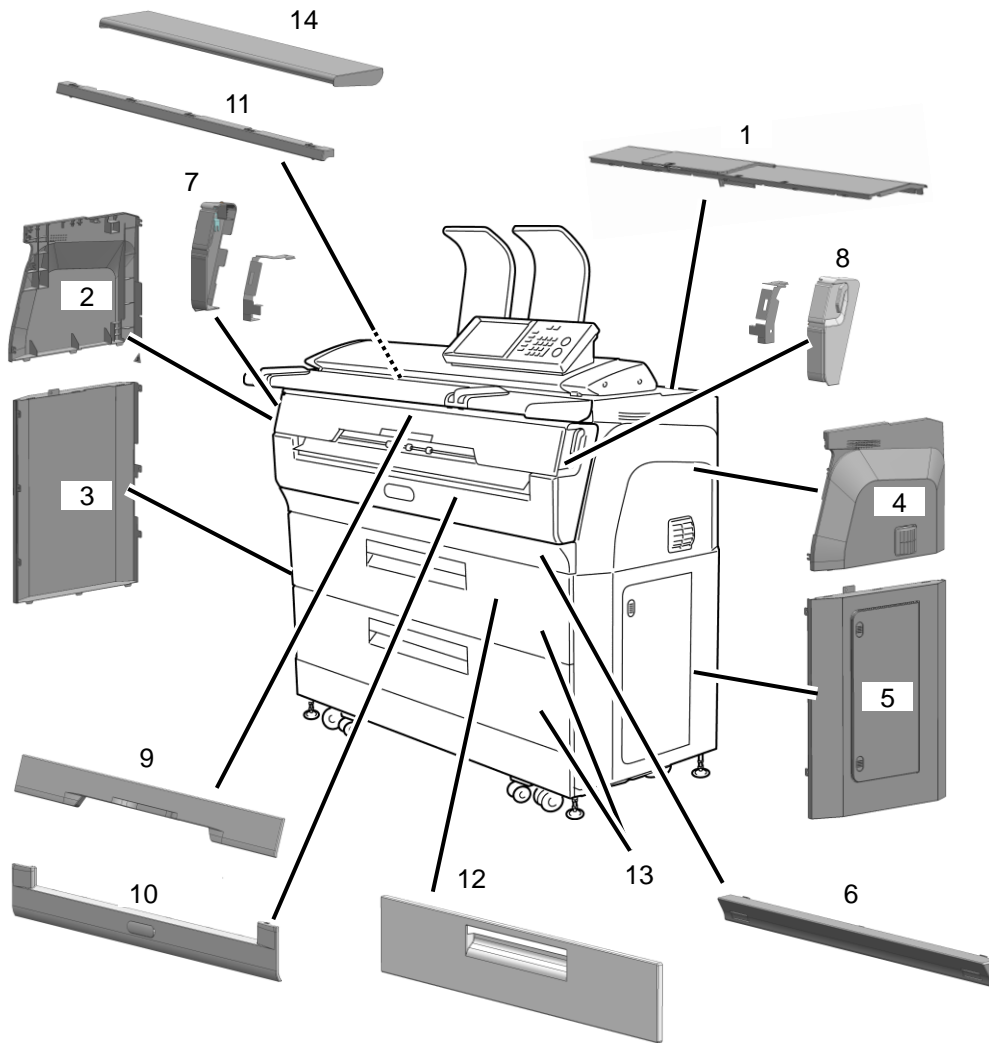
## 9.1.2 Removing External Parts

Instructions are given below for removing commonly removed parts (primarily covers) when disassembling or assembling the printer to replace parts.

### Note

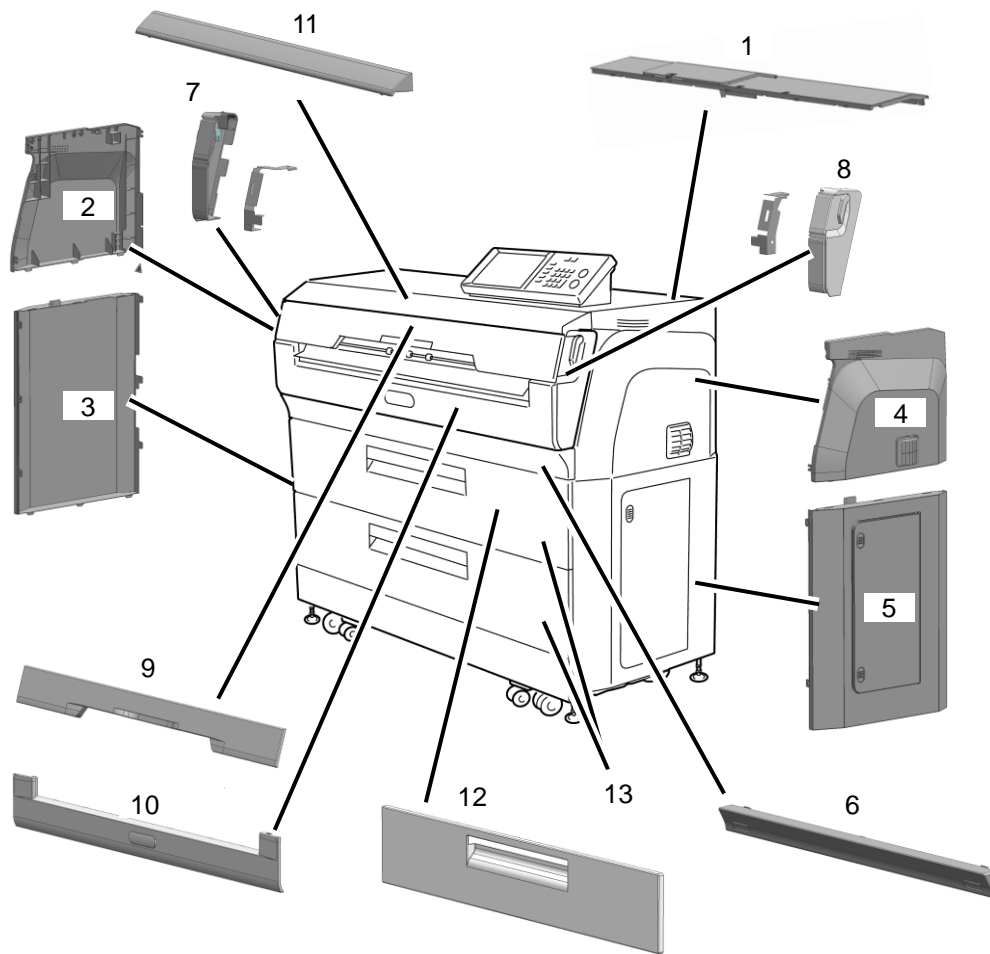
- Instructions for removing the document table of the multifunction model are omitted below. Depending on the situation, raise the document table when working.
- Though the official names for cover parts vary between models, we use their engineering names here for clarity.

Screws securing plastic external parts should be tighten at 0.8 N·m (8 kg·cm) torque.



| No. | Official Name      | Engineering Name            | Fixing Part |
|-----|--------------------|-----------------------------|-------------|
| 1   | COVER-DEV-TOP      | Top cover                   | 4 screws    |
| 2   | COVER-SIDE-R2      | Side cover (upper left)     | 5 screws    |
| 3   | COVER-SIDE-RL      | Side cover (lower left)     | 7 screws    |
| 4   | COVER-SIDE-L2      | Side cover (upper right)    | 5 screws    |
| 5   | COVER-SIDE-LL      | Side cover (lower right)    | 7 screws    |
| 6   | COVER-PSB          | Electrical box access cover | 7 clamps    |
| 7   | COVER-FUSER-R-LOW  | Fuser cover (left side)     | 2 screws    |
| 8   | COVER-FUSER-L-LOW  | Fuser cover (right side)    | 2 screws    |
| 9   | COVER-FUSER-C3-LOW | Fuser cover (upper)         | 12 screws   |
| 10  | COVER-FUSER-C2-LOW | Fuser cover (lower)         | 9 screws    |
| 11  | COVER-FRONT-MF-LOW | Fuser cover (top)           | 4 screws    |
| 12  | COVER-ROLL-U       | Roll paper drawer cover     | 5 screws    |
| 13  | ROLL FEED UNIT     | Paper feed unit             | 4 screws    |
| 14  | DOCUMENT-TABLE-LOW | Document table              | 7 screws    |

Figure 9.1 External Parts (Multifunction Model)



| No. | Official Name      | Engineering Name            | Fixing Part |
|-----|--------------------|-----------------------------|-------------|
| 1   | COVER-DEV-TOP      | Top cover                   | 4 screws    |
| 2   | COVER-SIDE-R2      | Side cover (upper left)     | 5 screws    |
| 3   | COVER-SIDE-RL      | Side cover (lower left)     | 7 screws    |
| 4   | COVER-SIDE-L2      | Side cover (upper right)    | 5 screws    |
| 5   | COVER-SIDE-LL      | Side cover (lower right)    | 7 screws    |
| 6   | COVER-PSB          | Electrical box access cover | 7 clamps    |
| 7   | COVER-FUSER-R-LOW  | Fuser cover (left side)     | 2 screws    |
| 8   | COVER-FUSER-L-LOW  | Fuser cover (right side)    | 2 screws    |
| 9   | COVER-FUSER-C3-LOW | Fuser cover (upper)         | 12 screws   |
| 10  | COVER-FUSER-C2-LOW | Fuser cover (lower)         | 9 screws    |
| 11  | COVER-FRONT-PR-LOW | Fuser cover (top)           | 4 screws    |
| 12  | COVER-ROLL-U       | Roll Paper drawer cover     | 5 screws    |
| 13  | ROLL FEED UNIT     | Paper feed unit             | 4 screws    |

Figure 9.2 External Parts (Printer Model)

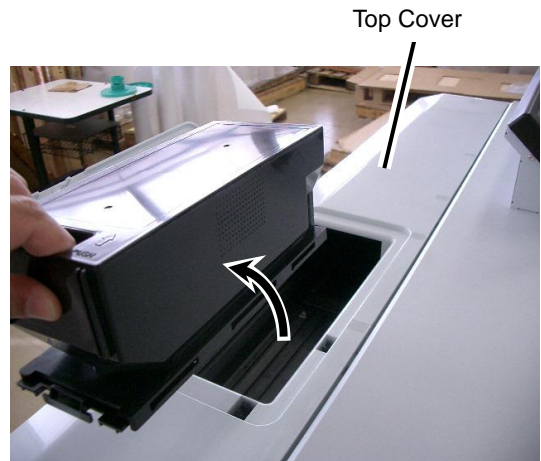
(1) Removing the top cover

**Note**

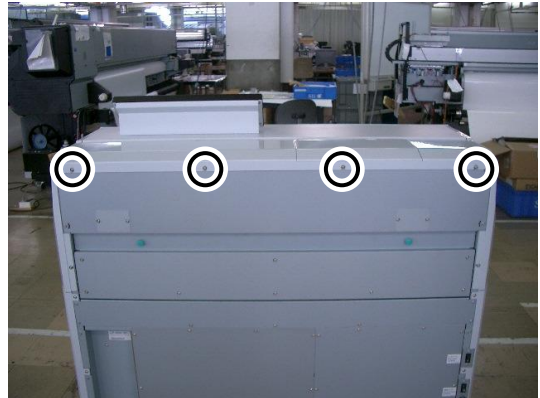
- When removing the top cover for maintenance, always remove the toner cartridge.
- Cover the area with plastic or some other type of cover to prevent dirt and other particles from entering the Printer.

<Removal>

1. Open the toner door and remove the toner cartridge.



2. Remove the four screws as shown in the figure.



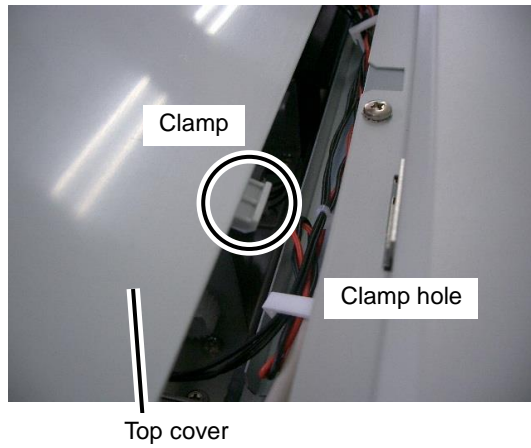
3. Pull up slightly on the rear.



4. Pull backward to remove.

**Note**

The clamps on the top cover are easily broken, so be careful not to pull up on them too hard.



5. Cover the area with plastic or some other type of cover to prevent dirt and other particles from entering the Printer.



**(2) Removing the electrical box access cover**

<Removal>

1. Open the fuser unit drawer.
2. Open the drawer for roll 1.

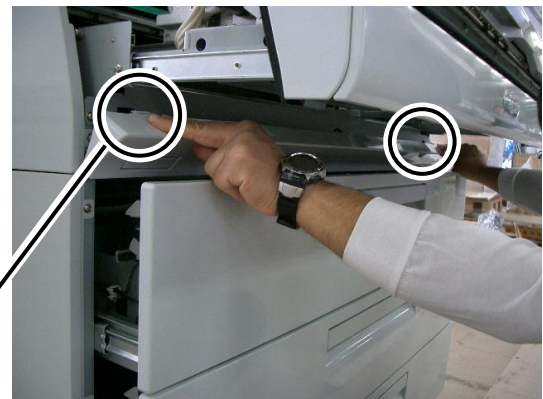


Electrical box access cover



Fuser unit drawer

3. Push down on the two clamps shown in the photo, tilt the upper side forward, and remove.



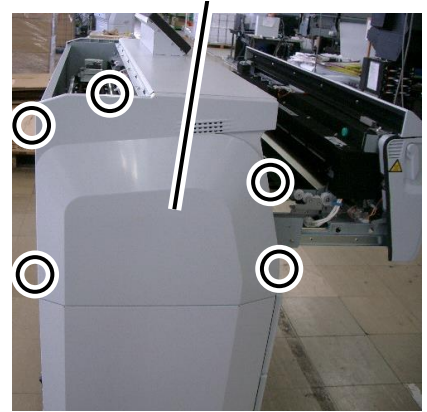
Electrical box access cover

### (3) Removing the side cover (upper left)

<Removal>

1. Remove the toner cartridge and remove the top cover (see p. 9-5).
2. Open the fuser unit drawer.
3. Open the drawer for roll 1.
4. Remove the electrical box access cover (see p. 9-7).
5. Remove the five screws as shown in the photo:
  - Top one screw;
  - Front two screws; and
  - Back two screws
6. Take note of the cautionary notice below. Lightly push the top panel forward and lift up to remove.

Side cover (upper left)



#### Note

- Be careful not to tilt too hard as the clamps on the lower part of the cover may break.
- The screw area on the lower side of the front can break easily as it is in the way of a metal plate. Spread this area out to the outside with your fingers while tilting the cover.



**(4) Removing the side cover (lower left)**

<Removal>

1. Remove the side cover (upper left)  
(see p. 9-8).
2. Close the fuser unit drawer.

**Note**

Opening the fuser unit drawer affects the weight balance of the unit, so try to keep it closed if possible.

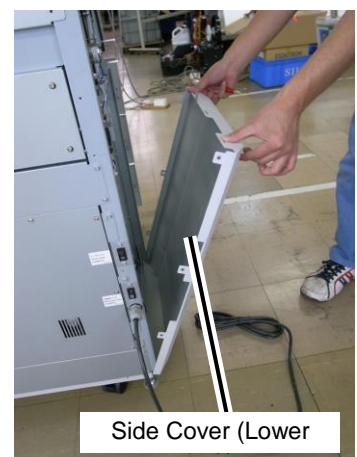
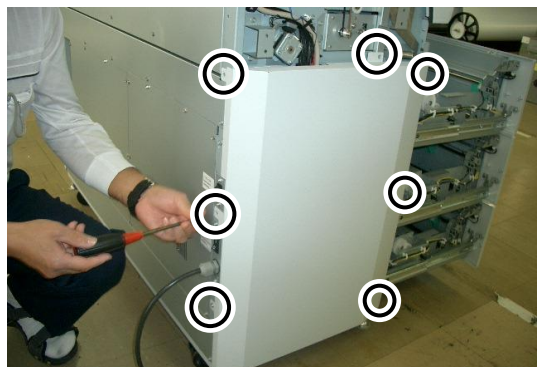
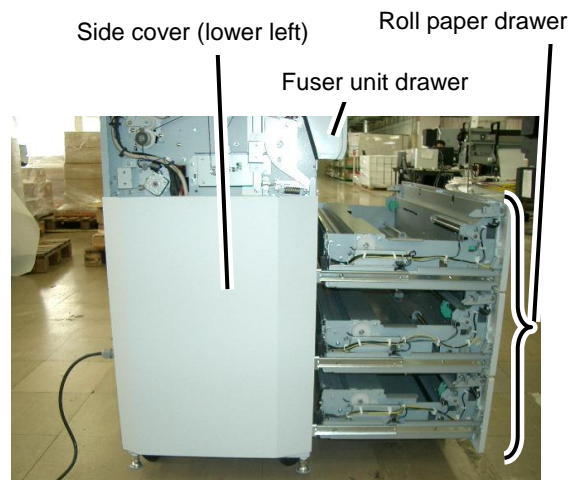
3. Open all roll paper drawers.

4. Remove the seven screws as shown in the photo:
  - Top one screw;
  - Front three screws; and
  - Back three screws

5. Lightly push the top panel forward and lift up to remove.

**Note**

Be careful not to tilt too hard as the clamps on the lower part of the cover may break.



**(5) Removing the side cover (upper right)**

<Removal>

Remove according to the steps for **(3) Removing the side cover (upper left)** (see p. 9-8).

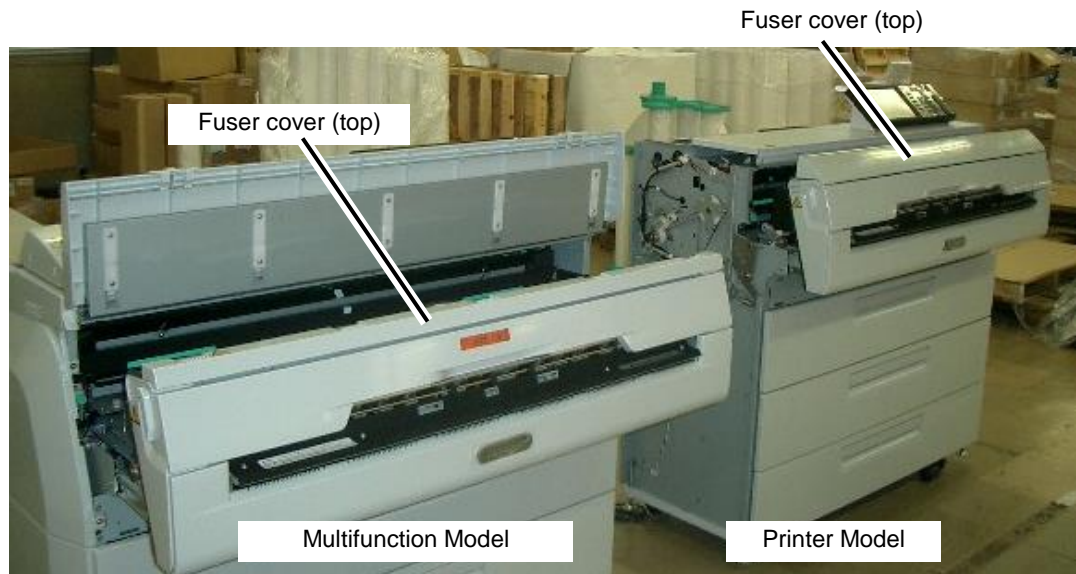
**(6) Removing the side cover (lower right)**

<Removal>

Remove according to the steps for **(4) Removing the side cover (lower left)** (see p. 9-9).

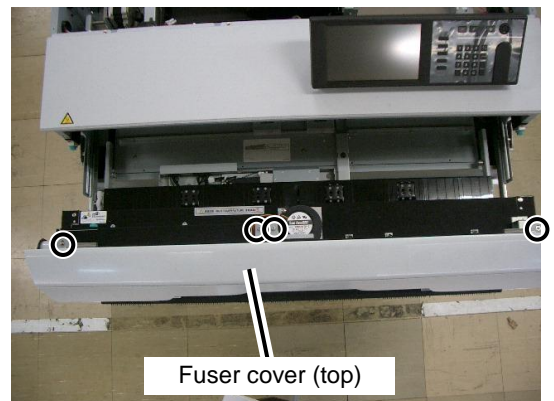


**(7) Removing the fuser cover (top)**



<Removal>

1. Raise up the document table if working on a multifunction model.
2. Open the fuser unit drawer.
3. Remove the fuser cover (top) with four screws.



## (8) Removing the fuser cover (left side)

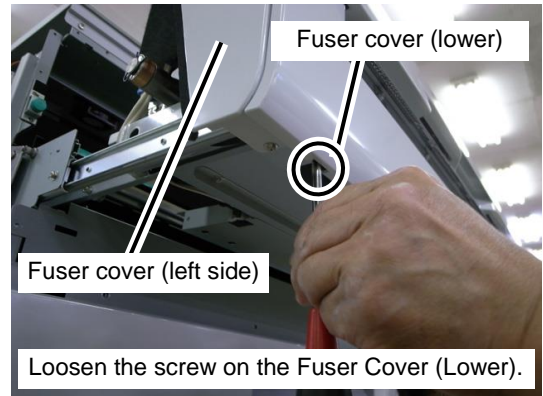
<Removal>

1. Remove the fuser cover (top)  
(see p. 9-11).
2. Remove the two screws (one screw on top and one screw on bottom) as shown in the photo.

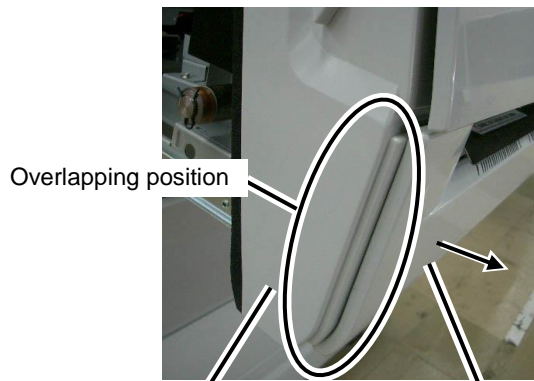


Fuser cover (left side)

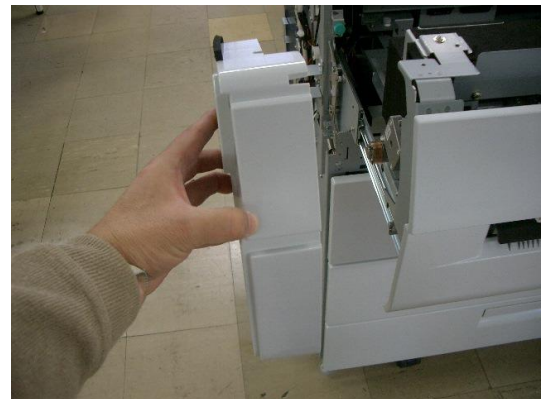
3. Loosen the one screw on the fuser cover (lower).



4. Slide the fuser cover (lower) forward and remove the fuser cover (left side).



Fuser cover (left side)



Loosen the one screw on the fuser cover (lower).

**Cautionary Notes When Performing Installation**

Insert the notch of the mounting hardware onto the protruding portion of the shaft so that the latch lever can open and close.



**(9) Removing the fuser cover (right side)**

<Removal>

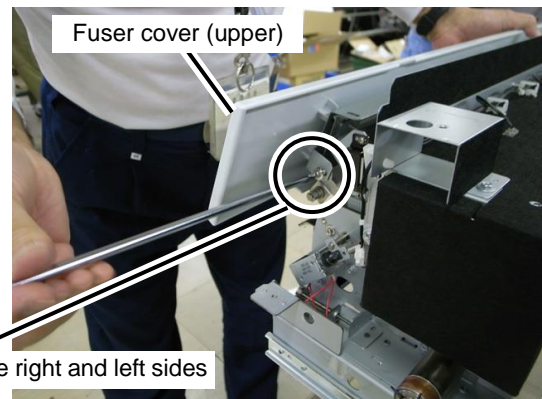
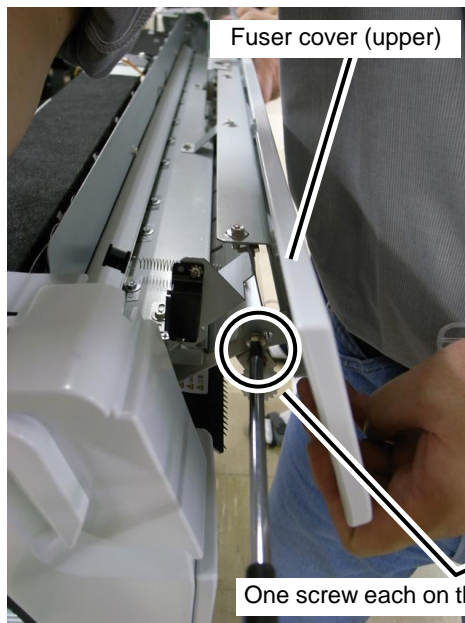
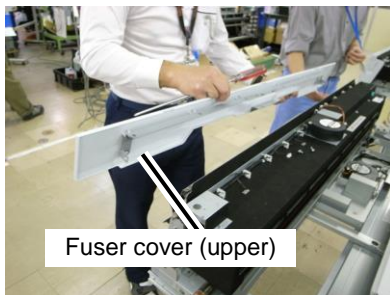
Remove according to the steps for **(8) Removing the fuser cover** (left side) (see p. **9-12**).



**(10) Removing the fuser cover (upper)**

<Removal>

1. Remove the fuser cover (top)  
(see p. 9-11).
2. Remove the 12 screws as shown in the photo:
  - Top 10 screws; and
  - One screw each in right and left sides



3. Pull the fuser cover (upper) forward and remove it.

**Cautionary Notes When Performing Installation**

Secure the right and left screws while pressing down on the cover.

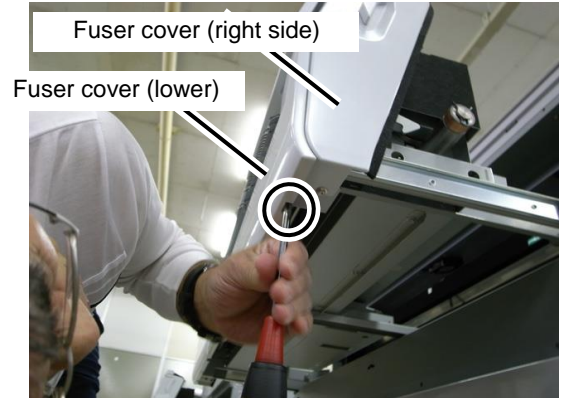
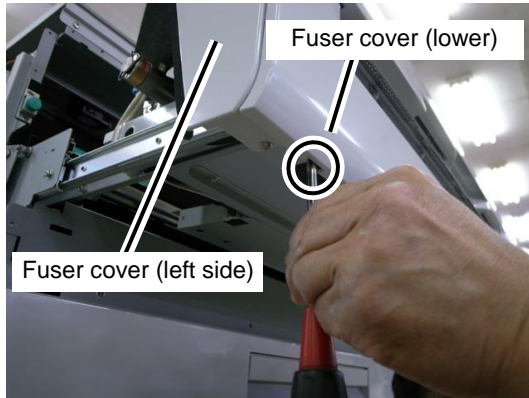
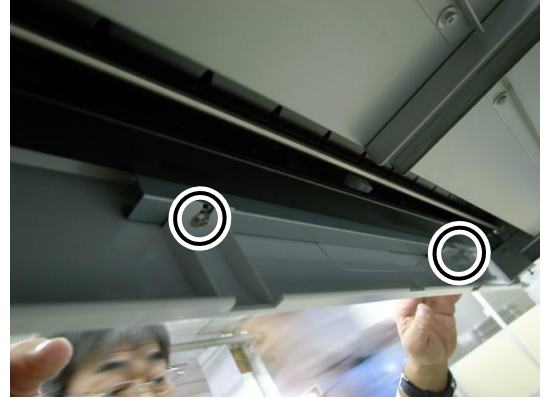
## (11) Removing the fuser cover (lower)

<Removal>

1. Loosen the four screws on the fuser cover (lower).

### Note

When the fuser cover (left side) and fuser cover (right side) has been removed, the right and left screws are already loose, so you can remove the fuser cover (lower) simply by loosening the two center screws.

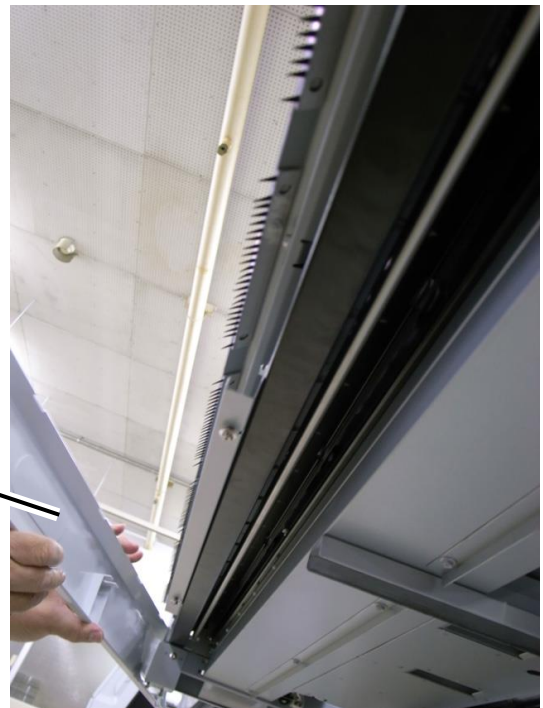


2. Pull the fuser cover (lower) forward and remove it.

### Cautionary Notes When Performing Installation

Secure the right and left screws while pressing down on the cover. When tightening the central screws, make adjustments so that the cover does not warp or bend.

Fuser cover (lower)



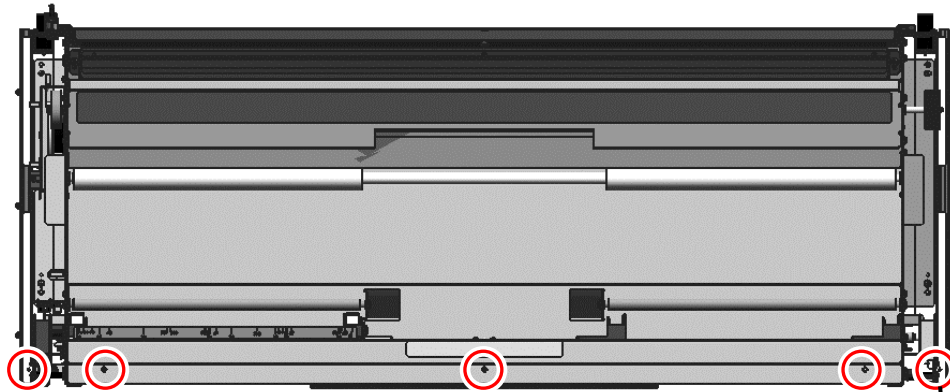
(12) Removing the roll paper drawer cover

**Note**

- Though the roll paper drawer quantity differs depending on the printer model, its removal method is the same for all of them.
- This section describes the general method for removing these covers regardless of the model type.

<Removal>

1. Open the roll paper drawer.
2. Remove the five screws as shown in the figure.



3. Remove the roll paper drawer cover.
  - (a) Hold both edges at the bottom of the roll paper drawer cover and lower it slightly so that the handle is released.
  - (b) Pull the upper portion towards you to remove.



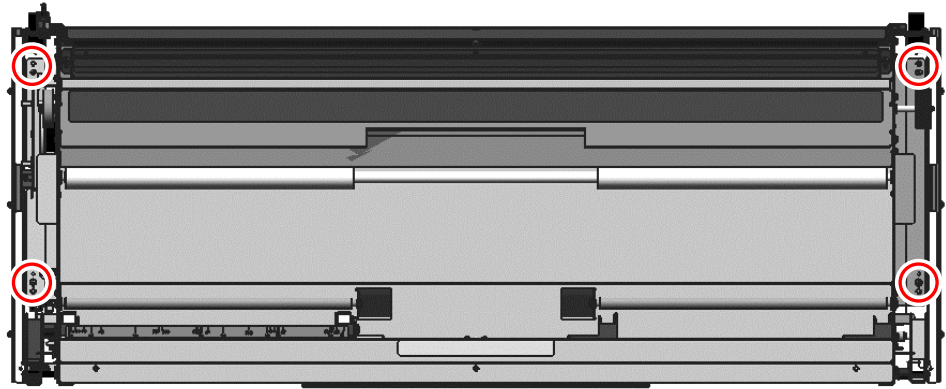
### (13) Removing the roll paper drawer

#### Note

- Though the roll paper drawer quantity differs depending on the printer model, its removal method is the same for all of them.
- This section describes the general method for removing these covers regardless of the model type.

<Removal>

1. Remove the roll paper drawer cover (see p. 9-17).
2. Remove the four screws as shown in the figure.



3. Hold both the right and left sides and lift up to remove.

#### Note

A roll paper drawer weighs approximately 30 kg. Use two persons when lifting a roll paper drawer.

## 9.2 Maintenance Parts Table

The following table lists all of the maintenance parts discussed in this chapter by unit. Note that only recommended parts are listed in this table.

### 9.2.1 COVER-UNIT

| No. | Model | Part Name              | Part Number  | No. of packages per box | Reference Item |
|-----|-------|------------------------|--------------|-------------------------|----------------|
| 1   | MF/PR | PUSH LATCH MNT         | U001209611xx | 20                      | 9.3.1          |
| 2   | MF    | COVER-DEV-TOP(MF)MNT   | U001306710xx | 1                       | 9.3.2          |
| 3   | MF    | DOCUMENT-TABLE-LOW MNT | U001290778xx | 1                       | 9.3.3          |

### 9.2.2 WASTE TONER BOTTLE UNIT

| No. | Model | Part Name                    | Part Number  | No. of packages per box | Reference Item |
|-----|-------|------------------------------|--------------|-------------------------|----------------|
| 1   | MF/PR | WASTE TONER SENSOR,TS02 MNT  | U001207574xx | 2                       | 9.4.1          |
| 2   | MF/PR | MICRO SWITCH ,04,05,06-1 MNT | U001207438xx | 5                       | 9.4.2          |

### 9.2.3 CUTTER-UNIT

| No. | Model | Part Name            | Part Number  | No. of packages per box | Reference Item |
|-----|-------|----------------------|--------------|-------------------------|----------------|
| 1   | MF/PR | CUTTER UNIT AUTO MNT | U001209093xx | 1                       | 9.5.1          |

### 9.2.4 DEVELOPER UNIT

| No. | Model | Part Name                | Part Number  | No. of packages per box | Reference Item |
|-----|-------|--------------------------|--------------|-------------------------|----------------|
| 1   | MF/PR | DEVELOPER UNIT MNT       | U001208722xx | 1                       | 9.6.1          |
| 2   | MF/PR | TONER SENSOR,TS01 MNT    | U001207552xx | 2                       | 9.6.2          |
| 3   | MF/PR | MOTOR GM MNT             | U001207383xx | 1                       | 9.6.3          |
| 4   | MF/PR | PHOTOSENSOR,04,05,07 MNT | U001207495xx | 10                      | 9.6.4          |
| 5   | MF/PR | MAGNET ROLL MNT          | U001208744xx | 1                       | 9.6.5          |
| 6   | MF/PR | SPACER DEV MNT           | U001208788xx | 5                       | 9.6.5          |
| 7   | MF/PR | BLADE-S-DV MNT           | U001086941xx | 1                       | 9.6.6          |
| 8   | MF/PR | SEAL MG L MNT            | U001208801xx | 5                       | —              |
| 9   | MF/PR | SEAL MG R MNT            | U001208823xx | 5                       | —              |
| 10  | MF/PR | BEARING AGITATOR MNT     | U001208845xx | 50                      | —              |

### 9.2.5 DRIVE-UNIT

| No. | Model | Part Name      | Part Number  | No. of packages per box | Reference Item |
|-----|-------|----------------|--------------|-------------------------|----------------|
| 1   | MF/PR | CLUTCH 4.4 MNT | U001207416xx | 1                       | 9.7.1          |
| 2   | MF/PR | MOTOR PM01 MNT | U001207361xx | 1                       | 9.7.2          |

### 9.2.6 ELECTRICAL UNIT

| No. | Model | Part Name                 | Part Number  | No. of packages per box | Reference Item |
|-----|-------|---------------------------|--------------|-------------------------|----------------|
| 1   | MF/PR | PCB-ASSY-AAC1 MNT         | U001211804xx | 1                       | 9.8.2          |
| 2   | MF/PR | PCB-ASSY-ARC1 MNT         | U001211850xx | 1                       | 9.8.3          |
| 3   | PR    | PCB-ASSY-ARC2-MNT         | U001304730xx | 1                       | 9.8.3          |
| 4   | MF/PR | HDD MNT                   | U001211894xx | 1                       | 9.8.4          |
| 5   | MF/PR | BLOWER FAN ASSY MNT       | U001210770xx | 1                       | 9.8.5          |
| 6   | MF/PR | MAIN SWITCH 120V 200V MNT | U001209330xx | 3                       | 9.8.6          |
| 7*  | MF/PR | AC INLET MNT              | U001209352xx | 20                      | 9.8.7          |
| 8   | MF    | PCB-ASSY-ASC1 MNT         | U001211905xx | 1                       | 9.8.8          |
| 9   | MF/PR | PSU-T2 MNT                | U001211826xx | 1                       | 9.8.9          |
| 10  | MF/PR | BL05 ASSY MNT             | U001209317xx | 1                       | 9.8.10         |
| 11  | MF/PR | HV(4CH)-PSU-T2 MNT        | U001236532xx | 1                       | 9.8.11         |
| 12  | MF/PR | T2ARC-EEPROM MNT          | U001295987xx | 1                       | 9.8.3          |

\*: For Europe and China (200 V systems)

### 9.2.7 FUSER BASE UNIT

| No. | Model | Part Name                 | Part Number  | No. of packages per box | Reference Item |
|-----|-------|---------------------------|--------------|-------------------------|----------------|
| 1   | MF/PR | BLOWER FAN,BL01,02,06 MNT | U001207618xx | 1                       | 9.9.1          |

### 9.2.8 FUSER UNIT

| No.             | Model | Part Name                           | Part Number  | No. of packages per box | Reference Item |
|-----------------|-------|-------------------------------------|--------------|-------------------------|----------------|
| 1               | MF/PR | FUSER UNIT LOW, WITHOUT HEATER, MNT | U001228770xx | 1                       | 9.10.1         |
| 2               | MF/PR | BLOWER FAN, BL01,02,06 MNT          | U001207618xx | 1                       | 9.10.2         |
| 3               | MF/PR | SL01 LOW MNT                        | U001209756xx | 3                       | 9.10.3         |
| 4               | MF/PR | MOTOR HM MNT                        | U001209756xx | 5                       | 9.10.4         |
| 5               | MF/PR | SPUR FUSER MNT                      | U001208981xx | 10                      | 9.10.5         |
| 6* <sup>1</sup> | MF/PR | HALOGEN LAMP MAIN 100V-600W MNT     | U001228634xx | 1                       | 9.10.6         |
|                 |       | HALOGEN LAMP SUB 100V-600W MNT      | U001228656xx | 1                       | 9.10.6         |
| 7* <sup>2</sup> | MF/PR | HALOGEN LAMP MAIN 120V-600W MNT     | U001228678xx | 1                       | 9.10.6         |
|                 |       | HALOGEN LAMP SUB 120V-600W MNT      | U001228691xx | 1                       | 9.10.6         |
| 8* <sup>3</sup> | MF/PR | HALOGEN LAMP MAIN 230V-600W MNT     | U001228713xx | 1                       | 9.10.6         |
|                 |       | HALOGEN LAMP SUB 230V-600W MNT      | U001228735xx | 1                       | 9.10.6         |
| 9               | MF/PR | TORQUE LIMITER MNT                  | U001207877xx | 2                       | 9.10.7         |
| 10              | MF/PR | THERMISTOR, TH01,02,04,05 MNT       | U001207675xx | 5                       | 9.10.8         |
| 11              | MF/PR | FUSE ASSY MNT                       | U001207653xx | 10                      | 9.10.9         |
| 12              | MF/PR | MICRO SWITCH ,04,05,06-1 MNT        | U001207438xx | 1                       | 9.10.10        |
| 13              | MF/PR | MICRO SWITCH, 06-2 MNT              | U001207473xx | 5                       | 9.10.10        |
| 14              | MF/PR | PEELER FU OUT MNT                   | U001209216xx | 2                       | 9.10.11        |
| 15              | MF/PR | Separator (BUR) MNT                 | U001066757xx | 1                       | 9.10.12        |
| 16              | MF/PR | ROLLER HEAT MNT                     | U001208924xx | 1                       | 9.10.13        |
| 17              | MF/PR | ROLLER BACK UP ST MNT               | U001208946xx | 1                       | 9.10.14        |
| 18              | MF/PR | SHEET CARBON BR MNT                 | U001220477xx | 1                       | 9.10.15        |

\*1: For Japan

\*2: For North America

\*3: For Europe, China

### 9.2.9 MAIN FRAME UNIT

| No. | Model | Part Name                        | Part Number  | No. of packages per box | Reference Item |
|-----|-------|----------------------------------|--------------|-------------------------|----------------|
| 1   | MF/PR | TEMPERATURE HUMIDITY SENSOR MNT  | U001207710xx | 1                       | 9.11.2         |
| 2   | MF/PR | MOTOR TM ASSY MNT                | U001209778xx | 1                       | 9.11.3         |
| 3   | MF/PR | INTERLOCK SWITCH, INT3, MS18 MNT | U001207596xx | 5                       | 9.11.4         |
| 4   | MF/PR | PHOTOSENSOR, 04,05,07 MNT        | U001207495xx | 10                      | 9.11.5         |
| 5   | MF/PR | PHOTO INTERRUPTER, PS16 MNT      | U001209892xx | 2                       | 9.11.6         |
| 6   | MF/PR | BL03 ASSY MNT                    | U001209295xx | 1                       | 9.11.7         |
| 7   | MF/PR | HEATER ROLL PAPER MNT            | U001207732xx | 1                       | 9.11.8         |
| 8   | MF/PR | TORQUE LIMITER REGIST MNT        | U001209238xx | 1                       | 9.11.9         |

### 9.2.10 OPERATION PANEL UNIT

| No. | Model | Part Name         | Part Number  | No. of packages per box | Reference Item |
|-----|-------|-------------------|--------------|-------------------------|----------------|
| 1   | MF    | PANEL ASSY MNT    | U001209194xx | 1                       | 9.12.1         |
| 2   | PR    | PANEL ASSY PL MNT | U001239041xx | 1                       | 9.12.1         |

### 9.2.11 PROCESS CARTRIDGE UNIT

| No. | Model | Part Name                  | Part Number  | No. of packages per box | Reference Item |
|-----|-------|----------------------------|--------------|-------------------------|----------------|
| 1   | MF/PR | PROCESS CARTRIDGE UNIT     | U001192353xx | 1                       | 9.13.1         |
| 2   | MF/PR | CHARGE SCOROTORON ASSY MNT | U001209431xx | 1                       | 9.13.2         |
| 3*  | MF/PR | DRUM-OPC-ASSY-M-03         | —            | —                       | 9.13.3         |
| 4   | MF/PR | DRUM FINGER MNT            | U001209003xx | 3                       | 9.13.4         |
| 5   | MF/PR | DRUM FINGER W MNT          | U001209003xx | 3                       | 9.13.4         |
| 6   | MF/PR | WIRE(CHARGER)MNT           | U000925514xx | 1                       | 9.13.5         |
| 7   | MF/PR | ERASER ASSY MNT            | U001209172xx | 1                       | 9.13.6         |
| 8   | MF/PR | BLADE-CLEANER-SS002 MNT    | U001237948xx | 1                       | 9.13.7         |
| 9   | MF/PR | FILTER T2 MNT              | U001209374xx | 2                       | 9.13.8         |
| 10  | MF/PR | FILTER FUS MNT             | U001209396xx | 3                       | 9.13.8         |

\* This is not a recommended part.

### 9.2.12 ROLL FEED UNIT

| No. | Model | Part Name                | Part Number  | No. of packages per box | Reference Item |
|-----|-------|--------------------------|--------------|-------------------------|----------------|
| 1   | MF/PR | GEAR LIMITTER MNT        | U001209058xx | 1                       | 9.14.2         |
| 2   | MF/PR | PHOTOINTERRUPTER MNT     | U001210825xx | 20                      | 9.14.3         |
| 3   | MF/PR | ROLLER REWIND LOW MNT    | U001228792xx | 1                       | 9.14.4         |
| 4   | MF/PR | GEAR ONEWAY MNT          | U001209115xx | 1                       | 9.14.5         |
| 5   | MF/PR | MOTOR FM MNT             | U001209510xx | 1                       | 9.14.6         |
| 6   | MF/PR | PTM ASSY MNT             | U001217171xx | 1                       | 9.14.7         |
| 7   | MF/PR | PHOTOSENSOR,04,05,07 MNT | U001207495xx | 1                       | —              |



**9.2.13 SCANNER UNIT**

| No. | Model | Part Name                  | Part Number  | No. of packages per box | Reference Item    |
|-----|-------|----------------------------|--------------|-------------------------|-------------------|
| 1   | MF    | GLASS DOCUMENT MNT         | U001209734xx | 5                       | 9.15.1            |
| 2   | MF    | PHOTOINTERRUPTER MNT       | U001210825xx | 1                       | 9.15.2            |
| 3   | MF    | REFLECTIVE PHOTOSENSOR MNT | U001209453xx | 3                       | 9.15.2,<br>9.15.3 |
| 4   | MF    | ROLLER SC ASSY MNT         | U001209712xx | 1                       | 9.15.4            |
| 5   | MF    | ROLLER PINCH KK MNT        | U001316474xx | 3                       | 9.15.5            |
| 6   | MF    | CIS UNIT MNT               | U001209497xx | 1                       | 9.15.6            |
| 7   | MF    | PCB-ASSY-AIC1 MNT          | U001211938xx | 1                       | 9.15.6            |
| 8   | MF    | MOTOR SC MNT               | U001209475xx | 1                       | 9.15.7            |

**9.2.14 SUB FRAME UNIT**

| No. | Model | Part Name         | Part Number  | No. of packages per box | Reference Item |
|-----|-------|-------------------|--------------|-------------------------|----------------|
| 1   | MF/PR | LED HEAD MNT      | U001209150xx | 1                       | 9.16.1         |
| 2   | MF/PR | PCB-ASSY-ACN1 MNT | U001211927xx | 1                       | 9.16.2         |

**9.2.15 TRANSFER ROLLER UNIT**

| No. | Model | Part Name                 | Part Number  | No. of packages per box | Reference Item |
|-----|-------|---------------------------|--------------|-------------------------|----------------|
| 1   | MF/PR | TRANSFER ROLLER UNIT MNT  | U001240380xx | 1                       | 9.17.1         |
| 2   | MF/PR | GUIDE DC R MNT            | U001208687xx | 20                      | 9.17.2         |
| 3   | MF/PR | GUIDE DC L MNT            | U001208700xx | 20                      | 9.17.2         |
| 4   | MF/PR | DETACH NEEDLE             | U001208665xx | 2                       | 9.17.2         |
| 5   | MF/PR | SPACER TRA-3505 MNT       | U001208621xx | 5                       | 9.17.3         |
| 6   | MF/PR | GEAR TRA ONEWAY MNT       | U001208643xx | 10                      | 9.17.3         |
| 7   | MF/PR | ROLLER TRA 3565 MNT       | U001208586xx | 1                       | 9.17.4         |
| 8   | MF/PR | SHEET TRA MNT             | U001208608xx | 50                      | 9.17.4         |
| 9   | MF/PR | SPACER TRANSFER GUIDE MNT | U001209633xx | 10                      | 9.17.5         |
| 10  | MF/PR | ELECTRODE NEEDLE MNT      | U001209137xx | 1                       | —              |

**9.2.16 TRANSPORT UNIT**

| No. | Model | Part Name                 | Part Number  | No. of packages per box | Reference Item |
|-----|-------|---------------------------|--------------|-------------------------|----------------|
| 1   | MF/PR | TRANSPORT UNIT MNT        | U001209532xx | 1                       | 9.18.1         |
| 2   | MF/PR | BLOWER FAN,BL01,02,06 MNT | U001207618xx | 1                       | 9.18.2         |
| 3   | MF/PR | PHOTOSENSOR,06 MNT        | U001207517xx | 10                      | 9.18.3         |
| 4   | MF/PR | BELT TRANS MNT            | U001208968xx | 30                      | 9.18.4         |

### 9.2.17 Jigs

| No. | Model | Part Name                     | Part Number  | No. of packages per box | Reference Item |
|-----|-------|-------------------------------|--------------|-------------------------|----------------|
| 1   | MF/PR | HR CLEANER MNT                | 30790-0125   | —                       | 9.19.1         |
| 2   | MF/PR | COTTON CIEGAL MNT             | U001209273xx | —                       | 9.19.2         |
| 3   | MF    | ADJUSTER KIT(SCANNER)         | U001223640xx | —                       | 9.19.3         |
| 4   | MF/PR | OPC CLEANER                   | U001034706xx | —                       | 9.19.4         |
| 5   | MF    | ADJUSTMENT KIT(COLOR SCANNER) | U001221210xx | —                       | 9.19.5         |
| 6   | MF    | Copy/Scan Color Chart1 set    | U001083903xx | —                       | 9.19.6         |
| 7   | MF/PR | CONTACT GREASE MNT            | U001209870xx | —                       | 9.19.7         |
| 8   | MF/PR | HEATPROOF GREASE MNT          | U001215450xx | —                       | 9.19.8         |
| 9   | MF/PR | TOOLKIT MNT                   | U001242145xx | —                       | 9.19.8         |
| 10  | MF/PR | AIR BLOW TOOL                 | U001307531xx | —                       | 9.19.10        |
| 11  | MF/PR | GEAR-SPACER MNT               | U001282138xx | 100                     | 9.7.1          |
| 12  | MF/PR | PUSH-PULL GAUGE               | U001280463xx | 1                       | 9.7.1          |

## 9.3 COVER-UNIT

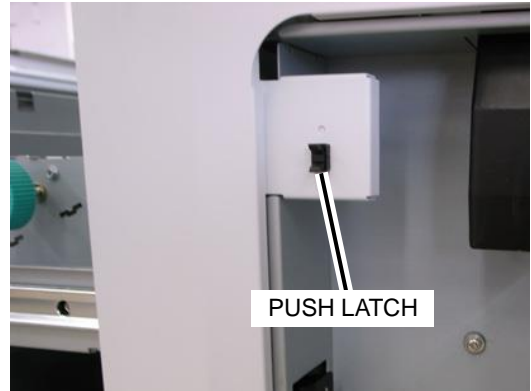
### 9.3.1 PUSH LATCH MNT

<Removal of waste toner>

1. Open the waste toner door.

#### Note

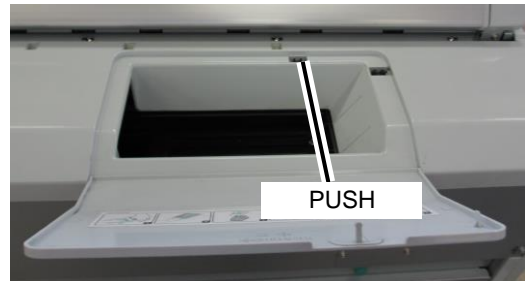
This work can be performed even if there is waste toner bottle present.



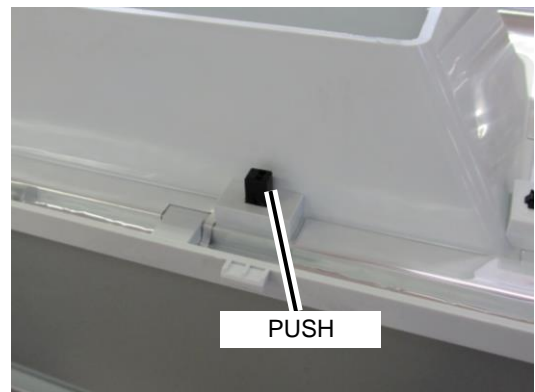
2. Insert your finger from the rear of the PUSH LATCH and push it out towards you.

<Removal of toner cover>

1. Remove the top cover (see p. 9-5).



2. Push on the rear side of the PUSH LATCH to remove it.



### 9.3.2 COVER-DEV-TOP(MF)MNT

<Removal>

1. Remove the top cover (see p. **9-5**).

### 9.3.3 DOCUMENT-TABLE-LOW MNT

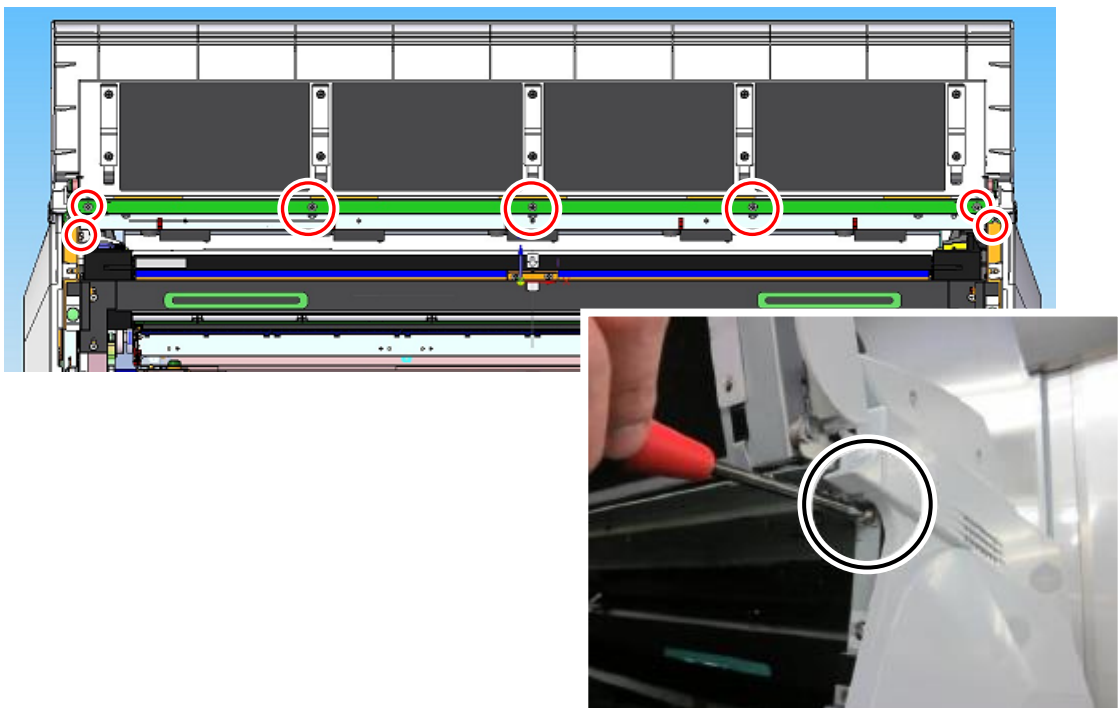
**Note**

Place a sheet of paper as shown in the picture below to prevent the screws from falling into the printer.



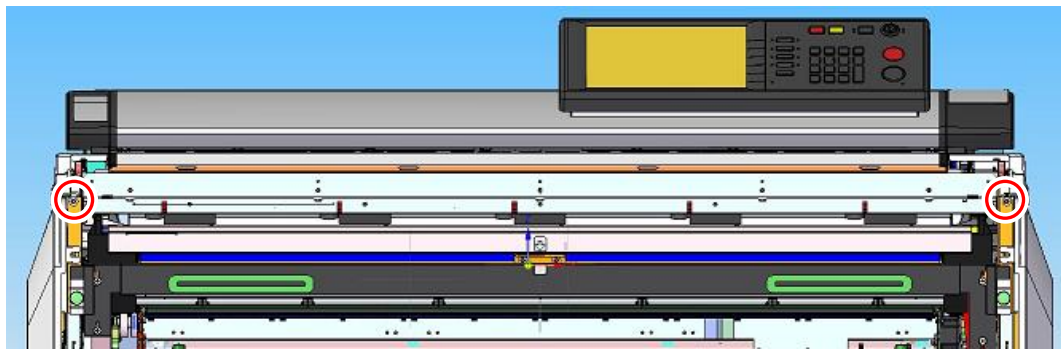
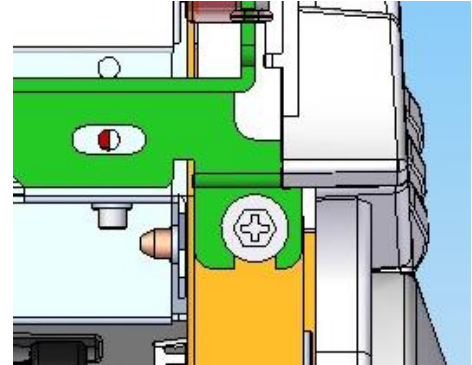
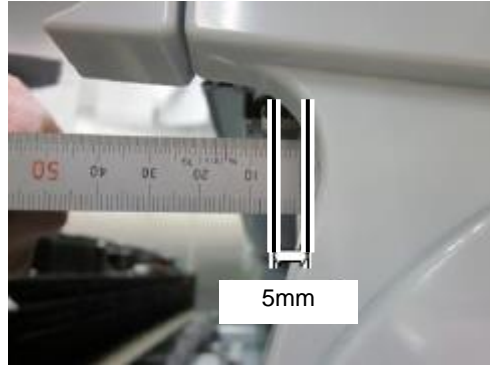
<Removal>

1. Remove the fuser cover (top) (see p. 9-11).
2. Remove the document table with seven screws.

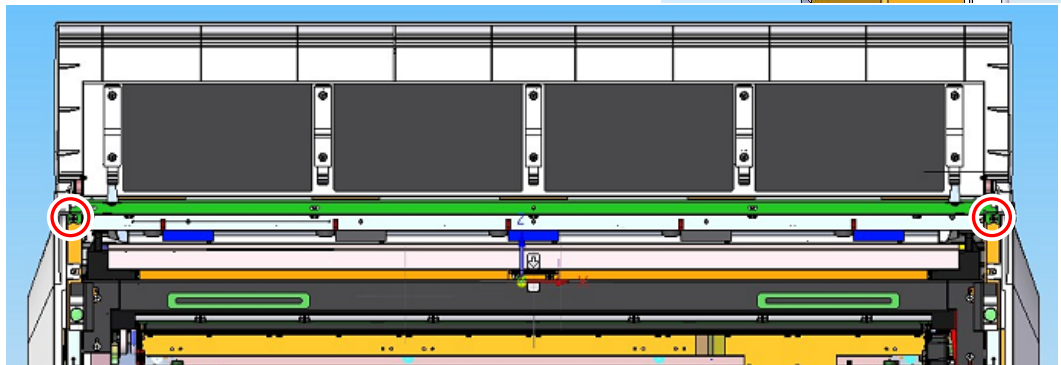
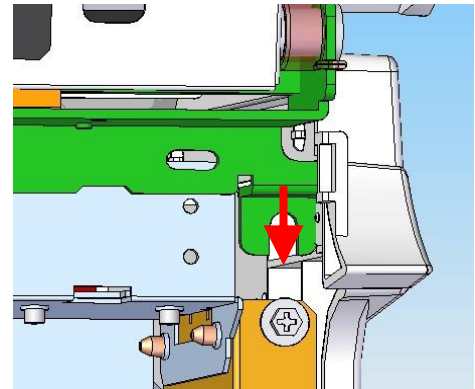


<Installation>

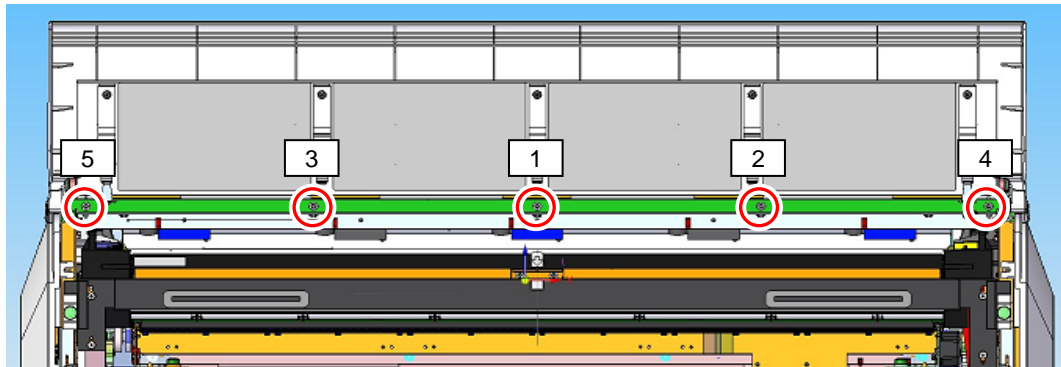
1. Install the screws shown in the figure below so that their seating surfaces are at 5 mm from the frame.



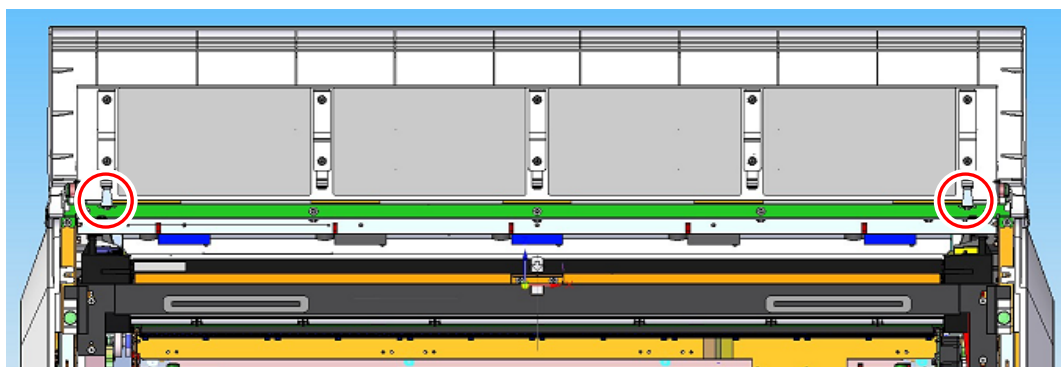
2. Install the new document table.



3. After fully tightening the screws, loosen them one turn.
4. Starting from the middle, fully tighten the screws and then loosen them one turn one after the other.



5. Tighten all seven screws to secure the document table.
6. Remove the device used to maintain the angle.

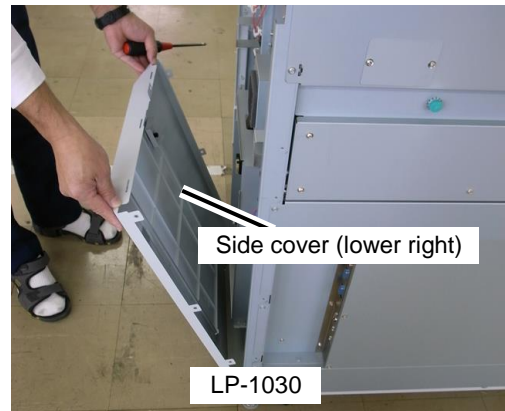


## 9.4 WASTE TONER BOTTLE UNIT

### 9.4.1 [TS02] WASTE TONER SENSOR, TS02 MNT

<Removal>

1. Remove the waste toner bottle (see **Replacing the Waste Toner Bottle** in the *User's Manual for Basic Printer Operation*).
2. Remove the side cover (lower right) (see p. **9-10**).

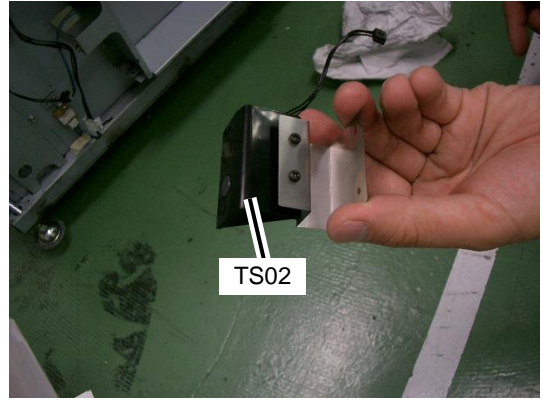


3. Remove the plate with the two screws at the location shown in the photo.





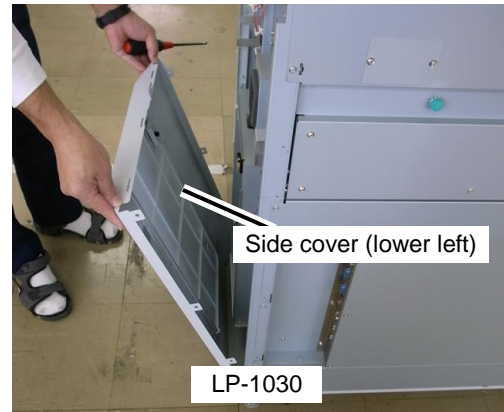
4. Remove the TS02 with the two screws from the plate removed previously.



## 9.4.2 [MS05] MICRO SWITCH,04,05,06-1 MNT

<Removal>

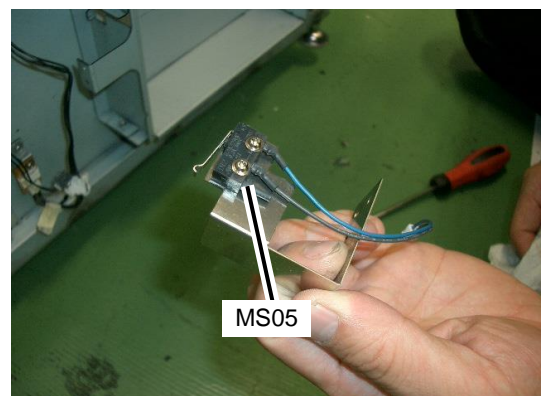
1. Remove the waste toner bottle (see **Replacing the Waste Toner Bottle** in the *User's Manual for Basic Printer Operation*).
2. Remove the side cover (lower right) (see p. 9-10).



3. Remove the plate with the one screw at the location shown in the photo.



4. Remove the MS05 with the two screws from the plate removed previously.



## 9.5 CUTTER-UNIT

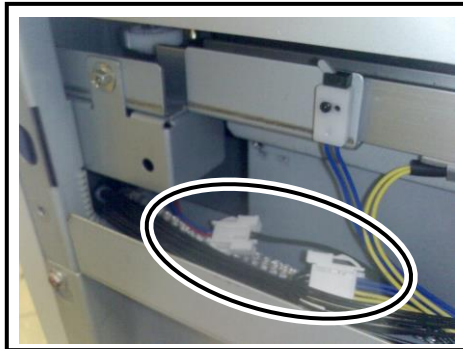
### 9.5.1 CUTTER UNIT AUTO MNT

<Removal>

1. Remove the COVER-CUT with seven screws.



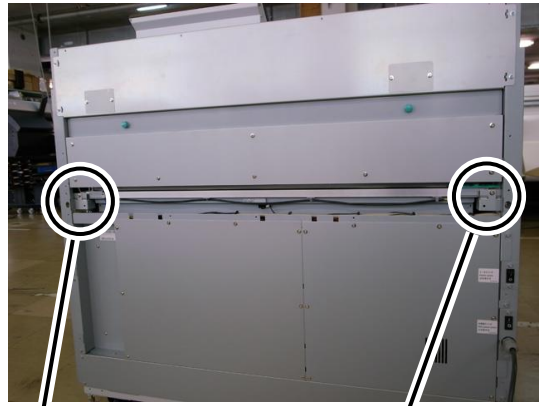
2. Pull out the cable's two connectors.



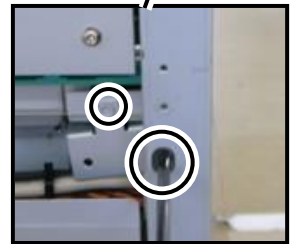
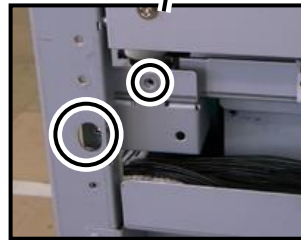
3. Remove the right and left brackets with two screws each.

**Note**

Be careful not to drop the brackets or screws.



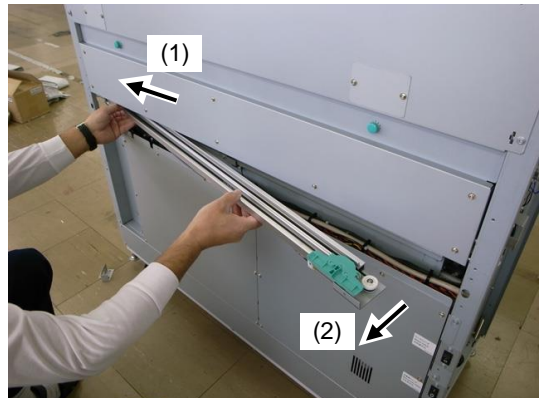
Removed bracket



4. Slide to the left and pull out towards you from the right side.

**Note**

Be careful not to hit the motor when removing.

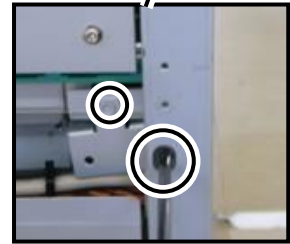
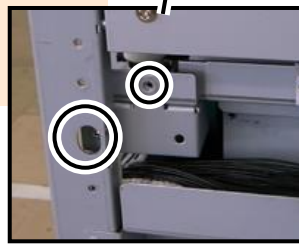
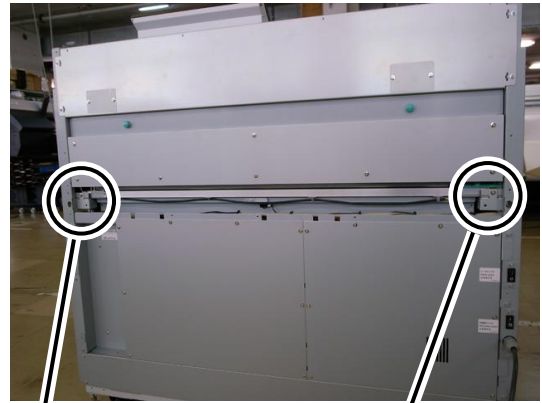
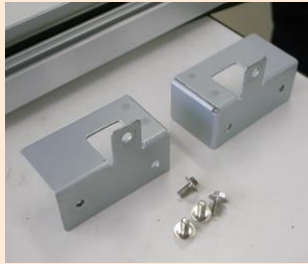


<Installation>

1. Return the CUTTER UNIT AUTO to its original position and temporarily secure the brackets with four screws.

**Note**

CUTTER UNIT AUTO bracket



2. Push down on the bracket with your hand when tightening the screws so that there is no space between the cutter.

**Cautionary Notes When Performing Installation**

First fix the left bracket, and the right one based on the left one.



3. Reconnect the two previously disconnected connectors and install the COVER-CUT with seven screws that you removed.
4. After installation, feed paper through to confirm proper operation, with which the paper is cut properly.

**Note**

Perform the steps in Cut Squareness Calibration if necessary.

## 9.6 DEVELOPER UNIT

### 9.6.1 DEVELOPER UNIT MNT

<Removal>

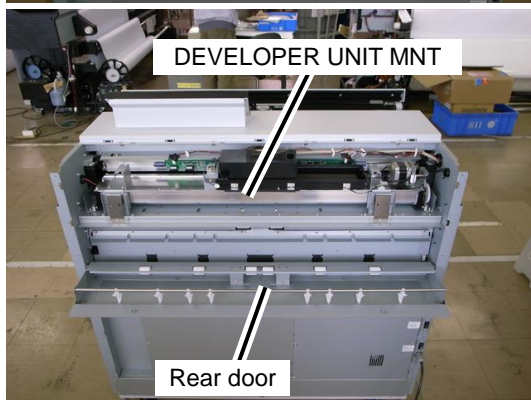
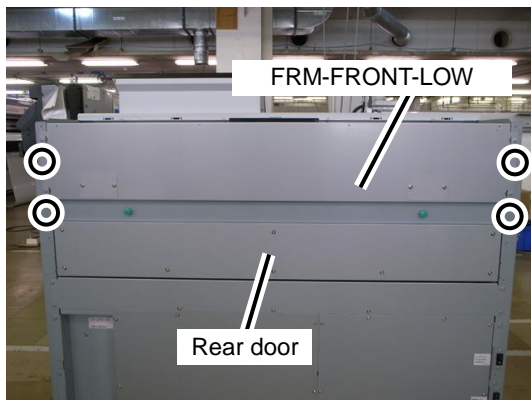
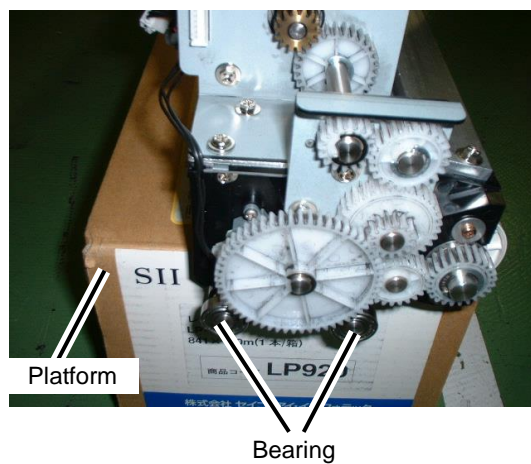
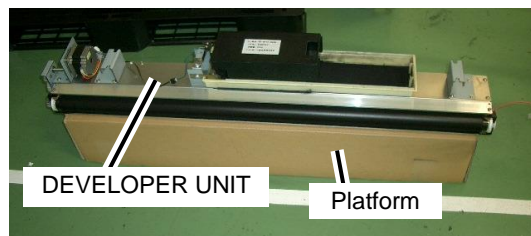
1. Prepare the platform for the DEVELOPER UNIT.

#### Note

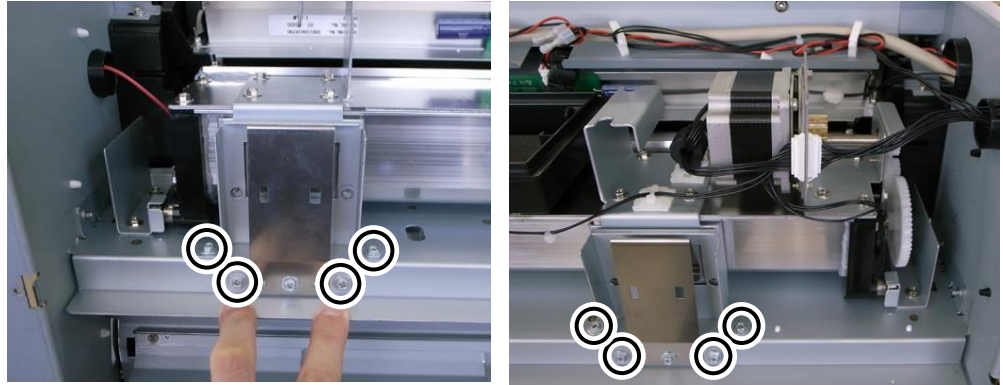
The DEVELOPER UNIT is supported by the two bearings on the right and left (for a total of four) of the unit.

Find a platform that will let those bearings free. If that is not possible, be very careful not to damage or disrupt those bearings.

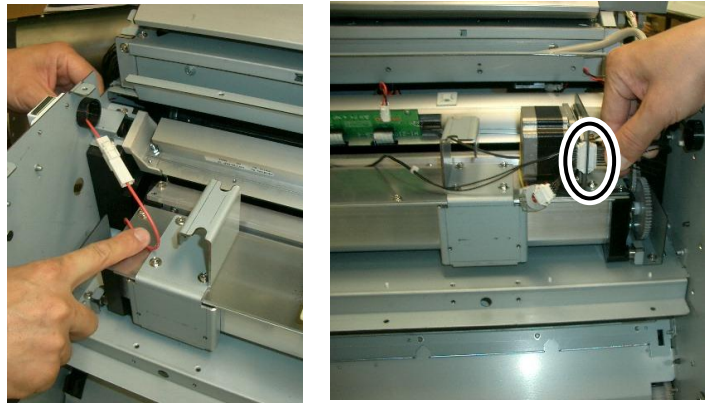
2. Remove the top cover (see p. 9-5).
3. Open the rear door and remove FRM-FRONT-LOW with four screws.



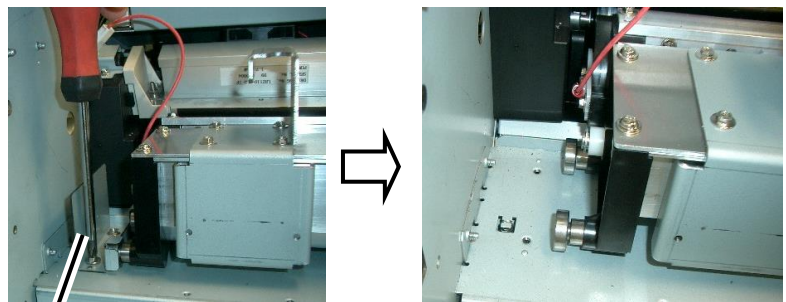
4. Remove the plate spring with the four screws and the plate with the four screws, shown in the photo.



5. Unplug the motor cord connector, sensor cord connector, and high pressure cable.



6. Remove the stopper with two screws on the left side of the DEVELOPER UNIT.

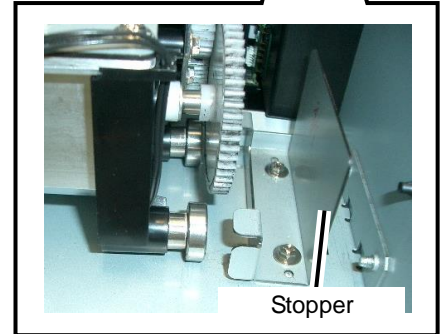
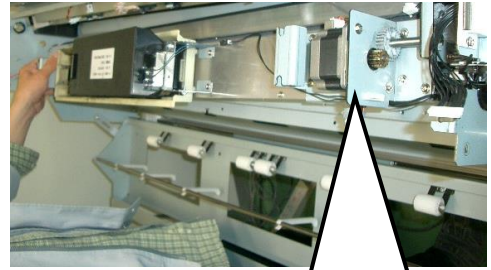


Stopper

7. Move the DEVELOPER UNIT about 2 cm (0.79 inches) to the left. Confirm that the right-side bearing unit has been removed from the stopper, and remove the unit by pulling towards you.

**Note**

If you find the unit difficult to remove, remove the right-side stopper with the two screws.



8. Place the DEVELOPER UNIT on the platform you prepared earlier.

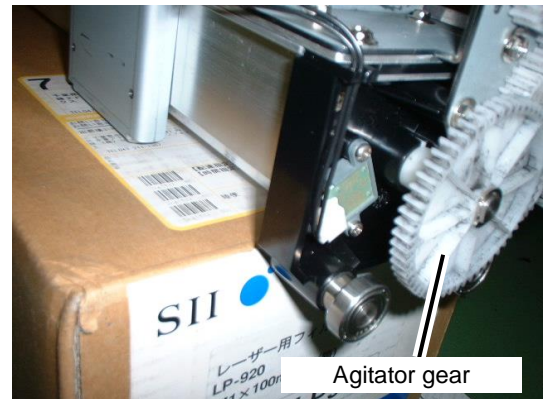




### 9.6.2 [TS01] TONER SENSOR, TS01 MNT

<Removal>

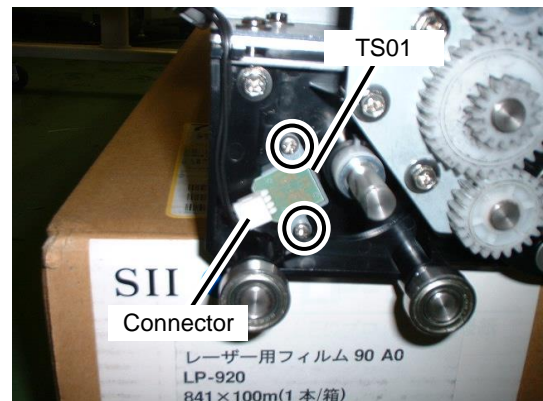
1. Remove the DEVELOPER UNIT  
(see p. 9-36).
2. Remove the agitator gear's E-ring and  
remove the gear.



3. Unplug the connector for the TS01 cord.
4. Take out the two screws and remove the  
TS01.

**Note**

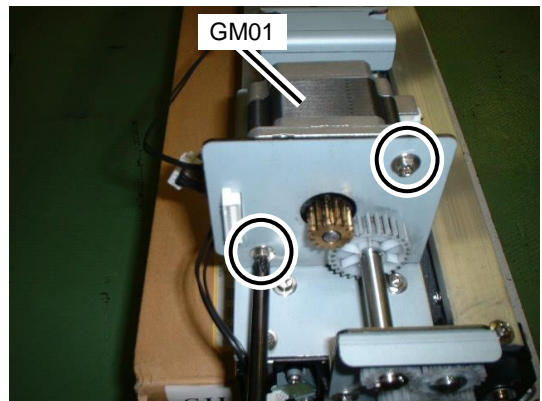
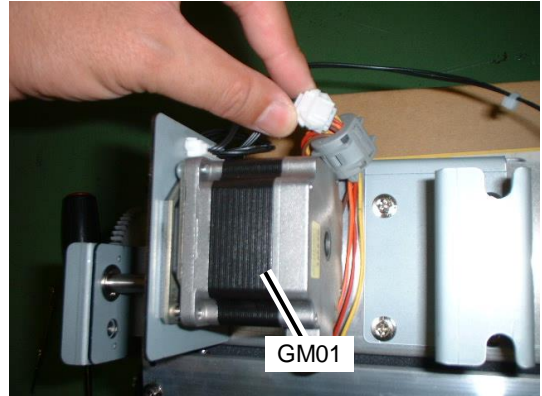
Some toner will spill out when removing the TS01. Be sure to cover the area with a cloth or other protective sheet before removing.



### 9.6.3 [GM01] MOTOR GM MNT

<Removal>

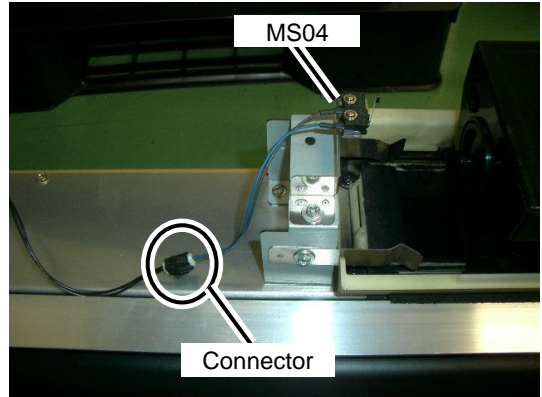
1. Remove the DEVELOPER UNIT  
(see p. 9-36).
2. Unplug the connector for the cord connected  
to the motor.
3. Take out the two screws and remove the  
MOTOR GM.



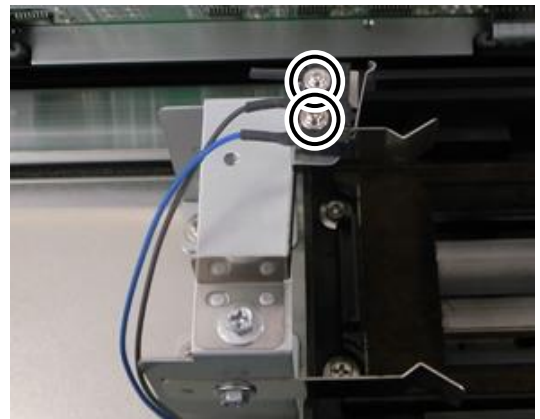
### 9.6.4 [MS04] MICRO SWITCH,04,05,06-1 MNT

<Removal>

1. Remove the top cover (see p. 9-5).
2. Unplug the connector.



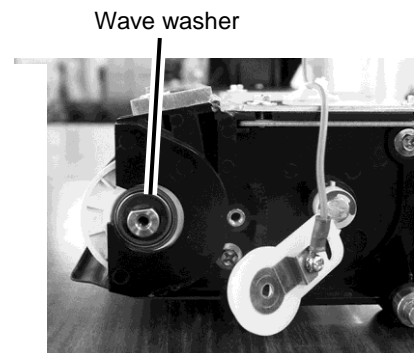
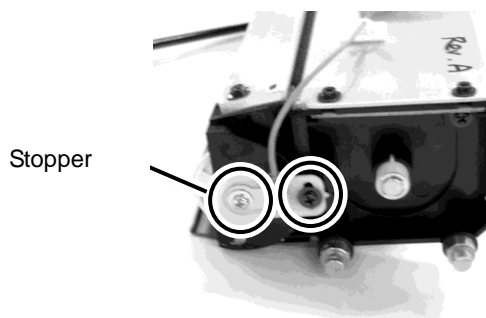
3. Take out the two screws and remove the MS04 (cartridge sensor).



## 9.6.5 MAGNET ROLL MNT, SPACER DEV MNT

<Removal>

1. Remove the DEVELOPER UNIT (see p. 9-36).
2. Remove the stopper with the two screws and wave washer on the right side of the DEVELOPER UNIT.



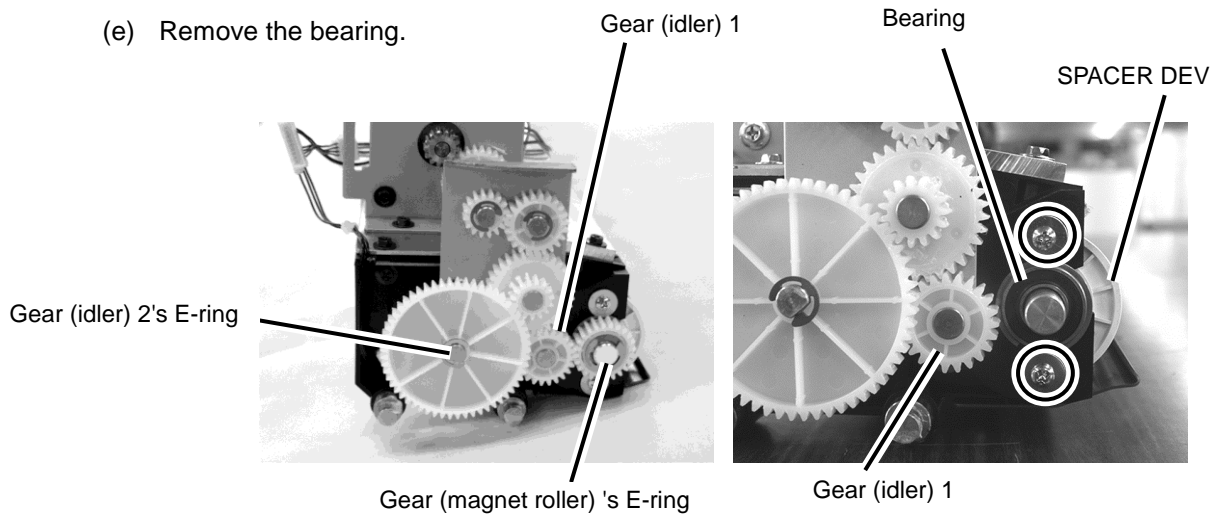
3. Remove all the gears from the left side of the DEVELOPER UNIT.
  - (a) Remove the E-ring from gear (idler) 2, and remove gear (idler) 2.
  - (b) Remove gear (idler) 1.
  - (c) Remove the E-ring from gear (magnet roller) and remove gear (magnet roller).

### Cautionary Notes When Performing Installation

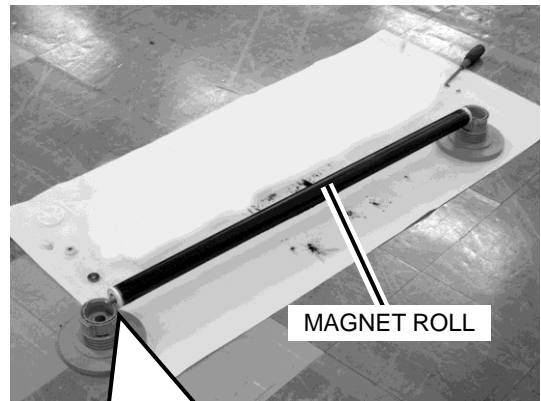
The gear (magnet roller) has a front and back side. When installing, be sure that the silver side is pointing to the outside.

- (d) Remove the two screws.

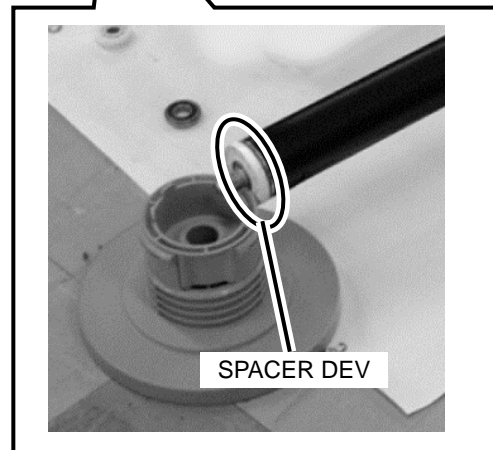
(e) Remove the bearing.



4. Remove the MAGNET ROLL.



5. Remove the SPACER DEV.



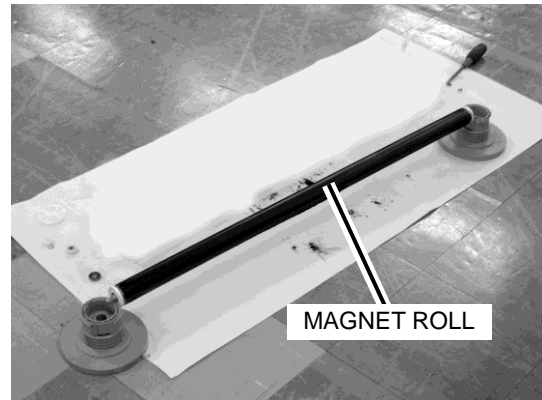
## 9.6.6 BLADE-S-DV MNT

### Note

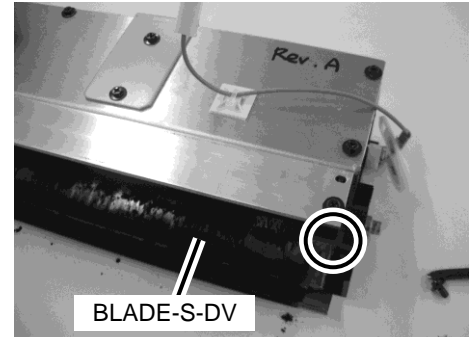
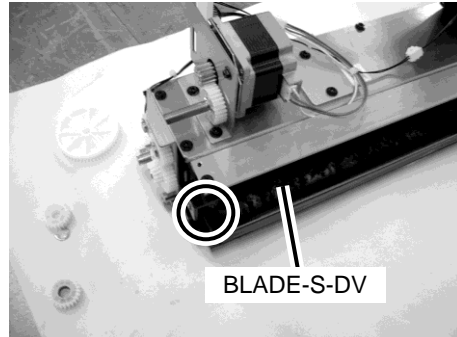
Toner may spill while you are working. Be sure to cover the area where you are working with some protective sheet.

<Removal>

1. Remove the MAGNET ROLL  
(see p. 9-42).



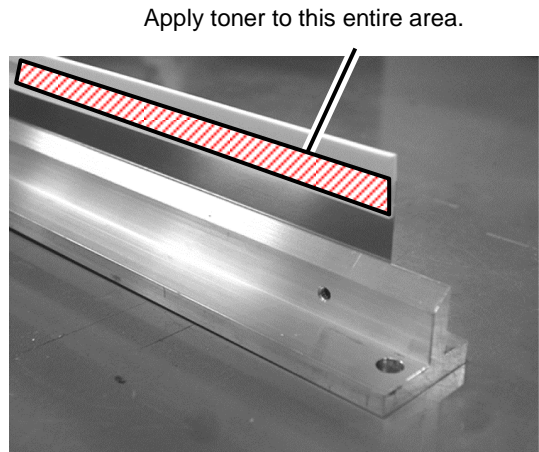
2. Remove the BLADE-S-DV.
  - (a) Remove the screws (one each) on the right and left side of the BLADE-S-DV.



- (b) Remove the BLADE-S-DV completely including the holder.

<Installation>

1. After securing the new BLADE-S-DV in the holder, apply toner to the blade part.



2. Before installation, with a vacuum cleaner, remove any toner build-up on top of the MAGNET ROLL and chassis (DEV).
3. Install the unit by following the removal instructions in reverse.

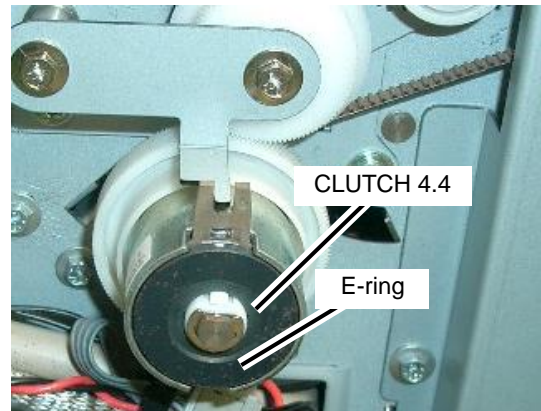
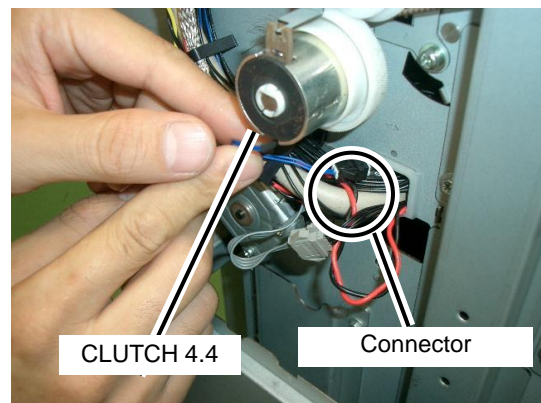
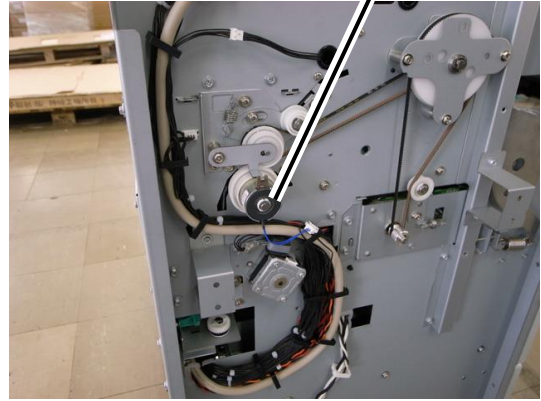
## 9.7 DRIVE-UNIT

### 9.7.1 CLUTCH 4.4 MNT

<Removal>

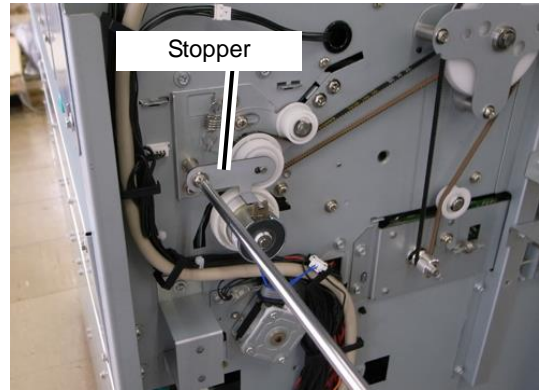
1. Remove the side cover (upper left)  
(see p. 9-8).
2. Unplug the connector connected to the  
CLUTCH 4.4.
3. Remove the E-ring securing the CLUTCH  
4.4.

CLUTCH 4.4





4. Remove the stopper with the two screws.



5. Pull out the CLUTCH 4.4 from the shaft.



<Installation>

### Cautionary Notes When Performing Installation

Adjust the gears engagement after replacing the CLUTCH 4.4.

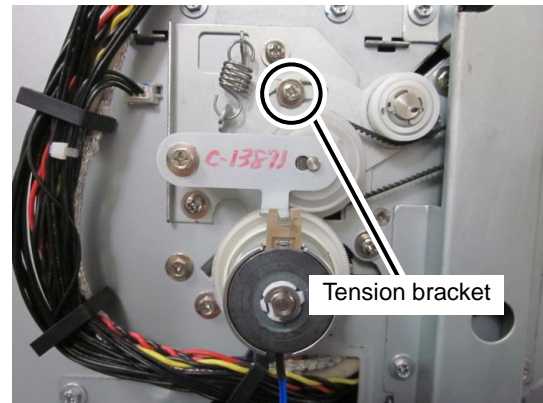
Required tools:

- Phillips screwdriver
- PUSH-PULL GAUGE: U001280463\*\*

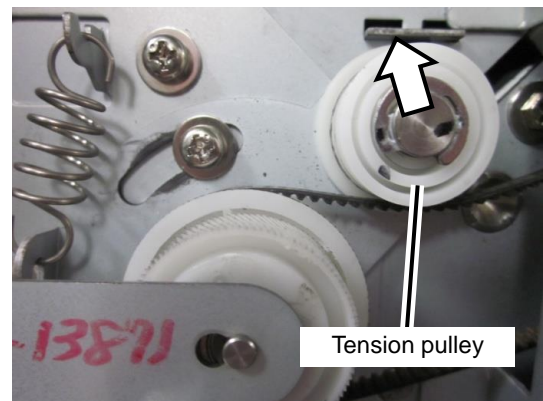
Required jig:

- GEAR-SPACER MNT: U001282138\*\*

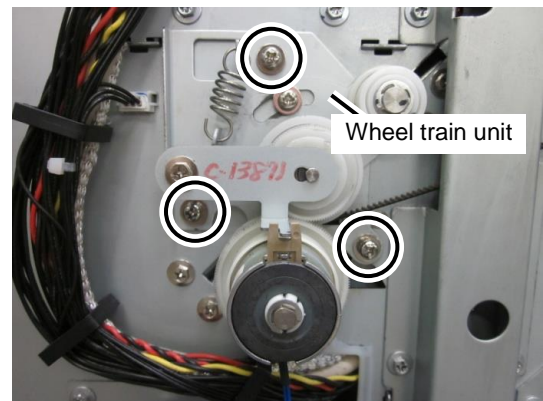
1. Loosen the tension bracket screw.



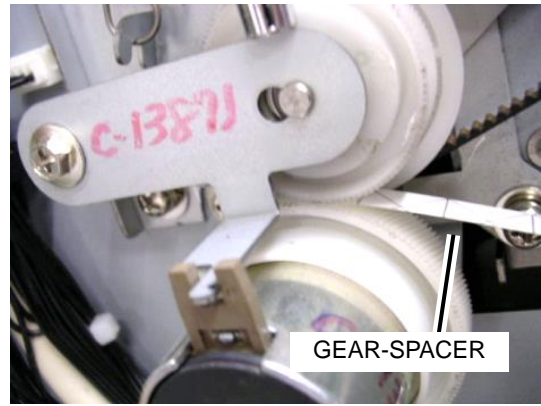
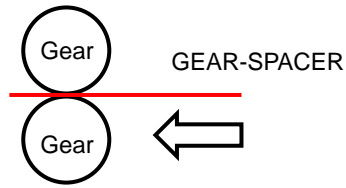
2. Lift the tension pulley in the direction of the arrow, decrease the tension of the timing belt, and tighten the screw loosened in step 1.



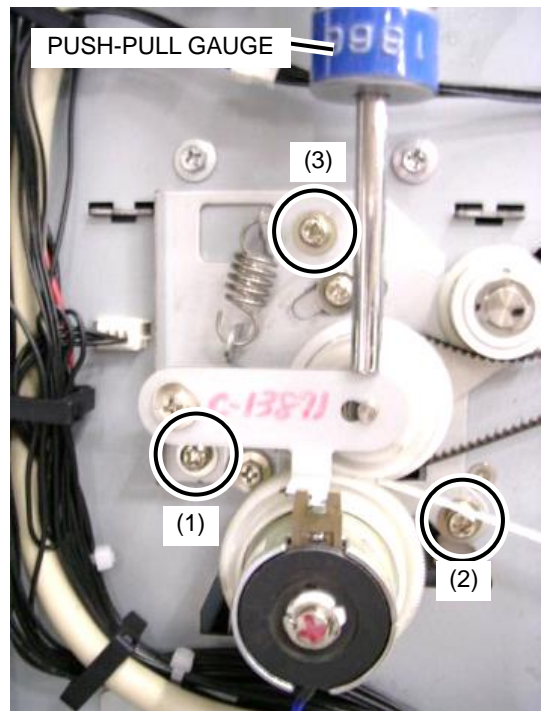
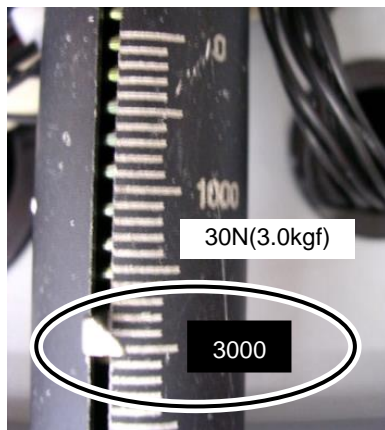
3. Loosen the three screws securing the wheel train unit.



4. Insert the GEAR-SPACER between the gears.

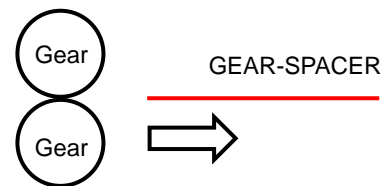


5. While pressing the PUSH-PULL GAUGE onto the wheel train unit shaft, tighten the screws (1) -> (2) -> (3) in that order.  
\* Apply the following pressure: 30 N (3.0 kgf)



6. Remove the GEAR-SPACER that you have inserted between the gears.

**Note**  
Pay attention not to leave any GEAR-SPACER fragment.



7. Loosen the tension bracket screw to stretch the timing belt. With the belt stretched, tighten the screw.

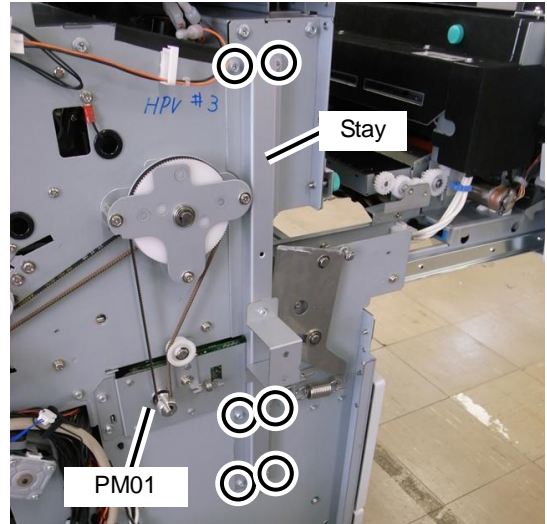


8. Print several A4 sheets in landscape to check that the drawing position is within the standard values (See **7.2 Troubleshooting Print Specification Problems**).

### 9.7.2 [PM01] MOTOR PM01 MNT

<Removal>

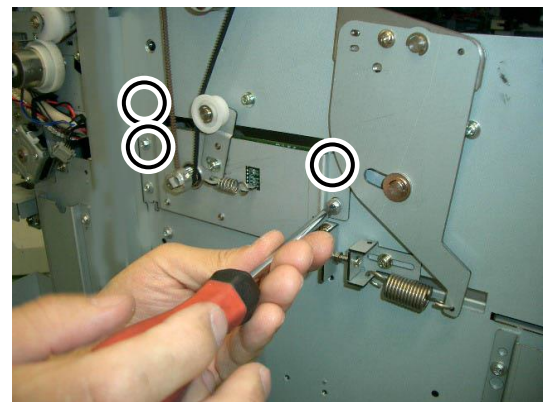
1. Remove the side cover (lower left) (see p. 9-9).
2. Remove the stay with six screws at the location shown in the photo.



3. Loosen the one screw as shown in the photo to lower the tension on the pulley.



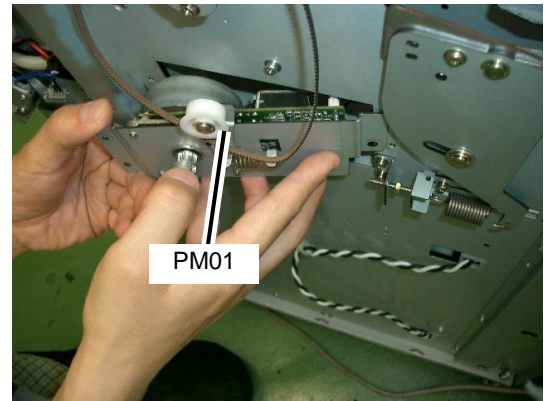
4. Remove the motor bracket with three screws.



5. Remove the timing belt and pull out the PM01 slightly.

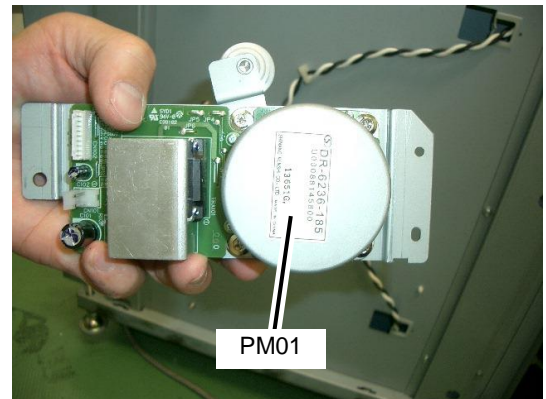
**Note**

- Be careful not to unplug the cables in the area.
- Pull out while tilting as shown in the photo.



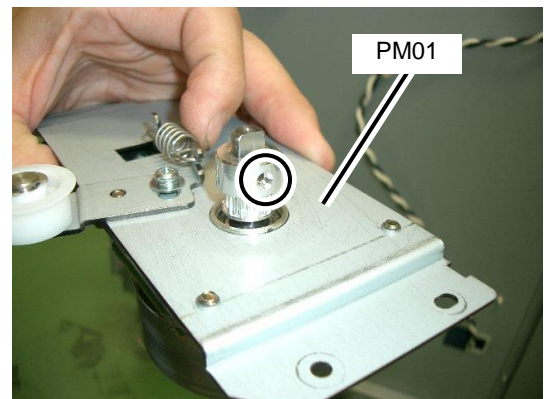
6. Unplug the connectors for the connected cables.

7. Remove the motor.



8. Loosen the screw shown in the photo and remove the PULLY (19P).

9. Remove the PM01 from the motor bracket.

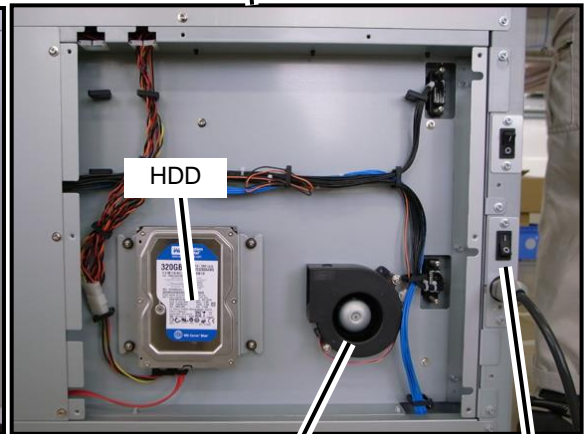
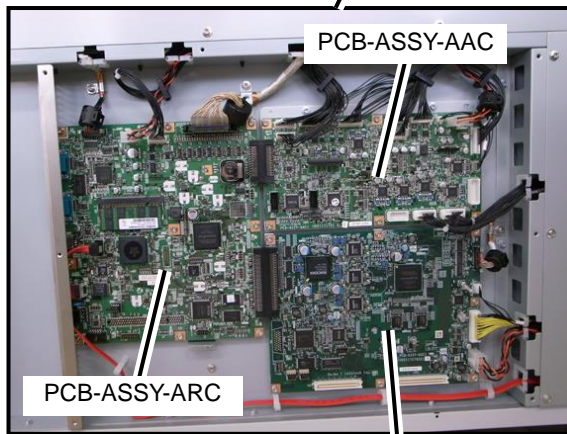


## 9.8 ELECTRICAL UNIT

### 9.8.1 Recommended Parts for the ELECTRICAL UNIT

The following describes how to access the recommended parts for the ELECTRICAL UNIT.

#### (1) Back of the Printer



PCB-ASSY-ASC1  
(Multifunction model only)

BLOWER FAN ASSY

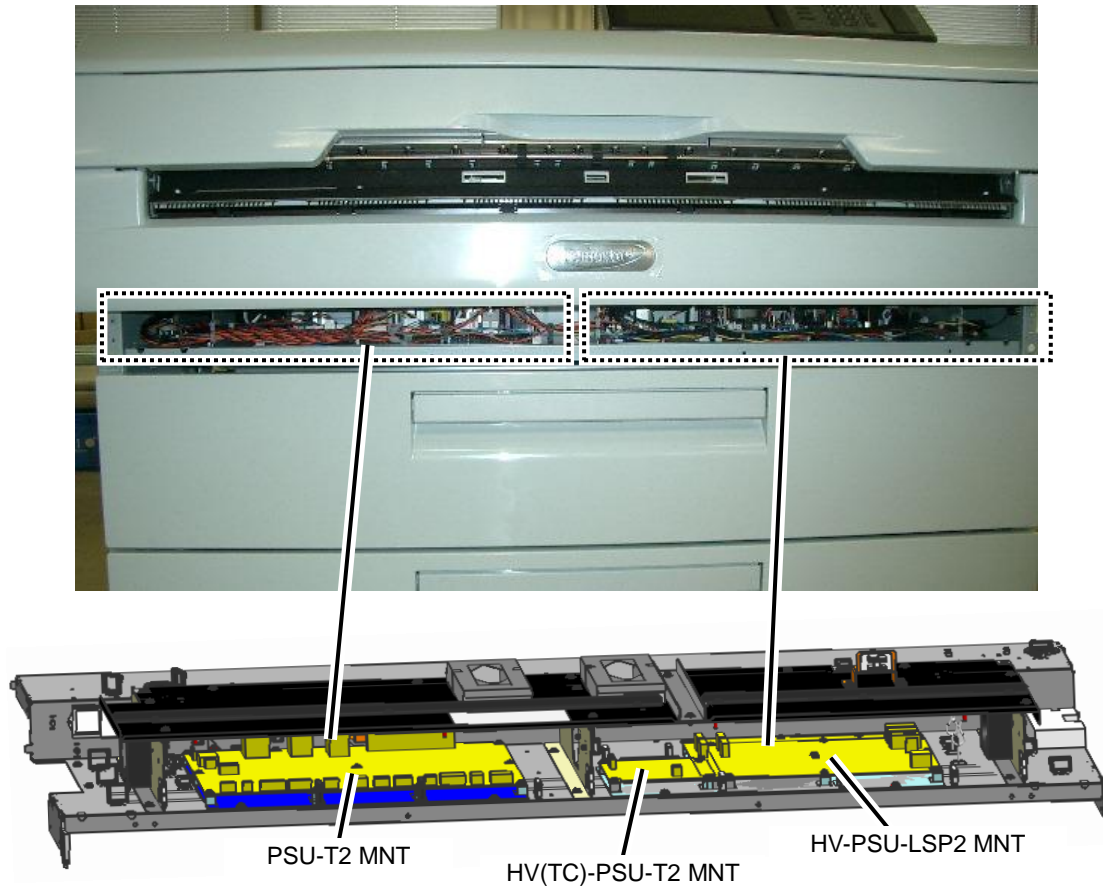
SWITCH

## (2) Front of the Printer

### Note

When replacing the circuit board at the front of the Printer, you must remove the covers inside the unit.

However, you can access the necessary parts for adjustment with terminal or volume by removing the front cover.



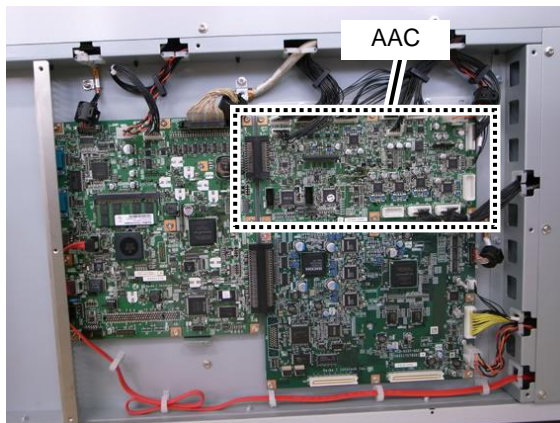


### 9.8.2 [AAC] PCB-ASSY-AAC1 MNT

<Removal>

1. Remove the COVER-BACK(L)  
(see p. 9-53).
2. Unplug all the connectors connected to the AAC board.  
The number of connectors differs depending on the printer model as follows:

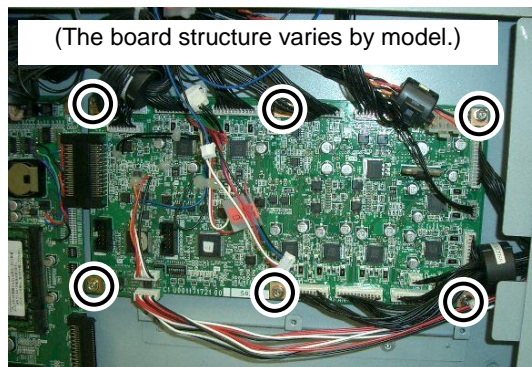
LP-1030 (one roll model): 11 connectors  
LP-1030 (two roll model): 12 connectors.



3. Remove the six screws securing the board and remove AAC.

**Note**

When removing the board, pay attention to CN2 on PCB-ASSY-AAC as it is connected to PCB-ASSY-ARC.



**Cautionary Notes When Replacing Board**

- Set the SW2 to the status at the replaced board (see p. B-2).
- Do not change the SW1 setting.

### 9.8.3 [ARC] PCB-ASSY-ARC1 MNT/PCB-ASSY-ARC2 MNT, [EEPROM] T2ARC-EEPROM MNT

#### Note

PCB-ASSY-ARC1 MNT and PCB-ASSY-ARC2 MNT are available as recommended parts for the ARC board. Pay attention when replacing the board as the PCB-ASSY-ARC1 can be replaced only with the PCB-ASSY-ARC1 MNT, and the PCB-ASSY-ARC2 can be replaced only with the PCB-ASSY-ARC2 MNT.

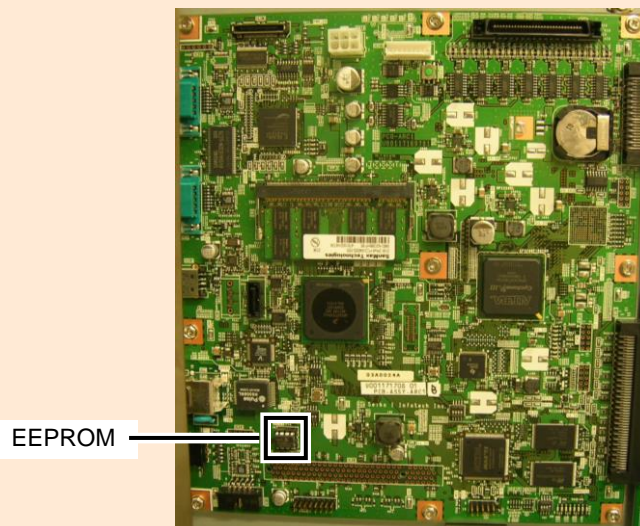
Since the replacement procedure is the same for both models, only the term PCB-ASSY-ARC is used in the procedure below.

#### Note (Things to Consider When Replacing the Circuit Board)

After replacing the PCB-ASSY-ARC board with a new one, be sure to replace the new PCB-ASSY-ARC's EEPROM with the original PCB-ASSY-ARC's one.

If you do not replace the new EEPROM with the original one, the Printer is unable to perform color scanning.

\* If the EEPROM is damaged or lost during replacement, purchase a new one with the EEPROM serial number written on the order. (Product name: T2ARC-EEPROM MNT) (See **9.2.6 ELECTRICAL UNIT**)



After replacing the board, always upgrade the firmware (see p. **1-8**).

Reconfigure also the following items.

- Current time (see **Chapter 3 - Menu Functions - Function Menu- Date and Time Setting** in the *User's Manual for Basic Printer Operation*)
- Serial number (see p. **2-47**)

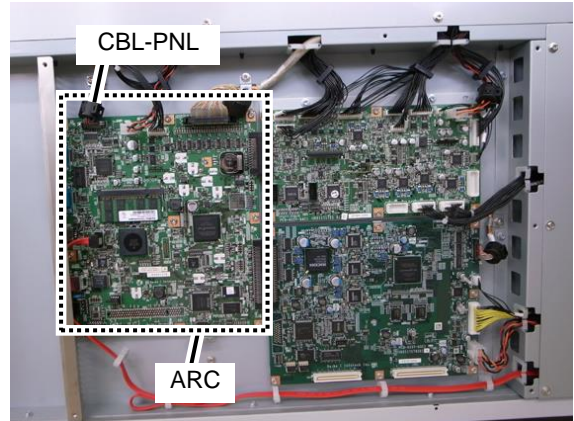
**Always use the version 9.00 or later of the firmware with the PCB-ASSY-ARC2 MNT. This is particularly important because the printer will not operate properly with a version lower than 9.00 and you will not be able to upgrade the firmware.**

<Removal>

1. Remove the COVER-BACK(L)  
(see p. 9-53).
2. Unplug the following.
  - All four connectors connected to ARC;  
and
  - SATA cable

**Cautionary Notes When Performing Installation**

When installing the CBL-PNL, use the air blow tool in order to remove any foreign particle from the connecting part.

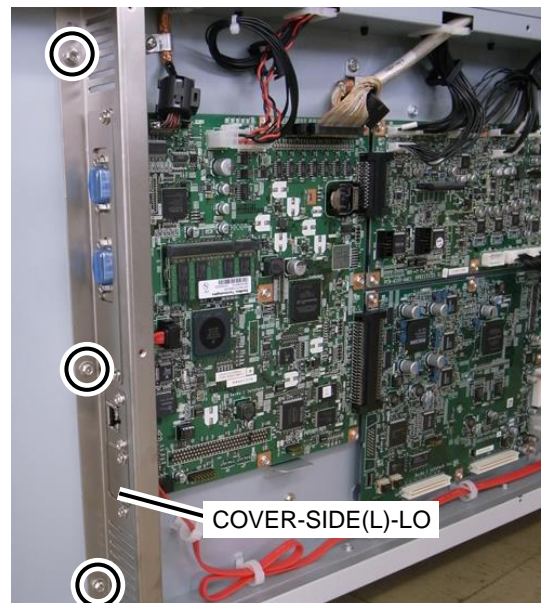


(The board structure varies by model.)

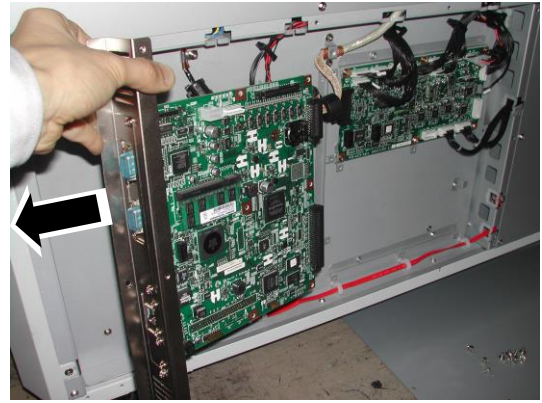
3. Remove the six screws shown in the photo.



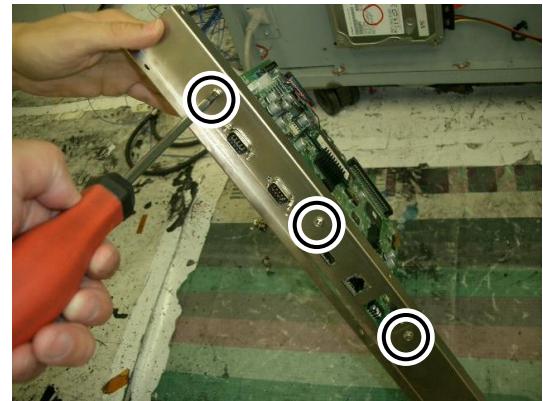
4. Remove the three screws securing COVER-SIDE(L)-LOW.



5. Slide the ARC to the left together with COVER-SIDE(L)-LOW and remove them both.



6. Remove the three screws securing ARC and COVER-SIDE(L)-LOW.



7. Remove the COVER-SIDE(L)-LOW.



## 9.8.4 HDD MNT

**Note (Things to Consider When Replacing the HDD)**

After being replaced, the HDD is initialized automatically, when the Printer is turned On. When the following message is displayed, restart the Printer.

- Initialized HDD.
- Turn off the main power.

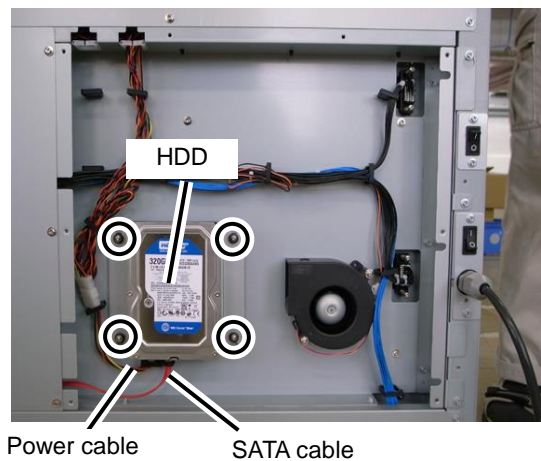
Note that, when the HDD is replaced, the setup area, error log, and job log are all formatted.

**Note**

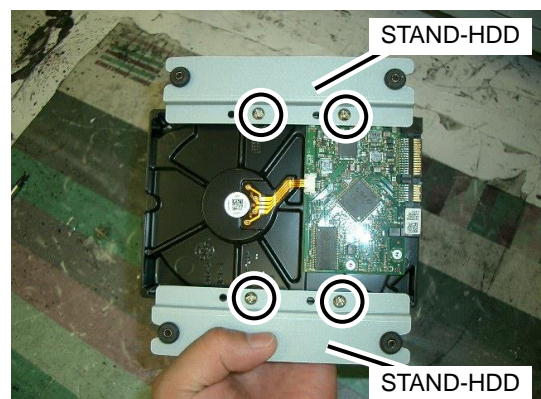
When the Printer's HDD is replaced, it is logically formatted automatically when the Printer boots up. You can also perform a logical format manually from the menu in Maintenance Mode (**Menu->Function->HDD Format**).

<Removal>

1. Remove the COVER-BACK(R)  
(see p. 9-53).
2. Unplug the power cable and the SATA cable.
3. Remove the four screws shown in the photo.



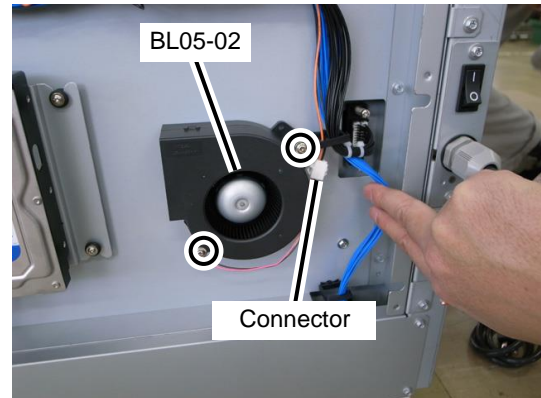
4. Remove the four screws shown in the photo, then remove the plate (STAND-HDD) from HDD.



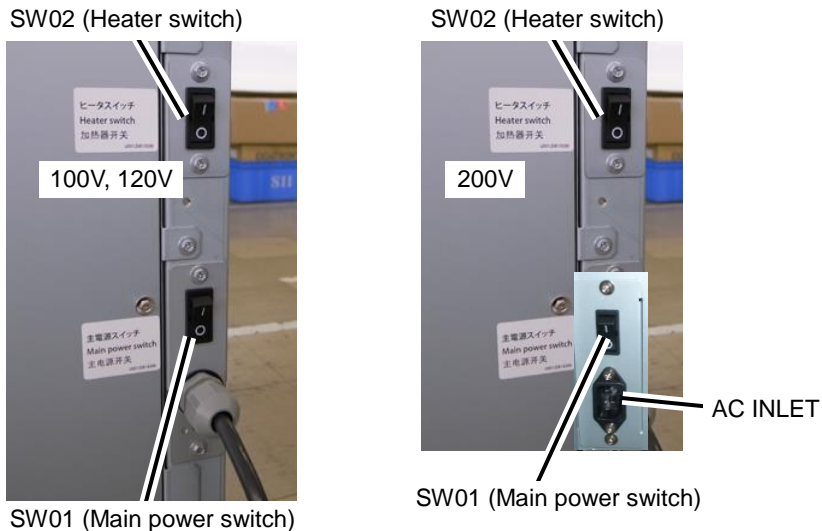
## 9.8.5 [BL05-02] BLOWER FAN ASSY MNT

<Removal>

1. Remove the COVER-BACK(R)  
(see p. **9-53**).
2. Unplug the connector and unscrew the two screws to remove BL05-02.



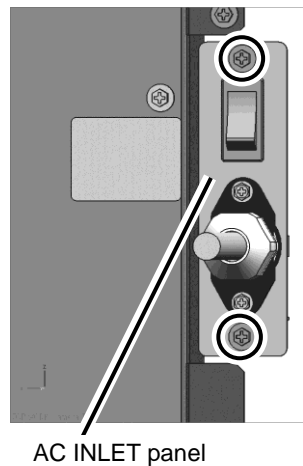
9.8.6 [SW01] [SW02] MAIN SWITCH 120V 200V MNT



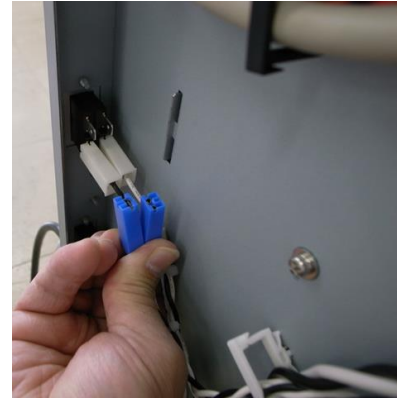
<Removal>

1. Remove the AC INLET panel with two screws.

**Note**  
In the following example the photo shows that the side cover (lower left) is removed, but you can just remove the AC INLET panel and pull out the parts for each panel that you need.



2. Hold the cable housing and remove the SW01 (/02).

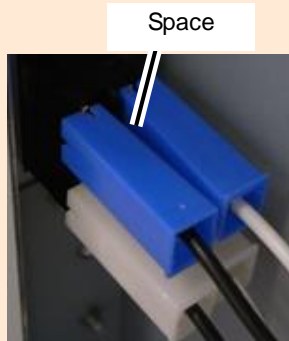


3. Pinch the SW01's or SW02's securing clamp and push toward the outside to remove.



**Note**

- Pay attention to cable colors (white/black) when connecting them during installation.
- Install so the SW01(/02) that there is space between neighboring connectors. Note that the space becomes limited when they run in different directions.





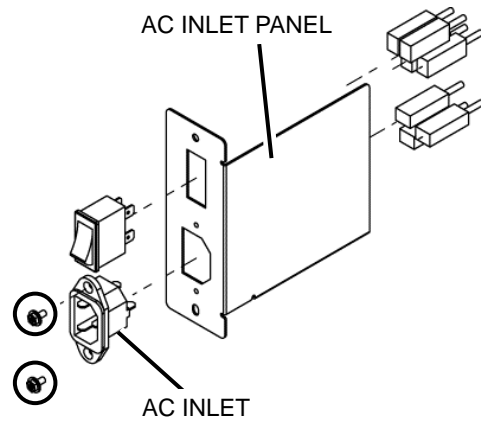
### 9.8.7 AC INLET MNT

**Note**

This part is a maintenance part only used in 200V systems.

<Removal>

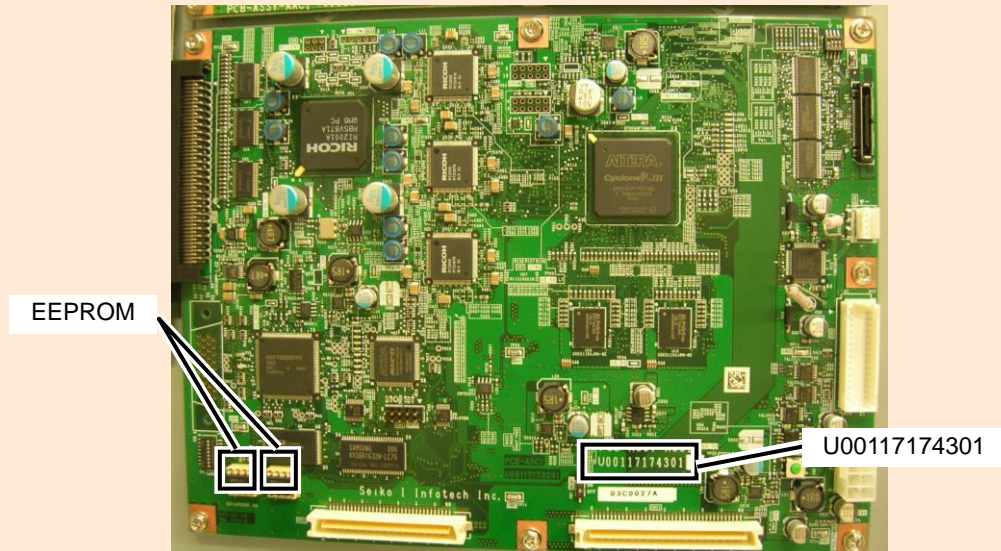
1. Remove AC INLET PANEL with two screws as shown above.
2. Unplug the connector and unscrew the two screws to remove AC INLET.



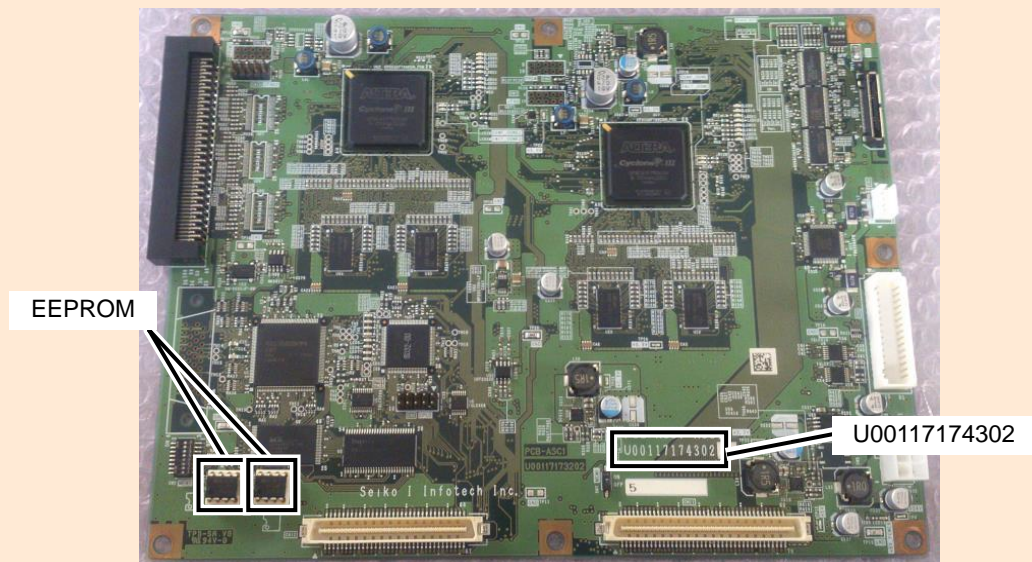
### 9.8.8 PCB-ASSY-ASC MNT

#### Note (Things to Consider When Replacing the Circuit Board)

After replacing the PCB-ASSY-ASC board with a new one, be sure to replace the new PCB-ASSY-ASC's EEPROM with the original PCB-ASSY-ASC's one. Also be careful not to mistake the installation positions of the two EEPROMs.



After replacing the board, always upgrade the firmware (see p. 1-8). A different model of PCB-ASSY-ASC board (shown below) may be mounted depending on the manufacturing date. With this different board model, always use the version 8.11 or later of the firmware.



| Code number  | Firmware version (scanner firmware version) |
|--------------|---|
| U00117174301 | Any   |
| U00117174302 | 8.11 or later (3.24 or later)               |

#### Note

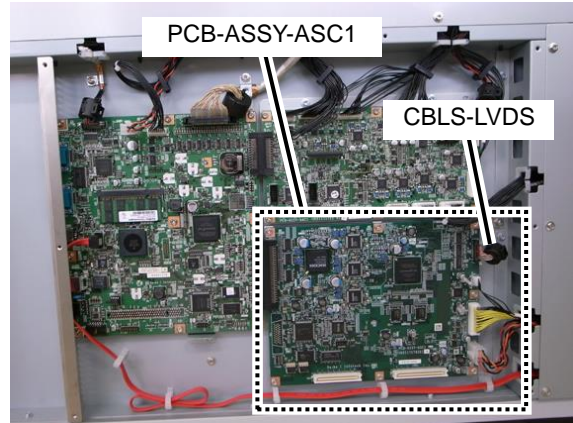
This part is only found in Multifunction Models.

<Removal>

1. Remove the COVER-BACK(L)  
(see p. 9-53).
2. Unplug all four connectors connected to PCB-ASSY-ASC1.

**Cautionary Notes When Performing Installation**

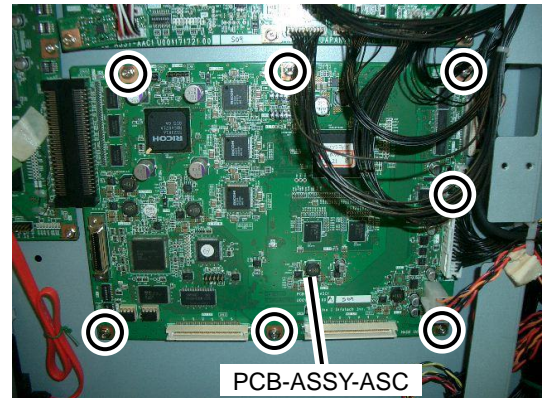
When installing the CBLS-LVDS, use the air blow tool in order to remove any foreign particle from the connecting part.



3. Remove the seven screws securing the board and remove the PCB-ASSY-ASC1.

**Note**

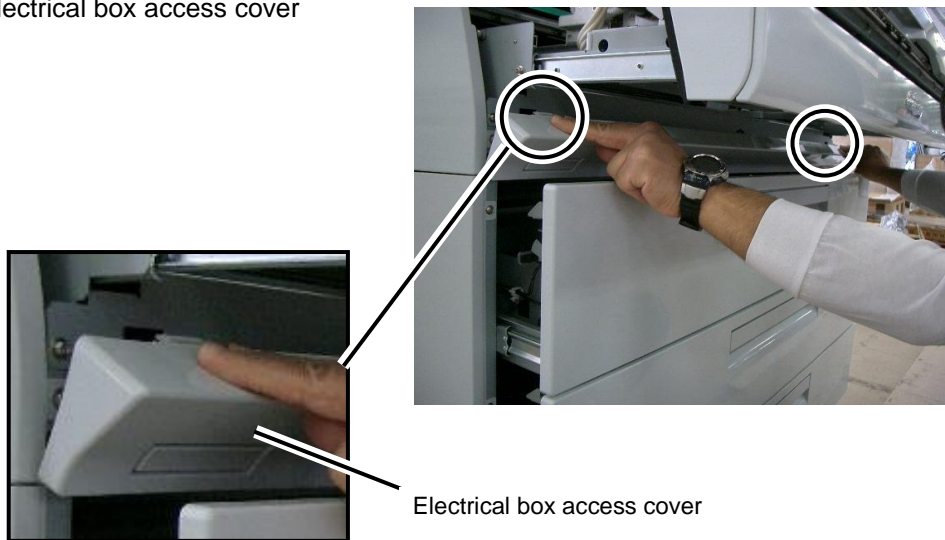
Note that the PCB-ASSY-ASC1 is connected to the PCB-ASSY-ARC via CN10. So, before removing the PCB-ASSY-ASC1, unplug the CN10 from the PCB-ASSY-ARC.



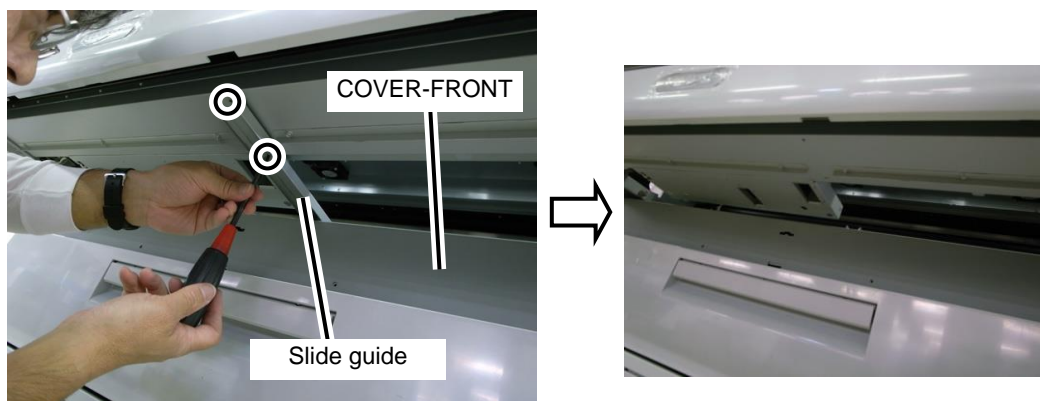
### 9.8.9 [LV-PS] PSU-T2 MNT

<Removal>

1. Open the fuser unit drawer.
2. Remove the PROCESS CARTRIDGE UNIT (process cartridge).
3. Remove the TRANSFER ROLLER-UNIT (transfer unit). (see p. 9-212).
4. Remove the electrical box access cover (see p. 9-7).



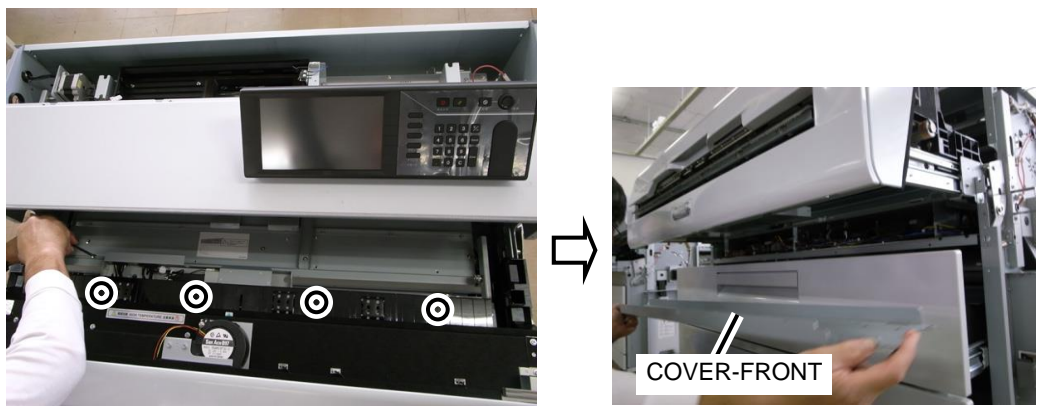
5. Remove the slide guide with two screws below the fuser unit drawer.



6. Remove the eight screws on the front of COVER-FRONT.



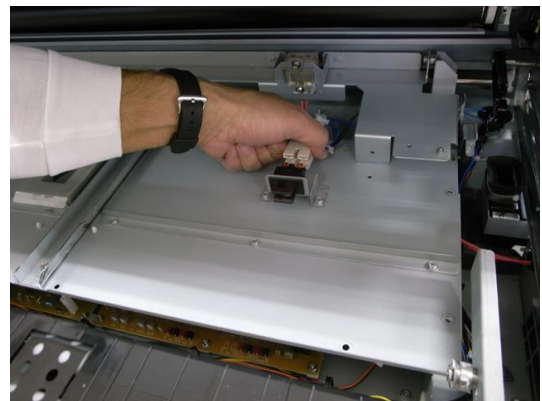
7. Remove the four screws on the top of COVER-FRONT and remove the COVER-FRONT.



8. Remove the interlock socket.

**Note**

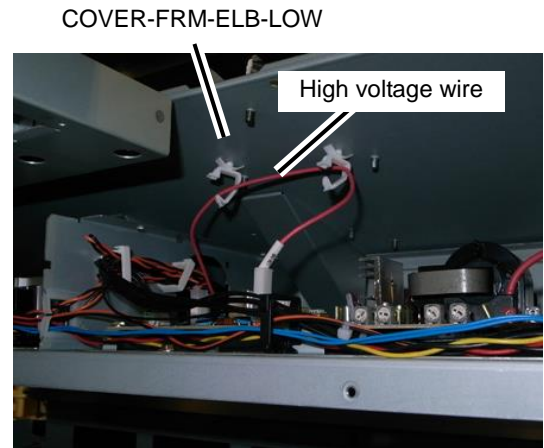
As this socket is general purpose, some connectors are not used. When installing, leave them as Unused.



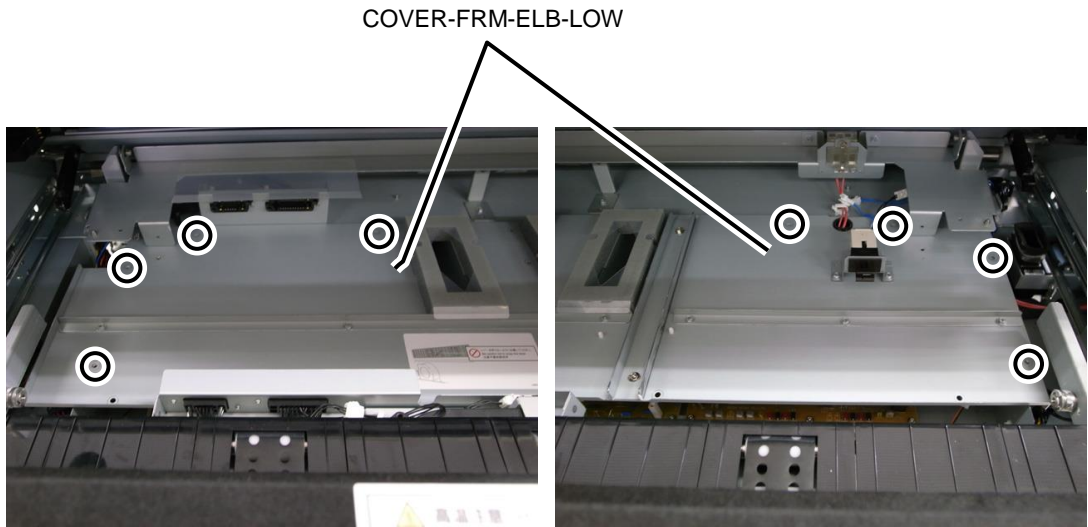
9. Remove the high voltage wire from the cable clamp. Note that the higher voltage wire is:
- below the COVER-FRM-ELB-LOW; and
  - above the circuit board

**Note**

Note that the high voltage wire is clamped at two positions.



10. Remove the COVER-FRM-ELB-LOW with 11 screws.



**Cautionary Notes When Performing Installation**

Be aware of the following when installing the COVER-FRM-ELB-LOW.

- Tighten the screws starting from the center and working outwards. If tightened improperly, the slide guide will move stiffly.
- Do not tangle the high voltage cable.

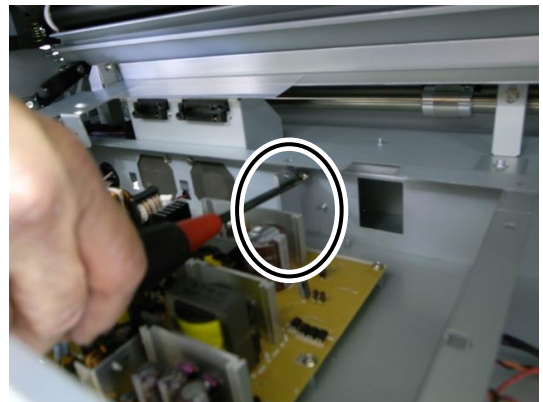


11. Unplug all connectors connected to the board.  
Also remove them from their cable clamps.

LV-PS



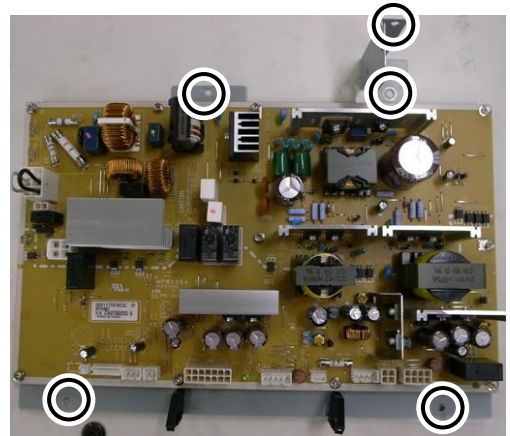
12. Remove the screw fixing the board tray.



13. Remove the five screws as shown in the photo.

**Note**

Screws securing the board are positioned on the metal plate.



14. Remove the board along with the tray.

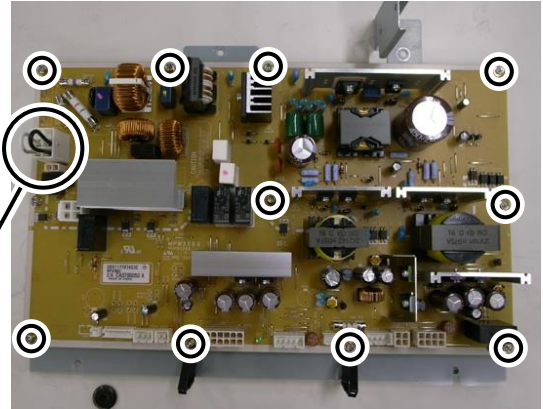


15. Remove all screws securing the board to the tray and remove the LV-PS from the tray.

**Note**

When replacing the LV-PS, transfer the CBL-PHTRJP from the old board to the new. Otherwise, the paper heater will not function properly.

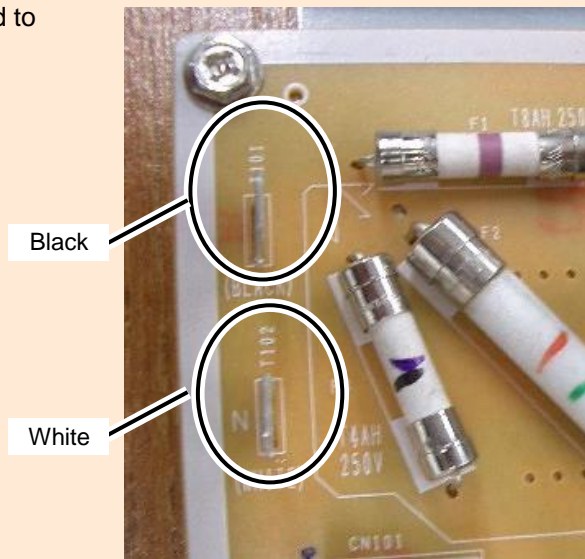
CBL-PHTRJP



**Cautionary Notes When Performing Installation**

Mind the color of the cables connected to the locations shown in the photo.

- Back side cable: Black
- Front side cable: White



**Note**

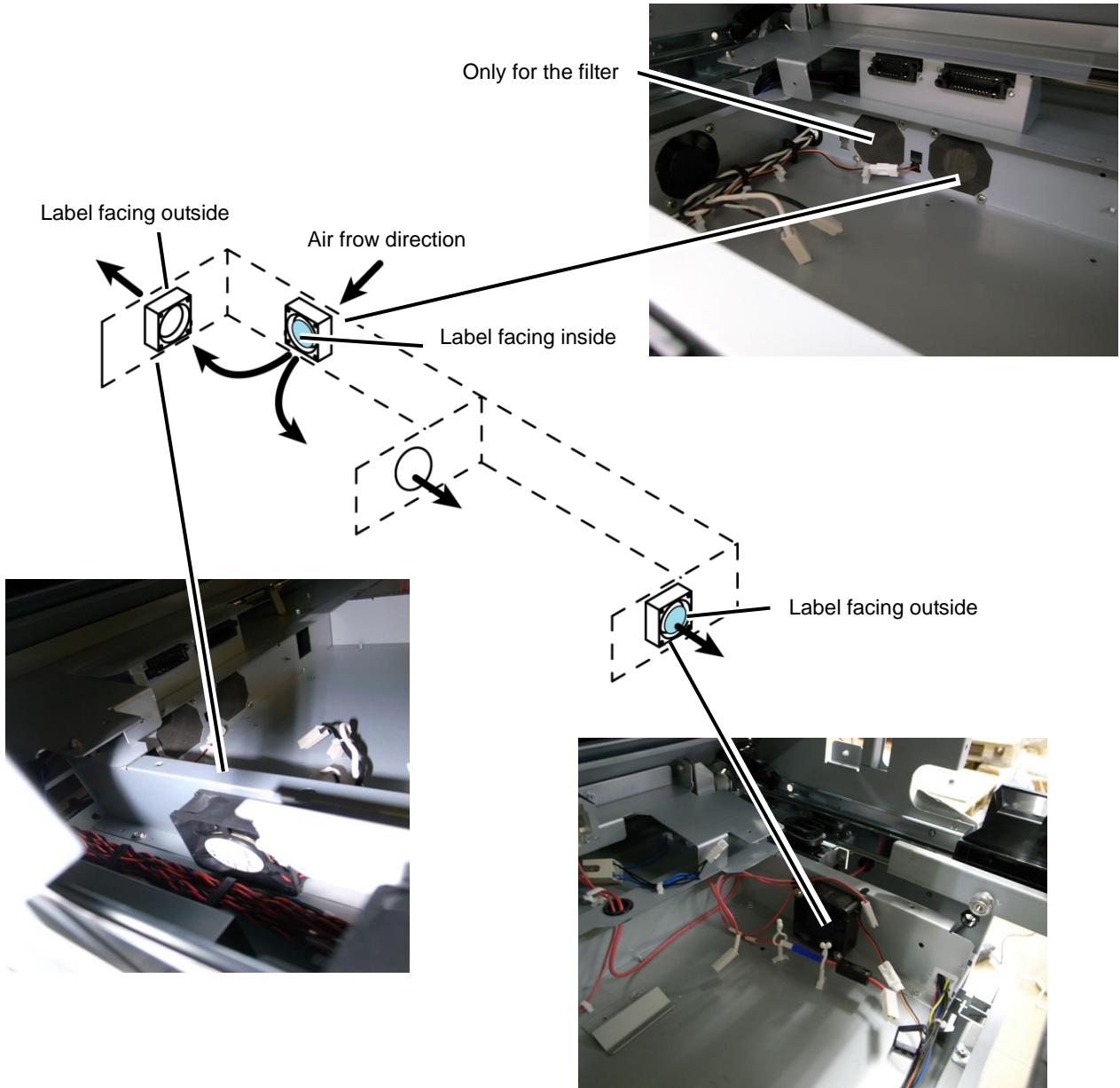
When removing/inserting the cords connected to the locations shown in the above photo, hold the connector (housing) of the cord and plug it in or unplug it so that it is parallel with the circuit board. Do not try to plug/unplug at an angle.



9.8.10 [BL05-01][BL05-03][BL05-04] BL05 ASSY MNT

**Note**

When installing the BL05-01, 03, 04, pay attention to the orientation (label direction) as the lateral sides and back side differ.



<Removal>

1. Remove the circuit board as it is in the way when replacing the fan (see the items discussed previously for replacing the circuit board).
2. Unplug the connector from the fan you are about to replace, and unscrew the two screws to remove the unit.

Open the drawer for roll 1 and insert your hand from underneath to remove the BL05 on the back.



## 9.8.11 [HV-PS] HV(4CH)-PSU-T2 MNT

**Note**

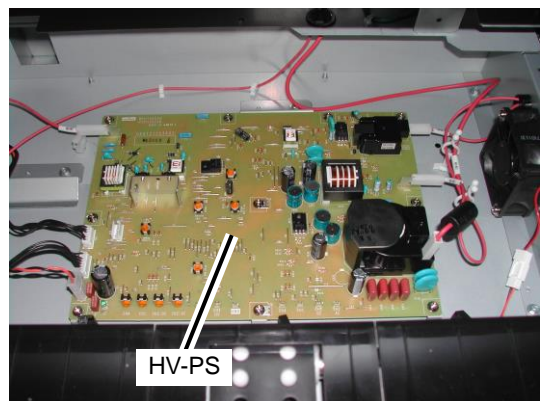
Depending on when your high voltage power unit was manufactured, it may be made up of only one or two different circuit boards.

- If the high voltage power unit contains only one circuit board  
The board is [HV-PS] HV(4CH)-PSU-T2 MNT.  
-> (a) See **One circuit board configuration removal ([HV-PS] HV(4CH)-PSU-T2 MNT)**.
- If the high voltage power unit contains two circuit boards  
The boards are the HV-PSU-LSP2 MNT and HV(TC)-PSU-T2 MNT.  
-> (b) See **Two circuit board configuration removal (HV-PSU-LSP2 MNT, HV(TC)-PSU-T2 MNT)**.
- To change two circuit board configuration into a single circuit board configuration.  
-> (c) See **Changing a two circuit board configuration (HV-PSU-LSP2 MNT, HV(TC)-PSU-T2 MNT) to a one circuit board configuration ([HV-PS] HV(4CH)-PSU-T2 MNT)**.

**(a) One circuit board configuration removal ([HV-PS] HV(4CH)-PSU-T2 MNT)**

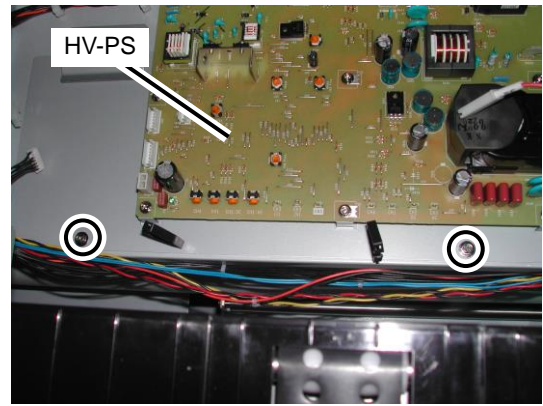
<Removal>

1. Perform steps 1 through 10 in the instructions for replacing the PSU-T2 MNT (see p. 9-66) so that the circuit board can be removed.



2. Unplug all connectors connected to the board. Also remove them from their cable clamps.

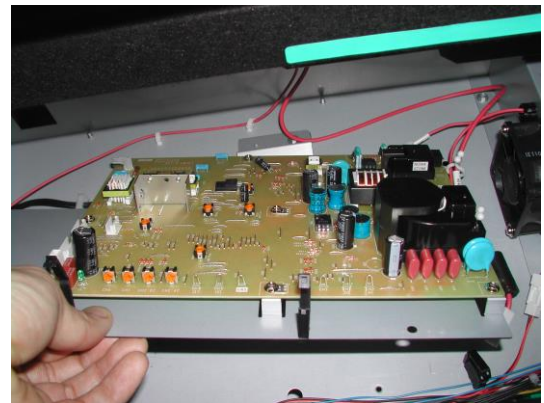
3. Remove the two screws as shown in the photo.



4. Pull out the HV-PS together with the tray.

**Note**

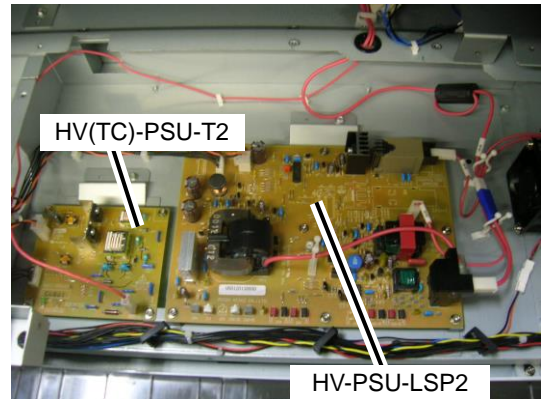
- Be careful not to bend connectors when inserting or removing them. Be especially careful with connectors on the right side of the circuit board. Always support the connected part with your hand when inserting or removing the connector.
- The assembly of the HV-PS and tray is supplied as OKI DATA INFOTECH's recommended part.



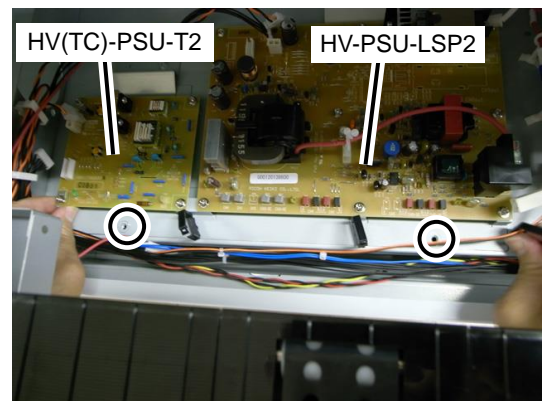
(b) Two circuit board configuration removal (HV-PSU-LSP2 MNT, HV(TC)-PSU-T2 MNT)

<Removal>

1. Perform steps 1 through 10 in the instructions for replacing the PSU-T2 MNT (see p. 9-66) so that the circuit board can be removed.



2. Unplug all connectors connected to the board. Also remove them from their cable clamps.
3. Remove the two screws as shown in the photo.



4. Pull out HV-PSU-LSP2 and HV(TC)-PSU-T2 together with the tray.

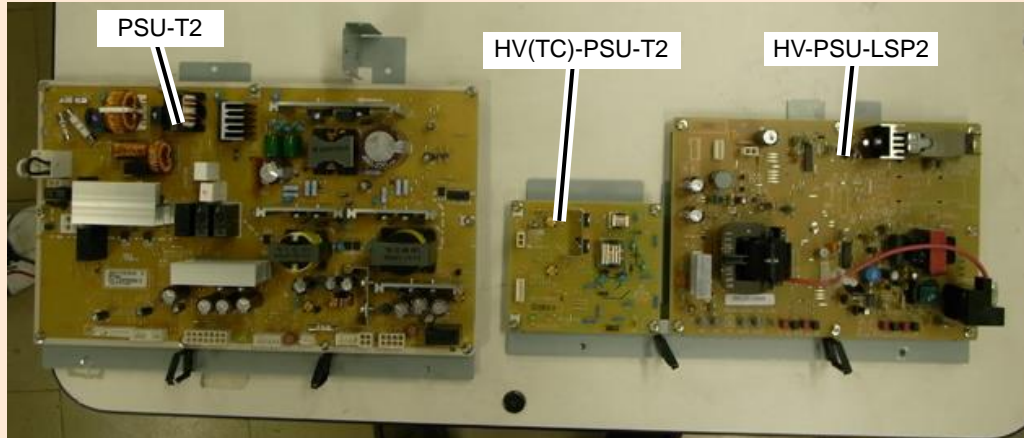
**Note**

Be careful not to bend connectors when inserting or removing them. Be especially careful with connectors on the right side of the circuit board. Always support the connected part with your hand when inserting or removing them the connector.



Note

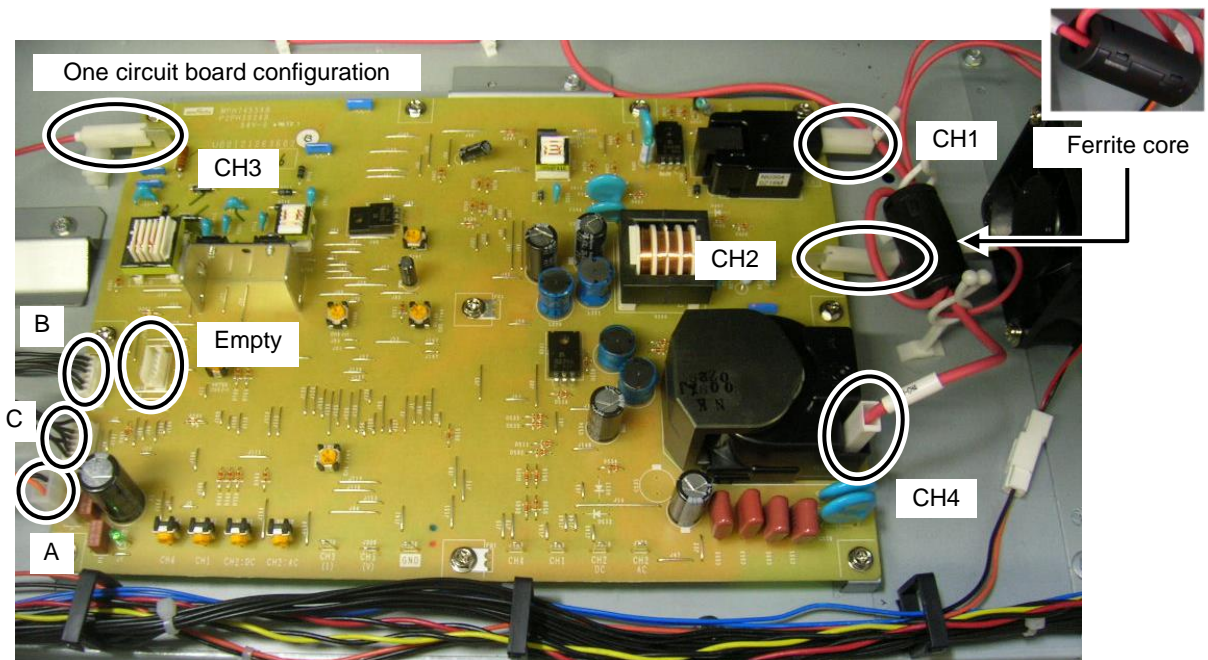
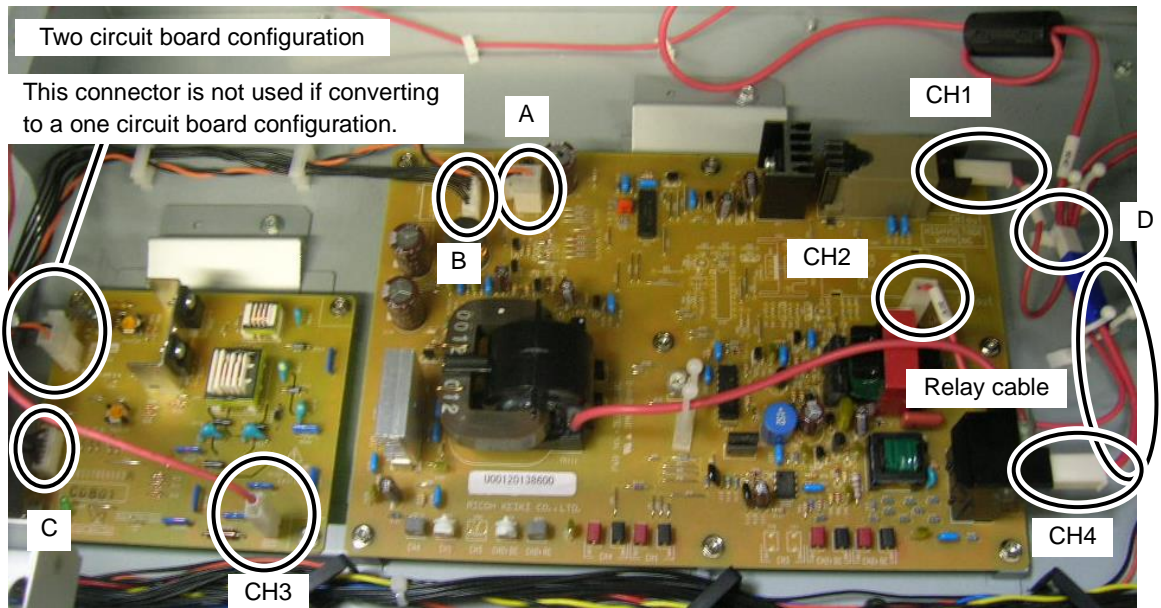
The names and positional relationships for each circuit board are listed below.



(c) Changing a two circuit board configuration (HV-PSU-LSP2 MNT, HV(TC)-PSU-T2 MNT) to a one circuit board configuration ([HV-PS]HV(4CH)-PSU-T2 MNT)

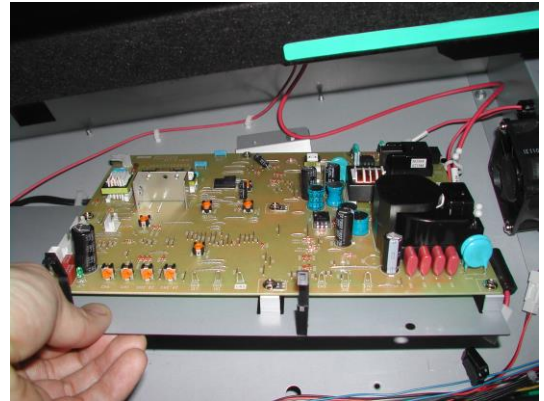
**Note**

- Remove the relay cable from CH4's wiring.
- Note that trays are not compatible between one and two circuit board configurations.



<Modification instruction>

1. Remove both HV-PSU-LSP2 and HV(TC)-PSU-T2 (see p. 9-66).
2. Install the HV(4CH)-PSU-T2.
3. Connect the cables so that the labels of the high voltage cables CH1 to CH4 correspond to the high voltage board's serigraphed indication.



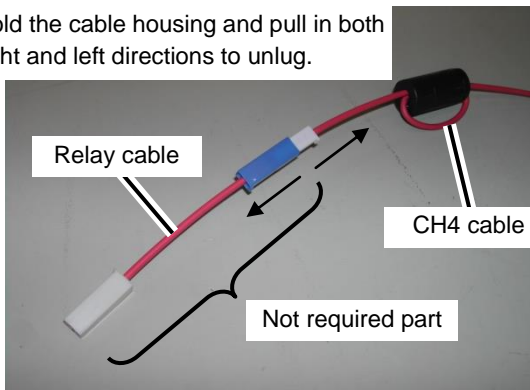
**Note**

If the cable C shown in the previous page is short, remove the clamp and adjust the cable length.

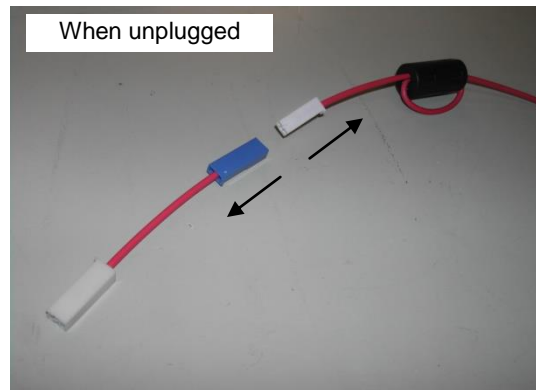
- When changing the board configuration, connect the A, B, and C connectors shown in the previous page as follows: A to A, B to B, and C to B
  - After removing the relay cable, connect the D connector to CH4.
- \*The removed relay cable is not required anymore.

Remove the relay cable from the CH4 cable, and then connect the remaining CH4 cable to CH4 connector on the board.

Hold the cable housing and pull in both right and left directions to unplug.

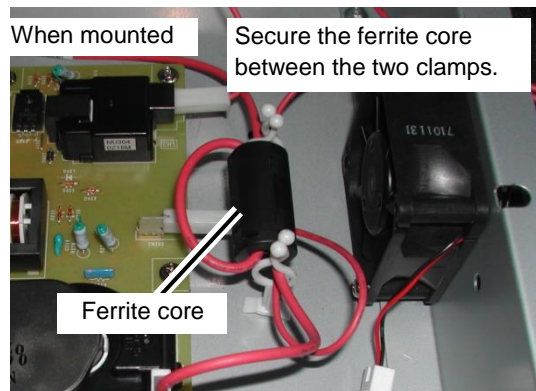


When unplugged



When mounted

Secure the ferrite core between the two clamps.



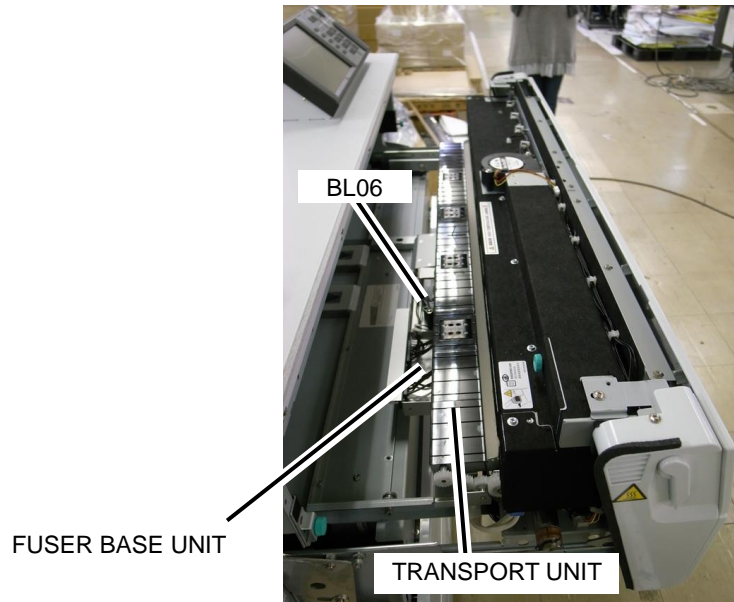


## 9.9 FUSER BASE UNIT

### 9.9.1 [BL06] BLOWER FAN,BL01,02,06 MNT

<Removal>

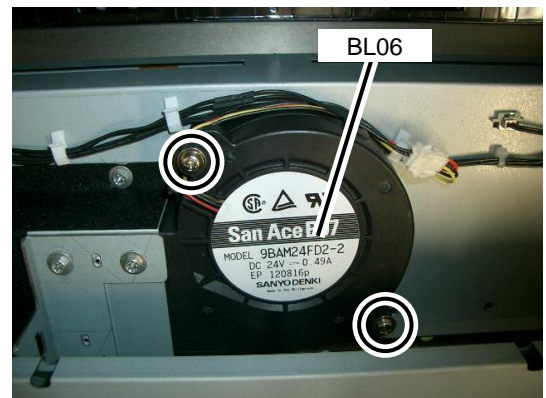
1. Open the fuser unit drawer.



2. Remove the TRANSPORT UNIT (see p. 9-226).
3. Unplug the connector.
4. Remove the BL06 with two screws.

#### Note

When removing the BL06, pull it out towards the Printer itself in order to avoid hitting the plate above it.



## 9.10 FUSER UNIT

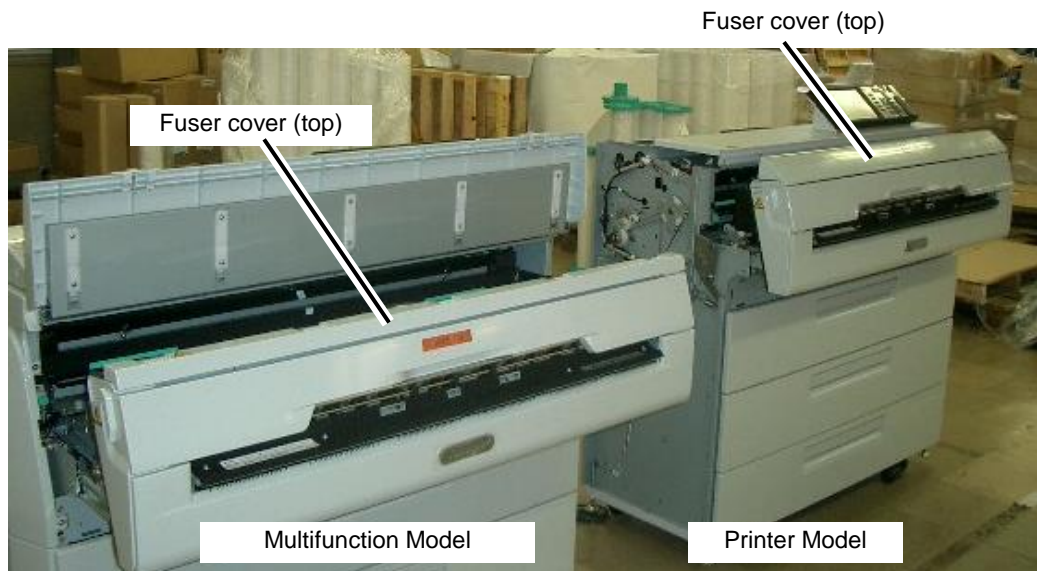
### 9.10.1 FUSER UNIT LOW,WITHOUT HEATER,MNT

#### Note

After disassembling and re-assembling this unit, perform skew/slack calibration (see p. 10-20).

<Removal>

1. Open the fuser unit drawer.
2. Remove the fuser cover (top)  
(see p. 9-11).

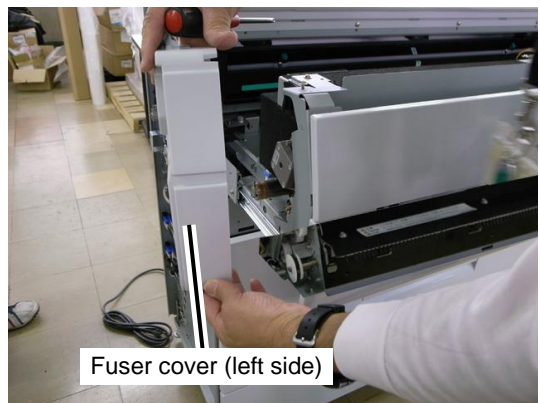


3. Remove the fuser cover (see p. 9-16).

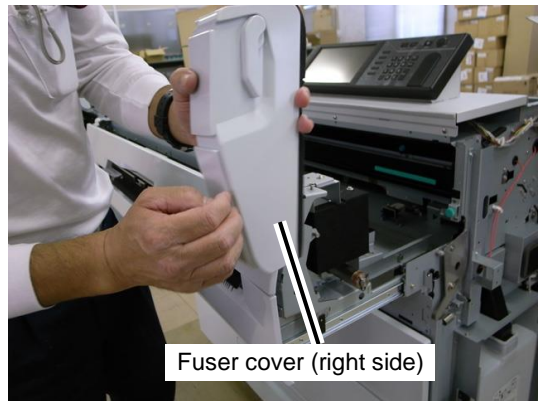
Fuser cover



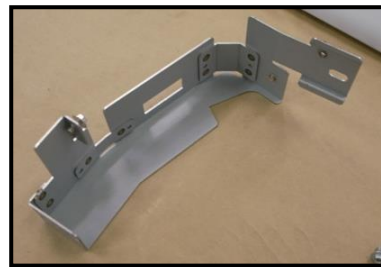
4. Remove the fuser cover (left side) (see p. 9-12).



5. Remove the fuser cover (right side) (see p. 9-14).

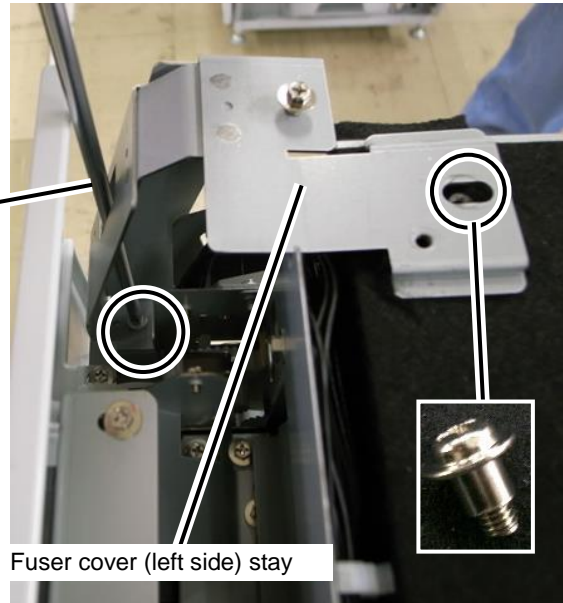


6. Remove the fuser cover (left side) stay with two screws.



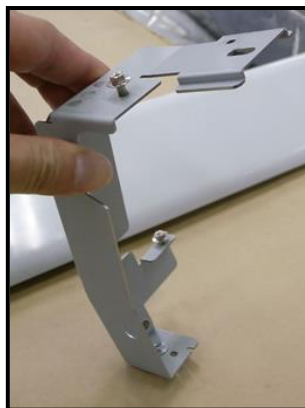
Fuser cover (left side) stay

Screwdriver insertion position

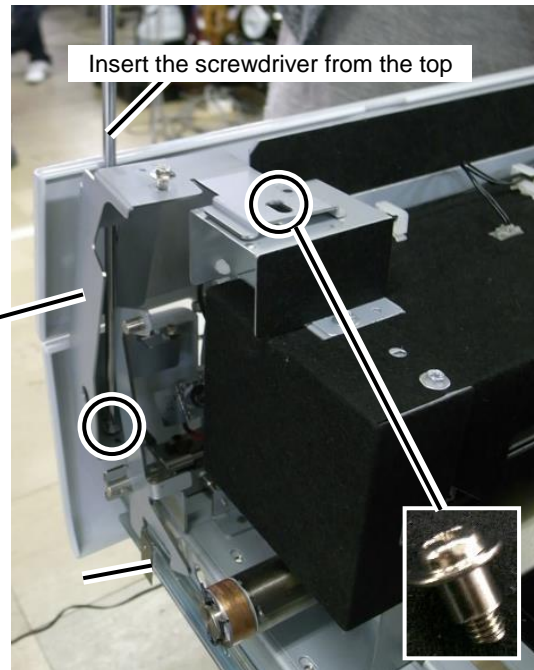


Fuser cover (left side) stay

7. Remove the fuser cover (right side) stay with two screws.

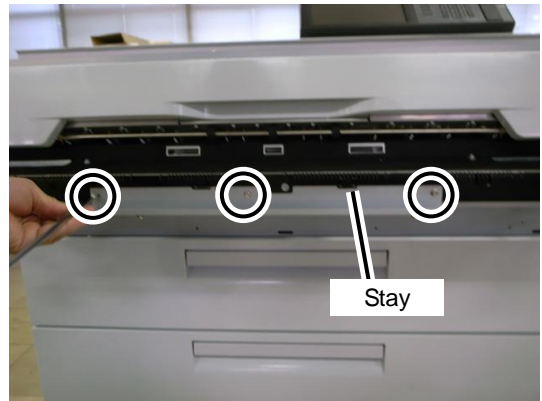


Fuser cover (right side) stay



Insert the screwdriver from the top

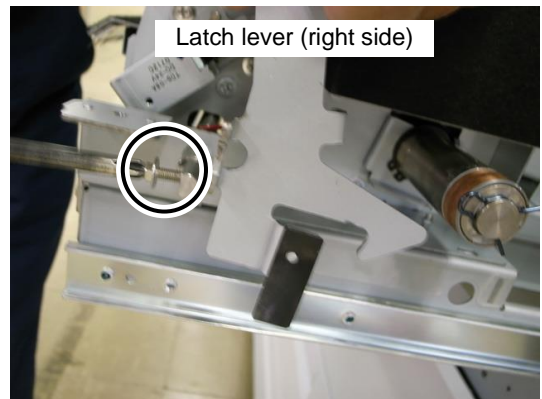
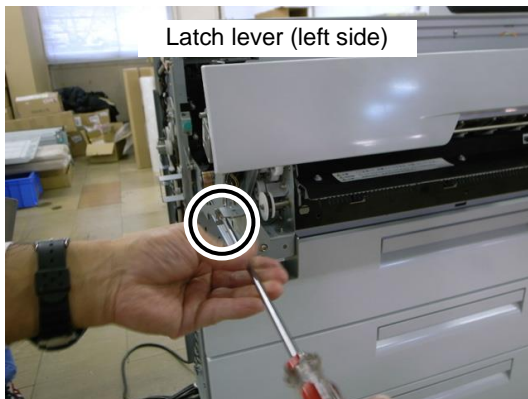
8. Remove the stay with three screws at the location shown in the photo.



9. Remove the right and left latch levers with one screw each.

**Note**

When removing the left latch lever, be careful so that the spring does not shoot out from the shaft.

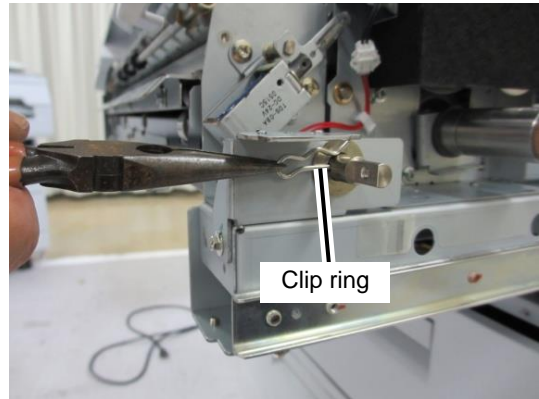
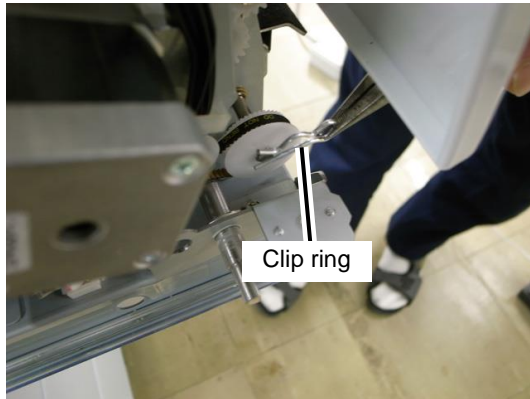


10. Remove the clip rings.

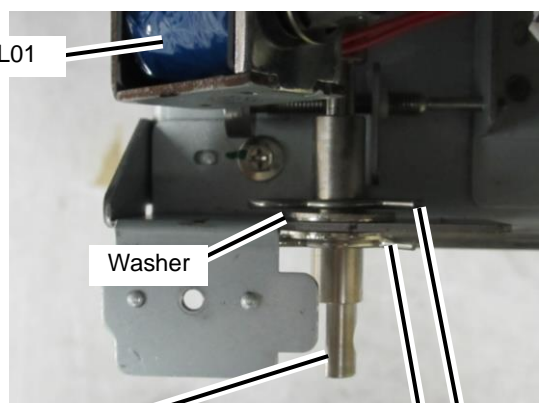
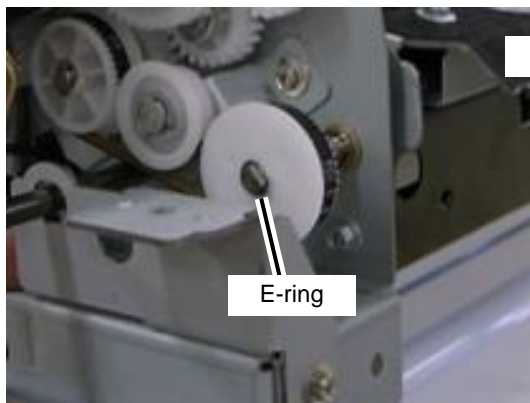
**Note**

Clip rings are classified into two depending on the purchase date.

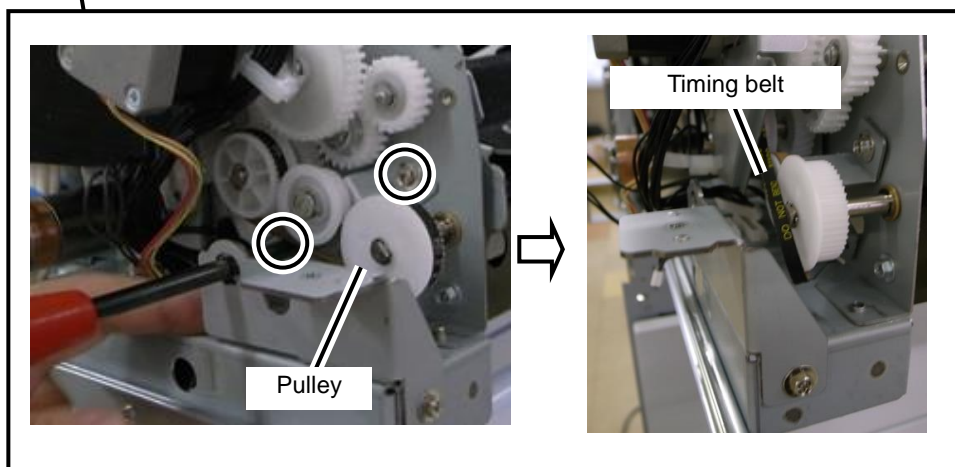
**Type 1**



**Type 2**



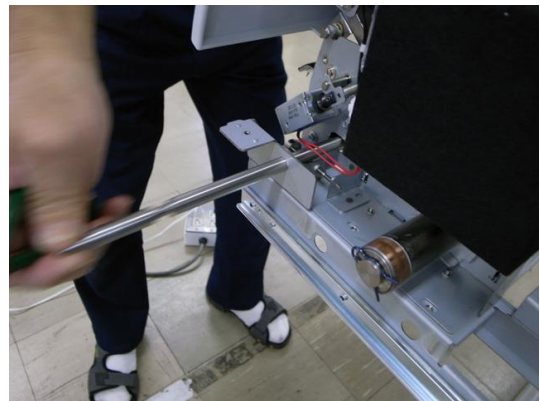
11. Loosen the two screws shown in the photo to loosen the timing belt.



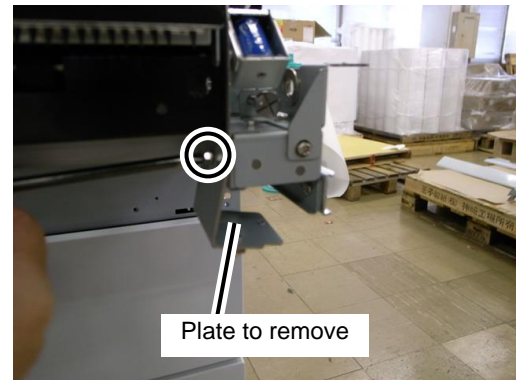
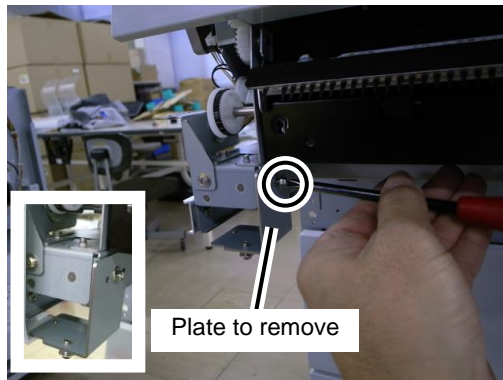
12. Remove the shaft.

**Note**

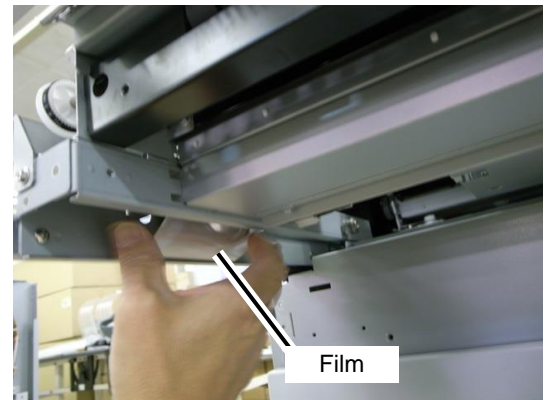
Be careful not to lose the washers on the right and left.



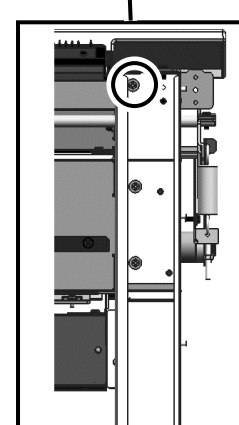
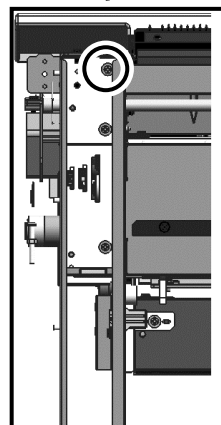
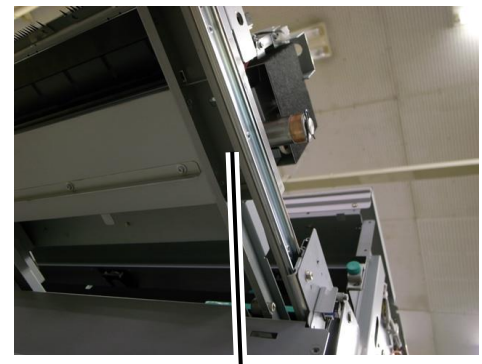
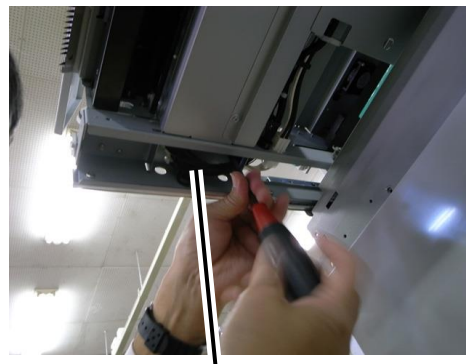
13. Remove the plates on the right and left sides at the bottom of the unit.



14. Remove the film on the bottom of the unit.

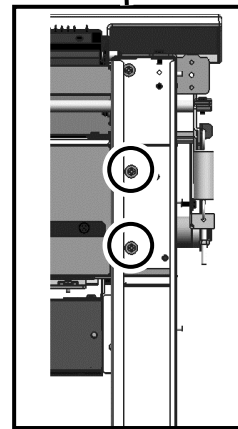
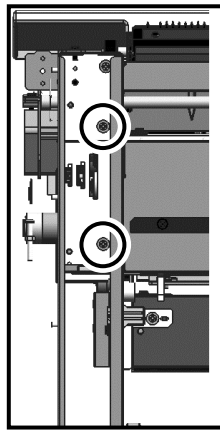
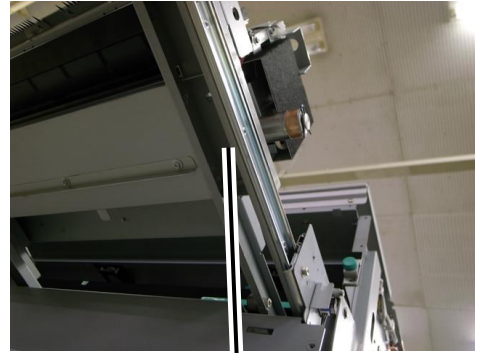
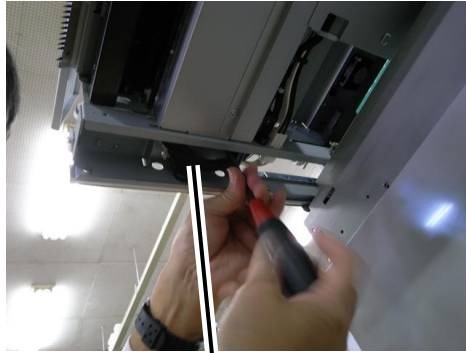


15. Remove the one screw on the right and the one screw on the left from the bottom of the unit as shown in the photo.





- 16.** Remove the two screws on the right and the two screws on the left from the bottom of the unit as shown in the photo.

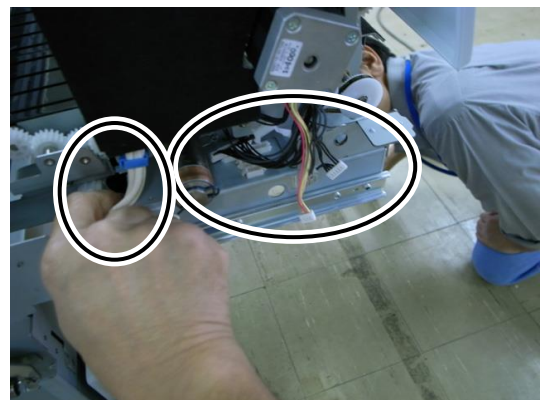


- 17.** Loosen the screw for adjusting the alignment on the left side of the unit until it is out of the screw hole.

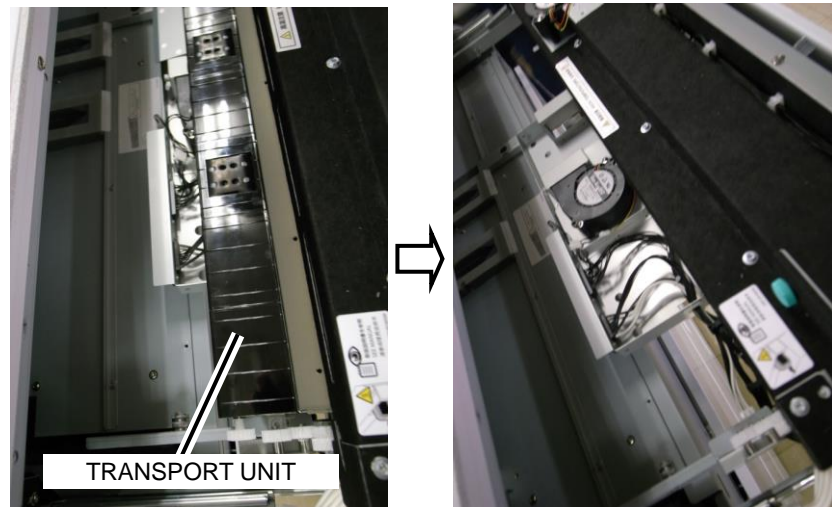


- 18.** Remove the SHEET CARBON BR MNT with three screws as shown in the photo. Also unplug the halogen heater connector.

Also, remove the SL01's connector in the opposite side.



- 19.** Remove the TRANSPORT UNIT  
(see p. 9-226).



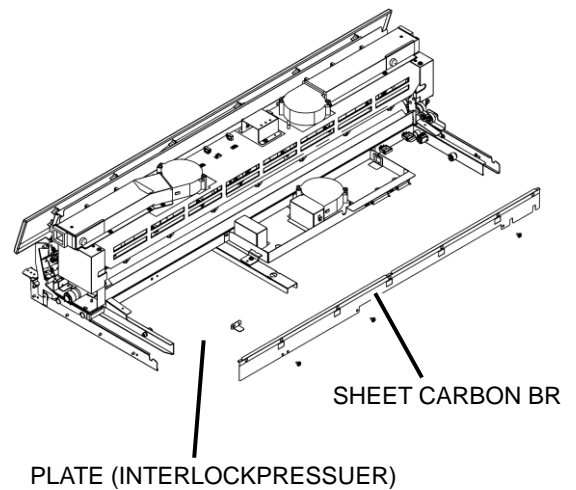
- 20.** Remove the SHEET CARBON BR with three screws as shown in the figure  
(See p. 9-127).

**Note**

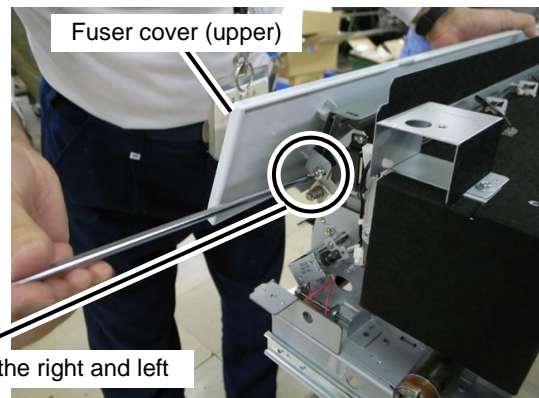
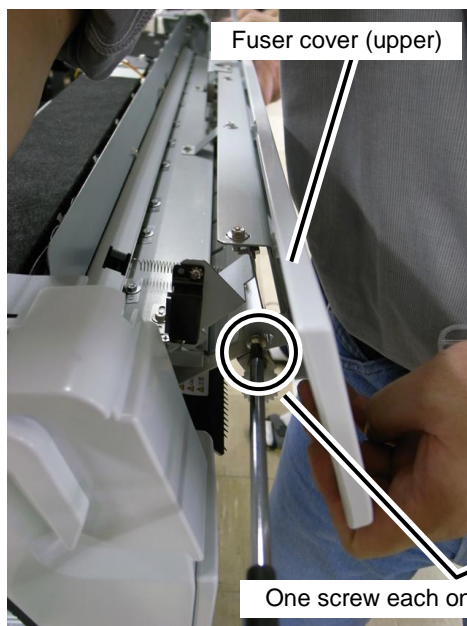
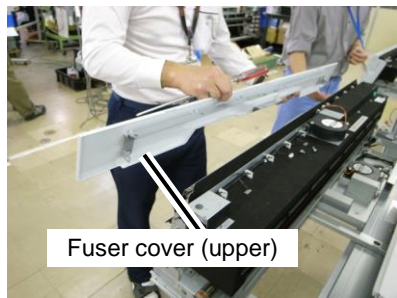
Carefully handle the SHEET CARBON BR as it is broken easily.

**Cautionary Notes When Performing Installation**

Do not forget to install the PLAT (INTERLOCKPRESSUER) removed together with the SHEET CARBON BR in step 20.



21. Remove the fuser cover (top)  
(see p. 9-11).



22. Keep the UPPER-PAPER-GUIDE-ASSY open and use a pair of needle-nose pliers to remove the clip rings on both sides.

**Note**

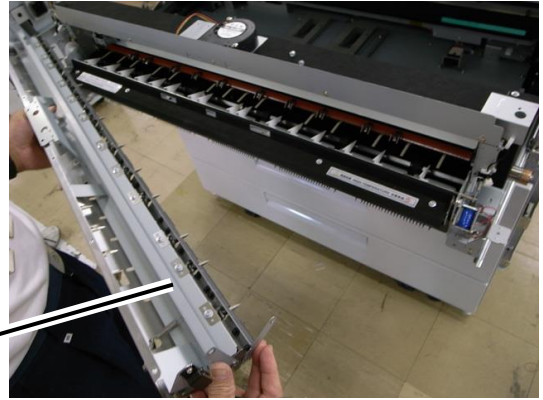
You are recommended to cover the area with large paper so that you can easily find clip rings dropped.



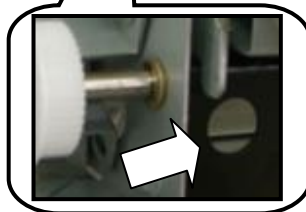
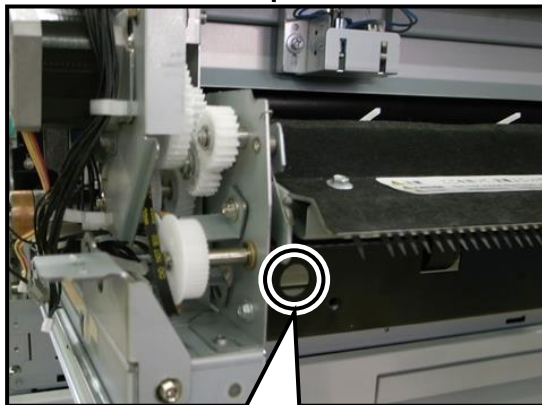
Clip ring, one per side

- 23.** Pull the UPPER-PAPER-GUIDE-ASSY toward you, slide it to the left, and pull out towards you from the right side to remove it.

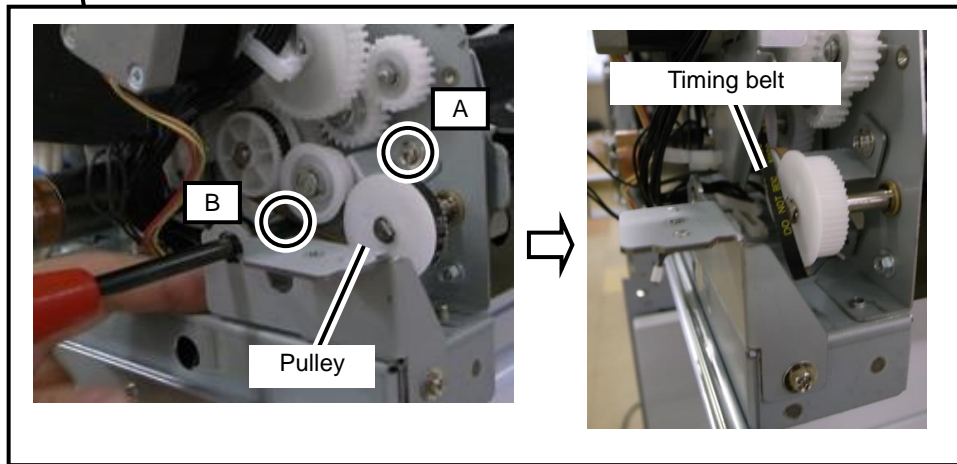
UPPER-PAPER-GUIDE-ASSY



- 24.** Remove the one screw on the right and the one screw on the left as shown in the photo.



25. Loosen the screw A. Then unscrew the screw B to remove the timing belt from the pulley, so that the EXTENSION PAPER OUT KIT(LOW) is released.



**Cautionary Notes When Performing Installation**

When installing the timing belt, adjust its tension so that the timing belt does not bent or loosened. Then fix the pulley's screw.

26. Remove the EXTENSION PAPER OUT KIT (LOW).

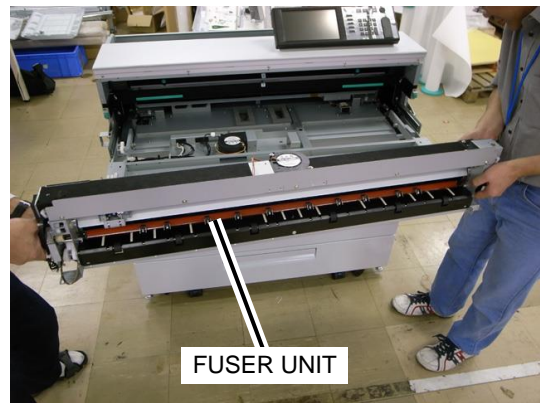


EXTENSION PAPER OUT KIT(LOW)

**27.** Remove the FUSER UNIT.

**Note**

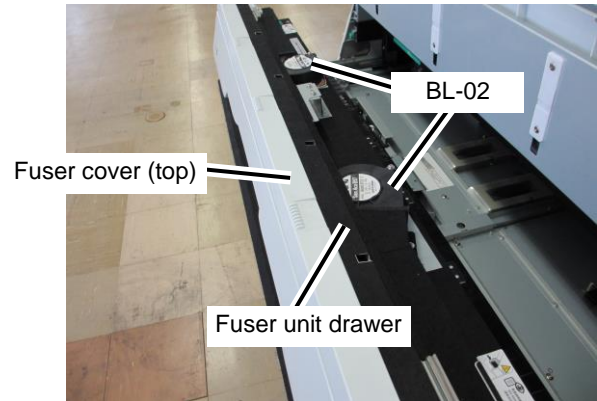
- Always carry the bottom of the unit with two people.
- The recommended part FUSER UNIT, WITHOUT HEATER, MNT consists of this unit with the HALOGEN LAMP MAIN and HALOGEN LAMP SUB removed (see p. **9-99** for information about removing these parts).



### 9.10.2 [BL-02] BLOWER FAN, BL01,02,06 MNT

<Removal>

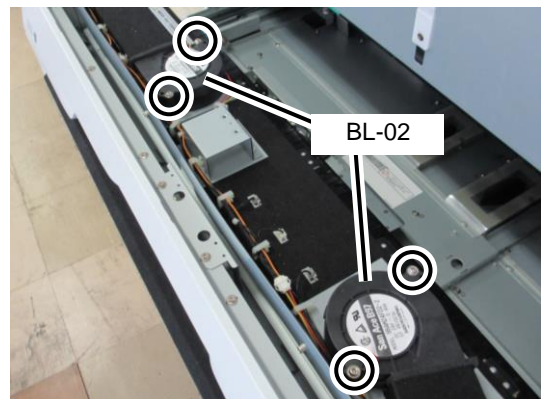
1. Open the fuser unit drawer.
2. Remove the fuser cover (top)  
(see p. 9-11).



3. Remove the BL02 connectors.
4. Remove the BL02 with two screws.

#### Cautionary Notes When Performing Installation

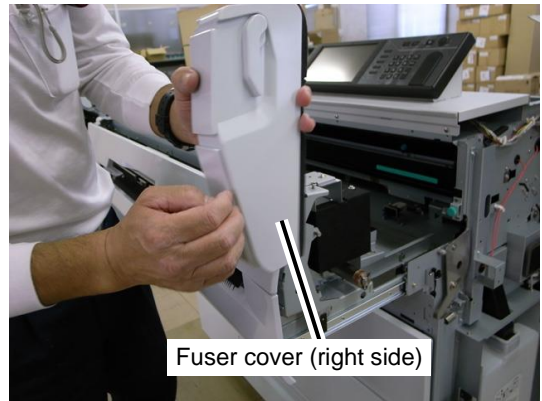
Tighten the screws after connecting the BL02 duct with the duct on the plate side.



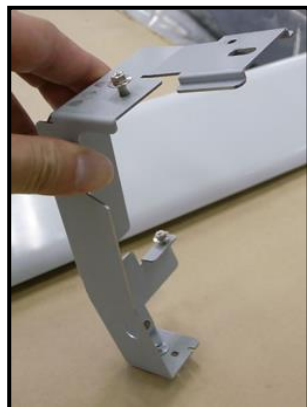
### 9.10.3 SL01 LOW MNT

<Removal>

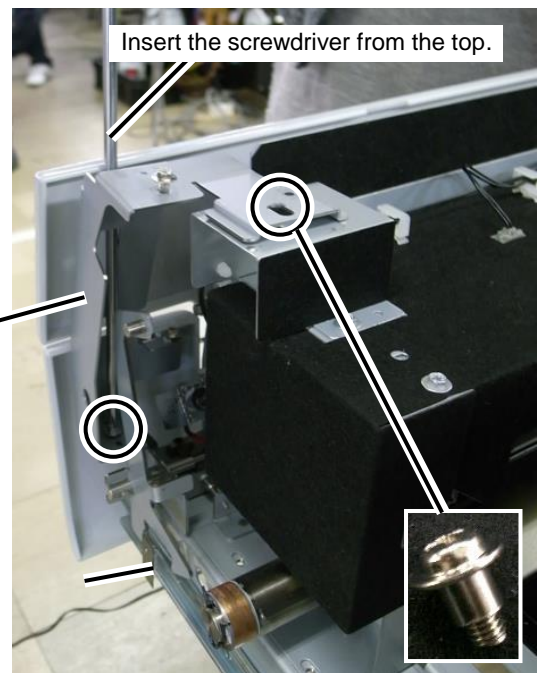
1. Open the fuser unit drawer.
2. Remove the fuser cover (right side) (see p. 9-14).



3. Remove the fuser cover (right side) stay with two screws.



Fuser cover (right side) stay



4. Unplug SL01's cord connectors.





- Remove the two screws and remove SL01 together with the bracket.

**Cautionary Notes When Performing Installation**

The two screws in this location must be adjusted when installing.

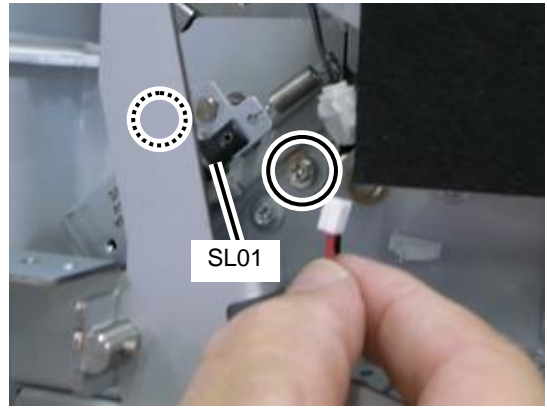
<Checking>

Print a engine test pattern, and check that the Printer outputs the paper normally based on the Shutter (output) operation.

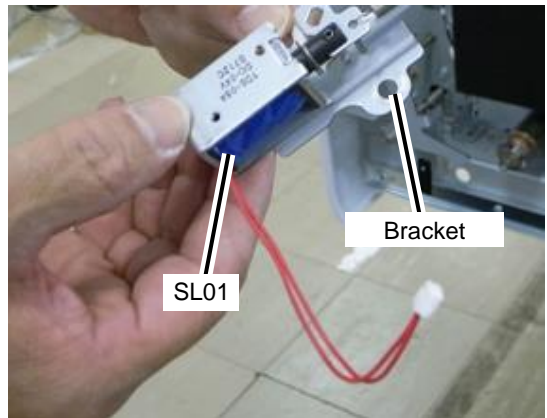


Shutter (outlet)

If there are any problems, adjust the upper/lower position (see p. 10-56).



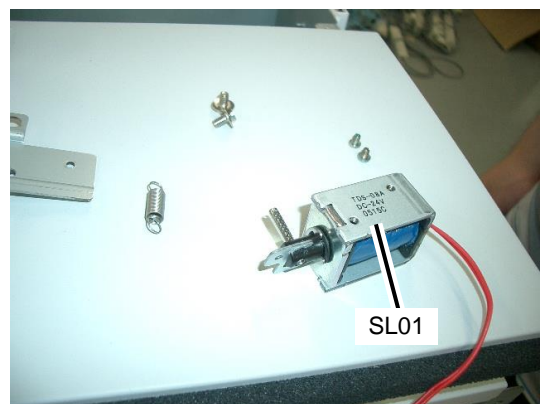
SL01



Bracket

SL01

- Remove the two screws and detach SL01 from the bracket.

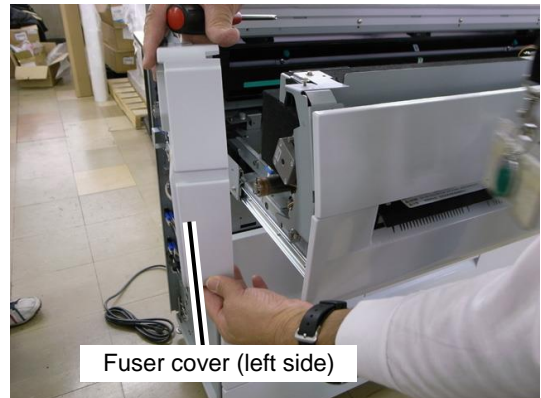


SL01

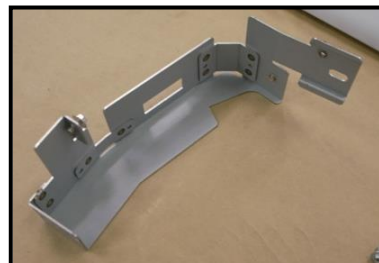
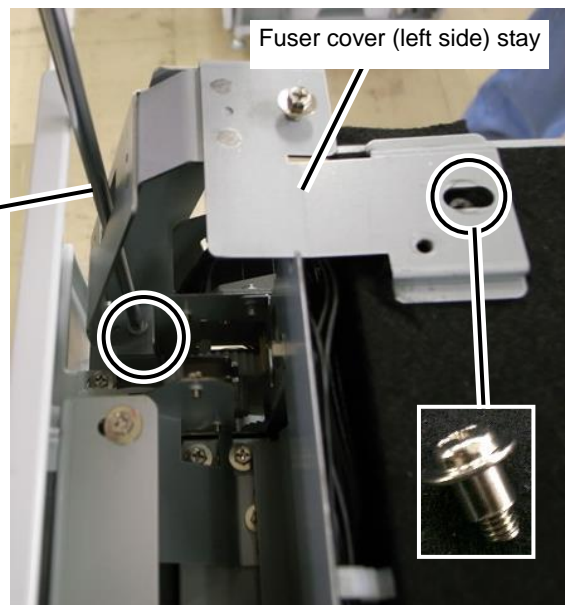
## 9.10.4 [HM01] MOTOR HM MNT

<Removal>

1. Open the fuser unit drawer.
2. Remove the fuser cover (left side) (see p. 9-12).



3. Remove the fuser cover (left side) stay with two screws.

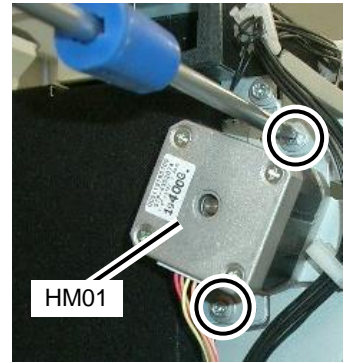


Fuser cover (left side) stay

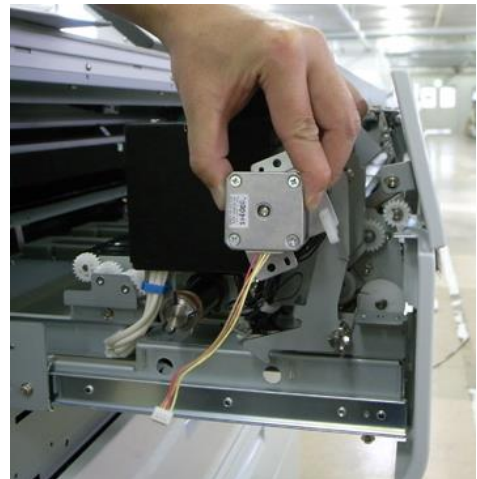
4. Unplug the connector.



5. Remove the two screws.



6. Remove all cords from their cable clamps.
7. Remove the HM01 together with the bracket.



8. Remove the HM01 with the two screws from the bracket.

**Cautionary Notes When Performing Installation**

When installing, align the extruding points with the holes in the bracket.



## 9.10.5 SPUR FUSER MNT

<Removal>

1. Widen the plate spring to the right and left to remove.

### Note

Be careful not to widen the spring too far.



### 9.10.6 [FL01][FL02] Halogen Heater

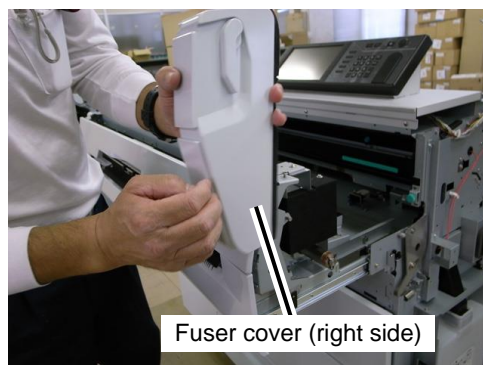
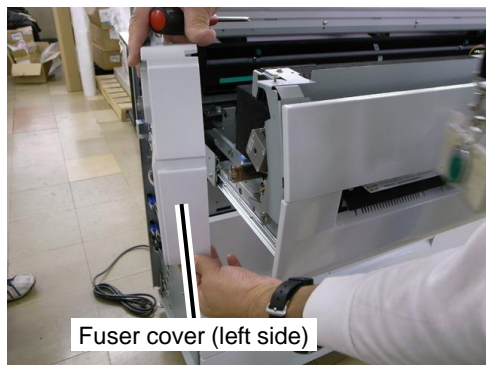
**Note**

The HALOGEN HEATER has both a [FL01]MAIN and a [FL02]SUB heater, and the specifications for each will vary depending on the destination market for the Printer.

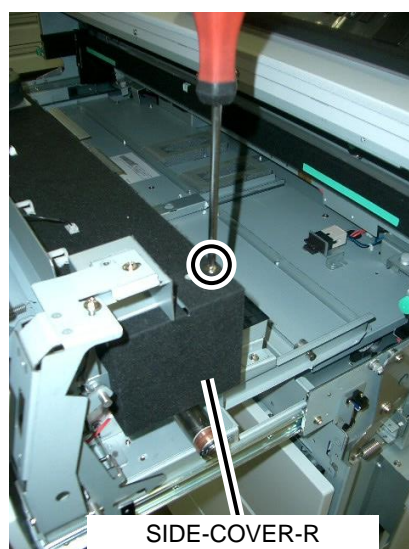
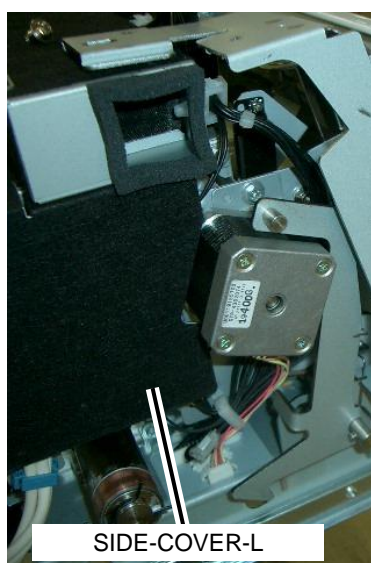
- Japan: HALOGEN LAMP MAIN 100V-600W MNT and HALOGEN LAMP SUB 100V-600W MNT
- North America: HALOGEN LAMP MAIN 120V-600W MNT and HALOGEN LAMP SUB 120V-600W MNT
- Europe/China: HALOGEN LAMP MAIN 230V-600W MNT and HALOGEN LAMP SUB 230V-600W MNT

<Removal>

1. Follow steps 1 through 5 in subsection 9.10.1 to remove the fuser cover (left side) and fuser cover (right side) (see p. 9-12 and p. 9-14).



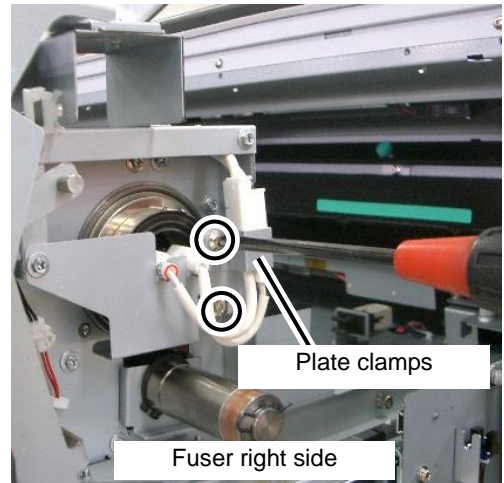
2. Remove SIDE-COVER-L and SIDE-COVER-R with one screw each.



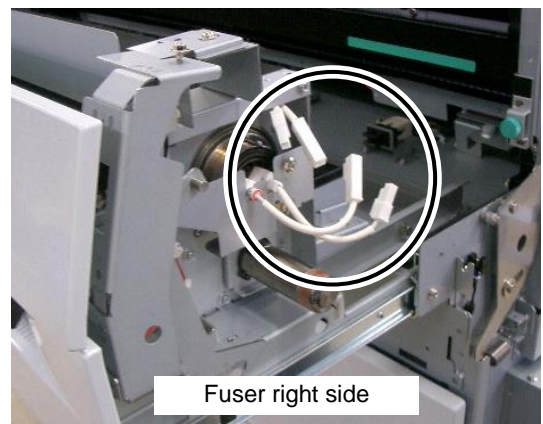
3. Remove the plate clamp with two screws on the right side of the fuser.

**Cautionary Notes When Performing Installation**

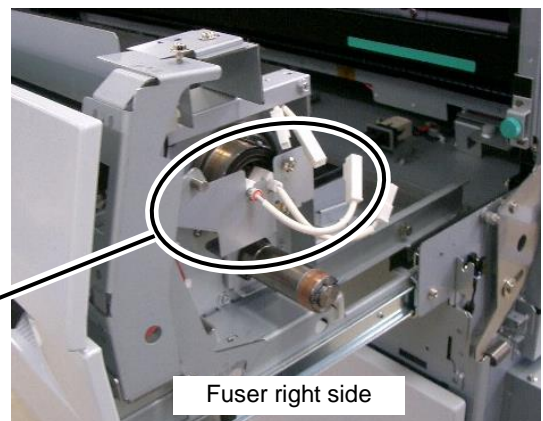
Use the photo shown here as a guide so that the connectors are inside the clamps when assembling.



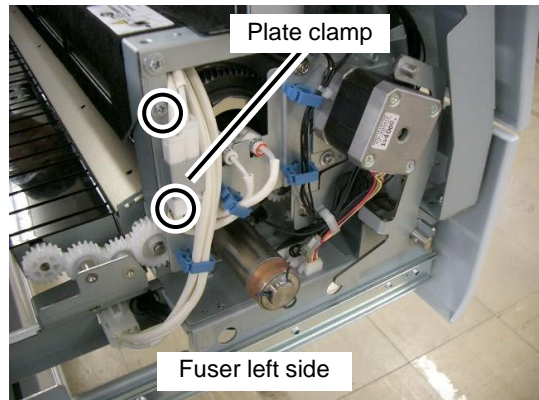
4. Unplug the connector.



5. Remove the metal plate with two screws at the location shown in the photo.



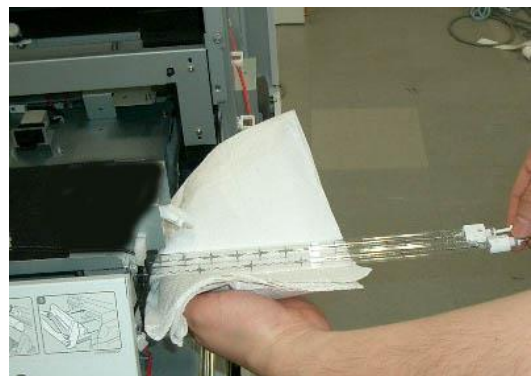
6. Remove the plate clamp with two screws on the left side of the fuser.



7. Remove all light blue colored cable clamps and unplug all connectors.

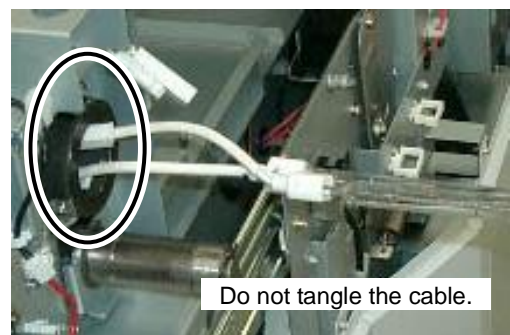


8. Hold down the halogen heater with a non-woven fabric cloth and pull out both the FL01 and FL02 halogen heaters from the right side of the unit.



**Note**

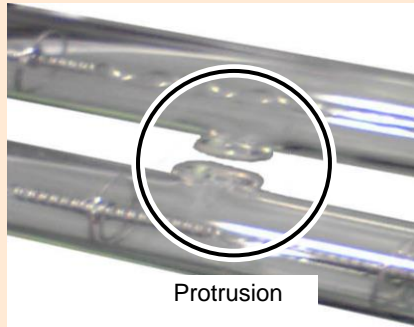
- Handle the halogen heaters carefully, as they are very fragile.
- Remove the cables and connectors carefully, as they may snag easily on other parts.



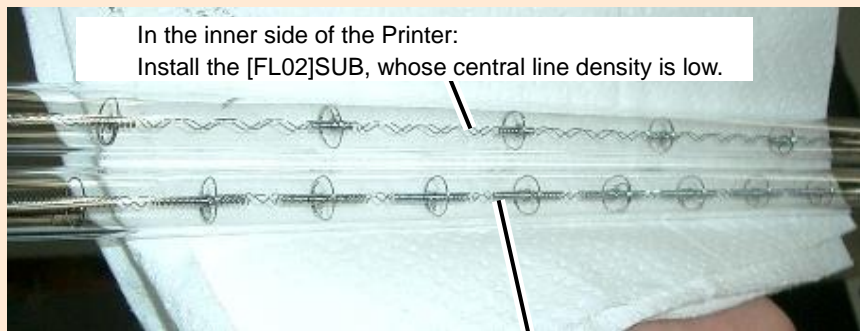
<Installation>

**Cautionary Notes When Performing Installation**

- Do not touch the transparent glass part of the halogen heater you are going to use for replacement. If touched, wipe off the surface of the glass with an alcohol based cleaner.
- Be careful not to let the protruding glass portions of the halogen heaters hit each other.

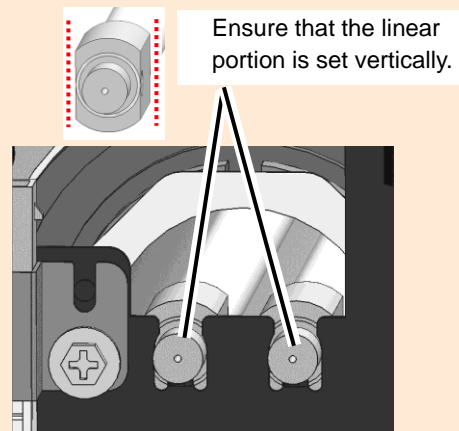
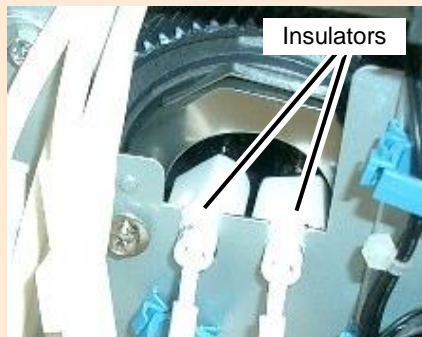


- Note that the central line density is different between the main and sub halogen heaters. When installing them, be careful of their installation position.



In the outer side of the Printer:  
Install the [FL01]MAIN, whose central line density is high.

- After replacing, be sure to align the halogen heater position again.
- When installing, make sure that the insulators on both sides of the halogen heater are inserted securely into the grooves on the plate. Also, make sure that the insulators linear portions stay vertically (do not lay them down or put them at an angle).

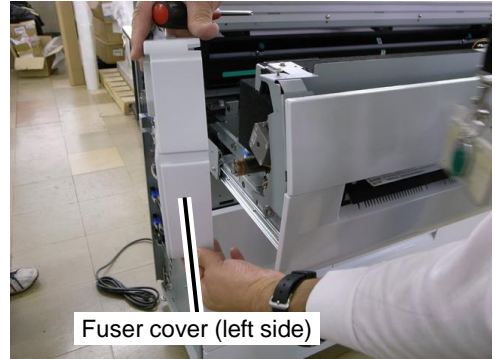




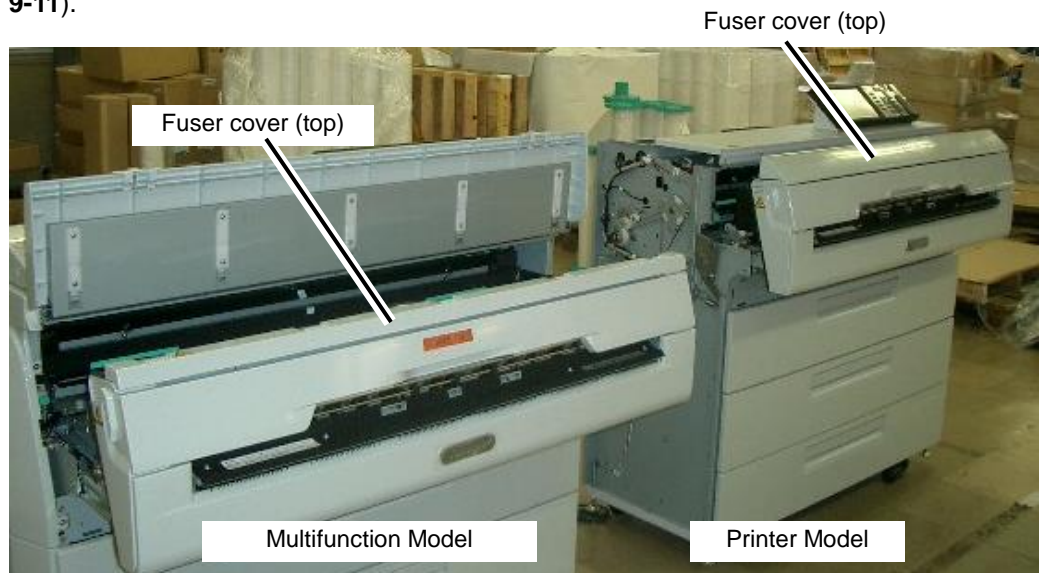
### 9.10.7 TORQUE LIMITER MNT

<Removal>

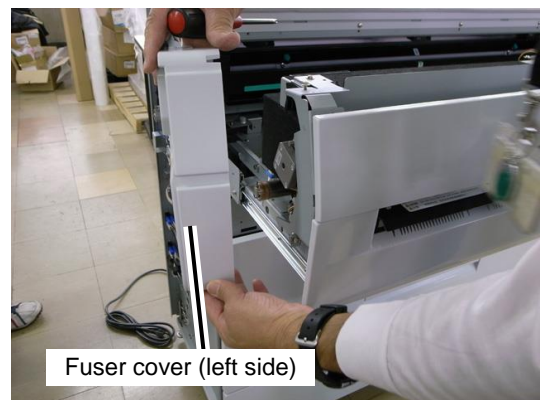
1. Open the fuser unit drawer.



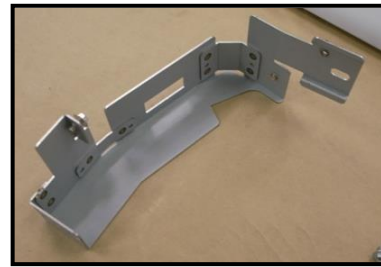
2. Remove the fuser cover (top)  
(see p. 9-11).



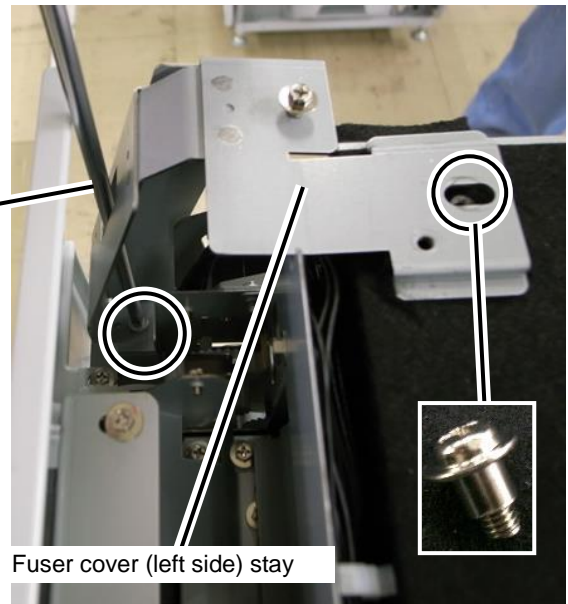
3. Remove the fuser cover (left side)  
(see p. 9-12).



4. Remove the fuser cover (left side) stay with two screws.



Fuser cover (left side) stay



5. Remove the fuser cover (lower) (see p. 9-16).

Fuser cover (lower)



6. Remove the SIDE-COVER-L with one screw.



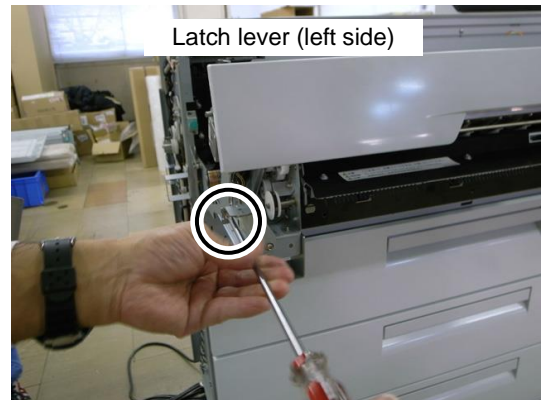
7. Remove all three connectors on the motor's lower part.



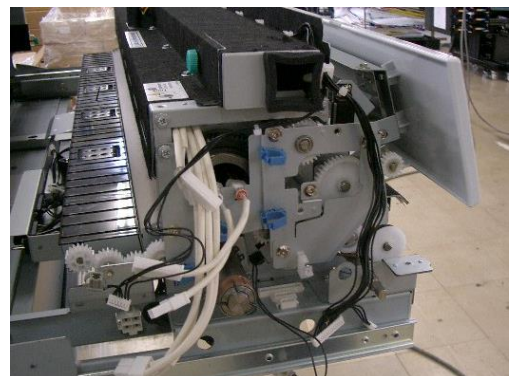
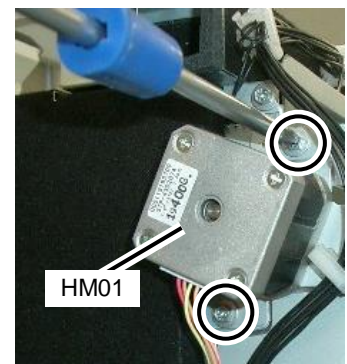
8. Remove the left latch lever with one screw.

**Note**

Be careful so that the spring does not shoot out from the shaft.

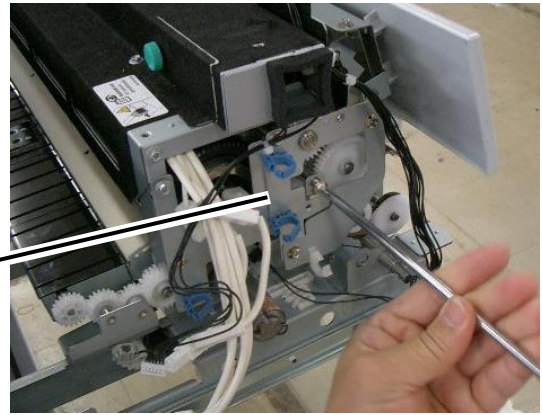


9. Remove the HM01 with two screws.

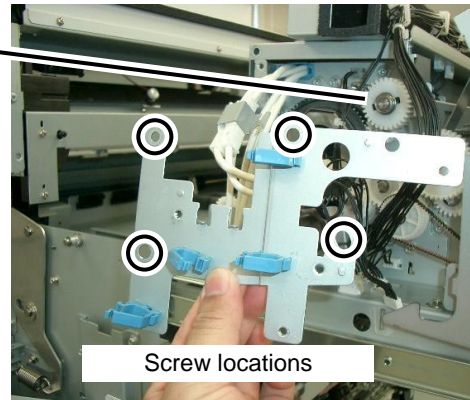


10. Remove the plate with four screws at the location shown in the photo.

Plate to remove



TORQUE

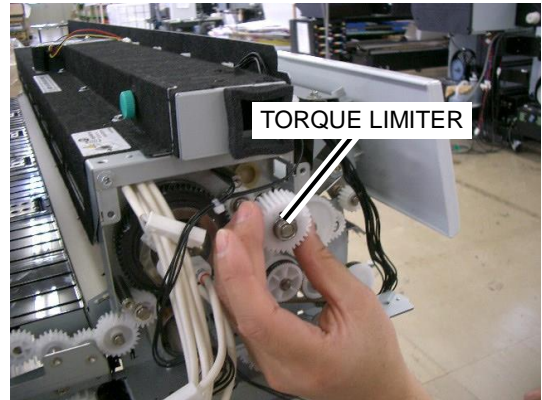


**Note**

Hold on to the TORQUE LIMITER gear when removing the plate to prevent the gear from falling.

11. Remove the TORQUE LIMITER with the gear.

TORQUE LIMITER



12. Separate the TORQUE LIMITER from the gear.

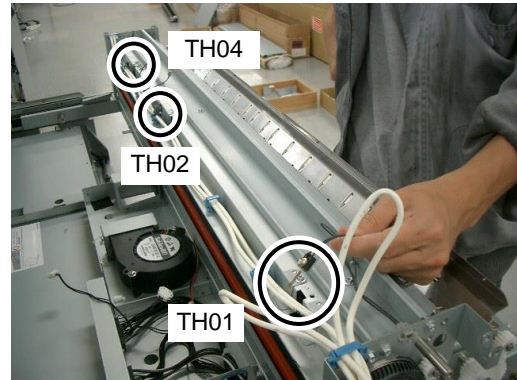
TORQUE LIMITER



### 9.10.8 [TH01][TH02][TH04] THERMISTOR and TH01,02,04,05 MNT

**Note**

Handle the TH01,TH02, and TH04 carefully, as is easily bent.



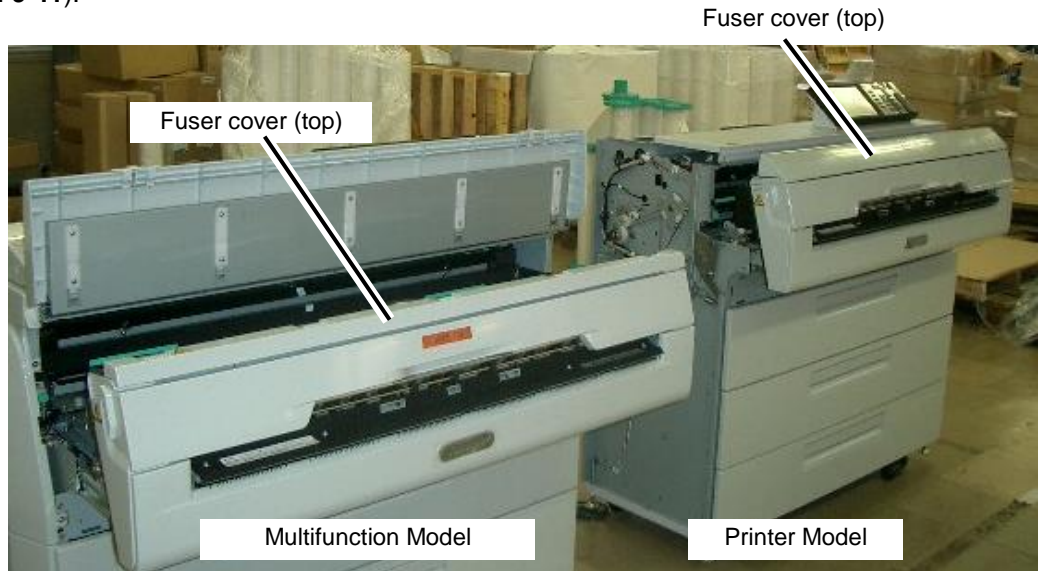
<Removal at three locations below the UP FAN-FLAME>

**Note**

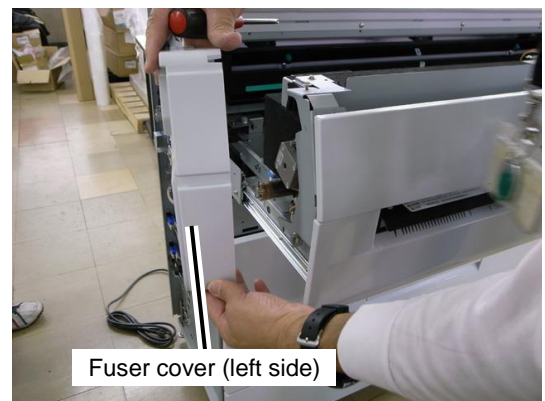
- Remove the TH01,TH02, and TH04 in the three locations below the UP FAN-FLAME in the same way.
- The removal process for the TH05 (ROLLER BACK UP ST MNT) is different from the one for TH01,TH02, and TH04 and will be explained later in this guide.

< Removal of TH01, TH02, and TH04 >

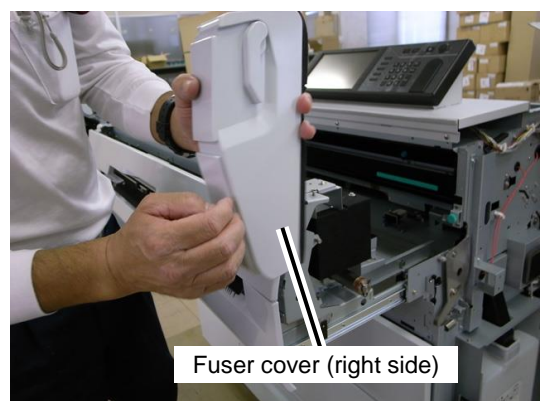
1. Open the fuser unit drawer.
2. Remove the fuser cover (top)  
(see p. 9-11).



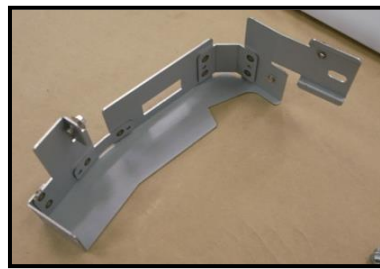
3. Remove the fuser cover (left side)  
(see p. 9-12).



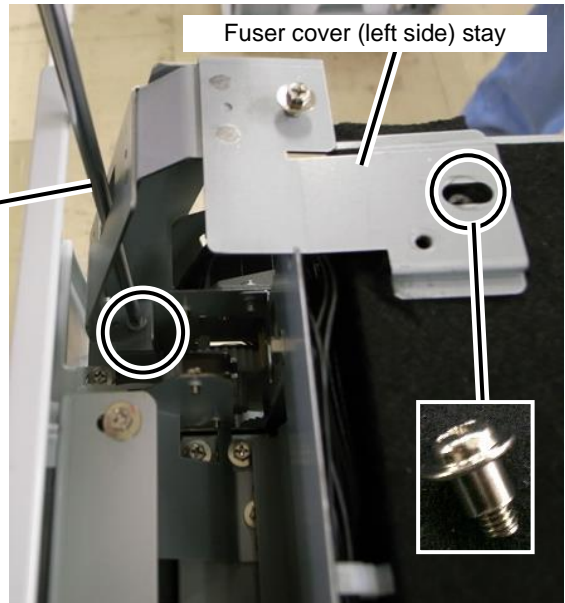
4. Remove the fuser cover (right side)  
(see p. 9-14).



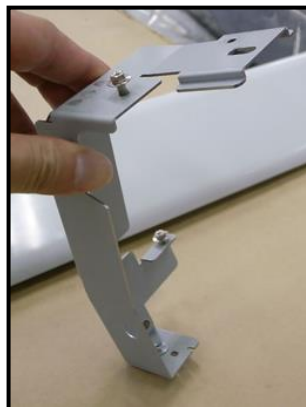
5. Remove the fuser cover (left side) stay with two screws.



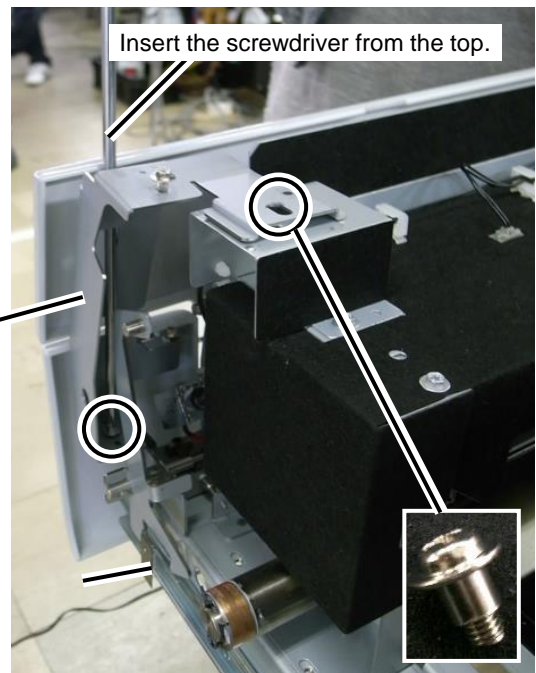
Fuser cover (left side) stay



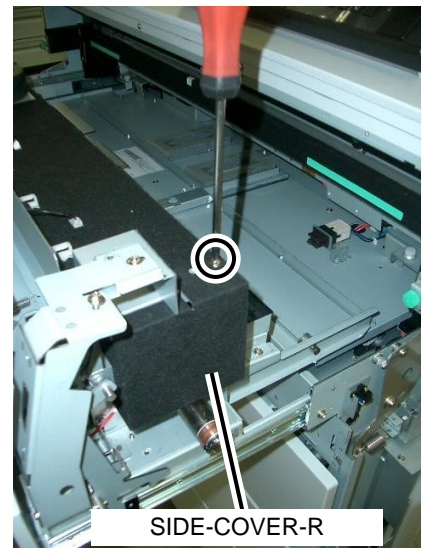
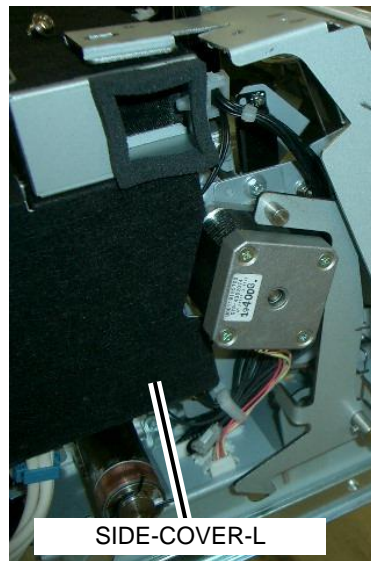
6. Remove the fuser cover (right side) stay with two screws.



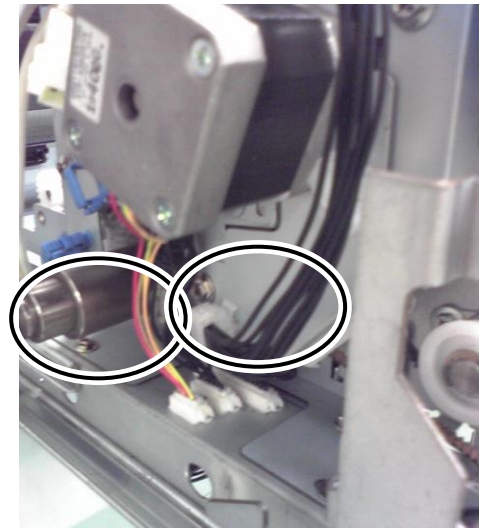
Fuser cover (left side) stay



7. Remove the SIDE-COVER-L and the SIDE-COVER-R with one screw each.



8. Unplug the connector for the black cord under the motor on the left side of the unit.



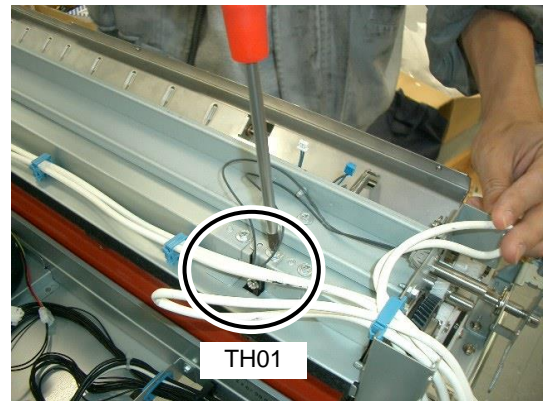
9. With UP FAN-FLAME half-open as shown in the photo, unplug all connected connectors from it.



UP FAN-FLAME



10. After unplugging all connectors, remove UP FAN-FLAME.
11. Unplug the connectors for the TH01, TH02, and TH04.
12. Remove TH01, TH02, and TH04 with one screw, along with the bracket.



13. Remove TH01, TH02, and TH04 with one screw, from the bracket.

**Note**

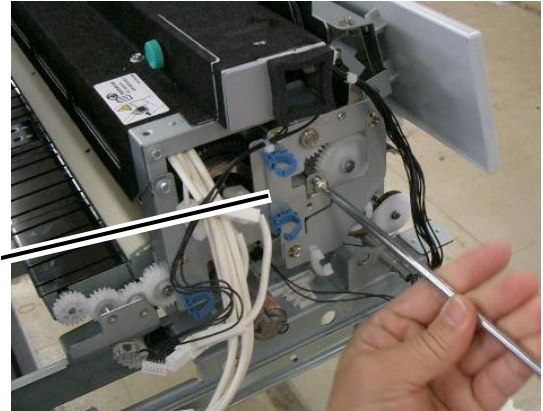
The TH01, TH02, and TH04 at all three locations can be removed in the same procedure.



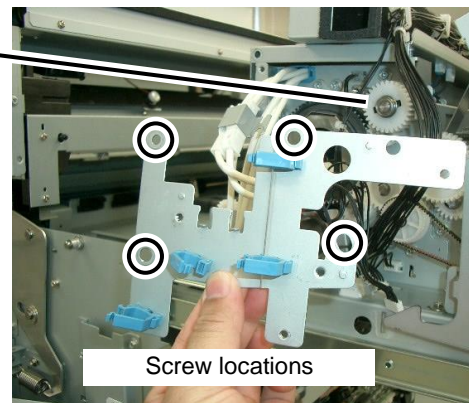
<Removal of TH05>

1. Remove the plate below by following steps 1 through 10 in subsection **9.10.6 TORQUE LIMITER MNT.**

Plate to remove



TORQUE LIMITER MNT

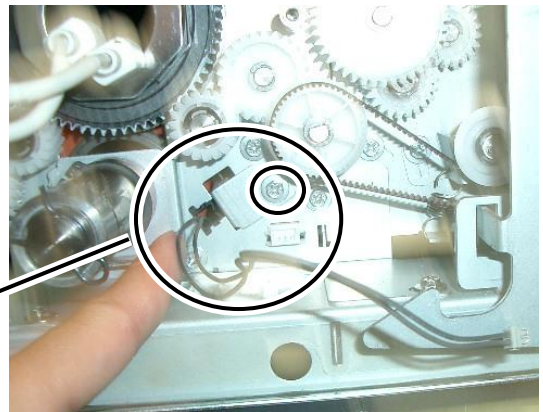


**Note**

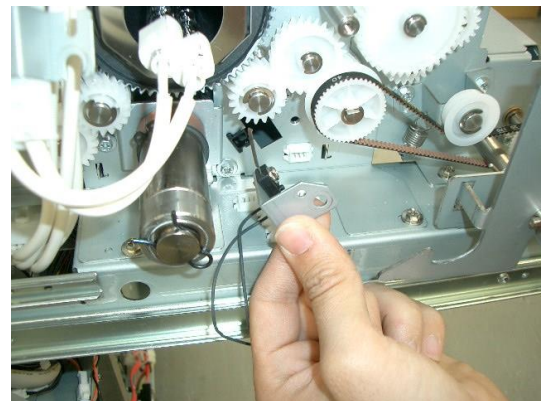
Hold on to the TORQUE LIMITER gear when removing the plate to prevent the gear from falling.

2. Remove the bracket with the TH05 mounted, with one screw.

TH05



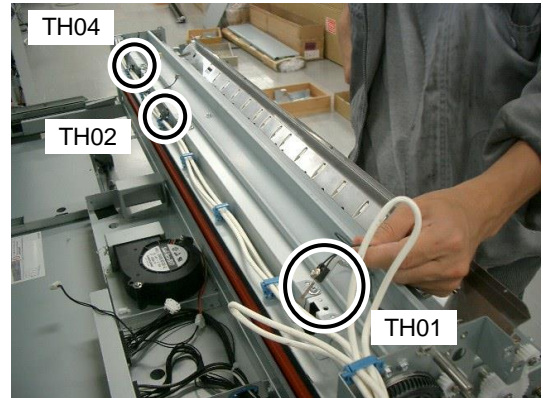
3. Remove the TH05 from the bracket you removed in the previous step.



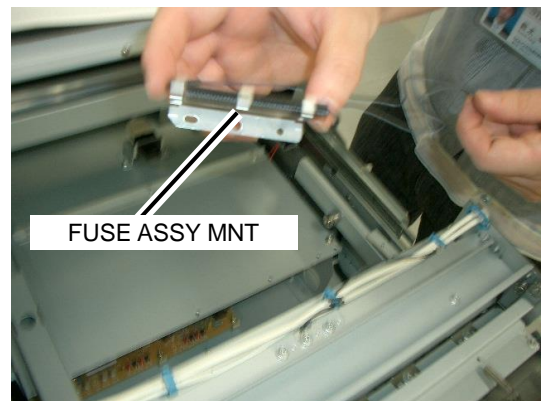
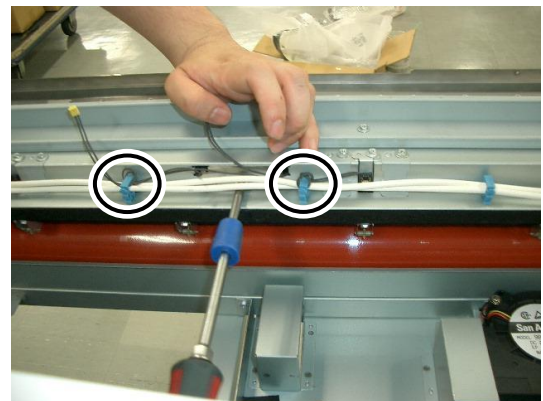
### 9.10.9 FUSE ASSY MNT

<Removal>

1. Follow the procedure in 9.10.8 [TH01][TH02][TH04] THERMISTOR and TH01,02,04,05 MNT to disassemble until TH01, TH02, and TH04 are exposed.



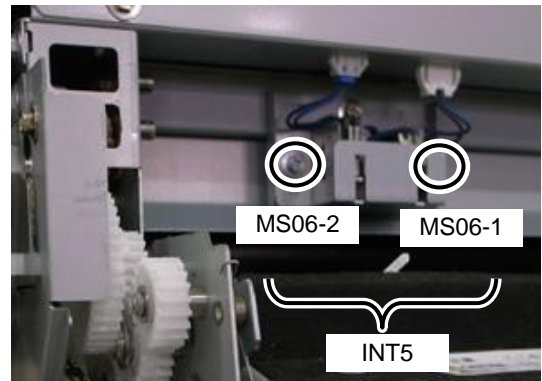
2. Remove the two locking wire saddles to release the halogen heater cables.
3. Remove the one screw from the FUSE ASSY MNT mounted bracket.



### 9.10.10 [MS06-1]MICRO SWITCH,04,05,06-1 MNT and [MS06-2]MICRO SWITCH,06-2 MNT

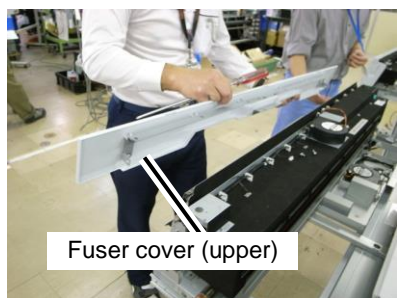
**Note**

INT5 is made up of MS06-1 and MS06-2.



<Removal>

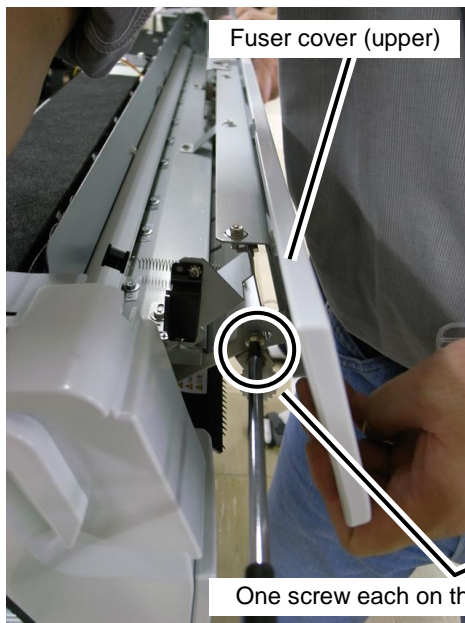
1. Remove the fuser cover (upper)  
(see p. 9-15).



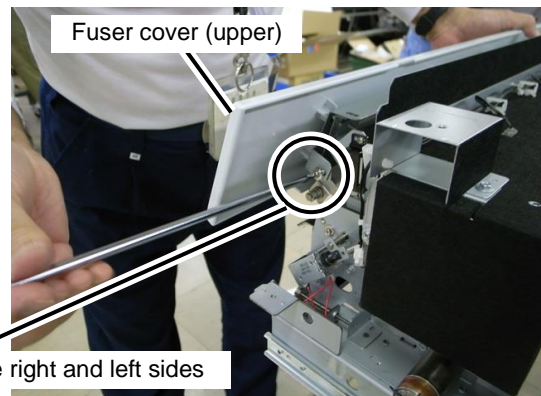
Fuser cover (upper)



10 screws on the top side



One screw each on the right and left sides

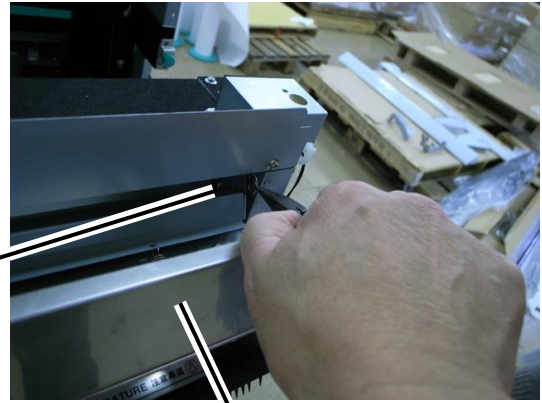


Fuser cover (upper)

2. Keep the UPPER-PAPER-GUIDE-ASSY open and use a pair of needle-nose pliers to remove the clip rings on both sides.

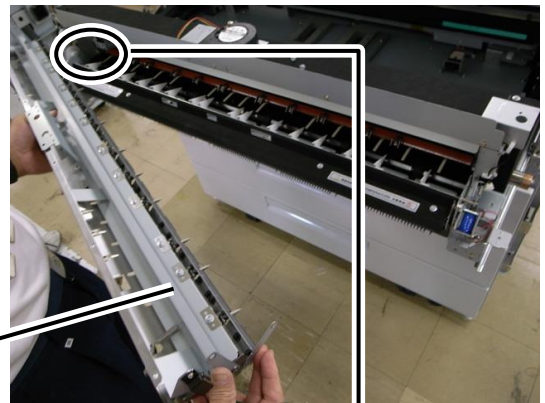


Clip ring, one per side

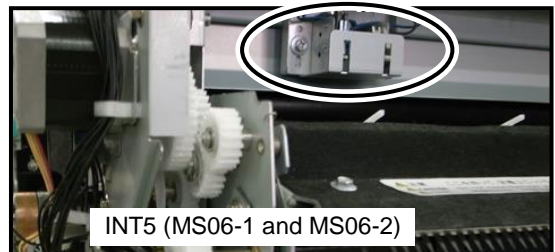


UPPER-PAPER-GUIDE-ASSY

3. Slide the UPPER-PAPER-GUIDE-ASSY to the left and pull out towards you from the right side to remove it.

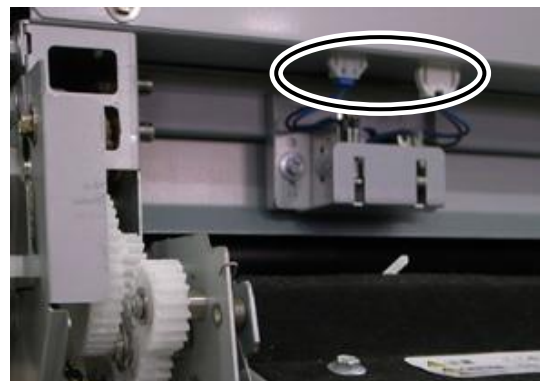


UPPER-PAPER-GUIDE-ASSY

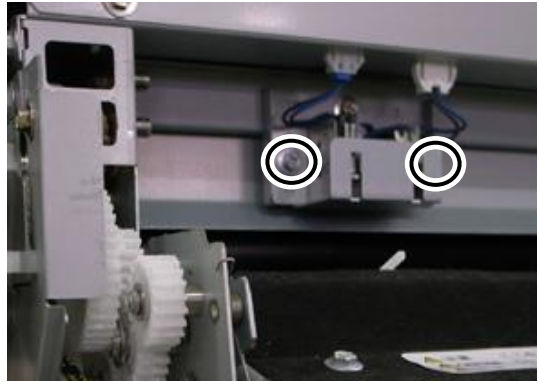


INT5 (MS06-1 and MS06-2)

4. Unplug the connector.



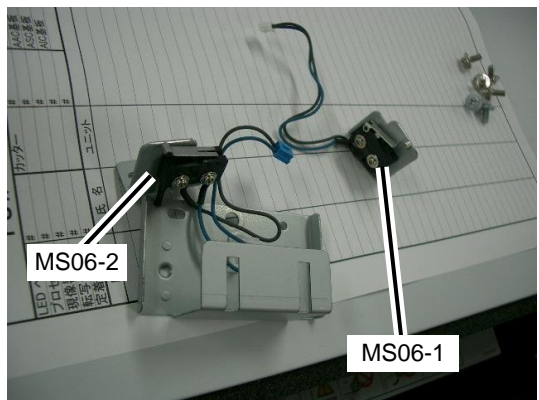
5. Remove the bracket with two screws.



6. Remove the sensors from their stay brackets.



7. Remove the sensors with two screws from their stays.



### 9.10.11 PEELER FU OUT MNT

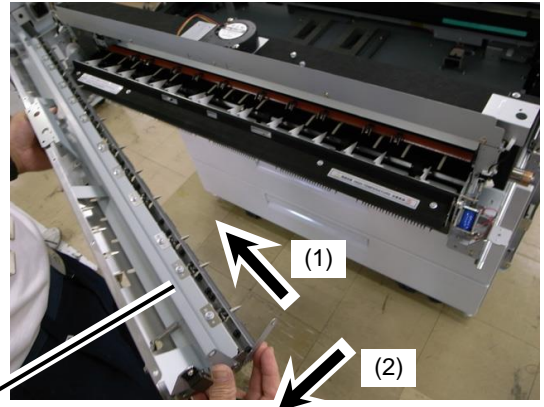
<Removal>

1. Remove the UPPER-PAPER-GUIDE-ASSY (see steps 1-3 under **[MS06-1] MICRO SWITCH,04,05,06-1 MNT** and **[MS06-2] MICRO SWITCH,06-2 MNT** on p. 9-114).

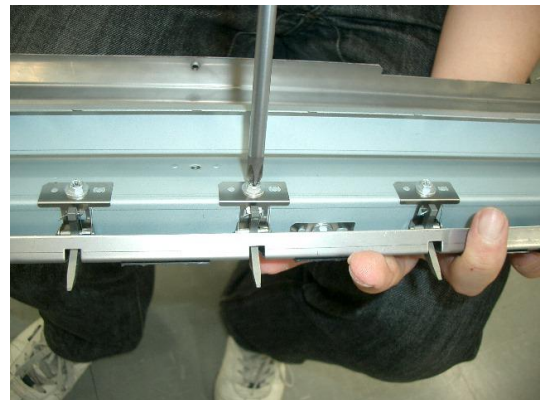
**Note**

Slide the UPPER-PAPER-GUIDE-ASSY in the direction of the arrow to remove.

UPPER-PAPER-GUIDE-ASSY



2. Remove the PEELER FU OUT with one screw.



## 9.10.12 Separator (BUR) MNT

<Removal>

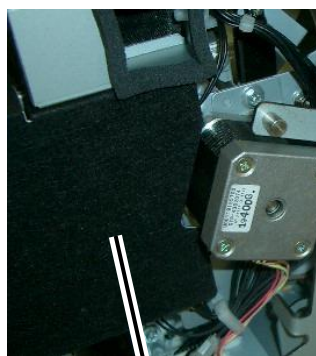
1. Remove the EXTENSION PAPER OUT KIT (LOW) by following steps 1 through 25 in subsection **9.10.1**.



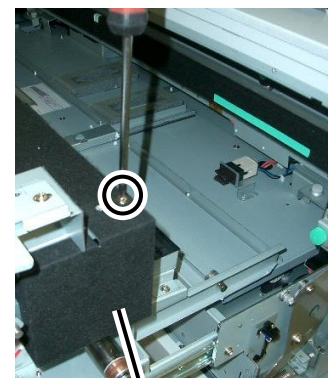
This will expose the UNDER-PAPER-GUIDE.



2. Remove the SIDE-COVER-L and the SIDE-COVER-R with one screw each.



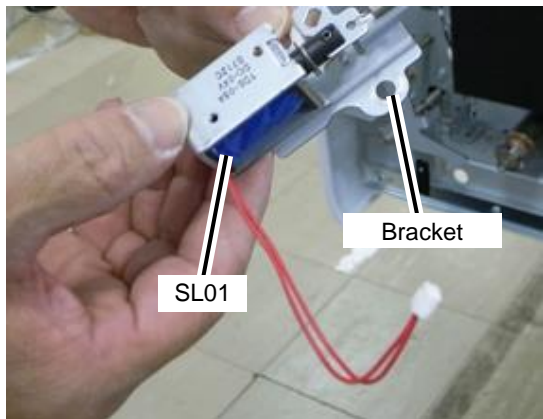
SIDE-COVER-L



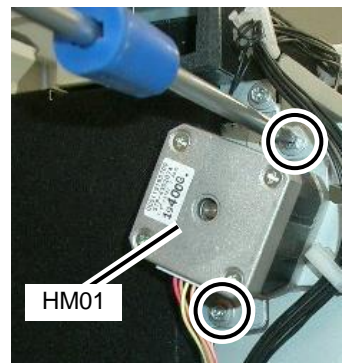
SIDE-COVER-R



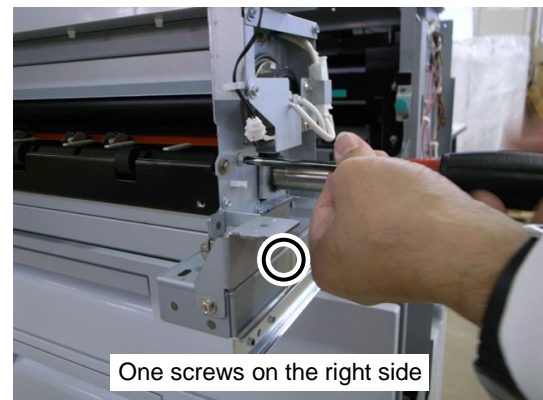
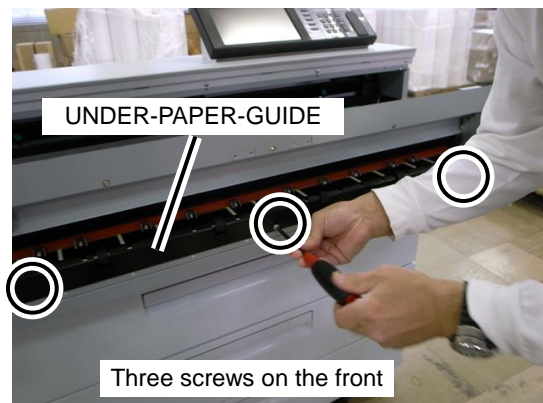
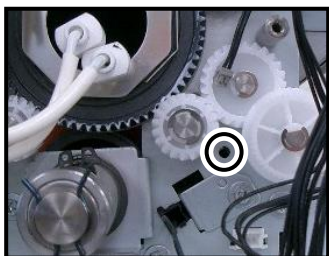
- 3. Remove the SL01 on the right side of the fuser by following steps 4 and 5 in subsection 9.10.3 SL01 MNT.



- 4. Remove the HM01 on the left side of the fuser by following steps 5 through 7 in subsection 9.10.4 MOTOR HM MNT.



- 5. Remove the five screws at the locations shown in the photo.



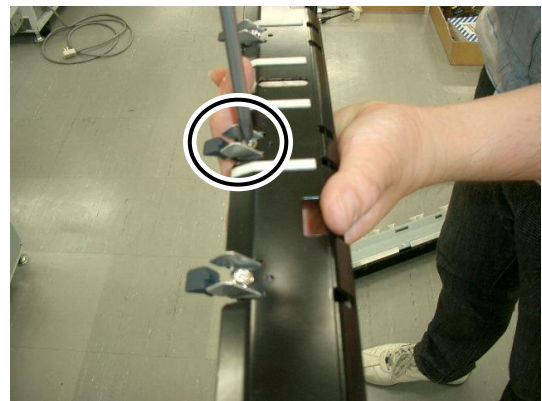
**6.** Remove UNDER-PAPER-GUIDE.

**Note**

The central area contains the sensor arm window, so be careful not to break the sensor arm when removing or installing parts in this area.



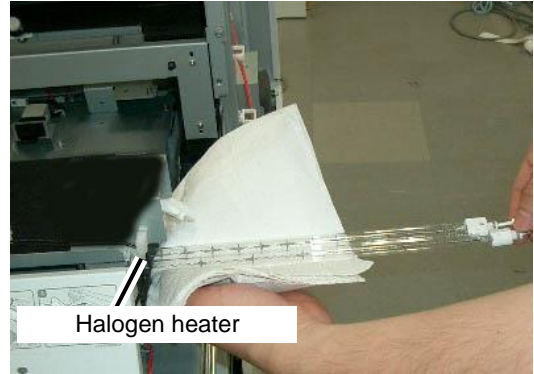
**7.** Remove Separator(BUR) from UNDER-PAPER-GUIDE with one screw.



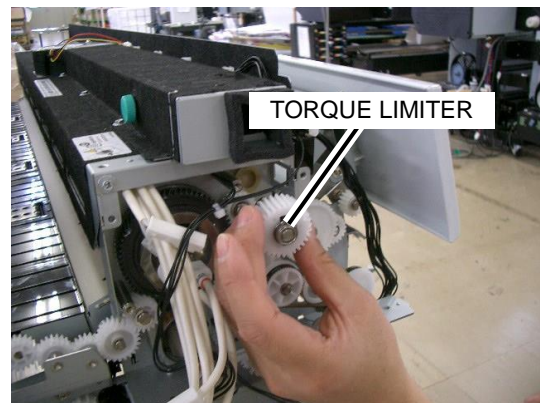
### 9.10.13 ROLLER HEAT MNT

<Removal>

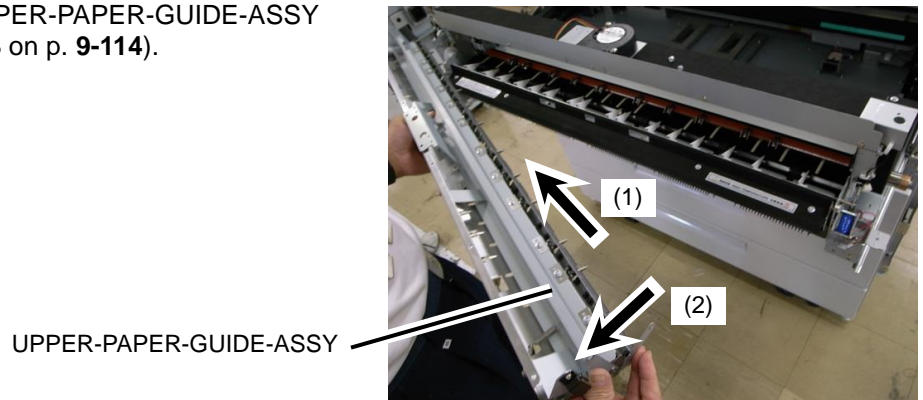
1. Perform the steps to remove the halogen heaters (see p. 9-99).



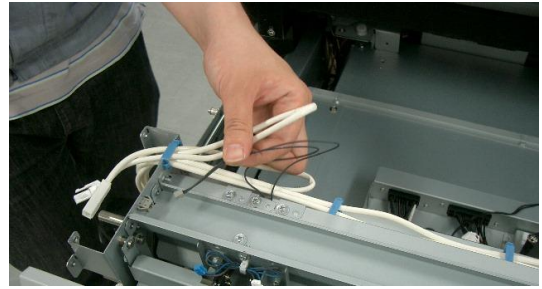
2. Perform the steps to remove the TORQUE LIMITER (see p. 9-103). (You do not need to disassemble the gears.)



3. Remove the UPPER-PAPER-GUIDE-ASSY (see steps 1 to 3 on p. 9-114).



4. Follow the steps for removing the [TH01][TH02][TH04] THERMISTOR, and TH01,02,04,05 MNT (see p. 9-107) and disassemble until the TH01,TH02, and TH04 are exposed.



5. Remove the PLATE-HEAT-TOP.

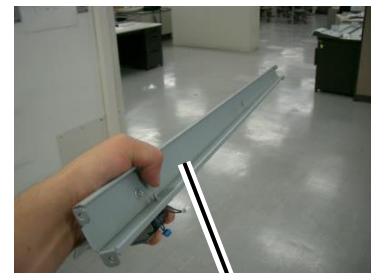
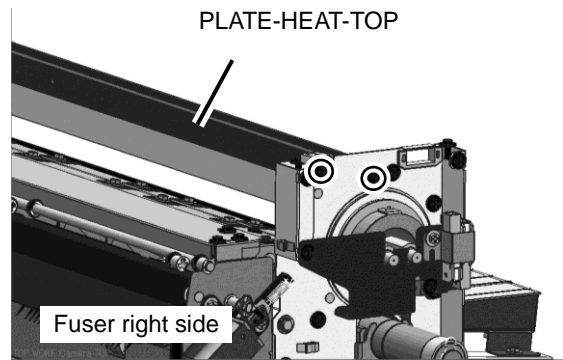
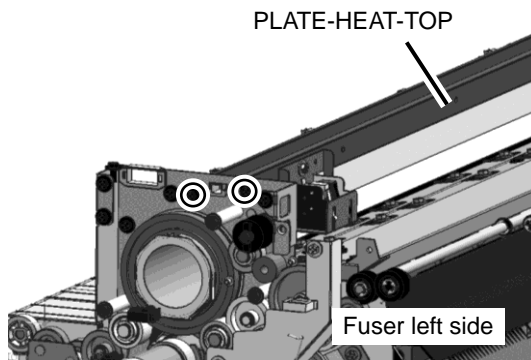
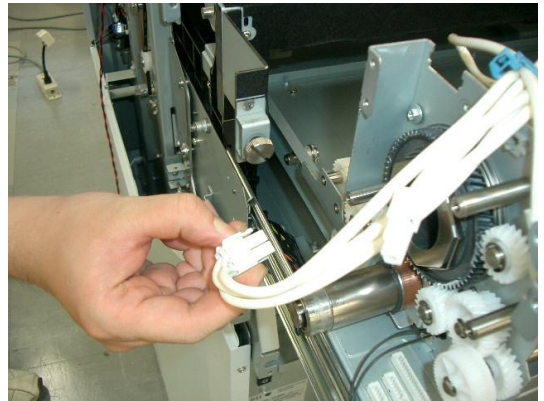
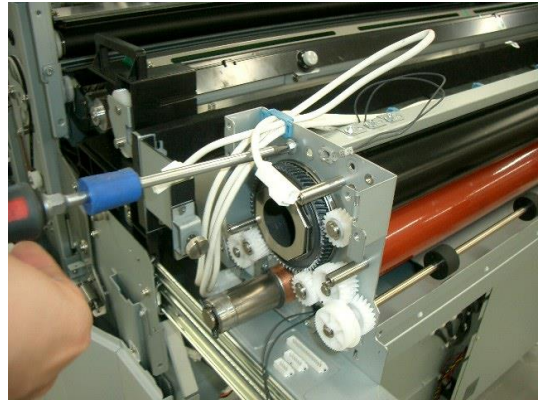


PLATE-HEAT-TOP

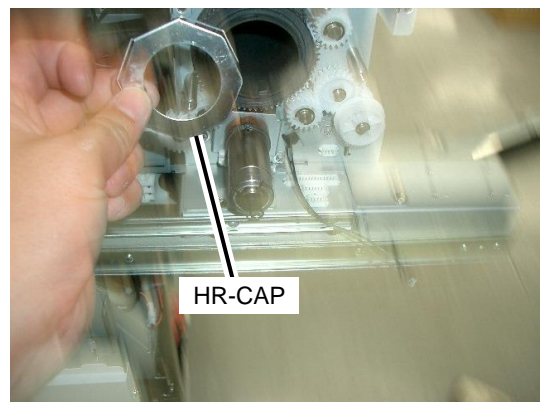
6. Remove the clamps securing the halogen heater cables above the plate and then unplug the cables' connectors.



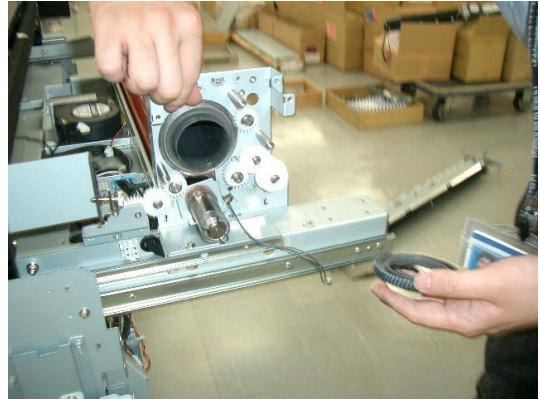
7. Remove the parts clamping the halogen cables shown in the photo.



8. Remove the HR-CAP on the left edge of ROLLER HEAT.



9. Remove the gear on the left edge of ROLLER HEAT.



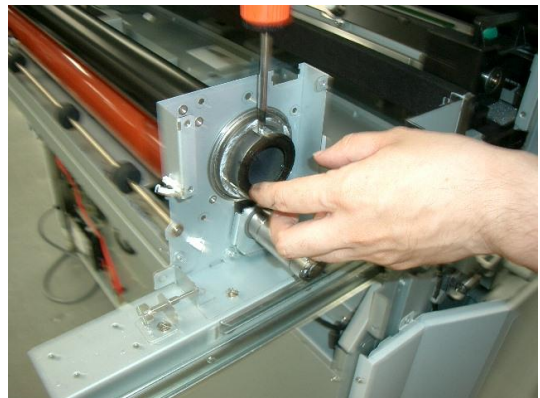
10. Remove the E-rings and gears at the location shown in the photo so that you can remove the bearings in step 12.



11. With a precision screwdriver, remove the PLATE(EARTH) with three screws on the right edge of ROLLER HEAT.

**Note**

Remove using a precision screwdriver.



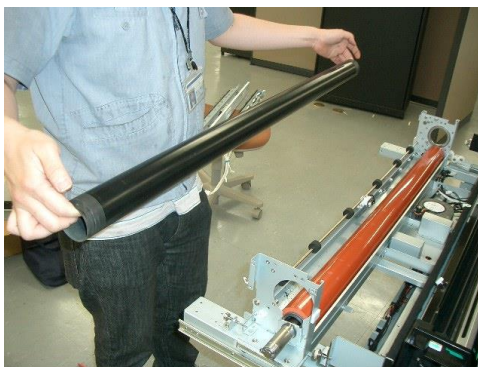
12. Remove the HR-WASHER on the right edge of ROLLER HEAT.



13. Remove the bearings on the right and left of ROLLER HEAT.



14. Remove ROLLER HEAT.

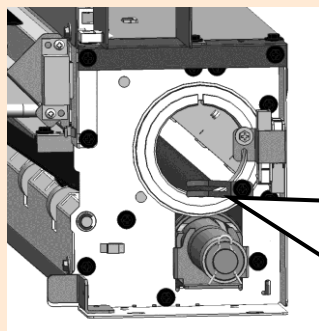


<Installation>

**Cautionary Notes When Performing Installation**

As the figure below shows, apply the grease below on the EATTH-OCNTACT (U00119199300).

- Grease (U00121545000): HEATPROOF GREASE MNT



Apply the sesame seed sized grease on the contact part, and spread it on the part.

### 9.10.14 ROLLER BACK UP ST MNT

<Removal>

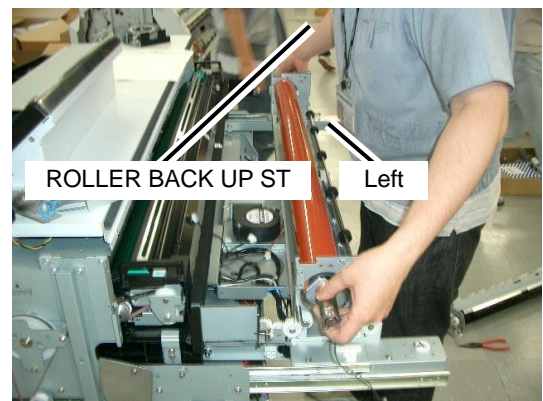
1. Remove the ROLLER HEAT (see p. 9-121).
2. Remove all parts attached to both edges of the ROLLER BACK UP ST.



Parts on the right (the left-hand side from the working person's point of view)

Parts on the left (the right-hand side from the working person's point of view)

3. Remove ROLLER BACK UP ST.



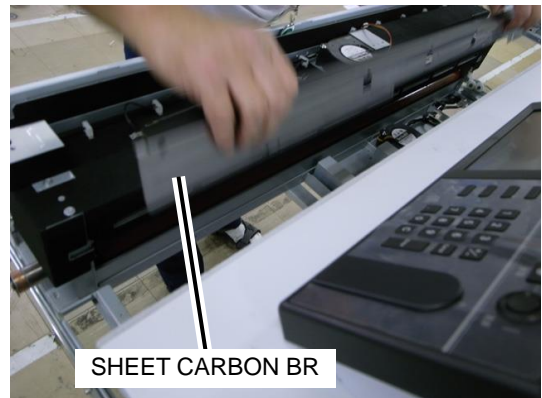
4. Remove the JIKUJKE(BR) on both edges of the ROLLER BACK UP ST.





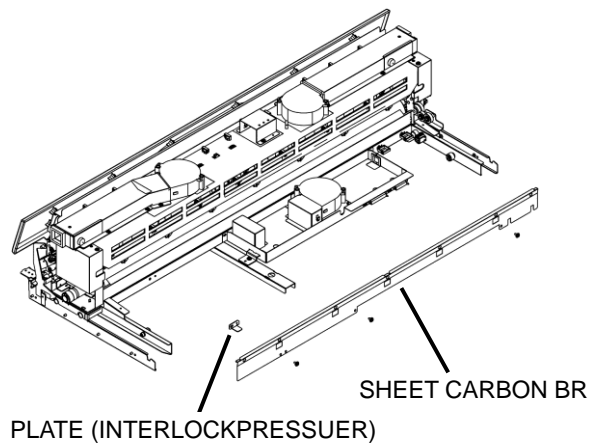
### 9.10.15 SHEET CARBON BR MNT

1. Open the fuser unit drawer.
2. Remove the SHEET CARBON BR with four screws as shown in the photo.
3. Remove the SHEET CARBON BR with three screws as shown in the figure.



#### Cautionary Notes When Performing Installation

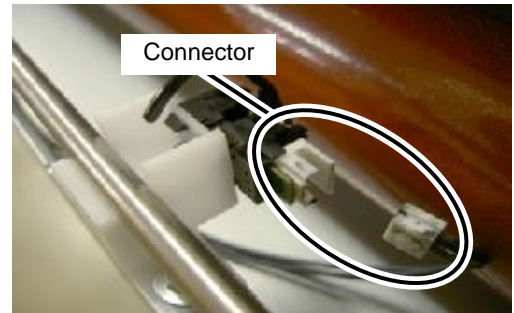
Do not forget to install the PLAT (INTERLOCKPRESSUER) removed together with the SHEET CARBON BR in step 2.



## 9.10.16 [PS07] PHOTOSENSOR,04,05,07 MNT

<Removal>

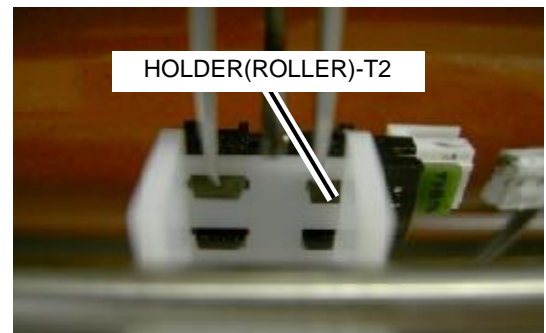
1. Follow the steps 1 through 6 in subsection **9.10.12** to remove the UNDER-PAPER-GUIDE.
2. Unplug the PS07 connector.



3. Remove the PS07 from the HOLDER(ROLLER)-T2.

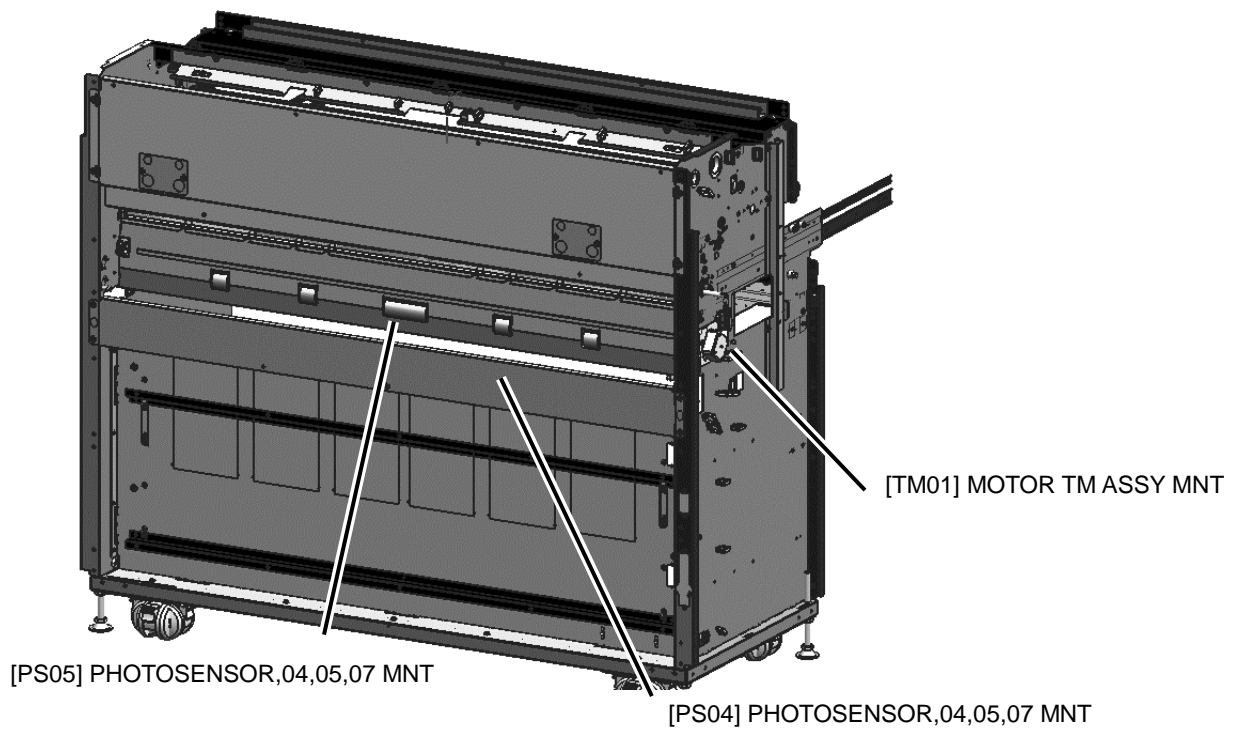
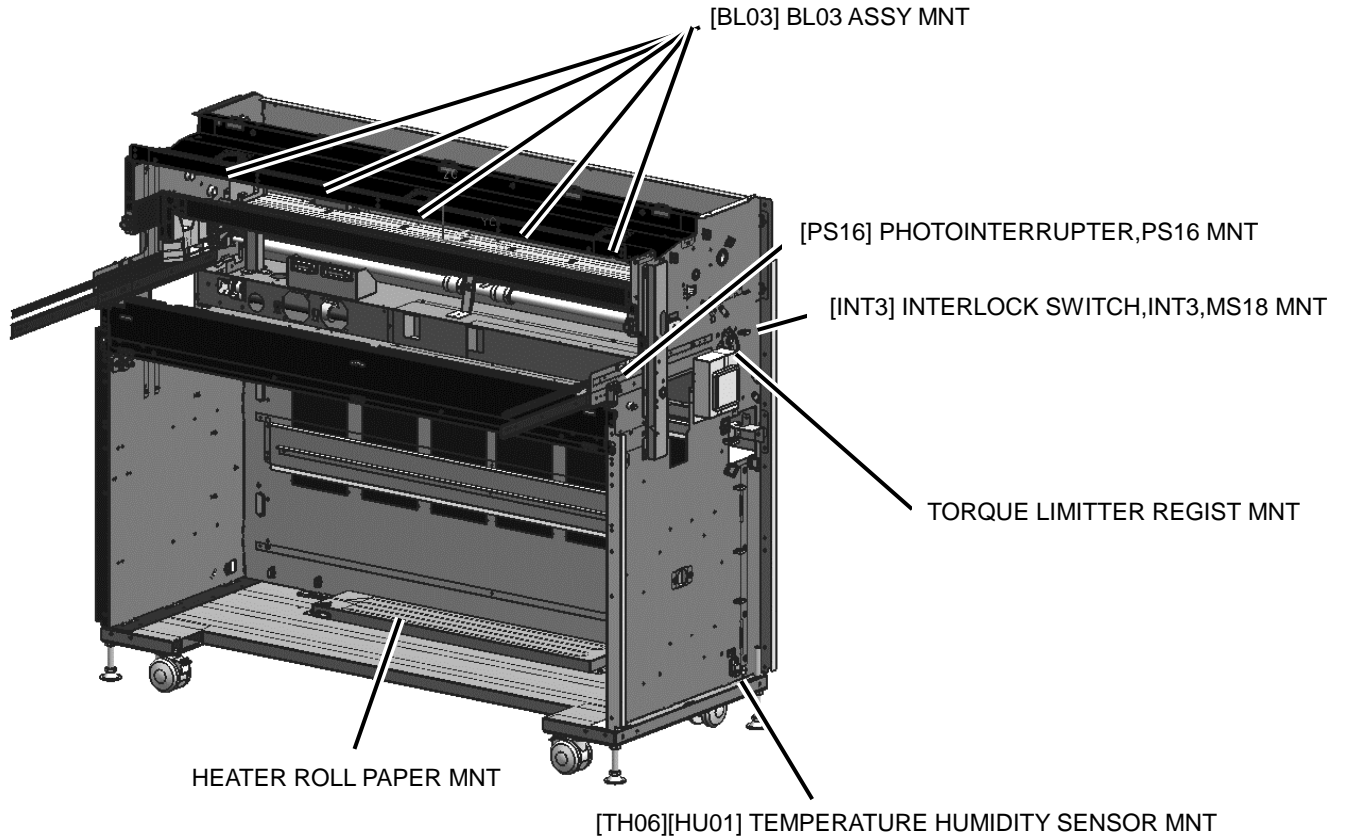
### Note

Push down the clamp located on the upper side with a pair of tweezers.



## 9.11 MAIN FRAME UNIT

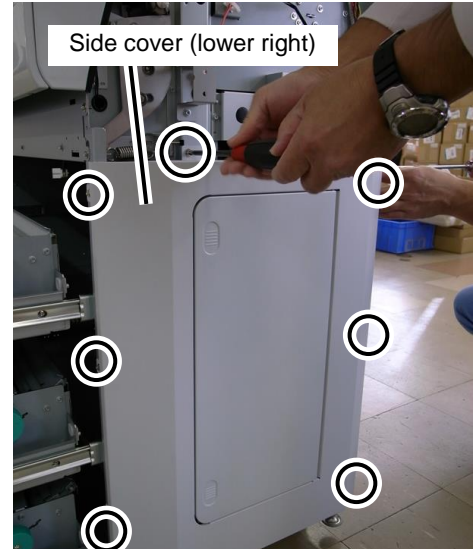
### 9.11.1 Major Recommended Parts Locations for MAIN FRAME UNIT



## 9.11.2 [TH06][HU01] TEMPERATURE HUMIDITY SENSOR MNT

<Removal>

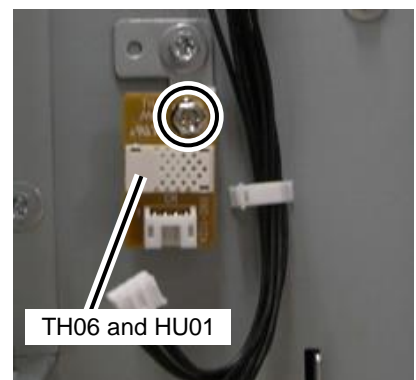
1. Remove the side cover (lower right) (see p. 9-10).



2. Unplug the connector at the location shown in the photo.



3. Remove TH06 and HU01 with one screw.

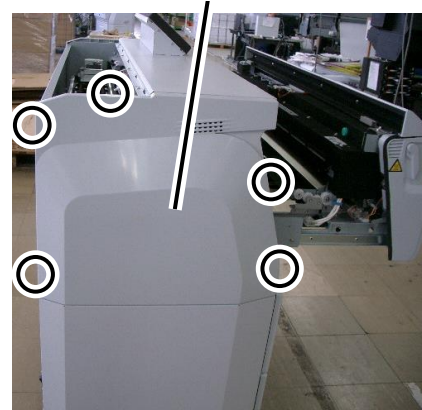


### 9.11.3 [TM01] MOTOR TM ASSY MNT

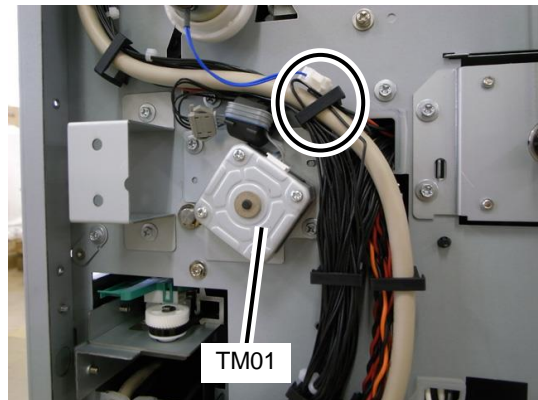
<Removal>

1. Remove the side cover (upper left) (see p. 9-8).

Side cover (upper left)



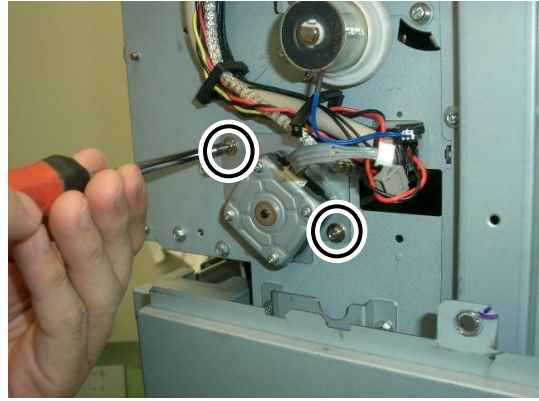
2. Remove the clamp at the location shown in the photo.



3. Unplug the connector.



4. Remove the two motor bracket screws.

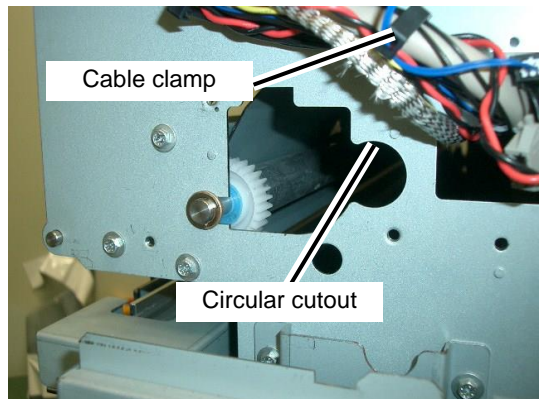
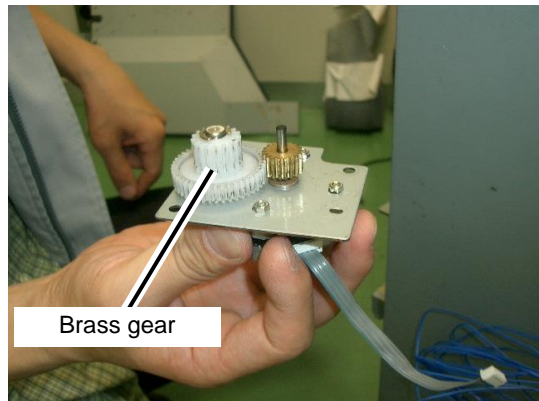


5. Remove TM01.

**Note**

With the procedure below, remove the TM01 through the plate's cutout shown in the lowermost photo.

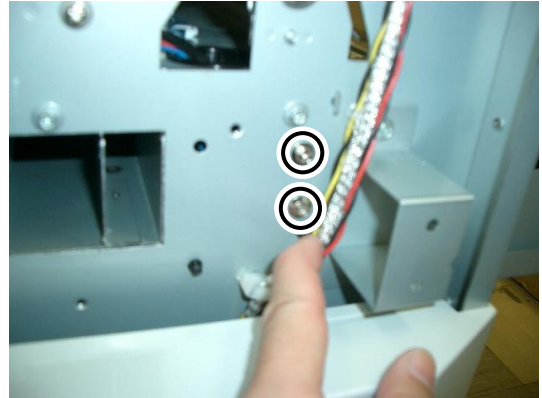
- (1) Lift up the cable clamp shown in the photo so that the cutout appears entirely.
- (2) Align the brass gear shown in the photo with the circular cutout.  
Note that the motor's gear and the Printer's internal gear are interlocked, and the MOTOR TM ASSY MNT must be removed carefully to avoid the parts from being damaged.
- (3) Pull out the MOTOR TM ASSY MNT through the plate's cutout so that the brass gear passes through the circular cutout.



### 9.11.4 [INT3][MS18] INTERLOCK SWITCH,INT3,MS18 MNT

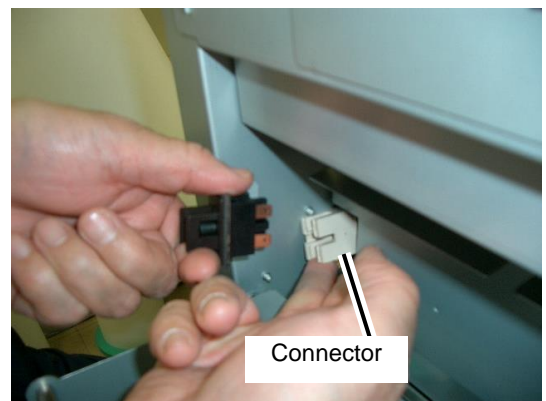
<Removal of INT3>

1. Remove the side cover (upper right) (see p. 9-10).
2. Remove the two screws of the bracket fixing the INT3.
3. Open the rear door.
4. Pull out the INT3 and bracket to the extent shown in the photo.



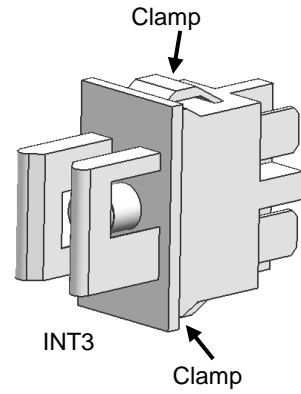
Rear door

5. Remove the INT3 from the connector.



Connector

6. With pressing the two clamps, remove the INT3 from the bracket.

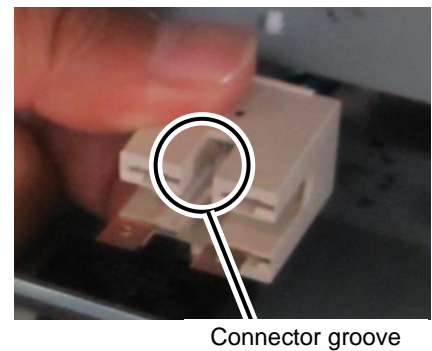
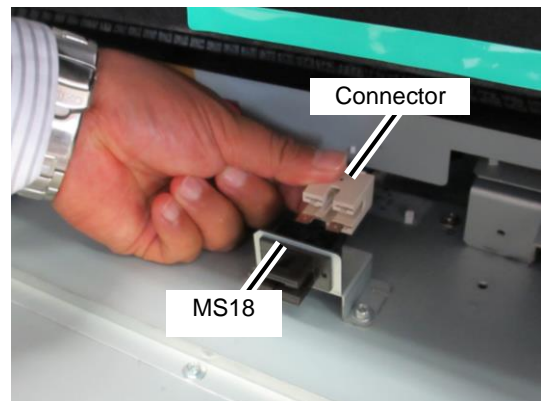


<Removal of MS18>

1. Open the fuser unit drawer.
2. Remove the MS18 from the connector.
3. While pressing the two clamps, remove the MS18 from the bracket.

**Cautionary Notes When Performing Installation**

Install the MS18 with the label on the bottom.  
\* The longer connector groove comes to the top.

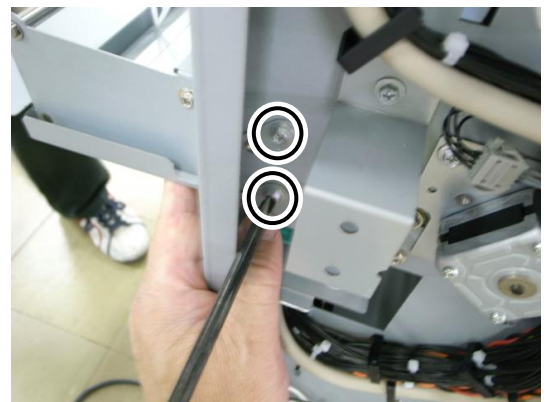
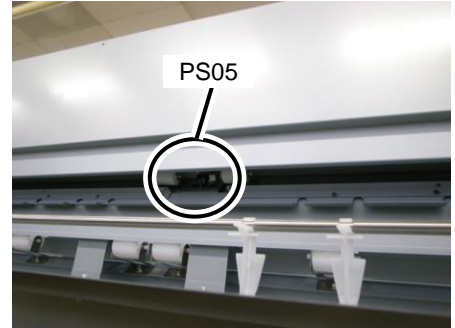




### 9.11.5 [PS04][PS05] PHOTOSENSOR,04,05,07 MNT

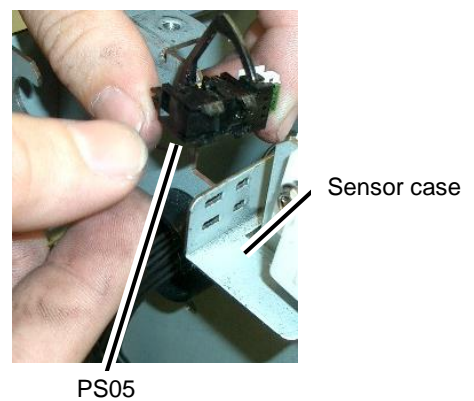
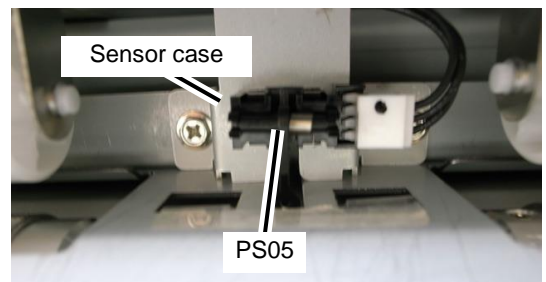
<Removal of PS05>

1. Remove the side cover (lower left) and side cover (lower right) (see p. 9-9 and p. 9-10).
2. Open the rear door.
3. Remove the rear door with two screws on the right and the left.



The figure shows the left side (also remove the two screws from the opposite side).

4. Unplug the connector.
5. Remove the PS05 with two screws together with the sensor case.
6. Remove the PS05 from the sensor case.

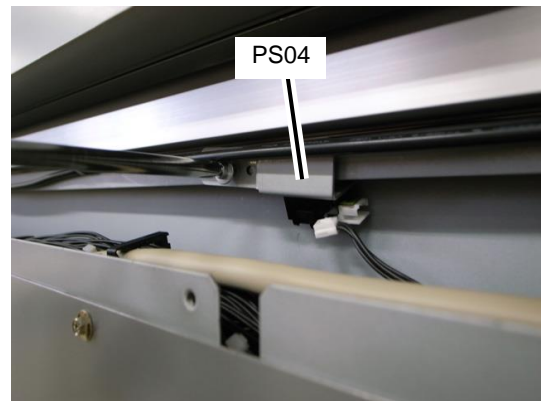


<Removal of PS04>

1. Remove the COVER-CUT with seven screws.

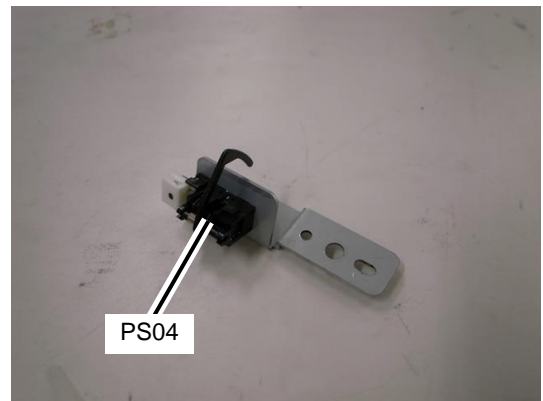


2. Unplug the connector.



3. Remove the PS04 with two screws together with the sensor case.

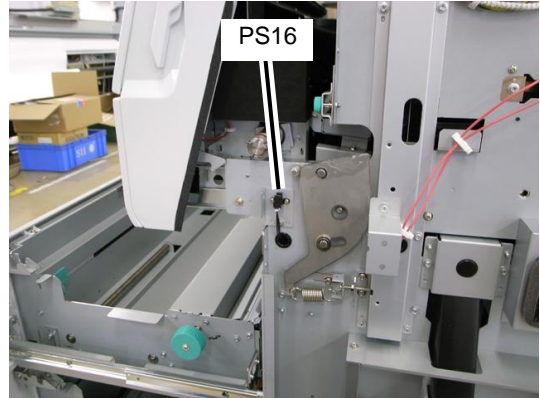
4. Remove the PS04 from the sensor case.



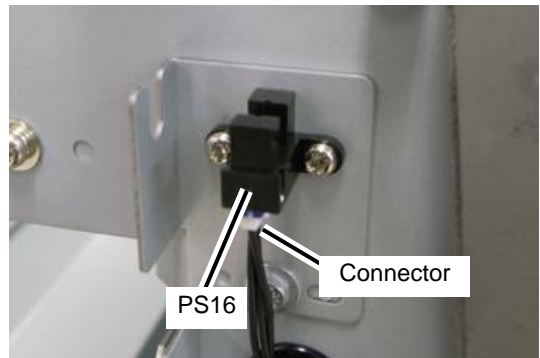
### 9.11.6 [PS16] PHOTOINTERRUPTER,PS16 MNT

<Removal>

1. Remove the side cover (upper right) (see p. 9-10).



2. Unplug the connector for the sensor.
3. Pinch the clamp on the back side of the PS16 and pull it out towards you.



### 9.11.7 [BL03] BL03 ASSY MNT

<Removal>

1. Open the fuser unit drawer.
2. Remove the process cartridge.
3. Visually check the position of the BL03 from the fuser unit drawer opening.
4. Unplug the connector from the BL03 to remove.
5. With a short screwdriver or a flexible screwdriver, unscrew the two screws and remove BL03.



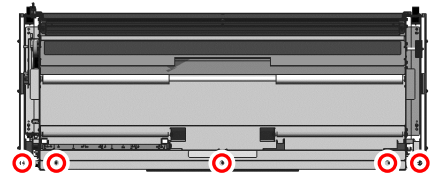
### 9.11.8 HEATER ROLL PAPER MNT

**Note**

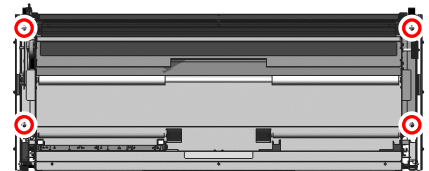
Always remove the roll paper drawer with at least two people.

<Removal>

1. Remove the drawer for roll 1.
  - (a) Open the drawer for roll 1.
  - (b) Remove the roll paper drawer cover (see p. 9-17).



- (c) Remove the four screws shown in the photo.



- (d) Hold both the right and left sides and lift up to remove.

2. Unplug all cables and cord connectors connected to HEATER ROLL PAPER.
3. Unscrew the four screws and remove the HEATER ROLL PAPER.

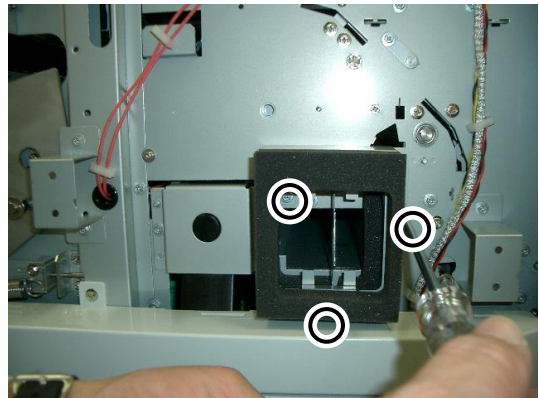


HEATER ROLL PAPER

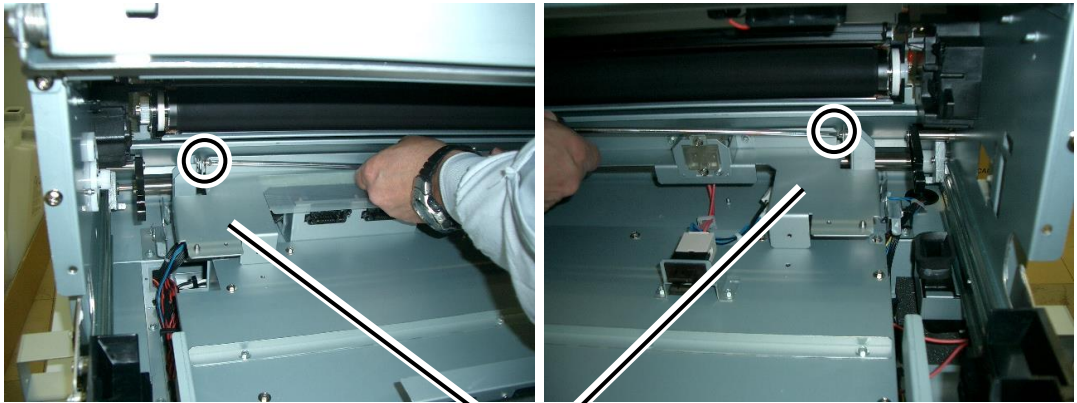
### 9.11.9 TORQUE LIMITER REGIST MNT

<Removal>

1. Open the fuser unit drawer.
2. Remove the process cartridge (see **Replacing the Process Cartridge** in the *User's Manual for Basic Printer Operation*).
3. Remove the TRANSFER ROLLER UNIT (transfer/detack corotron) (see p. **9-212**).
4. Remove the toner cartridge.
5. Remove the side cover (lower left) and side cover (lower right) (see p. **9-9** and **9-10**).
6. Install the toner cartridge to avoid foreign particles.
7. Remove the metal plate and three screws on the filter part.



8. Remove the one screw each in the right and left at the HOLDER\_TRA\_UNIT, that is, the TRANSFER ROLL UNIT's fixing part.



HOLDER\_TRA\_UNIT

9. Slightly slide the HOLDER\_TRA\_UNIT toward you.



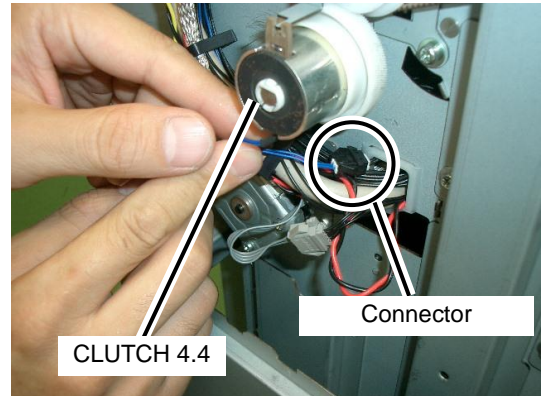
HOLDER\_TRA\_UNIT

10. Remove the E-ring and bearing fixing the ROLLER REGIST SHAFT's right side.

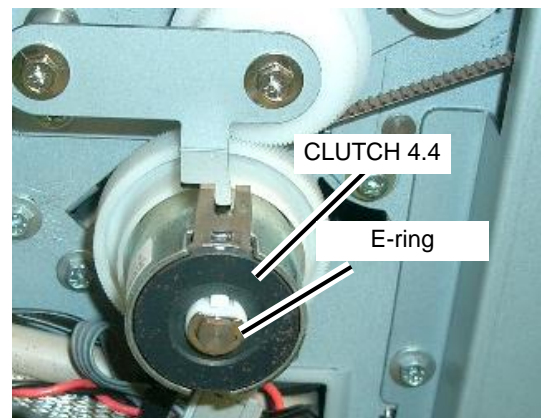


**11.** Remove the CLUTCH 4.4 on the ROLLER REGISTER SHAFT's left side.

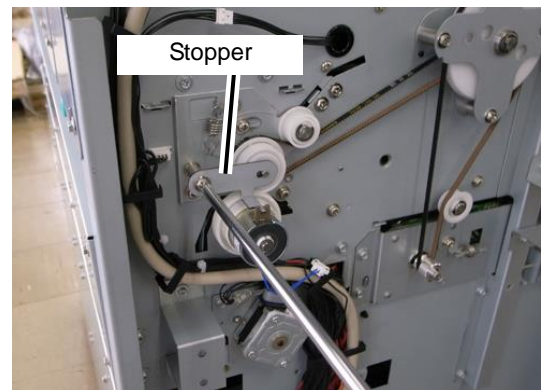
(a) Remove the connector connected to the CLUTCH 4.4.



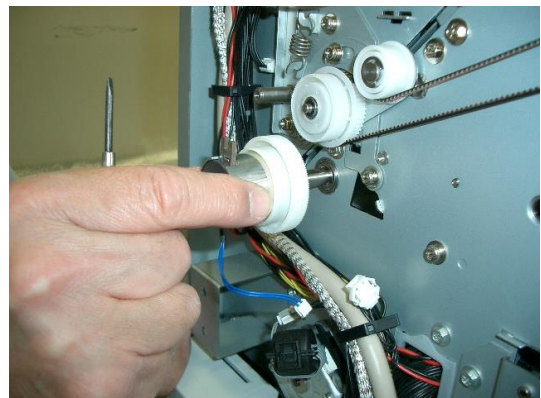
(b) Remove the E-ring fixing the CLUTCH 4.4.



(c) Remove the stopper with one screw.

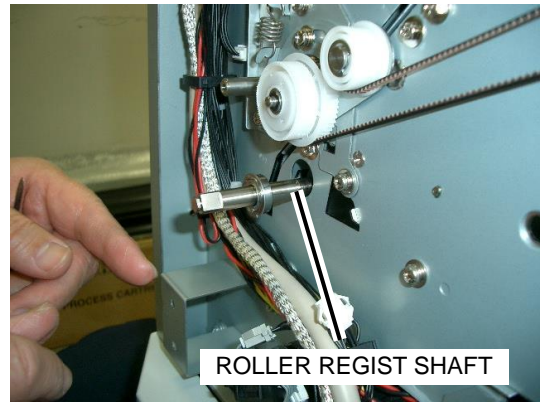


(d) Pull out the CLUTCH 4.4 from the shaft.

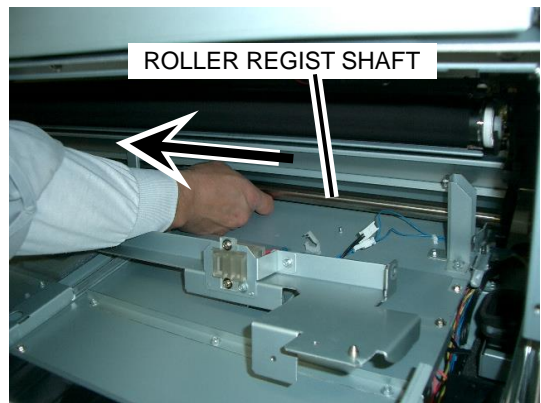




12. Remove the R-ring and bearing fixing the ROLLER REGIST SHAFT's left side.



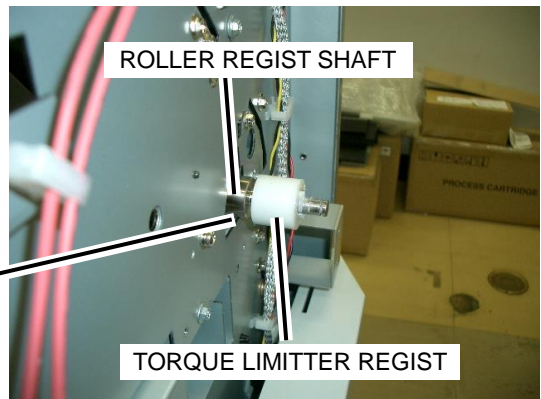
13. Temporarily slide the ROLLER REGIST SHAFT to the left direction.



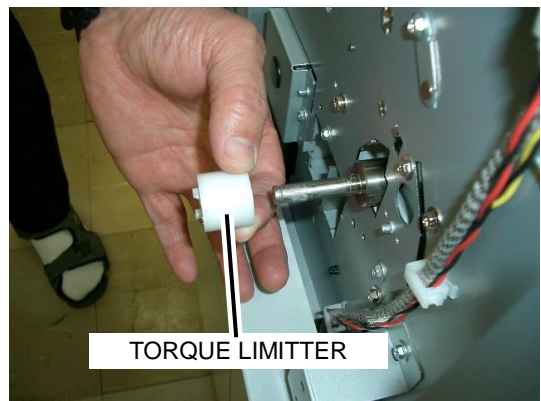
14. Slide the ROLLER REGIST SHAFT to the right direction, and set the TORQUE LIMITER REGISTER so that it protrudes on the opening area for maintenance.



TORQUE LIMITER REGISTER MNT on the opening area for maintenance



15. Remove the TORQUE LIMITER REGISTER from the ROLLER REGIST SHAFT.

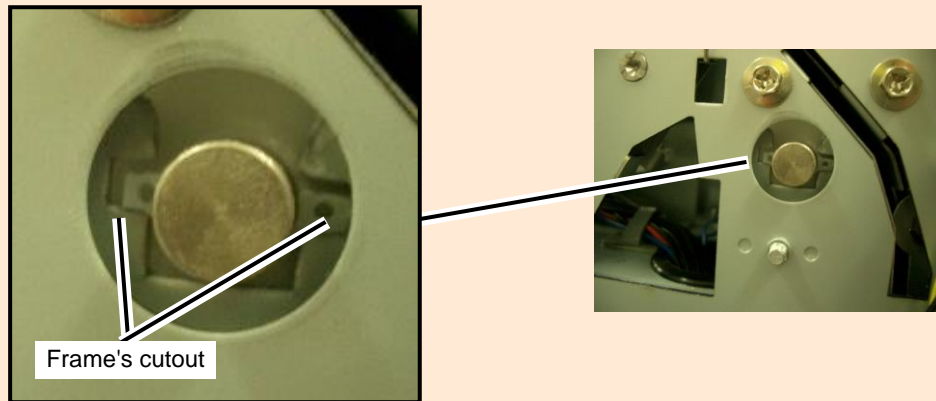


<Installation>

### Cautionary Notes When Performing Installation

Install the ROLLER REGIST SHAFT as follows.

- (a) Press the ROLLER REGIST SHAFT to the right side.
- (b) Insert the TORQUE LIMITTER REGIST's protrusions into the frame's cutout.
- (c) Install the bearing and E-ring in the right side.
- (d) Install the bearing and E-ring in the left side.



## 9.12 OPERATION PANEL UNIT

### 9.12.1 PANEL ASSY MNT, PANEL ASSY PL MNT

The procedures to remove:

- The PANEL ASSY MNT of the multifunction model; and
- The PANEL ASSY PL MNT of the printer model are the same.



<Removal>

1. Remove the four screws shown in the photo.



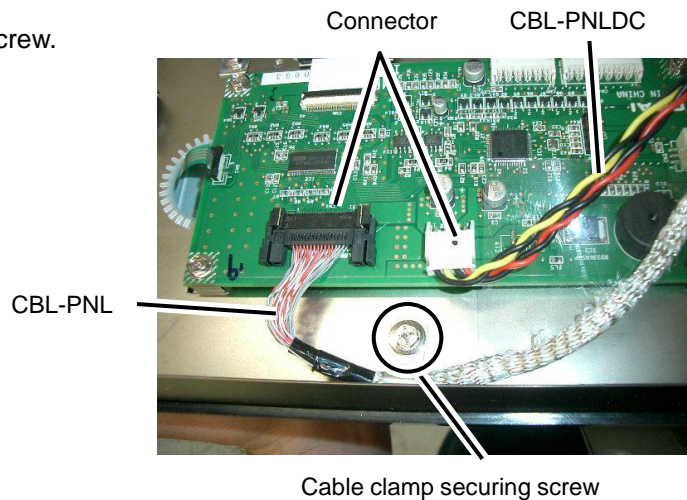
2. Hold both sides of the PANEL ASSY, PANEL ASSY PL and pull it out in the same direction as the operation panel surface. Once you have pulled it out, place it down temporarily on the document table.

**Note**

The cables do not have much slack, so be careful not to break their connections during removal.



3. Remove one cable clamp securing screw.



4. Unplug the following connector:
  - CBL-PNL's connector; or
  - CBL-PNLDC's connectorand remove the PANEL ASSY or PANEL ASSY PL.

**Cautionary Notes When Performing Installation**

When installing the CBL-PNL, use the air blow tool in order to remove any foreign particle from the connecting part.

## 9.13 PROCESS CARTRIDGE UNIT

### 9.13.1 PROCESS CARTRIDGE UNIT

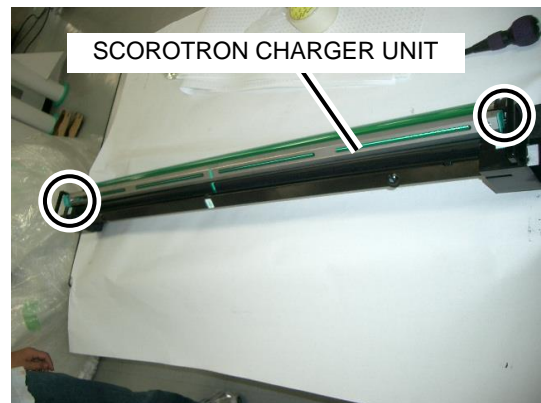
<Removal>

See **Replacing the Process Cartridge** in the *User's Manual for Basic Printer Operation*.

### 9.13.2 SCOROTRON CHARGER UNIT

<Removal>

Grab the green tab shown in the photo with both hands and remove SCOROTRON CHARGER UNIT.



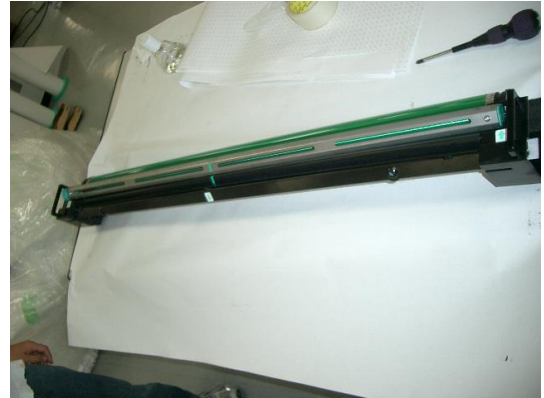
### 9.13.3 DRUM-OPC-ASSY-M-03

#### Note

This unit is not a recommended part.  
The timing belt installation procedure requires at least two persons.

<Removal>

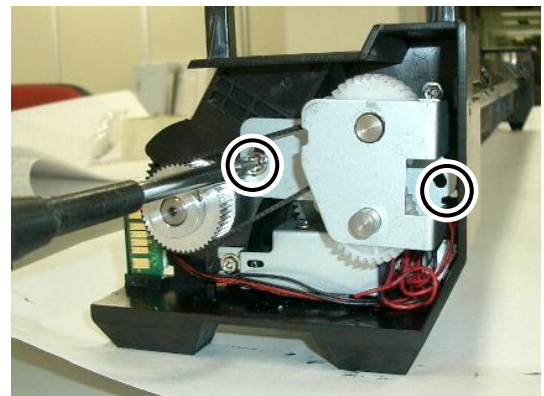
1. Remove the PROCESS CARTRIDGE UNIT.  
(See **Replacing the Process Cartridge** in the *User's Manual for Basic Printer Operation*.)



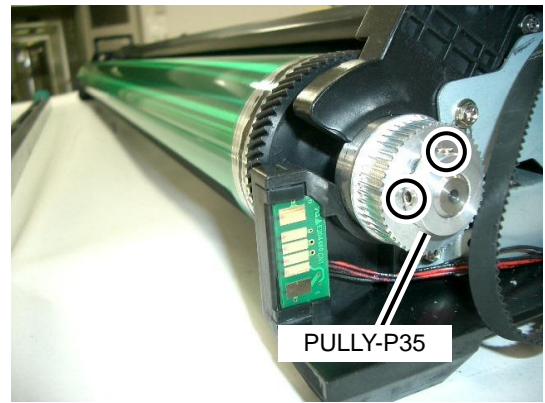
2. Remove the SCOROTRON CHARGER UNIT.



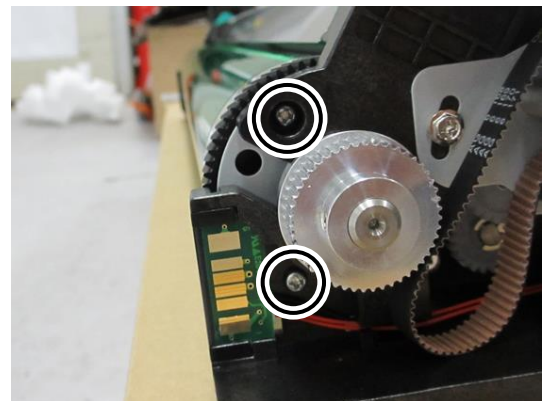
3. Loosen the two screws at the locations shown in the photo and remove the timing belt on PULLY-P35.



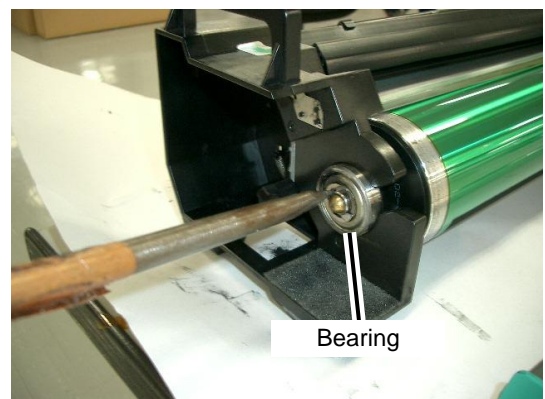
4. Loosen the two hexagon socket head set screws and remove the PULLY-P35.



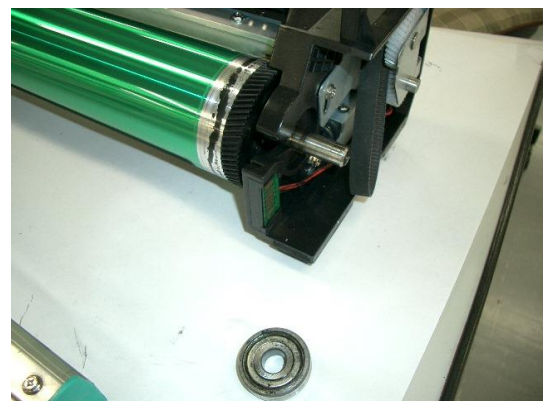
5. Remove the two hexagon plus socket head screws and remove the two PLATE-FRAME-PRC (on both right and left).



6. Remove the E-ring at the location shown in the photo and remove the bearing.



7. Remove the bearings on the opposite side (the wheel train side).



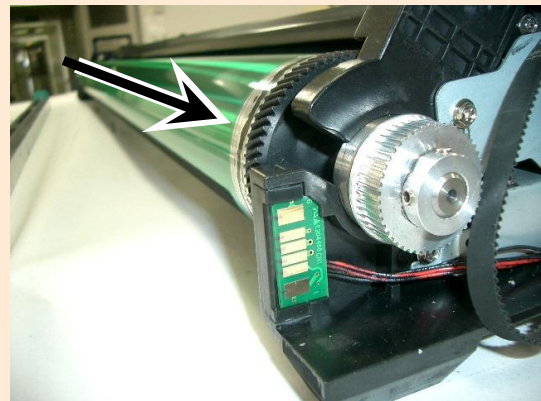
8. Remove the DRUM-OPC-ASSY-M-03.



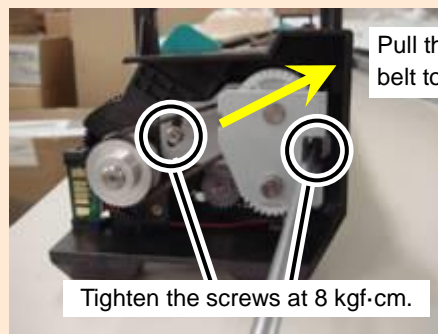
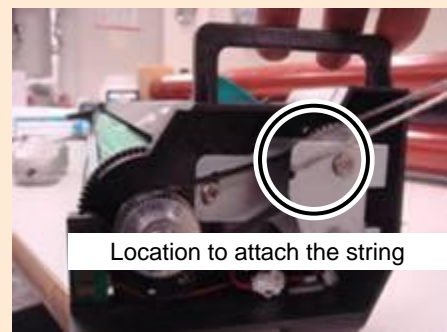
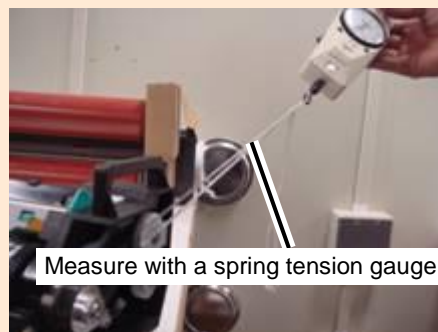
<Installation>

### Cautionary Notes When Performing Installation

Press the DRUM-OPC-ASSY-M-03 onto the PULLY-P35, then fix the PULLY-P35 with two hexagon socket head set screws.



When installing the timing belt, tighten the two screws at at 0.8 N·m (8 kg·cm) torque using a torque screwdriver while applying an 8 kgf tension load. Measure the tension load with a spring tension gauge as shown in the photos below.



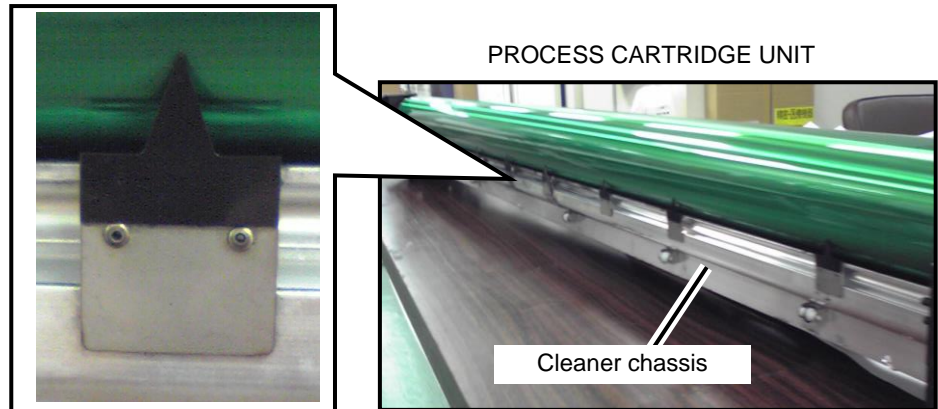
Pull the extension of the timing belt to adjust the tension.



### 9.13.4 DRUM FINGER W MNT

**Note**

- Separating claws may be in a different shape depending on when they were shipped from the factory.
- Required tool: Ruler

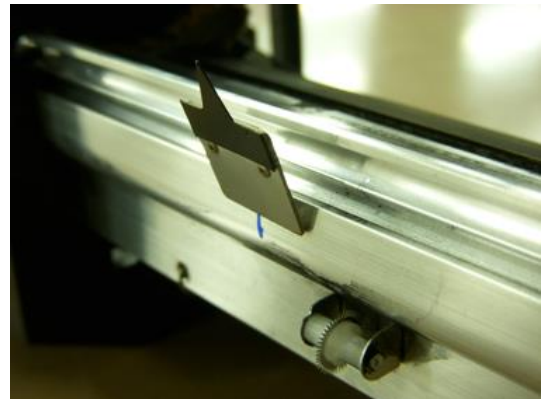


<Removal>

1. Remove the PROCESS CARTRIDGE UNIT (see **Replacing the Process Cartridges** in the *User's Manual for Basic Printer Operation*).
2. Remove all separating claws from the cleaner chassis.

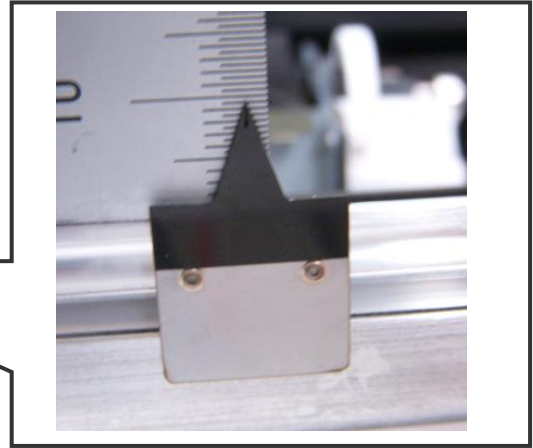
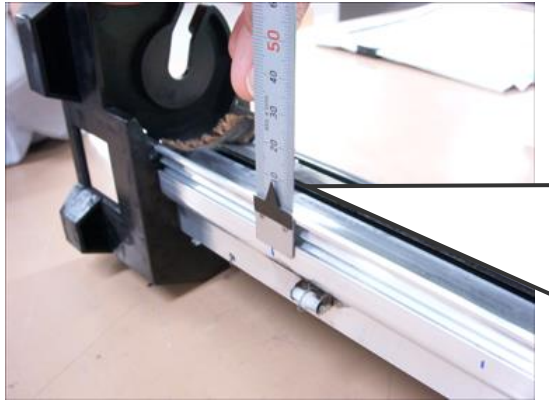
**Note**

Remove all double-sided tape that is left on the cleaner chassis.

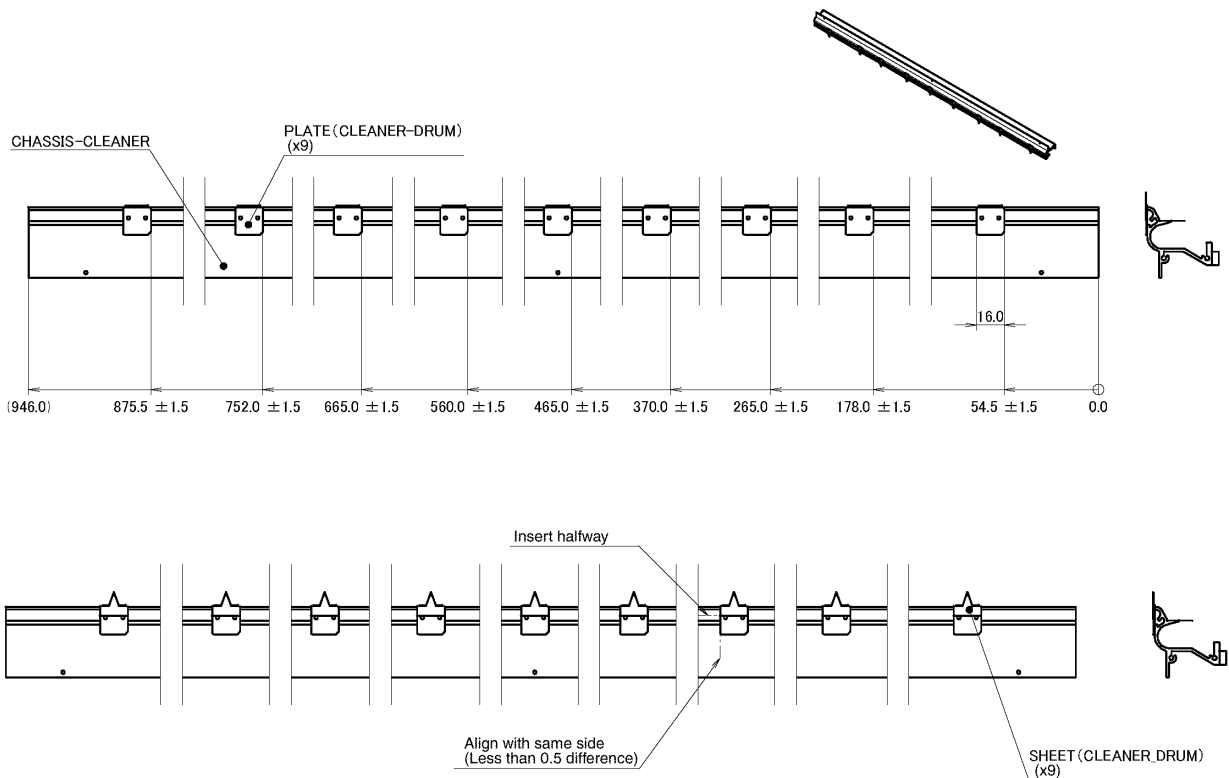


3. Prepare the DRUM FINGER W MNT and stick it to the cleaner chassis.

When performing this step, the tip of the separating claw should be at around 9.5 mm (0.37 inches)  $\pm$  0.5 mm (0.02 inches) when you place your ruler against the tip of the aluminum chassis.



<Separating claw installation location>



4. After attaching all separating claws, install the PROCESS CARTRIDGE UNIT.
5. Check for proper paper separation.
  - (a) Prepare tracing paper 60 of about 30 mm (1.18 inches) x 50 mm (1.97 inches) in size.
  - (b) As the paper top edge moves along the paper path, check that there is resistance as the paper catches when it touches the separating claws.



**Note**

Use the DRUM FINGER MNT when replacing the PROCESS CARTRIDGE 60 UNIT (for tracing paper 60). The replacement procedure is the same as shown above.

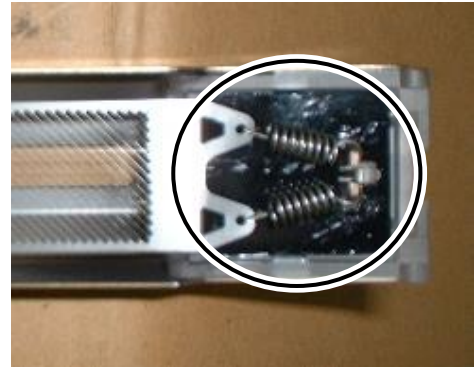
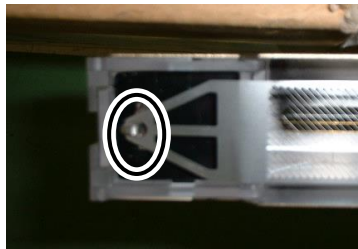
### 9.13.5 WIRE(CHARGER)MNT

#### Note

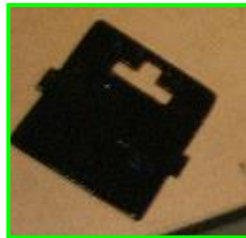
- Be careful not to lose the spring.
- Do not pull the spring more than 5 mm (0.20 inches).

<Removal>

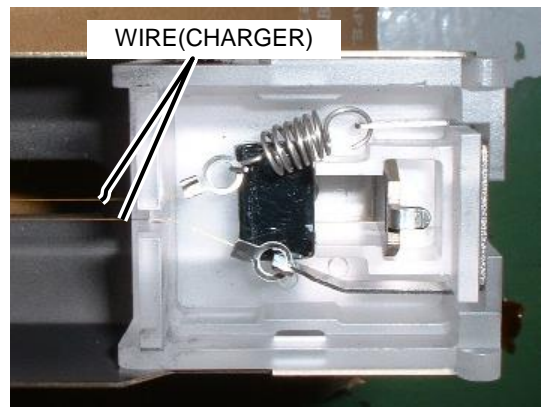
1. With a set of tweezers, remove the GRID(CHARGER) from the spring attached to the CHARGE SCOROTRON ASSY claw.



2. With a set of tweezers, remove the plastic parts both on the right and the left shown in the photo.



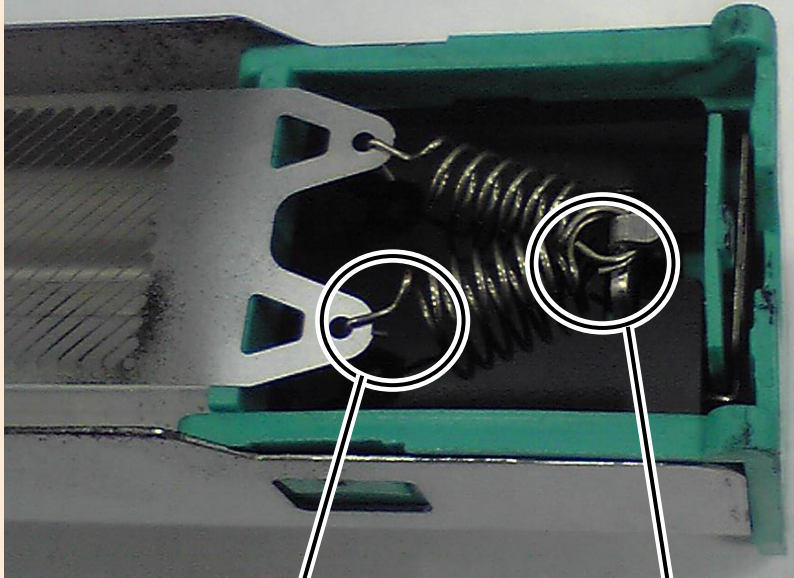
3. With a set of tweezers remove the spring-side ring, and remove the WIRE(CHARGER).



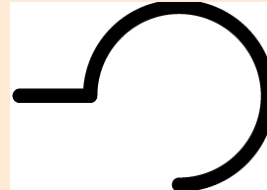
<Installation>

**Cautionary Notes When Performing Installation**

The shape at the ends of the springs is different for the right and left sides.  
Refer to the photo below when installing.



The pointed side is attached to the  
WIRE(CHARGER).  
Point the tip towards the inside.

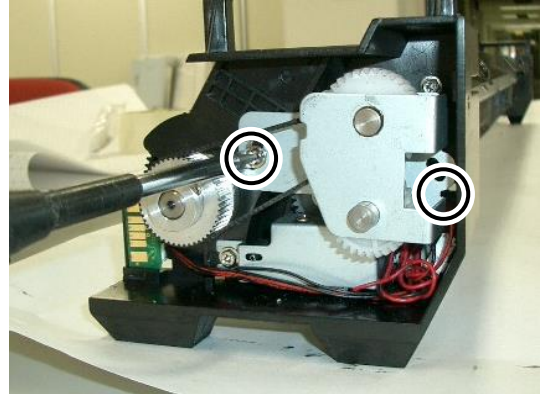


The rounded side must be  
attached on the hook side.

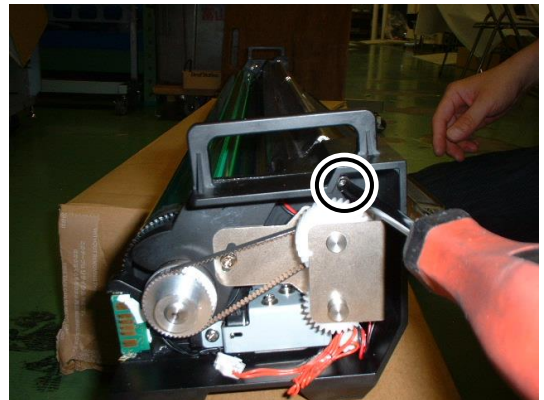
### 9.13.6 ERASER ASSY MNT

<Removal>

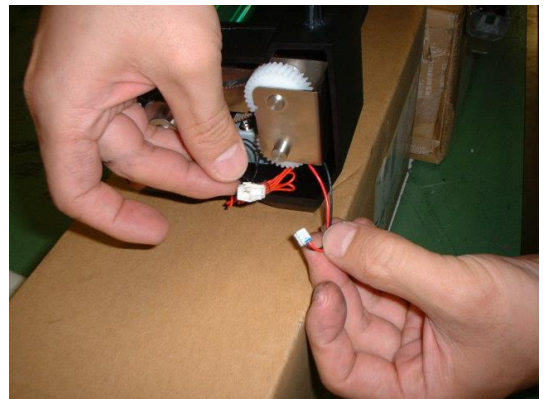
1. Loosen the two screws as shown in the photo.



2. Remove the screws at the two locations shown in the photos.



3. Cut the cable tie and unplug the connector.



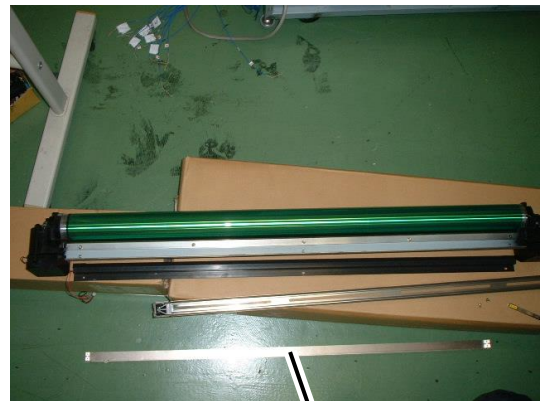
4. Remove the ERASER ASSY.



### 9.13.7 BLADE(CLEANER)MNT

<Removal>

1. Remove the DRUM-OPC-ASSY-M-03  
(See p. 9-148).
2. Remove the ERASER ASSY  
(See p. 9-156).
3. Remove the BLADE(CLEANER) with five screws.



BLADE(CLEANER)

<Installation>

#### Cautionary Notes When Performing Installation

Perform the following steps.

- Of the five protrusions on the mount, align the center protrusion with the BLADE(CLEANER).
- Tighten the center screw to secure in place, then press down on both sides to tighten the remaining four screws.



Protrusion



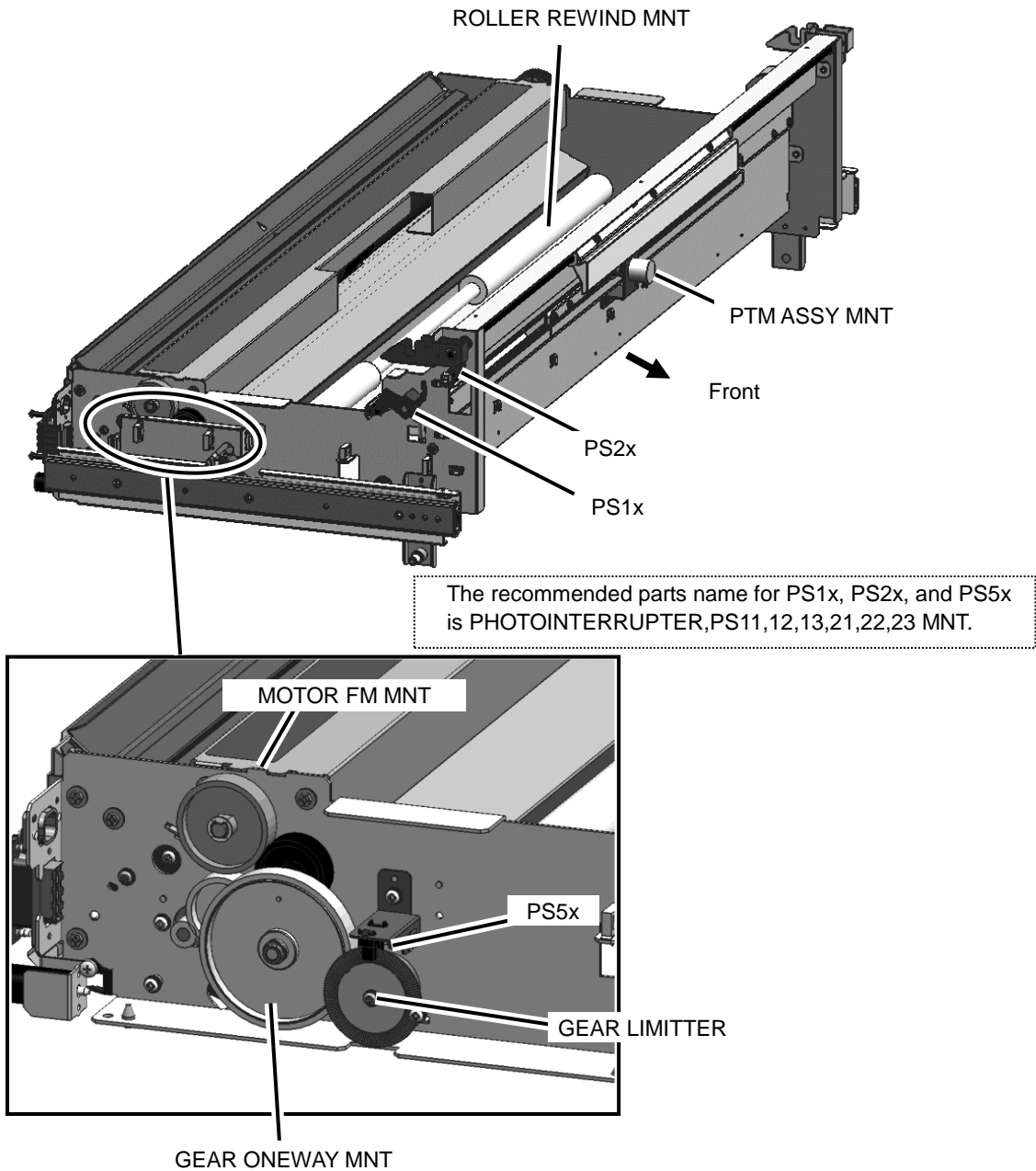
### 9.13.8 FILTER T2 MNT, FILTER FUS MNT

For details on how to install and remove FILTER T2 and FILTER FUS, see **Filter (Large)** and **Filter (Small)** in the **Replacing the Process Cartridge** section of the *User's Manual for Basic Printer Operation*.

## 9.14 ROLL FEED UNIT

### 9.14.1 Main Recommended Parts Arrangement on the ROLL FEED UNIT

The installation locations of the major recommended parts for this unit are noted below.

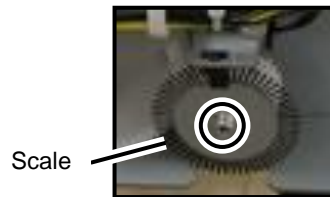


Removal instructions for the recommended parts inside the ROLL FEED UNIT are given below. However, instructions for parts with the same code that only have a different installation location are omitted if they can be removed via the same procedure.

### 9.14.2 GEAR LIMITTER MNT

<Removal>

1. Remove the roll paper drawer (see p. 9-18).
2. Remove the one screw at the location shown in the photo and remove the scale.



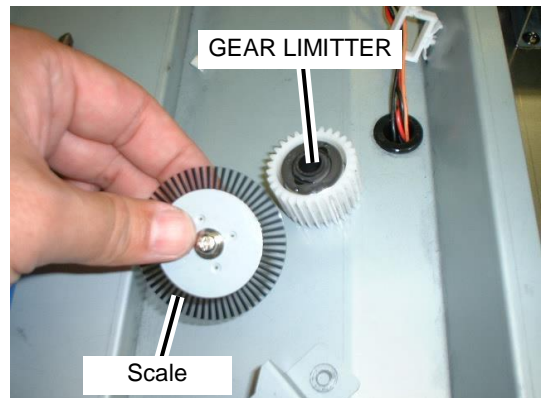
**Note**

Apply some force to the ROLLER REWIND so that the screw does not slip when turning.

3. Remove GEAR LIMITTER.

**Note**

Note that the parallel pin falls out when removing GEAR LIMITTER. Be careful not to lose it.



### 9.14.3 [PS1x][PS2x][PS5x] PHOTOINTERRUPTER MNT

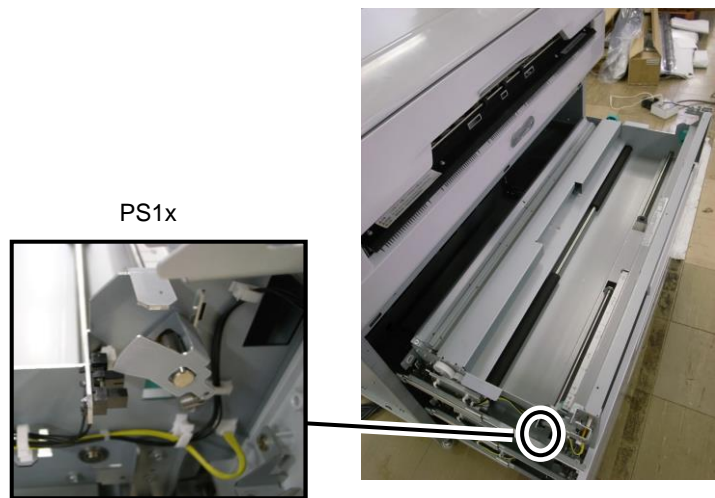
#### (1) PS1x Roll paper flange detection sensor

##### Note

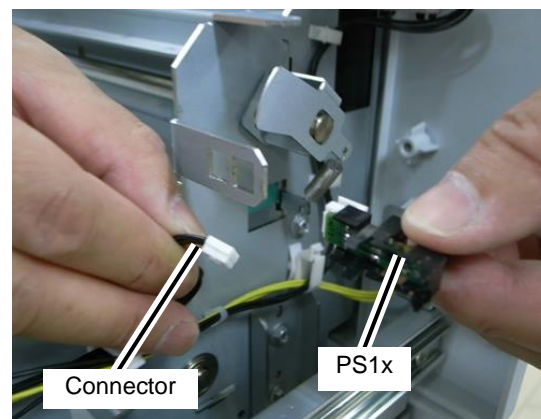
The x in PS1x indicates the roll number.

<Removal>

1. Open the roll paper drawer.



2. Pinch the PS1x clamp and remove the PS1x.
3. Unplug the PS1x connector.



(2) PS2x Roll paper drawer open/close sensor

**Note**

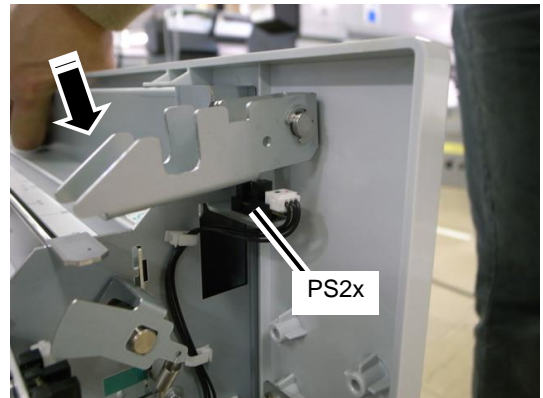
The x in PS2x indicates the roll number.

<Removal>

1. Open the roll paper drawer.



2. Unplug the PS2x connector.
3. Press the edge of the latch and remove the PS2x with pinching the PS2x clamp.



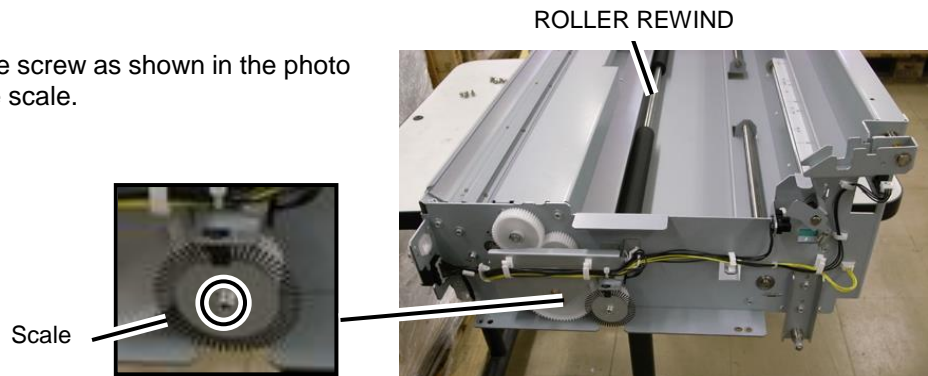
### (3) PS5x Roll paper near end detection sensor (PS5x)

#### Note

The x in PS5x indicates the roll number.

<Removal>

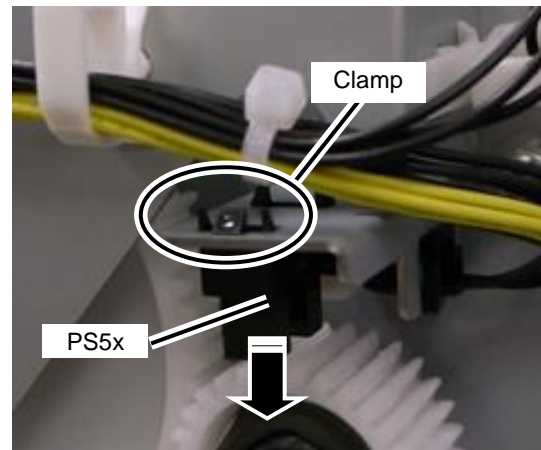
1. Remove the roll paper drawer (see p. 9-18).
2. Remove the one screw as shown in the photo and remove the scale.



#### Note

Apply some force to the ROLLER REWIND so that the screw does not slip when turning.

3. Pinch the PS5x clamp and remove the PS5x by pulling down.
4. Unplug the PS5x connector.



### 9.14.4 ROLLER REWIND MNT

ROLLER REWIND MNT

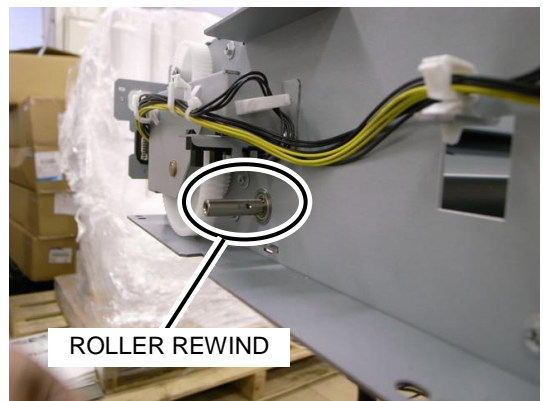


<Removal>

1. Remove the GEAR LIMITTER (see p. 9-161).



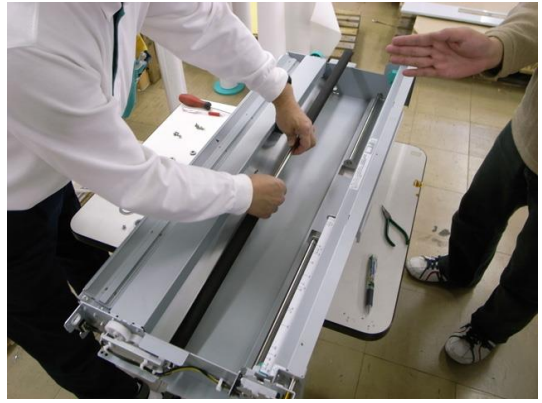
2. Remove the E-ring and bearings at the location shown in the photo.



3. Remove the E-ring and bearings on the opposite side.



4. Slide the shaft to the hole on the GEAR LIMITTER side and remove the ROLLER REWIND.





### 9.14.5 GEAR ONEWAY MNT

<Removal>

1. Remove the roll paper drawer (see p. 9-18).

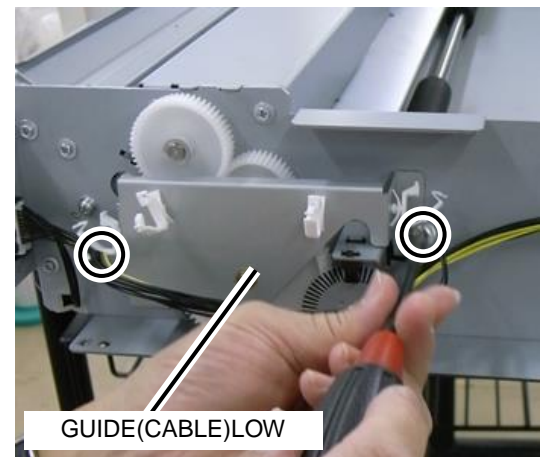
ROLLER REWIND



2. Remove the wiring from the cable clamps as shown in the photo.



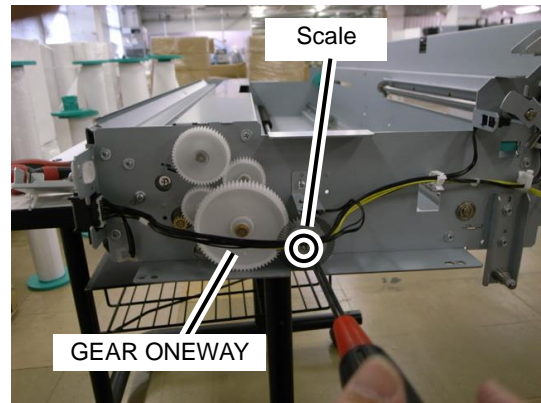
3. Remove the GUIDE(CABLE)LOW with two screws.



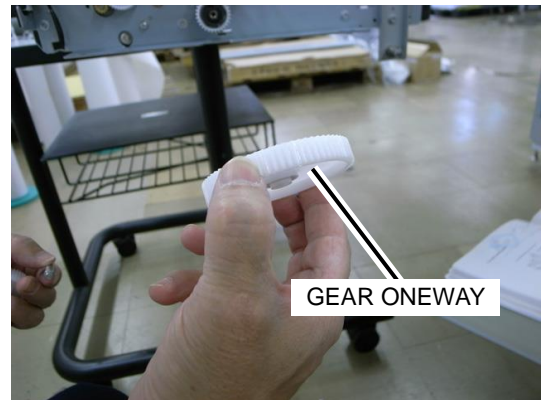
4. Remove the one screw as shown in the photo and remove the scale.

**Note**

Apply some force to the ROLLER REWIND so that the screw does not slip when turning.

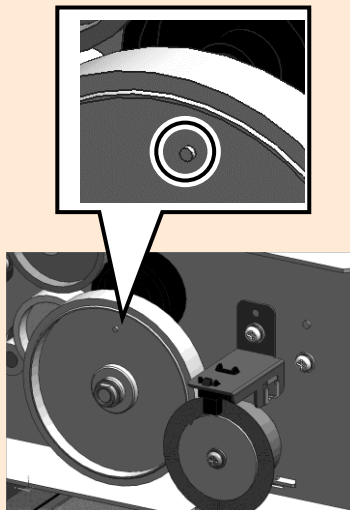


5. Remove the GEAR ONEWAY.



**Cautionary Notes When Performing Installation**

Install the GEAR ONEWAY carefully so that its protrusion shown in the figure appears on the front side.



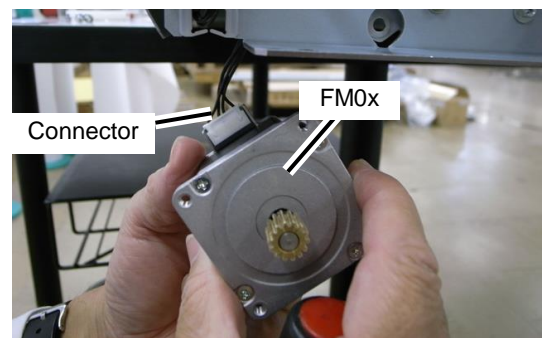
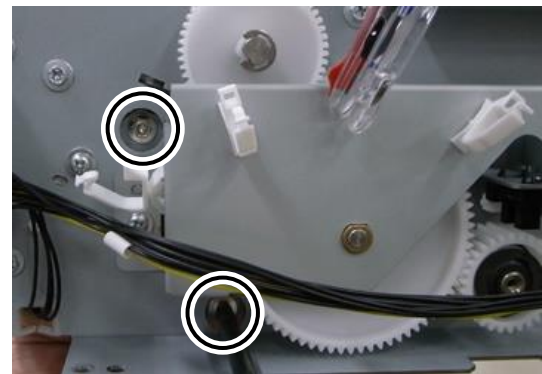
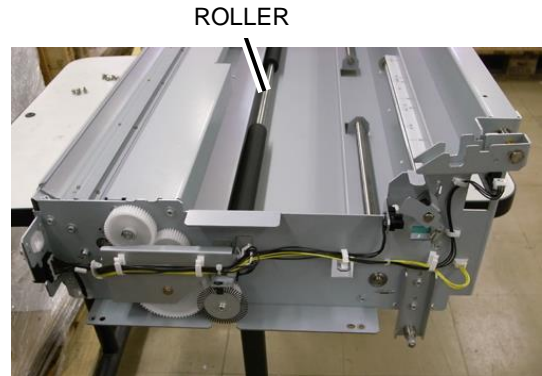
### 9.14.6 [FM0x] MOTOR FM MNT

**Note**

The x in FM0x indicates the roll number.

<Removal>

1. Remove the roll paper drawer (see p. 9-18).
  
2. Remove the two screws as shown in the photo.
  
3. Remove the FM0x.



**Cautionary Notes When Performing Installation**

As shown in the photo to the right, ensure that the connector is on the upper left when installing.

4. Unplug the connector.



## 9.14.7 [PT0x] PTM ASSY MNT

### Note

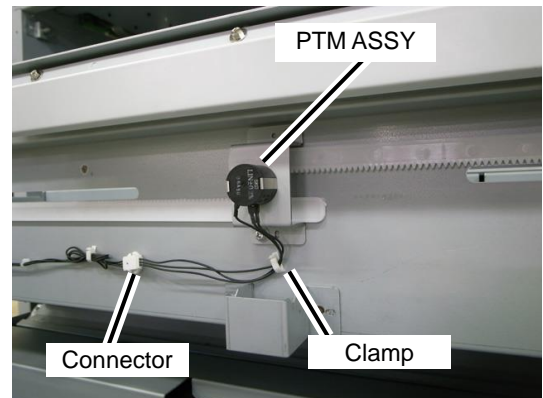
The x in PT0x indicates the roll number.

<Removal>

1. Remove the roll paper drawer cover (see p. 9-18).



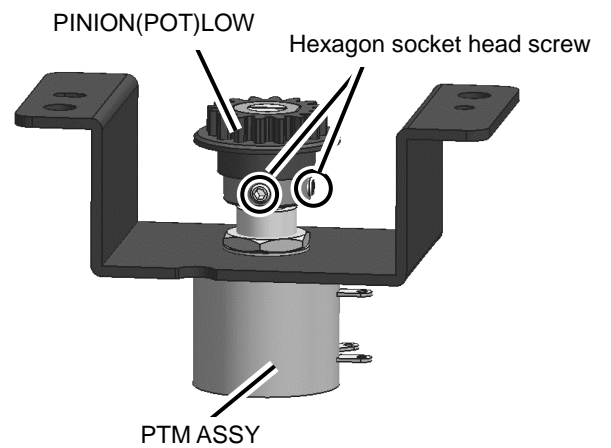
2. Remove the cords connected to the PTM ASSY from the clamp and unplug the connector.



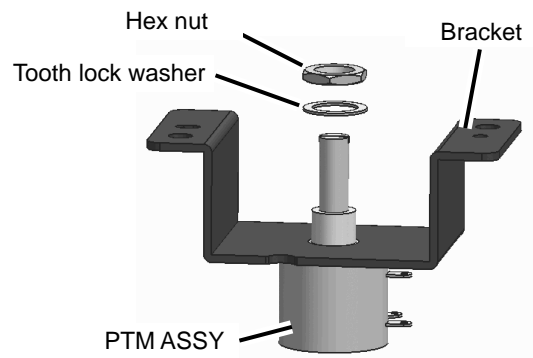
3. Remove the PTM ASSY along with the bracket with two screws.



4. Loosen the two hexagon socket head screws and remove the PINION(POT)LOW.

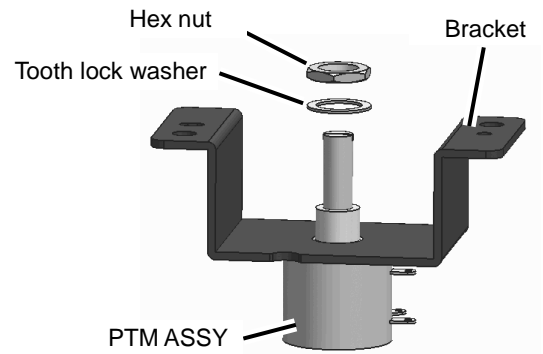


5. Remove the hex nut and tooth lock washer, then remove the PTM ASSY.

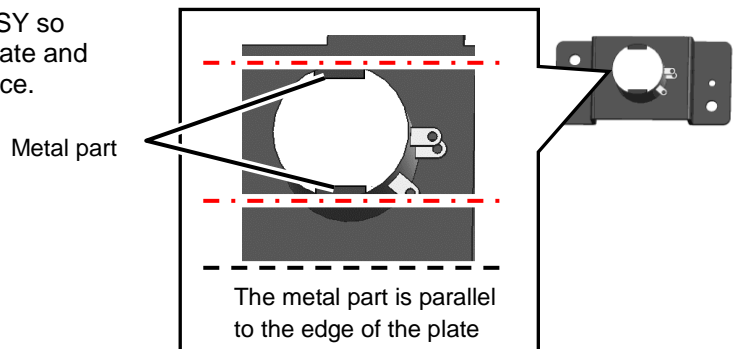


<Installation>

1. Install the PTM ASSY onto the BRACKET(POT-FRONT).



2. Attach the hex nut and tooth lock washer, and secure temporarily.
3. Adjust the metal part of the PTM ASSY so that it is parallel to the edge of the plate and tighten the hex nut to secure it in place.

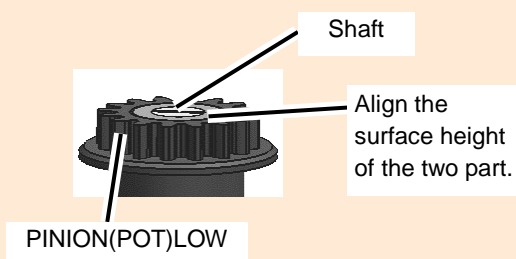


4. Install the PINION(POT)LOW and secure the two hexagon socket head set screws.

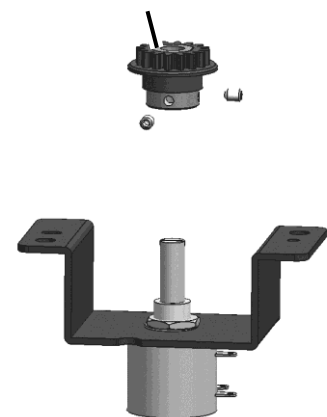
**Note**

Before securing the screws, align the height of the two below:

- PTM ASSY shaft's top surface
- PINION (POT) LOW's top surface

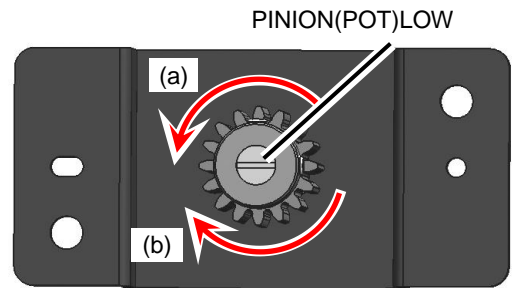


PINION(POT)LOW

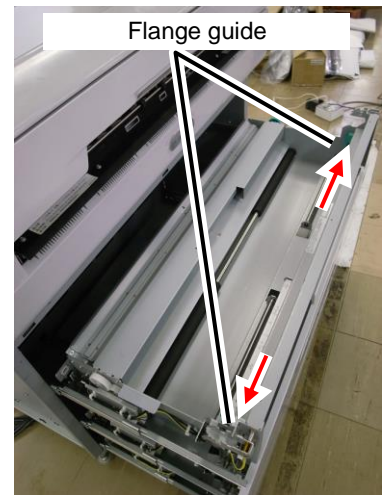


**5.** Perform potentiometer phase adjustments (initialization).

- (a) Rotate the PINION(POT)LOW counter-clockwise until it stops.
- (b) Rotate the PINION(POT)LOW back clockwise for one full rotation.



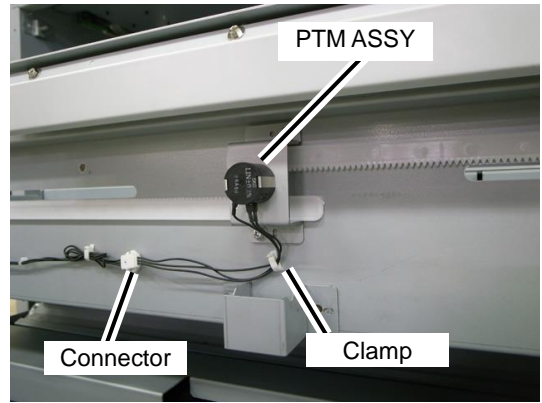
**6.** Move the flange guides to both sides.



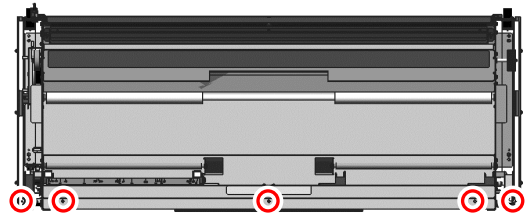
**7.** Install the bracket with two screws.



8. Run the PTM ASSY cord through the clamp and connect the connector.



9. Install the roll paper drawer cover.





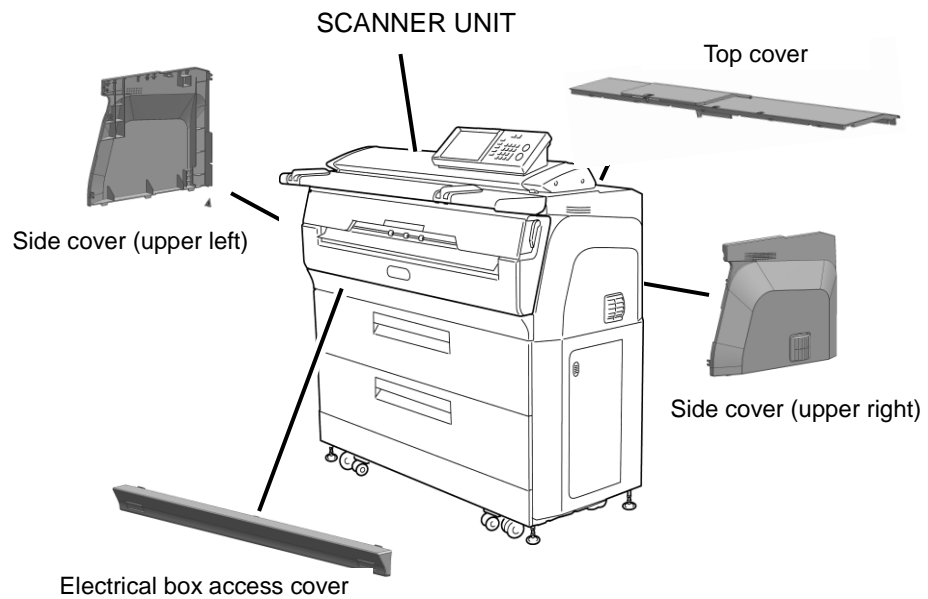
## 9.15 SCANNER UNIT (Multifunction Model Only)

### 9.15.1 GLASS DOCUMENT MNT



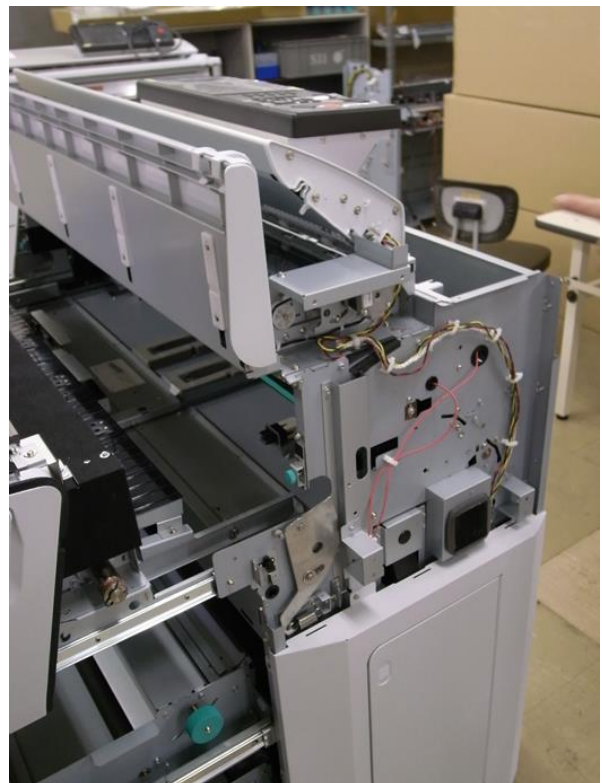
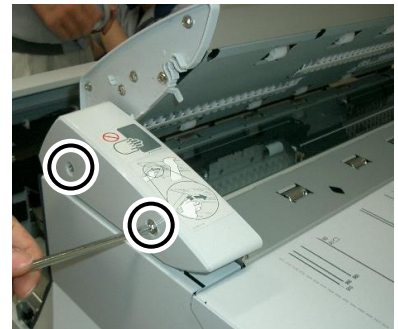
<Removal>

1. Remove the following parts.
  - Top cover (see p. 9-5)
  - Electrical box access cover (see p. 9-7)
  - Side cover (upper left) (see p. 9-8)
  - Side cover (upper right) (see p. 9-10)



2. Remove the COVER-SC-L with two screws.

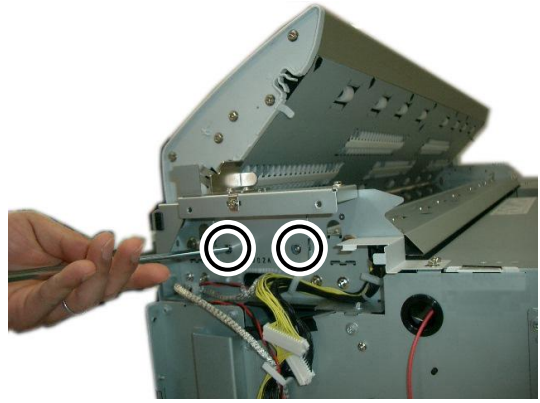
3. Remove the COVER-SC-R with two screws.



4. Loosen the two screws holding down the scanner glass on the left side of the scanner cover.

**Note**

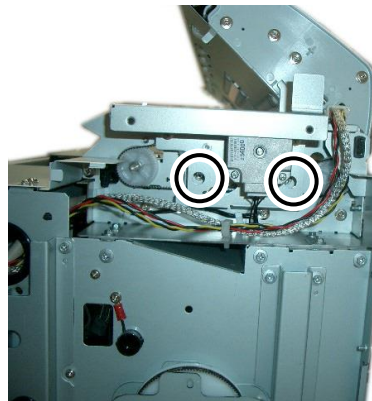
Do not remove the screws.



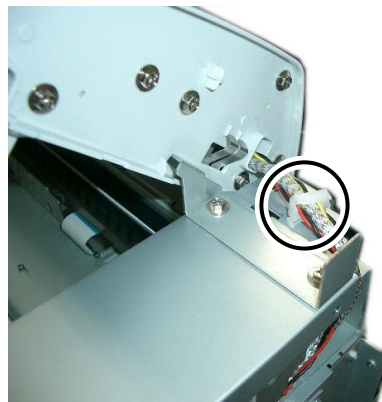
5. Loosen the two screws holding down the scanner glass on the right side of the scanner cover.

**Note**

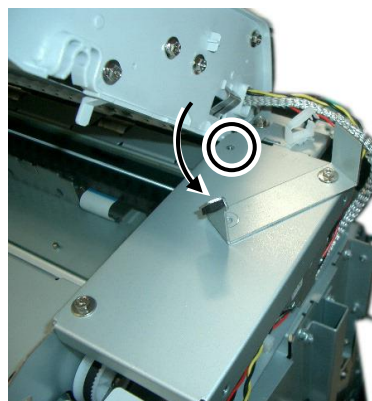
Do not remove the screws.



6. Remove the clamp at the location shown in the photo.



7. Remove only one of the screws securing STOPPER-PINCH-UNIT-R, then use the other screw as a pivot point to slide the part over as shown in the photo.



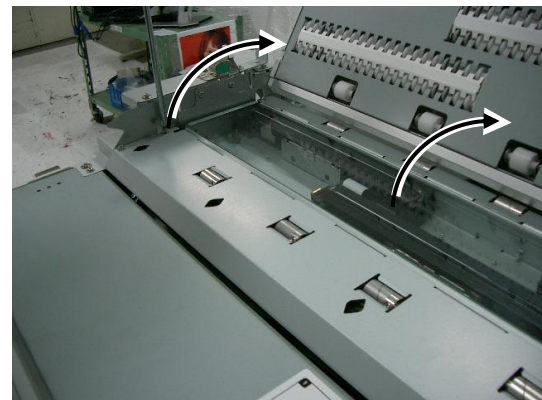
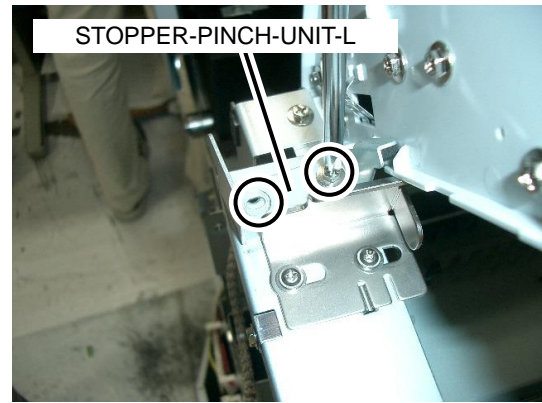
8. Remove the screw on the outside of STOPPER-PINCH-UNIT-L, which is located on the left side of the scanner cover. Loosen the screw on the inside.

9. Use the screw you loosened on STOPPER-PINCH-UNIT-L as a pivot point so that you can rotate the scanner cover such that it is open completely.

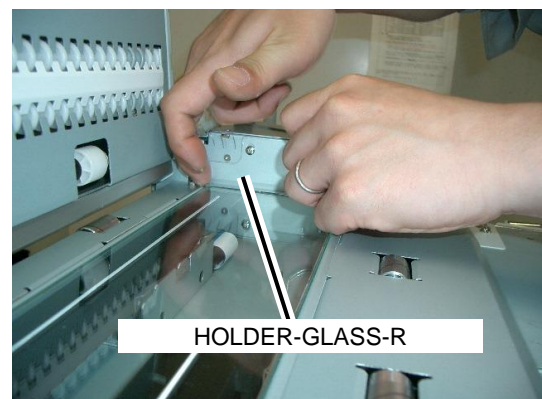
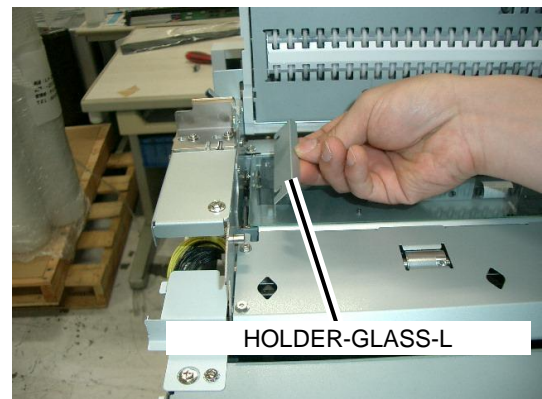
10. Slowly tilt the scanner cover to the rear and let go of it only when it stops moving any further.

### Notes

- Some of the photos below show the scanner cover stopped upright, but when performing these steps yourself, you need to lay the scanner cover down completely.
- Be careful not to exert too much force on the scanner cover or hit it with anything while working.



11. Pull upwards to remove the right and left plates:  
- HOLDER-GLASS-L; and  
- HOLDER-GLASS-R  
that secure the scanner glass (GLASS DOCUMENT).

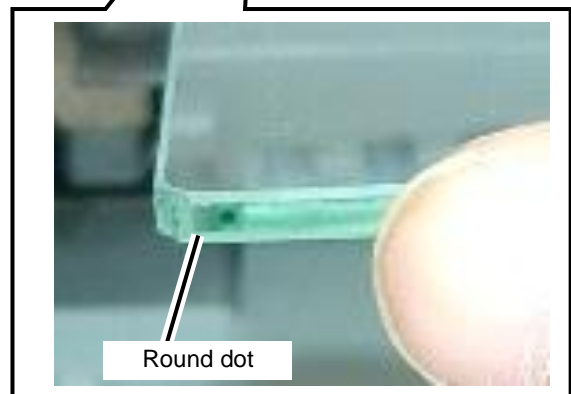
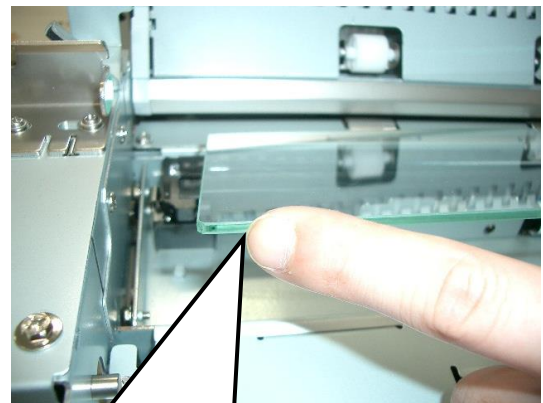


**12.** Remove the GLASS DOCUMENT MNT.

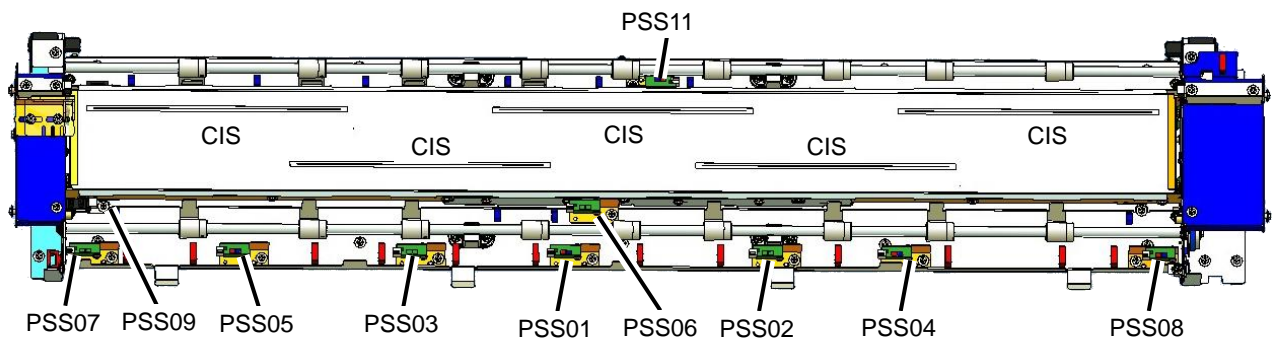


**Cautionary Notes When Performing Installation**

- Take note of the direction GLASS DOCUMENT is facing when installing. Make sure that the round dot is nearest to you and on the left side.
- When installing, secure the screws on the plates:
  - HOLDER-GLASS-L; and
  - HOLDER-GLASS-R)holding down the scanner glass, while:
  - holding the plates downwards; and
  - pulling them towards you.



### 9.15.2 [PSS01to 08] REFLECTIVE PHOTOSENSOR MNT (CIS unit front side) and [PSS09] PHOTOINTERRUPTER MNT (cover open/close sensor)



<Removal>

1. Remove GUIDE-FRONT-SC with four screws.



GUIDE-FRONT-SC

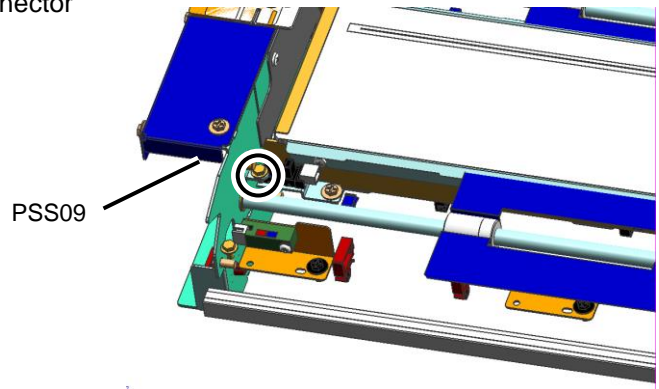
2. Remove the reflective photosensors PSS01 to 08 by removing each one's connector and screw.

**Note**

When removing, some plates and/or connectors may be in the way. If this happens, remove those parts in the way.



3. Remove PSS09 by unplugging the connector and unscrewing the bracket screw.



### 9.15.3 [PSS11] REFLECTIVE PHOTSENSOR MNT (behind CIS unit)

<Removal>

1. Close the scanner cover.

#### Note

Be sure to close the scanner cover here to prevent the misalignment of:

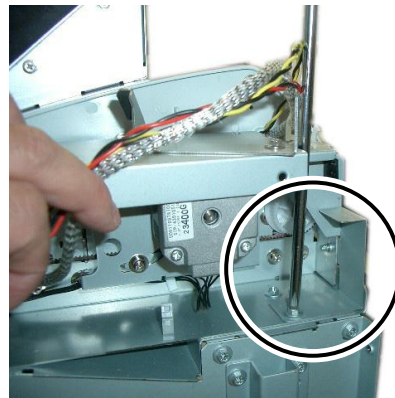
- ROTARY-DAMPER-R and ROTARY-DAMPER-L grooves; and
- The scanner cover protrusion.

The misalignment may occur when installing the REFLECTIVE PHOTSENSOR MNT.

2. Remove the cabling from the cable clamps to the right of the scanner cover.

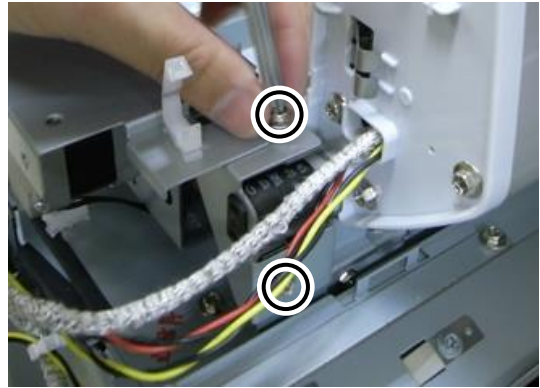


3. Remove the cover plate with two screws at the location shown in the photo.

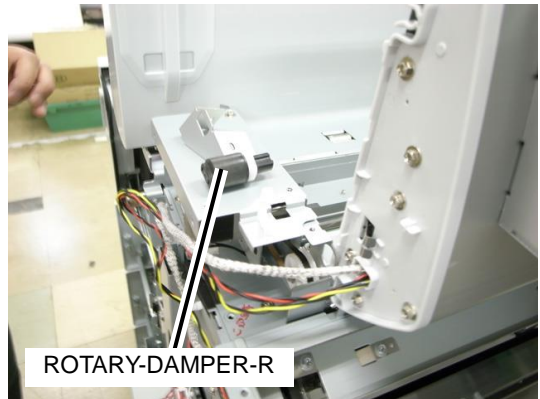




4. Remove the two screws of the plate securing ROTARY-DAMPER-R, shown in the photo.



5. Remove the ROTARY-DAMPER-R.

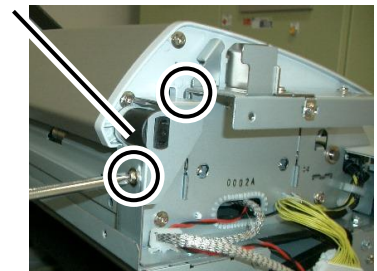


6. Remove the two screws from the plate securing ROTARY-DAMPER-L, then remove ROTARY-DAMPER-L.

**Note**

There is no cover plate on the left side.

ROTARY-DAMPER-L



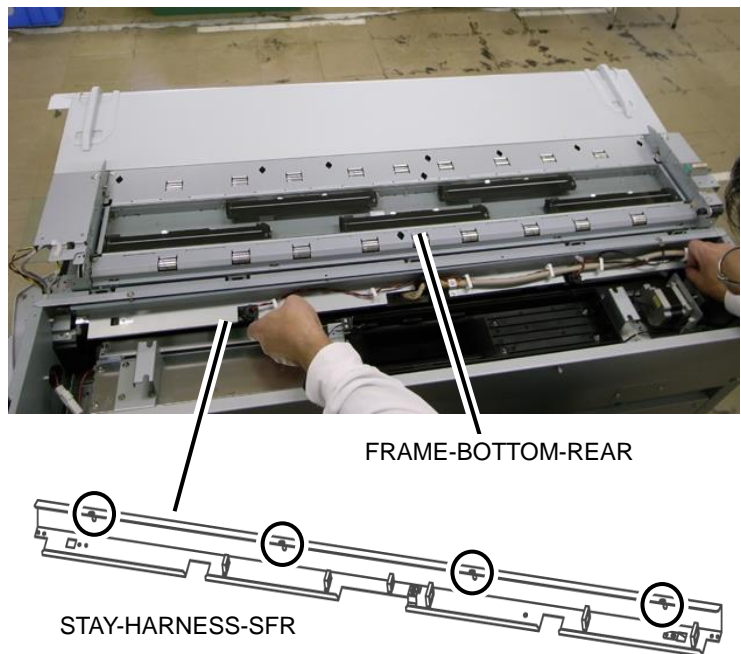
7. Remove the scanner cover, then stand it up to the right side of the Printer.

**Note**

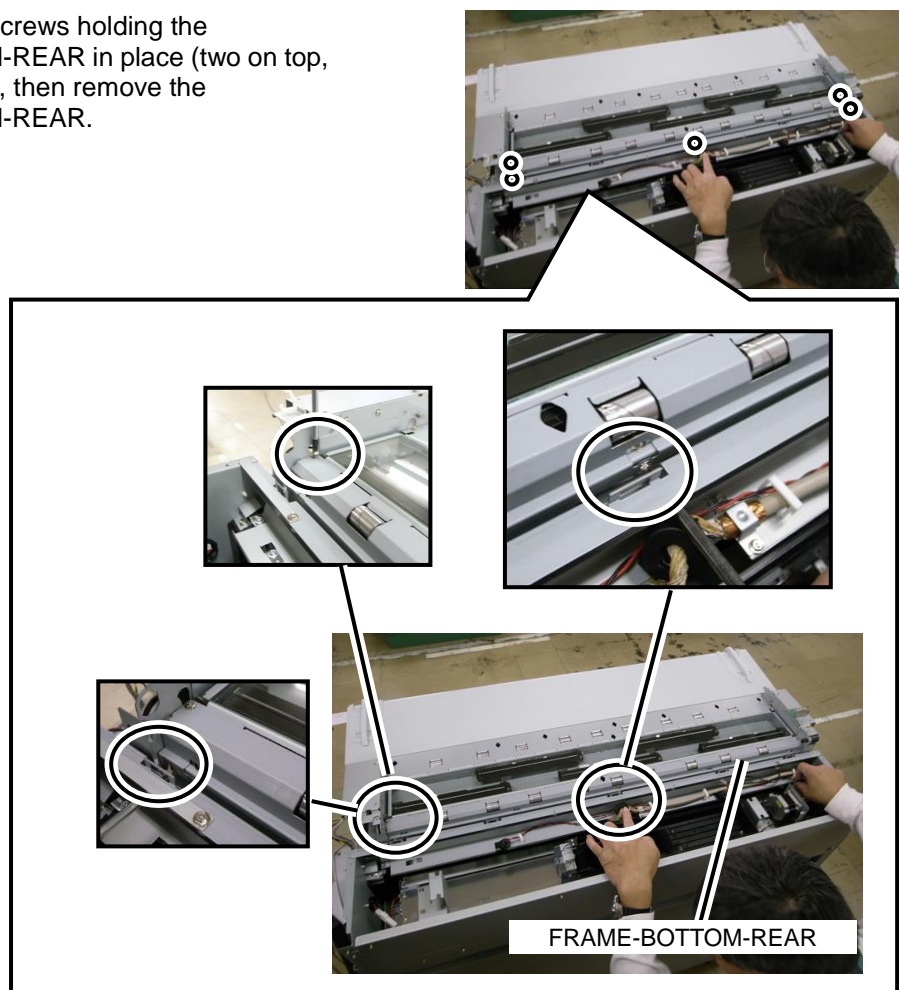
Be careful not to knock over the scanner cover while working.



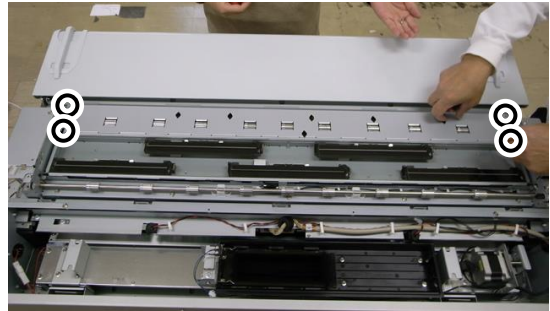
8. Loosen the four screws of the STAY-HARNESS-SFR. Note that the STAY-HARNESS-SFR is at the front side of the FRAME-BOTTOM-REAR.



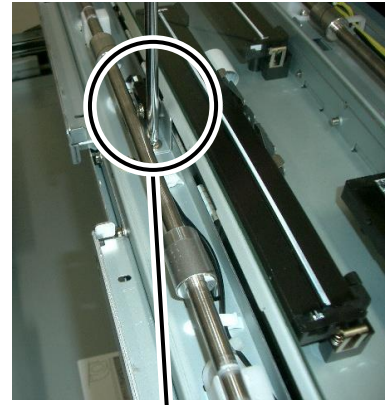
9. Remove the five screws holding the FRAME-BOTTOM-REAR in place (two on top, three on the front), then remove the FRAME-BOTTOM-REAR.



10. Remove the GUIDE-FRONT-SC with four screws.



11. Unplug the connector connected to the PSS11.
12. Remove the bracket with one screw securing the PSS11.
13. Remove the PSS11 with one screw from the bracket.



PSS11 (Located to the rear of the CIS unit)

#### 9.15.4 ROLLER SC ASSY MNT

The following section describes the steps to remove the front roller of the two ROLLER SC ASSY In the SCANNER UNIT.

The rear roller can be removed by following these same instructions.

#### Note

When installing the front side roller, you must secure the screws only after aligning the position in the same way as the installation of CIS UNIT, which is discussed later in this chapter.

<Removal>

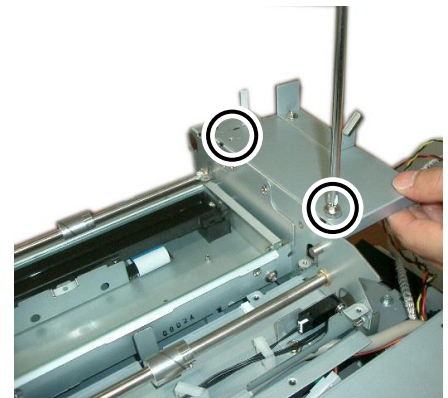
1. As explained in the previous section [PSS11] REFLECTIVE PHOTOSENSOR MNT (behind CIS unit), remove the scanner cover and lean it against the side of the Printer.

#### Note

Be careful not to knock over the scanner cover while working.

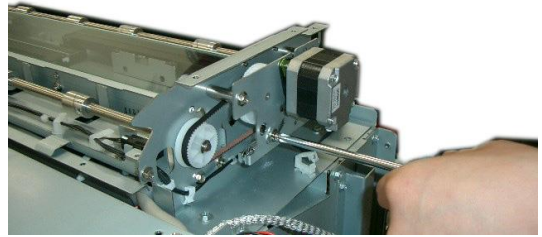


2. Remove the plate with two screws from the right side of the Printer at the location shown in the photo.

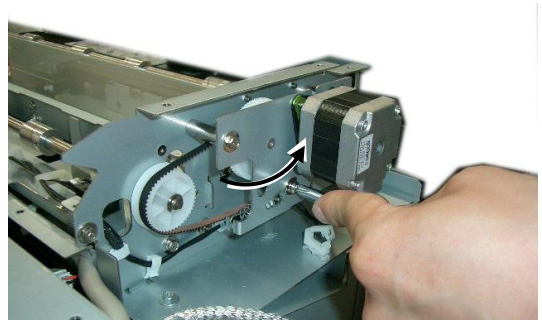


**3.** Remove the timing belt from the pulley.

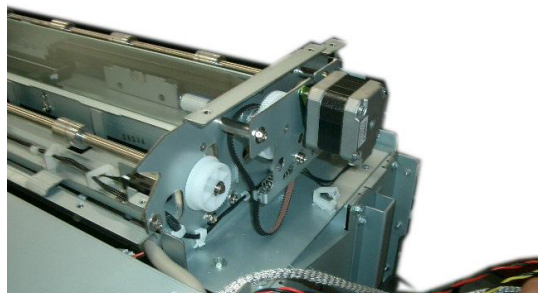
(a) Loosen the screw shown in the photo.



(b) Move the loosened screw to the right side of the guide and tighten it temporarily.

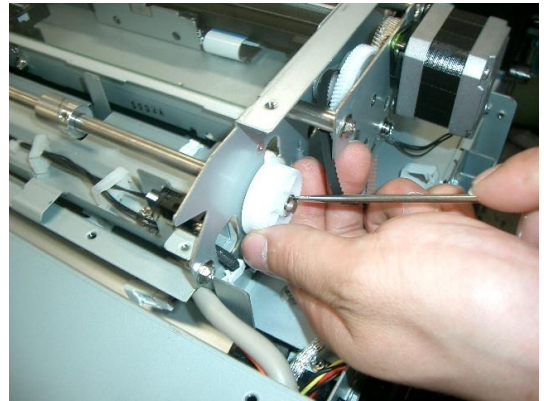


(c) Remove the timing belt from the pulley.



**4.** Remove the following parts from the right side of the ROLLER SC ASSY's shaft.

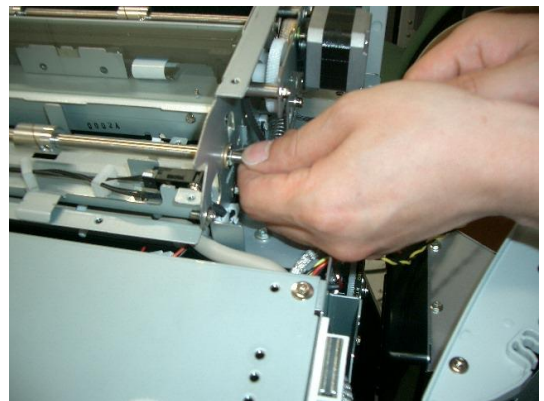
(a) E-ring



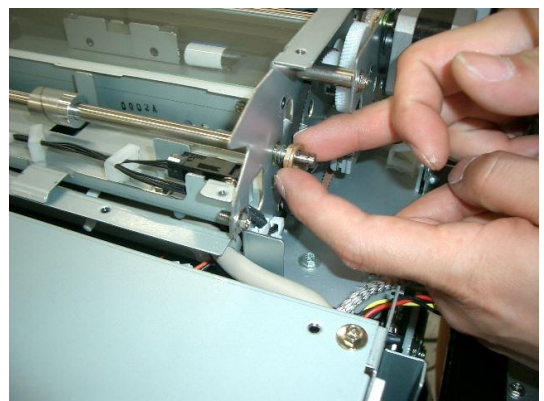
(b) Pulley



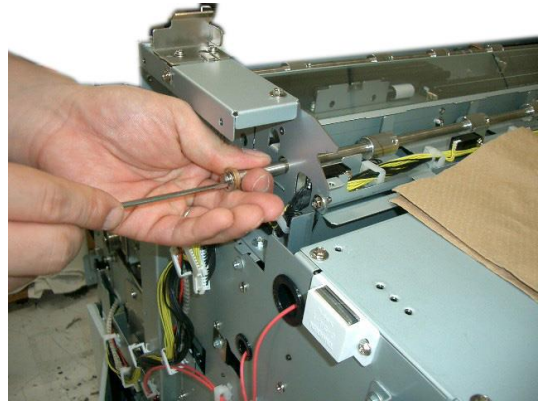
(c) E-ring



(d) Bush



5. Remove the E-ring and bush from the left side of ROLLER SC ASSY's shaft.



6. Remove ROLLER SC ASSY.

To remove, lightly insert the shaft into the hole on the left plate and remove the right side first.



ROLLER SC ASSY

## 9.15.5 ROLLER PINCH KK MNT

<Required tools>

- Phillips screwdriver
- ROLLER PINCH KK MNT (U00131647400) x6
- Bubble wrap

### Note

To prevent damage to the document table, lay bubble wrap onto the document table before starting the procedure.

<LCD panel removal>

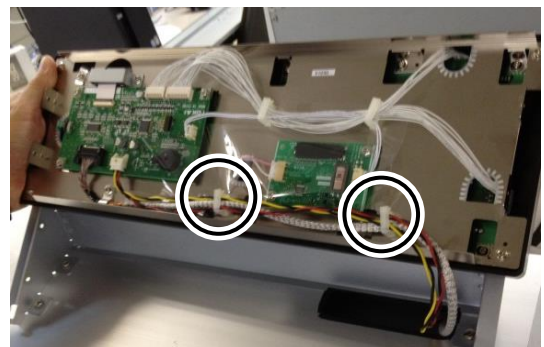
1. Remove the four screws securing the LCD panel.



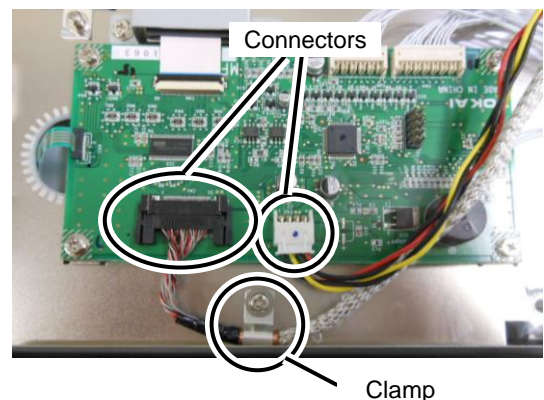
2. Raise the LCD panel and remove the harness from the two clamps.

### Note

Do not raise the LCD panel too high as it may damage the harness.



3. Place the LCD panel upside-down onto the document table, remove the clamp with one screw, disconnect the harnesses from the two connectors, and remove the LCD panel from the printer. Remove also completely the harness from the clamp. Keep carefully the LCD panel until the next time you will use it.





<SC-TOP-COVER removal>

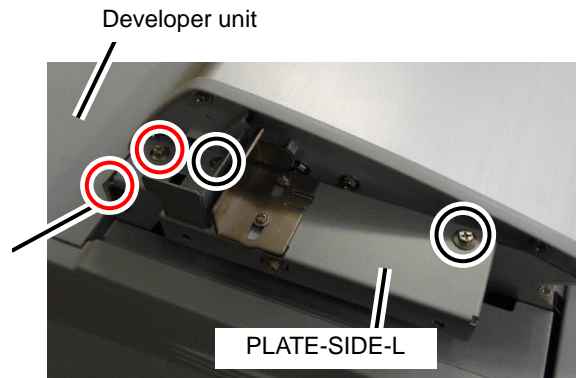
1. Remove the OVER-SC-R and the COVER-SC-L with four screws.



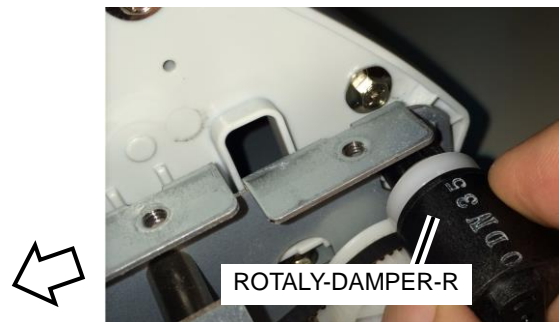
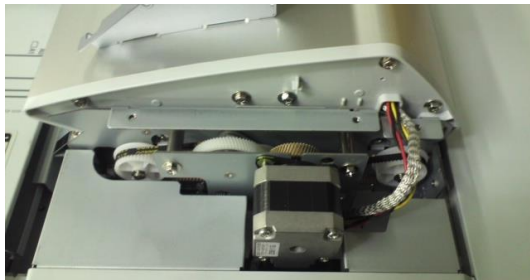
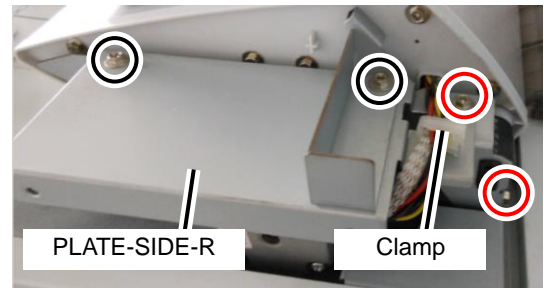
2. Remove the side cover (upper left) (see p. 9-8).
3. Remove the side cover (upper right) (see p. 9-10).

4. Remove the PLATE-SIDE-L with two screws (circled in black) and the ROTARY-DAMPER-L with two screws (circled in red).

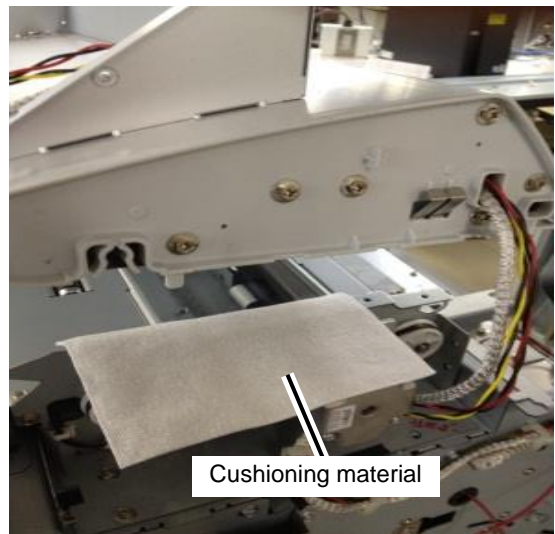
Remove the developer unit cover if you have difficulties removing these screws.



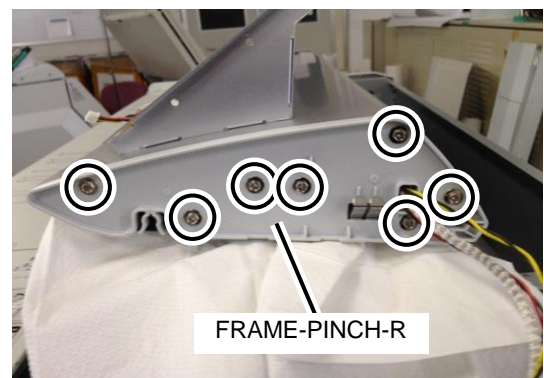
5. Remove:
- the PLATE-SIDE-R with two screws (circled in black);
  - the harness from the clamp; and
  - the ROTARY-DAMPER-R with two screws (circled in red).



6. Lay cushioning material to prevent damage to the shading guide, and place the SC-TOP-COVER as shown in the picture.



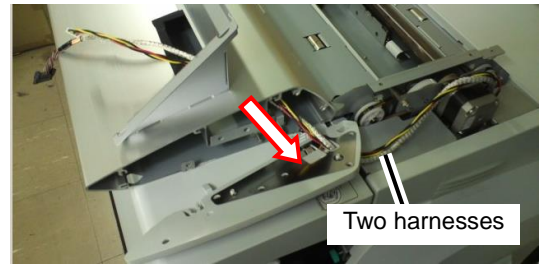
7. Remove the FRAME-PINCH-R with seven screws.



8. Pull the two harnesses out in the direction of the arrow.

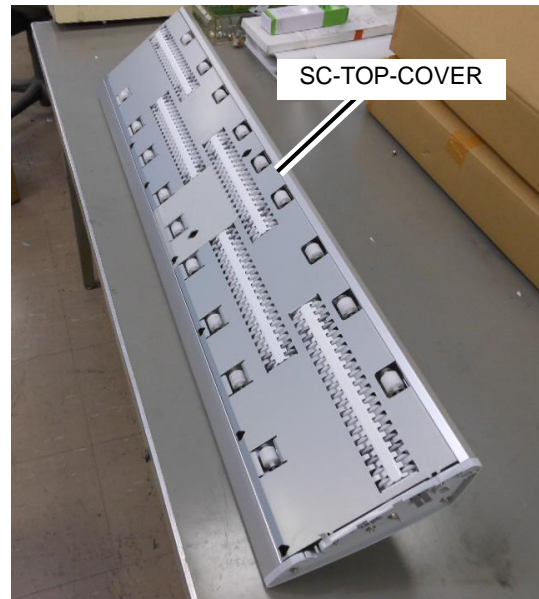
**Note**

Pay attention not to damage the harnesses when pulling them.

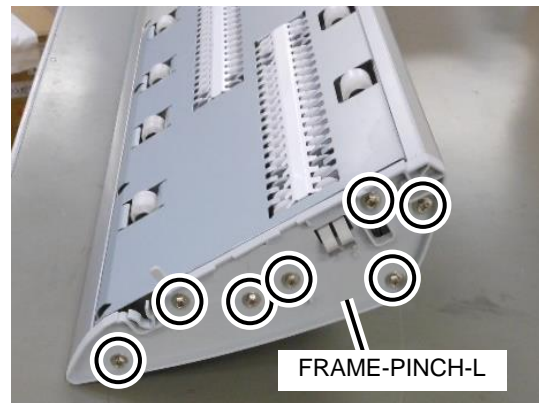


<ROLLER PINCH replacement>

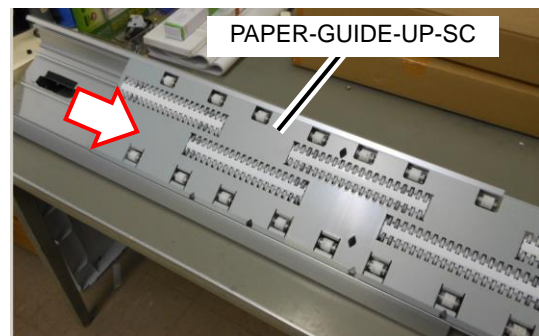
1. Place the SC-TOP-COVER on a table.



2. Remove the FRAME-PINCH-L with seven screws.



3. Slide the PAPER-GUIDE-UP-SC in the direction of the arrow to remove it.



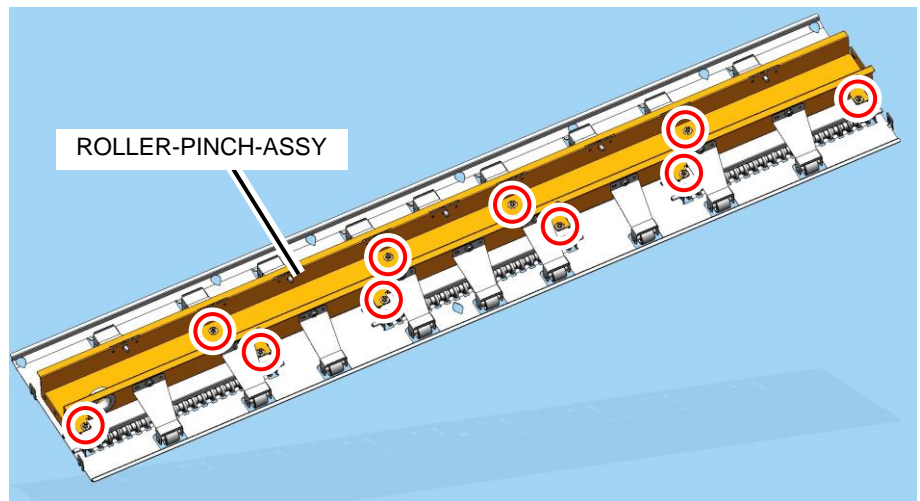
4. Place the PAPER-GUIDE-UP-SC onto the bubble warp.



**Note**

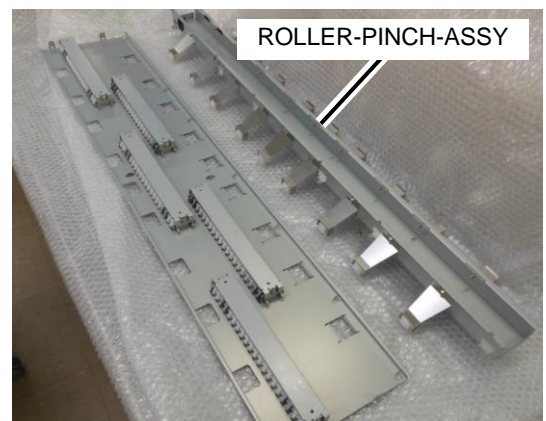
The bubble warp will prevent damage to the PAPER-GUIDE-UP-SC.

5. Remove the ROLLER-PINCH-ASSY with 10 screws.

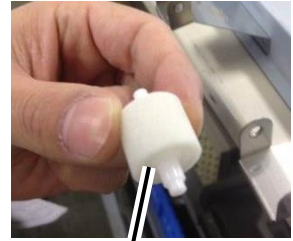


**Note**

Do not apply strength onto the ROLLER-PINCH-ASSY when loosening the screws. Otherwise the plate springs may deform.



6. Remove the old ROLLER PINCH and install the new ROLLER PINCH.



ROLLER PINCH

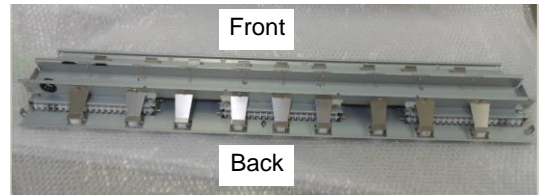
**Note**

Pay attention not to deform the plate springs. After the installation, check that the ROLLER PINCH rotates smoothly.

<SC-TOP-COVER installation>

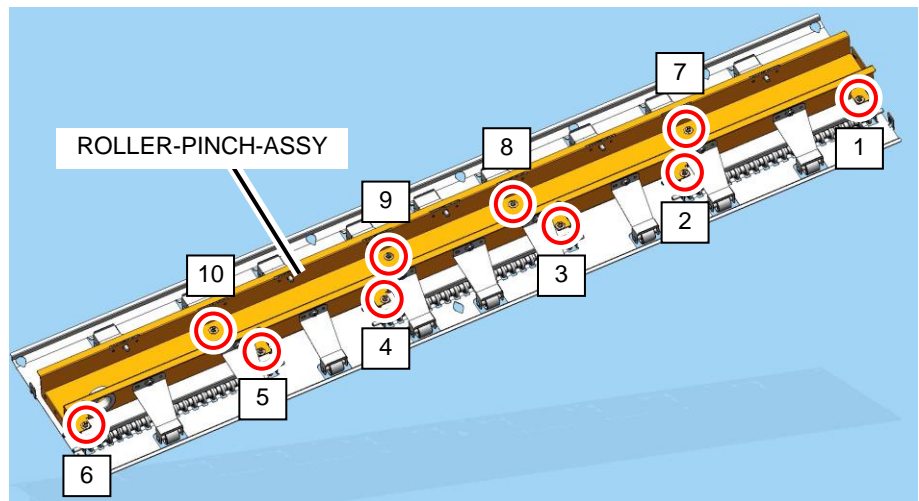
1. Install the ROLLER-PINCH-ASSY.

First tighten the screws temporarily before tightening them definitively.  
Tighten the screws in the order shown below.



**Note**

Do not apply strength onto the ROLLER-PINCH-ASSY when tightening the screws. Otherwise the plate springs may deform.

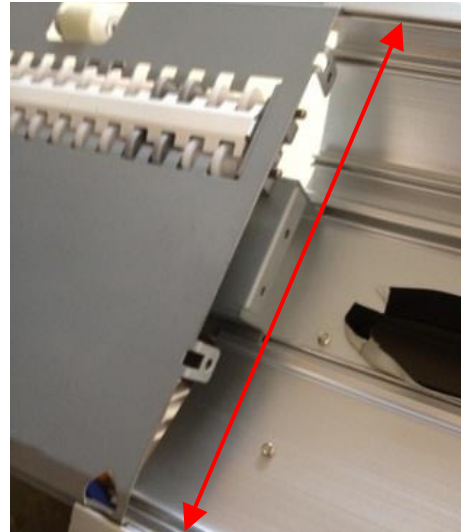


2. Insert the assembled PAPER-GUIDE-UP-SC into the SC-TOP-COVER.

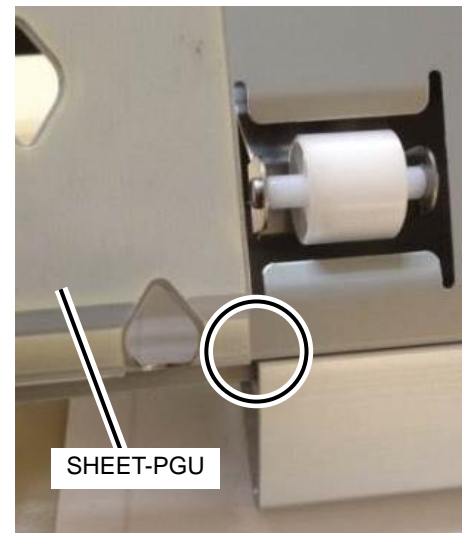
(a) Insert it in the narrow side.



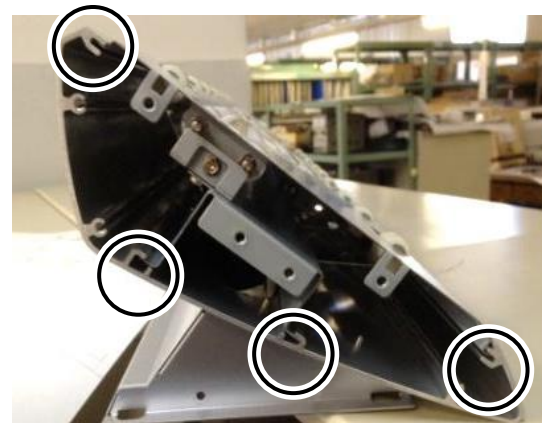
- (b) Insert it in the wide side.



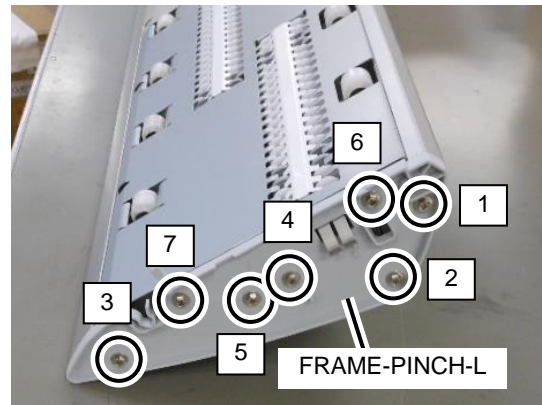
- (c) Slide the PAPER-GUIDE-UP-SC so that the SHEET-PGU does not turn over.



- (d) Check that the PAPER-GUIDE-UP-SC is inserted in all the guides.



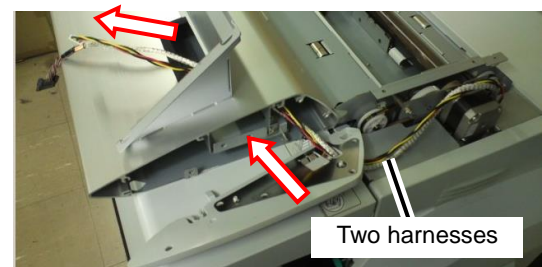
- Secure temporarily the FRAME-PINCH-L to the SC-TOP-COVER with screws, then tighten the seven screws in the order shown in the picture.



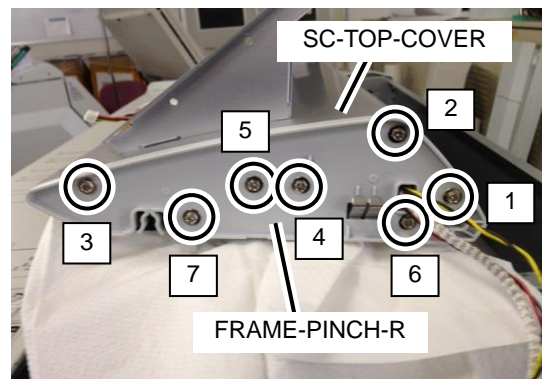
- Insert the two harnesses in the direction of the arrow.

**Note**

Pay attention not to damage the harnesses when inserting them.



- Secure temporarily the FRAME-PINCH-R to the SC-TOP-COVER with screws, then tighten the seven screws in the order shown in the picture.



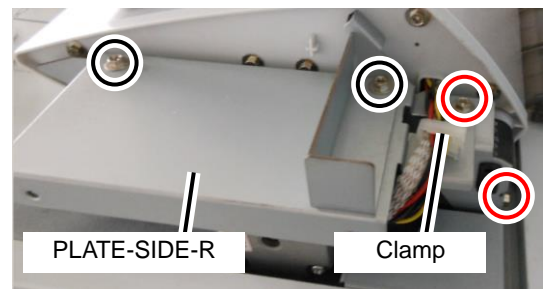
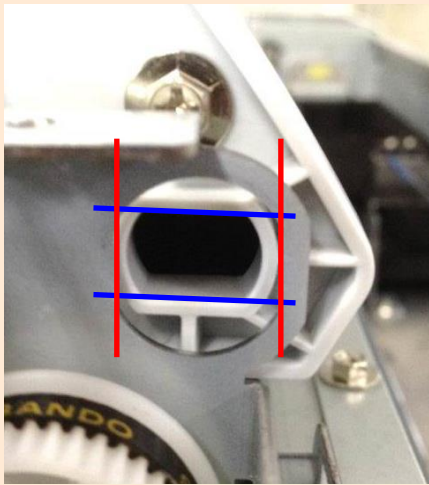


<SC-TOP-COVER installation>

1. Place the SC-TOP-COVER onto the CIS unit (original position), install the ROTARY-DAMPER-L with two screws (circled in red) and the PLATE-SIDE-R with two screws (circled in black), and secure the harness with the clamp.

**Note**

- Match the flat parts on the damper shaft with the white flat plastic parts (shown in blue).
- Match the white flat plastic parts on the damper shaft with the flat metal parts (shown in red).



**Note**

Before installing the dampers, check the damper type. The ROTARY-DAMPER-R must be installed to the right side, and the ROTARY-DAMPER-L to the left side.

How to check the type:

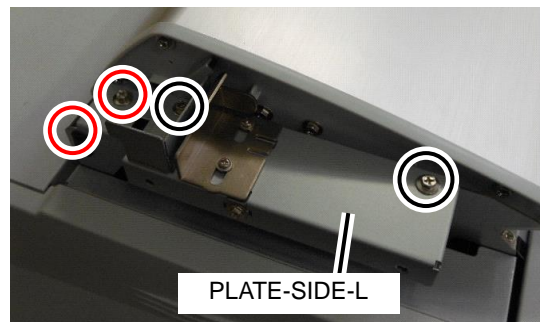
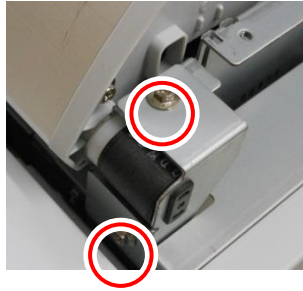
Check the imprint circled in red in the picture on the damper shaft.

The damper can be recognized with the imprinted characters.

- CW: ROTARY-DAMPER-R (for the right side)
- CCW: ROTARY-DAMPER-L (for the left side)



2. Install the ROTARY-DAMPER-L with two screws (circled in red) and the PLATE-SIDE-L with two screws (circled in black).



3. Install the side cover (upper right).
4. Install the side cover (upper left).
5. Install the LCD panel.
6. When the replacement procedure is finished, perform the following calibration operations.  
(See **Chapter 11 Scanner Calibration**)

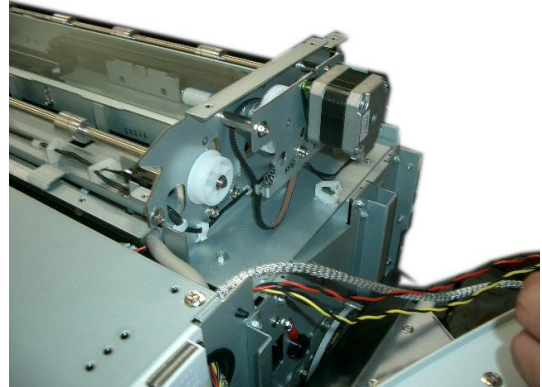
- Scanner calibration

- (a) Shading offset calibration
- (b) Document advance calibration (motor speed calibration)
- (c) Sensor connection calibration in main scanning and subscanning directions (CIS connection calibration)

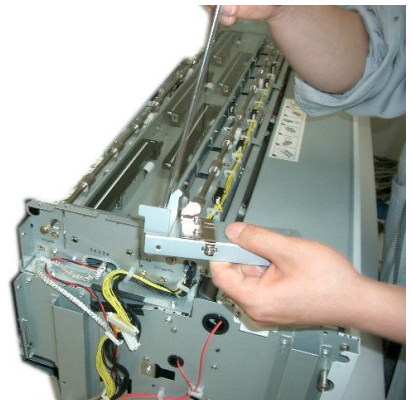
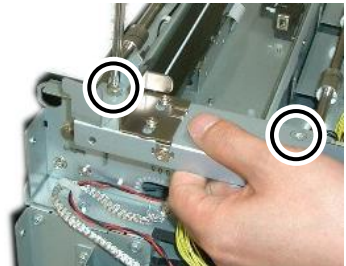
### 9.15.6 CIS UNIT MNT and PCB-ASSY-AIC1 MNT

<Removal>

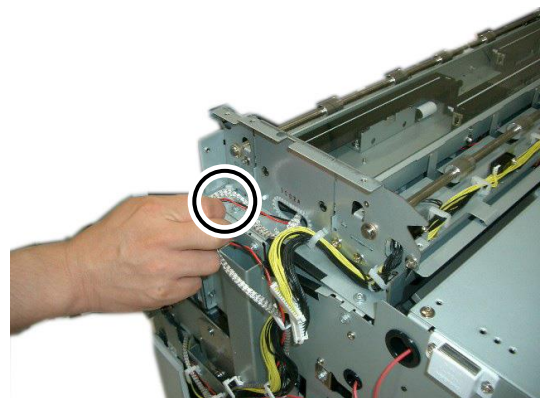
1. Perform the instructions up to the removal of the **ROLLER SC ASSY MNT** roller in the previous section (i.e., the steps up to the removal of the timing belt).



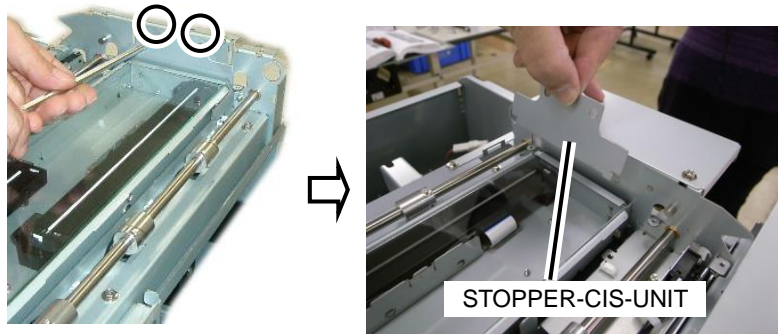
2. Remove the plate with two screws at the location shown in the photo.



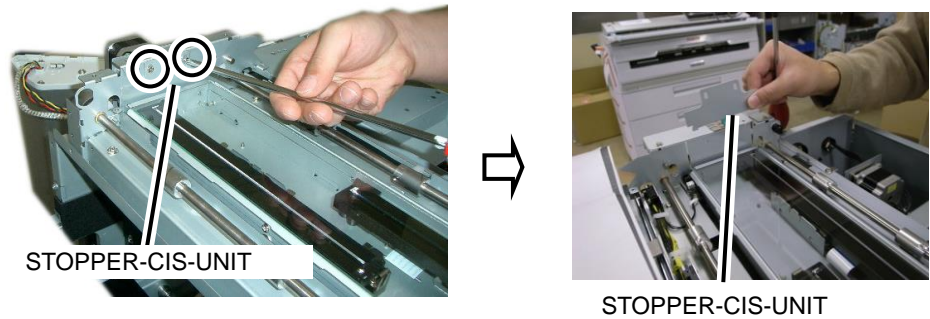
3. Remove the wiring from the cable clamps at the four locations shown in the photo.



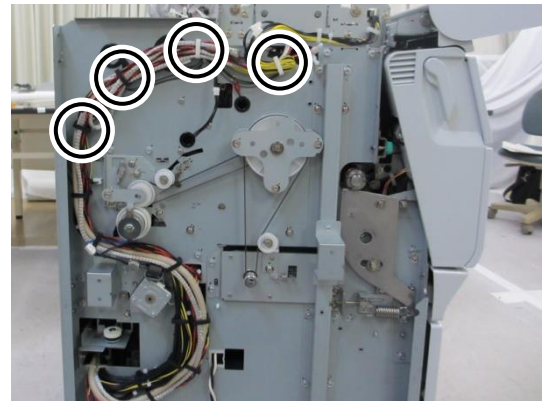
4. Remove STOPPER-CIS-UNIT with two screws on the left side.



5. Remove STOPPER-CIS-UNIT with two screws on the right side.



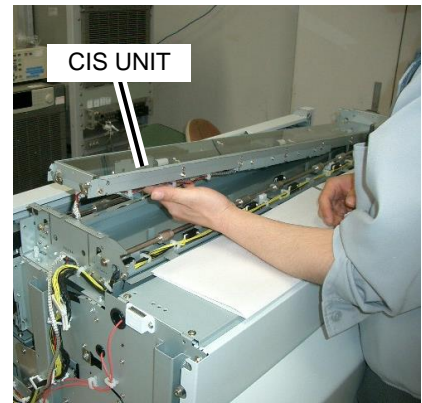
6. Open the four cable clamps and remove the cables.



7. As the CIS UNIT is placed on the document table on the following steps, cover the document table with protective sheets so that the CIS UNIT would not scratch or smear the document table.



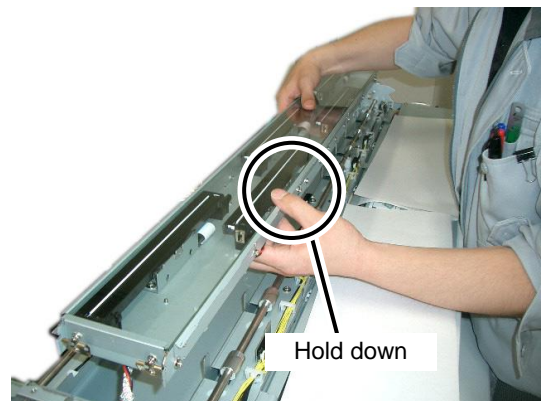
8. Lift up CIS UNIT, starting with the left side first.



9. Remove CIS UNIT while holding down the center area of the scanner glass.

**Note**

Be sure to always hold down the center area of the scanner glass so that the SPACER-CIS does not fall.



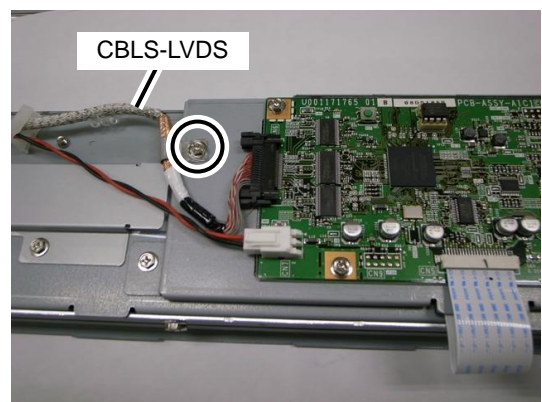
10. While holding down the center area of the scanner glass, put the glass surface facing down and place the CIS UNIT MNT down on the paper you prepared earlier.



11. Remove the CBLS-LVDS clamp with one screw.  
Unplug the connector at the same time.

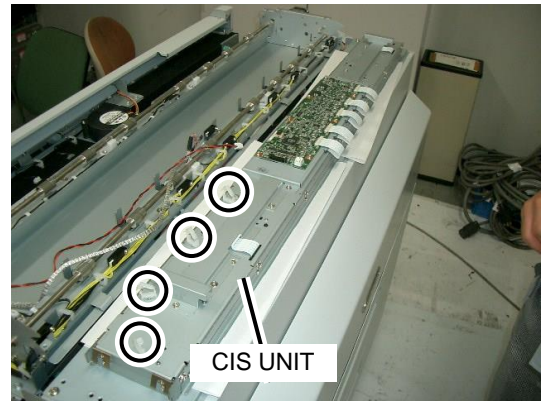
**Cautionary Notes When Performing Installation**

When installing the CBLS-LVDS, use the air blow tool in order to remove any foreign particle from the connecting part.

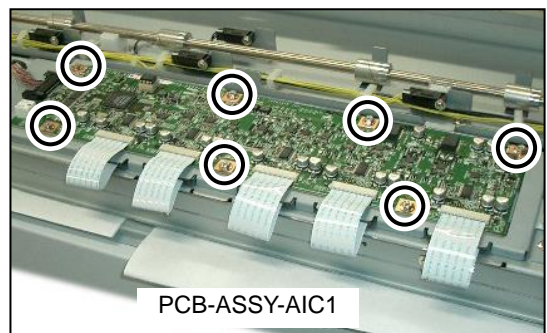
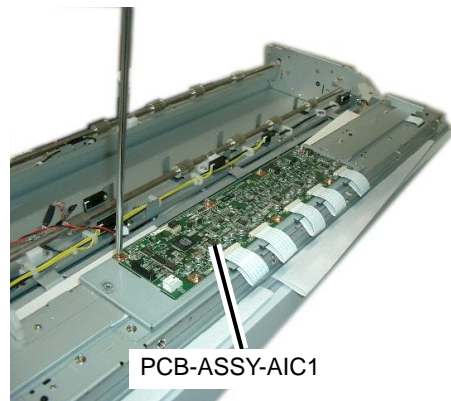


- 12.** Unlock all cable clamp locks and remove all cables.

The completion of this step concludes the removal of CIS UNIT.



- 13.** When removing PCB-ASSY-AIC1, unplug all FFCs and remove PCB-ASSY-AIC1 with seven screws.

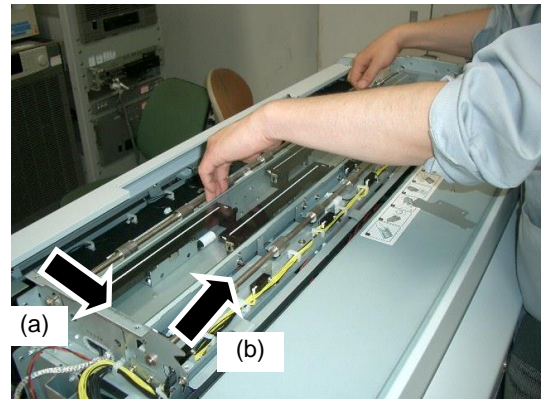


<Installation>

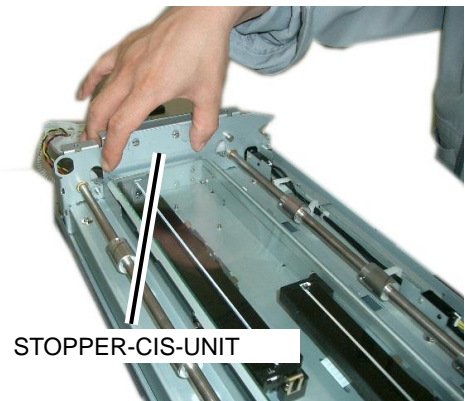
**Note**

When installing CIS UNIT and/or ROLLER SC ASSY, always perform position alignment using the procedure explained below.  
Any other steps required for installation are the same as those for removal, only in the opposite order.

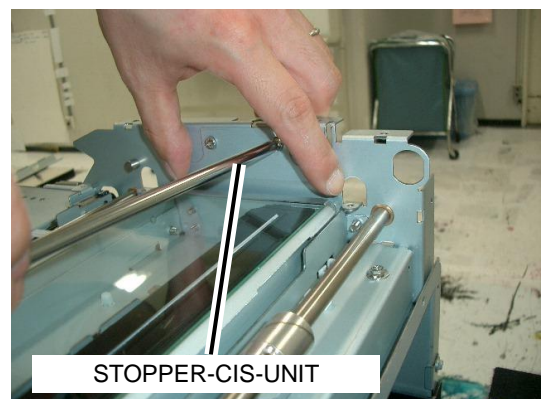
1. Once you have set the CIS UNIT on its position, (a) pull it towards you and (b) move it against the right side.



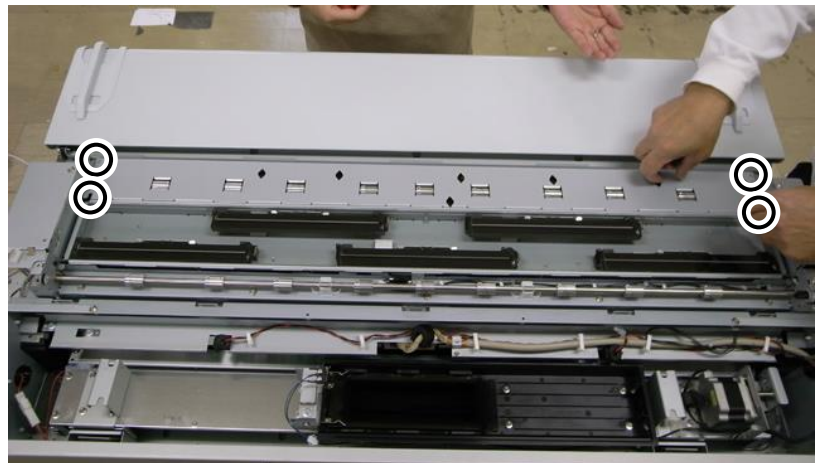
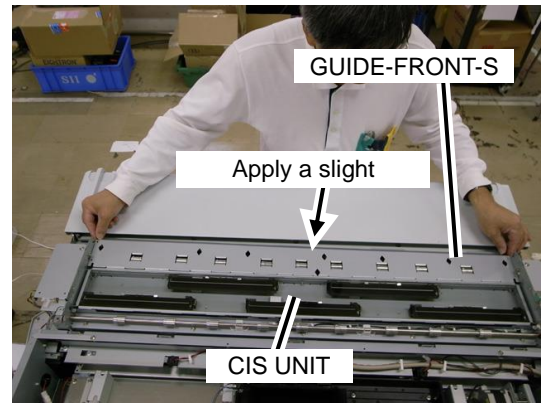
2. Temporarily secure the STOPPER-CIS-UNIT on the right side with two screws.
3. With pressing the STOPPER-CIS-UNIT downward, also press it toward you so that the STOPPER-CIS-UNIT is attached firmly to the printer's internal bottom and front side. Then fully tighten the two screws.



4. Perform this same procedure for the STOPPER-CIS-UNIT on the left side. After lightly tightening the two screws, move the STOPPER-CIS-UNIT downwards and pull it towards you, then securely tighten the two screws.



5. After installing the front guide plate (GUIDE-FRONT-SC) on its position, secure the four screws while applying a slight pressure to the CIS UNIT.



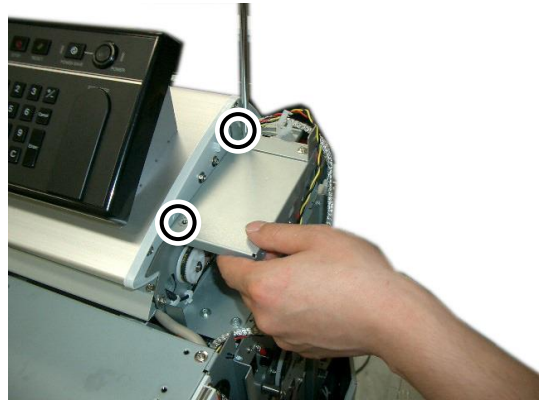
6. Adjust the color scanner (see section 11.2).



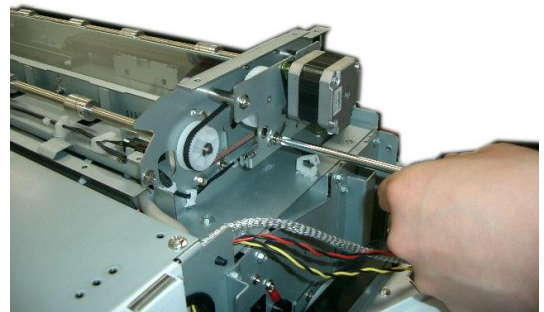
### 9.15.7 MOTOR SC MNT

<Removal>

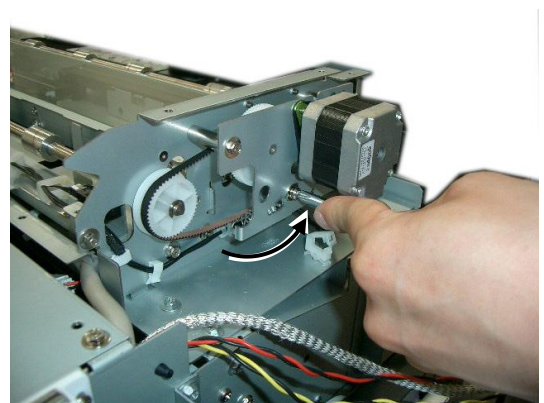
1. Remove the side cover (upper right)  
(see p. 9-10).
2. Remove the plate with two screws at the  
location shown in the photo.



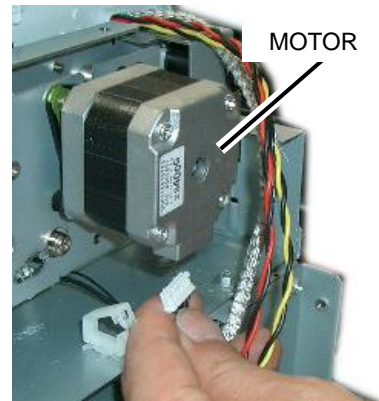
3. Release the cables from the multiple clamps  
securing them.
4. Loosen the timing belt.  
  
(a) Loosen the screw shown in the photo.



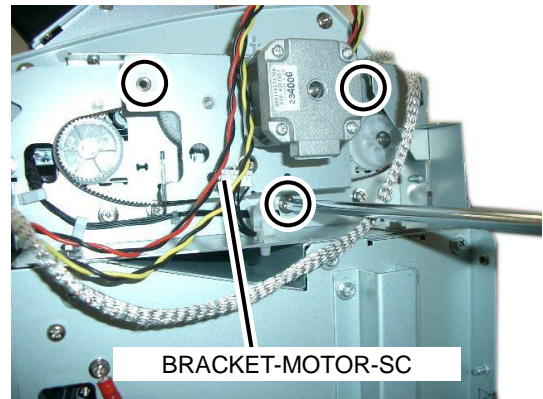
- (b) Move the loosened screw to the right side  
of the guide and tighten it temporarily.



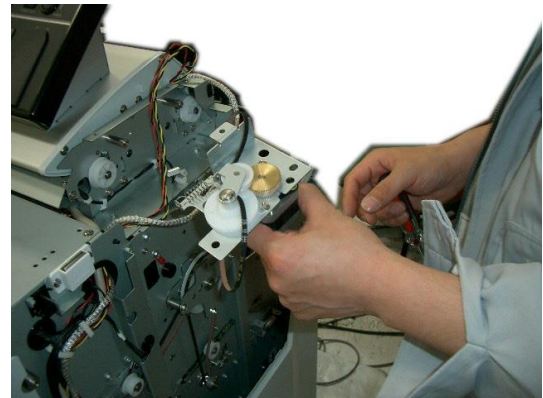
5. Unplug the connector for the power cable connected to MOTOR SC.



6. Remove the three screws securing BRACKET-MOTOR-SC.



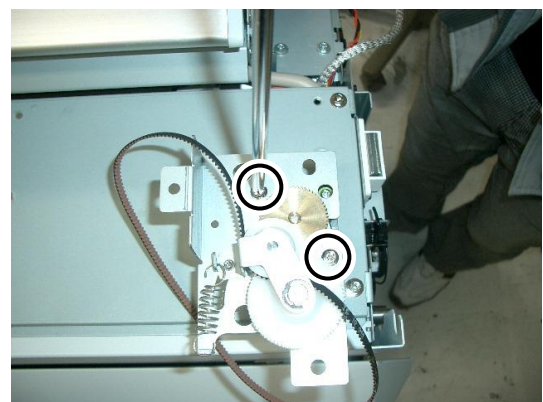
7. Carefully keeping the timing belt from interfering with any other parts, remove BRACKET-MOTOR-SC.



8. Remove MOTOR SC with two screws from BRACKET-MOTOR-SC.

**Cautionary Notes When Performing Installation**

Install MOTOR SC on BRACKET-MOTOR-SC so that the MOTOR SC MNT connector is at the bottom.



## 9.16 SUB FRAME UNIT

### 9.16.1 LED HEAD MNT

<Removal>

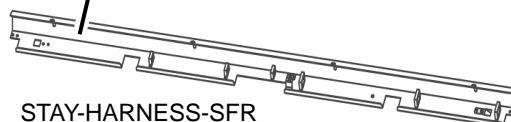
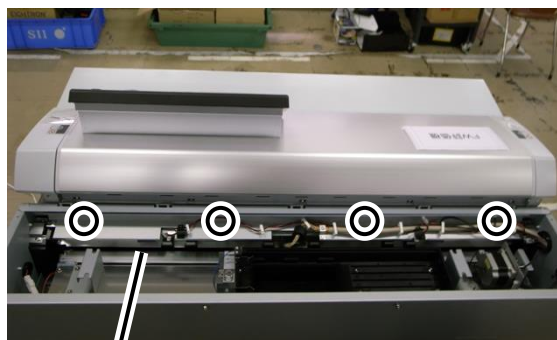
1. Remove the toner cartridge.
2. Remove the top cover (see p. 9-5).
3. Return the toner cartridge to its original position.



4. Unplug all four connectors.



5. Remove the STAY-HARNESS-SFR with four screws.

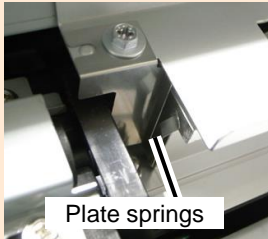


STAY-HARNESS-SFR

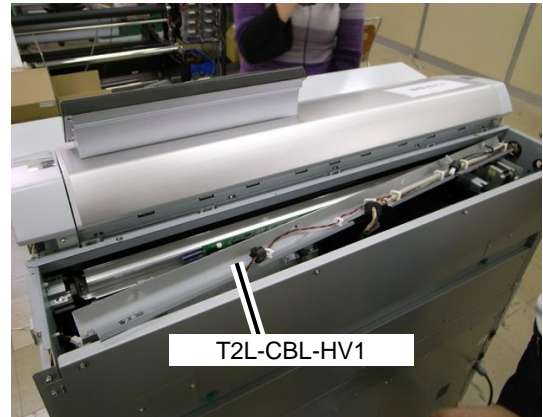
6. Remove the T2L-CBL-HV1.  
Then remove the plate springs in the right and left sides.

### Cautionary Notes When Performing Installation

- Be careful not to deform the plate springs on both sides.



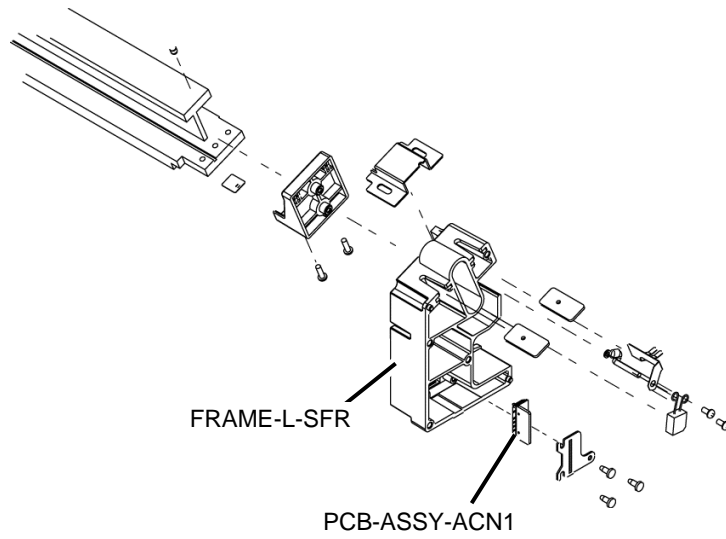
- Tighten the screws while applying pressure to the top and inner sides.



7. Pull the LED HEAD towards you and remove it.

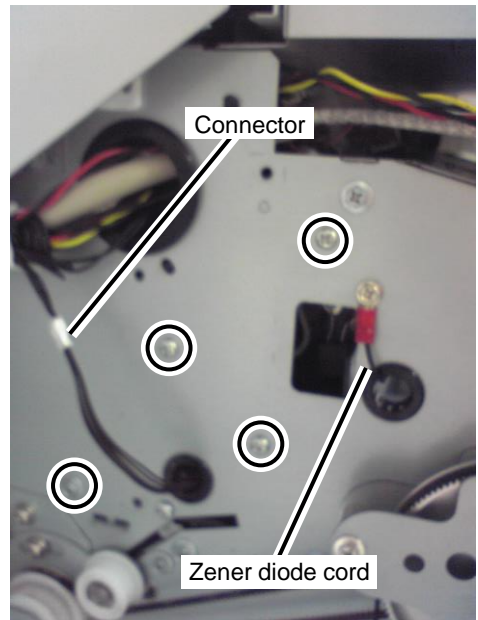


### 9.16.2 PCB-ASSY-ACN1 MNT



<Removal>

1. Remove the LED HEAD (see p. 9-209).
2. Remove the FRAME-L-SFR with four screws.
3. Remove the connector and Zener diode cord.

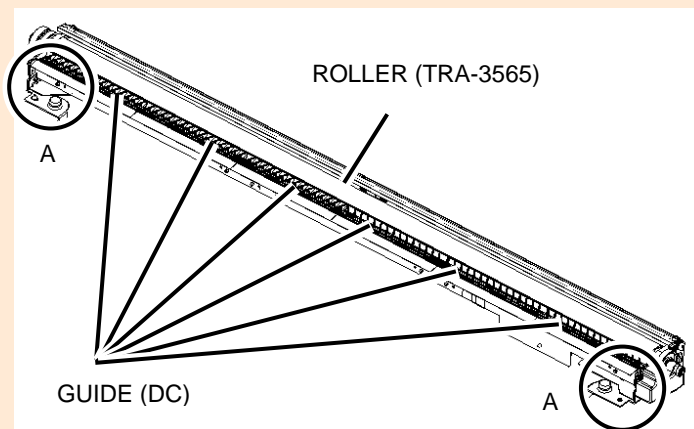


4. Remove the PCB-ASSY-ACN1.

## 9.17 TRANSFER ROLLER UNIT (transfer/detack corotron)

### Note

- The TRANSFER ROLLER UNIT is covered in a large amount of toner. Whenever you are assembling/disassembling it, be sure to cover the area in with old newspapers or some other protective sheeting.
- Be sure to carry the TRANSFER ROLLER UNIT with supporting the positions A shown in the figure below.
- Do not touch the ROLLER (TRA-3565) with your hands.
- To prevent the part from being deformed, avoid pinching the GUIDE (DC).



### 9.17.1 Removing the TRANSFER ROLLER UNIT

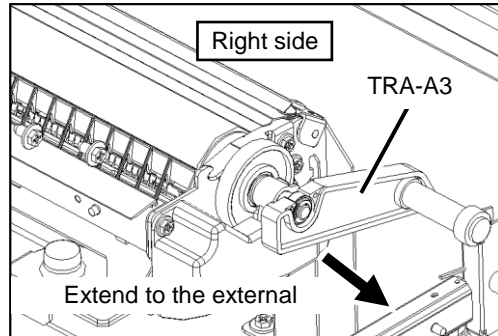
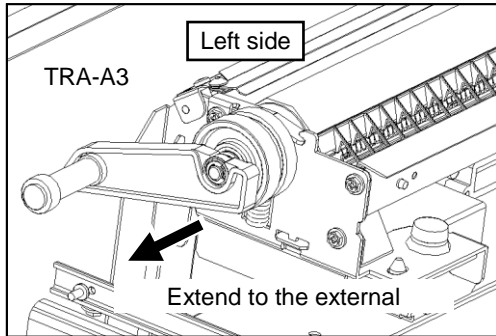
<Removal>

1. Open the fuser unit drawer.
2. Remove the PROCESS CARTRIDGE UNIT.  
(See **Replacing the Process Cartridge** in the *User's Manual for Basic Printer Operation*.)

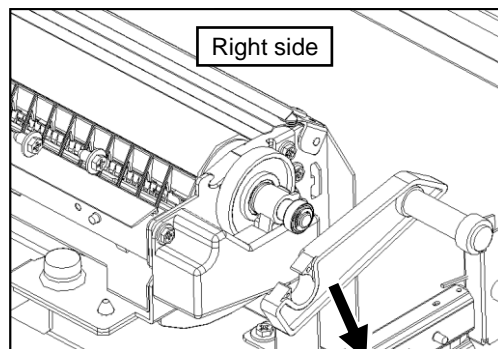
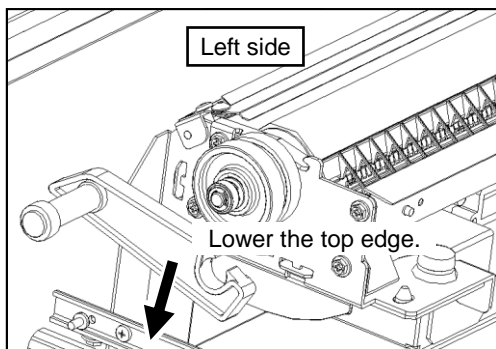
**3. Remove the TRANSFER ROLLER UNIT.**

(a) Remove the right and left TRA-A3 from the bearing part.

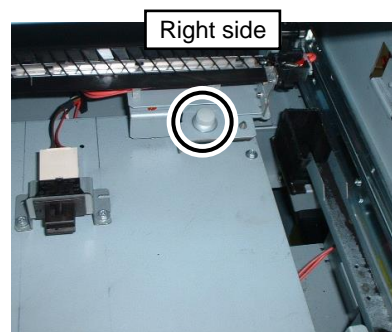
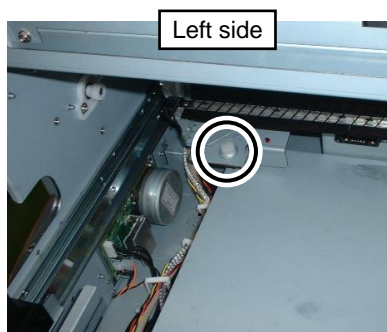
(i) While extending the TRA-A3 to the external direction, remove the right and left TRA-A from the bearing.



(ii) After removing the TRA-A3s from bearings, place them on the table so that the top edge is lowered more than the other part. To simplify the TRANSFER ROLLER UNIT installation, avoid placing them with the top edge upper than the other part.



(b) Loosen the painted screws on both ends.



(c) Remove the TRANSFER ROLLER UNIT.

**Caution**

Support or carry the TRANSFER ROLLER UNIT carefully following the cautions described in the first part of this section.

4. Place the unit on a platform covered with newspapers or some other type of protective sheeting.

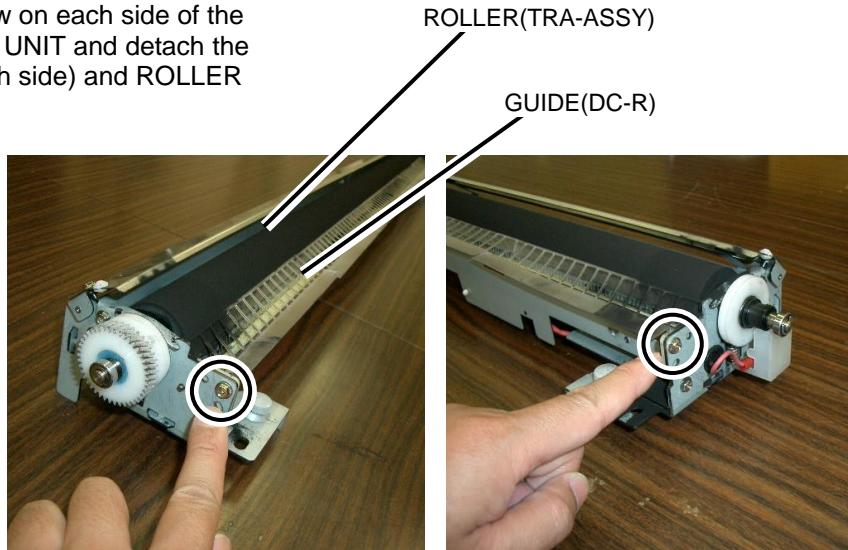




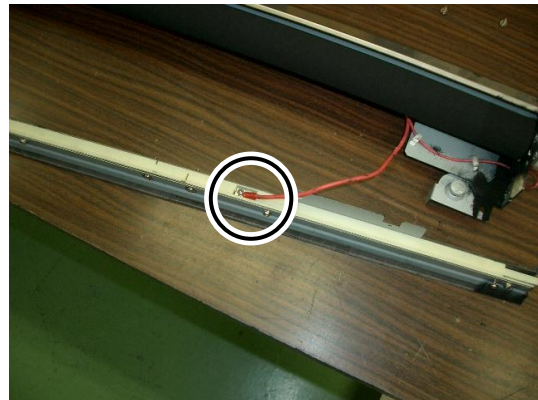
### 9.17.2 GUIDE DC R MNT, GUIDE DC L MNT, DETACH NEEDLE

<Removal>

1. Remove the one screw on each side of the TRANSFER ROLLER UNIT and detach the GUIDE (DC-R) (detach side) and ROLLER (TRA-ASSY).



2. Remove the set screw from the red high voltage cable.



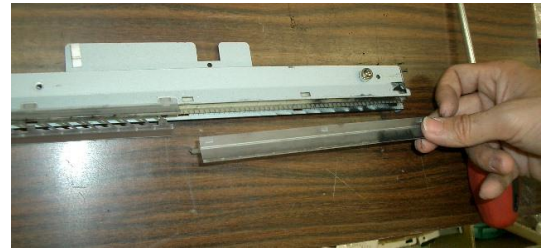
3. Unscrew the five screws at the location shown in the photo and remove the plate.



4. Push the mounting clamp and remove GUIDE DC R and GUIDE DC L.

**Note**

Be careful not to prick your finger on a sharp part (DETACH NEEDLE) in this area.

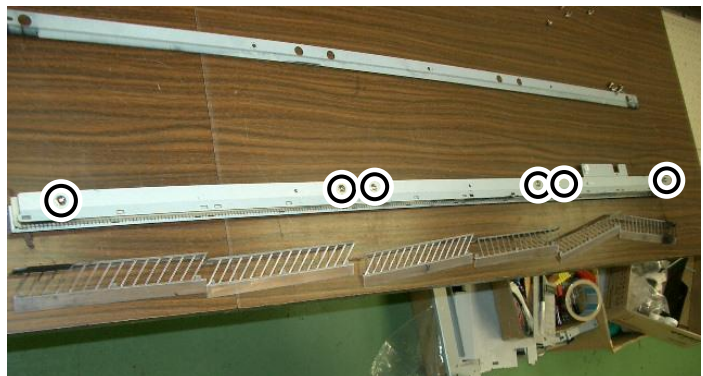


GUIDE DC L

GUIDE DC R

<Removing the DETACH NEEDLE>

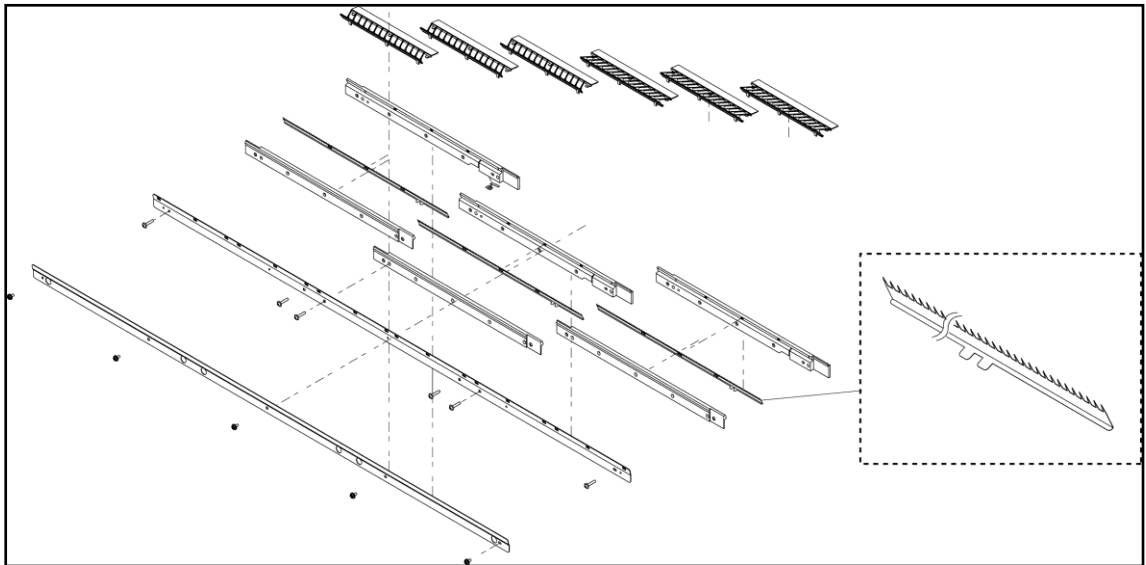
1. Unscrew the six screws at the location shown in the photo and remove the plate.



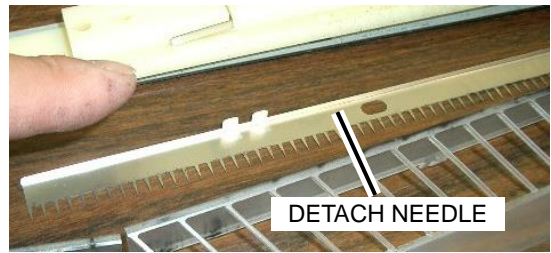
2. Remove the plastic parts on either side of the DETACH NEEDLE.

**Note**

Before removing, be sure to look at it and remember how it is installed as a reference for when you re-install it later.

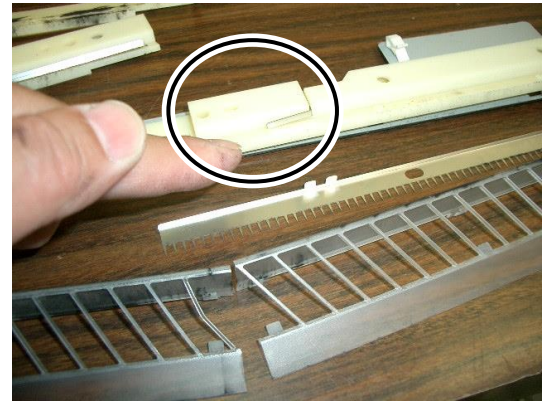


3. Remove the DETACH NEEDLE.



#### Cautionary Notes for Assembly

When installing the DETACH NEEDLE, confirm that the electrode installed on the right end of the DETACH NEEDLE is in contact with the metal area.



### 9.17.3 GEAR TRA ONEWAY MNT and SPACER TRA MNT

<Removal>

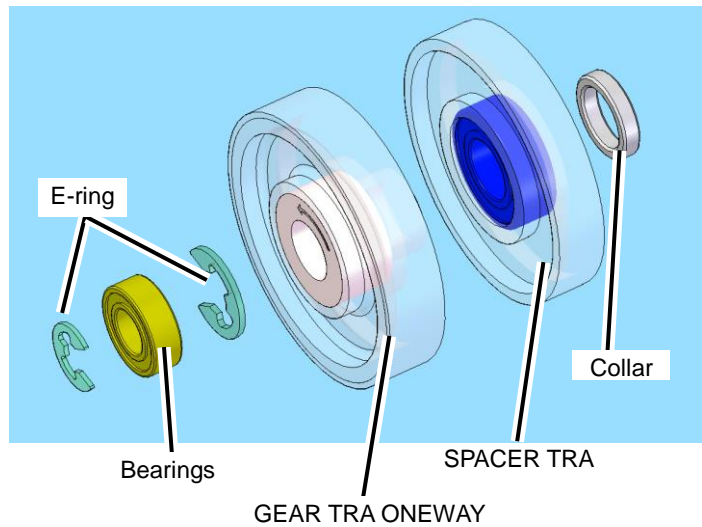
1. Remove the ROLLER TRA 3565 MNT (See p. 9-221).
2. Remove the E-ring.
3. Remove the bearing.
4. Remove the E-ring.
5. Remove GEAR TRA ONEWAY.



**Note**

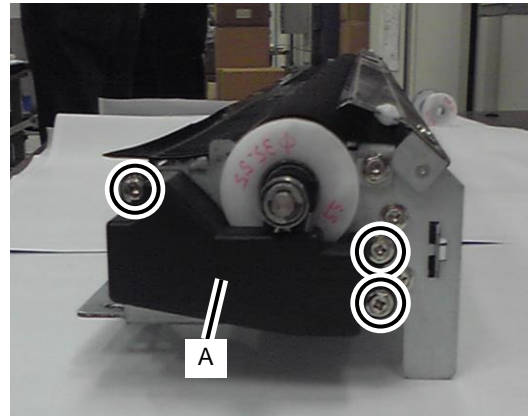
The direction that the GEAR TRA ONEWAY faces is important. Its blue side should be facing inward. Before removing it, make a note of the direction it is installed in.

6. Remove SPACER TRA-3505.

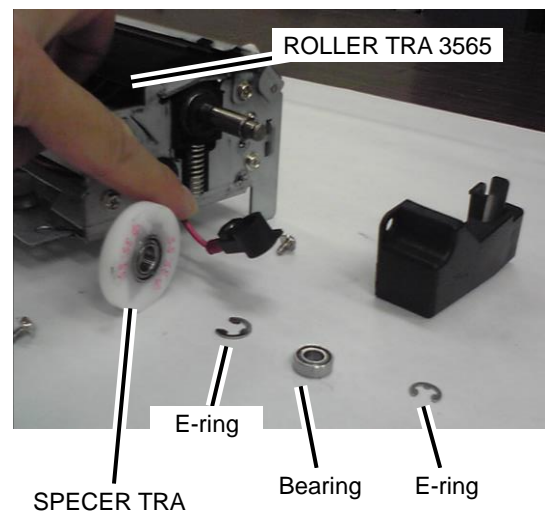


<Removal at right side of ROLLER TRA 3565>

1. Remove the part with three screws designated in A.



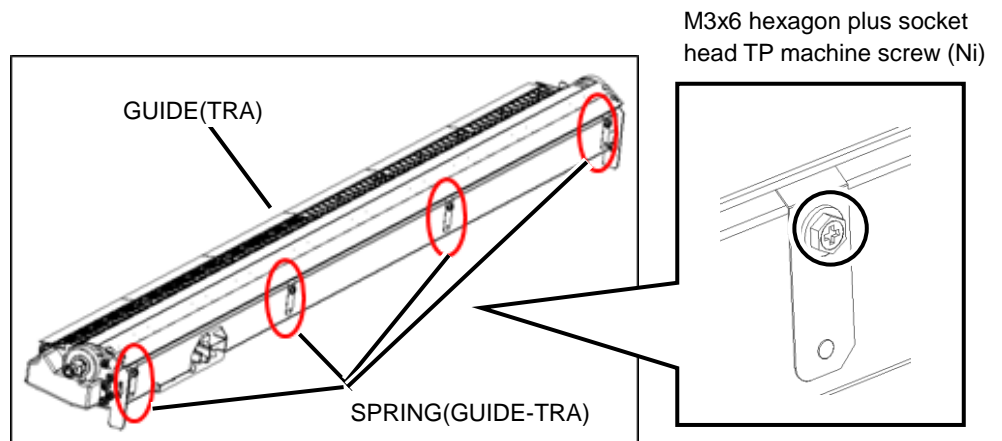
2. Remove the E-ring.
3. Remove the bearing.
4. Remove the E-ring.
5. Remove the SPACER TRA.



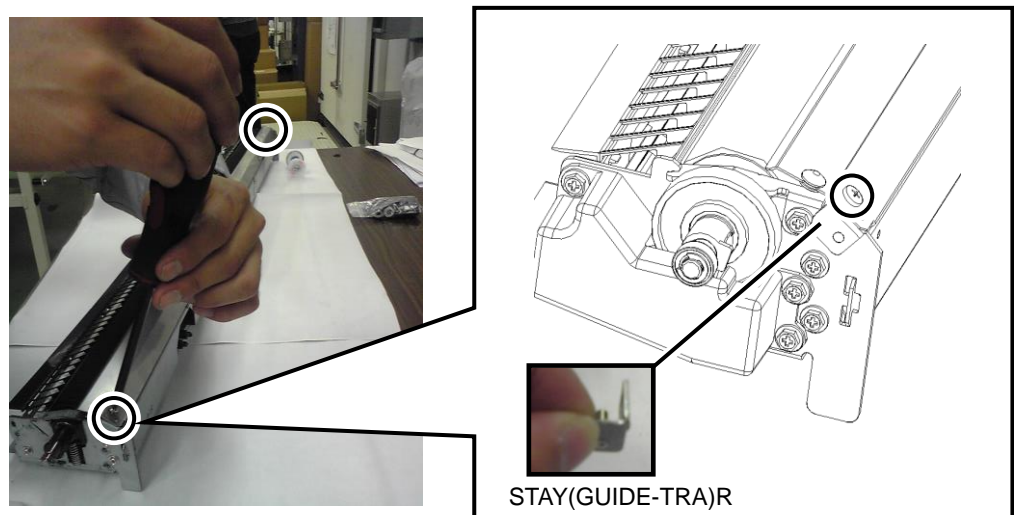
**9.17.4 ROLLER TRA 3565 MNT and SHEET TRA MNT**

<Removal>

1. Remove the TRANSFER ROLLER UNIT (see p. 9-212).
2. Remove GUIDE(TRA).
  - (a) Remove the SPRING(GUIDE-TRA) at the four positions.



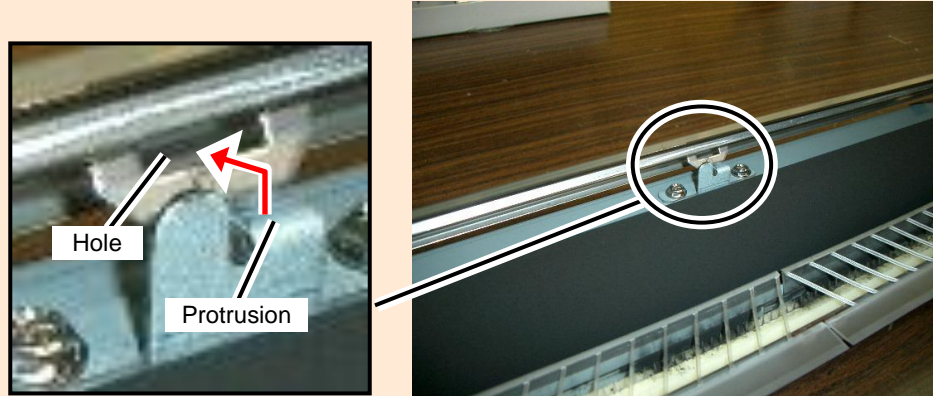
- (b) Remove the STAY(GUIDE-TRA)R with one screw. Then remove the STAY(GUIDE-TRA)L with one screw in the opposite side.



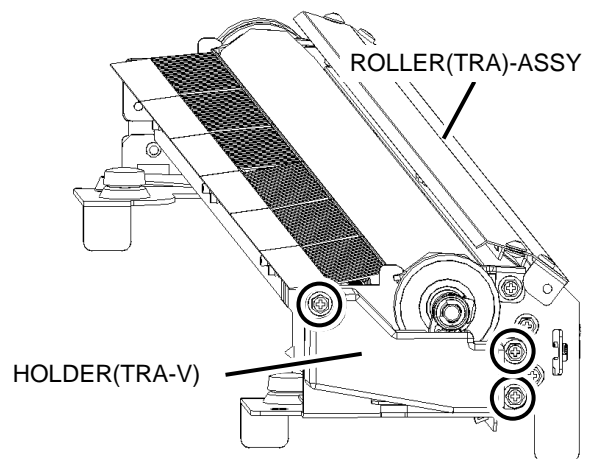
(c) Remove the GUIDE(TRA).

### Cautionary Notes When Performing Installation

When installing GUIDE(TRA), align and insert the plate's protrusion with the hole in the center of GUIDE(TRA).



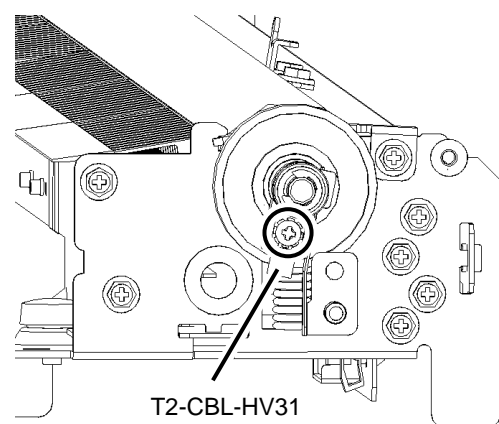
3. Remove the HOLDER(TRA-V) with three screws.



4. Remove the one screw and one M3 hexagon nut securing the T2-CBL-HV31.

#### Note

Do not lose the hexagon nut as the screw is secured with the nut.

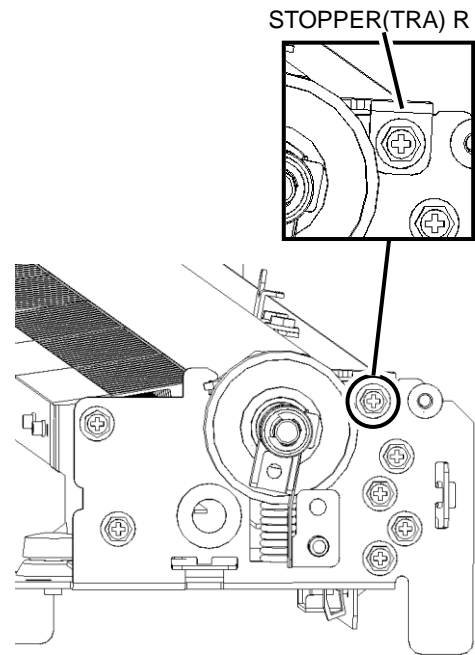




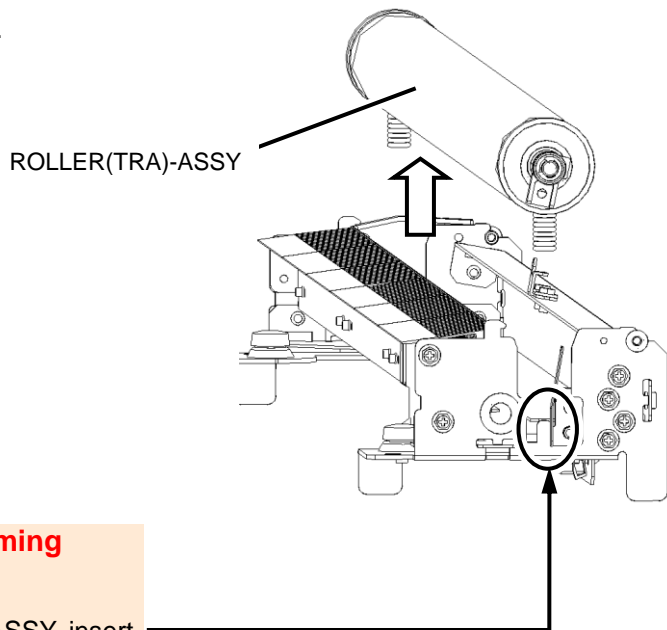
5. Remove the STOPPER(TRA)R with one screw. Then remove the STOPPER(TRA)L with one screw in the opposite side.

**Note**

Note that the STOPPER(TRA)R and STOPPER(TRA)L are pressed upward by the spring. So remove the screws with pressing these parts.



6. Remove the ROLLER(TRA)-ASSY.



**Cautionary Notes When Performing Installation**

When installing the ROLLER(TRA)-ASSY, insert the right and left coil springs into the metal plate's protrusions.

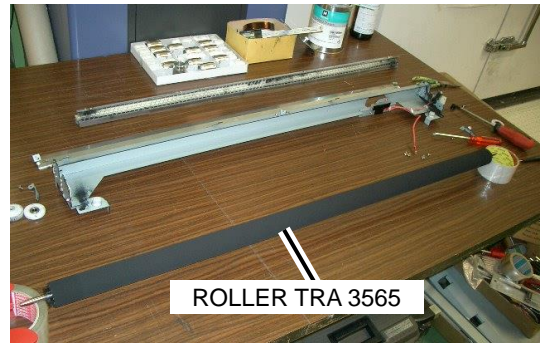
7. Remove the STOPPER(TRA)R and STOPPER(TRA)L with the steps 1 to 4 described in **<ROLLER(TRA)-ASSY removal and SPRING(TRA-\*\*\*\*) replacement>**.

8. Hold on to the shaft of ROLLER TRA 3565 MNT with both hands, and remove the ROLLER TRA 3565.

**Note**

To help prevent dirt and other particles from getting on the roller, do not lay it on a table or other surface directly.

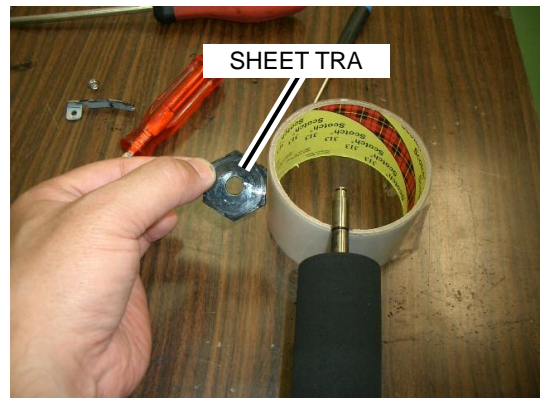
To hold the roller up, you are recommended to place something used as a platform under the shaft both ends.



9. Remove the bearing holder and the bearing from the ROLLER TRA 3565 shaft.



10. Remove SHEET TRA from the ROLLER TRA 3565 shaft.



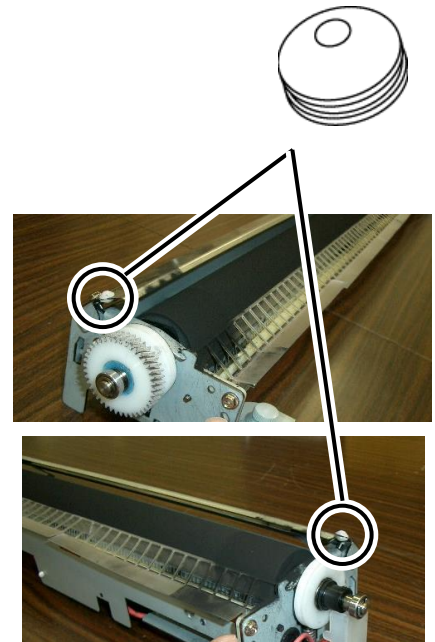
### 9.17.5 SPACER TRANSFER GUIDE MNT

<Removal>

1. Remove the TRANSFER ROLLER UNIT (see p. 9-212).
2. With your fingernails grab the SPACE TRANSFER GUIDE and pull it outside.

**Note**

Using needle-nose pliers or other tools to grab this part can damage it, so it is best to use your fingers in this case.



## 9.18 TRANSPORT UNIT

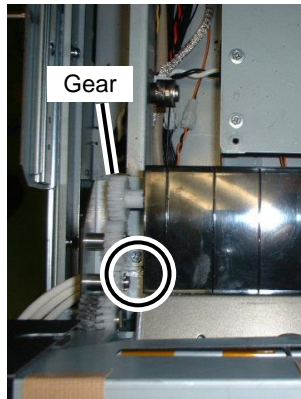
### 9.18.1 TRANSPORT UNIT MNT

<Removal>

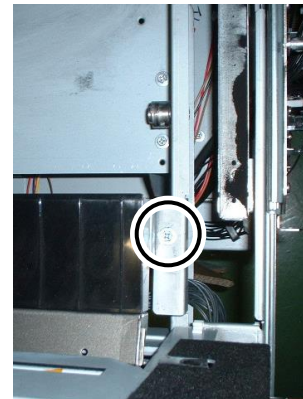
1. Open the fuser unit drawer.
2. Unplug the two connectors.



3. Remove the two screws at each end of the unit.

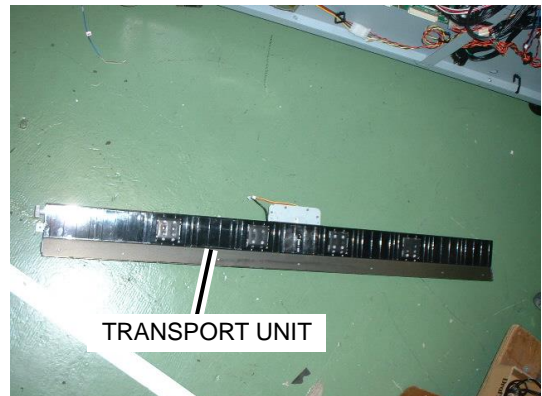


<TRANSPORT UNIT Left side>



<TRANSPORT UNIT Right side>

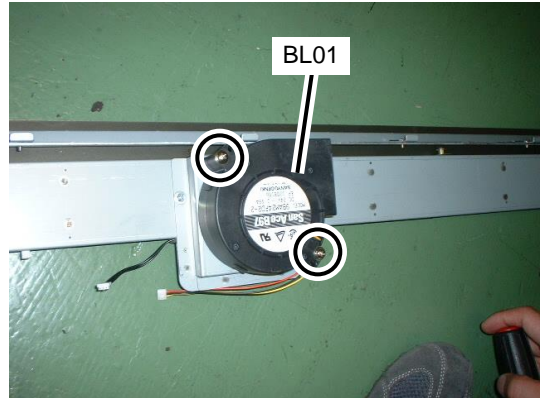
4. Mind the gear and duct on the left side and pull out TRANSPORT UNIT in an upward direction while pushing it slightly to the left.



### 9.18.2 [BL01] BLOWER FAN, BL01,02,06 MNT

<Removal>

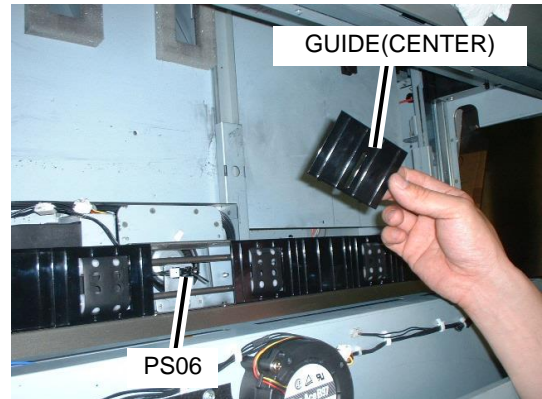
1. Remove the TRANSPORT UNIT  
(see p. 9-226).
2. Unscrew the two screws at the location  
shown in the photo and remove the BL01.



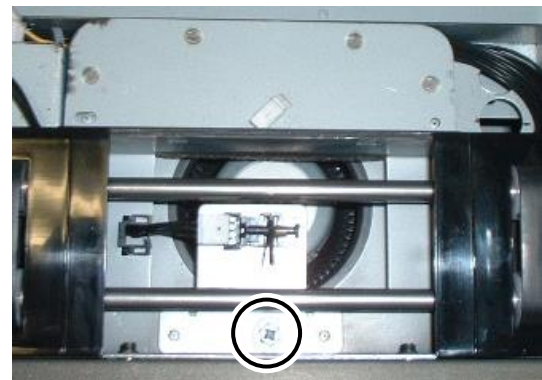
### 9.18.3 [PS06] PHOTOSENSOR,06 MNT

<Removal>

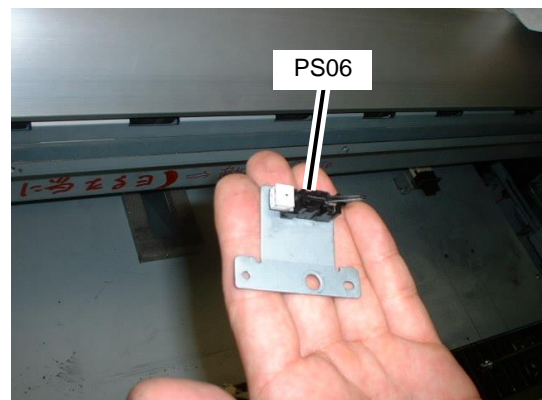
1. Open the fuser unit drawer.
2. Remove the GUIDE(CENTER).



3. Unplug the connector and remove PS06 with one screw, along with the bracket.



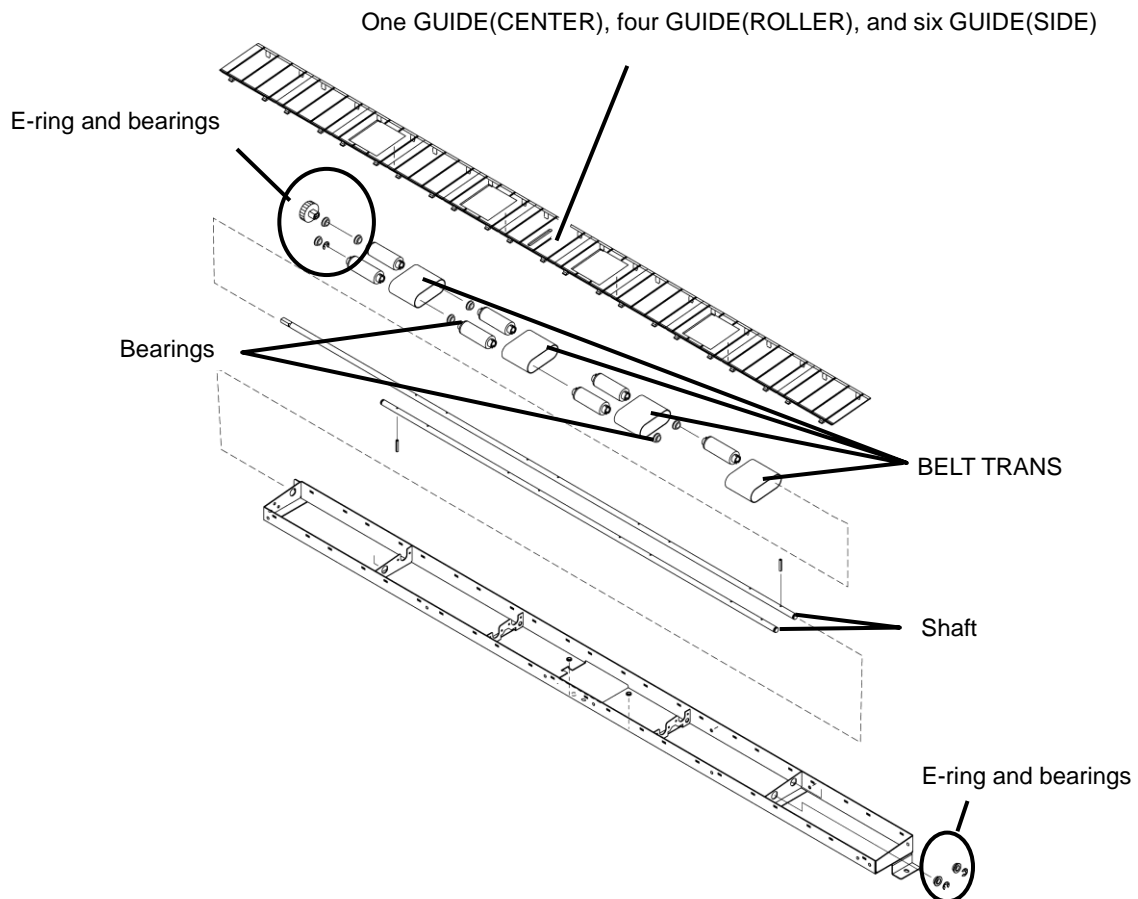
4. Remove PS06 with one screw from the bracket.



### 9.18.4 BELT TRANS MNT

<Removal>

1. Remove the TRANSPORT UNIT  
(see p. 9-226).
2. Remove all of the following parts.
  - GUIDE(CENTER) x1
  - GUIDE(ROLLER) x4
  - GUIDE(SIDE) x6
3. Remove the E-ring, bearings, and gear, then pull out the shaft.
4. Remove the BELT TRANS.



**9.19 Jigs**

**9.19.1 COTTON CIEGAL MNT**





### 9.19.2 HR CLEANER

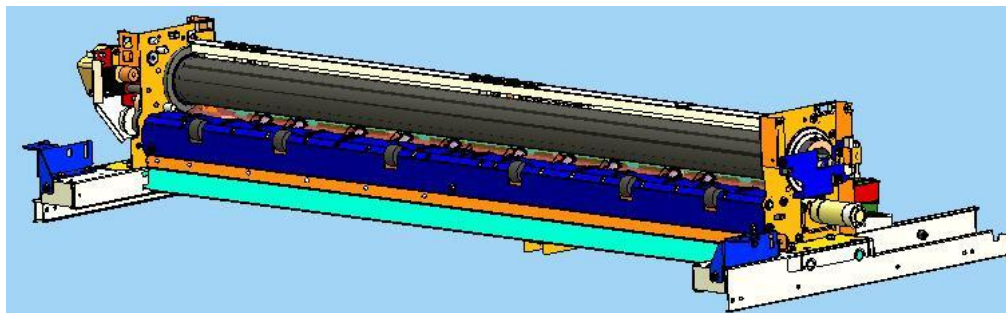
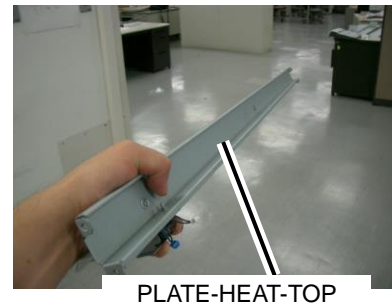
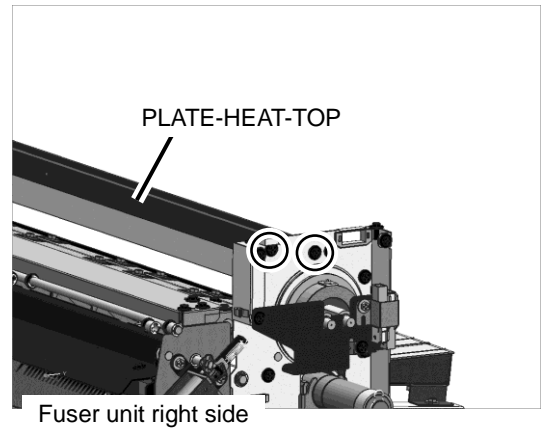
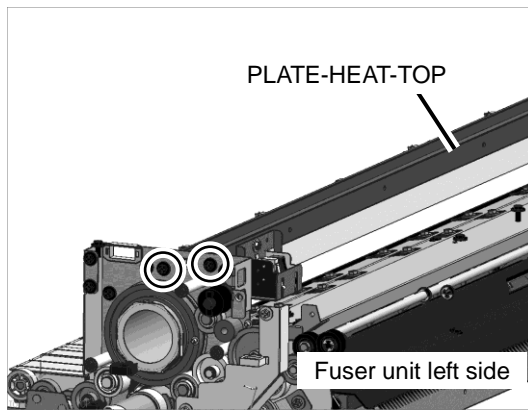
#### How to use

#### Cautionary Notes Before Disassembly

The FUSER UNIT installed in the Printer may be the model A or B depending on the manufacturing date. The method to access the ROLLER(HEAT) differs between the two models. Follow one of the two procedure below in accordance with your model.

<Model A (LP-1030: Until 13H0222A / LP-2030: Until 13B0120A)>

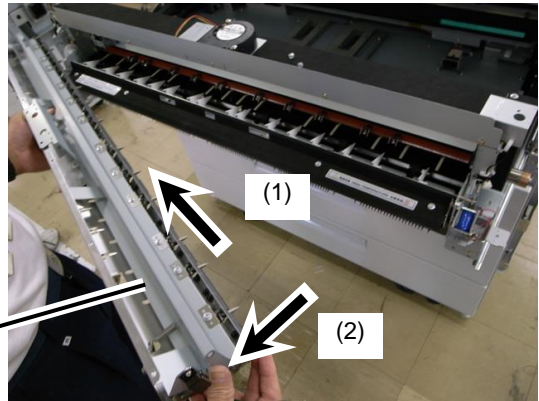
1. Follow the steps 3 through 5 in **9.10.13 ROLLER HEAT MNT.** Then go to step 4.



<Model B (LP-1030: From 13H0223A / LP-2030: From 13B0121A)>

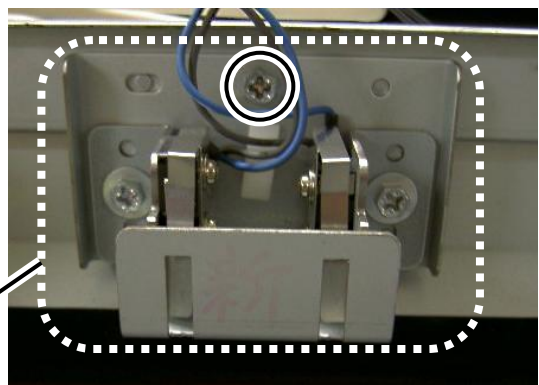
1. Follow the removal procedure in **9.10.13 ROLLER HEAT MNT** until you remove the **UPPER-PAPER-GUIDE-ASSY** in step 3.

UPPER-PAPER-GUIDE-ASSY

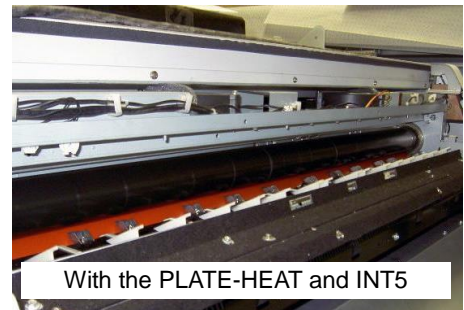
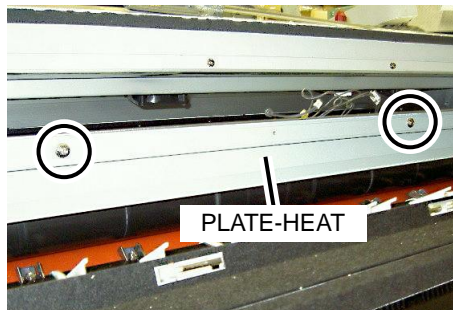


2. Remove the INT5 with one screw.

INT5



3. Remove the PLATE-HEAT with two screws.



4. Clean the ROLLER(HEAT) with some HR cleaner.  
Shake the HR cleaner sufficiently to make it homogenous before use.



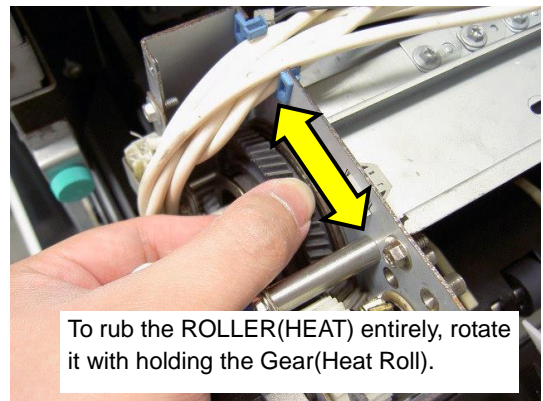
Shake until it becomes homogenous before use.



5. Moisten a Ciegel cotton wipe with 5 to 10 drops of HR cleaner and firmly rub the ROLLER(HEAT).

**Note**

Clean after turning the power off but with the ROLLER(HEAT) still hot. Be careful not to burn yourself.



To rub the ROLLER(HEAT) entirely, rotate it with holding the Gear(Heat Roll).

6. When the ROLLER(HEAT) has been entirely rubbed, the cleaning procedure is complete. Reassemble the FUSER UNIT.

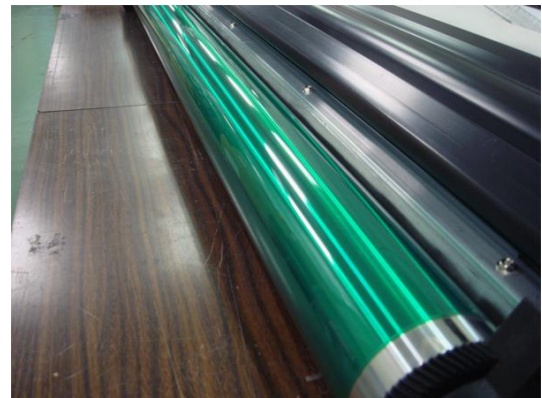
### 9.19.3 OPC CLEANER

#### How to use the OPC CLEANER

1. Remove the process cartridge from the Printer.  
See **Replacing the Process Cartridge** in the *User's Manual for Basic Printer Operation*.
2. Secure the cleaner blade with the screw used when the Printer was packed.



3. Remove the CHARGE SCOROTORON UNIT from the process cartridge.



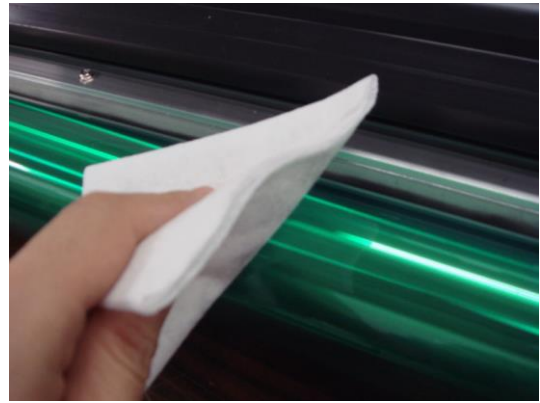
4. Moisten a Ciegal cotton wipe with some OPC CLEANER. (The cotton wipe should be entirely wet.)

5. Clean any dirt on the photoconductor drum while rotating it.

**Note**

After cleaning the photoconductor drum, before rotating it be sure to check that all the surface is dry.

Some toner from the toner shield may also have adhered to the photoconductor drum. However, it is usually removed by the cleaner blade when it comes into contact. So clean only the toner that was not removed by the cleaner blade.

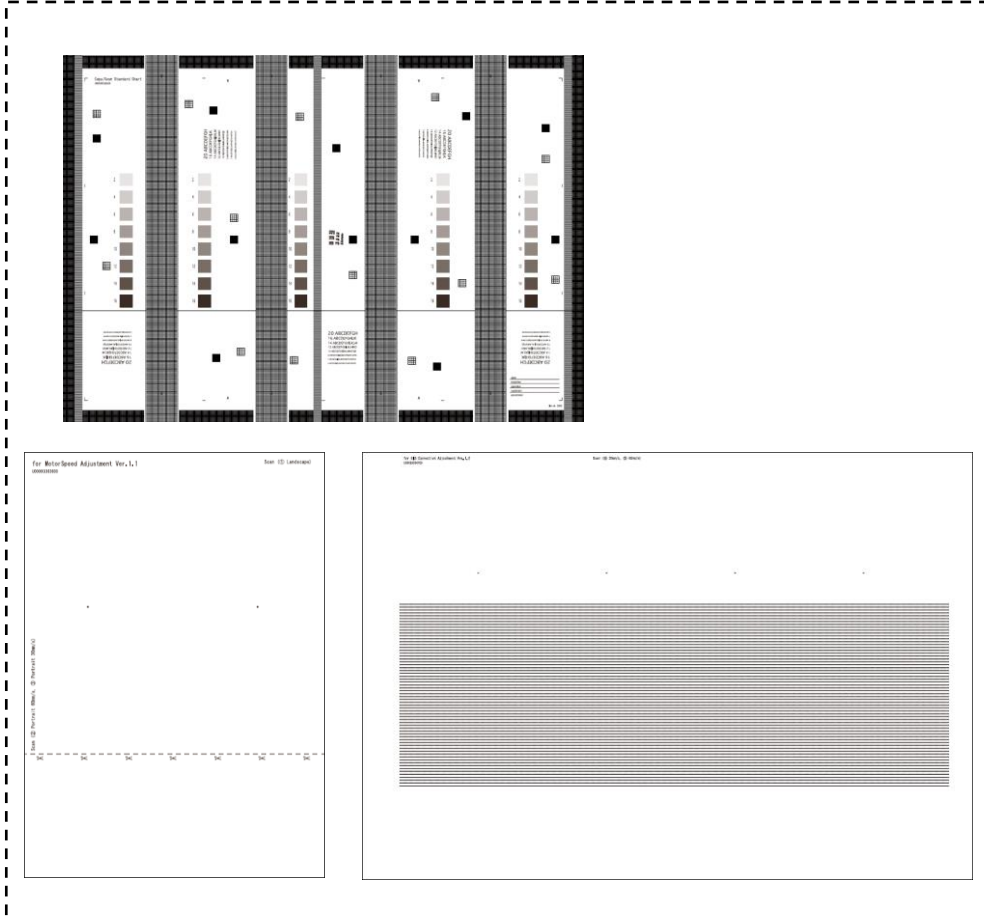


6. Loosen the screws securing the CHARGE SCOROTORON UNIT and cleaner blade.
7. Make the photoconductor drum rotate entirely to check that all dirt has been removed.
8. Reinstall the process cartridge to the Printer.

## 9.19.4 ADJUSTER KIT(SCANNER)

How to use

See Chapter 11 Scanner Calibration.



### 9.19.5 ADJUSTMENT KIT(COLOR SCANNER)

How to use

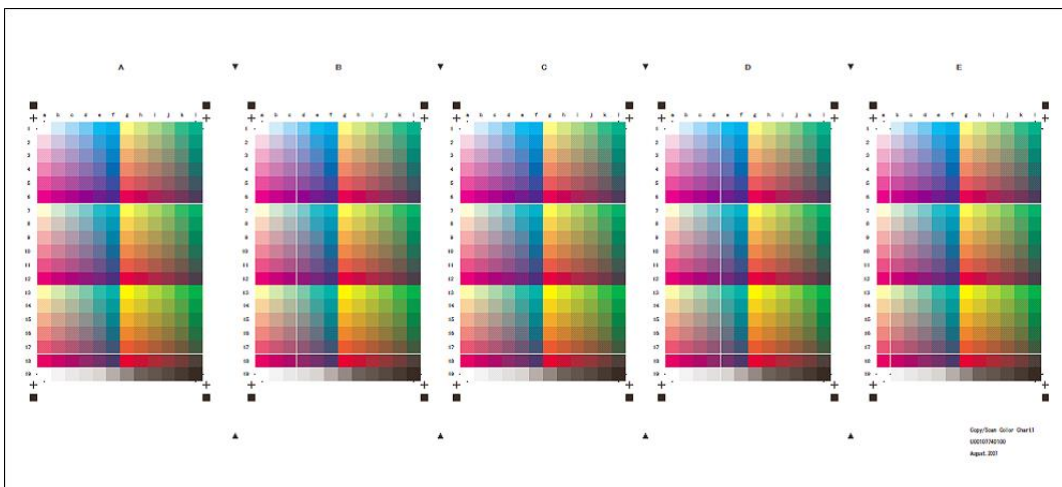
See Chapter 11 Scanner Calibration.



### 9.19.6 Copy/Scan Color Chart1 Set

How to use

See Chapter 11 Scanner Calibration.



### 9.19.7 CONTACT GREASE MNT

#### How to use

See 3.3.1 Charger Unit High Voltage Contact.

See 3.3.2 Photoconductor Drum Ground Contact.



### 9.19.8 HEATPROOF GREASE MNT

#### How to use

See 3.3.3 Heat Roller Contact.



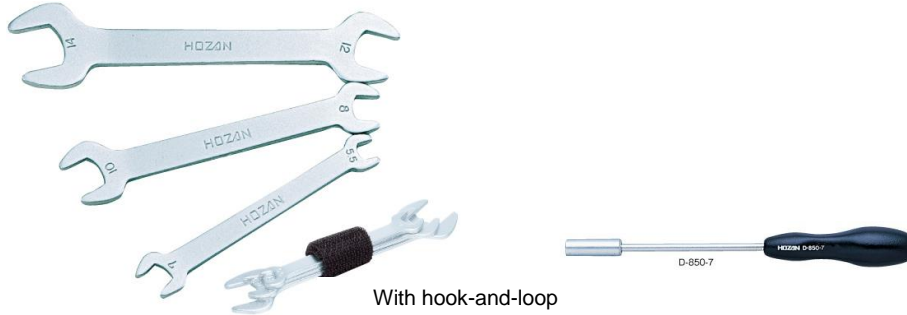


### 9.19.9 TOOLKIT MNT

How to use

See 10.3.1 Fuser Unit's Nip Pressure Calibration.

See 10.6 LED Focal Point Calibration.



### 9.19.10 AIR BLOW TOOL

How to use

See 4.4.2 (11) Cleaning CBL-PNL contact.

See 8.5 Other Problems.



### 9.19.11 GEAR-SPACER MNT

How to use

See 9.7.1 CLUTCH 4.4 MNT.



GEAR-SPACER MNT

Insert the GEAR-SPACER MNT to adjust the gears engagement.

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# Chapter 10 Printer Calibration

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This chapter explains how to calibrate each part of the Printer's engine.

## 10.1 High Voltage Power Supply Voltage/Current Calibration

This section explains how to calibrate and adjust the primary charger load current, developer AC bias, developer DC bias, and separator AC bias.

### Note

Use a digital multimeter that meets the following specifications when adjusting this item.

- Input impedance: 10 megohms or higher
- Frequency band: 10 kHz or higher
- With effective value measurement function

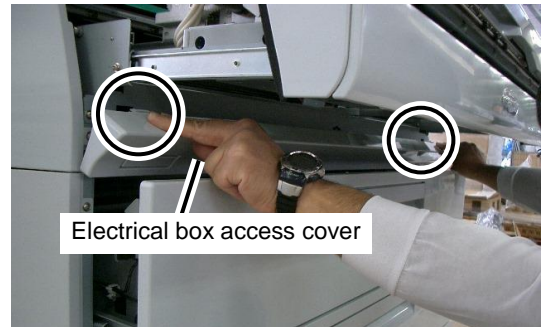
## 10.1.1 Primary Charger Load Current Calibration

### Note

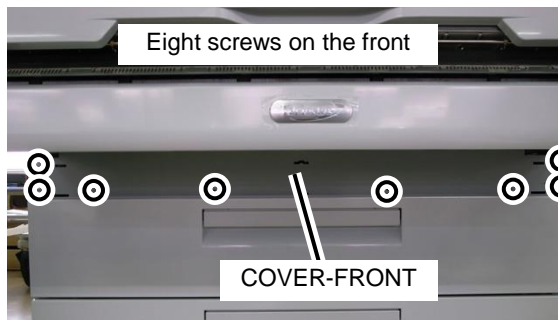
Depending on when your unit was manufactured, it may be made up of only one or two different circuit boards. This section will describe the adjustment procedures for both configurations.

#### (1) One circuit board configuration

1. Perform the procedure below so that the front power supply unit is visible.
  - (a) Remove the electrical box access cover (see p. 9-7).



- (b) Remove the COVER-FRONT.

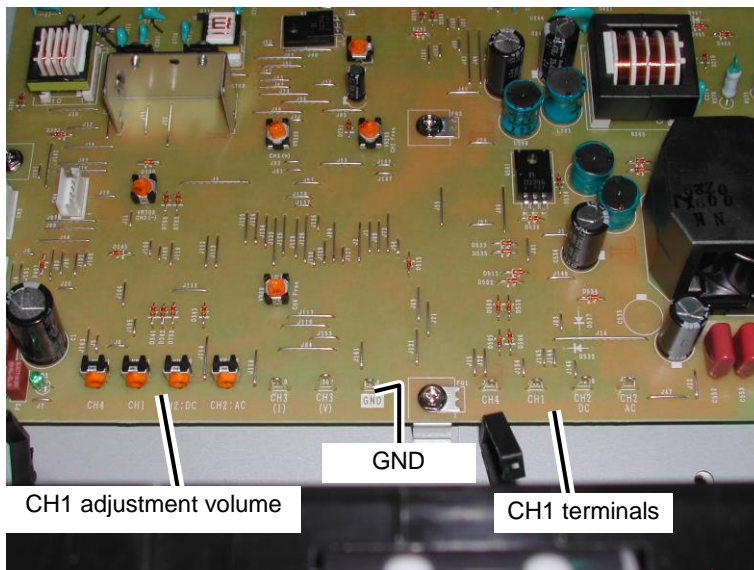


2. Insert the digital multimeter's terminals into the high voltage power supply unit's CH1 terminals. Then activate the primary charger by going to **Test->CC CHECK** in Engine Maintenance mode (see **2.3.10 Test**). Measure the charge wire's load current ICC.

**Note:**

Set the digital multimeter's measurement range to DC, and read 100 mV as 100 $\mu$ A.

3. If calibration is required, rotate the CH1 adjustment volume with a screwdriver for voltage calibration.

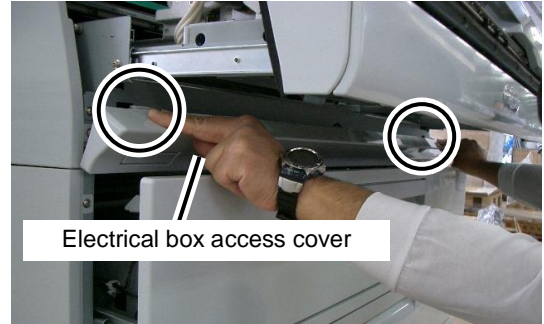


Setting range: -865 to -935  $\mu$ A (digital multimeter reading = 0.865 to 0.935 V)  
 Ideal value: -900  $\mu$ A (digital multimeter reading = 0.9V)

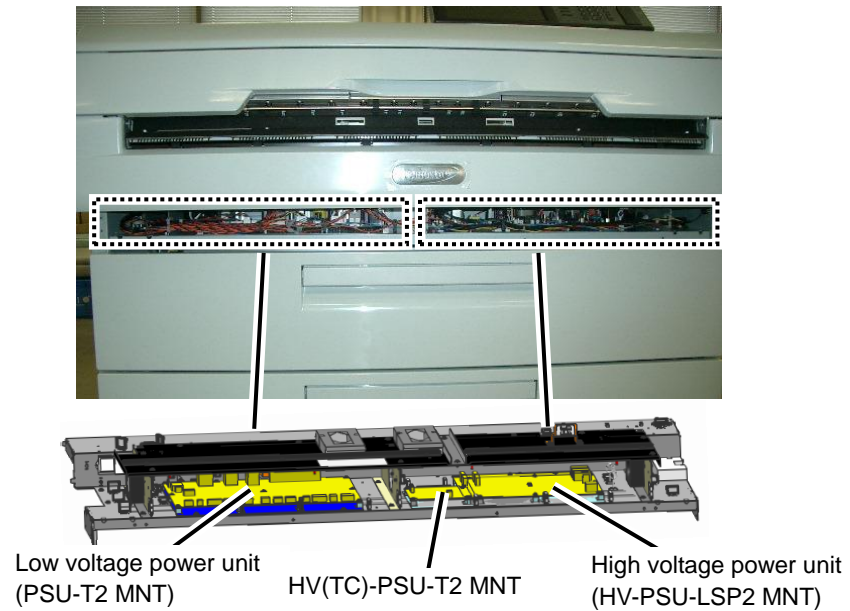
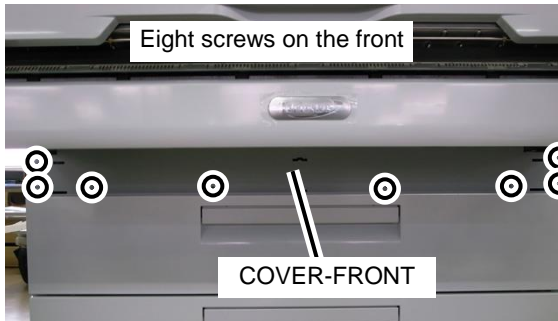
**(2) Two circuit board configuration**

**1.** Perform the procedure below so that the front power supply unit is visible.

(a) Remove the electrical box access cover (see p. 9-7).



(b) Remove the COVER-FRONT.

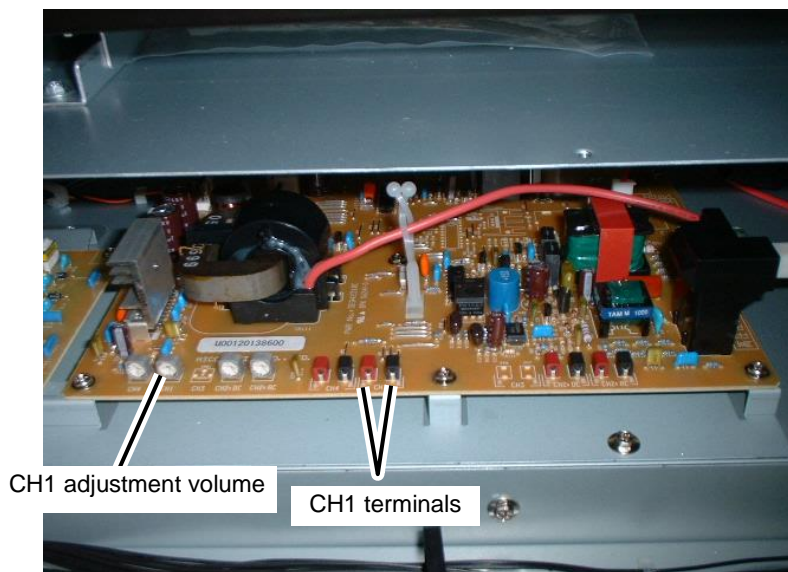


2. Insert the digital multimeter's terminals into the high voltage power supply unit's CH1 terminals. Then activate the primary charger by going to **Test->CC CHECK** in Engine Maintenance mode (see **2.3.10 Test**). Measure the charge wire's load current ICC.

**Note:**

Set the digital multimeter's measurement range to DC, and read 100 mV as 100 $\mu$ A.

3. If calibration is required, rotate the CH1 adjustment volume with a screwdriver for voltage calibration.



Setting range: -865 to -935  $\mu$ A (digital multimeter reading = 0.865 to 0.935 V)  
Ideal value: -900  $\mu$ A (digital multimeter reading = 0.9V)

## 10.1.2 Developer AC Bias

### Note

Depending on when your unit was manufactured, the high voltage power supply unit may be made up of only one or two different circuit boards. This section will describe the adjustment procedures for both configurations.

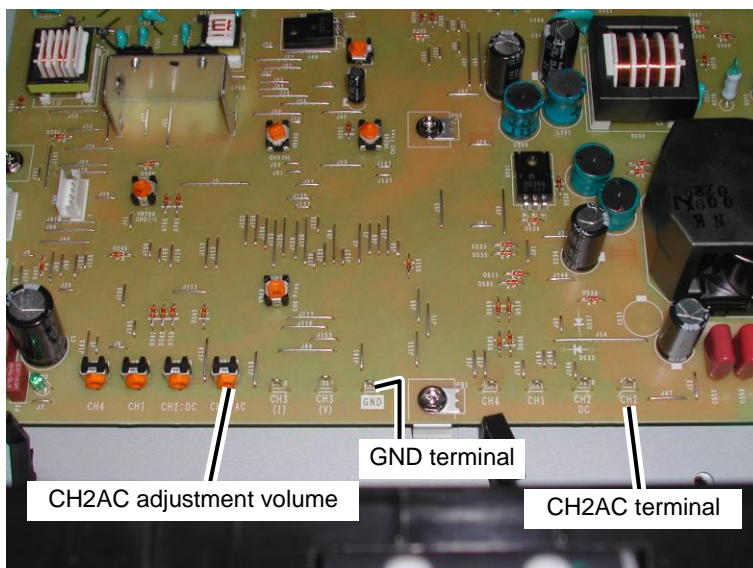
#### (1) One circuit board configuration

1. Perform the first procedure of **10.1.1 Primary Charger Load Current Calibration** on p. **10-2** so that the front power supply unit is visible.
2. Insert the digital multimeter's terminals into the high voltage power supply unit's CH2AC and GND terminals. Then activate the developer bias by going to **Test -> DB CHECK** in Engine maintenance mode (see **2.3.10 Test**). Measure the load voltage effective value  $V_{dba}$ .

#### Note:

Set the digital multimeter's measurement range to AC to measure.

3. If calibration is required, rotate the CH2AC adjustment volume with a screwdriver for voltage calibration.



Setting range: 1.40 to 1.50  $kV_{P-P}$  (digital multimeter reading = 0.625 to 0.675V)  
Ideal value: 1.45 $kV_{P-P}$  (digital multimeter reading = 0.65V)

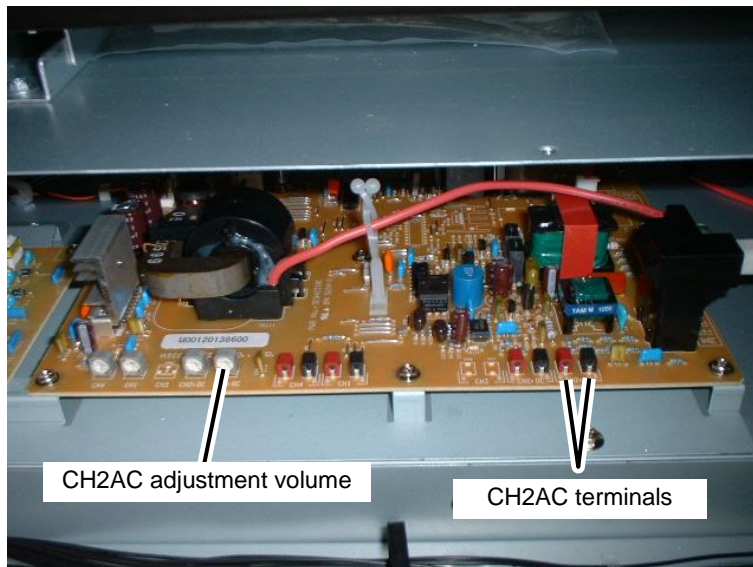
**(2) Two circuit board configuration**

1. Perform the first procedure of **10.1.1 Primary Charger Load Current Calibration** on p. 10-2 so that the front power supply unit is visible.
2. Insert the digital multimeter's terminals into the high voltage power supply unit's CH2AC terminal. Then activate the developer bias by going to **Test -> DB CHECK** in Engine Maintenance mode (see **2.3.10 Test**). Measure the AC load voltage effective value V<sub>dba</sub>.

**Note:**

Set the digital multimeter's measurement range to AC to measure.

3. If calibration is required, rotate the CH2AC adjustment volume with a screwdriver for voltage calibration.



Setting range: 1.40 to 1.50 kV<sub>P-P</sub> (digital multimeter reading = 0.625 to 0.675V)  
Ideal value: 1.45kV<sub>P-P</sub> (digital multimeter reading = 0.65V)



### 10.1.3 Developer DC Bias

#### Note

- Always adjust the developer DC bias after you adjust the developer AC bias.
- Depending on when your unit was manufactured, the high voltage power supply unit may be made up of only one or two different circuit boards. This section will describe the adjustment procedures for both configurations.

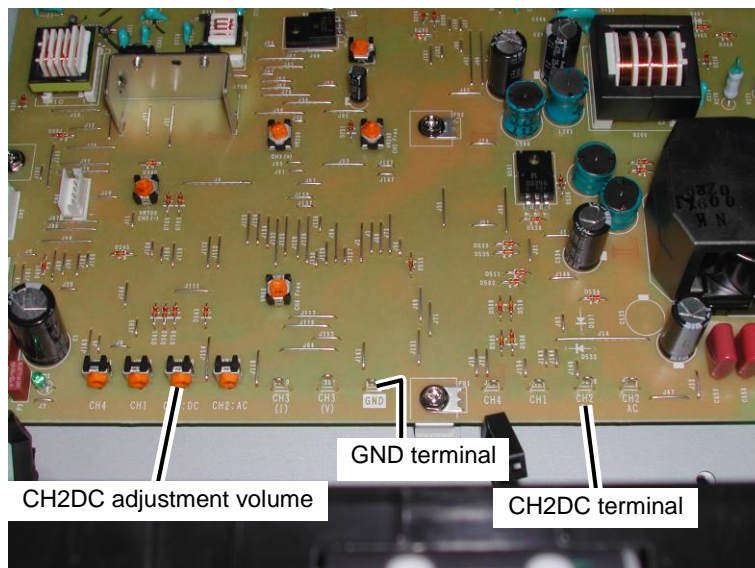
#### (1) One circuit board configuration

1. Perform the first procedure of **10.1.1 Primary Charger Load Current Calibration** on p. **10-2** so that the front power supply unit is visible.
2. Insert the digital multimeter's terminals into the high voltage power supply unit's CH2DC and GND terminals. Then activate the developer bias by going to **Test -> DB CHECK** in Engine Maintenance mode (see **2.3.10 Test**). Measure the DC load voltage Vdbd.

#### Note:

Set the digital multimeter's measurement range to DC, and read 100 mV as 100 V.

3. If calibration is required, rotate the CH2DC adjustment volume with a screwdriver for voltage calibration.



Setting range: -270 to -290 V (digital multimeter reading = 0.27 to 0.29V)

Ideal value: -280V (digital multimeter reading = 0.28V)

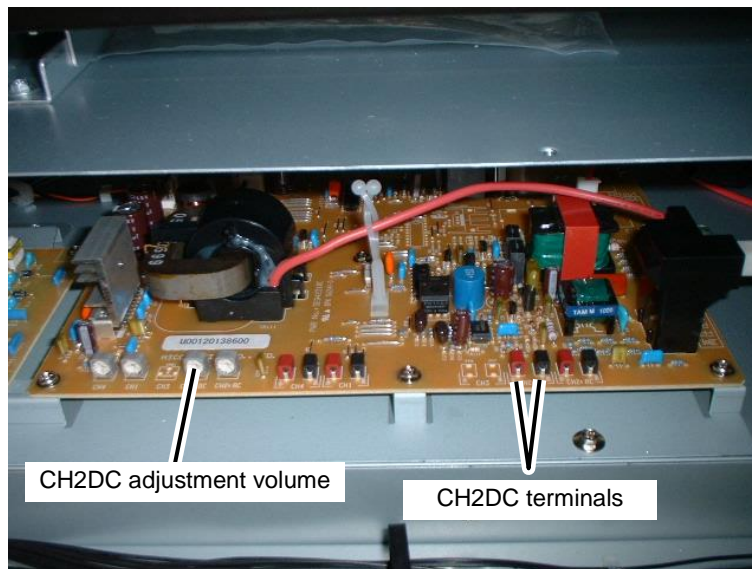
**(2) Two circuit board configuration**

1. Perform the first procedure of **10.1.1 Primary Charger Load Current Calibration** on p. **10-2** so that the front power supply unit is visible.
2. Insert the digital multimeter's terminals into the high voltage power supply unit's CH2DC and GND terminals. Then activate the developer bias by going to **Test -> DB CHECK** in Engine Maintenance mode (see **2.3.10 Test**). Measure the DC load voltage Vdbd.

**Note:**

Set the digital multimeter's measurement range to DC, and read 100 mV as 100 V.

3. If calibration is required, rotate the CH2DC adjustment volume with a screwdriver for voltage calibration.



Setting range: -270 to -290 V (digital multimeter reading = 0.27 to 0.29V)  
Ideal value: -280V (digital multimeter reading = 0.28V)

## 10.1.4 Separator AC Bias

### Note

Depending on when your unit was manufactured, the high voltage power supply unit may be made up of only one or two different circuit boards. This section will describe the adjustment procedures for both configurations.

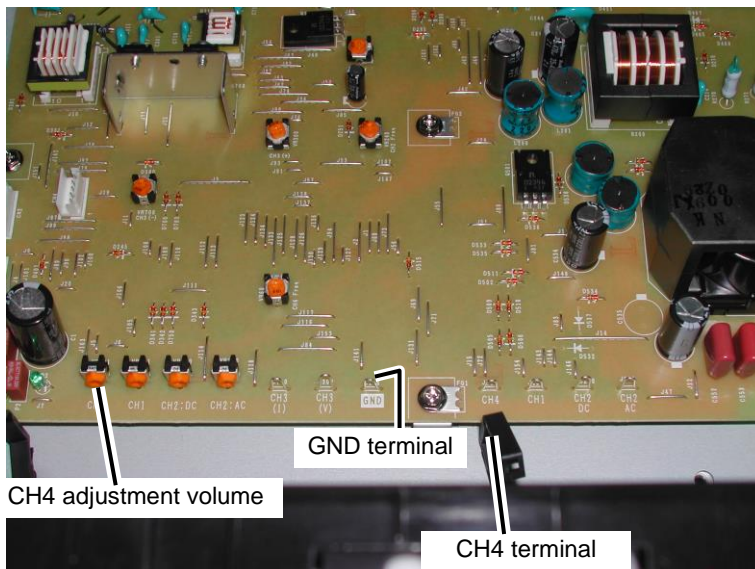
#### (1) One circuit board configuration

1. Perform the first procedure of **10.1.1 Primary Charger Load Current Calibration** on p. **10-2** so that the front power supply unit is visible.
2. Insert the digital multimeter's terminals into the high voltage power supply unit's CH4 and GND terminals. Then activate the separator bias by going to **Test -> DC CHECK** in Engine Maintenance mode (see **2.3.10 Test**). Measure the AC load voltage effective value Vdca.

#### Note:

Set the digital multimeter's measurement range to AC to measure.

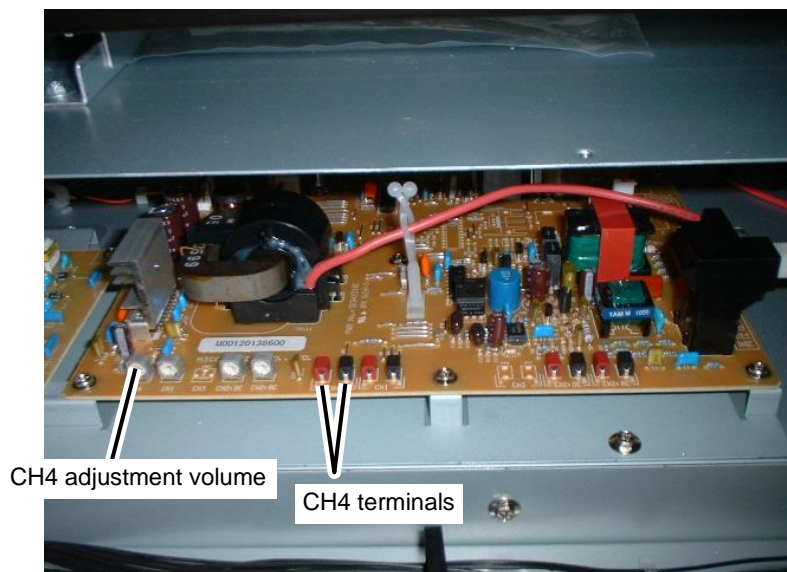
3. If calibration is required, rotate the CH4 adjustment volume with a screwdriver for voltage calibration.



Setting range: 8.25 to 8.75kV<sub>P-P</sub> (digital multimeter reading = 2.9 to 3.1V)  
Ideal value: 8.5kV<sub>P-P</sub> (digital multimeter reading = 3.0V)

**(2) Two circuit board configuration**

1. Perform the first procedure of **10.1.1 Primary Charger Load Current Calibration** on p. **10-2** so that the front power supply unit is visible.
2. Insert the digital multimeter's terminals into the high voltage power supply unit's CH4 and GND terminals. Then activate the separator bias by going to **Test -> DC CHECK** in Engine Maintenance mode (see **2.3.10 Test**). Measure the AC load voltage effective value  $V_{dca}$ .  
  
**Note:**  
Set the digital multimeter's measurement range to AC to measure.
3. If calibration is required, rotate the CH4 adjustment volume with a screwdriver for voltage calibration.



Setting range: 8.25 to 8.75kV<sub>P-P</sub> (digital multimeter reading = 2.9 to 3.1V)  
 Ideal value: 8.5kV<sub>P-P</sub> (digital multimeter reading = 3.0V)

## 10.1.5 Checking the Transfer Unit Voltage

### Note

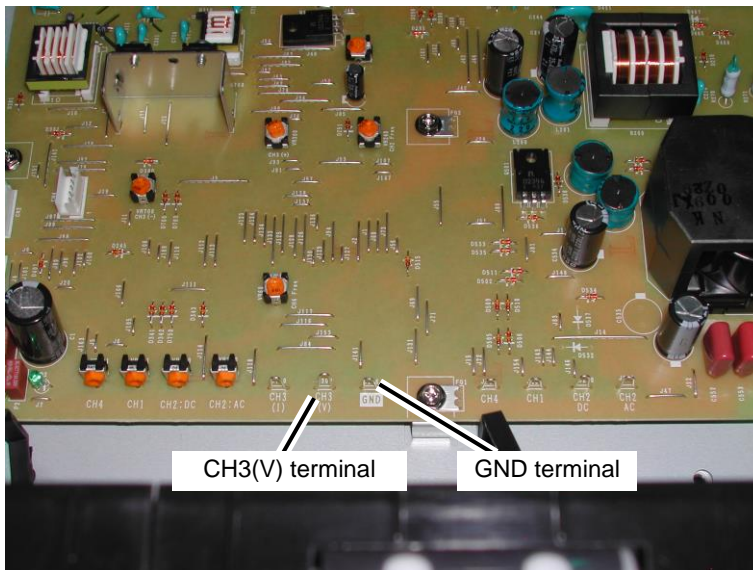
Depending on when your unit was manufactured, the high voltage power supply unit may be made up of only one or two different circuit boards. This section will describe the adjustment procedures for both configurations.

#### (1) One circuit board configuration

1. Perform the first procedure of **10.1.1 Primary Charger Load Current Calibration** on p. 10-2 so that the front power supply unit is visible.
2. Set the digital multimeter's terminals into the high voltage power supply unit's CH3(v) and GND terminals.

#### Note:

Set the digital multimeter's measurement range to DC to measure.



3. In Engine Maintenance Mode, select **Adjust** -> **Engine Adjustment** -> **Actuator** -> **TR** and turn it ON and OFF to operate the transfer part's high voltage power supply unit. Check that a voltage of +0.4 V to +0.9 V is output.

### Note

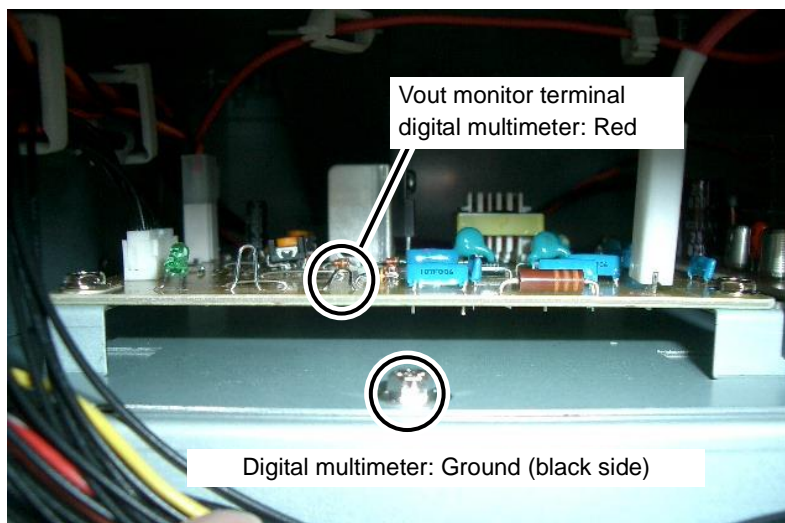
During actual printing, the transfer part's voltage is changed by PWM control based on the print sequence from the AAC board. So the value checked here is not the same as this transfer part's voltage.

**(2) Two circuit board configuration**

1. Perform the first procedure of **10.1.1 Primary Charger Load Current Calibration** on p. 10-2 so that the front power supply unit is visible.
2. Set the digital multimeter's terminals between the Vout monitor terminal of the transfer part's high voltage power supply unit and the metal chassis.

**Note:**

Set the digital multimeter's measurement range to DC to measure.



3. In Engine Maintenance Mode, select **Adjust** -> **Engine Adjustment** -> **Actuator** -> **TR** and turn it ON and OFF to operate the transfer part's high voltage power supply unit. Check that a voltage of +0.4 V to +0.9 V is output.

**Note**

During actual printing, the transfer part's voltage is changed by PWM control based on the print sequence from the AAC board. So the value checked here is not the same as this transfer part's voltage.

## 10.2 Measuring the Low Voltage Power Supply Voltage

### Note

Measure the voltage with a digital multimeter with an internal impedance of 1MΩ or more. Do not use a simple tester.

<Voltage Measurement and Specifications>

The measurement positions and its specification values are given below.

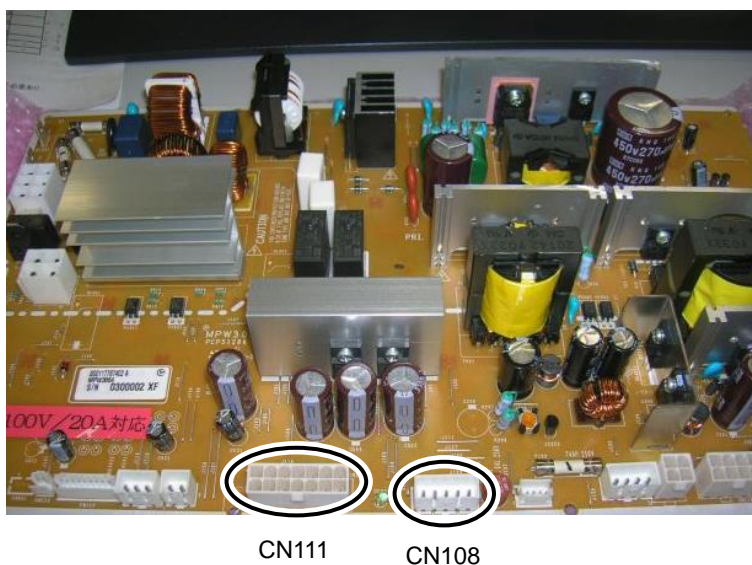
| Measurement Position | Specification Value |
|----------------------|---------------------|
| P5V1                 | 5.1±0.15V           |
| P5V2                 | 5.1±0.15V           |
| P5V3                 | 5.1±0.15V           |
| P12V                 | 12±0.36V            |
| P24V1                | 24±0.72V            |
| P24V2                | 24±0.72V            |

1. Perform the first procedure of **10.1.1 Primary Charger Load Current Calibration** on p. **10-2** so that the front power supply unit is visible.
2. Start up the Printer and confirm that no error message is detected.

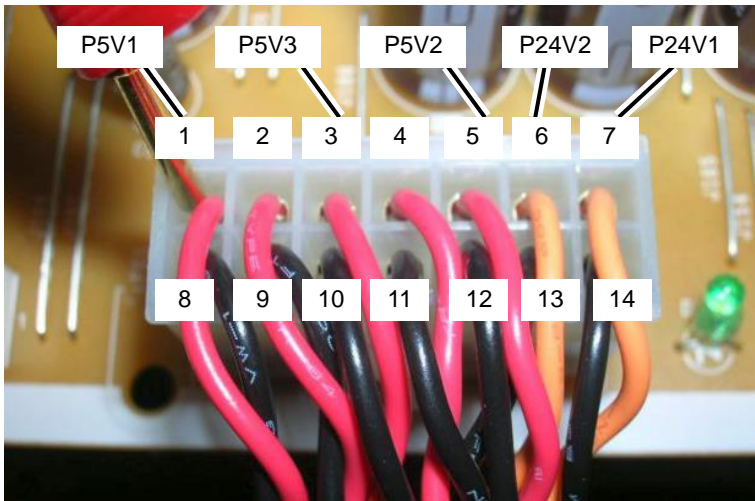
### Note

If the voltage is not output at some position, an error is detected.

3. Measure the voltage at the six positions shown in the photos below and confirm that the output voltage is within the specification value range.



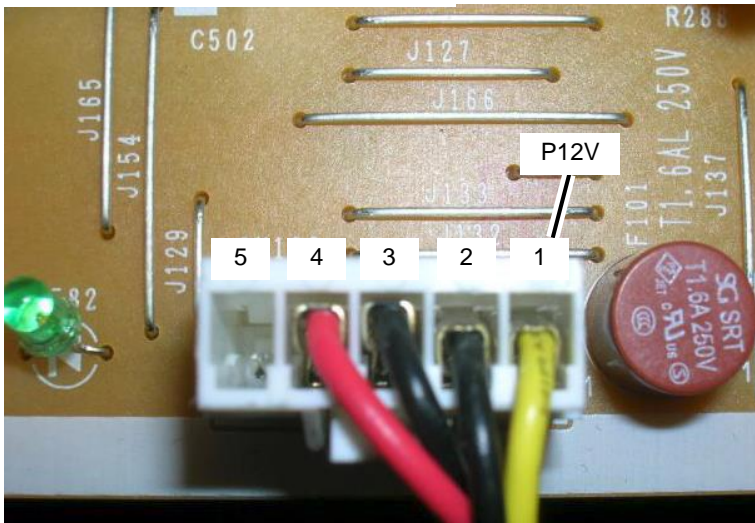
CN111's measurement position



| Pin Number | Name  |
|------------|-------|
| 1          | P5V1  |
| 3          | P5V3  |
| 5          | P5V2  |
| 6          | P24V2 |
| 7          | P24V1 |

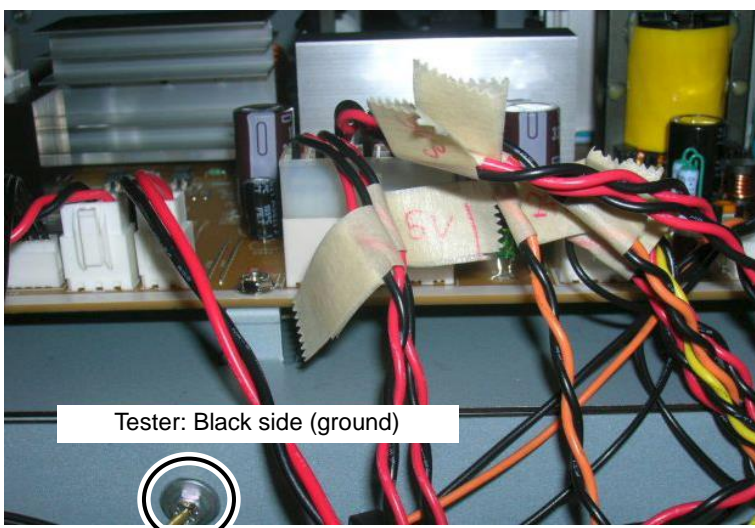
Touch the tester's + side with each contact in the connector as shown in the photo.

CN108's measurement position



| Pin Number | Name |
|------------|------|
| 1          | P12V |

Ground the tester's black side in the Printer's screw hole as shown in the photo.





### 10.3 Calibrating Print Specification Items

A list of items that do not fall within the standard values listed in **7.2 Troubleshooting Print Specification Problems** (see p. 7-4) and other calibration items are shown in the table below. Refer to the appropriate item in the table, go into Engine Maintenance mode and perform any calibration needed, and follow the reference items to fix any problems.

Table 10-1 List of Print Specification Problem Calibration Items

| Item                                  | Calibration Item  | Output Length when Calibrating | Output Paper Width when Calibrating | Output Paper Type when Calibrating                 | Print Engine Test Pattern |
|---------------------------------------|---|--------------------------------|-------------------------------------|--|---------------------------|
| Fuser unit's nip pressure calibration | Pressure roller's pressure  | 400mm (15.74 inches)           | A0                                  | Plain paper  | No. 5                     |
|                                       | Calibration: See <b>10.3.1 Fuser Unit's Nip Pressure Calibration</b> (p. 10-17)   |                                |                                     |  |                           |
| Skew/slack calibration                | Fuser Position  | 1189mm (46.81 inches)          | A0                                  | Plain paper  | No.15                     |
|                                       | Calibration: See <b>10.3.2 Skew/Slack Calibration</b> (p. 10-20)  |                                |                                     |  |                           |
| Cut squareness                        | Cutter Installation Height  | 1189mm (46.81 inches)          | A0                                  | Plain paper  | No.15                     |
|                                       | Calibration: See <b>10.3.3 Cut Squareness Calibration</b> (p. 10-25)  |                                |                                     |  |                           |
| Cut length accuracy*                  | —   | 1189mm (46.81 inches)          | A0                                  | Plain Paper/<br>Tracing Paper (75g (0.17 lb))/Film | No.15                     |
|                                       | —   | 297mm (11.69 inches)           | A0                                  | Plain Paper/<br>Tracing Paper (75g (0.17 lb))/Film |                           |
|                                       | —   | 210mm (8.27 inches)            | A0                                  | Plain Paper/<br>Tracing Paper (75g (0.17 lb))/Film |                           |
|                                       | Note: The default value varies depending on the print length and roll paper specifications (units: line). Increasing this value decreases the cut length. (1 line = 0.042333 mm (0.0017 inches)).<br>Calibration: See <b>10.3.4 Cut Length Accuracy Calibration</b> (p. 10-27)      |                                |                                     |  |                           |
| Print length accuracy*                | —   | 1189mm (46.81 inches)          | A0                                  | Plain paper  | No.15                     |
|                                       | Note: Increasing this value decreases the print length.<br>For a change of $\pm 5$ Hz, 841 mm lowers by approximately $\pm 2.2$ mm (0.09 inches).<br>Calibration: See <b>10.3.5 Print Length Accuracy Calibration</b> (p. 10-30)  |                                |                                     |  |                           |
| Top edge alignment*                   | —   | 1189mm (46.81 inches)          | A0                                  | Plain Paper/<br>Tracing Paper (75g (0.17 lb))/Film | No.15                     |
|                                       | —   | 297mm (11.69 inches)           | A0                                  | Plain Paper/<br>Tracing Paper (75g (0.17 lb))/Film |                           |
|                                       | —   | 210mm (8.27 inches)            | A0                                  | Plain Paper/<br>Tracing Paper (75g (0.17 lb))/Film |                           |
|                                       | Note: The default value varies depending on the print length and roll paper specifications (units: 1 msec). Increasing this value causes the write position to recess (10 msec = 0.8 mm (0.03 inches)).<br>Calibration: See <b>10.3.6 Top Edge Alignment Calibration</b> (p. 10-34) |                                |                                     |  |                           |
| Center alignment*                     | —   | 1189mm (46.81 inches)          | A0                                  | Plain paper  | No.15                     |
|                                       | Note: Increasing this value causes the print position to shift left (1 byte = 0.508 mm (0.02 inches)).<br>Calibration: See <b>10.3.7 Center Alignment Calibration</b> (p. 10-38)  |                                |                                     |  |                           |
| Skew check                            | Fuser unit position   | 1189mm (46.81 inches)          | A0                                  | Plain paper  | No.15                     |
|                                       | Calibration: See <b>10.3.2 Skew/Slack Calibration</b> (p. 10-20)  |                                |                                     |  |                           |

\* This denotes an item calibrated by entering Engine Maintenance mode.

If you know the condition or value you want to calibrate beforehand, calibrate the value via **Parameters** in Engine Maintenance mode.

If you calibrate the value based on the engine test pattern printed and measured, go to **Positioning** in Engine Maintenance mode.

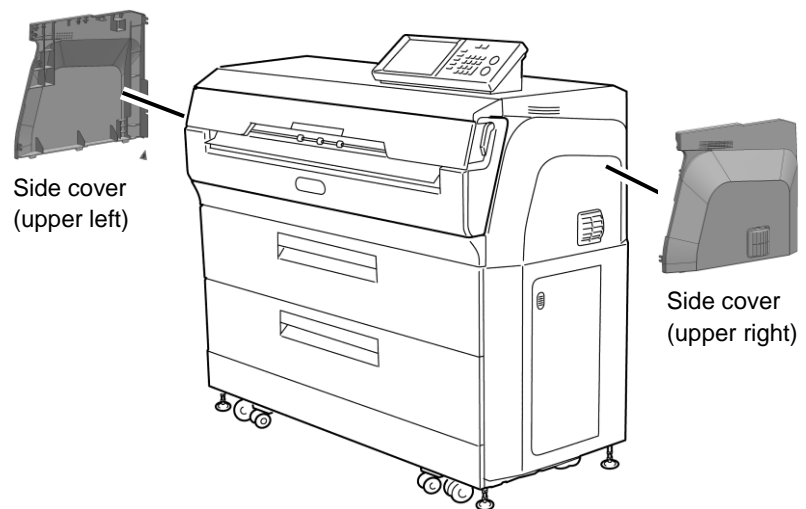


4. If your measurements do not fall within the standard value range, adjust the value by turning the nip calibration screws at the right and left of the fuser unit.

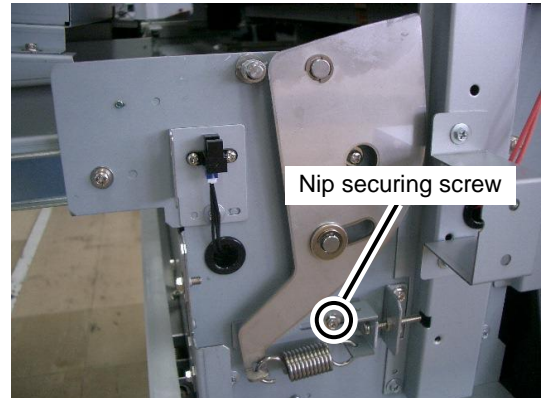
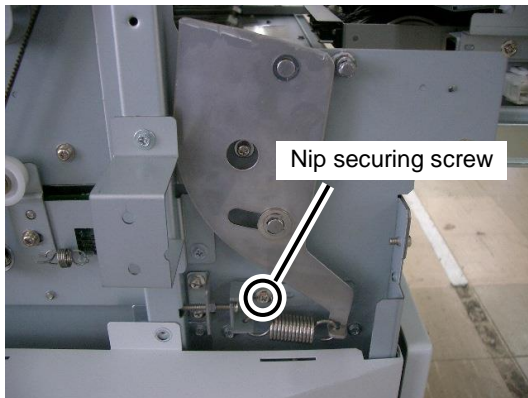
(a) Open the fuser unit drawer.



(b) Remove the side cover (upper left) and the side cover (upper right) (see p. 9-8 and p. 9-10).

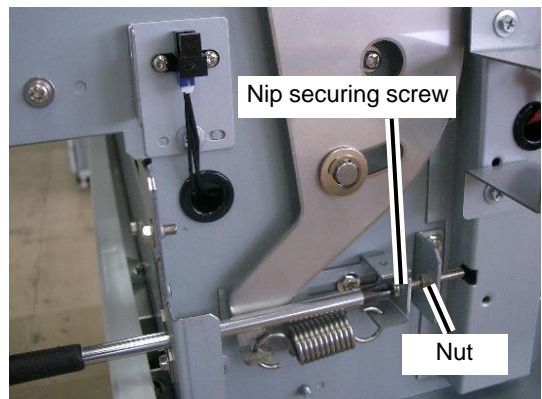
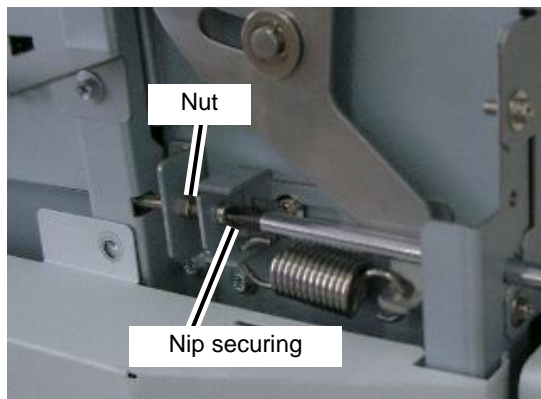


- (c) Loosen the screw securing the nip on both the right and the left.



- (d) Loosen the nip calibration screw's securing nut and turn the nip calibration screw to adjust the nip pressure on both the right and the left.

To increase the nip pressure:  
Turn the screw clockwise.  
To decrease the nip pressure:  
Turn the screw counterclockwise.



- (e) After making your adjustments, re-tighten the nut and nip securing screw.

5. Repeat steps 2 through 4 until you enter the standard value range.
6. Tighten the nut you loosened during the procedure.

### 10.3.2 Skew/Slack Calibration



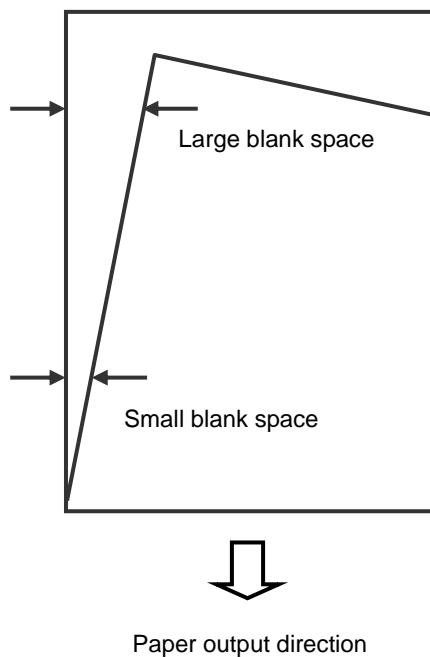
#### Warning

- Do not touch the fuser unit as it is extremely hot after the operation. Burn injuries may result.
- Be careful not to burn yourself when performing these adjustments.

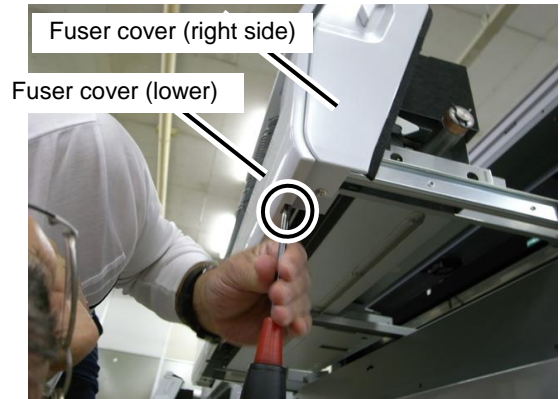
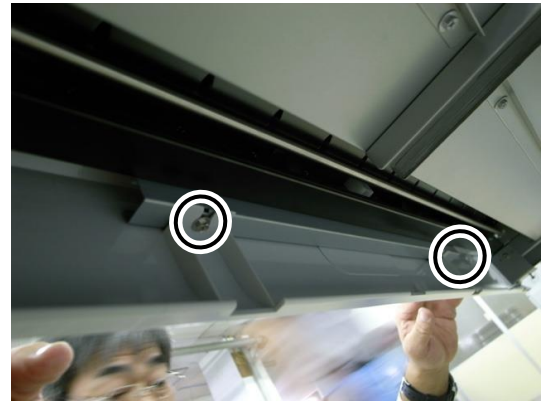
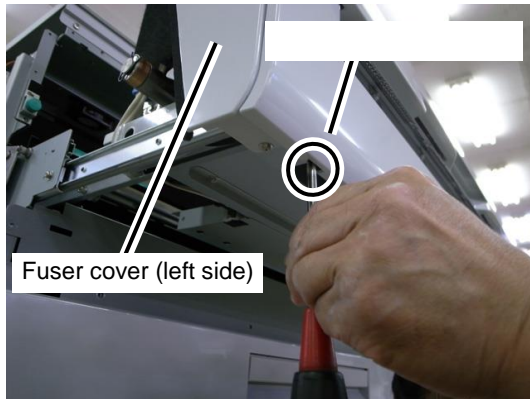
1. Install A0 plain roll paper at Roll 1.
2. Enter Engine Maintenance mode. First, check that the nip pressure is acceptable. If it is not within the standard value range, calibrate it (see p. 10-17).
3. Enter Engine Maintenance mode and print the engine test pattern 5 three times (see **Chapter 2**).

If the print sample is skewed as shown in the figure

-> Look at the fuser unit from the paper output direction and press the right side of the fuser unit in toward the interior of the Printer. Then turn the alignment calibration screw to the right.



- (a) Loosen the four screws on the fuser cover (lower).

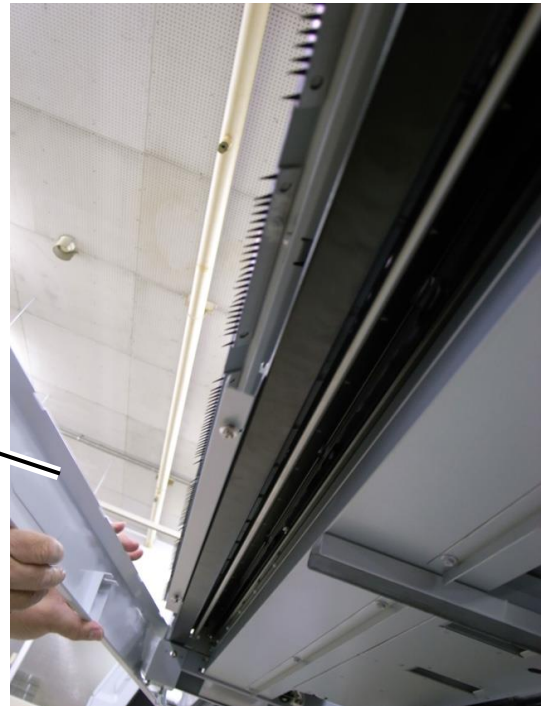


- (b) Pull the fuser cover (lower) forward and remove it.

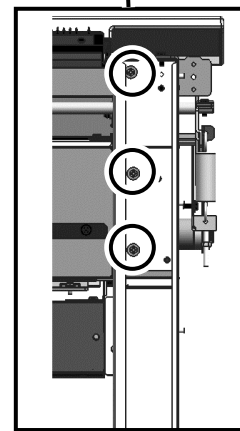
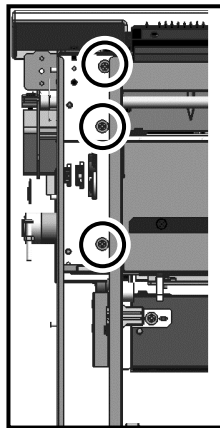
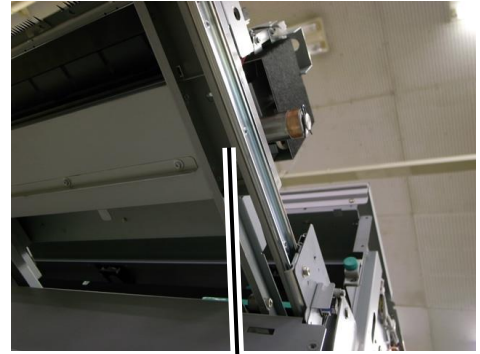
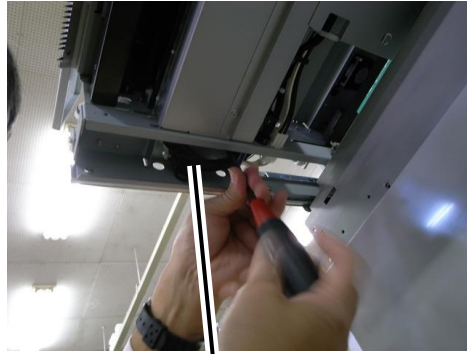
**Cautionary Notes When Performing Installation**

Secure the right and left screws while pressing down on the cover. Then tighten the central screws carefully so that the cover does not warp or bend.

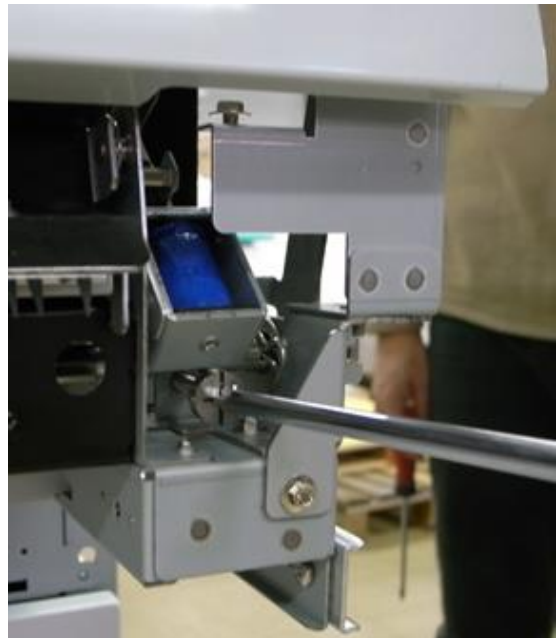
Fuser cover (lower)



- (c) Loosen the fuser unit's six securing screws (three on the right and three on the left).



- (d) Rotate the alignment calibration screw to move the fuser unit so that the skewed paper's large and small blank spaces become the opposite of each other. How much you should turn the screw varies depending on the amount of skew, but try about 1 mm (0.04 inches) from the initial position to start with.



- (e) Mark the screw position when the skewed paper's large and small blank spaces finally becomes the opposite of each other.
- (f) Perform more precise alignment between the initial position and the position where the lines moved to the left side.

**Note**

If you are experiencing wrinkles or missing areas on your printouts and cannot fully calibrate by only the fuser unit's alignment calibration, try changing the speed of the heat roller ( $\pm 10$  or  $\pm 20$  from its initial value). For more details, execute **2.3.14 Parameter** in Engine Maintenance mode (see p. 2-37). For information about engine control parameters, see the table **Engine Control Parameters** in that same section.

4. Repeat these steps of adjusting the position of the fuser unit and printing until the skew of the blank spaces becomes equal in test No. 5. Then, check that the skew is still equal in test No. 14 for a final test.
  - \* Normally you will have finished skew/slack calibration using test pattern No.5, so if No.14 does not line up you can fix the problem by calibrating the heat roller speed. If calibrating the speed alone does not fix the problem, look at both No.5 and No.15 and perform the calibration again.
5. Tighten the fuser unit securing screws.



**6.** Perform calibration for A1 size paper.

When you have finished calibration for A0 size paper, perform the same procedure and print 3 copies in succession of test pattern No.5.

\* You should generally start adjusting from A0 size, even for A1 size smearing. If you can see smearing in the print samples at any location, change the heat roller speed control parameter by -10 or -20.

\* Normally you will have finished skew/slack calibration using A0 size, so if A1 size does not line up you can fix the problem by calibrating the heat roller speed.

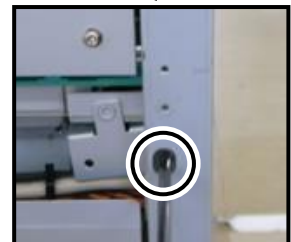
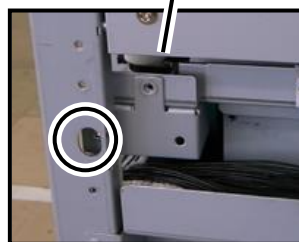
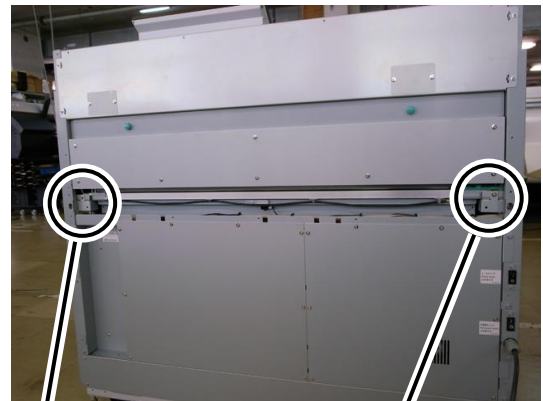
If calibrating the speed alone does not fix the problem, check both A1 and A0 sizes and perform the calibration again.

### 10.3.3 Cut Squareness Calibration

1. Install A0 plain roll paper at Roll 1.
2. Enter Engine Maintenance mode and print the engine test pattern 15 (see **2.3.12 Print** on p. 2-25).
3. Measure the cut squareness.  
Refer to **Item 7 Cut Squareness** in **7.2 Troubleshooting Print Specification Problems** (p. 7-4) for more information about measuring methods and standard values.
4. If your measured values do not fall within the standard value range, remove the cutter cover, loosen the two screws on both sides of the cutter mounting plate, and adjust as necessary.
  - (a) Remove the COVER-CUT with seven screws.



- (b) Loosen the two screws and visually adjust the height of the cutter on the right and left sides.



- 5.** Tighten and secure the screws.
- 6.** Repeat steps 2 through 5 until you enter the standard value range.

### 10.3.4 Cut Length Accuracy Calibration

To measure and adjust after printing a test plot, go to **Positioning** ->**Cut Length Adjustment** in Engine Maintenance mode. See (1).

If you know the condition or value you want to calibrate beforehand, you can do so via **Parameters 801 to 848** in Engine Maintenance mode. See (2).

This section provides primarily supplementary details about the overall calibration procedure and operations involved. For operation panel display and key operations related to the specific steps required in Engine Maintenance mode, see:

- 2.3.13 Positioning** (p. 2-27);
- 2.3.14 Parameter** (p. 2-37); or
- 2.5 Technician Menu Functions** (p. 2-47).

#### (1) Print a test plot, measure, and calibrate the cut length

The calibration procedure below is recommended, for example when:

- Parts are replaced, or
- The EEPROM data is set to its default value.

1. Enter Engine Maintenance mode and select **Positioning**.
2. Select **Cut Length Calibration**.
3. Select roll paper and print length as the test conditions.

#### Note

For the first test plot, leave the configured correction value at its default value.

4. Select **Start Print** and print a test plot.  
→Three sheets of the plot are printed in succession.
5. Measure the length of the third printout and check that it falls within the standard range.

See **7.2.1 Print Specifications and How to Measure Them** (p. 7-4) No.6 for measuring methods and standard values.

If the measurement falls within the standard range, everything is okay.

- If you want to check other test conditions, repeat steps 3 and 4.
- When you finish testing, skip ahead to step 9.

If the measurement is outside of the standard range, change the configured correction value. Move on to step 6.

6. Calculate the correction value as explained here.

**Example:**

The paper length is too short, when  
Standard value A0 = 1189±6 mm (46.81±0.24 inches)  
Paper length = 1182 mm (46.54 inches)

- (a) Find the difference from the standard value.  
 $1182 \text{ (46.54 inches)} - 1189 \text{ (46.81 inches)} = -7 \text{ mm (0.27 inches)}$
- (b) Determine how many print lines would be equal to the difference, with:  
1 line = 0.0423 mm (0.0017 inches)  
 $-7 / 0.0423 = -165.48 \text{ lines or } -165 \text{ lines}$
- (c) Check the value saved to the EEPROM.  
\* The default value varies depending on the print length and roll paper specifications.
- (d) Calculate the correction value and then set that value.  
 $300 \text{ lines} - 165 \text{ lines} = 135 \text{ lines}$

7. Select **Start Print** and print a test plot.  
→Three sheets of the plot are printed.

8. Measure the length of the third printout and check that it falls within the standard range.  
If the value falls within the standard value range, save to the EEPROM.

**(2) Calibrate the cut length with the conditions and ideal values you know beforehand**

The calibration procedure below is recommended, for example, when:

- You need to extend or shorten the A2 plain paper's cut length by a few mm.

- 1.** Enter Engine Maintenance Mode and select **Parameters**.
- 2.** Input the engine control parameter number.
  - Select the engine control parameter number that matches the print length and roll paper conditions you desire.
- 3.** Convert the calibration value (mm) to the number of lines (lines/sec), then set the converted value as the calibration value.  
See step 6 in subsection (1) above for details on the calibration procedure.
- 4.** If you want to adjust the cut length with any other changed test conditions, repeat steps 2 and 3.
- 5.** Save the value to the EEPROM.
- 6.** Print a test plot by executing **Positioning ->Cut Length Adjustment**, then check the cut length after the adjustments.
  - Check all codes you used to calibrate the cut length.
  - Make sure to match up the test conditions and print conditions for each code you calibrated.

See **2.3.13 Positioning** (p. 2-27).

See **7.2.1 Print Specifications and How to Measure Them** (p. 7-4) No.6 for measuring methods and standard values.

### 10.3.5 Print Length Accuracy Calibration

To measure and adjust after printing a test plot, go to **Positioning** ->**Print Length Adjustment** in Engine Maintenance mode. See (1).

If you know the condition or value you want to calibrate beforehand, you can do so via **Parameters 718 to 724** in Engine Maintenance mode. See (2).

This section provides primarily supplementary details about the overall calibration procedure and operations involved. For operation panel display and key operations related to the specific steps required in Engine Maintenance mode, see:

**2.3.13 Positioning** (p. 2-27);

**2.3.14 Parameter** (p. 2-37); or

**2.5 Technician Menu Functions** (p. 2-47).

#### Note

Choose A1 plain paper, width for paper type and paper width. However, if the usage conditions for the user's paper are limited, you can calibrate the print length accuracy under those conditions.

#### (1) Print a test plot, measure, and calibrate the print length

The calibration procedure below is recommended, for example when:

- Parts are replaced, or
- The EEPROM data is set to its default value.

You can only calibrate for roll paper using this procedure. For A4 cut paper, refer to the method described in subsection (2).

1. Enter Engine Maintenance Mode and select **Positioning**.
2. Select **Print Length Calibration**.
3. Select the roll paper you want to use.

- Print length accuracy calibration can be performed starting with any roll paper.

#### Note

For the first test plot, leave the configured correction value at its default value.

4. Select **Start Print** and print a test plot.  
Three sheets of the plot are printed in succession with 1189 mm (46.81 inches) print length.

5. Measure the length of the third printout and check that it falls within the standard range. See **7.2.1 Print Specifications and How to Measure Them** (p. 7-4) No.1 for measuring methods and standard values.

If the measurement falls within the standard range, everything is okay.  
Move on to step 9 and finish testing.

If the measurement is outside of the standard range, change the configured correction value.  
Move on to step 6.

6. Calculate the correction value as explained here.

**Example 1:**

The print length is too short, when

Standard value = 1127.1mm (44.37 inches) $\pm$ 0.5%

Paper length = 1122.8 mm (44.21 inches)

- (a) Find the difference from the standard value.

$$1122.8 \text{ (44.21 inches)} - 1127.1 \text{ (44.37 inches)} = -4.3 \text{ mm (0.16 inches)}$$

- (b) Determine the percent difference that represents from the standard value.

$$-4.3 \div 1127.1 = -0.00382 \text{ (approximately 0.38\% short)}$$

- (c) Check the values saved in the EEPROM, then convert them into a write speed.

$$\text{Initial value} = 3137 \rightarrow 1 / (3137 \times 128) \times 10^9 = 2490.4 \text{ (lines/sec)}$$

$$\text{Initial value} = 4119 \rightarrow 1 / (4119 \times 128) \times 10^9 = 1896.7 \text{ (lines/sec)}$$

- (d) Calculate the amount to increase/decrease to return to the standard value.

$$2490.4 \times (-0.00382) = -9.5 \text{ (lines/sec)}$$

$$1896.7 \times (-0.00382) = -7.2 \text{ (lines/sec)}$$

- (e) Calculate the write speed from the increase or decrease in value.

$$2490.4 - 9.5 = 2480.9 \text{ (lines/sec)}$$

$$1896.7 - 7.2 = 1889.5 \text{ (lines/sec)}$$

- (f) Convert the write speed into a correction value (setting value), the set that correction value.

$$1 / (2480.9 \times 128) \times 10^9 = 3149$$

$$1 / (1889.5 \times 128) \times 10^9 = 4135$$



**Example 2:**

The print length is too long, when

Standard value A1 = 1127.1mm (44.37 inches)±0.5%

Paper length = 1131.8mm (44.56 inches)

- (a) Find the difference from the standard value.

$$1131.8 \text{ (44.56 inches)} - 1127.1 \text{ (44.37 inches)} = 4.7 \text{ mm (0.19 inches)}$$

- (b) Determine the percent difference that represents from the standard value.

$$4.7 \div 1127.1 = 0.00417 \text{ (approximately 0.42\% long)}$$

- (c) Check the values saved in the EEPROM, then convert them into a write speed.

$$\text{Initial value} = 3137 \rightarrow 1 / (3137 \times 128) \times 10^9 = 2490.4 \text{ (lines/sec)}$$

$$\text{Initial value} = 4119 \rightarrow 1 / (4119 \times 128) \times 10^9 = 1896.7 \text{ (lines/sec)}$$

- (d) Calculate the amount to increase/decrease to return to the standard value.

$$2490.4 \times (0.00417) = 10.4 \text{ (lines/sec)}$$

$$1896.7 \times (0.00417) = 7.9 \text{ (lines/sec)}$$

- (e) Calculate the write speed from the increase or decrease in value.

$$2490.4 + 10.4 = 2500.8 \text{ (lines/sec)}$$

$$1896.7 + 7.9 = 1940.6 \text{ (lines/sec)}$$

- (f) Convert the write speed into a correction value (setting value), the set that correction value.

$$1/(2500.8 \times 128) \times 10^9 = 3124$$

$$1/(1940.6 \times 128) \times 10^9 = 4102$$

**7. Start printing by selecting **Start Print**.**

Three sheets of the plot are printed in succession.

**8. Measure the length of the third printout and check that it falls within the standard range.**

If the measurement falls within the standard value range, save to the EEPROM.

If the measurement is outside the standard value range, restart the procedure starting from step 6 and try again.

**(2) Calibrate the cut length with the conditions and ideal values you know beforehand**

The calibration procedure below is recommended, for example, when:

- You need to extend or shorten the print length by a few mm.

1. Enter Engine Maintenance Mode and select **Parameters**.
2. Input the engine control parameter number for the item you want to calibrate.
3. Convert the calibration value (mm) to the number of lines (lines/sec), then set the converted value as the calibration value.

See step 6 in subsection (1) above for details on the calibration procedure.

4. Save the value to the EEPROM.
5. Print a test plot by executing **Positioning ->Print Length Adjustment**, then check the print length after the adjustments.

See **2.3.13 Positioning** (p. 2-27).

See **7.2.1 Print Specifications and How to Measure Them** (p. 7-4) No.1 for measuring methods and standard values.

### 10.3.6 Top Edge Alignment Calibration

To measure and adjust after printing a test plot, go to **Positioning ->Front Position Adjustment** in Engine Maintenance mode. See (1).

If you know the condition or value you want to calibrate beforehand, you can do so via **Parameters 601 to 649** in Engine Maintenance mode. See (2).

This section provides primarily supplementary details about the overall calibration procedure and operations involved. For operation panel display and key operations related to the specific steps required in Engine Maintenance mode, see:

**2.3.13 Positioning** (p. 2-27);

**2.3.14 Parameter** (p. 2-37); or

**2.5 Technician Menu Functions** (p. 2-47).

#### (1) Print a test plot, measure, and calibrate the top edge alignment

The calibration procedure below is recommended, for example when:

- Parts are replaced, or
- The EEPROM data is set to its default value.

1. Enter Engine Maintenance mode and select **Positioning**.
2. Select **Top Edge Alignment**.
3. Select roll paper and print length as the test conditions.

#### Note

For the first test plot, leave the configured correction value at its default value.

4. Select **Start Print** to print a test plot.  
Three sheets of the plot are printed in succession.
5. Measure the top edge alignment of the third printout and check that it falls within the standard range.

See **7.2.1 Print Specifications and How to Measure Them** (p. 7-4) No.3 for measuring methods and standard values.

If the measurement falls within the standard range, everything is okay.

- If you want to check other test conditions, repeat steps 3 and 4.
- When you finish testing, skip ahead to step 9.

If the measurement is outside of the standard range, change the configured correction value.  
Move on to step 6.

6. Calculate the correction value as explained here.

**Example 1:**

The top edge alignment value is too short, when  
 Standard value = 21.7mm (0.85 inches)  $\pm$ 3mm (0.12 inches)  
 Paper length = 18.2 mm (0.72 inches)

- (a) Find the difference from the standard value.

$$18.2 \text{ (0.72 inches)} - 21.7 \text{ (0.85 inches)} = -3.5 \text{ mm (0.13 inches)}$$

- (b) By converting that difference into a process speed you can find out how many seconds that equals.

$$\text{Process speed} = 80 \text{ mm (3.15 inches)/sec}$$

$$-3.5 \div 80 = -0.04375 \text{ (sec)}$$

which indicates that printing starts 43.75 msec sooner.

- (c) Calculate the amount to increase/decrease to return to the standard value.

$$1 \text{ step} = 1.0 \text{ msec}$$

$$43.75 \div 1 = 43.75 \text{ or } 44 \text{ (steps)}$$

- (d) Check the value saved to the EEPROM.

$$\text{Default value} = 400 * \text{steps}$$

\* The default value varies depending on the print length and roll paper specifications.

- (e) Calculate and set the correction value.

$$400 + 44 = 444 \text{ (steps)}$$

**Example 2:**

The top edge alignment value is too long, when  
 Standard value = 21.7mm (0.85 inches)  $\pm$ 3mm (0.12 inches)  
 Measured value = 25.7 mm (1.01 inches)

- (a) Find the difference from the standard value.

$$25.7 \text{ (1.01 inches)} - 21.7 \text{ (0.85 inches)} = 4.0 \text{ mm (0.16 inches)}$$

- (b) Convert the difference to the process speed, by calculating how many seconds are equal to the difference.

$$\text{Process speed} = 80 \text{ mm (3.15 inches)/sec}$$

$$4.0 \div 80 = 0.05 \text{ (sec)}$$

which indicates that printing starts 50 msec later.

- (c) Calculate the amount to increase/decrease to return to the standard value.

$$1 \text{ step} = 1.0 \text{ msec}$$

$$50.0 \div 1 = 50.0 \text{ or } 50 \text{ (steps)}$$

- (d) Check the value saved to the EEPROM.

$$\text{Default value} = 400 * \text{steps}$$

\* The default value varies depending on the print length and roll paper specifications.

- (e) Calculate and set the correction value.

$$400 - 50 = 350 \text{ (steps)}$$

- 7.** Start printing by selecting **Start Print**.  
Three sheets of the plot are printed in succession.
  
- 8.** Measure the top edge alignment of the third printout and check that it falls within the standard range.  
  
If the measurement falls within the standard value range, save to the EEPROM.  
  
If the measurement is outside the standard value range, restart the procedure starting from step 6 and try again.

**(2) Calibrate the top edge alignment with the conditions and ideal values you know beforehand**

The calibration procedure below is recommended, for example, when:

- You need to extend or shorten the A0 plain paper's top edge alignment by a few mm.

- 1.** Enter Engine Maintenance Mode and select **Parameters**.
- 2.** Input the engine control parameter number for the item you want to calibrate.
- 3.** Convert the calibration value (mm) to the number of steps, then set the converted value as the calibration value.

See step 6 in subsection (1) above for details on the calibration procedure.

- 4.** If you want to change any other test conditions and adjust the top edge alignment, repeat steps 2 and 3.
- 5.** Save the value to the EEPROM.
- 6.** Print a test plot by selecting **Positioning ->Front Position Adjustment**, then check the top edge alignment after the adjustments.

- Check all parameters that adjusted the top edge alignment
- Make sure to match up the test conditions and print conditions for each parameter you calibrated.

See **2.3.13 Positioning** (p. 2-27).

See **7.2.1 Print Specifications and How to Measure Them** (p. 7-4) No.3 for measuring methods and standard values.

### 10.3.7 Center Alignment Calibration

To measure and adjust after printing a test plot, go to **Positioning** -> **Center Alignment** in Engine Maintenance mode. See (1).

If you know the condition or value you want to calibrate beforehand, you can do so via **Parameters 701 to 704** in Engine Maintenance mode. See (2).

This section provides primarily supplementary details about the overall calibration procedure and operations involved. For operation panel display and key operations related to the specific steps required in Engine Maintenance mode, see:

**2.3.13 Positioning** (p. 2-27);

**2.3.14 Parameter** (p. 2-37); or

**2.5 Technician Menu Functions** (p. 2-47).

#### (1) Print a test plot, measure, and calibrate the center alignment

The calibration procedure below is recommended, for example when:

- Parts are replaced, or
- The EEPROM data is set to its default value.

1. Enter Engine Maintenance Mode and select **Positioning**.
2. Select **Center Alignment**.
3. Select the roll paper to be printed on.

#### Note

For the first test plot, leave the configured correction value at its default value.

4. Select **Start Print** to print a test plot.  
Three sheets of the plot are printed in succession.
5. Measure the center alignment of the third printout and check that it falls within the standard range.

See **7.2.1 Print Specifications and How to Measure Them** (p. 7-4) No.4 for measuring methods and standard values.

If the measurement falls within the standard range, everything is okay.

- If you want to check other test conditions, repeat steps 3 and 4.
- When you finish testing, skip ahead to step 9.

If the measurement is outside of the standard range, change the configured correction value. Move on to step 6.

6. Calculate the correction value as explained here.

**Example 1:**

The center alignment value is too short, when  
 Standard value = 21.7 mm (0.85 inches)  $\pm$ 3 mm (0.12 inches)  
 Measurement value = 18.2 mm (0.72 inches)

- (a) Find the difference from the standard value.

$$18.2 \text{ (0.72 inches)} - 21.7 \text{ (0.85 inches)} = -3.5 \text{ mm (0.13 inches)}$$

- (b) Convert the difference to the number of pitches, by calculating how many dots are equivalent to the difference.

$$1 \text{ pitch} = 0.508 \text{ mm (0.02 inches)}$$

$$-3.5 \div 0.508 = -6.9 \text{ (pitches)}$$

which indicates that the print position is 6.9 pitches to the right.

- (c) Calculate the amount to increase/decrease to return to the standard value.

$$1 \text{ step} = 1 \text{ pitch}$$

$$6.9 \div 1 = 6.9 \text{ or } 7 \text{ (steps)}$$

- (d) Check the value saved to the EEPROM.

$$\text{Default value} = 50 \text{ (steps)}$$

- (e) Calculate and set the correction value.

$$50 + +7 = 57 \text{ (steps)}$$

**Example 2:**

The center alignment value is too long, when  
 Standard value = 21.7 mm (0.85 inches)  $\pm$ 3 mm (0.12 inches)  
 Measured value = 25.7 mm (1.01 inches)

- (a) Find the difference from the standard value.

$$25.7 \text{ (1.01 inches)} - 21.7 \text{ (0.85 inches)} = 4.0 \text{ mm (0.16 inches)}$$

- (b) Convert the difference to the number of pitches, by calculating how many dots are equivalent to the difference.

$$1 \text{ pitch} = 0.508 \text{ mm (0.02 inches)}$$

$$4.0 \div 0.508 = 7.9 \text{ (pitches)}$$

which indicates that the print position is 7.9 pitches to the left.

- (c) Calculate the amount to increase/decrease to return to the standard value.

$$1 \text{ step} = 1 \text{ pitch}$$

$$7.9 \div 1 = 7.9 \text{ or } 8 \text{ (steps)}$$

- (d) Check the value saved to the EEPROM.

$$\text{Default value} = 50 \text{ steps}$$

- (e) Calculate and set the correction value.

$$50 - 8 = 42 \text{ (steps)}$$



- 7.** Select **Start Print** to print a test plot.  
Three sheets of the plot are printed in succession.
  
- 8.** Measure the center alignment of the third printout and check that it falls within the standard range.

If the measurement falls within the standard value range, save to the EEPROM.

If the measurement is outside the standard value range, restart the procedure starting from step 6 and try again.

**(2) Calibrate the center alignment with the conditions and ideal values you know beforehand**

The calibration procedure below is recommended, for example when:

- You need to shift the center alignment for Roll 1, by a few mm to the right or to the left.

- 1.** Enter Engine Maintenance Mode and select **Parameters**.
- 2.** Input the engine control parameter number for the item you want to calibrate.
- 3.** Convert the calibration value (mm) to the number of steps, then set the converted value as the calibration value.

See step 6 in subsection (1) above for details on the calibration procedure.

- 4.** If you want to change any other test conditions and adjust the center alignment, repeat steps 2 and 3.
- 5.** Save the value to the EEPROM.
- 6.** Print a test plot by selecting **Positioning ->Print Length Adjustment**, then check the center alignment after the adjustments.

- Check all codes that adjusted the center alignment.

- Make sure to match up the test conditions and print conditions for each code you calibrated.

See **2.3.13 Positioning** (p. 2-27).

See **7.2.1 Print Specifications and How to Measure Them** (p. 7-4) No.4 for measuring methods and standard values.

## 10.4 Lead Edge Dead Space Adjustment

The Printer has 3 mm (0.12 inches) of dead space at the lead edge of the paper. However, if the user wants, this dead space can be reduced so that the Printer can print up to the very tip of the lead edge of the paper.

To perform this adjustment, select **Parameter** in Engine Maintenance Mode, and enter **659** for **End Clip Value**.

### Note

- When performing this adjustment, make sure that the user understands and agrees that making such an adjustment will increase the chance of paper jams. The lead edge dead space is a clipping amount that separates the paper from the heat roller when fusing. Therefore, the smaller this amount, the higher the chance of a paper jam occurring. (Especially if there is high density data being printed at the lead edge of the paper.)
- The value set during line end clip adjustment will not go into effect until the Printer is restarted.

1. Enter Engine Maintenance Mode and select **Parameter**.
2. Select **659** under In **600s**.
3. Set the dead space (mm) you want converted to the number of lines.

### Example:

If you want to set the dead space to 1 mm (0.039 inches)  
(Default value: 71 lines = 3.0 mm (0.12 inches))

Calculate how many lines 1 mm equals (1 line = 0.042333 mm) and set that value.

$$1 \div 0.042333 = 23.62 \text{ or } 24 \text{ lines}$$

4. Save the value to the EEPROM.
5. Turn the printer Off, then On again to restart it.
6. From the computer you can now send the printer data that prints at the tip of the tail edge of the paper to test if it can be printed correctly.

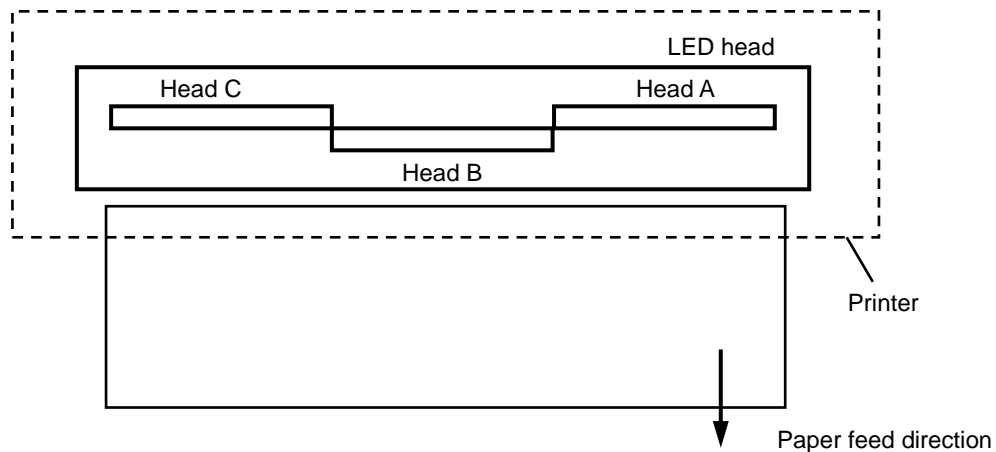
## 10.5 LED Head Connection Calibration

This section explains the procedure for calibrating the LED head connection.  
This calibration is necessary whenever you are replacing a LED head.

### (1) LED Head Configuration

The LED head is structured as shown below.

Therefore, print shift correction calibration needs to be performed for each head's connection.



### (2) Parameter Details

To perform this calibration you will use the following parameters. (\*Be careful not to exceed the setting range for these parameters.)

- |                                       |   |
|---------------------------------------|---|
| (a) <b>Parameter - In 700s - 709:</b> | Used for fine adjustment of connection between head A-B<br>(Setting range: 0 to 65) |
| (b) <b>Parameter - In 700s - 710:</b> | Used for fine adjustment of connection between head C-B<br>(Setting range: 0 to 65) |

After adjusting in units of lines with  
**Parameter - In 700s - 711;** and  
**Parameter - In 700s - 712**

use these parameters for fine adjustment within the lines.

An adjustment value of 1 will cause a shift of 0.64  $\mu\text{m}$ .

- |                                       |  |
|---------------------------------------|--|
| (c) <b>Parameter - In 700s - 711:</b> | Used for fine adjustment of connection between head A-B<br>(Setting range: 87 to 93) |
| (d) <b>Parameter - In 700s - 712:</b> | Used for line adjustment of connection between head A-B<br>(Setting range: 87 to 93) |

Adjust in units of lines. An adjustment value of 1 will cause a shift of 42.3  $\mu\text{m}$ .

To find the initial print shift position, temporarily set

**Parameter - In 700s - 711;** and  
**Parameter - In 700s - 712**

to 98.

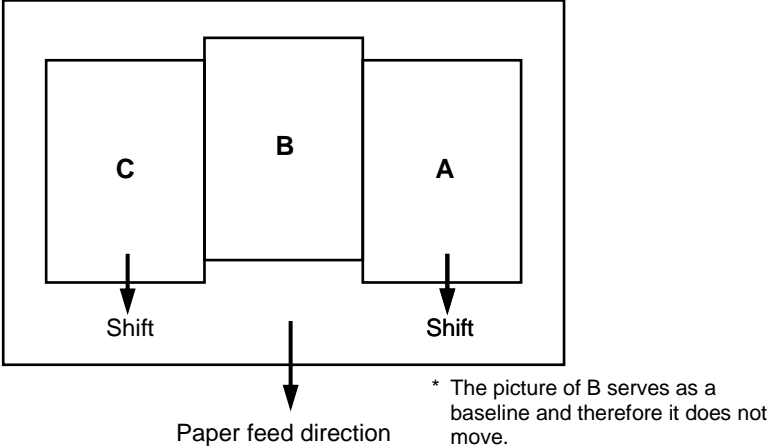
- (e) Maintenance code <12> sub-code **712**: Used for fine adjustment of connection between head C-B  
(Setting range: 87 to 93)
- (f) Maintenance code <12> sub-code **713**: Used for line adjustment of connection between head C-B  
(Setting range: 87 to 93)

**(3) Basic Operations**

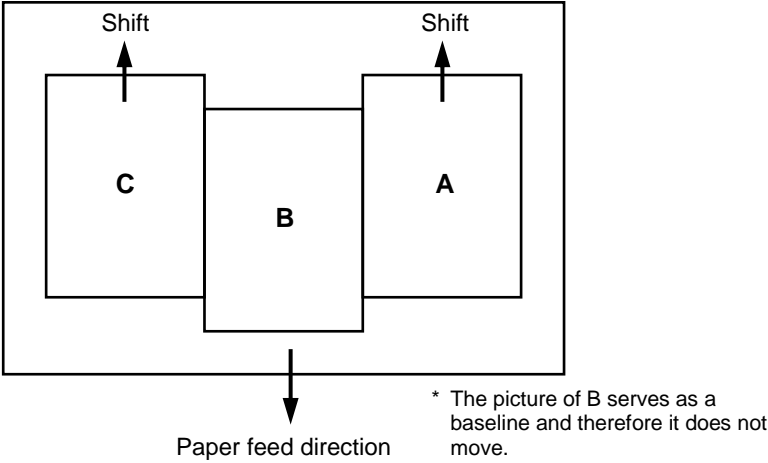
This designates the operation observed when each parameter is changed.

**(a) Parameter - In 700s - 709 and Parameter - In 700s - 710**

- (i) When the value is decreased  
Moves in the paper feed direction, using the picture of B as a baseline.



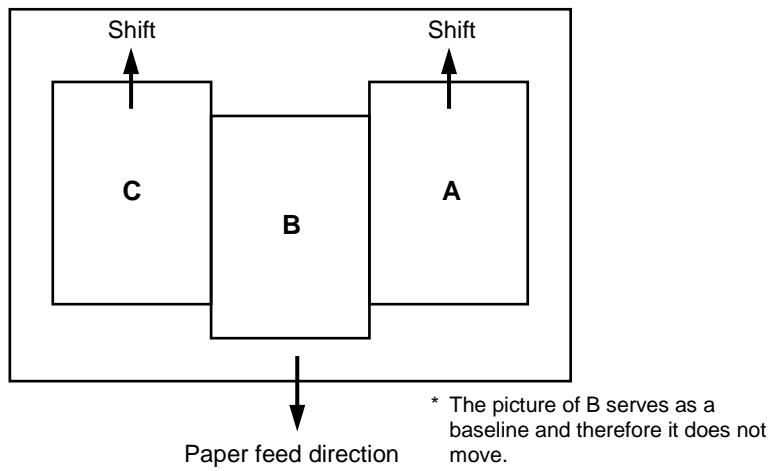
- (ii) When the value is increased  
Moves in the opposite of the paper feed direction, using the picture of B as a baseline.



(b) **Parameter - In 700s - 711** and **Parameter - In 700s - 712**

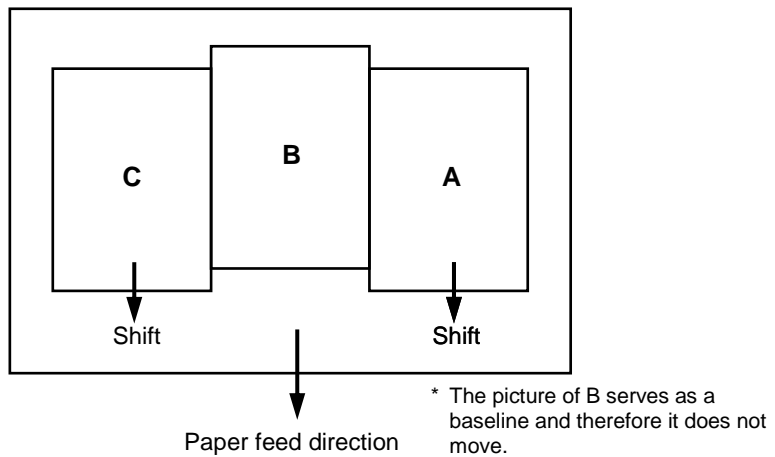
(i) When the value is decreased

Moves in the opposite of the paper feed direction, using the picture of B as a baseline.



(ii) When the value is increased

Moves in the paper feed direction, using the picture of B as a baseline.



**(4) Print Pattern**

Print a test pattern 7 by selecting **Print -> 7**.

**(5) How to Calibrate**

(a) Check calibration locations

Set the following parameters and print.

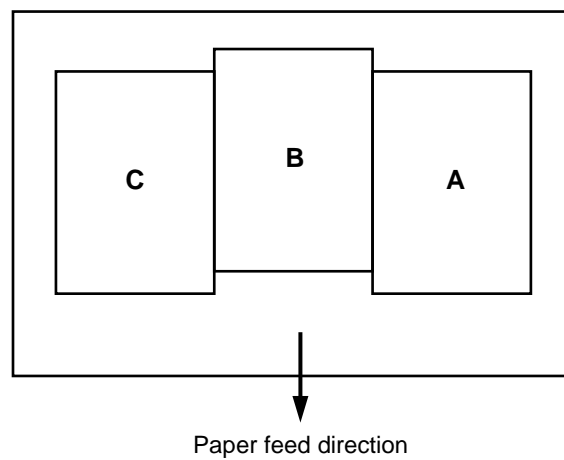
**Parameter - In 700s - 709** to 0

**Parameter - In 700s - 710** to 0

**Parameter - In 700s - 711** to 98

**Parameter - In 700s - 712** to 98

With these settings, the following type of picture with a shift occurs. Check the location of the shift beforehand using this picture as a baseline.





(b) Calibrate

Set the following parameters and print. These settings are for a distance of 3.8 mm between LED heads A-B and B-C.

**Parameter - In 700s - 709** to 16

**Parameter - In 700s - 710** to 16

**Parameter - In 700s - 711** to 90

**Parameter - In 700s - 712** to 90

Make your adjustments based on how the picture printed is shifted when the following settings are used to print.

- (i) With B as a baseline, A and C are shifted in the paper feed direction

Increase the values for:

**Parameter - In 700s - 709**; and

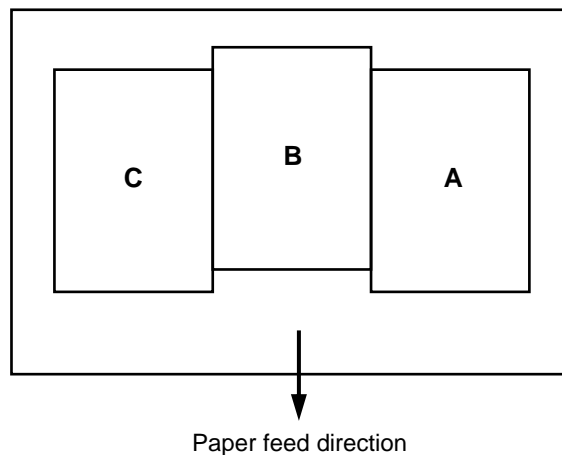
**Parameter - In 700s - 710.**

(An adjustment value of 1 will cause a shift of 0.64  $\mu\text{m}$ .)

If image misalignment is still found after adjusting these values, set in units of lines. So decrease the values for:

**Parameter - In 700s - 711**; and

**Parameter - In 700s - 712.**



After adjusting in units of lines, fine adjustments are required. Check the direction of the misalignment and set:

**Parameter - In 700s - 709**; and

**Parameter - In 700s - 710**

to their optimal values.

- (ii) With B as a baseline, A and C are shifted in the opposite of the paper feed direction

Decrease the values for:

**Parameter - In 700s - 709;** and

**Parameter - In 700s - 710**

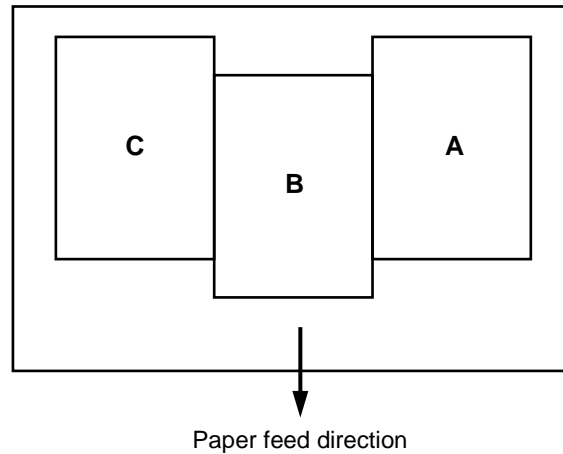
(An adjustment value of 1 will cause a shift of  $0.64 \mu\text{m}$ .)

If there is still shifting of the image after adjusting these values, settings in units of lines are necessary. Therefore, Increase the values for:

**Parameter - In 700s - 711;** and

**Parameter - In 700s - 712**

For example, if the value was 90, set it to 91.



After adjusting in units of lines, fine adjustments are required. Check the direction of the misalignment and set:

**Parameter - In 700s - 709;** and

**Parameter - In 700s - 710**

to their optimal values.

- (iii) With B as a baseline, A is shifted in the paper feed direction and C is shifted in the opposite of the paper feed direction

Increase the value for:

**Parameter - In 700s - 709**

and decrease the value for:

**Parameter - In 700s - 710**

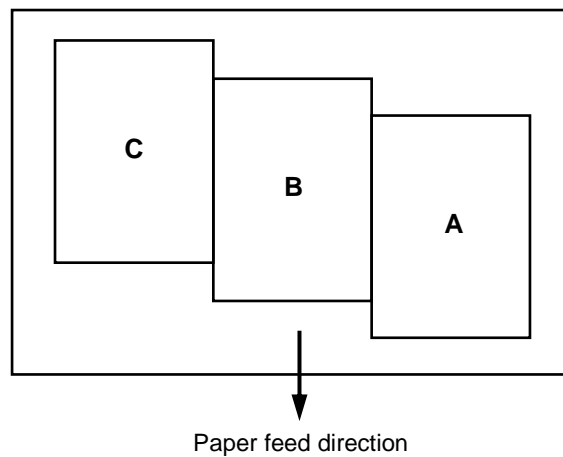
(An adjustment value of 1 will cause a shift of  $0.64 \mu\text{m}$ .)

If image misalignment is still found after adjusting these values, set in units of lines. So

decrease the values for:

**Parameter - In 700s - 711; and**

**Parameter - In 700s - 712**



After adjusting in units of lines, fine adjustments are required. Check the direction of the misalignment and set:

**Parameter - In 700s - 709; and**

**Parameter - In 700s - 710**

to their optimal values.

- (iv) With B as a baseline, A is shifted in the opposite of the paper feed direction and C is shifted in the paper feed direction

Decrease the value for:

**Parameter - In 700s - 709**

and increase the value for:

**Parameter - In 700s - 710**

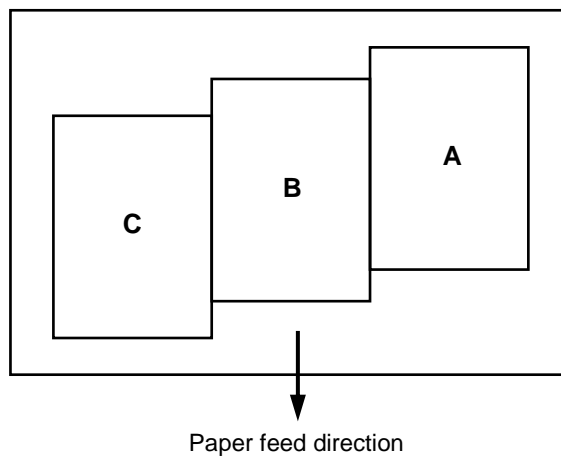
(An adjustment value of 1 will cause a shift of 0.64  $\mu\text{m}$ .)

If image misalignment is still found after adjusting these values, set in units of lines. So increase the values for:

**Parameter - In 700s - 711**

and decrease the value for:

**Parameter - In 700s - 712**



After adjusting in units of lines, fine adjustments are required. Check the direction of the misalignment and set:

**Parameter - In 700s - 709**; and

**Parameter - In 700s - 710**

to their optimal values.

## (6) Judging Standard

If the lines are connected in the main scanning direction for pattern 7, everything is okay. However, when looking globally at the connection parts in the paper feed direction, the lines are dispersed evenly in the longitudinal direction without a shift in a particular direction. Also, note that sometimes they can be shifted slightly (disconnected) due to jitter even if the lines are connected. If there are no other problems, then it is still okay.

## (7) Saving Data

If everything is judged to be okay, save to the EEPROM. See **2.5 Technician Menu Functions** (p. 2-47).

## 10.6 LED Focal Point Calibration

Calibrates the focal point of the LED.

This calibration is necessary whenever you are replacing a LED head.

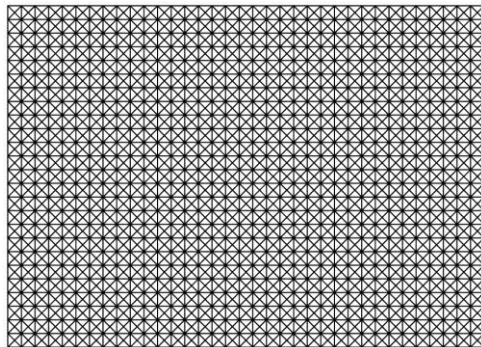
### Note

First, get a 7mm box wrench and a flat head screwdriver.

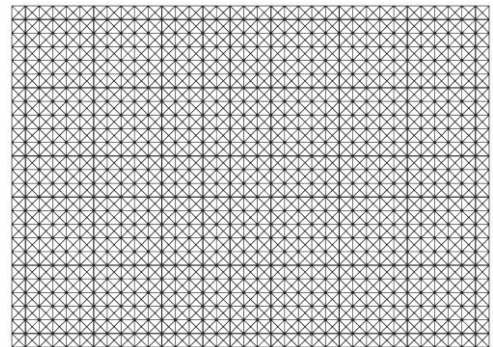
1. Remove the top cover (see p. 9-5) so that LED head is calibrated.



2. Print the engine test pattern 14.
3. Check the print results visually.

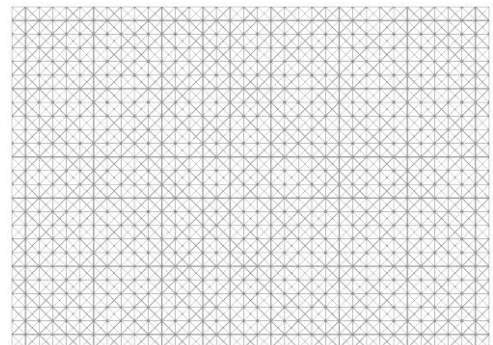


Focal point is aligned.



Focal point is not aligned.  
(The printout is slightly light)

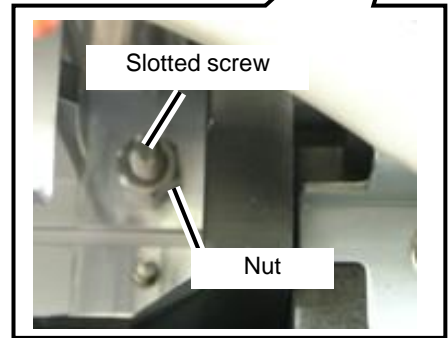
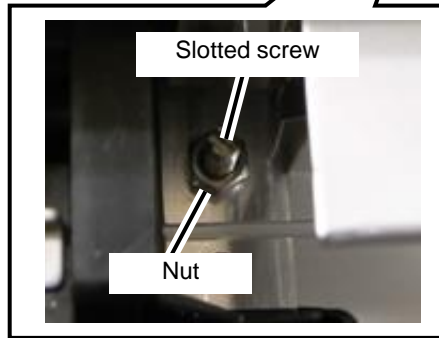
Paper feed direction



Focal point is not aligned.  
(The printout is light)

4. If the focal point is not aligned (the printout is light or slightly light), calibrate it with the following procedure.

- (a) With a 7-mm box wrench, loosen the LED head nut by rotating it counterclockwise about three turns.



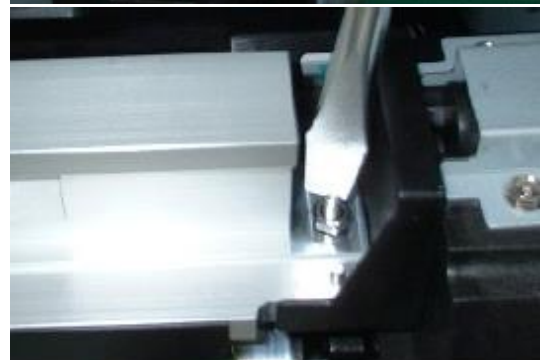
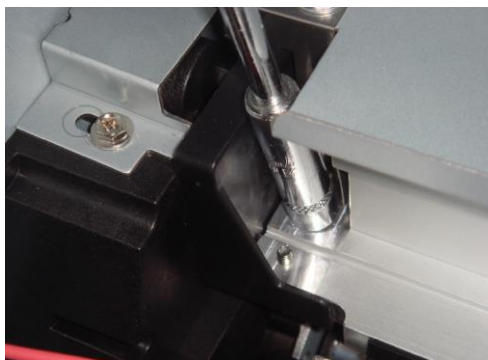
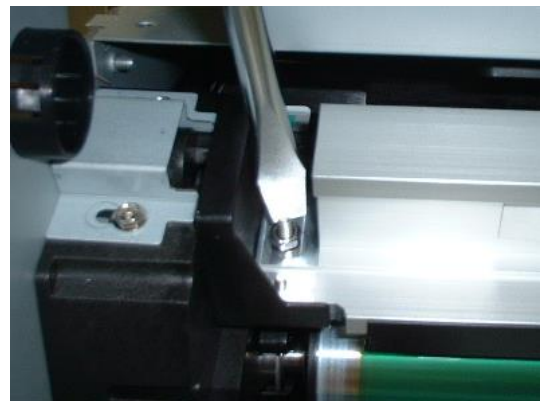
- (b) Adjust the focal point by rotating the flat head screw with the following procedure.

**Note**

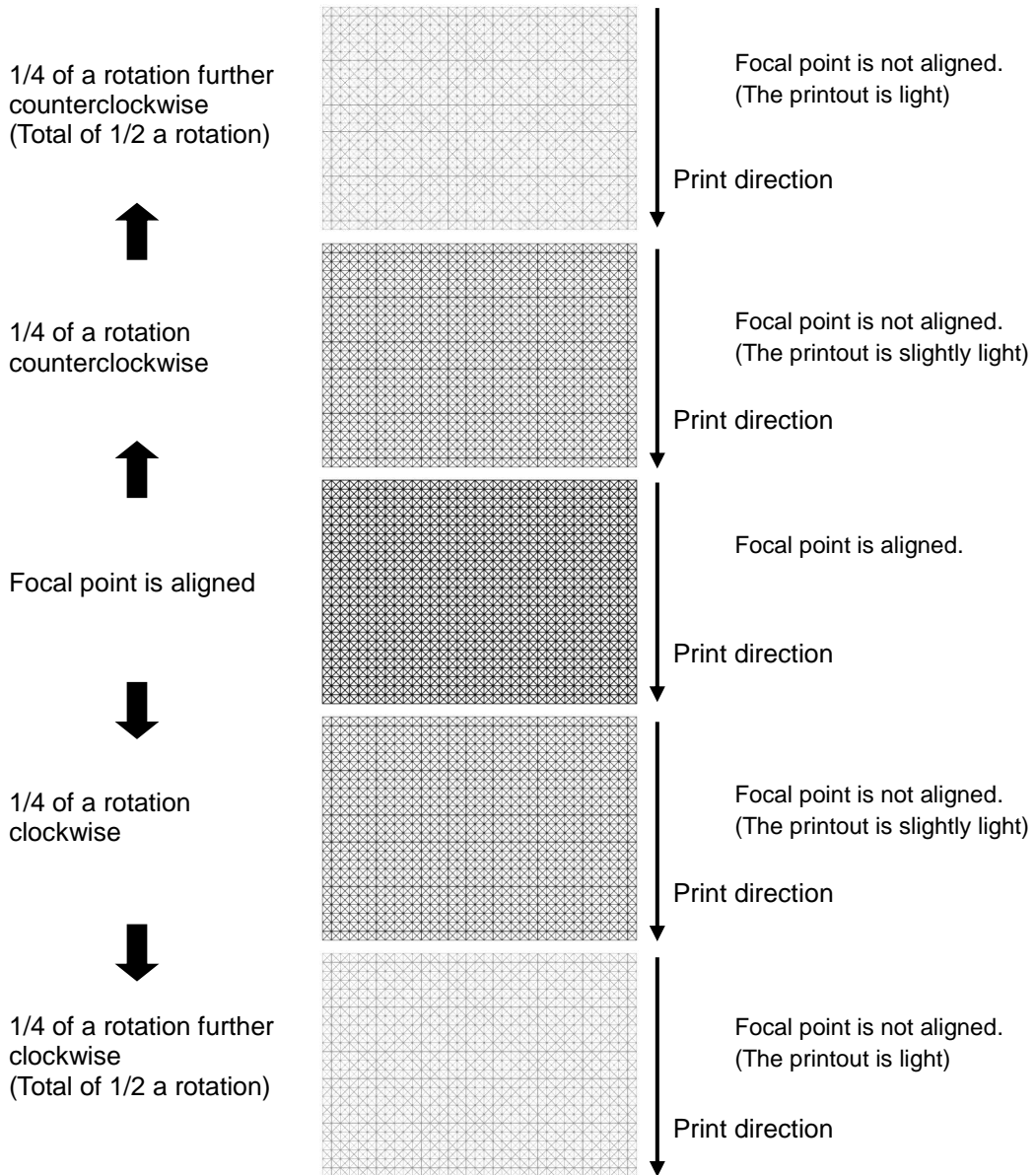
- Rotating clockwise separates the LED head from the photoconductor drum (rotating to the counterclockwise brings it closer).
- For every one rotation of the flat head screw, the LED head moves 0.5 mm (0.0197 inches).



- (c) First, rotate the LED head flat head screws on the left and the right 1/4 of a rotation in the same direction each to confirm in which direction the focal point is shifted.
- (d) Next, adjust the focal point by turning the screws 1/8 of a rotation each time.
- (e) Once the focal point is aligned, tighten the nuts on both sides and secure the calibration screws (flat head screws).



Rotating the flat head screws on the right and left of the LED head by 1/4 of a rotation changes the print of pattern 14 as shown below.



## 10.7 LED Head Light-Emitting Strobe Width Calibration

As the light intensity of the LED head is fixed at 1.70  $\mu\text{W}$ , the standard strobe value for light-emitting strobe width is set to 17. However, if density differences appear with the head A, B, or C, or if the density becomes globally higher or lower, adjust the density by changing the setting value of the light-emitting strobe width.

After changing the value, print a test pattern to check the print output.

### Note

Set the light-emitting strobe width and density change calibration value with the engine control parameters **728** to **736** in Engine Maintenance Mode. See **2.3.14 Parameter** (p. 2-37) for details about the setting procedure.

Table 10-2 LED head light-emitting strobe width and density change calibration value

| Average light intensity [ $\mu\text{W}$ ] | Light-emitting strobe width |                                | Density change calibration value |                                |
|---|-----------------------------|--------------------------------|----------------------------------|--------------------------------|
|   | Strobe width setting value  | Strobe width [ $\mu\text{s}$ ] | Strobe width setting value       | Strobe width [ $\mu\text{s}$ ] |
| 1.70                                      | 10                          | 1.280                          | 3                                | 0.384                          |
|   | 11                          | 1.408                          | 3                                | 0.384                          |
|   | 12                          | 1.536                          | 3                                | 0.384                          |
|   | 13                          | 1.664                          | 3                                | 0.384                          |
|   | 14                          | 1.792                          | 3                                | 0.384                          |
|   | 15                          | 1.920                          | 3                                | 0.384                          |
|   | 16                          | 2.048                          | 3                                | 0.384                          |
|   | 17                          | 2.176                          | 3                                | 0.384                          |
|   | 18                          | 2.304                          | 3                                | 0.384                          |
|   | 19                          | 2.432                          | 3                                | 0.384                          |
|   | 20                          | 2.560                          | 3                                | 0.384                          |

Strobe width [ $\mu\text{s}$ ] = Strobe width setting value x 0.128  $\mu\text{s}$  (128 ns)

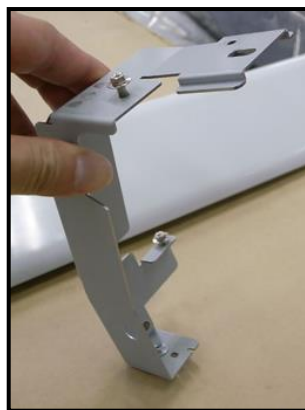
Strobe width setting value can be set from 1 to 255 (128 ns to 32.64  $\mu\text{s}$ ).



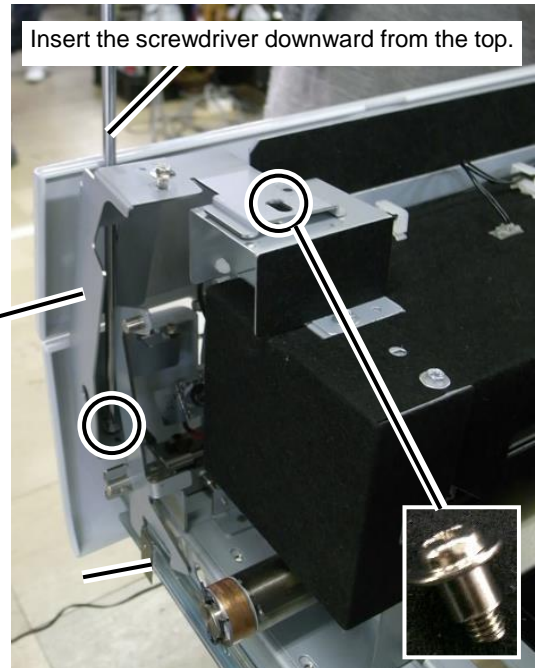
## 10.8 Adjusting Paper Outlet Shutter Solenoid (SL01)

Adjust the installation angle of the paper outlet shutter solenoid (SL-01) so that upper and lower paper outlets are switched normally.

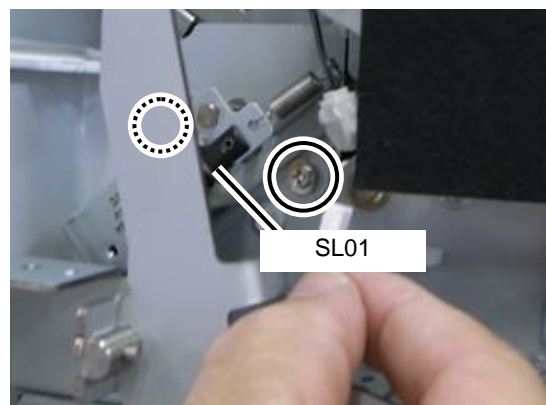
1. Open the fuser unit drawer.
2. Remove the fuser cover (right) (see p. 9-14).
3. Remove the fuser cover (right) stay with two screws.



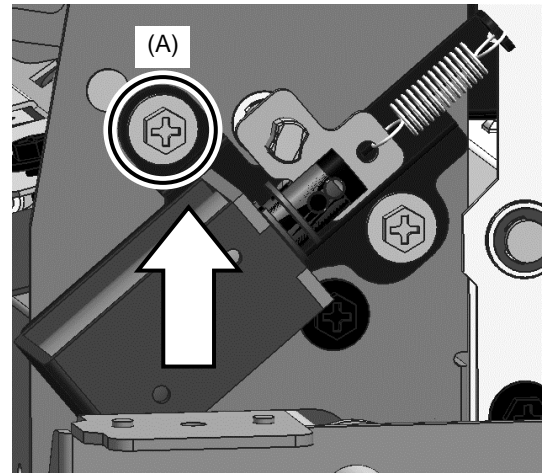
Fuser cover (right) stay



4. Loosen the two screws shown in the photo.



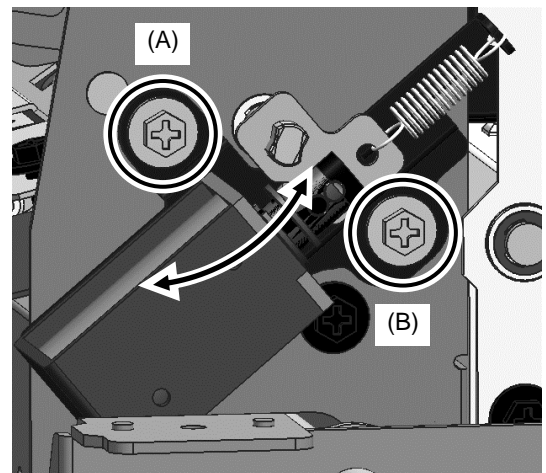
5. With setting the SL01 at the highest position, temporarily secure the screw (A).



6. With setting the temporarily fixed screw (A) to the center, rotate the SL01 within the screw (B)'s screw hole allowance so that the SL01's angle is adjusted.

With the SL01 installation angle changed, paper outlet shutter's top position changes.

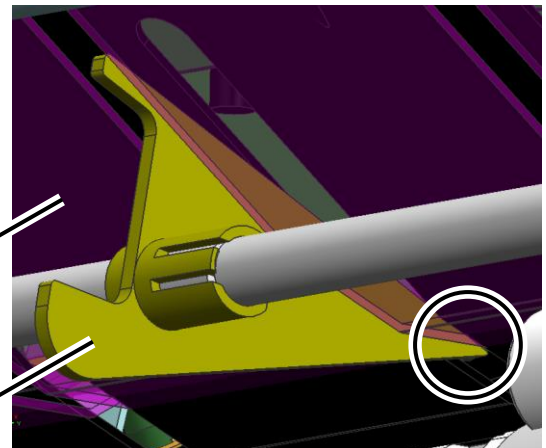
- (a) SL01's counter clockwise rotation raises the paper outlet shutter's top.
- (b) SL01's clockwise rotation lowers the paper outlet shutter's top.



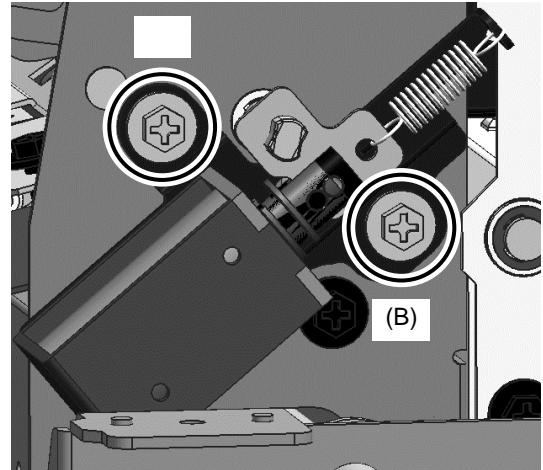
- (c) Adjust the positions of all paper outlet shutters' top so that they are set at the positions 2 to 3mm (0.079 to 0.118 inches) higher than the UPPER-PAPER-GUIDE's slit.

UPPER-PAPER-GUIDE

Paper outlet shutter



7. After determining the angle, fully tighten the screws (A) and (B). Then fix the metal plate with the SL01 fixed.



8. Check that the paper outlet cover opens and closes.

**Note**

If the paper outlet shutter's top is raised excessively, the top hits the paper guide and the paper outlet cover does not open nor close. In such a case, return to the step 4 to adjust the angle again.

9. Reverse the steps 1 to 3 to install the covers on their original positions.
10. To check that the upper and lower paper outlet functions normally, operate the printer with the paper below.

- To check upper paper outlet  
Output A3 standard size plain paper three times continuously.
- To check lower paper outlet  
Output A0 standard size plain paper three times continuously.

## 10.9 TRANSPORT UNIT Adjustment

Adjust the TRANSPORT UNIT slope when wrinkles appear on the paper (wrinkles from fusing).

1. Remove the TRANSPORT UNIT (see p. 9-226).

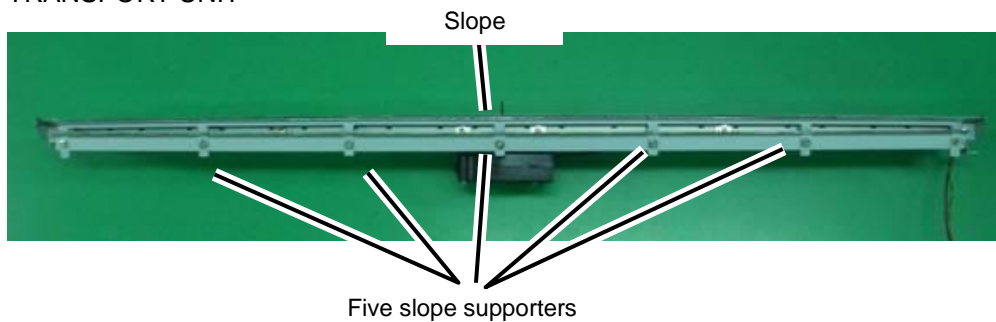
Cause 1: The height of the transport unit slope is not suitable (either too high or too low)

-> Go to step 2.

Cause 2: The form of the transport unit slope is not suitable (not smooth and convex).

2. With screws fix the five slope supporters in thereference positions, and adjust the slope to the suitable height.

TRANSPORT UNIT



Reference positions for each slope supporter



- Central supporter

Median position between the third and the fourth graduations from the bottom.



- Second supporters from the center

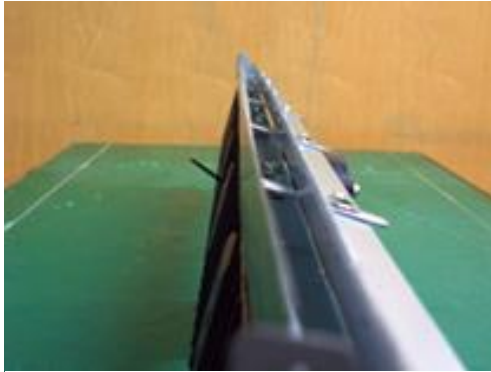
Third graduation from the bottom.



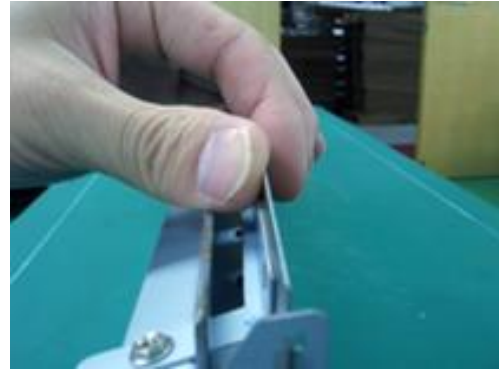
- Third supporters from the center

Second graduation from the bottom.

3. Look at the slope from one end and adjust the shape of the slope with your fingers until it forms a smooth convex surface along all its length (shape of a bow).



Slope viewed from an end



Adjust the shape with your fingers

- The slope must be symmetrical in the longitudinal direction.
- No protruding or hollowed areas must not be found.

OK



Not acceptable: Not a smooth



Not acceptable: Forms an



### Note

If you notice irregularities at the supporter locations, loosen the supporter screws, adjust the shape, and then secure the screws again.

If wrinkles still appear after performing the adjustment above, try the following solutions.

- (1) Place the slope in a higher position.
  - Align the central supporter to the median position between the fourth and the fifth graduations from the bottom.
  - Align the second supporters from the center to the fourth graduation from the bottom.
  - Align the third supporters from the center to the median position between the second and the third graduations from the bottom.
- (2) Increase the heat roller speed.

Increase the speed in the range between the standard value and -50.  
(Change by increments of 10, or 5 to fine adjust)  
See **Heat Roller Speed Adjustment Value** on page 2-42 for the standard values.

## 10.10 Fuser Unit Temperature Adjustment

If the toner does not fuse properly, adjust the temperature of the fuser unit.

1. Enter the engine maintenance mode and change the following adjustment parameters (See **2.3.14 Parameter**)

| Parameter number | Default value (LP-1030) | Unit | Description  |
|------------------|-------------------------|------|--|
| 552              | 170                     | °C   | Heat roller specified temperature during standby (center) TH01   |
| 553              | 170                     | °C   | Heat roller specified temperature during standby (edge) TH04   |
| 554              | 170                     | °C   | Heat roller specified temperature during printing (center) TH01  |
| 555              | 170                     | °C   | Heat roller specified temperature during printing (edge) TH04  |
| 737              | 15                      | °C   | Set the minimum heat roller temperature (for the first sheet) during printing with which printing is possible. This value is the difference in degrees from the Heat roller specified temperature during printing.   |
| 738              | 40                      | °C   | Set the minimum heat roller temperature (for the second sheet and further sheets) during printing with which printing is possible. This value is the difference in degrees from the Heat roller specified temperature during printing.<br>(Difference between the heat roller maximum and minimum temperatures.) |
| 739              | 15                      | °C   | Set the minimum heat roller temperature after printing with which the printer can change to the standby state. This value is the difference in degrees from the Heat roller specified temperature during standby.  |
| 740              | 3                       | °C   | Set the minimum heat roller temperature during printing with which printing can be resumed after warming up. This value is the difference in degrees from the Heat roller specified temperature during printing.   |

### Note

Heat roller specified temperatures are applied regardless of the paper type or size.

2. Perform a test print (See **2.3.12 Print**) and save the parameters to the EEPROM after verifying that printing has been improved.

**Example 1:** If the toner fusing performance is getting worse in continuous mode

The heat roller temperature is probably too low.

- (a) Decrease the value of parameter 738 by 10 degrees (the minimum temperature is increased by 10°C).
- (b) Increasing the fuser unit minimum temperature makes it possible to print with a higher fuser unit temperature.

**Note**

If you decrease the value too much, the temperature range in which printing is possible will become too small, thus decreasing the interval between warming up operations. Do not decrease the value by more than 10 degrees.

**Example 2:** If the toner fusing performance is getting worse with long scale printing

The cause is probably that heating is insufficient for long scale printing.

- (a) Increase the values of parameters 552 to 555 by 10 degrees each (the maximum temperature is increased by 10°C).
- (b) Increasing the heat roller maximum temperature makes it possible to increase the heating level of the fuser unit.

**Note**

If you increase these values too much, the toner will get too hot, causing print problems, or the fuser unit will warm too much, causing an error. Do not increase the values by more than 10 degrees.

**Example 3:** If you want to increase the number of printed sheets in continuous mode (to decrease the interval of warming up operations during printing)

This can be done by increasing the temperature range in which printing is possible.

- (a) Increase the values of parameters 552 to 555 (maximum temperatures) by 10 each, and increase the value of parameter 738 (minimum temperature) by 20 (the heat roller maximum temperature is increased by 10°C compared to the default value, and the heat roller temperature is decreased by 10°C).
- (b) Increasing the range between the minimum and maximum heat roller temperatures makes it possible to increase the number of sheet printed continuously.

**Note**

The fusing performance may become worse because the heat roller minimum temperature has been decreased. Do not increase the heat roller minimum temperature parameter by more than 20.



## 10.11 Installing the SPACER CUTTER used for adjusting the cutter unit position

If paper jams occur because the paper does not enter properly in the cutter unit, follow the procedure below to adjust its position.

<Required parts>

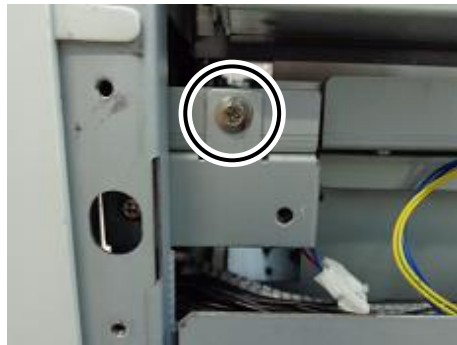
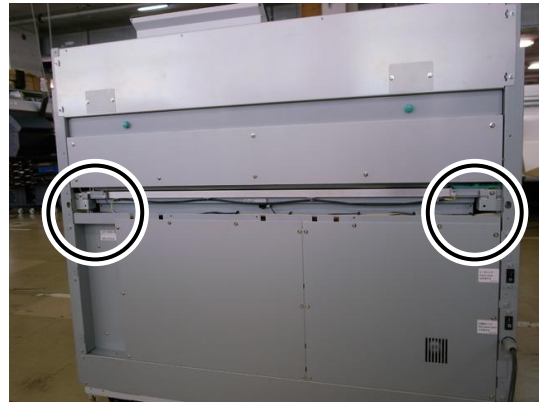
SPACER CUTTER MNT, U00132847700, 50 pcs/set.

One printer needs two SPACER CUTTERS.

1. Remove the COVER-CUT.



2. Remove the screws of the right and left brackets fixing the cutter unit. Then move the cutter unit inward as far as it goes.

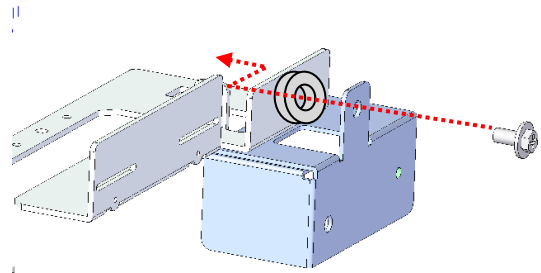
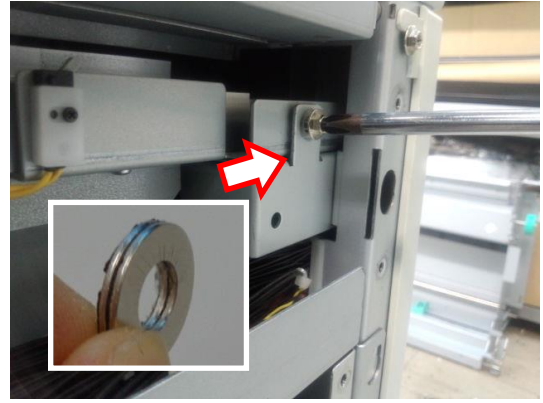


3. Insert the SPACER CUTTERS between the cutter unit and the brackets on the right and left, and secure them with screws.

**Tip**

To prevent the SPACER CUTTER from falling during the installation, follow the procedure below.

- (a) Attach the SPACER CUTTER on the bracket with two-sided adhesive tape so that the screw passes through the SPACER CUTTERS' hole.
- (b) Then install the SPACER CUTTER.



4. Install the COVER-CUT removed in step 1.

# Chapter 11 Scanner Calibration

This chapter discusses scanner calibration items required when replacing the CIS unit or other such parts.

## 11.1 Calibration (Monochrome Scanner)

### 11.1.1 Equipments Needed for Calibration

Scanner is calibrated with the Printer's web functionality, two different types of tools on the PC for the calibration, and an original document for calibration.

Check that the items below are all prepared.

- (1) This manual
- (2) Network cable  
Cross cable or straight cable
- (3) PC to be used for calibration  
WEB browser  
Scan maintenance tool, to scan original documents for calibration  
Scan calibration tool, to calculate calibration values based on the calibration image
- (4) Document for calibration/evaluation (3 types)  
Document advance calibration document (297 x 297 mm)  
Sensor connection calibration document (A1)  
Evaluation document (A1)

#### Note

For the adjustment and check, use the document of **ADJUSTER KIT(SCANNER): U001223640\*\*** (see p. 9-236 of the *Maintenance and Troubleshooting Manual*).

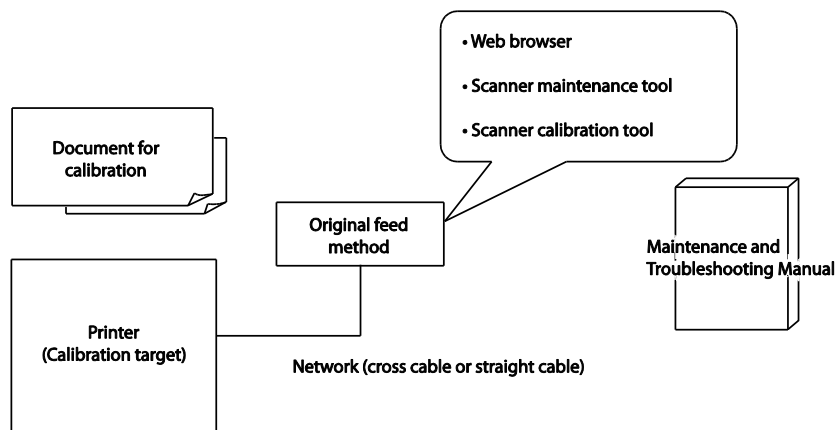


Figure 11.1 Equipment Needed for Calibration

## 11.1.2 Calibration Tasks Overview

### (1) Shading Offset Calibration

Calibrated via the web.

### (2) Document Advance Calibration (Motor Speed Calibration)

Set the initial values via the web.

With the scanner maintenance tool, scan the document for calibration.

With the scanner calibration tool, calculate the scanner calibration tool parameters based on the scan data at each scan speed.

Enter the calibration parameters on the web.

### (3) Main scanning and Subscanning Scanning Direction Connection Calibration (CIS Connection Calibration)

Set the scan speed via the web.

With the scanner maintenance tool, scan the document for calibration.

With the scanner calibration tool, calculates the calibration parameters based on the scan data at each scan speed.

Enter the calibration parameters on the web.

### (4) Positioning

11.1.3 PC for Calibration

11.1.3.1 Calibration PC Requirements

The PC for the calibration must meet the following requirements.

- Windows XP/Vista/7
- 1 GB RAM (2 GB or higher recommended)
- 5 GB or more free HDD space
- Display size 800x600 or higher (1024x768 or higher recommended)
- WEB browser (Internet Explorer 6 or newer recommended)

11.1.3.2 Scanner Maintenance Tool (ScanMainte.exe)

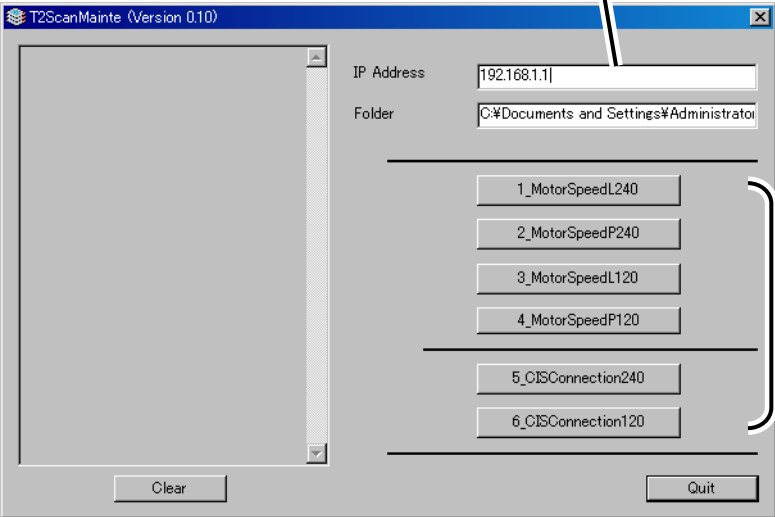
This tool scans with specific scan conditions for calibration.

Work under Windows XP, Vista, or 7.

Double click ScanMainte.exe to launch the tool.

The scanner operates via the Printer's **Scan** function.

Input the IP address of the Printer.



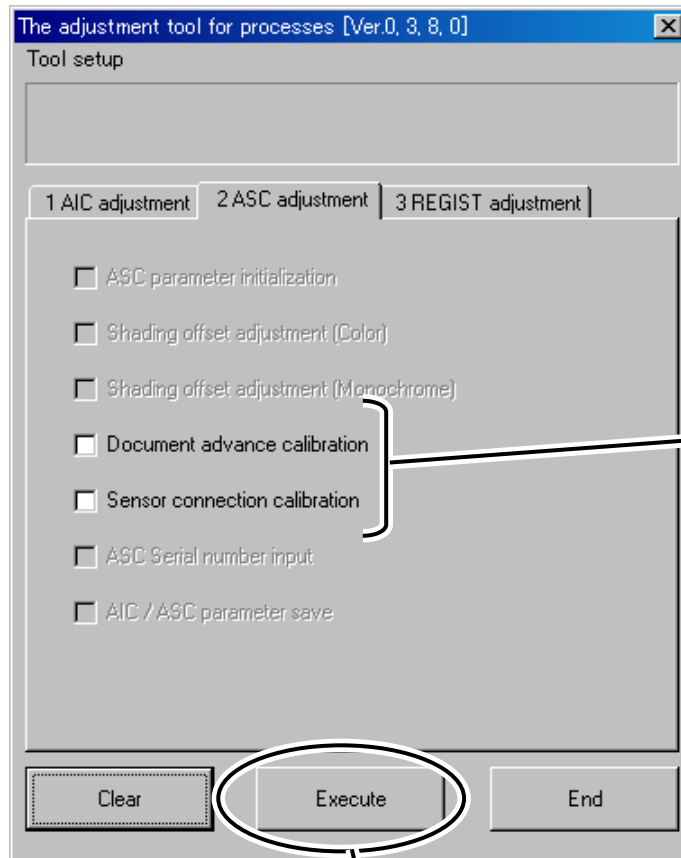
Press the button to start scanning.

### 11.1.3.3 Scanner Calibration Tool (MFTool.exe)

This tool calculates calibration values from the BMP image scanned with the scanner maintenance tool.

Work under Windows XP, Vista, or 7.

Double click MFTool.exe to launch the tool.



On finishing, the tool puts a check in the box.

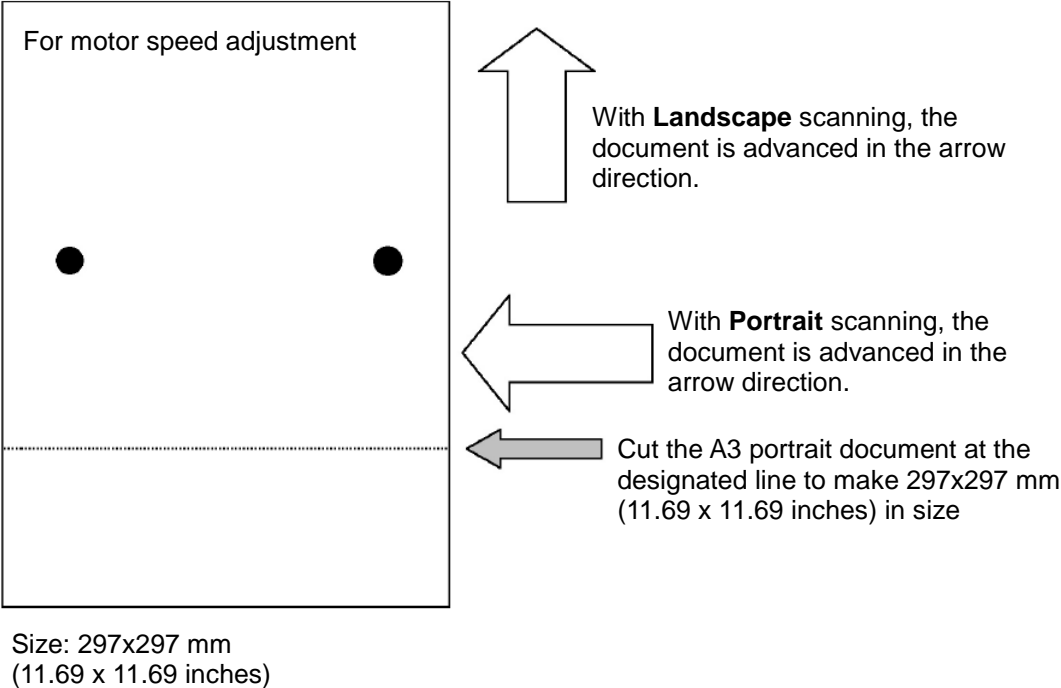
Click this button to move to each calibration screen.

11.1.4 Calibration/Evaluation Document

Check the document for any significant curling, folds, or wrinkling.  
Handle the document carefully.

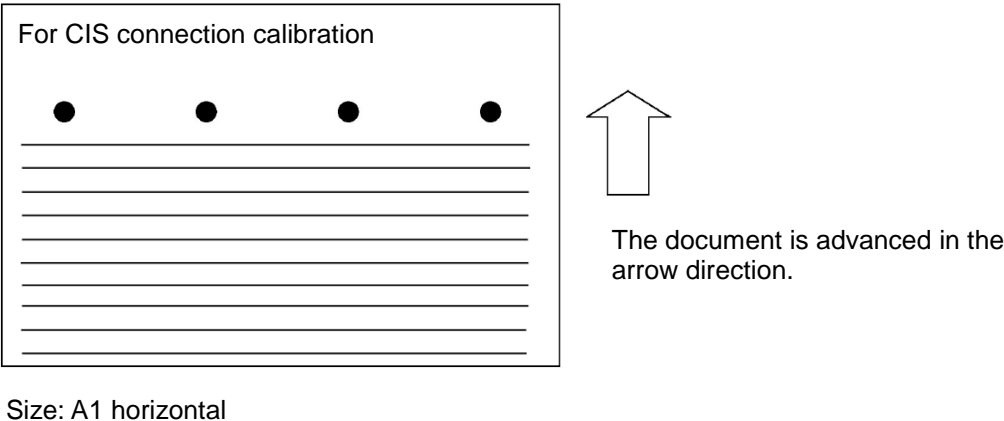
(1) For Document Advance Calibration (Motor Speed Calibration)

With the document below, calibrate the motor speed to feed the document.



(2) For Sensor Connection Calibration (CIS Connection Calibration)

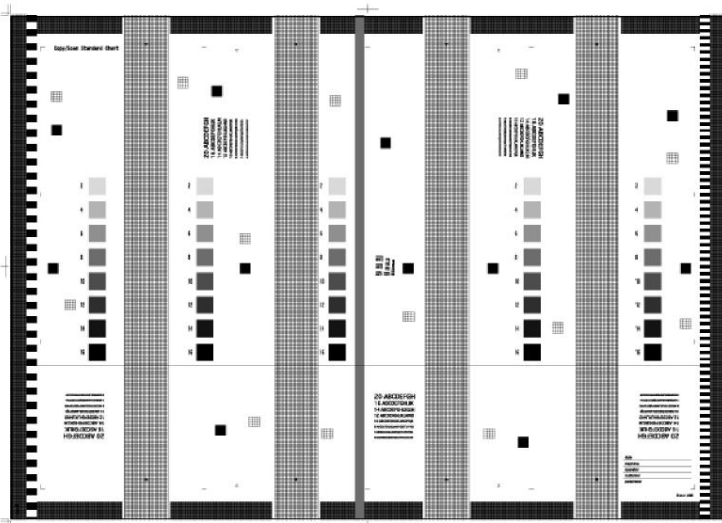
With the document below, calibrate the CIS sensor connection.





**(3) For Evaluation (Copy/Scan Standard Chart)**

With the document below, evaluate the image before and after the scanner calibration.



The document is advanced in the arrow direction.

Size: A1 horizontal

11.1.5 Preparing for Calibration

(1) Connecting the Printer

Configure the Printer's network connection and confirm that it is connected to the calibrating PC.

(2) Launching the Tools

(a) Open the Printer's web-based scanner parameter calibration page

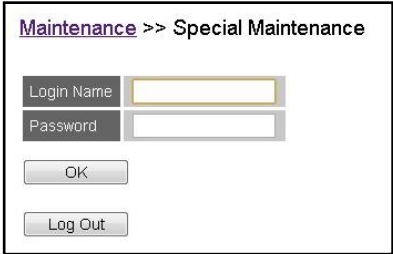
Instructions

- (i) Launch the WEB browser on the calibrating PC, enter the IP address of the printer in the URL (address) bar, and access the printer's Web tool.
- (ii) When the main page for the printer's web tool appears in the browser, click **Maintenance** in the list on the left side of the page. Then, click **8. Special Maintenance**.
- (iii) Enter the following login name and password.

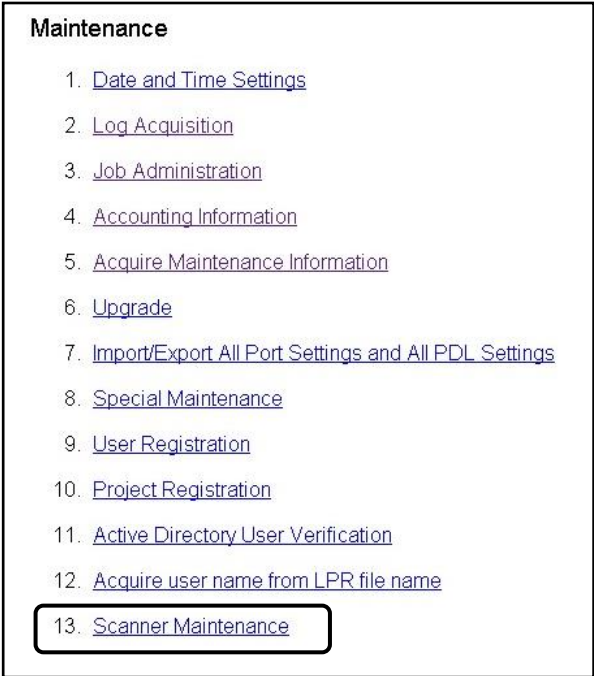
Login name: **maintenance**  
Password for maintenance: **tktk2010**

or

Login name: **t2t2**  
Password for maintenance: **12325802**

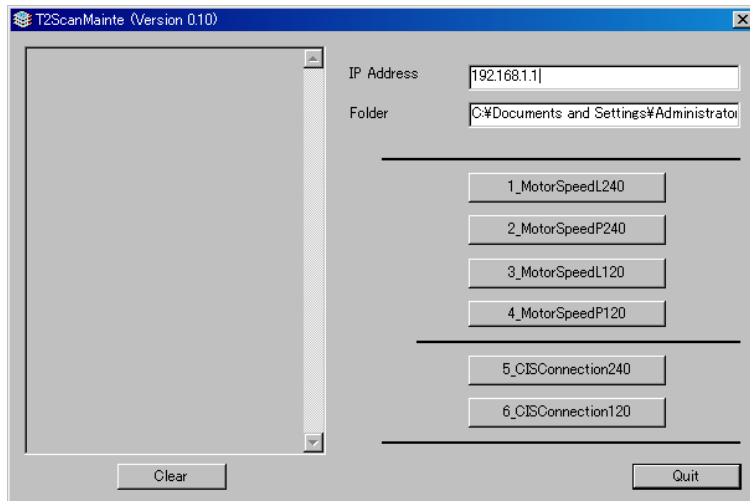


- (iv) Click the **Scanner Maintenance** link on the maintenance page and open the **Scanner Parameter** page.

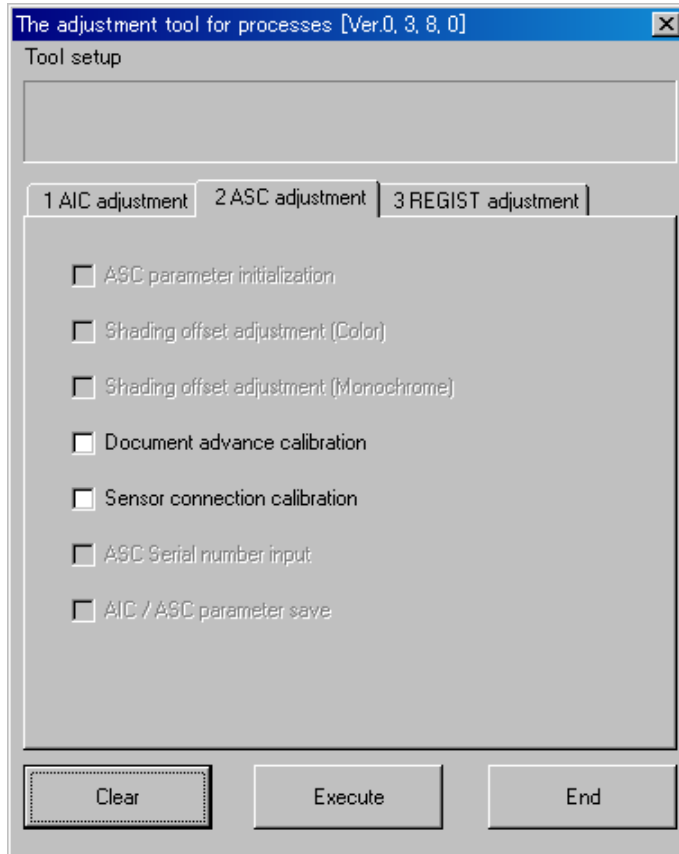


\* For easier operation, you are recommended to open this link in a new window.

**(b) Launch the scanner maintenance tool**

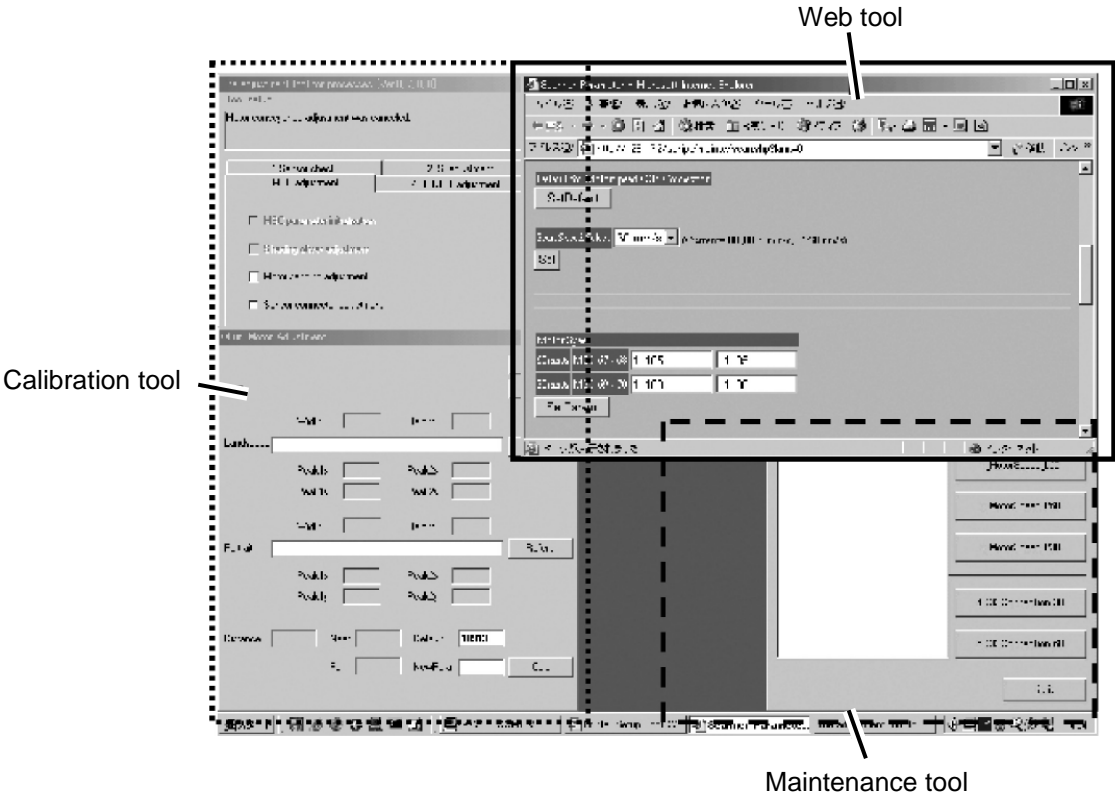


**(c) Launch the scanner calibration tool**



(3) Screen Layout Example

Before starting the calibration, you are recommended to open the web browser and assorted tools, for example, in a layout like that shown below.



(4) Print Scanner Parameters

Note that this calibration overwrites the current scanner parameters. Before calibrating, be sure to check the current settings. (For instructions on how to print settings information, see The **Function Menu** in **Chapter 3 - Menu Functions** of the *User's Manual for Basic Printer Operation*.)

### 11.1.6 Shading Offset Calibration Instructions

With this calibration, reduce each CIS sensor's density difference caused by the shading guide's height differences.

#### Perform Beforehand

- (1) Clean the scanner glass surface and the shading guide.
- (2) Check to ensure that the shading guide is not snagged on the top cover and that it is completely flat.
- (3) Check to ensure that the top cover is closed securely.
- (4) Check that the Printer has already printed the result of the **Print Scan Information**.

#### Parameter Details

For Monochrome

| Number  | Units | Range | Meaning                     |
|---------|-------|-------|-----------------------------|
| ASC-253 | -     | -     | CIS(A) shading offset value |
| ASC-254 | -     | -     | CIS(B) shading offset value |
| ASC-255 | -     | -     | CIS(C) shading offset value |
| ASC-256 | -     | -     | CIS(D) shading offset value |
| ASC-257 | -     | -     | CIS(E) shading offset value |

For Color

| Number  | Units | Range | Meaning                         |
|---------|-------|-------|---------------------------------|
| ASC-318 | -     | -     | CIS(A) shading offset value (R) |
| ASC-319 | -     | -     | CIS(B) shading offset value (R) |
| ASC-320 | -     | -     | CIS(C) shading offset value (R) |
| ASC-321 | -     | -     | CIS(D) shading offset value (R) |
| ASC-322 | -     | -     | CIS(E) shading offset value (R) |
| ASC-323 | -     | -     | CIS(A) shading offset value (G) |
| ASC-324 | -     | -     | CIS(B) shading offset value (G) |
| ASC-325 | -     | -     | CIS(C) shading offset value (G) |
| ASC-326 | -     | -     | CIS(D) shading offset value (G) |
| ASC-327 | -     | -     | CIS(E) shading offset value (G) |
| ASC-328 | -     | -     | CIS(A) shading offset value (B) |
| ASC-329 | -     | -     | CIS(B) shading offset value (B) |
| ASC-330 | -     | -     | CIS(C) shading offset value (B) |
| ASC-331 | -     | -     | CIS(D) shading offset value (B) |
| ASC-332 | -     | -     | CIS(E) shading offset value (B) |

**Adjustment Instructions**

- (1) Turn on the Printer.
- (2) From the web interface's **Scanner Parameter** page, check to ensure that **White on the glass** and **White on the glass (for color)** are both not 0.

**Note:**

If either value is 0, replace the CIS unit.

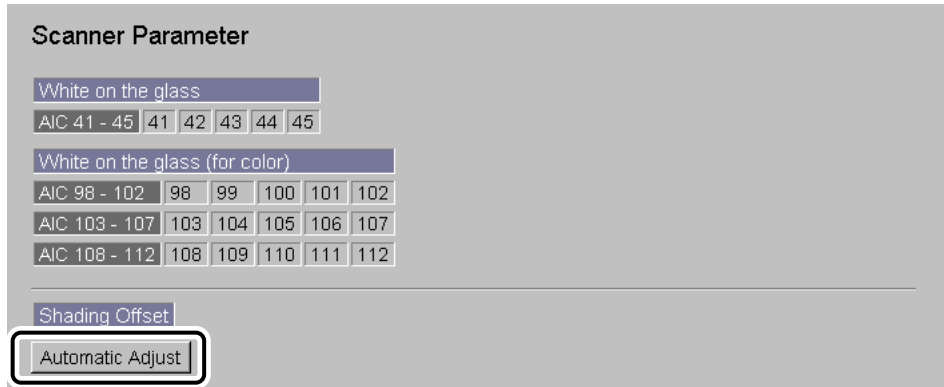
Check that the value is not 0.  
-> If 0, there is a problem with the process.



- (3) Click the Automatic Adjust button below White on the glass on the Scanner Parameter page.

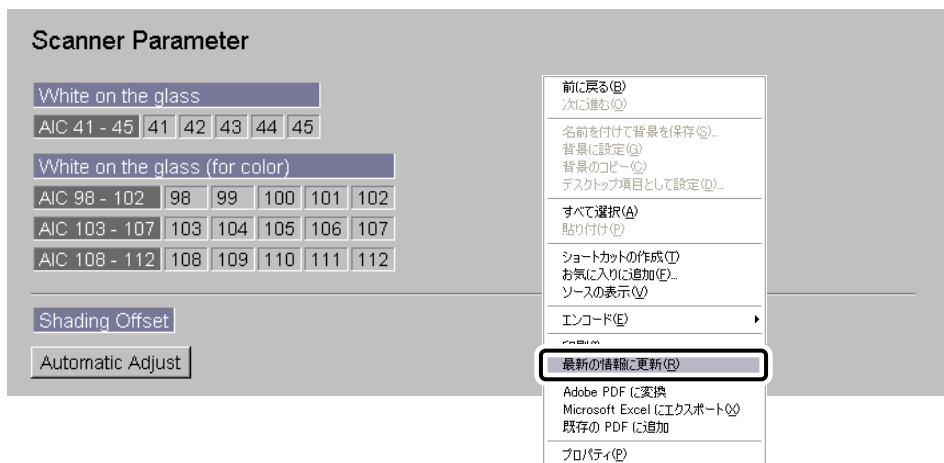
**Note:**

- (a) It takes a few seconds from the time the button is pressed until it finishes.  
(b) Only the values for **Shading Offset** and **Shading Offset (for color)** are eligible for automatic adjustment.

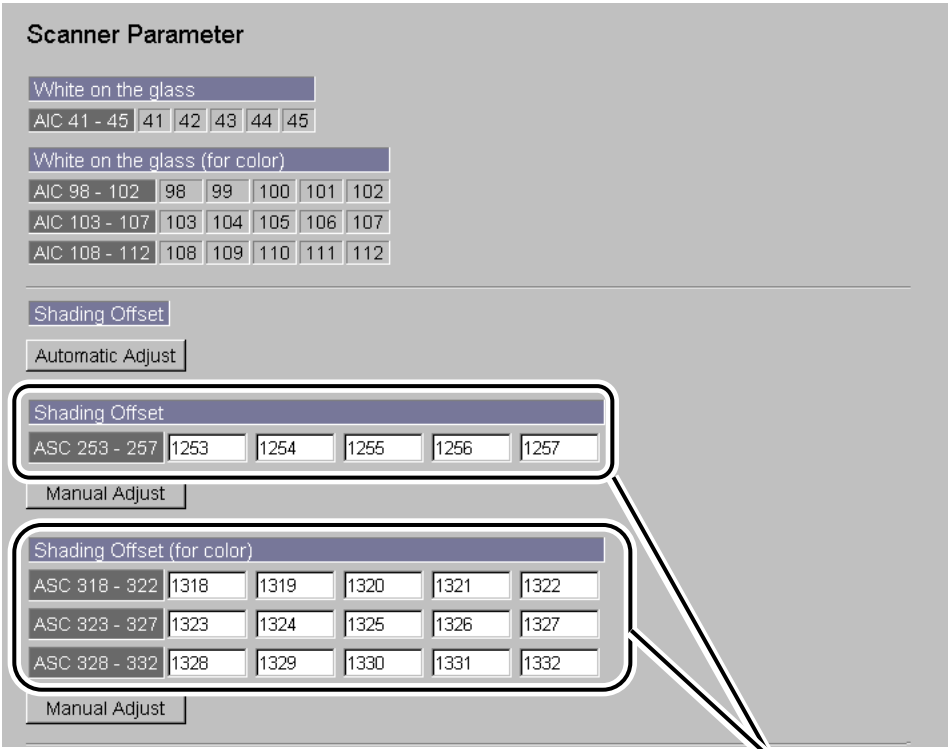


Press the button to perform the calibration.

- (4) When the calibration is finished, reload the **Scanner Parameter** page.



(5) Check to confirm that the **Shading Offset** calibration value has been updated.



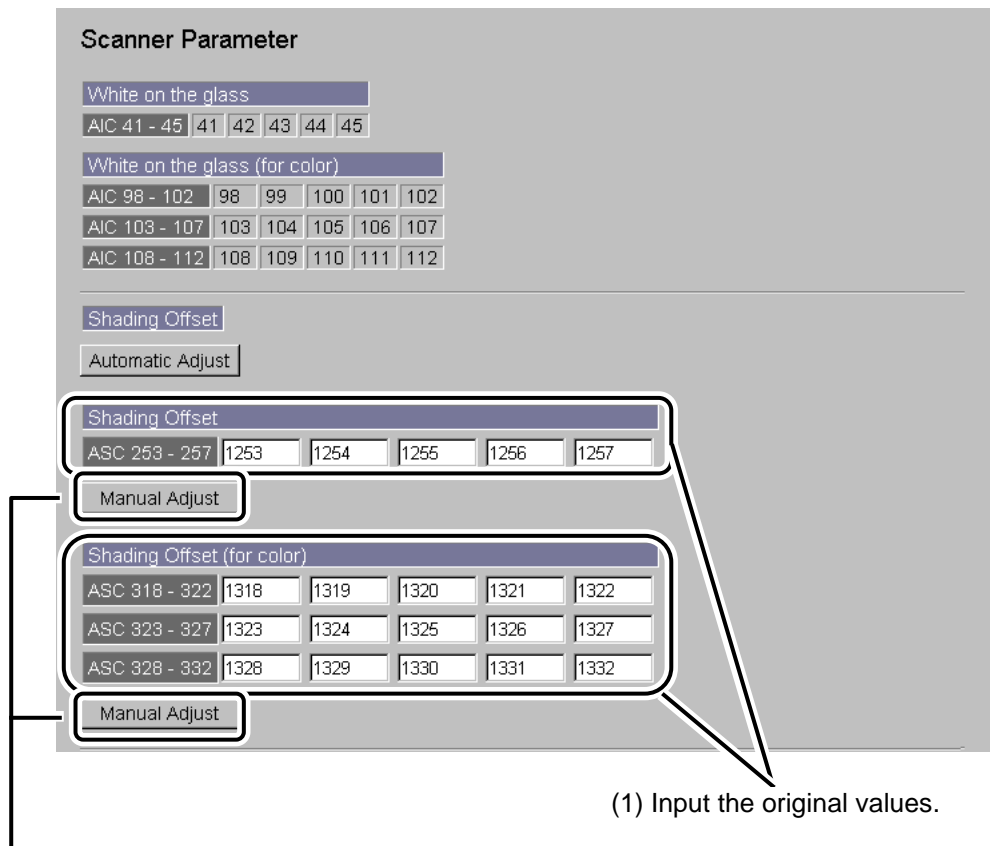
Calibration results are shown here.

This concludes the procedure for calibrating the shading offset.



## How to Restore

If the calibration did not work properly, re-input the values for the ASC253 - 257 parameters and the ASC318 - 332 parameters from the printed scan information, then press the **Manual Adjust** button to apply those values. See **Checking Adjustment Results** (p. 11-41) for judging standards.



(2) Set the values manually.

## 11.1.7 Instructions for Document Advance Calibration and Sensor Connection Calibration in Main Scanning and Subscanning Directions

### 11.1.7.1 Document Advance Calibration (Motor Speed Calibration)

This calibrates the document feed speed.

#### Perform Beforehand

Check that the Printer has already printed the result of the **Print Scan Information**.

#### Parameter Details

For Monochrome

| Number | Unit | Range | Meaning  |
|--------|------|-------|--|
| ASC-67 | PPS  | 24075 | Value that decides on the rotational speed when feeding the original document forward at 240mm (9.45 inches)/s   |
| ASC-68 | PPS  | 6019  | Value that decides on the rotational speed when feeding the original document in reverse at 60mm (2.36 inches)/s |
| ASC-69 | PPS  | 12037 | Value that decides on the rotational speed when feeding the original document forward at 120mm (4.72 inches)/s   |
| ASC-70 | PPS  | 6019  | Value that decides on the rotational speed when feeding the original document in reverse at 60mm (2.36 inches)/s |
| ASC-71 | PPS  | 6019  | Value that decides on the rotational speed when feeding the original document forward at 60mm (2.36 inches)/s    |
| ASC-72 | PPS  | 6019  | Value that decides on the rotational speed when feeding the original document in reverse at 60mm (2.36 inches)/s |
| ASC-73 | PPS  | 4013  | Value that decides on the rotational speed when feeding the original document forward at 40mm (1.58 inches)/s    |
| ASC-74 | PPS  | 6019  | Value that decides on the rotational speed when feeding the original document in reverse at 60mm (2.36 inches)/s |

PPS: Pulse per second

For Color

| Number  | Unit | Range | Meaning  |
|---------|------|-------|--|
| ASC-130 | PPS  | 24075 | Value that decides on the rotational speed when feeding the original document forward at 240mm (9.45 inches)/s   |
| ASC-131 | PPS  | 6019  | Value that decides on the rotational speed when feeding the original document in reverse at 60mm (2.36 inches)/s |
| ASC-132 | PPS  | 22570 | Value that decides on the rotational speed when feeding the original document forward at 225mm (8.86 inches)/s   |
| ASC-133 | PPS  | 6019  | Value that decides on the rotational speed when feeding the original document in reverse at 60mm (2.36 inches)/s |
| ASC-134 | PPS  | 15047 | Value that decides on the rotational speed when feeding the original document forward at 150mm (5.91 inches)/s   |
| ASC-135 | PPS  | 6019  | Value that decides on the rotational speed when feeding the original document in reverse at 60mm (2.36 inches)/s |
| ASC-136 | PPS  | 6019  | Value that decides on the rotational speed when feeding the original document forward at 60mm (2.36 inches)/s    |
| ASC-137 | PPS  | 6019  | Value that decides on the rotational speed when feeding the original document in reverse at 60mm (2.36 inches)/s |
| ASC-138 | PPS  | 4013  | Value that decides on the rotational speed when feeding the original document forward at 40mm (1.58 inches)/s    |
| ASC-139 | PPS  | 6019  | Value that decides on the rotational speed when feeding the original document in reverse at 60mm (2.36 inches)/s |

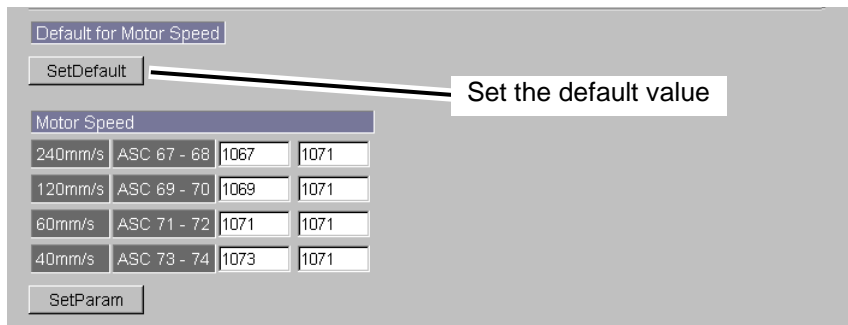
PPS: Pulse per second

#### Note:

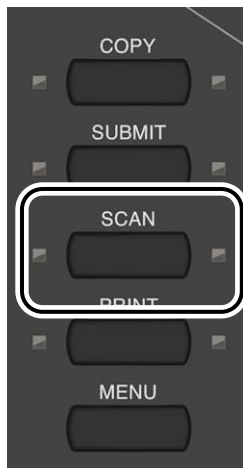
The higher the value is, the faster the document advance speed is and the more the scan image shrinks in the main scanning direction.

## Calibration Instructions

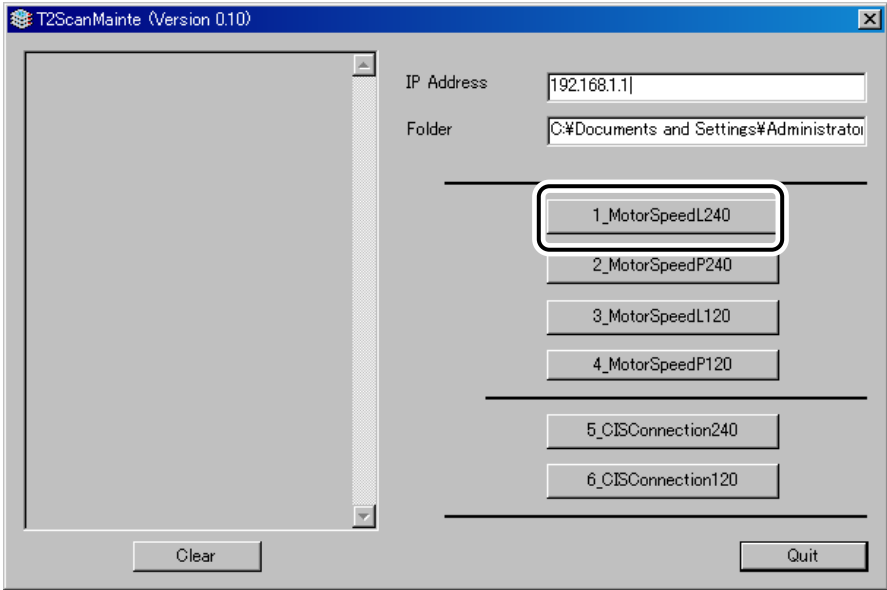
- (1) Turn on the Printer.
- (2) To set the default value for calibration, click **Set Default** under **Default for Motor Speed** on the web interface's **Scanner Parameter** page.



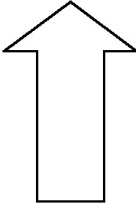
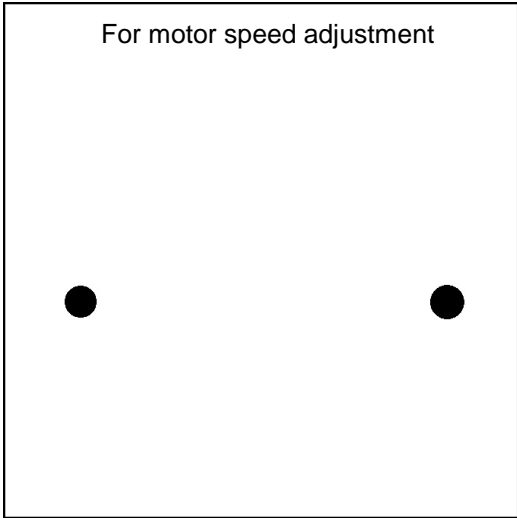
- (3) Switch the Printer to **Scan** mode.



(4) Click the **1\_MotorSpeedL240** button in the scanner maintenance tool.



(5) When the operation panel displays **Load the original.**, place the calibration document in the landscape orientation, the direction noted in (a).

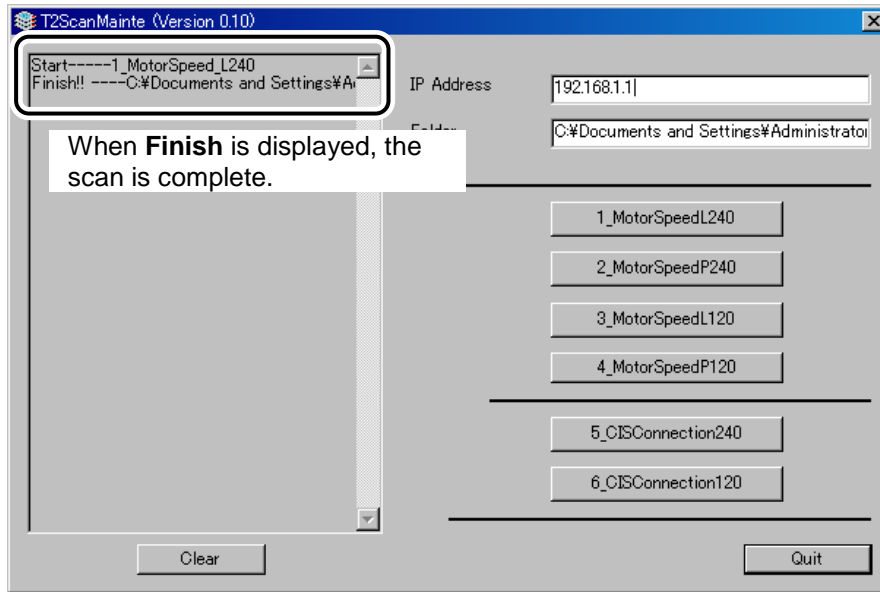


With Landscape scanning, the document is advanced in the arrow direction (a).

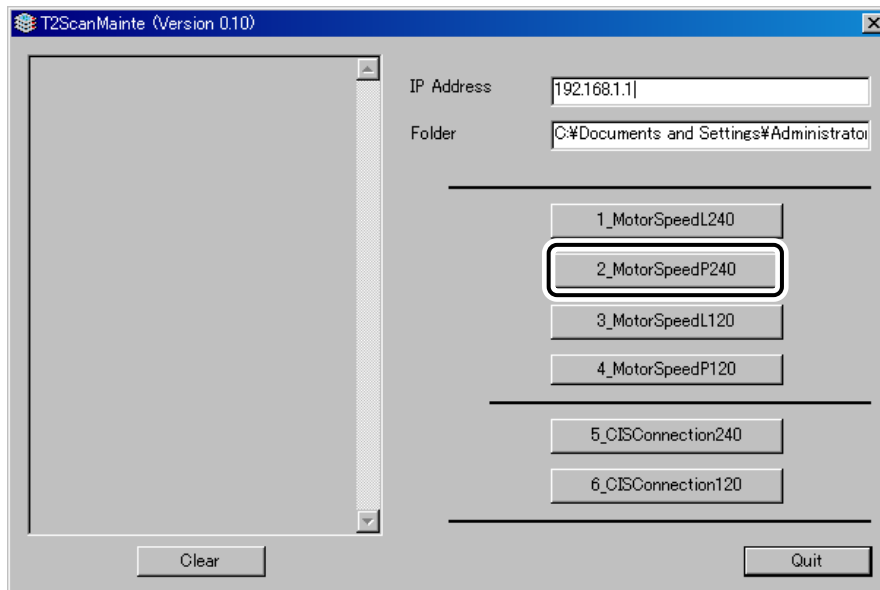
**Note**

Ignore the numbers (1), (2), and (3) marked in the document for the adjustment and check.

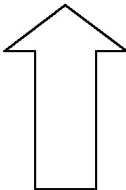
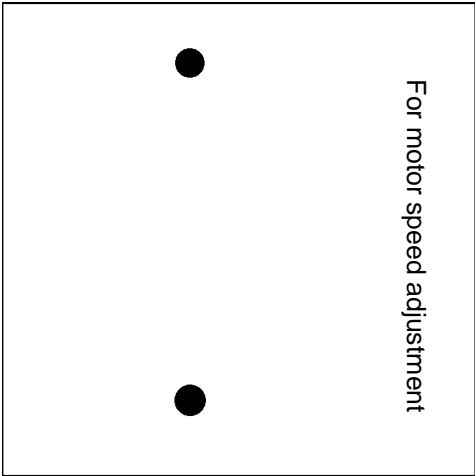
- (6) Once the original document has been scanned, check that the file **1\_MotorSpeed\_L240.bmp** has been created in the scanner maintenance tool folder.



- (7) Next, click the **2\_MotorSpeedP240** button in the scanner maintenance tool.

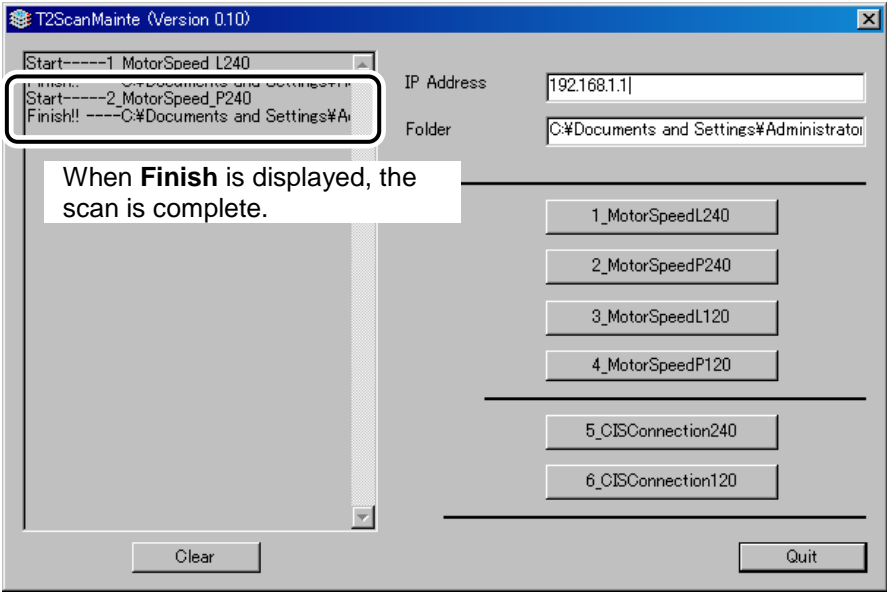


- (8) When the operation panel displays **Load the original.**, place the calibration document in the landscape orientation, the direction noted in (c).

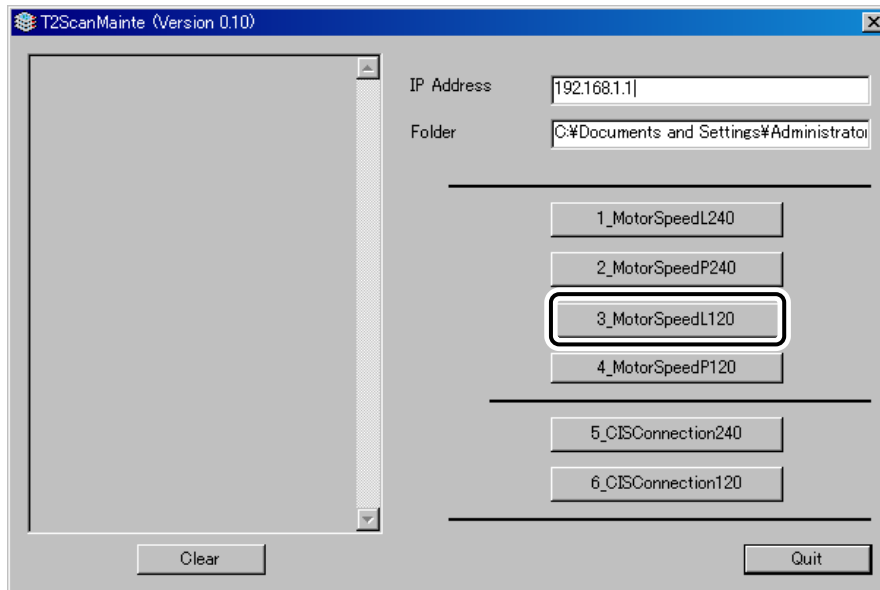


With **Landscape** scanning, the document is advanced in the arrow direction (c).

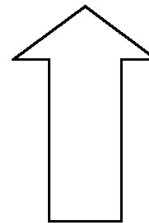
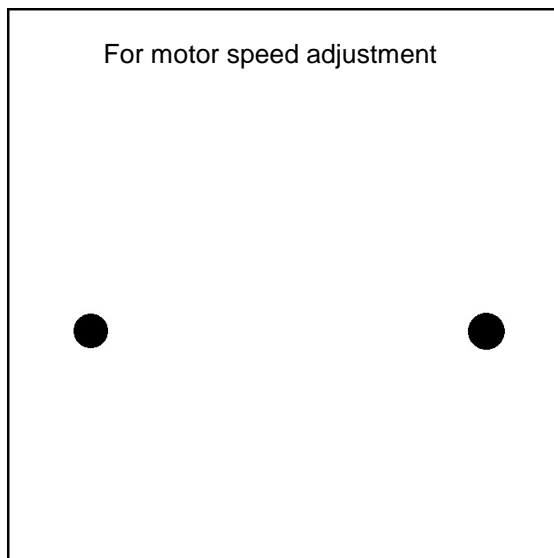
- (9) Once the original document has been scanned, check that the file **2\_MotorSpeed\_P240.bmp** has been created in the scanner maintenance tool folder.



(10) Click the **3\_MotorSpeedL120** button in the scanner maintenance tool.

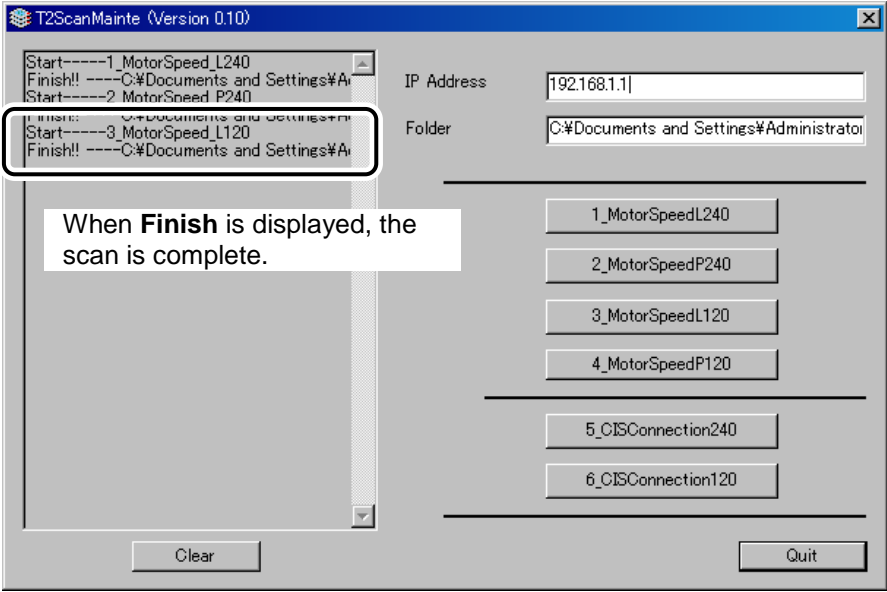


(11) When the operation panel displays **Load the original.**, place the calibration document in the portrait orientation, the direction noted in (d).

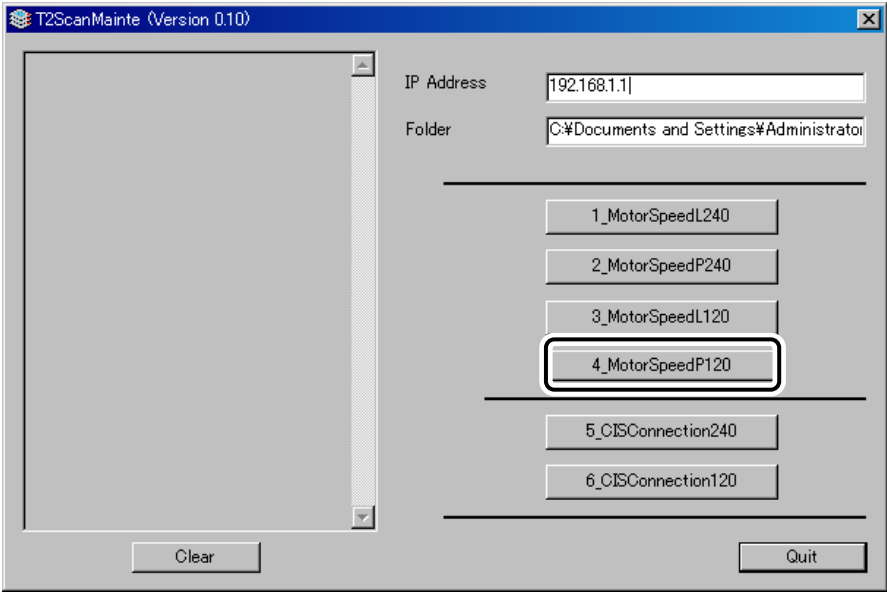


With **Portrait** scanning, the document is advanced in the arrow direction (d).

(12) Once the original document has been scanned, check that the file **3\_MotorSpeed\_L120** has been created in the scanner maintenance tool folder.

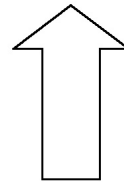
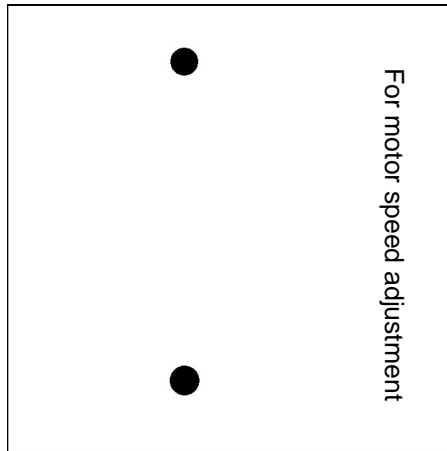


(13) Click the **4\_MotorSpeedP120** button in the scanner maintenance tool.



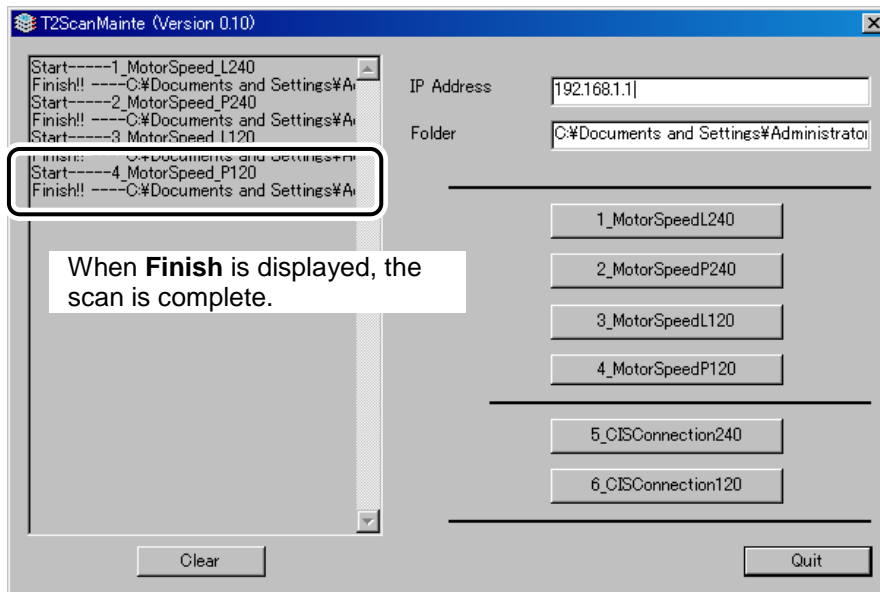


- (14) When the operation panel displays **Load the original.**, place the calibration document in the portrait orientation, the direction noted in (d).

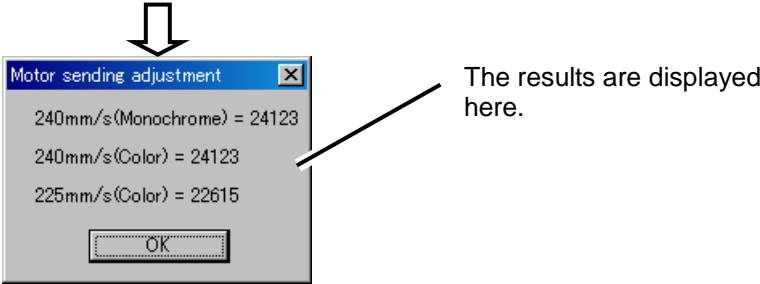
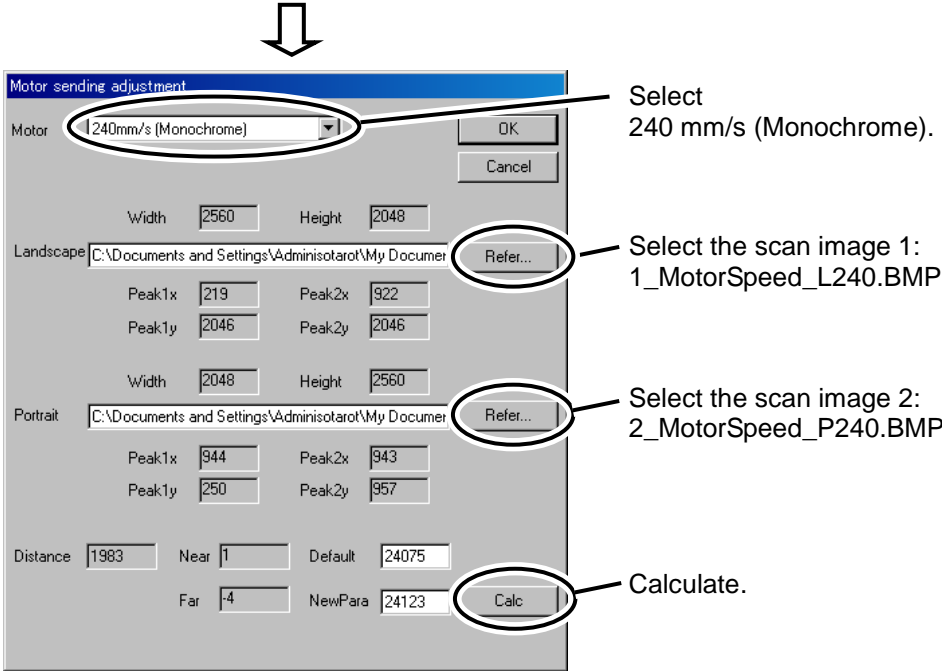
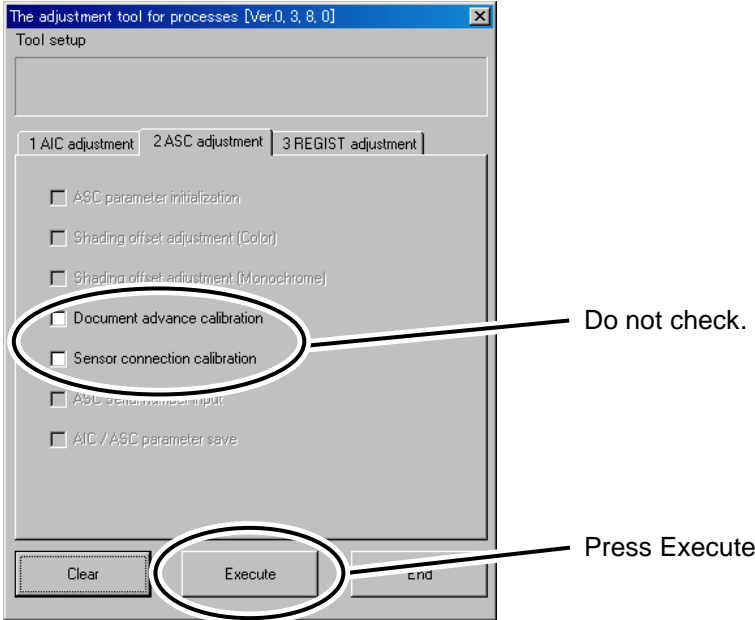


With **Portrait** scanning, the document is advanced in the arrow direction (d).

- (15) Once the original document has been scanned, check that the file **4\_MotorSpeedP120.bmp** has been created in the scanner maintenance tool folder.

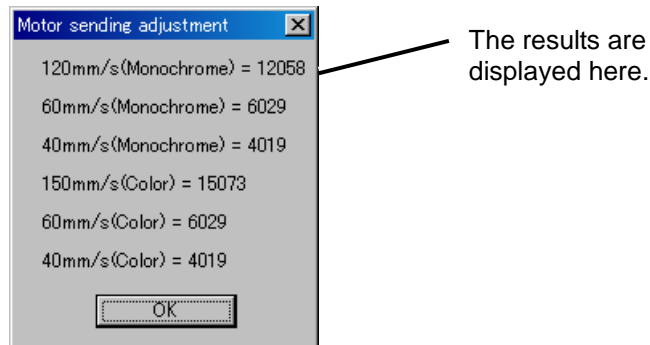
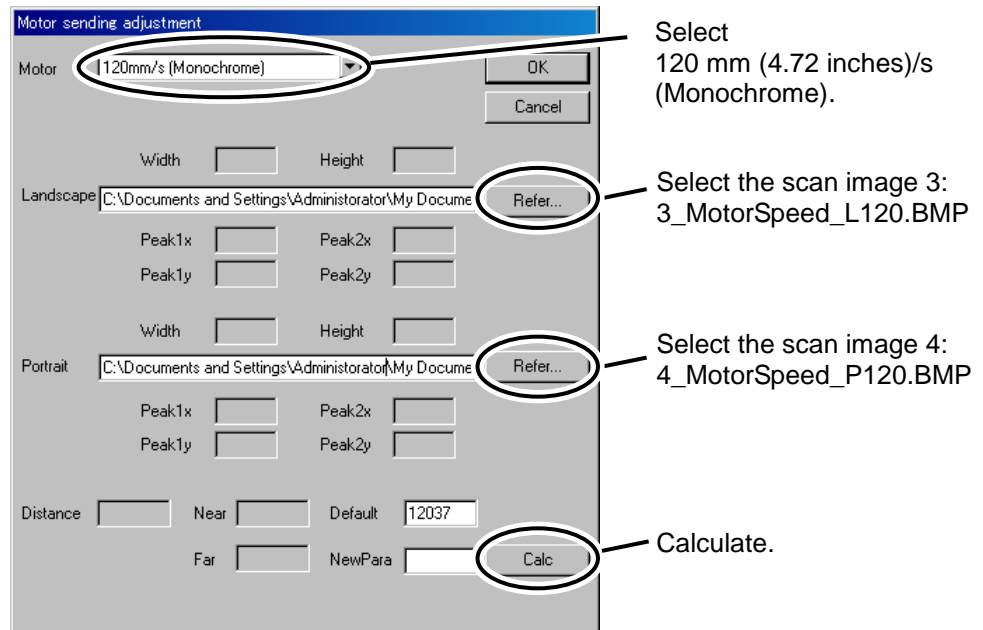


(16) Open **Document Advance Calibration** under **ASC Adjustment** in the scanner calibration tool. Now have the tool calculate the values for the scanned images 1 and 2 for 240 mm/s. Click **Calc** and after a few moments the calibration parameter for 240 mm (9.45 inches)/s is displayed on the screen. Write down this value.



- Notes**
- ◇ The PrintScreen key (for taking a screenshot) can be handy for remembering the calculated parameters.
  - ◇ Also, be sure to use the included **Scanner Calibration Results - Memo List**. (Refer to **11.1.10 Scanner Adjustment Results - Memo List**.)

(17) Now set the tool to calculate the values for the scanned images 3 and 4 for 120 mm (4.72 inches)/s, just as you did before. Click **Calc** and after a few moments the calibration parameter for 120mm (4.72 inches)/s is displayed on the screen. Write down this value.

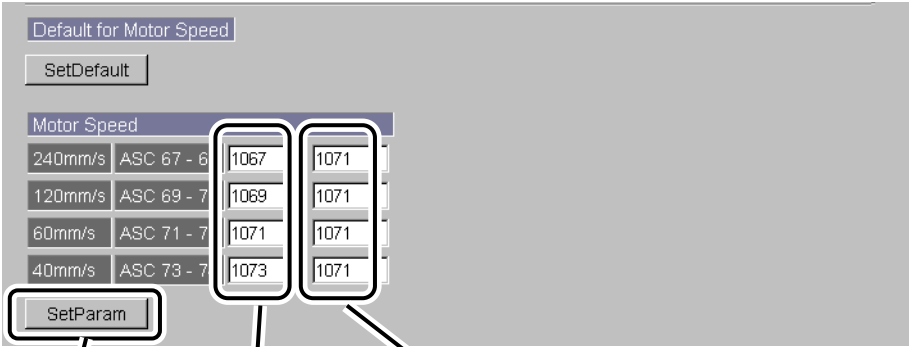


- Notes**
- ◇ The PrintScreen key (for taking a screenshot) can be handy for remembering the calculated parameters.
  - ◇ Also, be sure to use the included **Scanner Calibration Results - Memo List**. (Refer to **11.1.10 Scanner Adjustment Results - Memo List**.)

When the calculations are complete, press **OK** or **Cancel** to close the screen.

- (18) Click the Logout button on the screen and switch back to standby mode.
- (19) On the **Scanner Parameter** page, input the parameter values for 240 mm/s and 120 mm/s that you saved earlier and execute **SetParam**.

(Parameter settings for monochrome)



After entering the values, press the button to set them.

Set the following value: Result of the scan images 3 and 4, at Monochrome 60mm/s

- Set the following values.
- ASC67: Result of the scan images 1 and 2, at Monochrome 240 mm/s
- ASC69: Result of the scan images 3 and 4, at Monochrome 120 mm/s
- ASC71: Result of the scan images 3 and 4, at Monochrome 60 mm/s
- ASC73: Result of the scan images 3 and 4, at Monochrome 40 mm/s

(Parameter Settings for Color)

| Default for Motor Speed                   |              |                                   |                                   |
|---|--------------|-----------------------------------|-----------------------------------|
| <input type="button" value="SetDefault"/> |              |                                   |                                   |
| Motor Speed                               |              |                                   |                                   |
| 240mm/s                                   | ASC 67 - 68  | <input type="text" value="1067"/> | <input type="text" value="1071"/> |
| 120mm/s                                   | ASC 69 - 70  | <input type="text" value="1069"/> | <input type="text" value="1071"/> |
| 60mm/s                                    | ASC 71 - 72  | <input type="text" value="1071"/> | <input type="text" value="1071"/> |
| 40mm/s                                    | ASC 73 - 74  | <input type="text" value="1073"/> | <input type="text" value="1071"/> |
| <input type="button" value="SetParam"/>   |              |                                   |                                   |
| Motor Speed (for color)                   |              |                                   |                                   |
| 240mm/s                                   | ASC 130 - 13 | <input type="text" value="1130"/> | <input type="text" value="1136"/> |
| 225mm/s                                   | ASC 132 - 13 | <input type="text" value="1132"/> | <input type="text" value="1136"/> |
| 150mm/s                                   | ASC 134 - 13 | <input type="text" value="1134"/> | <input type="text" value="1136"/> |
| 60mm/s                                    | ASC 136 - 13 | <input type="text" value="1136"/> | <input type="text" value="1136"/> |
| 40mm/s                                    | ASC 138 - 13 | <input type="text" value="1138"/> | <input type="text" value="1136"/> |
| <input type="button" value="SetParam"/>   |              |                                   |                                   |

After entering the values, press the button to set them.

Set the following value: Result of the scan images 3 and 4, at Monochrome 60mm/s

Set the following values.

- ASC130: Result of the scan images 1 and 2, at Color 240 mm/s
- ASC132: Result of the scan images 1 and 2, at Color 225 mm/s
- ASC134: Result of the scan images 3 and 4, at Color 150 mm/s
- ASC136: Result of the scan images 3 and 4, at Color 60 mm/s
- ASC138: Result of the scan images 3 and 4, at Color 40 mm/s

\* Once you have finished changing these settings, always refresh your browser.

### 11.1.7.2 Sensor Connection Calibration

After the document advance calibration, perform sensor connection calibration in main scanning and subscanning directions.

This calibration will be performed semi-automatically.

#### Parameter Details

Main Scanning Direction Sensor Connection Calibration Parameters (for 600 dpi Mode)

| Number  | Units | Range         | Meaning   |
|---------|-------|---------------|---|
| ASC-233 | Dot   | 0 - 5104      | CIS(A) main scanning direction's first dot position |
| ASC-234 | Dot   | 5104 - 10208  | CIS(B) main scanning direction's first dot position |
| ASC-235 | Dot   | 10208 - 15312 | CIS(C) main scanning direction's first dot position |
| ASC-236 | Dot   | 15312 - 20416 | CIS(D) main scanning direction's first dot position |
| ASC-237 | Dot   | 20416 - 22520 | CIS(E) main scanning direction's first dot position |
| ASC-238 | Dot   | 0 - 5104      | CIS(A) main scanning direction's end dot position   |
| ASC-239 | Dot   | 5104 - 10208  | CIS(B) main scanning direction's end dot position   |
| ASC-240 | Dot   | 10208 - 15312 | CIS(C) main scanning direction's end dot position   |
| ASC-241 | Dot   | 15312 - 20416 | CIS(D) main scanning direction's end dot position   |
| ASC-242 | Dot   | 20416 - 22520 | CIS(E) main scanning direction's end dot position   |

Main Scanning Direction Sensor Connection Calibration Parameters (for 300 dpi Mode)

| Number  | Units | Range         | Meaning   |
|---------|-------|---------------|---|
| ASC-243 | Dot   | 0 - 2552      | CIS(A) main scanning direction's first dot position |
| ASC-244 | Dot   | 2552 - 5104   | CIS(B) main scanning direction's first dot position |
| ASC-245 | Dot   | 5104 - 7658   | CIS(C) main scanning direction's first dot position |
| ASC-246 | Dot   | 7658 - 10208  | CIS(D) main scanning direction's first dot position |
| ASC-247 | Dot   | 10208 - 12760 | CIS(E) main scanning direction's first dot position |
| ASC-248 | Dot   | 0 - 2552      | CIS(A) main scanning direction's end dot position   |
| ASC-249 | Dot   | 2552 - 5104   | CIS(B) main scanning direction's end dot position   |
| ASC-250 | Dot   | 5104 - 7658   | CIS(C) main scanning direction's end dot position   |
| ASC-251 | Dot   | 7658 - 10208  | CIS(D) main scanning direction's end dot position   |
| ASC-252 | Dot   | 10208 - 12760 | CIS(E) main scanning direction's end dot position   |

**Note:**

Specify which range to use to scan for each CIS' 5104 Dot (in 600 dpi mode) or 2552 Dot (in 300 dpi mode) for A through E.

The layout of the CIS is from A to E from the right when you are facing the Printer.

Subscanning Direction Sensor Connection Calibration Parameters (for Monochrome)

| Number  | Units | Range         | Meaning  |
|---------|-------|---------------|--|
| ASC-217 | Line  | -32 to 32     | Standard C and A's positional difference (in lines) at 240mm/s |
| ASC-218 | Line  | -1168 to 1232 | Standard C and B's positional difference (in lines) at 240mm/s |
| ASC-219 | Line  | -1168 to 1232 | Standard C and D's positional difference (in lines) at 240mm/s |
| ASC-220 | Line  | -32 to 32     | Standard C and E's positional difference (in lines) at 240mm/s |
| ASC-221 | Line  | -1168 to 1232 | Standard C and A's positional difference (in lines) at 120mm/s |
| ASC-222 | Line  | -1168 to 1232 | Standard C and B's positional difference (in lines) at 120mm/s |
| ASC-223 | Line  | -32 to 32     | Standard C and D's positional difference (in lines) at 120mm/s |
| ASC-224 | Line  | -1168 to 1232 | Standard C and E's positional difference (in lines) at 120mm/s |
| ASC-225 | Line  | -1168 to 1232 | Standard C and A's positional difference (in lines) at 60mm/s  |
| ASC-226 | Line  | -32 to 32     | Standard C and B's positional difference (in lines) at 60mm/s  |
| ASC-227 | Line  | -1168 to 1232 | Standard C and D's positional difference (in lines) at 60mm/s  |
| ASC-228 | Line  | -1168 to 1232 | Standard C and E's positional difference (in lines) at 60mm/s  |
| ASC-229 | Line  | -32 to 32     | Standard C and A's positional difference (in lines) at 40mm/s  |
| ASC-230 | Line  | -1168 to 1232 | Standard C and B's positional difference (in lines) at 40mm/s  |
| ASC-231 | Line  | -1168 to 1232 | Standard C and D's positional difference (in lines) at 40mm/s  |
| ASC-232 | Line  | -32 to 32     | Standard C and E's positional difference (in lines) at 40mm/s  |

Subscanning Direction Sensor Connection Calibration Parameters (for Color)

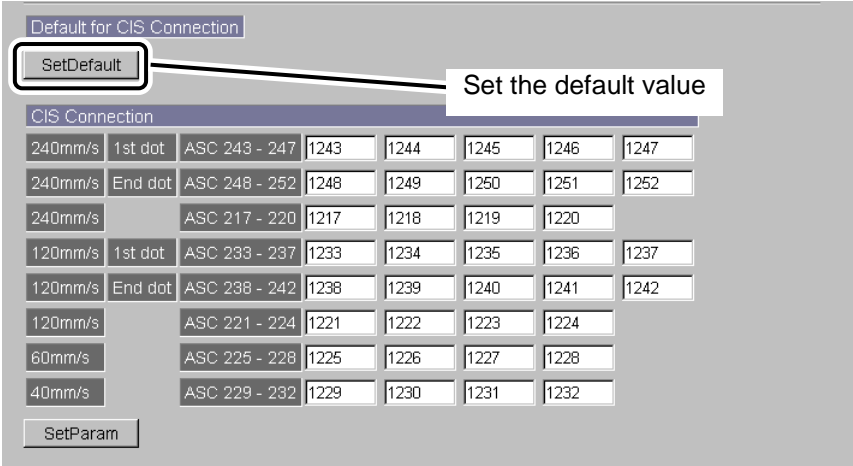
| Number  | Units | Range         | Meaning  |
|---------|-------|---------------|--|
| ASC-298 | Line  | -32 to 32     | Standard C and A's positional difference (in lines) at 240mm/s |
| ASC-299 | Line  | -1168 to 1232 | Standard C and B's positional difference (in lines) at 240mm/s |
| ASC-300 | Line  | -1168 to 1232 | Standard C and D's positional difference (in lines) at 240mm/s |
| ASC-301 | Line  | -32 to 32     | Standard C and E's positional difference (in lines) at 240mm/s |
| ASC-302 | Line  | -32 to 32     | Standard C and A's positional difference (in lines) at 225mm/s |
| ASC-303 | Line  | -1168 to 1232 | Standard C and B's positional difference (in lines) at 225mm/s |
| ASC-304 | Line  | -1168 to 1232 | Standard C and D's positional difference (in lines) at 225mm/s |
| ASC-305 | Line  | -32 to 32     | Standard C and E's positional difference (in lines) at 225mm/s |
| ASC-306 | Line  | -32 to 32     | Standard C and A's positional difference (in lines) at 150mm/s |
| ASC-307 | Line  | -1168 to 1232 | Standard C and B's positional difference (in lines) at 150mm/s |
| ASC-308 | Line  | -1168 to 1232 | Standard C and D's positional difference (in lines) at 150mm/s |
| ASC-309 | Line  | -32 to 32     | Standard C and E's positional difference (in lines) at 150mm/s |
| ASC-310 | Line  | -32 to 32     | Standard C and A's positional difference (in lines) at 60mm/s  |
| ASC-311 | Line  | -1168 to 1232 | Standard C and B's positional difference (in lines) at 60mm/s  |
| ASC-312 | Line  | -1168 to 1232 | Standard C and D's positional difference (in lines) at 60mm/s  |
| ASC-313 | Line  | -32 to 32     | Standard C and E's positional difference (in lines) at 60mm/s  |
| ASC-314 | Line  | -32 to 32     | Standard C and A's positional difference (in lines) at 40mm/s  |
| ASC-315 | Line  | -1168 to 1232 | Standard C and B's positional difference (in lines) at 40mm/s  |
| ASC-316 | Line  | -1168 to 1232 | Standard C and D's positional difference (in lines) at 40mm/s  |
| ASC-317 | Line  | -32 to 32     | Standard C and E's positional difference (in lines) at 40mm/s  |

**Note:**

Specify how many lines off the sensors A, B, D, and E are in the subscanning direction, with the CIS(C) position 0 as a baseline.

**Calibration Instructions**

- (1) To set the default value for calibration, click Set Default under Default for CIS Connection on the web interface's Scanner Parameter page.

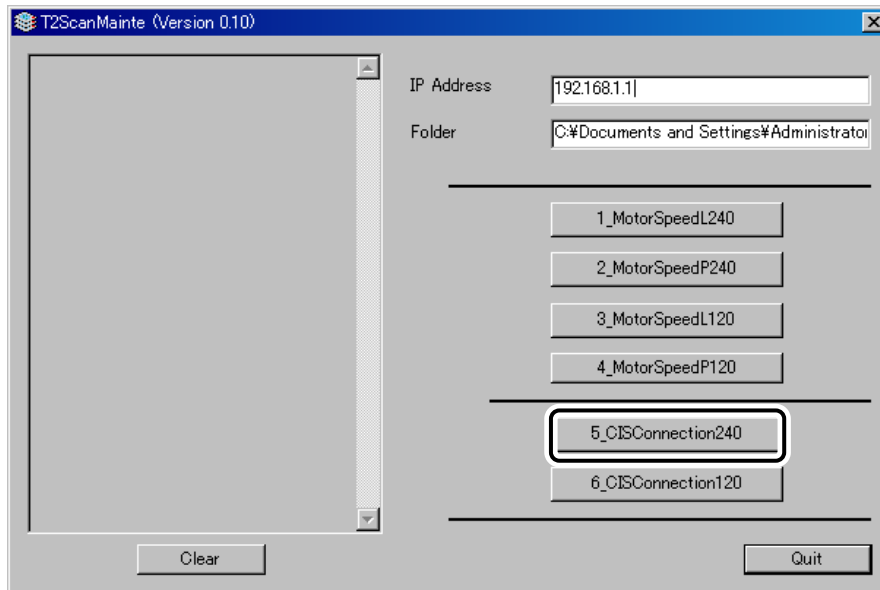


- (2) Switch the Printer to **Scan** mode.

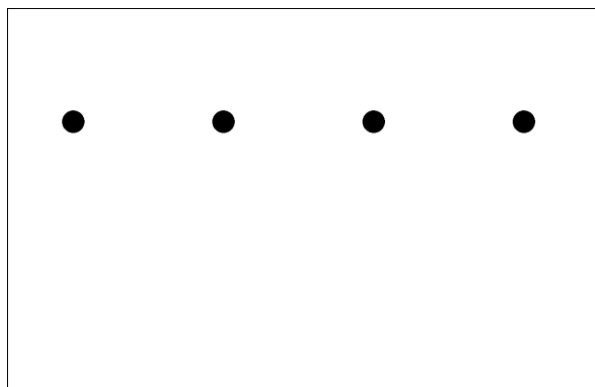




- (3) Click the **5\_CISConnection240** button in the scanner maintenance tool.

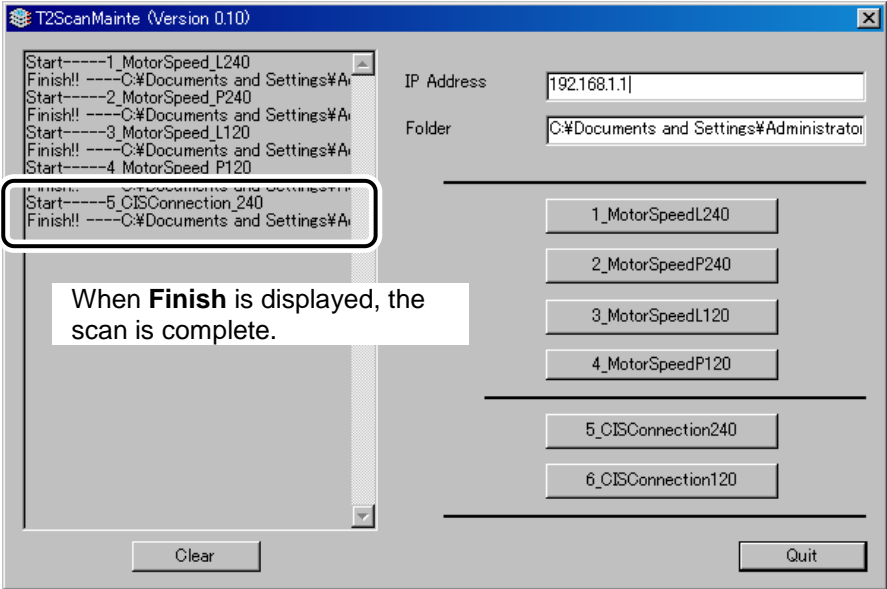


- (4) When the operation panel displays Load the original., place the calibration document for scanning in the orientation shown in (e).

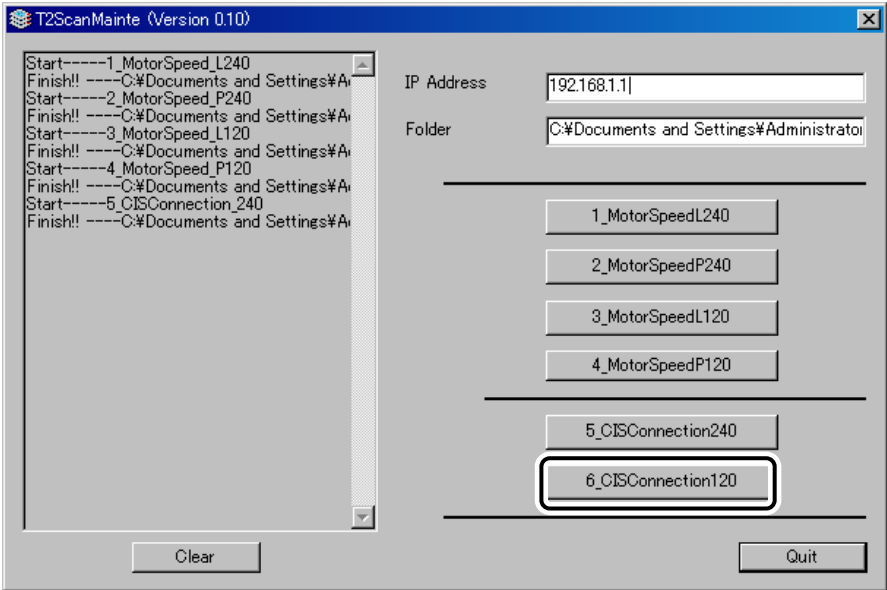


The document is advanced in the arrow direction (e).

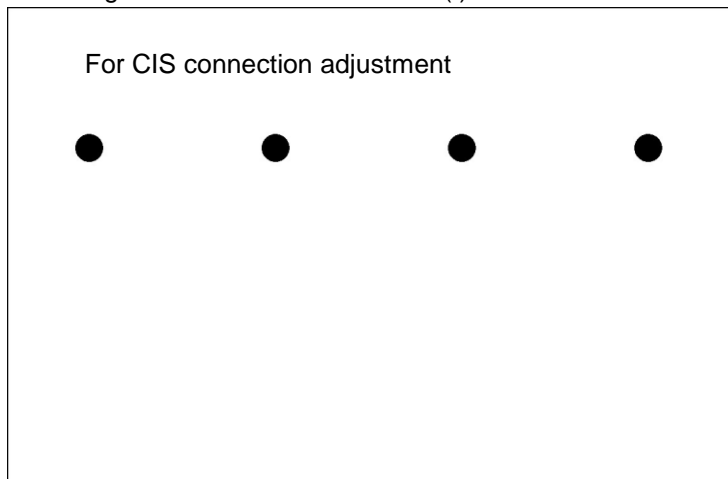
- (5) Once the original document has been scanned, check that the file **5\_CISConnection\_240.bmp** has been created in the scanner maintenance tool folder.



- (6) Click the **6\_CISConnection120** button in the scanner maintenance tool.

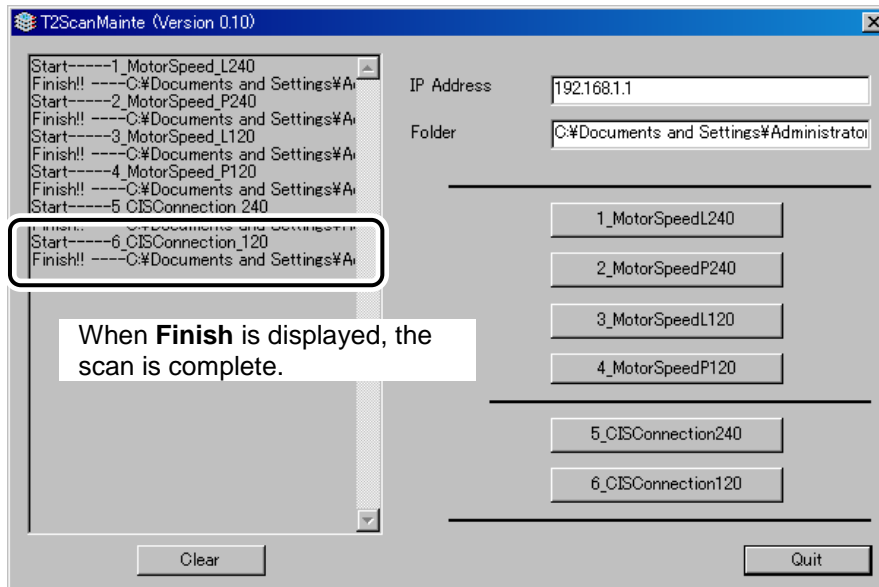


- (7) When the operation panel displays **Load the original.**, place the calibration document for scanning in the orientation shown in (f).

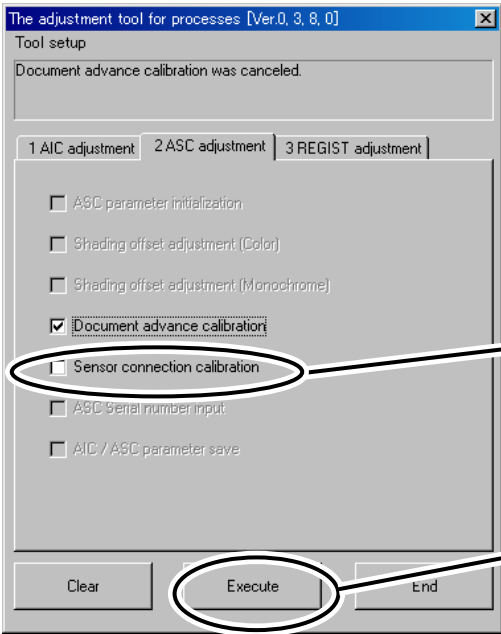


The document is advanced in the arrow direction (f).

- (8) Once the original document has been scanned, check that the file **6\_CISConnection\_120.bmp** has been created in the scanner maintenance tool folder.

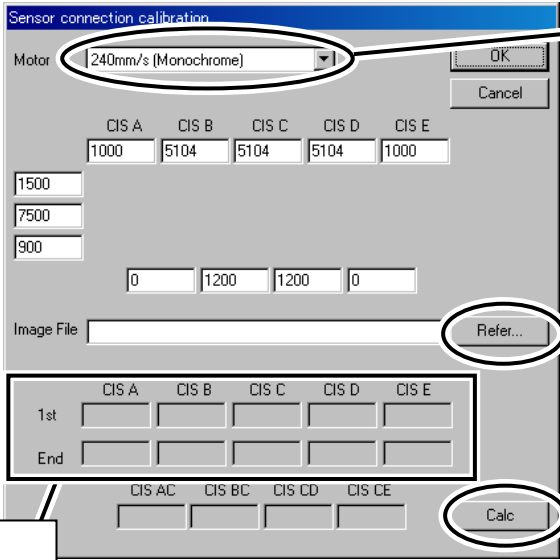


- (9) Open **Sensor connector adjustment** under **ASC Adjustment** in the scanner calibration tool. Now have the tool calculate the value for the scanned image 5 for 240 mm/s. Click **Calc** and after a few moments the four calibration parameters for 240 mm/s are displayed on the screen. Write down these values.



Uncheck Sensor connection calibration.

Click to open the sensor connection calibration screen.

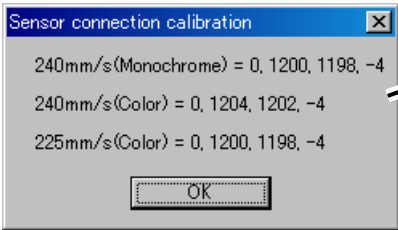


Select 240 mm/s (Monochrome).

Select the scan image 5: 5\_CISConnection\_240.BMP

Calculate.

Main scanning direction results are displayed here.

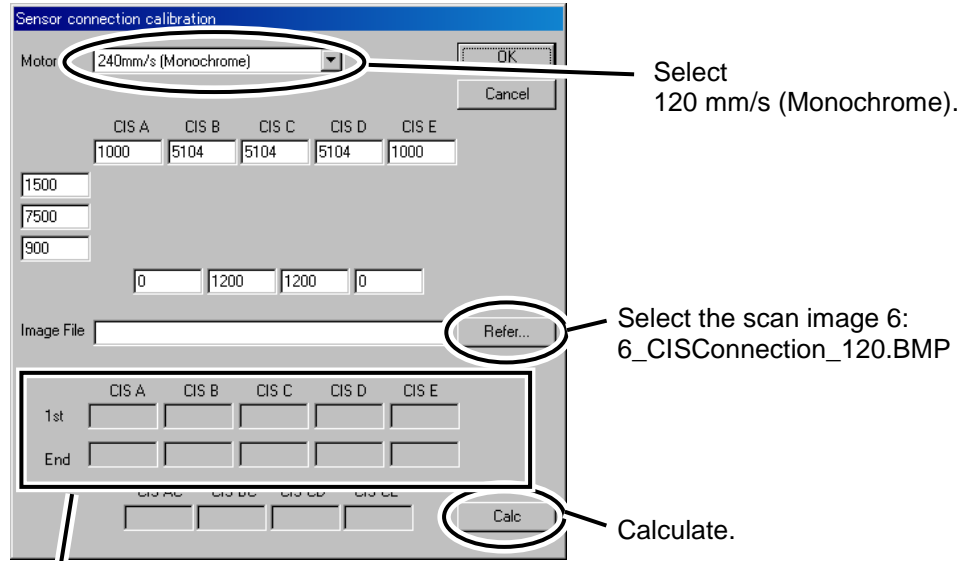


Subscanning direction results are displayed here.

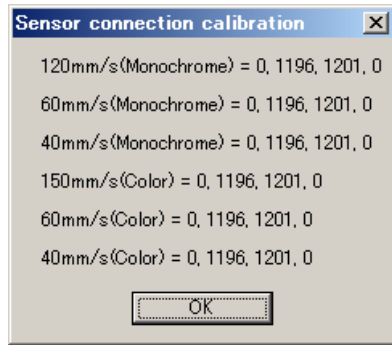
- Notes**
- ◇ The PrintScreen key (for taking a screenshot) can be handy for remembering the calculated parameters.
  - ◇ Also, be sure to use the included **Scanner Calibration Results - Memo List**. (Refer to **11.1.10 Scanner Adjustment Results - Memo List**.)

(10) Now set the tool to calculate the values for the scanned image 6 for 120 mm/s, just as you did in the previous step.

Click Calc and after a few moments the calibration parameters for 120 mm/s are displayed on the screen. Write down these values.



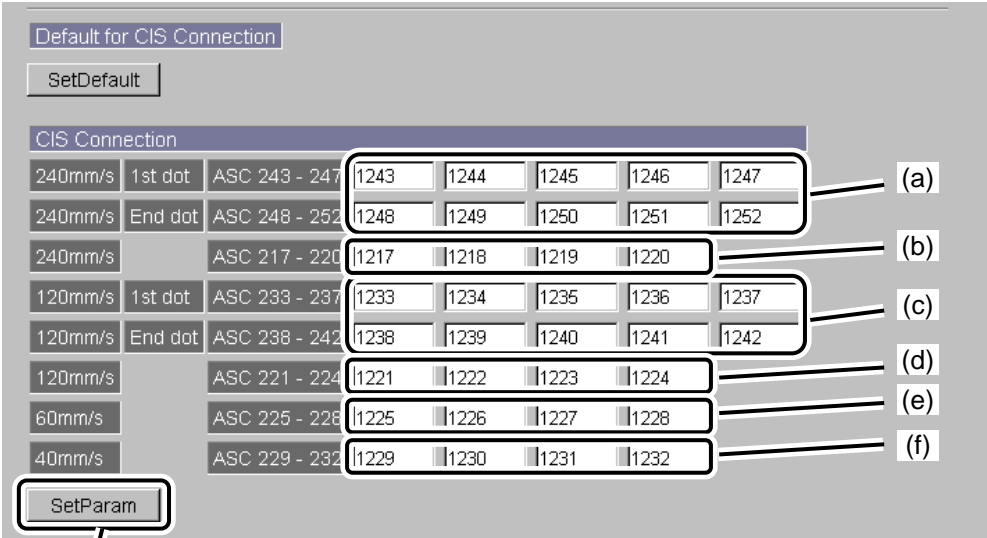
Main scanning direction results are displayed here.



Subscanning direction results are displayed here.

- TIP**
- ◇ The PrintScreen key (for taking a screenshot) can be handy for remembering the calculated parameters.
  - ◇ Also, be sure to use the included **Scanner Calibration Results - Memo List**. (Refer to **11.1.10 Scanner Adjustment Results - Memo List**.)

- (11) Click the logout button on the screen and switch back to standby mode.
- (12) To set the parameter for monochrome scan, on the web interface's **Scanner Parameter** page, input the parameter values displayed in steps (9) and (10). Then execute **SetParam**.

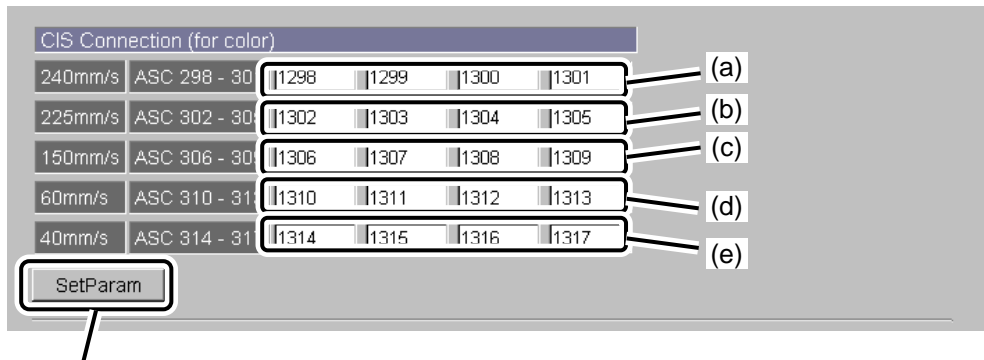


After entering the values, press the button to set them.

- (a): Set the result of the scan image 5 at 240 mm/s in the main scanning direction.
- (b): Set the result of the scan image 5 at Monochrome 240 mm/s in the subscanning direction.
- (c): Set the result of the scan image 6 at 120 mm/s in the main scanning direction.
- (d): Set the result of the scan image 6 at Monochrome 120 mm/s in the subscanning direction.
- (e): Set the result of the scan image 6 at Monochrome 60 mm/s in the subscanning direction.
- (f): Set the result of the scan image 6 at Monochrome 40 mm/s in the subscanning direction.

\* Once you have finished changing these settings, always refresh your browser.

(13) To set the parameter for color scan, on the web interface's **Scanner Parameter** page, input the parameter values displayed in steps (9) and (10). Then execute **SetParam**.



After entering the values, press the button to set them.

- (a): Set the result of the scan image 5 at Color 240 mm/s in the subscanning direction.
- (b): Set the result of the scan image 5 at Color 225 mm/s in the subscanning direction.
- (c): Set the result of the scan image 6 at Color 150 mm/s in the subscanning direction.
- (d): Set the result of the scan image 6 at Color 60 mm/s in the subscanning direction.
- (e): Set the result of the scan image 6 at Color 40 mm/s in the subscanning direction.

\* Once you have finished changing these settings, always refresh your browser.

### 11.1.8 Position Adjustment Instructions

This calibration is performed separately for monochrome, color, and for each scan speed. The calibration items are classified into three below:

- Right scan edge adjustment

The adjustment value is consistent regardless of the monochrome or color scan mode and scan speed.

- Top scan edge adjustment

- Bottom scan edge adjustment

The adjustment value is valid only in the synchronous scan mode.

#### 11.1.8.1 Position Adjustment Parameter Details

Monochrome parameters

| Number | Units  | Range    | Default Value | Meaning  |
|--------|--------|----------|---------------|--|
| ASC-15 | 1/10mm | 14 to 94 | 47            | Specifies the offset value for the document table and CIS unit.  |
| ASC-47 | msec   | -        | 374           | Specifies the time for the five A4 width CISs to start scan at 240 mm/s for top scan edge adjustment. The adjustment value is determined based on the CIS(C), that is, C-position CIS.   |
| ASC-48 | msec   | -        | 748           | Specifies the time for the five A4 width CISs to start scan at 120 mm/s for top scan edge adjustment. The adjustment value is determined based on the CIS(C), that is, C-position CIS.   |
| ASC-49 | msec   | -        | 1496          | Specifies the time for the five A4 width CISs to start scan at 60 mm/s for top scan edge adjustment. The adjustment value is determined based on the CIS(C), that is, C-position CIS.  |
| ASC-50 | msec   | -        | 2244          | Specifies the time for the five A4 width CISs to start scan at 40 mm/s for top scan edge adjustment. The adjustment value is determined based on the CIS(C), that is, C-position CIS.  |
| ASC-51 | line   | -        | 2081          | Specifies the number of lines scanned after the registration sensor at 240 mm/s in synchronous scan mode, which is calculated at 600dpi rate. The adjustment value is determined based on the CIS(C), that is, C-position CIS. |
| ASC-52 | line   | -        | 2081          | Specifies the number of lines scanned after the registration sensor at 120 mm/s in synchronous scan mode, which is calculated at 600dpi rate. The adjustment value is determined based on the CIS(C), that is, C-position CIS. |
| ASC-53 | line   | -        | 2081          | Specifies the number of lines scanned after the registration sensor at 60 mm/s in synchronous scan mode, which is calculated at 600dpi rate. The adjustment value is determined based on the CIS(C), that is, C-position CIS.  |
| ASC-54 | line   | -        | 2081          | Specifies the number of lines scanned after the registration sensor at 40 mm/s in synchronous scan mode, which is calculated at 600dpi rate. The adjustment value is determined based on the CIS(C), that is, C-position CIS.  |



Color parameters

| Number  | Units | Range | Default Value | Meaning  |
|---------|-------|-------|---------------|--|
| ASC-107 | msec  | -     | 374           | Specifies the time for the five A4 width CISs to start scan at 240 mm/s for top scan edge adjustment. The adjustment value is determined based on the CIS(C), that is, C-position CIS.   |
| ASC-108 | msec  | -     | 399           | Specifies the time for the five A4 width CISs to start scan at 225 mm/s for top scan edge adjustment. The adjustment value is determined based on the CIS(C), that is, C-position CIS.   |
| ASC-109 | msec  | -     | 598           | Specifies the time for the five A4 width CISs to start scan at 150 mm/s for top scan edge adjustment. The adjustment value is determined based on the CIS(C), that is, C-position CIS.   |
| ASC-110 | msec  | -     | 1496          | Specifies the time for the five A4 width CISs to start scan at 60 mm/s for top scan edge adjustment. The adjustment value is determined based on the CIS(C), that is, C-position CIS.  |
| ASC-111 | msec  | -     | 2244          | Specifies the time for the five A4 width CISs to start scan at 40 mm/s for top scan edge adjustment. The adjustment value is determined based on the CIS(C), that is, C-position CIS.  |
| ASC-112 | line  | -     | 2081          | Specifies the number of lines scanned after the registration sensor at 240 mm/s in synchronous scan mode, which is calculated at 600dpi rate. The adjustment value is determined based on the CIS(C), that is, C-position CIS. |
| ASC-113 | line  | -     | 2081          | Specifies the number of lines scanned after the registration sensor at 225 mm/s in synchronous scan mode, which is calculated at 600dpi rate. The adjustment value is determined based on the CIS(C), that is, C-position CIS. |
| ASC-114 | line  | -     | 2081          | Specifies the number of lines scanned after the registration sensor at 150 mm/s in synchronous scan mode, which is calculated at 600dpi rate. The adjustment value is determined based on the CIS(C), that is, C-position CIS. |
| ASC-115 | line  | -     | 2081          | Specifies the number of lines scanned after the registration sensor at 60 mm/s in synchronous scan mode, which is calculated at 600dpi rate. The adjustment value is determined based on the CIS(C), that is, C-position CIS.  |
| ASC-116 | line  | -     | 2081          | Specifies the number of lines scanned after the registration sensor at 40 mm/s in synchronous scan mode, which is calculated at 600dpi rate. The adjustment value is determined based on the CIS(C), that is, C-position CIS.  |

**Note:**

The relationship between the adjustment value R (msec) and the number of lines N (dot) is expressed below.

$$N (\text{dot}) = 60 (\text{mm/sec}) \times [R (\text{msec})/1000] \times [600 (\text{dpi}) /25.4 (\text{mm/inch}) ]$$

If you want to shift the adjustment value N (dot), calculate how much you need to change R (msec) with the following calculation.

$$R (\text{msec}) = 1000/60 (\text{mm/sec}) \times [25.4 (\text{mm/inch}) /600 (\text{dpi})] \times N (\text{dot}) = 25.4/36 \times N (\text{dot})$$

\*The calculation above is applied on the case that scan speed is 60 mm/sec.

#### **11.1.8.2 Right Scan Edge Adjustment**

Adjust the right scan edge when:

- The scanned image is offset even though the original document has been set correctly aligned with the lines on the document table.

The value is set in units of 0.1 mm, and its allowable range is 14 to 94 (1.4 mm to 9.4 mm). The target design value is 4.7 mm.

When the left side of the scan image is missing, decrease the value.

When too much blank space appears in the left side of the scan image, increase the value.

#### **11.1.8.3 Top Scan Edge Adjustment**

Adjust the top scan edge when:

- Too much blank space appears at the top edge of the scan image; or
- Part of the top edge of the scan image is missing.

The value is set in units of time, and can be changed among the monochrome and color scan modes and the scan speeds.

When the top edge of the document is not included in the scan image, decrease the value.

When too much blank space appears in the scan image, increase the value.

#### 11.1.8.4 Bottom Scan Edge Adjustment

Adjust the bottom scan edge when:

- Too much blank space appears at the bottom edge of the scan image; or
- Part of the bottom of the scan image is missing.

The value is set in units of time, and can be changed among the monochrome and color scan modes and the scan speeds.

When the bottom edge of the original document is not included in the scanned image, increase the value.

When too much blank space appears in the bottom edge of the scan image, decrease the value.

The screenshot shows two sections of the 'Regist' settings interface. The top section is for monochrome scanning, and the bottom section is for color scanning. Each section contains a table of settings for different scan speeds and directions, with a 'SetParam' button below each table.

| Regist          |        |      |
|-----------------|--------|------|
| Front (240mm/s) | ASC 47 | 1047 |
| Front (120mm/s) | ASC 48 | 1048 |
| Front (60mm/s)  | ASC 49 | 1049 |
| Front (40mm/s)  | ASC 50 | 1050 |
| Back (240mm/s)  | ASC 51 | 1051 |
| Back (120mm/s)  | ASC 52 | 1052 |
| Back (60mm/s)   | ASC 53 | 1053 |
| Back (40mm/s)   | ASC 54 | 1054 |
| Side            | ASC 15 | 1015 |

SetParam

| Regist (for color) |         |      |
|--------------------|---------|------|
| Front (240mm/s)    | ASC 107 | 1107 |
| Front (225mm/s)    | ASC 108 | 1108 |
| Front (150mm/s)    | ASC 109 | 1109 |
| Front (60mm/s)     | ASC 110 | 1110 |
| Front (40mm/s)     | ASC 111 | 1111 |
| Back (240mm/s)     | ASC 112 | 1112 |
| Back (225mm/s)     | ASC 113 | 1113 |
| Back (150mm/s)     | ASC 114 | 1114 |
| Back (60mm/s)      | ASC 115 | 1115 |
| Back (40mm/s)      | ASC 116 | 1116 |

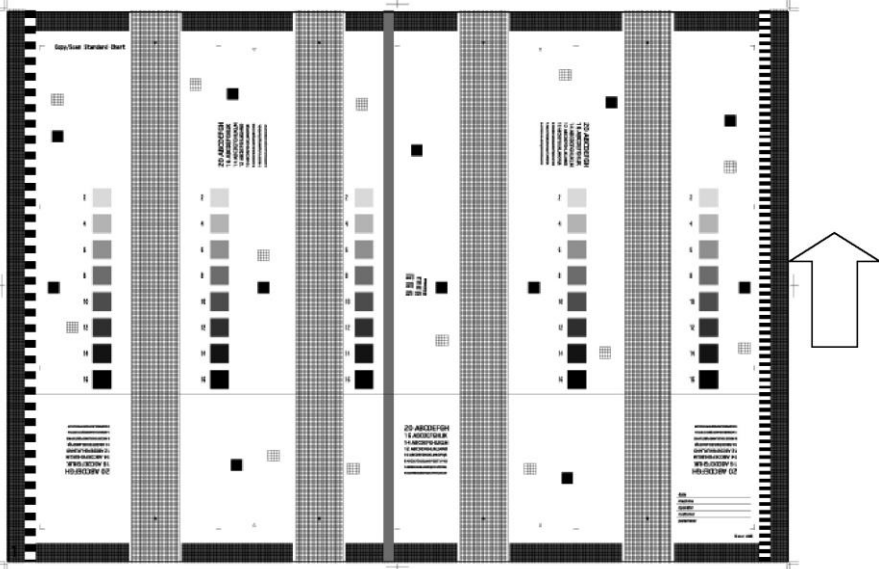
SetParam

\* Once you have finished changing these settings, always refresh your browser.

11.1.9 Checking Adjustment Results

Once the adjustment is complete, copy the **Copy/ScanStandardChart** and check the adjustment results.

The **Copy/ScanStandardChart** is as follows.



11.1.9.1 Checking Results Copied With Original Type to Text & Lines

Print a copy with the following conditions three times, without setting the **Print Copies** to 3.

Copy conditions

**Original Type:** Text & Lines

All other settings should be left as their defaults.

**Original Size:** Auto

**Density:** 5

**Background Compensation:** 0

**Sharpness:** None

**Contrast:** Medium

**Reverse Black/White:** Off

Do not use any features such as **Scale**, **Blank Space**, and **Offset**.

## Check items and judging standard

(1) Subscanning direction grid chart's top and bottom edges: Eight positions

<Items to Check>

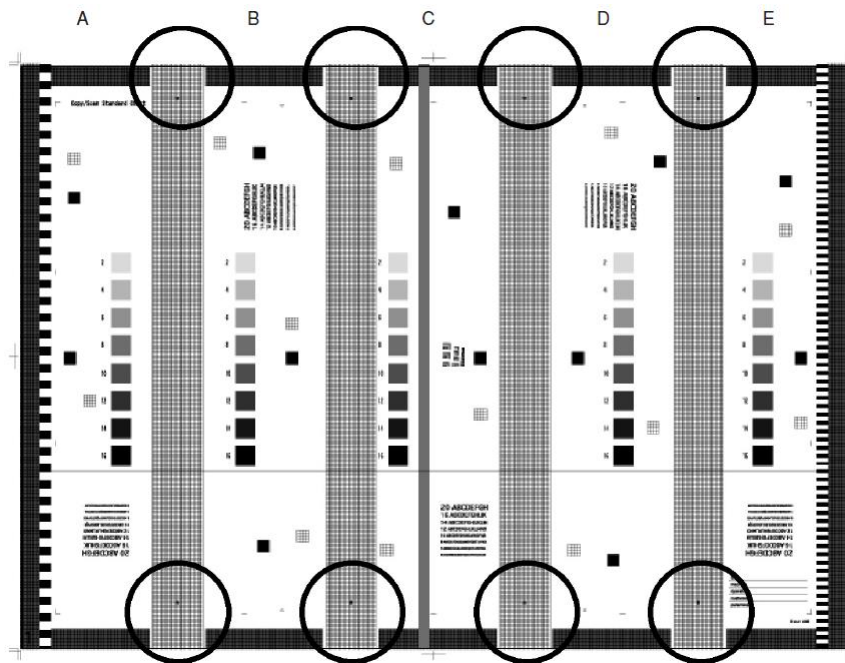
Image at sensor connection parts, 60 mm from the top and bottom edges of the original

<Check and Criteria>

Check that the horizontal lines are not disconnected at the sensor connection part. Areas on the original marked by the ▲ symbol are guides designating CIS sensor connections.

If a line disconnection part is found on one printout, the printout is negative.

When the line is completely connected with at least one of the three printouts, the adjustment result is OK.



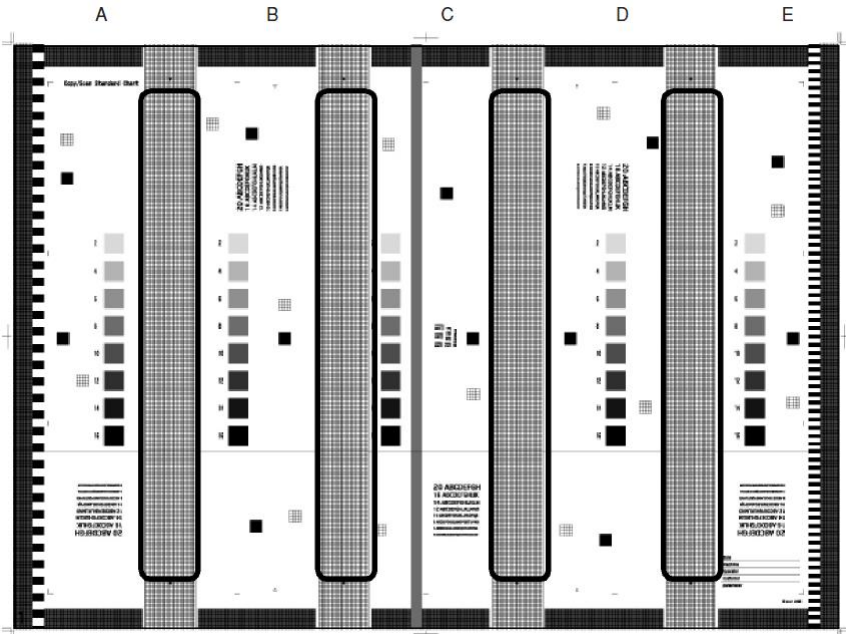
(2) Subscanning direction grid chart's center: Four positions

<Items to Check>

Image at sensor connection parts, on the center of the original

<Check and Criteria>

Check that the horizontal lines are not disconnected at the sensor connection part. Areas on the original marked by the ▲ symbol are guides designating CIS sensor connections. When horizontal lines at connections are not disconnected, the results are OK.



(3) Main scanning direction straight line chart: One position

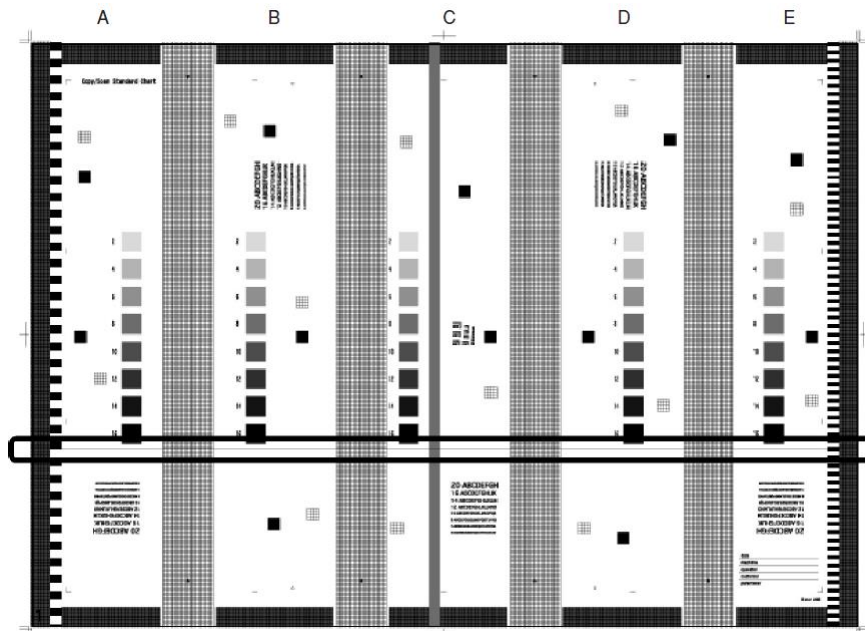
<Items to Check>

Missing dots, caused by the CIS sensor's defects or foreign particles

<Check and Criteria>

Check that the straight lines are not disconnected at the sensor connection part.

When the straight lines are not disconnected, the results are OK. If any disconnections are found, the results are negative.



11.1.9.2 Checking Results Copied With Original Type to Text/Photo

Print a copy with the following conditions.

**Copy conditions**

**Original Type:** Text/Photo  
All other settings should be left as their defaults.

- Original Size:** Auto
- Density:** 5
- Background Compensation:** 4
- Sharpness:** None
- Contrast:** Medium
- Reverse Negative/Positive:** Off

Do not use any features such as **Scale**, **Blank Space**, and **Offset**.

**Check items and judging standard**

(1) Black patches: Five positions

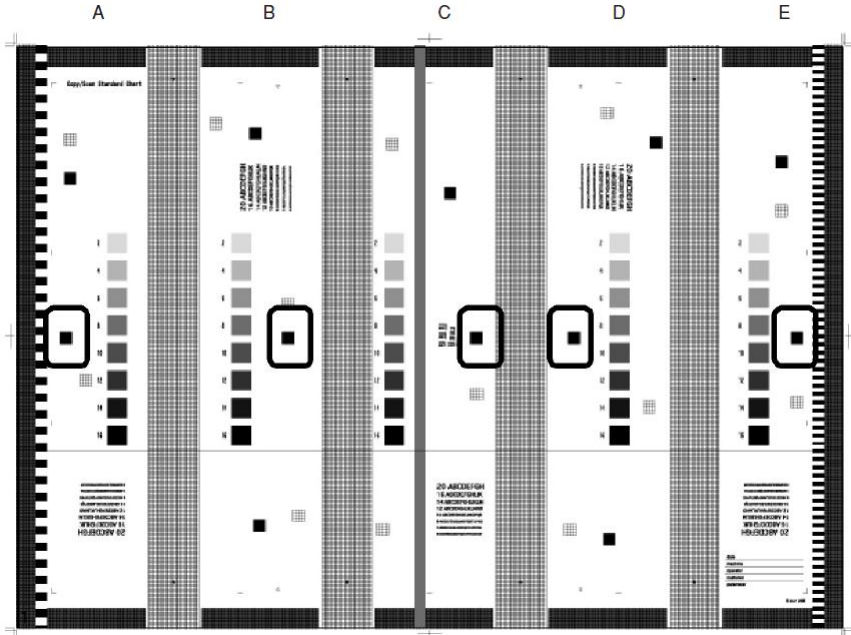
<Items to Check>

Print defects showing white missing dots

<Check and Criteria>

Check that each black patch does not show white missing dots.

When missing dots are not found, the results are OK. If white missing dots are found, the results are negative.





(2) Gradation chart: Five positions

<Items to Check>

- Low density patches
- Density differences between sensors

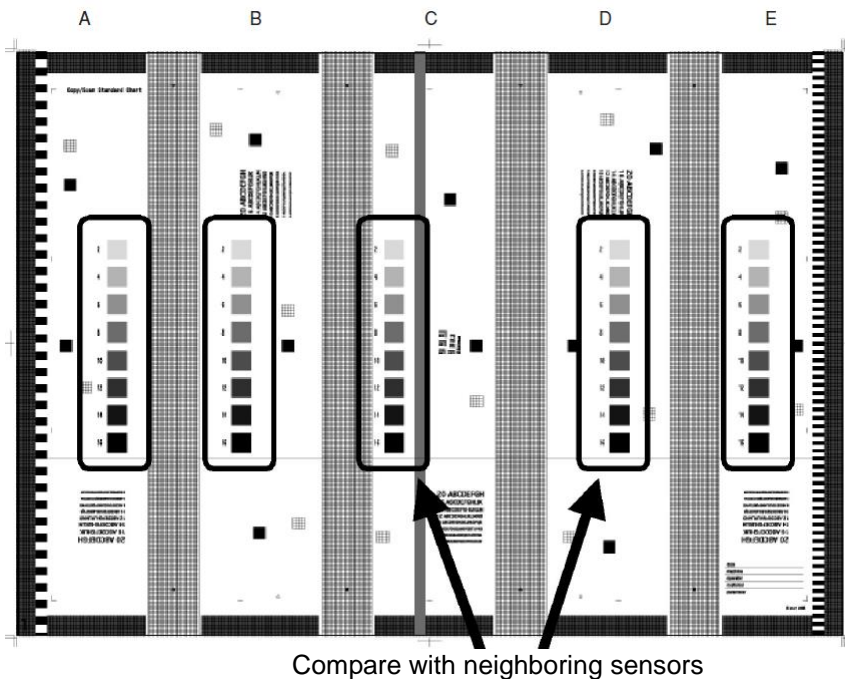
<Check and Criteria>

- For low density patch  
Check that the 2-density patch is printed.  
When any of the 2-density patch is printed, the results are OK. If the 2-density patch is missing completely, the results are negative.
- For density differences between sensors  
Compare the gradation chart of neighboring sensors.  
If, between the neighboring sensors, gradation charts' density difference level is one or less (one density level represents the value 2), the results are OK. When the level is more than one, the results are negative.

**Example:**

The results are negative if:

- Block A's 2 density is higher than Block B's 4 density; or
- Block B's 4 density is higher than Block C's 6 density.



11.1.10 Scanner Adjustment Results - Memo List

Print a copy of this page for your adjustment.

| Document advance calibration |
|------------------------------|
| 240mm/s (Monochrome)         |
| 120mm/s (Monochrome)         |
| 60mm/s (Monochrome)          |
| 40mm/s (Monochrome)          |
| 240mm/s (Color)              |
| 225mm/s (Color)              |
| 150mm/s (Color)              |
| 60mm/s (Color)               |
| 40mm/s (Color)               |

| Sensor connection calibration (Main scanning direction) |        |        |        |        |        |
|---|--------|--------|--------|--------|--------|
| Adjustment parameters at 240 mm/s                       |        |        |        |        |        |
|   | CIS(A) | CIS(B) | CIS(C) | CIS(D) | CIS(E) |
| first   |        |        |        |        |        |
| end   |        |        |        |        |        |

| Sensor connection calibration (Main scanning direction) |        |        |        |        |        |
|---|--------|--------|--------|--------|--------|
| Adjustment parameters at 120mm/s                        |        |        |        |        |        |
|   | CIS(A) | CIS(B) | CIS(C) | CIS(D) | CIS(E) |
| first   |        |        |        |        |        |
| end   |        |        |        |        |        |

| Document advance calibration |
|------------------------------|
| 240mm/s (Monochrome)         |
| 120mm/s (Monochrome)         |
| 60mm/s (Monochrome)          |
| 40mm/s (Monochrome)          |
| 240mm/s (Color)              |
| 225mm/s (Color)              |
| 150mm/s (Color)              |
| 60mm/s (Color)               |
| 40mm/s (Color)               |

### 11.1.11 How to Change the Scanner Parameters

Scanner parameters can be changed to the desired values from a Web browser.

The screenshot shows a web interface with two sections for parameter configuration. The first section is titled 'ASC Parameter' and contains a label 'ASC Parameter No.' followed by five empty input fields and a button labeled 'Open ASC Params'. The second section is titled 'AIC Parameter' and contains a label 'AIC Parameter No.' followed by five empty input fields and a button labeled 'Open AIC Params'.

**Note**

Do not change the parameters when not specified to do so.

## 11.1.12 Scanner Parameters Lists

### 11.1.12.1 ASC Parameters Lists

Serial number.

| No. | Initial Value | Unit | Range | Meaning   | Changes after Calibration | Note  |
|-----|---------------|------|-------|---|---------------------------|---|
| 0   | 0             | —    | —     | Input and display the serial number (ASC/SC board serial) | —                         | The serial number is adjusted during the process. |

Parameters used with USB tool

| No. | Initial Value | Unit | Range | Meaning  | Changes after Calibration | Note |
|-----|---------------|------|-------|--|---------------------------|------|
| 1   | 60            | mm/s | —     | Switch the reading speed<br>60: 60 mm/s<br>30: 30 mm/s | —                         |      |
| 2   | 4965          | —    | —     | Set the read length                                    | —                         |      |

Switching parameters when calibrating

| No. | Initial Value | Unit | Range  | Meaning   | Changes after Calibration | Note |
|-----|---------------|------|--------|---|---------------------------|------|
| 3   | 0             | —    | 0 to 1 | Switch shading<br>0: On 1: Off  | —                         |      |
| 4   | 0             | —    | 0 to 1 | Scanning with/without motor/sensor<br>0: Motor/sensor enabled,<br>1: Motor/sensor disabled  | —                         |      |
| 5   | 0             | —    | 0 to 1 | Switch sensor connection processing<br>0: On 1: Off   | —                         |      |
| 6   | 0             | —    | 0 to 1 | Switch tone curve<br>0: Use the specified curve<br>1: Use the linear curve  | —                         |      |
| 7   | 0             | —    | 0 to 1 | Switch motor advance<br>0: Use the specified parameter<br>1: Use the initial value  | —                         |      |
| 8   | 0             | —    | 0 to 1 | Switch connection adjustment<br>0: Use connection adjustment value<br>1: Use initial value for adjustment   | —                         |      |
| 9   | 0             | —    | 0 to 2 | Switch light intensity calibration (for front LED)<br>0: Use after-calibration parameter<br>1: Use initial value for calibration<br>2: Use <b>value = 0</b> | —                         |      |
| 10  | 0             | —    | 0 to 2 | Switch light intensity calibration (for rear LED)<br>0: Use after-calibration parameter<br>1: Use initial value for calibration<br>2: Use <b>value = 0</b>  | —                         |      |

## Evaluation parameters

| No. | Initial Value | Unit            | Range  | Meaning   | Changes after Calibration | Note             |
|-----|---------------|-----------------|--------|---|---------------------------|------------------|
| 11  | 4             | —               | 0 to 6 | Select sensor connection correction overlapping<br>( $2^{(2+N)}$ pixels connection) | —                         | For 600 dpi mode |
| 12  | 3             | —               | 0 to 6 | Select sensor connection correction overlapping<br>( $2^{(2+N)}$ pixels connection) | —                         | For 300 dpi mode |
| 13  | 0             | —               | 0 to 1 | Switch convergence correction function<br>0: Enabled 1: Disabled                    | —                         | For color only   |
| 14  | 0             | —               | 0 to 1 | Switch sensor hue correction function<br>0: Enabled 1: Disabled                     | —                         | For color only   |
| 15  | 47            | 1/10 mm         | —      | Set offset for the document table and CIS unit                                      | —                         |                  |
| 16  | 3             | Number of times | —      | Original width detection sensor check times   | —                         |                  |
| 17  | 3             | Number of times | —      | Original skew sensor check times  | —                         |                  |
| 18  | 3             | Number of times | —      | Original scan start sensor check times  | —                         |                  |
| 19  | 10            | Number of times | —      | Cover sensor check times  | —                         |                  |
| 20  | 3             | Number of times | —      | Paper output sensor check times   | —                         |                  |

## Monochrome and color scan accuracy parameters

| No. | Initial Value | Unit       | Range | Meaning  | Changes after Calibration | Note |
|-----|---------------|------------|-------|--|---------------------------|------|
| 21  | 2547          | pulse/inch | —     | Length (inch) and motor pulse level (pulse) conversion value | —                         |      |
| 22  | 0             | —          | —     | Reserved   | —                         |      |
| 23  | 0             | —          | —     | Reserved   | —                         |      |
| 24  | 0             | —          | —     | Reserved   | —                         |      |

## Monochrome and color scan motor parameters

| No. | Initial Value | Unit | Range | Meaning  | Changes after Calibration | Note |
|-----|---------------|------|-------|--|---------------------------|------|
| 25  | 5             | msec | —     | Time length of each of the 20 increments used when adjusting the pulse rate of a motor at constant speed | —                         |      |
| 26  | 10            | %    | —     | Proportion of the first acceleration increment for the pulse rate of a motor at constant speed           | —                         |      |
| 27  | 10            | %    | —     | Proportion of the second increment   | —                         |      |
| 28  | 15            | %    | —     | Proportion of the third increment  | —                         |      |
| 29  | 20            | %    | —     | Proportion of the fourth increment   | —                         |      |
| 30  | 25            | %    | —     | Proportion of the fifth increment  | —                         |      |
| 31  | 30            | %    | —     | Proportion of the sixth increment  | —                         |      |
| 32  | 35            | %    | —     | Proportion of the seventh increment  | —                         |      |
| 33  | 40            | %    | —     | Proportion of the eight increment  | —                         |      |
| 34  | 45            | %    | —     | Proportion of the ninth increment  | —                         |      |

| No. | Initial Value | Unit | Range | Meaning                          | Changes after Calibration | Note |
|-----|---------------|------|-------|----------------------------------|---------------------------|------|
| 35  | 50            | %    | —     | Proportion of the 10th increment | —                         |      |
| 36  | 55            | %    | —     | Proportion of the 11th increment | —                         |      |
| 37  | 60            | %    | —     | Proportion of the 12th increment | —                         |      |
| 38  | 65            | %    | —     | Proportion of the 13th increment | —                         |      |
| 39  | 70            | %    | —     | Proportion of the 14th increment | —                         |      |
| 40  | 75            | %    | —     | Proportion of the 15th increment | —                         |      |
| 41  | 80            | %    | —     | Proportion of the 16th increment | —                         |      |
| 42  | 85            | %    | —     | Proportion of the 17th increment | —                         |      |
| 43  | 90            | %    | —     | Proportion of the 18th increment | —                         |      |
| 44  | 95            | %    | —     | Proportion of the 19th increment | —                         |      |

#### Monochrome and color scan USB adjustment tool parameters

| No. | Initial Value | Unit | Range | Meaning   | Changes after Calibration | Note                                 |
|-----|---------------|------|-------|---|---------------------------|--------------------------------------|
| 45  | 2000          | msec | —     | Motor standby time when inserting an original       | —                         | For debugging in USB adjustment tool |
| 46  | 1000          | msec | —     | Waiting time before scan request for automatic scan | —                         | For debugging in USB adjustment tool |

#### Monochrome scan position control parameters

| No. | Initial Value | Unit | Range | Meaning  | Changes after Calibration | Note        |
|-----|---------------|------|-------|--|---------------------------|-------------|
| 47  | 374           | msec | —     | Time between registration sensor On and CIS(C) scan start (top edge alignment)<br>-> Estimated time for the original top edge to reach CIS(C) from the registration sensor | —                         | At 240 mm/s |
| 48  | 748           | msec | —     | Time between registration sensor On and CIS(C) scan start (top edge alignment)<br>-> Estimated time for the original top edge to reach CIS(C) from the registration sensor | —                         | At 120 mm/s |
| 49  | 1496          | msec | —     | Time between registration sensor On and CIS(C) scan start (top edge alignment)<br>-> Estimated time for the original top edge to reach CIS(C) from the registration sensor | —                         | At 60 mm/s  |
| 50  | 2244          | msec | —     | Time between registration sensor On and CIS(C) scan start (top edge alignment)<br>-> Estimated time for the original top edge to reach CIS(C) from the registration sensor | —                         | At 40 mm/s  |
| 51  | 2081          | line | —     | Number of scan lines after the original rear edge passed the registration sensor in synchro scan mode, with CIS(C) as a reference  | —                         | At 240 mm/s |
| 52  | 2081          | line | —     | Number of scan lines after the original rear edge passed the registration sensor in synchro scan mode, with CIS(C) as a reference  | —                         | At 120 mm/s |

| No. | Initial Value | Unit | Range | Meaning   | Changes after Calibration | Note       |
|-----|---------------|------|-------|---|---------------------------|------------|
| 53  | 2081          | line | —     | Number of scan lines after the original rear edge passed the registration sensor in synchro scan mode, with CIS(C) as a reference | —                         | At 60 mm/s |
| 54  | 2081          | line | —     | Number of scan lines after the original rear edge passed the registration sensor in synchro scan mode, with CIS(C) as a reference | —                         | At 40 mm/s |

#### Monochrome original scan start sensor parameters

| No. | Initial Value | Unit  | Range | Meaning  | Changes after Calibration | Note   |
|-----|---------------|-------|-------|--|---------------------------|--|
| 55  | 1705          | pulse | —     | The parameter involves the original in satndby nipped nipped in the registration roller. Motor pulse count from the scan start request until the top edge of the original reaches the registration sensor.   | —                         |  |
| 56  | 2547          | pulse | —     | Jam detection width<br>The parameter involves the original in satndby nipped nipped in the registration roller. The length of the top edge of the original varies depending on the original type or the original insertion timing. So the jam detection width should be widened. | —                         |  |
| 57  | 8832          | pulse | —     | Motor pulse count until the original rear edge reaches the registration sensor after a rewind request (with front output)  | —                         |  |
| 58  | 2547          | pulse | —     | Jam detection width  | —                         |  |
| 59  | 96            | pulse | —     | Maximum advance length setting (motor pulse count maximum value from original presence detection to absence detection)<br>The Printer stops when the value is exceeded.  | —                         | No.59 and No.60 are combined and used as one parameter<br>Parameter =<br>No.59 x16384 +<br>No.60 |
| 60  | 6476          | pulse | —     | Maximum advance length setting (maximum motor pulse count from original presence detection to absence detection)<br>The Printer stops when the value is exceeded.  | —                         | No.59 and No.60 are combined and used as one parameter<br>Parameter =<br>No.59 x16384 +<br>No.60 |
| 61  | 11873         | pulse | —     | After scan started, motor pulse count from the time the original top edge passes the registration sensor until it reaches the paper output sensor  | —                         |  |
| 62  | 2547          | pulse | —     | Jam detection width  | —                         |  |

## Monochrome scan motor control parameters

| No. | Initial Value | Unit | Range          | Meaning   | Changes after Calibration | Note        |
|-----|---------------|------|----------------|---|---------------------------|-------------|
| 63  | 8             | —    | —              | Switch motor step mode<br>Full step: 1<br>Half step: 2<br>Micro step (1/8): 8<br>Micro step (1/16): 16          | —                         | At 240 mm/s |
| 64  | 8             | —    | —              | Switch motor step mode<br>Full step: 1<br>Half step: 2<br>Micro step (1/8): 8<br>Micro step (1/16): 16          | —                         | At 120 mm/s |
| 65  | 8             | —    | —              | Switch motor step mode<br>Full step: 1<br>Half step: 2<br>Micro step (1/8): 8<br>Micro step (1/16): 16          | —                         | At 60 mm/s  |
| 66  | 8             | —    | —              | Switch motor step mode<br>Full step: 1<br>Half step: 2<br>Micro step (1/8): 8<br>Micro step (1/16): 16          | —                         | At 40 mm/s  |
| 67  | 24075         | pps  | 23075 to 25075 | Rotational speed when feeding the original forward at 240 mm/s  | Yes                       |             |
| 68  | 6019          | pps  | 5019 to 7019   | Rotational speed when feeding the original backward at 240 mm/s after scanning                                  | Yes                       |             |
| 69  | 12037         | pps  | 11037 to 13037 | Rotational speed when feeding the original forward at 120 mm/s  | Yes                       |             |
| 70  | 6019          | pps  | 5019 to 7019   | Rotational speed when feeding the original backward at 120 mm/s after scanning                                  | Yes                       |             |
| 71  | 6019          | pps  | 5019 to 7019   | Rotational speed when feeding the original forward at 60 mm/s   | Yes                       |             |
| 72  | 6019          | pps  | 5019 to 7019   | Rotational speed when feeding the original backward at 60 mm/s after scanning                                   | Yes                       |             |
| 73  | 4013          | pps  | 3013 to 5013   | Rotational speed when feeding the original forward at 40 mm/s   | Yes                       |             |
| 74  | 6019          | pps  | 5019 to 7019   | Rotational speed when feeding the original backward at 40 mm/s after scanning                                   | Yes                       |             |
| 75  | 3009          | pps  | —              | Rotational speed when feeding the original forward at 30 mm/s   | —                         |             |
| 76  | 6019          | pps  | —              | Rotational speed when feeding the original backward at 30 mm/s after scanning                                   | —                         |             |
| 77  | 100           | msec | —              | Excitation time before starting the send pulse motor (SM01)   | —                         |             |
| 78  | 100           | msec | —              | Excitation time before stopping the send pulse motor (SM01)   | —                         |             |
| 79  | 24075         | pps  | —              | Initial value for adjustment:<br>Rotational speed when feeding the original forward at 240 mm/s                 | —                         |             |
| 80  | 6019          | pps  | —              | Initial value for adjustment:<br>Rotational speed when feeding the original backward at 240 mm/s after scanning | —                         |             |
| 81  | 12037         | pps  | —              | Initial value for adjustment:<br>Rotational speed when feeding the original forward at 120 mm/s                 | —                         |             |



| No. | Initial Value | Unit  | Range | Meaning   | Changes after Calibration | Note |
|-----|---------------|-------|-------|---|---------------------------|------|
| 82  | 6019          | pps   | —     | Initial value for adjustment:<br>Rotational speed when feeding the original backward at 120 mm/s after scanning   | —                         |      |
| 83  | 6019          | pps   | —     | Initial value for adjustment:<br>Rotational speed when feeding the original forward at 60 mm/s  | —                         |      |
| 84  | 6019          | pps   | —     | Initial value for adjustment:<br>Rotational speed when feeding the original backward at 60 mm/s after scanning  | —                         |      |
| 85  | 4013          | pps   | —     | Initial value for adjustment:<br>Rotational speed when feeding the original forward at 40 mm/s  | —                         |      |
| 86  | 6019          | pps   | —     | Initial value for adjustment:<br>Rotational speed when feeding the original backward at 40 mm/s after scanning  | —                         |      |
| 87  | 3009          | pps   | —     | Initial value for adjustment:<br>Rotational speed when feeding the original forward at 30 mm/s  | —                         |      |
| 88  | 6019          | pps   | —     | Initial value for adjustment:<br>Rotational speed when feeding the original backward at 30 mm/s after scanning  | —                         |      |
| 89  | 100           | msec  | —     | Time from original insertion until the send pulse motor (SM01) starts decelerating<br>-> The length the registration roller draws the original (until original top edge is in the specified position)<br>* The speed when the original is inserted is fixed to 40 mm/s. | —                         |      |
| 90  | 200           | msec  | —     | Time from original extraction request (with front output) until the send pulse motor (SM01) starts decelerating   | —                         |      |
| 91  | 8832          | pulse | —     | Motor pulse count from the time the original rear edge passes the registration sensor until the send pulse motor (SM01) starts decelerating<br>-> Motor pulse count from the time the original rear edge passes the registration sensor until it reaches the CIS(C)     | —                         |      |
| 92  | 1404          | pulse | —     | With front output, motor pulse count from the time the original top edge passes the registration sensor until the original stops nipped in the registration roller  | —                         |      |
| 93  | 301           | pulse | —     | Motor pulse count from the time the last line scanning is finished until the send pulse motor (SM01) starts decelerating (scan end<br>-> deceleration)  | —                         |      |

| No. | Initial Value | Unit  | Range | Meaning   | Changes after Calibration | Note |
|-----|---------------|-------|-------|---|---------------------------|------|
| 94  | 19321         | pulse | —     | With rear output in specified length scanning mode, motor pulse count from the time the original rear edge passes the registration sensor until the send pulse motor (SM01) starts decelerating<br>-> Motor pulse count from the time the original rear edge passes the registration sensor until the running motor outputs the original from the rear<br>The parameter is effective When the original is longer than the specified scanning length | —                         |      |

## Monochrome scan busy control parameters

| No. | Initial Value | Unit  | Range | Meaning  | Changes after Calibration | Note        |
|-----|---------------|-------|-------|--|---------------------------|-------------|
| 95  | -160          | pulse | —     | [Effective when the original is nipped only in the registration roller]<br>Correction amount of delayed scan count during busy control           | —                         | At 240 mm/s |
| 96  | -160          | pulse | —     | [Effective when the original is nipped in both the registration and exit rollers]<br>Correction amount of delayed scan count during busy control | —                         | At 240 mm/s |
| 97  | -160          | pulse | —     | [Effective when the original is nipped only in the exit roller]<br>Correction amount of delayed scan count during busy control                   | —                         | At 240 mm/s |
| 98  | -160          | pulse | —     | [Effective when the original is nipped only in the registration roller]<br>Correction amount of delayed scan count during busy control           | —                         | At 120 mm/s |
| 99  | -160          | pulse | —     | [Effective when the original is nipped in both the registration and exit rollers]<br>Correction amount of delayed scan count during busy control | —                         | At 120 mm/s |
| 100 | -160          | pulse | —     | [Effective when the original is nipped only in the exit roller]<br>Correction amount of delayed scan count during busy control                   | —                         | At 120 mm/s |
| 101 | -160          | pulse | —     | [Effective when the original is nipped only in the registration roller]<br>Correction amount of delayed scan count during busy control           | —                         | At 60 mm/s  |
| 102 | -160          | pulse | —     | [Effective when the original is nipped in both the registration and exit rollers]<br>Correction amount of delayed scan count during busy control | —                         | At 60 mm/s  |
| 103 | -160          | pulse | —     | [Effective when the original is nipped only in the exit roller]<br>Correction amount of delayed scan count during busy control                   | —                         | At 60 mm/s  |

| No. | Initial Value | Unit  | Range | Meaning  | Changes after Calibration | Note       |
|-----|---------------|-------|-------|--|---------------------------|------------|
| 104 | -160          | pulse | —     | [Effective when the original is nipped only in the registration roller]<br>Correction amount of delayed scan count during busy control           | —                         | At 40 mm/s |
| 105 | -160          | pulse | —     | [Effective when the original is nipped in both the registration and exit rollers]<br>Correction amount of delayed scan count during busy control | —                         | At 40 mm/s |
| 106 | -160          | pulse | —     | [Effective when the original is nipped only in the exit roller]<br>Correction amount of delayed scan count during busy control                   | —                         | At 40 mm/s |

#### Color scan position control parameters

| No. | Initial Value | Unit | Range | Meaning  | Changes after Calibration | Note        |
|-----|---------------|------|-------|--|---------------------------|-------------|
| 107 | 374           | msec | —     | Time between registration sensor On and CIS(C) scan start (top edge alignment)<br>-> Estimated time for the original top edge to reach CIS(C) from the registration sensor | —                         | At 240 mm/s |
| 108 | 399           | msec | —     | Time between registration sensor On and CIS(C) scan start (top edge alignment)<br>-> Estimated time for the original top edge to reach CIS(C) from the registration sensor | —                         | At 225 mm/s |
| 109 | 598           | msec | —     | Time between registration sensor On and CIS(C) scan start (top edge alignment)<br>-> Estimated time for the original top edge to reach CIS(C) from the registration sensor | —                         | At 150 mm/s |
| 110 | 1496          | msec | —     | Time between registration sensor On and CIS(C) scan start (top edge alignment)<br>-> Estimated time for the original top edge to reach CIS(C) from the registration sensor | —                         | At 60 mm/s  |
| 111 | 2244          | msec | —     | Time between registration sensor On and CIS(C) scan start (top edge alignment)<br>-> Estimated time for the original top edge to reach CIS(C) from the registration sensor | —                         | At 40 mm/s  |
| 112 | 2081          | line | —     | Number of scan lines after the original rear edge passed the registration sensor in synchro scan mode, with CIS(C) as a reference  | —                         | At 240 mm/s |
| 113 | 2081          | line | —     | Number of scan lines after the original rear edge passed the registration sensor in synchro scan mode, with CIS(C) as a reference  | —                         | At 225 mm/s |
| 114 | 2081          | line | —     | Number of scan lines after the original rear edge passed the registration sensor in synchro scan mode, with CIS(C) as a reference  | —                         | At 150 mm/s |
| 115 | 2081          | line | —     | Number of scan lines after the original rear edge passed the registration sensor in synchro scan mode, with CIS(C) as a reference  | —                         | At 60 mm/s  |
| 116 | 2081          | line | —     | Number of scan lines after the original rear edge passed the registration sensor in synchro scan mode, with CIS(C) as a reference  | —                         | At 40 mm/s  |

## Color original scan start sensor parameters

| No. | Initial Value | Unit  | Range | Meaning  | Changes after Calibration | Note |
|-----|---------------|-------|-------|--|---------------------------|------|
| 117 | 1705          | pulse | —     | Motor pulse count value from the scan start request until the top edge of an original in standby nipped in the registration roller reaches the registration sensor   | —                         |      |
| 118 | 2547          | pulse | —     | Jam detection width<br>The length of the top edge of an original nipped in the registration roller varies depending on the original type or the time it is inserted, so the jam detection width is widened   | —                         |      |
| 119 | 8832          | pulse | —     | Motor pulse count value until the original rear edge reaches the registration sensor after a rewind request (with front output)  | —                         |      |
| 120 | 2547          | pulse | —     | Jam detection width  | —                         |      |
| 121 | 96            | pulse | —     | Maximum advance length setting (motor pulse count maximum value from original presence detection to absence detection)<br>The Printer stops when the value is exceeded<br>* No.121 and No.122 are combined and used as one parameter<br>Parameter = No.121 x16384 + No.122 | —                         |      |
| 122 | 6477          | pulse | —     | Maximum advance length setting (motor pulse count maximum value from original presence detection to absence detection)<br>The Printer stops when the value is exceeded<br>* No.121 and No.122 are combined and used as one parameter<br>Parameter = No.121 x16384 + No.122 | —                         |      |
| 123 | 11873         | pulse | —     | After scan started, motor pulse count value from the time the original top edge passes the registration sensor until it reaches the paper output sensor  | —                         |      |
| 124 | 2547          | pulse | —     | Jam detection width  | —                         |      |

## Color scan motor control parameters

| No. | Initial Value | Unit | Range | Meaning  | Changes after Calibration | Note        |
|-----|---------------|------|-------|--|---------------------------|-------------|
| 125 | 8             | —    | —     | Switch motor step mode<br>Full step: 1<br>Half step: 2<br>Micro step (1/8): 8<br>Micro step (1/16): 16 | —                         | At 240 mm/s |
| 126 | 8             | —    | —     | Switch motor step mode<br>Full step: 1<br>Half step: 2<br>Micro step (1/8): 8<br>Micro step (1/16): 16 | —                         | At 225 mm/s |
| 127 | 8             | —    | —     | Switch motor step mode<br>Full step: 1<br>Half step: 2<br>Micro step (1/8): 8<br>Micro step (1/16): 16 | —                         | At 150 mm/s |

| No. | Initial Value | Unit | Range          | Meaning  | Changes after Calibration | Note       |
|-----|---------------|------|----------------|--|---------------------------|------------|
| 128 | 8             | —    | —              | Switch motor step mode<br>Full step: 1<br>Half step: 2<br>Micro step (1/8): 8<br>Micro step (1/16): 16                 | —                         | At 60 mm/s |
| 129 | 8             | —    | —              | Switch motor step mode<br>Full step: 1<br>Half step: 2<br>Micro step (1/8): 8<br>Micro step (1/16): 16                 | —                         | At 40 mm/s |
| 130 | 24075         | pps  | 23075 to 25075 | Value that decides the rotational speed when feeding the original forward at 240 mm/s                                  | Yes                       |            |
| 131 | 6019          | pps  | 5019 to 7019   | Rotational speed when feeding the original backward at 240 mm/s after scanning   | Yes                       |            |
| 132 | 22570         | pps  | 21570 to 23570 | Value that decides the rotational speed when feeding the original forward at 225 mm/s                                  | Yes                       |            |
| 133 | 6019          | pps  | 5019 to 7019   | Rotational speed when feeding the original backward at 225 mm/s after scanning   | Yes                       |            |
| 134 | 15047         | pps  | 14047 to 16047 | Value that decides the rotational speed when feeding the original forward at 150 mm/s                                  | Yes                       |            |
| 135 | 6019          | pps  | 5019 to 7019   | Rotational speed when feeding the original backward at 150 mm/s after scanning   | Yes                       |            |
| 136 | 6019          | pps  | 5019 to 7019   | Value that decides the rotational speed when feeding the original forward at 60 mm/s                                   | Yes                       |            |
| 137 | 6019          | pps  | 5019 to 7019   | Rotational speed when feeding the original backward at 60 mm/s after scanning  | Yes                       |            |
| 138 | 4013          | pps  | 3013 to 5013   | Value that decides the rotational speed when feeding the original forward at 40 mm/s                                   | Yes                       |            |
| 139 | 6019          | pps  | 5019 to 7019   | Rotational speed when feeding the original backward at 40 mm/s after scanning  | Yes                       |            |
| 140 | 24075         | pps  | —              | Initial value for adjustment:<br>Value that decides the rotational speed when feeding the original forward at 240 mm/s | —                         |            |
| 141 | 6019          | pps  | —              | Initial value for adjustment:<br>Rotational speed when feeding the original backward at 240 mm/s after scanning        | —                         |            |
| 142 | 22570         | pps  | —              | Initial value for adjustment:<br>Value that decides the rotational speed when feeding the original forward at 225 mm/s | —                         |            |
| 143 | 6019          | pps  | —              | Initial value for adjustment:<br>Rotational speed when feeding the original backward at 225 mm/s after scanning        | —                         |            |
| 144 | 15047         | pps  | —              | Initial value for adjustment:<br>Value that decides the rotational speed when feeding the original forward at 150 mm/s | —                         |            |

| No. | Initial Value | Unit  | Range | Meaning  | Changes after Calibration | Note |
|-----|---------------|-------|-------|--|---------------------------|------|
| 145 | 6019          | pps   | —     | Initial value for adjustment:<br>Rotational speed when feeding the original backward at 150 mm/s after scanning  | —                         |      |
| 146 | 6019          | pps   | —     | Initial value for adjustment:<br>Value that decides the rotational speed when feeding the original forward at 60 mm/s  | —                         |      |
| 147 | 6019          | pps   | —     | Initial value for adjustment:<br>Rotational speed when feeding the original backward at 60 mm/s after scanning   | —                         |      |
| 148 | 4013          | pps   | —     | Initial value for adjustment:<br>Value that decides the rotational speed when feeding the original forward at 40 mm/s  | —                         |      |
| 149 | 6019          | pps   | —     | Initial value for adjustment:<br>Rotational speed when feeding the original backward at 40 mm/s after scanning   | —                         |      |
| 150 | 8832          | pulse | —     | Motor pulse count from the time the original rear edge passes the registration sensor until the send pulse motor (SM01) starts decelerating<br>-> Motor pulse count from the time the original rear edge passes the registration sensor until it reaches the CIS(C)  | —                         |      |
| 151 | 1404          | pulse | —     | With front output, motor pulse count from the time the original top edge passes the registration sensor until the original stops nipped in the registration roller   | —                         |      |
| 152 | 300           | pulse | —     | Motor pulse count from the time the last line scanning is finished until the send pulse motor (SM01) starts decelerating (scan end -> deceleration)  | —                         |      |
| 153 | 19321         | pulse | —     | With rear output in specified length scanning mode, motor pulse count from the time the original rear edge passes the registration sensor until the send pulse motor (SM01) starts decelerating<br>-> Motor pulse count value from the time the original rear edge passes the registration sensor until the running motor outputs the original from the rear<br>When the original is longer than the specified scanning length | —                         |      |

## Color scan busy control parameters

| No. | Initial Value | Unit  | Range | Meaning  | Changes after Calibration | Note        |
|-----|---------------|-------|-------|--|---------------------------|-------------|
| 154 | 31            | pulse | —     | [Effective when the original is nipped only in the registration roller]<br>Correction amount of delayed scan count during busy control           | —                         | At 240 mm/s |
| 155 | 31            | pulse | —     | [Effective when the original is nipped in both the registration and exit rollers]<br>Correction amount of delayed scan count during busy control | —                         | At 240 mm/s |
| 156 | 31            | pulse | —     | [Effective when the original is nipped only in the exit roller]<br>Correction amount of delayed scan count during busy control                   | —                         | At 240 mm/s |
| 157 | 32            | pulse | —     | [Effective when the original is nipped only in the registration roller]<br>Correction amount of delayed scan count during busy control           | —                         | At 225 mm/s |
| 158 | 32            | pulse | —     | [Effective when the original is nipped in both the registration and exit rollers]<br>Correction amount of delayed scan count during busy control | —                         | At 225 mm/s |
| 159 | 32            | pulse | —     | [Effective when the original is nipped only in the exit roller]<br>Correction amount of delayed scan count during busy control                   | —                         | At 225 mm/s |
| 160 | 33            | pulse | —     | [Effective when the original is nipped only in the registration roller]<br>Correction amount of delayed scan count during busy control           | —                         | At 150 mm/s |
| 161 | 33            | pulse | —     | [Effective when the original is nipped in both the registration and exit rollers]<br>Correction amount of delayed scan count during busy control | —                         | At 150 mm/s |
| 162 | 33            | pulse | —     | [Effective when the original is nipped only in the exit roller]<br>Correction amount of delayed scan count during busy control                   | —                         | At 150 mm/s |
| 163 | 34            | pulse | —     | [Effective when the original is nipped only in the registration roller]<br>Correction amount of delayed scan count during busy control           | —                         | At 60 mm/s  |
| 164 | 34            | pulse | —     | [Effective when the original is nipped in both the registration and exit rollers]<br>Correction amount of delayed scan count during busy control | —                         | At 60 mm/s  |
| 165 | 34            | pulse | —     | [Effective when the original is nipped only in the exit roller]<br>Correction amount of delayed scan count during busy control                   | —                         | At 60 mm/s  |
| 166 | 35            | pulse | —     | [Effective when the original is nipped only in the registration roller]<br>Correction amount of delayed scan count during busy control           | —                         | At 40 mm/s  |

| No. | Initial Value | Unit  | Range | Meaning  | Changes after Calibration | Note       |
|-----|---------------|-------|-------|--|---------------------------|------------|
| 167 | 35            | pulse | —     | [Effective when the original is nipped in both the registration and exit rollers]<br>Correction amount of delayed scan count during busy control | —                         | At 40 mm/s |
| 168 | 35            | pulse | —     | [Effective when the original is nipped only in the exit roller]<br>Correction amount of delayed scan count during busy control                   | —                         | At 40 mm/s |

## CIS adjustment parameters

| No. | Initial Value | Unit | Range | Meaning   | Changes after Calibration | Note |
|-----|---------------|------|-------|---|---------------------------|------|
| 169 | 0             | —    | —     | CIS(A) end dot fine adjustment value (Horizontal direction)       | —                         |      |
| 170 | 0             | —    | —     | CIS(B) end dot fine adjustment value (Horizontal direction)       | —                         |      |
| 171 | 0             | —    | —     | CIS(C) end dot fine adjustment value (Horizontal direction)       | —                         |      |
| 172 | 0             | —    | —     | CIS(D) end dot fine adjustment value (Horizontal direction)       | —                         |      |
| 173 | 0             | —    | —     | Fine adjustment value between CIS(A) and (B) (Vertical direction) | —                         |      |
| 174 | 0             | —    | —     | Fine adjustment value between CIS(B) and (C) (Vertical direction) | —                         |      |
| 175 | 0             | —    | —     | Fine adjustment value between CIS(C) and (D) (Vertical direction) | —                         |      |
| 176 | 0             | —    | —     | Fine adjustment value between CIS(D) and (E) (Vertical direction) | —                         |      |

## Monochrome and color scanner connection parameter initial values

| No. | Initial Value | Unit | Range | Meaning  | Changes after Calibration | Note             |
|-----|---------------|------|-------|--|---------------------------|------------------|
| 177 | 0             | line | —     | Initial value for adjustment:<br>Misalignment amount between reference C and A (number of lines) | —                         |                  |
| 178 | 1200          | line | —     | Initial value for adjustment:<br>Misalignment amount between reference C and B (number of lines) | —                         |                  |
| 179 | 1200          | line | —     | Initial value for adjustment:<br>Misalignment amount between reference C and D (number of lines) | —                         |                  |
| 180 | 0             | line | —     | Initial value for adjustment:<br>Misalignment amount between reference C and E (number of lines) | —                         |                  |
| 181 | 0             | dot  | —     | Initial value for adjustment:<br>CIS(A) main scanning direction first dot position               | —                         | For 600 dpi mode |
| 182 | 5104          | dot  | —     | Initial value for adjustment:<br>CIS(B) main scanning direction first dot position               | —                         | For 600 dpi mode |



| No. | Initial Value | Unit | Range | Meaning  | Changes after Calibration | Note             |
|-----|---------------|------|-------|--|---------------------------|------------------|
| 183 | 10208         | dot  | —     | Initial value for adjustment:<br>CIS(C) main scanning direction first dot position | —                         | For 600 dpi mode |
| 184 | 15312         | dot  | —     | Initial value for adjustment:<br>CIS(D) main scanning direction first dot position | —                         | For 600 dpi mode |
| 185 | 20416         | dot  | —     | Initial value for adjustment:<br>CIS(E) main scanning direction first dot position | —                         | For 600 dpi mode |
| 186 | 5104          | dot  | —     | Initial value for adjustment:<br>CIS(A) main scanning direction end dot position   | —                         | For 600 dpi mode |
| 187 | 10208         | dot  | —     | Initial value for adjustment:<br>CIS(B) main scanning direction end dot position   | —                         | For 600 dpi mode |
| 188 | 15312         | dot  | —     | Initial value for adjustment:<br>CIS(C) main scanning direction end dot position   | —                         | For 600 dpi mode |
| 189 | 20416         | dot  | —     | Initial value for adjustment:<br>CIS(D) main scanning direction end dot position   | —                         | For 600 dpi mode |
| 190 | 25520         | dot  | —     | Initial value for adjustment:<br>CIS(E) main scanning direction end dot position   | —                         | For 600 dpi mode |
| 191 | 0             | dot  | —     | Initial value for adjustment:<br>CIS(A) main scanning direction first dot position | —                         | For 300 dpi mode |
| 192 | 2552          | dot  | —     | Initial value for adjustment:<br>CIS(B) main scanning direction first dot position | —                         | For 300 dpi mode |
| 193 | 5104          | dot  | —     | Initial value for adjustment:<br>CIS(C) main scanning direction first dot position | —                         | For 300 dpi mode |
| 194 | 7656          | dot  | —     | Initial value for adjustment:<br>CIS(D) main scanning direction first dot position | —                         | For 300 dpi mode |
| 195 | 10208         | dot  | —     | Initial value for adjustment:<br>CIS(E) main scanning direction first dot position | —                         | For 300 dpi mode |
| 196 | 2552          | dot  | —     | Initial value for adjustment:<br>CIS(A) main scanning direction end dot position   | —                         | For 300 dpi mode |
| 197 | 5104          | dot  | —     | Initial value for adjustment:<br>CIS(B) main scanning direction end dot position   | —                         | For 300 dpi mode |
| 198 | 7656          | dot  | —     | Initial value for adjustment:<br>CIS(C) main scanning direction end dot position   | —                         | For 300 dpi mode |
| 199 | 10208         | dot  | —     | Initial value for adjustment:<br>CIS(D) main scanning direction end dot position   | —                         | For 300 dpi mode |
| 200 | 12760         | dot  | —     | Initial value for adjustment:<br>CIS(E) main scanning direction end dot position   | —                         | For 300 dpi mode |

## Monochrome CIS connection parameters

| No. | Initial Value | Unit | Range         | Meaning   | Changes after Calibration | Note        |
|-----|---------------|------|---------------|---|---------------------------|-------------|
| 201 | 7             | step | 0 to 15       | CIS(A) fine adjustment distance with CIS(C) as reference        | —                         | At 240 mm/s |
| 202 | 7             | step | 0 to 15       | CIS(B) fine adjustment distance with CIS(C) as reference        | —                         | At 240 mm/s |
| 203 | 7             | step | 0 to 15       | CIS(D) fine adjustment distance with CIS(C) as reference        | —                         | At 240 mm/s |
| 204 | 7             | step | 0 to 15       | CIS(E) fine adjustment distance with CIS(C) as reference        | —                         | At 240 mm/s |
| 205 | 7             | step | 0 to 15       | CIS(A) fine adjustment distance with CIS(C) as reference        | —                         | At 120 mm/s |
| 206 | 7             | step | 0 to 15       | CIS(B) fine adjustment distance with CIS(C) as reference        | —                         | At 120 mm/s |
| 207 | 7             | step | 0 to 15       | CIS(D) fine adjustment distance with CIS(C) as reference        | —                         | At 120 mm/s |
| 208 | 7             | step | 0 to 15       | CIS(E) fine adjustment distance with CIS(C) as reference        | —                         | At 120 mm/s |
| 209 | 7             | step | 0 to 15       | CIS(A) fine adjustment distance with CIS(C) as reference        | —                         | At 60 mm/s  |
| 210 | 7             | step | 0 to 15       | CIS(B) fine adjustment distance with CIS(C) as reference        | —                         | At 60 mm/s  |
| 211 | 7             | step | 0 to 15       | CIS(D) fine adjustment distance with CIS(C) as reference        | —                         | At 60 mm/s  |
| 212 | 7             | step | 0 to 15       | CIS(E) fine adjustment distance with CIS(C) as reference        | —                         | At 60 mm/s  |
| 213 | 7             | step | 0 to 15       | CIS(A) fine adjustment distance with CIS(C) as reference        | —                         | At 40 mm/s  |
| 214 | 7             | step | 0 to 15       | CIS(B) fine adjustment distance with CIS(C) as reference        | —                         | At 40 mm/s  |
| 215 | 7             | step | 0 to 15       | CIS(D) fine adjustment distance with CIS(C) as reference        | —                         | At 40 mm/s  |
| 216 | 7             | step | 0 to 15       | CIS(E) fine adjustment distance with CIS(C) as reference        | —                         | At 40 mm/s  |
| 217 | 0             | line | -32 to 32     | Misalignment amount between reference C and A (number of lines) | Yes                       | At 240 mm/s |
| 218 | 1200          | line | -1168 to 1232 | Misalignment amount between reference C and B (number of lines) | Yes                       | At 240 mm/s |
| 219 | 1200          | line | -1168 to 1232 | Misalignment amount between reference C and D (number of lines) | Yes                       | At 240 mm/s |
| 220 | 0             | line | -32 to 32     | Misalignment amount between reference C and E (number of lines) | Yes                       | At 240 mm/s |
| 221 | 0             | line | -32 to 32     | Misalignment amount between reference C and A (number of lines) | Yes                       | At 120 mm/s |
| 222 | 1200          | line | -1168 to 1232 | Misalignment amount between reference C and B (number of lines) | Yes                       | At 120 mm/s |
| 223 | 1200          | line | -1168 to 1232 | Misalignment amount between reference C and D (number of lines) | Yes                       | At 120 mm/s |
| 224 | 0             | line | -32 to 32     | Misalignment amount between reference C and E (number of lines) | Yes                       | At 120 mm/s |
| 225 | 0             | line | -32 to 32     | Misalignment amount between reference C and A (number of lines) | Yes                       | At 60 mm/s  |
| 226 | 1200          | line | -1168 to 1232 | Misalignment amount between reference C and B (number of lines) | Yes                       | At 60 mm/s  |

| No. | Initial Value | Unit | Range          | Meaning   | Changes after Calibration | Note             |
|-----|---------------|------|----------------|---|---------------------------|------------------|
| 227 | 1200          | line | -1168 to 1232  | Misalignment amount between reference C and D (number of lines) | Yes                       | At 60 mm/s       |
| 228 | 0             | line | -32 to 32      | Misalignment amount between reference C and E (number of lines) | Yes                       | At 60 mm/s       |
| 229 | 0             | line | -32 to 32      | Misalignment amount between reference C and A (number of lines) | Yes                       | At 40 mm/s       |
| 230 | 1200          | line | -1168 to 1232  | Misalignment amount between reference C and B (number of lines) | Yes                       | At 40 mm/s       |
| 231 | 1200          | line | -1168 to 1232  | Misalignment amount between reference C and D (number of lines) | Yes                       | At 40 mm/s       |
| 232 | 0             | line | -32 to 32      | Misalignment amount between reference C and E (number of lines) | Yes                       | At 40 mm/s       |
| 233 | 0             | dot  | 0 to 5104      | CIS(A) main scanning direction first dot position               | —                         | For 600 dpi mode |
| 234 | 5104          | dot  | 5104 to 10208  | CIS(B) main scanning direction first dot position               | Yes                       | For 600 dpi mode |
| 235 | 10208         | dot  | 10208 to 15312 | CIS(C) main scanning direction first dot position               | Yes                       | For 600 dpi mode |
| 236 | 15312         | dot  | 15312 to 20416 | CIS(D) main scanning direction first dot position               | Yes                       | For 600 dpi mode |
| 237 | 20416         | dot  | 20416 to 22520 | CIS(E) main scanning direction first dot position               | Yes                       | For 600 dpi mode |
| 238 | 5104          | dot  | 0 to 5104      | CIS(A) main scanning direction end dot position                 | Yes                       | For 600 dpi mode |
| 239 | 10208         | dot  | 5104 to 10208  | CIS(B) main scanning direction end dot position                 | Yes                       | For 600 dpi mode |
| 240 | 15312         | dot  | 10208 to 15312 | CIS(C) main scanning direction end dot position                 | Yes                       | For 600 dpi mode |
| 241 | 20416         | dot  | 15312 to 20416 | CIS(D) main scanning direction end dot position                 | Yes                       | For 600 dpi mode |
| 242 | 25520         | dot  | 20416 to 22520 | CIS(E) main scanning direction end dot position                 | —                         | For 600 dpi mode |
| 243 | 0             | dot  | 0 to 2552      | CIS(A) main scanning direction first dot position               | —                         | For 300 dpi mode |
| 244 | 2552          | dot  | 2552 to 5104   | CIS(B) main scanning direction first dot position               | Yes                       | For 300 dpi mode |
| 245 | 5104          | dot  | 5104 to 7658   | CIS(C) main scanning direction first dot position               | Yes                       | For 300 dpi mode |
| 246 | 7656          | dot  | 7658 to 10208  | CIS(D) main scanning direction first dot position               | Yes                       | For 300 dpi mode |
| 247 | 10208         | dot  | 10208 to 12760 | CIS(E) main scanning direction first dot position               | Yes                       | For 300 dpi mode |
| 248 | 2552          | dot  | 0 to 2552      | CIS(A) main scanning direction end dot position                 | Yes                       | For 300 dpi mode |
| 249 | 5104          | dot  | 2552 to 5104   | CIS(B) main scanning direction end dot position                 | Yes                       | For 300 dpi mode |
| 250 | 7656          | dot  | 5104 to 7658   | CIS(C) main scanning direction end dot position                 | Yes                       | For 300 dpi mode |
| 251 | 10208         | dot  | 7658 to 10208  | CIS(D) main scanning direction end dot position                 | Yes                       | For 300 dpi mode |
| 252 | 12760         | dot  | 10208 to 12760 | CIS(E) main scanning direction end dot position                 | —                         | For 300 dpi mode |

## Monochrome scan shading offset parameters

| No. | Initial Value | Unit | Range        | Meaning                     | Changes after Calibration | Note |
|-----|---------------|------|--------------|-----------------------------|---------------------------|------|
| 253 | 4096          | —    | 3096 to 5096 | CIS(A) shading offset value | Yes                       |      |
| 254 | 4096          | —    | 3096 to 5096 | CIS(B) shading offset value | Yes                       |      |
| 255 | 4096          | —    | 3096 to 5096 | CIS(C) shading offset value | Yes                       |      |
| 256 | 4096          | —    | 3096 to 5096 | CIS(D) shading offset value | Yes                       |      |
| 257 | 4096          | —    | 3096 to 5096 | CIS(E) shading offset value | Yes                       |      |

## Color scan CIS connection parameters

| No. | Initial Value | Unit | Range   | Meaning  | Changes after Calibration | Note        |
|-----|---------------|------|---------|--|---------------------------|-------------|
| 258 | 7             | step | 0 to 15 | CIS(A) fine adjustment distance with CIS(C) as reference | —                         | At 240 mm/s |
| 259 | 7             | step | 0 to 15 | CIS(B) fine adjustment distance with CIS(C) as reference | —                         | At 240 mm/s |
| 260 | 7             | step | 0 to 15 | CIS(D) fine adjustment distance with CIS(C) as reference | —                         | At 240 mm/s |
| 261 | 7             | step | 0 to 15 | CIS(E) fine adjustment distance with CIS(C) as reference | —                         | At 240 mm/s |
| 262 | 7             | step | 0 to 15 | CIS(A) fine adjustment distance with CIS(C) as reference | —                         | At 225 mm/s |
| 263 | 7             | step | 0 to 15 | CIS(B) fine adjustment distance with CIS(C) as reference | —                         | At 225 mm/s |
| 264 | 7             | step | 0 to 15 | CIS(D) fine adjustment distance with CIS(C) as reference | —                         | At 225 mm/s |
| 265 | 7             | step | 0 to 15 | CIS(E) fine adjustment distance with CIS(C) as reference | —                         | At 225 mm/s |
| 266 | 7             | step | 0 to 15 | CIS(A) fine adjustment distance with CIS(C) as reference | —                         | At 150 mm/s |
| 267 | 7             | step | 0 to 15 | CIS(B) fine adjustment distance with CIS(C) as reference | —                         | At 150 mm/s |
| 268 | 7             | step | 0 to 15 | CIS(D) fine adjustment distance with CIS(C) as reference | —                         | At 150 mm/s |
| 269 | 7             | step | 0 to 15 | CIS(E) fine adjustment distance with CIS(C) as reference | —                         | At 150 mm/s |
| 270 | 7             | step | 0 to 15 | CIS(A) fine adjustment distance with CIS(C) as reference | —                         | At 60 mm/s  |
| 271 | 7             | step | 0 to 15 | CIS(B) fine adjustment distance with CIS(C) as reference | —                         | At 60 mm/s  |
| 272 | 7             | step | 0 to 15 | CIS(D) fine adjustment distance with CIS(C) as reference | —                         | At 60 mm/s  |
| 273 | 7             | step | 0 to 15 | CIS(E) fine adjustment distance with CIS(C) as reference | —                         | At 60 mm/s  |
| 274 | 7             | step | 0 to 15 | CIS(A) fine adjustment distance with CIS(C) as reference | —                         | At 40 mm/s  |
| 275 | 7             | step | 0 to 15 | CIS(B) fine adjustment distance with CIS(C) as reference | —                         | At 40 mm/s  |

| No. | Initial Value | Unit | Range         | Meaning   | Changes after Calibration | Note        |
|-----|---------------|------|---------------|---|---------------------------|-------------|
| 276 | 7             | step | 0 to 15       | CIS(D) fine adjustment distance with CIS(C) as reference        | —                         | At 40 mm/s  |
| 277 | 7             | step | 0 to 15       | CIS(E) fine adjustment distance with CIS(C) as reference        | —                         | At 40 mm/s  |
| 278 | 1             | —    | 0 to 2        | Fine adjustment parameter when CIS(A) 3TR is exceeded           | —                         | At 240 mm/s |
| 279 | 1             | —    | 0 to 2        | Fine adjustment parameter when CIS(B) 3TR is exceeded           | —                         | At 240 mm/s |
| 280 | 1             | —    | 0 to 2        | Fine adjustment parameter when CIS(D) 3TR is exceeded           | —                         | At 240 mm/s |
| 281 | 1             | —    | 0 to 2        | Fine adjustment parameter when CIS(E) 3TR is exceeded           | —                         | At 240 mm/s |
| 282 | 1             | —    | 0 to 2        | Fine adjustment parameter when CIS(A) 3TR is exceeded           | —                         | At 225 mm/s |
| 283 | 1             | —    | 0 to 2        | Fine adjustment parameter when CIS(B) 3TR is exceeded           | —                         | At 225 mm/s |
| 284 | 1             | —    | 0 to 2        | Fine adjustment parameter when CIS(D) 3TR is exceeded           | —                         | At 225 mm/s |
| 285 | 1             | —    | 0 to 2        | Fine adjustment parameter when CIS(E) 3TR is exceeded           | —                         | At 225 mm/s |
| 286 | 1             | —    | 0 to 2        | Fine adjustment parameter when CIS(A) 3TR is exceeded           | —                         | At 150 mm/s |
| 287 | 1             | —    | 0 to 2        | Fine adjustment parameter when CIS(B) 3TR is exceeded           | —                         | At 150 mm/s |
| 288 | 1             | —    | 0 to 2        | Fine adjustment parameter when CIS(D) 3TR is exceeded           | —                         | At 150 mm/s |
| 289 | 1             | —    | 0 to 2        | Fine adjustment parameter when CIS(E) 3TR is exceeded           | —                         | At 150 mm/s |
| 290 | 1             | —    | 0 to 2        | Fine adjustment parameter when CIS(A) 3TR is exceeded           | —                         | At 60 mm/s  |
| 291 | 1             | —    | 0 to 2        | Fine adjustment parameter when CIS(B) 3TR is exceeded           | —                         | At 60 mm/s  |
| 292 | 1             | —    | 0 to 2        | Fine adjustment parameter when CIS(D) 3TR is exceeded           | —                         | At 60 mm/s  |
| 293 | 1             | —    | 0 to 2        | Fine adjustment parameter when CIS(E) 3TR is exceeded           | —                         | At 60 mm/s  |
| 294 | 1             | —    | 0 to 2        | Fine adjustment parameter when CIS(A) 3TR is exceeded           | —                         | At 40 mm/s  |
| 295 | 1             | —    | 0 to 2        | Fine adjustment parameter when CIS(B) 3TR is exceeded           | —                         | At 40 mm/s  |
| 296 | 1             | —    | 0 to 2        | Fine adjustment parameter when CIS(D) 3TR is exceeded           | —                         | At 40 mm/s  |
| 297 | 1             | —    | 0 to 2        | Fine adjustment parameter when CIS(E) 3TR is exceeded           | —                         | At 40 mm/s  |
| 298 | 0             | line | -32 to 32     | Misalignment amount between reference C and A (number of lines) | Yes                       | At 240 mm/s |
| 299 | 1200          | line | -1168 to 1232 | Misalignment amount between reference C and B (number of lines) | Yes                       | At 240 mm/s |
| 300 | 1200          | line | -1168 to 1232 | Misalignment amount between reference C and D (number of lines) | Yes                       | At 240 mm/s |
| 301 | 0             | line | -32 to 32     | Misalignment amount between reference C and E (number of lines) | Yes                       | At 240 mm/s |
| 302 | 0             | line | -32 to 32     | Misalignment amount between reference C and A (number of lines) | Yes                       | At 225 mm/s |

| No. | Initial Value | Unit | Range         | Meaning   | Changes after Calibration | Note        |
|-----|---------------|------|---------------|---|---------------------------|-------------|
| 303 | 1200          | line | -1168 to 1232 | Misalignment amount between reference C and B (number of lines) | Yes                       | At 225 mm/s |
| 304 | 1200          | line | -1168 to 1232 | Misalignment amount between reference C and D (number of lines) | Yes                       | At 225 mm/s |
| 305 | 0             | line | -32 to 32     | Misalignment amount between reference C and E (number of lines) | Yes                       | At 225 mm/s |
| 306 | 0             | line | -32 to 32     | Misalignment amount between reference C and A (number of lines) | Yes                       | At 150 mm/s |
| 307 | 1200          | line | -1168 to 1232 | Misalignment amount between reference C and B (number of lines) | Yes                       | At 150 mm/s |
| 308 | 1200          | line | -1168 to 1232 | Misalignment amount between reference C and D (number of lines) | Yes                       | At 150 mm/s |
| 309 | 0             | line | -32 to 32     | Misalignment amount between reference C and E (number of lines) | Yes                       | At 150 mm/s |
| 310 | 0             | line | -32 to 32     | Misalignment amount between reference C and A (number of lines) | Yes                       | At 60 mm/s  |
| 311 | 1200          | line | -1168 to 1232 | Misalignment amount between reference C and B (number of lines) | Yes                       | At 60 mm/s  |
| 312 | 1200          | line | -1168 to 1232 | Misalignment amount between reference C and D (number of lines) | Yes                       | At 60 mm/s  |
| 313 | 0             | line | -32 to 32     | Misalignment amount between reference C and E (number of lines) | Yes                       | At 60 mm/s  |
| 314 | 0             | line | -32 to 32     | Misalignment amount between reference C and A (number of lines) | Yes                       | At 40 mm/s  |
| 315 | 1200          | line | -1168 to 1232 | Misalignment amount between reference C and B (number of lines) | Yes                       | At 40 mm/s  |
| 316 | 1200          | line | -1168 to 1232 | Misalignment amount between reference C and D (number of lines) | Yes                       | At 40 mm/s  |
| 317 | 0             | line | -32 to 32     | Misalignment amount between reference C and E (number of lines) | Yes                       | At 40 mm/s  |

## Color scan shading offset parameters

| No. | Initial Value | Unit | Range        | Meaning                        | Changes after Calibration | Note |
|-----|---------------|------|--------------|--------------------------------|---------------------------|------|
| 318 | 4096          | —    | 3096 to 5096 | CIS(A) shading offset value: R | Yes                       |      |
| 319 | 4096          | —    | 3096 to 5096 | CIS(B) shading offset value: R | Yes                       |      |
| 320 | 4096          | —    | 3096 to 5096 | CIS(C) shading offset value: R | Yes                       |      |
| 321 | 4096          | —    | 3096 to 5096 | CIS(D) shading offset value: R | Yes                       |      |
| 322 | 4096          | —    | 3096 to 5096 | CIS(E) shading offset value: R | Yes                       |      |
| 323 | 4096          | —    | 3096 to 5096 | CIS(A) shading offset value: G | Yes                       |      |
| 324 | 4096          | —    | 3096 to 5096 | CIS(B) shading offset value: G | Yes                       |      |
| 325 | 4096          | —    | 3096 to 5096 | CIS(C) shading offset value: G | Yes                       |      |
| 326 | 4096          | —    | 3096 to 5096 | CIS(D) shading offset value: G | Yes                       |      |

| No. | Initial Value | Unit | Range        | Meaning                        | Changes after Calibration | Note |
|-----|---------------|------|--------------|--------------------------------|---------------------------|------|
| 327 | 4096          | —    | 3096 to 5096 | CIS(E) shading offset value: G | Yes                       |      |
| 328 | 4096          | —    | 3096 to 5096 | CIS(A) shading offset value: B | Yes                       |      |
| 329 | 4096          | —    | 3096 to 5096 | CIS(B) shading offset value: B | Yes                       |      |
| 330 | 4096          | —    | 3096 to 5096 | CIS(C) shading offset value: B | Yes                       |      |
| 331 | 4096          | —    | 3096 to 5096 | CIS(D) shading offset value: B | Yes                       |      |
| 332 | 4096          | —    | 3096 to 5096 | CIS(E) shading offset value: B | Yes                       |      |

### Prescan parameters

| No. | Initial Value | Unit | Range    | Meaning   | Changes after Calibration | Note  |
|-----|---------------|------|----------|---|---------------------------|---|
| 333 | 255           | —    | 0 to 255 | Shading plate luminance upper limit                               | —                         | For automatic paper width detection                                       |
| 334 | 70            | —    | 0 to 255 | Shading plate luminance lower limit                               | —                         | For automatic paper width detection                                       |
| 335 | 50            | —    | 0 to 255 | Subscanning direction average calculation effective lower limit   | —                         | For automatic background compensation                                     |
| 336 | 50            | —    | 0 to 255 | Main scanning direction average calculation effective lower limit | —                         | For automatic background compensation                                     |
| 337 | 0             | line | —        | Scan start subscanning direction offset                           | —                         | For automatic background compensation                                     |
| 338 | 100           | line | 1 to 255 | Scan line number  | —                         | For automatic background compensation                                     |
| 339 | 120           | line | 1 to 255 | Scan line number  | —                         | For automatic paper width detection                                       |
| 340 | 0             | —    | 0 to 1   | LED lighting during shading                                       | —                         | For automatic paper width detection and automatic background compensation |

### Original density automatic scan function parameters

| No. | Initial Value | Unit | Range | Meaning   | Changes after Calibration | Note |
|-----|---------------|------|-------|---|---------------------------|------|
| 341 | 736           | line | —     | Number of buffer lines in FSC after original passes the registration sensor during synchro cut scanning       | —                         |      |
| 342 | 39            | line | —     | Number of buffer lines in FSC after original passes the registration sensor during color synchro cut scanning | —                         |      |

Spare parameters

| No. | Initial Value | Unit | Range | Meaning                           | Changes after Calibration | Note |
|-----|---------------|------|-------|-----------------------------------|---------------------------|------|
| 343 | 0             | —    | —     | Reserve                           | —                         |      |
| 344 | 0             | —    | —     | Reserve                           | —                         |      |
| 345 | 0             | —    | —     | Reserve                           | —                         |      |
| 346 | 0             | —    | —     | Reserve                           | —                         |      |
| 347 | 0             | —    | —     | Reserve                           | —                         |      |
| 348 | 0             | —    | —     | Reserve                           | —                         |      |
| 349 | 0             | —    | —     | Reserve                           | —                         |      |
| 350 | 0             | —    | —     | Reserve                           | —                         |      |
| 351 | 0             | —    | —     | Reserve                           | —                         |      |
| 352 | 0             | —    | —     | Reserve                           | —                         |      |
| 353 | 0             | —    | —     | Reserve                           | —                         |      |
| 354 | 0             | —    | —     | Reserve                           | —                         |      |
| 355 | 0             | —    | —     | Reserve                           | —                         |      |
| 356 | 0             | —    | —     | Reserve                           | —                         |      |
| 357 | 0             | —    | —     | Reserve                           | —                         |      |
| 358 | 0             | —    | —     | Reserve                           | —                         |      |
| 359 | 0             | —    | —     | Reserve                           | —                         |      |
| 360 | 0             | —    | —     | Reserve                           | —                         |      |
| 361 | 0             | —    | —     | Reserve                           | —                         |      |
| 362 | 0             | —    | —     | For A0 and A1 scanner recognition | —                         |      |



### 11.1.12.2 AIC Parameter Lists

#### Serial number

| No. | Initial Value | Unit | Range | Meaning   | Changes after Calibration | Note   |
|-----|---------------|------|-------|---|---------------------------|--|
| 0   | 0             | —    | —     | Input and display the serial number of the CIS unit |                           | Serial numbers are adjusted during the process |

#### Monochrome scanner LED light intensity calibration parameters

| No. | Initial Value | Unit         | Range | Meaning  | Changes after Calibration | Note |
|-----|---------------|--------------|-------|--|---------------------------|------|
| 1   | 500           | × 172.4 nsec | —     | Initial value for adjustment:<br>CIS(A to E) front LED<br>Lighting time (T_LED): R   | —                         |      |
| 2   | 500           | × 172.4 nsec | —     | Initial value for adjustment:<br>CIS(A to E) rear LED<br>Lighting time (T_LED): R    | —                         |      |
| 3   | 500           | × 172.4 nsec | —     | Initial value for adjustment:<br>CIS(A to E) front LED I<br>Lighting time (T_LED): G | —                         |      |
| 4   | 500           | × 172.4 nsec | —     | Initial value for adjustment:<br>CIS(A to E) rear LED<br>Lighting time (T_LED): G    | —                         |      |
| 5   | 500           | × 172.4 nsec | —     | Initial value for adjustment:<br>CIS(A to E) front LED<br>Lighting time (T_LED): B   | —                         |      |
| 6   | 500           | × 172.4 nsec | —     | Initial value for adjustment:<br>CIS(A to E) rear LED<br>Lighting time (T_LED): B    | —                         |      |
| 7   | 64            | —            | —     | CIS LED forward current: R   | —                         |      |
| 8   | 64            | —            | —     | CIS LED forward current: G   | —                         |      |
| 9   | 64            | —            | —     | CIS LED forward current: B   | —                         |      |
| 10  | 72            | × 172.4 nsec | —     | Time until CIS LED lights up<br>(TS_LED)   | —                         |      |
| 11  | 600           | × 172.4 nsec | —     | CIS(A) front LED lighting time<br>(T_LED): R   | Yes                       |      |
| 12  | 600           | × 172.4 nsec | —     | CIS(A) rear LED lighting time<br>(T_LED): R  | Yes                       |      |
| 13  | 300           | × 172.4 nsec | —     | CIS(A) front LED lighting time<br>(T_LED): G   | Yes                       |      |
| 14  | 300           | × 172.4 nsec | —     | CIS(A) rear LED lighting time<br>(T_LED): G  | Yes                       |      |
| 15  | 200           | × 172.4 nsec | —     | CIS(A) front LED lighting time<br>(T_LED): B   | Yes                       |      |
| 16  | 200           | × 172.4 nsec | —     | CIS(A) rear LED lighting time<br>(T_LED): B  | Yes                       |      |
| 17  | 600           | × 172.4 nsec | —     | CIS(B) front LED lighting time<br>(T_LED): R   | Yes                       |      |
| 18  | 600           | × 172.4 nsec | —     | CIS(B) rear LED lighting time<br>(T_LED): R  | Yes                       |      |
| 19  | 300           | × 172.4 nsec | —     | CIS(B) front LED lighting time<br>(T_LED): G   | Yes                       |      |

| No. | Initial Value | Unit         | Range | Meaning                                   | Changes after Calibration | Note |
|-----|---------------|--------------|-------|---|---------------------------|------|
| 20  | 300           | × 172.4 nsec | —     | CIS(B) rear LED lighting time (T_LED): G  | Yes                       |      |
| 21  | 200           | × 172.4 nsec | —     | CIS(B) front LED lighting time (T_LED): B | Yes                       |      |
| 22  | 200           | × 172.4 nsec | —     | CIS(B) rear LED lighting time (T_LED): B  | Yes                       |      |
| 23  | 600           | × 172.4 nsec | —     | CIS(C) front LED lighting time (T_LED): R | Yes                       |      |
| 24  | 600           | × 172.4 nsec | —     | CIS(C) rear LED lighting time (T_LED): R  | Yes                       |      |
| 25  | 300           | × 172.4 nsec | —     | CIS(C) front LED lighting time (T_LED): G | Yes                       |      |
| 26  | 300           | × 172.4 nsec | —     | CIS(C) rear LED lighting time (T_LED): G  | Yes                       |      |
| 27  | 200           | × 172.4 nsec | —     | CIS(C) front LED lighting time (T_LED): B | Yes                       |      |
| 28  | 200           | × 172.4 nsec | —     | CIS(C) rear LED lighting time (T_LED): B  | Yes                       |      |
| 29  | 600           | × 172.4 nsec | —     | CIS(D) front LED lighting time (T_LED): R | Yes                       |      |
| 30  | 600           | × 172.4 nsec | —     | CIS(D) rear LED lighting time (T_LED): R  | Yes                       |      |
| 31  | 300           | × 172.4 nsec | —     | CIS(D) front LED lighting time (T_LED): G | Yes                       |      |
| 32  | 300           | × 172.4 nsec | —     | CIS(D) rear LED lighting time (T_LED): G  | Yes                       |      |
| 33  | 200           | × 172.4 nsec | —     | CIS(D) front LED lighting time (T_LED): B | Yes                       |      |
| 34  | 200           | × 172.4 nsec | —     | CIS(D) rear LED lighting time (T_LED): B  | Yes                       |      |
| 35  | 600           | × 172.4 nsec | —     | CIS(E) front LED lighting time (T_LED): R | Yes                       |      |
| 36  | 600           | × 172.4 nsec | —     | CIS(E) rear LED lighting time (T_LED): R  | Yes                       |      |
| 37  | 300           | × 172.4 nsec | —     | CIS(E) front LED lighting time (T_LED): G | Yes                       |      |
| 38  | 300           | × 172.4 nsec | —     | CIS(E) rear LED lighting time (T_LED): G  | Yes                       |      |
| 39  | 200           | × 172.4 nsec | —     | CIS(E) front LED lighting time (T_LED): B | Yes                       |      |
| 40  | 200           | × 172.4 nsec | —     | CIS(E) rear LED lighting time (T_LED): B  | Yes                       |      |

## Monochrome scanner shading offset parameters

| No. | Initial Value | Unit | Range | Meaning                                       | Changes after Calibration | Note |
|-----|---------------|------|-------|---|---------------------------|------|
| 41  | 0             | —    | —     | CIS(A) glass surface white data average value | Yes                       |      |
| 42  | 0             | —    | —     | CIS(B) glass surface white data average value | Yes                       |      |
| 43  | 0             | —    | —     | CIS(C) glass surface white data average value | Yes                       |      |

| No. | Initial Value | Unit | Range | Meaning  | Changes after Calibration | Note |
|-----|---------------|------|-------|--|---------------------------|------|
| 44  | 0             | —    | —     | CIS(D) glass surface white data average value          | Yes                       |      |
| 45  | 0             | —    | —     | CIS(E) glass surface white data average value          | Yes                       |      |
| 46  | 3920          | —    | —     | Upper limit for glass surface white data average value | —                         |      |
| 47  | 0             | —    | —     | Lower limit for glass surface white data average value | —                         |      |

#### Monochrome scanner AFE parameters

| No. | Initial Value | Unit | Range | Meaning                         | Changes after Calibration | Note |
|-----|---------------|------|-------|---------------------------------|---------------------------|------|
| 48  | 24            | —    | —     | CIS(A) PGA gain setting value   | —                         |      |
| 49  | 24            | —    | —     | CIS(B) PGA gain setting value   | —                         |      |
| 50  | 24            | —    | —     | CIS(C) PGA gain setting value   | —                         |      |
| 51  | 24            | —    | —     | CIS(D) PGA gain setting value   | —                         |      |
| 52  | 24            | —    | —     | CIS(E) PGA gain setting value   | —                         |      |
| 53  | 128           | —    | —     | CIS(A) PGA offset setting value | —                         |      |
| 54  | 128           | —    | —     | CIS(B) PGA offset setting value | —                         |      |
| 55  | 128           | —    | —     | CIS(C) PGA offset setting value | —                         |      |
| 56  | 128           | —    | —     | CIS(D) PGA offset setting value | —                         |      |
| 57  | 128           | —    | —     | CIS(E) PGA offset setting value | —                         |      |

#### Color scanner LED light intensity calibration parameters

| No. | Initial Value | Unit         | Range | Meaning  | Changes after Calibration | Note |
|-----|---------------|--------------|-------|--|---------------------------|------|
| 58  | 500           | × 172.4 nsec | —     | Initial value for adjustment:<br>CIS(A to E) front LED<br>Lighting time (T_LED): R | —                         |      |
| 59  | 500           | × 172.4 nsec | —     | Initial value for adjustment:<br>CIS(A to E) rear LED<br>Lighting time (T_LED): R  | —                         |      |
| 60  | 500           | × 172.4 nsec | —     | Initial value for adjustment:<br>CIS(A to E) front LED<br>Lighting time (T_LED): G | —                         |      |
| 61  | 500           | × 172.4 nsec | —     | Initial value for adjustment:<br>CIS(A to E) rear LED<br>Lighting time (T_LED): G  | —                         |      |
| 62  | 500           | × 172.4 nsec | —     | Initial value for adjustment:<br>CIS(A to E) front LED<br>Lighting time (T_LED): B | —                         |      |
| 63  | 500           | × 172.4 nsec | —     | Initial value for adjustment:<br>CIS(A to E) rear LED<br>Lighting time (T_LED): B  | —                         |      |
| 64  | 127           | —            | —     | CIS LED forward current: R   | —                         |      |
| 65  | 127           | —            | —     | CIS LED forward current: G   | —                         |      |
| 66  | 127           | —            | —     | CIS LED forward current: B   | —                         |      |
| 67  | 72            | × 172.4 nsec | —     | Time until CIS LED lights up (TS_LED)  | —                         |      |
| 68  | 1500          | × 172.4 nsec | —     | CIS(A) front LED lighting time (T_LED): R  | Yes                       |      |

| No. | Initial Value | Unit         | Range | Meaning                                   | Changes after Calibration | Note |
|-----|---------------|--------------|-------|---|---------------------------|------|
| 69  | 1500          | × 172.4 nsec | —     | CIS(A) rear LED lighting time (T_LED): R  | Yes                       |      |
| 70  | 700           | × 172.4 nsec | —     | CIS(A) front LED lighting time (T_LED): G | Yes                       |      |
| 71  | 700           | × 172.4 nsec | —     | CIS(A) rear LED lighting time (T_LED): G  | Yes                       |      |
| 72  | 450           | × 172.4 nsec | —     | CIS(A) front LED lighting time (T_LED): B | Yes                       |      |
| 73  | 450           | × 172.4 nsec | —     | CIS(A) rear LED lighting time (T_LED): B  | Yes                       |      |
| 74  | 1500          | × 172.4 nsec | —     | CIS(B) front LED lighting time (T_LED): R | Yes                       |      |
| 75  | 1500          | × 172.4 nsec | —     | CIS(B) rear LED lighting time (T_LED): R  | Yes                       |      |
| 76  | 700           | × 172.4 nsec | —     | CIS(B) front LED lighting time (T_LED): G | Yes                       |      |
| 77  | 700           | × 172.4 nsec | —     | CIS(B) rear LED lighting time (T_LED): G  | Yes                       |      |
| 78  | 450           | × 172.4 nsec | —     | CIS(B) front LED lighting time (T_LED): B | Yes                       |      |
| 79  | 450           | × 172.4 nsec | —     | CIS(B) rear LED lighting time (T_LED): B  | Yes                       |      |
| 80  | 1500          | × 172.4 nsec | —     | CIS(C) front LED lighting time (T_LED): R | Yes                       |      |
| 81  | 1500          | × 172.4 nsec | —     | CIS(C) rear LED lighting time (T_LED): R  | Yes                       |      |
| 82  | 700           | × 172.4 nsec | —     | CIS(C) front LED lighting time (T_LED): G | Yes                       |      |
| 83  | 700           | × 172.4 nsec | —     | CIS(C) rear LED lighting time (T_LED): G  | Yes                       |      |
| 84  | 450           | × 172.4 nsec | —     | CIS(C) front LED lighting time (T_LED): B | Yes                       |      |
| 85  | 450           | × 172.4 nsec | —     | CIS(C) rear LED lighting time (T_LED): B  | Yes                       |      |
| 86  | 1500          | × 172.4 nsec | —     | CIS(D) front LED lighting time (T_LED): R | Yes                       |      |
| 87  | 1500          | × 172.4 nsec | —     | CIS(D) rear LED lighting time (T_LED): R  | Yes                       |      |
| 88  | 700           | × 172.4 nsec | —     | CIS(D) front LED lighting time (T_LED): G | Yes                       |      |
| 89  | 700           | × 172.4 nsec | —     | CIS(D) rear LED lighting time (T_LED): G  | Yes                       |      |
| 90  | 450           | × 172.4 nsec | —     | CIS(D) front LED lighting time (T_LED): B | Yes                       |      |
| 91  | 450           | × 172.4 nsec | —     | CIS(D) rear LED lighting time (T_LED): B  | Yes                       |      |
| 92  | 1500          | × 172.4 nsec | —     | CIS(E) front LED lighting time (T_LED): R | Yes                       |      |
| 93  | 1500          | × 172.4 nsec | —     | CIS(E) rear LED lighting time (T_LED): R  | Yes                       |      |
| 94  | 700           | × 172.4 nsec | —     | CIS(E) front LED lighting time (T_LED): G | Yes                       |      |
| 95  | 700           | × 172.4 nsec | —     | CIS(E) rear LED lighting time (T_LED): G  | Yes                       |      |

| No. | Initial Value | Unit         | Range | Meaning                                   | Changes after Calibration | Note |
|-----|---------------|--------------|-------|---|---------------------------|------|
| 96  | 450           | × 172.4 nsec | —     | CIS(E) front LED lighting time (T_LED): B | Yes                       |      |
| 97  | 450           | × 172.4 nsec | —     | CIS(E) rear LED lighting time (T_LED): B  | Yes                       |      |

#### Color scan shading offset parameters

| No. | Initial Value | Unit | Range | Meaning  | Changes after Calibration | Note |
|-----|---------------|------|-------|--|---------------------------|------|
| 98  | 0             | —    | —     | CIS(A) glass surface white data average value: R       | Yes                       |      |
| 99  | 0             | —    | —     | CIS(B) glass surface white data average value: R       | Yes                       |      |
| 100 | 0             | —    | —     | CIS(C) glass surface white data average value: R       | Yes                       |      |
| 101 | 0             | —    | —     | CIS(D) glass surface white data average value: R       | Yes                       |      |
| 102 | 0             | —    | —     | CIS(E) glass surface white data average value: R       | Yes                       |      |
| 103 | 0             | —    | —     | CIS(A) glass surface white data average value: G       | Yes                       |      |
| 104 | 0             | —    | —     | CIS(B) glass surface white data average value: G       | Yes                       |      |
| 105 | 0             | —    | —     | CIS(C) glass surface white data average value: G       | Yes                       |      |
| 106 | 0             | —    | —     | CIS(D) glass surface white data average value: G       | Yes                       |      |
| 107 | 0             | —    | —     | CIS(E) glass surface white data average value: G       | Yes                       |      |
| 108 | 0             | —    | —     | CIS(A) glass surface white data average value: B       | Yes                       |      |
| 109 | 0             | —    | —     | CIS(B) glass surface white data average value: B       | Yes                       |      |
| 110 | 0             | —    | —     | CIS(C) glass surface white data average value: B       | Yes                       |      |
| 111 | 0             | —    | —     | CIS(D) glass surface white data average value: B       | Yes                       |      |
| 112 | 0             | —    | —     | CIS(E) glass surface white data average value: B       | Yes                       |      |
| 113 | 3920          | —    | —     | Upper limit for glass surface white data average value | —                         |      |
| 114 | 0             | —    | —     | Lower limit for glass surface white data average value | —                         |      |

#### Color scanner AFE parameters

| No. | Initial Value | Unit | Range | Meaning                                      | Changes after Calibration | Note |
|-----|---------------|------|-------|--|---------------------------|------|
| 115 | 24            | —    | —     | CIS PGA gain setting value for color scanner | —                         |      |

## Image quality parameters

| No. | Initial Value | Unit | Range | Meaning                              | Changes after Calibration | Note |
|-----|---------------|------|-------|--------------------------------------|---------------------------|------|
| 116 | 1024          | —    | —     | Sensor hue correction PHASE CIS(A)-0 | —                         |      |
| 117 | 0             | —    | —     | Sensor hue correction PHASE CIS(A)-1 | —                         |      |
| 118 | 1024          | —    | —     | Sensor hue correction PHASE CIS(A)-2 | —                         |      |
| 119 | 0             | —    | —     | Sensor hue correction PHASE CIS(A)-3 | —                         |      |
| 120 | 1024          | —    | —     | Sensor hue correction PHASE CIS(A)-4 | —                         |      |
| 121 | 0             | —    | —     | Sensor hue correction PHASE CIS(A)-5 | —                         |      |
| 122 | 0             | —    | —     | Sensor hue correction PHASE CIS(A)-6 | —                         |      |
| 123 | 0             | —    | —     | Sensor hue correction PHASE CIS(A)-7 | —                         |      |
| 124 | 1024          | —    | —     | Sensor hue correction PHASE CIS(A)-8 | —                         |      |
| 125 | 1024          | —    | —     | Sensor hue correction PHASE CIS(B)-0 | —                         |      |
| 126 | 0             | —    | —     | Sensor hue correction PHASE CIS(B)-1 | —                         |      |
| 127 | 1024          | —    | —     | Sensor hue correction PHASE CIS(B)-2 | —                         |      |
| 128 | 0             | —    | —     | Sensor hue correction PHASE CIS(B)-3 | —                         |      |
| 129 | 1024          | —    | —     | Sensor hue correction PHASE CIS(B)-4 | —                         |      |
| 130 | 0             | —    | —     | Sensor hue correction PHASE CIS(B)-5 | —                         |      |
| 131 | 0             | —    | —     | Sensor hue correction PHASE CIS(B)-6 | —                         |      |
| 132 | 0             | —    | —     | Sensor hue correction PHASE CIS(B)-7 | —                         |      |
| 133 | 1024          | —    | —     | Sensor hue correction PHASE CIS(B)-8 | —                         |      |
| 134 | 1024          | —    | —     | Sensor hue correction PHASE CIS(C)-0 | —                         |      |
| 135 | 0             | —    | —     | Sensor hue correction PHASE CIS(C)-1 | —                         |      |
| 136 | 1024          | —    | —     | Sensor hue correction PHASE CIS(C)-2 | —                         |      |
| 137 | 0             | —    | —     | Sensor hue correction PHASE CIS(C)-3 | —                         |      |
| 138 | 1024          | —    | —     | Sensor hue correction PHASE CIS(C)-4 | —                         |      |
| 139 | 0             | —    | —     | Sensor hue correction PHASE CIS(C)-5 | —                         |      |
| 140 | 0             | —    | —     | Sensor hue correction PHASE CIS(C)-6 | —                         |      |
| 141 | 0             | —    | —     | Sensor hue correction PHASE CIS(C)-7 | —                         |      |
| 142 | 1024          | —    | —     | Sensor hue correction PHASE CIS(C)-8 | —                         |      |
| 143 | 1024          | —    | —     | Sensor hue correction PHASE CIS(D)-0 | —                         |      |
| 144 | 0             | —    | —     | Sensor hue correction PHASE CIS(D)-1 | —                         |      |
| 145 | 1024          | —    | —     | Sensor hue correction PHASE CIS(D)-2 | —                         |      |
| 146 | 0             | —    | —     | Sensor hue correction PHASE CIS(D)-3 | —                         |      |
| 147 | 1024          | —    | —     | Sensor hue correction PHASE CIS(D)-4 | —                         |      |
| 148 | 0             | —    | —     | Sensor hue correction PHASE CIS(D)-5 | —                         |      |
| 149 | 0             | —    | —     | Sensor hue correction PHASE CIS(D)-6 | —                         |      |
| 150 | 0             | —    | —     | Sensor hue correction PHASE CIS(D)-7 | —                         |      |
| 151 | 1024          | —    | —     | Sensor hue correction PHASE CIS(D)-8 | —                         |      |
| 152 | 1024          | —    | —     | Sensor hue correction PHASE CIS(E)-0 | —                         |      |
| 153 | 0             | —    | —     | Sensor hue correction PHASE CIS(E)-1 | —                         |      |
| 154 | 1024          | —    | —     | Sensor hue correction PHASE CIS(E)-2 | —                         |      |
| 155 | 0             | —    | —     | Sensor hue correction PHASE CIS(E)-3 | —                         |      |
| 156 | 1024          | —    | —     | Sensor hue correction PHASE CIS(E)-4 | —                         |      |
| 157 | 0             | —    | —     | Sensor hue correction PHASE CIS(E)-5 | —                         |      |
| 158 | 0             | —    | —     | Sensor hue correction PHASE CIS(E)-6 | —                         |      |
| 159 | 0             | —    | —     | Sensor hue correction PHASE CIS(E)-7 | —                         |      |
| 160 | 1024          | —    | —     | Sensor hue correction PHASE CIS(E)-8 | —                         |      |
| 161 | 10            | —    | —     | Sensor hue correction DIV CIS common | —                         |      |
| 162 | 10            | —    | —     | Sensor hue correction DIV CIS common | —                         |      |
| 163 | 10            | —    | —     | Sensor hue correction DIV CIS common | —                         |      |

Spare parameters

| No. | Initial Value | Unit | Range | Meaning                           | Changes after Calibration | Note |
|-----|---------------|------|-------|-----------------------------------|---------------------------|------|
| 164 | 0             | —    | —     | Reserve                           | —                         |      |
| 165 | 0             | —    | —     | Reserve                           | —                         |      |
| 166 | 0             | —    | —     | Reserve                           | —                         |      |
| 167 | 0             | —    | —     | Reserve                           | —                         |      |
| 168 | 0             | —    | —     | Reserve                           | —                         |      |
| 169 | 0             | —    | —     | Reserve                           | —                         |      |
| 170 | 0             | —    | —     | Reserve                           | —                         |      |
| 171 | 0             | —    | —     | Reserve                           | —                         |      |
| 172 | 0             | —    | —     | Reserve                           | —                         |      |
| 173 | 0             | —    | —     | Reserve                           | —                         |      |
| 174 | 0             | —    | —     | Reserve                           | —                         |      |
| 175 | 0             | —    | —     | Reserve                           | —                         |      |
| 176 | 0             | —    | —     | Reserve                           | —                         |      |
| 177 | 0             | —    | —     | Reserve                           | —                         |      |
| 178 | 0             | —    | —     | Reserve                           | —                         |      |
| 179 | 0             | —    | —     | Reserve                           | —                         |      |
| 180 | 0             | —    | —     | Reserve                           | —                         |      |
| 181 | 0             | —    | —     | Reserve                           | —                         |      |
| 182 | 0             | —    | —     | Reserve                           | —                         |      |
| 183 | 0             | —    | —     | Reserve                           | —                         |      |
| 184 | 0             | —    | —     | Reserve                           | —                         |      |
| 185 | 0             | —    | —     | Reserve                           | —                         |      |
| 186 | 0             | —    | —     | Reserve                           | —                         |      |
| 187 | 0             | —    | —     | Reserve                           | —                         |      |
| 188 | 0             | —    | —     | Reserve                           | —                         |      |
| 189 | 0             | —    | —     | Reserve                           | —                         |      |
| 190 | 0             | —    | —     | Reserve                           | —                         |      |
| 191 | 0             | —    | —     | Reserve                           | —                         |      |
| 192 | 0             | —    | —     | Reserve                           | —                         |      |
| 193 | 0             | —    | —     | For A0 and A1 scanner recognition | —                         |      |

## 11.2 Verification (Color Scanner)

This section describes the color scanner items that need to be verified after replacing parts such as the CIS unit.

### 11.2.1 Items required for verification

Color scanner verification is performed by running software tools on the computer used for verification and using verification originals.

- (1) This manual
- (2) A network cable
  - Cross or straight cable
- (3) Computer for verification
  - Original scanning tool (TerioStation)
  - Color difference analyzing tool (Patch Reader 2)
    - Install TerioStation and Patch Reader 2 on the computer in advance referring to the separate *Installation Guides*.
    - See subsection **11.2.3.1** on page **11-78** for requirements of the computer used for verification.
  - Color difference assessment tool (Color-Difference Check)
- (4) Verification original (2 types)
  - Original for color difference verification (914×420 mm)
  - Original for connection verification (A1)

#### Note

<Verification original>

- **ADJUSTMENT KIT(COLOR SCANNER): U001221210\*\*** (see p. 9-237)
- **Copy/Scan Color Chart1 Set: U001083903\*\*** (see p. 9-237)

### 11.2.2 Verification Task Overview

- (1) Verifying color differences
  - Scan the original for color difference verification using the original scanning tool.
  - Create color difference data using the color difference analyzing tool.
  - Assess color differences using the color difference assessment tool.
- (2) Verifying CIS connections
  - Scan and copy the original for connection verification using the original scanning tool.
  - Check the print results and assess the connections.



### 11.2.3 Computer for Verification Details

#### (1) Computer for verification requirements

The requirements of the computer used for verification are as follows.

Windows XP/Vista/7

Memory 1 GB (2 GB or more recommended)

5 GB or more of free HDD space

Screen resolution of 800×600 or more (1024×768 or more recommended)

#### (2) Software tools description

(a) Original scanning tool (TerioStation)

Tool used to scan originals for verification.

(b) Color difference analyzing tool (Patch Reader2)

Tool used to create color difference data from the BMP image obtained by scanning the original with original scanning tool.

(c) Color difference assessment tool (Color-Difference Check)

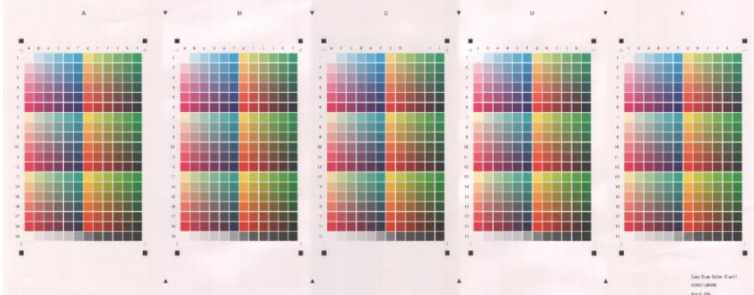
Tool used to process the data created with the color difference analyzing tool.

**11.2.4 Verification Originals**

Make sure that the original is not heavily curled and that there are no folds or wrinkles. Handle the original with care.

**(1) Original for color difference verification (Copy/Scan Color Chart1)**

The original used to verify the color differences.

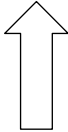
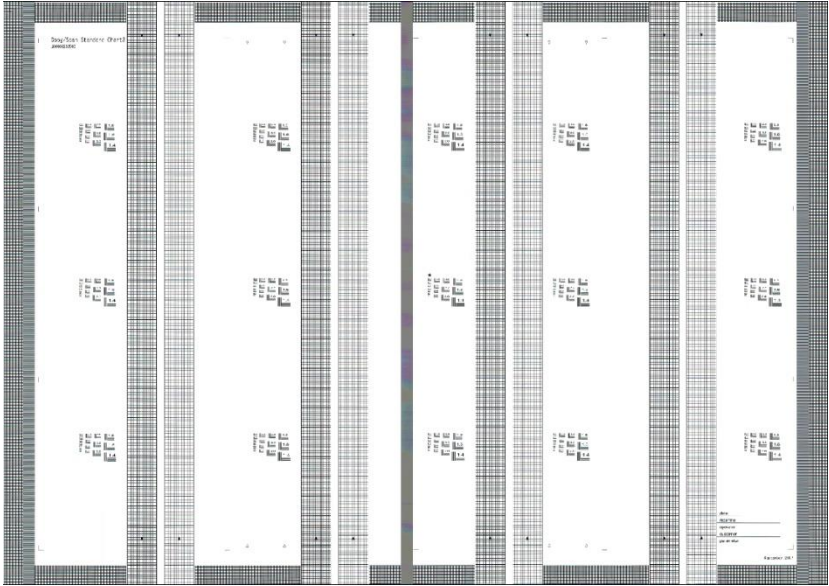


Original feed direction

Size: 914 mmx420 mm

**(2) Original for connection verification (Copy/Scan Standard Chart3)**

The original used to verify CIS connections.



Original feed direction

Size: A1 (landscape)

## 11.2.5 Color Difference Verification Procedure

### 11.2.5.1 Color original scanning

- (1) Launch **TerioStation** and make the following settings.

Select the **Scan** tab.

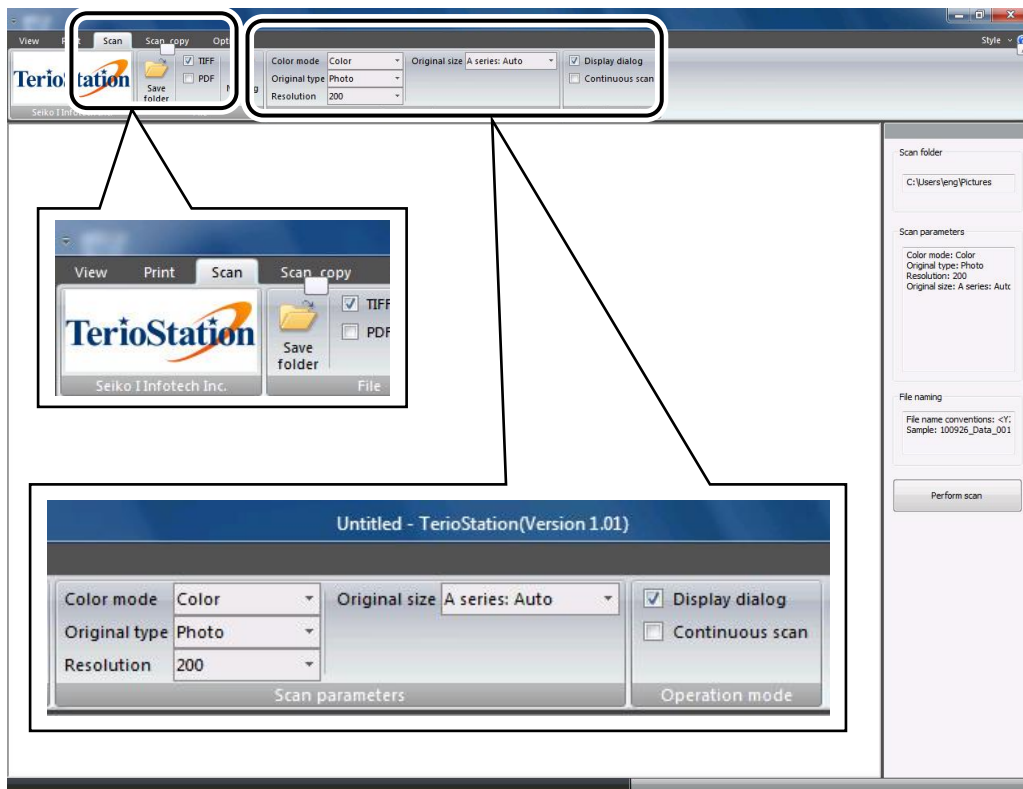
Check the **TIFF** check box.

Color mode: Color

Original type: Photo

Resolution: 200

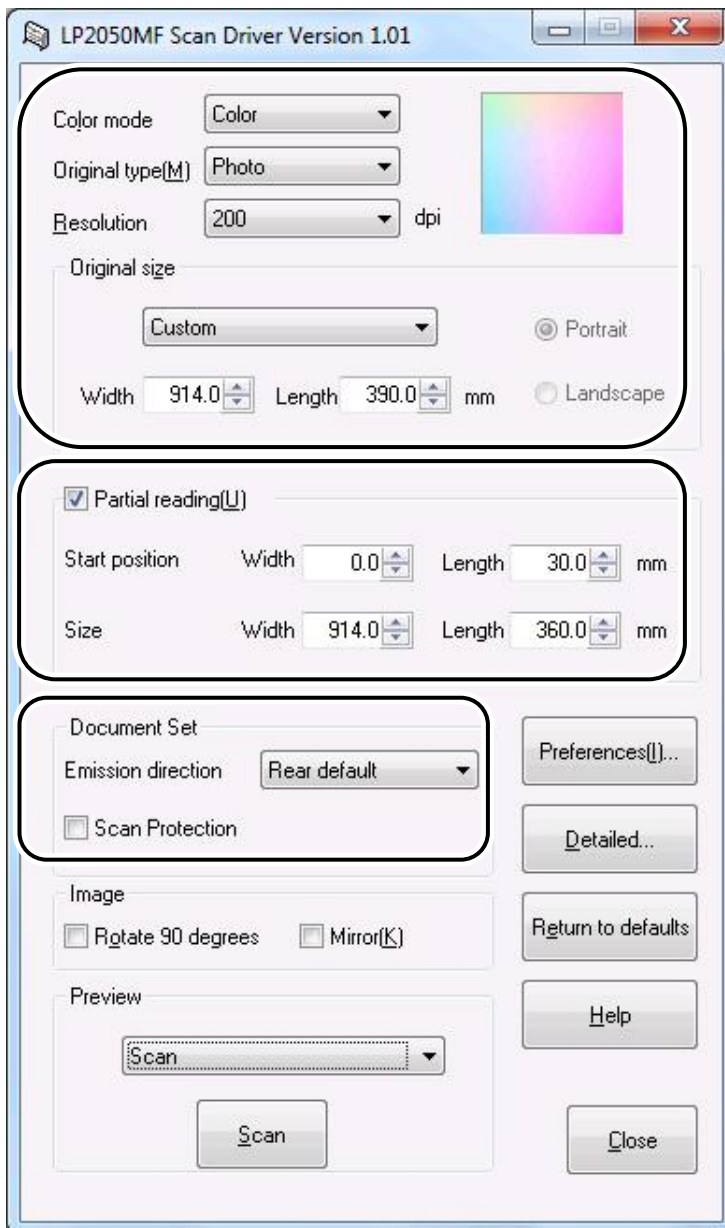
Check the **Display dialog** check box.



See the *TerioStation installation guide*.

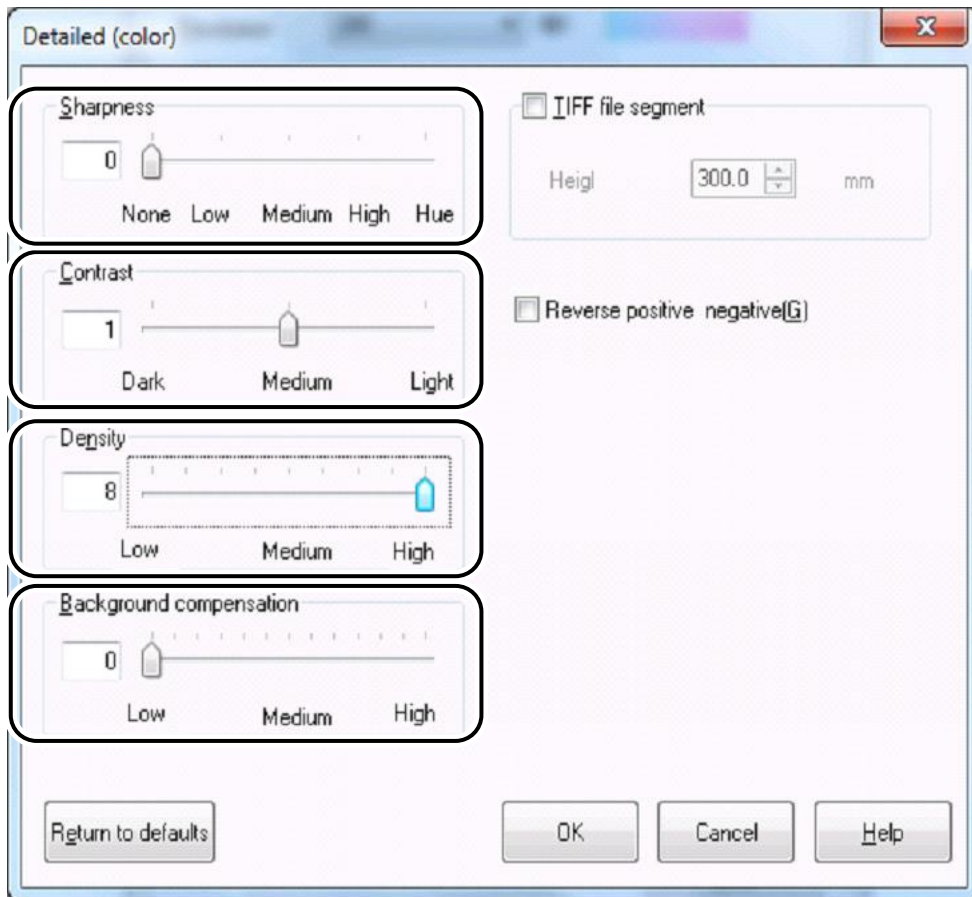
(2) Click **Perform scan** and configure the Scan Driver as follows.

- Color mode: Color
- Original type: Photo
- Resolution: 200
- Original size: Custom
  - Width: 914.0 (mm)
  - Length: 390.0 (mm)
- Partial reading: Checked
  - Start position: 0.0 (mm)
  - Size: 30.0 (mm)
- Emission direction: Rear default



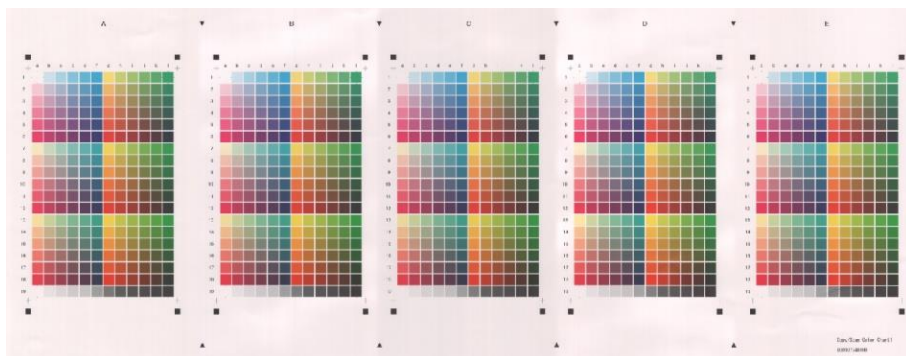
- (3) Click **Detailed** and configure the settings as follows.

Sharpness: None  
Contrast: Medium  
Density: Higt  
Background compensation: Low

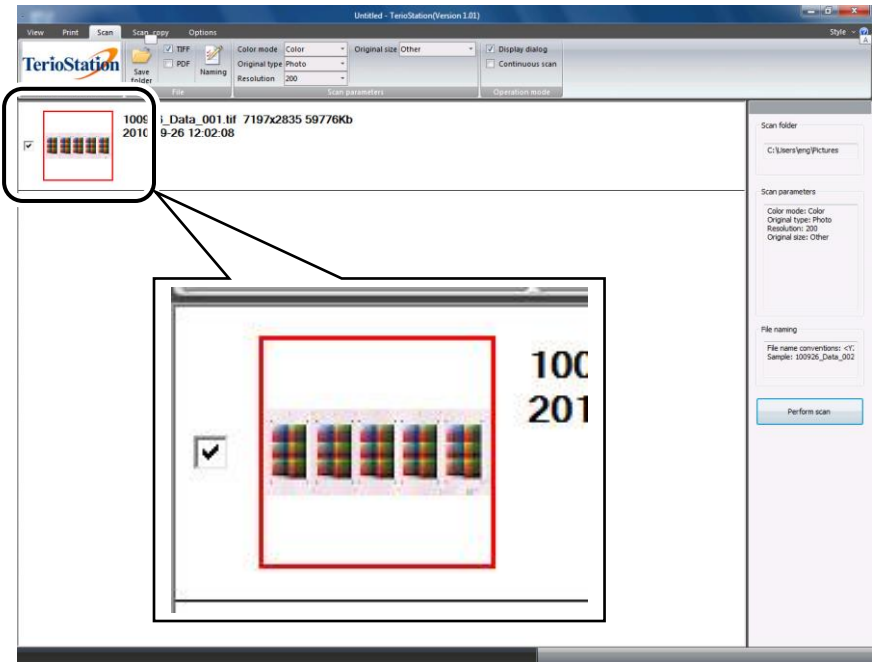


- (4) Click **Scan** and set the Copy/Scan Color Chart1 original to the "914" mark on the right of the multifunction printer document table to start scanning.

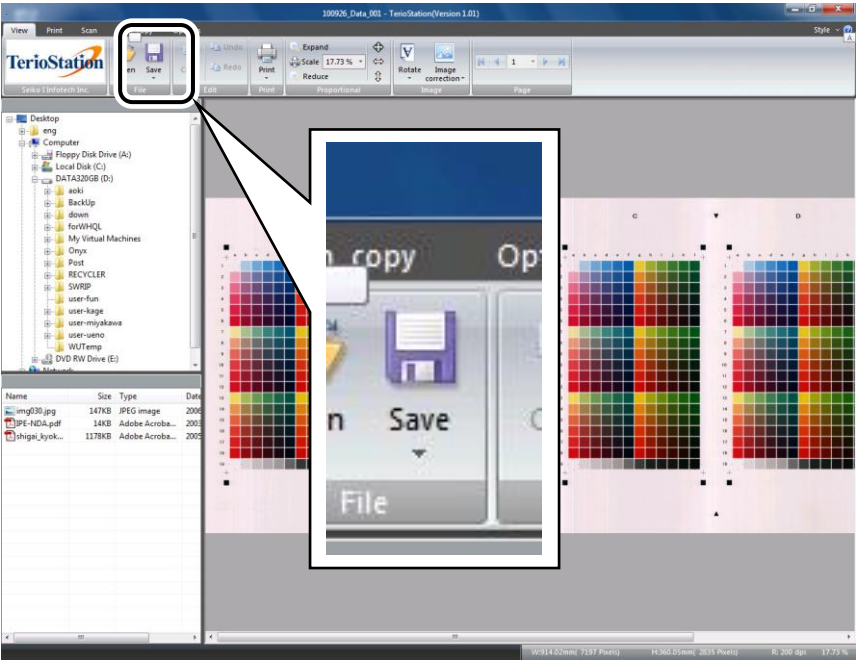
Copy/Scan Color Chart1 is the original used to check the color differences.



(5) Double click on the thumbnail image.



(6) Click **Save** and select **Change format and save** to save in BMP format.



(7) Click **Close**.

(8) The scanned image is saved in the folder specified in step (6), and change its file name to the CIS unit's 5-digit serial number.

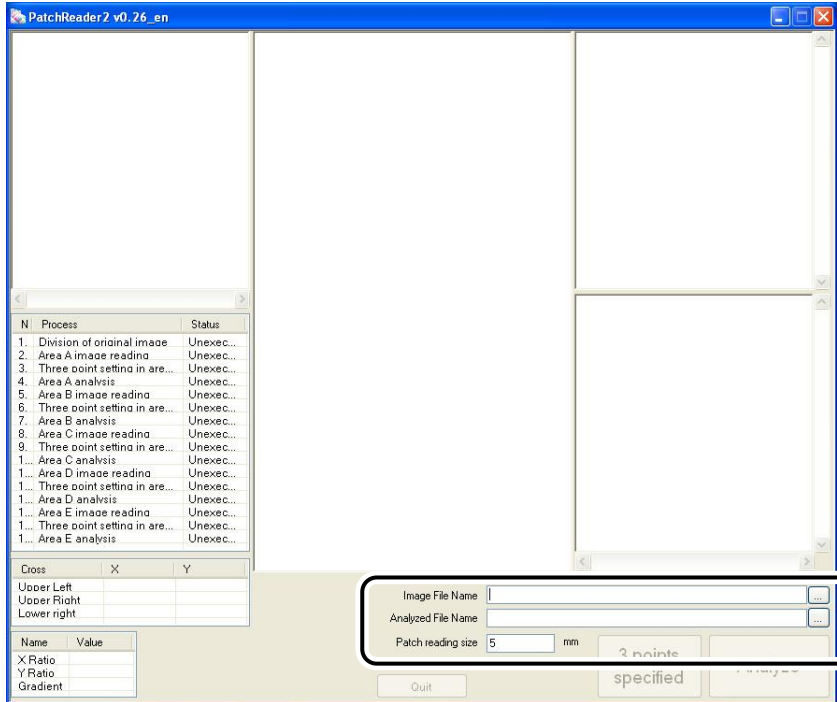
Example: In case of #101, the file name is changed to **00101**.

## 11.2.5.2 Color analysis

- (1) Launch Patch Reader2 and select the scanned image saved in the previous subsection.

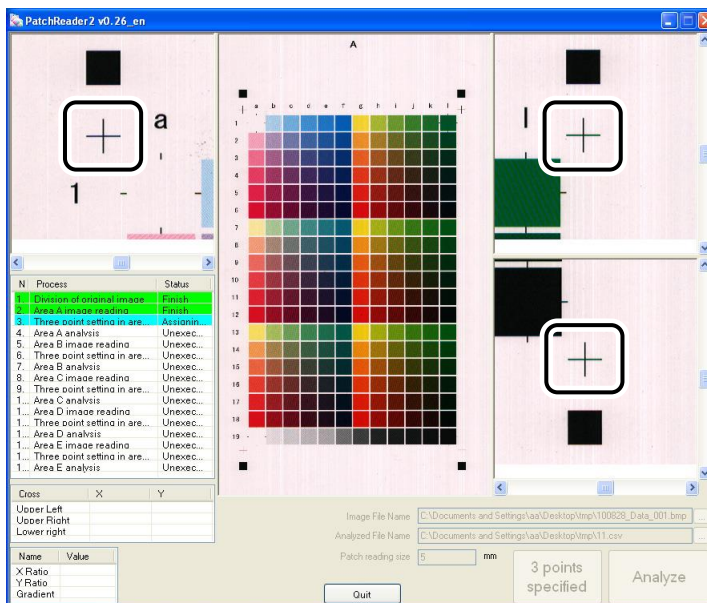
Image File Name: \*\*\*\*\*.bmp (“\*\*\*\*\*” is the CIS unit's 5-digit serial number.)

Analyzed File Name: \*\*\*\*\*.csv



- (2) Click **Analyze**.

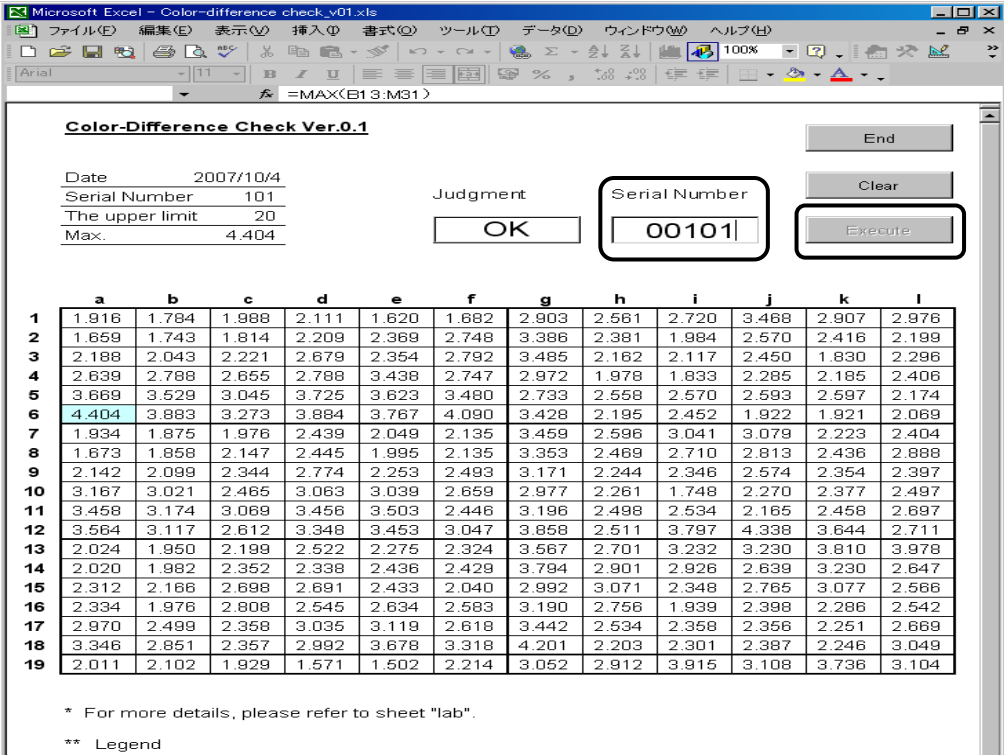
- (3) In the third inspection item, click the + mark that appear. Then adjust their positions so that the red cross match the black cross. Perform this adjustment at three positions.



- (4) When all marks are aligned, click **3 points positioning complete** to analyze colors for CIS\_A.
- (5) Repeat the steps (3) and (4) for CIS\_B to CIS\_E (5 times in total).
- (6) Click **OK** when **Analysis complete** is displayed.

11.2.5.3 Color difference assessment

- (1) Launch **Color-Difference Check** and enter the CIS unit's 5-digit serial number.
- (2) Click **Execute** to run the analyzing tool. When **OK** is displayed in Judgment, the procedure is complete.



See the **Color-Difference Check instruction manual** or details on Color-Difference Check operations.



## 11.2.6 CIS Connection Verification Procedure

(1) Launch **TerioStation** and make the following settings.

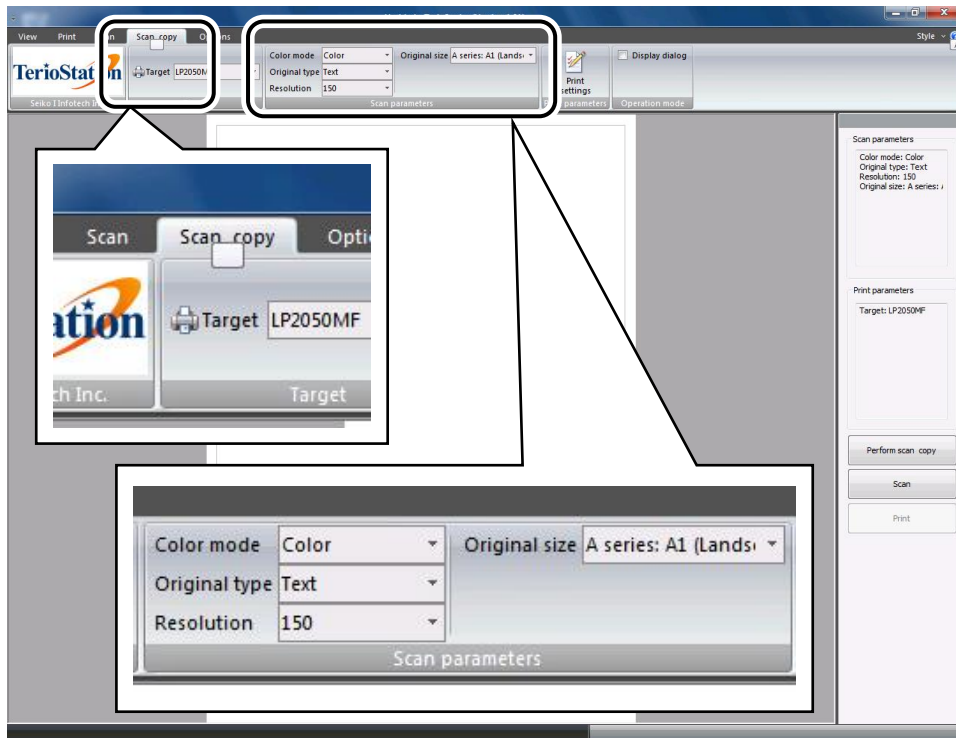
Select the **Scan & copy** tab.

Color mode: Color

Original type: Text

Resolution: 150

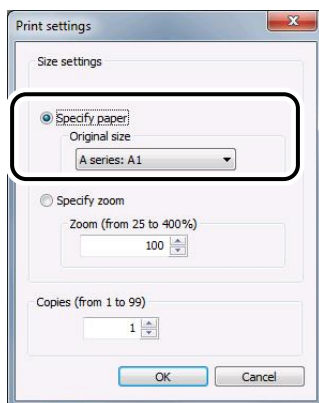
Original size: A series: A1 (Landscape)



(2) Click **Print settings** and make the following settings.

Check the **Specify paper** check box.

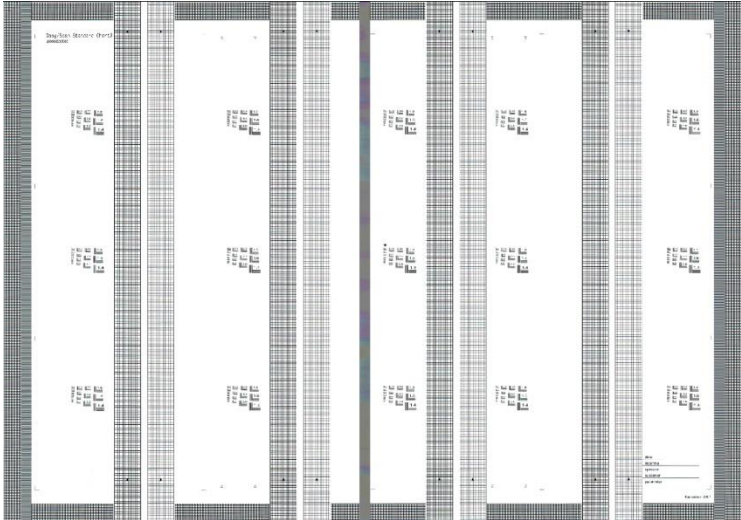
Original size: A series: A1



(3) Click **Perform scan & copy** to scan the Copy/Scan Standard Chart3 original.

Open the Driver window, and scan with the settings below.  
Original size: A0  
Partial scan: Unchecked

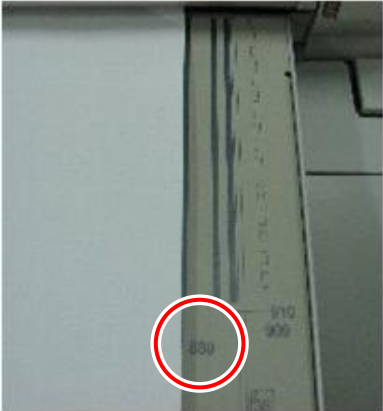
**Copy/Scan Standard Chart3** is the original used to check the CIS connections.



\* Set the original to the **880** mark on the left of the multifunction printer document table to scan in 150, 200, 300, and 400 dpi resolutions.



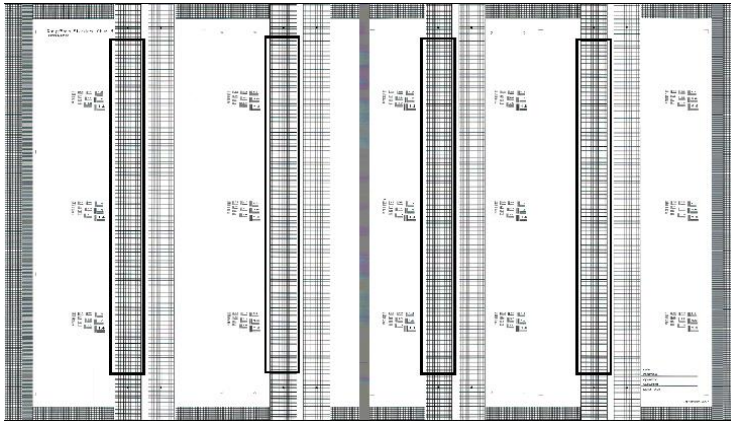
\* To scan in 600 dpi resolution, set the original to the **880** mark on the right of the multifunction printer document table.



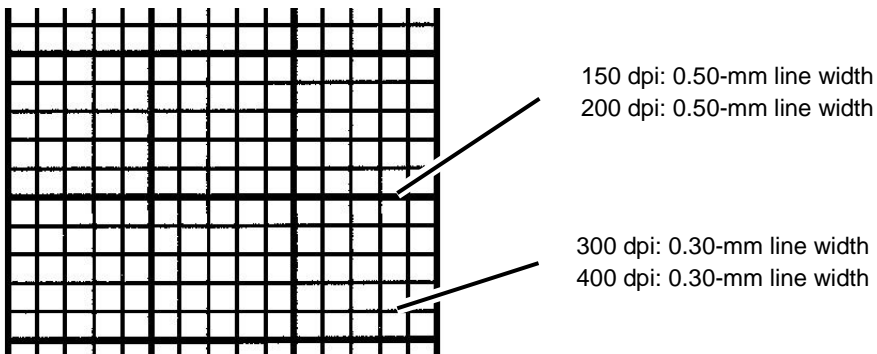
- (4) The printout is automatically output after a while. Confirm and assess the results using the following criterion.

CIS sensor connection: Horizontal lines in the connection areas are not disconnected.  
(Except for the areas within 90 mm from the front and rear ends of the paper.)

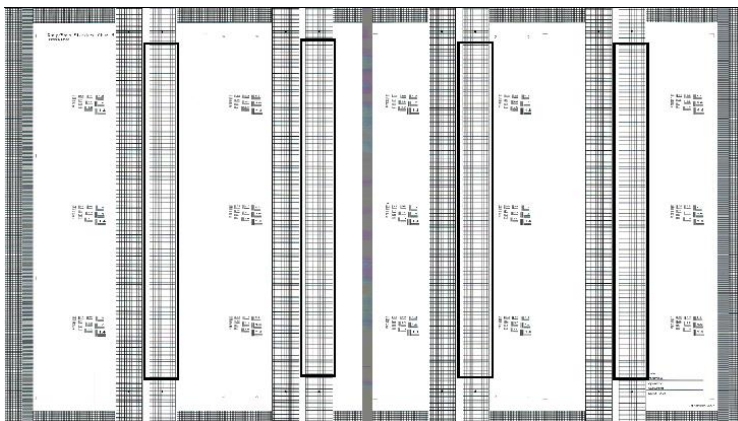
- \* To scan in 150, 200, 300, and 400 dpi resolutions, set the original to the **880** mark on the left of the multifunction printer document table.



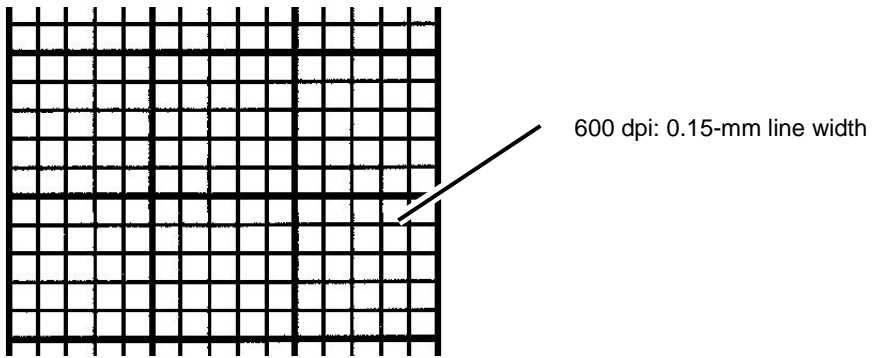
- \* Check locations with 150, 200, 300, and 400 dpi resolutions.



- \* To scan in 600 dpi resolution. set the original to the **880** mark on the right of the multifunction printer document table.



\* Check location with 600 dpi resolution.



- (5) Change the resolution set in (1) to 200, 300, 400 and 600 dpi and repeat the steps (3) and (4) for each. Assess the results for each resolution while referring to their respective check locations.

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# Chapter 12 Printer Operation Guide

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This chapter contains:

- Basic engine information to understand the Printer's mechanical operation; and
- Controller unit information to communicate data with the computer

This chapter is structured as follows.

- 12.1 Features
- 12.2 Engine Specifications Outline
- 12.3 Paper Flow and Part Names
- 12.4 Basic Operation (Overall Operation)
- 12.5 Electrophotographic Process Operation
- 12.6 Drive/Transport Systems Operation
- 12.7 Control System
- 12.8 Controller Unit

## 12.1 Features

The Printer uses a magnetic monocomponent development method and 600 dpi wide LED head as its development method, which produces an intelligent printer perfect for a LAN environment with superb print quality and quiet operation.

The major features of this Printer are given below.

- (1) User interface designed with usability as a number one priority.
  - Front side paper loading; and
  - Front side paper output
- (2) Lightweight, compact, and cost effective engine
- (3) Stable and reliable printing thanks to the a monocomponent development method

## 12.2 Engine Specifications Outline

|                                  |                                     |  |
|----------------------------------|-------------------------------------|--|
| (1) Style                        | Floor type                          |  |
| (2) Recording method             | Dry-type electrophotographic method |  |
|                                  | Photoconductor:                     | OPC drum (φ60)   |
|                                  | Charger:                            | Scorotron (negative charge printing, grid control)   |
|                                  | Exposure:                           | 36-inches and 600 dpi LED  |
|                                  | Development:                        | Monocomponent development  |
|                                  | Transfer:                           | Transfer roller  |
|                                  | Separation:                         | AC corona  |
|                                  | Cleaning:                           | Blade cleaning   |
|                                  | Fuser:                              | Heat roller fuser with halogen heater  |
|                                  | Toner:                              | 450g (0.99 lb) cartridge with 9μ magnetic monocomponent  |
| (3) Recording density            | 600 x 600 dpi                       |  |
| (4) Process speed                | LP-1030-MF                          | 80 mm (3.15 inches)/sec  |
|                                  | LP-1030                             | 80 mm (3.15 inches)/sec  |
| (5) Process cartridge durability | Approximately 10 km (196850 inches) |  |
| (6) Paper                        | Media                               | Plain paper (high quality paper), recycled paper, tracing paper, and Matte film  |
|                                  | Paper feed style                    | Front side paper feed  |
|                                  | Paper output style:                 | Printout with the front side facing upward<br>Original document output from Printer's rear side<br>Printout kept in tray, optional bucket, or optional stacker         |
|                                  | Effective recording width:          | 926.48 mm (36.48 inches) for A0 size printing)<br>Guaranteed<br>Within 5 mm (0.20 inches) at top and bottom edges<br>Within 3 mm (0.12 inches) at right and left edges |
|                                  | Long scale printing:                | 10 m (393.70 inches) (with A0/A1 roll paper printed on)<br>* 2.5 m (98.43 inches) as standard for LP-1030-MF/LP-1030-PL  |
| (7) Print Quality                | Density:                            | 1.0 or more  |
|                                  | Density uniformity:                 | 0.3 or less  |
|                                  | Jam ratio                           | 1/3000 or less (with plain paper printed on)   |
| (8) MTBF                         | 2000 h (excluding consumable parts) |  |
| (9) Weight                       | LP-1030-MF                          | 205 kg (451.95 lb)   |
|                                  | LP-1030                             | 185kg (407.86 lb)  |

|                            |                  |  |
|----------------------------|------------------|--|
| (10) Power Consumption     | 1450 W           |  |
| (11) Warming up time       | LP-1030-MF       | 4 minutes or less (at 23°C (73.4 °F))  |
|                            | LP-1030          | 4 minutes or less (at 23°C (73.4 °F))  |
| (12) Operating Environment | Temperature:     | 15 to 35 degrees C                     |
|                            | Humidity:        | 20 to 80 %RH                           |
| (13) Noise                 | Operating noise: | 61 dB(A) or less (continuous noise)    |
|                            |                  | 66 dB(A) or less (discontinuous noise) |
|                            | Standby noise:   | 53dB(A) or less                        |
| (14) Lifetime              | LP-1030-MF       | 200 km (7874015 inches)                |
|                            | LP-1030          | 200 km (7874015 inches)                |



### 12.3 Paper Flow and Part Names

Paper flow and part names are shown in the figure below.

**Note**

The roll paper quantity varies depending on the printer model.

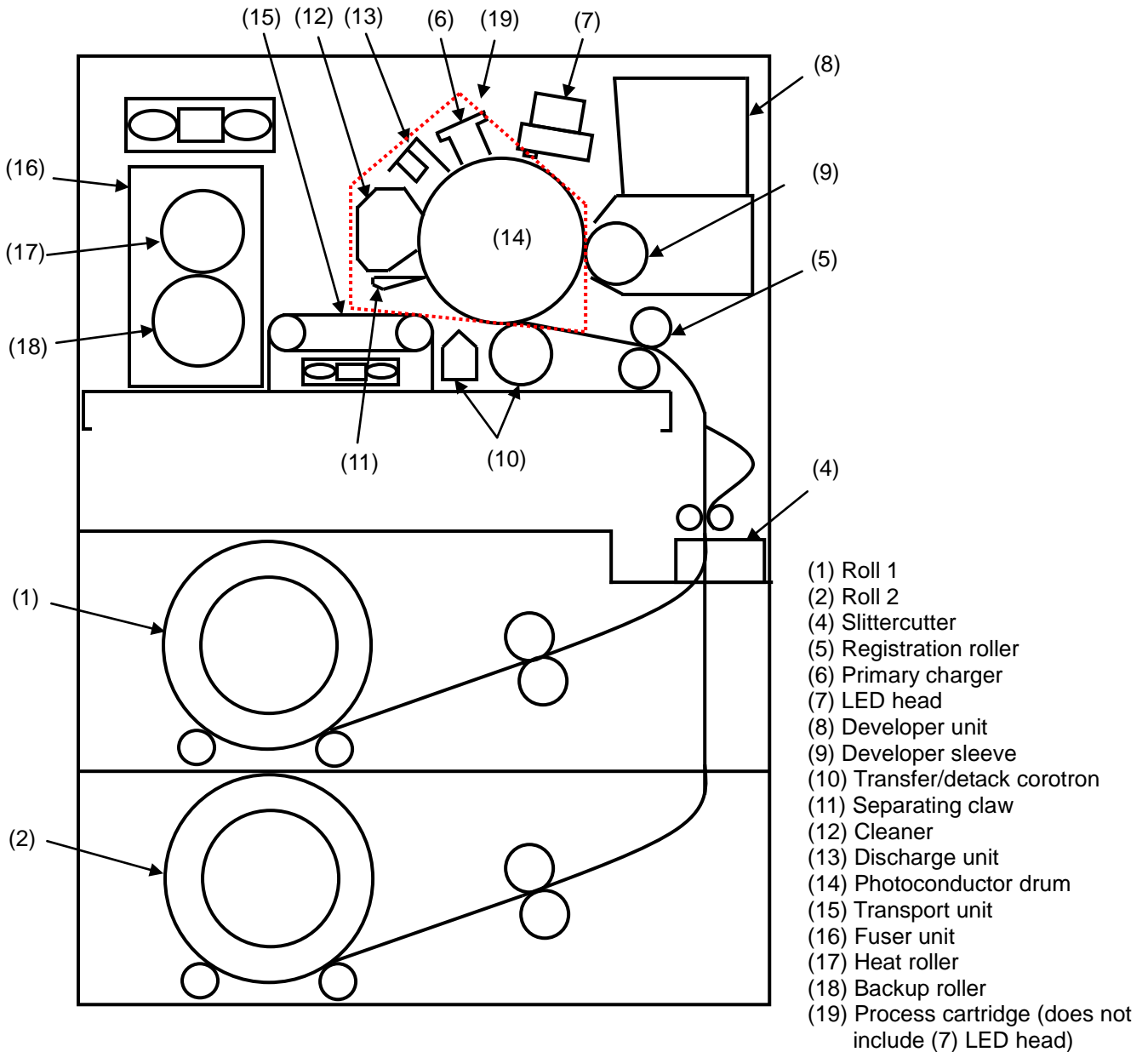


Figure 12.1 Paper Flow and Part Names

## 12.4 Basic Overall Operation

### 12.4.1 Basic Layout Block Diagram

The functionality of the Printer is divided up into four major blocks:

- Paper feed/transport system;
- Electrophotographic processing system;
- Control system; and
- Interface system.

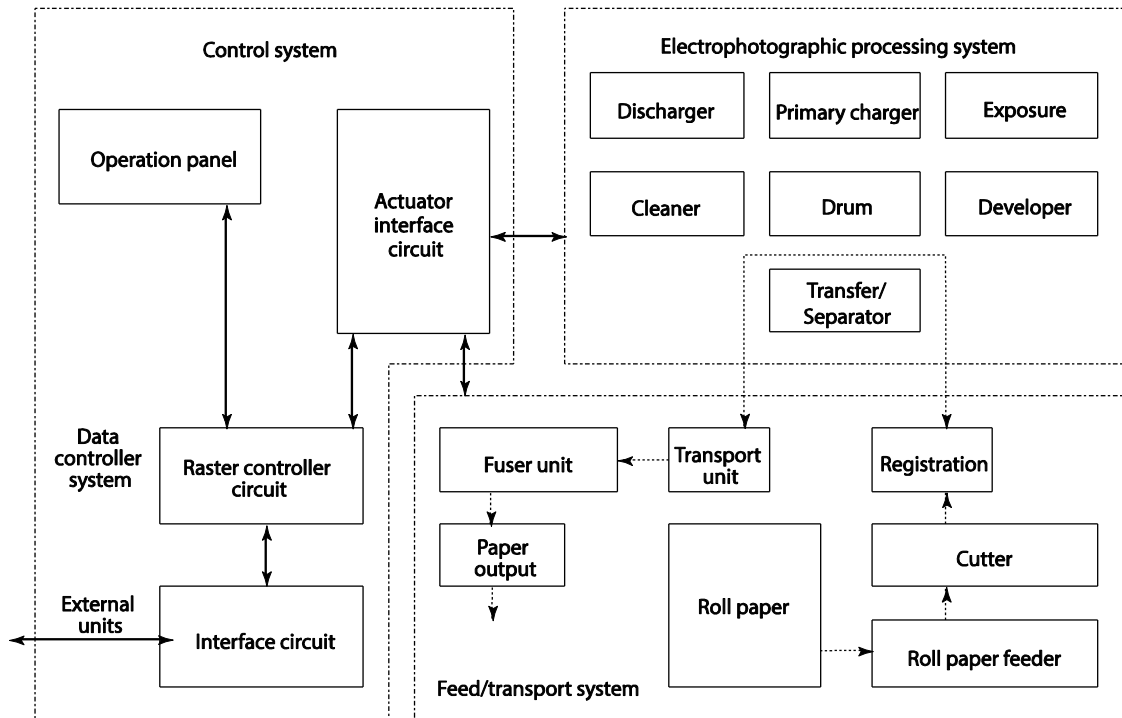


Figure 12.2 Basic Layout Block Diagram

### 12.4.2 Outline of Printer Components

**Note**

The roll paper quantity varies depending on the printer model.

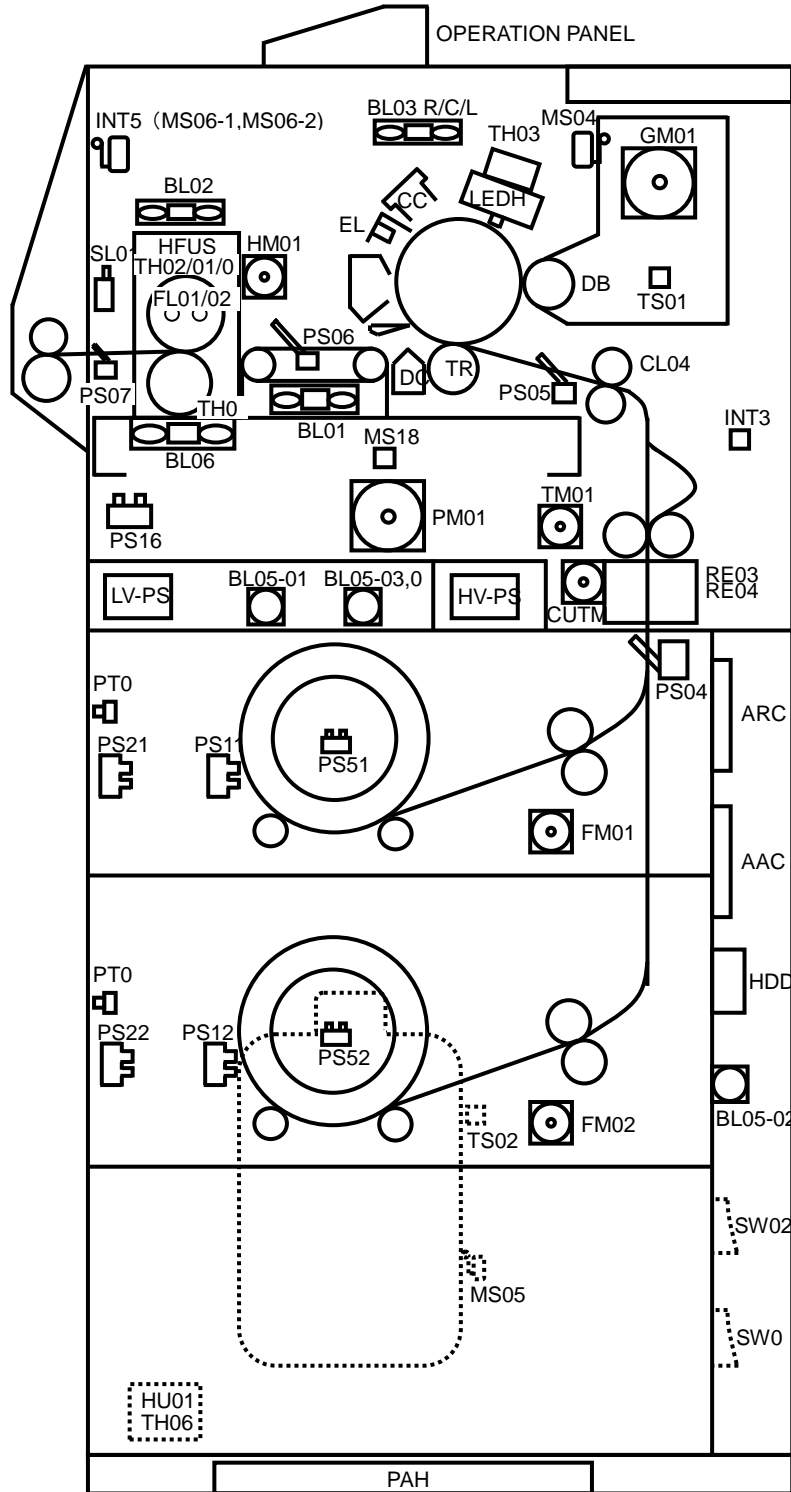


Figure 12.3 Outline of Printer Components

Table 12-1 Sensors and Actuators

| Name   | Code                |
|--|---------------------|
| Developer unit   | DB                  |
| Transfer unit  | TR                  |
| Separator  | DC                  |
| Charger  | CC                  |
| Discharge unit   | EL                  |
| Exposure   | LEDH                |
| Printer main switch  | SW01                |
| Paper feed unit moisture absorption heater (paper heater) switch | SW02                |
| Process motor  | PM01                |
| Developer pulse motor  | GM01                |
| Paper feed pulse motor   | TM01                |
| Heat roller pulse motor  | HM01                |
| Paper feed pulse motor x (x: the roll number)                    | FM0x                |
| Cutter motor   | CUTM                |
| Registration roller clutch                                       | CL04                |
| Suction fan  | BL01                |
| Fuser unit upper fan   | BL02                |
| Charger unit fan   | BL03                |
| Circuit board cooling fan  | BL05-01, 02, 03, 04 |
| Fuser unit lower fan   | BL06                |
| Paper output shutter solenoid                                    | SL01                |
| Fuser unit halogen heater  | FL01                |
| Fuser unit halogen heater (for both sides)                       | FL02                |
| Rear door open/close switch                                      | INT3                |
| Paper outlet cover open/close switch                             | INT5(MS06)          |
| Slitter cutter blade brake switch                                | RE03                |
| Slitter cutter blade brake switch                                | RE04                |
| Toner cartridge detection switch                                 | MS04                |
| Waste toner bottle detection switch                              | MS05                |
| Fuser unit drawer open/close switch (24V)                        | MS18                |
| Paper detection sensor (below cutter)                            | PS04                |
| Paper detection sensor (registration)                            | PS05                |
| Paper detection sensor (suction)                                 | PS06                |
| Paper detection sensor fuser)                                    | PS07                |
| Roll x flange detection sensor (x: the roll number)              | PS1x                |
| Fuser unit drawer (right side) open/close sensor                 | PS16                |
| Paper feed door x open/close sensor (x: the door number)         | PS2x                |
| Roll x paper near end detection sensor (x: the roll number)      | PS5x                |
| Roll x paper width detection sensor (x: the roll number)         | PT0x                |

| Name  | Code  |
|---|-------|
| Toner sensor in hopper                                    | TS01  |
| Waste toner sensor  | TS02  |
| Fuser (center) temperature measurement thermistor         | TH01  |
| Fuser overheat detection thermistor                       | TH02  |
| LED head temperature measurement thermistor               | TH03  |
| Fuser (edge) temperature measurement thermistor           | TH04  |
| Backup roller temperature measurement thermistor          | TH05  |
| Environmental sensor (humidity sensor)                    | HU01  |
| Environmental sensor (temperature sensor)                 | TH06  |
| Temperature fuse 1  | HFUS1 |
| Paper feed unit moisture absorption heater (paper heater) | PAH   |

### 12.4.3 Circuitry Layout Block Diagram

The mechanical control unit performs print operation by activating the LED head and controlling each actuator based on the signal sent from the external device.

The unit also performs print operation without any external devices, by generating a test pattern within the Printer's electronics.

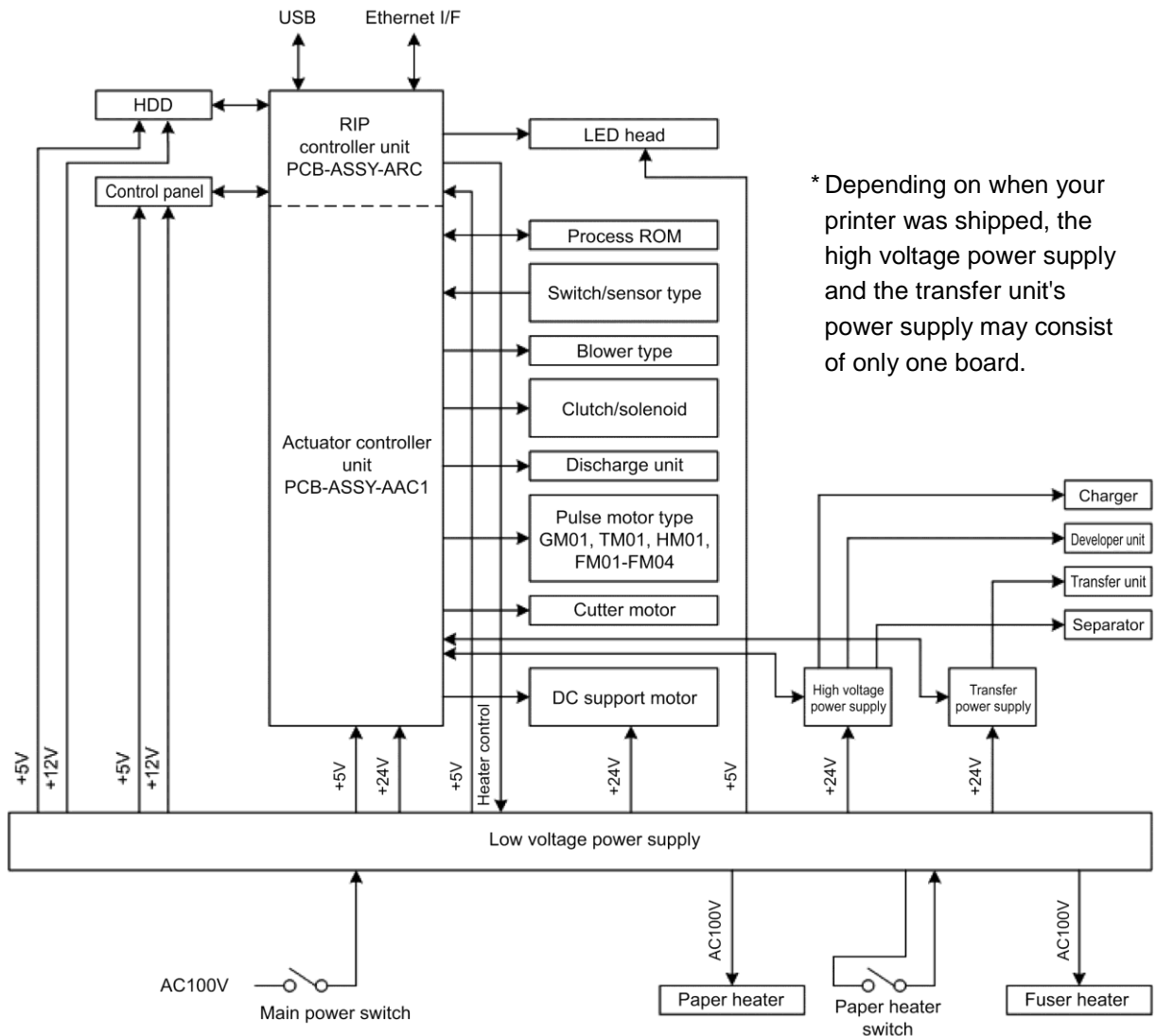


Figure 12.4 Circuitry Layout Block Diagram

## 12.4.4 Operation Overview

### (1) Warm-up Operation

- (a) Operation period  
From the time the heater is turned On and until the fuser roller reaches the specified temperature.
- (b) Purpose  
To heat up the fuser roller to the specified temperature.
- (c) Action
  - The heat roller pulse motor runs to keep the fuser roller at a steady temperature.
  - Performs paper detection including the paper size detection and the paper top edge alignment with the specified position. .

### (2) Standby State

- (a) Operation period
  - After the warm-up has finished until print data is completely received.
  - After the paper is output and until the next print data is received.
- (b) Purpose  
To control the fuser roller at the specified temperature and keep the Printer in the standby state.
- (c) Action  
Temperature control is performed by sampling the fuser temperature control thermistor and turning on and off the current inside the heater.  
The heat roller pulse motor runs to keep the surface of the fuser roller at a steady temperature.

### (3) Pre-Rotation

- (a) Operation period  
When print data is completely received until the LED head starts writing (exposure).
- (b) Purpose  
To remove any remnant charge from the photoconductor drum and to stabilize the photoconductor drum's sensitivity so that the Printer is ready for print operation.
- (c) Action  
The process motor starts to rotate the drum and, at the same time, the primary charger, transfer bias, and discharge unit are turned On before the drum rotates 1 or 2 times. After one rotation, the developer bias is also turned On.  
Paper is transported to just in front of the registration roller.

### (4) Print

- (a) Operation period  
From the time the LED head starts writing until the transfer is complete.
- (b) Purpose  
To create an image on the photoconductor drum based on the data sent from the computer and to transfer the toner image to the paper.
- (c) Action  
After the LED head finishes writing, the developer, transfer, and separator units are turned On in that order.

**(5) Post-Rotation**

(a) Operation period

From the time the transfer is complete until the process motor stops.

(b) Purpose

Remnant toner and any remnant charge left on the drum is removed and the paper is output.

(c) Action

After the image is transferred to the paper, the drum rotates approximately one time to stabilize the surface.



## 12.5 Electrophotographic Process Operation

### 12.5.1 Primary Charger

Primary charger process is the first step in the creation of the electrostatic latent image, which maintains an even charge across the surface of the photoconductor drum.

The Printer uses the reliable corona charger (a scorotron type with superb negative chargeability).

#### (1) Function of the Primary Charger

- (a) Photoconductor drum surface electric potential application function (corona electrical discharge function and electrical discharge stabilizer function)

The electrical charge released by the charge wire is handled by the grid electrode and applied to the surface of the photoconductor drum.

#### (2) Outline of the Scorotron Charging Method

- (a) Basis

Corona discharge (negative corona)

Using a thin, needle-like conductor as an electrode, one can gradually increase the voltage across a flat plate to another counter-electrode causing the needle-like portion to glow faintly, emitting a few  $\mu\text{A}$  of current. This is what is known as a corona discharge.

Negative corona

Minus voltage is applied to the corona discharge wire (anode). When this voltage is increased, the electrical field on the anode surface increases causing electrons to be emitted through electron field emission, which become the primary electrons. These electrons are speed up in a high electrical field creating an avalanche of primary electrons. Positive ions within this avalanche are input into the anode creating a release of secondary electrons which in turn creates an avalanche of secondary electrons. This avalanche then continues to form. The electrons at the tip of these avalanches bond with the gas in the air to create negative ions which attach to and charge the drum surface.

Basic principles of the scorotron charger unit

The scorotron charger unit has an amplification effect based on the principles of the triode. Because the electrons move due to the action of the electrical field, the entire charge field is amplified. The electrical field emitted from the charger electrode runs to this grid. From there it will not be diffused into the large electrical field on the drum below. Normally, no power source is connected to the grid electrode. A varistor (Zener diode) is connected instead. A varistor is a semiconductor whose resistance value changes depending on the voltage. When the voltage is high, it discharges electricity, but when the voltage is low, it does not.

- (b) Structure

The wire electrode, a conductor, and the shield electrode covering it are placed, and the grid electrode is installed in the opening section.

## 12.5.2 Photoconductor Drum

This Printer uses OPC (organic photoconductor) materials for its electrophotographic photoconductor materials.

### (1) Photoconductor Drum Functions

- (a) Charge holding function
- (b) Electrostatic latent image holding function
- (c) Toner transport function

### (2) Outline of the OPC Photoconductor Drum

#### (a) Basis

Carrier generation (photoexcitons)

Excitons are emitted by optical illumination within organic molecular crystals. These excitons proliferate to the crystal surface and lattice defects, pushing out electrons and holes by interacting with the electrostatic potential there.

Excitons excite the entire crystal in the same phase by bouncing around the crystal as an excitation wave made up of specific excited molecules within the organic molecular crystal. An exciton is merely this excitation wave when it is quantized.

Now the ion pair that was separated into an electron and a hole will evade coming back together and thermally separate creating an electron-hole carrier. If the surface of the photoconductor does not have any charge, the Coulomb force required to separate the carrier will not act on the particles and so they will re-join.

Carrier transport

In the amorphous carrier transport layer, carriers move by hopping through carrier transport particles.

If neighboring particles take on a special orientation at close range causing a structural defect, a carrier trap is created.

#### (b) Structure

Most OPC photoconductors in use today are of a stacked type, where the basic photoconductor processes of carrier creation and carrier transport are separated.

#### (c) Photoconductor surface potential

- Charge: -420 to -390V → -400 to -370V (dark decay)
- Exposure: -20 to -60V
- Development: -230 to -300V (for developer toner)
- Transfer: -40 to -80V
- AC Separation:  $0 \pm AC \rightarrow 0V \rightarrow \pm$  unstable surface potential and unstable charge toner will remain.

### 12.5.3 Exposure

The Printer uses a LED head for its digital exposure process.

#### (1) LED head functions

- (a) Exposure function  
Emit light to create the latent image for the photoconductor.
- (b) Head/internal temperature measurement function  
A thermistor is installed inside the head unit to measure the internal temperature as well as the head temperature.
- (c) Line width control function  
With the LED's illumination time adjustment, line width is manipulated.

#### (2) Outline of the LED head

##### LED array

- (a) Basis (illumination principles)  
The hall current added to the LED array is stopped by the pn connection (hetero-junction)'s hetero barrier. When current is injected in that direction (carrier re-joining), light (hv) is emitted.

##### SELFOC lens

- (a) Basis, production method  
Glass wire is created by using compound materials including graded index components such as Cs, Li, Tl, among others. That is then put into a melting furnace containing calcium or potassium nitrate which exchanges the refractive index ions in the glass with the ions in the furnace creating a graded index.
- (b) Structure  
A SELFOC (light focusing glass fiber) lens is an array of rod shaped lenses (SLA is a trademark of Nippon Sheet Glass Co., Ltd.).
- (c) Features  
Each lens has superb resolution and puts together upright, to scale images. However, they have significant variation between them and need to be checked thoroughly for performance.  
The formed image is created at a 1:1 scale, so adjusting the focal point is a vital task.

##### LED head unit

- (a) Basis  
This is an optical unit that uses the SLA to collect light on the surface of the photoconductor from the light emitted from the LED array.
- (b) Structure  
The LED chip, IC, and circuit board are die bonded, wire bonded, adjusted, and inspected and assembled with the heat sink, lens, and other parts.

## 12.5.4 Developer

This is the process of adding toner on top of the electrostatic latent image, on the surface of the photoconductor drum, to create a visible image. When pre-charged toner is put in contact with the photoconductor, the toner either sticks or does not depending on the charged state of the photoconductor surface.

This Printer adds DC and AC bias to aid in toner fusing and to prevent the toner from fusing to parts of the paper other than the intended image.

### (1) Developer unit functions

- (a) Toner transfer (development) / bias addition function  
Transfers toner to the photoconductor's electrostatic latent image to create a visible image. A thin-film formation is used to aid in the toner transfer.
- (b) Toner recovery function  
Recovers non-developed toner via AC bias.
- (c) Toner supply function  
Supplies toner from the toner cartridge.  
Provides toner to the sleeve through the agitator.
- (d) Low toner detection function  
Detects when the Printer is out of toner by using a toner sensor (piezoelectric sensor).
- (e) Density adjustment function  
By changing the developer bias you can adjust the development density.
- (f) Toner agitation function  
Agitates the toner by rotating the agitator. Prevents soft blocking of the toner.
- (g) Developer gap retention function  
Retains the developer gap by applying pressure through a roller to the photoconductor drum.

### (2) Outline of the magnetic monocomponent development method

- (a) Basis  
Using toner on which 0.1  $\mu\text{m}$  to 0.5  $\mu\text{m}$  of magnetic powder has been dispersed inside a resin binder, toner is transported using a magnetic roller outer circumferential developer sleeve.  
Generally, a toner layer of about 100  $\mu\text{m}$  is built up on the sleeve surface. Then, after being transported to the photoconductor surface, the sleeve adds a charge (AC + DC) to the toner. If the latent image and the toner's electrostatic attraction becomes greater than the magnetic constraining force, the toner will stick to the latent image and form the image.
- (b) Structure  
The sleeve is constructed using non-magnetic materials such as stainless steel or aluminum, and rotates forward in relation to the photoconductor drum. The rotational speed is about 1 to 3 times the circumferential velocity of the photoconductor drum.  
The magnetic roller is locked so that it cannot rotate within the sleeve. The roller has six magnetic poles are distributed such that the strongest directly faces the photoconductor drum. This main pole position is between the center of the sleeve and the center of the photoconductor drum, and is laid out in the upper part of the rotation (about 1 to 5 degrees).  
A rubber blade applies pressure against the sleeve's rotational direction. The wiping action of the blade thins out the toner layer and gives it an electrical charge. The sleeve is also provided with AC+DC bias voltage in order to facilitate movement of the toner during development.

### 12.5.5 Transfer Unit

The transfer process develops the electrostatic latent image, then takes the toner that is stuck to the photoconductor by the Coulomb force, and works against the Coulomb force to move that toner to the paper or other base material (otherwise known as the electrostatic transfer process).

The electrostatic transfer method electrostatically applies 1 to 3 layers of electrically charged toner particles 5 to 15  $\mu\text{m}$  in diameter to the electrostatic latent image on the surface of the photoconductor. Then, it applies a charge to those particles through the back side of the transfer paper, and moves the particles to the transfer paper by using the Coulomb force in the electrical field created between the paper and the photoconductor.

This Printer uses voltage impression roller transfer.

#### Transfer unit functions

(a) Paper charge function

Positive DC voltage is applied to the back surface of the paper, at which time negatively charged toner is transferred to the paper.

(b) Paper transport

Paper is held between the photoconductor drum and the transfer roller to be transported.

## 12.5.6 Separator

After the transfer process, the diffuse process consists of using both a standard discharge separation and a separating claw.

### (1) Separator unit functions

#### (a) Paper discharge function

This discharges electricity so that no reverse polarity electrical charge is left on the paper separator and photoconductor drum.

### (2) Outline of the AC discharge separation method

In order to perform paper separation well, a discharge needle or AC charger unit is used after the transfer process has completed, and the paper is discharged. This method is what is known as the AC discharge separation method.

When an OPC photoconductor is used, the paper is charged positively via a transfer, sticking to the surface of the photoconductor drum through the electrostatic force generated. Therefore, an AC corona discharge is released by the separator charger unit to remove the electrostatic force from the paper and the drum in order to separate the paper from the drum.

Generally, thin, flexible paper often causes separation problems. Thus, you must decide on a range for the AC discharge voltage value and the allowed value based on the image quality and separation ability.

The separator guide protects the paper from entering into the separator unit. Also, the surface of the separator guide is covered with a conductive coating so that the electric potential of the paper surface and the paper will be the same, preventing toner from scattering.

## 12.5.7 Cleaning

If there is leftover toner that was not transferred particles of paper left on the photoconductor, those can cause problems for the next process, or get into the developer unit and cause problems there. Cleaning is the process of removing those deposits left behind on the photoconductor.

This Printer uses a mechanical peeling blade cleaning system.

### (1) Cleaning functions

#### (a) Removal of leftover toner on the photoconductor drum surface

Uses a blade to remove leftover toner, paper particles, and other foreign particles on the surface of the photoconductor drum.

#### (b) Photoconductor surface polishing function

Applies the blade to the photoconductor drum surface to polish it and prevent deterioration of the drum surface due to toner filming, etc.

#### (c) Toner transport function

Transports waste toner using an auger screw.

#### (d) Splash protection function

A film is used to prevent toner splashing.

### (2) Blade cleaning outline (blade cleaning method)

A wear resistant blade made of polyurethane is used to clean leftover toner off the drum surface.

### 12.5.8 Discharge Unit

After the transfer process, the residual potential on the photoconductor surface is at an uneven value due to the different functions of each process invoked. If left in this state, past latent images could appear on the image in subsequent processes. Therefore, it is necessary to perform a discharge to equalize the residual potential on the photoconductor surface before applying the primary charge.

This Printer uses a light-based LED discharge method.

#### (1) Discharge unit function

- (a) Residual potential removal function

A LED emits light, removing the residual potential on the photoconductor drum surface.

#### (2) LED discharge outline

Normally, a red LED is used. The amount of light emitted by the LED is adjusted according to the sensitivity of the drum. Therefore, it is necessary to perform PWM control on the number of LEDs and their drive voltage.

Discharging light is shined on the surface while performing a charge. Then, the drum is checked for a stable charge voltage to determine the correct LED luminescence.

### 12.5.9 Fuser Unit

Fusing is the process of attaching the toner to the surface of the paper.

This Printer uses a heat roller method due to its high image quality and how well it fuses.

#### (1) Fuser unit functions

- (a) Heating function

A halogen heater is used to heat up the heat roller.

- (b) Temperature detection control function

Temperature detection range -- 160 to 190 degrees Celsius

(Method: Thermistor temperature detection, heater On/Off)

Overheat detection -- 200 degrees Celsius (Method: thermistor)

Overheat protection -- Overheat protection temperature fuse

- (c) Power save function

- (d) Paper transport function

- (e) Paper pressure/nip release function

Releases the fuser roller's nip with the fuser unit's open/close action.

- (f) Cooling airflow

Provides ventilation to the side of the Printer using a blower.

- (g) Offset protection

Uses a teflon roller to protect against toner offset.

- (h) Heat retainment function

## **(2) Outline of the heat roller fusing method**

### **(a) Basis**

Toner fusing is a 5-step process:

- (i) Toner particles are heated to sinter.
- (ii) Fused.
- (iii) Deformed (expanded) and the paper is moistened.
- (iv) The melted toner anchors between the fibers of the paper.
- (v) After the particles are cooled, they harden and fuse to the paper.

The primary component of the toner, polymeric resin, through the process of changing from a glass to a glass transition state, turns into a rubbery, and then viscous fluid.

### **(b) Structure**

The upper-side heat roller's metal core is heated from the inside by a halogen heater. The surface of the metal core is coated with a resin such as teflon to help the toner release from it. The lower-side backup (pressure) roller's metal core is covered in a silicon rubber that is heat hardened, and has superior oil resistance, weather resistance, and compressive restoration ability. By pressing this roller against the upper heat roller the proper nip width is maintained.



## 12.6 Drive/Transport Systems Operation

### 12.6.1 Drive System

The Printer's drive system consists of the paper feed drive motor, above cutter roller drive motor, process drive motor, and the fuser unit drive motor. There is also a motor for the developer and cutter drive system which can operate independently.

#### (1) Process drive motor

This motor drives the registration roller, drum, cleaner auger, and transfer roller. The registration roller and transfer roller have a clutch for drive transmission and the paper drive can be turned On or Off based on the operation requested.

#### (2) Above cutter drive motor

This motor drives the above cutter roller.

#### (3) Paper feed motor

This motor feeds and rewinds the roll paper.

#### (4) Developer unit drive

The developer unit's drive system is driven by the developer motor (GM01) found in the developer unit itself. A stepping motor is used for this drive motor, and the agitator and sleeve are driven by a gear transmission.

#### (5) Fuser unit drive motor

The fuser unit's drive system is driven by the fuser unit motor found in the fuser unit itself. A stepping motor is used for this drive motor and the heat roller, backup roller, suction belt system, and output paper roller are driven by a gear transmission.

### 12.6.2 Paper Transport System

#### (1) Paper feed unit

##### (a) Paper feed unit structure

The paper feed unit is made of one to two drawers (depending on the model) that can each contain a roll of paper.

##### (b) Paper feed/print operation

###### First print

The first page printed (after the power is turned on, first page of intermittent printing), requires the photoconductor drum to spin up first. Therefore, when a print request is received from the controller, printing will not start for approximately 6 seconds (the time required for the drum to spin up) until the light exposure begins.

###### Intermittent printing (paper switch printing)

If the page size for the first set of data is different from the next set, a paper switch operation will be performed.

###### Continuous print (for copies)

When performing continuous printing (copy), the lead edge of the next sheet of paper is gripped by the registration roller before the first set of data is output in order to reduce printing time.

###### Continuous print (with a spool and when controller processing finishes in time)

Even with different sets of data, if the paper size is the same and the controller finishes its processing in time, the Printer can output at the same interval as when it performs copy printing.

**(2) Cutter**

Paper is cut using a slitter method. When a cut is performed a buffer is placed on the paper beforehand in order to prevent image quality reduction due to changes in paper behavior. The time required for cutting the paper is approximately 0.6 seconds, with a paper buffer of approximately 80 mm.

**(3) Suction unit**

The suction feed system is a method of transporting the paper using a belt with fan suction in order to prevent ruining the non-fused toner image after it has been transferred to the paper. The Printer uses a system that applies suction to the entire surface of the paper during transport using a sirocco fan with an exhaust leading to the rear side of the Printer. The suction belt is driven by the fuser unit drive motor via gears.

**(4) Output unit**

The output unit is part of the fuser unit and is driven by the same drive system as the fuser roller.

The output roller rotates at a high speed in regards to the fuser roller and is driven such that it applies tension to the paper from the fuser. This is also required to prevent wrinkling from occurring on the paper.

The output unit can also be optionally equipped with a bucket or stacker.

**(5) Registration roller**

The registration roller is a roller, up from the photoconductor drum, that is used to transport paper between the photoconductor drum and the transfer roller.

## 12.7 Control System

### 12.7.1 Process Control

**(1) Drum surface electric potential control**

A scorotron charging method is used for the Printer's charging method, so surface electric potential control is essentially not performed.

**(2) LED head write control**

LED head write timing is performed based on pulse signals from the engine control board. This standard pulse signal can be fine-tuned to alter the print timing and adjust print quality.

**(3) Development density control**

Control of development density is accomplished by the correlational relationship between the difference between the photoconductor drum's dark potential/light potential and the developer bias (DC). While it is difficult to control the difference between the dark and light potential, the Printer performs this control by performing line width modification control, and developer bias control via control of the LED head's luminous time (strobe width).

**(4) Fuser roller temperature control**

Temperature control for the fuser roller is controlled within the configured temperature range by turning On or Off the halogen heater, based on the thermistor's temperature detection value. When the temperature is below the configured temperature range, the halogen heater is turned On, and when the temperature reaches the configured temperature range, it is turned Off.

### 12.7.2 Paper Feed Control

Paper feed control is performed by controlling the timing to cut the main motor's paper for the desired feed amount.

As discussed in the motor section, the paper feed speed control is performed by controlling the rotational speed of the motor.

## 12.8 Controller Unit

### 12.8.1 Controller Specification Outline

**(1) Data formats**

HP-GL, HP-GL/2, HPRTL, D-SCAN/C2, D-SCAN, D-SCAN Raster, TIFF, CALS

**(2) Configuration functions**

PDL Setting  
Printer behavior  
Paper  
Function  
Protocol  
System

**(3) Memory structure**

Refer to the table below.

| <b>Printer Configuration</b> | <b>Memory Structure</b> | <b>For System Operation</b> | <b>Spool</b> | <b>Page Memory</b> |                   |
|------------------------------|-------------------------|-----------------------------|--------------|--------------------|-------------------|
| Standard Configuration       | 2GB                     | 84MB                        | 2GB          | 918MB              | Equivalent to 15m |

**(4) Input interfaces**

Ethernet interface (ftp/xpt/lpr)  
Compatible with 1000Base-T/100Base-TX/10Base-T (Half Duplex/Full Duplex)

### 12.8.2 Hardware Configuration

An overall block diagram of the controller is given below.

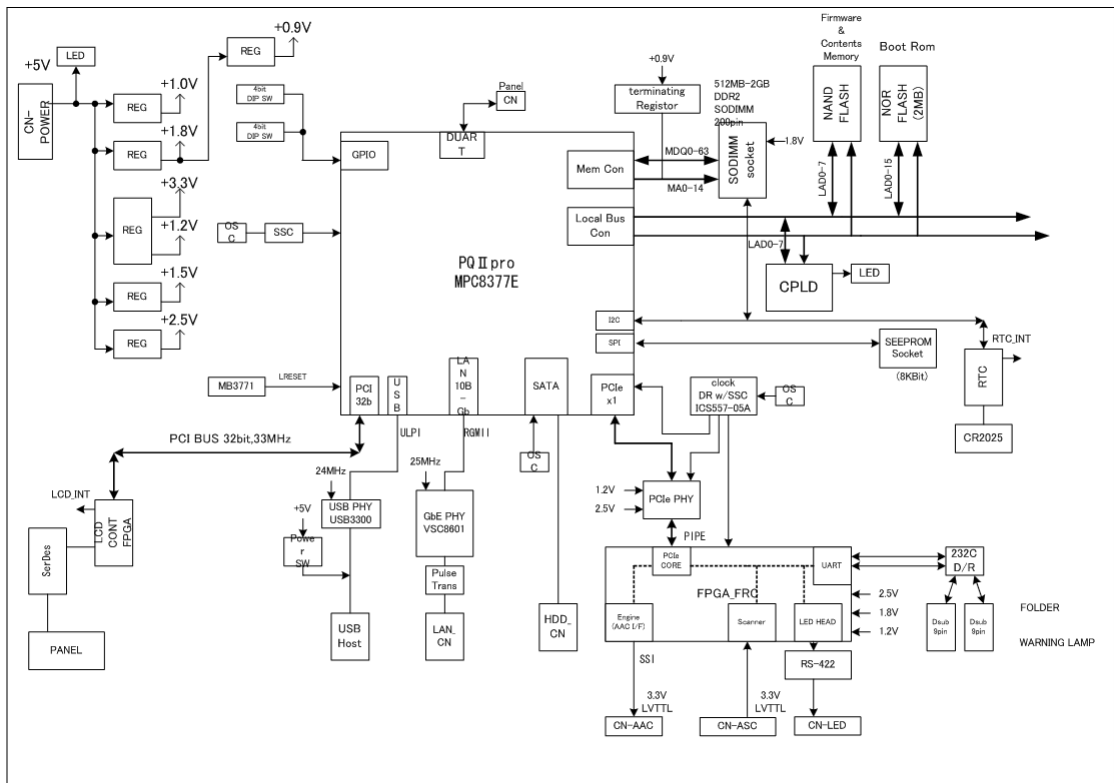


Figure 12.5 Controller Block Diagram (ARC Block)

# Chapter 13 Scanner Operation Guide

## 13.1 Features

The scanner unit\* is a lightweight, compact cost effective scanner consisting of five A4-width contact type image sensors (hereinafter referred to as CIS). In order to place full priority on the usability and the affinity of the printer engine, all operations can be performed from the front of the Printer.

\*: Only on the Multifunction Model

## 13.2 Scanner Specifications Outline

Table 13-1 Scanner Specifications

| Item   | Specifications   |
|--|--|
| Type   | All-in-One Unit  |
| Scan resolution  | 600 dpi  |
| Scan width   | Minimum Width: 210 mm (8.27 inches), Maximum Width: 914 mm (35.98 inches)                            |
| Scan length  | Maximum: 10 m (393.70 inches) *1   |
| Scan speed   | Monochrome/Color (Max): 240 mm (9.45 inches)/s *2  |
| Data formats   | Monochrome: TIFF, PDF Color: TIFF, PDF, JPEG   |
| Original document transport method                       | With the front side facing downward and with the center justified                                    |
| Copy magnification (scaling)                             | Arbitrary magnification of 25 to 400%, 0.1% steps  |
| Output gradation   | 1 bit (binary), 8 bit grayscale, 24 bit full color   |
| Driver   | Network TWAIN  |
| Scanner interface  | Ethernet   |
| Multi-copy   | Up to 999 pages per copy operation   |
| Top and bottom scan edges adjustment                     | 0 to 100 mm (3.94 inches) in 1 mm (0.039 inches) units in the document's actual scale                |
| Erase frame  | 0 to 50 mm (1.97 inches) in 1 mm (0.039 inches) units for the top edge, bottom edge, right, and left |
| Original document thickness                              | 0.05 mm (0.0020 inches) to 0.2 mm (0.0079 inches)  |
| Cutting method   | Standard-size cut<br>Synchronous cut   |
| Startup time   | 0 second   |
| Image memory   | Shared with page memory (through controller memory)  |
| Subscanning direction scan accuracy at sensor connection | 90 mm (3.54 inches) area at top/bottom edge: $\pm 4$ dots<br>Other area: $\pm 3$ dots                |
| Environmental requirement                                | Temperature range (in Operation): 15 to 35 degrees C   |
|  | Storage: -5 to 40 degrees C  |
|  | Humidity range (in Operation): 20% RH to 80% RH (no condensation)                                    |
|  | Storage: 10% RH to 90% RH (no condensation)  |

\*1: Restricted by original document size, resolution, file format, etc.

\*2: Changes depending on the resolution.

\*3: Excluding the stacker, tray, and original document output guide.

\*4: Excluding toner and paper.

Table 13-2 Copy Function Overview

| Function                  | Description   |
|---------------------------|---|
| Original type             | Select an image quality type appropriate for the original.                        |
| Copy density              | Adjust the copy density.  |
| Paper position            | From the paper types installed in the Printer, select the paper type for copying. |
| Original size             | Specify the size of the original.   |
| Original size standard    | Select the size standard of the original.   |
| Original output direction | Set the output direction for the original.  |
| Partial copy              | Copy a portion of the original.   |
| Background compensation   | Delete background colors.   |
| Contrast                  | Adjust the original's contrast.   |
| Sharpness                 | Adjust the original's contour sharpness.  |
| White on black reverse    | Copy an original with its white and black reversed.                               |
| Scale                     | Scale the size of the original.   |
| Blank space               | Set blank space to the front and rear of the original.                            |
| Paper type                | From the paper types installed in the Printer, select the paper type for copying. |
| Erase frame               | Erase the area around the original before copying.                                |
| Output slot selection     | Select the output slot for the paper.   |
| Mirror reverse            | Perform mirror reverse for the original before copying.                           |
| Simple folding machine    | Configure the simple folding machine (optional).                                  |
| Number of copies          | Set the number of copies.   |
| Moderate scan             | Slows down the original send speed so that the original is not damaged.           |
| Text & lines original     | Set the image quality appropriate for the text/lines original.                    |
| Blueprint original        | Set the image quality appropriate for the blueprint original.                     |
| Sort                      | Sort multiple originals before copying.   |

Table 13-3 Scanner Submission Function Overview

| Function                | Description   |
|-------------------------|---|
| Original size           | Specify the size of the original.                                       |
| Original type           | Select an image quality type appropriate for the original.              |
| Background compensation | Delete background colors.   |
| Density                 | Adjust the scan density.  |
| Original size standard  | Select the size standard of the original.                               |
| Original output         | Set the output location for the original.                               |
| Sharpness               | Adjust the original's contour sharpness.                                |
| Contrast                | Adjust the original's contrast.   |
| White on black reverse  | Reverse the white and black of the original before scanning.            |
| Resolution              | Select a scan resolution.   |
| Moderate scan           | Slows down the original feed speed so that the original is not damaged. |
| Text & lines original   | Set the image quality appropriate for the text/lines original.          |
| Blueprint original      | Set the image quality appropriate for the blueprint original.           |
| Scan color mode         | Select a scan color mode.   |
| File format             | Select an image file format.  |
| File name setting       | Set a file name for the scan image data.                                |

### 13.3 Basic Operations

#### 13.3.1 Basic Layout Block Diagram

The overall structure of the scanner unit is shown in the figure below.

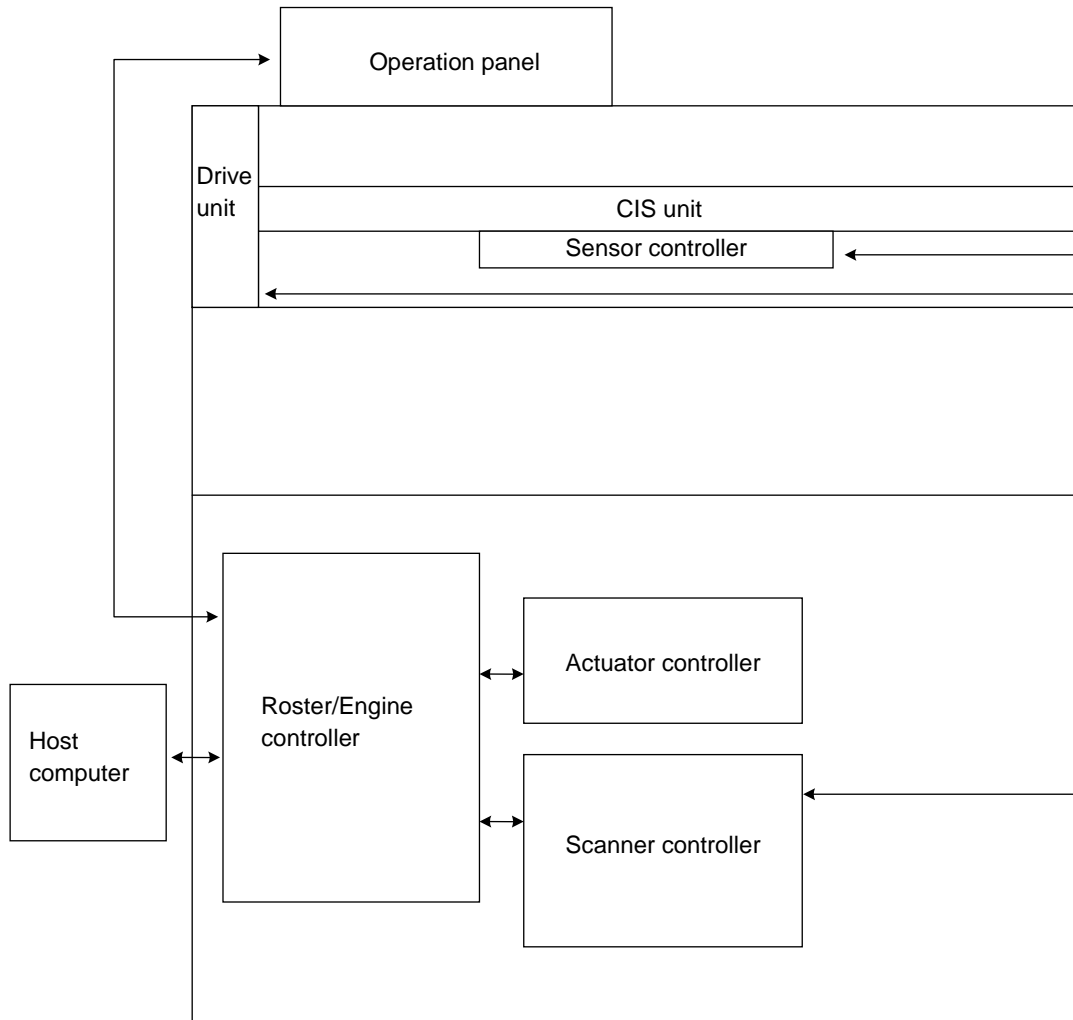


Figure 13.1 Basic Layout Block Diagram (scanner unit)



### 13.3.2 Outline of Printer Configuration

An outline of the overall structure of the scanner unit is shown in the figure below.

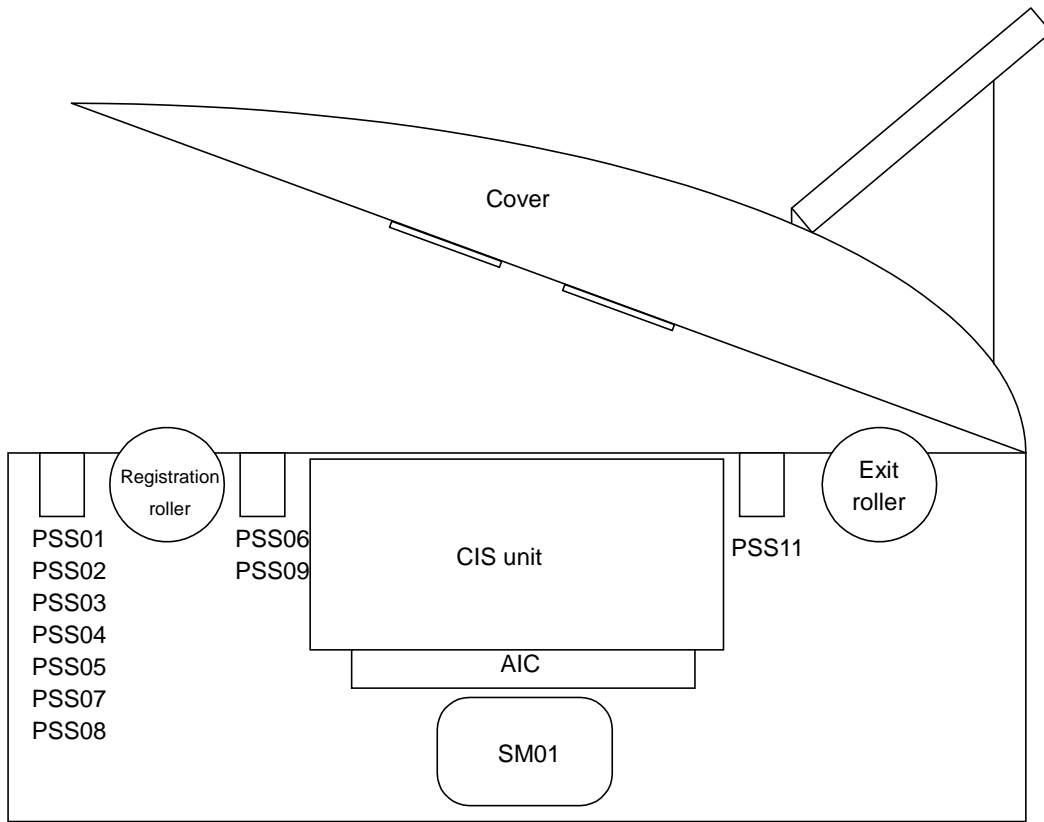


Figure 13.2 Scanner Side View

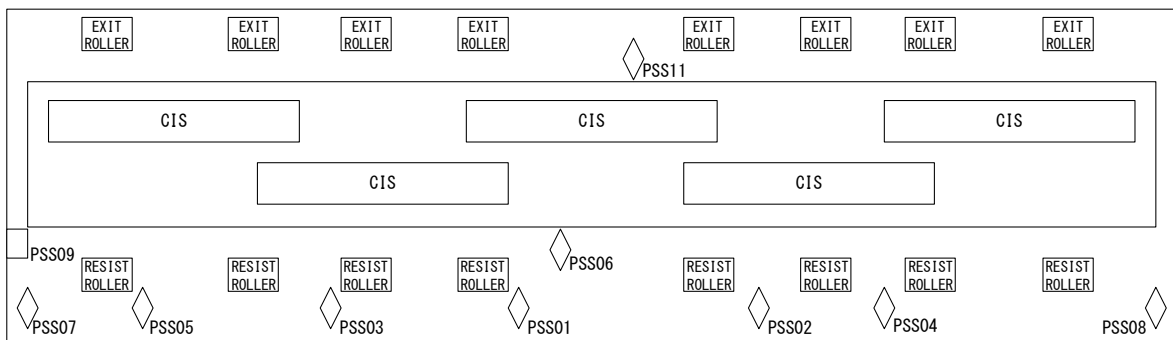


Figure 13.3 Scanner Top View

Table 13-4 lists the scanner's component parts and their engineering name.

Table 13-4 Scanner Component Parts and Engineering Names

| <b>Component Parts</b>       | <b>OKI DATA INFOTECH<br/>Engineering Name</b> |
|------------------------------|---|
| Send pulse motor             | SM01  |
| Original width sensor (A4)   | PSS01   |
| Original width sensor (A3)   | PSS02   |
| Original width sensor (A2)   | PSS03   |
| Original width sensor (A1)   | PSS04   |
| Original width sensor (A0)   | PSS05   |
| Registration sensor          | PSS06   |
| Original skew sensor (left)  | PSS07   |
| Original skew sensor (right) | PSS08   |
| Cover open/close sensor      | PSS09   |
| Paper output sensor          | PSS11   |

### 13.3.3 Circuitry Layout Block Diagram

When an original document is scanned, the data read by the CIS is converted from analog into digital data on the AIC1 board, and then the digital data is sent to the ASC1 board.

The ASC1 board controls the connecting process of the data from the five CIS into main scanning direction A0 width data. The now A0 width data is sent to the RIP controller.

The RIP controller then sends the data to the destination below depending on the function:

- For copy function
  - To the engine for printing
- For scan to file function
  - To the host computer over the network

The figure below shows the scanner's circuitry layout.

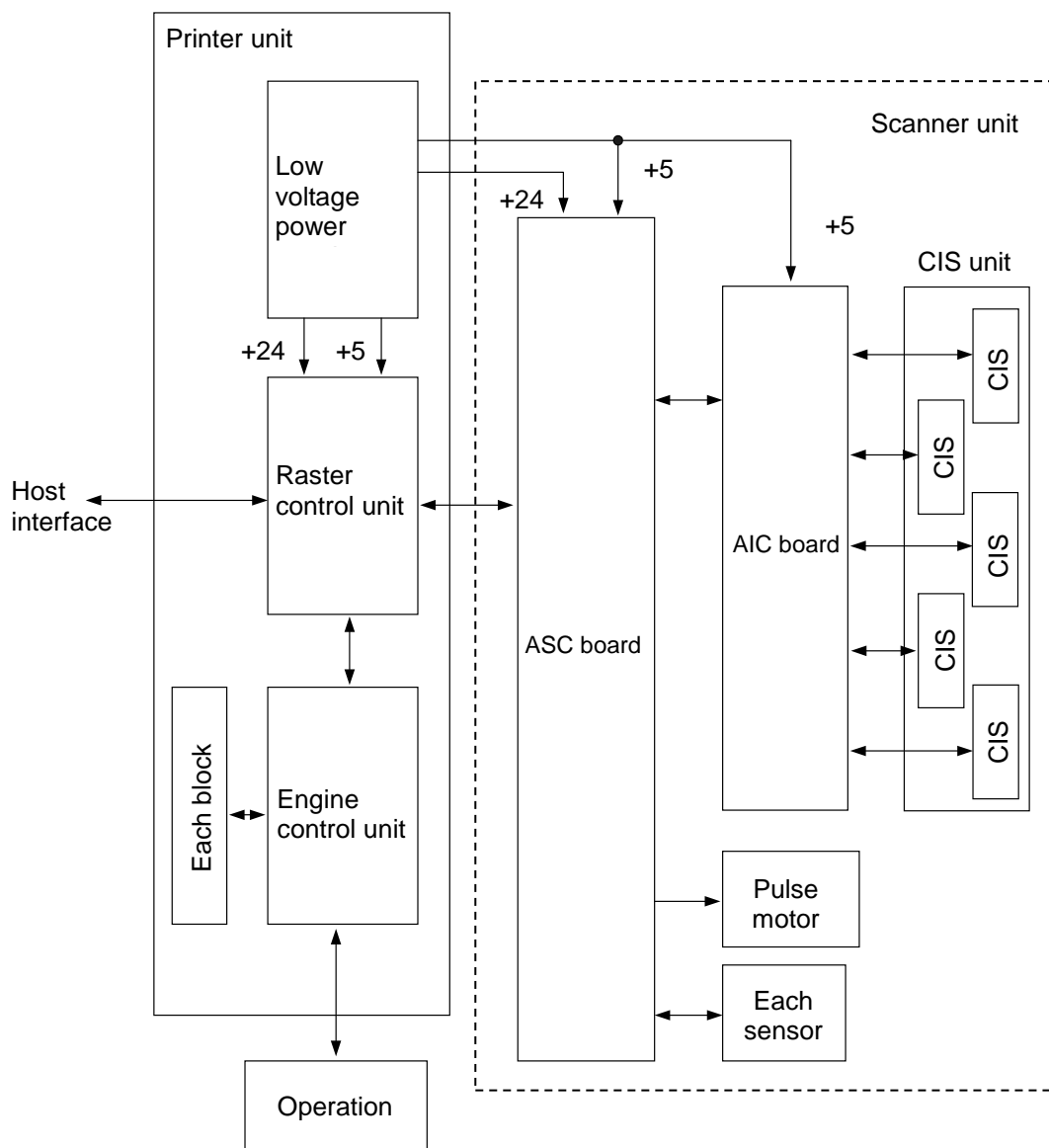


Figure 13.4 Circuitry Layout Block Diagram (scanner unit)

### 13.3.4 Operation Overview

#### (1) Standby state

- (a) Operation period  
From the time the Printer is turned on until the user inserts an original document.
- (b) Purpose  
To keep the Printer in the standby state, with detection of the original document insertion.
- (c) Action
  - Detect original document insertion using the paper width sensor and registration sensor.
  - Detect paper width.
  - Monitor the scanner cover open/close status.

#### (2) Original document feed (forward)

- (a) Operation period  
From the time the original document is inserted until it reaches the CIS unit.
- (b) Purpose  
To prepare for scanning by transporting the original document to the leading edge of the CIS unit.
- (c) Action
  - The motor drives the registration roller whose rotation makes the original document to advance.
  - The skew sensor checks that the document is not skewed badly to the point where it could cause a paper jam.

#### (3) Scan

- (a) Operation period  
From the time the original document reaches the CIS unit until the entire area of the original document is scanned.
- (b) Purpose  
To scan the original document.
- (c) Action
  - While the original document is advanced, the LED, used as CIS's light source, lights on. The LED exposes the document to the light. Then CIS receives its reflection, which is output as analog signal.
  - The analog signal is sent to the AIC1 board where the signal is converted into digital signal. The digital signal is sent to the ASC1 board. The ASC1 board controls the connecting process of the data from the five CISs into main scanning direction A0 width data.
  - The A0 width data is sent to the RIP controller. The RIP controller then sends the data to the destination below depending on the function.  
For copy function: to printer engine  
For scan to file function: to the host computer.

**(4) Original document feed (back)**

- (a) Operation period  
From the time the scan has finished until the tail end of the original document is output.
- (b) Purpose  
To advance the original document, after the scan, from the CIS unit's bottom edge until the document is completely output from the Printer.
- (c) Action
  - The motor drives the registration and the rear rollers whose rotations make the original document to advance.
  - The skew sensor checks that the document is not skewed badly to the point where it could cause a paper jam.

**(5) Print (copy function)**

- (a) Operation period  
From the time image data is sent from the ASC1 board to the RIP controller until the actual data is printed. Printing begins after the original document passes completely through the tail end of the CIS unit.
- (b) Purpose  
To create an image on the photoconductor drum based on the data sent from the computer and to transfer the toner image to the paper.
- (c) Action  
After the LED head finishes writing, the developer, transfer, and separator units are turned On in that order.

**(6) Transfer data to host (scan to file function)**

- (a) Operation period  
From the time image data is sent from the ASC1 board to the RIP controller until that data is sent to the host computer. The data transfer from the RIP controller to the host computer starts after the original document passes completely through the tail end of the CIS unit.
- (b) Purpose  
To send image data from the ASC1 board to the RIP controller, and then to send the data to the host computer.
- (c) Action
  - Image data is sent from the ASC1 board to the RIP controller. Once 1-page data is ready within the RIP controller, the data is then sent to the host computer.
  - Data is stored on the HDD connected to the RIP controller to perform actions, for example, sorting.

### 13.4 Scanner Controller Unit (ASC1 Board)

#### 13.4.1 Hardware Configuration (ASC1 Board)

The ASC1 board is connected to the sensor controller (AIC1 board). Its functions are:

- Receive image signals from the CIS;
- Process the image data; and
- Send the image data to the RIP controller board (ARC1/ARC2 board) from the ASC1 board.

The ASC1 board also contains a mechanical interface which performs functions such as document transport and position detection.

A block diagram of the overall hardware layout is given below.

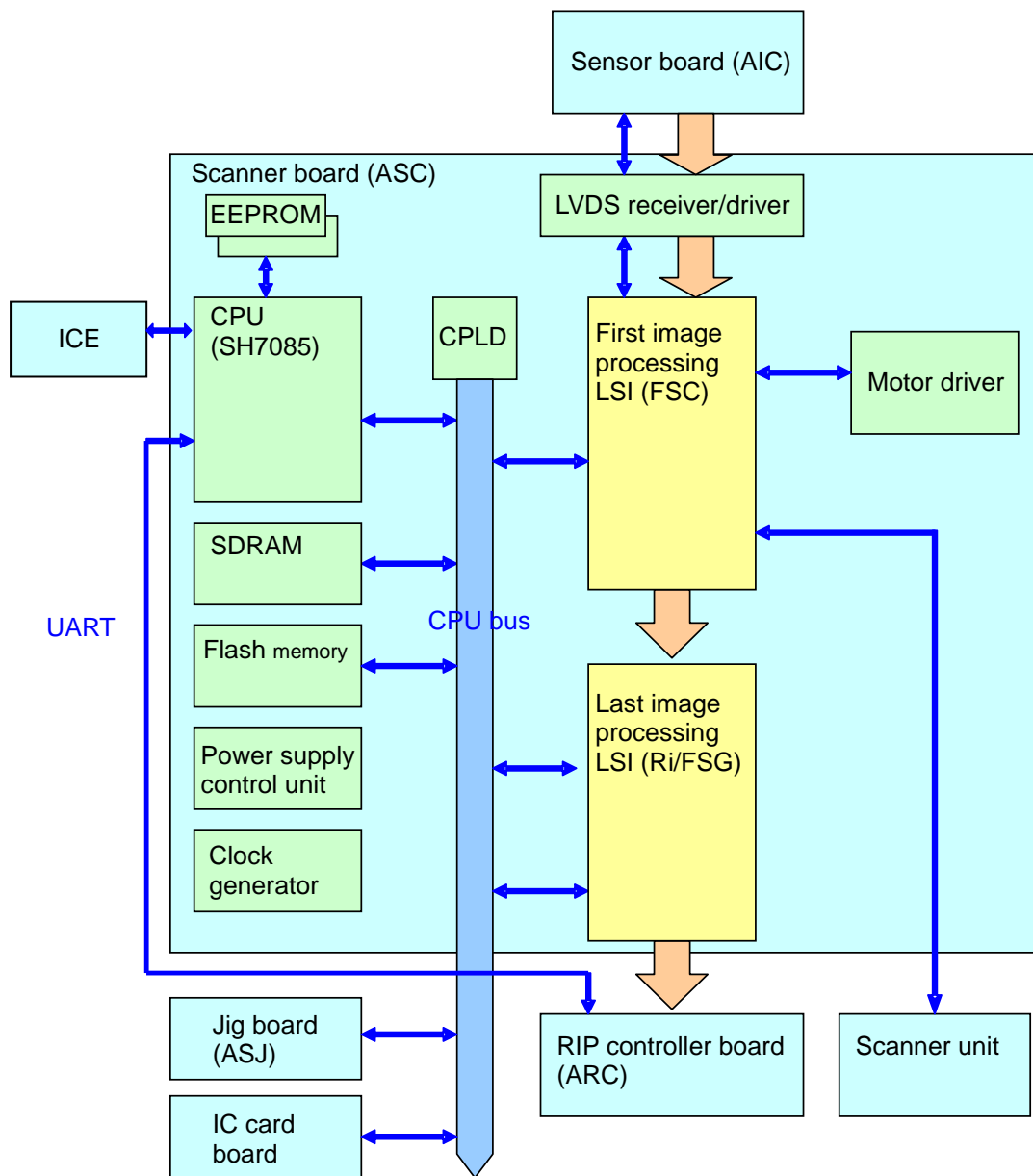


Figure 13.5 Scanner Controller Block Diagram

## **13.5 CIS Unit (AIC1 Board and CIS)**

### **13.5.1 Hardware Configuration (AIC1 Board and CIS)**

Five A4 image sensors are housed together in a single unit providing an image sensor that handles up to 36 inches in width. The analog signal from each image sensor (CIS) goes through the analog front end (AFE) and is converted into a digital signal, at which time it is then sent to the scanner controller board (ASC1 board). A block diagram of the overall hardware layout is given below.

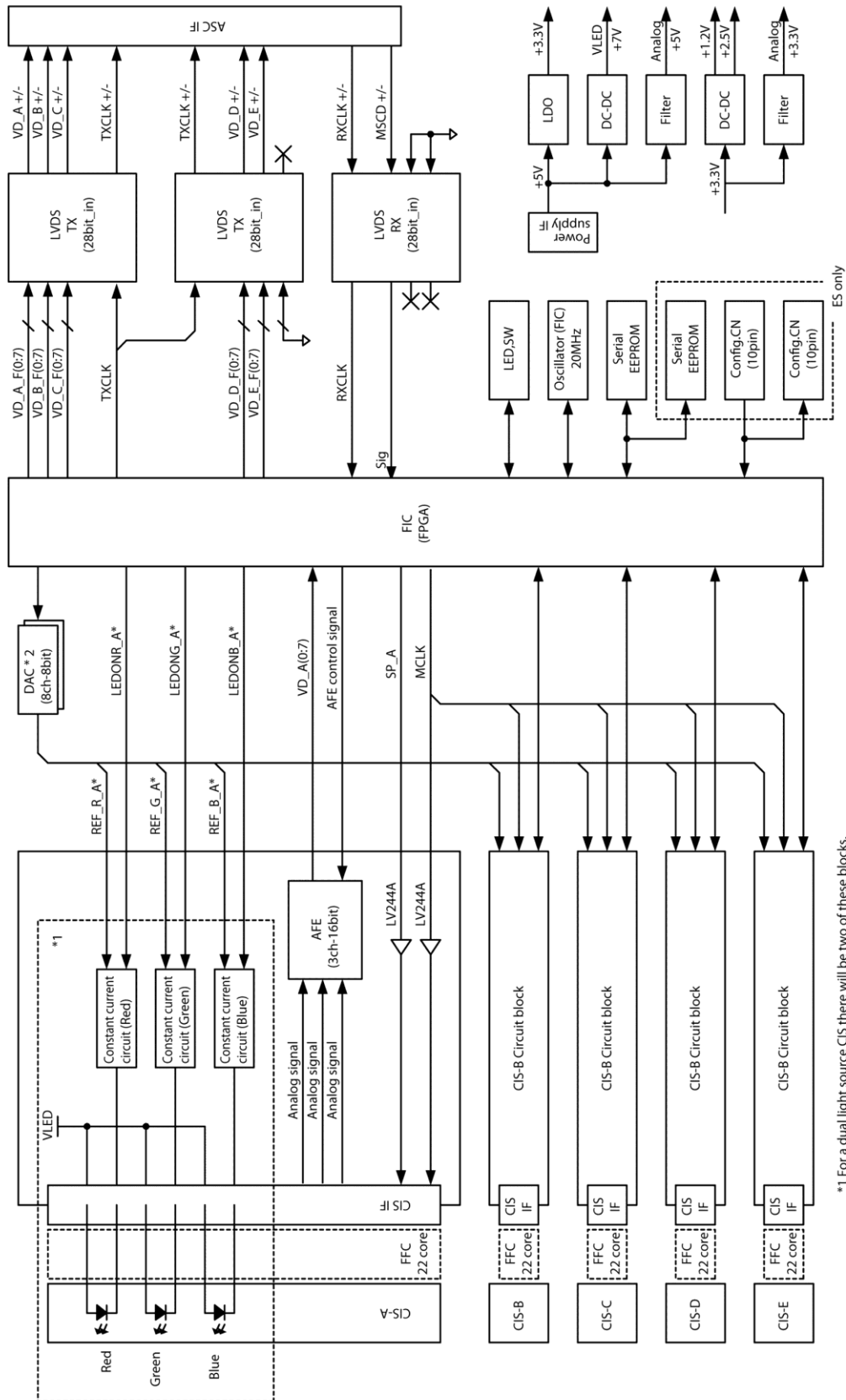
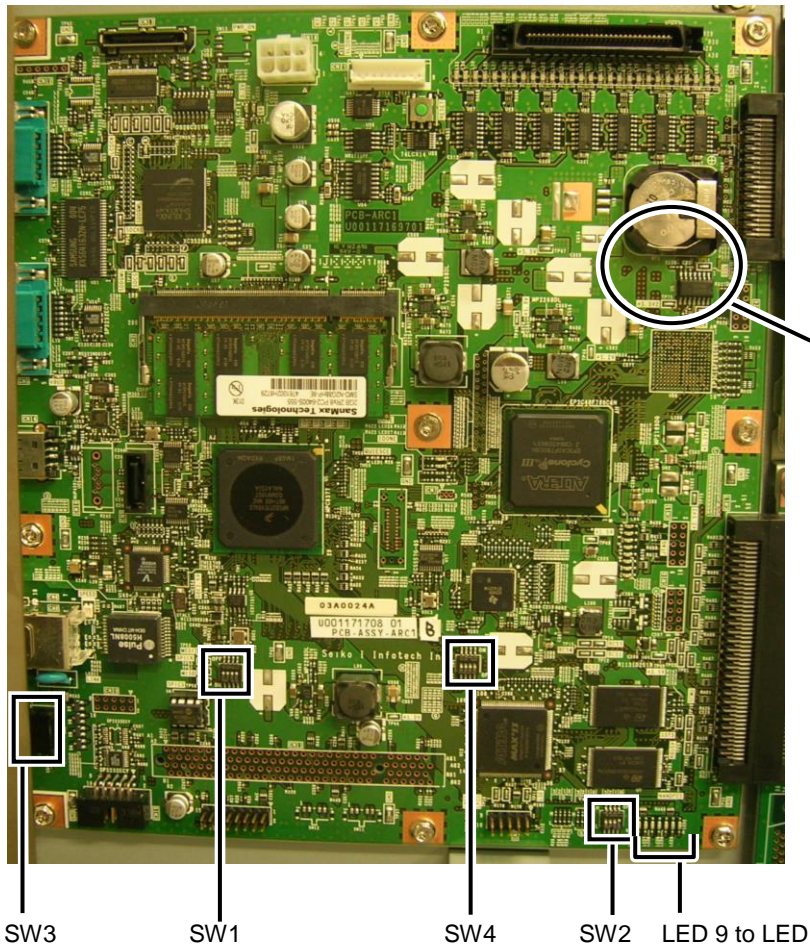


Figure 13.6 CIS Unit Block Diagram



# Annex A ARC1/ARC2 Board Configuration and Display



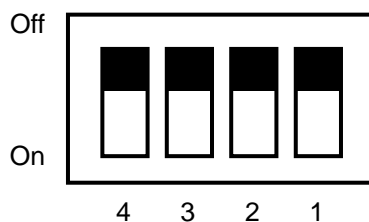
**Note**  
Risk of explosion if battery is replaced by an incorrect type.  
Dispose of used batteries according to the instructions.

## A.1 DIP Switch Settings

DIP switch settings on the ARC1/ARC2 circuit board are shown below. When the DIP switch settings are changed, be sure to reset the power to the circuit board in order to apply those changes.

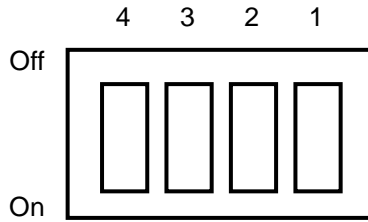
### A.1.1 ARC1/ARC2 Circuit Board's SW1 DIP Switch Setting

All bits of the DIP switch SW1 should be set to the Off side.



### A.1.2 ARC1/ARC2 Circuit Board's SW2 DIP Switch Setting

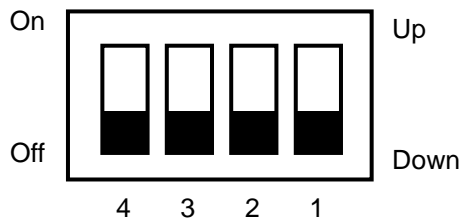
Make sure that the SW2 settings corresponds to the circuit board revision.



| Revision | SW2 Setting |     |     |     |
|----------|-------------|-----|-----|-----|
|          | 4           | 3   | 2   | 1   |
| A        | On          | On  | On  | On  |
| B        | On          | On  | On  | Off |
| C        | On          | On  | Off | On  |
| D        | On          | On  | Off | Off |
| E        | On          | Off | On  | On  |
| F        | On          | Off | On  | Off |
| G        | On          | Off | Off | On  |
| H        | On          | Off | Off | Off |

### A.1.3 ARC1/ARC2 Circuit Board's SW3 DIP Switch Setting

All bits of the DIP switch SW3 should be set to the Off side, that is, Down side.



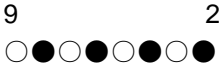
| Bit | Meaning when set to On position | Meaning when set to Off position | Normal Position |
|-----|---------------------------------|----------------------------------|-----------------|
| 1   | —                               | —                                | Off             |
| 2   | —                               | —                                | Off             |
| 3   | For version upgrade only        | —                                | Off             |
| 4   | For version upgrade only        | —                                | Off             |

### A.2 ARC1/ARC2 Board LED Display

The following section explains how to read the LED display on the ARC1/ARC2 board. The status of the LED is represented by the following icons.

- : On
- ☆: Flashing
- : Off

**(1) LED display immediately after turning On the power**



**(2) LED display during standard operation**

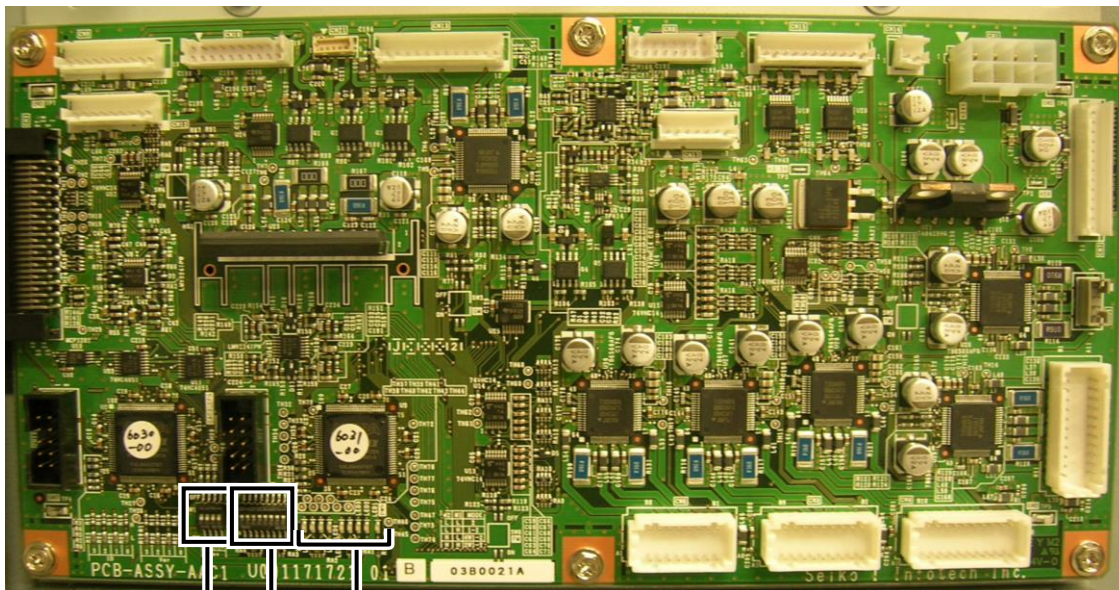


### A.3 ARC1/ARC2 Circuit Board's Reset Switch (SW10)

Pressing reset switch SW10 resets the ARC1/ARC2 board circuit and also restarts the firmware.

Normally this function should not be used. For the reset operation, switch the Printer power off, then on.

# Annex B AAC1 Board Configuration and Display



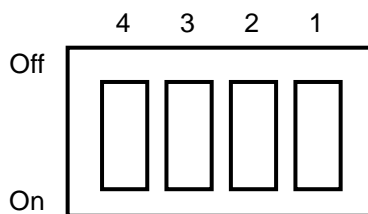
SW1 SW2 LED 9 to LED 1

## B.1 DIP Switch Settings

DIP switch settings on the AAC1 circuit board are shown below. When the DIP switch settings are changed, be sure to reset the power to the circuit board in order to apply those changes.

### B.1.1 AAC1 Circuit Board's SW1 DIP Switch Setting

Make sure that the SW1 settings corresponds to the circuit board revision.



| Revision | SW1 Setting |     |     |     |
|----------|-------------|-----|-----|-----|
|          | 4           | 3   | 2   | 1   |
| A        | On          | On  | On  | On  |
| B        | On          | On  | On  | Off |
| C        | On          | On  | Off | On  |
| D        | On          | On  | Off | Off |
| E        | On          | Off | On  | On  |
| F        | On          | Off | On  | Off |
| G        | On          | Off | Off | On  |
| H        | On          | Off | Off | Off |



**(2) LED display during standard operation**

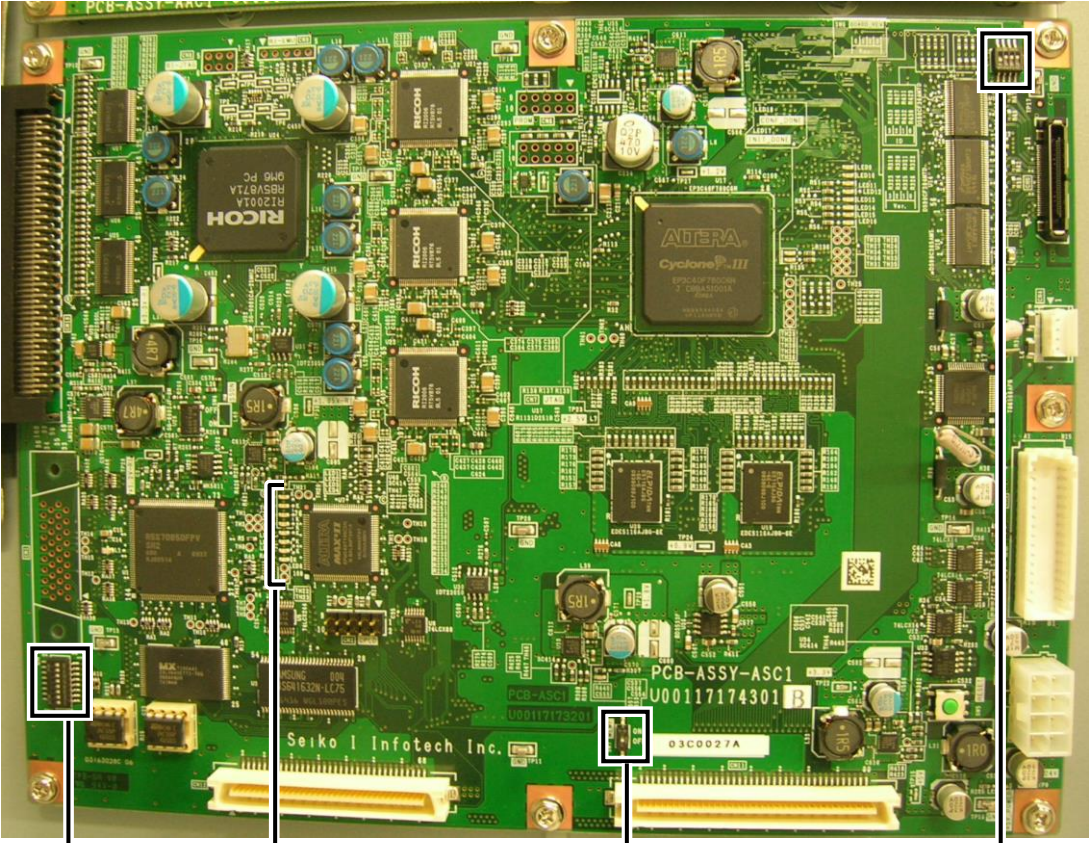
When the check performed at power on completes without any problems, the display for each LED is as shown below.

- : On
- ☆ : Flashing
- : Off
- △ : Lit at a print request, and not lit at no request
- × : Indefinite
- : Non-discussed LED

|   |   |   |   |   |   |   |   |   |   |                                   |                       |
|---|---|---|---|---|---|---|---|---|---|-----------------------------------|-----------------------|
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |   |                                   |                       |
| — | — | — | — | — | — | — | — | — | ○ | LED1 lit                          | AAC1 board on         |
| — | — | — | — | — | — | — | — | ☆ | ○ | LED2 flashing (1 second interval) | Program running       |
| — | ○ | — | — | — | — | — | — | ☆ | ○ | LED8 lit                          | Print request present |

|   |   |   |   |   |   |   |   |   |                                    |                                      |
|---|---|---|---|---|---|---|---|---|------------------------------------|--------------------------------------|
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | LED7 lit, LED6, 5, 4 not lit       | Warming up                           |
| × | △ | ○ | ● | ● | ● | × | ☆ | ○ | LED6 lit, LED7, 5, 4 not lit       | Standby                              |
| × | △ | ● | ○ | ● | ● | × | ☆ | ○ | LED7 and 6 lit, LED5 and 4 not lit | Printing, operation running          |
| × | △ | ○ | ○ | ● | ● | × | ☆ | ○ | LED5 lit, LED7, 6, 4 not lit       | A recoverable error has occurred.    |
| × | × | ● | ● | ○ | ● | × | ☆ | ○ | LED5 and 4 lit, LED7 and 6 not lit | An unrecoverable error has occurred. |
| × | × | ● | ● | ○ | ○ | × | ☆ | ○ | LED4 lit, LED7, 6, 5 not lit       | Soon after starting power save mode  |
| × | × | ● | ● | ● | ○ | × | ☆ | ○ | All LED not lit                    | Power save mode                      |
| ● | ● | ● | ● | ● | ● | ● | ● | ● | LED7, 6, 5, 4 lit                  | Shutting down                        |
| × | × | ○ | ○ | ○ | ○ | × | ☆ | ○ | All LED not lit                    | Shut down                            |
| ● | ● | ● | ● | ● | ● | ● | ● | ● |                                    |                                      |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |                                    |                                      |

# Annex C ASC1 Board Configuration and Display



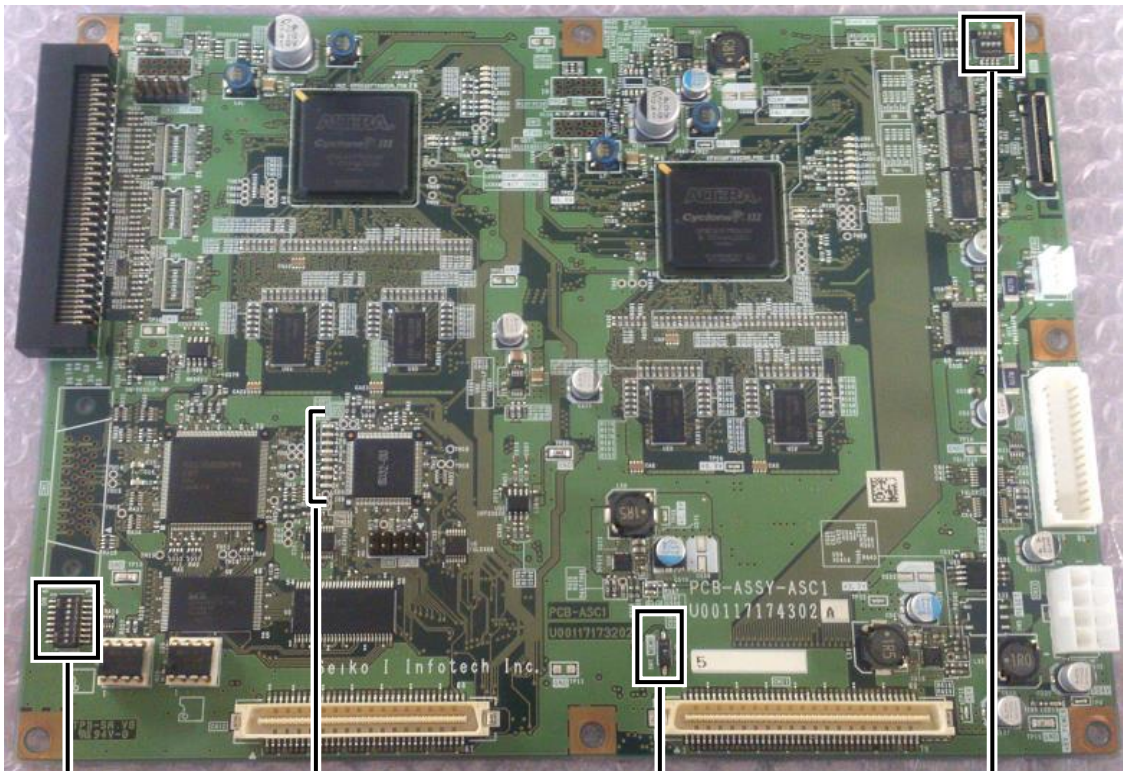
SW2

LED 8 to LED 1

SW7

SW6

The appearance of the board may be as follows depending on the manufacturing date.



SW2

LED 8 to LED 1

SW7

SW6

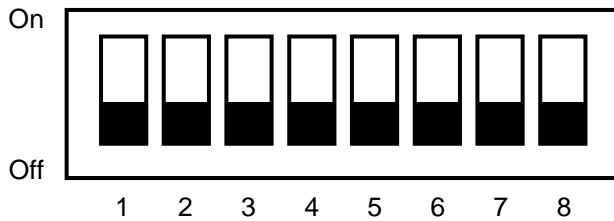


## C.1 DIP Switch Settings

DIP switch settings on the ASC1 circuit board are shown below. When the DIP switch settings are changed, be sure to reset the power to the circuit board in order to apply those changes.

### C.1.1 ASC1 Circuit Board's SW2 Dipswitch Setting

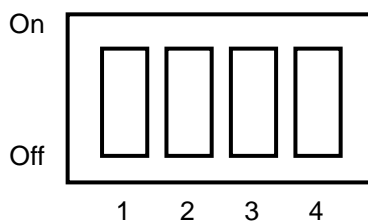
All bits of the SW2 settings should be set to the Off side.



| Bit | Meaning when set to On position             | Meaning when set to Off position     | Normal Position |
|-----|---|--------------------------------------|-----------------|
| 1   | Do not perform shading                      | Perform shading                      | Off             |
| 2   | —   | —                                    | Off             |
| 3   | Motor/Sensor disabled                       | Motor/Sensor enabled                 | Off             |
| 4   | RIP controller disabled                     | RIP controller enabled               | Off             |
| 5   | —   | —                                    | Off             |
| 6   | —   | —                                    | Off             |
| 7   | —   | —                                    | Off             |
| 8   | Do not process data for sensor connections. | Process data for sensor connections. | Off             |

### C.1.2 ASC1 Circuit Board SW6 Dipswitch Setting

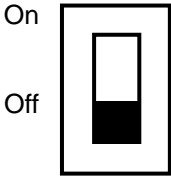
Make sure that the SW6 settings corresponds to the circuit board revision.



| Revision | SW6 Setting |     |     |    |
|----------|-------------|-----|-----|----|
|          | 1           | 2   | 3   | 4  |
| A        | On          | On  | On  | On |
| B        | Off         | On  | On  | On |
| C        | On          | Off | On  | On |
| D        | Off         | Off | On  | On |
| E        | On          | On  | Off | On |
| F        | Off         | On  | Off | On |
| G        | On          | Off | Off | On |
| H        | Off         | Off | Off | On |

**C.1.3 ASC1 Circuit Board's SW7 Dipswitch Setting**

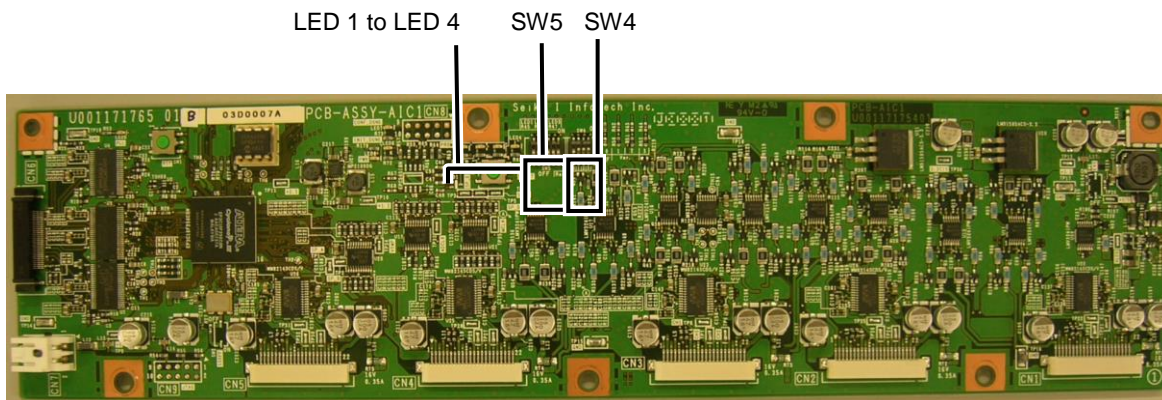
The bit of the DIP switch SW7 should be set to the Off side.



1



# Annex D AIC1 Board Configuration and Display



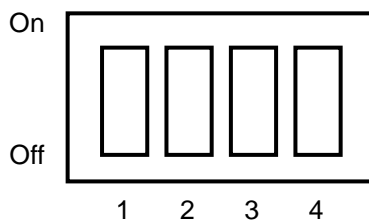
The AIC1 board is a circuit board only found in the LP-1030-MF.

## D.1 DIP Switch Settings

DIP switch settings on the AIC1 circuit board are shown below. When the DIP switch settings are changed, be sure to reset the power to the circuit board in order to apply those changes.

### D.1.1 AIC1 Circuit Board's SW4 DIP Switch Setting

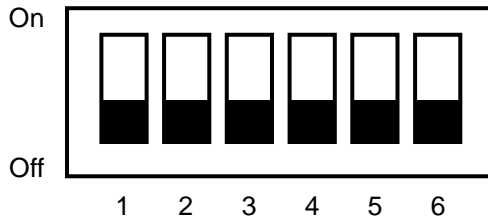
Make sure that the SW4 settings corresponds to the circuit board revision.



| Revision | SW4 Setting |     |     |    |
|----------|-------------|-----|-----|----|
|          | 1           | 2   | 3   | 4  |
| A        | On          | On  | On  | On |
| B        | Off         | On  | On  | On |
| C        | On          | Off | On  | On |
| D        | Off         | Off | On  | On |
| E        | On          | On  | Off | On |
| F        | Off         | On  | Off | On |
| G        | On          | Off | Off | On |
| H        | Off         | Off | Off | On |

### D.1.2 AIC1 Circuit Board's SW5 DIP Switch Setting

All bits of the DIP switch SW5 should be set to the Off side. Do not change them.



| Bit | Meaning when set to On position | Meaning when set to Off position | Normal Position |
|-----|---------------------------------|----------------------------------|-----------------|
| 1   | —                               | —                                | Off             |
| 2   | —                               | —                                | Off             |
| 3   | —                               | —                                | Off             |
| 4   | —                               | —                                | Off             |
| 5   | —                               | —                                | Off             |
| 6   | —                               | —                                | Off             |
| 7   | —                               | —                                | Off             |
| 8   | —                               | —                                | Off             |

## D.2 AIC1 Board LED Display

The following section explains how to read the LED display on the AIC1 board. The status of the LED is represented by the following icons.

- : On
- ☆: Flashing
- : Off

### D.2.1 ASC1 Circuit Board's LED Display

- 1      4
- ○ ● ○      Scanning
- ○ ● ○      Standby

---

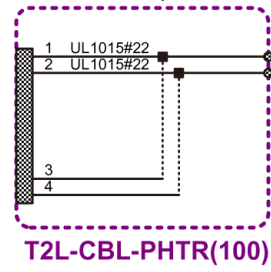
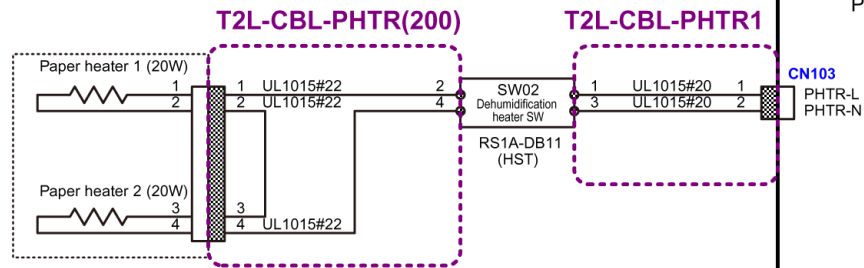
## **Annex E Wiring Schematic**

---

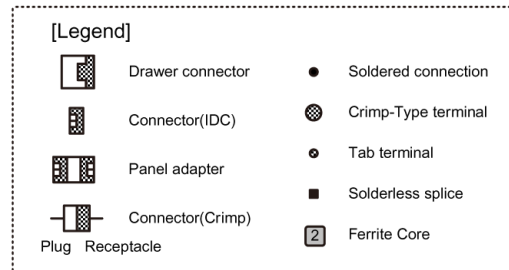
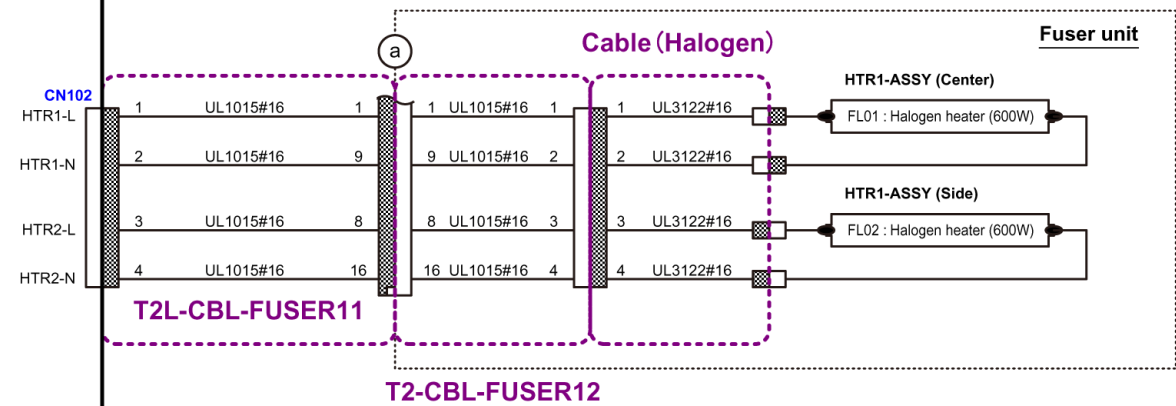
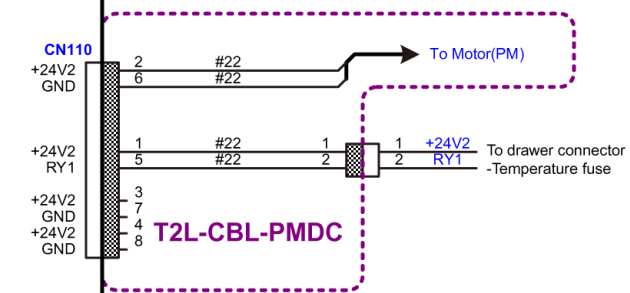
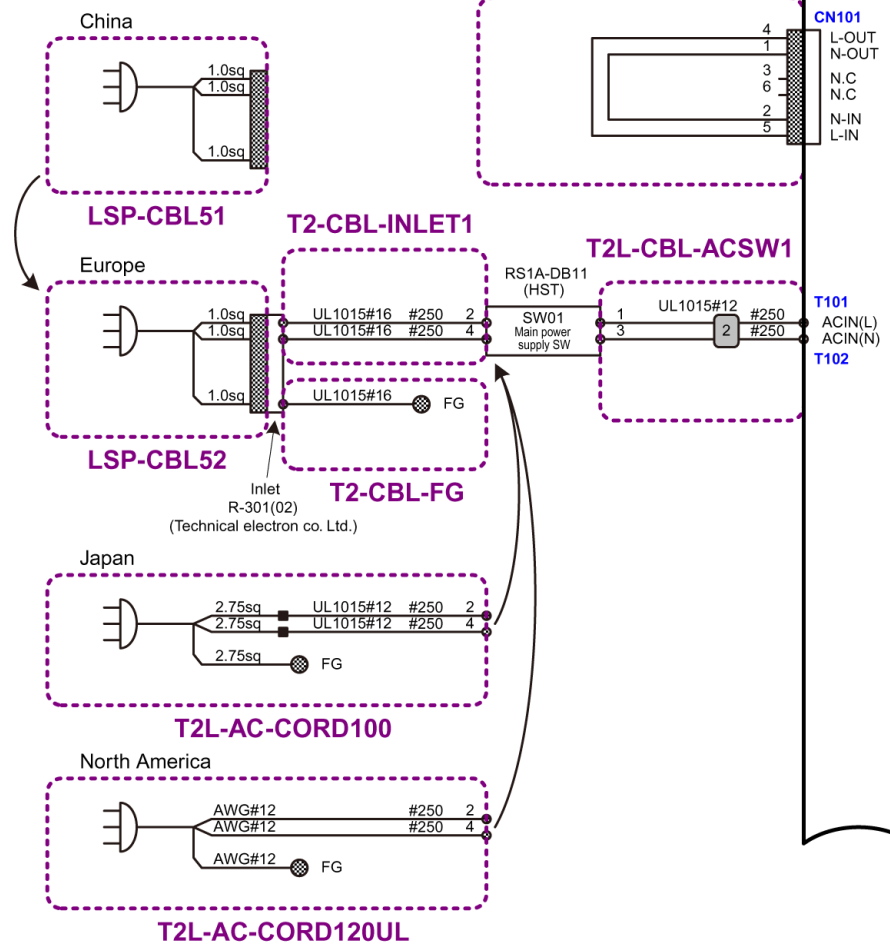
The wiring Schematic of the Printer is as follows.

**Power supply (primary)**

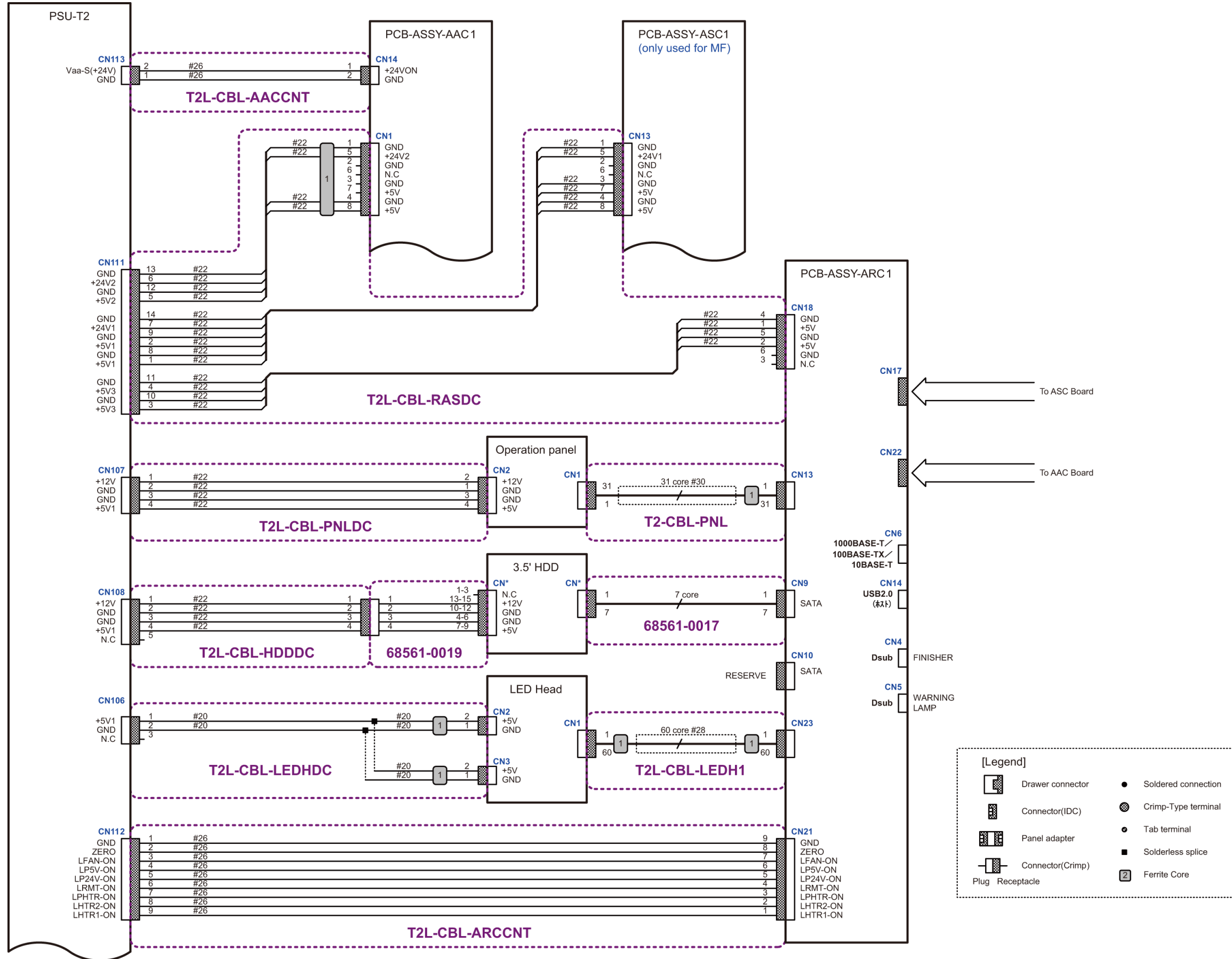
200V systems



100V systems

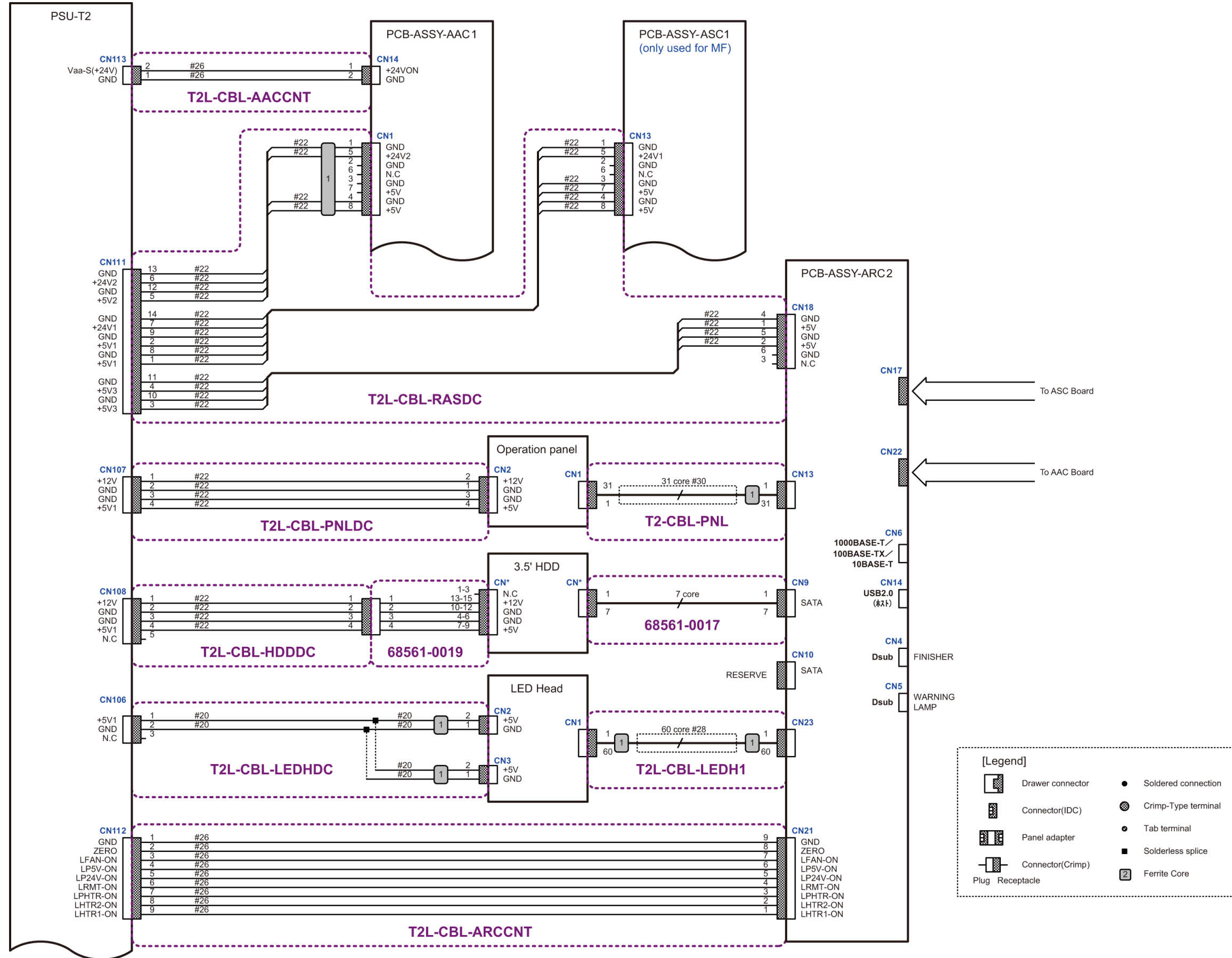


Power supply (low pressure), printers with PCB-ASSY-ARC1

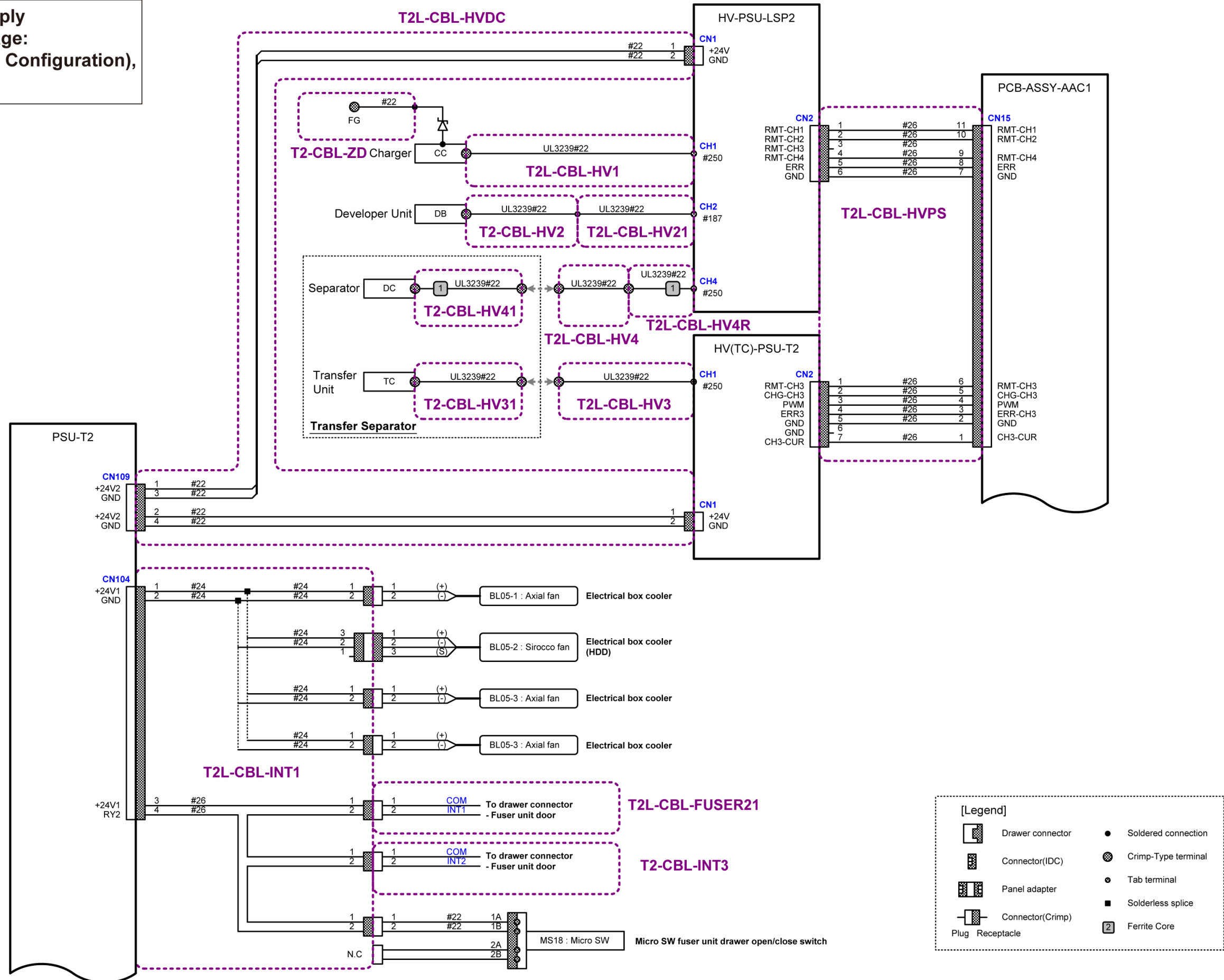




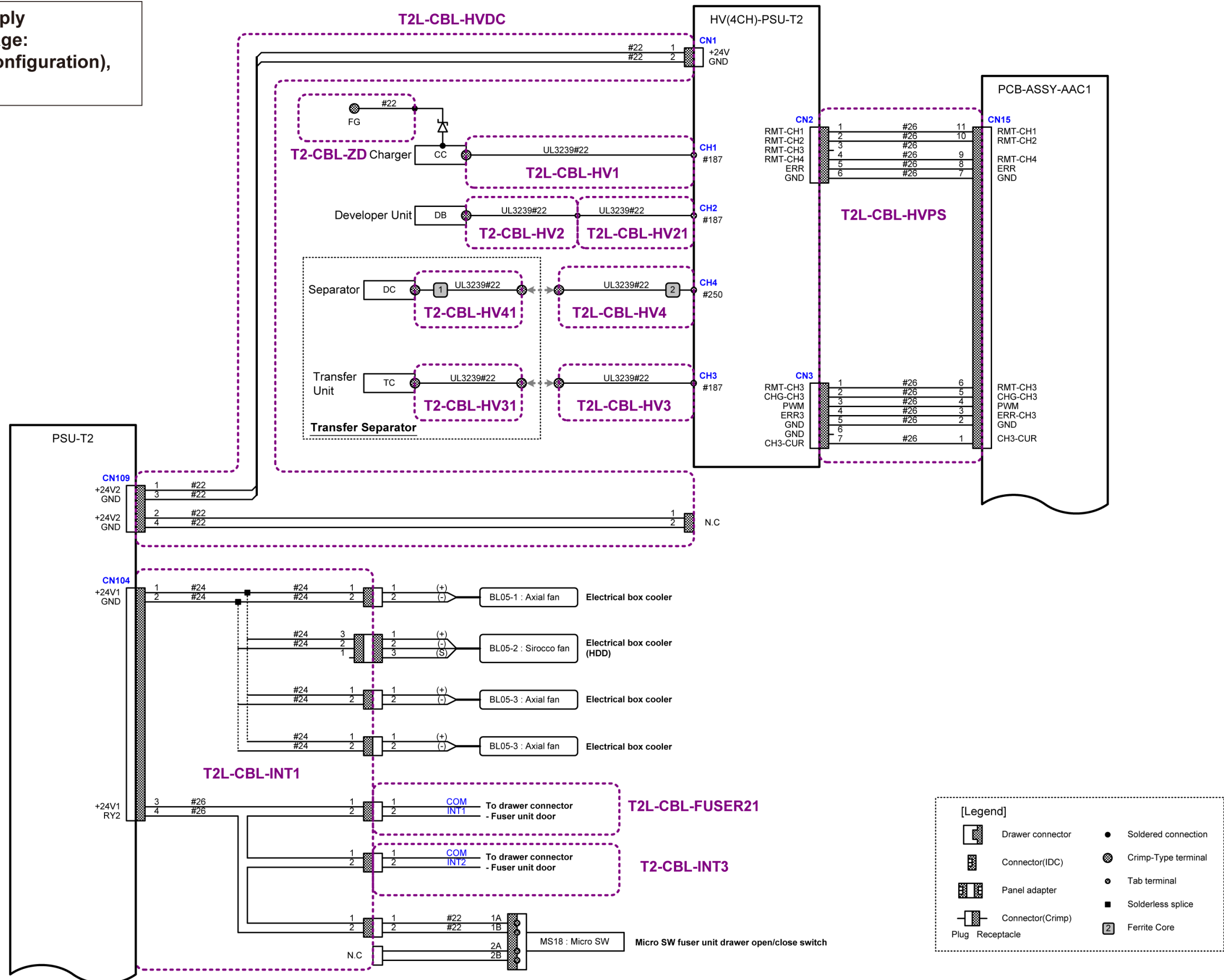
Power supply (low pressure), printers with PCB-ASSY-ARC2

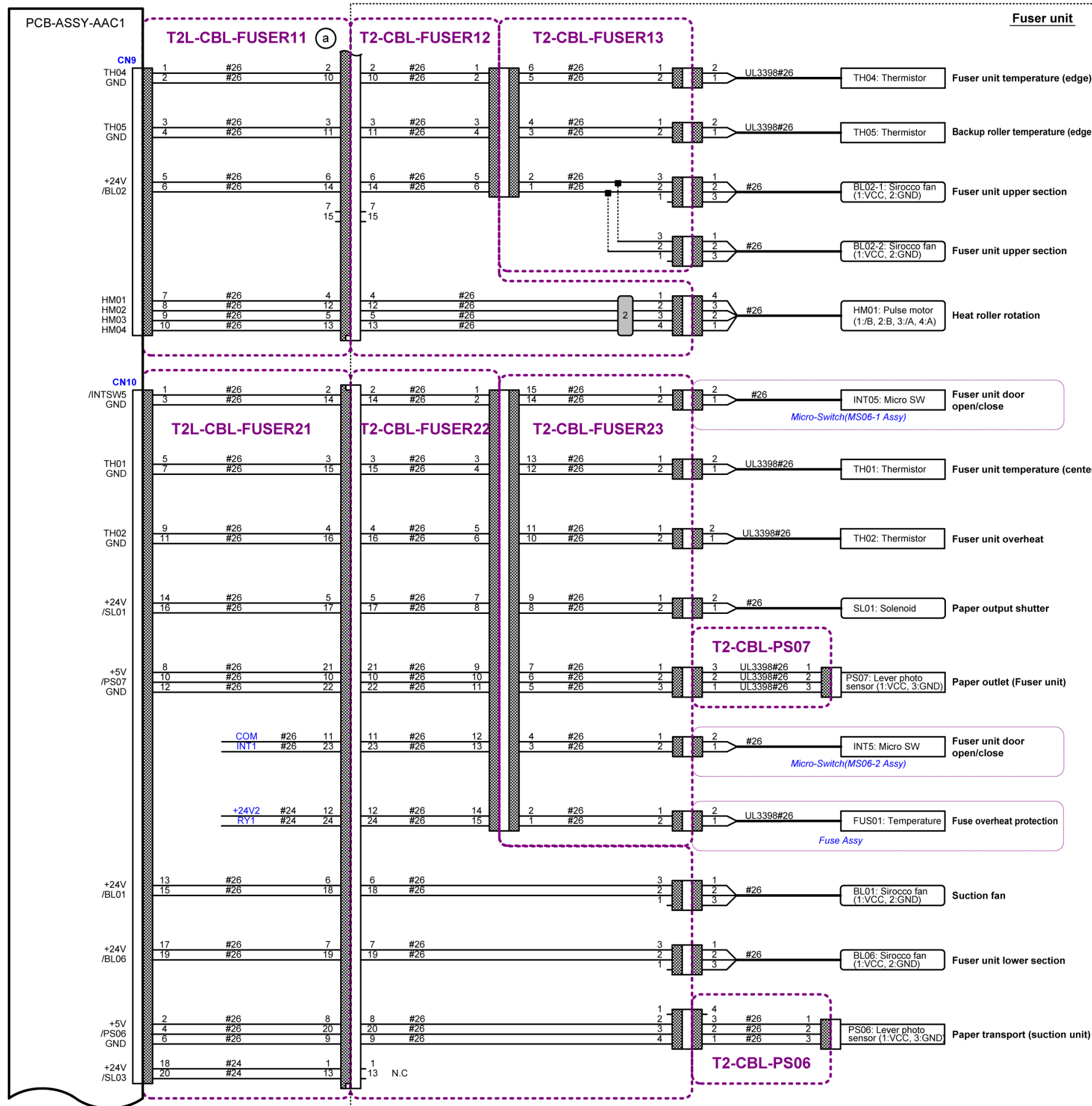


**Power supply  
(High voltage:  
Secondary Configuration),  
Inter lock**



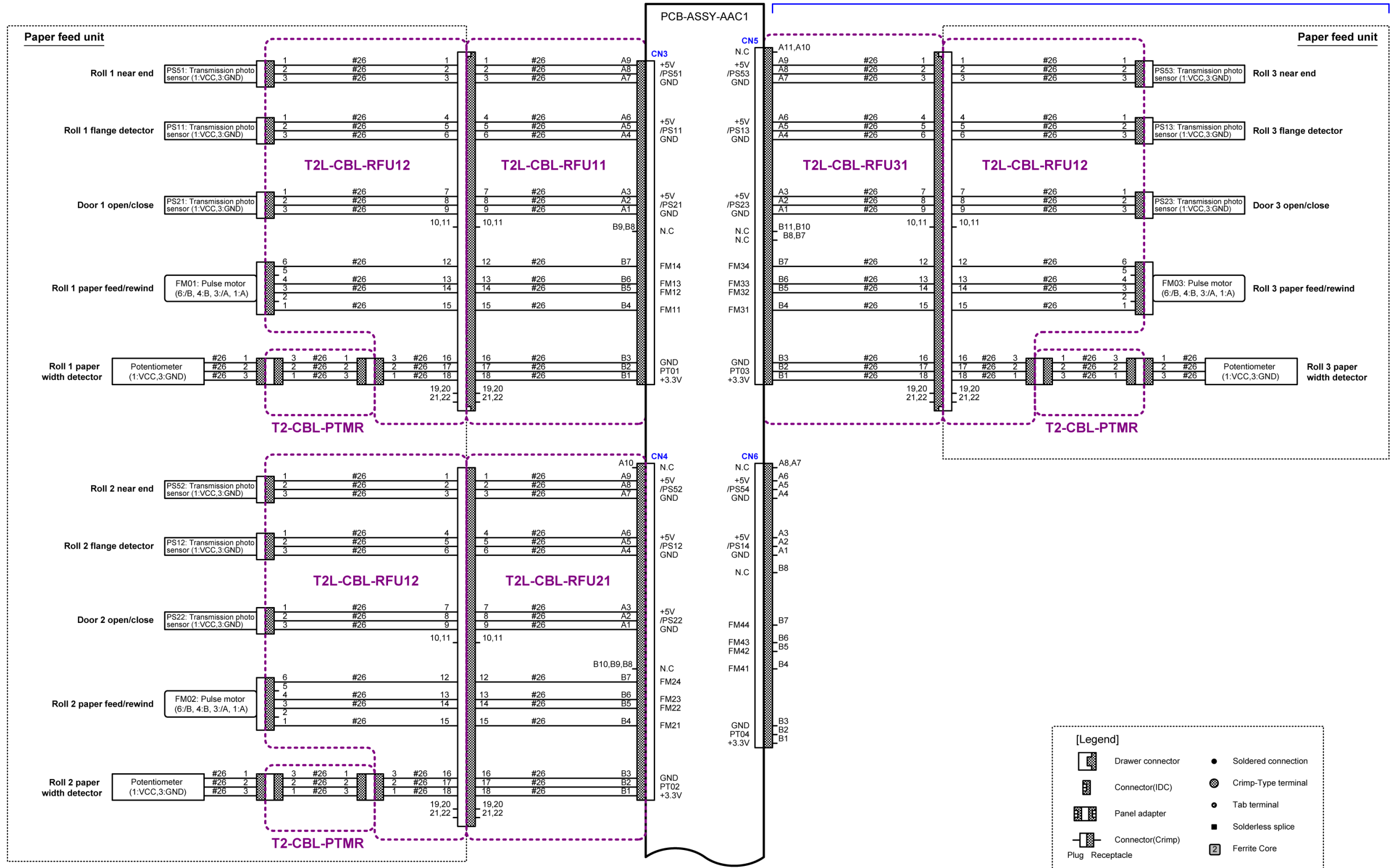
Power supply  
(High voltage:  
Primary Configuration),  
Inter lock



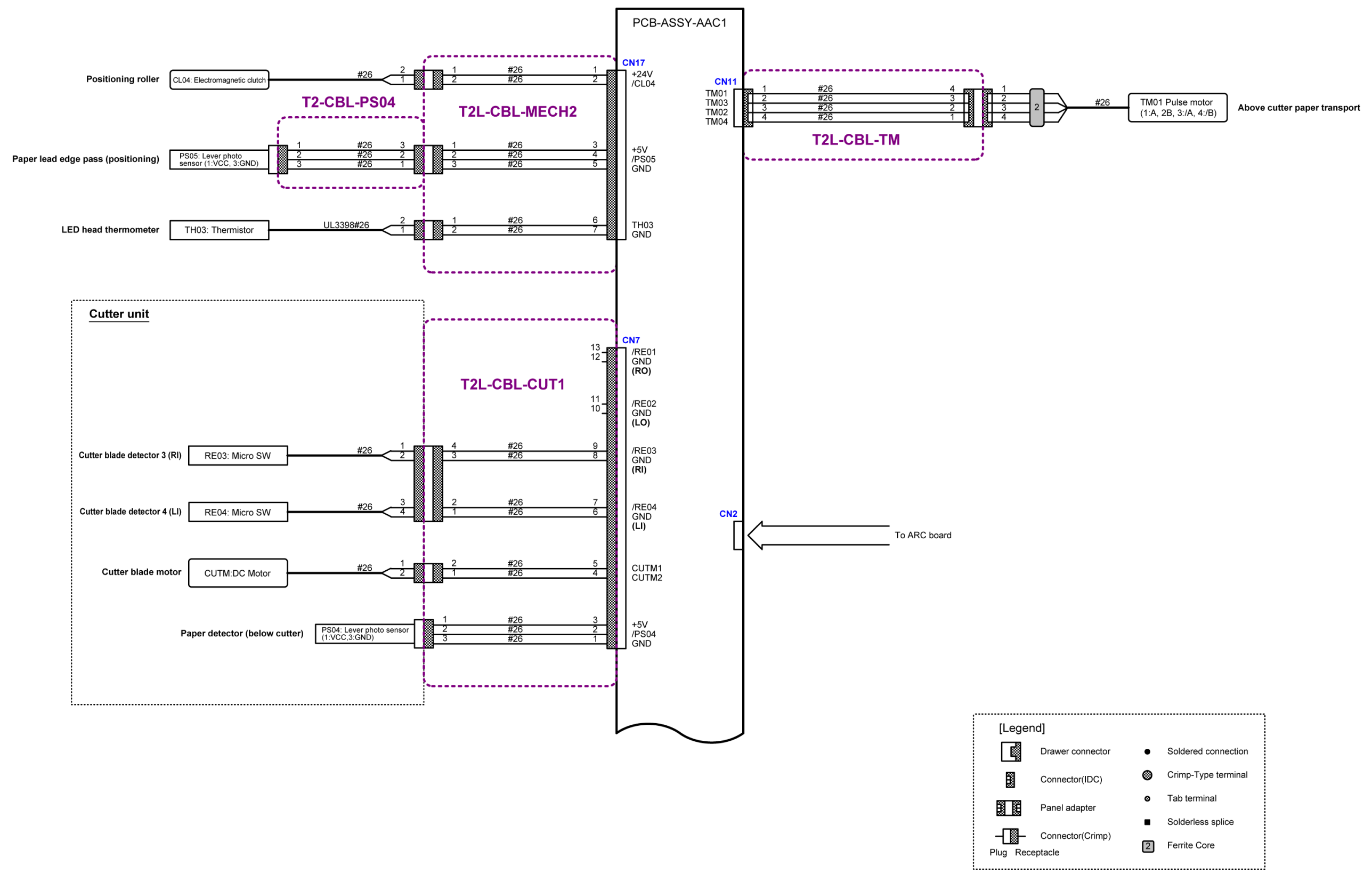


# Paper feed unit section

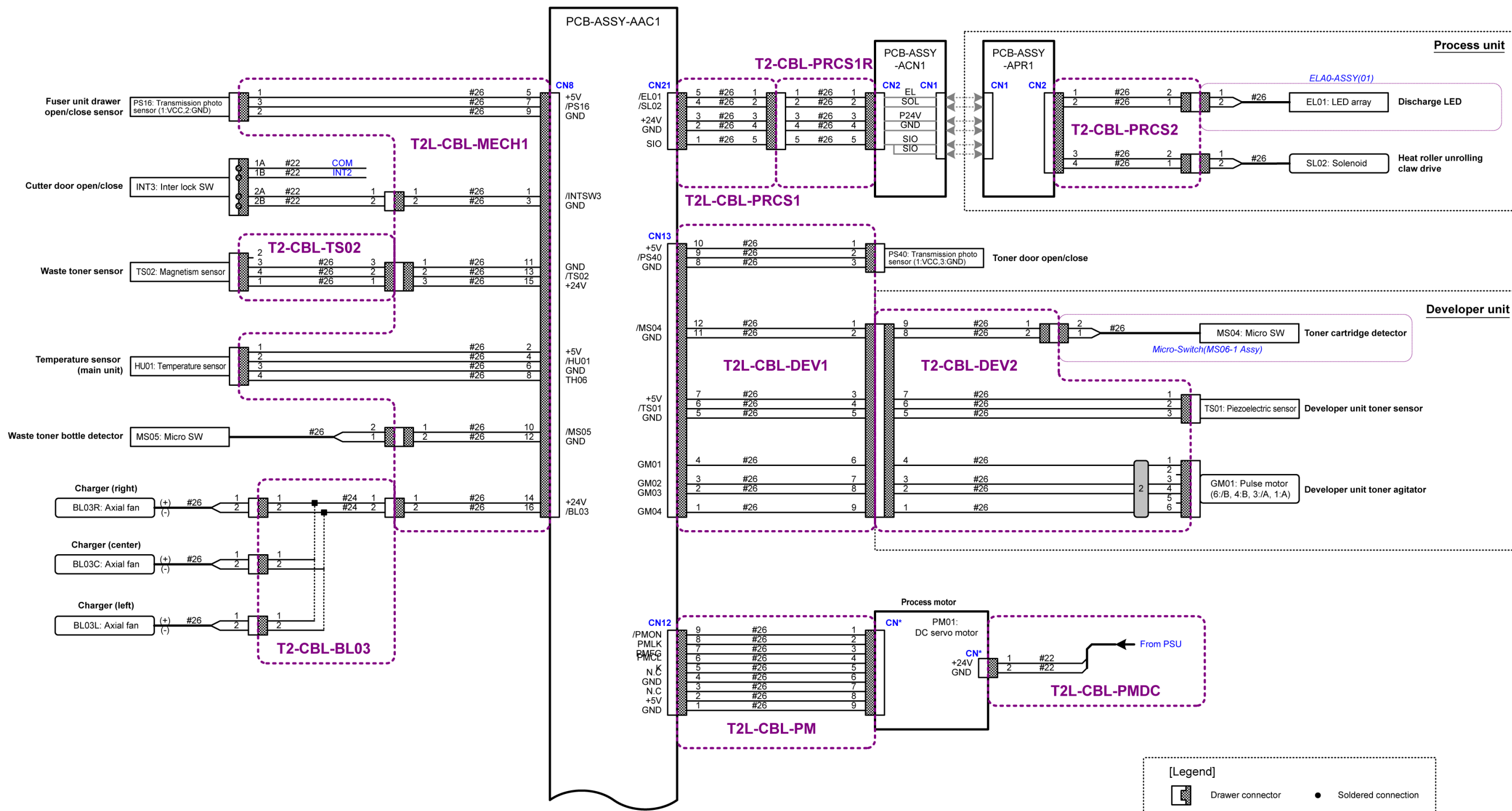
The third column uses only LP-2030.



# Actuator section 1



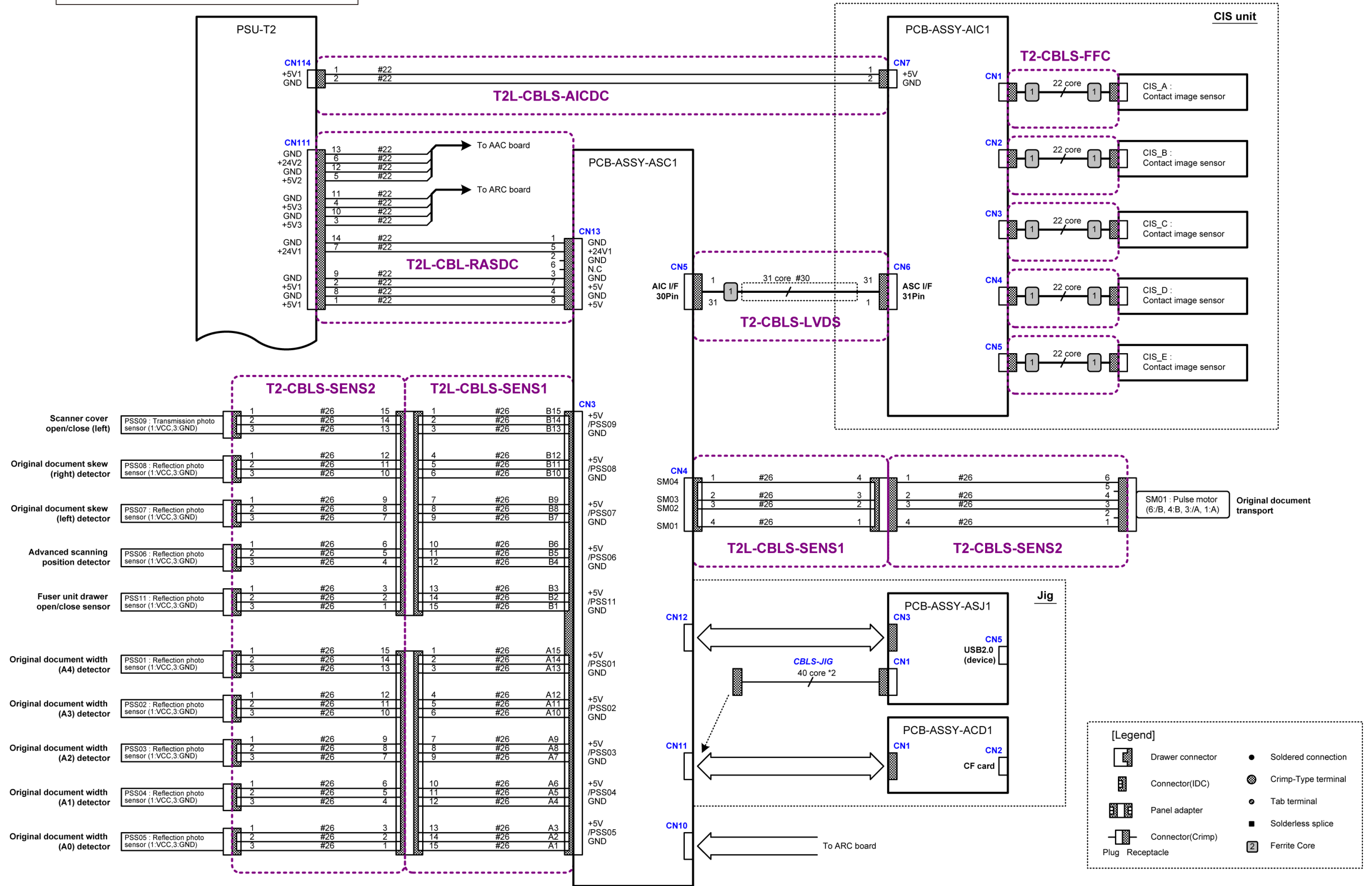
# Actuator section 2



**[Legend]**

|  |                  |  |                     |
|--|------------------|--|---------------------|
|  | Drawer connector |  | Soldered connection |
|  | Connector(IDC)   |  | Crimp-Type terminal |
|  | Panel adapter    |  | Tab terminal        |
|  | Connector(Crimp) |  | Solderless splice   |
|  | Plug Receptacle  |  | Ferrite Core        |

# Scanner section (only for LP-1030-MF)





# Annex F Timing Diagram

■ Two continuous prints (print A sequence)

